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RADIORECEIVING VALVES

TUBES RÉCEPTEURS

TUBOS RECEPTORES

EMPFÄNGERRÖHREN

LAMPY ELEKTRONOWE ODBIORCZE

ПРИЕМНО-УСИЛИТЕЛЬНЫЕ ЛАМПЫ

VALVOLE ELETTRONICHE RICIVENTI

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SEMICONDUCTOR DEVICES AND VARIOUS ELECTRON DEVICES

DISPOSITIFS À SEMI-CONDUCTEURS ET TUBES ÉLECTRONIQUES DIVERS

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ПОЛУПРОВОДНИКОВЫЕ И РАЗЛИЧНЫЕ ЭЛЕКТРОННЫЕ ПРИБОРЫ

APPARECCHI SEMICONDUTTORI E VALVOLE ELETTRONICHE SPECIALI

PIOTR MIKOŁAJCZYK • BOHDAN PASZKOWSKI

ELECTRONIC UNIVERSAL VADE-MECUM

ELECTRON VALVES AND SEMICONDUCTOR DEVICES

TUBES ÉLECTRONIQUES ET DISPOSITIFS À SEMI-CONDUCTEURS

TUBOS ELECTRÓNICOS Y DISPOSITIVOS SEMICONDUCTORES

ELEKTRONENRÖHREN UND HALBLEITERELEMENTE

LAMPY ELEKTRONOWE I PRZYZRĄDY PÓŁPRZEWODNIKOWE

ЭЛЕКТРОННЫЕ ЛАМПЫ И ПОЛУПРОВОДНИКОВЫЕ ПРИБОРЫ

VALVOLE ELETTRONICHE ED APPARECCHI SEMICONDUTTORI

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FOREWORD

Electronics has been playing an ever-growing role not only in science and technology but also in the life of modern societies in general; new achievements, new applications and entirely new fields are being continually made known to us.

Sixty years ago electron valves were unknown, whereas at present every inhabitant of our globe is "serviced" on the average by as many as ten electron valves and transistors; this figure results from a calculation of the ratio of electron devices produced and employed in diverse radio and television equipment, telephone amplifiers, industrial automatics, electronic computers, etc., to the number of the Earth's inhabitants.

The first electron device to play an important role in radio engineering was the vacuum valve, to-day known as the detection diode, developed in 1904 by Fleming. A number of its qualities were superior to those of the detectors then in use which were not very sensitive and ultimately proved unstable. The sensitivity of Fleming's vacuum valve was, however, still inadequate. It was not until 1906, when Lee de Forest developed his control grid valves, the forerunners of the present-day triode, that the break-through took place in radio engineering. These valves, at that time called "audions", functioned not only as detectors; they also amplified weak signals, thus permitting a marked improvement in the sensitivity of the receiving station and an extension of the range and reliability of radiotelegraphy. The invention of the triode also enriched the theory of circuits by a very important new active element which opened up enormous prospects for telecommunication systems and many others.

At the same time work was carried on by laboratories in many countries in order to improve electron valves. An auxiliary grid was introduced into the triode, thus inaugurating the development of multi-grid valves. Electronic systems were enriched by a new technique, i.e. the super-heterodyne reception of signals, which made possible further improvements in the sensitivity and selectivity of radio reception.

In the fourth decade of the present century the production of multigrid valves (above all pentodes) was started; the power range of electron valves was extended, and their economy and efficiency were considerably improved. The range of frequencies involved in receiving and transmitting valves shifted towards shorter wave-lengths.

World War II brought about a basic break-through in electronics; the war promoted electronics from the role of an auxiliary branch in radio engineering to the rank of an independent field of science and technology.

The results of research intensively conducted in closely guarded laboratories, immediately before and during the war, were taken over by the war industry and used in the construction of new communications, navigation and radiolocation equipment which was put into the hands of thousands of specially trained military experts. Microwave valves such as

magnetrons, and klystrons; miniature triodes and pentodes; special valves such as thyratrons; T-R discharge switches and improved kinescopes, came into use; new systems and circuits based on the development of impulse techniques for radiolocation were developed; very high-frequency techniques and pulse techniques were steadily improved in connection with the development and perfection of navigation systems, and, first of all, radar. Radio engineering and electronic components were greatly improved as regards parameters and technology, great progress being made in miniaturizing them and assuring their reliability.

In the past years further achievements have been seen. It should be remembered that the important work of Bardeen and Brattain led to the construction of transistors in 1948 and opened up a completely new production field concerned with semiconductor devices.

As in the case of electron valves, considerable developments of crystal diodes and transistors — from the first point-type to improved junction-types, — from low power limiting values of over a dozen milliwatts to several watts, and from low to high frequencies — have been observed.

Eventually, as a result of intensive investigations, new types and varieties of semiconductor devices have appeared. The crystal diode group includes Zener-diodes, Esaki-diodes, or the so-called tunnel diodes, "avalanche" diodes used in fast-switching circuits, and junction diodes. Similarly, transistors of various technological junction designs, of different frequency and power characteristics have been developed.

In recent years a technology of designing $p-n$ multiple junctions has been mastered and, in consequence, new types of semiconductor devices have been produced offering unlimited possibilities of designing complete functional blocks now known as "Microelectronics".

These developments have been accompanied by those in semiconductor devices sensitive to stimuli other than electric voltage, viz. photodiodes, phototransistors, thermistors, halltrons, etc.

The enormous significance of electronics in the scientific and economic life of every country, resulting from its numerous applications, makes it necessary to work out a directory covering characteristic data of as large a number of up-to-date electron devices as possible, described in an efficient manner.

At present about 1,000 firms in the whole world are engaged in the production of electron valves and semiconductor devices. Each of these firms applies names and markings of its own to its devices, thus permitting the determination of each type and its essential parameters.

As a result of this trend, an enormous number of names and marks have appeared for various types of electron devices which bring about considerable difficulties to the user who is unable to avail himself of them without a special key for decoding such names and marks.

To enable the user to move about in this jungle of markings, a number of leading world firms have made a mutual arrangement to place the symbols and names of various types of electron devices into an orderly system.

In the United States, a special method has been adopted to mark electron valves of the receiving type in such a way that the first figure denotes the approximate heater voltage, further symbols (one or two) being reserved for appropriate letters to indicate each consecutive type of valves, the last figure indicating the number of electrodes that are led out. In Europe, another method of marking has been adopted for such valves. Here, the first letter denotes, in a conventional manner, the heater voltage, the second letter the kind of valve, any further figures denoting consecutive improved types of each particular valve. In most cases, such types differ in overall dimensions of the bulb and in the arrangement and type of sockets.

Irrespective of this method, a number of countries with advanced techniques have adopted other markings. Here, the type of valve is marked with a consecutive register number, e.g. 5702, which does not inform the user about the type of valves, let alone its characteristic data.

High-power electron valves, i.e. those of the transmitting type, and microwave valves, etc., are marked in an individual way by every firm.

Apart from this, a number of countries follow a policy of standardization and type markings specific for each individual country because of the great number of devices produced. In Great Britain, for example, there is a series of markings beginning with the letters CV; in the United States — with VT; in Germany — with RV and in Eastern Europe, the markings now being introduced consist of the letter E and a four-figure number, the first figure being seven, e.g. E7026.

Despite all those attempts to simplify the marking methods, there are in the world about 50,000 different markings. In addition, electronic plants and equipment (together with electron devices produced in a given country) are distributed, practically all over the world, so it can be said with no exaggeration whatsoever, that no country in the world is capable of producing all types of electron valves and semiconductor devices being currently employed for electronic plant and equipment on its territory.

As time goes on, such plant and equipment require faulty electron valves or semiconductor devices to be replaced. In such cases, the user encounters enormous difficulties in determining the characteristic data of the device to be replaced and also in finding out an equivalent type.

It is then necessary to have a very extensive specialist and guidance literature available, in some cases from as many as nearly a hundred producers, the average user being often unable to afford this.

Such being the position, a number of complex directories grouping electron valves and semiconductor devices produced by various firms have been worked out, their main disadvantage lying in the fact that the amount of information for each type is very scanty and includes a few parameters only, such information being insufficient for the reader and user of these directories. Moreover, electron devices in such directories are arranged according to producers' marking codes, i.e. alphabetically or numerically, which system causes insurmountable difficulties in finding types with similar characteristics, where the marking systems differ.

In this country, the difficulties connected with looking for an equivalent electronic device are particularly acute. Poland's geographical and economic conditions tend to make for a very large number of different types of electron valves and semiconductor devices. In this situation, the authors of the "Electronic Universal Vade-Mecum" have decided to arrange the directory in a manner which would obviate the necessity of obtaining and perusing numerous producers' catalogues and guides.

For this purpose, the authors have studied about 15,000 types of electron devices and classified them into a number of groups. Each group includes similar devices irrespective of their marking and production origin.

The results obtained were interesting and promising, for it appeared that a number of firms in the world produced identical electron valves and semiconductor devices with entirely different markings. Moreover, it appeared, for example, the same electron valves, varying only slightly in outer appearance, had quite different markings.

The group arrangement in the "Electronic Universal Vade-Mecum" has been devised according to a range principle, i.e. each group includes electron devices differing only insignificantly from those placed in neighbouring groups. Therefore, having one type in mind, any user of the vade-mecum can easily find all other types of identical or similar characteristics produced by various firms.

Each group includes the following data: rated data, typical static data, dynamic (work) data, limiting values, system of socket and connection to circuit, envelope dimensions and certain electronic circuits particularly recommended for each individual group.

Each group includes information pertaining to devices of different production periods. Such periods are distinguished by different type-print. Electron devices (mainly electron valves) dating from an early production period, are marked in italics. Commonly used devices are marked in ordinary type. Bold type is used for the most up-to-date and commonly used electron valves and semiconductor devices with particularly advantageous parameters.

The vade-mecum is provided with an index enabling the reader to find, quickly and easily, an electron device of a type and its equivalents, as well as find technical data by the designers of electronic circuits.

The arrangement of the "Electronic Universal Vade-mecum" does away, to a certain extent, with the necessity of having producers' catalogues and guides.

The authors of the vade-mecum did not include all types of electron devices available. The vade-mecum does not provide any information concerning special video analysing valves, such as image iconoscopes, image orthicons, vidicons, etc., very high-power transmitting valves, storage tubes, ballast tubes, and other similar types.

It is hoped that the "Electronic Universal Vade-mecum" will serve its purpose and will be a useful source of information in the everyday work of electronic engineers.

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VORWORT

Die Elektronik spielt nicht nur in der Wissenschaft und Technik sondern auch im Leben der modernen Gesellschaft — als Ganzes gesehen — eine immer bedeutendere Rolle. Fortwährend hören wir von neuen Errungenschaften, Anwendungen und der Entdeckung neuer Wissenszweige auf diesem Gebiet.

Während vor 60 Jahren die Elektronenröhre noch unbekannt war, wird gegenwärtig jeder Erdbewohner durchschnittlich von 10 Elektronenröhren und Transistoren „bedient“; diese Ziffer wurde auf Grund der Anzahl der in der ganzen Welt erzeugten elektronischen Bauelemente, die in den verschiedensten Rundfunkempfängern, Fernsprechverstärkern, in der Industrieautomatik, den elektronischen Ziffernrechnern usw. eingebaut sind, im Verhältnis zur Anzahl der auf der Erde lebenden Menschen berechnet.

Das erste elektronische Bauelement, das die Entwicklung der Elektronik nachdrücklich beeinflusste, war die im Jahre 1904 von Fleming geschaffene Vakuumröhre, unsere heutige Detektordiode. Sie besaß im Vergleich zu den damals in der Radiotelegraphie benutzten Detektoren, die zu wenig empfindlich und zu instabil waren, wesentliche Vorteile. Trotzdem war die Empfindlichkeit der Röhre von Fleming hinsichtlich der gestellten Anforderungen noch nicht ausreichend. Erst die von Lee de Forest im Jahre 1906 gebaute Röhre mit Steuergitter, der Prototyp der heutigen Triode, rief eine Umwälzung in der Rundfunktechnik hervor. Diese Röhre — damals Audionröhre genannt — wirkte nicht nur als Detektor, sie ermöglichte auch die Verstärkung schwacher Signale, wodurch die Empfindlichkeit der Empfangsstation erhöht wurde. Damit konnte die Reichweite vergrößert und die Betriebssicherheit der drahtlosen Telegraphie erhöht werden, ohne die Leistung der Sender erhöhen zu müssen.

Gleichzeitig wurde durch die Erfindung der Triode die Schaltungstheorie durch ein neues, sehr wichtiges aktives Bauelement bereichert, das nicht nur für die Schaltungen von Nachrichtenverbindungen sondern auch für die verschiedensten andern Verwendungszwecke ungeheure Perspektiven eröffnete.

Gleichzeitig wurde in vielen Laboratorien verschiedener Länder an der Verbesserung der Elektronenröhren gearbeitet. Die Triode wurde mit einem Hilfsgitter ausgerüstet, wodurch die Entwicklung der Mehrgitterröhren eingeleitet wurde. Die elektronischen Schaltungen wurden durch die Methode des sogenannten Superhetempfangs von Signalen bereichert, die es gestattete, die Empfindlichkeit und die Selektivität des Rundfunkempfangs noch weiter zu verbessern.

In den vierziger-Jahren wurde die Erzeugung von wesentlich verbesserten Mehrgitterröhren vor allem der Pentoden aufgenommen; die Röhrenleistung wurde vergrößert sowie deren Wirtschaftlichkeit und Wirkungsgrad verbessert. Der Frequenzbereich sowohl der Empfangsröh-

ren wie auch der Senderröhren verschob sich in Richtung der Kurzwellen.

Der zweite Weltkrieg rief eine grundlegende Umwälzung der Elektronik hervor und erhob diese von einem Nebenzweig der Rundfunktechnik zum Rang eines unabhängigen Gebietes der Wissenschaft, Technik und der Industrie.

Die Ergebnisse der während der letzten Vorkriegsjahre sowie auch im Laufe des Krieges in streng bewachten Laboratorien durchgeführten Forschungsarbeiten wurden von der Kriegsindustrie ausgenützt und zur Schaffung von neuen Fernverbindungs-, Peilungs- und Funkortungsgeräten verwendet, die einer neuen Gruppe von militärischen Spezialisten zur Verfügung gestellt wurden. Es kommen neue Röhren in Gebrauch: Mikrowellenröhren wie Magnetrons, Klystrons, Miniaturtrioden und -pentoden sowie Spezialröhren, wie Thyratrons, Sende-Empfangsschalter, verbesserte Bildröhren; es entstehen neue Schaltungen und Systeme, die auf der schon für die Anforderungen der Funkortung entwickelten Impulstechnik beruhen. Die Hochfrequenztechnik sowie die Impulstechnik werden, im Zusammenhang mit der Entwicklung und Verbesserung der Peilungssysteme, vor allem des Radars, weiter vervollkommen. Die Bauteile der Rundfunk- und Elektronengeräte weisen sowohl hinsichtlich ihrer Kennwerte als auch der Technologie ihrer Erzeugung wesentliche Fortschritte auf, bei gleichzeitiger bedeutender Verringerung ihres Raumbedarfs und Erhöhung ihrer Zuverlässigkeit.

Die letzten fünfzehn Jahre bringen weitere Erfolge, deren Zeugen wir sind. Es sei hier der bedeutenden Arbeiten von Bardeen und Brattain gedacht, die im Jahre 1948 zur Verwirklichung des Transistors führten und hierdurch das Entstehen eines neuen Gebiets der Technik und zwar der Halbleiterbauelemente einleiteten.

Ähnlich wie bei den Elektronenröhren beobachten wir die Entwicklung der Kristalldioden und der Transistoren von den ersten Typen der Spitzen- bis zu den verbesserten Flächentransistoren, von kleinen Leistungen von einigen Milli watt bis zu einigen Watt und später über dreissig Watt, sowie von niedrigen bis zu hohen Frequenzen.

Schliesslich treten auf Grund von in starkem Masse vorwärtsgetriebenen Forschungsarbeiten neue Typen und Abarten von Halbleiterbauelementen in die Erscheinung. Auf dem Gebiet der Kristalldioden entstanden: die Zener-Diode, die Esaki-Diode, die sogenannte Tunnel diode, die Lawinendiode, die in Schnellschaltkreisen Verwendung findet, und die Hochleistungsflächendiode. In ähnlicher Weise werden Transistoren entwickelt, die durch verschiedene Technologie der Ausführung der p-n Schichten, Frequenzkennlinien und Leistungscharakteristiken gekennzeichnet sind.

In den letzten Jahren gelang es, die Technologie mehrfacher p-n Schichten zu beherrschen; dies führte zur Entstehung neuer Halbleitertypen und eröffnete fast unbegrenzte

Möglichkeiten für die Schaffung ganzer Bauelementegruppen, die in einem hermetisch abgeschlossenen Gehäuse zusammengefasst sind.

Es sei hier auch erwähnt, dass gleichzeitig mit dieser Entwicklung Halbleiterbauelemente entstanden, die auf andere Erreger als die elektrische Spannung ansprechen, und zwar: Fotodioden, Fototransistoren, Heissleiterwiderstände, Halotrone usw.

Die ungeheure Bedeutung der Elektronik im wissenschaftlichen und wirtschaftlichen Leben jedes Landes, die sich aus so vielen Anwendungsmöglichkeiten ergibt, macht die Veröffentlichung von Katalogen notwendig, in denen in übersichtlicher und handlicher Form alle Eigenschaften und Kennwerte einer möglichst grossen Zahl von elektronischen Bauelementen zusammengestellt sind.

Zur Zeit werden Elektronenröhren und Halbleiterbauelemente von fast tausend Firmen auf der ganzen Welt hergestellt. Jede dieser Firmen gibt den von ihr hergestellten Typen eine Bezeichnung und Benennung, aus denen sich eindeutig ihre Art und ihre grundlegenden Kennwerte ergeben.

Dadurch entstand eine ungeheure Anzahl von Benennungen und Bezeichnungen der verschiedensten Typen von elektronischen Bauelementen. Der Benutzer stösst auf grosse Schwierigkeiten, da es in der Praxis ohne Spezialkenntnisse fast unmöglich ist, diese Benennungen und Bezeichnungen aufzuschlüsseln, um den richtigen Typ zu wählen.

Eine Reihe von Weltfirmen hat nun, um dieses Knäuel von Bezeichnungen zu entwirren, ein gegenseitig verbindliches Abkommen getroffen, das die Systematisierung der Bezeichnungen und Benennungen der verschiedenen elektronischen Bauelemente zum Ziel hat.

In den Vereinigten Staaten ging man zum Beispiel zu einer Methode der Röhrenbezeichnung über, bei der die erste Ziffer den angenäherten Wert der Heizspannung bedeutet, die weiteren Stellen — eine oder zwei — sind für die entsprechenden Buchstaben der zeitmässig der Reihe nach hergestellten Röhrentypen vorgesehen, während die letzte Ziffer die Anzahl der nach aussen führenden Elektroden bedeutet. In Europa wurde für diese Art von Röhren eine andere Bezeichnungsmethode eingeführt. Der erste Buchstabe bedeutet nach einem angenommenen Code die Heizspannung, der zweite die Art der Röhre und die weiteren Ziffern geben der Reihe nach die Entwicklungstypen dieser Röhre an; hierbei unterscheiden sich diese Typen durch die Aussenabmessungen der Kolben und die Art des Sockels.

Unabhängig davon wurden in den führenden Industrieländern auch andere Arten der Bezeichnung eingeführt; der Röhrentyp wurde einfach mit einer laufenden Registrierungsnummer bezeichnet, z.B. 5702, die dem Benutzer über die Eigenschaften der Röhre keinerlei Hinweise gibt, ganz abgesehen von der Übermittlung von Kennwerten.

Elektronenröhren grösserer Leistung, d.h. Senderöhren, wie auch Kurzwellenröhren usw. werden von jeder Firma nach einer individuell gewählten Methode gekennzeichnet.

Ausserdem entstanden in einer Reihe von Ländern infolge der grossen Anzahl der erzeugten Bauelemente gewisse Standardisierungsbestrebungen sowie für das betreffende Land spezifische Typenbezeichnungen. In Grossbritannien z.B. beginnt die Serie der Bezeichnungen mit den Buchstaben CV, in den USA mit den Buchstaben VT, in Deutschland mit RV, während in den Ländern der Ost-

europa Bezeichnungen eingeführt werden, die aus dem Buchstaben E und vierstelligen Zahl bestehen, deren erste Ziffer eine 7 ist, z.B. E7026.

Trotz aller dieser Vereinfachungsversuche gibt es auf der Welt mehr als fünfzigtausend verschiedene Bezeichnungen. Wenn man dem noch hinzufügt, dass die elektronischen Anlagen und Apparate, die in einem Land hergestellt werden, samt den in diesem Land hergestellten elektronischen Bauelementen fast auf der ganzen Welt in Gebrauch sein können, kann man ohne Übertreibung feststellen, dass kein Land der Welt imstande ist, alle Elektronenröhren und Halbleiterbauelemente herzustellen, die sich in den Anlagen und elektronischen Geräten befinden, die in seinem Land in Gebrauch sind.

Diese Anlagen erfordern im Laufe der Zeit einen Austausch der abgenutzten Elektronenröhren oder Halbleiterbauelemente. Unter diesen Umständen bereitet es dem Benutzer ungeheure Schwierigkeiten zuerst die Kennwerte des abgenutzten Bauelements zu bestimmen und dann einen Ersatztyp zu finden.

Man braucht hierzu einen umfassenden Bestand an Katalogen und Informationsmaterial von manchmal fünfzig bis hundert Herstellerwerken. Es ist jedoch für den Durchschnittsbenutzer nicht immer möglich, sich ein derartiges Katalogwerk zu beschaffen, besonders im Hinblick auf die damit verbundenen Kosten.

Diese Sachlage führte dazu, dass eine Reihe von Sammelkatalogen geschaffen wurden, die die Elektronenröhren und Halbleiterbauelemente, die von verschiedenen Firmen hergestellt werden, in Gruppen zusammenfassen. Jedoch haben diese Kataloge den Nachteil, dass die Anzahl der jeden Typ betreffenden Angaben sehr spärlich ist und sich nur auf einige Kennwerte beschränkt. Daher sind diese Angaben unvollkommen und für den Leser und Benutzer eines Katalogs dieser Art nicht ausreichend. Ferner sind die Bauelemente in diesen Katalogen nach den Codeworten der einzelnen Hersteller angeordnet, d.h. nach dem Alphabet oder nach Ziffern, wodurch das Auffinden ähnlicher Typen mit anderen Bezeichnungen fast unüberwindliche Schwierigkeiten bietet.

In unserem Lande zeichnen sich die Schwierigkeiten, einen Ersatz für ein Bauelement zu finden, besonders scharf ab. Die territorialen und wirtschaftlichen Verhältnisse in Polen bringen es mit sich, dass auf seinem Territorium eine so grosse Anzahl der verschiedensten Elektronenröhren und Halbleiterbauelemente in Gebrauch ist, wie wohl nirgends in der Welt.

Angesichts dieser Tatsache haben sich die Autoren des „Electronic Universal Vade-Mecum“ das Ziel gesetzt, diesen Katalog so anzulegen, dass die Notwendigkeit, viele Firmenkataloge zu besitzen und durchzublättern, vermieden wird.

Zu diesem Zweck haben die Verfasser dieser Arbeit ungefähr 15.000 Typen von elektronischen Bauelementen geprüft und diese in Gruppen eingeteilt. Jede dieser Gruppen enthält einander ähnliche Bauelemente ohne Rücksicht auf deren Bezeichnung und Erzeugung durch verschiedene Hersteller.

Es wurden interessante und vielversprechende Ergebnisse erzielt, die bewiesen haben, dass eine Reihe von Firmen auf der Welt identische Elektronenröhren oder Halbleiterbauelemente herstellt, aber unter völlig verschiedener Bezeichnung. Ferner zeigte es sich, dass dieselben Elektronenröhren, die sich untereinander lediglich hinsichtlich

ihres äusseren Aussehens unterscheiden, ganz verschiedene Bezeichnungen erhielten.

Die Bildung der Gruppen im „Electronic Universal Vade-Mecum“ wurde nach dem Prinzip des sogenannten „Fächersystems“ vorgenommen, d.h. dass jede Gruppe Bauelemente umfasst, die sich von denen in ihrer Nachbarschaft nur wenig unterscheiden. Daher hat der Benutzer des Katalogs nach Auffinden eines Typs gleichzeitig alle anderen Typen mit denselben oder ähnlichen Eigenschaften, die von verschiedenen Firmen hergestellt werden, an der Hand.

Jede Gruppe enthält folgende Angaben: Kennzahlen, typische statische Charakteristiken, dynamische Kennlinien (Betrieb), Grenzwerte, Anordnung des Sockels und der Verbindungen, Abmessungen des Kolbens sowie einige, besonders für diese Gruppe empfohlene, elektronische Schaltungen.

In jeder Gruppe sind Hinweise über Bauelemente aus verschiedenen Produktionsperioden enthalten.

Diese Zeitabschnitte sind durch unterschiedlichen Druck kenntlich gemacht. Die Bauelemente, die vor längerer Zeit hergestellt wurden — dies betrifft vor allem Elektronenröhren — wurden durch Kursivschrift gekennzeichnet. Die allgemein gebräuchlichen Bauelemente sind durch

gewöhnliche Drucklettern gekennzeichnet, während die modernsten und mit Vorzug verwendeten Elektronenröhren und Halbleiterbauelemente mit besonders vorteilhaften Parametern durch fetten Druck gekennzeichnet sind.

Der Katalog ist mit einem Register versehen, das es gestattet, rasch und einfach jeden Typ von Bauelementen und seine Äquivalente sowie die für den Entwurf von elektronischen Schaltungen notwendigen technischen Angaben aufzufinden.

Diese Konzeption des „Electronic Universal Vade-Mecum“ macht den Besitz von Firmenkatalogen weitgehend überflüssig.

Die Verfasser haben in dieser Ausgabe nicht alle Typen der auf der Welt vorhandenen elektronischen Bauelemente berücksichtigt. Der Katalog enthält keine Angaben über Bildabtaströhren, wie z.B. Zwischenbildikonoskope, Orthikon, Vidikons, usw., ferner über Senderöhren grosser Leistung, Bildspeicherröhren, Stromregleröhren usw. und andere Typen. Trotzdem geben wir der Hoffnung Ausdruck, dass das „Electronic Universal Vade-Mecum“ seine Aufgabe erfüllen und den Elektronikern in ihrer täglichen Arbeit ein nützlicher Helfer sein wird.

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PREFACE

L'électronique joue un rôle de plus en plus important non seulement dans la science et la technique, mais d'une façon générale dans la vie des sociétés modernes. Elle se fait signaler sans cesse par de nouvelles réalisations, de nouvelles applications, de nouveaux domaines entiers.

Si, il y a 60 ans de cela, le tube électronique était inconnu, aujourd'hui, chaque habitant du globe est "desservi" en moyenne par 10 tubes électroniques et transistors; ce chiffre est le quotient du nombre de dispositifs électroniques produits et utilisés dans les différents appareils de radio, de télévision, les amplificateurs téléphoniques, l'automatisation industrielle, les calculatrices électroniques, etc, et du chiffre de la population de notre globe.

Le premier dispositif qui a joué un rôle marquant dans le développement de l'électronique était le tube à vide, conçu en 1904 par Fleming, et qui dans la nomenclature actuelle s'appelle diode détectrice. Ce tube présentait certains avantages au point de vue sensibilité et stabilité par rapport aux détecteurs utilisés à cette époque en télégraphie sans fil. Pourtant, la sensibilité du tube de Fleming était encore insuffisante. Et c'est seulement le tube à grille de commande, prototype de la triode actuelle, qui a opéré un tournant technique en radio. Ce tube (nommé à l'époque audion) avait non seulement une action détectrice; il produisait également une amplification des signaux faibles, ce qui a permis d'augmenter d'une façon notable la sensibilité du poste récepteur, c'est-à-dire la portée et l'efficacité de la T.S.F., sans qu'il soit nécessaire pour cela d'accroître la puissance du poste émetteur. L'invention de la triode a permis en même temps d'enrichir la théorie des circuits d'un nouvel élément très important, un élément "actif" qui a ouvert de larges perspectives dans les télécommunications et dans d'autres domaines.

Cependant, les travaux ayant pour but de perfectionner les tubes électroniques se poursuivent dans les laboratoires de différents pays. Une grille auxiliaire dans la triode est le début du développement des tubes multi-grilles. Les montages électroniques s'enrichissent d'une nouvelle méthode réceptrice, la méthode superhétérodyne, qui a permis d'améliorer encore la sensibilité et la sélectivité des récepteurs radio.

La quatrième décade inaugure la production de tubes multi-grilles encore plus perfectionnés, en particulier celle des pentodes; la gamme de puissance des tubes s'élargit, leur fonctionnement et leur rendement s'améliorent. La gamme de fréquences, aussi bien dans les tubes récepteurs qu'émetteurs, se déplace vers les ondes courtes.

La II^e guerre mondiale a opéré un tournant fondamental dans l'électronique qui, du rôle d'un domaine auxiliaire de la technique radio, a été promue au rang d'une discipline indépendante de la science, de la technique et de l'industrie.

Les résultats des travaux de recherche menés intensivement avant et pendant la guerre dans des laboratoires rigoureusement gardés sont accaparés par l'industrie des

armements qui les met à profit pour la construction de nouveaux matériels de télécommunication, de navigation et de radiosondage dont le maniement est confié à de nouveaux cadres de spécialistes militaires. De nouveaux tubes entrent en usage: à micro-ondes comme les magnétrons, les klystrons, les triodes et pentodes miniatures et les tubes spéciaux, tels que: thyatron, commutateurs, kinescopes améliorés; on crée de nouveaux systèmes basés sur la technique des impulsions que les besoins du radiosondage ont déjà développée; on acquiert une plus grande maîtrise dans les techniques des hautes fréquences et des impulsions par suite du développement et du perfectionnement des systèmes de navigation, et en particulier du radar. Les éléments composant le matériel radio et électronique se perfectionnent considérablement tant du point de vue des caractéristiques que de la technologie de fabrication. Parallèlement on note un grand progrès dans la miniaturisation de ce matériel dont le fonctionnement est de plus en plus irréprochable.

La période des quinze dernières années a apporté de nouvelles acquisitions dont nous avons tous été témoins. Rappelons les importants travaux de Bardeen et de Brattain qui ont abouti en 1948 à la réalisation du transistor et donné naissance à un nouveau domaine des éléments et dispositifs à semi-conducteurs.

Tout comme dans le cas des tubes électroniques, nous voyons d'abord le développement des diodes cristallines et des transistors, des premiers types à pointe aux types améliorés à jonction; des faibles puissances de l'ordre de quelques milliwatts aux puissances allant jusqu'à plusieurs, et plus tard, à quelques dizaines de watts; des basses aux hautes fréquences.

Finalement, à la suite d'intenses travaux de recherche, de nouveaux types et variantes de dispositifs à semi-conducteurs font leur apparition. Dans le groupe des diodes cristallines ce sont: les diodes Zener, les diodes Esaki ou diodes „tunnel”, les diodes „avalanche”, les diodes à couche utilisées dans les systèmes à commutation rapide.

De la même manière font leur apparition des transistors assemblés suivant différentes technologies et, de ce fait, présentant diverses caractéristiques de fréquence et de puissance.

Au cours de ces dernières années a été mise au point la technologie de fabrication d'assemblages à multiples jonctions $p-n$, ce qui a permis de créer de nouveaux types de dispositifs semi-conducteurs et ouvert des possibilités quasi illimitées en ce qui concerne la production d'ensembles fonctionnels groupés dans une capsule hermétique.

Il y a lieu de rappeler également que parallèlement à cet essor, des dispositifs semi-conducteurs sensibles à des agents autres que la tension électrique ont également vu le jour, notamment les photodiodes, les phototransistors, les thermistors, les hallotrons, etc.

L'électronique, en raison de ses multiples applications, joue donc un rôle énorme dans la vie scientifique et économique de chaque pays. De là, la nécessité de publier des catalogues réunissant et permettant de retrouver rapidement et d'une manière „opérative” les propriétés et paramètres du plus grand nombre possible de dispositifs électroniques modernes.

A l'heure actuelle, dans le monde entier, près de mille sociétés et maisons diverses s'occupent de la production des tubes et dispositifs électroniques. Chacune d'elle désigne les dispositifs qu'elle produit par des symboles et des appellations qui permettent de définir en même temps leur genre et leurs principaux paramètres.

Cette tendance nous a mis en présence d'une foule d'appellations et de désignations données aux différents types de dispositifs électroniques dont l'utilisateur ne peut pratiquement se servir s'il n'a pas les données nécessaires pour déchiffrer les symboles et les noms qui les désignent.

Afin de rendre plus facile l'orientation dans ce domaine, plusieurs firmes mondiales parmi les plus connues ont conclu une entente ayant pour but de systématiser les symboles et les appellations des différents types de dispositifs électroniques.

Aux Etats-Unis, par exemple, la méthode adoptée pour la désignation des tubes électroniques récepteurs procède comme suit: le premier chiffre désigne la tension approximative de filament, après quoi suivent une ou deux places réservées aux symboles désignant le type de tube qui vient de sortir, enfin le dernier chiffre désigne le nombre d'électrodes de sortie. En Europe un autre mode de désignation a été adopté pour ce type de tubes. La première lettre désigne notamment d'une manière conventionnelle la tension de filament, la seconde le genre de tube et les chiffres suivants les types successifs du tube en question, ces derniers différant le plus souvent par le gabarit du tube et le genre de culot.

Indépendamment de ce mode de désignation d'autres méthodes ont été adoptées dans les pays placés en tête de la technique électronique: le type de tube est désigné dans ce cas par le numéro d'ordre sous lequel il est enregistré, par exemple 5702 qui ne dit absolument rien à l'utilisateur.

Les tubes électroniques prévus pour des puissances plus grandes, c'est-à-dire du type émetteur ainsi que les tubes à micro-ondes, etc. sont désignés différemment et individuellement par chaque producteur.

Par ailleurs, en raison du grand nombre de dispositifs produits, certains pays ont conservé dans la désignation des types des tendances normatives et spécifiques pour le pays en question. En Grande Bretagne, par exemple, il existe une série de désignations commençant par les lettres CV, aux Etats-Unis par les lettres VZ, en Allemagne par RV, et dans les pays de l'Europe de l'Est on introduit actuellement une désignation commençant par la lettre E suivie d'un nombre de quatre chiffres dont le premier est 7, par ex.: E7026.

Malgré tous les essais de simplification il existe encore dans le monde quelques dizaines de milliers de désignations diverses. Si l'on ajoute à cela que les installations et le matériel électronique fabriqués dans un pays donné sont diffusés dans le monde entier en même temps que les dispositifs électroniques produits dans ce pays, il ne sera pas exagéré de dire qu'aucun pays du monde n'est en mesure de produire tous les tubes électroniques et dispositifs

à semi-conducteurs équipant les installations et le matériel électronique exploités sur son territoire.

Avec le temps ces installations exigent l'échange des tubes électroniques ou des dispositifs semi-conducteurs usés. Dans cette situation l'utilisateur se heurte à de grandes difficultés, d'abord pour définir les caractéristiques du dispositif à rechanger, ensuite pour trouver un type de remplacement.

Pour faire ce travail il faut être en possession de toute une collection de catalogues et de notices d'informations émanant bien souvent de quelques dizaines voire d'une centaine de producteurs, ce qui n'est pas toujours accessible à l'utilisateur moyen, ne serait-ce qu'en raison du prix d'une telle documentation.

Cette situation a fait qu'il existe déjà une série de catalogues collectifs groupant les tubes électroniques et les dispositifs semi-conducteurs fabriqués par différentes maisons. La qualité de ces catalogues, c'est qu'ils renferment un très grand nombre de dispositifs électroniques. Ils présentent toutefois un défaut fondamental, celui de donner très peu d'informations — deux paramètres à peine — sur chaque type, ce qui fait que cette information est insuffisante pour l'utilisateur qui consulte ce genre de catalogue. D'autre part les dispositifs électroniques mentionnés dans ces catalogues sont classés suivant les codes de désignation adoptés par les producteurs, c'est-à-dire par ordre alphabétique ou numéral, ce qui fait qu'il est extrêmement difficile de repérer des types similaires désignés par d'autres symboles.

En Pologne la recherche d'un dispositif de rechange est particulièrement difficile. Les conditions territoriales et économiques de la Pologne font qu'il existe sur son territoire des types de tubes électroniques et de dispositifs semi-conducteurs les plus divers. Dans cette situation les auteurs de „Electronic Universal Vade-Mecum” ont décidé de composer un catalogue qui rend superflues la possession et la consultation des catalogues édités par les différentes firmes.

Les auteurs ont examiné dans ce but environ 15 mille types de dispositifs électroniques et les ont répartis en une série de groupes. Chaque groupe comprend des dispositifs analogues quels que soient leurs désignations et leurs producteurs.

Néanmoins les résultats obtenus sont intéressants et prometteurs.

Il y a lieu de souligner que tous les types de tubes électroniques et de dispositifs semi-conducteurs ne sont pas toujours mentionnés dans les groupes en question.

Il s'est avéré en effet qu'une série de maisons produit des tubes électroniques ou des dispositifs semi-conducteurs identiques bien que désignés par des symboles entièrement différents. Il s'est avéré aussi que des tubes électroniques différant à peine par leur exécution extérieure ont été désignés d'une façon tout-à-fait différente.

L'ordonnance des groupes dans „Electronic Universal Vade-Mecum” part du principe de l'„éventail”, c'est-à-dire que chaque groupe comprend des dispositifs électroniques différant très peu de ceux du groupe voisin. Ainsi, l'utilisateur de ce catalogue, possédant un type donné, peut facilement trouver tous les types aux caractéristiques semblables ou rapprochées, fabriqués par différents producteurs.

Chaque groupe renferme les données suivantes: données nominales, caractéristiques statiques typiques, caractéristiques dynamiques (de travail), valeurs admissibles, système

du culot et des connexions, dimensions du tube et certains montages électroniques particulièrement recommandés pour le groupe donné.

Dans chaque groupe, des informations sont données sur les dispositifs des différentes périodes de production.

Ces périodes sont différenciées par les caractères d'impression. Les dispositifs électroniques de production ancienne (cela concerne surtout les tubes électroniques) sont désignés en italique. Les dispositifs universellement utilisés sont désignés en caractères normaux. Par contre, les tubes électroniques et les dispositifs semi-conducteurs les plus modernes, aux paramètres particulièrement avantageux, sont désignés en caractères gras.

Le catalogue est muni d'un répertoire qui permet de trouver rapidement le type voulu de dispositif électronique avec tous ses correspondants, ainsi que de trouver

les données techniques nécessaires à l'ingénieur ou au constructeur, électronicien.

Grâce à une telle conception „Electronic Universal Vade-Mecum” rend superflu l'usage des catalogues édités par les différentes firmes.

Les auteurs de cet ouvrage n'ont pas indiqué tous les genres de types de dispositifs électroniques existant dans le monde. Ce catalogue, en effet, ne donne pas d'informations sur les tubes analyseurs de TV comme le supericonoscope, le superorticon, le vidicon, etc., sur les tubes émetteurs de très grande puissance, les réservoirs électrostatiques, les barretters, etc.

Néanmoins, il faut espérer que „Electronic Universal Vade-Mecum” remplira la tâche qui lui est assignée et sera pour l'électronicien un guide utile dans son travail.

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PRÓLOGO

La electrónica ocupa un puesto cada día más importante no solamente en la ciencia y la técnica, sino también en la vida de las sociedades modernas en general. Continuamente nos percatamos de sus hallazgos siempre nuevos, de sus nuevas aplicaciones, de sus esferas de actividad completamente nuevas.

Mientras que hace 60 años no se conocía el tubo electrónico, en los momentos actuales todo habitante del globo se ve „servido” como término medio por 10 tubos electrónicos y transistores; este número resulta de la relación existente entre la cantidad de dispositivos electrónicos y transistores producidos, aplicados en distintos aparatos radiofónicos, televisores, amplificadores telefónicos, aparatos automáticos industriales, máquinas matemáticas electrónicas, etc., y el número de habitantes de nuestro planeta.

El primer dispositivo electrónico que desempeñó un papel no insignificante en el desarrollo de la electrónica fué la válvula de vacío elaborada por Fleming en 1904, conocida como diodo detector según la nomenclatura actual. Poseía ciertas virtudes en relación con los detectores de baja sensibilidad y de funcionamiento inestable empleados entonces en la radiotelegrafía. Pero la sensibilidad de la válvula de Fleming fué siempre una sensibilidad insuficiente. Solamente el tubo con rejilla de mando elaborado en 1906 por Lee de Forest, prototipo del triodo de nuestros días, efectuó un viraje en la radiotecnica. Esta válvula (denominada entonces lámpara audión), no solo actuaba como detector sino que reforzaba las señales débiles, lo que permitió sensibilizar considerablemente las estaciones receptoras y, por lo tanto, aumentar el alcance y la infalibilidad del radiotelégrafo, sin necesidad de incrementar la potencia de las estaciones emisoras. Simultáneamente, con la invención del triodo, la teoría de los circuitos se enriqueció de un elemento nuevo, muy importante, llamado activo, abriendo enormes perspectivas ante los sistemas destinados a la telecomunicación y a otros fines muy diversos.

Paralelamente en muchos laboratorios de distintos países se realizan trabajos para perfeccionar los tubos electrónicos. Se incorporan rejillas auxiliares a los triodos, con lo que se inicia el desarrollo de las válvulas de rejillas múltiples. Los sistemas electrónicos se enriquecen con un nuevo método, denominado método superheterodino de recepción de señales que ha permitido mejorar ulteriormente la sensibilidad y la selectividad de la recepción de radio.

En la cuarta década de nuestro siglo se emprende la producción de válvulas de rejillas múltiples perfeccionadas, y ante todo de pentodos: se amplía el margen de la potencia de las válvulas, disminuye su consumo y mejora su rendimiento. El margen de frecuencias, tanto en las válvulas receptoras como en las emisoras, se desplaza hacia las ondas más cortas.

Le segunda guerra mundial hizo dar un viraje radical a la electrónica. Del papel auxiliar de la radiotécnica, se elevó

a la categoría de sector independiente de la ciencia, la técnica y la industria.

La industria de guerra se apropia de los resultados de los trabajos de investigación realizados intensamente en laboratorios estrechamente vigilados durante los años que precedieron inmediatamente a la guerra y durante la guerra, los explota para la fabricación de nuevo material de comunicación, de navegación y de radiolocalización, y los coloca en manos de los nuevos cuadros, de especialistas militares. Se ponen en uso nuevas válvulas: microondas, como por ejemplo, magnetrones, klistrones, triodos y pentodos miniatura, así como válvulas especiales tales como tiratrones, conmutadores T-R, tubos cinescópicos perfeccionados; se crean nuevos sistemas basados en la técnica de impulsos ya desarrollada para cubrir las necesidades de la radiolocalización, mientras se domina cada día mejor la técnica de muy grandes frecuencias y la técnica de impulsos en virtud del desarrollo y del perfeccionamiento de los sistemas de navegación y ante todo del radar. Se perfeccionan sumamente los elementos del material radiotécnico y electrónico tanto desde al punto de vista de los parámetros como de la tecnología. Simultáneamente se advierte un gran progreso en su miniaturización e infalibilidad.

En los últimos años se han conseguido nuevos logros de los que todos somos testigos. Hay que recordar los importantes trabajos de Bardeen y Brattain, que condujeron en 1948 a la realización de los transistores y que abrieron precisamente el nuevo sector de elementos y dispositivos semiconductores.

Y lo mismo que en el caso de los tubos electrónicos, al principio asistimos al desarrollo de los diodos cristalinos y de los transistores, desde los primeros tipos de punta hasta los perfeccionados de capa, desde los de pequeña potencia, del orden de algunos milivatios, hasta de la potencia de varios y luego de decenas de vatios, desde las pequeñas a las grandes frecuencias.

Por último, en virtud de trabajos de investigación llevados a fondo, aparecen nuevos tipos y variedades de dispositivos semiconductores. En el grupo de los diodos cristalinos surgen: diodos Zener, diodos Esaki o llamados diodos túnel, diodos „avalancha” aplicados en los sistemas de traspaso rápido, diodos de capa. En forma semejante hacen aparición los transistores de distintas tecnologías: de capa y, a través suyo, de diferentes características de frecuencia y de potencia.

En los últimos años se ha logrado dominar la tecnología para obtener capas cultivadas múltiples, lo que ha conducido a la creación de nuevos tipos de semiconductores y ha dado directamente posibilidades ilimitadas de creación de conjuntos funcionales encerrados herméticamente.

A este punto cabe recordar que paralelamente a este desarrollo se han creado dispositivos semiconductores sensibles a otros estímulos distintos que los de la tensión

eléctrica, es decir: fotodiodos, fototransistores, termistores, halotrones, etc.

La enorme importancia que tiene la electrónica en la vida científica y económica de cada país, como resultado de sus infinitas aplicaciones, requiere la elaboración de publicaciones-catálogos en los que se recopilen y presenten en modo operativo las propiedades y parámetros del mayor número posible de dispositivos electrónicos modernos.

En efecto, cerca de mil firmas en el mundo producen actualmente tubos electrónicos y semiconductores y cada una de ellas suele dar a sus productos signos y nombres con los que al mismo tiempo se pueden determinar el género y los parámetros fundamentales.

En relación con esta tendencia ha surgido una enorme cantidad de nombres y signos convencionales de los más distintos tipos de dispositivos electrónicos, lo que provoca que sus usuarios choquen con tales dificultades que sin un conocimiento especial para descifrar esos signos y nombres no pueden aprovecharlos prácticamente.

Para que sea más fácil orientarse en este laberinto de signos convencionales, muchas, firmas mundiales han llegado a un acuerdo mutuo de sistematizar los signos y los nombres de distintos tipos de dispositivos electrónicos.

Por ejemplo, en los Estados Unidos se ha adoptado el método de marcar los tubos electrónicos de tipo receptor de manera que la primera cifra significa aproximadamente la tensión de incandescencia, luego se reservan uno o dos lugares a las letras correspondientes a los tipos de tubos que van apareciendo sucesivamente y la última cifra significa el número de electrodos sacados al exterior. En Europa, para este género de tubos, se han adoptado otros métodos. Es decir, la primera letra indica en modo convencional la tensión de incandescencia, la segunda el género de tubo y las cifras siguientes los tipos consecutivos de desarrollo de estos tubos, con la particularidad de que muy a menudo estos tipos se distinguen por el formato de la ampolla y el tipo de zócalo.

Además de este modo de marcar, en los países de técnica avanzada se han adoptado otros signos; los tubos se marcan en este caso con un número de registro, por ejemplo, 5702, que no dice nada en absoluto a los usuarios de las válvulas sobre el género a que pertenecen, sin hablar ya de los datos característicos.

Los tubos electrónicos de mayores potencias, es decir, de tipo emisor, así como las válvulas microondas, etc., son marcadas por cada firma en forma individual.

Además, en numerosos países y en virtud de las grandes cantidades de dispositivos que se producen, han surgido modos de marcar los diferentes tipos de acuerdo con ciertas normas y con un carácter específico para ese país. Por ejemplo, en la Gran Bretaña existe una serie de marcas que comienzan por las letras CV, en Estados Unidos por las letras VT, en Alemania por RV y en los países de Europa oriental se aplican actualmente marcas que se componen de la letra E y de cuatro cifras, la primera de las cuales es siempre el siete, por ejemplo, E7026.

Pese a todas las tentativas de simplificación, siguen existiendo en el mundo algunas decenas de miles de signos distintos. Si a ello se añade que los instrumentos y el material electrónico que se produce en un determinado país se extiende por casi todo el mundo conjuntamente con los dispositivos electrónicos producidos por ese país, se puede afirmar sin exageración que ningún país del mundo está en condiciones de fabricar todos los tubos electrónicos y todos

los semiconductores que funcionan en las instalaciones y en el material electrónico explotado en su territorio.

Con el correr del tiempo estas instalaciones requieren que se cambien, ya sean los tubos electrónicos, ya sean los dispositivos semiconductores usados. En ese caso los usuarios de esas instalaciones chocan con enormes dificultades, primeramente para determinar los datos característicos del dispositivo usado y luego para encontrar el tipo que le substituya.

Estos trabajos exigen poseer muchos catálogos y publicaciones de información, a veces desde algunas decenas hasta cerca de cien productores, lo que no siempre puede hacer el usuario normal, aunque sólo sea en razón de los costos.

Esta situación comporta el que existan ya numerosos catálogos conjuntos que incluyen los tubos electrónicos y los semiconductores fabricados por distintas casas. Pero tienen el defecto fundamental de que la cantidad de informaciones de cada tipo es muy exigua, limitándose a unos cuantos parámetros, por lo cual esas informaciones son insuficientes para el lector y para el usuario de un catálogo de ese género. Además, en los catálogos, estos dispositivos electrónicos están dispuestos según los códigos de los productores, es decir, según el alfabeto o bien a base de cifras, de modo que las dificultades para buscar tipos parecidos de otras marcas son casi insuperables.

En nuestro país se delinean dificultades especialmente agudas para buscar los correspondientes dispositivos electrónicos de reemplazo. Por sus condiciones territoriales y económicas, en Polonia se encuentran y se emplean, los más diversos géneros de tubos electrónicos y semiconductores. En vista de ello, los autores del "Electronic Universal Vade-Mecum" decidieron disponer el catálogo de modo que se pueda evitar la necesidad de poseer y hojear catálogos de varias firmas.

Guiados por este fin, los autores de este trabajo examinaron alrededor de 15 mil tipos de dispositivos electrónicos y los dividieron en varios grupos, cada uno de los cuales contiene los dispositivos parecidos entre sí, sin tener en cuenta la marca ni el que hayan sido fabricados por distintos productores.

Hay que subrayar también que en los grupos examinados no se encuentran siempre todos los tipos de tubos electrónicos o de dispositivos semiconductores.

Con todo ello se han obtenido resultados interesantes y prometedores.

En efecto, ha quedado demostrado que numerosas firmas del mundo producen idénticos tubos electrónicos o semiconductores, pero con marcas absolutamente distintas. Además, se ha comprobado que, por ejemplo, a esos mismos tubos electrónicos, que se diferencian muy poco desde el punto de vista del acabado exterior, se les ha dado un signo completamente diferente.

La disposición de los grupos en el "Electronic Universal Vade-Mecum" se ha efectuado con el sistema denominado "abanico", es decir, que cada grupo contiene dispositivos electrónicos que se diferencian de aquellos que han sido insertados en el grupo vecino de manera muy insignificante. Por esta razón, el usuario del catálogo que posea un tipo puede encontrar fácil y rápidamente en caso de necesidad todos los demás tipos de las mismas o muy parecidas propiedades que han sido producidos por distintas casas.

Cada grupo contiene los siguientes datos: datos nominales, características estáticas típicas, características di-

námicas (de trabajo), valor admitido, sistema de zócalo y conexión, dimensiones de la ampolla y algunos sistemas electrónicos, especialmente recomendados para un determinado grupo.

En cada grupo se han incluido informaciones sobre los dispositivos de distintos períodos de producción.

Estos períodos se han diferenciado por el tipo de imprenta. Los dispositivos electrónicos procedentes del período de producción más antiguo, lo que atañe principalmente a los tubos electrónicos, están impresos con letra de molde. En cambio, se resaltan con negrilla los tubos electrónicos y los dispositivos semiconductores más modernos y empleados más a menudo, de parámetros especialmente logrados.

El catálogo está provisto de un índice que permite encontrar rápida y fácilmente otro tipo de dispositivo electrónico y todos sus correspondientes, así como hallar grupos tales en los que se contienen los datos técnicos necesarios para quien deba proyectar sistemas electrónicos.

El sistema del "Electronic Universal Vade-Mecum" permite evitar en gran parte la necesidad de poseer catálogos de firmas.

Los autores no han incluido en la edición todos los géneros de tipos de dispositivos electrónicos existentes en el mundo. En efecto, el catálogo no contiene informaciones sobre las válvulas de televisión especiales analizadoras, como por ejemplo, iconoscopios de imagen, orticonoscopios de imagen, vidicon, etc., sobre tubos emisores de muy grande potencia, los tubos memoria, las válvulas de resistencia autoreguladora, etc. y otros tipos.

No obstante, cabe abrigar la esperanza de que el "Electronic Universal Vade-Mecum" cumpla su misión y sea un útil informador en el trabajo cotidiano, tanto de aquellos que se ocupen de los propios dispositivos electrónicos, como de quienes acoplan los sistemas de estos dispositivos.

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PRZEDMOWA

Elektronika odgrywa coraz poważniejszą rolę nie tylko w nauce i technice, lecz w ogóle w życiu nowoczesnych społeczeństw. Wciąż dowiadujemy się o coraz to nowych jej osiągnięciach, o nowych zastosowaniach i o całych nowych dziedzinach.

O ile przed 60-laty lampa elektronowa nie była znana, to w chwili obecnej każdy mieszkaniec globu „obsługiwany” jest średnio przez 10 lamp elektronowych i tranzystorów; liczba ta wynika z obliczenia stosunku ilości wyprodukowanych przyrządów elektronowych i znajdujących zastosowanie w różnorodnych aparatach radiofonicznych, telewizyjnych, wzmacniaczach telefonicznych, automatyce przemysłowej, elektronicznych maszynach cyfrowych itp., do liczby mieszkańców naszego globu.

Pierwszym przyrządem elektronowym, który odegrał niemałą rolę w rozwoju elektroniki, była lampa próżniowa opracowana w 1904 r. przez Fleminga, według dzisiejszej nomenklatury — dioda detekcyjna. Posiadała ona pewne zalety w stosunku do używanych wówczas w radiotelegrafii detektorów, mało czułych i niestabilnych w pracy. Jednak czułość lampy Fleminga była czułością wciąż jeszcze niedostateczną. Dopiero opracowana w 1906 r. przez Lee de Foresta lampa z siatką sterującą, prototyp dzisiejszej triody dokonała przełomu w radiotechnice. Lampa ta (zwana wówczas audionem) działała nie tylko jako detektor; dawała również wzmocnienie słabych sygnałów, co pozwoliło na znaczne uczulenie stacji odbiorczej, a więc zwiększenie zasięgu i pewności działania radiotelegrafu, bez konieczności zwiększenia mocy stacji nadawczej. Równocześnie przez wynalazek triody teoria obwodów wzbogaciła się o nowy, bardzo ważny element, tzw. czynny, który otworzył ogromne perspektywy przed układami do celów telekomunikacji oraz do rozmaitych innych celów.

Równocześnie w wielu laboratoriach różnych krajów prowadzi się prace nad ulepszeniem lamp elektronowych. Wprowadzono do triody pomocniczą siatkę, co zapoczątkowuje rozwój lamp wielosiatkowych. Układy elektroniczne wzbogacają się o nową metodę tzw. superheterodynowego odbioru sygnałów, która pozwoliła na jeszcze dalsze polepszenie czułości i selektywności odbioru radiowego.

W czwartym dziesięcioleciu wchodzi do produkcji bardziej doskonałe lampy wielosiatkowe, przede wszystkim pentody; rozszerza się zakres mocy lamp, polepsza ekonomiczność i sprawność. Zakres częstotliwości zarówno w lampach odbiorczych, jak i nadawczych przesuwają się w kierunku fal krótszych.

II wojna światowa wywołała zasadniczy przełom w elektronice; z roli pomocniczego działu radiotechniki wyniosła elektronikę do rangi niezależnej dziedziny nauki, techniki i przemysłu.

Wyniki prac badawczych, intensywnie prowadzonych przez ostatnie lata poprzedzające wojnę oraz podczas wojny w ściśle strzeżonych laboratoriach, przejmują przemysł

wojenny, wyzyskuje się je do budowy nowego sprzętu łącznościowego, nawigacyjnego i radiolokacyjnego, który oddaje się w ręce nowej kadry specjalistów wojskowych. Wchodzi do użytku nowe lampy: mikrofalowe jak np. magnetrony, klistrony, miniaturowe triody i pentody oraz lampy specjalne, takie jak tyratrony, zwieraki, ulepszone lampy kineskopowe; powstają nowe układy i systemy, oparte na rozwiniętej już dla potrzeb radiolokacji technice impulsowej; technikę zaś bardzo wielkich częstotliwości oraz technikę impulsową coraz lepiej się opanowuje w związku z rozwijaniem i udoskonalaniem systemów nawigacji, a przede wszystkim radaru. Elementy sprzętu radiotechnicznego oraz elektronowego, zarówno pod względem parametrów, jak i technologii, ulegają daleko idącemu ulepszeniu; równocześnie notuje się duży postęp w ich miniaturyzacji i niezawodności.

Kilkanaście ostatnich lat przynosi dalsze osiągnięcia, których już wszyscy jesteśmy świadkami. Należy przypomnieć o doniosłych pracach Bardeena i Brattaina, które doprowadziły w r. 1948 do realizacji tranzystora i zapoczątkowały właściwie nową dziedzinę elementów i przyrządów półprzewodnikowych.

I podobnie, jak w przypadku lamp elektronowych, widzimy początkowo rozwój diod krystalicznych i tranzystorów od pierwszych typów ostrzowych do ulepszonych — złączowych, od małych mocy rzędu kilkunastu miliwatów do mocy kilku, a później kilkudziesięciu watów, od częstotliwości małych do wielkich.

Wreszcie w wyniku potężnie forsowanych prac badawczych, pojawiają się nowe typy i odmiany przyrządów półprzewodnikowych. W grupie diod krystalicznych powstały: diody Zenera, diody Esaki, czyli tzw. diody tunelowe, diody „lawinowe” stosowane w układach szybko przerzucających, diody warstwowe. W podobny sposób pojawiły się tranzystory o różnych technologiach wykonywania złącz, a przez to różnych charakterystykach częstotliwościowych i mocowych.

W ostatnich zaś latach opanowano technologię otrzymywania wielokrotnych złącz p-n, co doprowadziło do stworzenia nowych typów przyrządów półprzewodnikowych i dało wprost nieograniczone możliwości tworzenia całych zespołów funkcjonalnych w jednej hermetycznej obudowie.

Należy tu wspomnieć, że równoległe do tego rozwoju powstawały przyrządy półprzewodnikowe czułe na inne bodźce niż napięcie elektryczne, a mianowicie: fotodiody, fototranzystory, termistory, halotrony itp.

To olbrzymie znaczenie elektroniki w życiu naukowym i gospodarczym każdego kraju, wynikające z tak licznych zastosowań, powoduje konieczność opracowania publikacji — katalogów, w których zebrane byłyby i przedstawione w sposób operatywny właściwości i parametry możliwie największej liczby nowoczesnych przyrządów elektronowych.

W chwili obecnej bowiem produkcją lamp elektronowych i przyrządów półprzewodnikowych zajmuje się już blisko tysiąc firm na całym świecie. Każda z tych firm nadaje produkowanym przez siebie przyrządom oznaczenia i nazwy, z których można jednocześnie określić rodzaj i podstawowe parametry.

W związku z tą tendencją powstała ogromna ilość nazw i oznaczeń rozmaitych typów przyrządów elektronowych, co sprawia, że ich użytkownik napotyka na takie trudności, iż bez specjalnej wiedzy dla rozszyfrowania tych nazw i oznaczeń nie może w praktyce z nich korzystać.

Dla ułatwienia w poruszaniu się w tym gąszczu oznaczeń szereg czołowych firm światowych utworzyło wzajemne porozumienie dla usystematyzowania znakownictwa i nazewnictwa różnych rodzajów typów przyrządów elektronowych.

W USA przyjęto np. metodę oznaczania lamp elektronowych typu odbiorczego w ten sposób, że pierwsza cyfra oznacza w przybliżeniu napięcie żarzenia, dalsze miejsca (jedno lub dwa) zarezerwowane są na odpowiednie litery oznaczające kolejno pojawiający się typ lampy, wreszcie ostatnia cyfra wskazuje na liczbę wyprowadzonych na zewnątrz elektrod. W Europie został przyjęty dla tego rodzaju lamp inny sposób oznaczania. Mianowicie pierwsza litera oznacza w sposób umowny napięcie żarzenia, druga — rodzaj lampy, a dalsze cyfry — kolejne typy rozwoju tej lampy; przy czym najczęściej typy te różnią się gabarytem bańki i rodzajem cokołu.

Niezależnie od tego sposobu oznaczeń przyjęto w krajach o przodującej technice również i inne oznaczenia; typ lampy oznaczany jest w tym przypadku kolejnym numerem rejestracyjnym, np. 5702, nic zgoła nie mówiąc użytkownikowi lampy o jej rodzaju, a co dopiero charakterystycznych danych.

Lampy elektronowe większych mocy, a więc typu nadawczego, oraz lampy mikrofalowe itp. oznaczane są przez każdą firmę w sposób indywidualny.

Poza tym w szeregu krajów powstały wskutek wielkiej ilości produkowanych przyrządów tendencje normalizacyjne oraz specyficzne dla danego kraju oznaczenia typów. Np. w Wielkiej Brytanii istnieje seria oznaczeń rozpoczynająca się od liter CV, w USA od liter VT, w Niemczech — RV, a krajach Europy Wschodniej wprowadza się obecnie oznaczenia składające się z litery E i kolejnej czterocyfrowej liczby, której pierwszą cyfrą jest siedem, np. E7026.

Mimo tych wszystkich prób uproszczeń istnieje nadal na świecie kilkadziesiąt tysięcy różnych oznaczeń. Jeżeli do tego dodać, że urządzenia i sprzęt elektroniczny produkowany w danym kraju rozchodzi się po całym prawie świecie wraz z produkowanymi w tym kraju przyrządami elektronowymi, można będzie bez przesady stwierdzić, że żaden kraj na świecie nie jest w stanie produkować tych wszystkich lamp elektronowych i przyrządów półprzewodnikowych, które znajdują się w urządzeniach i sprzęcie elektronicznym, eksploatowanym na jego terytorium.

Urządzenia te z biegiem czasu wymagają wymiany zużytych lamp elektronowych, bądź przyrządów półprzewodnikowych. W takiej sytuacji użytkownik tego urządzenia napotyka na ogromne trudności najpierw przy określeniu charakterystycznych danych zużytego przyrządu, a następnie przy odnalezieniu typu zastępczego.

Tego rodzaju czynności wymagają posiadania bardzo obszernej literatury katalogowej i informacyjnej nieraz od

kilkudziesięciu do blisko stu producentów, co nie zawsze jest jednak możliwe dla szeregowego użytkownika, choćby ze względu na koszt.

Sytuacja ta sprawia, że istnieje już szereg opracowanych zbiorczych katalogów grupujących lampy elektronowe i przyrządy półprzewodnikowe produkowane przez różne firmy. Jednakże mają one podstawową wadę: ilość informacji dla każdego typu jest bardzo szczupła i sprowadza się zaledwie do paru parametrów, co sprawia, że informacje te są niewystarczające dla czytelnika i użytkownika takiego rodzaju katalogu. Ponadto w katalogach tych przyrządy elektronowe ułożone są wg kodów oznaczeniowych producentów, tj. wg alfabetu lub cyfr, co sprawia, że trudności poszukiwania podobnych typów o innych oznaczeniach są prawie nie do pokonania.

W naszym kraju trudności poszukiwania odpowiedniego zastępczego przyrządu elektronowego zarysowują się szczególnie ostro. Warunki terytorialne i gospodarcze Polski sprawiają, że na jej terenie stosowane są najrozmaitsze rodzaje lamp elektronowych i przyrządów półprzewodnikowych. W tej sytuacji — autorzy „Electronic Universal Vade-Mecum” powzięli zamiar ułożenia katalogu w ten sposób, ażeby móc uniknąć konieczności posiadania i wertowania wielu katalogów firmowych.

W tym celu autorzy tej pracy przebadali około 15 tysięcy typów przyrządów elektronowych i podzielili je na szereg grup. Każda z tych grup zawiera przyrządy podobne do siebie bez względu na oznaczenia i produkowane przez różnych wytwórców.

Otrzymano rezultaty ciekawe i obiecujące.

Okazało się bowiem, że szereg firm na świecie produkuje identyczne lampy elektronowe, bądź przyrządy półprzewodnikowe, lecz o zgoła odmiennych oznaczeniach. Ponadto okazało się, że te same np. lampy elektronowe różniące się tylko niewiele pod względem zewnętrznego wykonania otrzymywały zupełnie inne oznaczenia.

Ułożenie grup w „Electronic Universal Vade-Mecum” jest dokonane na tzw. zasadzie „wachlarza”, tzn., że każda grupa zawiera przyrządy elektronowe różniące się od przyrządów umieszczonych w sąsiedniej grupie bardzo nieznacznie. Dlatego też użytkownik katalogu może łatwo, mając jeden typ, odnaleźć od razu wszystkie inne typy o tych samych lub zbliżonych właściwościach produkowane przez różne firmy.

Każda grupa zawiera następujące dane: dane nominalne, typowe charakterystyki statyczne, charakterystyki dynamiczne (robocze), wartości dopuszczalne, układ cokołu i połączeń, rozmiary baniek oraz niektóre, szczególnie zalecane dla danej grupy układy elektroniczne.

W każdej grupie zawarte zostały informacje o przyrządach z różnych okresów produkcji.

Okresy te rozróżniono rodzajem druku. Przyrządy elektronowe pochodzące z dawnego okresu produkcji, głównie dotyczy to lamp elektronowych, oznaczone zostały drukiem pochyłym (kursywą). Przyrządy powszechnie używane oznaczono drukiem zwykłym. Natomiast drukiem tłustym wyróżniono najnowocześniejsze najchętniej stosowane lampy elektronowe i przyrządy półprzewodnikowe o szczególnie udanych parametrach.

Praca zaopatrzona jest w skorowidz, który pozwala w bardzo szybki i łatwy sposób na znalezienie danego

typu przyrządu elektronowego i jego wszystkich odpowiedników, jak również na odnalezienie danych technicznych potrzebnych dla projektanta układów elektronicznych.

Taki układ „Electronic Universal Vade-Mecum” pozwala w znacznej mierze uniknąć potrzeby posiadania katalogów firmowych.

W wydaniu niniejszym autorzy nie podali wszystkich rodzajów typów przyrządów elektronowych istniejących

na świecie. Katalog nie zawiera bowiem informacji o specjalnych lampach telewizyjnych analizujących, jak np. superikonoskop, superortikon, widikon, itp., o lampach nadawczych b. dużej mocy, lampach elektronowych pamięciowych, bareterach itp. innych typach.

Należy wyrazić nadzieję, że „Electronic Universal Vade-Mecum” spełni swe zadanie i stanie się pożytecznym informatorem w codziennej pracy elektroników.

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ПРЕДИСЛОВИЕ

Электроника играет все более важную роль не только в науке и технике, но и вообще в жизни современного общества. Мы неустанно узнаем о все новых её достижениях, новых применениях, о целых новых отраслях этой науки.

Если 60 лет назад электронная лампа не была ещё известна, то в настоящее время каждого жителя земного шара „обслуживает” в среднем 10 электронных ламп и транзисторов; это число получается из деления числа произведенных электронных приборов и применяемых в различной радиовещательной и телевизионной аппаратуре, телефонных усилителях, промышленной автоматике, электронных счётных машинах и т. п., на число людей, населяющих земной шар.

Первым электронным прибором, сыгравшим немалую роль в развитии электроники, была электровакуумная лампа, разработанная Флемингом в 1904 г., согласно настоящей номенклатуре—детекторный диод.

Имела она известные преимущества по отношению к применяемым тогда в радиотелеграфии детекторам, мало чувствительным и нестабильным в работе. Однако чувствительность лампы Флеминга была всё ещё недостаточной. И только разработанная в 1906 г. Ли дэ Форестом лампа с управляющей сеткой, прототип сегодняшнего триода, вызвала переворот в радиотехнике. Эта лампа (называемая тогда аудион) работала не только как детектор; давала она также усиление слабых сигналов, что дало возможность значительно повысить чувствительность приёмной радиостанции, значит и увеличить радиус действия радиотелеграфа и надёжность приёма, без необходимости увеличения мощности радиопередающей станции. Наряду с этим, благодаря изобретению триода, теория цепей обогатилась новым очень важным элементом, так называемым, „активным элементом” открывающим огромные возможности применения радиоустройств для нужд связи и различных других целей.

Одновременно во многих лабораториях разных стран ведутся работы по улучшению электронных ламп. В триод была введена вспомогательная сетка, что дало начало развитию многосеточных ламп. Радиотехнические устройства обогащаются новым методом так наз. методом супергетеродинного приема сигналов, что дало возможность дальнейшего повышения чувствительности и избирательности приёма.

В сороковых годах начинается продукция более совершенных электронных ламп, прежде всего пентодов, расширяется диапазон мощностей радиоламп, улучшается их экономичность и коэффициент полезного действия.

Мировая война вызвала коренной перелом в электронике; из положения вспомогательного раздела радиотехники она сделала электронику независимой отраслью науки, техники и промышленности.

Результаты исследовательских работ, интенсивно ведущихся в последние довоенные годы, а также и в годы войны в строго охраняемых закрытых лабораториях, внедряются в военную промышленность и используются для создания

нового навигационного, радиолокационного оснащения связи, передаваемого в руки новых военных кадров.

Применяются новые лампы: лампы СВЧ, как например магнетроны, клистроны, миниатюрные триоды, а также специальные лампы, такие как тиратроны, электронные коммутаторы, улучшенные кинескопы; возникают новые радиоустройства и системы, основанные на развитой уже для нужд радиолокации импульсной технике, а техника СВЧ и импульсная техника разрабатываются всё полнее в связи с развитием и усовершенствованием систем навигации и прежде всего—радара. Элементы радиотехнической и электронной аппаратуры подвергаются далеко идущим усовершенствованиям как в отношении параметров, так и технологии; одновременно наблюдаются значительные достижения в стремлении к их миниатюризации и повышению надёжности работы.

За последнее десятилетие мы являемся свидетелями дальнейших достижений электроники. Необходимо здесь подчеркнуть большое значение работ Бардина и Бреттэна, которые в 1948 г. привели к созданию транзистора и положили начало новой отрасли—полупроводниковых элементов и приборов,

Здесь также, как и в случае электронных ламп, мы наблюдаем развитие кристаллических диодов и транзисторов от первых типов точенных до усовершенствованных—плоскостных, от малых мощностей порядка десяти с лишним милливатт до мощностей в несколько, а затем и несколько десятков ватт, от малых частот до высоких. И, наконец, вследствие форсированных исследовательских работ, появляются новые типы и виды полупроводниковых приборов. В группе кристаллических диодов возникли: диоды Зенера, диоды Эсаки т. е. так наз. туннельные диоды, „лавинные” диоды применяемые в быстродействующих переключателях, плоскостные диоды.

Таким же образом появились транзисторы с различной технологией образования $p-n$ переходов, а в связи с этим—с различными характеристиками мощности и частотными параметрами.

В последние годы разработано технологию получения многократных $p-n$ переходов, что привело к созданию новых типов полупроводниковых приборов и дало неограниченные возможности создания целых функциональных агрегатов в одном герметичном блоке. Надо здесь заметить, что параллельно с этим развитием возникли полупроводниковые приборы, чувствительные к источникам возбуждения отличным от электрического напряжения, а именно: фотодиоды, фототранзисторы, термисторы, датчики Холла и т. п.

Это огромное, в научной и хозяйственной жизни каждой страны, значение электроники, вытекающее из её весьма многочисленных применений, влечет за собой необходимость разработки публикаций—каталогов, в которых были бы собраны и оперативно представлены свойства и параметры возможно большего числа современных электронных приборов.

В настоящее время производством электронных ламп и полупроводниковых приборов занимается почти тысяча фирм и предприятий во всем мире. Каждый завод-изготовитель присваивает производимым им приборам свои обозначения и наименования, по которым можно определить тип и основные параметры прибора.

В связи с этой тенденцией появилось множество наименований и обозначений различных типов электронных приборов. Это привело к тому, что потребителю приходится сталкиваться с большими трудностями, приводящими к тому, что без специальных знаний по расшифровке этих наименований и обозначений он практически не в состоянии ими пользоваться.

Для того, чтобы найти выход из этого столь затруднительного положения, ряд ведущих фирм договорились заключить соглашение в целях систематизации обозначений и наименований различных видов и типов электронных приборов.

В С.Ш.А. принят, например, способ обозначения приёмных электронных ламп, заключающийся в том, что первая цифра показывает приблизительно напряжение накала, дальнейшие места (одно или два) зарезервированы на соответствующие буквы обозначающие появляющийся очередной тип лампы, наконец последняя цифра показывает число выведенных наружу электродов. В Европе принято для этого типа ламп иной способ обозначения. А именно: первая буква обозначает в условленном способе напряжение накала, вторая — род лампы, а дальнейшие цифры — очередные развивающиеся типы этой лампы, причём часто эти типы отличаются габаритами или видом цоколя лампы.

Независимо от этих обозначений в странах с ведущей техникой приняты также и другие обозначения: тип лампы обозначается в этом случае очередным регистрационным номером, напр. 5702, не дающим потребителю никакой информации как относительно типа лампы, так и тем более относительно её параметров.

Электронным лампам больших мощностей, т. е. генераторным а также лампам СВЧ и т. п. каждая фирма присваивает свои наименования.

Кроме того в ряде стран, вследствие большого числа производимых приборов, возникли специфические для данной страны нормативные тенденции и обозначения типов. Например, в Англии существует серия обозначений, начинающаяся буквами CV, в США — буквами VT, в Германии — RV в восточных европейских странах в настоящее время обозначения, состоящие из буквы E и числа из четырёх цифр с первой цифрой семёркой, напр. E7026.

Несмотря на все эти попытки упрощений всё же существует на земном шаре несколько десятков тысяч различных обозначений.

Если еще заметить, что электронное оборудование производимое в одной стране используется в различных странах земного шара, вместе с производимыми в этой стране электронными приборами, то можно без преувеличения сказать, что ни одна страна в мире не в состоянии производить все те электронные лампы и полупроводниковые приборы, которые используются в радиоустройствах и электронном оборудовании эксплуатируемом на его территории.

Это оборудование с течением времени требует замены использованных электронных ламп или же полупроводниковых приборов.

В таких условиях использование радиооборудования сопряжено с большими трудностями, возникающими, во-

первых, при определении характеристических данных пришедшего в негодность прибора и затем — при отыскании заменного типа.

Этим вызывается необходимость наличия весьма обширных каталогов и справочников, часто касающихся — от нескольких десятков до почти ста производителей, что для рядового потребителя не всегда достижимо, хотя бы из — за высокой стоимости этой литературы.

Такая обстановка привела к тому, что уже имеется ряд разработанных сводных каталогов, группирующих электронные лампы и полупроводниковые приборы, производимые различными изготовителями. Но основной их недостаток — это небольшое количество информации, сводящейся к нескольким параметрам, что недостаточно для специалиста пользующегося такого рода каталогом.

Кроме того, в этих каталогах электронные приборы приводятся в соответствии с кодами обозначений заводов-изготовителей, т. е. по алфавиту, либо по цифрам, что создает почти непреодолимые трудности, связанные с отыскиванием сходных типов, имеющих различные обозначения.

В нашей стране трудности с отыскиванием соответствующего заменного типа электронного прибора проявляется особенно остро. Территориальные и хозяйственные условия П.Н.Р. содействуют тому, что в её пределах, пожалуй, так как ни в одной другой стране, используются самые разнообразные виды электронных ламп и полупроводниковых приборов.

В таких условиях авторы *Electronic Universal Vade-Mecum* (Универсальный справочник электронных приборов) попытались составить каталог так, чтобы можно было избежать необходимости пользования многочисленными фирменными каталогами.

Для этого авторы данной работы исследовали около 15 тыс. типов электронных приборов и разделили их на ряд групп. В каждую из этих групп входят сходные приборы независимо от различия их обозначений заводами-изготовителями.

Необходимо также подчеркнуть, что в рассматриваемых группах не всегда имеются все типы электронных ламп или же полупроводниковых приборов. Получено интересные и многообещающие результаты.

Оказалось, что ряд заводов производит одинаковые электронные лампы или же полупроводниковые приборы, но с совершенно различными обозначениями. Кроме того оказалось, что те же самые электронные лампы, отличающиеся лишь внешним оформлением, имеют совсем различные обозначения.

В *Electronic Universal Vade-Mecum* группы расположены по принципу „веера“ — каждая группа содержит электронные приборы весьма незначительно отличающиеся от приборов соседней группы.

Пользующийся каталогом, имея один тип лампы, может найти сразу все остальные типы с такими же или сходными свойствами, но производимые другими заводами-изготовителями.

Каждая группа содержит следующие данные: данные номинальные, типовые статические характеристики, динамические (рабочие) характеристики, предельно-допустимые величины, цоколёвку и схему соединений электродов, габаритные размеры и некоторые особенно рекомендуемые для приборов данной группы принципиальные схемы узлов.

В каждой группе имеются сведения о приборах разных периодов продукции, которые можно различить по виду пе-

чатного шрифта. Электронные приборы, происхождение которых относится к раннему периоду производства (это касается главным образом электронных ламп), обозначены наклонным шрифтом (курсивом). Нормальным шрифтом обозначены приборы широко применяемые в настоящее время. Новейшие, наиболее охотно применяемые электронные лампы и полупроводниковые приборы с особенно удачными параметрами, печатаются жирным шрифтом.

В каталоге помещен указатель позволяющий быстро и легко найти дальнейший тип электронного прибора и все соответствующие ему типы, а также — технические данные необходимые конструктору радиотехнических устройств.

Такое построение „Electronic Universal Vade-Mecum”

в значительной мере устраняет необходимость пользования фирменными каталогами.

В это издание авторами не были включены все выпускаемые типы электронных приборов. Каталог не содержит сведений о специальных анализирующих телевизионных лампах как, например, супериконоскоп, суперортикон, видикон и т. п. — о генераторных лампах очень большой мощности, запоминающих электронных лампах, бареттерах и т. п.

Можно надеяться, что „Electronic Universal Vade-Mecum” окажется полезным трудом и справочным пособием в повседневной работе специалистов электроники, как занимающихся собственно электронными приборами, так и для тех, которые разрабатывают схемы, с применением этих приборов.

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INTRODUZIONE

L'elettronica va assumendo un'importanza sempre maggiore non solo nelle ricerche scientifiche e nella tecnica, ma in generale nella vita delle società moderne. Sentiamo continuamente parlare dei suoi sempre maggiori successi, delle sue nuove applicazioni, di interi nuovi settori.

Sebbene sessanta anni fa la valvola elettronica non fosse ancora conosciuta, oggi ogni abitante del globo è "servito" in media, da dieci valvole elettroniche e transistori; questa cifra è il risultato del calcolo del rapporto tra la quantità di apparecchi elettronici prodotti e che vengono applicati nei vari apparecchi radiofonici, televisivi, negli amplificatori telefonici, nell'automazione industriale, nelle macchine contabili elettroniche, ecc., e il numero degli abitanti del nostro globo.

Il primo apparecchio elettronico che assumesse una certa importanza nello sviluppo dell'elettronica, fu la valvola a vuoto inventata da Fleming nel 1904, chiamata, secondo l'odierna nomenclatura, diodo rivelatore. Possedeva essa alcune qualità in confronto ai detettori usati allora nella radiotelegrafia, poco sensibili e instabili nel loro lavoro. Tuttavia la valvola di Fleming aveva una sensibilità ancora insufficiente.

Solamente la valvola con rete di comando e prototipo dell'odierno triodo elaborata da Lee de Forest nel 1906 effettuò una svolta nel campo della radiotecnica. Questa valvola (chiamata allora audione) agiva non solo come detettore; rinforzava anche i segnali deboli, il che permetteva una maggiore sensibilità della stazione ricevente e quindi l'ingrandimento del campo e della sicurezza d'azione del radiotelegrafo, senza la necessità di aumentare la potenza della stazione trasmittente. Nello stesso tempo, grazie alla scoperta del triodo, la teoria dei circuiti si arricchì di un nuovo e molto importante elemento, così detto attivo, che aprì ampie prospettive agli impianti di telecomunicazioni ed a molti altri.

Nello stesso tempo in molti laboratori di diversi Paesi si lavorava al miglioramento delle valvole elettroniche. Si introdusse nel triodo una rete ausiliare che diede inizio allo sviluppo delle lampade multirete. I sistemi elettronici si arricchirono di un nuovo metodo, detto della recezione dei segnali a supereterodino, che permetteva di giungere ad ulteriori miglioramenti della sensibilità e della selezione della recezione radio.

Negli anni quaranta entrarono in produzione più perfette lampade multirete, innanzitutto i pentodi; si ampliava il campo della potenza delle lampade, se ne migliorava l'economia e l'efficienza. Il campo d'azione della frequenza, sia nelle valvole riceventi che nelle trasmettenti, si spostava verso onde di minore lunghezza.

La II guerra mondiale provocò una fondamentale svolta nell'elettronica: la innalzò dal ruolo di aiuto nel campo della radiotecnica al rango di settore indipendente della scienza, della tecnica e dell'industria.

I risultati dei lavori di ricerca, intensamente condotti negli ultimi anni precedenti la guerra e durante la guerra stessa in laboratori posti sotto stretto controllo, furono passati all'industria di guerra, furono utilizzati nella costruzione del nuovo materiale di collegamento, di navigazione, di radiolocalizzazione che veniva affidato nelle mani della nuova schiera di specialisti militari. Entrarono in uso le nuove valvole microonde come ad es.: magnetroni, clistroni, miniature di triodi e pentodi nonché valvole speciali come i tiratroni, le valvole di interruzione automatica, le valvole cinescopiche migliorate; vengono costruiti nuovi impianti, elaborati nuovi sistemi basati sulla tecnica degli impulsi già in avanzata fase di sviluppo per le necessità della radiolocalizzazione; si cercò di conoscere a fondo la tecnica delle altissime frequenze e la tecnica degli impulsi dato il continuo sviluppo e i miglioramenti apportati ai sistemi di navigazione, e innanzitutto al radar. Vennero migliorati al massimo i vari elementi dell'attrezzatura radiotecnica ed elettronica, sia per quanto riguardava i parametri che la tecnologia; si notò inoltre un grande progresso nella tecnica della loro precisione di funzionamento, mentre venivano prodotti in forme sempre più piccole.

Gli ultimi quindici anni hanno portato gli ulteriori successi di cui tutti siamo stati testimoni. Bisogna ricordare gli importanti lavori di Bardeen e di Brattain che nel 1948 portarono alla realizzazione del transistor e diedero inizio in realtà ad un nuovo campo degli elementi e degli apparecchi semiconduttori.

E come nel caso delle valvole elettroniche vediamo all'inizio svilupparsi i diodi di cristallo e i transistor che passano dai primi tipi di punta fino ai migliori — d'unione, da quelli di piccole potenze dell'ordine di alcuni milliwatt a quelli di potenza sempre maggiore fino a qualche decina di watt, da piccole frequenze a frequenze sempre maggiori.

Infine, in seguito a forzate ricerche, appaiono i nuovi tipi e le prime variazioni di apparecchi semiconduttori. Nel gruppo dei diodi di cristallo si hanno: diodi di Zener, diodi di Esaki, ossia i così detti diodi a tunnel, diodi „a valanga" usati negli impianti a rapido spostamento, diodi a strati. Nello stesso modo appaiono i transistor dalle giunzioni eseguite secondo vari metodi tecnologici e perciò dalle varie caratteristiche di frequenza e di potenza.

Negli ultimi anni ci si è resi padroni della tecnologia per ottenere molteplici giunzioni $p-n$, il che ha portato a creare nuovi tipi di apparecchi semiconduttori e ha dato illimitate possibilità di creare interi complessi funzionali in una costruzione ermetica.

Bisogna qui ricordare che parallelamente a questo sviluppo sono stati creati apparecchi semiconduttori sensibili ad altri impulsi al di fuori della tensione elettrica, e cioè: fotodiodi, fototransistori, termistori, halotroni, ecc.

L'enorme valore dell'elettronica nella vita scientifica ed economica di ogni paese, valore che le deriva dalla mol-

plicità delle applicazioni, fa sorgere la necessità di pubblicare cataloghi nei quali siano raccolte ed esposte in modo efficace le proprietà e i parametri del maggior numero possibile di moderni apparecchi elettronici. Al momento attuale infatti la produzione delle valvole elettroniche e degli apparecchi semiconduttori è effettuata in tutto il mondo da quasi mille ditte. Ognuna di queste ditte assegna una segnaletica ed un nome agli apparecchi da essa prodotti, dai quali se ne può stabilire il tipo e i parametri fondamentali.

In seguito a tale tendenza è sorta una enorme quantità di nomi e di dati segnaletici dei diversi tipi di apparecchi elettronici ponendo l'utente di fronte a tali difficoltà che, se non possiede le cognizioni necessarie per decifrare questi nomi e questi dati, non è assolutamente in grado di poterli utilizzare.

Per potersi più facilmente muovere in questo intrico di dati molte delle principali ditte mondiali si sono reciprocamente accordate per sistemare uniformemente i dati segnaletici ed i nomi dei diversi tipi di apparecchi elettronici.

Negli Stati Uniti si applica per esempio il metodo di denominare le valvole elettroniche ricevute nel seguente modo: la prima cifra significa, approssimativamente, la tensione di incandescenza; il posto seguente (uno o due) è riservato alle lettere che indicano il tipo di valvola secondo il susseguirsi nel tempo della loro produzione; infine l'ultima cifra indica il numero degli elettrodi da esse fuoriuscenti. In Europa è stato scelto un diverso metodo di segnaletica per questo tipo di valvola. La prima lettera cioè indica, secondo un metodo stabilito, la tensione di incandescenza, la seconda — il tipo della valvola, e le cifre successive il numero specifico che caratterizza la variante costruttiva di questo tipo di valvola; bisogna inoltre tener conto che questi tipi differiscono soltanto nelle forme costruttive delle basi e degli zoccoli.

Indipendentemente da questo metodo segnaletico nei Paesi dalla tecnica più sviluppata sono stati assunti anche altri tipi di segnalazione; il tipo della valvola, in questo caso, è segnato con un numero di registrazione successivo, per es. 5702, che di per sé nulla dice all'utente sul genere della valvola e ancor meno sui suoi dati caratteristici.

Le valvole elettroniche di maggiore potenza, cioè di tipo emittente, e le lampade microonde, ecc. vengono contrassegnate individualmente dalle varie ditte.

Inoltre in diversi Paesi, a causa del grande numero di apparecchi prodotti, sono sorte tendenze normalizzatrici e specifiche per ciascun paese, per quanto riguarda la segnaletica dei vari tipi. In Inghilterra, per es., esiste una serie di definizioni che iniziano dalla lettera CV, negli U.S.A. dalla lettera VT, in Germania — RV, e nei Paesi dell'Europa Orientale si applicano attualmente dati segnaletici formati dalla lettera E seguita da un numero di quattro cifre di cui la prima è 7, per es. E7026.

Nonostante tutte queste prove per semplificare la segnaletica delle valvole, continuano ad esistere nel mondo alcune decine di migliaia di diversi dati segnaletici. Se a ciò aggiungiamo che gli apparecchi e gli impianti elettronici prodotti in un dato Paese vengono diffusi in quasi tutto il mondo insieme agli apparecchi elettronici prodotti in questo Paese, si può affermare, senza esagerare, che nessun Paese al mondo è in grado di produrre tutte quelle valvole elettroniche e quegli apparecchi semiconduttori che si trovano negli impianti e negli apparecchi elettronici usati nel suo territorio.

Questi impianti, con il passar del tempo, richiedono il cambio delle valvole elettroniche usate, oppure degli apparecchi semiconduttori. In questo caso l'utente di quell'apparecchio incontra gravi difficoltà innanzitutto nel definire i dati caratteristici dell'apparecchio da lui usato e quindi nel trovare valvole di ricambio che possano sostituire le suddette.

Questo genere di operazione richiede un'ampia conoscenza dei cataloghi e della letteratura informativa di un numero di produttori che può spesso raggiungere anche i cento, la qual cosa non è sempre possibile per il semplice utente, non fosse altro che per le spese che dovrebbe sostenere.

Questa situazione fa sì che esista già un rilevante numero di cataloghi collettivi che raggruppano le valvole elettroniche e gli apparecchi semiconduttori prodotti dalle diverse ditte. Tuttavia questi cataloghi possiedono il fondamentale difetto di avere per ogni tipo un numero di informazioni molto limitato e di riferirsi appena ad un paio di parametri, il che fa sì che queste informazioni siano insufficienti per il lettore e l'utente di questo genere di cataloghi. Oltre a ciò in questi cataloghi gli apparecchi elettronici sono elencati secondo i simboli adottati dai vari produttori, cioè secondo l'alfabeto o le cifre e pertanto le difficoltà nel ricercare tipi simili, ma a segnalazione diversa, sono quasi insuperabili.

Nel nostro paese le difficoltà nel ricercare un apparecchio elettronico corrispondente a quello da sostituire sono particolarmente serie. La posizione geografica e le condizioni economiche della Polonia causano che nel suo territorio si trovino e siano applicati i più diversi tipi di valvole elettroniche e di apparecchi semiconduttori. Per questa ragione, gli autori dell' "Electronic Universal Vade-Mecum" hanno deciso di elaborare un catalogo in maniera tale da poter evitare la necessità di possedere e sfogliare i diversi cataloghi delle varie ditte.

A questo proposito gli autori di tale lavoro hanno esaminato circa 15 mila tipi di apparecchi elettronici e li hanno divisi in diversi gruppi. Ognuno di essi contiene apparecchi simili tra loro, senza tener conto della segnaletica e delle ditte che li hanno prodotti.

Si sono ottenuti risultati interessanti e promettenti.

Si è visto infatti che diverse ditte producono valvole elettroniche e apparecchi semiconduttori identici, ma dalla segnaletica del tutto diversa. Si è visto inoltre che, ad es. le stesse valvole elettroniche che si differenziano solo di poco, per quanto riguarda l'aspetto esteriore sono state definite in modo del tutto diverso.

La disposizione dei gruppi nell' "Electronic Universal Vade-Mecum" è eseguita "a ventaglio", cioè ogni gruppo comprende apparecchi elettronici che differiscono di molto poco dagli apparecchi posti nel gruppo vicino. Ecco perché l'utente del catalogo, in caso di bisogno, può facilmente, avendo un tipo, trovare subito tutti gli altri tipi che possiedono le stesse o simili proprietà di altre ditte.

Ogni gruppo contiene i seguenti dati: dati nominali, tipiche caratteristiche statiche, caratteristiche dinamiche (di lavoro), valori ammissibili, sistema dello zoccolo e delle connessioni, misure delle perine vitree ed inoltre alcuni sistemi elettronici particolarmente consigliati per un dato gruppo.

In ogni gruppo sono contenute le informazioni sugli apparecchi prodotti nei diversi periodi.

Questi periodi si differenziano solo per il carattere di stampa. Gli apparecchi elettronici prodotti in un primo periodo, ciò si riferisce soprattutto alle valvole elettroniche, sono scritti in corsivo. Per gli apparecchi comunemente usati si è adoperato il carattere tondo. Con il grassetto invece sono state distinte le più moderne valvole elettroniche, maggiormente applicate, e gli apparecchi semiconduttori dai parametri particolarmente riusciti.

Il catalogo è completato da un elenco che permette in modo rapido e facile, di trovare ogni tipo di apparecchio elettronico e tutti i suoi corrispondenti, come anche di ricercare un dato gruppo nel quale siano contenuti dati tecnici necessari a chi progetti sistemi elettronici.

Una tale conformazione dell'Electronic Universal Va-

de-Mecum permette di evitare al massimo il bisogno di possedere cataloghi di diverse ditte.

Nella presente edizione gli autori hanno inserito tutti i vari tipi di apparecchi elettronici esistenti. Il catalogo infatti contiene informazioni sulle speciali valvole televisive analitiche come ad esempio il supericonoscopio, il superorticone, il vidicone, ecc., sulle valvole emittenti ad alta potenza, sulle valvole elettroniche a memoria magnetica, sulle barrettere, ecc., di diversi tipi.

Ci auguriamo che l'Electronic Universal Vade-Mecum" risolva in pieno il suo compito e divenga un utile informatore nel lavoro giornaliero degli elettronici, sia di coloro che si occupano dei soli apparecchi elettronici, sia di coloro che preparano i sistemi per l'uso di questi apparecchi.

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ELECTRONIC UNIVERSAL VADE-MECUM

VOLUME 1

The catalogue includes the radio-receiving valves manufactured all over the world. They are classified in 442 groups comprising valves of identical or similar parameters.

The following data are given in each of these groups:

- (1) rated values of electric parameters and relative service conditions,
- (2) equivalent values,
- (3) connection arrangements for the valve sockets,
- (4) some characteristics of the valves, typical for each group,
- (5) operating conditions for the most up-to-date valves.

Three kinds of type are used for the denotation of valves:

- (1) italics — for valves of old design, and valves with changed type number,
- (2) Roman type — for valves now in common use,
- (3) bold type — for valves of latest design.

Explanation of symbols

A	High frequency diode	<i>Pa</i>	Plate dissipation
C	Low-power triode	<i>Pdr</i>	Grid driving power
<i>Ca; Ca/k</i>	Output capacity	<i>Pg</i>	Grid dissipation
<i>Cg; Cg/k</i>	Input capacity	<i>Po</i>	Power output
<i>Ca/g</i>	Grid-anode capacity	Q	Enneode (Nonode)
Cl.	Class of operation	<i>Ra/ra</i>	Load resistance between the anodes of two valves
E	Secondary emission valve	<i>Req</i>	Equivalent noise resistance
E	Internal shielding	<i>Rg</i>	Grid resistance
El.-metr.	Electrometer valve	<i>Ri</i>	Internal resistance (Impedance)
Equivalents	Valves with identical electrical data and socket connections	<i>Ro</i>	Optimum load resistance
F	Sharp cut-off R.F. pentode or tetrode	<i>S</i>	Mutual conductance
F v-mu	Variable-mu R.F. pentode or tetrode	<i>Sc</i>	Conversion conductance
<i>f</i>	Frequency	Stat.	Static
H	Heptode (Hexode)	T.	Valve type number
HD	Horizontal Deflection amplifier	<i>Ua</i>	Anode voltage
<i>h</i>	Distortion factor	<i>Ub</i>	Supply (operation) voltage
<i>la</i>	Plate current	<i>Uf</i>	Filament (Heater) voltage
<i>If</i>	Filament (Heater) current	<i>Uf/k</i>	Voltage between heater and cathode
<i>Ig</i>	Grid current	<i>Ug</i>	Grid voltage
<i>Ik</i>	Cathode current	<i>Uo</i>	Rectified voltage
<i>Imp.</i>	Impulse	<i>Up</i>	Inverse voltage
<i>Io</i>	Rectified current	<i>Utr</i>	Supply alternating voltage (RMS)
<i>Ip</i>	Anode peak current	VD	Vertical Deflection
K	Octode	<i>vide*</i>	Please refer to the: „Explanation of symbols”
L	Output pentode or tetrode	Y	Booster diode
M	Tuning indicator (Magic eye)	Z	Rectifying valve
M	Metallisation (external shield)	<i>λ</i>	Wavelength
Mixer	Frequency changer	<i>μ</i>	Amplification factor
Osc.	Oscillator	<i>η</i>	Efficiency

*

*1 Index of valves. In column “T.” type of the valve and in column “gr.” number of the group comprising the valve in question are indicated. A separate index of valves produced by the Soviet Union, arranged according to the Russian alphabet order, is placed at the end of the general index.

*3 The valve is not intended for use in circuits critical as to hum, microphony or noise.

*4 Special quality valve for use in industrial, mobile and telephone equipment. The valve can have the following additional advantages:

a) shock resistance, b) vibration resistance, c) long life (about 10.000 hours), d) reliable performance at high altitudes, e) high temperature resistance, f) stability of electrical values, g) extended filament life,

*5 Capacity without external shield.

*6 Capacity with external shield.

ELECTRONIC UNIVERSAL VADE-MECUM

VOLUME 1

Dans ce catalogue on présente les tubes électroniques récepteurs fabriqués dans le monde entier. On les a classés en 442 groupes, de telle façon que chaque groupe comporte les tubes qui ont des paramètres identiques ou très semblables.

Dans chaque groupe on trouvera les données suivantes:

- 1) les valeurs caractéristiques des paramètres électriques ainsi que les conditions de travail,
- 2) les tubes équivalents,
- 3) les schémas de connections des culots,
- 4) les courbes principales des tubes électroniques,
- 5) les schémas de travail pour les tubes modernes.

Tous les tubes sont écrits, d'une des manières suivantes:

- 1) en italique — tubes d'ancien type,
- 2) en romain — tubes universellement utilisés,
- 3) en caractères gras — tubes modernes.

Explications des symboles

A	Diode de haute fréquence
C	Triode de réception
<i>Ca; Calk</i>	Capacité de sortie
<i>Cg; Cg/k</i>	Capacité d'entrée
<i>Cg/a</i>	Capacité grille-anode
Cl.	Classe
E	Tube à émission secondaire
E	Blindage interne
El.-metr.	Tube électromètre
Equivalents	Tubes qui ont des caractéristiques identiques et les mêmes culots
F	Penthode ou tétrode HF à pente fixe
F v-mu	Penthode ou tétrode HF à pente variable
<i>f</i>	Fréquence
H	Heptode (Hexode)
HD	Déviator horizontal
<i>h</i>	Facteur de non-linéarité
<i>la</i>	Courant d'anode
<i>If</i>	Courant filament
<i>Ig</i>	Courant de grille
<i>Ik</i>	Courant de cathode
<i>Imp.</i>	Impulsion
<i>Io</i>	Courant redressé
<i>Ip</i>	Valeur de crête du courant plaque
K	Octode
L	Penthode ou tétrode de sortie B.F. (finale)
M	Indicateur d'accord
M	Blindage extérieur (Métalisation)
Mixer	Mélangeur
Osc	Oscillateur

<i>Pa</i>	Dissipation d'anode
<i>Pdr</i>	Puissance modulatrice sur la grille. (Puissance de commande)
<i>Pg</i>	Dissipation de grille
<i>Po</i>	Puissance utilisable
Q	Ennéode (Nonode)
<i>Ra/a</i>	Résistance de charge entre les anodes de deux tubes
<i>Req</i>	Résistance équivalente de bruit de fond
<i>Rg</i>	Résistance de grille
<i>Ri</i>	Résistance interne
<i>Ro</i>	Résistance extérieure
S	Pente
<i>Sc</i>	Pente de conversion
Stat.	Données statiques
T.	Type (Dénomination du tube)
<i>Ua</i>	Tension d'anode
<i>Ub</i>	Tension d'alimentation
<i>Uf</i>	Tension filament
<i>Ufik</i>	Tension entre le filament et la cathode
<i>Ug</i>	Tension de grille
<i>Uo</i>	Tension redressée
<i>Up</i>	Tension de blocage
<i>Utr</i>	Tension alternative du transformateur
VD	Déviator vertical
vide*	Voir à ce sujet les: „Explications des symboles"
Y	Booster diode
Z	Tube redresseur
<i>λ</i>	Longueur d'onde
<i>μ</i>	Coefficient d'amplification
<i>η</i>	Rendement



*1 Index alphabétique des tubes. Dans la colonne "T." on a donné les types des tubes, dans la colonne "gr." le numéro du groupe dans lequel se trouve le tube. Les groupes voisins comportent les tubes de paramètres semblables.

L'index des tubes fabriqués en U.R.S.S. se trouve après l'index en lettres latines.

*3 Le tube n'est pas destiné aux applications critiques sensibles à l'effet microphonique, au bruit ou au ronflement.

*4 Le tube à haute sécurité de fonctionnement pour l'utilisation dans les équipements industriels, mobiles et téléphoniques.

Les qualités supplémentaires de ces tubes sont les suivantes: a) résistance aux chocs, b) résistance aux vibrations, c) durée moyenne de vie plus grande (env. 10000 heures), d) possibilité de fonctionnement à haute altitude, e) résistance aux températures élevées, f) stabilité des paramètres, g) plus grande solidité du filament, h) sécurité de fonctionnement.

*5 Capacités sans blindage extérieur.

*6 Capacités avec blindage extérieur.

ELECTRONIC UNIVERSAL VADE-MECUM

VOLUMEN 1

El catálogo contiene tubos electrónicos receptores producidos en todo el mundo. Se ha empleado una clasificación por 442 grupos, cada uno de los cuales contiene tubos electrónicos de parámetros idénticos o semejantes.

Para cada grupo se dan los datos siguientes:

- 1) los valores nominales de los parámetros electrónicos y régimen nominal,
- 2) los tubos electrónicos equivalentes,
- 3) los esquemas de conexiones de los zócalos,
- 4) algunas características de cada grupo de tubos electrónicos,
- 5) circuitos de trabajo de los tubos más modernos.

Todos los tubos son indicados de la manera siguiente:

- 1) en bastardilla los tubos de antiguo tipo,
- 2) en letra normal los tubos electrónicos de uso común,
- 3) en negrilla los tubos más modernos.

Explicación de los símbolos

A	Diodo de alta frecuencia	Osc.	Oscilador
C	Triodo de recepción	Pa	Disipación anódica
Ca; Calk	Capacidad de salida	Pdr	Potencia de excitación
Cg; Cg/k	Capacidad de entrada	Pg	Disipación de rejilla
Cg/a	Capacidad rejilla-ánodo	Po	Potencia utilizable de entrada
Cl.	Clase	Q	Eneodo (Nonodo)
E	Válvula de emisión secundaria	Ra/a	Resistencia de carga ánodo-ánodo
E	Blindaje interno	Req	Resistencia equivalente de ruido
El.-metr.	Válvula electrométrica	Rg	Resistencia de rejilla
Equivalentes	Tubos de características y zócalos idénticos	Ri	Resistencia interior
F	Pentodo (tetrodo) de alta frecuencia de inclinación fija de la característica	Ro	Resistencia exterior (de salida)
F v-mu	Pentodo (tetrodo) de alta frecuencia de inclinación de la característica variable	S	Inclinación de la característica
f	Frecuencia	Sc	Inclinación de la característica de conversión
H	Heptodo (Hexodo)	Stat.	Parámetros estáticos
HD	Desviación horizontal	T.	Tipo
h	Factor de distorsión	Ua	Tensión anódica
la	Corriente anódica	Ub	Tensión de alimentación
lf	Corriente de caldeo	Uf	Tensión de filamento (de caldeo)
lg	Corriente de rejilla	Uf/k	Tensión entre filamento y cátodo
lk	Corriente catódica	Ug	Tensión de rejilla
Imp.	Impulso	Uo	Tensión rectificada
o	Corriente rectificada	Up	Punta máxima de tensión de placa
lp	Punta máxima de la corriente anódica	Urr	Tensión del transformador
K	Octodo	VD	Desviación vertical
L	Pentodo (tetrodo) de salida final B.F.	vide*	Véase: "Explicación de los símbolos"
M	Indicador de sintonía	Y	Booster (Damper) diodo
M	Blindaje exterior (Metalizado)	Z	Tubo rectificador
Mixer	Mezclador	λ	Longitud de onda
		μ	Coefficiente de amplificación
		η	Rendimiento



*1 Índice alfabético de los tubos. En la columna "T." se insertan los tipos de tubos, y en la columna "gr." el número de los grupos en los que se hallan los tubos. Los grupos contiguos incluyen los tubos de parámetros cercanos.

El índice de los tubos fabricados en la URSS se encuentra al final del índice en caracteres latinos.

*3 El tubo no está destinado a la aplicación en dispositivos sensibles a las perturbaciones acústicas, a los ruidos y a los zumbidos.

*4 Tubo de alta seguridad de funcionamiento para el empleo en diferentes instalaciones industriales y de telecomunicación.

El tubo puede tener las siguientes cualidades: a) resistencia al choque, b) resistencia a las vibraciones, c) larga duración (promedio 10000 horas), d) capacidad de funcionamiento a gran altitud, e) resistencia a altas temperaturas, f) estabilidad de los parámetros, g) gran solidez de los filamentos.

*5 Capacidades sin blindaje exterior.

*6 Capacidades con blindaje exterior.

ELECTRONIC UNIVERSAL VADE-MECUM

BAND 1

Dieser Röhren-Katalog enthält technische Daten der Empfängeröhren, die in der ganzen Welt hergestellt werden. Der Inhalt ist in 442 Gruppen unterteilt. Zu jeder Gruppe gehören Röhren mit denselben oder ähnlichen Parametern.

In jeder Gruppe sind angegeben:

- 1) Nennwerte der elektrischen Röhrendaten nebst Betriebsdaten,
- 2) Ersatz-Röhrentypen,
- 3) Sockelschaltungen,
- 4) einige Röhrenkennlinien, die für jede Gruppe typisch sind,
- 5) grundsätzliche Betriebsschaltungen (für die modernsten Röhren).

Alle Röhren sind auf dreifache Weise gekennzeichnet:

- 1) in schräger Schrift — alte Röhrentypen,
- 2) in gewöhnlicher Schrift — die gebräuchlichsten Röhrentypen,
- 3) in fetter Schrift — Röhren modernster Bauart.

Bedeutung der Symbole

A	Hochfrequenzdiode	<i>Pa</i>	Anodenverlustleistung
C	Empfängertriode	<i>Pdr</i>	Steuerleistung
<i>Ca; Cak</i>	Ausgangskapazität	<i>Pg</i>	Gitterverlustleistung
<i>Cg; Ckig</i>	Eingangskapazität	<i>Po</i>	Sprechleistung (Nutzleistung)
<i>Cgia</i>	Gitter-Anode-Kapazität	Q	Enneode (Nonode)
Cl.	Betrieb (Klasse)	<i>Raia</i>	Aussenwiderstand zwischen Anode und Anode
E	Sekundäremissionsröhre	<i>Req</i>	Äquivalenter Rauschwiderstand
E	Innere Abschirmung	<i>Rg</i>	Gitterwiderstand
El.-metr.	Elektrometerröhre	<i>Ri</i>	Innerer Widerstand
Equivalents	Röhren mit gleichen technischen Daten und Sockeln	<i>Ro</i>	Aussenwiderstand (Belastungswiderstand)
F	Hochfrequenzpentode oder Tetrode	S	Steilheit
F v-mu	Regelbare Hochfrequenzpentode oder Tetrode	<i>Sc</i>	Mischsteilheit
<i>f</i>	Frequenz	Stat.	Statische Werte
H	Heptode (Hexode)	T.	Type (Röhrenbezeichnung)
HD	Horizontale Ablenkung	<i>Ua</i>	Anodenspannung
<i>h</i>	Klirrfaktor	<i>Ub</i>	Betriebsgleichspannung
<i>ia</i>	Anodenstrom	<i>Uf</i>	Heizspannung
<i>If</i>	Heizstrom	<i>Uf/k</i>	Spannung zwischen Heizfaden und Kathode
<i>ig</i>	Gitterstrom	<i>Ug</i>	Gitterspannung
<i>Ik</i>	Kathodenstrom	<i>Uo</i>	Gleichgerichtete Spannung
<i>Imp.</i>	Impuls	<i>Up</i>	Maximale Sperrspannung
<i>Io</i>	Gleichgerichteter Strom	<i>Utr</i>	Trafospannung
<i>Ip</i>	Anodenspitzenstrom	VD	Vertikale Ablenkung
K	Oktode	vide*	Siehe: „Bedeutung der Symbole“
L	Endpentode oder Tetrode	Y	Schalterdiode
M	Anzeigeröhre (magisches Auge)	Z	Gleichrichterröhre
M	Metallisierung (Aussen-Abschirmung)	<i>λ</i>	Wellenlänge
Mixer	Mischstufe	<i>μ</i>	Verstärkungsfaktor
Osc.	Oszillator	<i>η</i>	Wirkungsgrad



*1 Alphabetisches Verzeichnis von Röhren.

In der Spalte „T.“ sind die Röhrentypen und in Spalte „gr.“ die Gruppennummer der gesuchten Röhre angegeben. Die Nachbargruppen enthalten Röhren mit ähnlichen Daten.

Das alphabetische Verzeichnis der sowjetischen Röhren befindet sich am Ende des allgemeinen Verzeichnisses.

*3 Die Röhre ist nicht geeignet für Schaltungen, die kritisch in Bezug auf Brummen, Mikrophonie oder Rauschen sind.

*4 Zuverlässige Röhre zur Verwendung in verschiedenartigen industriellen und telephonischen Anlagen.

Die Röhre kann folgende zusätzliche Eigenschaften besitzen:

a) Stossfestigkeit, b) Vibrationsfestigkeit, c) lange Lebensdauer (durchschnittlich 10000 Stunden), d) Höhenfestigkeit, e) hohe Temperaturfestigkeit, f) enge Datentoleranz, g) hohe Schaltfestigkeit des Heizfadens.

*5 Kapazität ohne äussere Abschirmung.

*6 Kapazität mit äusserer Abschirmung.

ELECTRONIC UNIVERSAL VADE-MECUM

TOM 1

W katalogu podano odbiorcze lampy elektronowe produkowane na całym świecie. Zastosowano tu podział na 442 grupy, z których każda zawiera lampy o parametrach identycznych lub podobnych.

W każdej z grup wymieniono następujące dane:

- 1) wartości nominalne parametrów elektrycznych wraz z warunkami pracy,
- 2) odpowiedniki lamp elektronowych,
- 3) układy połączeń cokołów,
- 4) niektóre charakterystyki lamp elektronowych reprezentujących daną grupę,
- 5) układy pracy (dla lamp najnowocześniejszych).

Wszystkie lampy są oznaczone w trojaki sposób:

- 1) drukiem pochylonym — lampy starego typu oraz lampy o nieaktualnej nomenklaturze,
- 2) drukiem zwykłym — lampy powszechnie używane,
- 3) drukiem tłustym — lampy najnowocześniejsze.

Wykaz oznaczeń

A	Dioda wielkiej częstotliwości	Osc.	Oscylator
C	Trioda małej mocy	Pa	Moc admisyjna anody
<i>Ca; Caik</i>	Wyjściowa pojemność lampy	Pdr	Moc sterująca siatki
<i>Cg; Cgik</i>	Wejściowa pojemność lampy	Pg	Moc admisyjna siatki
<i>Cgia</i>	Pojemność między siatką sterującą a anodą	Po	Użyteczna moc wyjściowa
Cl.	Klasa pracy lampy	Q	Nonoda (enneoda)
E	Lampa z wtórną emisją	Raja	Oporność obciążenia między anodami dwóch lamp
E	Wewnętrzny ekran lampy	Req	Równoważna oporność szumów
El.-metr.	Lampa dla przyrządów elektrometrycznych	Rg	Oporność w obwodzie siatki
Equivalent	Lampy o ściśle jednakowych parametrach i cokołach	Ri	Oporność wewnętrzna lampy
F	Pentoda lub tetroda wielkiej częstotliwości, o stałym nachyleniu charakterystyki	Ro	Oporność obciążenia lampy
F v-mu	Pentoda lub tetroda wielkiej częstotliwości, o zmiennym nachyleniu charakterystyki	S	Nachylenie charakterystyki
f	Częstotliwość	Sc	Nachylenie przemiany częstotliwości
H	Heptoda (Heksoda)	Stat.	Parametry statyczne
HD	Wzmocniacz odchyłania poziomego	T.	Typ lampy
h	Współczynnik harmonicznych	Ua	Napięcie anody
la	Prąd anodowy	Ub	Napięcie źródła zasilania
lf	Prąd żarzenia	Uf	Napięcie żarzenia
lg	Prąd siatki	Ufik	Napięcie między grzejnikiem a katodą
lk	Prąd katody	Ug	Napięcie siatki
Imp.	Impuls	Uo	Napięcie wyprostowane
Io	Prąd wyprostowany	Up	Maksymalne napięcie zwrotne
Ip	Szczytowy prąd anodowy	Utr	Napięcie wtórne transformatora zasilającego
K	Oktoda	VD	Wzmocniacz odchyłania pionowego
L	Pentoda lub tetroda wyjściowa (głośnikowa)	vide*	patrz wykaz oznaczeń
M	Optyczny wskaźnik strojenia	Y	Dioda usprawniająca
M	Metalizacja bańki	Z	Lampa prostownicza
Mixer	Mieszacz częstotliwości	λ	Długość fali
		μ	Współczynnik wzmocnienia
		η	Sprawność



*1 Skorowidz alfabetyczny lamp. W kolumnie „T.” podano typ lamp i w kolumnie „gr.” wskazano numer grupy, w której znajduje się poszukiwana lampa. Sąsiednie grupy zawierają lampy o zbliżonych parametrach.

Skorowidz lamp radzieckich znajduje się na końcu skorowidza z piśmownią łacińską.

*3 Lampa nie zalecana do stosowania w układach wrażliwych na zniekształcenia akustyczne, szumy i zjawisko mikrofonowania.

*4 Lampa specjalnie dobrej jakości przeznaczona do pracy w różnorodnych urządzeniach przemysłowych i telekomunikacyjnych.

Lampa może mieć następujące zalety:

a) odporność na uderzenia, b) odporność na wibrację, c) długi czas życia (przeciętnie 10.000 godzin pracy), d) zdolność do pracy na dużych wysokościach, e) wytrzymałość na wysoką temperaturę otoczenia, f) stałość parametrów, g) zwiększoną trwałość grzejnika.

*5 Pomiary bez ekranu zewnętrznego.

*6 Pomiary z ekranem zewnętrznym.

ELECTRONIC UNIVERSAL VADE-MECUM

ТОМ 1

В каталоге представлены приемно-усилительные электронные лампы производимые промышленностью всех стран.

Лампы подразделены на 442 группы, причем в каждой из этих групп собраны лампы имеющие одинаковые или очень похожие параметры.

В каждой группе поданы следующие данные:

- 1) номинальные параметры с условиями работы,
- 2) эквивалентные лампы разных фабрик,
- 3) цоколи ламп и схемы их соединений,
- 4) графические характеристики современных ламп,
- 5) пояснительные схемы современных ламп,

Все лампы обозначены следующим образом:

- 1) шрифтом наклонным — лампы старого производства,
- 2) шрифтом обыкновенным — лампы широкого применения,
- 3) шрифтом жирным — наиболее современные лампы.

Условные обозначения

A	Диод высокой частоты
C	Триод малой мощности
<i>Ca; Ca/k</i>	Выходная емкость лампы
<i>Cg; Cg/k</i>	Входная емкость лампы
<i>Cg/a</i>	Прходная емкость лампы
Cl.	Класс работы лампы
E	Лампа с вторичной эмиссией
E	Внутренний экран
El.-metr.	Лампа для электроизмерительных приборов
Equivalents	Лампы с совершенно одинаковыми параметрами и цоколями
F	Пентод или тетрод высокой частоты, с короткой характеристикой
Fv-mu	Пентод или тетрод высокой частоты, с удлиненной характеристикой
<i>f</i>	Частота
H	Гектод (гексод)
HD	Усилитель строчной горизонтальной развертки
<i>h</i>	Коэффициент гармоник
<i>la</i>	Ток анода
<i>f</i>	Ток накала
<i>lg</i>	Ток сетки
<i>lk</i>	Ток катода
<i>Imp.</i>	Импульс
<i>Io</i>	Выпрямленный ток
<i>Ip</i>	Наибольшая амплитуда тока анода
K	Октод
L	Выходной пентод или тетрод
M	Оптический индикатор настройки
M	Металлизированная оболочка баллона лампы
Mixer	Смеситель или преобразователь частоты

Osc.	Генератор, осциллятор
<i>Pa</i>	Мощность, рассеиваемая анодом
<i>Pdr</i>	Мощность управляющей сетки
<i>Pg</i>	Мощность, рассеиваемая сеткой
<i>Pa</i>	Выходная мощность
Q	Нонод (энеод)
<i>Ra/a</i>	Сопротивление нагрузки между анодами двух ламп
<i>Req</i>	Эквивалентное сопротивление шумов
<i>Rg</i>	Сопротивление в цепи сетки
<i>Ri</i>	Внутреннее сопротивление лампы
<i>Ro</i>	Сопротивление нагрузки
S	Крутизна характеристики
Sc	Крутизна характеристики преобразования
Stat.	Статические параметры
T.	Тип лампы
<i>Ua</i>	Напряжение анода
<i>Ub</i>	Напряжение источника питания
<i>Uf</i>	Напряжение накала
<i>Uf/k</i>	Напряжение между нитью накала и катодом
<i>Ug</i>	Напряжение сетки
<i>U</i>	Выпрямленное напряжение
<i>Up</i>	Наибольшая амплитуда обратного напряжения
<i>Utr</i>	Переменное напряжение на вторичной обмотке питающего трансформатора
VD	Усилитель кадровой вертикальной развертки
vide*	смотри условные обозначения
Y	Демпферный диод
Z	Кенотрон
<i>λ</i>	Длина волны
<i>μ</i>	Коэффициент усиления
<i>e</i>	Коэффициент полезного действия



*1 Алфавитный указатель ламп.

В колонке „Т.“ подан тип лампы, в колонке „г.“ указан номер группы, в которой находится искомая лампа. Соседние группы содержат лампы с похожими параметрами.

*3 Лампа, не рекомендуемая для применения в устройствах, чувствительных к акустическим искажениям, шумам и микрофонным эффектам.

*4 Лампа особенно высокого качества, предназначенная для работы

в различных промышленных установках и телеграфно-телефонных усилителях.

Лампа может иметь следующие достоинства:

а) ударостойкость, б) устойчивость на вибрацию, в) долговечность (в среднем 10.000 часов работы), г) способность к работе на большой высоте, е) устойчивость к воздействию повышенной температуры окружающей среды, ф) постоянность параметров, г) увеличенная прочность нити накала.

*5 Измерения без наружного экрана.

*6 Измерения с наружным экраном.

ELECTRONIC UNIVERSAL VADE-MECUM

VOLUME 1

Nel catalogo sono elencati valvole elettroniche prodotte in tutto il mondo. Abbiamo adottato una classificazione in 442 gruppi, in ciascuno dei quali figurano valvole elettroniche o elementi dai parametri identici o molto vicini.

In ogni gruppo sono menzionati i seguenti dati:

- 1) valore nominale dei parametri elettrici e regime nominale,
- 2) valvole elettroniche equivalenti,
- 3) sistemi di connessione dei piedistalli,
- 4) alcune caratteristiche rappresentative di ciascun gruppo di valvole elettroniche,
- 5) regime (per le valvole più moderne).

Tutti valvole sono indicate con didascalie stampate in tre caratteri:

- 1) il corsivo per le valvole elettroniche di vecchio tipo,
- 2) il normale per le valvole elettroniche,
- 3) il neretto per le valvole elettroniche più moderne.

Spiegazione dei contrassegni

A	Diodo di alta frequenza	Pa	Dissipazione anodica
C	Triodo ricevente	Pdr	Potenza di eccitazione
<i>Ca; C_{ak}</i>	Capacità d'uscita	Pg	Dissipazione di griglia
<i>Cg; C_{gik}</i>	Capacità d'ingresso	Po	Potenza utilizzabile di uscita
<i>C_{gla}</i>	Capacità griglia — anodo	Q	Enneodo (Nonodo)
Cl.	Classe	<i>R_{aa}</i>	Resistenza di carica fra anodo e anodo
E	Valvola secondaria d'emissione	<i>R_{eq}</i>	Resistenza equivalente di rumore
E	Schermo interno	<i>R_g</i>	Resistenza di griglia
El.-metr.	Valvola elettrometrica	<i>R_i</i>	Resistenza interna
Equivalents	Valvole con identica caratteristica e zoccolo	<i>R_o</i>	Resistenza di carico (di uscita)
F	Pentodo (tetrodo) amplificatore RF	S	Transconduttanza
F v-mu	Pentodo (tetrodo) ad amplificazione variabile	<i>S_c</i>	Transconduttanza di conversione
<i>f</i>	Frequenza	Stat.	Valore statico
H	Eptodo (Essodo)	T.	Tipo
HD	Deviazione orizzontale	<i>U_a</i>	Tensione anodica
<i>h</i>	Fattore di distorsione	<i>U_b</i>	Tensione di alimentazione
<i>I_a</i>	Corrente anodica	<i>U_f</i>	Tensione di filamento (di accensione)
<i>I_f</i>	Corrente di filamento	<i>U_{fjk}</i>	Tensione continua fra catodo e filamento
<i>I_g</i>	Corrente di griglia	<i>U_g</i>	Tensione di griglia
<i>I_k</i>	Corrente catodica	<i>U_o</i>	Tensione raddrizzata
<i>Imp.</i>	Impulso	<i>U_p</i>	Punta massima di tensione anodica (di interdizione)
<i>I_o</i>	Corrente raddrizzata	<i>U_{tr}</i>	Tensione del trasformatore
<i>I_p</i>	Massima ampiezza della corrente anodica	VD	Deviazione verticale
K	Ottodo	vide*	Vedere la „Spiegazione dei contrassegni”
L	Pentodo (tetrodo) d'uscita B.F., finale	Y	Booster (Damper) diodo
M	Indicatore di accordo (sintonia)	Z	Tubo raddrizzatore
M	Blindaggio esterno (metallizzato)	<i>λ</i>	Lunghezza d'onda
Mixer	Mescolatore	<i>μ</i>	Coefficiente d'amplificazione
Osc.	Oscillatore	<i>η</i>	Rendimento



*1 Indice alfabetico delle valvole. Nella colonna „T.” sono elencati i tipi di le valvole e nella colonna „gr.” i numeri dei gruppi in cui si trovano le valvole desiderate. I gruppi contigui comprendono le valvole dai parametri vicini.

L'indice delle valvole fabbricate nella U.R.S.S. si trova alla fine di quello in caratteri latini.

*3 Valvola non destinata alla applicazione in dispositivi sensibili agli effetti acustici, ai rumori e ai ronzii.

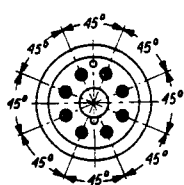
*4 Valvola di alta garanzia di funzionamento adatta agli usi industriali e alle telecomunicazioni. La valvola può avere le seguenti qualità supplementari: a) resistenza alle scosse, b) resistenza alle vibrazioni, c) lunga durata (media 10000 ore), d) capacità di funzionamento a grandi altitudini, e) resistenza ad alte temperature, f) stabilità dei parametri, g) grande solidità dei filamenti.

*5 Capacità senza blindaggio esterno.

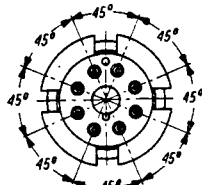
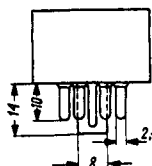
*6 Capacità con blindaggio esterno.



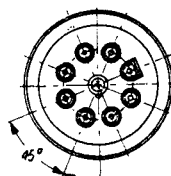
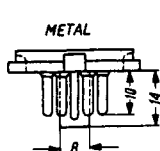
AEG	Allgemeine Elektrizitäts-Gesellschaft, Berlin (West); Frankfurt (Main)	Mul	Mullard Limited, Century House, Shaftesbury Avenue, London, W.C.2
amer	American production	Osr	Osram Valves, The General Electric Co., Ltd., Magnet House, London W. C.2
BB	S. A. Brown, Boveri Cie, Baden, Suisse	Oxt	Oxytron, Skandinavisk Radioröfabrik A/S V., Boulevard 42 København, Denmark
Bri	Brimar, Standard Telephones and Cables Ltd., Footscray Sidcup Kent, England	Phi	N.V. Philips Gloeilampenfabrieken, Eindhoven, Nederland
Cas	Establ. Castilla, General Pardinás 5, Madrid	Pol	Poland, Polish production
CCCP	Союз Советских Социалистических Республик (Soviet Union)	Ray	Raytheon Manufacturing Comp., 55 Chapel Street, Newton 58, Mass., USA
Cel	Radio Celsior, 17, rue des Tournelles, Paris (4 ^e)	RB	Radio Belvue S. A., 11, Rue Raspail, Malakoff, Seine
Cet	Cetron, Continental Electric Co., Geneva, Illinois, USA	RCA	Radio Corporation of America, Harrison, N.J., USA (International Division, 30 Rockefeller Plaza, New York 20)
CIF	Compagnie Industrielle Française des Tubes Electroniques „CIFTE”, 1, Place Hérold, Courbevoie, Seine	RFT	VEB Funkwerk, Erfurt, Rudolfstr. 47
Cos	A. C. Cossor Ltd., Cossor House, Highbury Grove, London, N. 5	RT	La Radiotechnique = Miniwatt Dario, vide Dar
CSF	Compagnie Générale de T.S.F., 79, Boulevard Haussmann, Paris (8 ^e)	Sat	Sator = Tungsram, vide Tu
Dar	Miniwatt Dario, 130, Av. Ledru-Rollin, Paris (11 ^e)	SER	AB Svenska Elektronrör, Stockholm 20, Sweden
Eds	Ediswan, Siemens Edison Swan Ltd., 155 Charing Cross Road, London, W.C.2	SFR	Société Française Radio-Electrique, 55 rue Greffulhe, Levallois-Perret, Seine, France
EEV	English Electric Valve Co., Chelmsford, England	Siem	Siemens & Halske Aktiengesellschaft, Röhrenfabrik, München 8, St.-Martin-Strasse 76
Eim	Eitel-Mc Cullough, Inc., San Bruno, California, USA	SS	Six Sixty Radio Co., 122 Charing Cross, London, W. C.2
Eng	England, English production	STCA	Standard Telephones and Cables Ltd., Sydney, N. S.W., Australia
ER	Ever-Ready Co., Ltd., Hercules Place, London, N.7	STCE	Standard Telephones and Cables Ltd., Connaught House, Aldwych, London W.C.2
eur	European production	STCS	A.-B. Standard Radiofabrik, Bromma, Sweden
Fer	Ferranti, Radio & Television Ltd., Kern House, 36 Kingsway, London W. C.2	Syl	Sylvania Electric Products Inc. 100 Sylvan Rd., Woburn, Mass., USA (International Division, 1740 Broadway, New York 19)
Fiv	Fivve, Fabbrica Italiana Valvole Radio Elettriche, via Guastalla 2, Milano	Tes	Tesla, Roznov pod Radhostem, Czechoslovakia
Fot	Radiofotos, S-té des Lampes Fotos, 11, Rue Raspail, Malakoff, Seine	Thr	N. V. Thermion, Lent-bij-Nijmegen, Nederland
Frc	France, French production	TKD	TE-KA-DE, Süddeutsche Telefon-Apparate, Kabel- und Drahtwerke A. G., Schliessfach 870, Nürnberg 2
GE	General Electric Co., Syracuse, N. Y. USA	Tlf	Telefunken, Gesellschaft für Drahtlose Telegraphie m.b.H. Röhren-Vertrieb, Berlin NW 87, Sickingenstr. 71
GEC	General Electric Company, Ltd., Magnet House, Kingsway, London, W.C.2	Tri	Triotron, Thorm Electrical Industries, Ltd., 105, Judd St., London W.C.1
Grh	Graham Ltd., 25 Sacille Rd., London W. 1	TS	Tung-Sol Electric Inc., Newark 4, N. J., USA
Grm	Germany, German production	TSF	Compagnie Générale de Télégraphie sans Fil, 23, rue de Maroc, Paris (19 ^e)
Hiv	Hivac Ltd., Stonefield Way, Victoria Road, South Ruislip, Middlesex, England	Tu	British Tungsram Radio Works Ltd., West Road, Tottenham, London, N.17; vide TuM
Hyt	CBS-Hytron, Danvers, Massachusetts, USA	TuM	Tungsram Radio, Ujpest, Magyar
Imp	Impex = Dario, vide Dar	Ult	Ultron = Mazda, vide Maz
int	international production	Val	Valvo, Hamburg 1, Burchardstrasse 19
Kgf	Klangfilm GmbH., Berlin	Vat	Vatea, Etabl., H. Palicot, 51, rue de Paradis, Paris (10 ^e)
LCT	Laboratoire Central de Télécommunications, 46, Avenue de Breteuil, Paris	Vis	Visseaux Radio, 103, rue Lafayette, Paris (10 ^e)
Lgf	Longlife = Thermion, vide Thr	WE	Western Electric Co., 120 Broadway, N. Y., USA
Lis	Lissen = Ever-Ready Co., vide ER	WF	VEB Werk für Fernmeldewesen = EFT
LMT	La Matérielle Téléphonique, Boulogne, Seine, France	Wst	Westinghouse Electric Corp., Elmira 1, New York
Lor	C. Lorenz, Aktiengesellschaft, Stuttgart	WT	Weltronic Comp., USA
Low	Loewe-Opta A. G., Kronach/Nordbayern	Zen	Zenith Radio France, 4, bd Pershing, Paris (17 ^e)
Marc	Marconi's Wireless Telegraph Company Limited, Marconi House, Chelmsford		
Maz	Mazda, Compagnie des Lampes, 29, rue de Lisbonne, Paris (8 ^e)		
Mch	Machlett Laboratories, Springdale, Conn., USA		



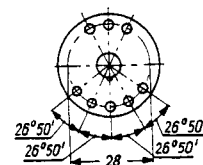
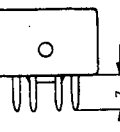
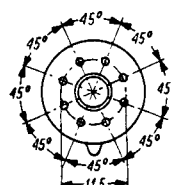
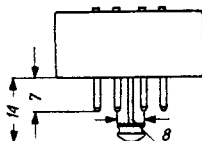
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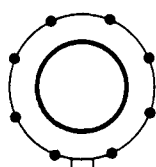
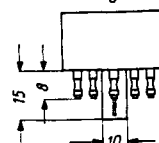
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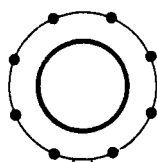
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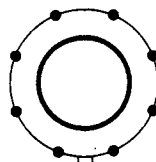
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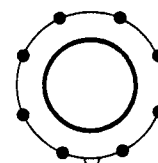
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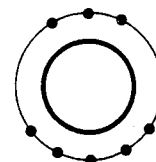
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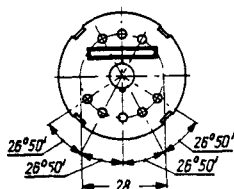
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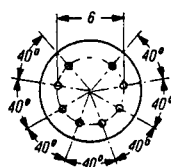
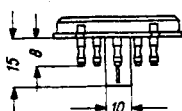
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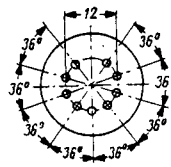
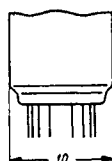
EUROP.Y8A



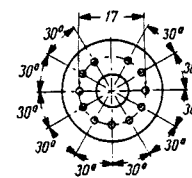
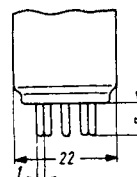
METAL



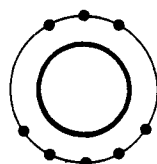
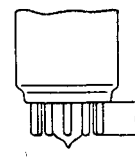
SUBMINIATUR 8



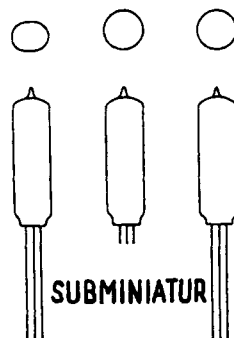
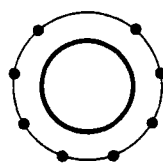
MINIATUR.-B9A
NOVAL



MINIATUR 11
UNIDEKAR



EUROP.Y8A-ST



SUBMINIATUR



T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
A 4-AMS 3	132	B 1-0,1/30	417	CK 507 AX	164	CK 5751	345	DA 50	1
A 4-CAT	388	B 13/30	417	CK 509 AX	8	CK 5755	342	DA 60	1
A 40	34	B 20/20	417	CK 510 AX	380	CK 5784	78	DA 101	1
A 206	417	B 36	313	CK 511 X	61	CK 5784-WA	78	DAF 1	297
A 232	417	B 63	329	CK 512 AX	54	CK 5785	412	DAF 11	297
A 235	418	B 65	343	CK 515 BX	8	CK 5814	312	DAF 26	293
A 239	417	B 109	340	CK 516 AX	8	CK 5814-A	312	DAF 40	297
A 256	29	B 152	341	CK 518 AX	164	CK 5814-WA	312	DAF 41	297
A 257	57	B 309	341	CK 520 AX	54	CK 5842	46	DAF 70	293
A 258	131	B 319	320	CK 521 AX	163	CK 5847	108	DAF 91	295
A 642	221	B 329	312	CK 522 AX	163	CK 5854	164	DAF 92	295
A 676	29	B 339	345	CK 523 AX	163	CK 5873	338	DAF 96	295
A 677	57	B 719	339	CK 524 AX	164	CK 5875	61	DAF 191	295
A 1600	108	Ba	14	CK 525 AX	163	CK 5910	63	DAF 961	295
A 1685 M	81	Ba	14	CK 526 AX	163	CK 5969	380	DB 1	12
A 1685	81	Bb	14	CK 527 AX	164	CK 5970	380	DB 3	12
A 1714	50	BDM 20	433	CK 528 AX	164	CK 5972	61	DBS 1	60
A 1820	206	Be	17	CK 529 AX	164	CK 5975	36	DC 11	10
A 1834	308	Bf	14	CK 531 DX	164	CK 5995	399	DC 25	10
A 2134	204	BF 61	197	CK 532 DX	164	CK 6005	220	DC 41 W	10
A 2209	46	BF 62	189	CK 533 AX	164	CK 6029	8	DC 51	12
A 2227	418	BF 451	262	CK 534 AX	55	CK 6050	11	DC 80	8
A 2378	203	Bh	17	CK 535 AX	164	CK 6051	168	DC 90	9
A 4006 B	289	Bi	18	CK 536 AX	164	CK 6088	164	DC 93	10
A 4361	186	Bi IV	18	CK 537 AX	163	CK 6092	168	DC 96	9
A 4388	191	BL 63	309	CK 537 AX	163	CK 6101	331	DD 51	12
A 4434	331	BM 4 A	436	CK 538 DX	55	CK 6110	28	DD 960	10
A 4475	308	BM 8 A	436	CK 539 DX	164	CK 6111	319	DCC 90	307
Aa	14	BM 30	436	CK 541 DX	164	CK 6112	338	DD 4	4
AA 61	324	Bo	14	CK 542 DX	164	CK 6135	28	DD 4 S	4
AA 91 E	5	BO-116	404	CK 542 DXS	164	CK 6152	36	DD 6	4
AAB 1	7	BO-188	404	CK 543 DX	55	CK 6247	45	DD 6	5
A-Auto	309	BO-197	405	CK 544 DX	164	CK 6281	55	DD 6 S	4
AB 1	4	BO-202	404	CK 545 DX	55	CK 6286	11	DD 13	4
AB 2	4	BPM 04	220	CK 546 DX	160	CK 6418	164	DD 13 S	4
AC 044	23	BW 1304	15	CK 547 DX	164	CK 6419	52	DD 465	4
AC 2	18	C 1	399	CK 548 DX	164	CK 6519	164	DD 620	4
AC 701	22	C 3 a	117	CK 549 DX	52	CK 6533	44	DDA 1	4
AC 761	22	C 3 b	120	CK 551 AXA	293	CK 6611	61	DDL 4	4
AD	399	C 3 c	132	CK 553 AXA	61	CK 6612	12	DDR 2	205
AD 1	23	C 3 d	120	CK 556 AX	11	CK 6832	338	DDR 3	399
AD 1/350	23	C 3 e	120	CK 568 AX	8	CK 7079	319	DDR 7	190
AD 1/375	23	C 3 e sp.	206	CK 570 AX	8	CK 7083	91	DDT 6	284
AD 1 n	23	C 3 f	132	CK 573 AX	8	CO-242	272	DDT 6 S	284
AD 77	388	C 3 g	107	CK 600 AX	8	CW 931	19	DET 5	23
AF 3	132	C 3 m	117	CK 605 AX	91	CX 313	406	DF 1	60
AG 78	133	C 3 o	117	CK 605 CX	91	CY 1	400	DF 11	125
AG 1006	417	C 10 B	400	CK 606 BX	2	CY 1 C	400	DF 21	125
AM 1	388	Ca	20	CK 608 CX	36	CY 2	411	DF 22	125
AM 2	394	Cas	20	CK 619 CX	45	CY 21	401	DF 25	125
AP 4200	404	CB 1	4	CK 623 CX	91	CY 31	400	DF 26	60
APV 4100	404	CB 2	4	CK 624 AX	78	CY 32	411	DF 31	125
APV 4200	404	CC 81 E	341	CK 1005	409	D 1	2	DF 32	125
ASX 57	67	CC 82 E	312	CK 1091	412	D 1	2	DF 33	129
AT 4	34	CC 86 E	314	CK 5654	91	D 1	406	DF 41 W	60
AV 1037	199	CCa	322	CK 5670	330	D 1 F	125	DF 51	64
AW 5	388	CCH 35	376	CK 5670-WA	330	D 2 F	182	DF 60	57
AW 6	388	CE-1	399	CK 5672	170	D 2 M 9	5	DF 61	58
AX 1	404	CE-3 B 24	417	CK 5676	11	D 3 a	108	DF 61 N	58
AX 50	405	CE 220	417	CK 5677	8	D 3 F	60	DF 62	59
AZ 1	404	CE 230	417	CK 5678	57	D 4 A	18	DF 63	126
AZ 2	404	C/EM 2	395	CK 5687	314	D 5	2	DF 64	51
AZ 3	404	Cf	21	CK 5687-WA	314	D 11 F	125	DF 65	52
AZ 4	404	CF 50	123	CK 5694	329	D 12 F	182	DF 66	53
AZ 11	404	CF 51	123	CK 5697	9	D 27	5	DF 67	52
AZ 11 N	404	CF 61	378	CK 5702	91	D 42	2	DF 70	54
AZ 12	404	CF 141	378	CK 5702-WA	91	D 43	2	DF 72	61
AZ 21	404	CK 12 AX	54	CK 5703	36	D 61	299	DF 73	126
AZ 31	404	CK 108	67	CK 5703-WA	36	D 77	5	DF 91	130
AZ 32	404	CK 500 AX	54	CK 5704	2	D 121	299	DF 92	63
AZ 33	404	CK 501 AX	61	CK 5725	78	D 152	5	DF 96	127
AZ 41	404	CK 502 AX	160	CK 5726	5	D 156734	19	DF 97	128
AZ 50	405	CK 503 AX	164	CK 5744	45	Da	24	DF 167	52
AZ 150	405	CK 504 AX	164	CK 5744-WA	45	DA 1	13	DF 191	130
B 1-0,02/20	417	CK 505 AX	54	CK 5749	144	DA 2	13	DF 650	52
B 1-0,03/13	417	CK 506 AX	168	CK 5750	276	DA 3	13	DF 651	52

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
DF 652	59	DL 652	170	E 810 F	104	E 7056 = PCF 82		EAA 91	5
DF 654	51	DL 907	182	E 1097	418	E 7057 = UBF 89		EAA 91W	5
DF 668	59	DL 962	176	E 1132	418	E 7058 = UCH 81		EAA 901	5
DF 669	57	DL 963	181	E 1164	151	E 7059 = UCL 82		EAA 901 S	5
DF 703	434	DM 21	387	E 1180	388	E 7060 = DC 96		EAB 1	7
DF 904	63	DM 70	387	E 1192	198	E 7062 = DF 96		EABC 80	292
DF 906	64	DM 71	387	E 1416	376	E 7063 = 1 K 2 II		EAC 91	283
DF 961	130	DM 160	387	E 1485	177	E 7064 = DK 96		EAF 21	298
DFF 50	380	DN 143	305	E 1518	93	E 7065 = DM 70		EAF 4'	299
DFF 51	380	DO 24	23	E 1606	313	E 7066 = DAF 96		EAF 42	299
DFF 101	380	DP 2	177	E 1662	192	E 7071 = EY 81		EAF 81	298
DH 2	60	DP 61	91	E 1709	336	E 7072 = EY 86		EAM 86	393
DH 33	287	DT 14	23	E 1787 C	206	E 7073 = PY 88		Eb	23
DH 42	287	DT 16	12	E 1793	372	E 7074 = EC 86		Eb III	23
DH 63	287	DT 620	284	E 1813	287	E 7075 = PC 86		EB 1	4
DH 63 M	287	DW 1	404	E 1913	288	E 7076 = ECC 86		EB 2	4
DH 73	284	DW 2	404	E 1927	54	E 7077 = 6 C 17 K		EB 4	4
DH 73 M	284	DW 3	404	E 1933	160	E 7078 = EF 89		EB 11	4
DH 74	287	DW 4	404	E 1956	418	E 7079 = UF 89		EB 34	4
DH 76	287	DW 7	404	E 1969	372	E 7080 = 6 Ж 9 II		EB 40	6
DH 77	288	DW 8	406	E 1980	372	E 7081 = EL 36		EB 41	5
DH 81	287	DY 30	414	E 1320	388	E 7082 = EM 84		EB 91	5
DH 101	287	DY 70	413	E 2157	341	E 7083 = UM 84		EBC 3	284
DH 107	288	DY 80	414	E 6080	308	E 7086 = 6 Φ 1 II		EBC 11	284
DH 109	292	DY 86	414	E 7001 ¹⁾ = 111 1 II		E 7087 = PCL 84		EBC 30	284
DH 118	288	DY 87	414	E 7002 = DY 86		E 7088 = ECL 84		EBC 33	284
DH 119	288	DY 667	412	E 7003 = EY 86		E 7095 = 6 Д 6 A-B		EBC 41	288
DH 142	288	DY 1210	14	E 7004 = 6 X 2 II		E 7096 = 6 C 3 B		EBC 81	288
DH 149	289	E 1 C	34	E 7005 = EZ 80		E 7097 = 6 Ж 2 B-B		EBC 90	288
DH 150	288	E 1 R	377	E 7006 = EZ 81		E 7098 = 6 Ж 1 B-B		EBC 91	290
DH 718	288	E 1 R/91	138	E 7007 = PY 81		E 7099 = 6 X 2 II-E		EBF 1	300
DH 719	292	E 1 R/92	302	E 7008 = PY 82		E 7100 = 6 H 1 II-E		EBF 2	302
DK 1	272	E 2 b	251	E 7009 = PY 87		E 7101 = 6 H 2 II-E		EBF 2 G	302
DK 21	266	E 2 c	251	E 7010 = UY 82		E 7102 = 6 H 3 II-E		EBF 11	301
DK 22	266	E 2 d	185	E 7011 = UY 85		E 7103 = ECC 802		EBF 32	302
DK 25	266	E 2 e	251	E 7012 = 6 II 10 II		E 7105 = E 80 CC		EBF 35	302
DK 31	266	E 2 F	136	E 7013 = EC 92		E 7106 = E 88 CC		EBF 80	303
DK 32	272	E 3 F	139	E 7014 = UC 92		E 7107 = E 180 CC		EBF 81	300
DK 40	266	E 4 F	405	E 7015 = ECC 82		E 7108 = EF 806-S		EBF 83	423
DK 91	267	E 4 G	405	E 7016 = 6 H 1 II		E 7109 = E 180 F		EBF 89	304
DK 92	268	E 13 F	139	E 7017 = ECC 83		E 7110 = EF 800		EBL 21	305
DK 96	269	E 20 U	400	E 7018 = 6 H 2 II		E 7111 = E 83 F		EBL 71	305
DK 192	268	E 55 L	218	E 7019 = ECC 84		E 7112 = 6 Ж 1 II-E		EC 40	48
DK 962	268	E 80 CC	316	E 7020 = ECC 85		E 7113 = 6 Ж 2 II-E		EC 41	30
DL 2	177	E 80 CF	352	E 7022 = PCC 88		E 7114 = 6 Ж 9 II-E		EC 52	50
DL 22	177	E 80 F	72	E 7023 = PCC 84		E 7115 = 6 Ж 11 II-E		EC 54	50
DL 29	181	E 80 L	196	E 7024 = PCC 85		E 7116 = 6 K 4 II-E		EC 70	38
DL 33	177	E 81 CC	341	E 7025 = UCC 85		E 7117 = EL 803-S		EC 71	38
DL 35	177	E 81 L	248	E 7026 = EF 80		E 7118 = E 81 L		EC 80	48
DL 36	177	E 82 CC	312	E 7027 = EF 86		E 7119 = 6 Д 6 II-E		EC 81	30
DL 41	179	E 82 M	392	E 7028 = EF 95		E 7120 = EC 360		EC 84	46
DL 51	168	E 83 CC	345	E 7031 = EH 90		E 7121 = 6 II 3 C-E		EC 86	46
DL 63	284	E 83 F	118	E 7032 = EL 34		E 7142 = EC 96		EC 90	28
DL 64	157	E 84 L	214	E 7033 = EL 81		E 7143 = PC 96		EC 91	50
DL 65	158	E 86 C	46	E 7034 = EL 83		E 7144 = ECC 88		EC 92	43
DL 66	159	E 87 F	75	E 7035 = EL 84		E 7145 = EF 83		EC 93	42
DL 67	158	E 87 L	206	E 7036 = EL 86		E 7147 = PF 86		EC 94	31
DL 68	165	E 88 CC	322	E 7037 = 6 H 13 C		E 7148 = PM 84		EC 95	48
DL 69	169	E 90 CC	316	E 7038 = 6 II 15 II		E 7149 = 6 C 3 II		EC 97	47
DL 71	160	E 90 F	82	E 7039 = 6 II 18 II		E 7150 = 6 C 4 II		EC 98	40
DL 72	168	E 91 AA	5	E 7040 = PL 36		E 7151 = 6 C 15 II		EC 760	38
DL 75	168	E 91 H	275	E 7041 = PL 81		E 7152 = 6 Ж 23 II		EC 806 S	46
DL 91	176	E 92 CC	335	E 7042 = PL 82		E 7153 ¹⁾ = E 81 H		EC 903	42
DL 92	176	E 95 F	91	E 7043 = PL 83		EA 40	418	EC 1000	37
DL 93	181	E 99 F	136	E 7044 = PL 84		EA 41	2	ECC 1010	440
DL 94	180	E 130 L	241	E 7045 = UL 84		EA 50	2	ECC 31	325
DL 95	180	E 180 CC	334	E 7046 = EM 80		EA 52	1	ECC 32	325
DL 96	178	E 180 F	108	E 7047 = UM 80		EA 53	1	ECC 33	325
DL 101	179	E 182 CC	317	E 7048 = EABC 80		EA 71	2	ECC 34	309
DL 145	291	E 188 CC	322	E 7049 = PABC 80		EA 76	2	ECC 35	342
DL 167	158	E 235 L	210	E 7050 = EBF 89		EA 111	399	ECC 40	324
DL 192	176	E 236 L	210	E 7051 = ECF 82		EA 766	2	ECC 70	326
DL 193	181	E 280 F	108	E 7052 = ECH 81		EA 960	1	ECC 81	341
DL 620	170	E 282 F	143	E 7053 = ECL 82		EA 961	1	ECC 81WA	341
DL 650	160	E 283 CC	345	E 7054 = UABC 80		EA 962	1	ECC 82	312
DL 651	160	E 288 CC	317	E 7055 = PCL 82		EAA 11	6	ECC 83	345

¹⁾ E 7001 ÷ E 7153 — East Europe production.

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
ECC 84	320	EF 12 K	79	EH 860	277	EL 180	103	EZ 90 W	409
ECC 85	339	EF 12 spez.	75	EH 900	275	EL 183	207	EZ 91	410
ECC 86	420	EF 13	139	EH 900 S	275	EL 300	327	EZ 150	411
ECC 87	316	EF 14	99	EK 90	276	EL 302	227	EZ 900	409
ECC 88	322	EF 15	145	EL 1	198	EL 360	229	F 2 a	242
ECC 89	323	EF 21	70	EL 2	198	EL 500	225	F 2 a 11	242
ECC 91	331	EF 21	75	EL 3	199	EL 803	201	F/5654	91
ECC 91 W	331	EF 22	70	EL 3/375	199	EL 803 S	201	F/5726	5
ECC 189	323	EF 22	138	EL 3 N	199	EL 804	211	F/6057	345
ECC 230	308	EF 25	135	EL 3 NG	199	EL 820	195	F/6060	341
ECC 801	341	EF 36	70	EL 3/425	199	EL 821	213	F/6063	409
ECC 801 S	341	EF 37	70	EL 5	230	EL 822	213	F/6064	93
ECC 802	312	EF 37 A	70	EL 5/375	230	EL 861	248	F/6067	312
ECC 802 S	312	EF 39	138	EL 5/600	230	EL 863	201	F/6158	325
ECC 803	345	EF 40	74	EL 5 G	230	EM 1	388	FF/5654	91
ECC 803 S	345	EF 41	138	EL 6	231	EM 2	394	FF/5726	5
ECC 805 S	339	EF 42	100	EL 6/400	231	EM 3	388	FF/5750	276
ECC 865	339	EF 43	150	EL 6/435	231	EM 4	391	FF/6057	345
ECC 868	322	EF 44	74	EL 6 spez.	231	EM 5	391	FF/6060	341
ECC 960	316	EF 50	151	EL 8	192	EM 11	391	FF/6063	409
ECC 962	335	EF 51	147	EL 11	199	EM 31	388	FF/6064	93
ECF 12	348	EF 52	97	EL 11/375	199	EM 34	391	FF/6067	312
ECF 80	352	EF 53	151	EL 11 N	199	EM 35	391	FF/6158	325
ECF 82	353	EF 54	97	EL 12	231	EM 71	388	FNH	25
ECF 83	347	EF 55	205	EL 12/325	231	EM 71 a	388	FT 4	388
ECF 86	348	EF 70	77	EL 12/350	231	EM 72	388	FW4-500	405
ECF 806	348	EF 71	142	EL 12/375	231	EM 80	390	FW 4-800	405
ECH 2	376	EF 72	88	EL 12 N	231	EM 81	390	FZ 1	409
ECH 3	376	EF 73	90	EL 12 spec.	231	EM 83	392	G 2 b	404
ECH 3 B	376	EF 74	77	EL 12 spez.	231	EM 84	390	G 2 c	405
ECH 3 F	376	EF 80	94	EL 13	192	EM 85	389	G 35	131
ECH 3 G	376	EF 81	138	EL 20	206	EM 87	390	G 41	192
ECH 3 S	376	EF 82	213	EL 22	206	EM 840	390	G 42	221
ECH 4	377	EF 83	134	EL 30	192	EMM 801	392	G 44	135
ECH 4 G	377	EF 85	148	EL 31	238	EQ 40	282	G 56	29
ECH 11	376	EF 86	74	EL 32	198	EQ 80	282	G 76	29
ECH 21	377	EF 88	75	EL 33	199	ER 4	418	G 77	67
ECH 33	376	EF 89	146	EL 33 A	199	ET 1	434	G 78	133
ECH 35	376	EF 91	93	EL 34	239	ET 3	434	G 80	406
ECH 41	378	EF 92	140	EL 35	230	EX 860	406	G 430	404
ECH 42	378	EF 93	144	EL 36	209	EY 1	415	G 490	404
ECH 43	378	EF 94	84	EL 36	231	EY 51	415	G 551	131
ECH 71	377	EF 95	91	EL 37	237	EY 70	399	G 650	409
ECH 80	378	EF 96	92	EL 38	238	EY 80	419	G 660	409
ECH 81	379	EF 97	421	EL 38 M	238	EY 81	419	G 1380	409
ECH 83	422	EF 98	424	EL 39	230	EY 82	399	G 1882	406
ECH 84	375	EF 111	139	EL 41	197	EY 83	419	G 1883	406
ECH 113	378	EF 112	79	EL 42	189	EY 84	399	G 2005	406
ECL 11	370	EF 173	139	EL 43	206	EY 86	415	G 2080	400
ECL 80	359	EF 183	153	EL 44	192	EY 87	415	G 3060	411
ECL 81	360	EF 184	111	EL 50	230	EY 88	419	G 3120	411
ECL 82	362	EF 190	95	EL 51	245	EY 89	399	G 4250	405
ECL 83	363	EF 410	75	EL 53	199	EY 91	399	G 4400	405
ECL 84	364	EF 730	80	EL 54	231	EY 92	399	G 5200	406
ECL 85	365	EF 731	142	EL 60	239	EY 635	131	GL-2 B 22	2
ECL 86	366	EF 732	89	EL 70	188	EY 3000	419	GL 4/25	406
ECL 113	360	EF 734	89	EL 71	187	EY 3000 N	419	GL-1612	273
Ed	23	EF 761	142	EL 80	197	EYY 13	411	GL-1620	67
ED 78	388	EF 762	89	EL 81	195	EYY 53	411	GL-1641	408
EDDT 71	284	EF 800	94	EL 81 F	195	EZ 1	409	GL-5670	330
EE 1	278	EF 802	94	EL 82	202	EZ 2	409	GL-5719	44
EE 50	278	EF 804	74	EL 83	201	EZ 2/3	410	GL-5725	78
EEL 71	382	EF 804 S	74	EL 84	214	EZ 3	410	GL-5726	5
EEP 1	278	EF 805 S	149	EL 85	189	EZ 3 N	410	GL-5749	144
EEP 71	135	EF 806 S	74	EL 86	215	EZ 4	410	GL-5750	276
EF 1	79	EF 860	94	EL 86 F	215	EZ 4 N	410	GL-5751	345
EF 2	139	EF 861	108	EL 88	192	EZ 11	409	GL-5814	312
EF 2 S	135	EF 866	74	EL 89	206	EZ 12	410	GL-5899	142
EF 3	135	EF 905	91	EL 90	220	EZ 22	410	GL-6072	337
EF 5	135	EFF 50	380	EL 91	190	EZ 33	410	GL-6096	91
EF 6	70	EFF 51	380	EL 95	189	EZ 35	409	GL-6112	338
EF 6 N	70	EFM 1	397	EL 131	236	EZ 40	410	GL-6135	28
EF 7	79	EFM 11	397	EL 136	236	EZ 80	410	GL-6202	409
EF 9	138	EFP 20	278	EL 150	231	EZ 81	410	GL-6203	409
EF 11	139	EFP 60	279	EL 151	245	EZ 82	409	GL 6265	82
EF 12	79	EH 90	277	EL 156	243	EZ 90	409	GL-6661	82

T.	gr.	T.	gr.	T	gr.	T.	gr.	T.	gr.
GL-6662	136	HZ 90	409	M 8121	88	NEP 51	132	PCF 806	348
GL-6663	5	IF 860	94	M 8122	90	NVG 3002	411	PCL 81	360
GL-6919	5	IL 861	248	M 8125	77	OF 2	302	PCL 82	362
GR 4	405	K 80 A	272	M 8135	213	OCH 4	377	PCL 83	363
GRS 251	417	K 98	409	M 8136	312	OF 1	135	PCL 84	364
GX 5200	406	K 1694	18	M 8137	345	OF 5	138	PCL 85	365
GZ 30	406	KC 50	13	M 8138	409	OF 9	138	PCL 86	368
GZ 30	411	KC 51	13	M 8140	93	OH 4	274	PCL 800	361
GZ 31	408	KD 50	13	M 8141	399	OM 1	401	PDD 2	305
GZ 32	407	KL 70401	14	M 8144	341	OM 3	4	Pen 46	228
GZ 33	407	KL 70411	14	M 8149	312	OM 4	284	PEN 141	177
GZ 34	407	KL 70550	4	M 8161	140	OM 5	391	Pen 383	263
GZ 37	407	KL 70551	4	M 8162	341	OM 5	70	Pen 384	263
GZ 40	406	KL 70715	79	M 8167	188	OM 5 A	70	Pen 650	230
GZ 41	406	KL 71412	20	M 8180	93	OM 5 B	70	Pen 3820	263
H 12	13	KL 72406	23	M 8195	74	OM 6	138	PF 9	68
H 63	49	KR 1	399	M 8196	78	OM 9	199	PF 86	74
HAA 91	5	KR 22	35	M 8212	5	OM 10	376	PF 94	84
HABC 80	292	KR 25	221	M 8214	345	OS 18/600	230	PH 4	274
HBC 90	288	KR 98	409	M 8232	46	OSW 2025	331	PL 11	202
HBC 91	290	KT 31	252	M 8237	5	OSW 2190	98	PL 33	256
HCC 85	340	KT 32	253	M 8245	220	OSW 2192	200	PL 36	209
HCH 81	379	KT 33 C	252	M 8248	40	OSW 2600	98	PL 38	238
HF 61	138	KT 35	252	ME 4	388	OSW 2601	200	PL 38 M	238
HF 62	100	KT 36	257	ME 4 S	388	OSW 3104	276	PL 81	195
HF 85	148	KT 55	264	ME 6	388	OSW 3105	289	PL 81 F	195
HF 93	144	KT 61	212	ME 6 S	388	OSW 3106	220	PL 82	202
HF 94	84	KT 63	221	ME 41	388	OSW 3107	406	PL 83	201
HF 121	138	KT 66	240	ME 91	388	OSW 3108	232	PL 84	215
HF 2025	331	KT 67	236	ME 920	388	OSW 3109	6	PL 300	227
HF 2190	98	KT 71	265	ME 1400	434	OSW 3110	388	PL 302	227
HF 2192	200	KT 72	256	ME 1401	434	OSW 3111	137	PL 500	225
HF 2600	98	KT 73	256	ME 1402	436	OSW 3112	33	PL 820	195
HF 2601	200	KT 74	256	ME 1403	435	OSW 3116	409	PM 04	144
HF 3104	276	KT 76	256	ME 1404	434	OSW 3127	71	PM 05	91
HF 3105	289	KT 81	212	MR 01	433	OSW 3128	83	PM 07	93
HF 3106	220	KT 101	265	MX 40	274	OSW 3129	313	PM 2	15
HF 3108	232	KTW 61	141	N 1	54	OSW 3132	92	PM 2 A	15
HF 3109	6	KTW 62	141	N 3	168	P 1	177	PM 5	391
HF 3110	388	KTW 63	135	N 14	177	P 12/250	23	PM 84	390
HF 3111	137	KTW 73 M	135	N 15	177	P 15/250	23	PP 3/250	23
HF 3112	33	KTZ 61	376	N 16	177	P 27/500	23	PP 5/400	23
HF 3116	409	KTZ 63	67	N 17	176	P 215	15	PP 6 AS	198
HF 3127	71	KTZ 73 M	68	N 18	180	P 220	15	PP 6 B	199
HF 3128	83	L 12	13	N 19	180	P 310	115	PP 6 BG	199
HF 3129	313	L 63	33	N 25	178	P 419	17	PP 6 BS	199
HF 3132	92	L 77	28	N 31	252	P 420	16	PP 6 C	199
HG 1	418	LA	186	N 34	252	P 421	21	PP 4018	263
HK 90	276	LG 1	6	N 37	204	P 422	17	PP 4118	263
HL 90	220	LG 6	411	N 63	221	P 626	198	PTE 11	248
HL 92	191	LG 14	2	N 66	237	P 628	198	PTT 0	14
HL 94	261	LG 15	412	N 77	190	P 864	409	PTT 0 S	14
HM 04	276	LN 119	362	N 78	197	PA	192	PTT 1	14
HM 34	391	LN 152	359	N 108	204	PAB 1	7	PTT 2	14
HM 71	388	LN 309	363	N 118	263	PABC 80	292	PTT 2 S	14
HM 85	389	LN 329	363	N 119	215	PB 1	15	PTT 3	20
HN 309	363	LN 369	362	N 142	262	PC 86	46	PTT 3 F	20
HP 6	93	LP 2	15	N 144	190	PC 92	43	PTT 3 S	20
HP 1118	152	LP 4	23	N 145	263	PC 95	48	PTT 4	24
HPS 4 A	132	LS 8 A	21	N 147	199	PC 97	47	PTT 10	17
HR 1	413	LV 4	380	N 148	220	PCC 84	320	PTT 10 F	17
HR 2	418	LV 6	75	N 150	197	PCC 85	340	PTT 100	18
HR 3	418	LV 9	60	N 151	189	PCC 88	322	PTT 101 B	291
HR 4	418	LV 10	293	N 152	195	PCC 89	323	PTT 120 P	341
HR 5	418	LZ 319	352	N 153	201	PCC 189	323	PTT 122 P	341
HR 6	418	LZ 329	352	N 154	202	PCE 80	346	PTT 141	46
HR 7	418	M 8079	5	N 155	189	PCE 82	346	PTT 200	115
HR 8	418	M 8080	28	N 308	227	PCE 800	346	PTT 201	223
HVR 2	418	M 8081	331	N 309	201	PCF 80	352	PTT 202	116
HVU 1	418	M 8082	190	N 329	202	PCF 82	353	PTT 202 C	116
HY 115	60	M 8083	93	N 339	226	PCF 84	346	PTT 202 P	116
HY 125	177	M 8091	399	N 359	195	PCF 86	348	PTT 203 P	249
HY 145	63	M 8097	283	N 379	215	PCF 87	346	PTT 204	116
HY 155	177	M 8099	50	N 709	214	PCF 800	346	PTT 205	249
HY 245	61	M 8100	91	N 727	220	PCF 801	346	PTT 206-P	116
HY 255	61	M 8101	144	NEG 3002	411	PCF 802	358	PTT 208-P	246

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
PTT 210	119	R 4	404	RK 705 - A	417	SN 976 D	187	TEF 6	70
PTT 211	119	R 5	406	RK 6080	308	SN 977 C	399	TEF 7	79
PTT 212-P	119	R 10	418	RL 2 T 2	15	SN 978 B	2	TEL 1	198
PTT 213-P	119	R 11	418	RL 7	97	SN 979 D	38	TEL 2	198
PTT 214-P	106	R 12	415	RL 16	50	SN 980 D	44	TEZ 3	410
PTT 216	106	R 16	414	RL 37	50	SN 985 B	124	TEZ 4	410
PTT 217	106	R 17	399	RO 531	406	SN 986 B	124	TF 3	132
PTT 218	122	R 18	399	RS	400	SN 1006	45	TH 1	388
PTT 230-P	121	R 19	414	RTR 4141	68	SN 1007 A	80	TH 1	377
PTT 240-P	250	R 19/1 X 2 B	414	RTR 4142	81	SN 1007 B	80	TK 406	388
PTT 241-P	250	R 42	404	RTR 4341	121	SN 1006	45	TK 606	388
PTT 243-P	113	R 52	406	RTR 4342	247	SN 1016	89	TM 12	46
PTT 244-P	122	R 80	406	RV 120/250	404	SN 1038 A	88	TO-1	115
PTT 301	121	R 86	17	RV 120/350	404	SN 1039	91	TO-2	223
PTT 302	121	R 88	14	RV 120/350 S	404	SN 1039 A	91	TO-3	115
PV 25	411	R 101	17	RV 120/500	404	SP 6	93	TO-4	223
PV 30	404	R 111	14	RV 120/500 S	404	SP 61	85	TR 280	406
PV 30	411	R 112	20	RV 200/600	405	SP 62	85	TR 1560	406
PV 30 S	411	R 114	24	RV 222	14	SP 65	79	TS 3	14
PV 30 V	411	R 115	18	RX 235	417	SP 141	60	TS 4	17
PV 200/600	405	R 116	116	RZ	400	SP 1320	67	TS 6	14
PV 495	404	R 117	249	S 6 F 12	93	SS 220	15	TS 7	19
PV 3018	411	R 120	26	S 30 c	23	SS 220 PA	15	TS 8	17
PV 4018	411	R 122 N	116	S 310-A	115	SSHV 42	23	TS 9	16
PV 4100	404	R 123	249	S 311-A	223	SU 25	416	TS 11	17
PV 4200	404	R 125 C	291	S 328-A	115	SU 44	418	TS 14	20
PV 4201	405	R 125 N	291	S 329-A	223	SU 45	418	TS 15	19
PVA 6	409	R 126 F	121	S 329-L	223	SU 61	415	TS 16	24
PVA 6 S	409	R 128	6	S 423	132	SU 2130	416	TS 18	20
PVB 6	410	R 134	246	S 615	135	SU 2150	416	TS 20	21
PVB 6 S	410	R 142	119	S 620	70	SU 2150 A	416	TS 26	21
PVC 6	410	R 143	116	S 628	139	SU 4150 A	418	TS 27	14
PVC 6 S	410	R 144	93	S 629	79	Sup. Pow.	15	TS 28	17
PVX 2800	406	R 145	116	S 4019-A	17	SX/5654	91	TS 31	17
PVX 2800/41	406	R 146	119	S 4019-B	17	SX/5726	5	TS 32	18
PVX 2800/44	406	R 147	246	S-4020-A	16	SX/5750	276	TS 33	132
PX 4	23	R 148	341	S 4020-B	16	SX/6057	345	TS 34	185
PX 25	23	R 150	106	S 4021-A	21	SX/6060	341	TS 35	20
PX 41	23	R 153	106	S 4021-B	21	SX/6063	409	TS 37	185
PY 31	400	R 154	106	S 4022-AR	17	SX/6064	93	TS 39	116
PY 32	401	R 162	341	S 4022-B	17	SX/6067	312	TS 40	250
PY 33	401	R 165	122	SA 1	1	SX/6158	325	TS 45	70
PY 71	419	R 242-P	36	SA 100	1	T 2 M 05	331	TS 49	117
PY 80	419	R 256	406	SA 101	1	T 6 D	2	TS 51	91
PY 81	419	R 271	78	SA 102	1	T 35	131	TS 52	331
PY 82	400	R 5100	406	SD 1 A	15	T 42	221	TS 53	118
PY 83	419	R 5200	406	SD 6	2	T 43	254	TS 54	118
PY 88	419	R 6130	402	SD 61	2	T 44	135	TS 229	314
PY 800	419	RA	409	SD 828 A	81	T 56	29	TSE 4	278
PZ 30	411	RD 25 A	23	SD 828 E	81	T 76	29	TTZ 63	67
PZA	221	RE 1	406	SD 917 A	45	T 77	67	TV 1 P	400
PZH	221	RE 604 K	23	SD 989 B	6	T 78	133	TV 4	388
QA 2400	140	RE 1330	409	SD 992 C	44	T 80	406	TV 4 A	388
QA 2401	28	RE 2020	400	SD 993 C	38	T 113	436	TV 6	388
QA 2402	190	RE 3020	411	SD 994 B	6	T 116	436	TW 1	400
QA 2403	93	REL 39	98	SD 995 B	142	T 460	23	TW 1 P	400
QA 2404	5	REL 52	417	SF/5654	91	TA 40	2	TW 2	411
QA 2406	341	RFG 3	418	SF/5726	5	TAB 1		TW 2 P	411
QA 2407	409	RFG 5	418	SF/5750	276	TAB 2	4	TW 10	400
QA 2408	313	RG 12 D 60	409	SF/6057	345	TABC 3	284	U 5	406
QB 65	313	RGN 504	404	SF/6060	341	TABC 33	284	U 6-CAT	388
QB 309	341	RGN 1054	404	SF/6063	409	TAC 2	18	U 9	404
QB 329	312	RGN 1064	404	SF/6064	93	TAD 1	23	U 10	404
QB 339	345	RGN 1074	404	SF/6067	312	TAF 3	132	U 12	404
QD 77	5	RGN 1504	404	SF/6158	325	TB 122	15	U 14	404
QK 386	98	RGN 1882	406	SN 944	81	TCB 1	4	U 17	418
QL 77	28	RGN 1883	406	SN 946	2	TCB 2	4	U 18	405
QN 77	190	RGN 2004	404	SN 947 C	188	TCY 1	400	U 18/20	405
QS 2404	5	RGN 2005	406	SN 947 D	188	TCY 2	411	U 21	416
QS 2406	341	RGN 2504	405	SN 954	399	TD 6	2	U 21	418
QU 78	409	RGN 4004	405	SN 955 B	326	TE 3	409	U 22	416
QW 77	140	RK-3 B 24	417	SN 956 B	413	TE 5	409	U 22	418
QZ 77	93	RK 17	221	SN 957 A	36	TEB 1	4	U 24	416
R 1	404	RK 60	408	SN 972 D	142	TEB 2	4	U 25	416
R 2	404	RK 72	417	SN 973 C	88	TEF 3	135	U 26	416
R 3	404	RK 73	417	SN 974 B	188	TEF 5	135	U 27	418

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
U 29	417	UCC 84	320	UU 8	405	VFT 6	388	WT-210-0021	409
U 30	411	UCC 85	340	UU 9	410	VHT 2 A	272	WT-210-0029	32
U 31	401	UCC 88	322	UU 10	405	VHT 4	274	WT-210-0037	398
U 33	416	UCC 189	323	UU 12	410	VHT 5	274	WT-210-0040	409
U 35	413	UCF 80	352	UU 4020	411	VL 1	198	WT-210-0042	406
U 37	414	UCH 4	377	UVG 51	411	VL 1	265	WT-210-0048	407
U 41	413	UCH 5	377	UX 182	192	VL 2	198	WT-210-0061	398
U 43	415	UCH 21	377	UX 213	406	VL 4	265	WT-210-0081	71
U 45	415	UCH 41	378	UX 237	409	VLS 452	223	WT-210-0082	220
U 47	416	UCH 42	378	UX 280	406	VM 1	413	WT-210-0084	329
U 49	415	UCH 43	378	UX 380	406	VME 4	338	WT-210-0085	191
U 50	406	UCH 71	377	UY 1	400	VP 6	140	WT-210-0088	33
U 51	406	UCH 80	378	UY 1	402	VP 6	75	WT-210-0089	67
U 52	407	UCH 81	379	UY 1 N	402	VP 6 S	75	WT-210-0090	67
U 54	407	UCL 11	369	UY 1 NS	402	VT 2	19	WT-261	6
U 70	409	UCL 81	360	UY 2	401	VX 21	412	WT-263	409
U 71	401	UCL 82	362	UY 2	411	VX 33 A	8	WT-270	406
U 74	401	UCL 83	363	UY 3	402	VX 41 A	8	WT-270 X	407
U 76	401	UCL 84	364	UY 4	402	VX 41-A	436	WT-274 B	408
U 78	409	UCL 86	368	UY 11	403	VX 55	434	WT-301	407
U 81	410	UE 1	400	UY 21	403	VX 8029	81	WT-308	409
U 82	409	UEG 51	400	UY 22	401	VX 8032	81	WT-389	177
U 84	404	UEL 11	384	UY 31	402	VX 8045	88	WT-390	32
U 101	402	UEL 51	385	UY 41	401	VX 8046	90	WT-T-100	409
U 107	402	UEL 71	382	UY 42	401	VX 8054	188	WT-T-102	406
U 118	402	UF 5	138	UY 82	402	VX 8055	399	WT-T-103	6
U 119	402	UF 9	138	UY 85	402	VY 1	402	WT-T-115	398
U 142	401	UF 10	138	UY 89	401	VY 2	401	WT-T-122	71
U 143	404	UF 11	154	UY 89	401	VZ 1	409	WT-T-123	220
U 145	402	UF 14	124	UY 91	401	W 17	130	WT-T-124	287
U 147	409	UF 15	145	UY 92	401	W 25	127	WT-T-125	329
U 149	409	UF 21	155	UY 235	131	W 61 M	141	WT-T-126	191
U 150	410	UF 40	74	UY 238	192	W 63	135	WT-T-128	371
U 151	415	UF 41	138	UY 239	135	W 76	135	WT-T-129	33
U 152	419	UF 42	124	UY 53	411	W 77	140	WT-T-130	186
U 153	419	UF 43	150	V 2 M 70	409	W 81	141	WT-T-131	67
U 154	400	UF 80	94	V 20	400	W 107	140	WT-T-135	407
U 191	419	UF 81	138	V 20 S	400	W 118	156	WZ-1	409
U 192	400	UF 85	148	V 21/7000	418	W 119	156	X 14	272
U 201	400	UF 86	74	V 22/7000	418	W 125	126	X 17	267
U 251	419	UF 89	146	V 25	411	W 142	138	X 18	270
U 281	419	UF 183	153	V 30	401	W 143	138	X 20	268
U 282	419	UF 184	111	V 30	406	W 145	156	X 21	272
U 291	401	UFM 11	397	V 41	404	W 147	138	X 25	269
U 301	419	UL 1	265	V 51	406	W 148	147	X 30	274
U 309	419	UL 11	262	V 61	404	W 149	136	X 32	274
U 319	400	UL 12	265	V 311	401	W 150	138	X 42	274
U 329	419	UL 21	265	V 312	401	W 719	148	X 61	376
U 339	419	UL 41	262	V 580	406	W 727	144	X 61 M	376
U 381	402	UL 43	265	V 884	140	W 729	149	X 62	373
U 403	402	UL 44	265	V 1907	418	WD 30	300	X 63	274
U 404	402	UL 46	265	V 1913	418	WD 40	300	X 63 M	274
U 650	409	UL 71	262	V 1920	418	WD 119	304	X 64	273
U 709	410	UL 84	215	V 1928	418	WD 142	299	X 65	372
U 718	410	UM 4	391	V 2018	400	WD 150	299	X 66	372
U 4020	402	UM 11	391	V 2118	400	WD 709	303	X 71 M	376
UAA 11	6	UM 34	391	V 4678	388	WE 12	391	X 73	274
UAA 91	5	UM 35	391	VAF 3	132	WE 14	231	X 73 M	274
UABC 80	292	UM 80	390	VBF 11	301	WE 15	199	X 75	372
UAF 3	132	UM 81	390	VCL 11	369	WE 16	139	X 76	376
UAF 21	298	UM 83	392	VCY 2	411	WE 17	79	X 76 M	376
UAF 41	299	UM 84	390	VEF 5	135	WE 18	397	X 77	276
UAF 42	299	UM 85	389	VEF 6	70	WE 20	376	X 78	372
UB 41	5	UQ 80	282	VEG 51	400	WE 31	4	X 79	372
UB 91	5	UR 1	400	VEL 3	199	WE 33	132	X 81	372
UBC 41	288	UR 1 C	400	VEL 5	230	WE 36	4	X 101	372
UBC 81	288	UR 2	411	VEL 11	384	WE 39	18	X 107	276
UBF 2	302	UR 3	411	VEM 1	388	WE-403 A	91	X 108	372
UBF 11	301	UR 3 C	411	VEZ 4	410	WE-403 B	91	X 109	372
UBF 80	303	UTH 1	376	VF 1	79	WE-705-A	417	X 119	379
UBF 89	304	UU 3	404	VF 2	139	WE-731 A	91	X 142	378
UBL 21	306	UU 4	404	VF 3	156	WL 6954	73	X 143	377
UBL 71	306	UU 5	404	VF 7	124	WT-6	232	X 147	376
UC 92	43	UU 6	404	VF 14	124	WT-210-0012	406	X 148	373
UC 95	48	UU 7	404	VFT 4	388	WT-210-0013	407	X 150	378
						WT-210-0019	407	X 719	379

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
X 727	276	XSC 1,5 V	64	1 AE 4	60	1 LA 6	272	2 AF 4	31
XAA 91	5	XSG 2,0 V	65	1 AE 5	271	1 LA 6 E	272	2 AF 4-A	31
XC 95	48	XV 280	406	1 AF 4	60	1 LB 4	177	2 B 3	413
XCC 82	312	XW 0,75 A	55	1 AF 5	295	1 LB 6	272	2 B 5	307
XCC 89	323	XW 0,75 B	55	1 AF 33	295	1 LB 6-G	272	2 B 21	416
XCC 189	323	XW 1,5 V	64	1 AF 34	295	1 LB 7	60	2 B 22	2
XCF 80	352	XW 2,0 V	65	1 AG 4	168	1 LC 5	60	2 B 25	412
XCF 82	353	XXB	307	1 AG 5	293	1 LC 6	272	2 B 35	2
XCH 81	379	XXD	310	1 AH 4	61	1 LD 5	293	2 BN 4	42
XCL 82	362	XXFM	289	1 AH 5	295	1 LE 3	10	2 BN 4-A	42
XCL 84	364	XXL	32	1 AJ 4	127	1 LG 5	125	2 C 3	25
XCL 86	366	XY 1,4 A	167	1 AJ 5	293	1 LN 5	63/125	2 C 4 C	25
XD	13	XY 1,4 B	167	1 AN 5	128	1 LN 5 E	125	2 C 48	220
XD 1,5 V	12	XY 1,4 C	166	1 AS 4	60	1 M 1	387	2 C 50	309
XD 2,0 V	13	XY 1,5 V	168	1 AX 2	411	1 M 3	387	2 C 50	220
XE 2	434	XY 88	419	1 B 3-GT	414	1 M 90	387	2 C 51	330
XE 3	434	Y 21	387	1 B 4	65	1 N 2-A	414	2 C 51 L	330
XE 4	434	Y 25	387	1 B 4-P	65	1 N 5-G	129	2 C 52	345
XF 80	94	Y 61	388	1 B 4-T	65	1 N 5-GT	129	2 CW 4	440
XF 85	148	Y 62	388	1 B 7-G	272	1 N 5-VG	129	2 CY 5	96
XF 86	74	Y 63	388	1 B 8-GT	386	1 N 6 -G	294	2 D 13	14
XF 93	144	Y 64	388	1 C 1	267	1 NE 9	436	2 D 13 A	14
XF 94	84	Y 73	388	1 C 2	268	1 P 1	178	2 E 5	388
XF 183	153	Y 119	390	1 C 3	10	1 P 5-G	125	2 E 31	61
XF 184	111	YC 95	48	1 C 3	269	1 P 5-GT	125	2 E 32	61
XF/5654	91	YCC 89	323	1 C 5-G	177	1 P 10	176	2 E 35	164
XF/5726	5	YCC 189	323	1 C 5-GT	177	1 P 11	180	2 E 36	164
XF/5750	276	YCL 82	362	1 C 6	272	1 Q 5-G	177	2 E 41	293
XF/6057	345	YCL 84	364	1 C 7-G	272	1 Q 6	294	2 E 42	293
XF/6060	341	YCL 86	366	1 C 8	271	1 R	129	2 EA 5	102
XF/6063	409	YF 80	94	1 C 91	8	1 R 4	1	2 ER 5	48
XF/6064	93	YF 93	144	1 D 3	8	1 R 5	267	2 EV 5	96
XF/6067	312	YF 183	153	1 D 4	411	1 R 5 T	267	2 FQ 5-A	50
XF/6158	325	YF 184	111	1 D 5	402	1 S 2	414	2 FV 6	96
XFR 1	59	YL 84	214	1 D 6	401	1 S 2-A	414	2 G 5	288
XFR 2	57	YL 86	215	1 D 7-G	272	1 S 4	176	2 GK 5	50
XFR 3	11	Z 1	34	1 D 8-GT	386	1 S 4 T	176	2 HR 8	74
XFR 5	57	Z 2 b	404	1 D 13	1	1 S 5	295	2 J 2	416
XFW 10	55	Z 2 c	405	1 DN 5	297	1 S 5 T	295	2 L 33	181
XFW 20	55	Z 14.	129	1 E 3	8	1 S 6	294	2 L 34	176
XFW 30	55	Z 62	85	1 E 4-G	10	1 SA 6-GT	60	2 L 35	181
XFW 40	55	Z 62 D	85	1 E 5-G	65	1 SB 6-GT	294	2 NE 9	436
XFW 50	55	Z 63	67	1 E 5-GP	65	1 T 2	414	2 S/140 G	2
XFY 10	163	Z 66	85	1 E 5-GT	65	1 T 4	130	2 T 4	31
XFY 11	163	Z 77	93	1 E 8	271	1 T 4 T	130	2 T/270 K	418
XFY 12	163	Z 90	151	1 F 1	127	1 T 5-GT	177	2 T/450 E	417
XFY 14	170	Z 142	124	1 F 2	63	1 T 6	294	2 V 2	413
XFY 15	170	Z 145	121	1 F 3	130	1 U 4	63	2 V 3-G	416
XFY 21	161	Z 150	100	1 F 6	300	1 U 5	295	2 W 10 A	418
XFY 22	161	Z 152	94	1 F 7-G	300	1 U 6	272	2 X 2	416
XFY 23	162	Z 309	109	1 F 7-GH	300	1 V	399	2 X 2-A	416
XFY 31	161	Z 319	281	1 F 7-GV	300	1 V 2	414	2 Y 2	416
XFY 32	167	Z 329	101	1 F 33	130	1 V 4	60	3 A 2	415
XFY 33	162	Z 359	109	1 F 34	130	1 V 5	167	3 A 3	415
XFY 34	167	Z 719	94	1 FD 1	295	1 W 3	404	3 A 4	181
XFY 41	161	Z 729	74	1 FD 9	295	1 W 4	404	3 A 5	307
XFY 43	162	Z 759	109	1 G 3-GT	414	1 W 4	177	3 A 8-GT	386
XFY 54	162	ZD 17	295	1 G 4-G	10	1 X 2	413	3 A/101 B	17
XH 1,5 V	12	ZD 25	295	1 H 1	307	1 X 2-A	413	3 A/104 B	19
XH 2,0 V	13	ZD 152	303	1 H 2	414	1 X 2-A	414	3 A/107 A	17
XL	13	06 F 90	52	1 H 3 C	307	1 X 2-B	414	3 A/107 AY	17
XL 1,5 V	12	1	221	1 H 33	267	1 Y 2	413	3 A/107 B	17
XL 2,0 V	13	1	399	1 H 34	267	1 Y 32	413	3 A/107 BY	17
XL 36	209	1 A 3	1	1 H 35	269	1 Y 32 T	414	3 A/108 A	16
XL 84	214	1 A 5 -G	177	1 J 3	413	1 Z 1	414	3 A/108 B	16
XL 86	215	1 A 5-GT	177	1 K 3	413	1 Z 2	413	3 A/109 A	21
XL 136	255	1 A 6	272	1 K 6	300	2 A 1	272	3 A/109 AY	21
XL 500	225	1 A 7	404	1 K 7	300	2 A 1 M	272	3 A/109 B	21
XLO 1,5 V	12	1 A 7-G	272	1 KR 1	399	2 A 3	25	3 A/109 BY	21
XLO 2,0 V	13	1 A 7-VF	272	1 L 4	63	2 A 3 H	25	3 A/110 A	17
XP 1,5 V	12	1 AB 5	125	1 L 6	272	2 A 3 W	25	3 A/110 B	17
XP 2,0 V	13	1 AB 6	269	1 L 33	176	2 A 5	221	3 A/141 A	17
XR 6	88	1 AC 5	167	1 L 34	176	2 A 6	289	3 A/142	17
XR 7	90	1 AC 6	268	1 L 91	168	2 A 6 S	289	3 A/144 A	19
XR 8	36	1 AD 4	59	1 LA 4	177	2 A 7	274	3 A/144 AY	18
XR 9	319	1 AD 5	56	1 LA 4 E	177	2 A 7 S	274	3 A/167 M	26

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
3 AB 4	43	4 BS 8	332	5 C 3 S	407	6 A 7	274	6 AN 5	191
3 AF 4	31	4 BU 8	381	5 CG 4	406	6 A 7 E	274	6 AN 5-WA	191
3 AF 4-A	31	4 BX 6	94	5 CG 8	354	6 A 7 M	274	6 AN 6	7
3 AJ 8	379	4 BX 8	332	5 CL 8	357	6 A 7 S	274	6 AN 7	378
3 AL 5	5	4 BZ 6	149	5 CL 8-A	357	6 A 8	274	6 AN 8	349
3 AU 6	84	4 BZ 7	332	5 CM 6	220	6 A 8-G	274	6 AN 8-A	349
3 AV 6	290	4 BZ 8	332	5 CM 8	349	6 A 8-GT	274	6 AQ 4	50
3 B 2	415	4 C 1	18	5 CQ 8	357	6 A 8 -GTX	274	6 AQ 5	220
3 B 5-GT	177	4 C 2	17	5 CR 8	355	6 A 8-MG	274	6 AQ 5-A	220
3 B 7	307	4 C 6	18	5 CU 4	407	6 A 10	276	6 AQ 5 L	220
3 B 24	417	4 C 101	23	5 CZ 5	208	6 A 10 C	276	6 AQ 5-W	220
3 B 24-W	417	4 CB 6	95	5 DH 8	355	6 AB 4	43	6 AQ 6	286
3 B 24-WA	417	4 CE 5	95	5 DJ 4	407	6 AB 5	388	6 AQ 7-GT	287
3 B 26	417	4 CF 6	95	5 EA 8	355	6 AB 7	147	6 AQ 8	339
3 B/151 A	19	4 CF 8	74	5 EH 8	355	6 AB 7-Y	147	6 AR 5	192
3 B/254 D	442	4 CM 4	46	5 ES 8	323	6 AB 8	359	6 AR 6	236
3 BA 6	144	4 CX 7	328	5 EU 8	346	6 AC 5-G	50	6 AR 6-WA	236
3 BC 5	92	4 CY 5	96	5 FG 7	346	6 AC 7	99	6 AS 5	191
3 BE 6	276	4 DE 6	95	5 FV 8	355	6 AC 7-GM	99	6 AS 6	78
3 BF 6	285	4 DK 6	103	5 GH 8	355	6 AC 7 (k)	99	6 AS 6 S	78
3 BN 4	42	4 DT 6	66	5 GX 6	81	6 AC 7 W	99	6 AS 6-W	78
3 BN 4-A	42	4 EH 7	153	5 GY 6	81	6 AC 7 -WA	99	6 AS 7-G	308
3 BU 8	381	4 ER 5	48	5 J 6	331	6 AC 7-Y	99	6 AS 7-GA	308
3 BX 6	94	4 ES 8	323	5 P 29	238	6 AD 4	45	6 AS 7-W	308
3 BY 6	277	4 EV 5	96	5 R 4	408	6 AD 5	49	6 AS 8	296
3 BY 7	148	4 EW 6	103	5 R 4-GY	408	6 AD 5-G	49	6 AT 6	288
3 BZ 6	149	4 F 3	132	5 R 4-GAY	408	6 AD 5-GT	49	6 AT 7 N	341
3 C 2	415	4 FG 6	390	5 R 4 -GYS	408	6 AD 6-G	394	6 AT 8	354
3 C 4	177	4 FS 7	348	5 R 4-WGY	408	6 AD 7-G	370	6 AT 8-A	354
3 C 5-GT	177	4 FV 6	96	5 T 4	407	6 AD 8	300	6 AU 4-GT	419
3 C 6	307	4 FY 5	47	5 T 8	292	6 AE 5-GT	29	6 AU 4-GTA	419
3 CB 6	95	4 S 10	251	5 U 4-G	407	6 AE 6	419	6 AU 5-GT	224
3 CE 5	95	4 S 11	185	5 U 4-GA	407	6 AE 6-G	309	6 AU 6	84
3 CF 6	95	4 XP	23	5 U 4-GB	407	6 AE 7-G	309	6 AU 6-A	84
3 CS 6	277	5 A/102 A	223	5 U 4-WG	407	6 AE 8	372	6 AU 6-WA	84
3 CY 5	96	5 A/102 D	223	5 U 8	353	6 AF 3	419	6 AU 7	312
3 D 6	181	5 A/136 A	115	5 V 3	407	6 AF 4	31	6 AU 8	356
3 DK 6	103	5 A/136 D	115	5 V 3-A	407	6 AF 4-A	31	6 AU 8-A	356
3 DT 6	66	5 A/150 A	115	5 V 4-G	408	6 AF 5-G	29	6 AV 4	410
3 E 5	177	5 A/152 M	101	5 V 4-GA	408	6 AF 6-G	394	6 AV 5-GA	224
3 EA 5	102	5 A/155 M	101	5 V 4-GB	407	6 AF 7-G	391	6 AV 5-GT	224
3 EH 7	153	5 A/156 M	101	5 V 6-GT	220	6 AG 5	92	6 AV 6	290
3 ER 5	48	5 A/157 D	70	5 W 4	406	6 AG 5-WA	92	6 AV 8	349
3 EV 5	96	5 A/160 H	93	5 W 4-G	406	6 AG 6-G	206	6 AW 4	409
3 EW 6	103	5 A/170 K	108	5 W 4-GT	406	6 AG 7	200	6 AW 5-G	411
3 FQ 5-A	50	5 A/185 K	108	5 X 3	406	6 AG 7(k)	200	6 AW 7	289
3 FV 6	96	5 AM 8	296	5 X 4-G	407	6 AG 7-Y	200	6 AW 8	356
3 GK 5	50	5 AN 8	349	5 X 8	354	6 AH 4-GT	39	6 AW 8-A	356
3 L 31	181	5 AQ 4	407	5 Y 3 C	406	6 AH 5-G	232	6 AX 2	415
3 L 35	181	5 AQ 5	220	5 Y 3-G	406	6 AH 6	98	6 AX 2 N	415
3 LF 4	177	5 AR 4	407	5 Y 3-GA	406	6 AH 6 S	98	6 AX 4-GT	419
3 Q 4	180	5 AS 4	407	5 Y 3-GB	406	6 AH 7-GT	310	6 AX 5-GT	410
3 Q 5-G	177	5 AS 4-A	407	5 Y 3-GR	406	6 AJ 4	46	6 AX 6-G	411
3 Q 5-GT	177	5 AS 8	296	5 Y 3-GT	406	6 AJ 5	76	6 AX 7	345
3 S 4	176	5 AT 8	354	5 Y 3-WGT	406	6 AJ 7	98	6 AX 8	353
3 S 4 T	176	5 AU 4	407	5 Y 3-WGTA	406	6 AJ 8	379	6 AY 5	220
3 S 21	24	5 AV 8	349	5 Y 3-WGTB	406	6 AK 4	36	6 AZ 5	6
3 S 22	18	5 AW 4	407	5 Y 4-G	406	6 AK 5	91	6 AZ 6	6
3 S 23	14	5 AX 4-GT	408	5 Y 4-GA	406	6 AK 5-W	91	6 AZ 8	349
3 S 24	20	5 AZ 4	406	5 Y 4-GT	406	6 AK 5-WA	91	6 B 3	419
3 S 26	14	5 AZ 8	349	5 Y 4-SG	406	6 AK 6	186	6 B 4-G	25
3 S 28	17	5 B/110 G	219	5 Z 3	407	6 AK 7	200	6 B 6-G	289
3 Y 4	180	5 B/110 M	219	5 Z 3-GB	407	6 AK 8	292	6 B 31	6
3,5 C 8	14	5 BC 3	407	5 Z 4	406	6 AL 3	419	6 B 32	5
4 A 28	23	5 BE 8	353	5 Z 4-C	406	6 AL 5	5	6 BA 5	81
4 AA	132	5 BK 7	333	5 Z 4-G	406	6 AL 5-W	5	6 BA 6	144
4 AU 6	84	5 BK 7-A	333	5 Z 4-MG	406	6 AL 5-WA	5	6 BA 6-W	144
4 BA 6	144	5 BQ 7-A	328	5 Z 5-MG	406	6 AL 6-G	232	6 BA 7	276
4 BC 5	92	5 BR 8	353	5 Z 10	407	6 AL 7-GT	392	6 BA 7-H	276
4 BC 8	328	5 BS 8	332	6/30 L 2	309	6 AM 4	50	6 BA 8	356
4 BE 6	276	5 BT 8	300	6 A 3	25	6 AM 5	190	6 BA 8-A	356
4 BL 8	352	5 BW 8	300	6 A 4	186	6 AM 6	93	6 BC 5	92
4 BN 4	42	5 BX 1	406	6 A 4/LA	186	6 AM 6 S	93	6 BC 7	7
4 BN 4-A	42	5 BX 2	406	6 A 5-G	25	6 AM 8	296	6 BC 8	328
4 BQ 7-A	328	5 BX 3	407	6 A 6	329	6 AM 8-A	296	6 BC 32	290
		5 BZ 7	332	6 A 7	276	6 AN 4	50	6 BD 4	442

6 BD 4-A

6 J 8-G

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
6 BD 4-A		6 BY 8	296	6 CQ 8	357	6 E 102	199	6 G 5-G	388
6 BD 5-GT	224	6 BZ 6	149	6 CQ 8-A	357	6 EA 5	102	6 G 6-G	186
6 BD 6	136	6 BZ 7	332	6 CR 5	224	6 EA 7-G	276	6 G 6-GT	186
6 BD 7	288	6 BZ 8	332	6 CR 6	298	6 EA 7-GT	276	6 GB 5	225
6 BD 7-A	288	6 C 2	33	6 CR 8	355	6 EA 8	355	6 GC 5	203
6 BE 6	276	6 C 2 C	33	6 CS 5	193	6 EB 8	367	6 GC 6	222
6 BE 6-N	276	6 C 4	28	6 CS 6	277	6 EF 6	222	6 GE 5	227
6 BE 6W	276	6 C 4 C	25	6 CS 7	311	6 EG 5	388	6 GE 8	346
6 BE 7	282	6 C 4-W	28	6 CS 8	355	6 EH 5	191	6 GG 6	410
6 BE 8	353	6 C 4-WA	28	6 CT 7	299	6 EH 7	153	6 GH 8	355
6 BE 8-A	353	6 C 5	32	6 CU 5	191	6 EH 8	355	6 GJ 5	227
6 BF 5	191	6 C 5 C	32	6 CU 6	224	6 EL 7	94	6 GJ 7	346
6 BF 6	285	6 C 5-G	32	6 CU 7	378	6 EM 5	222	6 GJ 8	346
6 BF 7	326	6 C 5-GM	32	6 CU 8	349	6 EM 7	343	6 GK 5	50
6 BF 7-A	326	6 C 5-GT	32	6 CV 7	288	6 ER 5	48	6 GK 6	203
6 BF 7-W	326	6 C 6	25	6 CW 4	440	6 ES 6	421	6 GK 8	361
6 BG 6-G	235	6 C 6	67	6 CW 5	215	6 ES 8	323	6 GM 5	236
6 BG 6-GA	235	6 C 6-G	67	6 CW 7	320	6 ET 6	424	6 GM 8	420
6 BG 7	326	6 C 8-BG	336	6 CX 7	328	6 ET 7	300	6 GN 8	361
6 BH 5	138	6 C 8-G	336	6 CX 8	367	6 EU 8	346	6 GT 5	227
6 BH 6	82	6 C 9	380	6 CY 5	96	6 EV 5	96	6 GV 8	365
6 BH 8	356	6 C 9	373	6 CY 7	311	6 EW 6	103	6 GW 6	222
6 BJ 5	197	6 C 9	98	6 CZ 5	208	6 EX 6	227	6 GW 8	366
6 BJ 6	136	6 C 10	378	6 D 1	2	6 EY 6	222	6 GX 6	81
6 BJ 7	7	6 C 12	379	6 D 2	5	6 EZ 5	222	6 GX 8	393
6 BJ 8	285	6 C 16	352	6 D 3	2	6 F 1	100	6 GY 6	81
6 BK 4	442	6 C 31	373	6 D 6	135	6 F 5	49	6 H 2	415
6 BK 5	207	6 C 31	46	6 D 7	67	6 F 5-G	49	6 H 4-GT	2
6 BK 6	290	6 C 34 A	36	6 D 8-G	274	6 F 5-GT	49	6 H 5	388
6 BK 7	333	6 CA 4	410	6 D 8-GT	274	6 F 5-M	49	6 H 5 C	308
6 BK 7-A	333	6 CA 5	191	6 DA 4	419	6 F 5-MG	49	6 H 6	6
6 BK 7-B	333	6 CA 7	239	6 DA 5	390	6 F 6	221	6 H 6-G	6
6 BK 8	74	6 CB 5	235	6 DA 6	146	6 F 6-G	221	6 H 6-GT	6
6 BL 4	419	6 CB 5-A	235	6 DA 7	311	6 F 6-GT	221	6 H 6-MG	6
6 BL 7-GT	311	6 CB 6	95	6 DB 5	193	6 F 8-G	313	6 H 7	329
6 BL 7-GTA	311	6 CB 6-A	95	6 DB 6	73	6 F 10	98	6 H 7 C	329
6 BL 8	352	6 CC 10	313	6 DC 6	149	6 F 11	75	6 H 8 C	313
6 BM 5	207	6 CC 31	331	6 DC 8	304	6 F 12	93	6 H 8 M	313
6 BM 8	362	6 CC 40	312	6 DE 4	419	6 F 13	100	6 H 9 C	342
6 BN 4	72	6 CC 41	345	6 DE 6	95	6 F 14	103	6 H 9 M	342
6 BN 4-A	72	6 CC 42	330	6 DE 7	311	6 F 15	139	6 H 10 C	336
6 BN 5	189	6 CC 43	339	6 DG 4-GT	193	6 F 16	138	6 H 10 M	336
6 BN 8	286	6 CD 6-G	235	6 DG 7	146	6 F 18	156	6 H 11	308
6 BQ 5	214	6 CD 6-GA	235	6 DG 7	389	6 F 19	148	6 H 12 C	327
6 BQ 6-GA	224	6 CD 7	391	6 DH 8	355	6 F 20	149	6 H 13 C	308
6 BQ 6-GT	224	6 CE 5	95	6 DJ 8	322	6 F 21	140	6 H 15	331
6 BQ 6-GTA	224	6 CF 6	95	6 DK 6	103	6 F 22	74	6 H 31	276
6 BQ 6-GTB	224	6 CF 8	74	6 DL 5	189	6 F 23	103	6 HB 6	203
6 BQ 7	328	6 CG 6	136	6 DN 6	228	6 F 24	97	6 HB 8	361
6 BQ 7-A	328	6 CG 7	313	6 DQ 5	235	6 F 29	153	6 HC 8	361
6 BR 5	390	6 CG 8	354	6 DQ 6	228	6 F 31	144	6 HF 8	361
6 BR 7	67	6 CG 8-A	354	6 DQ 6-A	228	6 F 32	87	6 HG 8	348
6 BR 8	353	6 CH 6	213	6 DQ 8	364	6 F 32	91	6 HU 6	390
6 BS 4	42	6 CH 7	327	6 DR 6	195	6 F 33	78	6 HZ 8	361
6 BS 7	67	6 CH 8	349	6 DR 7	343	6 F 33	87	6 J 4	46
6 BS 8	332	6 CH 40	379	6 DR 8	423	6 F 35	76	6 J 4-S	46
6 BT 4	410	6 CJ 5	138	6 DS 5	192	6 F 36	98	6 J 4-WA	46
6 BT 6	288	6 CJ 6	195	6 DS 8	422	6 F 40	74	6 J 5	33
6 BT 8	300	6 CK 4	39	6 DT 5	222	6 F 41	94	6 J 5-G	33
6 BU 6	285	6 CK 5	197	6 DT 6	66	6 FC 7	323	6 J 5-GTX	33
6 BU 8	381	6 CK 6	201	6 DT 8	341	6 FD 12	304	6 J 5 m	33
6 BV 8	284	6 CL 5	227	6 DU 6	389	6 FE 5	203	6 J 5-MG	33
6 BW 4	410	6 CL 6	200	6 DW 5	222	6 FG 6	390	6 J 5-WGT	33
6 BW 6	220	6 CL 8	357	6 DY 5	202	6 FG 7	346	6 J 6	331
6 BW 7	101	6 CL 8-A	357	6 DX 8	364	6 FH 6	227	6 J 6-A	331
6 BW 8	300	6 CM 4	46	6 DZ 8	367	6 FL 8	300	6 J 6 L	331
6 BX 1	409	6 CM 5	209	6 E 1	135	6 FM 8	288	6 J 6-R	331
6 BX 4	410	6 CM 6	220	6 E 5	198	6 FN 5	222	6 J 6-W	331
6 BX 4/6 Z 4	410	6 CM 7	311	6 E 5	388	6 FQ 5-A	50	6 J 6-WA	331
6 BX 6	94	6 CM 8	349	6 E 5 C	388	6 FV 5	236	6 J 7	67
6 BX 7-GT	311	6 CN 5	232	6 E 5-GT	388	6 FV 6	96	6 J 7-G	67
6 BX 8	332	6 CN 6	238	6 E 6	199	6 FV 8	355	6 J 7-GT	67
6 BY 5-G	411	6 CN 7	288	6 E 7	230	6 FX 4	410	6 J 7-GTX	67
6 BY 5-GA	411	6 CN 8	367	6 E 7	135	6 FY 5	47	6 J 7-MG	67
6 BY 6	277	6 CQ 6	140	6 E 8-G	376	6 FY 8	367	6 J 8-EG	371
6 BY 7	148	6 CQ 6 S	140	6 E 8-MG	376	6 G 5	388	6 J 8-G	371

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
6 J 8-GA	371	6 P 7-G	287	6 SN 7	313	6 Y 50	419	7 X 6	411
6 JC 8	346	6 P 8-G	373	6 SN 7-GT	313	6 Z 3	399	7 X 7	289
6 JE 8	361	6 P 9	207	6 SN 7-GTA	313	6 Z 4	410	7 Y 4	409
6 JV 8	361	6 P 15	214	6 SN 7-GTB	313	6 Z 4/84	409	7 Z 4	410
6 JW 8	358	6 P 17	190	6 SN 7-WGT	313	6 Z 5	409	8 A 8	352
6 JX 8	375	6 P 25	212	6 SN 7-WGTA	313	6 Z 5/12 Z 5	409	8 AU 8	356
6 K 3	137	6 P 26	212	6 SQ 7	289	6 Z 6-G	411	8 AU 8-A	356
6 K 4	38	6 P 28	228	6 SQ 7-GT	289	6 Z 6-GM	411	8 AW 8	356
6 K 4	147	6 PX 6-G	199	6 SQ 7 W	289	6 Z 31	409	8 AW 8-A	356
6 K 5-G	49	6 Q 4	48	6 SR 7	285	6 Z 40	410	8 B 8	362
6 K 5-GT	49	6 Q 6	283	6 SR 7-GT	285	6 Z Y 5-G	409	8 BA 8	356
6 K 6 A	143	6 Q 6-G	283	6 SS 7	135	6 Z 5	33	8 BA 8-A	356
6 K 6 A-B	143	6 Q 6-G	287	6 SS 7-GT	135	6 Z 7	67	8 BH 8	356
6 K 6-G	192	6 Q 7	287	6 SU 7-GTY	342	7 A 2	221	8 BN 8	286
6 K 6-GT	192	6 Q 7-G	287	6 SU 7-WGT	342	7 A 3	206	8 BQ 5	214
6 K 7	133	6 Q 7-GM	287	6 SV 7	296	7 A 4	33	8 BQ 7-A	328
6 K 7-G	133	6 Q 7-GT	287	6 SZ 7	286	7 A 5	192	8 CB 5	215
6 K 7-GT	133	6 Q 7-MG	287	6 T	220	7 A 6	6	8 CF 40	352
6 K 7-GTX	133	6 Q 8	274	6 T 4	31	7 A 7	137	8 CG 7	313
6 K 8	371	6 QL 6	203	6 T 5	388	7 A 7-LM	137	8 CM 7	311
6 K 8-G	371	6 R	75	6 T 6	85	7 AB 7	75	8 CN 7	288
6 K 8-GT	371	6 R 3	410	6 T 7-G	287	7 AD 7	206	8 CS 7	311
6 K 8-MS	371	6 R 3	419	6 T 7-GT	287	7 AF 7	310	8 CW 5	215
6 K 9	137	6 R 4	30	6 T 8	292	7 AG 7	85	8 CX 8	367
6 K 9 C	137	6 R 4	410	6 T 8-A	292	7 AH 7	141	8 CY 7	311
6 K 9 M	137	6 R 6-G	133	6 TE 8-GT	374	7 AJ 7	75	8 D 2	67
6 L 1	310	6 R 7	285	6 TE 9	373	7 AK 7	192	8 D 3	93
6 L 2	309	6 R 7	409	6 TH 8	373	7 AN 7	320	8 D 4	68
6 L 5-G	32	6 R 7-G	286	6 TP	232	7 AU 7	312	8 D 5	67
6 L 6	232	6 R 7-GT	286	6 U 3	419	7 B 4	49	8 D 6	94
6 L 6-G	232	6 R 7-MG	286	6 U 4-GT	419	7 B 5	192	8 D 7	67
6 L 6-GA	232	6 R 8	292	6 U 5	388	7 B 5 E	192	8 D 8	74
6 L 6-GB	232	6 RV	75	6 U 5-G	388	7 B 5 LT	192	8 DQ 8	364
6 L 6-GX	232	6 S 2	415	6 U 7-G	135	7 B 6	289	8 DX 8	364
6 L 6-WGA	232	6 S 2-A	415	6 U 8	353	7 B 6-LM	289	8 EB 8	367
6 L 6-WGB	232	6 S 4	39	6 U 8-A	353	7 B 7	136	8 EM 5	222
6 L 6-Y	232	6 S 4-A	39	6 V 3	419	7 B 8	274	8 ET 7	300
6 L 7	273	6 S 5	388	6 V 3-A	419	7 B 8 LM	274	8 GN 8	361
6 L 7-G	273	6 S 5-G	388	6 V 3-P	419	7 C 4	2	8 GW 8	366
6 L 7-MG	273	6 S 6-GT	147	6 V 4	410	7 C 5	220	8 HB 8	361
6 L 10	200	6 S 7	135	6 V 5-G	220	7 C 5-LT	220	8 HG 8	348
6 L 12	339	6 S 7-G	135	6 V 5-GT	220	7 C 5-TV	220	8 HF 8	361
6 L 13	345	6 S 7-GT	135	6 V 6	220	7 C 6	289	8 HZ 8	361
6 L 16	320	6 S 8-GT	292	6 V 6-G	220	7 C 7	68	8 JE 8	361
6 L 19	336	6 SA 7	276	6 V 6-GT	220	7 CW 7	320	8 SN 7-GTB	313
6 L 31	220	6 SA 7-G/d	276	6 V 6-GTA	220	7 D 3	254	9 A 8	352
6 L 34	50	6 SA 7-GT	276	6 V 6-GTY	220	7 D 5	221	9 AB 4	43
6 L 40	214	6 SA 7-WGT	276	6 V 6-Y	220	7 D 6	206	9 ABC 40	292
6 L 43	200	6 SB 7-GTY	276	6 V 8	292	7 D 7	371	9 AK 8	292
6 L 50	233	6 SB 7-Y	276	6 W 4-GT	419	7 D 8	206	9 AQ 5	220
6 L 50 V	227	6 SC 7	336	6 W 5-G	410	7 D 9	190	9 AQ 8	340
6 LD 3	228	6 SC 7-GT	336	6 W 6-GT	193	7 D 10	213	9 AU 7	312
6 LD 12	292	6 SD 7-GT	81	6 W 7-G	67	7 DJ 8	322	9 BK 7-A	333
6 LD 13	288	6 SE 7-GT	85	6 X 2	415	7 E 6	285	9 BM 5	207
6 LD 20	291	6 SF 5	49	6 X 4	409	7 ED 7	101	9 BR 7	286
6 M 1	388	6 SF 5-G	49	6 X 4-S	409	7 ES 8	323	9 BR 8	353
6 M 2	391	6 SF 5-GT	49	6 X 4-W	409	7 EY 6	222	9 BW 6	220
6 M 3	419	6 SF 7	298	6 X 4-WS	409	7 F 7	342	9 BQ 7-A	328
6 M 5	197	6 SG 7	147	6 X 5 C	409	7 F 7-TV	342	9 C 8	352
6 M 6	199	6 SH 7	83	6 X 5-G	409	7 F 8	336	9 CL 8	357
6 M 6-G	199	6 SH 7-GT	83	6 X 5-GT	409	7 F 8-W	336	9 D 2	133
6 M 7-G	85	6 SH 7-L	83	6 X 5-WGT	409	7 F 16	138	9 D 6	140
6 M 7-MG	138	6 SJ 7	71	6 X 6	388	7 FC 7	323	9 D 7	147
6 M 8-G/GT	386	6 SJ 7-GT	71	6 X 6 C	6	7 G 7	85	9 DZ 8	367
6 M 40	390	6 SJ 7-WGT	71	6 X 6-G	388	7 G 8	380	9 EF 6	222
6 N 3	399	6 SJ 7-Y	71	6 X 6 M	6	7 GW 8	366	9 EN 7	351
6 N 5	388	6 SK 7	137	6 X 8	354	7 H 7	147	9 GB 8	351
6 N 7	329	6 SK 7-GT	137	6 X 8-A	354	7 J 7	371	9 GJ 7	346
6 N 7-G	329	6 SK 7-W	137	6 Y 3-G	418	7 L 7	85	9 J 6	331
6 N 7-GT	329	6 SK 7-WA	137	6 Y 4	410	7 N 7	313	9 J W 8	358
6 N 8	303	6 SK 7-Y	137	6 Y 5	409	7 N 7-TV	313	9 P 9	207
6 NK 7-GT	139	6 SL 7	342	6 Y 5 S	409	7 Q 7	276	9 T 8	292
6 P 1	212	6 SL 7-GT	342	6 Y 5 V	409	7 S 7	373	9 U 8	353
6 P 5-G	29	6 SL 7-GTY	342	6 Y 5 W	409	7 T 7	83	9 U 8-A	353
6 P 5-GT	29	6 SL 7-WA	342	6 Y 6-G	219	7 V 7	85	9 X 8	354
6 P 7	287	6 SL 7-WGT	342	6 Y 6-GA	219	7 W 7	85	9 X 8-A	354

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
10 C 2	351	12 AU 7	312	12 D 8	379	12 K 3	137	14 A 7	137
10 C 8	351	12 AU 7-A	312	12 DA 6	146	12 K 4	147	14 AF 7	310
10 C 14	379	12 AU 7 R	312	12 DB 5	193	12 K 5	429	14 B 6	289
10 CW 5	215	12 AU 7 S	312	12 DE 8	430	12 K 7-G	133	14 B 8	274
10 D 2	5	12 AU 7-WA	312	12 DF 5	411	12 K 8	371	14 C 5	220
10 DA 7	311	12 AU 8	356	12 DF 7	345	12 K 8-G	371	14 C 7	124
10 DB 8	362	12 AV 5-GA	224	12 DG 6-GT	193	12 K 8-GT	371	14 E 6	285
10 DE 7	311	12 AV 5-GT	224	12 DK 5	425	12 K 8-Y	371	14 F 6	221
10 EB 8	367	12 AV 6	290	12 DK 7	430	12 L 6-GT	253	14 F 7	342
10 ER 5	48	12 AV 7	333	12 DL 8	429	12 U 5-G	388	14 F 8	336
10 F 1	121	12 AW 6	92	12 DM 5	255	12 U 7	430	14 GB 5	225
10 F 3	124	12 AW 7	92	12 DQ 6	228	12 V 6-GT	220	14 GW 8	368
10 F 9	156	12 AX	54	12 DQ 6-A	228	12 M 1 M	431	14 H 7	147
10 F 18	156	12 AX 4-GT	419	12 DQ 7	103	12 M 7-GT	141	14 J 7	371
10 FD 12	304	12 AX 4-GTA	419	12 DS 7	429	12 M 71	388	14 J 8-EG	371
10 GW 8	366	12 AX 4-GTB	419	12 DT 5	222	12 N 8	303	14 J 8-G	371
10 HF 8	361	12 AX 7	345	12 DT 6	124	12 NK 7-GT	139	14 K 7	378
10 L 1	50	12 AX 7-A	345	12 DT 7	345	12 P 1	124	14 L 7	288
10 L 14	340	12 AX 7-R	345	12 DT 8	341	12 P 2	124	14 N 7	313
10 LD 3	288	12 AX 7-S	345	12 DU 7	430	12 Q 7	287	14 Q 7	276
10 LD 4	340	12 AX 7-WA	345	12 DV 7	428	12 Q 7-G	287	14 S 7	373
10 LD 11	291	12 AY 7	337	12 DV 8	429	12 Q 7-GT	287	14 V 7	85
10 LD 12	292	12 AZ 7	341	12 DW 5	222	12 R 5	252	14 W 7	85
10 LD 13	288	12 B 3	419	12 DW 7	318	12 S 7	299	14 X 7	289
10 M 2	391	12 B 4	39	12 DY 8	430	12 SA 7-GT	276	14 Y 4	409
10 P 13	263	12 B 4-A	39	12 DZ 6	425	12 SC 7	336	14 Y 7	378
10 P 14	263	12 B 6	283	12 DZ 8	367	12 SF 5	49	14 Z 3	400
10 P 18	265	12 B 6-M	283	12 E 1	245	12 SF 5-G	49	15 A 2	274
10 PL 12	362	12 B 7	137	12 E 5-GT	29	12 SF 5-GT	49	15 A 6	201
11 A 6	329	12 B 7-LM	137	12 E 8-MGT	376	12 SF 7	298	15 A 6	221
11 A 8	274	12 BA 6	144	12 EA 6	425	12 SG 7	147	15 A 8	367
11 C 5	260	12 BA 7	276	12 EA 7-G	276	12 SG 7-Y	147	15 BD 7-A	288
11 CY 7	311	12 BC 32	290	12 EC 8	430	12 SH 7	83	15 CW 5	215
11 E 1	236	12 BD 5-GT	224	12 ED 5	255	12 SJ 7	71	15 D 1	274
11 E 2	227	12 BD 6	136	12 EF 6	222	12 SJ 7-GT	71	15 D 2	274
11 E 3	227	12 BE 6	276	12 EG 6	427	12 SK 7	137	15 DQ 8	364
11 F 6	221	12 BF 6	285	12 EH 5	191	12 SK 7-GT	137	15 DX 8	364
11 J 7	67	12 BH 7	311	12 EK 6	425	12 SL 7-GT	342	15 EW 6	124
11 JE 8	361	12 BH 7-A	311	12 EL 6	428	12 SN 7-GT	313	16 A 5	202
11 K 7	133	12 BK 5	207	12 EM 5	222	12 SN 7-GTA	313	16 A 8	362
11 L 6	232	12 BK 6	290	12 EM 6	430	12 SN 7-GTB	313	16 AQ 3	419
11 N 7	329	12 BL 6	426	12 EN 6	255	12 SQ 7	289	16 CN 8	367
11 Q 7	287	12 BQ 6-GA	224	12 EZ 5	222	12 SQ 7-GT	289	16 GK 6	255
11 X 5	409	12 BQ 6-GT	224	12 EZ 6	425	12 SR 7	285	16 GK 8	361
12 A 4	39	12 BQ 6-GTA	224	12 F 5-GT	49	12 SR 7-GT	285	16 L 40	202
12 A 4-A	39	12 BQ 6-GTB	224	12 F 8	430	12 SS 7-GT	135	17	221
12 A 5	192	12 BR 7	286	12 F 31	144	12 SW 7	285	17 AV 5-GA	224
12 A 6	254	12 BR 7-A	286	12 FA 6	427	12 SW 7-GT	285	17 AV 5-GT	224
12 A 7	398	12 BT 6	288	12 FG 6	390	12 SX 7-GT	313	17 AX 4-GT	419
12 A 8-G	274	12 BU 6	285	12 FK 6	428	12 SY 7	276	17 BQ 6-GA	224
12 A 8-GT	274	12 BU 8	381	12 FL 8	300	12 SY 7-GT	276	17 BQ 6-GT	224
12 AB 5	220	12 BV 7	103	12 FM 6	428	12 TE 8-GT	374	17 BQ 6-GTB	224
12 AC 5	138	12 BW 4	409	12 FR 8	430	12 TE 9	373	17 C 5	191
12 AC 6	426	12 BX 6	124	12 FT 6	428	12 W 6-GT	193	17 C 8	303
12 AD 5	124	12 BY 7	103	12 FX 8	427	12 X 3	400	17 C 9	380
12 AD 6	427	12 BY 7-A	103	12 FY 8	367	12 X 3 C	6	17 CA 5	191
12 AD 7	345	12 BZ 6	149	12 G 4	33	12 X 5	409	17 CL 6	200
12 AE 6	428	12 BZ 7	345	12 G 5-G	388	12 Z 3	400	17 CR 5	224
12 AE 7	430	12 C 2 C	33	12 G 7-G	287	13	406	17 CU 5	191
12 AF 3	419	12 C 5	191	12 G 7-GT	287	13 B	406	17 D 4	419
12 AF 6	426	12 CA 5	191	12 G 8	430	13 BF 2 U	302	17 DA 4	419
12 AG 6	427	12 CD 6	225	12 GC 6	222	13 CL 6	200	17 DE 4	419
12 AH 6	98	12 CD 6-G	235	12 GE 5	227	13 CM 5	209	17 DQ 6	228
12 AH 7-GT	310	12 CD 7	391	12 GW 6	222	13 D 1	313	17 DQ 6-A	228
12 AH 8	373	12 CM 6	220	12 H 4	33	13 D 2	313	17 EW 8	340
12 AJ 6	428	12 CN 5	425	12 H 6	6	13 D 3	325	17 FL 8	300
12 AJ 8	379	12 CR 5	224	12 H 10 C	336	13 DE 7	311	17 FV 5	255
12 AK 7	345	12 CR 6	298	12 H 11 C	310	13 DR 7	343	17 GJ 5	227
12 AL 5	5	12 CS 5	193	12 H 11 M	310	13 EM 7	343	17 GT 5	227
12 AL 8	429	12 CS 6	277	12 H 31	276	13 F 9 U	138	17 GW 6	222
12 AQ 5	220	12 CT 8	365	12 J 5-GT	33	13 M 4 U	391	17 H 3	419
12 AS 5	255	12 CU 5	191	12 J 5-WGT	33	13 PGA	274	17 HC 8	361
12 AT 6	288	12 CU 6	224	12 J 7-GT	67	13 U 6	400	17 HG 8	348
12 AT 7	341	12 CX 6	425	12 J 8	430	13 U 7	411	17 L 6-GT	253
12 AT 7-WA	341	12 CY 6	425	12 K 1 M	431	14 A 4	33	17 N 8	303
12 AU 6	84	12 D 4	419			14 A 5	254	17 R 5	252

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
17 Z 3	419	20 P 5	255	25 W 6-GT	193	35 RE	411	57 YS	67
18	221	20 Y 1	400	25 X 5	401	35 S	131	58	131
18 A 5	224	20 Y 40	419	25 X 6	411	35 S/51 S	131	58 A	131
18 AK 5	91	21 A 6	195	25 X 6-GT	411	35 X 4	402	58 AS	131
18 AQ 5	220	21 B 6	195	25 Z 5-MG	411	35 Y 31	402	58 S	131
18 C 51	330	21 CW 7	320	25 Z 6	411	35 Z 3	402	60	408
18 D 2	346	21 DJ 8	322	25 Z 6-G	411	35 Z 4-GT	402	60 FX 5	265
18 D 3	346	21 ES 8	323	25 Z 6-GT	411	35 Z 6-G	411	61 BT	227
18 DZ 8	367	21 EX 6	227	25 Z 6-WGT	411	37	29	61 SPT	236
18 EB 8	367	21 L 40	195	26 A 6	432	37-A	29	62 BT	227
18 F 24	124	22 S 2	407	26 A 7-GT	432	38	192	62 DDT	288
18 FW 6	156	22 S/200 A	407	26 AE 6	419	38 A	192	62 L 31	265
18 FX 6	276	22 V/310 A	407	26 AQ 8	340	38 A 3	402	62 TH	378
18 FX 6-A	276	24/76	29	26 BK 6	290	39	135	62 VP	138
18 FY 6	291	24/77	67	26 C 6	285	39/44	135	63 ME	388
18 FY 6-A	291	24/78	133	26 D 6	432	39 A	135	63 SPT	151
18 GD 6	156	25	254	26 EG 6-G	255	39 A/44 A	135	63 TP	359
18 GE 6	291	25 A 6	254	26 Z 5-W	411	40 PPA	263	64	135
18 GE 6-A	291	25 A 6	156	27 BL 8	352	40 SUA	402	64 A	135
18 GV 8	365	25 A 6-G	254	27 H	29	41	192	64 ME	391
18 HB 8	361	25 A 6-GT	254	27 M	29	41 E	192	64 SPT	94
18 J 6	331	25 A 7-G	398	27 SU	401	41 HM	192	65	135
18 AJ 8	379	25 A 7-GT	398	28	409	41 ME	388	65 A	135
18 AK 8	292	25 AQ 8	340	28 AK 8	292	42	221	65 ME	390
18 AL 5	5	25 AV 5-GA	224	28 D 7	432	42 E	221	66 KU	410
18 AQ 5	220	25 AV 5-GT	224	28 GB 5	225	43	254	67	29
18 AU 4-GTA	419	25 AX 4-GT	419	30 A 5	261	43 E	254	67-A	29
18 AU 4-GT	419	25 B 6-G	255	30 AE 3	419	43 MG	254	67 PT	197
18 BD 4	419	25 BG 6-G	235	30 BX 1	411	44 GW 8	368	69	35
18 BG 6-G	235	25 BK 5	207	30 C 1	352	45 A	162	70	35
18 BG 6-GA	235	25 BQ 6-GA	224	30 C 13	352	45 B 5	215	70 A 7-GT	398
18 BR 5	390	25 BQ 6-GT	224	30 C 15	351	45 CW 5	215	70 L 7-GT	398
18 BX 6	94	25 BQ 6-GTA	224	30 C 17	351	45 DQ 8	364	72	417
18 BY 7	148	25 BQ 6-GTB	224	30 F 5	101	45 DX8	364	73	417
18 C 8	292	25 C 5	191	30 FL 1	351	45 JU	405	75	289
18 CL 8	357	25 C 6-G	219	30 FL 12	346	45 Z 3	402	75 S	289
18 CL 8-A	357	25 C 6-GA	219	30 FL 13	346	48 A 8	362	76	29
18 D 8	379	25 CA 5	191	30 HB 8	361	50 A 5	265	77	67
18 DA 5	390	25 CD 6-G	235	30 L 1	320	50 AX 6-G	411	77 E	67
18 DC 8	304	25 CD 6-GA	235	30 L 2	309	50 AX 6-GT	411	77 M	67
18 DE 7	311	25 CD 6-GB	235	30 L 15	321	50 B 5	191	78	133
18 EA 8	355	25 CG 6	136	30 NG	411	50 BK 5	207	78 E	133
18 EH 7	153	25 CR 5	224	30 P 4	209	50 BM 8	362	80	406
18 FL 8	300	25 CS 5	193	30 P 12	252	50 C 5	191	80/41	406
18 G 3	418	25 CU 6	224	30 P 14	255	50 C 6-G	219	80 A	406
18 G 5-G	388	25 D 4	419	30 P 16	202	50 C 6-GA	219	80 M	406
18 G 6	418	25 D 8-G	306	30 P 18	215	50 CA 5	191	80 S	406
18 H 1	418	25 D 8-GT	306	30 PL 1	367	50 CD 6-GA	235	83	407
18 H 4	417	25 DE 4	419	30 PL 13	367	50 EH 5	191	83 V	408
18 HV 8	346	25 DN 6	228	30 PL 14	367	50 F 2 D	125	84	409
18 J 6	331	25 DQ 6	228	31 A 3	401	50 FA 5	265	84/6 Z 4	409
18 SU	400	25 DQ 6-A	228	31 AV 3	401	50 FE 5	265	86-M	29
18 T 8	292	25 DT 5	222	31 BX 7-GT	311	50 FY 8	367	87 S	67
18 U 3	419	25 E 5	209	32 A 8	362	50 HC 6	265	88	406
18 U 5-G	388	24 EC 6	224	32 ET 5	259	50 HK 6	265	88 M	137
18 V 8	292	25 EH 5	191	32 ET 5-A	259	50 K 1 D	266	89	192
18 W 3	419	25 F 1 D	125	32 L 7-GT	398	50 L 6-G	253	90 V 9	415
18 X 3	419	25 F 5	252	34 GD 5	265	50 L 6-GT	253	95	221
18 X 8	354	25 FY 8	367	35	131	50 X 6	411	98	409
18 X 8-A	354	25 L 6	253	35/51	131	50 Y 1 U	402	101 A	17
18 Y 3	400	25 L 6-G	253	35 A 3	402	50 Y 6-G	411	101 B	17
18 Y 40	400	25 L 6-GT	253	35 A 5	260	50 Z 6-G	411	101 D	17
20 AE 6	419	25 M 1 D	387	35 B 5	260	51	131	101 DW	17
20 CH 4	377	25 RE	411	35 C 3	402	51 S	131	101 F	17
20 D 1	5	25 SN 7-GT	313	35 C 5	260	52 KU	408	101 FA	17
20 D 2	371	25 U 4-GT	419	35 CD 6-GA	235	53	329	101 J	17
20 D 3	373	25 V 5-G	411	35 CD 6-GB	235	53 KU	407	104 A	19
20 D 4	374	25 W 4-GT	419	35 D 5	261	54 KU	407	104 D	19
20 J 7	371	25 Y 4-GT	401	35 DZ 8	367	55 N 3	402	104 DW	19
20 J 8-G	371	25 Y 5	411	35 F 4	265	56	29	105 A	19
20 J 8-EG	371	25 Y 5-G	411	35 FN 5	222	56-A	29	108	67
20 F 2	103	25 Y 6	411	35 HB 8	361	56-AS	29	113	406
20 L 1	310	25 Z 3	401	35 L 6-G	260	56-S	29	113 B	406
20 P 1	263	25 Z 4-G	401	35 L 6-GT	260	57	67	117 L 7-GT	398
20 P 3	255	25 Z 4-GT	401	35 L 31	261	57 AS	67	117 M 7-GT	398
20 P 4	263	25 Z 5	411	35 QL 6	261	57 S	67	117 N 7-GT	398

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
117 P 7-GT	398	337	29	531 DX	164	1294	1	4021 C	21
117 Z 3	403	337 A	152	532 DX	164	1299	181	4022 AR	17
117 Z 4-GT	403	338	192	533 AX	164	1381 HQ	91	4022 B	17
117 Z 6-GT/G	411	341	192	534 AX	55	1512	103	4060	436
121 VP	138	342	226	535 AX	164	1514	69	4065	436
125	177	343	254	536 AX	164	1515	203	4066	436
137 A	29	344	135	537 AX	163	1536	5	4067	436
138	192	345 A	410	538 DX	55	1538	86	4068	436
138 A	192	347 A	35	539 DX	164	1539	327	4069	436
139	135	348 A	68	541 DX	164	1540	236	4100 BU	405
141 DDT	288	349 A	206	542 DX	164	1550	409	4101 D	17
141 TH	378	350 A	236	542 DXS	164	1560	406	4104 D	19
142	221	350 B	236	543 DX	55	1561	404	4205 E	19
143	254	351	131	544 DX	164	1603 T	67	4274 A	408
144	135	351 A	410	545 DX	55	1609	60	4310 A	115
151	131	356	29	546 DX	160	1611	221	4311 B	223
155	177	361 A	60	547 DX	164	1612	273	4328 A	115
156	29	375	289	548 DX	164	1613	221	4328 D	115
163 PEN	202	376	29	549 DX	52	1620	67	4329 A	223
171 DDP	303	377	67	551	131	1621	221	4606	17
175	289	380	406	551 AXA	293	1622	232	4608	17
176	29	382 A	35	551 S	131	1629	388	4609	17
178	133	383 A	35	553 AXA	61	1631	232	4611	29
180	406	384	409	559	2	1632	253	4617	21
184	409	384 A	81	569 AX	57	1634	336	4623	2
185 BT	255	385 A	81	570 AX	8	1637	198	4630	17
185 BTA	255	386 A	81	579-B	417	1638	4	4631	16
205 A	19	387 A	81	580	406	1641	408	4654	230
205 B	19	396 A	330	583	406	1642	309	4654 K	230
205 D	19	401 A	81	600 AX	8	1649	98	4654 P	230
205 E	19	402 Pen	263	605 AX	91	1650	34	4662	396
205 F	19	402 Pen A	263	605 CX	91	1654	413	4671	34
208 A	17	403 A	91	606 BX	2	1655	336	4673	116
210 A	19	403 B	91	612 BU	409	1659	289	4674	3
210 PG	272	404 A	108	623 CX	91	1662	181	4675	34
210 PGA	272	407 A	330	624 AX	78	1663	313	4677	395
210 SPG	272	408 A	121	630 B	3	1801	404	4678	388
213	406	408 BU	404	638	192	1805	404	4679	116
213 B	406	409 A	78	642	221	1807	404	4683	23
213 Pen	195	412 BU	404	653 B	3	1815	405	4688	230
220 PA	15	417 A	46	675	289	1817	405	4689	230
235	131	420 A	342	705-A	417	1821	404	4689 K	230
237	29	437 A	26	713 A	81	1823	404	4689 P	230
238	192	438	192	717 A	81	1831	404	4694	199
239	135	442 BU	404	731 A	91	1851-GT	98	4695	135
241	192	444	135	878	416	1852	98	4696	278
243	254	451 PT	262	878-A	416	1853	147	4697	395
244	135	460 BU	404	879	416	1853-GT	147	4699	231
247-M	29	480	406	951	65	1861	404	4699 N	231
251	131	500 AX	54	952 F	3	1867	404	4705-A	417
256	29	501	61	955	34	1868	404	4713 A	81
268	406	501 AX	61	956	136	1875	418	4717	81
274 A	408	502 AX	160	959	60	1877	418	5350	75
274 B	408	503 AX	164	985	406	1881	404	5374	274
276	29	504 AX	164	986	406	1882	406	5590	81
277	67	505 AX	54	1005	409	1883	406	5591	91
278	133	506	404	1091	2	2800	406	5603	206
280	406	506 AX	168	1203	2	3006	1	5610	36
280 M	406	507 AX	164	1203-A	2	3310-A	115	5624	392
284	409	509 AX	8	1204	75	3311-A	223	5633	81
288	406	510 AX	380	1206	380	3328-A	115	5634	81
290 A	152	511 X	61	1221	67	3329-A	223	5635	338
304 D	19	512 AX	54	1223	67	4019 A	17	5636	80
309 A	152	515 BX	8	1225	273	4019 AS	17	5636-A	80
310 A	115	516 AX	8	1231	85	4019 B	17	5637	45
310 B	115	518 AX	164	1232	85	4019 BS	17	5638	81
311 A	223	520 AX	54	1247	1	4020 A	16	5639	188
311 B	223	521 AX	163	1273	124	4020 AS	16	5640	188
311 SU	401	522 AX	163	1274	409	4020 B	16	5641	399
313	406	523 AX	163	1275	407	4020 BS	16	5642	413
313 B	406	524 AX	164	1276	25	4020 C	16	5645	36
328 A	115	525 AX	163	1280	124	4021 A	21	5646	45
328 B	115	526 AX	163	1288	307	4021 AS	21	5647	2
329 A	223	527 AX	164	1291	307	4021 AT	21	5654	91
329 a	223	528 AX	164	1292	307	4021 B	21	5659	254
335	131	529 AX	164	1293	10	4021 BS	21	5661	137

T.	gr.	T.	gr.	T.	gr.	T.	gr.	T.	gr.
5670	330	5900	142	6097	5	6540	91	7199	350
5670-WA	330	5901	89	6098	236	6550	244	7227	432
5672	170	5902	187	6099	331	6574	411	7239	81
5676	11	5903	6	6100	28	6582	91	7244	327
5677	8	5904	432	6101	331	6582-A	91	7245	40
5678	57	5905	432	6106	406	6611	61	7258	355
5679	6	5906	124	6110	6	6612	61	7308	322
5686	194	5907	432	6111	319	6660	144	7330	312
5687	314	5908	432	6112	338	6661	82	7332	214
5687-S	314	5910	63	6112-A	338	6662	136	7355	234
5687-WA	314	5911	52	6113	342	6663	5	7408	203/220
5690	411	5913	158	6118	287	6669	220	7430	81
5691	342	5915	275	6132	213	6677	200	7534	241
5692	313	5915-A	275	6134	98	6678	353	7543	84
5693	71/319	5916	124	6135	28	6679	341	7551	255
5694	329	5920	316	6136	84	6681	345	7558	203
5697	8	5928	74	6137	137	6686	248	7561	258
5702	91	5930	25	6148	91	6687	275	7581	232
5702-WA	91	5931	407	6149	36	6688	108	7586	440
5703	36	5932	232	6151	45	6689	118	7587	439
5703-WA	36	5934	417	6152	36	6760	250	7591	236
5704	2	5961	276	6157	399	6761	211	7607	236
5718-A	38	5964	327	6158	78	6778	38	7643	352
5719	44	5965	334	6169	45	6788	69	7683	203
5719-A	44	5965-A	334	6176	91	6814	38	7687	346
5721	345	5969	380	6180	313	6829	334	7693	82
5721-WA	345	5970	380	6186	92	6832	338	7694	81
5725	78	5971	8	6187	78	6840	317	7695	265
5726	5	5972	61	6188	342	6854	330	7700	67
5731	34	5975	36	6189	312	6870	101	7701	255
5732	133	5977	36	6190	45	6872	81	7716	361
5744	45	5992	220	6190-WA	45	6880	312	7717	96
5744-WA	45	5993	409	6196	433	6887	5	7721	108
5749	144	5995	399	6197	200	6889	236	7722	108
5750	276	5997	36	6201	341	6900	318	7728	341
5751	345	6004	406	6202	409	6913	318	7729	345
5751-WA	345	6005	220	6203	409	6919	5	7731	353
5755	342	6006	147	6205	89	6922	322	7732	95
5784	78	6007	158	6206	142	6922-WA	322	7733	103
5784-WA	78	6008	52	6211	316	6923	1	7734	346
5785	412	6021	326	6215	413	6927	331	7751	203
5797	432	6024	93	6222	44	6928	220	7752	78
5798	432	6026	38	6227	196	6943	81	7754	203
5799	412	6028	121	6247	45	6944	81	7755	76
5800	436	6029	8	6250	436	6945	188	7757	203
5801	8	6030	331	6265	82	6946	36	7788	104
5802	434	6042	313	6267	74	6947	338	7867	236
5803	434	6045	327	6281	55	6948	338	7895	440
5814	312	6046	253	6286	11	6954	73	8013	417
5814-A	312	6051	168	6287	220	6955	317	8013-A	417
5814-WA	312	6052	6	6305	418	6968	91	8016	414
5824	255	6053	6	6325	410	6973	208	8021	417
5825	413	6057	345	6327	227	6977	387	8223	317
5828	8	6058	5	6336	308	7000	67	8233	218
5829	6	6059	67	6350	317	7001	188	9002	34
5829-WA	6	6060	341	6374	399	7025	345	9003	136
5838	409	6061	220	6384	236	7027	234	9004	3
5840	89	6063	409	6385	330	7036	275	9005	3
5840-A	89	6064	93	6391	77	7044	317	9006	2
5842	46	6064-W	93	6394	308	7055	5	18004	19
5844	327	6065	140	6414	334	7056	124	18013	116
5847	108	6066	288	6418	164	7057	332	18014	185
5852	409	6067	312	6419	52	7058	345	18015	121
5854	164	6072	337	6443	399	7059	353	18016	247
5871	220	6080	308	6463	314	7060	356	18040	248
5873	338	6080-WA	308	6485	98	7061	252	18042	118
5875	61	6082	308	6486	78	7062	334	18043	118
5879	68	6084	72	6486-A	78	7079	319	18045	248
5881	232	6085	316	6487	77	7083	91	18046	248
5882	409	6086	118	6488	90	7119	317	38080	406
5886	435	6087	406	6489	2	7125	304	70401	14
5889	435	6088	164	6516	190	7137	40	70411	14
5896	6	6092	168	6519	164	7150	108	70715	79
5898	44	6094	220	6520	308	7167	124	71412	20
5899	142	6095	220	6533	44	7184	203/220	72406	23
5899-A	142	6096	91	6535	331	7189	214		

Т.	гр.	Т.	гр.	Т.	гр.	Т.	гр.	Т.	гр.
В 1-0,02/20	417	2 Ц 2 С	416	6 К 1 Б-В	143	6 Н 18 Б-В	327	6 Ф 5 М	49
В 1-0,03/13	417	2 Э 2 П	433	6 К 1 Ж	136	6 Н 19 П	438	6 Ф 6 М	221
В 1-0-1/30	417	3 Ц 16 С	415	6 К 1 Л	136	6 Н 23 П	322	6 Ф 6 С	221
В 13/30	417	4 Ф 6 С	221	6 К 2 П	144	6 П 1 П	220	6 Х 1 Ж	3
В 20/20	417	5 ВХ 1	406	6 К 3	137	6 П 1 П-В	220	6 Х 2 П	5
ВГ 0,25/1500	406	5 ВХ 2	406	6 К 4	147	6 П 1 П-Е	220	6 Х 2 П-В	5
ВГ 8	406	5 ВХ 3	407	6 К 4 П	144	6 П 2	220	6 Х 2 П-Е	5
ВД 8	416	5 Ц 3 С	407	6 К 4 П-В	144	6 П 3	232	6 Х 2 П-И	5
ВДИ 1	417	5 Ц 4 М	406	6 К 4 П-Е	144	6 П 3 Б	232	6 Х 4 П	409
ВО-116	404	5 Ц 4 С	406	6 К 6 А	143	6 П 3 М	232	6 Х 5 С	409
ВО-188	404	5 Ц 8 С	408	6 К 6 А-В	143	6 П 3 С	232	6 Х 6 Б	6
ВО-197	405	5 Ц 9 С	408	6 К 7 Б	133	6 П 3 С-Е	232	6 Х 6 М	6
ВО-202	404	5 Ц 9 С-Е	408	6 К 9	137	6 П 4	186	6 Х 6 С	6
ГА 0,25/1,5	406	5 Ц 12 П	418	6 К 9 М	137	6 П 6 Б	221	6 Х 7 Б	6
ГР 1-0,25/1,5	406	6 А 1 Б	276	6 К 9 С	137	6 П 6 С	220	6 Х 7 Б-В	6
ДИ 2-10	1	6 А 2 П	276	6 К 11 Б-К	143	6 П 7	227	6 Ц 4 П	409
Л-99	276	6 А 5 Б	273	6 К 12	147	6 П 7 С	227	6 Ц 4 П-В	409
Л-100	298	6 А 7	276	6 К 11 Б	147	6 П 8 С	186	6 Ц 4 П-Е	409
Л-104	144	6 А 8 Б	274	6 К 17 Б	137	6 П 9	200	6 Ц 5 С	409
ЛП-34	280	6 А 10	276	6 К 19 Б	136	6 П 13 С	228	6 Ц 10 П	419
СБ-242	272	6 А 10 С	276	6 Ж 8	71	6 П 14 П	214	6 Ц 13 П	399
СО-242	272	6 АГ 7	200	6 Ж 8-Е	71	6 П 14 П-В	214	6 Ц 17 С	419
ТО-1	115	6 АЖ 5	92	6 Ж 9 Б	110	6 П 15 П	217	6 Э 5 П	112
ТО-2	223	6 Б 2 П	298	6 Ж 9 Б-В	110	6 П 15 П-В	217	6 Э 5 П-И	112
ТО-3	115	6 В 1 П	280	6 Ж 9 П	110	6 П 18 П	202	6 Э 6 П-Е	112
ТО-4	223	6 ВХ 1	409	6 Ж 9 П-Е	110	6 П 20 С	227	7 Ж 12 С	115
УБ-152	15	6 Г 1	285	6 Ж 10 Б	86	6 П 25 Б	188	7 П 12 С	223
УБ-153	15	6 Г 2	289	6 Ж 10 Б-В	86	6 П 25 Б-В	188	10 Ж 12 С	115
ЭМ-4	434	6 Г 2 П-К	290	6 Ж 10 П	105	6 П 31 С	216	10 П 12 С	223
ЭМ-7	434	6 Г 3 П	292	6 Ж 11 Б	83	6 Р 1 Б	285	12 Б 1 М	431
06 Ж 6 Б	54	6 Г 7	287	6 Ж 11 П	112	6 Р 7 Б	287	12 Б 2 М	431
06 П 2 Б	53	6 Д 1 А	2	6 Ж 11 П-Е	112	6 Р 17 Б	289	12 Г 1	285
1 А 1 П	267	6 Д 3 Д	2	6 Ж 14 Б	98	6 С 1 Б	36	12 Г 2	289
1 А 2 П	271	6 Д 4 Ж	3	6 Ж 17 Б	71	6 С 1 Ж	34	12 Ж 1 М	431
1 Б 1 П	295	6 Д 6 А	2	6 Ж 20 П	437	6 С 1 П	34	12 Ж 8 Б	71
1 Б 2 П	293	6 Д 6 А-В	2	6 Ж 21 П	437	6 С 2	33	12 Ж 17 Б	71
1 ВД 1	414	6 Д 13 Д	2	6 Ж 22 П	437	6 С 2 Б	41	12 К 1 М	431
1 ВД 2	414	6 Д 14 П	419	6 Ж 23 П	112	6 С 2 Б-В	41	12 К 3	137
1 Ж 1 Ж	60	6 Е 1 П	390	6 Ж 23 П-Е	112	6 С 2 П	46	12 К 4	147
1 Ж 2 М	60	6 Е 5 С	388	6 Ж 31 Б-К	91	6 С 2 С	33	12 К 12 Б	147
1 Ж 17 Б	61	6 Ж 1 Б	91	6 Ж 32 П	69	6 С 3 Б	36	12 К 17 Б	137
1 Ж 18 Б	61	6 Ж 1 Б-В	91	6 Ж 33 А	86	6 С 3 П	41	12 М 1 М	431
1 Ж 24 Б	61	6 Ж 1 П	91	6 Л 6 С	232	6 С 4 Б	49	12 Н 4 П	337
1 Ж 29 Б	62	6 Ж 1 П-В	91	6 Л 7	273	6 С 4 П	41	12 Н 10 М	336
1 Ж 36 Б	61	6 Ж 1 П-Е	91	6 Н 1 П	325	6 С 4 С	25	12 Н 10 С	336
1 К 1 П	130	6 Ж 2 Б	78	6 Н 1 П-В	325	6 С 5 Б	32	12 Н 11 М	310
1 К 2 П	130	6 Ж 2 Б-В	78	6 Н 1 П-Е	325	6 С 5 С	32	12 Н 11 С	310
1 Н 1	307	6 Ж 2 П	78	6 Н 2 П	345	6 С 6	25	12 П 4	254
1 Н 3 С	307	6 Ж 2 П-В	78	6 Н 3 П	330	6 С 6 Б	36	12 П 6	254
1 П 2 Б	166	6 Ж 2 П-Е	78	6 Н 3 П-Е	330	6 С 6 Б-В	36	12 Р 1 Б	285
1 П 3 Б	166	6 Ж 3	83	6 Н 3 П-И	330	6 С 6 Б-И	36	12 Р 17 Б	289
1 П 4 Б	166	6 Ж 3 М	147	6 Н 4 П	337	6 С 7 Б	45	12 С 2 С	33
1 П 5 Б	171	6 Ж 3 П	92	6 Н 5 П	327	6 С 7 Б-В	45	12 Х 3 С	6
1 П 22 Б	172	6 Ж 4	98	6 Н 5 С	308	6 С 8 П	34	13 П 1	253
1 П 24 Б	183	6 Ж 4 Б	200	6 Н 6 П	327	6 С 15 П	41	13 П 1 М	253
1 П 32 Б	184	6 Ж 4-Е	98	6 Н 6 П-И	327	6 С 15 П-Е	41	15 А 6	221
1 С 12 П	9	6 Ж 4 П	84	6 Н 7	329	6 С 18 С	442	25 Л 1	253
1 Ц 1	414	6 Ж 4 П-Е	84	6 Н 7 С	329	6 С 19 П	442	25 П 1 С	253
1 Ц 1 С	414	6 Ж 5	98	6 Н 8 М	313	6 С 20 С	442	30 ВД 1	401
1 Ц 7 С	414	6 Ж 5	33	6 Н 8 С	313	6 С 25 Б	36	30 ВХ 1	411
1 Ц 11 П	414	6 Ж 5 Б	102	6 Н 9 М	342	6 С 26 Б-К	36	30 П 1 М	259
1 Э 1 П	436	6 Ж 5 Б-В	102	6 Н 9 С	342	6 С 27 Б-К	45	30 П 1 С	259
1 Э 3 П	434	6 Ж 5 М	33	6 Н 10 М	336	6 С 28 Б	41	30 Ц 1 М	401
2 А 1	272	6 Ж 6 М	67	6 Н 10 С	336	6 С 28 Б-В	41	30 Ц 6 С	411
2 А 1 М	272	6 Ж 6 П	331	6 Н 11	308	6 С 29 Б	41	1511	102
2 Д 1 С	1	6 Ж 6 С	85	6 Н 12 С	327	6 С 29 Б-В	41	1512	203
2 Ж 14 Б	62	6 Ж 7	67	6 Н 13 С	308	6 С 30 Б	27	1514	69
2 Ж 15 Б	62	6 Ж 7 Б	67	6 Н 14 П	320	6 С 33 С	442	1515	203
2 П 1 П	173	6 Ж 33 А-В	86	6 Н 15	331	6 С 34 А	36	1536	5
2 П 2 П	174	6 Ж 35 Б	81	6 Н 15 П	331	6 С 34 А-В	36	1538	86
2 П 5 Б	175	6 Ж 35 Б-В	81	6 Н 16 Б	327	6 С 35 А	45	1539	327
2 П 19 Б	184	6 Н 1 П	379	6 Н 16 Б-В	327	6 С 35 А-В	45	1540	236
2 С 3	25	6 Н 1 П-В	379	6 Н 16 Б-И	327	6 С 37 Б	27	1550	409
2 С 4 С	25	6 Н 6	186	6 Н 17 Б	344	6 С 39 С	442		
2 С 14 Б	8	6 Н 14 П	379	6 Н 17 Б-В	344	6 Ф 1 П	352		
2 Х 1 Л	6	6 К 1 Б	143	6 Н 18 Б	327	6 Ф 5	49		

T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	$f_{(max)}$	$U_{f/k}$
			V	A	V	V	mA	mA	MHz	V
DA 50	eur	9	1,2	0,3	125		0,2			
DA 90	eur	1	1,4	0,15	117	330	0,5	5	1000	140
DA 101	Tu	2	1,2	0,054	125		0,2			
EA 52	eur	10	6,3	0,3		1000 ¹⁾	0,3	5	1000	50
EA 53	Phi	11	6,3	0,3						
EA 960	RFT	3	6,3	0,125		100	0,1			
EA 961	RFT	3	6,3	0,125		2000	0,1			
SA 1	Tif	4	4	0,21	30		0,2			
SA 100	Tif	5	1,9	0,32		100	0,1			
SA 101	Tif	5	1,9	0,32		2000	0,1			
1 R 4	amer	6	1,4	0,15	117		1		1500	
2 Д I C	CCCP	7	2,3	0,4		100	0,1		1000	25
1247	amer	8	0,7	0,065	300		0,4			
3006	Phi	4	4	0,08	40		1			

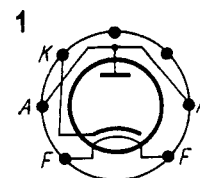
¹⁾ $f < 100$ MHz; $U_p = 1000$ V; $f > 100$ MHz; $U_p = 1000 \times \frac{100}{f(\text{MHz})}$ V

T.	$C_{a/k}$	$C_{a/f}$	$C_{f/k}$
	pF	pF	pF
DA 90	0,4	0,8	0,6
EA 52	0,5		
EA 53	0,5		
EA 960	0,3		
EA 961	0,3		
SA 100	0,2	1,06	0,7
2 Д I C	0,25		

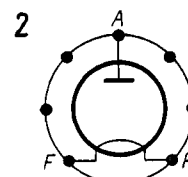
Equivalents

ДН 2-10
EA 962
SA 102
1 A 3
1 D 13
1294
6923

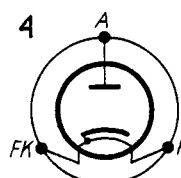
CCCP = 2 Д I C
RFT = EA 961
Tif = SA 101
amer = DA 90
Eds = DA 90
amer = 1 R 4
amer = EA 52



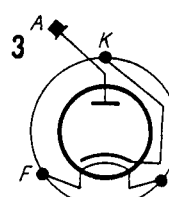
DA90



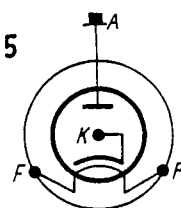
DA101



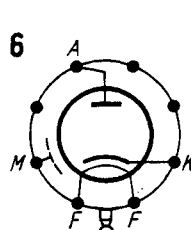
SA1



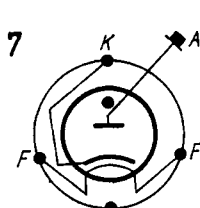
EA960



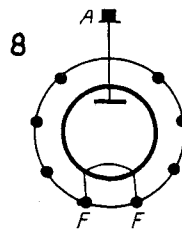
SA100



1R4



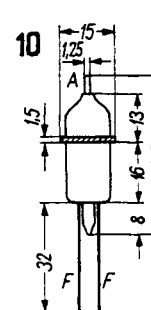
2Д1С



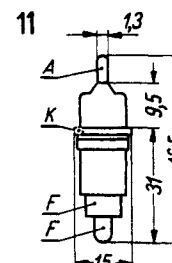
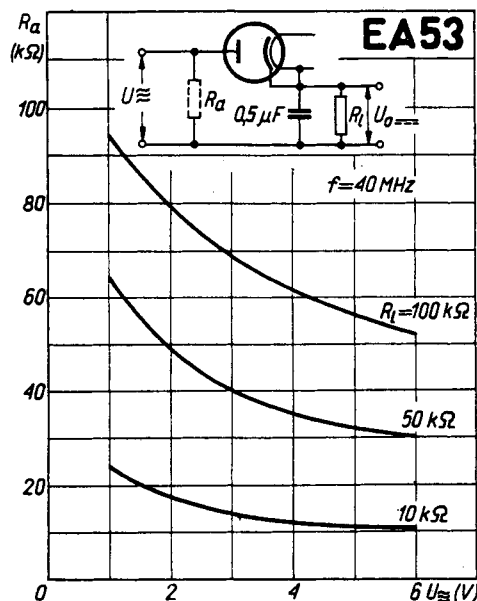
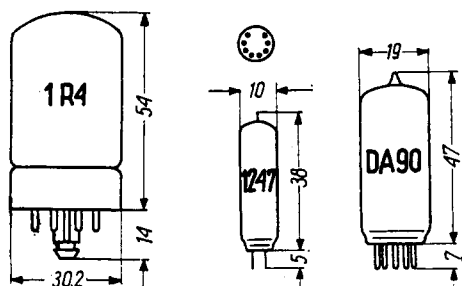
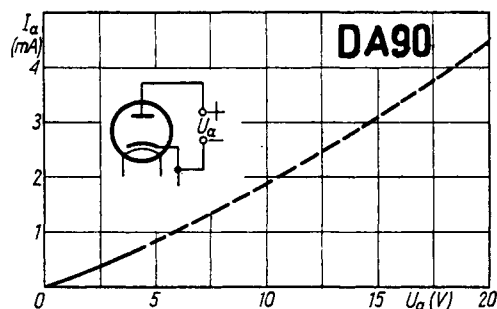
1247



DA50



EA52

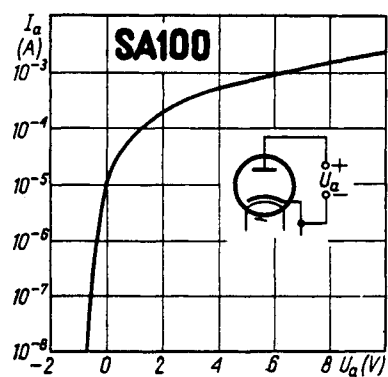
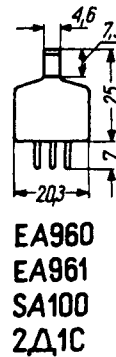
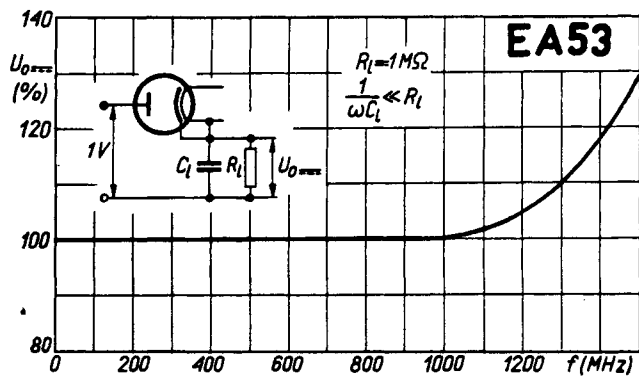
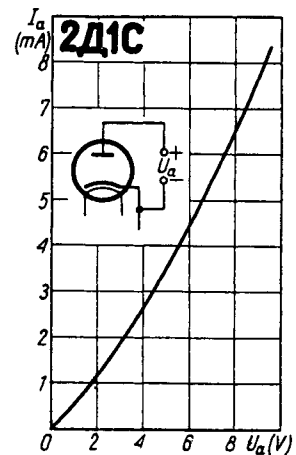
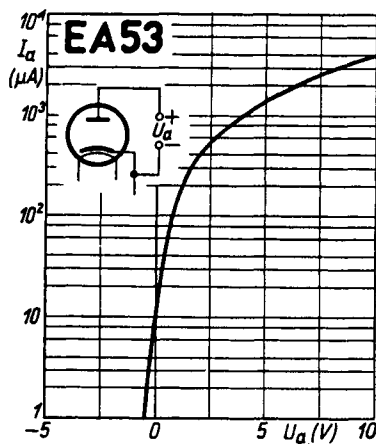
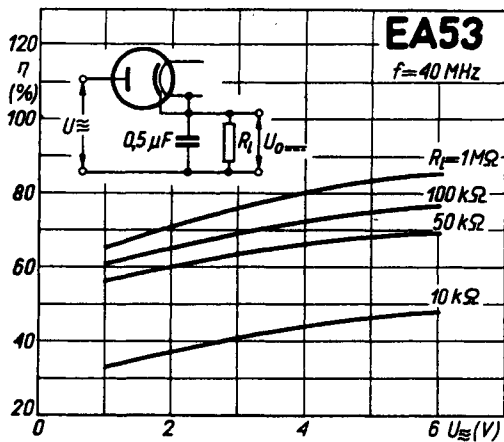


EA53

1

A

1



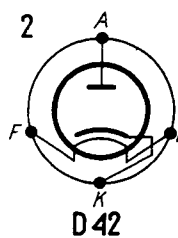
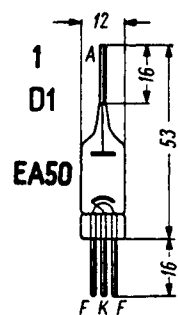
2

A

2

T.			U_f	I_f	U_{ir}	U_p	I_o	I_p	$f_{(max)}$	U_f/k
			V	A	V	V	mA	mA	MHz	V
D 1	BB	1	6,3	0,15		200	5	20		50
D 1	Eds	1	4	0,2	50	350	5	50	500	150
D 42	Eng	2	4	0,6	75		15			
D 43	Eng	3	4	0,6						
EA 41	Mul	4	6,3	0,15	150		9			
EA 50	eur	1	6,3	0,15	50	560	5	30		100
EA 71	eur	14	6,3	0,15	150	420	9	54	700	330
EA 76	eur	5/15	6,3	0,15						
TA 40	Tif	13	6,3	0,15		150	25			100
SD 6	Cos	6	6,3	0,15	150		10			
2 B 22	amer	13	6,3	0,75	100 ¹⁾	300	5	700 ¹⁾	1500	
6 D 3	Eds	7	6,3	0,3	250		5			
6 Д 3 Д	CCCP	13	6,3	0,77	7	200	27	150	1500	90
6 Д 6 А	CCCP	14	6,3	0,15	165	450	10	70	700	165
6 Д 13 Д	CCCP	17	6,3	0,2		450	0,35		4800	150
6 H 4-GT	amer	8	6,3	0,15	100		4			
7 C 4	amer	9	6,3		150		8			
380 A	WE	2	6,3	0,15	500		5	28,5		360
381 A	WE	10	6,3	0,15						
5647 ¹⁾	int	11/16	6,3	0,15	165	460	10	60		360
9006	int	12	6,3	0,15	270	750	5	15	700	100

¹⁾ Impulse $\leq 5 \mu\text{sec}$; ²⁾ vide * 4,a,b,c,d,f,g

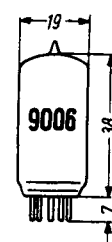
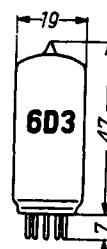
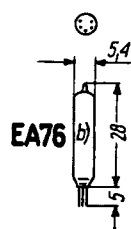
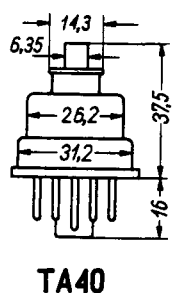
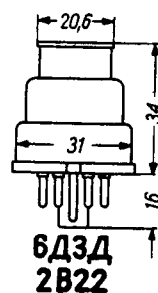
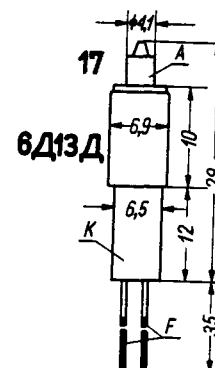
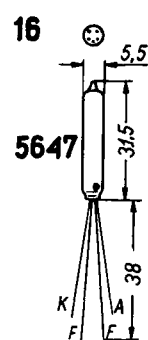
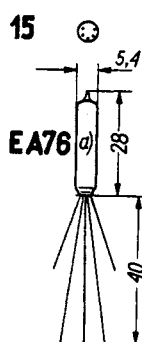
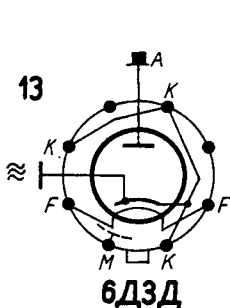
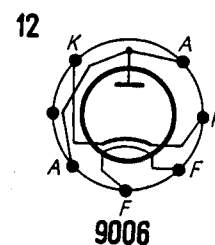
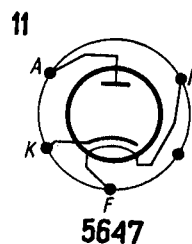
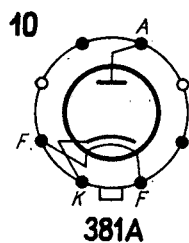
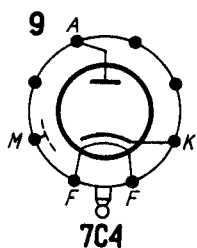
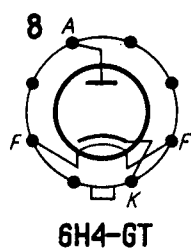
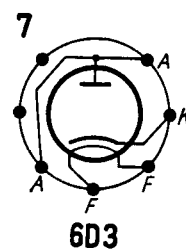
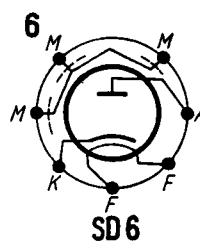
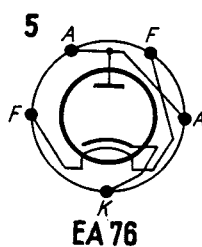
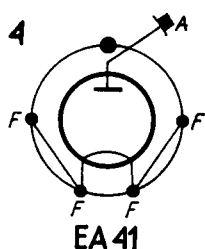
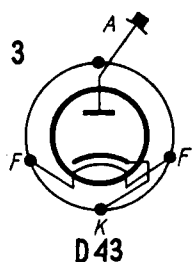


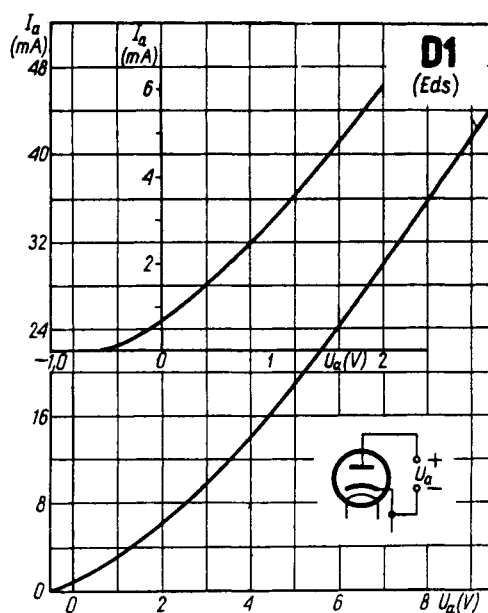
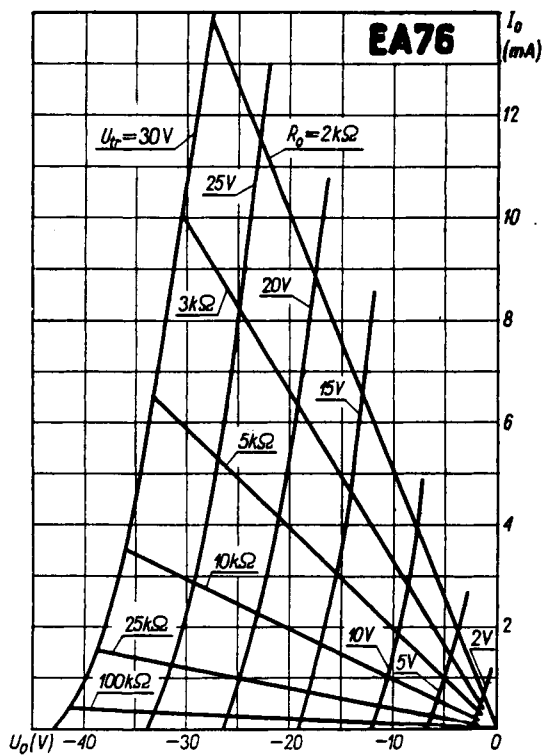
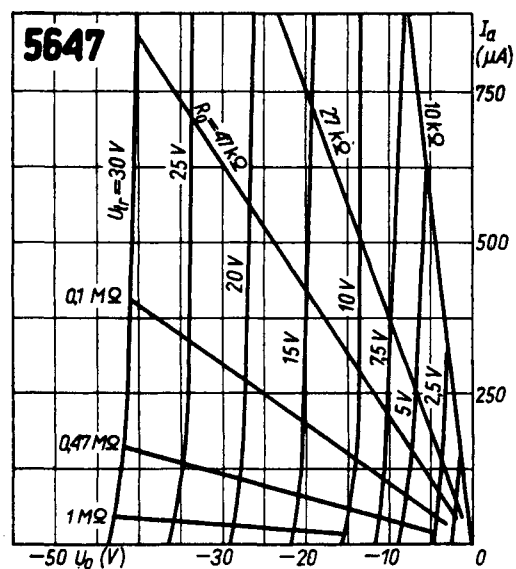
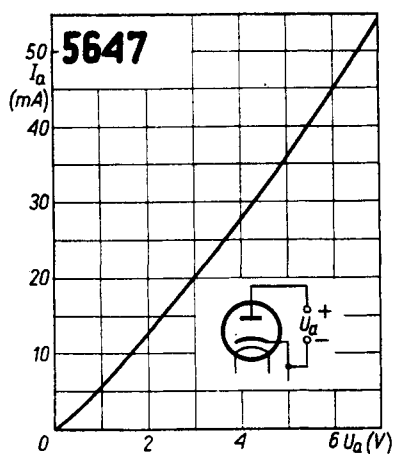
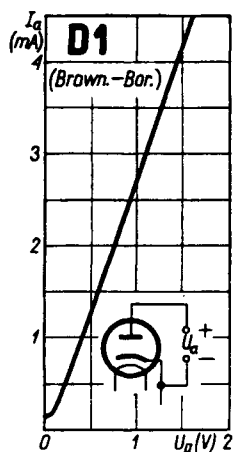
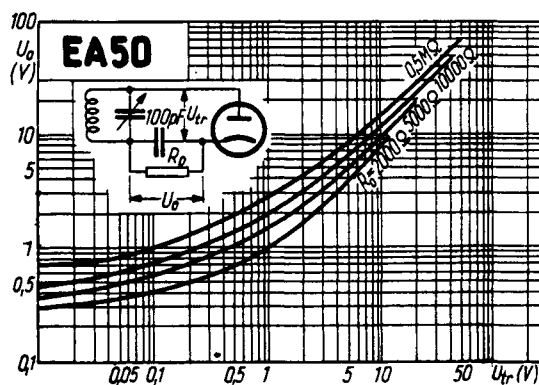
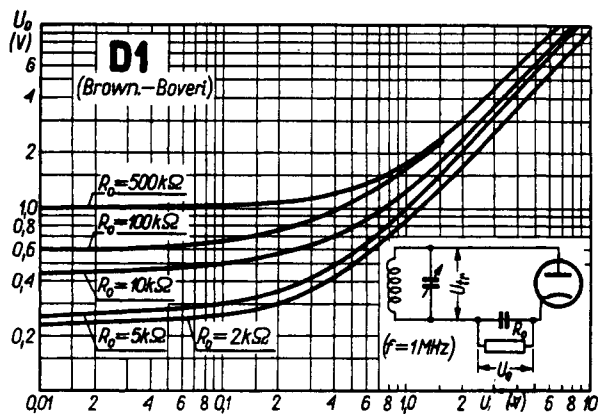
Equivalents

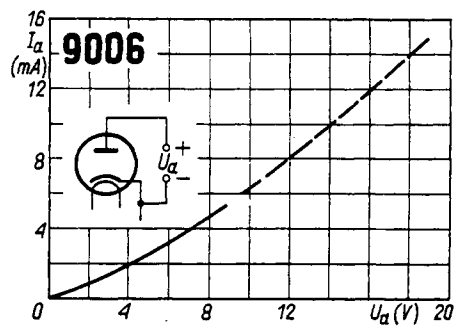
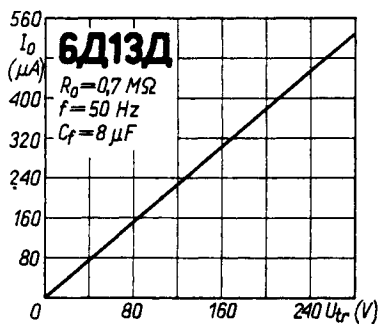
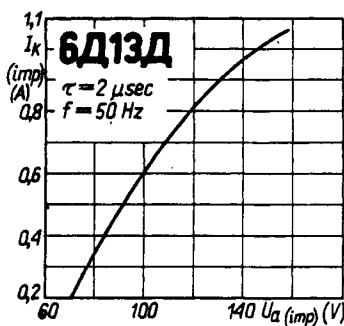
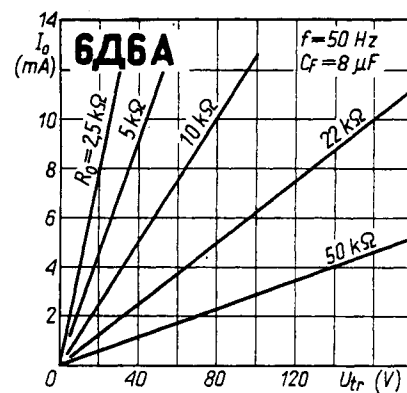
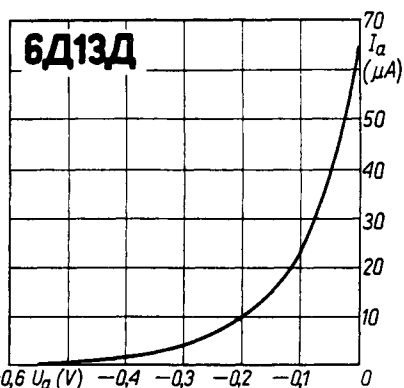
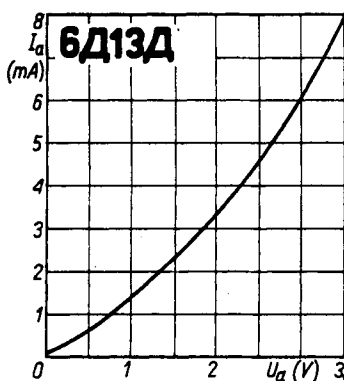
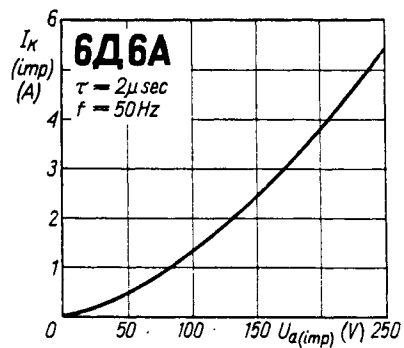
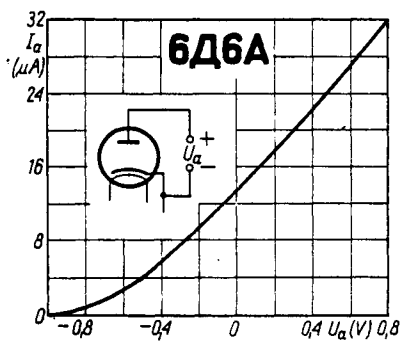
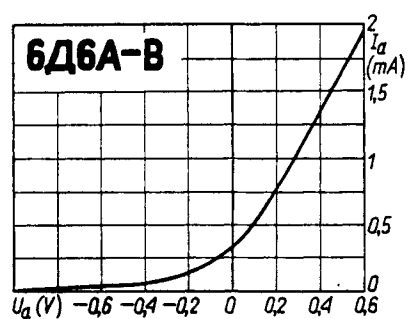
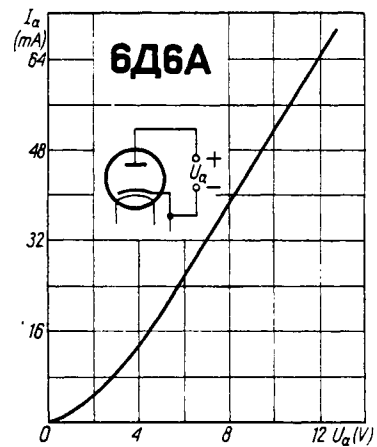
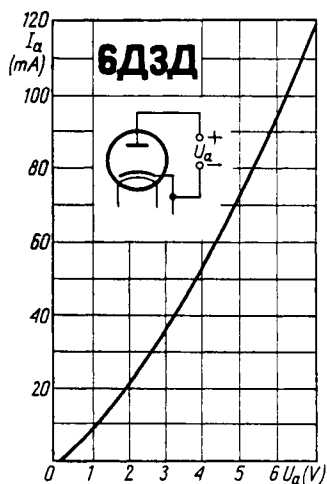
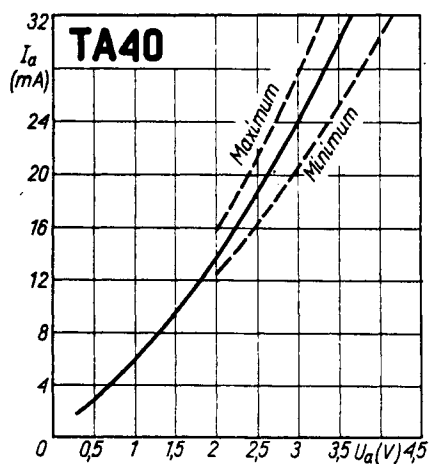
CK 606 BX	Ray = EA 71	2 B 35	amer = EA 50
CK 5704	Ray = EA 71	2 S/140 G	STCE = EA 76
D 5	Vis = EA 50	6 D I	Eds = EA 50
Д M I	CCCP = 6 Д 3 Д	6 Д I A	CCCP = 6 Д 6 A
EA 766	RFT = EA 76	6 Д 6 A-B ¹⁾	CCCP = 6 Д 6 A
GL-2 B 22	GE = 2 B 22	559	amer = 6 Д 3 Д
LG 14	Tif = D I (BB)	606 BX	Ray = EA 71
SD 61	Cos = EA 50	1203	amer = 7 C 4
SN 946 ¹⁾	Syl = EA 71	1203-A	amer = 7 C 4
SN 978 B ¹⁾	Syl = 5647	4623	Phl = EA 50
TD 6	Mul = EA 50	5704	Ray = EA 71
T 6 D	Mul = EA 50	6489	amer = EA 76

¹⁾ vide * 4,a,b,c = 5000, e; ²⁾ vide * 4,a,b,d,e

T.	$C_{a/k}$	$C_{a/f}$	$C_{k/f}$
	pF	pF	pF
D I (BB)	2,4	0,45	3
D I (Eds)	1,6		
EA 50	2,1		
EA 76	2,5		
TA 40	1,95		
6 D I	1,6	0,45	3 ($C_{k/metal}$) 87,5
6 Д 3 Д	2,8		
6 Д 6 A	3		
6 Д 13 Д	0,8		
5647	2,4		
9006	1,4	0,2	2,2







T.		U_f V	I_f A	U_{tr} V	U_p V	I_o mA	I_p mA	$U_{f/k}$ V	$f_{(max)}$ MHz
6 Д 4 Ж	СССР	1	6,3	0,15	130	365	5	30	100
952 F	Fiv	2	6,3	0,15		200	2	50	
4674	eur	3	6,3	0,15		180	0,8	50	
9004	int	4	6,3	0,15	117		5	90	850
9005	amer	5	6,3	0,15	117		1	50	1500

Equivalents

6 X 1 Ж	СССР = 6 Д 4 Ж
630 B	amer = 9004
653 B	amer = 9004

T.	$C_{a/k}$ pF	$C_{a/f}$ pF	$C_{k/f}$ pF
6 Д 4 Ж	1,91		
4674	0,3		
9004	1,3	0,3	2,2
9005	0,8	0,2	1,1

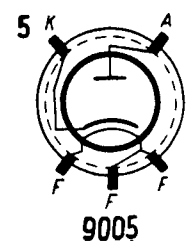
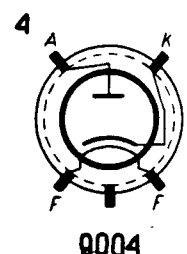
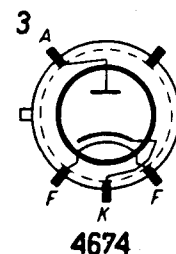
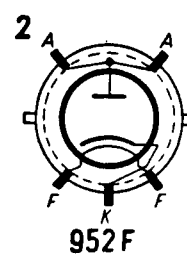
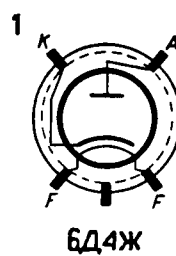
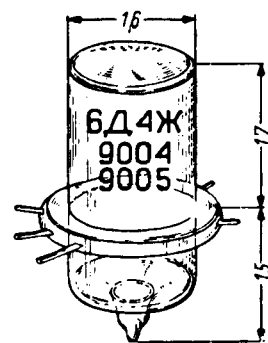
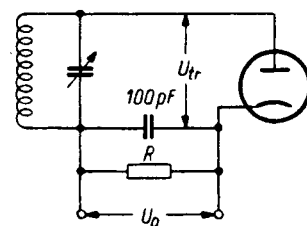
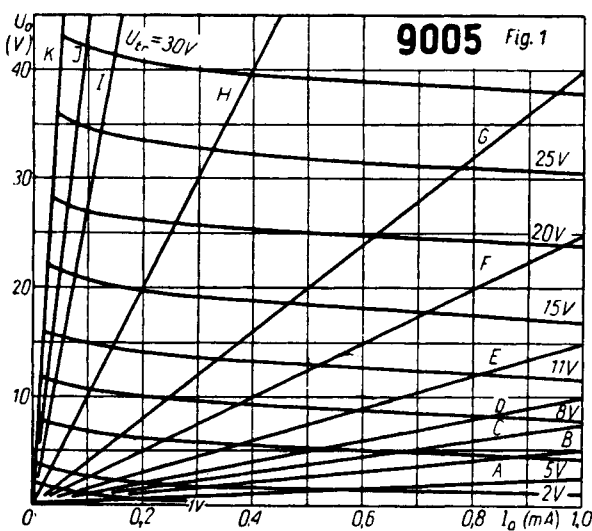
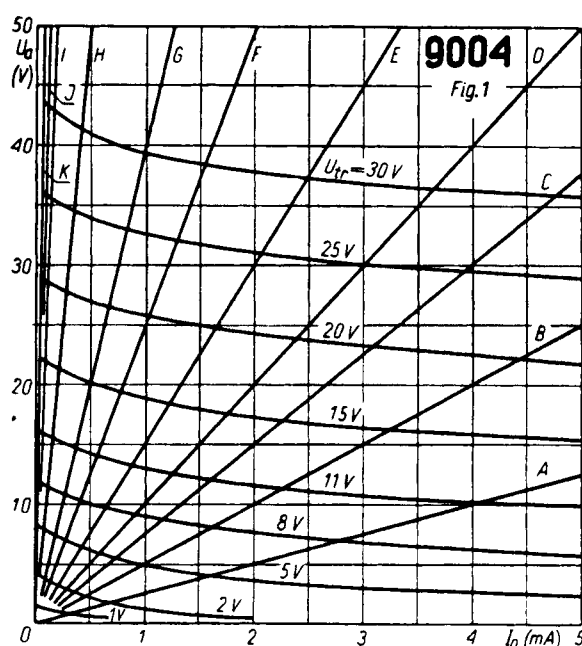
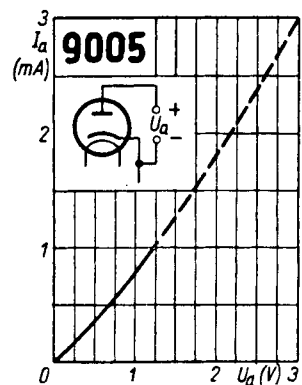
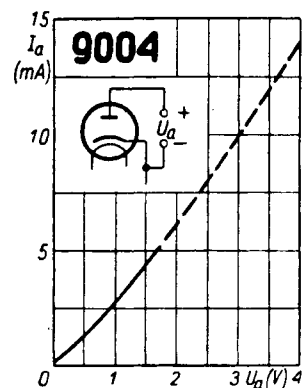
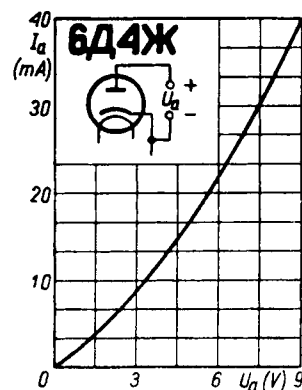
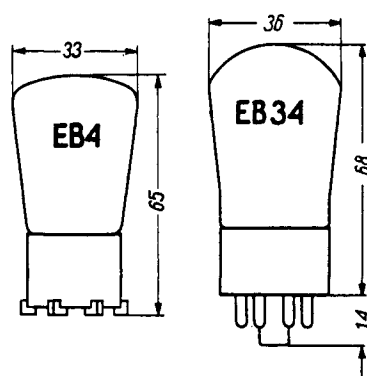


Fig. 1

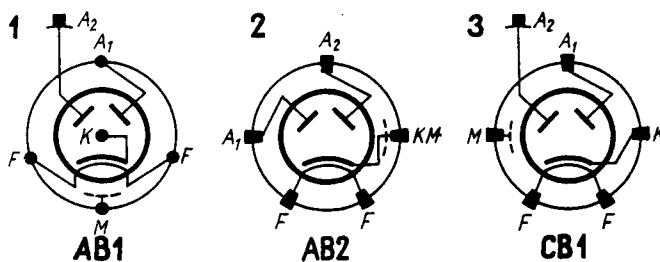
A	$R = 2,5 k\Omega$
B	5
C	7,5
D	10
E	15
F	25
G	40
H	100
I	250
J	500
K	1000



T.			U_f	I_f	U_{tr}	U_p	I_o	I_p
			V	A	V	V	mA	mA
AB 1	eur	1	4	0,65	200	350	0,5	5
AB 2	eur	2	4	0,65				
CB 1	eur	3	13	0,2				
CB 2	eur	2	13	0,2				
DD 4	Tu	4	4	0,65				
DD 6	Tu	4	6,3	0,2				
DD 13	Tu	4	13	0,2				
EB 1	eur	3	6,3	0,25				
EB 2	eur	1	6,3	0,24				
EB 4	eur	5	6,3	0,2				
EB 11	eur	6	6,3	0,2				
EB 34	eur	7	6,3	0,2				

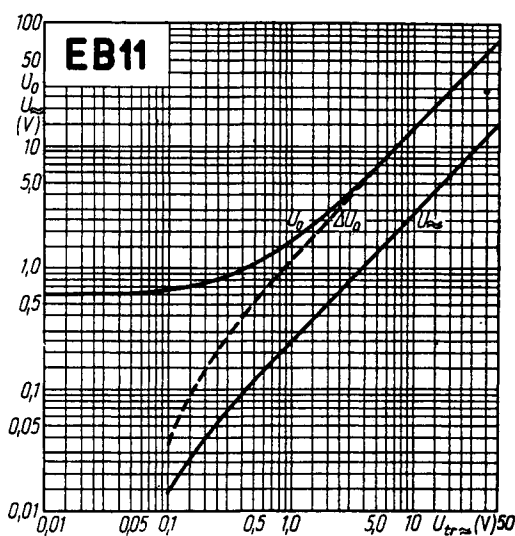
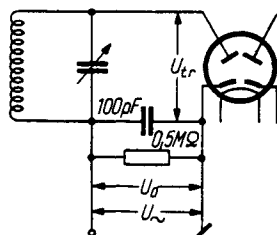
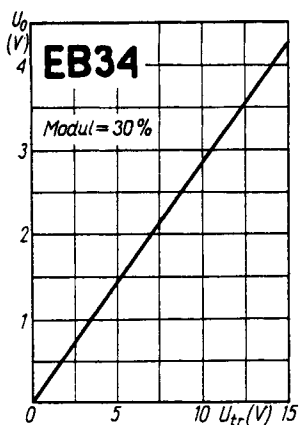
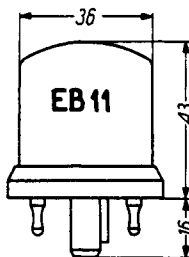
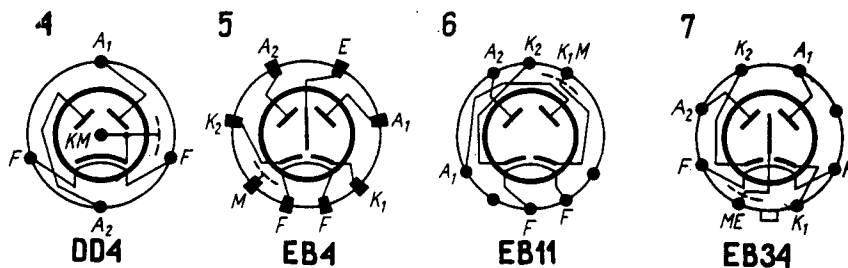


T.	$C_{a1/k1}$	$C_{a2/k2}$	$C_{a3/a3}$	U_f/k	$U_{k1/k2}$
	pF	pF	pF	V	V
EB 4	1,2	1,2	0,2	75	125
EB 11	3,5	1	0,004	100	125
EB 34	4,5	4,5	0,5	75	50

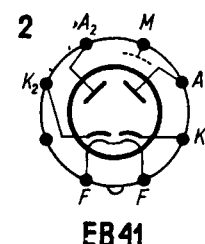
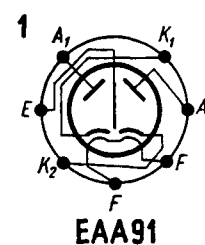


Equivalents

DD 4 S	Tu = AB 2
DD 6 S	Tu = EB 4
DD 13 S	Tu = CB 2
DD 46 S	Tu = AB 1
DD 620	Eds = DD 6
DDA 1	STCE = AB 1
DDL 4	Cos = DD 4
KL 70550	Kgf = AB 2
KL 70551	Kgf = AB 1
OM 3	Cos = EB 34
TAB 1	Tu = AB 1
TAB 2	Tu = AB 2
TCB 1	Tu = CB 1
TCB 2	Tu = CB 2
TEB 1	Tu = EB 1
TEB 2	Tu = EB 2
WE 31	TIf = AB 1
WE 36	TIf = AB 2
2 D 13	Mul = CB 1
2 D 13 A	Mul = CB 2
1638	amer = EB 34



T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	$f_{(max)}$	$U_f + I_k$	$U_f - I_k +$
			V	A	V	V	mA	mA	MHz	V	V
D 77	Eng	1	6,3	0,3		350	5	50			350
EAA 91	eur	1	6,3	0,3							
EB 41	eur	2	6,3	0,3							
EB 91	eur	1	6,3	0,3							
HAA 91	eur	1	12,6	0,15	150	420	9	54	700	150	330
UAA 91	eur	1	19	0,1							
UB 41	eur	2	19	0,1							
UB 91	eur	1	19	0,1							
XAA 91	eur	1	3,15	0,6							
M 8079 ¹⁾	Mul	1	6,3	0,3	165	460	10	60			360
3 AL 5	amer	1	3,15	0,6							
6 AL 5	amer	1	6,3	0,3							
12 AL 5	amer	1	12,6	0,15	117	330	9	54	700	150	330
19 AL 5	amer	1	19	0,1							
6 D 2	Eds	1	6,3	0,3		500	9	50			300
20 D 1	Eds	1	9,5	0,2							
6 X 2 II	CCCP	1	6,3	0,3	150	450	20	90	650	200	350
5726 ¹⁾	int	1	6,3	0,3							
F/5726 ¹⁾	Bri	1/3	6,3	0,3	117	360	10	60	700	360	360
6663	GE	1	6,3	0,3		250	9	54		100	250
6887	RCA	1	6,3	0,2		360	10	30		150	150
6919 ¹⁾	GE	1	6,3	0,2		300	10	30		150	150
7055	RCA	1	13,5	0,155	117	350	10	60		120	120

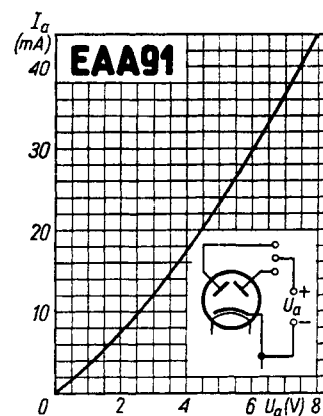
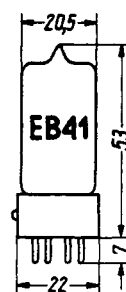
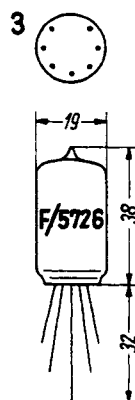
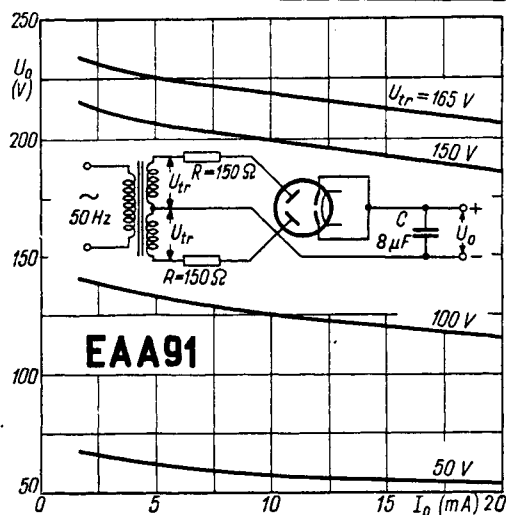


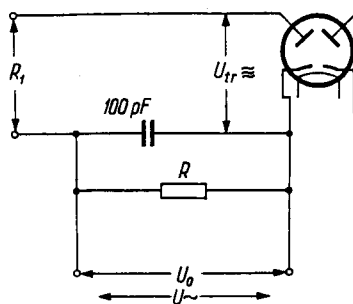
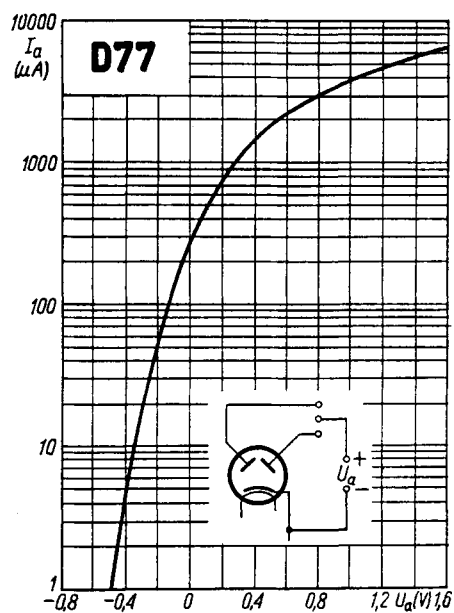
T.	$C_a/k+f+e$	$C_k/a+f+e$	$C_{al/k}$	$C_{al/a2}$
	pF	pF	pF	pF
D 77			2,2	0,025
EAA 91	3	3,4		0,026
EB 41			3,5	0,03
EB 91	3,4	3,4	3	0,026
M 8079	3,2	3,9		0,026
6 AL 5	3,2	3,6		0,026
6 D 2	4,5	5,1	1,65	0,021
6 X 2 II	3,4	3,8		0,03
6 X 2 II-B/E	3,6	4		0,03
5726	3,2	3,9		0,026
6663	3,2	3,6		0,026
6887	2,2	3,5	1,4	
6919	2,2	3,4		0,17
7055	3,2	3,6		0,026

Equivalents

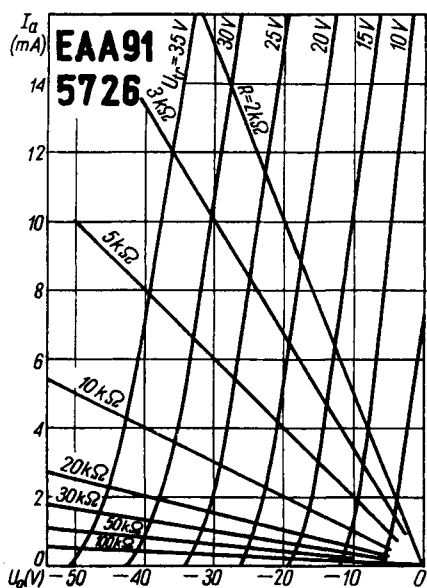
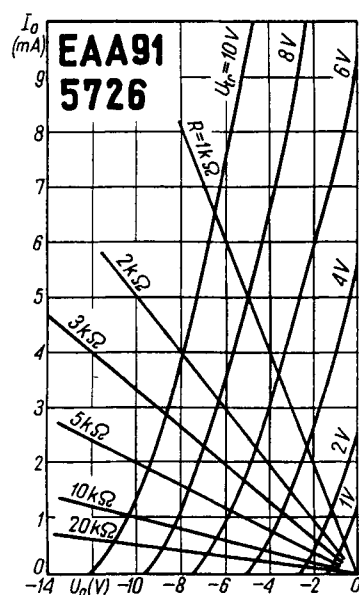
AA 91 E ¹⁾	Siem = EAA 91	QA 2404 ¹⁾	Osir = D 77
CK 5726 ¹⁾	Ray = 5726	QD 77 ¹⁾	Marc = D 77
D 2 M 9	SFR = EAA 91	QS 2404 ¹⁾	Osir = M 8079
D 27	amer = 6 AL 5	SF/5726 ¹⁾	Bri = F/5726
D 152	Eng = EB 91	SX/5726 ¹⁾	Bri = F/5726
DD 6	Fer = EB 91	XF/5726 ¹⁾	Bri = F/5726
EAA 91 W ¹⁾	Frc = EAA 91	6 AL 5-W ¹⁾	int = 5726
EAA 901	Lor = 5726	6 AL 5-WA ¹⁾	amer = 5726
EAA 901 S ¹⁾	Grm = 5726	6 B 32	Tes = EAA 91
E 91 AA ¹⁾	Siem = 5726	6 X 2 II-B ¹⁾	CCCP = 6 X 2 II
FF/5726 ¹⁾	Bri = F/5726	6 X 2 II-E ¹⁾	CCCP = 6 X 2 II
GL-5726 ¹⁾	GE = 5726	6 X 2 II-H ¹⁾	CCCP = 6 X 2 II
GL-6663	GE = 6663	10 D 2	Bri = UAA 91
GL-6919 ¹⁾	GE = 6919	1536	CCCP = 6 X 2 II
M 8212 ¹⁾	Mul = 5726	6058	Bri = EAA 91
M 8237 ¹⁾	Mul = F/5726	6097 ¹⁾	amer = 6 AL 5

¹⁾ vide * 4, a, b, c = 10.000, f, g; ²⁾ vide * 4; ³⁾ vide * 4, a, b, d, e; ⁴⁾ vide * 4, a, b, c = 5000, d; ⁵⁾ Impulse operation





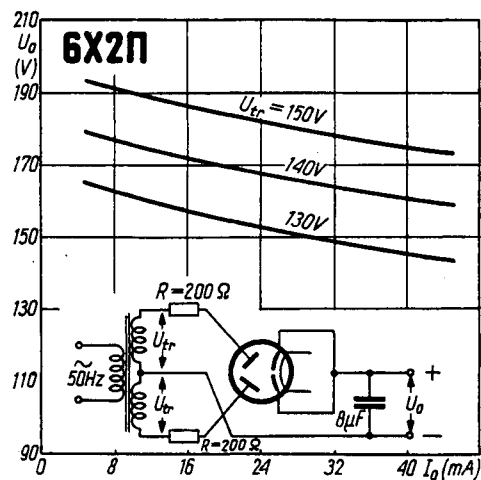
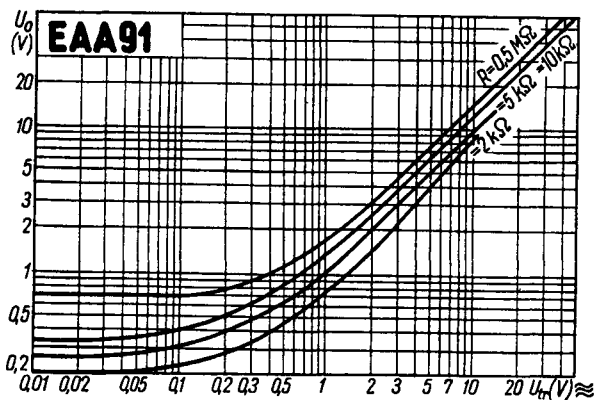
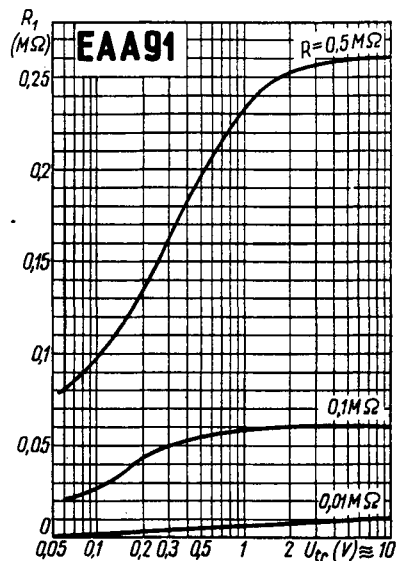
D77
EB91
M8079
6D2
20D1

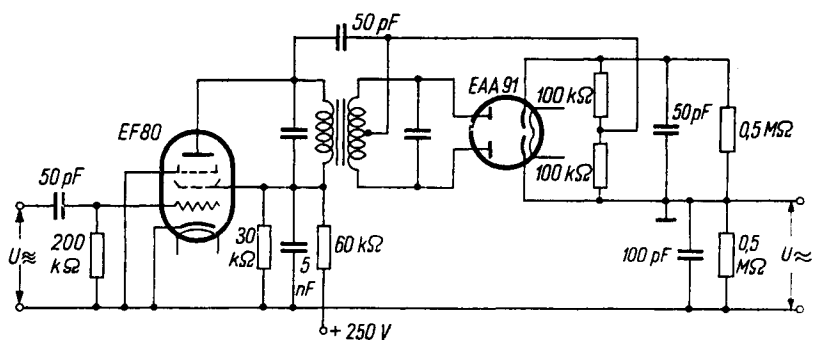
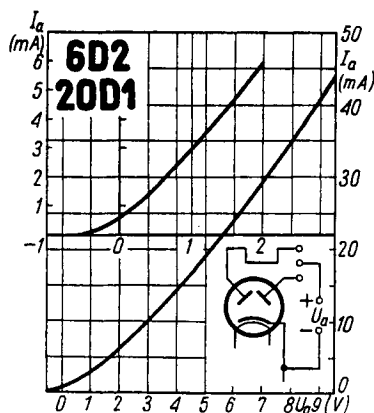
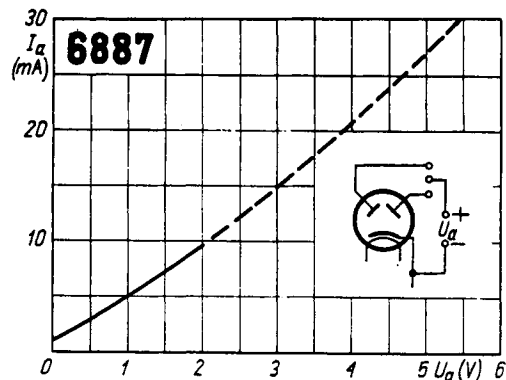
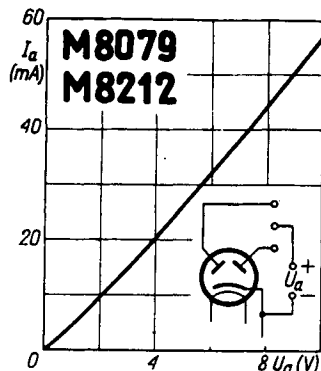
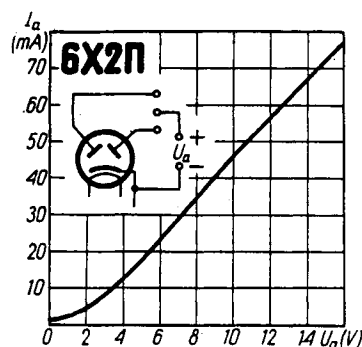


EAA91
6AL5
5726
6663
8887
8919
7055



6X2П
6X2П-В
6X2П-Е
6X2П-И





Foster-Seeley - FM-Detector

T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	$U_{f/k}$
			V	A	V	V	mA	mA	V
EAA 11	Tif	1	6,3	0,35					
UAA 11	Tif	1	22	0,1			200	5	300
EB 40	eur	2	6,3	0,26		200	20		50
R 128	SFR	3	18	0,2	200		5		
2 X 1 JI	CCCP	4	2,2	0,13	50		1		30
6 AZ 5	amer	5	6,3	0,15	50		4		
6 AZ 6	amer	6	6,3	0,15	200		20		
6 B 31	Tes	7	6,3	0,3	117	330	9	54	
6 H 6-G	int	8	6,3	0,3			8	48	330
12 H 6	int	8	12,6	0,15	150	420			
6 X 7 B	CCCP	7	6,3	0,3	165	450	8	70	200
7 A 6	amer	9	6,3	0,15	150		8	45	330
12 X 3 C ¹⁾	CCCP	10	12,6	0,075	100	250	2	20	100
5679	GE	11	6,3	0,15	150		8	45	330
5829	amer	14	6,3	0,15	130	330	5,5	33	360
5896 ¹⁾²⁾	int	12	6,3	0,3			10	60	360
5903 ¹⁾²⁾	amer	12	26,5	0,075	165	460			
6110 ¹⁾	amer	13	6,3	0,15		420	4	26,5	

Equivalents

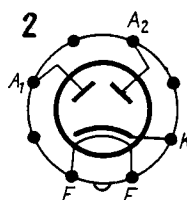
HF 3109	REF	= 6 H 6-G
LG 1	Tif	= 12 X 3 C
OSW 3109	RFT	= 6 H 6-G
SD-989 B ¹⁾	Syl	= 5903
SD-994 B ¹⁾	Syl	= 5896
WT-261	WT	= 6 H 6
WT-T-103	WT	= 6 H 6
6 H 6-GT	int	= 6 H 6-G
6 H 6-MG	Frc	= 6 H 6-G
6 X 6 C	CCCP	= 6 H 6-G
6 X 6 B	CCCP	= 6 H 6-G
6 X 6 M	CCCP	= 6 H 6-G
6 X 7 B-B ¹⁾	CCCP	= 6 X 7 B
5829 WA ¹⁾	amer	= 5829
6052 ¹⁾²⁾	amer	= 5896
6053 ¹⁾²⁾	amer	= 5903

¹⁾ vide * 4, a, b, c = 10.000, d, e, f, g; ²⁾ vide * 4, a, b, c = 5000, e; ³⁾ vide * 4, a, b, d, e; ⁴⁾ vide * 4, a, b, d, g; ⁵⁾ vide * 4, a, b, c, e;
⁶⁾ $f_{(max)} = 1750$ MHz; ⁷⁾ $f_{(max)} = 900$ MHz

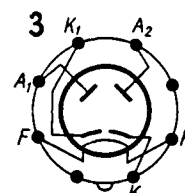
T.	$C_{a/k+f+e}$	$C_{a/k}$	$C_{a1/a2}$
	pF	pF	pF
R 128	6		0,2
2 X 1 JI		2,25	0,0015
6 H 6		3,4	0,1
6 H 6-G		4	0,1
6 X 7 Б		5,8	0,3
7 A 6		2,6	0,1
12 X 3 C	3	0,43	0,12
5896			0,026



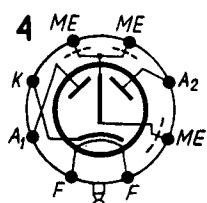
EAA11



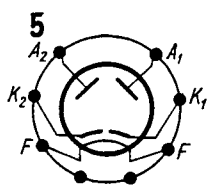
EB40



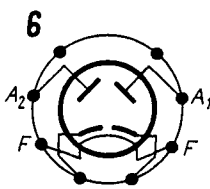
R128



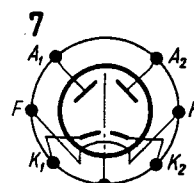
2X1Л



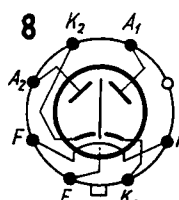
6AZ5



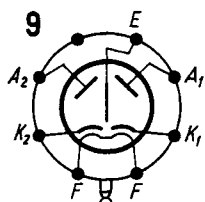
6AZ6



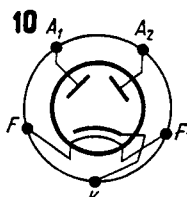
6X7Б



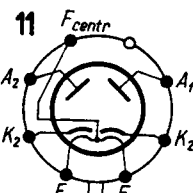
6H6-G



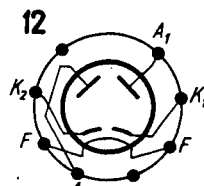
7A6



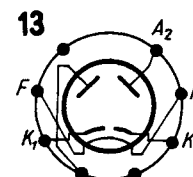
12X3C



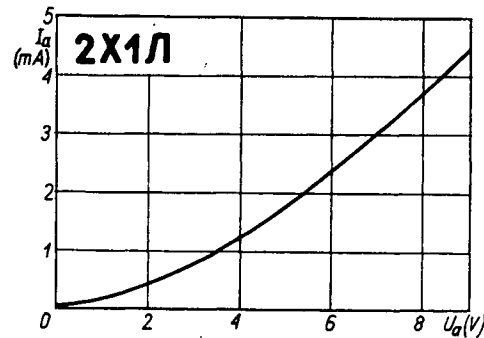
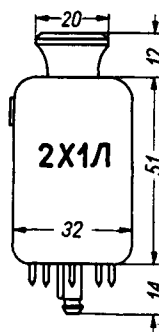
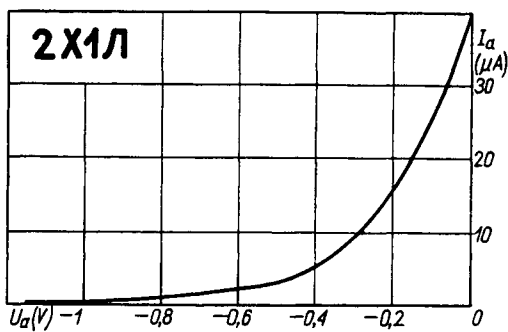
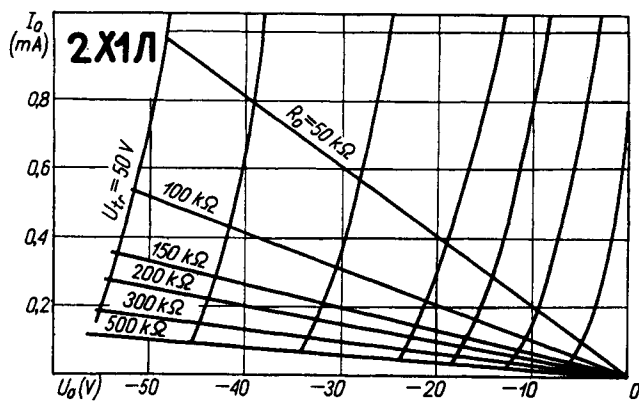
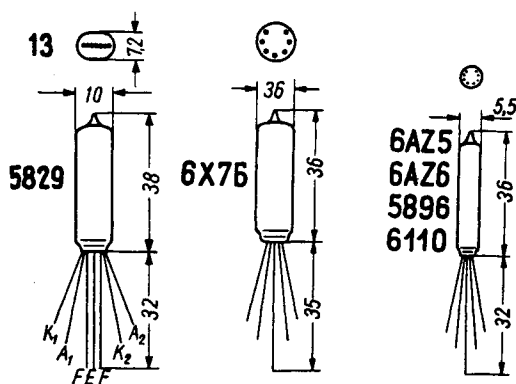
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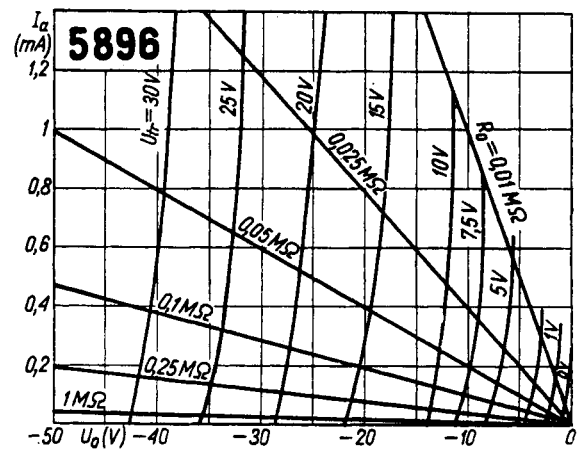
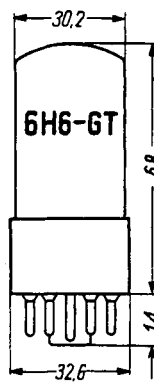
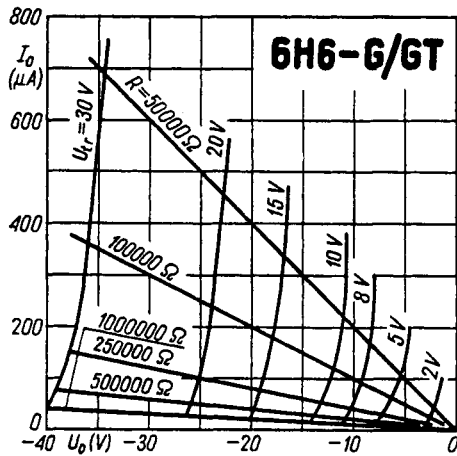
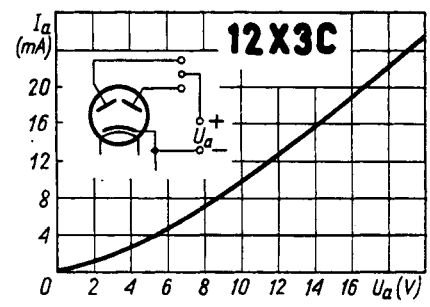
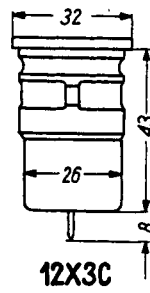
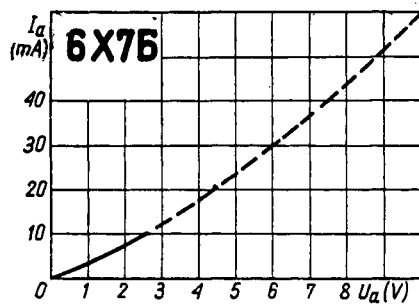


5896



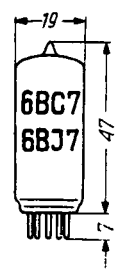
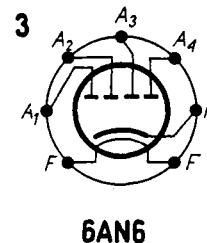
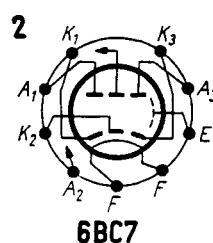
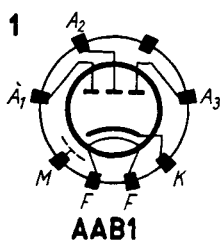
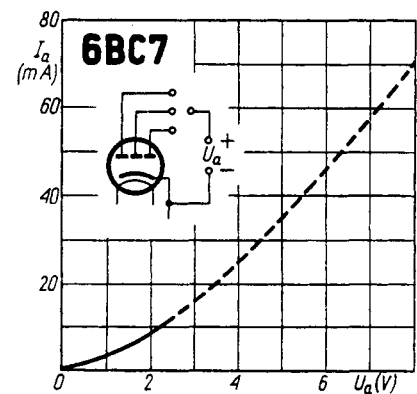
6110





T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	$U_{f/k}$
			V	A	V	V	mA	mA	V
AAB 1	eur	1	4	0,65	200	330	12	54	200
EAB 1	eur	1	6,3	0,2					
PAB 1	eur	1	6,3	0,3					
6 BC 7	amer	2	6,3	0,45	75	210	1	10	330
6 BJ 7	amer	2	6,3	0,45					
6 AN 6	amer	3	6,3	0,2					

T.	$C_{a1/k1}$	$C_{a2/k2+f+e}$	$C_{a3/k3+f+e}$	$C_{k/a+f+e}$	$C_{a1/a}$	$C_{a2/a3}$	$C_{a3/a1}$
	pF	pF	pF	pF	pF	pF	pF
6 BC 7	3,5	5,5	3,5	3,8	0,055	0,036	0,038
6 BJ 7	3	2,8	2,8	3,8	0,055	0,036	0,038

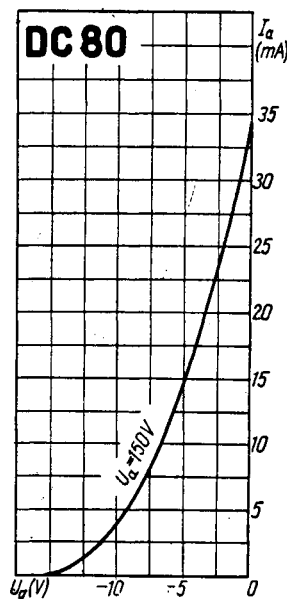
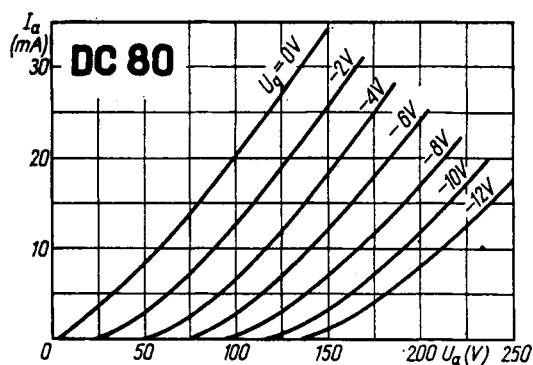
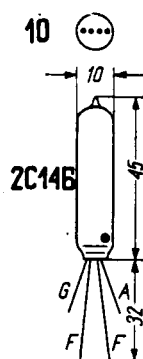
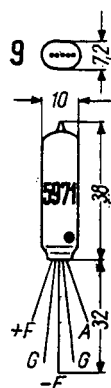
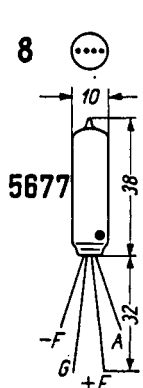
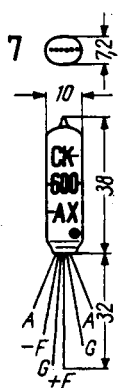
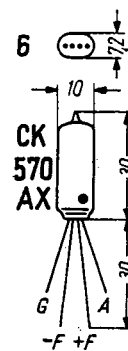
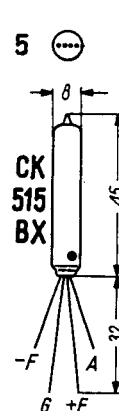
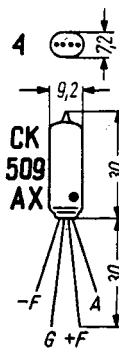
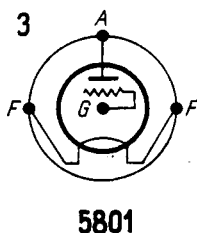
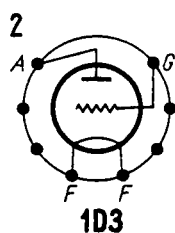
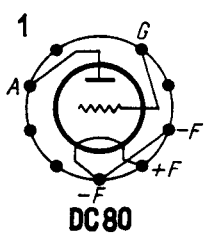


T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	P_a
			V	mA	V	V	mA	mA/V	V/V	k Ω	W
DC 80	eur	1	1,25	200	150 200	-3,5	20	3,5	14	4	3
1 C 91	Tes	8	1,25	150	130	-2,5	7	1,5			1
1D3	amer	2	1,25	300	90	-5	12,5	3,4	8,7	2,6	
2 C 14 B	CCCP	10	2,2	60	90 250	-3	3,6	1,8	15	8,3	0,75
509 AX	Ray	4	0,625	30	45	0	0,15	0,16	24	150	
515 BX	Ray	5	0,625	30							
516 AX	Ray	4	0,625	20	10	-1,2		0,12		50	
570 AX	Ray	6	0,625	20	22,5	-3	0,2	1,6	15	10	
600 AX	Ray	7	1,25	125	135	-5	4	0,85	16		
5677	amer	8	1,25	60	135	-5,5	1,9	0,14	2,1	14	
5697	Ray	6	0,625	20	12	-3	0,22	0,15	30		
5801	amer	3	1,25	10	135	-2	0,55	0,4	17,5		
5828	amer	3	1,25	10	50	-0,5	4	2,15	23		
5971	Ray	9	1,25	10	135	-3	11	2	8,5		
6029	Ray	8	1,25	200	90	-4					

Equivalents

CK 509 AX	Ray = 509 AX
CK 515 BX	Ray = 515 BX
CK 516 AX	Ray = 516 AX
CK 568 AX	Ray = 5677
CK 570 AX	Ray = 570 AX
CK 573 AX	Ray = 6029
CK 600 AX	Ray = 600 AX
CK 5677	Ray = 5677
CK 5697	Ray = 5697
CK 6029	Ray = 6029
VX 33A	amer = 5801
VX 41 A	amer = 5801
1 E 3	amer = DC 80

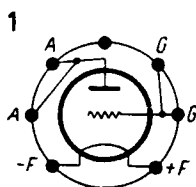
T.	C_g	C_a	C_g/a
	pF	pF	pF
DC 80	1,25	0,75	1,5
2 C 14 B	2,1	2,8	2
5677	1,3	3,8	2



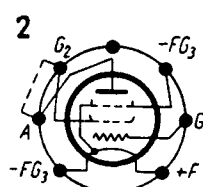
T.			U_f	I_f	Cl.	U_a	U_g	$U_{osc.}$	I_a	I_g	S	μ	R_g	f	I_k	P_a
						V	V	V	mA	μA	mA/V	V/V	M Ω	MHz	mA	W
DC 90	eur	I	1,4	50	A	40	0		1,5		0,9	11,1				
						67,5	0		4,2		1,2	11,6				
						90	-3		3		1,1	11,6				
						67,5		4	1,9	3,6						
						90		5,5	2,2	6						
DC 96	TIF	I	1,4	25	A	40	0		1,2		0,8	14				
						67,5	-1,5		1,7		0,95	14				
						90	-2,5		2,1		1	14				
						67,5		3,5	1,4	3,5						
						90		4,5	2,2	4,5						
I C 12 II	CCCP	I	1,2	30	A	67,5			maximum							
						90			maximum							
I T 4 ¹⁾	int	2	1,4	25	A	90	-2,5		4,2		1,1	11				

¹⁾ vide gr. 130

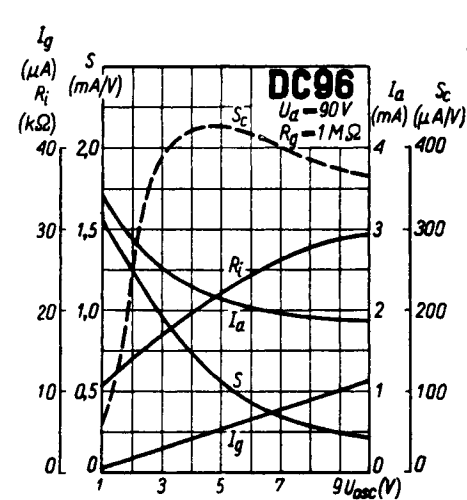
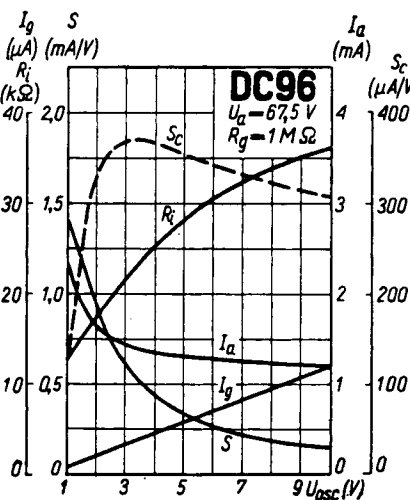
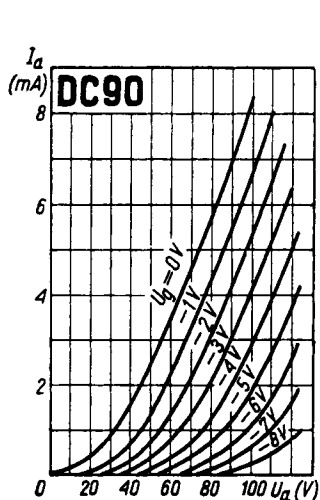
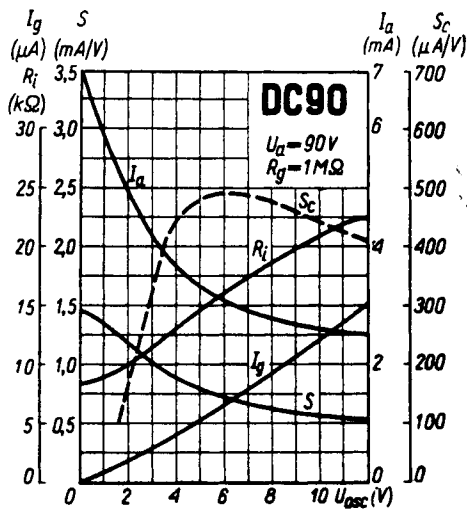
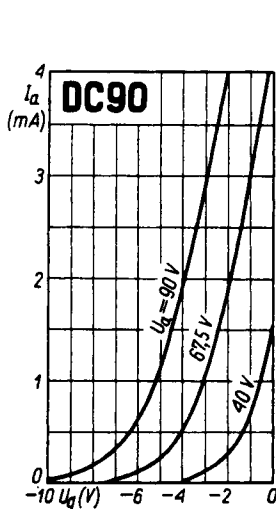
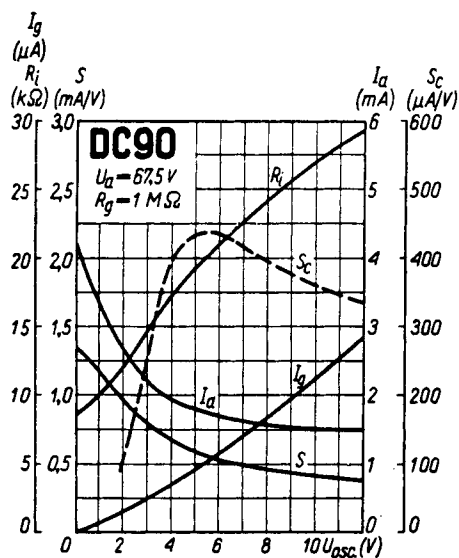
T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
DC 90	0,8	1,4	3
DC 96	0,95	1,6	3

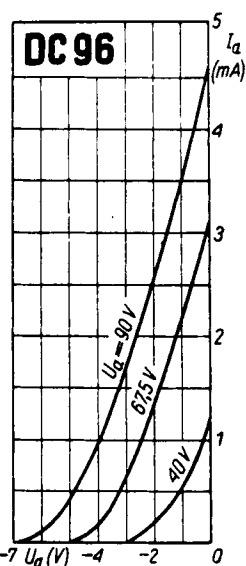
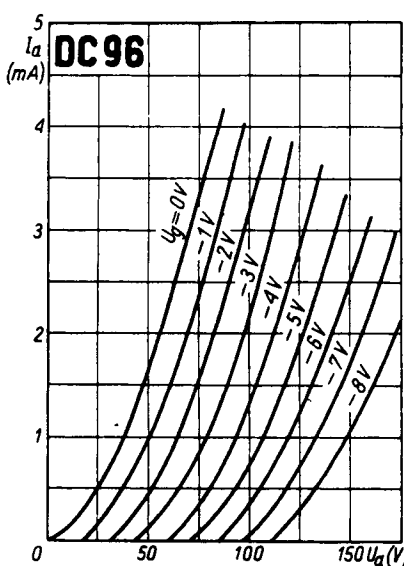
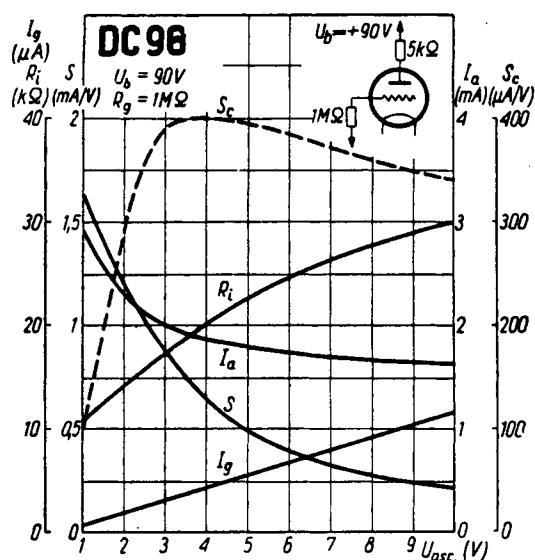


DC90



1T4



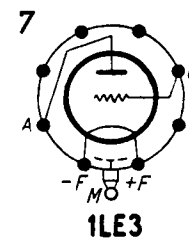
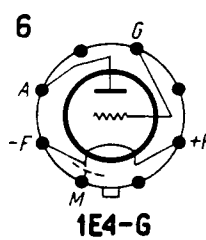
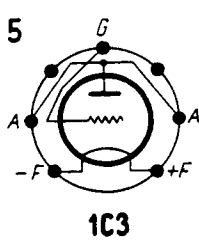
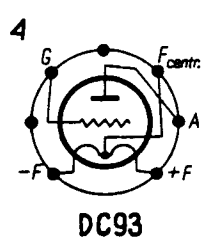
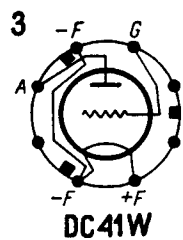
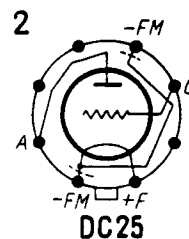
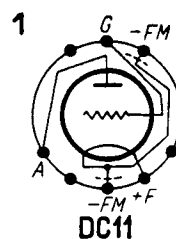


T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	P_a
			V	mA	V	V	mA	mA/V	V/V	kΩ	W
DC 11	eur	1	1,2	25	90	-2,5	2	1	15	16	0,4
DC 25	eur	2	1,2	25	90	-3,5	1,8	0,85	13,3	15	0,4
DC 41 W	Lor	3	1,2	20	90	-4	2	0,85	12,5	14,5	0,4
DC 93	eur	4	1,4/2,8	200/100	100	-5	10	2,4	8,3	3,5	1,8
					150			maximum			
DD 960	RFT	4	1,4/2,8	200/100	67,5	-3	9	2,45	8,3	3,4	1,8
					100	-6,5	10	2,5	8,3	3,4	
					150			maximum			
1 C 3	amer	5	1,4	50	90	-3	1,4	0,76	14,5	19	
1 E 4-G	amer	6	1,4	50	90	0	4,5	1,3	14,5	11,2	
1 LE 3	amer	7	1,4	50	90						
1 G 4-G	amer	6	1,4	50	90	-6	2,3	0,83	8,8	10,7	
1293	Syl	7	1,4	110	90	0	5,2	1,3	15	10,7	

T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
DD 960	1,6	2,5	7
1 C 3	0,9	4,2	1,8
1 LE 3	1,7	3	1,7
1 G 4-G	2,2	3,4	2,8

Equivalents

DC 193 RFT = DC 93
1 LF 3 amer = 1 LE 3
1 G 4-GT amer = 1 G 4-G

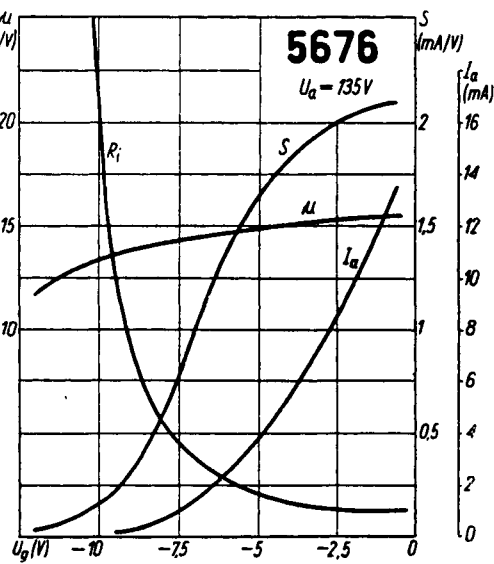
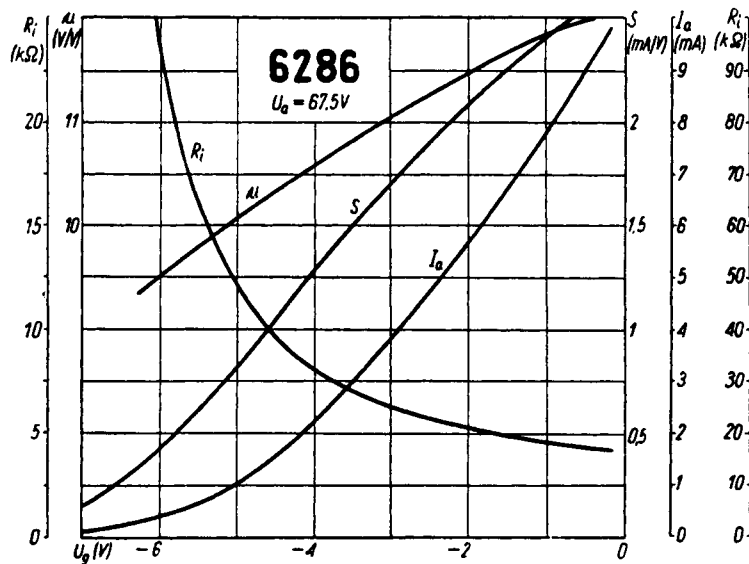
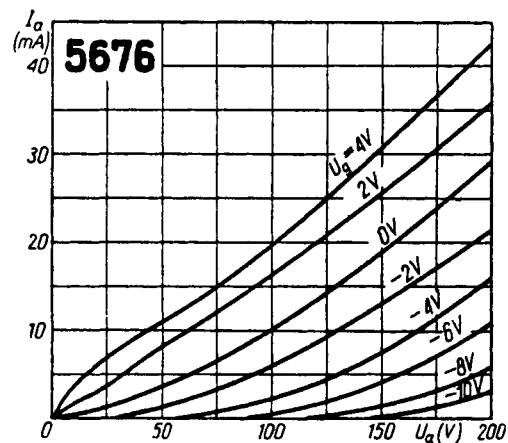
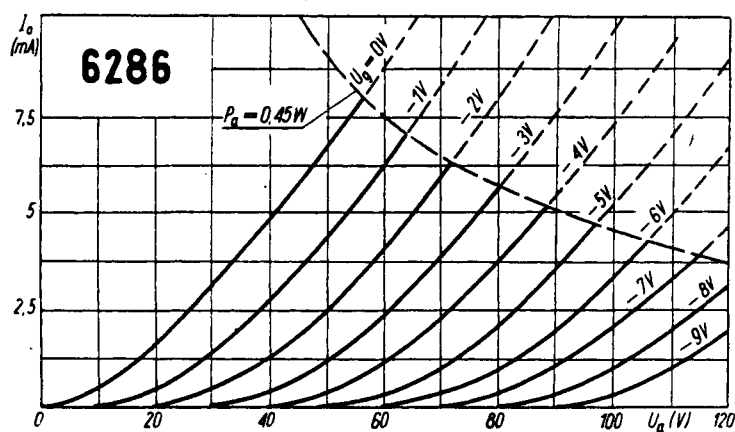
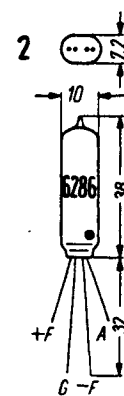
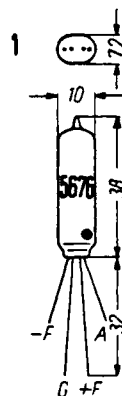


T.			U_f	I_f	Cl.	f	U_a	U_g	I_a	I_g	R_g	S	μ	R_i	I_k
			V	A		MHz	V	V	mA	mA	k Ω	mA/V	V/V	k Ω	mA
5676	int	1	1,25	0,12	stat C-Osc	350	135	-5	4	0,15 ÷ 0,5 maximum	10	1,6	15	9,1	10
6286	int	2	1,25	0,12			135		9						
							67,5	-2	6	0,325 maximum	18	2,1	11,5	5,5	7
							67,5		5,25						
							100								

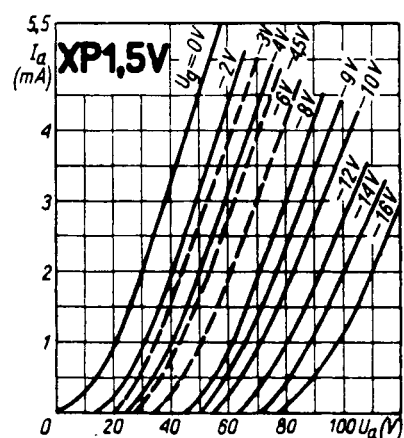
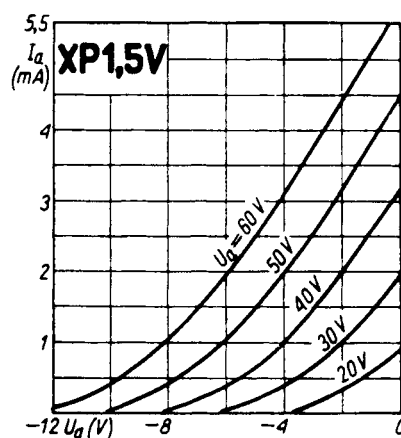
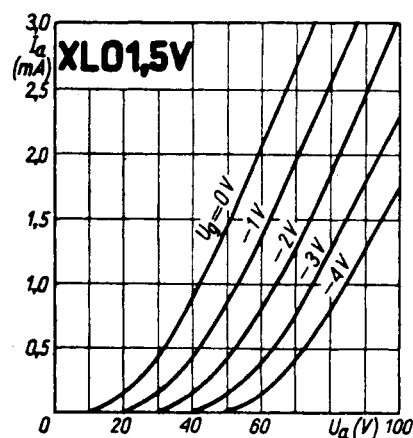
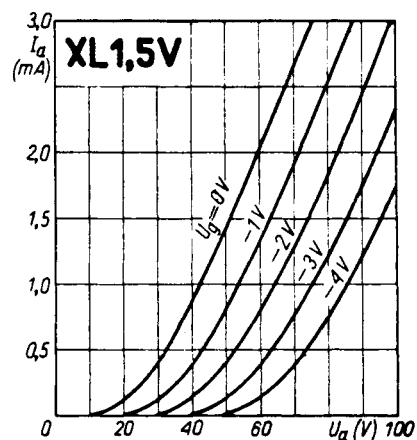
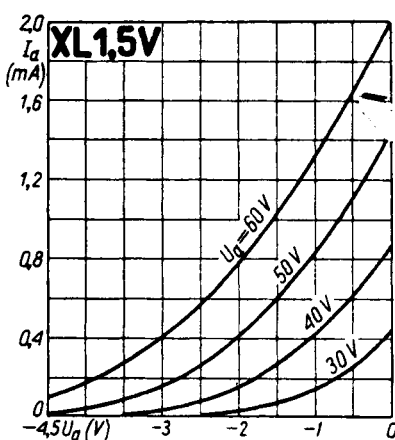
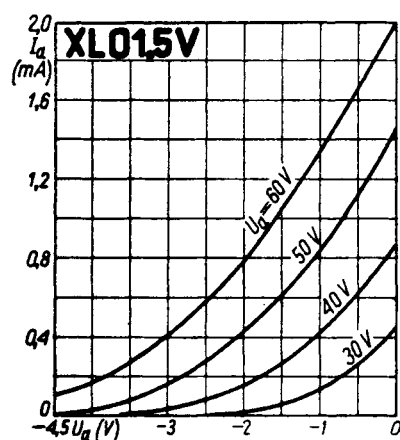
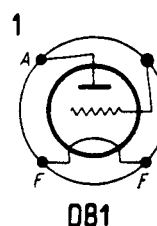
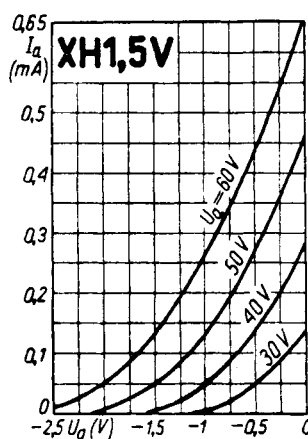
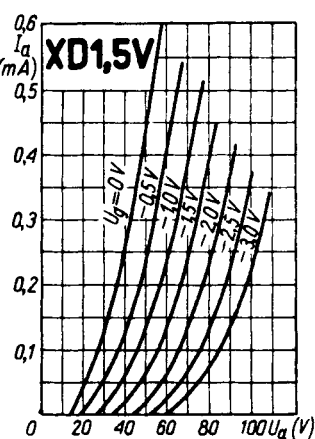
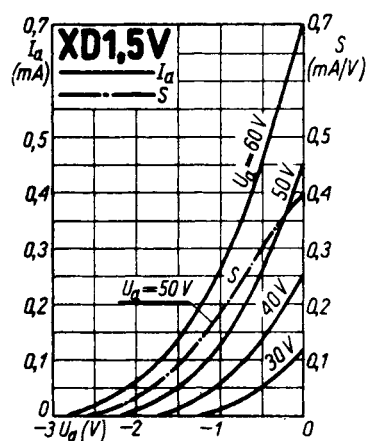
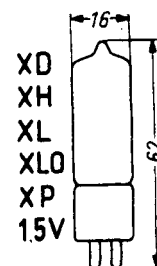
Equivalents

CK 556 AX	Ray = 5676
CK 5676	Ray = 5676
CK 6050	Ray = 5676
CK 6286	Ray = 6286
XFR 3	Hiv = 5676

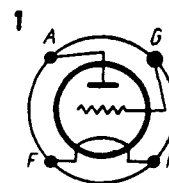
T.	C_g	C_a	C_g/a
	pF	pF	pF
5676	1,3	4	2
6286	1,3	2,1	1,6



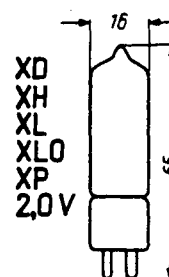
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	$U_{a(max)}$
			V	mA	V	V	mA	mA/V	V/V	k Ω	V
DB 1	eur	I	1,5	70	40	-0,25	0,25	0,4	32	80	100
DB 3	eur	I	1,5	70	40	-2,8	1,8	0,62	4,7	7,6	100
DC 51	eur	I	1,5	67	45	0	0,34	0,38	25	66	100
DD 51	eur	I	1,5	67	45	-3	1,7	0,5	5	10	100
DT 16	GE	I	1,5	100	36	0	0,5	0,5	20	40	75
XD 1,5 V	Hiv	I	1,5	80	50	0	0,45	0,4	20	50	75
XH 1,5 V	Hiv	I	1,5	75	50	0	0,45	0,4	22	55	50
XL 1,5 V	Hiv	I	1,5	80	50	-1	0,7	0,6	12	20	50
XLO 1,5 V	Hiv	I	1,5	80	50	-1	0,9	0,65	13	20	50
XP 1,5 V	Hiv	I	1,5	80	50	-4,5	1,75	0,72	5,2	7,25	75



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	$U_{a(max)}$
			V	mA	V	V	mA	mA/V	V/V	k Ω	V
H 12	Eng	I	2	60	75	-1,5	0,6	1,2	26	22	
KC 50	eur	I	2	50	40	-0,25	0,25	0,4	32	80	100
KC 51	eur	I	2	50	40	-2,15	1,25	0,5	6,9	13,6	100
KD 50	eur	I	2	55	40	-2,8	1,8	0,62	4,7	7,6	100
L 12	Eng	I	2	60	45	-4,5	1,9	0,8	4,8	6	
XD	Hiv	I	2	60	75	-1,5	2,5	0,75	16	23	
XD 2,0 V	Hiv	I	2	80	50	0	0,65	0,56	21	38	75
XH 2,0 V	Hiv	I	2	80	50	0	0,45	0,56	28	50	75
XL	Hiv	I	2	60	75	-1,5	1,5	0,9	12	14	
XL 2,0 V	Hiv	I	2	80	50	-1	1	0,84	10,5	12,5	75
XLO 2,0 V	Hiv	I	2	80	50	-1	1,1	0,92	11,5	12,5	75
XP 2,0 V	Hiv	I	2	80	50	-3	2	1	6	6	75

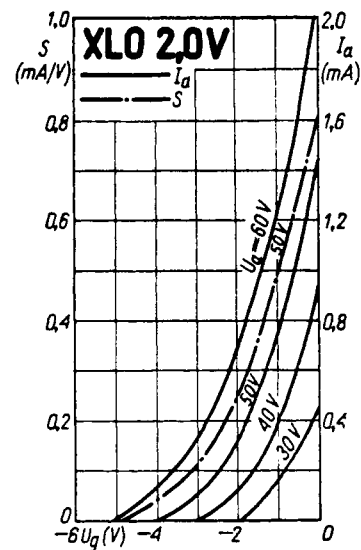
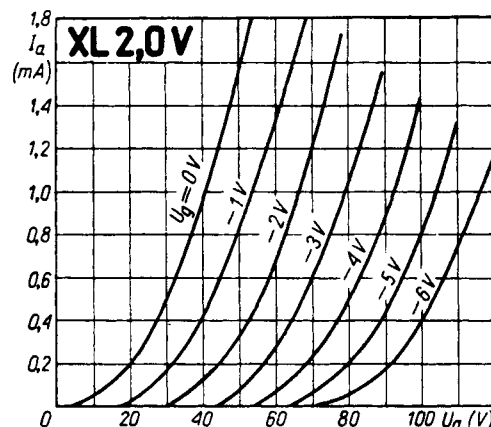
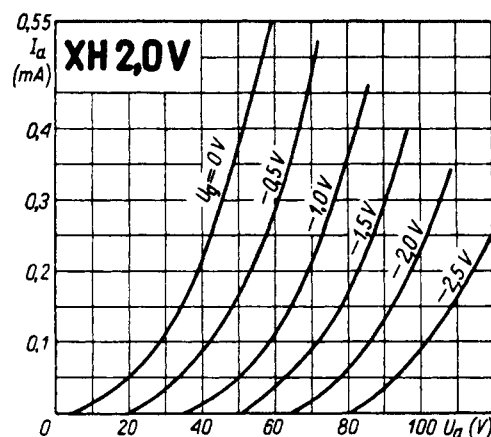
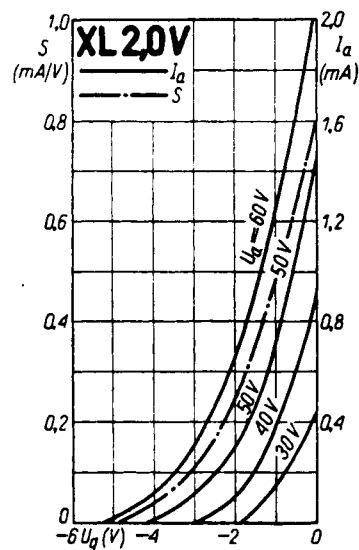
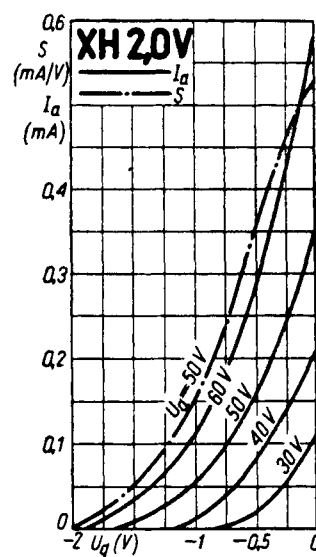
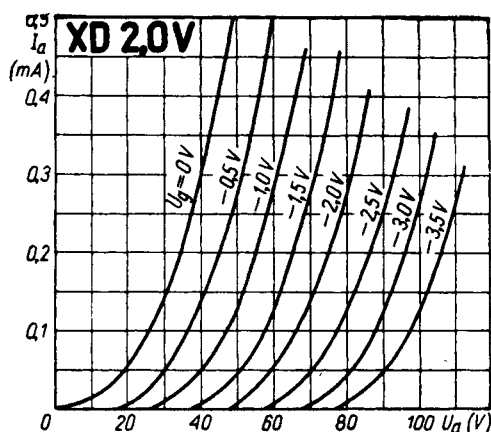
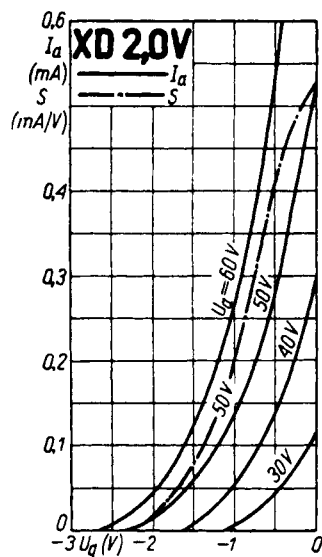


DA1



Equivalents

DA 1	Mul = KC 50
DA 2	Mul = KC 51
DA 3	Mul = KD 50



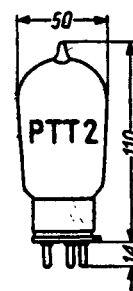
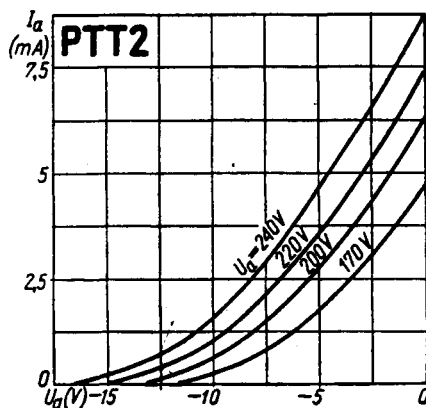
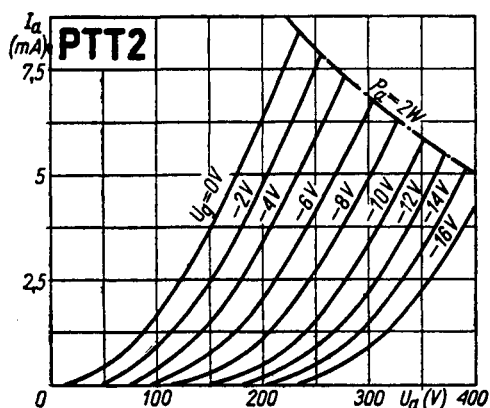
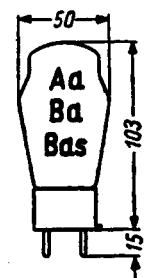
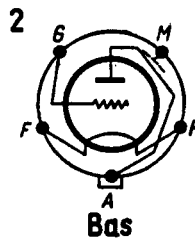
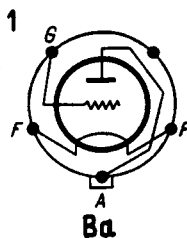
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_o	P_o	h	R_g	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	k Ω	mW	%	M Ω	mA	W
Aa	Grm	1	3,8	0,5	220 250	-2	3	1	30	30	30	10	2	0,7	20	2
Ba	Grm	1	3,5	0,5												
Bas	Grm	2	3,5	0,5	220 250	-6	3	0,6	15	25	25	60	5	0,6	20	2
PTT. O	Frc	1	1,8	1,1												
PTT. OS	Frc	2	1,8	1,1												
TS 3	Phl	1	5,7	0,25												

¹⁾ vide *4; ²⁾ vide *4, C = 20.000

Equivalents

Bb	Siem = Ba	KL 70411	Kgf = Ba	R 111	Frc = PTT 2 S	3 S 26	STCS = Aa
Bf	Siem = Ba	PTT 1	Frc = Aa	RV 222	Tif = PTT.OS	3,5 C 8	TKD = Ba
Bo	Siem = PTT.O	PTT 2 ¹⁾	Frc = Ba	TS 6	Phl = Bas	70401	Kgf = PTT.O
DY 1210	Mul = PTT.OS	PTT 2 S ¹⁾	Frc = Bas	TS 27	Phl = Aa	70411	Kgf = Ba
KL 70401	Kgf = PTT.O	R 88	Frc = PTT.OS	3 S 23	STCS = Ba		

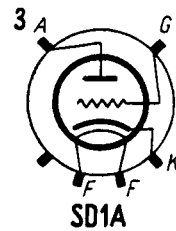
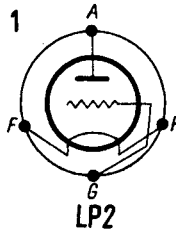
T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
Aa	5,5	4	3,5
Ba	5	4	3
Bas	6	7	3
PTT 2	2,5	3,8	2,8
PTT 2 S	2,5	3,8	2,8



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	P_o
			V	A	V	V	mA	mA/V	V/V	k Ω	W
LP 2	Eng	1	2	0,2	150	-4,5	11,5	3,8	15	3,9	0,25
P 215	eur	1	2	0,15	150	-9	8,5	1,4	7	5	0,15
P 220	eur	1	2	0,2	150	-6	6	3	14	4,7	0,17
RL 2 T 2	Tif	2	1,9	0,28	130	-1,5	15	2,5	12	5	0,4
SD 1 A	Tif	3	1,9	0,55	150	-1	24	3,4	16	4,7	0,4
YB-152	CCCP	1	2	0,12	120	-4	6	3	14	4,7	0,13
YB-153	CCCP	1	2	0,2	100	-6	8	2,5	10	4	0,2

Equivalents

BW 1304	Eta $\approx$ P 220
PB 1	Bri = P 220
PM 2	Mul $\approx$ P 215
PM 2 A	Mul $\approx$ P 215
SS 220 P	SS $\approx$ P 215
SS 220 PA	SS $\approx$ P 220
Sup. Pow.	Dar = P 215
TB 122	Dar = LP 220
220 PA	Cos = LP 2



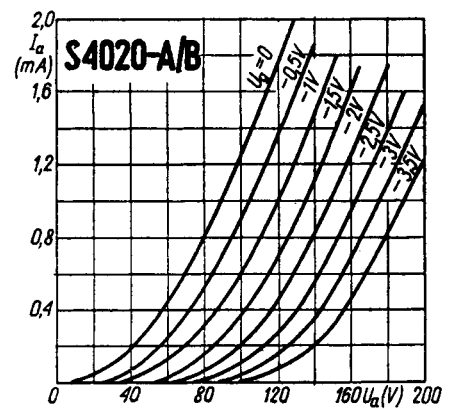
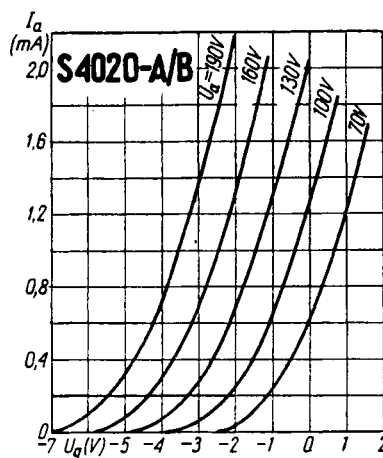
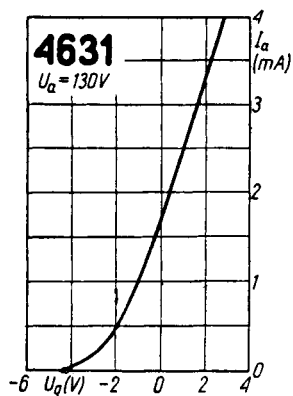
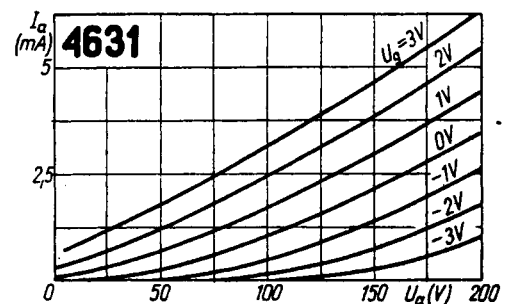
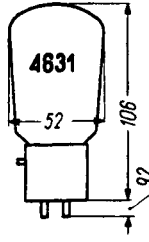
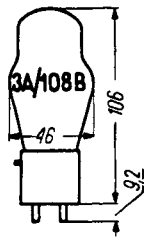
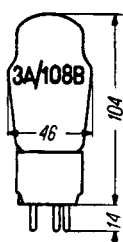
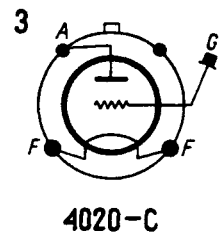
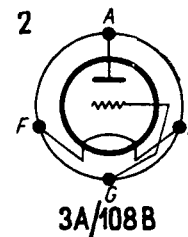
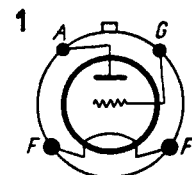
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	mA	W
3 A/108 A	STCE	1	2	0,25	130 190	-1,5	0,92	0,6	30	50		1,1
3 A/108 B	STCE	2	2	0,25								
4020 C	STCE	3	2	0,25								
4631	Phi	1	2	0,25	130 150	-1,5	0,7	0,5	28	55	1,5	1,1

1) vide *4

Equivalents

P 420	Tu = 3 A/108 A
S 4020-A	STCS = 3 A/108 A
S 4020-B	STCS = 3 A/108 B
TS 9	Phi = 4631
4020 A	STCE = 3 A/108 A
4020 AS	STCE = 3 A/108 A
4020 B	STCE = 3 A/108 B
4020 BS	STCE = 3 A/108 B

T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
3 A/108 A	5	2,5	5
3 A/108 B			
4631	3,6	2	6,9
S 4020-A	6	4	6
S 4020-B			

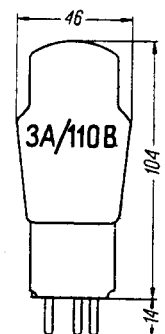
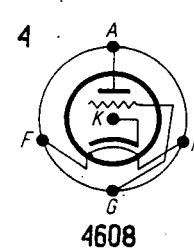
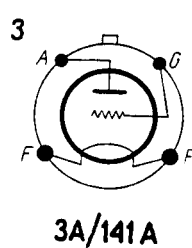
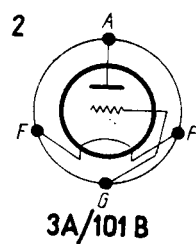
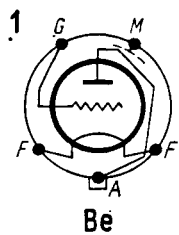
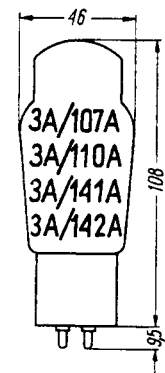


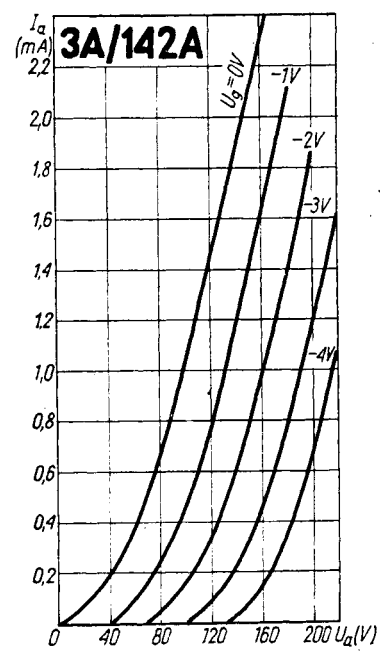
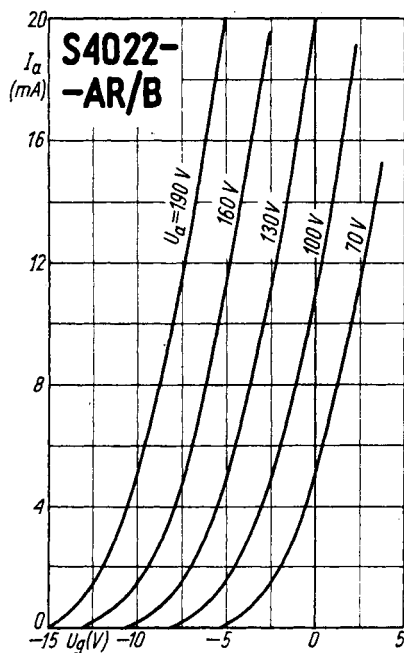
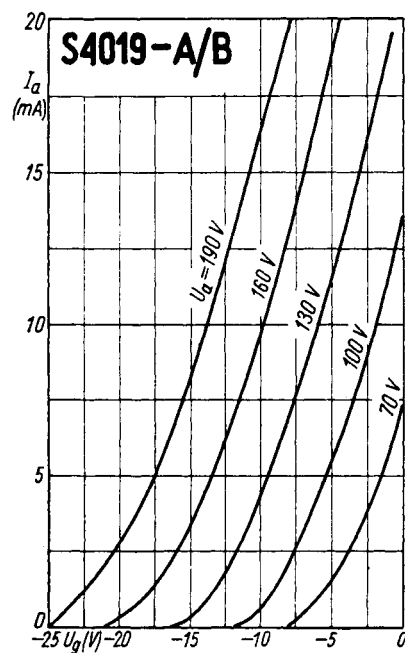
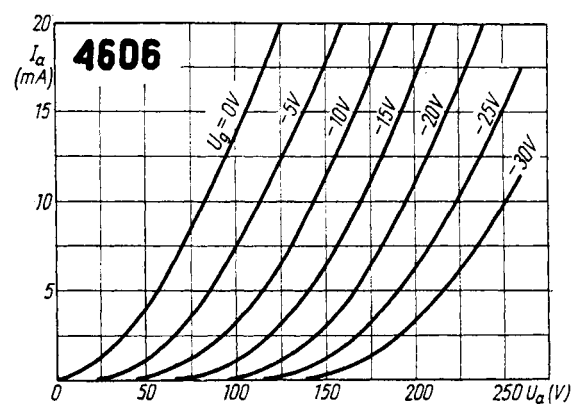
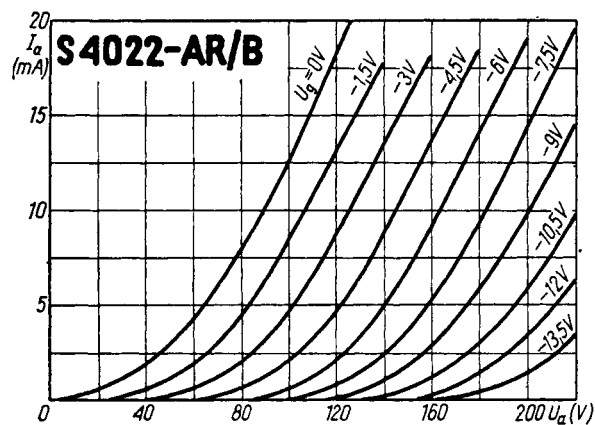
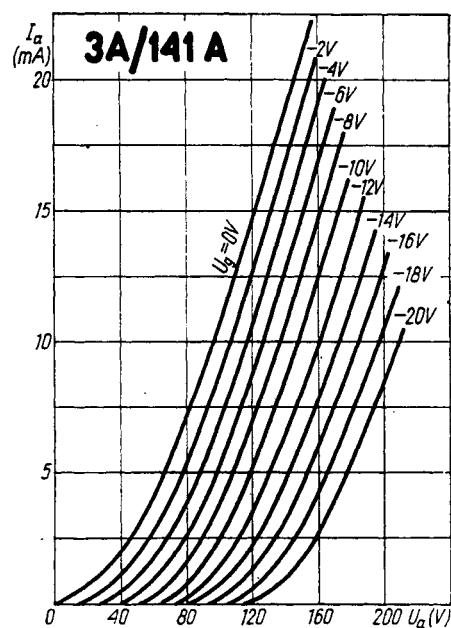
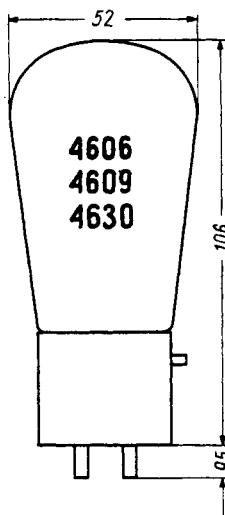
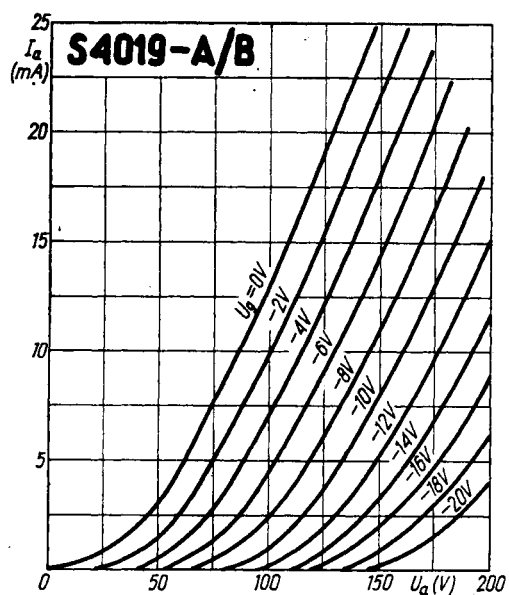
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_o	P_o	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	k Ω	mW	mA	W
Be	Siem	I	3,8	0,5	130 250	-4,5	8	2,4	5 maximum	12	5	60	20	3
Bh	Siem	I	3,8	0,16	130 250	-4	8	2,4	5 maximum	12	5	60	12	2
PTT 10	Frc	3	4,25	0,97	130	-9	10	1	5,5	5,5	5,5			
PTT 10 F	Frc	2	4,25	0,97										
TS 4	Phi	3	4,4	0,97	130	-9	8	1	6	6	6			
TS 8	Phi	3	4	0,25	130	-8	8	1,3	5,5	7	6			
TS 11	Phi	3	4	0,25	130	-4,5	7	2	5,5	11	6			
3 A/101 B	STCE	2	4,5	1	130	-12	6,2	1	6,5	6,5		65		
3 A/107 A	STCE	3	4	0,25	130	-8	6,8	1,3	5,5	7	5,5	83		
3 A/107 B	STCE	2	4	0,25	160 190	-12 -14	7,1 9,7		5,3		5,5	180 290		
3 A/110 A	STCE	3	4	0,25	130	-4,5	6,5	2,2	5,5	12				
3 A/110 B	STCE	2	4	0,25	190	-6	16,2		maximum					
3 A/141 A	STCE	3	4,5	1	130 130 190	-9 -12 -20	7,8 5 7,2	1 0,85	5,7 7	6 5,9	5,7 7	65 95 285		
3 A/142 A	STCE	3	4,5	1	130 160 190	-1,5 -2 -2	0,58 0,8 1,46	0,5 0,55	63 54	29,8 29,9	63 54		1,5	
3 S 28	STCE	1	4	1	130	-5	11,2	2,5	4,85	1,2				
4608	Phi	4	4	1										
101 D	WE	3	4,2	1	130 200	-9	7,7	1,07	5,8	6,2		65		2
101 F	WE	3	4	0,5	130 200	-8	6,8	1,12	5,8	6,5		60		2
101 FA	WE	3	4	0,5	130	-8	4	1,46	8,9					
4606	Phi	3	4,5	1	130 150	-9	8,5	1	5,5	5,5			12	1,2
4609	Phi	3	4,2	0,25	130 150	-5	8	2,3	4,8	11	6		15	1,2
4630	Phi	3	4,2	0,25	130 150	-8,4	8,5	1,3	5,5	7	6		12	1,1

T.	C_g	C_a	C_{g1a}
	pF	pF	pF
Be	7	7	5
Bh	6,5	5,5	6,5
3 A/107 A	6,2	2,1	4,7
3 A/107 B	6,2	2,1	4,7
3 A/110 A	6,5	2,5	9,7
3 A/110 B	6,5	2,5	9,7
3 A/141 A	6,4	5,6	8,1
3 A/142 A	5,5	5	7,6
3 S 28			3,3
4606	4	2,2	5,9
4609	4,9	2	10
4630	4,2	2,4	4,8

Equivalents

P 419	TuM = 3 A/107 A	101 A	WE = 101 D
P 422	TuM = 3 A/110 A	101 B	WE = 101 D
R 86	Frc = PTT 10	101 DW	WE = 101 D
R 101	Frc = 4609	101 J	WE = 101 F
S 4019-A	STCS = 3 A/107 A	208 A	WE = 101 D
S 4019-B	STCS = 3 A/107 B	4019 A	STCE = 3 A/107 A
S 4022-AR	STCS = 3 A/110 A	4019 AS	STCE = 3 A/107 A
S 4022-B	STCS = 3 A/110 B	4019 B	STCE = 3 A/107 B
TS 28	Phi = Bh	4019 BS	STCE = 3 A/107 B
TS 31	Phi = Be	4022 AR	STCE = 3 A/110 A
3 A/107 AY	STCE = 3 A/107 A	4022 B	STCE = 3 A/110 B
3 A/107 BY	STCE = 3 A/107 B	4101 D	STCE = 101 D
4 C 2	TKD = 4609		





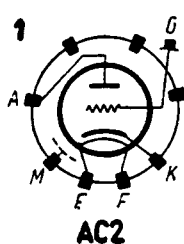
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	P_o	R_g	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	Ω	mW	M Ω	mA	W
AC 2	eur	1	4	0,65	250 300	-5,5	6	2,5	30	12	900			15	2
Bi ¹⁾	Grm	2	4	1,1	220 230	-3	10	2,5	27,5	11	300	80		45	3
K 1694 ¹⁾	Grm	3	4	1	200 250	-3,5	6	2,6	30	12,5	600				1,5

¹⁾ vide *4

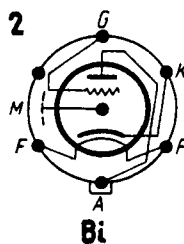
Equivalents

T.	C_g	C_a	C_g/a
	pF	pF	pF
AC 2	4,9	4,5	1,7
Bi	7	8	1,7
K 1694			2

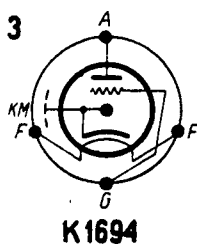
Bi IV	AEG = AC 2	TS 32	Phi = Bi
D 4 A	Mul = AC 2	WE 39	Tlf = AC 2
PTT 100	Frc = Bi	3 S 22	STCS = Bi
R 115	Frc = Bi	4 C 1	TKD = AC 2
TAC 2	Tu = AC 2	4 C 6	TKD = Bi



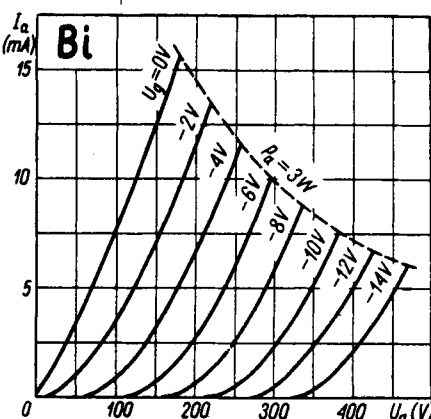
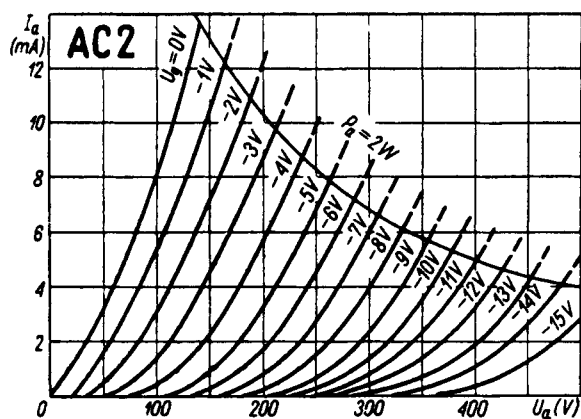
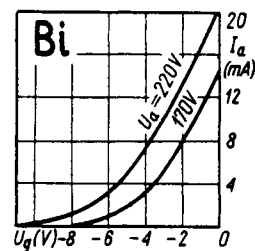
AC2



Bi



K1694



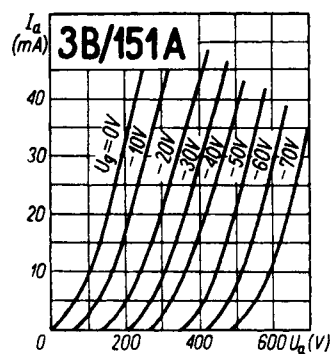
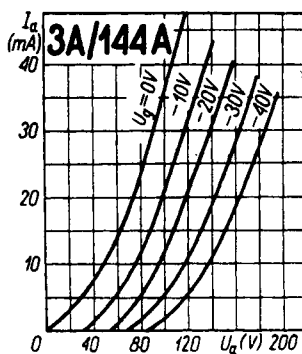
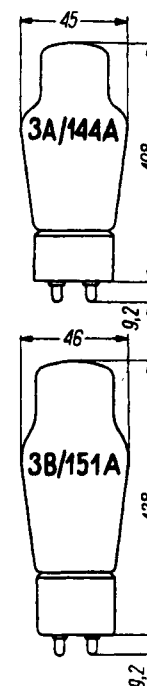
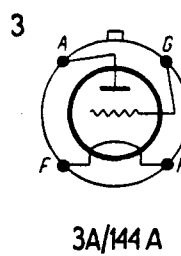
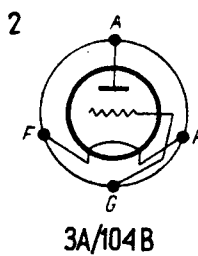
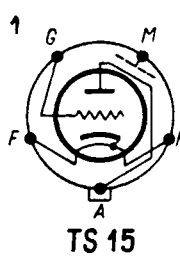
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_o	P_o	h	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	k Ω	mW	%	mA	W
TS 15	Phi	1	4,2	1,1	220	-30	40	2,4	3,6	1,5					
3 A/104 B	STCE	2	4,5	1	130	-20	25	1,1	2,3	2	2	135	5		
3 A/144 A	STCE	3	4,5	1	160	-30	29			1,9	1,9	300			
18004	Phi	3	4,4	0,97	190				maximum					60	5
					250	-15	19	1,6	7,2	4,35	4,35	310	5		
3 B/151 A	STCE	3	4,5	1,6	350	-18	35	1,9	7,3	3,9					14
					400				maximum						
104 D	WE	3	4,2	1	130	-20	25	1,18	2,5	2,1		160			

¹⁾ vide * 4

Equivalents

CW 931	WE = 3 B/151 A
D 156734	WE = 3 B/151 A
TS 7	Phl = 18004
VT 2	WE = 3 B/151 A
3 A/144 AY	STCE = 3 A/144 A
104 A	WE = 104 D
104 DW	WE = 104 D
105 A	WE = 3 B/151 A
205 A	WE = 3 B/151 A
205 B	WE = 3 B/151 A
205 D	WE = 3 B/151 A
205 E	WE = 3 B/151 A
205 F	WE = 3 B/151 A
210 A	WE = 104 D
304 D	WE = 3 B/151 A
4104 D	STCE = 104 D
4205 E	STCE = 3 B/151 A

T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
3 A/144 A	5,8	5,5	6,8
3 B/151 A	5,2	3,3	4,8
18004	2,9	4,5	2,5

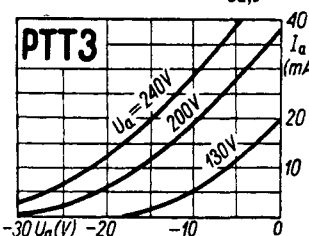
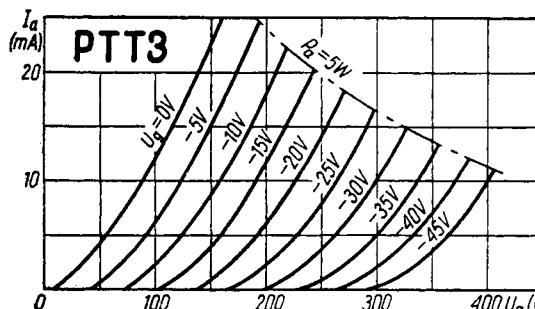
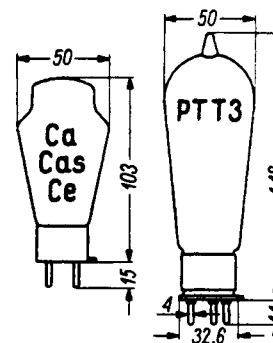
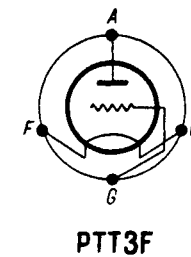
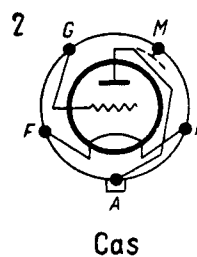
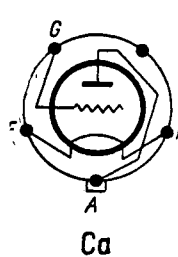


T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_o	P_o	h	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	kΩ	kΩ	W	%	mA	W
Ca	Grm	1	3,65	1,1	220	-12	20	1,7	6,8	4,1	4,1	0,2	5	30	5
Cas	Grm	2	3,65	1,1											
Ce	Grm	2	3,8	0,5											
PTT 3 F	Frc	3	3,65	1,1	250				maximum						
TS 18	Phl	2	3	1,1	220	-12	25	1,6	6,5	4					

¹⁾ vide *4; ²⁾ vide *4, $c = 20.000$

Equivalents

KL 71412	Kgf = Ca
PTT 3 ²⁾	Frc = Ca
PTT 3 S ²⁾	Frc = Cas
R 112	Frc = Cas
TS 14	Phl = Cas
TS 35	Phl = Ce
3 S 24	STCS = Ca
71412	Kgf = Ca



T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
Ca	5	4	7
Cas	8	7	6,5
Ce	8	7	6,5
PTT 3	5,5	4,5	7
PTT 3 S	8	7	6,5
3 S 24			6,5

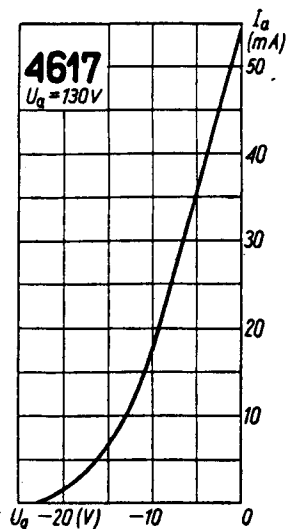
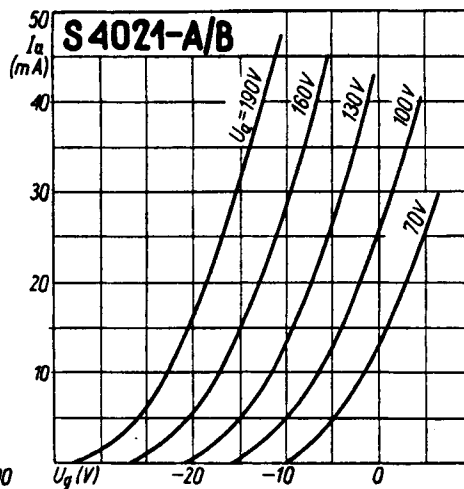
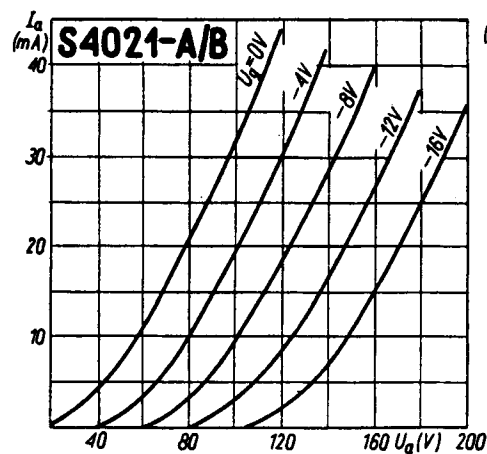
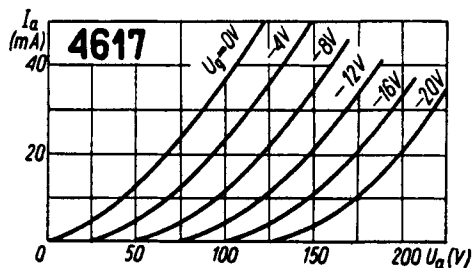
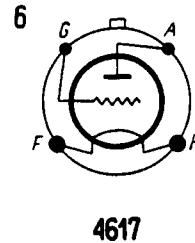
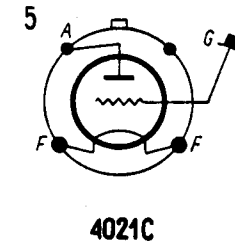
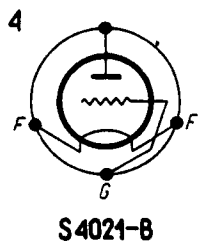
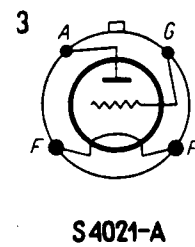
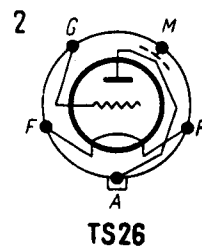
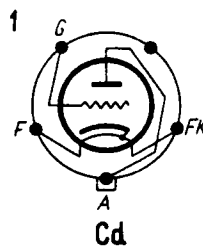
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_o	P_o	h	R_g	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	k Ω	mW	%	M Ω	mA	W
Cd	Siem	I	3,8	0,5	130 250	— 8	25	3	6	2	2	150	5	0,3	40	4
Cf	Siem	I	3,8	0,25												
TS 26	Phil	2	3,8	0,25												
S 4021-A	STCS	3	4	0,25	130	— 8	22,5	3	maximum	2,05	2,05	140	5			
S 4021-B	STCS	4	4	0,25	160	—10	32,5	3		1,8	1,8	250				
4021 C	STCE	5	4	0,25	190	— 8	25	3	maximum	2,2	2,2	200	10		31	3,3
4617	Phil	6	4	0,25	150											

¹⁾ vide * 4

Equivalents

LS 8 A	Marc = S 4021-B
P 421	TuM = S 4021-A
TS 20	Fhl = S 4021-A
3 A/109 A	STCE = S 4021-A
3 A/109 AY	STCE = S 4021-A
3 A/109 B	STCE = S 4021-B
3 A/109 BY	STCE = S 4021-B
4021 A	STCE = S 4021-A
4021 AS	STCE = S 4021-A
4021 AT	STCE = S 4021-A
4021 B	STCE = S 4021-B
4021 BS	STCE = S 4021-B

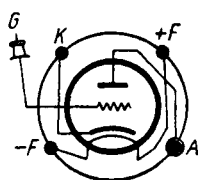
T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
Cd	5	3	6
Cf	5,5	3,5	8
S 4021-A/B	8	5	9
3 A/109 A/B	6	3,6	9
4617	4,8	3,5	6,5



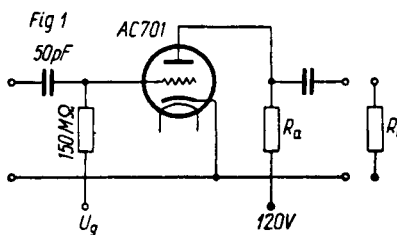
T.		U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_a	R_o	I_g	I_k	P_a	
		V	A	V	V	mA	mA/V	V/V	kΩ	kΩ	kΩ	A	mA	W	
AC 701	Tlf	4	0,105	60	—1,5	2,1	2,3	22	9,5						
					—1,6	0,41	0,75	17,5	23	200	20	$< -10^{-10}$			
					—1,3	0,5	0,95	19	19	170	17	$< -2 \cdot 10^{-10}$			
					—1,5	1,36	1,75	21	12	50	10	$< -3 \cdot 10^{-10}$			
				120											
maximum															
													5	Fig. 1	0,5

Equivalents

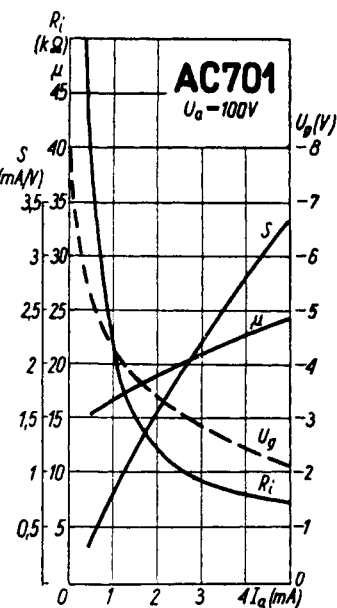
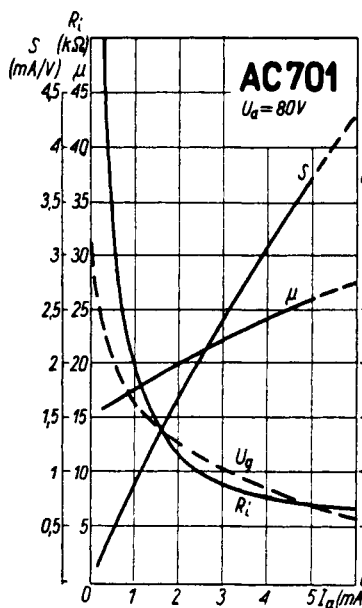
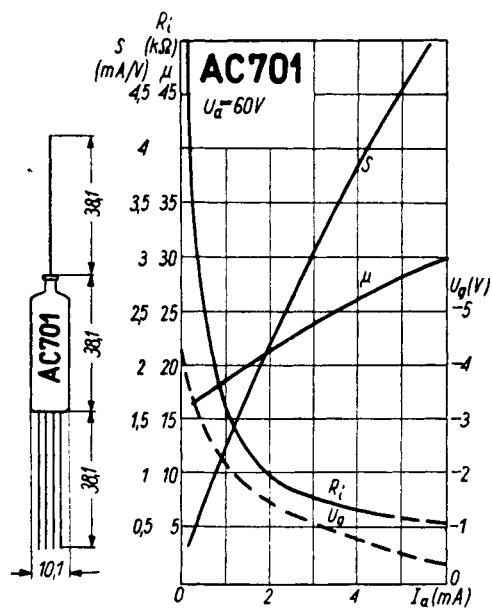
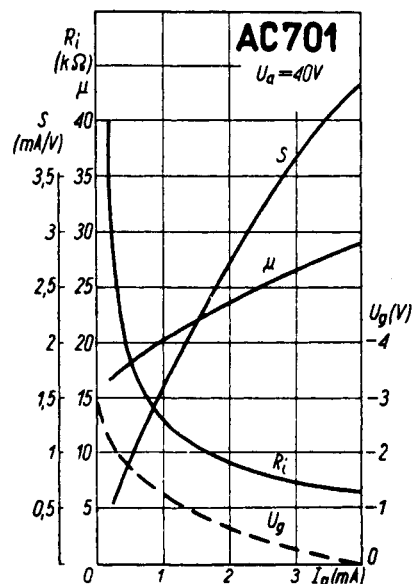
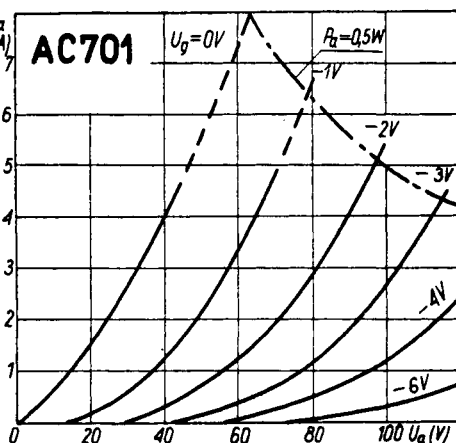
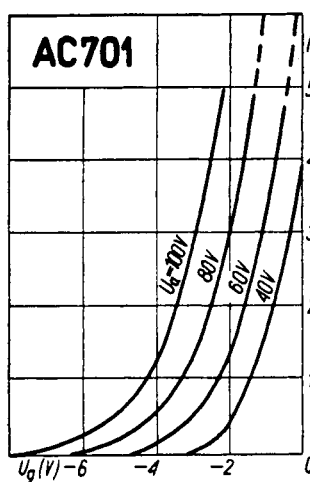
AC 761	RFT
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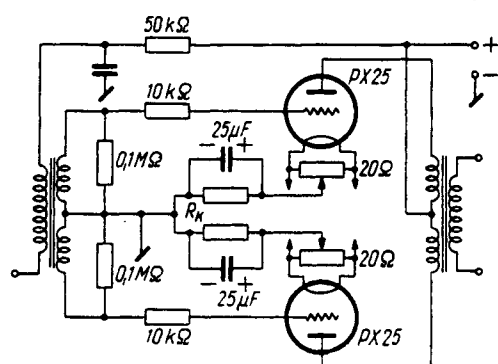
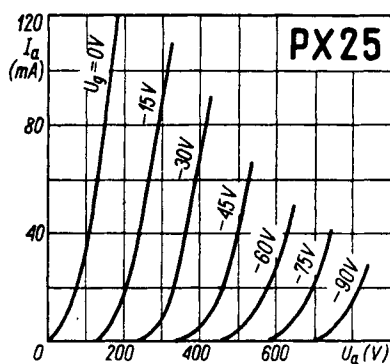
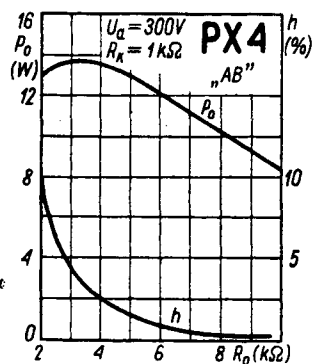
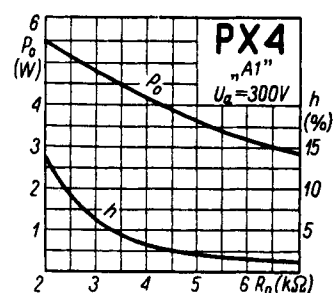
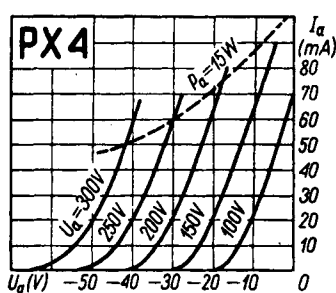
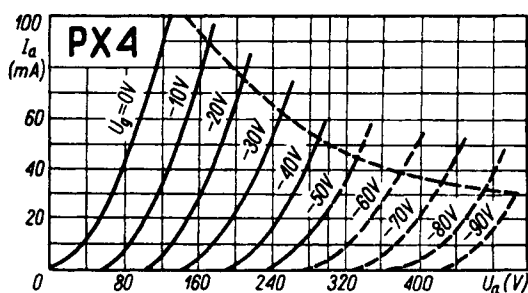


AC701



C_g	C_a	$C_{g/a}$
pF	pF	pF
2,5	1,2	2





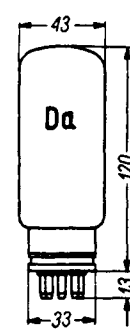
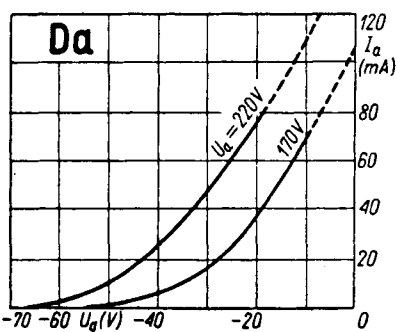
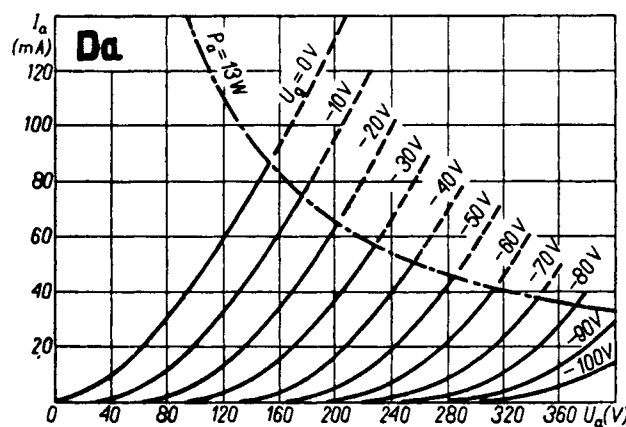
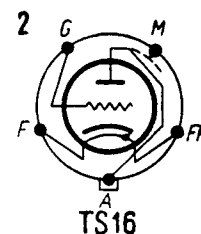
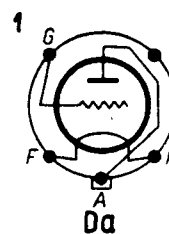
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_o	P_o	h	R_g	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	kΩ	kΩ	W	%	MΩ	mA	W
Da	Grm	1	5,8	1,1	220	-30	50	2,5	3,6	1,45	1,5	1	5	0,8	100	13
TS 16	Phl	2	5,8	1,1	250				maximum							

¹⁾ vide *4

Equivalents

PTT 4	Frc = Da
R 114	Frc = TS 16
3 S 21	STCS = Da

T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
Da	7	9	9



T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	S mA/V	μ V/V	R_i Ω	R_k Ω	R_o Ω	P_o W	h %
2 A 3	int	1	2,5	2,5	A AB B	250 300 300	—45 $(40 \div 50) \times 2$ $(40 \div 73,5) \times 2$	5,25	4,2	800	750 780	2500 5000 3000	3,5 10 15	5 5 2,5
6 A 3	int	1	6,3	1										
6 A 5-G	int	2	6,3	1										
6 B 4-G	int	3	6,3	1										
1276	amer	1	4,5	1,4		300								

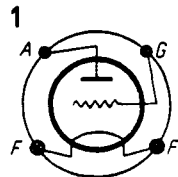
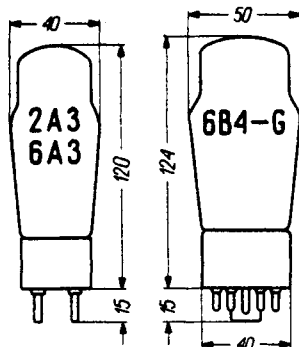
maximum ($P_a = 15$ W)

Equivalents

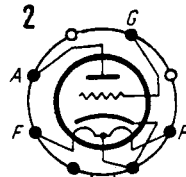
FNH	amer = 6 A 3
2 A 3 H	Syl = 2 A 3
2 A 3 W ¹⁾	amer = 2 A 3
2 C 3	CCCP = 2 A 3
2 C 4 C	CCCP = 2 A 3
6 C 4 C	CCCP = 6 B 4-G
6 C 6	CCCP = 6 B 4-G
5930 ¹⁾	amer = 2 A 3

¹⁾ vide * 4, a, b ($U_f = 2,5V \pm 10\%$)

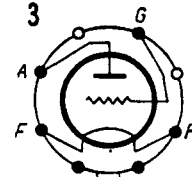
T.	C_g pF	C_a pF	$C_{g/a}$ pF
6 A 3 6 B 4-G	7,5	5,5	16,5



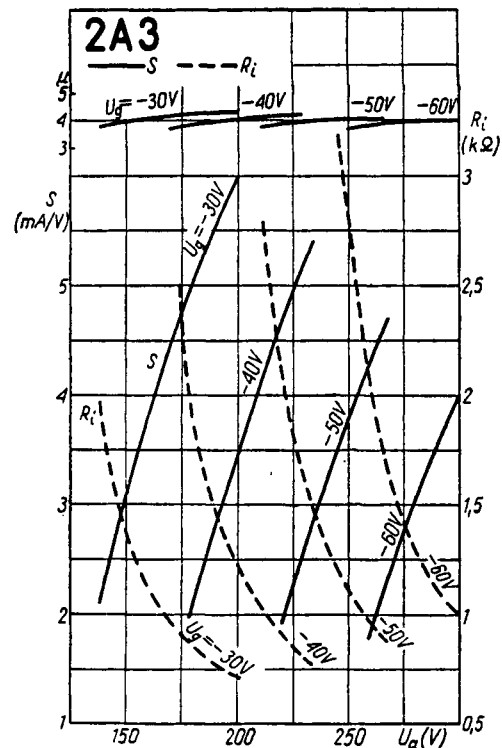
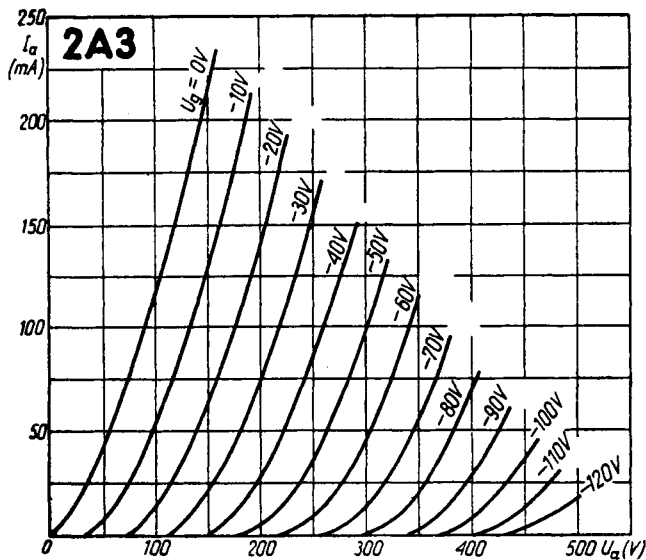
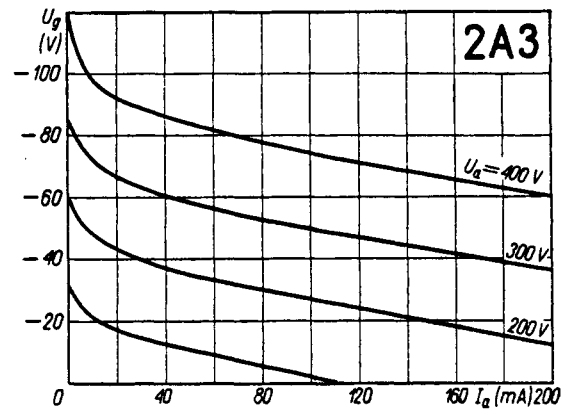
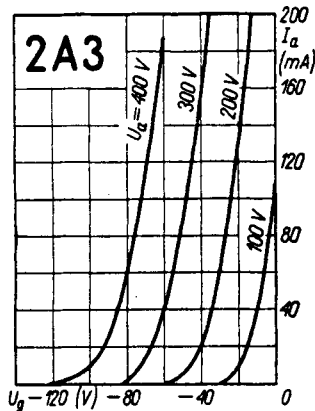
6A3



6A5-G



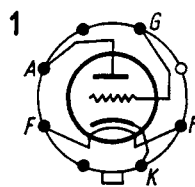
6B4-6



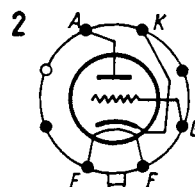
T.		U_f V	I_f A	U_a V	U_g V	I_a mA	S mA/V	R_i Ω	μ V/V	R_k Ω	R_o Ω	P_o W	U_f/k V	I_k mA	P_a W
R 120	RT	1	6,3	1,45	250	—35	6,4	840	5,4	600	2500	3,5	50	90	15
3 A/167	Bri	2	6,3	0,45	150	—1,9	47	1000	47	maximum					
437 A	Bell	3	6,3	0,45	350					maximum					

¹⁾ vide *4

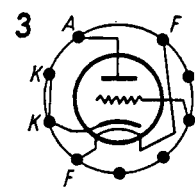
T.	C_g pF	C_a pF	$C_{g/a}$ pF
R 120	18,5	15,5	4
3 A/167 M	11	2,5	4
437 A	11,5	0,9	3,5



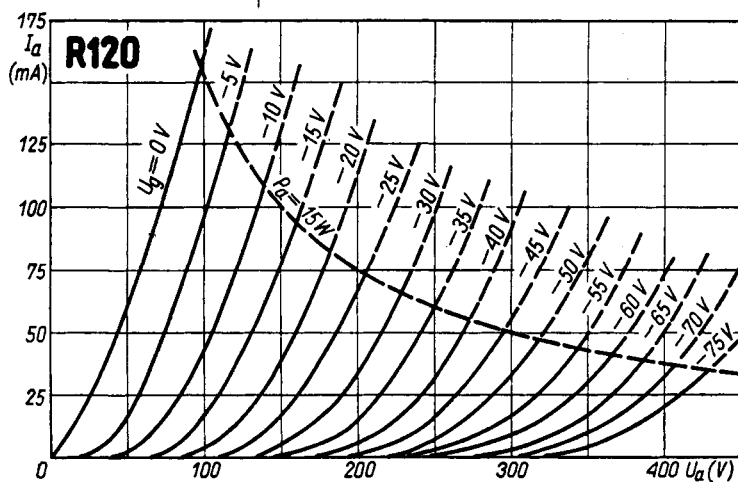
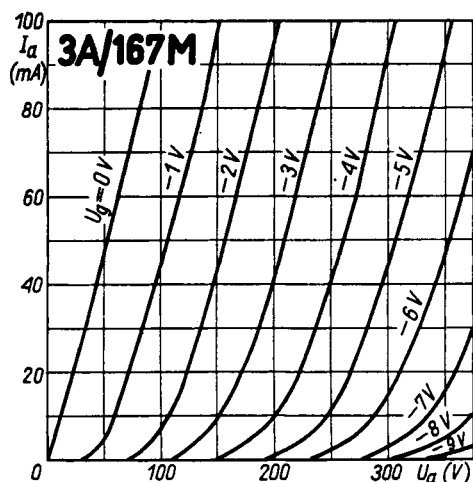
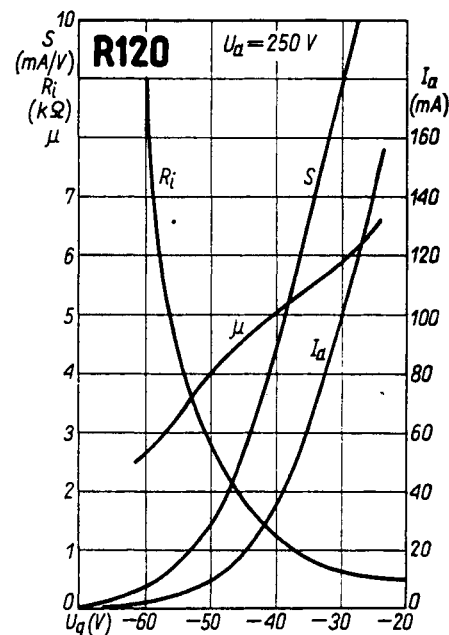
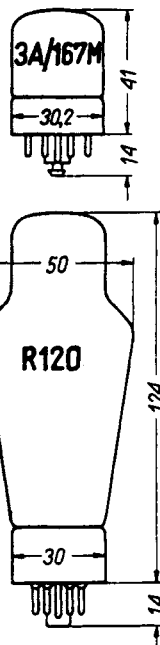
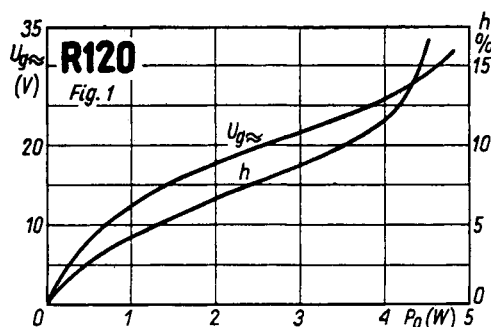
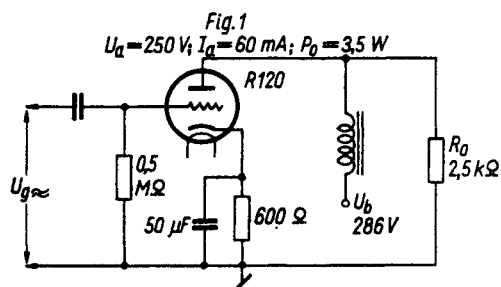
R120



3A/167M

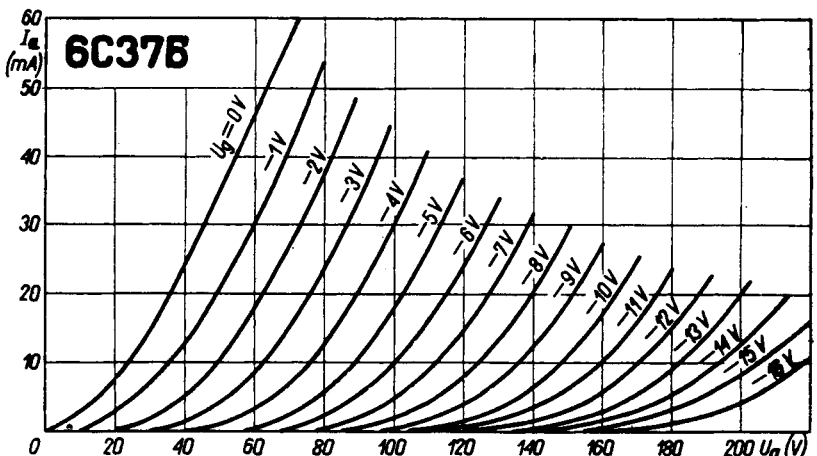
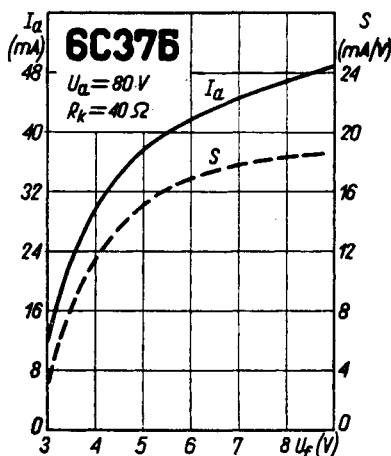
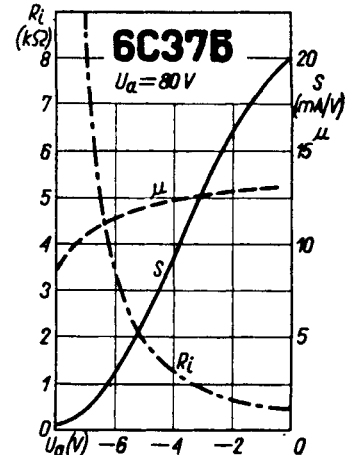
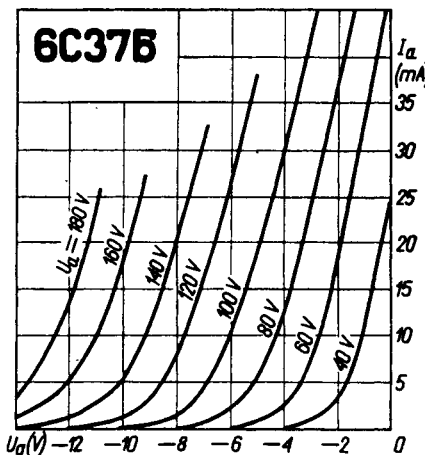
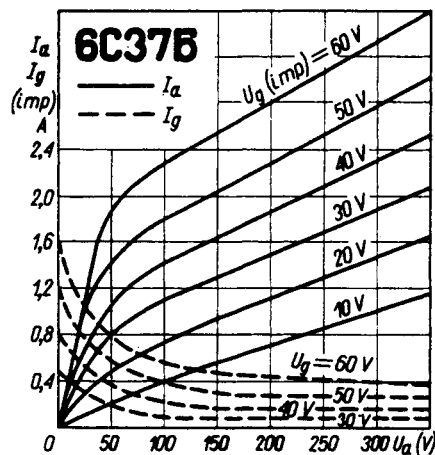
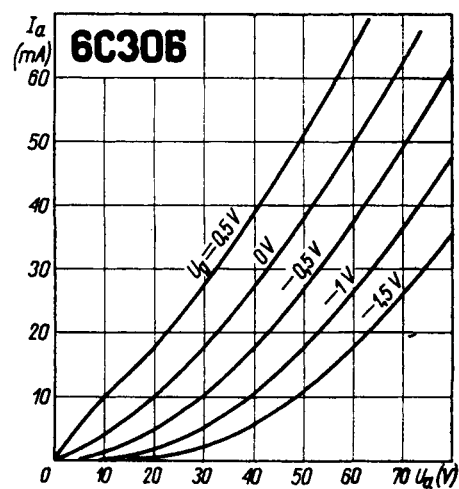
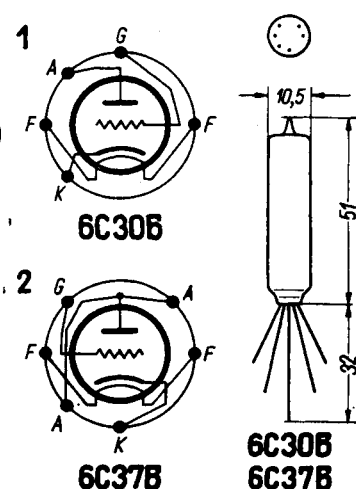
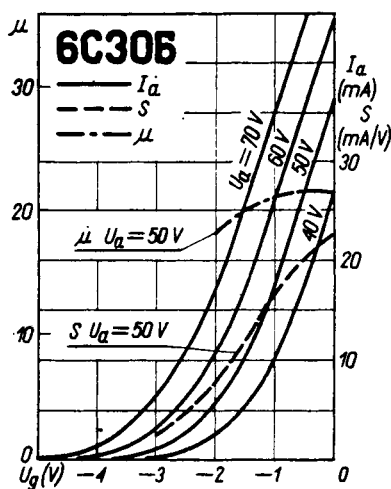


437A



T.		U_f V	I_f A	U_a V	I_a mA	S mA/V	μ V/V	R_i k Ω	R_{ik} Ω	$U_{f/k}$ V	I_k mA	P_a W
6 C 30 Б	СССР	1	6,3	0,425	50 200	40	21 17 maximum	800		250	60	5
6 C 37 Б	СССР	2	6,3	0,44	120 300	40	16,5 13 maximum	800	43	150	70	4,5

T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{f/k}$ pF
6 C 30 Б	7	1,5	5,8	7
6 C 37 Б	6	4,7	3,9	10



T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	I_g mA	S mA/V	μ V/V	R_i k Ω	P_{dr} W	P_o W	R_g M Ω	U_{fk} V	f MHz	P_a W
EC 90	eur	6,3	0,15	A A C-Tgr C-Tgr A	100 250 300 300 300	0 -8,5 -27 -50 -21	11,8 10,5 25	7 8	3,1 2,2	19,5 17	6,25 7,7	0,35 5,5	5,5	0,01	100 100	150 5	5 3,5
(EC 90 $\times 2 =$ ECC 82)		maximum maximum															

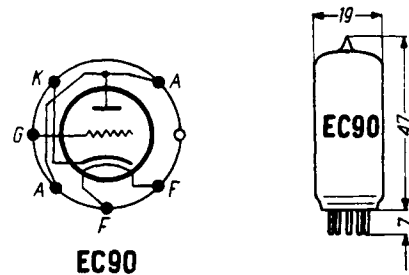
Equivalents

CK 6100 ¹⁾	Ray
CK 6135 ¹⁾	Ray
GL-6135 ¹⁾	GE
L 77	Eng
M 8080 ¹⁾	Mul
QA 2401 ¹⁾	Osr
QL 77 ¹⁾	Eng
6 C 4	amer
6 C 4-W ¹⁾	amer
6 C 4-WA ¹⁾	amer
6100 ¹⁾	amer
6135 ¹⁾	amar

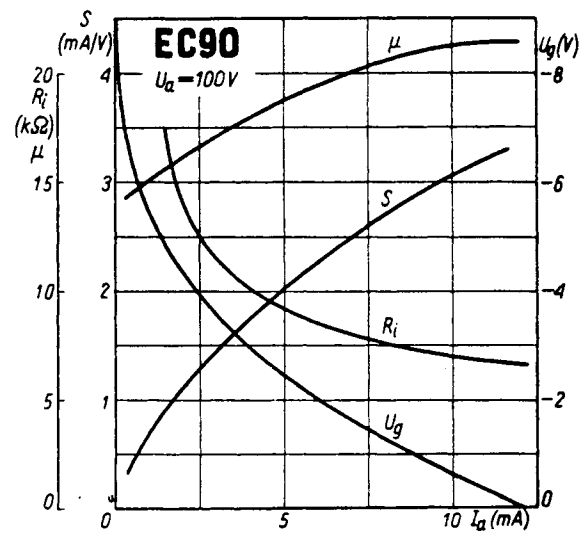
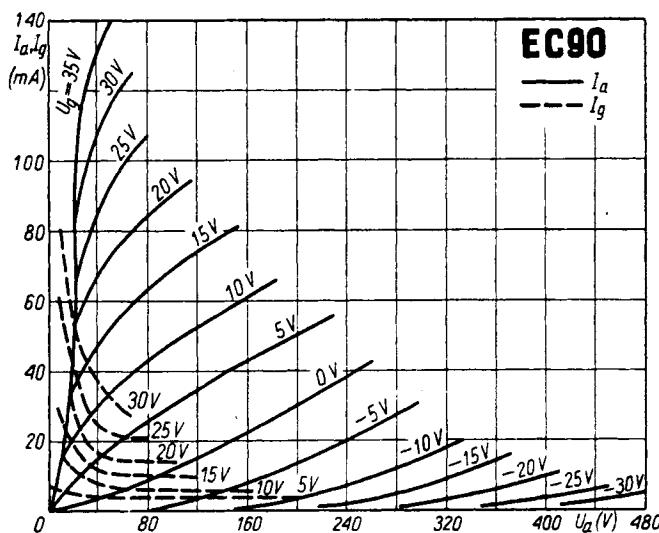
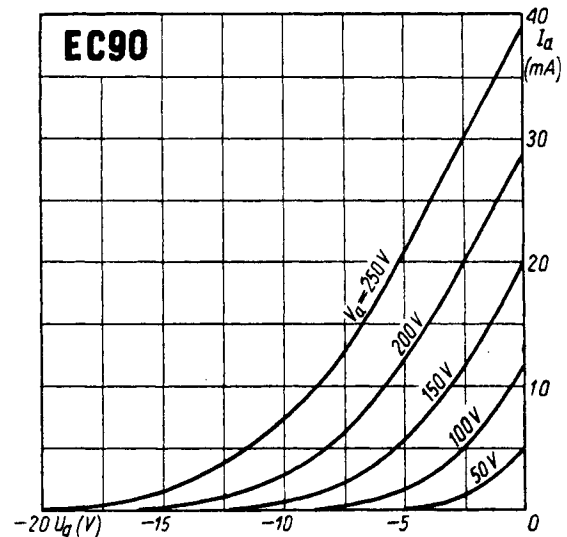
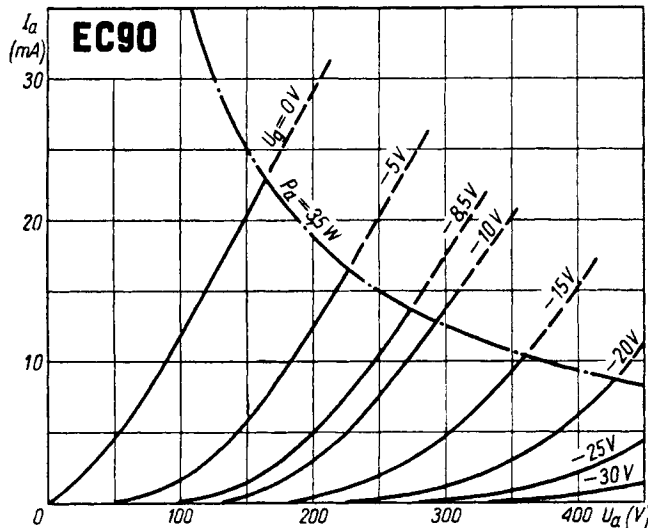
T.	C_g pF	C_a pF	$C_{g/a}$ pF	vide
EC 90	1,8	1,3	1,6	* 5
L 77	1,8	3	1,6	* 6
M 8080	1,7	2,6	2	* 6
6135	1,5	1,2	1,4	* 5
	1,5	0,7	1,4	* 5
	1,7	2,6	1,4	* 6

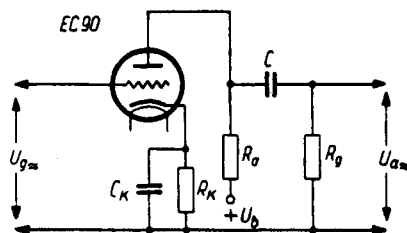
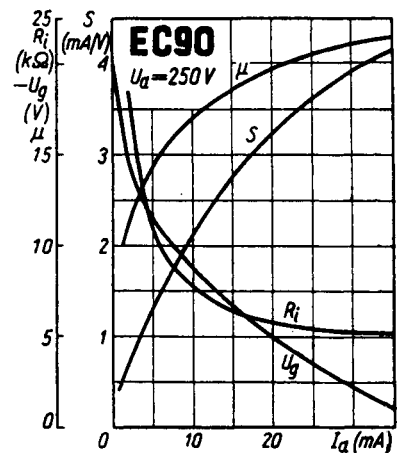
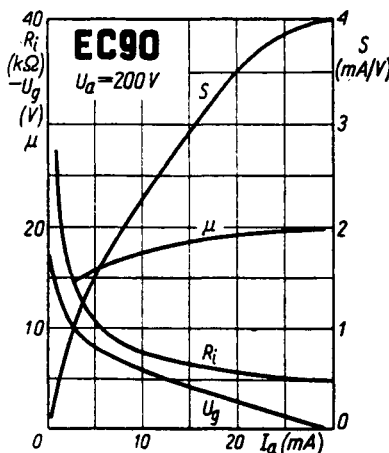
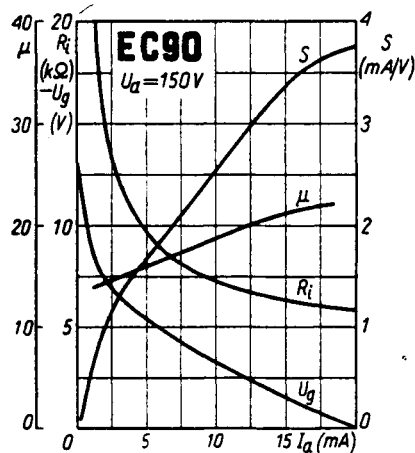
¹⁾ vide * 4, a, b, c, f, g ($U_f = 6,3V \pm 10\%$)

²⁾ $I_f = 0,175$ A



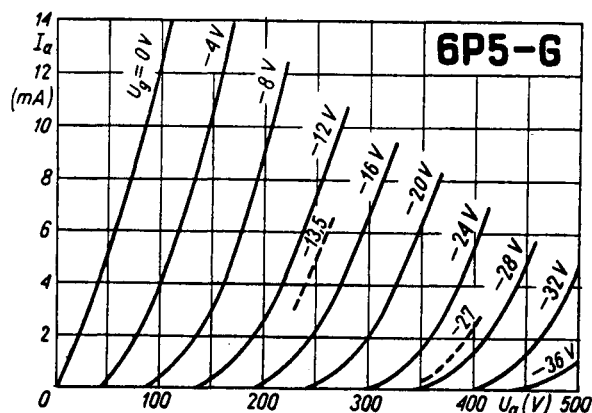
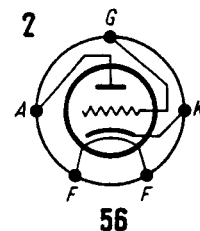
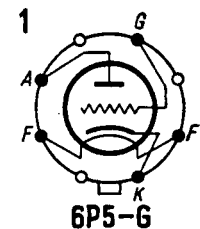
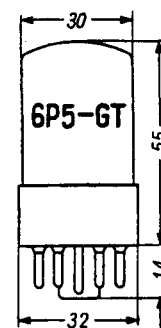
EC90





U_b	R_a	R_k	R_g	C	C_k	$U_{a\sim}$	μ
V	MΩ	kΩ	MΩ	μF	μF	V	V/V
90	0,047	2	0,22	0,015	2	14	11
90	0,1	4,5	0,47	0,007	1	18	11
90	0,22	11,5	1	0,0035	0,43	24	11
180	0,047	1,4	0,22	0,016	2,5	29	12
180	0,1	3,6	0,47	0,007	1,1	40	12
180	0,22	10	1	0,0035	0,48	54	12
300	0,047	1,5	0,22	0,016	2,4	68	12
300	0,1	4	0,47	0,007	1,1	80	12
300	0,22	11	1	0,0035	0,46	92	12

T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i
			V	A	V	V	mA	mA/V	V/V	kΩ
6 AE 5-GT	amer	1	6,3	0,3	95	-15	7	1,2	4,2	3,5
6 AF 5-G	amer	1	6,3	0,3	180	-18	7	1,5	7,4	4,9
6 P 5-G	amer	1	6,3	0,3						
12 E 5-GT	amer	1	12,6	0,15	100	-5	2,5	1,15	13,8	12
24/76	Eds	1	24	0,08	250	-13,5	5	1,45	13,8	9,5
56	amer	2	2,5	1	250					
56-A	amer	2	6,3	0,3						
37	inc	2	6,3	0,3	90	-6	2,5	0,8	9,2	11,5
					250	-18	7,5	1,1	9,2	8,4



Equivalents 37

37 A	amer
67	amer
67-A	amer
137-A	amer
237	amer
337	amer
4611	amer

Equivalents 56

A 256	Vis
G 56	amer
T 56	amer
27 H	amer
27 M	amer
56 S	amer
156	amer
247 M	amer
256	amer
356	amer

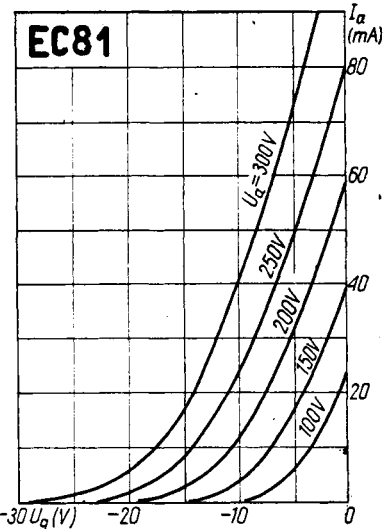
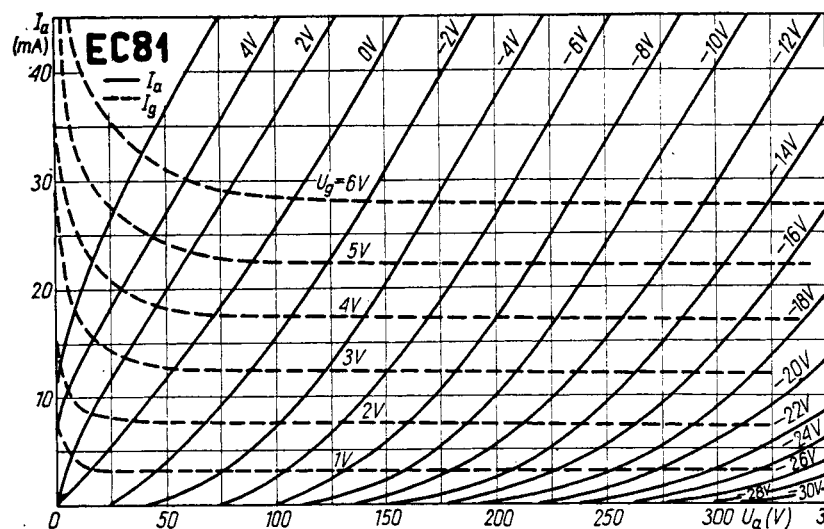
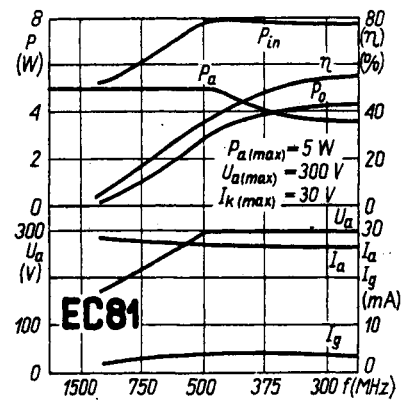
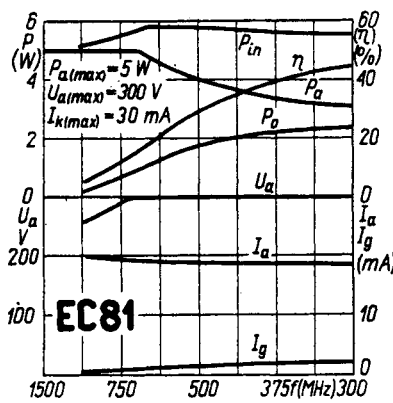
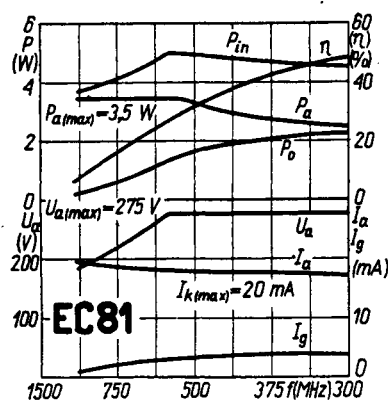
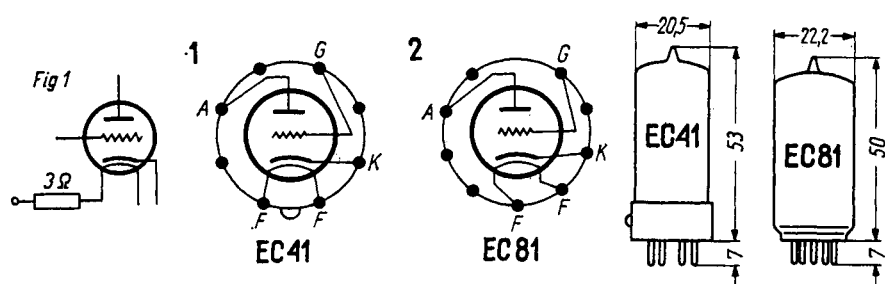
Equivalents 56-A

A 676	Vis
G 76	amer
T 76	amer
56-AS	amer
76	amer
86 M	amer
176	amer
276	amer
376	amer

T.		U_f V	I_f A	Cl.	f MHz	U_a V	U_g V	I_a mA	I_g mA	S mA/V	R_i kΩ	μ V/V	P_o W	$U_{f/k}$ V	I_k mA	P_a W
EC 41	eur	1	6,3	0,2	stat.	120	-2	20		4	4	16				
EC 81	eur	2	6,3	0,2		150	-2	30		4,5	3,5	16				
6 R 4	amer	2	6,3	0,2		275	-100	17,2	2,8				2,1			2,6
					Osc. ¹⁾	750		18,6	1,5				0,6			3,5
						275			7,5					100	20	3,5
					Osc. ²⁾	375		18,6	1,5				2,2			3,4
						750		19,6	0,4				0,7			5
					Osc. ³⁾	300	-100		7,5					100	20	5
						375		26,5	4				3,8			4,1
						750		27,7	2,3				1,1			5
						300	-100		7,5					100	30	5

¹⁾ vide Fig. 1; ²⁾ U_a stabil. $\pm 1\%$; ³⁾ U_f stabil. $\pm 3\%$

T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{g/f}$ pF
EC 41	1,65	1,25	1,75	
EC 81	1,8	0,7	1,6	0,25



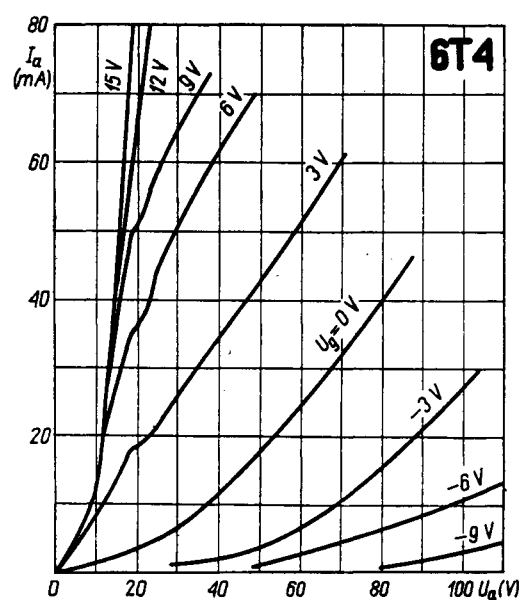
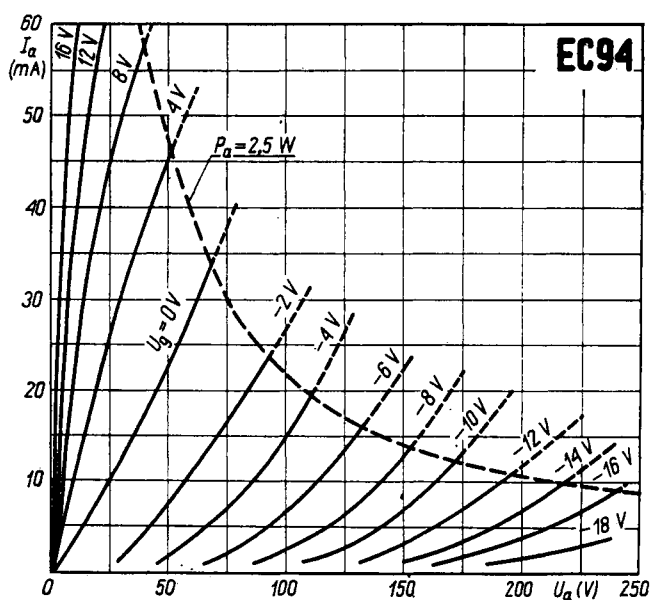
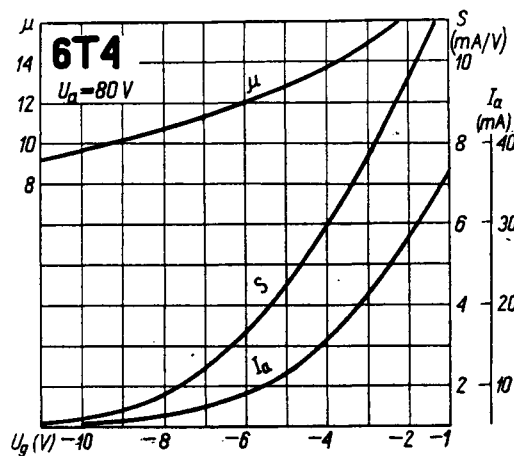
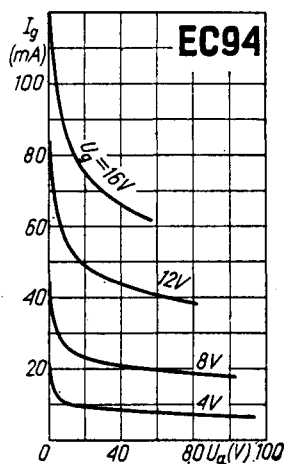
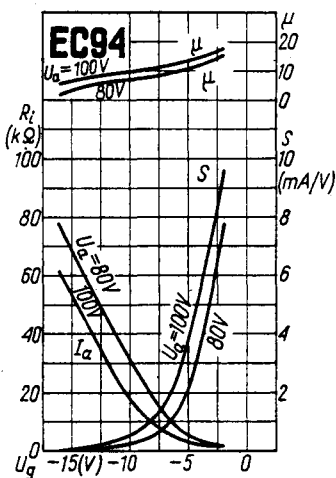
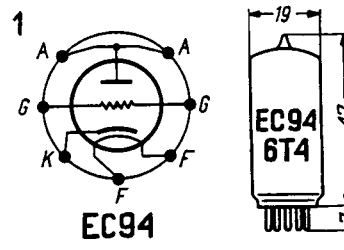
T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	I_g mA	S mA/V	R_i Ω	μ V/V	R_k Ω	P_o W	f MHz	U_f/k V	I_k mA	P_a W
2 AF 4	amer	1	2,35	0,6	{ A Osc ¹⁾	80	16		6,6	2270	15	150					
3 AF 4	amer	1	3,2	0,45		100	20		7,5	2130	16	150					
6 AF 4	int	1	6,3	0,225		100	22	0,4		220			0,16	950	50	28	2,5
						150	8			maximum				1000			
2 T 4	amer	1	2,35	0,6	{ A Osc ¹⁾	80	18		7	1860	13	150					
6 T 4	amer	1	6,3	0,225		80	18	0,4		maximum				950	50	30	3,5
						200	8							1000			

¹⁾ $R_g = 10 \text{ k}\Omega$

T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{a/k}$ pF	$C_{g/k}$ pF	$C_{f/k}$ pF	vide
6 AF 4	2,2	0,45	1,9				*5
6 T 4	2,6 3,3	0,4 2	1,7 1,7	0,24 0,22	2,4 2,4	3 3	*5 *6

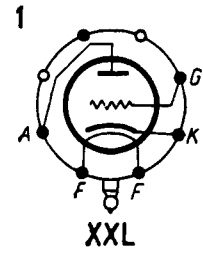
Equivalents

EC 94	eur = 6 AF 4
2 AF 4-A	amer = 2 AF 4
2 AF 4-B	amer = 2 AF 4
3 AF 4-A	amer = 3 AF 4
6 AF 4-A	amer = 6 AF 4



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	W
XXL	amer	1	6,3	0,3	250	-8	8	2,3	20	8,7	2,5
6 C 5	int	2	6,3	0,3	250	-8	8	2	20	10	2,5
6 J 7 ¹⁾	int	3	6,3	0,3	250	-8	6,5	1,9	20	10,5	1,75
6 L 5-G	amer	2	6,3	0,15	250	-9	8	1,9	19	10	2,5
6 S J 7 ²⁾	int	4	6,3	0,3	250	-8,5	9,2	2,5	19	7,6	2,5
5879 ³⁾	amer	5	6,3	0,15	250	-8	5,5	1,53	21	13,7	1,5

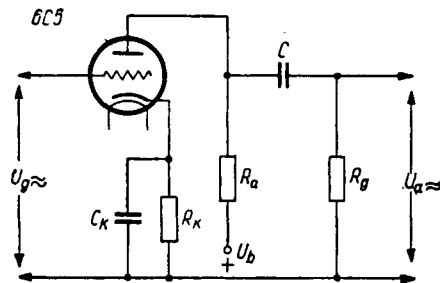
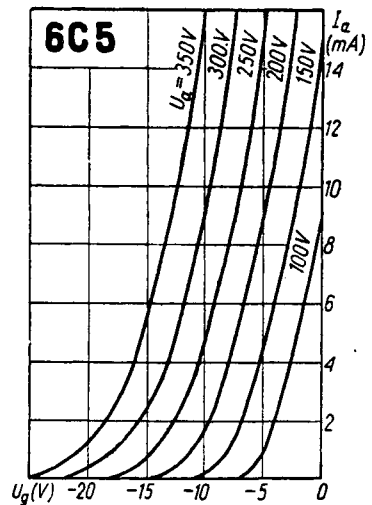
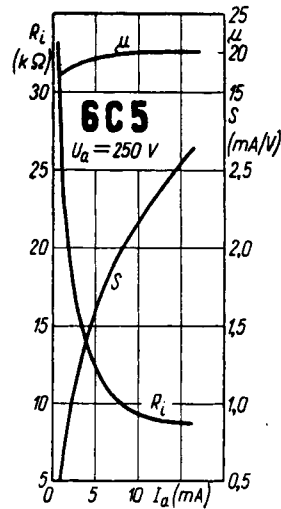
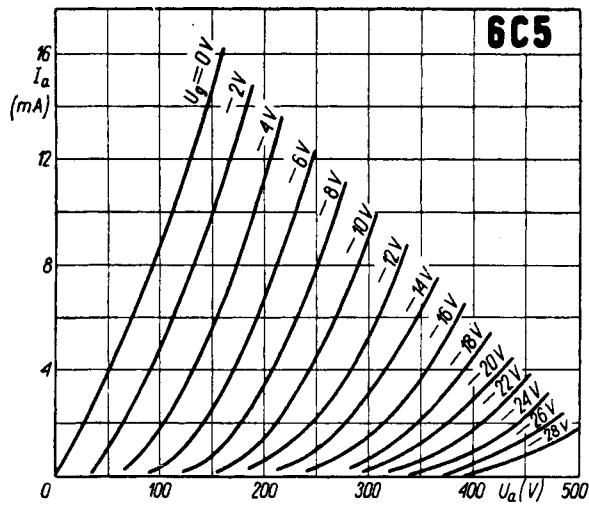
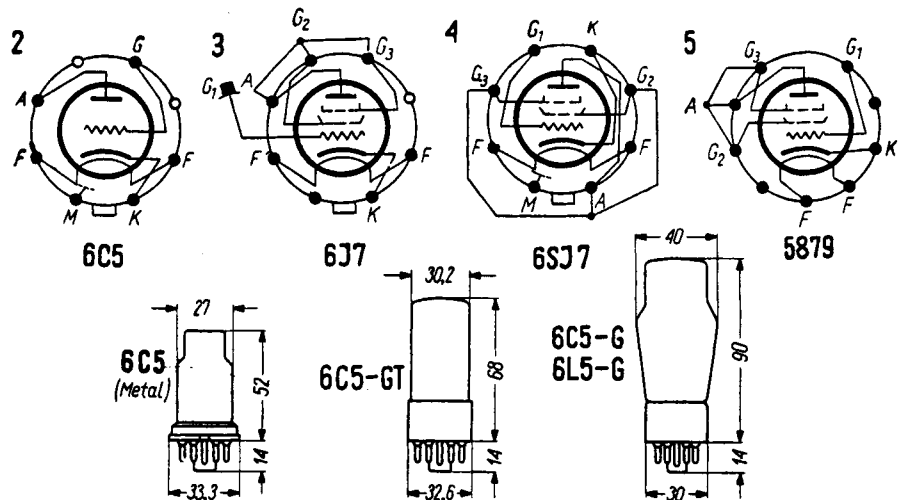
¹⁾ vide gr. 67; ²⁾ vide gr. 72; ³⁾ vide gr. 68



Equivalents 6 C 5

WT-390	WT
WT-210-0029	WT
6 C 5 C	CCCP
6 C 5-G	int
6 C 5-GM	Frc
6 C 5-GT	int
6 C 5 B	CCCP

T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
6 C 5	3	11	2
6 C 5 C	3,8	12	2
6 C 5-G	4	12	2,2
6 C 5-GT	4	12	2,2

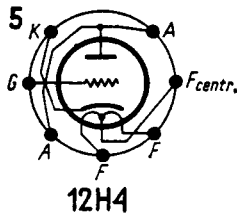


U_b	R_a	R_k	R_g	C	C_k	$U_{a\approx}$	μ
V	M Ω	k Ω	M Ω	μ F	μ F	V	V/V
90	0,05	3,8	0,25	0,01	1,3	20	10
90	0,1	7,5	0,5	0,005	0,66	23	12
90	0,25	17,3	1,0	0,004	0,33	26	13
180	0,05	3,1	0,25	0,015	1,85	54	11
180	0,1	6,2	0,5	0,008	1,2	55	13
180	0,25	14,7	1,0	0,004	0,47	59	13
300	0,05	3,1	0,25	0,015	2,2	83	12
300	0,1	6,0	0,5	0,008	1,17	88	13
300	0,25	14,0	1,0	0,003	0,37	97	14

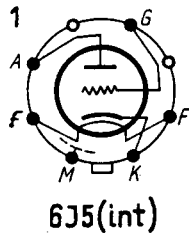
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	V	mA	W
6 J 5	int	1	6,3	0,3	90	0	10	3	20	6,7			
7 A 4	amer	3	6,3	0,3									
12 G 4	amer	4	12,6	0,15									
12 H 4	amer	5	6,3/12,6	0,3/0,15									
12 J 5-GT	int	1	12,6	0,15	250	-18	0,01	2,6	20	7,7			
14 A 4	amer	3	12,6	0,15	300								
maximum (6 J 5 $\times$ 2 = 6 SN 7)											100	20	2,5

Equivalents

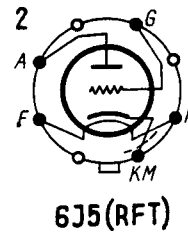
HF 3112	RFT = 6 J 5
L 63	Eng = 6 J 5-GT
OSW 3112	RFT = 6 J 5
WT-210-0088	WT = 6 J 5
WT-T-129	WT = 6 J 5
6 C 2	CCCP = 6 J 5-GT
6 C 2 C	CCCP = 6 J 5-GT
6 J 5-G	int = 6 J 5-GT
6 J 5-GTX	amer = 6 J 5-GT
6 J 5 m	RFT = 6 J 5
6 J 5 MG	Frc = 6 J 5-GT
6 J 5-WGT ¹⁾	amer = 6 J 5-GT
6 J 5	CCCP = 6 J 5-GT
6 J 5 M	CCCP = 6 J 5-GT
6 Z 5	Pol = 6 J 5-GT
12 C 2 C	CCCP = 12 J 5-GT
12 J 5-WGT ¹⁾	amer = 12 J 5-GT

¹⁾ vide * 4, a, b

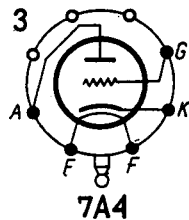
12H4



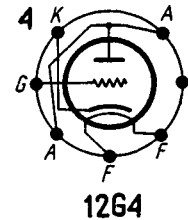
6J5(int)



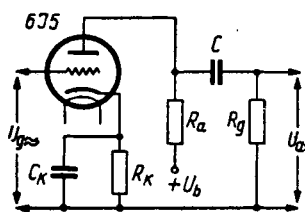
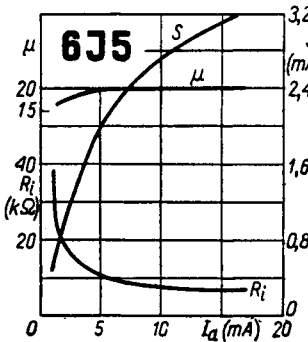
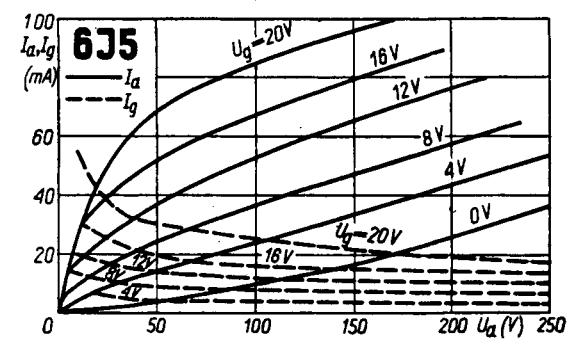
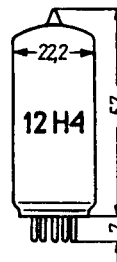
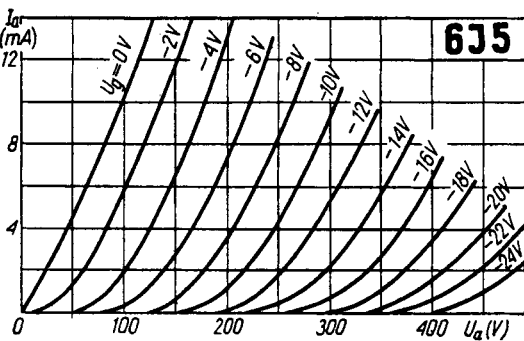
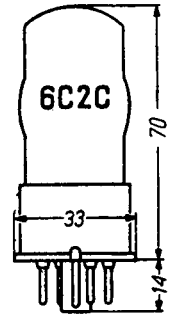
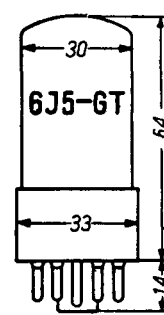
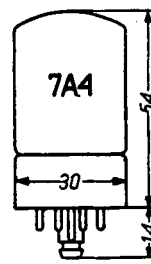
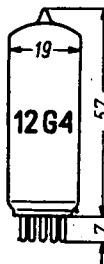
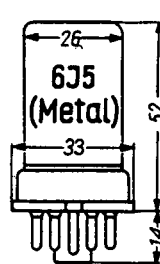
6J5(RFT)



7A4

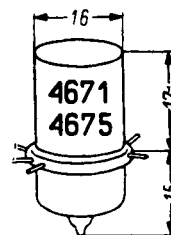


12G4



U_b	R_a	R_k	R_g	C	C_k	$U_{a\sim}$	μ
V	M Ω	k Ω	M Ω	μ F	μ F	V	V/V
90	0,05	2,38	0,25	0,012	1,95	17	13
90	0,1	4,42	0,5	0,007	1	19	13
90	0,25	10,69	1	0,004	0,47	20	13
180	0,05	1,74	0,25	0,011	2,06	36	13
180	0,1	3,23	0,5	0,006	1,15	38	14
180	0,25	8,11	1	0,004	0,5	40	14
300	0,05	1,5	0,25	0,012	2,15	60	14
300	0,1	2,7	0,5	0,006	1,2	64	14
300	0,25	6,95	1	0,004	0,54	64	14

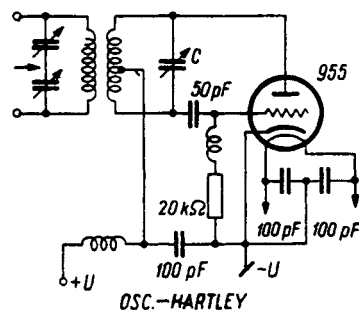
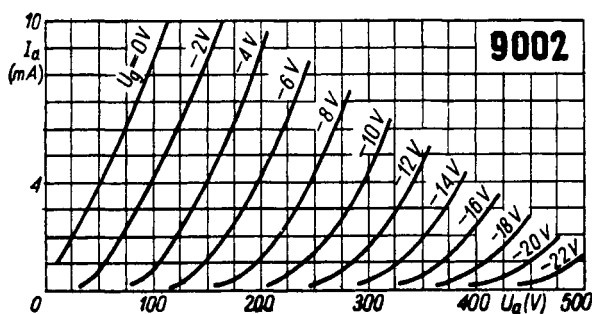
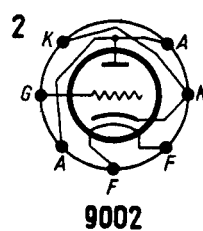
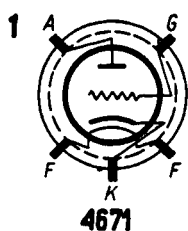
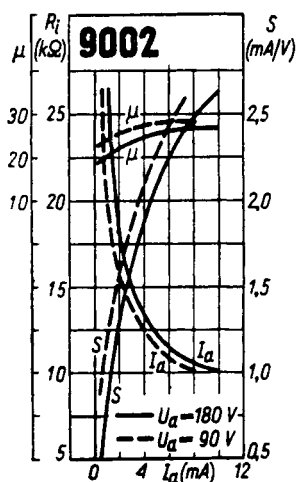
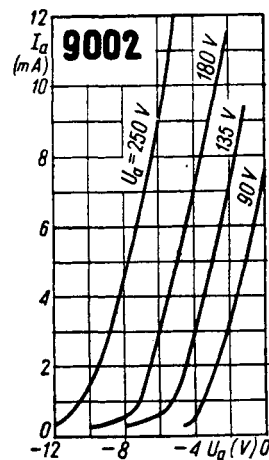
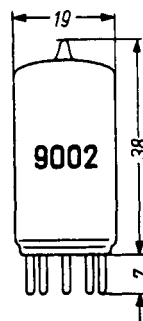
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_o	P_o	h	f	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	k Ω	mW	%	MHz	W
4671	eur	I	6,3	6,3	90	-2,5	2,5	1,7	25	14,7					
4675	eur	I	4	0,25	135	-3,75	3,5	1,9	25	13,3					
9002	int	2	6,3	0,15	180	-5	4,5	2	25	12,5	20	135	5		
					250	-7	6,3	2,2	25	11,4				500	1,6
					250				maximum						



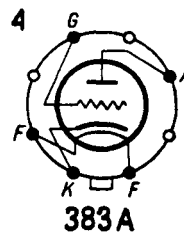
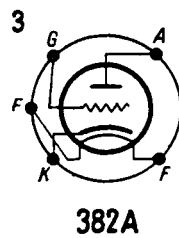
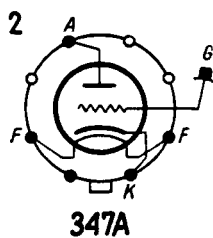
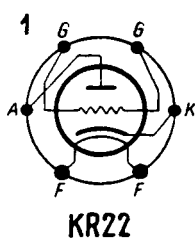
Equivalents

A 40	Maz = 4675
AT 4	Mul = 4675
E I C	Phi = 4671
Z I	Tif = 4675
6 C I II	CCCP = 9002
6 C I Ж	CCCP = 4671
6 C 8 II	CCCP = 9002
955	amer = 4671
1650	amer = 4671
5731	amer = 4671

T.	C_g	C_g	$C_{al a}$
	pF	pF	pF
6 C I Ж	1	0,6	1,4
6 C I II	1,38	1,1	1,35
4671	1	0,6	1,4
9002	1,2	1,1	1,4



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i
			V	A	V	V	mA	mA/V	V/V	k Ω
KR 22	amer	I	6,3	0,4	250	0	3,5	1,4	14	10
69	amer	I	6,3	0,4	180	-3	4,5	1,45	30	20,7
70	amer	I	6,3	0,3	180	-6	2,3	0,5	15	30
347 A	WE	2	6,3	0,5	135	-4,5	2,7	0,9	15,7	17,5
382 A	WE	3	6,3	0,15	120		4,5	2,8	25	9
383 A	WE	4	6,3	0,15	200					
							maximum			



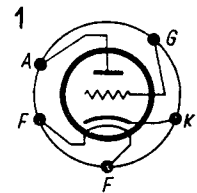
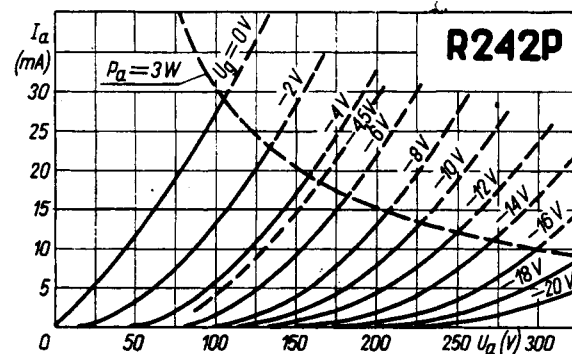
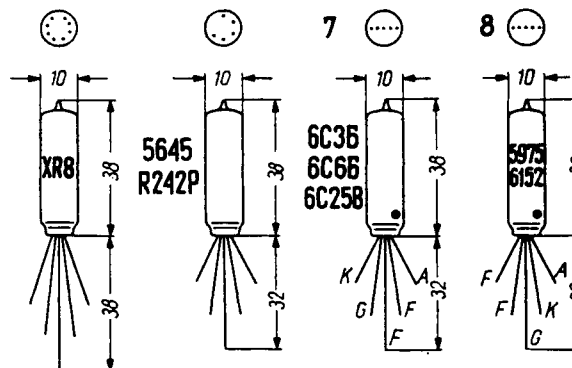
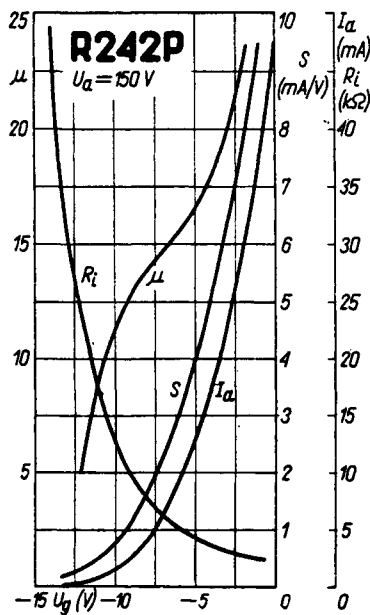
T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	Ω	V	mA	W
R 242 P	RT	1	6,3	0,15	150 165	-4,5	15	4,25 maximum	17	4		180	22	3
X R 8	Hiv	2	6,3	0,15	100 190	-2,5	8	4,2 maximum	20	4,75			20	3
6 AK 4	amer	3	6,3	0,125	200	-6,5	9,5	3,8	20	5,3	680			
6 C 3 B	CCCP	7	6,3	0,15	270 300		8,5	2,2 maximum	14	6,37	1500			2,5
6 C 6 B	CCCP	7	6,3	0,2	120 250	-2	9	5 maximum ($f = 500$ MHz)	25	5	220	150	14	1,4
6 C 25 B	CCCP	7	6,3	0,22	120 250		8	5 maximum	29		220	150	15	1,4
6 C 34 A	CCCP	6	6,3	0,127	100 200	-50	8,5	4,6 maximum	25		120	150	15	1,1
5610	GE	4	6,3	0,15	90	-1,5	17	4	14	3,5				
5645	amer	5	6,3	0,15	100		5	2,7	20	7,4	560			
5975	Ray	8	6,3	0,175	100		10	5,1	17,5	3,5	270			
6152 ¹⁾	Ray	8	6,3	0,2	200 250	-8	12	4 maximum	15,5	4	680		22	3,3
5977 ¹⁾	amer	3	6,3	0,15	100	-2,7	10	4,5	16	3,4	270			
6946 ¹⁾	Syl	3	6,3	0,175	100		9	3,8	16,5	4,34	270			

¹⁾ vide * 4,a,b,c = 10.000,d,e,f; ²⁾ vide * 4,a,b,c = 5000,e; ³⁾ vide * 4,a,b,d,e; ⁴⁾ vide * 4,b; ⁵⁾ $I_k(\text{impulse}) = 0,8\text{A}$

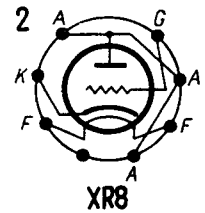
T.	C_g	C_a	$C_{g/a}$	$C_{k/f}$	vide
	pF	pF	pF	pF	
R 242 P	3,6	3	1,5		* 5
6 AK 4	2,2	2,2	1,3		* 5
6 C 3 B	2,5	3,9	1,6	3,5	* 6
6 C 6 B	3,3	3,5	1,42	3,8	* 6
6 C 25 B	3,3	3,5	1,8	3	* 6
6 C 34 A	2	2,3	1,6	4	* 5
5645	2,4	3,4	1,2		* 5
5703	2,7	2,1	1,15		* 5
5977	2	2,2	1,3		* 5
6152	2,9	1,2	1,32		* 5
6946	1,6	0,75	1		* 5

Equivalents

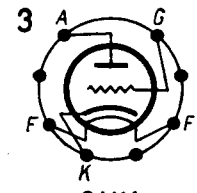
CK 608 CX	Ray	= 6 C 6 B	6 C 6 B-B ³⁾	CCCP = 6 C 6 B
CK 5703	Ray	= 6 C 6 B	6 C 6 B-H ³⁾	CCCP = 6 C 6 B
CK 5703 WA ¹⁾	Ray	= 6 C 6 B	6 C 26 B-K ⁴⁾	CCCP = 6 C 6 B
CK 5975	Ray	= 5975	6 C 34 A-B ³⁾	CCCP = 6 C 34 A
CK 6152 ¹⁾	Ray	= 6152	5997	amer = 5977
SN 957 A ¹⁾	Syl	= 5645	6149	amer = 6 C 6 B
6 C 1 B	CCCP	= 6 C 6 B		



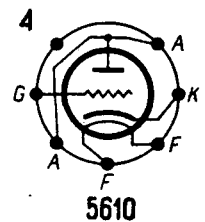
R242P



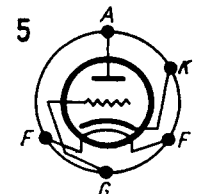
XR8



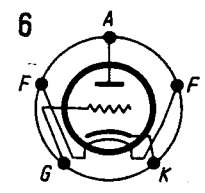
6AK4



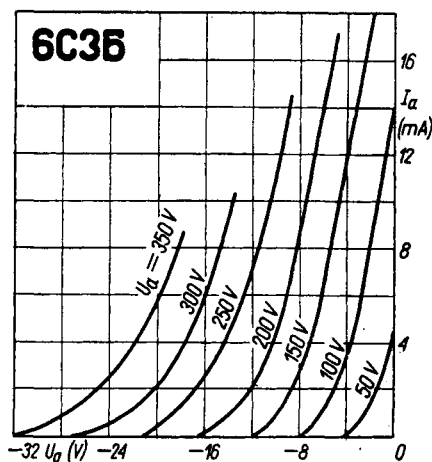
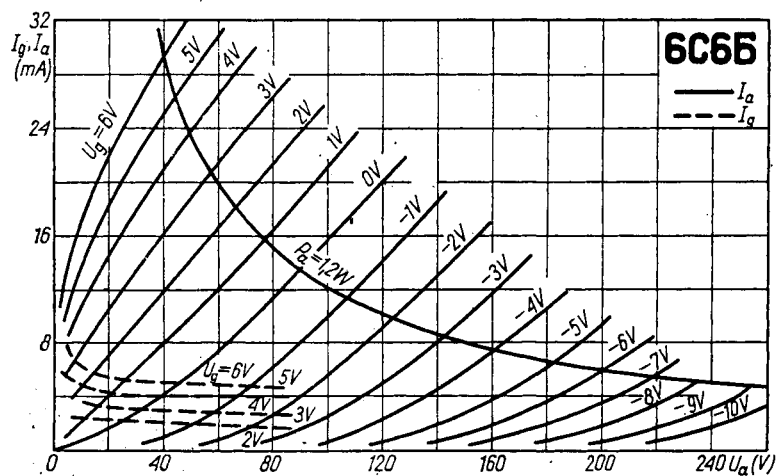
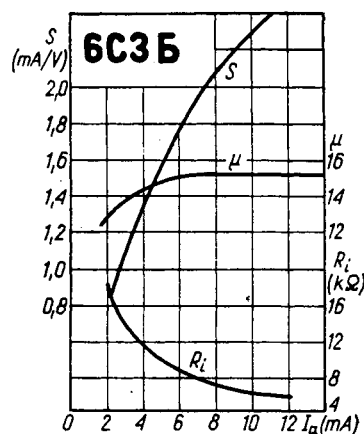
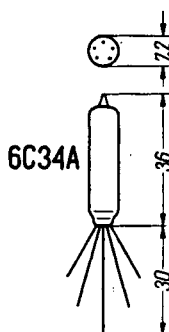
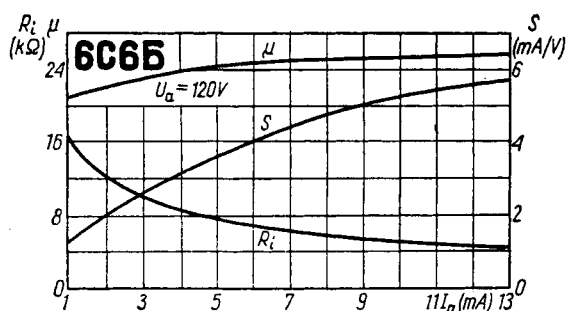
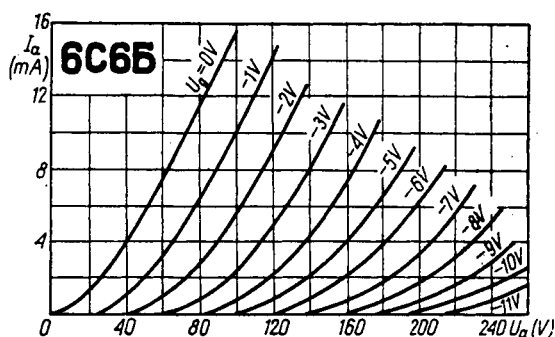
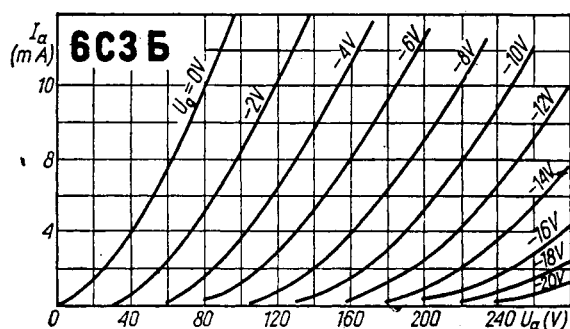
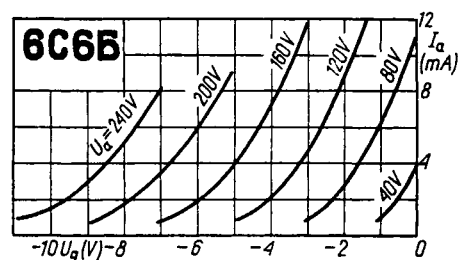
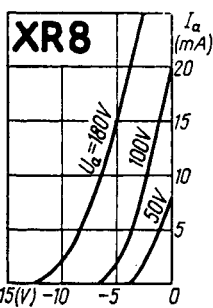
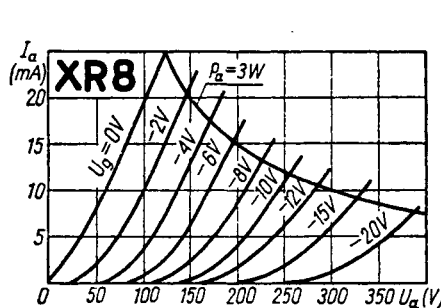
5610

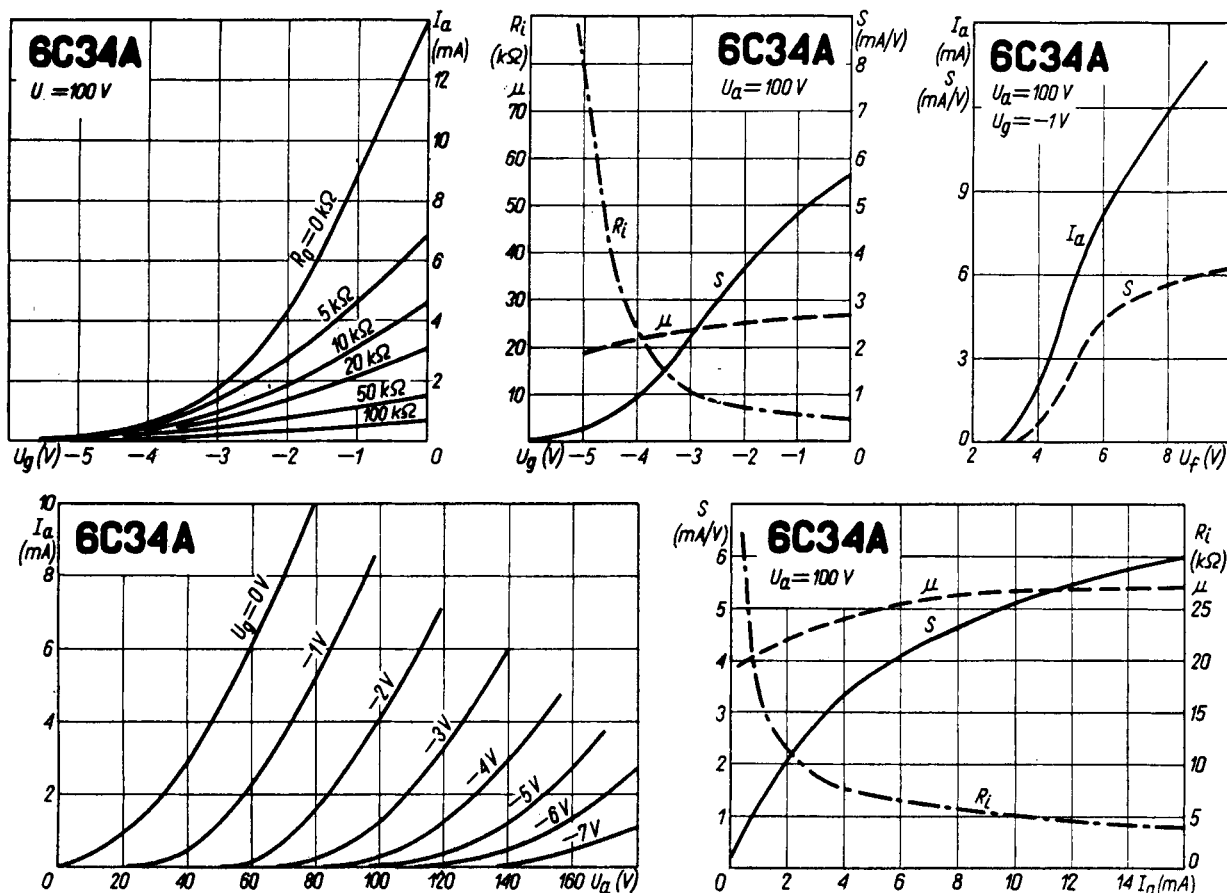


5645



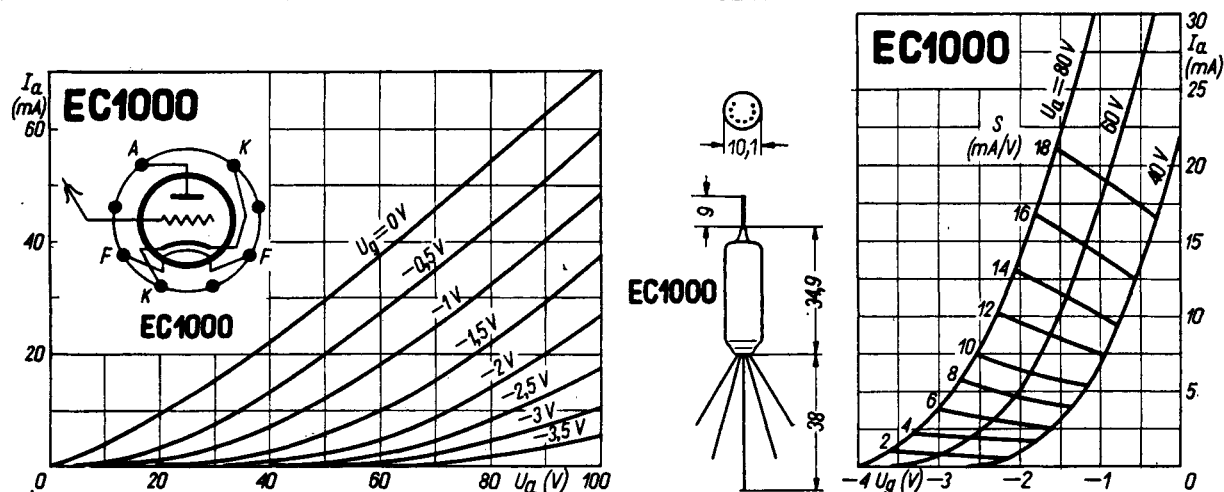
6C34A





T.		U_f V	I_f mA	U_a V	U_g V	I_a mA	S mA/V	μ V/V	U_f/k V	I_k mA	P_a W
EC 1000	Ph1	6,3	185	$\begin{cases} 80 \\ 110 \end{cases}$	$\begin{cases} -2 \\ -55 \end{cases}$	14	$\begin{cases} 14,5 \\ \text{maximum} \end{cases}$	24	55	22	1,5

$C_{g/k}$	$C_{a/k}$	$C_{g/a}$	$C_{g/f}$	$C_{a/f}$
pF	pF	pF	pF	pF
3,5	0,5	1,9	0,05	0,3



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	f	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	Ω	MHz	V	mA	W
EC 70	eur	1	6,3	0,15	100	—	2	13	5,5	20	3,6	150			
6 K 4	amer	2	6,3	0,15	175				maximum			500	100	22	3
EC 71	eur	3	6,3	0,15	100	— 1,3	8,5	5,8	27	4,65	150				
EC 760	RFT	1	6,3	0,15	150	— 2,2	13	6,5	27	4,15	180				
					165	— 55			maximum			500	200	22	3,3
EF 95 ¹⁾	eur	4	6,3	0,175	120	— 2,65	10	6	30	5	265				
6026	RCA	5	6,3	0,2	120	— 2,5	12	5,9	24	4	220				
					150	— 50			maximum			400	200		3
6814 ²⁾	amer	3	6,3	0,15	100	— 1,5	10	6	29	4,8	150				
					275	— 55			maximum			200	22		2,2
					600	— 220			maximum, impulse = 10 μ sec.				440		

¹⁾ vide gr. 92

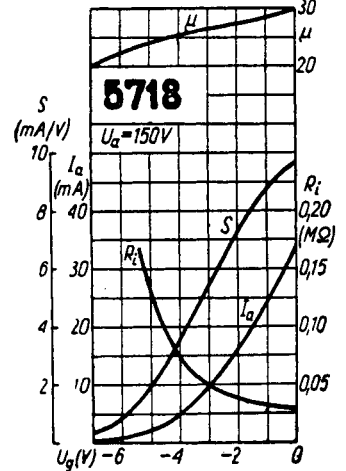
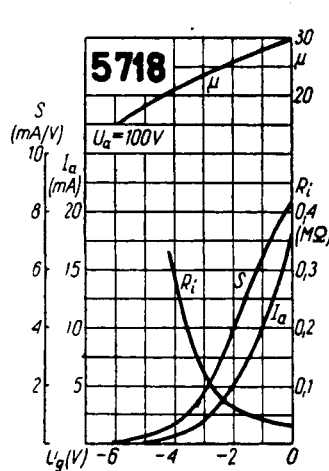
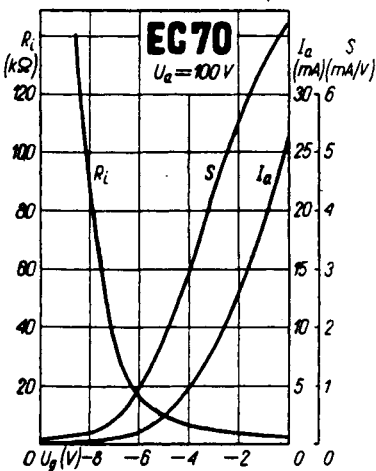
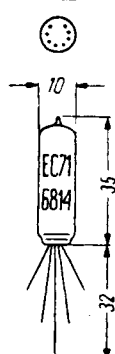
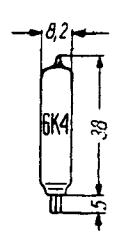
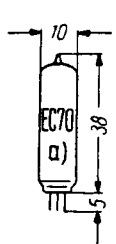
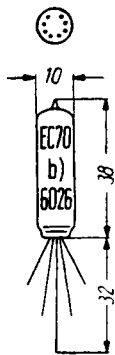
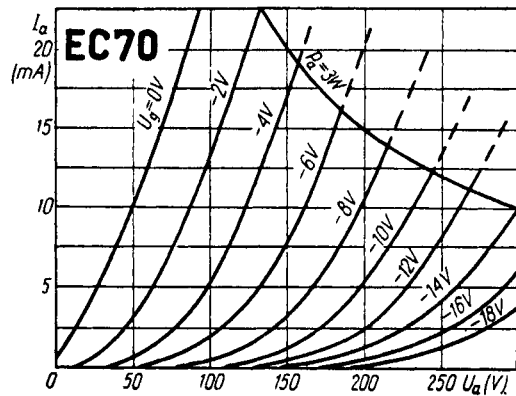
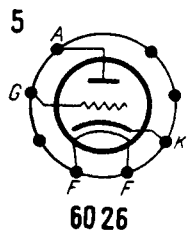
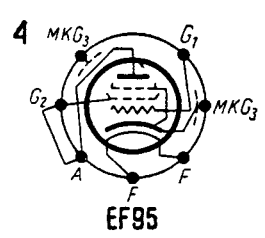
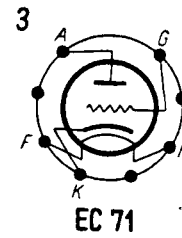
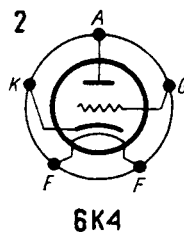
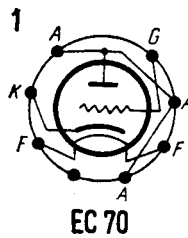
²⁾ $U_f = 5,2 \div 6,6$ V vide *4,a,b,c=5000,e

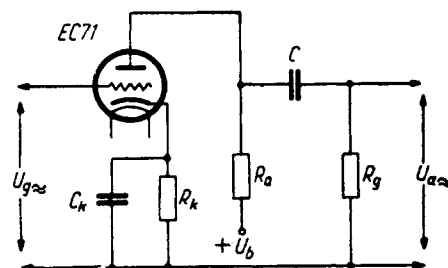
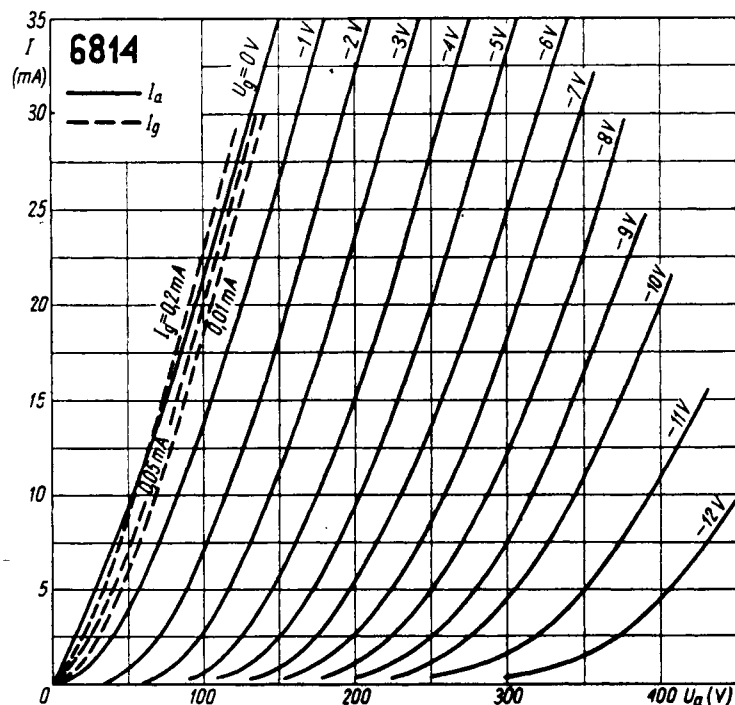
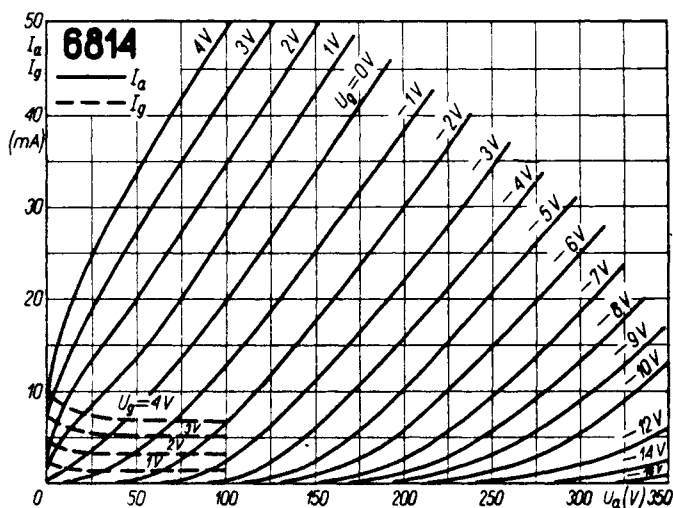
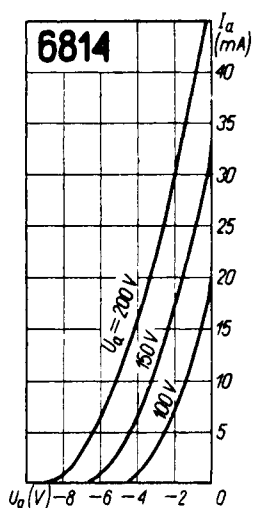
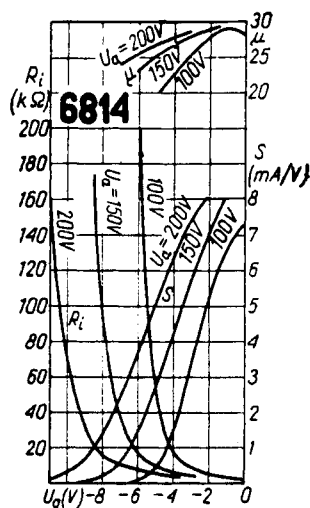
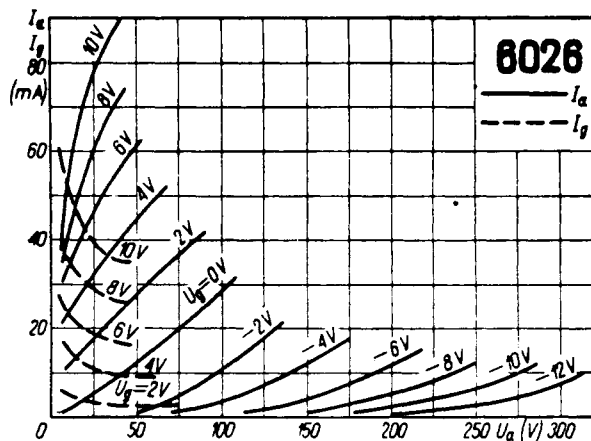
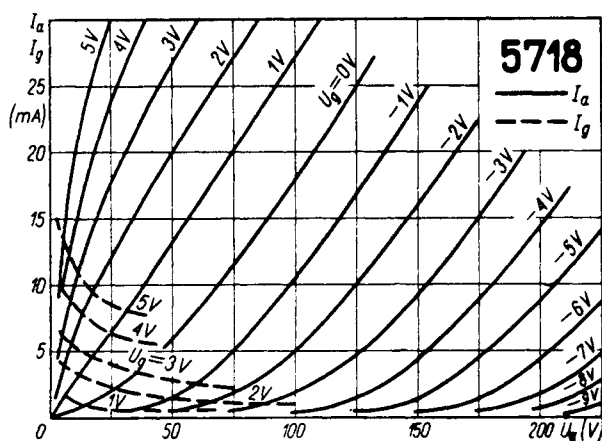
³⁾ vide 4, a, b, c, d, e, f ($U_f = 6,3 \pm 5\%$)

Equivalents

SD 993 C ³⁾	Syl = EC 71
SN 979 D ³⁾	Syl = EC 70
5718-A ³⁾	RCA = EC 71
5897 ³⁾	amer = EC 71
6778	amer = EC 70

T.	C_g	C_a	$C_{g/a}$	vide
	pF	pF	pF	
EC 70	{ 1,7 1,8	0,6	2,1	* 5 * 6
EC 71	{ 2,3 2,4	0,8	1,3	* 5 * 6
EC 760	1,7	0,6	1,9	* 5
6026	2,2	0,38	1,3	* 5
6814	{ 2,4 2,2	2,4	1,4	* 6 * 5
		0,7	1,3	* 5





U_b	R_a	R_k	R_g	$U_{g\approx}$	$U_{a\approx}$	μ	h
V	MΩ	kΩ	MΩ	V	V	V/V	%
100	0,047	1,0	0,1	0,5	8,2	16,4	3,9
		1,2	0,27	0,5	8,5	17,0	3,2
		1,0	0,1	0,59	9,7	16,4	4,5
		1,2	0,27	0,7	11,7	16,8	4,7
100	0,27	6,8	0,27	0,5	7,3	14,6	3,4
		8,2	0,47	0,5	7,4	14,8	2,8
		6,8	0,27	0,75	11,0	14,6	5,0
		8,2	0,47	0,86	12,7	14,8	5,0
200	0,047	0,82	0,1	1,0	19,0	19,0	4,0
		1,0	0,27	1,0	19,5	19,5	3,3
		0,82	0,1	1,23	23,4	19,0	5,0
		1,0	0,27	1,45	28,0	19,3	5,0
200	0,27	4,7	0,27	1,0	16,2	16,2	3,8
		5,6	0,47	1,0	16,2	16,2	3,2
		4,7	0,27	1,34	21,6	16,1	5,1
		5,6	0,47	1,58	25,0	15,8	5,1

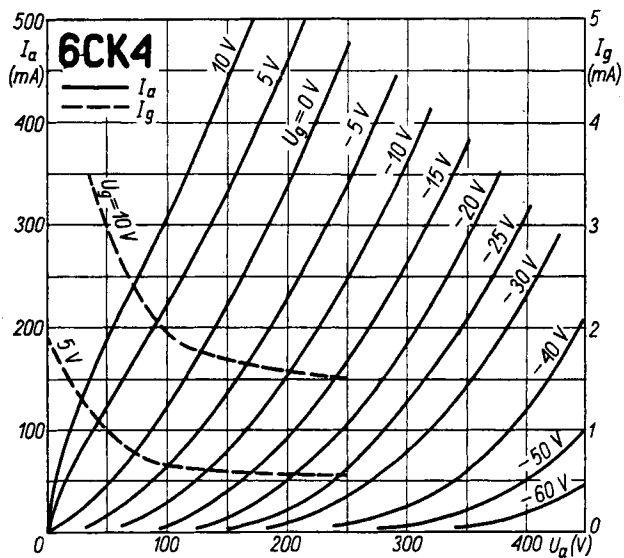
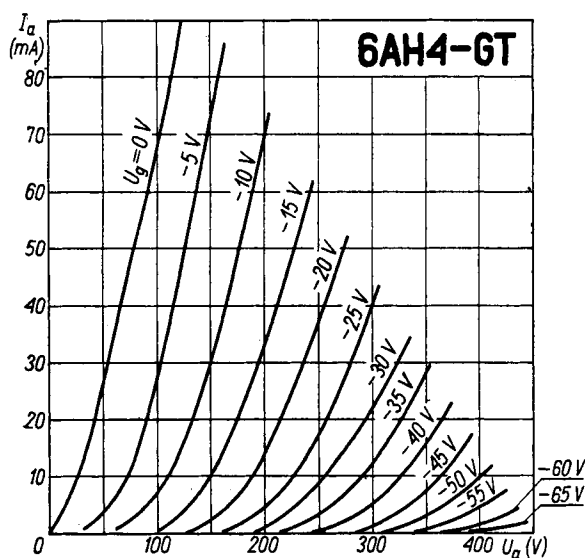
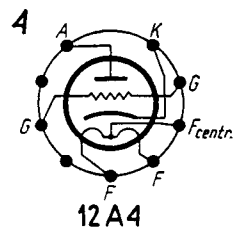
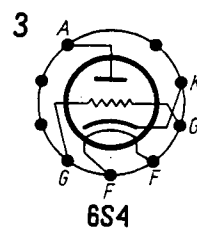
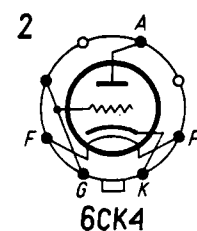
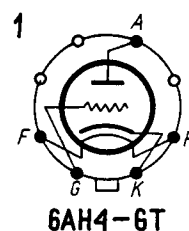
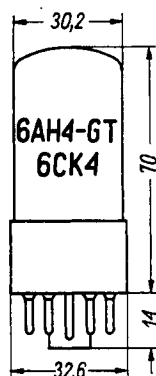
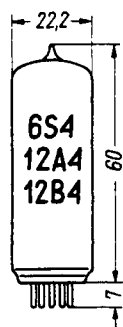
T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	S mA/V	R_t k Ω	μ V/V	U_{fk} V	I_k mA	P_a W
6AH 4-GT	amer	1	6,3	0,75	stat. VD	{ 250 500 2000	- 23 -200	30 maximum peak ¹⁾	4,5 1,78	8	100 200	60 180	7,5
6CK 4	amer	2	6,3	1,25	stat. VD	{ 250 550 2000	- 28 -250	40 maximum peak ¹⁾	5,5 1,2	6,6	100 200	100 350	12
6S 4	int.	3	6,3	0,6	stat. VD	{ 250 550 2200	- 8 -250	24 maximum peak ¹⁾	4,5 3,7	16,5	100 200	30 105	8,5
12A 4	amer	4	6,3/12,6	0,6/0,3	stat. VD	{ 250 450 1000	- 9 -250	23 maximum peak ¹⁾	8 2,5	20	100 200	40 105	6
12B 4	amer	4	6,3/12,6	0,6/0,3	stat. VD	{ 150 550 1000	-17,5 -250	34 maximum peak ¹⁾	6,3 1,03	6,5	100 200	30 105	6

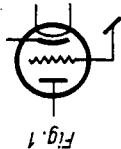
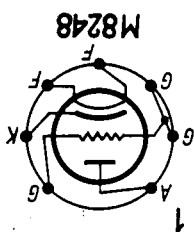
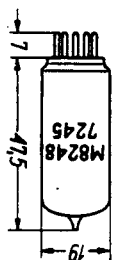
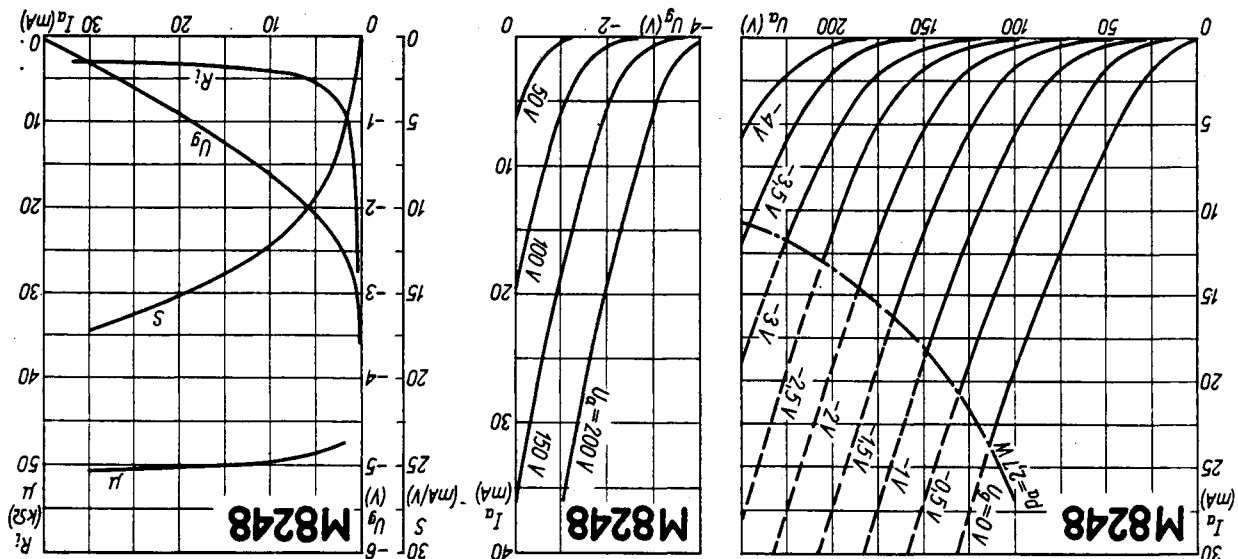
¹⁾ Impulse $\leq 2,5$ msec.

T.	C_g pF	C_a pF	$C_{g/a}$ pF
6AH 4-GT	7	1,7	4,4
6CK 4	8	1,8	6,5
6S 4	4,2	0,6	2,4
12A 4	4,9	0,9	5,6
12B 4	5	1,5	4,8

Equivalents

6S 4-A	amer = 6S 4
12A 4-A	amer = 12A 4
12B 4-A	amer = 12B 4





T.	M 8248		7245	
	Ca/k	Ck/g	Ca/k	Ck/g
1)	0.08	2.8	0.08	2.8
2)	3.8	3.8	3.8	3.8
3)	4	3	4	3
4)	2.8	2.8	2.8	2.8
5)	9.5	9.5	9.5	9.5
6)	PF	PF	PF	PF
7)	wide	wide	wide	wide

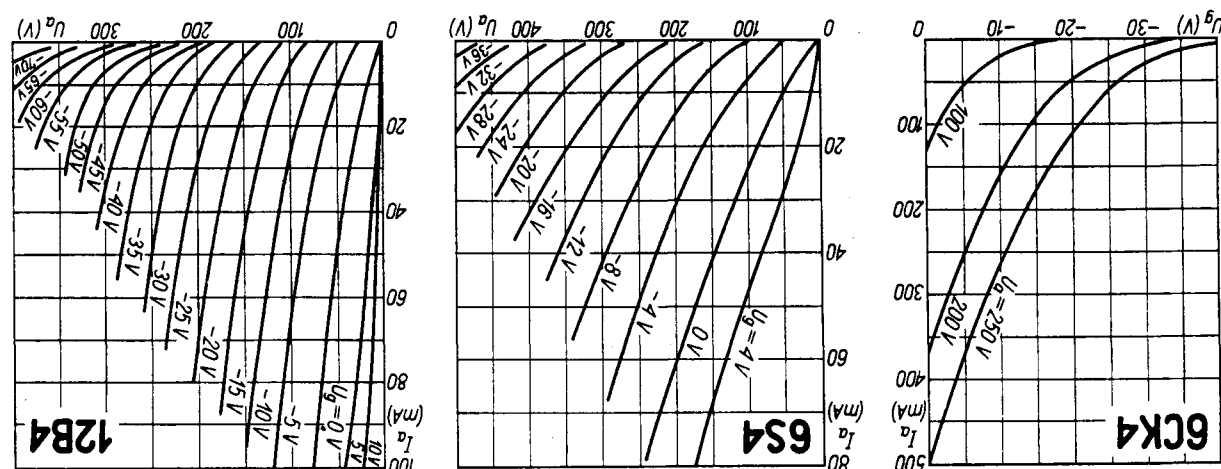
1) wide: 4: $U_g = 6.3 \pm 0.3V$

T.	EC 98		M 8248		7137		7245	
	eur	Mul	armet	armet	armet	armet	armet	armet
1)	1	1	1	1	1	1	1	1
2)	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
3)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
4)	150	150	150	150	150	150	150	150
5)	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
6)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
7)	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
8)	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
9)	50	50	50	50	50	50	50	50
10)	0	0	0	0	0	0	0	0
11)	90	90	90	90	90	90	90	90
12)	20	20	20	20	20	20	20	20
13)	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7

40

C

40



39

C

39

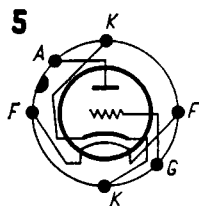
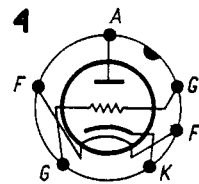
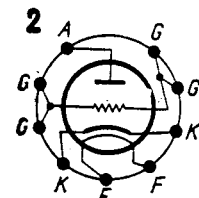
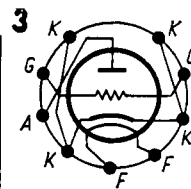
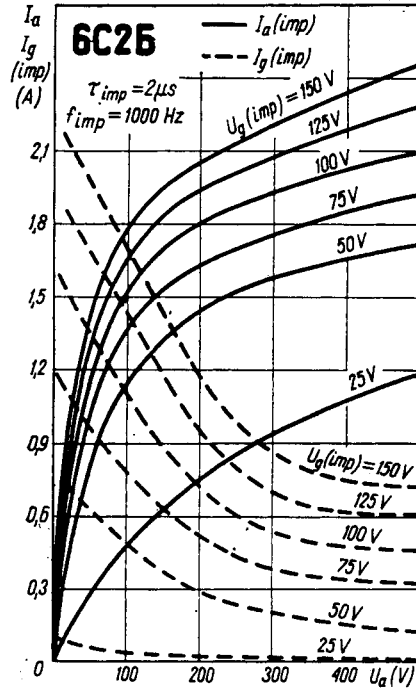
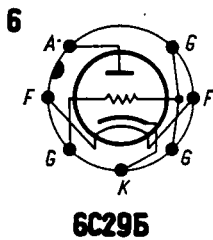
T.		U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	U_f/k	I_k	P_a
		V	A	V	V	mA	mA/V	V/V	k Ω	Ω	V	mA	W
6C2Б	CCCP	4	6,3	0,25	150 250	-1,5 -50	11,5	11 maximum	50	5,55	165	40	2,5
6C3П	CCCP	1	6,3	0,3	150		16	19,5	50	2,56	100		
6C4П	CCCP	2	6,3	0,3	160	-100		maximum			100	35	3
6C15П	CCCP	3	6,3	0,44	150 150		40	45	52	1,15	30	52	7,8
6C28Б	CCCP	5	6,3	0,31	120		16	19	40	2,56	100		
6C29Б	CCCP	6	6,3	0,31	150	-50		maximum			100	35	2,4

Equivalents

6C2Б-Б ¹⁾	CCCP = 6C2Б
6C15П-Б ²⁾	CCCP = 6C15П
6C28Б-Б ¹⁾	CCCP = 6C28Б
6C29Б-Б ¹⁾	CCCP = 6C29Б

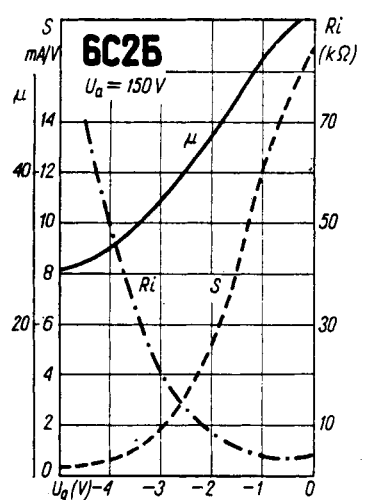
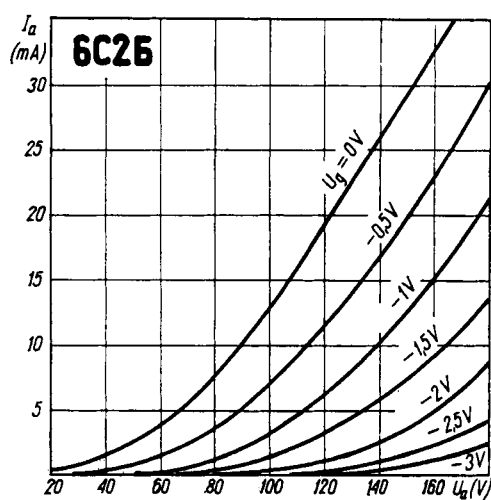
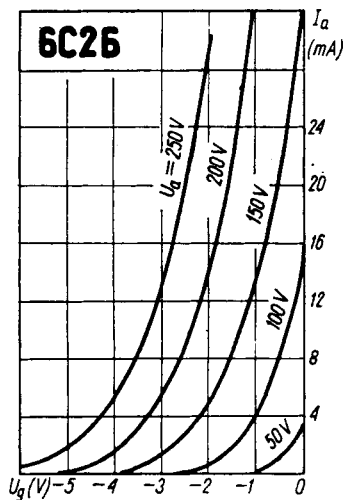
¹⁾ vide* 4, a, b, d, e; ²⁾ vide* 4, c = 5000, d

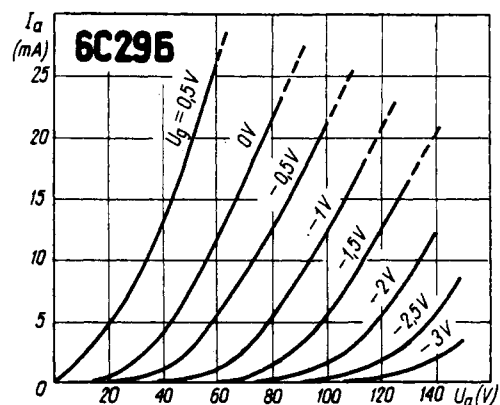
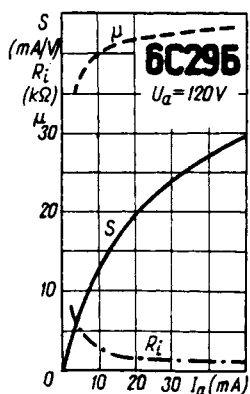
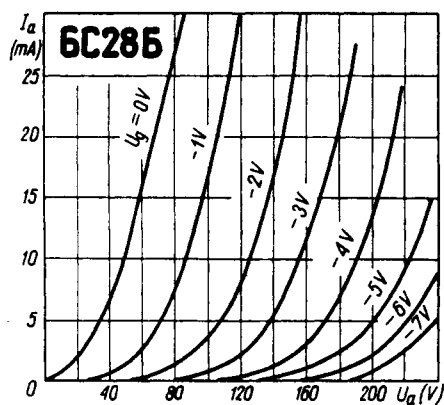
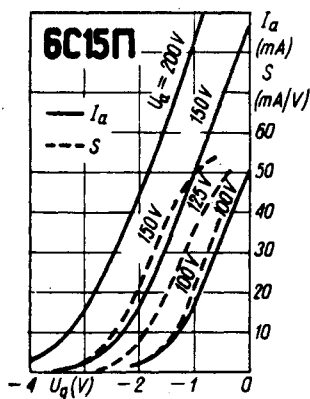
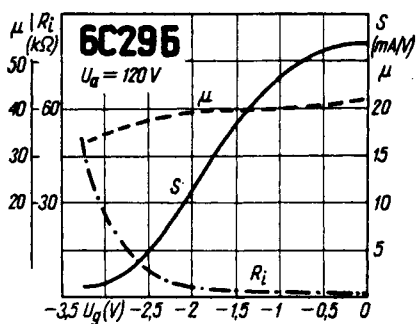
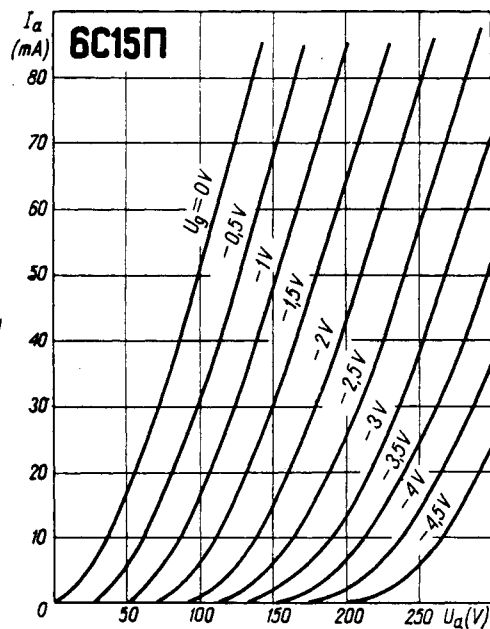
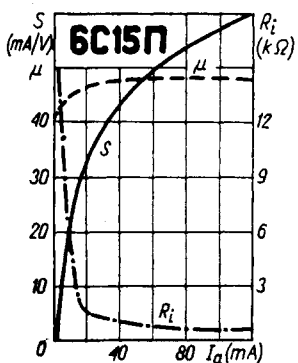
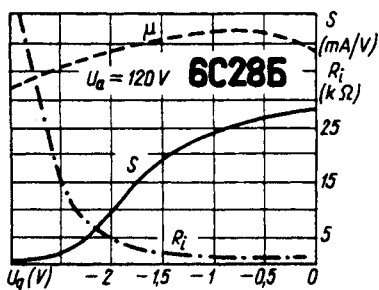
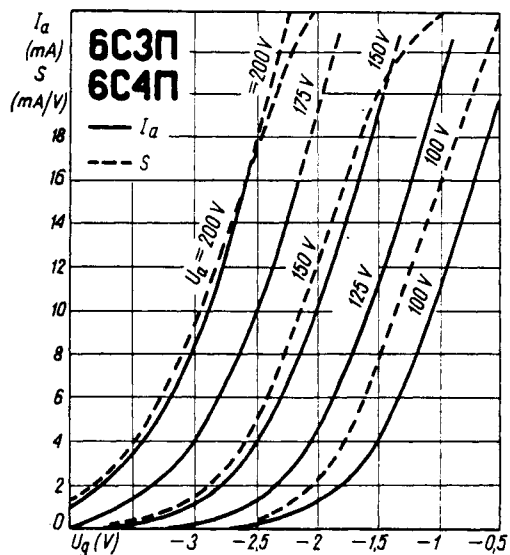
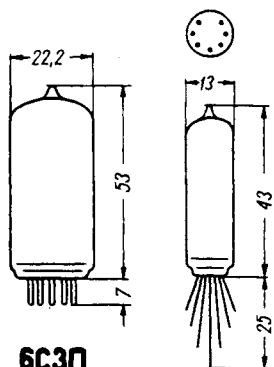
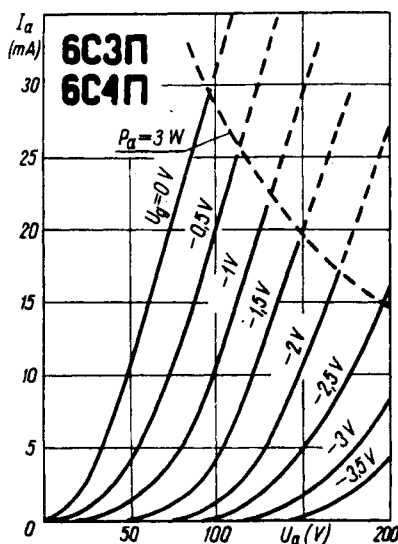
T.	C_g	C_a	C_g/a	C_f/k
	pF	pF	pF	pF
6C2Б	9	4,5	0,25	6
6C3П	6,7	1,65	2,4	7
6C15П	11	1,8	5,5	10
6C28Б	5,8	2,2	3	7
6C29Б	9,5	3,9	0,27	7



6C2Б

6C28Б



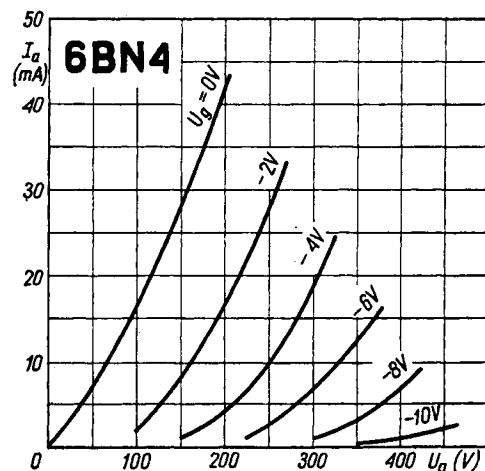
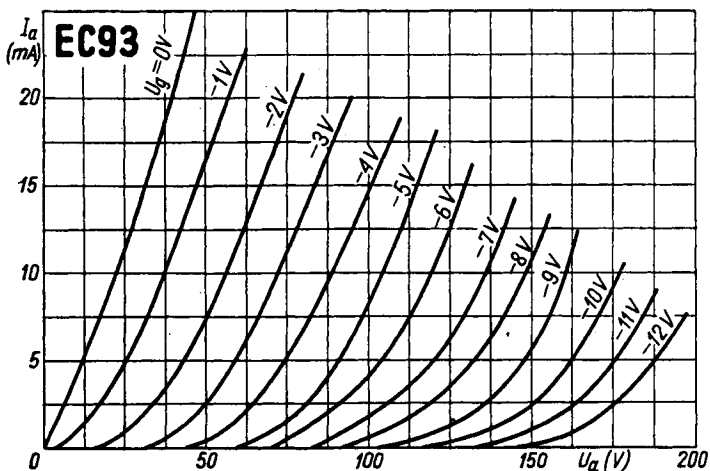
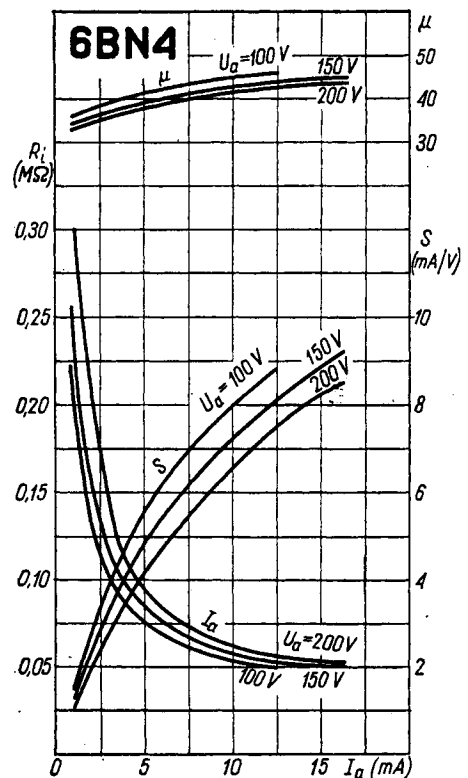
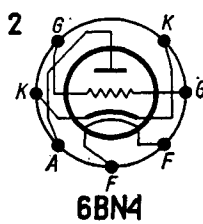
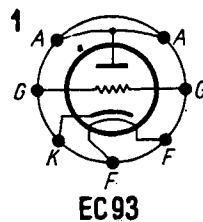
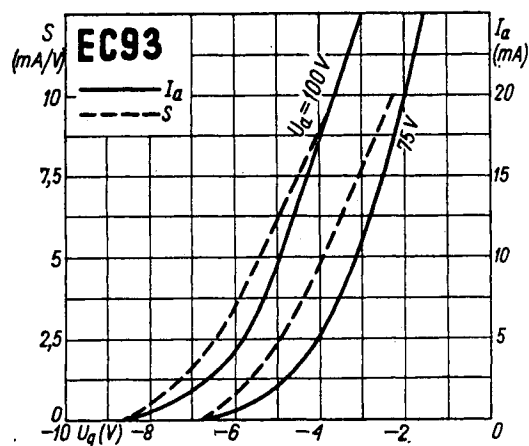


T.			U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	I_g mA	S mA/V	R_i k Ω	μ V/V	R_k Ω	R_g k Ω	f MHz	U_f/k V	I_k mA	P_a W
EC 93	eur	1	6,3	0,2	{ stat. Osc.	100 75 150	-4	16 16	- 0,4	8	1,9	15	250	10 500	1000	90	20	2,25
2 BN 4	amer	2	2,3	0,6						maximum								
3 BN 4	amer	2	2,8	0,45	{ stat.	150 275	-2	9		6,8	6,3	43	220	500	950	90	22	2,2
4 BN 4	amer	2	4,2	0,3						maximum								
6 BN 4	amer	2	6,3	0,2														

T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{g/k}$ pF	$C_{a/k}$ pF	$C_{f/k}$ pF
EC 93	2,3	0,45	1,7	2,1	0,3	1,8
EC 903	2,4	0,35	1,7	2,3	0,25	
6 BN 4	3,2	1,4	1,2			2,8

Equivalents

EC 903	Tif = EC 93	4 BN 4-Amer = 4 BN 4
2 BN 4-A	amer = 2 BN 4	6 BN 4-A amer = 6 BN 4
3 BN 4-A	amer = 3 BN 4	6 BS 4 amer = EC 93



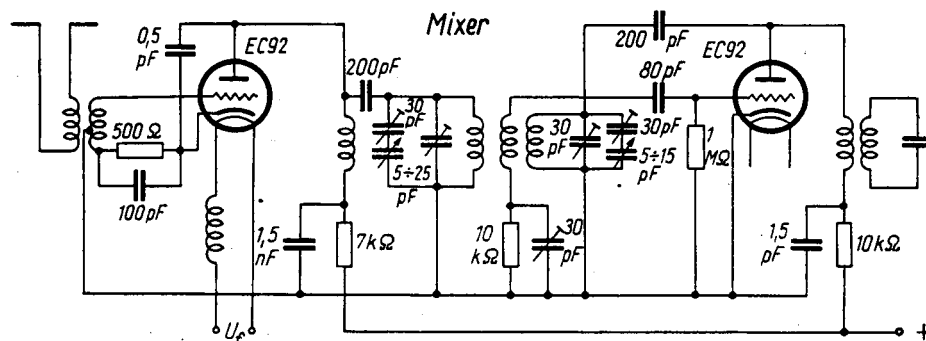
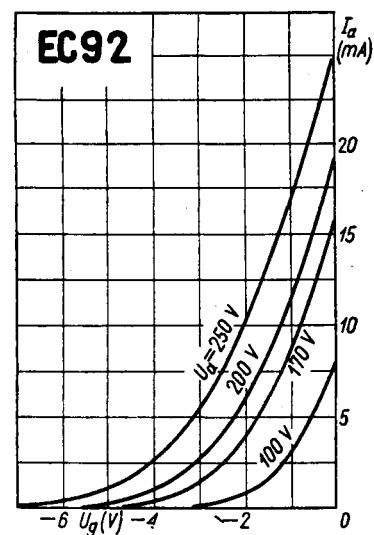
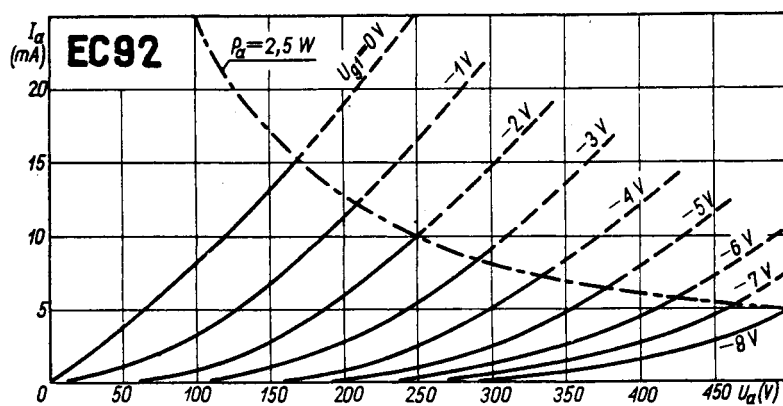
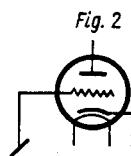
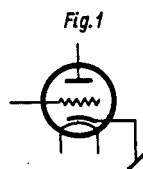
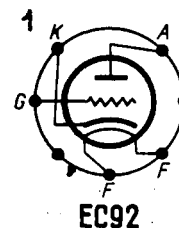
T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	I_g μ A	$S(S_c)$ mA/V	R_i k Ω	μ V/V	R_k Ω	$U_{f/k}$ V	I_k mA	P_a W
EC 92	eur	1	6,3	0,15	stat.	100	—1	3	3,75	16,5	62	330			
PC 92	eur	1	3,15	0,3		170	—1	8,5	5,9	11	66	120			
UC 92	eur	1	9,5	0,1		200	—1	11,5	6,7	10,5	70	90			
						250	—2	10	5,5	11	60	200			
				Mixer ¹⁾	100	—3	1,5	3	(1,3)	17					
					170	—3,7	4	3,7	(1,7)	24,5					
					200	—4,2	5	4,2	(1,9)	21,5					
					250	—4,2	7,6	4,2	(2,1)	17,5					
					300				maximum ($f = 300$ MHz)				90 ²⁾	15	2,5

¹⁾ $U_{osc} = 2,5$ V; $R_g = 1$ M Ω ; ²⁾ UC 92 - $U_{f/k} = 150$ V

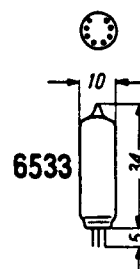
Equivalents

3 AB 4	amer = PC 92
6 AB 4	amer = EC 92
9 AB 4	amer = UC 92

Fig. 1				Fig. 2		
$C_{g/k+f}$	$C_{a/k+f}$	$C_{g/a}$	$C_{f/k}$	$C_{k/g+f}$	$C_{a/g+f}$	$C_{a/k}$
pF	pF	pF	pF	pF	pF	pF
2,6	0,55	1,6	2,3	4,5	1,8	0,24



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	U_f/k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	Ω	V	W
5719	int	1	6,3	0,15	100 150 100 150 165	—2,5 —3,8 —55	0,73 1,85 0,01 0,01 3,3	1,7 2,3	70 70	41 30,5	1500 680		
6222	GE	2	6,3	0,175	100 100 165	—2,5 —55	0,7 0,01 3	1,7	70	41	1500	200	0,55
6533	int	3	6,3	0,2	120 150	—55	0,92 2,5	1,75	54 maximum	30 maximum	150	200	0,5

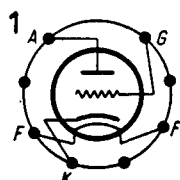
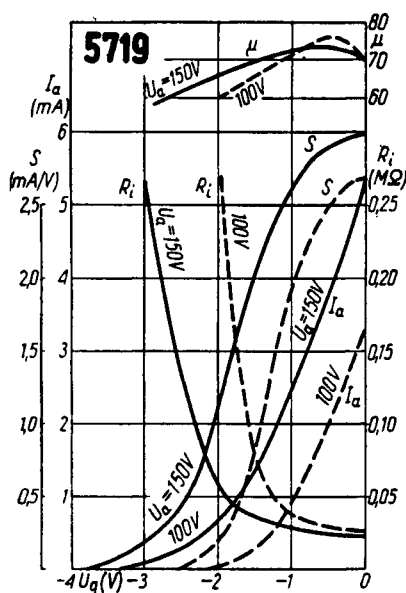


¹⁾ vide *4, a, b, c, d, e, f ($U_f = 6,3 \text{ V} \pm 5\%$); ²⁾ vide *4, a, b, c = 5000, e

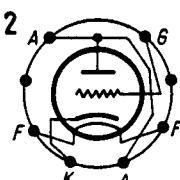
Equivalents

CK 6533	Ray	= 6533
GL-5719	GE	= 5719
SD 992 C ¹⁾	Syl	= 5719
SN 980 D	Syl	= 5719
5719-A	RCA	= 5719
5898	amer	= 5719

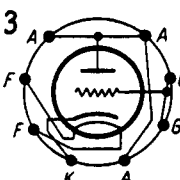
T.	C_g	C_a	C_g/a	vide
	pF	pF	pF	
5719	1,7 1,9	0,6 2,2	0,8 0,8	*5 *6
6222	2	0,65	1,3	*5
6533	1,75	0,6	1,6	*5



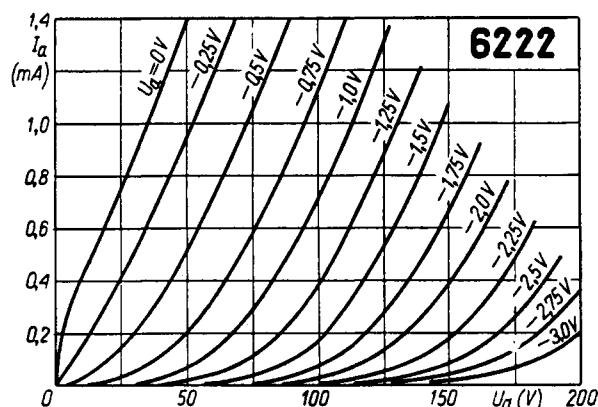
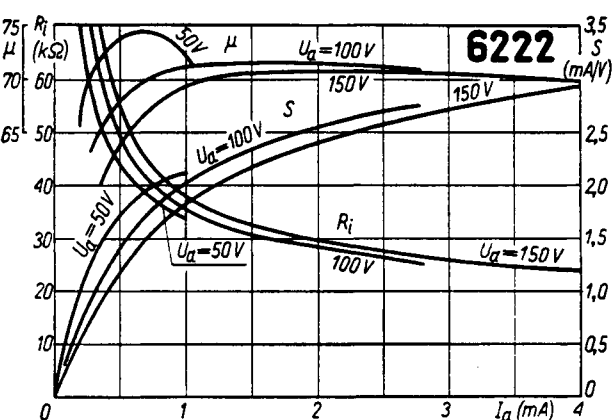
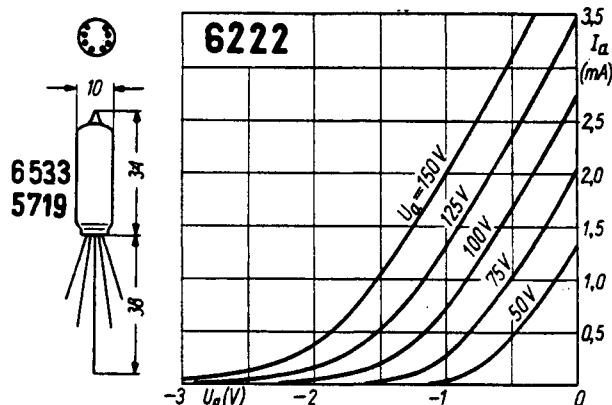
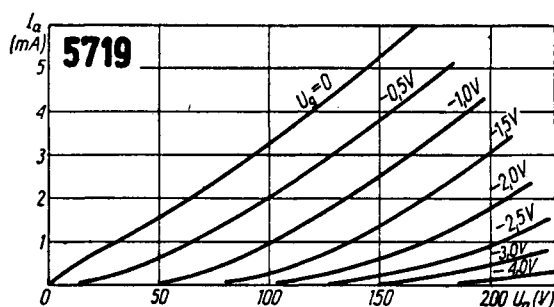
5719

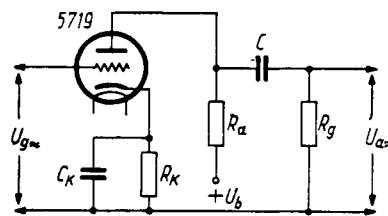
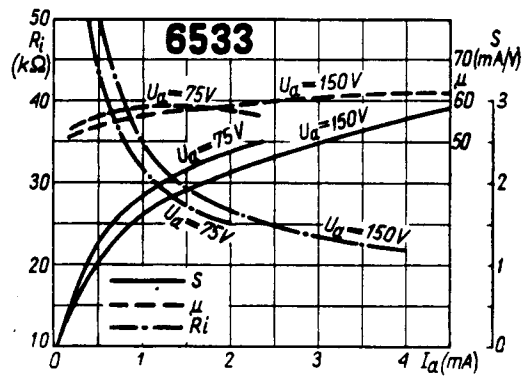
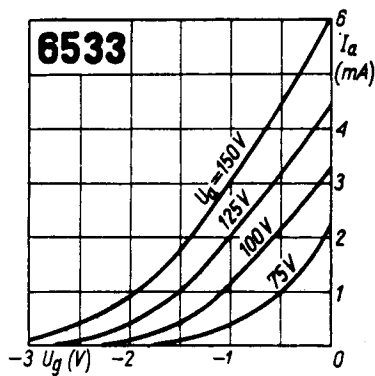
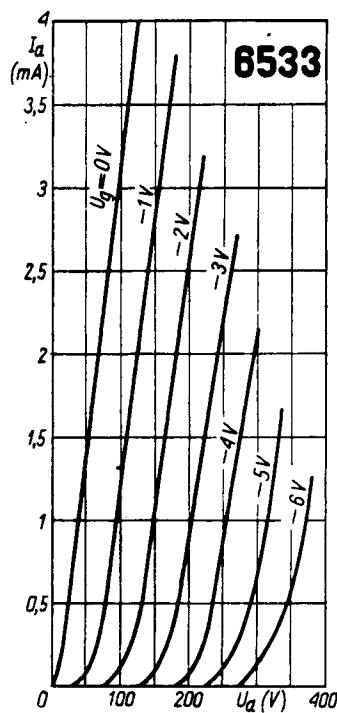


6222



6533





U_b	R_a	R_k	R_g	$U_{g\approx}$	$U_{a\approx}$	μ	h
V	MΩ	kΩ	MΩ	V	V	V/V	%
100	0,1	0	0,47	0,1	4,0	40	2,0
100	0,27	0	1,0	0,1	4,55	45,5	1,6
100	0,47	0	1,0	0,27	11,3	41,8	5,0
100	0,1	2,7	0,47	0,1	3,9	39	2,1
200	0,1	0	0,47	0,1	4,9	49	0,4
200	0,27	0	1,0	0,1	5,4	54	0,7
200	0,47	0	1,0	0,63	30,5	48,4	4,8
200	0,1	1,8	0,47	0,1	4,6	46	0,7

T.			U_f	I_f	U_a	I_a	S	μ	R_i	R_k	U_f/k	I_k	P_a
			V	A	V	mA	mA/V	V/V	kΩ	Ω	V	mA	W
6 AD 4	amer	1	6,3	0,15	{ 100 150	1,4	2	70	35	820			0,3
6 C 7 B	CCCP	6	6,3	0,2	{ 250 300	4,5	4	65	16,5	400	150	7	1,45
6 C 35 A	CCCP	5	6,3	0,127	{ 200 300	3	4	70	17,5	380	150	7	0,9
5637	amer	1	6,3	0,15	{ 100 150	1,4	2,7	70	26	820	100		0,3
5646	amer	2	6,3	0,15	100	1,4	2,4	70	29	820			
5744	amer	6	6,3	0,2	{ 250 300	4	4	70	17,5	500	150	8	1
6169	amer	4	6,3	0,15	180	11,5	6,5	55	8,5				
6247	Ray	3	6,3	0,2	250	4,2	2,6	60	23	500			

T.	C_g	C_a	$C_{g/a}$	$C_{f/k}$
	pF	pF	pF	pF
6 AD 4	1,9	2,2	0,7	
6 C 7 B	3,3	3,4	1	7
6 C 35 A	2	3,3	1,7	4
5637	2,8	3,2	1,3	
5646	2,4	3,4	1,2	
5744	2,7	2,4	0,8	

Equivalents

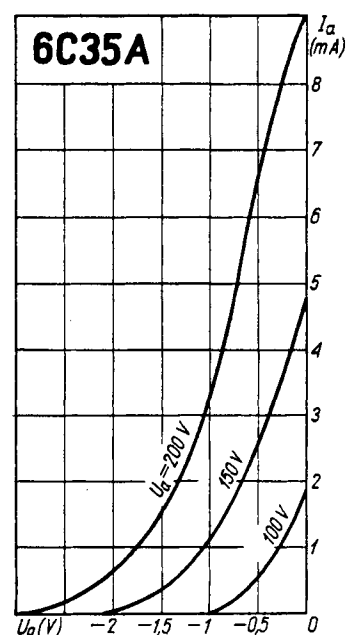
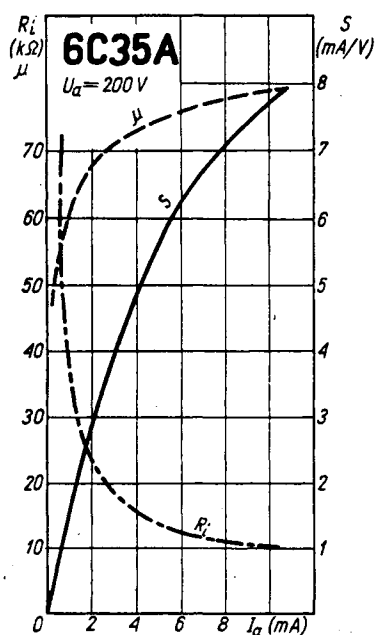
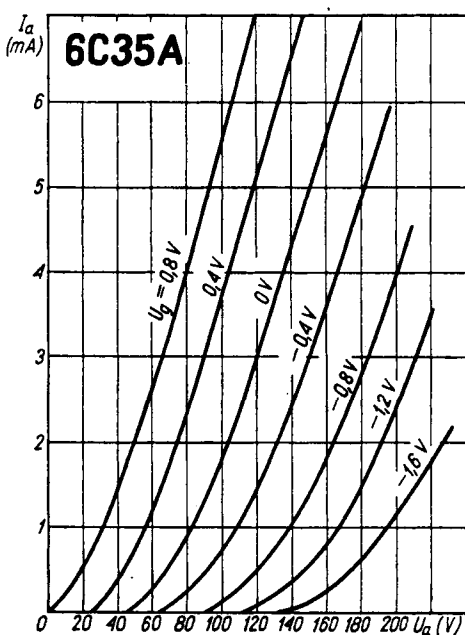
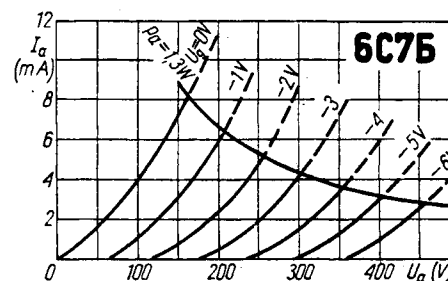
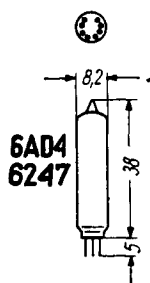
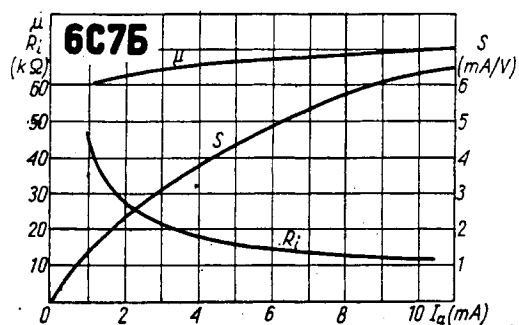
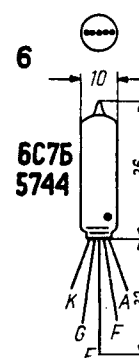
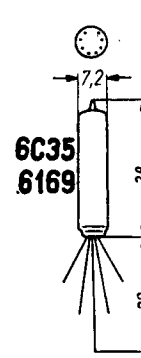
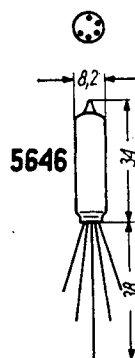
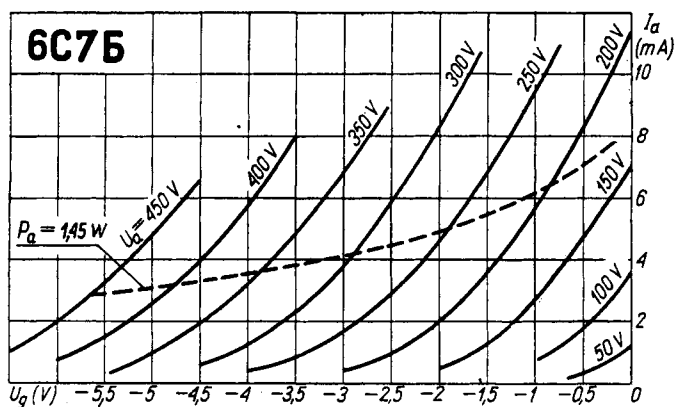
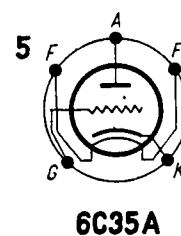
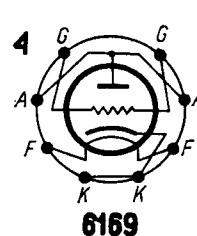
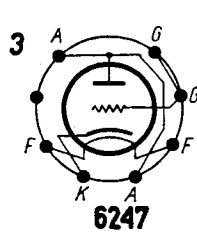
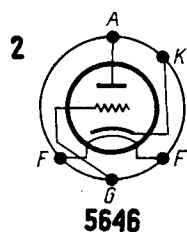
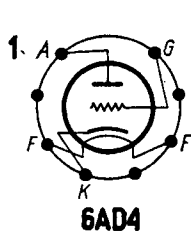
CK 619 CX	Ray	= 5744	6 C 27 B-K ⁴⁾	CCCP = 6 C 7 B
CK 5744	Ray	= 5744	6 C 35 A-B ³⁾	CCCP = 6 C 35 A
CK 5744 WA ¹⁾	Ray	= 5744	5744 WA ¹⁾	amer = 5744
CK 6247	Ray	= 5744	6151	amer = 5744
SD 917 A ¹⁾	Syl	= 5637	6190	amer = 5744
SN 1006 ¹⁾	Syl	= 5646	6190 WA ¹⁾	amer = 5744
6 C 7 B-B	CCCP	= 6 C 7 B		

¹⁾ vide * 4,a,b,c, = 10.000, e,f,g

²⁾ vide * 4,a,b,c, = 5000, e

³⁾ vide * 4,a,b,d,e

⁴⁾ vide * 4, b



T.			U_f V	I_f A	U_a V	U_g V	I_a mA	S mA/V	R_i kΩ	μ V/V	R_k Ω	f MHz	U_f/k V	I_k mA	P_a W
EC 84	eur	1	6,3	0,225	$\left\{ \begin{array}{l} 125 \\ 150 \end{array} \right.$		16	10 maximum	4,2	42	68	900	100	20	2,25
EC 86	eur	2	6,3	0,2	$\left\{ \begin{array}{l} 175 \\ 220^1 \end{array} \right.$	-1,5	12	14 maximum	4,1	68	125	800	100	20	2,2
EC 806 S ¹⁾	Tif	2	6,3	0,165		-50									
PC 86	eur	2	3,8	0,3											
6 J 4	int	3	6,3	0,4	$\left\{ \begin{array}{l} 100 \\ 150 \\ 150 \end{array} \right.$		10 15	11 12	5 4,5	55 55	100 100	500	90	20	2,25
5842	int	4	6,3	0,3	$\left\{ \begin{array}{l} 130 \\ 150 \\ 180 \end{array} \right.$	+9	27 25	27 25	16 17	44 43	360 60	890	50	35	4

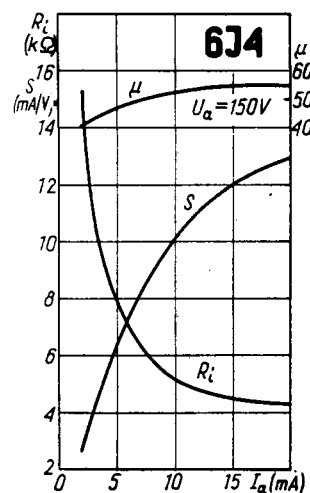
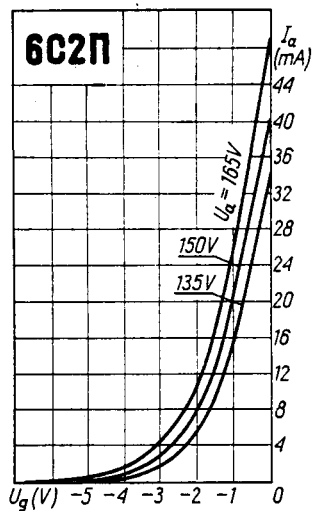
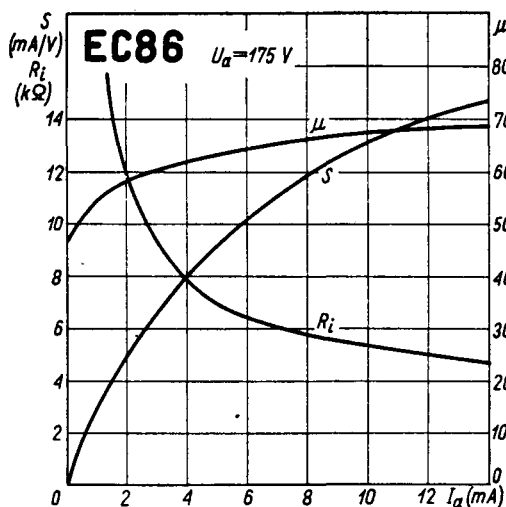
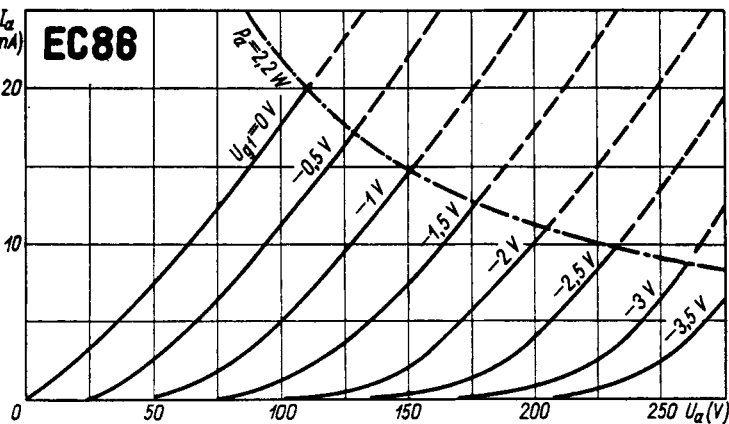
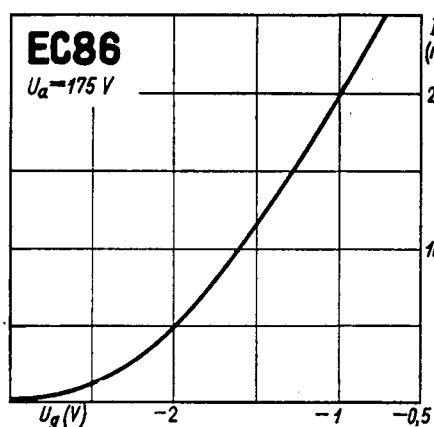
¹⁾ Mixer, $U_{b/a} = 220V$; $R_a = 5,6 k\Omega$; $I_g = 50 \mu A$

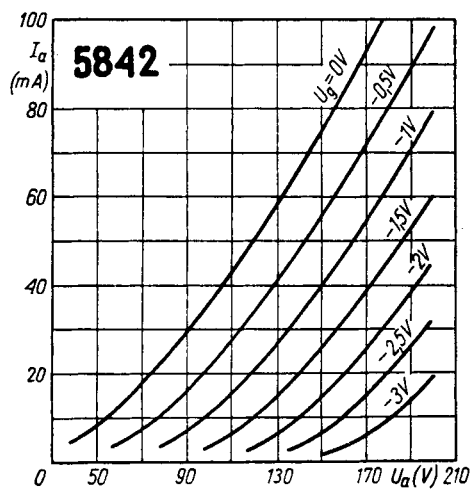
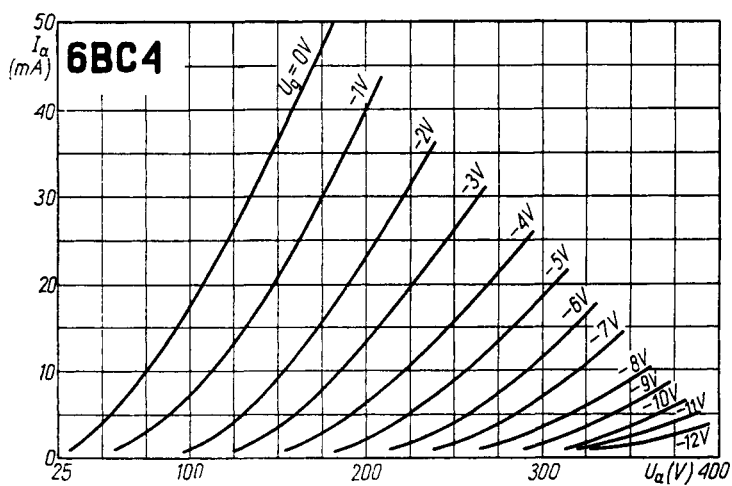
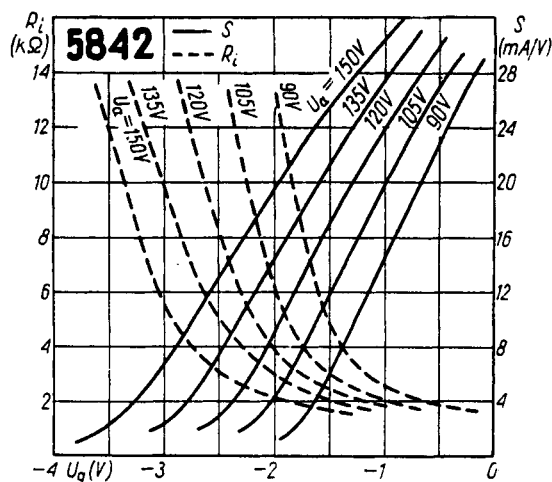
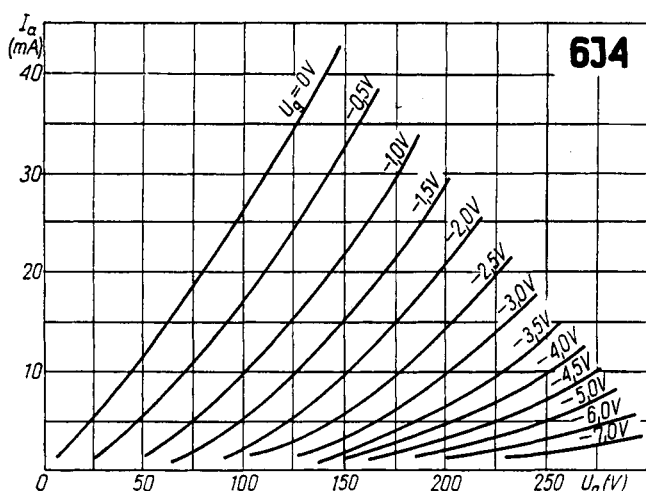
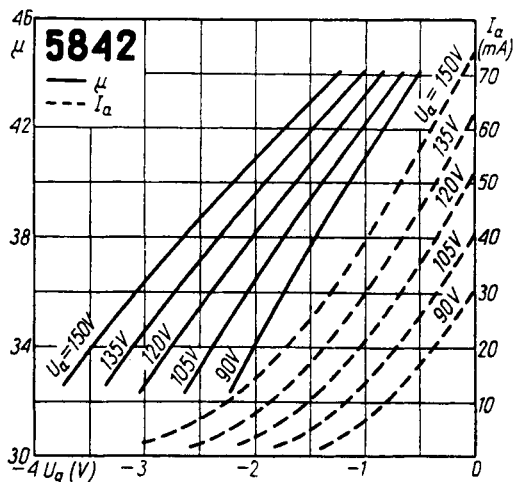
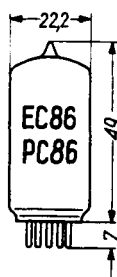
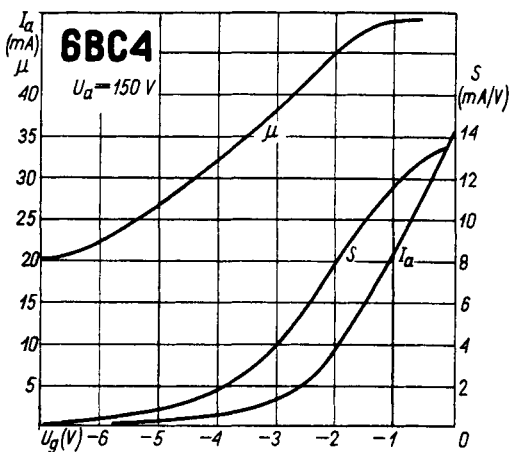
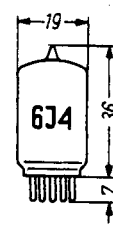
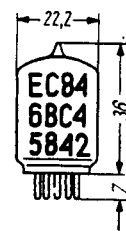
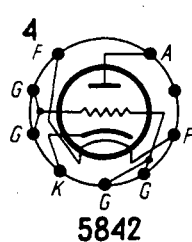
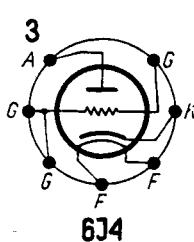
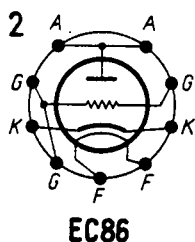
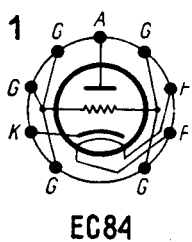
Equivalents

T.	$C_{k/g+f}$ pF	$C_{a/g+f}$ pF	$C_{a/k+f}$ pF	$C_{g/k+f}$ pF	$C_{g/k}$ pF	$C_{a/k}$ pF	$C_{g/a}$ pF	$C_{g/f}$ pF
EC 84			0,18	4,4			2,4	
EC 86	6,6	2,1	0,3	3,9	3,6	0,2	2	0,3
6 J 4			0,24	5,5			4	
5842	9	1,8	0,55					

A 2209	amer = 6 J 4	6 A J 4	amer = EC 84
CK 5842 ¹⁾	Ray = 5842	6 C 2 Π	CCCP = 6 J 4
E 86 C ¹⁾	eur = EC 806 S	6 C 3 I	Tes = 6 J 4
M 8232 ¹⁾	Mul = 6 J 4	6 CM 4	amer = EC 86
PTT 14I	Frc = 5842	6 J 4-WA ¹⁾	amer = 6 J 4
TM 12	SFR = 6 J 4	6 J 4-S ¹⁾	SFR = 6 J 4
4 CM 4	amer = PC 86	417 A ¹⁾	WE = 5842

¹⁾ vide * 4, a, b, c = 10.000; d, e, f





T.			U_f	I_f	U_a	U_g	I_a	S	R_f	μ	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	mA	W
EC 97	eur	I	6,3	0,2	135	—1	11	13	5	65	100	20	2,2
PC 97	eur	I	4,5	0,3	200	—50		maximum					

Fig. 1

n°	U_b	R_a	R_k	R_g	$R_{g/a}$	I_a	S
	V	Ω	Ω	M Ω	M Ω	mA	mA/V
1	135	1000	82	0	—	10,5	13
2	135	1000	0	1	—	13	15,5
3	135	2200	0	0,22	22	14	16
4	135	2200	0	1	22	14	16
5	200	5600	82	0	—	12	14
6	200	5600	0	1	—	13	15,5
7	200	6800	0	0,22	22	14	16
8	200	6800	0	0,56	22	14	16

Equivalents

4 FY 5

amer = PC 97

6 FY 5

amer = EC 97

C_g	C_a	$C_{g/a}$	C_{gk}	$C_{a/k}$	$C_{g/f}$	$C_{k/f}$	vide
pF	pF	pF	pF	pF	pF	pF	
5	3,3	0,5	3,2	0,25	0,28	2,5	* 5
5	4,2	0,48	3,2	0,21	0,28	2,5	* 6

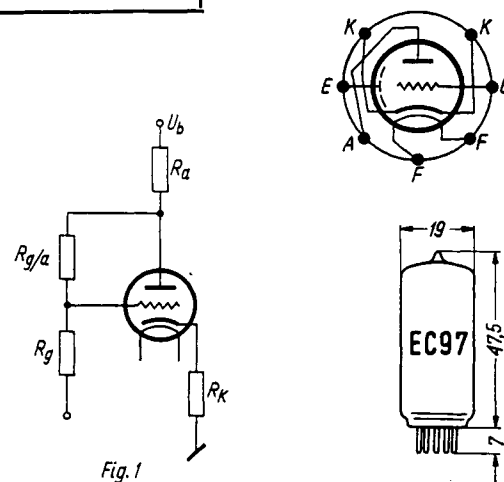
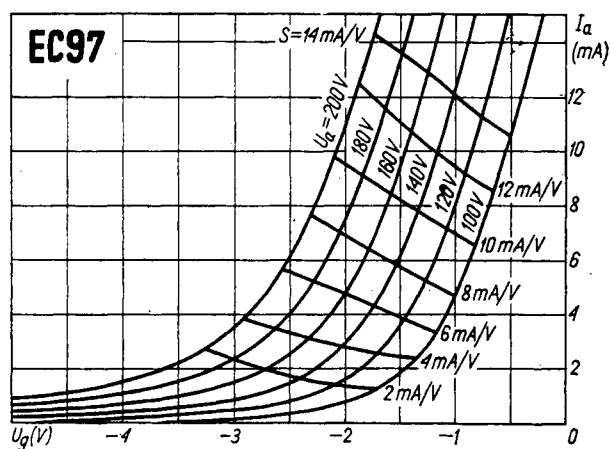
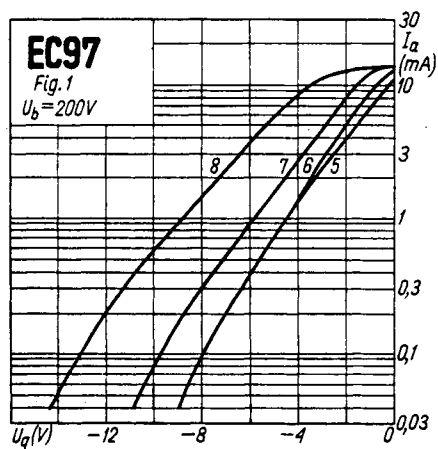
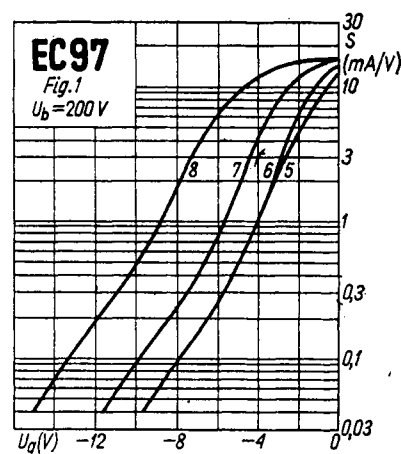
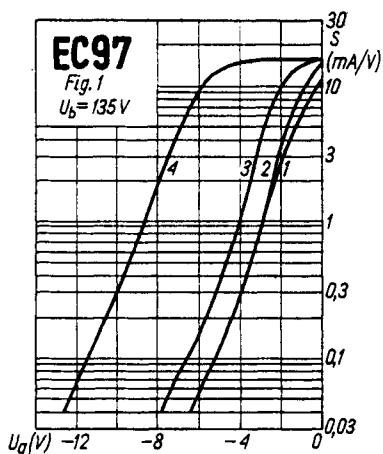
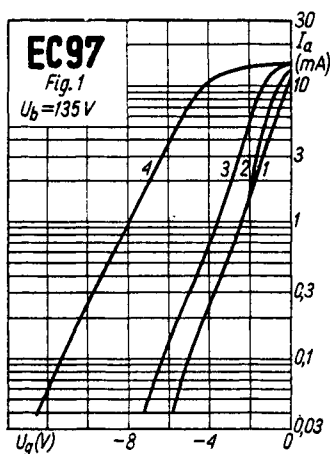


Fig. 1

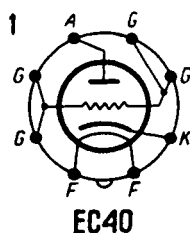
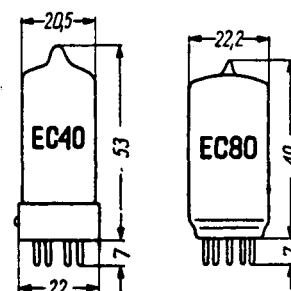


T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_l	R_k	U_f/k	f	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	Ω	V	MHz	mA	W
EC 40	eur	1	6,3	0,43	250	-1,5	15	12	80	6,6	100	100	500	15	4
EC 80	eur	2	6,3	0,43											
EC 95	Phi	3	6,3	0,18	200	-1,2	10	10,5	80	7,6		100	500	20	2,2
PC 95	Phi	3	3,6	0,3											
UC 95	Phi	3	10,8	0,1											
XC 95	Phi	3	2,25	0,6											
YC 95	Phi	3	2,8	0,45	250	-50									

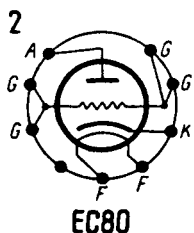
Equivalents

2 ER 5	amer	=	XC 95
3 ER 5	zmer	=	YC 95
4 ER 5	zmer	=	PC 95
6 ER 5	zmer	=	EC 95
6 Q 4	zmer	=	EC 80
10 ER 5	zmer	=	UC 95

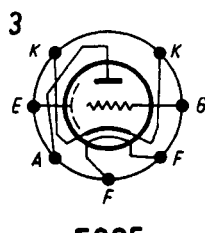
T.	C_g	C_a	$C_{g/a}$	$C_{a/k}$	$C_{g/f}$	$C_{k/f}$	
	pF	pF	pF	pF	pF	pF	
EC 40		0,04	3,5				
EC 80	5,1	0,08	3,4	0,075		8	
EC 95	4,4	3	0,38	0,24	0,28	2,8	vide *5
	4,4	4	0,36	0,2	0,28	2,8	vide *6



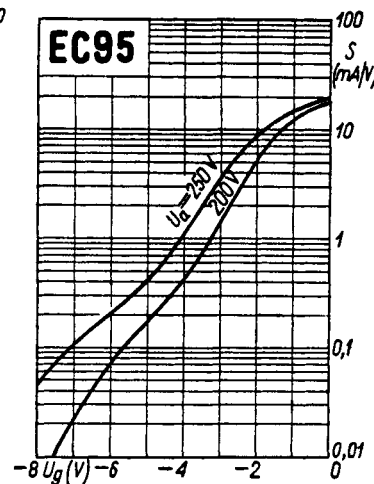
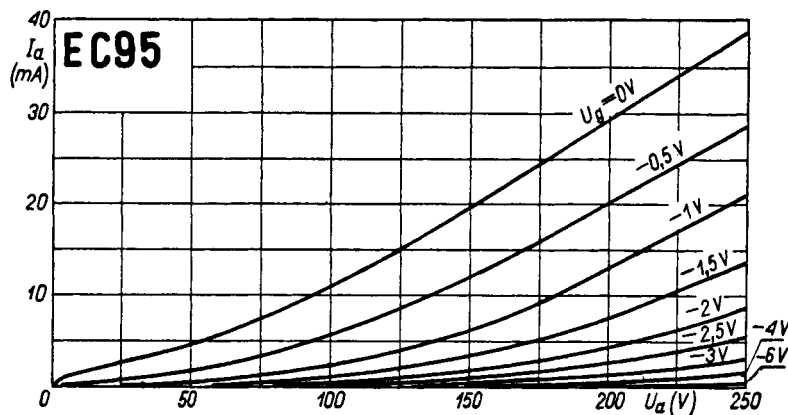
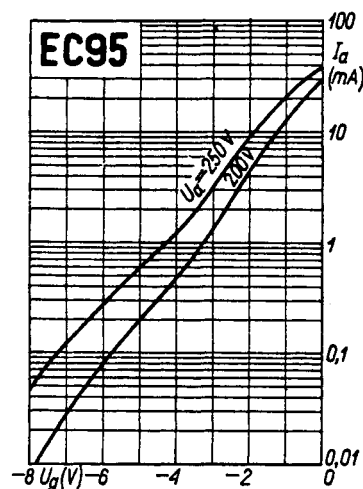
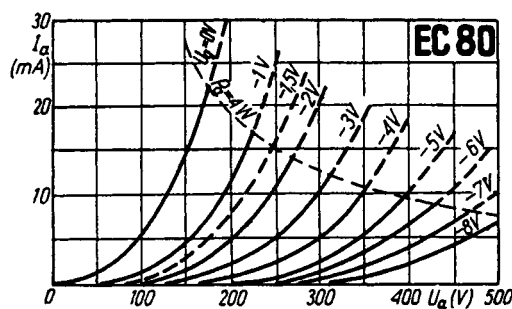
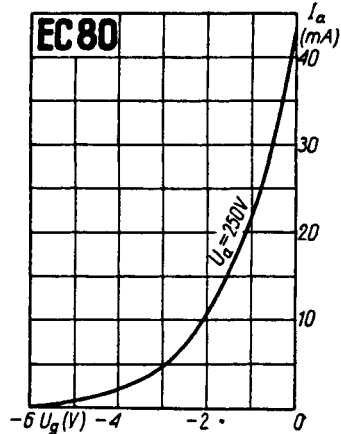
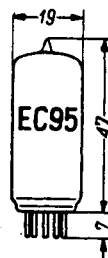
EC40



EC80



EC95

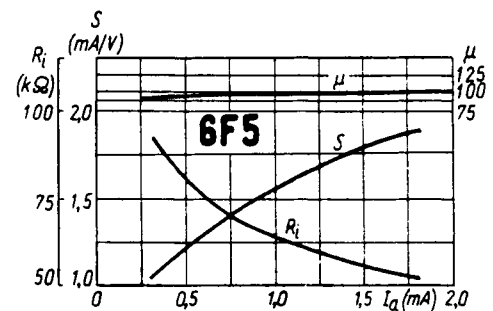
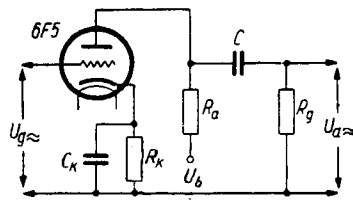
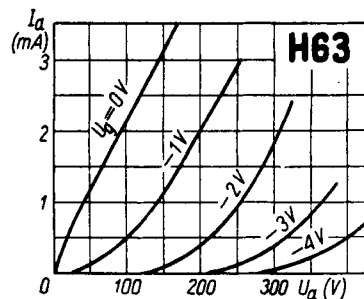
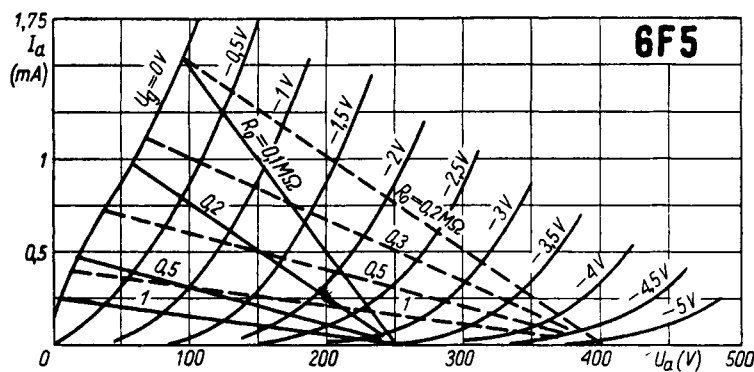
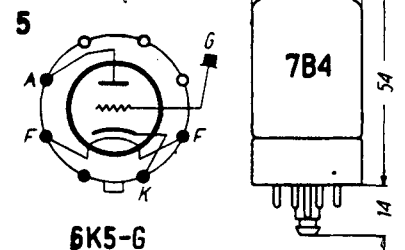
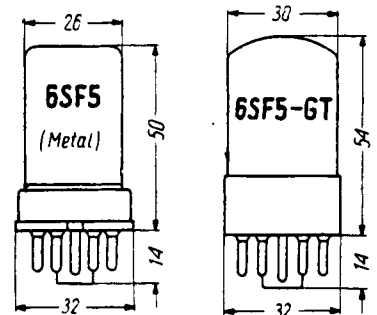
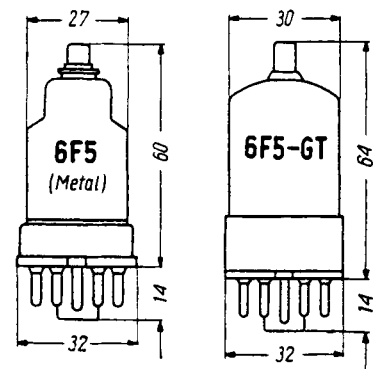
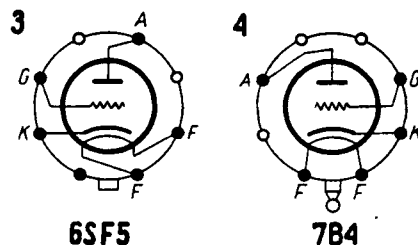
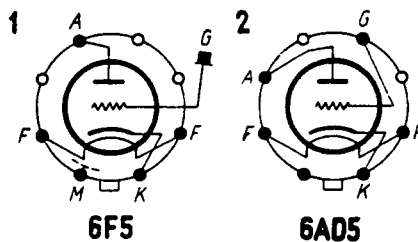


T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_i
			V	A	V	V	mA	mA/V	V/V	k Ω
H 63	Eng	I	6,3	0,3	100 250	0 -2	2,2 1	1,5 maximum	100	66
6 AD 5	amer	2	6,3	0,3	100 250 300	-1 -2	0,3 0,9	1,15 1,5 maximum	100	85 66
6 F 5	int	1	6,3	0,3						
6 SF 5	amer	3	6,3	0,3						
7 B 4	amer	4	6,3	0,3						
12 F 5-GT	int	1	12,6	0,15	100 250	-1,5 -3	0,35 1,1	0,9 1,4	70	78 50
12 SF 5	amer	3	12,6	0,15						
6 K 5-G	int	5	6,3	0,3						

Equivalents

6 AD 5-G	amer = 6 AD 5
6 AD 5-GT	amer = 6 AD 5
6 C 4 B	CCCP = 6 F 5
6 F 5-G	int = 6 F 5
6 F 5-GT	int = 6 F 5
6 F 5-M	Frc = 6 F 5
6 F 5-MG	Frc = 6 F 5
6 K 5-GT	amer = 6 K 5-G
6 SF 5-G	amer = 6 SF 5
6 SF 5-GT	amer = 6 SF 5
6 Φ 5	CCCP = 6 F 5
6 Φ 5 M	CCCP = 6 F 5
12 SF 5-G	amer = 12 SF 5
12 SF 5-GT	amer = 12 SF 5

T.	C_g	C_a	C_g/a
	pF	pF	pF
H 63	2,3	3,7	2,5
6 F 5	5,5	4	2,4
6 F 5-GT	2,2	3,2	2,8
6 SF 5	4	3,6	2,4
7 B 4	3,6	3,4	1,6



U_b	R_a	R_k	R_g	C	C_k	$U_{a\approx}$	μ
V	M Ω	k Ω	M Ω	μ F	μ F	V	V/V
90	0,1	5	0,5	0,005	1,8	6	35
90	0,25	9	1	0,003	0,9	10	44
90	0,5	14,7	2	0,0015	0,58	12	48
180	0,1	2,2	0,5	0,006	2,9	25	46
180	0,25	4,5	1	0,004	1,7	32	57
180	0,5	7,7	2	0,0015	0,83	37	66
300	0,1	1,7	0,5	0,006	3,2	48	52
300	0,25	3,5	1	0,004	2	63	67
300	0,5	6,1	2	0,002	0,93	70	70

T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	f	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	Ω	MHz	V	mA	W
A 1714	Marc	1	6,3	0,49	150 250	-2,2	10	8,5 maximum	5	42,4	220	45 1000			2,5
EC 52	Mul	2	6,3	0,43	250 400	-2,6	10	6,5 maximum	9,2	60		400			7,5
EC 54	Mul	3	6,3	0,43	250	-1,5	10	9	11,1	98			25		3
EC 91	eur	4	6,3	0,225	250	-1,5	10	8,5	12	100	150				2,5
10 L 1	Eds	4	19	0,1	250			maximum				250	150	15	2,5
6 AC 5-G	amer	5	6,3	0,4	250	+13	32	3,4	36,7	125					10
6 AM 4	amer	6	6,3	0,225	150 200 200	-2	7,5 10	7,5 9,8	10 8,7	90 85					
								maximum				(TV)	80		2
6 AN 4	amer	7	6,3	0,225	200 300	-7	13	10	7	70	100	(TV)	100	30	4
								maximum							
2 FQ 5 A	Syl	8	2,3	0,6	135	-1,2	8,9	12	6,3	74					
3 FQ 5 A	Syl	8	2,8	0,45	200	-50			maximum				100	22	2,5
6 FQ 5 A	Syl	8	6,3	0,18											
2 GK 5	Syl	6	2,3	0,6	135	-1	11,5	15	5,4	78					
3 GK 5	Syl	8	2,8	0,45											
6 GK 5	Syl	8	6,3	0,18	250	-50			maximum			200	100	22	2,5

T.	C_g	C_a	$C_{g/a}$	$C_{f/k}$	$C_{g/k}$	$C_{a/k}$	$C_{k/g+f}$	vide
	pF	pF	pF	pF	pF	pF	pF	
A 1714	2,25	0,7	0,95		2,2	0,065		*5
EC 52	5,2	1,3	3,1					
EC 54	9,8	0,15	7,5					
EC 91	5,3	0,2	3,8					*6
6 AM 4		2,4		1,8		0,16	4,4	*5
		2,8		1,8		0,16	4,6	*6
6 AN 4	2,9	0,25	1,7	3	2,6	0,2		*5
	3,3	1,8	1,7	2,9	2,6	0,18		*6
6 FQ 5 A	5	3,5	0,52	2,5				*6
6 GK 5	5	3,5	0,52	2,6				*6

Equivalents

M 8099¹⁾

R L 16

R L 37

6 AQ 4

6 L 34

Mul = EC 91

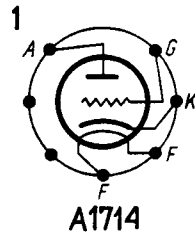
Mul = EC 52

Mul = EC 54

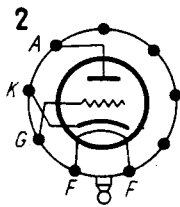
amer = EC 91

Eds = EC 91

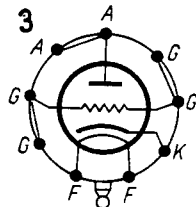
1) vide *4



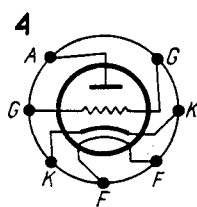
A1714



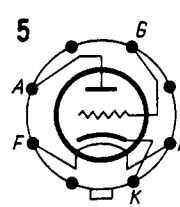
EC52



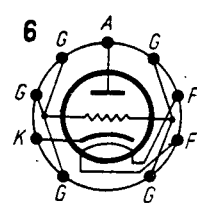
EC54



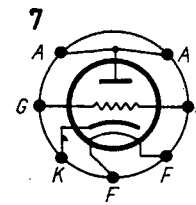
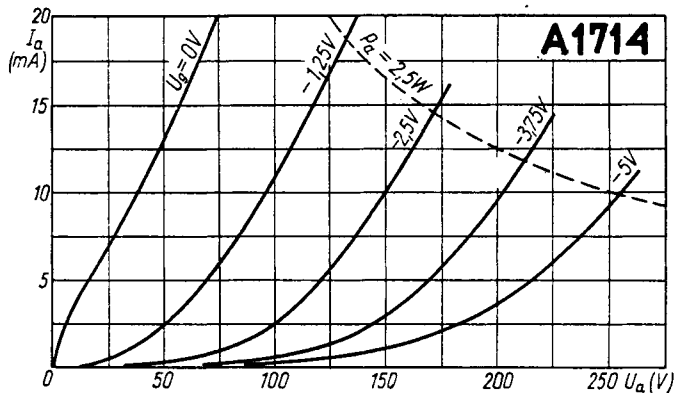
EC91



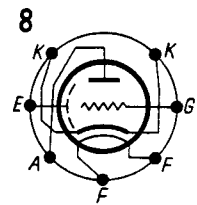
6AC5-G



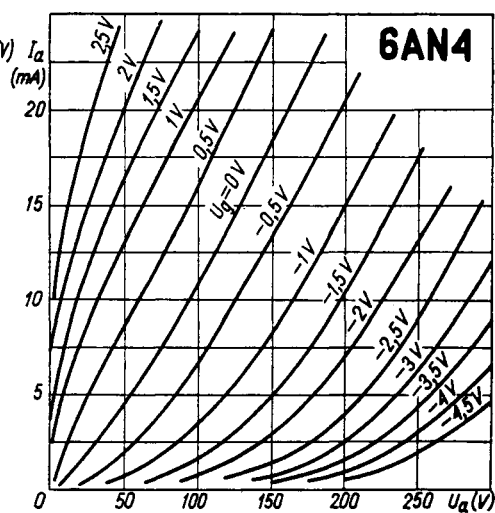
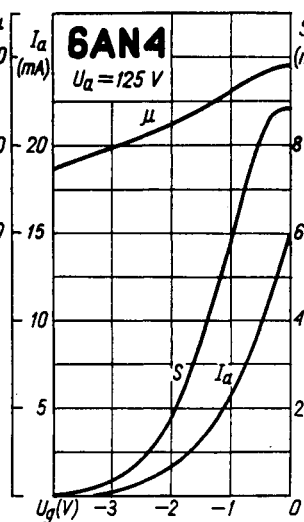
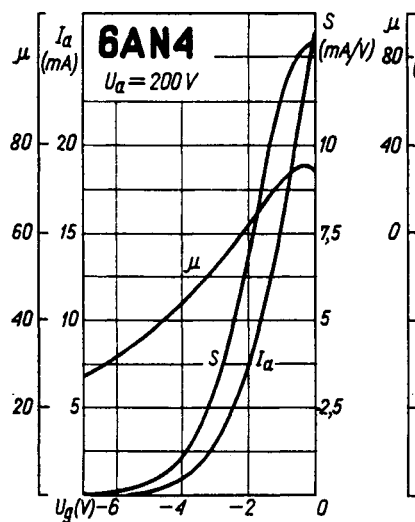
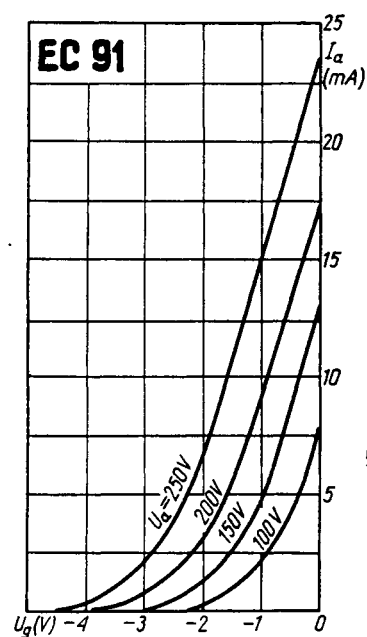
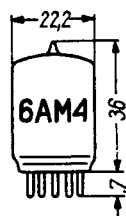
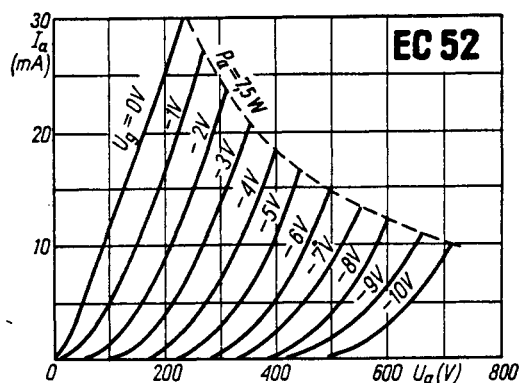
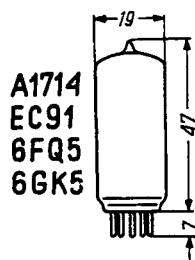
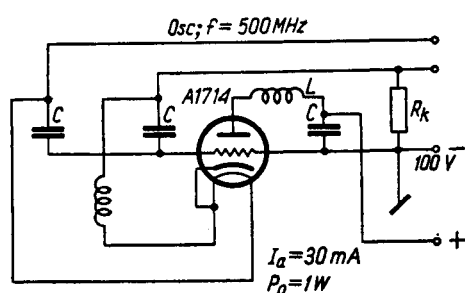
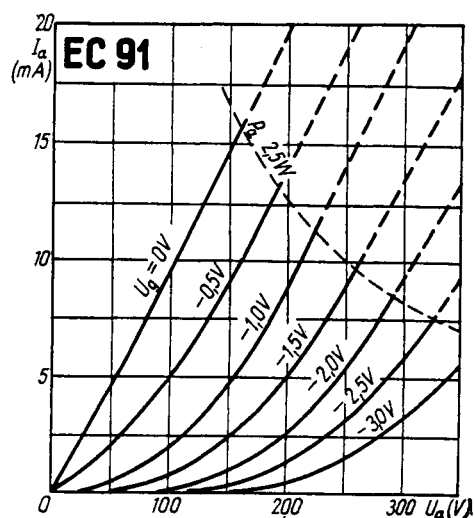
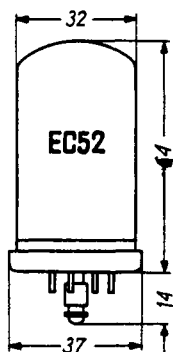
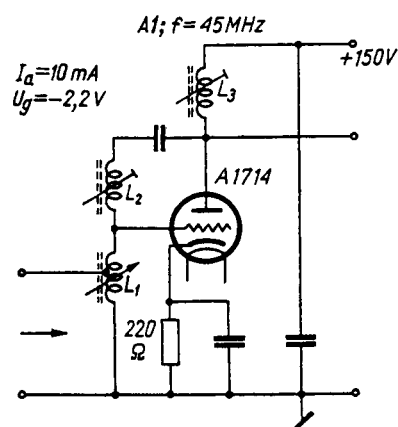
6AM4



6AN4



6GK5



T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	I_k	P_{g2}	P_a
		V	mA	V	V	V	μA	μA	mA/V	(g_2/g_1)	M Ω	μA	mW	mW
DF 64	eur	0,625	10	$\begin{cases} 15 \\ 45 \end{cases}$	$\begin{cases} 15 \\ 45 \end{cases}$	-0,62	60	20	0,1	7,5	1	75	0,5	1,5
								maximum						

Equivalents

DF 654	TH
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C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
1,8	2	0,2

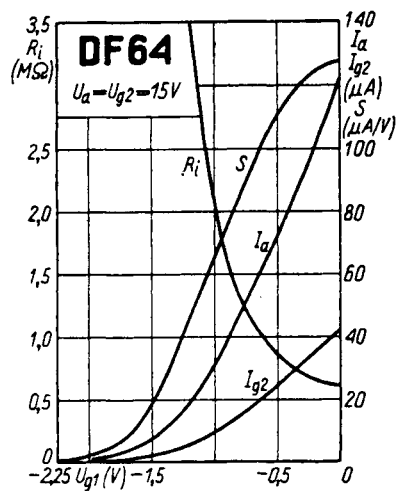
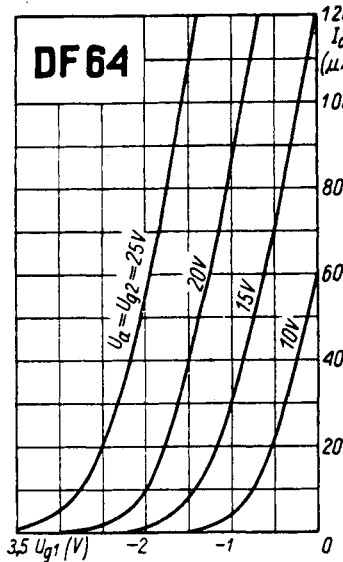
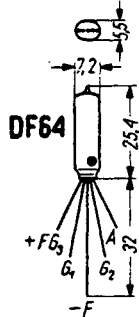


Fig. 1

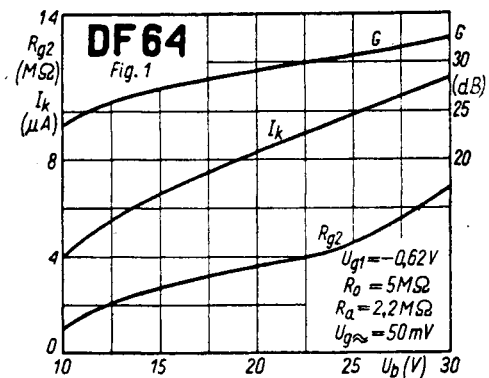
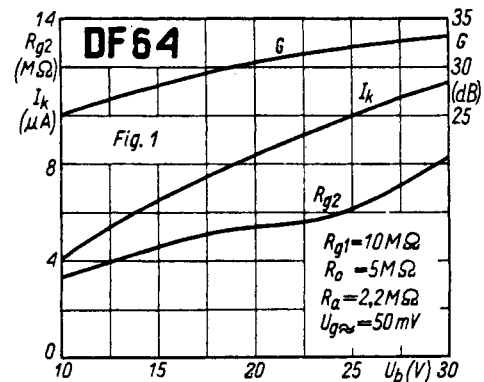
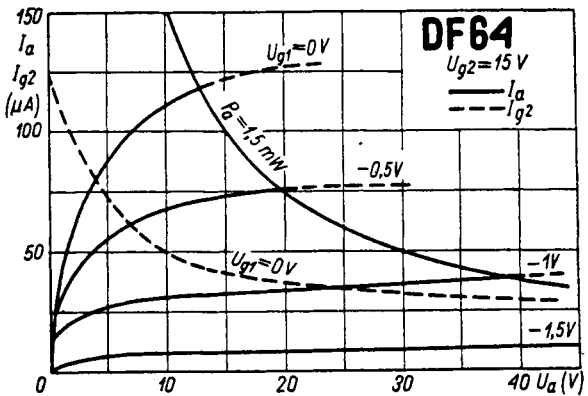
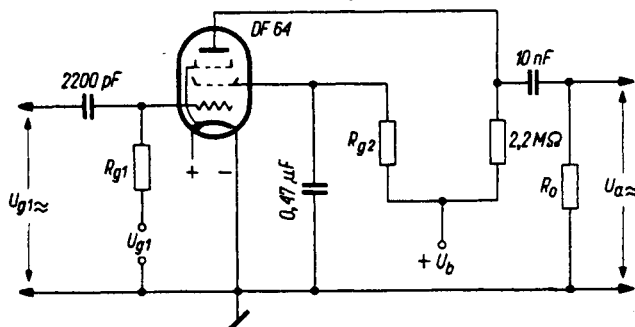


Fig. 1

U_b	U_{g1}	R_{g1}	R_{g2}	I_k	$U_{g1 \approx}$	μ
V	V	M Ω	M Ω	μA	mV	V/V
15	-0,62	5	2,7	6,6	50	23,5
18	-0,62	5	3,3	7,6	50	26,5
15	0	10	4,5	6,4		25
18	0	10	5	7,6		29,5

T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	I_k	P_{g2}	P_a
			V	mA	V	V	V	μA	μA	mA/V	(g_1/g_2)	M Ω	μA	mW	mW
DF 65	eur	1	0,625 ¹⁾	13,3	22,5	18	-1,15	50	10	0,1	8,7	4			
DF 67	eur	2	0,625 ¹⁾	13,3	45	45									
06 F 90	Tes	3	0,625	13					maximum				75	0,5	1,5
DF 650	Tlf	4	0,625	15	15	9	-0,3	27	9,5	0,068	7,5	5			
DF 651	Tlf	4	0,625	10	45	45			maximum				100	1	3

¹⁾ $U_f = 0,45 \div 0,78$ V

Equivalents

CK 549 DX	Ray = DF 651	5911	amer = DF 67
CK 6419	Ray = DF 650	6008	Phi = DF 67
DF 167	RFT = DF 67	6419	Ray = DF 650
549 DX	Ray = DF 651		

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DF 65	1,5	1,5	0,2
DF 67			
DF 650	2,4	1,75	0,08
DF 651			

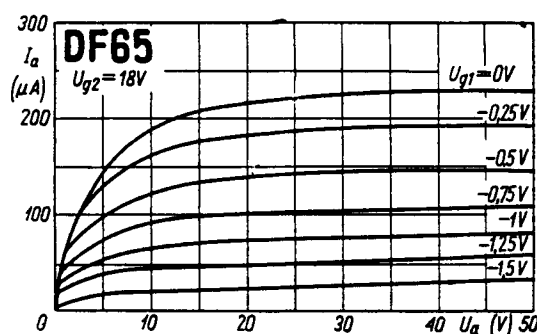
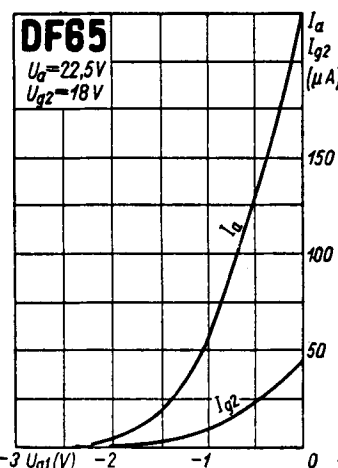
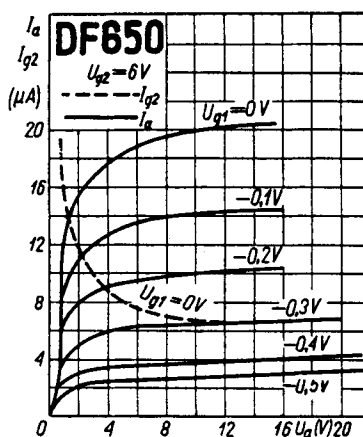
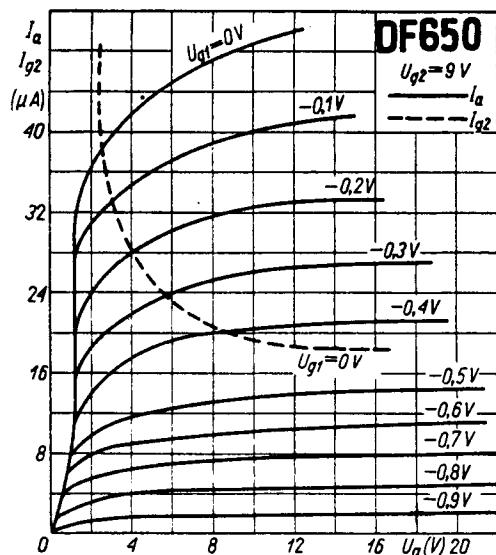
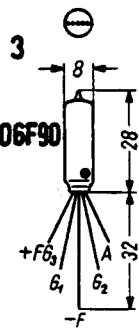
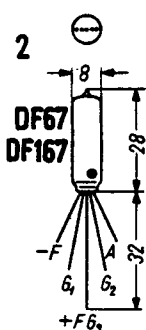
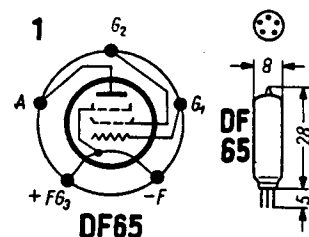
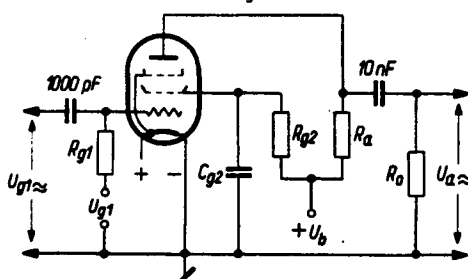


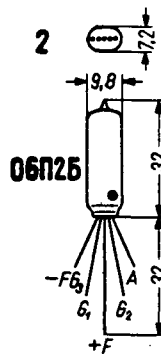
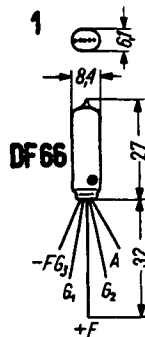
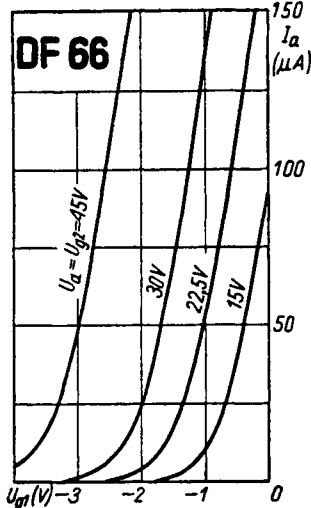
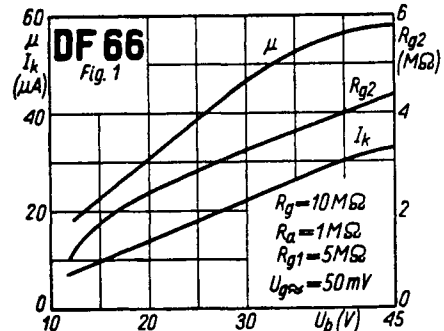
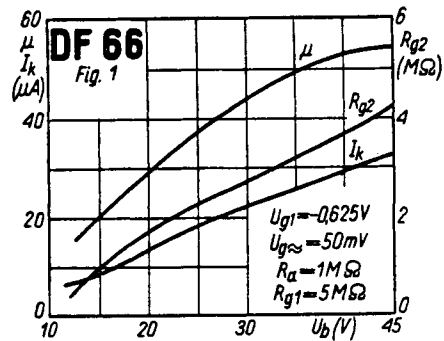
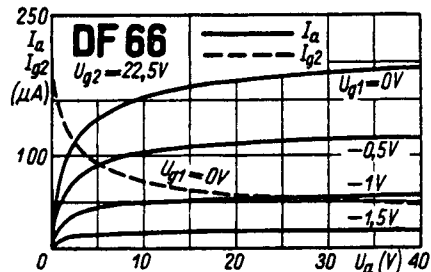
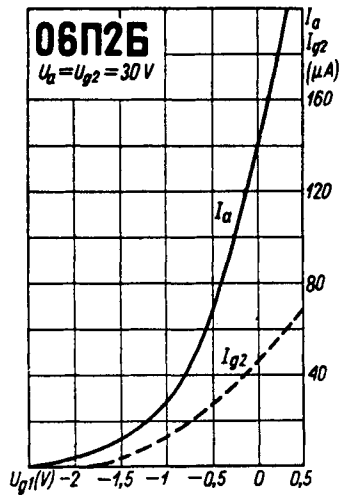
Fig. 1



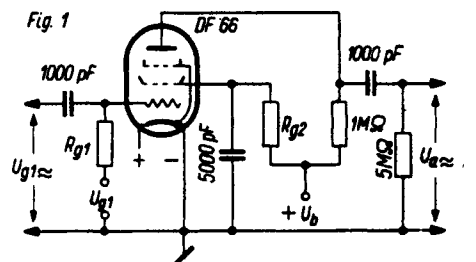
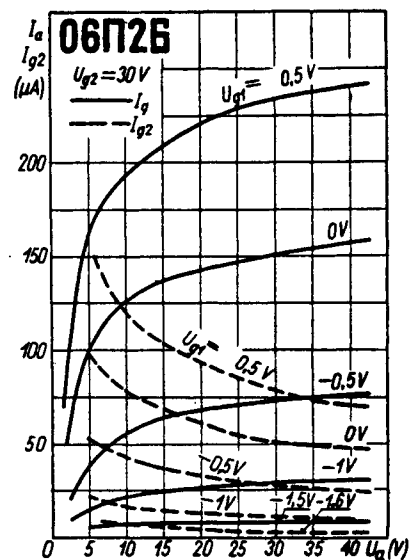
vide Fig. 1 ($U_c \approx 3$ V)

T.	U_b	U_{g1}	R_a	R_{g2}	R_{g1}	R_0	C_{g2}	I_a	I_{g2}	μ	h
	V	V	M Ω	M Ω	M Ω	M Ω	μF	μA	μA	V/V	%
DF 65	15	-0,63	1	2,7	5	10	0,5			22	9
	22,5	-0,63	1	2,7	5	10	0,5	11,8	3	30	5
	15	0	1	3,9	10	5	0,5			19	9
	22,5	0	1	3,9	10	5	0,5	11,7	2,5	31	5
DF 650	22,5	0	4,7	18	10	10	0,002			33	7
	15	-0,625	2,2	3,3	5	10	0,5	4,6	2	27	9

T.		U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a μ A	I_{g2} μ A	S mA/V	μ (g_2/g_1)	R_i M Ω	I_k μ A	P_a mW
DF 66	eur	1	0,625	15	22,5 45	22,5 45	-1,05	50	15	0,1 maximum	11,5	2	100
06 II 2 Б	СССР	2	0,625	30	30 35	30 35		90	30	0,13 maximum	1,1	350	8



T.	C_{g1} pF	C_a pF	$C_{g2/a}$ pF
DF 66	1,6	2,2	0,15
06 II 2 Б	5	3	0,3

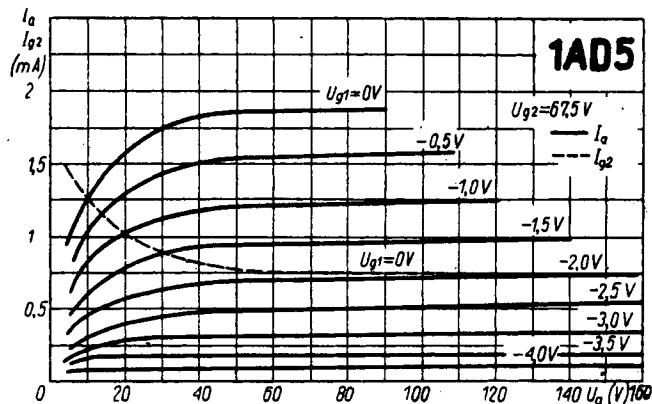
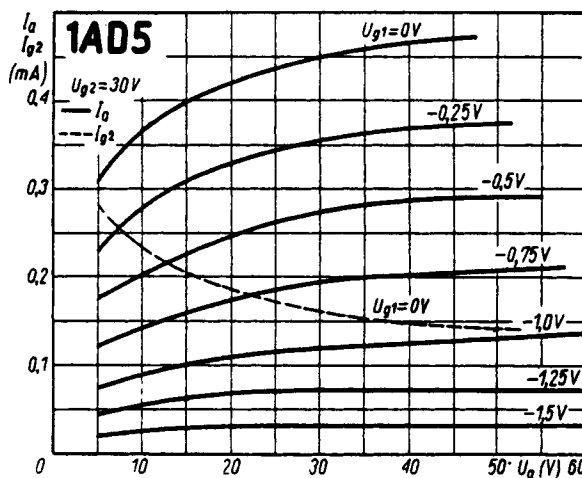
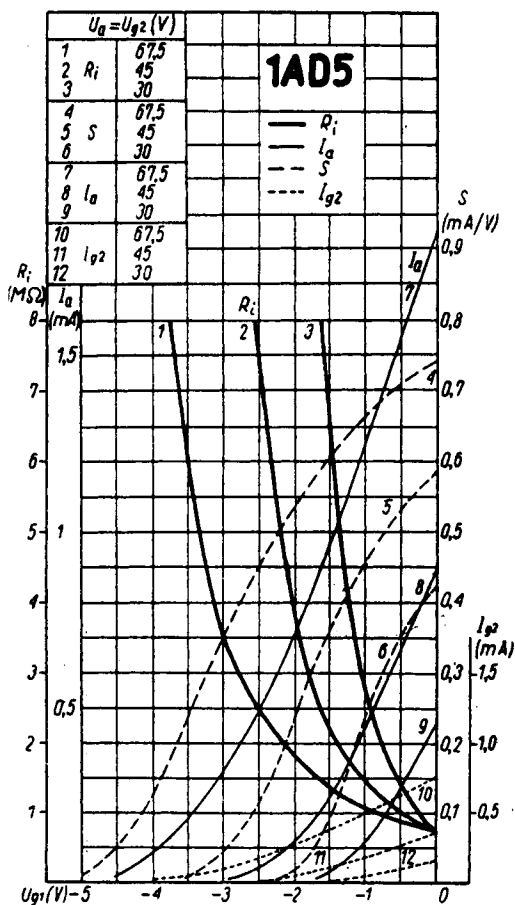
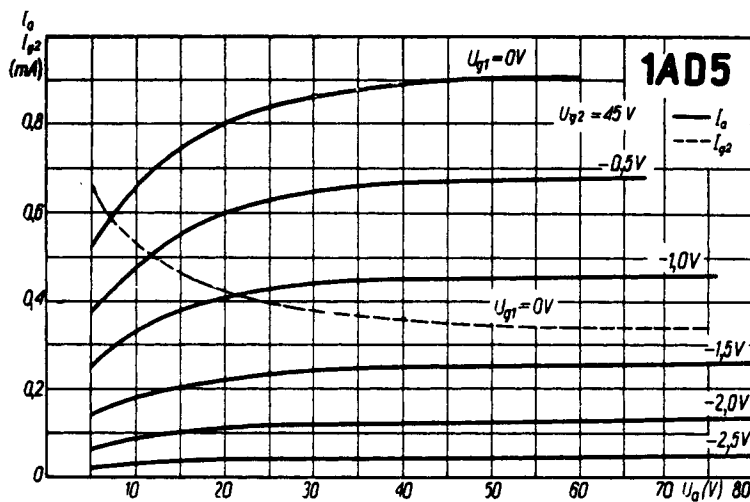
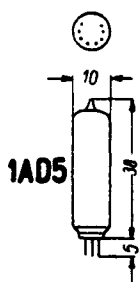
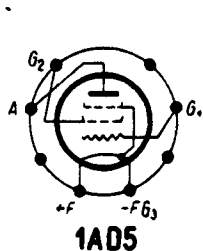


DF 66 vide Fig. 1

U_b V	U_{g1} V	R_{g1} M Ω	R_{g2} M Ω	I_k μ A	μ V/V
15	-0,625	5	1	9	20
22,5	-0,625	5	2	16	33
30	-0,625	5	2,7	22	44
45	-0,625	5	4,2	32	54
15	0	10	1,8	10	22
22,5	0	10	2,7	16	35
30	0	10	3,3	22	46
45	0	10	4,4	32	58

T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	I_k
		V	mA	V	V	V	mA	mA	mA/V	MΩ	mA
1 AD 5	amer	1,25	40	30	30	0	0,45	0,16	0,43	0,7	4
				45	45	0	0,9	0,35	0,58	0,7	
				67,5	67,5	0	1,85	0,75	0,735	0,7	
				67,5	67,5			maximum			
				67,5	67,5						

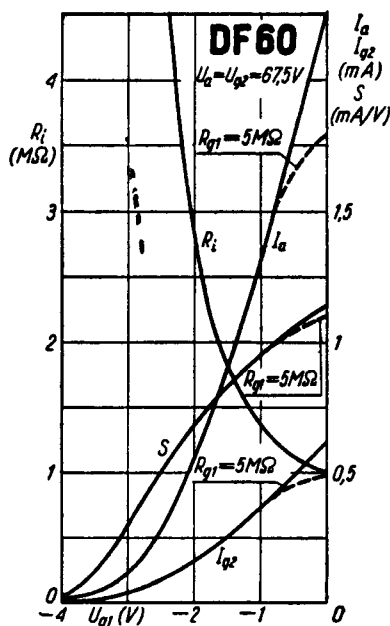
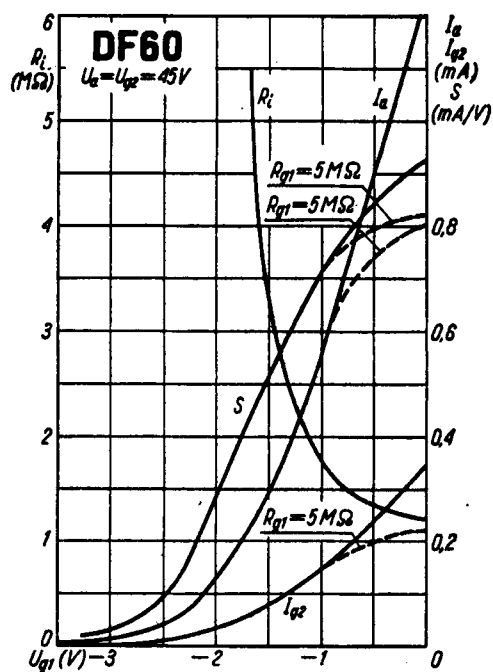
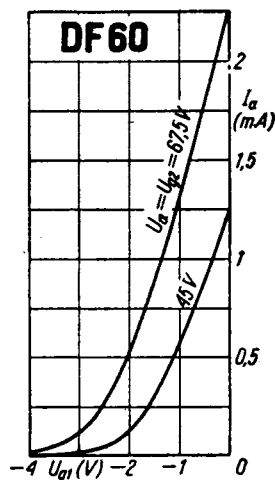
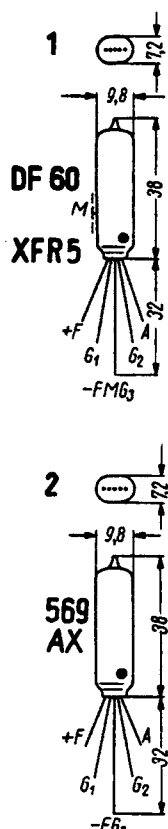
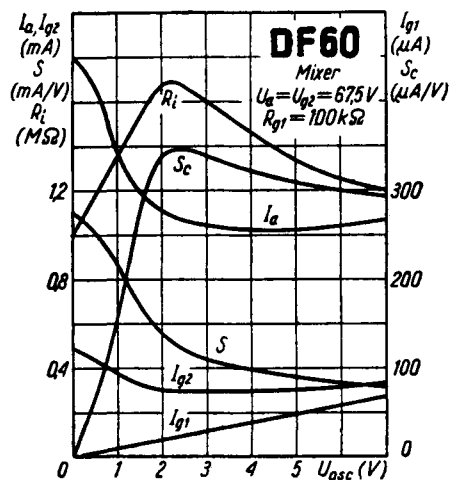
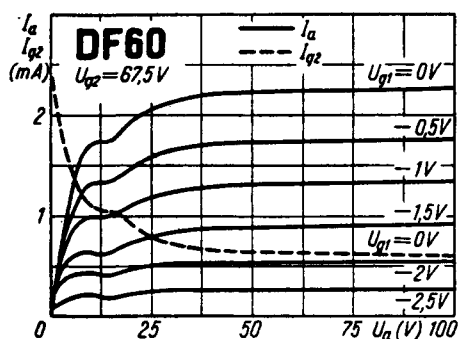
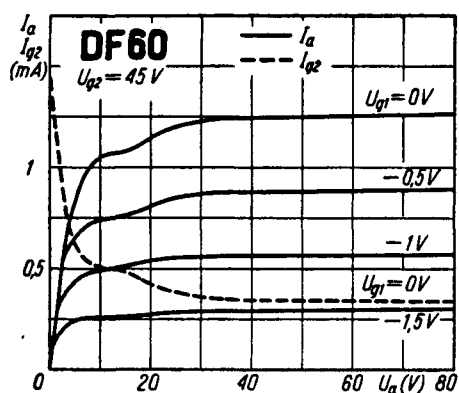
C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
1,8	2,8	0,01



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	I_{g1}	S	S_c	R_i	R_{g1}	$U_{g1 \sim}$	P_{g2}	P_a
			V	mA	V	V	V	mA	mA	mA	mA/V	mA/V	MΩ	MΩ	V	W	W
DF 60	Mul	1	1,25	50	45	45	0	0,8	0,22		0,82		1,2	5			
XFR 5	Hiv	1	1,25	20	45	45	0	1,8	0,48		1,1		1	5			
569 AX	Ray	2	1,25	50	45	45		0,56	0,15	0,033	0,32	0,27	1,6	0,1	3		
					67,5	67,5		1,06	0,3	0,04	0,04	0,32	1,5	0,1	4	Mixer	
maximum ($f = 100 \text{ MHz}$; $I_k = 4 \text{ mA}$; $\mu_{g2/g1} = 23$)																	0,1
																	0,2

Equivalents DF 60

CK 5678	Ray	C_{g1}	C_a	$C_{g1/a}$
DF 669	RFT	pF	pF	pF
XFR 2	Hiv			
5678	int			
		3,7	4,6	0,01



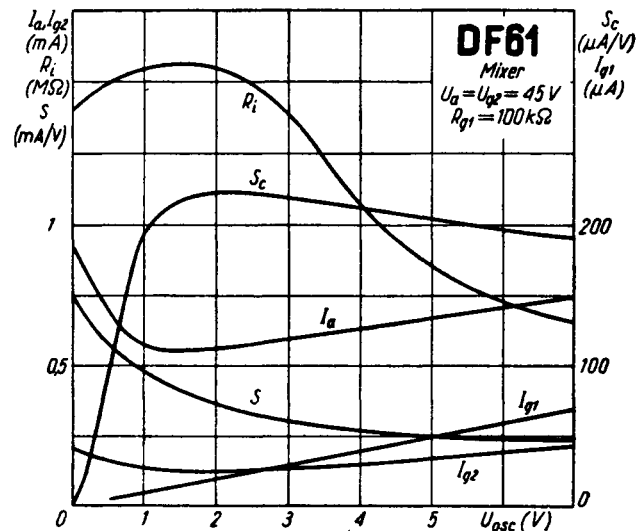
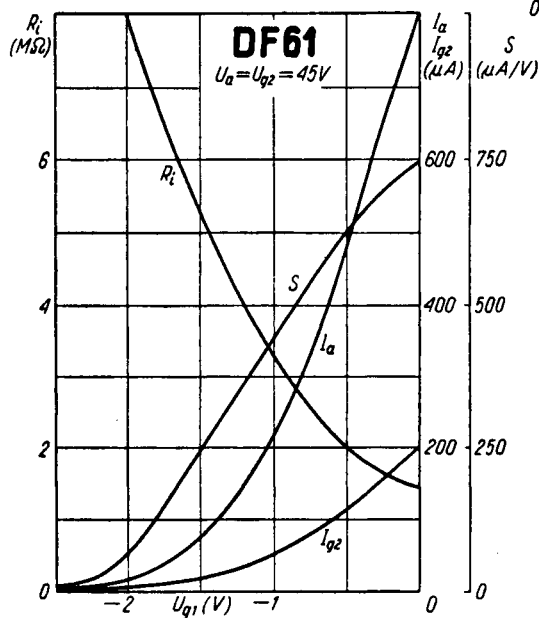
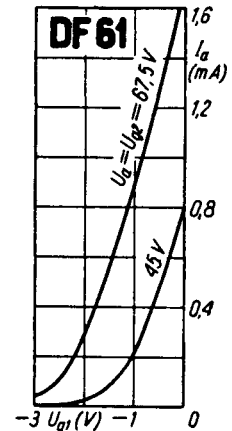
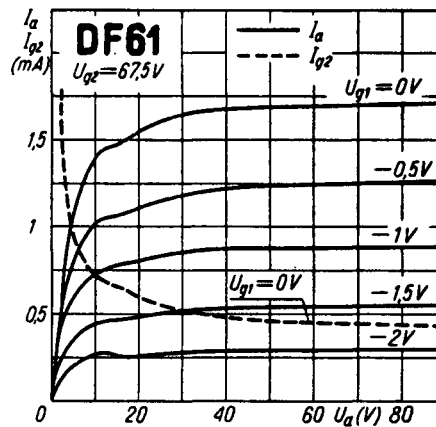
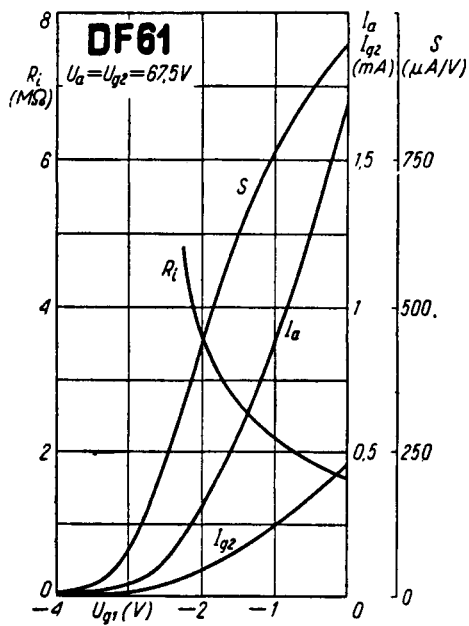
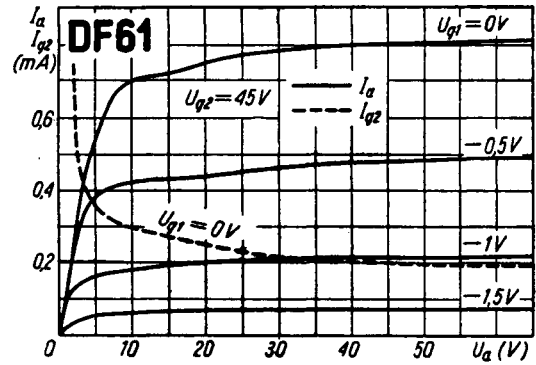
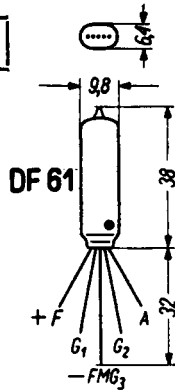
T.		U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	I_{g1} mA	S mA/V	S_c mA/V	R_i MΩ	R_{g1} MΩ	$U_{g1 \sim}$ V	μ (g_2/g_1)
DF 61	Mul	1,25	25	45 67,5 45 67,5 90	45 67,5 45 67,5 67,5	0 0	0,8 1,7 0,6 1,35	0,2 0,45 0,14 0,4		0,75 0,95 0,3 0,45		1,4 1,6 1,4 2	0,1 0,1	3 4	21 21 Mixer

maximum ($f = 100 \text{ MHz}$; $I_k = 2,5 \text{ mA}$)

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
3,1	3,6	0,01

Equivalents

DF 61 N	Phl
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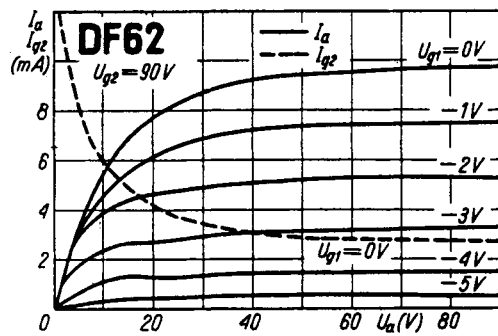
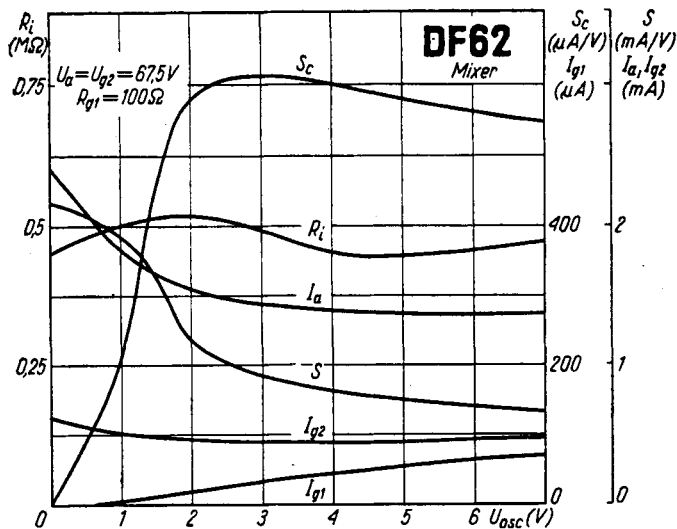
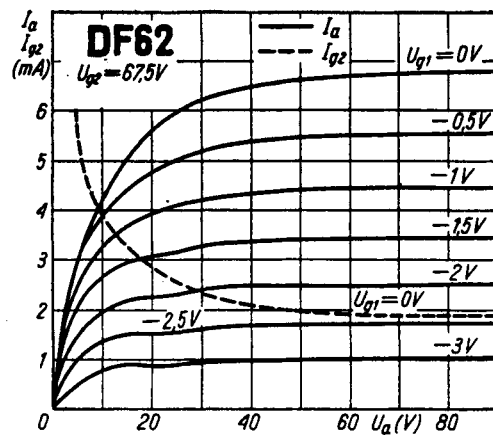
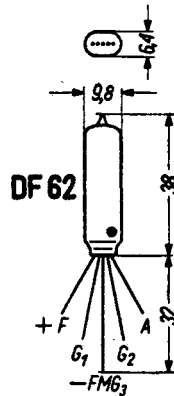
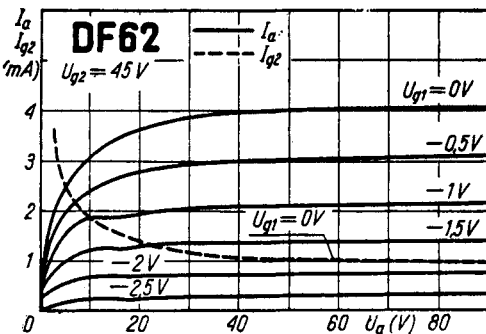
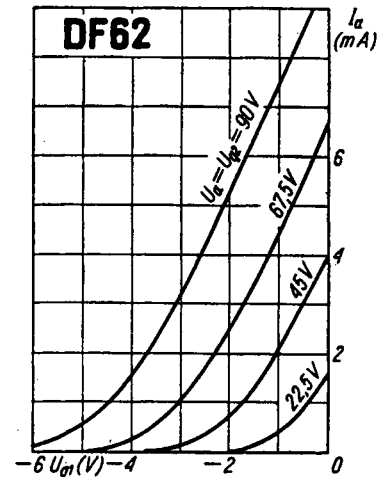
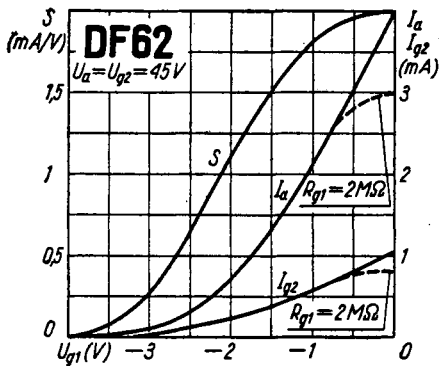


T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	I_{g1}	S	S_c	R_i	R_{g1}	$U_{g1 \sim}$	μ	P_a
		V	mA	V	V	V	mA	mA	mA	mA/V	mA/V	MΩ	MΩ	V	(g_2/g_1)	W
DF 62	Mu1	1,25	100	45	45	0	3	0,8		2		0,5	2		16	Mixer
				90	90	—1,6	5,7	1,75		2,3		0,35		16		
				45	45		0,8	0,25	0,04	0,6	0,49	0,52	0,1	3,5		
				67,5	67,5		1,4	0,45	0,04	0,8	0,6	0,45	0,1	4		
				110	110											
maximum ($P_{g2} = 0,2$ W; $I_k = 7,5$ mA; $f = 100$ MHz)																
0,5																

Equivalents

DF 652	TIF
DF 668	RFT
XFR 1	Hiv
I AD 4	int

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DF 62	4	4	0,01
DF 668	4,5	4,5	0,01



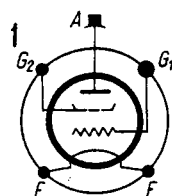
T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g1}	S	R_t
			V	mA	V	V	V	mA	mA	mA/V	MΩ
DBS 1	Mul	1	1,5	70	120	60	-2,7	1,5		0,58	0,5
DF 1	eur	2	1,4	50	90	90	0	1,2	0,3	0,75	1,5
DF 26	eur	3	1,2	50	90	90	-1,1	1,2	0,3	0,75	1
DF 41 W	Lor	4	1,2	25	90	90	-0,5	0,7	0,1	0,6	1
DF 961	RFT	5	1,2	60	67,5	67,5	0	3,4	1,5	0,85	0,25
					90	67,5		maximum ¹⁾			
D 3 F	eur	6	1,25	50	135	67,5	-3	1,7	0,4	0,6	0,8
					145	67,5		maximum			
SP 141	Eds	7	1,4	50	82	82	0	1,8	1	1,8	0,6
HY 115	Hyr	8	1,25	70	90	90	-1,5	0,48	0,1	0,27	1,3
LV 9	Tlf	9	1,2	50	45	45	-2	1,15	0,3	0,85	0,5
1 AE 4	amer	5	1,25	100	90	90	0	3,5	1,2	1,55	0,5
					67,5	67,5	0	1	0,3	0,825	2
1 AF 4	amer	5	1,4	25	90	90	0	1,65	0,5	0,95	1,8
					110	90		maximum			
1 AS 4	amer	5	1,4	25	90	90	0	1,65	0,5	0,85	1,4
1 LB 7	amer	10	1,4	50	45	45	-3	1		0,3	0,3
					45	45	0	1,1	0,35	0,75	0,7
1 LC 5	amer	11	1,4	50	90	45	0	1,15	0,3	0,775	1,5
					110	45		maximum			
1 SA 6-GT	amer	12	1,4	50	45	45	0	1,1	0,3	0,75	0,7
					67,5	67,5	0	2,4	0,7	0,95	0,6
					90	67,5	0	2,45	0,68	0,97	0,8
					110	67,5		maximum			
1 V 4	amer	5	1,25	50	110	110	0	1,6	0,45		1,5
1 X 2 M	CCCP	3	1,2	30	70	70	0	1,1	0,6	0,47	
361 A	WE	13	1,4	20	45	36	0	0,42		0,56	0,64
1609	RCA	8	1,1	250	135	67,5	-1,5	2,5	0,65	0,725	0,4
					135	67,5		maximum			

¹⁾ maximum, $I_k = 6$ mA, $P_{g2} = 0,12$ W, $P_a = 0,35$ W, vide gr. 130

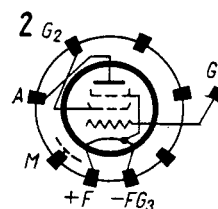
Equivalents

DBS 2	Oxt	= DF 1
1 X 1 X	CCCP	= D 3 F
959	amer	= D 3 F

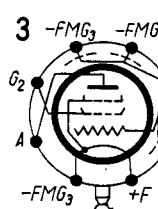
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DBS 1	5,7	3,4	0,07
DF 961	3,9	9,2	0,01
D 3 F	1,8	2,5	0,015
1 AF 4	3,8	7,6	0,008
1 LC 5	3,2	7	0,007
1609	7	7	1



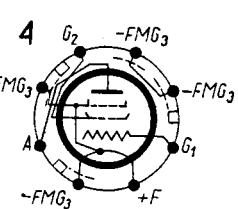
DBS1



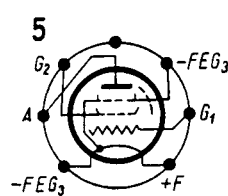
DF1



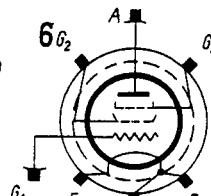
DF26



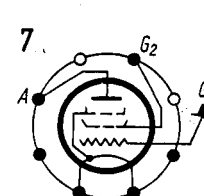
DF41W



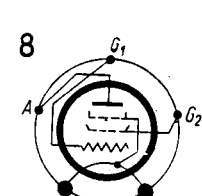
1AE4



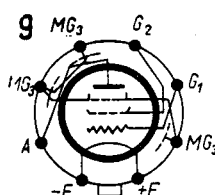
D3F



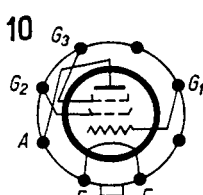
SP141



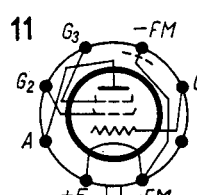
HY115



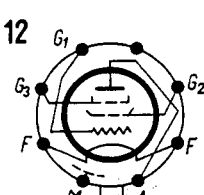
LV9



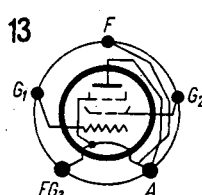
1LB7



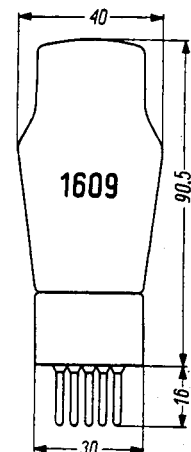
1LC5

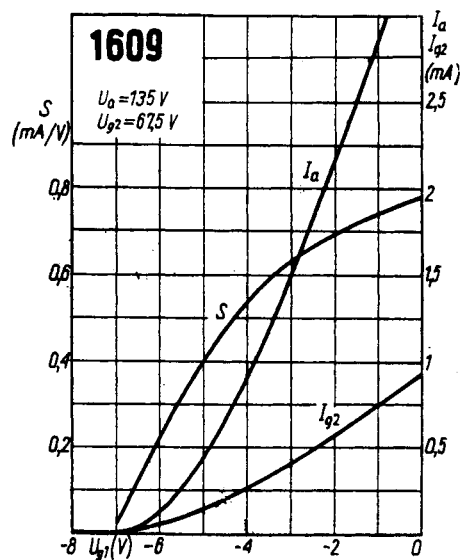
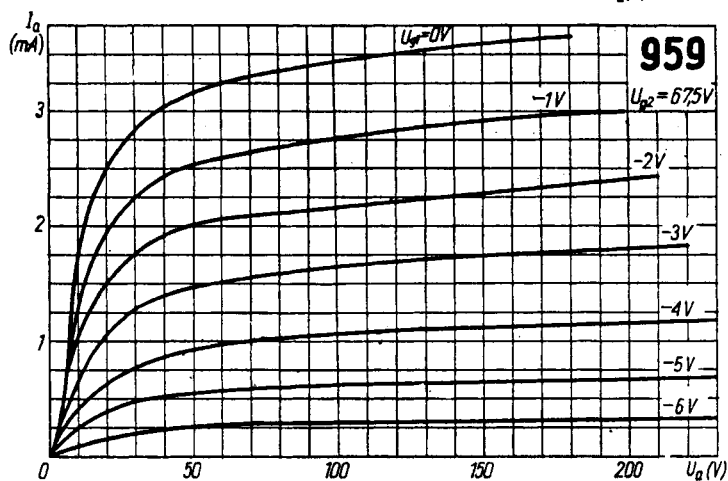
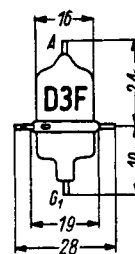
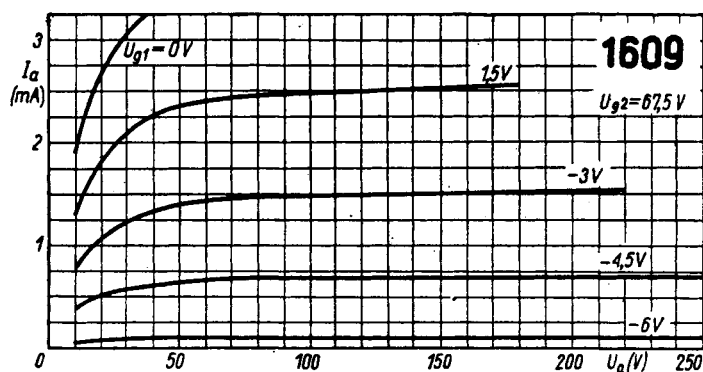


1SA6-GT



361A





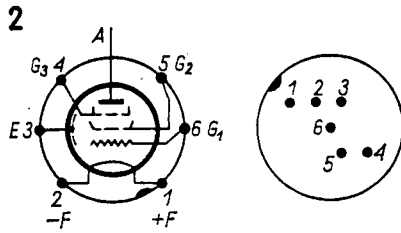
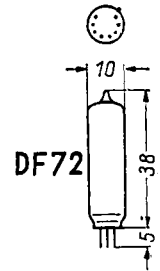
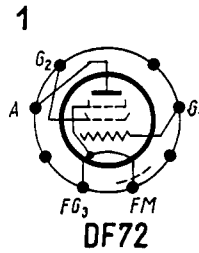
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_f	I_k	P_{g2}	P_o
			V	mA	V	V	V	mA	mA	mA/V	MΩ	mA	W	W
DF 72	Mul	1	1,25	25	67,5	67,5	0	1,7	0,5	1	0,65			
HY 245	Hyt	4	1,25	27	45	45	0	0,4	0,2	0,37	1			
HY 255	Hyt	4	1,25	27	45	45	-1,5	1	0,35	0,45				
1 AH 4	amer	6	1,25	40	45	45	0	0,75	0,2	0,75	1,5			
1 Ж 17 Б	CCCP	2	1,2	60	60	40	0	2	0,25	1		5	0,18	0,5
					90	60		maximum						
1 Ж 18 Б	CCCP	2	1,2	21	60	45	0	1,15	0,15	0,7		3	0,1	0,3
					90	60		maximum						
1 Ж 24 Б ¹⁾	CCCP	2	1,2	13	60	45	0	0,95	0,1	0,9		1,4		
					120	90		maximum						
1 Ж 36 Б ²⁾	CCCP	3	1,35	75	150	45	-1	3,5	0,35	1,5		10		
					200	60		maximum						
2 E 31	Ray	6	1,25	50		22,5	0	0,4	0,3	0,5	0,35			
2 E 32	Ray	10	1,25	50		22,5	0	0,4	0,3	0,5	0,35			
501	amer	8	1,25	50	45	45	0	1	0,25	0,8	0,75			
501 AX	Ray	8	1,25	30	30	30	0	0,65	0,25	0,75	1			
511 X	Ray	9	1,25	50	45	45	0	0,24	0,2	0,22	0,22			
5875	Ray	5	1,25	100	90	90	0	3,5	0,9	2,5				
5972	Ray	5	1,25	60	67,5	67,5	0	2,5	0,8	1,3	1			
6611	Ray	7	1,25	20	30	30	0	1	0,35	1	0,4			
6612	Ray	7	1,25	80	30	30	0	3	1	3	0,18			

¹⁾ vide * 4, c = 5000; ²⁾ vide * 4, b.

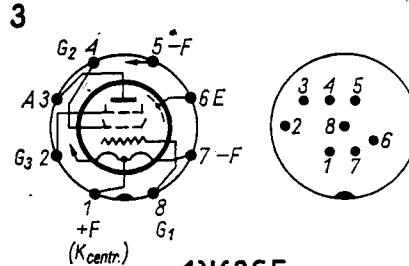
Equivalents

CK 501 AX	Ray = 501 AX
CK 511 X	Ray = 511 X
CK 553 AXA	Ray = 2 E 31
CK 5875	Ray = 5875
CK 5972	Ray = 5972
CK 6611	Ray = 6611
CK 6612	Ray = 6612
553 AXA	Ray = 2 E 31

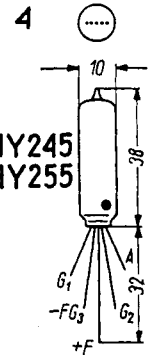
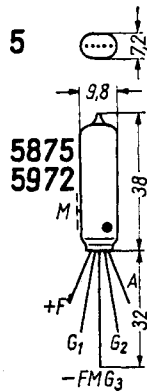
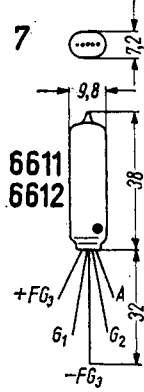
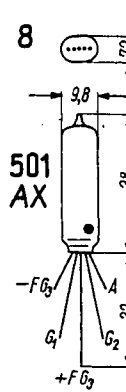
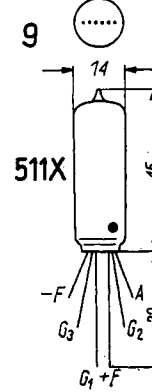
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$	vide
	pF	pF	pF	pF	
DF 72	3,1	5	0,01		
1Ж17Б	3,7	2,7	0,005	0,015	*6
1Ж18Б	3,7	2,7	0,005	0,015	*6
1Ж24Б	3,6	2,9	0,008	0,025	*6
1Ж36Б	4,2	3	0,05		*6
5875	4	4	0,03		



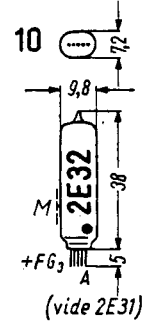
1Ж17Б/1Ж18Б/1Ж24Б



1Ж36Б

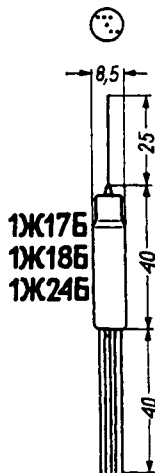
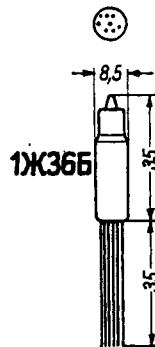
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HY2555875
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2E316611
6612501
AX

511X

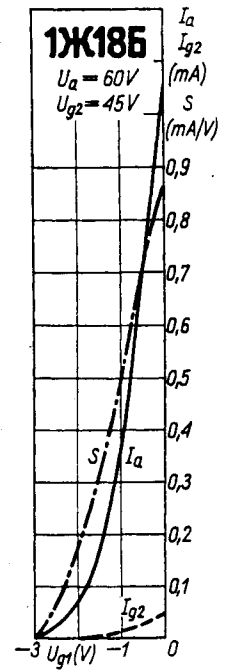
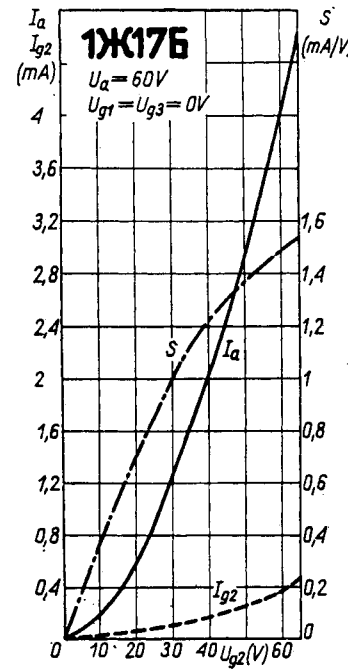
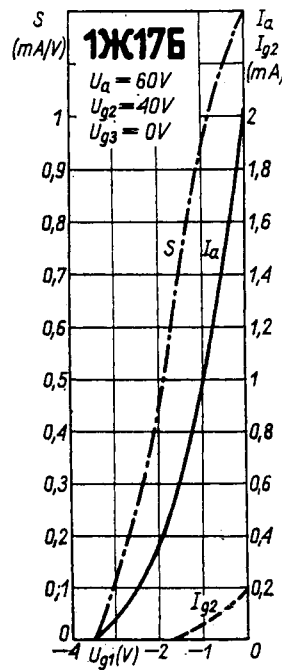


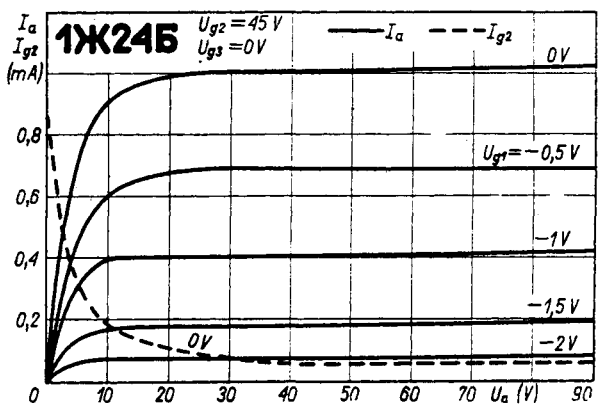
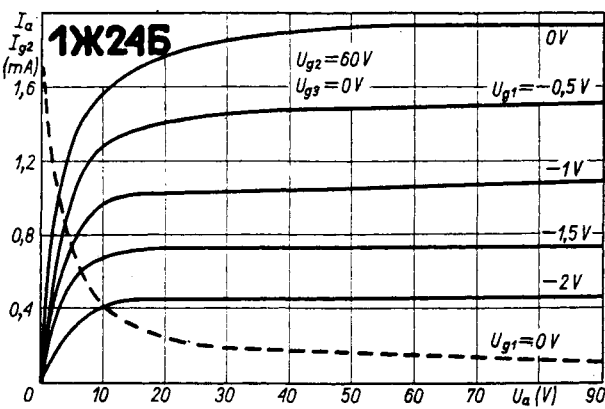
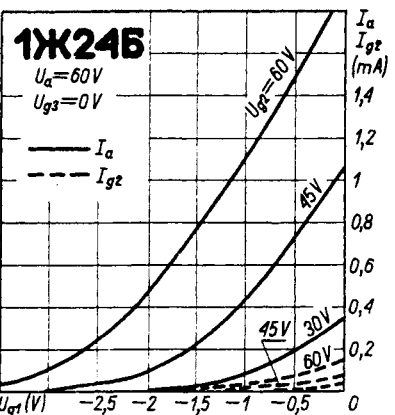
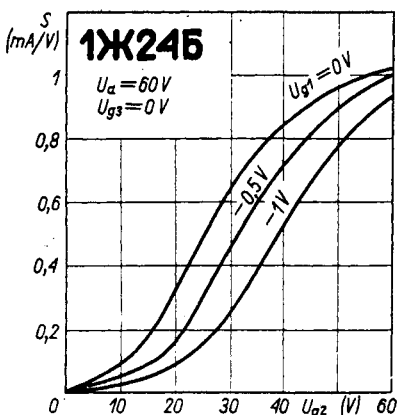
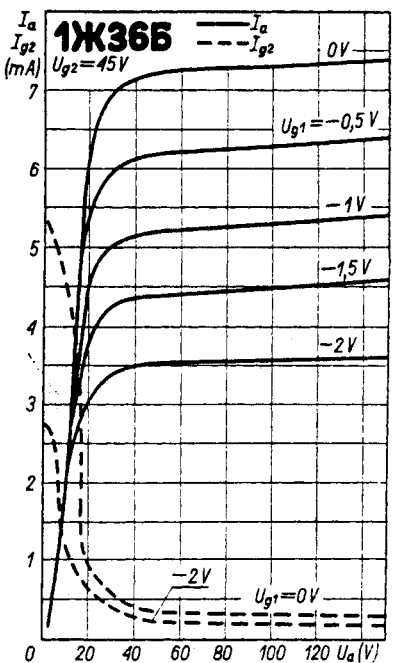
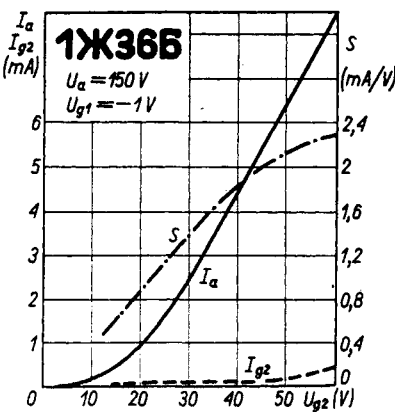
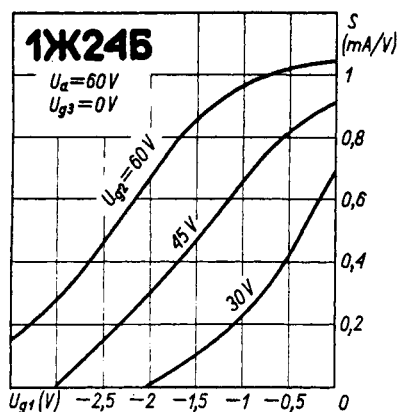
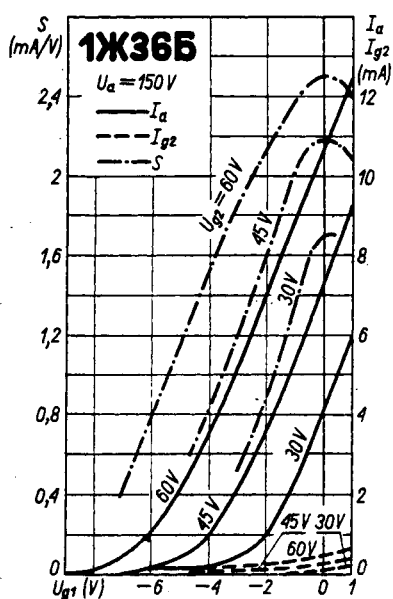
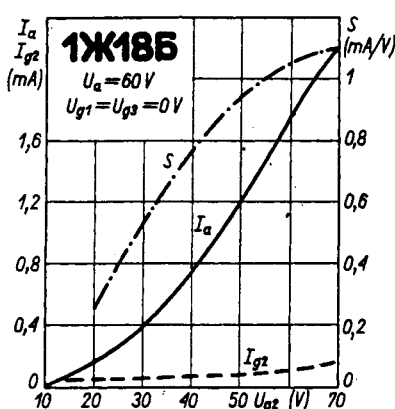
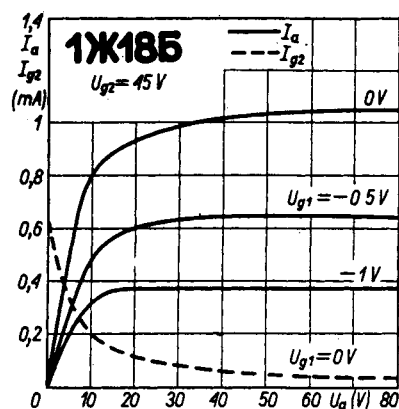
2E32

(vide 2E31)

1Ж17Б
1Ж18Б
1Ж24Б

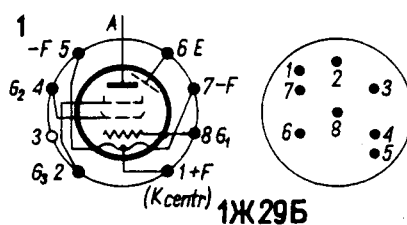
1Ж36Б



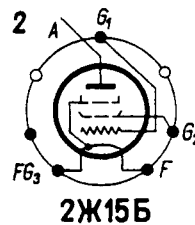


T.			U_f	I_f	U_a	U_{g1}	U_{g2}	U_{g3}	I_a	I_{g1}	S	I_k	P_{g1}	P_a
			V	mA	V	V	V	V	mA	mA	mA/V	mA	W	W
1Ж29Б	СССР	1	1,08÷1,32/2,16÷2,64	60/30	60 150	45 120	0	0	5,3 maximum	0,5	2	8	0,35	1,2
2Ж14Б	СССР	2	1,8÷2,5	30	90 90	45 90	0	0	1,9 maximum	0,8	1,8	5	0,13	0,5
2Ж15Б	СССР	3	1,8÷2,5	14	60 90	45 60	0	0	1,5 maximum	0,7	0,7	3	0,05	0,15

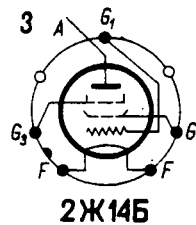
T. (vide * 6)	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
1Ж29Б	5,5	3,8	0,005
2Ж14Б	4,5	6	0,015
2Ж15Б	4	5	0,015



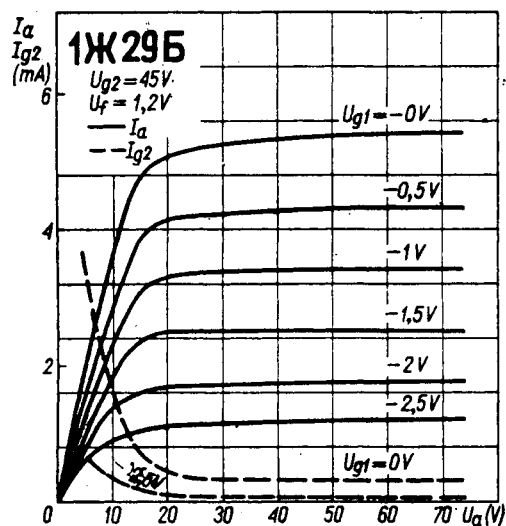
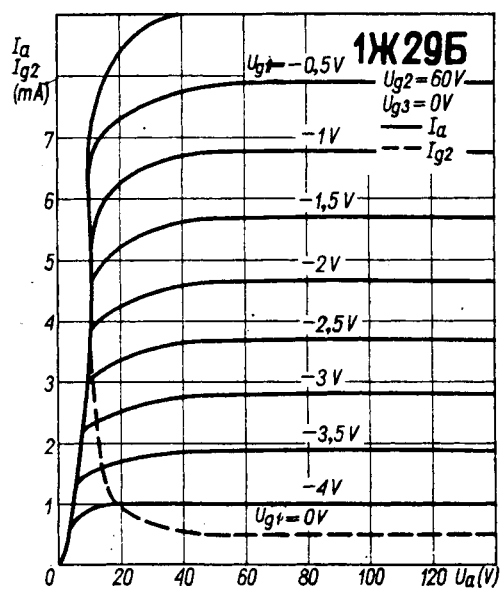
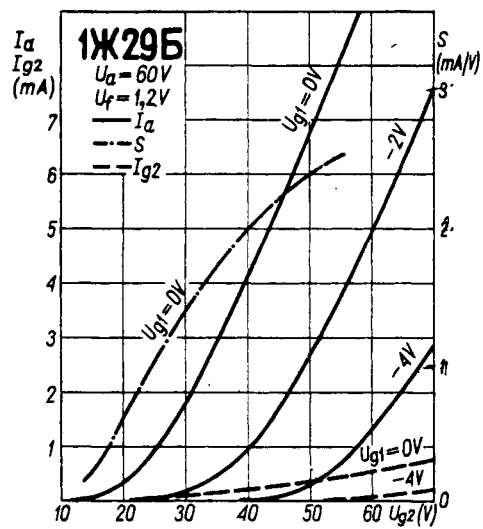
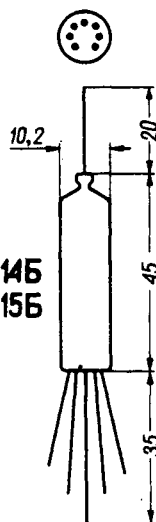
1Ж29Б



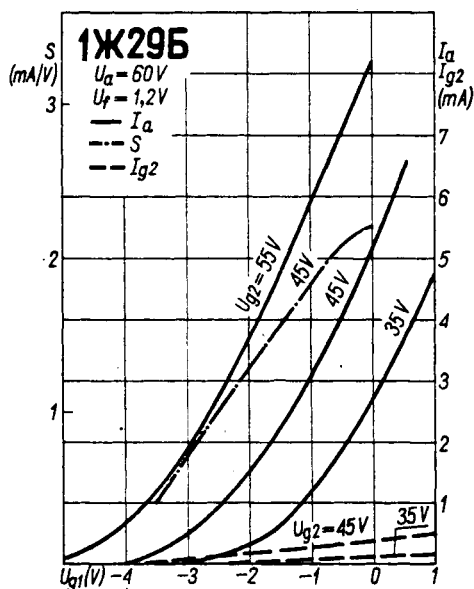
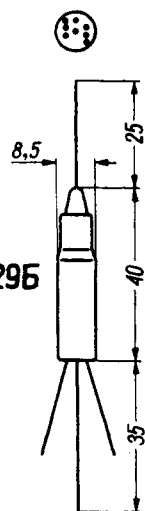
2Ж15Б



2Ж14Б

2Ж14Б
2Ж15Б

1Ж29Б



T.			U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	I_k mA
1 L 4	int	I	1,4	50	$\begin{cases} 90 \\ 90 \\ 110 \end{cases}$	$\begin{cases} 67,5 \\ 90 \\ 90 \end{cases}$	$\begin{cases} 0 \\ 0 \\ 0 \end{cases}$	$\begin{cases} 2,9 \\ 4,5 \\ \text{maximum} \end{cases}$	$\begin{cases} 1,2 \\ 2 \\ \text{maximum} \end{cases}$	$\begin{cases} 0,93 \\ 1,03 \end{cases}$	$\begin{cases} 0,6 \\ 0,35 \end{cases}$	6,5
1 LN 5	amer	2	1,4	50	$\begin{cases} 90 \\ 110 \end{cases}$	$\begin{cases} 90 \\ 110 \end{cases}$	$\begin{cases} 0 \\ 0 \end{cases}$	$\begin{cases} 1,6 \\ \text{maximum} \end{cases}$	$\begin{cases} 0,35 \\ \text{maximum} \end{cases}$	0,8	1,1	
1 U 4	int	I	1,4	50	$\begin{cases} 90 \\ 110 \end{cases}$	$\begin{cases} 90 \\ 110 \end{cases}$	$\begin{cases} 0 \\ 0 \end{cases}$	$\begin{cases} 1,6 \\ \text{maximum} \end{cases}$	$\begin{cases} 0,45 \\ \text{maximum} \end{cases}$	0,9	1,5	6,5

Equivalents

CK 5910	Ray	= 1 U 4
DF 92	Mul	= 1 L 4
DF 904	Tlf	= 1 U 4
HY 145	Hyt	= 1 U 4
IF 2	Eds	= 1 L 4
5910	amer	= 1 U 4

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
1 L 4	3,6	7,5	0,008
1 LN 5	3	8	0,007
1 U 4	3,6	7,5	0,008

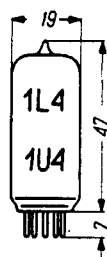
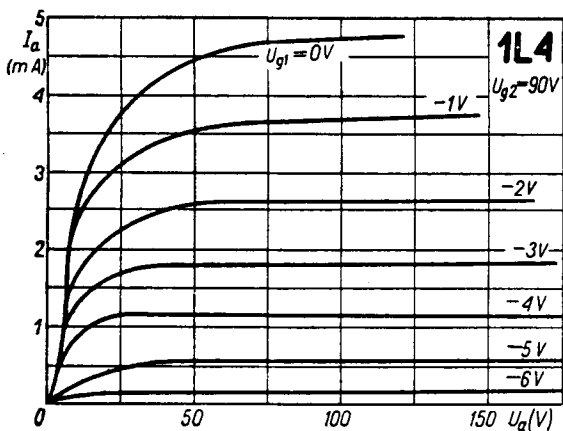
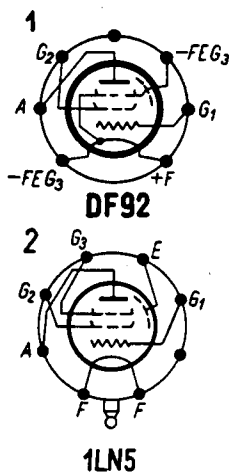
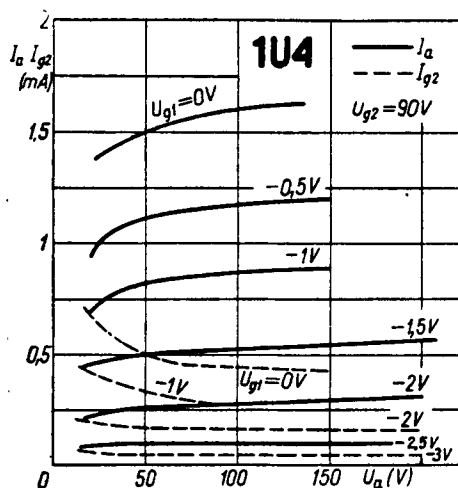
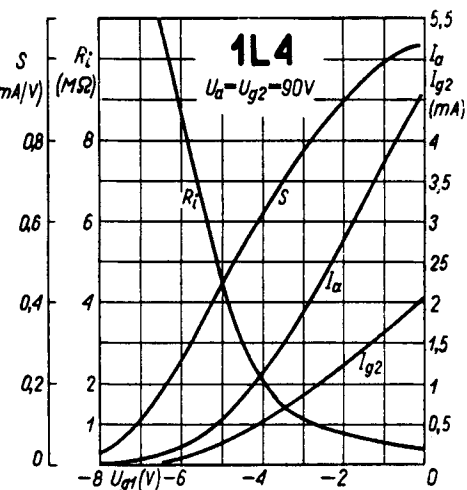
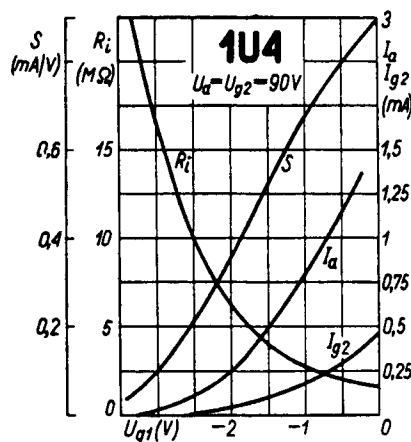
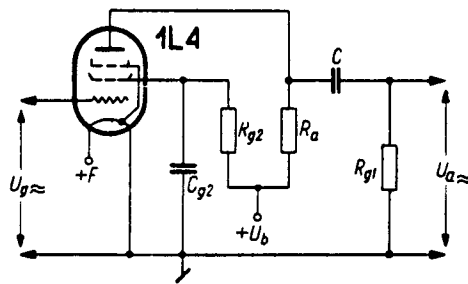


Fig. 1



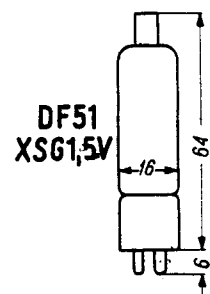
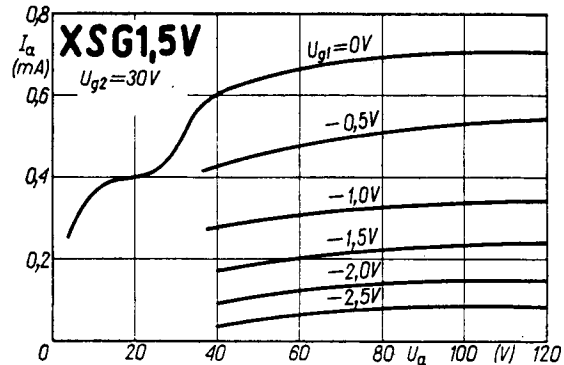
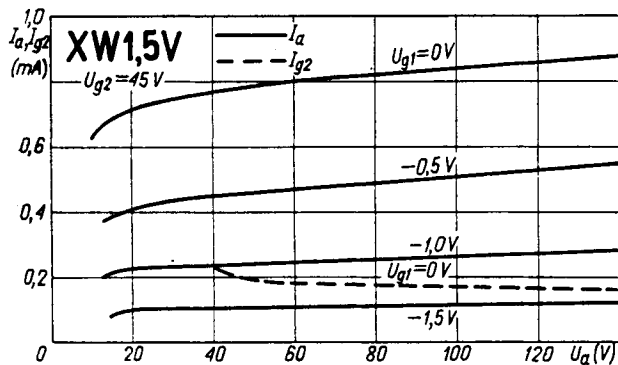
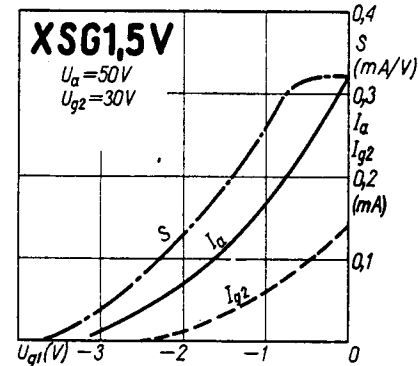
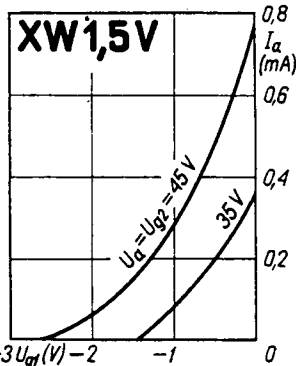
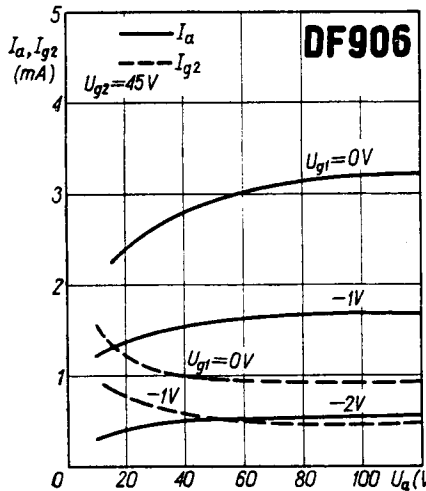
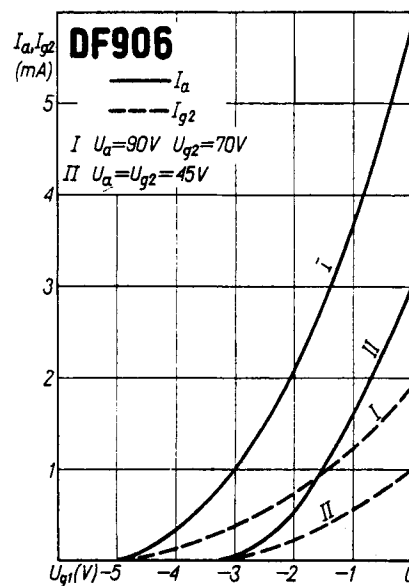
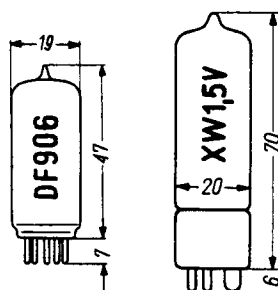
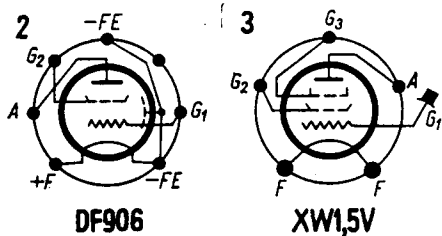
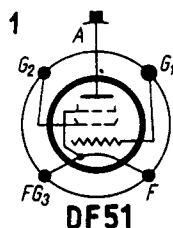
1 L 4 vide Fig. 1

U_b V	R_a MΩ	R_{g2} MΩ	R_{g1} MΩ	C_{g2} μF	C μF	$U_a \sim$ V	μ V/V
45	0,22	0,39	1,0	0,056	35	18	10
45	0,47	0,74	2,2	0,044	18	19	33
45	1,0	1,45	3,3	0,032	15	18	38
90	0,22	0,47	1,0	0,08	35	42	41
90	0,47	1,0	2,2	0,062	18	40	50
90	1,0	2,2	3,3	0,044	12	40	61
135	0,22	0,67	1,0	0,072	35	57	60
135	0,47	1,5	2,2	0,051	18	60	87
135	1,0	2,7	3,3	0,049	12	61	91

T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_t
			V	mA	V	V	V	mA	mA	mA/V	MΩ
DF 51	Mul	1	1,5	67	45	13,5	0	0,12	0,02	0,17	
DF 906	Tlf	2	1,4	100	45	45	0	3	1	1,7	0,5
					90	70	maximum ¹⁾ ($P_a = 0,6$ W)				
XSG 1,5 V	Hiv	1	1,5	80	50	30	0	0,55	0,06	0,3	0,666
					75	50	maximum				
XW 1,5 V	Hiv	3	1,5	80	50	45	0	0,75	0,2	0,52	1
					100	75	maximum				

¹⁾ $I_k = 12$ mA; $P_{g2} = 0,15$ W

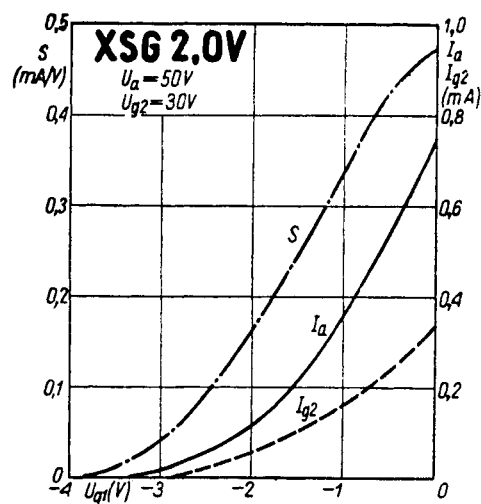
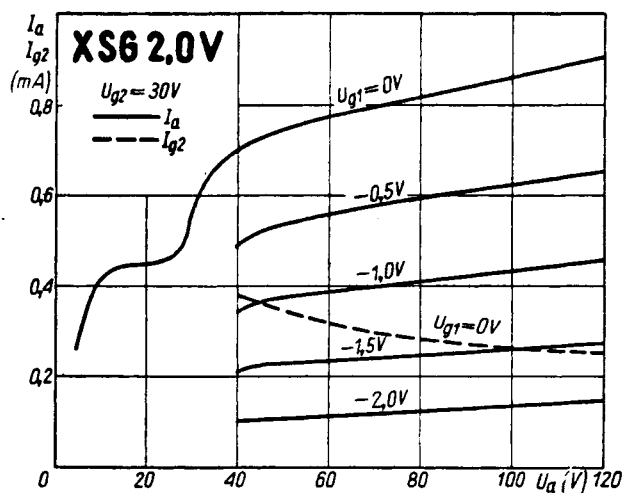
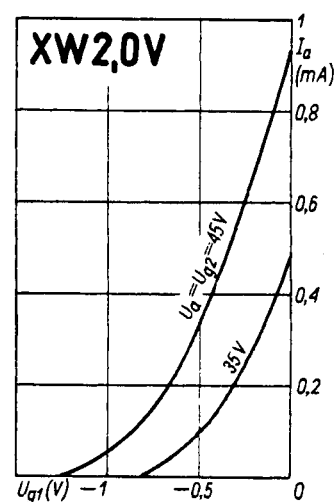
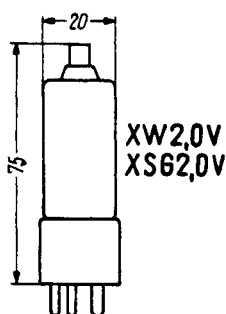
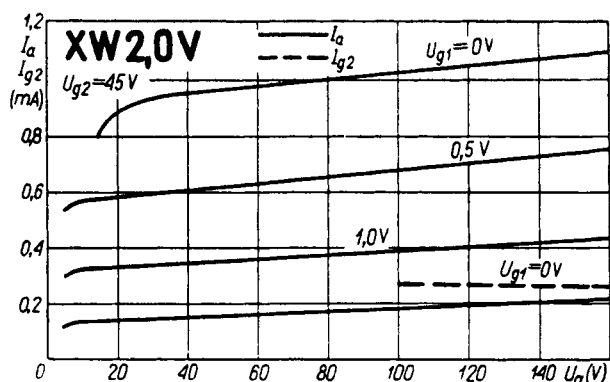
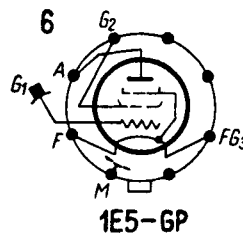
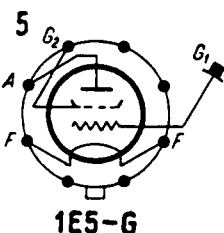
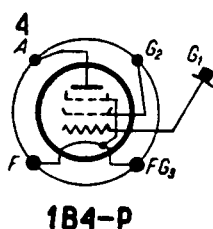
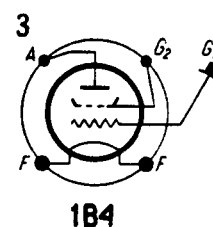
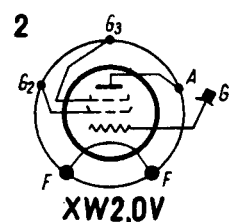
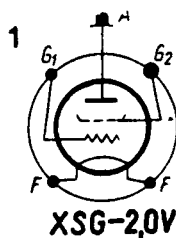
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DF 906	4,9	3,9	0,025



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_f
			V	mA	V	V	V	mA	mA	mA/V	MΩ
XSG 2.0V	Hiv	1	2	80	50 120	30 60	0	0,6 maximum	0,3	0,4	0,5
XW 2.0V	Hiv	2	2	80	50 100	45 75	0	0,95 maximum	0,3	0,6	1
1 B 4	amer	3	2	60	90	67,5	-3	1,6	0,7	0,6	1
1 B 4-P	amer	4	2	60	135	67,5	-3	1,6	0,7	0,56	1,5
1 E 5-G	amer	5	2	60	180	67,5	-3	1,7	0,6	0,65	1,5
1 E 5-GP	amer	6	2	60							

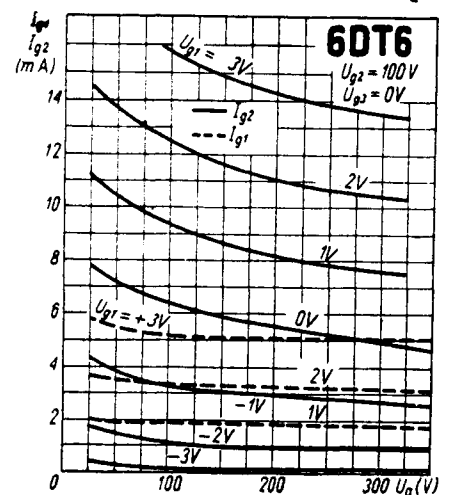
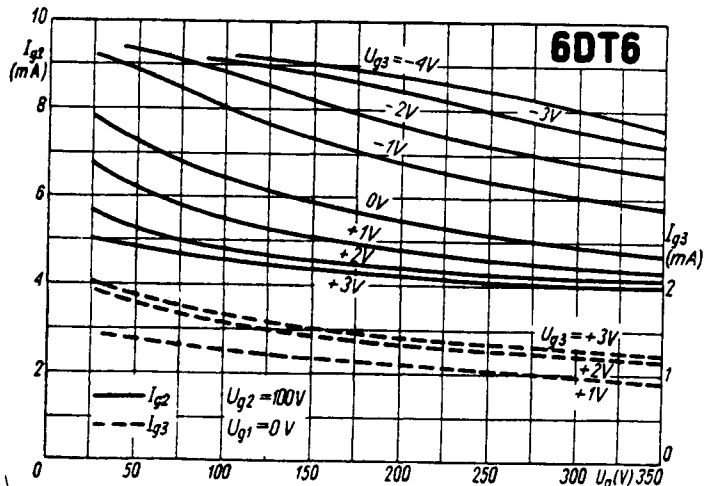
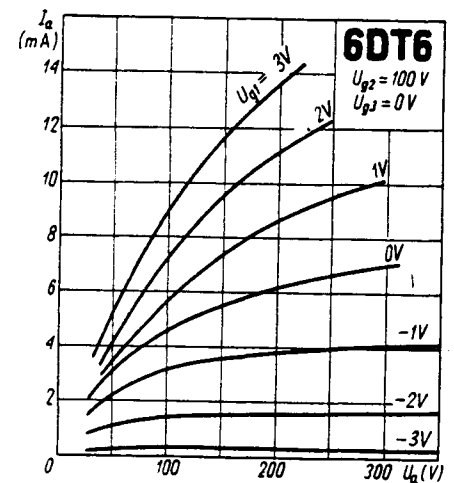
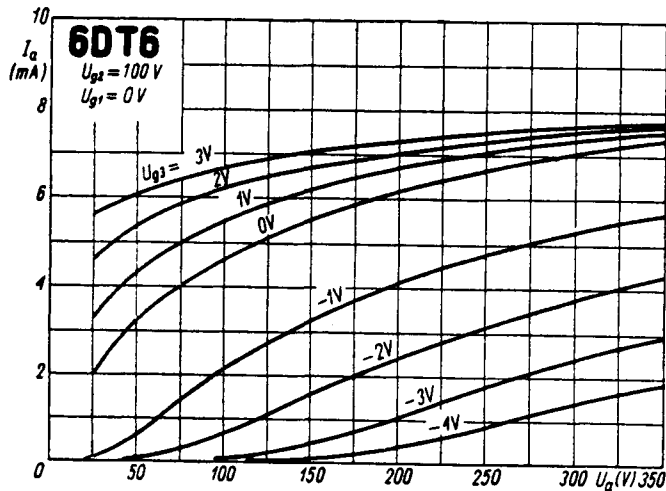
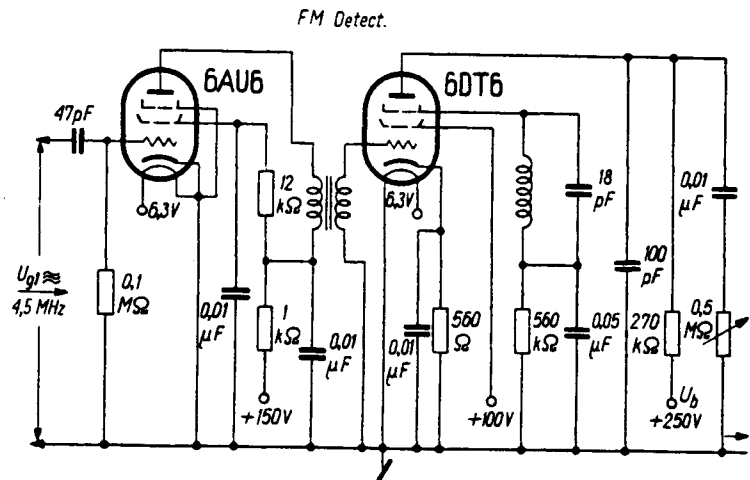
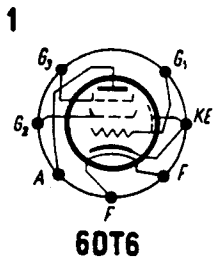
Equivalents

1 B 4-T amer = 1 B 4
1 E 5-GT amer = 1 E 5-G
951 amer = 1 B 4

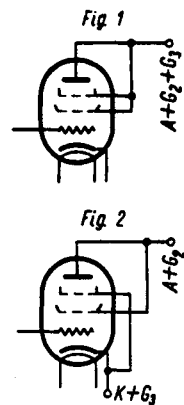


T.			U_f	I_f	Cl.	U_a	U_b	U_{g2}	U_{g3}	I_a	I_{g2}	I_{g1}	$S_{(g1/a)}$	$S_{(g3/a)}$	R_i	R_k	b	$U_{g1 \sim}$					
			V	A		V	V	V	V	mA	mA	mA	mA/V	mA/V	kΩ	Ω	kHz	V					
3 DT 6	amer	1	3,15	0,6	stat Fig. 1	150		100	0	1,1	2,1		0,8	0,515	150	560							
4 DT 6	amer	1	4,2	0,45		{ 250 250 250		100	-5	0,23	3,4	0,013				560	65	5,5					
6 DT 6	amer	1	6,3	0,3				100	-6	0,22	5,5	0,6				560	120	6,5					
								100	-6,4	0,21	6	0,8				560	118	7,5					
						300		150	25	maximum $P_a = 1,5 \text{ W}$; $P_{g2} = 1 \text{ W}$; $U_{f/k} = 100 \text{ V}$													

C_{g1} pF	$C_{g1/a}$ pF	C_{g3} pF	$C_{g3/a}$ pF	$C_{g3/g1}$ pF
5,8	0,02	6,1	1,4	0,1



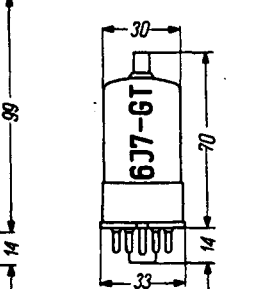
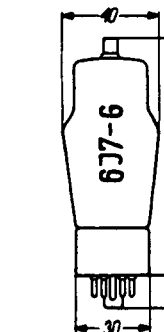
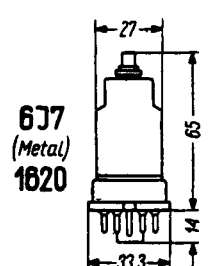
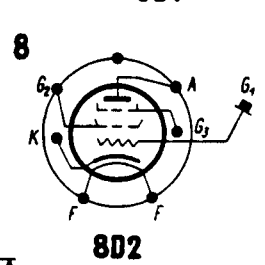
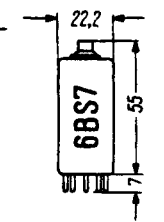
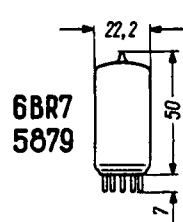
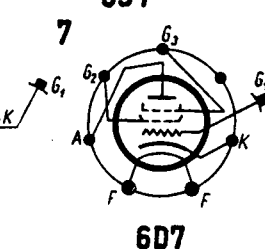
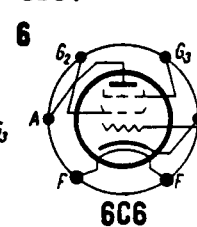
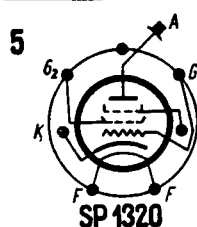
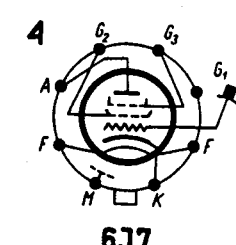
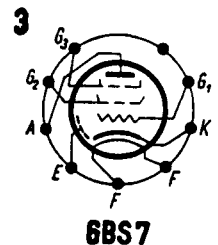
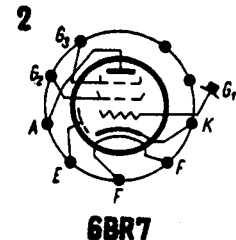
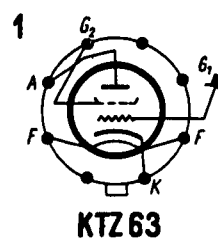
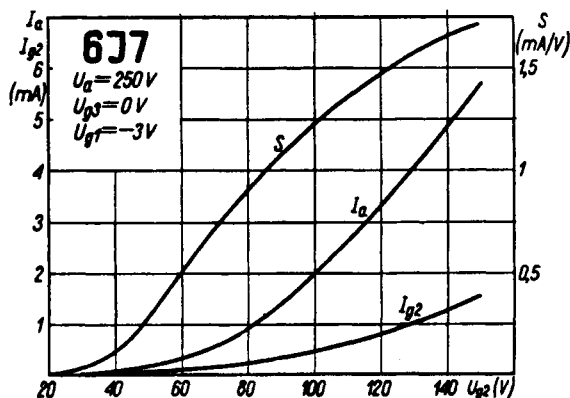
T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	μ	R_i	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	V/V	kΩ	V	W	W
KTZ 63	Eng	1	6,3	0,3	26	26	—	0,4	0,1	0,7					
SP 1320	Max	5	13	0,2	100	100	—	2	0,5	1,18		1000			
6 BR 7	Bri	2	6,3	0,15	250	100	—	2	0,5	1,22		1250			
6 BS 7	Bri	3	6,3	0,3	300	125		maximum ($R_{g1} = 1,5 M\Omega$)					90	0,1	0,75
6 C 6	amer	6	6,3	0,3											
6 D 7	amer	7	6,3	0,3	90	—	—2,5	2	—	1,45	20	13,8			
6 J 7	int	4	6,3	0,3	180	—	—5,3	5,3	—	1,8	20	11			
6 W 7-G	amer	4	6,3	0,15	250	—	—8	6,5	—	1,9	20	10,1			
8 D 2	Bri	8	13	0,2	250	—				maximum ($R_{g1} = 1 M\Omega$)					1,75
11 J 7	amer	4	11	0,15											
12 J 7-GT	int	4	12,6	0,15	220	—	—4	1	—	0,26	17,4	6,7			
24 J 7	Max	6	24	0,08											
57	amer	6	2,5	1											



Equivalents

A 257	Vis = 57	6 JK 7 B	CCCP = 6 J 7
A 677	Vis = 6 C 6	8 D 5	Bri = 6 BR 7
ASX 57	amer = 57	8 D 7	Bri = 6 BS 7
CK 108	Ray = 6 C 6	57 AS	amer = 6 C 6
G 77	amer = 6 C 6	57 S	amer = 57
GL-1620	GE = 6 J 7	57 YS	amer = 57
KTZ 63/6 J 7 G	Marc = 6 J 7-G	77	amer = 6 C 6
T 77	amer = 6 C 6	77 E	Bri = 6 C 6
TTZ 63	Mul = KTZ 63	77 M	amer = 6 C 6
WT-210-0089	WT = 6 C 6	87 S	amer = 6 C 6
WT-210-0090	WT = 6 C 6	108	Ray = 6 C 6
WT-T-131	WT = 6 C 6	177	amer = 6 C 6
Z 63	Eng = 6 J 7	277	amer = 6 C 6
6 C 6-G	amer = 6 C 6	377	amer = 6 C 6
6 J 7-G	int = 6 J 7	1221	amer = 6 C 6
6 J 7-GT	int = 6 J 7	1223	amer = 6 J 7
6 J 7-GTX	amer = 6 J 7	1603 T	Fiv = 6 C 6
6 J 7 MG	Frc = 6 J 7-GT	1620	amer = 6 J 7
6 Z 7	Pol = 6 J 7-G	6059	Bri = 6 BR 7
6 JK 6 M	CCCP = 6 J 7	7000	amer = 6 J 7
6 JK 7	CCCP = 6 J 7	7700	amer = 6 C 6

T.	C_{g1}	C_a	$C_{g1/a}$	
	pF	pF	pF	
KTZ 63/6 J 7	4,7	9,9	0,0038	
6 BR 7	4	4	0,01	
6 BS 7	4	4	0,01	
6 C 6	5	6,5	0,007	
6 J 7	7	12	0,005	pent.
	5	14	2,0	pent.
6 J 7-G	4,6	12	0,007	pent.
6 J 7-GT	2,6	17	1,8	trioid.



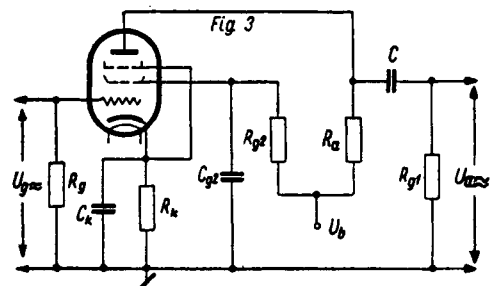
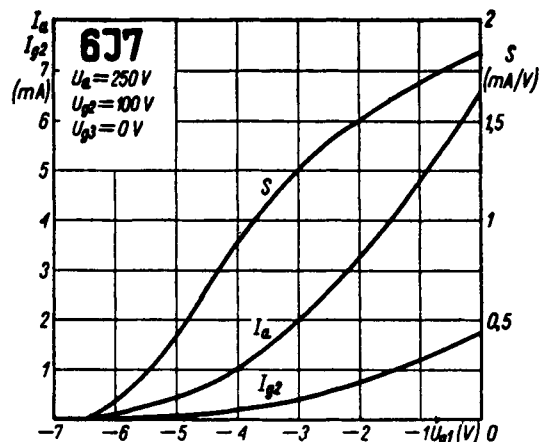
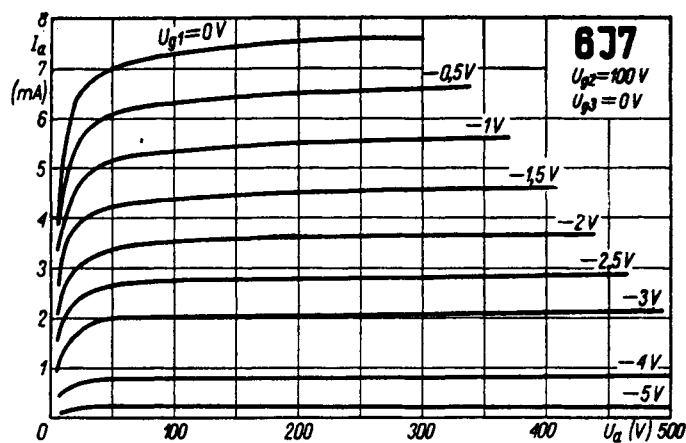


Fig. 3

U_b V	R_a MΩ	R_{g1} MΩ	R_{g2} MΩ	R_k kΩ	C μF	C_{g2} μF	C_k μF	$U_{a\sim}$ V	μ V/V
90	0,1	0,44	0,5	1,3	0,006	0,05	4,8	33	66
90	0,25	1,4	1,0	3,6	0,003	0,025	2,5	33	92
90	0,5	2,7	2,0	5,5	0,0015	0,02	2,0	27	140
180	0,1	0,5	0,5	0,8	0,006	0,05	6,7	59	83
180	0,25	1,4	1,0	2,0	0,0025	0,04	3,8	60	140
180	0,5	2,7	2,0	3,5	0,0015	0,02	2,8	60	165
300	0,1	0,53	0,5	0,6	0,006	0,06	8,0	96	94
300	0,25	1,45	1,0	1,3	0,005	0,05	5,8	110	185
300	0,5	2,95	2,0	2,3	0,0025	0,04	4,0	100	230

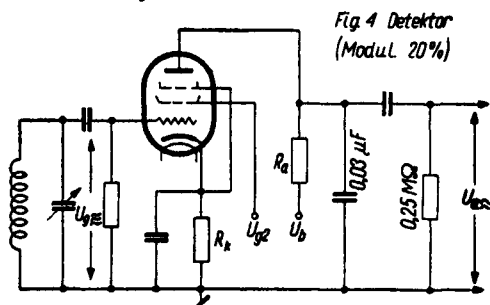
Fig. 4 Detektor
(Modul. 20%)

Fig. 4

U_b V	U_{g2} V	U_{g1} V	I_k mA	R_k kΩ	R_a MΩ	$U_{g\sim}$ V	$U_{a1}^{(1)} \sim$ V
250	50	-2,0	0,65	3	0,25	1,18	17
250	33	-1,7	0,21	8	0,5	1,21	17
250	100	-3,9	0,97	4	0,25	1,38	17
250	100	-4,3	0,43	10	0,5	1,37	17

1) Modul. 20%

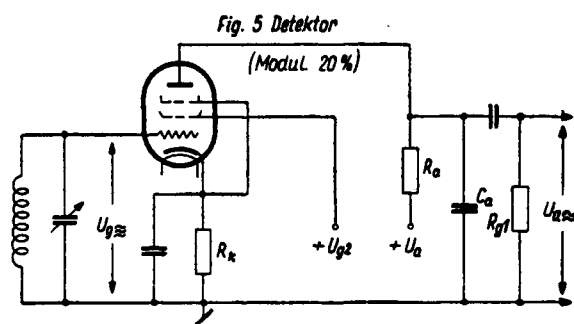
Fig. 5 Detektor
(Modul. 20%)

Fig. 5

U_b V	U_{g2} V	U_{g1} V	I_k mA	R_k kΩ	R_a MΩ	C_a μF	R_{g1}' MΩ	$U_{g\sim}$ V	$U_{a1}^{(1)} \sim$ V
100	12	-1,2	0,063	18	1,0	0,01	1,0	1,05	17
100	30	-1,8	0,183	10	0,25	0,01	0,5	1,6	17
250	50	-2,0	0,65	3,0	0,25	0,03	0,25	1,18	17
250	100	-4,3	0,43	10	0,5	0,03	0,25	1,37	17

1) Modul. 20%

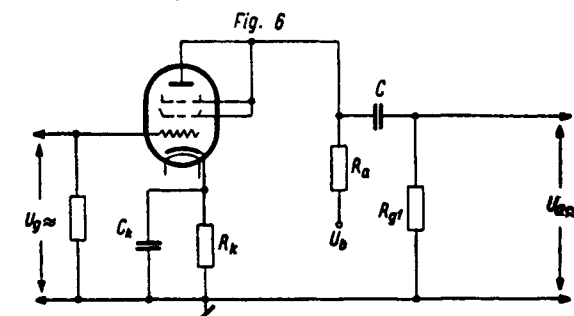
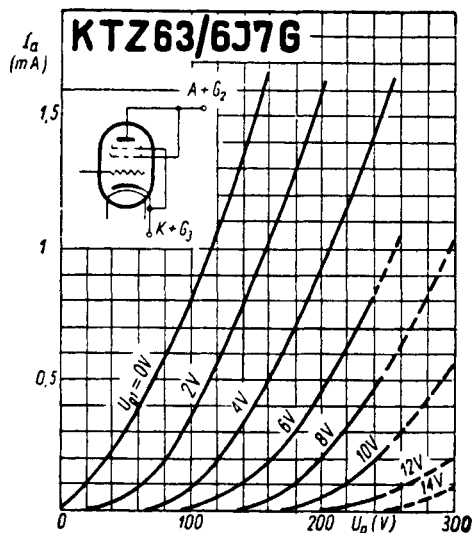
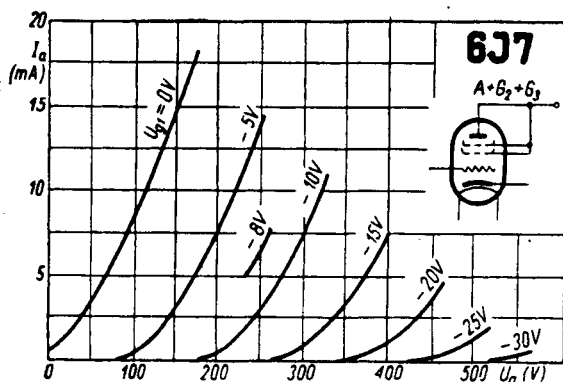


Fig. 6

Fig. 6

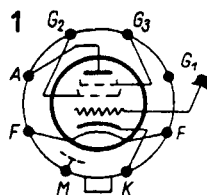
U_b V	R_a MΩ	R_{g1} MΩ	R_k kΩ	C_k μF	C μF	$U_{a\sim}$ V	μ V/V
90	0,05	0,25	3,8	1,3	0,01	20	10
90	0,1	0,5	7,5	0,66	0,005	23	12
90	0,25	1,0	17,3	0,33	0,004	26	13
180	0,05	0,25	3,1	1,85	0,015	54	11
180	0,1	0,5	6,2	1,2	0,008	55	13
180	0,25	1,0	14,7	0,47	0,004	59	13
300	0,05	0,25	3,1	2,2	0,015	83	12
300	0,1	0,5	6,0	1,17	0,008	88	13
300	0,25	1,0	14,0	0,37	0,003	97	14



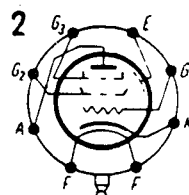
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	Ω	V	W	W
KTZ 73 M	Eng	I	6,3	0,16	250	100	-3	2	0,25	1,5					
PF 9	Maz	I	6,3	0,3	250	100	-3,5	7,5	1,6	1,65	0,65				
RTR 4141 ¹⁾	SER	I	5,25	0,38	250	100	-3	2,5	0,5	1,25	1		100	0,2	1
					300	125			maximum						
					100	100	-3	1,8	0,4	1,22		1300			
7 C 7	amer	2	6,3	0,15	250	100	-3	2	0,5	1,3		1200			
					250	100	-7	0,01					90	0,25	1,25
					300	100			maximum						
8 D 4	Bri	I	6,3	0,2	240	100	-2	2,9	0,85	1,85	2,4				
348 A	WE	I	6,3	0,5	135	135		5,5		1,8	0,65	650			
					275	180			maximum				90	0,4	2,5
					250	100	-3	1,8	0,4	1	2				
					250	100	-8	0,01							
					300	150			maximum				90	0,25	1,25
5879	amer	3	6,3	0,15	100	—	-3	2,2	—	1,24	0,017	Fig. 1 $\mu = 21$			
					250	—	-8	5,5	—	1,53	0,014				
					250	—			maximum				90		1,5

¹⁾ vide * 4

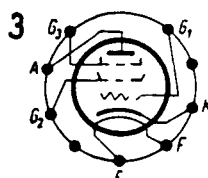
T.	C_{g1}	C_a	$C_{g1/a}$	
	pF	pF	pF	
RTR 4141	4,55	12,5	0,0075	
7 C 7	5,5	6,5	0,007	
5879	2,7 1,4	2,4 0,85	0,15 1,4	pent. triode.



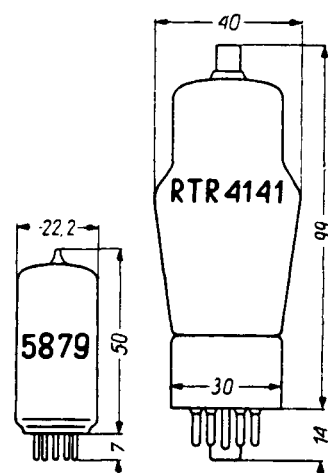
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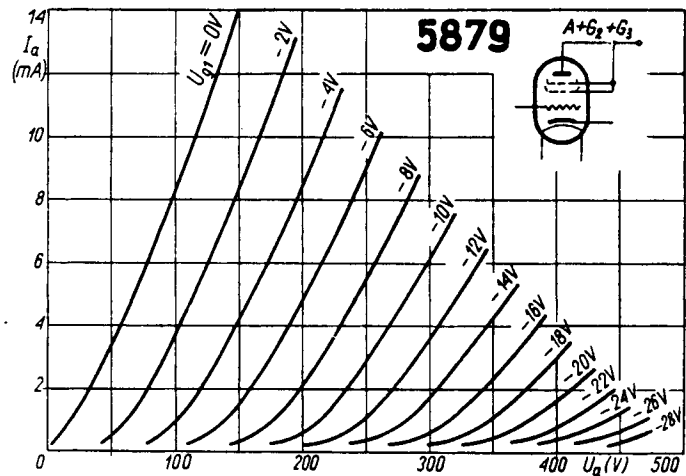
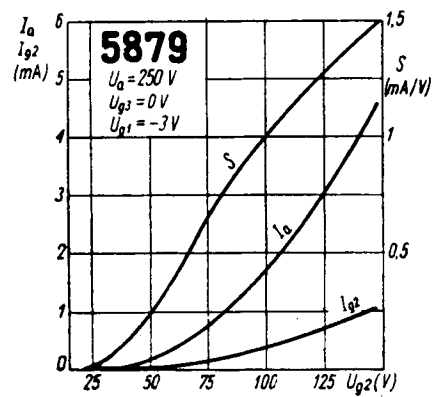
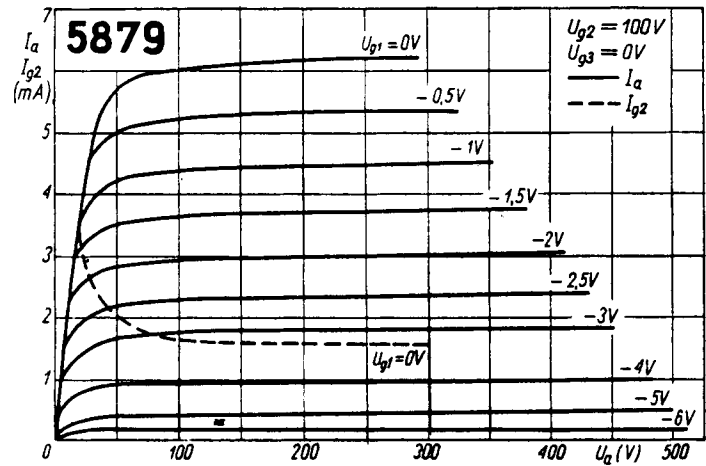
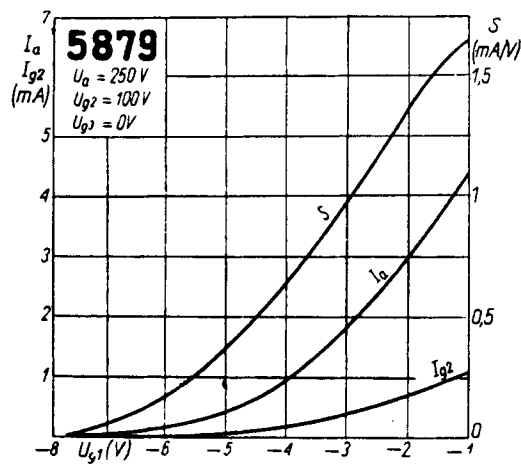
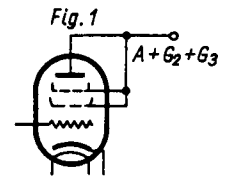
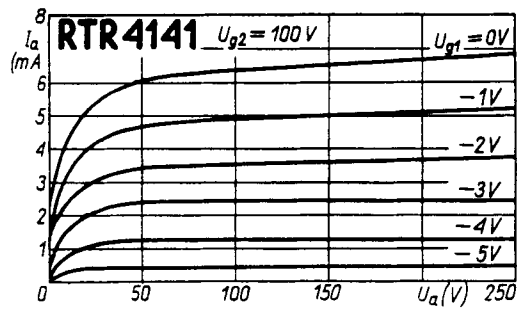
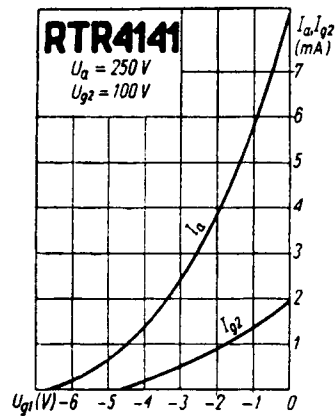


7C7



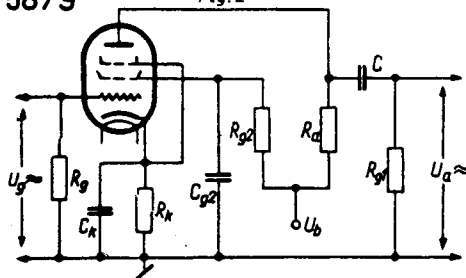
5879





5879

Fig. 2

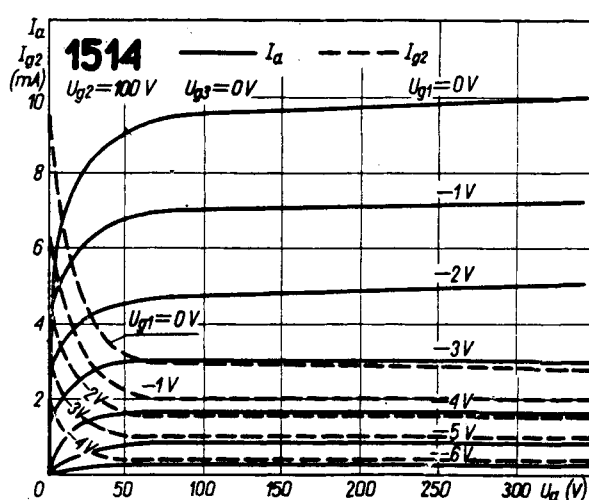
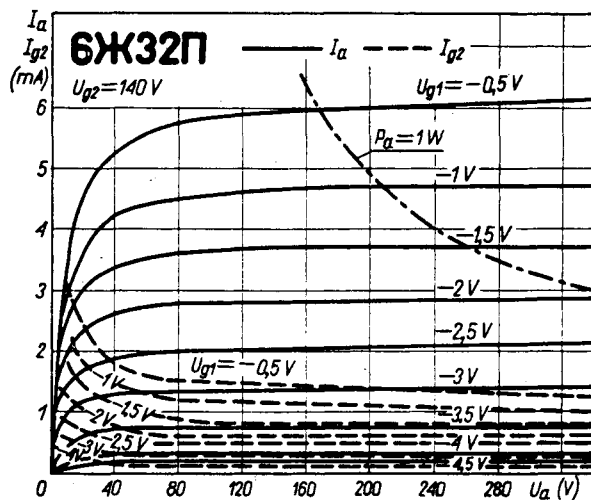
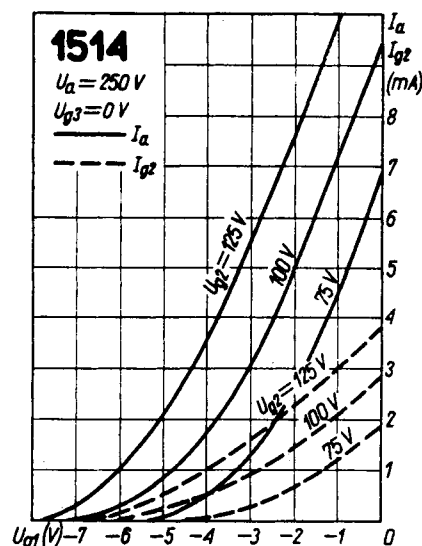
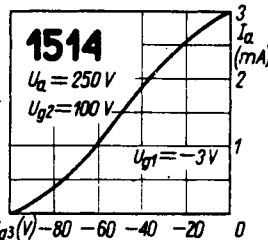
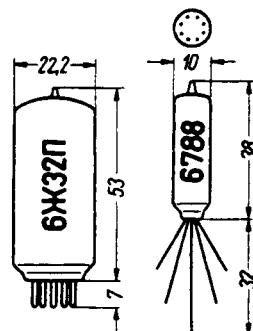
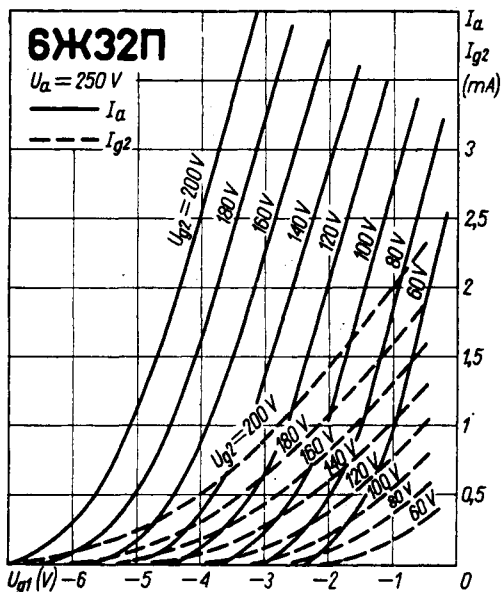
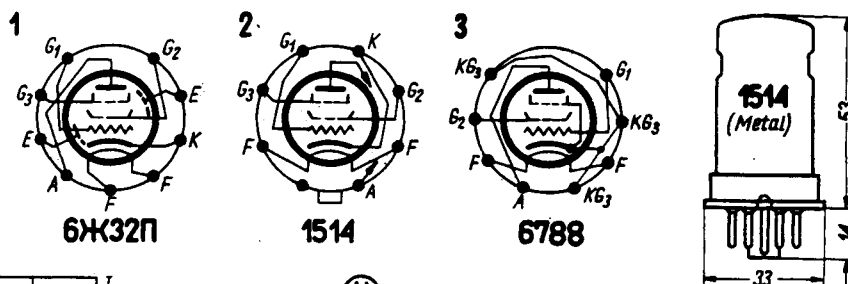


U_b	R_a	R_{g2}	R_{g1}	R_k	C	C_{g2}	C_k	μ	$U_{a\approx}$
V	MΩ	MΩ	MΩ	kΩ	μF	μF	μF	V/V	V
90	0,1	0,17	0,47	2,4	0,007	0,07	4,0	39	31
90	0,22	0,44	1,0	4,1	0,004	0,06	3,0	50	32
90	0,47	1,1	2,2	8,0	0,002	0,04	2,0	64	32
180	0,1	0,22	0,47	1,5	0,007	0,07	5,45	57	68
180	0,22	0,55	1,0	2,4	0,004	0,065	4,25	72	68
180	0,47	1,2	2,2	4,0	0,002	0,07	3,3	81	66
300	0,1	0,23	0,47	1,2	0,007	0,075	6,4	66	124
300	0,22	0,58	1,0	1,7	0,004	0,075	5,0	86	124
300	0,47	1,3	2,2	2,8	0,002	0,1	4,2	99	121

T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t MΩ	R_k Ω	U_f/k V	I_k mA	P_{g2} W	P_a W
6Ж32П	СССР	1	6,3	0,2	250 300	140 200	-2	3	1,8 maximum	2,5		50	6	0,2	1
1514 ¹⁾	СССР	2	6,3	0,3	250 330	100 140	-3	3	0,8 maximum			100		0,7	2,8
6788 ²⁾	amer	3	6,3	0,175	100	100		0,7	0,1	1,7	1500				0,5

¹⁾ vide * 4, a, b, d, e; ²⁾ vide * 4, a, b, c = 5000, e.

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
6Ж32П	4	5,5	0,05
1514	4,9	5,2	0,005
6788	2,5	3,2	0,032



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	M Ω	V/V	V	mA	W	W
EF 6	eur	1	6,3	0,2	100	100	-2	3	0,8	1,8	1					
EF 21	Pol	2	6,3	0,2	200	100	-2	3	0,8	1,8	2					
EF 36	eur	3	6,3	0,2	250	100	-2	3	0,8	1,8	2,5					
TS 45 ¹⁾	Phi	4	6,3	0,2	300	125	-3	6	—	2,8	0,01	28	100	6	0,3	1
EF 6 N	Tes	1	6,3	0,41	250	100	-2	3	1,1	2,1	2	6		6	0,3	1

¹⁾ vide * 4

Equivalents

EF 22	Pol	= EF 21
EF 37	eur	= EF 36
EF 37 A	eur	= EF 36
OM 5	Cos	= EF 36
OM 5 A	Cos	= EF 36
OM 5 B	Cos	= EF 36
S 620	Tri	= EF 6
TEF 6	Tu	= EF 6
VEF 6	Vat	= EF 6
5 A/157 D ¹⁾	STCE	= EF 36
6 E 2	Ult	= EF 6

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 6	5,2	6,9	0,003
EF 21			
EF 36			
5 A/157 D	5,5	8,5	0,02

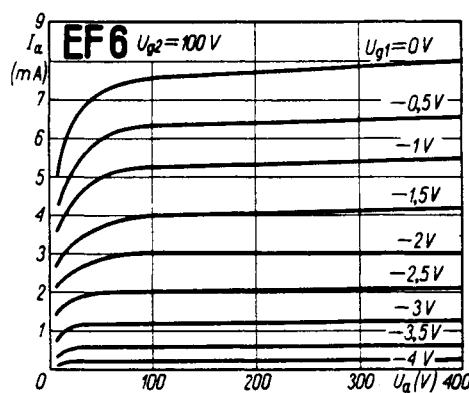
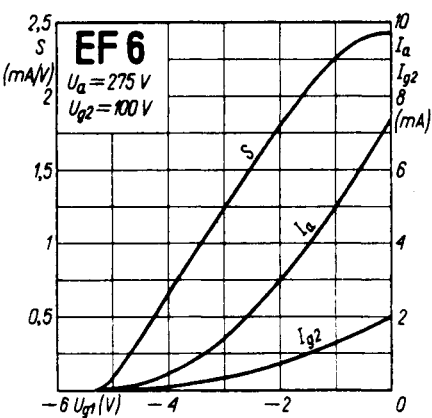
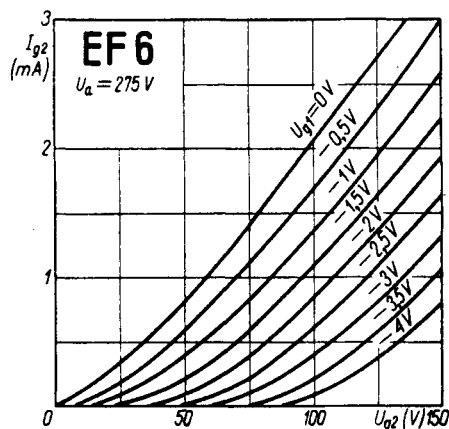
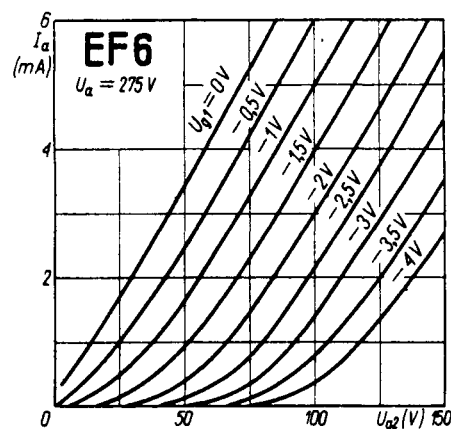
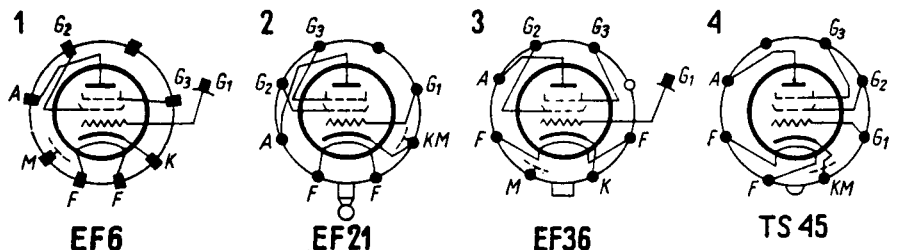
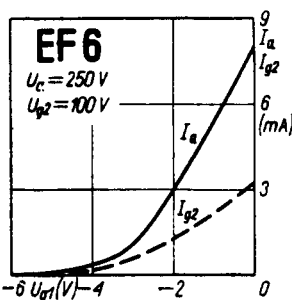
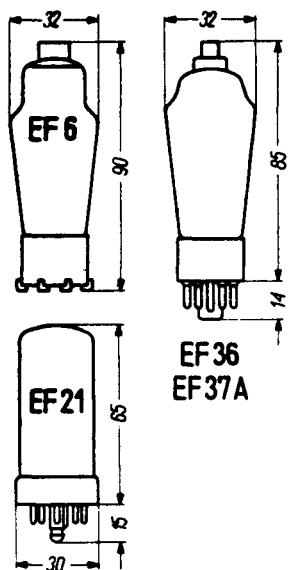


Fig 2

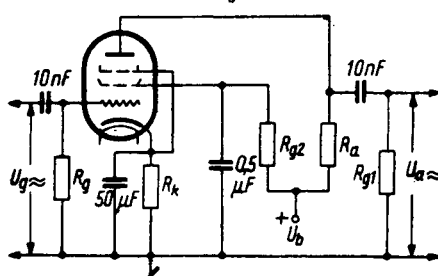
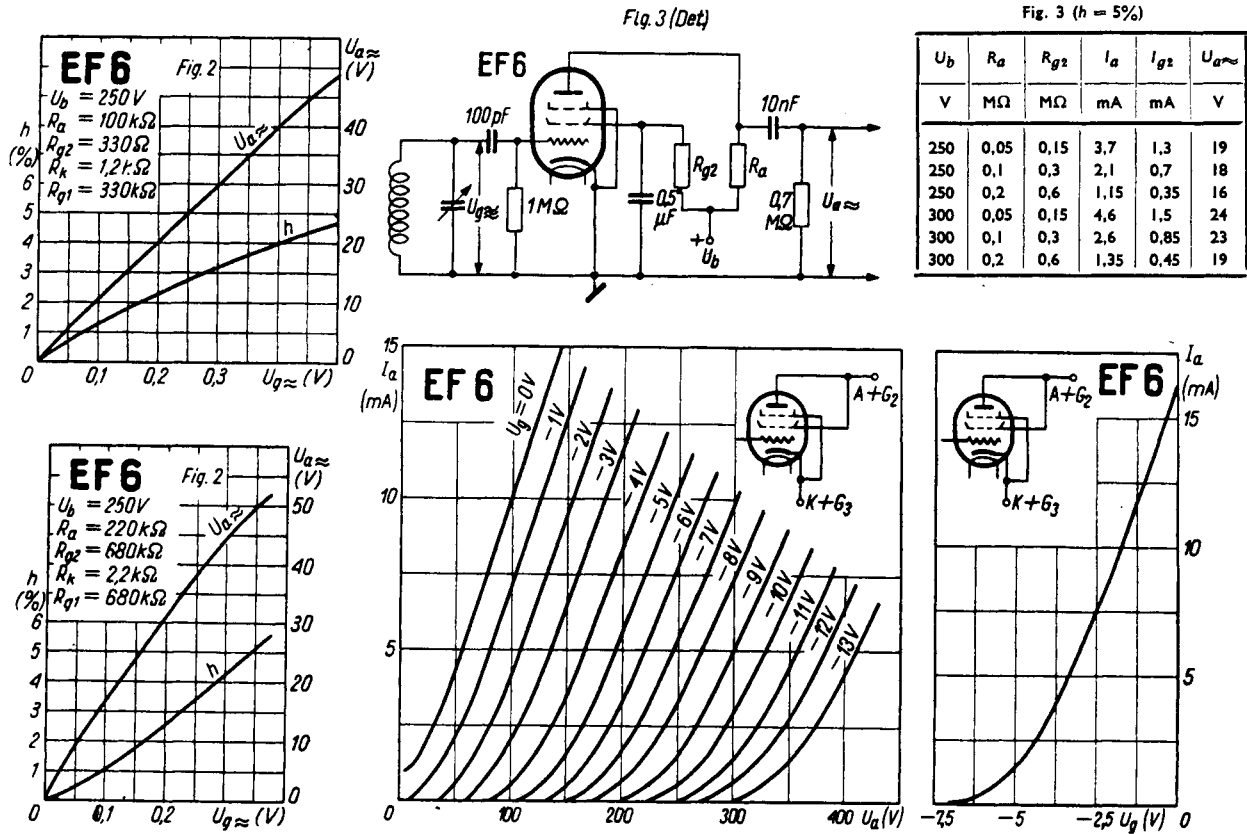


Fig. 2

($R_g = 1,5 \text{ M}\Omega$; $R_{g1} = 0,7 \text{ M}\Omega$; $U_{a \sim} = 3,7 \div 11,2 \text{ V}$; $h = 1 \div 2,2\%$)

U_b	R_a	R_{g2}	R_k	I_a	I_{g2}	μ
V	M Ω	M Ω	k Ω	mA	mA	V/V
250	0,1	0,25	1,6	1,6	0,5	110
250	0,2	0,4	3	0,9	0,35	140
250	0,3	0,8	4	0,6	0,2	165
300	0,1	0,25	1,6	1,9	0,65	115
300	0,2	0,4	3	1,1	0,4	150
300	0,3	0,8	4	0,7	0,25	175



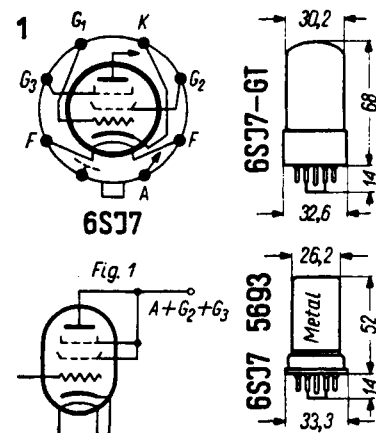
T.			U_j V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i M Ω	U_f/k V	I_k mA	P_{g2} W	P_a W
6 SJ 7	int	I	6,3	0,3	100	100	-3	2,9	0,9	1,57	0,7				
12 SJ 7	int	I	12,6	0,15	250	100	-3	3	0,8	1,65	1				
					250	100	-8	0,01				90	10	0,3	2,5
					300	125		maximum ($R_{g1} = 2 M\Omega$)							
					180	—	-6	6	—	2,3	0,082	vide Fig. 1 $\mu = 19$			
					250	—	-8,5	9,2	—	2,5	0,076				
					250	—									
								maximum							

Equivalents

HF 3127	RFT = 6 SJ 7
OSW 3127	RFT = 6 SJ 7
WT-210-0081	WT = 6 SJ 7
WT-T-122	WT = 6 SJ 7
6 SJ 7-GT	int = 6 SJ 7
6 SJ 7-WGT ¹⁾	amer = 6 SJ 7
6 SJ 7-Y	amer = 6 SJ 7
6 JK 8	CCCP = 6 SJ 7
6 JK 8-E ²⁾	CCCP = 6 SJ 7
6 JK 17 B	CCCP = 6 SJ 7
12 JK 8 B	CCCP = 12 SJ 7
12 JK 17 B	CCCP = 12 SJ 7
12 SJ 7-GT	int = 12 SJ 7
5693 ³⁾	amer = 6 SJ 7

¹⁾ vide *4,a,b ($U_f = 6,3 V \pm 10\%$); ²⁾ vide *4,a,b,c = 10.000, f.g ($U_f = 6,3 V \pm 5\%$)
³⁾ vide *4,a,b,c = 5000,e

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	
6 SJ 7	6	7	0,008	pent. triod.
	3,4	11	2,9	
6 SJ 7-GT	7	7	0,005	pent. triod.
	3,4	11	2,8	
5693	5,3	6,2	0,005	pent.



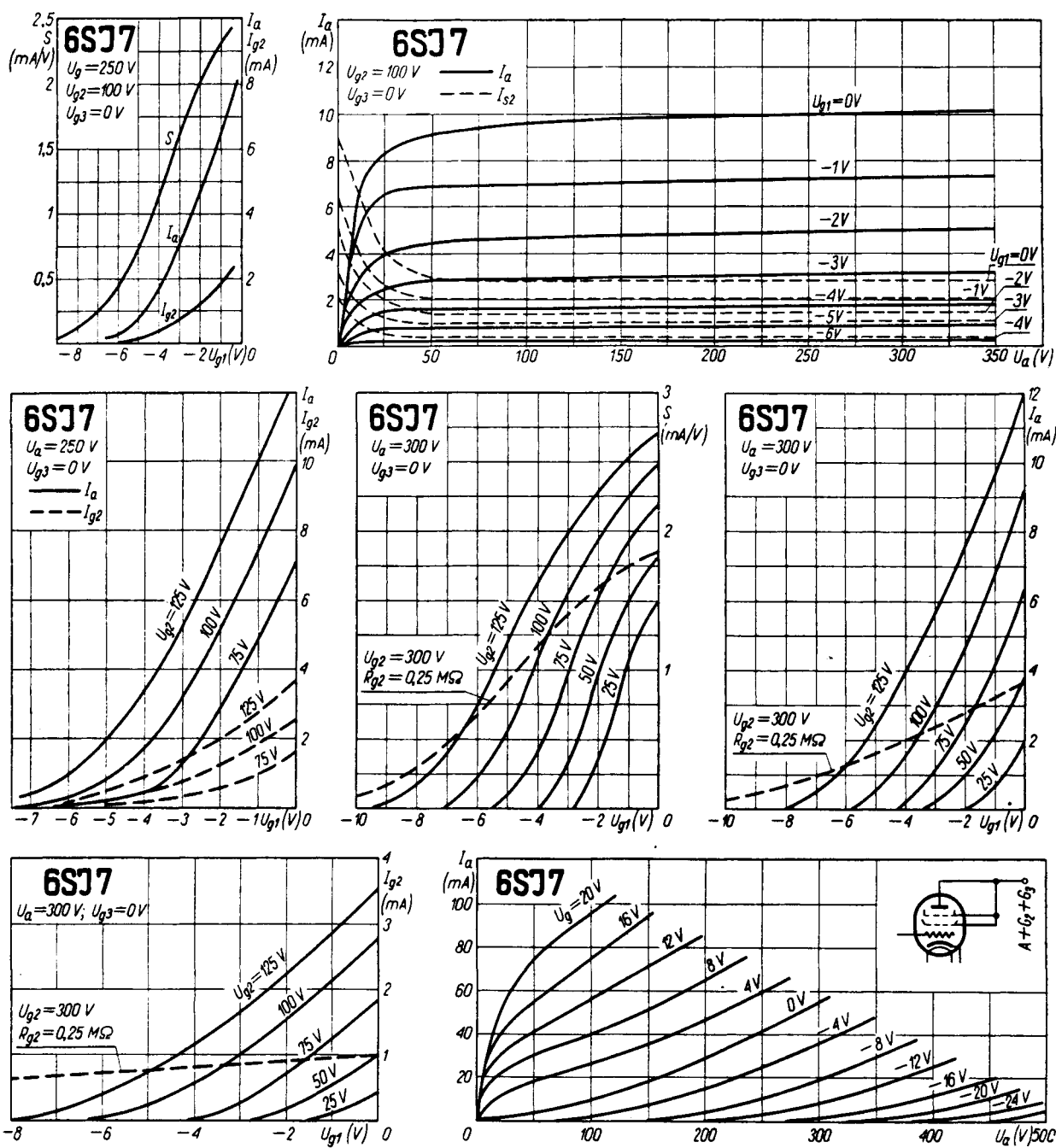


Fig. 2

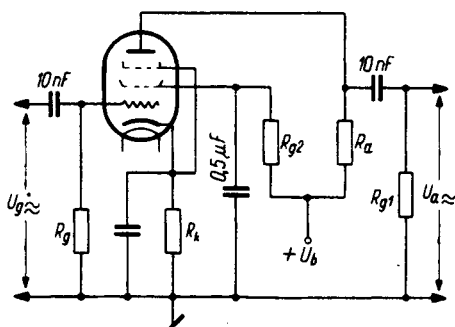


Fig. 2

U_b	R_a	R_{g2}	R_{g1}	R_k	C_k	C_{g2}	$U_{a\sim}$	μ
V	MΩ	MΩ	MΩ	kΩ	μF	μF	V	V/V
90	0,1	0,31	0,5	1,0	6,6	0,075	28	70
90	0,25	0,82	1	1,8	4,0	0,04	22	104
90	0,5	1,9	2	4,05	2,35	0,028	24	139
180	0,1	0,37	0,5	0,86	7,8	0,09	62	91
180	0,25	0,94	1	1,1	5,1	0,07	54	161
180	0,5	2,4	2	2,41	3,6	0,035	54	208
300	0,1	0,47	0,5	0,59	9,9	0,09	101	104
300	0,25	1,18	1	0,91	6,9	0,06	98	185
300	0,5	2,5	2	1,53	5,2	0,04	89	263

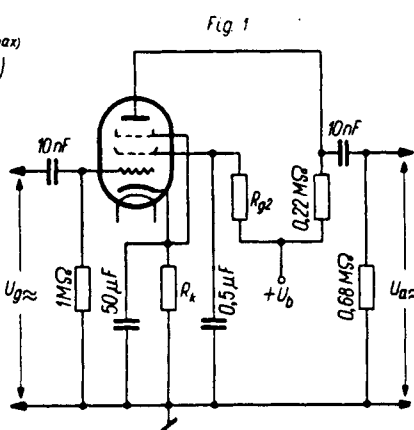
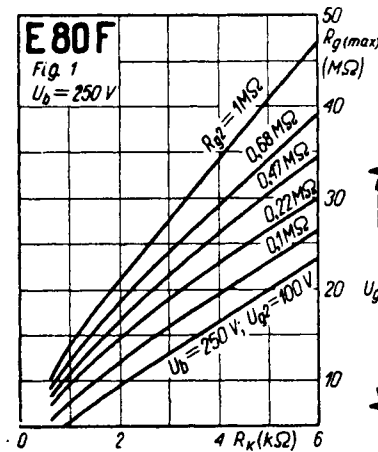
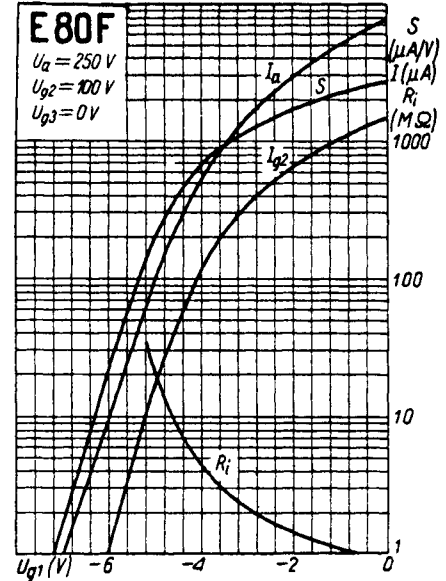
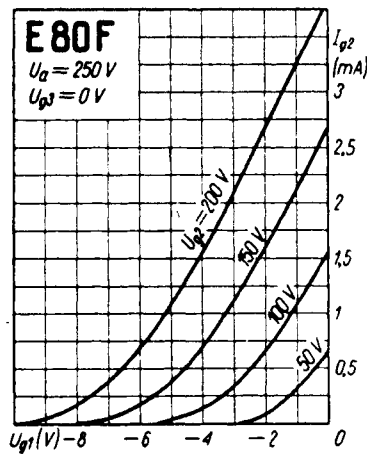
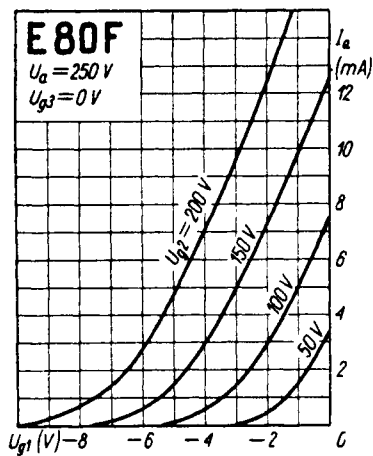
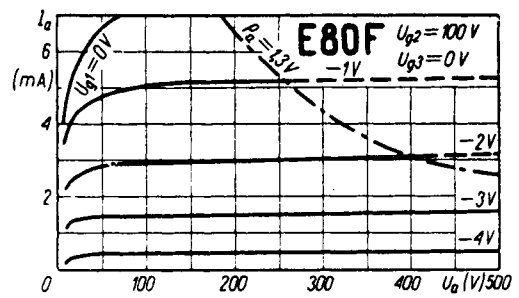
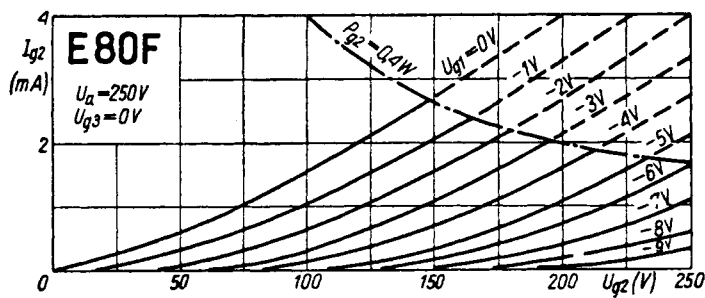
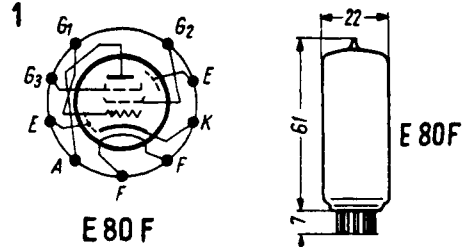
T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	R_k Ω	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
E 80 F	eur	6,3	0,3	250 250 300	100 100 200	-2 -7,5	3 0,02	0,65	1,85	1,5	550	120	9	0,4	1,3
maximum															

¹⁾ vide * 4, c = 10.000

Equivalents

6084	int
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C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{g1/f}$ pF	$C_{f/k}$ pF
$5 \pm 0,5$	$7,3 \pm 0,5$	0,025	0,002	3,7



$$R_a = 0,22 \text{ M}\Omega; R_g = 1 \text{ M}\Omega; R_{g1} = 0,68 \text{ M}\Omega$$

U_b V	R_{g2} MΩ	R_k kΩ	I_a mA	I_{g2} mA	μ V/V	U_{g2} V	h %
100	1,0	3,3	0,29	0,07	120	8	1,7
200	1,2	1,8	0,61	0,13	165	20	1,6
250	1,2	1,5	0,8	0,17	175	25	1,4
300	1,2	1,2	0,98	0,2	190	30	1,1
400	1,2	1,0	1,37	0,28	200	40	0,9

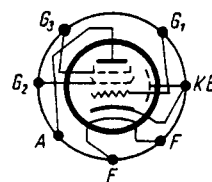
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	$S_{(g1/a)}$	$S_{(g3/a)}$	R_i	$U_{f/k}$	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	mA/V	k Ω	V	W	W
6954	int	6,3	0,3	150	150	-3	-1	5,8	6,6	2,05	1	50			
				150	150	-9,5		0,1							
				150	150		-6,5	0,01							
				300	300			maximum					200	1	3

¹⁾ vide * 4

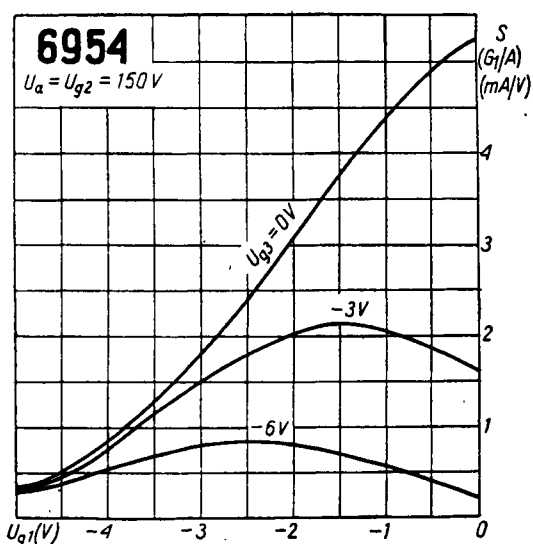
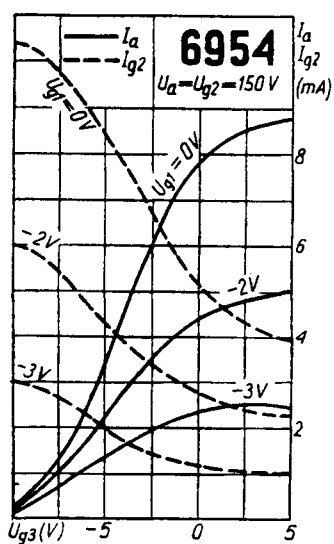
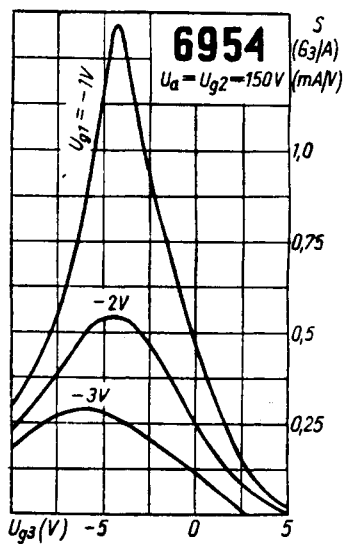
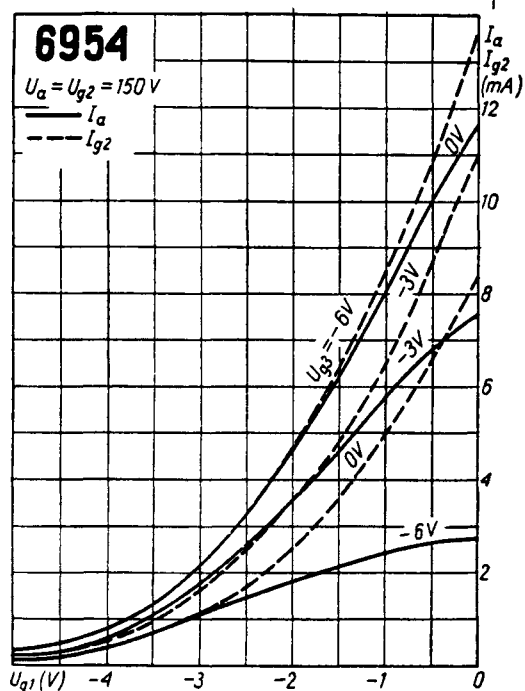
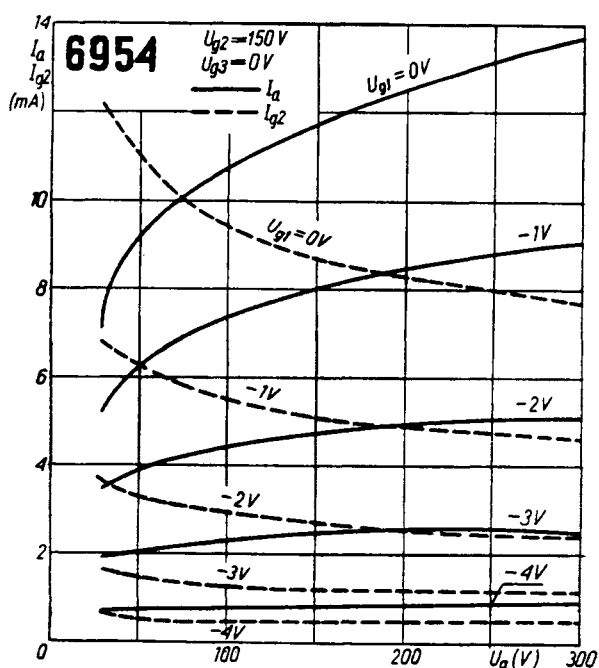
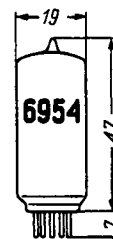
Equivalents

WL 6954	Wst
6 DB 6	TS

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g1}$	C_{g3}	$C_{g3/a}$
pF	pF	pF	pF	pF	pF
6	5	0,0035	0,09	3	1,5



6954



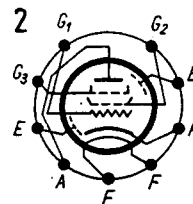
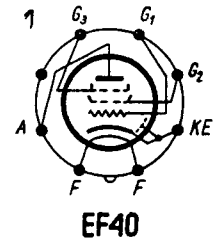
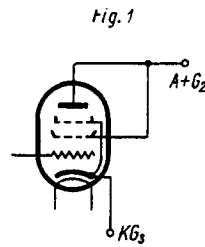
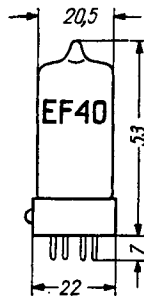
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	U_f/k	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	M Ω	V/V	V	mA	W	W
EF 40	eur	1	6,3	0,2	250 ¹⁾	140	0	-2	3	0,55	2	2,5	38	vide Fig. 1			
EF 86	eur	2	6,3	0,2	100	—	—	-1,5	2,5	—	2,3	0,0156	36				
EF 804	eur	3	6,3	0,2	200	—	—	-4	2,9	—	2,3	0,0155	36				
EF 804 S ²⁾	Tlf	3	6,3	0,17	250	—	—	-4,5	4,7	—	2,7	0,0133	36				
PF 86	eur	2	4,2	0,3	300	200			maximum ($R_{g1} = 3 \text{ M}\Omega$)					100	6	0,2	1
UF 40	eur	1	12,6	0,1													
UF 86	Mul	2	12,6	0,1													
XF 86	eur	2	2,15	0,6	250	200			maximum UF 40, UF 86					100	6	0,2	1

¹⁾ UF 40, UF 86 — $U_a = 200 \text{ V}$; ²⁾ vide *4, a,b,c = 10.000, e,f,g ($U_f = 6,3 \text{ V} \pm 5\%$)

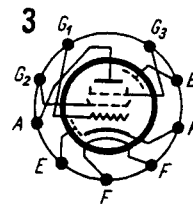
Equivalents

EF 44	eur	= EF 40
EF 806 S ¹⁾	Tlf	= EF 86
EF 866	RFT	= 86
M 8195 ¹⁾	Mul	= EF 86
Z 729	Eng	= EF 86
2 HR 8	amer	= XF 86
4 CF 8	amer	= PF 86
6 BK 8	amer	= EF 86
6 CF 8	amer	= EF 86
6 F 22	Eds	= EF 86
6 F 40	Tes	= EF 86
8 D 8	Bri	= EF 86
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6267 ¹⁾	amer	= EF 86

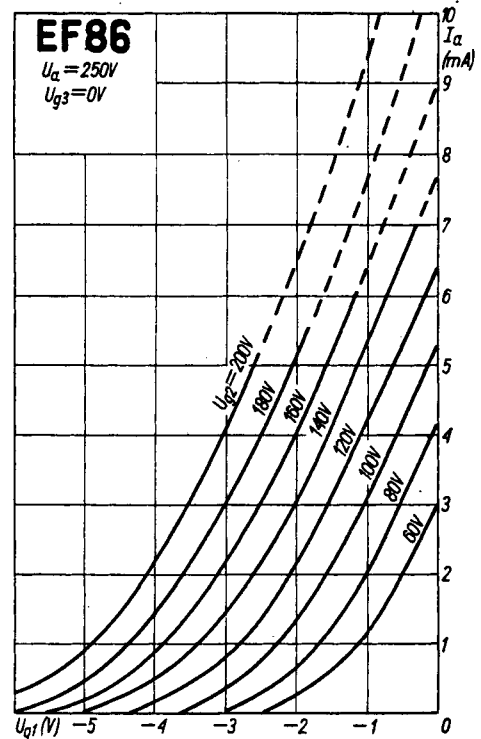
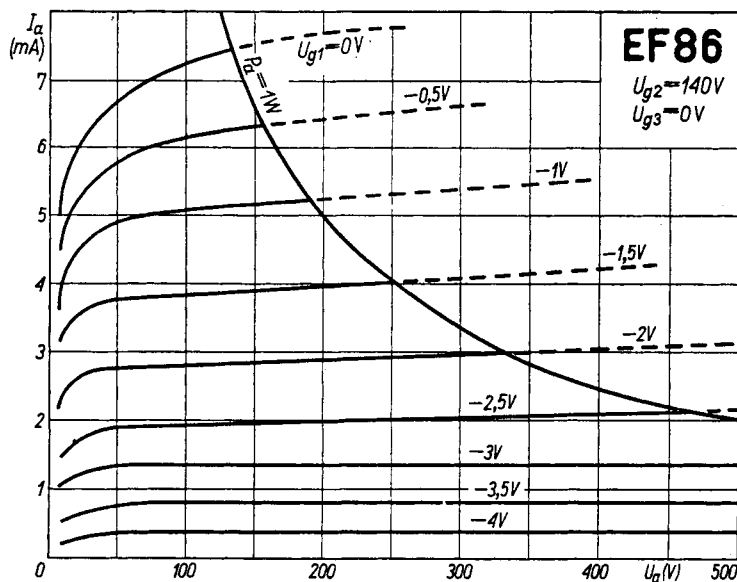
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
EF 40	3,8	5	0,04	0,002
EF 86	3,8	5,3	0,05	0,0025
EF 804	4,8	6	0,06	0,002
EF 804 S	4,8	6	0,06	0,002
EF 806 S	4	5,5	0,05	0,0025
M 8195	3,8	5,1	0,05	
UF 86	4	5,5	0,025	0,0025

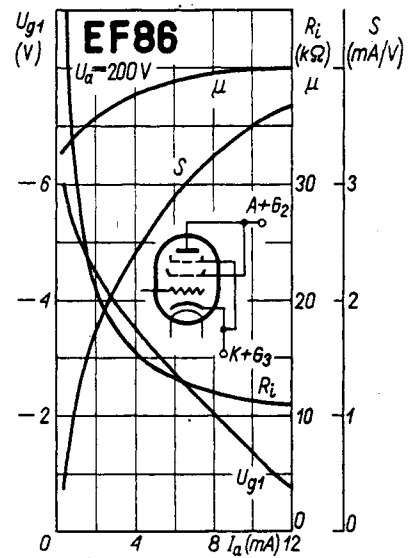
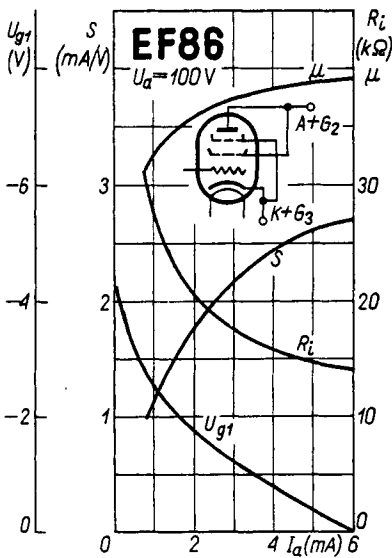
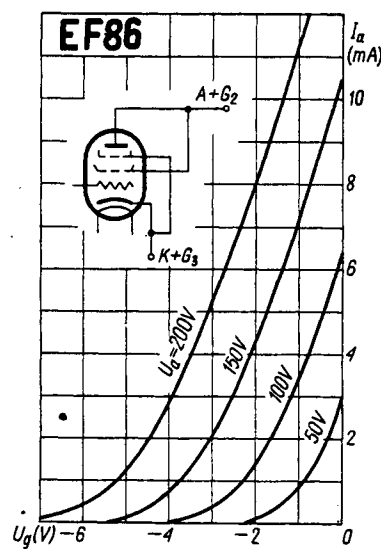
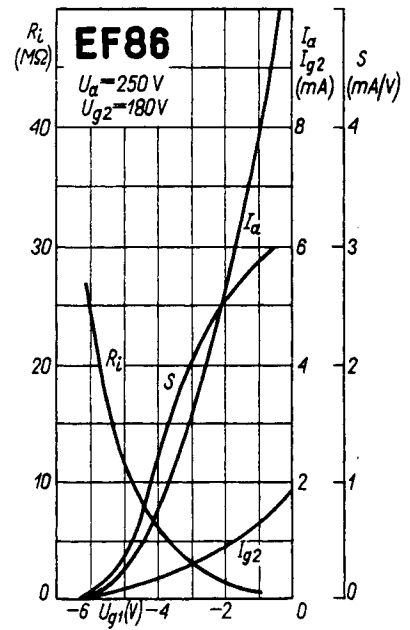
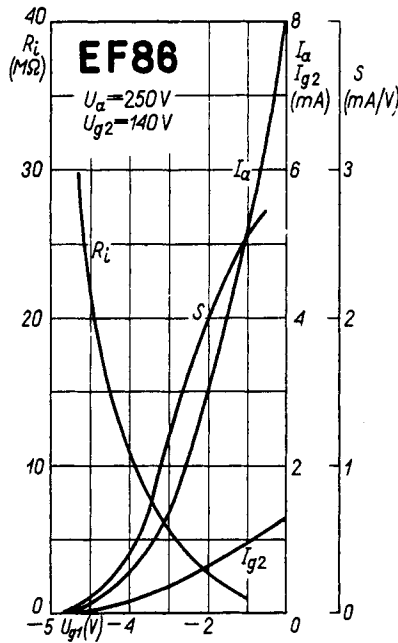
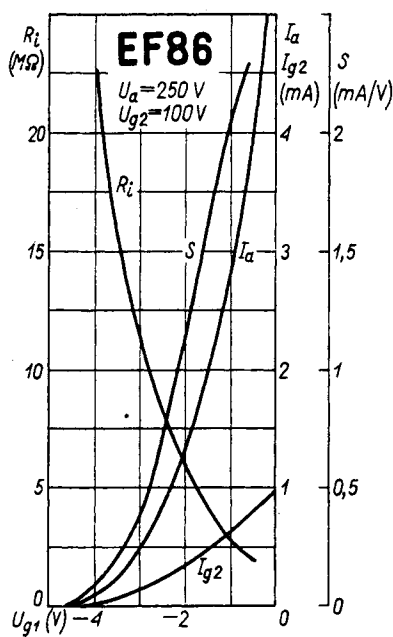
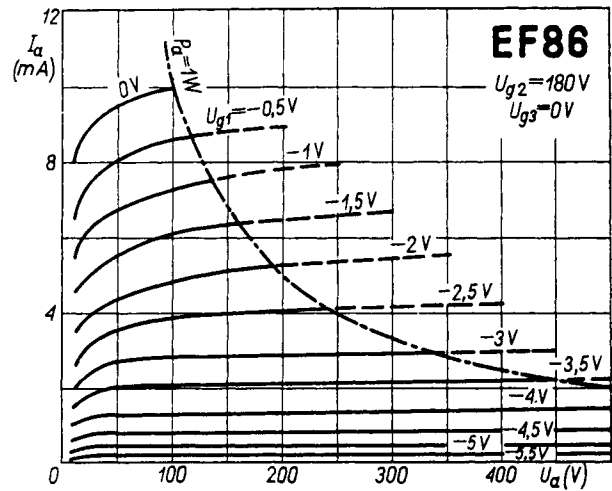
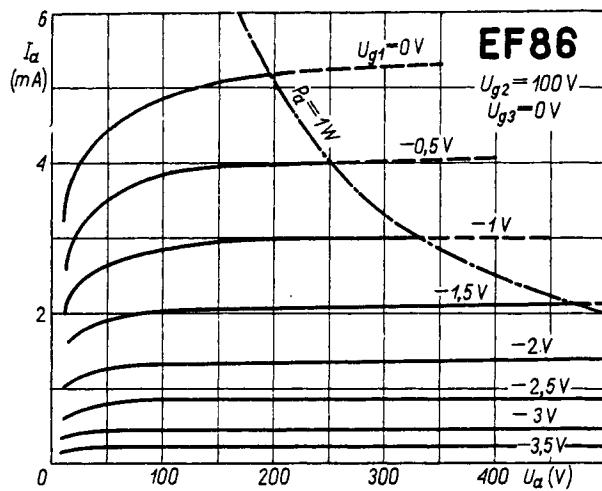


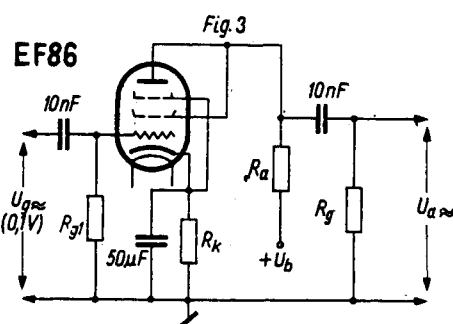
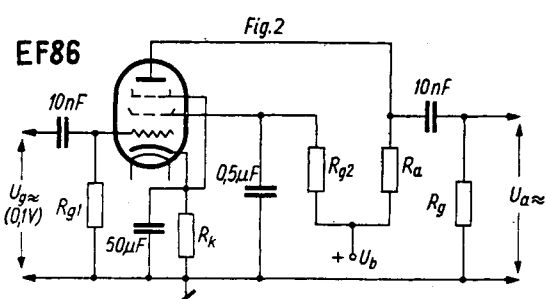
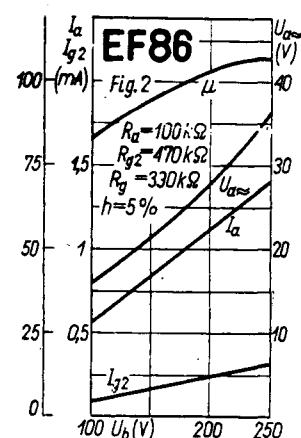
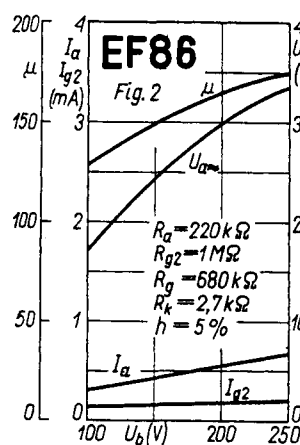
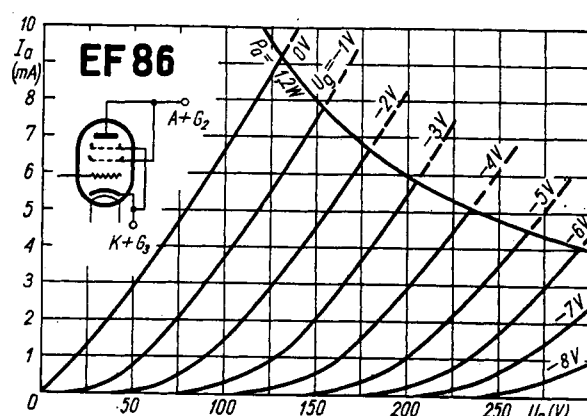
EF86



EF804







EF 86 Fig. 2
($R_{g1} = 1 \text{ M}\Omega$; $h = 5\%$)

U_b V	R_a M Ω	R_{g2} M Ω	R_g M Ω	R_k k Ω	I_a mA	I_{g2} mA	U_a V	μ V/V
150	0,1	0,47	0,33	1,5	0,8	0,18	26	104
150	0,22	1	0,68	2,7	0,5	0,1	26	165
200	0,1	0,39	0,33	1	1,35	0,28	38	115
200	0,22	1	0,68	2,2	0,7	0,12	37	188
250	0,1	0,39	0,33	1	1,6	0,35	53	122
250	0,22	1	0,68	2,2	0,8	0,16	48	196
300	0,1	0,39	0,33	1	1,95	0,4	68	127
300	0,22	1	0,68	2,2	0,9	0,19	59	202
350	0,1	0,39	0,33	1	2,3	0,48	81	130
350	0,22	1	0,68	2,2	1,1	0,22	70	208
400	0,1	0,39	0,33	1	2,6	0,55	95	137
400	0,22	1	0,68	2,2	1,2	0,25	80	213

EF 86 Fig. 3

U_b V	R_a k Ω	R_g k Ω	R_k k Ω	I_a mA	U_a V	μ V/V	h %
200	47	150	1,2	1,8	26,5	28,5	3,9
200	100	330	2,2	1	31	30	4
200	220	680	3,9	0,55	31	32	3,7
250	47	150	1,2	2,2	36,5	26,5	4,3
250	100	330	2,2	1,2	42	30,5	4,2
250	220	680	3,9	0,68	43	32,5	3,9
300	47	150	1,2	2,6	47	26,7	4,6
300	100	330	2,2	1,45	54	30,5	4,6
300	220	680	3,9	0,8	54	32,8	4,2
350	47	150	1,2	3	57	27	5
350	100	330	2,2	1,65	65	31	4,7
350	220	680	3,9	0,9	66	33	4,3
400	47	150	1,2	3,5	68	27,3	5,2
400	100	330	2,2	1,9	77	31,5	4,8
400	220	680	3,9	1	78	33,2	4,3

EF 804 S Fig. 2

U_b V	R_a M Ω	R_{g2} M Ω	R_{g1} M Ω	R_g M Ω	R_k k Ω	I_a mA	I_{g2} mA	U_a V	h %	μ V/V
100	0,3	1,2	1	1	5	0,21	0,045	4 ÷ 12	1,1 ÷ 2,6	125
100	0,2	1	1	1	3	0,29	0,055	4 ÷ 12	1,1 ÷ 2,5	120
100	0,2	1,5	10	0,7	0	0,3	0,06	4 ÷ 12	1,2 ÷ 3	120
250	0,3	1,5	1	1	2	0,61	0,11	4 ÷ 12	0,6 ÷ 1,2	210
250	0,2	1	1	1	1,5	0,87	0,16	4 ÷ 12	0,5 ÷ 1	175
250	0,2	1,2	10	0,7	0	0,9	0,17	4 ÷ 12	1	190

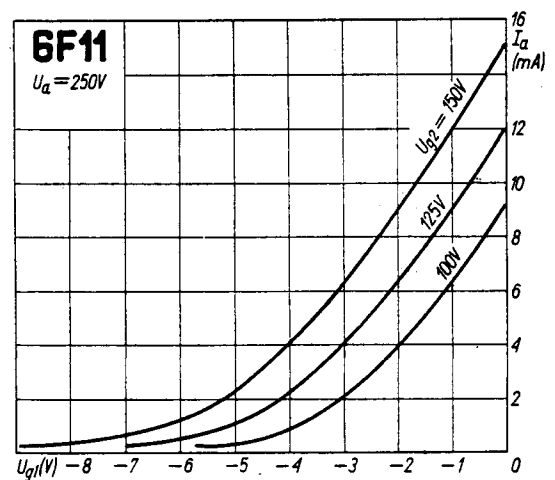
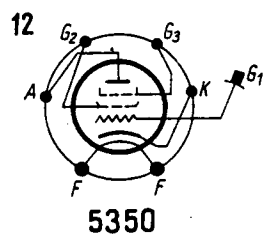
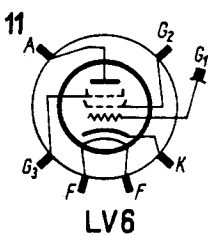
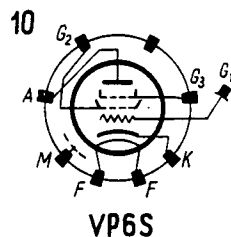
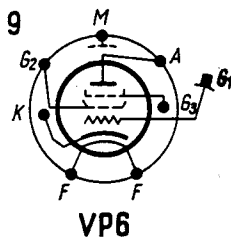
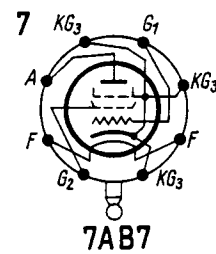
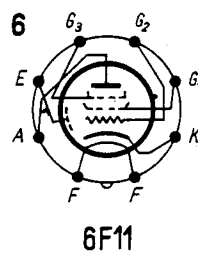
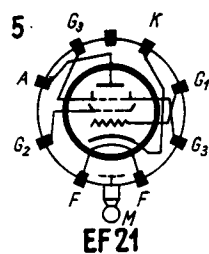
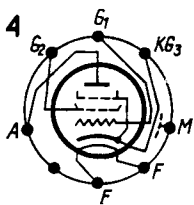
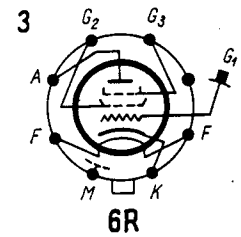
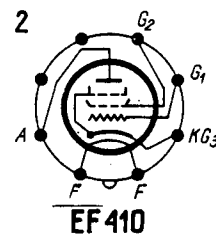
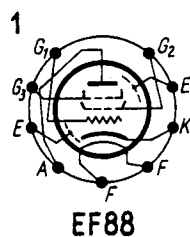
EF 804 S Fig. 3

($R_g = R_{g1} = 1 \text{ M}\Omega$)

U_b V	R_a k Ω	R_k k Ω	I_a mA	U_a V	h %	μ V/V
100	100	2,5	0,48	4 ÷ 12	1 ÷ 2,2	26
100	200	4,5	0,28	4 ÷ 12	1 ÷ 1,8	27
250	100	1,2	1,5	4 ÷ 12	0,6 ÷ 1	29
250	200	1,5	0,85	4 ÷ 12	0,6 ÷ 1,1	31

T.			U_j	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	V	mA	W	W
E 87 F	Siem	1	6,3	0,3	250	100	—2	6	1,9	2,1	1	50	10	0,3	2
EF 12 spez.	Tif	4	6,3	0,2	250	100	—2	3	0,65	1,7	1,3				
EF 21	eur	5	6,3	0,2	250	100	—2,5	6	1,7	2,2	1,2				
EF 88	Siem	1	6,3	0,3	250	100	—2	7	2,1	2,1	0,9				
EF 410	Tif	2	6,3	0,2	$\begin{cases} 250 \\ 300 \end{cases}$	$\begin{cases} 100 \\ 125 \end{cases}$	—2	6	1,75	2,7	1				
LV 6	Tif	11	6,3	0,22	150	75	—2	2	0,7	1,5	1	150	10	0,3	2,25
VP 6	Tu	9	6,3	0,2	250	100	—3	7,5	2,6	1,8	1,25				
VP 6 S	Tu	10	6,3	0,2											
6 F 11	Eds	6	6,3	0,2	$\begin{cases} 250 \\ 250 \end{cases}$	$\begin{cases} 100 \\ 150 \end{cases}$	—1,8	4,5	1,1	2,2	2,8				
6 R	Fiv	3	6,3	0,15	250	100	—2	3,7	0,95	2	2,2				
6 RV	Fiv	3	6,3	0,15	250	100	—2	6,4	1,9	2,1	1,4	90		0,15	1,2
7 AB 7	amer	7	6,3	0,15	$\begin{cases} 250 \\ 300 \end{cases}$	$\begin{cases} 100 \\ 125 \end{cases}$	—2	4	1,3	1,8	0,5				
1204	amer	7	6,3	0,15				maximum							
7 AJ 7	amer	8	6,3	0,3	$\begin{cases} 100 \\ 250 \\ 300 \end{cases}$	$\begin{cases} 100 \\ 100 \\ 125 \end{cases}$	$\begin{cases} -1 \\ -3 \end{cases}$	$\begin{cases} 2,2 \\ 5,7 \end{cases}$	$\begin{cases} 0,7 \\ 1,8 \end{cases}$	$\begin{cases} 1,57 \\ 2,27 \end{cases}$	$\begin{cases} 0,4 \\ 0,1 \end{cases}$				
								maximum							
5350	amer	12	6,3	0,3	250	100	—3	8	2	1,6	0,8				

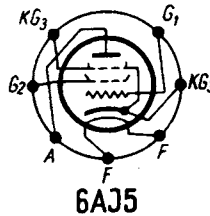
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 12 spez.	4,5	5,2	0,007
EF 410	5,5	7	0,004
6 F 11	5,3	6,7	0,004
7 AB 7	3,5	4	0,06
7 AJ 7	6	6,5	0,007



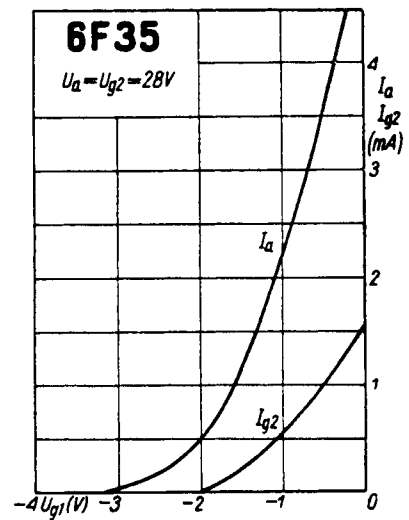
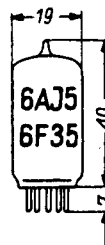
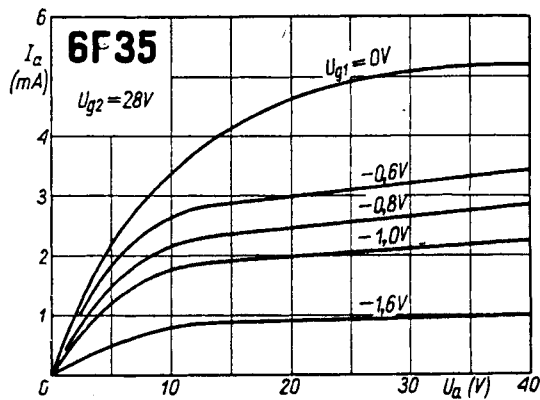
T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	U_f/k	I_k	P_{g2}	P_a
		V	mA	V	V	V	mA	mA	mA/V	k Ω	Ω	V	mA	W	W
6 AJ 5	amer	6,3	175	$\begin{cases} 28 \\ 28 \\ 180 \end{cases}$	$\begin{cases} 28 \\ 28 \\ 75 \end{cases}$	$\begin{cases} -0,8 \\ -3 \end{cases}$	$\begin{cases} 2,7 \\ 0,5 \end{cases}$	0,7	2,75	100	200				
								maximum				90	18	0,5	1,7

Equivalents

6 F 35	Tes
7755	amer



T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 AJ 5	4,1	2	0,02
6 F 35	5,5	2,8	0,03



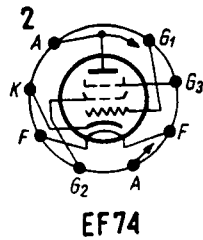
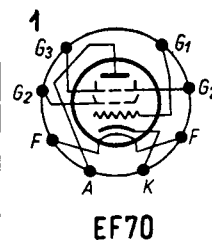
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	U_f/k	I_k	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	M Ω	(g_2/g_1)	V	mA	W	W
EF 70	eur	1	6,3	0,2	$\begin{cases} 100 \\ 175 \end{cases}$	100	0	-2	3	2,5	2,5	0,1	38			
									maximum				100	10	0,4	0,75
EF 74	Mul	2	6,3	0,2	$\begin{cases} 100 \\ 175 \end{cases}$	100	0	-1,4	7	2,4	3,1	0,2	28			
									maximum				100	10	0,35	0,9

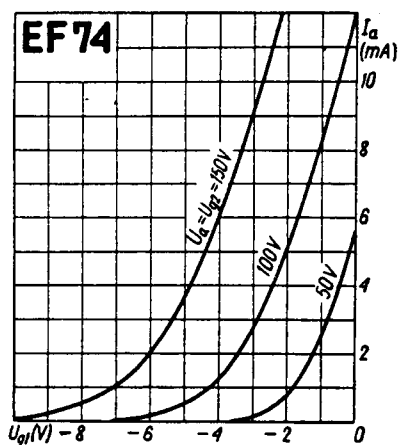
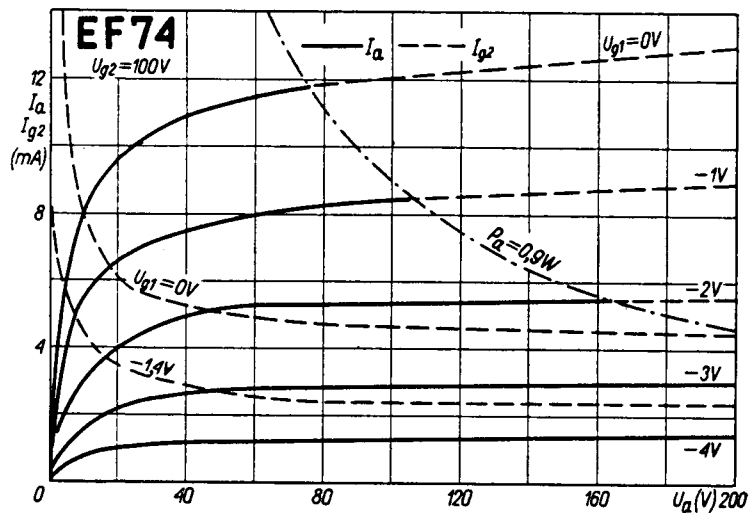
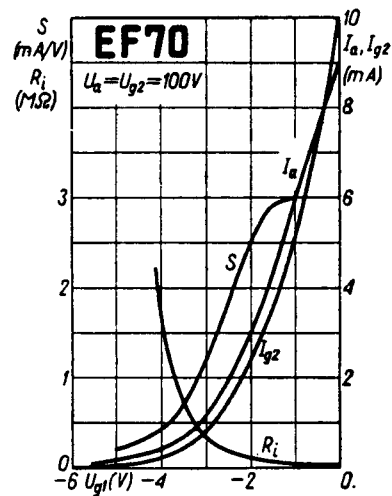
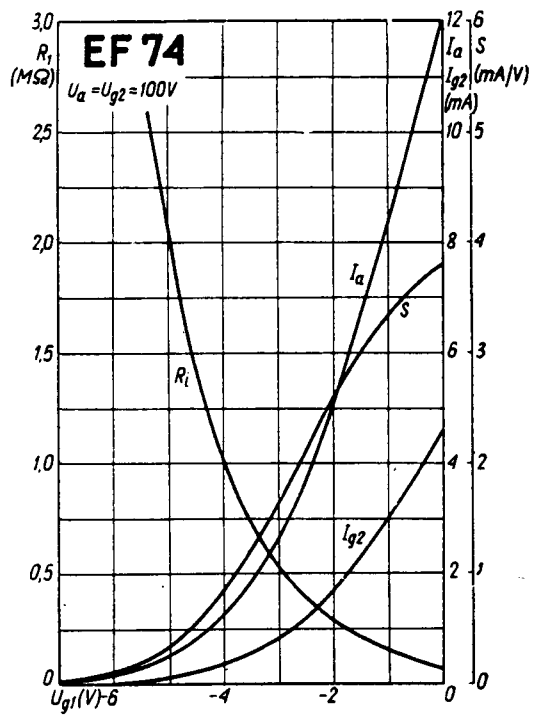
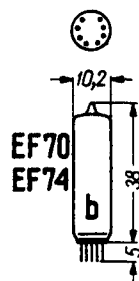
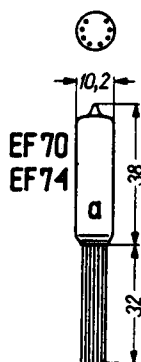
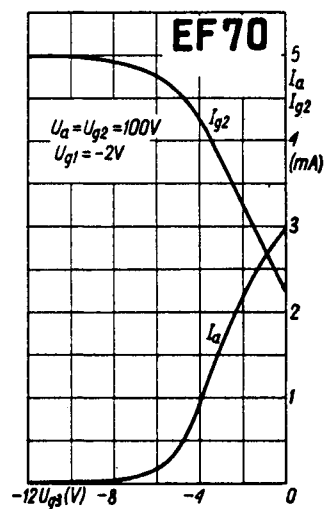
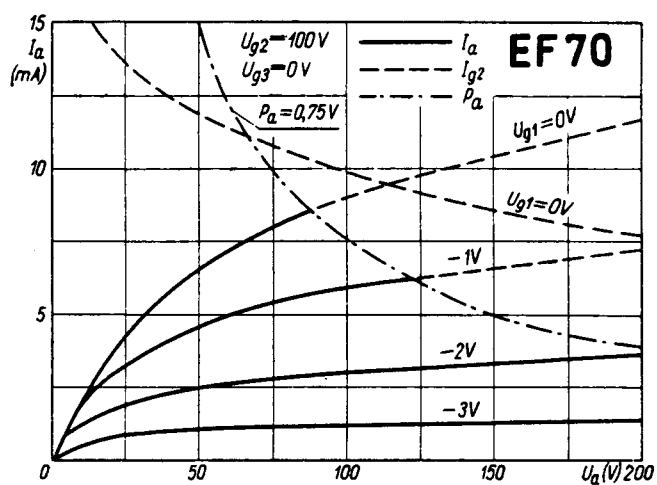
Equivalents

M 8125 ¹⁾	Mul = EF 70
6391	amer = EF 74
6487	amer = EF 70

¹⁾ vide *4, a, b, c, d ($U_f = 6,3V \pm 10\%$)

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 70	4,5	4,7	0,025
EF 74	3,6	4,2	0,3





T			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	$S_{(g1/a)}$	$S_{(g3/a)}$	R_t	$U_{f/k}$	I_k	P_{g2}	P_a
			V	mA	V	V	V	V	mA	mA	mA/V	mA/V	kΩ	V	mA	W	W
6 AS 6 5725 ¹⁾ 5784 6486	int	1	6,3	175	120	120	0	-2	5,2	3,5	3,2	0,47	150				
	int	2	6,3	175	120	120	-3	-2	3,6	4,8	1,85	0,8					
	amer	4	6,3	200	120	120	0	-10	0,1								
	amer	3	6,3	200	120	120	-15		0,02								
6 Ж 2 Б	CCCP	5	6,3	200	120	120	0	-2	5,5	2,5	3,2	0,8		90	18	0,75	1,7
					120	120	-3										
					120	120	-15		0,02								
					150	125			maximum					100	14	0,6	0,9
6 Ж 2 П	CCCP	2	6,3	175	120	120	0	-2,3	4	1,5	3,7	0,5	75				
					120	120	-3										
					120	120	-15		0,05								
					200	150			maximum					120	20	0,85	1,8

¹⁾ vide * 4, a, b, c, f, g ($U_f = 6,3 \text{ V} \pm 10\%$)

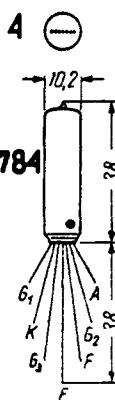
²⁾ vide * 4, a, b, c, d, e, f, g ($U_f = 6,3 \text{ V} \pm 5\%$)

³⁾ vide * 4, a, b, c = 5000, d ($U_f = 5,7 \div 6,9 \text{ V}$)

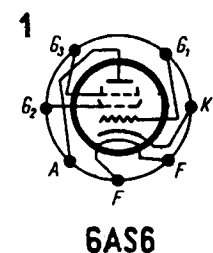
⁴⁾ vide * 4, a, b, d, e ($U_f = 5,7 \div 7 \text{ V}$)

Equivalents

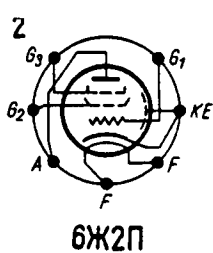
CK 624 AX	Ray = 5784	6 Ж 2 П-Б ¹⁾	CCCP = 6 Ж 2 П
CK 5725 ¹⁾	Ray = 5725	6 Ж 2 П-Е ¹⁾	CCCP = 6 Ж 2 П
CK 5784	Ray = 5784	6 F 33	Tes = 6 AS 6
CK 5784 WA ²⁾	Ray = 5784	624 AX	Ray = 5784
GL 5725 ¹⁾	GE = 5725	409 A	WE = 6 AS 6
M 8196 ¹⁾	Mul = 6 AS 6	5784 WA ³⁾	int = 5784
R 271 ¹⁾	SFR = 5784	6150	amer = 5784
6 AS 6 S ⁴⁾	Frc = 6 AS 6	6187	amer = 5725
6 AS 6 W ⁴⁾	amer = 6 AS 6	6486-A	amer = 6486
6 Ж 2 Б-Б ⁴⁾	CCCP = 6 Ж 2 Б	7752	amer = 6 AS 6



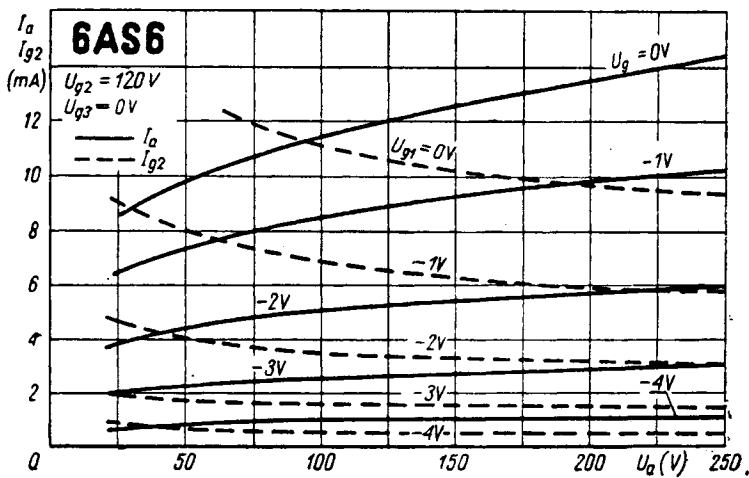
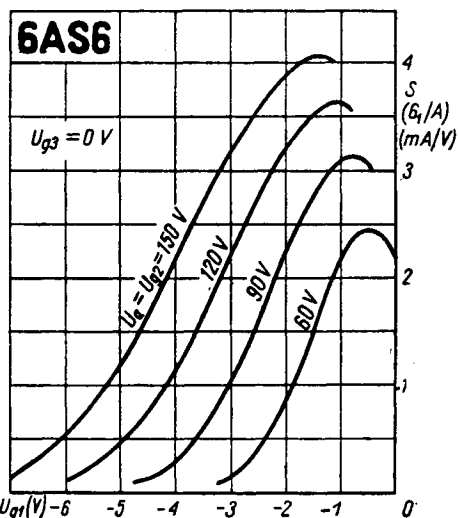
T.	C_{g1}	C_a	$C_{g1/a}$	C_{g3}	$C_{g3/g1}$	$C_{g3/a}$	vide
	pF	pF	pF	pF	pF	pF	
6 AS 6	3,9	2,2	0,025	3,3	0,15	0,7	* 5
	4	3	0,02	3,4	0,15	0,7	* 6
6 Ж 2 Б	4,9	4,1	0,03				* 6
6 Ж 2 П	4,5	2,5	0,02				* 5
5725	3,9	3	0,02				* 6
5784	4,5	3,6	0,03				* 6
6150	4,5	3,6	0,03				* 6

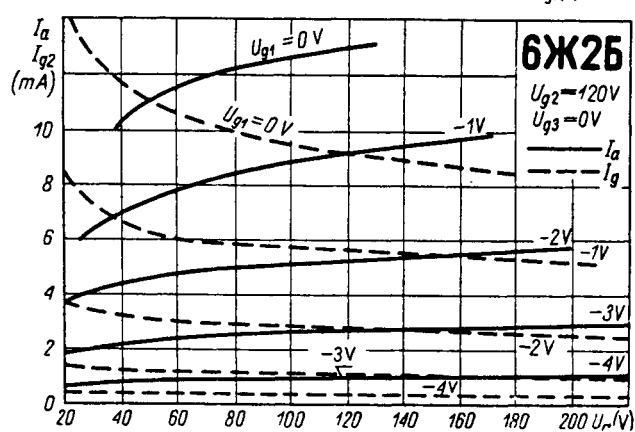
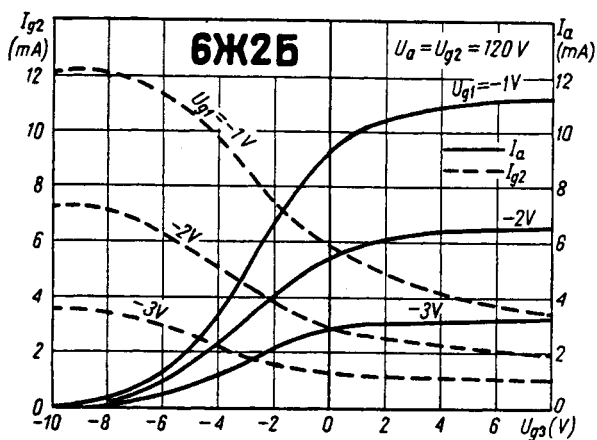
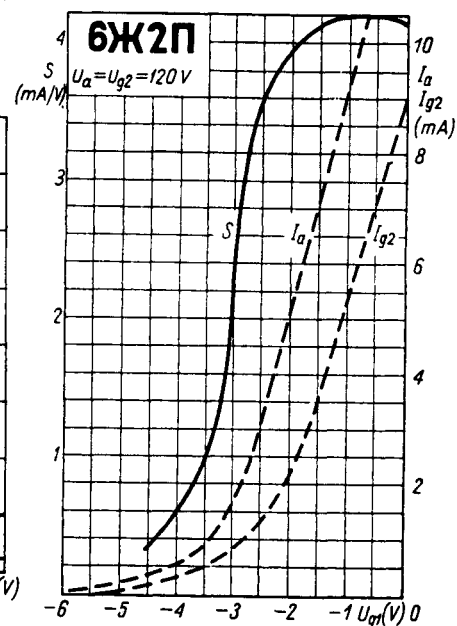
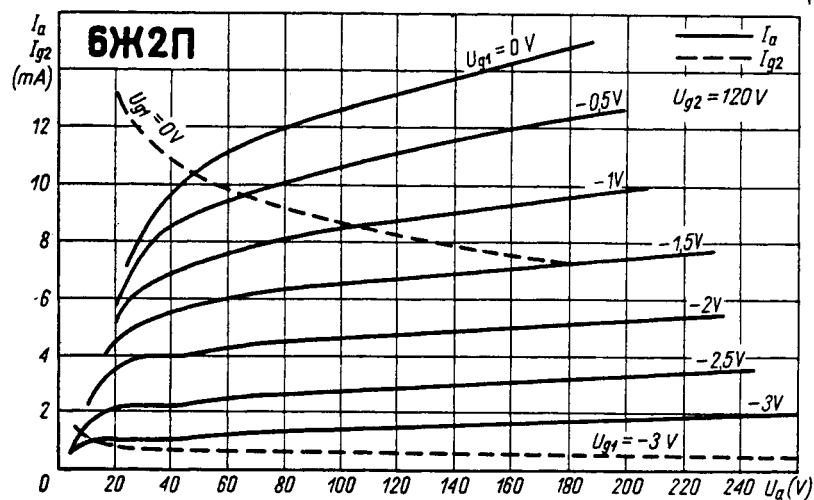
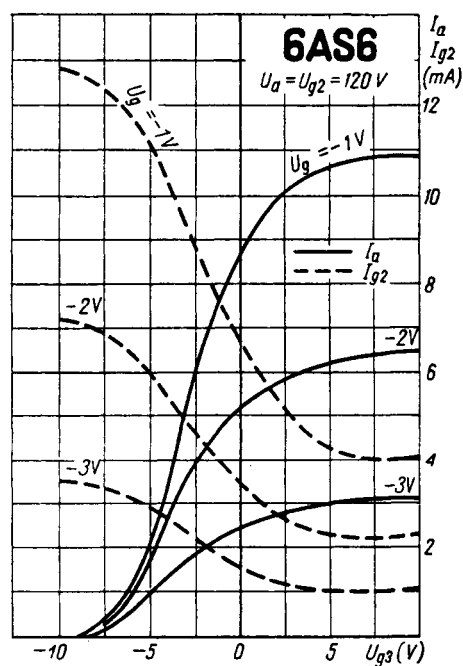
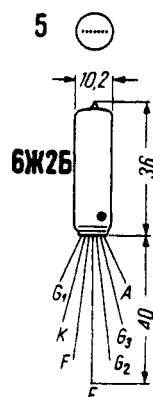
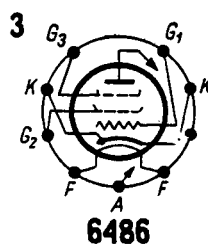
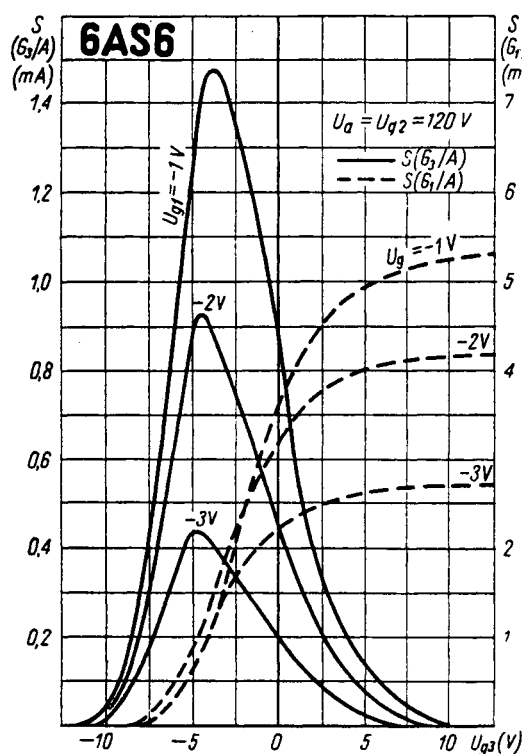


6AS6



6Ж2П





T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i M Ω	μ V/V	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
EF 1	eur	1	6,3	0,4	250	100	-2	3	0,9	2,3	1,7					
EF 7	eur	1	6,3	0,24	250	100	-2	3	1,1	2,1	2					
EF 12	eur	2	6,3	0,24	100	—	-2	3,5	—	2,5	0,01	25	Fig. 1			
EF 112	eur	3	6,3	0,12	200	—	-5	6	—	3	0,0085	25				
maximum ($R_{g1} = 3 \text{ M}\Omega$)													100	10	0,4	1,5

Equivalents

EF 12 K	Tlf = EF 12
KL 70715	Kgf = EF 12
S 629	Tri = EF 1
SP 6 S	Tu = EF 7
TEF 7	Tu = EF 7
VF 1	Dar = EF 1
WE 17	Tlf = EF 1
70715	Kgf = EF 12

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
EF 7	6,6	7,6	0,003
EF 12	6,5	6,5	0,002

Fig. 1

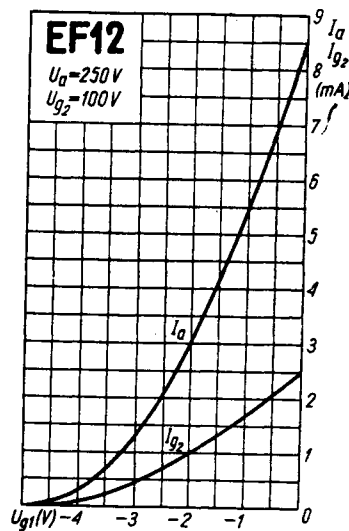
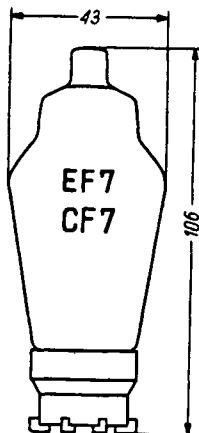
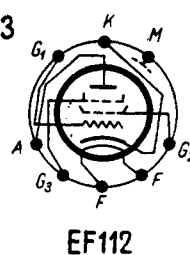
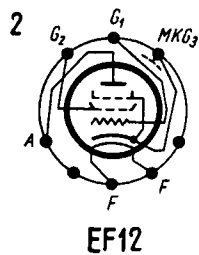
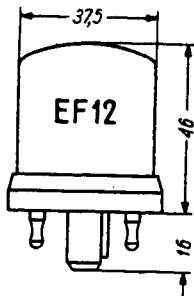
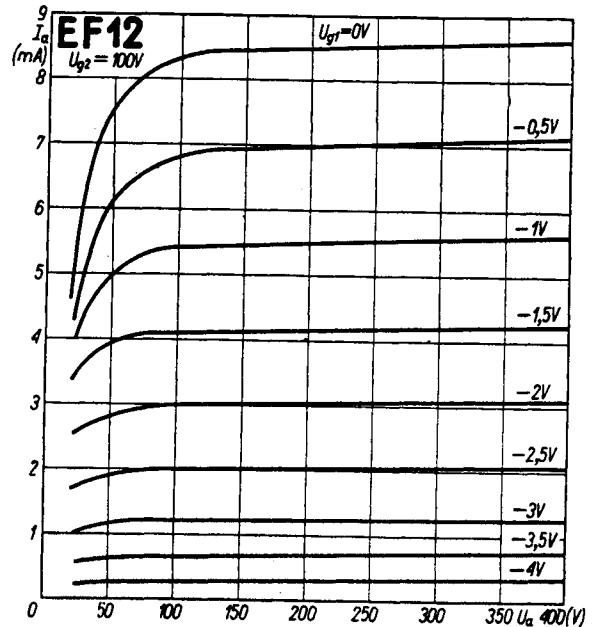
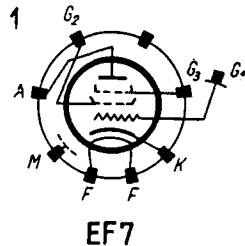
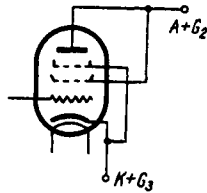
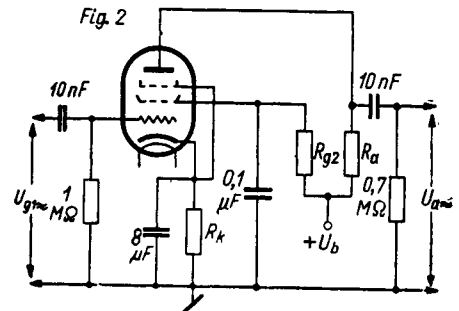


Fig. 2



U_b V	R_a M Ω	R_{g2} M Ω	R_k k Ω	I_a mA	I_{g2} mA	μ V/V
100	0,05	0,2	2	0,65	0,22	40
100	0,1	0,3	2,5	0,5	0,17	60
100	0,2	0,5	4	0,3	0,1	90
100	0,3	0,8	6	0,2	0,07	110
200	0,05	0,2	2	1,25	0,4	50
200	0,1	0,3	2,5	1,0	0,3	80
200	0,2	0,5	4	0,6	0,2	110
200	0,3	0,8	6	0,4	0,13	140
250	0,05	0,2	1	2,0	0,7	70
250	0,1	0,3	1,6	1,5	0,5	100
250	0,2	0,5	3	0,9	0,3	160
250	0,3	0,8	4	0,6	0,2	180

T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	$S_{(g1/a)}$	$S_{(g3/a)}$	R_i	R_k	I_k	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	mA/V	kΩ	Ω	mA	W	W
5636	int	6,3	0,15	100	100	0	-1,5	5,6	4	3,2	0,5	110	150			
				100	100	-1	-	4	5,8	1,95	0,95	50	150			
				100	100	0	-7,5	0,01								
				100	100	-8		0,01								
				165	155									18	0,45	1,1

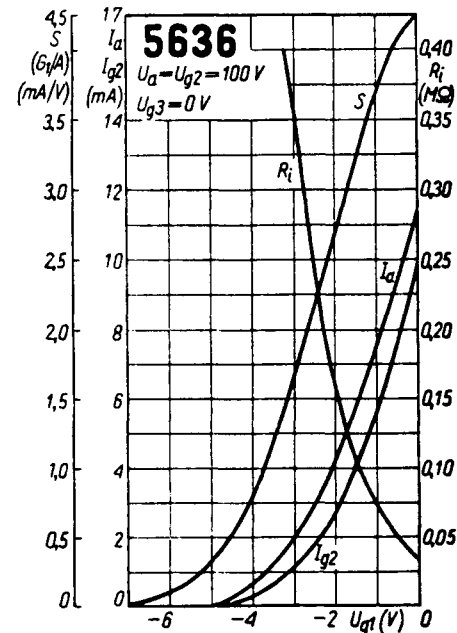
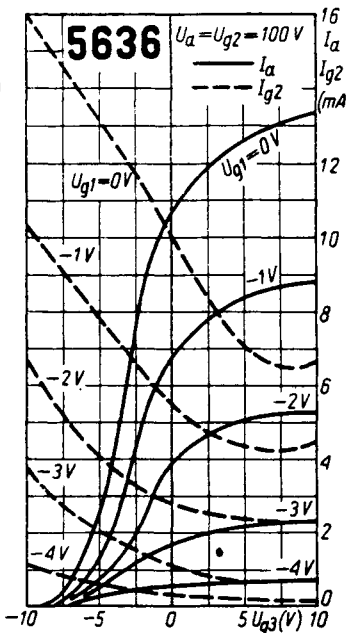
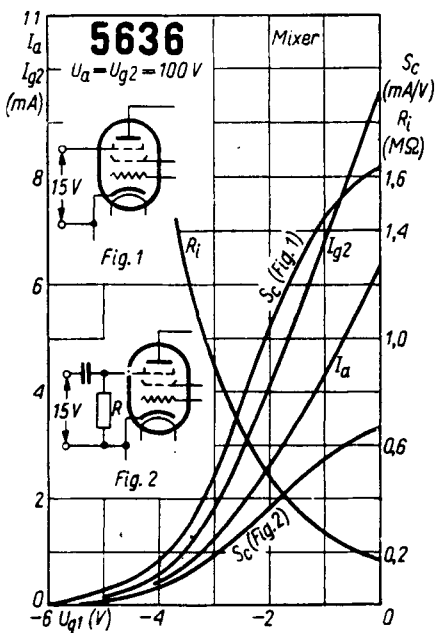
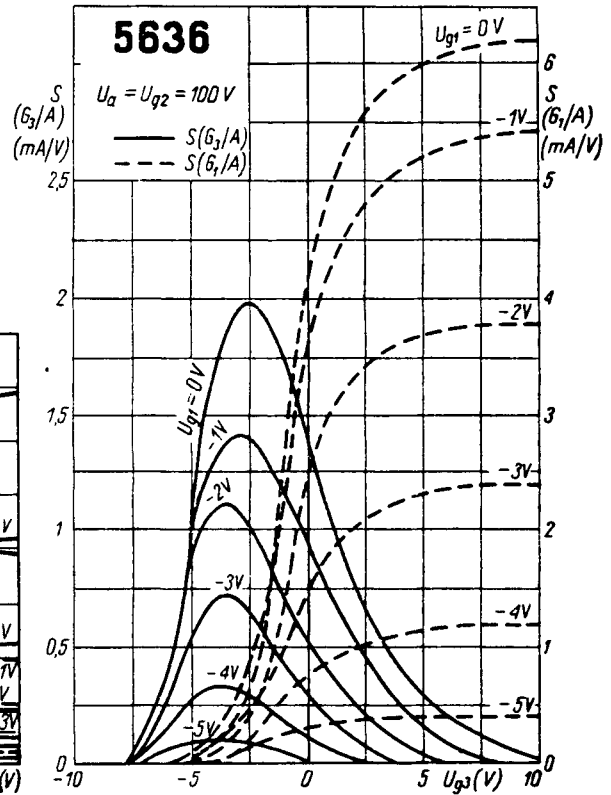
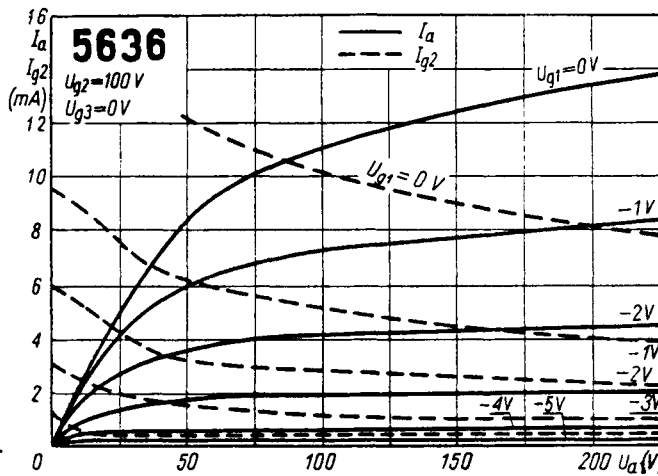
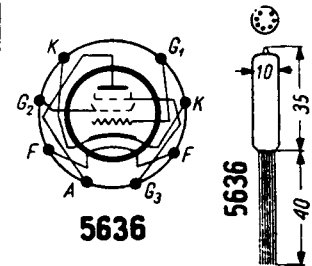
maximum ($R_{g1} = 1,1 \text{ M}\Omega$;
 $U_{f/k} = 200 \text{ V}$; $f = 400 \text{ MHz}$)

¹⁾ vide* 4, a, b, c, d, e, f, g ($U_f = 6,3 \text{ V} \pm 5\%$)

Equivalents

EF 730	Mul
SN 1007 A	Syl
SN 1007 B	Syl
5636-A	RCA

C_{g1}	C_a	$C_{g1/a}$	C_{g3}	$C_{g3/a}$	$C_{g3/g1}$	vide
pF	pF	pF	pF	pF	pF	
4	1,9	0,034	3,8	1,1	0,17	* 5
4	3,4	0,02	4	1,1	0,15	* 6



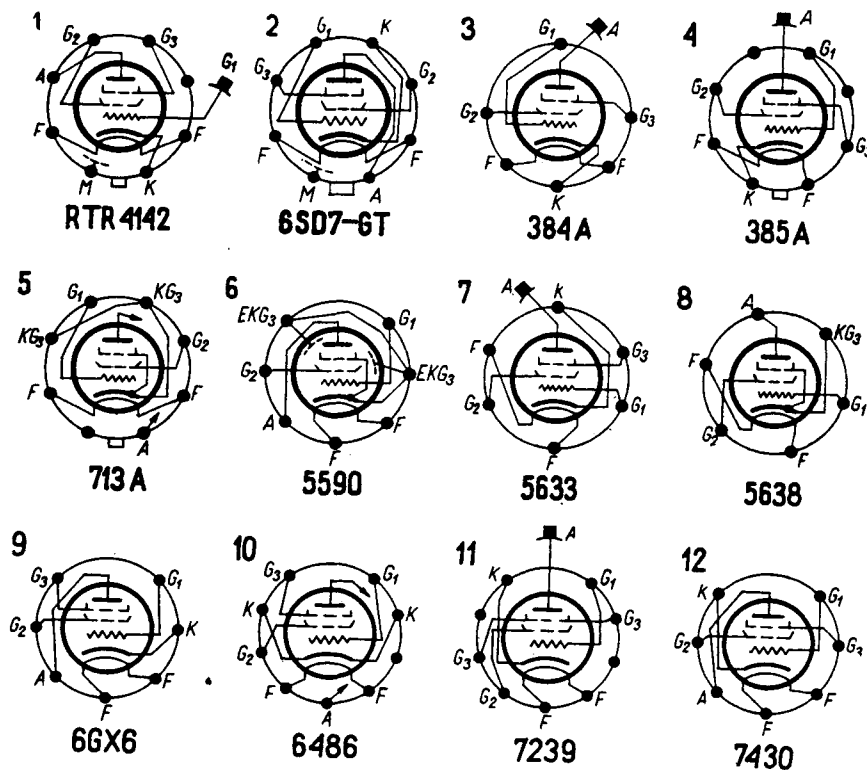
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_t	R_k	U_f/k	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	Ω	V	mA	W	W
A 1685 ¹⁾	Marc	I	6,3	0,3	130	100	—3	8	2,5	3,2						
RTR 4142 ¹⁾	SÉR	I	5,25	0,38	130 400	130 300	—8	15	2,7 maximum	2,7	0,125		100	25	0,6	3
6 BA 5	amer	13	6,3	0,15	100	100		5,5	2	2,15	0,175	270				
5 GX 6	amer	9	4,7	0,6	150	100		3,7	3	3,7	0,14	180				
6 GX 6	amer	9	6,3	0,45												
6 SD 7-GT	amer	2	6,3	0,3	100 250 250 300	100 100 125 200	—2 —2 —2	5,7 6 9,5	2 1,9 3	3,35 3,6 4,25 maximum	0,25 1 0,7				0,4	4
6 Ж 35 Б	СССР	14	6,3	0,127	120 150	110 125	—2 —50	5,5	6,5	3,1			150	15	0,7	0,9
384 A	WE	3	6,3	0,15	120	120		5,6	maximum		2,56	0,48	100		0,55	1,85
385 A	WE	4	6,3	0,15	275	130			maximum				100		0,55	1,85
386 A	WE	3	6,3	0,15	120	120	—2	7,5	2,5	4	0,39		100		0,55	1,85
387 A	WE	4	6,3	0,15												
713 A	WE	5	6,3	0,175												
5590	int	6	6,3	0,15	90 180	90 140		3,9	1,2	2	0,3	820	90	18	0,5	1,7
5633 ¹⁾	amer	7	6,3	0,15	100	100		7	2,8	3,4	0,2	150				
5634 ¹⁾	amer	7	6,3	0,15	100	100		6,5	2,5	3,5	0,24	150				
5638 ¹⁾	amer	8	6,3	0,15	100	100		4,8	1,2	3,3	0,15	270				
6187	amer	9	6,3	0,19	120	120	—2	5,2	3,5	3,2						
6486	amer	10	6,3	0,25	120	120	—2	4	3,3	3,2						
6872 ¹⁾	Ray	15	6,3	0,2	120	120		7,7	2,7	4,1		200				
6943 ¹⁾	Syl	16	6,3	0,175	100	100		8	2,3	3,6	0,3	150				
6944 ¹⁾	Syl	16	6,3	0,175	100	100		7	2,1	3,2	0,28	150				
7239	amer	11	6,3	0,3	300	100	—5	10,5	2,6	4,2	0,3					
7430	amer	12	6,3	0,175	150	140		7	2,2	4,3	0,42	330				
7693	amer	9	6,3	0,15	250	150		7,4	2,9	4,3	1,3	100				
7694	amer	9	6,3	0,15	250	100		9,2	3,3	3,6	1	80				

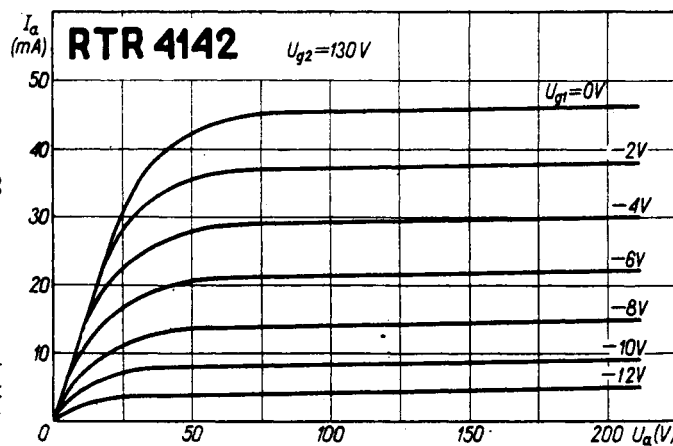
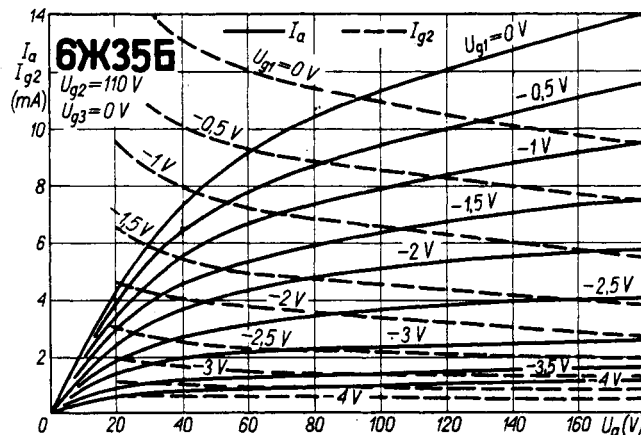
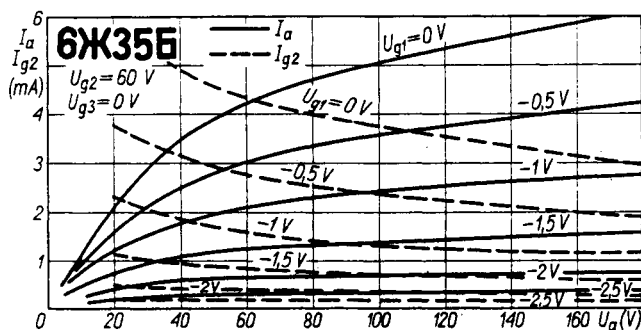
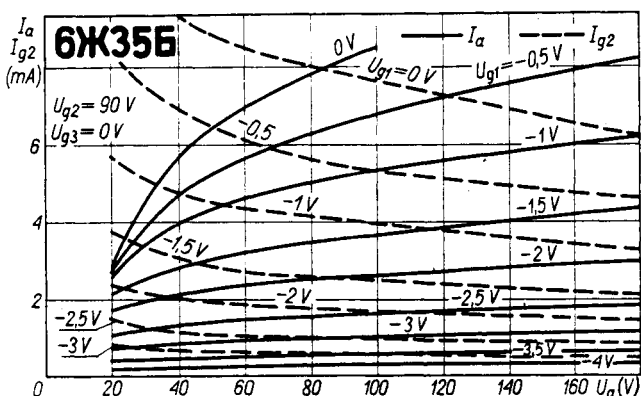
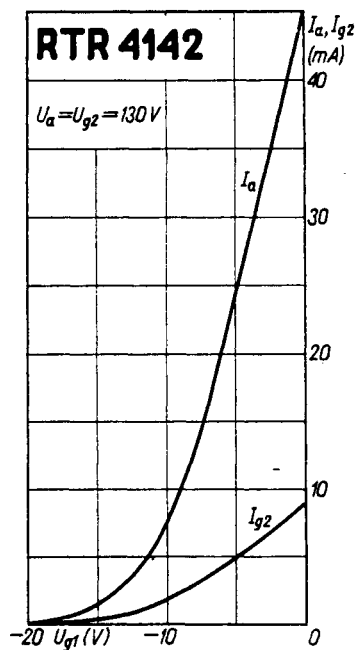
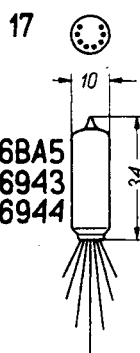
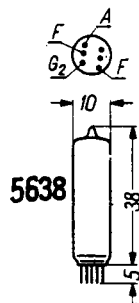
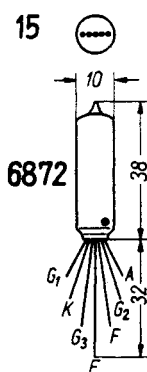
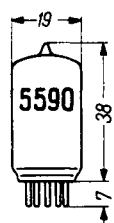
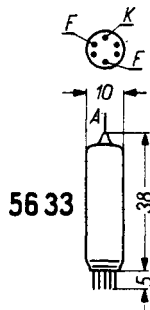
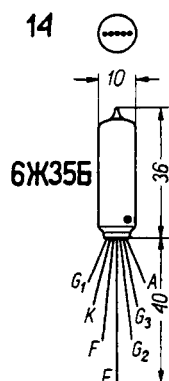
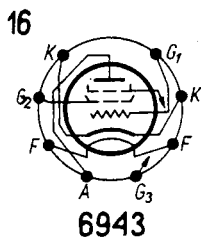
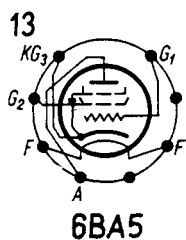
1) vide * 4; *) vide * 4,a,b,c, = 5000, e.

Equivalents

A 1685 M ¹⁾	Marc	= A 1685
SD 828 A ¹⁾	Syl	= 5638
SD 828 E ¹⁾	Syl	= 5634
SN 944 ¹⁾	Syl	= 5633
VX 8029 ¹⁾	Mul	= 5634
VX 8032 ¹⁾	Mul	= 5633
5 GY 6	amer	= 5 GX 6
6 GY 6	amer	= 6 GX 6
6 Ж 35 Б-Б ¹⁾	СССР	= 6 Ж 35 Б
401 A	WE	= 5590
717 A	WE	= 713 A
4713 A	STCE	= 713 A
4717	STCE	= 713 A

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
RTR 4142	6,6	8,7	0,06
6 BA 5	3,4	3,6	0,065
6 SD 7-GT	9	7,5	0,035
6 Ж 35 Б	4,6	3,5	0,03
5590	3,4	2,9	0,02
5633	4	2,8	0,01
5634	4,4	2,8	0,01
5638	4	6,5	0,19
6943	3	3	0,015
6944	2,9	3,1	0,015





T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A	V	V	V	mA	mA	mA/V	$\frac{g_2}{g_1}$ (a/g_1)	M Ω	Ω	V	mA	W	W
6 BH 6	int	6,3	0,15	100	100	—1	3,6	1,4	3,4	50	0,7	200	90	15	0,5	3
				250	150	—1	7,4	2,9	4,6	50	1,4	100				
				100	100	—5	0,01	maximum								
				250	150	—7,7	0,01									
				300	150											
				250	—	—3	12,5	—	4,4	(40)	0,009	vide Fig. 1				
				250	—	—3	11,5	—	4,5	(40)	0,009	vide Fig. 2				

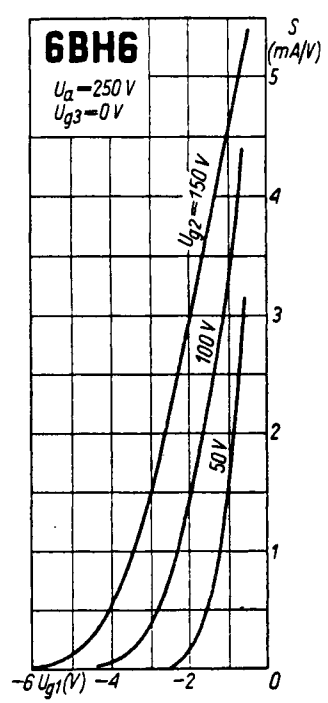
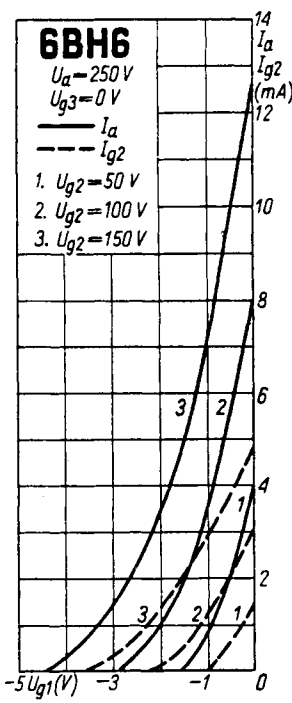
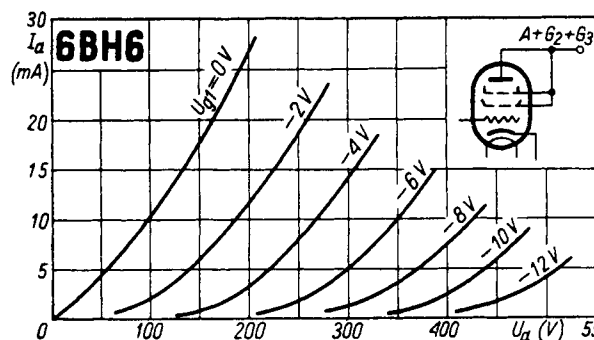
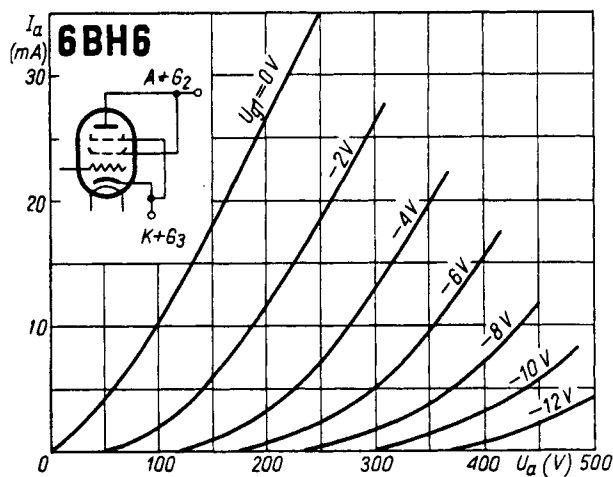
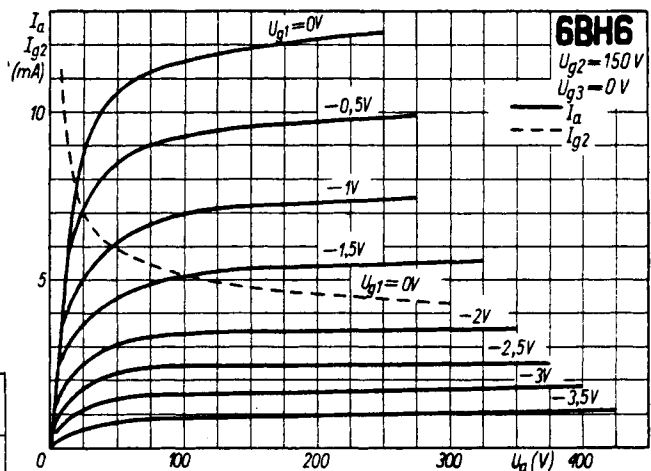
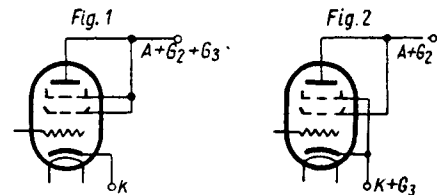
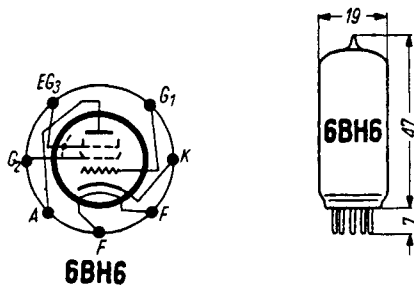
Equivalents

E 90 F ¹⁾	Phl
GL-6265 ¹⁾	GE
GL-6661	GE
6265 ¹⁾	amer
6661	amer
7693	amer

C_{g1}	C_a	$C_{g1/a}$	vide
pF	pF	pF	
5,2	4,4	0,0035	* 5

¹⁾ vide * 4 a, b, f, f ($U_f = 6,3 \pm 20\%$)

²⁾ $I_f = 0,175$ A; $P_a = 2$ W

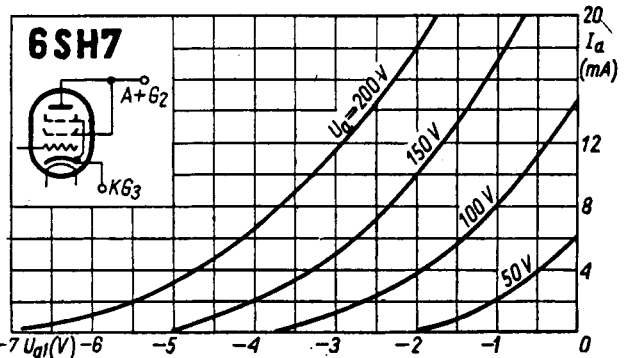
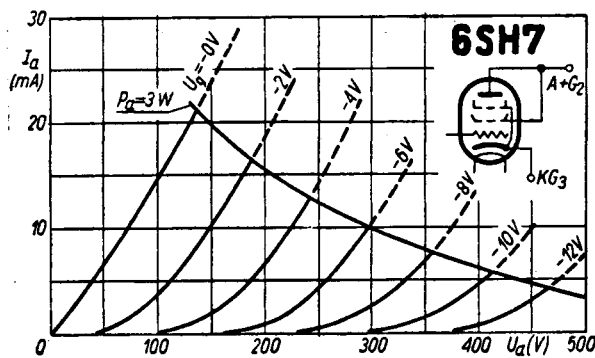
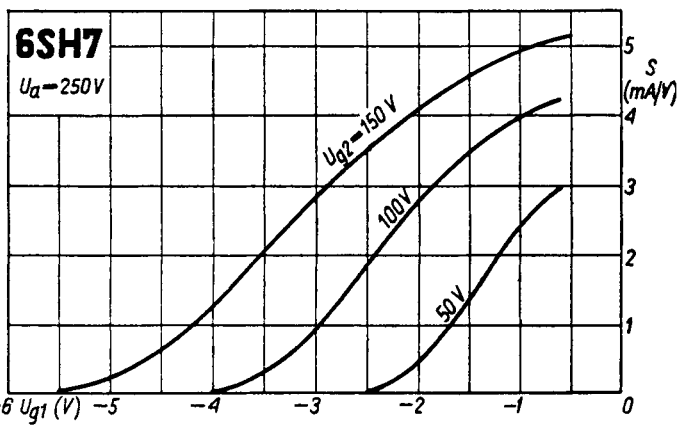
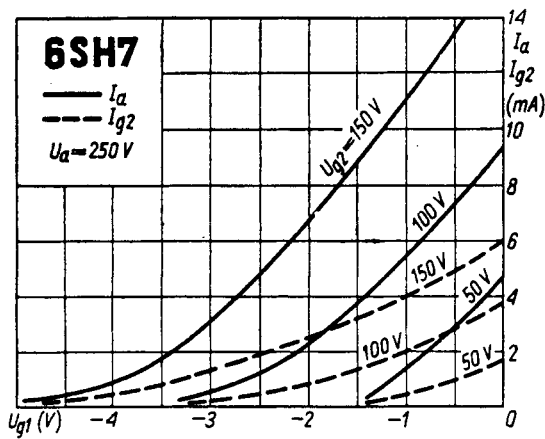
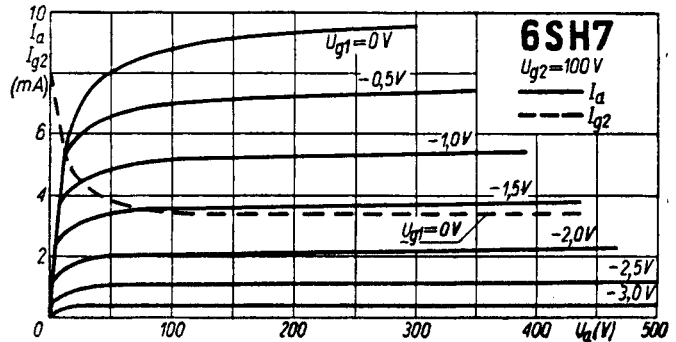
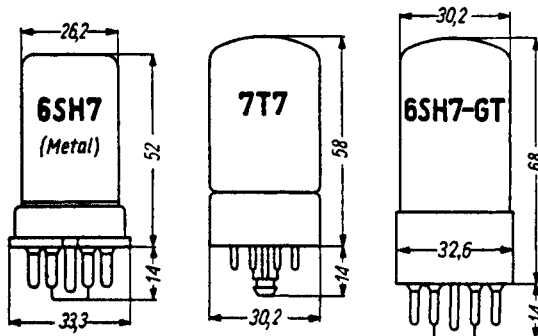
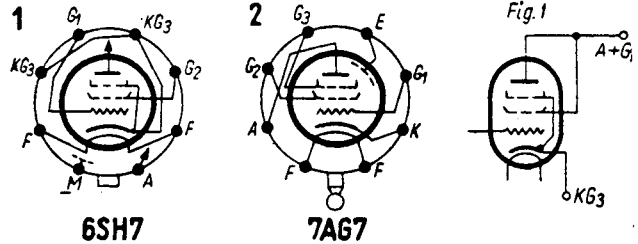


T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i M Ω	μ V/V	$U_{f/k}$ V	P_{g2} W	P_a W
6 SH 7	int	1	6,3	0,3	26	26	-0,5	1,8	0,8	1,8	0,25				
7 T 7	amer	2	6,3	0,3	100	100	-1	5,3	2,1	4	0,35				
12 SH 7	amer	1	12,6	0,15	250	150	-1	10,8	4,1	4,9	0,9				
					100	100	-4	0,01							
					250	150	-5,5	0,01							
					300	150			maximum	6	0,0067	40	90	0,7	3
					150	—	-2	10	—	maximum			vide Fig. 1		3
					200	—									

Equivalents 6 SH 7

HF 3128	RFT
OSW 3128	RFT
6Ж 3	CCCP
6Ж 11 Б	CCCP
6 SH 7-GT	int
6 SH 7-L	TS

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
6 SH 7	8,5	7	0,003
7 T 7	7,5	5,5	0,005



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	g_2/g_1 (α/g_1)	M Ω	Ω	W	W
3 AU 6	amer	I	3,15	0,6	100	100	—	5,2	2	3,9	41	0,5	150		
4 AU 6	amer	I	4,2	0,45	250	125	—	7,6	3	4,45	41	1,5	100		
6 AU 6	int	I	6,3	0,3	250	150	—	10,8	4,3	5,2	41	I	68		
12 AU 6	int	I	12,6	0,15	100	100	—	4,2	0,01						
					250	125	—	5,2	0,01						
					250	150	—	6,2	0,01						
					300	150	—	maximum	—	($U_{f/k} = 90$ V)				0,65	3
					250	—	—	12,2	—	4,8	(36)	0,0075	330	vide	
					250	—	—	maximum	—					Fig. 1	3,2

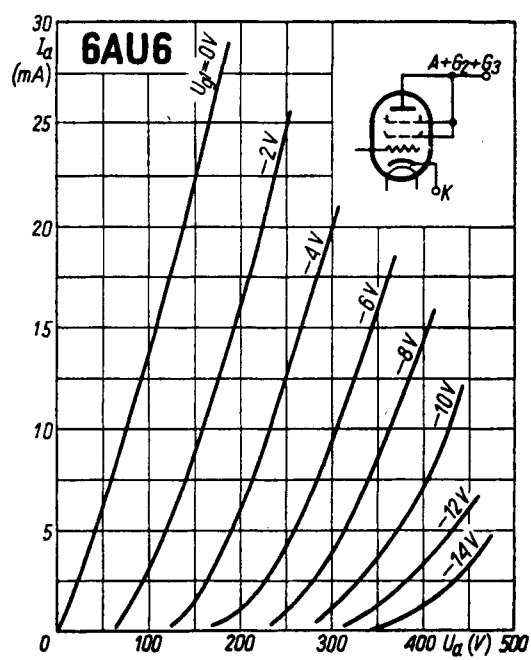
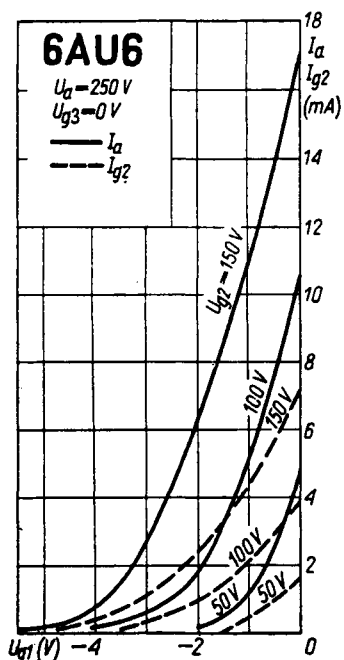
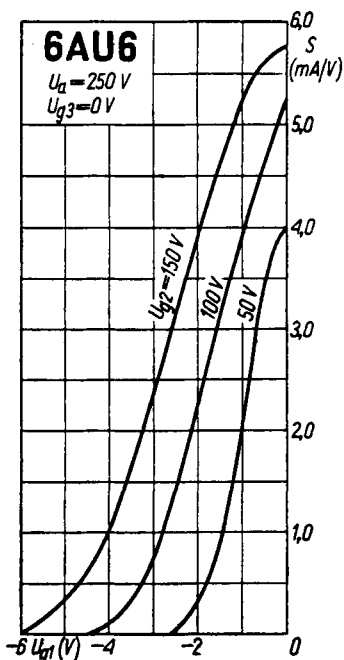
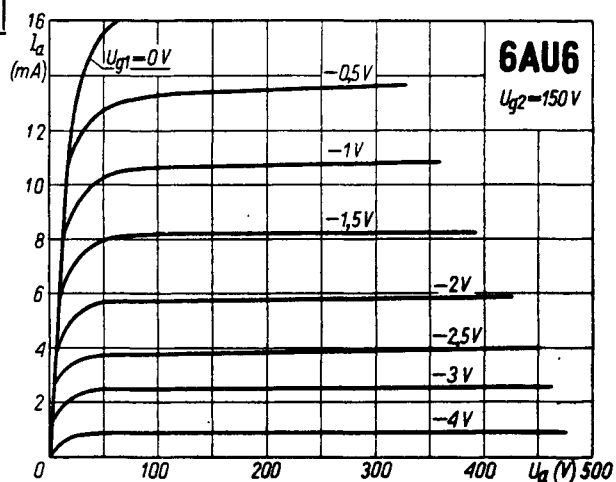
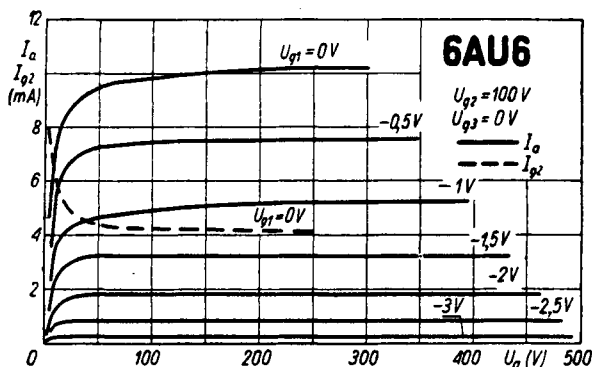
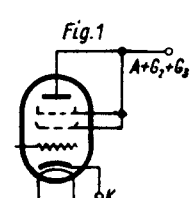
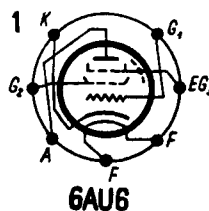
Equivalents

EF 94	eur	=	6 AU 6
HF 94	eur	=	12 AU 6
PF 94	eur	=	4 AU 6
XF 94	Phi	=	3 AU 6
6 AU 6-A	amer	=	6 AU 6
6 AU 6-WA ¹⁾	int	=	6 AU 6
6 Ж 4 П	CCCP	=	6 AU 6
6 Ж 4 П-E ¹⁾	CCCP	=	6 Ж 4 П
6134 ¹⁾	amer	=	6 AU 6
7543	amer	=	6 AU 6

C_{g1}	C_a	$C_{g1/a}$	vide
pF	pF	pF	
6	4,9	0,0035	* 5 pentod.
6	4,9	0,0035	* 6 pentod.
3,2	1,2	2,6	* 5 triod.
3,2	8,5	2,6	* 6 triod.

¹⁾ vide *4, a,b,c,f,g, ($U_f = 6,3$ V 10%);

²⁾ vide *4, a, b, c = 5000, e



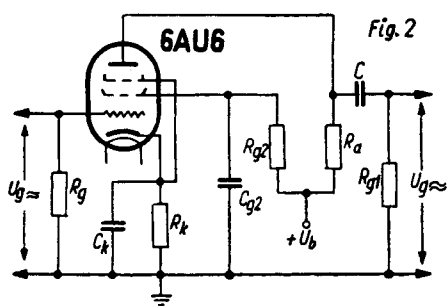


Fig. 2

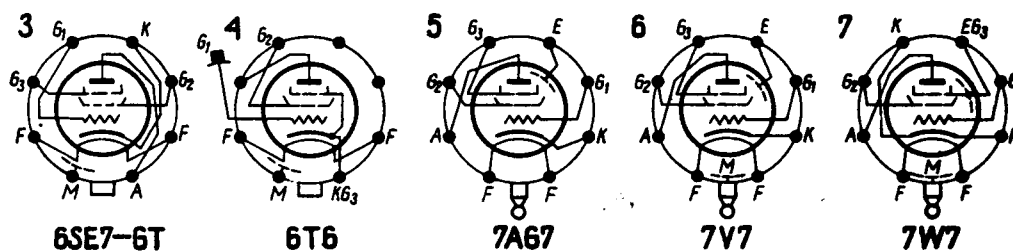
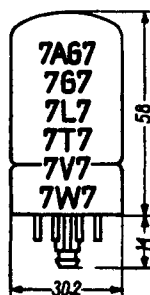
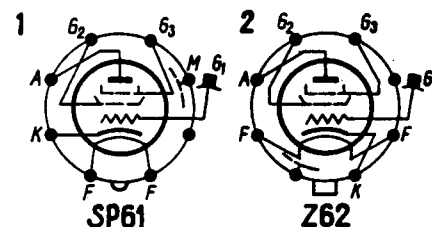
U_b	R_a	R_{g2}	R_{g1}	R_k	C_{g2}	C_k	C	$U_{a\sim}$	μ
V	MΩ	MΩ	MΩ	kΩ	μF	μF	μF	V	V/V
90	0,1	0,096	0,47	2,1	0,1	8,0	0,0065	37	88
90	0,22	0,35	1,0	3,7	0,085	5,1	0,003	34	125
90	0,47	0,8	2,2	6,7	0,4	3,2	0,0018	36	152
180	0,1	0,19	0,47	1,0	0,1	12,5	0,006	81	141
180	0,22	0,6	1,0	1,9	0,066	8,1	0,003	71	200
180	0,47	1,1	2,2	3,6	0,04	3,6	0,0019	74	722
300	0,1	0,26	0,47	0,7	0,11	15,3	0,006	129	168
300	0,22	0,55	1,0	1,1	0,09	11,0	0,003	122	262
300	0,47	1,2	2,2	2,1	0,06	7,3	0,0018	122	371

T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	V	W	W
SP 61	Eds	1	6,3	0,6	200	200	-1,5	10,8	2,7	8,5	0,7			
SP 62	Eds	1	6,3	0,6	200	100	-1,25	16	3,75	9				
Z 62	Eng	2	6,3	0,45	250	100	-2,4	10	2,5	7,5	2		0,5	2,5
Z 66	Eng	2	6,3	0,45	250	200	-1,85	8	2	7,5	0,75			
6 M 7 G	amer	2	6,3	0,3	250	125	-2,5	10,5	2,8	3,4	0,9			
6 SE 7-GT	amer	3	6,3	0,3	100	100	-1	5,5	2,4	3,1	0,25			
					250	100	-1,5	4,5	1,5	3,4	1			
6 T 6	amer	4	6,3	0,45	250	100	-1	10	2	5,5	1			
7 AG 7	amer	5	6,3	0,15	100	100	-1	1,6	0,5	2,6	0,7			
					250	250		6	2	4,2	0,75			
					300	300		maximum				90	0,75	2
7 G 7	amer	5	6,3	0,45	250	100	-2	6	2	4,5	0,8			
					300	100		maximum				90	0,3	1,5
7 L 7	amer	5	6,3	0,3	100	100	-1	5,5	2,4	3	0,1			
					250	100	-1,5	4,5	1,5	3,1	1			
					300			maximum				90	0,4	4
7 V 7	amer	6	6,3	0,45										
7 W 7	amer	7	6,3	0,45	300	150	-2	10	3,9	5,8				
14 V 7	amer	6	12,6	0,225	300	150		maximum				90	0,8	4
14 W 7	amer	7	12,6	0,225										
1231	Syl	6	6,3	0,45	300	150	-1	10	2,5	5,5	0,7			

Equivalents

Z 62 D	Marc = Z 62
6X 6 C	CCCP = Z 62
1232	amer = 7 G 7

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 SE 7-GT	8	7,5	0,005
7 AG 7	7	6	0,005
7 G 7	9	7	0,007
7 L 7	8	6,5	0,01
7 V 7	9,5	6,5	0,004
7 W 7	9,5	7	0,0025



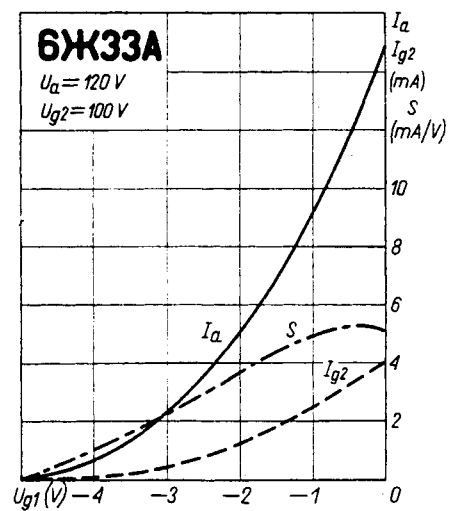
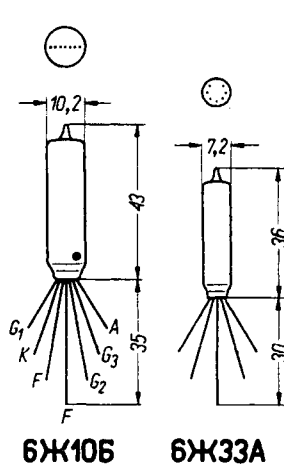
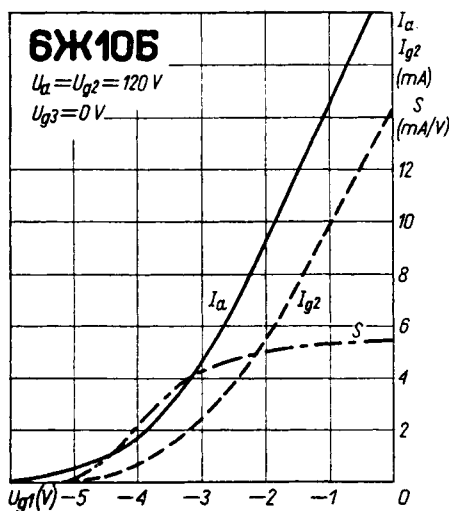
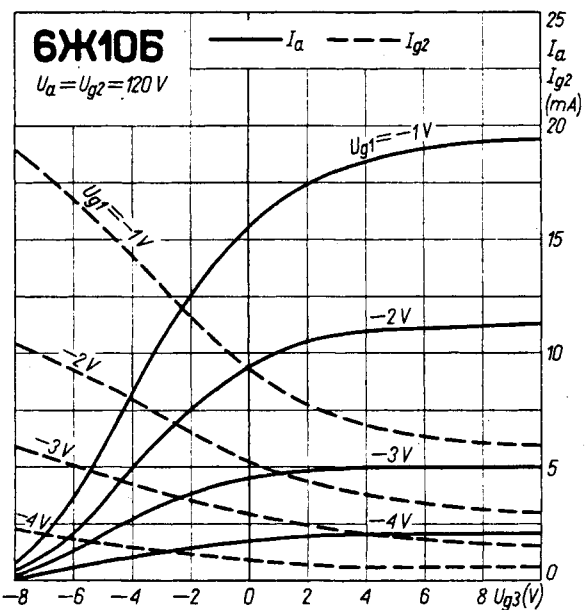
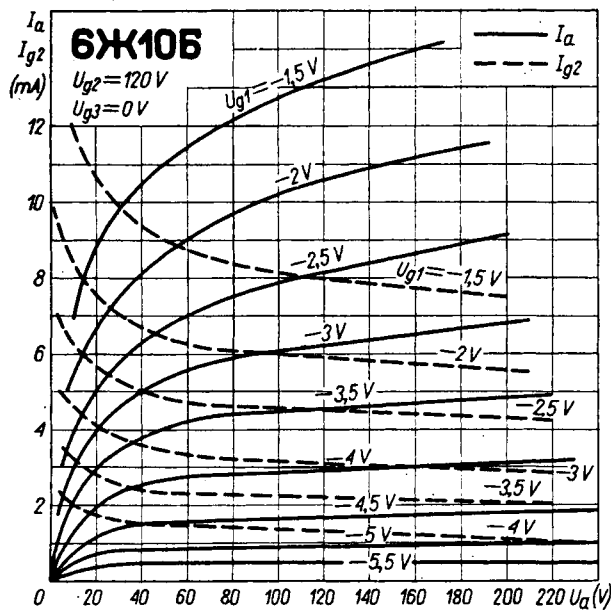
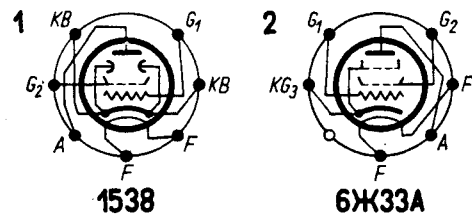
T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	R_k Ω	U_f/k V	I_k mA	P_{g2} W	P_a W
6Ж10Б	CCCP	3	6,3	0,25	120 150	120 150	0	10,5	9 maximum	5		100	150		1,3	2,1
6Ж33А	CCCP	2	6,3	0,127	120 150	100 125		8,5	4 maximum	4,5		120	150	15	0,4	1,3
1538	CCCP	1	6,3	0,35	250 330	150 165		7	2 maximum	5	0,5	200	100	25	0,45	2,5

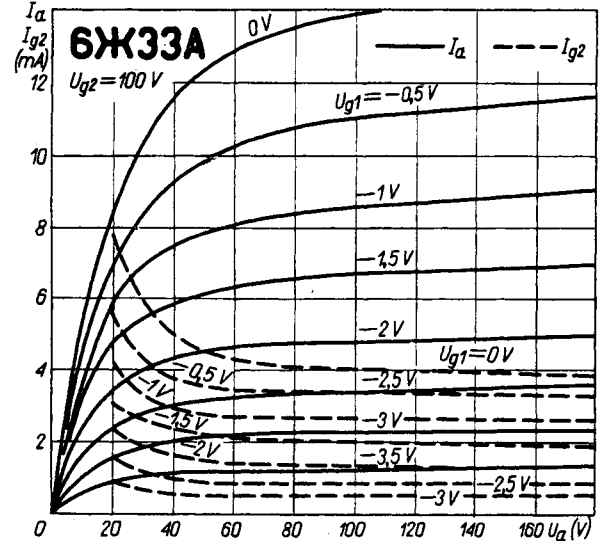
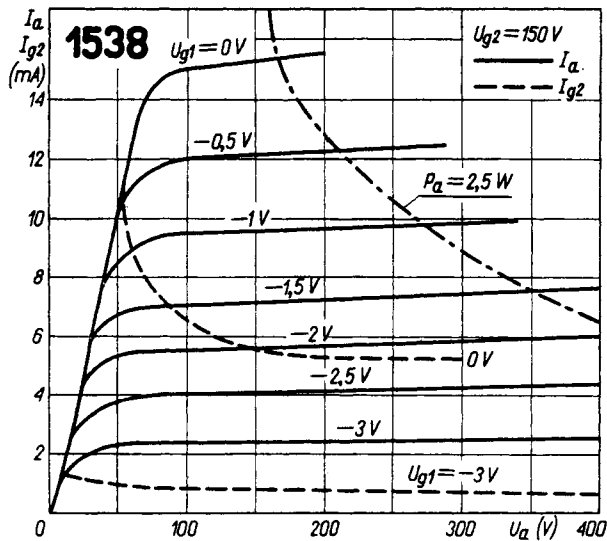
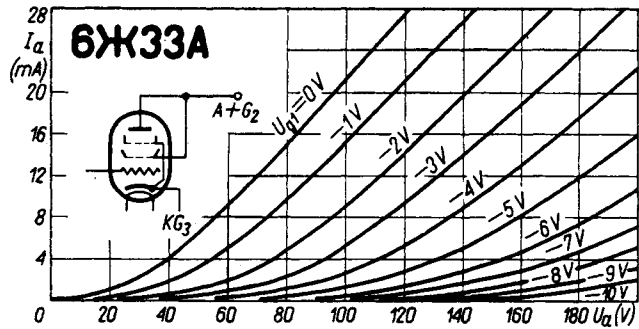
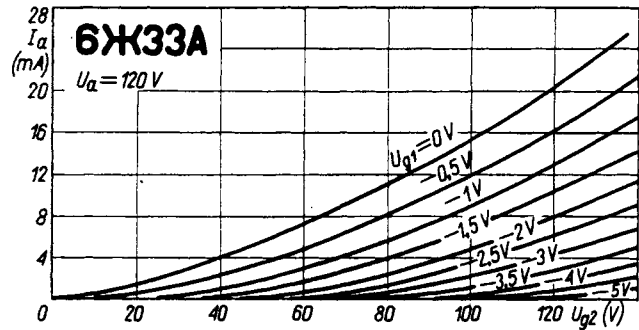
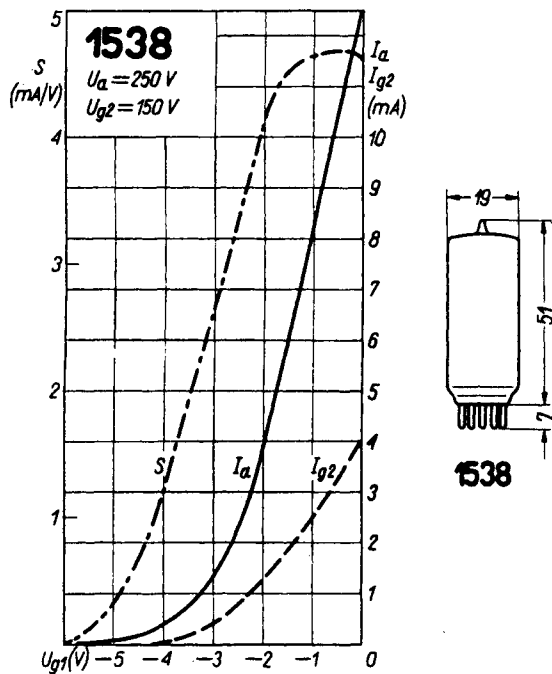
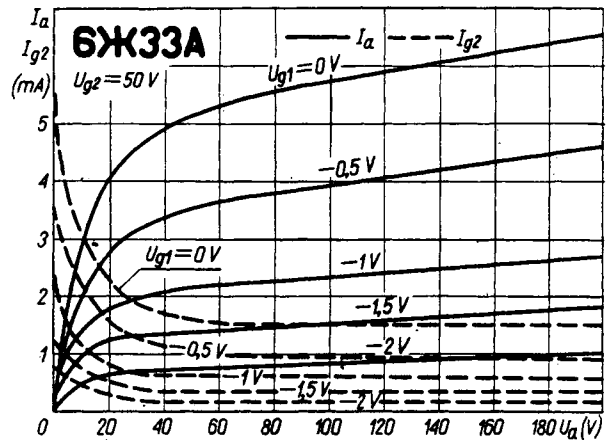
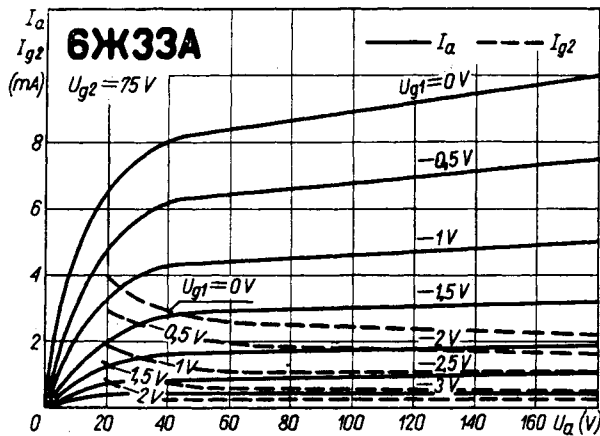
T.	C_{g1} pF	C_a pF	C_{g1+a} pF
6Ж10Б	6,5	4,5	0,05
6Ж33А	3,6	3,3	0,03
1538	6,5	2,36	0,025

Equivalents

6Ж10Б-B¹⁾ CCCP = 6Ж10Б
6Ж33А-B¹⁾ CCCP = 6Ж33А

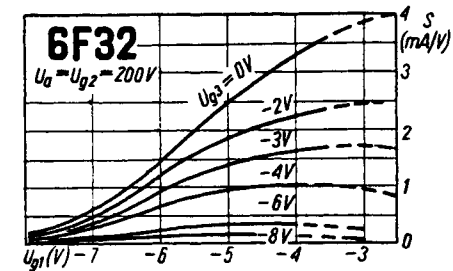
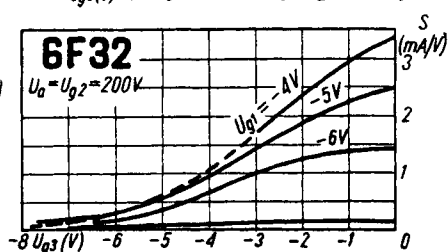
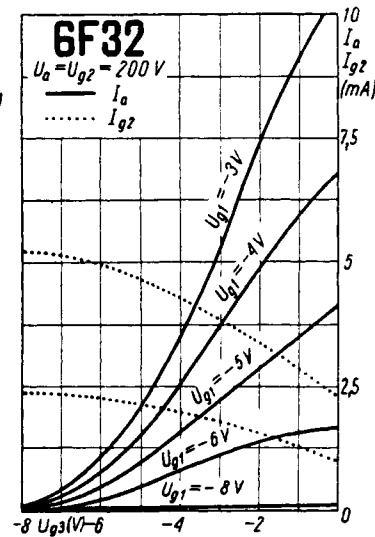
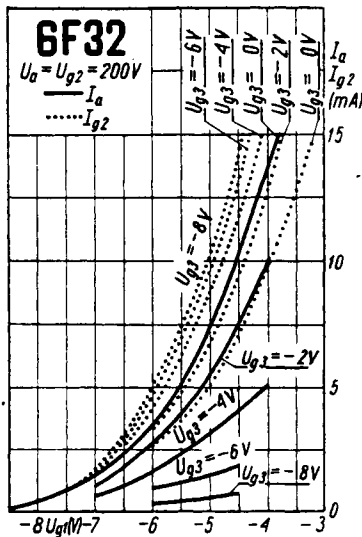
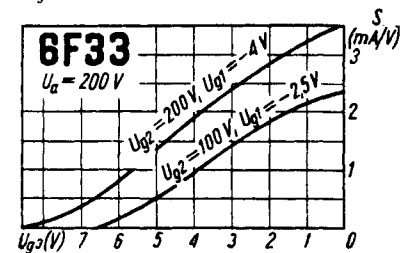
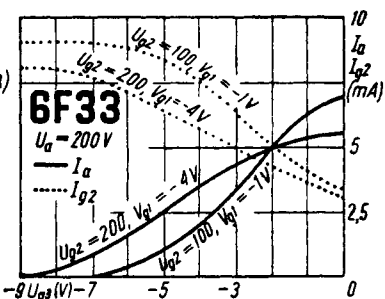
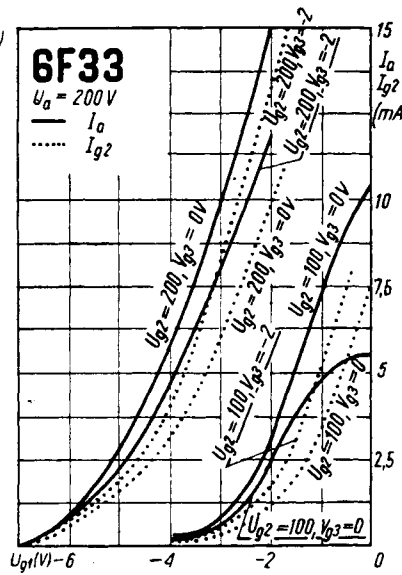
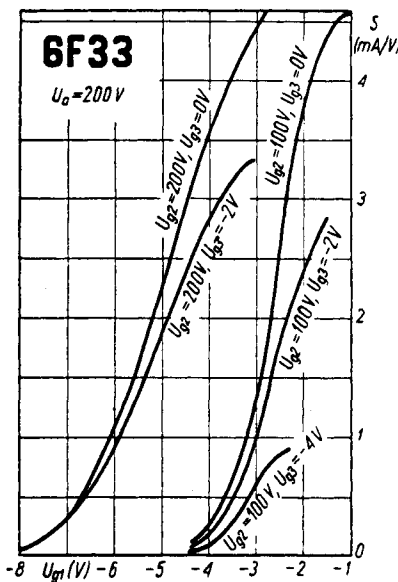
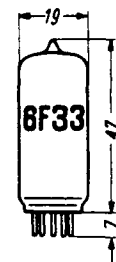
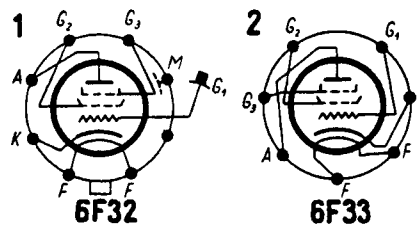
¹⁾ vide * 4, a, b, d, e





T.			U_f V	I_f A	U_a V	U_{g1} V	U_{g2} V	U_{g3} V	I_a mA	I_{g2} mA	S mA/V	$\mu(g2/g1)$ V/V	U_f/k V	P_{g2} W	P_a W
6 F 32	Eds	1	6,3	0,63	200 200 250	200 200 200	0 -3,3 -4,5	-4,5	5,1 2,5 maximum	3,45 5,5 maximum	3 1,4	38	150	1,5	4,5
6 F 33	Eds	2	6,3	0,36	200 250	100 250	0 -1,5	-1,5	5 maximum	2 maximum	4,35	38	100	0,8	2,5

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	vide
6 F 32	10,5	5,7	0,0005	*6
6 F 33	7,3 8,4	4,5 5,6	0,01 0,012	*6 *5



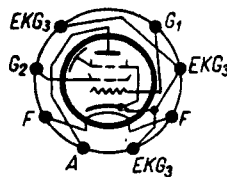
T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A	V	V	V	mA	mA	mA/V	k Ω	V/V	Ω	V	mA	W	W
EF 72	eur	6,3	0,15	$\begin{cases} 100 \\ 175 \\ 100 \end{cases}$	$\begin{cases} 100 \\ 175 \\ - \end{cases}$	$\begin{cases} -1,4 \\ -1,4 \end{cases}$	$\begin{cases} 7 \\ \text{maximum} \\ 9,2 \end{cases}$	$\begin{cases} 2,2 \\ - \end{cases}$	$\begin{cases} 5 \\ 6,8 \end{cases}$	$\begin{cases} 250 \\ (R_{g1} = 0,5 \text{ M}\Omega) \\ 5,3 \end{cases}$		150	$\begin{cases} 100 \\ \text{vide Fig. 1} \end{cases}$	12	0,3	0,8

Equivalents

M 8121 ¹⁾	Mul
SN 973 C ¹⁾	Syl
SN 1038 A	Syl
VX 8045	Mul
XR 6	Hiv

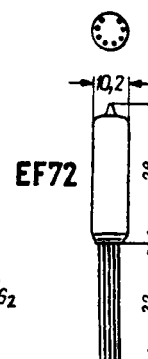
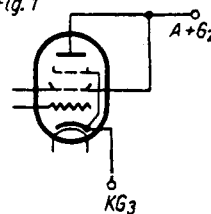
¹⁾ vide * 4

C_{g1}	C_a	$C_{g1/a}$	
pF	pF	pF	vide
4	2	0,02	* 5
4,1	2,5	0,015	* 6

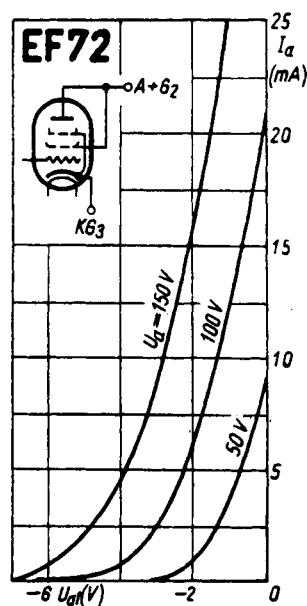
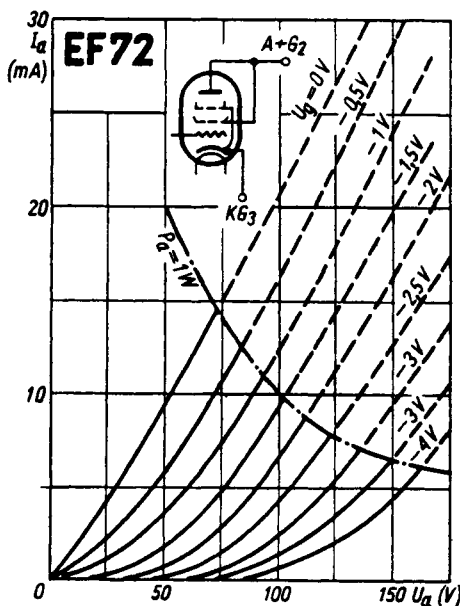
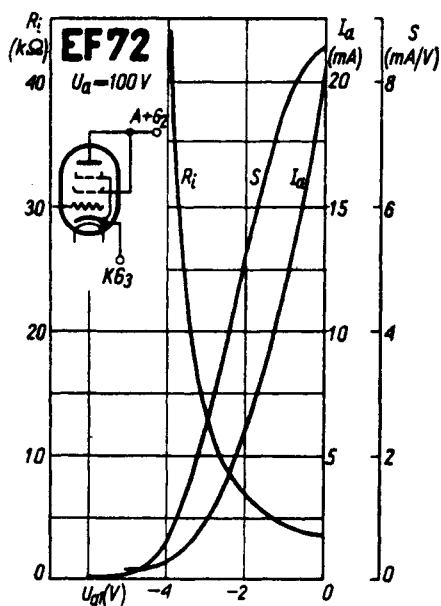
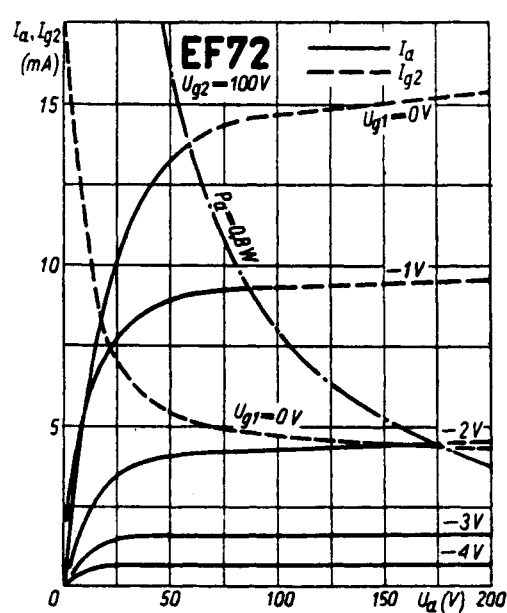
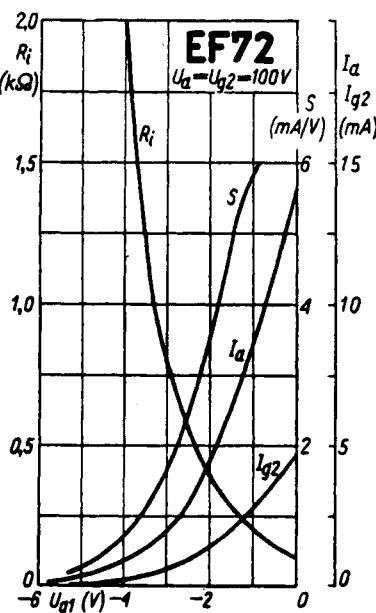
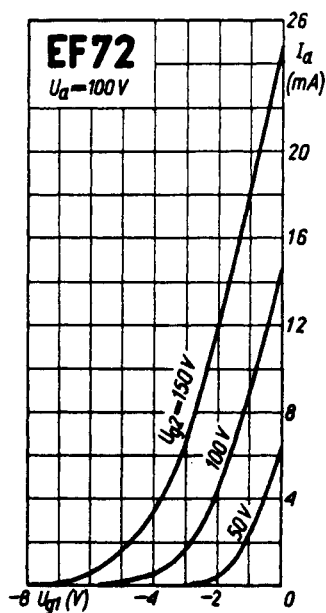


EF72

Fig. 1



EF72



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	kΩ	Ω	V	mA	W	W
EF 732	eur	1	6,3	0,15	100	100	-1,5	7,5	2,4	5	260	150				
EF 734	eur	2	6,3	0,15	100	100	-9	0,01								
					165	155	-55			maximum ($f = 400$ MHz)			200	16,5	0,55	1,1

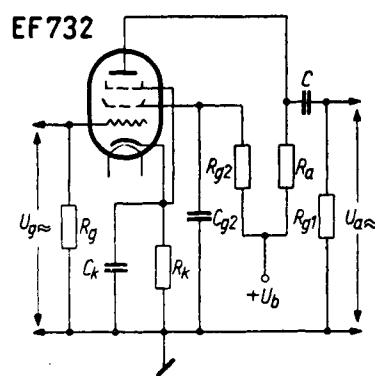
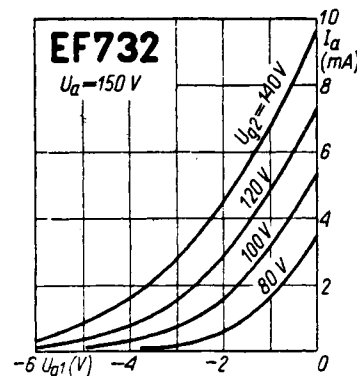
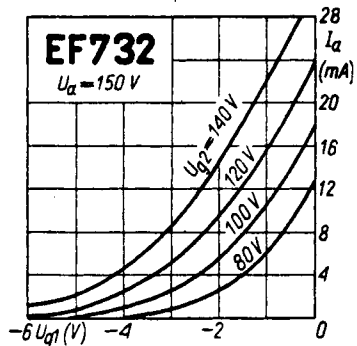
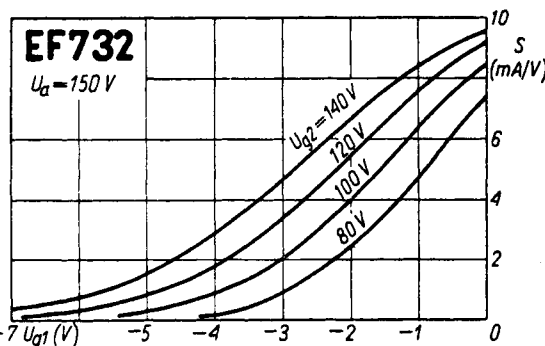
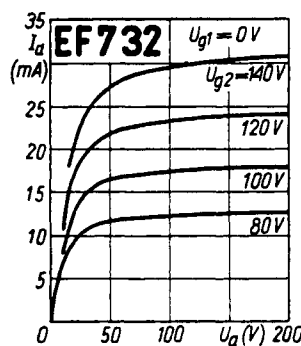
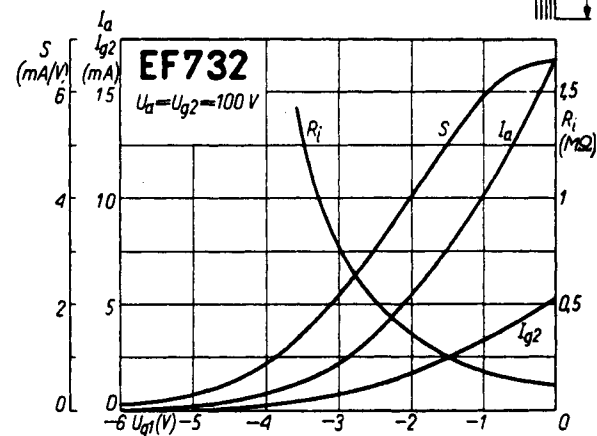
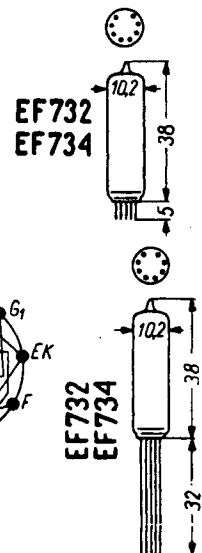
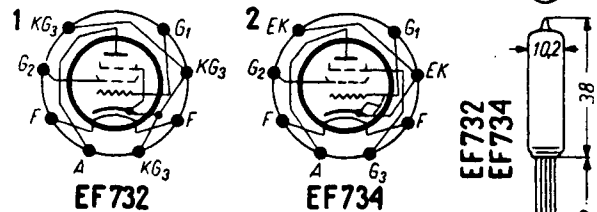
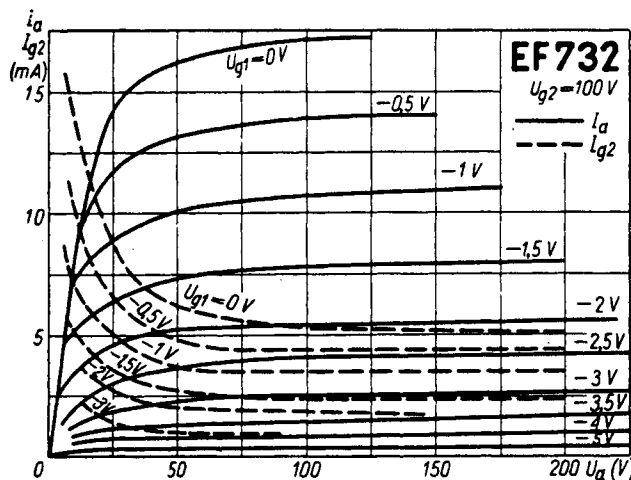
Equivalents

EF 762	RFT = EF 732
SN 1016	Syl = EF 732
5840 ¹⁾	int = EF 732
5840-A ¹⁾	RCA = EF 732
5901 ¹⁾	amer = EF 732
6205 ¹⁾	int = EF 734

T.	C_{g1}	C_a	$C_{g1/a}$	vide
	pF	pF	pF	
EF 732	4	1,9	0,03	* 5
EF 734	4,2	3,4	0,015	* 6

¹⁾ vide * 4, a, b, c = 10.000, d, e, f, g ($U_f = 6,3 \text{ V} \pm 5\%$)

²⁾ vide * 4, a, b, c = 10.000, ($U_f = 6,3 \text{ V} \pm 10\%$)



U_b	R_a	R_{g2}	R_{g1}	R_k	U_{g1}	$U_{a\approx}$	μ	h
V	MΩ	MΩ	MΩ	kΩ	V	V	V/V	%
100	0,1	0,22	0,27	0,82	0,1	8,2	82	2,8
100	0,1	0,22	0,47	0,82	0,22	18,6	85	4,8
100	0,27	0,68	0,47	2,2	0,1	9,5	95	2,5
100	0,27	0,68	1,0	2,2	0,16	17	106	4,4
100	0,47	1,2	0,47	3,3	0,1	9,2	92	3,1
100	0,47	1,2	1,0	3,3	0,14	16	114	5,0
150	0,1	0,27	0,27	0,56	0,1	11,5	115	1,5
150	0,1	0,27	0,47	0,56	0,18	21,7	120	5,0
150	0,27	0,82	0,47	1,5	0,1	13,2	132	2,4
150	0,27	0,82	1,0	1,5	0,16	24	150	4,8
150	0,47	1,5	0,47	2,2	0,1	13	130	3,7
150	0,47	1,5	1,0	2,2	0,14	22,2	159	4,8

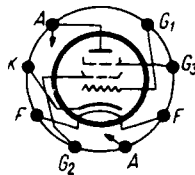
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	k Ω	V/V	V	mA	W	W
EF 73	eur	6,3	0,2	$\begin{cases} 100 \\ 175 \\ 100 \end{cases}$	$\begin{cases} 100 \\ 175 \\ 100 \end{cases}$	0	$\begin{cases} -2 \\ \text{maximum} \\ -2 \end{cases}$	$\begin{cases} 7,5 \\ 10 \end{cases}$	$\begin{cases} 2,5 \\ - \end{cases}$	$\begin{cases} 5,5 \\ 9 \end{cases}$	$\begin{cases} 250 \\ 3 \end{cases}$	27	100	14	1	1,5

Equivalents

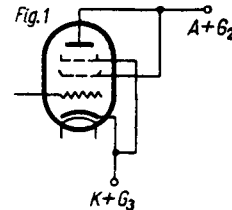
M 8122 ¹⁾	Mul
VX 8046	Mul
XR 7	Hiv
6488 ¹⁾	amer

¹⁾ vide *4

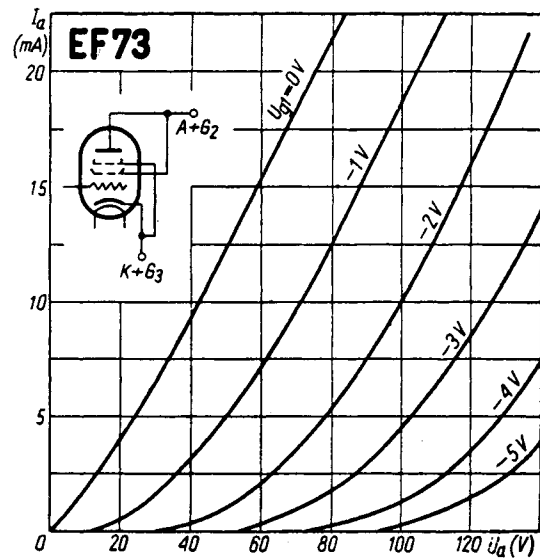
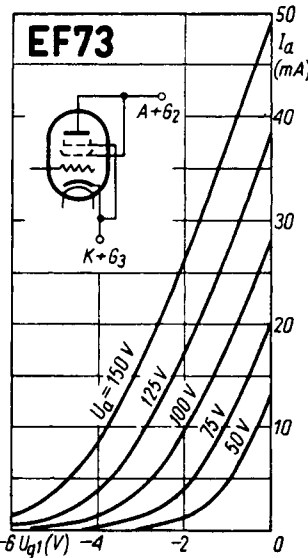
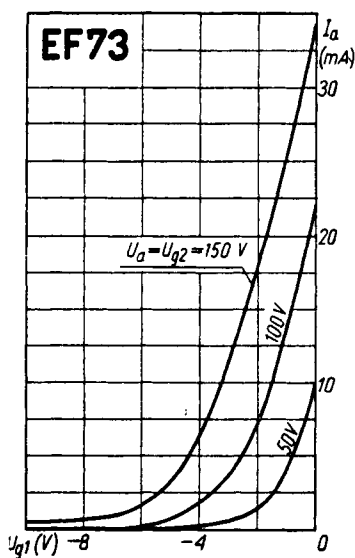
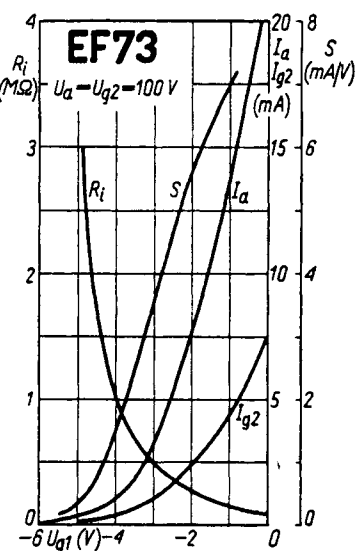
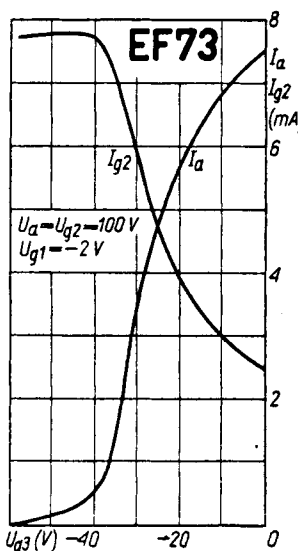
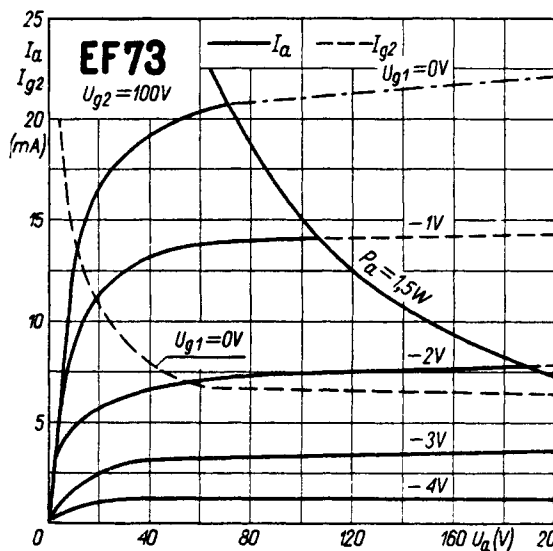
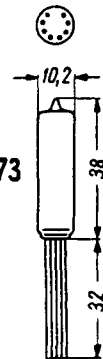
C_{g1}	C_a	$G_{g1/a}$	vide
pF	pF	pF	
5	3	0,2	* 5
4,5	5	0,15	* 6



EF73



EF73



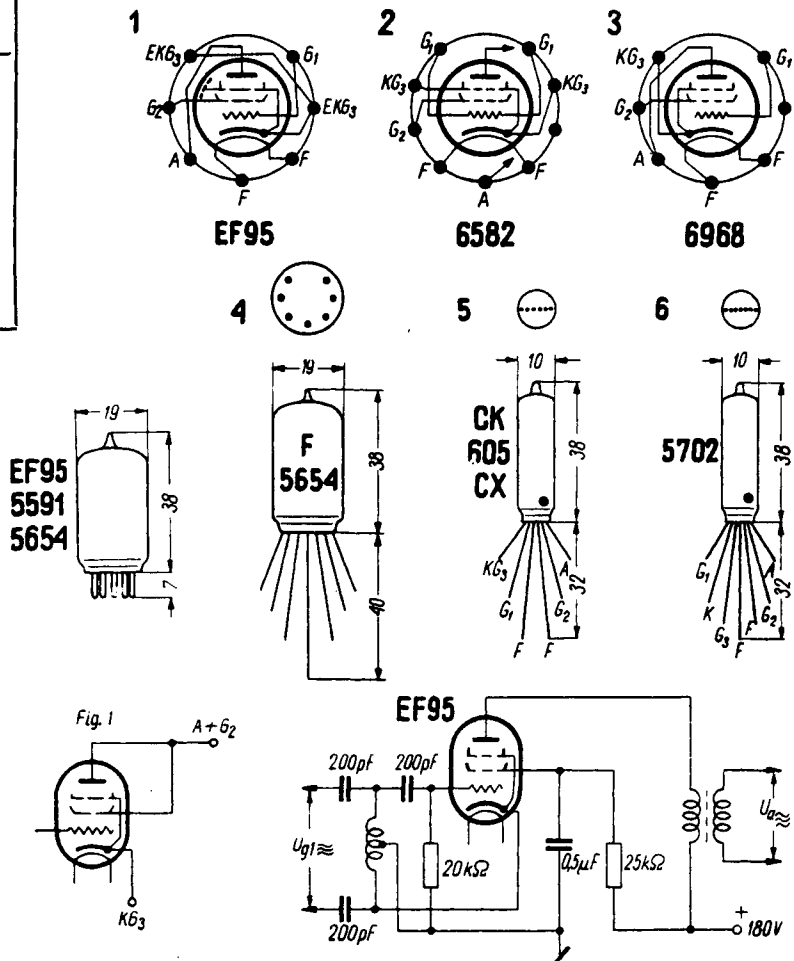
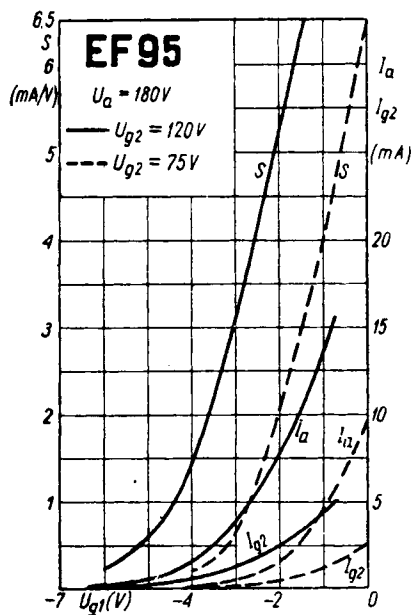
T.				U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	I_k	P_{g2}	P_a
				V	mA	V	V	V	mA	mA	mA/V	(g_2/g_1)	k Ω	Ω	mA	W	W
EF 95	eur	1	6,3	175	120	120	-2	7,5	2,5	5	(28)	340	200				
F/5654 ¹⁾	Bri	4	6,3	175													
18 AK 5 ¹⁾	SER	1	18	50													
605 CX	Ray	5	6,3	200													
5591 ¹⁾	int	1	6,3	150													
5702	int	6	6,3	200													
6582	amer	2	6,3	200	200	155	-6	6,5	—	3,5	23,3	6,6	925			0,55	1,8
6968	amer	3	6,3	175													

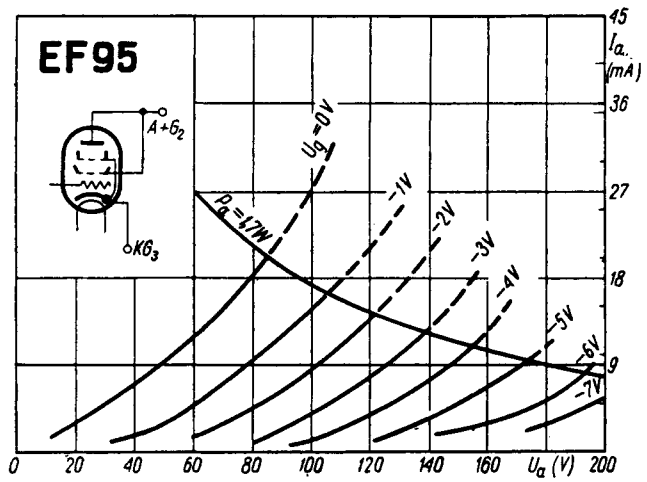
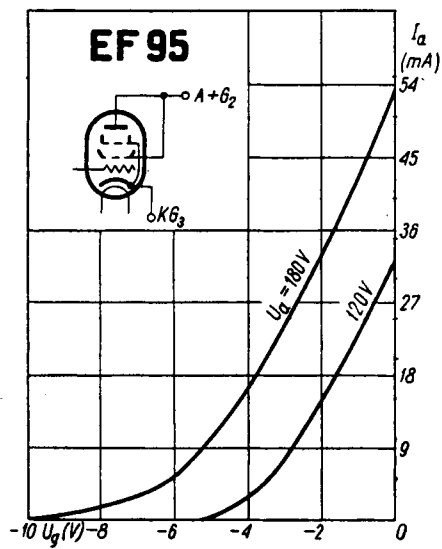
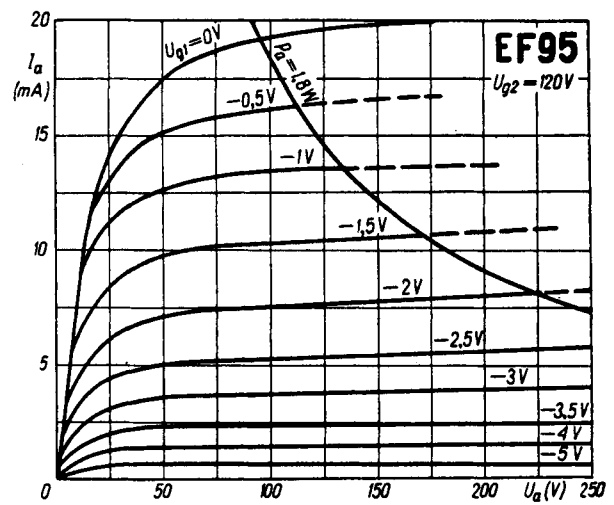
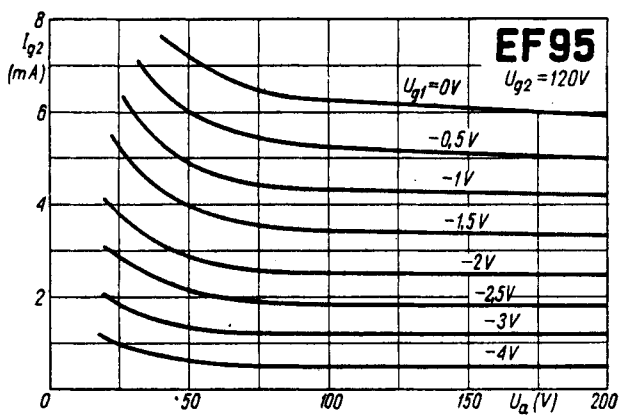
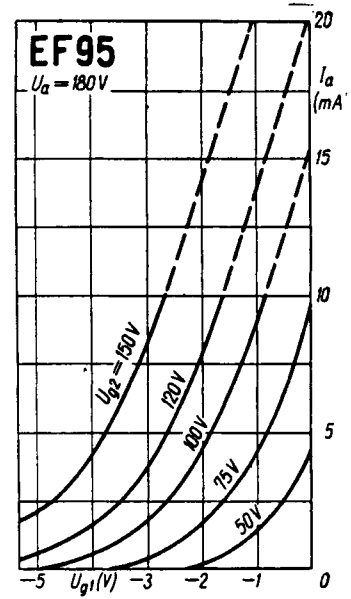
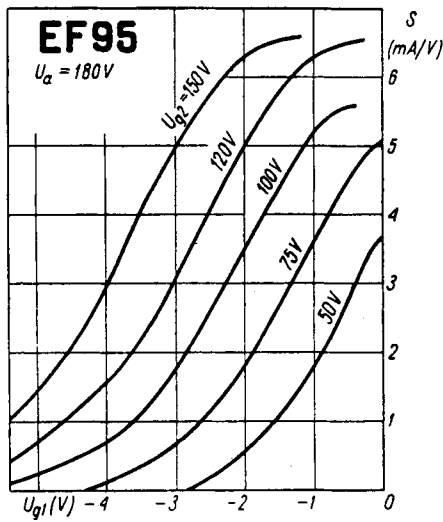
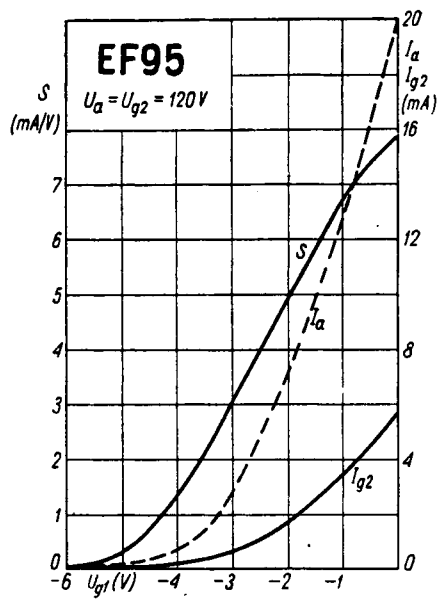
¹⁾ vide *4, a, b, c = 10.000, d, e, f, g ($U_f = 6,3 \text{ V}(18\text{V}) \pm 5\%$); ²⁾ vide *4, a, b, c, f, g ($U_f = 6,3 \text{ V} \pm 10\%$); ³⁾ vide *4, a, b, c = 5000, d; ⁴⁾ vide *4 a, b, d, e

Equivalents

CK 605 AX	Ray = 605 CX	HF 3132	RFT = EF 95	XF/5654 ¹⁾	Bri = F/5654	605 AX	Ray = 605 CX
CK 605 CX	Ray = 605 CX	M 8100 ¹⁾	Mul = EF 95	6 AK 5	int = EF 95	623 CX	Ray = 605 CX
CK 623 CX	Ray = 605 CX	OSW 3132	RFT = EF 95	6 AK 5-W ¹⁾	int = EF 95	731 A ¹⁾	WE = EF 95
CK 5654 ¹⁾	Ray = EF 95	PM 05	SFR = EF 95	6 AK 5-WA ¹⁾	int = EF 95	1381 HQ	amer = EF 95
CK 5702	Ray = 5702	SF/5654 ¹⁾	Bri = F/5654	6 F 32	Tes = EF 95	5654 ¹⁾	int = EF 95
CK 5702-WA ¹⁾	Ray = 5702	SN 1039	Syl = EF 95	6 Ж I Б	CCCP = 5702	5702-WA ¹⁾	amer = 5702
CK 7083 ¹⁾	Ray = 5702	SN 1039 A	Syl = EF 95	6 Ж I Б-B ¹⁾	CCCP = 5702	6096 ¹⁾	GE = EF 95
DP 61	Fer = EF 95	SX/5654 ¹⁾	Bri = F/5654	6 Ж I П	CCCP = EF 95	6148	amer = 5702
E 95 F ¹⁾	Phl = EF 95	TS 51 ¹⁾	Phl = EF 95	6 Ж I П-B ¹⁾	CCCP = EF 95	6176	amer = 5702
EF 905	Lor = EF 95	WE-403 A ¹⁾	WE = EF 95	6 Ж I П-E ¹⁾	CCCP = EF 95	6540	amer = 5702
FF/5654 ¹⁾	Bri = F/5654	WE-403 B ¹⁾	WE = 5591	6 Ж 31 Б-K	CCCP = EF 95	6582-A	amer = 6582
GL-6096 ¹⁾	GE = EF 95	WE-731 A ¹⁾	WE = EF 95	403 A ¹⁾	WE = EF 95	7083 ¹⁾	amer = 5702
				403 B ¹⁾	WE = 5591		

T.	C_{g1}	C_a	$C_{g1/a}$	vide
	pF	pF	pF	
EF 95	4	2,1	0,03	*5 pentod.
	4	2,8	0,02	*6 pentod.
	2	5	1,3	*5 triod.
M 8100	4	3,1	0,02	*6 pentod.
6Ж I Б	4,8	3,8	0,03	*5 pentod.
6Ж I П	4,35	2,45	0,025	*6 pentod.
605 CX	4,4	3,5	0,02	*5 pentod.
5591	4	2,8	0,02	*6 pentod.
5702	4,4	3,2	0,03	*5 pentod.
6148	4,4	3,2	0,03	*5 pentod.

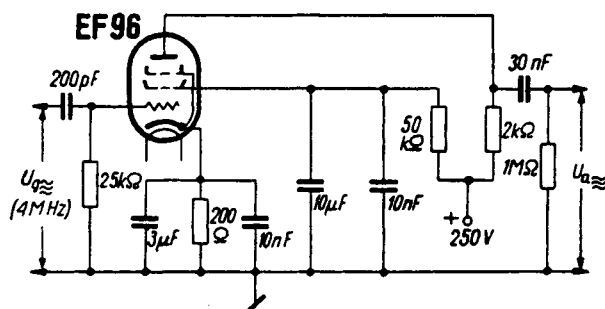
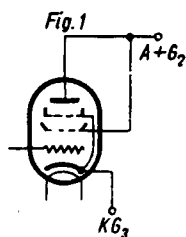




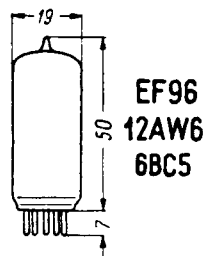
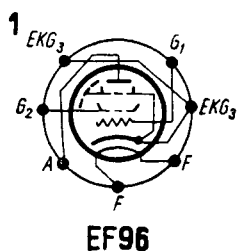
T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	u (g_2/g_1)	R_k Ω	I_k mA	P_{g2} W	P_a W
EF 96	Eur	1	6,3	0,3	26	26	-0,7	0,7	0,2	1,75	700	(35)	100			
12 AW 6	amer	2	12,6	0,15	100	100	-1,8	5,5	1,6	4,75	300	(35)	100			
					125	125	-1,8	7,2	2,1	5,1	500	(35)	100			
					250	150	-1,8	7	2	5	800	(35)	200			
					180	—	-2,3	7	—	5,7	7,9	45	350			
					250	—	-4,5	5,5	—	3,8	11	42	825			
					300	165										
maximum $f = 400$ MHz; $U_{f/k} = 100$ V																
3 BC 5	amer	1	3,15	0,6	100	100	4,7	1,4	4,9	600			180			
4 BC 5	amer	1	4,2	0,45	125	125	8	2,4	6,1	500			100			
6 BC 5	amer	1	6,3	0,3	250	150	7,5	2,1	5,7	800			180			
					180	—	8	—	6	6	42	330				
					250	—	6	—	4,4	9	40	820				
					300	165										
maximum $f = 400$ MHz; $U_{f/k} = 90$ V																

Equivalents EF 96

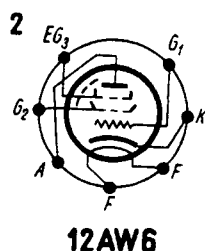
HF 3132	RFT
OSW 3132	RFT
6 AG 5	amer
6 AG 5-WA ¹⁾	amer
6 AX 5	CCCP
6 X 3 II	CCCP
6186 ¹⁾	amer

¹⁾ vide *4, a, b, c, f ($U_f = 6,3$ V $\pm$ 10 %)

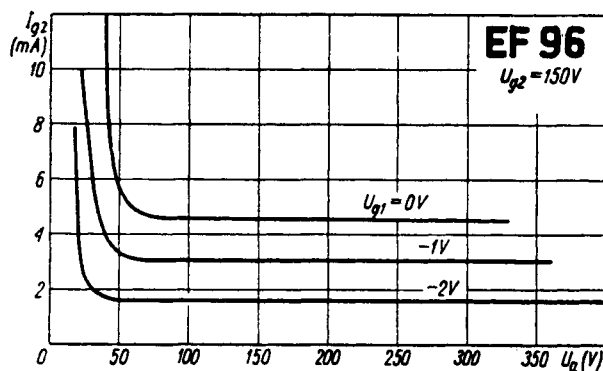
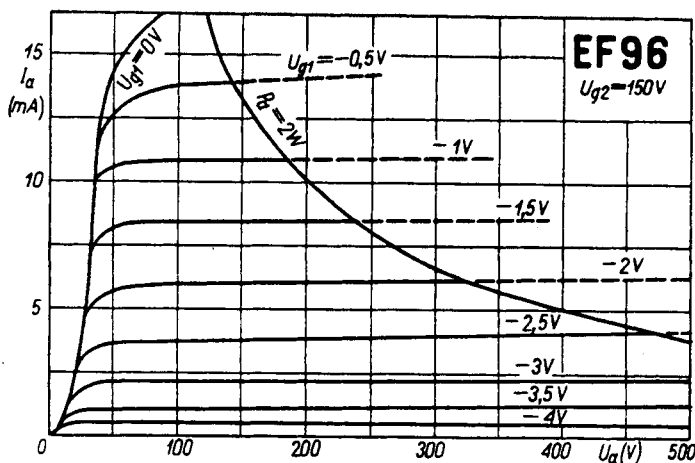
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	vide
EF 96	6,6	3,1	0,02	*6 pentod.
	6,5	1,8	0,03	*5 pentod.
	3,6	4,3	2,5	*6 triod.
	3,6	3,0	2,5	*5 triod.
6 BC 5	6,6	2,6	0,02	*6 pentod.
	6,5	1,8	0,03	*5 pentod.
	4,0	4,3	2,5	*6 triod.
	3,9	3,0	2,5	*5 triod.
6 X 3 II	6,5	1,5	0,025	*5 pentod.
12 AW 6	6,5	1,5	0,025	*5 pentod.

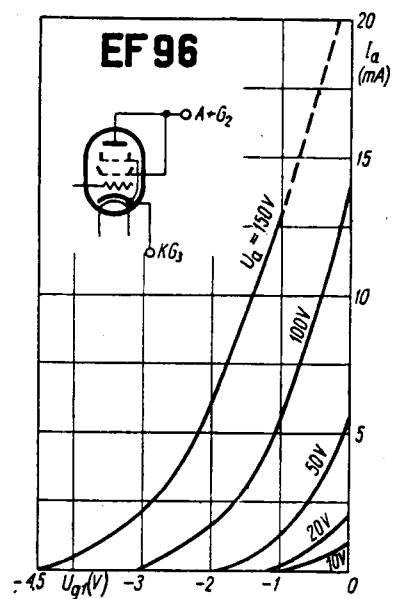
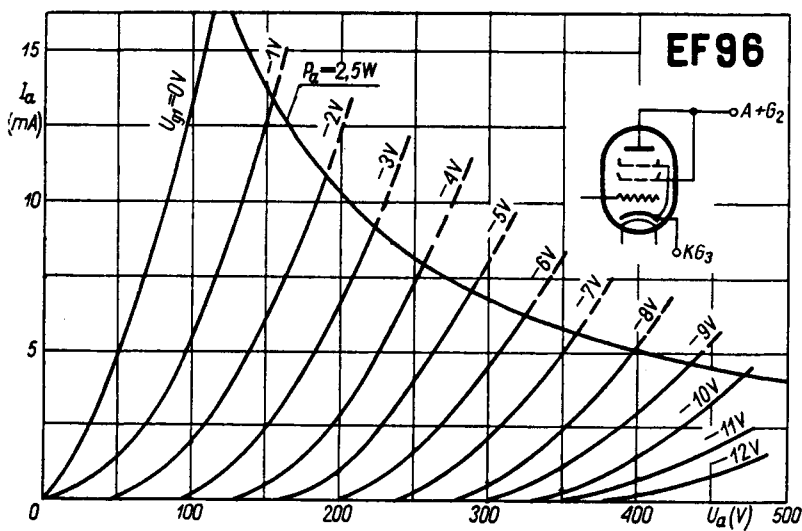
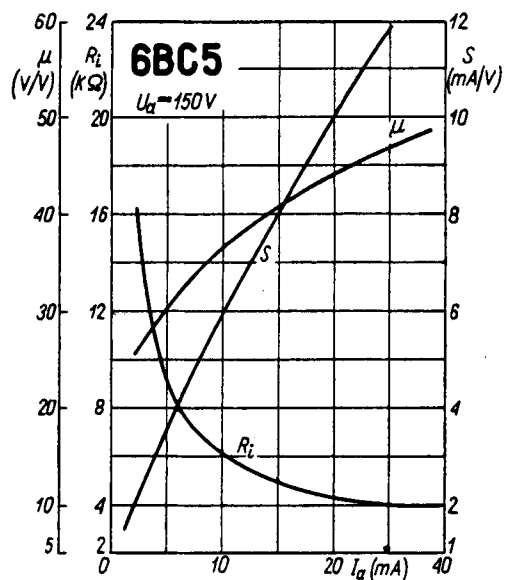
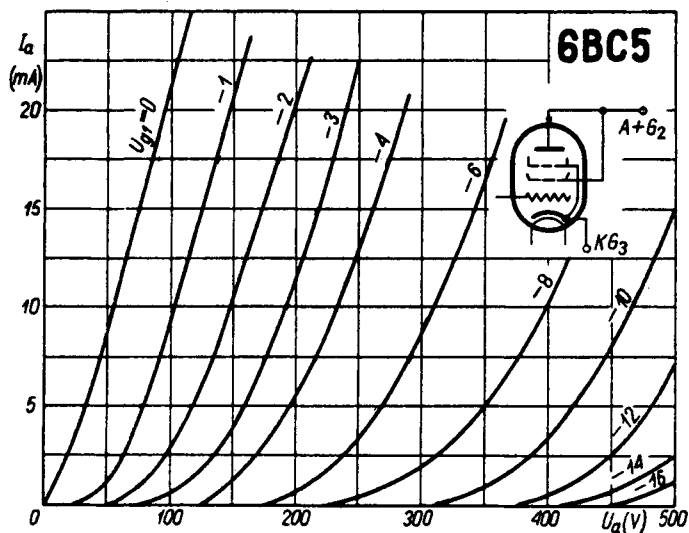
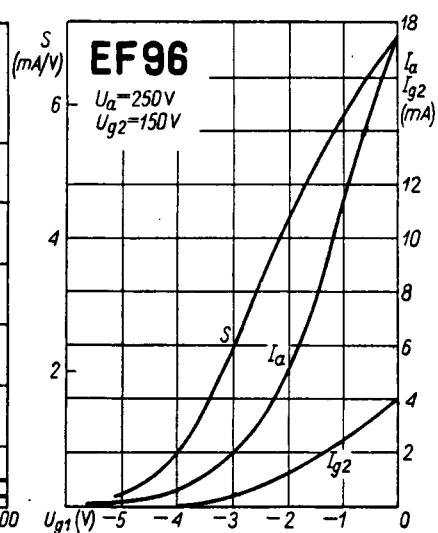
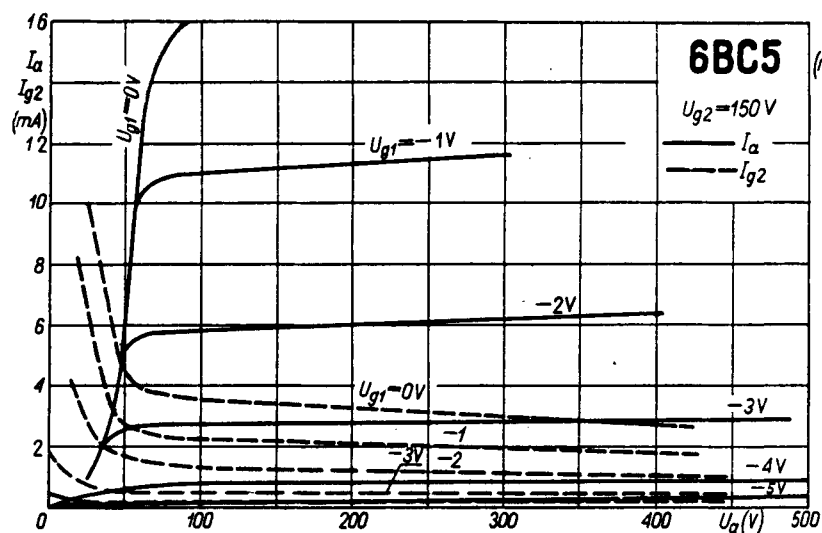
EF96
12AW6
6BC5

EF96



12AW6





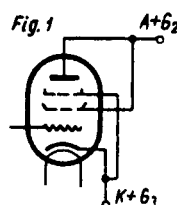
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_t	μ	R_k	U_f/k	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	M Ω		Ω	V	mA	W	W
EF 91	eur	1	6,3	0,3	200	200	0	-1,5	9	2,25	7,5	0,8	70	135				
F/6064	Bri	2	6,3	0,3	250	250	0	-2	10	2,6	7,6	1	70	160				
					250	—	—	-2	12,5	—	8,7	0,01	(8,7)	160	(Fig. 1)	15	0,65	3,3
					300	300			maximum ($f = 100$ MHz)									2,5
6 F 12	Eds	1	6,3	0,3	200	200	0	-1,5	8,3	2,1	7,2	0,75	74	145				
					250	250	0	-2	10	2,5	7,5	0,9	74	160				
					250	250			maximum ($f = 100$ MHz)									2,5

³⁾ vide *4

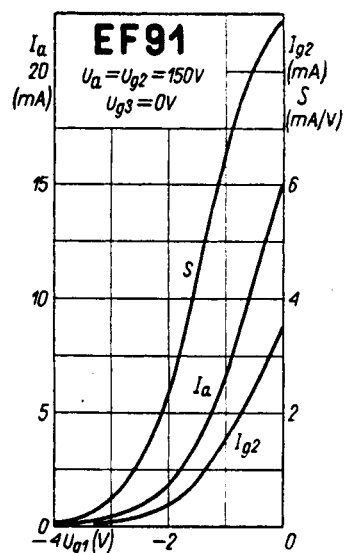
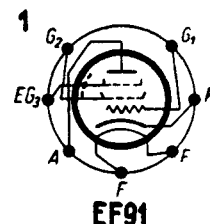
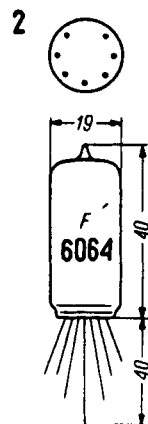
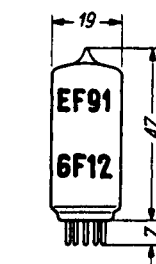
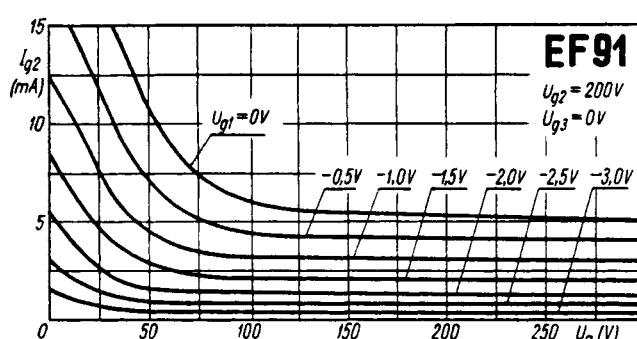
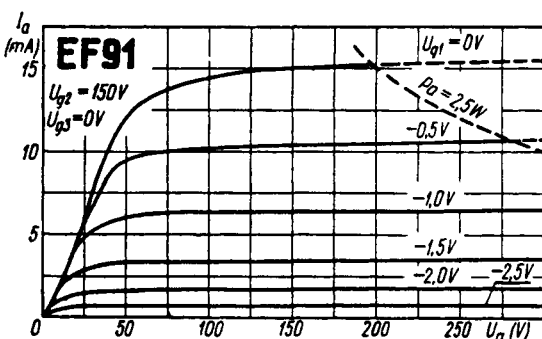
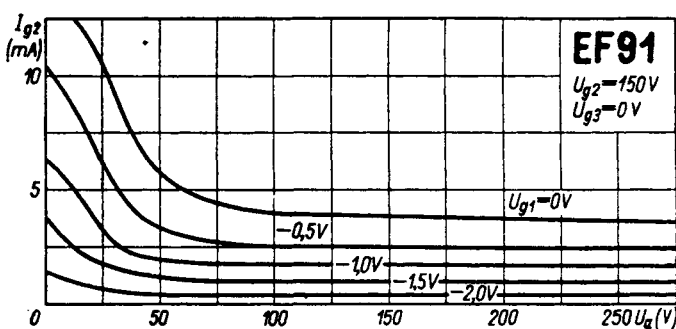
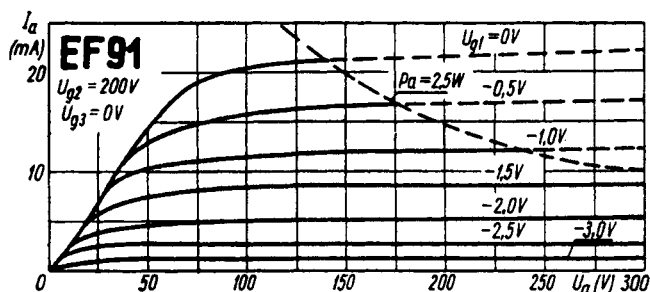
Equivalents

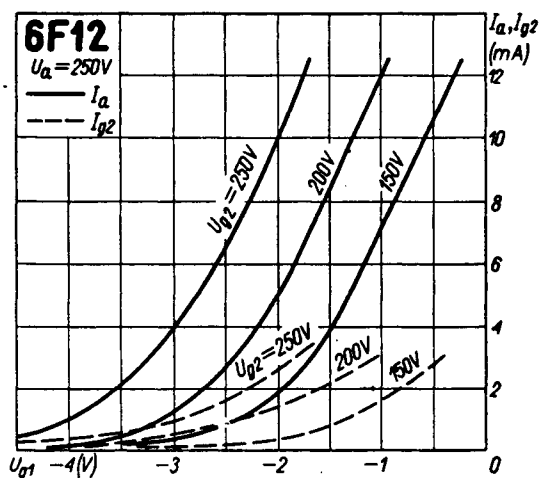
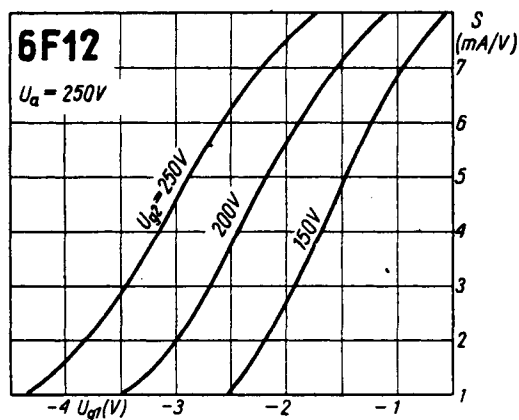
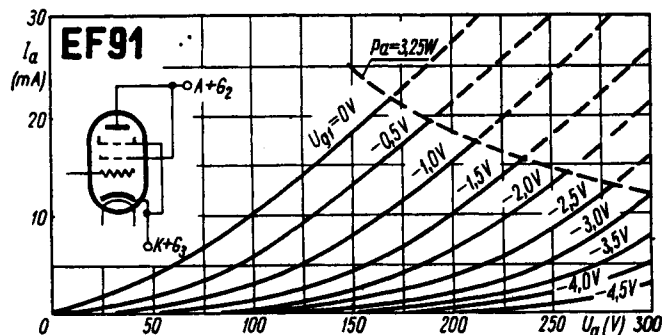
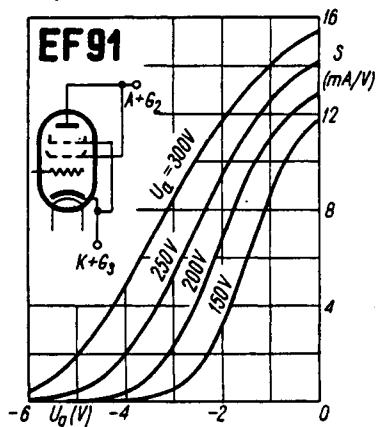
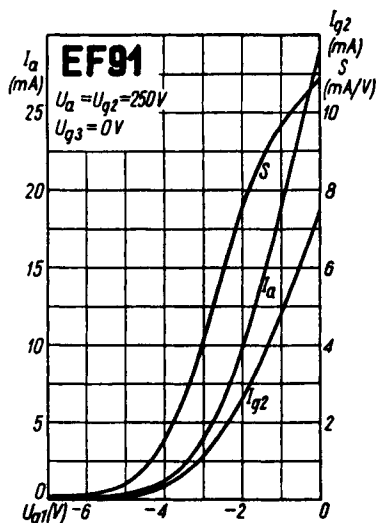
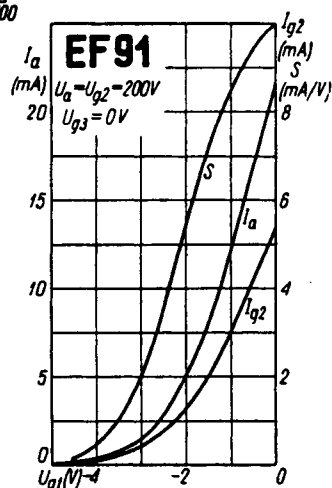
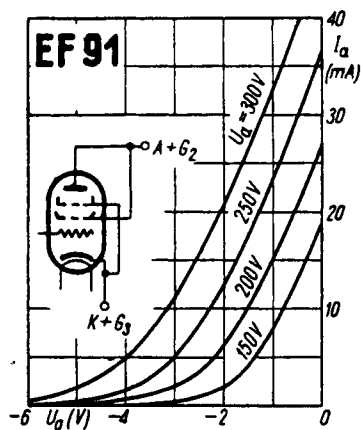
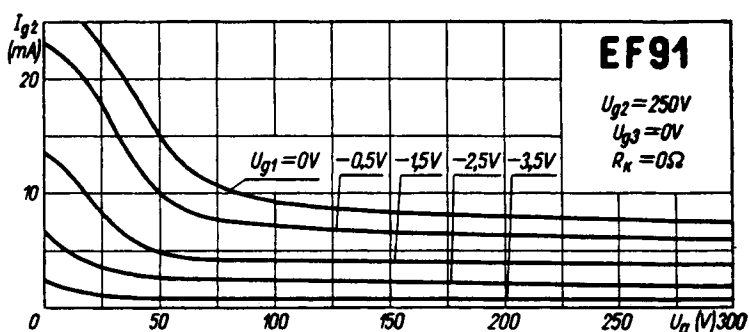
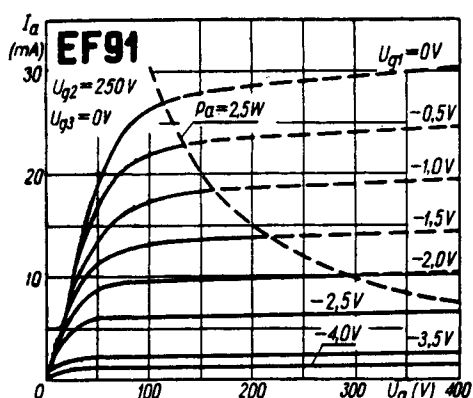
E 1518	Marc = EF 91	SF/6064	Bri = F/6064
FF/6064	Bri = F 6064	SX/6064	Bri = F/6064
HP 6	Tu = EF 91	XF/6064	Bri = F/6064
M 8083 ³⁾	Mul = EF 91	Z 77	Marc = EF 91
M 8140 ³⁾	Mul = F/6064	5 A/160 H	STCE = EF 91
M 8180 ³⁾	Mul = 6 F 12	6 AM 6	amer = EF 91
PM 07	SFR = EF 91	6 AM 6 S ¹⁾	Frc = EF 91
QA 2403 ³⁾	Osr = EF 91	8 D 3	Bri = EF 91
QZ 77 ³⁾	Marc = EF 91	6024	amer = EF 91
R 144 ³⁾	SFR = EF 91	6064	amer = EF 91
SP 6	Cos = EF 91	6064 W ³⁾	amer = EF 91
S 6 F 12 ³⁾	Eds = 6 F 12		

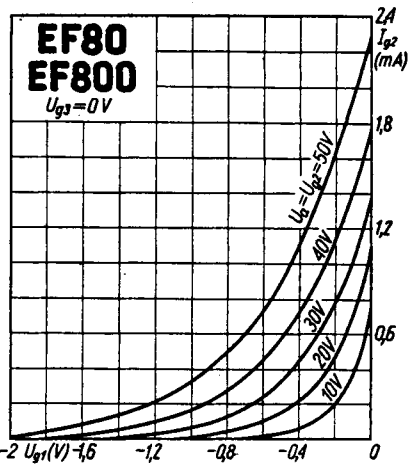
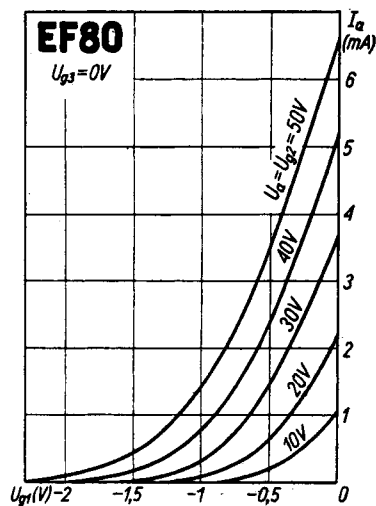
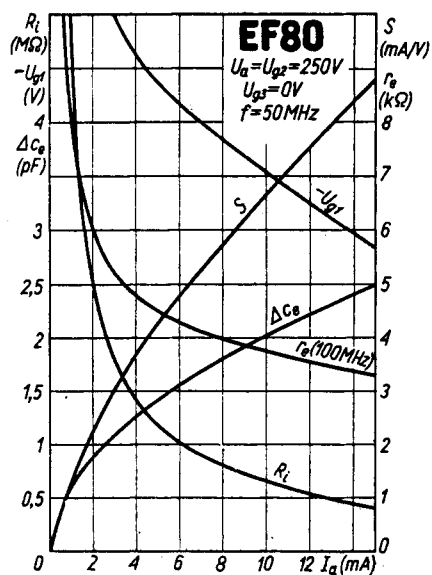
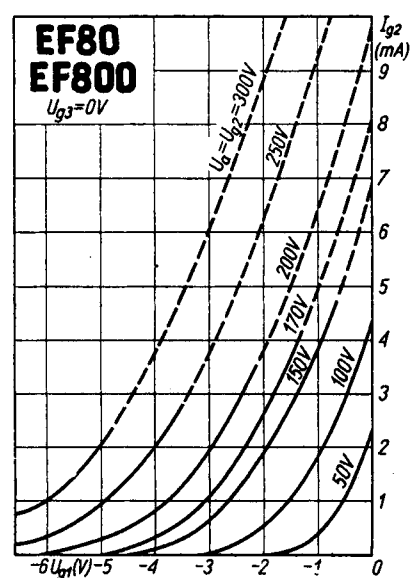
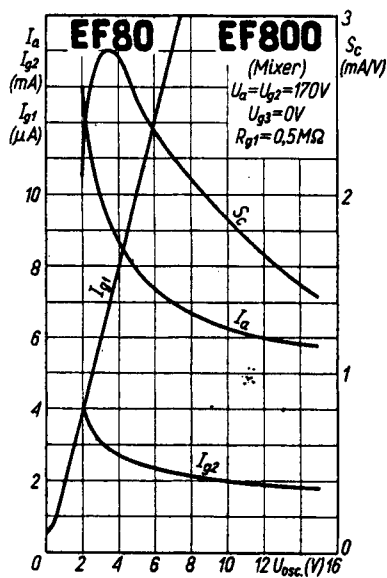
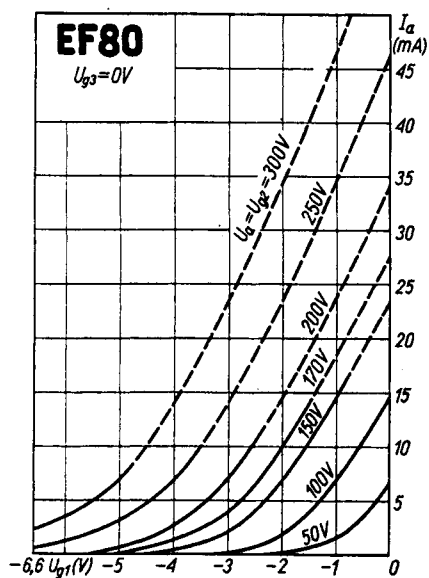
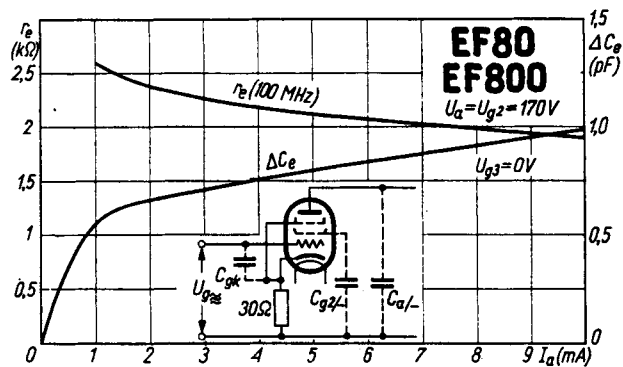
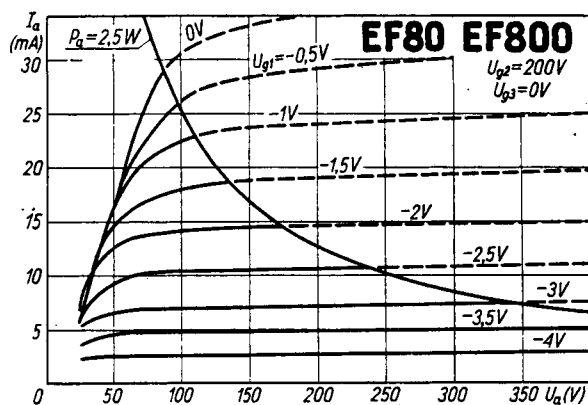
Fig. 1

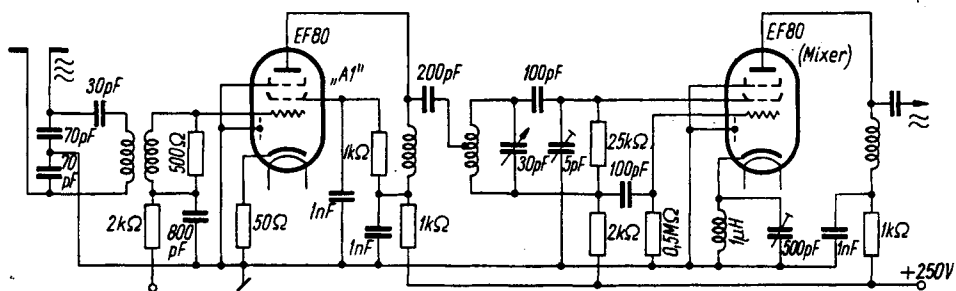
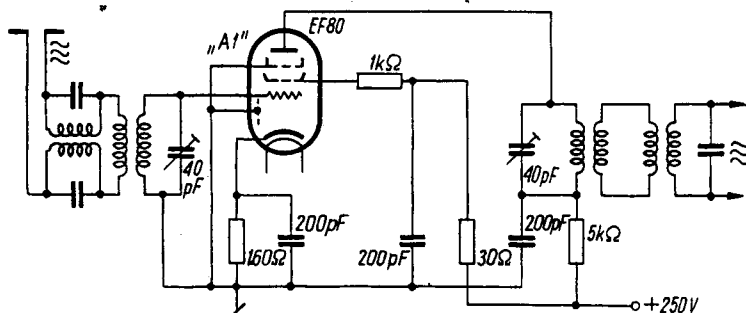
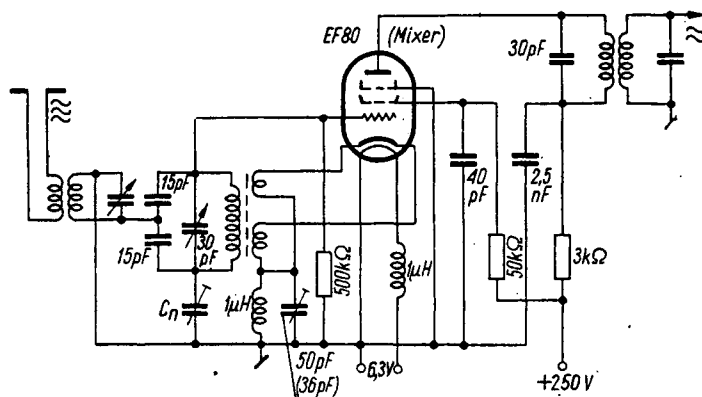
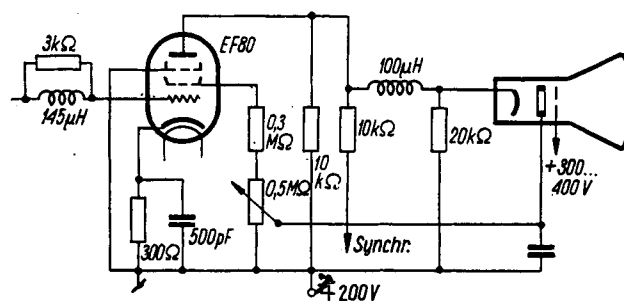
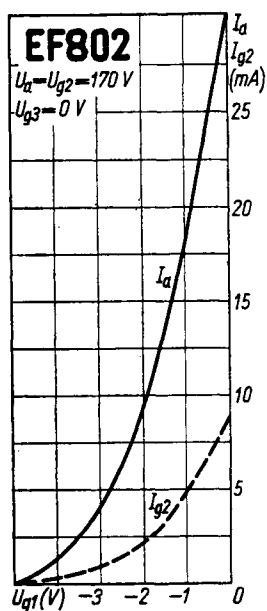
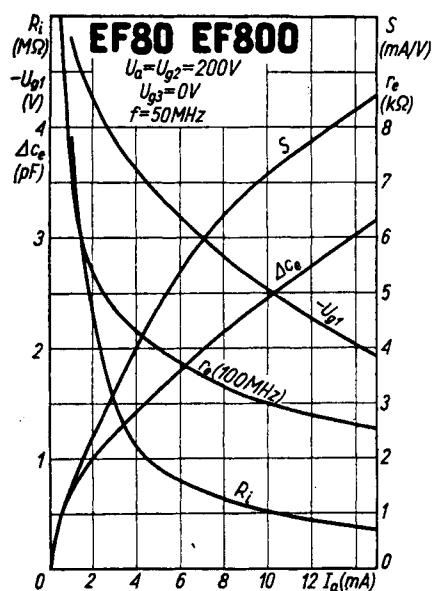
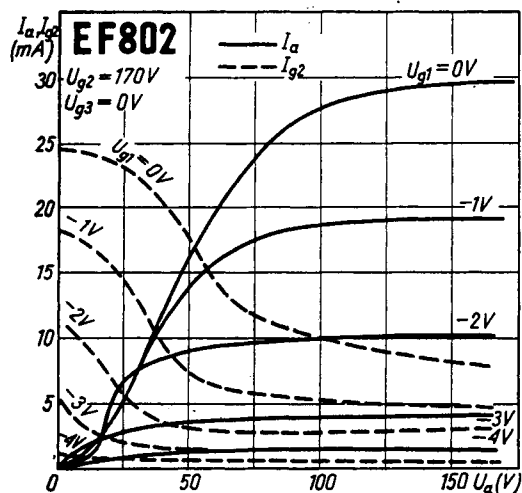


T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 91	7,5	3,2	0,01
M 8083	7,6	3,25	0,01
Z 77	7,4	3,1	0,009
6 F 12	7,6	3,2	0,0045







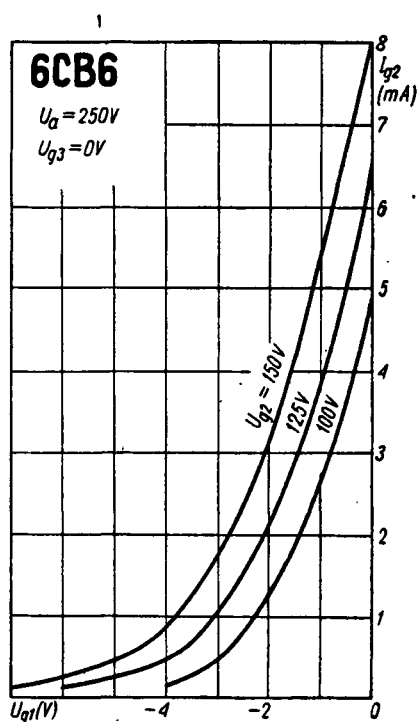
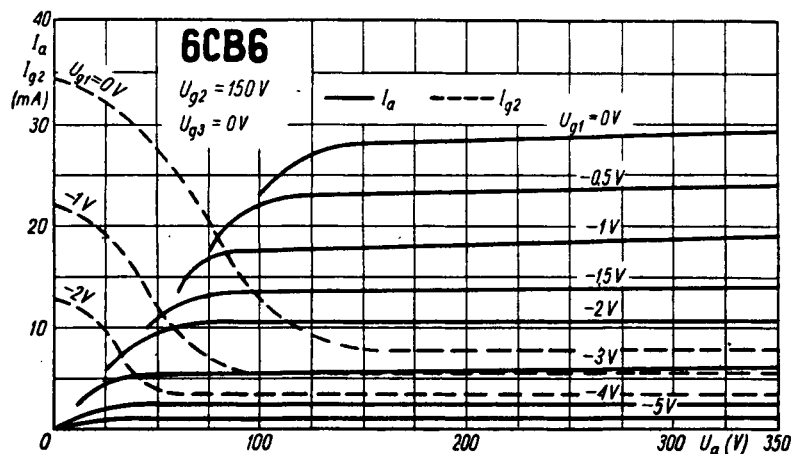
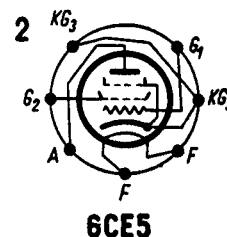
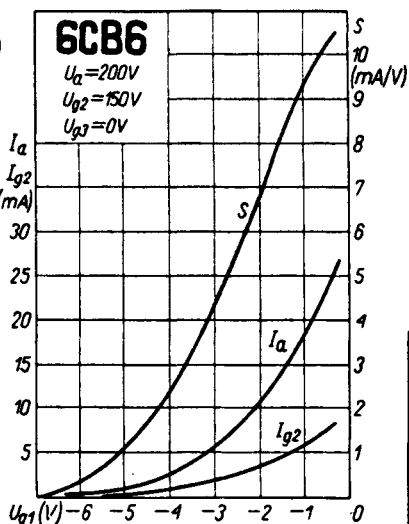
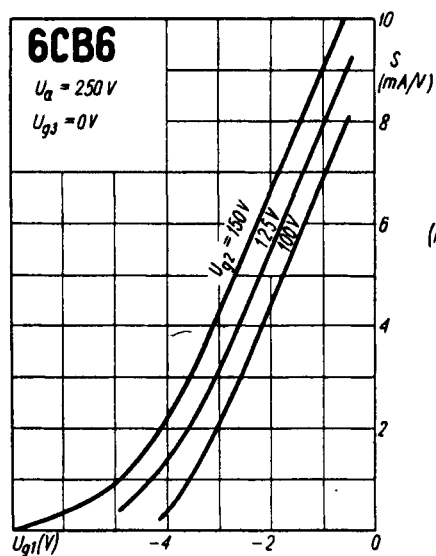
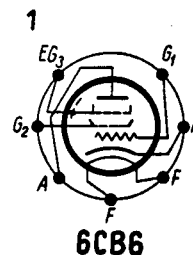


T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	R_k Ω	$U_{f/k}$ V	P_{g2} W	P_a W
3 CB 6	amer	1	3,15	0,6	125	125	13	3,7	8	0,28	56			
4 CB 6	amer	1	4,2	0,45	200	150	9,5	2,8	6,2	0,6	180			
6 CB 6	int	1	6,3	0,3	300	150			maximum			90	0,5	2,3
3 CE 5	amer	2	3,15	0,6	125	125	—1	11	2,3	7,6	0,3			
4 CE 5	amer	2	4,2	0,45	300	150			maximum			100	0,5	2,2
6 CE 5	amer	2	6,3	0,3										
4 DE 6	amer	1	4,2	0,45	125	125	15,5	4,2	8	0,25	56			
6 DE 6	amer	1	6,3	0,3	300	150			maximum			100	0,55	2,3

Equivalents

EF 190	eur	= 6 CB 6
3 CF 6	amer	= 3 CB 6
4 CF 6	amer	= 4 CB 6
6 CF 6	amer	= 6 CB 6
6 CB 6 A	amer	= 6 CB 6
7732	Hyt	= 6 CB 6

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	vide
6 CB 6	6,5	1,9	0,02	* 5
6 CE 5	6,5	3	0,01	* 6
6 DE 6	6,5	2	0,025	* 5
	6,5	3	0,015	* 6



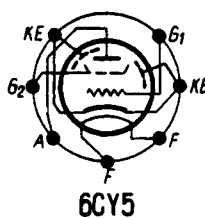
T			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	I_k	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	mA	V	W	W
2 CY 5	zmar	1	2,4	0,6	125	80	—	10	1,5	8	100	20	100	0,5	2
2 FV 6	amar	2	2,4	0,6											
3 CY 5	amar	1	2,9	0,45											
3 FV 6	amar	2	2,9	0,45											
4 CY 5	amar	1	4,2	0,3											
4 FV 6	amar	2	4,2	0,3	180	150	—	maximum							
6 CY 5	amar	1	6,3	0,2											
6 FV 6	amar	2	6,3	0,2											
2 EV 5	zmar	1	2,4	0,6	250	80	—	11,5	0,9	8,8	150	20	100	0,2	3,25
3 EV 5	amar	1	2,9	0,45											
4 EV 5	amar	1	4,2	0,3											
6 EV 5	amar	1	6,3	0,2											

Equivalents

7717	GE = 6 CY 5
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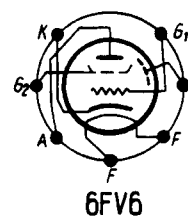
T	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 CY 5	4,5	3	0,03
6 EV 5	4,5	2,9	0,035

1

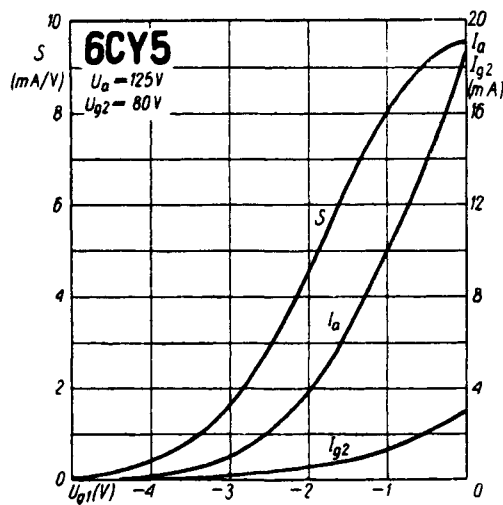
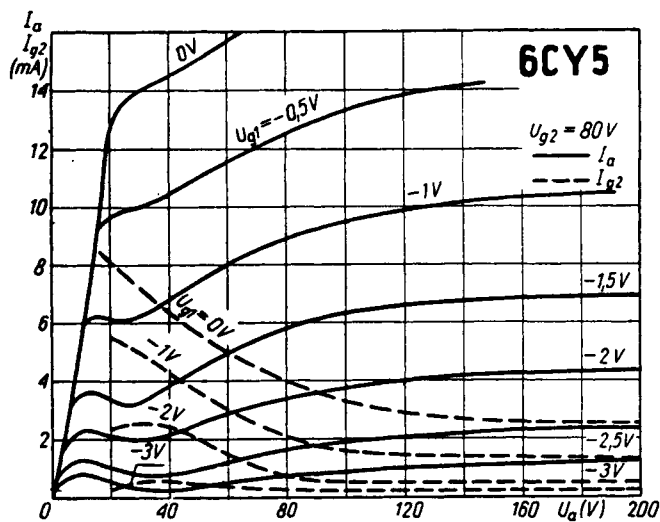
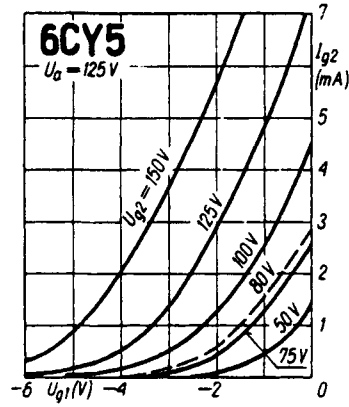
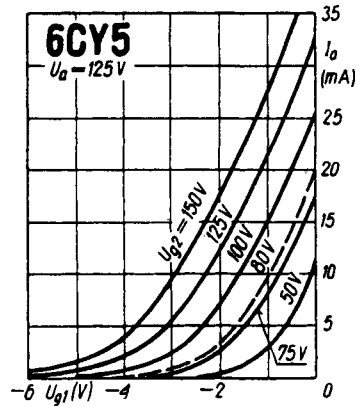
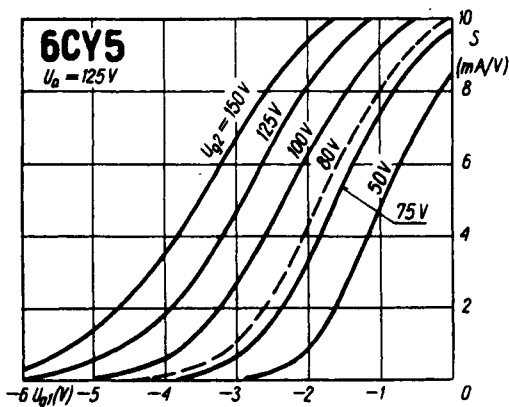
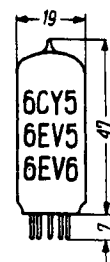


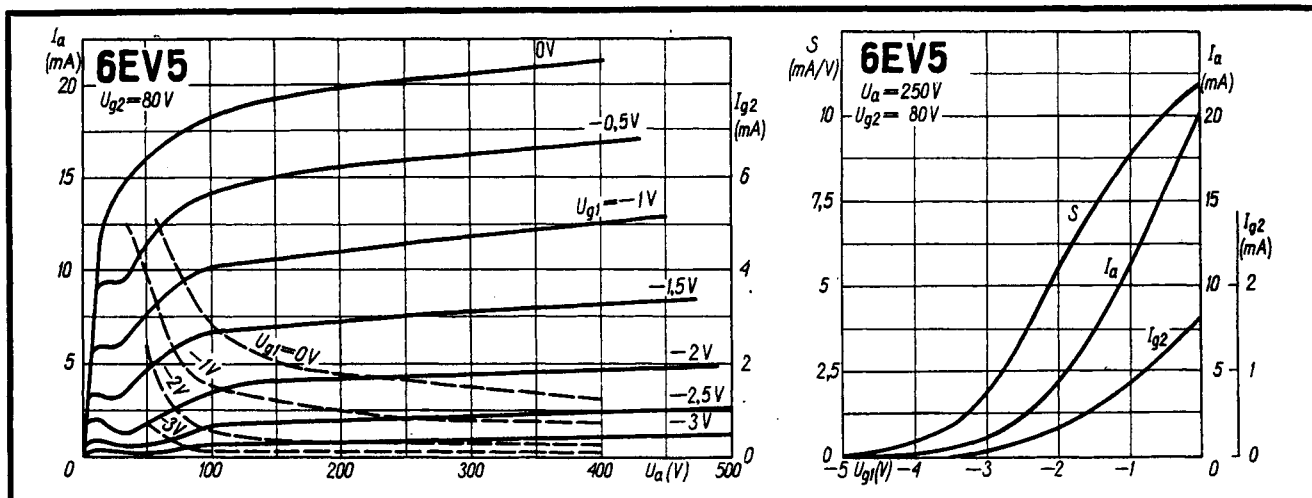
6CY5

2



6FV6



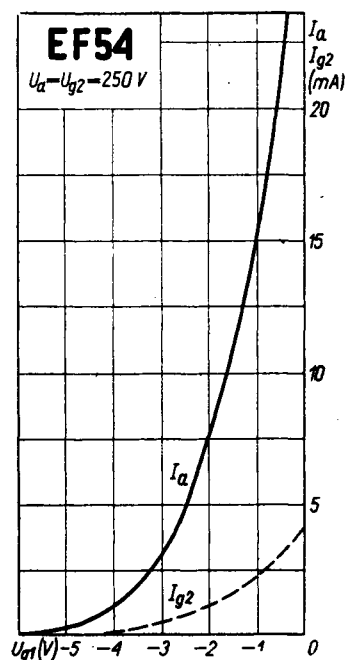
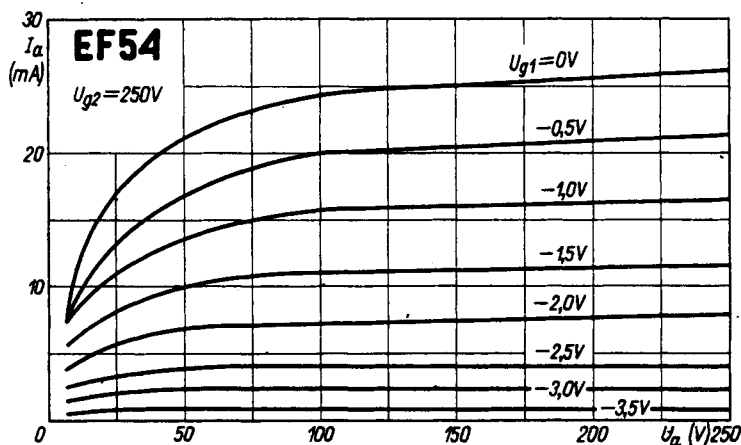
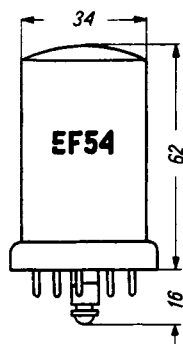
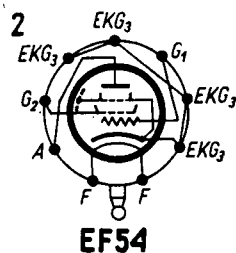
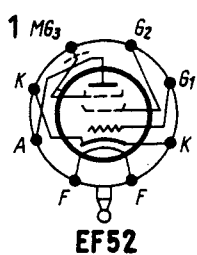


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	(g _s /g ₁)	Ω	mA	W	W
EF 52	Mul	1	6,3	0,35	250	250	-2	10	2,5	10	0,7					
EF 54	Mul	2	6,3	0,3	250	250	-1,7	10	1,45	7,7	0,5	80	150	15	1,7	3
					300	300				maximum ($U_f/I_k = 100V$)						
6 F 24	Tes	1	6,3	0,45	250	200	-2,1	15	1,9	10,5	0,3		125	20	1,5	4,5
					250	250				maximum						

Equivalents

RL 7	Mul = EF 54
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T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g2/g3}$
	pF	pF	pF	pF
EF 54	6,2	4,9	0,02	2,2

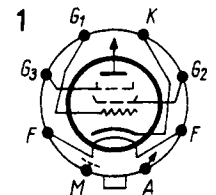


T.			U_f	I_f	$U_b=U_a$	R_{g2}	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	I_k	U_f/k	P_{g2}	P_a
			V	A	V	k Ω	V	V	V	mA	mA	mA/V	k Ω	V/V	Ω	mA	V	W	W
6 AC 7	int	1	6,3	0,45	300	—	150	0	-2	10	2,5	9	500	50	160				
6 AH 6	int	2	6,3	0,45	300	60	150	0	-2	10	2,5	9	500	50	160				
12 AH 6	int	2	12,6	0,225	150	—	150	—	—	12,5	—	11	3,6	40	160	(Fig. 1)			
1851-GT	int	3	6,3	0,45	300	—	150	—	—							13	100	0,4	3,2

1) vide *4, a, b, c = 5000, e

Equivalents

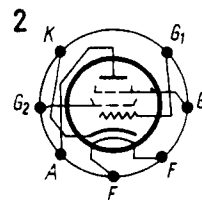
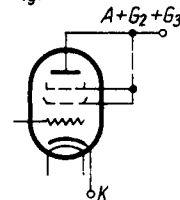
HF 2190	RFT = 6 AC 7	6 AC 7-W ¹⁾	int = 6 AC 7	6 Ж 4	СССР = 6 AC 7
HF 2600	RFT = 6 AC 7	6 AC 7-WA ¹⁾	int = 6 AC 7	6 Ж 4-E ¹⁾	СССР = 6 AC 7
OSW 2190	RFT = 6 AC 7	6 AC 7-Y	RCA = 6 AC 7	6 Ж 5	СССР = 6 AH 6
OSW 2600	RFT = 6 AC 7	6 AH 6 S ¹⁾	Frc = 6 AH 6	6 Ж 14 Б	СССР = 6 AC 7
QK 386	Ray = 6 AH 6	6 AJ 7	amer = 6 AC 7	1649	amer = 6 AC 7
REL 39	Mul = 6 AC 7	6 C 9	Fiv = 6 AC 7	1852	amer = 6 AC 7
6 AC 7-GM	Fiv = 6 AC 7	6 F 10	Tes = 6 AC 7	6134	GE = 6 AC 7
6 AC 7(k) ¹⁾	RFT = 6 AC 7	6 F 36	Tes = 6 AH 6	6485	GE = 6 AH 6



6AC7

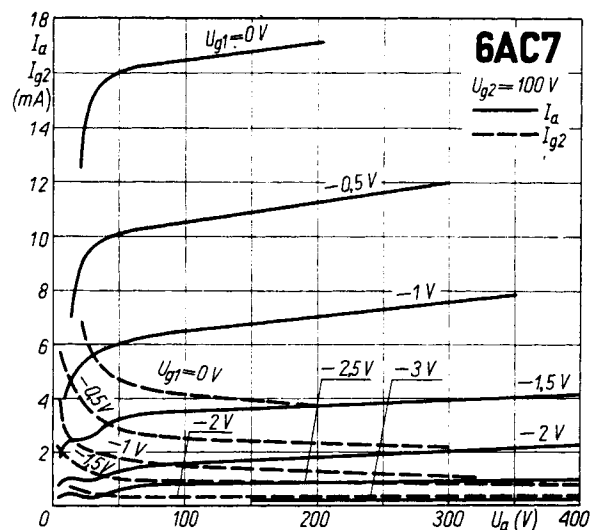
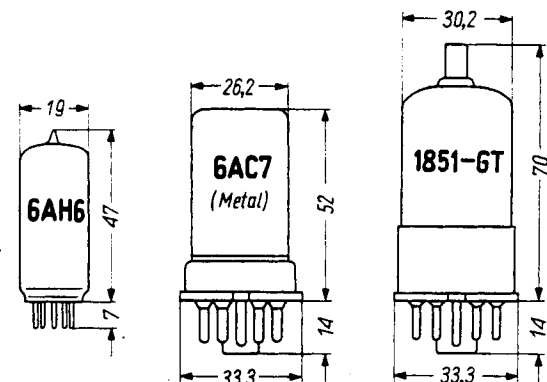
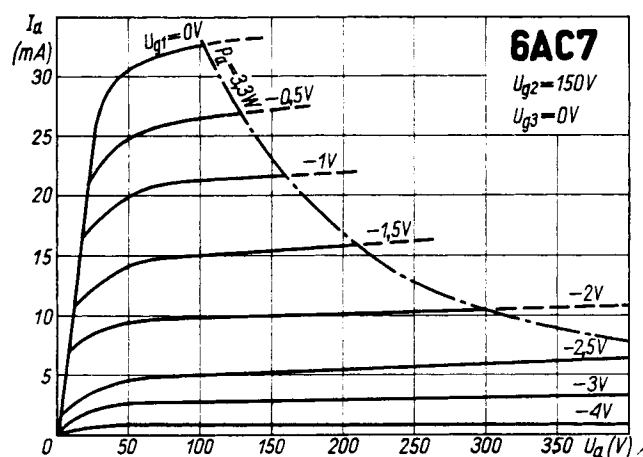
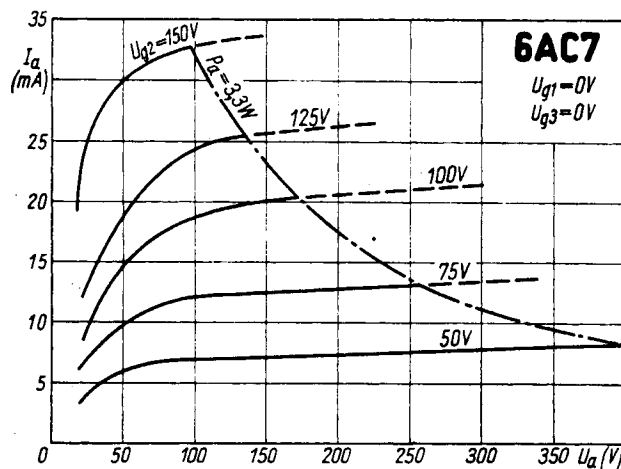
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 AC 7	11	5	0,015
6 AH 6	10	2	0,03
1851-GT	11	5	0,015

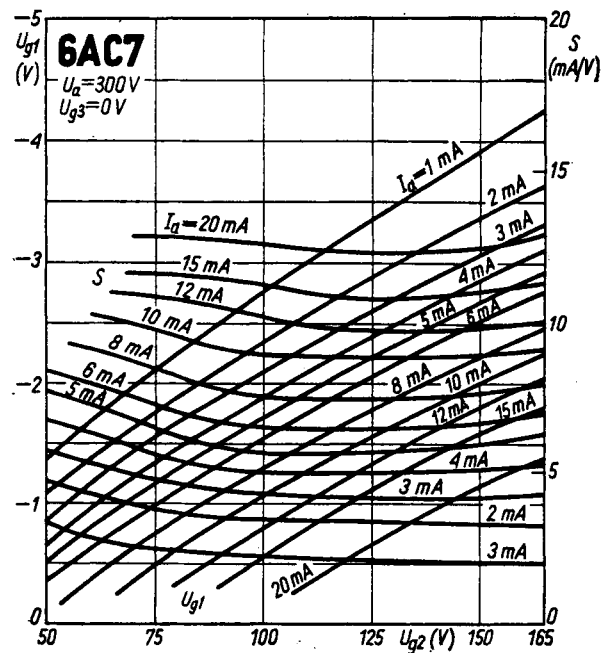
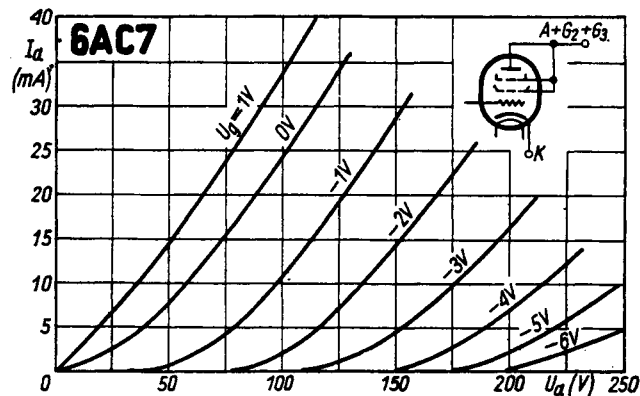
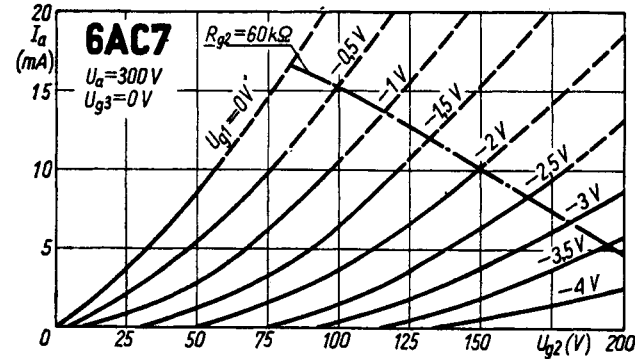
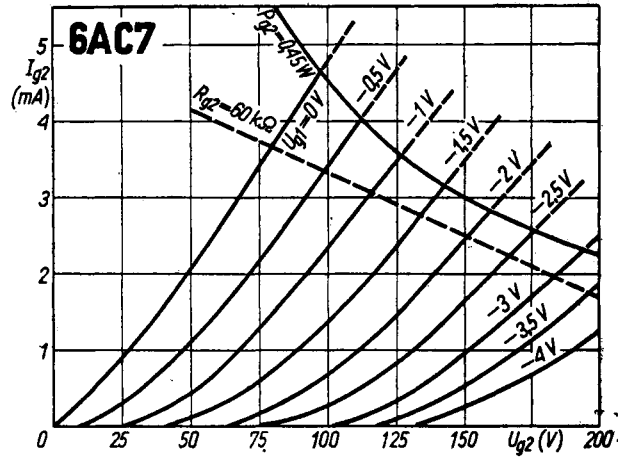
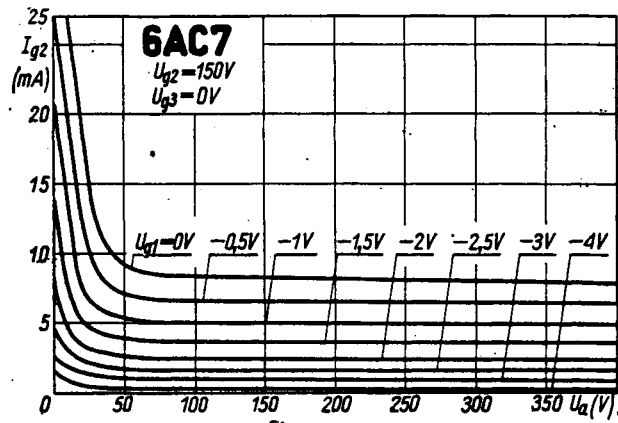
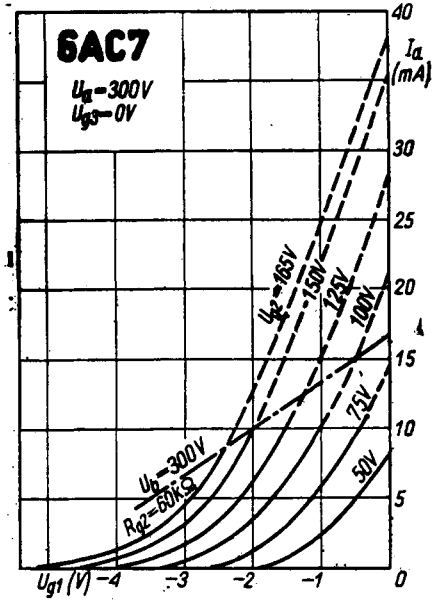
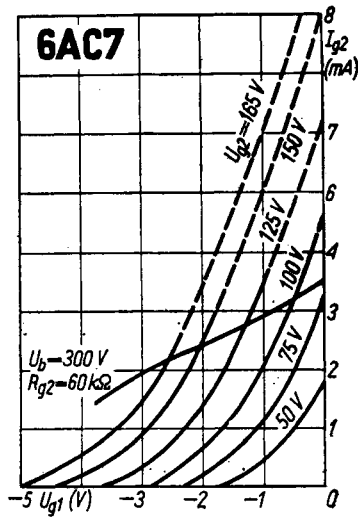
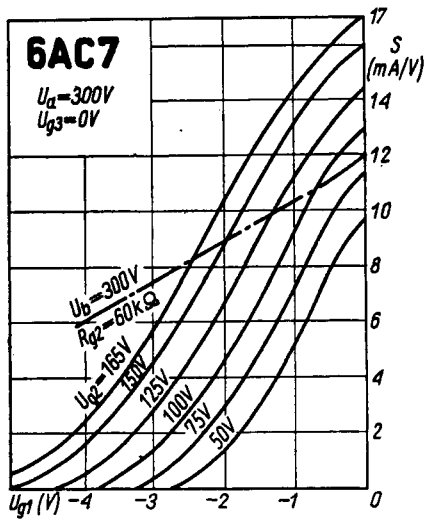
Fig. 1



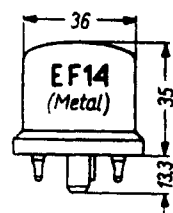
6AH6

1851-GT

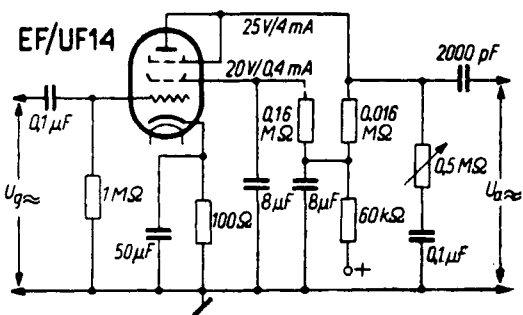
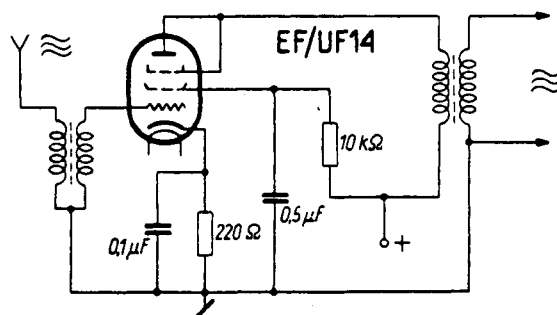
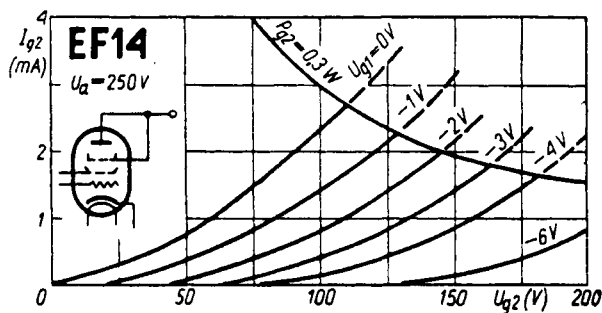
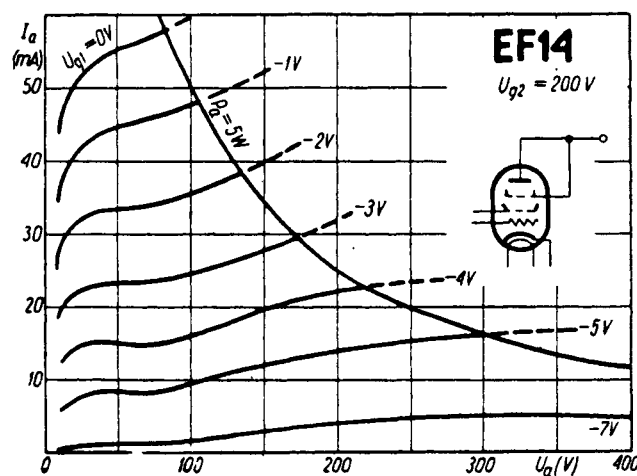
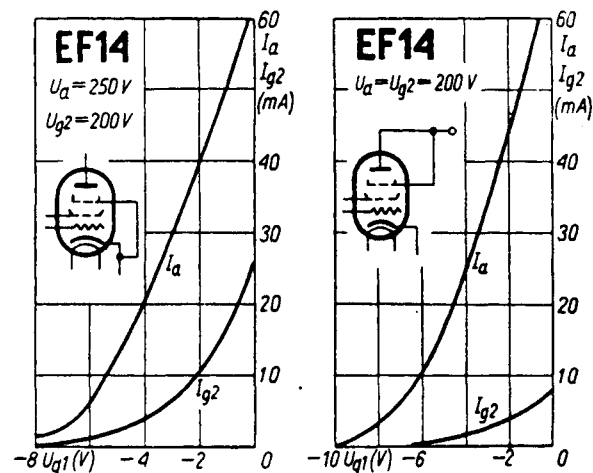
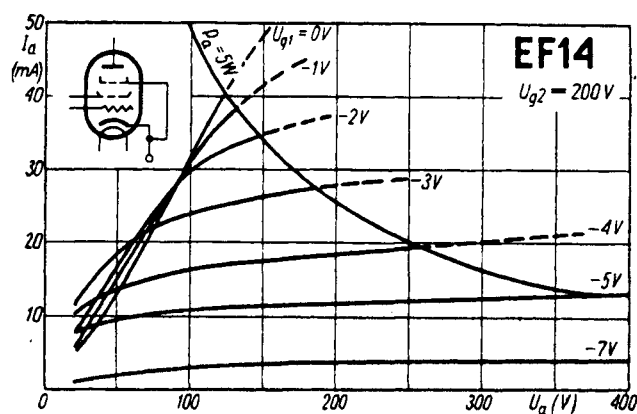
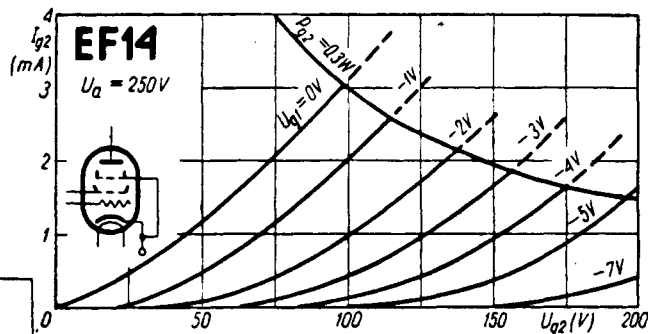
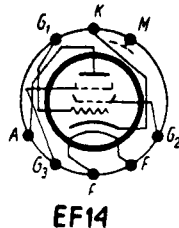




T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_f	R_k	U_f/k	I_k	P_{g2}	P_a
		V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	V	mA	W	W
EF 14	TH	6,3	0,47	250 250 300	200 200 200	-5 -4,5	12 18 maximum	1,9 1,8 ($R_{g1} = 0,5 \text{ M}\Omega$)	7 9,5	180 45 220	350		(pentod: $G_s + K$) (tetrod: $G_s + A$)	30 0,7 5	



C_{g1}	C_a	$C_{g1/a}$	
pF	pF	pF	
9	8	0,01	pent.
9	10	0,1	tetrod.

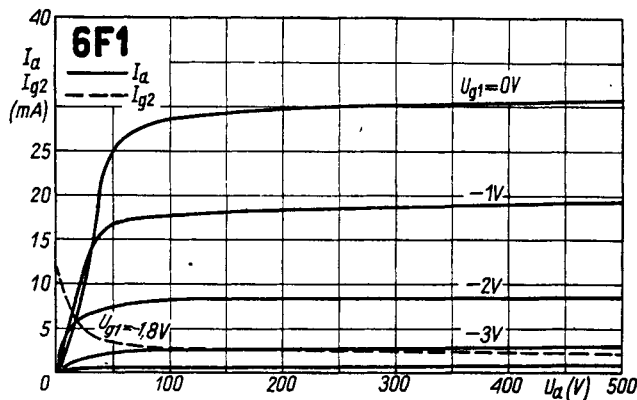
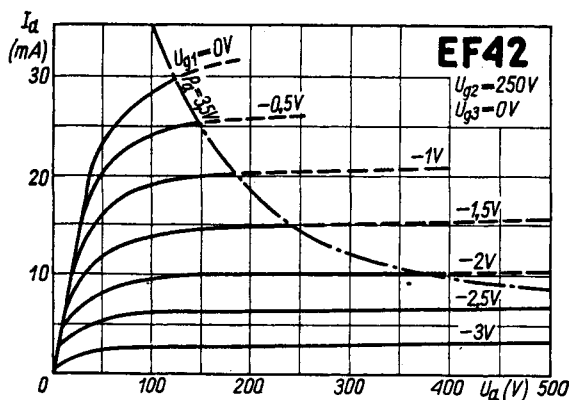
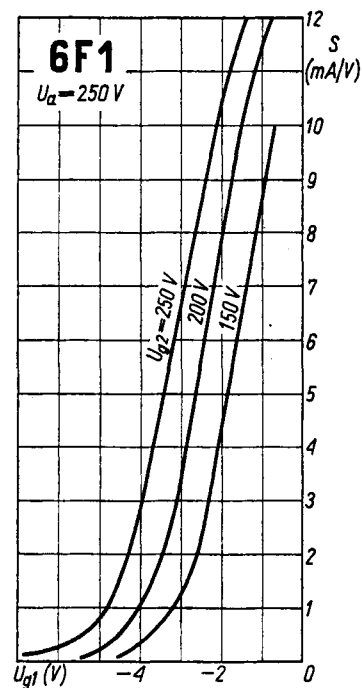
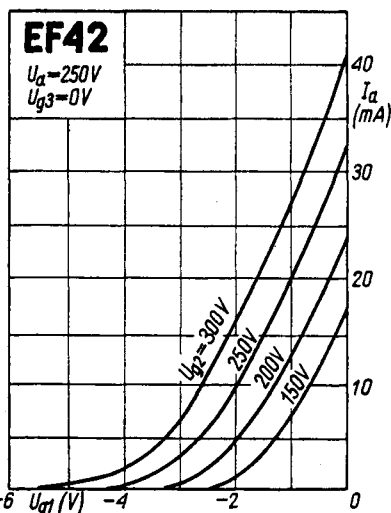
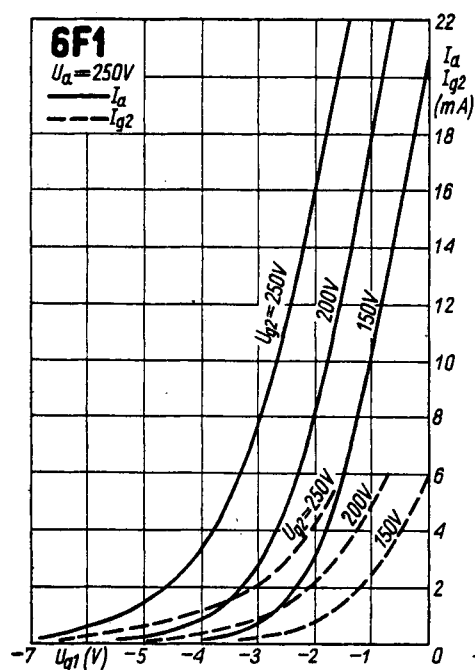
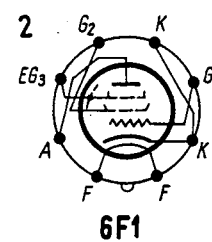
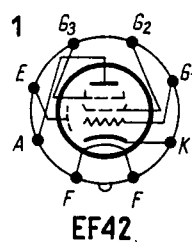


T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t M Ω	μ (E_1/E_2)	I_k mA	$U_{f/k}$ V	P_{g2} W	P_a W
EF 42	eur	1	6,3	0,33	$\begin{cases} 250 \\ 300 \end{cases}$	$\begin{cases} 250 \\ 300 \end{cases}$	0	-2	10	2,3	9,5	0,5	83	13	90	0,7	2,5
6 F 1	Eds	2	6,3	0,35	$\begin{cases} 190 \\ 200 \end{cases}$	$\begin{cases} 190 \\ 200 \end{cases}$	0	-1,55	10,3	2,7	9,25						
6 F 13	Eds	1	6,3	0,35	$\begin{cases} 200 \\ 208 \\ 250 \end{cases}$	$\begin{cases} 200 \\ 208 \\ 250 \end{cases}$	0	-1,5	10	2,6	9	0,9	60				
							0	-1,9	10,1	2,65	8,95				150	1	3,5
										maximum	($R_{g1} = 1 \text{ M}\Omega$)						
										maximum							

Equivalents EF 4

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
EF 42	9,5	4,5	0,005
6 F 1	10,5	6,1	0,0077
6 F 13	10,5	6,1	0,0077

HF 62	Max
Z 150	Eng



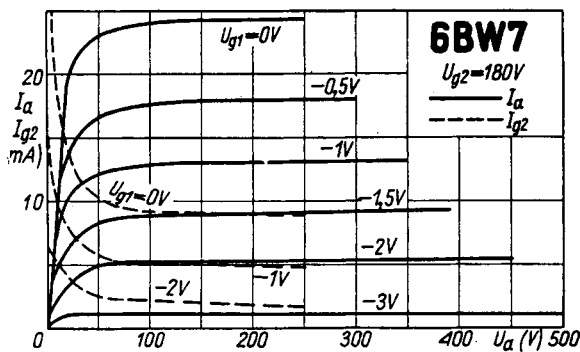
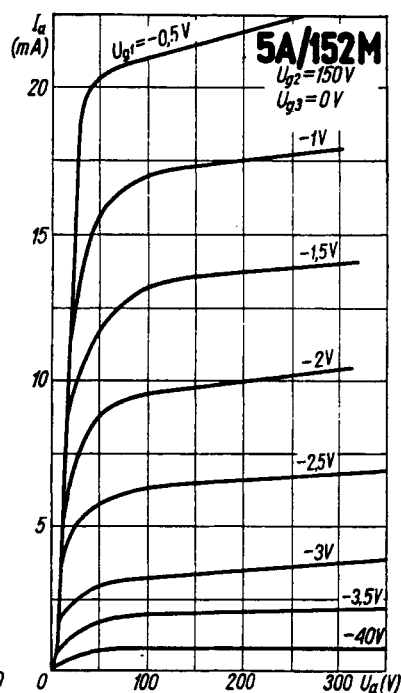
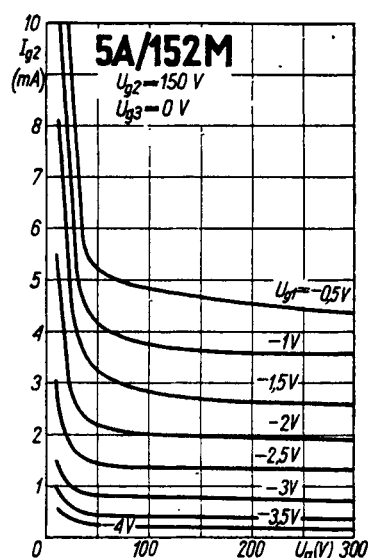
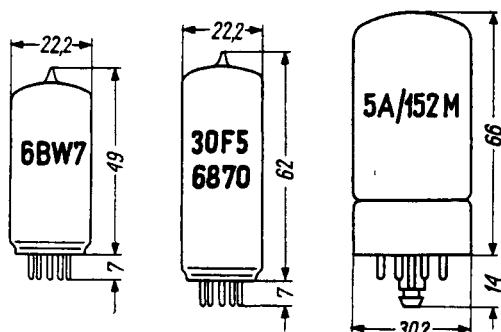
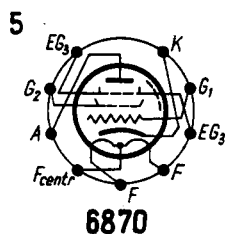
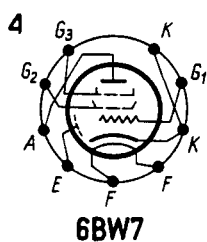
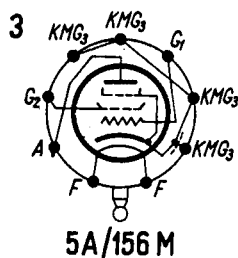
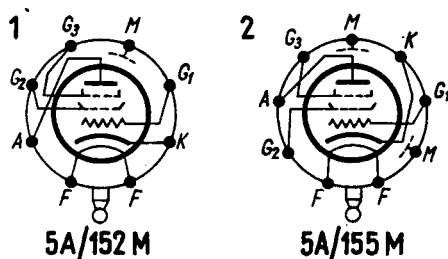
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g3}	S	R_i	μ	R_k	P_{gs}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	(ξ_1/ξ_2)	Ω	W	W
5 A/152 M ¹⁾	STCE	1	6,3	0,47	250	150	0	-2	10	2	7,5		30	175		5
5 A/155 M ¹⁾	STCE	2	6,3	0,3	250	250	0	-1			6,5		75			
5 A/156 M ¹⁾	STCE	3	6,3	0,3	250	250	0	-1,7			7,7					
6 BW 7	Bri	4	6,3	0,3	180	180	0		9,5	3,5	9,3	0,6	70	100		
					250	250	0		9,5	3,5	8,5	0,75	70	180	1,2	2,75
30 F 5	Eds	4	6,3	0,3	170	170	0	-1,85	10	2,6	8,8		55			
					250	250	0				maximum				1	3
6870 ¹⁾	Bri	5	6,3	0,6	180	180			25	3,5	9	0,17	35	56		
			12,6	0,3	250	250			25	3,5	8,5	0,23	35	120		
					300	250			maximum		maximum				2	6,3
maximum $f = 150 \text{ MHz}; I_k = 50 \text{ mA}$																

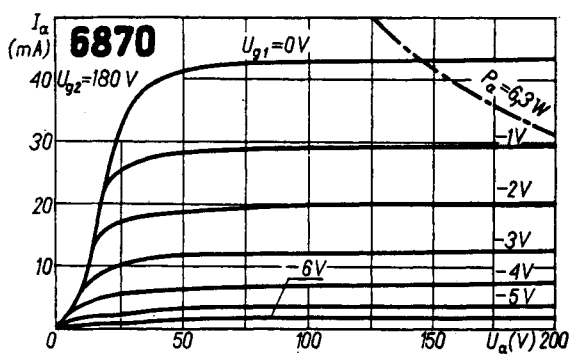
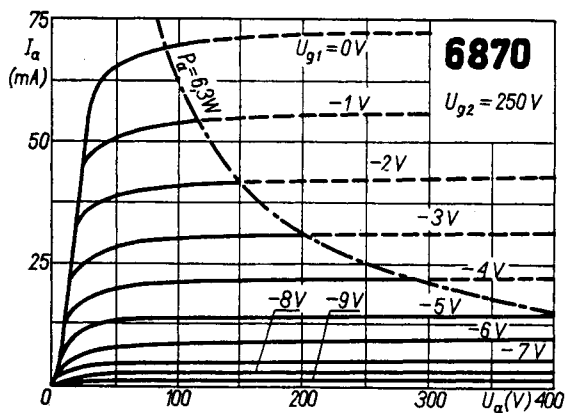
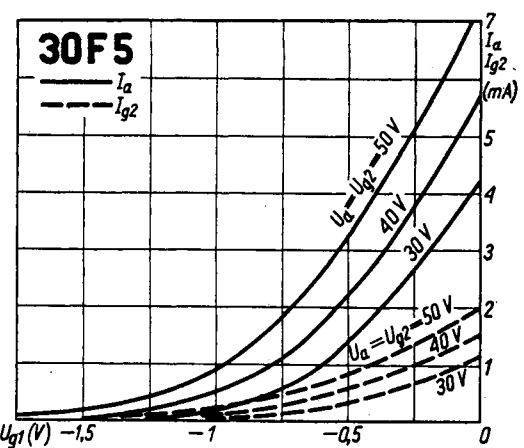
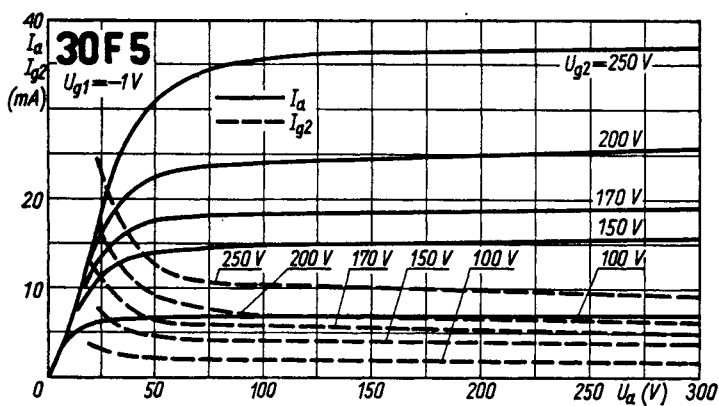
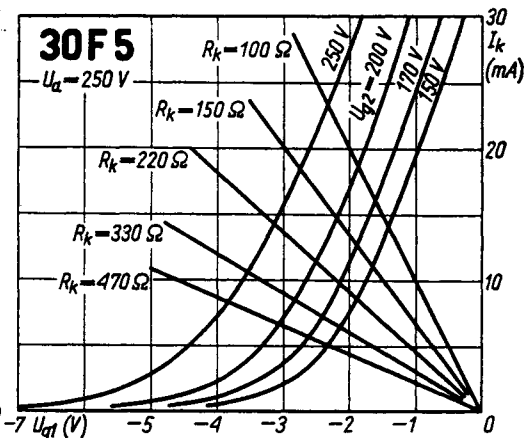
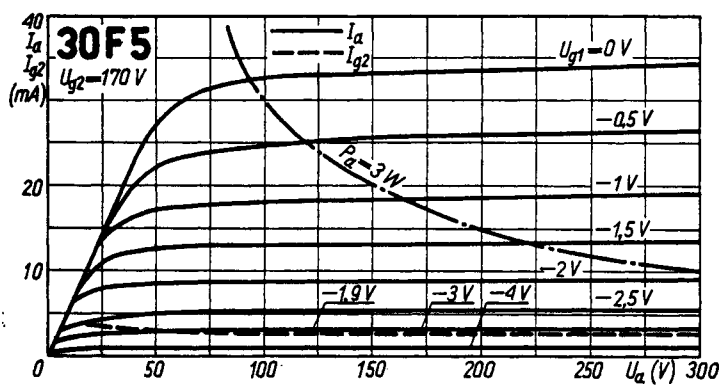
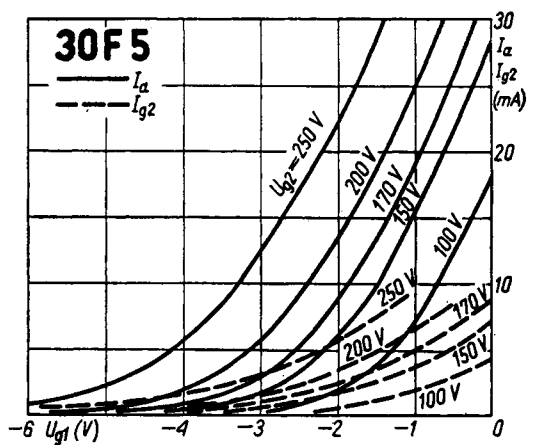
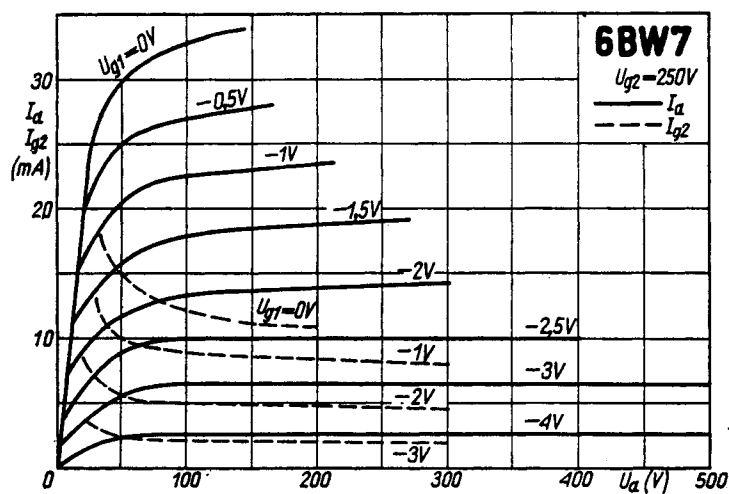
¹⁾ vide *4

Equivalents 30 F 5

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
5 A/152 M	10	5	0,018
5 A/155 M	8,3	5,2	0,007
5 A/156 M	6,2	4,9	0,02
6 BW 7	9,5	3,5	0,01
30 F 5	10,3	5,7	0,0077
6870	8,5	7	0,025

Z 329
7 ED 7
Eng
amer

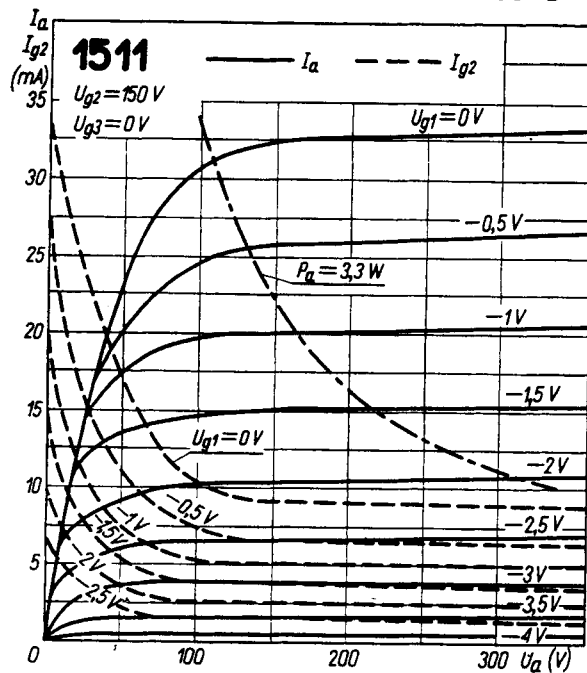
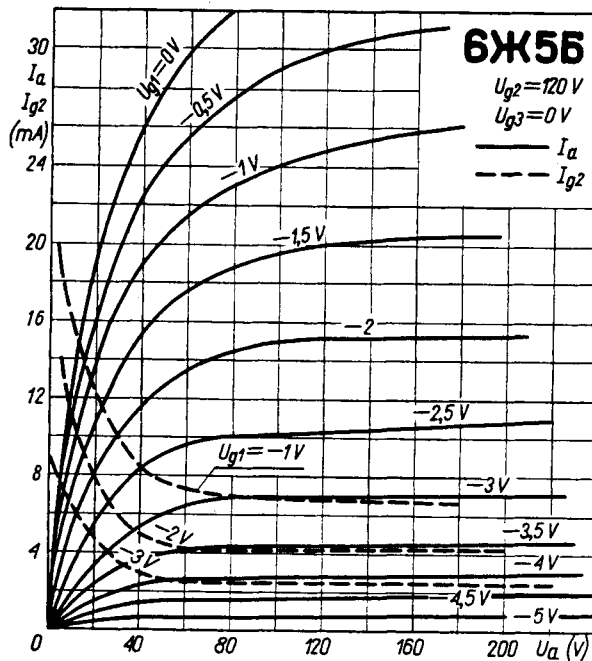
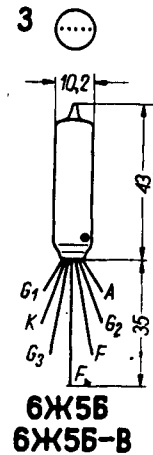
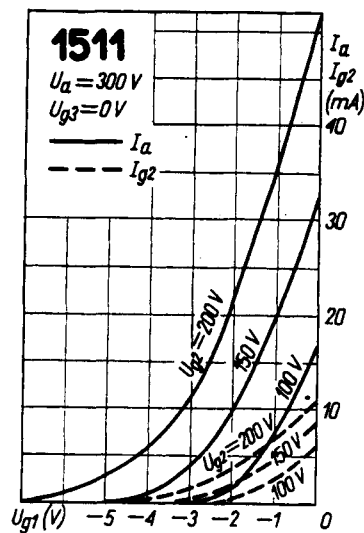
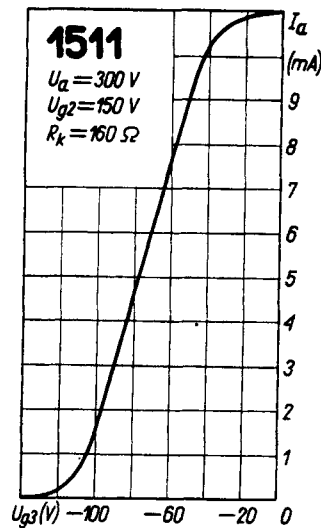
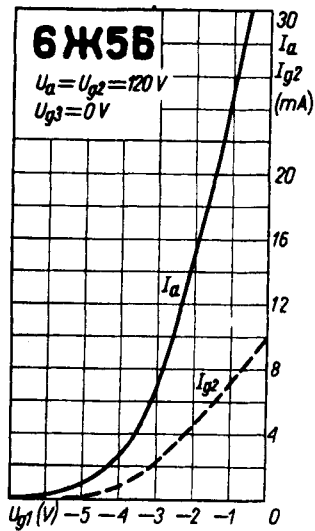
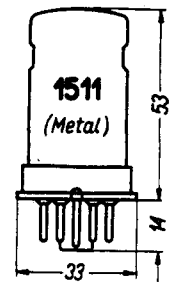
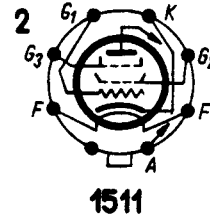
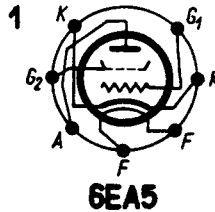




T.		U_f	I_f	U_a	U_{g2}	U_{g3}	I_a	I_{g2}	S	R_k	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A	V	V	V	mA	mA	mA/V	Ω	V	mA	W	W
2 EA 5	amer	1	2,3	0,6	250	140	10	0,95	8,5	150				
3 EA 5	amer	1	3	0,45	300	200	maximum				150		0,1	3,5
6 EA 5	amer	1	6,3	0,2										
6Ж5Б	СССР	3	6,3	0,25	120	120	0	15	4	10	100			
6Ж5Б-В ¹⁾	СССР	3	6,3	0,25	150	150	maximum				150	28	0,8	2,6
1511 ²⁾	СССР	2	6,3	0,45	300	150	0	10,25	2,2	9	160		0,6	3,3
					330	165	maximum				100			

¹⁾ vide * 4, a, b, d, e; ²⁾ vide * 4, b.

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
6Ж5Б	6	4	0,05	7
6Ж5Б-В	7	4	0,05	7
1511	11	5	0,015	



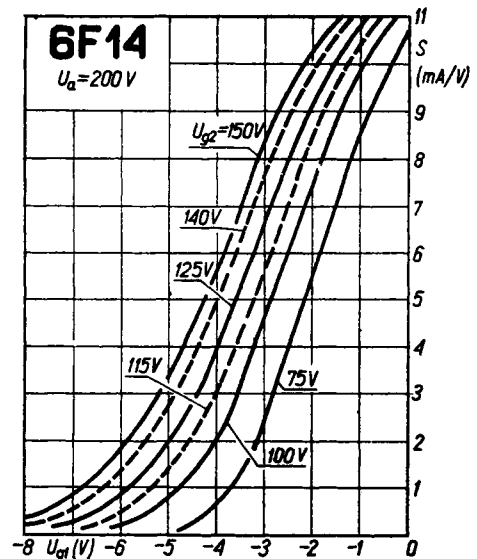
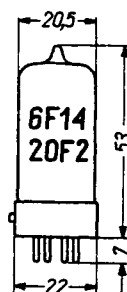
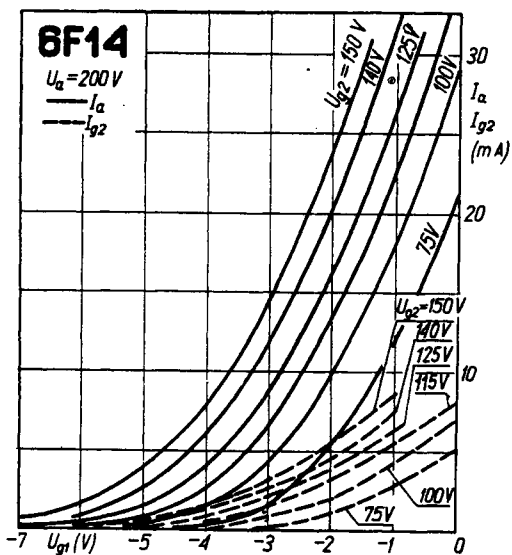
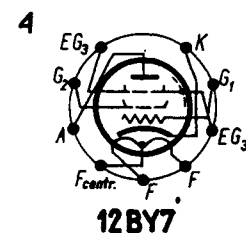
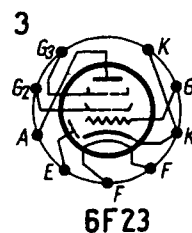
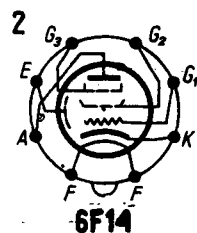
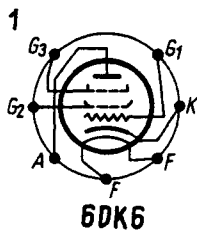
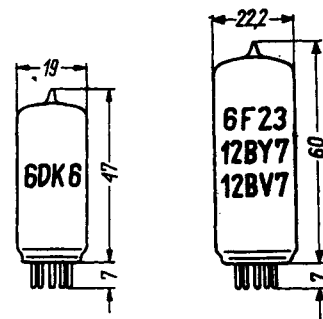
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g3}	S	R_i	R_k	U_f/k	P_{g3}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	kΩ	Ω	V	W	W
3 DK 6	amer	I	3,15	0,6	125	125	0	—1	12	3,8	9,8		56			
4 DK 6	amer	I	4,2	0,45	300	150	0			maximum				100	0,5	2
6 DK 6	amer	I	6,3	0,3												
3 EW 6	amer	I	3,15	0,8	125	125	0		11	6,2	14	200	56			
4 EW 6	amer	I	4,2	0,6	300	150	0			maximum				100	0,5	2
6 EW 6	amer	I	6,3	0,4												
6 F 14	Eds	2	6,3	0,35	140	140	0	—1,25	27	6,5	10,6	125		200	1	4
20 F 2	Eds	2	11	0,2	250	250	0			maximum				200	1	4
6 F 23 ¹⁾	Eds	3	6,3	0,3	170	170	0	—1,9	10	2,6	9,2	150		200	1	3
					250	250	0			maximum						
12 BV 7	amer	4	6,3/12,6	0,6/0,3	250	150	0	—50	27	6	13	85	68	200	1	6,25
					300	175	0			maximum						
12 BY 7	amer	4	6,3/12,6	0,6/0,3	250	180	0	—50	26	5,75	11	93	100	180	1,1	6,5
					300	180	0			maximum						
12 DQ 7	amer	4	6,3/12,6	0,6/0,3	200	125	—50		26	5,6	10,5	53	68	200	1	6
					250	150				maximum						

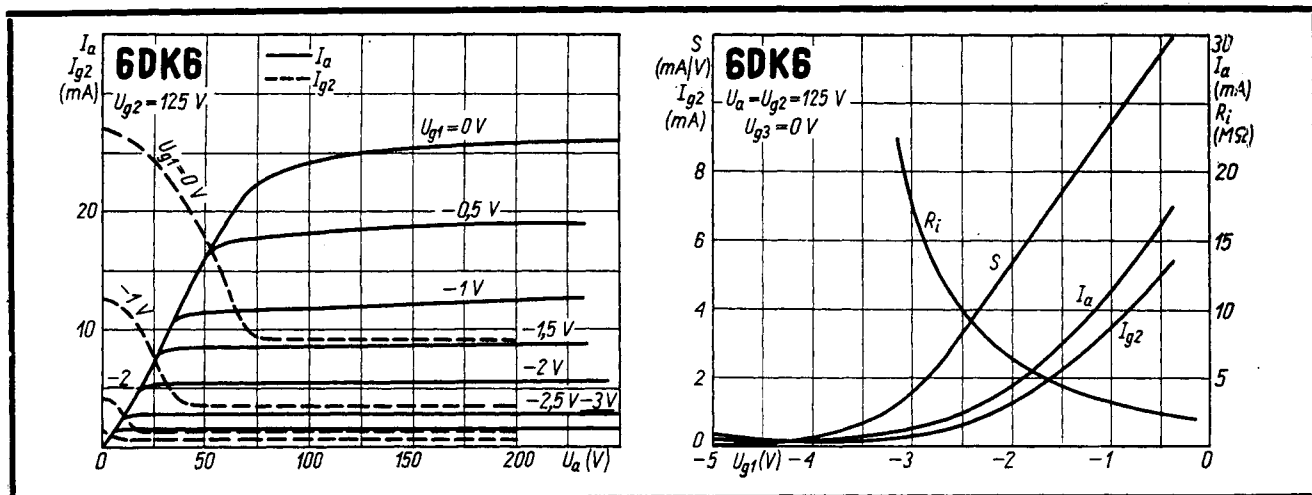
¹⁾ vide EF 802, gr. 94

T.	C_{g1}	C_a	$C_{g1/a}$	vide
	pF	pF	pF	
6 DK 6	6,3	1,9	0,02	*5
6 F 14	8,8	4,6	0,007	*5
20 F 2	10,3	6,1	0,008	*6
6 F 23	9	4	0,008	*5
	10	5	0,009	*6
12 BV 7	11	3	0,055	*5
12 BY 7	10,2	3,5	0,063	*5

Equivalents 12 BY 7

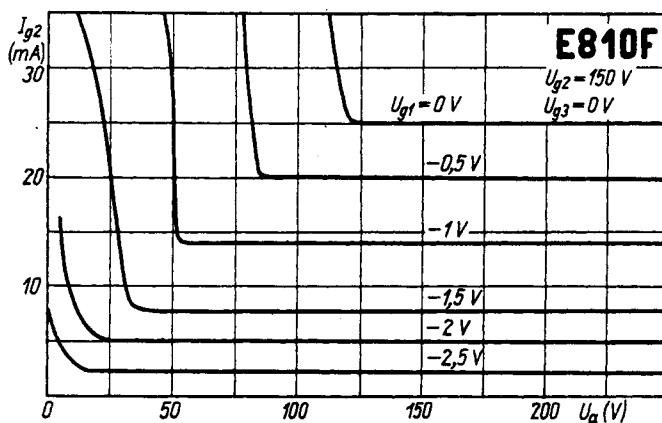
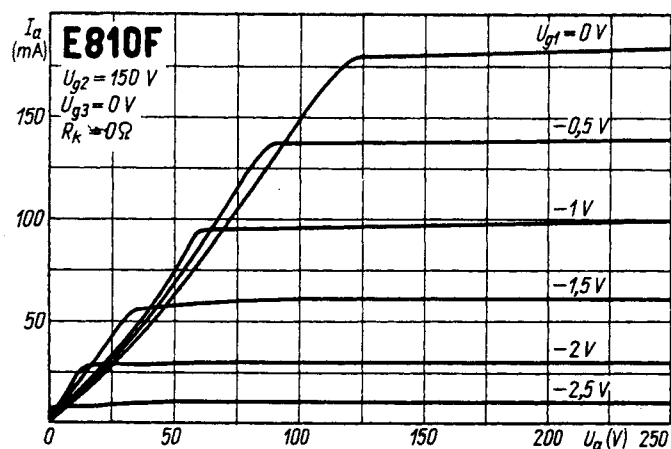
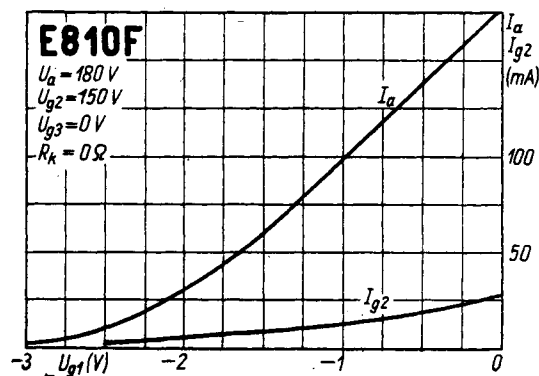
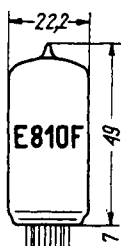
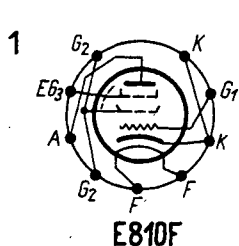
EL 180	eur
12 BY 7-A	amer
7733	Hyc





T.			U_f	I_f	U_a	U_{g1}	U_{g2}	U_{g3}	I_a	I_{g2}	S	R_i	μ	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	kΩ	$\frac{E_2}{E_1}$	V	mA	W	W
E 810 F	eur	I	6,3	0,34	120 250	150 200	0	-1,9 -25	35	5	50 maximum	70	57	100	50	I	5
7788	amer	I	6,3	0,34													

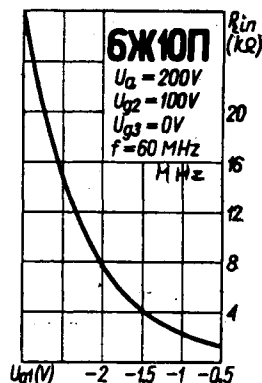
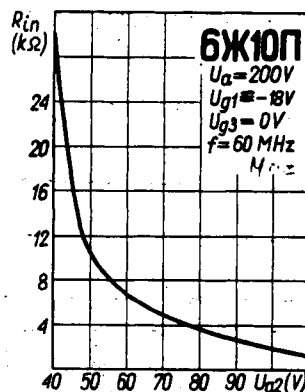
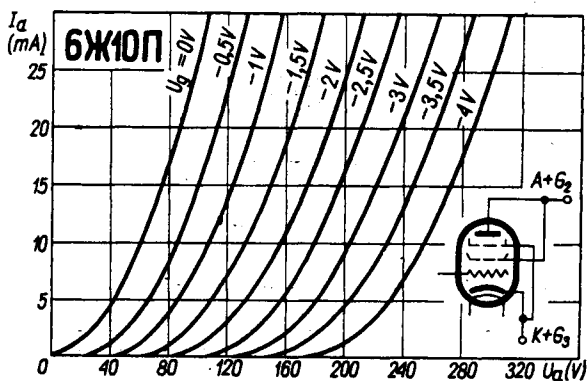
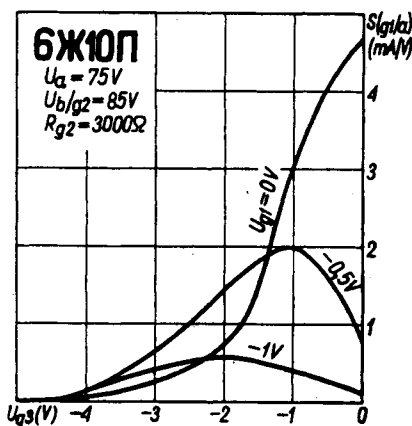
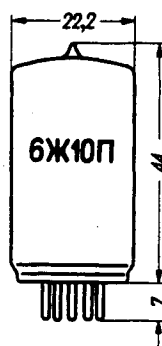
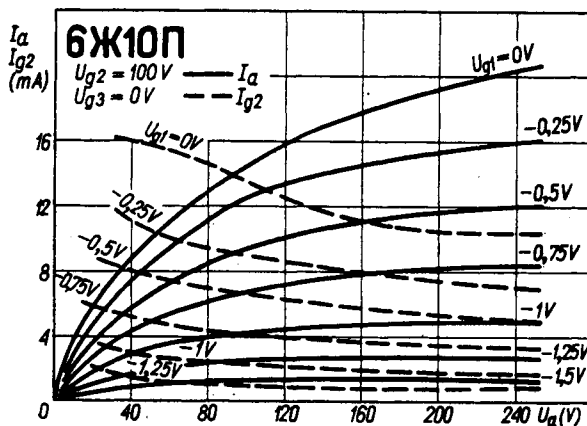
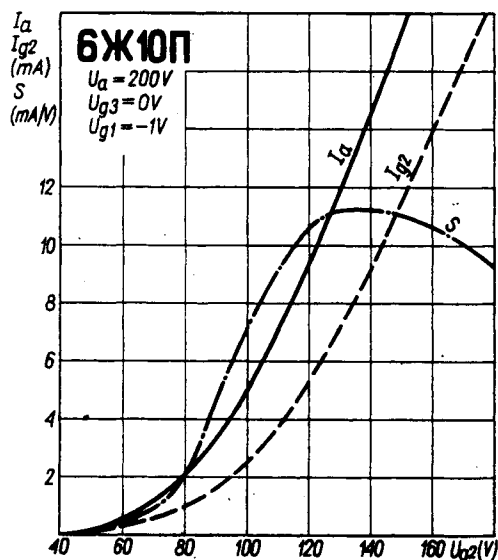
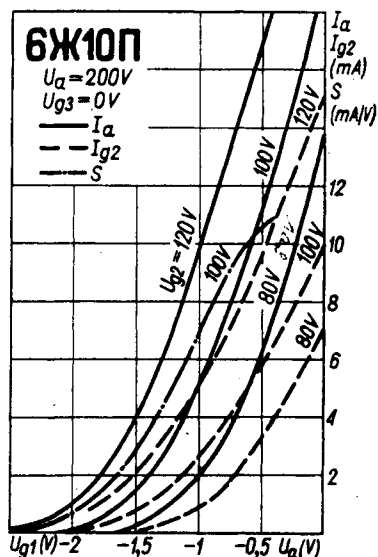
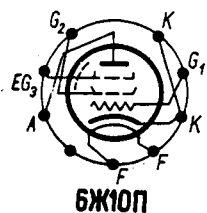
C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$	$C_{a/f}$	$C_{g1/f}$	vide
pF	pF	pF	pF	pF	pF	
14,5	3,5	0,032	0,06	0,032	0,062	*5
14,5	4,1	0,0285	0,034	0,021	0,055	*6



T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	$S_{(g1/a)}$ mA/V	$S_{(g3/a)}$ mA/V	R_i kΩ	R_k Ω	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
6Ж10П	СССР	6,3	0,3	$\begin{cases} 200 \\ 75 \\ 350 \end{cases}$	$\begin{cases} 100 \\ < 85^1) \\ 120 \end{cases}$	$\begin{cases} 0 \\ -1 \\ 0 \end{cases}$	$\begin{cases} 0 \\ 0 \\ -100 \end{cases}$	6,5	5,5	9,5	$\begin{cases} 1,5 \\ \text{maximum} \end{cases}$	100	80	$\begin{cases} 100^2) \end{cases}$	35	0,75	3

¹⁾ $U_{b/g2} = 85 \text{ V}$, $R_{g2} = 3000 \Omega$; ²⁾ $U_{f+/k-} = 100 \text{ V}$, $U_{f-/k+} = 150 \text{ V}$

C_{g1}	C_a	$C_{g1/a}$	$C_{f/k}$
pF	pF	pF	pF
8,5	4,1	0,022	7



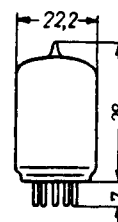
T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	R_k Ω	I_k mA	P_{g2} W	P_a W
PTT 214 P	Frc	1	6,3	0,3	150	150	0	-1,75	12,3	3,7	13,5	0,2	110		
PTT 216	Frc	2	6,3	0,3	180	180	maximum				$R_{g1} = 50 \text{ k}\Omega$; $U_{fk} = 70 \text{ V}$; 20			0,75	2,25
PTT 217	Frc	3	6,3	0,3	150	150	0		12,5	3,3	16	0,1	120		
					180	180	maximum				$R_{g1} = 50 \text{ k}\Omega$; $U_{fk} = 70 \text{ V}$; 20			0,6	2,25

¹⁾ vide * 4, c = 16.000

Equivalents

R 150	Frc = PTT 217
R 153	Frc = PTT 214 P
R 154	Frc = PTT 216

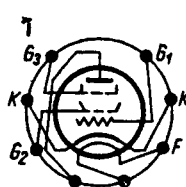
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	C_{fk} pF
PTT 214 P	8,25	3,75	0,12	3,5
PTT 216	7,8	3,5	0,12	5
PTT 217	8,5	2	0,02	



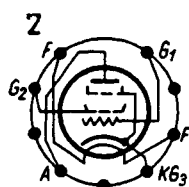
PTT216
PTT217



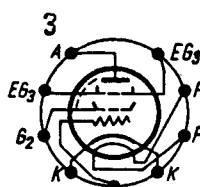
PTT214-P



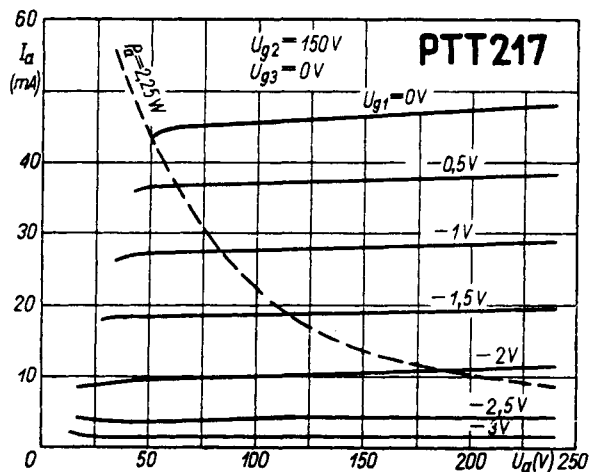
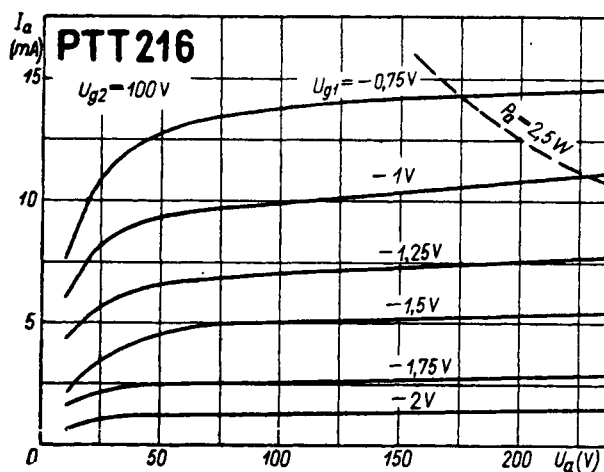
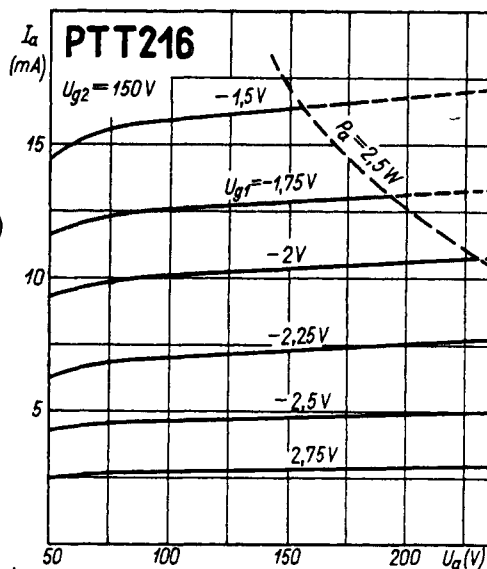
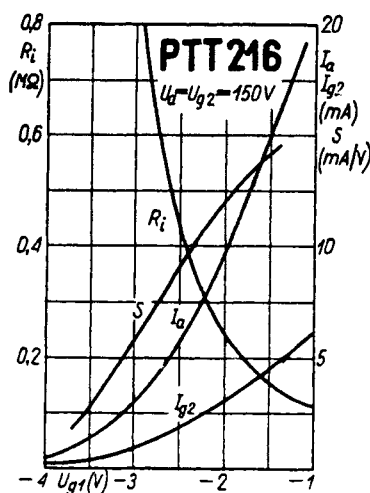
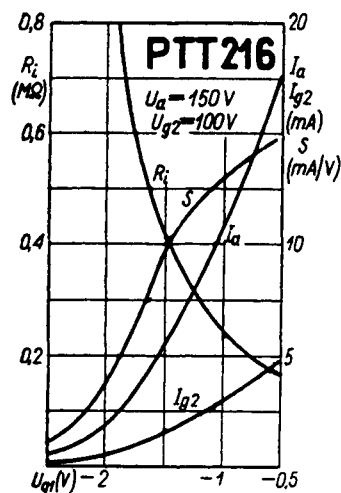
PTT 214P



PTT 216



PTT 217



T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_2/g_1)	R_k Ω	R_o k Ω	P_o W	$U_{g1 \approx}$ V	h %	P_{g2} W	P_a W
C 3 g	Grm	6,3	0,37	$\begin{cases} 220 \\ 200 \\ 220 \end{cases}$	$\begin{cases} 150 \\ - \\ 220 \end{cases}$	$\begin{cases} 0 \\ - \\ 220 \end{cases}$	$\begin{cases} 13 \\ 17 \end{cases}$	$\begin{cases} 3,3 \\ - \end{cases}$	$\begin{cases} 14 \\ 17 \end{cases}$	$\begin{cases} 230 \\ 2,3 \end{cases}$	$\begin{cases} (41) \\ 40 \end{cases}$	$\begin{cases} 115 \\ 180 \end{cases}$	$\begin{cases} 15 \\ \text{Fig. 1} \end{cases}$	1,2	0,85	10		
maximum $I_k = 30 \text{ mA}; U_{fk} = 120 \text{ V}; P_{g1} = 50 \text{ mW}$																		
																	0,7	3,5

¹⁾ vide * 4: $c = 10.000$

C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$	$C_{g1/g2}$	$C_{a/g3}$	$C_{g2/g3}$
pF	pF	pF	pF	pF	pF	pF
9,5	3,5	0,08	0,08	2,7	2	2

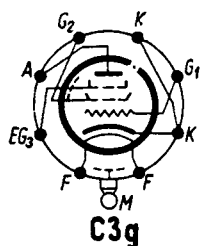
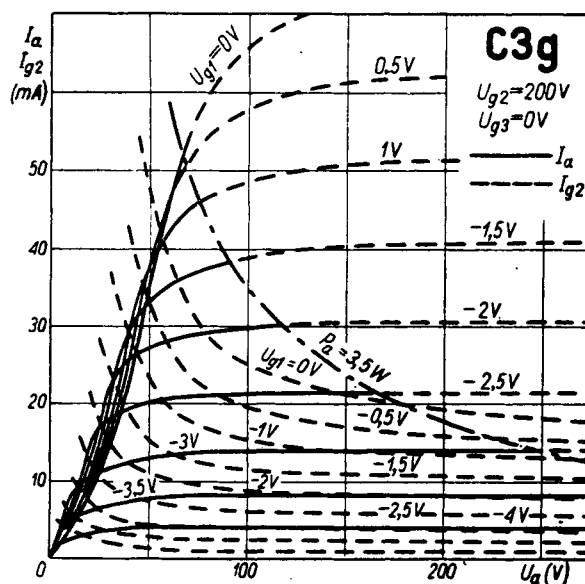
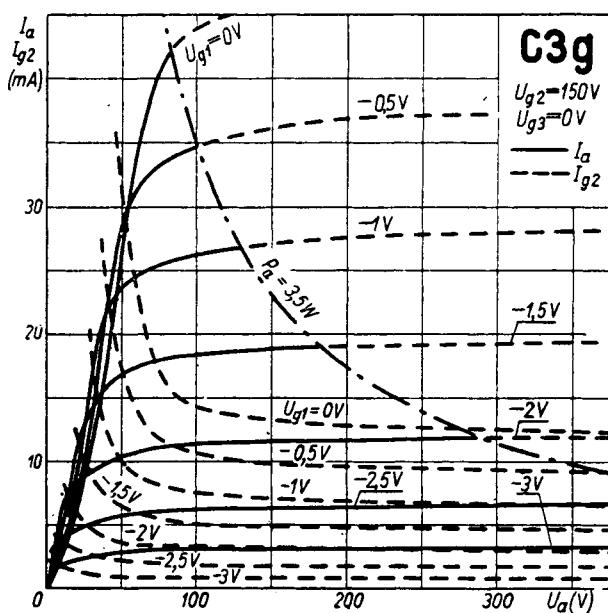
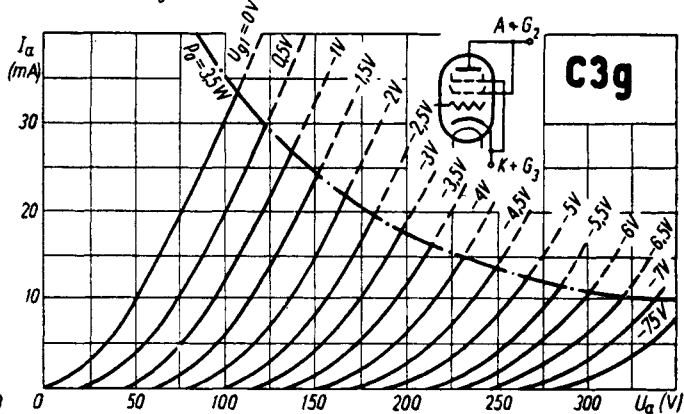
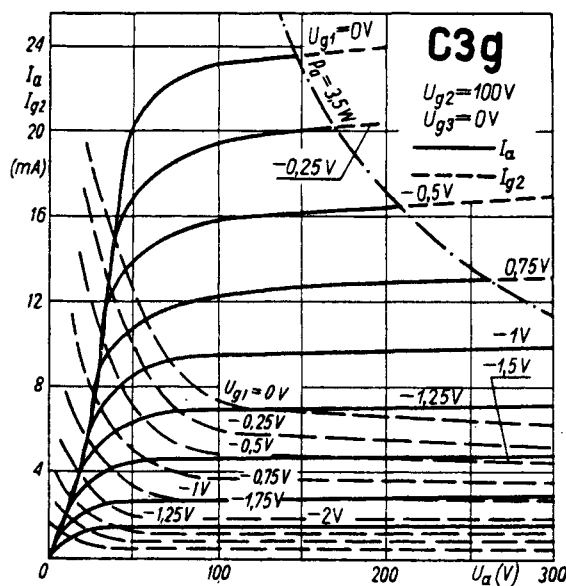
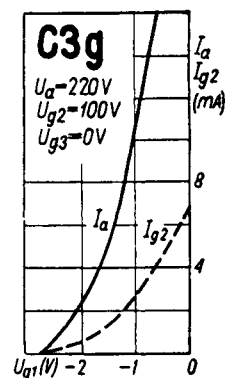
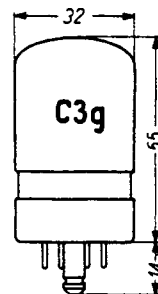
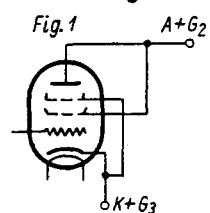


Fig. 1



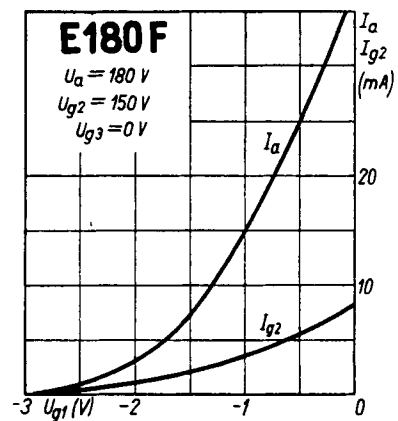
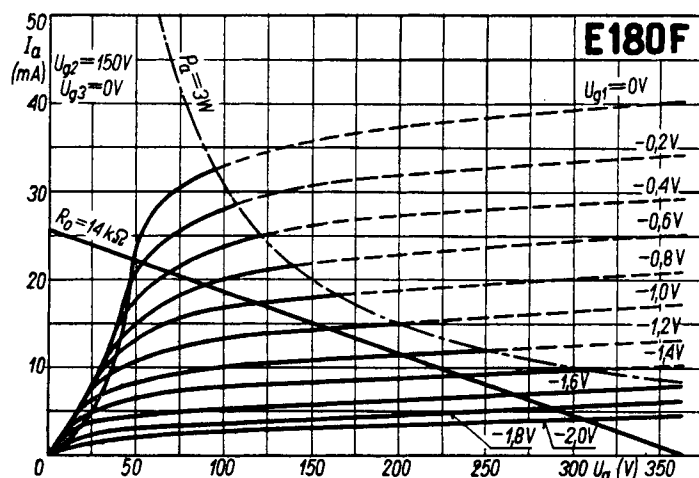
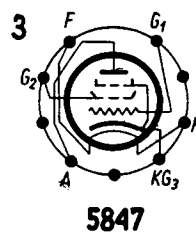
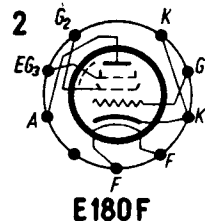
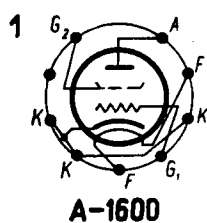
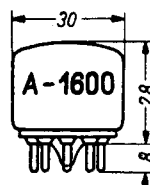
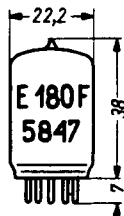
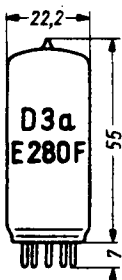
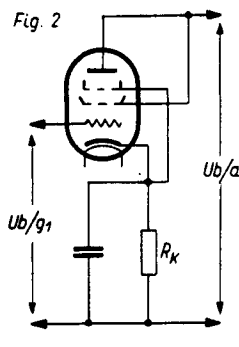
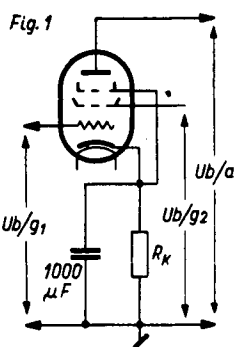
T.			U_f	I_f	Fig.	$U_{b/a}$	U_{b/g_2}	U_{g_3}	U_{b/g_1}	I_a	I_{g_2}	S	R_i	μ	R_k
			V	A		V	V	V	V	mA	mA	mA/V	k Ω	($\varepsilon_2/\varepsilon_1$)	Ω
A-1600 D 3 a	SER	1	6,3	0,45	1	135	135	0	8	26	10	34			260
	Grm	2	6,3	0,32	1	190	160	0	10	21÷23	6	30÷40	120	85	400
					1	180	150	0	0	11,5	2,9		90	50	100
E 180 F	eur	2	6,3	0,3	1	190	160	0	9	12,2÷13,8	2,9÷3,7	14,2÷18,8			630
					2	160	—	0	9	16,5	—	18,5	2,7	50	620
					1	190	120	0	8	10	2,8	20	155	56	750
E 280 F	eur	2	6,3	0,32	1	190	160	0	8	20	6	26	100	60	370
					1	190	160	0	8	15	4,5	23	120	58	500
					1	190	160	0	8	10	3	19	155	56	800
					1	190	160	0	9	13,5	4	22	130	58	630
					2	160	—	0	8	24,5	—	33	1,8	60	400
					1	150	150	0	0	9,5÷17,5	2,8÷5,2	9,5÷15,5	200		110
5847	int	3	6,3	0,3	1	160	160	0	8,5	13,5	4	12,5	200		600

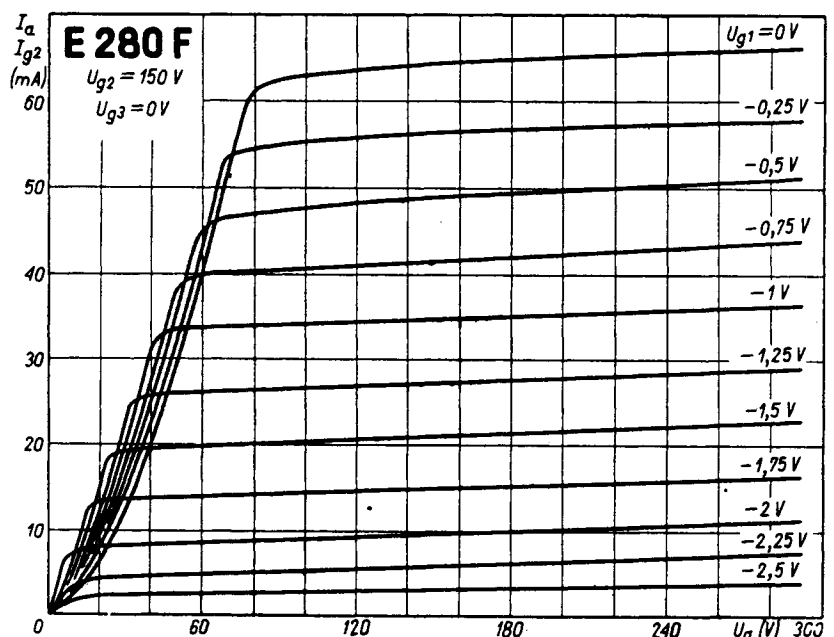
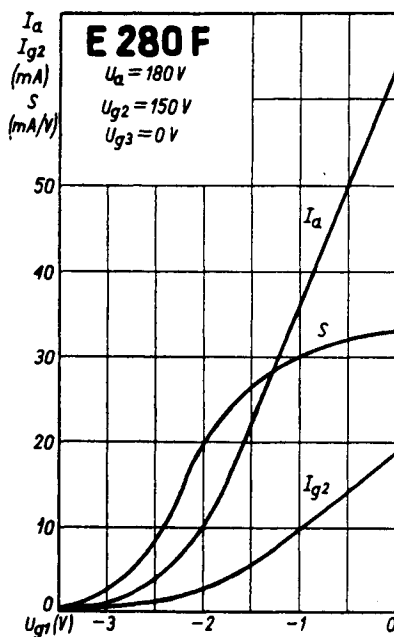
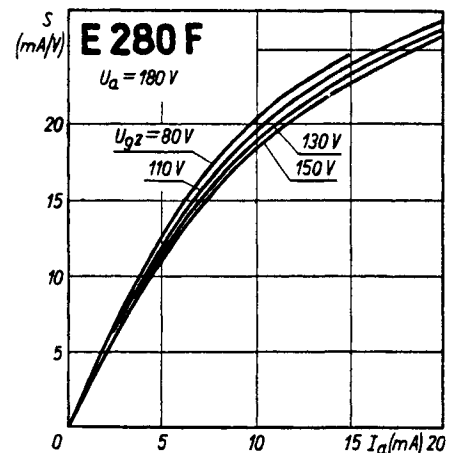
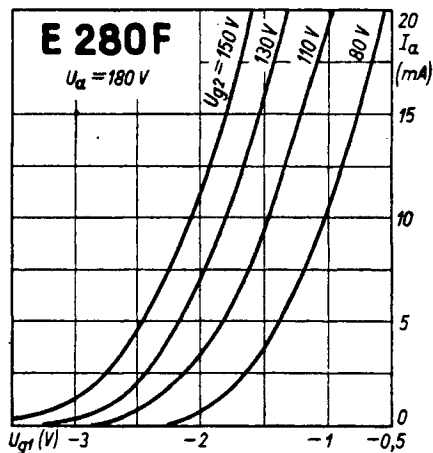
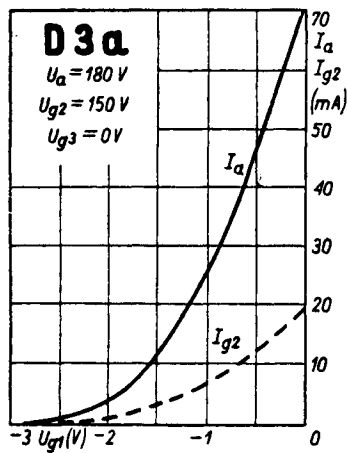
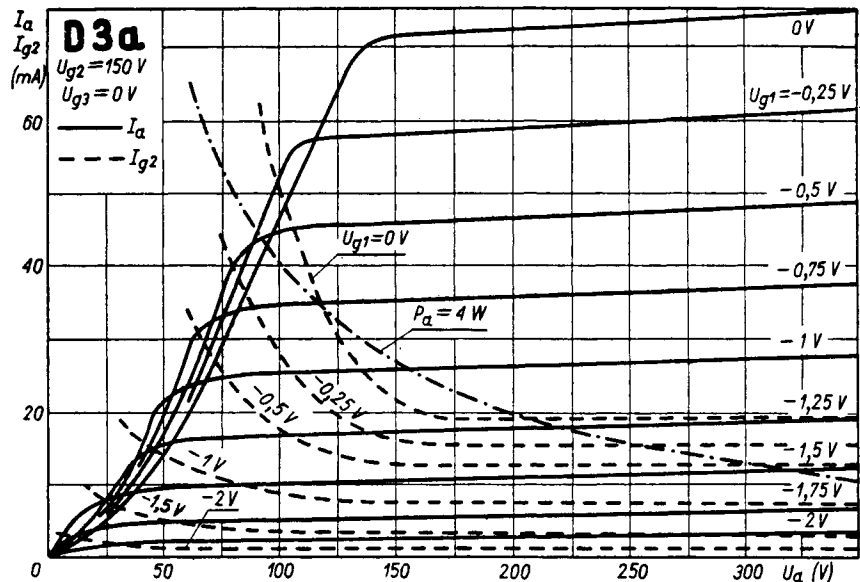
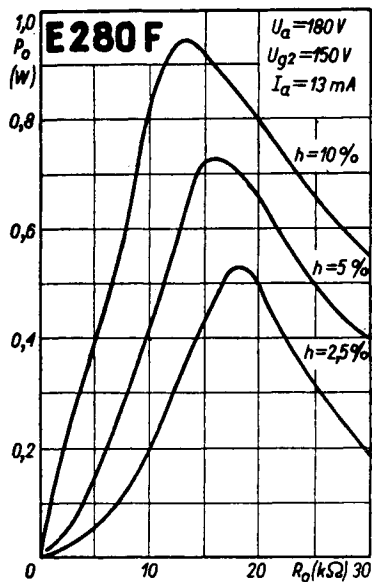
¹⁾ vide * 4, a, b, c = 10.000 ($U_f = 6,3 \text{ V} \pm 5\%$)

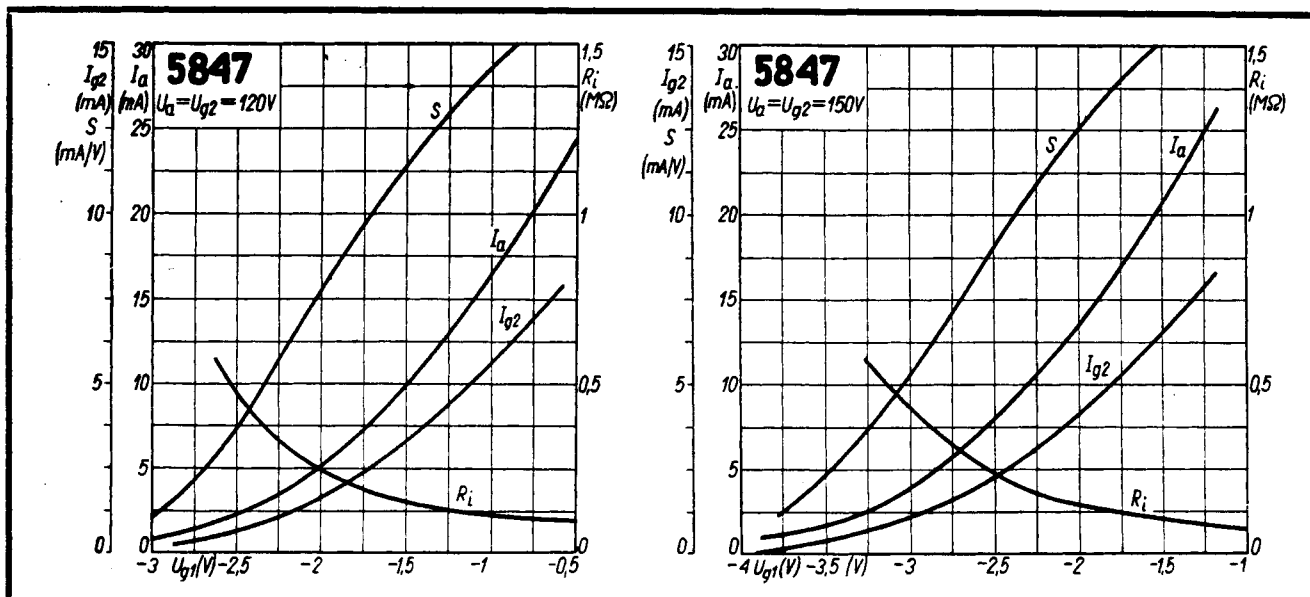
T.	maximum									
	U_a	U_{g_2}	U_{g_1}	U_f/k	I_k	P_{g_2}	P_a	C_{g_1}	C_a	$C_{g_1/a}$
	V	V	V	V	mA	W	W	pF	pF	pF
A-1600	150	150		50	50	1,5	4	15	2	0,03
D 3 a	220	180	0÷-10	60	29	0,9	4	9÷11	1,4÷2,3	0,035
E 180 F	210	175	0÷-50	60	25	0,9	3	6,6÷8,4	2,5÷3,5	0,03
E 280 F	220	180	0÷-50	60	30	1,1	4	8,3÷9,3	1,8÷2,4	0,035
5847	180	180		50	35	0,75	3	7	2,5	0,05

Equivalents

CK 5847	Ray = 5847
EF 861	RFT = E 180 F
5 A/170 K	STCE = E 180 F
5 A/185 K	STCE = D 3 a
404 A	WE = 5847
6688	int = E 180 F
7150	amer = A-1600
7721	amer = D 3 a
7722	amer = E 280 F

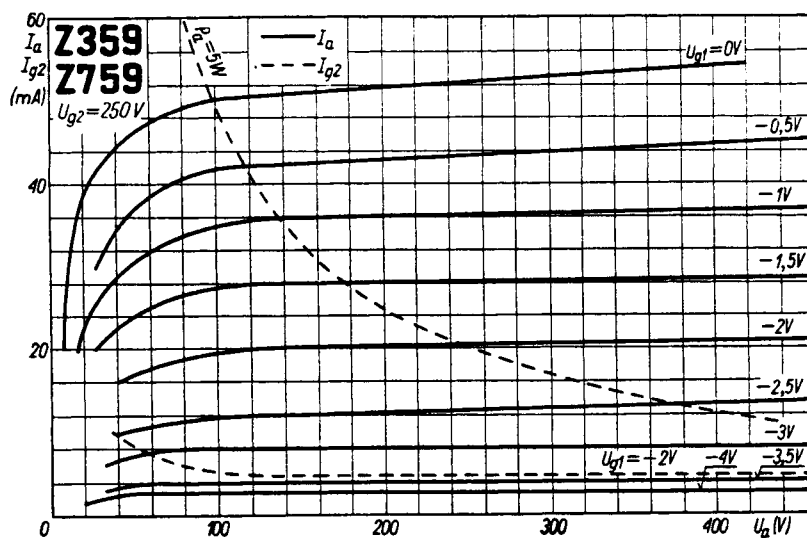
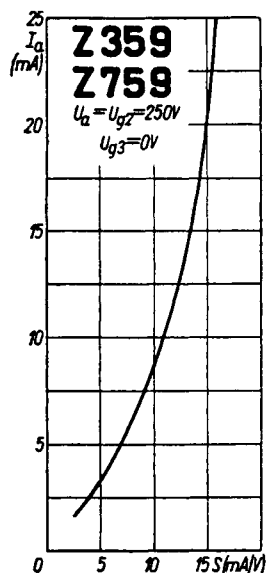
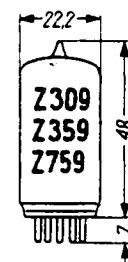
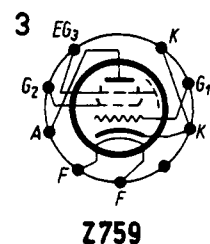
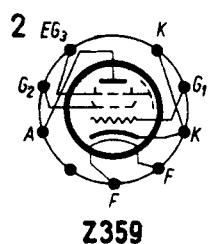
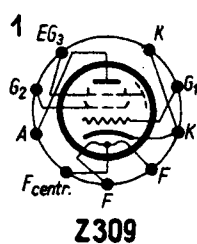






T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	V	W	W
Z 309	Eng	1	6,3/12,6	0,6/0,3	250 300	250 250	-2	20	5,25	15	0,5	150	1,5	5
Z 359	Eng	2	12,6	0,3										
Z 759	Eng	3	6,3	0,6										

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
13	2,5	0,007



T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	I_a mA	I_{g2} mA	S mA/V	R_k Ω	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
6Ж9Б	СССР	1	6,3	0,31	$\begin{cases} 120 \\ 150 \end{cases}$	$\begin{cases} 120 \\ 125 \end{cases}$	0	$\begin{cases} 15 \\ 5,5 \end{cases}$	$\begin{cases} 17 \\ \text{maximum} \end{cases}$	80		100	35	0,7	2,4
6Ж9П	СССР	2	6,3	0,3	$\begin{cases} 150 \\ 250 \\ 160 \end{cases}$	$\begin{cases} 150 \\ 160 \\ 150 \end{cases}$	0	$\begin{cases} 15 \\ 2,45 \end{cases}$	$\begin{cases} 17,5 \\ \text{maximum 6Ж9П} \\ \text{maximum 6Ж9П-E} \end{cases}$	80		100	35	0,75	3
												100	22	0,5	3

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{f/k}$ pF
6Ж9Б	7,5	3,4	0,055	7
6Ж9П	8,5	3	0,02	7
6Ж9П-E	7,8	2,7	0,02	4,5

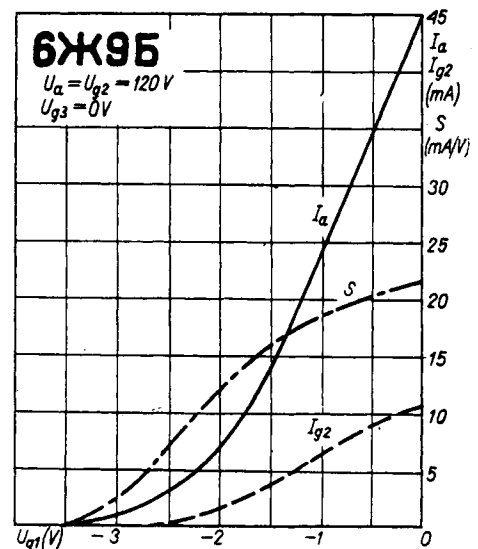
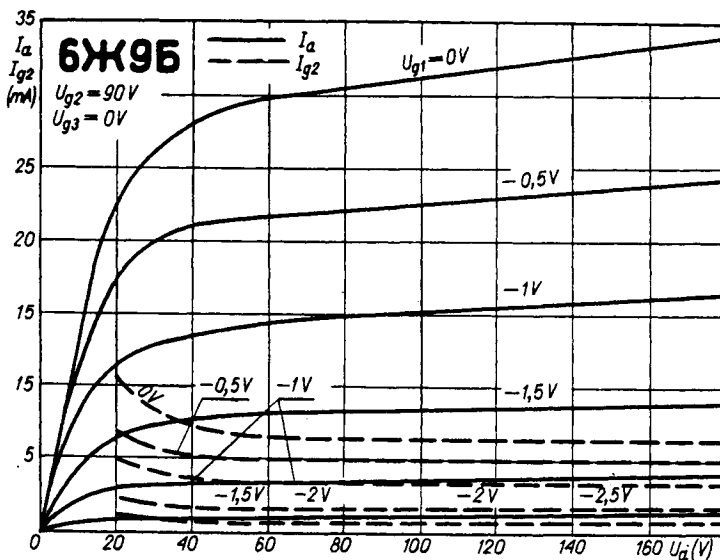
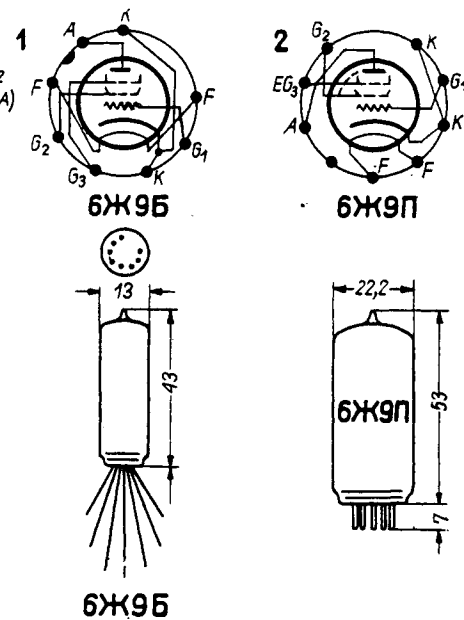
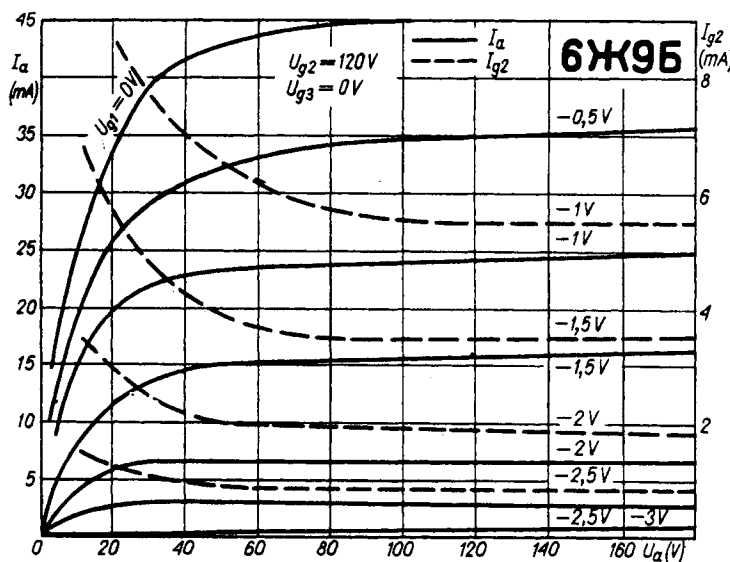
Equivalents

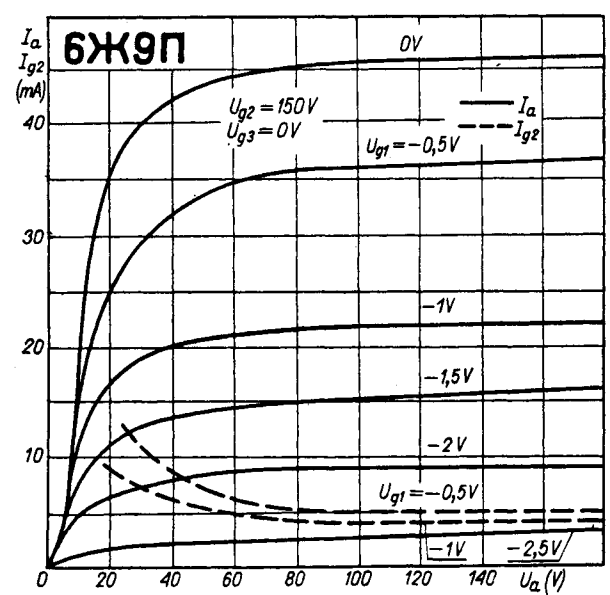
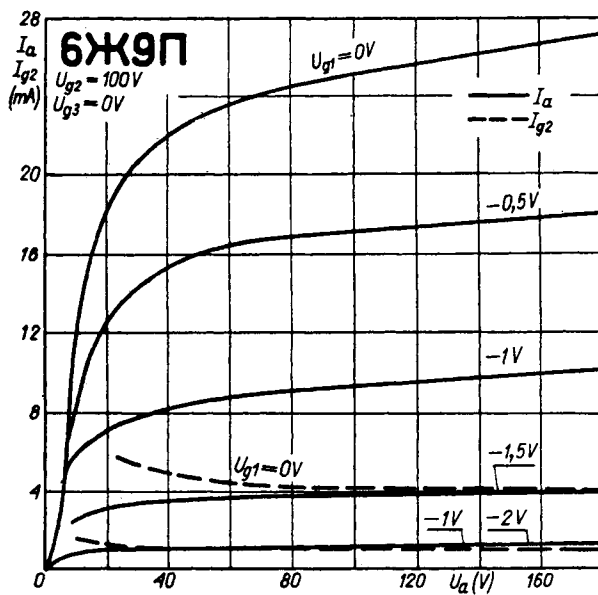
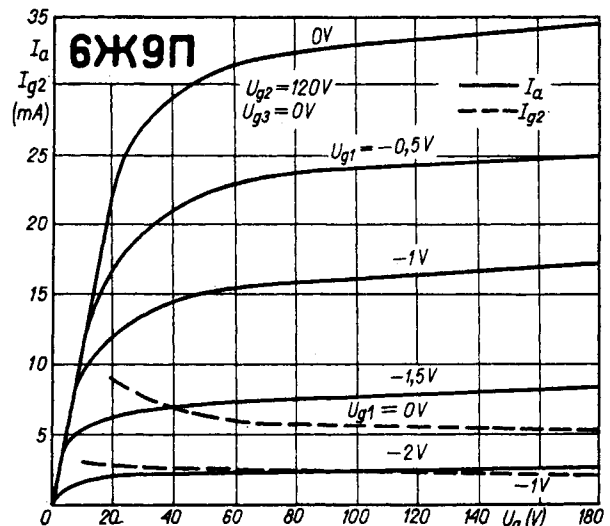
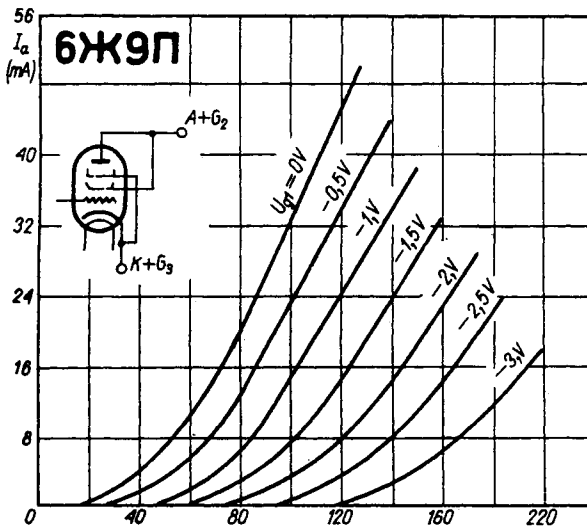
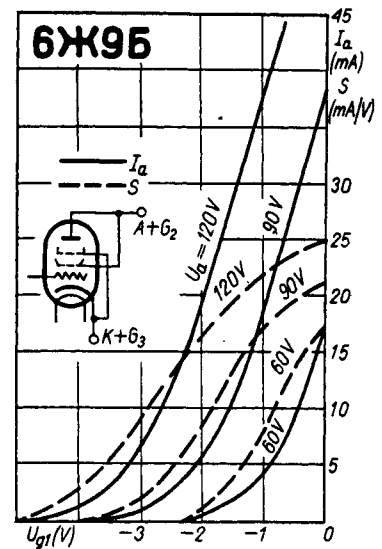
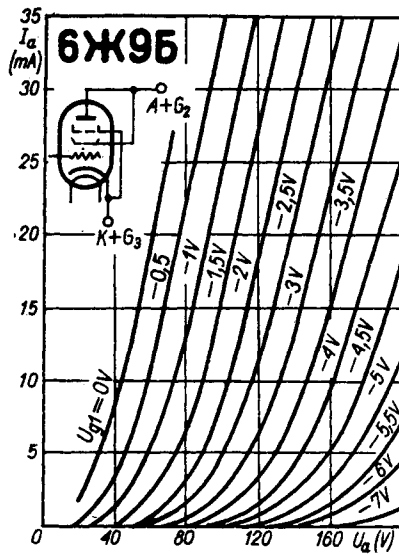
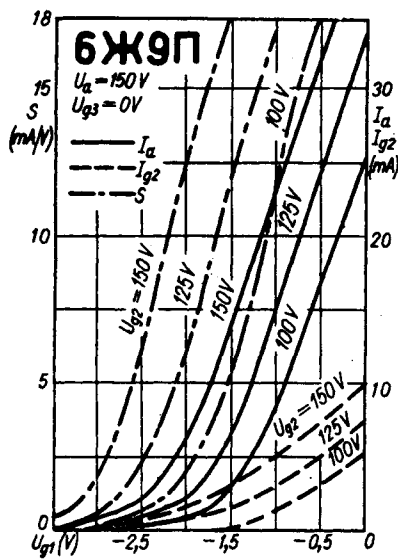
6Ж9Б-В¹⁾ СССР = 6Ж9Б
 6Ж9П-Е²⁾ СССР = 6Ж9П

¹⁾ vide * 4, a, b, d, e

²⁾ vide * 4, a, b, c = 5 000, d;

$U_f = 6 \div 6,6 \text{ V}$



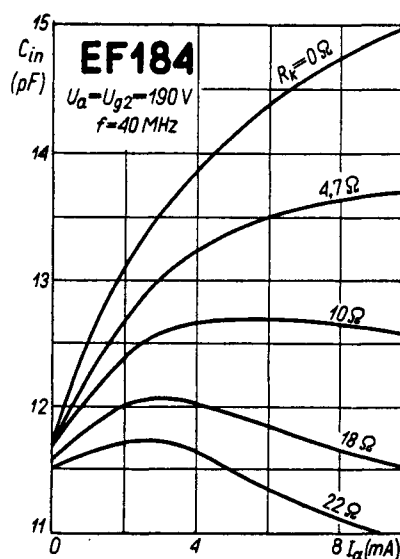
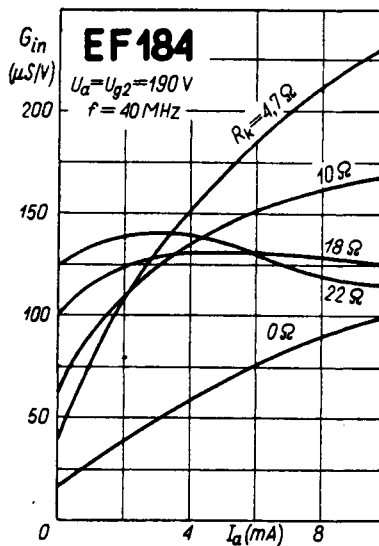
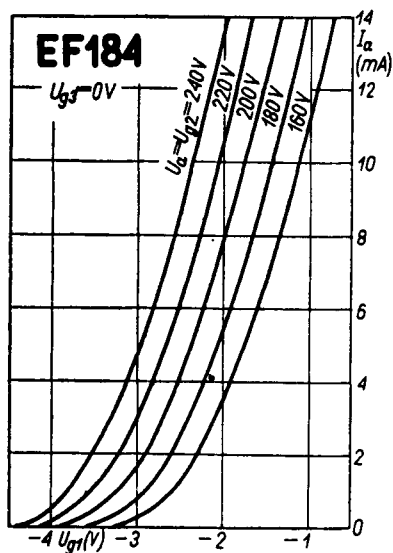
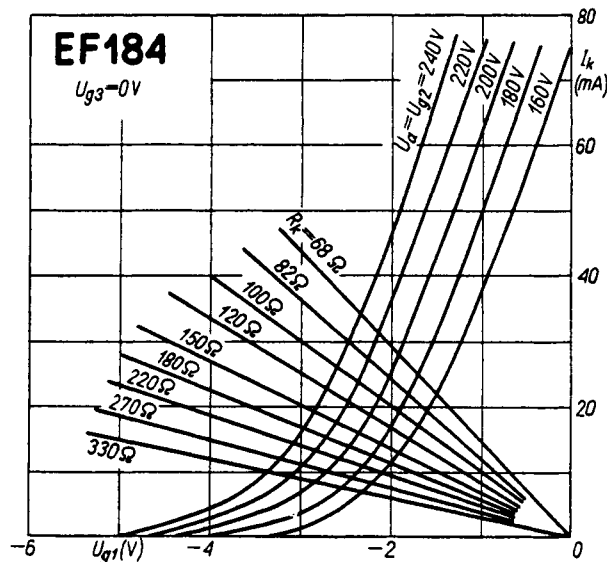
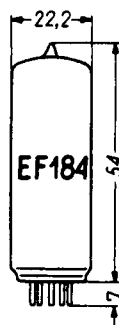
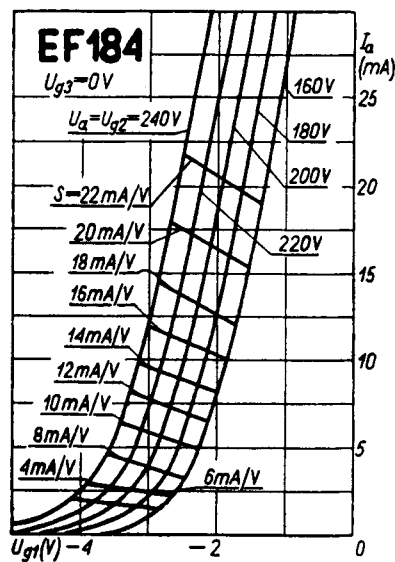
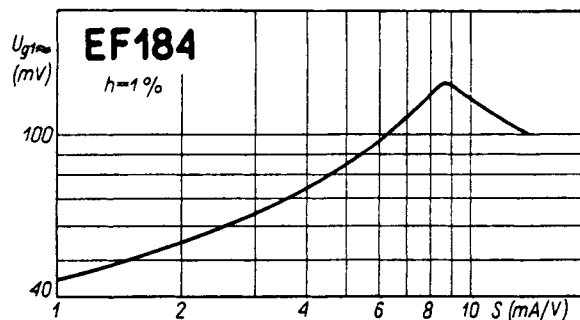
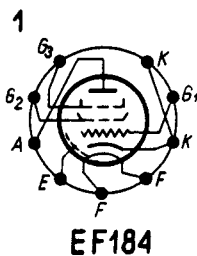


T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	kΩ	(g_2/g_1)	Ω	mA	W	W
EF 184	eur	I	6,3	0,3	$\left\{ \begin{array}{l} 170 \\ 200 \\ 250 \end{array} \right.$	170	0	—2	10	4,1	15,6	330	60	150	25	0,9	2,5
UF 184	eur	I	18,9	0,1		200	0	—2,5	10	4,1	15	380	60	180			
XF 184	eur	I	3,4	0,6													
YF 184	eur	I	4,2	0,45		250											
maximum $U_{fk} = 150$ V																	

Equivalents

3 EJ 7	amer = XF 184
4 EJ 7	amer = YF 184
6 EJ 7	amer = EF 184
6 F 30	Eds = EF 184
19 EJ 7	amer = UF 184

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g2}$
pF	pF	pF	pF
10	3	0,0055	2,8



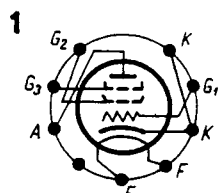
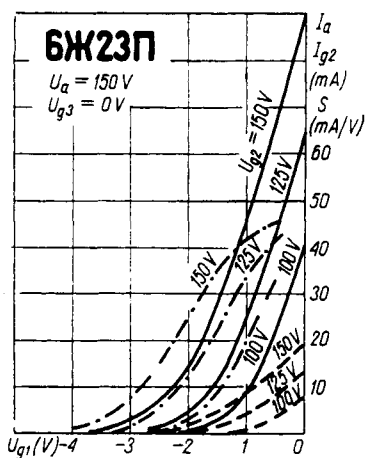
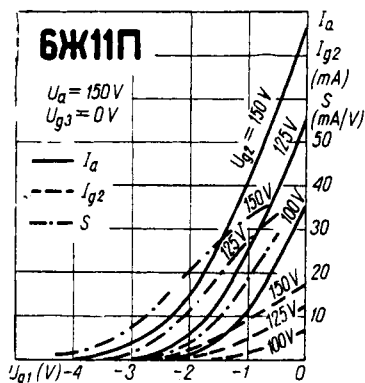
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	I_a	I_{g2}	S	R_i	R_k	$U_{f,k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	kΩ	Ω	V	mA	W	W
6Ж11П	СССР	1	6,3	0,44	150	150	0	25	7,5	28	36	50	100	40	1,15	4,9
6Ж23П ¹⁾	СССР	2	6,3	0,44	150	150	0	27	6	30	36	50	100	40	1,15	4,9
6Э5П	СССР	3	6,3	0,6	150	150		44	10	30,5	15	30	100	100	2,3	8,3
6Э6П-Е ¹⁾	СССР	4	6,3	0,6	250	250			maximum	maximum						

¹⁾ $I_a = 13,5 \text{ mA} \times 2$; $S = 15 \text{ mA/V} \times 2$; ²⁾ vide *4,a,b,c = 5000,d; ³⁾ vide *4,a,b,c = 3000,d; ⁴⁾ vide *4,a,b,c = 10.000,d; $U_{a(max)} = U_{g2(max)} = 150 \text{ V}$; $I_{k(max)} = 70 \text{ mA}$; ⁵⁾ $I_{k(impulse)} = 6 \text{ A}$

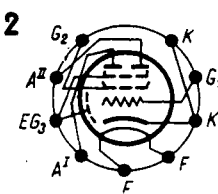
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	C_f/k
	pF	pF	pF	pF	pF
6Ж11П	13,5	3,45	0,04	0,15	6,2
6Ж23П	13,5	3	0,038	0,15	
6Э5П	16	2,85	0,75		12,5
6Э6П-Е	15	2,7	0,075		12,5

Equivalents

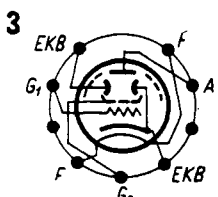
6Ж11П-Е²⁾ СССР = 6Ж11П
 6Ж23П-Е²⁾ СССР = 6Ж23П
 6Э5П-И¹⁾ СССР = 6Э5П



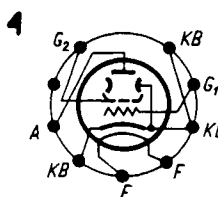
6Ж11П



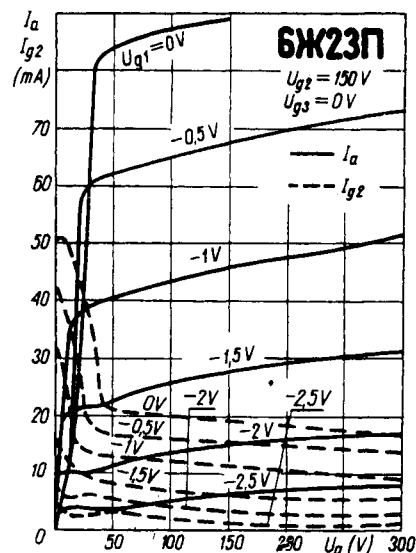
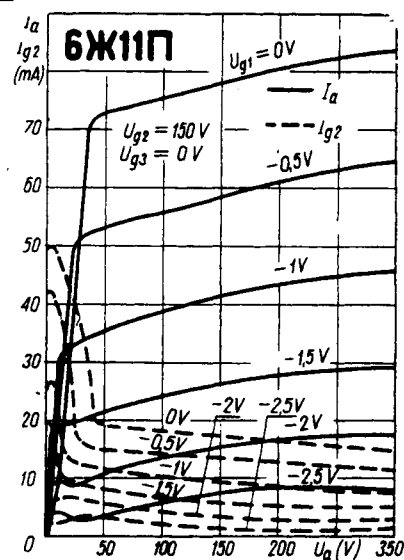
6Ж23П

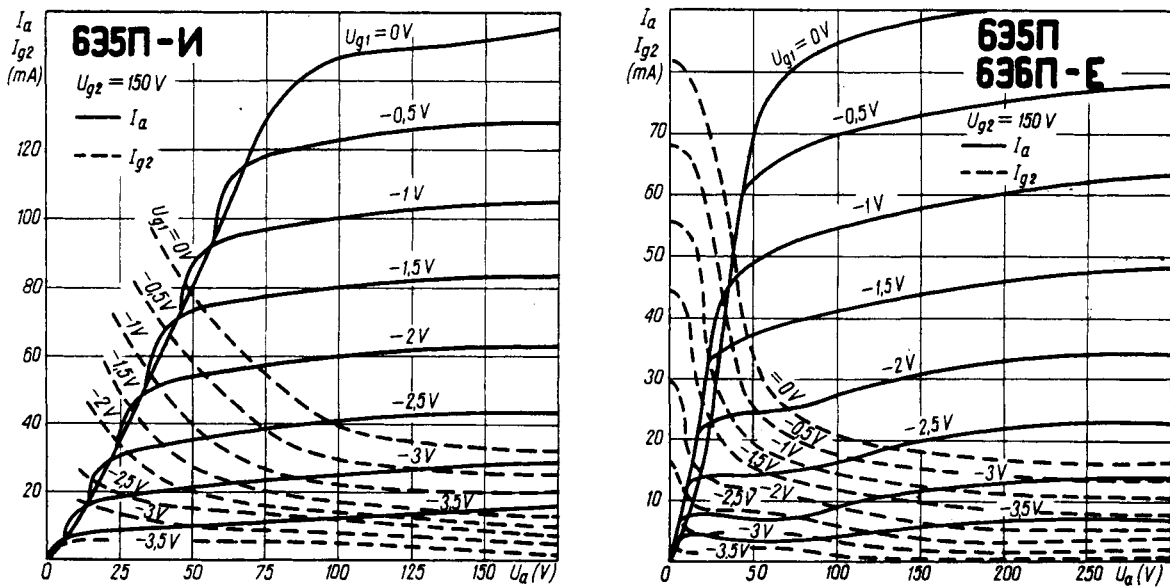
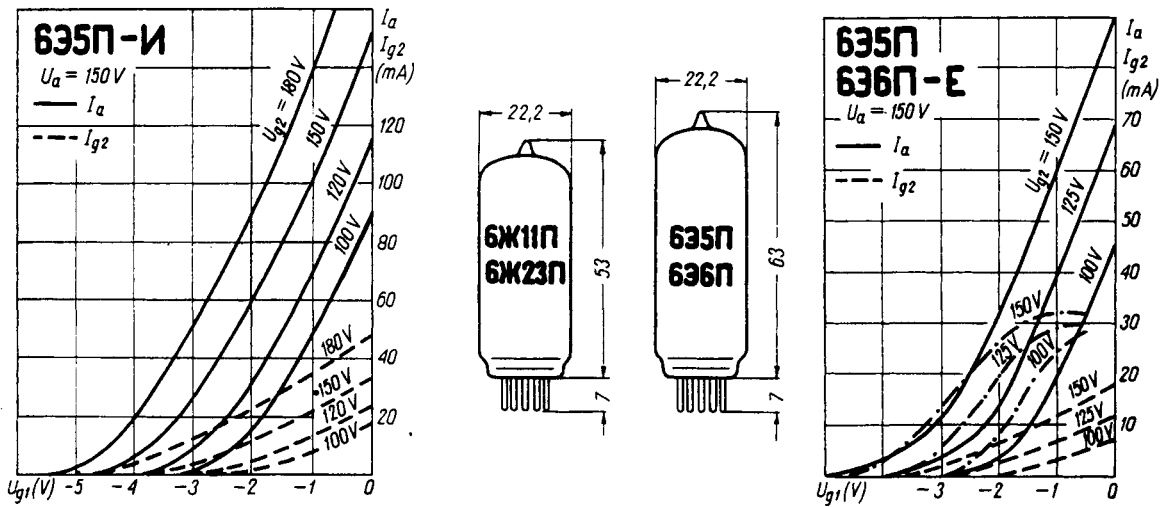
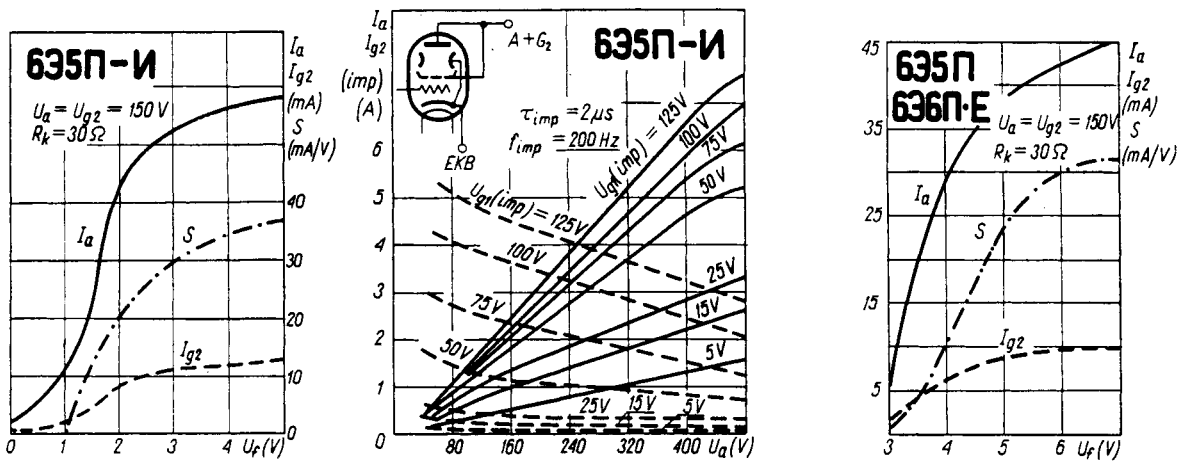


6Э5П



6Э6П-Е

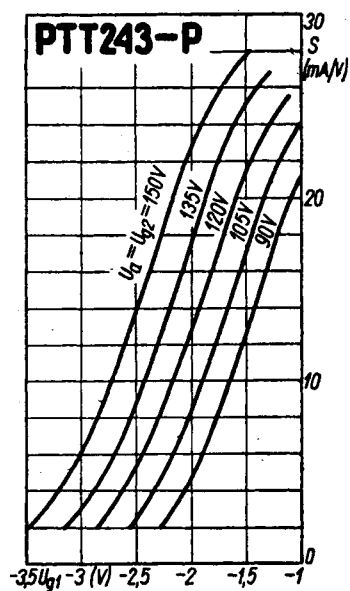
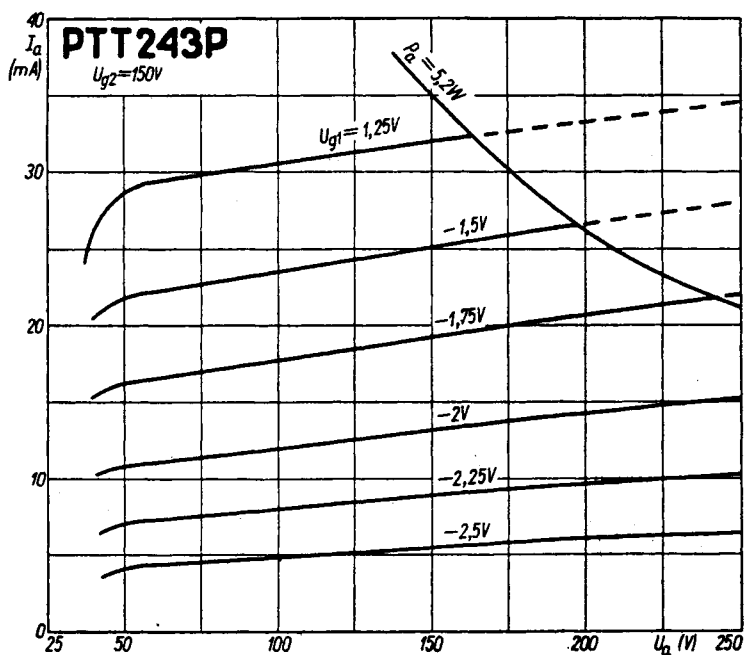
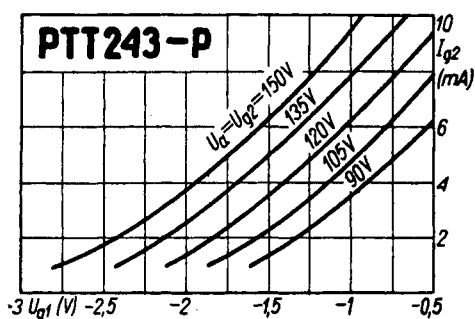
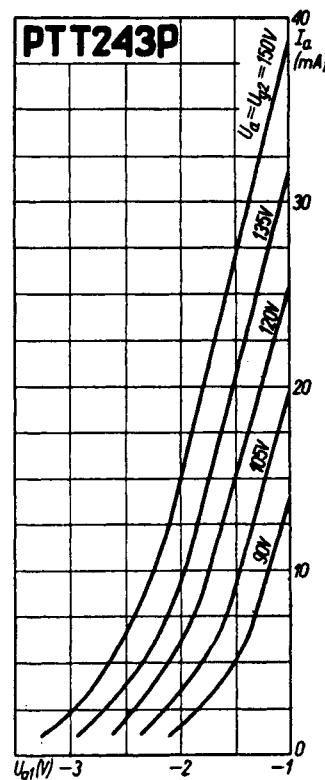
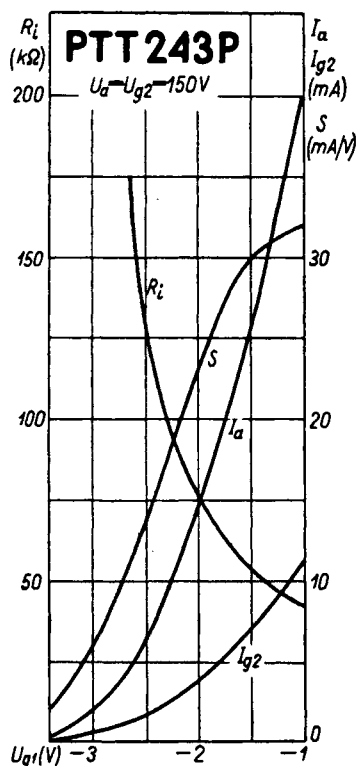
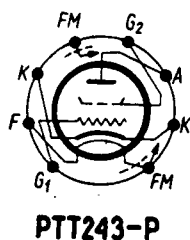




T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	R_k Ω	R_o k Ω	P_o W	$U_{g1\sim}$ V	h %	I_k mA	P_{g2} W	P_a W
PTT 243 P	CSF	6,3	0,42	150 180	150 180	-1,5	26	6,5	28	50	45	4	0,1	0,2	5	40	1,3	5,2
maximum $U_{f/k} = 70$ V; $R_{g1} = 50$ k Ω																		

¹⁾ vide *4, c = 5.000

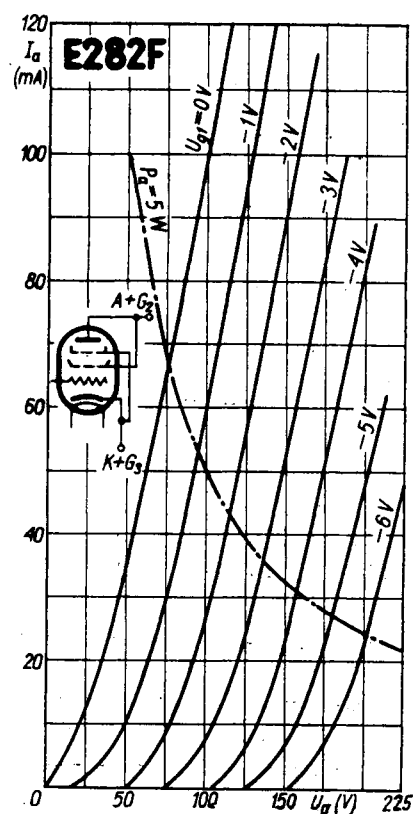
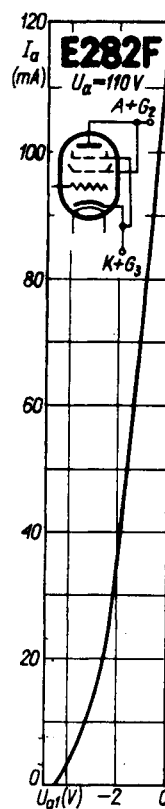
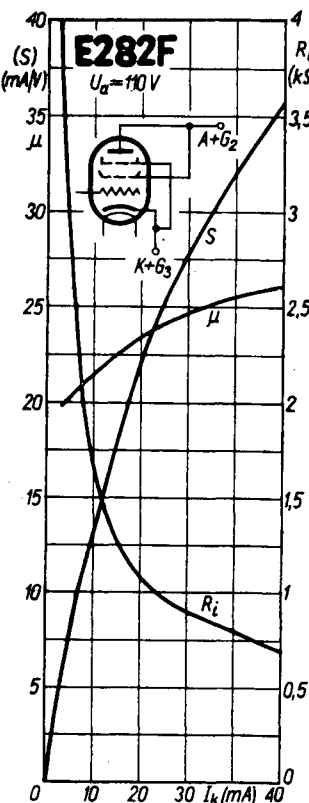
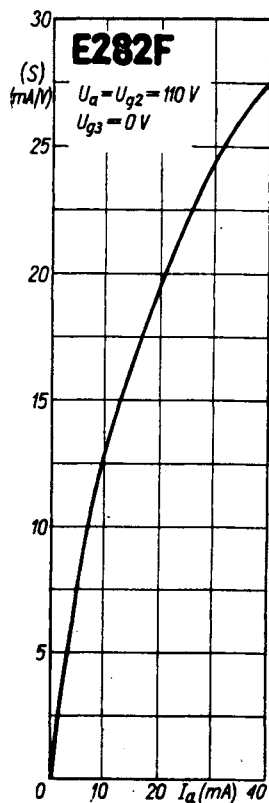
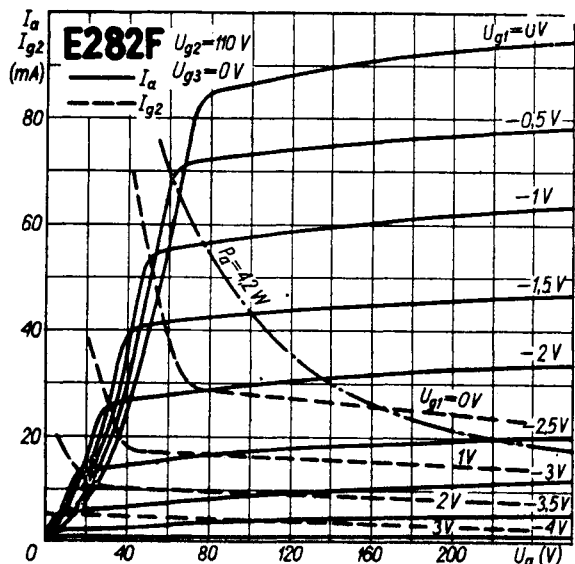
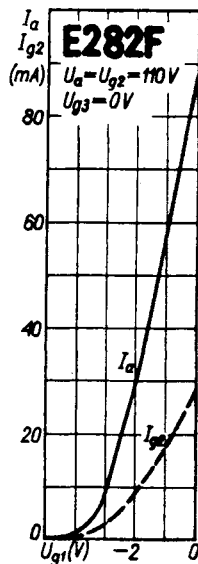
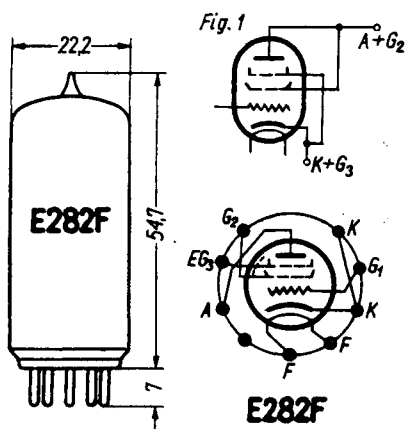
C_{g1}	C_a	$C_{g1/a}$	$C_{f/k}$
pF	pF	pF	pF
12	3	0,15	7,3



T.		U_f	I_f	U_a	U_{g1}	U_{g2}	U_{g3}	I_a	I_{g1}	S	μ	R_k	f	U_f/k	I_k	P_{g1}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	(g_m/g_1)	Ω	MHz	V	mA	W	W
E 282 F ¹⁾	Siem	6,3	0,35	$\begin{cases} 110 \\ 110 \\ 200 \end{cases}$	$\begin{cases} 110 \\ 110 \\ 150 \end{cases}$	$\begin{cases} 0 \\ 0 \\ 0 \end{cases}$	$\begin{cases} -1,8 \\ -2 \\ -50 \end{cases}$	$\begin{cases} 35 \\ 40 \end{cases}$	11	$\begin{cases} 26 \\ 32 \end{cases}$	$\begin{cases} (27) \\ 25,5 \end{cases}$	$\begin{cases} 300 \\ 350 \end{cases}$	250	100	50	1,4	4,2
maximum																	

1) vide * 4, a, b, c = 10000, d, f, g; $U_f = 6,3 \pm 5\%$

C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$	$C_{g1/f}$	$C_{a/f}$	$C_{k/f}$
pF	pF	pF	pF	pF	pF	pF
10	2,6	0,05	0,05	0,05	0,1	4,7



T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_f	μ	$U_{f/k}$	I_k	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	(g_2/g_1)	V	mA	W
PTT 200	LTC	I	10	0,32												
5 A/136 D	STCE	2	7,5	0,42												
310 A	WE	3	10	0,32	135	135	0	-3	5,4	1,1	1,9	0,4	19			
328 A	WE	3	7,5	0,42	250	180			maximum					150	10	1,9

²⁾ vide * 4

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g3}$	C_{g3}	vide
	pF	pF	pF	pF	pF	
310 A	$\begin{cases} 4 \\ 6 \end{cases}$	$\begin{cases} 2 \\ 3 \end{cases}$	$\begin{cases} 0,025 \\ 0,007 \end{cases}$	$\begin{cases} 2 \\ 1 \end{cases}$	$\begin{cases} 7 \\ 14 \end{cases}$	$\begin{cases} * 5 \\ * 6 \end{cases}$

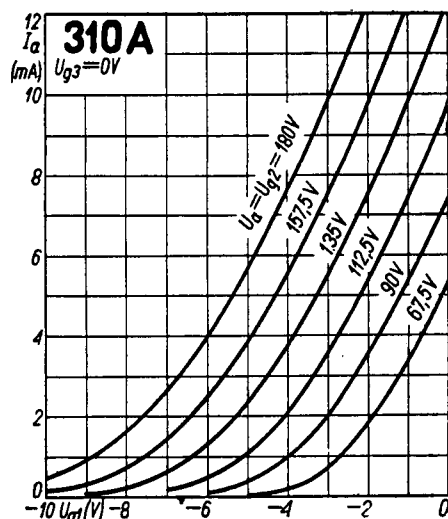
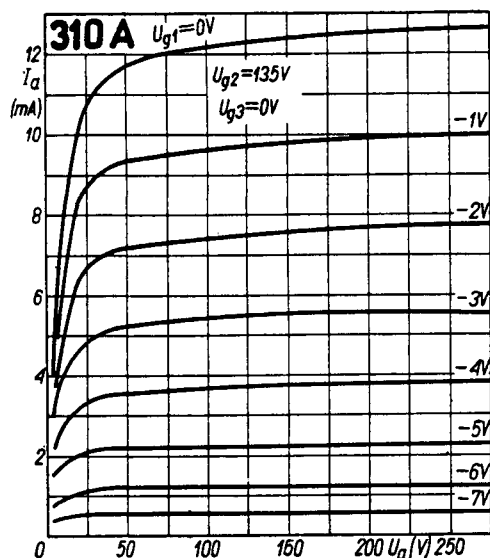
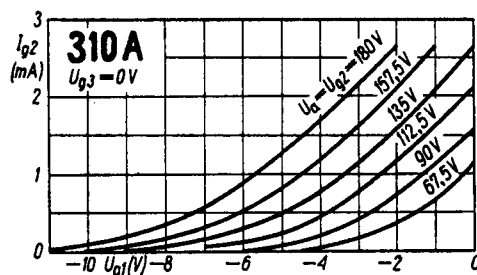
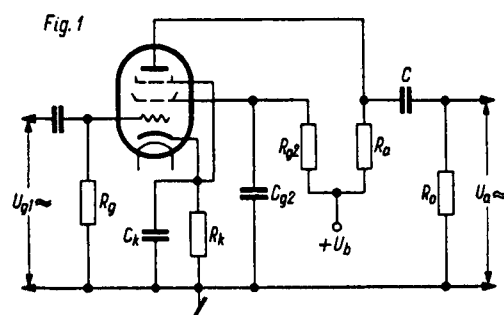
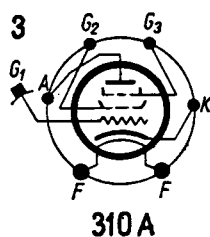
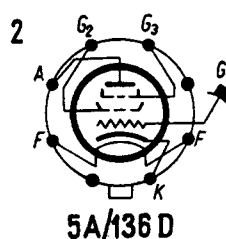
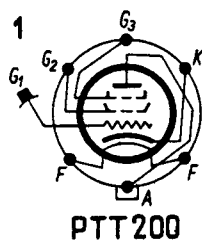
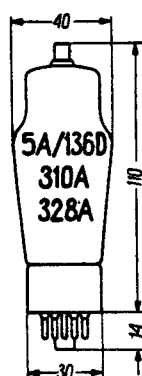
Equivalents

P 310	TuM = 310 A	10 JK 12 C	CCCP = 310 A
S 310-A	STCS = 310 A	310 B	WE = 310 A
S 328-A	STCS = 328 A	328 B	Siem = 328 A
TO-1	CCCP = 310 A	3310-A	LCT = 310 A
TO-3	CCCP = 328 A	3328-A	LCT = 328 A
5 A/136 A	STCE = 328 A	4310 A	STCE = 310 A
5 A/150 A	STCE = 310 A	4328 A	STCE = 328 A
7 JK 12 C	CCCP = 328 A	4328 D	STCE = 5 A/136 D

Fig. 1

$U_{g2} = 135 \text{ V}; U_{g3} = 0 \text{ V}; U_{g1} = -3 \text{ V}$

U_a	I_a	$U_{g1 \sim}$	R_o	P_o	$U_{a \sim}$
V	mA	V	kΩ	mW	V
135	5,4	3	20	250	
		1,6	60	130	
		0,95	60	60	
		1,15	60		100
		0,57	100		75
180	5,4	0,4	100		50
		2,7	40	340	
		1,5	100		175
225	5,5	2,7	60	425	
		1,8	100		220
250	5,5	2,7	60	480	
		1,2	60	110	
		2,1	100		250
		1,5	100		200



T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	Ω	kΩ	mW	%	V	mA	W	W
R 116	Frc	1	10	0,55	200	200	-2,2	8	1,6	5,5	0,8	230							
R 122 N	Frc	1	18	0,225	225	225										50	12	0,4	2
R 143	Frc	2	6,3	0,24															
R 145	Frc	2	18	0,085															
TS 39	Phi	1	18	0,3	200 ¹⁾	200	-2,5	8	1,5	5	1	265	30	100	5				
4679	Phi	3	6,3	0,45												50	15	0,4	2,5
18013	Phi	3	4	1,3	250	200													

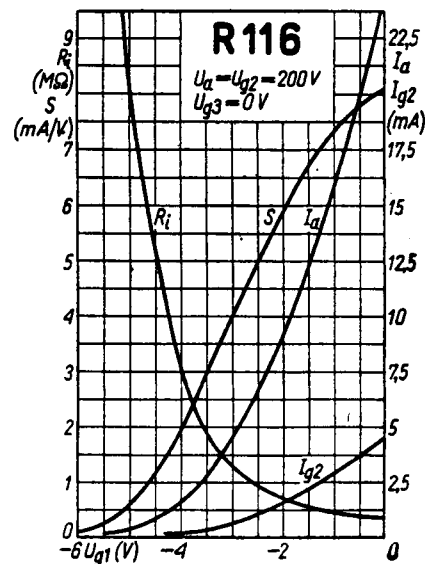
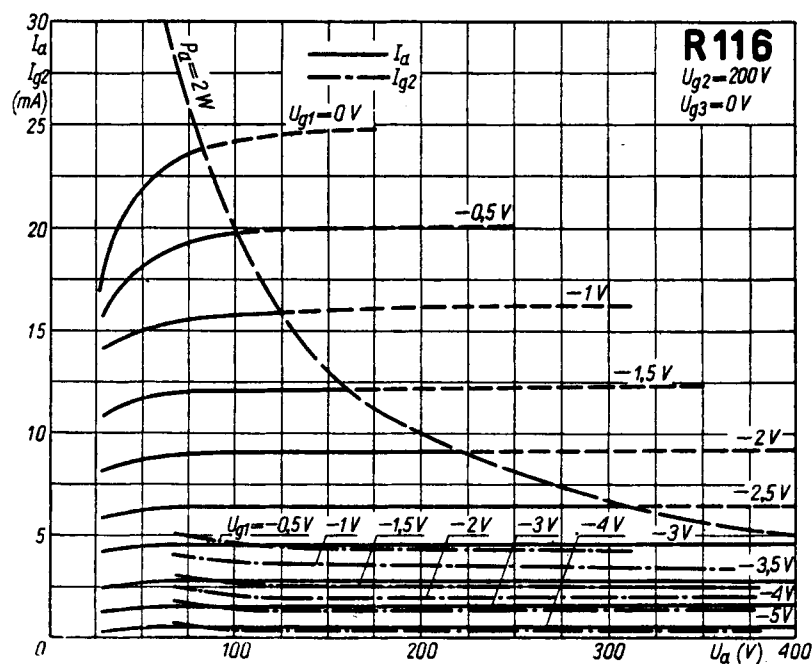
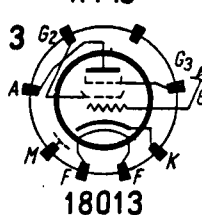
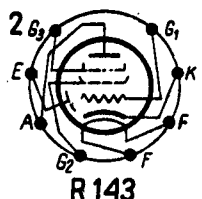
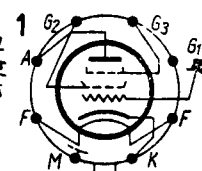
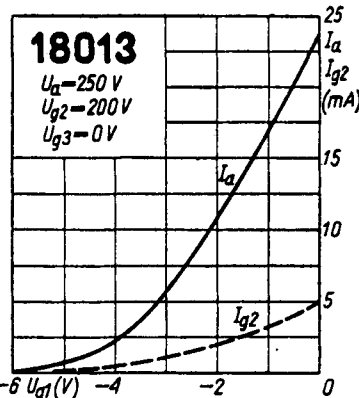
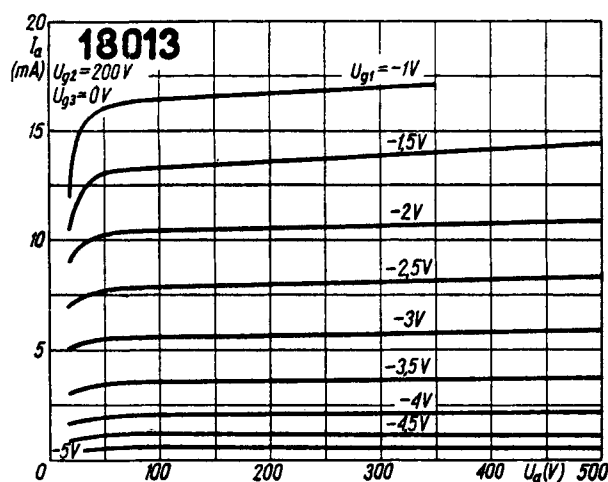
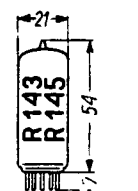
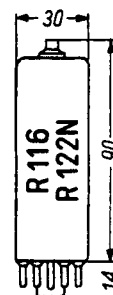
¹⁾ vide * 4, c = 10.000

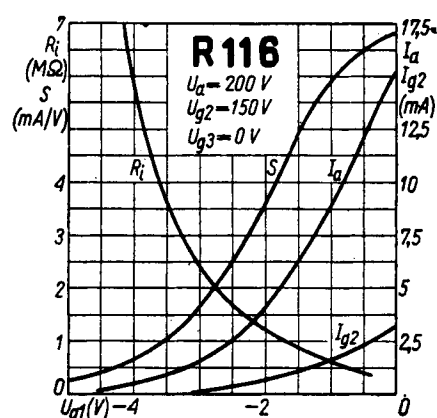
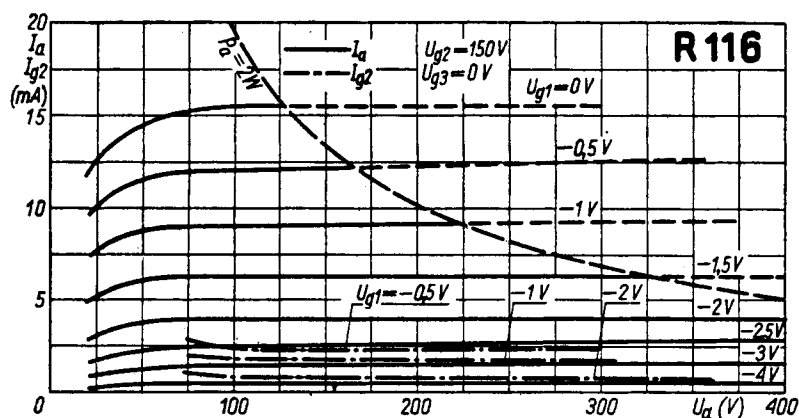
²⁾ T. 4673; T. 4679 $U_a = 250$ V

Equivalents

PTT 202	Frc = R 145
PTT 202 C	Frc = R 122 N
PTT 202 P	Frc = R 145
PTT 204	Frc = R 116
PTT 206 P	Frc = R 143
4673	Phi = 18013

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
R 116	9,5	9,5	0,035
R 122 N	9,5	9,5	0,06
R 143	7	3,75	0,03
R 145	7	3,75	0,03
4673	9,6	7,3	0,012
18013	9,8	7,5	0,012





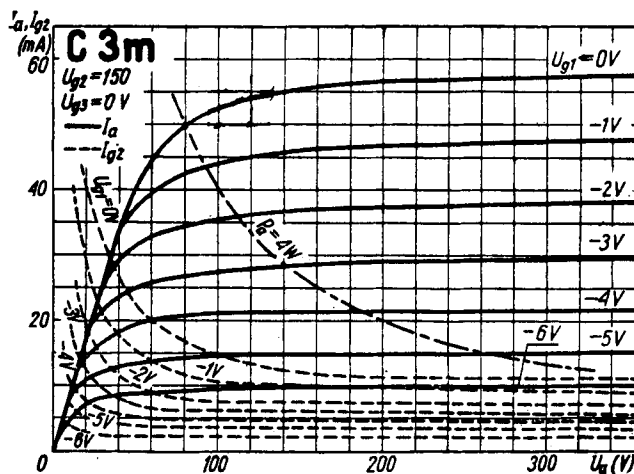
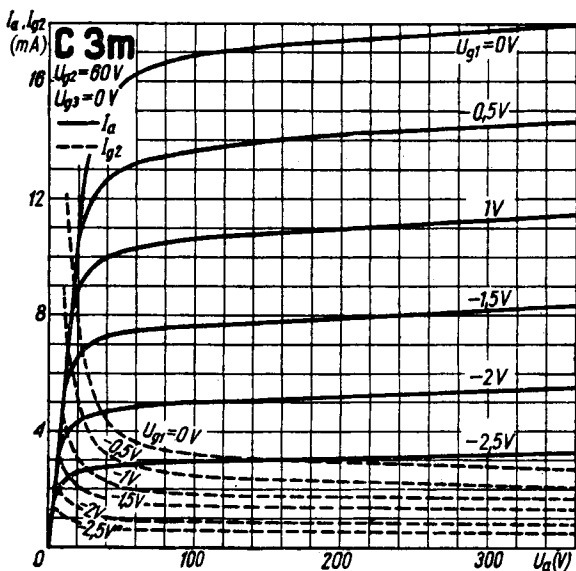
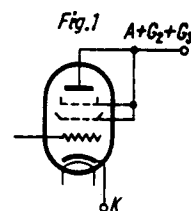
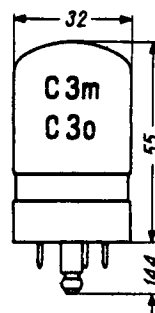
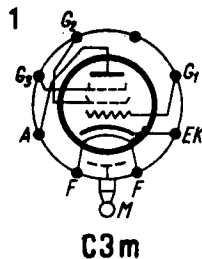
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	$\frac{g_2/g_1}{(a/g_1)}$	k Ω	Ω	k Ω	W	%	V	mA	W	W
C 3 m	Grm	I	20	0,125	60	60	-1,8	5,7	1,3	4,7	19	150	300	10	1	10				
C 3 o	Grm	I	6,3	0,4	220	150	-5	16	3,2	6,5	(18)	250	250	10	1	120	30	1	4	
					300	300	-9	18,5	—	7,2	(18)	2,5	500			vide Fig. 1				

¹⁾ vide * 4

Equivalents

C 3 a Siem = C 3 o
TS 49 Phl = C 3 m

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
C 3 m C 3 o	8,5	6	0,016



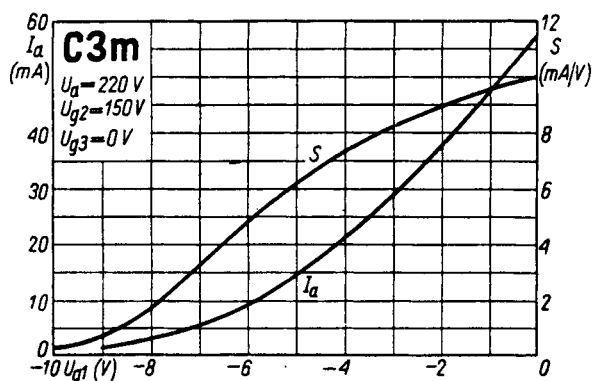
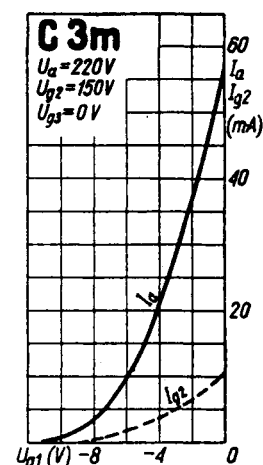
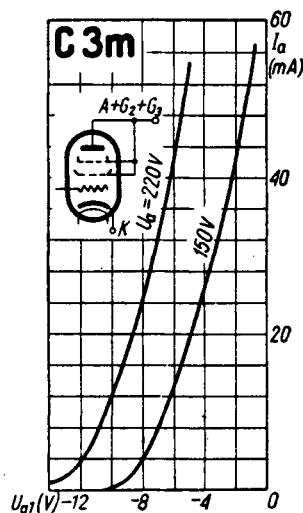
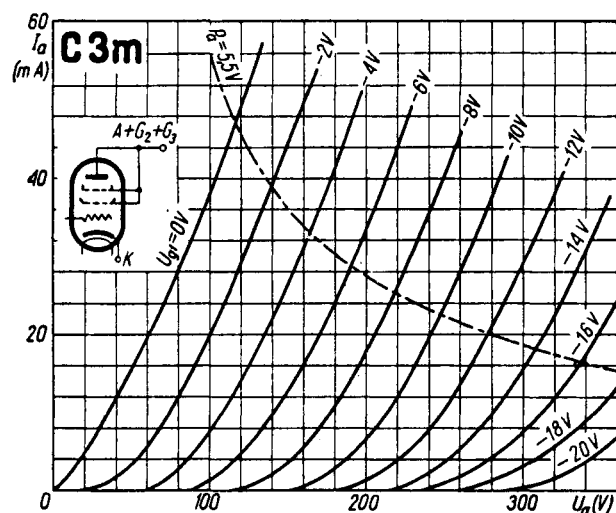
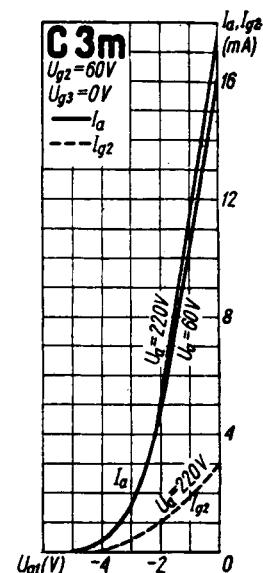
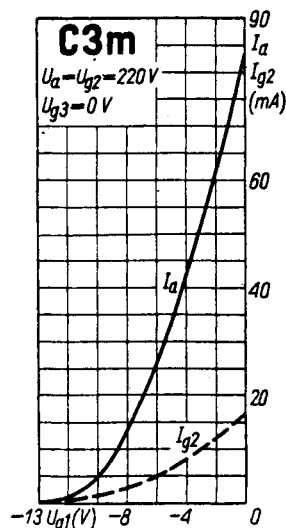
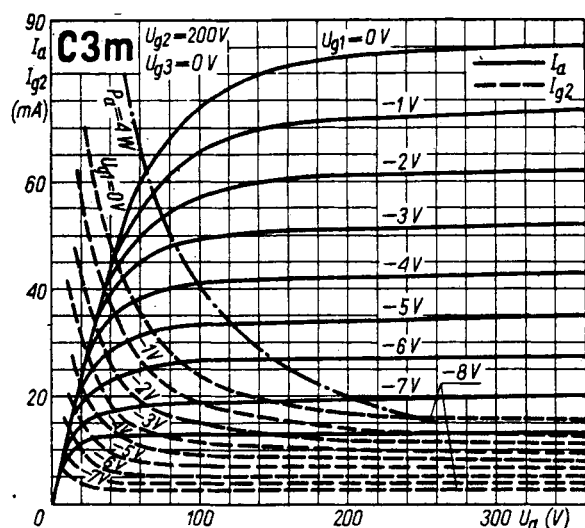
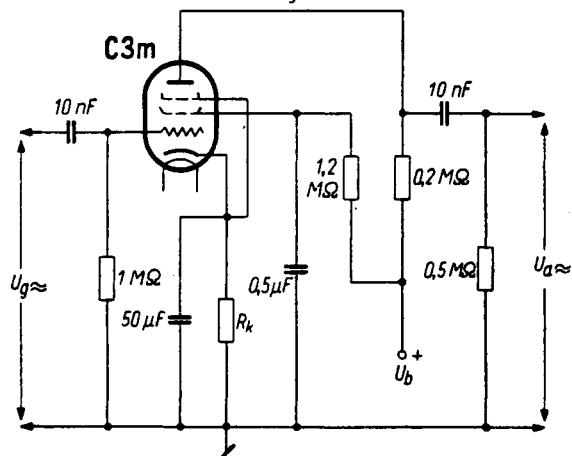


Fig. 2

Fig. 2 ($h = 0,5 \pm 2\%$)

U_b	R_k	I_a	I_{g2}	$U_{a\approx}$	μ
V	kΩ	mA	mA	V	V/V
100	3,0	0,35	0,08	3 ÷ 8	130
200	1,5	0,7	0,15	3,5 ÷ 12	215
250	1,2	0,9	0,18	4 ÷ 17	250
300	1,0	1,1	0,22	6 ÷ 22	270

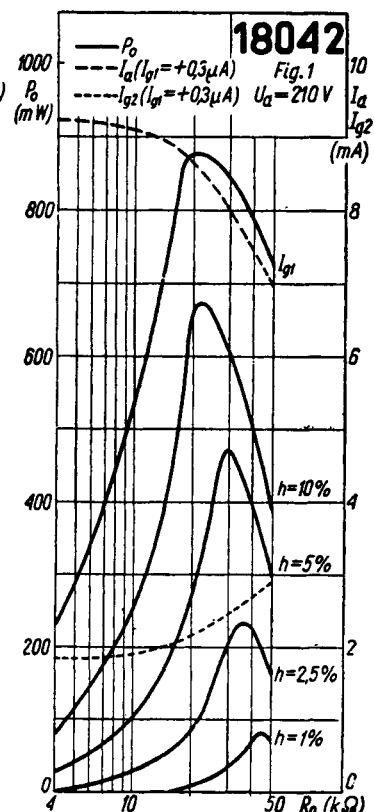
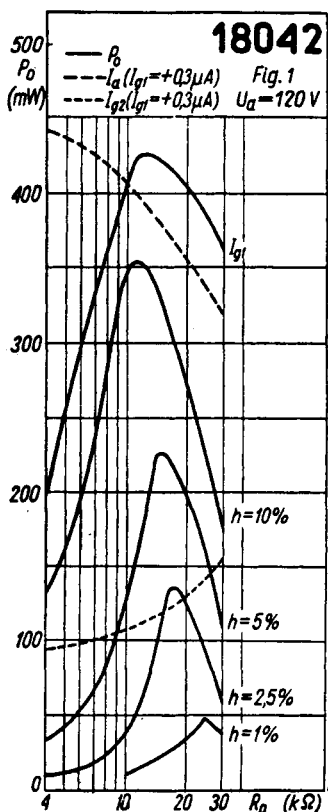
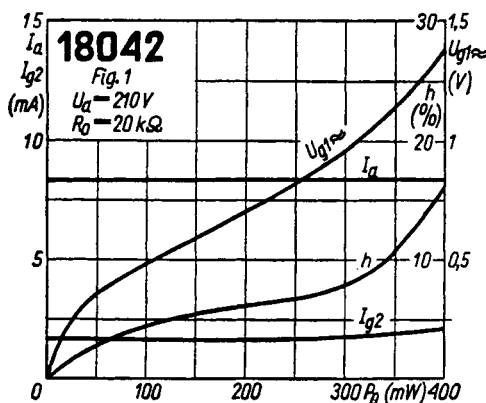
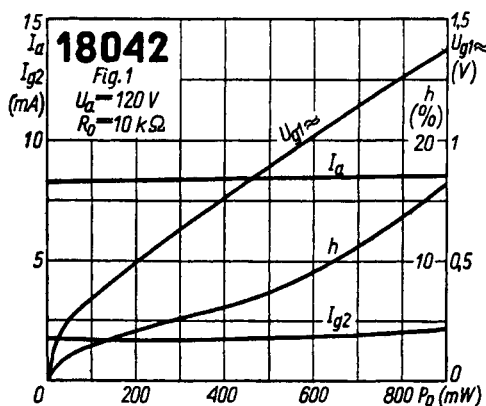
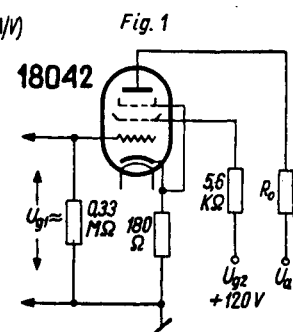
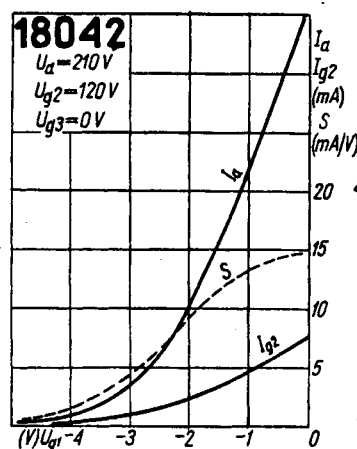
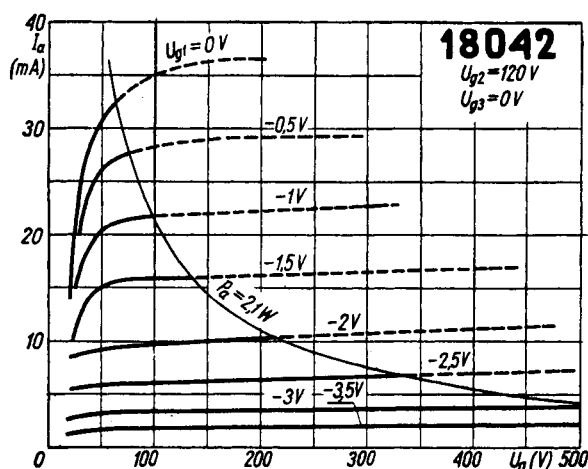
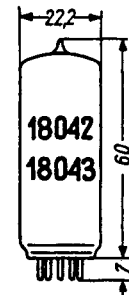
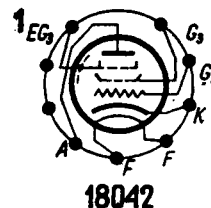
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	R_o	P_o	R_{g1}	$U_{f/k}$	I_k	P_a
			V	A	V	V	V	mA	mA	mA/V	g_m/g_1	k Ω	Ω	k Ω	mW	M Ω	V	mA	W
18042	Phi	I	18	0,1	210	120	-2	10	2,1	9	3,4	500	165	10	340	vide			
18043	Phi	I	6,3	0,3	120	120		8,3	1,7	8,2		420	180	20	660	Fig. 1			
					210	120		8,3	1,7	8,2		440	180				100	16	2,1
maximum ($P_{g2} = 0,35$ W)																			

¹⁾ vide * 4, c = 10.000

Equivalents

E 83 F	eur = 18043
TS 53	Phi = 18042
TS 54	Phi = 18043
6086	int = 18042
6689	int = 18043

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	$C_{f/k}$
	pF	pF	pF	pF	pF
18042	8÷8,7	3,6÷4,2	0,015	0,15	4
18043					



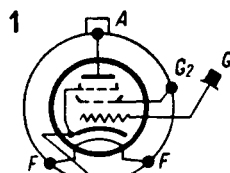
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	g_2/g_1	M Ω	Ω	k Ω	mW	%	V	mA	W	W
PTT 210	Frc	1	18	0,225	200	200	-1,6	10	2,8	8,3	73	0,48	125	7,5	45	5				
PTT 211	Frc	1	6,3	0,6	240	240					maximum						50	15	0,75	3
PTT 212 P	Frc	2	18	0,11	200	200	-1,6	10,5	2	8,5	65	0,5	125	7,5	45	5				
PTT 213 P	Frc	2	6,3	0,31	225	225					maximum						70	15	0,6	2,4

1) vide * 4, $c = 16.000$

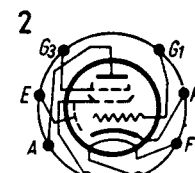
Equivalents

R 142 Frc = PTT 213 P
R 146 Frc = PTT 212 P

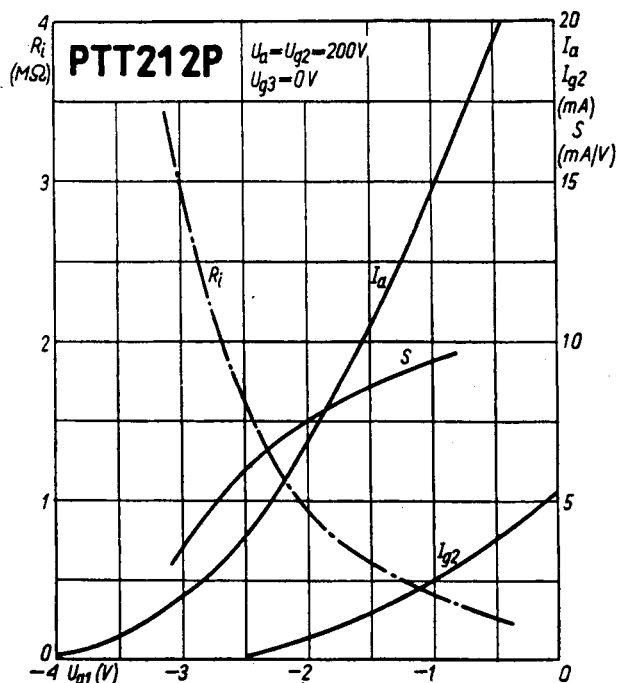
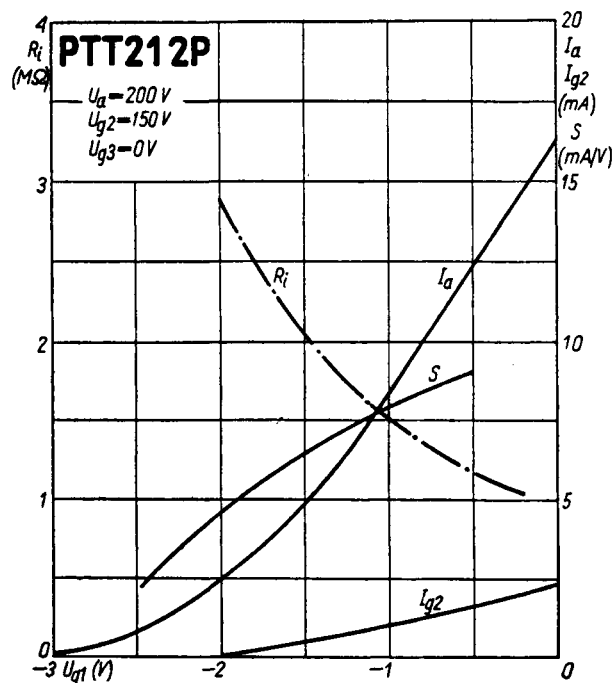
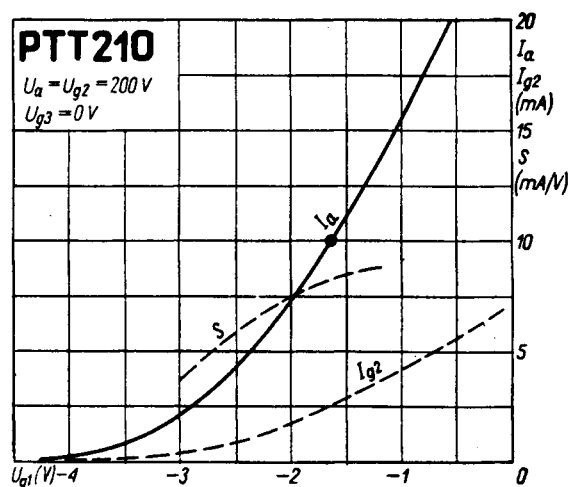
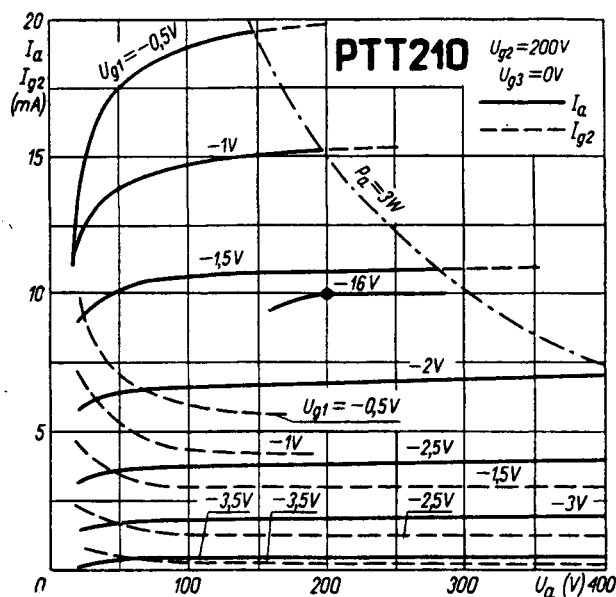
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{f/k}$
	pF	pF	pF	pF
PTT 210	10	4	0,005	
PTT 212 P	7,5	3,7	0,03	4,3

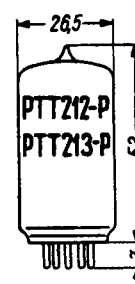
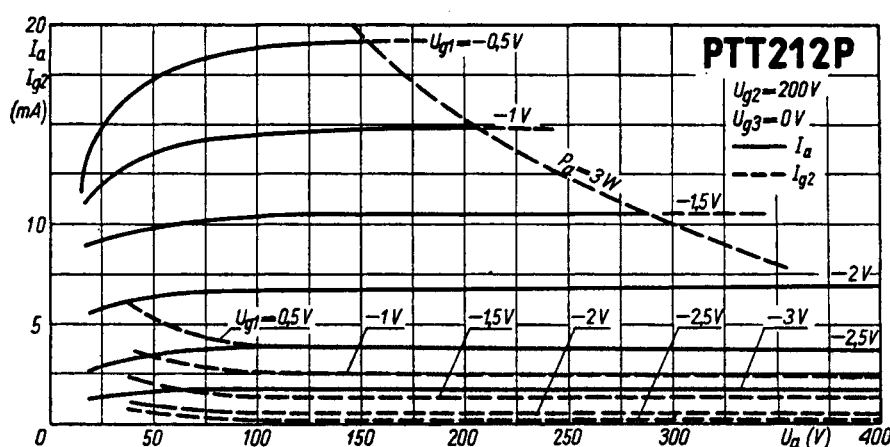
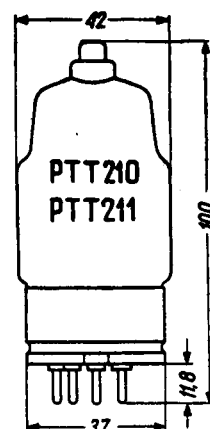
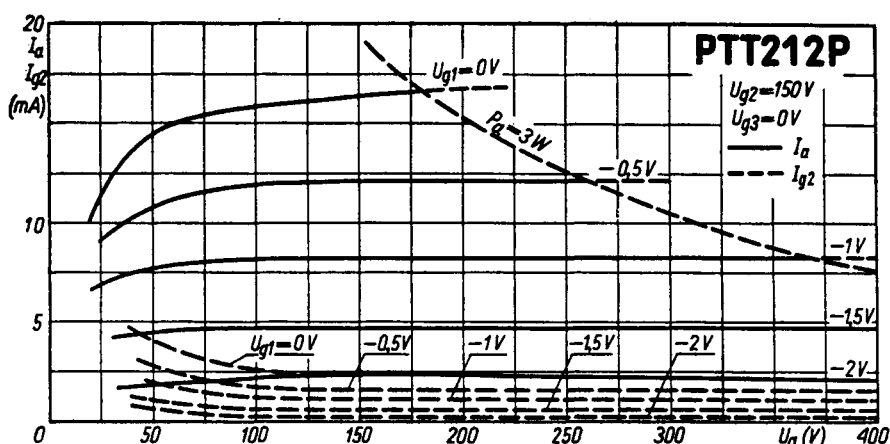


PTT210



PTT212P

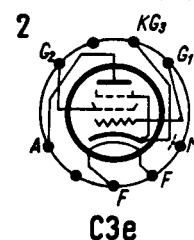
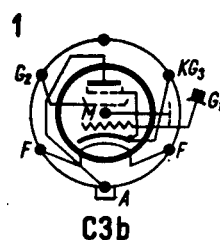
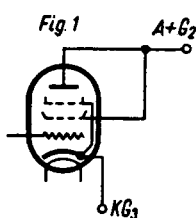


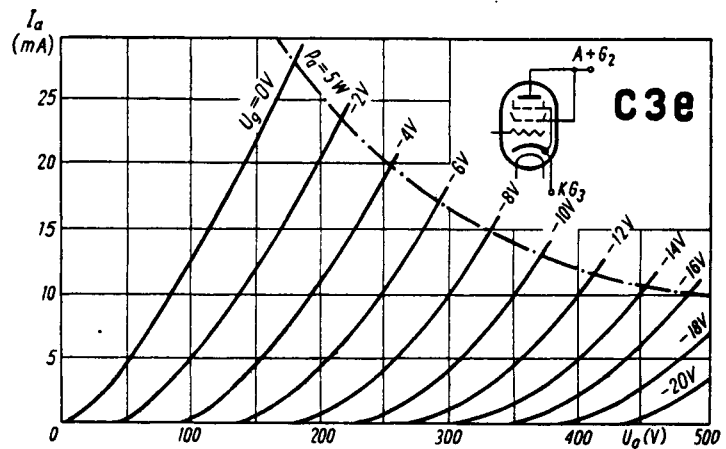
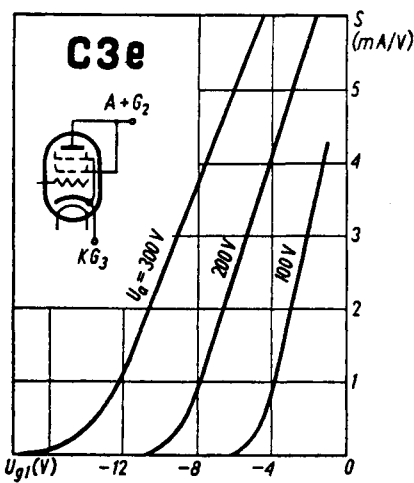
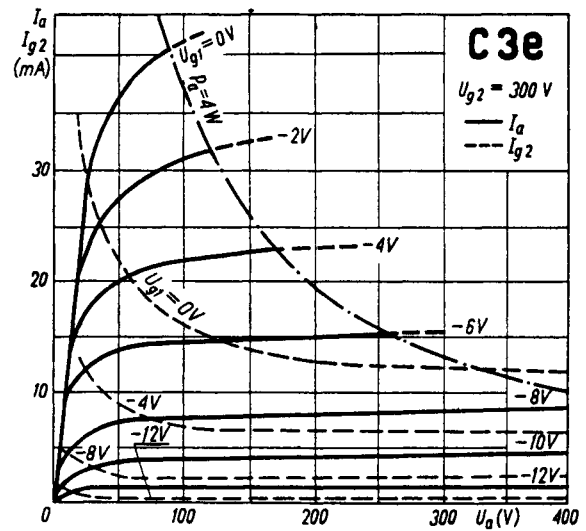
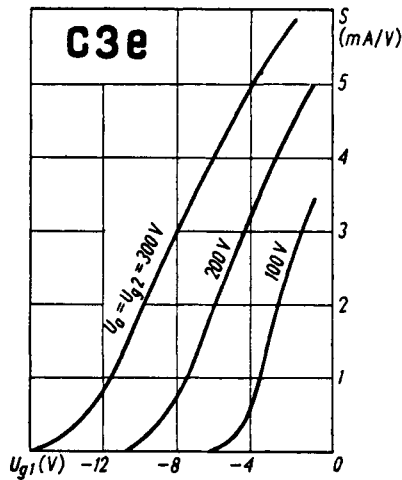
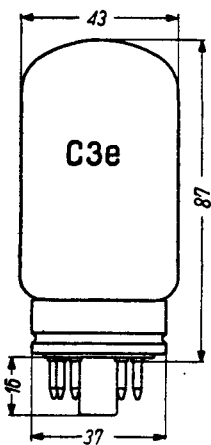
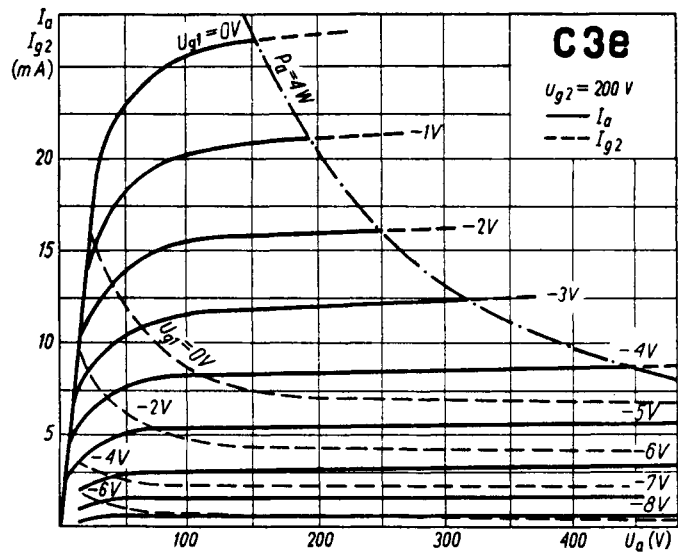
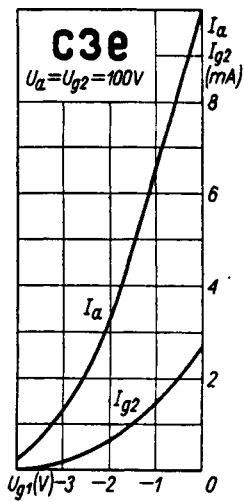
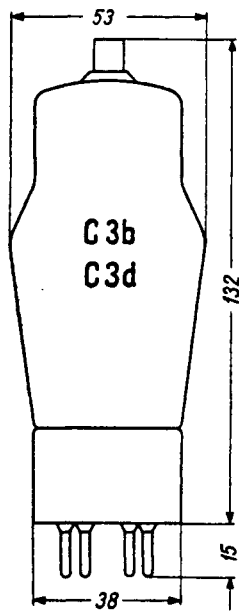


T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t kΩ	μ V/V	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
C 3 b	Grm	1	4	1,1	220 250	150 150	-2	8	3,5	3,5	700		80	45	0,7	4
					100	100	-2	3,5	0,8	2,5	640					
					220	200	-2,5	14	3,8	4,1	350					
C 3 d	Grm	1	18	0,24	300	300	-6,5	13	3,5	3,7	620					
C 3 e	Grm	2	18	0,24	100	—	-2	4,5	—	3,2	8,3	26,4				
					200	—	-4	10,5	—	4,2	6,3	26,6				
					300	—	-7	14,5	—	4,4	5,9	26				
					300	300			maximum				120	45	1,5	4

¹⁾ vide * 4

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
C 3 b	8	15	0,005
C 3 d	8	15	0,005
C 3 e	10	13	0,02





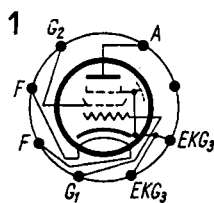
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_{g1}	$U_{f/k}$	I_k	P_{g2}	P_a
			V	mA	V	V	V	mA	mA	mA/V	MΩ	Ω	MΩ	V	mA	W	W
PTT 301 ¹⁾	Frc	1	20	215	80 82	80 82	-1,83	2	0,5 maximum	3,2	0,5	750	0,5	100	2,5		
PTT 302 ²⁾	Frc	1	20	215	80 100	80 100	-1,6	4,5	1 maximum	5	0,2	290	0,5	100	6		
R 126 F ³⁾	Frc	2	18	225	200 225	200 225	-4	6	1,3 maximum	1,7	1	550	1	70	12	0,4	2
10 F I	Eds	4	22	100	190 200 208 250	190 200 208 250	-1,55 -1,8 -1,9	10,3 10 10,1	2,7 2,6 2,65	9,25 9 8,95	0,9			250		1	3,5
6028 ⁴⁾	SER	4	20	50	120 ⁵⁾ 120 180	120 120 140		7,5 9,4	1,9 2,4	5 5,6	0,3 0,25	200 130		90	18	0,5	1,7
18015 ⁶⁾	Phi	5	21	285	125 150	125 150	-2,1	8	2,5	8,3	0,35	200	1	50	13	0,4	1,2

¹⁾ vide *4, c = 100.000 ⁴⁾ vide *4,a,b,c = 10.000, d,e,f,g ($U_f = 20 \text{ V} \pm 5\%$)
²⁾ vide *4, c = 60.000 ⁵⁾ $R_o = 15 \text{ k}\Omega$; $P_o = 325 \text{ mW}$; $U_{g1} \approx 2 \text{ V}$; $h = 12\%$
³⁾ vide *4, c = 10.000

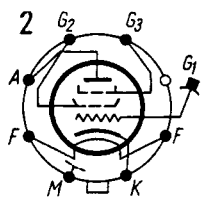
Equivalents

PTT 230	Frc = R 126 F
RTR 4341	SER = 18015
Z 145	Eng = 10 F I
408 A ⁷⁾	amer = 6028

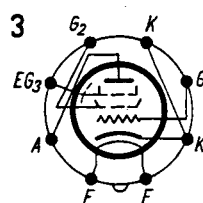
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
PTT 301	10	3,8	0,03
PTT 302	10,6	3,8	0,03
R 126 F	8,5	10	0,02
RTR 4341	18,5	13,5	0,02
10 F I	10,5	6,1	0,0077
6028	4	2,8	0,02
18015	16	10,5	0,02



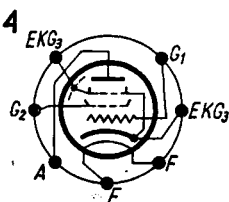
PTT 301



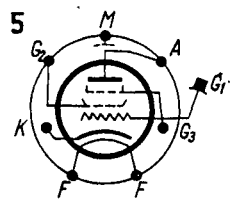
R 126 F



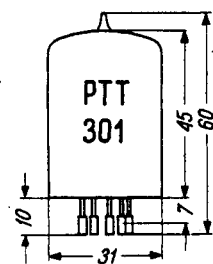
10F1



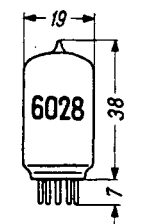
6028



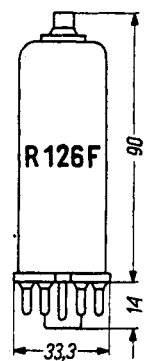
18015



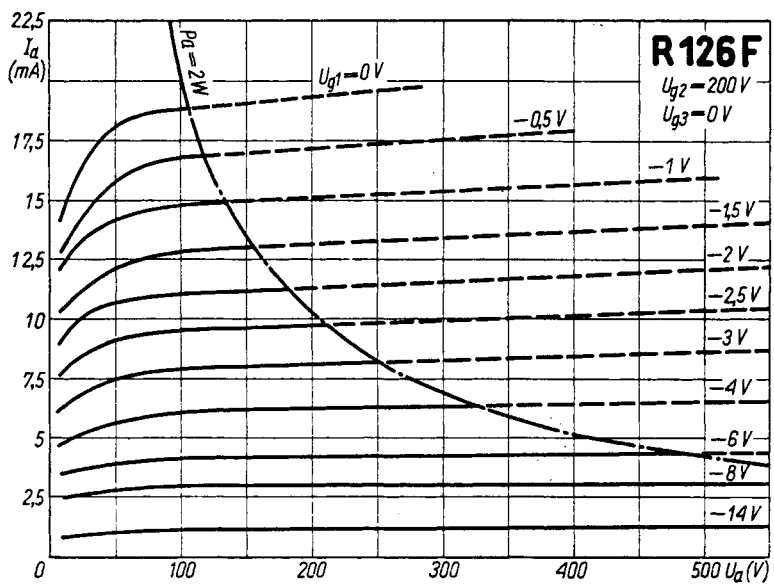
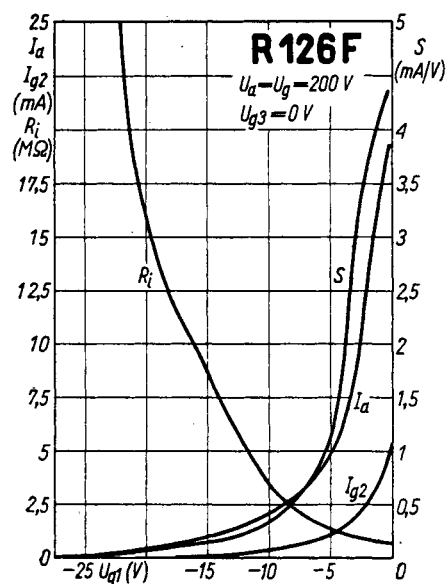
PTT 301

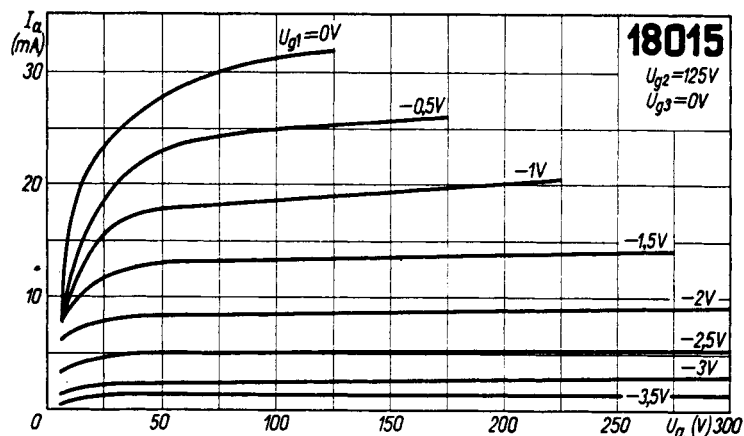
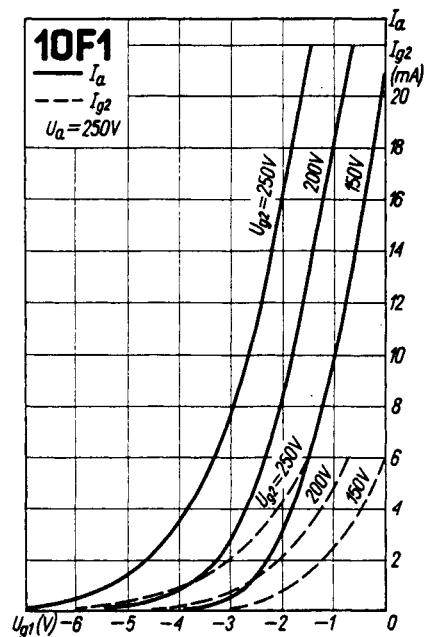
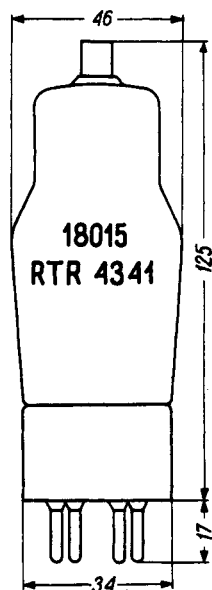
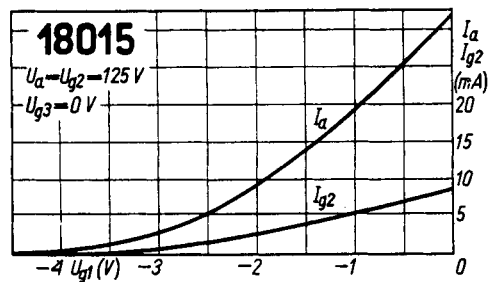
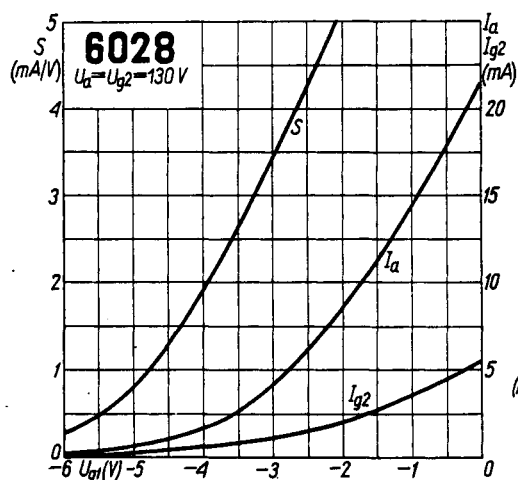
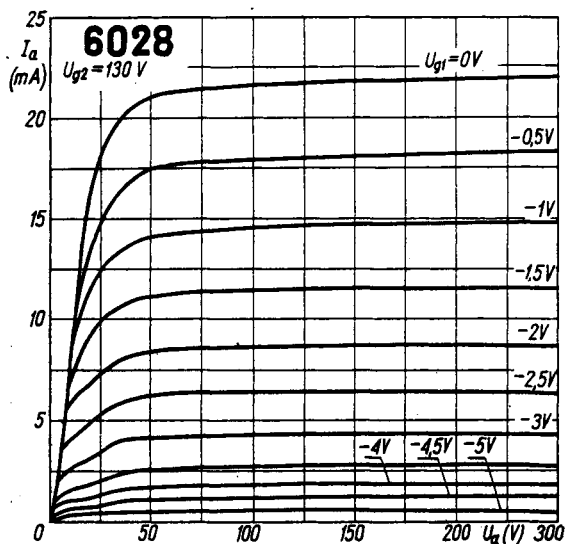
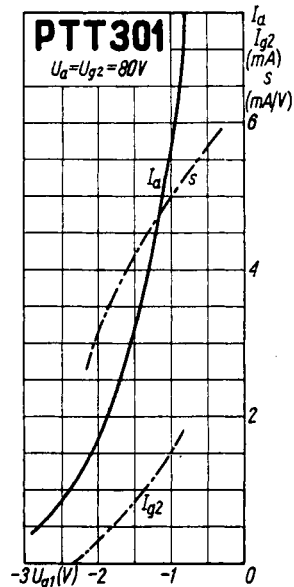
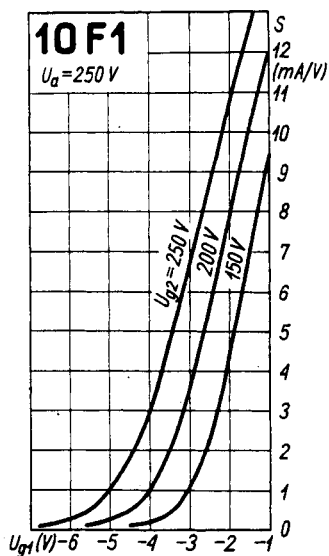
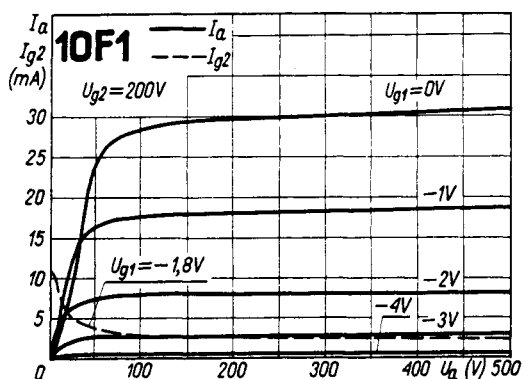


6028



R 126 F





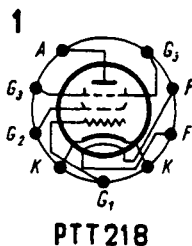
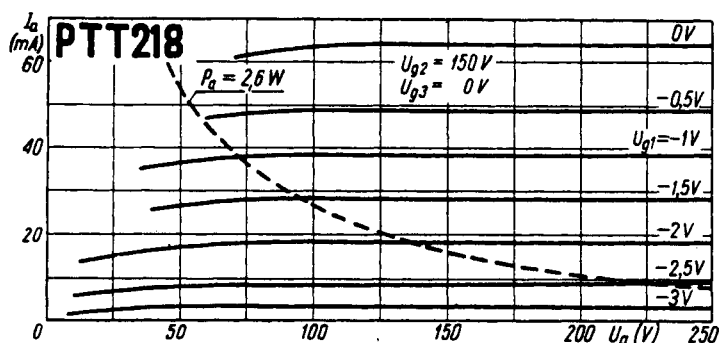
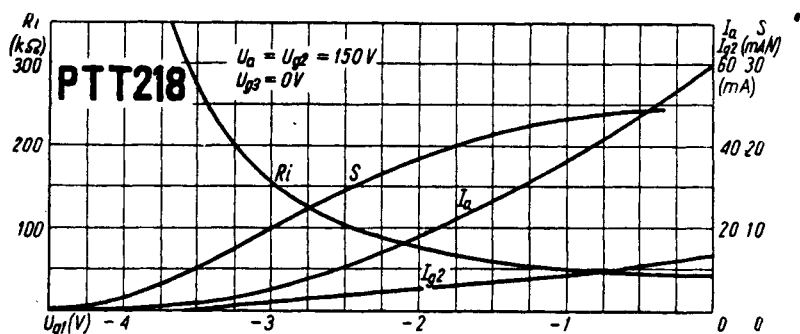
T.			U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	R_k Ω	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
PTT 218	Frc	1	18	105	150	150	-2,2	14	3,3	17	100	120	70	20	0,7	2,6
PTT 244 P	Frc	2	18	140	150	150	-1,5	24	5	27	30	45	70	40	1,3	5,2

¹⁾ vide *4

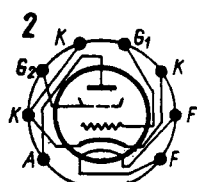
Equivalents

R 165 Frc = PTT 218

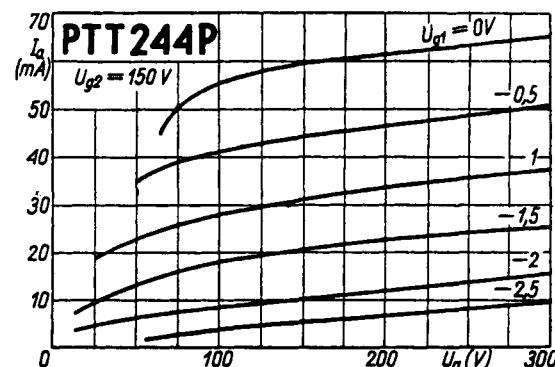
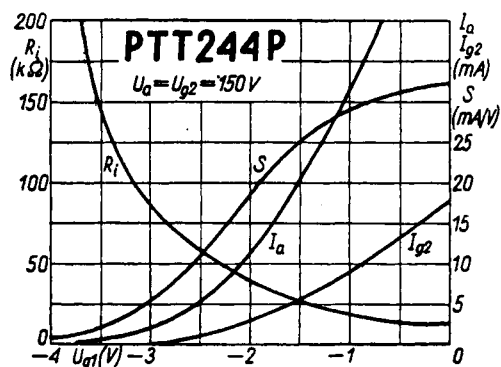
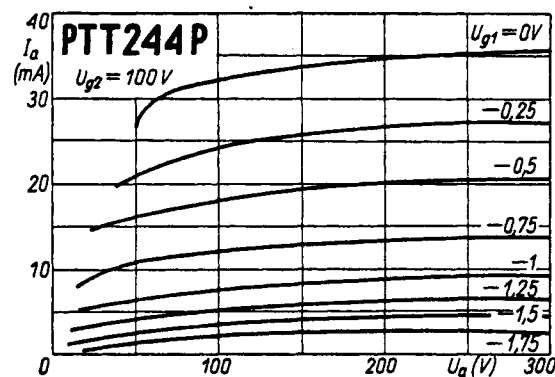
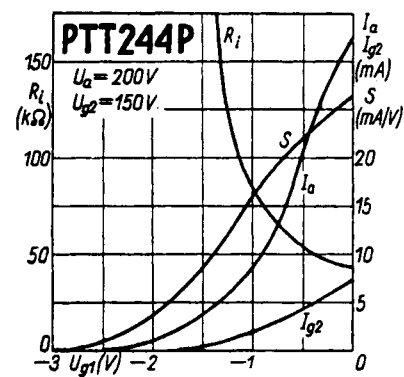
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{f/k}$ pF
PTT 218	8	1,85	0,02	
PTT 244 P	11	3,7	0,007	4



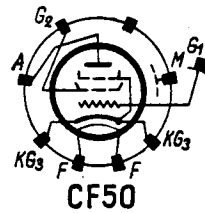
PTT 218



PTT 244P



T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i M Ω	μ g_2/g_1	U_f/k V	I_k mA	P_{g2} W	P_a W
CF 50	eur	30	0,2	100 250 250	100 100 125	-2 -2	1,5 1,5	0,3 0,3	3,3 3,3	2 2,5	45 45	100	10	0,5	1



Equivalents

CF 51	eur
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C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
13	14,5	0,03

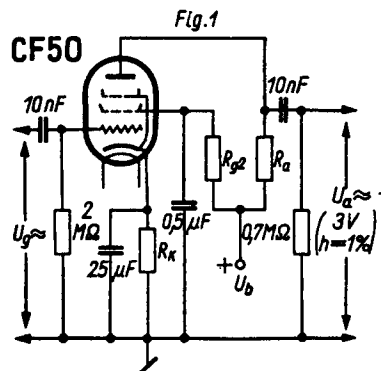
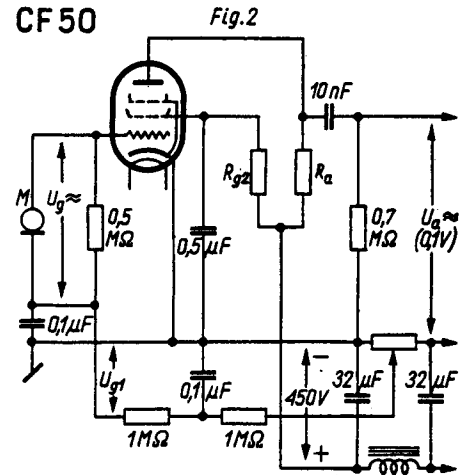
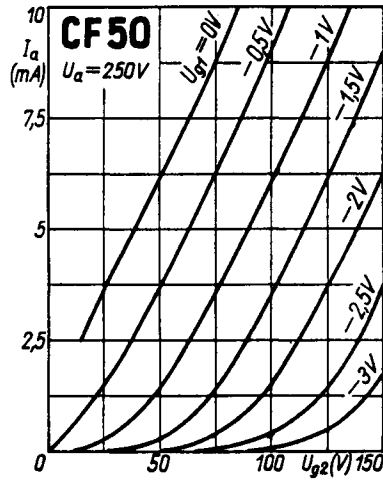
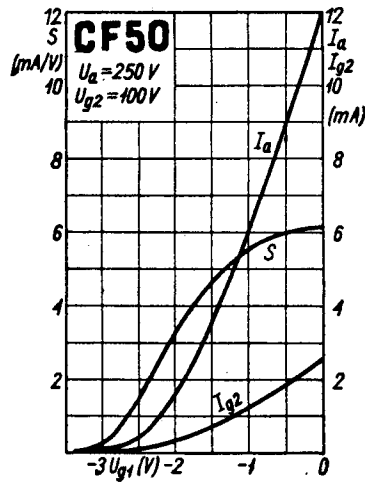
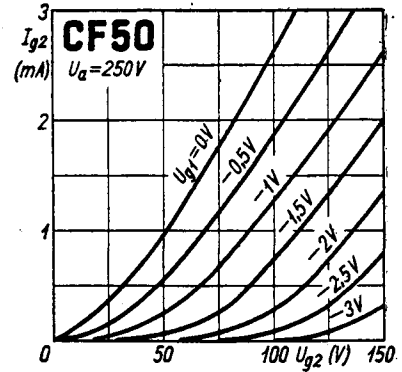
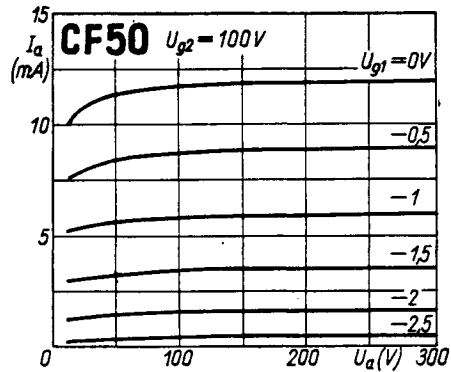


Fig. 1

U_b V	R_a M Ω	R_{g2} M Ω	R_k k Ω	I_a mA	I_{g2} mA	μ V/V
100	0,1	0,28	5	0,3	0,09	140
100	0,2	0,32	5	0,3	0,09	145
100	0,3	0,4	7	0,2	0,07	150
200	0,1	0,56	2,2	0,7	0,19	230
200	0,2	0,64	2	0,7	0,18	245
200	0,3	0,8	3	0,5	0,15	260
250	0,1	0,64	1,8	0,9	0,22	280
250	0,2	0,7	1,8	0,9	0,22	295
250	0,3	0,9	2	0,7	0,18	315

Fig. 2

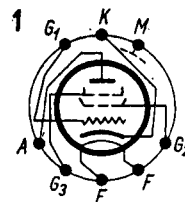
R_a M Ω	R_{g2} M Ω	U_{g1} V	I_a mA	I_{g2} mA	μ V/V	h %
0,1	0,5	-12	0,03	0,01	3	5,0
0,1	0,5	-10	0,25	0,05	90	0,3
0,1	0,5	-2	2,8	0,64	245	0,2
0,2	0,8	-12	0,03	0,01	3	3,0
0,2	0,8	-10	0,18	0,05	45	0,2
0,2	0,8	-2	0,78	0,44	350	0,2
0,3	1,0	-12	0,04	0,02	7	3,0
0,3	1,0	-10	0,22	0,06	90	0,2
0,3	1,0	-2	1,3	0,38	395	0,2

T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	U_f/k	I_k	P_{g2}	P_a
			V	mA	V	V	V	mA	mA	mA/V	MΩ	Ω	V	mA	W	W
UF 14 ¹⁾	Tlf	1	25	100	200	200	—5	12	1,9	7	0,18	350				
VF 14 ¹⁾	Tlf	1	60	50	300	200			maximum				100	30	0,7	5
UF 42 ²⁾	eur	2	21	0,1	170	170	—2	10	2,8	8,5	0,2		150	13	0,7	2,5
					300	300			maximum							
VF 7 ³⁾	eur	3	55	50	200	100	—2	3	1,1	2,1	2	500	125	6	0,3	1
					250	125			maximum							
10 F 3	Eds	2	22	100	200	200	—2,35	6	1,6	6,5						
12 AD 5	amer	4	12,6	100	100	100	—2,5	6	1,75	2,2	0,6					
12 BX 6	amer	13	12,6	150	170	170	—2	10	2,5	7,4	0,4					
12 DT 6	amer	12	12,6	150	150	100		1,1	2,1	0,8	0,15	560				
12 P 1	amer	5	12,6	150	250	100		11	4,2	4,4	1,1	68				
12 P 2	amer	5	12,6	150	250	150		10,6	4,3	5,2	1	68				
14 C 7	amer	6	12,6	150	100	100	—1	5,7	1,8	2,27	0,4	130				
1273	amer	6	6,3	300	250	100	—3	2,2	0,7	1,57	1	100				
					300	100			maximum				90		0,1	1
15 EW 6	amer	12	15	150	125	125		11	3,2	14	0,2	56				
18 F 24	Tes	7	18	165	250	200	—2,1	15	1,9	10,5	0,3	125		20		4
5906 ⁴⁾	amer	8	26,5	45	100	100	—1,5	7,5	2,4	5	0,26		200	16,5	0,55	1,1
					165	155			maximum							
5916 ⁴⁾	amer	9	26,5	45	100	100	—1,15	5,6	4	3,2	0,11	150				
					165	155			maximum				200			1
7056	RCA	10	13,5	150	200	150		9,5	2,8	6,2	0,6	180				
					330	165			maximum				120		0,5	2
7167	amer	11	13,5	90	125	80	—1	10	1,4	8	0,125					

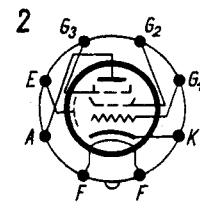
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
UF 14	8	9	0,01
UF 42	8,6	4,3	0,006
10 F 3	9,5	4,4	0,006
14 C 7	6	6,5	0,004
5906	4,2	3,4	0,015
5916	4	3,4	0,02
7056	6,5	2	0,02

Equivalents

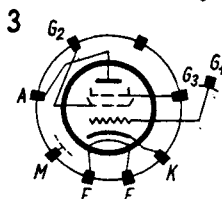
SN 985 B¹⁾ Syl = 5906
 SN 986 B¹⁾ Syl = 5916
 Z 142 Eng = UF 42
 1280 amer = 14 C 7



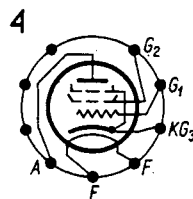
UF14



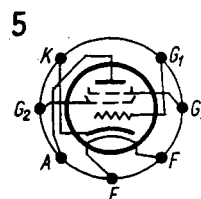
UF42



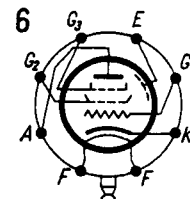
VF7



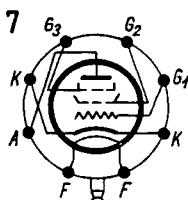
12AD5



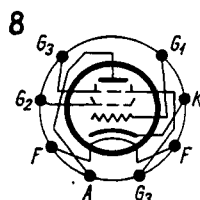
12P1



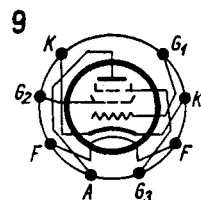
14C7



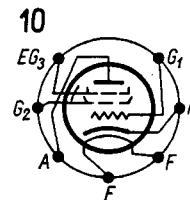
18F24



5906

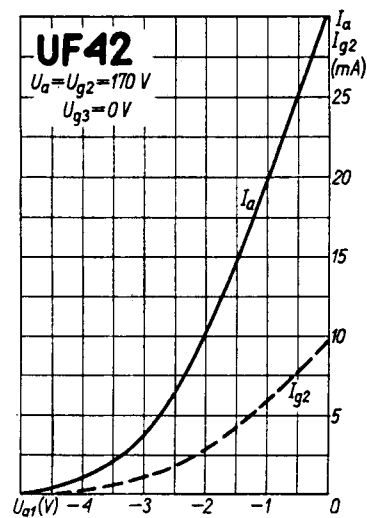
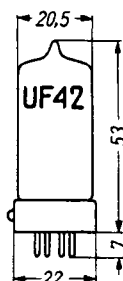
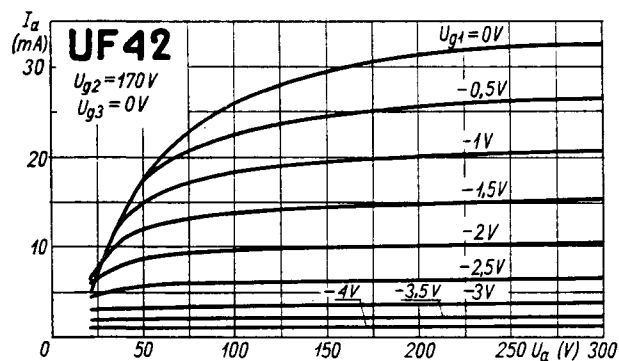
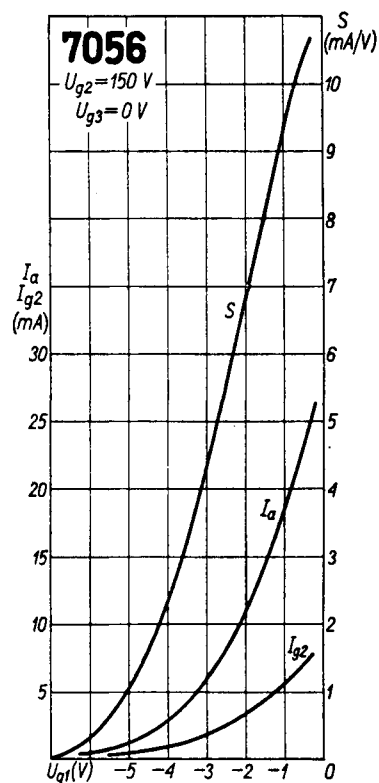
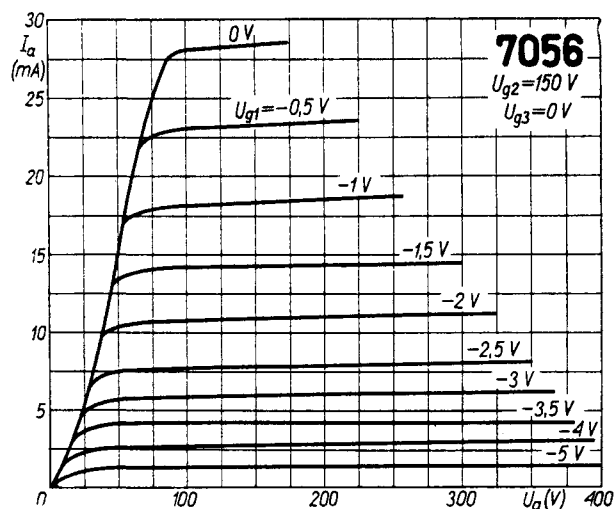
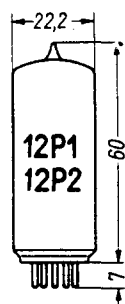
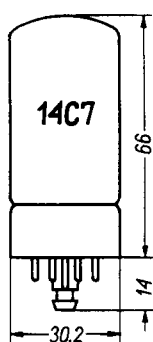
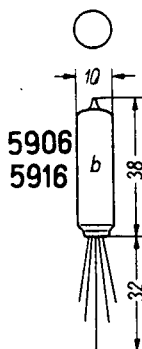
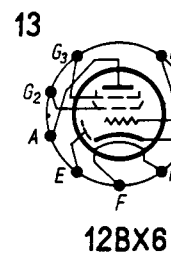
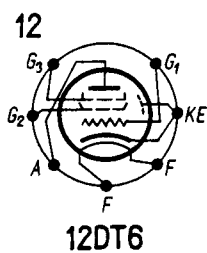
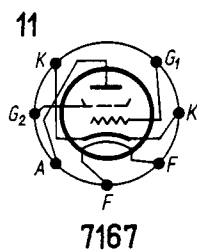
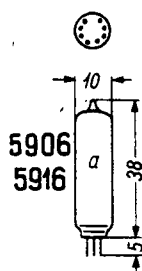


5916



7056

- ¹⁾ vide EF 14, gr. 99; ²⁾ vide EF 42, gr. 100
³⁾ vide EF 7, gr. 79; ⁴⁾ vide EF 732, gr. 89
⁵⁾ vide * 4, a, b, c, d, e, f, g; $U_f = 26,5 \pm 5\%$
⁶⁾ vide * 4, a, b, c, = 5000, e

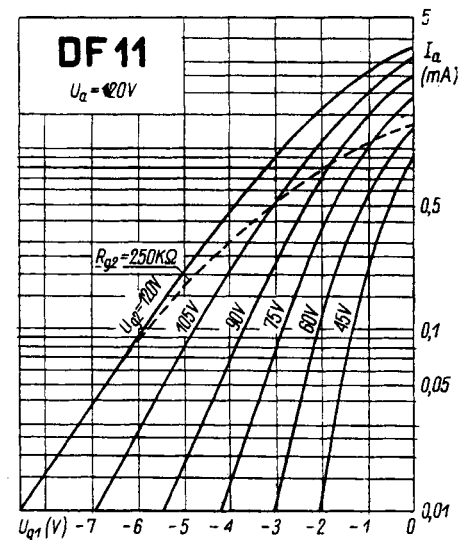
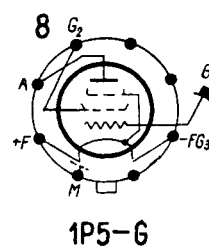
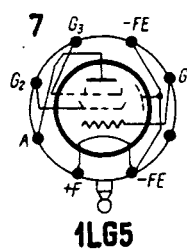
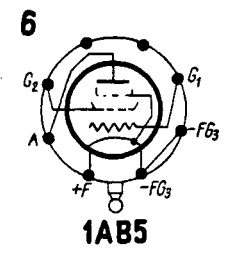
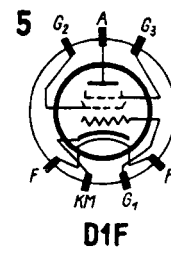
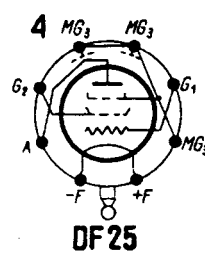
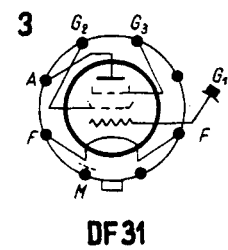
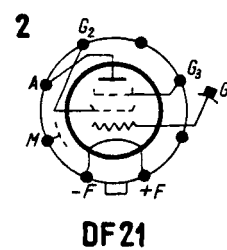
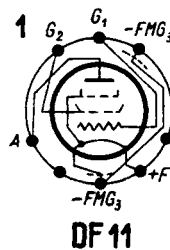
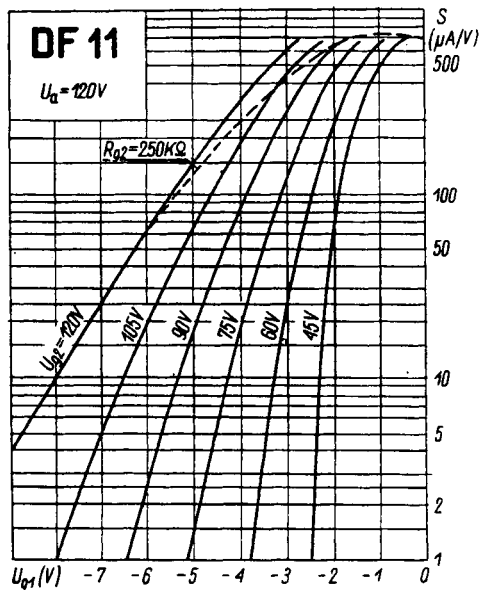


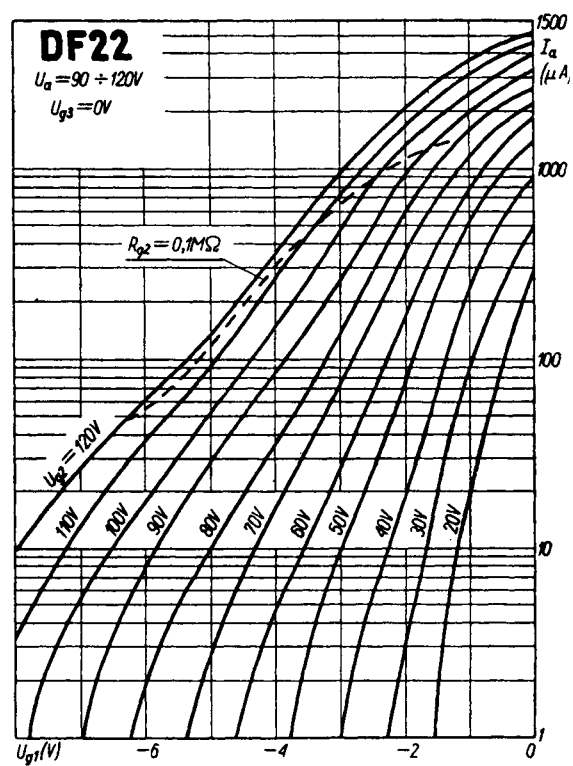
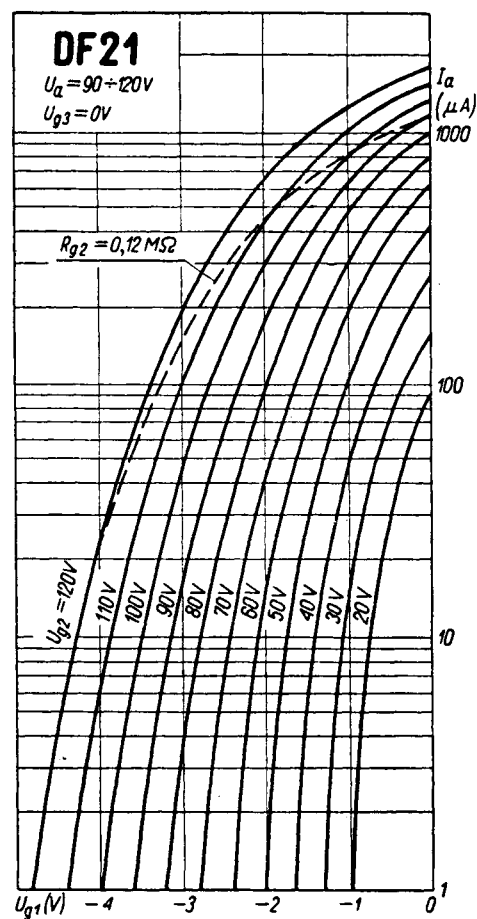
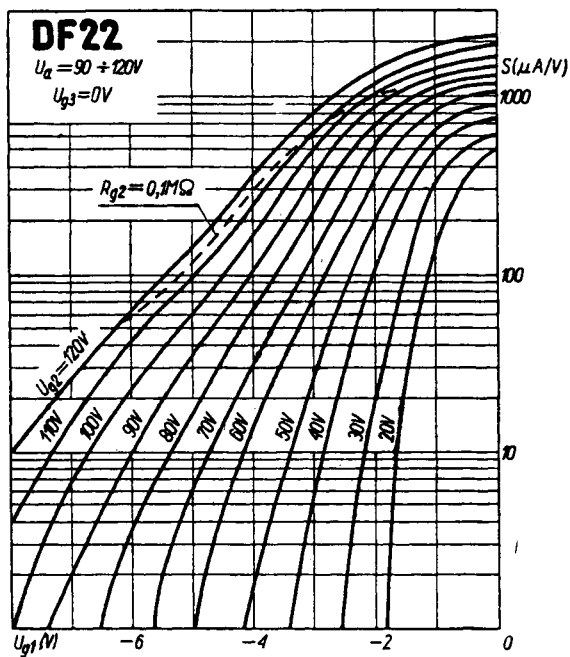
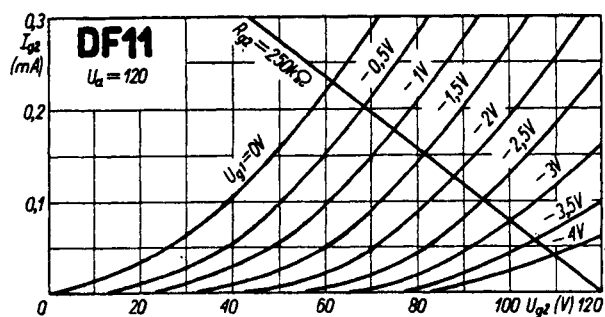
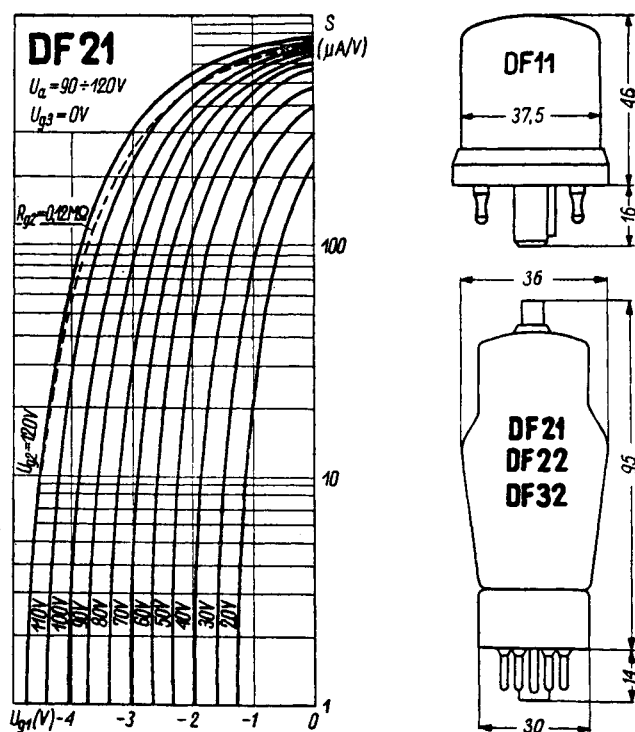
T.			U_f	I_f	$U_a = U_b$	R_{g2}	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_t	R_{g1}	P_{g2}	P_a
			V	mA	V	kΩ	V	V	mA	mA	μA/V	MΩ	MΩ	W	W
DF 11	Tri	1	1,1 ÷ 1,3	25	90 120 150		50 60 150	0 ÷ -2,25 0 ÷ -3,3	0,9 1,2	0,18 0,22	650 ÷ 6,5 700 ÷ 7	1 1		5 0,1	0,5
DF 21	Phl	2	1,1 ÷ 1,5	25	90	120	90	0 ÷ -3,5	1,2	0,25	700 ÷ 7	2			
DF 31	Mul	3	1,1 ÷ 1,5	25	120 135		90 135	0 ÷ -4,5	1,2	0,25	700 ÷ 7	2,5	3	0,1	0,2
DF 22	eur	2	1,1 ÷ 1,5	50	90	100	90	-1,5 ÷ -6	1,4	0,3	1100 ÷ 11	1,5			
DF 32	Mul	3	1,1 ÷ 1,5	50	120 135		90 135	-1,5 ÷ -8	1,4	0,3	1100 ÷ 11	2,5			
DF 25	eur	4	1,2	25	120	270	90	-0,5 ÷ -6,3	1	0,22	630 ÷ 6,3	2,5			
D 1 F	Phl	5	1,4	100	150	50	90	-1,5 ÷ -11	3	1	1800 ÷ 18	0,5			
1 AB 5	amer	6	1,2	130	90 150		90 150	0 ÷ -20 -1,5 ÷ -23	3,5 6,8	0,8 2	1100 ÷ 11 1350 ÷ 13	0,27 0,12			
1 LG 5	amer	7	1,4	50	90 110		90 110	0 ÷ -10 -1,5 ÷ -19	1,7 3,7	0,4 0,9	800 ÷ 10 1150 ÷ 10	1 0,5			
1 LN 5	int	7	1,4	50	90		90	0 ÷ -4,5	1,6	0,35	800 ÷ 10	1,1			
1 P 5-G	amer	8	1,4	50	90		90	0 ÷ -12	2,3	0,7	750 ÷ 10	0,8			

Equivalents

D 11 F	Phl = D 1 F
1 LN 5 E	Bri = 1 LN 5
25 F 1 D	Phl = DF 21
50 F 2 D	Phl = DF 22

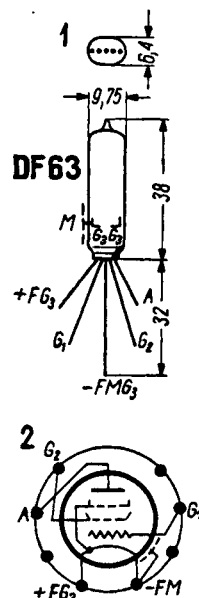
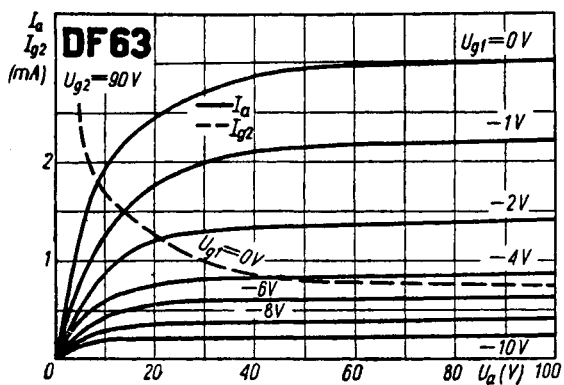
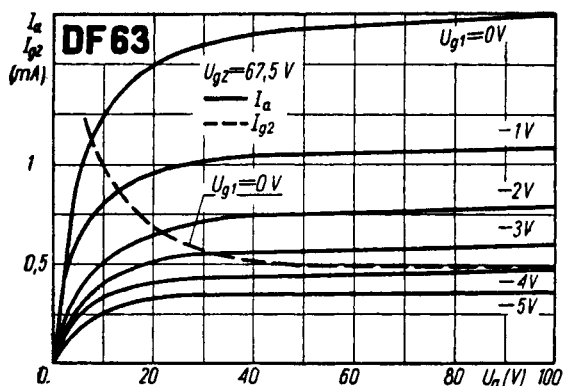
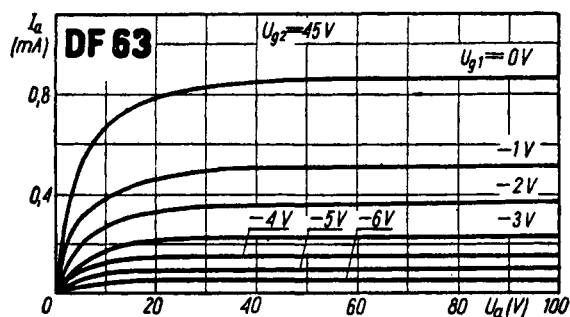
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DF 11	5,4	4,6	0,004
DF 21	5,3	7,1	0,006
DF 22	5	6,8	0,005
DF 31	5,3	7,1	0,006
DF 32	5	6,8	0,005
D 1 F	4,6	5,2	0,005
1 LG 5	3,2	7	0,007
1 LN 5	3	8	0,007
1 P 5-G	3	10	0,007



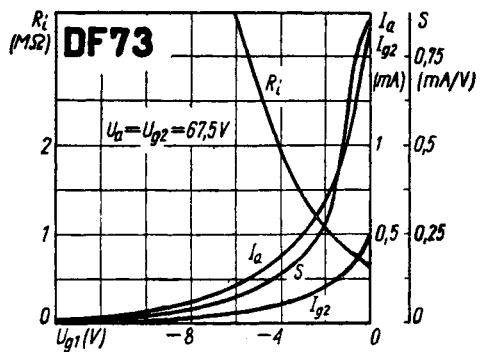
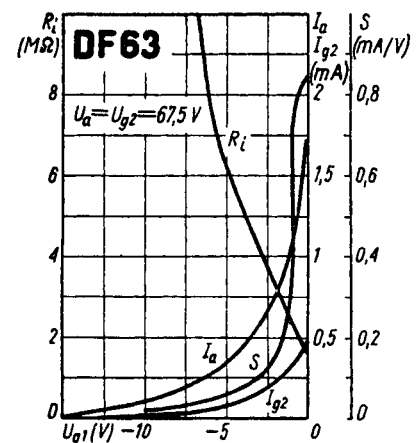
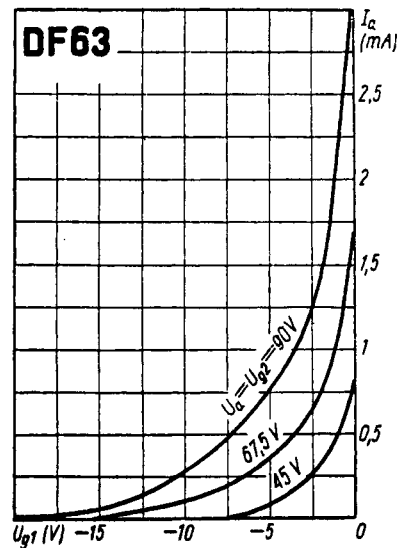
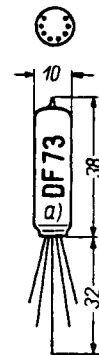


T.			U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S $\mu A/V$	R_i M Ω	μ (g_2/g_1)	I_k mA
DF 63	Mul	1	1,25	25	$\begin{cases} 67,5 \\ 90 \end{cases}$	$\begin{cases} 67,5 \\ 67,5 \end{cases}$	$0 \div -14$	1,7	0,49	$850 \pm 8,5$ maximum	1,6	16	2,5
DF 73	Mul	2	1,25	25	$\begin{cases} 67,5 \\ 90 \end{cases}$	$\begin{cases} 67,5 \\ 90 \end{cases}$	$0 \div -14$	1,7	0,49	$850 \pm 8,5$ maximum	0,65	16	2,5

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	vide
DF 63	3	3,5	0,01	*6
DF 73	2,9	5	0,015	*6



DF 73

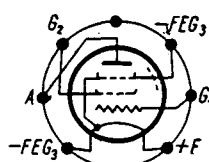


T.		U_f V	I_f mA	$U_a = U_b$ V	R_{g2} k Ω	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S $\mu A/V$	R_i M Ω	μ (g_2/g_1)	I_k mA	P_{g2} W	P_a W
DF 96	eur	1,3 ÷ 1,4	25	45	0	45	0 ÷ -2,95	0,85	0,28	650 ÷ 10	1	18			
				64	0	64	0 ÷ -4,1	1,65	0,55	850 ÷ 10	0,7	18			
				85	39	64	0 ÷ -5,5	1,65	0,55	850 ÷ 10	1	18			
				120		90							2,2	0,1	0,25
								maximum $R_{g1} = 3 \text{ M}\Omega$							

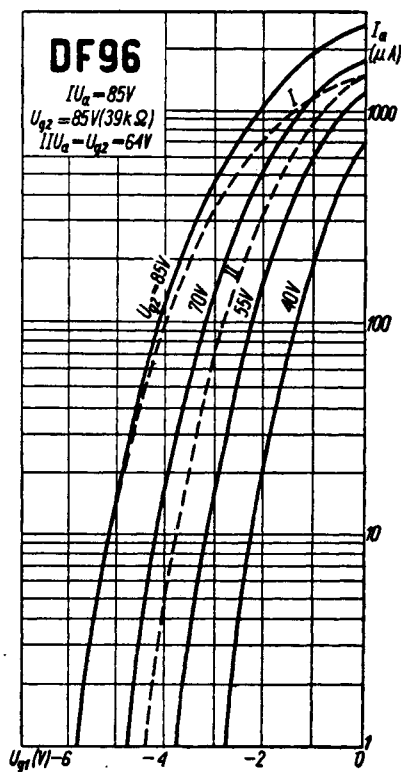
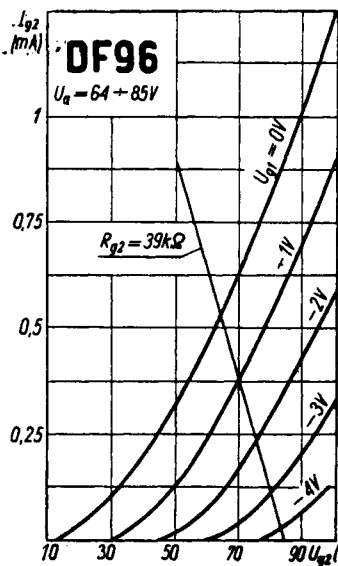
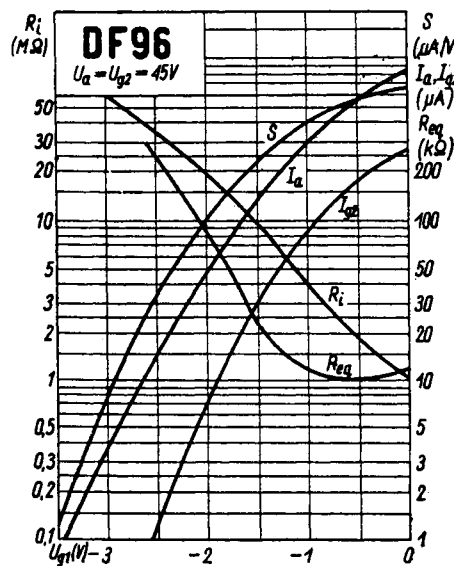
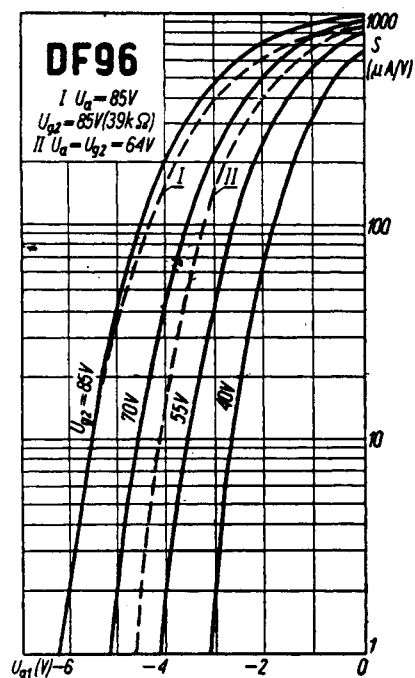
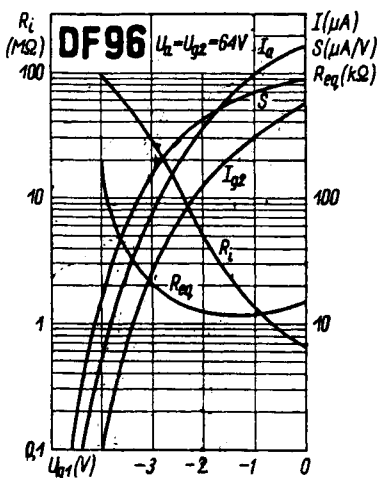
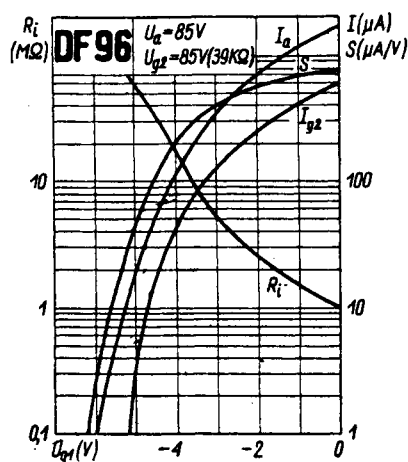
Equivalents

W 25	Eng
I A J 4	amer
I F I	Eds

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
3,3	7,8	0,01



DF96

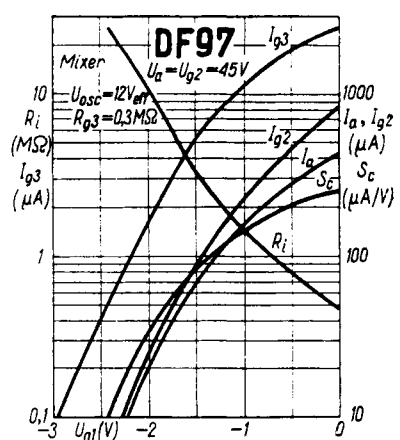
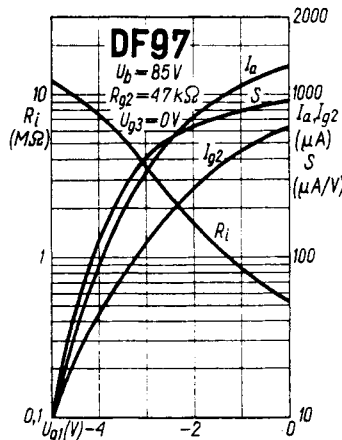
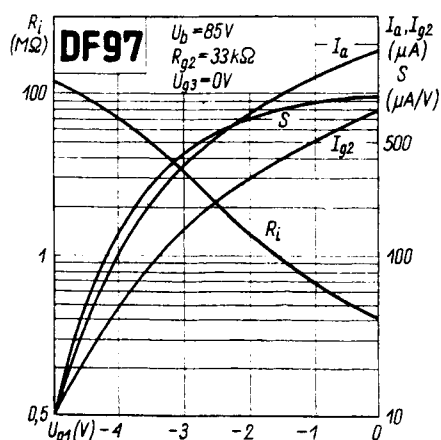
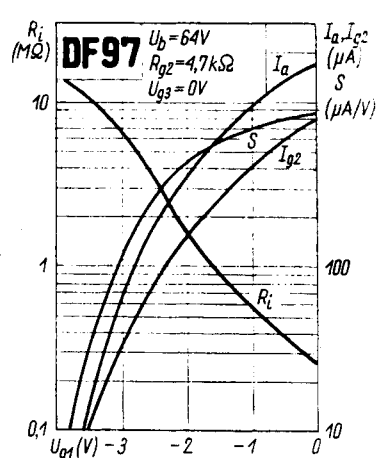
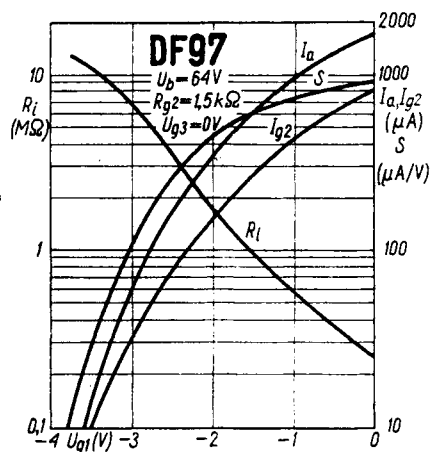
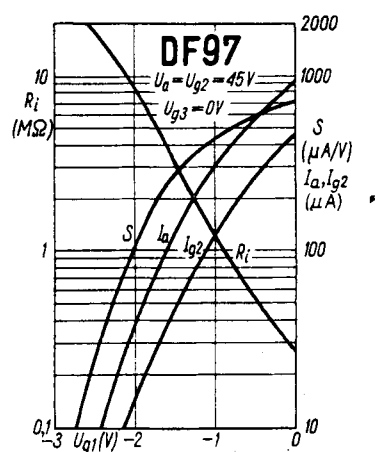
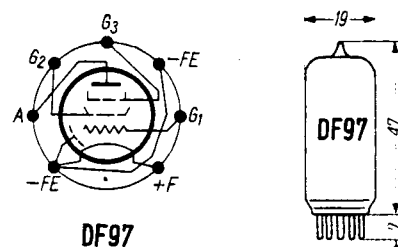
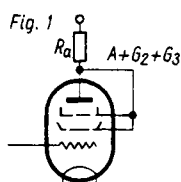


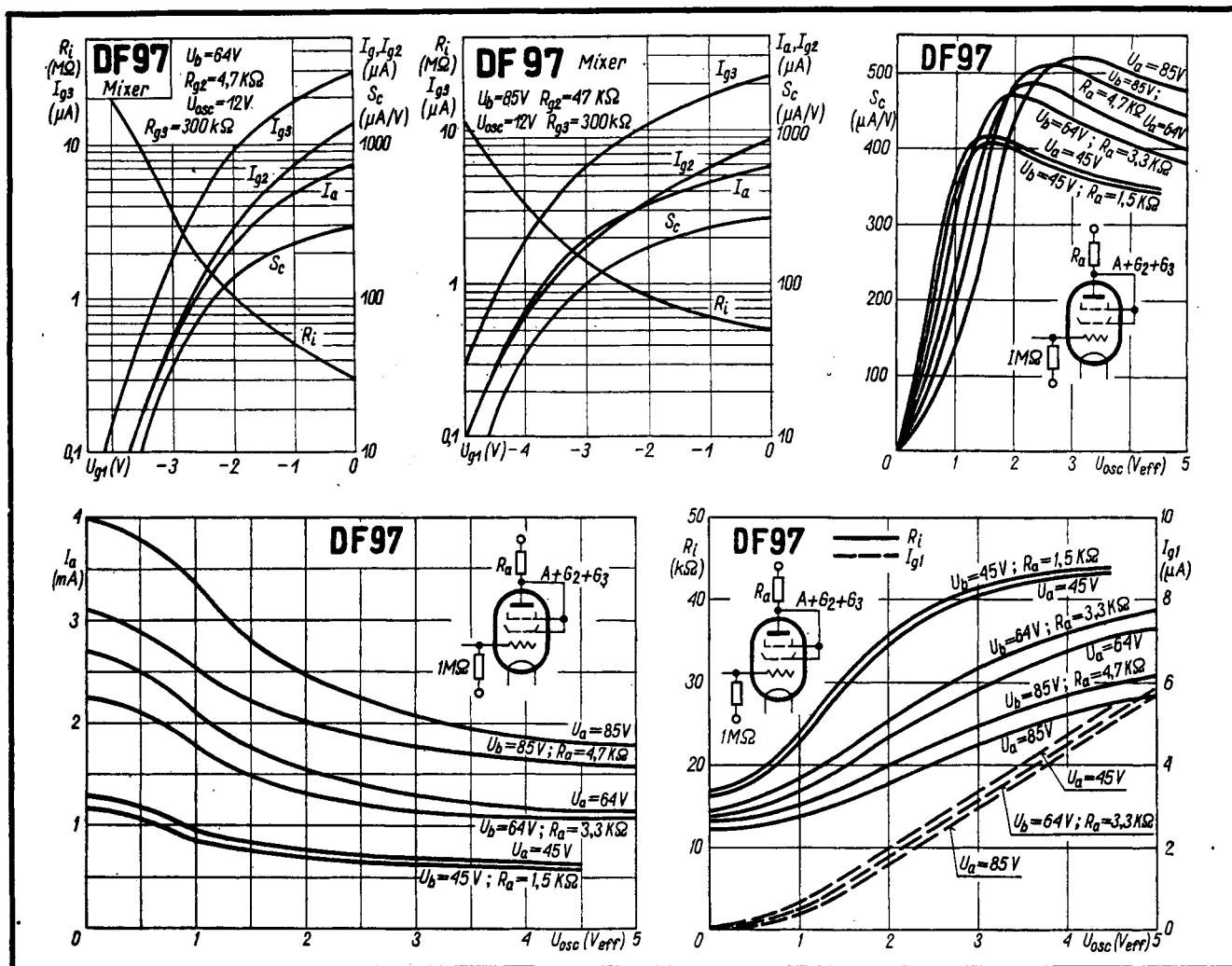
T.		U_f	I_f	Cl.	$U_a = U_b$	$R_{g2}(R_a)$	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	$S(S_c)$	R_i	μ	U_{osc}	I_{g1}
		V	mA		V	k Ω	V	V	V	mA	mA	$\mu A/V$	k Ω	(g_2/g_1)	V	mA
DF 97	eur	1,3÷1,4	25	{ A(ξ) Mixer $R_{g3} = 0,3 M\Omega$ Mixer Fig. 1 $R_{g1} = 1 M\Omega$	45	0	45	0	0 ÷ -2,7	0,9	0,445	700÷10	280	20		
					64	4,7	61	0	0 ÷ -3,8	1,6	0,725	870÷10	270	20		
					64	1,5	63	0	0 ÷ -3,8	1,7	0,780	880÷10	250	20		
					85	47	57	0	0 ÷ -5	1,5	0,595	900÷10	525	20		
					85	33	62	0	0 ÷ -5	1,7	0,7	940÷10	450	20		
					45		45		0 ÷ -2,4	0,42	0,795	(250÷10)	490		12	
					64	4,7	58		0 ÷ -3,5	0,67	1,25	(280÷10)	300		12	
					85	47	47		0 ÷ -4,6	0,54	0,8	(265÷10)	500		12	
					45	(0)				0,73		(405)	34		2	2
					45	(1,5)				0,7		(400)	35		2	2
					64	(0)				1,3		(465)	29		3	3,1
					64	(3,3)				1,2		(460)	28,5		2,5	2,5
					85	(0)				1,9		(500)	26		4	4,4
					85	(4,7)				1,7		(490)	26,5		3,5	3,8
					120		90	maximum $I_k = 2,5$ mA; $P_{g2} = 0,15$ W; $P_a = 0,25$ W								

Equivalents

C_{g1}	C_a	C_{g3}	$C_{g1/a}$	$C_{g1/g3}$	$C_{g1/g2}$	
pF	pF	pF	pF	pF	pF	
3,7	7,5	5,2	0,01	0,1	2,5	pentod. triod.
1,1	8,1		2,6			

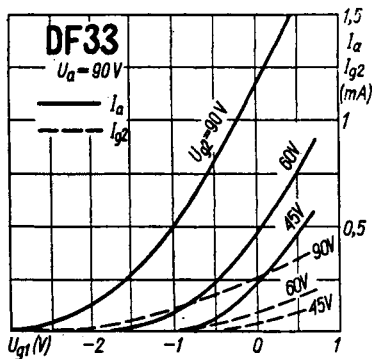
1 AN 5 amer



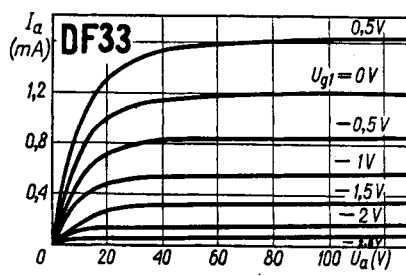


T.		U_f V	I_f mA	U_a V	U_{g1} V	U_{g2} V	I_a mA	I_{g2} mA	S $\mu A/V$	R_i M Ω	μ (g_1/g_2)	I_k mA	P_{g2} W	P_a W
DF 33	eur	1,1 ÷ 1,5	50	90 110	90 110	0 ÷ -4	1,2	0,3	750 ÷ 5 maximum $R_{g1} = 2M\Omega$	1,5	27	6,5	0,04	0,2

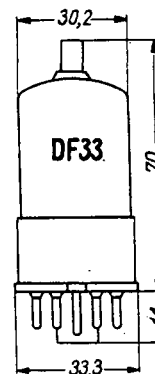
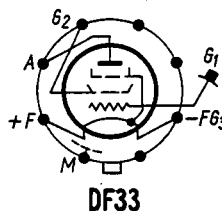
Equivalents



Z 14	Eng	I N 5-VG	Cos
I N 5-G	amer	I R	Fiv
I N 5-GT	amer		



C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
3,8	9,5	0,007

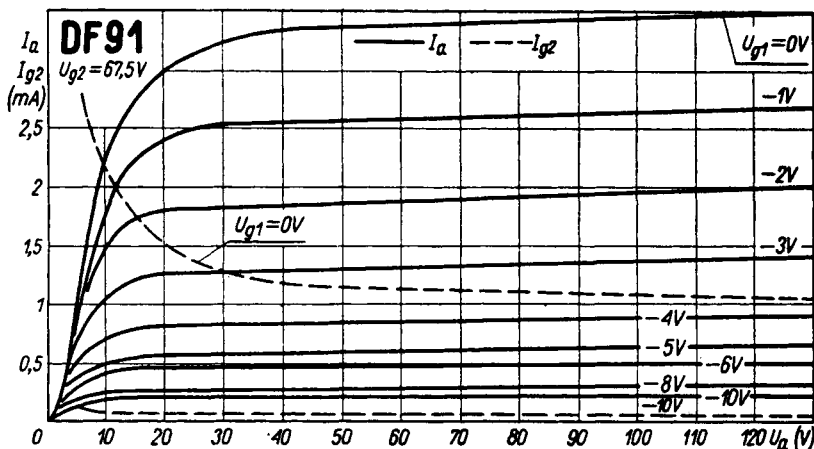
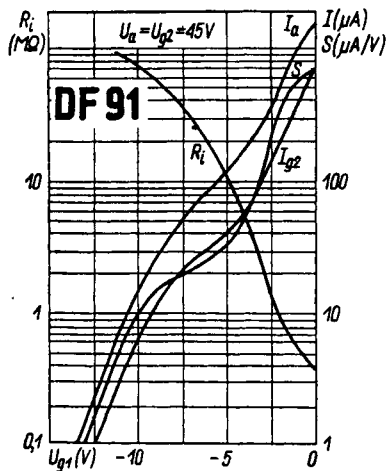
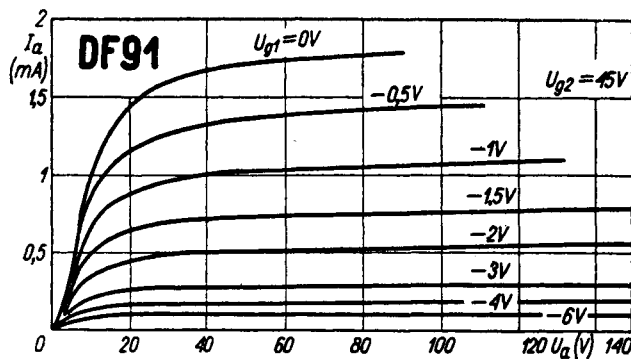
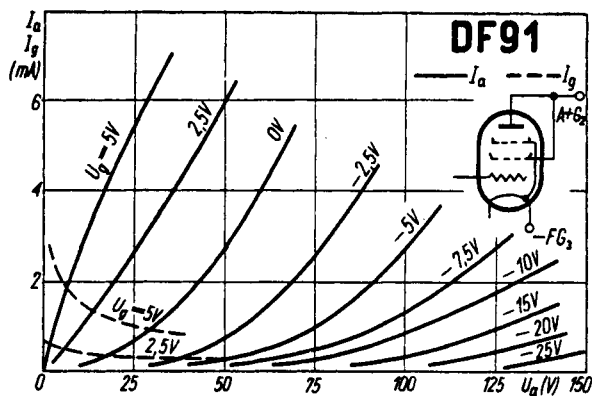
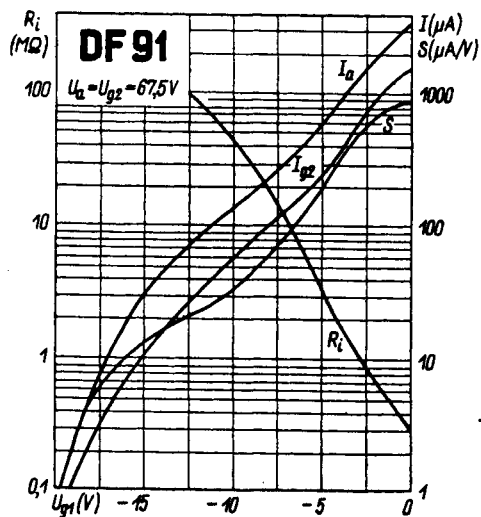
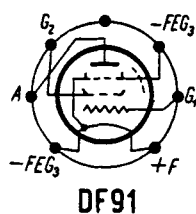
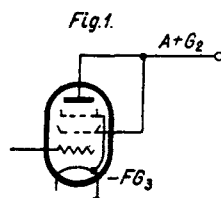


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	I_k	P_{g2}	P_a
			V	mA	V	V	V	mA	mA	$\mu A/V$	k Ω	g_2/g_1	mA	W	W
DF 91	eur	I	1,3 ÷ 1,6	50	45	45	0 ÷ -10	1,7	0,7	700 ÷ 10	350	(11)			
I F 33	Tes	I	1,4	25	67,5	67,5	0 ÷ -16	3,4	1,5	875 ÷ 10	250	(11)			
I K I II	CCCP	I	0,95 ÷ 1,4	60	90	45	0 ÷ -10	1,8	0,65	750 ÷ 10	800	(11)			
I K 2 II	CCCP	I	0,95 ÷ 1,4	30	90	67,5	0 ÷ -16	3,5	1,4	900 ÷ 10	500	(11)			
					90	67,5	maximum	4,2	—	$R_{g1} = 3 M\Omega$			5,5	0,11	0,35
					90	—	-2,5	—	—	1100	8	11			vide Fig.1

Equivalents

DF 191	RFT = DF 91
DF 961	RFT = I K I II
W 17	Eng = DF 91
I F 3	Eds = DF 91
I F 34	Tes = I K 2 II
I T 4	amer = DF 91
I T 4 T	TuM = I F 33

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DF 91	3,6	7,5	0,01
DF 191	5	10	0,01
I K I II	3,5	7,5	0,01
I K 2 II	3	4,9	0,01

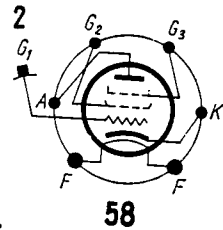
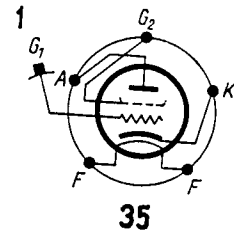


T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t MΩ
35	amer	1	2,5	1,75	$\begin{cases} 90 \\ 250 \end{cases}$	90	$-3 \div -40$	6,3	2,5	$1,02 \div 0,015$	0,3
58 ¹⁾	int	2	2,5	1	$\begin{cases} 100 \\ 250 \end{cases}$	100	$-3 \div -50$	8	2,2	$1,5 \div 0,002$	0,25
						100	$-3 \div -50$	8,2	2	$1,6 \div 0,002$	0,8

¹⁾ vide 6 U 7-G gr. 135

Equivalents

A 258	Vis = 58	35 S	amer = 35	58 AS	amer = 58	335	amer = 35
EY 635	amer = 35	35 S/51 S	amer = 35	58 S	amer = 58	351	amer = 35
G 35	amer = 35	35/51	amer = 35	135	amer = 35	551	amer = 35
G 551	amer = 35	51	amer = 35	151	amer = 35	551 S	amer = 35
T 35	amer = 35	51 S	amer = 35	235	amer = 35		
UY 235	amer = 35	58 A	amer = 58	251	amer = 35		



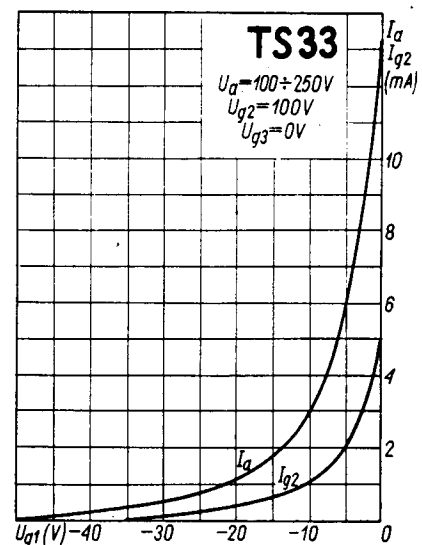
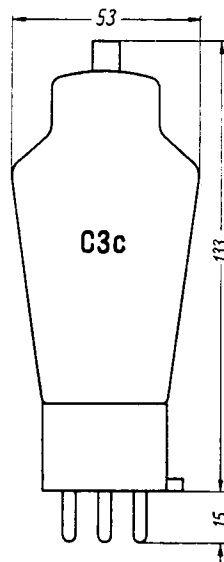
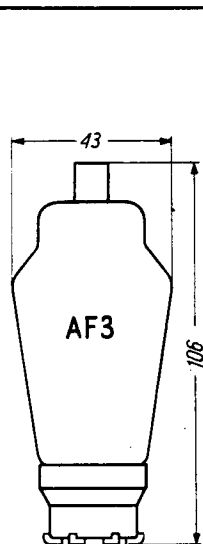
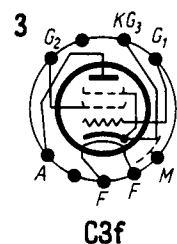
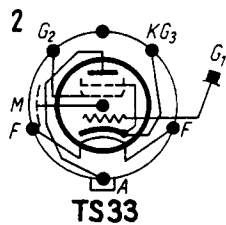
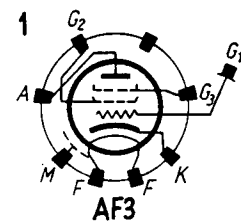
T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t MΩ	U_f/k V	I_k mA	P_{g2} W	P_a W
AF 3	eur	1	4	0,65	250	100	$-3 \div -55$	8	2,6	$1,8 \div 0,02$	1,2				
TS 33 ¹⁾	Phl	2	4	1,1	250	125	maximum					80	15	0,3	2
C 3 c ¹⁾	Grm	2	4	1,1	220	100	$-2 \div -20$	$10 \div 0,8$	$4 \div 0,3$	$2,6 \div 0,13$	0,65				
C 3 f ¹⁾	Grm	3	18	0,24	250	100	maximum					80	45	1	4

¹⁾ vide * 4

Equivalents AF 3

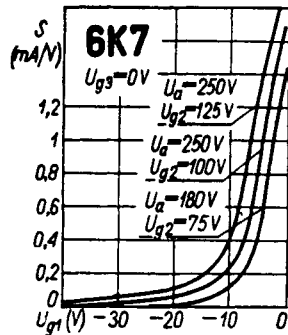
A4-AMS 3	Cas	UAF 3	Ult
HPS 4 A	Mul	VAF 3	Vat
NEP 51	Sat	WE 33	Tlf
S 423	Tri	4 AA	Ult
TAF 3	Tri	4 F 3	TKD
TF 3	Dar		

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
AF 3	6,6	7,6	3
C 3 c	9	14	0,01
C 3 f	10	13	0,02



T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g1}	S	R_i	R_k	$U_{f/k}$	P_{ga}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	V	W	W
6 K 7	int	1	6,3	0,3	26	26	0	-0,5 ÷ -20	1,25	0,35	0,8 ÷ 0,002	0,27				
6 R 6-G	amer	2	6,3	0,3	100	100	0	-1 ÷ -38,5	9,5	2,7	1,65 ÷ 0,002	0,15				
9 D 2	Bri	3	13	0,2	180	75	0	-3 ÷ -32,5	4	1	1,1 ÷ 0,002	1	600			
11 K 7	amer	1	11	0,15	250	100	0	-3 ÷ -42,5	7	1,7	1,45 ÷ 0,002	0,8	330			
12 K 7-G	int	1	12,6	0,15	250	125	0	-3 ÷ -52,5	10,5	2,6	1,65 ÷ 0,002	0,6	220			
24/78	Eds	4	24	0,08	250	—	—	—	—	—	0,7	0,012		(Fig. 1)		
78	int	4	6,3	0,3	300	125	—	—	—	—	—	—		90	0,35	2,75

Equivalents



AG 78	amer = 78
G 78	amer = 78
T 78	amer = 78
6 K 7 E	CCCP = 6 K 7
6 K 7-G	int = 6 K 7
6 K 7-GT	int = 6 K 7
6 K 7-GTX	amer = 6 K 7
78 E	Bri = 78
17	amer = 78
278	amer = 78
5732	amer = 6 K 7

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 K 7	7	12	0,005
6 K 7-G	5	12	0,007
6 K 7-GT	4,6	12	0,005

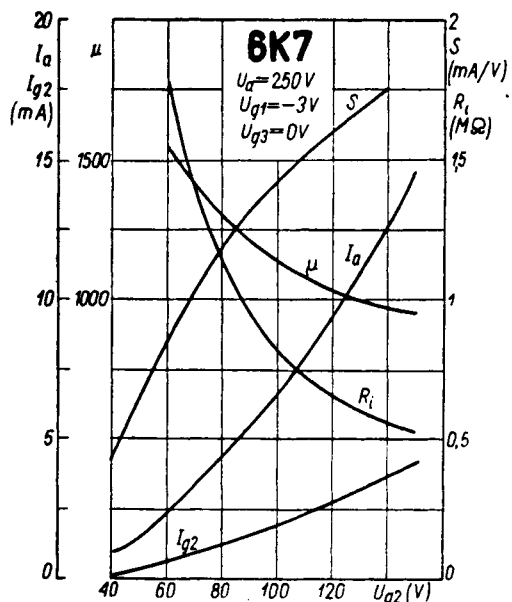
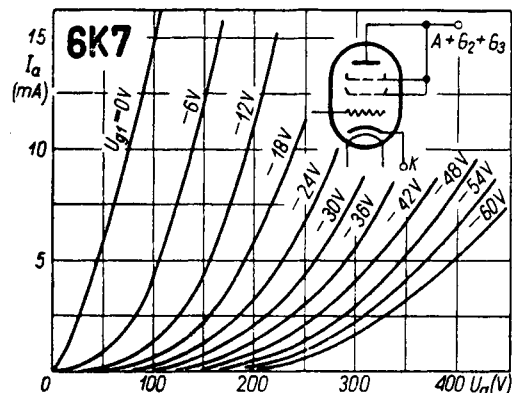
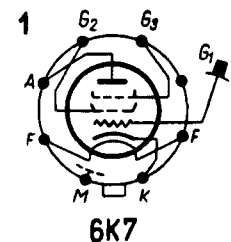
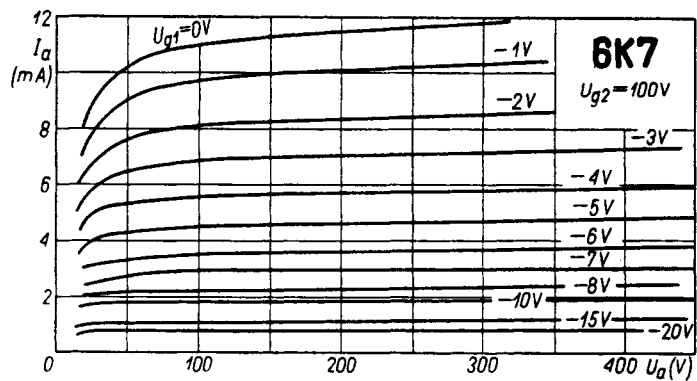
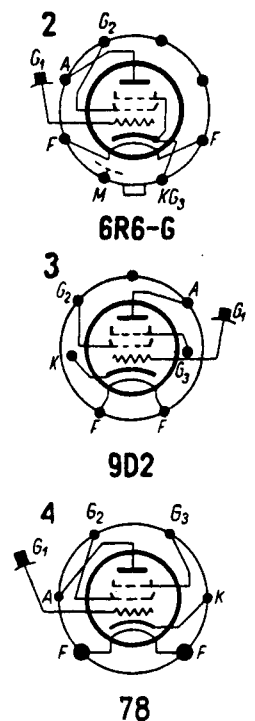
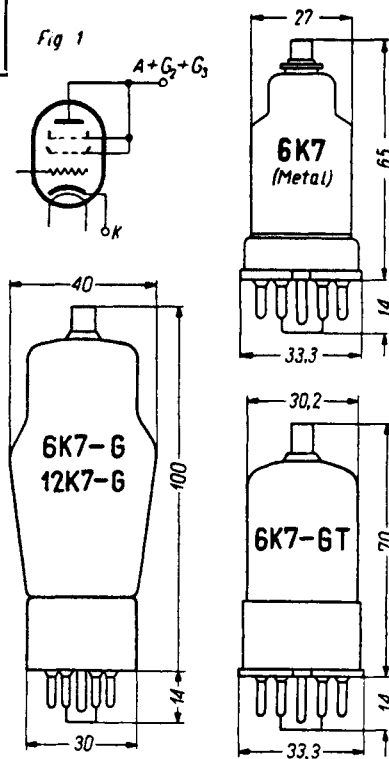
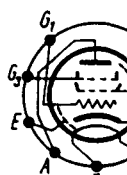


Fig 1

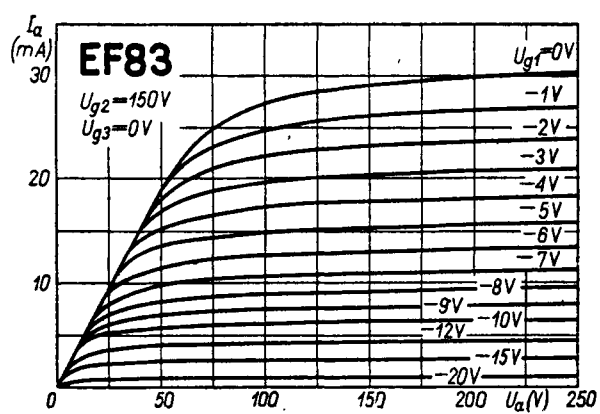
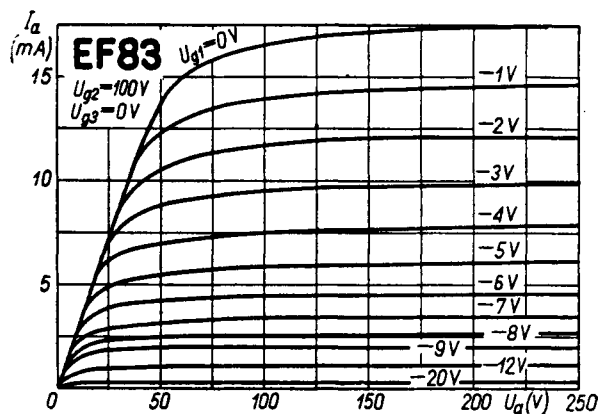
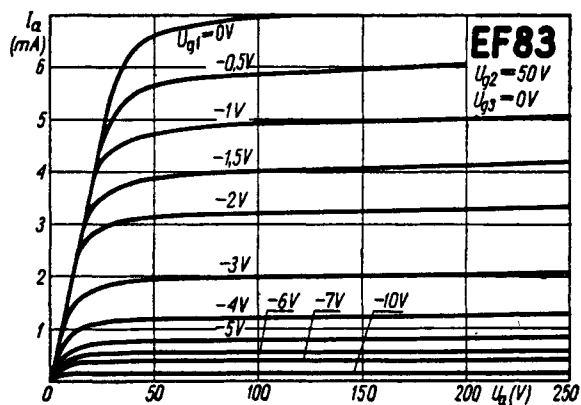
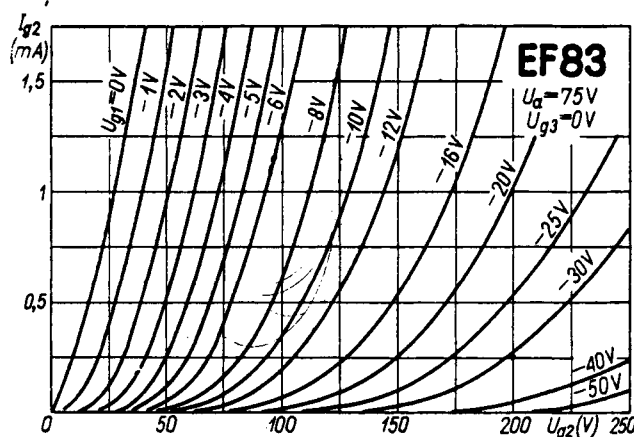
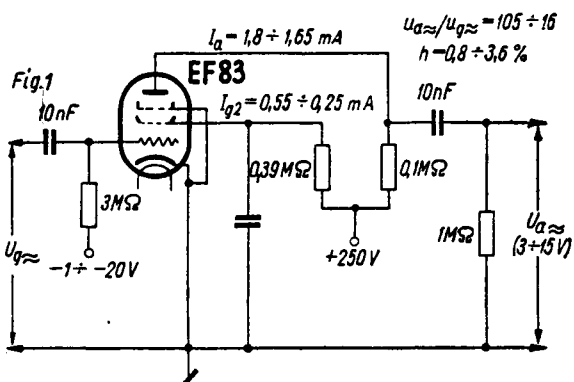
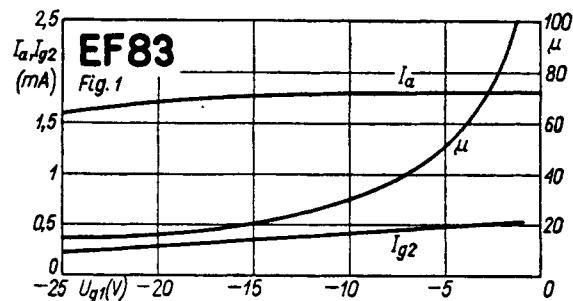
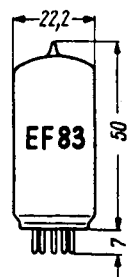
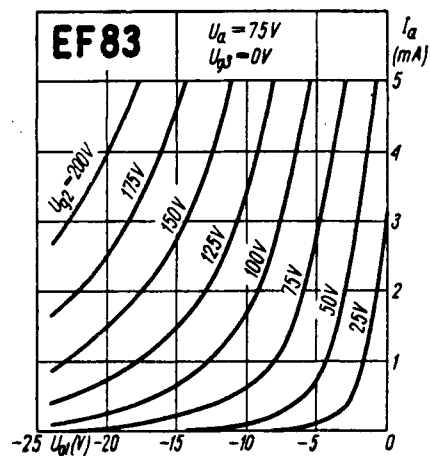


T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_{g1}	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	M Ω	(g_2/g_1)	M Ω	V	mA	W	W
EF 83	eur	6,3	0,2	250 300	50 300	0	-1,6 ÷ -20	4 maximum	1,15	1,6	1,6	10	3	100	6	0,2	1

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
4	5	0,05	0,0025



EF83

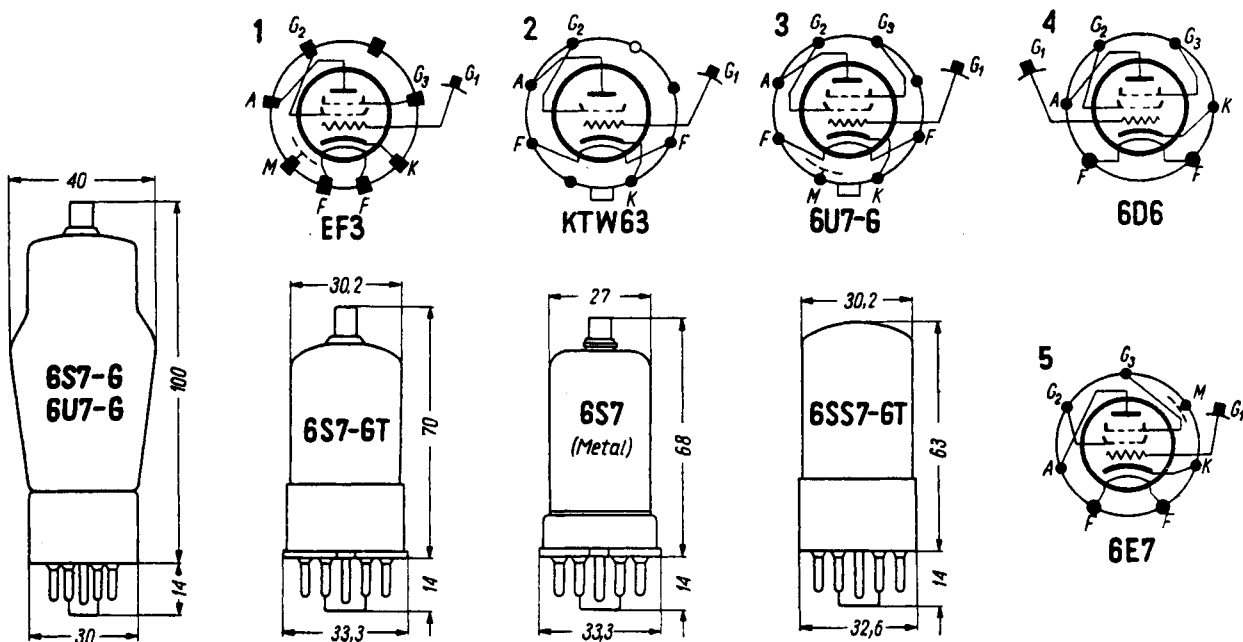
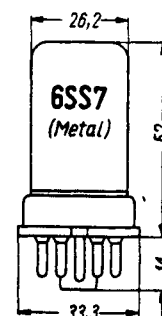


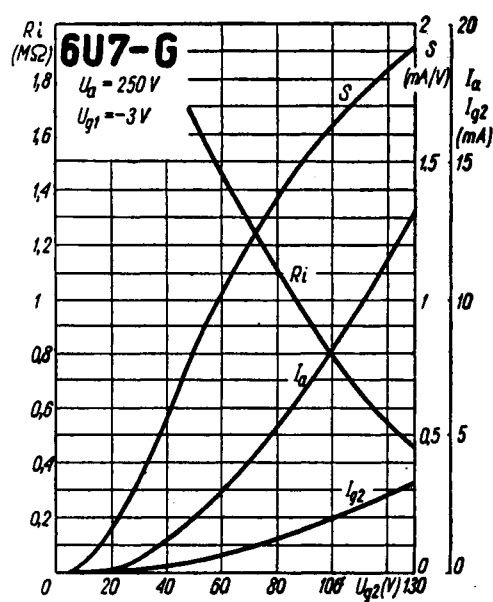
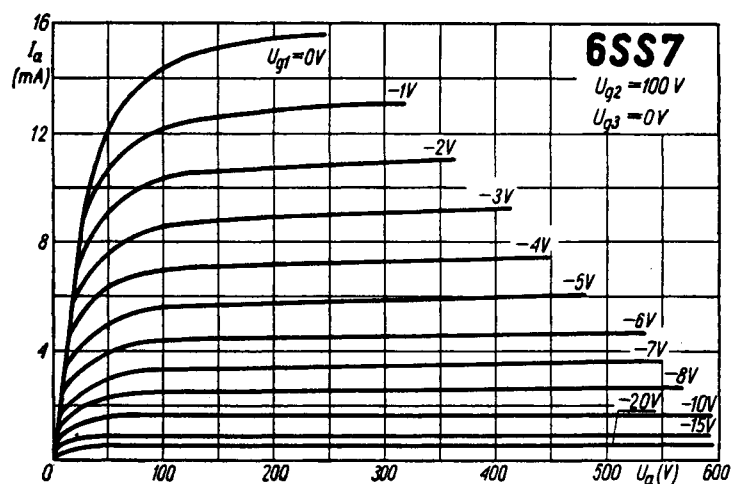
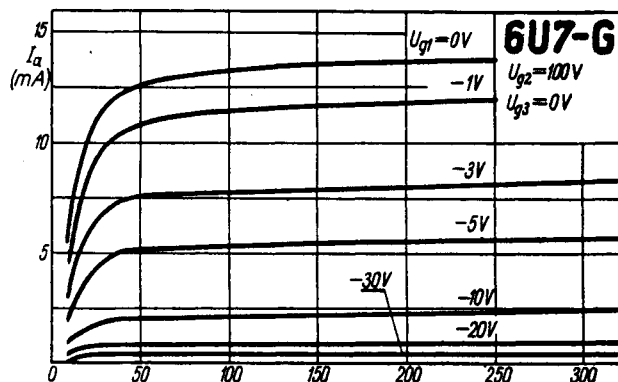
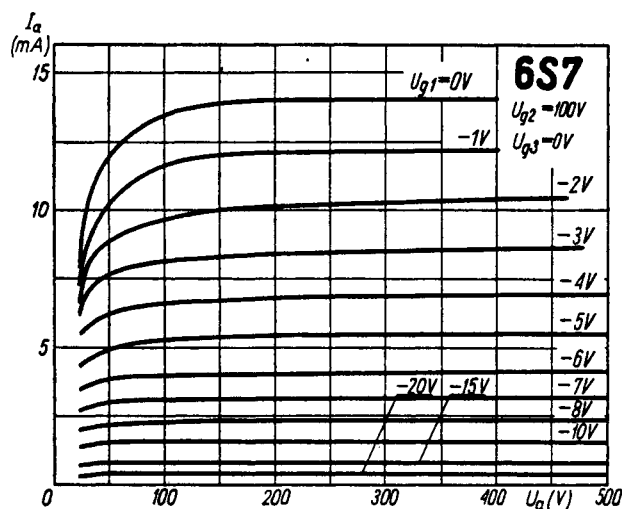
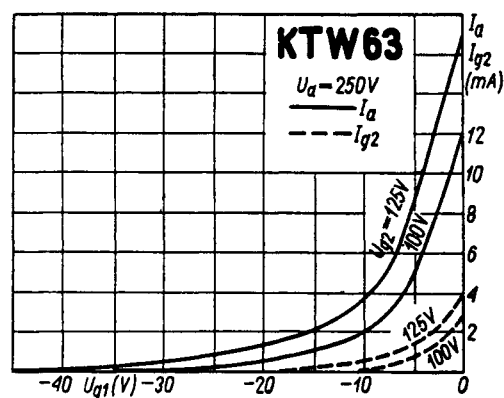
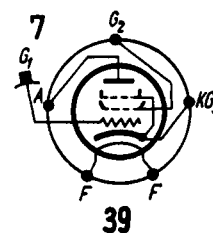
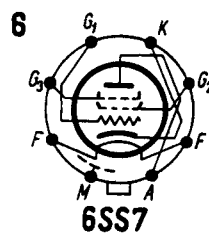
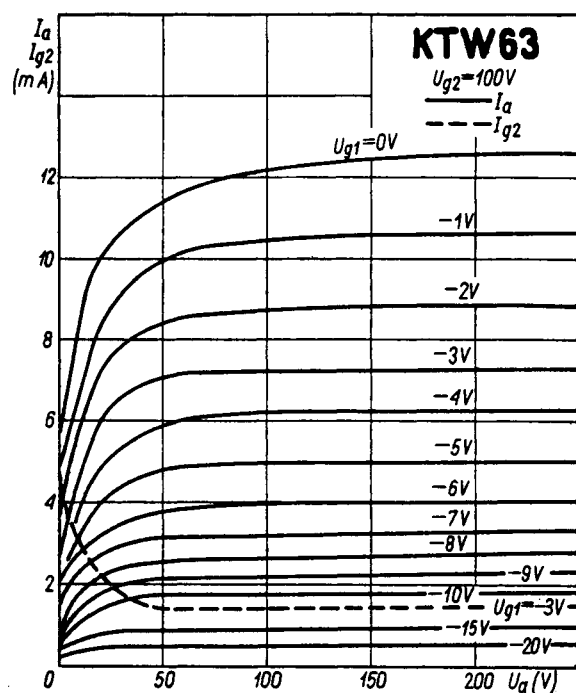
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	V	W	W
EF 3	eur	1	6,3	0,24	250	100	0	-3 ÷ -55	8	3,1	1,8 ÷ 0,002	1,5	250		0,5	2
EF 5	eur	1	6,3	0,2	250	100	0	-3 ÷ -50	8	2,6	1,7 ÷ 0,002	1,2	300	75	0,4	2
EF 25	eur	1	6,3	0,2	250	100	0	-2 ÷ -38	5	1,6	1,8 ÷ 0,002	1,3	300			
KTW 63	Eng	2	6,3	0,3	175	100	0	-3 ÷ -40	8,5	1,7	1,5 ÷ 0,0045	0,5	220			
W 63	Eng	3	6,3	0,3	250	100	0	-3 ÷ -40	7,6	1,9	1,5 ÷ 0,0045		320			
W 76	Eng	3	13	0,16	250	250					maximum					
KTW 73 M	Eng	2	6,3	0,13	250	100		-3 ÷ -40	6,5	1,3	1,7					
6 D 6	int	4	6,3	0,3	100	100	0	-3 ÷ -50	8	2,2	1,5 ÷ 0,002	0,25				
6 E 7	amer	5	6,3	0,3	250	100	0	-3 ÷ -50	8,2	2	1,6 ÷ 0,002	0,8				
6 U 7-G	int	3	6,3	0,3	300	100					maximum				0,25	2,25
6 S 7	amer	3	6,3	0,15	135	67,5	0	-3 ÷ -25	3,7	0,9	1,25 ÷ 0,01	1				
					250	100	0	-3 ÷ -38,5	8,5	2	1,75 ÷ 0,01	1				
					300	100					maximum				0,25	2,25
6 SS 7	amer	6	6,3	0,15	100	100	0	-1 ÷ -35	12,2	3,1	1,93 ÷ 0,01	0,12				
12 SS 7-GT	amer	6	12,6	0,075	250	100	0	-3 ÷ -35	9	2	1,85 ÷ 0,01	1				
					300	100					maximum				0,35	2,25
39	int	7	6,3	0,3	90	90		-3	5,6	1,6	0,96	0,37				
					250	90		-3	5,8	1,4	1,05	1				
64	amer	7	6,3	0,4	180	90		-3	3,1	1,5	1,05	0,5				
65	amer	7	6,3	0,4	180	90		-3	4,5	1,3	1	0,75				

Equivalents

EEP 71	Sat = EF 3	6 SS 7-GT	amer = 6 SS 7
EF 2 S	Phl = EF 25	39 A	amer = 39
G 44	amer = 39	39 A/44 A	amer = 39
OF 1	Tri = 6 S 7	39/44	amer = 39
S 617	Tri = EF 5	64 A	amer = 64
TEF 3	Tu = EF 3	65 A	amer = 65
TEF 5	Tu = EF 5	139	amer = 39
T 44	amer = 39	144	amer = 39
UY 239	amer = 39	239	amer = 39
VEF 5	Vat = EF 5	244	amer = 39
6 E 1	Ult = EF 5	344	amer = 39
6 S 7-G	int = 6 S 7	444	amer = 39
6 S 7-GT	int = 6 S 7		

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 5	5,4	6,9	0,003
KTW 63	4,5	7,5	0,005
W 76	4,2	12,8	0,007
6 D 6	4,7	6,5	0,007
6 S 7	6,5	10,5	0,005
6 S 7-G/GT	4,4	8	0,008
6 SS 7	5,5	7	0,004
6 U 7-G	6	9	0,007





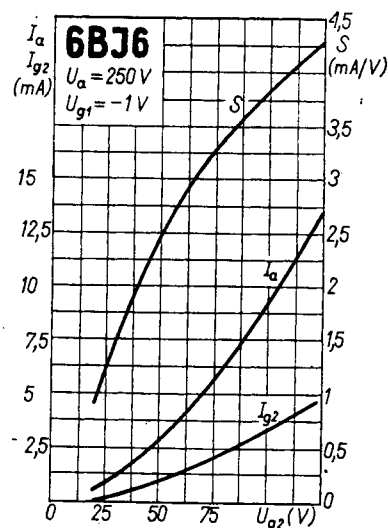
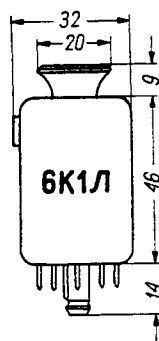
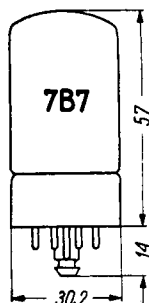
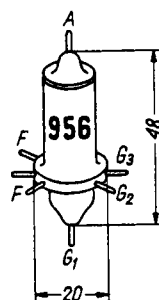
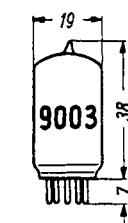
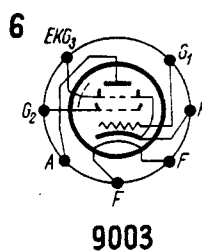
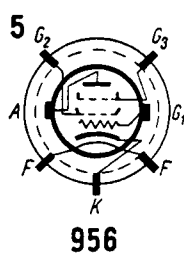
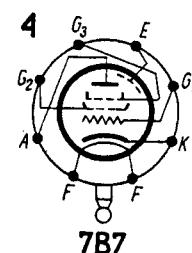
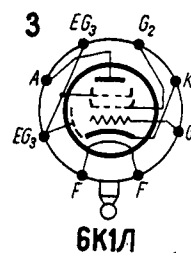
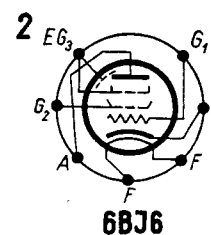
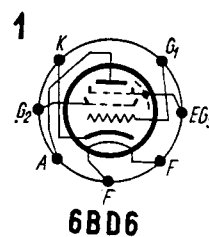
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	U_f/k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	V	W	W
6 BD 6 12 BD 6	amer	1	6,3	0,3	100	100	0	-1÷-35	13	5	2,35÷0,01	0,12		90	0,65	3
	amer	1	12,6	0,15	250 300	100 125	0	-3÷-35	9	3,5	2÷0,01 maximum	0,7				
6 BJ 6	int	2	6,3	0,15	100	100	0	-1÷-20	9	3,5	3,65÷0,01	0,25	80	90	0,6	3
					250 300	100 125	0	-1÷-20 -50	9,2	3,3	3,6÷0,01 maximum	1,3				
6 CG 6 26 CG 6	amer	1	6,3	0,2	250	150	0	-8÷-24	9	2,3	2÷0,01	0,72		90	0,65	3
	amer	1	26,5	0,07	300	200					maximum					
6 K I JI	CCCP	3	6,3	0,15	150	75	0	-2,35÷-11	3	0,9	1,3	0,75		100	0,3	1
					220	220					maximum					
7 B 7	int	4	6,3	0,15	100	100	0	-3÷-40	8,2	1,8	1,67÷0,01	0,3	300 300	90	0,25	2,25
					250 300	100 100	0	-3÷-40	8,5	1,7	1,75÷0,01 maximum	0,75				
956	int	5	6,3	0,15	250	100	0	-3÷-45	6,7	2,7	1,8÷0,002	0,6		80	0,3	1,7
9003	int	6	6,3	0,15	250	125			(f = 430 MHz) maximum							

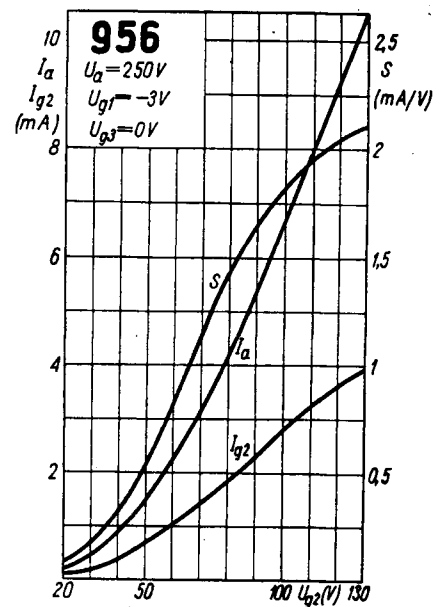
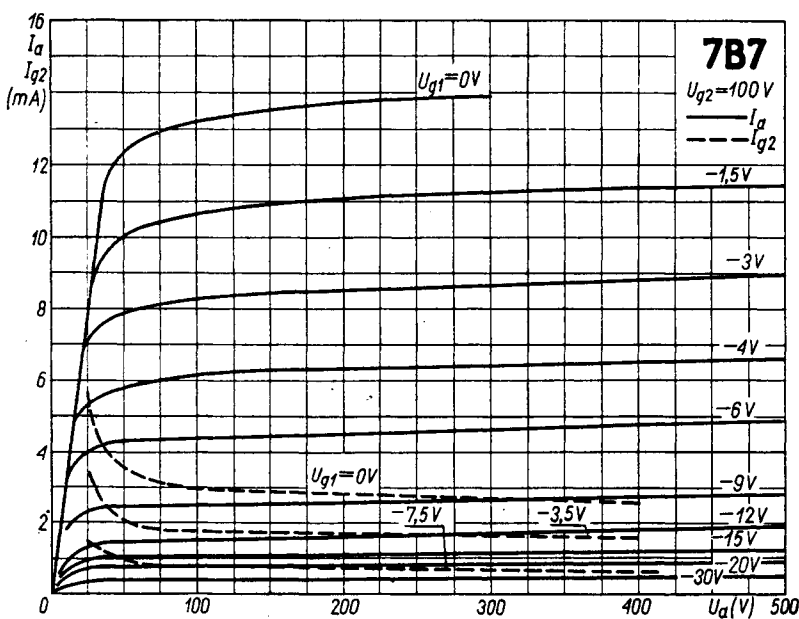
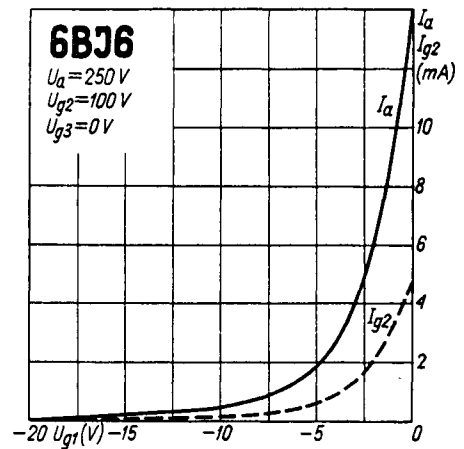
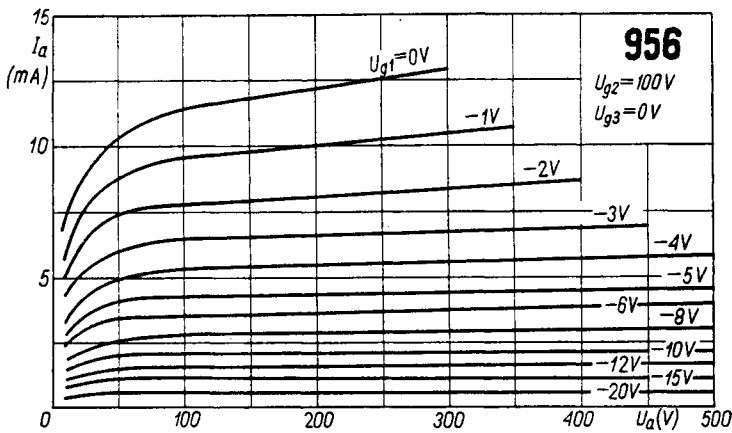
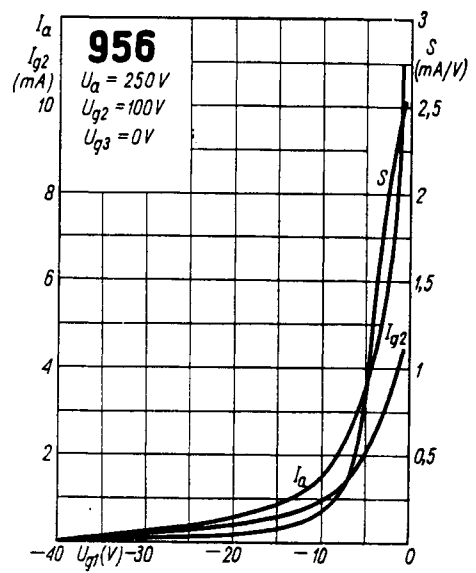
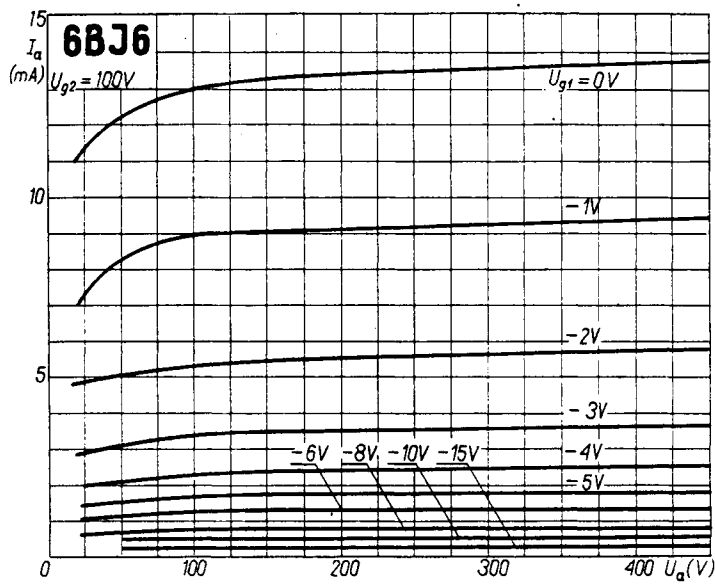
Equivalents

E 2 F	Phi = 956
E 99 F)	Phi = 6 BJ 6
GL-4662	GE = 6 BJ 6
W 149	Eng = 7 B 7
6 K I Ж	CCCP = 9003
6 K I П	CCCP = 9003
6 K 19 Б	CCCP = 9003
4695	eur = 956
6662	amer = 6 BJ 6

1) vide * 4, a, b, c = 10 000, e, g
 $U_f = 6,3 \text{ V} \pm 20 \%$

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 BD 6	4,3	5	0,005
6 BJ 6	4,5	5,5	0,0035
6 CG 6	5	5	0,008
6 K I Ж	3	3	0,009
6 K I JI	3,8	4,2	0,007
6 K I П	3,4	3	0,01
7 B 7	5	6	0,004
956	3,4	3	0,007
9003	3,4	3	0,01





T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	V	W	W
6 K 9 C	CCCP	1	6,3	0,3	26	26	$-0,5 \div -35$	1,8	0,55	$1,2 \div 0,01$				
6 SK 7	int	2	6,3	0,3	100	100	$-1 \div -35$	13	4	$2,35 \div 0,01$	0,12			
7 A 7	int	3	6,3	0,3	250	100	$-3 \div -35$	9,2	2,6	$2 \div 0,01$	0,8			
12 SK 7	int	2	12,6	0,15	300	125						90	0,4	4
14 A 7	int	3	12,6	0,15	180	Fig. 1	-6	22	$\mu = 9$	2,5	0,0036			

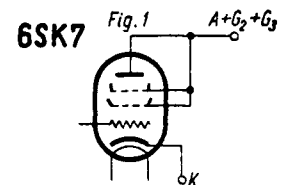
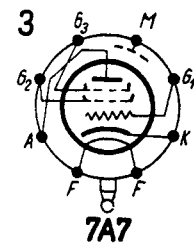
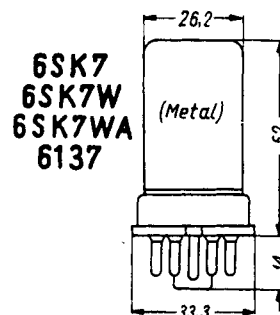
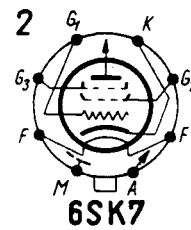
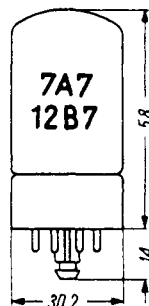
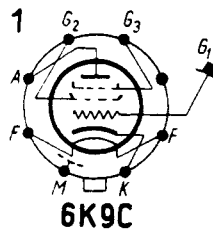
Equivalents

HF 3111	RFT = 6 SK 7
OSW 3111	RFT = 6 SK 7
6 K 3	CCCP = 6 SK 7
6 K 9	CCCP = 6 K 9 C
6 K 9 M	CCCP = 6 K 9 C
6 K 17 B	CCCP = 6 SK 7
6 SK 7-GT	int = 6 SK 7
6 SK 7-W ¹⁾	amer = 6 SK 7
6 SK 7-WA ¹⁾	amer = 6 SK 7
6 SK 7-Y	RCA = 6 SK 7
7 A 7-LM	Syl = 7 A 7
12 B 7	amer = 14 A 7
12 B 7-LM	Syl = 14 A 7
12 K 3	CCCP = 12 SK 7
12 K 17 B	CCCP = 12 SK 7
12 SK 7-GT	int = 12 SK 7
88 M	amer = 6 K 9 C
5661 ¹⁾	amer = 12 SK 7
6137 ¹⁾	amer = 6 SK 7

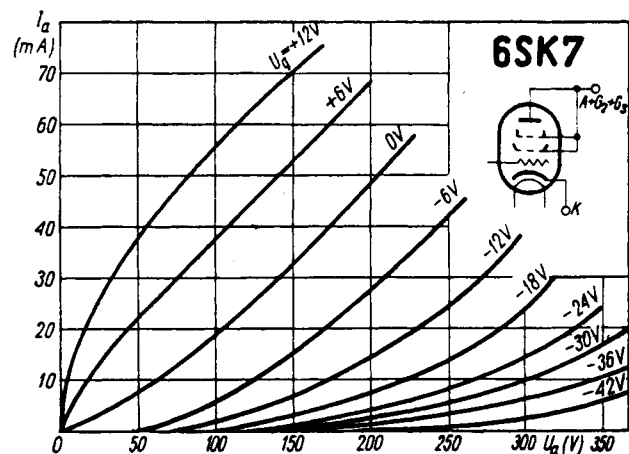
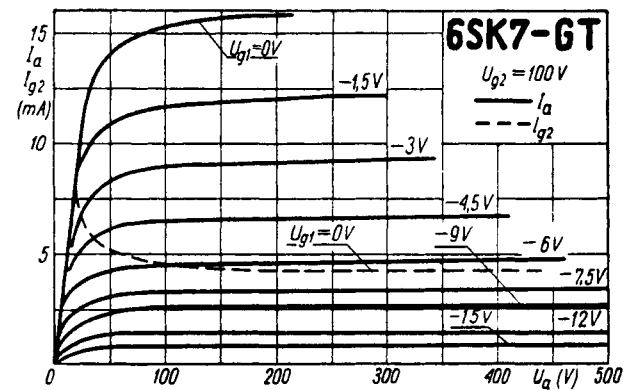
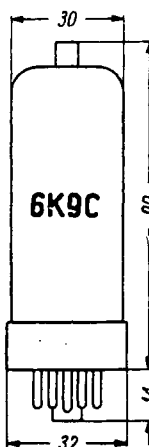
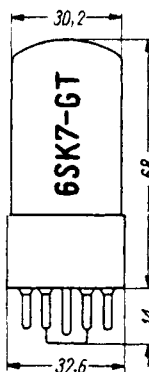
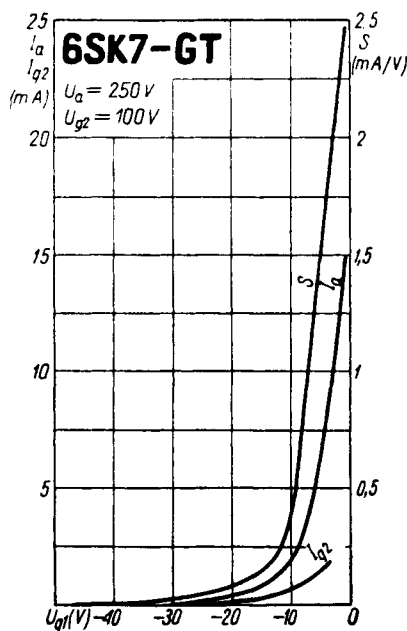
¹⁾ vide * 4, a, b, c, ($U_f = 6,3 \text{ V} \pm 10\%$)

²⁾ vide * 4, a, b, c, z ($U_f = 6,3 \text{ V} \pm 10\%$)

³⁾ vide * 4, a, b, c, f, g ($U_f = 6,3 \text{ V} \pm 10\%$)



T.	C_{g1}	C_a	$C_{g2/a}$
	pF	pF	pF
6 K 9 C	4,7	11	0,005
6 SK 7	6	7	0,003
6 SK 7-GT	6,5	7,5	0,005
7 A 7	5,5	7	0,005

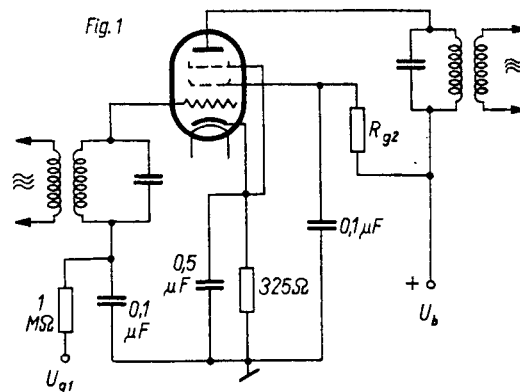


T.			U_f V	I_f A	Fig. n°	$U_a=U_b$ V	R_{g2} kΩ	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S μA/V	R_t MΩ	R_k Ω
EF 9	eur	1	6,3	0,2	Fig. 1	100	0	100	0	-2,5 ÷ -19	6	1,7	2200 ÷ 7	0,4	325
EF 39	eur	2	6,3	0,2		200	60	100	0	-2,5 ÷ -39	6	1,7	2200 ÷ 5,5	0,9	325
OF 5	Tif	2	12,6	0,15		250	90	100	0	-2,5 ÷ -49	6	1,7	2200 ÷ 4,5	1,2	325
UF 9	eur	1	12,6	0,1		250	90	100	0	-2,5 ÷ -49	6	1,7	2200 ÷ 4,5	1,2	325
EF 22	eur	4	6,3	0,2	Fig. 1	250	90	100	0	-2,5 ÷ -46 ÷ -58	6	1,7	2200 ÷ 22 ÷ 4,5	1,2	325
EF 41	eur	5/6	6,3	0,2	Fig. 1	100	0	100	0	-2,5 ÷ -16,5	6	1,75	2200 ÷ 22	0,6	325
EF 81	eur	7	6,3	0,2		100	40	60	0	-1,4 ÷ -17	3,3	1	1900 ÷ 19	0,8	325
UF 41	eur	5/6	12,6	0,1		170	40	100	0	-2,5 ÷ -28	6	1,75	2200 ÷ 22	1	325
UF 81	eur	7	12,6	0,1		200	40	120	0	-3 ÷ 34	7,2	2,1	2300 ÷ 23	1	325
					Fig. 2	250	0	100	0	-2,5 ÷ -17	6	1,7	2200 ÷ 22	1,1	325
						250	90	100	0	-2,5 ÷ -39	6	1,7	2200 ÷ 22	1,1	325
						100	12	53 ÷ 69	0	-1 ÷ -12	3,3	1	1900 ÷ 19	0,8	235
						170	12	87 ÷ 117	0	-1,8 ÷ -20	6	1,75	2200 ÷ 22	1	235
						250	22	85 ÷ 135	0	-2 ÷ -22	5	1,5	2000 ÷ 20	1,4	310

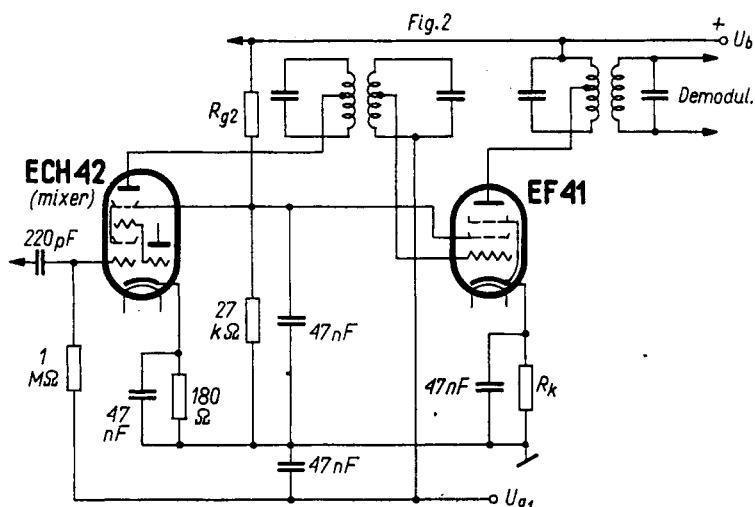
T.	maximum								
	U_a	$U_{g2}(I_a = 6mA)$	$U_{g2}(I_a < 3mA)$	R_{g1}	R_k/f	U_f/k	I_k	P_{g2}	P_a
	V	V	V	MΩ	kΩ	V	mA	W	W
EF 9, EF 22, EF 39, EF 41, EF 81	300	125	300	3	20	100	10	0,3	2
UF 5, UF 9, UF 41, UF 81	250	125	250	3	20	150	10	0,3	2

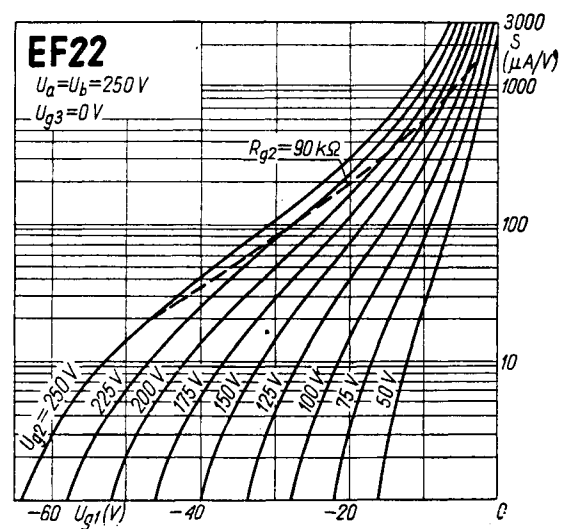
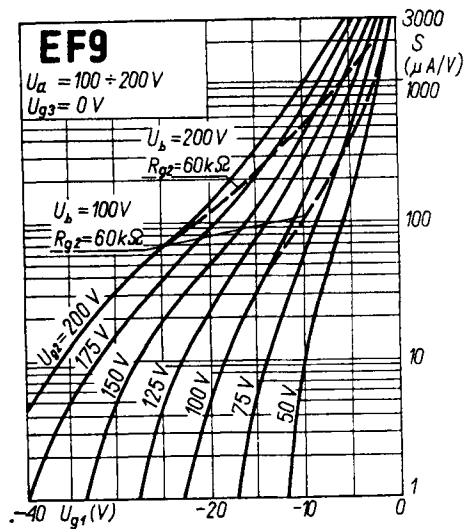
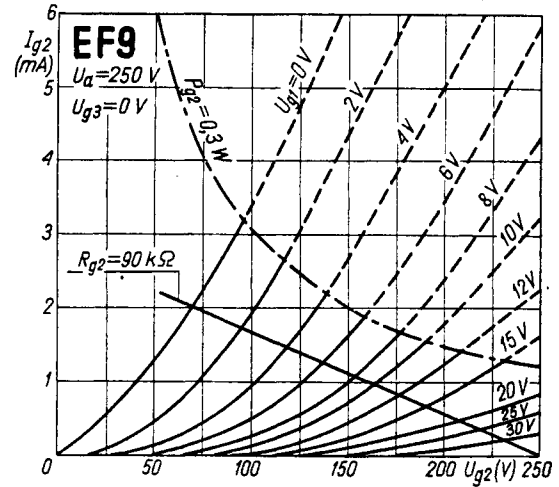
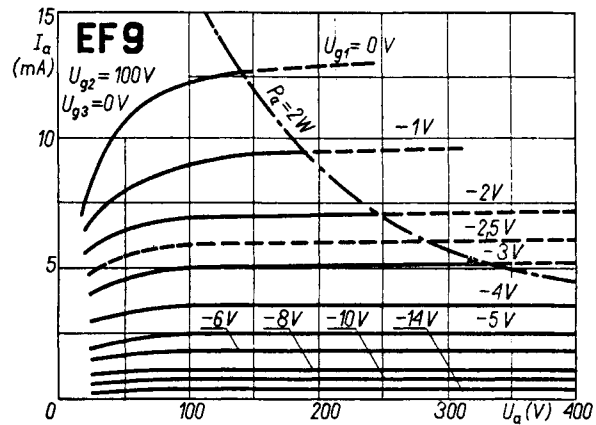
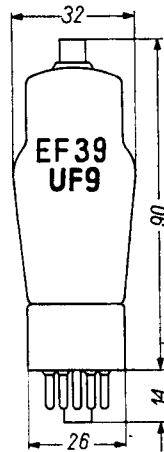
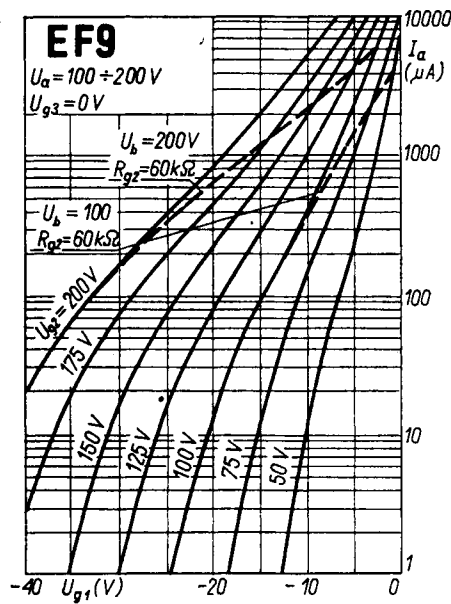
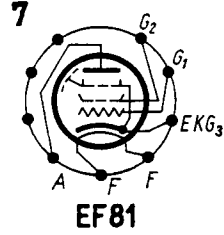
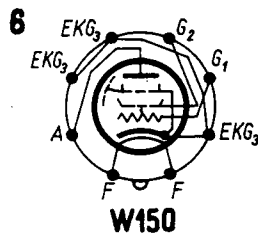
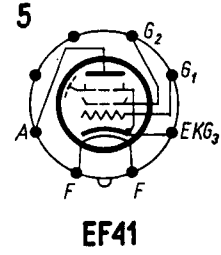
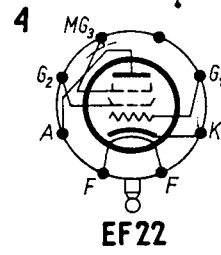
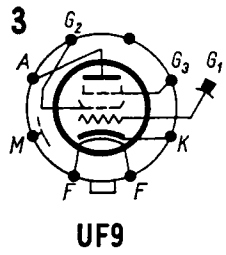
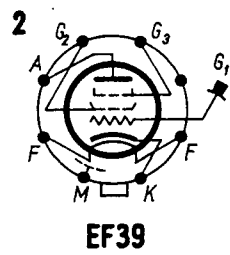
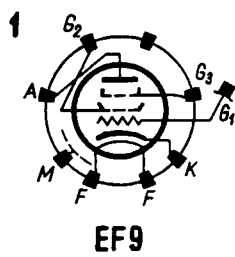
Equivalents

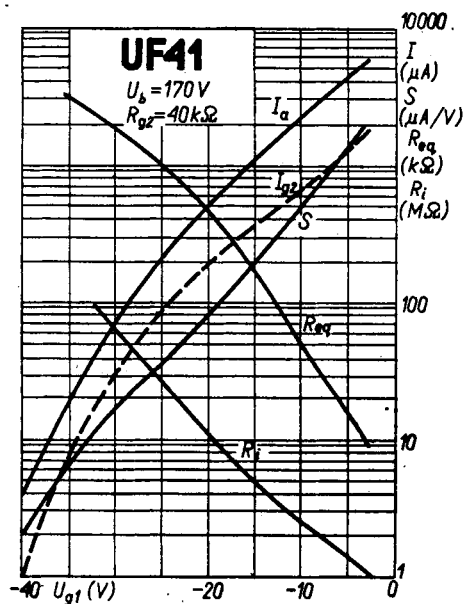
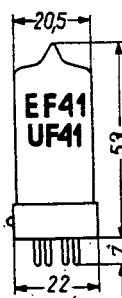
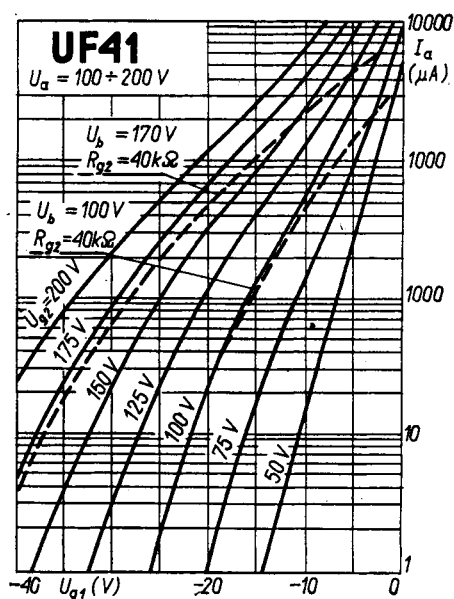
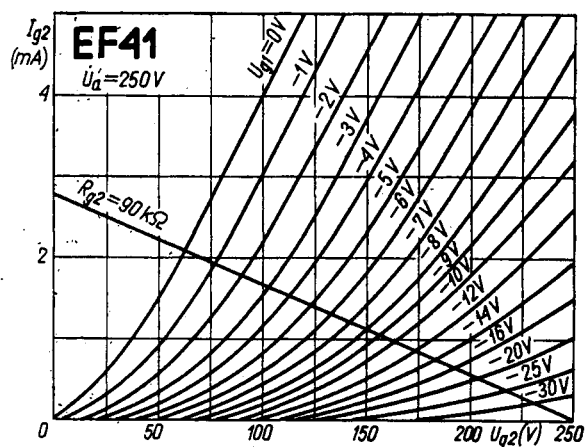
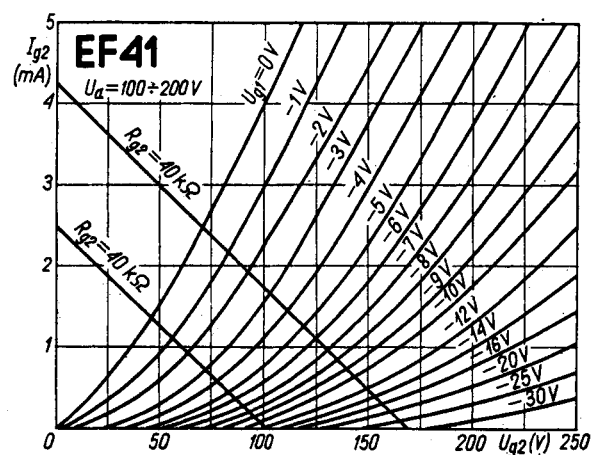
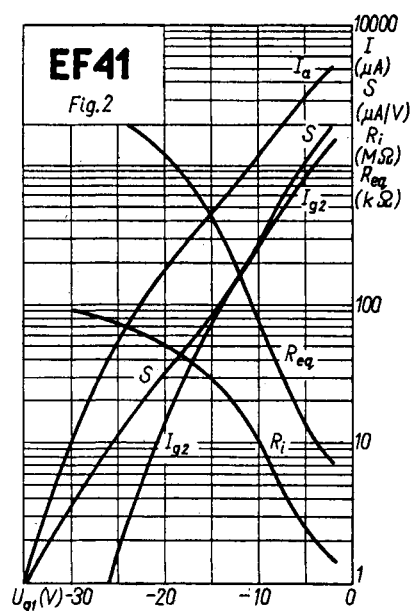
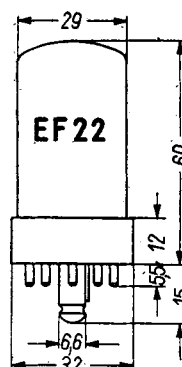
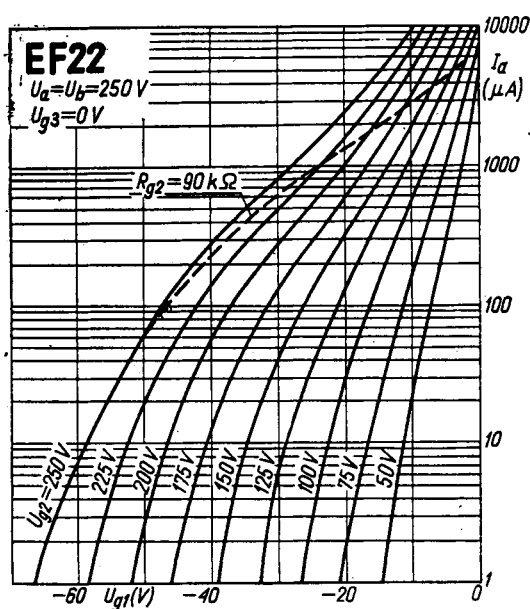
E I R/91	Phi = EF 9	6 BH 5	amer = EF 81
HF 61	Maz = EF 41	6 CJ 5	amer = EF 41
HF 121	Mar = UF 41	6 F 16	E ds = EF 41
OM 6	Cos = EF 39	6 M 7-MG	Frc = EF 39
W 142	Eng = UF 41	7 F 16	E ds = EF 41
W 143	Eng = EF 22	12 AC 5	amer = UF 41
W 147	Eng = EF 39	13 F 9 U	Phi = UF 9
W 150	Eng = EF 41	62 V P	Cos = EF 41
UF 10	eur = UF 5	121 V P	Ccs = UF 41

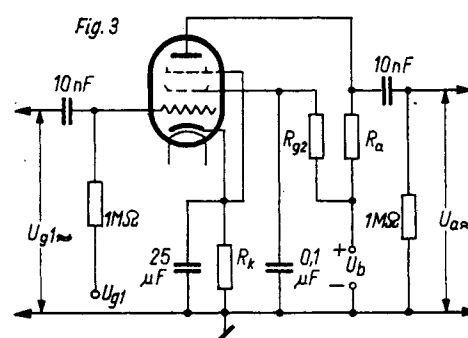
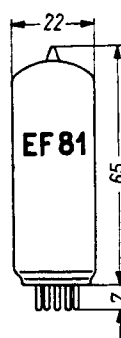
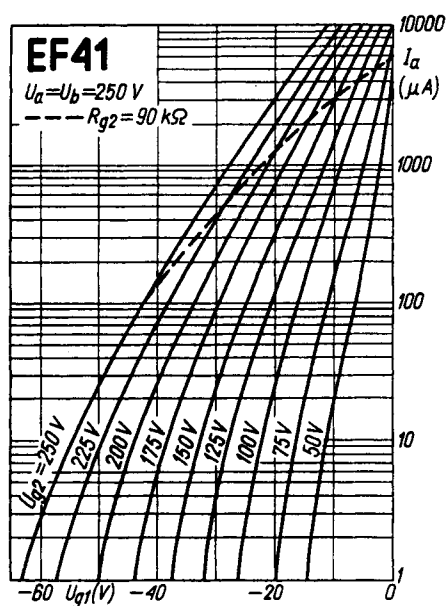
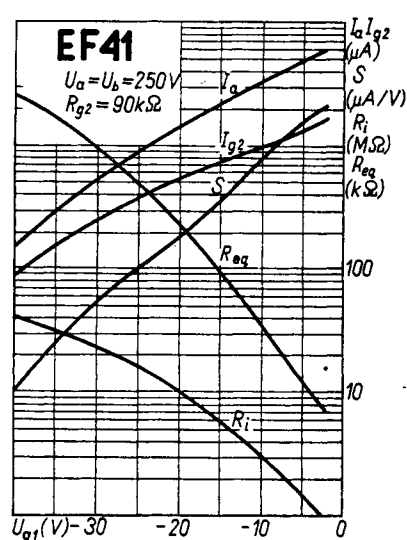
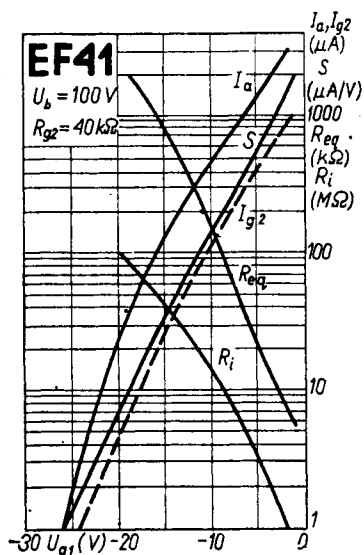
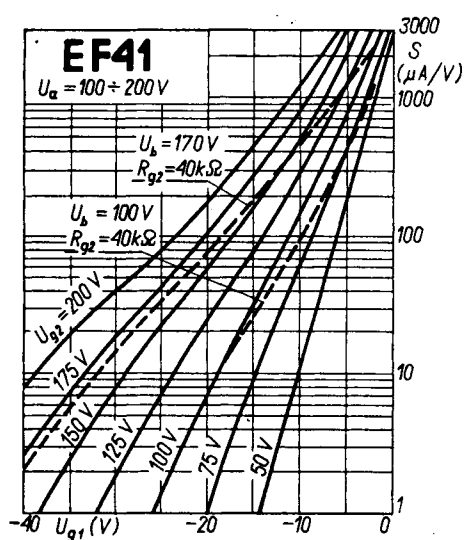


T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{g1/f}$ pF
EF 9	5,5	7,2	0,002	0,005
EF 22	5,5	6,4	0,002	0,004
EF 39	5,5	7,2	0,003	0,005
EF 41	5,3	5,9	0,002	0,05
UF 9	5,7	7,5	0,002	0,005
UF 41	4,9	5,7	0,002	0,1

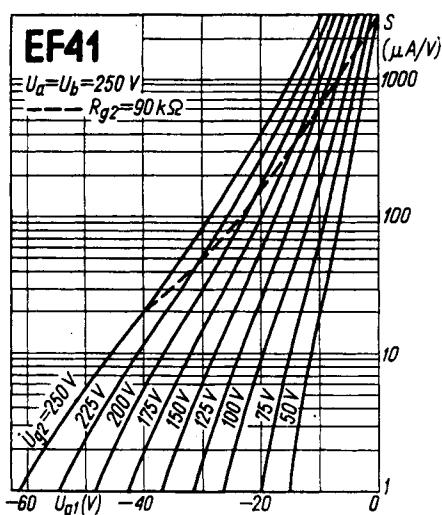








EF 9/EF 22 Fig. 3



U_b V	R_a M Ω	R_{g2} M Ω	R_k k Ω	U_{g1} V	I_a mA	I_{g2} mA	μ V/V	$U_{a\approx}$ V	h %
100	0,2	0,8	2,5	0	0,33	0,08	82	3	0,83
				-2,5	0,25	0,06	31	3	2,6
				-5	0,20	0,04	16	3	3,9
				-7,5	0,15	0,03	10	3	4,2
				-10	0,12	0,02	7	3	5,1
200	0,2	0,8	2,5	0	0,65	0,17	88	3÷8	0,75÷2
				-5	0,52	0,13	32	3÷8	1,3÷3,5
				-10	0,42	0,10	17	3÷8	1,6÷4,3
				-15	0,33	0,07	12	3÷8	1,8÷4,8
				-20	0,25	0,05	8	3÷8	2,2÷5,9
200	0,1	0,4	1,3	0	1,22	0,35	78	3÷8	0,75÷2
				-5	0,91	0,26	29	3÷8	1,3÷3,5
				-10	0,70	0,19	16	3÷8	1,9÷5
				-15	0,51	0,13	9	3÷8	2,1÷5,6
				-20	0,36	0,09	6	3÷8	3,4÷9
250	0,1	0,4	1	0	1,6	0,45	85	3÷10	0,8÷2,5
				-5	1,22	0,36	36	3÷10	0,8÷2,7
				-10	0,92	0,28	20	3÷10	1,2÷4,1
				-18	0,57	0,18	9,2	3÷10	1,8÷6,1
				-25	0,36	0,11	5,5	3÷10	2,8÷9,5
250	0,2	0,8	1,75	0	0,87	0,26	106	3÷10	0,8÷2,7
				-5	0,69	0,21	40	3÷10	0,8÷2,7
				-10	0,55	0,17	23	3÷10	1,1÷3,7
				-18	0,37	0,11	12	3÷10	1,5÷4,8
				-25	0,17	0,05	6,7	3÷10	2,7÷8,8

T.		U_f	I_f	$U_a = U_b$	R_{g2}	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k
		V	A	V	k Ω	V	V	V	mA	mA	$\mu A/V$	M Ω	Ω
EF 2	eur	1	6,3	0,4	250			-2 ÷ -22	4,5	1,4	2200 ÷ 20	1,4	330
EF 11	eur	2	6,3	0,2	100	50	55	-1 ÷ -19 ÷ -22	2,5	0,9	1300 ÷ 13 ÷ 4,4	0,4	300
EF 111	Tif	3	6,3	0,2	200	50	100	-2 ÷ -36 ÷ -42	5,7	1,95	2200 ÷ 22 ÷ 5,5	2	300
					250	75	100	-2 ÷ -45 ÷ -53	6	2	2200 ÷ 22 ÷ 4,4	2	250
EF 13	eur	4	6,3	0,2	100		60	-2 ÷ -12,5	1,3	0,2	1000 ÷ 10	0,6	400
EF 173	RFT	5	6,3	0,2	250		100	-2 ÷ -21	4,5	0,6	2300 ÷ 23	1	400
E 3 F	Phi	6	6,3	0,2	200	67	100	-2 ÷ -25	4,5	1,5	2400 ÷ 24	0,9	300
6 F 15	Eds	7	6,3	0,2	250		100	-2,5 ÷ -27 ÷ -34	7	2	2300 ÷ 100 ÷ 23	1,7	
6 NK 7-GT	Fiv	8	6,3	0,3	100		100	-2 ÷ -12,5	4,8	1,65	2100 ÷ 21	0,47	310
12 NK 7 -GT	Fiv	8	12,6	0,15	250		100	-2 ÷ -12,5	5	1,65	2300 ÷ 23	1	300

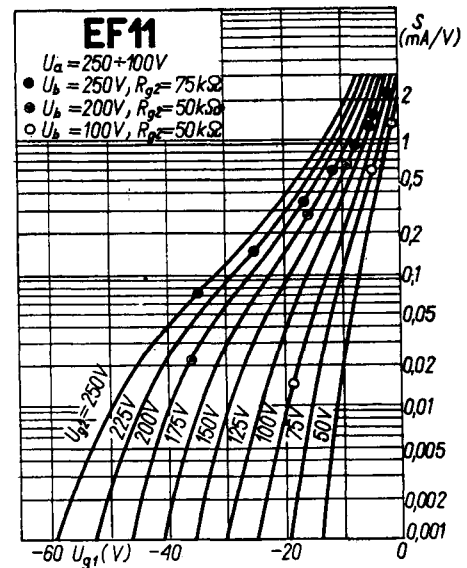
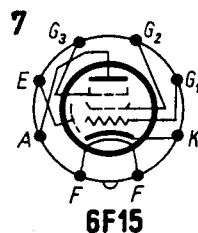
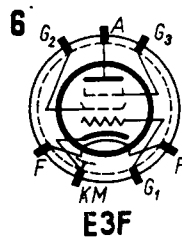
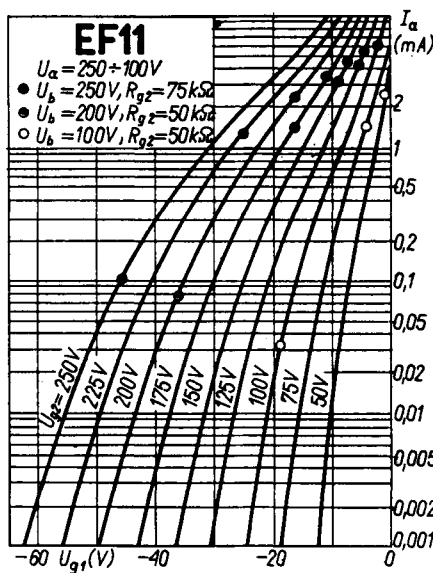
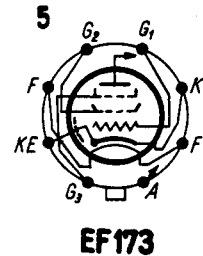
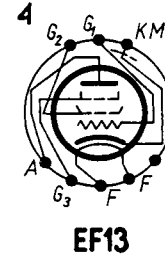
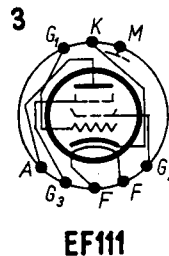
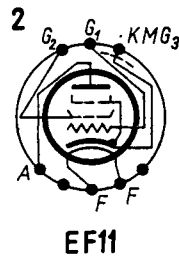
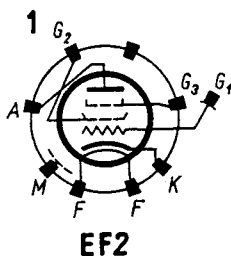
maximum

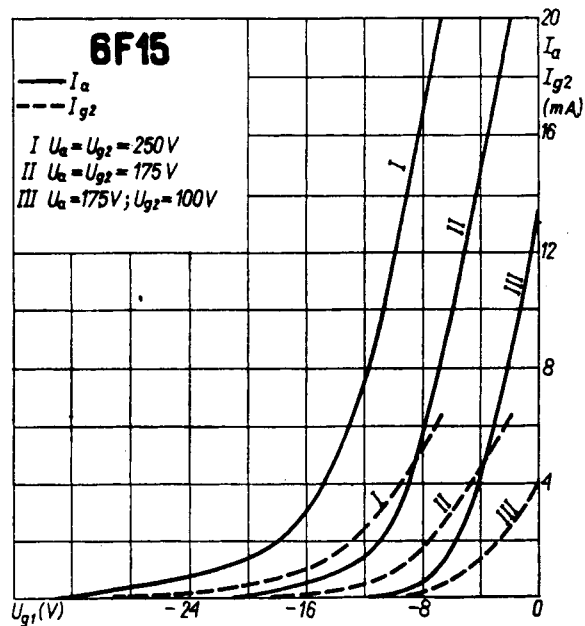
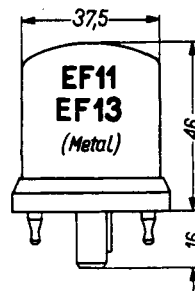
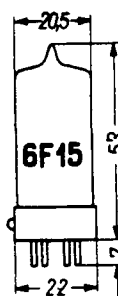
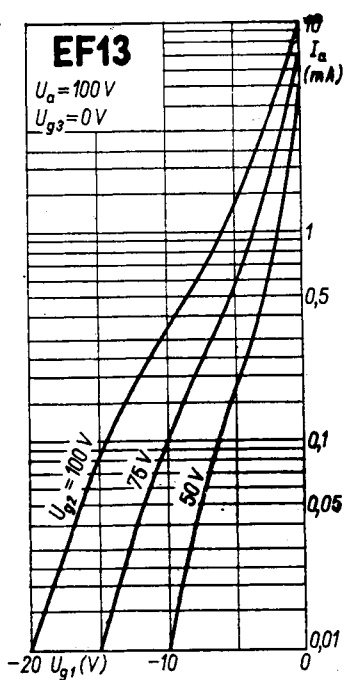
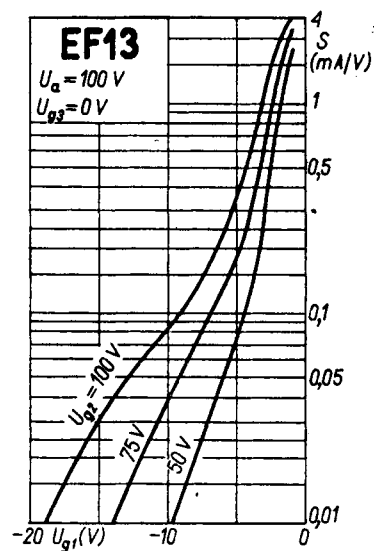
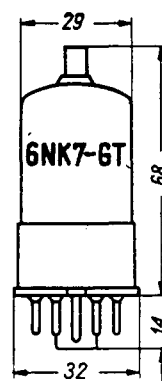
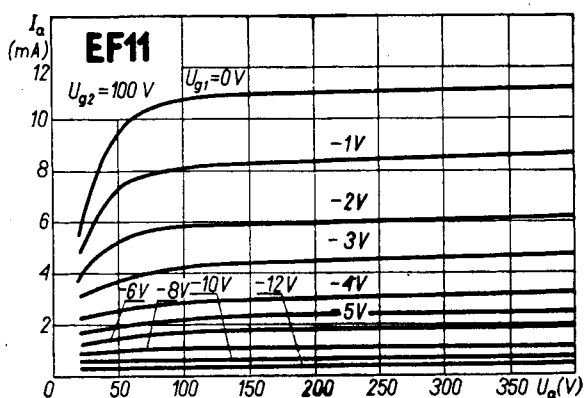
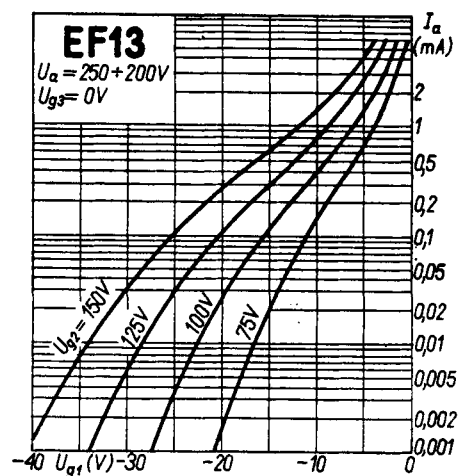
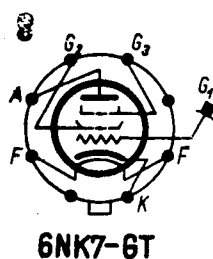
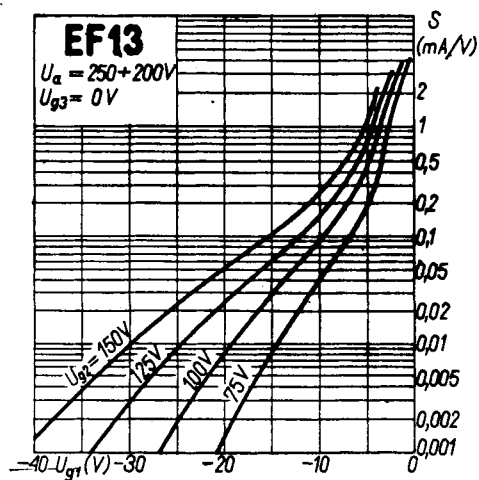
T.	U_a	U_{g2}	U_f/k	I_k	P_{g2}	P_a
	V	V	V	mA	W	W
EF 11	300	125	100	10	0,3	2
EF 13	300	125	100	10	0,3	2
E 3 F	200	100			1	2
EF 15	250	200	150	10		
6 NK 7-GT	300	100			0,3	2

Equivalents

E 13 F	Phi = E 3 F
S 628	Tri = EF 2
VF 2	Dar = EF 2
WE 16	Tif = EF 11

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 2	7,1	7,7	0,003
EF 11	6,1	6	0,002
EF 13	6,3	7,8	0,005
E 3 F	5,4	6,2	0,005
6 F 15	5,1	6,8	0,003
6 NK7-GT	6	9,3	0,005





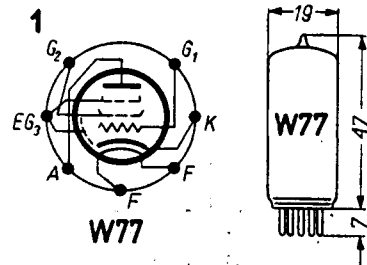
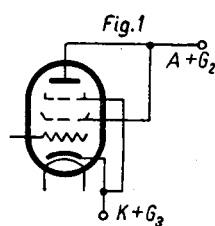
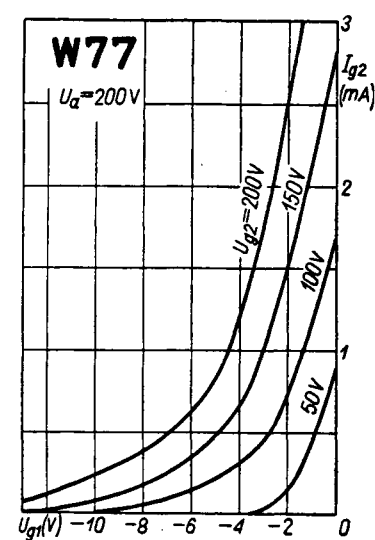
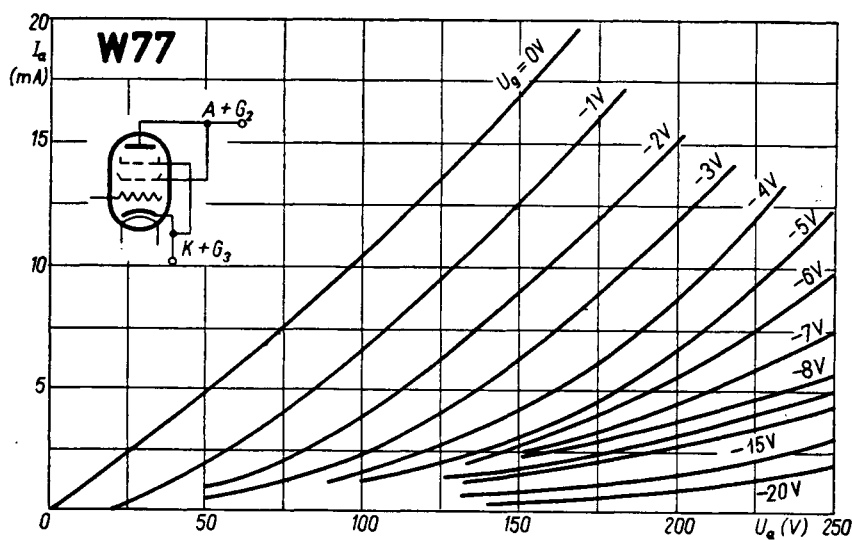
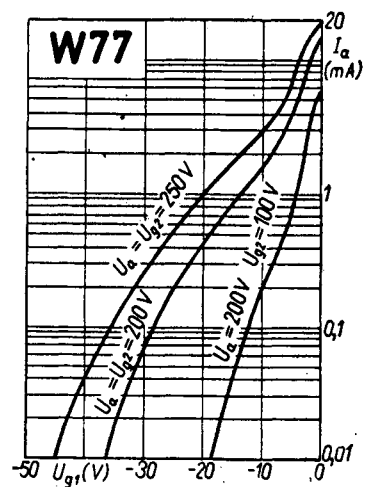
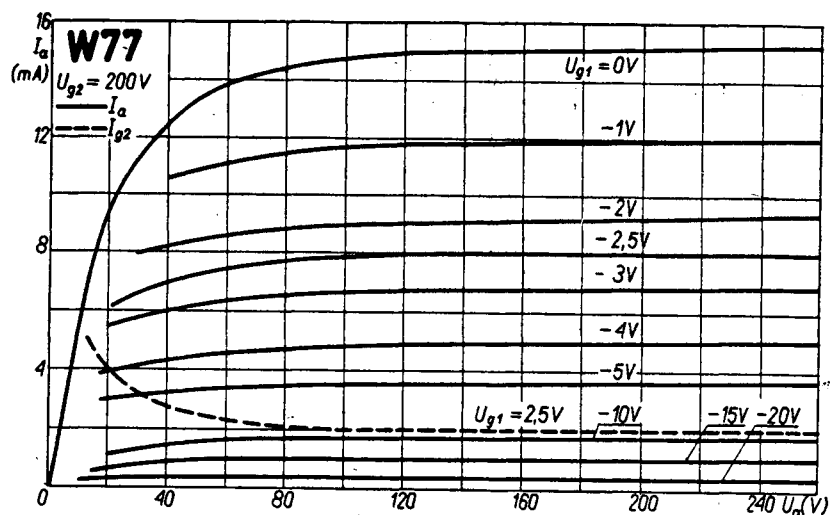
T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_l	R_k	μ	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	M Ω	Ω	(g_2/g_1)	mA	W	W
W 77	Eng	I	6,3	0,2	250	150	0	$-0,65 \div -15$	8	2	$2,5 \div 0,005$	1	65	30			
W 107	Eng	I	12	0,15	200	200	0	$-2,5 \div -25$	8	2	$2,5 \div 0,005$	0,5	250	30			
					250	200	0	$-2,5 \div -28$	8	2,1	$2,5 \div 0,005$	1	250	30			
					200	—	0	-3	12	—	3	0,01		30	(Fig. 1)	0,6	2,5
					250	250									12		

maximum $U_{f/k} = 100$ V

Equivalents W 77

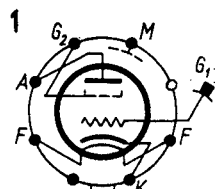
EF 92	eur
M 8161 ¹⁾	Mul
QA 2400 ¹⁾	Osr
QW 77 ¹⁾	Marc
V 884	Cos
V P 6	Max
6 CQ 6	amer
6 CQ 6 S ¹⁾	SFR
6 F 21	Eds
9 D 6	Bri
6065 ¹⁾	int

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 92	4,5	6,5	0,004
M 8161	4,5	7	0,01
W 77	4,2	7	0,006
9 D 6	4,5	7	0,004
6065	4,5	7,5	0,007

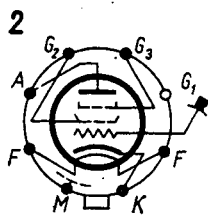
¹⁾ vide *4

T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$U_{f/k}$
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	V
KTW 61	Eng	1	6,3	0,3	250	80	0	-3 ÷ -25	8,5	2,8	2,9 ÷ 0,02	0,6	300	150
W 61 M	Eng	2	6,3	0,3	250	100	0							
W 81	Eng	3	6,3	0,3						maximum				
KTW 62	Eng	1	6,3	0,3	250	100			8	5,55	2,85			
6 M 7	Maz	2	6,3	0,3	100	100	0	-2,5 ÷ -25	6,2	1,7	2,1 ÷ 0,02	0,35	320	
12 M 7-GT	Vis	2	12,6	0,15	250	100	0	-2,5 ÷ -26	6,5	1,8	2,4 ÷ 0,02	1,5	320	
					250	125	0	-2,5 ÷ -31	10,5	2,8	3 ÷ 0,02	0,9	200	
7 AH 7	amer	3	6,3	0,15	250	250	0	-1 ÷ -20	6,8	1,9	3,3 ÷ 0,035	1	250	90
					300	300	0			maximum	$P_{g2} = 0,7 \text{ W}; P_a = 2 \text{ W}$			

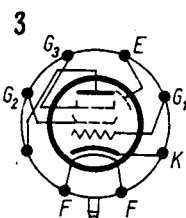
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
W 61 M	7	9,5	0,002
6 M 7	5,5	9,5	0,007
7 AH 7	6,5	7	0,005



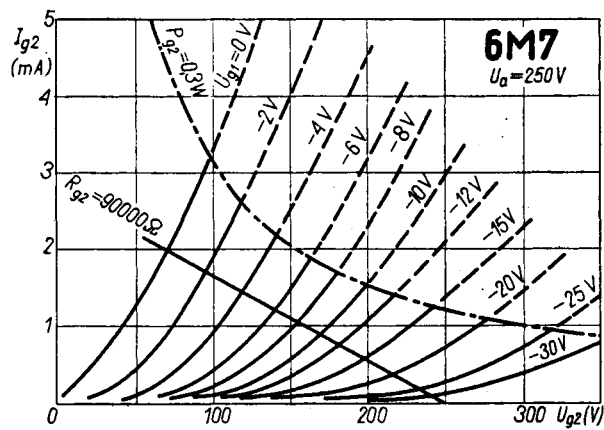
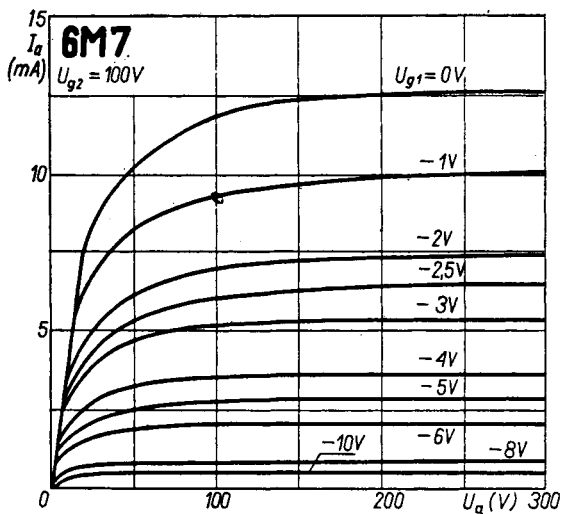
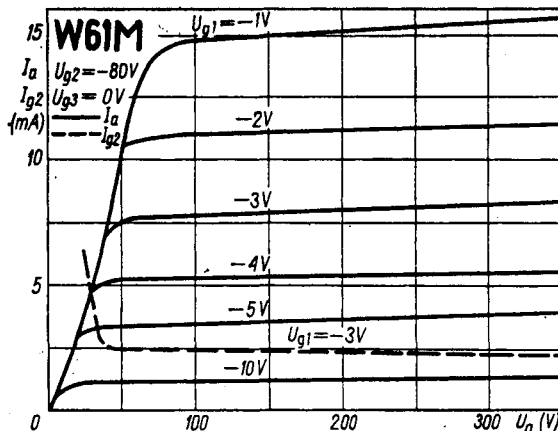
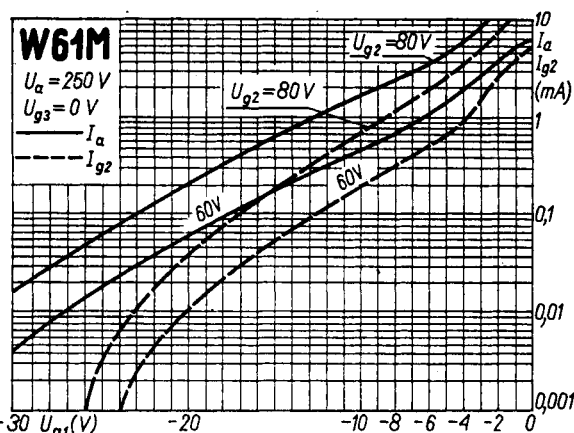
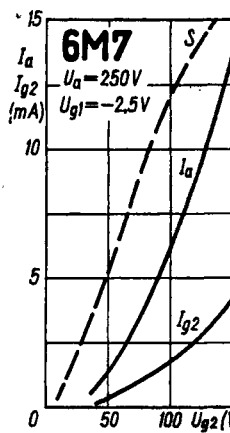
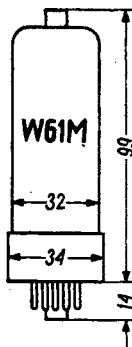
KTW61



W61M



7AH7



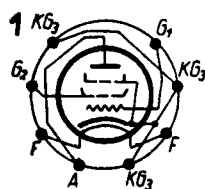
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	U_f/k	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	V	mA	W	W
EF 731 ¹⁾	eur	1	6,3	0,15	100 165	100 155	-1,2 ÷ -14	7,2	2,2	4,5 ÷ 0,025	260	120	200	16,5	0,55	1,1
5900 ²⁾	int	2	6,3	0,15												
6206 ³⁾	amer	3	6,3	0,15												

1) vide * 4, a, b, c ($U_f = 6,3 \text{ V} \pm 10\%$); 2) vide * 4, a, b, c, d, e, f, g ($U_f = 6,3 \text{ V} \pm 5\%$); 3) vide * 4, a, b, c = 5000, e

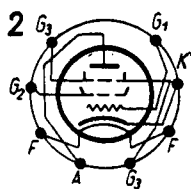
Equivalents EF 731

EF 71	eur
EF 761 ¹⁾	RFT
GL-5899 ²⁾	GE
SD 955 B ³⁾	Syl
SN 972 D ³⁾	Syl
5899 ³⁾	int
5899-A ³⁾	RCA

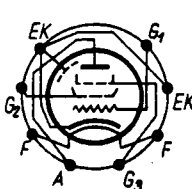
T.	C_{g1}	C_a	$C_{g1/a}$	vide
	pF	pF	pF	
EF 731	4	1,9	0,03	* 5
6206	4,3	3,4	0,015	* 6



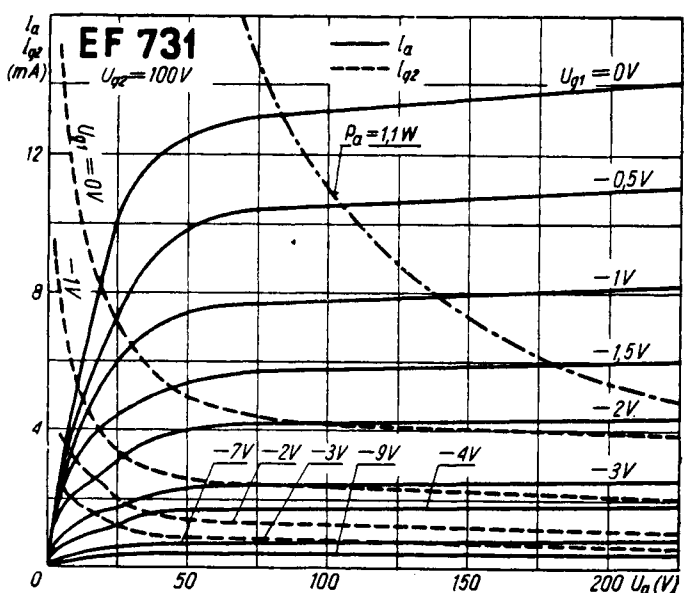
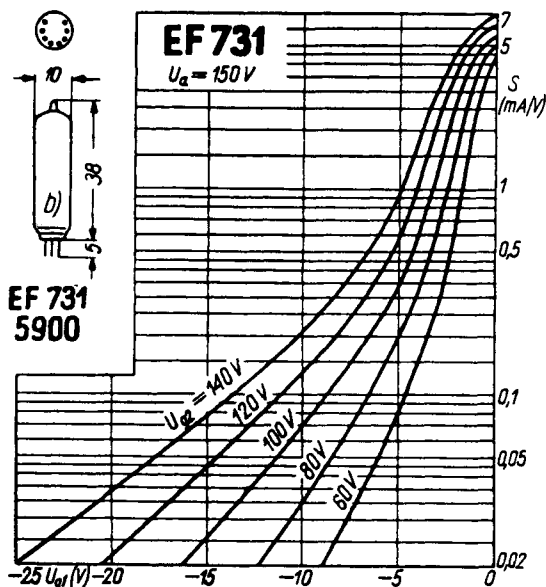
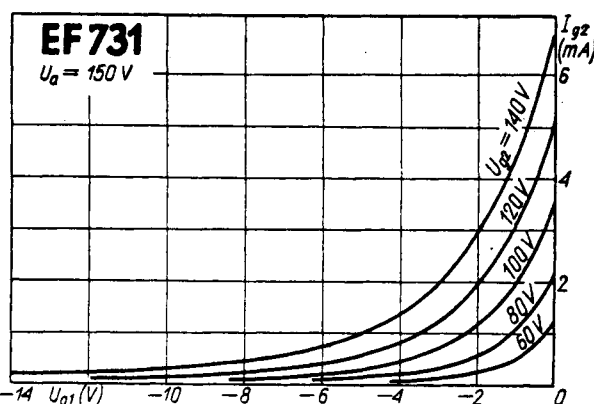
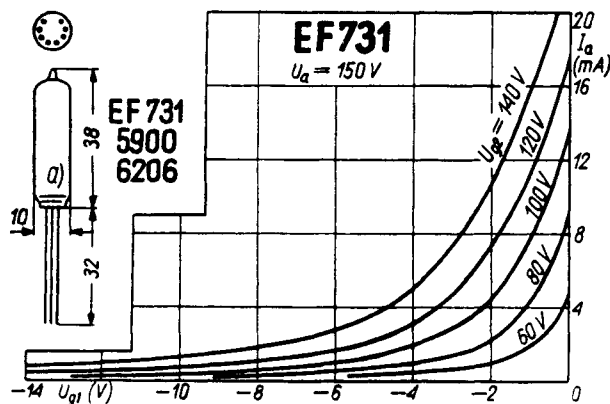
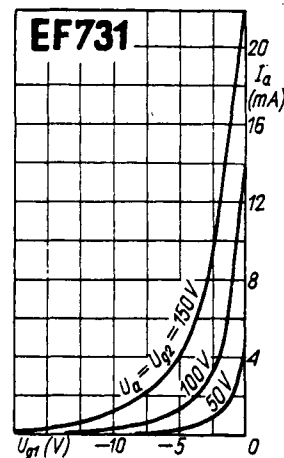
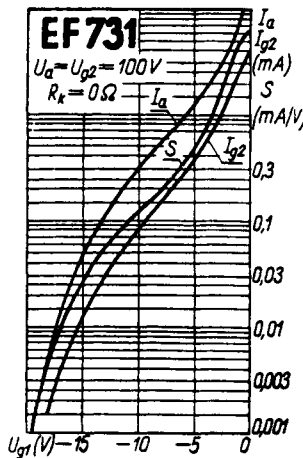
EF 731



5900



6206



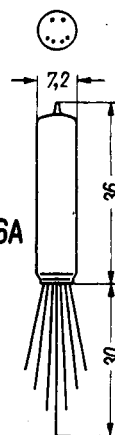
T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_k Ω	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
6K1Б	CCCP	2	6,3	0,2	120 150	120 125	0	-50	8	4	4,8 maximum	200	150	15	0,4	1,2
6K6A	CCCP	1	6,3	0,127	120 150	100 125		-50	9	4	4,5 maximum	120	150	15	0,4	1,3

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{f/k}$ pF
6K1Б	3,9÷5,7	2,8÷4,8	0,03	7
6K6A	2,8÷4,4	2,5÷4,1	0,03	4

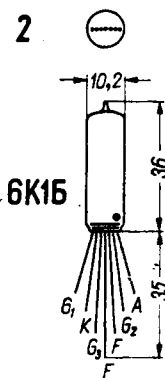
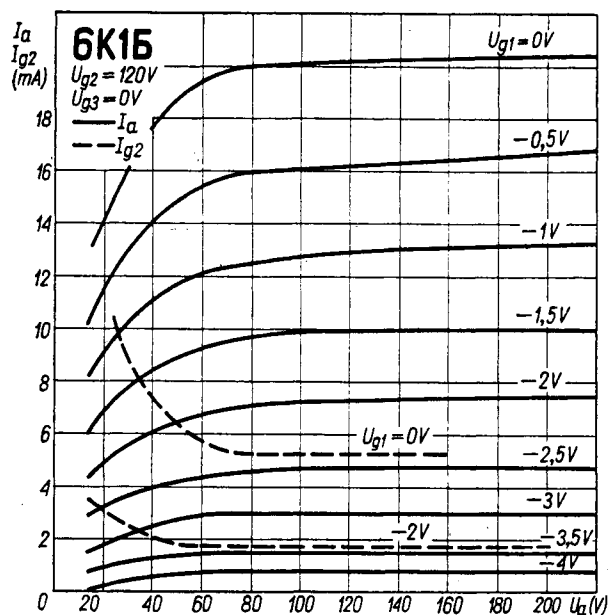
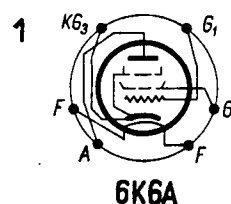
Equivalents

6K1Б-B¹⁾ CCCP = 6K1Б
 6K6A-B¹⁾ CCCP = 6K6A
 6K1Б-K²⁾ CCCP = 6K1Б

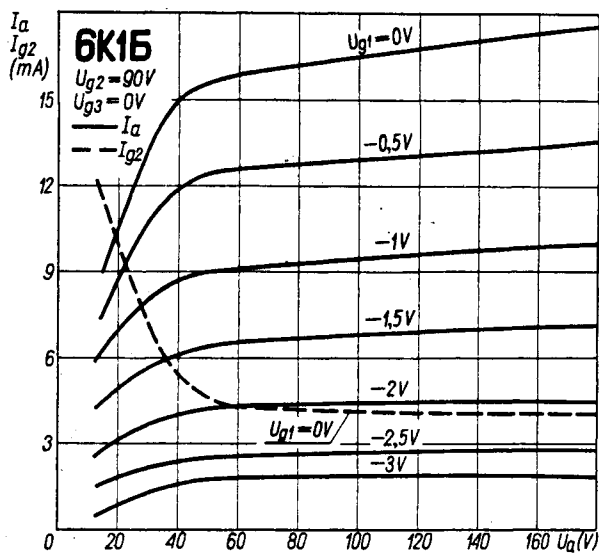
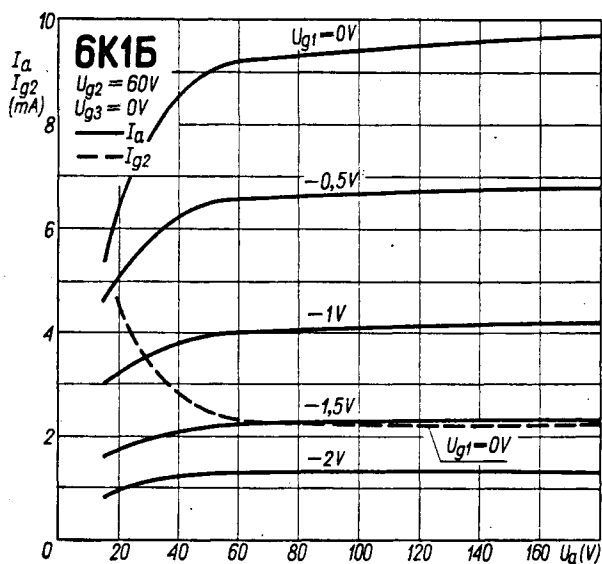
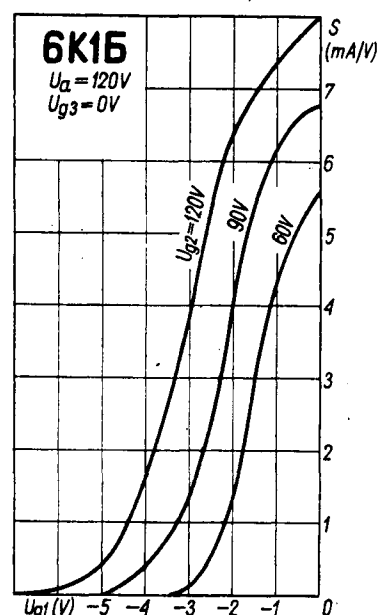
¹⁾ vide * 4; ²⁾ vide * 4, b;
 $P_a = 1,32 \text{ W}$; $P_{g2} = 0,48 \text{ W}$

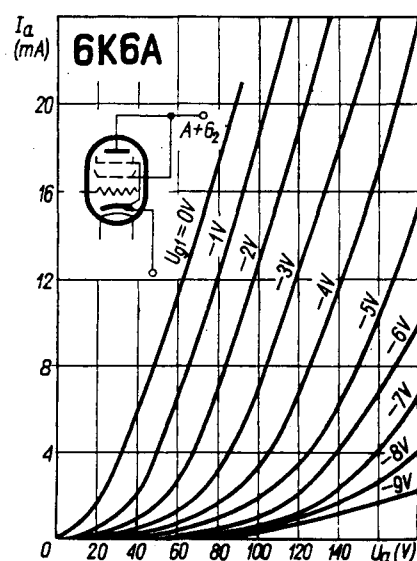
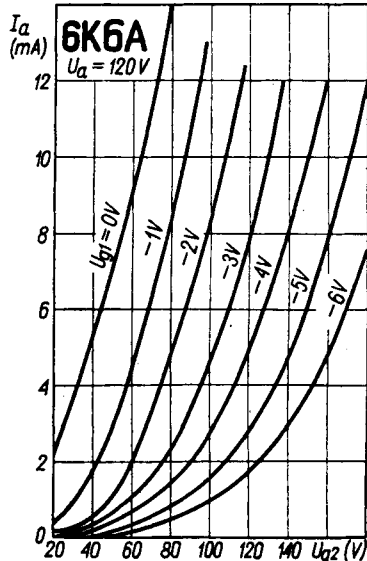
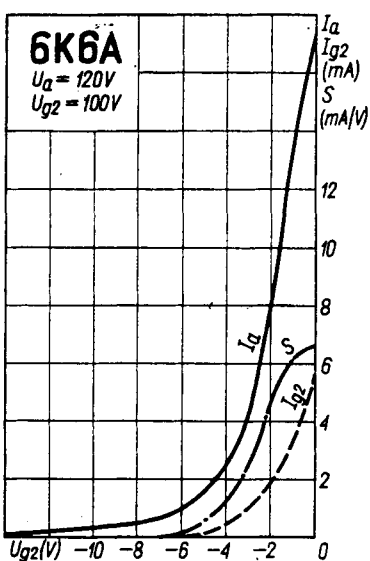
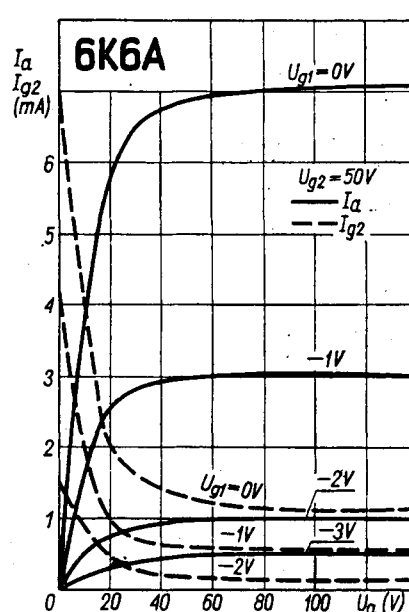
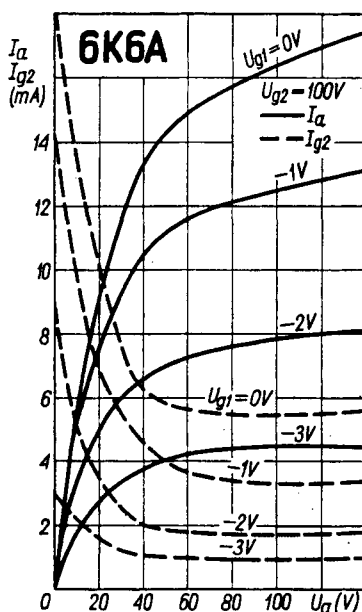
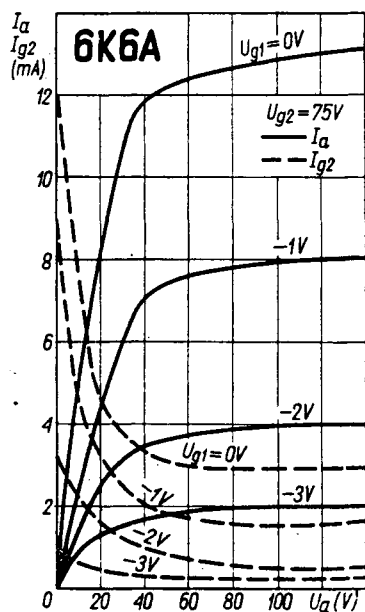
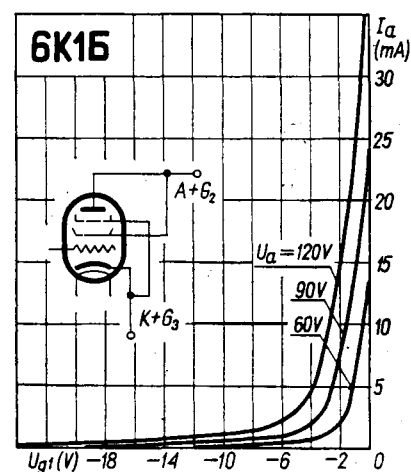
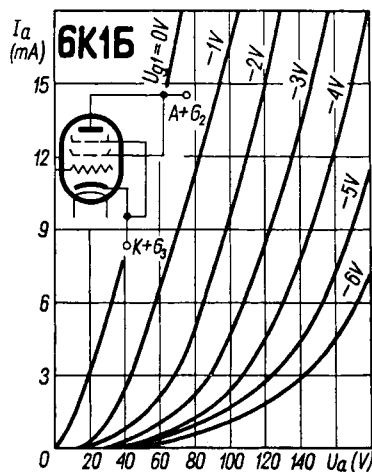
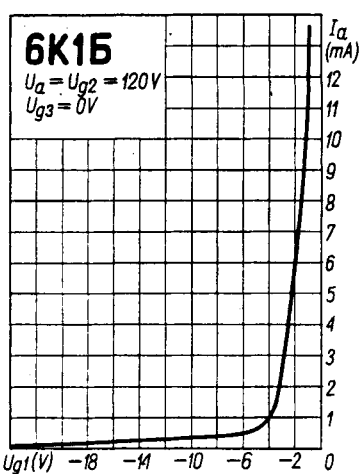


6K6A



6K15





T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	mA	W	W
EF 93	eur	I	6,3	0,3	100	100	0	-1 ÷ -20	10,8	4,4	4,3 ÷ 0,04	0,25	68			
HF 93	eur	I	12,6	0,15	250	100	0	-1 ÷ -20	11	4,2	4,4 ÷ 0,04	1,5	68			
XF 93	eur	I	3,15	0,6	90	—	—	-1,5	8,8	—	3,2	0,005	(Fig. 1)			
YF 93	eur	I	4,2	0,45	300	125	—	—						18	0,6	3

maximum $U_{f/k} = 90$ V

Equivalents

CK 5749 ¹⁾	Ray	= EF 93
GL-5749 ¹⁾	GE	= EF 93
Ж-104	CCCP	= EF 93
M 8101 ¹⁾	Mul	= EF 93
PM 04	SFR	= EF 93
W 727	Eng	= EF 93
3 BA 6	amer	= XF 93
4 BA 6	amer	= YF 93
6 BA 6	amer	= EF 93
6 BA 6 W ¹⁾	amer	= EF 93
6 F 31	Tes	= RF 93
6 K 2 II	CCCP	= EF 93
6 K 4 II	CCCP	= EF 93
6 K 4 II-B ¹⁾	CCCP	= EF 93
6 K 4 II-E ¹⁾	CCCP	= EF 93
12 BA 6	amer	= HF 93
12 F 31	Tes	= HF 93
5749 ¹⁾	amer	= EF 93
6660	amer	= EF 93

¹⁾ vide * 4, a, b, c, f, g ($U_f = 6,3$ V ± 10%)

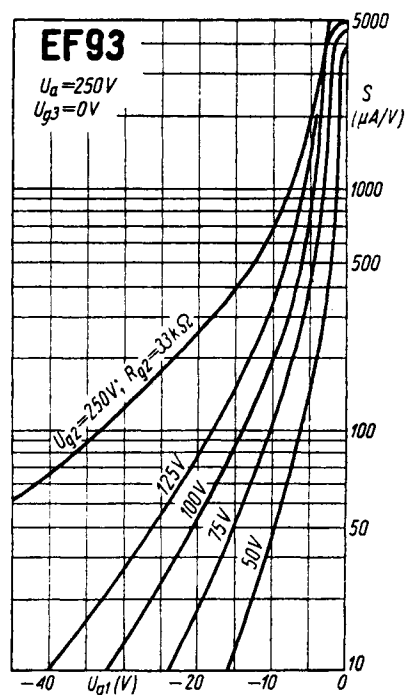
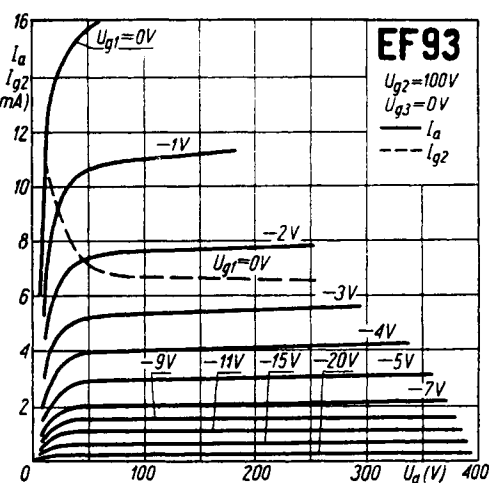
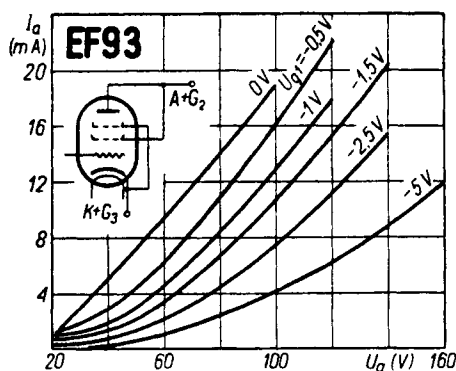
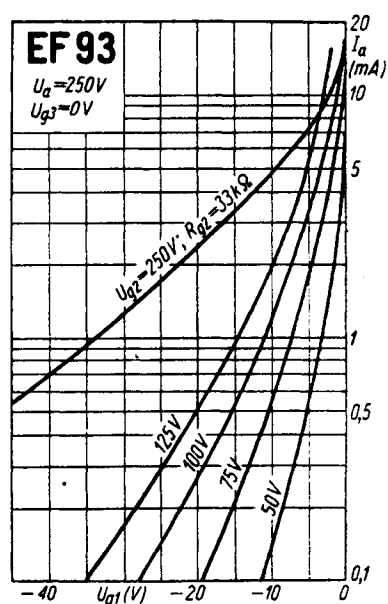
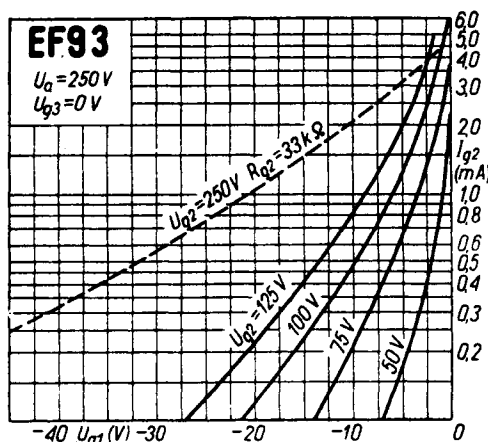
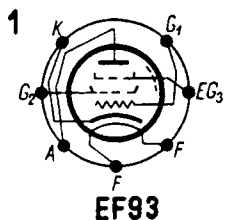
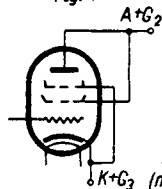
²⁾ vide * 4, a, b, c = 5000, d

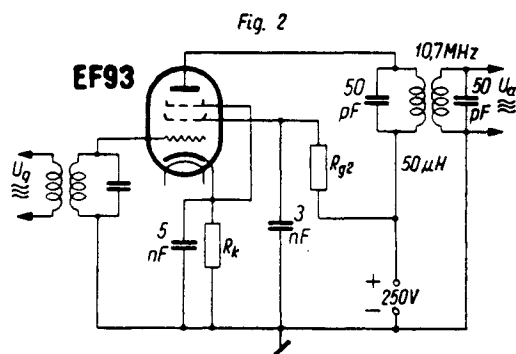
³⁾ vide * 4, a, b, d, e

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
5,5	5	0,0035



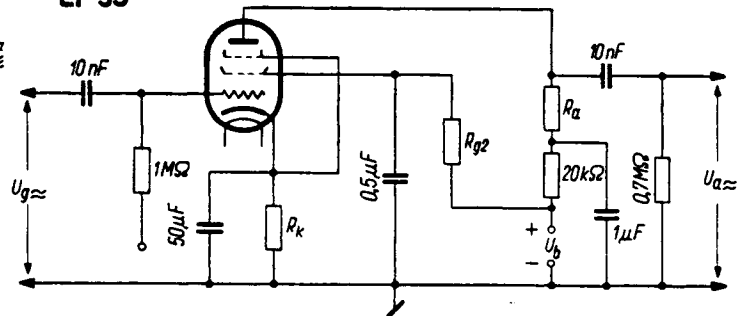
Fig. 1





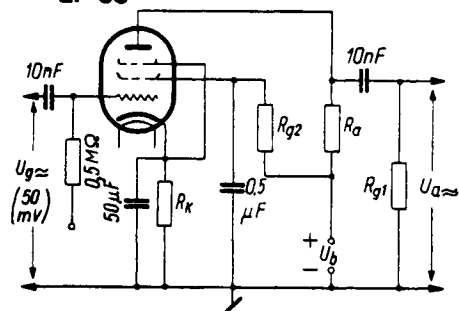
EF 93

Fig. 3



EF 93

Fig. 4

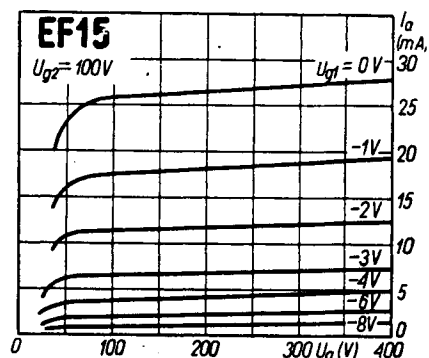
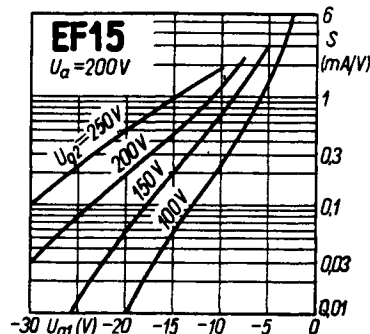
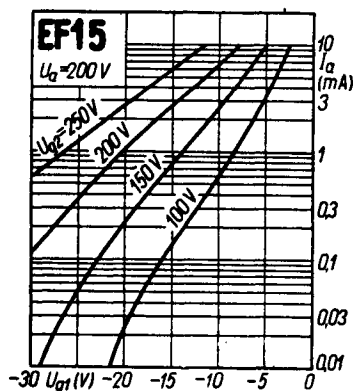
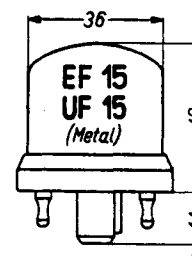
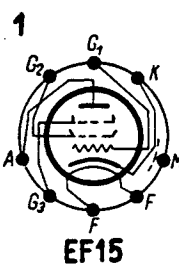


	U_b	R_a	R_{g2}	R_k	U_{g1}	I_a	I_{g2}	I_k	$U_{a\approx}$	μ
	V	MΩ	MΩ	Ω	V	mA	mA	mA	V	V/V
Fig. 2	250		0,068	190	-1,5	6,5	2,3			44
	250		0,033	68	-1 ÷ -13,5	11,5	4,2			44
Fig. 3	250	0,05	0,11	200	0 ÷ -12				5 ÷ 10	70
	250	0,1	0,25	250	0 ÷ -12				5 ÷ 10	86
Fig. 4	200	0,1	0,35	500	-0,87			1,7	6	120
	200	0,2	0,8	1100	-0,86			0,88	7,3	146
	250	0,15	0,48	550	-0,88			1,66	8,7	173
	250	0,3	1,1	1000	-0,83			0,87	10,3	205

T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_l	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	W	W
EF 15	TIF	I	6,3	0,45	{ 250 ¹⁾	100	0	-2 ÷ -16	12	3	6 ÷ 0,06	0,5		
UF 15	TIF	I	25	0,1	{ 300	125							0,7	3

¹⁾ UF 15: $U_a = 200$ V

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
EF 15	9,5	6,5	0,005	0,025



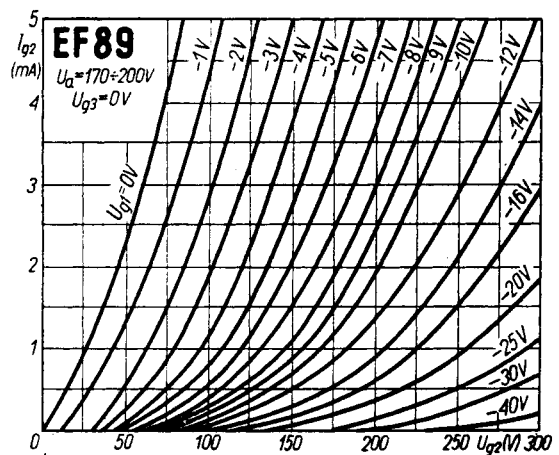
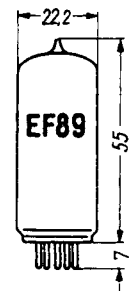
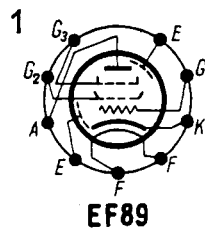
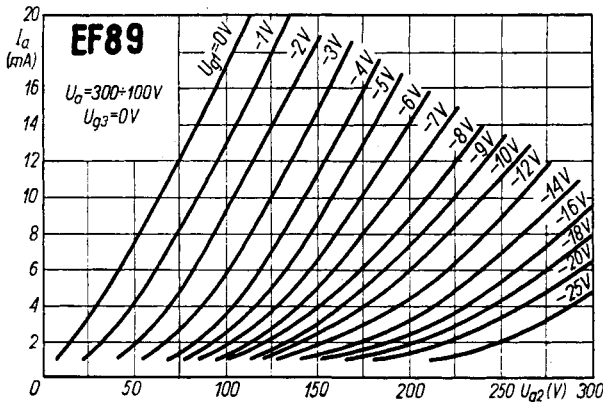
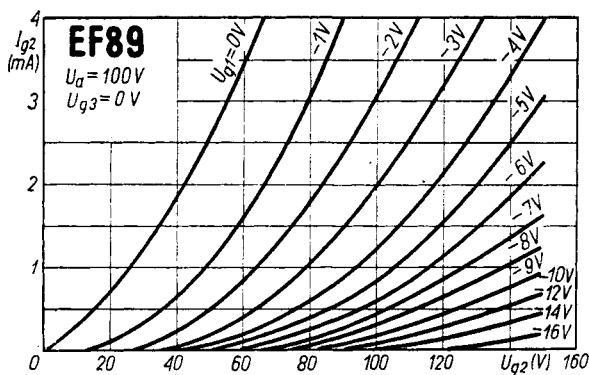
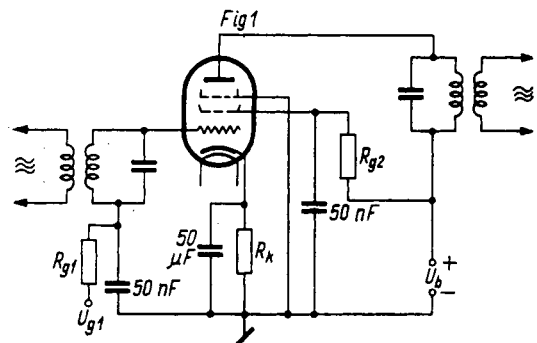
T.			U_f	I_f	Cl.	$U_a = U_b$	R_{g2}	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_{g1}				
			V	A		V	kΩ	V	V	V	mA	mA	mA/V	MΩ	Ω	MΩ				
EF 89 UF 89	eur eur	I I	6,3 12,6	0,2 0,1	stat.	170		100	0	-1,2 ¹⁾	12	4,4	4,4	0,4						
						250		85	0	-1,2 ¹⁾	9	3,2	4	0,75						
						250		100	0	-2	9	3	3,6	0,9						
						Fig. 1	100	0	100	0	-1,9÷-10	8,6	3,1	3,3÷0,16	0,3	160				
							100	16	66	0	-1,05÷-10	6	2,1	3,2÷0,15	0,475	130				
							170	16	109	0	-1,95÷-20	11,2	3,8	3,75÷0,11	0,45	130				
					200		25	107	0	-1,9÷-20	11	3,7	3,8÷0,16	0,55	130					
					250		50	100	0	-1,95÷-20	9,2	3,1	3,6÷0,24	0,9	160					
					Fig. 1 ²⁾		100	4	82	0	0÷-10	11,8	4,4	5÷0,16	0,2	0	10			
							100	20	50	0	0÷-10	7,2	2,5	4,1÷0,14	0,45	0	10			
							170	20	79	0	0÷-20	12,4	4,5	5,6÷0,11	0,4	0	10			
							200	40	64	0	0÷-20	10	3,4	5,15÷0,15	0,475	0	10			
						250	60	61	0	0÷-20	9,2	3,15	4,7÷0,22	0,7	0	10				
						300	300 maximum EF 89 $U_f/k = 100$ V } $I_k = 16,5$ mA; $P_{g2} = 0,45$ W													
						250	250 maximum UF 89 $U_f/k = 150$ V } $P_a = 2,25$ W													

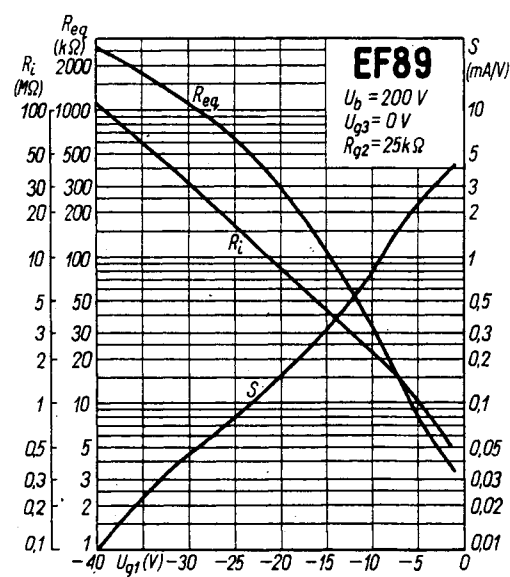
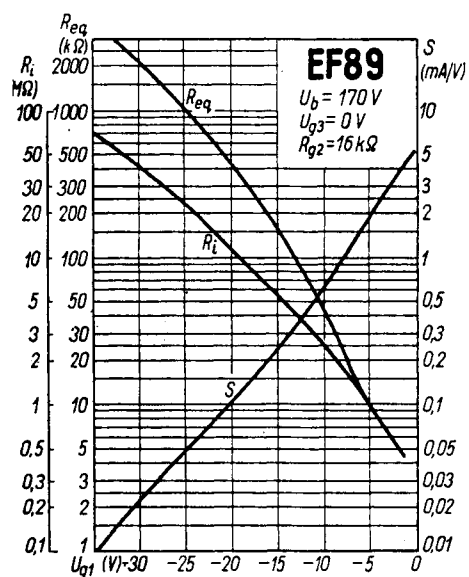
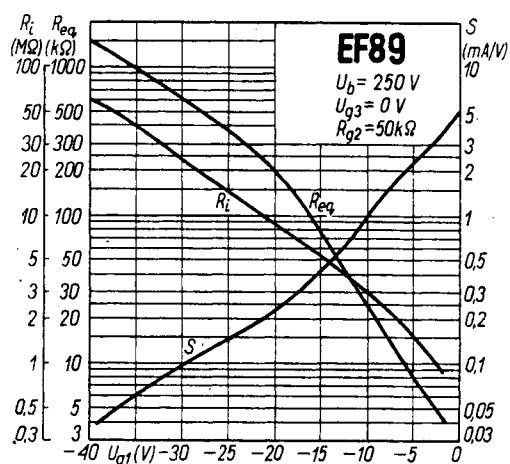
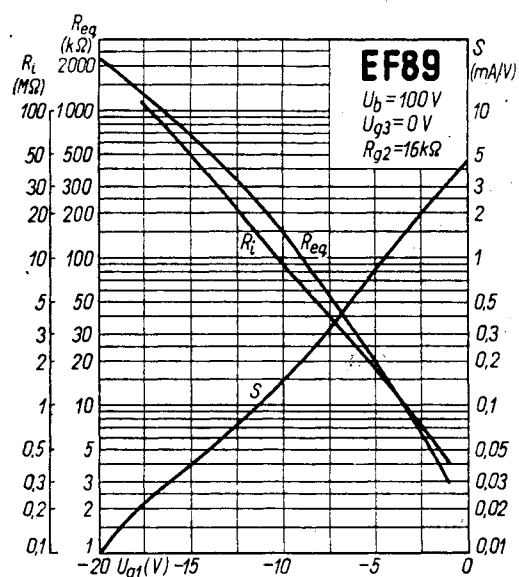
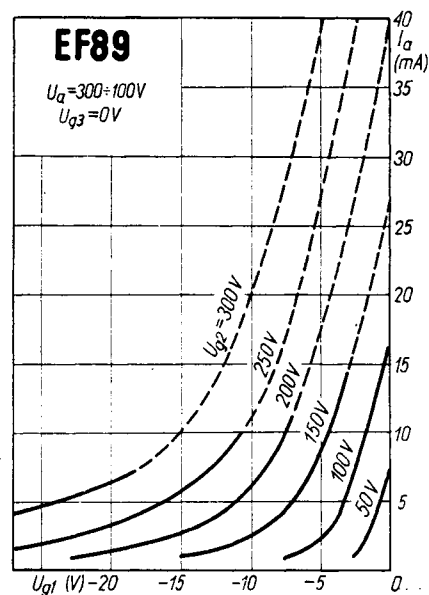
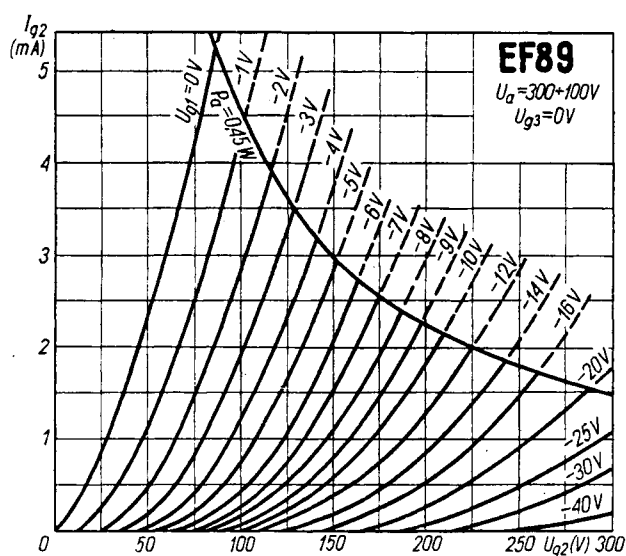
¹⁾ $U_{g1} = -1,2$ V; $I_{g1} > 0$ mA; ²⁾ $U_{g1} = 0$ V; $I_{g1} > 0$ mA
 $U_{g1} = -1,5$ V; $I_{g1} = 0$ mA $U_{g1} = -1,5$ V; $I_{g1} = 0$ mA

Equivalents

6 DA 6	amer = EF 89
6 DG 7	amer = EF 89
12 DA 6	amer = UF 89

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
5,5	5,1	0,002	0,05





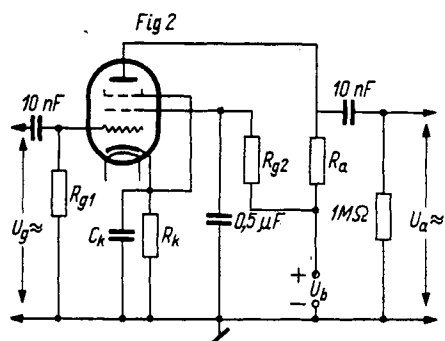
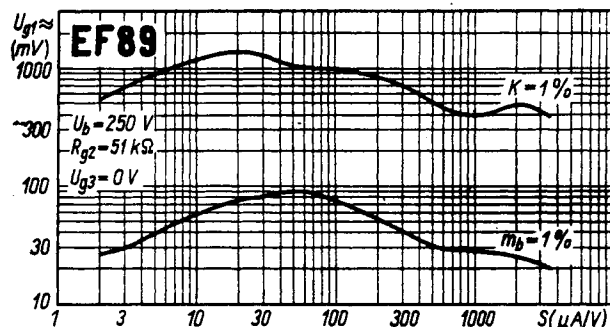
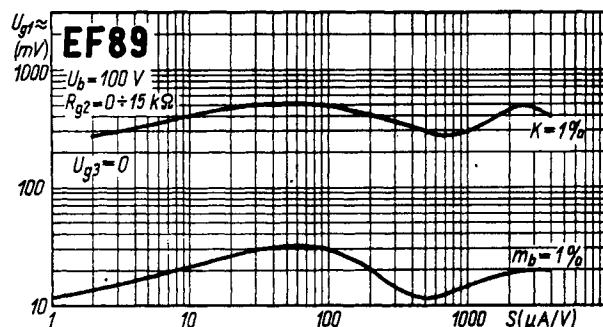
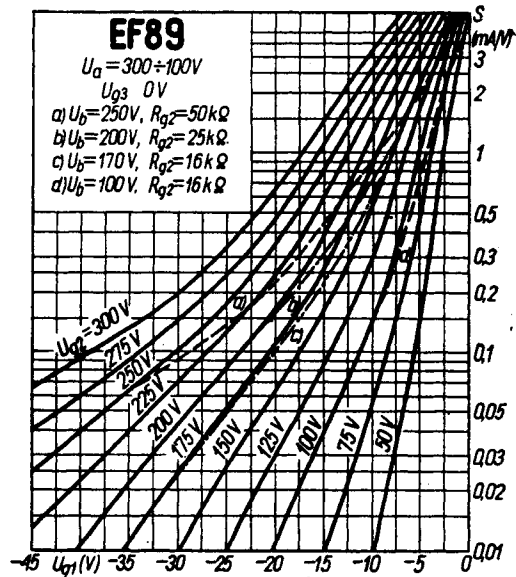
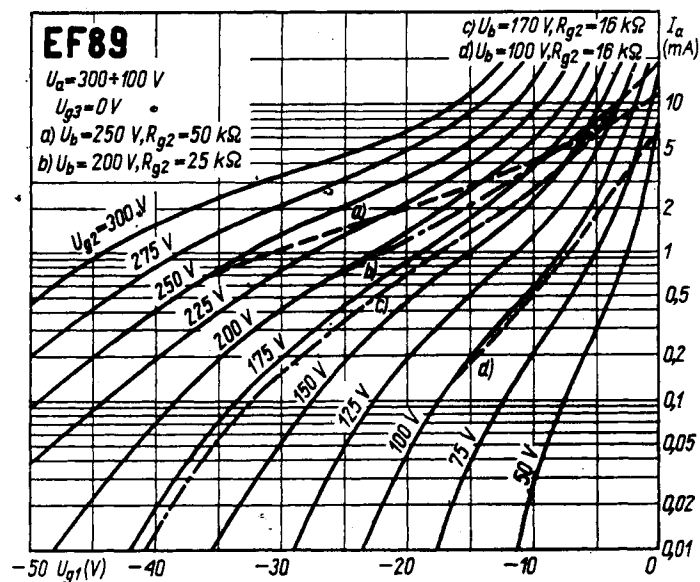


Fig. 2

U_b V	R_a M Ω	R_{g2} M Ω	R_{g1} M Ω	R_k k Ω	C_k μF	I_a mA	I_{g2} μ	μ V/V	$U_a \approx$ V	h %
100	0,1	0,3	1	2	10	0,6	0,22	62	3 ÷ 8	0,65 ÷ 1,9
170	0,1	0,3	1	0,8	10	1,3	0,45	90	3 ÷ 8	0,6 ÷ 0,95
200	0,1	0,3	1	0,7	10	1,45	0,5	100	3 ÷ 8	0,5 ÷ 0,7
250	0,1	0,3	1	0,5	10	2	0,7	115	3 ÷ 8	0,2 ÷ 0,5
100	0,1	0,5	10	0	0	0,53	0,17	98	3 ÷ 8	1,15 ÷ 2,9
170	0,1	0,5	10	0	0	1	0,33	135	3 ÷ 8	0,9 ÷ 2,15
200	0,1	0,5	10	0	0	1,15	0,37	150	3 ÷ 8	0,85 ÷ 2,1
250	0,1	0,5	10	0	0	1,5	0,48	170	3 ÷ 8	0,85 ÷ 1,9

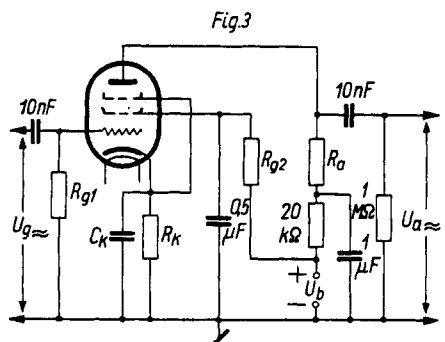


Fig. 3

U_b V	R_a M Ω	R_{g2} M Ω	R_{g1} M Ω	R_k k Ω	C_k μF	I_a mA	I_{g2} mA	μ V/V	$U_a \approx$ V	h %
100	0,2	0,7	1	3	10	0,38	0,15	77	3 ÷ 8	0,65 ÷ 1,8
170	0,2	0,7	1	1,8	10	0,65	0,2	95	3 ÷ 8	0,25 ÷ 1,1
200	0,2	0,7	1	1,5	10	0,7	0,22	112	3 ÷ 8	0,6 ÷ 1,6
250	0,2	0,7	1	1,3	10	0,9	0,28	135	3 ÷ 8	0,35 ÷ 1,05
100	0,2	1,2	10	0	0	0,25	0,08	120	3 ÷ 8	1,1 ÷ 2,5
170	0,2	1,2	10	0	0	0,45	0,14	175	3 ÷ 8	0,7 ÷ 1,7
200	0,2	1,2	10	0	0	0,55	0,16	200	3 ÷ 8	0,65 ÷ 1,55
250	0,2	1	10	0	0	0,79	0,24	240	3 ÷ 8	0,5 ÷ 1,3

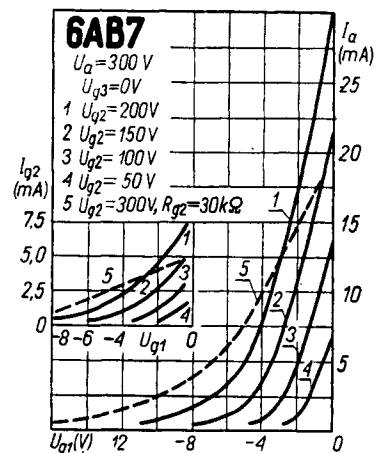
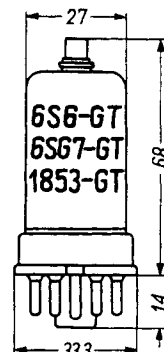
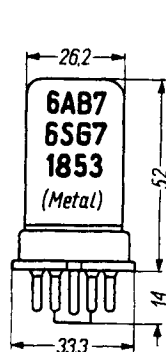
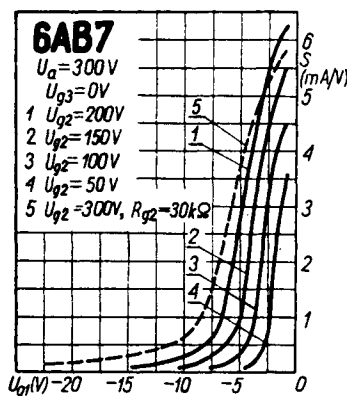
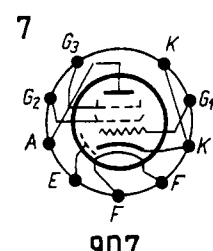
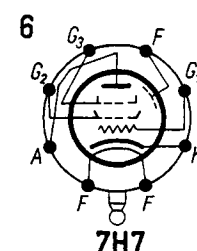
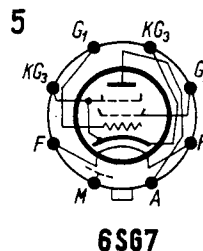
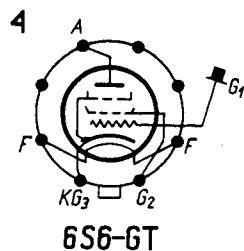
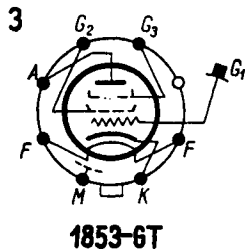
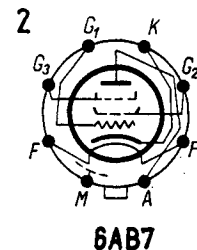
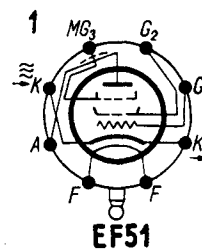
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	U_f/k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	Ω	V	W	W
EF 51	eur	1	6,3	0,35	250 300	250 300	-2÷-8	14	2,6 maximum	9,5±0,1	0,5		50	1	4,5
6 AB 7	amer	2	6,3	0,45	300 300	200 <300 ¹⁾	-3÷-15 -3÷-22,5	12,5 12,5	3,2 3,2	5±0,05 5±0,05	0,7 0,7		90	0,65	3,75
1853-GT	amer	3	6,3	0,45	300 300	200 200				maximum					
6 S 6-GT	amer	4	6,3	0,45	250 100	100 100	-2÷-20 -1÷-11,5	13 8,2	3 3,2	4±0,04 4,1±0,04	0,35 0,25				
6 SG 7	int	5	6,3	0,3	250 125	125 125	-1÷-14 -1÷-14	11,8 11,8	4,4 4,4	4,7±0,04 4,7±0,04	0,9 0,9				
12 SG 7	int	5	12,6	0,15	250 300	150 200	-2,5÷-17,5	9,2	3,4 maximum	4±0,04	1		90	0,6	3
7 H 7	int	6	6,3	0,3	100 250	100 150	-1÷-12 -2,5÷-19	8,2 9,5	3,3 3,5	4,8±0,035 4,2±0,035	0,25 0,8	80 200			
14 H 7	int	6	12,6	0,15	250 300	<250 ¹⁾ 150	-2,5÷-30	9,5	3,5 maximum	4,2±0,035	0,8	200			
9 D 7	Bri	7	6,3	0,3 ²⁾	250 275	100 275	-1,2÷-20	10	3,3 maximum	8,4±0,07 ($I_k = 30$ mA)	0,75	100	100	0,5	2,5
													250	1,2	2,75

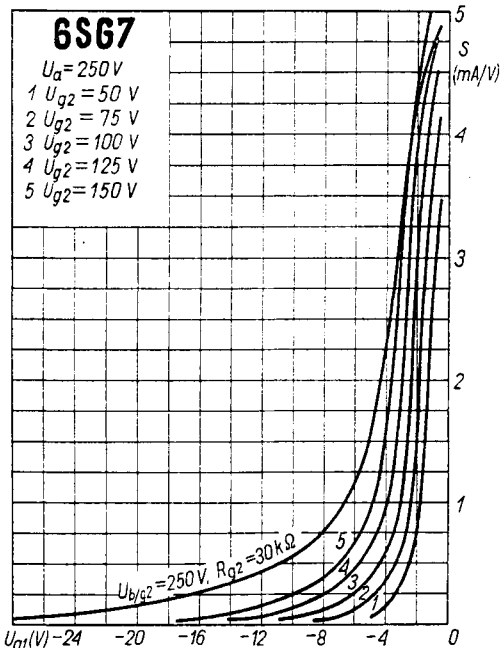
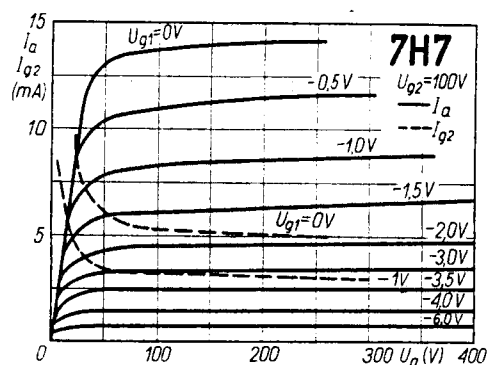
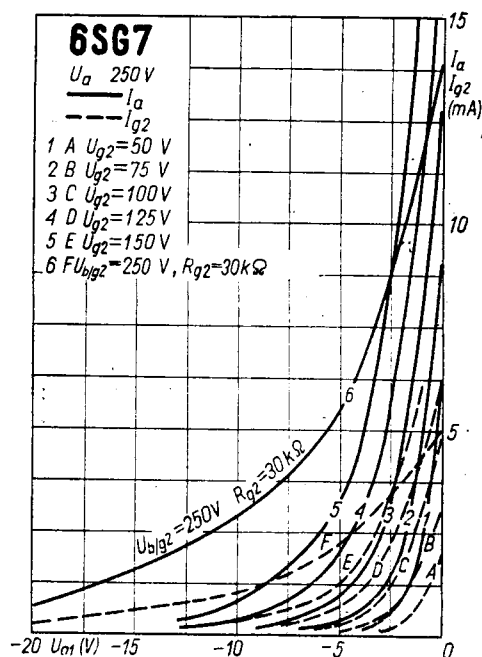
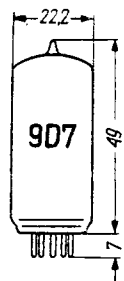
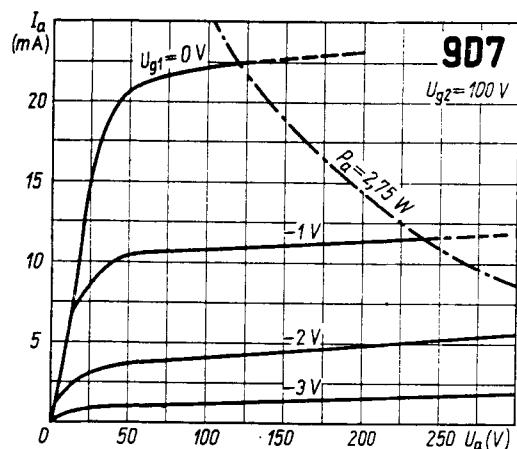
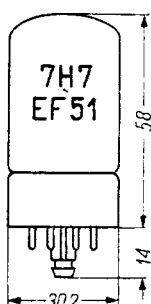
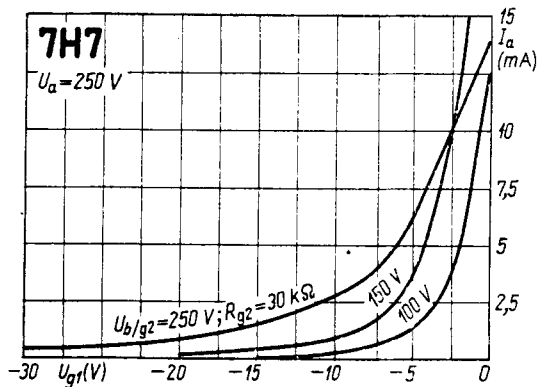
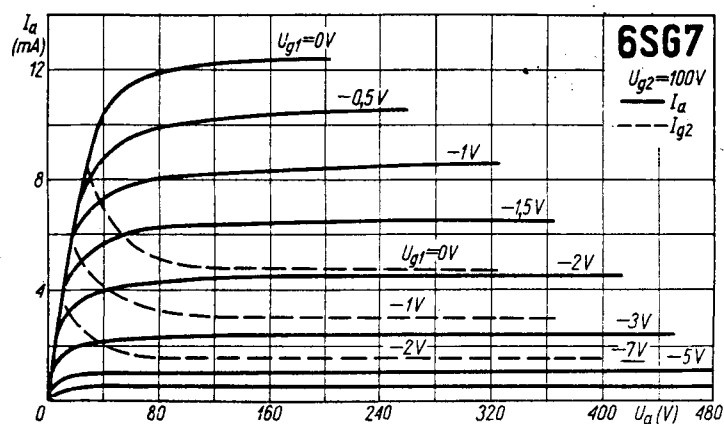
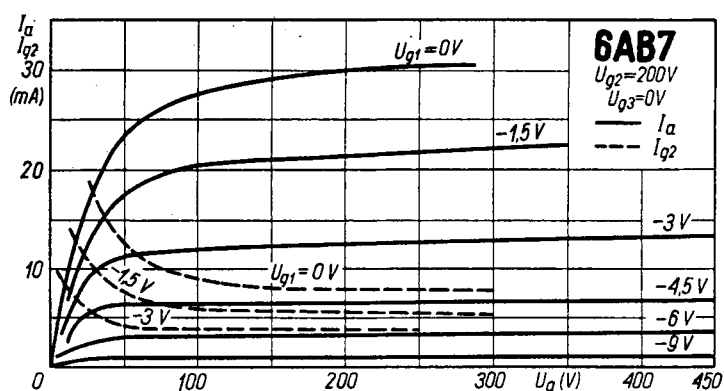
¹⁾ $U_{b/g2} = 300$ V, $R_{g2} = 30$ kΩ; ²⁾ $U_{b/g2} = 250$ V, $R_{g2} = 30$ kΩ

Equivalents

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 51	10	4	0,007
6 AB 7	8	8	0,015
6 SG 7	8,5	7	0,003
7 H 7	8	7	0,007
9 D 7	9	3	0,01

W 148	Eng = 7 H 7
6 AB 7-Y	RCA = 6 AB 7
6 K 3 M	CCCP = 6 AB 7
6 K 4	CCCP = 6 SG 7
6 K 12	CCCP = 6 SG 7
6 K 15 B	CCCP = 6 AB 7
12 K 4	CCCP = 12 SG 7
12 K 12 B	CCCP = 12 SG 7
12 SG 7-Y	RCA = 12 SG 7
1853	amer = 6 AB 7
6006	amer = 6 SG 7





T.			U_f	I_f	Cl.	$U_a = U_b$	R_{g2}	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g3}	S	R_t	R_k
			V	A		V	k Ω	V	V	V	mA	mA	mA/V	M Ω	Ω
EF 85	eur	I	6,3	0,3	stat	100		60	0	-1,1	5,5	1,4	5	0,15	
HF 85	eur	I	12,6	0,15		200		85	0	-1,5	10	2,3	6	0,25	
UF 85	eur	I	19	0,1		250		100	0	-2	10	2,5	6	0,5	
XF 85	eur	I	3,4	0,6	Fig. 1	100	27	57	0	-1,1 ÷ -15	5,5	1,6	5 ÷ 0,05	0,15 ÷ 5	160
						170	27	100	0	-2 ÷ -24	9,7	2,6	5,9 ÷ 0,059	0,2 ÷ 5	160
						200	27	116	0	-2,3 ÷ -28	11,4	3,1	6,1 ÷ 0,061	0,2 ÷ 5	160
						200 ¹⁾	60	80	0	-1,5 ÷ -30	8	2	5,7 ÷ 0,022	0,4 ÷ 10	
					Fig. 2	250	60	100	0	-2 ÷ -35	10	2,5	6 ÷ 0,06	0,5 ÷ 5	
						250	20	97	0	-2 ÷ -35	10	2,5	6 ÷ 0,06	0,5 ÷ 5	
						300 ²⁾		300 ²⁾		maximum					

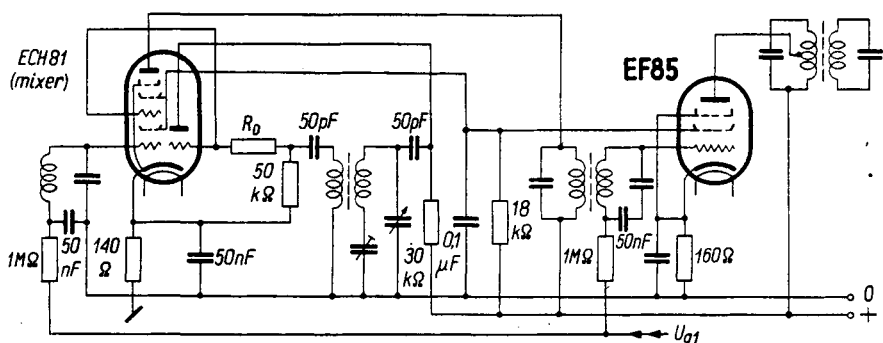
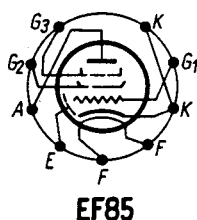
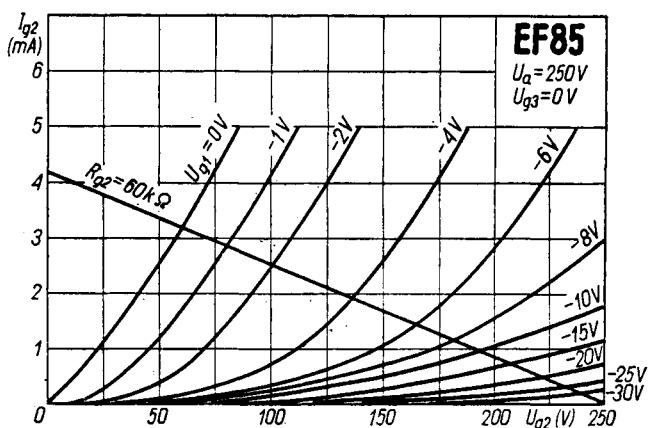
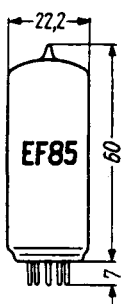
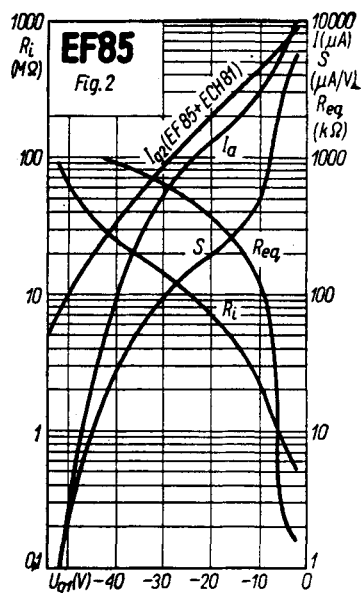
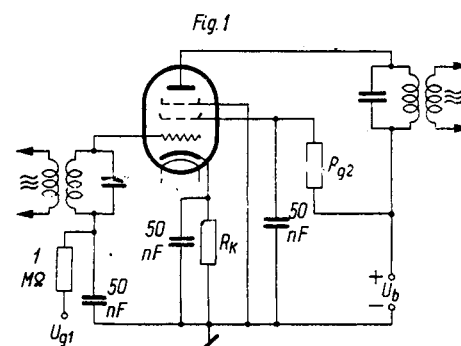
($U_f/k = 150$ V; $I_k = 15$ mA;
 $P_{g2} = 0,65$ W; $P_a = 2,5$ W)

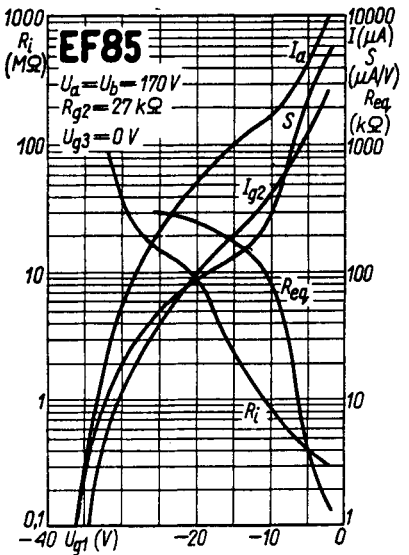
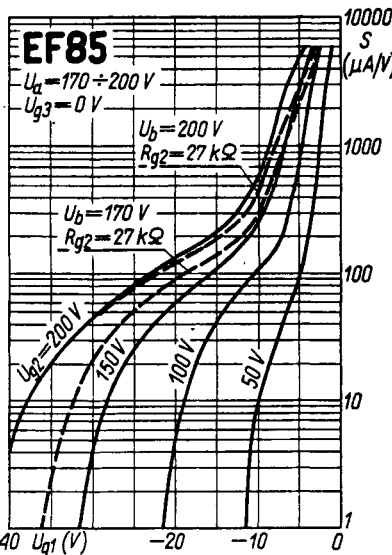
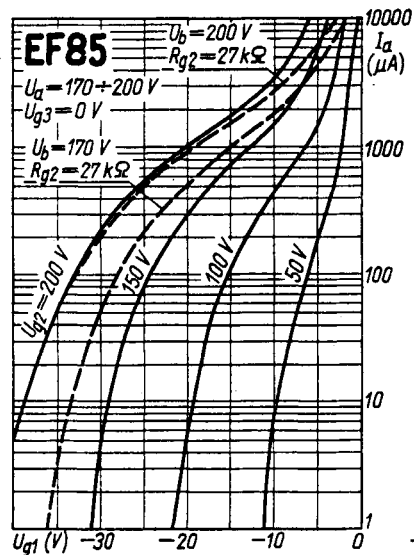
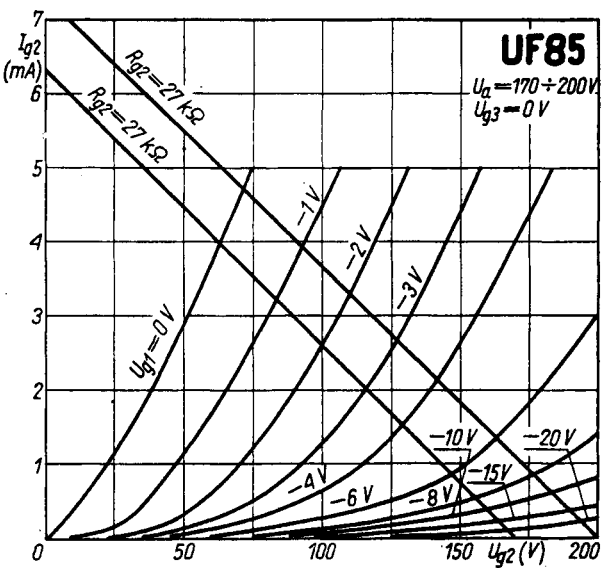
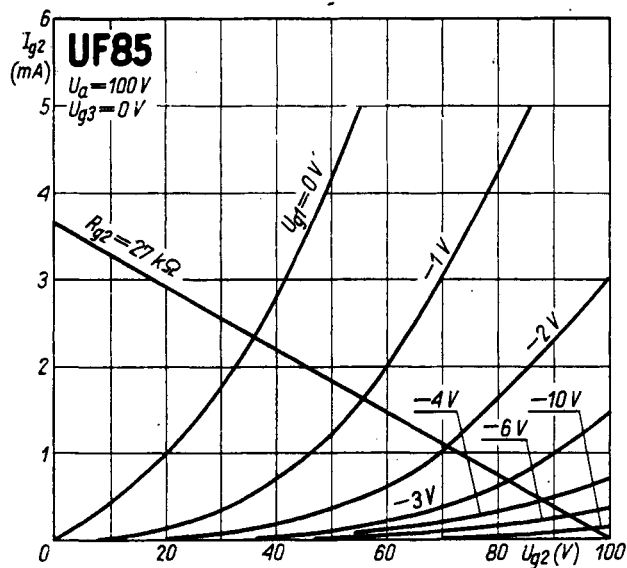
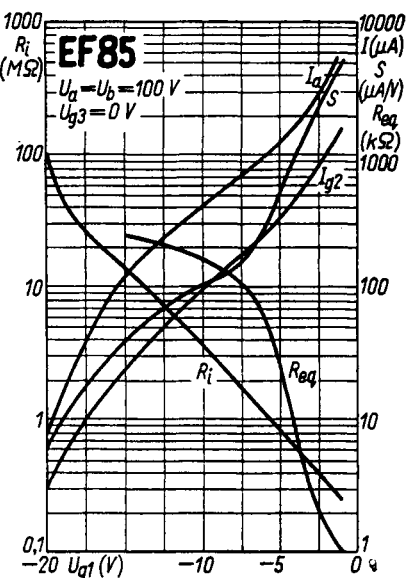
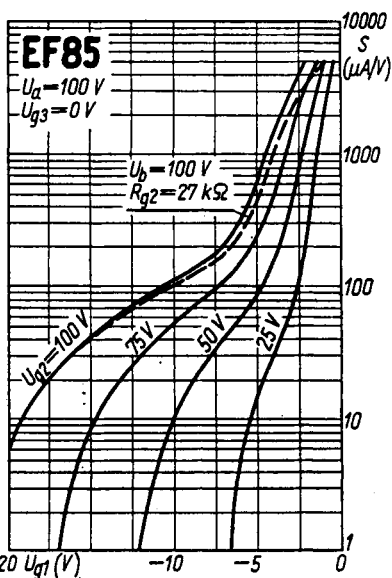
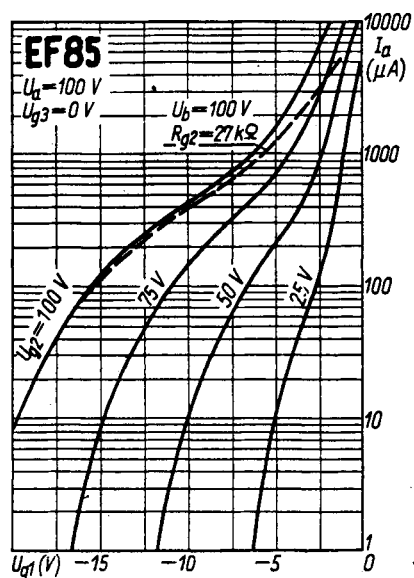
¹⁾ $R_{g1} = 3$ M Ω ; ²⁾ UF 85 — $U_{a(max)} = U_{g2(max)} = 250$ V

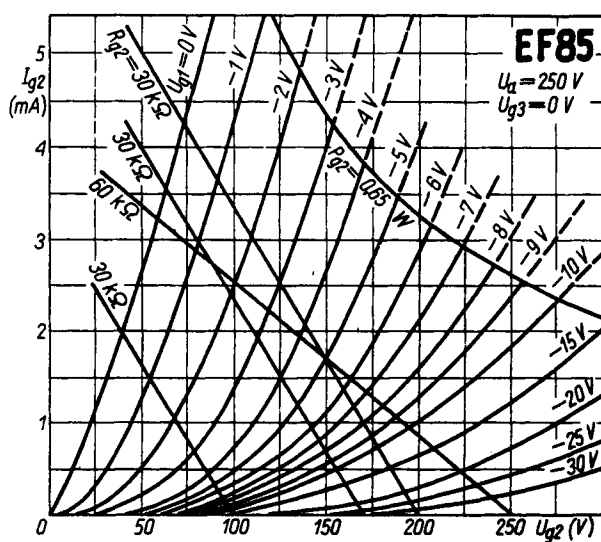
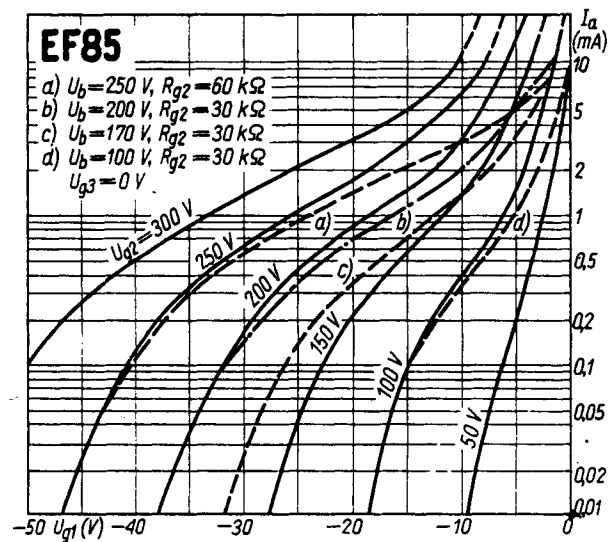
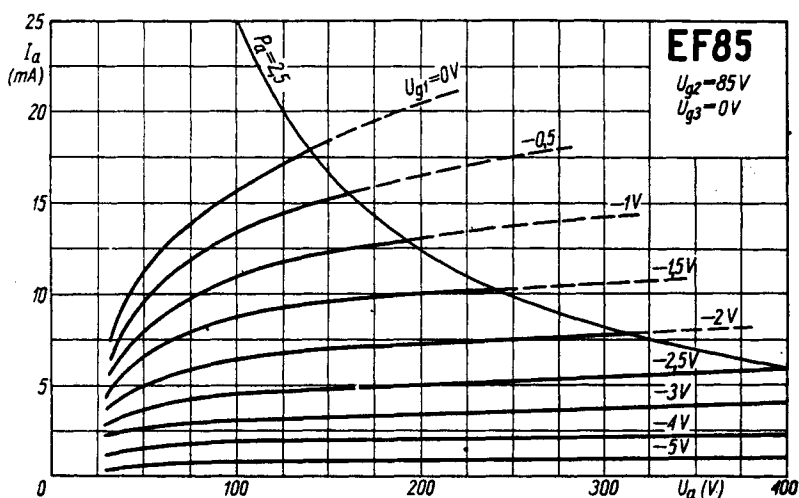
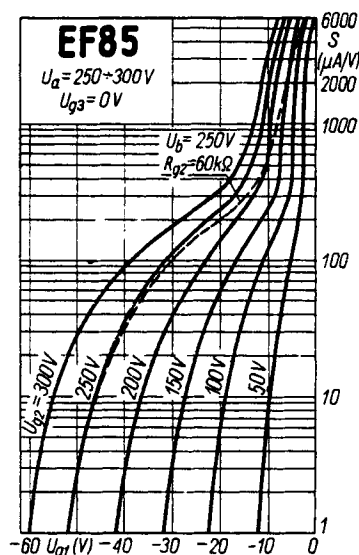
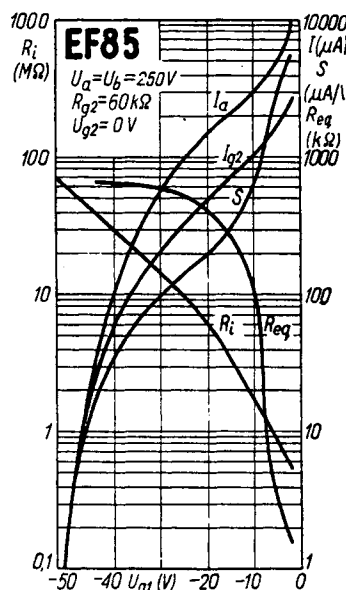
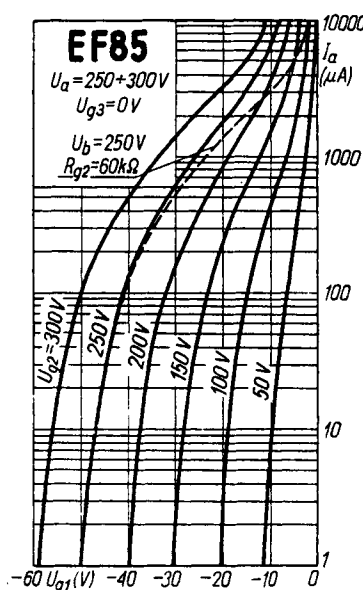
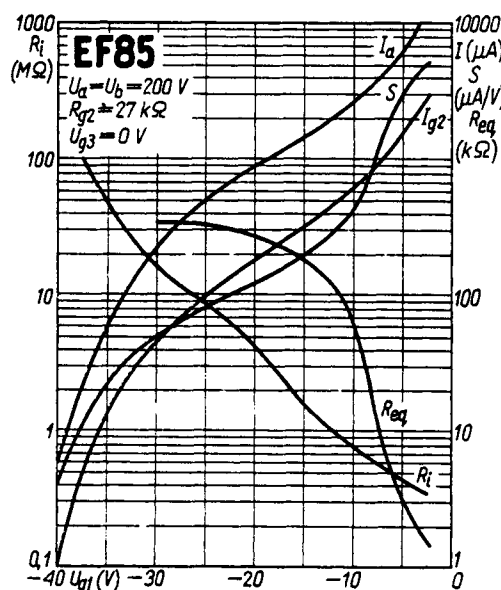
Equivalents

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
6,9	3,2	0,007	0,15

W 719	Eng = EF 85
3 BY 7	amer = XF 85
6 BY 7	amer = EF 85
6 F 19	Ede = EF 85
19 BY 7	amer = UF 85







T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_t	R_k	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	V	mA	W	W
EF 805 S ¹⁾	Tlf	1	6,3	0,3	200	85 ²⁾	0	-1,5 ÷ -30	10	2,5	6,5 ÷ 0,06	0,35	120				
					250	250		-50			maximum						
W 729	Eng	1	6,3	0,3	170	170	0	-2 ÷ -30	10	2,5	6 ÷ 0,6			100	12,5	0,5	2
					300	300		maximum			($\mu_{(g2/g1)} = 47$)			150			
3 BZ 6	amer	2	3,15	0,6													
4 BZ 6	amer	2	4,2	0,45	125	125	0	-1 ÷ -19	14	3,6	8 ÷ 0,05	0,26	56				
6 BZ 6	amer	2	6,3	0,3	300	250					maximum			200		0,5	2,5
12 BZ 6	amer	2	12,6	0,15													
6 DC 6	amer	2	6,3	0,3	200	150	0	-1,5 ÷ -12	9	3	5,5 ÷ 0,05	0,5	180				
					300	250					maximum			100		0,5	2

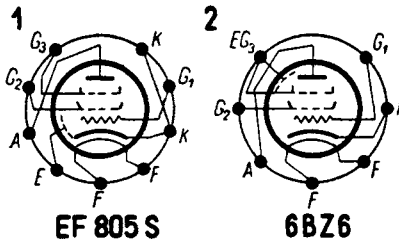
¹⁾ vide * 4, a, b, c = 10.000, d, e, f, g ($U_f = 6,3 \text{ V} \pm 5\%$); ²⁾ $U_b = 200 \text{ V}$, $R_{g2} = 45 \text{ k}\Omega$

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EF 805 S	7,7	3,7	0,007
W 729	7,5	3,3	0,007
6 BZ 6	7,5	1,8	0,02
6 DC 6	6,5	2	0,02

Equivalents

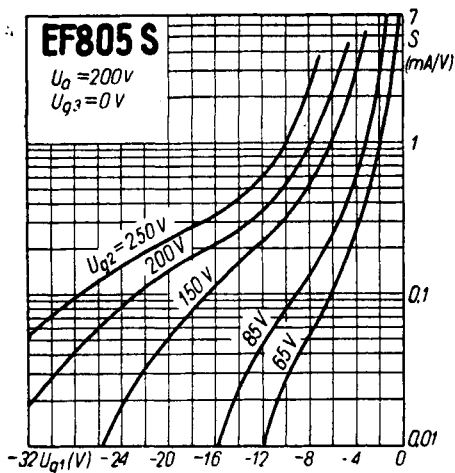
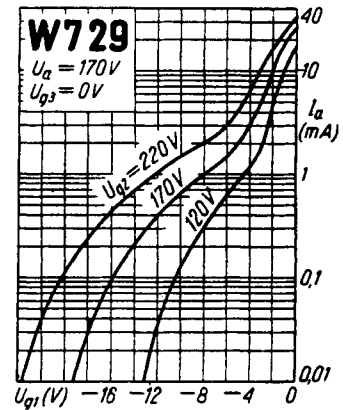
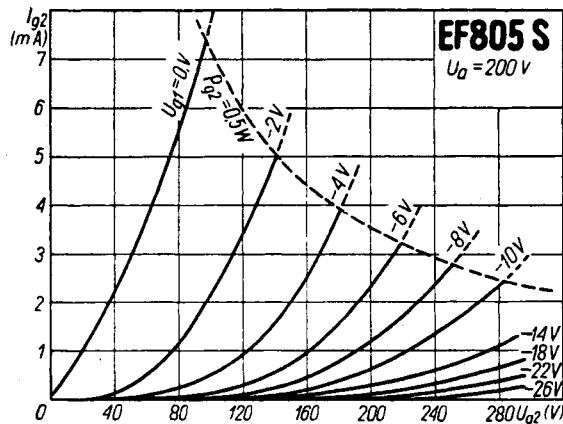
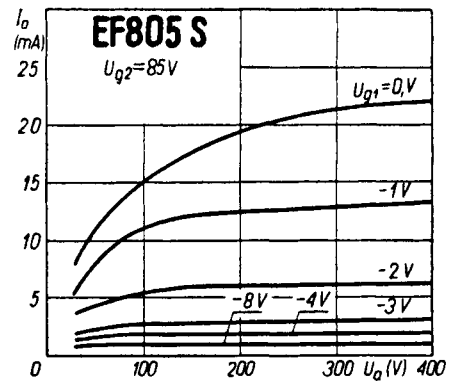
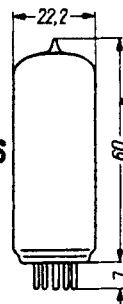
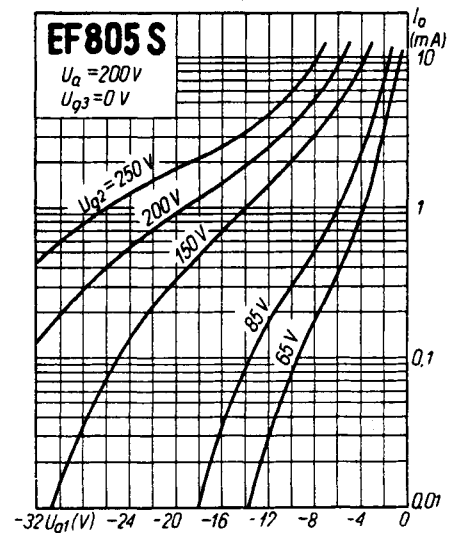
6 F 20

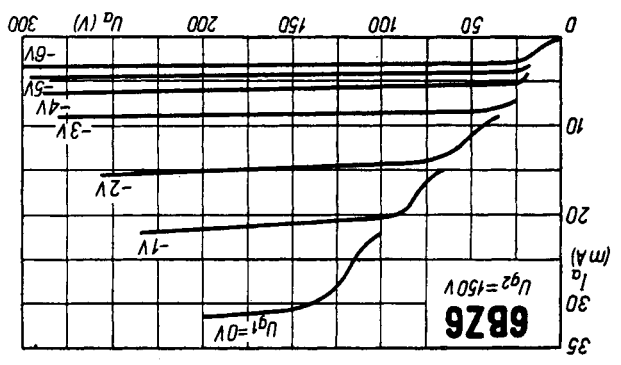
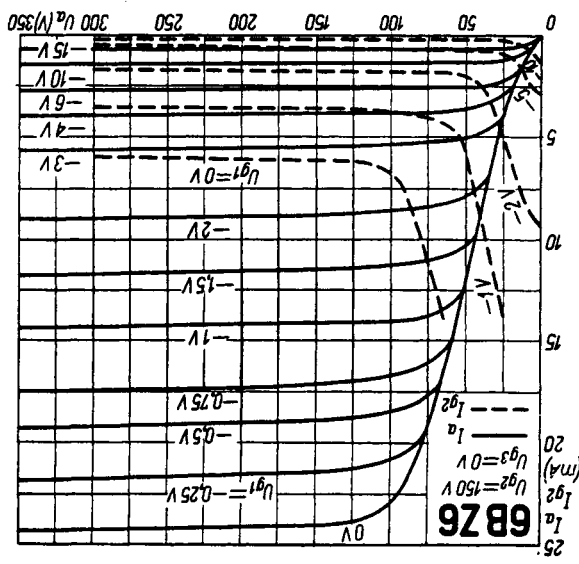
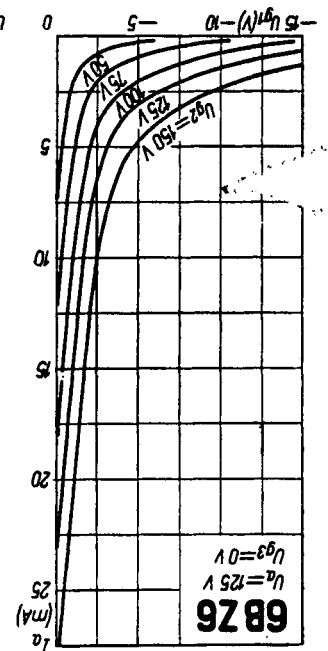
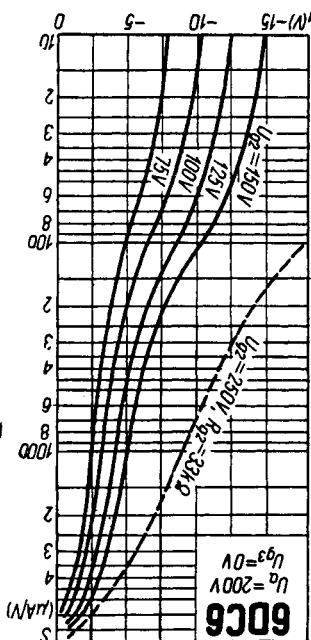
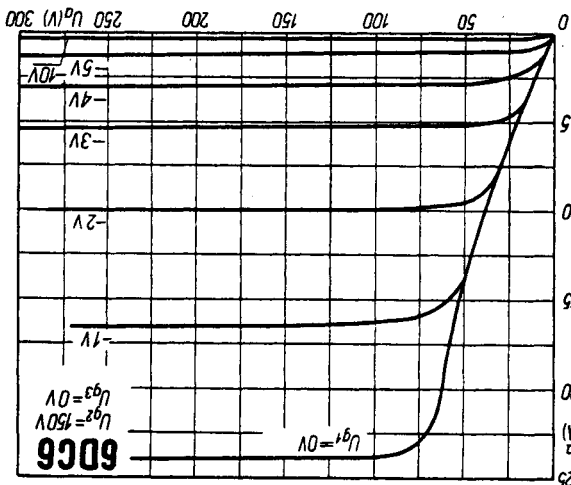
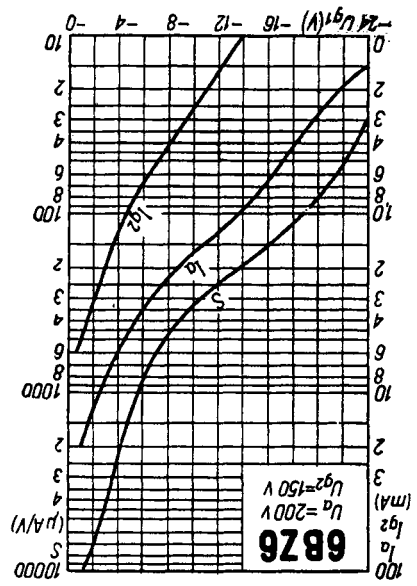
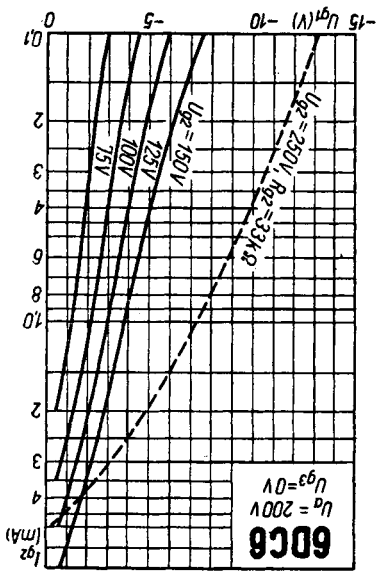
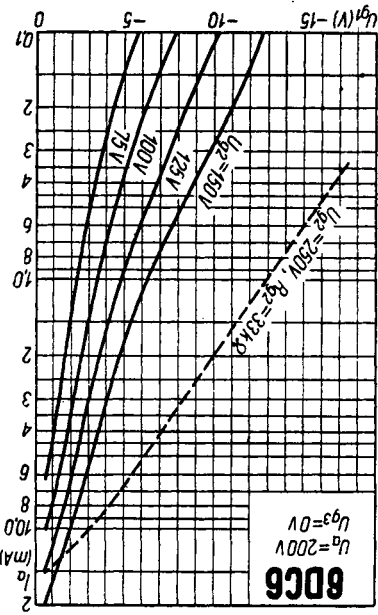
Eds = W 729



EF 805 S

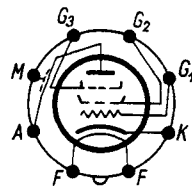
6BZ6

EF805S
W7296BZ6
6DC6

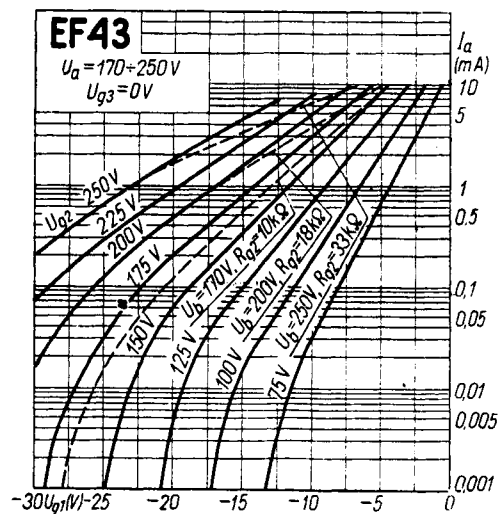
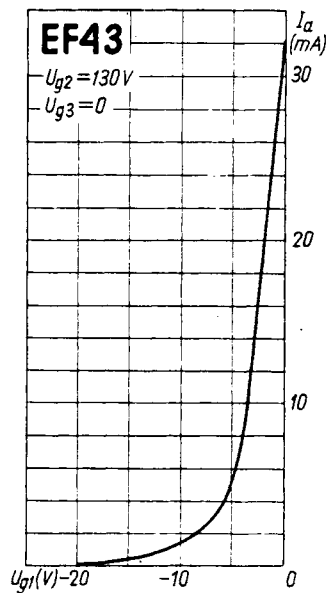
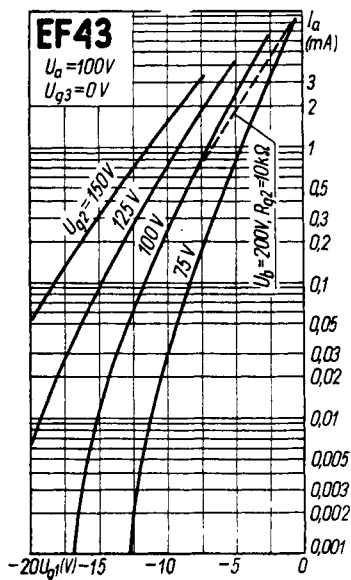
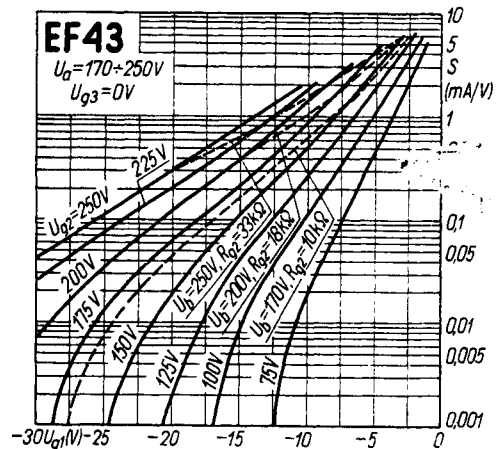
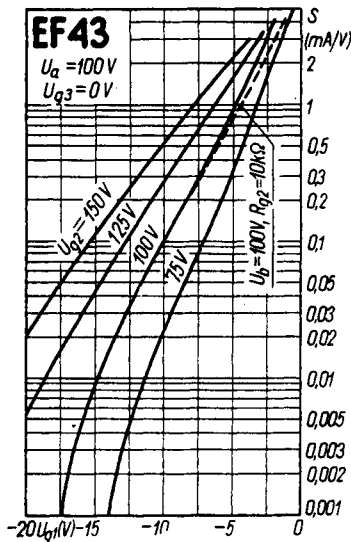
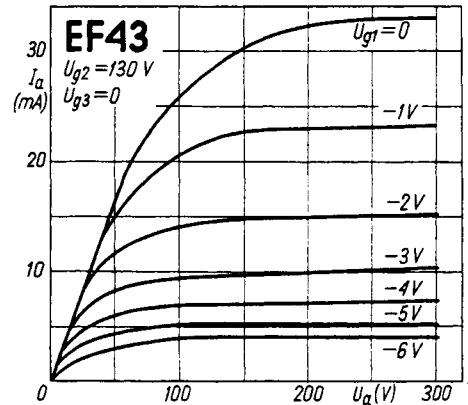
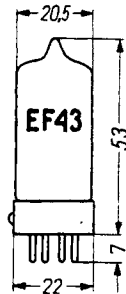


T.		U_f	I_f	$U_a=U_b$	R_{g2}	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	P_a
		V	A	V	k Ω	V	V	V	mA	mA	mA/V	M Ω	Ω	W
EF 43	eur	6,3	0,33	100	10	75	0	-1,05 ÷ -11	7,5	2,5	5,8 ÷ 0,058	0,3	105	3,75
UF 43	eur	21	0,1	170	10	135	0	-2 ÷ -19	15	3,5	6,3 ÷ 0,063	0,3	105	
				200	18	135	0	-2 ÷ -22	15	3,5	6,4 ÷ 0,064	0,4	105	
				250	33	135	0	-2 ÷ -28	15	3,5	6,4 ÷ 0,064	0,5	105	
				300		250		maximum	$U_{f/k} = 100 \text{ V}$	$I_k = 20 \text{ mA}$	$P_{g2} = 0,7 \text{ W}$			

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
9,5	4,5	0,006	0,2



EF43

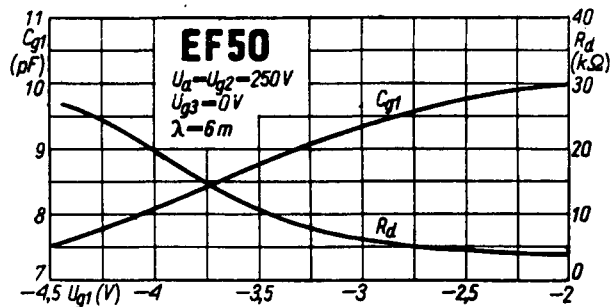
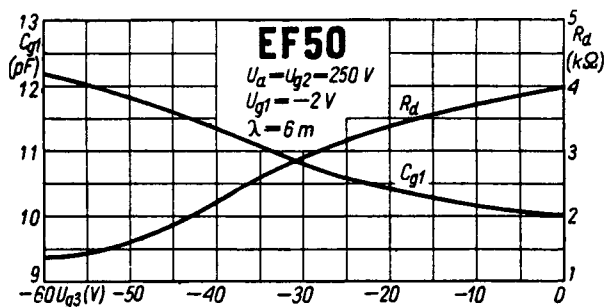
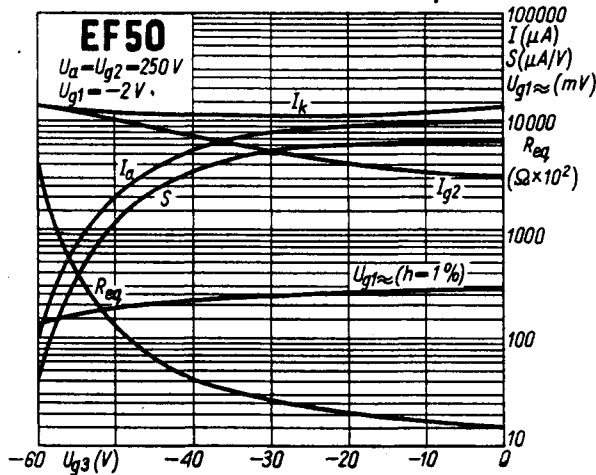
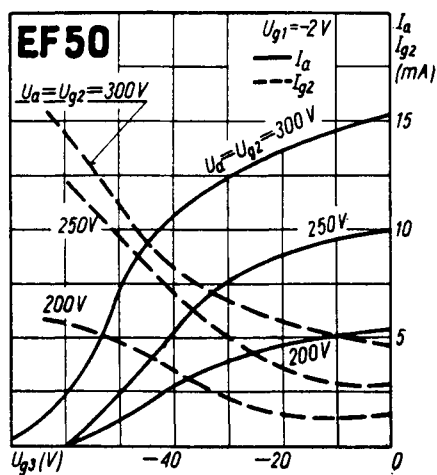
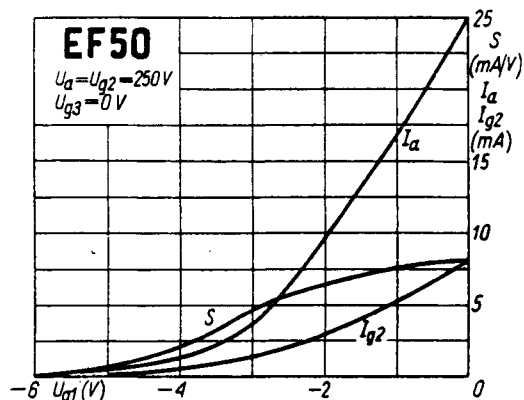
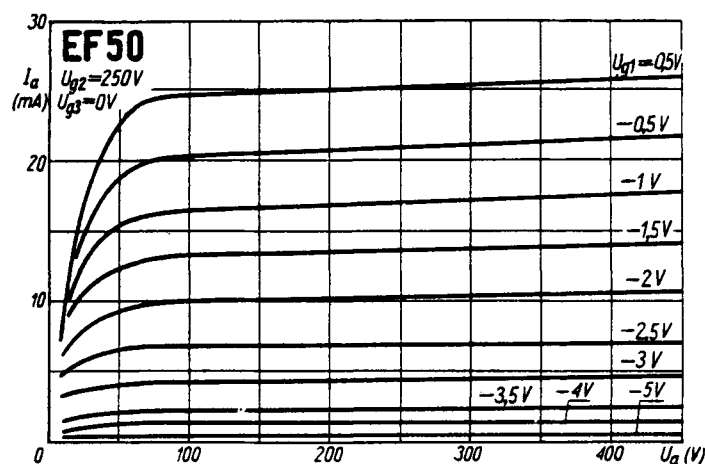
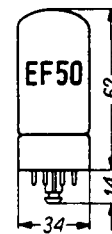
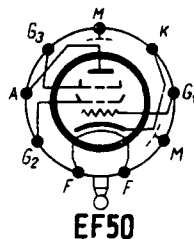


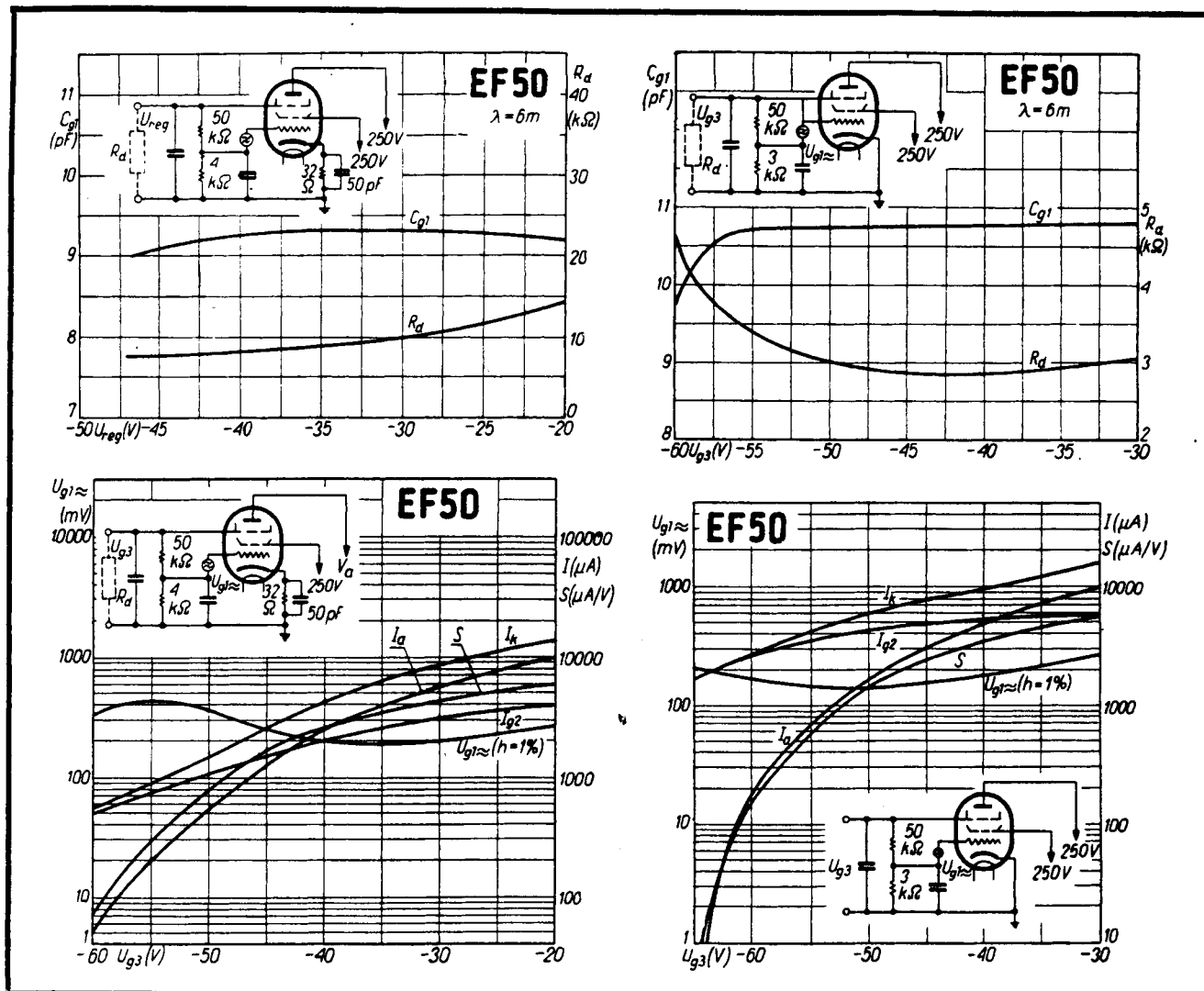
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	MΩ	Ω	V	mA	W	W
EF 50	int	6,3	0,3	250	250	0	—1,5÷—4,5	10	3	6,5÷0,65	1	32	100	15	1,7	3
				250	250	0÷—54	—2	10	3	6,5÷0,45	1	32				
				250	250	—30÷—55,1	—30÷—55,1	10	5,5	5,2÷0,52	0,1	32				
				250	250	—20÷—51,5	—20÷—51,5	10	4	6÷0,6	0,2	32				
				300	300											
maximum ($f = 50$ MHz; $R_{g1} = R_{g2} = 3$ MΩ)																

Equivalents

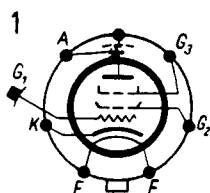
EF 53	Phl
E 1164	Marc
Z 90	Eng
63 SPT	Cos

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
7,4 $\div$ 8,2	4,9 $\div$ 5,7	0,003	0,01

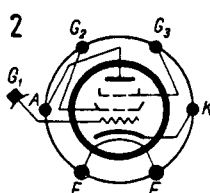




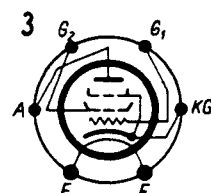
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	V	W	W
HP 1118	Tu	1	10	0.18	200	100	—3	6	2.6	1.55	1			
290 A	WE	2	10	0.32	180	75	—1.5	5.4		1.22				
309 A	WE	3	10	0.32	180	75	—1.5	4.8		1.1				
					275	100		maximum				150		
337 A	WE	2	10	0.32	135	135	—3	6	2	1.65	0.65			
					275	180		maximum				150	0.4	2.5



HP 1118



337 A



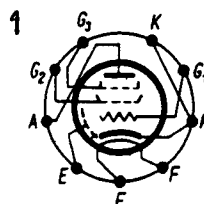
309 A

T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_f	U_f/k	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	MΩ	V	mA	W	W
EF 183	eur	I	6,3	0,3	170	90	0	-1,8 ÷ -7,5	14 ÷ 2,7	5,3	14 ÷ 0,7	0,35				
UF 183	eur	I	18,9	0,1	200	90	0	-2 ÷ -9,5	12 ÷ 2,7	4,5	12,5 ÷ 0,62	0,5				
XF 183	eur	I	3,4	0,6	230	90	0	-2,1 ÷ -12	10,5 ÷ 2,4	3,6	10,6 ÷ 0,5	0,65				
YF 183	eur	I	4,2	0,45	250	250		-50			maximum		150	20	0,65	2,5

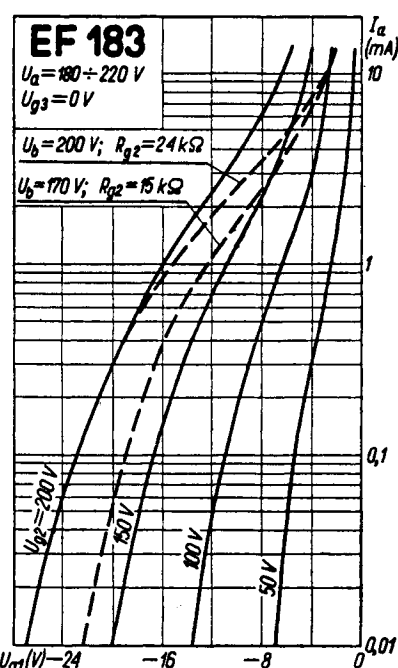
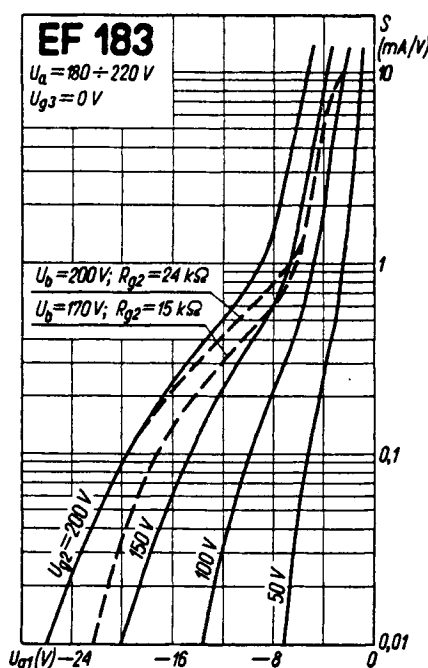
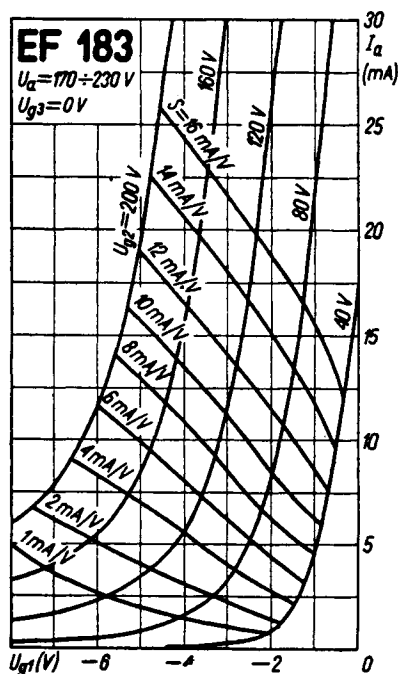
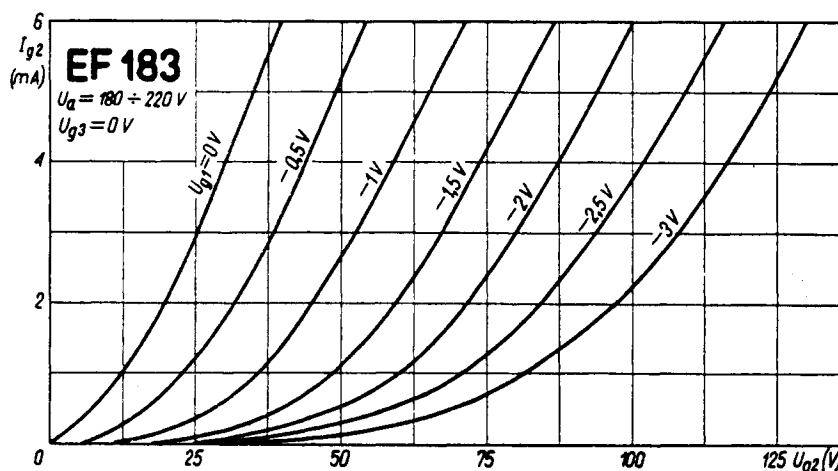
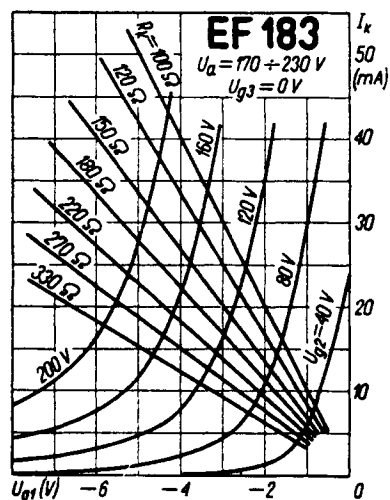
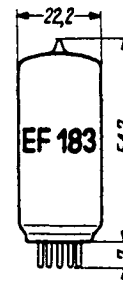
Equivalents

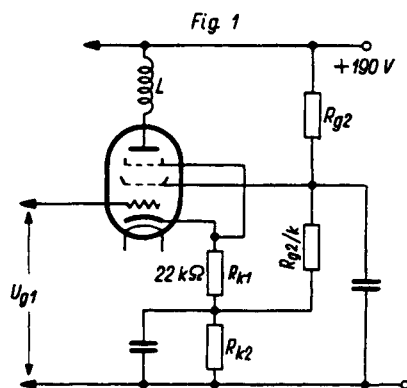
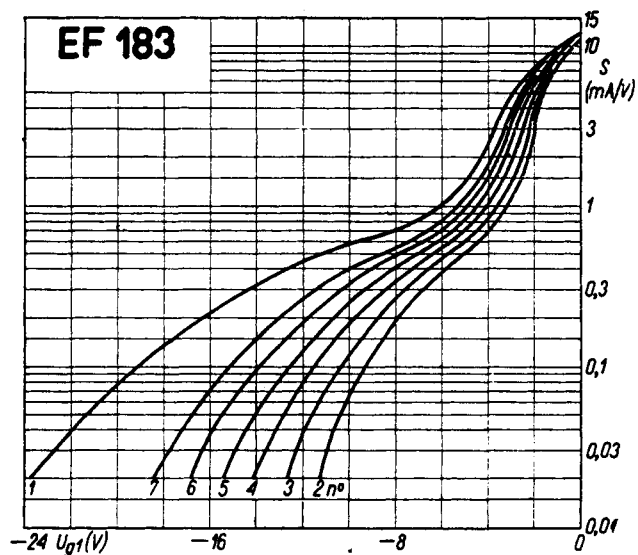
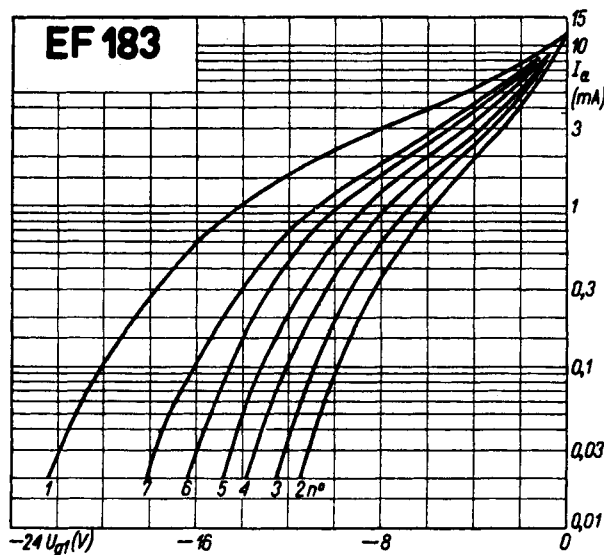
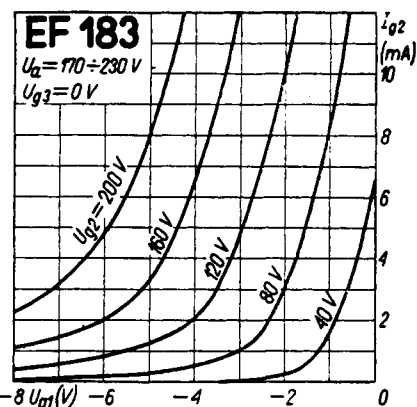
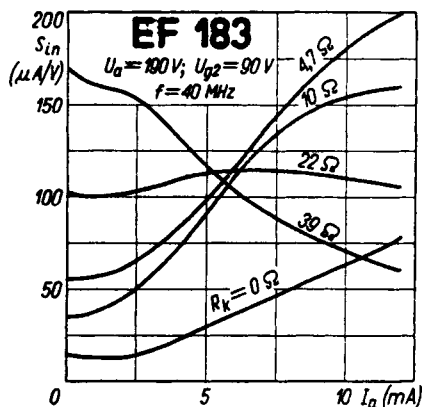
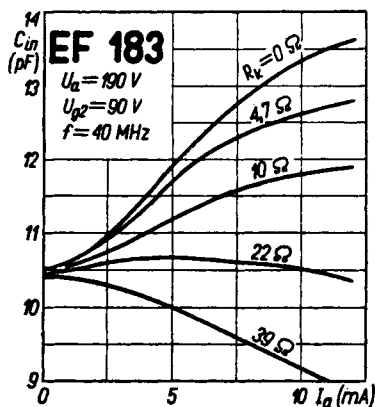
3 EH 7	amer	= XF 183
4 EH 7	amer	= YF 183
6 EH 7	amer	= EF 183
6 F 29	Eds	= EF 183
19 EH 7	amer	= UF 183

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g2}$
pF	pF	pF	pF
9 ÷ 9,5	3	0,0055	2,8

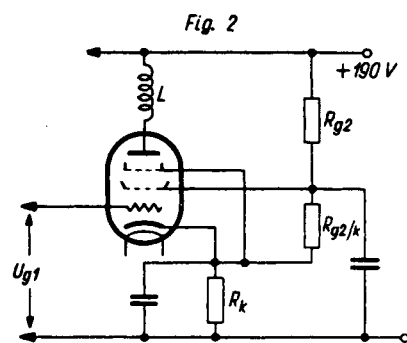


EF 183



Fig. 1 $U_b = 190 \text{ V}$

n°	R_{g2}	R_{g2}/k	R_{k2}	I_a	I_{g2}	S	U_{g1}	I_k
	kΩ	kΩ	Ω	mA	mA	mA/V	V	mA
1	22	—	100	11.6	4.3	$12.3 \div 0.123$	-18.5	16
2	6.8	8.2	56	11.8	4.4	$12.4 \div 0.124$	9	27
3	8.2	12	68	11.7	4.4	$12.2 \div 0.122$	-10	24
4	10	18	82	11.4	4.3	$12 \div 0.12$	-11	21
5	12	27	82	11.8	4.4	$12.3 \div 0.123$	-12	19.7
6	15	47	82	11.9	4.5	$12.5 \div 0.125$	-13.5	18.5
7	18	82	82	12	4.5	$12.5 \div 0.125$	-14.5	14.7

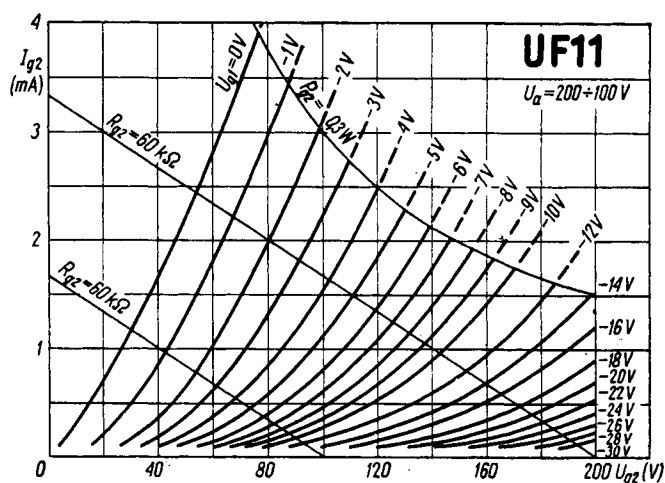
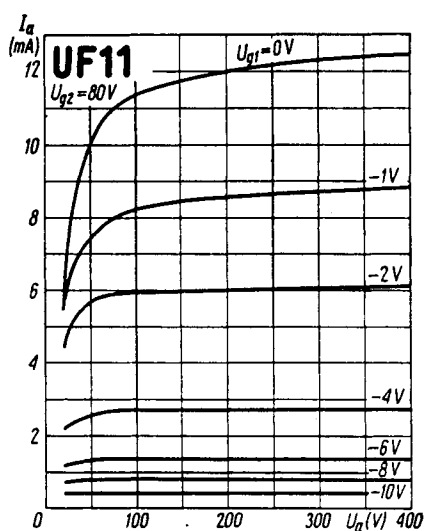
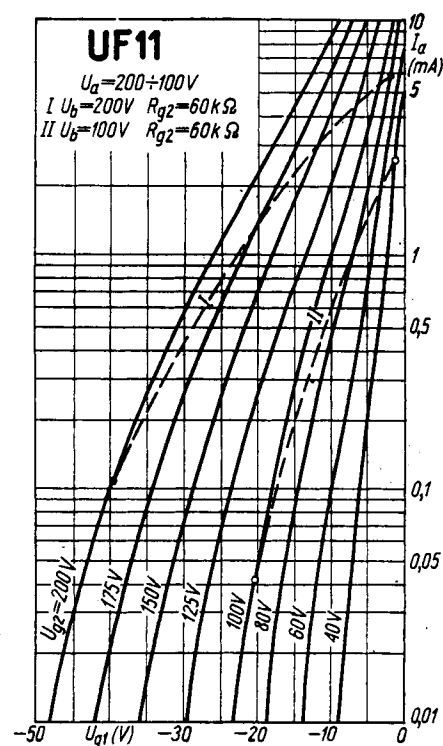
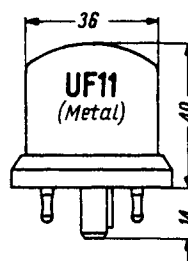
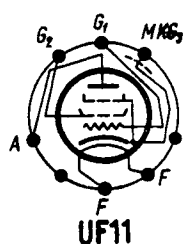
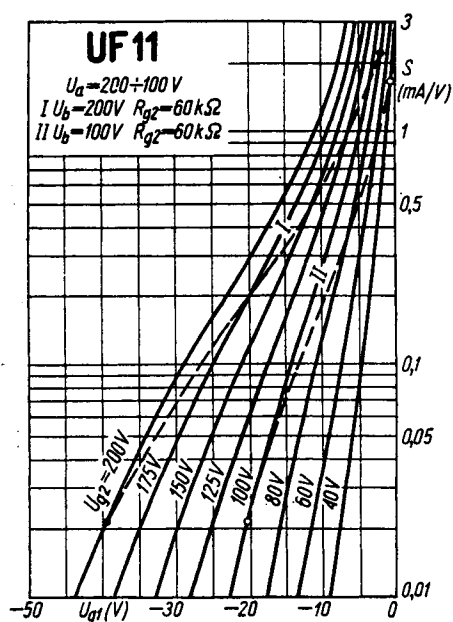
Fig. 2 $U_b = 190 \text{ V}$

n°	R_{g2}	R_{g2}/k	R_k	I_a	I_{g2}	S	U_{g1}	I_k
	kΩ	kΩ	Ω	mA	mA	mA/V	V	mA
1	22	—	120	11.7	4.3	$12.4 \div 1.24 \div 0.124$	-5 ÷ -18.5	16
2	6.8	8.2	68	12	4.5	$13 \div 1.3 \div 0.13$	-3 ÷ -9	27
3	8.2	12	82	11.8	4.4	$12.3 \div 1.23 \div 0.123$	-3.25 ÷ -10	24
4	10	18	100	11.4	4.3	$12 \div 1.2 \div 0.12$	-3.5 ÷ -11	21
5	12	27	100	11.8	4.4	$12.4 \div 1.24 \div 0.124$	-4 ÷ -12	19.7
6	15	47	100	12	4.5	$12.5 \div 1.25 \div 0.125$	-4.4 ÷ -13.5	18.5
7	18	82	100	12	4.5	$12.5 \div 1.25 \div 0.125$	-4.6 ÷ -14.5	17.5

T.		U_f	I_f	$U_a=U_b$	R_{g2}	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	P_a
		V	A	V	k Ω	V	V	mA	mA	$\mu A/V$	M Ω	Ω	W
UF 11	eur	15	0,1	100	70	40	-1 $\div$ -8	2,7	0,9	1700 $\div$ 17	0,8	250	
				200		80	-2 $\div$ -16	6	2	2200 $\div$ 22	1,5	250	
				100		40	-1 $\div$ 22 $\div$ -25	2,8	0,95	1800 $\div$ 18 $\div$ 6	1,1	260	
				200		80	-2 $\div$ 42 $\div$ -48	6	1,7	2200 $\div$ 22 $\div$ 5,5	1,5	260	
				300		125 ¹⁾	maximum	$U_{f/k} = 200 V; I_k = 10 mA; P_{g2} = 0,3 W$					

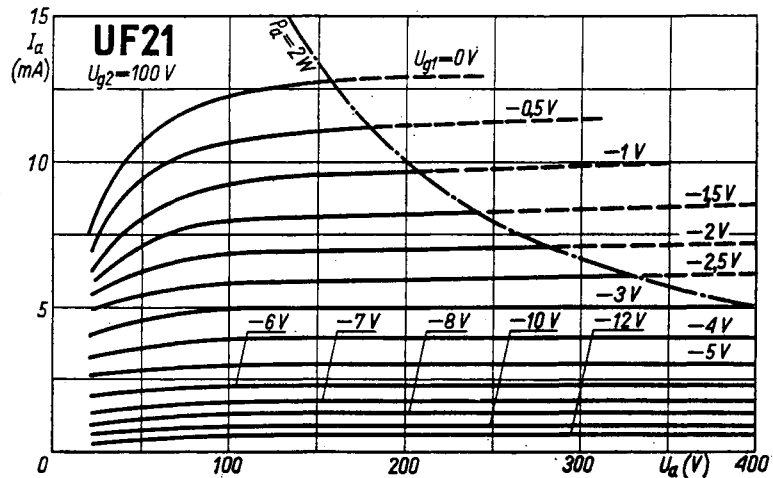
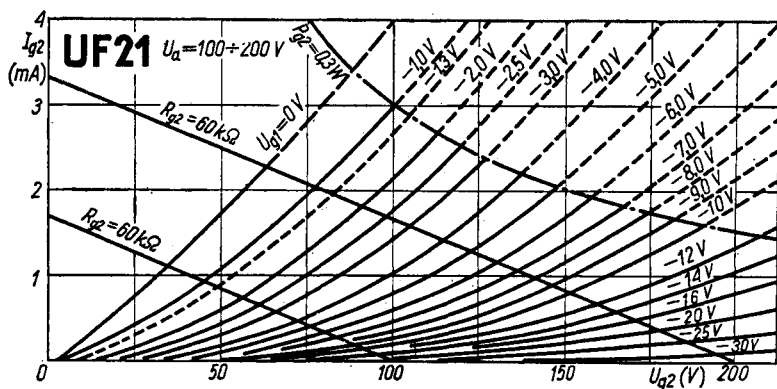
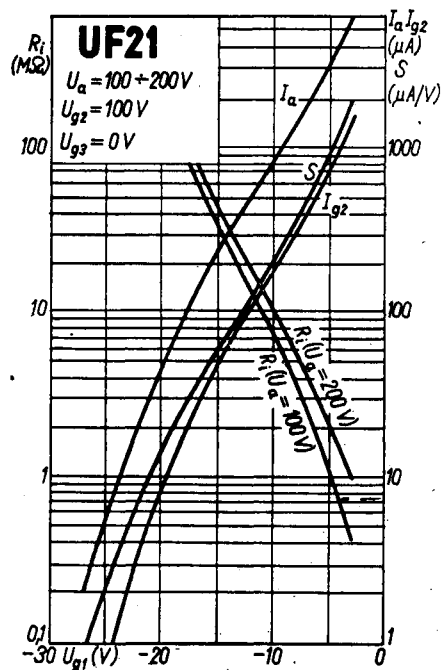
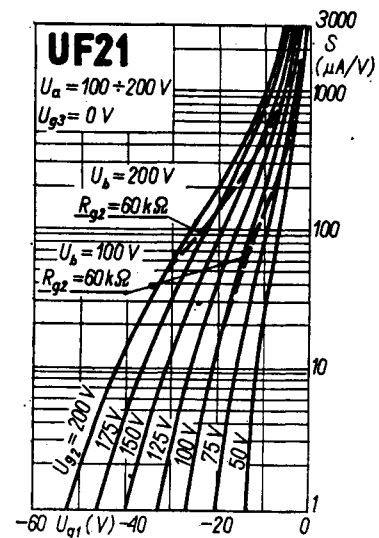
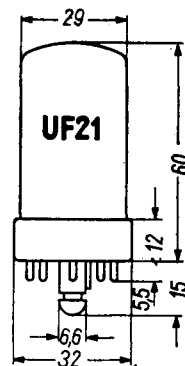
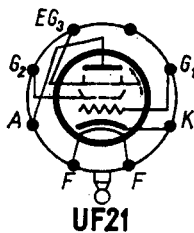
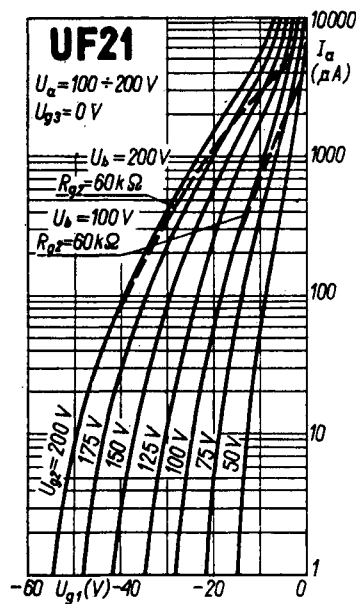
¹⁾ $I_a = 6 mA; I_a < 3 mA, U_{g2(max)} = 300 V$

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
7	6,5	0,002	0,005



T.		U_f V	I_f A	$U_a = U_b$ V	R_{g2} k Ω	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S $\mu A/V$	R_i M Ω	R_k Ω
UF 21	Ph1	12,6	0,1	100 200 250	60	50	0	$-1,3 \div -19 \div -23$ $-2,5 \div -37 \div -46$	3,2	0,85	$2000 \div 20 \div 5$ $2200 \div 22 \div 4,5$	1	325
maximum $U_{f/k} = 150 V$; $I_k = 10 mA$; $P_{g2} = 0,3 W$; $P_a = 2 W$													

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
5,6	6,6	0,002	0,006

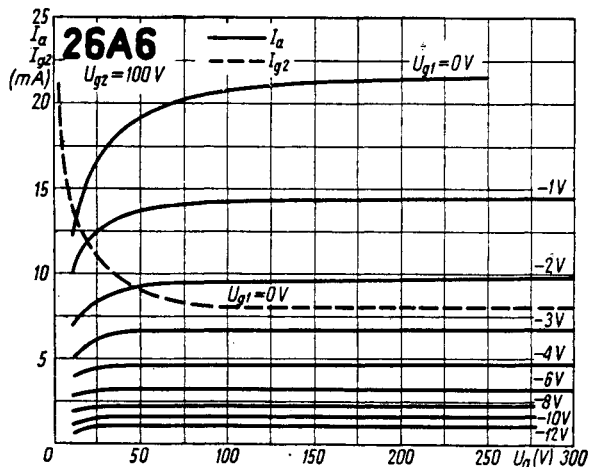
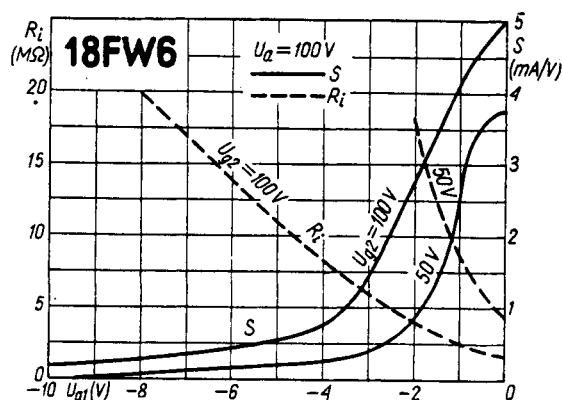
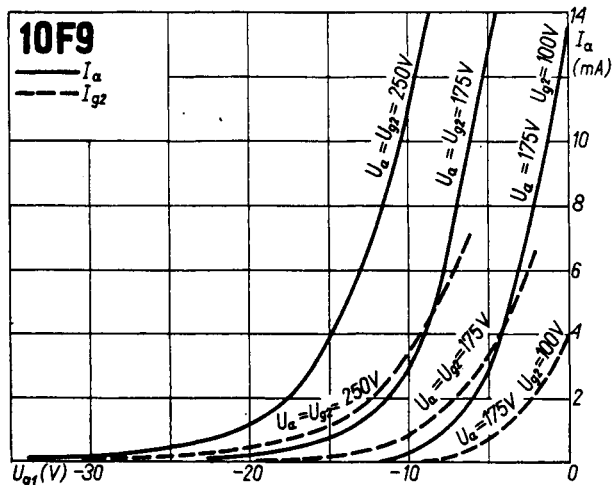
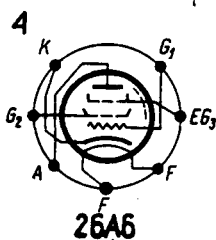
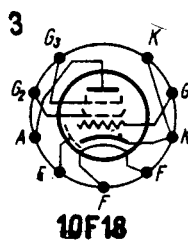
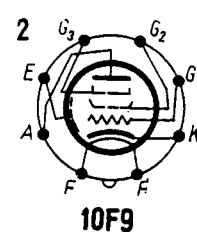
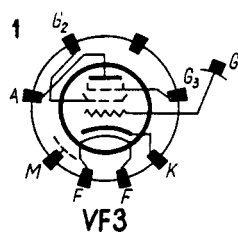


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	U_f/k	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	MΩ	Ω	V	mA	W	W
VF 3	Phl	1	55	0,05	200	100	-2 ÷ -35	6	2,6	2,1	1,5					
10 F 9	Eds	2	13	0,1	175 250	100 250	-2 ÷ -23,4	7	2	2,3 ÷ 0,023 maximum	1		150	10		
6 F 18	Eds	3	6,3	0,2	175	100	-1,3	12	3,4	4,5 maximum			150			2,25
10 F 18	Eds	3	13	0,1	250	200										
18 FW 6	Syl	4	18	0,1	100 150	100 150	-20	11	4,4	4,4 ÷ 0,025 maximum	0,25	68	100	0,6	2,5	
18 GD 6	Syl	4	18	0,1	100 150	100 150	-4,7	5	2	4,3 ÷ 0,01 maximum	0,5	150	100	0,6	2,5	
26 A 6	amer	4	26,5	0,07	26,5 250 250	26,5 100 100	0 ÷ -8 -2 ÷ -25	1,7 10,5	0,7 4	2 ÷ 0,02 4 ÷ 0,04 maximum	0,25 1	125	90	0,4	3	
26 CG 6	TS	4	26,5	0,07	250	150	-8 ÷ -24	9	2,3	2 ÷ 0,04	0,72					

Equivalents

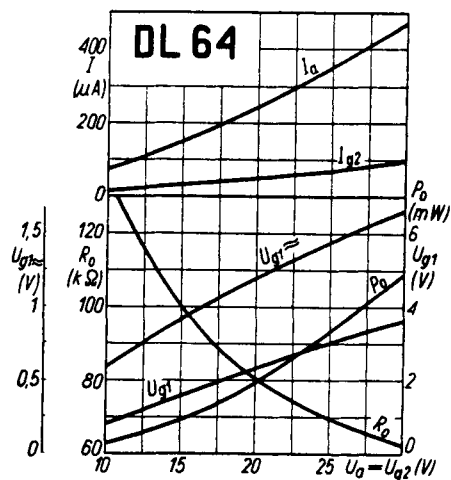
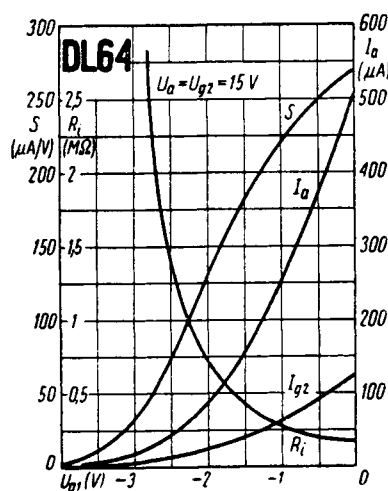
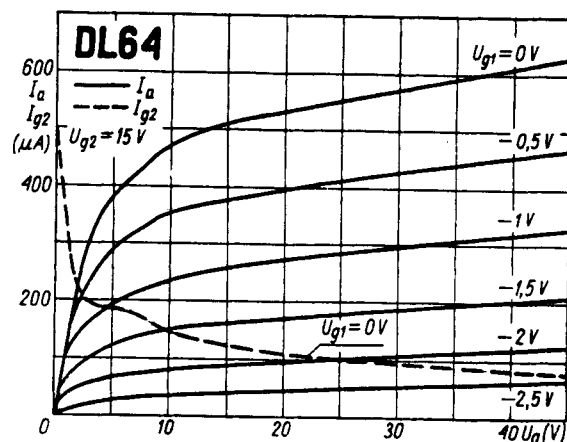
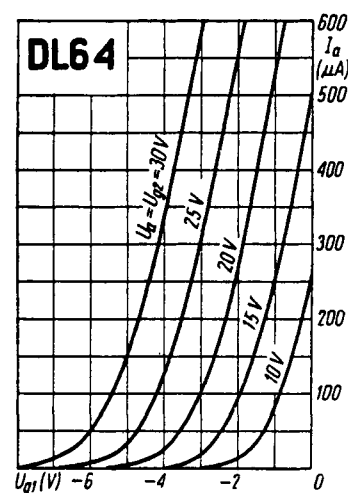
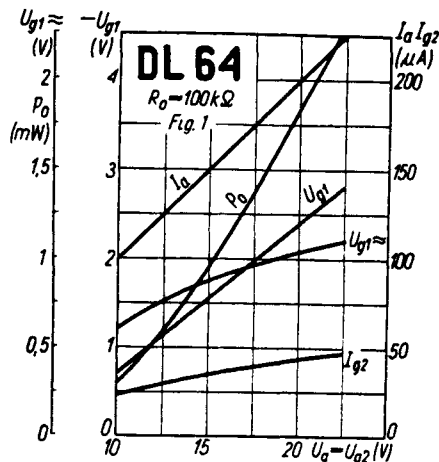
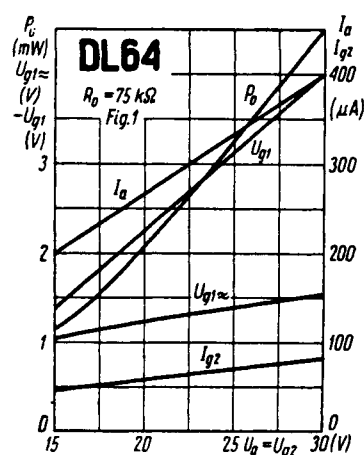
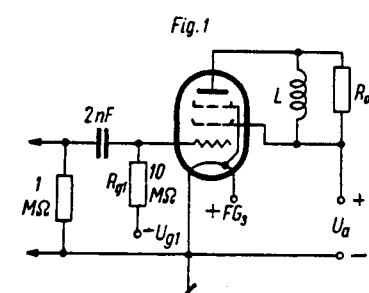
W 118	Eng = 10 F 9	6 EC 7	amer = 6 F 18
W 119	Eng = 10 F 18	13 EC 7	amer = 10 F 18
W 145	Eng = 10 F 9	18 FW 6 A	Syl = 18 FW 6
W 739	Marc = 6 F 18	18 GD 6 A	Syl = 18 GD 6

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
10 F 9	6,6	8,3	0,0035
18 FW 6	5,5	5	0,0035
18 GD 6	6	5	0,0035
26 A 6	6	5	0,0035
26 CG 6	5	5	0,008



T.		U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a μ A	I_{g2} μ A	S μ A/V	R_i M Ω	μ (g_2/g_1)	R_o k Ω	P_o mW	$U_{g1 \approx}$ V	h %	P_a mW
DL 64	eur	1,25	10	stat A Fig. 1	15 15 22,5 45	15 15 22,5 45	-1,5 -1,55 -2,7	160 150 300	40 34 65	180	0,4	4,5	100 75	0,95 2,6	0,85 1,55	10 10	25
maximum $I_k = 0,6$ mA: $P_{g2} = 6$ mW																	

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
2,5	2,4	0,25



T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	R_{g1}	P_o	$U_{g1} \approx$	h	P_a				
			V	mA		V	V	V	μA	μA	$\mu A/V$	M Ω	(g_2/g_1)	k Ω	M Ω	mW	V	%	mW				
DL 65	eur	1	1,25 ¹⁾	13	{ stat A Fig. 1	22,5	22,5	—0,2	475	100	420	0,4	9										
DL 67	eur	2				22,5	22,5		200	70								4	3	1,6	0,67	10	
						22,5	22,5		500	95						0	10	1,8	0,45	10			
						45	45	maximum		$I_k = 0,6 \text{ mA};$		$P_{g2} = 6 \text{ mW}$		25									

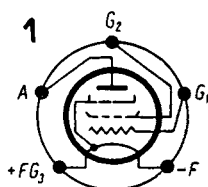
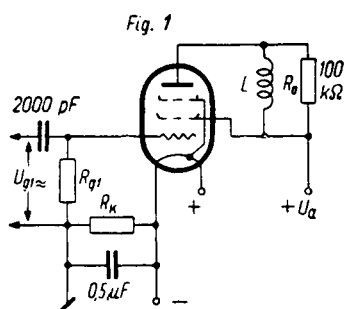
¹⁾ $U_f = 0,9 \div 1,55 \text{ V}$

Equivalents DL 67

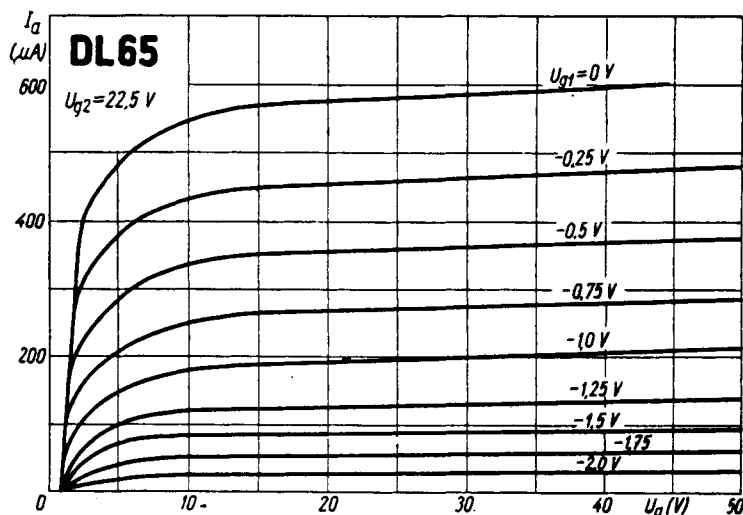
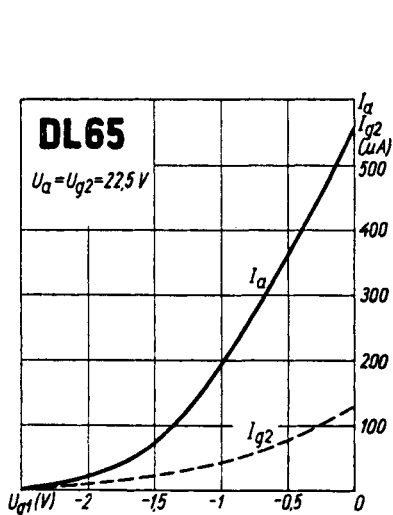
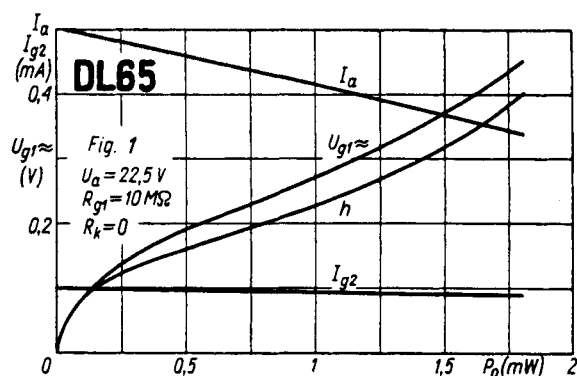
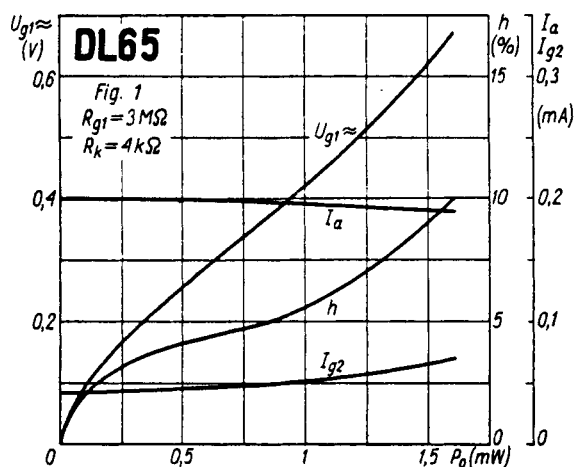
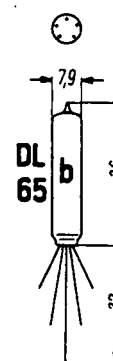
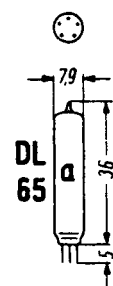
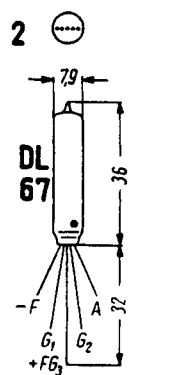
DL 167
5913
6007

RFT
amar
Phl

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DL 65	2,5	2,2	0,2
DL 67			

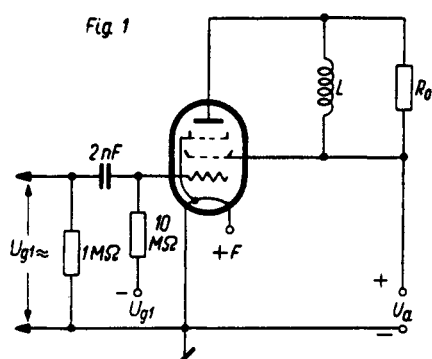


DL 65

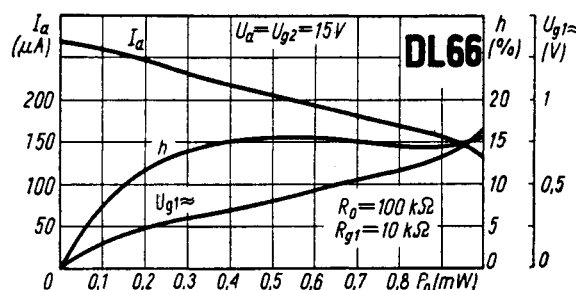
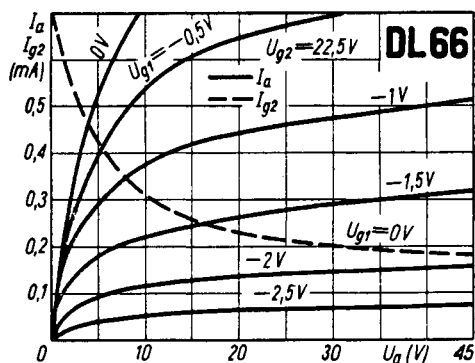
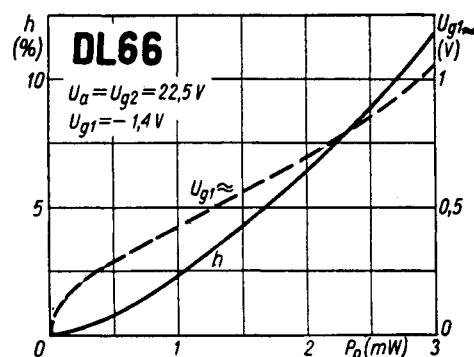
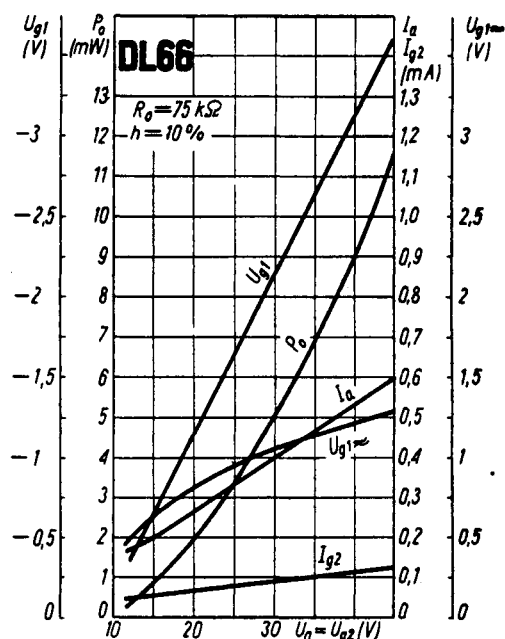
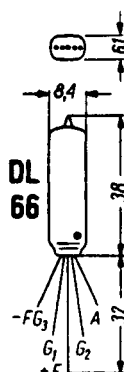
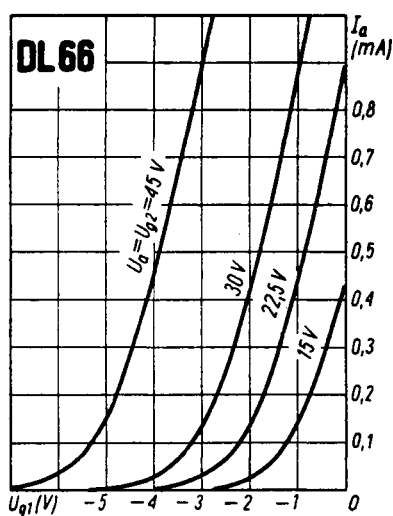


T.		U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a μ A	I_{g2} μ A	S μ A/V	R_i M Ω	μ (e_2/e_1)	R_o k Ω	P_o mW	$U_{g1 \approx}$ V	h %	P_a mW
DL 66	eur	1,25	15	stat A Fig. 1	22,5 15 22,5 30 45 45	22,5 15 22,5 30 45 45	-1,4 -0,85 -1,4 -1,95 -3	300 150 300 470 900	75 30 75 110 200	350	0,3	8	100 75 62,5 50	0,8 2,7 5,5 16,5	0,48 0,85 1,2 1,65	10 10 10 10	30

maximum $I_k = 1$ mA



C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
2,5	3,7	0,2

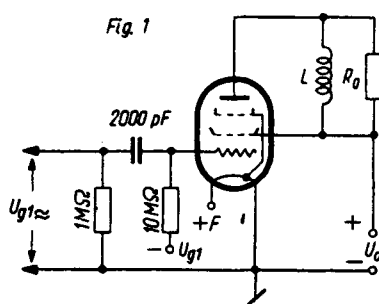


T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_o	P_o	$U_{g1 \approx}$	h	P_a
			V	mA		V	V	V	μA	μA	$\mu A/V$	M Ω	(g_2/g_1)	k Ω	mW	V	%	mW
DL 71	eur	1	$1,1 \div 1,5$	25	stat	45	45	-1,25	600	150	500	0,35	15					
502 AX	Ray	2	$1,1 \div 1,5$	30	A	22,5	22,5	0	$260 \div 180$	$70 \div 60$				100	1	0,6	10	
					Fig. 1	30	30	0	$540 \div 270$	$140 \div 120$				100	3	0,9	10	
						45	45	-1,25	600	150				100	6	0,9	10	
						45	45		maximum		$I_k = 0,75 \text{ mA}; P_{g2} = 10 \text{ mW}$							30
DL 650	Tlf	3	$0,9 \div 1,55$	15	stat	22,5	22,5	0	400	100	450	0,3	11		200	0,45	0,6	12
DL 651	Tlf	3	$0,9 \div 1,55$	10	A	15	15	0	120	30				100	2,2	0,8	12	
					Fig. 1	22,5	22,5	0	400	100				100	3,6	0,9	12	
						30	30	-1,2	240	60								36
						45	45		maximum		$I_k = 1 \text{ mA}; P_{g2} = 10 \text{ mW}$							

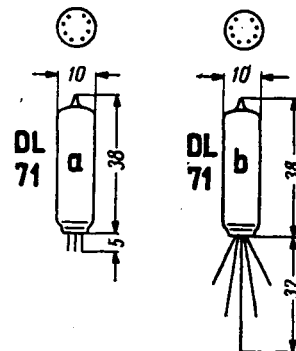
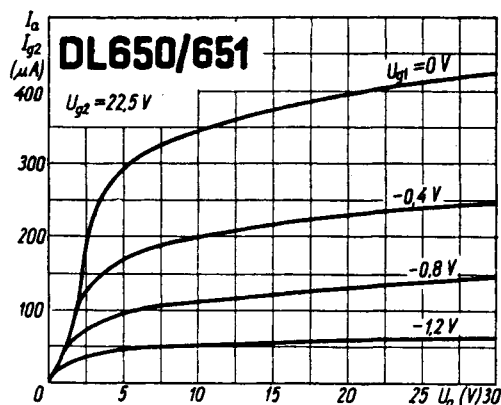
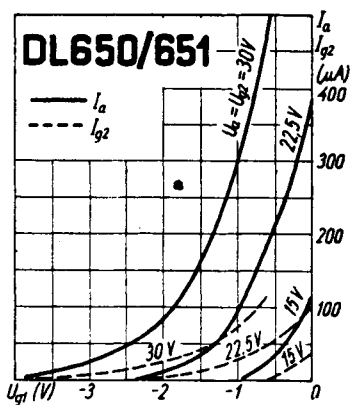
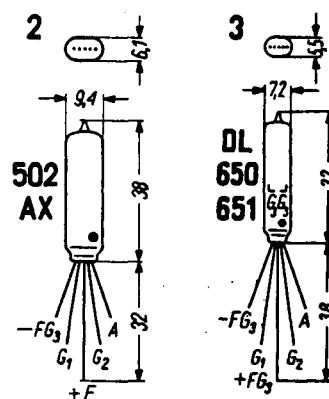
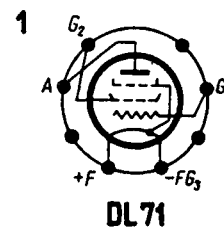
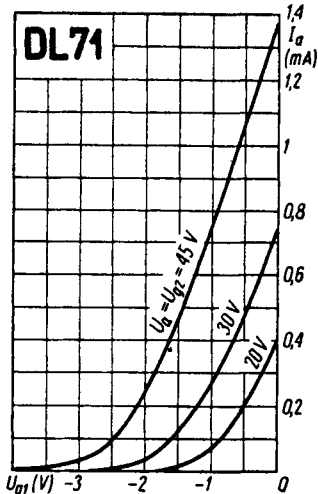
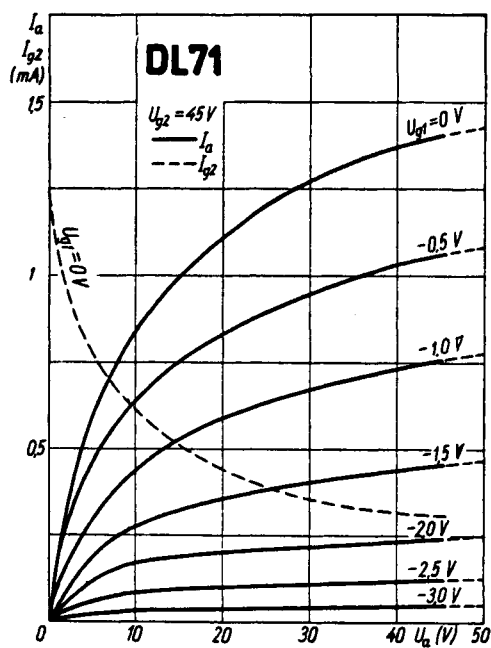
Equivalents

CK 502 AX	Ray = 502 AX
CK 546 DX	Ray = DL 651
E 1933	Marc = 502 AX
546 DX	Ray = DL 651

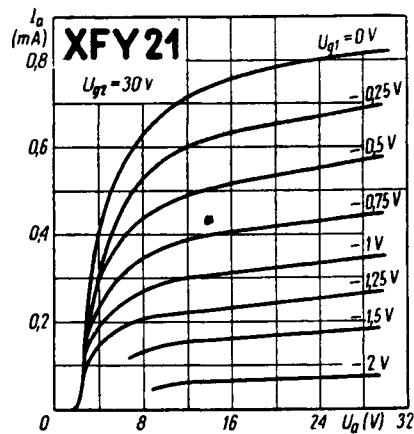
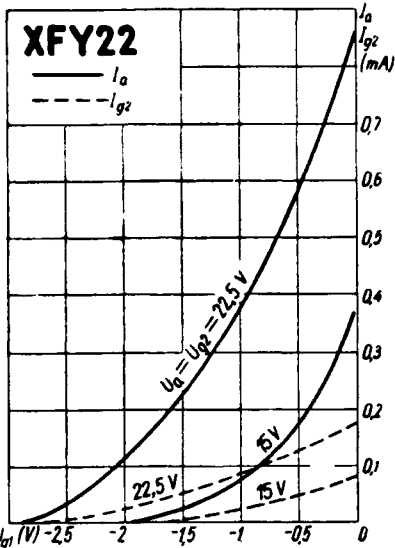
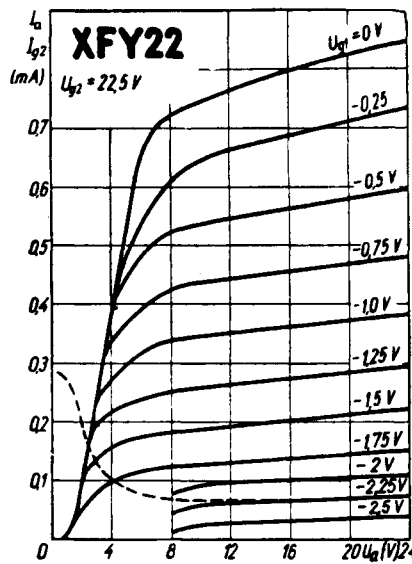
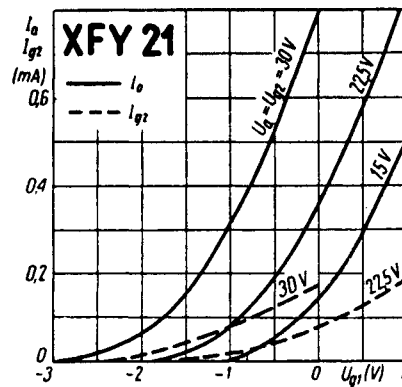
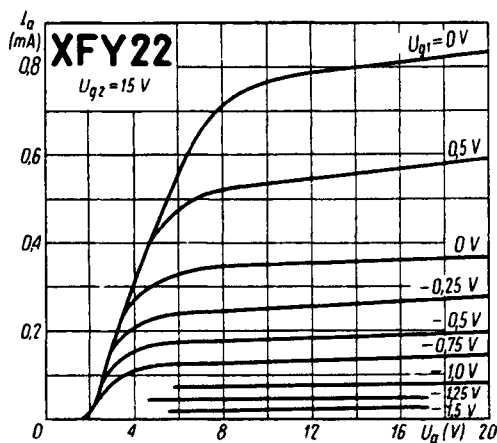
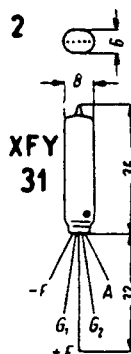
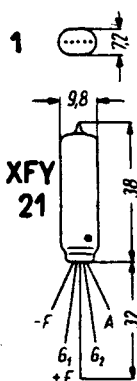
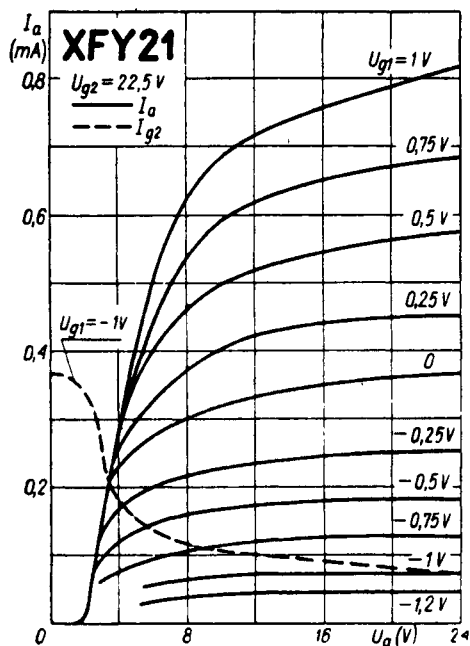
Fig. 1



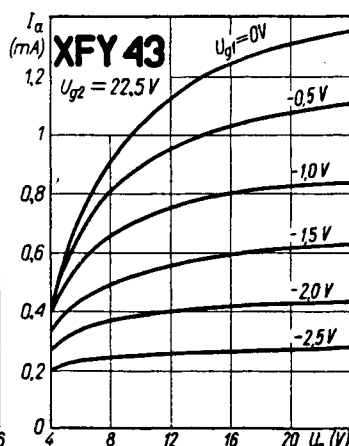
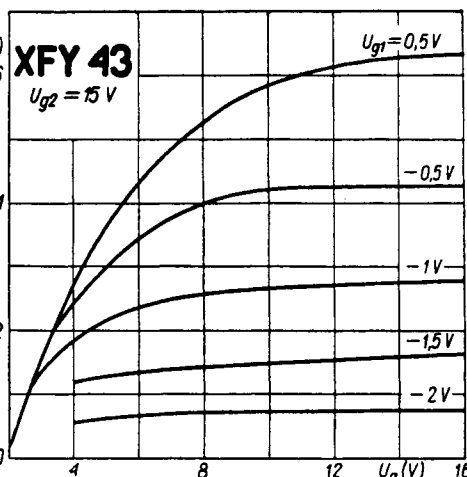
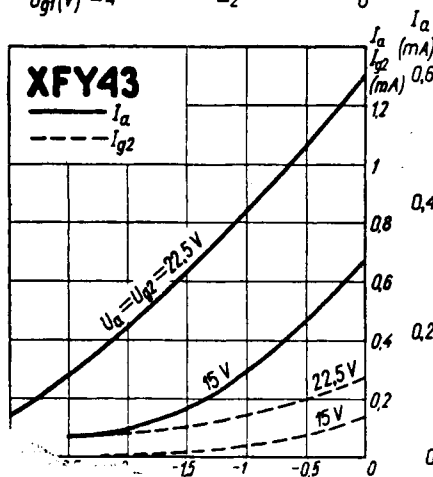
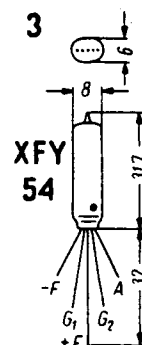
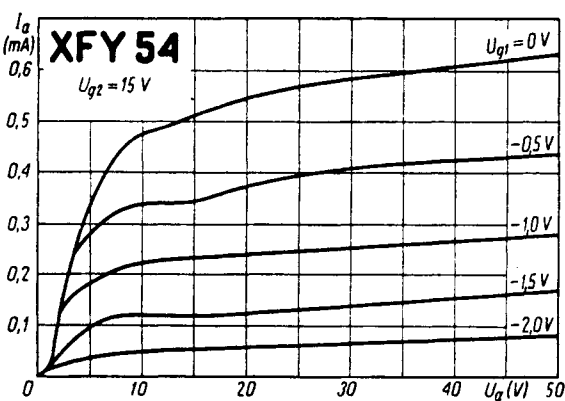
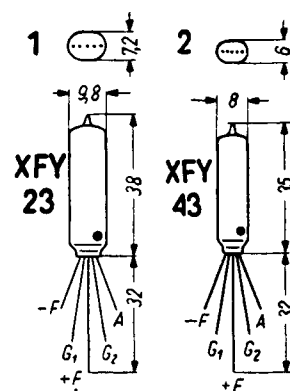
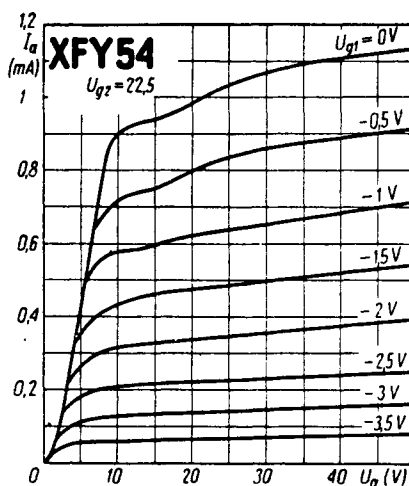
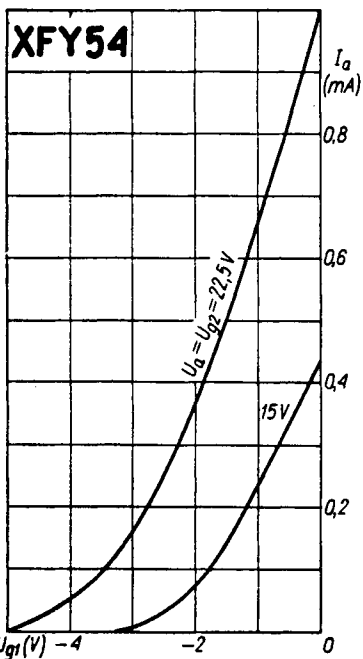
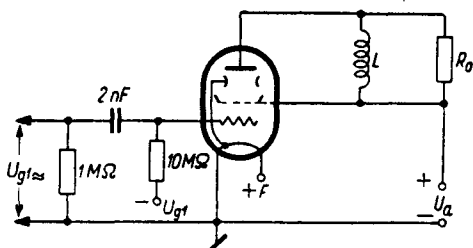
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DL 650	3	2,4	0,1
DL 651			



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_o	P_o	$U_{g1 \approx}$	I_k
			V	mA	V	V	V	μA	μA	$\mu A/V$	k Ω	mW	V	mA
XFY 21	Hiv	1	$1,25 \div 1,55$	12,5	22,5	22,5	0	380	95	410	100	1,8	$\hat{I}_{1,5}$	
XFY 31	Hiv	2	$1,25 \div 1,55$	12,5	30	30	-1,2	300	75	380	100	3,3	1,2	
XFY 41	Hiv	2	$1,25 \div 1,55$	10	45	45				maximum				0,8
XFY 22	Hiv	1	$1,25 \div 1,55$	12,5	15	15	0	320	80	350	150	0,65	1,2	
					22,5	22,5	-1,2	300	75	360	100	2,3	1,2	
					45	45	-2	450	110	400	75	5,5	2	0,8
										maximum				



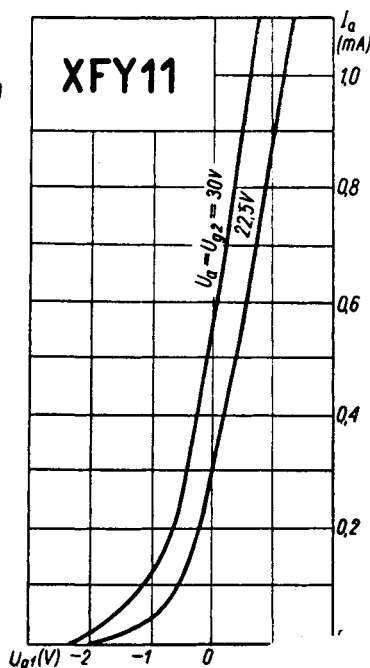
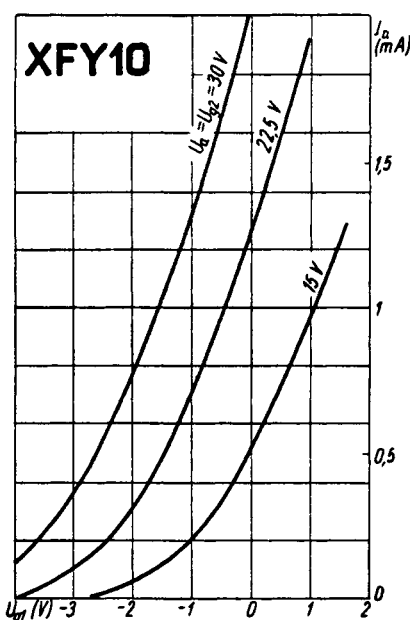
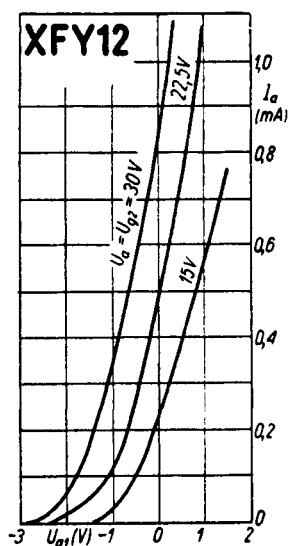
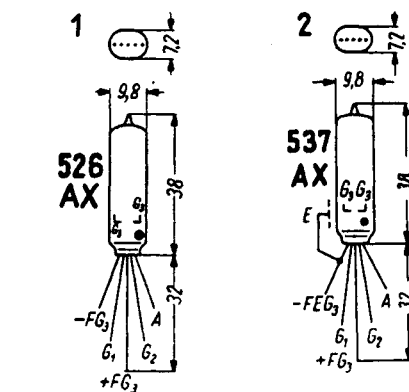
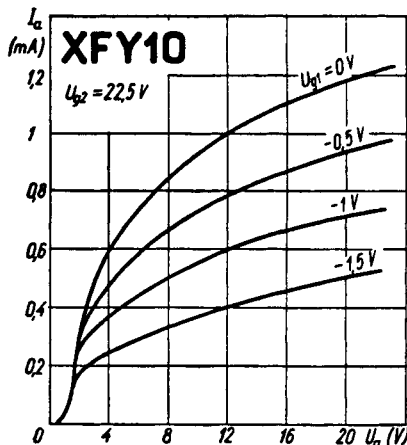
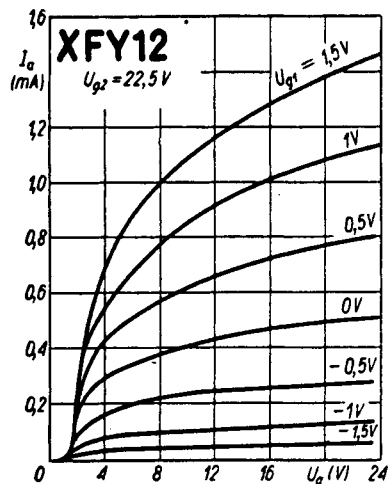
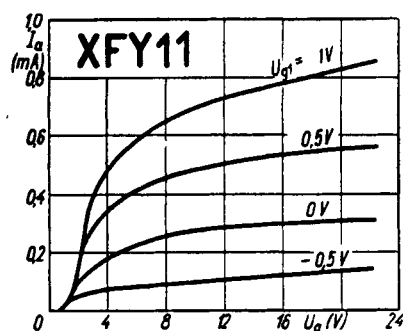
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_o	P_o	$U_{g1} \approx$	I_k
			V	mA	V	V	V	μA	μA	$\mu A/V$	k Ω	mW	V	mA
XFY 23	Hiv	1	1,25 ÷ 1,55	17,5	{ 15 22,5 30 45	15	—1,2	200	50	230	75	1	1,2	1,2
XFY 33	Hiv	2	1,25 ÷ 1,55	17,5		22,5	—2	400	90	340	50	3,75	2	
XFY 43	Hiv	2	1,25 ÷ 1,55	10		30	—3,5	500	120	360	50	7,5	3,5	
maximum														
XFY 54	Hiv	3	1,25 ÷ 1,55	10	{ 15 22,5 45	15	—1	225	60	230	50	0,6	1	1,2
						22,5	—2	340	80	280	30	2,75	2	
						45	maximum							



T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g1}	S	R_i	R_o	P_o	$U_{g1 \sim}$
			V	mA	V	V	V	μA	μA	$\mu A/V$	M Ω	k Ω	mW	V
XFY 10	Hiv	I	1,25	25	22,5 45	22,5 45	-1,25 maximum	500 300	200 90	350 420		50 200	3 1,2	1,75 1
XFY 11	Hiv	I	1,25	25	22,5 45	22,5 45	0 maximum	300 250	90 80	420 370		200 175	1,2 1,75	1 1
XFY 12	Hiv	I	1,25	25	22,5 45	22,5 45	-0,5 maximum	250 600	80 175	370 400		175 40	1,75 3,5	1 3,5
521 AX	Ray	I	1,25	50	22,5	22,5	-3	300	80	450	0,6	200	1,2	1,2
522 AX	Ray	I	1,25	20	22,5	22,5	0	300	75	360	0,3	75	2,5	2,5
523 AX	Ray	I	1,25	30	22,5	22,5	-1,2	250	60	325	0,33	60	2,2	2,2
525 AX	Ray	I	1,25	20	22,5	22,5	-1,2	250	60	325	0,33	60	2,2	2,2
526 AX	Ray	I	1,25	20	22,5	22,5	-1,5	525	135	425	0,22	50	3,7	3,7
537 AX	Ray	2	1,25	20	22,5	22,5	-1,5	525	135	425	0,22	50	3,7	3,7

Equivalents

CK 521 AX	Ray = 521 AX
CK 522 AX	Ray = 522 AX
CK 523 AX	Ray = 523 AX
CK 525 AX	Ray = 525 AX
CK 526 AX	Ray = 526 AX
CK 537 AX	Ray = 537 AX

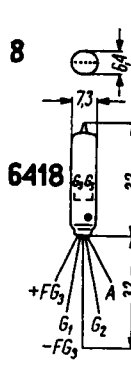
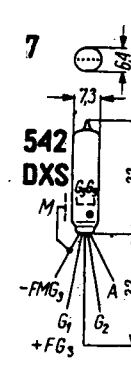
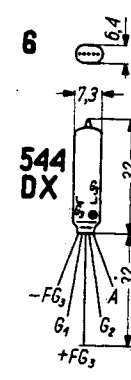
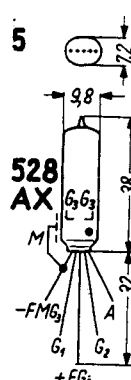
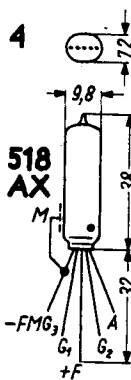
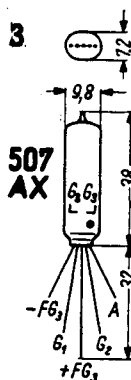
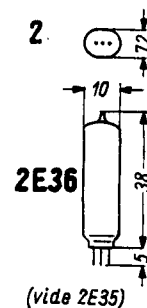
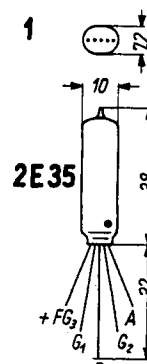
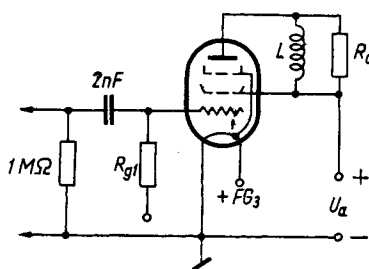


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_{g1}	R_o	P_o
			V	mA	V	V	V	μA	μA	$\mu A/V$	M Ω	M Ω	k Ω	mW
2 E 35	Ray	1	1,25	30	45	45	-1,25	110	50	250			100	6
2 E 36	Ray	2	1,25	30										
503 AX	Ray	1	1,25	30	45	45	-2	800	250	550		0,35	50	9,5
504 AX	Ray	3	1,25	30	30	30	-1,25	400	100	360	0,5		100	3
507 AX	Ray	3	1,25	45	45	45	-2	900	300	575	0,3		50	11
518 AX	Ray	4	1,25	30	45	45	-2	800	250	550		0,35	50	9,5
524 AX	Ray	3	1,25	30	15	15	-1,75	450	125	300	0,2		30	2,2
527 AX	Ray	3	1,25	15	22,5	22,5	0	100	25	225	1,8	5	300	0,75
528 AX	Ray	5	1,25	20	45	45	-1,25	675	150	560	0,7		200	10,5
529 AX	Ray	5	1,25	20	22,5	22,5	-1,5	525	135	425	0,22		50	3,75
531 DX	Ray	6	1,25	20	15	15	-1,5	300	90	250	0,25		60	1,67
532 DX	Ray	6	1,25	15	22,5	22,5	0	400	125	450	0,18	10	100	1,7
533 AX	Ray	3	1,25	15	22,5	22,5	0	360	90	400	0,5	5	75	1,8
535 AX	Ray	3	1,25	20	22,5	22,5	-1,5	525	135	425	0,22		50	3,75
536 AX	Ray	5	1,25	15	22,5	22,5	0	360	90	400	0,5	5	75	1,8
539 DX	Ray	6	1,25	15	22,5	22,5	-1,4	250	75	300	0,25		100	2,2
541 DX	Ray	6	1,25	15	30	30	0	250	75	425	0,5	10	200	1,4
542 DX	Ray	6	1,25	15	22,5	22,5	-2	425	130	325	0,15		50	3,75
542 DX S	Ray	7	1,25	15										
544 DX	Ray	6	1,25	10	30	30	0	120	35	325	1,2	10	200	0,52
547 DX	Ray	6	1,25	10	30	30	0	240	60	425	0,75	10	200	1,35
548 DX	Ray	3	1,25	10	22,5	22,5	-1,4	250	75	300	0,25		100	2,2
5854	Ray	1	1,25	30	45	45	-2	800	250	550		0,35	50	9,5
6088	Ray	3	1,25	20	45	45	-1,25	675	150	560	0,7		200	10,5
6418	Ray	8	1,25	10	22,5	22,5	-1,2	240	60	300	0,42		100	2,2
6519	Ray	6	1,25	10	22,5	22,5	0	375	100	425	0,3	10	150	2

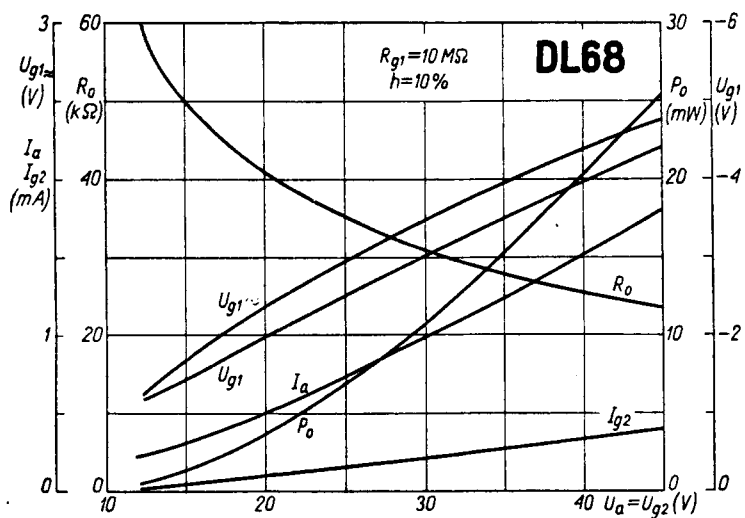
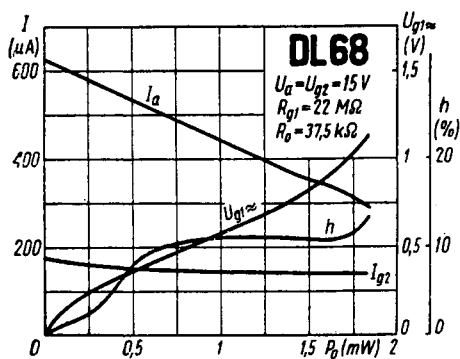
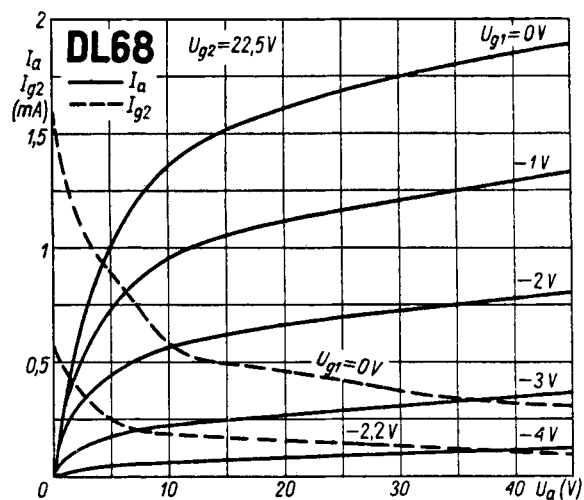
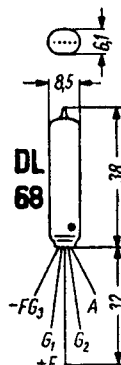
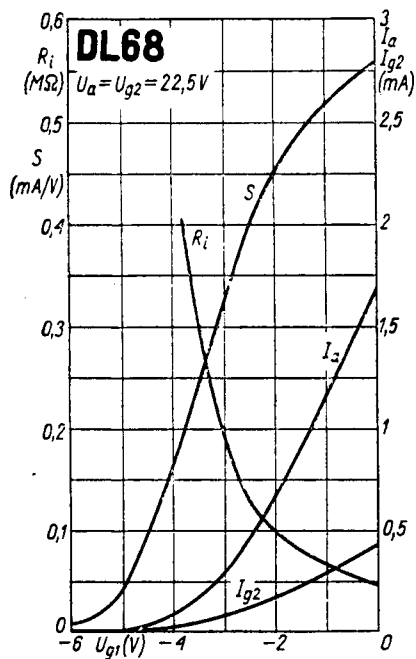
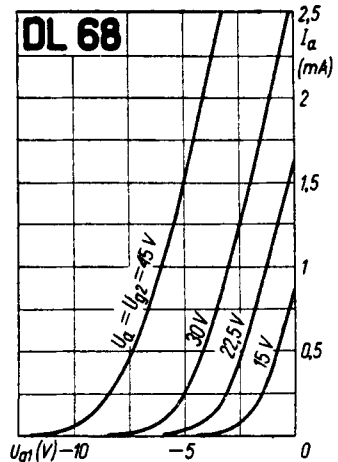
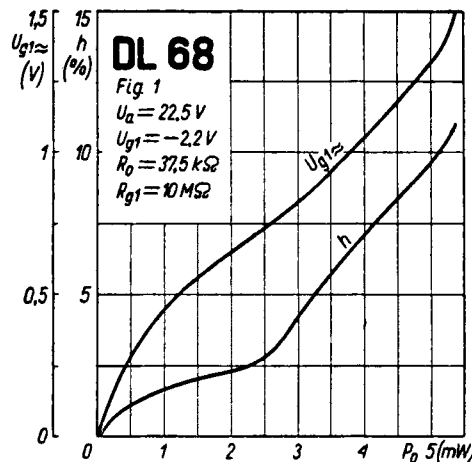
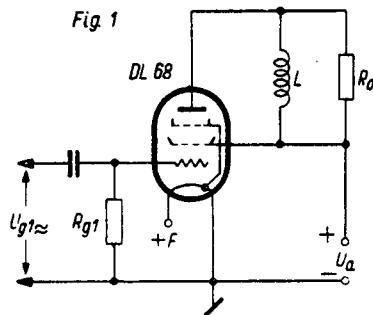
Equivalents

CK 503 AX	Ray = 503 AX	CK 531 DX	Ray = 531 DX	CK 542 DXS	Ray = 542 DXS
CK 504 AX	Ray = 504 AX	CK 532 DX	Ray = 532 DX	CK 544 DX	Ray = 544 DX
CK 507 AX	Ray = 507 AX	CK 533 AX	Ray = 533 AX	CK 546 DX	Ray = 547 DX
CK 518 AX	Ray = 518 AX	CK 535 AX	Ray = 535 AX	CK 548 DX	Ray = 548 DX
CK 524 AX	Ray = 524 AX	CK 536 AX	Ray = 536 AX	CK 5854	Ray = 5854
CK 527 AX	Ray = 527 AX	CK 539 DX	Ray = 539 DX	CK 6088	Ray = 6088
CK 528 AX	Ray = 528 AX	CK 541 DX	Ray = 541 DX	CK 6418	Ray = 6418
CK 529 AX	Ray = 529 AX	CK 542 DX	Ray = 542 DX	CK 6519	Ray = 6519

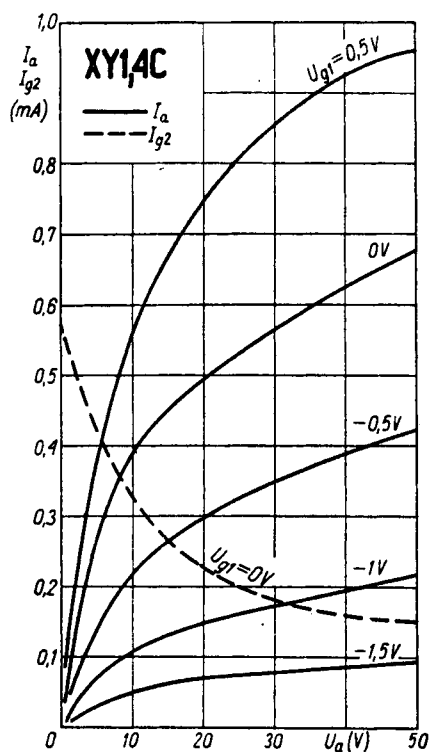
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
2E35 } 2E36 }	5,7	2,7	0,2
503 AX } 507 AX }	2,6	3,3	0,12
518 AX	3,2	6	0,1
5854	2,6	3,3	0,12



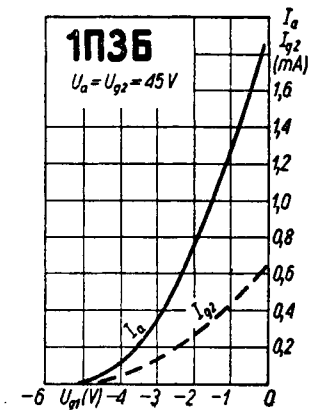
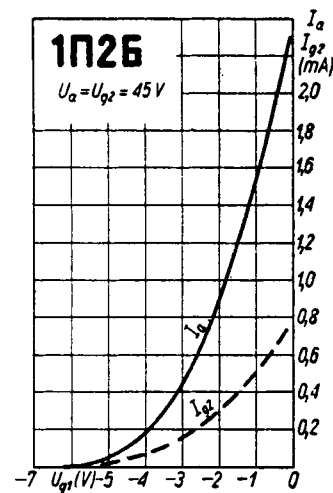
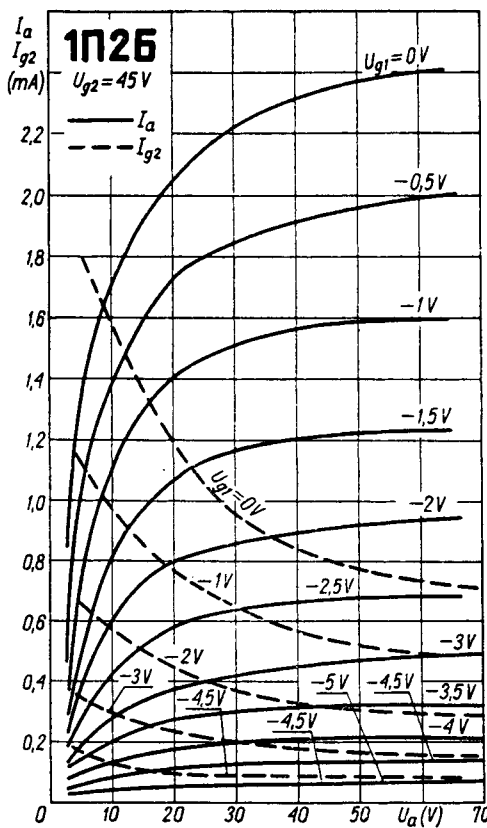
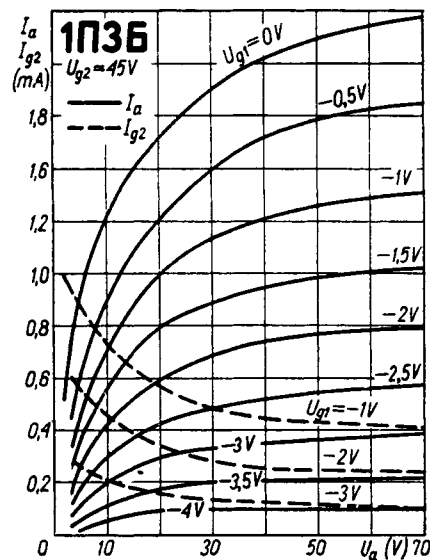
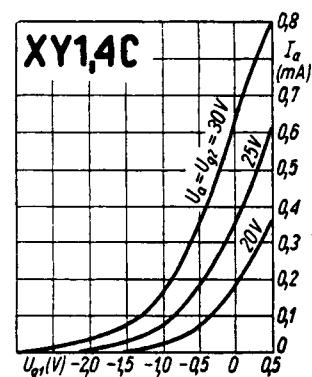
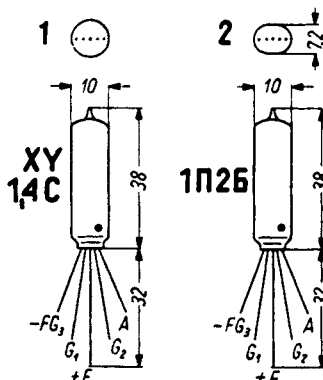
T.		U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a μ A	I_{g2} μ A	S μ A/V	R_i M Ω	μ (g_2/g_1)	R_o k Ω	P_o mW	$U_{g1} \approx$ V	h %	P_a mW
DL 68	eur	1,25	25	stat A Fig. 1	22,5 22,5 45	22,5 22,5 45	-2,2 -2,2	600 600	150 150	430	0,1	5	37,5	5	1,3	10	100
maximum $I_k = 2,3$ mA: $P_{g2} = 25$ mW																	



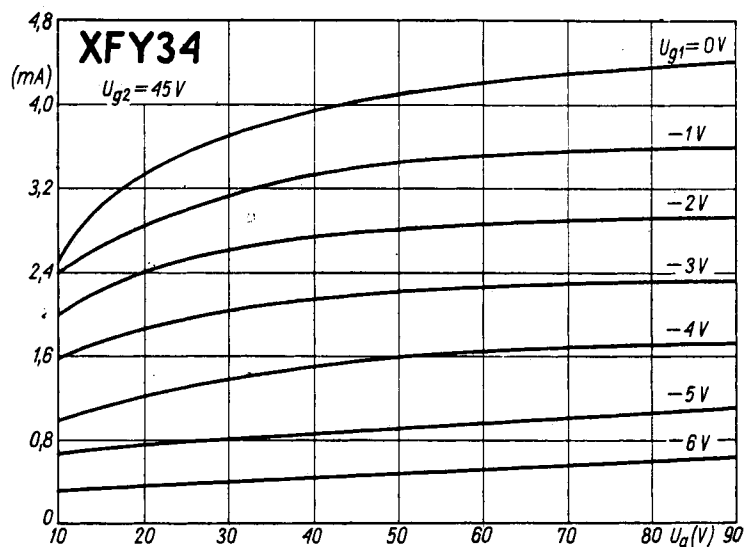
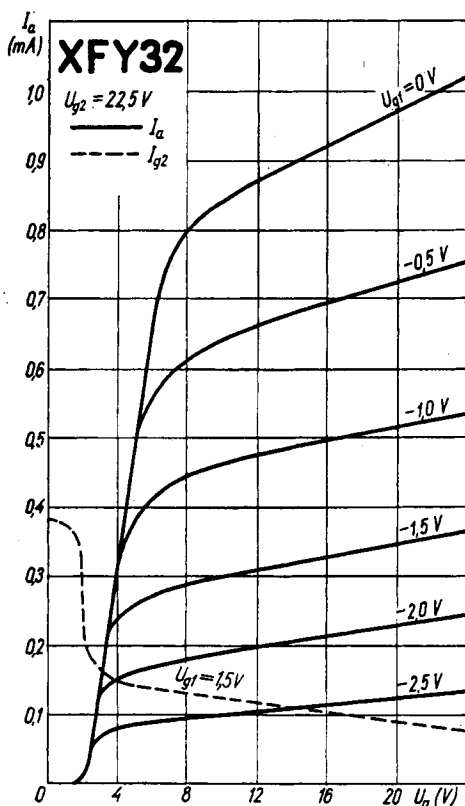
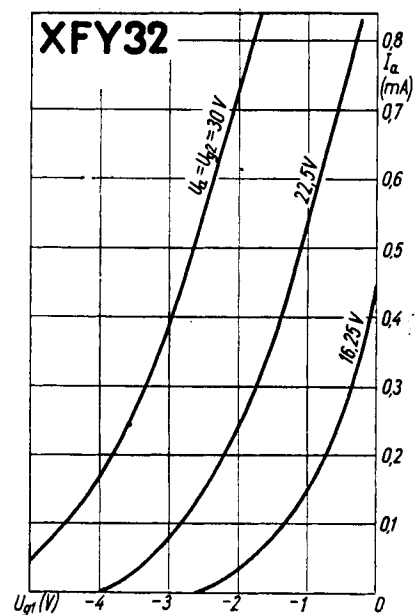
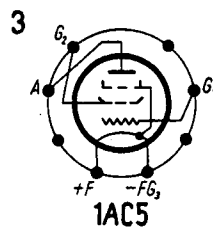
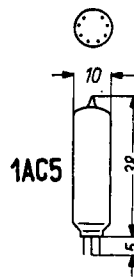
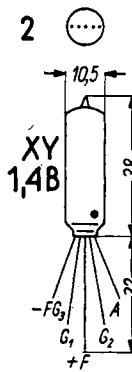
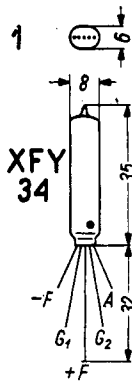
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	$U_{g1 \approx}$	h	P_a
			V	mA	V	V	V	mA	mA	mA/V	k Ω	k Ω	mW	V	%	mW
XY 1,4 C	Hiv	I	1,25	25	45	45	-1,5	0,5	0,1	0,55		100	6,5	1,5		
I II 2 Б	CCCP	2	1,25	50	45	45	-2	0,9	0,45	0,5	maximum	50	11	1,41	10	
I II 3 Б	CCCP	2	1,25	28	45	45	-2	0,75	0,45	0,42	maximum	50	6	1,41	10	
I II 4 Б	CCCP	2	1,25	20	45	45	-2	0,6	0,45	0,4	maximum	200	4	1,41	10	
											maximum $I_k = 1,5$ mA					

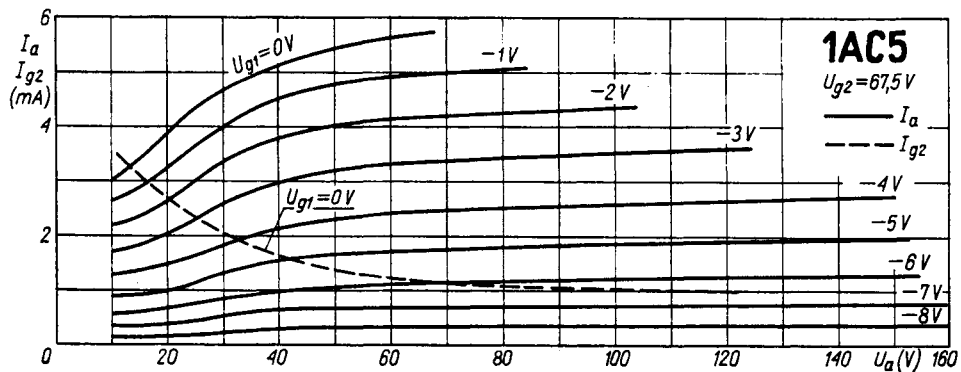
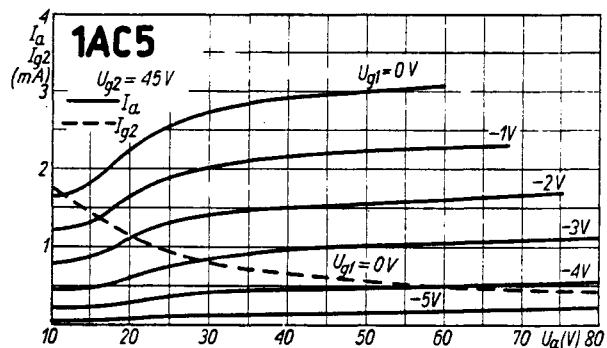
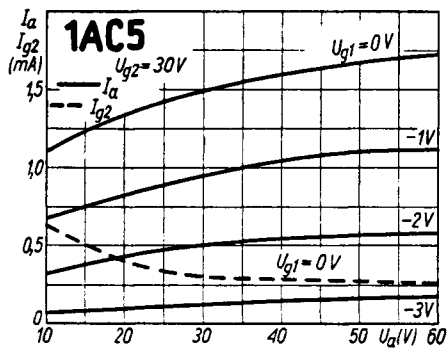
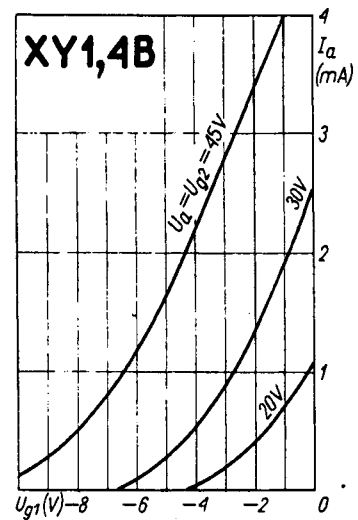
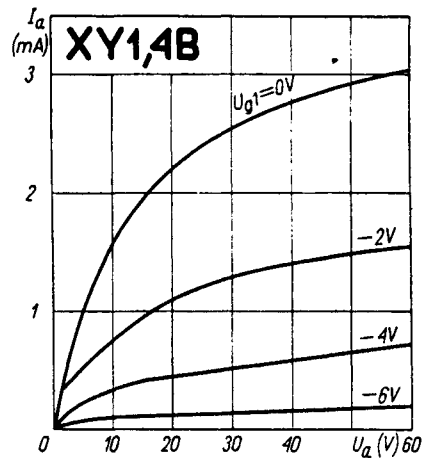
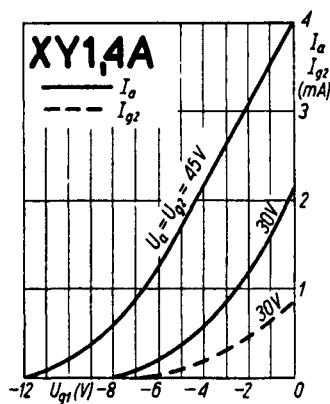
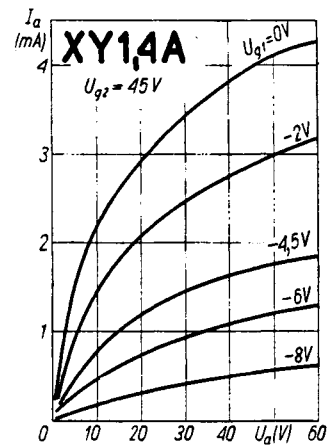
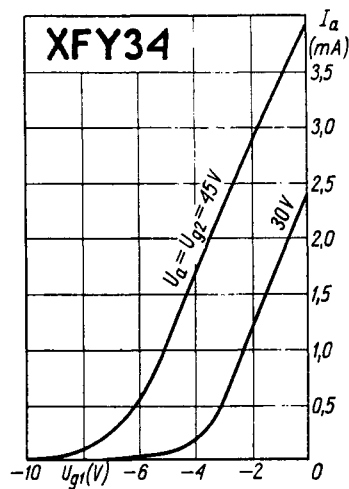
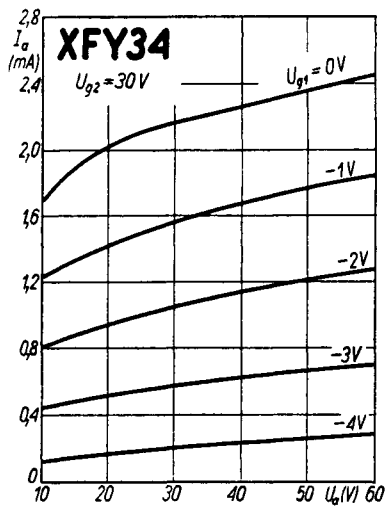


T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
I II 2 Б (I II 3 Б) I II 4 Б	6	3	0,3



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_f	R_o	P_o	$U_{g1 \sim}$	I_k
			V	mA	V	V	V	mA	mA	mA/V	k Ω	k Ω	mW	V	mA
XFY 32	Hiv	I	1,25	12,5	16,25 22,5 30 45	16,25 22,5 30 45	0 -1,5 -2,75	0,44 0,375 0,46	0,1 0,09 0,11	0,35 0,32 0,35		100 75 60	1,8 2,7 6	1,2 1,5 2,75	0,8
										maximum ($U_f = 1,55$ V)					
XFY 34	Hiv	I	1,25	14	30 45 50	30 45 50	-3 -4	0,6 1,5	0,14 0,36	0,55 0,6		25 25	9,5 30	3 4	2,5
										maximum ($U_f = 1,55$ V)					
XY 1,4 A	Hiv	2	1,4	32	45 60	45 45	-4,5	1,75	0,75	0,45		30	10	4,5	
										maximum					
XY 1,4 B	Hiv	2	1,25	25	45 60	45 60	-4,5	1,5	0,45	0,55		30	27,5	4,5	
										maximum					
I AC 5	amer	3	1,25	40	30 45	30 45	-2 -3	0,5 1	0,1 0,2	0,45 0,6	200 170	50 40	5 15	2 3	
I V 5	amer	3	1,25	40	67,5 67,5	67,5 67,5	-4,5	2	0,4	0,75	150	25	50	4,5	4
										maximum					





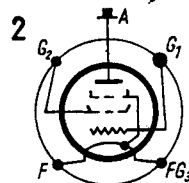
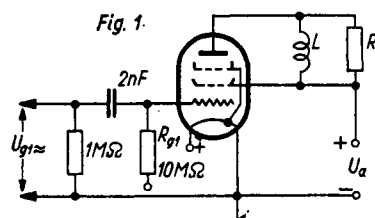
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	$U_{g1 \text{ max}}$	h
			V	mA	V	V	V	mA	mA	mA/V	MΩ	kΩ	mW	V	%
DL 51	Mul	2	1,5	134	45	45	-1,5	1,6	0,23	1,5	0,085				
DL 72	eur	3	1,25	25	45	45	-4,5	1,25	0,4	0,5	0,225	30	23	3	10
506 AX	Ray	4	1,25	25	45	45					maximum ¹⁾				
DL 75	Mul	3	1,4	25	90	90	-3	1,3	0,3	0,67	0,5	60	47	2,1	10
XY 1,5 V	Hiv	1	1,5	160	45	45	-1,5	1,75	0,3	1	0,066				
					75	75				maximum					
1 AG 4	Ray	5	1,25	40	41,4	41,4	-3,6	2,4	0,6	1	0,18	12	35		
6051	Ray	5	1,25	100	45	45	-4	3	0,9	1,2	0,035	20	50		
6092	Ray	5	1,25	50	45	45	-4,5	1,4	0,4	0,6		30	25		

¹⁾ $I_k = 1,7 \text{ mA}$; $P_{g2} = 20 \text{ mW}$; $P_a = 60 \text{ mW}$

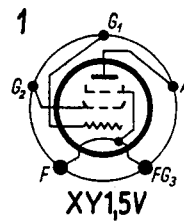
Equivalents

CK 506 AX	Ray	= 506 AX
CK 6051	Ray	= 6051
CK 6092	Ray	= 6092
N 3	Marc	= 506 AX
I L 91	Tes	= 506 AX

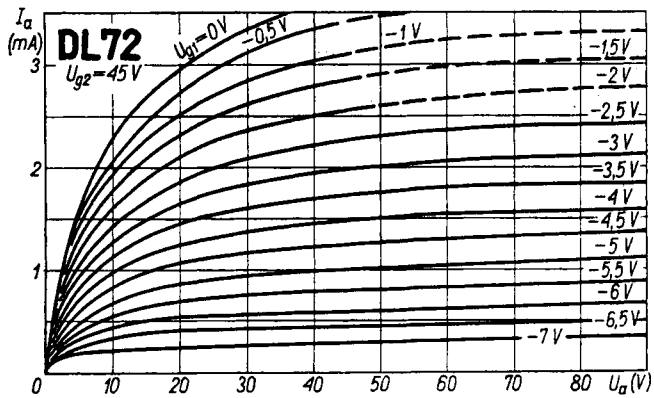
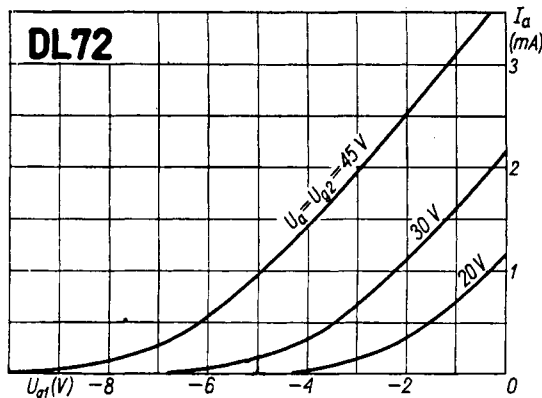
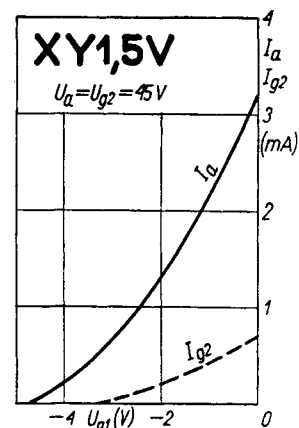
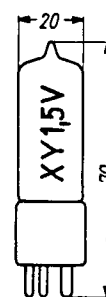
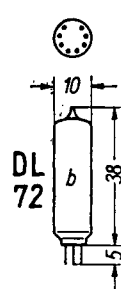
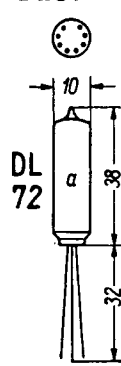
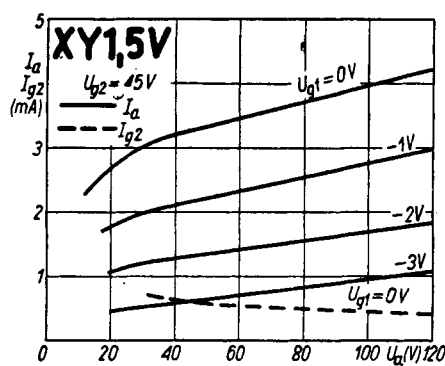
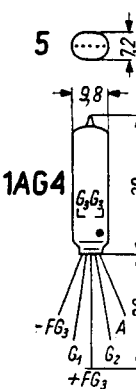
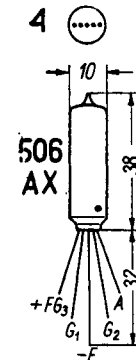
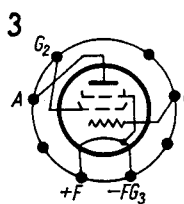
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
DL 72	1,6	3,6	0,5
506 AX	2,5	3,2	0,09



DL 51

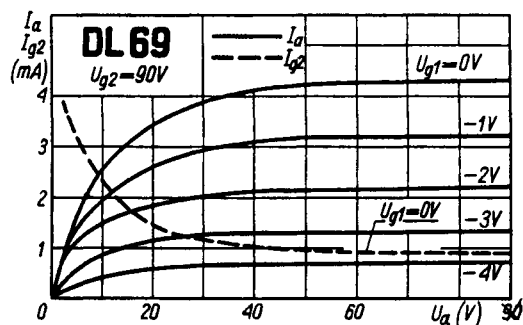
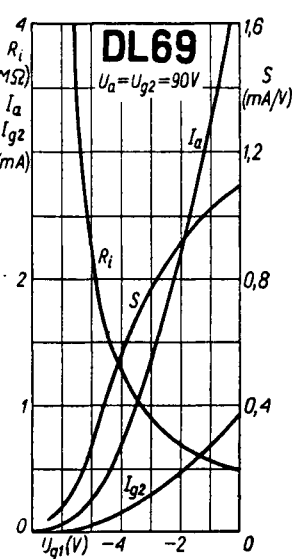
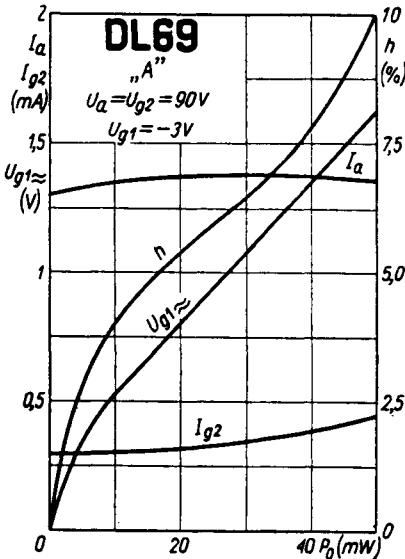
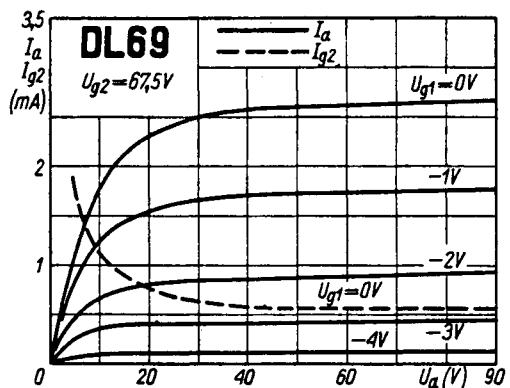
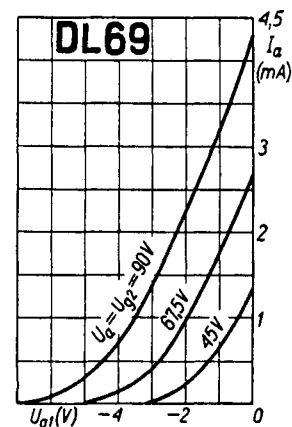
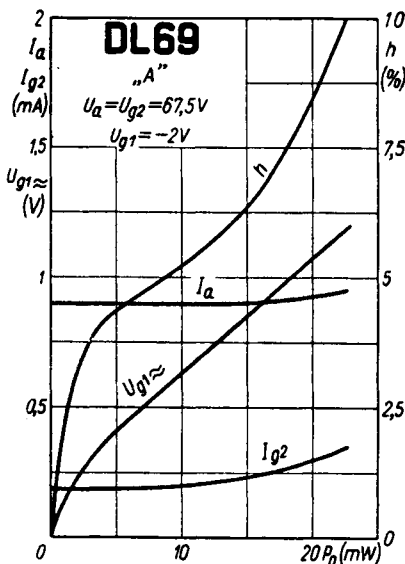
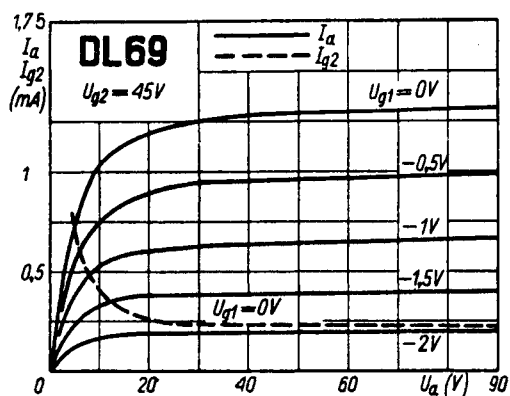
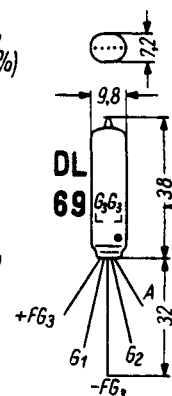
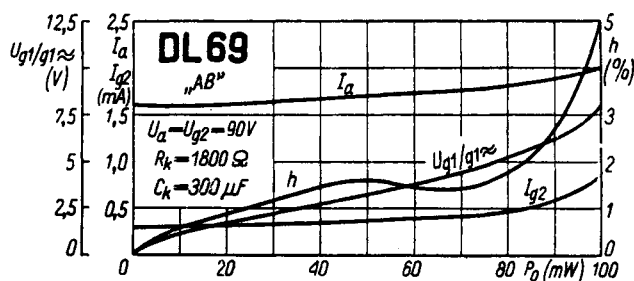


DL 72



T.		U_f V	I_f mA	Cl.	U_a V	U_{g1} V	U_{g2} V	I_a mA	I_{g2} mA	S mA/V	R_i M Ω	μ (g_2/g_1)	$R_o(R_a/a)$ k Ω	P_o mW	$U_{g1 \sim}$ V	h %
DL 69	Mul	1,25	25	stat	90	90	-2,5	1,75	0,4	0,85	0,8	15				
				A	67,5	67,5	-2	0,9	0,2				70	23	1,2	10
					90	90	-3	1,3	0,3				60	50	1,6	10
				AB	90	90		1,6 $\div$ 2	0,3 $\div$ 0,85				100	100	4	5
					90	90		maximum		$(R_k = 1800 \Omega)$ $I_k = 2,5 \text{ mA}$						

C_{g1}	C_a	$C_{g1/a}$	vide
pF	pF	pF	
2,9	3,2	0,05	* 5



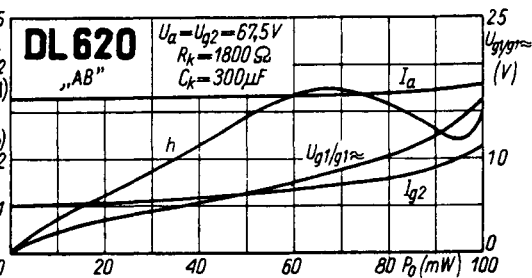
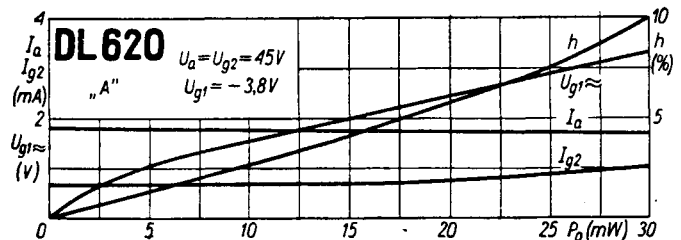
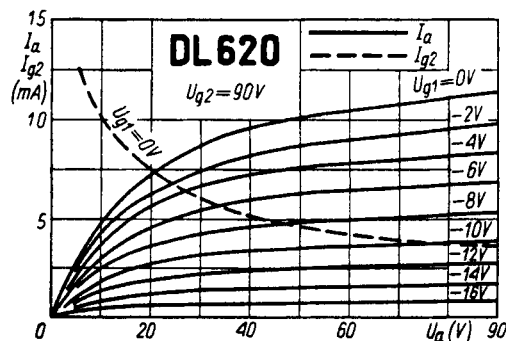
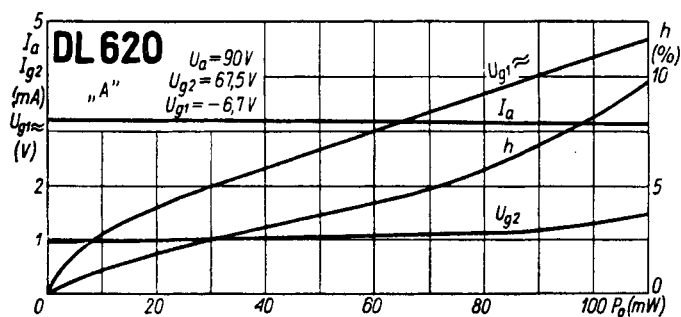
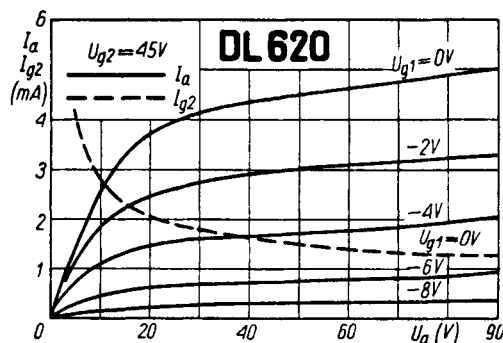
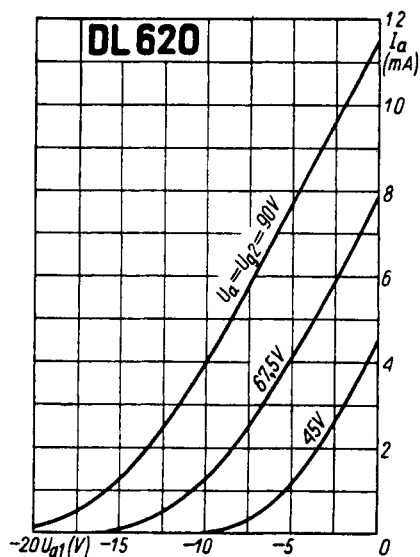
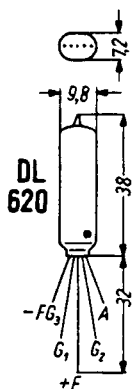
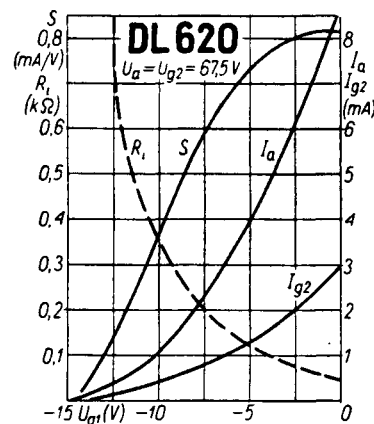
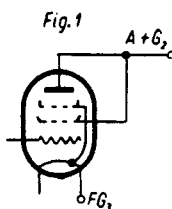
T.			U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_2/g_1)	$R_o(R_a/a)$ k Ω	P_o mW	$U_{g1\approx}$ mV	h %
DL 620	Mul	I	1,25	50	stat	67,5	67,5	-6,5	3,1	0,95	0,65	110	(5)				
					A	45	45	-3,8	1,8	0,6 ÷ 1,1				20	30	3,4	10
						67,5	67,5	-6,2	3,25	1 ÷ 1,75				15	85	5,0	10
						90	67,5	-6,7	3,25	0,9 ÷ 1,5				25	110	4,8	10
XFY 15	Hiv	I	1,25	20	AB Fig. 1	67,5	67,5		3,3 ÷ 3,6	1 ÷ 2,25	($R_k = 1800 \Omega$)		(30)	100	8	3	
						67,5		-6,5	4			5	5				
						90	90										

maximum $I_k = 5$ mA; $P_{g2} = 0,1$ W; $P_a = 0,3$ W

Equivalent: DL 620

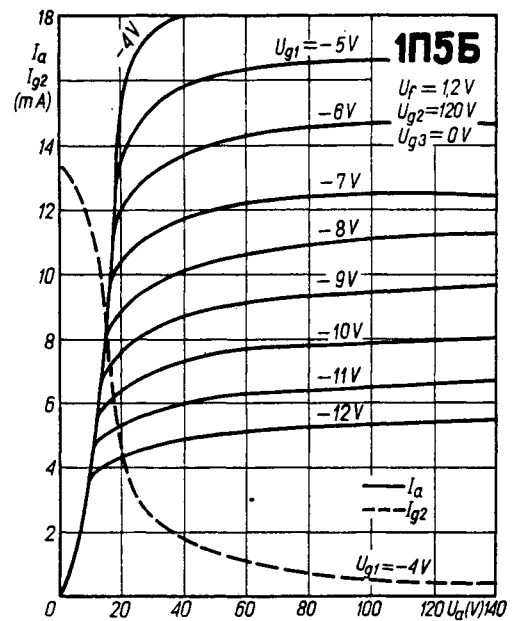
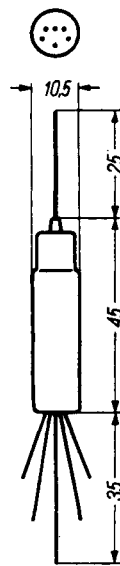
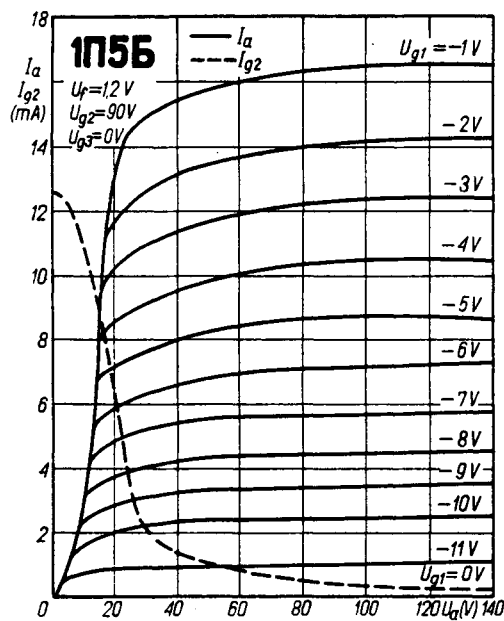
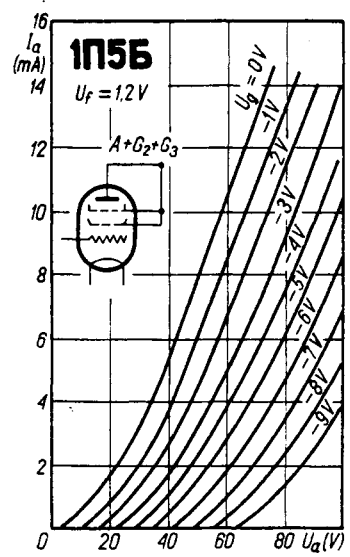
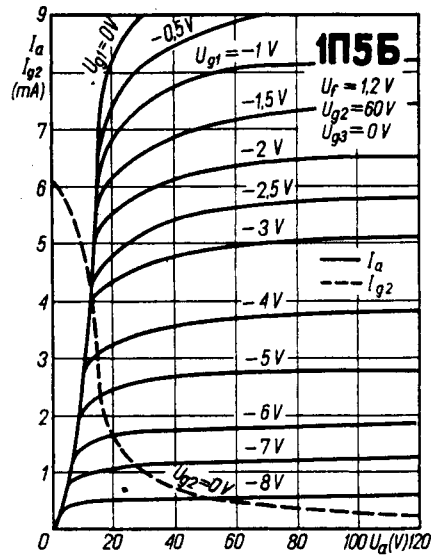
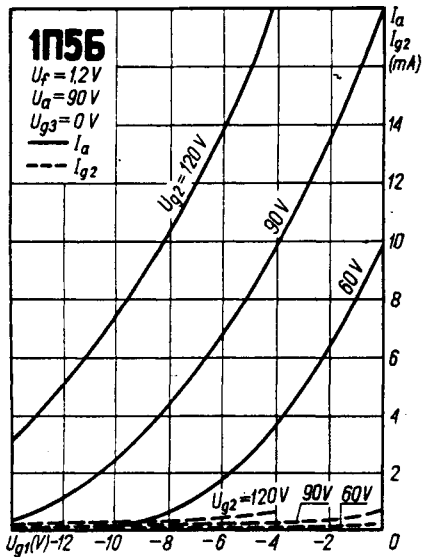
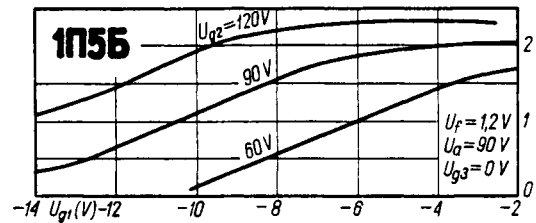
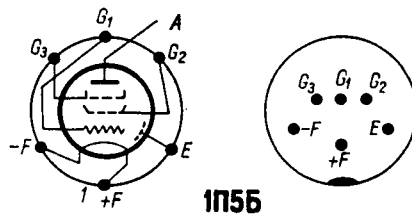
CK 5672	Ray
DL 652	Tif
XFY 14	Hiv
5672	amer

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
2,8	3,4	0,2



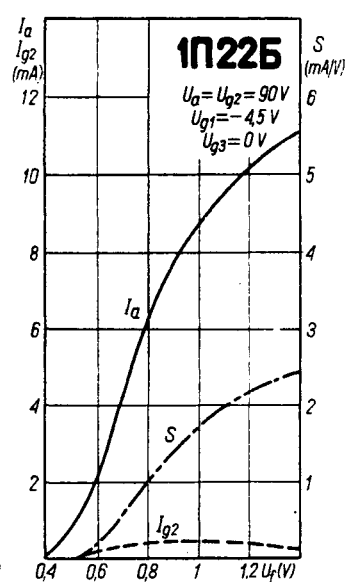
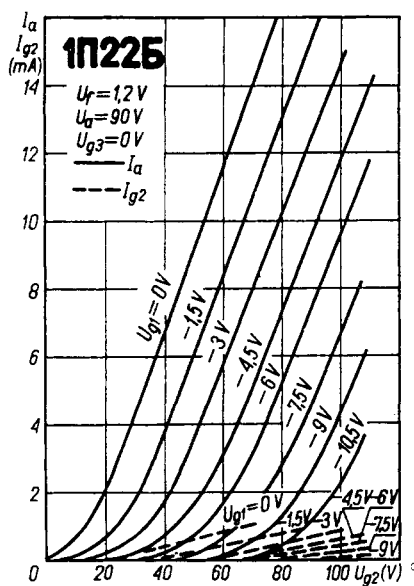
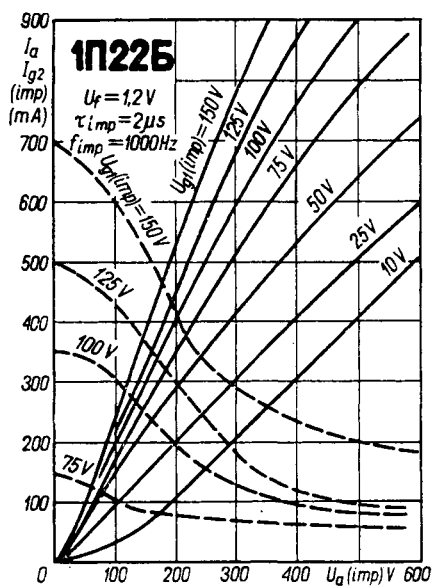
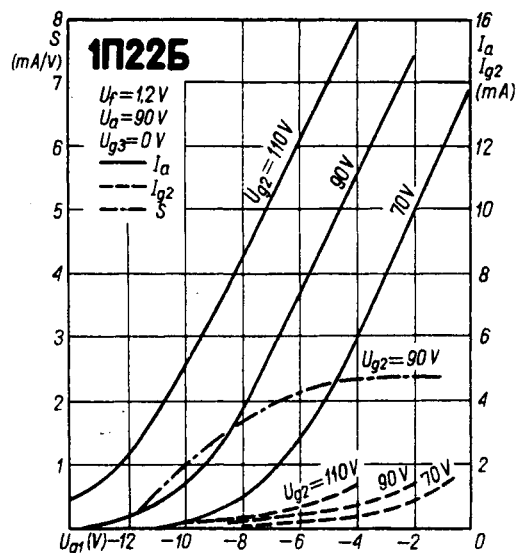
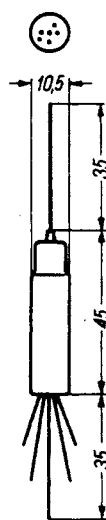
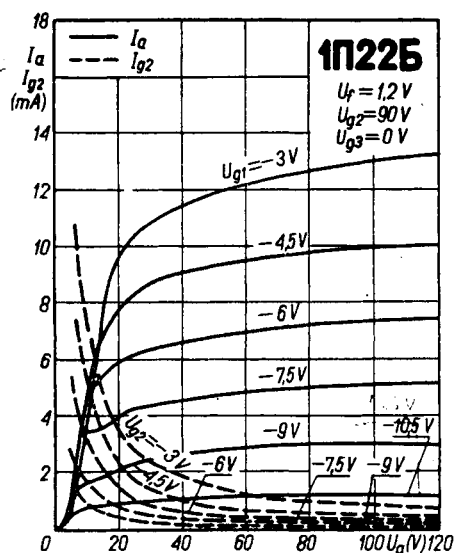
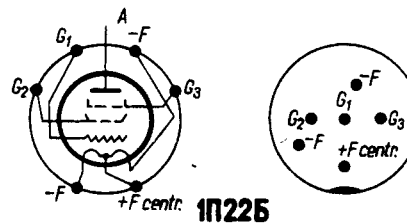
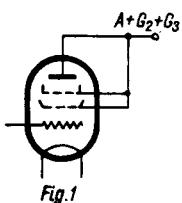
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	f	I_k
		V	mA	V	V	V	V	mA	mA	mA/V	MHz	mA
1 П 5 Б	СССР	0,95 ÷ 1,4	120	90	90	0	-4,5	12	1	1,9	100	10
				150	120		maximum					

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
3,5 ÷ 4,3	2,3 ÷ 3	0,008



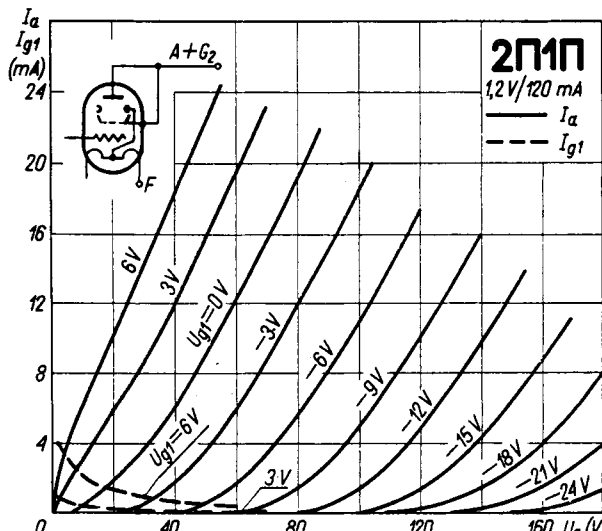
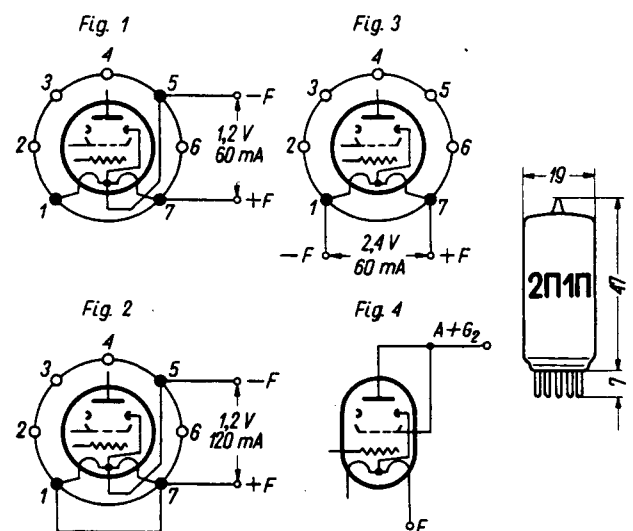
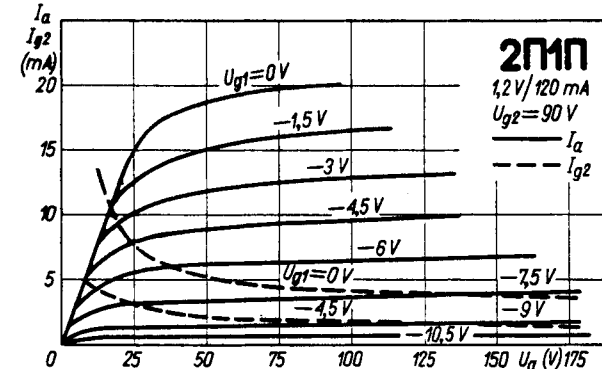
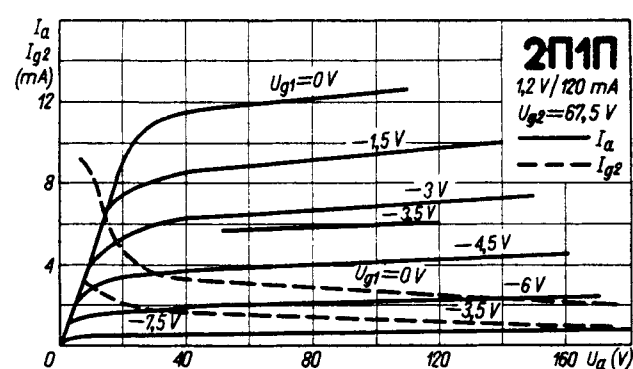
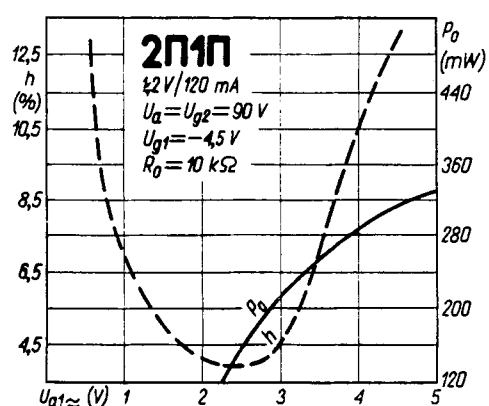
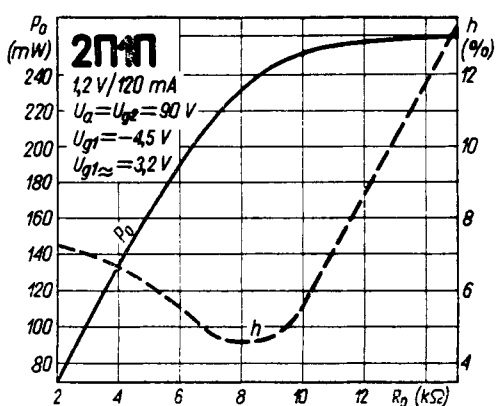
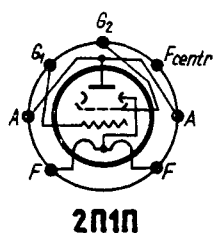
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	f	I_k
		V	mA	V	V	V	V	mA	mA	mA/V	MHz	mA
1 П 22 Б	СССР	$0,95 \div 1,4 / 1,9 \div 2,8$	115/58	$\begin{cases} 90 \\ 180 \\ 400 \end{cases}$	$\begin{cases} 90 \\ 150 \\ 300 \end{cases}$	0	$\begin{cases} -4,5 \\ -60 \end{cases}$	$\begin{cases} 13 \\ \text{maximum} \\ \text{impulse} \leq 3 \mu\text{s}; f_{\text{imp}} = 5000 \text{ Hz} \end{cases}$	1	1,9	100	$\begin{cases} 17 \\ 400 \end{cases}$

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
$6,2 \div 7,6$	$4,1 \div 5,3$	0,019



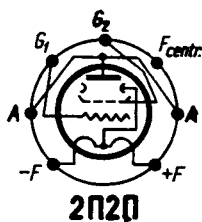
T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	$U_{g1 \approx}$	h	μ	I_k	
		V	mA	V	V	V	mA	mA	mA/V	kΩ	kΩ	mW	V	%	V/V	mA	
2 П 1 П	СССР	1,2	60	67,5	67,5	—3,5	2,8	0,65	0,9	260	24	60	3,5	7			
				90	67,5	—3,5	2,9	0,65	0,9	300	36	80	3,5	7			
				67,5	67,5	—3,5	5,6	1,3	1,8	130	12	120	3,5	7			
		1,2	120	90	67,5	—3,5	5,8	1,3	1,8	150	18	160	3,5	7			
				90	85	—5	6,9	1,5	1,95	120	10	250	5	10			
				90	90	—4,5	9,5	2,1	2,15	100	10	270	4,5	7			
		2,4	60	90	90	—4,5	8	1,8	2	110	10	250	4,5	7			
				90	—	—4,5	11,6		2,5	3					7,5		
				100	100											7,5	
		maximum ($U_f = 1,2 \text{ V} \pm 0,15 \text{ V}; 2,4 \text{ V} \pm 0,3 \text{ V}$)															
		(vide Fig. 4)															

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
5,5	4	0,5

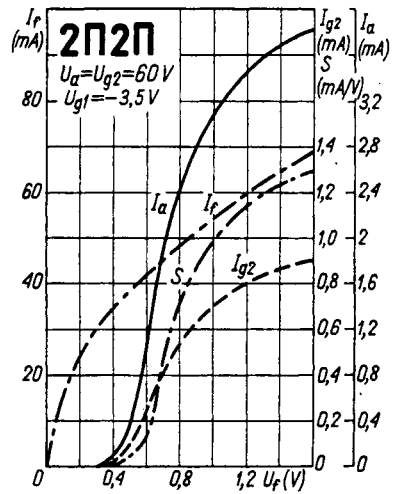
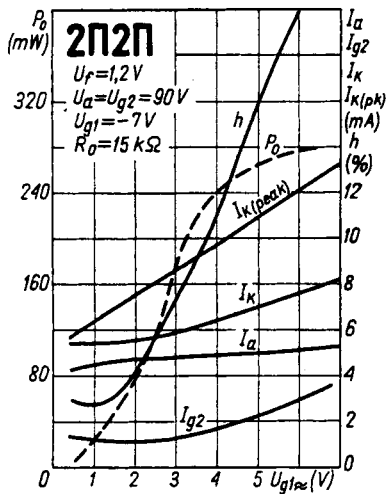
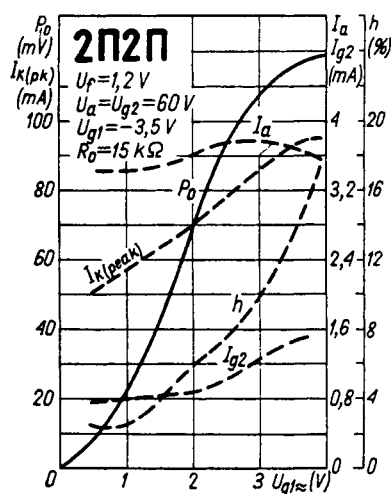
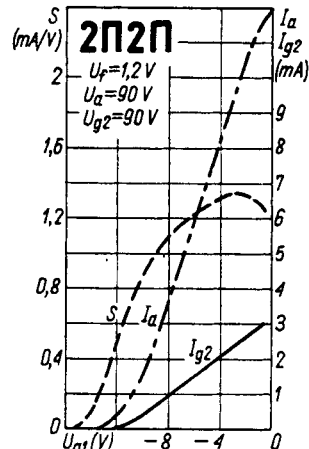
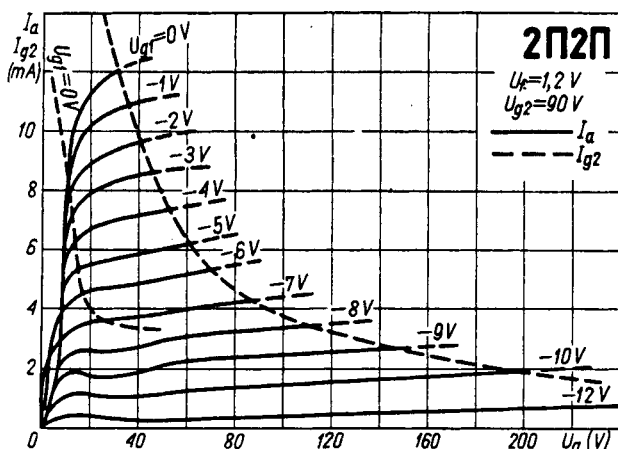
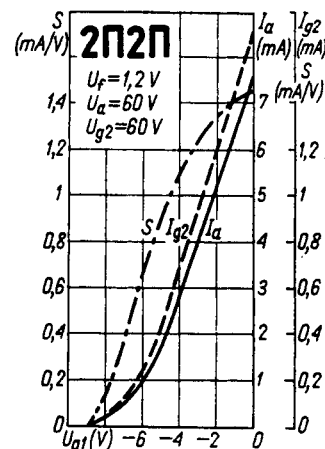
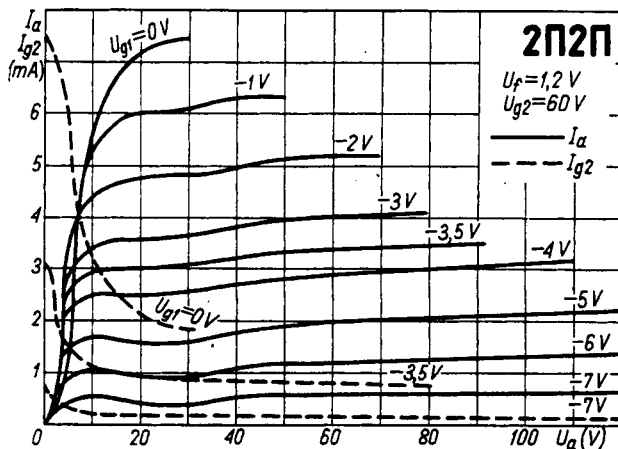


T.		U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	R_o kΩ	P_o mW	$U_{g1\sim}$ V	h %	P_a W
2 П 2 П	СССР	1,2/1,4	60/30	stat. A	60 60 90 90	60 60 90 90	-3,5 -3,5 -7	3,5 3,7 5	0,8 1 1,4	11	120	15 15	90 200	2,5 4	7,5 10	0,4
maximum $U_f = 0,9 \div 1,4/1,8 \div 2,8$ V: $I_k = 7$ mA																

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
3,7	3,2	0,4

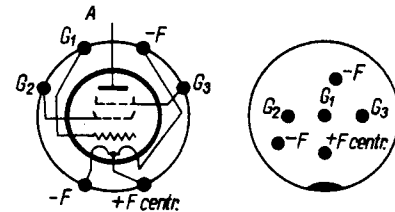
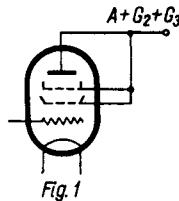
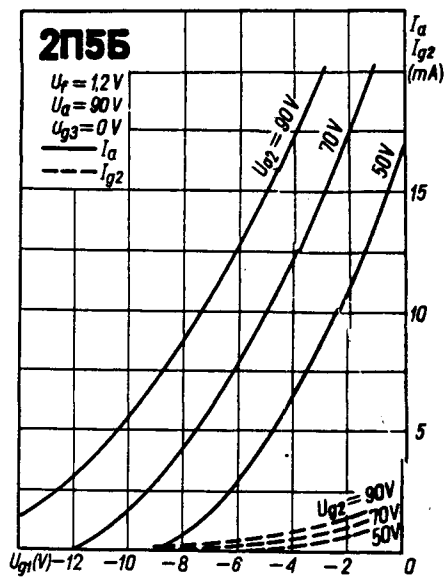
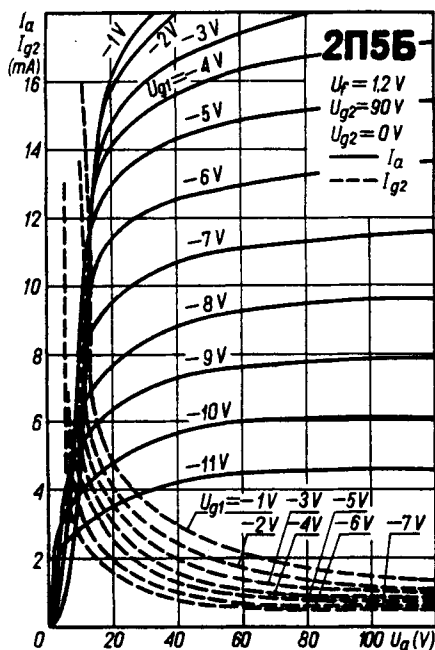


2П2П

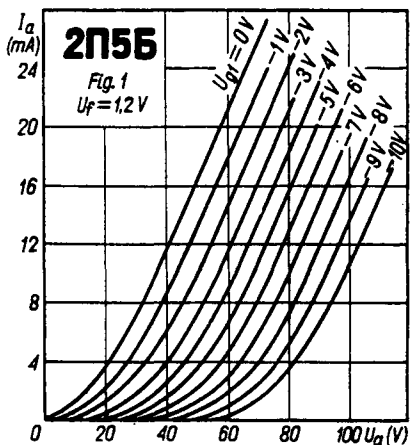
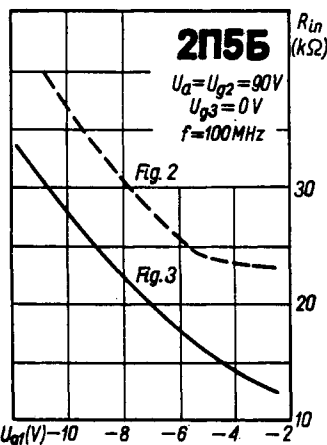
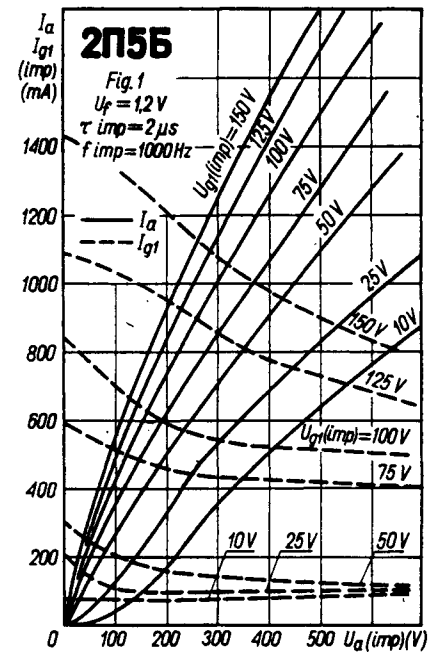
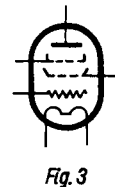
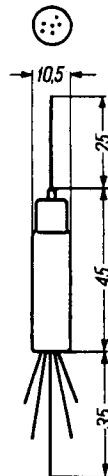


T.		U_f	I_f	U_a	U_{g1}	U_{g2}	U_{g3}	I_a	I_{g2}	S	f	I_k	P_{g2}	P_a
		V	mA	V	V	V	V	mA	mA	mA/V	MHz	mA	W	W
2 П 5 Б	СССР	$0,95 \div 1,4 / 1,9 \div 2,8$	180/90	$\begin{cases} 90 \\ 180 \\ 400 \end{cases}$	90	0	$\begin{cases} -4,5 \\ -60 \end{cases}$	18,5 maximum impulse $\leq 3 \mu s$	1	3,3	100	25 800	0,12	2,3

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
$6,5 \div 7,7$	$4 \div 5,5$	0,019



2П5Б



T.			U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_m/g_i)	$R_a(R_{a1/a})$ k Ω	P_o mW	$U_{g1\max}$ V	h %	I_k mA	P_{gs} W	P_a W
DL 91	eur	1	1,4	100	A Fig.1	41	41	-3,5	4	0,8	1,3	90	4,5	7	45	2,9	13			
DL 92	eur	2	1,4/2,8	100/50		45	45	-4,5	3,8	0,8	1,25	100	5	8	65	3,5	12			
1 L 34	Tes	1	1,2	60		61	61	-6	6,6	1,4	1,5	100	4,5	7	125	4,5	14			
1 S 4 T	TuM	1	1,4	50		67,5	67,5	-7	7,2	1,5	1,55	100	5	5	180	5,5	10			
3 S 4 T	TuM	2	1,4/2,8	50/25	A Fig.2	84	84 ¹⁾	-6,5	8	1,7	1,55	100	4,5	7	190	5,1	13			
						90	67,5	-7	7,4	1,4	1,57	100	5	8	270	5,1	12			
						41	41	-3,5	3,2	0,7	1,15	110	4,5	7	38	2,8	13			
						45	45	-4,5	3	0,7	1,1	100	5	8	50	3,5	12			
					AB Fig.1/2	61	61	-5,5	6,5	1,4	1,45	100	4,5	7	120	4,4	14			
						67,5	67,5	-7	6	1,2	1,4	100	5	5	160	5,5	12			
						84	84 ¹⁾	-6	7,6	1,6	1,5	105	4,5	7	180	4,7	13			
						90	67,5	-7	6,1	1,1	1,42	100	5	8	235	4,7	13			
					Fig.3 stat.	67,5	67,5	-12	3÷11,2	0,5÷3				(10)	340	8,5	5			
						76	76	-13,6	3÷14	0,7÷5,2				(9)	490	10	5,5			
						90	90	-16,5	4÷16,8	0,7÷5,4				(10)	780	11,5	6			
						67,5	90	-7	8	—	1,4	3,5	5							
DL 192	RFT	2	1,4/2,8	100/50	A	67,5	67,5	-7	7	2	1,5	100	55		150	4,5	10	11	0,15	0,7
DL 962	RFT	2	1,2/2,4	120/60		120	70					maximum						12	0,22	0,85
2 L 34	Tes	2	1,2/2,4	60/30								maximum								

¹⁾ $U_{b1/g2} = 84$ V; $R_{g2} = 10$ k Ω ; $C_{g2} = 0,47$ μ F

Equivalents

N 17	Eng = DL 92
1 L 33	Tes = 1 S 4 T
1 P 10	Eds = DL 92
1 S 4	amer = DL 91
3 S 4	amer = DL 92

T.	C_{g1} pF	C_a pF	$C_{g1/d}$ pF
DL 91	4,35	6	0,4
DL 92	4,35	6	0,4
N 17	5,6	7,6	0,35
3 S 4	4,8	4	0,3

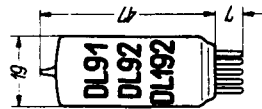
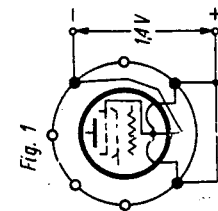
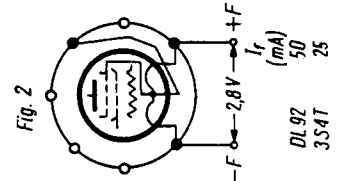
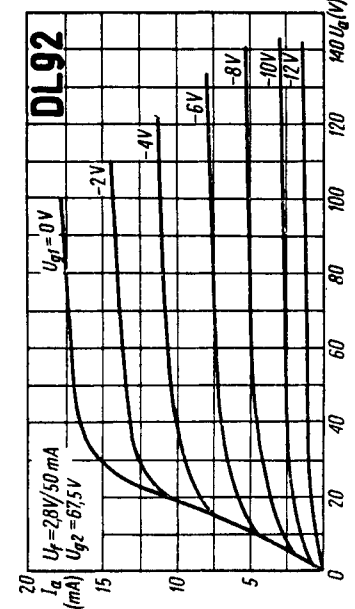
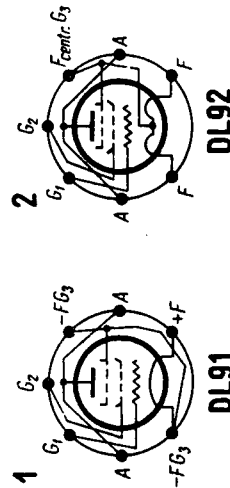
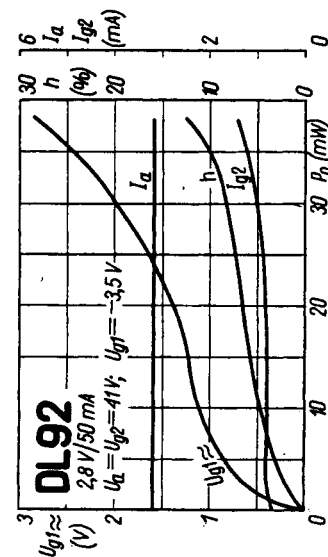
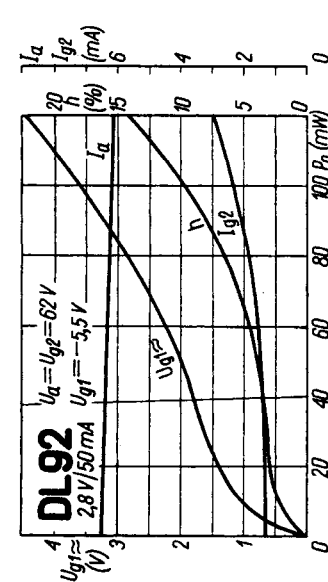
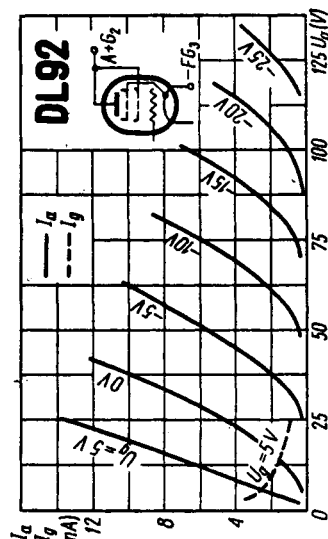
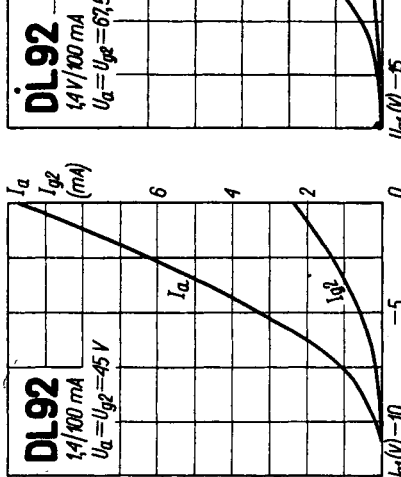
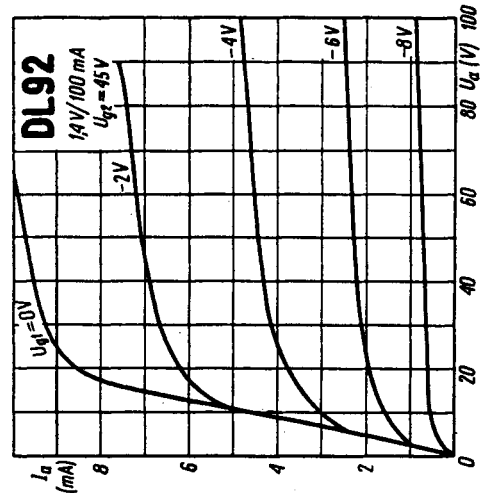
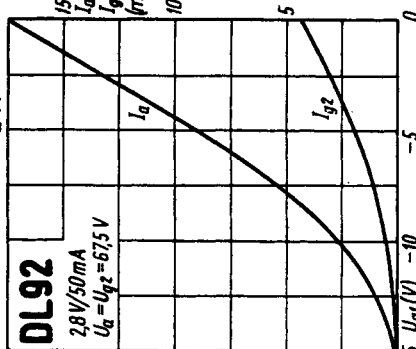
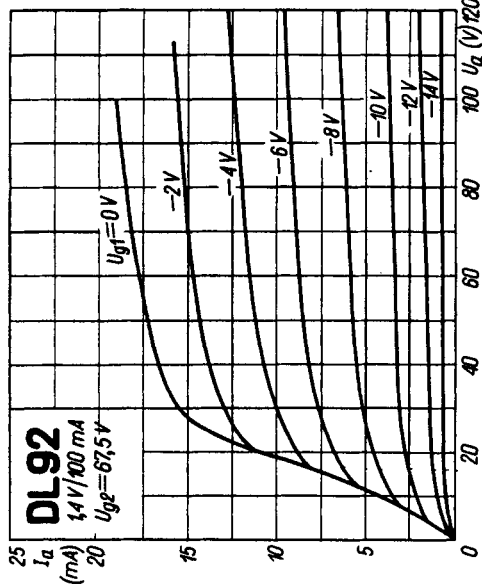
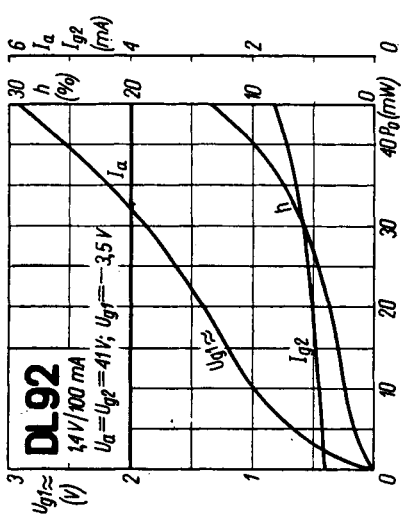
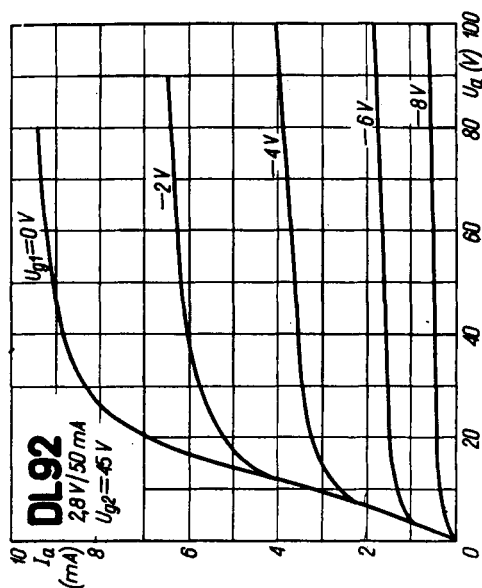


Fig. 3



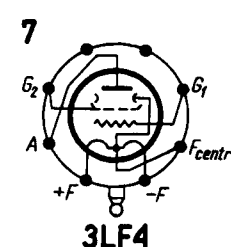
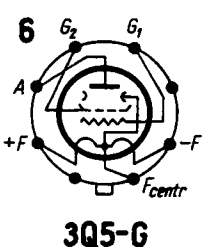
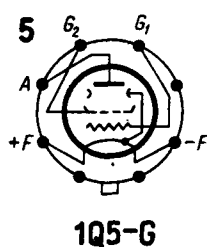
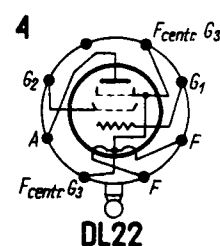
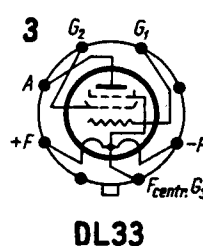
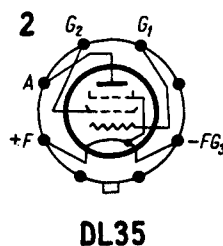
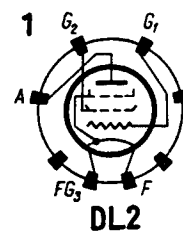
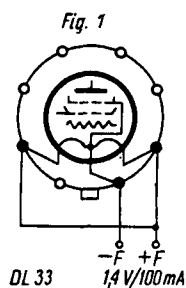


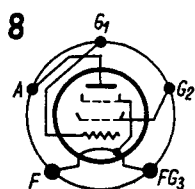
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	$U_{g1\sim}$	h	μ	I_k
			V	mA	V	V	V	mA	mA	mA/V	k Ω	k Ω	mW	V	%	(g_2/g_1)	mA
DL 2	eur	1	1,4	100	83	83	-7	7	1,6	1,5	110	9	200	3,6	10		
DL 35	Mul	2	1,4	100	90	90	-7,5	7,5	1,6	1,55	115	8	240	4,4	10		
N 15	Eng	3	1,4/2,8	100/50	110	110					maximum					7	12
DL 22	Tu	4	1,4/2,8	100/50	120	120	-4	5	1,3	1,6	350	23	300			15	
DL 33	Mul	3	1,4/2,8	100/50	85	85	-5	7	0,8	1,95	70	9	250	3,5	5,5		
DL 36	Phi	2	1,4	100	90	90	-4,5	9,5	1,3	2,2	90	8	270	3,2	6	1,4 V	
1 Q 5-G	int	5	1,4	100	110	110	-6,6	10	1,4	2,2	100	8	400	3,8	6	100 mA	
3 LF 4	amer	7	1,4/2,8	100/50	90	90	-4,5	8	1	2	80	8	230	3,2	8,5	2,8 V	
3 Q 5-G	int	6	1,4/2,8	100/50	110	110	-6,6	8,5	1,1	2	110	8	330	3,6	8,5	50 mA	
					110	110					maximum					10	12
HY 125	Hyt	8	1,4	70	45	45	-3	0,9	0,2	0,31	820	50	11				
					90	90	-7,5	2,6	0,5	0,45	420	28	90				
1 A 5-G	amer	2	1,4	50	85	85	-4,5	3,5	0,7	0,8	300	25	100	4,5	7		
1 LA 4	amer	9	1,4	50	90	90	-4,5	4	0,8	0,85	300	25	115	4,5	7		
					110	110					maximum						6
1 LB 4	amer	9	1,4	50	45	45	-4,5	1,6	0,3	0,65	300	20	35	4,5	10		
1 W 4	amer	10	1,4	50	67,5	67,5	-6	3,8	0,8	0,87	200	16	100	6	10		
					90	90	-9	5	1	0,92	200	12	200	9	10		
					110	110					maximum						6
1 T 5-GT	amer	5	1,4	50	90	90	-6	6,5	0,8	1,15	150	14	170	4,3			7,3
3 B 5-GT	amer	6	1,4/2,8	100/50	45	45	-4,5	4,4	0,3	1,4	100	8	70				
					67,5	67,5	-7	6,7	0,5	1,5	100	5	180				
3 C 5-GT	amer	6	1,4/2,8	100/50	90	90	-9	6	1,4	1,55		8	240	(1,4V/100mA)			
					90	90	-9	6	1,4	1,45		10	260	(2,8V/50 mA)			
					67,5	67,5	-5	5	1	1,3	120	7	100	1,4 V			
					90	90	-8	6	1,5	1,2	140	8	200	50 mA			
3 E 5	amer	11	1,4/2,8	50/25	67,5	67,5	-5	4,5	1	1,2	110	7	90	2,8 V			
					90	90	-8	5,5	1,5	1,1	120	8	175	25 mA			
					110	110					maximum						8

Equivalents

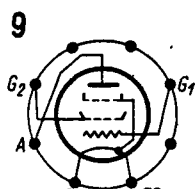
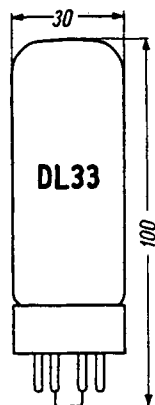
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DP 2	Oxt = DL 2
HY 155	Hyt = HY 125
N 14	Eng = DL 35
N 16	Eng = DL 33
P 1	amer = HY 125
Pen 141	Eds = DL 2
WT-389	WT = 3 Q 5-G
1 A 5-GT	int = 1 A 5-G
1 C 5-G	amer = DL 35
1 C 5-GT	amer = DL 35
1 LA 4 E	Bri = 1 LA 4
3 Q 5-GT	amer = 3 Q 5-G
125	Hyt = HY 125
155	Hyt = HY 125

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
N 14	6,9	8,5	0,75
N 16	7,3	8,5	0,7
3 Q 5-G	8	6,5	0,6

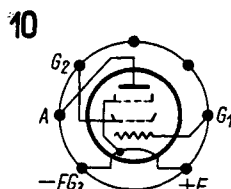
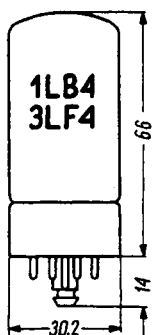




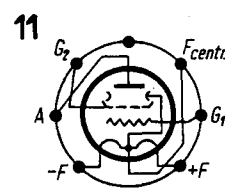
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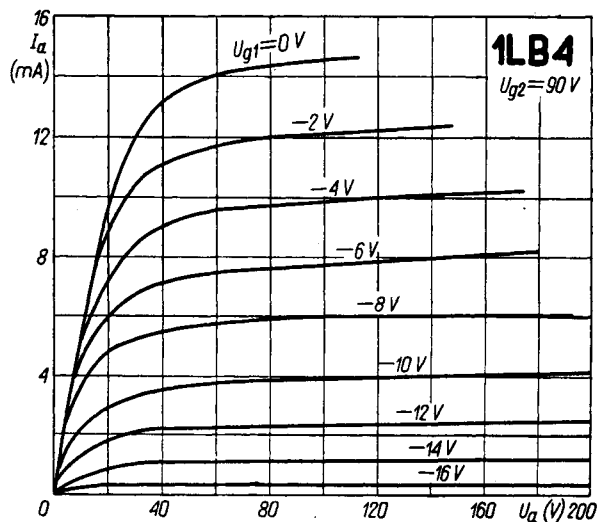
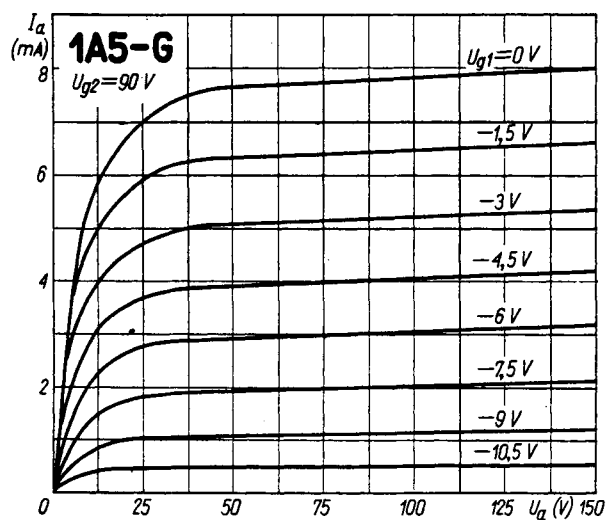
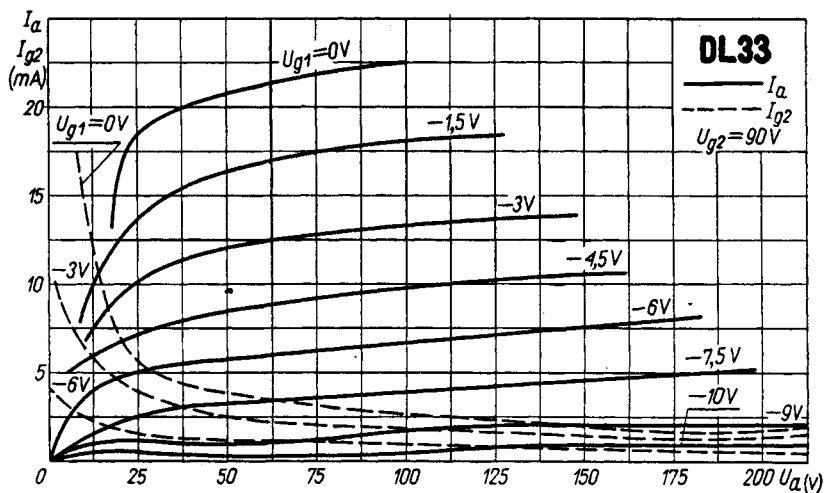
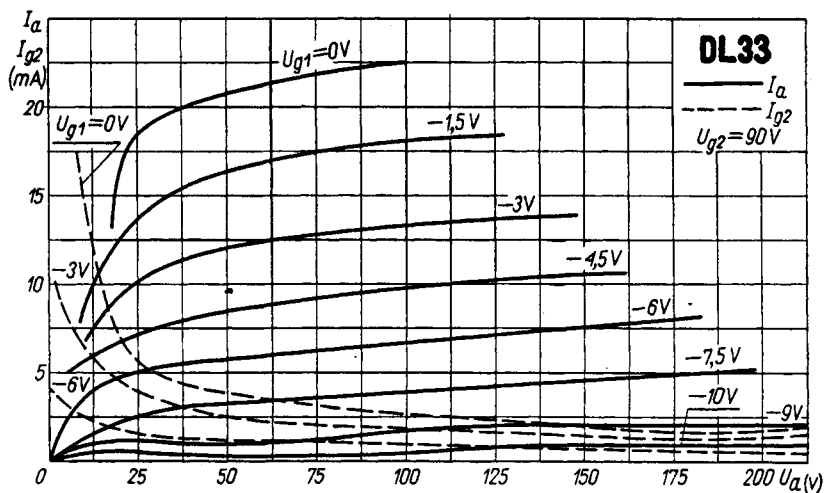
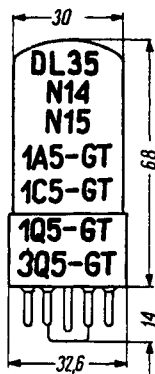
1LA4



1W4



3E5



T.		U_f V	I_f mA	Cl.	U_b V	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S	R_i k Ω	R_k Ω	$R_o(R_{a/a})$ k Ω	P_o mW	$U_{gr\max}$ V	h %	I_k mA	P_{g2} W	P_a W
DL 96	eur	1,4	25	A	{ 67,5 90	64	64	-3,3	1,75	0,33	0,65	340		30	50	2,6	10			
		1,4	50	A	{ 67,5 90	85	85	-5,2	2,5	0,45	0,7	300		25	100	3,5	10			
		2,8	25	A	90	64	64	-3,3	3,5	0,65	1,3	170		15	100	2,6	10			
		2,8	50	A	90	85	85	-5,2	5	0,9	1,4	150		13	200	3,5	10			
		1,4	50x2	AB	{ 67,5 90	85	85	-6,3	3,7	0,7		15	680	20	150	2,8	10			
		2,8	25x2	AB	{ 67,5 90	61,5	61,5	-5,8	4,6 $\pm$ 6,8	0,86 $\pm$ 1,9			470	(20)	220	5,7	3			
		2,8	50x2	AB	{ 67,5 90	81,5	81,5	-8,5	6,5 $\pm$ 9,5	1,2 $\pm$ 3			560	(20)	420	7,9	4			
		1,4	50x2	B	90	61,5	61,5	-5,8	3,9 $\pm$ 6,2	0,72 $\pm$ 1,6			470 ¹⁾	(20)	200	5,6	3,6			
				stat.		81,5	81,5	-8,5	5,7 $\pm$ 8,8	1,4 $\pm$ 2,5			560 ²⁾	(20)	400	7,7	4			
						90	90		1,5 $\pm$ 6,8	0,28 $\pm$ 1,9			(16)	(16)	220	5,7	3	6	0,2	0,6

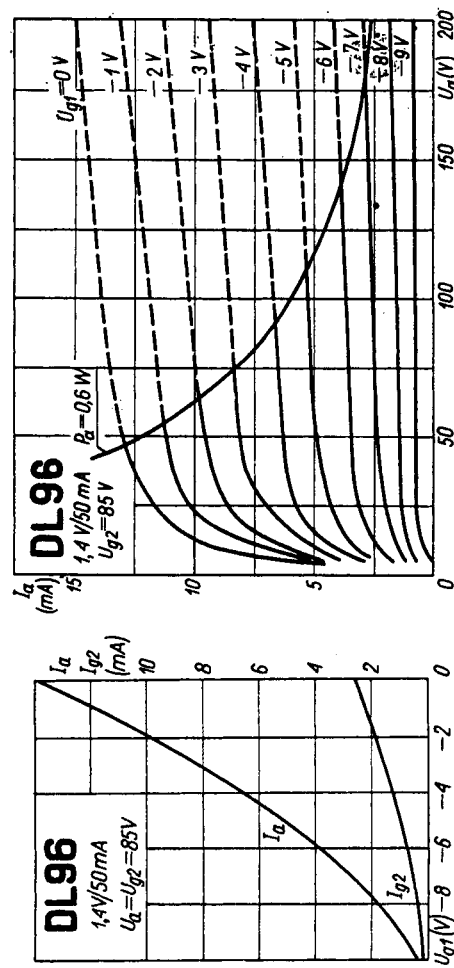
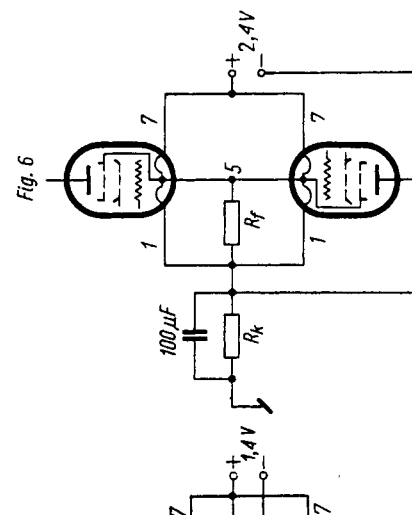
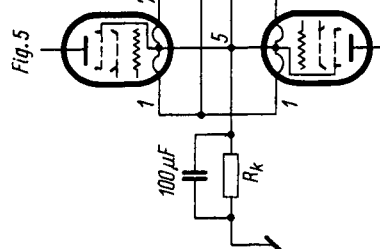
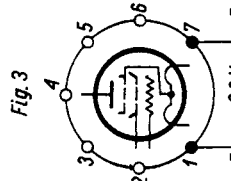
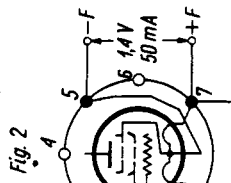
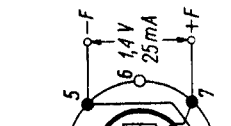
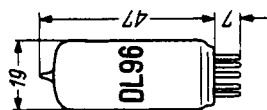
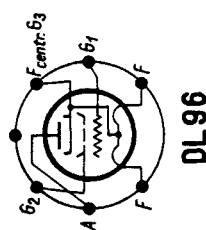
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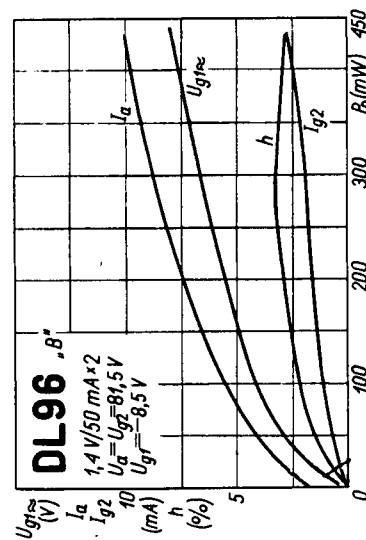
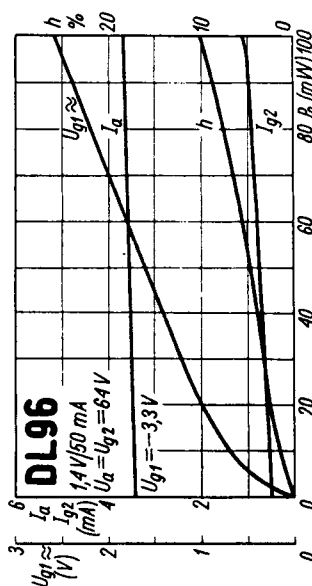
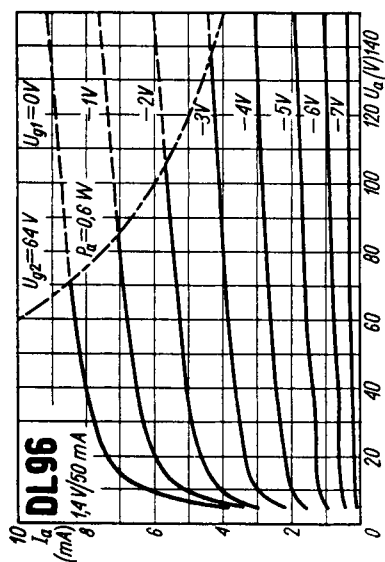
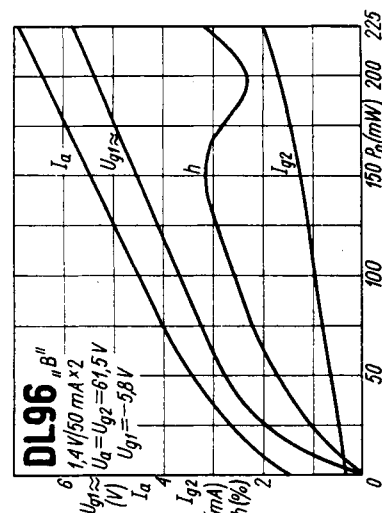
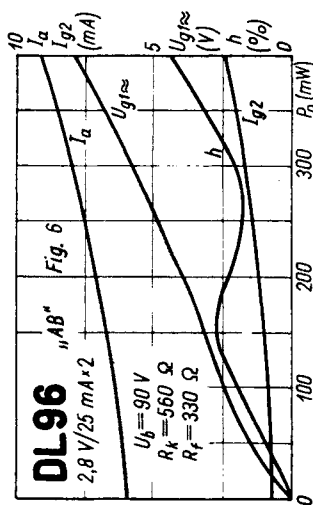
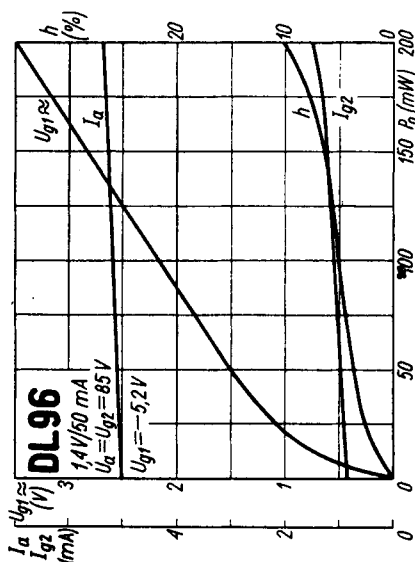
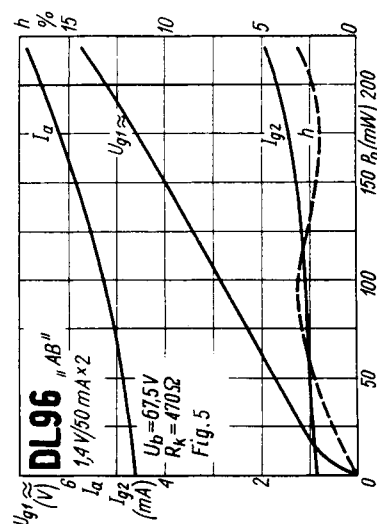
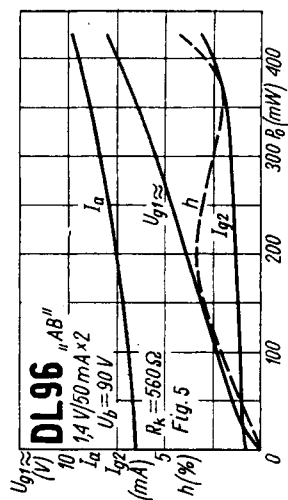
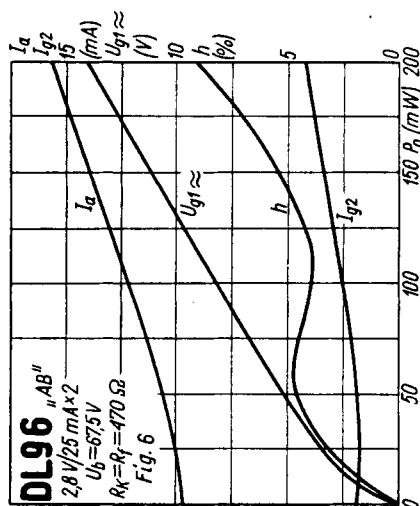
¹⁾ $R_f = 470 \Omega$ ²⁾ $R_f = 330 \Omega$

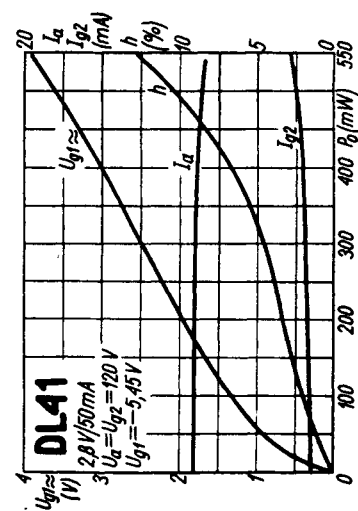
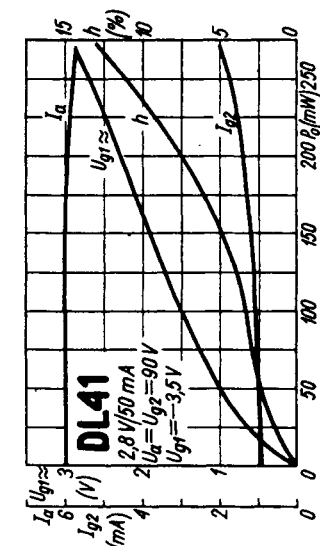
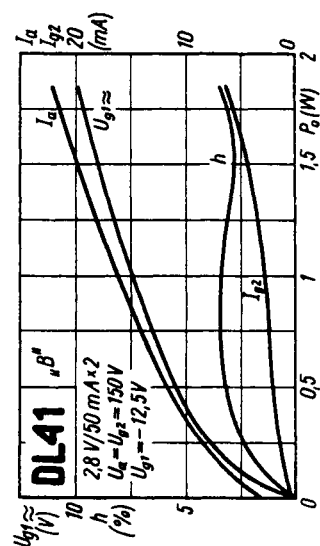
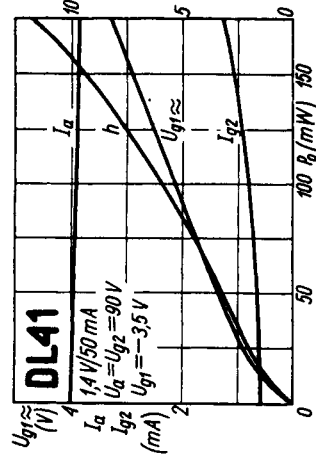
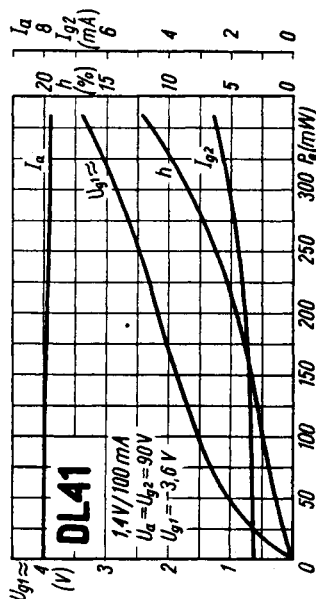
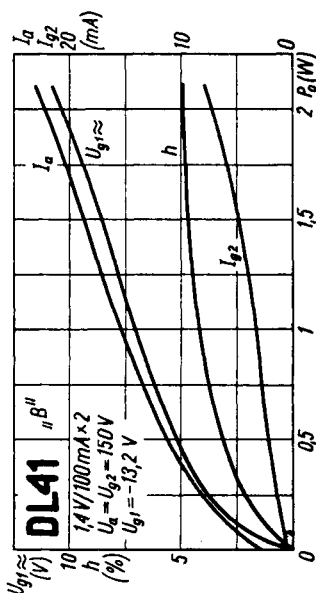
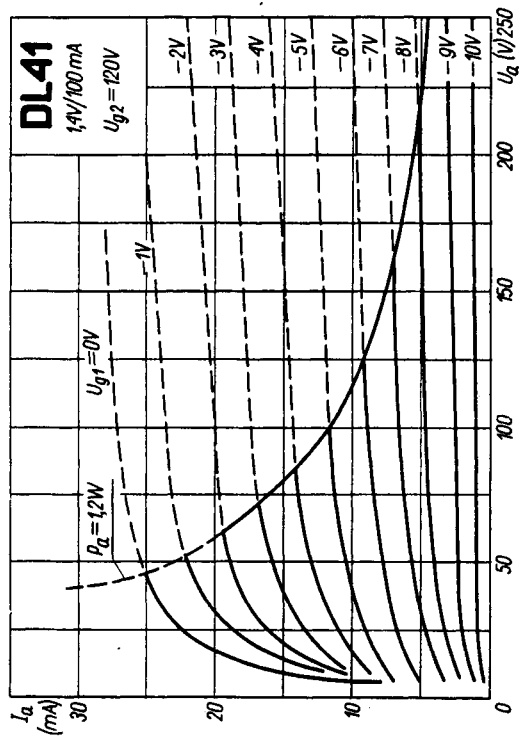
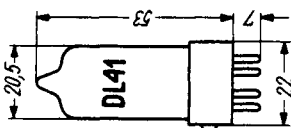
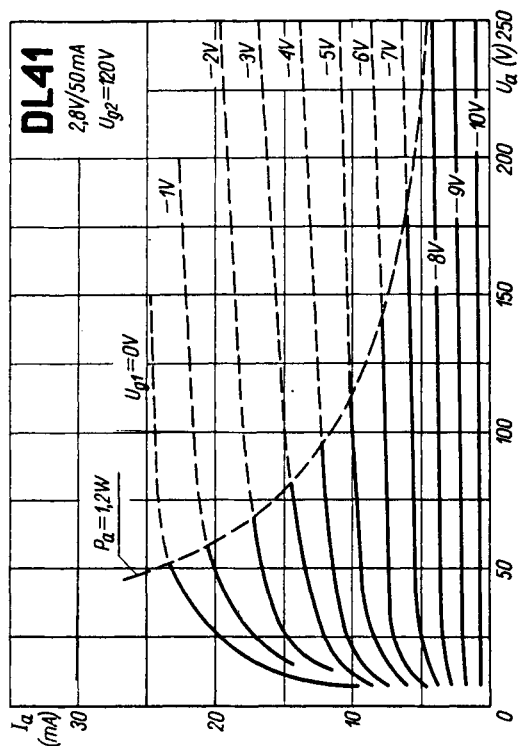
Equivalents

N 25	Eng
1 P 1	Eds
3 C 4	amer

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
5	4,7	0,4



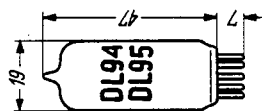
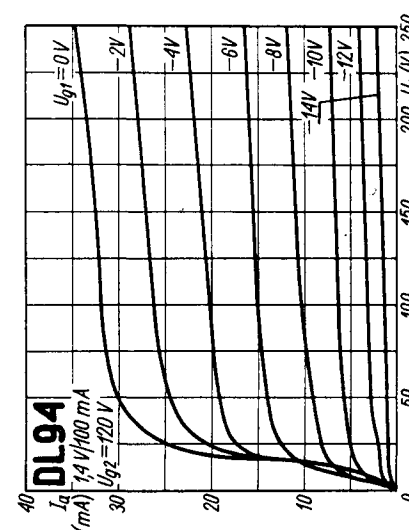
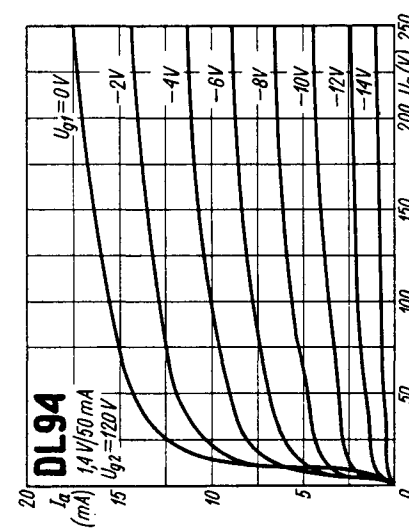
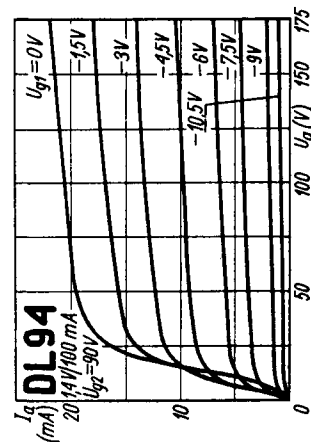
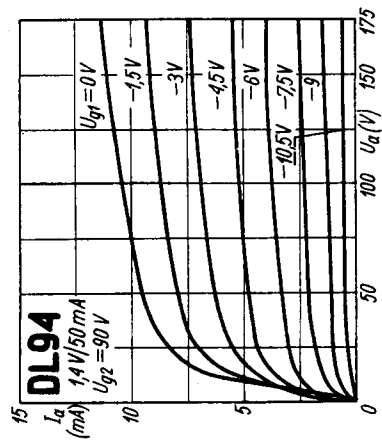
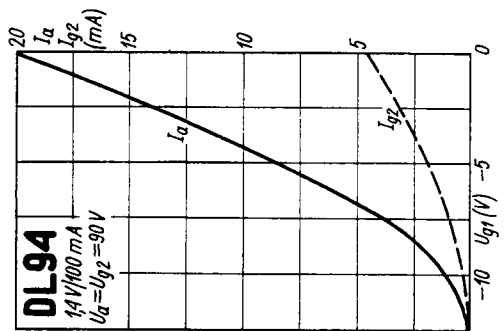
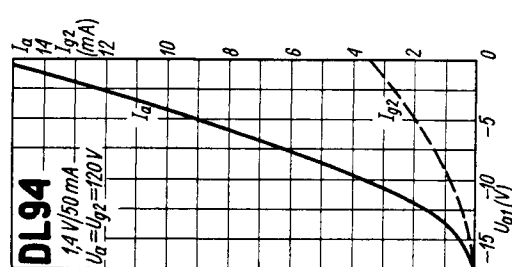
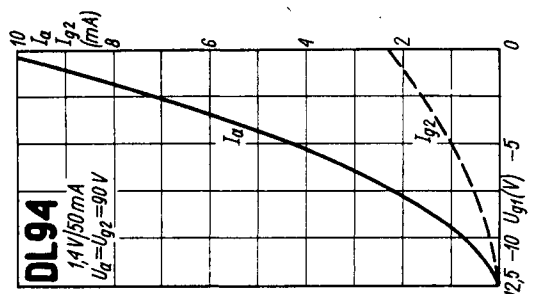
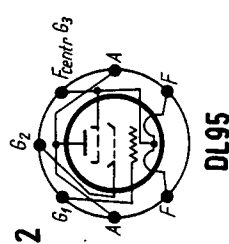
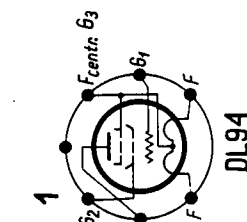
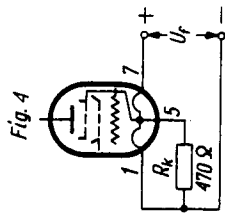
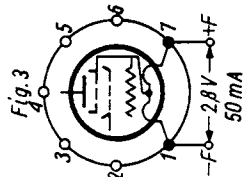
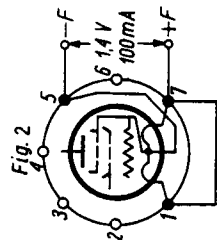
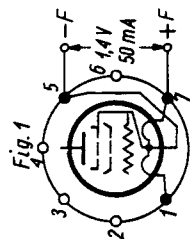
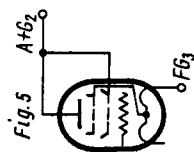


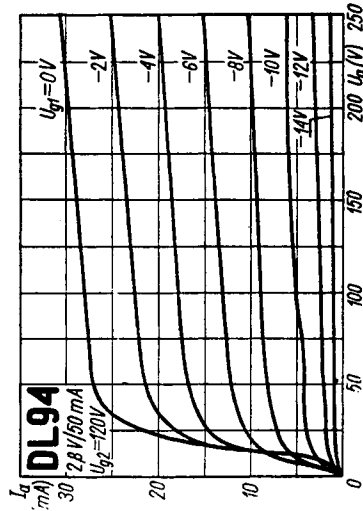
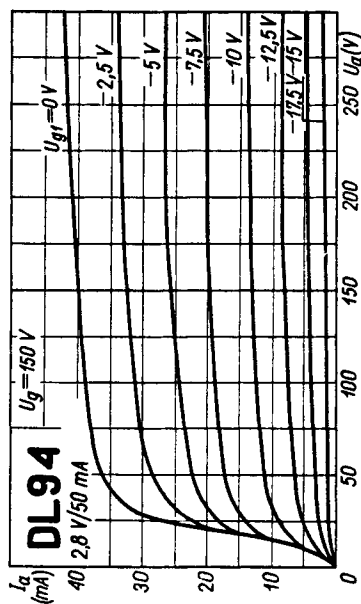
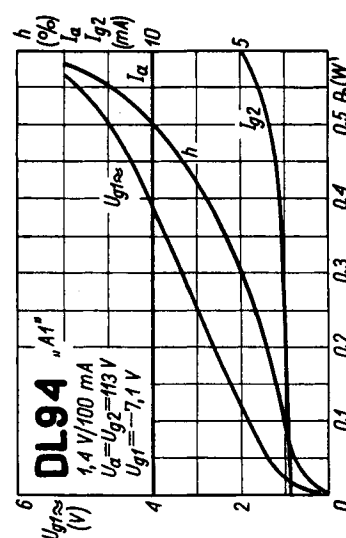
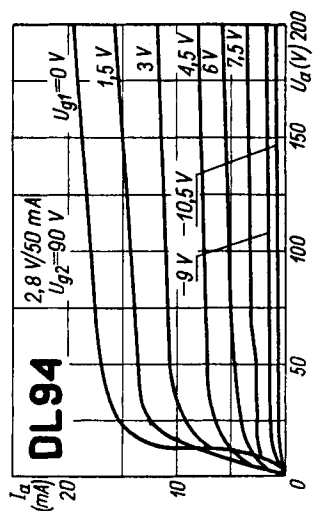
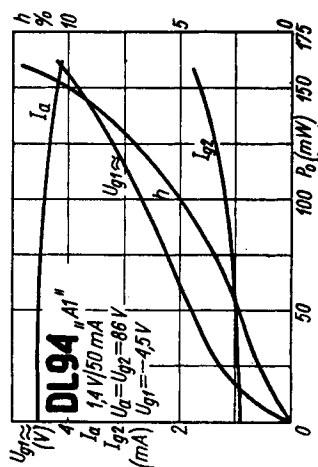
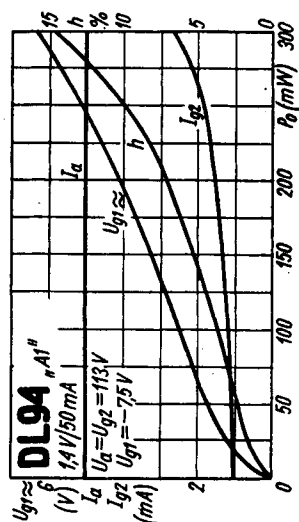
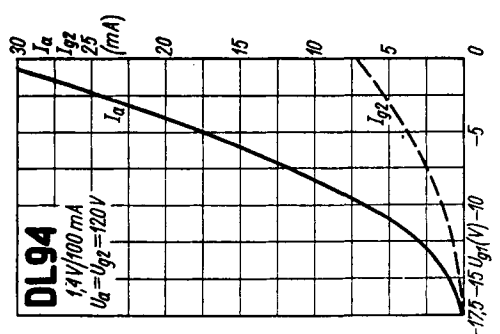
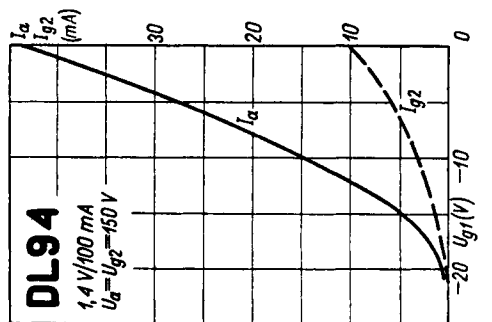
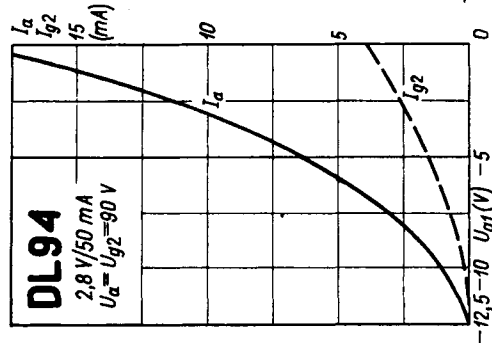
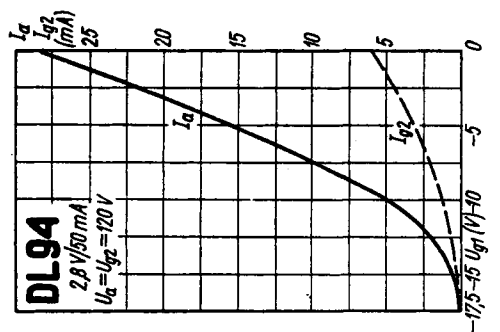
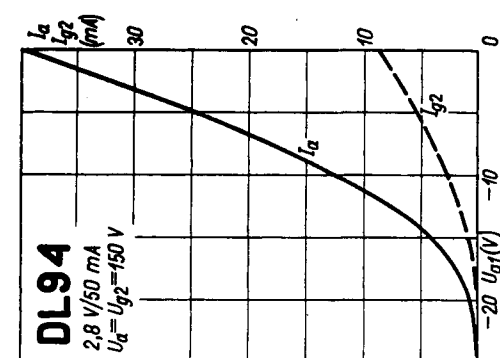


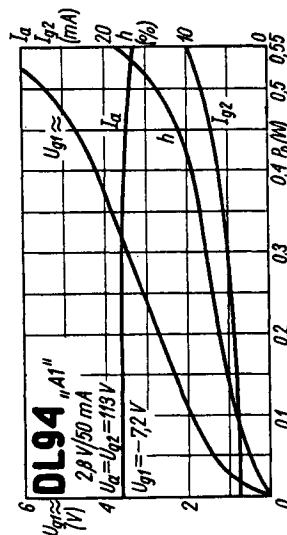
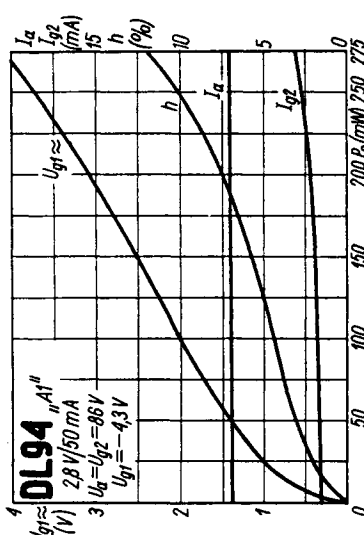
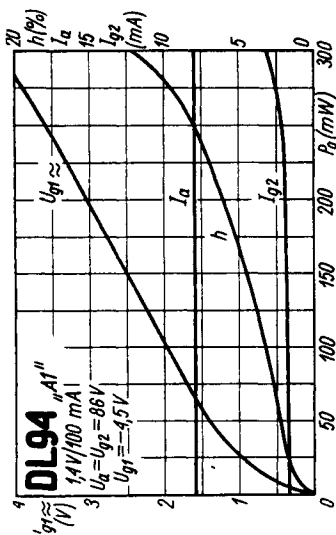
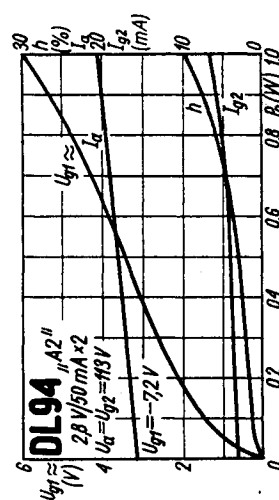
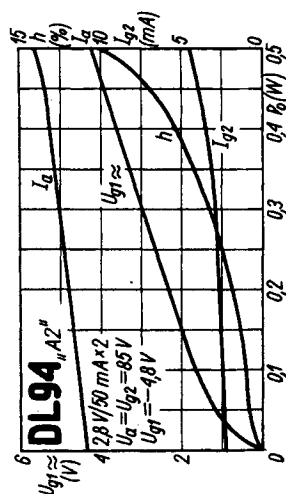
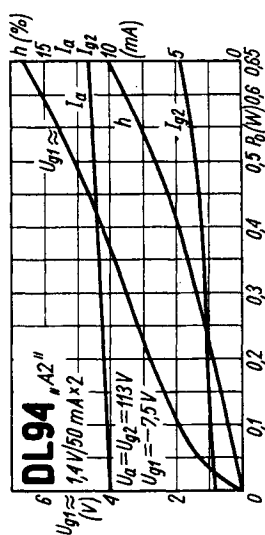
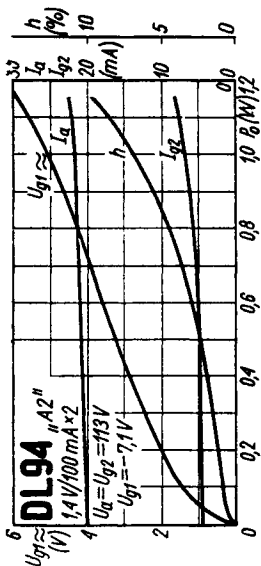
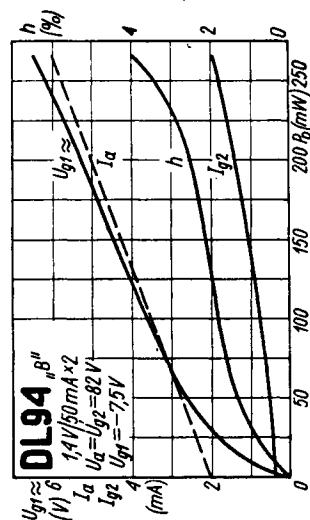
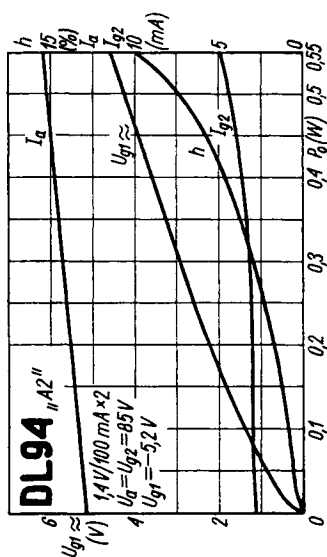
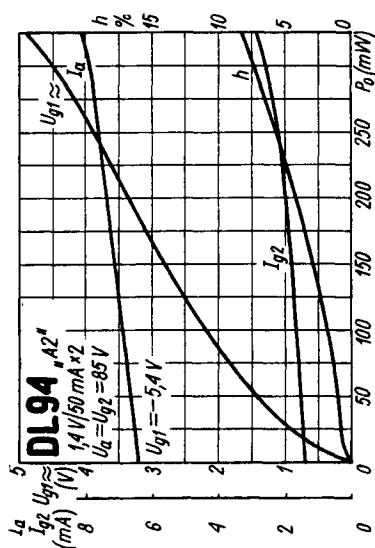
T.	C _{g1}		C _a		C _{g1/a}	
	pF		pF		pF	
DL 94	5		3,8		0,4	
DL 95	5		3,8		0,4	
N 18	5,6		5,3		0,35	
N 19	5,6		5,3		0,35	
I P 11	5,5		3,8		0,2	

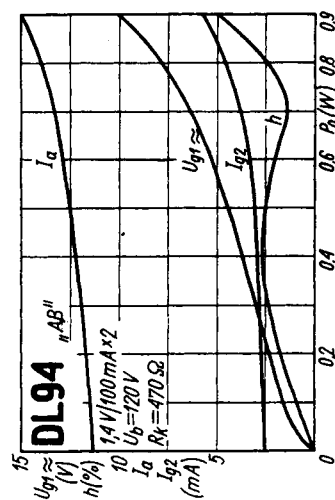
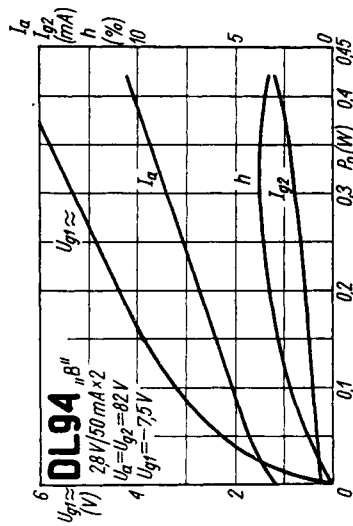
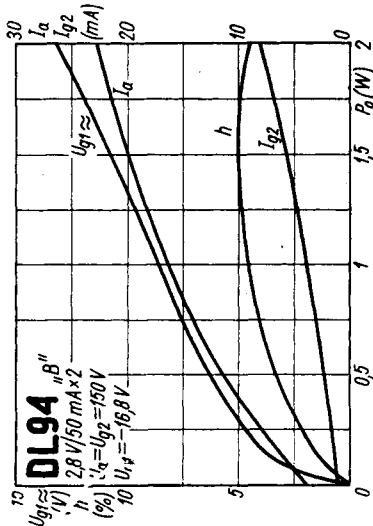
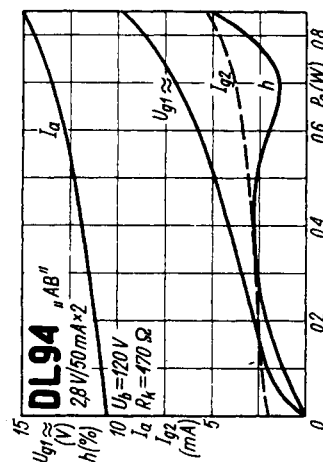
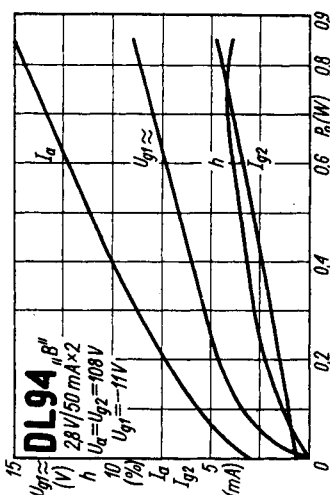
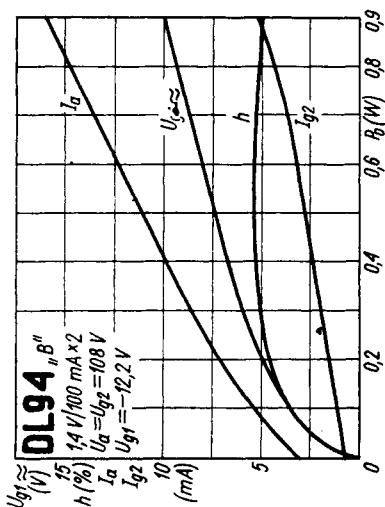
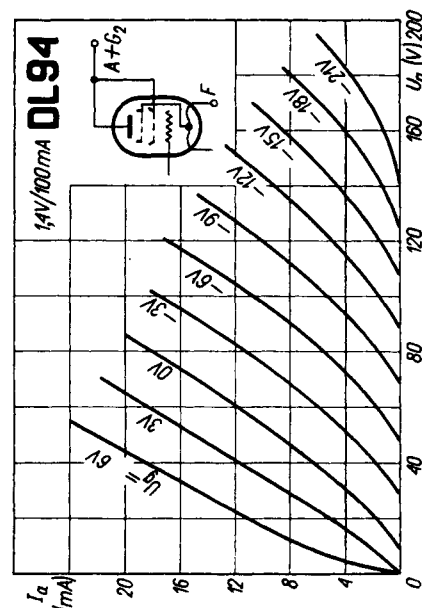
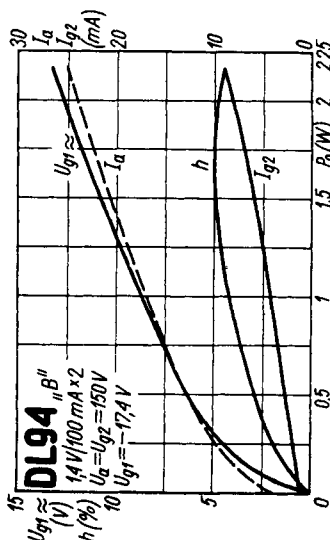
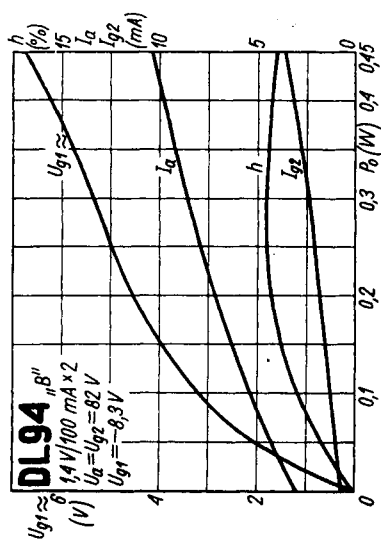
Equivatents

N 18	Eng = DL 95
N 19	Eng = DL 94
I P 11	Eds = DL 94
3 Q 4	amer = DL 95
3 V 4	amer = DL 94









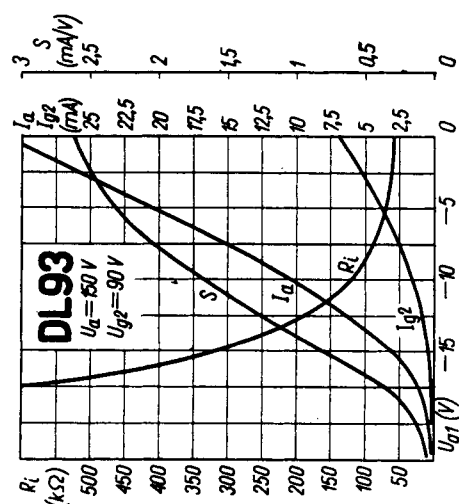
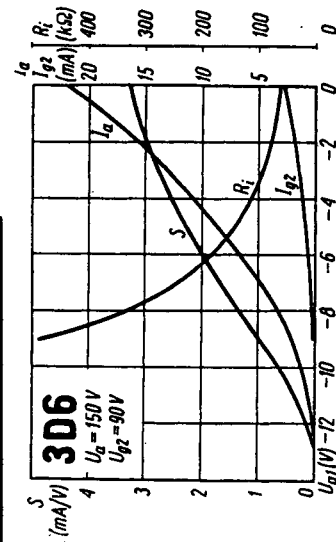
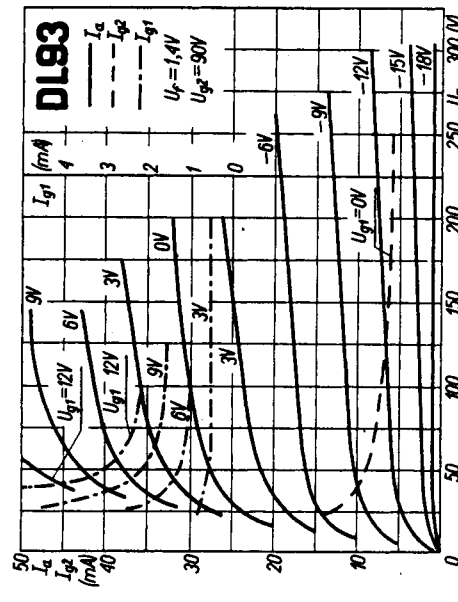
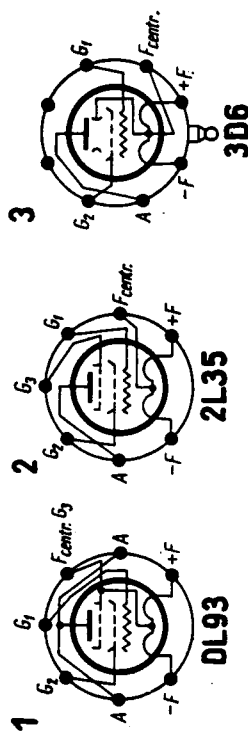
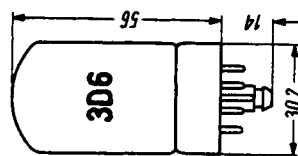
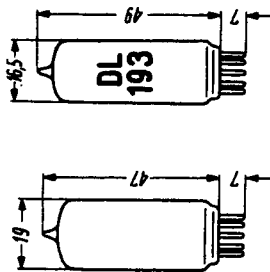
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	I_{g1}	S	R_i	R_o	P_o	h	I_k	P_{g2}	P_a
DL 93	eur	I	1,4/2,8	0,2/0,1	L	135	90	-7,5	14,8÷14,9	2,6÷3,5		1,9	90	8	0,6	5			
2 L 33	Tes	I	1,2/2,4	0,12/0,06	($\approx$)	150	90	-8,4	13,3÷14,1	2,2÷3,5		1,9	100	8	0,7	6	18	0,4	2
2 L 35	Tes	2	1,2/2,4	0,12/0,06	F	150	90					maximum							
3 L 31	Tes	I	1,4/2,8	0,1/0,05	($\approx$)	150	135	1)	18,3	6,5	0,13				1,2		25	0,9	2
3 L 35	Tes	2	1,4/2,8	0,1/0,05	($\approx$)	150	135	-30	20		0,25								
DL 193	RFT	I	1,4/2,8	0,2/0,1	L	150	67,5	-7,5	10	2,6		2,2	90	12	0,63	10	18	0,35	1,5
DL 963	RFT	I	1,2/2,4	0,2/0,1	($\approx$)	150	90					maximum							
						90	90	-4,5	9,5÷8,5	1,6÷3,2		2,4	100	8	0,27	5			
						135	90	-4,5	9,8÷9,8	1,2÷2		2,4	150	12	0,5	5			
						150	90	-4,5	9,9÷10,2	1÷1,8		2,4	175	14	0,6	5	30	0,9	4,5
3 D 6	int	3	1,4/2,8	0,22/0,11	F	180	135	-20	23	6	1	maximum					30	0,9	4,5

1) $R_{g1} = 0,2 \text{ M}\Omega$

Equivalents

DL 29	Mul = 3 D 6
3 A 4	amer = DL 93
1299	amer = 3 D 6
1662	amer = DL 93

T.	C_{g1}	C_a	$C_{g1/a}$
DL 93	4,8	4,2	0,34
DL 963	6	2,5	0,3
3 D 6	7,5	5,5	0,3

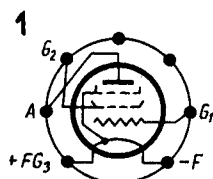
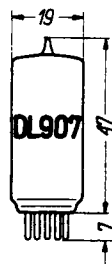


T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_2/g_1)	I_k mA	P_{g2} W	P_a W
DL 907	Tlf	I	1,4	0,2	$\begin{cases} 90 \\ 120 \\ 150 \end{cases}$	$\begin{cases} 90 \\ 120 \\ 150 \end{cases}$	$\begin{cases} -3,6 \\ -5,5 \end{cases}$	$\begin{cases} 11 \\ 15 \end{cases}$	$\begin{cases} 2,6 \\ 3,5 \end{cases}$	$\begin{cases} 2,9 \\ 3,1 \end{cases}$	$\begin{cases} 70 \\ 60 \end{cases}$	$\begin{cases} 10 \\ 10 \end{cases}$	$\begin{cases} 24 \end{cases}$	$\begin{cases} 0,5 \end{cases}$	$\begin{cases} 2 \end{cases}$
D 2 F	Phi	2	1,4	0,24	$\begin{cases} 250 \\ 250 \end{cases}$	$\begin{cases} 250 \\ 250 \end{cases}$	$\begin{cases} -5,5 \end{cases}$	$\begin{cases} 10 \end{cases}$	$\begin{cases} 1,8 \end{cases}$	$\begin{cases} 3,4 \end{cases}$	$\begin{cases} 500 \end{cases}$	$\begin{cases} 25 \end{cases}$	$\begin{cases} 24 \end{cases}$	$\begin{cases} 0,5 \end{cases}$	$\begin{cases} 2,5 \end{cases}$

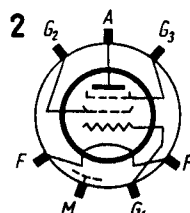
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
DL 907	5,6	4	0,1
D 2 F	5,5	5	0,03

Equivalents

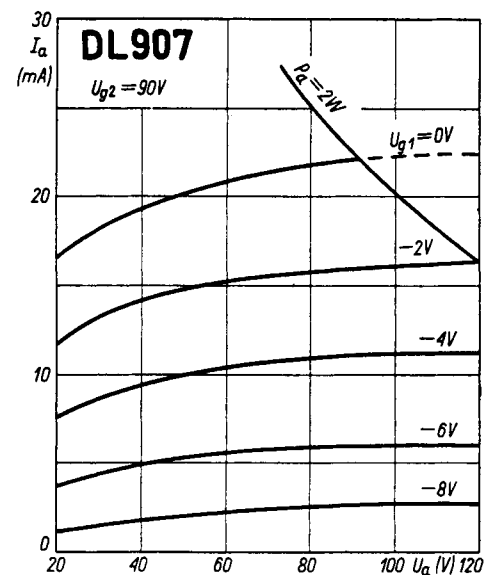
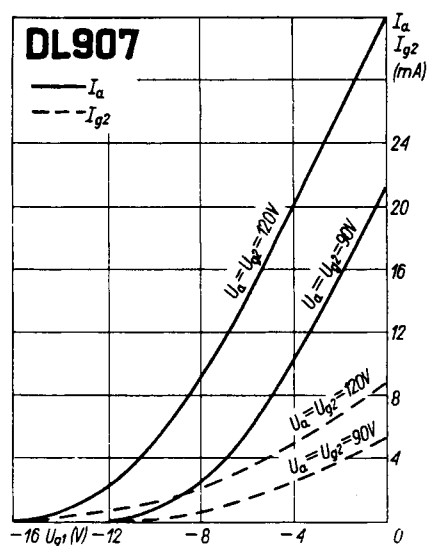
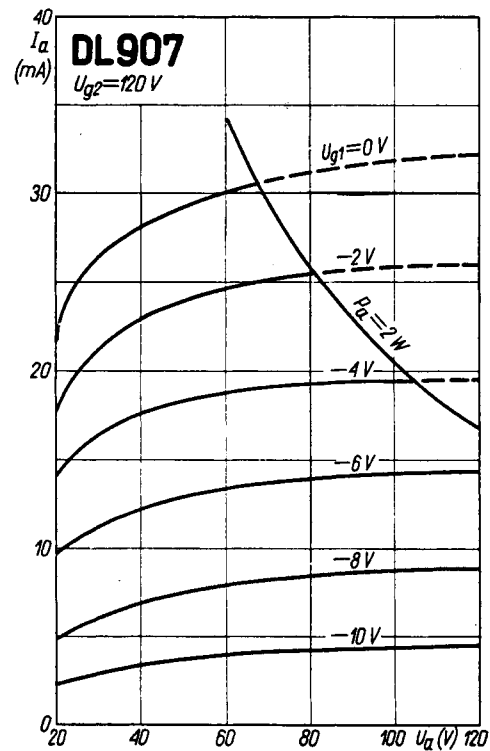
D 12 F	Phi = D 2 F
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DL907

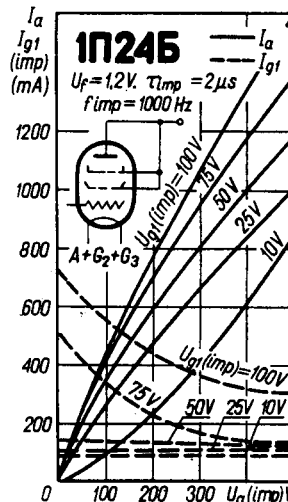
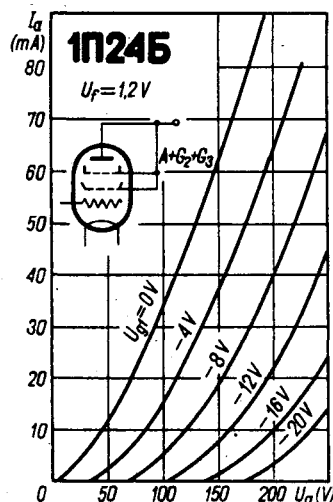
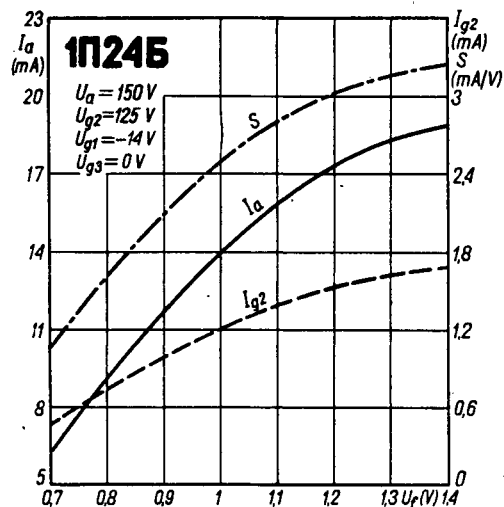
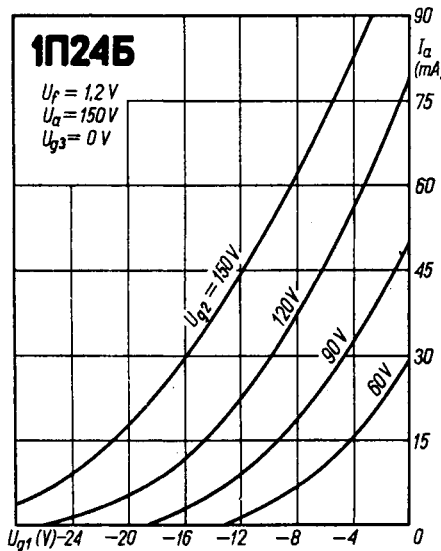
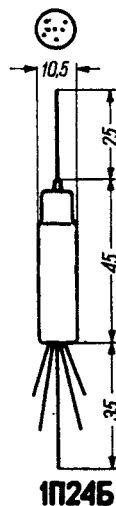
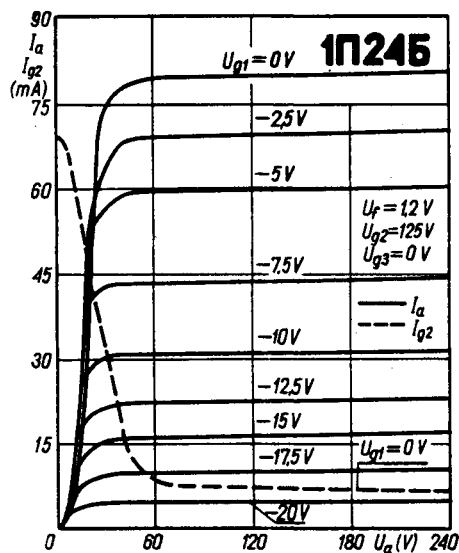
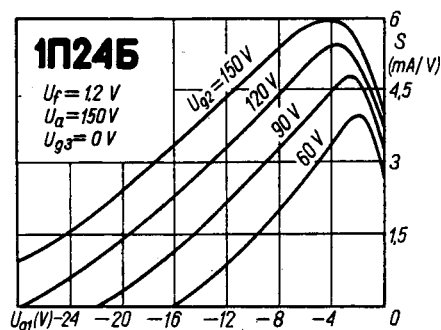
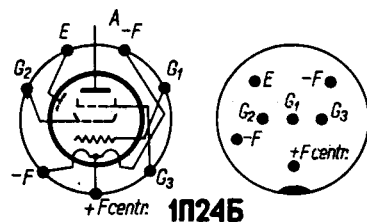


D2F



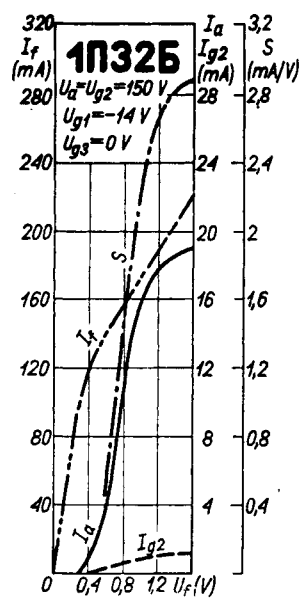
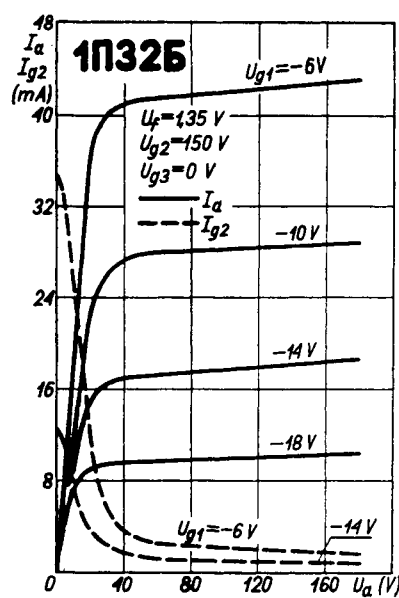
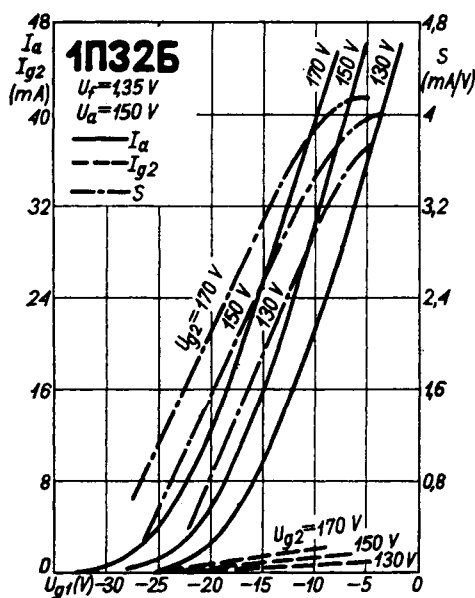
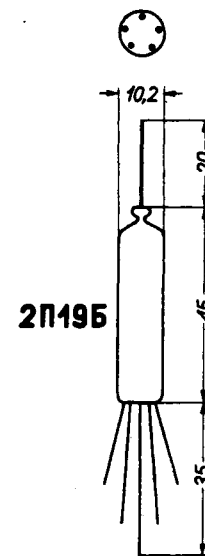
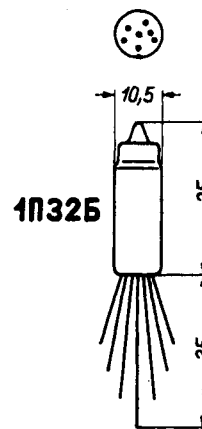
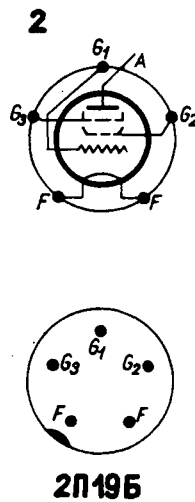
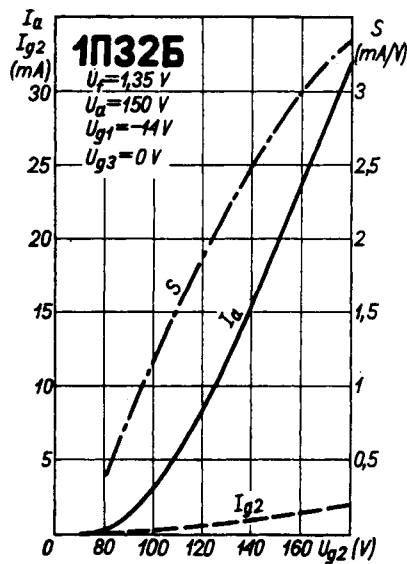
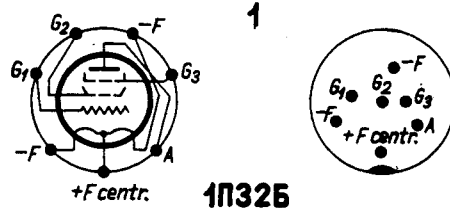
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	f	I_k	P_{g3}	P_a
		V	mA	V	V	V	V	mA	mA	mA/V	MHz	mA	W	W
1 П 24 Б	СССР	$1,08 \div 1,34/2,18 \div 2,64$	255/128	$\begin{cases} 150 \\ 300 \\ 400 \end{cases}$	$\begin{cases} 125 \\ 200 \\ 300 \end{cases}$	0	$\begin{cases} -14 \\ -60 \end{cases}$	$\begin{cases} 17 \\ 3 \end{cases}$	3	2,8	60	25	1	2,5
maximum impulse $\leq 3 \mu s$ ($U_f = 0,95 \div 1,4 V$)														

C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$
pF	pF	pF	pF
$6,5 \div 7,7$	$3,5 \div 4,5$	0,008	0,03



T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	f	I_k	P_{g2}	P_a
			V	mA	V	V	V	V	mA	mA	mA/V	MHz	mA	W	W
1 П 32 Б	СССР	1	1,1 ÷ 1,5/2,2 ÷ 3	215/113	$\begin{cases} 150 \\ 200 \end{cases}$	$\begin{cases} 150 \\ 170 \end{cases}$	0	-14	12	1,5	2,3	60	20		3
2 П 19 Б	СССР	2	1,8 ÷ 2,5	70	$\begin{cases} 120 \\ 200 \end{cases}$	$\begin{cases} 90 \\ 130 \end{cases}$	0	-5	7,6	3,5	1,7	60	15	0,35	1
									maximum						
									maximum						

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$
	pF	pF	pF	pF
1 П 32 Б	6 ÷ 6,7	5,3 ÷ 6,3	0,05	
2 П 19 Б	4,5	7	0,03	0,05



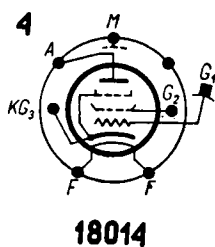
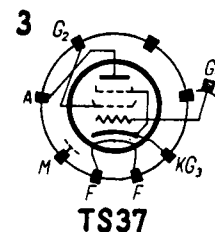
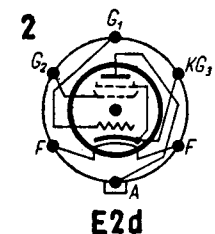
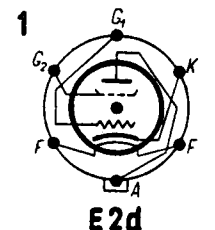
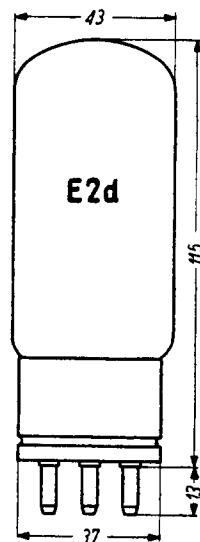
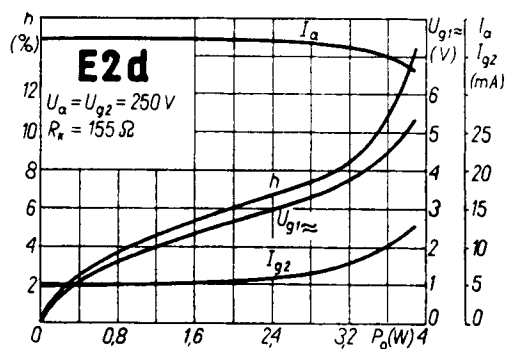
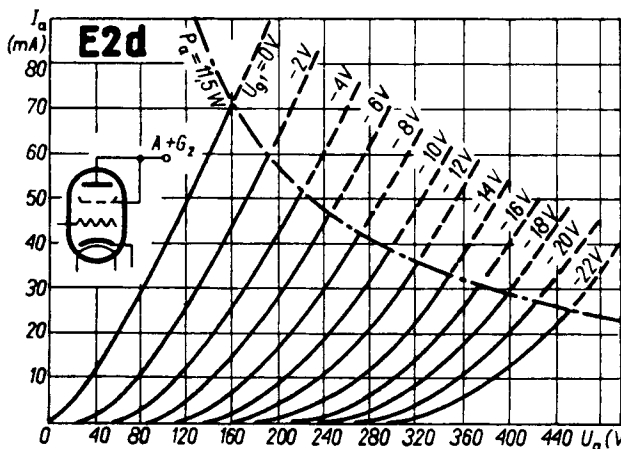
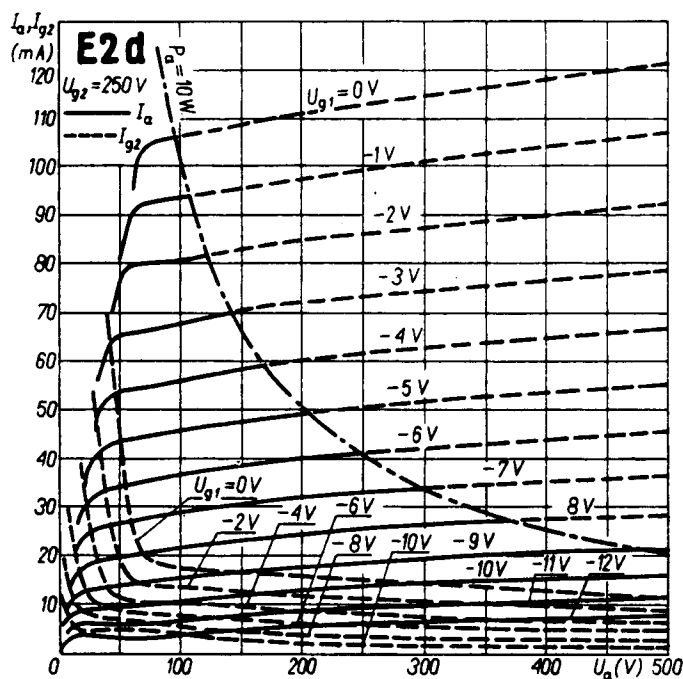
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	R_o	P_o	h	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	(g_2/g_1)	Ω	k Ω	W	%	W	W
E 2 d	Grm	1/2	4	1,5	250	250	-6,5	37	5	8	60	19	155	7	4	10	1,5	10
TS 34	Phl	2	3,8	1,1	300	220	—12	maximum	7	2,8	50		80	8				
TS 37	Phl	3	4,9	1,3	200	200		35	4,6	8	50	20	125	8	0,8	3	1	7
18014	Phl	3/4	4	1,6	220	220		maximum					50					

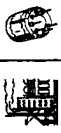
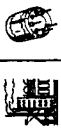
1) vide * 4

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
E 2 d	12	6	0,3	2
18014	15	13	0,6	2

Equivalents

4 S 11 STCS = E 2 d

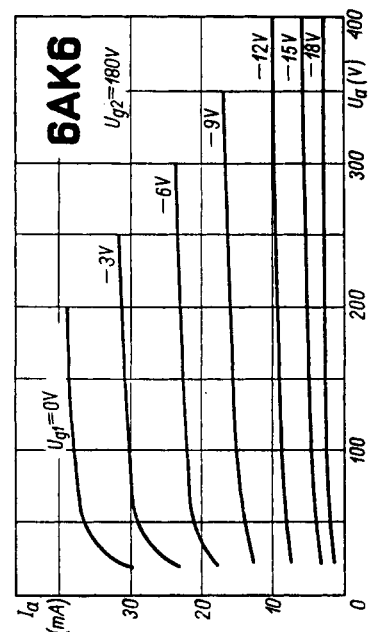
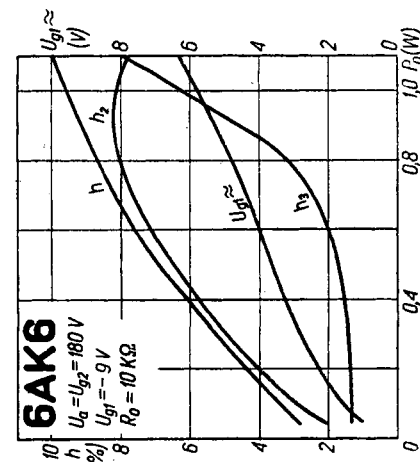
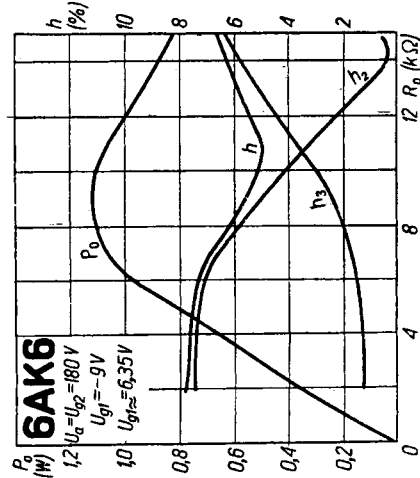
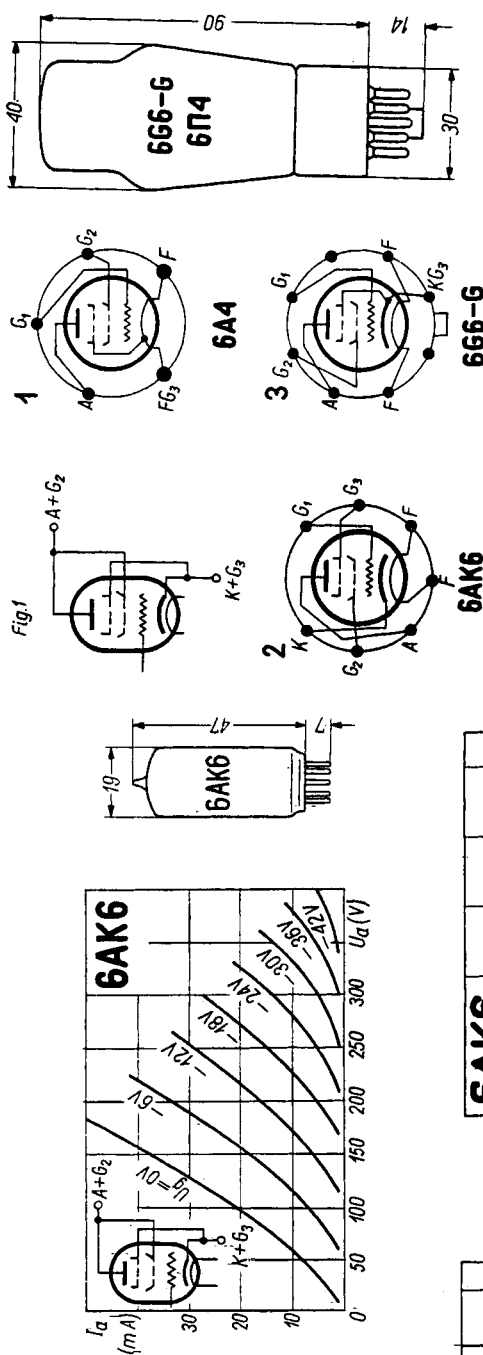


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_L	R_0	P_0	$U_{g1 \approx}$	h	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	k Ω	W	V	%	V	mA	W	W
6 A 4	amer	1	6,3	0,3	135 180	135	-9 -12	13 22	2,8 2,9	2,1 2,5	52,6 60		0,7 1,5						
6 A 4/LA	amer	1	6,3	0,3	100 180	100	-6,5 -12	9 22	1,6 3,9	1,2 2,2	83,2 45,5	11 8	0,31 1,4		9 9				
6 AK 6	int	2	6,3	0,15	135 180	135	-6 -9	11,5 15	2 2,5	2,1 2,3	170 175	12 10	0,6 1,1		10 5	(Fig. 1)	21	0,75	2,75
6 G 6-G	int	3	6,3	0,15	300	250	-12	11	—	2	4,75 maximum	12	0,25						

Equivalents

A 4361	amer	= 6 AK 6
LA	amer	= 6 A 4/LA
WT-T-130	WT	= 6 G 6-G
6 G 6-GT	int	= 6 G 6-G
6 H 6	CCCP	= 6 G 6-G
6 П 4	CCCP	= 6 G 6-G
6 П 8 C	CCCP	= 6 G 6-G

T.	C_{g1}	C_a	$C_{gt/a}$
	pF	pF	pF
6 AK 6	3,6	4,2	0,12
6 G 6-G	5,5	7	0,5



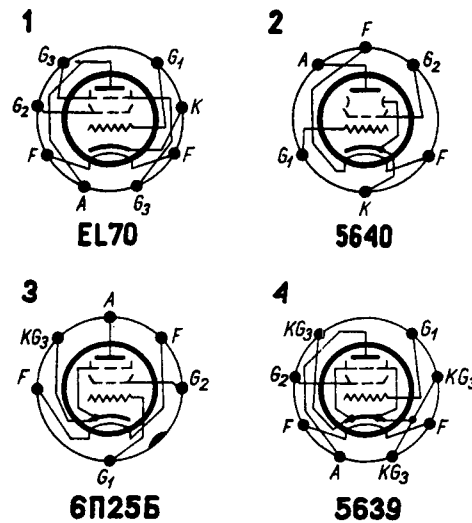
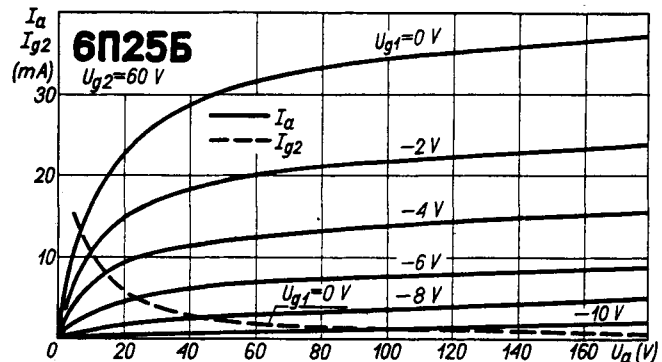
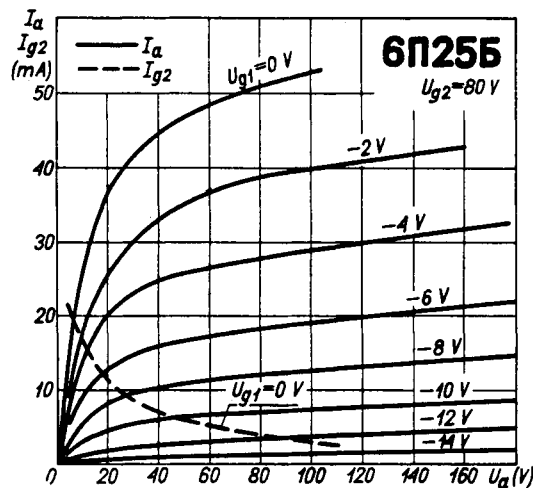
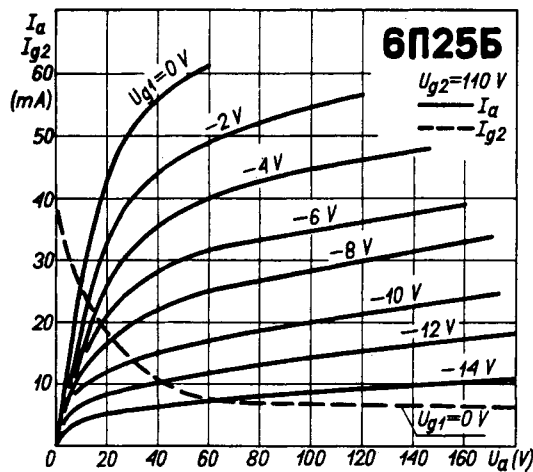
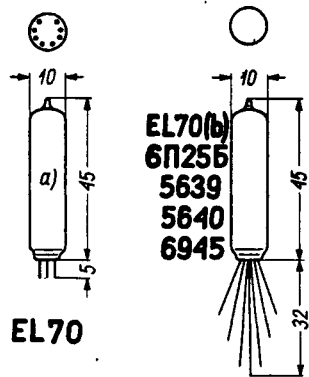
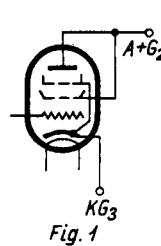
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_l	R_k	R_o	P_o	U_f/k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	W	W
EL 70	Mul	1	6,3	0,45	100	100	-9	31	2,2	5	15		3	1,2			
5640	GE	2	6,3	0,45	165	155				maximum					200	0,8	3,5
6 II 25 Б	CCCP	3	6,3	0,45	110	110	-8	30	5	4,2			3	1,1			
					170	160				maximum					200	0,55	4,1
5639 ¹⁾	int	4	6,3	0,45	150	100		21	4	9	50	100	9	1			
					165	155	-55			maximum					200	1	4
6945 ¹⁾	Syl	4	6,3	0,35	100	100		25	1,5	3,5	20	270	3	0,8			3
					100	—		26		3,7	1,5	270			vide Fig. 1		

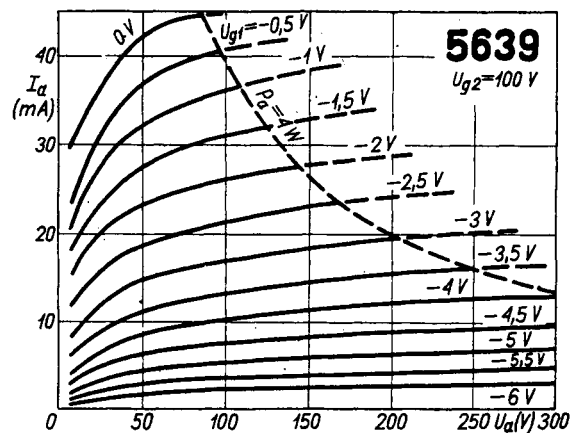
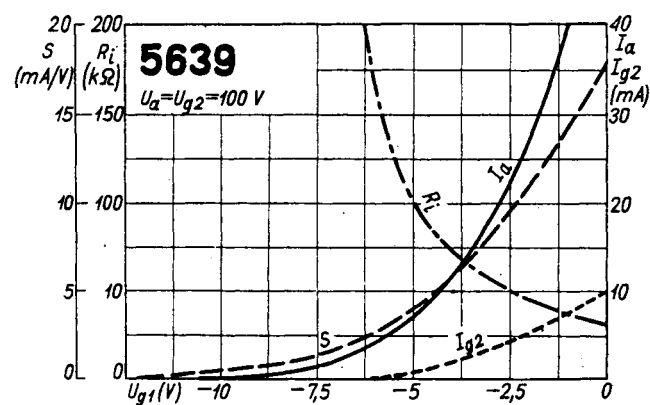
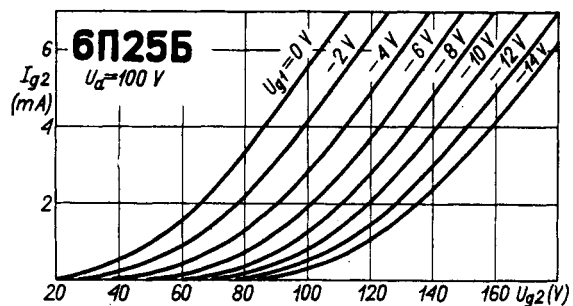
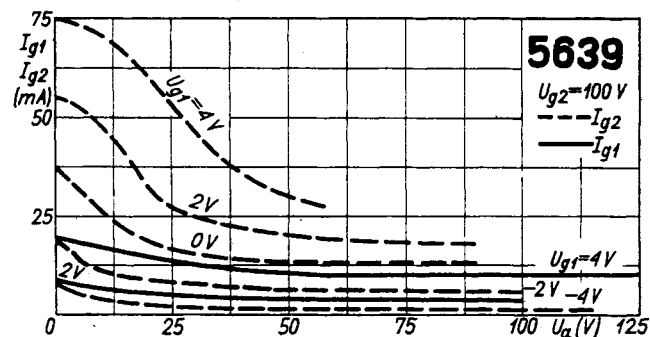
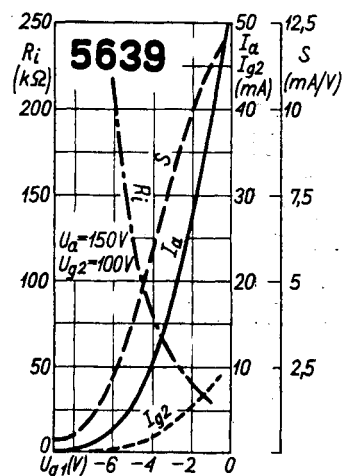
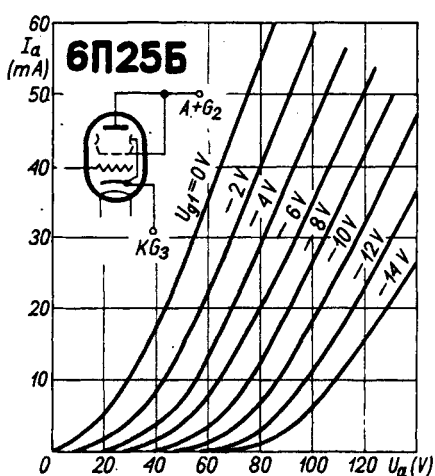
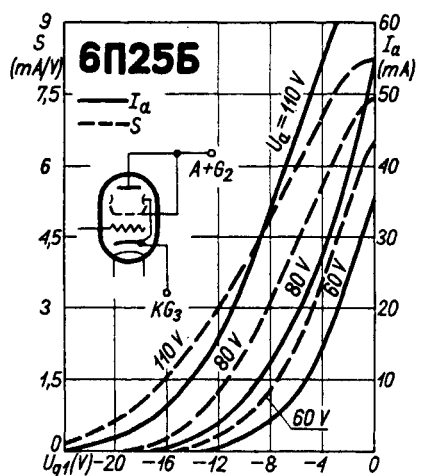
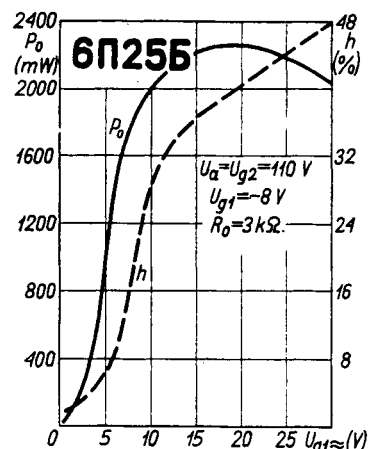
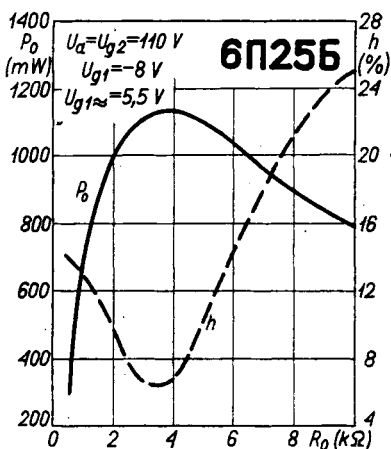
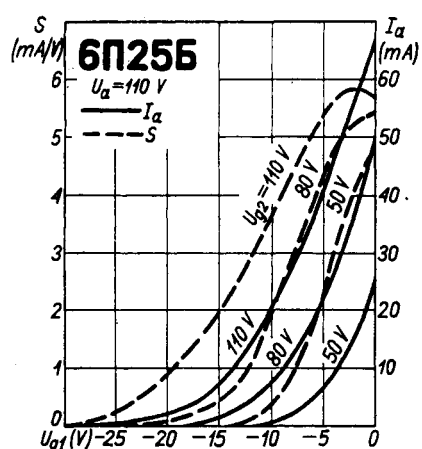
¹⁾ vide * 4, a,b,c, = 10.000 e,f,g; $U_f = 6,3 \text{ V} \pm 5\%$ ²⁾ vide * 4,a,b,c = 5.000, e; ³⁾ vide * 4,a,b,d,e

T.	C_{g1}	C_a	$C_{g1/a}$	vide
	pF	pF	pF	
6 II 25 Б	7,5	8,5	0,3	* 6
5639	9	8	0,13	* 6
	9	4,6	0,18	* 5
5640	9	7	0,18	* 6
6945	5	5,5	0,13	* 6

Equivalents

M 8167 ¹⁾	Mul	= EL 70
SN 947 C ²⁾	Syl	= EL 70
SN 947 D ³⁾	Syl	= EL 70
SN 974 b ³⁾	Syl	= 5639
VX 8054 ³⁾	Mul	= EL 70
6 II 25 Б-B ³⁾	CCCP	= 6 II 25 Б
7001 ¹⁾	amer	= EL 70



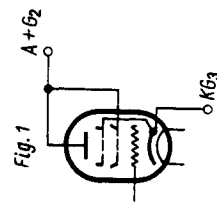
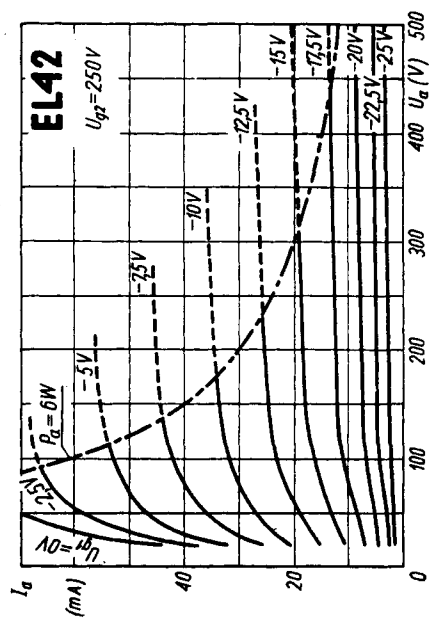
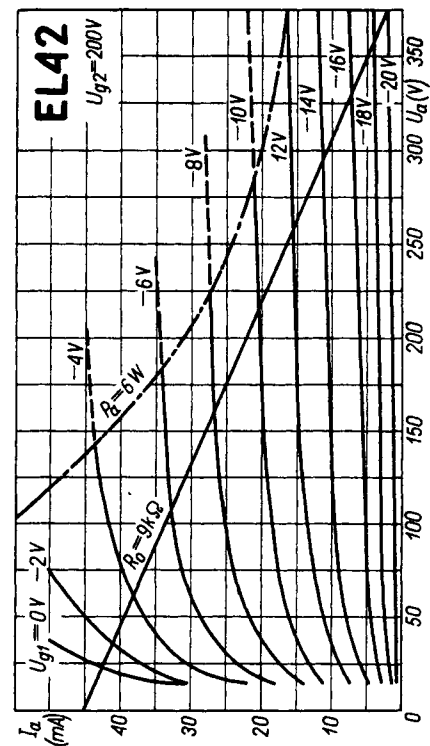
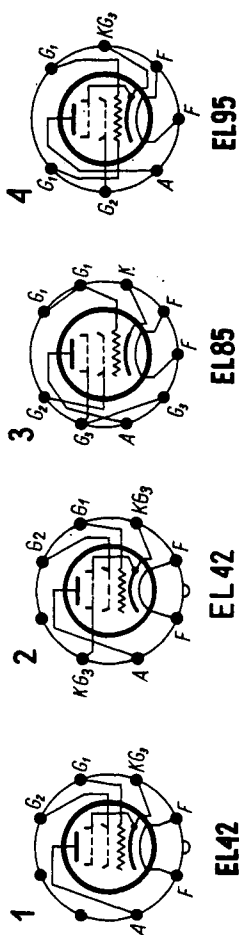


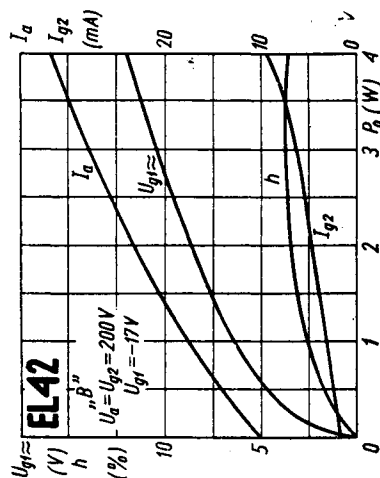
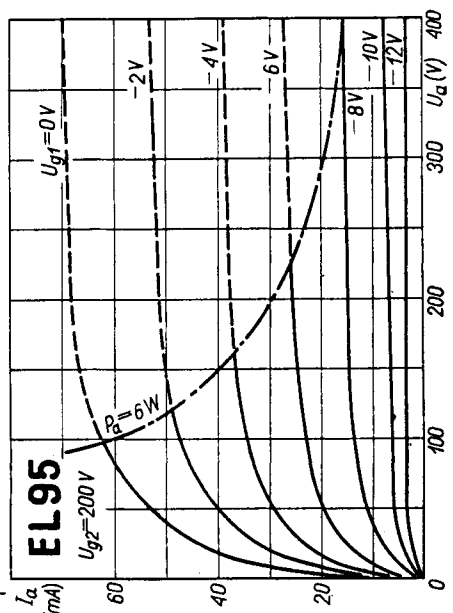
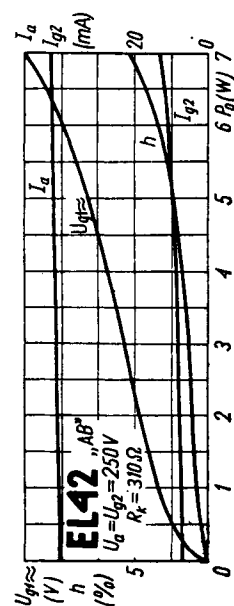
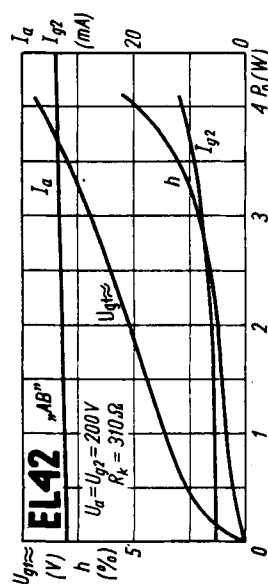
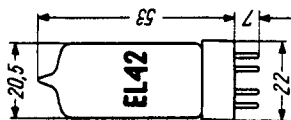
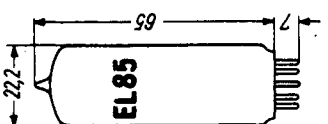
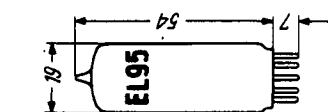
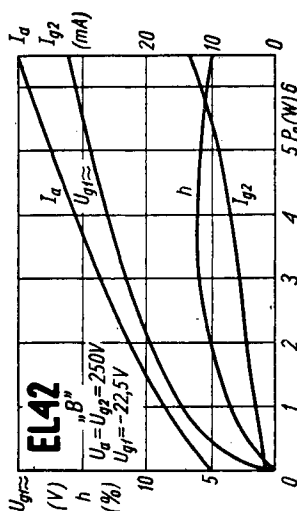
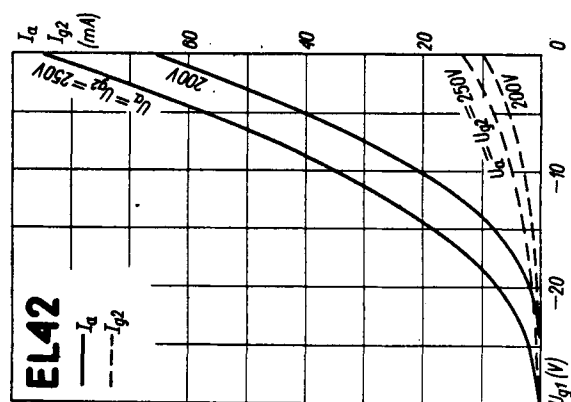
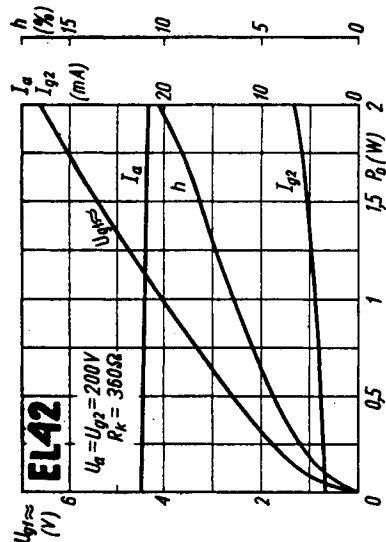
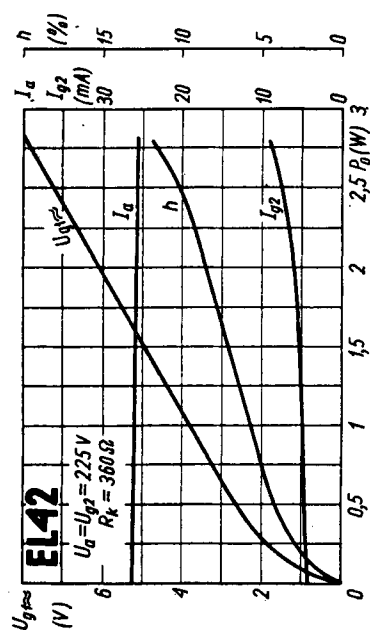
T.			U_f	I_f	Cl.	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	R_i	μ	R_k	$R_0(R_{a/d})$	P_0	$U_{g1 \sim 2}$	h	U_f/I_k	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	g_m/g_1	Ω	k Ω	W	V	%	V	mA	W	W
EL 42	eur	1/2	6,3	0,2	A	200	200	200	22,5	3,5	3,2	90	11	360	9	2,1	6,8	11				
EL 85	eur	3	6,3	0,2	AB	225	225	200	26	4,1	3,2	90	11	360	9	2,8	8	12				
					B	200	200	250	32 ÷ 34	5,2 ÷ 11,2				310	15	4,1	9,6	5,5				
						250	250	200	40 ÷ 43	6,4 ÷ 13,4				310	15	7	12,5	5,5				
						200	200	250	10 ÷ 32	1,6 ÷ 9,2				16	4	4	12	3,5				
						250	250	300	10 ÷ 40	1,6 ÷ 13				16	6,5	16	16	5				
					stat	250	250	300											100	35	1	6
					A	200	200	250	24	4,5	5	80	17	230	8	2,3	4,5	12				
					AB	250	250	250	23	4,2				320	10	3	5	12				
					B	200	200	250	24	4,5				180	10	4,1	7	4,5				
						250	250	250	35 ÷ 40	6,4 ÷ 10,4				180	10	7	9	5				
						200	200	250	44 ÷ 52	8 ÷ 15				10	4	4	7	3,5				
						250	250	250	14 ÷ 38	2,4 ÷ 10				10	6,5	9	9	3,5				
						200	200	250	16 ÷ 48	2,4 ÷ 14,4				10	10	6,5	9	3,5				
					Fig. 1	200	200	300	36	—	7	2,4	16,7						100	35	1,25	6

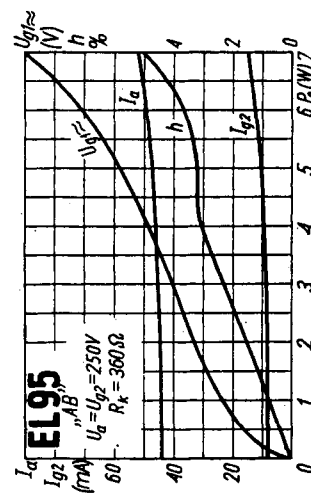
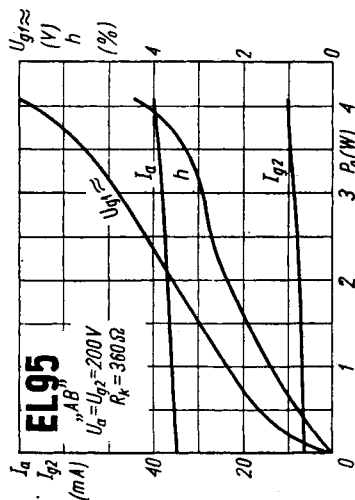
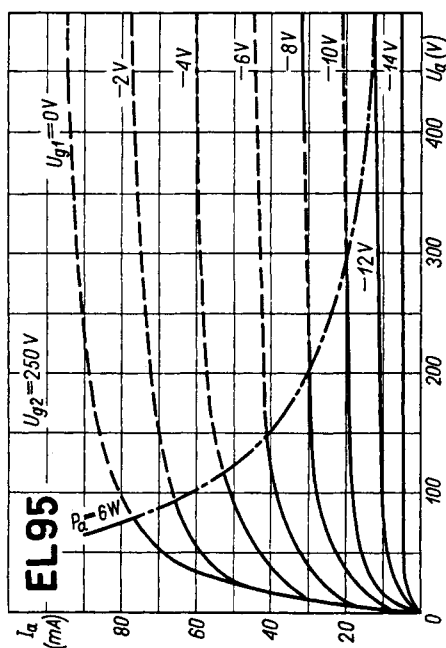
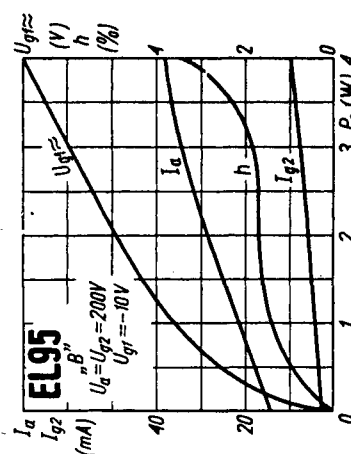
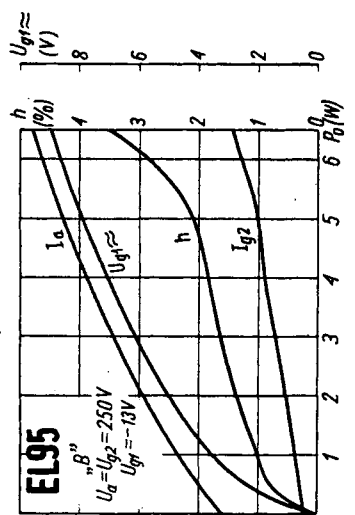
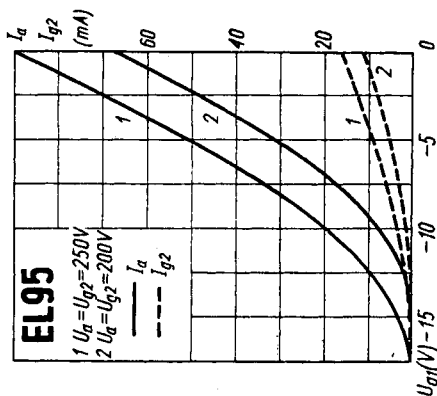
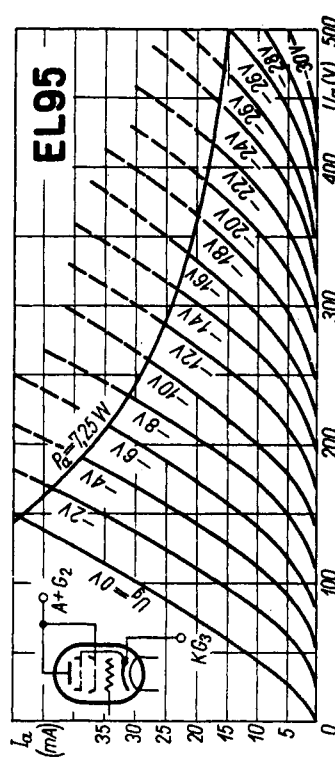
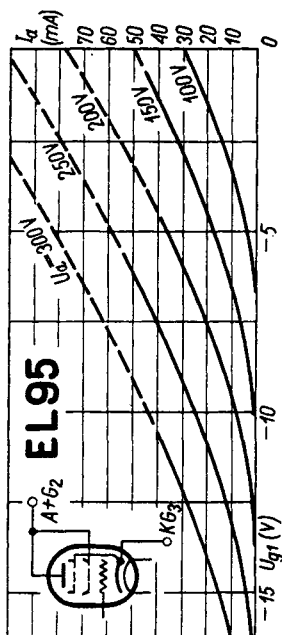
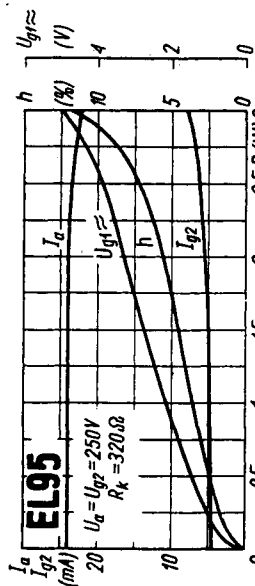
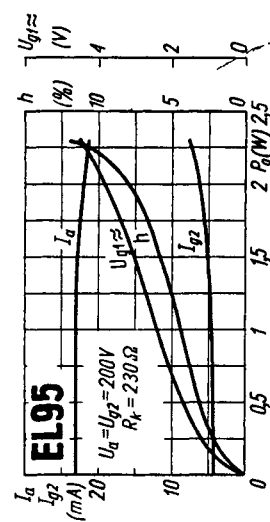
Equivalents

BF 62 = EL 42
 N 151 = EL 42
 N 155 = EL 85
 6 BN 5 = EL 85
 6 DL 5 = EL 95

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
EL 42	4,3	6,2	0,2	0,2
EL 85	4,3	5,1	0,2	0,2
EL 95	5,3	3,5	0,4	0,2







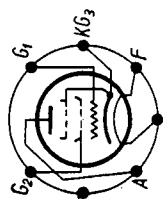
T.		U_f	I_f	Cl.	U_a	U_{g1}	I_a	I_{g1}	S	R_i	μ	R_k	$R_d(R_{al})$	P_o	U_{g1}	h	I_k	P_{g2}	P_a
		V	A		V	V	mA	mA	mA/V	k Ω	(g_m/g_1)	Ω	k Ω	W	V	%	mA	W	W
EL 91	eur	6,3	0,2	Fig. 1	250	-13,5 -15 -19 -15	16 22 ÷ 25 10 ÷ 32 16	2,4 3,2 ÷ 8,2 1,3 ÷ 9 —	2,6	130	(12)	740 600 (20)	16 (24) (20)	1,4 4 4,8	5,3 12 13	10 3,2 3,3	25	0,6	4

¹⁾ vide * 4, $U_a(max) = U_{gs(max)} = 300$ V; $P_a = 4,75$ W, ²⁾ vide * 4

Equivalents

	Cos	Mul	Eng	Eng	Osr	Marc	Ede	amer
DDR 7								
M 8082 (1)								
N 77								
N 144								
QA 2402 ¹⁾								
QN 77 ¹⁾								
V 866								
6 AM 5								
6 P 17								
7 D 9								
6516								

C_{g1}	C_a	$C_{g1/a}$	vide
pF	pF	pF	
4	3,75	0,25	* 5
6,6	4	0,25	* 6



EL91

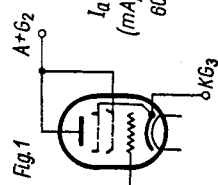
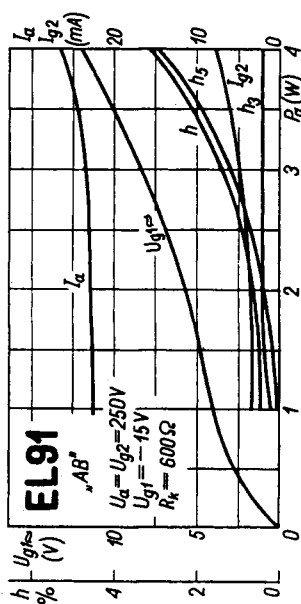
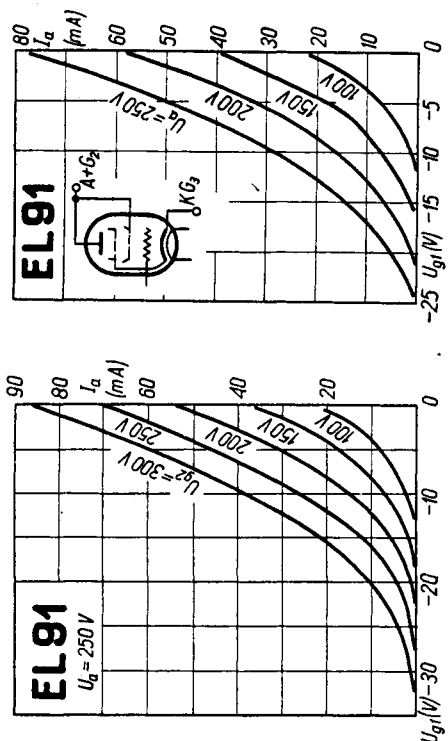
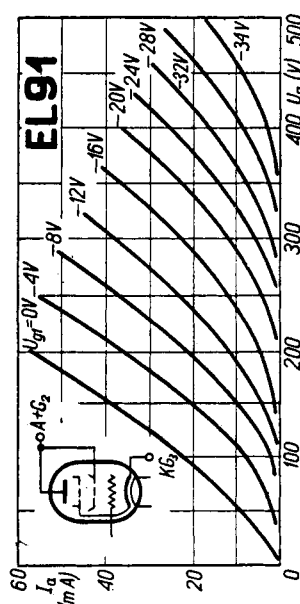
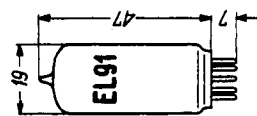
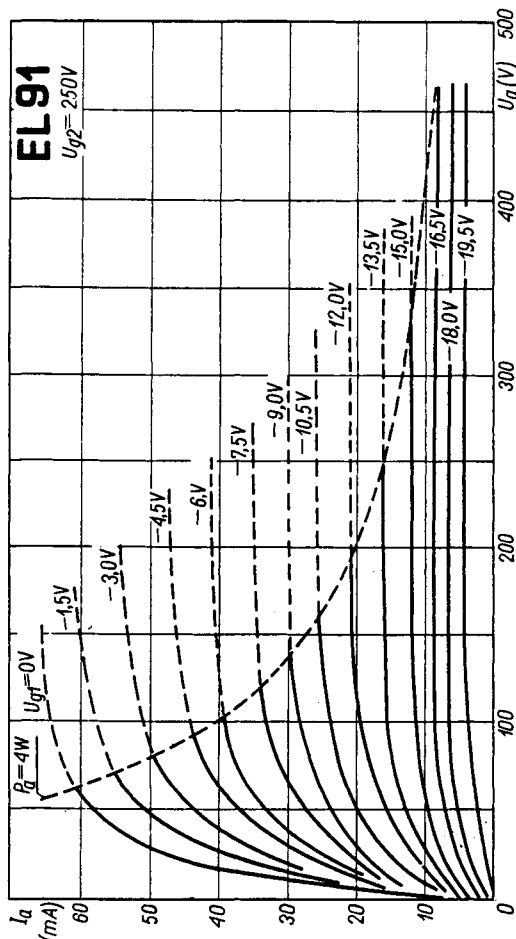


Fig. 1

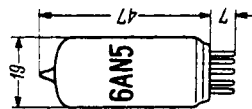


T.			U _f	I _f	U _a	U _{g2}	U _{g1}	I _a	I _{g1}	S	R _i	R _k	R _o	P _o	U _{g1} ≈	h	U _f /k	P _{g2}	P _a
			V	A	V	V	V	mA	mA	mA/V	kΩ	Ω	kΩ	W	V	%	V	W	W
6 AN 5	amer	1	6,3	0,45	120	120		35	12	8	12,5	120	2,5	1,3				1,4	4,2
6 AS 5	amer	2	6,3	0,8	150	110	-8,5	35÷36	2÷6,5	5,6	maximum		4,5	2,2	8,5	10	90	1	5,5
6 BF 5	amer	3	6,3	1,2	110	110	-7,5	36÷39	4÷10,5	7,5	12		2,5	1,9	7,5	10	100	1,25	5,5
6 CA 5	amer	2	6,3	1,2	110	110	-4	32÷31	3,5÷7,5	8,1	16		3,5	1,1	4	5			
12 CA 5	amer	2	12,6	0,6	125	125	-4,5	37÷36	4÷11	9,2	15		4,5	1,5	4,5	6			
17 CA 5	amer	2	16,8	0,45	130	130					maximum						100	1,4	5
25 CA 5	amer	2	25	0,3															
50 CA 5	amer	2	50	0,15															
6 CU 5	amer	2	6,3	1,2	120	110	-8	49÷50	4÷8,5	7,5	10		2,5	2,3	8	10	200	1,25	6
12 CU 5	amer	2	12,6	0,6	235	117					maximum								
17 CU 5	amer	2	16,8	0,45															
25 C 5	amer	2	25	0,3															
50 B 5	amer	3	50	0,15															
50 C 5	amer	2	50	0,15															
6 EH 5	RCA	4	6,3	1,2	110	115													
12 EH 5	RCA	4	12,6	0,6	135	117													
25 EH 5	RCA	4	25	0,3															
50 EH 5	RCA	4	50	0,15															

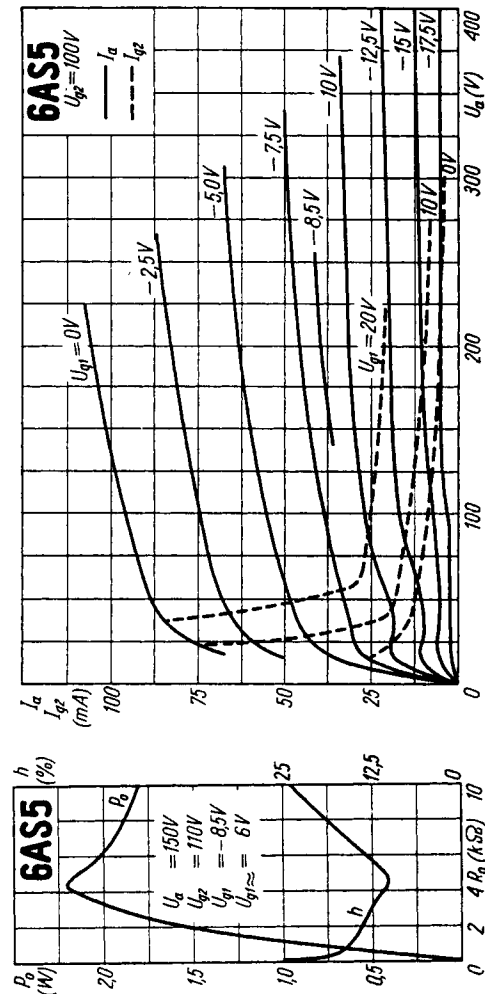
1) vide gr. 193, 235, 265

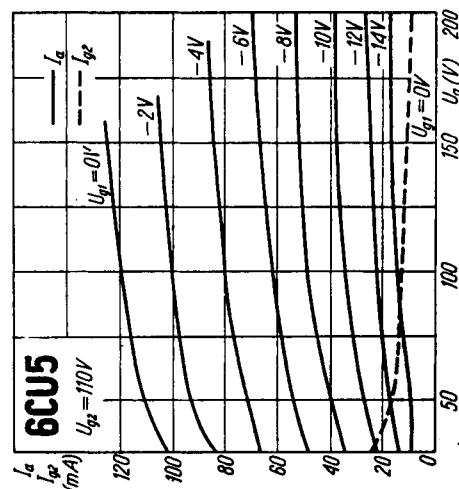
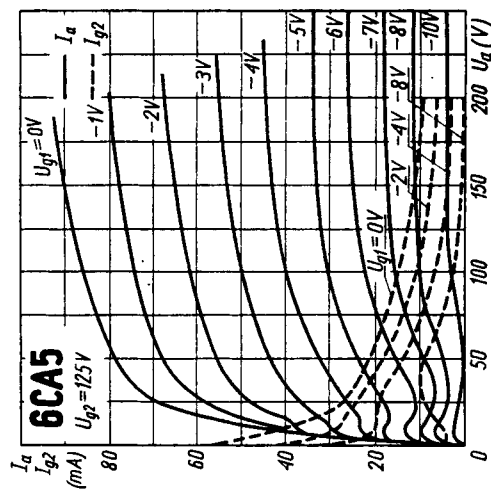
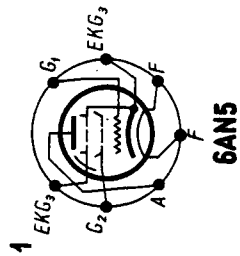
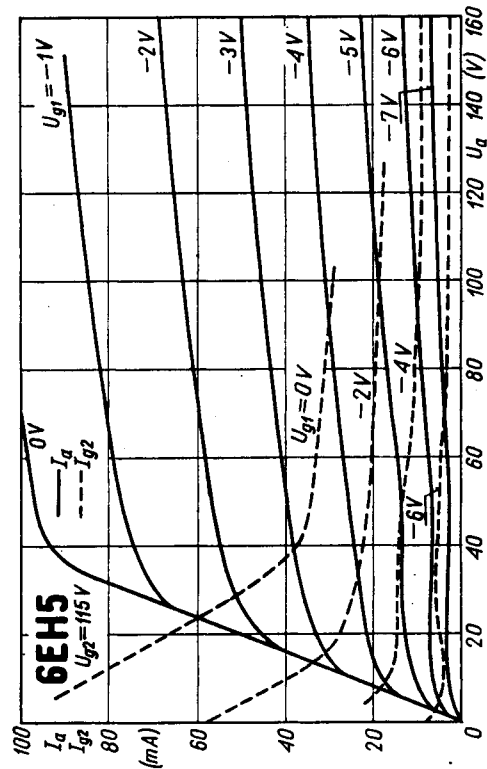
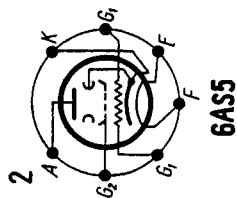
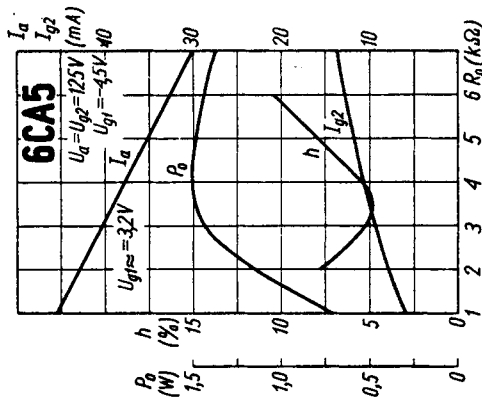
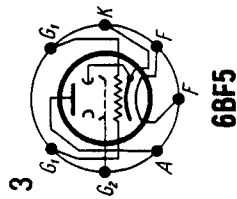
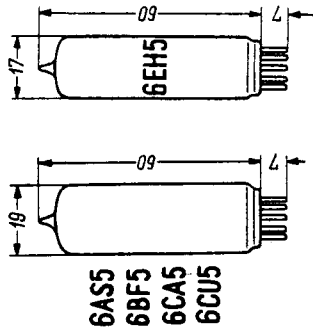
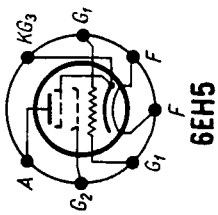
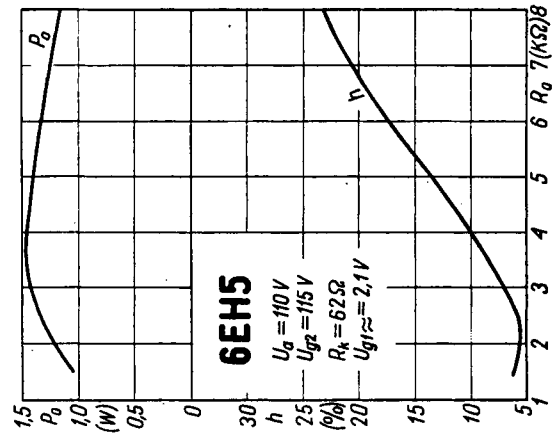
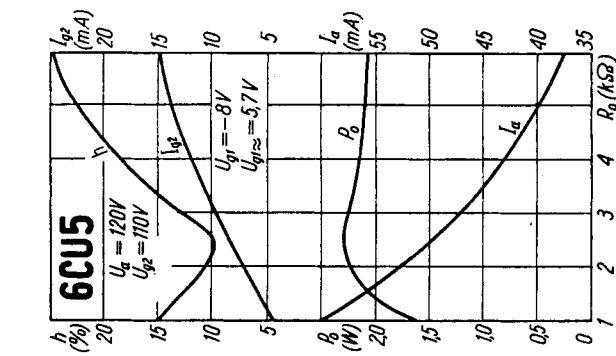
Equivalents

A 4388	amer = 50 B 5	WT-T-126	WT = 50 B 5
HL 92	eur = 50 C 5	12 C 5	amer = 12 CU 5
WT-210-0085	WT = 50 B 5	17 C 5	amer = 17 CU 5



T.	C _{g1}	C _a	C _{g1/a}
	pF	pF	pF
6 AN 5	9	4,8	0,075
6 AS 5	12	6,2	0,6
6 BF 5	14	6	0,65
6 CA 5	15	9	0,5
6 CU 5	13,2	8,6	0,7
6 EH 5	17	9	0,65
12 C 5	13	6,1	0,64
50 B 5		6,5	0,5



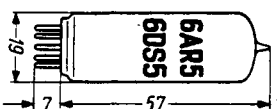
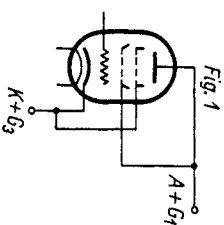


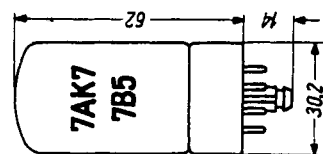
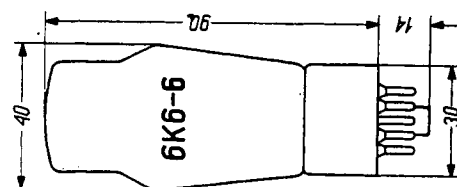
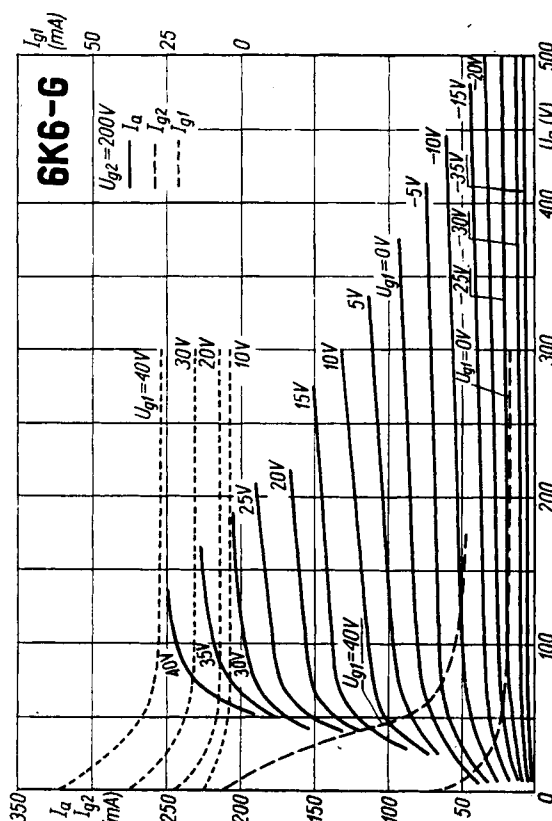
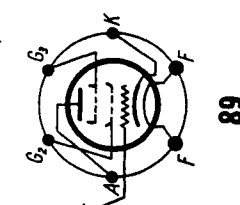
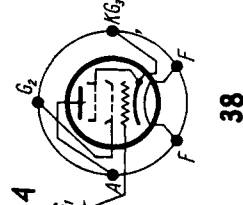
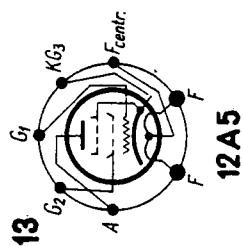
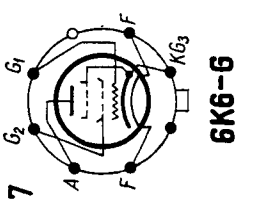
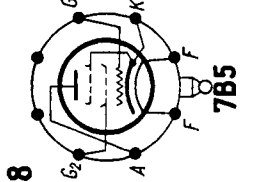
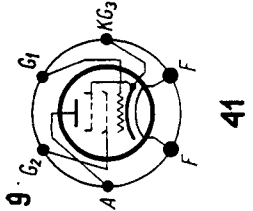
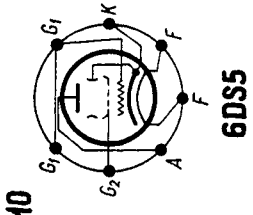
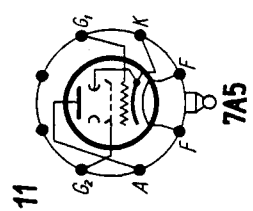
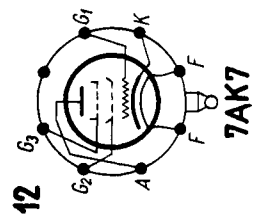
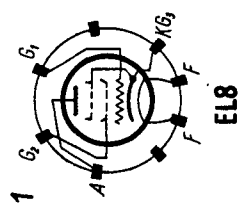
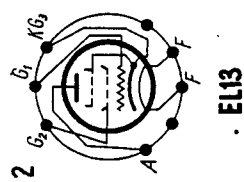
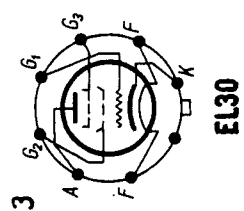
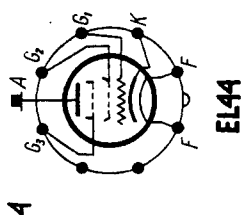
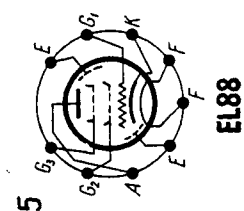
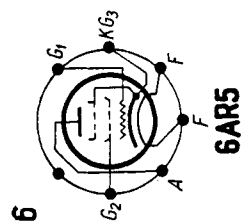
T.			U_f	I_f	Cl.	U_d	U_{gr}	U_{g1}	I_d	I_{gr}	S	R_f	μ	R_k	R_o	P_o	$U_{gr\sim}$	h	$U_{f/k}$	P_{α}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	(μ /k Ω)	Ω	k Ω	W	V	%	V	W	W
EL 6	eur	1	6.3	0.5	A	250	250	-7.5	20	3.2	5.5	60	maximum	320	12.5	2	3.8	10	0.8	5	
EL 13	Tf	2	6.3	0.5	A	250	275	-4.5	18	3.5	6.5	200	10	200	12	1.8		50	1.2	4.5	
EL 30	Phi	3	6.3	0.4	A	250	275	-4.5	18	3.5	6.5	200	10	200	12	1.8		50	1.2	4.5	
EL 44	Phi	4	6.3	0.72	A	250	250	-22.5	20	3.3	5	48	10	150	10	2.5			3.5	6.25	
EL 88	Stem	5	6.3	0.75	A	200	200	-4.5	33	4.6	9.7	2.6			10	12	0.35	11			
E 1662	Marc	6	6.3	0.2	A	250	250	-12	20	3	2.6				9	4.5	21	15			
6 AR 5	amer	6	6.3	0.4	A	100	100	-7	9+9.5	1.6+3	1.5	104			12	7.6	3.4	18	11		
6 K 6-G	inc	7	6.3	0.4	A2	250	250	-18	32+33	5.5+10	2.3	68			7.6	3.4	21	15			
7 B 5	inc	8	6.3	0.4	Push-P.	285	285	-21	25.5+28	4+9	2.1	75			9	10.5	25.5	6			
41	inc	9	6.3	0.4	Fig. 1	250	250	-25.5	55+61	9+13				400	12	9.8	25.5	4			
						250	250	-18	37.5	—	2.7	2.5	(6.8)						90	2.5	8.5
						315	285												90	2.8	8.5
6 DS 5	RCA	10	6.3	0.8	A	200	200	-7.5	35	3	6	28			6	3	7.5	9			
						250	250	-8.5	29	3	5.8	28			6	3.8	8.5	10			
7 A 5	amer	11	6.3	0.75	A	110	110	-7.5	40	3	5.8	14			2.5	1.5	7.5	10			
						125	125	-9	44	3.3	6	17			2.7	2.2	9	10			
7 AK 7	amer	12	6.3	0.8	A	150	90	0	40	21	6.5	11.5									
						150	90	-11	2	0.45											
12 A 5	amer	13	6.3/12.6	0.6/0.3	A	100	100	-15	17	3	1.7	50			4.5	0.8					
						180	180	-25	45	8	2.4	35			3.5	3.4					
38	amer	14	6.3	0.3	A	100	100	-9	7	1.2	0.9	140			15	0.27					
						250	250	-25	22	3.8	1.2	100			10	2.5					
89	amer	15	6.3	0.4	A	100	100	-10	9.5	1.6	1.2	104			10.7	0.33		9			
						250	250	-25	32	5.5	1.8	70			6.7	3.4		9			

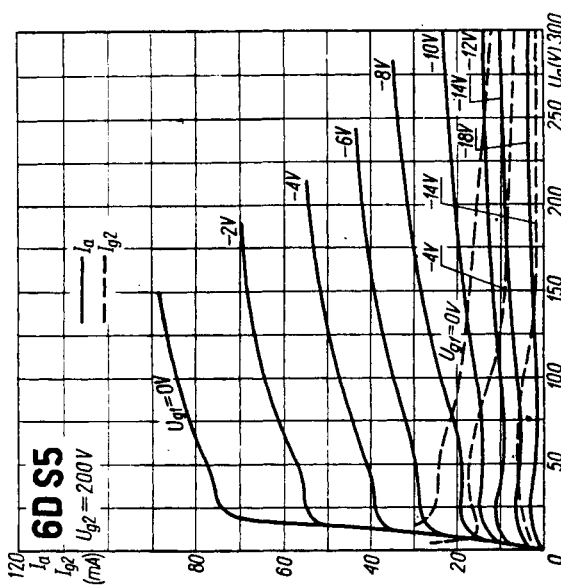
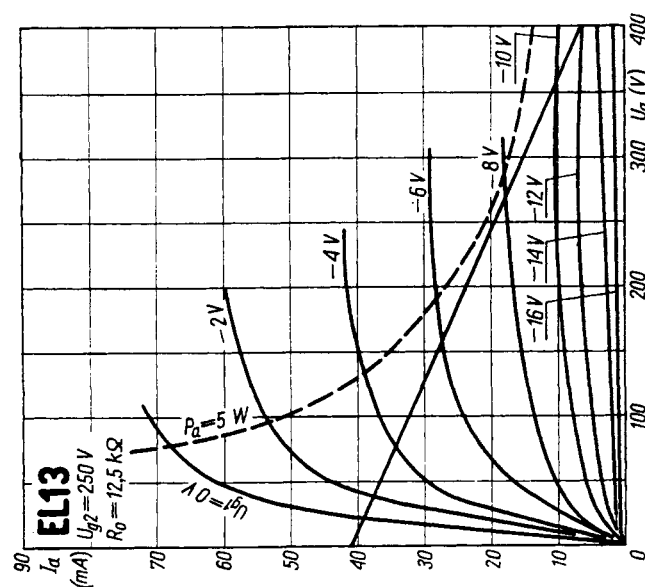
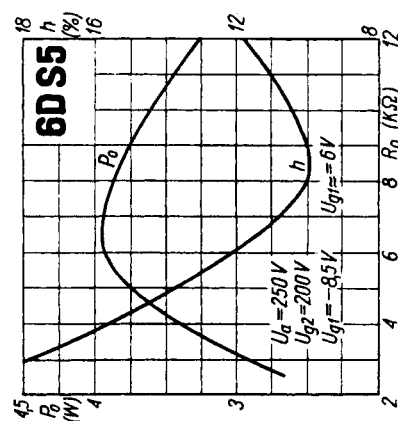
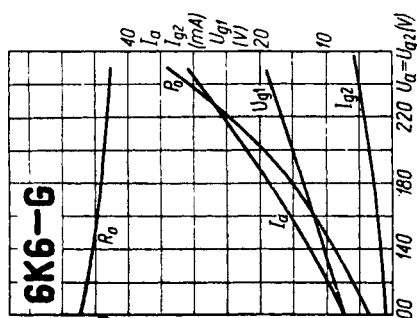
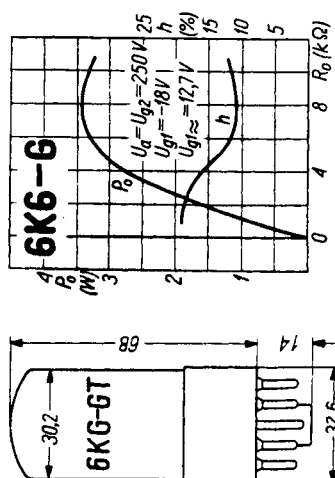
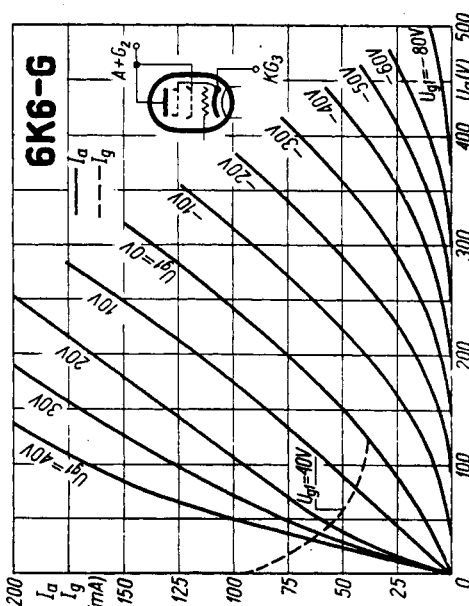
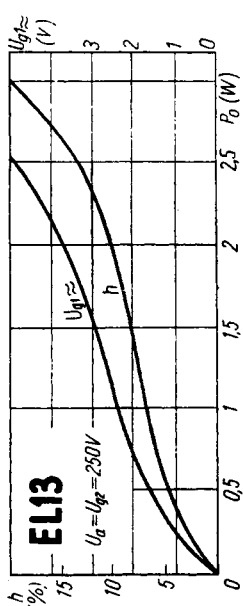
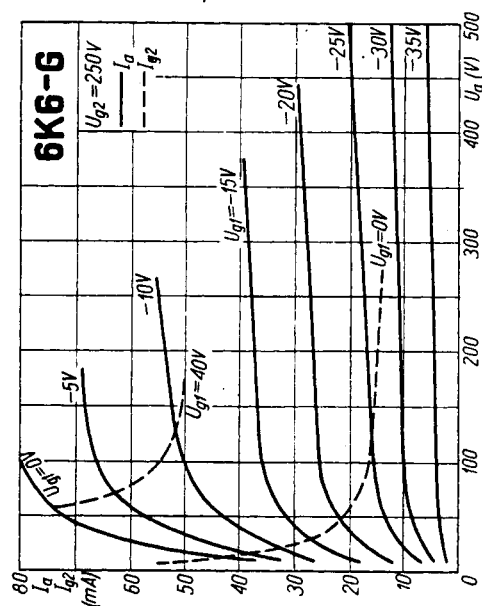
Equivalences

T.	C_{g1}	C_a	$C_{g1/a}$
	pf	pf	pf
EL 30	9.7	8	0.7
6 DS 5	9.5	6.3	0.19
6 K 6-G	5.5	6	0.5
7 AK 7	12	9.5	0.7
12 A 5	9	9	0.3

G 41	amer = 41	41 HM	amer = 41
PA	amer = 41	138	amer = 38
UX 182	amer = 38	138 A	amer = 38
UX 183	amer = 38	141	amer = 41
UY 238	amer = 38	238	amer = 38
6 K 6-GT	inc = 6 K 6-G	241	amer = 41
7 B 5 E	Br-I = 7 B 5	338	amer = 38
7 B 5 LT	Syl = 7 B 5	341	amer = 41
38 A	amer = 38	438	amer = 38
41 E	Br-I = 41	638	amer = 38







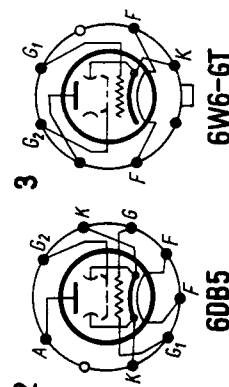
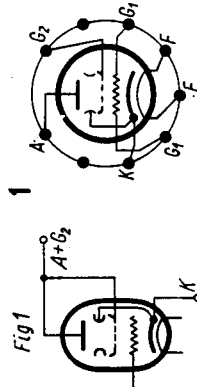
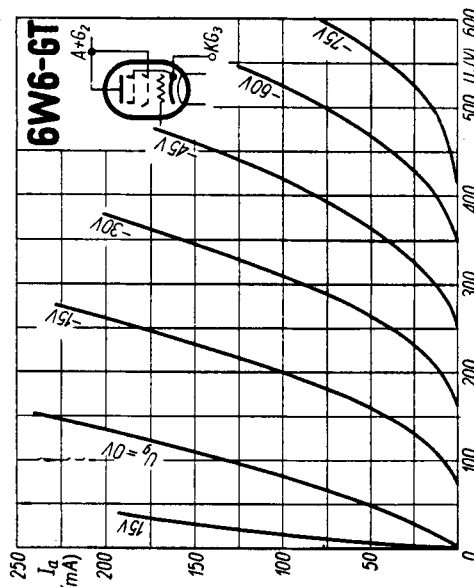
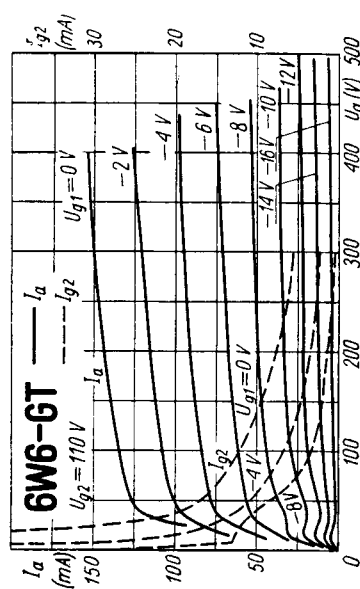
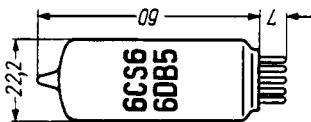
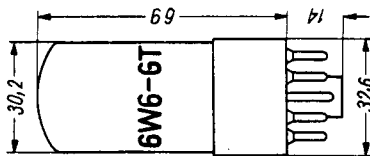
T.			U_f	I_f	Cl.	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	R_i	μ	R_k	R_o	P_o	$U_{g1 \sim}$	h	$U_{f/k}$	I_k	P_{g2}	P_a
6 CS 5	amer	1	6,3	1,2	A	110	—	110	49÷50	4÷10	8	13	—	—	2	2,1	7,5	10	—	—	—	—
6 DB 5	amer	2	6,3	1,2	Fig.1	200	—	125	46÷47	2,2÷8,5	8	28	—	—	4	3,8	8,5	10	—	—	—	—
6 W 6-GT	amer	3	6,3	1,2	VD	225	—	30	22	—	3,8	1,6	6,2	180	—	—	—	—	—	60	—	7,5
12 CS 5	amer	1	12,6	0,6	VD	2000	—	—250	—	—	—	—	—	—	—	—	—	—	—	200	—	—
12 DB 5	amer	2	12,6	0,6	VD	1200	—	—250	—	—	—	—	—	—	—	—	—	—	—	180	—	—
12 W 6-GT	amer	3	12,6	0,6	Fig.1	300	—	150	—	—	—	—	—	—	—	—	—	—	—	55	1,25	10
25 CS 5	amer	1	25	0,3																		
25 W 6-GT	amer	3	25	0,3																		

1) vide gr. 191, 253, 265

Equivalents

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 CS 5	15	9	0,5
6 DB 5	15	9	0,5
6 W 6-GT	15	9	0,8

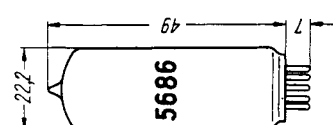
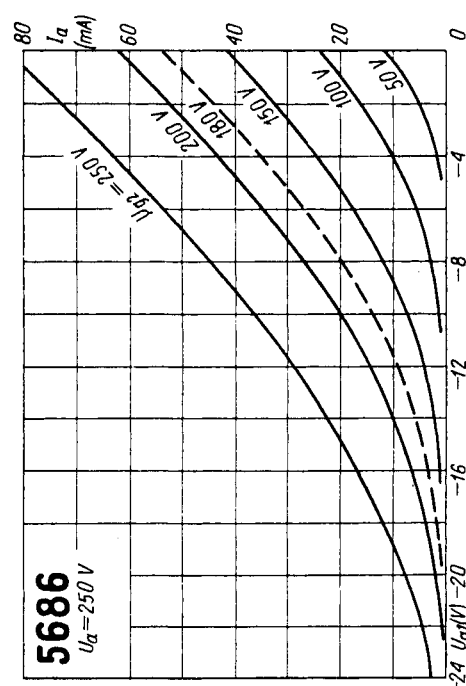
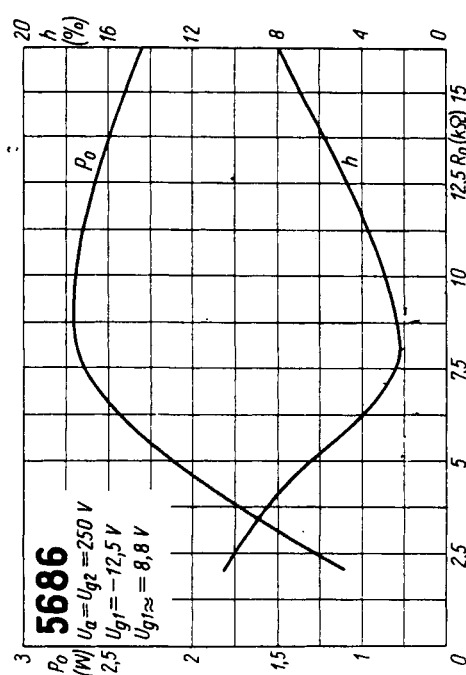
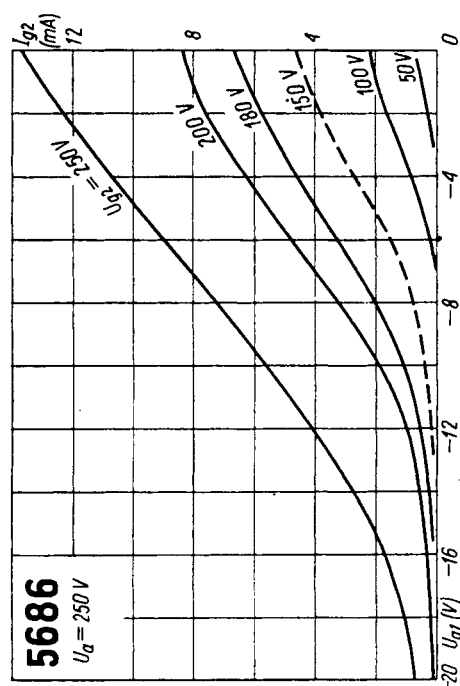
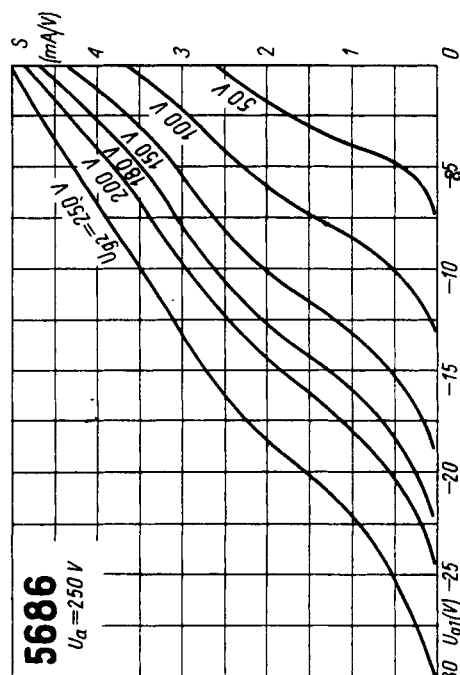
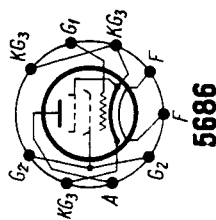
6 DG 6-GT amer = 6 W 6-GT
12 DG 6-GT amer = 12 W 6-GT

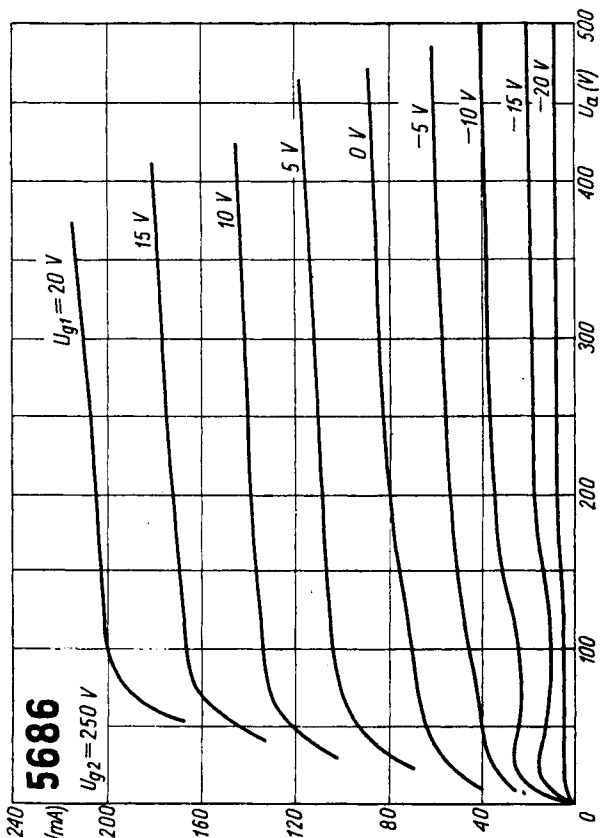
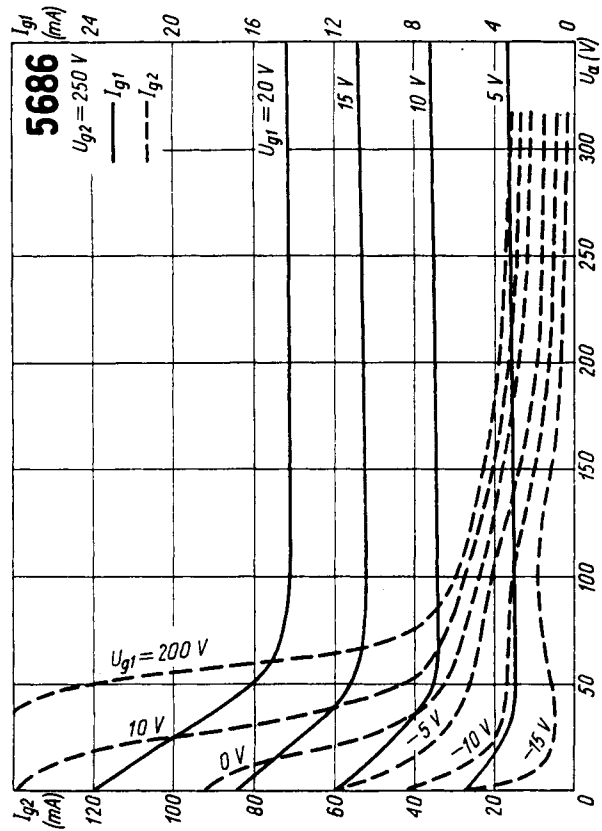
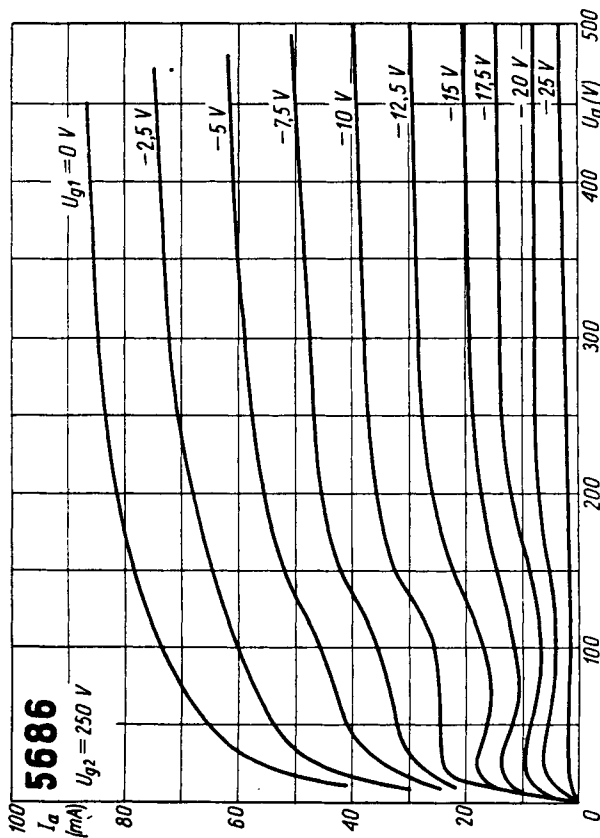
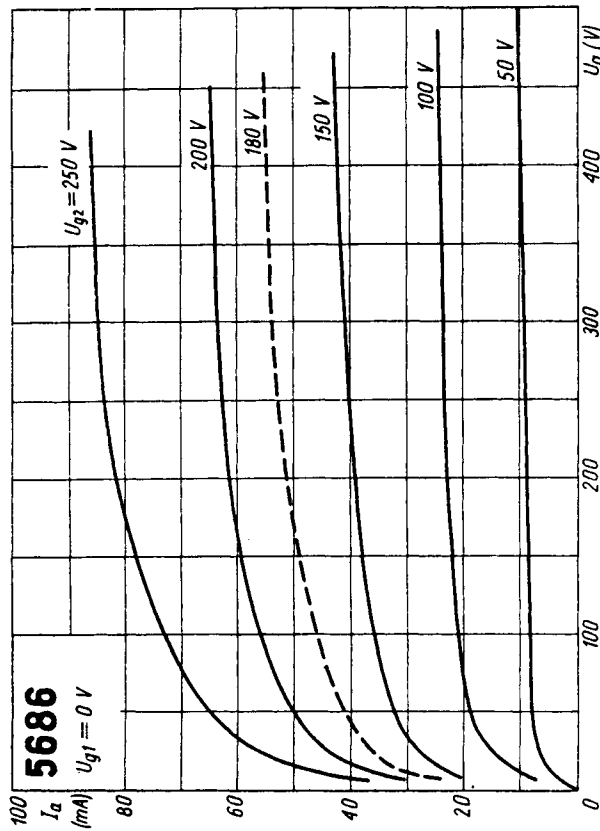


T.		U_f		Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	I_{g1}	S	R_{g1}		P_{dr}	f	$U_{f/k}$	P_{ga}	P_a
		V	A		V	V	V	mA	mA	mA	mA/V	k Ω	k Ω		MHz	V	W	W
5686 ¹⁾	inc	6,3	0,35	A	250	250	-12,5	27	3	3	3,1	45	9	2,7	12,5			
					250	180	-30	60	6,5	2				5,7	50			
					250	250	-50	40	10,5	2				6,5	75			
					275	275	-165	44	16,5	3,3				maximum		100	3,3	8,25

¹⁾ vide * 4; a, b, c, f, g;
 $U_f = 6,3 \text{ V} \pm 10 \%$

C_{g1}	C_a	$C_{g1/a}$	vide	
pF	pF	pF		
6,4	4	0,11	* 5	
6,5	8,5	0,08	* 6	





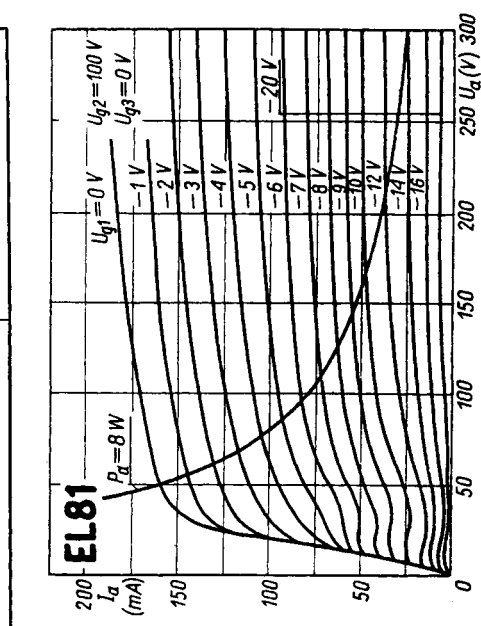
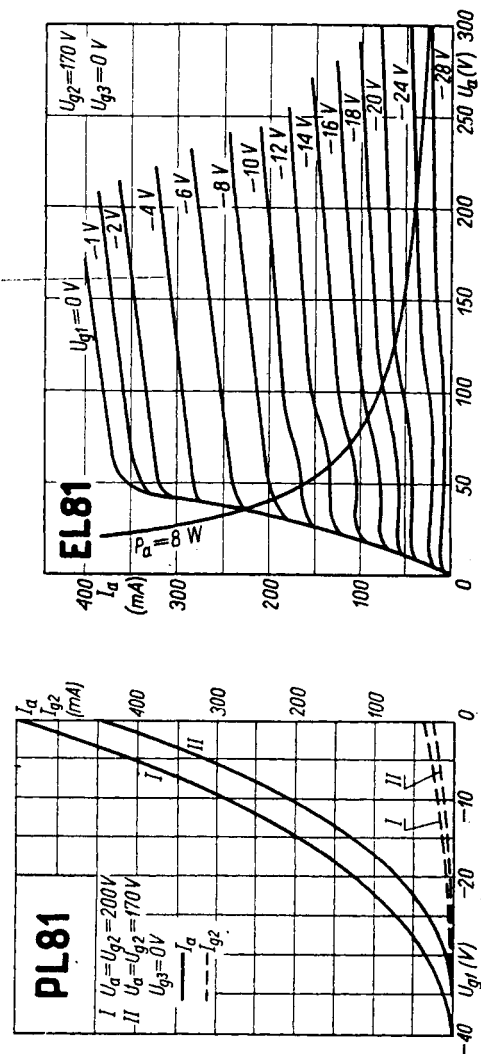
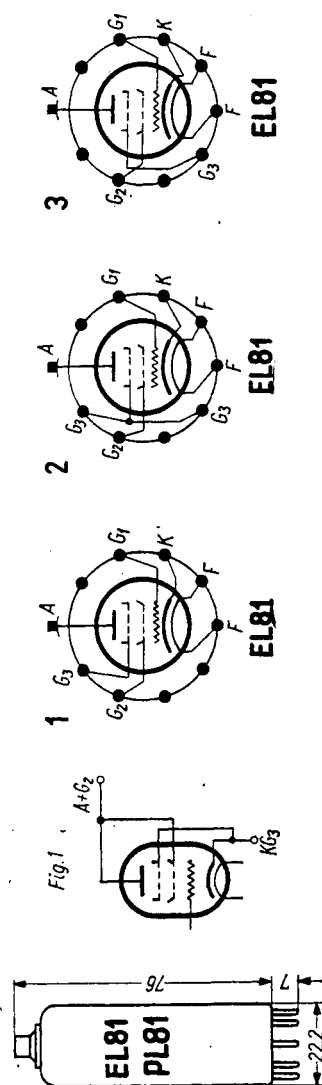
T.			U_f	I_f	Cl.	$U_a=U_b$	R_{g2}	U_{g3}	U_{g2}	U_{g1}	I_a	I_{g2}	Σ	R_f	μ	$R_{d/a}$	P_o	$U_{g1 \sim}$	h	I_k	P_{g2}	P_a
			V	A		V	k Ω	V	V	V	mA	mA	mA/V	k Ω	(g_m/g_k)	k Ω	W	V	%	mA	W	W
EL 81	eur	12/3	6,6	1,05	Star.	170		0	170	-22	45	3	6,2	10	(5,3)							
EL 820	Mul	I	6,3	1,05	B	200		0	200	-28	40	2,8	6	11	(5,3)							
PL 81	eur	12/3	21,5	0,3	Fig. 1	250		0	250	-38,5	32	2,4	4,6	15	(5,1)							
PL 820	Mul	I	21,5	0,3		300		0	300	-27	40 ÷ 146	3 ÷ 50				2,5	13,5	19	5,2			
						250		0	250	-31,5	50 ÷ 174	4 ÷ 25				2,5	20	22,5	5,2	120	4,5	8

$U_d(\text{peak}) = -7000 \div +7000 \text{ V}$, Impulse $\leq 18 \text{ } \mu\text{sec.}$; 18%

C_{g1}	C_a	$C_{g1/a}$	$C_{a/k}$	$C_{g1/f}$
pF	pF	pF	pF	pF
14,7	6,4	0,8	0,1	0,2

Equivalents

EL 81 F	RB = EL 81	6 DR 6	amer = EL 81
N 152	Eng = PL 81	21 A 6	amer = PL 81
N 359	Eng = PL 820	21 B 6	amer = PL 81
PL 81 F	RB = PL 81	21 L 40	Tes = PL 81
6 C J 6	amer = EL 81	213 Pen	Eds = PL 81



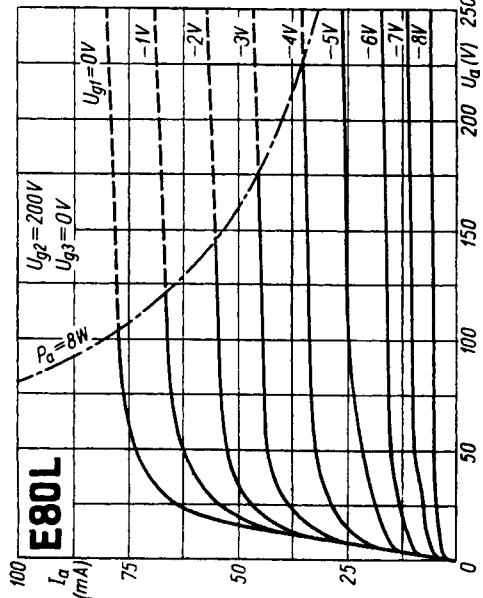
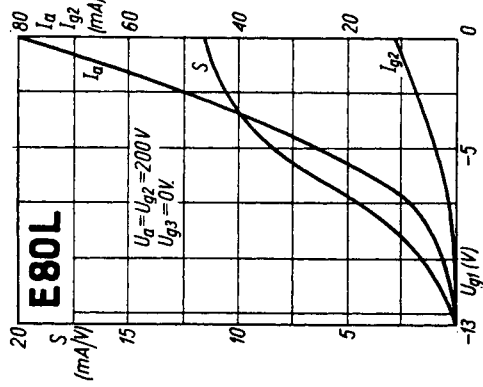
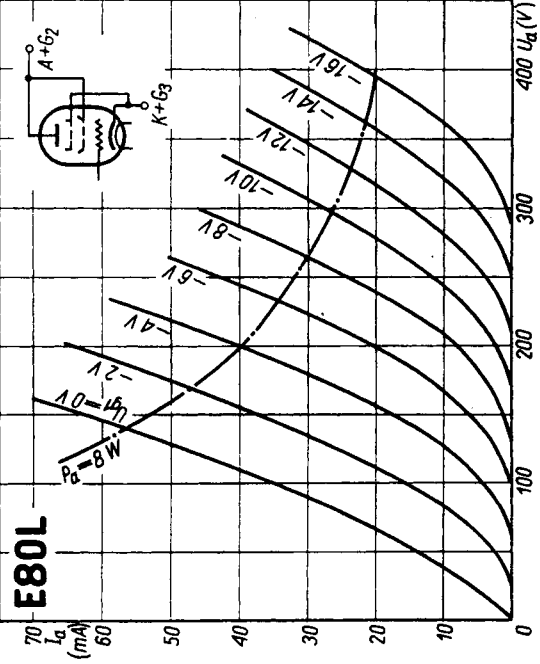
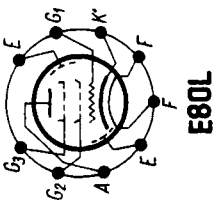
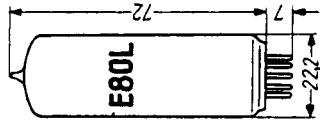
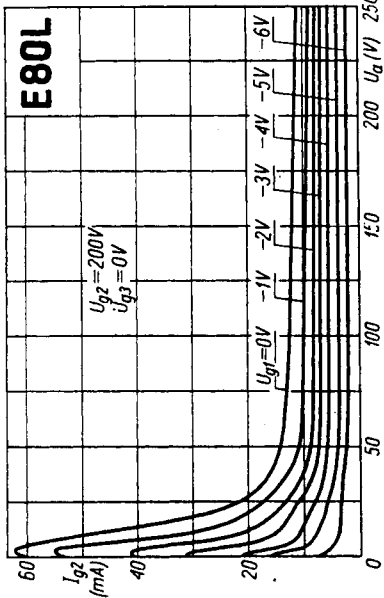
T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_f kΩ	μ s_i/s_o	R_k Ω	$R_o(R_{a1/a})$ kΩ	P_o W	$U_{g1 \sim}$ V	h %	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
E 80 L ¹⁾	eur	6,3	0,75	Stat. A AB	200	200	0	— 4,4	30	4,1	9	90	21,5	0	7	2,7	3	10	120	50	2,6	8
					{ 200 250	200 <250 ²⁾	0	30 24	4,1 3,3		130 270	2,8	3	10								
					{ 200 250	200	0	41,2 ÷ 49,2	6,6 ÷ 8,9		130	5,7	5,2	3								
					300	300	—100	47 ÷ 59	6,4 ÷ 13,2		150	9	7,8	4,5								
maximum																						

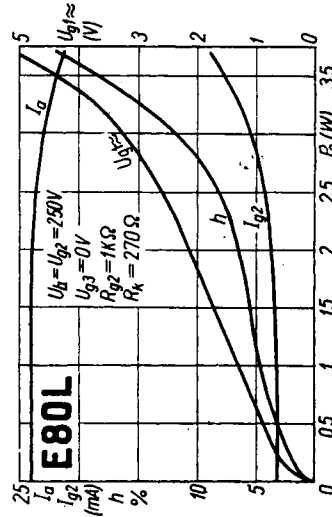
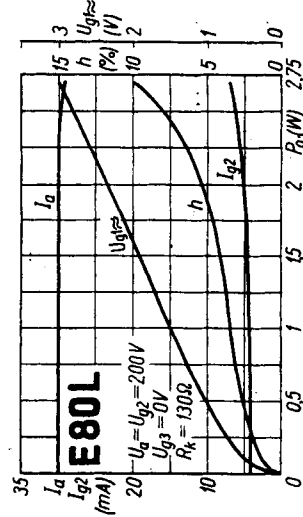
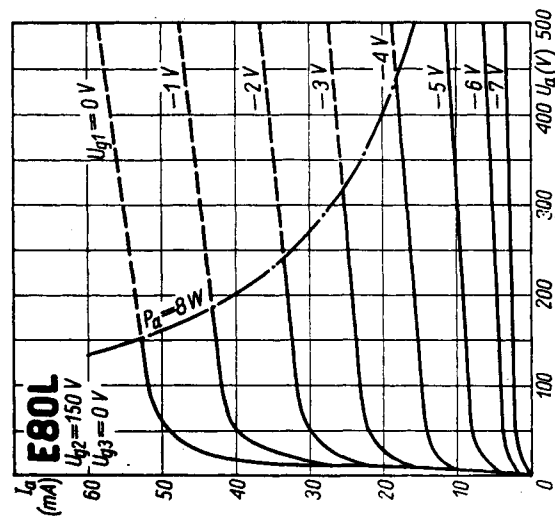
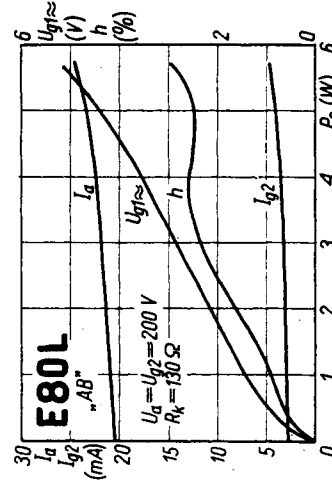
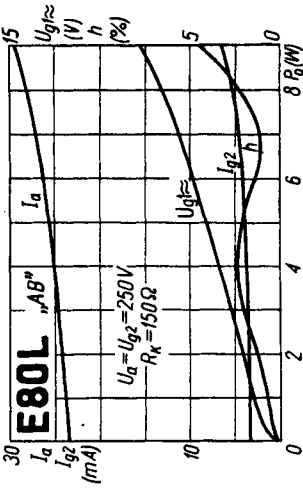
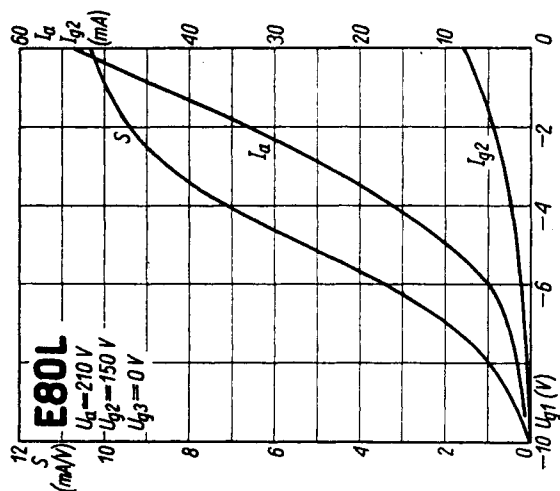
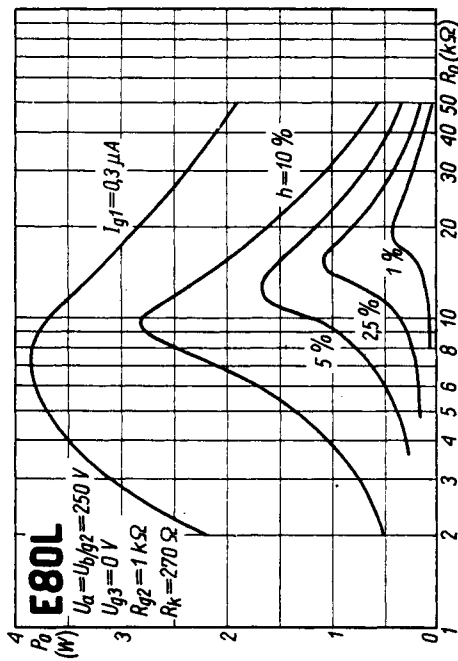
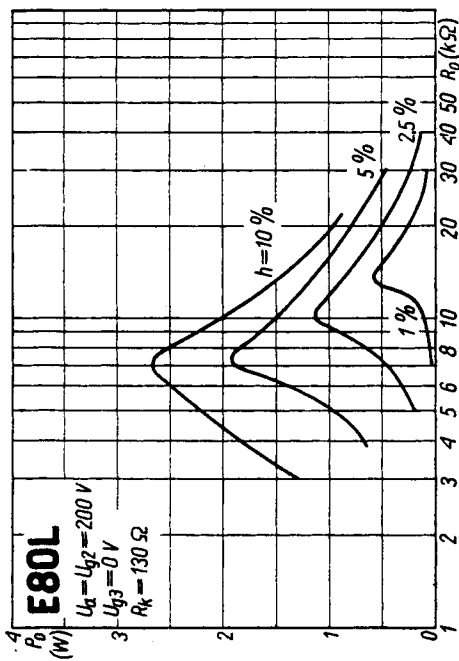
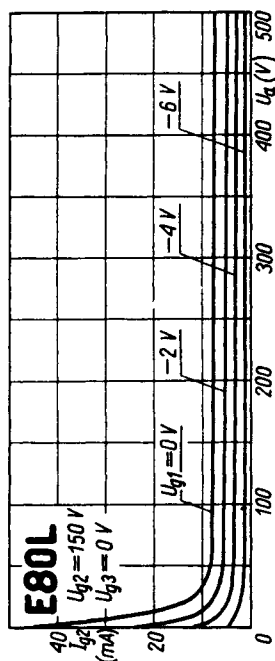
¹⁾ vide A, a, b, c, = 10.000, a, f, g; $U_f = 6,3 V \pm 5\%$; $I_f = 0,75 A \pm 1,5\%$
²⁾ $U_{b/g2} = 250 V$; $R_{g2} = 1 k\Omega$

Equivalents



C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	$C_{k/f}$
pF	pF	pF	pF	pF
10,2 ÷ 11,8	6,5 ÷ 7,5	0,1	0,25	7



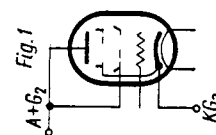
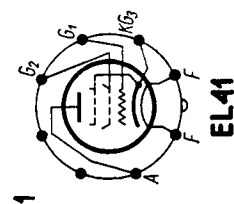
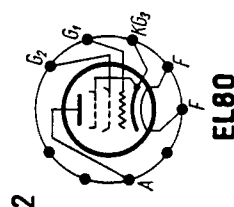
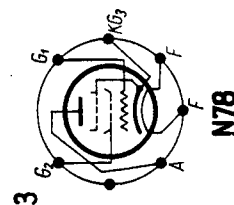
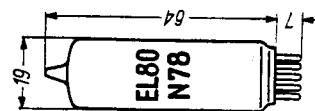
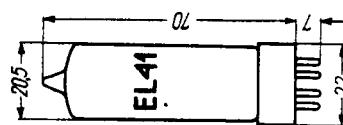
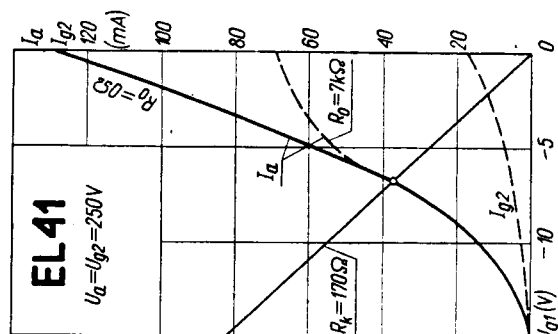


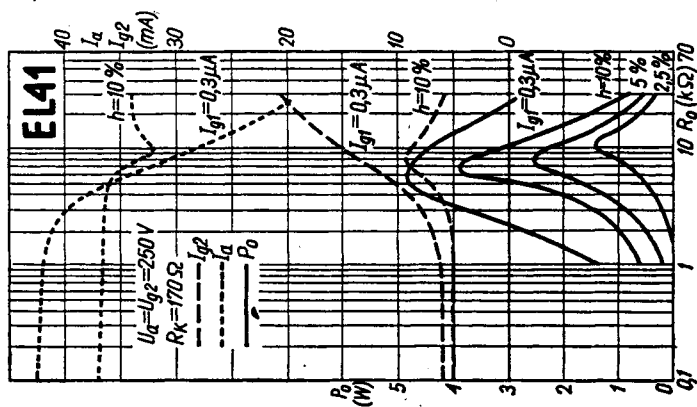
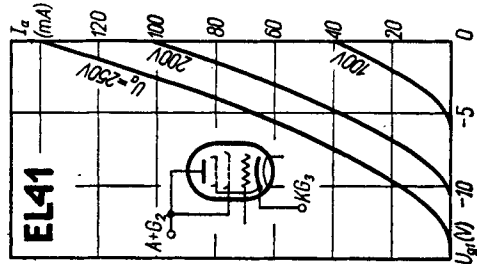
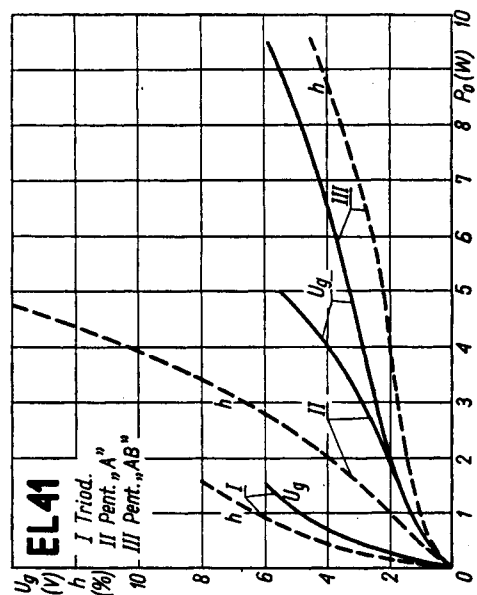
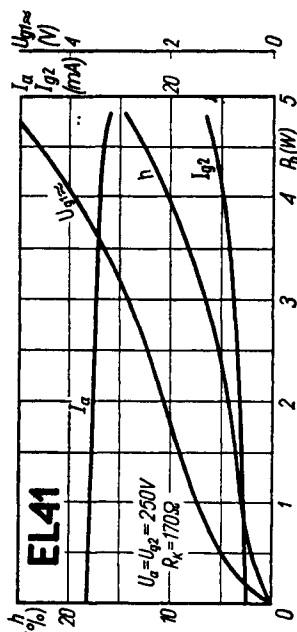
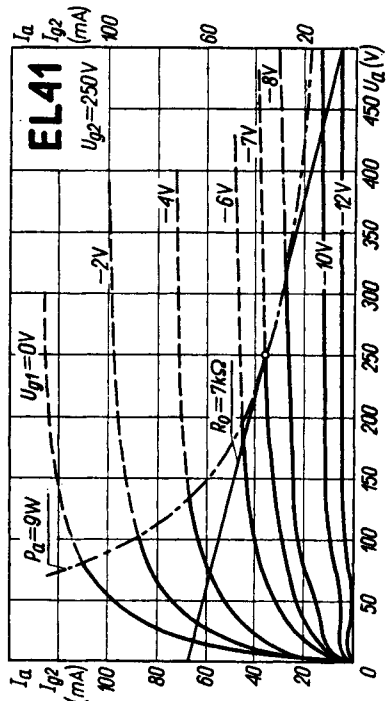
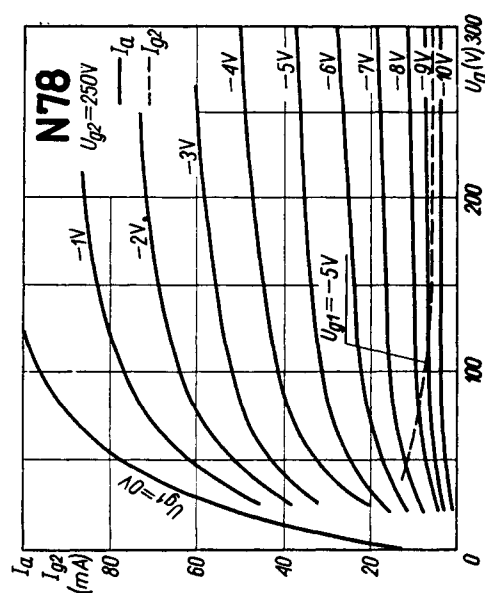
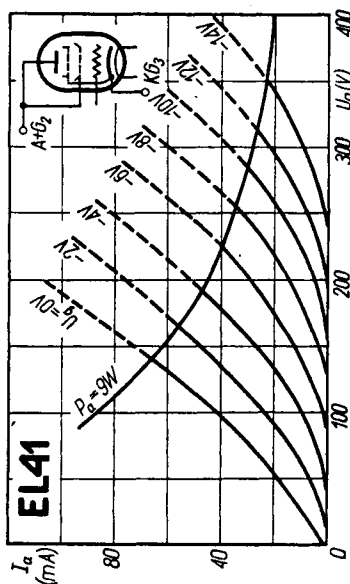
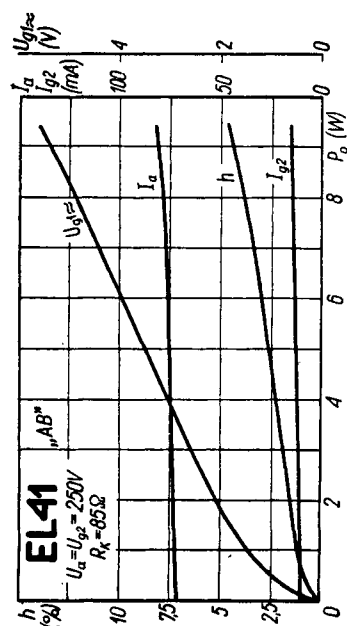
T.			U_f	I_f	Cl.	U_a	U_{g1}	I_a	I_{g1}	S	R_f	μ	R_k	$R_a(R_{a/a})$	P_o	U_{gr}	h	f	I_k	P_{g2}	P_a
			V	A		V	V	mA	mA	mA/V	k Ω	(g_m/g_s)	Ω	k Ω	W	V	%	MHz	mA	W	W
EL 41	eur	1	6,3	0,71	A	250	-7	36	5,2	10	40	(22)	170	7	4	3,8	10				
EL 80	eur	2	6,3	0,71	Fig. 1	250	-8	72 ÷ 79	10,4 ÷ 16				85	(7)	9,4	5,6	4,6				
						300		33		10	2	20	250	3,5	1,55	6	8		55	1,4	9
										maximum ($U_{f/k} = 100$ V)											
						250	-5	35	5,5	10,5	40		120	7	4	5	9,2				
						220	-3,2	82	13 ÷ 16,5				68	(9)	5	3,5	3				
						250	-5	70 ÷ 73	11 ÷ 16,5				120	(9)	9	5,6	4,6				
						350	-7,1	46 ÷ 51	6,5 ÷ 20				270	(18)	12,6	10	4,8				
						300	-25	65	14					1,65	10,5						9
						150	-60	52	14					2,2	9,2						9
						350	-100	55	9					1,1	5,3			20/40			9
						260	-120	52	12					1,18	5,1			50/100			9
						270	-5	40										20/60			9
						250	-7,5	67 ÷ 73		11,4	2,1	24				7,6	1,5				
						300	-9,5	57 ÷ 64,5								11,5	1,6				
						350							220	(5)	4,4						
						250							330	(8)	6,3					2	9

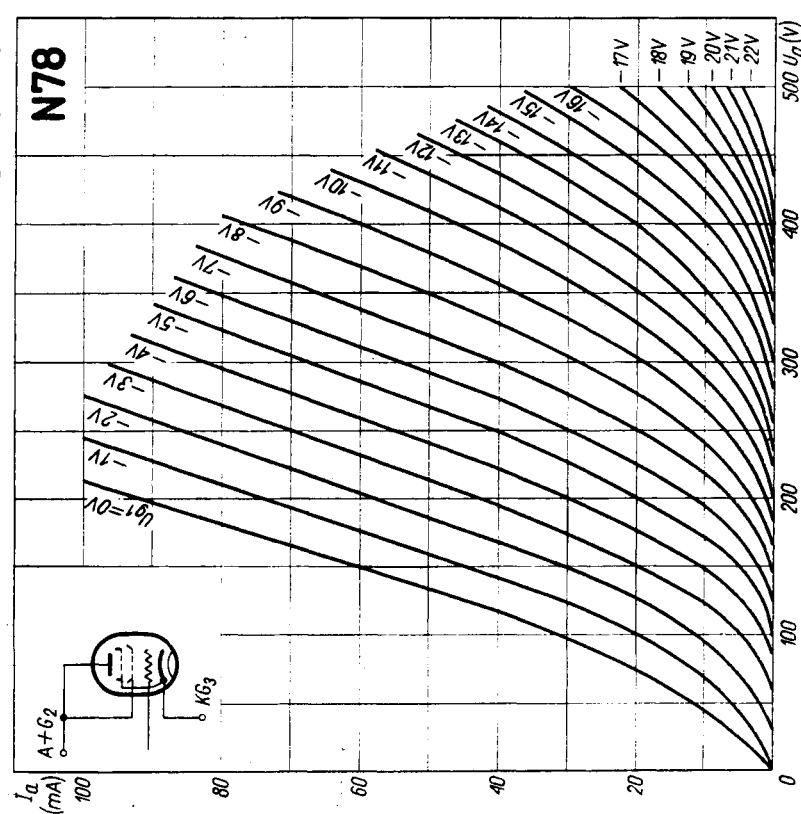
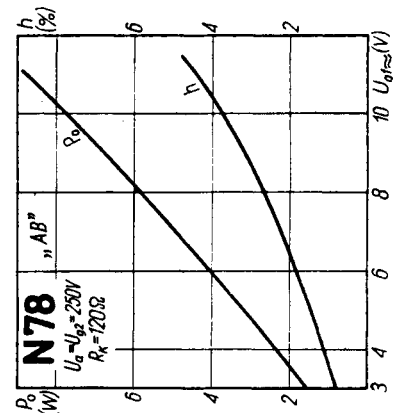
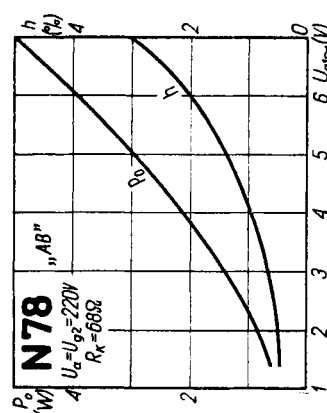
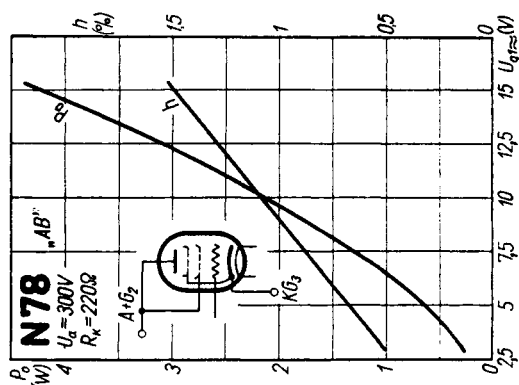
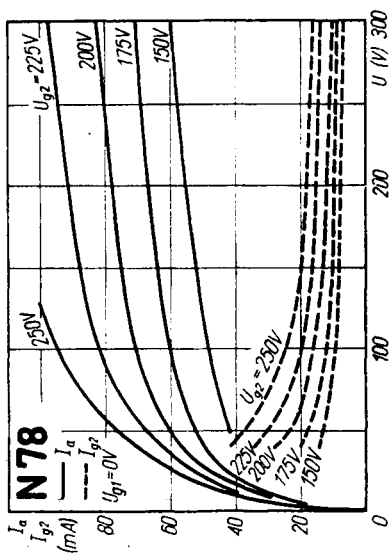
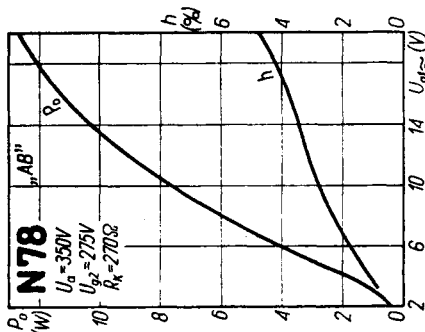
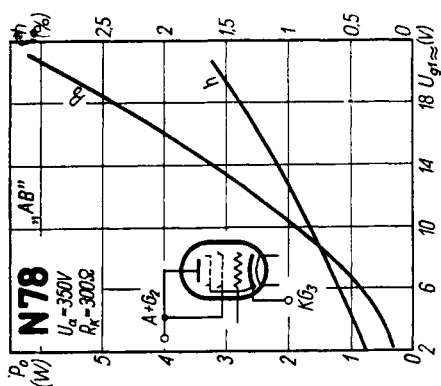
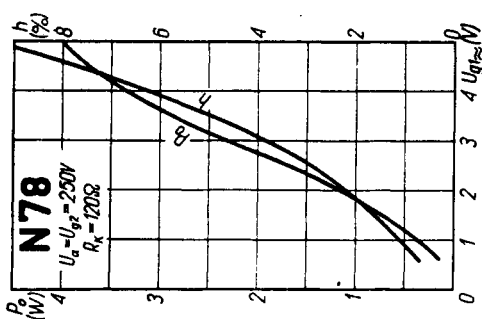
Equivalents

BF 61	Max = EL 41	6 CK 5	amer = EL 41
N 150	Eng = EL 41	6 M 5	amer = EL 80
6 BT 5	amer = N 78	67 PT	Cos = EL 41

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EL 41	10,2	7,8	1
EL 80	10	6,2	1
N 78	11,5	10,5	0,3





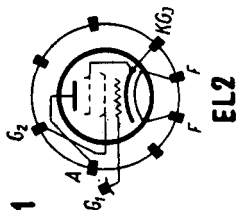


T.				U_f	I_f	Cl.	U_a	U_{g1}	I_{g1}	S	μ	R_k	R_o	P_o	U_{gr}	h	I_k	P_{gs}	P_a
EL 1	Tif	I	6,3	0,4	A	A	250	-18,5	4,5	2,6	48	500	11,5	2,8					
EL 2	eur	I	6,3	0,2	A	A	200	-14	4	3	7	480	8	2,3	8,5	10			
EL 32	Mul	2	6,3	0,2	AB	AB	250	-18	5	2,8	7	485	8	2,6	10	10			
					stat	stat	250	-27	15	1,7	(7)	305	8	8	14	1,5			
					stat	stat	250	-20	30	2,6	(8)				17	1,4			
E 1192	Marc	I	6,3	0,8	stat	stat	250	-11	30	3,5						45	1,6		8

Equivalents

P 626	Tri = EL 1
P 628	Tri = EL 2
PP 6 AS	Tu = EL 2
TEL 1	Tu = EL 1
TEL 2	Tu = EL 2
VL 1	Vat = EL 1
VL 2	Vat = EL 2
6 E 5	Ult = EL 2
1637	amer = EL 32

1



EL2

2



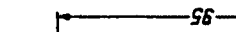
EL32

3



EL2

4



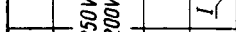
EL2

5



EL2

6



EL2

7

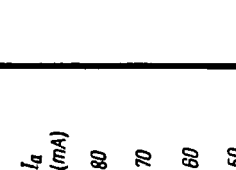


EL2

8

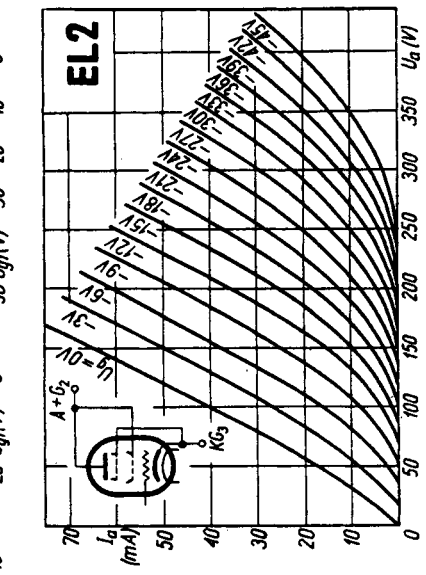
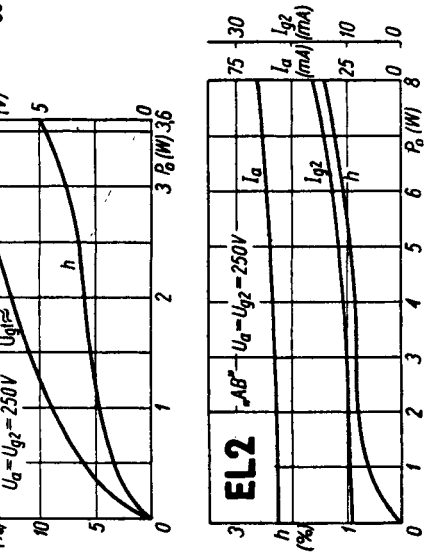
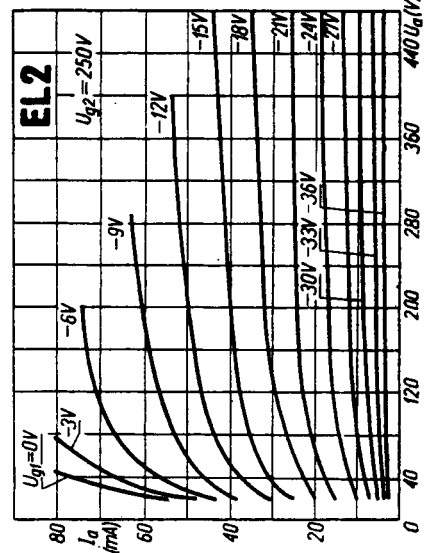
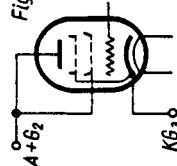


EL2



EL2

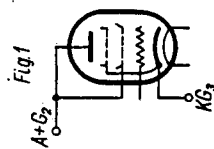
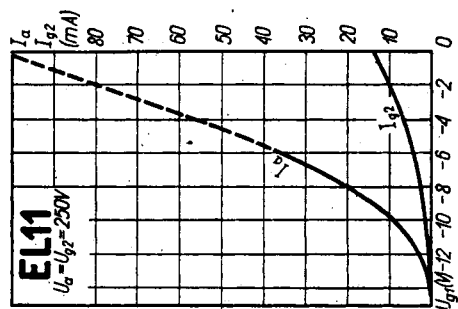
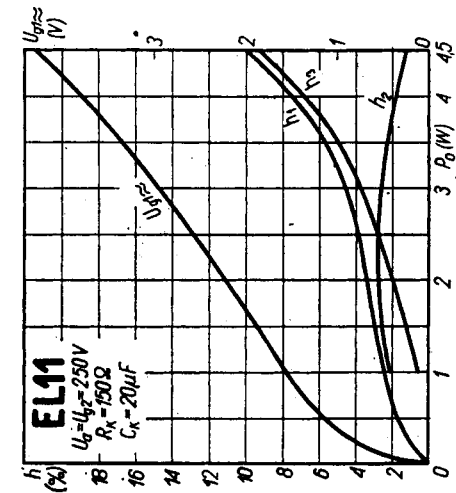
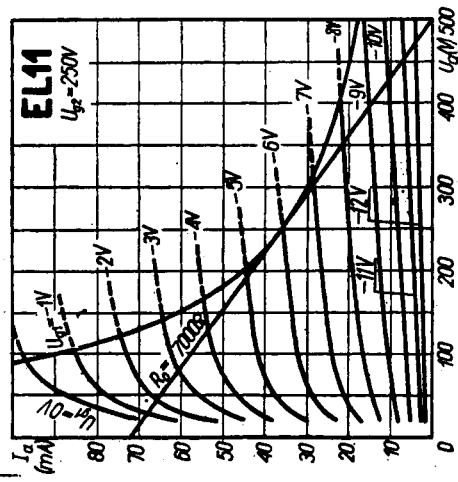
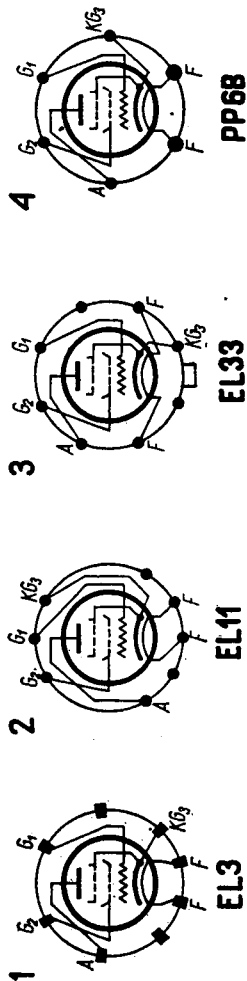
Fig. 1

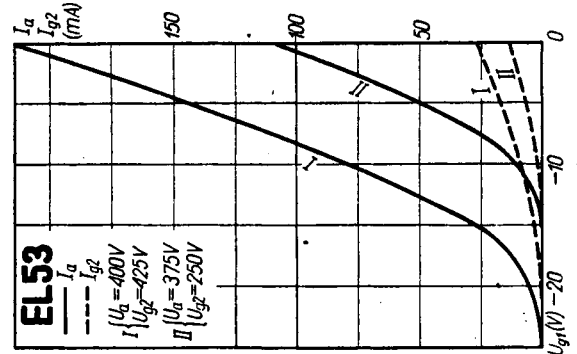
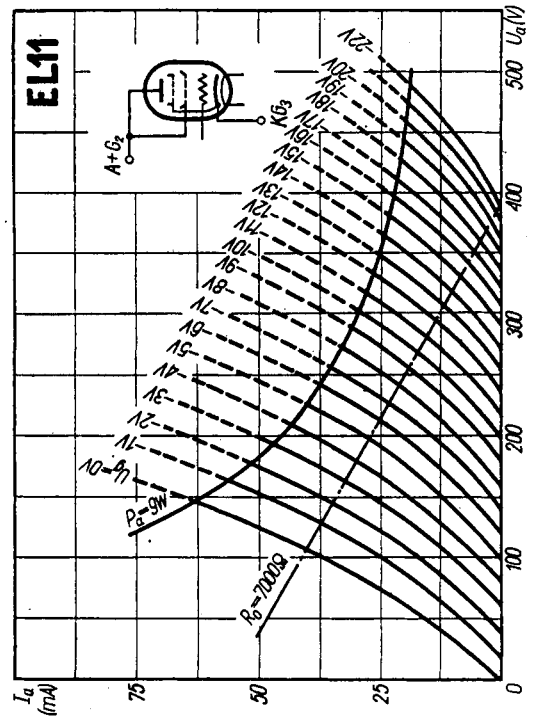
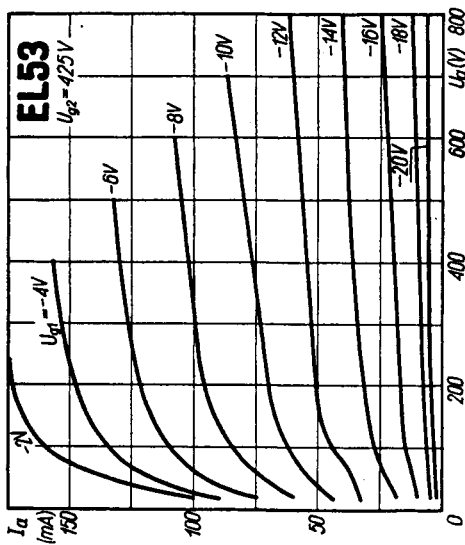
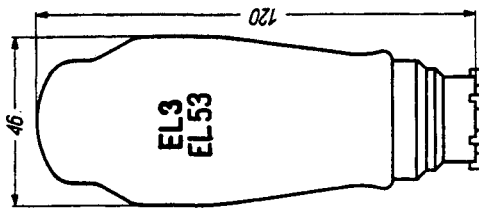
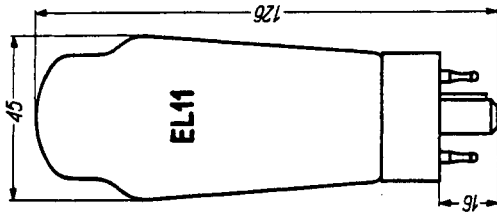
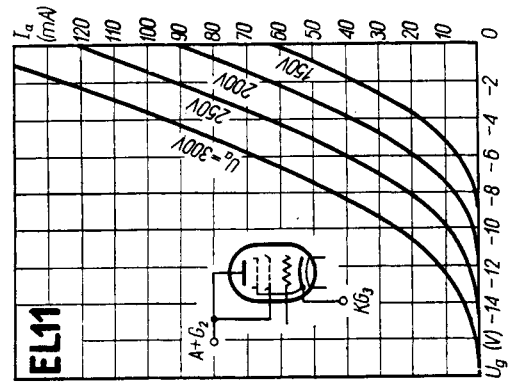
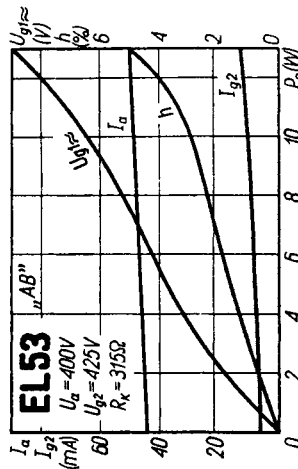
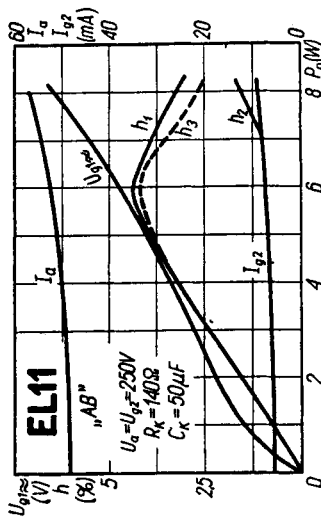


T.			U_f	I_f	Cl.	U_a	U_{g1}	I_a	I_{ga}	S	R_t	μ	R_k	P_o	$U_{gr\sim}$	h	$U_{f/k}$	I_k	P_{gs}	P_a
			V	A		V	V	mA	mA	mA/V	k Ω	g_m/g_1	Ω	W	V	%	V	mA	W	W
EL 3	eur	1	6,3	0,9	A	250	250	36÷39	4÷6	9	50	(23)	150	7	4,5	10				
EL 3/375	eur	1	6,3	0,9	AB	250	250	48÷57	5,6÷9,2				140	10	8,2	3,1				
EL 11	eur	2	6,3	0,9	AB	250	265	62÷68	7,2÷11,6				190	10	9	6,8				
EL 11/375	eur	2	6,3	0,9		375	250	48÷60	5÷10				145	13	12	6,9				
EL 33	eur	3	6,3	0,9	Fig. 1	400	425	44÷50	5,6÷12,4				315	20	13	9				
EL 53	Phi	1	6,3	0,9		250		20		6,5	3	20	425	7	1,1	5,9				
PP 6 B	Tu	4	6,3	0,9		250											50	55	1,2	9

Equivalents

AV 1037	AEG = EL 11	PP 6 C	Tu = EL 11
EL 3 NG	Phi = EL 3	VEL 3	Vat = EL 3
EL 3 NG	Phi = EL 33	WE 15	TII = EL 3
EL 3/425	Phi = EL 53	6 E 6	Ult = EL 3
EL 11 N	eur = EL 11	6 E 102	TKD = EL 3
EL 33 A	Phi = EL 33	6 M 6	amer = EL 33
N 147	Eng = EL 33	6 M 6-G	amer = EL 33
OM 9	Cos = EL 33	6 PX 6-G	Fiv = EL 33
PP 6 BG	Tu = EL 33	4694	Phi = EL 53
PP 6 BS	Tu = EL 3		

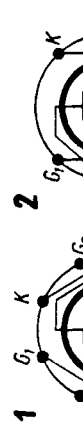




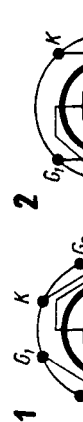
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	μ	R_k	R_0	P_0	$U_{g1 \max}$	h	I_k	P_{g2}	P_a
6 AG 7	inc	1	6,3	0,65	300	150	-3	30÷30,5	7÷9	11	20	80	10	3	2	7	50	1,5	9
6 CL 6	inc	2	6,3	0,65	250	300	-7	32	—	16	(30)	2	—	—	—	—	—	—	—
13 CL 6	Fiv	2	13,7	0,3	250	150	-3	30÷31	7÷7,2	11	(20)	7,5	—	2,8	2,1	8	50	1,7	7,5
17 CL 6	Fiv	2	17,5	0,25	300	300	-7	44	—	13	—	1,6	—	—	—	—	—	—	—

Equivalents

HF 2192	RFT = 6 AG 7
HF 2601	RFT = 6 AG 7
OSW 2192	RFT = 6 AG 7
OSW 2601	RFT = 6 AG 7
6 AG 7 (k) ¹⁾	RFT = 6 AG 7
6 A 7	CCCP = 6 AG 7
6 AG 7-Y	RCA = 6 AG 7
6 AK 7	amer = 6 AG 7
6 L 10	Tes = 6 AG 7
6 L 43	Tes = 6 CL 6
6 TL 9	CCCP = 6 AG 7
6 JK 4B	CCCP = 6 AG 7
6197	RCA = 6 CL 6
6677 ²⁾	amer = 6 CL 6

¹⁾ 17 CL 6 $U_f = 180$ V²⁾ vide * 4³⁾ $U_f = 6,3$ V $\pm 20\%$ 

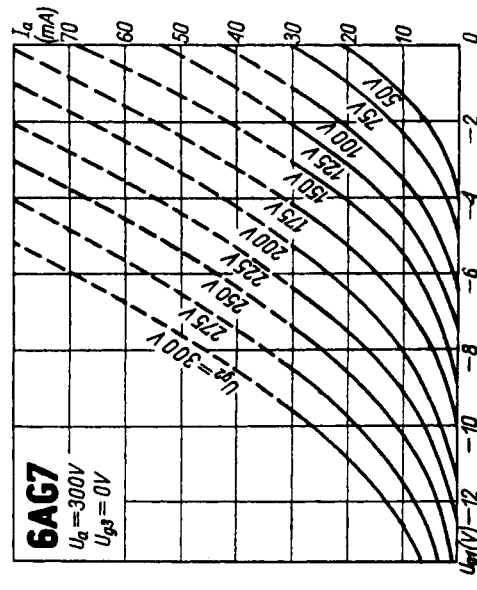
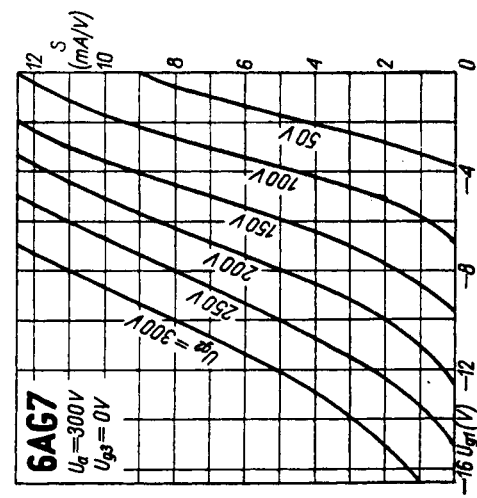
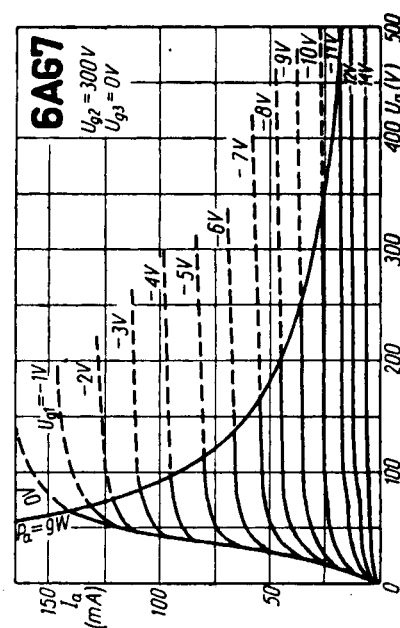
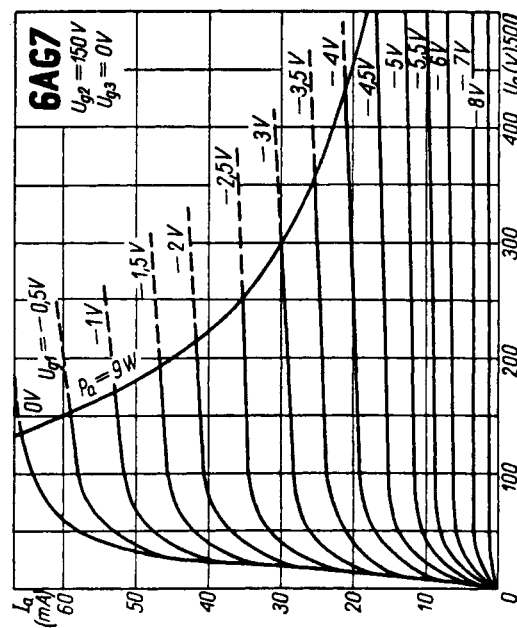
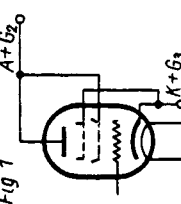
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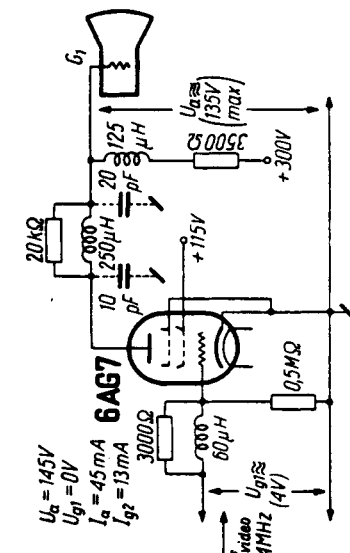
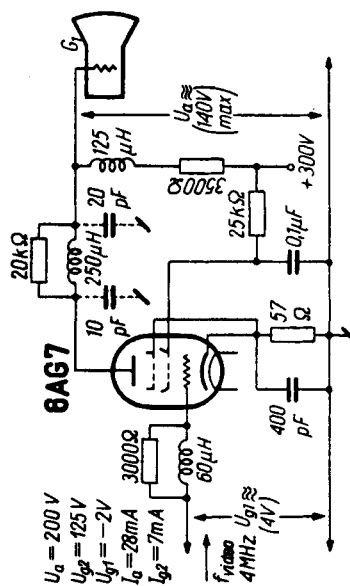
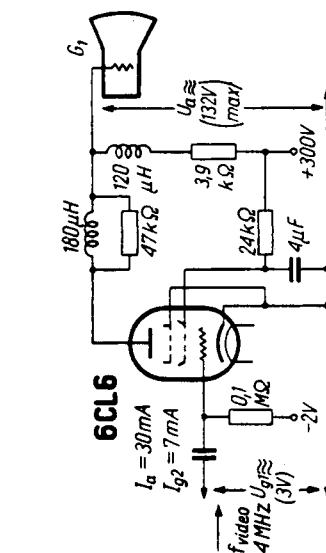
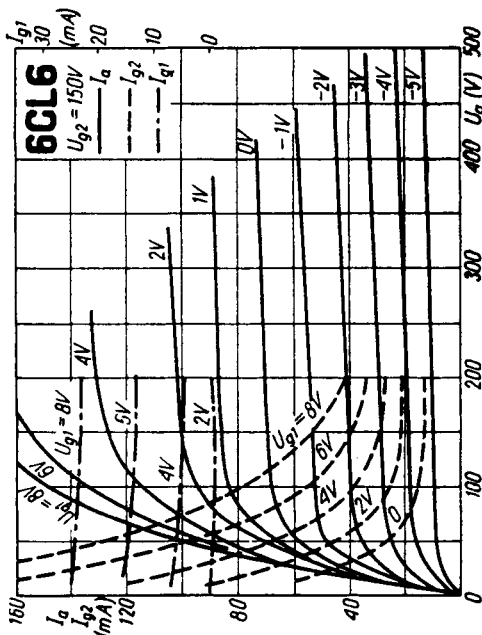
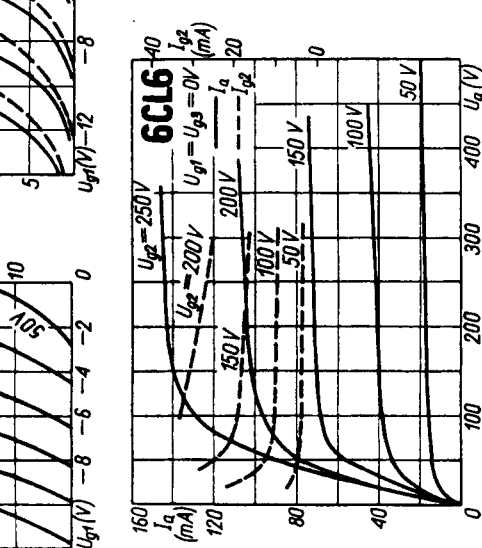
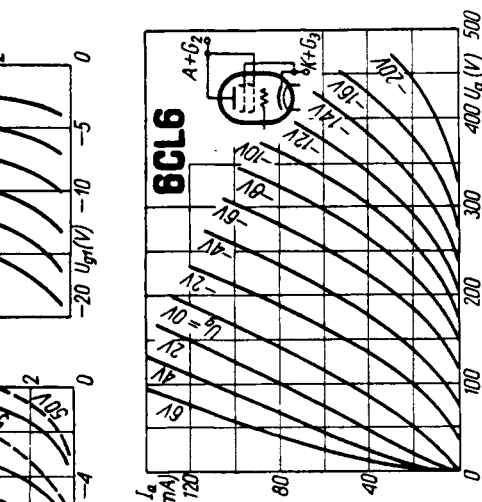
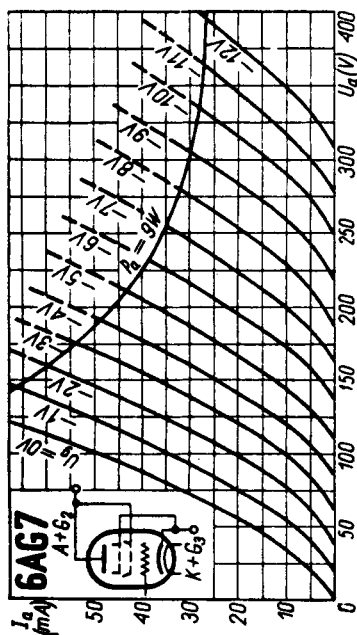
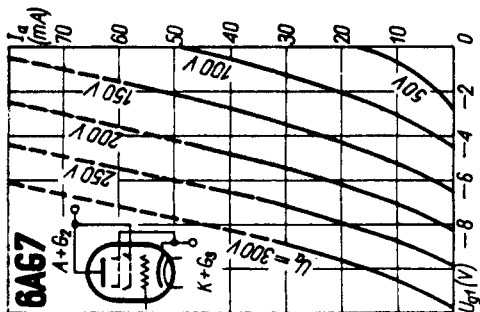
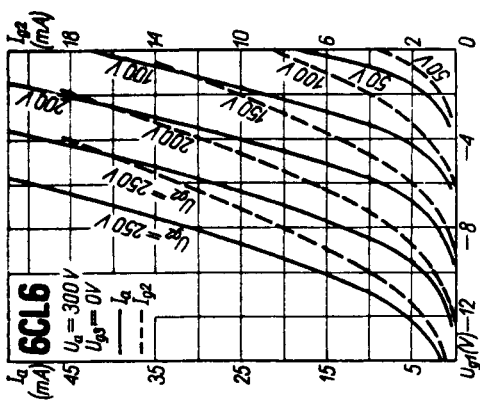
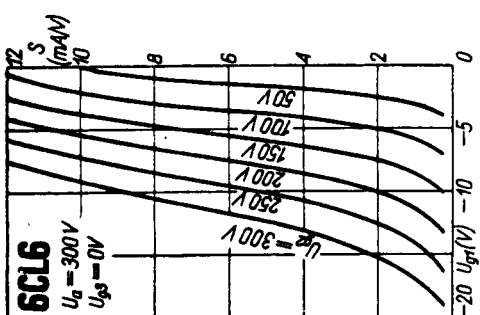


2

T.	C_{g1}	C_a	$C_{g1/a}$
6 AG 7	13	7,5	0,06
6 CL 6	11	5,5	0,12
6197	11,5	5,0	0,12

Fig 1





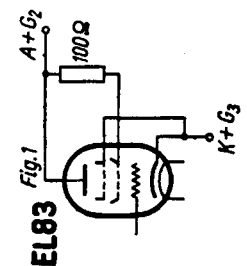
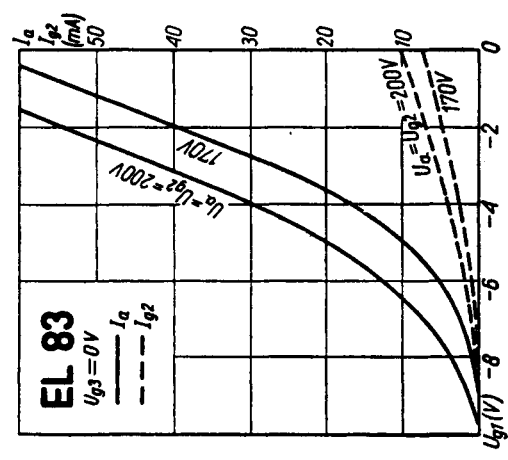
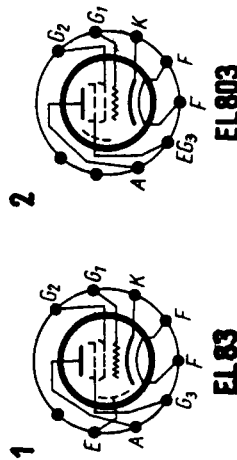
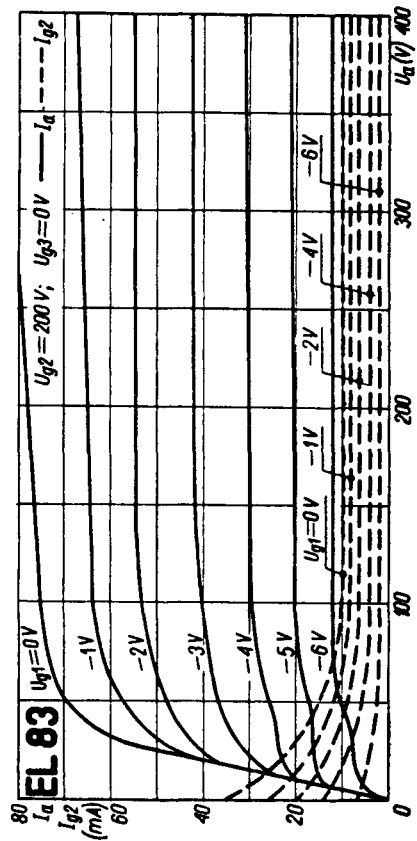
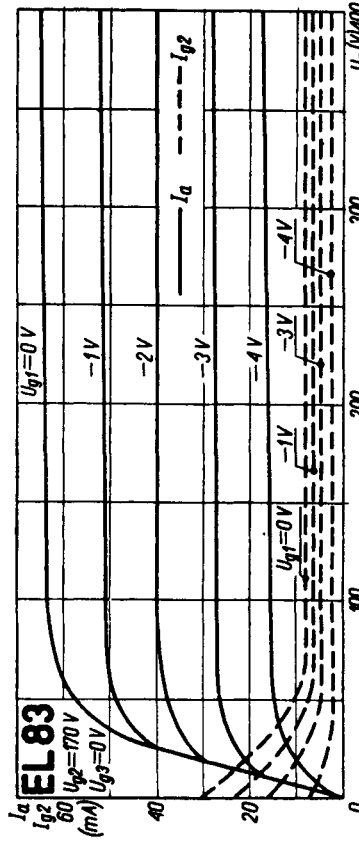
T.			U_f	I_f	Cl.	U_a	U_{g3}	U_{g2}	U_{g1}	I_a	I_{g3}	S	R_i	μ	R_k	R_o	P_o	$U_{g1 \approx}$	h	$U_{f/k}$	I_k	P_{g3}	P_a
			V	A		V	V	V	V	mA	mA	mA/V	k Ω	(g_m/g_1)	Ω	k Ω	W	V	ρ_{10}	V	mA	W	W
EL 83	eur	1	6,3	0,71	stat	170	0	170	-2,3	36	5	10,5	100	24									
EL 803	Tif	2	6,3	0,71	A (video)	200	0	200	-3,5	36	5	10,5	100	24									
EL 803 S ¹⁾	Tif	2	6,3	0,64		250	0	250	-5,5	36	6	10	130	24									
PL 83	eur	1/2	15	0,3	stat	170	0	170	-2,5	32	4,2				68	5	1,65	2,5	7,8				
					Fig. 1	200	0	200	-3	39	5				68	5	2,72	3,5	10				
						250	0	250	-5,5	33	4,2				150	5	3,45	4	10				
						300	—	—	-2,4	40	—	12,5	1,92	24									
						250	250	250	-3,4	45	—	13,5	1,84	25									
						300	300	300															

¹⁾ vide * 4, c = 10.000, f, g

Equivalents

EL 843	RFT = EL 83
N 153	Eng = PL 83
N 309	Marc = PL 83
6 CK 6	amer = EL 83
15 A 6	amer = PL 83

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
EL 83	10,8	6,6	0,1	0,15
EL 803	10,4	8,8	0,1	0,15
EL 803 S	10,4	8	0,1	0,15
N 309	10,8	6	0,1	0,15
PL 83	10,8	6,6	0,1	0,15



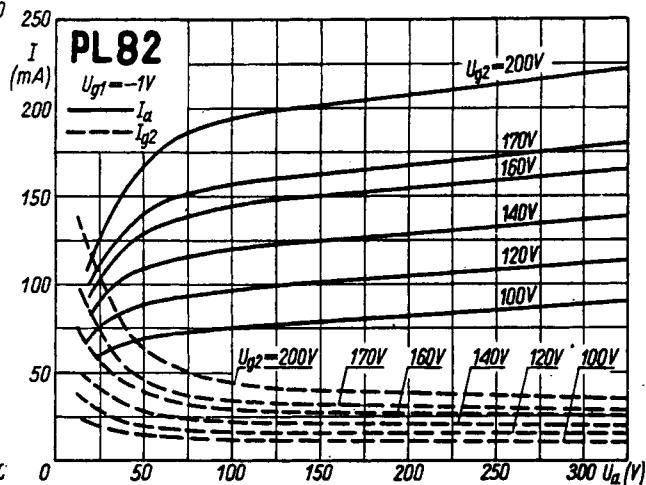
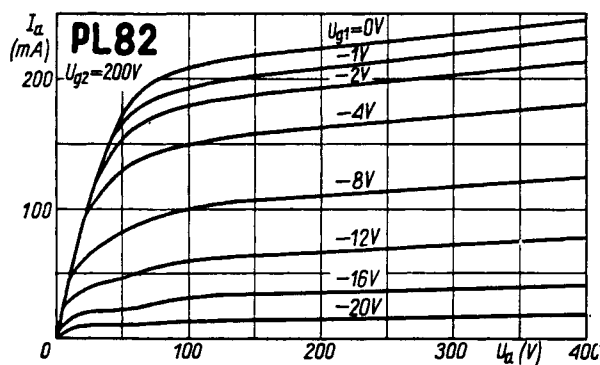
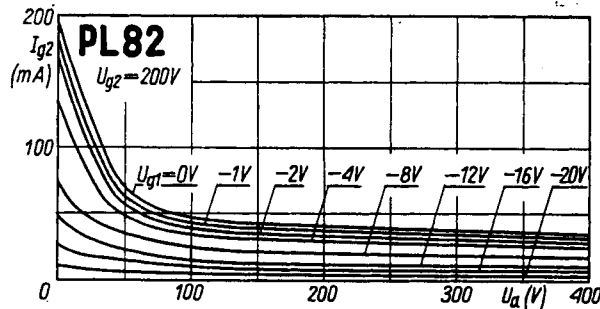
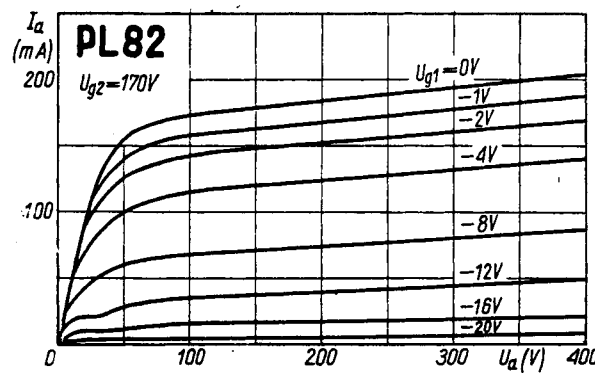
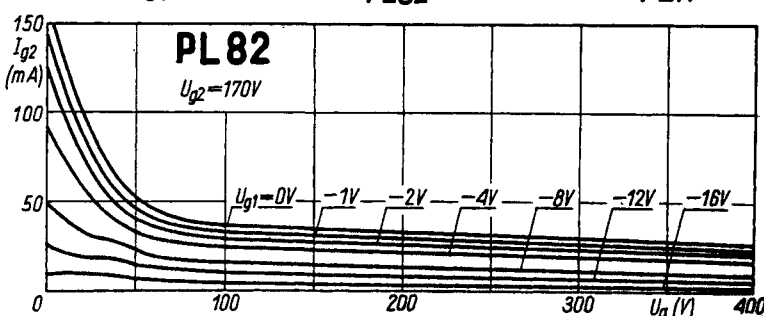
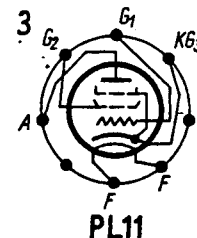
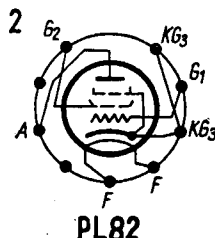
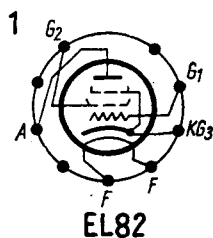
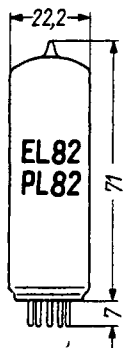
T.			$\frac{U_f}{V}$	$\frac{I_f}{A}$	Cl.	$\frac{U_a}{V}$	$\frac{U_{g2}}{V}$	$\frac{U_{g1}}{V}$	$\frac{I_a}{mA}$	$\frac{I_{g2}}{mA}$	$\frac{S}{mA/V}$	R_i k Ω	R_k Ω	$(R_o)R_a/a$ k Ω	P_o W	$U_{g1 \approx}$ V	h %
EL 82 PL 11 PL 82	eur Low eur	I 3 1/2	6,3 17,5 16,5	0,8 0,3 0,3	A AB	170 200 170 200 250	170 170 200 200 250	-10,4 -13,9	53 45 92 ÷ 100 90 ÷ 104	10 8,5 17,4 ÷ 34 17 ÷ 38	9 7,6	20 24	180 270 100 135	(3) (4) 4 4	4 4,2 9 12	6 7 9,3 13,5	10 10 5 5
maximum $P_a = 9$ W; $P_{g2} = 2,5$ W; $I_k = 75$ mA; $U_{f/k} = 100$ V $U_a = -500 \div +2500$ V impulse 2 msec maximum																	

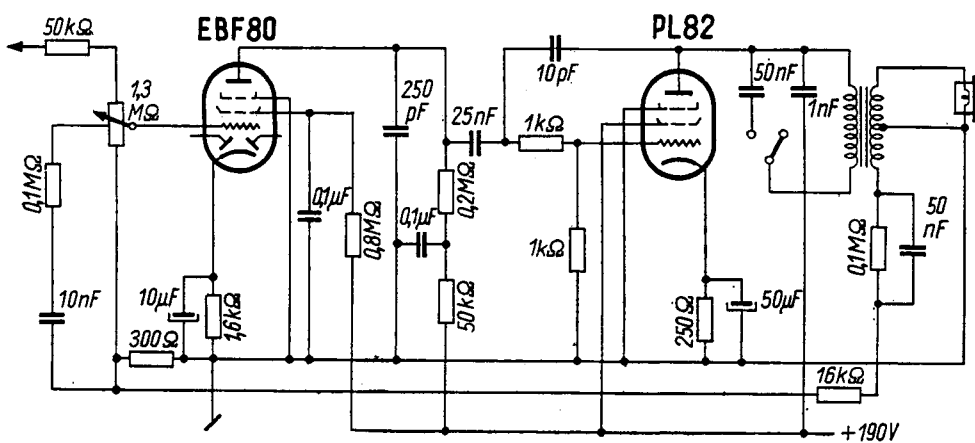
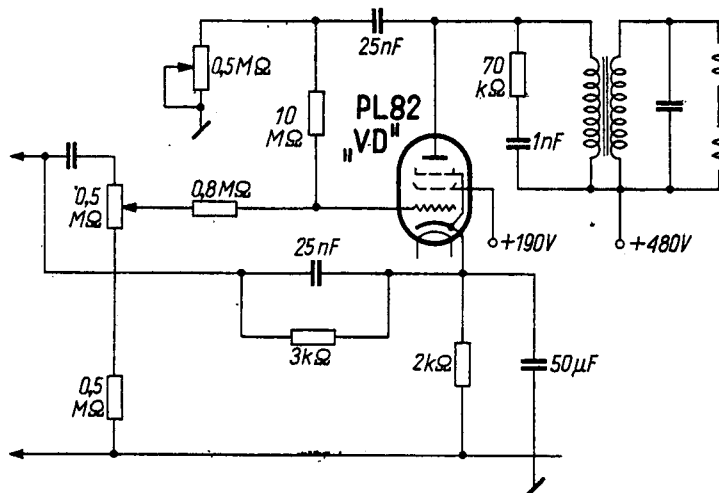
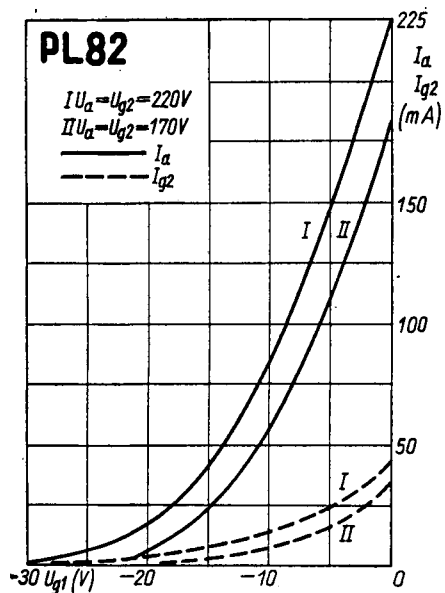
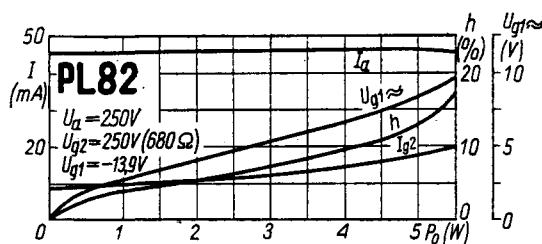
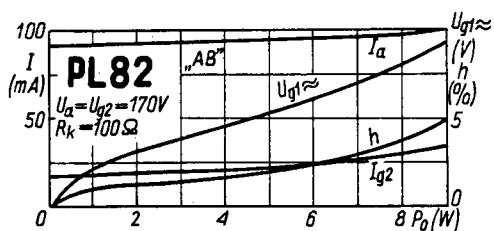
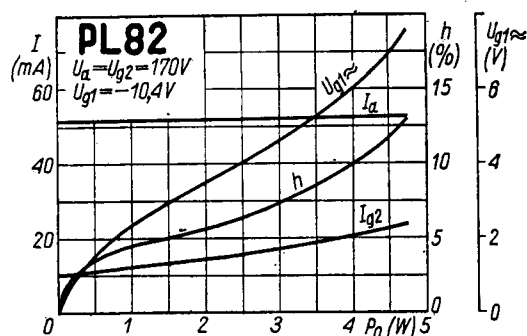
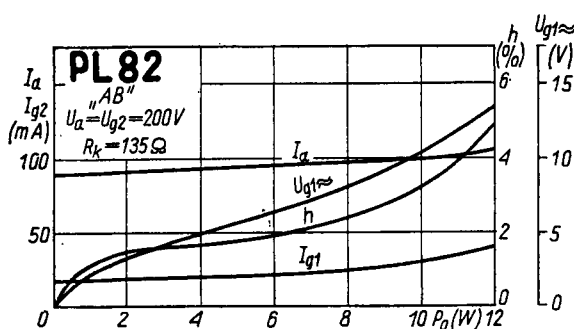
¹⁾ $U_{b/g2} = 200$ V, $R_{g2} = 680 \Omega$

Equivalents

N 154	Marc = PL 82
N 329	Eng = PL 82
6 DY 5	amer = EL 82
6 II 18 II	CCCP = EL 82
16 A 5	amer = PL 82
16 L 40	Tes = PL 82
30 P 16	Eds = PL 82
163 PEN	Cos = PL 82

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{g1/a}$ pF
EL 82	11	5,9	1	0,15
PL 82	11	6,2	1	
N 329	11	6,2	1	

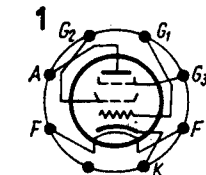
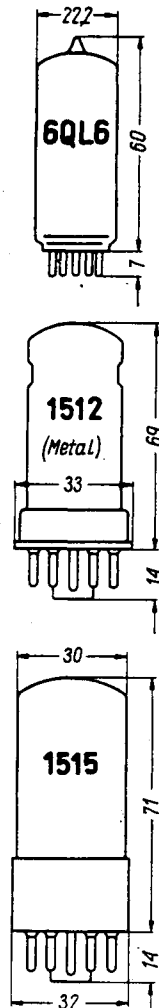
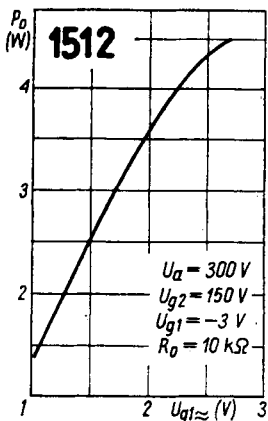
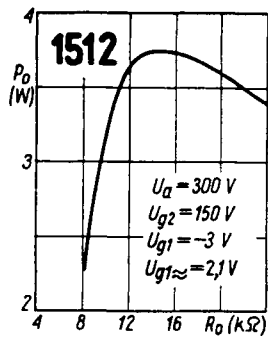




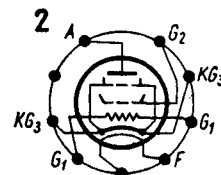
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	k Ω	W	W	W
A 2738	GEC	1	6,3	1,27	250	180	-14	50	5	10					
6 DB 5	amer	2	6,3	1,2	200	125	¹⁾	47	8,5	8	28	4	3,8		
6 FE 5	amer	3	6,3	1,2	130	130	-12,5	94	15	9,5	8	1	4,2		
6 GC 5	amer	4	6,3	1,2	200	125	¹⁾	47	8,5	8	28	4	3,8		
6 GK 6	amer	5	6,3	0,8	250	250	-7,3	48	5,5	11,3	38	5,2	4,7		
6 HB 6	amer	5	6,3	0,76	250	125	-33	40	4,2	24	28				
6 QL 6 ¹⁾	Fiv	6	6,3	0,9	105 180 200	105 180 200	-6 -11,5	32 52	5,75 10	8,3 9,5	18 18	3 3	1,3 4,25		
					maximum ($U_{f/k} = 100$ V)										2
1512 ¹⁾	CCCP	7	6,3	0,58	300 330	150 330	-3	30	5,75 11,7			10	2,4 ¹⁾		9,5
					maximum										1,3
1515 ¹⁾	CCCP	3	6,3	0,45	250 350	250 310	-12,5	45	7,5 4,35	4,35	52	5	3,6 ¹⁾		9
					maximum										2,2
7184	amer	3	6,3	0,45	250	250	-12,5	47	7	4,1	52	5	4,5		
7408	amer	8	6,3	0,45	250	250	-12,5	47	7	4,1	52	5	4,5		
7558	amer	9	6,3	0,8	250	250	-18	40	3	5,3					
7683	amer	10	6,3	0,15	300	250	-0,5	12,6	2,2	5	28				
7751	amer	8	6,3	1,2	100	100		100	7	14	5				
7754	amer	11	6,3	1,2	130	130	-11	100	13	11	7	1,1	4,5		
7757	amer	12	6,3	0,6	250	250	-12,5	45	3,5	4,1					

¹⁾ $R_k = 180\Omega$; ²⁾ vide * 4, a, b, d, e; ³⁾ $U_{g1} \approx 2,1$ V; ⁴⁾ $U_{g1} \approx 8,8$ V; ⁵⁾ vide 35 QL 6, gr 261; ⁶⁾ vide 6 AG 7, gr. 200

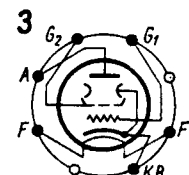
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 QL 6	12,5	6	1,5
1512	11	7	0,06
1515	9,5	9,55	0,9



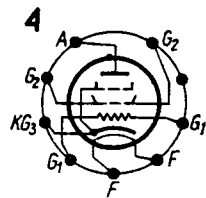
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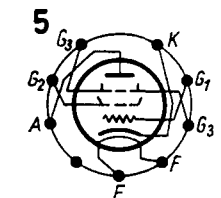
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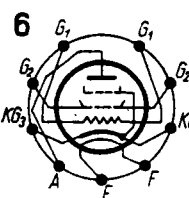
1515



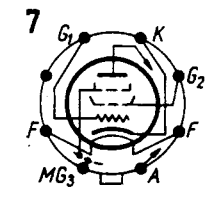
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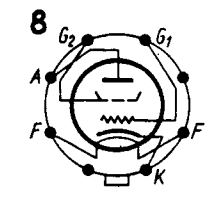
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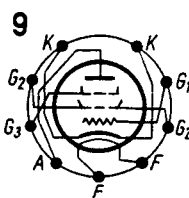
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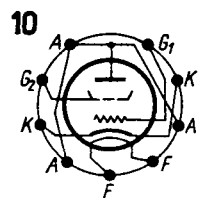
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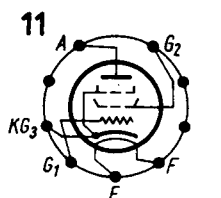
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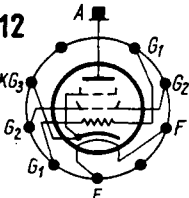
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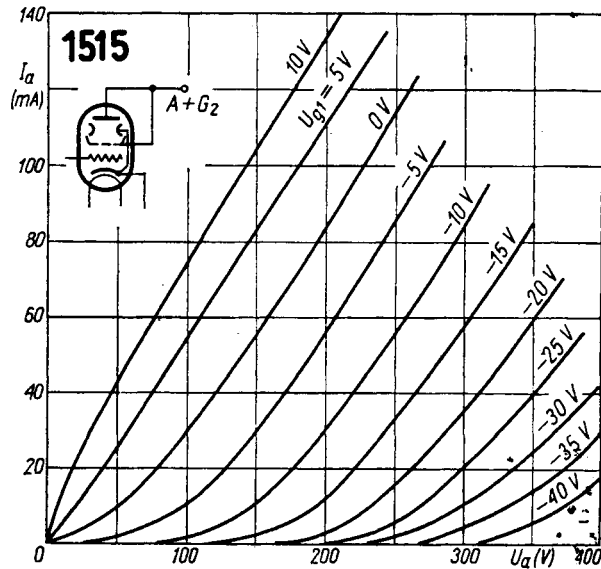
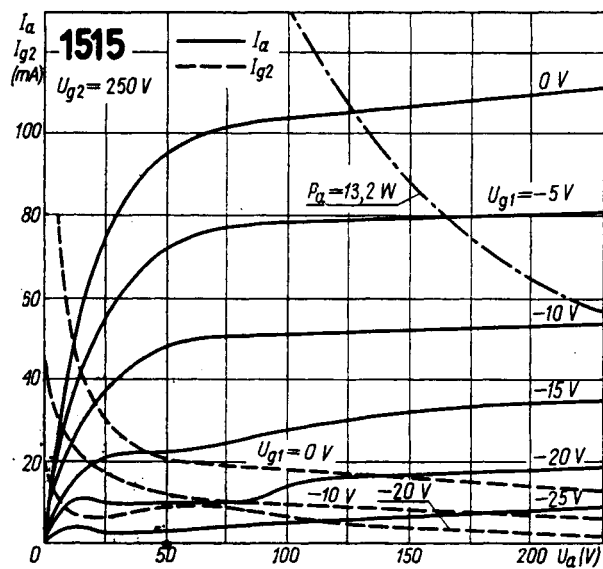
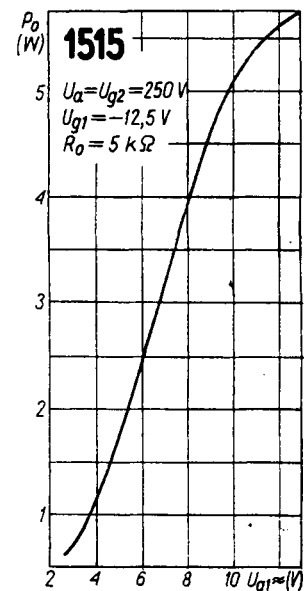
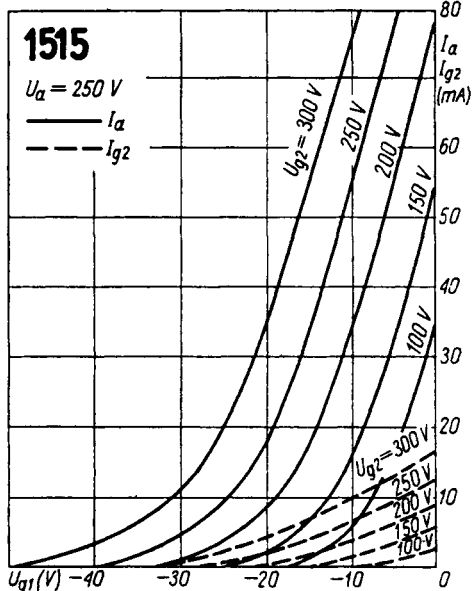
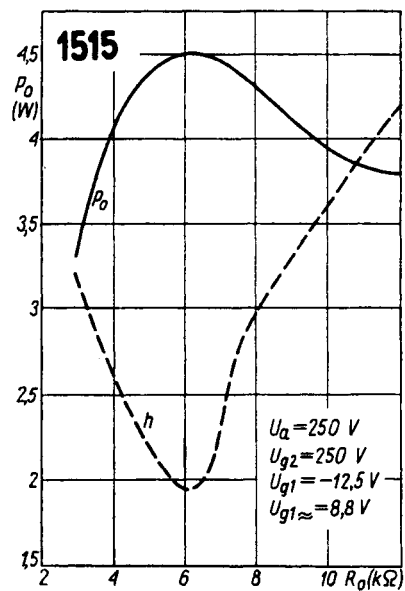
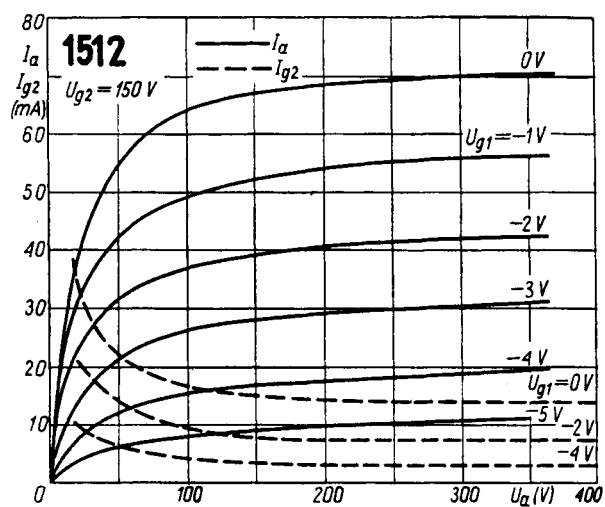
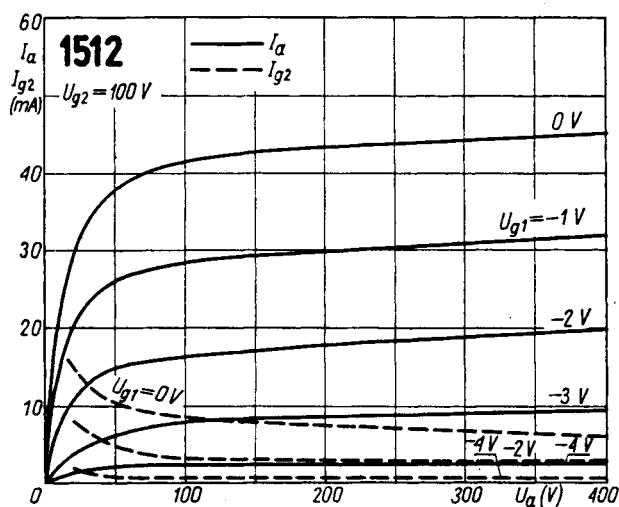
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7754



7757

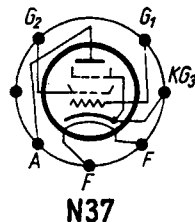
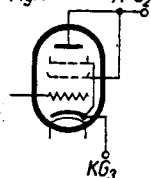


T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ V/V	R_k Ω	$R_o(R_{a/a})$ k Ω	P_o W	$U_{g1 \sim}$ V	h %
A 2134 N 37 N 108	Eng	I	6,3	0,635	A	165	165	-9	58	8	9,5	23,2	220					
						100	100	-4,6	39	6,5				100	2,5	1,45	5	8,6
						150	150	-7,8	56	9,5				120	3	3,5	7	11
						165	165	-9,3	53	9,0				150	3	4,1	8,5	10
						165	165	-10	40	7,2				220	4	2,84	6,7	10
						165	165	-11,4	29	5,4				330	6	2,3	4,7	10
						100	100	-5	70÷73	12÷15				120	(3)	2,25	5,5	3,3
						165	165	-11,9	107÷110	18÷36				150	(3)	9	10	4,6
						200	165	-10	87÷100	14÷25				200	(4,5)	11,5	12,5	4
						250	165	-11,2	66÷80	10÷24				300	(7,5)	13,3	15	4,5
						165	—	—9	65	—	12	0,835	10					
						165	—	—10,5	65÷74	—				330	(3)	2,6	12	1,4
						300	300											
						165	165											

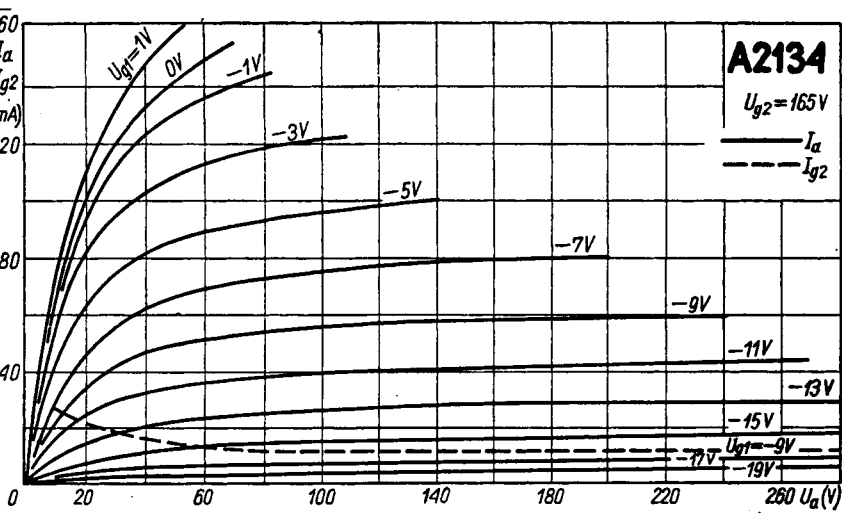
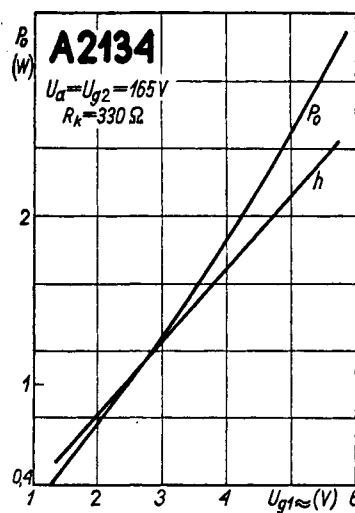
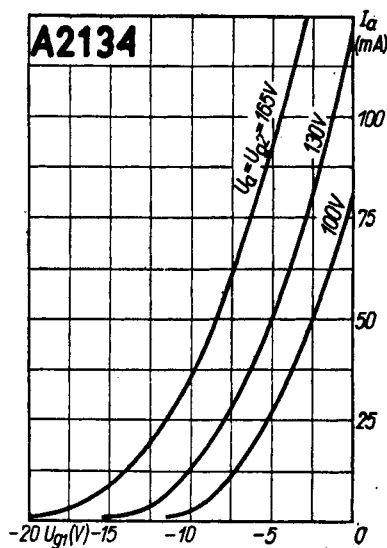
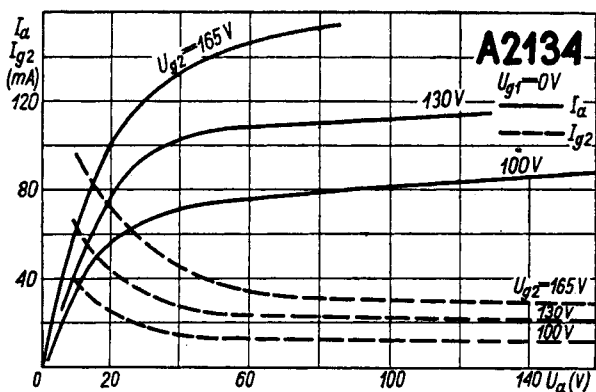
maximum A 2134
 maximum N 37, N 108 } $P_a = 9W$; $P_{g2} = 3W$; $U_{f/k} = 150V$

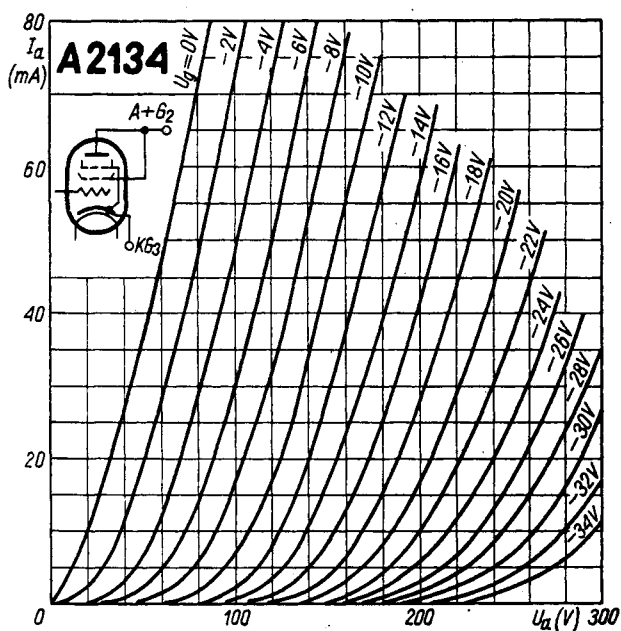
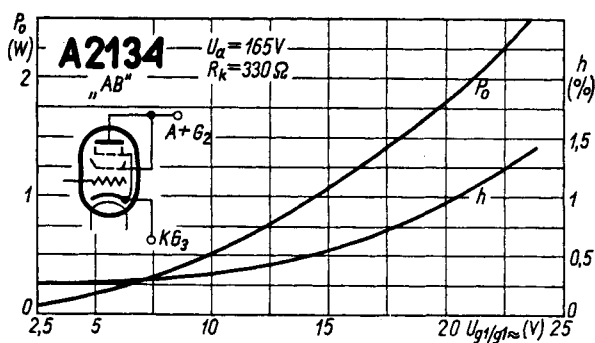
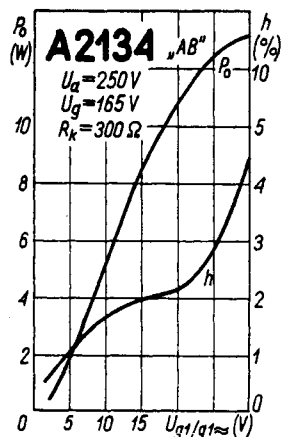
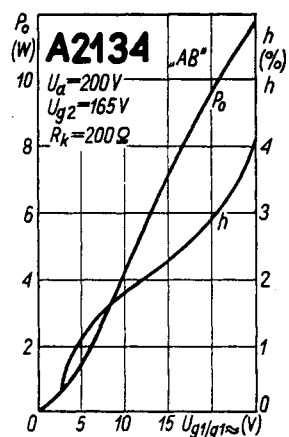
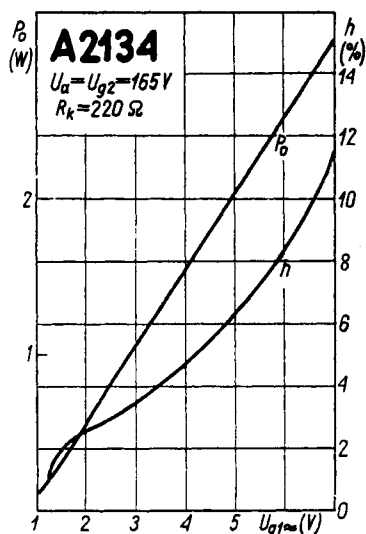
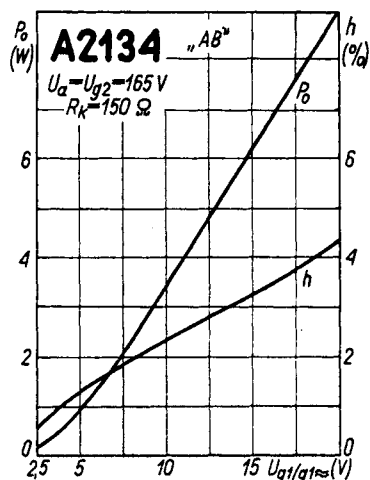
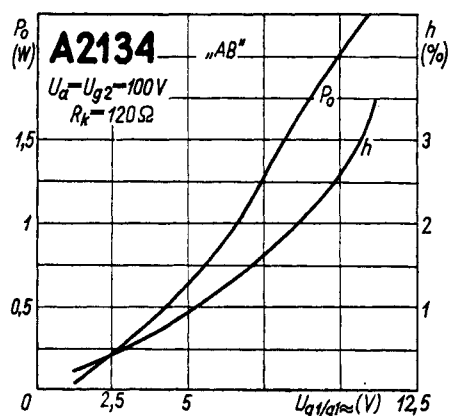
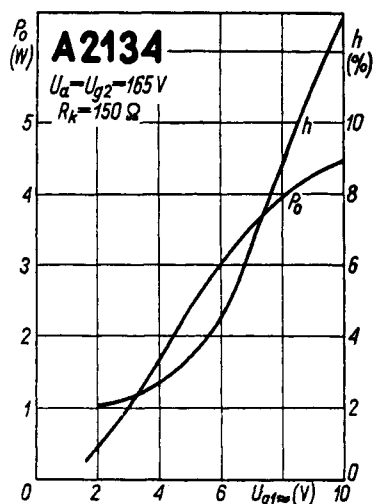
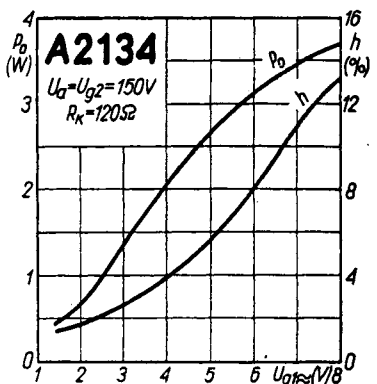
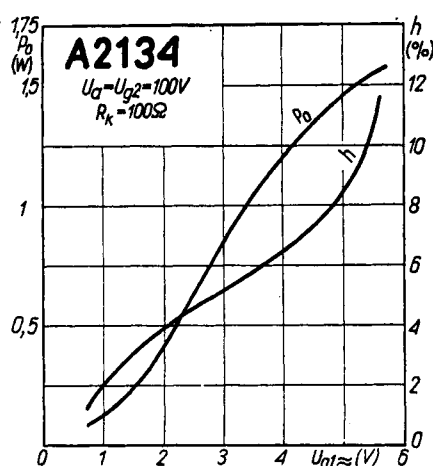
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	
A 2134 N 37 N 108	10	10	0,3	vide * 5

Fig. 1



N37



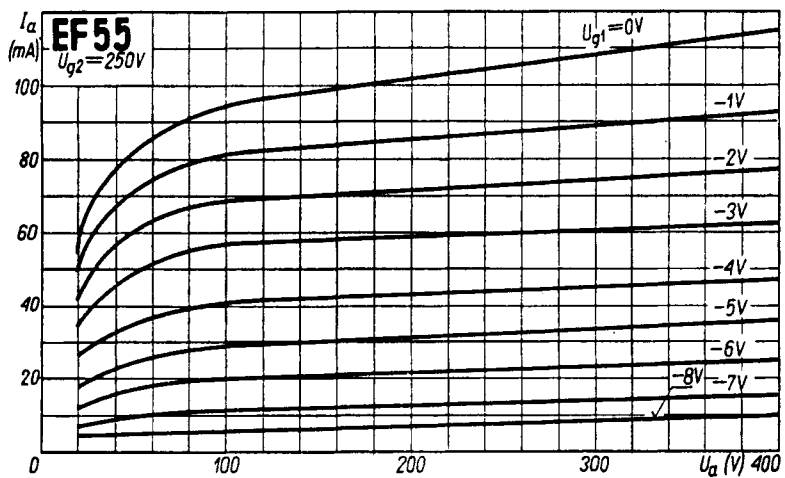
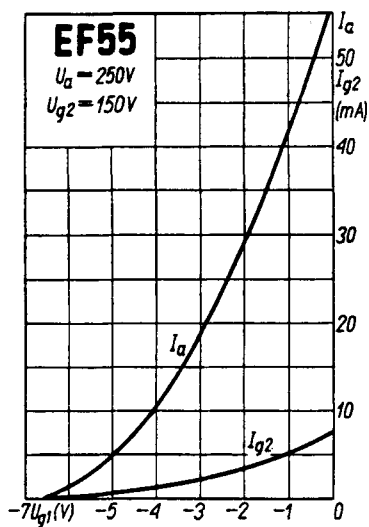
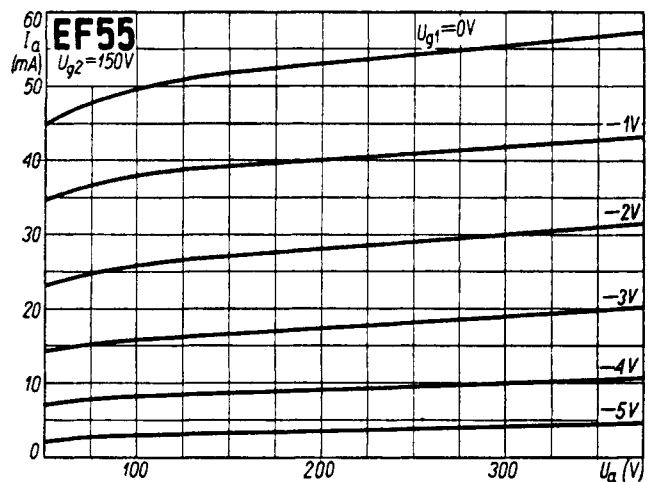
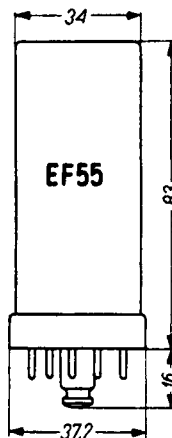
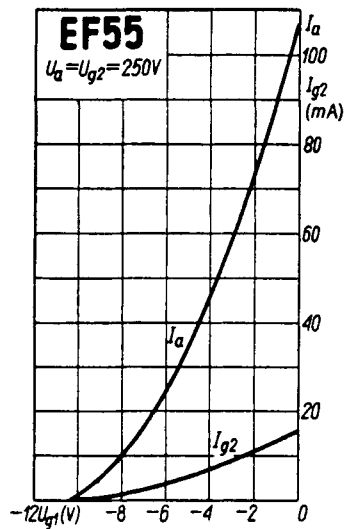
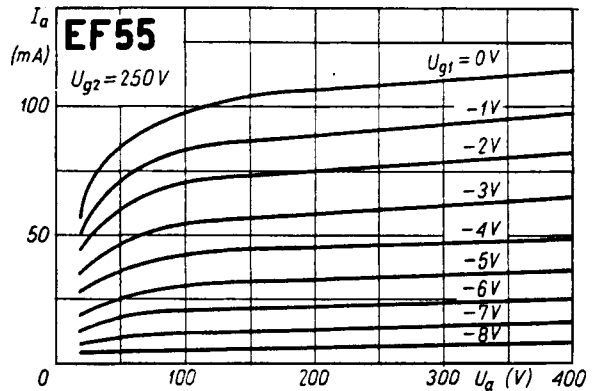
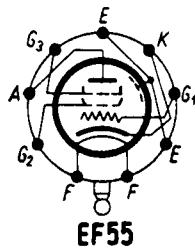


T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	U_f/k	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA/V	k Ω	(g_2/g_1)	Ω	V	W	W
EF 55	eur	6,3	I	250 250 300	150 250 250	0 0 0	-4 -4,5 -4,5	10 40 10	1 5,5 1	7 12 7	100 55 100	27 28 27	360 100 360	150	2	10
maximum $R_{g1} = 0,7 \text{ M}\Omega$																

Equivalents

DDR 2 Cos

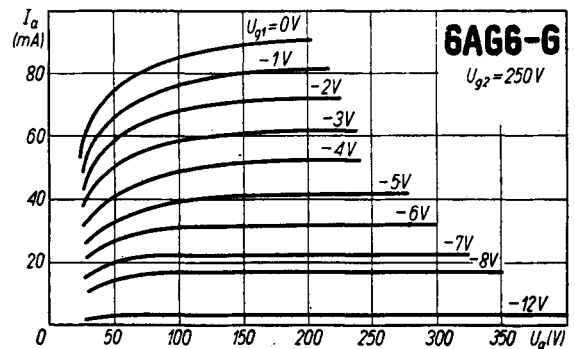
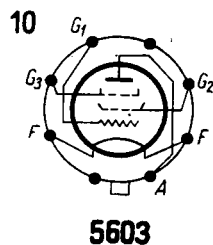
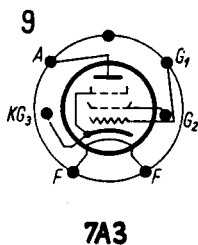
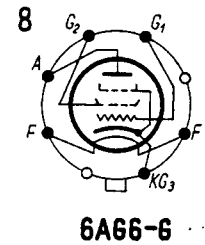
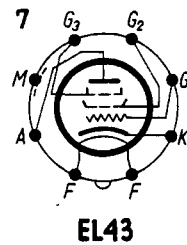
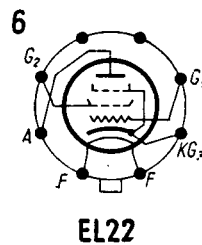
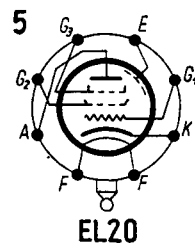
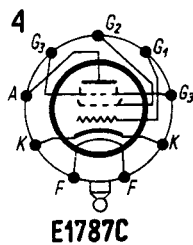
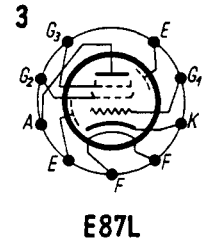
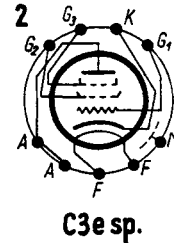
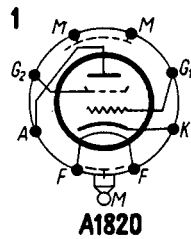
C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
15	12	0,15



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	W	W
A 1820	Marc	1	6,3	0,95	250	250		40	5	10,5						10
C 3 e sp. ¹⁾	Siem	2	6,3	0,88	300	200	-20	70	20	8						
E 87 L ¹⁾	Siem	3	6,3	0,75	250 300	250 260	-6	35	5	10	48	150	7	3,9	3	10
E 1787 C	Marc	4	6,3	1	250	180	-9	50		8						
EL 20	Phl	5	6,3	0,9	300	300	-34	12,5	1,9	3,7	25			2,5		11
EL 22	Mul	6	6,3	0,7	250	250	-7	44	5,2	9,5	50			2,5		11
EL 43	Phl	7	6,3	0,71	250	250	-2,9	36	4,1	10	100			2		9
EL 89	Siem	3	6,3	0,75	250	250	-6	38	5,3	10,5	45					11
6 AG 6-G	Bri	8	6,3	1,2	150	150	-2	30	5,5	9	40	60	8,9	1,3		
7 A 3	Bri	9	4	2	200	200	-4	31	6	10	50	100	8,7	2,5		
7 D 6	Bri	9	40	0,2	250	250	-6	32	6	10	60	150	8,5	3,75		
7 D 8	Bri	9	13	0,65	250	250				maximum				2,5		10
7 AD 7	amer	3	6,3	0,6	300 300 300	150 125 150		28 25	7 6	9,5	300	68 68			1,2	10
349 A ¹⁾	WE	8	6,3	1	250 275	250 275	-14	30	5	4,2	80			3,5	3,1	9,4
5603	WE	10	6,3	0,5	135 165	135 165		50	4	5,4	17	230	2,5	2,2	2,5	9
										maximum						

¹⁾ vide * 4

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
7 AD 7	11,5	7,5	0,03
5603	9,5	7,5	0,3

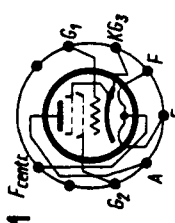
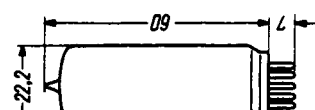
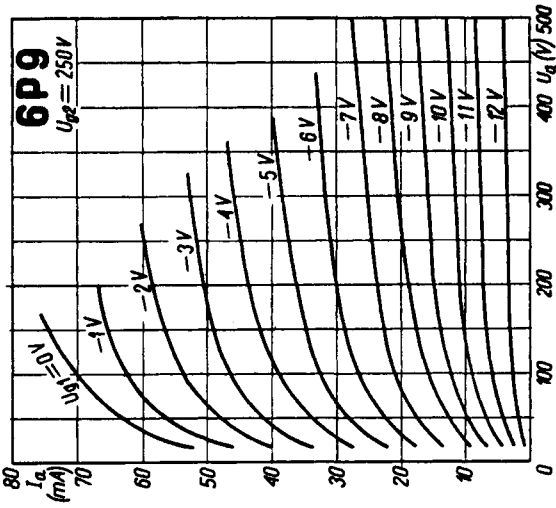
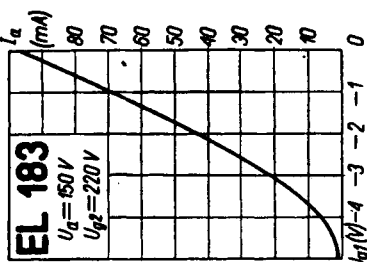
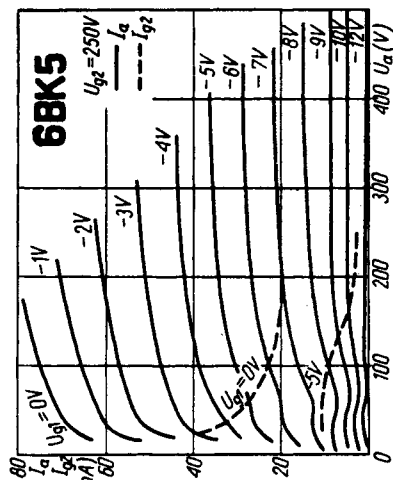
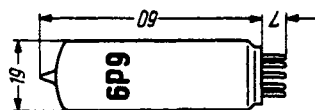
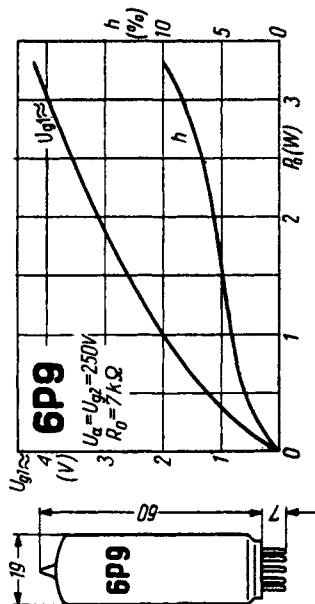
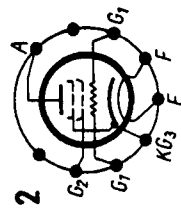
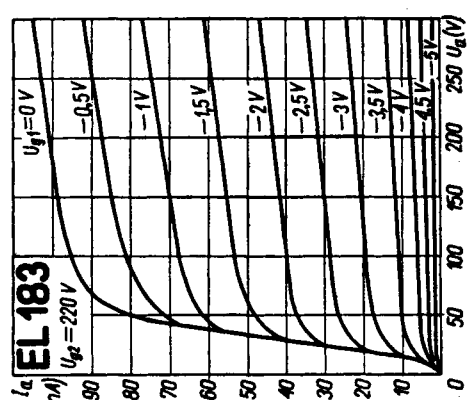
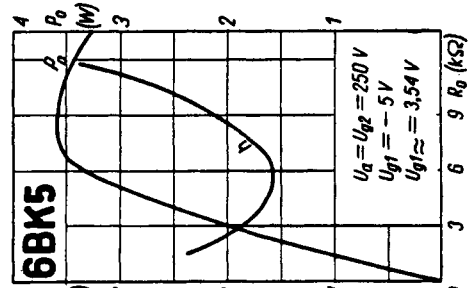


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	U_{gr}	h	$U_{f/k}$	P_{g2}	P_a
EL 183	RT	1	6,3/12,6	0,6/0,3	150 250	220 250	-2,1	40	8	25 maximum	20						200	2	6
6BK5	amer	2	6,3	1,2															
12BK5	amer	2	12,6	0,6	250	250	-5	35÷37	3,5÷19	8,5 maximum	100	6,5	3,5			7	100	2,5	9
25BK5	amer	2	25	0,3	250	250													
50BK5	amer	2	50	0,15															
6P9	Fot	3	6,3	0,34	250	250	-6	30	3	7	60 maximum	180	7	3,5	4,2	10	50	2	9
9P9	Fot	3	9,5	0,3	250	250													

Equivalents

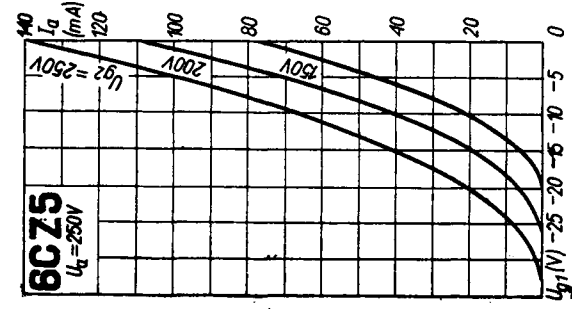
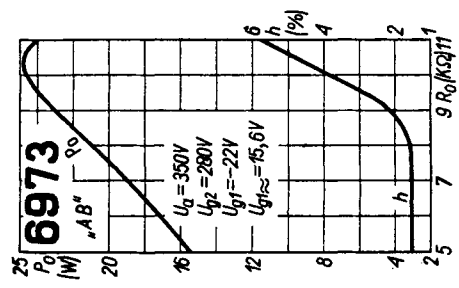
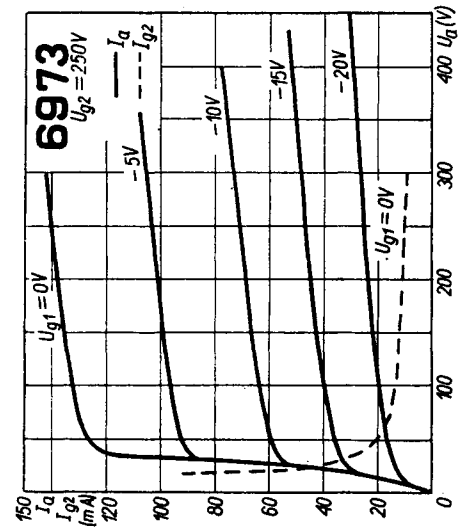
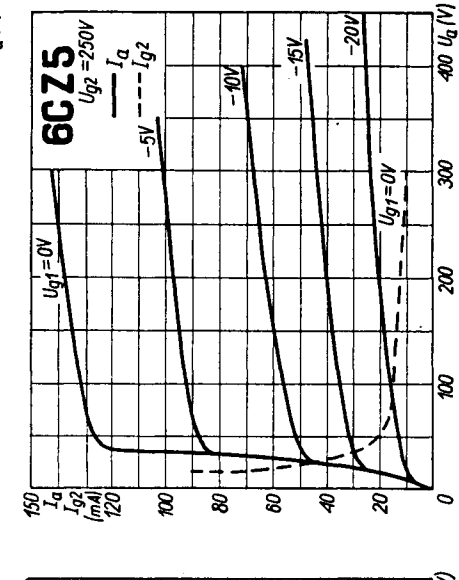
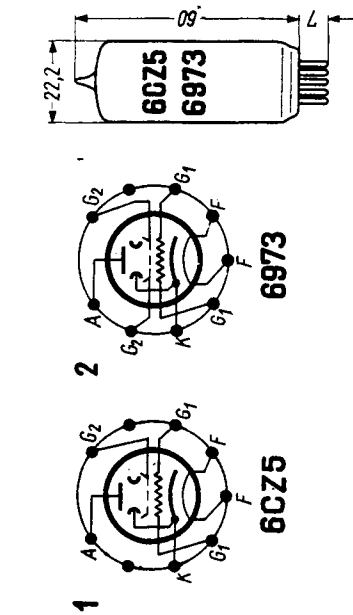
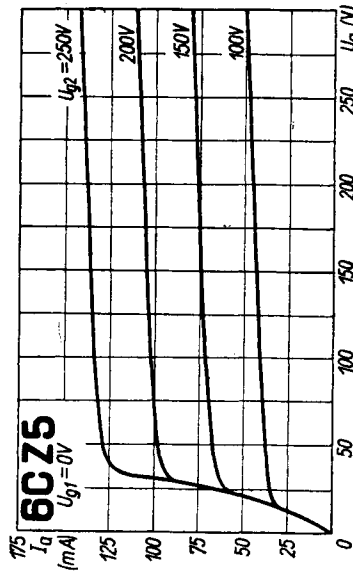
6BM5	Fot = 6P9
9BM5	Fot = 9P9

T.	C_{g1}	C_a	$C_{g1/a}$
EL 183	13	5,4	0,08
6BK5	13	5	0,6
6P9	8	5,5	0,5

EL 183
6BK56P9
6BK5

T.			U_f V	I_f A	Cl.	U_a V	U_{gs} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	R_k Ω	$R_{o(R_{al})}$ kΩ	P_o W	$U_{g1 \approx}$ V	h %	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
5 CZ 5	amer	I	4,7	0,6	A	250	250	-14	46 ÷ 48	4,6 ÷ 8	4,8	73		(5)	5,4	13	10	200		2	12
6 CZ 5	amer	I	6,3	0,45	VD	350 350 315 2200	280 285 285	-23,5	46 ÷ 103	3 ÷ 13				7,5	21,5	23,5	1	200	40	2	10
peak (impulse ≤ 2 msec.)																					
maximum																					
6973	RCA	2	6,3	0,45	AB	250 250 300 310 350 400	250 250 300 310 280 290	-15 -15 -22 -25	46 92 ÷ 105 80 ÷ 86 77 ÷ 92 58 ÷ 106 50 ÷ 107	3,5 7 ÷ 16 6 ÷ 14 5 ÷ 14 3,5 ÷ 14 2,5 ÷ 13,7	4,8	73		8 5,5 6 7,5 8	12,5 15 17 20 24	15 24 27,5 22 25	2 2 4 1,5 2	200	140	2	12
maximum																					

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
6 CZ 5 6973	8	8,5	0,7



T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	μ (g_2/g_1)	R_t k Ω	$R_{a/a}$ k Ω	P_o W	$U_{g1 \sim}$ V	P_{g2} W	P_a W
EL 36 ¹⁾	eur	1	6,3	1,25	stat	100	100	-8,2	100	7	14	5,6	5				
PL 36	eur	1	25	0,3	B	170	170	-21	100	8	11	5,6	5,5				
XL 36	eur	1	13	0,6		300	150	-29	36÷200	1÷38			3,5	44,5	20		
						300	250									5	10
						-1500÷+7000		-1000									

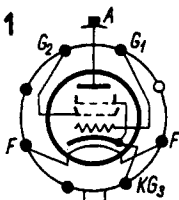
maximum $U_f/k = 100$ V; $I_k = 200$ mA
impulse 18 μ sec. maximum

¹⁾ vide E 236 L gr. 210 a

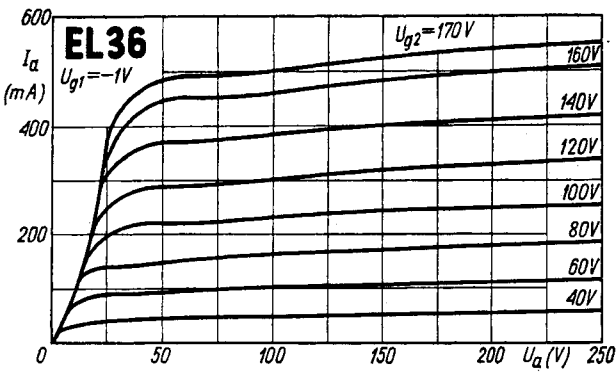
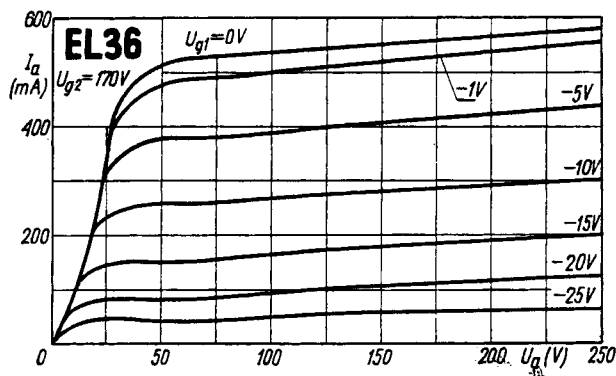
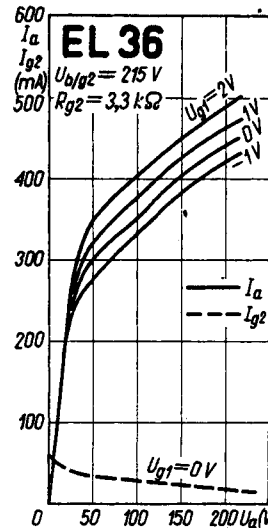
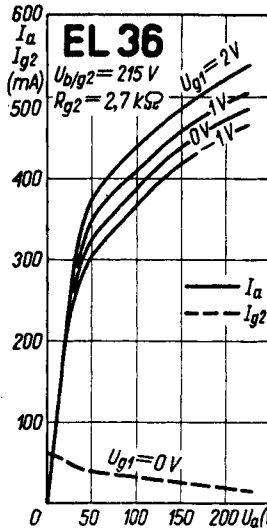
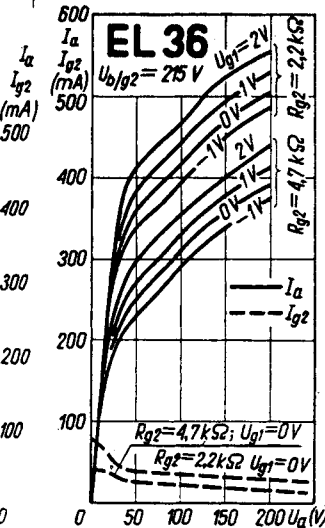
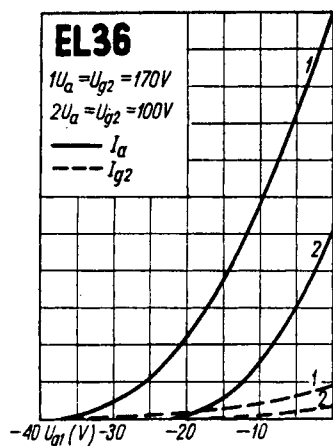
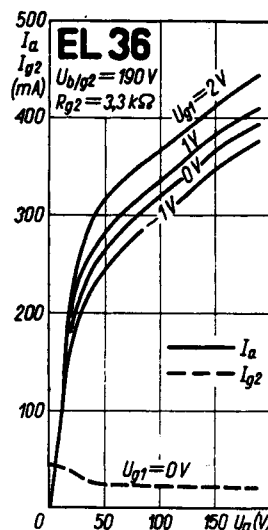
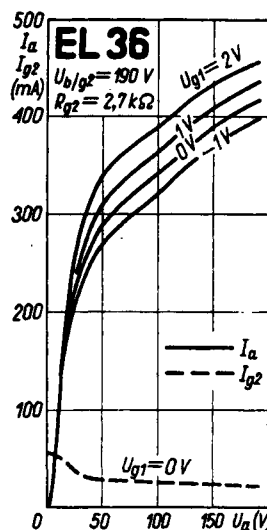
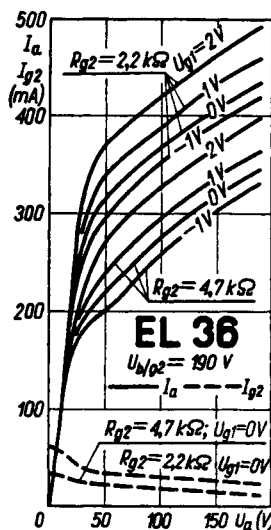
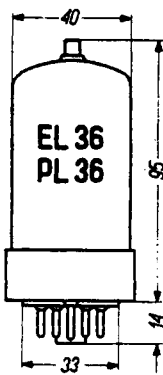
Equivalents

6 CM 5	amer = EL 36
13 CM 5	amer = XL 36
25 E 5	amer = PL 36
30 P 4	Ede = PL 36

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
17,5	8	1,1



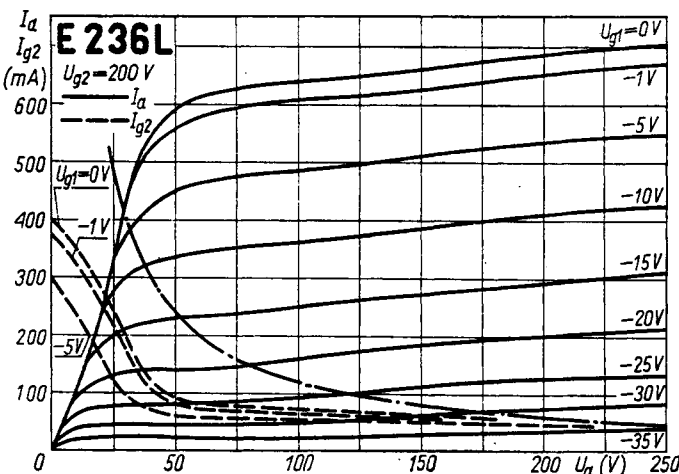
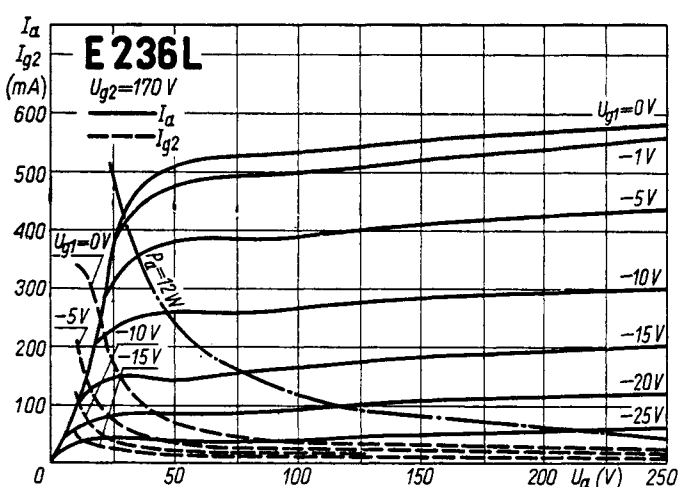
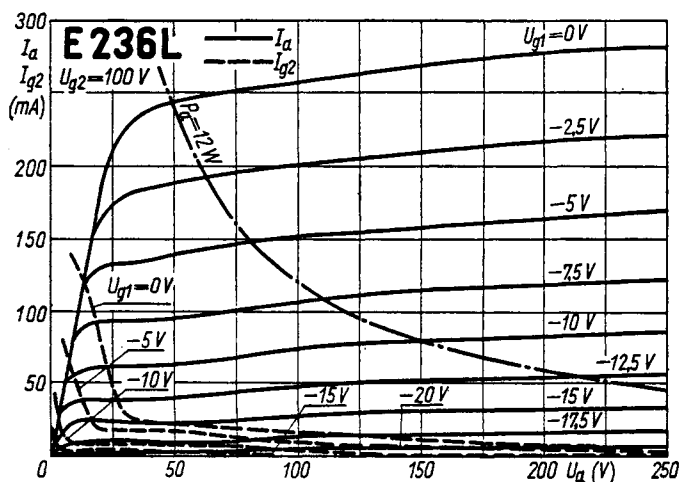
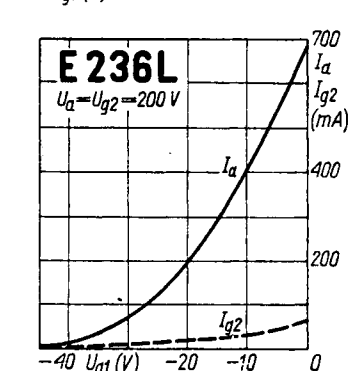
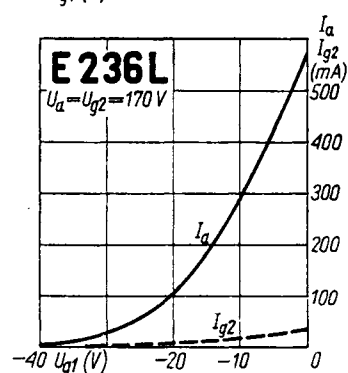
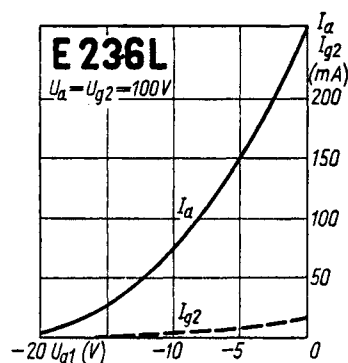
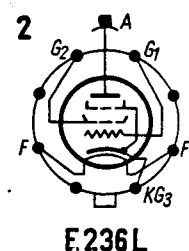
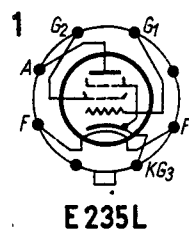
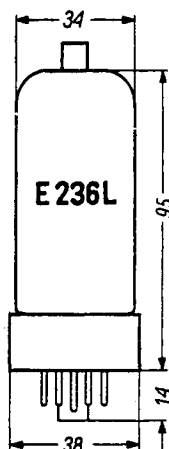
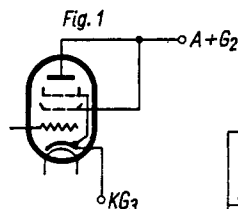
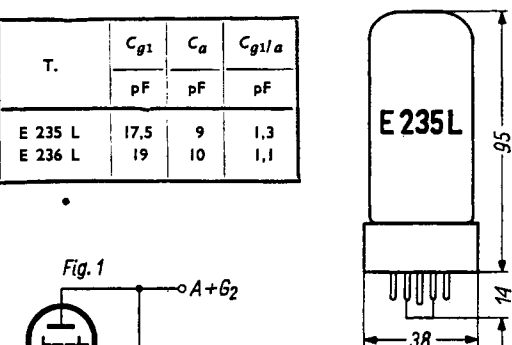
EL36

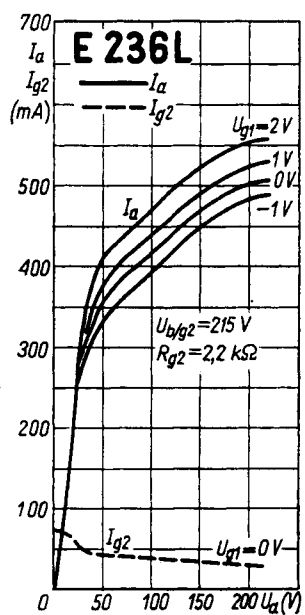
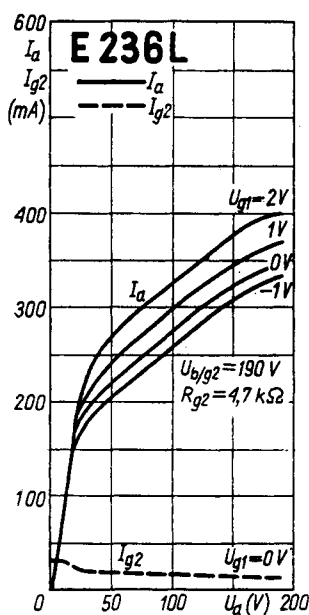
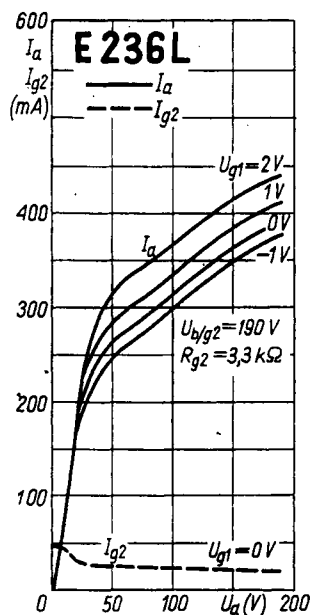
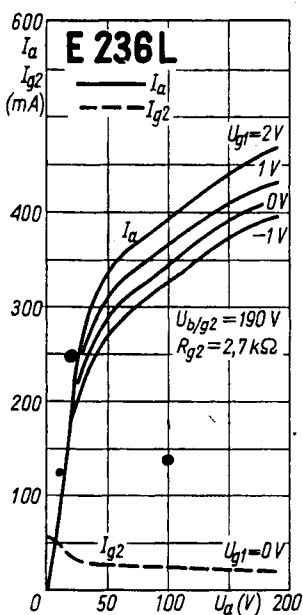
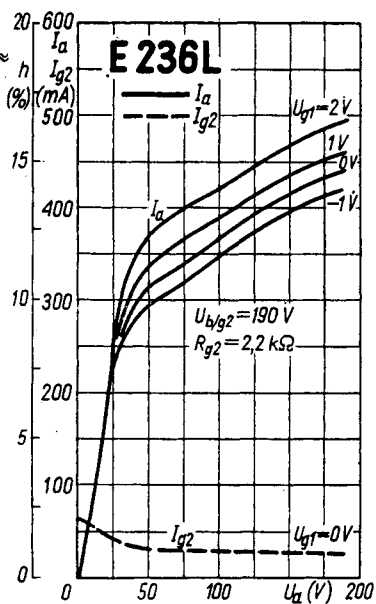
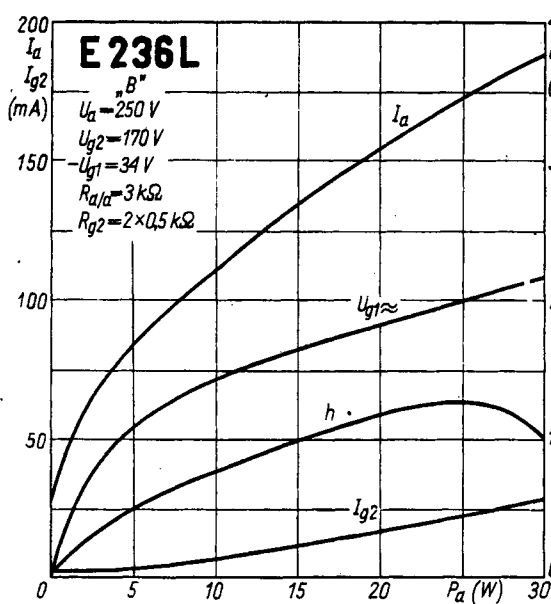
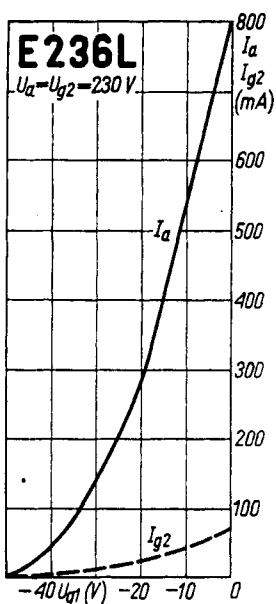
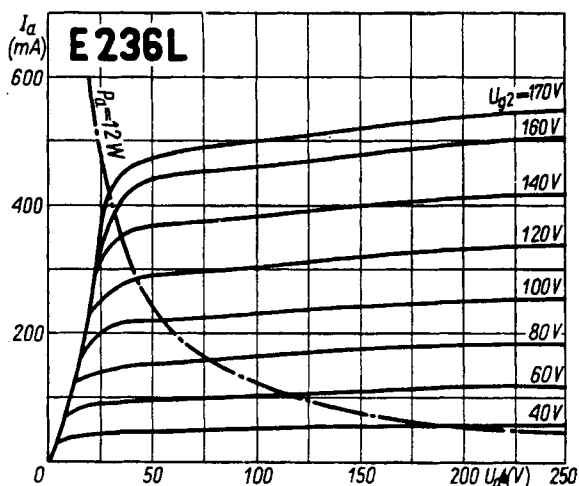
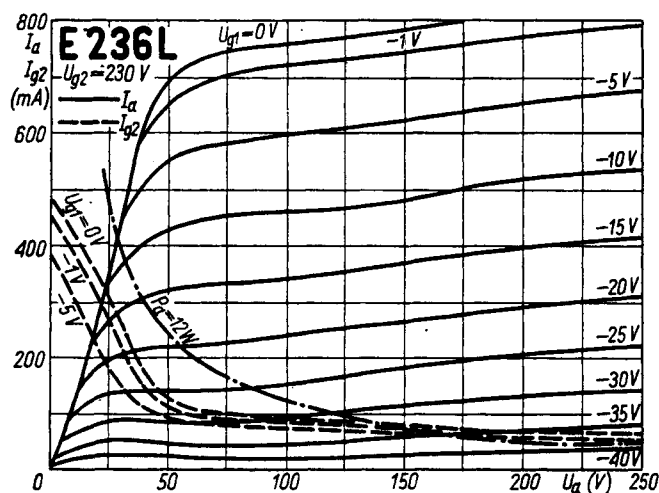


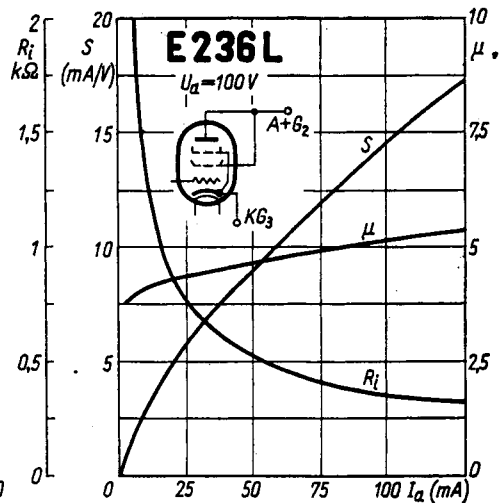
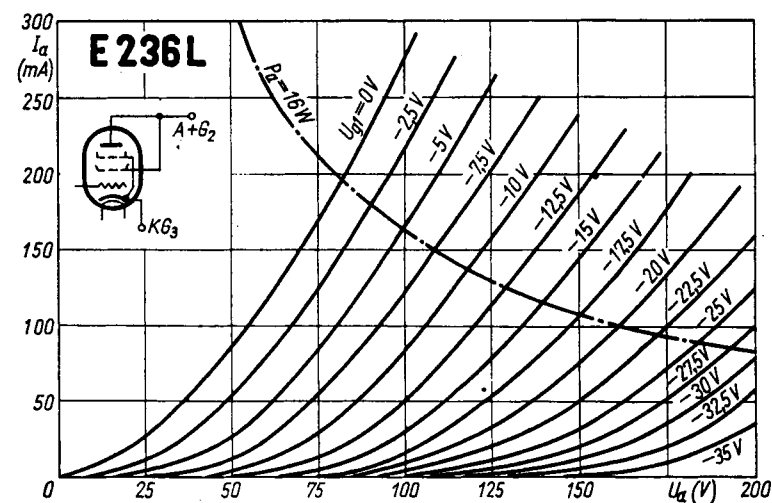
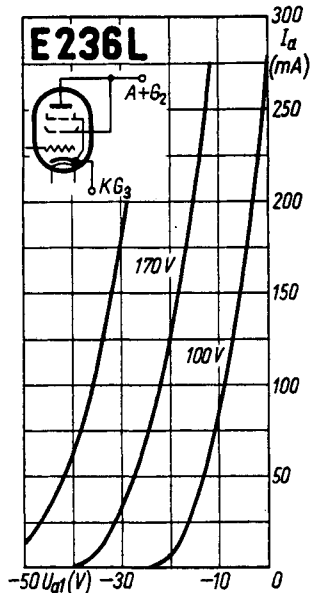
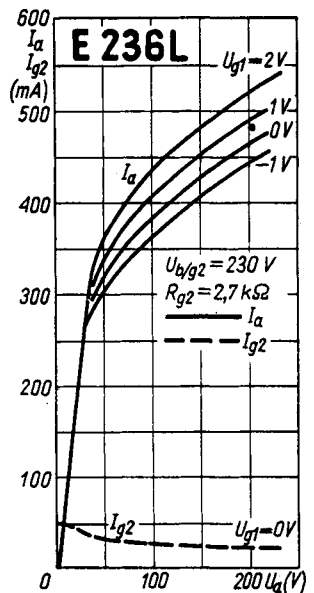
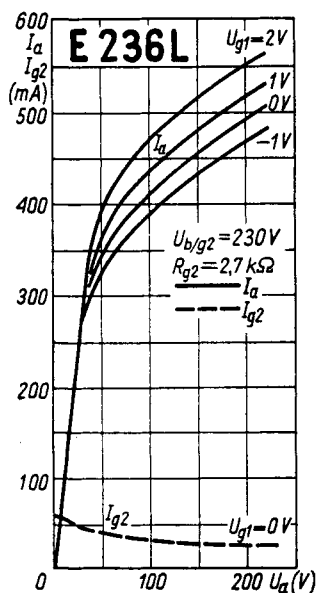
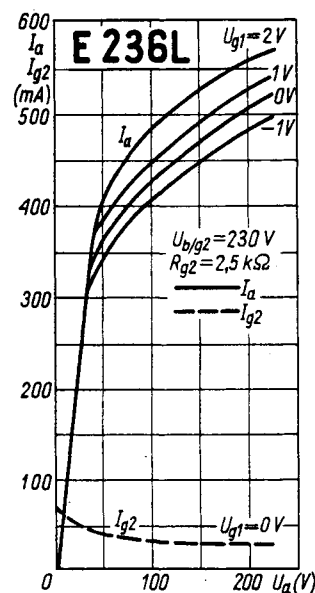
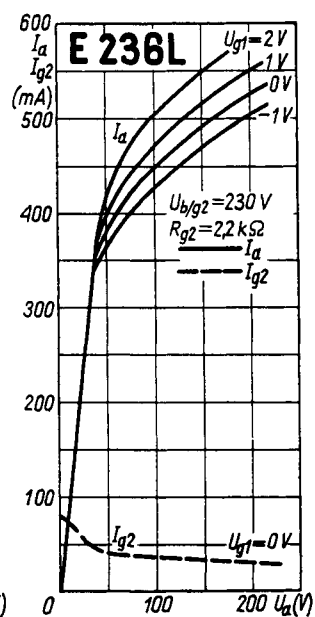
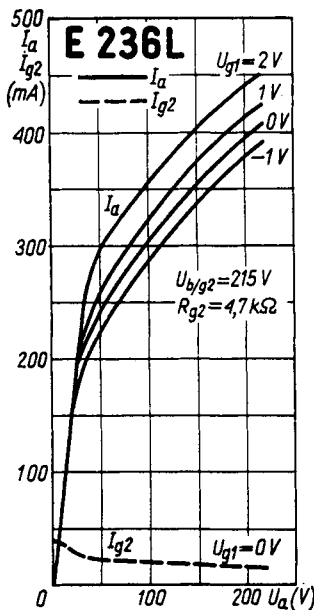
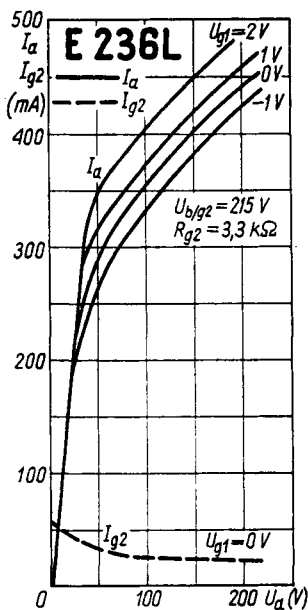
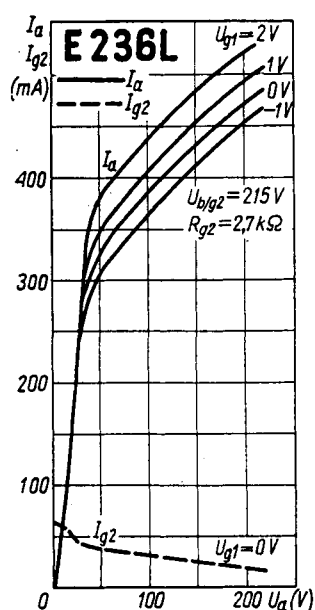
T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	μ V/V	R_i k Ω	R_k Ω	$R_{a/a}$ k Ω	P_o W	$U_{g1 \sim}$ V	h %	I_k A	P_a W														
E 235 L	Siem	1	6,3	1,2	stat B Fig. 1	100	100	—34	100	5,3	14	5,6	5	75	3	30	22	6																
E 236 L	Siem	2	6,3	1,2		250	170		24÷188	2÷28	14	5,2	0,35	85																				
						100	—		100	—																								
						400	300		maximum $U_f/k = 200$ V; $P_{g2} = 5,5$ W																									
					—1500÷7000	—1000	impulse 18 μ sec maximum																											

¹⁾ vide EL 36 gr. 209; vide 6 П 31 C, gr. 217; ²⁾ vide * 4, a,b,c = 10.000, d,e,f,g ($U_f = 6,3$ V $\pm$ 5%)

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
E 235 L	17,5	9	1,3
E 236 L	19	10	1,1



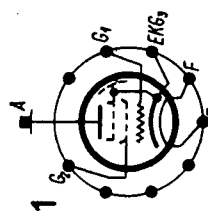




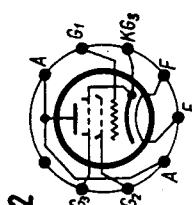
T.			U_f	I_f	U_a	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g3}	P_a
EL 804	TIF	1	6,3	0,7	$\begin{cases} 140 \\ 250 \end{cases}$	V	70	5	10	14	9								
6761 ¹⁾	SER	2	6,3	1	$\begin{cases} 130 \\ 250 \end{cases}$	V	70	3,5	12	maximum	maximum	100	2	3	10	50	100	1,75	10

¹⁾ vide* 4, a,b,c = 10.000, e,f,g

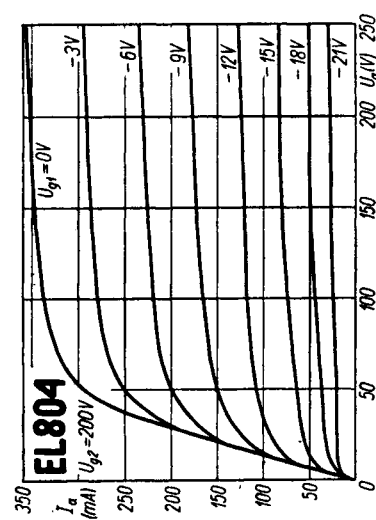
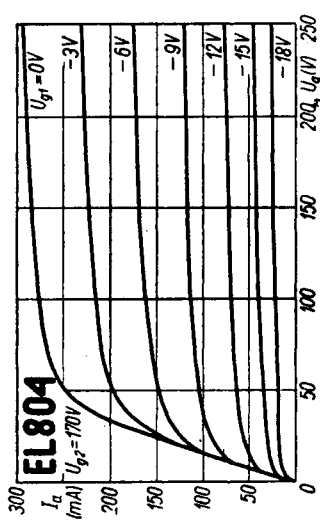
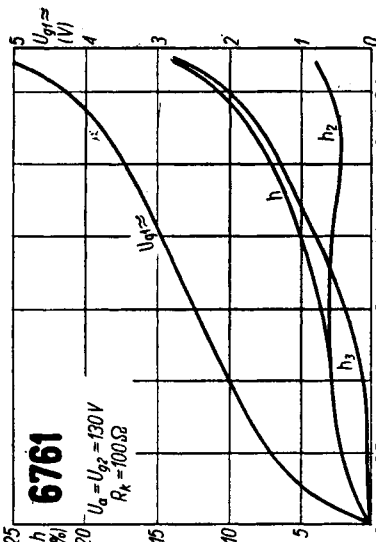
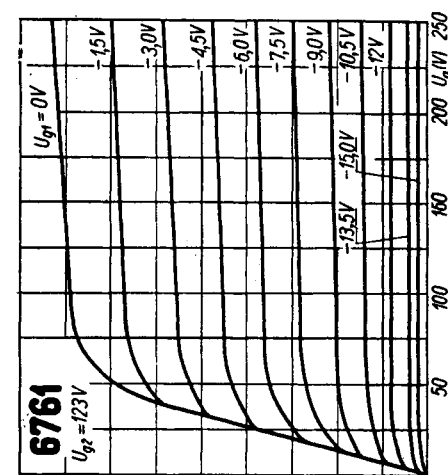
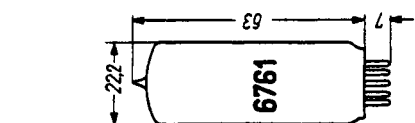
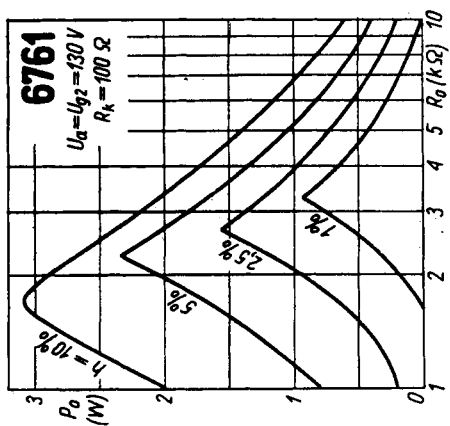
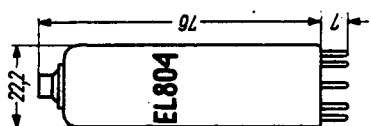
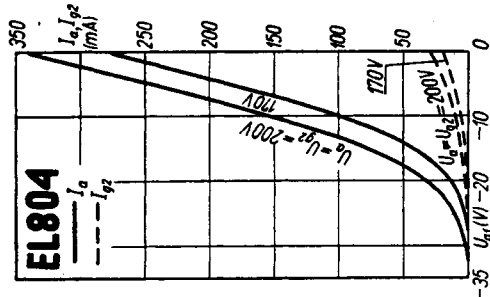
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
EL 804	pF	pF	pF	pF
6761	13	8	0,15	0,2
	11	5	0,4	



EL 804

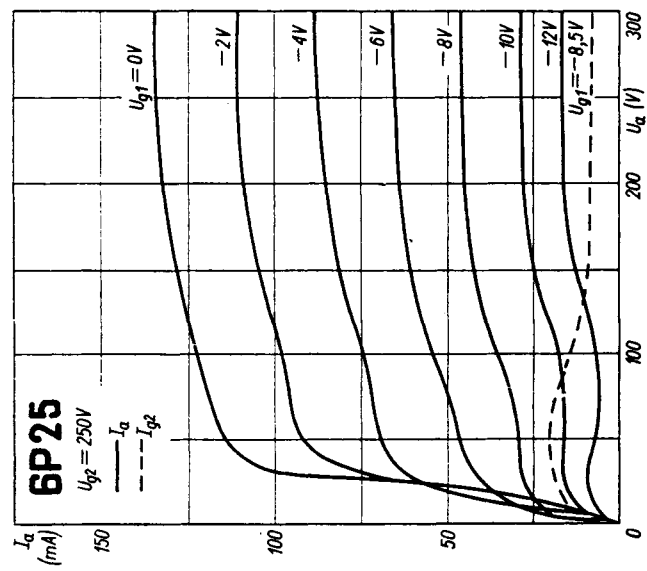
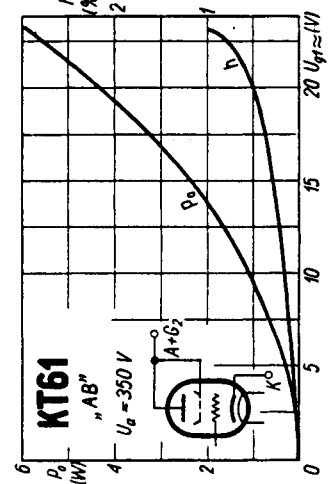
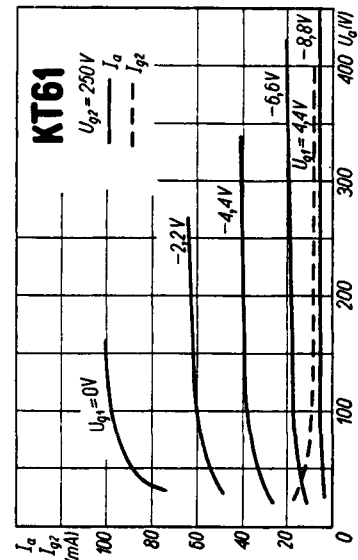
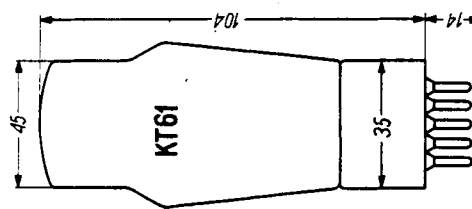
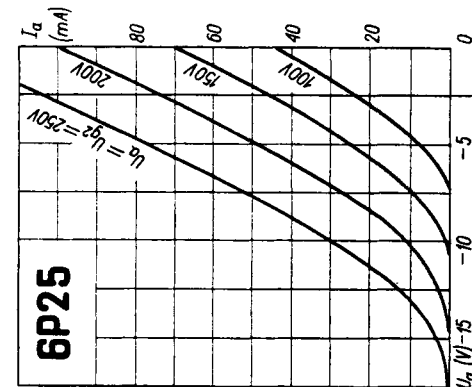
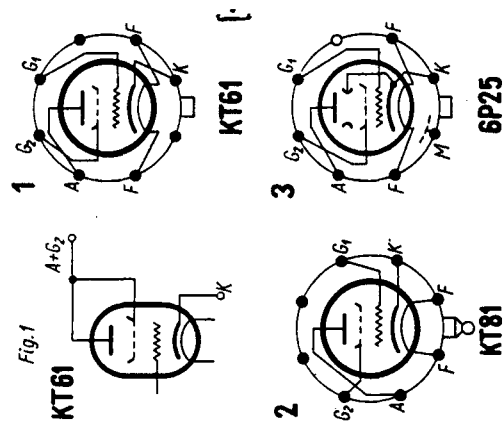


6761



T.			U_f	I_f	Cl.	U_a	U_{g1}	I_a	I_{g1}	S	R_i	μ	R_k	$R_{g1}(a)$	P_o	U_{g1k}	h	$U_{f/k}$	P_{g2}	P_a
			V	A		V	V	mA	mA	mA/V	k Ω	($g_{1/2}$)	Ω	k Ω	W	V	%	V	W	W
KT 61	Eng	1	6,3	0,95	A	250	-4,4	40	7,5	10,5			90	6	4,3	4,3	8			
KT 81	Eng	2	6,3	0,95	A-Fig. 1 AB-Fig. 1	275 250 350	-6,7 -6	72 30 63-73	12	9,8			80 200 150	(10) 5 (6)	11,5 0,7 6	8,5 5,5 11,5	6,5 5 2			
6 P 1	Eds	3	6,3	0,8	A	275	-8,5	40-43	8-15	8,8		maximum	0	4,7	5,4	5,1	5		3	10
6 P 25	Eds	3	6,3	1,1	A	250 258,5	0	39,5-38	8-12,5			maximum	180	5,1	4,6	4,7	5		2,5	10
6 P 26	Eds	3	6,3	0,6		250												150		

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
KT 61	17,3	10,2	1,6
6 P 25	23	12	0,85



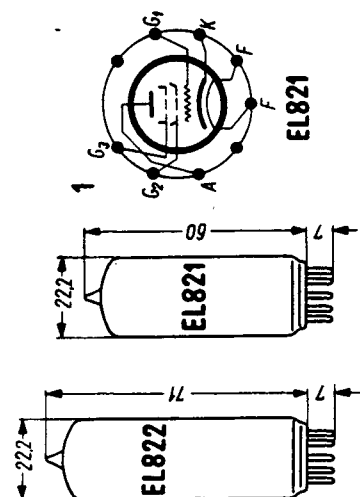
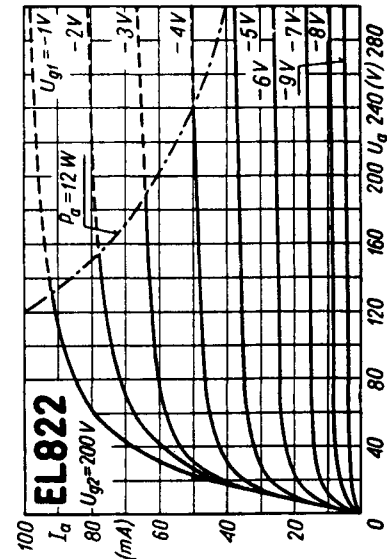
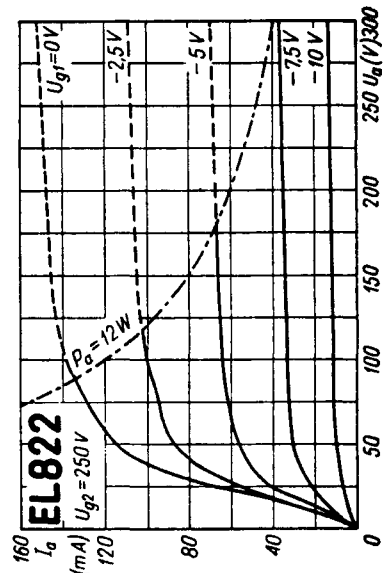
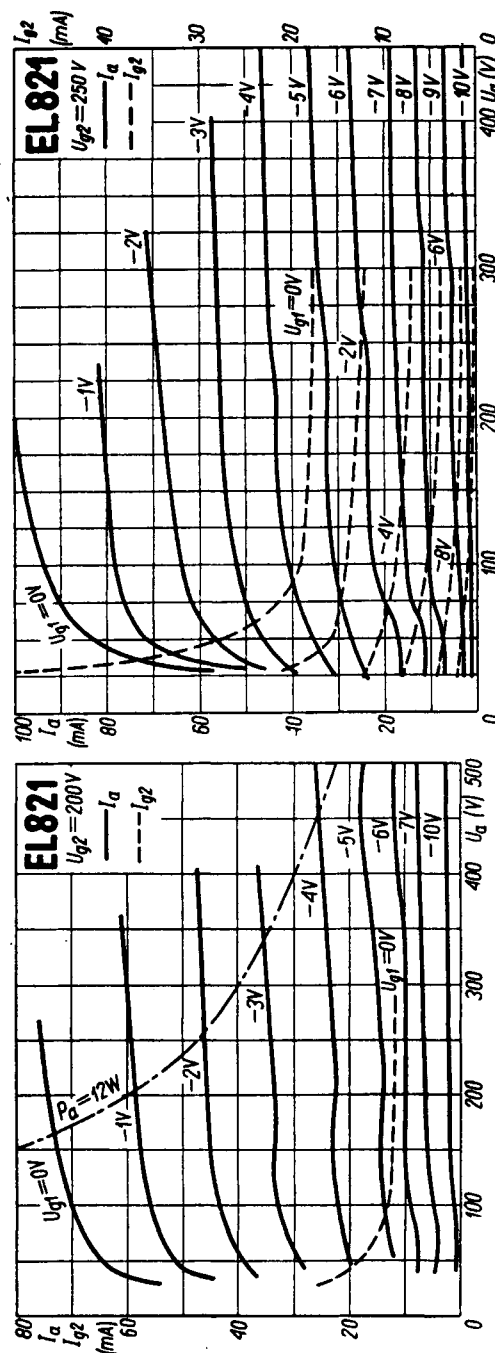
T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_2/g_1)	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
EL 821	Mul	I	6,3	0,75	$\begin{cases} 250 \\ 250 \\ 275 \end{cases}$	$\begin{cases} 200 \\ 250 \\ 275 \end{cases}$	$\begin{cases} 0 \\ 0 \\ 0 \end{cases}$	$\begin{cases} -2,5 \\ -4,5 \end{cases}$	$\begin{cases} 40 \\ 40 \\ \text{maximum} \end{cases}$	$\begin{cases} 6,5 \\ 6 \\ 220 \text{ k}\Omega \end{cases}$	$\begin{cases} 13 \\ 11 \end{cases}$	$\begin{cases} 60 \\ 50 \end{cases}$	26 26	90	60	2,5	12
EL 822	Mul	I	6,3	0,75	$\begin{cases} 250 \\ 250 \\ 275 \end{cases}$	$\begin{cases} 150 \\ 200 \\ 250 \\ 275 \end{cases}$	$\begin{cases} 0 \\ 0 \\ 0 \\ 0 \end{cases}$	$\begin{cases} -2,5 \\ -5 \\ -7 \end{cases}$	$\begin{cases} 40 \\ 37,5 \\ 42,5 \\ \text{maximum} \end{cases}$	$\begin{cases} 5 \\ 4,8 \\ 4,8 \\ 220 \text{ k}\Omega \end{cases}$	$\begin{cases} 13 \\ 12,2 \\ 12,5 \end{cases}$	$\begin{cases} 100 \\ 90 \\ 90 \end{cases}$	23 23 23	90	60	2,5	12

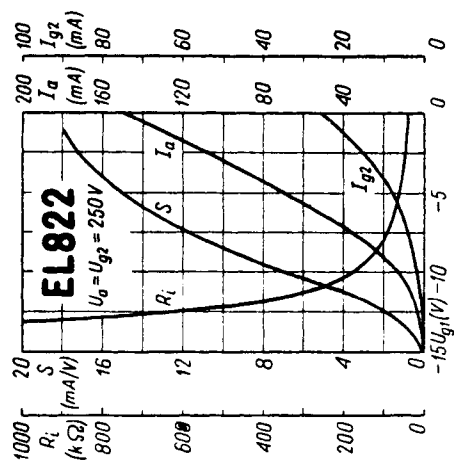
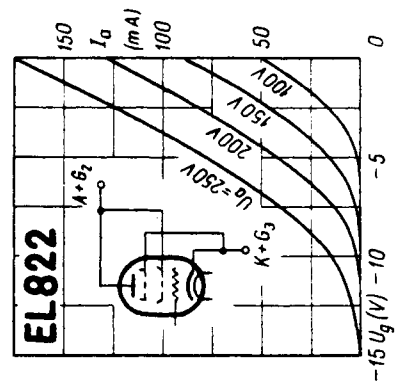
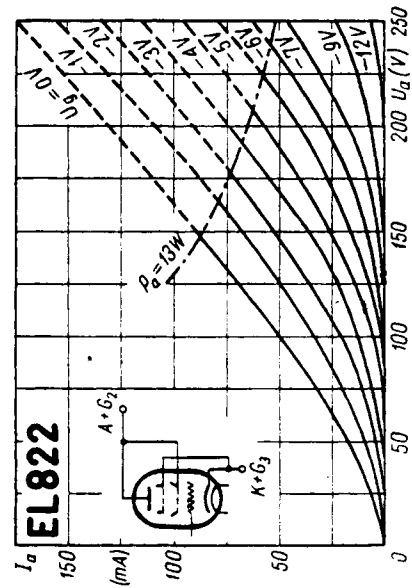
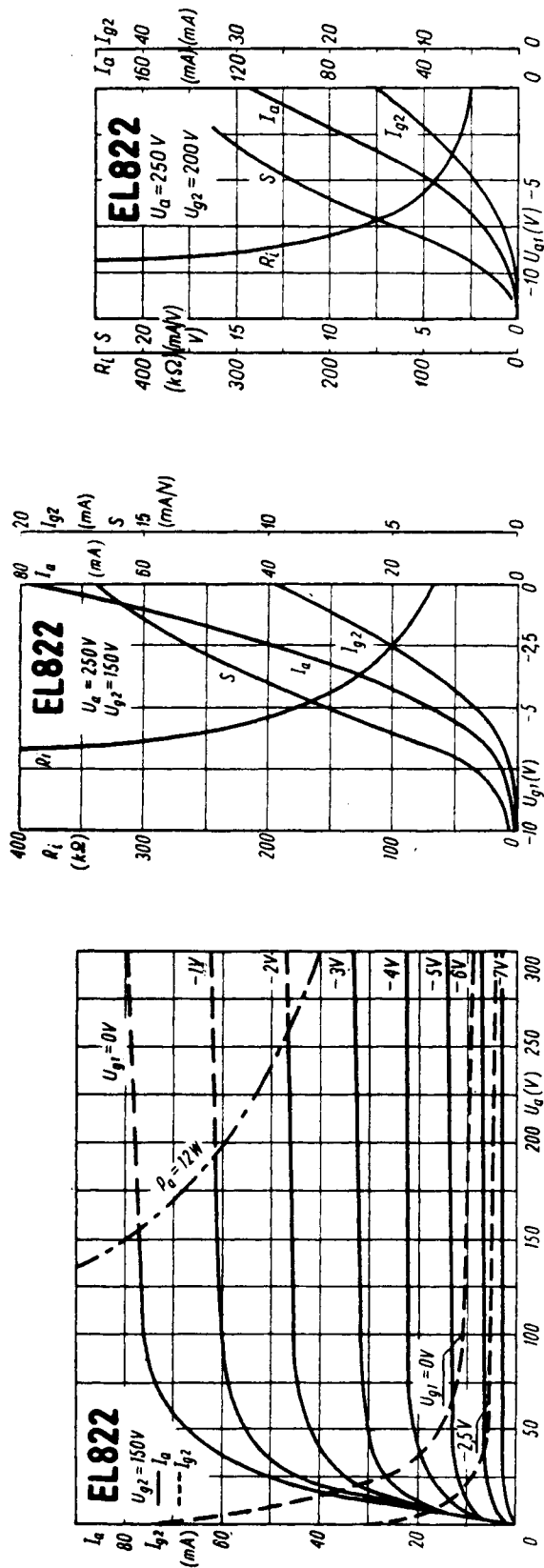
Equivalents EL 821

EF 82	Mul
M 81351	Mul
6 CH 6	amer
7 D 10	Bri
6132	amer

1) vide *4

T.	C_{g1} pF	C_a pF	C_{g1}/a pF	C_f/k pF
EL 821	14	5	0,25	7
EL 822	12	6	0,1	





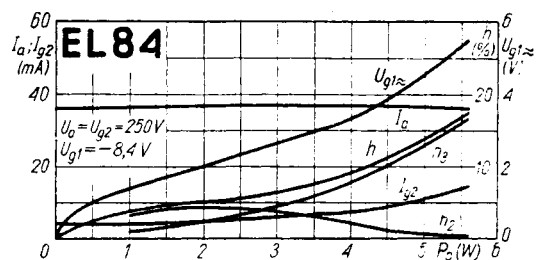
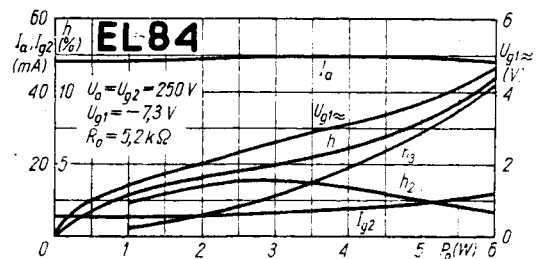
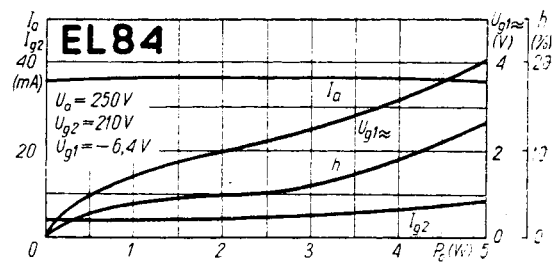
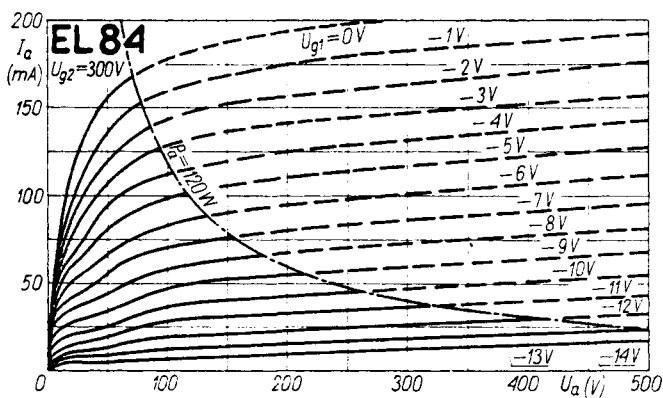
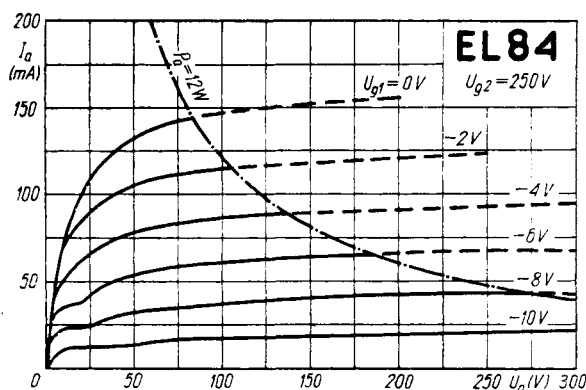
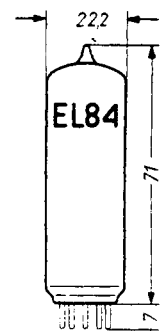
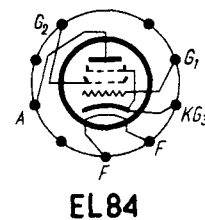
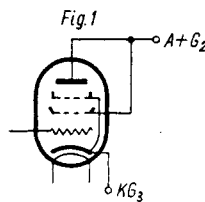
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$R_o(R_{a/a})$	P_o	U_{g1}	h	P_{g2}	P_a	
			V	A		V	V	V	mA	mA	mA/V	kΩ	Ω	kΩ	W	V	%	W	W	
EL 84 XL 84 YL 84	eur eur eur	I I I	6,3 8 10	0,76 0,6 0,45	stat A AB B A Fig. I AB Fig. I	250	250	—7,3	48	5,5	11,3	38								
						250	250	—7,3	48 ÷ 49,2	5,5 ÷ 11,6	11,3	38	135	5,2	6	4,7	10			
						250	250	—7,3	48 ÷ 50,5	5,5 ÷ 11	11,3	38	135	4,5	6	4,8	10			
						250	250	—8,4	36 ÷ 36,8	4,1 ÷ 14,6	10	40	200	7	5,6	5,5	10			
						250	210	—6,4	36 ÷ 36,5	3,9 ÷ 8	10,4	40	160	7	4,7	3,8	10			
						250	250		62 ÷ 75	7 ÷ 15			130	(8)	11	8	3			
						300	300		72 ÷ 92	8 ÷ 22			130	(8)	17	10	4			
						250	250	—11,6	20 ÷ 75	2,2 ÷ 15				(8)	11	8	3			
						300	300	—14,7	15 ÷ 92	1,6 ÷ 22				(8)	17	10	4			
						250	—	—9	34 ÷ 36	—			270	3,5	1,95	6,7	9			
						250	—		40 ÷ 43,4	—			270	(10)	3,4	8,3	2,5			
						300	—		48 ÷ 52	—			270	(10)	5,2	10	2,5			
						300	300	—100	maximum $I_k = 65$ mA; $U_{f1k} = 100$ V; $\mu(g2/g1) = 19$										2	12

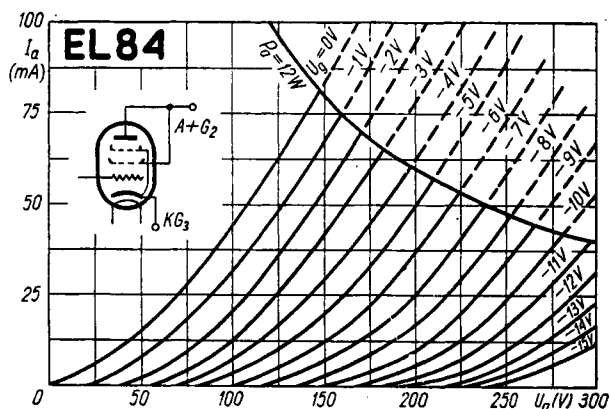
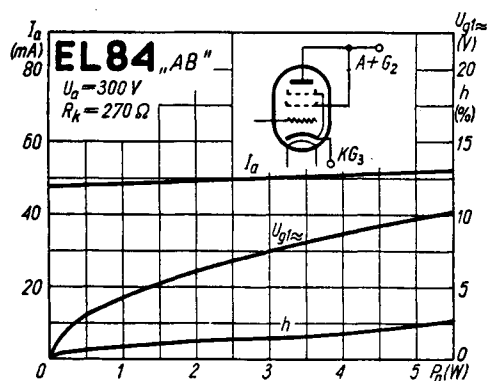
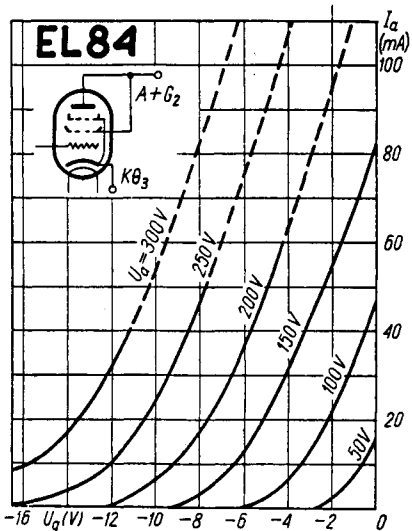
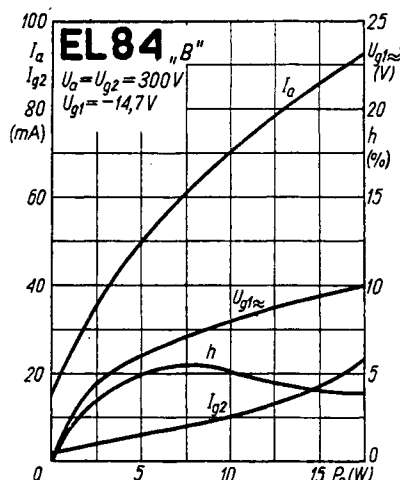
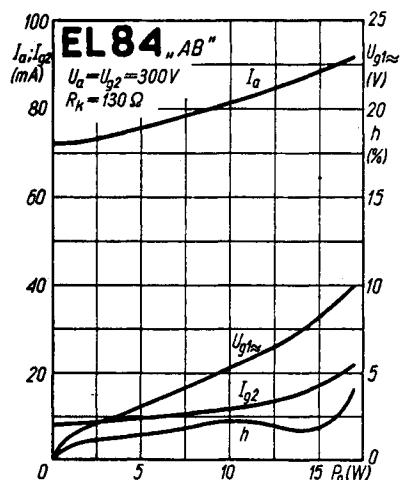
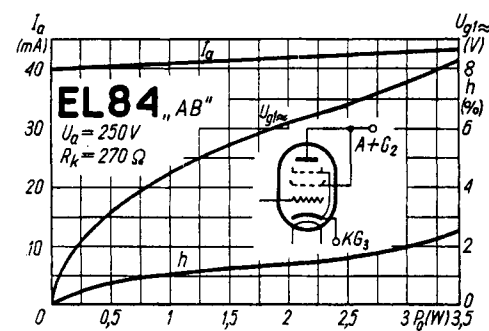
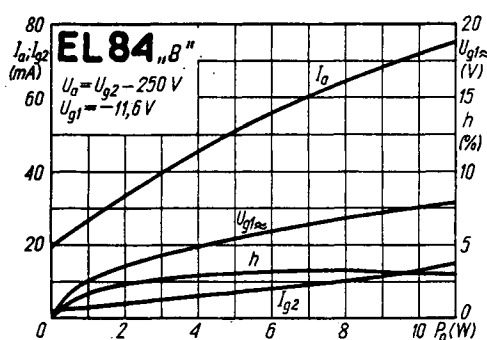
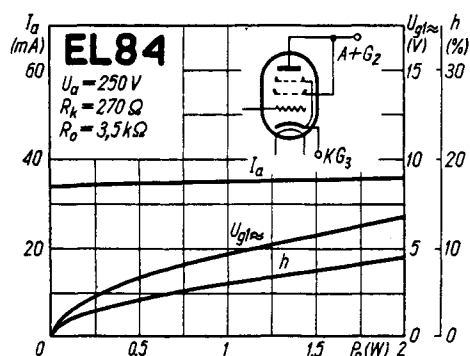
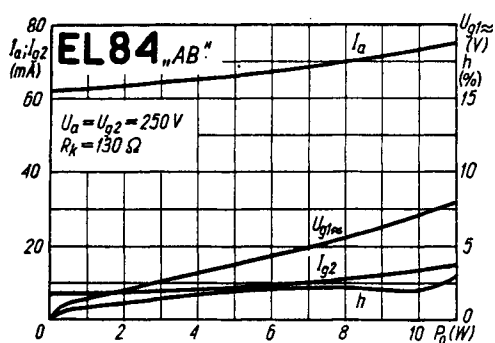
Equivalents

E 84 L ¹⁾	eur = EL 84	6 II 14 II-B ¹⁾	CCCP = EL 84
N 709	Eng = EL 84	6 P 15	Eds = EL 84
6 BQ 5	amer = EL 84	8 BQ 5	amer = XL 84
6 L 40	Tes = EL 84	7189	amer = EL 84
6 II 14 II	CCCP = EL 84	7320 ¹⁾	amer = EL 84

¹⁾ vide * 4; ²⁾ vide * 4, a, b, d, e

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
10,8	6,5	0,5	0,25





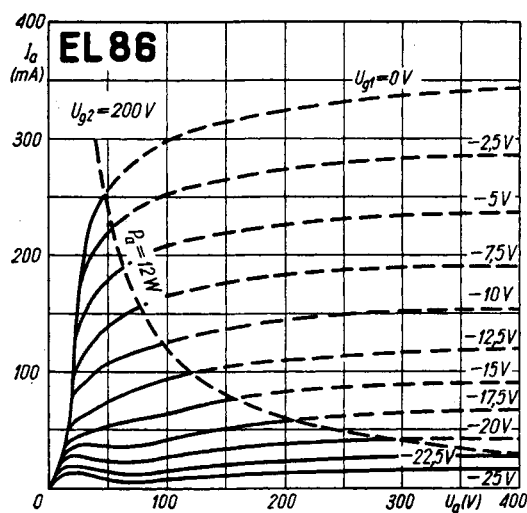
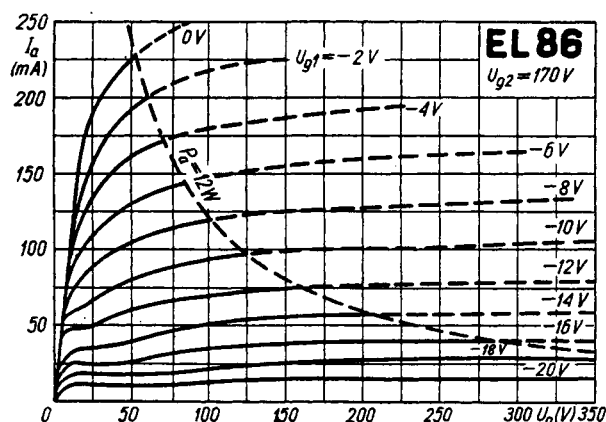
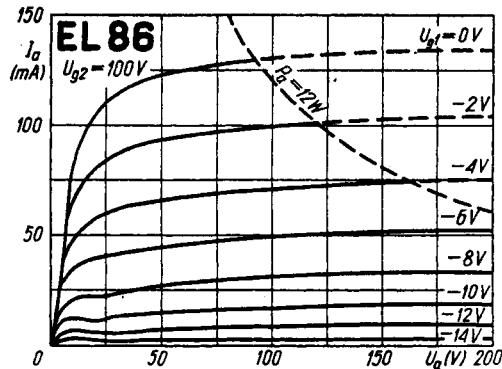
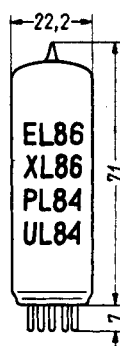
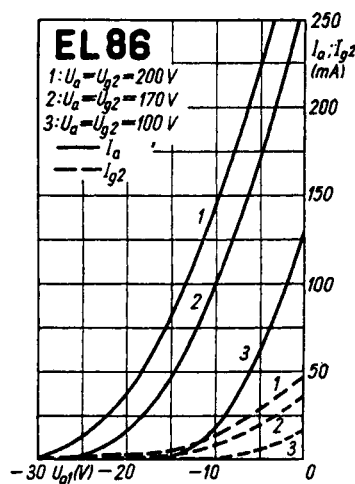
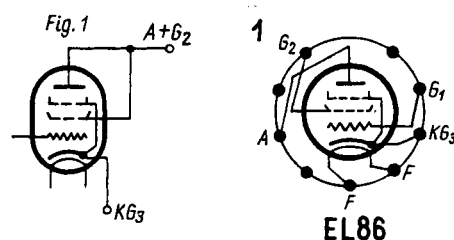
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_f	R_k	$R_o(R_{a1}/a)$	P_o	$U_{g1 \sim}$	h
			V	A		V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%
EL 86 PL 84 UL 84 XL 86 YL 86	eur	I	6,3	0,76	stat	170	170	-12,5	70	5	10	23					
						100	100	-6,7	43	3 ÷ 11	9	23	145	2,4	1,9	4,3	10
						170	170	-12,5	70	5 ÷ 22	10	23	170	2,4	5,6	7	10
						200	200	-17,3	60 ÷ 62,5	4,1 ÷ 12,5	8,8	28	270	2,4	5,2	7,8	10
						100	100		58 ÷ 62	3,2 ÷ 14			270	(3,5)	3,6	7	3
						170	170		113 ÷ 115	6 ÷ 41			240	(3,5)	13	13,1	4,5
						200	200		110 ÷ 120	5,6 ÷ 30			300	(3,5)	15	14,5	3,5
						100	100	-11,4	20 ÷ 61	1,1 ÷ 14,2				(3,5)	3,7	7,9	2,8
						170	170	-20,5	30 ÷ 115	1,4 ÷ 41				(3,5)	13,5	14,6	4,8
						100	—	— 8	30 ÷ 36,1	—			270	1,2	0,52	5,7	10
						170	—	-15,1	50 ÷ 62	—			300	1,2	2,1	10,8	10
						100	—	-9,7	36 ÷ 40	—			270	(3,5)	1	7,3	3,2
						170	—	17,5	65 ÷ 72	—			270	(3,5)	3,9	13,4	3,8
						250	200										
						maximum $U_{f1k} = 100$ V; $I_k = 100$ mA; $P_{g2} = 1,75$ W; $P_a = 12$ W											

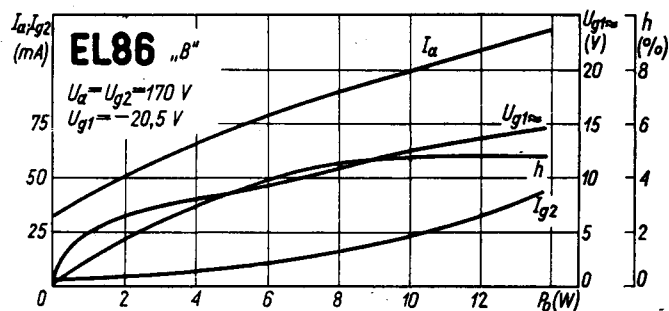
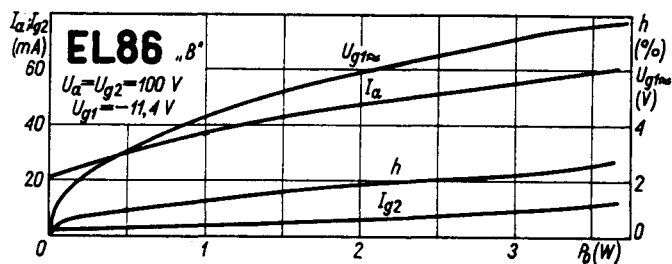
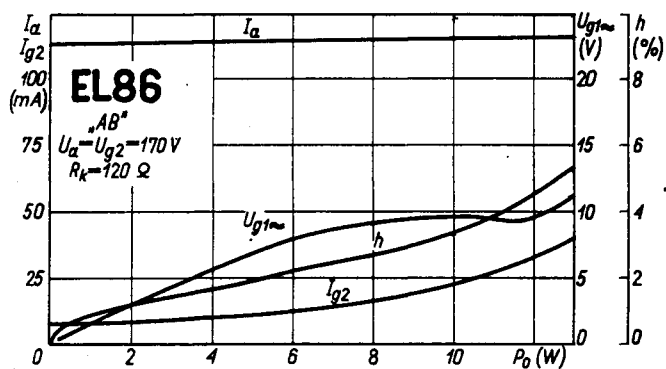
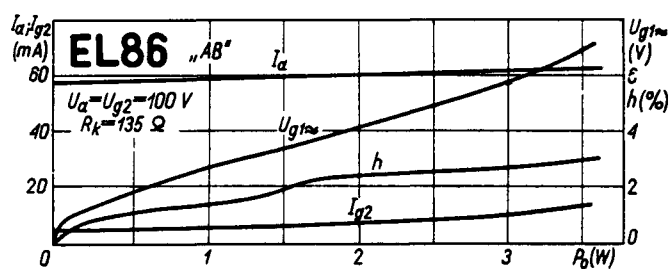
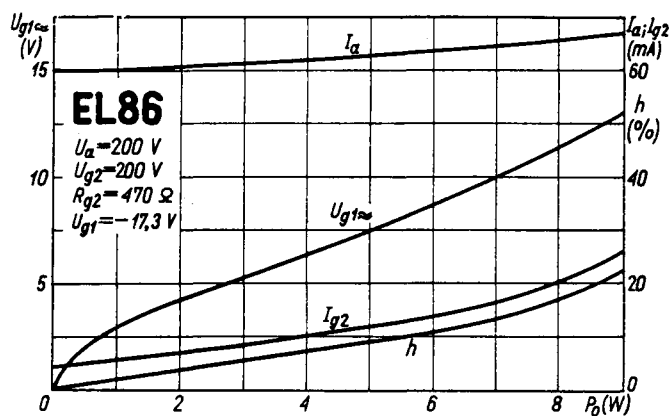
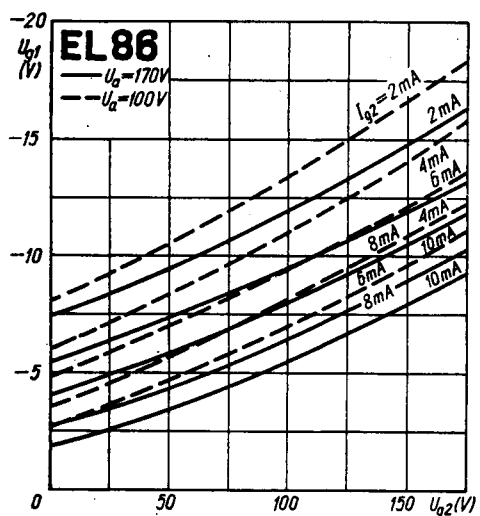
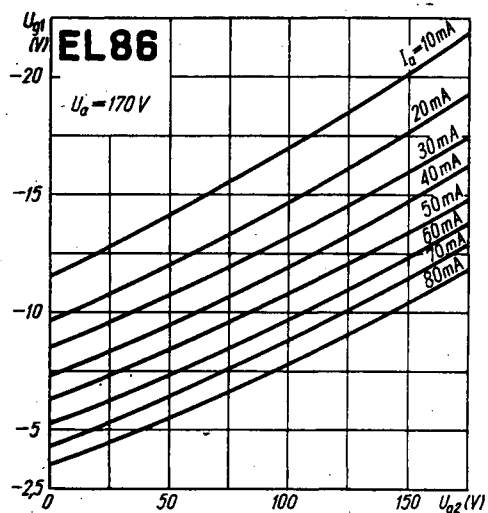
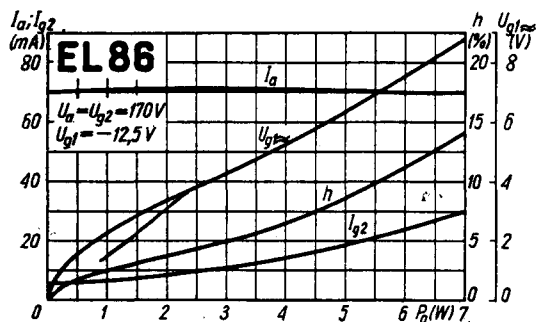
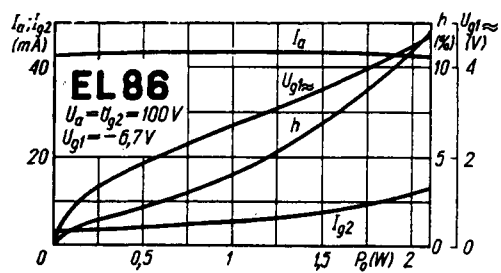
¹⁾ $U_{b1g2} = 200$ V, $R_{g2} = 470 \Omega$

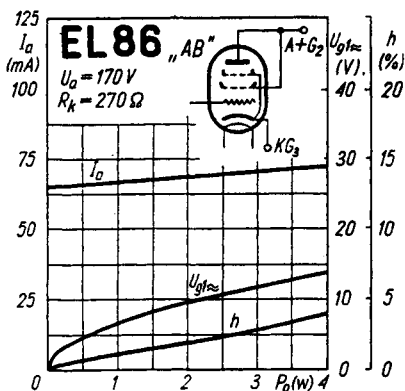
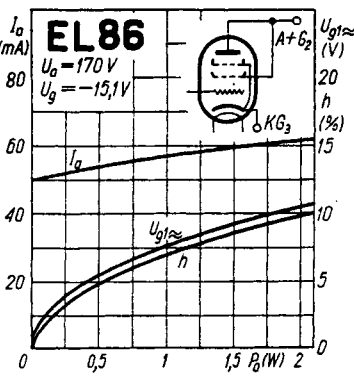
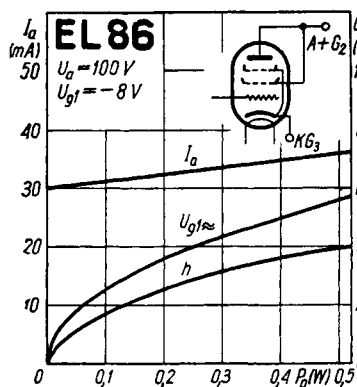
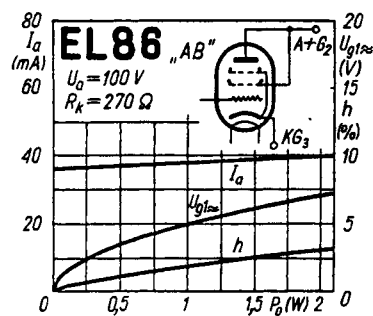
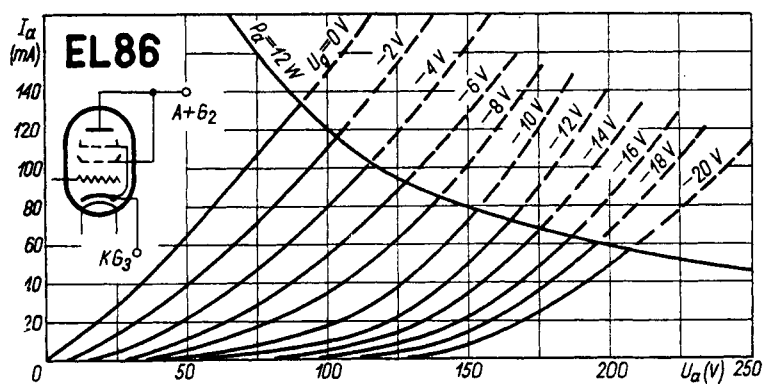
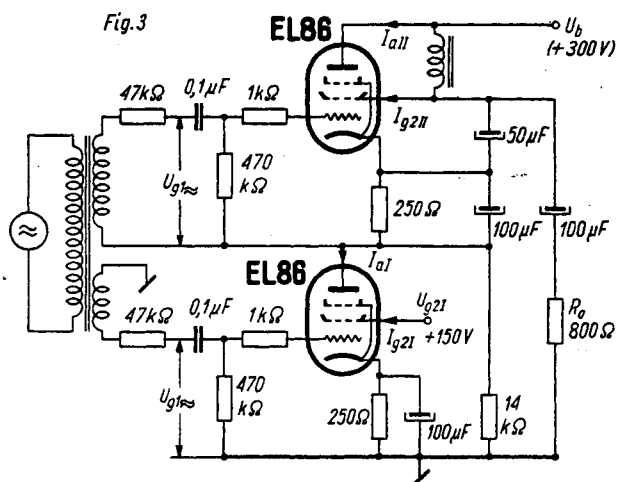
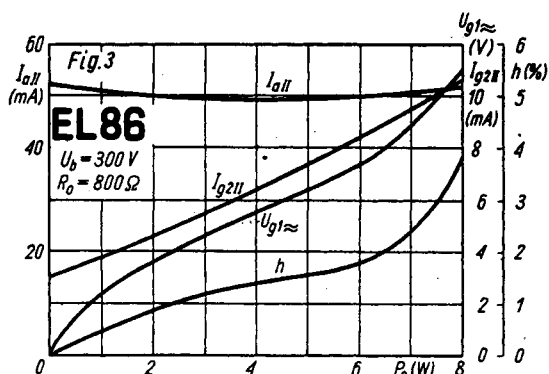
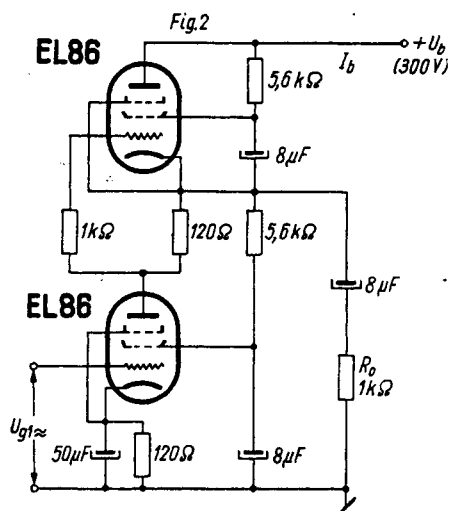
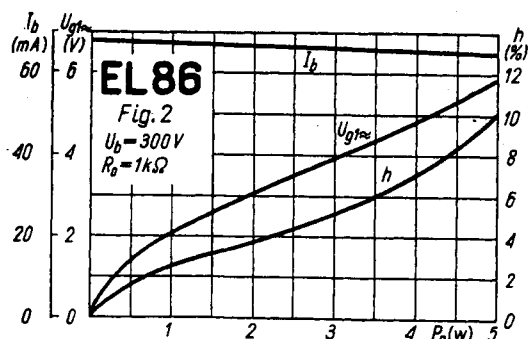
Equivalents

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pF	pF	pF	pF
12	6	0,6	0,25

EL 86 F	Maz = EL 86
N 119	Eng = UL 84
N 379	Eng = PL 84
6 CW 5	amer = EL 86
8 CB 5	amer = XL 86
8 CW 5	amer = XL 86
10 CW 5	amer = YL 86
15 CW 5	amer = PL 84
30 P 18	Eds = PL 84
45 B 5	amer = UL 84
45 CW 5	amer = UL 84



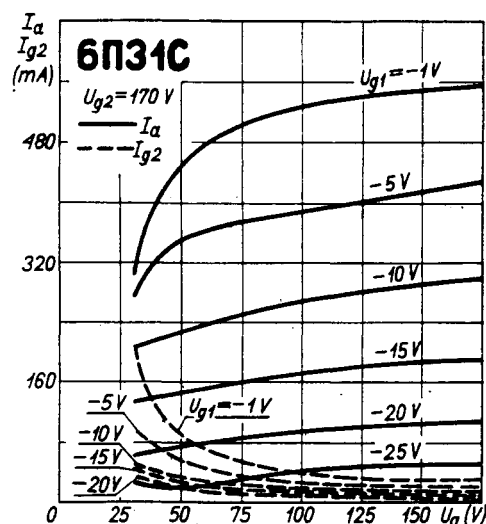
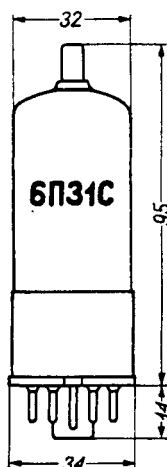
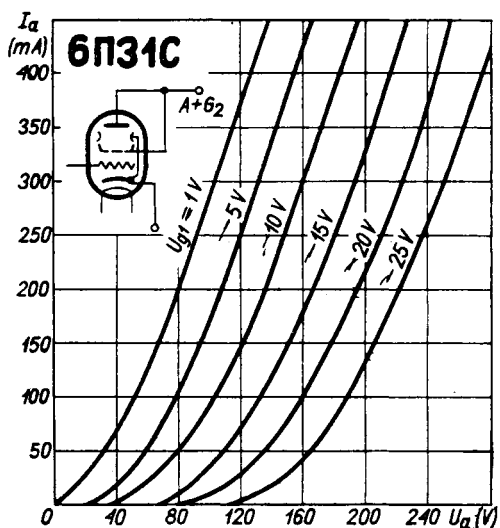
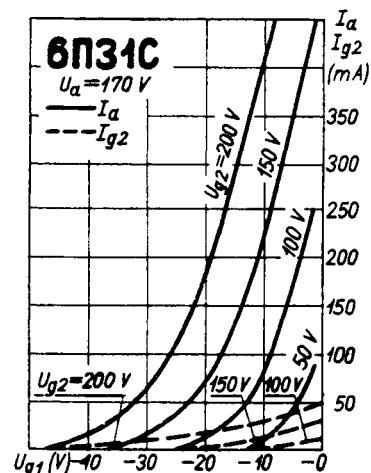
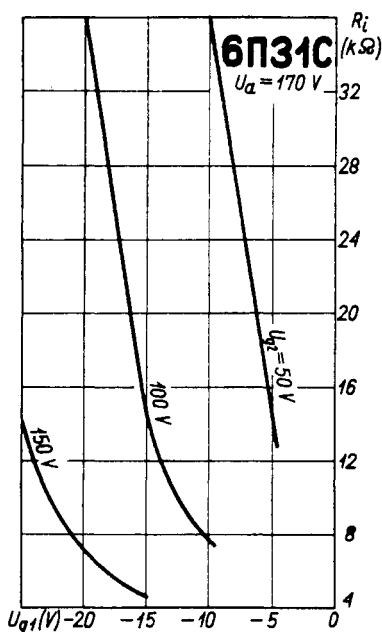
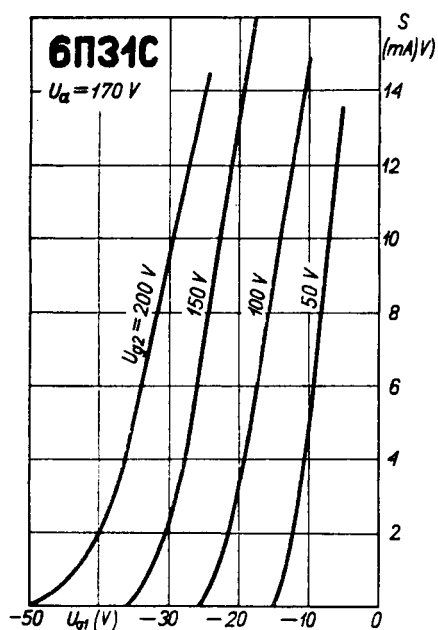
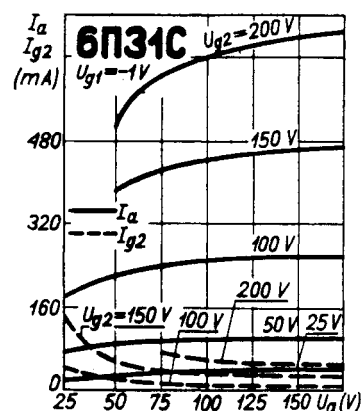
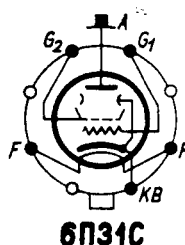




T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	U_f/k V	I_k mA	P_{g1} W	P_{g2+P_a} W
6 П 31 C ¹⁾	СССР	6,3	1,3	$\begin{cases} 100 \\ 250 \\ 7000 \end{cases}$	$\begin{cases} 100 \\ 250 \end{cases}$	$\begin{cases} -9 \\ -150 \end{cases}$	$\begin{cases} 80 \\ 0 \end{cases}$	$\begin{cases} 8,5 \\ \text{maximum} \end{cases}$	$\begin{cases} 12,5 \\ \text{impulse} \leq 12 \mu\text{s} \end{cases}$	4	200	$\begin{cases} 200 \\ 600 \end{cases}$	0,2	13

¹⁾ vide EL 36, gr. 209; vide E 236 L, gr. 210

C_{g1}	C_a	$C_{g1/a}$	C_f/k
pF	pF	pF	pF
18	8,5	1,3	25



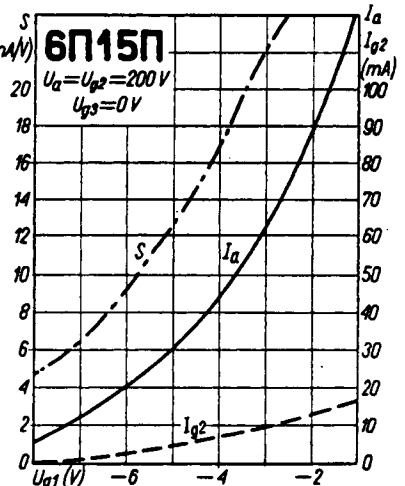
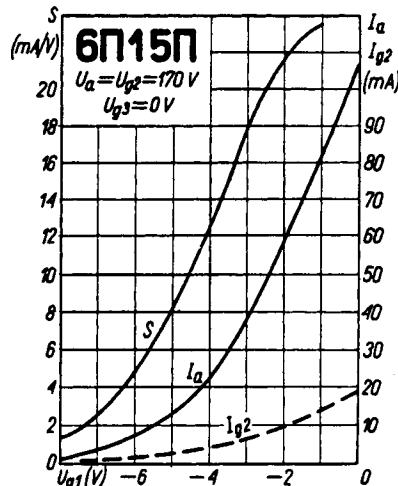
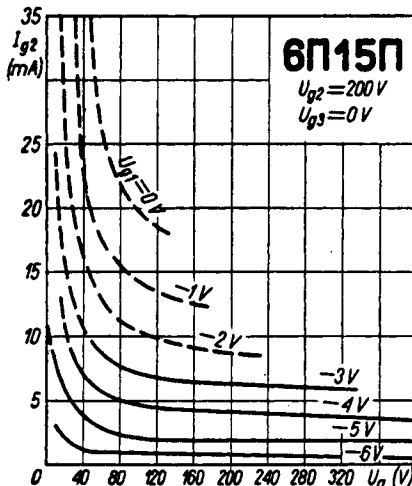
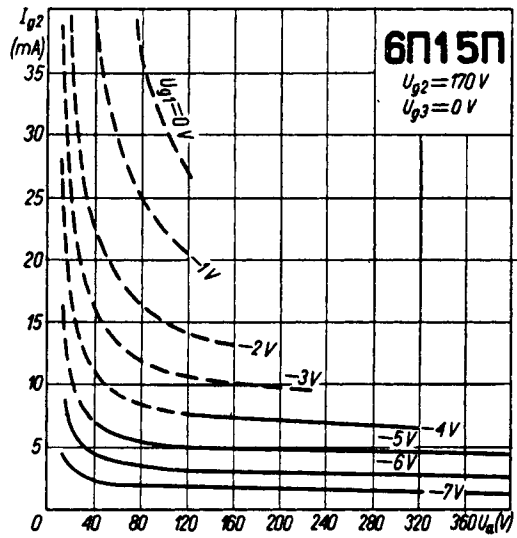
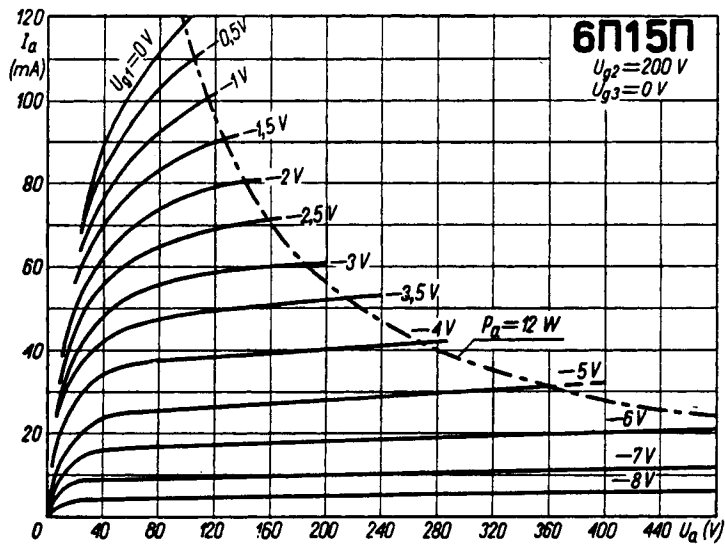
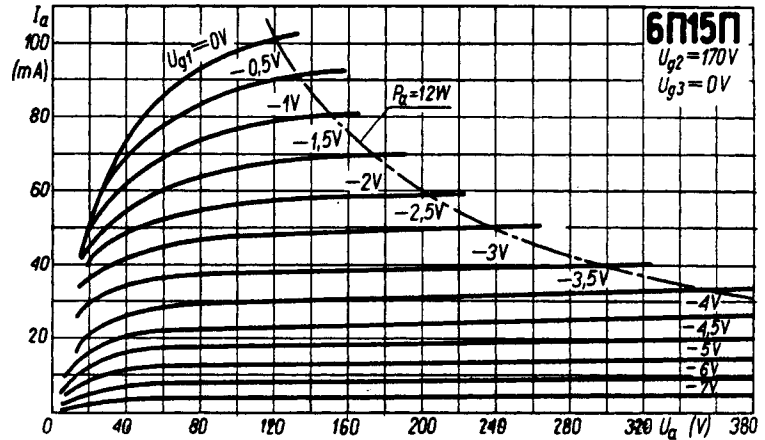
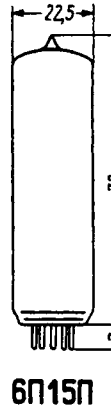
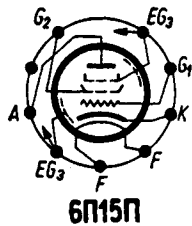
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	I_a	I_{g2}	S	R_i	μ	R_k	U_f/k	I_k	P_{g2}	P_a
		V	A	V	V	V	mA	mA	mA/V	k Ω	(g_2/g_1)	Ω	V	mA	W	W
6 П 15 П	СССР	5,7÷6,9	0,76	$\begin{cases} 300 \\ 330 \end{cases}$	150	0	30	4,5	14,7	100	25	75				
maximum $R_{g1} = 1 \text{ M}\Omega$																
													100	90	1,5	12

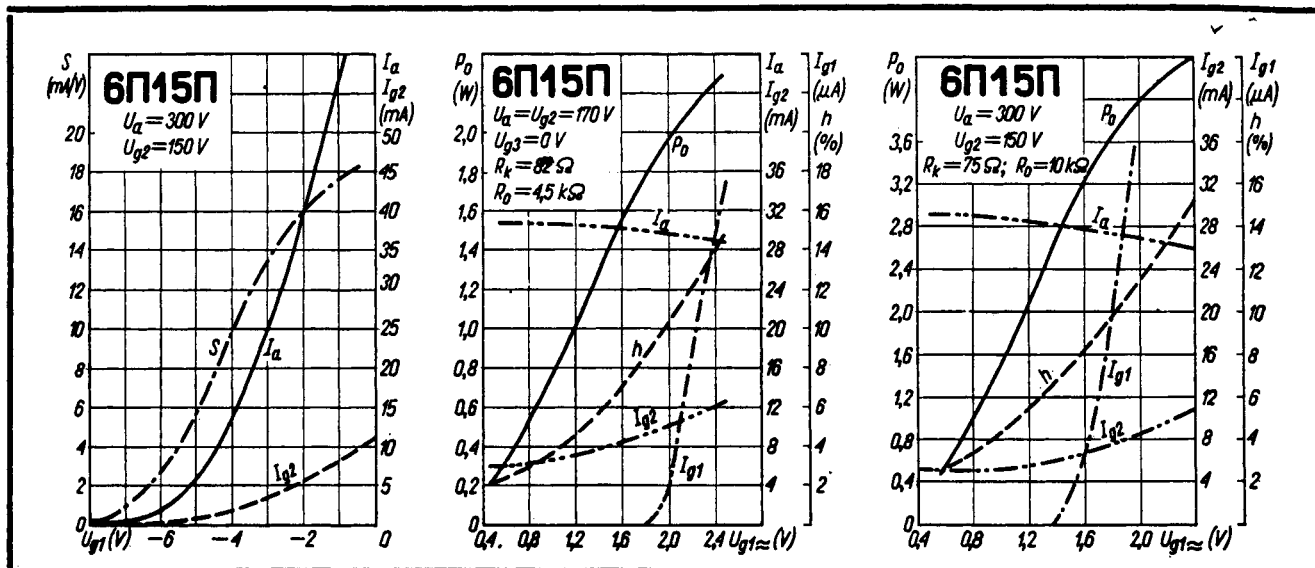
¹⁾ vide *4, a, b, d, e; vide T. 1512, gr. 203

C_{g1}	C_a	$C_{g1/a}$	
pF	pF	pF	
13,5	7	0,07	O

Equivalences¹⁾

6 П 15 П-В	СССР
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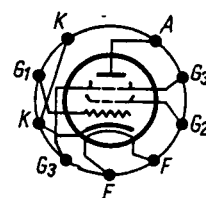
T.		U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	μ	R_l	R_k	U_f/k	I_k	P_{g2}	P_a	
		V	A	V	V	V	V	mA	mA	mA/V	(g_2/g_1)	k Ω	Ω	V	mA	W	W	
E 55 L ¹⁾	eur	6,3	0,6	$\begin{cases} 125 \\ 125 \\ 200 \end{cases}$	$\begin{cases} 125 \\ - \\ 175 \end{cases}$	0	$\begin{cases} -3 \\ -3 \\ -55 \end{cases}$	$\begin{cases} 50 \\ 55,5 \end{cases}$	$\begin{cases} 5,5 \\ - \end{cases}$	$\begin{cases} 45 \\ 50 \end{cases}$	$\begin{cases} (30) \\ 30 \end{cases}$	$\begin{cases} 20 \\ 0,6 \end{cases}$	0					
										maximum	(f = 50 MHz)			Fig. 1	200	75	1,5	10

¹⁾ vide * 4, a, b, c = 10.000, f, g

C_{g1}	C_a	$C_{g1/a}$	vide
pF	pF	pF	
15÷20	3,3÷4,4	0,011÷0,015	* 5
15÷20	5,4÷6,6	0,08÷0,012	* 6

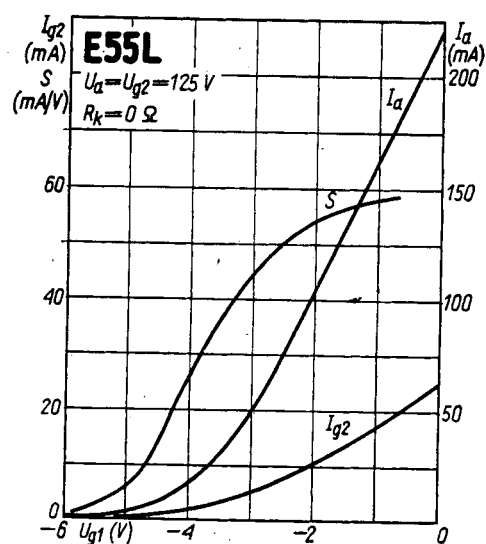
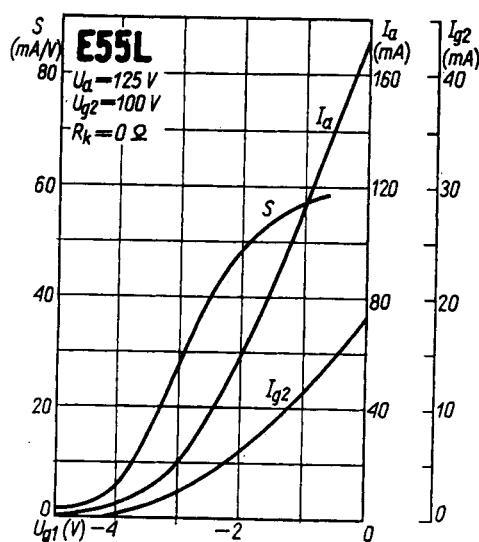
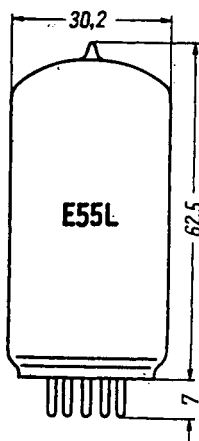
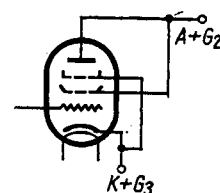
Equivalents

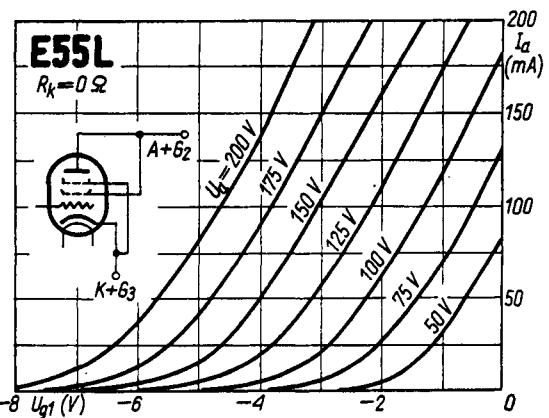
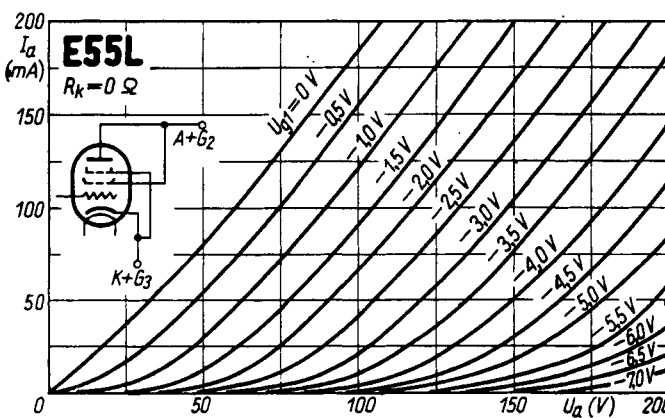
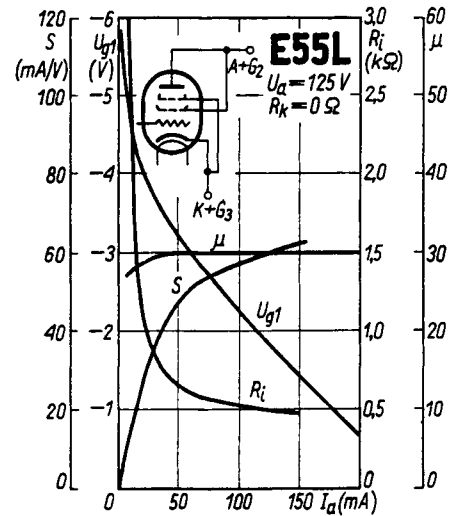
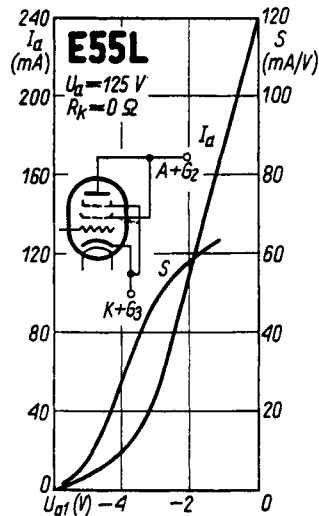
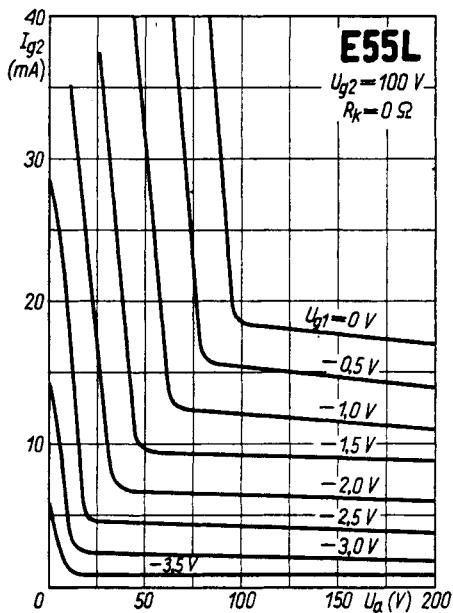
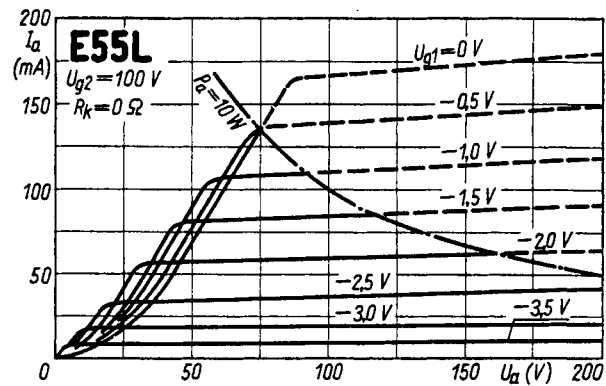
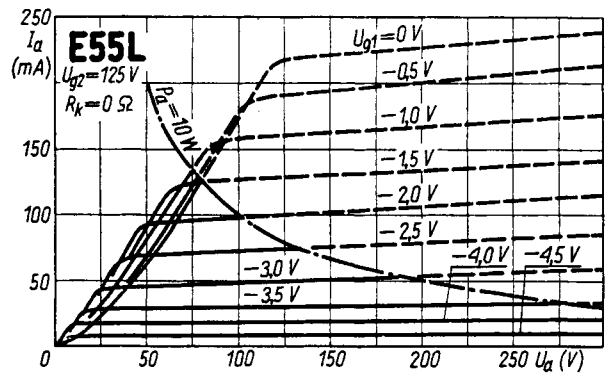
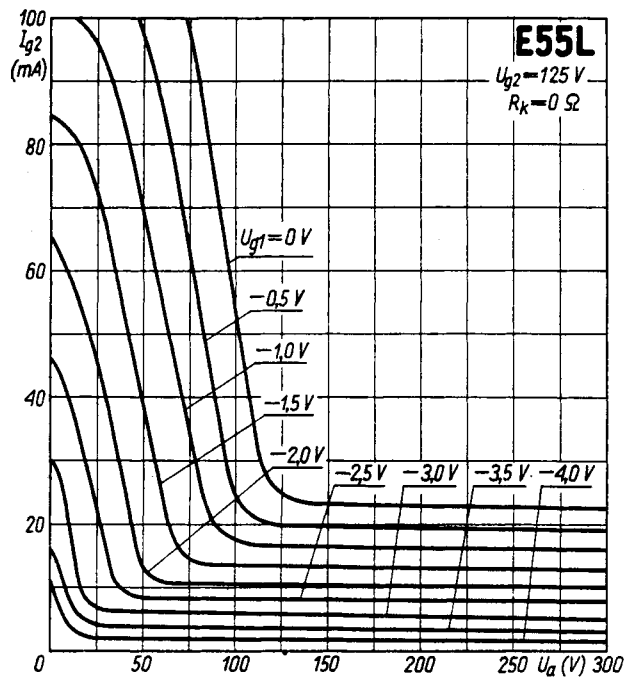
8233 amer



E55L

Fig. 1





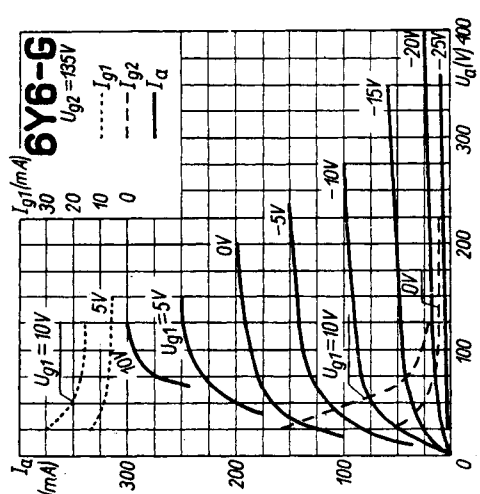
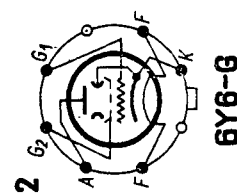
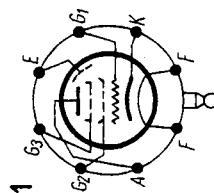
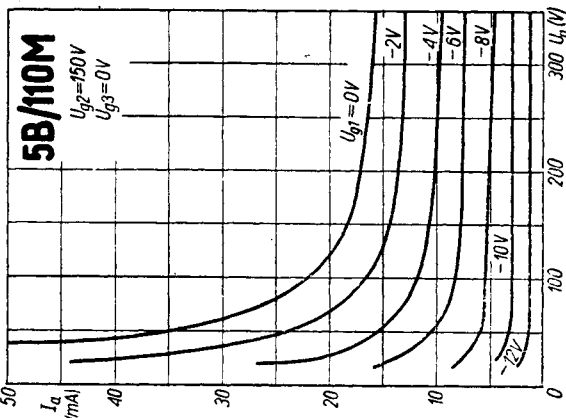
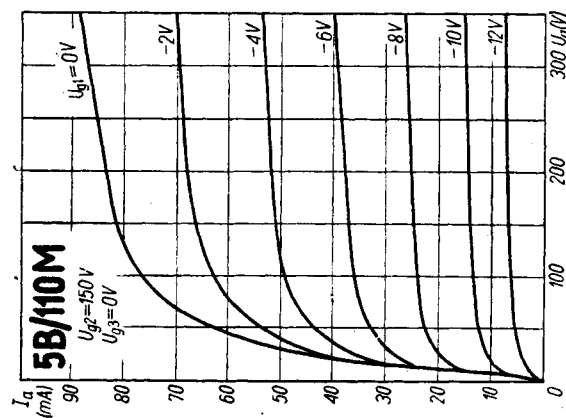
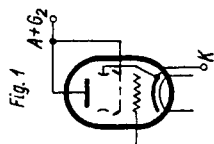
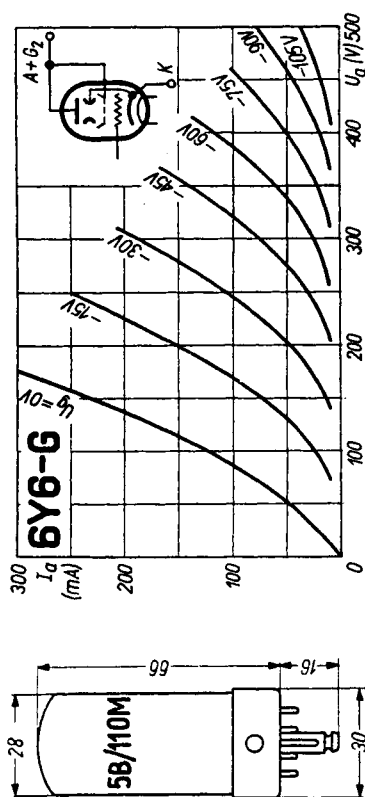
T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	I_{g1} mA	S mA/V	R_i k Ω	R_o k Ω	P_o W	$U_{g1/k}$ V	P_{g2} W	P_a W
5 B/110 M ¹⁾	STCE	1	6,3	0,8	{ A	250 250 { 135 200 200	250 150 135	0	-6 -13,5 -14	38 58-60 61-66	8 11 3,5-11,5 2,2-9	6,5 7 7,1 maximum	6,5	5 9,3 18,3	5 3 2,6	2 3,6 6	5 9,5 9,5	11	12,5
6 Y 6-G	amer	2	6,3	1,25	{ A	350 250 250	115 ¹⁾ 135 135		-40 -30	60 100	51 5	1,4 6	6	0,9	14	18	11,75		
25 C 6-G	amer	2	25	0,3	C-Osc														
50 C 6-G	amer	2	50	0,15	Fig. 1														

¹⁾ vide *4; ²⁾ $U_{g1/g2} = 350$ V, $R_{g2} = 45$ k Ω ; $R_{g1} = 60$ k Ω ; $P_{dr} = 100$ mW

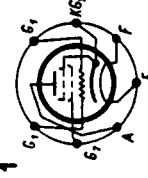
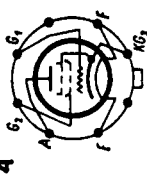
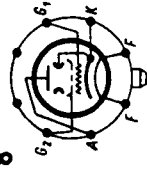
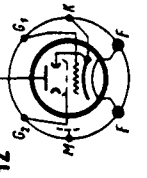
Equivalents

5 B/110 G	STCE = 5 B/110 M
6 Y 6-GA	amer = 6 Y 6-G
25 C 6-GA	amer = 25 C 6-G
50 C 6-GA	amer = 50 C 6-G

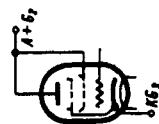
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
5 B/110 M	11	6	0,035
6 Y 6-G	15	11	0,7



T.			U_f	I_f	Cl.	U_a	U_{g1}	U_{g2}	S	R_k	R_o	P_o	$U_{g1 \approx}$	h
EL 90 ¹⁾	Lor	1	6,3	0,45		26	-1,5							
HL 90 ¹⁾	Lor	1	19	0,15		100	-6							
5 AQ 5 ¹⁾	int	2	4,7	0,6	A	180	-8,5							
5 CM 6	TS	3	4,7	0,6	A	200	-12							
5 V 6-GT	int	3	4,7	0,6	A	250	-12,5							
6 AQ 5 ¹⁾	int	2	6,3	0,45	A	225	-13							
6 AY 5	amer	4	6,3	0,45	A	180	-8,5							
6 BW 6	int	5	6,3	0,45	A	200	-12							
6 CM 6	amer	6	6,3	0,45	A	250	-12,5							
6 II I II	CCCP	7	6,3	0,45	A	315	-12,2							
6 T	Fiv	12	6,3	0,45	A	250	-15							
6 V 5-G	int	11	6,3	0,45	A-PP	250	-12,2							
6 V 6	int	3	6,3	0,45	AB	250	-19							
7 C 5	int	8	6,3	0,45	AB	285	-12,5							
9 AQ 5 ¹⁾	Fiv	2	9,45	0,3	A	250	-13,8							
9 BW 6	int	5	9,5	0,3	A-PP	250	-19,5							
12 AB 5	amer	9	12,6	0,2	A-PP	285	maximum							
12 AQ 5 ¹⁾	int	2	12,6	0,225		315	maximum							
12 CM 6	amer	6	12,6	0,225										
12 V 6-GT	int	3	12,6	0,225										
14 C 5	int	8	12,6	0,225										
5922 ¹⁾	amer	4	6,3	0,6										
6287	amer	10	6,3	0,6										
6 AQ 5 L ¹⁾	SER	1	6,3	0,36	A	130								
18 AQ 5 ¹⁾	SER	1	18	0,125	A	180								

1		EL 90	2		6A05	3		6V6	4		6AY5	5		68W6	6		6CH6	7		6BH6	8		7C5	9		12AB5	10		6V5-6	11		6287	12		6T
---	---	-------	---	---	------	---	---	-----	---	---	------	---	---	------	---	---	------	---	---	------	---	---	-----	---	---	-------	----	---	-------	----	---	------	----	---	----

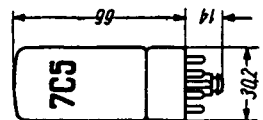
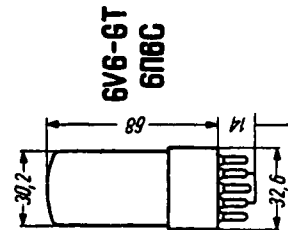
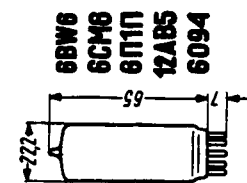
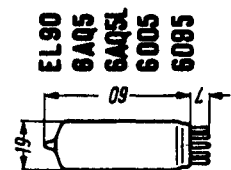
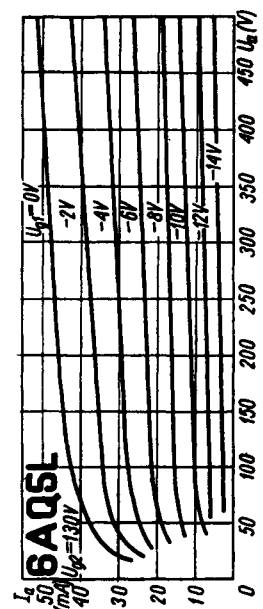
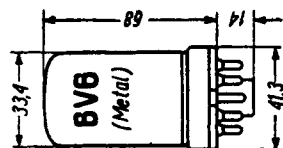
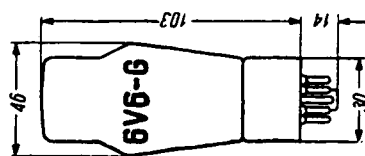
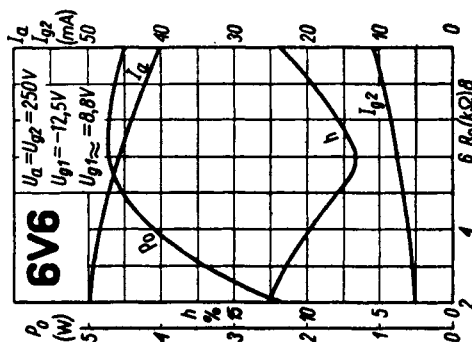
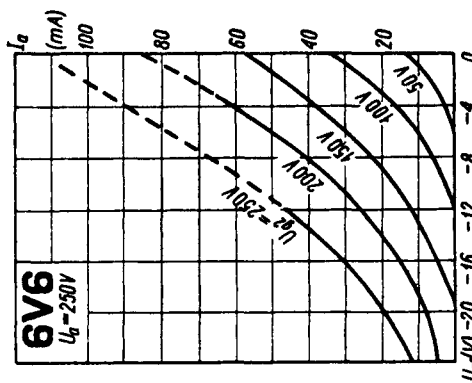
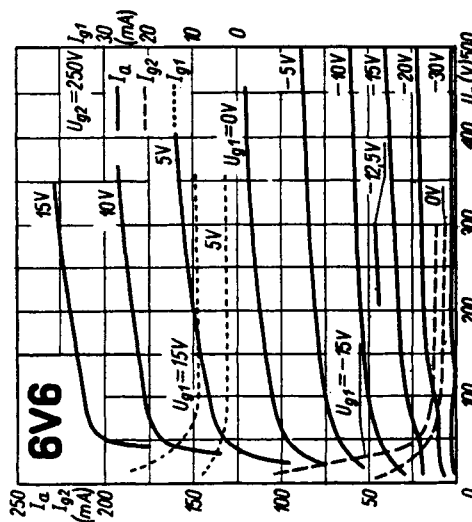
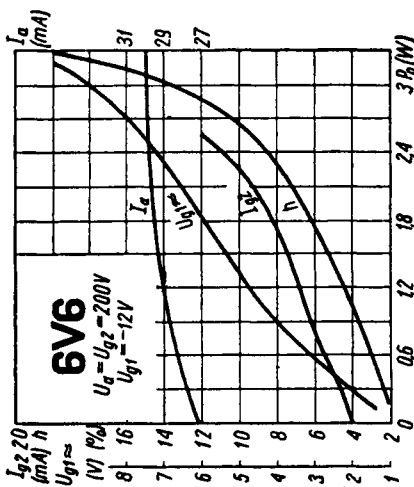
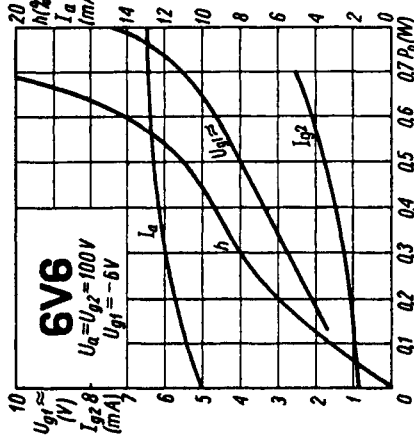
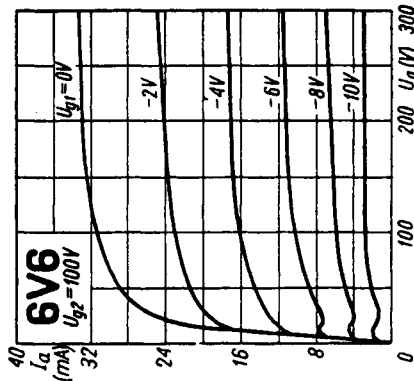
¹⁾ $U_{a(max)} = U_{g1(max)} = 250$ V
²⁾ vide *, a, b, c, d, e ($U_f = 6,3$ V $\pm 5\%$)
³⁾ vide *, a, b, c = 10.000, d, e, f, g ($U_f = 6,3$ V (18 V) $\pm 5\%$)
⁴⁾ vide *, a, b, c, f, g ($U_f = 6,3$ V $\pm 10\%$)
⁵⁾ $U_f = 6,3$ V $\pm 20\%$
⁶⁾ $U_{a(max)} = 350$ V; $U_{g1(max)} = 315$ V; $P_a = 14$ W; $P_{g2} = 2,2$ W; $U_{f/k} = 200$ V
⁷⁾ vide *, a, b, c = 5000, d
⁸⁾ vide *, a, b, d, e

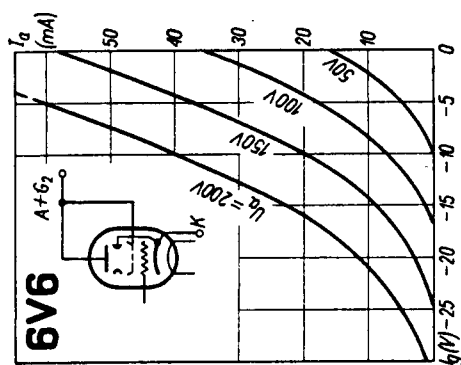
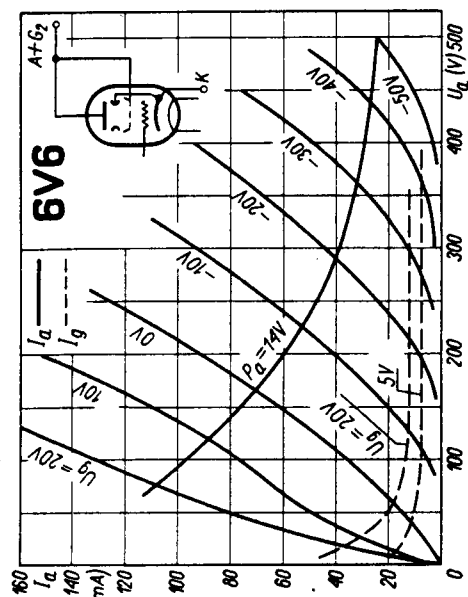
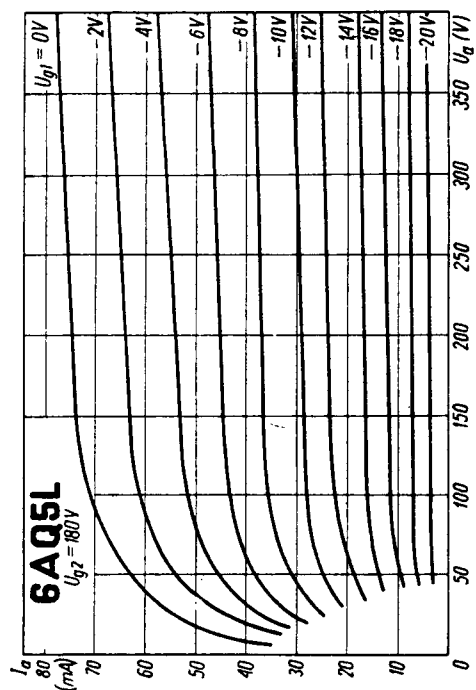


Equivalents

BPM 04	SFR	=	6 AQ 5	6 AQ 5-W ¹⁾	int	=	6 AQ 5	6 II 6 C	CCCP	=	6 V 6-GT
CK 6005	Ray	=	6 AQ 5	6 L 31 ¹⁾	Tes	=	EL 90	7 C 5-LT	Syl	=	7 C 5
HF 3106	RFT	=	6 AY 6	6 V 5-GT	amer	=	6 V 5-G	7 C 5-TV	Syl	=	7 C 5
M 8245 ¹⁾	Mul	=	6 AQ 5	6 V 6	RFT	=	6 AY 5	5871	amer	=	6 V 6-GT
N 148	Eng	=	7 C 5	6 V 6-G	int	=	6 V 6	6005 ¹⁾	int	=	6 AQ 5
OSW 3106	RFT	=	6 AQ 5	6 V 6-GT	int	=	6 V 6	6061	Bri	=	6 BW 6
WT-210-0082	WT	=	6 V 6	6 V 6-GTA	int	=	6 V 6	6094 ¹⁾	amer	=	6287
WT-123	WT	=	6 V 6	6 V 6-GTY	RCA	=	6 V 6	6095 ¹⁾	amer	=	6 AQ 5
2 C 40	amer	=	7 C 5	6 V 6-Y	RCA	=	6 V 6	6669 ¹⁾	amer	=	6 AQ 5
2 C 50	amer	=	7 C 5	6 II I II-B ¹⁾	CCCP	=	6 II I II	6928 ¹⁾	amer	=	6 V 6-GT
6 AQ 5-A	RCA	=	6 AQ 5	6 II I II-E ¹⁾	CCCP	=	6 II I II	7184	amer	=	6 V 6-GT
				6 II 2	CCCP	=	6 V 6-GT	7408 ¹⁾	GE	=	6 V 6-GT

T.	C_{g1} pF	C_g pF	$C_{g1/a}$ pF
EL 90	8,3	8,2	0,35
6AQ5	7,6	6	0,35
6AT5	8,5	6	0,7
6BW6	8,5	7,5	0,6
6CM6	8	8,5	0,7
6II11	7,8	5,7	0,95
6II6C	9,5	9,5	0,9
6V6	10	11	0,3
6V6-G	9	7,5	0,7
7C5	7,5	5,25	0,45
12AB5	8	8,5	0,7
6267	8	9	1,1
6669	8	8,5	0,4
7408	9	7,5	0,7



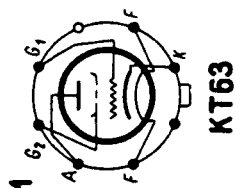


T.		U_f	I_f	Cl.	U_a	U_{g1}	I_a	I_{g1}	S	R_i	R_k	$U_{g1 \sim}$	P_{dr}	$R_o (R_{d/a})$	P_o	h	P_{gs}	P_a
		V	A		V	V	mA	mA	mA/V	kΩ	Ω	V	mW	kΩ	W	%	W	W
KT 63	Eng	1	6,3	0,7	250	16,5	34 ÷ 36	6,5 ÷ 10,5	2,5	80	410	16,5		7	3,2	8		
RK 17	Ray	2	2,5	2	250	20	34 ÷ 35	6,5 ÷ 9,7				16,5		7	3,1	8,5		
2 A 5	int	3	2,5	1,75	285	20	38 ÷ 40	7 ÷ 13	,55	78	440	20		7	4,8	9		
4 Φ 6 C	CCCP	4	4	1	285	24	38	7 ÷ 12				20		7	4,5	9		
6 F 6	int	5/6	6,3	0,7	315	24	62 ÷ 80	12 ÷ 19,5				34		10	11	4		
7 A 2	Bri	4/7	4	1,2	250	20	62 ÷ 73	12 ÷ 18				41		10	10,5	3		
7 D 5	Bri	7	13	0,3	250	26	64	14				39		(12)	6	4		
11 F 6	amer	5	11	0,4	375	26	34 ÷ 82	5 ÷ 19,5				58		(10)	18,5	3,5		
14 F 6	amer	5	14	0,3	250	35	54 ÷ 77	8 ÷ 18				66		(10)	19	5		
15 A 6	CCCP	5	15	0,3	350	35	50	10				70	220		9		2,5	11
18	int	3	14	0,3	250	100	50	3,5				maximum (f = 45 MHz)						
42	int	3	6,3	0,7	350	38	31 ÷ 32	(μ = 6,8)				65	160		6		2	7
					375		48 ÷ 92					maximum						
							50 ÷ 60					14,2		4	0,85	6,5		
												14,2		4	0,8	6,5		
												87,2		(6)	13	2		
												93,6		(10)	19	3		
																	3,75	11

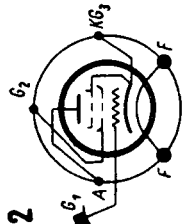
uivalente

63	Vis	= 42
PZA	amer	= 2 A 5
PZH	Marc	= 6 F 6
T 42	amer	= 2 A 5
I	amer	= 2 A 5
6 F 6-G	amer	= 42
6 F 6-GT	amer	= 6 F 6
6 F 6-M	int	= 6 F 6
6 F 6-C	int	= 6 F 6
6 F 6-B	CCCP	= 6 F 6
17	CCCP	= 6 F 6
42 E	Ray	= RK 17
95	Bri	= 42
142	Syl	= 2 A 5
342	amer	= 42
642	amer	= 42
1611	amer	= 6 F 6
1613	amer	= 6 F 6
1621	amer	= 6 F 6

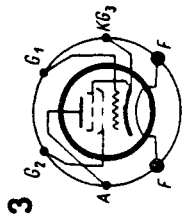
T.	C_{g1}		C_a		$C_{g1/a}$	
	pF		pF		pF	
KT 63	9,9		8,5		0,85	
2 A 5	8		6,5		0,5	
6 F 6	6,5		13		0,2	
6 F 6-G	8		6,5		0,5	
1613	6,5		13,5		0,26	
1621	7,5		11,5		0,2	



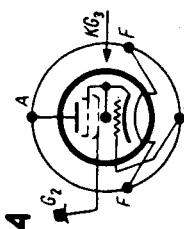
KT63



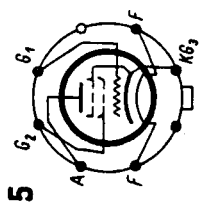
RK17



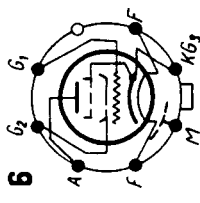
2A5



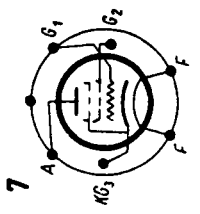
4Φ6C



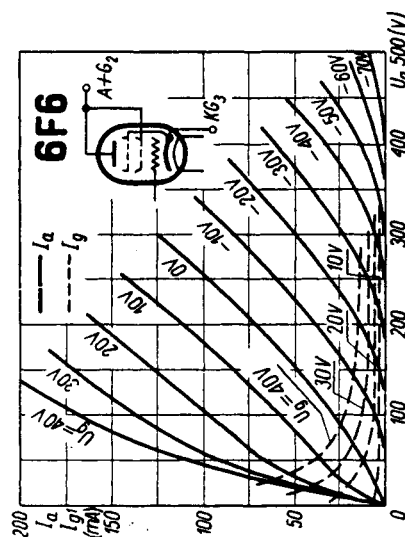
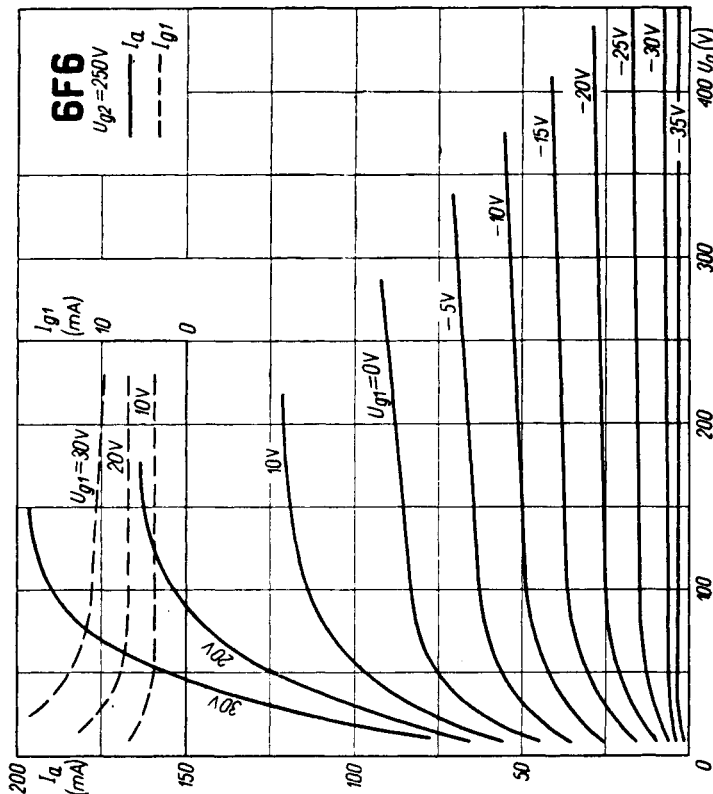
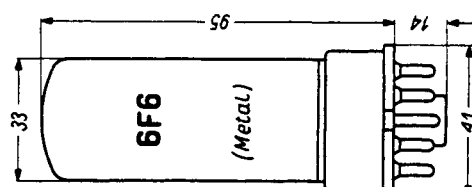
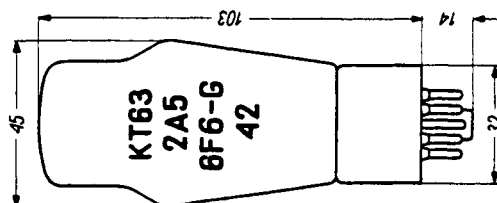
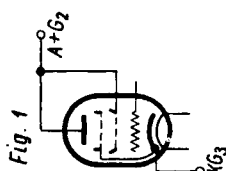
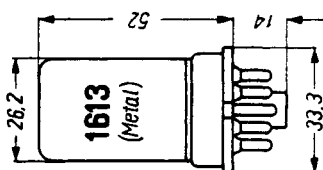
6F6



1613

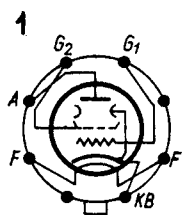


7D5

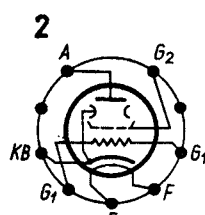


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	I_k	P_a
			V	A	V	V	V	mA	mA	mA/V	kΩ	V	mA	W
6 EF 6	TS	1	6,3	0,9	250 2000	250	— 18	50	2	5			180	11
9 EF 6	TS	1	9,4	0,6										
12 EF 6	TS	1	12,6	0,45										
6 EM 5	amer	2	6,3	0,8	250	250	— 18	35	3	5,1				
8 EM 5	amer	2	8,4	0,6	315	285	—250	maximum ($P_{g2} = 1,5$ W)			200	60	10	
12 EM 5	amer	2	12,6	0,4	2200			impulse < 2 msec.				210		
6 EY 6	amer	1	6,3	0,68	250	250	— 17,5	44	3	4,4	60			
7 EY 6	amer	1	7,2	0,6	2200			impulse < 2 msec.				170	10	
6 EZ 5	amer	1	6,3	0,8	250	250	— 20	43	3,5	4,1	50			
12 EZ 5	amer	1	12,6	0,4	2000			impulse < 2 msec.				170	10	
6 DT 5	amer	2	6,3	1,2	250 2200	250	— 16,5	38	2	6,2	200		190	9
12 DT 5	amer	2	12,6	0,6										
25 DT 5	amer	2	25	0,3										
6 DW 5	amer	2	6,3	1,2	200	150	— 22,5	55	2	5,5	15	200		
12 DW 5	amer	2	12,6	0,6	2200			impulse < 2 msec.				225	11	
6 FN 5	amer	3	6,3	1,65	200	150	— 22,5	110	5	10	10			
35 FN 5	amer	3	35	0,3	2200			impulse < 2 msec.					20	
6 GC 6	amer	4	6,3	1,2	250	150	— 22,5	75	2,4	6,6	20			
12 GC 6	amer	4	12,6	0,6	2200			impulse < 2 msec.						
6 GW 6	amer	5	6,3	1,2	250 2200	150	— 22,5	70	2,1	7,1	15			
12 GW 6	amer	5	12,6	0,6										
17 GW 6	amer	5	16,8	0,45										

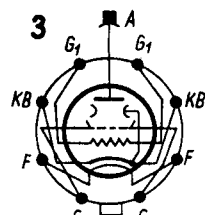
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 EF 6	11,5	9	0,8
6 EM 5	10	5,5	0,7
6 DT 5	12,5	4,9	0,57
6 DW 5	14	9	0,5



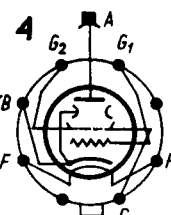
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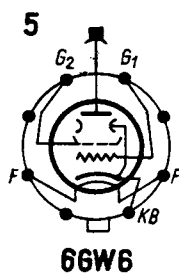
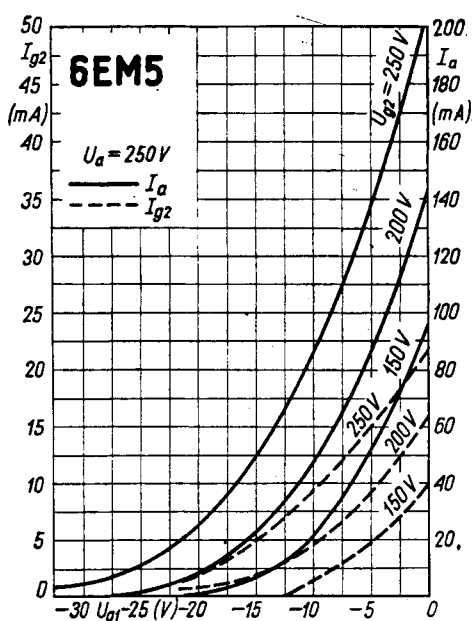
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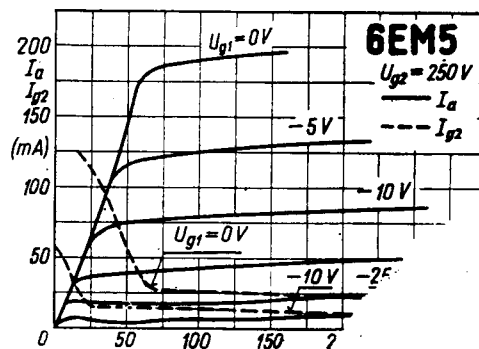
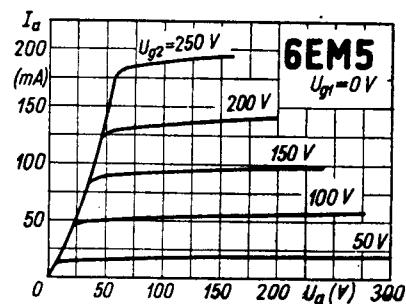
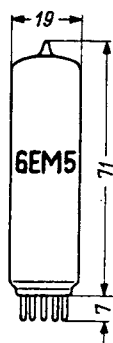
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6GC6



6GW6



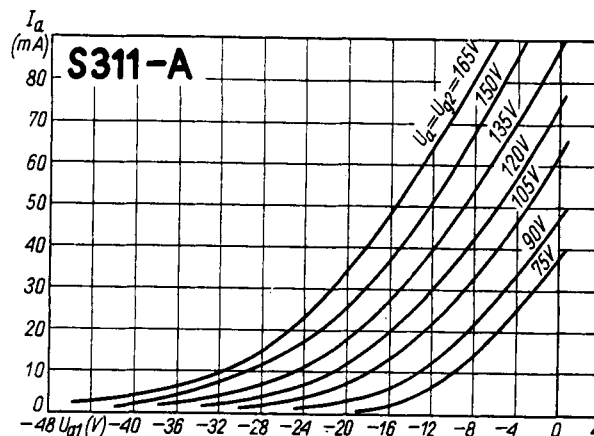
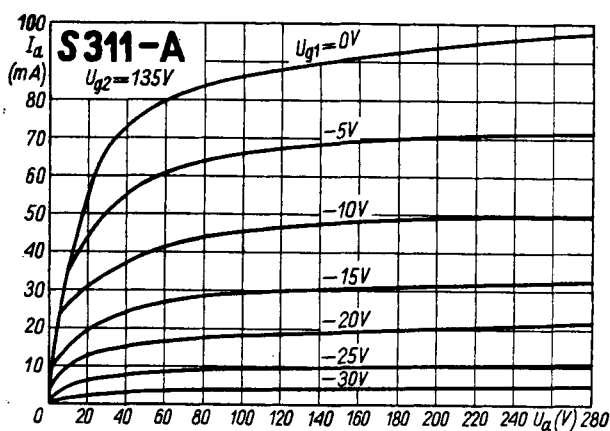
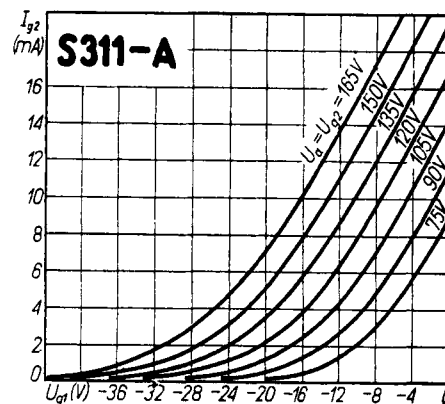
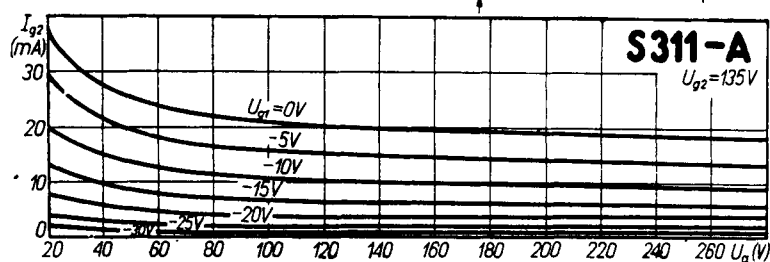
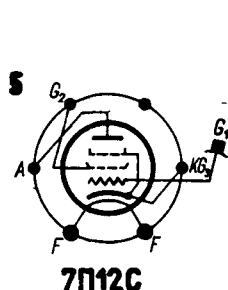
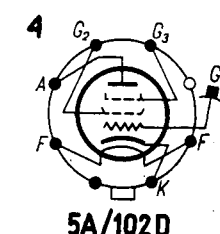
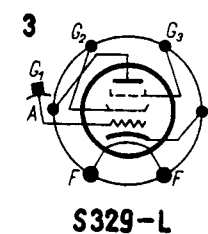
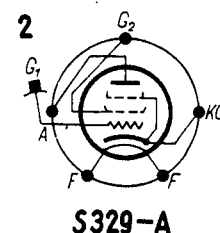
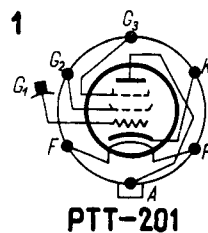
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	$U_{g1 \approx}$	h	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	k Ω	W	V	%	W	W
PTT-201	Frc	1	10	0,64													
S 311-A	STCS	2	10	0,64													
S 329-A	STCS	2	7,5	0,85	135	135	-15	30	7	2,8	43	3	1,9	15	14		
S 329-L	STCS	3	7,5	0,85	180	135	-15	31	7	2,9	50	3	2,5	15	14		
5 A/102 D	STCE	4	7,5	0,85	180	150											
7 Π 12 C	CCCP	5	7,5	0,85													
10 Π 12 C	CCCP	5	10	0,64													

maximum $U_f/k = 150$ V; $I_k = 60$ mA

Equivalents

TO-2	CCCP = 10 Π 12 C
TO-4	CCCP = 7 Π 12 C
VLS 452	STCE = 5 A/102 D
5 A/102 A	STCE = S 329-L
311 A	amer = S 311-A
311 B	amer = S 311-A
329 a	Siem = S 329-A
329 A	amer = S 329-A
3311 A	CSF = S 311-A
3329 A	CSF = S 329-A
4311 B	STCA = S 311-A
4329 A	STCA = S 329-A

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
S 311-A	8	9	0,29
S 329-A	8	9	0,29
S 329-L	8	9	0,29
5 A/102 A	6,8	9	0,5
5 A/102 D	6,8	9	0,5
7 Π 12 C	7,7	9,7	0,5
4311 B	6,8	9	0,5
4329 A	6,8	9	0,5



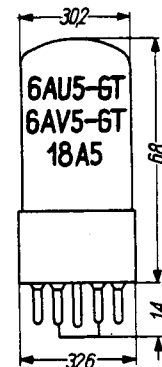
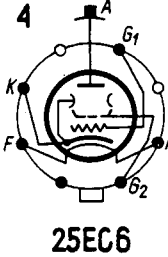
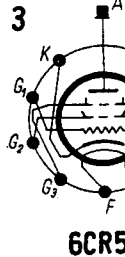
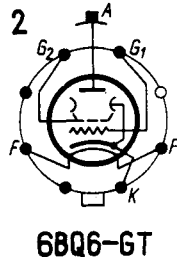
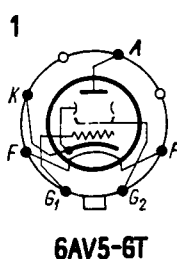
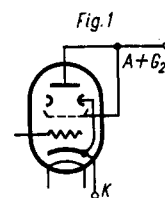
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	U_f/k	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	kΩ	V/V	V	mA	W	W
6 AU 5-GT	amer	I	6,3	1,25	stat Fig. 1 HD	115 100 550	175 — 200	—20 —4,5 —300	60	6,8	5,6	6	5,9				
6 AV 5-GA	amer	I	6,3	1,2	stat.	250	150	—22,5	57	2,1	5,9	14,5	4,3				
12 AV 5-GA	amer	I	12,6	0,6	Fig. 1	150		—22,5									
17 AV 5-GA	amer	I	16,8	0,45	HD	550	175	—300			maximum						
25 AV 5-GA	amer	I	25	0,3		1)		peak ¹⁾									
6 AV 5-GT	int	I	6,3	1,2	stat	250	150	—22,5	55	2,1	5,5	20	4,3				
6 BQ 6-GT	int	2	6,3	1,2	Fig. 1	150		—22,5									
12 AV 5-GT	int	I	12,6	0,6													
12 BQ 6-GT	int	2	12,6	0,6													
17 AV 5-GT	int	I	16,8	0,45	HD	550	175	—300			maximum						
17 BQ 6-GT	int	2	16,8	0,45		1)		peak ¹⁾									
25 AV 5-GT	int	I	25	0,3													
25 BQ 6-GT	int	2	25	0,3													
6 BQ 6-GTB	amer	2	6,3	1,2	stat	250	150	—22,5	65	2,1	6	18	4,3				
6 CR 5	amer	3	6,3	1,2	Fig. 1	150		—22,5									
12 BQ 6-GTB	amer	2	12,6	0,6													
12 CR 5	amer	3	12,6	0,6													
17 BQ 6-GTB	amer	2	16,8	0,45	HD	600	200	—300			maximum						
17 CR 5	amer	3	16,8	0,45		1)		peak ¹⁾									
25 BQ 6-GTB	amer	2	25	0,3													
25 CR 5	amer	3	25	0,3													
6 BD 5-GT	amer	I	6,3	0,9	stat	200	200	—12			5						
12 BD 5-GT	amer	I	12,6	0,45	HD	325 4000	325	—50 —200			maximum						
						200	125	—17	40	1,1	4,8	27	4,6				
18 A 5	amer	I	18,5	0,3	stat Fig. 1 HD	125 350		—17 —250			maximum						
						1)		peak									
25 EC 6	amer	3	25	0,6	stat Fig. 1 HD	135 135 700	135	—22,5 —22,5 —300	70	4,5	7,5	4,7	3,8				
						1)		peak			maximum						

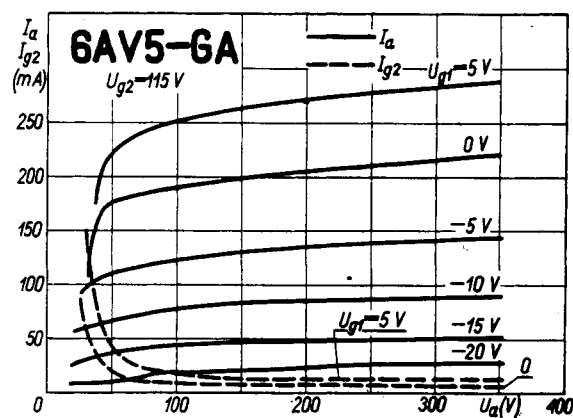
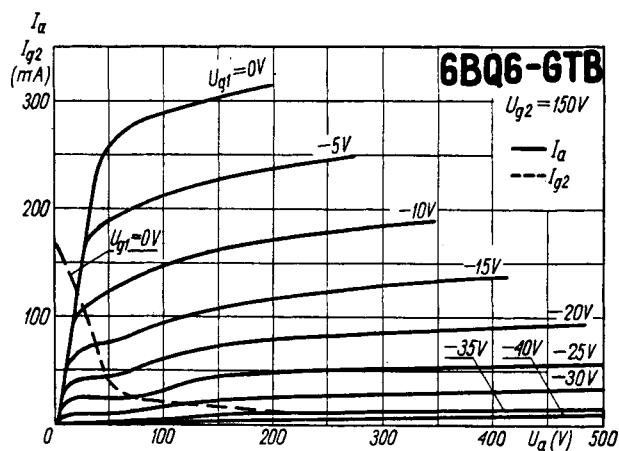
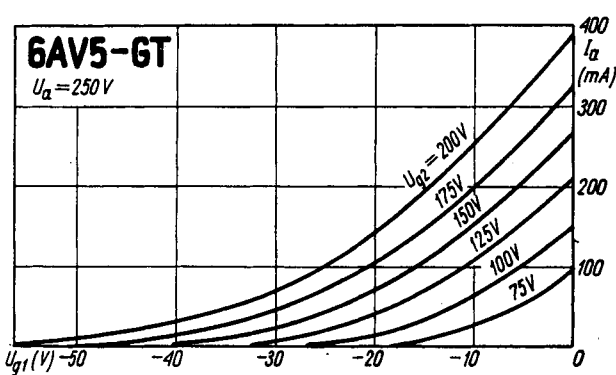
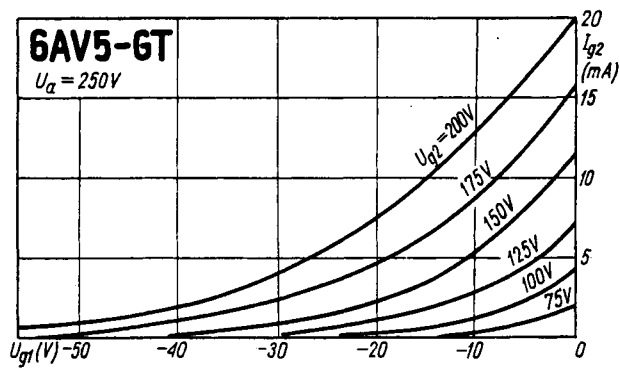
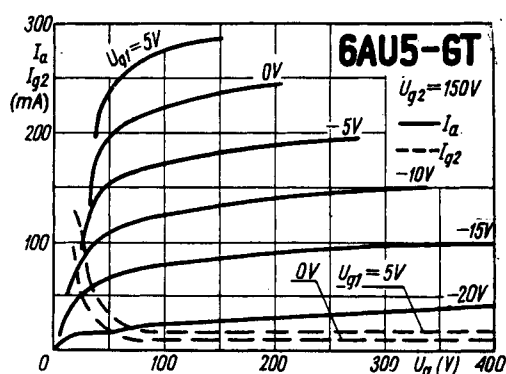
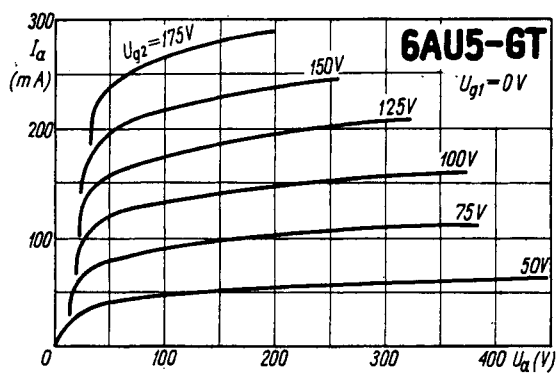
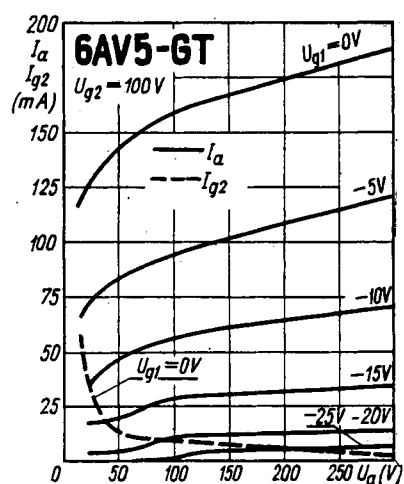
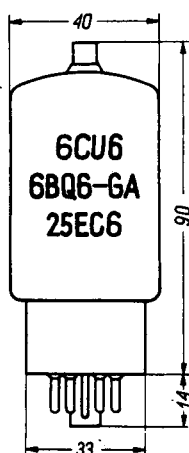
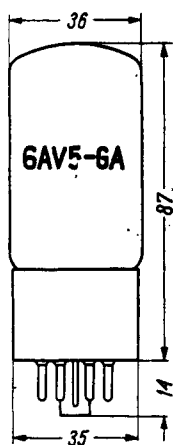
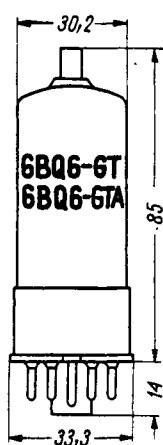
¹⁾ $U_a(\text{peak}) = -1250 \div +5500 \text{ V}$; ²⁾ $U_a(\text{peak}) = -1250 \div +6000 \text{ V}$; $U_a(\text{max}) = 600 \text{ V}$; ³⁾ $U_a(\text{peak}) = -600 \div +3000 \text{ V}$; ⁴⁾ $U_a(\text{peak}) = -1500 \div +7000 \text{ V}$;
⁵⁾ Impulse $10 \leq \mu\text{sec}$.

T.	C_{g1}	C_a	$C_{g1/a1}$
	pF	pF	pF
6 AU 5-GT	11,3	7	0,5
6 AV 5-GA	14	7	0,5
6 AV 5-GT	14	7	0,7
6 BQ 6-GT	15	7,5	0,6
6 BQ 6-GTA	15	7,5	0,6
6 BQ 6-GTB	15	7,5	0,6
6 CU 6	15	7	0,55
6 CR 5	12,8	6,9	0,32
18 A 5	13	7	0,7
25 EC 6	24	10	0,6

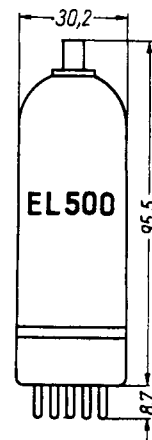
Equivalents

6 BQ 6-GA ²⁾	amer = 6 BQ 6-GT
6 BQ 6-GTA ²⁾	amer = 6 BQ 6-GT
6 CU 6 ²⁾	amer = 6 BQ 6-GT
12 BQ 6-GA ²⁾	amer = 12 BQ 6-GT
12 BQ 6-GTA ²⁾	amer = 12 BQ 6-GT
12 CU 6 ²⁾	amer = 12 BQ 6-GT
17 BQ 6-GA ²⁾	amer = 17 BQ 6-GT
25 BQ 6-GA ²⁾	amer = 25 BQ 6-GT
25 CU 6 ²⁾	amer = 25 BQ 6-GT





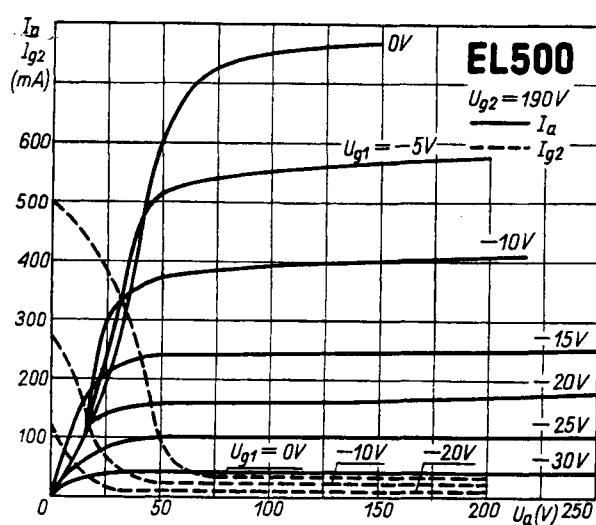
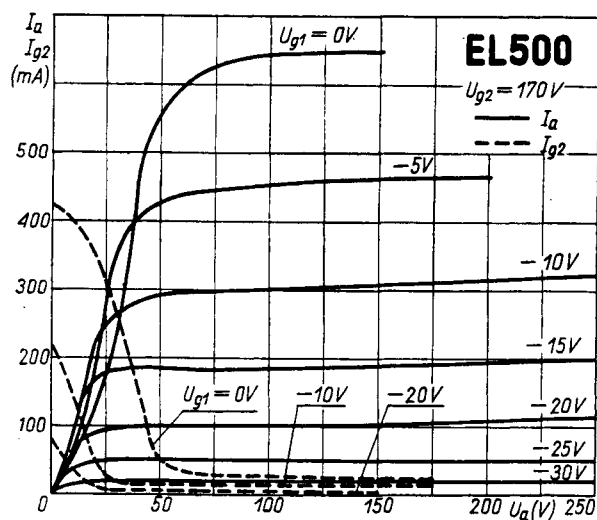
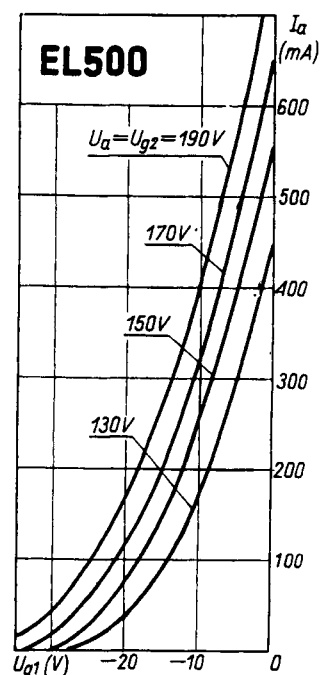
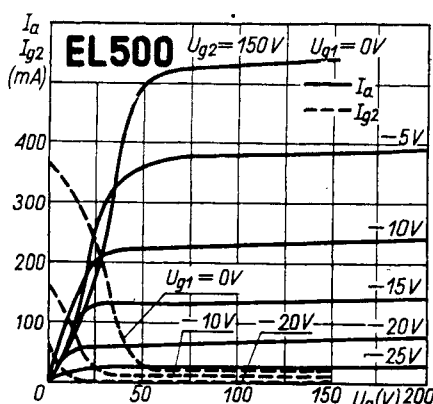
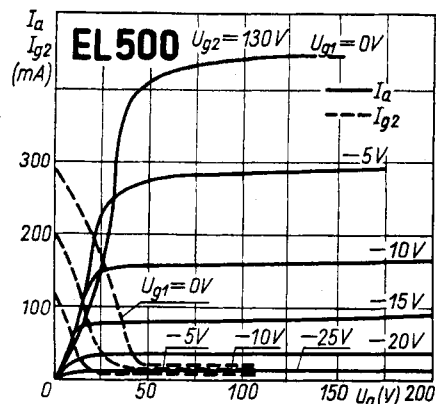
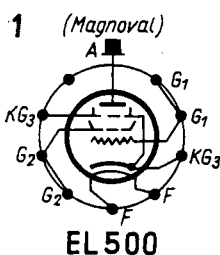
T.			U_f	I_f	Cl.	U_b	R_{g2}	U_a	U_{g2}	U_{g1}	I_a	I_{g2}
			V	A		V	k Ω	V	V	V	mA	mA
					stat.			75	200	-10	440	30
						170	1,2	62	130	-6	250	
								66	150	-7	310	
EL 500	eur	I	6,3	1,38	HD			65	130	-6	250	
PL 500	eur	I	27	0,3	stabil.	200	1,5	69	150	-7	310	
								73	170	-8	360	
								72	150	-7	310	
XL 500	eur	I	14	0,6		230	2,2	76	170	-8	360	
								80	190	-9	420	
					HD	190	2,2				230	
					non stabil.	230	2,2				326	
					maximum	550		250	250	$U_{a(peak)} = 7000$ V		
$U_f/I_k = 220$ V; $I_k = 250$ mA; $P_a = 12$ W, $P_{g2} = 4$ W; $P_a = 8$ W; $P_{g2} = 5$ W;												



Equivalents

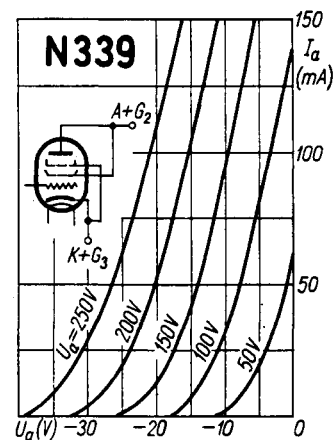
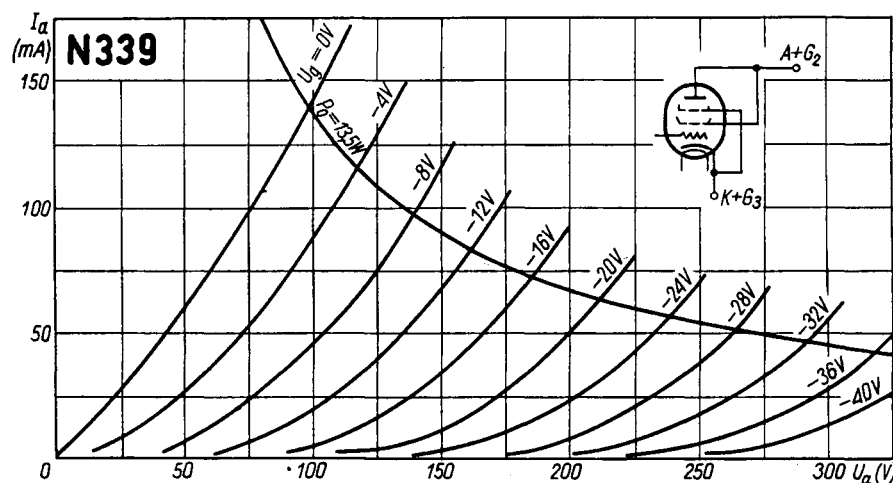
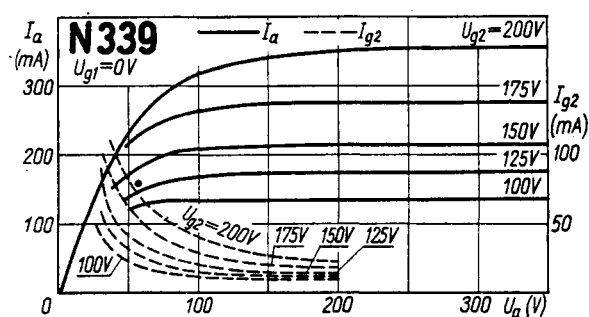
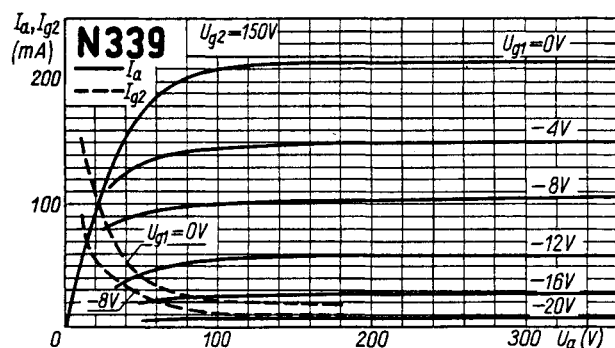
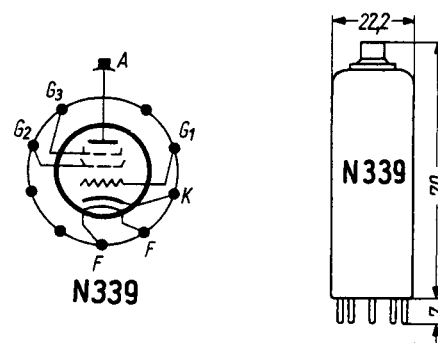
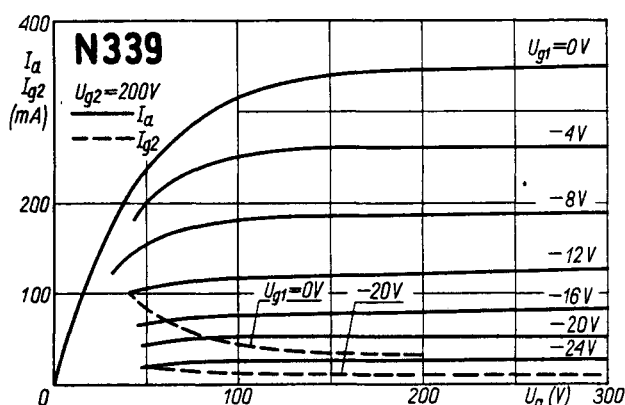
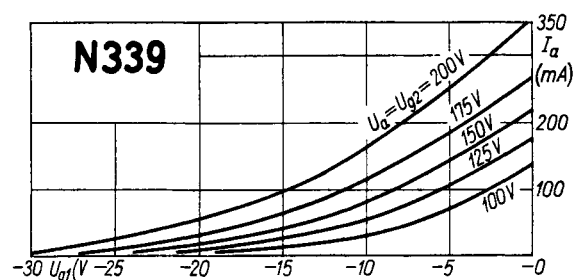
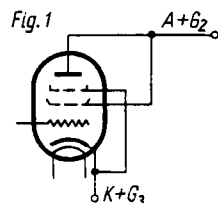
6 GB 5 amer = EL 500
14 GB 5 amer = XL 500
28 GB 5 amer = PL 500

$$C_{g1}/f = 0,2 \text{ pF}$$



T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	μ V/V	$U_{f/k}$ V	P_{g2} W	P_a W
N 339	Eng	20	0,3	stat Fig. 1	150 300 7500	150 200	-12,5 impulse 18 μsec	50	6 maximum maximum	8,5 maximum	30		230	4,5	12
					150 200	—	-12,5	65	—	10,5 maximum	0,81	8,5			12,5

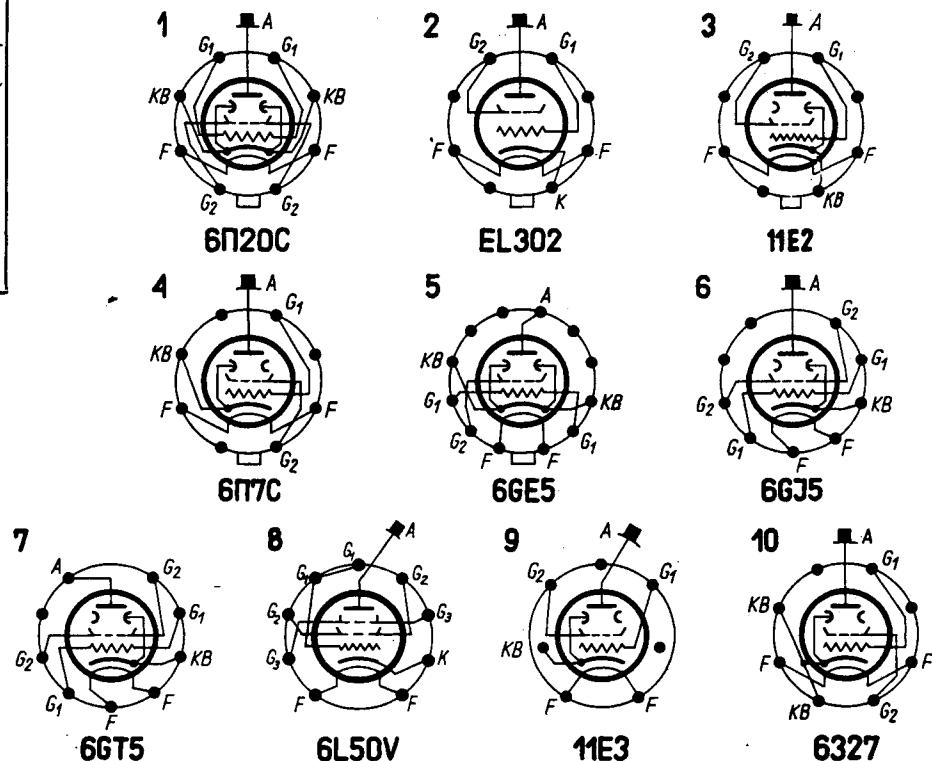
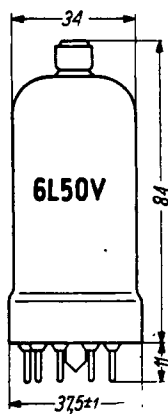
C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
13	7,3	0,38

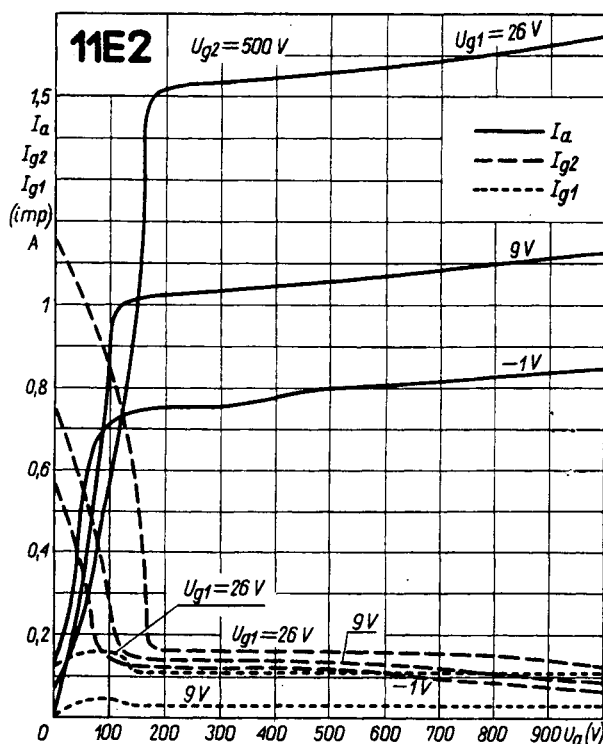
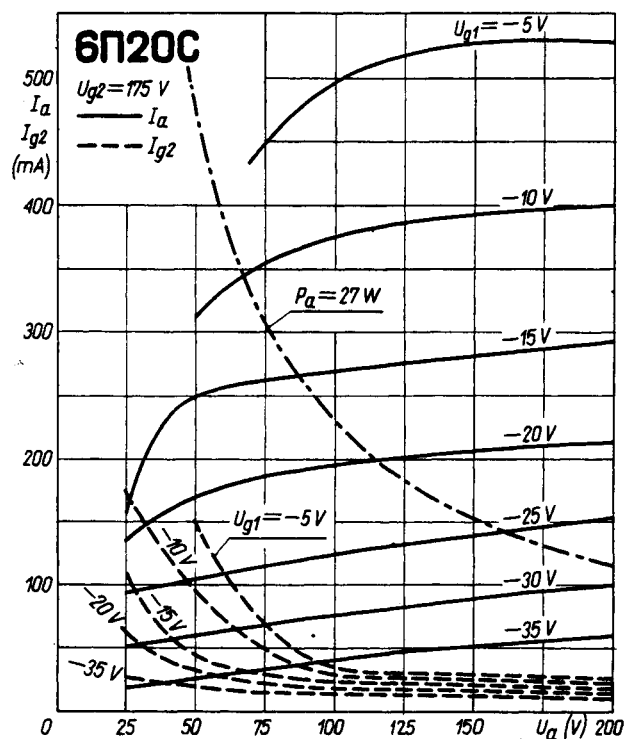
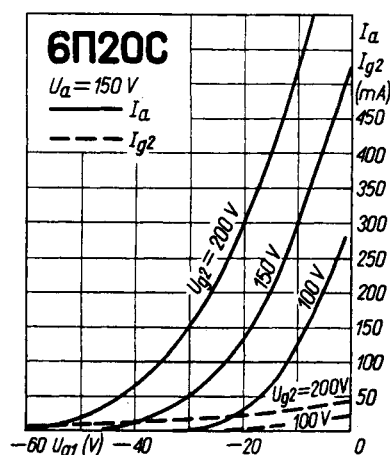
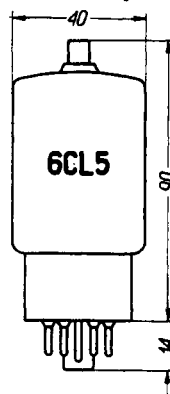
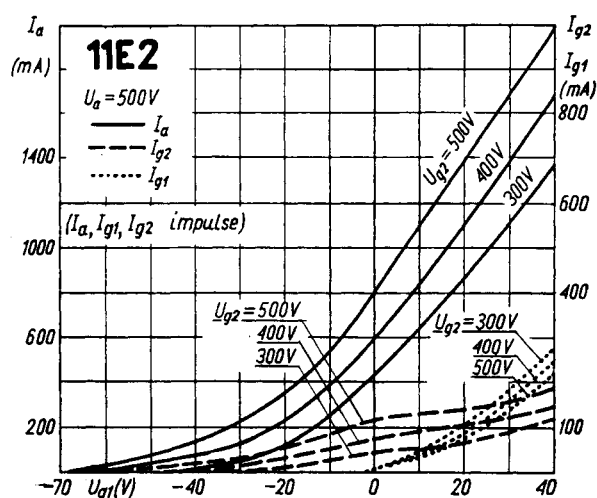
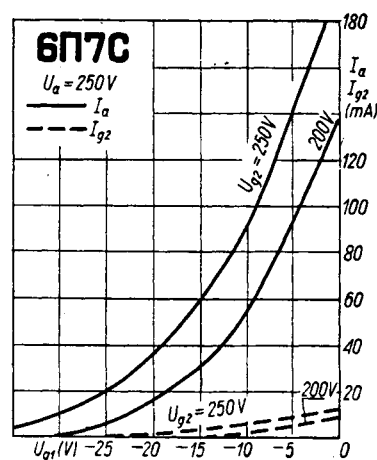
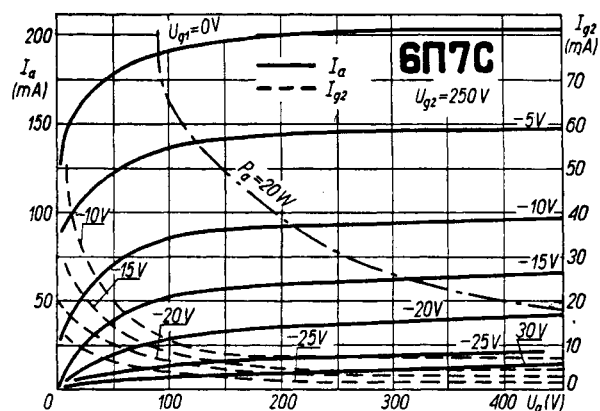


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$U_{f/k}$	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	kΩ	V	W	W
EL 300	eur	1	6,3	1,65	200	150	-22,5	110	5	10	10			
PL 300	eur	1	35	0,3										
EL 302	Eds	2	6,3	1,2	170	170	-21	100	8,8	11	5,5			
PL 302	Eds	2	25	0,3										
N 308	Eng	3	25	0,3	100	100		100		13				10
6 CL 5	amer	1	6,3	2,5	175	175	-40	90	7	6,5			4	25
6 EX 6	amer	4	6,3	2,25	175	175	-30	67	3,3	7,7	8,5			
21 EX 6	amer	4	21,5	0,6										
6 FH 6	amer	2	6,3	1,2	250	150	-22,5	75	1,7	6	12			
6 GE 5	amer	5	6,3	1,2	250	150	-22,5	75	2,4	6,6	20			
12 GE 5	amer	5	12,6	0,6										
6 GJ 5	amer	6	6,3	1,2	250	150	-42	70	2,1	7,1	15			
6 GT 5	amer	7	6,3	1,2										
17 GJ 5	amer	6	16,8	0,45										
17 GT 5	amer	7	16,8	0,45										
6 L 50 V ¹⁾	Tes	8	6,3	1	400 4500	250 800	-25	30	2	3,5	75	80	3	18
6 II 7 C	CCCP	4	6,3	0,9	250 500 6000	250 350	-14 -50 -400	72 100 0	8	5,9	32,5			
6 II 7	CCCP	4	6,3	0,9								135	3,2	20
6 II 20 C	CCCP	1	6,3	2,5	175 450 6800	175 200	-30 -50 -200	90 290 0	10	8,5	7			
												200	3,6	27
11 E 2	Eds	3	6,3	0,9	200 12500	200 550		25						
11 E 3	Eds	9	4,2	2,5	200 3500 12500	200 700	-700	40						
61 BT	Cos	3	6,3	0,7	200	200	-20	40	3	4				
62 BT	Cos	3	6,3	1,27	250	180	-19,5	100	6,5	9,5				
6327	amer	10	6,3	1,8	250	250	-22,5	120	7	8	20			

¹⁾ vide 6 L 50 gr. 232

T.	C_{g1}	C_{ga}	$C_{g1/a}$
	pF	pF	pF
N 308	20	10	0,3
6 CL 5	20	11,5	0,7
6 L 50 V	9,7	7,3	0,3
6 II 7 C	11,5	6	0,6
6 II 20	22,5	10	0,8
11 E 2	15,5	7,5	0,2
11 E 3	20	7,5	0,26

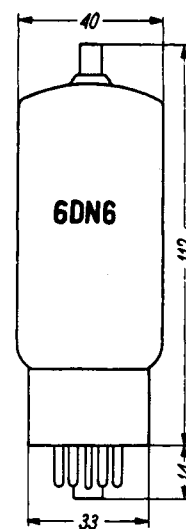
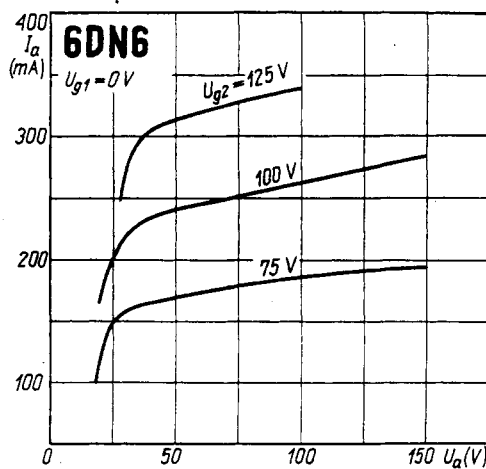
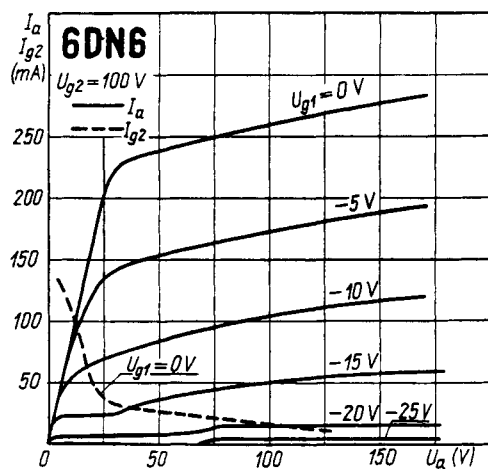
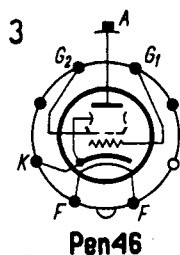
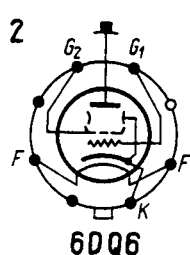
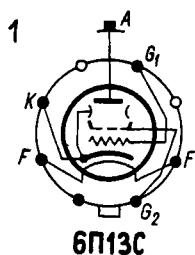
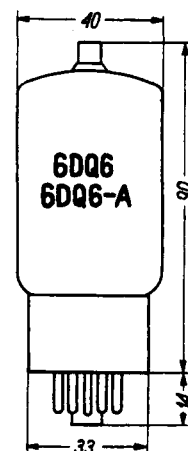
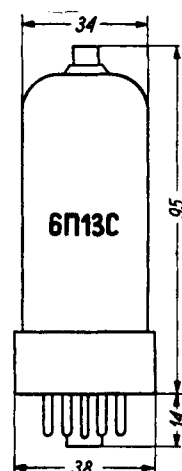
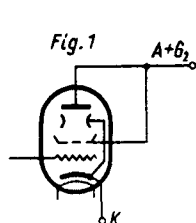


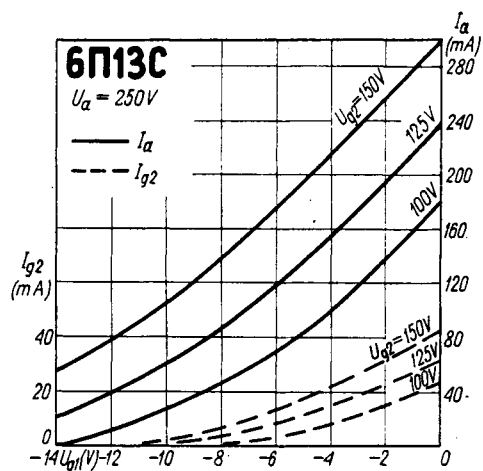
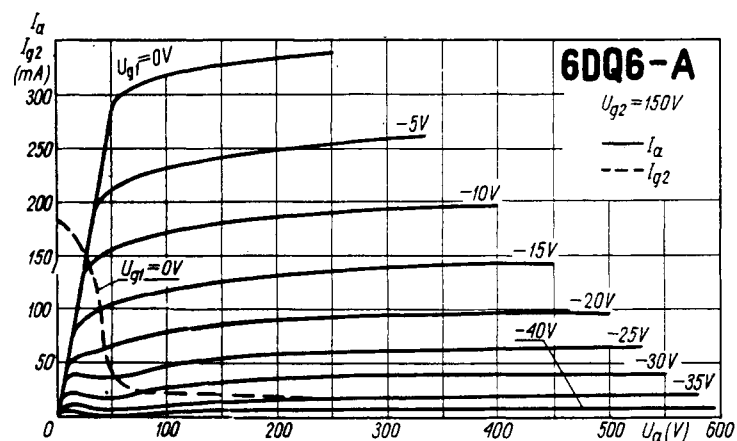
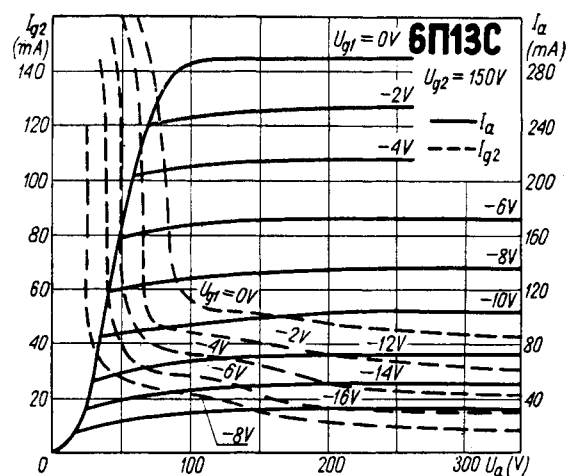
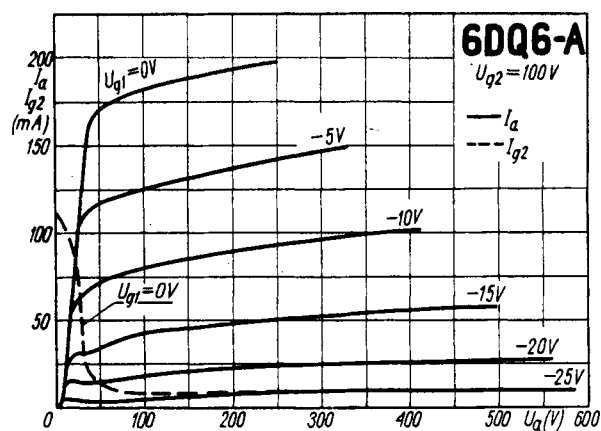
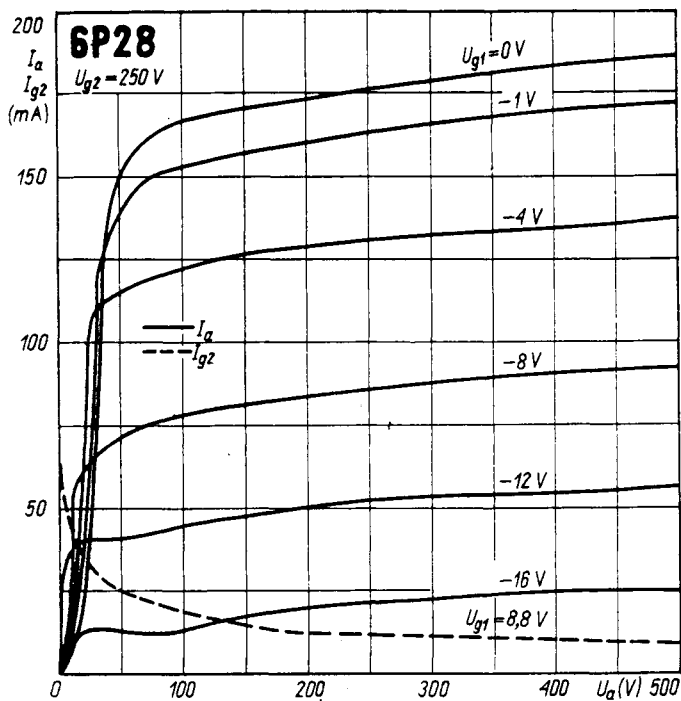
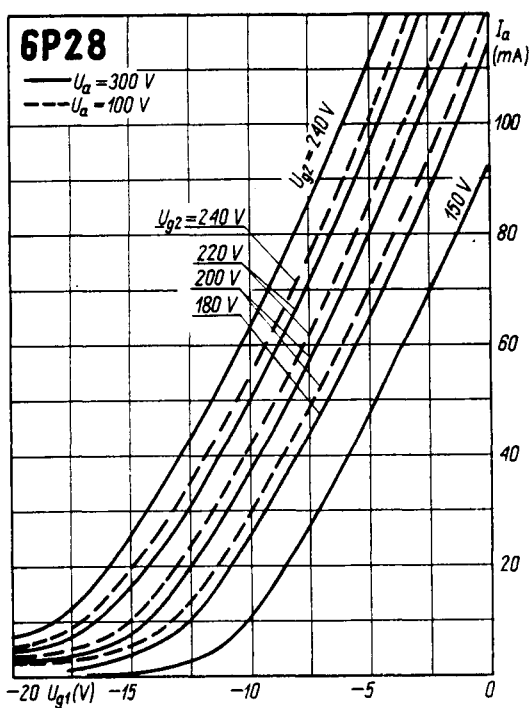


T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	V/V	V	mA	W	W
6 DN 6	amer	I	6,3	2,5	stat. Fig. 1	125	125	-18	70	6,3	9	4	4,35				
25 DN 6	amer	I	25	0,6	HD	700	175	-18		maximum				100	200	3	15
6 II 13 C	CCCP	I	6,3	1,3	stat. HD ¹⁾	200	200	-19	60	8	8,5	25		100	200	4	14
6 P 28	Eds	2	6,3	1,1	stat.	315	230	-7,8	63	14	8,5						
Pen 46	Eds	3	4	1,75		350	250	-8,8	72	16	9,5			100		4	14
6 DQ 6	int	2	6,3	1,2	stat.	400	275			maximum ²⁾				150		4,5	15
12 DQ 6	int	2	12,6	0,6	Fig. 1	150	150	-22,5	75	2,4	6	20					
17 DQ 6	int	2	16,8	0,45		550	175			maximum			4,1	100	120	2,5	15
25 DQ 6	int	2	25	0,3	HD			-300	peak ³⁾					200	440		
6 DQ 6-A	amer	2	6,3	1,2	stat.	250	150	-22,5	75	2,4	6,6	20					
12 DQ 6-A	amer	2	12,6	0,6	Fig. 1	150		-22,5					4,1				
17 DQ 6-A	amer	2	16,8	0,45		700	200			maximum				100	140	3	15
25 DQ 6-A	amer	2	25	0,3	HD			-300	peak ⁴⁾					200	440		

¹⁾ $U_a(\text{peak}) = -1500 \div +6600$ V; ²⁾ $U_a(\text{peak}) = +8000$ V; $I_k(\text{peak}) = 400$ mA; ³⁾ $U_a(\text{peak}) = +5000$ V; ⁴⁾ $U_a(\text{peak}) = -1375 \div +6000$ V; ⁵⁾ Impulse ≤ 10 μ sec

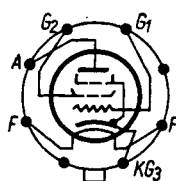
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
6 DN 6	22	11,5	0,8
6 II 13 C	18,5	6,5	0,5
6 P 28	22,5	6,1	1
6 DQ 6	15	7	0,55
6 DQ 6-A	15	7	0,55
Pen 46	22	6	1,25



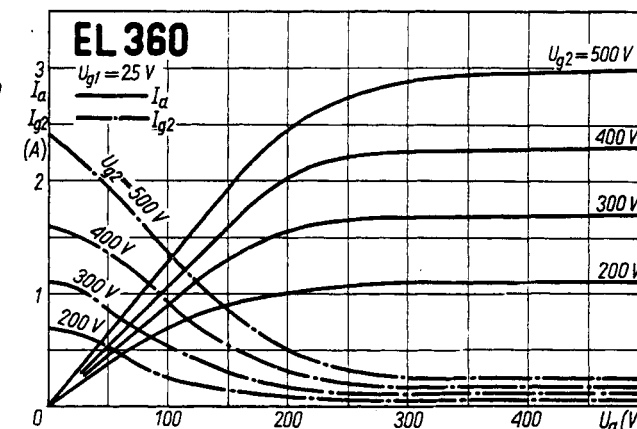
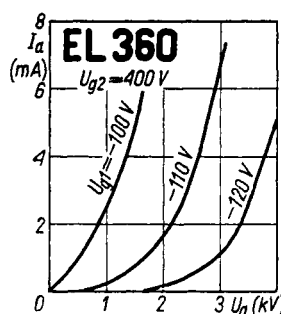
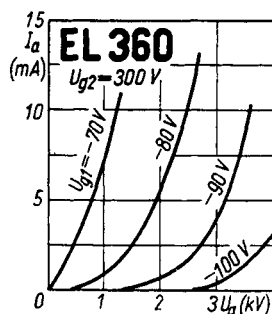
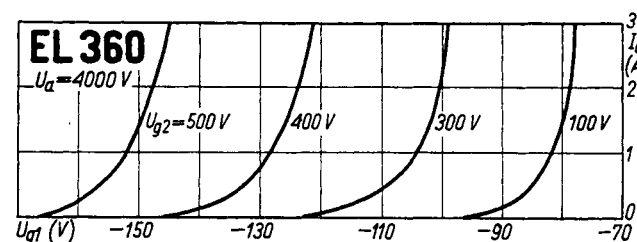
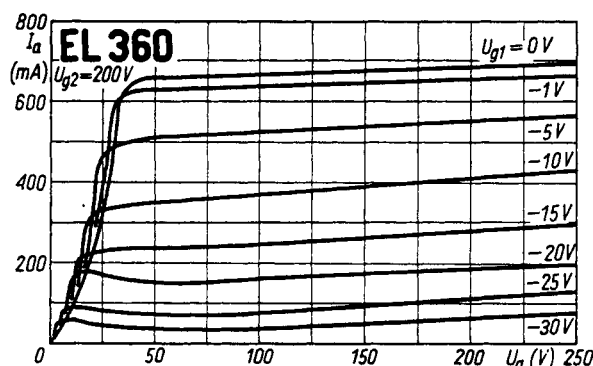
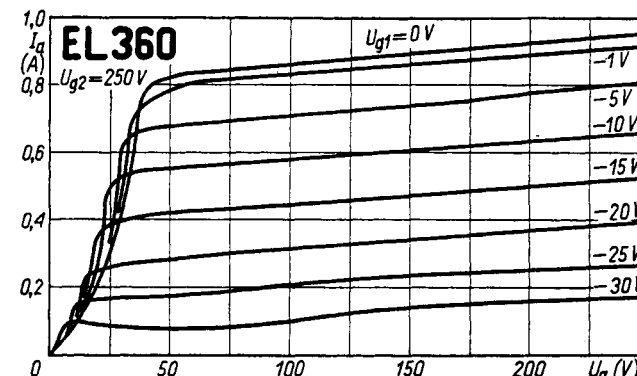
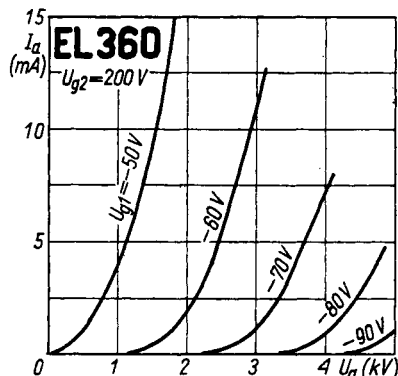
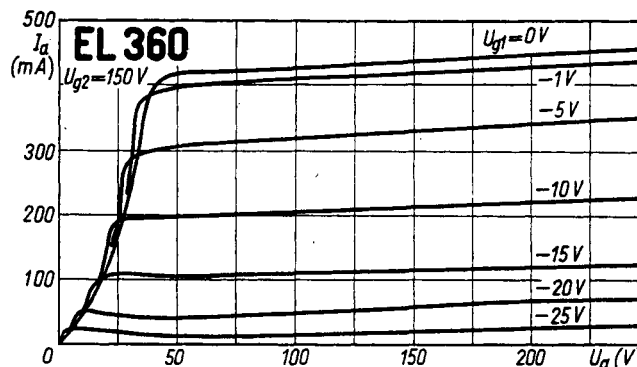
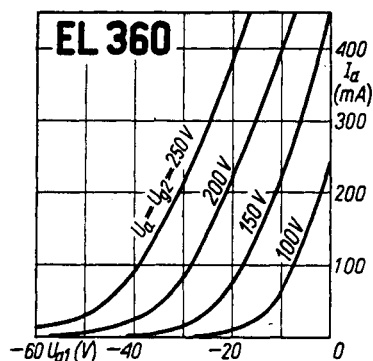
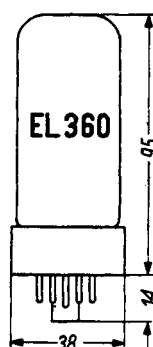


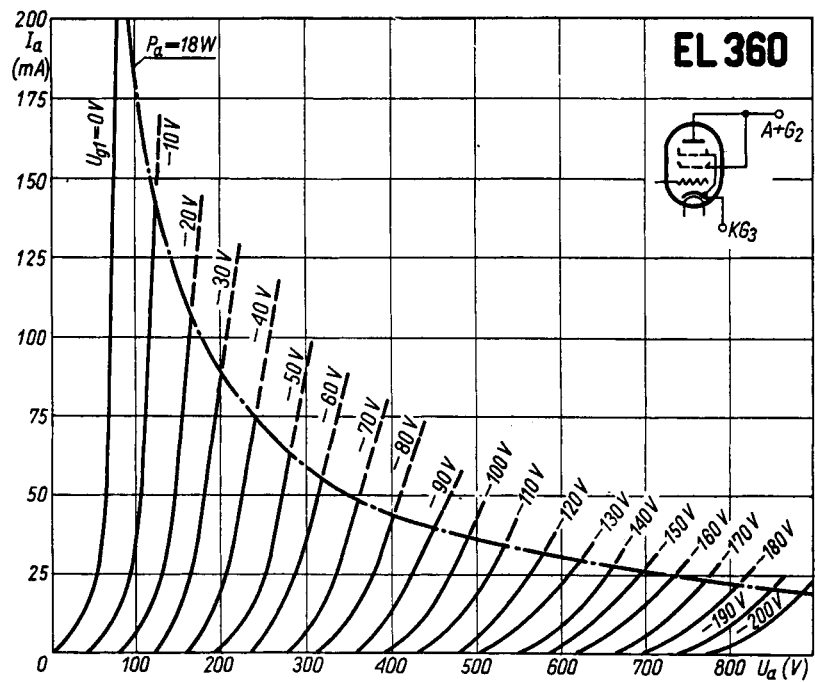
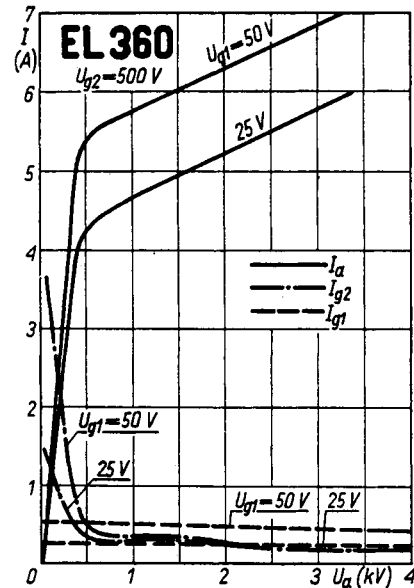
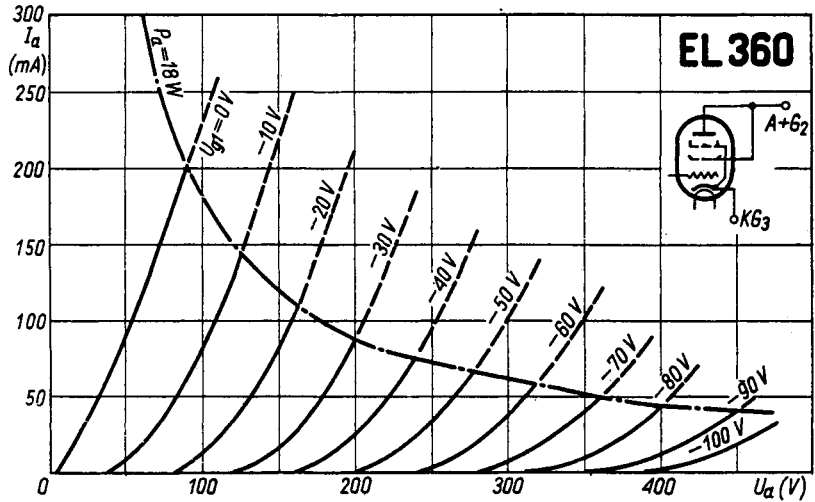
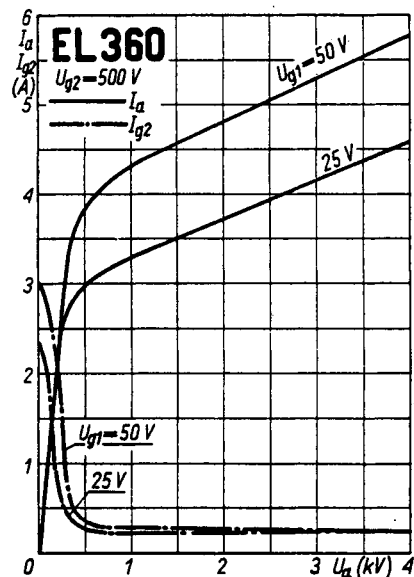
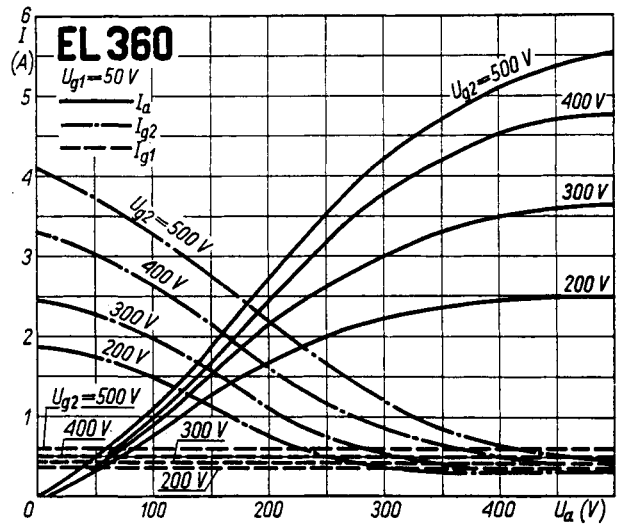
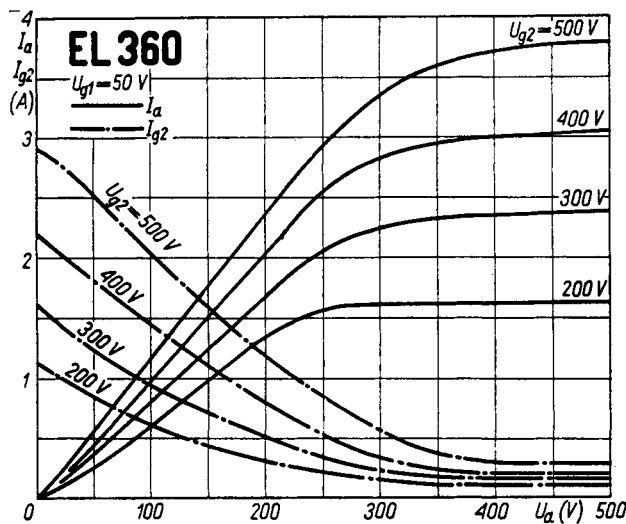
T.		U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g _s /g _s)	$U_{f/k}$ V	I_k A	P_{g2} W	P_a W
EL 360	Mu1	6,3	1,27	100 250 800 -1500 ÷ +7000	100 250 400	-6,3 -46 +66 ÷ -1000	120 48	8,3 5,5	16,5 6,9	3,7 13,5	6 5	200	0,2 4	5	15
maximum impulse 1 μ sec. maximum															

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
17,5	7,7	1,1



EL 360



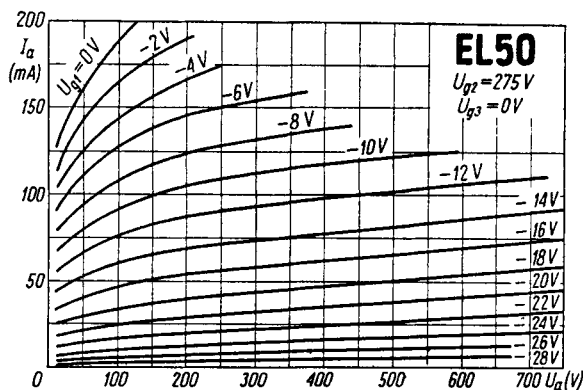
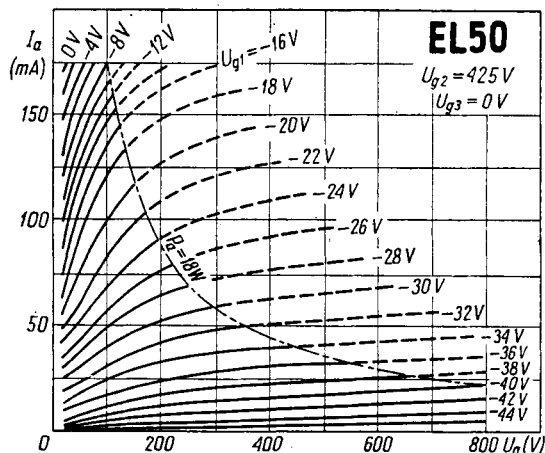
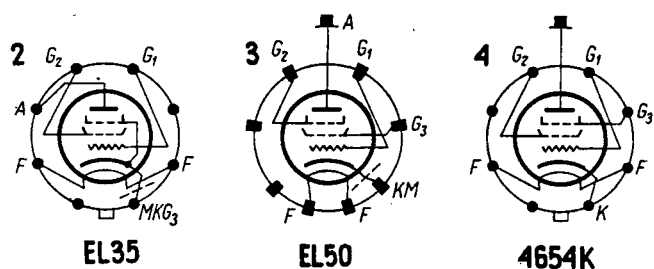
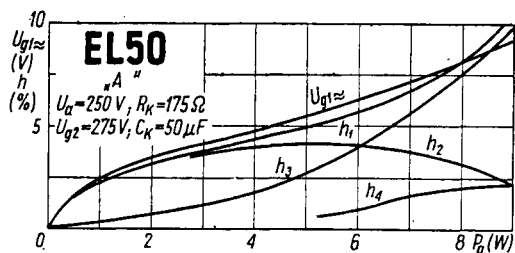
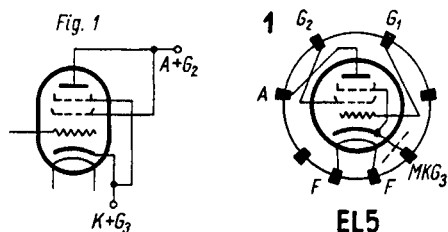


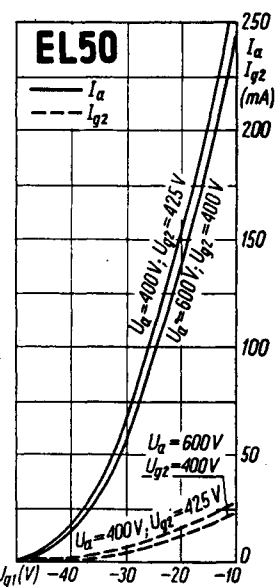
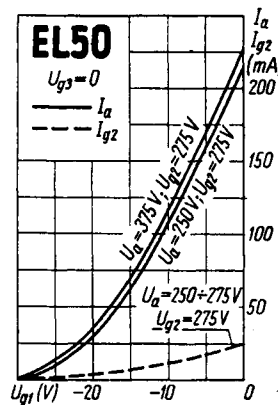
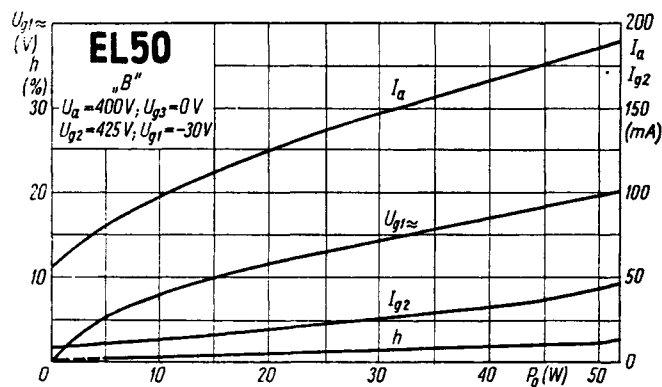
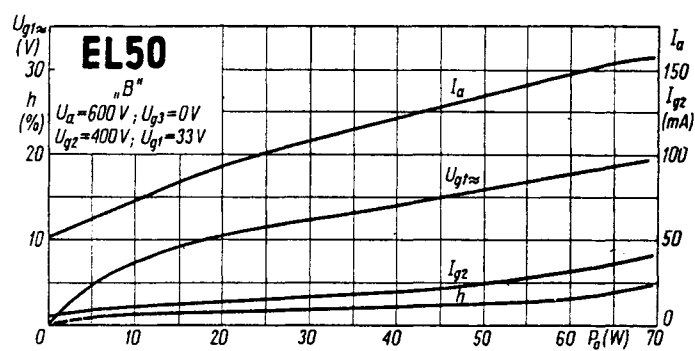
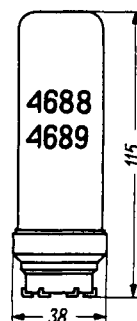
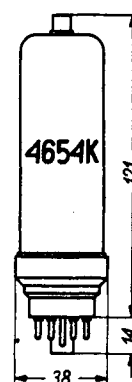
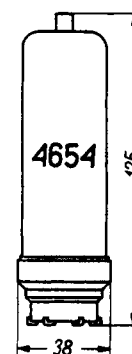
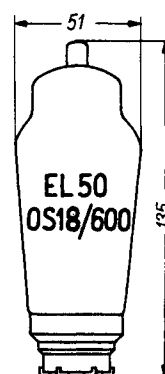
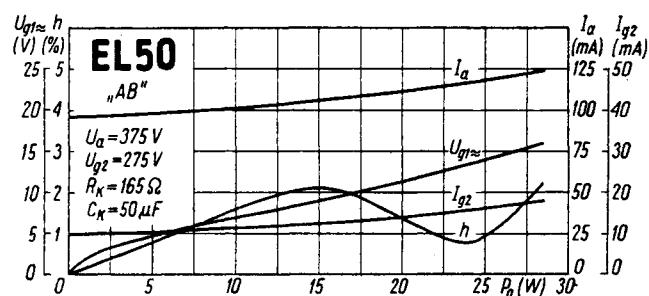
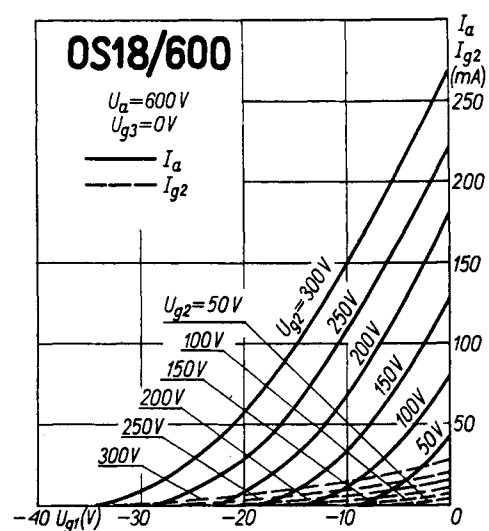
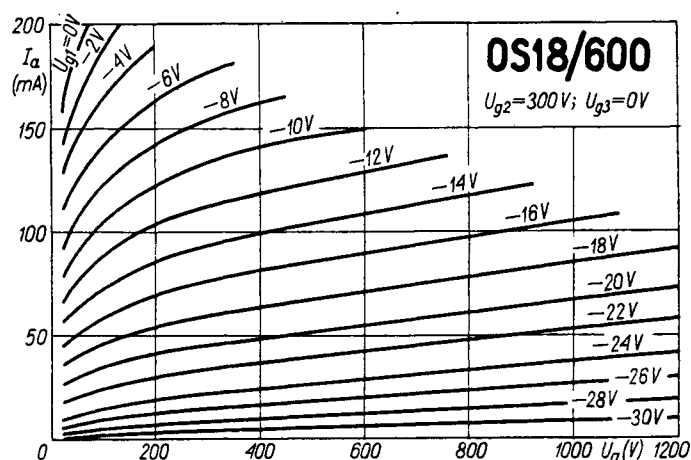
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	$U_{g1\sim}$	h
			V	A		V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%
EL 5 EL 5/375 EL 35 EL 39 EL 50 4654 4654 K	eur eur Mul eur eur Phi Phi	1 1 2 3 3 3 4	6,3 6,3 6,3 6,3 6,3 6,3 6,3	1,35 1,35 1,35 1,35 1,35 1,35 1,35	A AB B A AB												

¹⁾ $U_{b/g2} = 375$ V, $R_{g2} = 500$ Ω ; ²⁾ $U_{b/g2} = 425$ V, $R_{g2} = 2000$ Ω ; ³⁾ $U_{b/g2} = 425$ V, $R_{g2} = 500$ Ω

Equivalents

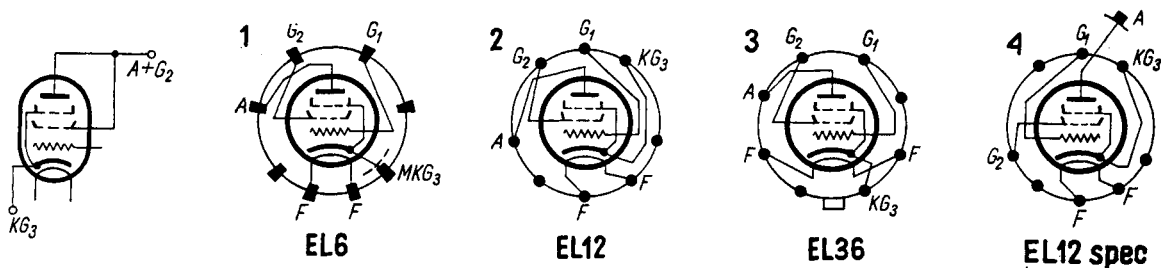
EL 5 G	Phi = EL 35	4654 P	Phi = 4654
EL 5/600	Phi = EL 39	4688	Phi = EL 5
OS 18/600	Tu = EL 39	4689	Phi = EL 5/375
PEN 650	Mul = EL 50	4689 K	Phi = EL 35
VEL 5	Vat = EL 5	4689 P	Phi = EL 5
6 E 7	Ult = EL 5		





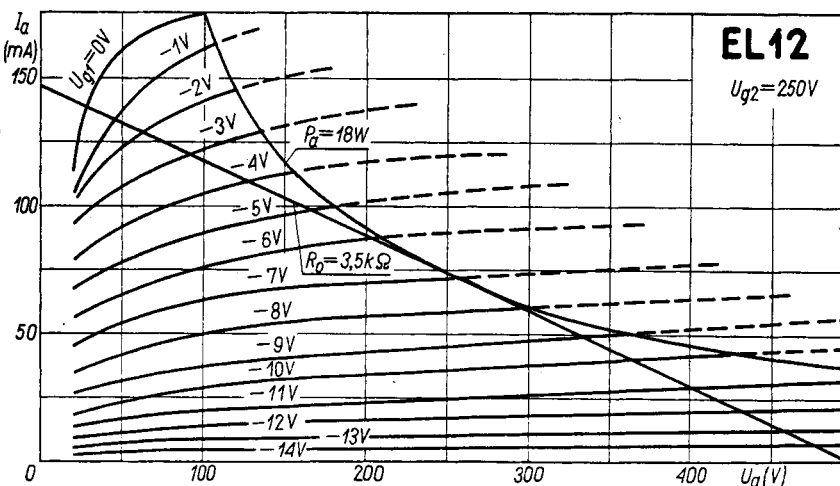
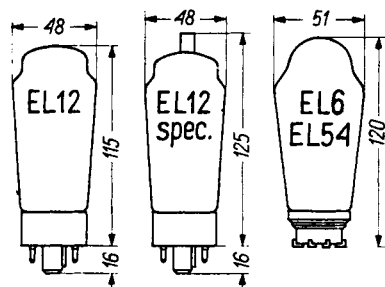
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$R_{a/a}(R_o)$	P_o	$U_{g1\sim}$	h		
			V	A		V	V	V	mA	mA	mA/V	kΩ	Ω	kΩ	W	V	%		
EL 6 EL 6/400 EL 12 EL 12/325 EL 12/350 EL 12/375 EL 12 spez. EL 36 EL 54	eur eur eur eur Tif eur eur Mul Mul	1 1 2 2 2 2 4 3 1	6,3 6,3 6,3 6,3 6,3 6,3 6,3 6,3 6,3	1,2 1,2 1,2 1,2 1,2 1,2 1,2 1,2 1,2	stat A AB A Fig. I AB Fig. I A	300	325	-12,2	55	6,25	13	28	200						
						350	350	-14	49	6,5	12	50	250						
						400	425	-18,2	45	6	10	35	360						
						425	425	-19	42	4,5	10	50	410						
						250	250	-7	72	8	15	20	90	(3,5)	8,2	4,8	10		
						250	250	-9	90 ÷ 106	11 ÷ 17			90	5	14,5	7,3	2,2		
						250	265	-9	90 ÷ 108	10,2 ÷ 19,8			97	5	16	8,2	1,7		
						300	325	-12,2	110 ÷ 134	12,5 ÷ 28			100	5	25,5	11	2,5		
						350	350 ¹⁾	-14,5	104 ÷ 128	13 ÷ 33			125	6	27,5	14	4		
						400	360 ²⁾	-17,5	92 ÷ 116	10 ÷ 29			180	8	29	17	5		
						425	425	-19	84 ÷ 192	10 ÷ 52			400	5	43	27	5		
						250	—	-10	40	—	15	1,5	200	(3,5)	2	6,7	5		
						375	—	-16	50	—			300	(4)	4,5	11	9		
						250	—	-9,5	80	—			120	5	4,7	13	1,5		
						300	—	-11,5	100	—			230	5	7,3	15,5	1,5		
320	—	-12,8	100	—			250	5	8,7	17	1,5								
350	—	-14,5	100	—			300	5	11,3	20,5	1,8								
400	—	-17,3	96 ÷ 108	—			350	5,5	13	13,5	1,5								
EL 12 N	RFT	2	6,3	1,2	A	250	250	—0,3	72	11	15	20	90	(3,5)	8	4,5			
						425	425	maximum $P_a = 18 \text{ W}; P_{g2} = 2,5 \text{ W}; I_k = 90 \text{ mA}; U_{f/k} = 50 \text{ V}$											
						$P_a = 18 \text{ W}; P_{g2} = 2 \text{ W}$													
						$I_k = 90 \text{ mA}; U_{f/k} = 50 \text{ V}$													
						$R_{g1} = 0,7 \text{ M}\Omega$													
						$\mu(g2/g1) = 18$													
						maximum EL 6, EL 12, EL 36													
						maximum EL 12/325													
						maximum EL 12/350													
						maximum EL 12/375													

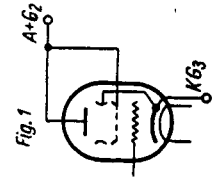
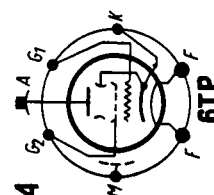
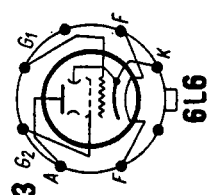
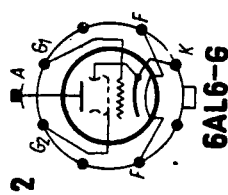
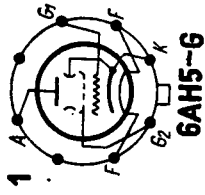
¹⁾ $U_{b/g2} = 375 \text{ V}, R_{g2} = 700 \Omega$; ²⁾ $U_{b/g2} = 400 \text{ V}, R_{g2} = 700 \Omega$



Equivalents

EL 6 spez.	eur = EL 6/400
EL 6/435	Phi = EL 54
EL 12 spez.	Tes = EL 12 spez.
EL 150	Tif = EL 12/375
WE 14	Tif = EL 6
4699	Phi = EL 54
4699 N	Phi = EL 54



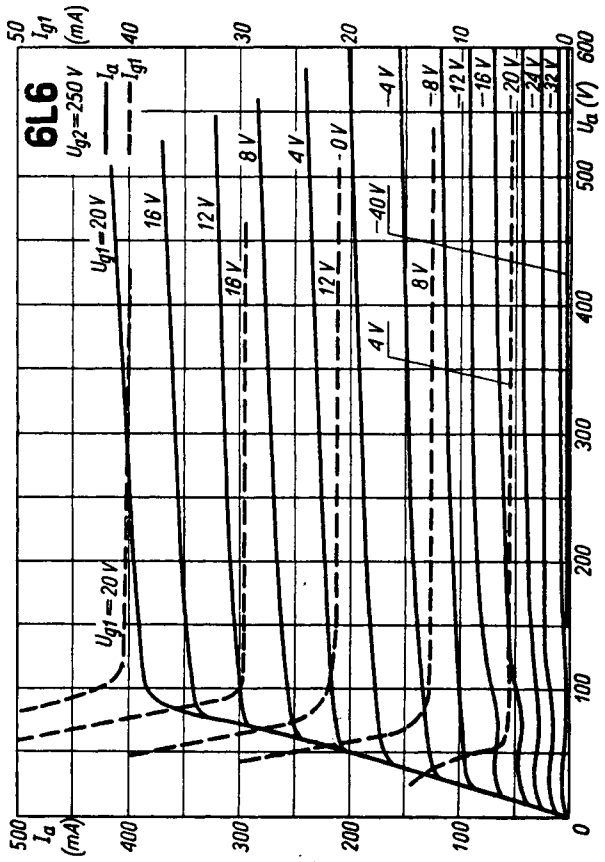
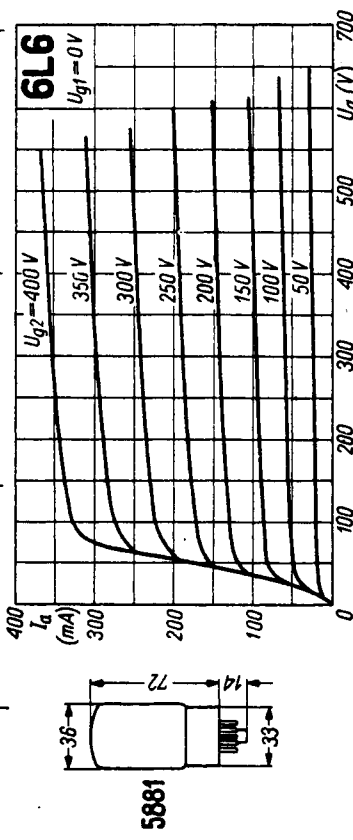
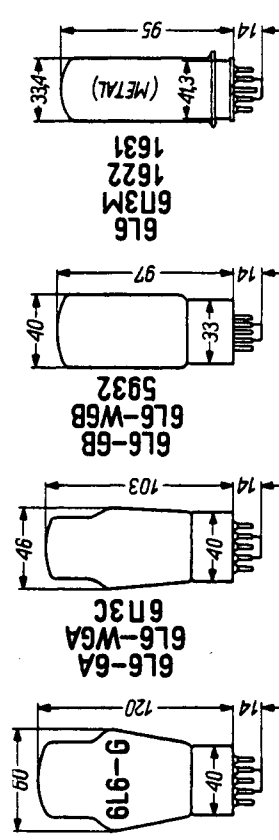
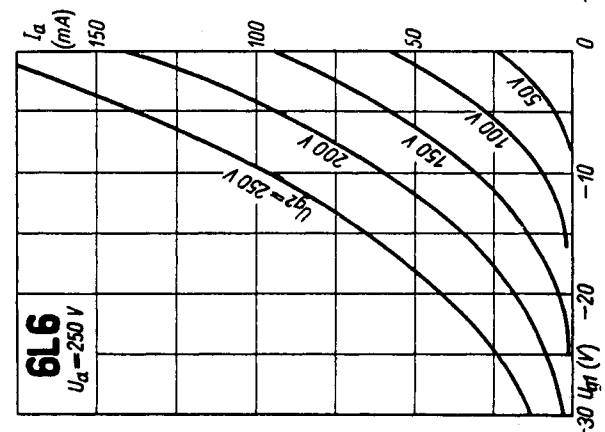
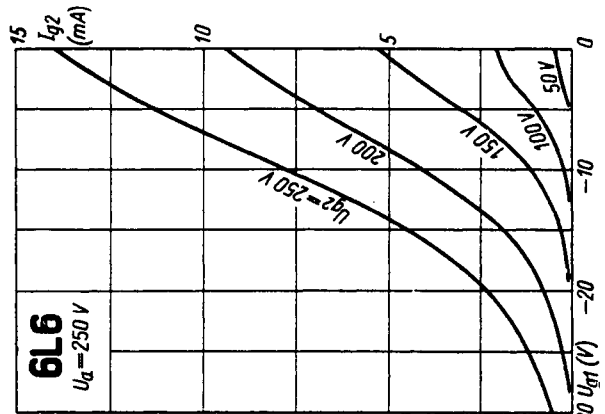
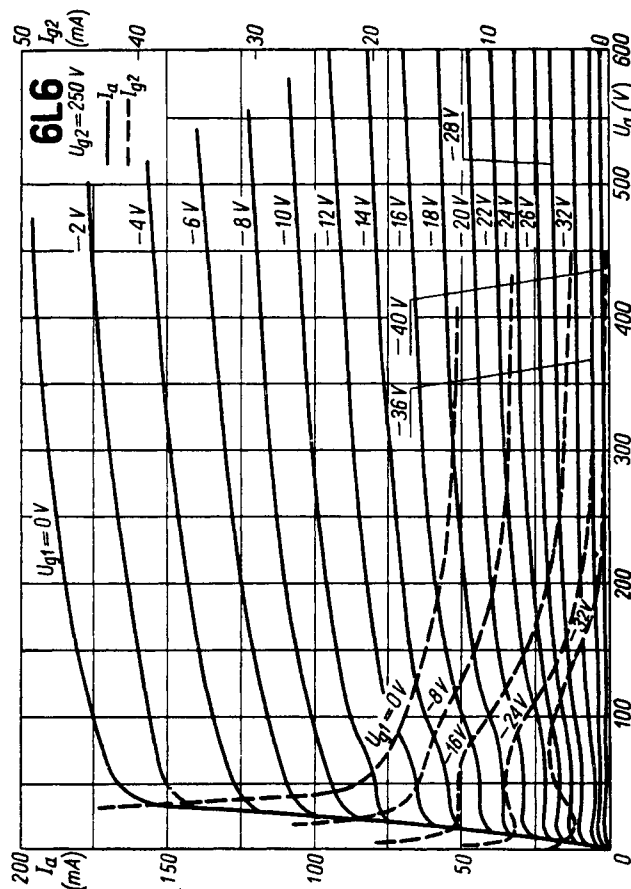


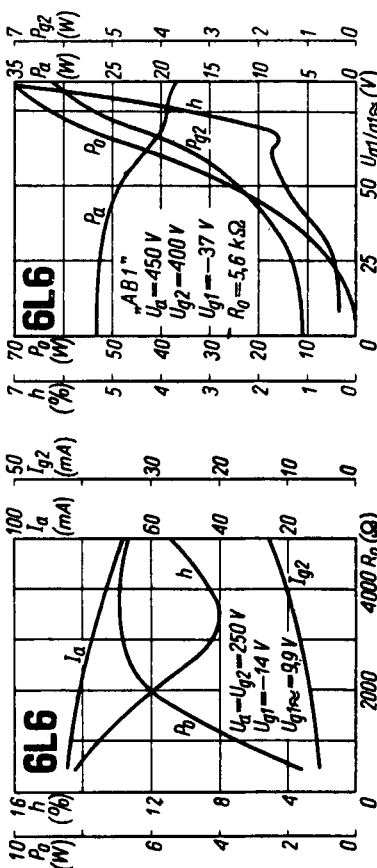
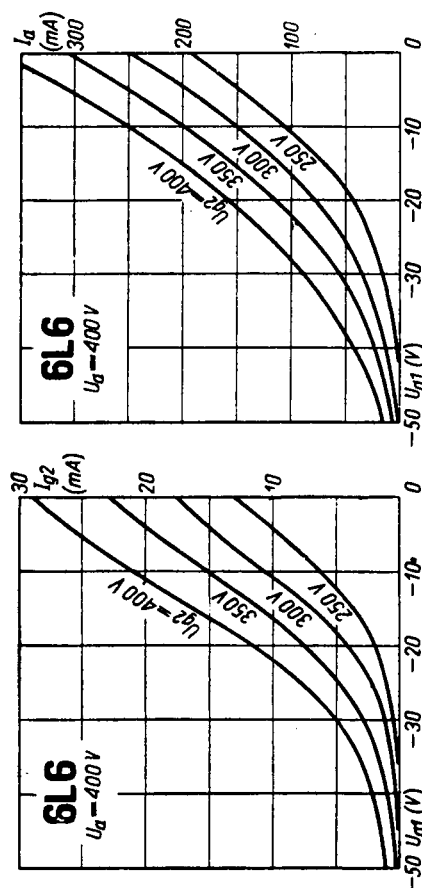
T.	U _f	I _f	Cl.	U _a	U _{g2}	U _{g1}	I _a	I _{g2}	S	R _i	R _k	R _o	P _o	U _{g1} ~	h
6 AH 5-G	200	200	200	200	200	200	52 ÷ 57	3.5 ÷ 5.7	5.3	35	186	3	4	11.5	9
6 AL 6-G	200	200	200	200	200	200	55 ÷ 56	4.2 ÷ 5.6	6	22.5	170	3	4	11.5	9
6 L 6	250	250	250	250	250	250	72 ÷ 79	5 ÷ 7.3	5.3	35	220	2.5	6.5	14	10
6 TP	300	300	300	300	300	300	75 ÷ 78	5.4 ÷ 7.2	5.3	35	220	2.5	6.5	14	10
11 L 6	350	350	350	350	350	350	48 ÷ 55	2.5 ÷ 4.7	5.2	33	365	4	11.5	17.5	14.5
1631	375	375	375	375	375	375	51 ÷ 54.5	3 ÷ 4.6	5.2	33	365	4	11.5	17.5	14.5
	375	375	375	375	375	375	54 ÷ 66	2.5 ÷ 7	5.2	33	365	4	11.5	17.5	14.5
	375	375	375	375	375	375	24 ÷ 26	0.7 ÷ 2	5.2	33	365	4	11.5	17.5	14.5
	375	375	375	375	375	375	24 ÷ 24.3	0.7 ÷ 1.8	5.2	33	365	4	11.5	17.5	14.5
	375	375	375	375	375	375	57 ÷ 67	2.5 ÷ 6	5.2	33	365	4	11.5	17.5	14.5
	250	250	250	250	250	250	120 ÷ 140	10 ÷ 16	5.5	24.5	125	5	14.5	32	2
	250	250	250	250	250	250	120 ÷ 130	10 ÷ 15	5.5	24.5	125	5	14.5	32	2
	270	270	270	270	270	270	134 ÷ 155	11 ÷ 17	5.7	23.5	125	5	17.5	35	2
	270	270	270	270	270	270	134 ÷ 145	11 ÷ 17	5.7	23.5	125	5	17.5	35	2
	360	360	360	360	360	360	88 ÷ 140	5 ÷ 11	5.5	24.5	125	5	17.5	35	2
	360	360	360	360	360	360	88 ÷ 132	5 ÷ 15	5.5	24.5	125	5	17.5	35	2
	360	360	360	360	360	360	88 ÷ 100	5 ÷ 17	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	88 ÷ 126	4 ÷ 9	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	88 ÷ 124	4 ÷ 9	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	96 ÷ 110	4.6 ÷ 10.8	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	89 ÷ 124	4 ÷ 12	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	102 ÷ 152	6 ÷ 17	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	102 ÷ 156	6 ÷ 12	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	112 ÷ 128	7 ÷ 16	5.5	24.5	125	5	17.5	35	2
	450	450	450	450	450	450	116 ÷ 210	5.6 ÷ 22	5.5	24.5	125	5	17.5	35	2
	360	360	360	360	360	360	78 ÷ 142	3.5 ÷ 11	5.5	24.5	125	5	17.5	35	2
	360	360	360	360	360	360	88 ÷ 205	5 ÷ 16	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	88 ÷ 168	4 ÷ 13	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	102 ÷ 230	6 ÷ 20	5.5	24.5	125	5	17.5	35	2
	250	250	250	250	250	250	40 ÷ 44	(μ = 8)	5.5	24.5	125	5	17.5	35	2
	250	250	250	250	250	250	40 ÷ 42	(μ = 8)	5.5	24.5	125	5	17.5	35	2
	300	300	300	300	300	300	78 ÷ 85	(μ = 8)	5.5	24.5	125	5	17.5	35	2
	375	375	375	375	375	375	80 ÷ 92	(μ = 8)	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	110 ÷ 116	(μ = 8)	5.5	24.5	125	5	17.5	35	2
	400	400	400	400	400	400	65 ÷ 130	(μ = 8)	5.5	24.5	125	5	17.5	35	2

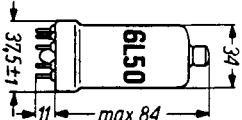
Equivalents 6 L 6

T.	U _a	U _{g2}	U _{g1}	P _{g2}	P _a
6 AH 5-G; 6 AL 5-G	360	270	180	2.5	19
6 L 6; 1631	275	Fig. 1	180	—	12.5
5881	400	400	200	3	23
7581	400	Fig. 1	200	—	26
	500	450	200	5	30
	450	Fig. 1	200	—	30

1) vide * 4, a, b, (U_f = 6.3 V ± 10%)
 2) vide * 4, a, b, c = 5000 d



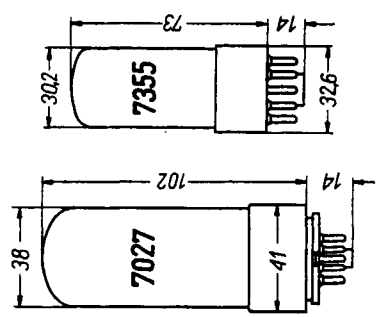
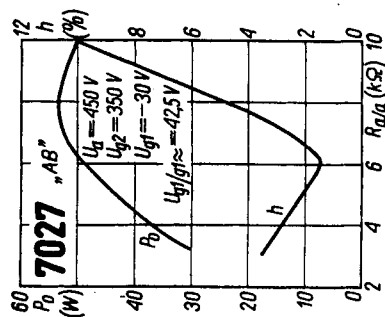
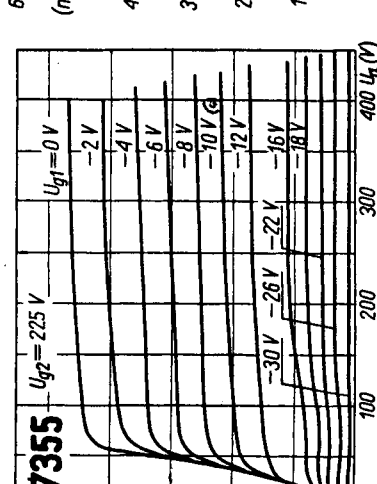
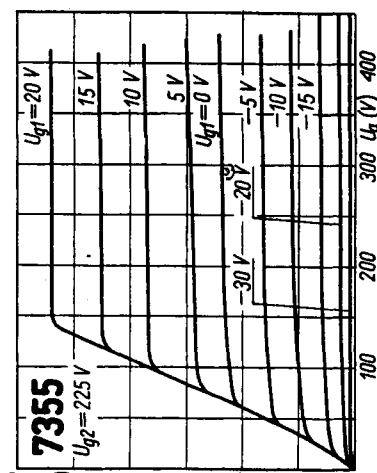
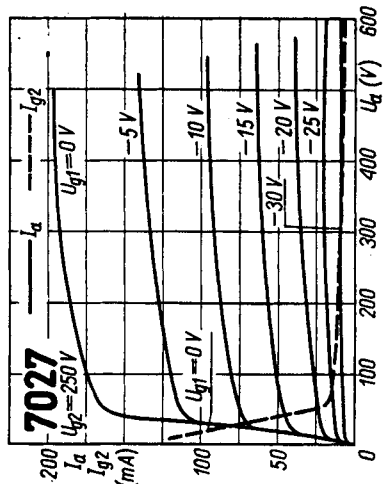
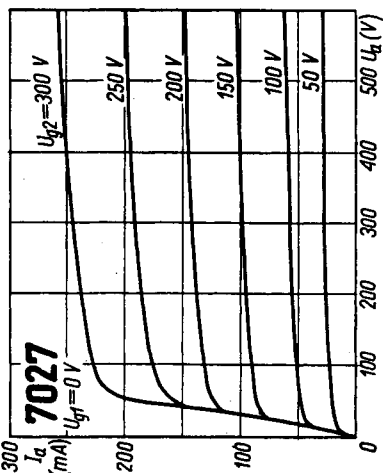
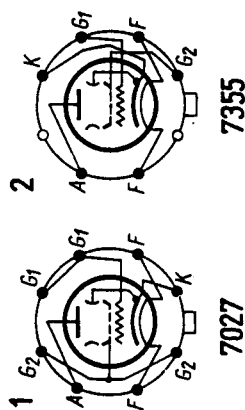
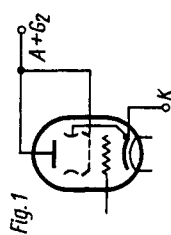


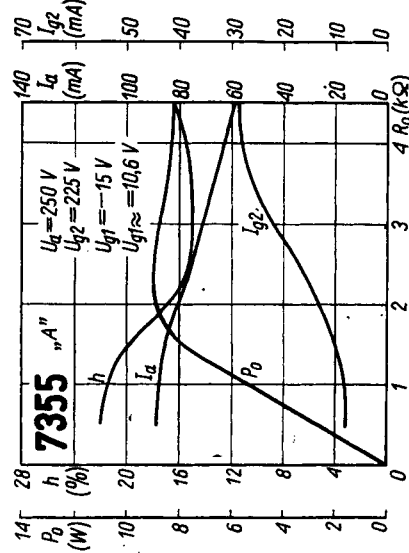
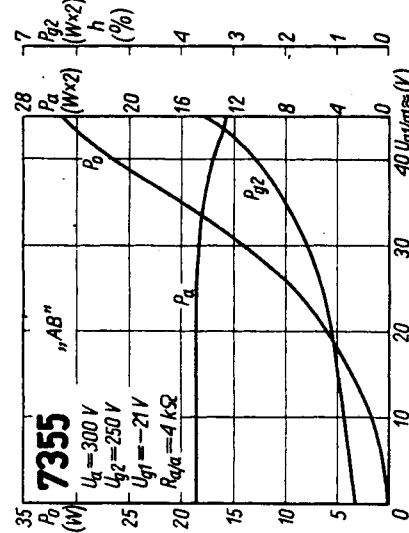
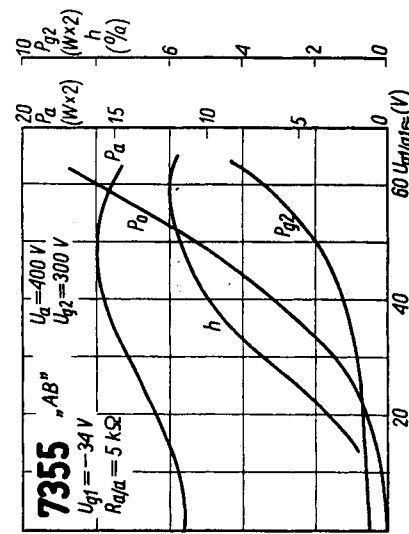
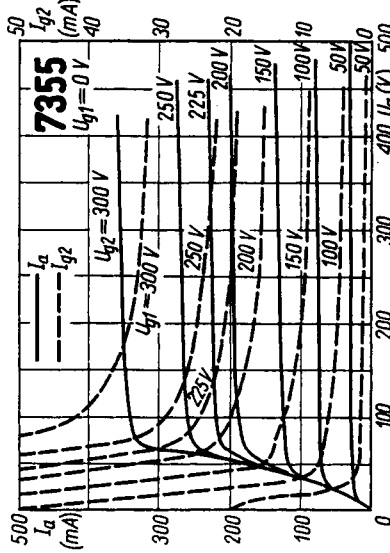
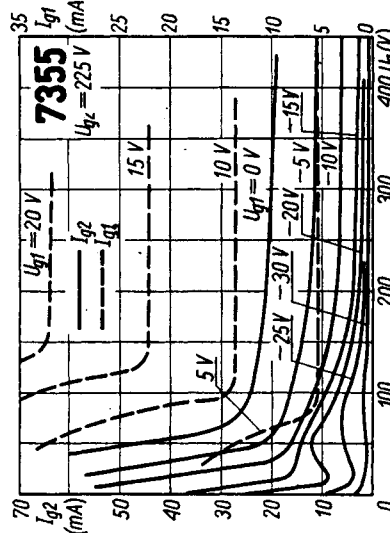
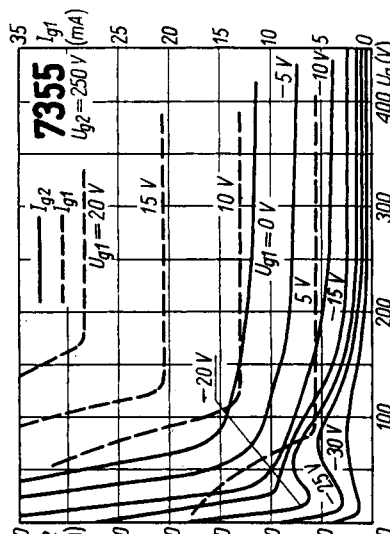
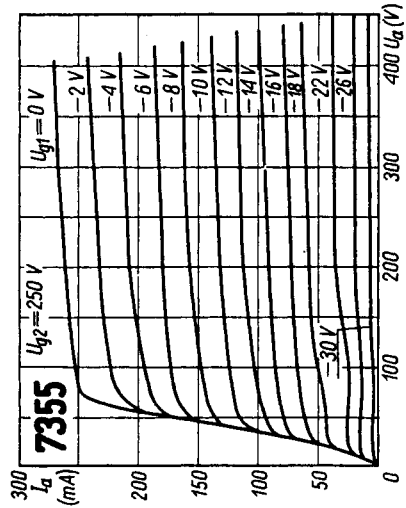
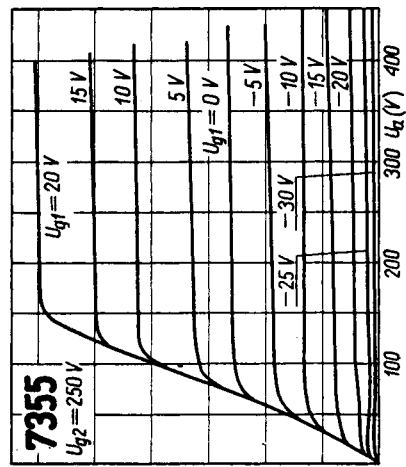
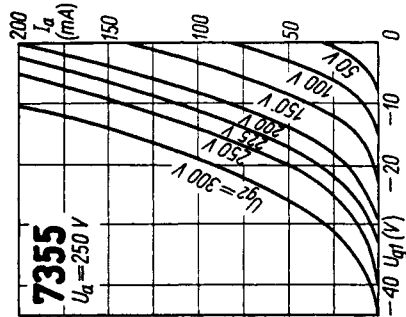
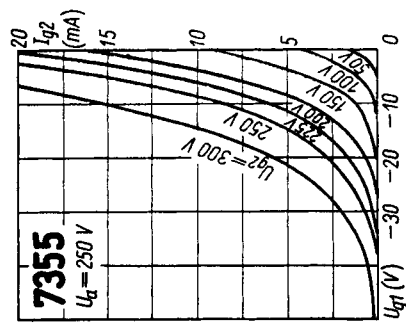


T.		U_f	I_f	Cl.	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	R_0	R_k	$R_{aj}(R_0)$	P_0	$U_{g1/g1\approx}$	h	$U_{f/k}$	I_k	P_{g2}	P_a
		V	A		V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%	V	mA	W	W
7027 ¹⁾	RCA	6.3	0.9	stat. AB	250	-14	250	72	5	6	22.5		4.5	31.5	48	1				
					330	-24	330	122 $\div$ 184	5.6 $\div$ 18.5			180	4.5	36	68.5	3.5				
					380		380	138 $\div$ 170	5.6 $\div$ 20			200	6.6	32	57	2				
					400		400	112 $\div$ 128	7 $\div$ 16				6.6	34	50	2				
					400	-25	400	102 $\div$ 152	6 $\div$ 17				6	50	60	1.5				
7355	GE	6.3	0.8	AB Fig. 1	450	-30	350	95 $\div$ 194	3.4 $\div$ 19.2			220	8	24	68	1.6	100 ²⁾	110	3.5	25
					410		400	134 $\div$ 155			maximum									
					250	-15	225	62 $\div$ 74	3.2 $\div$ 16.5	7.6	42	(2.5)	9	15	15					
					300	-21	250	100 $\div$ 185	5.5 $\div$ 24			4	28.5	42	60	2				
					400	-34	300	56 $\div$ 175	3.5 $\div$ 24		maximum	5	40	60		6	100 ²⁾	100	3.5	18

¹⁾ vide 6 L 6, gr. 232; ²⁾ $U_{f/k+} = 100$ V; $U_{f/k-} = 200$ V; $U_{f/k-}(\text{peak}) = 200$ V

T.	C_{g1}	C_a	$C_{g1/a}$
7027	pF	pF	pF
7355	10	7.5	1.5
	13	6	0.5





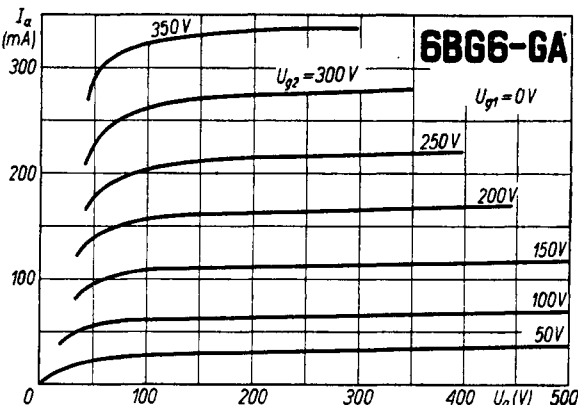
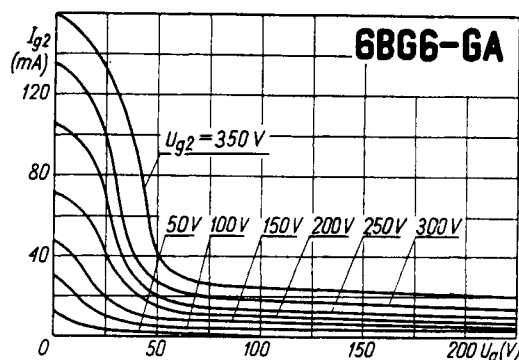
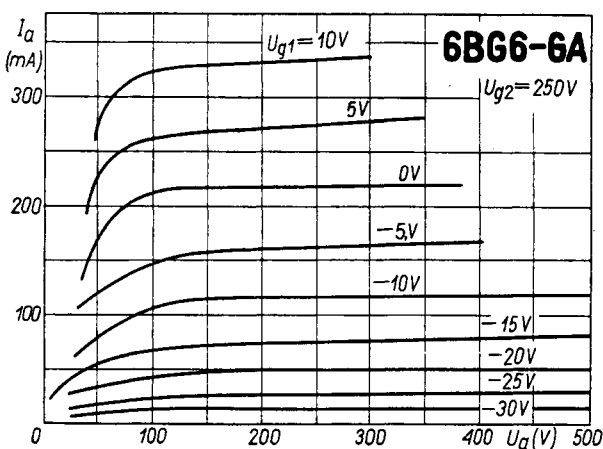
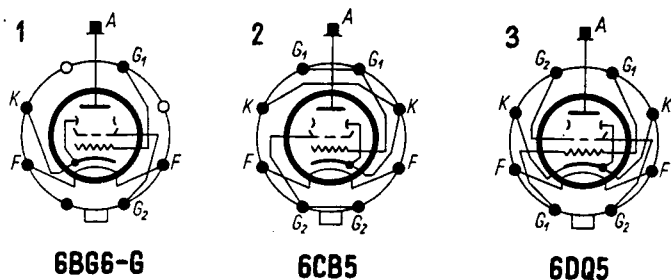
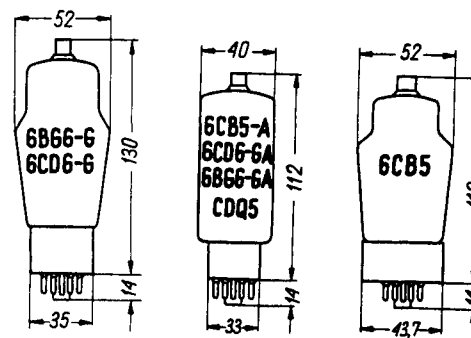
T.			U_f	I_f	Cl.	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	R_i	μ	$U_{f/k}$	I_k	P_{g2}	P_a					
			V	A		V	V	V	mA	mA	mA/V	kΩ	V/V	V	mA	W	W					
6 BG 6-G	int	I	6,3	0,9	stat. Fig. 1	250	250	— 15	75	4	6	25	8	100	110	3,2	20					
19 BG 6-G	int	I	18,9	0,3	HD	250	350	— 15	maximum peak ¹⁾													
25 BG 6-G	int	I	25	0,3		700 ²⁾		— 50 — 300														
6 CB 5-A	amer	2	6,3	2,5	stat. Fig. 1 HD	175 175 800 ²⁾	175 200	— 30 — 30 — 50 — 200	90	6	8,8	5	3,8	100	220	3,6	23					
6 CD 6-GA	amer	I	6,3	2,5	stat. Fig. 1	175	175	— 30	75	5,5	7,7	7,2										
12 CD 6-6 ⁴⁾	amer	I	12,6	1,25	HD	175	175	— 30	maximum peak ⁴⁾			3,9	100	200	3	20						
25 CD 6-GB	amer	I	25	0,6		700 ²⁾		— 50														
35 CD 6-GA	amer	I	35	0,45		700 ²⁾		— 200														
50 CD 6-GA	amer	I	50	0,3		900 ²⁾		— 200														
6 DQ 5	amer	3	6,3	2,5	stat. Fig. 1 HD	175 125 900 ²⁾	175	— 25 — 25 — 50 — 200	110	5	10,5	5,5	3,3	100	285	3,2	24					

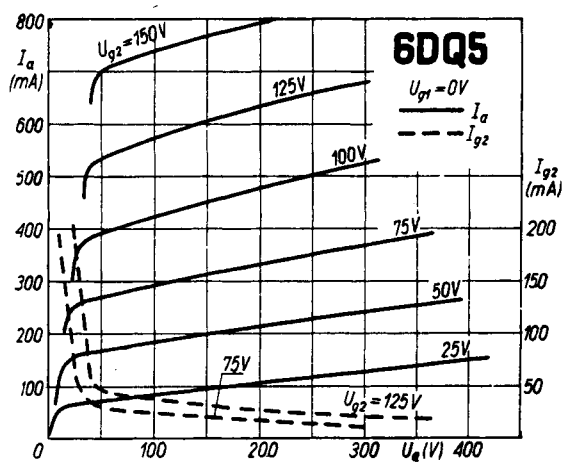
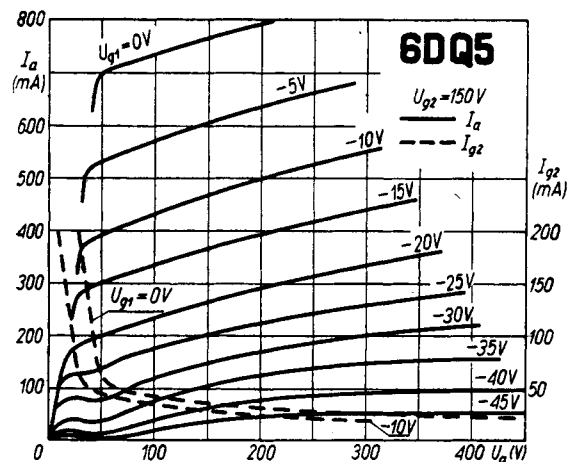
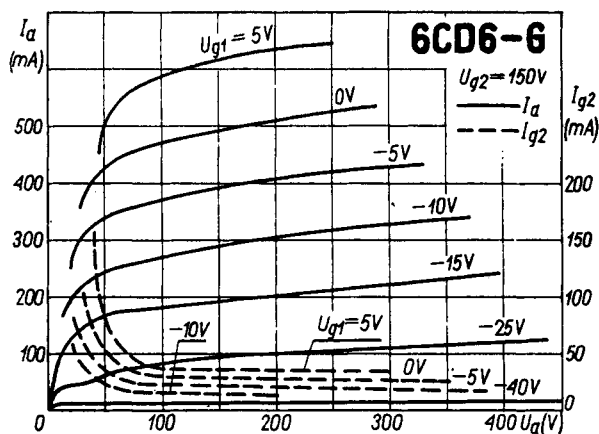
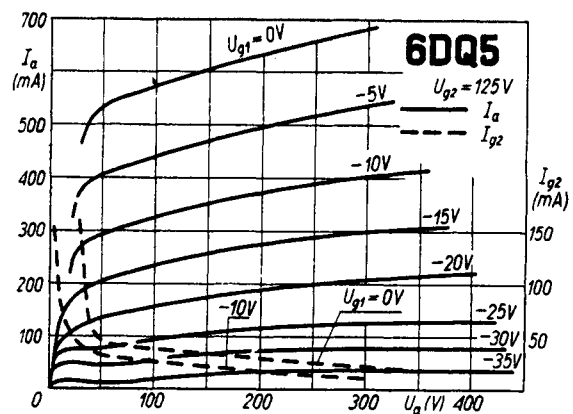
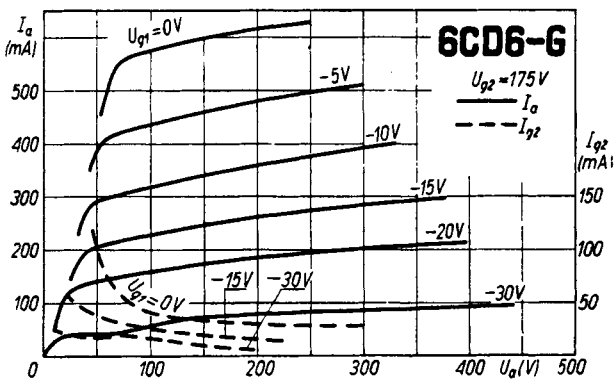
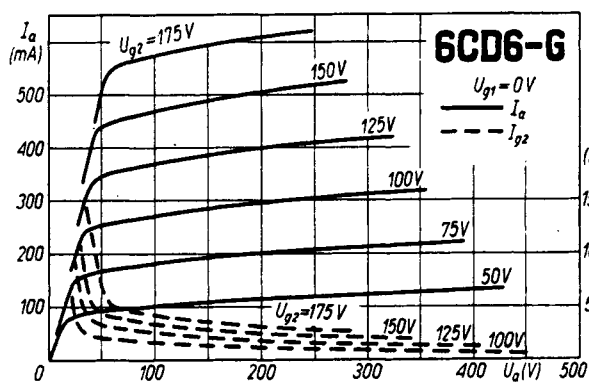
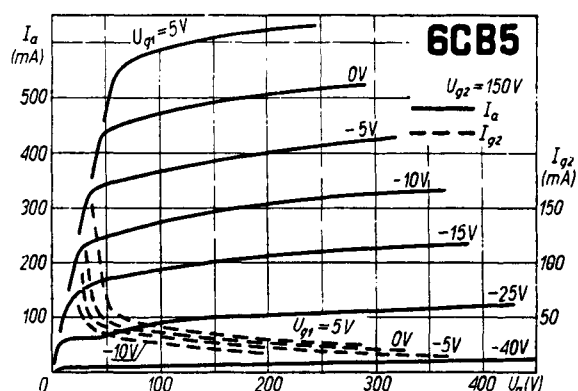
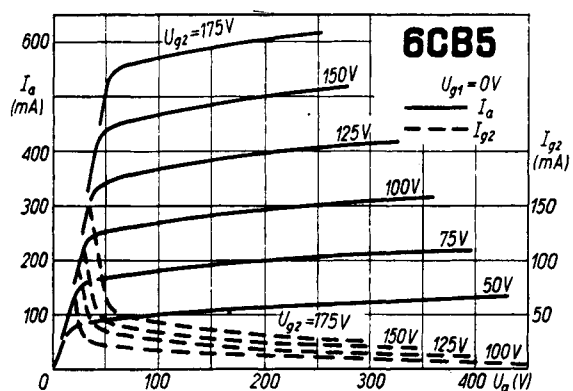
¹⁾ $U_a(\text{peak}) = -1500 \div +6600 \text{ V}$; ²⁾ $U_a(\text{peak}) = -1500 \div +6800 \text{ V}$; ³⁾ $U_a(\text{peak}) = -1500 \div +7000 \text{ V}$; ⁴⁾ $U_a(\text{peak}) = -1500 \div +6600 \text{ V}$, $P_a = 15 \text{ W}$
⁵⁾ $U_a(\text{max}) = 7000 \text{ V}$, $I_k(\text{max}) = 200 \text{ mA}$; ⁶⁾ Impulse $\leq 10 \mu\text{sec}$

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
6 BG 6-G	12	6,5	0,34
6 BG 6-GA	11	8	0,8
6 CB 5	24	10	0,8
6 CB 5-A	22	10	0,4
6 CD 6-G	24	9,5	0,8
6 CD 6-GA	22	8,5	1,1
6 DQ 5	23	11	0,5

Equivalents

6 BG 6-GA	amer = 6 BG 6-G
6 CB 5 ¹⁾	amer = 5 CB 5-A
6 CD 6-G ¹⁾	amer = 6 CD 6-GA
25 CD 6-G ¹⁾	amer = 25 CD 6-GB
25 CD 6-GA ¹⁾	amer = 25 CD 6-GB
35 CD 6-GB	amer = 35 CD 6-GA





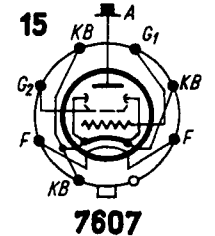
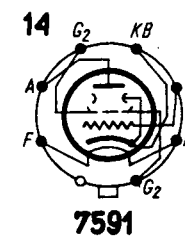
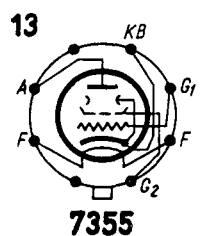
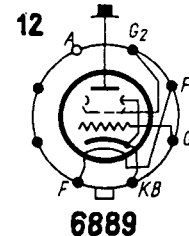
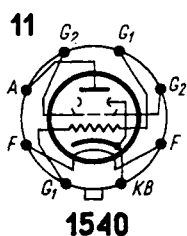
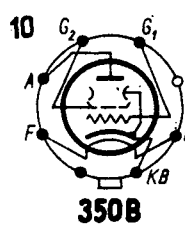
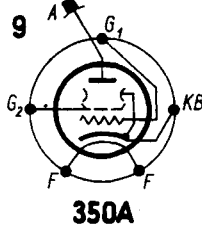
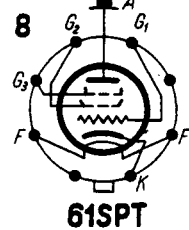
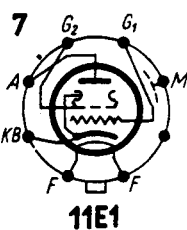
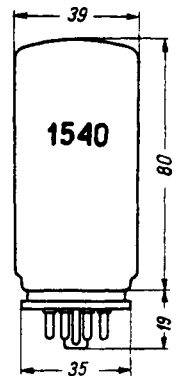
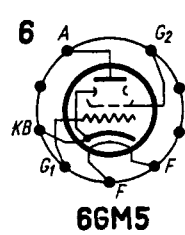
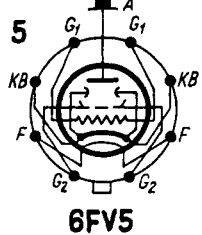
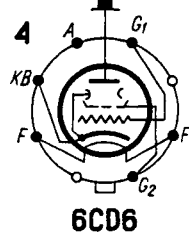
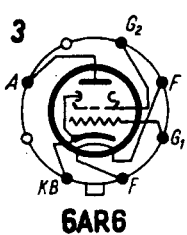
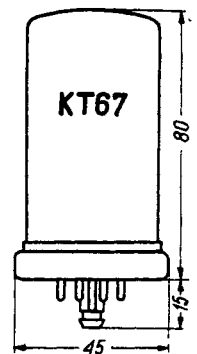
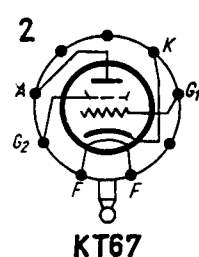
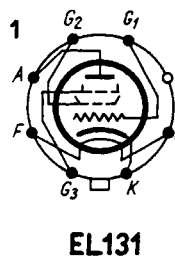
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g1}	S	R_i	R_o	P_o	h	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	k Ω	W	%	W	W
EL 131	eur	1	6,3	1,5	250	250	-12	100	15	11						
KT 67	Marc	2	6,3	1,5	250 600 300	180 300				13					3	22
6 AR 6	amer	3	6,3	1,5	250 565	250 300	-22,5	77	5	5,4	21				3,2	20
6 CD 6	amer	4	6,3	0,63	175	175		75	5,5	7,7						
6 FV 5	amer	5	6,3	1,65	100	100	-8	150	6	21	4					
6 GM 5	amer	6	6,3	0,8	300	300	-10	60	8	10,2	29					
11 E 1	Eds	7	6,3	1,2	250 500	250 250	-18	50	4	7,3		4,3	4,4	3	3	25
61 SPT	Cos	8	6,3	1,27	250	250	-10,5	64	15	11						
350 A	WE	9	6,3	1,6	400	250		53		6,25	64				4	30
350 B	WE	10	6,3	1,6	400	300				maximum						
1540	CCCP	11	6,3	0,9	250 400	250 300	-14	72	8	6		2,5	5,4			27,5
6889	amer	12	6,3	1,2	250	250	-22,5	77	3,5	5,4						
7355	amer	13	6,3	0,8	250	225	-15	74	16,5	7,6	42	2,5	9	15		
7581	amer	10	6,3	0,9	350	250	-18	66	7	5,2	33	4,2	10,8	15		
7591	amer	14	6,3	0,8	300	300	-10	75	15	10,2	29	3	11	13		
7607	amer	15	6,3	1,6	300	225	-17	80	6	8						
7867	amer	4	6,3	2,5	250	90		81	6	10	12	3	7,5	10		

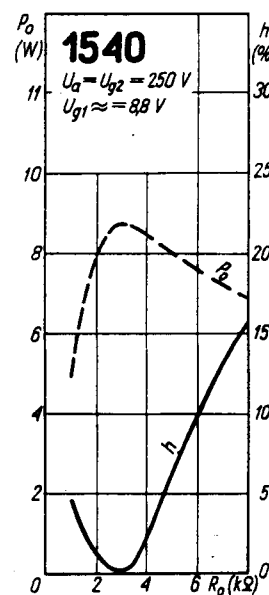
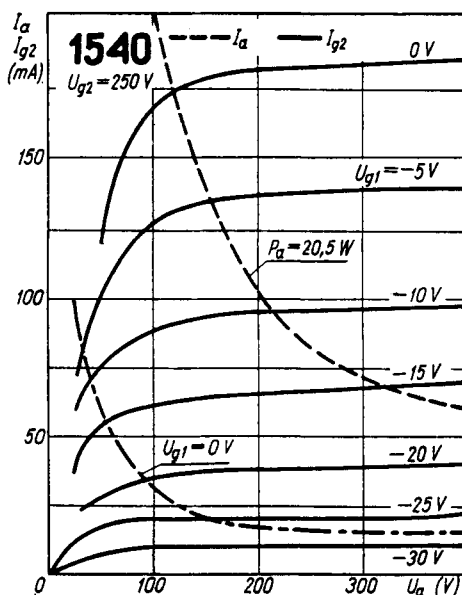
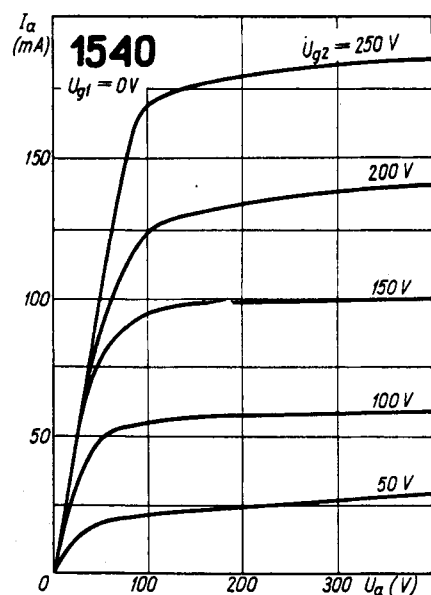
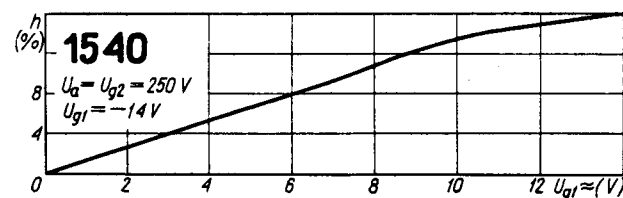
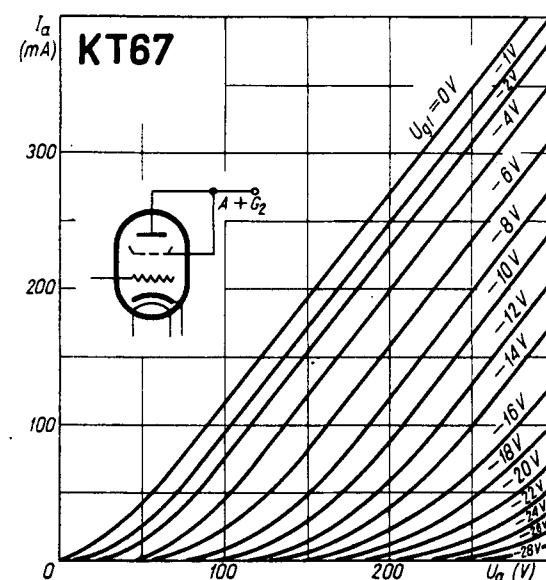
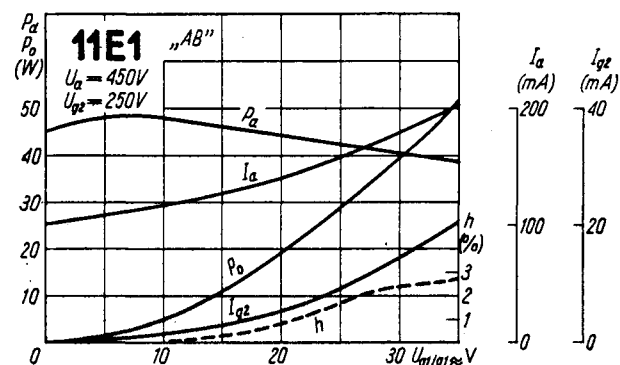
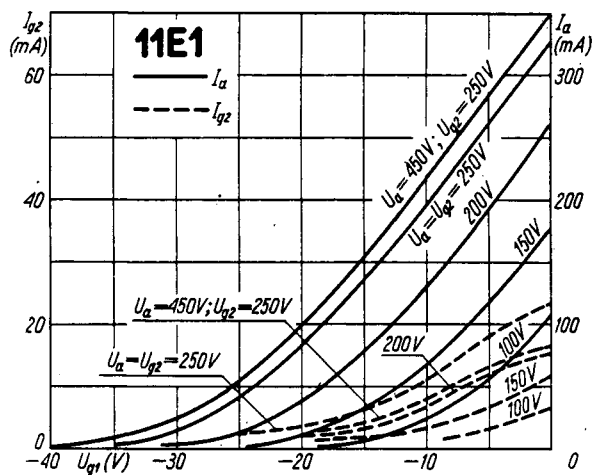
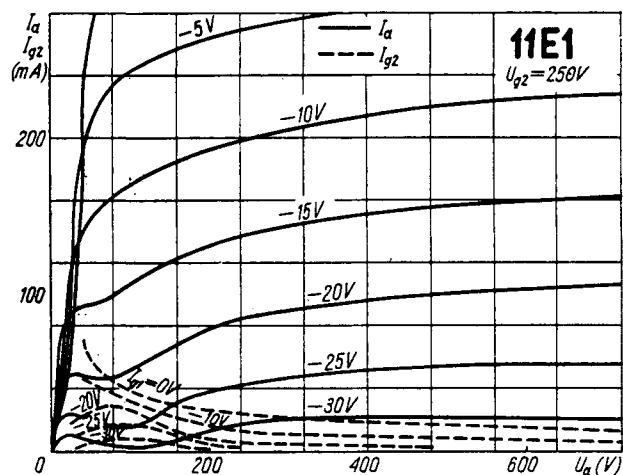
Equivalents

EL 136	eur = 6 FV 5
6 AR 6-WA ¹⁾	amer = 6 AR 6
6098 ¹⁾	amer = 6 AR 6
6384	amer = 6 AR 6

¹⁾ vide * 4, a, b, c, f, g

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
KT 67	17,5	9	0,08
6 AR 6	11	7	0,55
11 E 1	23	10,5	0,35
1540	11	6,7	1



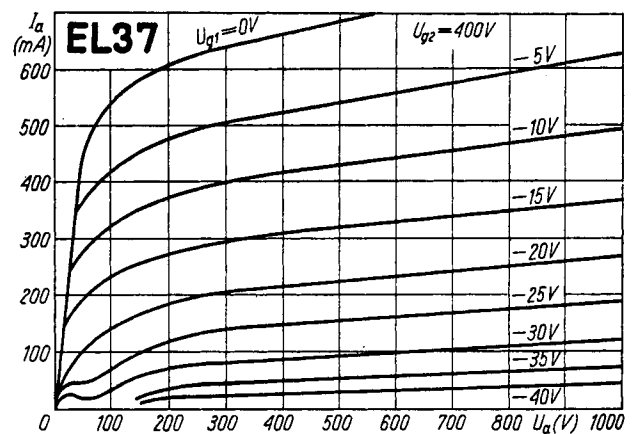
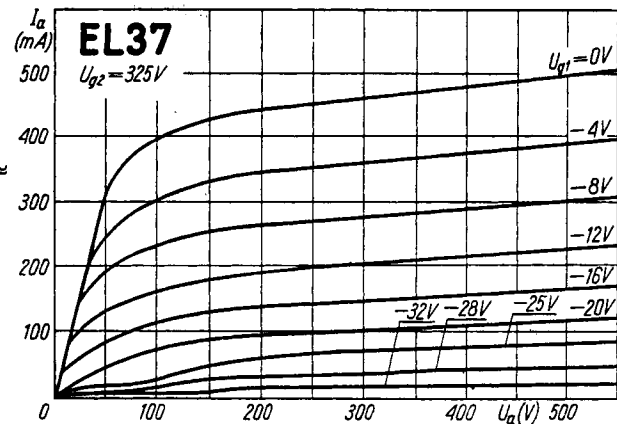
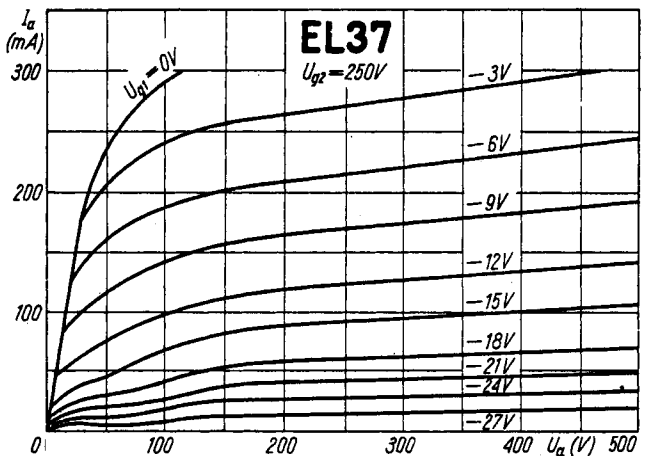
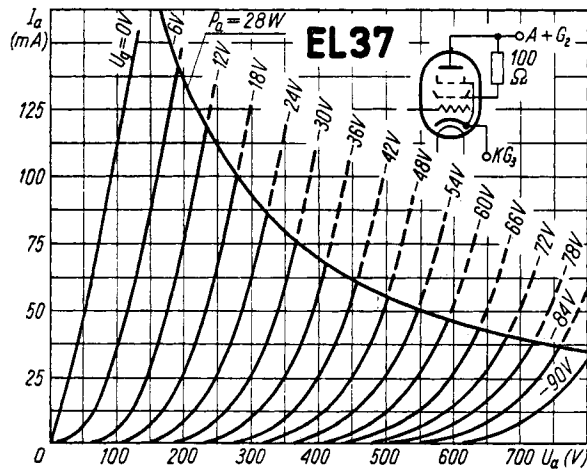
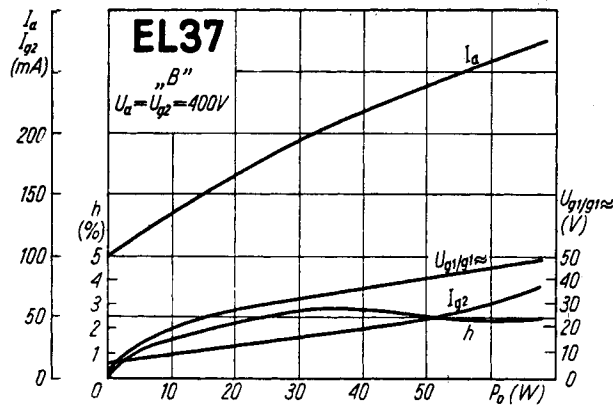
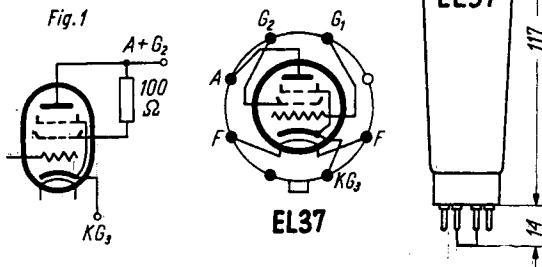


T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	R_k Ω	$R_p(R_{a1/a})$ k Ω	P_o W	$U_{g1 \sim}$ V	h %
EL 37 N 66	Mul Eng	6,3 6,3	1,4 1,4	A	250	250	-13,5	100	13,5	11	13,5	120	(2,5)	10,5	10,8	10
				AB	250	250		118÷136	15÷36			130	4	20	14,5	2,2
					325	325		154÷180	19,4÷60			130	4	35	21,5	4,4
				B	350	350	-31	80÷236	10÷58				3,25	46	21,7	2,8
					400	400	-36	100÷276	12÷72				3,25	69	24,5	2,5
				stat	300	—	-26	50	—	6,5	1,4					
				Fig. I	400	—	-39	37,5	—	4,5	2					
				AB	320	—		112÷128	—			245	4	12,5	21,5	4,1
				Fig. I	400	—		140÷160	—			245	4	20,6	27,2	4,3
					400	400										

maximum $P_a = 25$ W; $P_{g2} = 6$ W; $I_k = 200$ mA; $U_{j/k} = 75$ V

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
17,5	9	1

Fig. 1

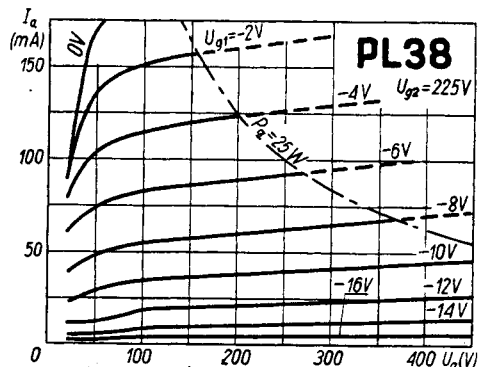
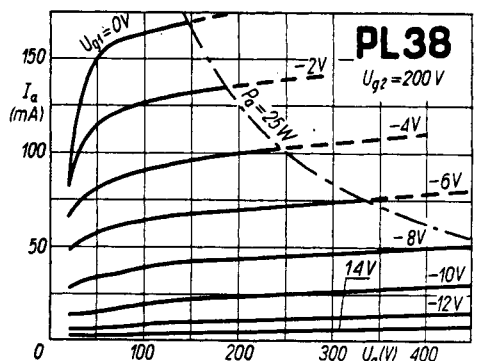
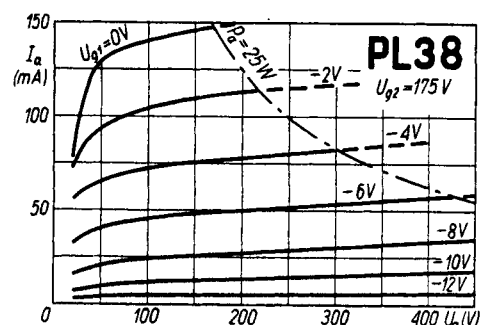
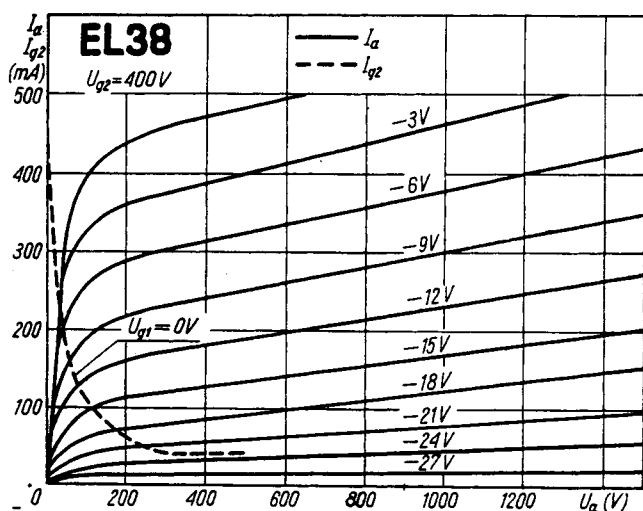
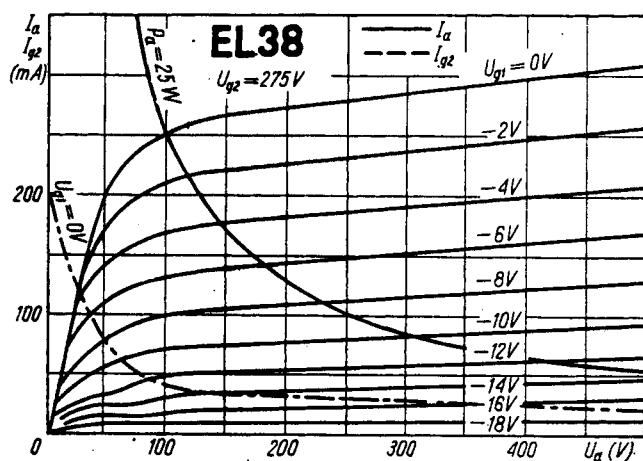
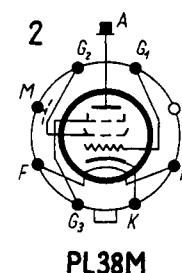
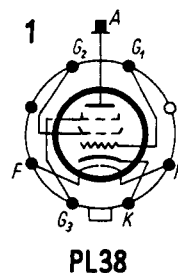


T.			U_f	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	μ	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA/V	k Ω	$\frac{g_2}{g_1}$	V	mA	W	W
EL 38	eur	1	6,3	1,4	250	250	0	-7	100	13	14,3	21	16,5				
EL 38 M	Mul	2	6,3	1,4	275	275	0	-9	91	11	14	20	16,5				
					600	400	0	-22	42	5	7	43		100	200	8	25
					800	400					maximum						
PL 38	Mul	1	30	0,3	200	200	0	-5,5	75	9	13,5	20	16,5	200	200	8	25
PL 38 M	Mul	2	30	0,3	800	400					maximum						

Equivalents EL 38

EL 31	Mul
5 P 29	Fot
6 CN 6	amer

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
EL/PL 38	18	6,5	1,2
EL/PL 38 M	18	9,5	1



T.		U_f	I_f	Cl.	U_{b1a}	U_a	U_{b1g2}	R_{g2}	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	$U_{g1} \approx$	h						
		V	A		V	V	V	Ω	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%						
EL 34 EL 60	eur eur	1 2	6,3 6,3	1,5 1,5	A B B B B B B B A AB	265	250	265	2000	235	-14,5	70÷73	10÷15	9	18	3	8	9,3	10						
						265	250	265	0	265	-13,5	100÷105	14,9÷29	11	15	2	11	8,7	10						
						375	325	375	470	324	-32	125÷130	10÷10,2	Fig. 2		470	20	16	0,8						
						400	375	400	1000	425	-38	125÷140	10÷15	Fig. 3		470	37	26	1,3						
						425	400	425	1000	350	-38	150÷190	23÷45	Fig. 4		130	35	21	5						
						475	450	475	750	327	-32	70÷190	9,5÷50	Fig. 5		3,8	36	22,7	6						
						500	475	500	750	352	-32	70÷240	9,5÷50	Fig. 4		2,8	44	22,7	5						
						750	725	750	750	347	-39	60÷200	8,8÷50	Fig. 5		4	45	27	6						
						800	775	800	750	372	-39	60÷240	8,8÷50	Fig. 5		3,4	55	27	5						
						375	348	375	—	—	—	60÷204	8÷50	Fig. 5		5	58	25,8	6						
						400	370	400	—	—	—	60÷250	8÷50	Fig. 5		4	70	25,8	5						
						—	—	—	—	—	—	50÷168	6÷38	Fig. 5		11	90	23,4	6						
						—	—	—	—	—	—	50÷182	6÷38	Fig. 5		11	100	24,4	5						
						maximum ($I_k = 150$ mA; $P_a = 25$ W; $P_{g2} = 8$ W; $\mu(g2/g1) = 11$; $R_{g1} = 0,7$ M Ω ; $U_{f/k} = 100$ V)												70÷73,5	—	Fig. 1		3	6	18,9	8
																		130÷142	—	Fig. 1		220	16,5	22	3

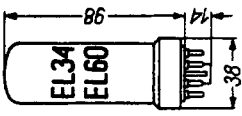
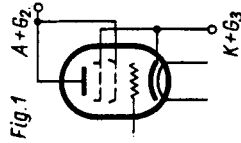
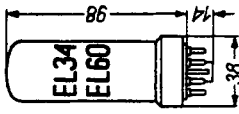


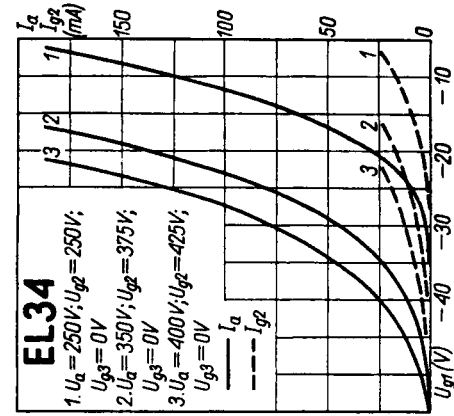
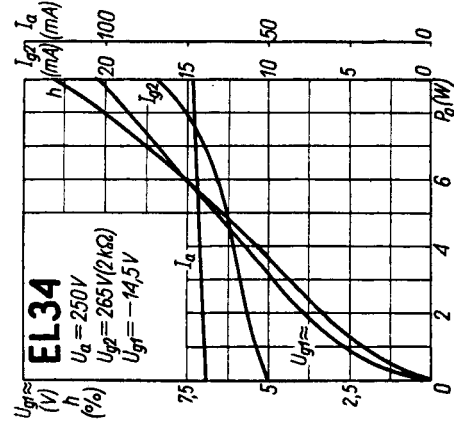
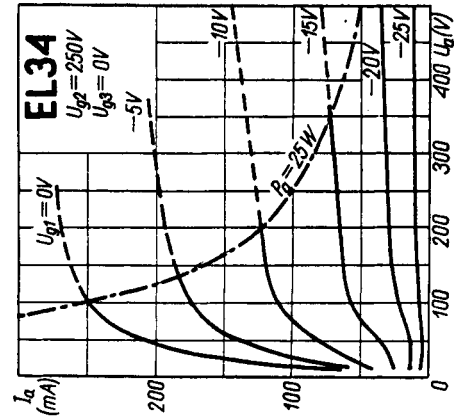
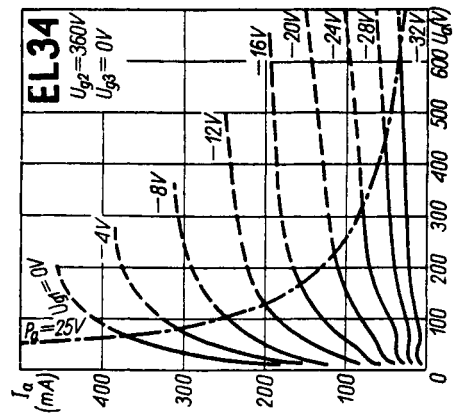
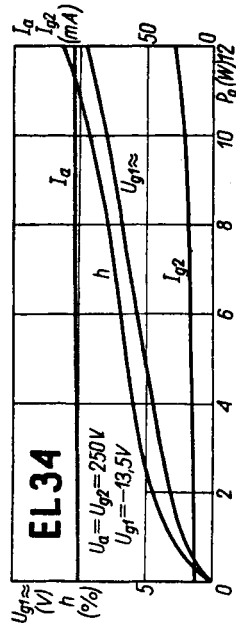
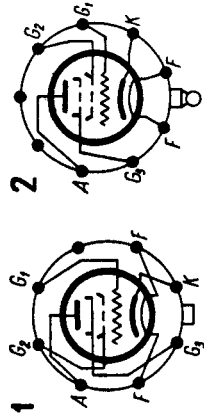
Fig 1 A+G₂

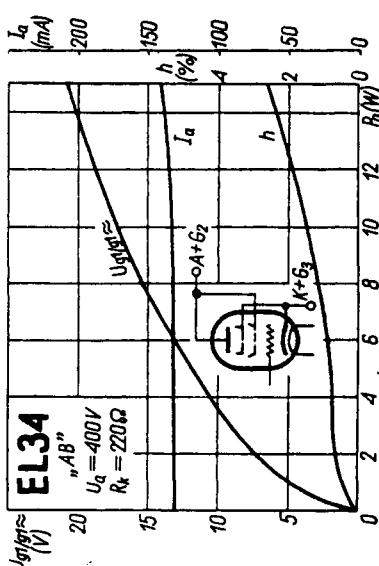
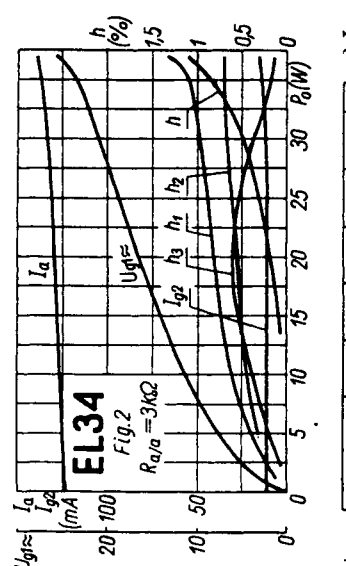
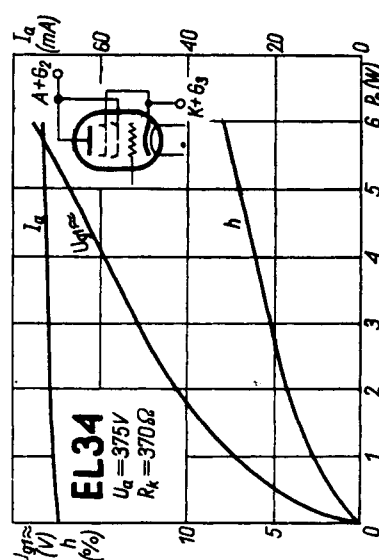
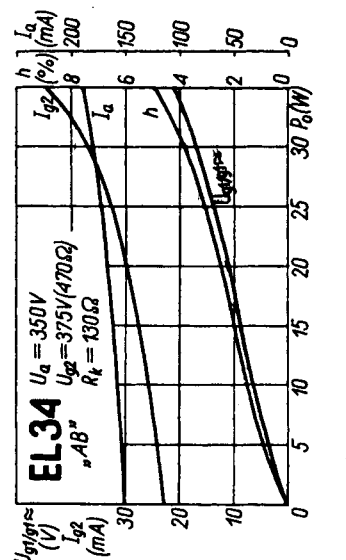
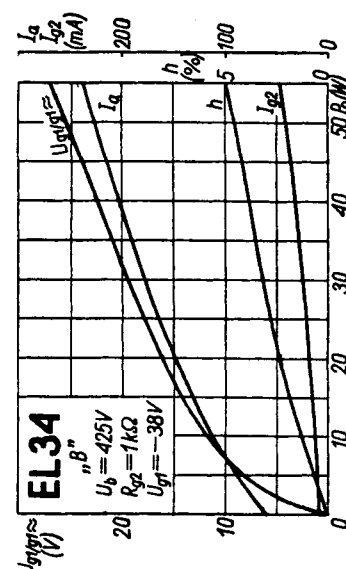
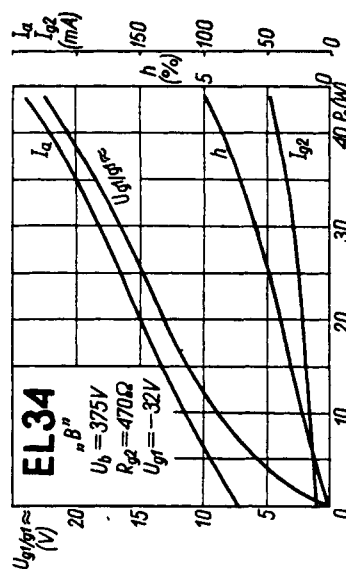
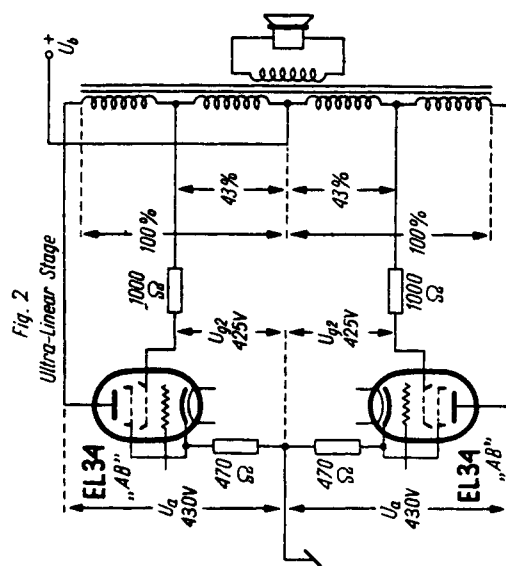
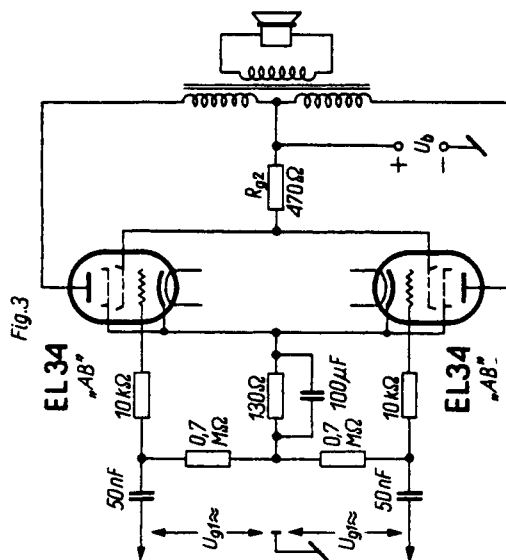
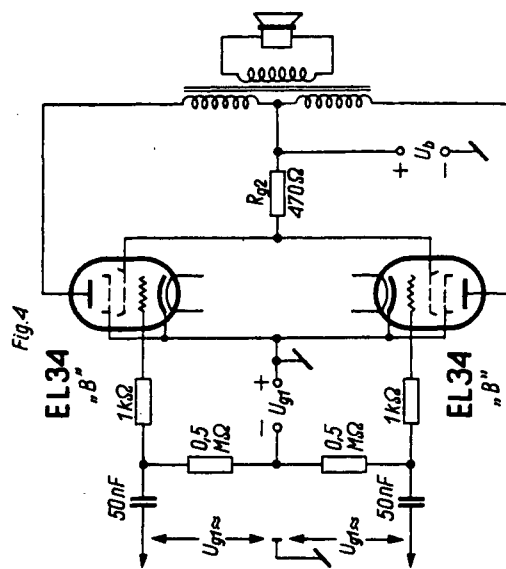


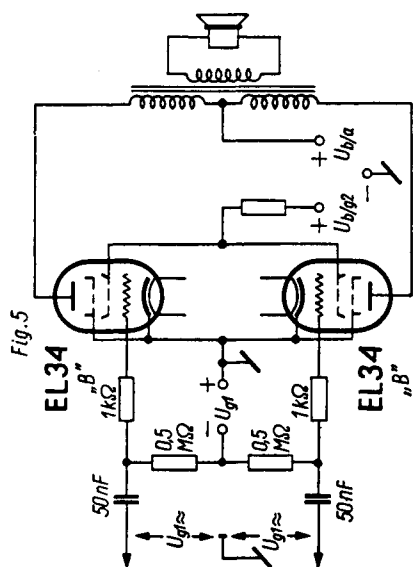
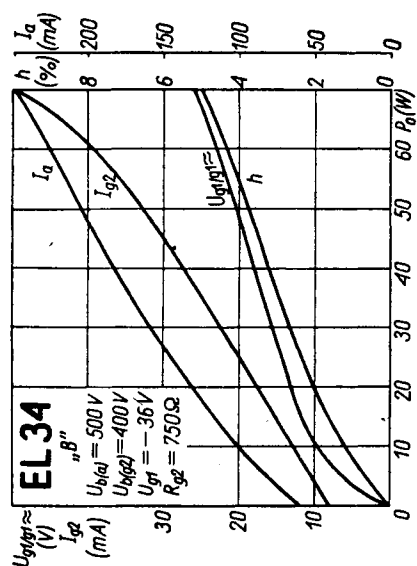
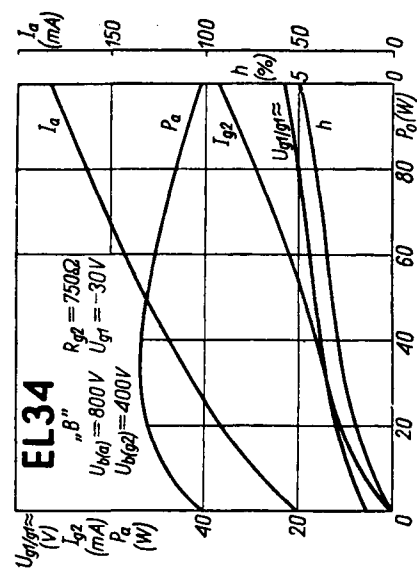
Equivalents

6 CA 7 amer = EL 34

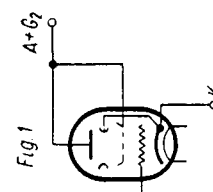
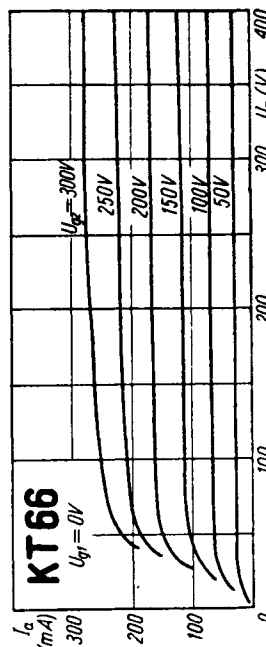
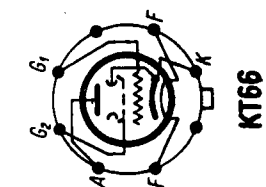
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{k1/f}$
EL 34 (Phi)	15,4	8,4	1,1	10
EL 34 (TH)	15,5	7,2	1,0	11
EL 60	16,6	11	1,1	10



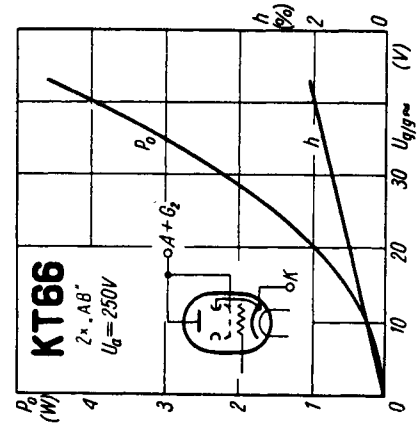
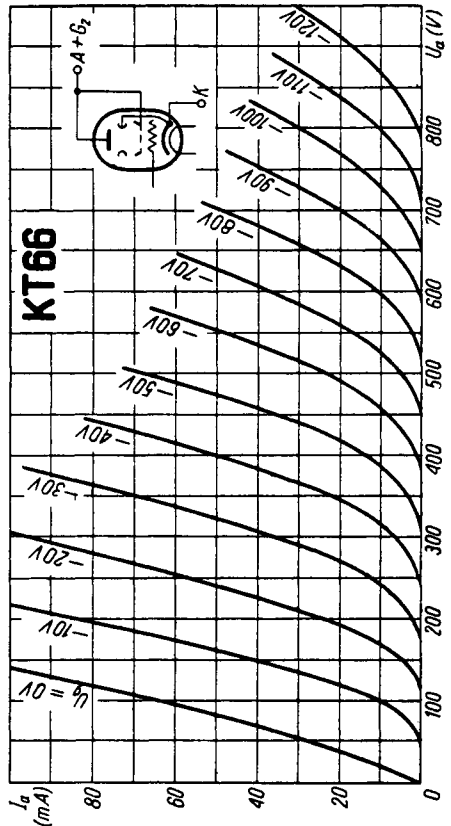
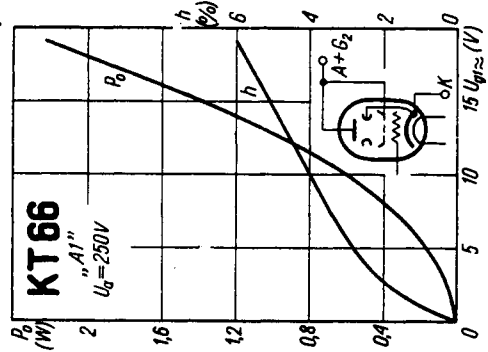
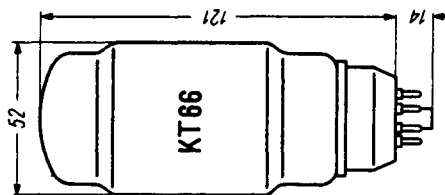
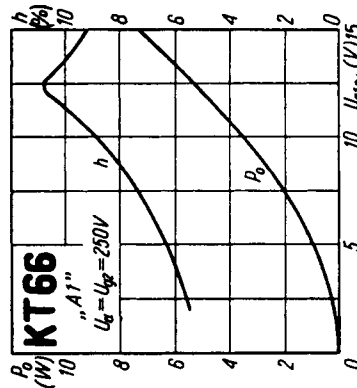
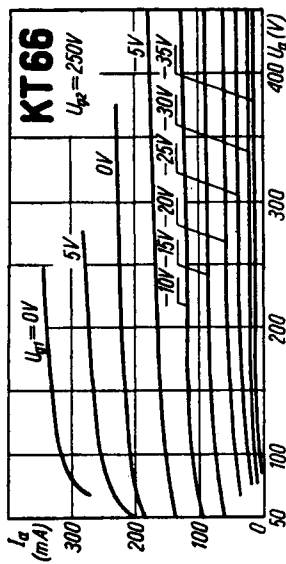
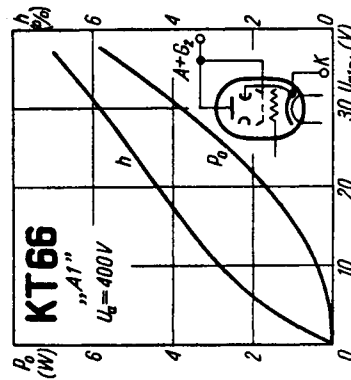
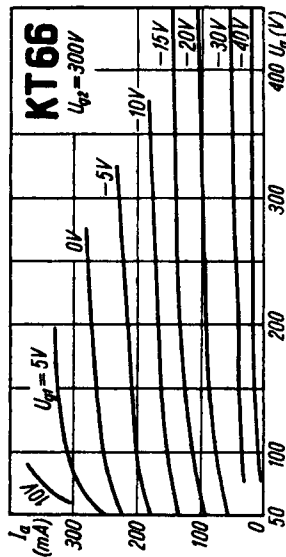
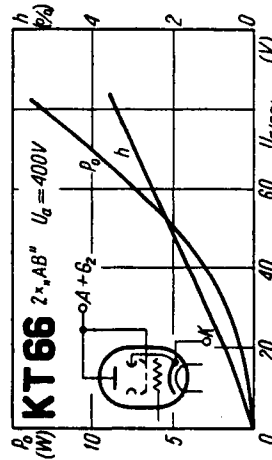
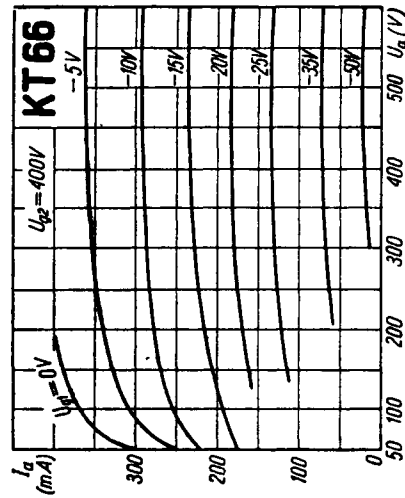




T.		U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$R_a(R_{a1}/a)$	P_o	$U_{g1} \approx$	h	P_{g2}	P_a				
																			V	A	V	V
KT 66	Eng	6,3	1,27	{ A I AB I B A I Fig. I AB I Fig. I	250	250	—15	85	6,3	6,3	22,5	160	2,2	7,25	15	9						
					{ 250 415 510	250 300 395	—17,5 —40 —40	162±165 104±125 80±175	12±20 5±18 3±19		200 500	(4) (8)	17 30 50	36 70 80	4 6 5	2,5 2,5 3,5	20 21,5 21					
					{ 450 480	450 475	—48 —50	80±200 80±180	7±36 3±22			(5) (5)	50 50	96 100	8 8	7,5 4,3	18 19					
					{ 250 400	— —	—19 —38	60 63	— —	6,15 5,5	1,5 1,45	315 600	2,75 4,5	2,2 5,8	19 38	6 7	— —	15 25				
					{ 250 400	— —	—20 —38	110 125		360 660	(2,5) (4)	4,5 14,5	40 80	2 3,5								
					maximum													3,5	25			



C_{g1} pF	C_a pF	$C_{g1/a}$ pF	tetrod. triode.
16	11,5	1,1	tetrod.
8,7	15,8	7,2	triode.



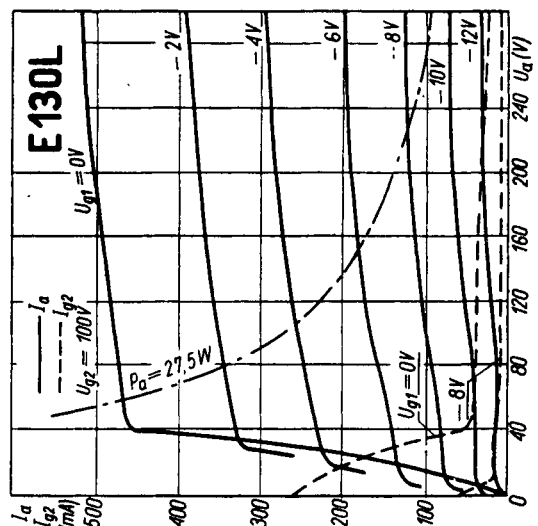
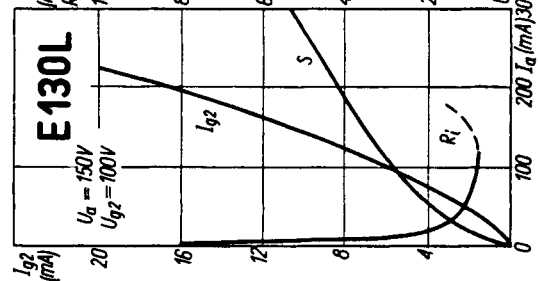
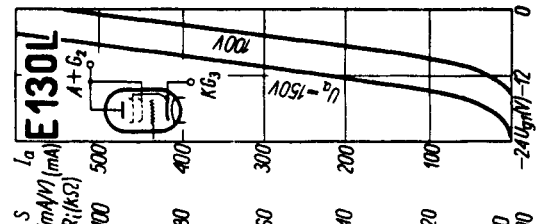
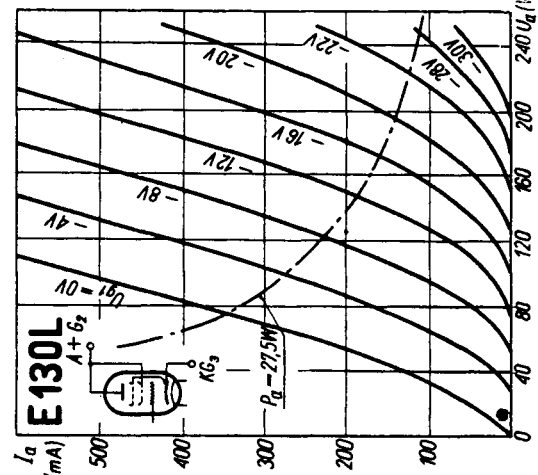
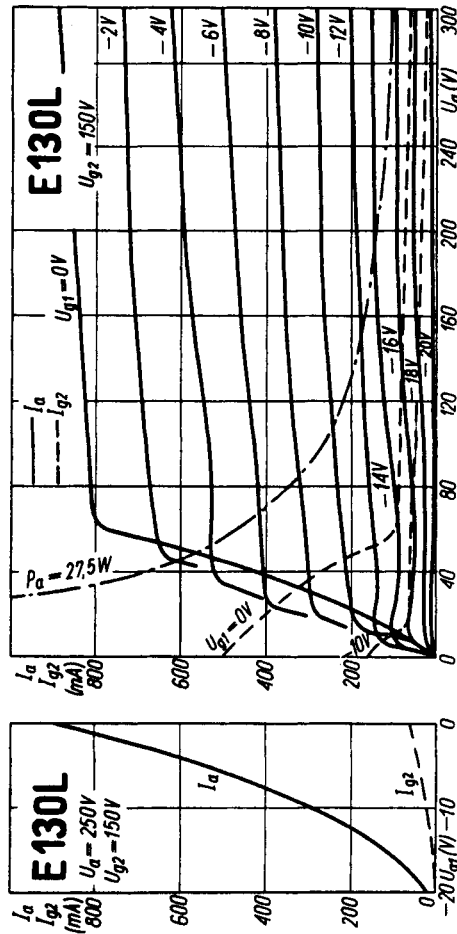
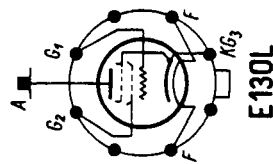
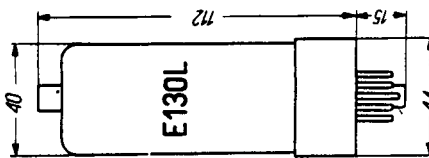
T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_{21})	$U_{g1} \approx$ V	$R_{a/a}$ Ω	P_o W	h %	I_k mA	P_{g2} W	P_a W
E 130 L	eur	6,3	1,7	$\left\{ \begin{array}{l} \text{stat} \\ \text{B} \end{array} \right.$	250 300 900	150 150 250	-15,5 -17 -150	100 160 ÷ 360	4 5 ÷ 44	25	10	6,5	9	1600	60	5	300	5	27,5

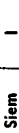
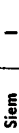
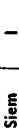
¹⁾ vide *4 a, b, c = 10.000; f ($U_f = 6,3 \text{ V} \pm 5\%$)

Equivalents

7534	zmer
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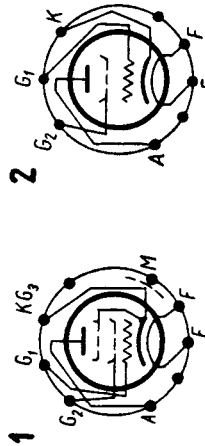
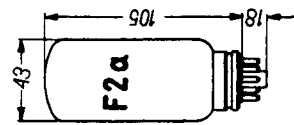
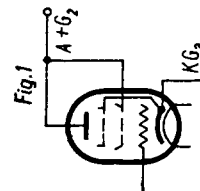
C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
35	17	2



T.		U_f	I_f	Cl.	U_a	U_{g2}	$U_{b(g2)}$	R_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	$U_{g1 \sim}$	h	P_{g2}	P_a							
		V	A		V	V	V	k Ω	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%	W	W							
F2 a F2 a 11		1 2	6,3 6,3	2 2	A stat AB B A AB Fig. 1	250	250	330 425 330 425 425 425	— 7 — 19	95 $\div$ 97 60	14 $\div$ 20 10	14	25	60 290	2,2	10	4,6	10	4 4 4 5 5	5 32 32 40 50	5 30						
						425	425			114 $\div$ 128	16 $\div$ 32											20 $\div$ 33	160	5	20	7,3	4
						250	250			136 $\div$ 160	20 $\div$ 33											18 $\div$ 30	6	40	10,5	4	
						330	330			120 $\div$ 154	18 $\div$ 30											4	20	16	5	32	4
						425	425			60 $\div$ 140	9 $\div$ 32											5	40	7,4	2,5		
F2 a F2 a 11		1 2	6,3 6,3	2 2	B B A AB Fig. 1	330	250	330 425 425 425	— 11 — 15 — 22 — 22 — 13	60 $\div$ 140	9 $\div$ 32	22	0,8	140	1,5	5,5	9	10	4 4 4 4 10	2,5 2,5 2,5 4 10	4 40 50 40 5,5	5 30					
						425	425			76 $\div$ 160	11 $\div$ 33												8 $\div$ 31	6	40	10,2	3
						250	250			50 $\div$ 160	8 $\div$ 31												9 $\div$ 40	5	40	15	2,5
						330	330			56 $\div$ 190	9 $\div$ 40												(μ = 17)	5	50	15	4
						425	425			90 $\div$ 94	(μ = 17)												140	5,5	9	10	4
F2 a F2 a 11		1 2	6,3 6,3	2 2	A stat AB B A AB Fig. 1	330	250	330 425 425 425	— 11 — 15 — 22 — 22 — 13	60 $\div$ 140	9 $\div$ 32	22	0,8	140	1,5	5,5	9	10	4 4 4 4 10	2,5 2,5 2,5 4 10	4 40 50 40 5,5	5 30					
						425	425			76 $\div$ 160	11 $\div$ 33												8 $\div$ 31	6	40	10,2	3
						250	250			50 $\div$ 160	8 $\div$ 31												9 $\div$ 40	5	40	15	2,5
						330	330			56 $\div$ 190	9 $\div$ 40												(μ = 17)	5	50	15	4
						425	425			90 $\div$ 94	(μ = 17)												140	5,5	9	10	4
maximum ($I_k = 140$ mA; $R_{g1} = 0,5$ M Ω ; $U_f/k = 80$ V)																											

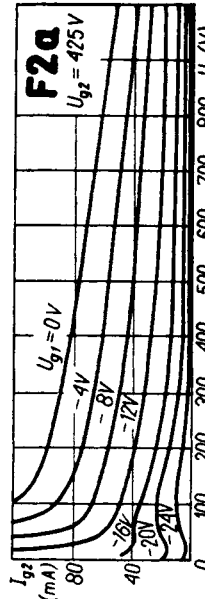
1) vide * 4

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
20,5	13	0,45
14	15,5	7

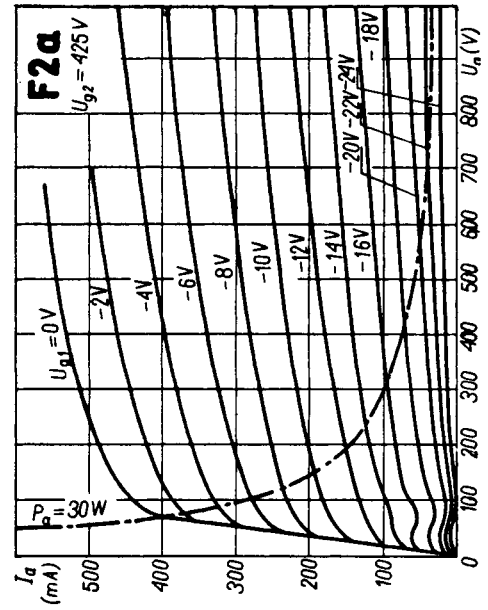


F2a 11

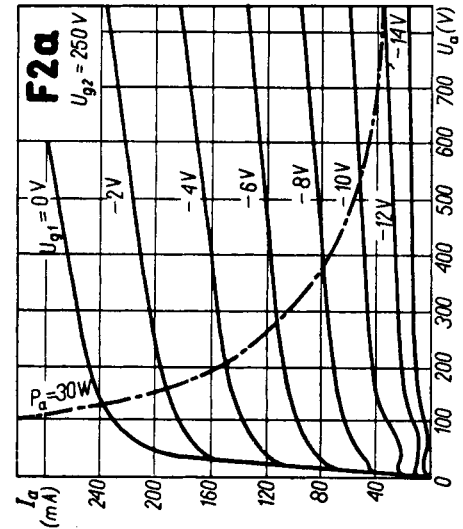
F2a



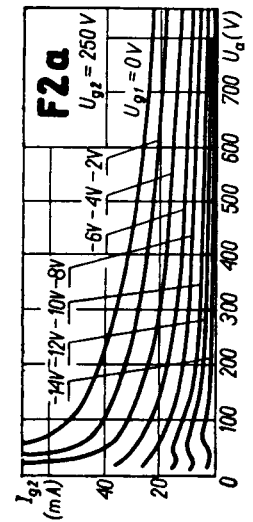
F2a

 $U_{g2} = 425$ V

F2a

 $U_{g2} = 425$ V

F2a

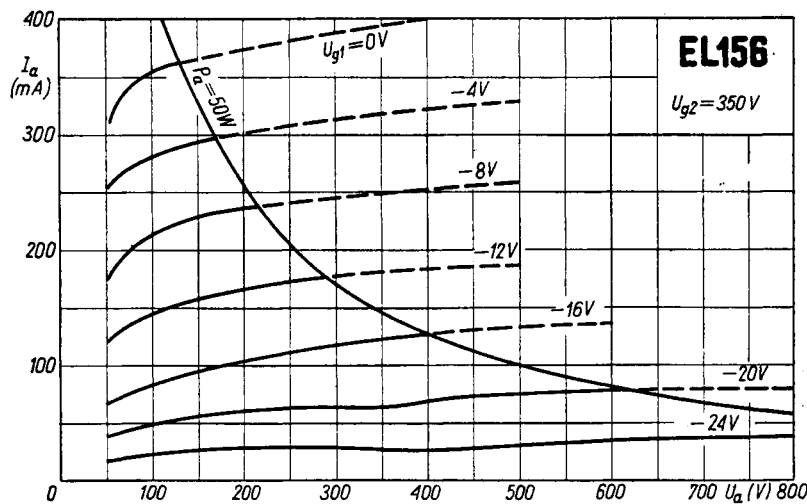
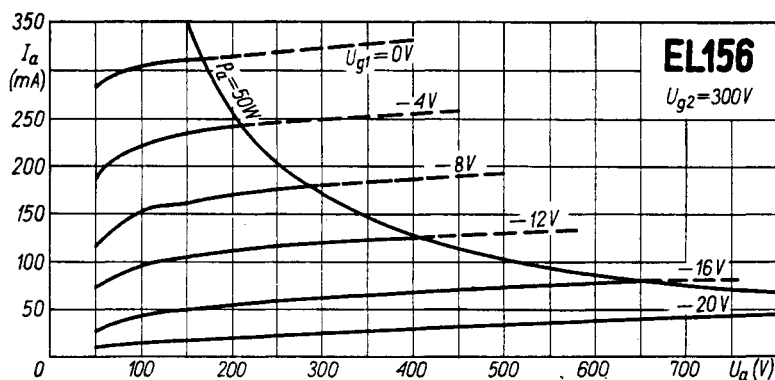
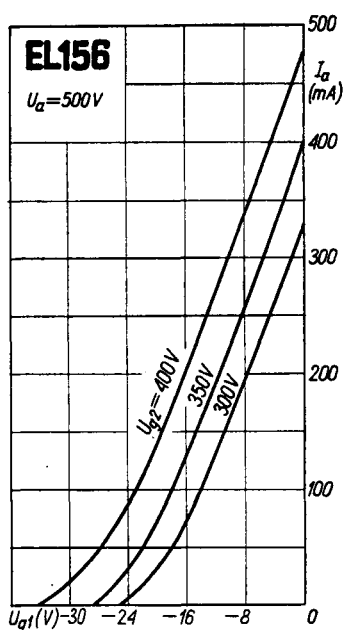
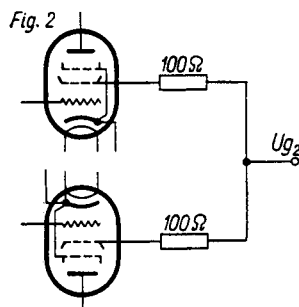
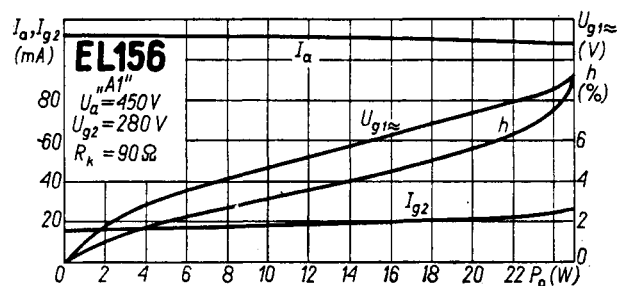
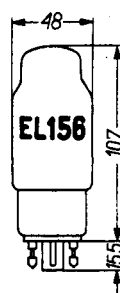
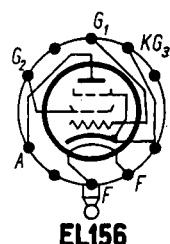
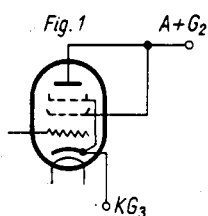
 $U_{g2} = 250$ V

F2a

 $U_{g2} = 250$ V $U_{g1} = 0$ V

T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ V/V	R_k	$(R_o)R_{a/a}$ k Ω	P_o W	$U_{g1 \approx}$ V	h %
EL 156	T1f	6,3	1,9	stat	800	300		55 $\div$ 65		10	25	13					
				A	350	250		120 $\div$ 116	15 $\div$ 24				60	(4)	15	6	8
					450	280		112 $\div$ 108	17 $\div$ 27				90	(3,8)	25	9,2	9
				AB	600	300		160 $\div$ 190	20 $\div$ 36				160	8,5	65	13,5	4
				Fig. 2	600	350		160 $\div$ 200	21 $\div$ 48				200	7,6	80	18,5	4
				B	800	300	-20	90 $\div$ 200	9 $\div$ 40					11	105	15	5
				Fig. 2	800	350	-24	90 $\div$ 240	10 $\div$ 50					9,5	130	18	6
				stat Fig. 1	350	—	-16	140	—	12,5	0,8	12					
				AB Fig. 1	500	—		220 $\div$ 240	—				250	2,8	30	22	2
					800	450											

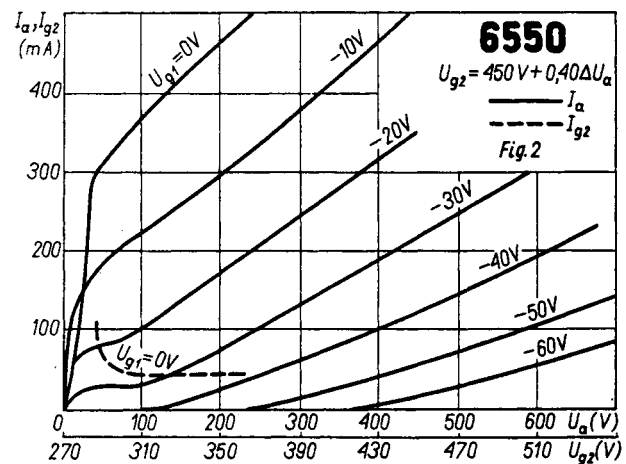
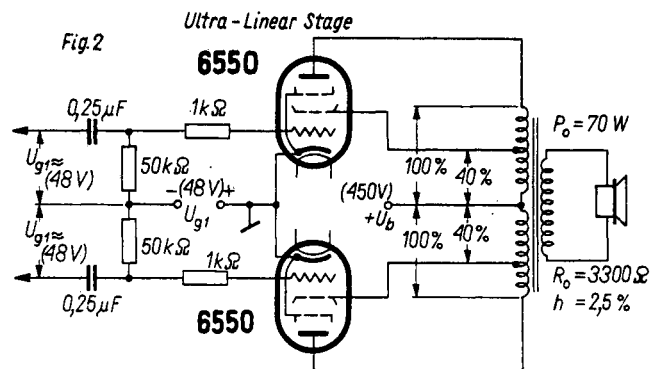
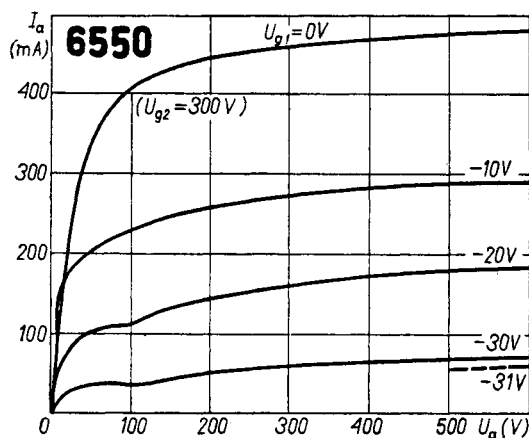
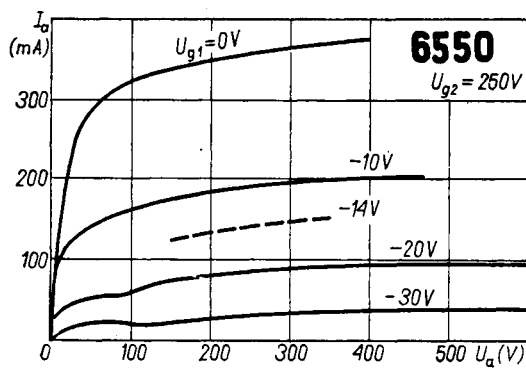
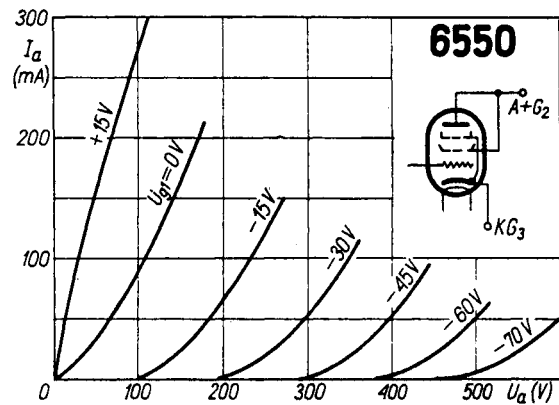
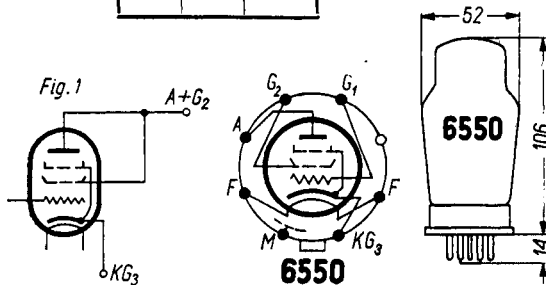
maximum $P_a = 50$ W; $P_{g2} = 8$ W; $I_k = 180$ mA; $U_{f,k} = 50$ V



T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	μ (g_2/g_1)	R_i k Ω	R_k Ω	$(R_0)R_{a/a}$ k Ω	P_o W	$U_{g1 \sim}$ V	h %
6550	amer	6,3	1,6	A	250	250	-14	140 ÷ 150	12 ÷ 28	11	(8)	12		(1,5)	12,5		7
				AB	400	225	-16,5	87 ÷ 105	4 ÷ 18	9	(7,5)	27		(3)	20		13,5
				B	400	300		166 ÷ 190	7,5 ÷ 39				140	4,5	41	26,5	4
					400	275	-23	180 ÷ 270	9 ÷ 44					3,5	55	23	3
					600	300	-33	100 ÷ 280	3 ÷ 33					5	100	33	3,5
				stat Fig. 1	450	—	-46	95		6	8	1,3					
				AB Fig. 1	450	—	-46	150 ÷ 220						4	28	46	2,5
				Fig. 1	600	400											
					450	—											

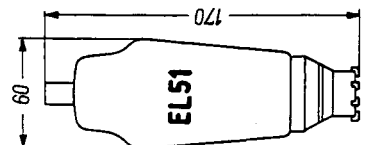
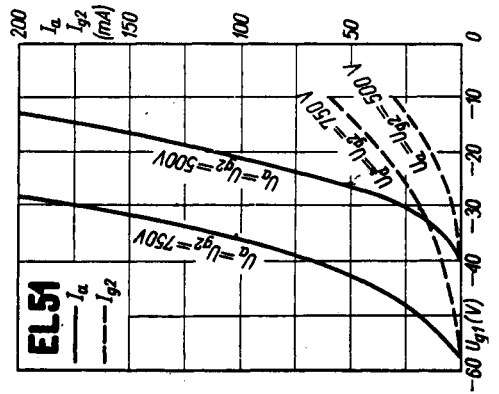
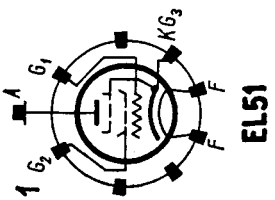
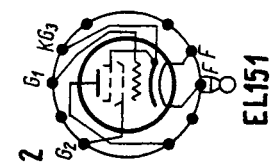
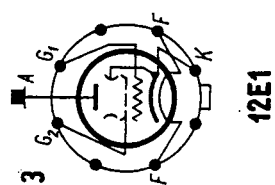
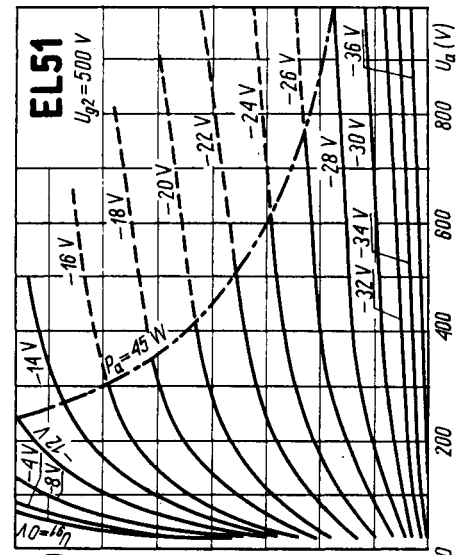
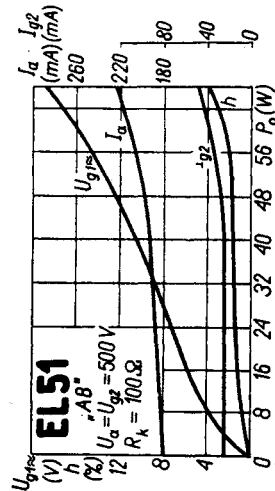
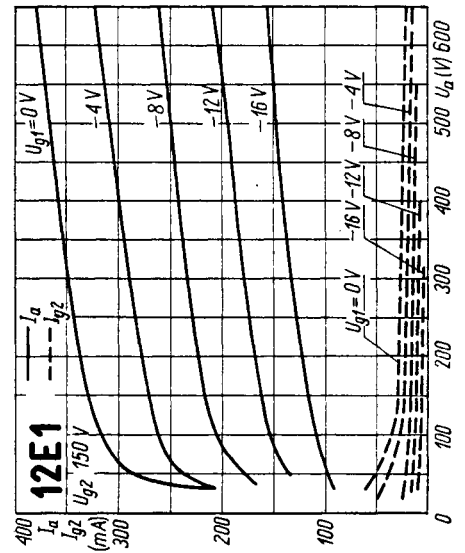
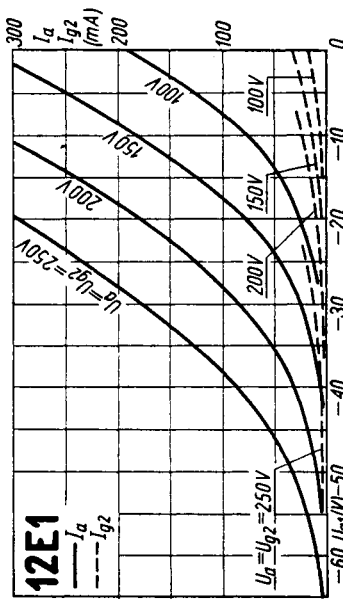
maximum $P_a = 35$ W; $P_{g2} = 6$ W; $I_k = 175$ mA; $U_f/k = 200$ V
maximum $P_a = 40$ W

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
14	12	0,85



T.			U_f V	I_f A	Cl.	U_a V	U_{gs} V	I_a mA	I_{gs} mA	S mA/V	R_i k Ω	μ (g_m/g_i)	R_k Ω	R_{g1a} k Ω	P_o W	$U_{g1\sim 2}$ V	h %	U_{f1k} V	I_k mA	P_{ga} W	P_a W
EL 51	eur	1	6,3	1,9	stat AB B	$\begin{cases} 500 \\ 750 \\ 500 \\ 750 \\ 750 \end{cases}$	$\begin{cases} 500 \\ 750 \\ 500 \\ 750 \\ 750 \end{cases}$	$\begin{cases} 95 \\ 40 \\ 190 \div 230 \\ 80 \div 300 \end{cases}$	$\begin{cases} 1,2 \\ 6 \\ 25 \div 60 \\ 12 \div 70 \end{cases}$	$\begin{cases} 11 \\ 7 \end{cases}$	$\begin{cases} 33 \\ 55 \end{cases}$	$\begin{cases} 16 \\ 16 \end{cases}$	100	$\begin{cases} 4,8 \\ 6 \end{cases}$	$\begin{cases} 70 \\ 125 \end{cases}$	$\begin{cases} 20 \\ 29 \end{cases}$	$\begin{cases} 6 \\ 7 \end{cases}$	50	200	7	45
EL 151	Tif	2	6,3	1,9	stat AB	$\begin{cases} 400 \\ 450 \\ 800 \end{cases}$	$\begin{cases} 400 \\ 450 \\ 800 \end{cases}$	$\begin{cases} 75 \\ 234 \end{cases}$	$\begin{cases} 7 \\ 40 \end{cases}$				200	2,8	90	19				5	60
12 E 1	Ede	3	6,3	1,6	stat	$\begin{cases} 150 \\ 800 \end{cases}$	$\begin{cases} 150 \\ 300 \end{cases}$	$\begin{cases} 200 \\ 100 \end{cases}$	$\begin{cases} 12 \\ 14 \end{cases}$									300	300	5	35

¹⁾ $U_{g1g2} = 750$ V, $R_{gs} = 1$ k Ω



T.			U_f V	I_f A	U_a V	U_{g1} V	U_{g2} V	U_{g3} V	S mA/V	R_i kΩ	R_k Ω	R_o kΩ	P_o W	h %	$U_{f/k}$ V	I_k mA	P_{g3} W	P_a W
R 134	Frc	1	18	0,225	200 225	-4,5	200 225	0	6 maximum $R_{g1} = 0,5 \text{ M}\Omega$	160	200	15	0,8	6	50	25	0,8	3,6
R 147	Frc	2	18	0,14	200 225	-4,5	200 225	0	6 maximum $R_{g1} = 0,5 \text{ M}\Omega$	140	200	15	1,1	6	70	28	0,8	4

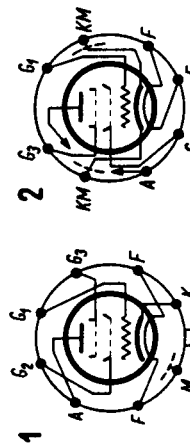
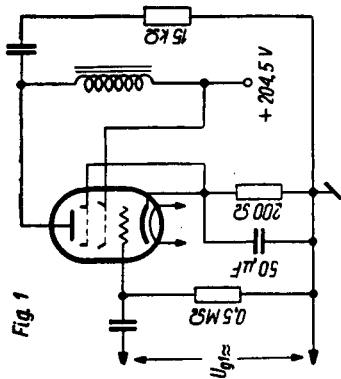
¹⁾ vide ⁴⁾, c = 12.000

Equivalents

PTT 208 P	Frc = R 147
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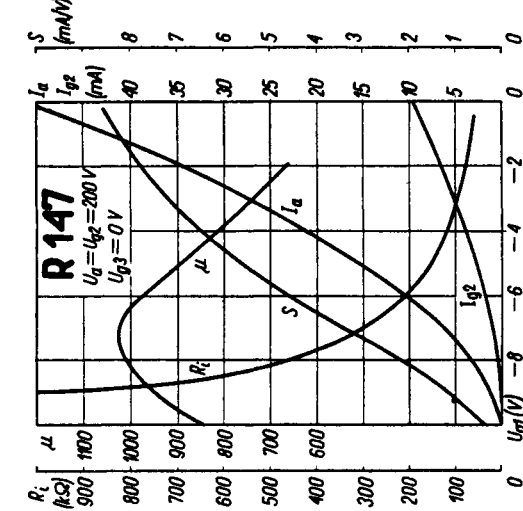
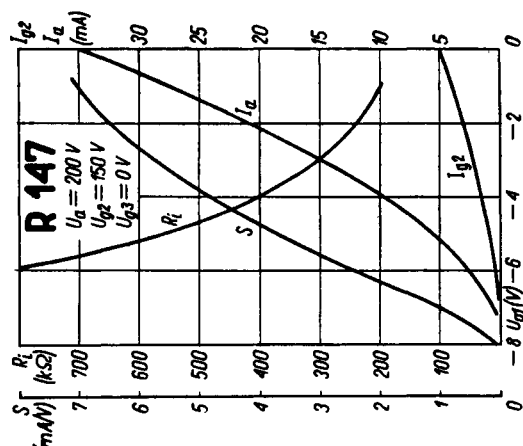
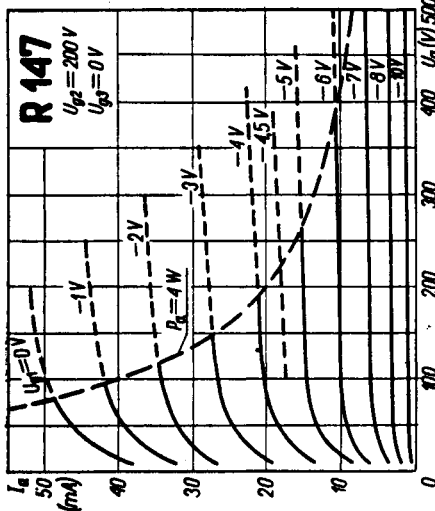
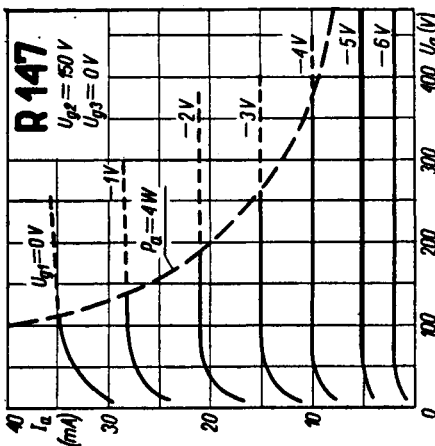
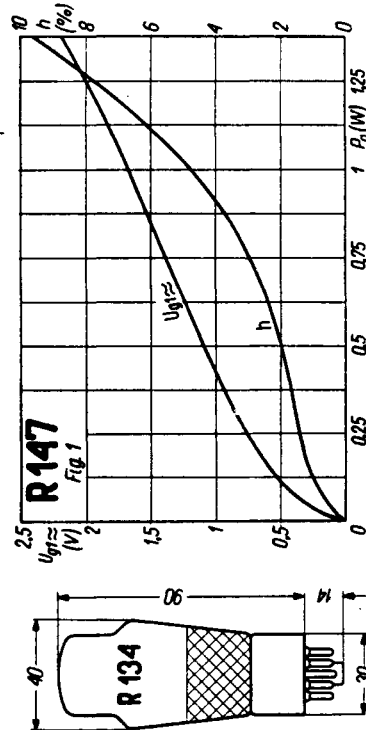
T.	C_{g1} pF	C_a pF	C_{g1a} pF
R 134	12	10	0,5
R 147	8	9	0,1

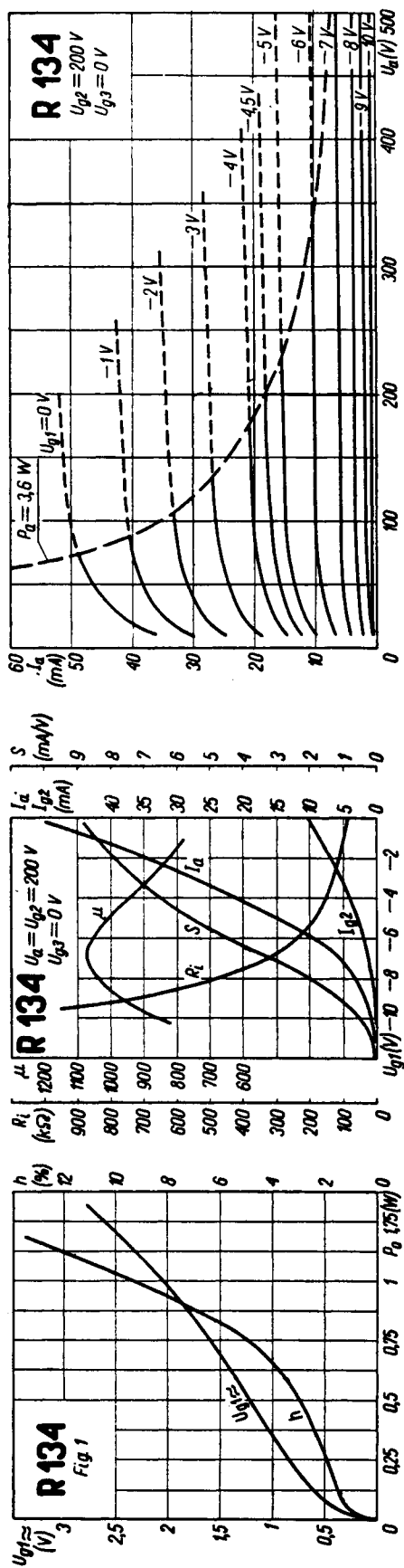
Fig. 1



R 134

R 147





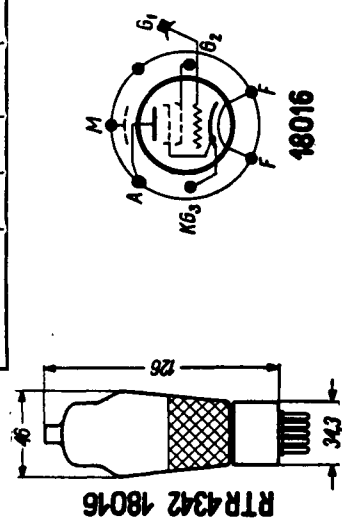
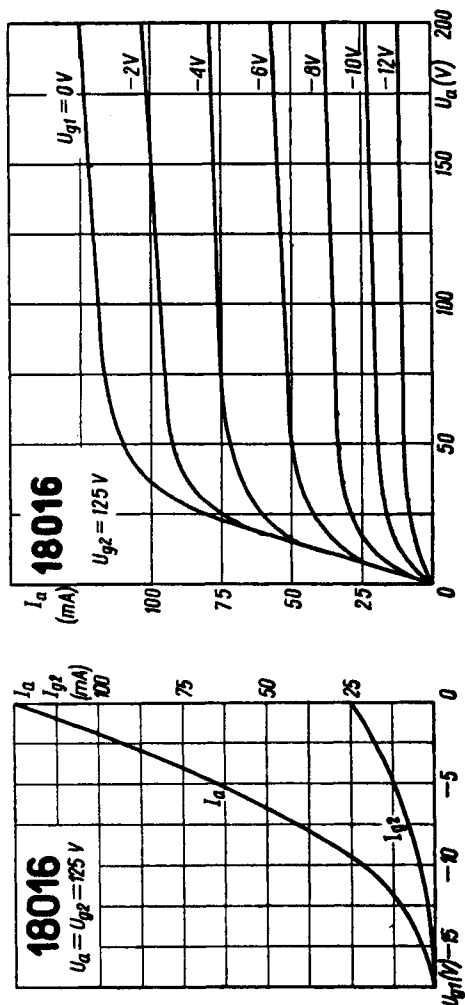
T.		U_f	I_f	U_a	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g2}	P_a
18016	PN1	21	0.335	$\begin{cases} 125 \\ 150 \end{cases}$	$\begin{cases} 125 \\ 150 \end{cases}$	48	9.5	9	16.5 maximum	9.5	115	3.3	0.8	3	50	70	1.2	6

¹⁾ vide ⁴⁾, c = 10.000

Equivalents

RTR 4342	SER
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T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
18016	14.5	15	0.25	0.5
RTR 4342	16	17.5	0.2	



T.			U_f	I_f	U_a	U_{g1}	U_{g2}	U_{g3}	I_a	I_{g2}	S	μ	R_i	R_k	R_o	P_o	h	$U_{g1 \sim}$	I_k	P_{g2}	P_a
E 81 L	2	6,3	0,375	210	210	0	210	210	20	5,3	11	36	300	120	15	1	5	0,9			
18040	1	18	0,2	150	—	—	—	—	30	—	12,5	(35)	2,8	vide Fig. 1							
18045	2	18	0,13	210	210	—	—	—	—	—	—	—	—	—	—	—	—				
18046	2	20	0,135	—	—	—	—	—	—	—	—	—	—	—	—	—	—				

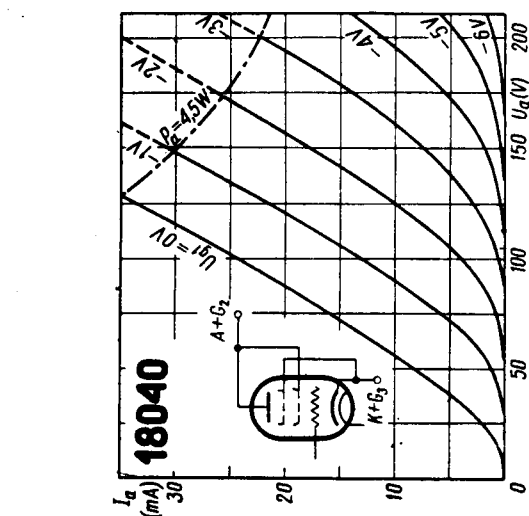
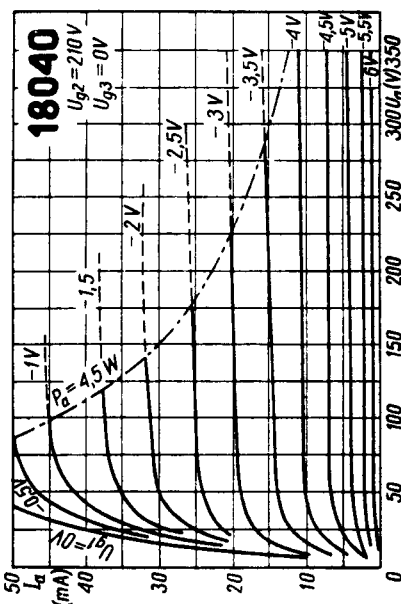
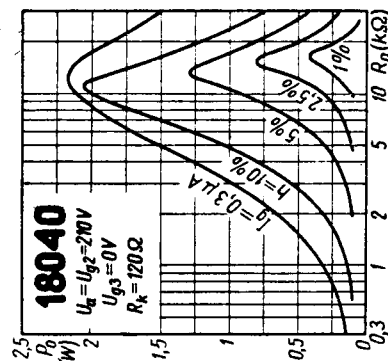
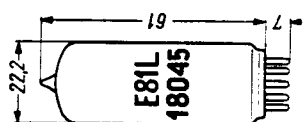
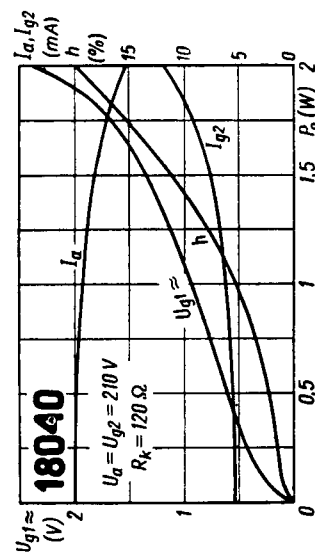
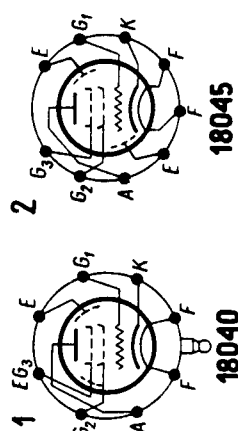
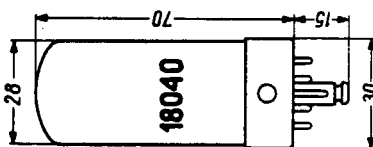
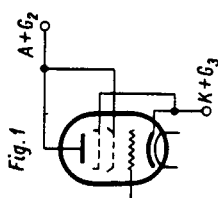
¹⁾ vide * 4, c = 10.000;

$U_f = 6,3 \text{ V (18 V) } \pm 5\%$

Equivalents

EL 861	RFT = E 81 L
IL 861	RFT = 18046
PTE 11	TuM = 18040
6486	int = E 81 L

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	$C_{f/k}$
	pF	pF	pF	pF	pF
E 81 L	11,5	6,5	0,02	0,2	4,2
18040	15	8	0,02	0,015	



T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_0	P_0	$U_{g1 \approx}$	h	$U_{f/k}$	I_k	P_{g2}	P_a
R 117	Frc	1	10	200	200	-5	35	5	8,5	43	125	7,5	2	2,65	6	50	45	1	8
R 123	Frc	1	18	225	225	-5	35	5	8,5	43	125	7,5	2	2,65	6	50	45	1	8

1) vide *, c = 8.000

Equivalents

PTT 203 P	Frc = R 123
PTT 205	Frc = R 117

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
14	13	0,5

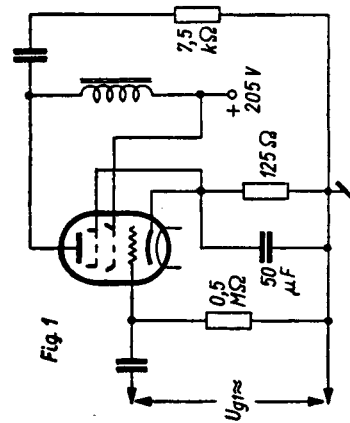
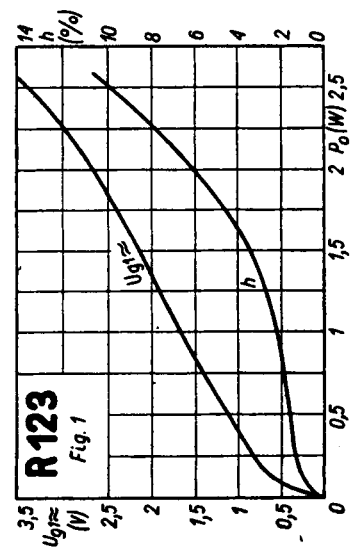
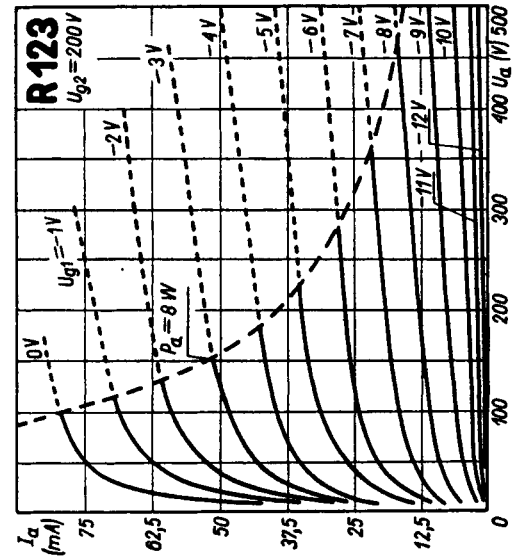
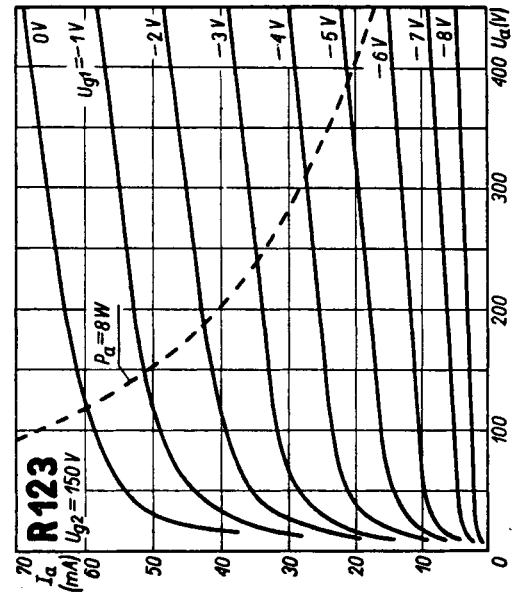
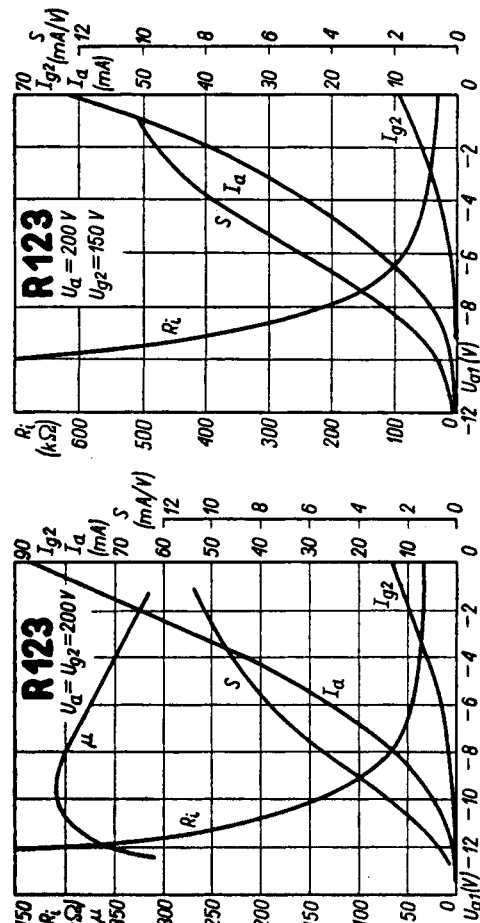
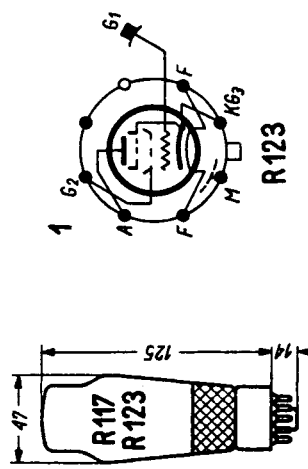


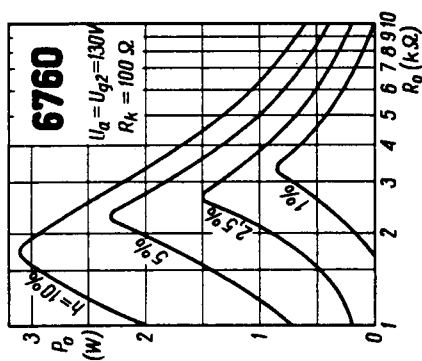
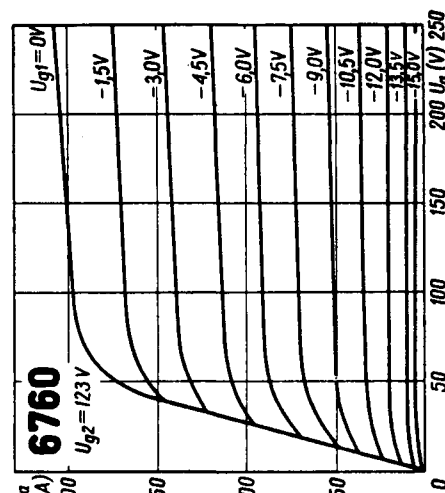
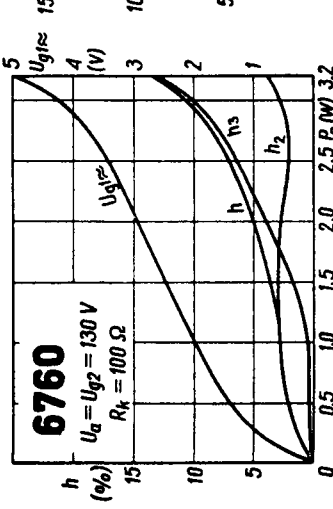
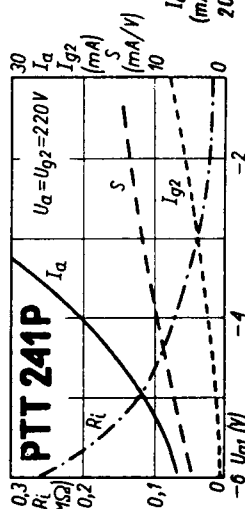
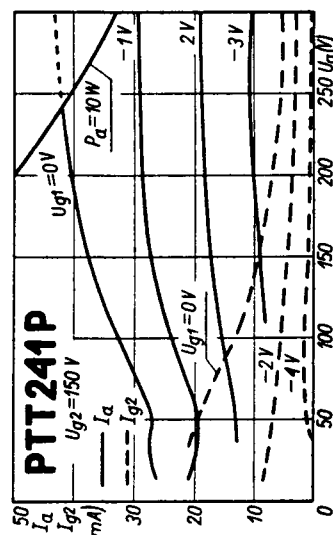
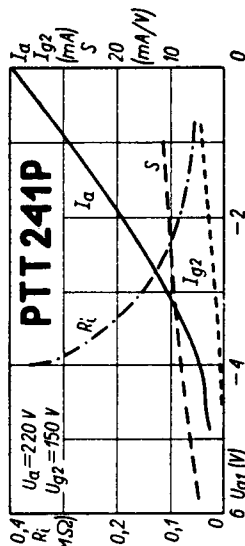
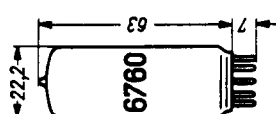
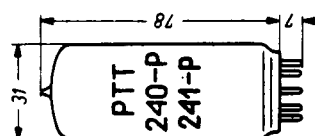
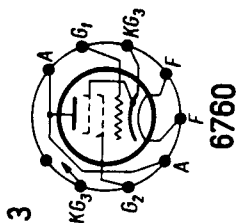
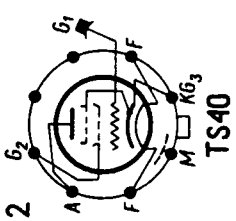
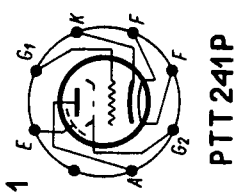
Fig. 1



T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g3}	P_a
PTT 240 P			V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	%	V	mA	W	W
PTT 241 P																			
TS 40																			
6760																			

1) vide * 4, c = 10.000

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{f/k}$
	pF	pF	pF	pF
PTT 240 P	13,5	5,6	0,18	9,5
PTT 241 P	13,5	5,6	0,18	9,5
6770	11	5	0,4	



T.			U_f	I_f	U_a	U_{g3}	U_{g1}	I_a	I_{g2}	S	μ	R_i	R_k	R_o	P_o	h	$U_{f/k}$	I_k	P_{g2}	P_a
E 2 b	Siem	1	18	0,36	220	200	-3,3	42	5	10,5	22	40	70	6,5	2	5				
E 2 c	Siem	2	18	0,36	250	—	-6	44	—	6,2	(21)	3,4								
E 2 c	RFT	3	18	0,36	300	300														
E 2 e	Siem	4	18	0,36													80	75	1,5	10

1) vide * 4

Equivalents

4 S 10 STCS = E 2 e (Siem)

T.	C_{g1}	C_a	C_{g2}/a
	pF	pF	pF
E 2 b	12	4	0,15
E 2 c	16	11	0,2
E 2 e	13	10,5	0,2

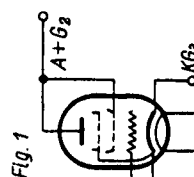
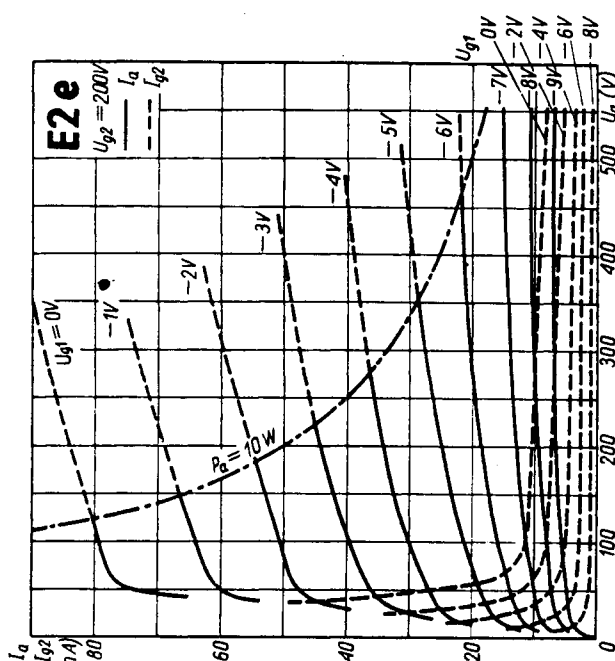
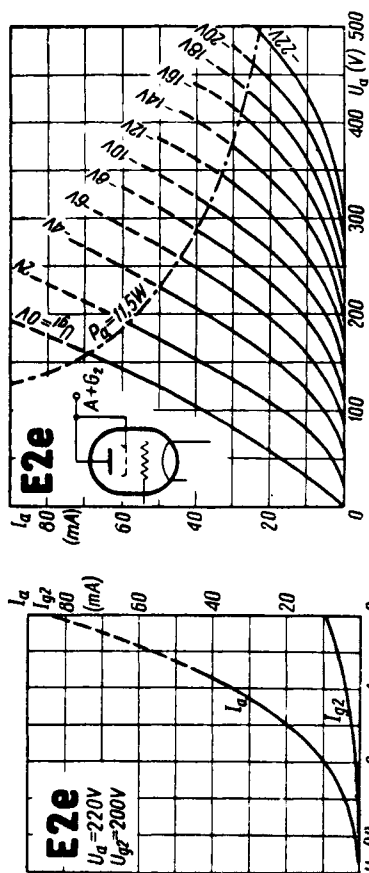
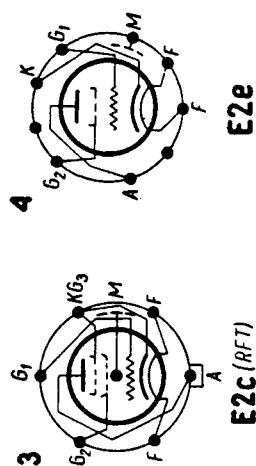
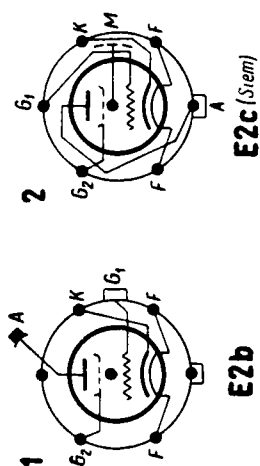
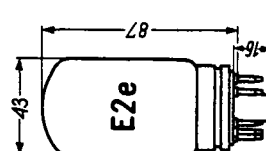
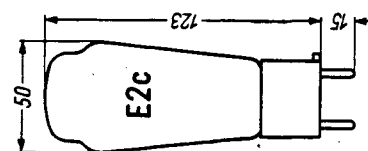
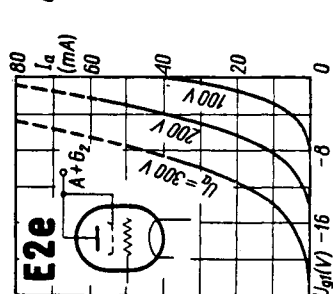
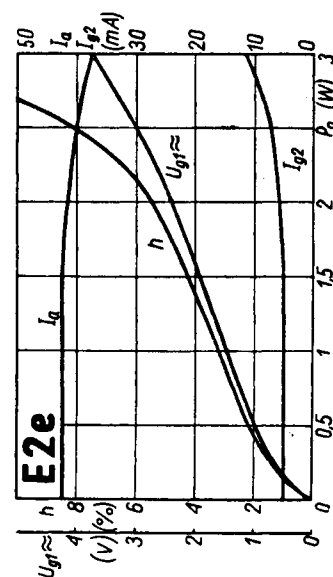
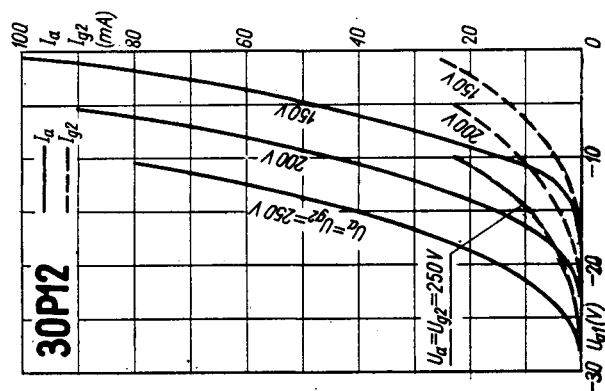
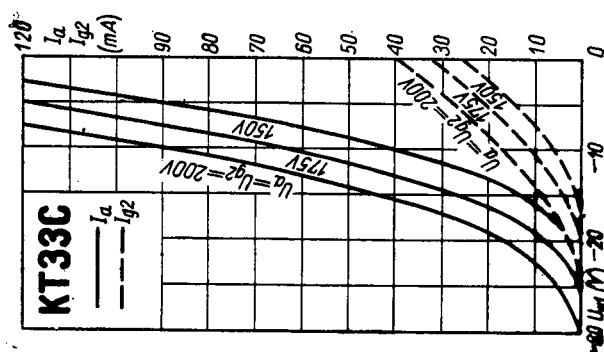
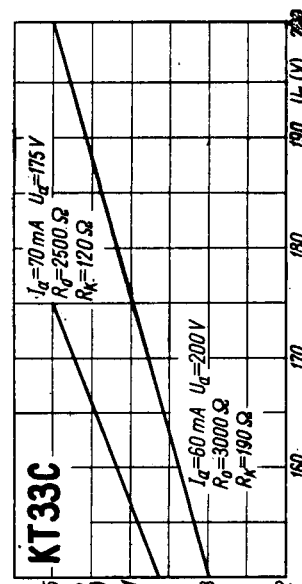
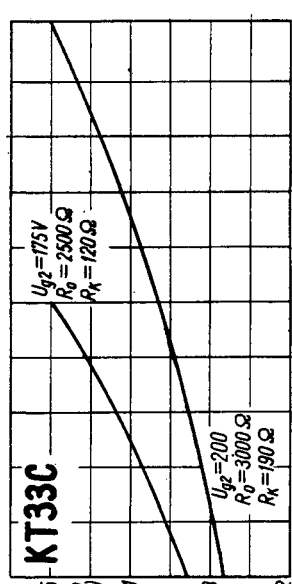
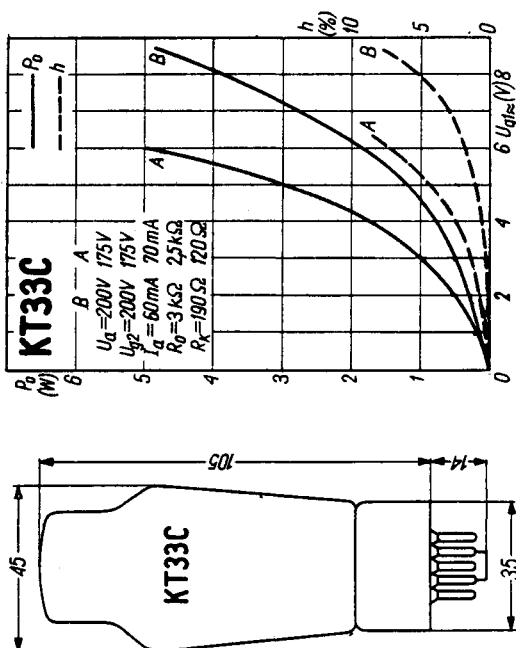
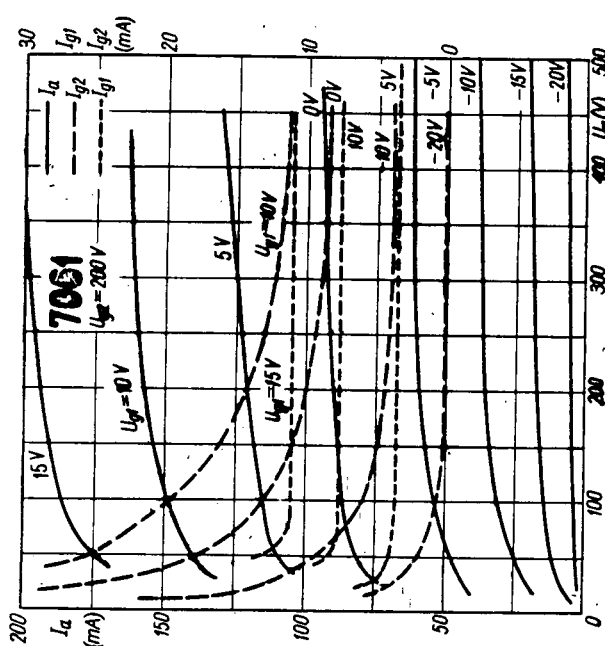


Fig. 1





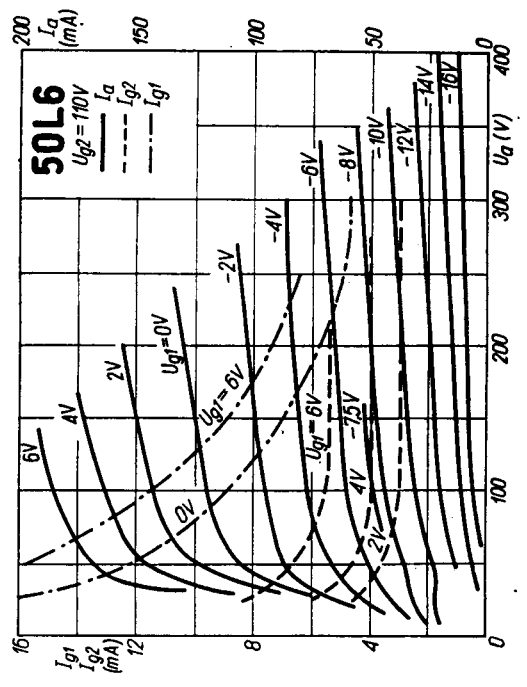
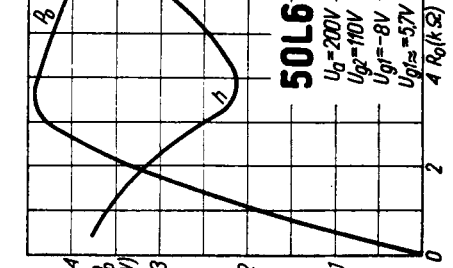
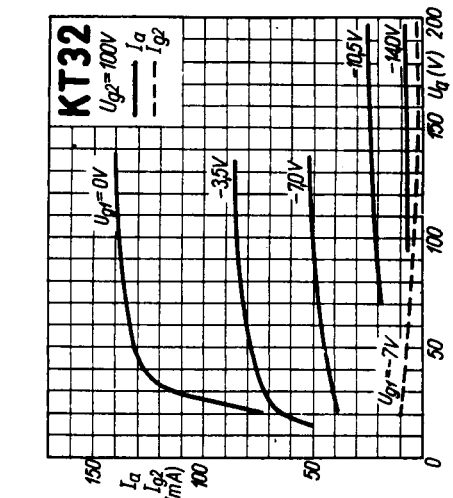
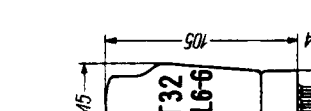
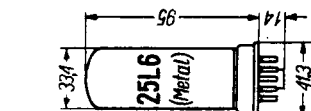
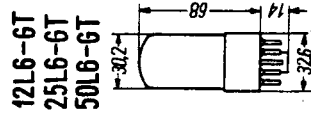
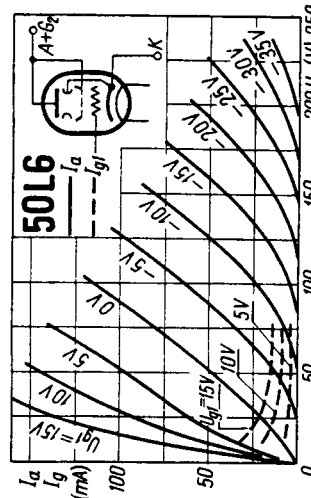
T.			U _f	I _f	Cl.	U _a	U _{g1}	U _{g2}	I _{g1}	S	R _f	R _k	R _d (R _{ad})	P _d	h	U _{g1}	P _a
KT 32	Eng	I	26	0.3	stat A AB	110 80 110 135 135 135	— 7 — 4.5 — 6 — 7.6 — 10	110 80 110 135 135 135	4 4 4 5 8	9		95 95 95 200	1.6 1.6 1.3 (2.5)	1.2 2.3 3.5 7.5	9.5 6.5 11 5	4.2 5.6 7.1 19.7	10
12 L 6-GT	int	I	12.6	0.6		110	— 7.5	110	4 ÷ 11	9	13	150	2	2.1	10	5.3	
17 L 6-GT	amer	I	16.8	0.45		110	— 8	110	2 ÷ 7	9.5	30	160	3	4.3	10	5.7	
25 L 6-G	int	I	25	0.3	A	200		110		maximum	maximum	U _{f/k} = 100 V		1.25	10		
50 L 6-G	int	I	50	0.15		200		110									
13 II I	CCCP	I	13	0.76	A	110	— 2	80	4	7.5	10	1.5		1.6			6
25 II I C	CCCP	I	25	0.3	A	110	— 8	110	8	8.5							10

1) vide gr. 191, 193, 265

Equivalents

13 II I M	CCCP = 13 II I
25 II I	CCCP = 25 II I C
25 L 6	int = 25 L 6-G
25 L 6-GT	int = 25 L 6-G
50 L 6-GT	int = 50 L 6-G
1632	RCA = 12 L 6-GT
6046	GE = 25 L 6-G

T.	C _{g1}	C _a	C _{g1/a}
	pF	pF	pF
KT 32	20	12	1.2
13 II I	15.5	10.5	2.5
25 L 6	16	13.5	0.3
25 L 6-G	15	10	0.6

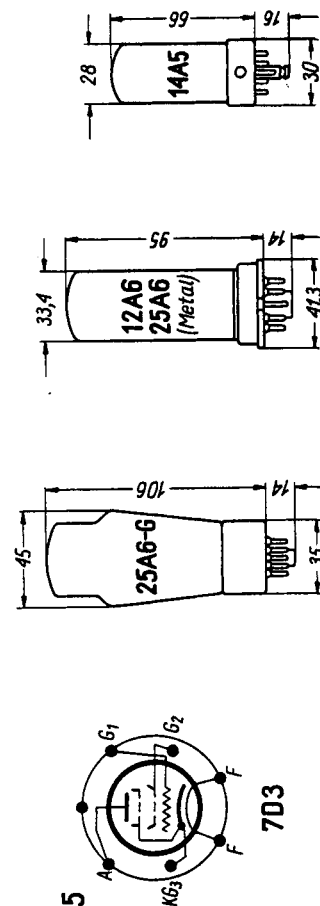
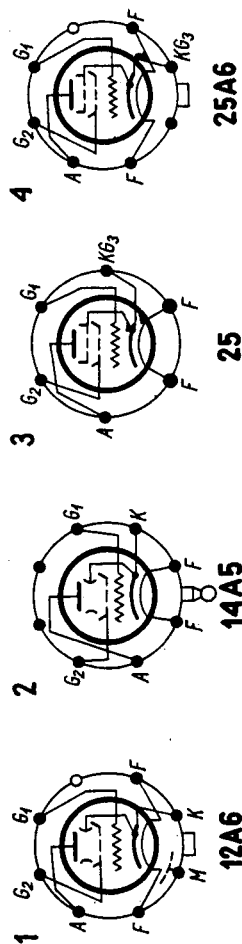
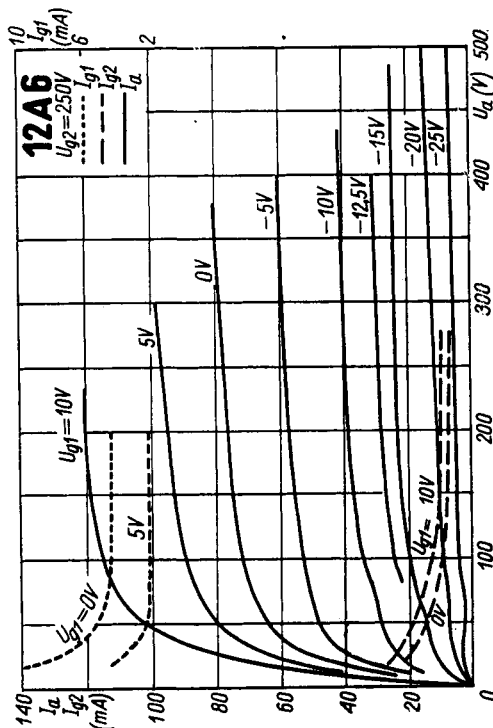
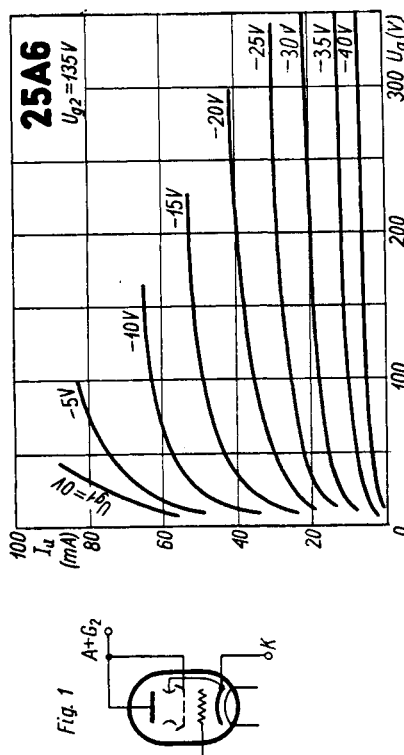


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	$U_{g1 \approx}$	h	$U_{f/k}$	P_{g3}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	k	W	V	%	V	W	W
12 A 6	int	1	12,6	0,15	180	180	-8,5	21÷22	2,6÷4	2,7	92	350	8	1,6	8,5	7			
14 A 5	amer	2	12,6	0,15	250	250	-12,5	30÷32	3,5÷5,5	3	70	370	7,5	3,4	12,5	7			
					250	250	-13	36	(Fig. 1)	3	maximum						90	1,5	7,5
25	amer	3		0,3	95	95	-15	20÷22	4÷8	2	45	625	4,5	0,9	15	11			
25 A 6	int	4	25	0,3	135	135	-20	37÷39	8÷14	2,45	35	440	4	2	20	9			
7 D 3	Bri	5	40	0,2	160	135	-18	33÷36	65÷12	2,37	42	440	5	2,2	18	10		1,9	5,3

Equivalents

G 43	amer = 25 A 6	43 E	Bri = 25 A 6
T 43	amer = 25 A 6	43 MG	amer = 25 A 6
12 IT 4	CCCP = 12 A 6	143	amer = 25 A 6
12 IT 6	CCCP = 12 A 6	243	amer = 25 A 6
25 A 6-G	int = 25 A 6	343	amer = 25 A 6
25 A 6-GT	int = 25 A 6	5659	amer = 12 A 6
43	amer = 25 A 6		

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
12 A 6	9	9	0,3
14 A 5	6,8	7	0,4
25 A 6	8,5	12,5	0,2



T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g1}	S	R_i	R_o	P_o	h	P_{g1}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	k Ω	W	%	W	W
12 AS 5	amer	1	12,6	0,4	150	110	-8,5	36	6,5	5,6		4,5	2,2	10		
12 CD 6	amer	2	12,6	1,25	175	175		75	5,5	7,7	7,2					
12 DM 5	TS	1	12,6	0,45	110	110	-7,5	50	4	7,5	14	2,5	1,1	9		5,5
12 DQ 7	amer	3	12,6	0,3	200	135		26	5,6	5	53					
12 ED 5	TS	1	12,6	0,45	125	125	-4,5	36	11	8,5	14	4,5	1,25			5
12 EN 6	TS	4	12,6	0,6	200	110	-9,5	50	2,2	8	28					7
16 GK 6	amer	5	16	0,3	250	250	-7,3	48	5,5	11,3	38	5,2	4,7			10
17 FV 5	amer	6	17,5	0,6	100	100	-8	150	6	21	4					
20 P 3	Eds	4	20	0,2	175	175	-9,4	42	10,5	7,2	42	3,9	2,9	5		
30 P 14	Eds	4	13	0,3	250	250				maximum					3	10
20 P 5	Eds	7	20	0,2	180	150	-6,3	29	5,8	7,5		5,4	2,6	7	1,8	6
					250	250				maximum						
					105	105	-16	48	2	4,8	15	1,7	2,4	12		
25 B 6-G	amer	8	25	0,3	135	135	-22	61	2,5	5	15	1,7	4,3	14		
					200	135	-23	62	1,8	5	18	2,5	7,1	15		
					200	150				maximum					4,3	12,5
26 EG-G	amer	8	26,5	0,3	200	135	-14	61	3	7,1	18	2,6	6	10		
185 BT	Cos	9	18	0,45	250	180	-19,5	100	6,5	9,5	6					
7551	amer	10	13,5	0,26	250	250	-18	40	3	5,3						
7701	amer	11	13,6	0,16	250	250	-12,5	28	3,1	3,6	31					

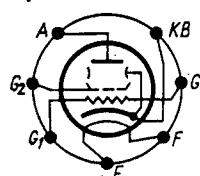
Equivalents

XL 136 eur = 17 FV 5
185 BTA¹⁾ Cos = 185 BT
5824 GE = 25 B 6-G

¹⁾ $U_a(\text{peak}) = 10.000 \text{ V}$
²⁾ vide gr. gr. 191, 193, 265

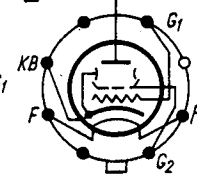
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
12 DM 5	13	9	0,55
12 EN 6	14	8	0,65
20 P 3	13,5	10,5	1
20 P 5	12,5	9,1	0,86

1



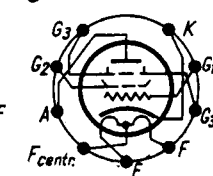
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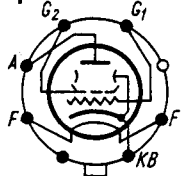
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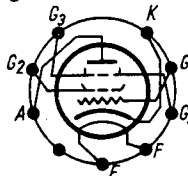
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4



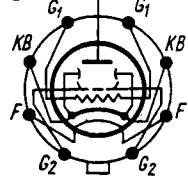
12EN6

5



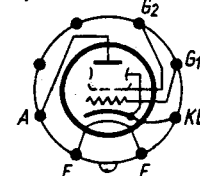
16GK6

6

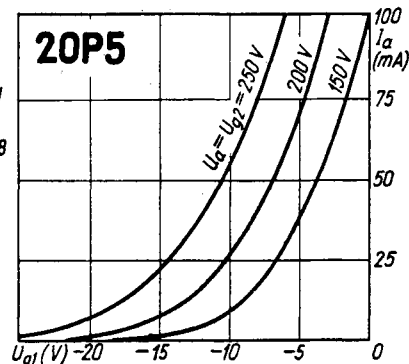


17FV5

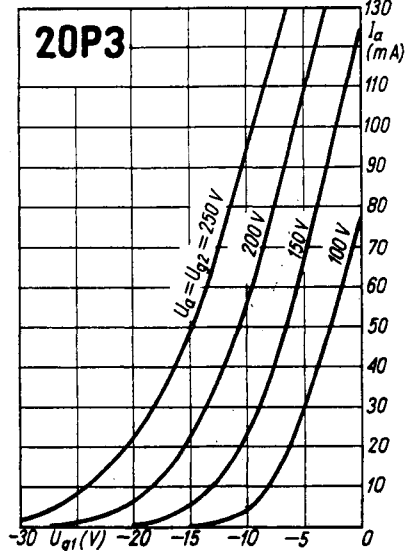
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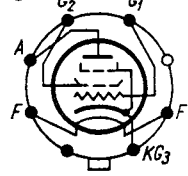
20P5



20P3

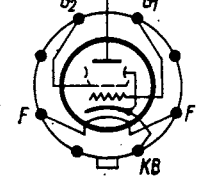


8

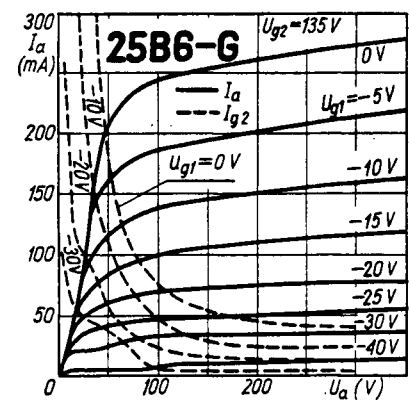


25B6-6

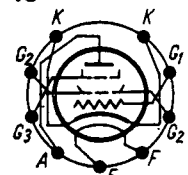
9



185BT

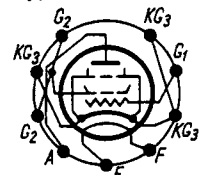


10



7551

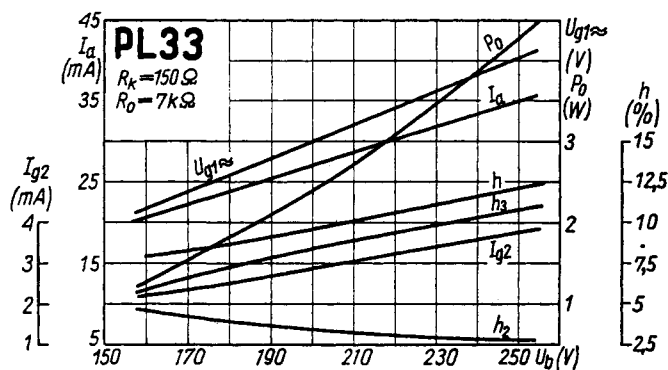
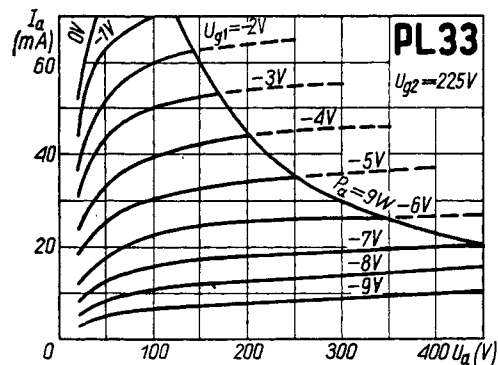
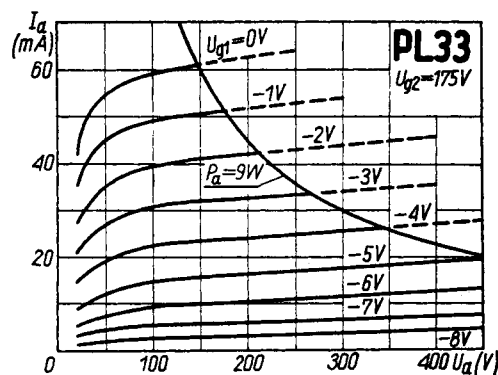
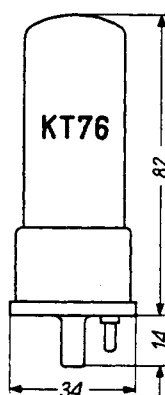
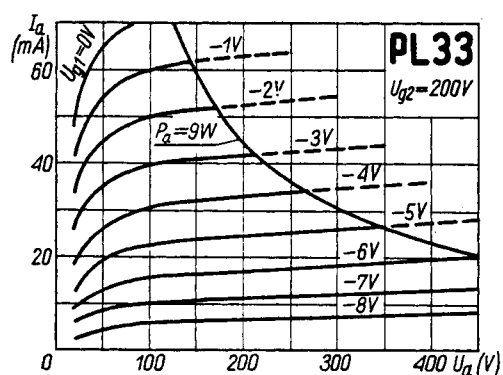
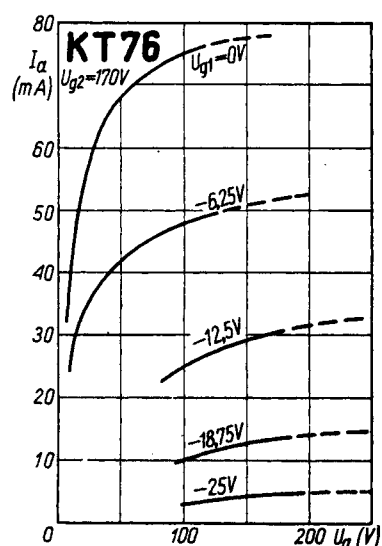
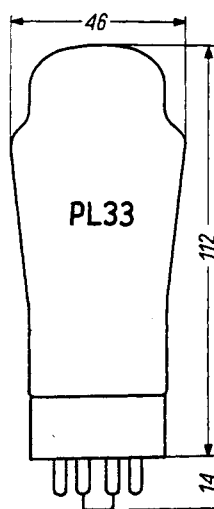
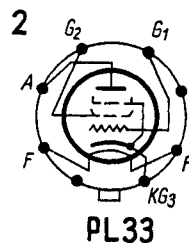
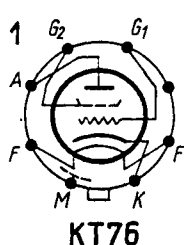
11



7701

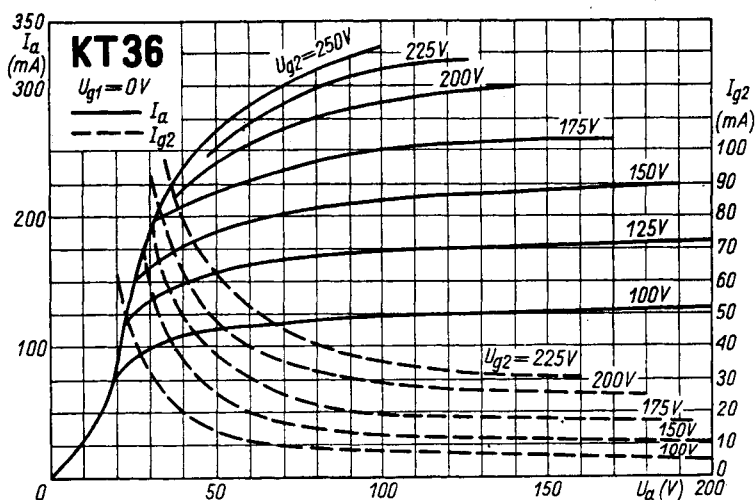
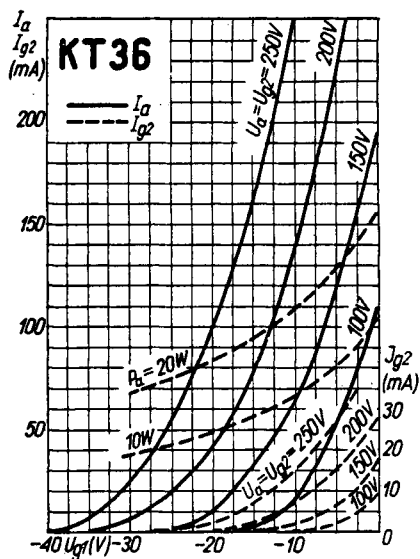
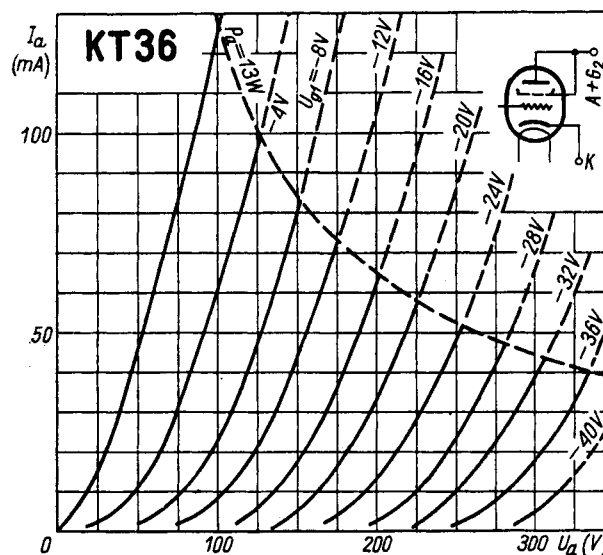
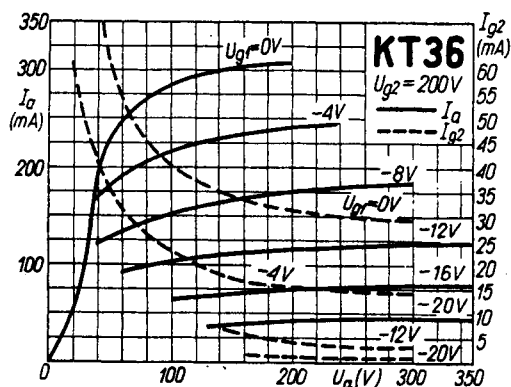
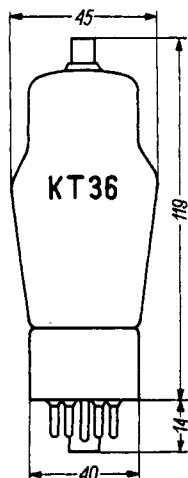
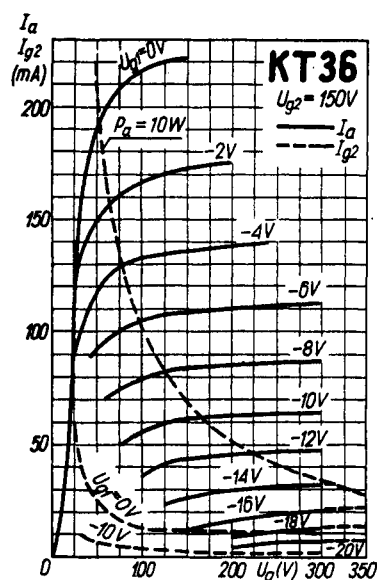
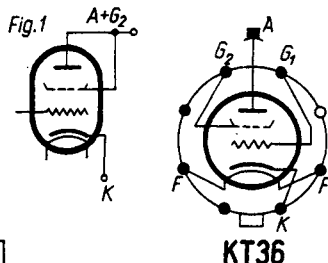
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$R_o(R_a/a)$	P_o	$U_{g1\sim}$	h	P_a
			V	A		V	V	V	mA	mA	mA/V	kΩ	Ω	kΩ	W	V	%	W
KT 72	Eng	I	15	0,16	{ stat	175	175	—12,5	30	6	2,5							
						{ A }	150	150	—10	29	5			300	5	1,3	10	4,5
							175	175	—13	35	6			300	5	2	13	4,5
							KT 74	Eng	I	16	0,17	{ AB }	150	150	—16	39÷42	7÷12	
175	175	—18	45÷50	8÷15									175	(8)	4,8	20,5	3	
175	175	maximum $P_{g2} = 1,5$ W											7					
PL 33	Mul	2	19	0,3	{ A }	175							175	—4	24	2,6	8	60
						200	200	—4,65	28	3	8,6	55	150	7	2,55	3,1	10	
						225	225	—5,3	32	3,4	9	50	150	7	3,45	3,6	11	
						250	275	maximum $P_{g2} = 1,2$ W; $I_k = 55$ mA; $U_{f/k} = 300$ V										9

T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
KT 76	9,4	6,7	0,75
PL 33			1



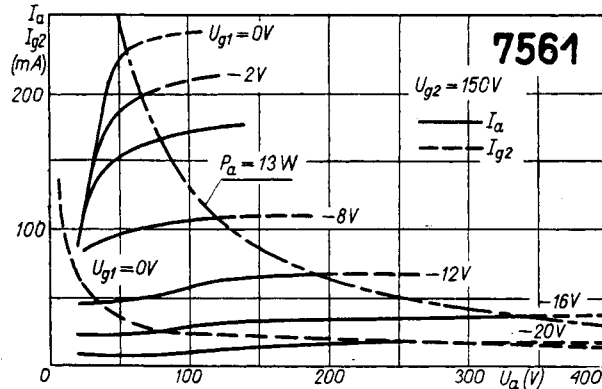
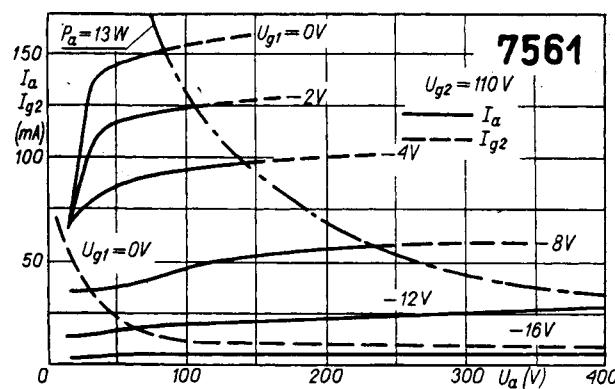
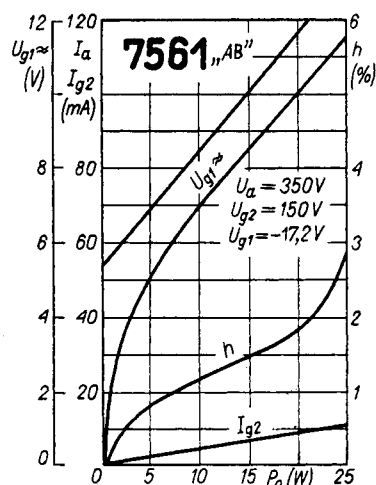
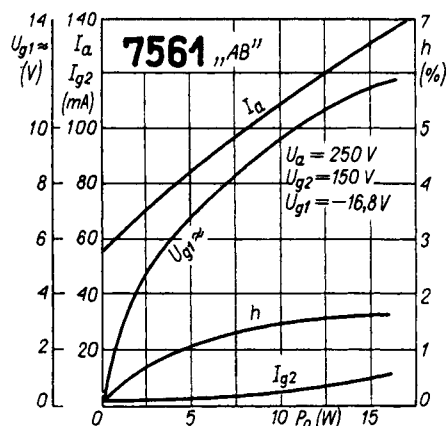
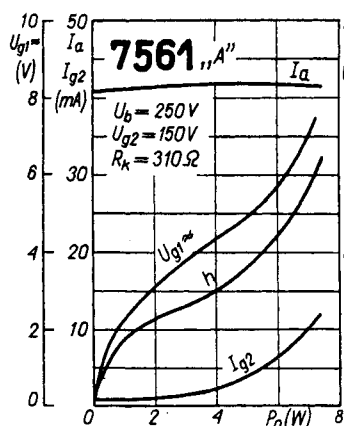
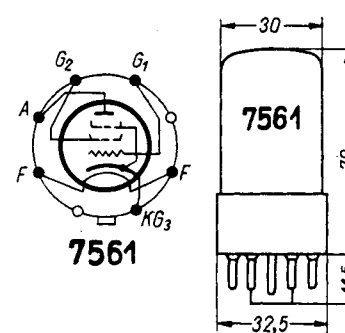
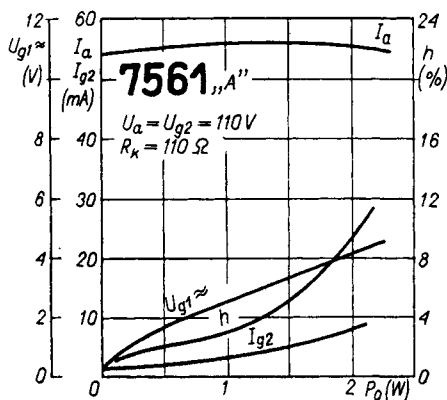
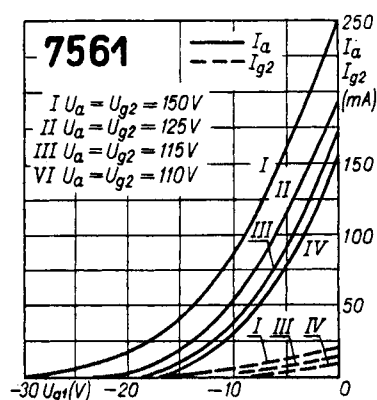
T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	ν mA/V	R_i Ω	μ V/V	$U_{f/k}$ V	P_{g2} W	P_a W
KT 36	Eng	26	0,3	stat	150	150	-10	62	2	11					
				stat	250	200	-10	70	maximum						
				Fig. 1	150	—	-10	—	—	10,5	800	7,5	200	3	10
					200				maximum						13

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
20	12	1,2



T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k	R_k Ω	$R_o(R_{a/a})$ k Ω	P_o W	$U_{g1} \approx$ V	h %
7561	int	25	0,3	stat	115	115		55	2,4	10,5	12,4	140				
					110	110		55	2,4 ÷ 7,8			110	1,9	2,1	3,9	10
					200	125		50	1,5 ÷ 8			170	3,8	5,1	5,8	10
					250	150		41 ÷ 42,3	1 ÷ 8,5			310	5	6,5	6,5	10
					250	150	-16,8	54 ÷ 132	1,4 ÷ 10,6			(3)	15	11,3	1,6	
					300	150	-17	54 ÷ 126	1,1 ÷ 10			(4)	18	11,6	2,2	
					350	150	-17,2	54 ÷ 122	1 ÷ 11			(5)	22	10,5	2	
					350	200										
					maximum $U_{f+/-k+} = 100V$; $U_{f-/-k+} = 200V$; $I_k = 150mA$; $P_{g2} = 2W$; $P_a = 13W$											

¹⁾ vide * 4, a, c = 10.000, g
 $U_f = 25V \pm 5\%$

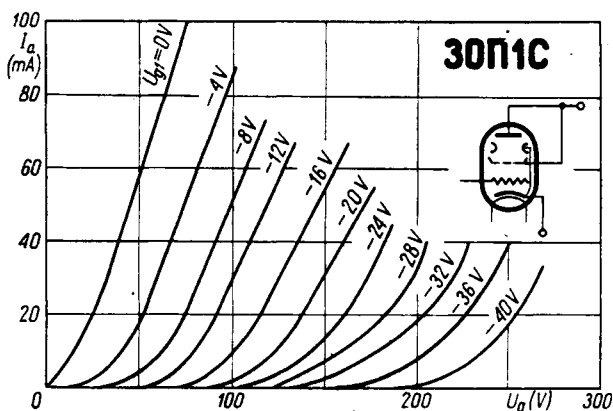
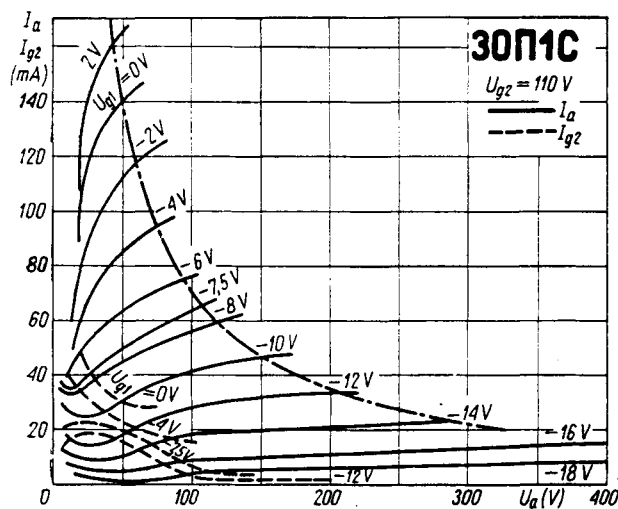
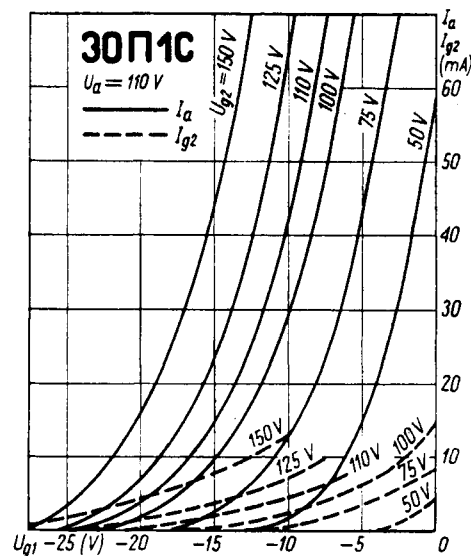
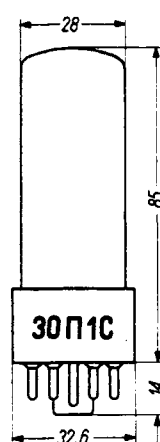
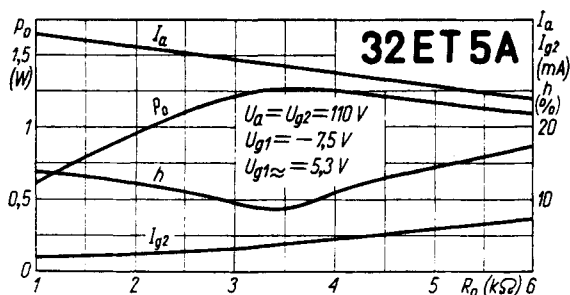
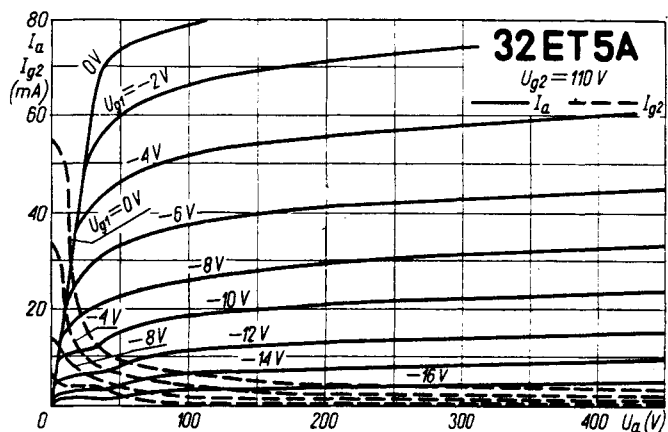
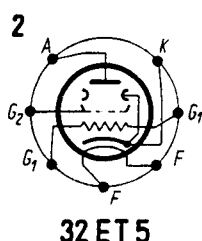
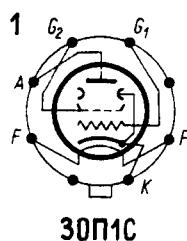
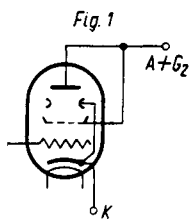


T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	R_o kΩ	P_o W	$U_{g1} \approx$ V	h %	U_f/k V	P_{g2} W	P_a W
30 П 1 С	CCCP	1	27	0,3	110 110 110	110	-7,5 -7,5	70 74	12 —	10 10,5 maximum	1,6	1,8	0,5	2,4 Fig. 1; $\mu = 17$	3,5	175	1,5	7
32 ET 5 A	Syl	2	32	0,1	110 150	110 130	-7,5	30	2,8	5,5 maximum	21,5	2,8	1,2	5,3	10	100	1,2	5,4

Equivalents

30 П 1 М CCCP = 30 П 1 С
32 ET 5 Syl = 32 ET 5 A

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
30 П 1 С	19	11	1,5
32 ET 5 A	12	6	0,6



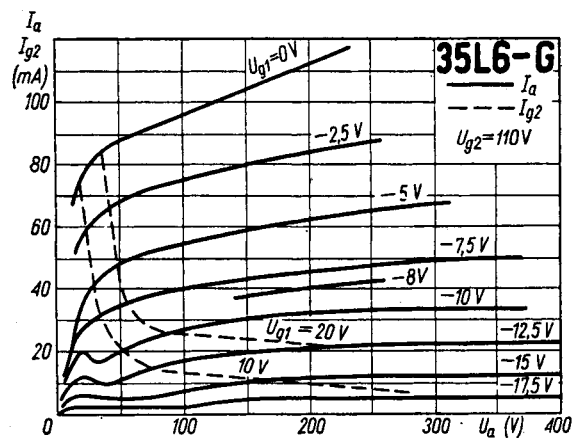
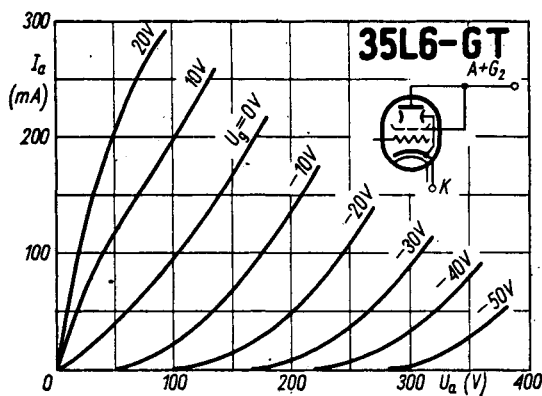
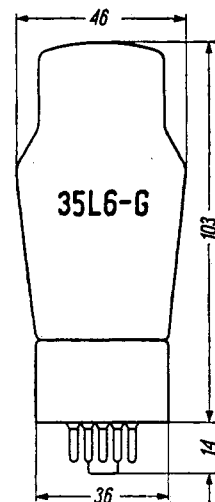
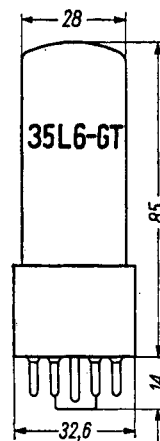
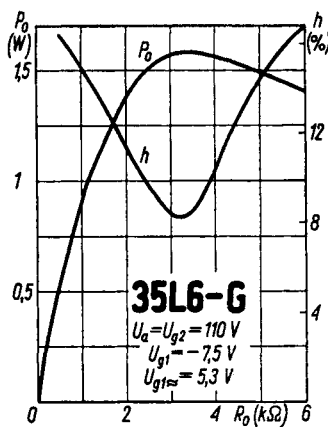
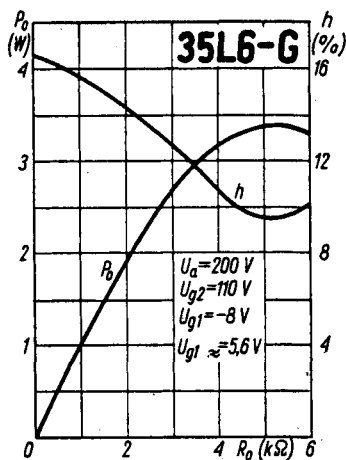
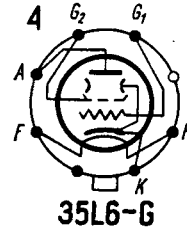
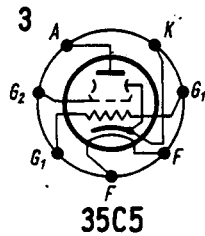
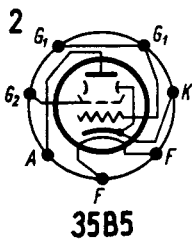
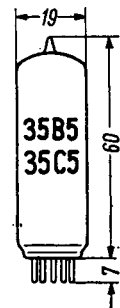
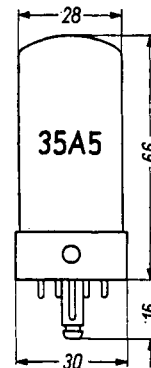
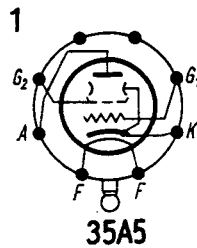
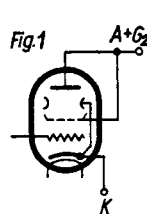
T.		U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	R_o	P_o	$U_{g1} \approx$	h
		V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%
11 C 5	amer	3	11,6	0,45	110	110	-7,5	40÷41	3÷7	5,8	16	170	2,5	1,5	5,3
35 A 5	int	1	35	0,15	200	110	-8	41÷44	2÷7	5,9	40	185	4,5	3,3	10
35 B 5	int	2	35	0,15	200	—	-20	48	—	9	0,7			5,6	10
35 C 5	int	3	35	0,15	117	117	maximum	35 B 5 ($P_a = 4,5$ W;							
35 L 6-G	int	4	35	0,15	135	117	maximum	35 C 5 ($P_a = 4,5$ W;							
35 L 6-GT	int	4	35	0,15	200	125	maximum	35 L 6-G ($P_a = 8,5$ W;							

Fig. 1; $\mu = 6$

$U_{f/k} = 150$ V
 $U_{f/k} = 180$ V
 $U_{f/k} = 90$ V

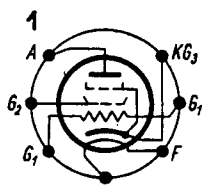
$P_{g2} = 1$ W
 $R_{g1} = 0,5$ M Ω

T.	C_{g1}	C_a	C_{g1a}
	pF	pF	pF
35 B 5	11	6,5	0,4
35 C 5	12	9	0,6
35 L 6-G	13,5	8	1
35 L 6-GT	13	9	1

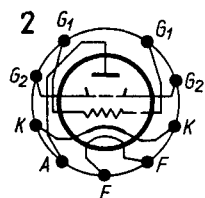


T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_t	R_k	R_o	P_o	$U_{g1 \sim}$	h	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%	W
HL 94	Phl	1	30	0,15	100	100	-6,7	43	3÷11	9,2	22		2,4	1,9	4,3	10	7,5
35 D 5	amer	2	35	0,15	150	150		52	3	9,5	20	190	2,5	4,8		10	
35 L 31	Tes	3	35	0,15	100	100	-5,3	32,5	5,5	7,5	25	140	3	1,35	3,8	10	
					180	180	-10	61	10	9	22	140	3	4,8	6,2	10	
					200	200	-13	55	9,5	8	25	200	3,5	4,8	6,2	10	
					250	250											11
35 QL 6	Fiv	4	35	0,15	105	105	-6	32÷34	5,75÷11,5	8,3	18		3	1,3	3,8	10	
					120	120	-7	36÷39	6,7÷14	8,8	17		3	1,8	4,2	10	
					180	180	-11,5	52÷56	10÷22,5	9,5	18		3	4,25	6,5	10	
					250	250											9,5

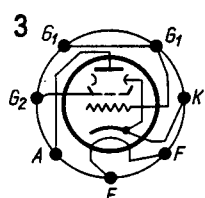
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
HL 94	12	5,8	0,3	0,4
35 L 31	11	8	1,2	
35 QL 6	12,5	6	1,5	0,25



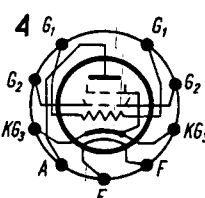
HL94



35D5



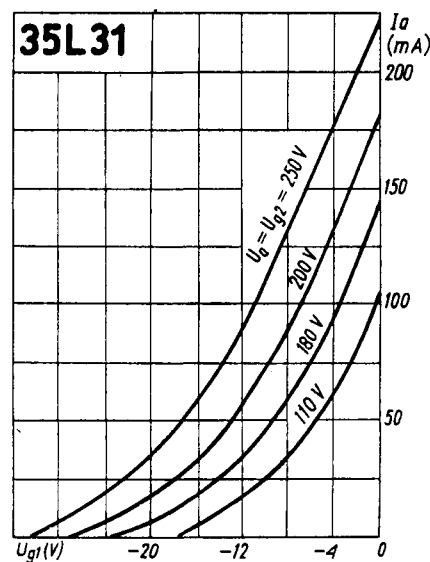
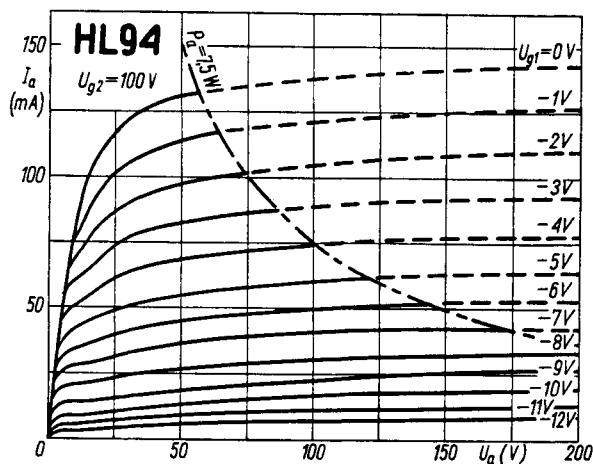
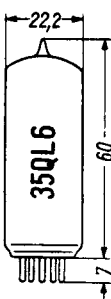
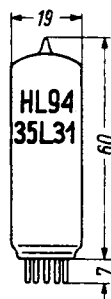
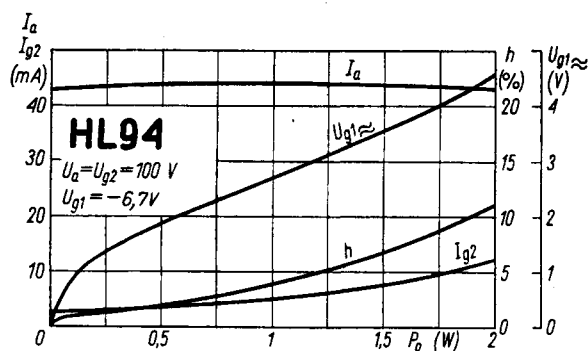
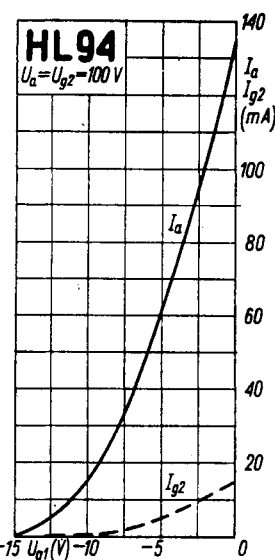
35L31

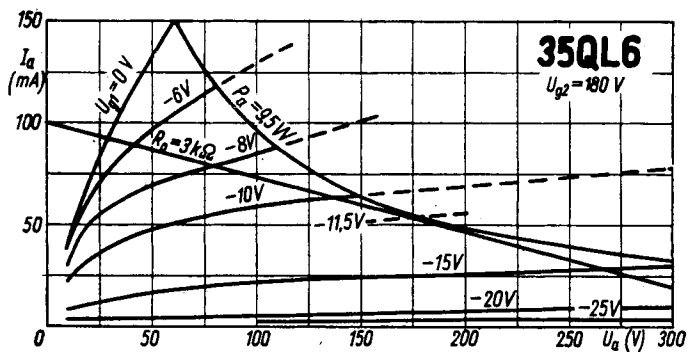
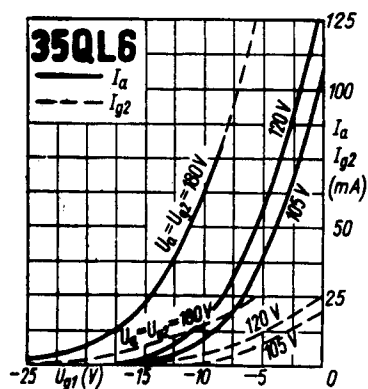
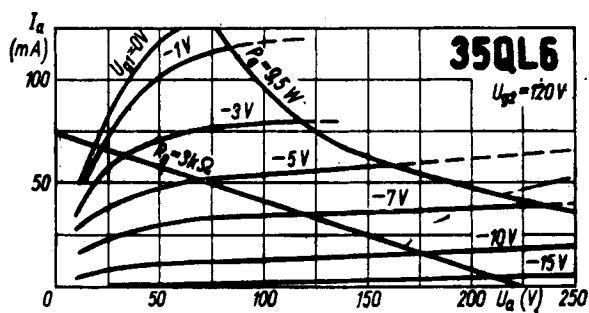
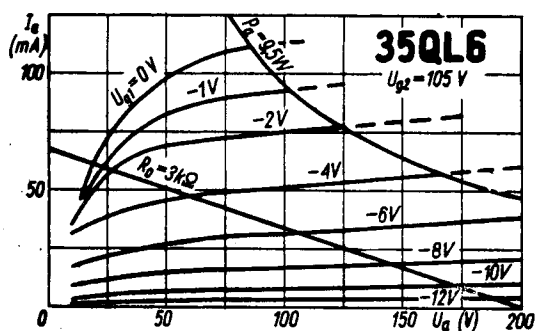
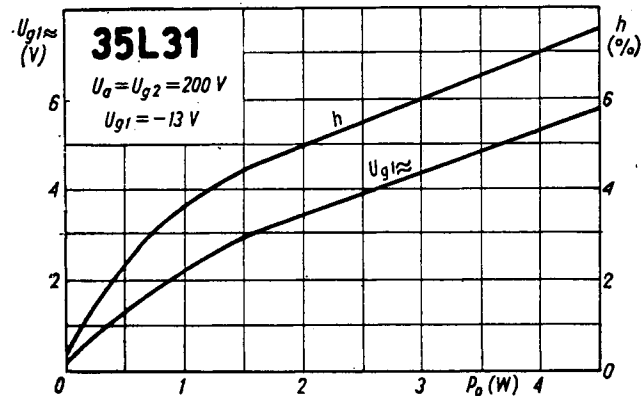
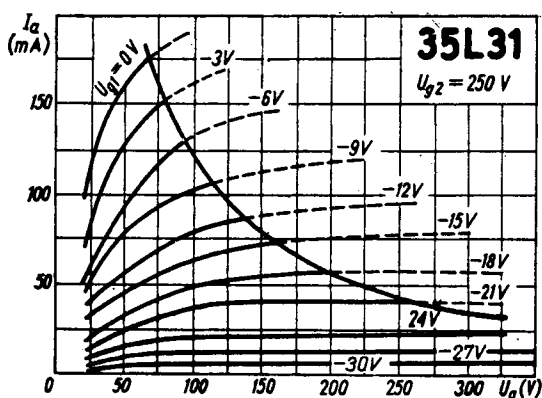
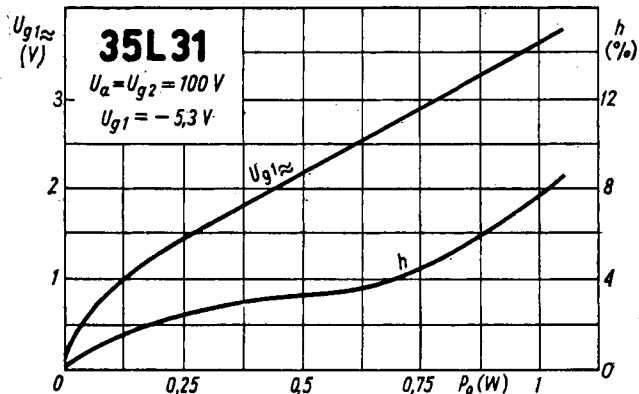
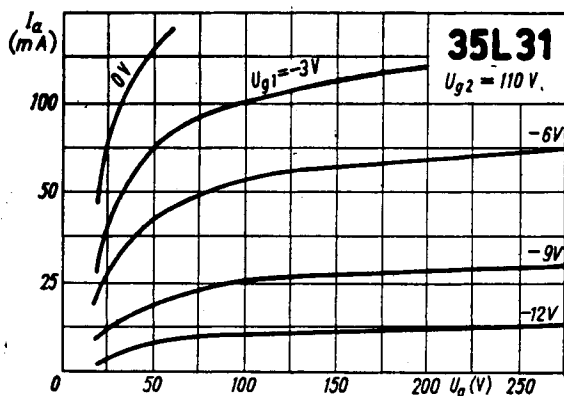


35QL6

Equivalents

30 A 5 amer = HL 94



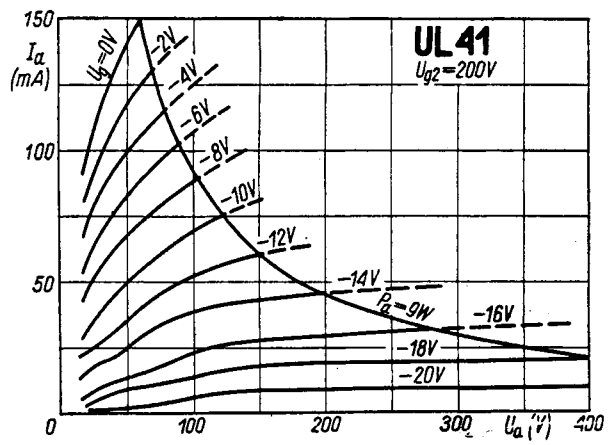
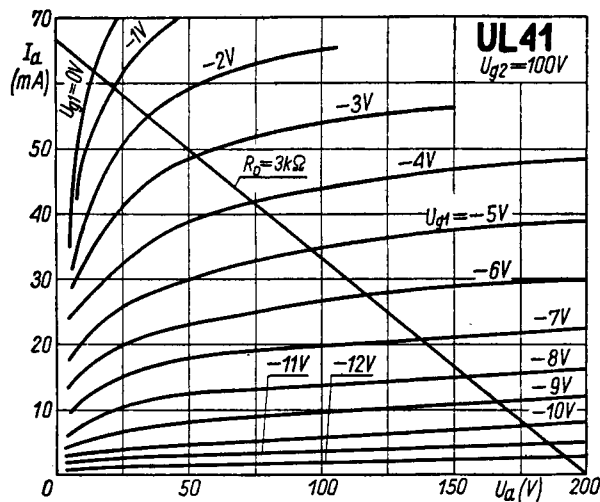
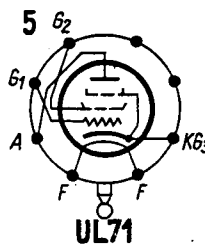
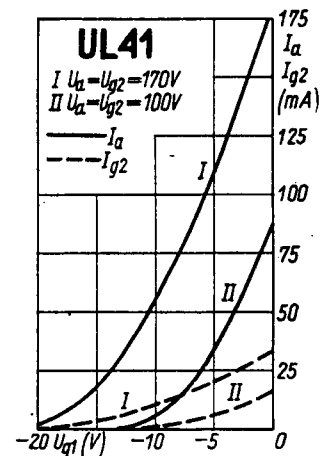
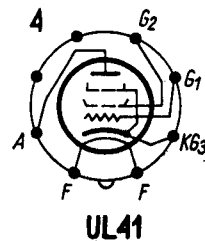
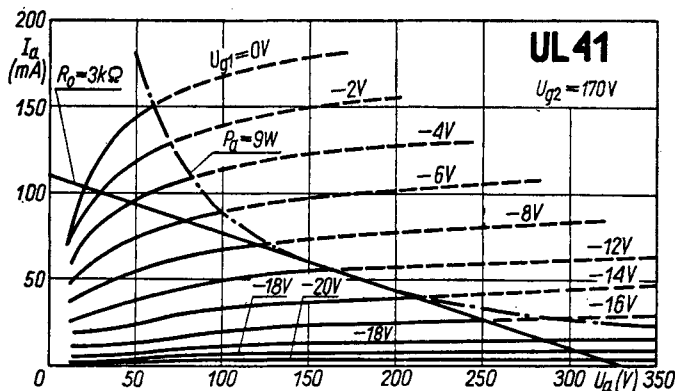
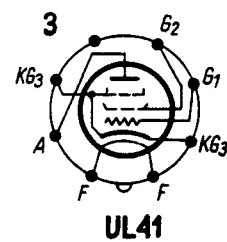
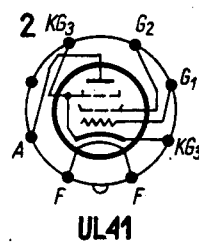
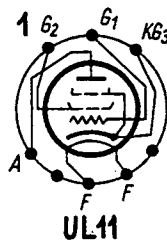


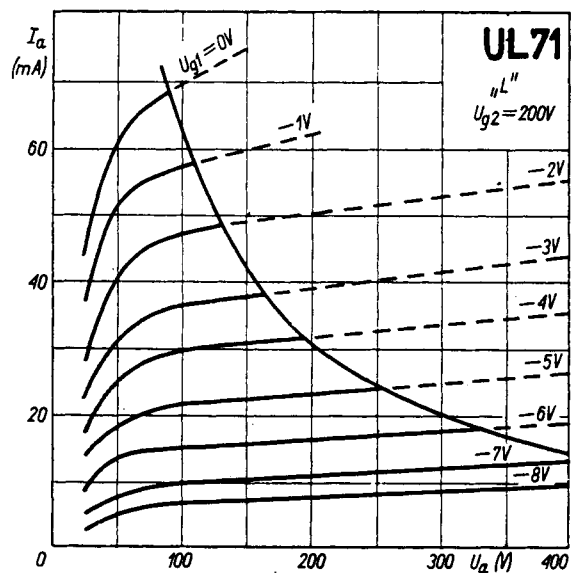
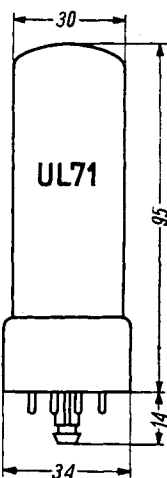
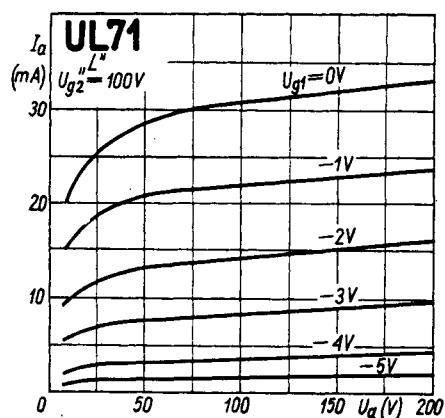
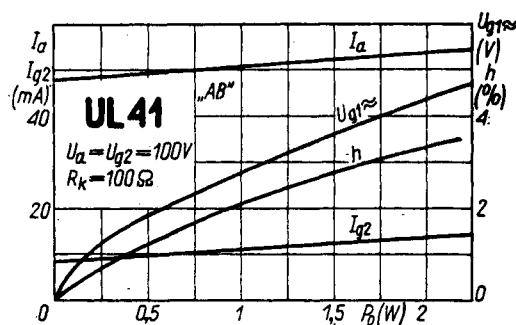
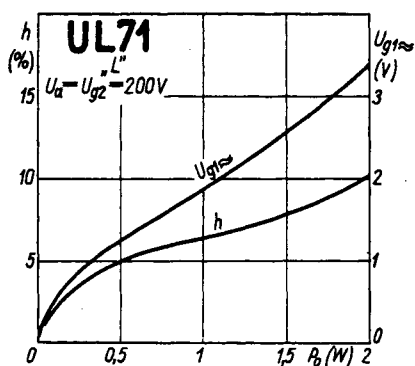
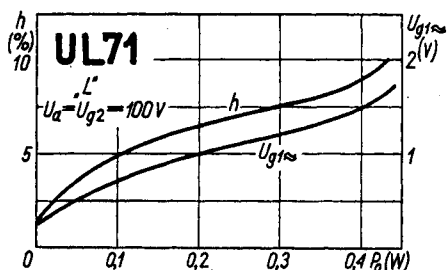
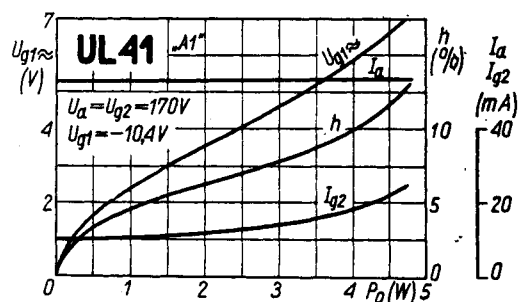
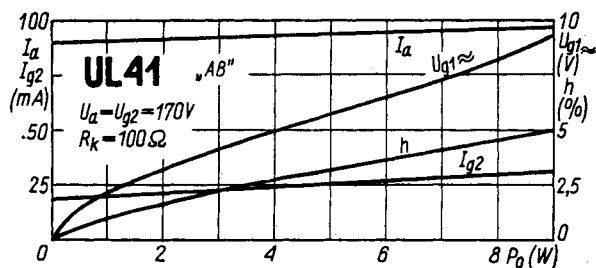
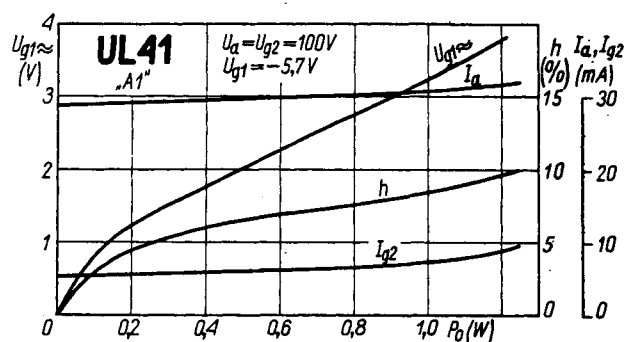
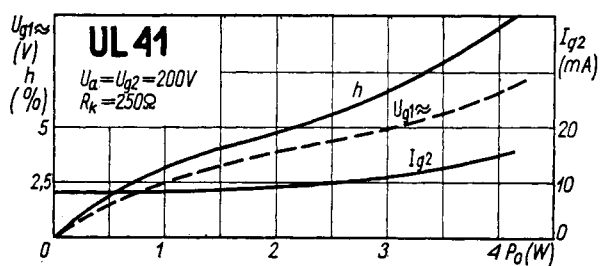
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_t	R_k	$R_o(R_{a/a})$	P_o	$U_{g1 \approx}$	h	P_a	
			V	A		V	V	V	mA	mA	mA/V	kΩ	Ω	kΩ	W	V	%	W	
UL 11	Tif	I	45	0,1	A	100	100	— 5,7	29	5,5	8	18	170	3	1,25	3,8	10	6	
UL 41	eur	2/3/4	45	0,1		AB	170	170	—10,4	53	10	9,5	20	160	3	4	6		10
							200	200	—14	45	8,5	9	20	250	4	4,25	7		10
					100		100		50÷54	10÷13,6				100	(4)	2,2	4,6	4	6
					170	170		92÷98	18÷33				100	(4)	9	9,3	5		
					250	250		maximum $P_{g2} = 2,5$ W; $I_k = 75$ mA; $U_{f/k} = 150$ V											
UL 71	Lor	5	45	0,1	A	100	100	— 2,6	11	1,8	5,8	70	200	9	0,45	1,7	10	6	
					200	200	— 5,2	22	3,5	6,5	70	200	9	2	3,2	10			
					250	250		maximum $P_{g2} = 1,2$ W; $I_k = 30$ mA; $U_{f/k} = 150$ V											

Equivalents UL41

BF 451	Maz
N 142	Eng
45 A 5	amer
451 PT	Cos

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
UL 41	11	8,3	1	0,1





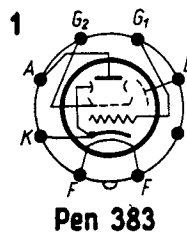
T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g1}	S	R_o	P_o	$U_{g1 \sim}$	U_f/k	P_{g1}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	W	V	V	W	W
Pen 383	Eds	1	38	0,2	175	175	-10	64	13	12	2,6	3,7				10
Pen 3820	Eds	2	38	0,2												
Pen 384	Eds	1	38	0,2	100	110	-7	40	2,9	12,5	2,2	1,9				10
PP 4019	Tu	3	40	0,18	180	180	-22	45	9		3	4				9
PP 4118	Tu	3	40	0,18	180	180	-10	35	7		5	3				7,5
10 P 13	Eds	4	40	0,1	180	180	-6,3	29÷32	5,8÷11,8	7,5	5,8	2,6	3,8	150	1,8	6
					250	250			maximum							
10 P 14	Eds	5	40	0,1	175	175	-9,4	42÷45	10,5÷22,5	7,2	3,5	3,4	6			
					184	185	^{a)}	42÷38	10,5÷18,7		4	2,8	5,9			
					250	250			maximum					190	3	10
20 P 1	Eds	7	38	0,2	150	150		100		7,3						
					400	200			maximum ^{b)}					250	5	15
20 P 4	Eds	7	38	0,2	400	250			maximum ^{b)} ($I_k = 150$ mA)					250	4	10
40 PPA	Cos	2	40	0,2	150	150	-25	36	6	4	4					
402 Pen	Cos	6	40	0,2	250	250	-6,7	40	7,5	7	5,5	4				
402 Pen A	Cos	6	40	0,2	150	150	-9	56	11	8	2,5	3,4				

¹⁾ Peak, impulse ≤ 15 μ sec; $U_a = 6$ kV; $U_{g1} = 2$ kV; $U_{g2} = -1,5$ kV; ²⁾ Peak, impulse ≤ 15 μ sec; $U_a = 6$ kV; $U_{g1} = 1,5$ kV; ³⁾ $R_k = 180$

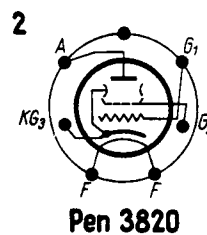
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
N 118	11	7,6	0,86
10 P 13	12,7	10,1	0,22
10 P 14	13,5	10,5	1
20 P 1	20	7	0,55
20 P 4	20	10	0,3

Equivalents

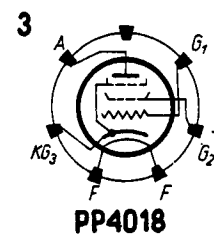
N 118	Eng = 10 P 13
N 145	Eng = 10 P 13



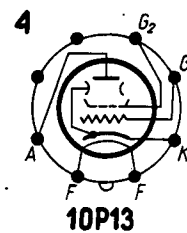
Pen 383



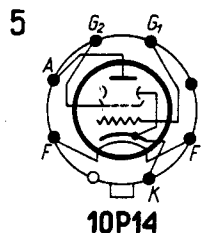
Pen 3820



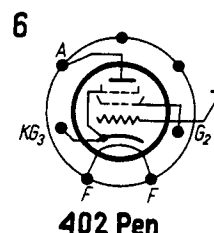
PP4018



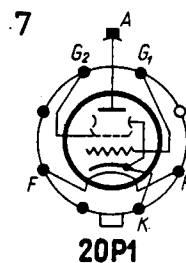
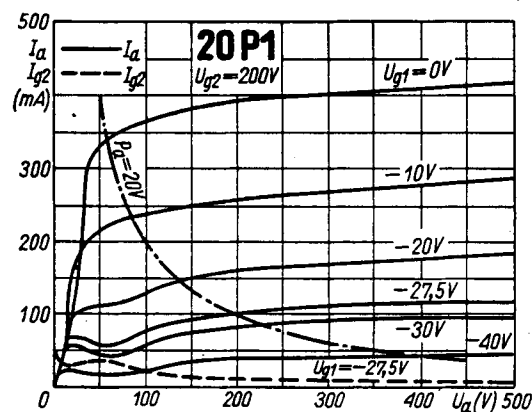
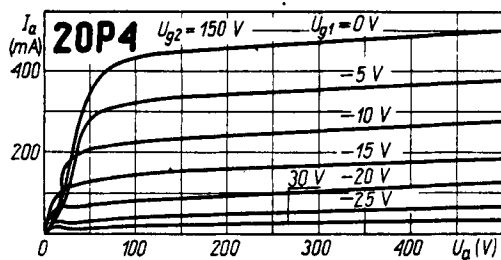
10P13



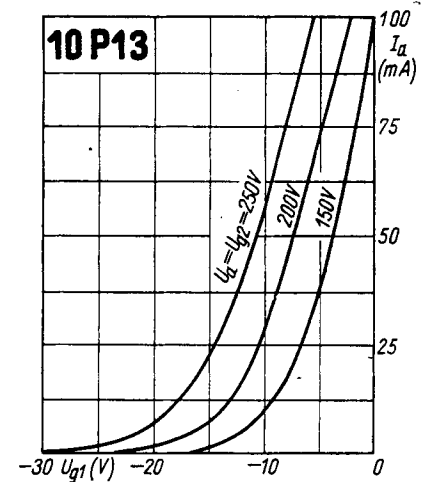
10P14



402 Pen



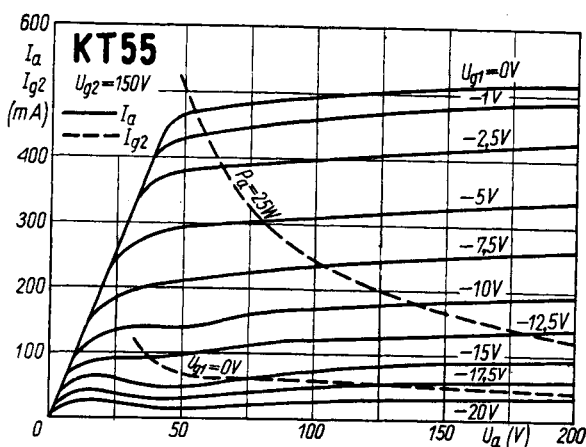
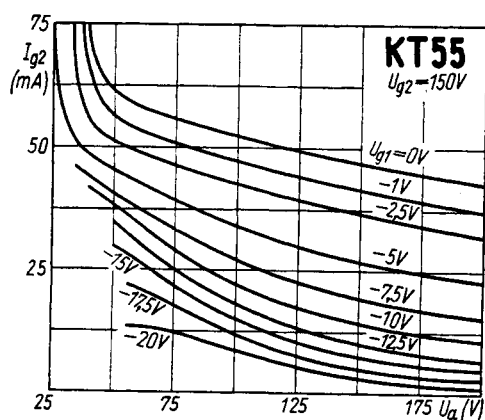
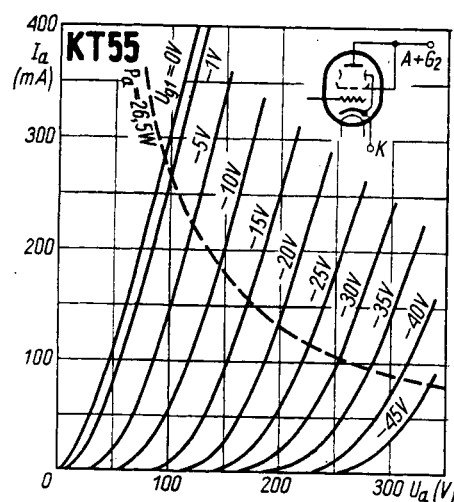
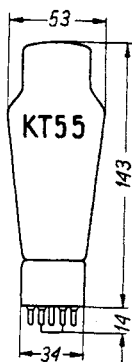
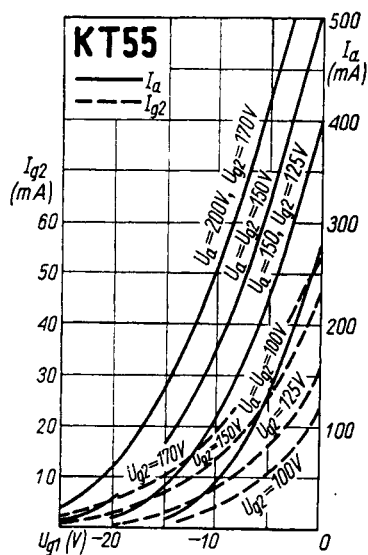
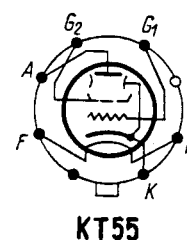
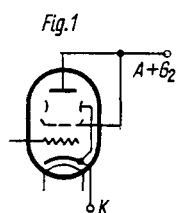
20P1



T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ V/V	R_k Ω	$R_{a/a}$ k Ω	P_o W	$U_{g1/g2}$ V	h %
KT 55	Eng	52	0,3	stat AB stat Fig. 1	200	150	-13,5	125	7,5	19	5						
					200	200	-22	210 ÷ 224	15 ÷ 44								
					200		-20	140		20	0,41	7	185	2	25	20	2
					180		-19	204					185	1,5	11	26	2
				AB Fig. 1	200		-22	240					185	1,5	15	30	2
					400	300											

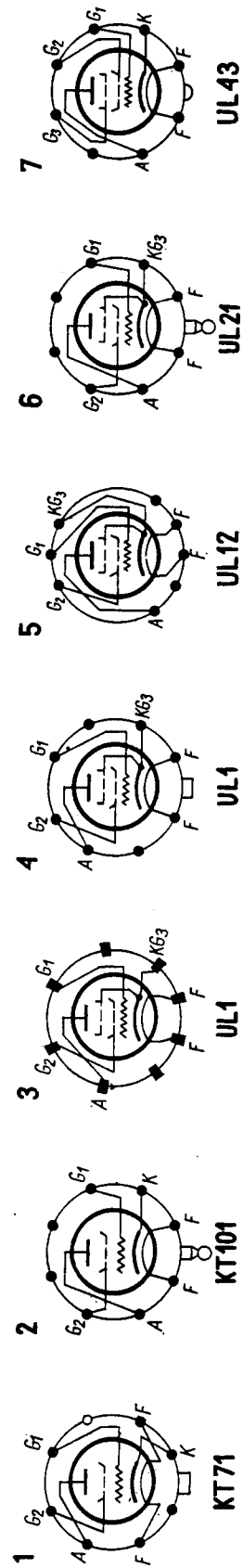
maximum $U_{f/k} = 250$ V; $P_{g2} = 4,5$ W; $P_a = 25$ W

C_{g1}	C_a	$C_{g1/a}$	
pF	pF	pF	
34	14	0,7	vide *4

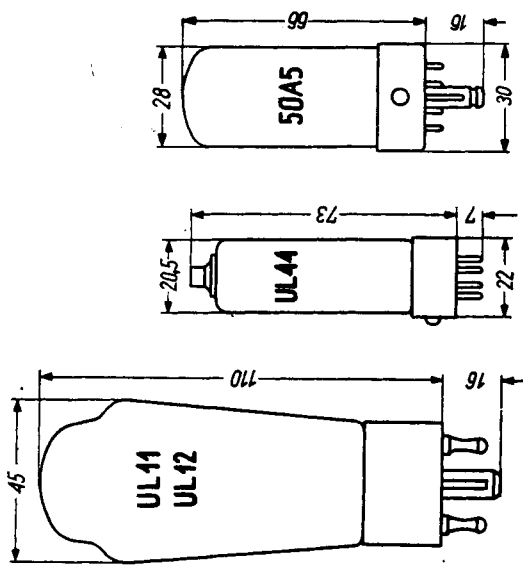
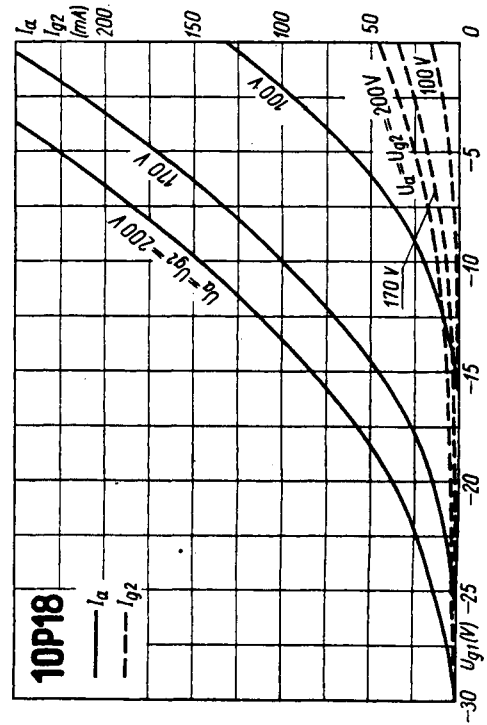
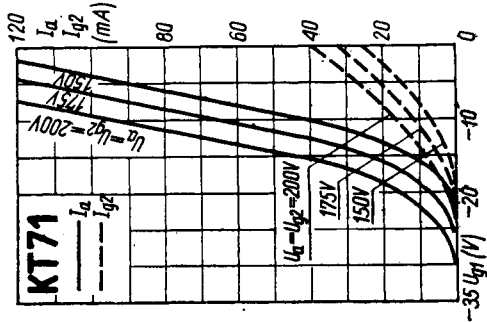
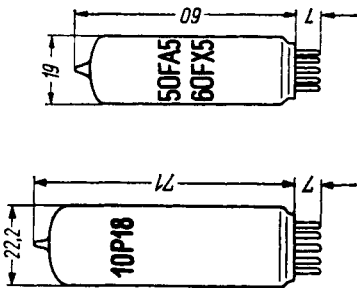
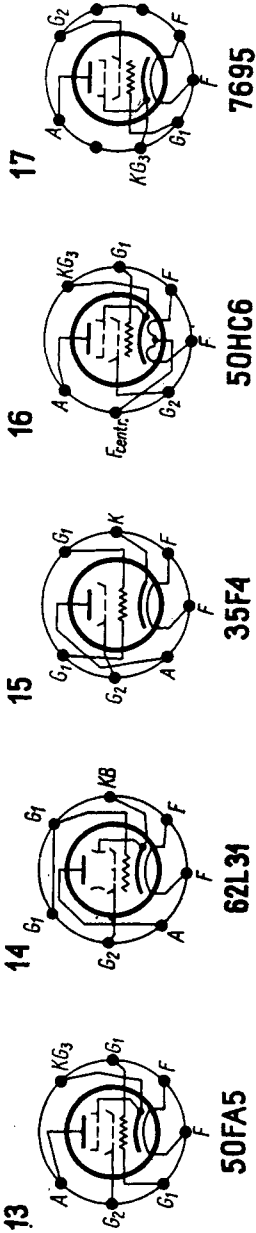
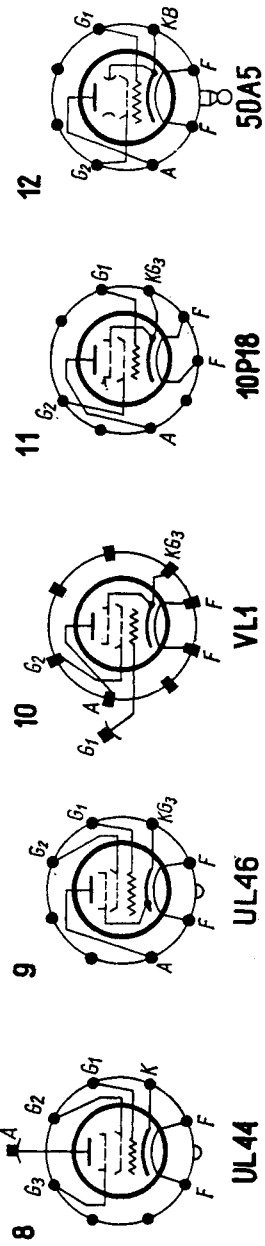


T.			U_f	I_f	U_a	U_{g1}	I_a	I_{g1}	S	R_f	μ	R_k	R_o	P_o	$U_{g1 \approx}$	h	U_f/k	P_{gs}	P_a
			V	A	V	V	mA	mA	mA/V	k Ω	(g_2/g_1)	Ω	k Ω	W	V	%	V	W	W
KT 71	Eng	1	48	0,16	100	-5,5	40	6,5	10			120	2,5	1,45	6	9		3	13
KT 101	Eng	2	80	0,1	175	-9,8	70	12				120	2,5	5	11				
UL 1	Phl	3/4	45	0,1	200	-11,5	55	7	8,5	20	maximum	185	3,5	5,5					
UL 12	eur	5	60	0,1	100	-6,5	50	7	10	8	8,5	100	2	2	3,7	8			
					200	-8	75	9	12	12	8,5	100	2	5,5	5	9			
UL 21	Phl	6	45	0,1	250	-13	55	8,4		20	9	200	3,5	5			275	1,2	15
UL 43	Phl	7	50	0,1	250	-2,6	36	4				65	4,5						11
UL 44	Phl	8	45	0,1	175	-13,5	28,5	4,7	7		11	1000							9
UL 46	Mul	9	45	0,1	300	-14	25	3,5	2,2	50	6	500	8	1,6	10		150	1,5	5
VL 1	eur	10	55	0,05	200	-8,5	45	6	8	35	14	170	4,5	4	5	10		1	5
VL 4	eur	10	110	0,05	250	-12,5	70	5	10	23	8		2,2	5,2	7	10	125	2	9
10 P 18	Eds	11	45	0,1	200	-7,5	35	3	5,7	13			2,5	1,4		10	200	1,75	12
34 GD 5	amer	13	34	0,1	110	-7,5	49-50	4-11	9	13		150	2	2,1	5,3	10			
50 A 51)	amer	12	50	0,15	200	-8	50-55	2-7	9,5	30		160	3	4,3	5,7	10		1,25	10
35 F 4	Syl	15	35	0,15	110	-7,5	40-41	3-7	5,8	13			2,5	1,5	7,5	10	100		
50 FA 5	Syl	13	50	0,1	150	-12,5	94	15	9,5	8	maximum						100	1,1	5,2
50 FE 5	amer	4	50	0,15	130	-7,5	42	11,5	14,6	11		62	1	4,2		12			
50 HC 6	amer	16	50	0,15	110	-7,5	50	8,5	7,5	10			3	1,4		9			
50 HK 6	amer	16	50	0,15	110	-7,5	36-35	10-12	13,5	17,5		62	3	1,3	3	8			
60 FX 5	Syl	13	60	0,1	110	-15	55	9,5	8	25	maximum						100	2	5,2
62 L 31	Tes	14	62	0,075	200	-11	100	13	11	7			3,5	4,5		11			
7695	amer	17	50	0,15	130	-11							1,1	4,5					

1) vide gr-gr. 191, 193, 255

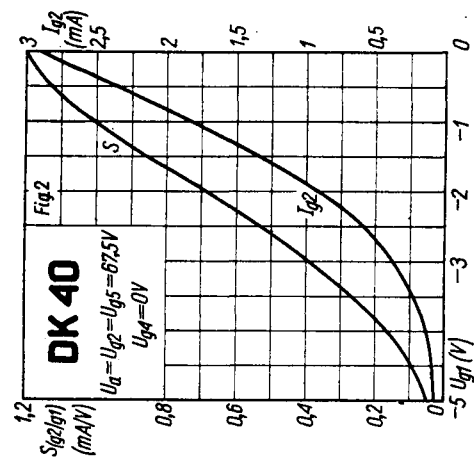
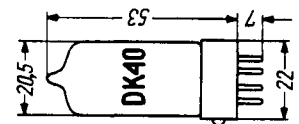
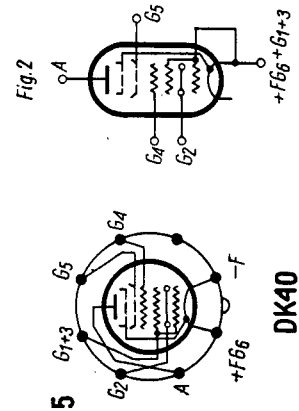
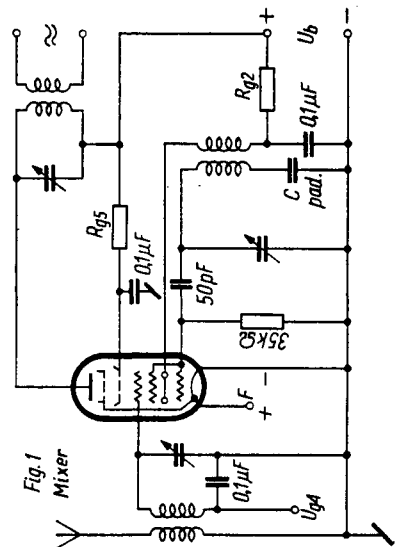
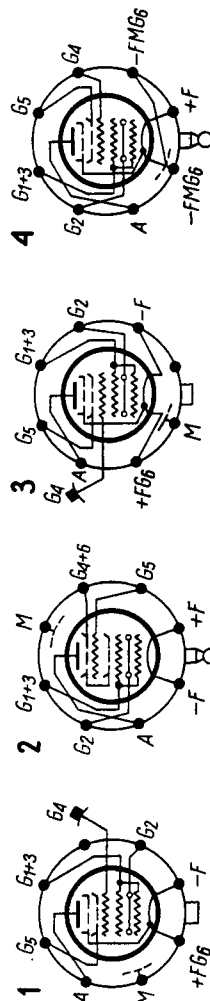


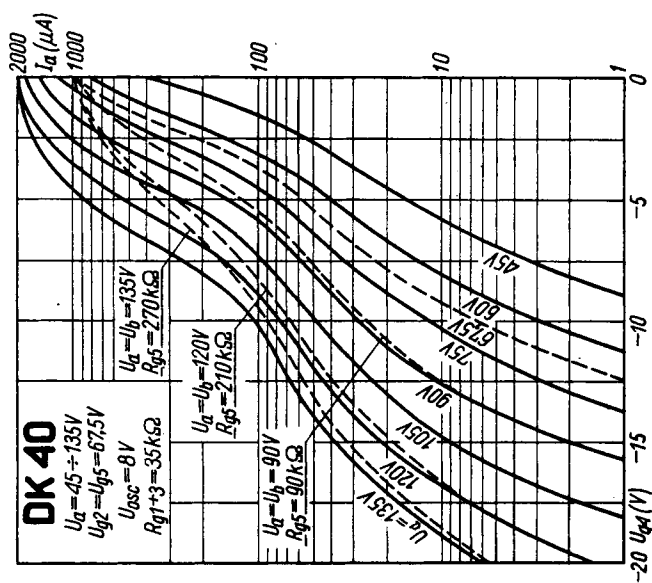
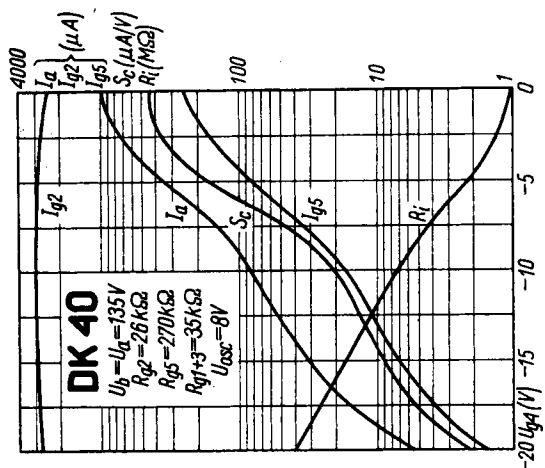
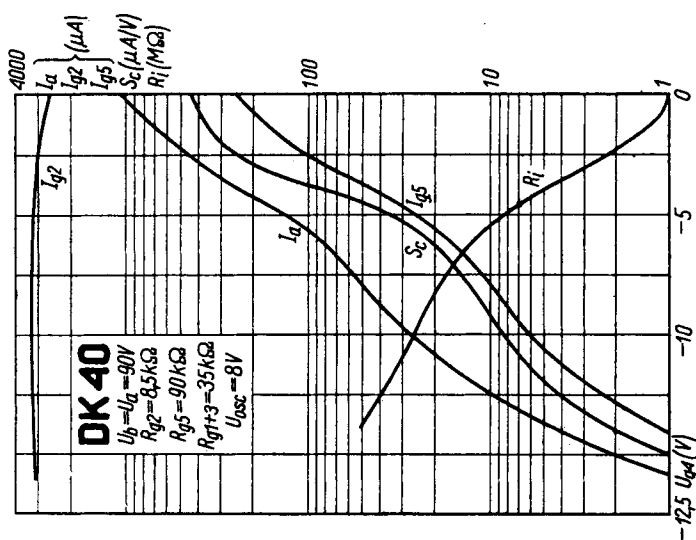
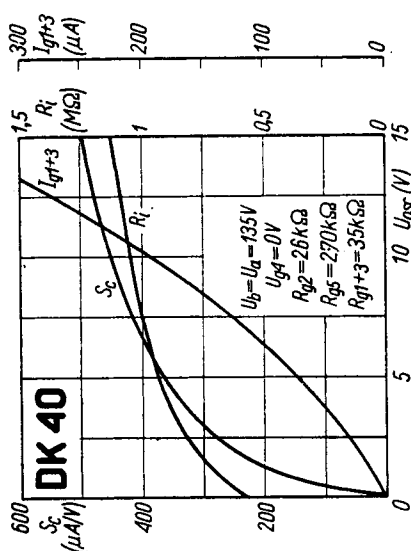
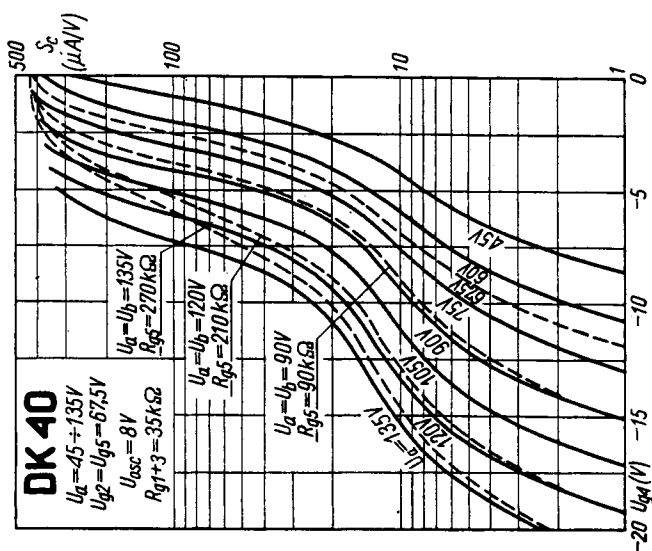
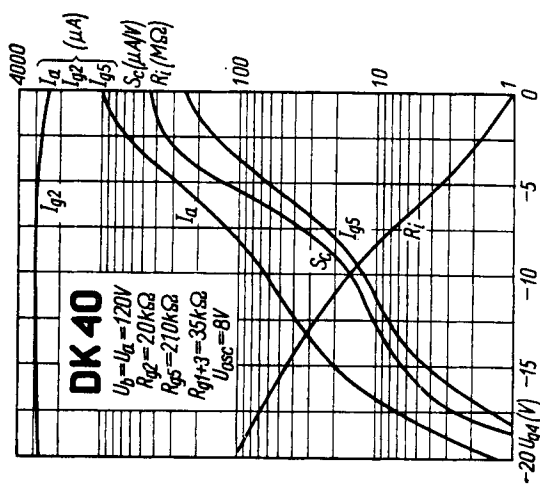
T.	C_{g1}		$C_{g1/a}$		C_a		$C_{g1/f}$	
	pF		pF		pF		pF	
KT 71	18,5		11,5	1,2			0,1	
UL 44	12,4		8,3	1			0,25	
10 P 1	12		6	0,5				
50 FA5	11		8,5	0,28				
60 FX 5	17		9	0,65				



T.			U_f	I_f	Cl.	$U_a=U_b$	R_{g2}	R_{g1}	U_{g2}	U_{g1}	U_{g4}	I_a	I_{g2}	I_{g1}	S_c	$S_{(g2/g1)}$	μ	R_L	I_k	P_{g2}	P_{g1}	P_a
DK 21	eur	1	1,4	50	Mixer Fig. 1	90	12,5	0	60	90	0 ÷ -6	1,5	2,4	0,25	500 ÷ 5			1,25				
DK 25	eur	2	1,4	50	Osc. Fig. 2	120	25	120	60	90	0 ÷ -8	1,5	2,4	0,25	500 ÷ 5			1,5				
DK 31	eur	3	1,4	50		120			60	90						950	8,5					
50 K / D	Phi	1	1,4	50		135			80	135	0		3,1	maximum					5	0,3	0,05	0,5
DK 22	Tu	4	1,4	50	Mixer Fig. 1	90			60	90		1	2	500								
					Mixer Fig. 1 (> 3 MHz)	67,5	15	0	45	67,5	0 ÷ -9,5	0,85	1,5	0,19	370 ÷ 3,7							
					Mixer Fig. 1 (< 3 MHz)	67,5	0	0	67,5	67,5	0 ÷ -9,5	1	2,6	0,25	425 ÷ 4,25							
					Mixer Fig. 1 (< 3 MHz)	90	8,5	90	67,5	67,5	0 ÷ -12,5	1	2,6	0,25	425 ÷ 4,25							
					Osc. Fig. 2	120	20	210	67,5	67,5	0 ÷ -16,5	1	2,6	0,25	425 ÷ 4,25							
					Osc. Fig. 2	135	26	270	67,5	67,5	0 ÷ -18,5	1	2,6	0,25	425 ÷ 4,25							
DK 40	eur	5	1,4	50		67,5			45	67,5	0		1,3	maximum					5	0,2	0,02	0,2
						135			67,5	100			2,9									

T.	C_{g4}	C_{g2}	C_{g1+s}	C_a	$C_{a/g4}$	$C_{g2/g1}$	$C_{g4/g1+s}$
DK 21	pF	pF	pF	pF	pF	pF	pF
DK 40	9,2	5,9	7	9,4	0,1	0,9	1,3
	6,9	5	5,6	9,6	0,16	0,9	1,1



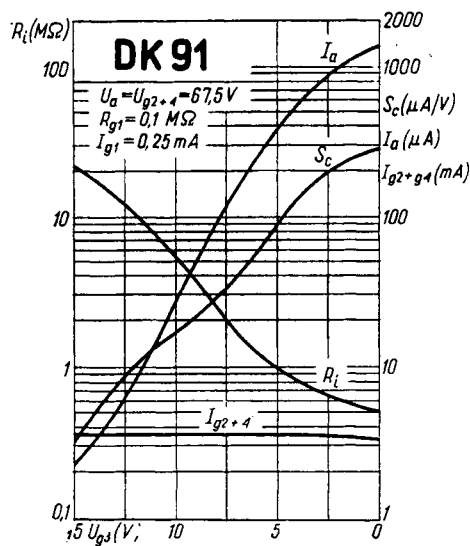
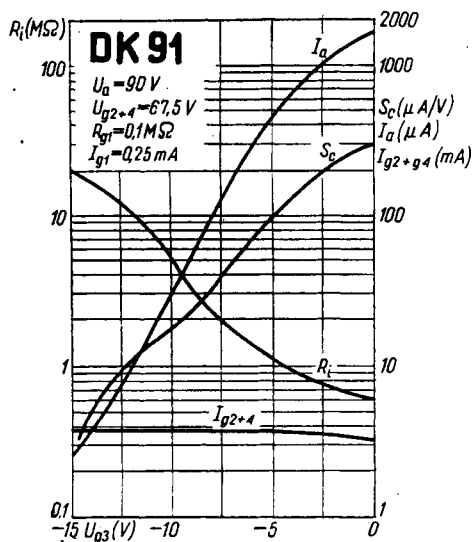
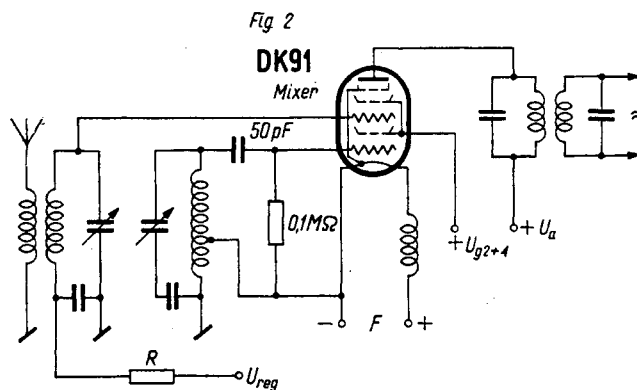
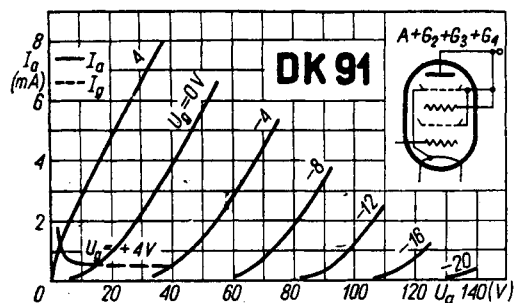
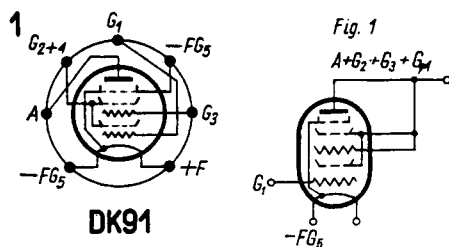


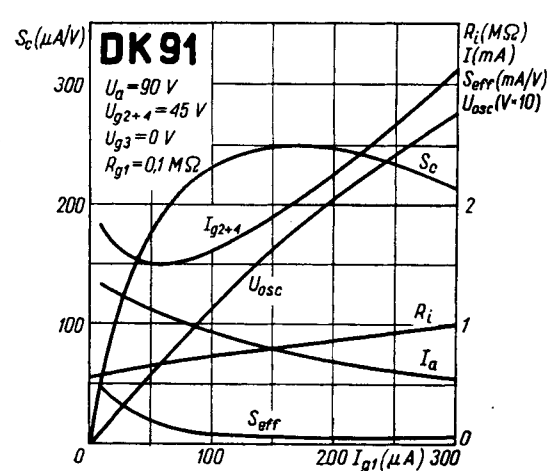
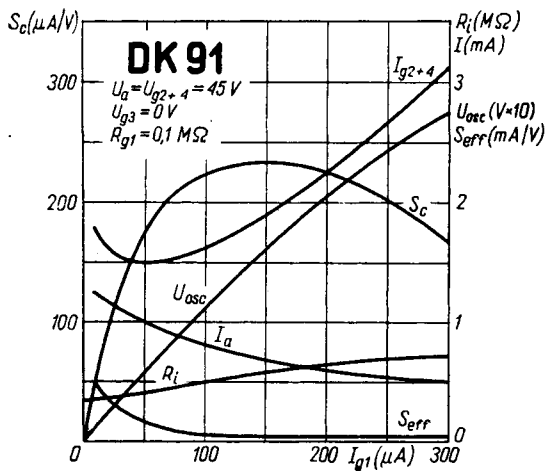
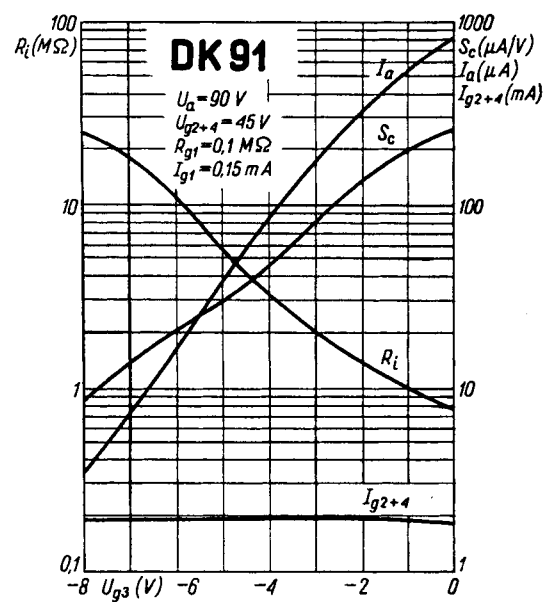
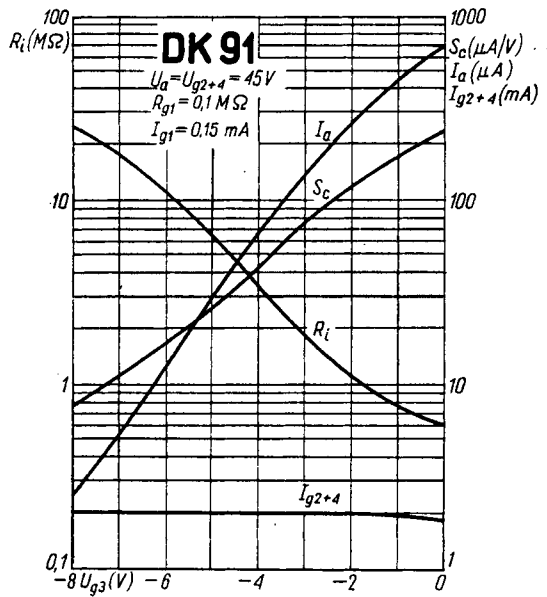
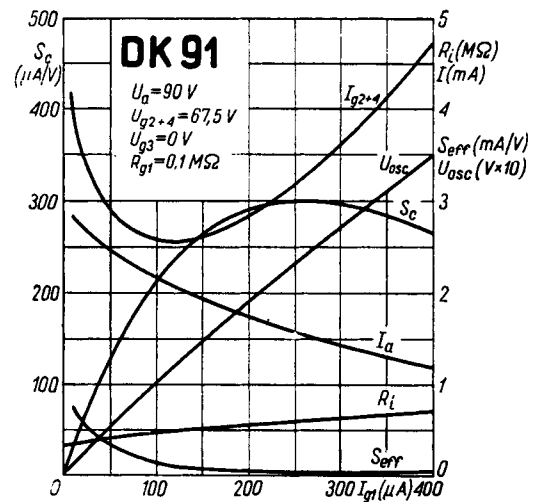
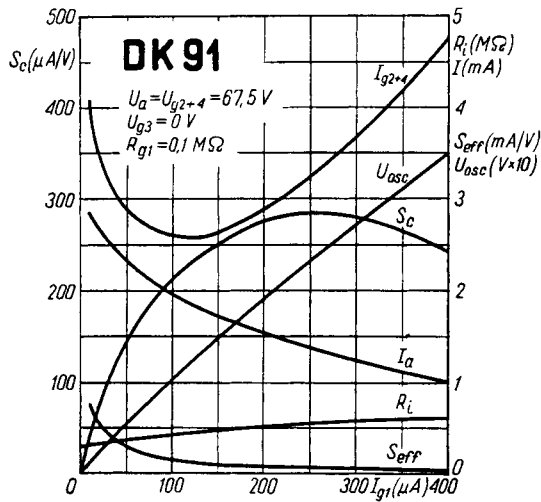
T.		U_f V	I_f mA	U_a V	U_{g2+4} V	U_{g3} V	I_a mA	I_{g2+4} mA	I_{g1} μ A	$S_c(5)$ μ A/V	R_{g1} k Ω	R_i k Ω	I_k mA	P_{g2+4} W	P_a W
DK 91	eur	1	1,4	50	45	0 $\div$ -9	0,7	1,9	150	235 $\div$ 5	100	600	2,75		
1 A 1 Π	CCCP	1	1,2	60	45	0 $\div$ -9	0,8	1,9	150	250 $\div$ 5	100	800	2,75		
1 H 33	Tes	1	1,4	25	67,5	0 $\div$ -14	1,4	3,2	250	280 $\div$ 5	100	500	5		
1 H 34	Tes	1	1,2	30	90	0 $\div$ -14	1,6	3,2	250	300 $\div$ 5	100	600	5		
					67,5		2,5	maximum		(900)	150	6,7	5,5	0,25	0,15

Equivalents

X 17	Eng = DK 91
1 C 1	Eds = DK 91
1 R 5	amer = DK 91
1 R 5 T	TuU = 1 H 33

T.	C_{g3} pF	C_a pF	$C_{g3/a}$ pF	C_{g1} pF	$C_{g1/a}$ pF	$C_{g1/g3}$ pF
DK 91	7	7,5	0,4	3,8	0,1	0,2
X 17	8	11	0,2	4	0,06	0,15
1 A 1 Π	7	7	0,4			
1 H 33	6,5	9	0,4	3,8	0,1	0,2
1 H 34	6,5	9	0,4	3,8	0,1	0,2



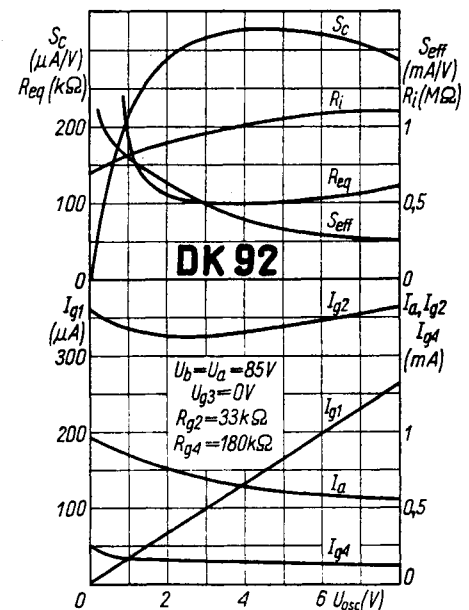
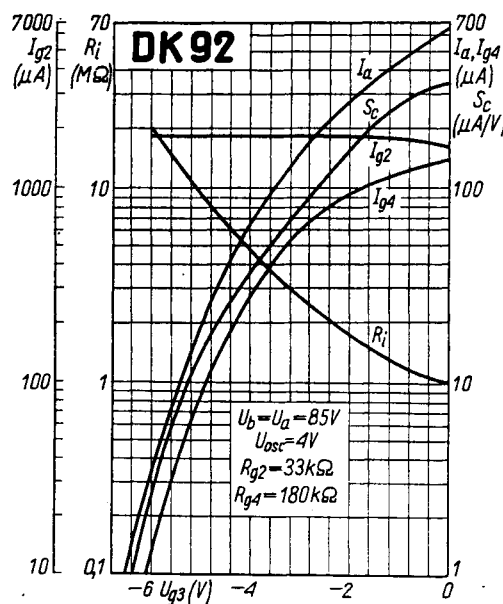
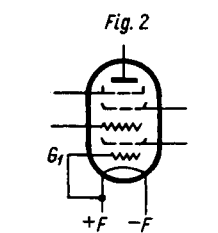
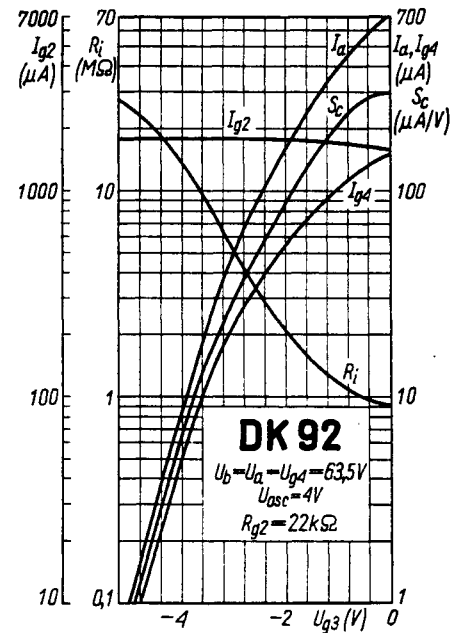
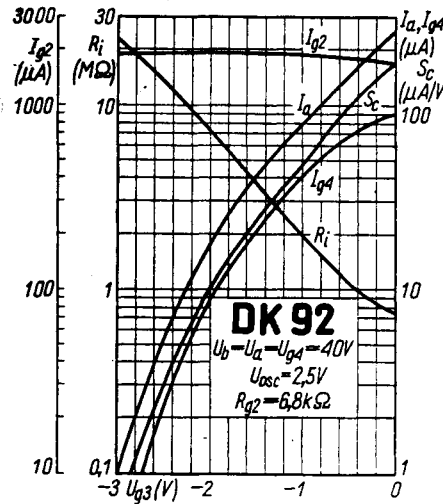
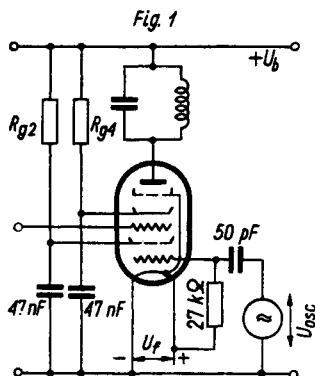


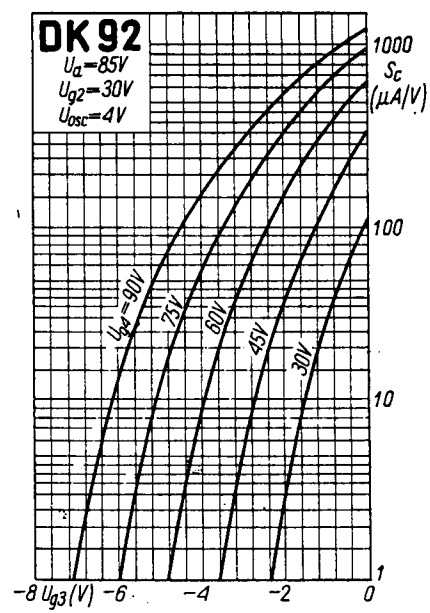
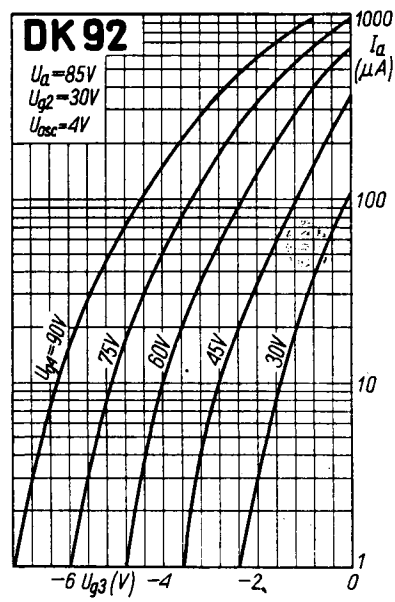
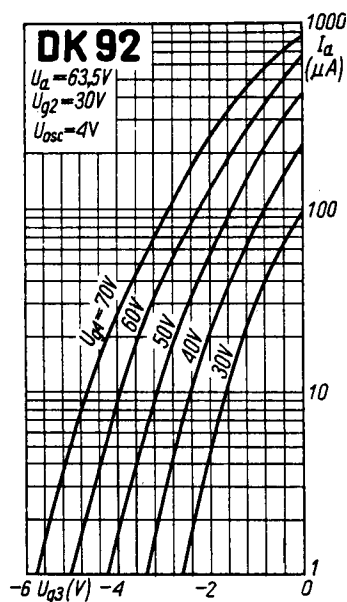
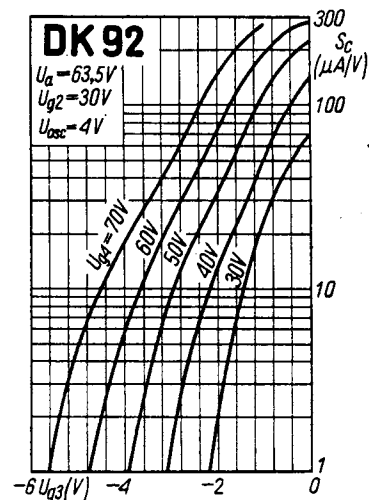
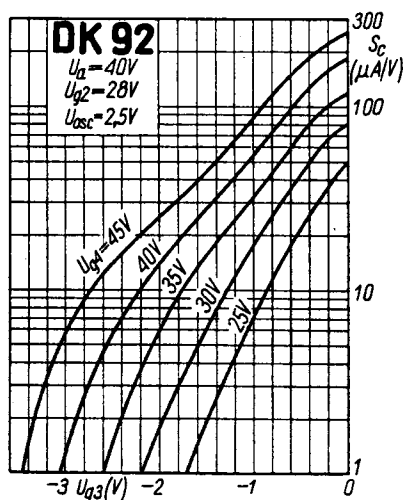
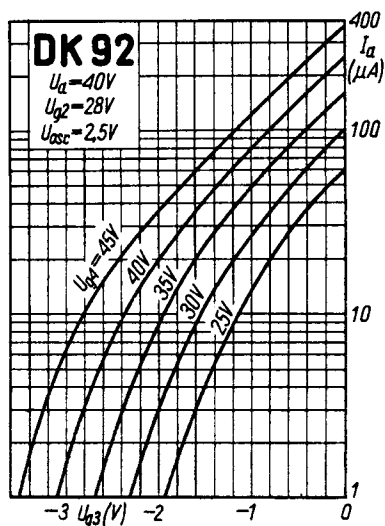
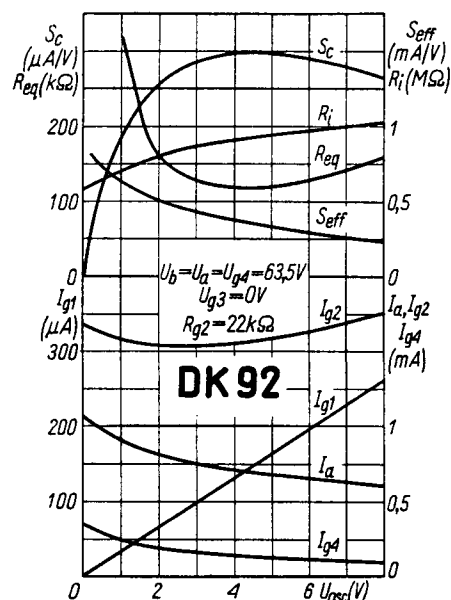
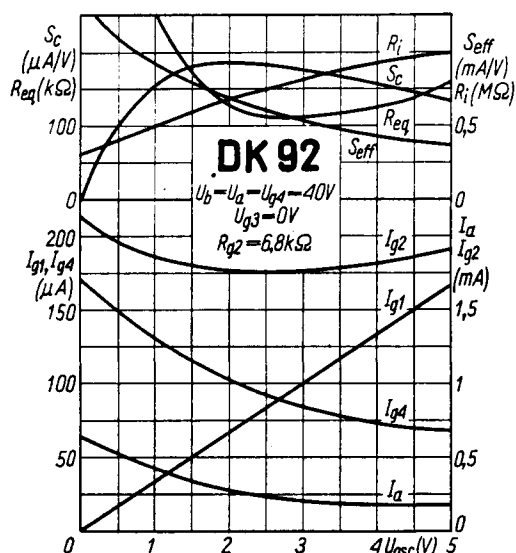
T.			U_f	I_f	Cl.	$U_b = U_a$	R_{g2}	U_{g2}	R_{g4}	U_{g4}	U_{g3}	U_{osc}	I_a	I_{g2}	I_{g1}	I_{g3}	$S_c(S_{g2}/g_1)$	μ	R_i
			V	mA		V	k Ω	V	k Ω	V	V	V	mA	mA	μA	μA	$\mu A/V$	g_s/g_1	M Ω
DK 92	eur	I	1,4	50	Mixer Fig. 1	41	6,8	29	0	41	0 ÷ -2,9	2,5	0,25	1,75	90	80	180 ÷ 1,8		0,75
						63,5	22	30	0	63,5	0 ÷ -4	4	0,7	1,55	150	130	300 ÷ 3		0,9
						85	33	30	180	60	0 ÷ -6	4	0,65	1,65	140	130	325 ÷ 3,25		1
						41		29		41	0		3				(1100)	9	
DK 192	RFT	I	1,4	50	Osc. Fig. 2	63,5		30		63,5	0		2,2				(800)	7,5	
						85		30		60	0		2,5				(900)	7,5	
						90		60		90	maximum								
DK 962	RFT	I	1,2	60	stat.	67,5		67,5		67,5	0		1,2	3,7		120	290		
						90		67,5		67,5	maximum								

T.	C_{g3}	C_a	$C_{g3/a}$	C_{g1}	C_{g2}	$C_{g1/a}$	$C_{g2/a}$	$C_{g1/g3}$	$C_{g1/g2}$	$C_{g2/g3}$
	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF
DK 92	7,5	8,4	0,36	3,9	4,8	0,11	0,3	0,2	3	1,6
DK 192	6,2	5,2	0,45							

Equivalents DK 92

X 20	Eng
I AC 6	amer
I C 2	Eds





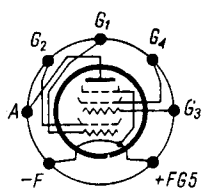
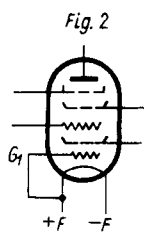
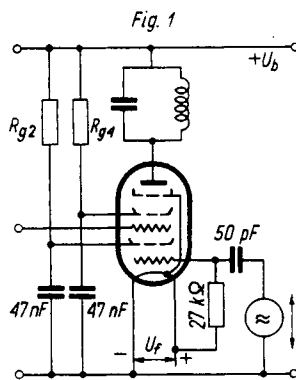
T.		U_f V	I_f mA	Cl.	$U_b = U_a$ V	R_{g2} k Ω	U_{g2} V	R_{g4} k Ω	U_g V	U_{g3} V	U_{osc} V	I_a mA	I_{g2} mA	I_{g4} μ A	I_{g1} μ A	I_k mA	$S_c(S_{g1/g2})$ μ A/V	μ g_m/g_1	R_i M Ω
DK 96		eur	1,4	25	{ Mixer Fig. 1 64 85 }	{ 12 18 33 }	{ 29,5 35 35 }	{ 0 0 120 }	{ 45 64 68 }	{ 0 ÷ -4,4 0 ÷ -4,5 0 ÷ -6,5 }	{ 4 4 4 }	{ 0,56 0,55 0,6 }	{ 1,3 1,6 1,5 }	{ 150 120 140 }	{ 85 85 85 }	{ 2,1 2,36 2,33 }	{ 325 ÷ 3,25 275 ÷ 2,75 300 ÷ 3 }	{ 0,55 0,75 0,8 }	{ 7,5 7,5 }

maximum $P_a = 0,15$ W; $P_{g2} = 0,1$ W; $P_{g4} = 0,03$ W; $I_k = 2,6$ mA; $f = 27,5$ MHz

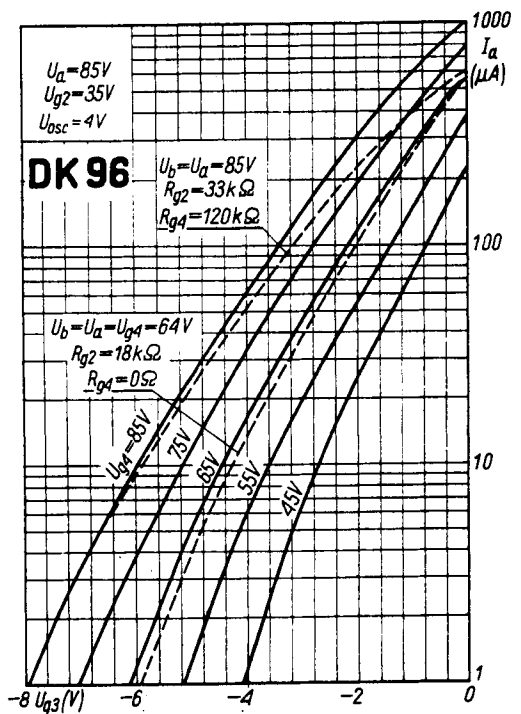
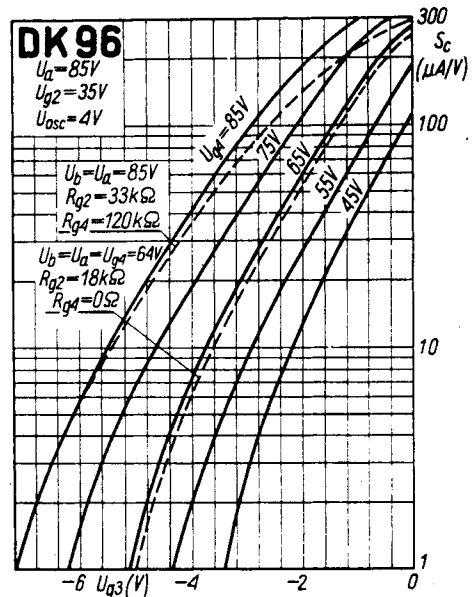
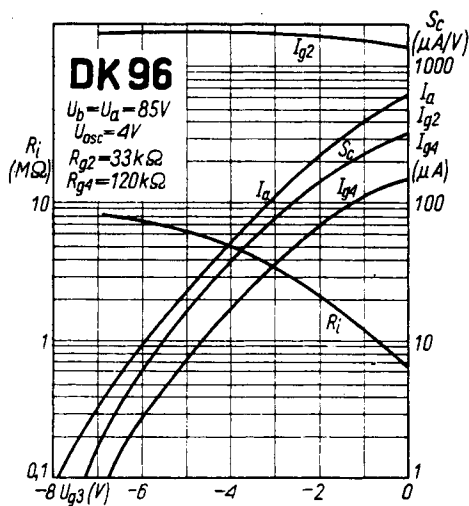
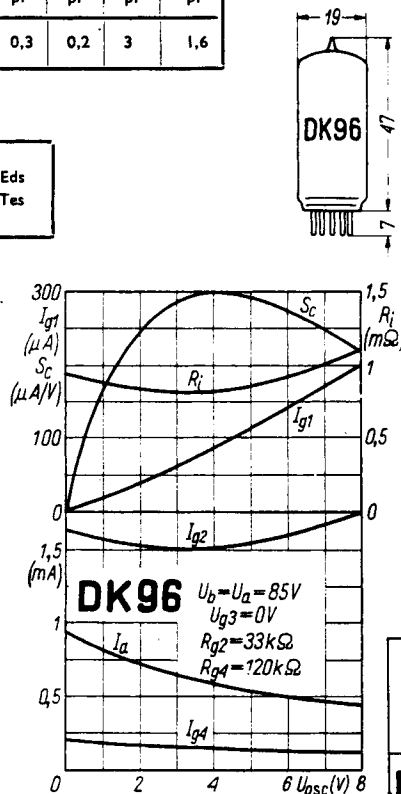
C_{g3}	C_a	$C_{g3/a}$	C_{g1}	C_{g2}	$C_{g1/a}$	$C_{g2/a}$	$C_{g1/g3}$	$C_{g1/g2}$	$C_{g2/g3}$
pF	pF	pF	pF	pF	pF	pF	pF	pF	pF
7,4	8,1	0,36	3,9	4,8	0,11	0,3	0,2	3	1,6

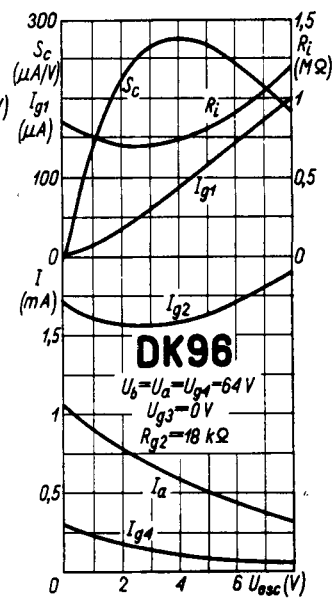
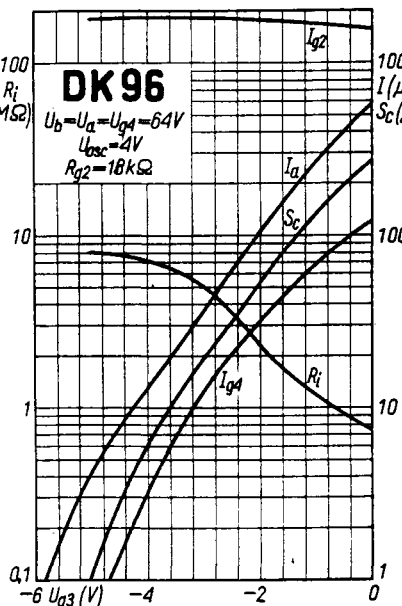
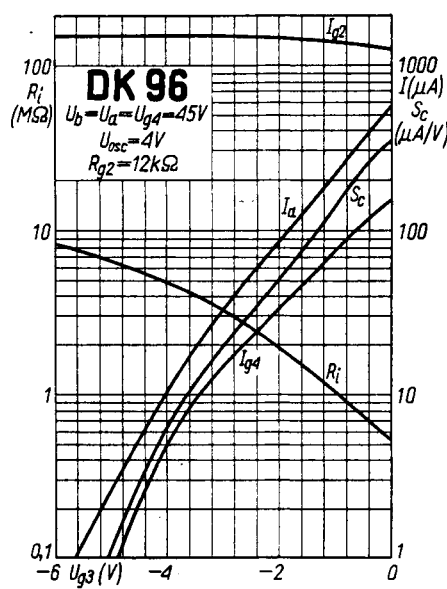
Equivalents

X 25	Eng	I C 3	Eds
I AB 6	amer	I H 35	Tes



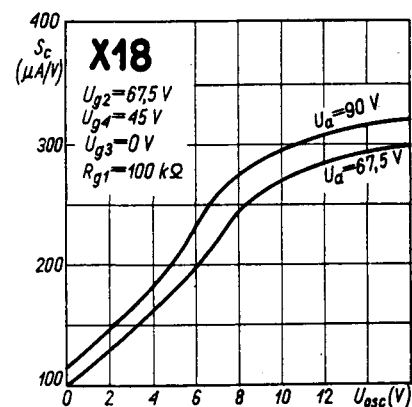
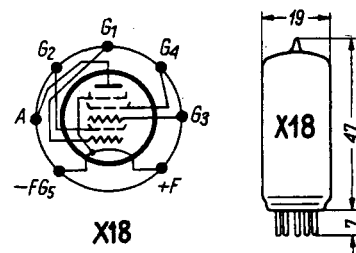
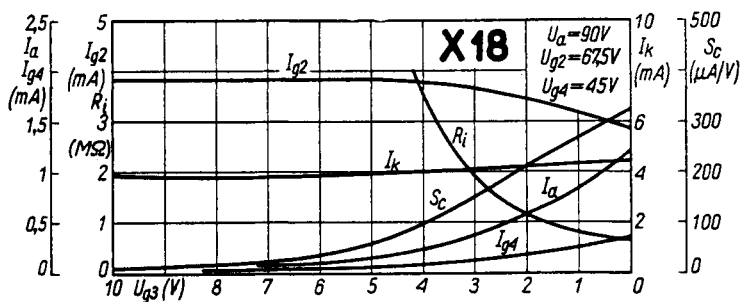
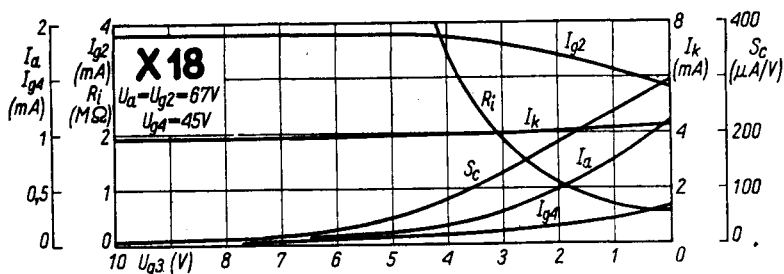
DK 96





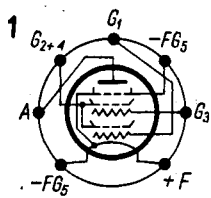
T.		U_f V	I_f mA	U_a V	U_{g2} V	U_{g4} V	U_{g3} V	I_a mA	I_{g2} mA	I_{g4} mA	$U_{osc(pk)}$ V	S_c $\mu A/V$	R_i M Ω	I_k mA
X 18	Eng	1.4	50	67.5 90 90	67.5 67.5 67.5	45 45 67.5	0 ÷ -9 0 ÷ -9	1.1 ÷ 0.01 1.15 ÷ 0.01	2.85 ÷ 3.8 2.85 ÷ 3.8	0.35 ÷ 0.01 0.35 ÷ 0.01	15 15	296 ÷ 6 320 ÷ 6	0.6 ÷ 4 0.6 ÷ 4	5.5
maximum ($f = 26$ MHz)														

C_{g3}	C_a	$C_{g3/a}$	C_{g1}	$C_{g1/a}$	$C_{g1/g2}$	$C_{g2/g3}$
pF	pF	pF	pF	pF	pF	pF
7	7	0.4	3.8	0.1	0.2	1.6

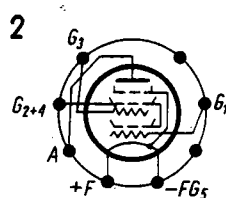


T.			U_f V	I_f mA	$U_b = U_a$ V	R_{g2+4} kΩ	U_{g2+4} V	U_{g3} V	I_a mA	I_{g2+4} mA	I_{g1} μA	S_c μA/V	R_i kΩ	R_{g1} kΩ	I_k mA	P_a W
1A2Π	CCCP	1	1,2	30	$\begin{cases} 60 \\ 90 \end{cases}$	10	$\begin{cases} 45 \\ 75 \end{cases}$	$0 \div -5$	0,7	1,1	130	240			51	0,3
1AE5	Ray	3	1,25	60	45		45	0	0,9	2	150	200	200	200		
1C8	amer	2	1,25	40	30	10	22	$0 \div -7$	0,32	0,75	30	$100 \div 5$	300	100	1,1	
1E8	amer	2	1,25	40	$\begin{cases} 30 \\ 45 \\ 67,5 \\ 67,5 \end{cases}$	$\begin{cases} 10 \\ 15 \\ 20 \end{cases}$	$\begin{cases} 22 \\ 28 \\ 38 \\ 45 \end{cases}$	$\begin{cases} 0 \div -7 \\ 0 \div -8 \\ 0 \div -9 \end{cases}$	$\begin{cases} 0,3 \\ 0,6 \\ 1 \end{cases}$	$\begin{cases} 0,8 \\ 1,1 \\ 1,5 \end{cases}$	$\begin{cases} 30 \\ 50 \\ 70 \end{cases}$	$\begin{cases} 115 \div 5 \\ 140 \div 5 \\ 150 \div 5 \end{cases}$	$\begin{cases} 300 \\ 400 \\ 400 \end{cases}$	$\begin{cases} 100 \\ 100 \\ 100 \end{cases}$	$\begin{cases} 1,1 \\ 1,7 \\ 2,5 \\ 4 \end{cases}$	

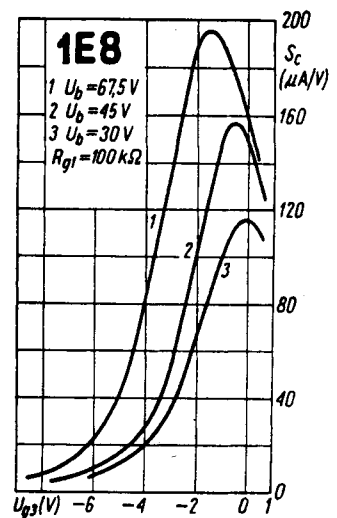
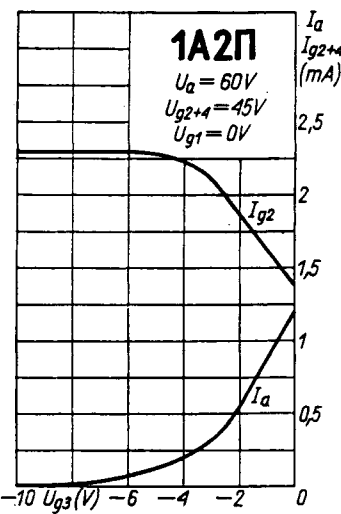
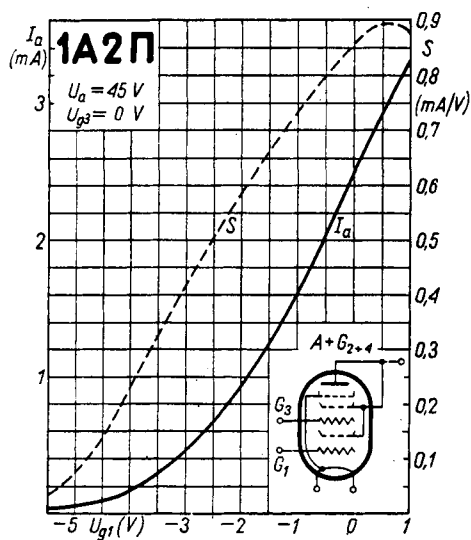
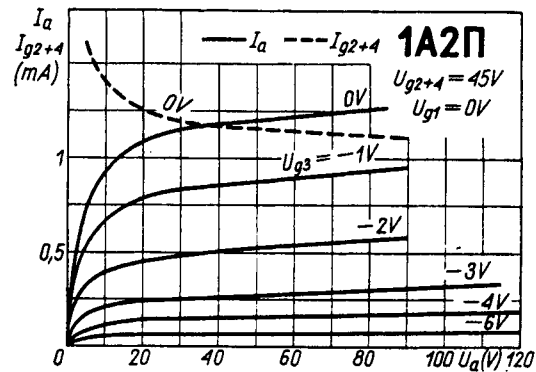
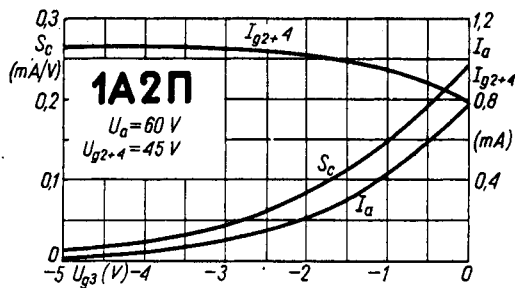
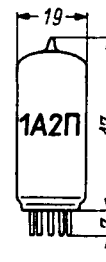
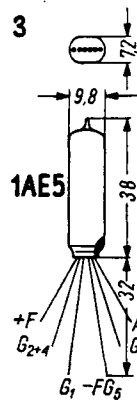
T.	C_{g3} pF	C_a pF	$C_{g3/a}$ pF	$C_{g3/g1}$ pF	C_{g1} pF
1A2Π	5,1	5	0,6	0,14	0,95
1E8	6	5	0,4	0,2	2,4



1A2Π



1E8

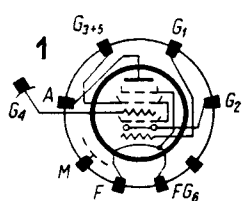


T.			U_f	I_f	U_a	U_{g2}	U_{g3+5}	U_{g1}	I_a	I_{g2}	I_{g3+5}	I_{g1}	S_c	R_L	R_{g1}	I_k
			V	mA	V	V	V	V	mA	mA	mA	μA	μA/V	MΩ	kΩ	mA
DK 1	eur	1	1,4	50	90	90	45	0 ÷ -3	0,6	1,2	0,7	35	250	0,6	200	2,5
DK 32	eur	2	1,4	50	110	110	60									4
1 LA 6	int	3	1,4	50												
CO-242	CCCP	2	2	160	120	120	70	0	2,2		2,2		450	2		
X 21	Eng	4	2	100	150	150		0	0,45		0,6		240	2		1,9
1 A 6	int	5	2	60	135	135	67,5	-3 ÷ -22,5	1,2	2,5	2,3	200	275	0,4	50	6,2
1 D 7-G	amer	2	2	60	180	135	67,5	-3 ÷ -22,5	1,3	1,4	2,3	200	300	0,5	50	6,2
1 B 7-G	amer	2	1,4	100	90	90	45	0 ÷ -4,5	1,5	1,6	1,3	35	350	0,35	200	
1 C 6	int	5	2	120	135	135	67,5	-3 ÷ -14	1,3	3,1	2,5	200	300	0,6	50	7,1
1 C 7-G	amer	2	2	120	180	180	67,5	-3 ÷ -14	1,5	4	2	200	325	0,7	50	7,1
1 L 6	amer	6	1,4	50	90	90	45	0 ÷ -3,5	0,5	1,2	0,6	35	300	0,65	200	2,35
					110	110										4
1 LB 6	amer	7	1,4	50	90	90	67,5		0,4	2,2			100	2		
1 LC 6	amer	3	1,4	50	45	45	35	0 ÷ -3	0,7	1,4	0,75	35	250	0,3	200	2,9
					90	45	35	0 ÷ -3	0,75	1,4	0,7	35	275	0,65	200	2,9
1 U 6	amer	6	1,4	25	67,5	67,5	45	0	0,5	1	0,7	28	280	0,5	200	2,3
					90	90	45	0	0,6	1,1	0,6	28	300	0,5	200	2,4
210 PG	Cos	8	2	100	150	150		0 ÷ -9	0,4				450		20	

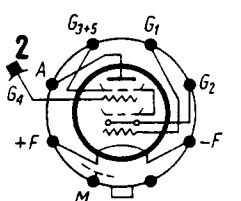
Equivalents

K 80 A	ER = 210 PG	1 LA 6-E	Bri = 1 LA 6
CE-242	CCCP = CO-242	1 LB 6-GL	amer = 1 LB 6
VHT 2 A	Fer = 210 PG	2 A 1	CCCP = CO-242
X 14	Eng = DK 32	2 A 1 M	CCCP = CO-242
1 A 7-G	amer = DK 32	210 PGA	Cos = 210 PG
1 A 7-GT	amer = DK 32	210 SPG	Cos = 210 PG
1 A 7-VF	amer = DK 32		

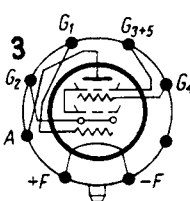
T.	C_{g1}	C_a	$C_{g1/a}$	C_{g1}	C_{g2}	$C_{g1/g2}$	$C_{g1/g4}$	$C_{g2/g4}$
	pF	pF	pF	pF	pF	pF	pF	pF
1 A 6	10,5	9	0,25	5	6	0,8	0,1	0,2
1 A 7-G	6,5	11	0,3	4	4,6	0,9	0,12	0,26
1 A 7-GT	7,5	10	0,4	3,2	4	1,5	0,12	0,25
1 L 6	7,5	12	0,36	2,2	2,6	0,8	0,19	0,24
1 LA 6	7,7	8	0,4	2,9	3,3	0,6	0,15	0,3
1 LC 6	9	5,5	0,28	2,4	4,8			



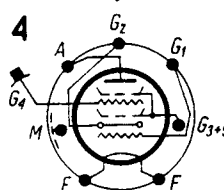
DK1



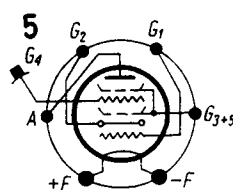
DK32



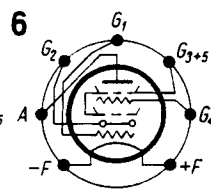
1LA6



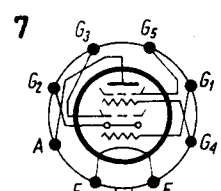
X21



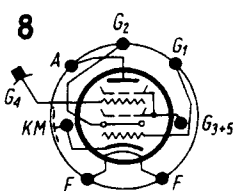
1A6



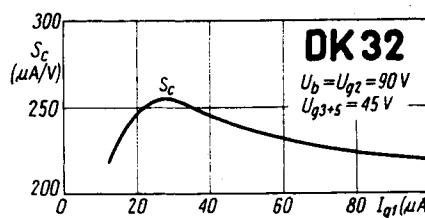
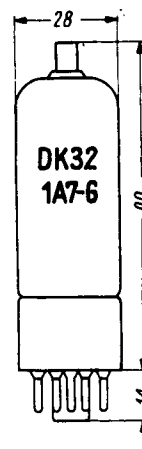
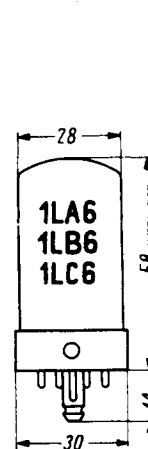
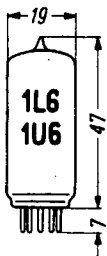
1L6



1LB6



210P6



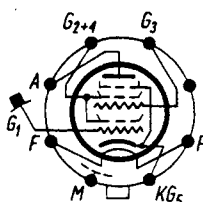
T.		U_f	I_f	Cl.	U_a	U_{g2+4}	U_{g3}	U_{g1}	I_a	I_{g2+4}	$S_c(S)$	R_t	P_{g2+4}	P_a
		V	A		V	V	V	V	mA	mA	$\mu A/V$	M Ω	W	W
6 L 7	int	6,3	0,3	Mixer	250	100	-10	-3 ÷ -30	2,4	7,1	375 ÷ 5	1	1,5	1
					250	150	-15	-6 ÷ -45	3,3	9,2	350 ÷ 5	1		
					300	150			maximum					
					250	100	-3	-3 ÷ -30	5,3	6,5	1100 ÷ 5 ¹⁾	0,6		
				A	300	100			maximum				1	1,5

¹⁾ $S_{(a/g1)}$

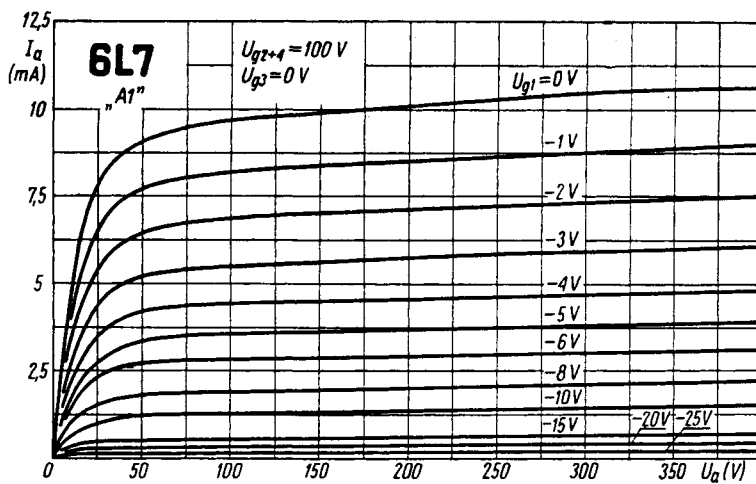
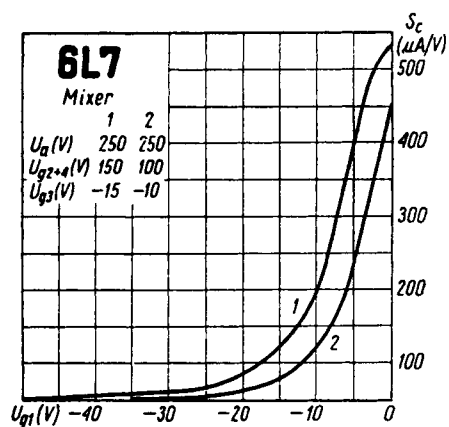
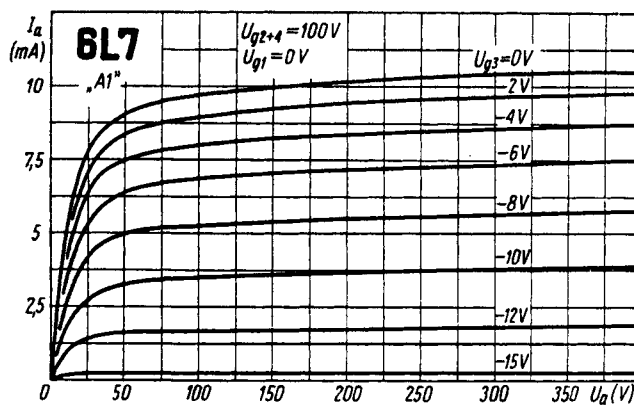
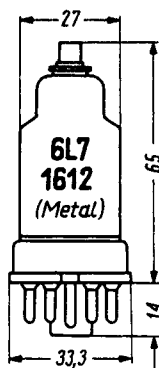
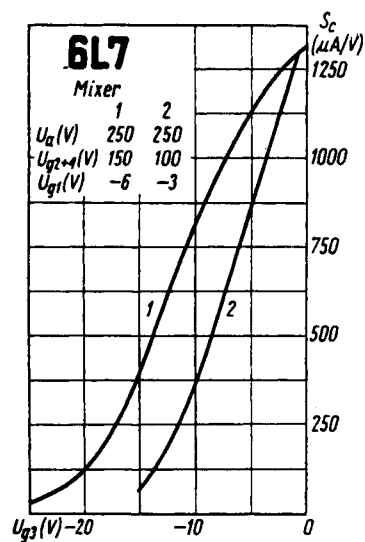
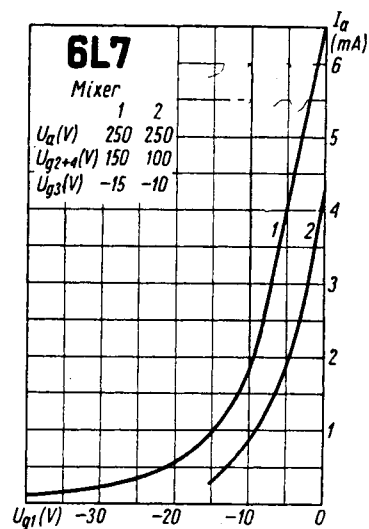
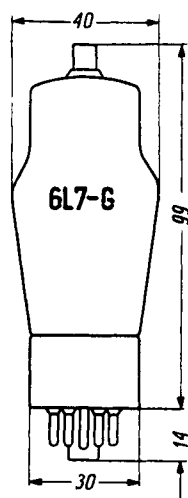
T.	$C_{g1/g3}$	$C_{g1/a}$	$C_{g3/a}$	$C_{g1/k}$	$C_{g3/k}$	$C_{a1/k}$
	pF	pF	pF	pF	pF	pF
6 L 7	0,2	0,001	0,1	7	10	11
6 L 7-G	0,2	0,005	0,24	6	12	10

Equivalents

GL-1612	Eng	6 L 7-MG	Frc
X 64	Eng	6 JI 7	CCCP
6 A 5 B	CCCP	1225	amer
6 L 7-G	int	1612	amer



6L7



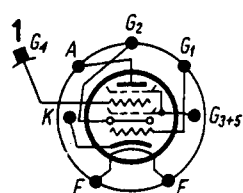
T.			U_f	I_f	U_a	U_{g2}	U_{g3+5}	U_{g1}	I_a	I_{g2}	I_{g3+5}	I_{g1}	S_c	R_i	R_{g1}	I_k
			V	A	V	V	V	V	mA	mA	mA	mA	$\mu A/V$	M Ω	k Ω	mA
MX 40	Eng	1	4	1	250	150	80	-3 ÷ -45	2,75		1		500	0,5	100	5,85
X 30	Eng	1	13	0,3	200	100	70	-3	4	3	2		750	0,5		9,1
X 42	Eng	1	4	0,6	250	100	100	-3 ÷ -45	3,1	3,9	2,6		490 ÷ 6	0,3	100	9,5
X 63 M	Eng	2	6,3	0,3												
X 73 M	Eng	2	6,3	0,16	250	200	80	-3					500	0,4		8
2 A 7	int	3	2,5	0,8	100	100	50	-1,5 ÷ -20	1,1	2	1,3	0,25	360 ÷ 3	0,6	50	4,6
6 A 7	int	3	6,3	0,3												
6 A 8	int	2	6,3	0,3												
6 D 8-G	int	2	6,3	0,15												
7 B 8	int	4	6,3	0,3												
11 A 8	amer	2	11	0,2	250	170 ¹⁾	100	-3 ÷ -35	3,5	4	2,7	0,4	550 ÷ 6	0,36	50	10,6
12 A 8-G	int	2	12,6	0,15	250	100	55	-2					(1150)			
14 B 8	int	4	12,6	0,15	300	200	100	maximum	$(U_{g1} = -1 V)$				$(I150)$			
15 A 2	Bri	1	4	0,65					$(f = 25 MHz; P_a = 1 W; P_{g2} = 0,75 W; P_{g3+5} = 0,3 W)$							14
15 D 1	Bri	1	13	0,2												
15 D 2	Bri	1	13	0,15												
5374	amer	5	6,3	0,3												

¹⁾ $U_b = 250 V$; $R_{g2} = 20 k\Omega$

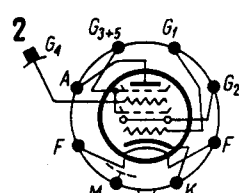
T.	C_{g4}	C_{g2}	C_{g1}	C_a	$C_{g4/a}$	$C_{g1/g2}$	$C_{g4/g1}$	$C_{g2/g1}$
	pF	pF	pF	pF	pF	pF	pF	pF
6 A 7	8,5	5,5	7	9	0,3	0,15	0,15	1
6 A 8	12	5	6,5	12	0,06	0,1	0,09	0,8
6 A 8-GT	9,5	4,6	6	12	0,26	0,19	0,16	1,1
6 D 8-GT	8	4,6	5,5	11	0,2	0,2	0,16	1,1
7 B 8	10	3,4	5	9	0,2	0,2	0,2	0,9

Equivalences

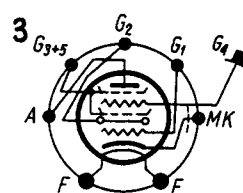
G 6 A 7	amer = 6 A 7	6 A 7 S	amer = 6 A 7
OH 4	eur = 12 A 8-G	6 A 8-G	int = 6 A 8
PH 4	eur = 6 A 8	6 A 8-GT	int = 6 A 8
VHT 4	Fer = 15 A 2	6 A 8-GTX	int = 6 A 8
VHT 5	Fer = 15 D 1	6 A 8-MG	eur = 6 A 8
X 32	MOG = X 30	6 A 8 B	CCCP = 6 A 8
X 63	MOG = X 63 M	6 D 8-GT	int = int 6 D 8-G
X 73	MOG = X 73 M	6 Q 8	amer = 6 A 8
2 A 7 S	amer = 2 A 7	7 B 8 LM	amer = 7 B 8
6 A 7 E	Bri = 6 A 7	12 A 8-GT	int = 12 A 8-G
6 A 7 M	amer = 6 A 7	13 PGA	Cos = 15 D 1



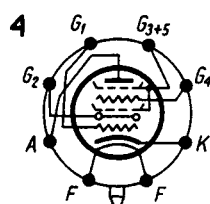
MX40



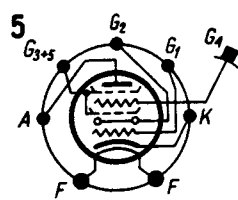
6A8



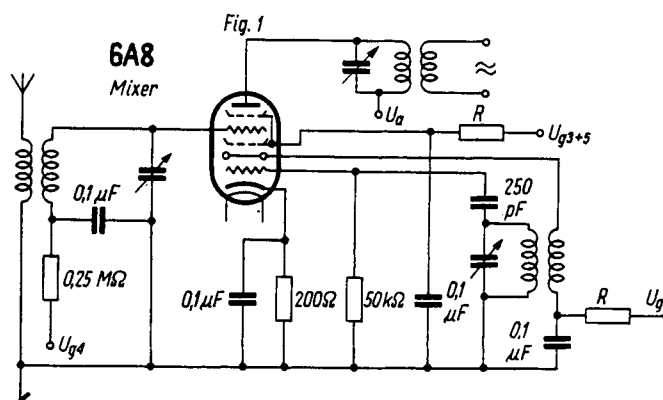
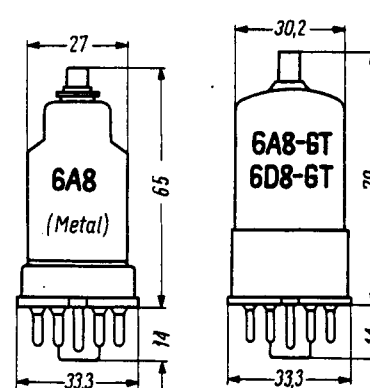
6A7

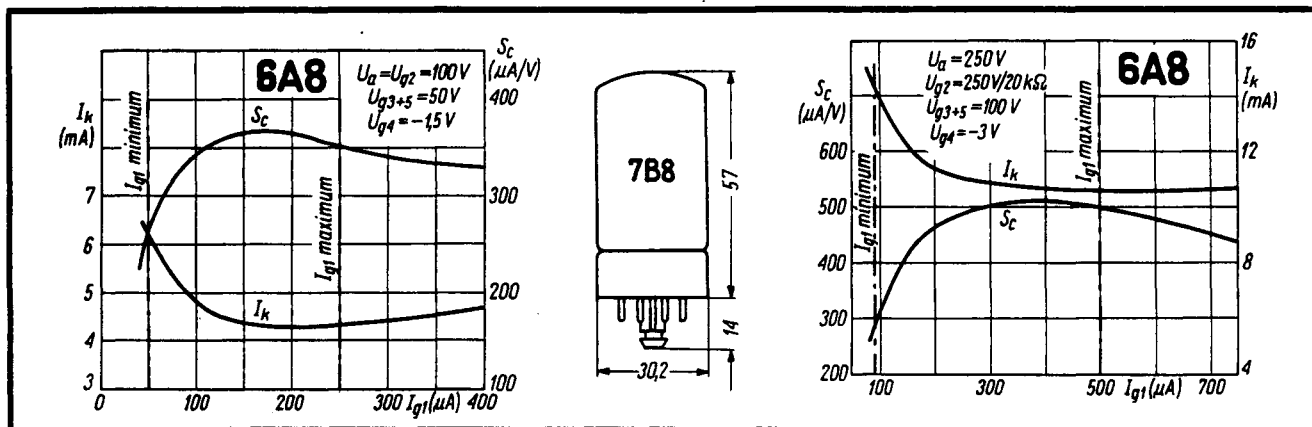


7B8



5374





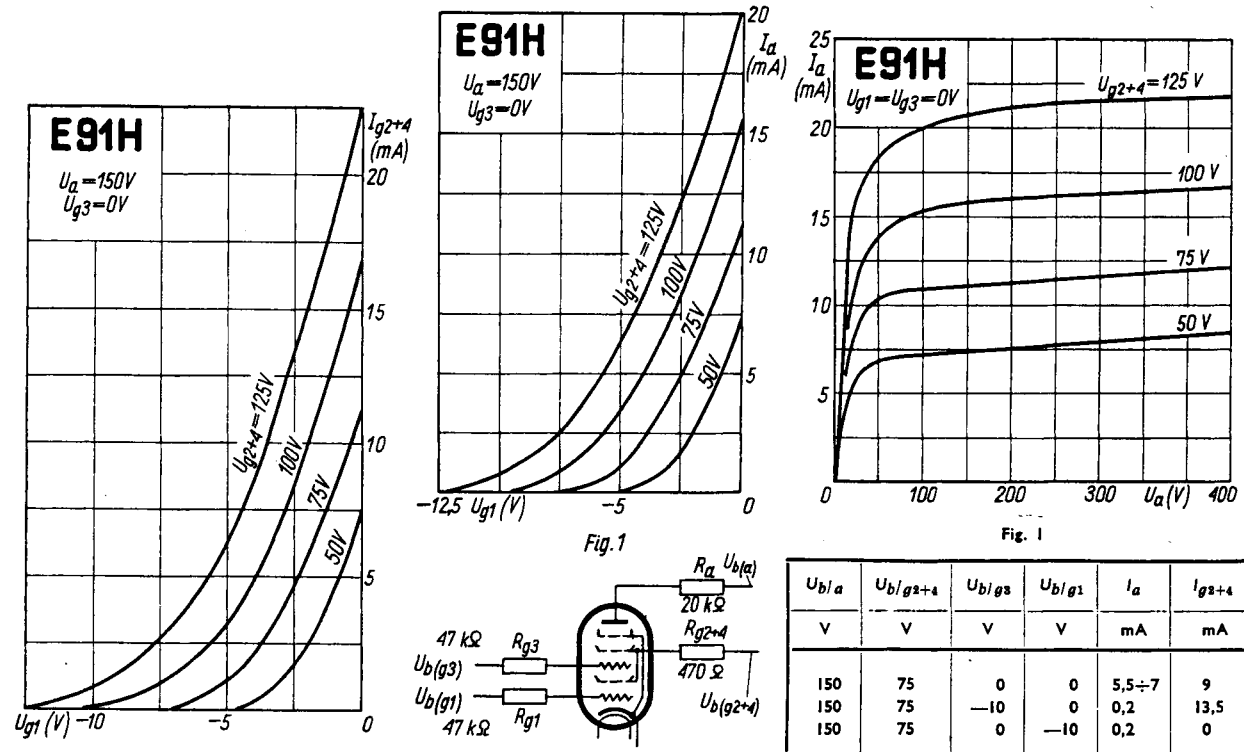
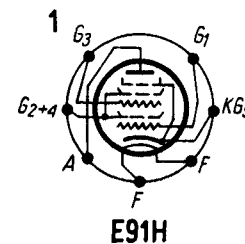
T.		U_f	I_f	U_a	U_{g2+4}	U_{g3}	$U_{g1(osc)}$	I_a	I_{g2+4}	I_{g1}	S_c	R_i	R_{g1}	I_k	U_f/k	P_a
		V	A	V	V	V	V	mA	mA	mA	mA/V	MΩ	kΩ	mA	V	W
E 91 H ¹⁾	eur	6,3	$0,27 \pm 5\%$	250	100	-5	(10)	3,3	6,5	0,53	0,45	0,85	20			
EH 900 ¹⁾	Tif	6,3	$0,3 \pm 1,5\%$	250	100	$0 \div -100$	-100	maximum ($P_{g1} = P_{g3} = 0,5 W$; $P_{g2+4} = 1 W$)						20	120	I
5915	amer	6,3	$0,3 \pm 10\%$			$90 \div -200$	-200	peak						70		

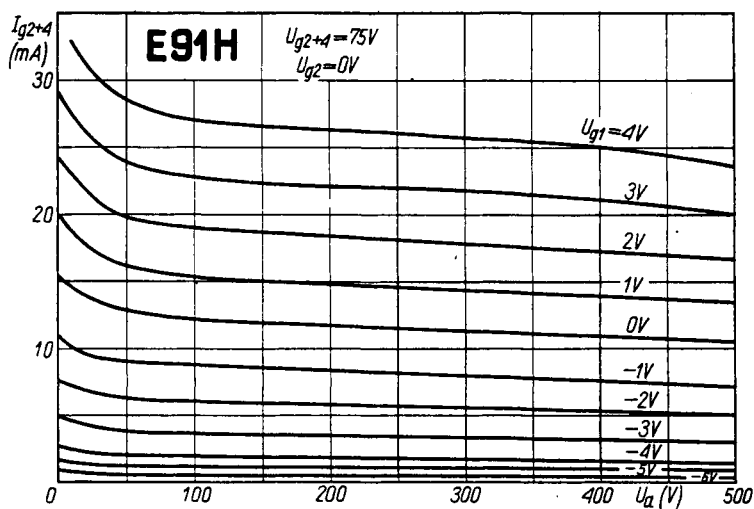
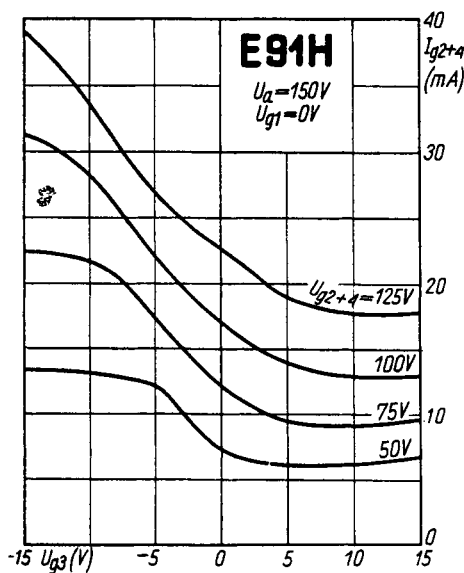
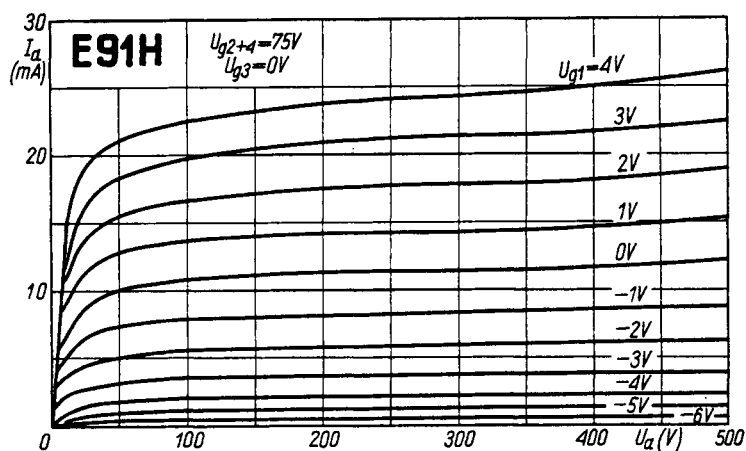
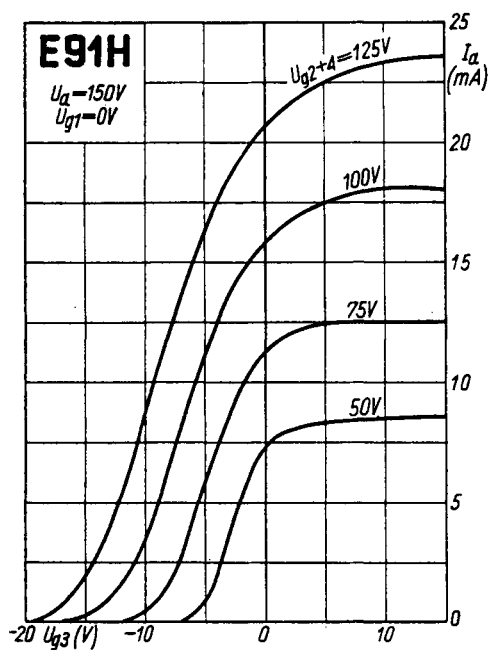
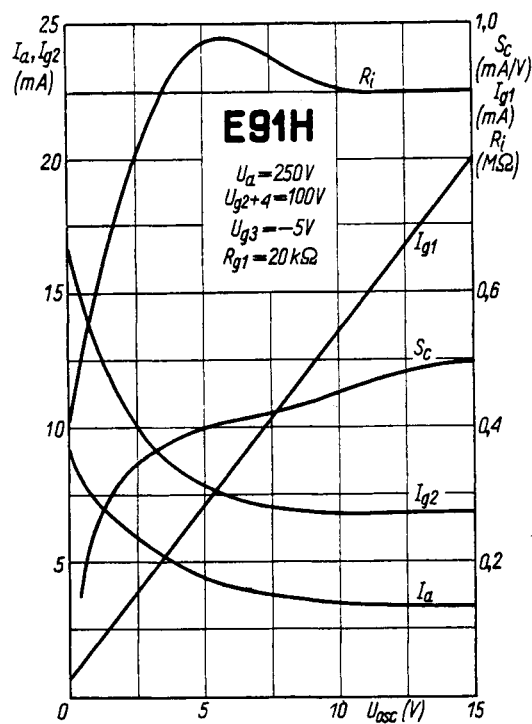
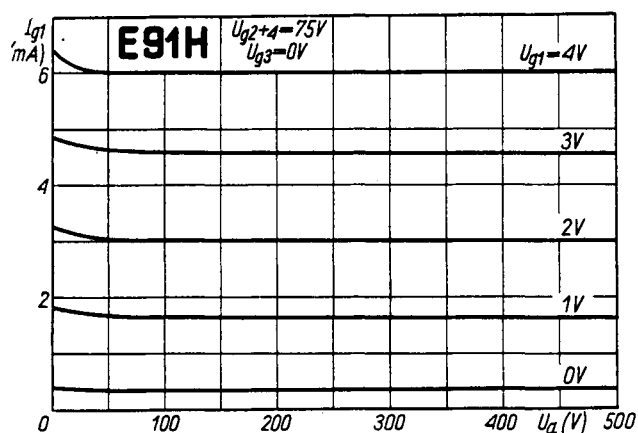
¹⁾ vide *4, a, b, c = 10.000, e, f, g

Equivalents

EH 900 S ¹⁾	Tif	= EH 900
5915-A	amer	= 5915
6687 ¹⁾	amer	= E 91 H
7036	GE	= 5915

C_{g1}	C_{g3}	C_a	$C_{g1/a}$	$C_{g1/g3}$	$C_{g3/a}$
pF	pF	pF	pF	pF	pF
5,4	7	7,9	0,08	0,2	0,45





T.			U_f	I_f	U_a	U_{g2+4}	U_{g3}	U_{g5}	I_a	I_{g2+4}	I_{g1}	S_c	R_i	R_{g1}	I_k	
			V	A	V	V	V	V	mA	mA	mA	$\mu A/V$	M Ω	k Ω	mA	
6 BA 7	int	1	6,3	0,3	100	100	¹⁾	0	3,6	10,2	0,35	900÷3,5	0,5	20	14,2	
6 SB 7-Y	amer	3	6,3	0,3	250	100	¹⁾	0	3,8	10	0,35	900÷3,5	1	20	14,2	
12 BA 7	int	1	12,6	0,15	300	100	—100	0	maximum ($f = 107 \text{ MHz}$; $P_a = 2 \text{ W}$; $P_{g2+4} = 1,5 \text{ W}$; $U_{f/k} = 90 \text{ V}$)							22
3 BE 6	int	2	3,15	0,6	26,5	26,5	0÷—6	—	0,45	1,6	0,1	270÷8	0,4	20	3,15	
4 BE 6	int	2	4,2	0,65												
6 BE 6	int	2	6,3	0,3												
12 BE 6	int	2	12,6	0,15												
26 D 6	amer	2	26,5	0,07	250	100	²⁾	—	2,8	7,3	0,5	455÷1	1	20	10,6	
SX/5750 ³⁾	Bri	2/8	6,3	0,3	300	100	²⁾	—	3	7,1	0,5	475÷4	1	20	10,6	
X 107	Marc	2	19	0,1	maximum ($f = 60 \text{ MHz}$; $P_a = P_{g2} = 1 \text{ W}$; $U_{f/k} = 90 \text{ V}$)											14
6 EA 7-G	Fiv	7	6,3	0,3	26,5	26,5	—1÷—6	0	0,45	1,7	0,1	250÷8	0,5	20	2,25	
6 SA 7	int	3	6,3	0,3												
6 SA 7-G/d	Fiv	6	6,3	0,3												
6 SA 7-GT	int	4	6,3	0,3												
7 Q 7 ⁴⁾	int	5	6,3	0,3	100	100	²⁾	0	3,3	8,5	0,5	425÷2	1	20	12,3	
12 EA 7-G	Fiv	7	12,6	0,15	250	100	²⁾	0	3,5	8,5	0,5	450÷2	1	20	12,5	
12 SA 7-GT	int	4	12,6	0,15	300	100	—50	0	maximum ($P_a = P_{g2} = 1 \text{ W}$; $U_{f/k} = 90 \text{ V}$)							14
12 SY 7	amer	3	12,6	0,15	100	110	—1,5÷—21	2,3	6,2	0,5	480÷10	0,4	20	9		
14 Q 7 ⁴⁾	int	5	12,6	0,15												
18 FX 6	Syl	2	18	0,1	maximum ($P_a = 1 \text{ W}$; $P_{g2+4} = 1,2 \text{ W}$; $U_{f/k} = 100 \text{ V}$)											

¹⁾ Fig. 1 $U_{g3} = -1 \div -30 \text{ V}$; Fig. 2 $U_{g3} = 0 \div -30 \text{ V}$

²⁾ Fig. 1 $U_{g3} = -1,5 \div -30 \text{ V}$; Fig. 2 $U_{g3} = 0 \div -30 \text{ V}$

³⁾ Fig. 1 $U_{g3} = -2 \div -35 \text{ V}$; Fig. 2 $U_{g3} = 0 \div -35 \text{ V}$

⁴⁾ $U_a = 100 \text{ V}$, $S_c = 525 \mu A/V$; $U_a = 250 \text{ V}$, $S_c = 550 \mu A/V$

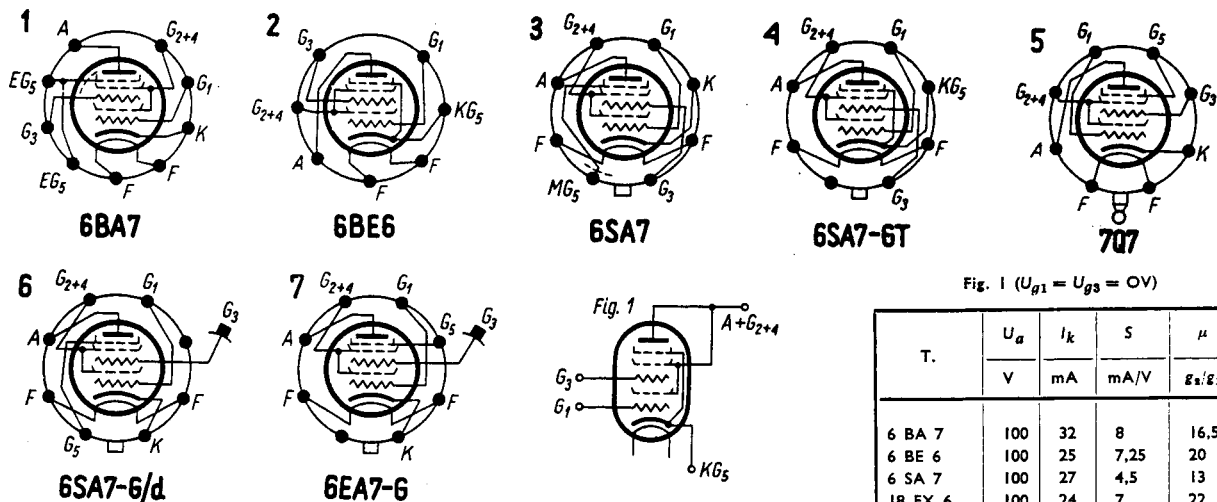
⁵⁾ vide * 4, a, b, c, f, g ($U_f = 6,3 \text{ V} \pm 10\%$)

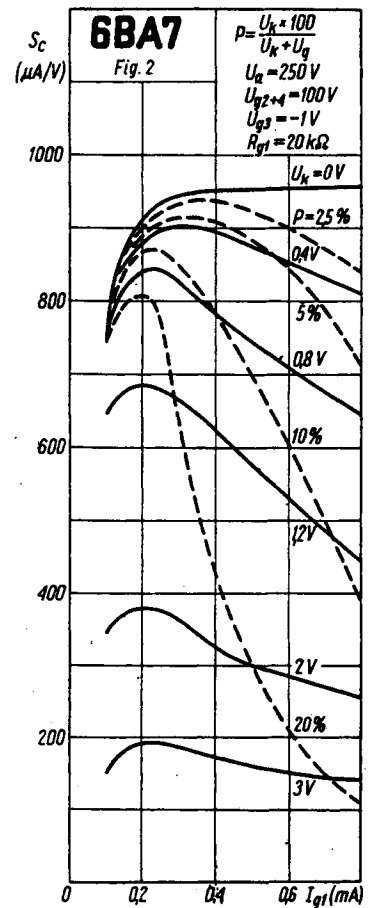
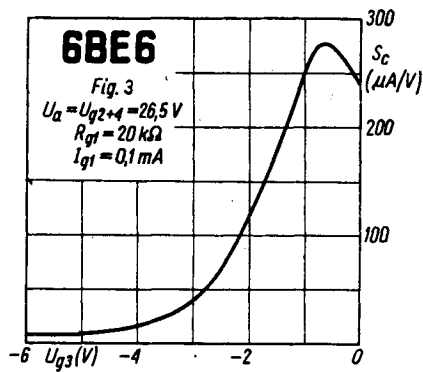
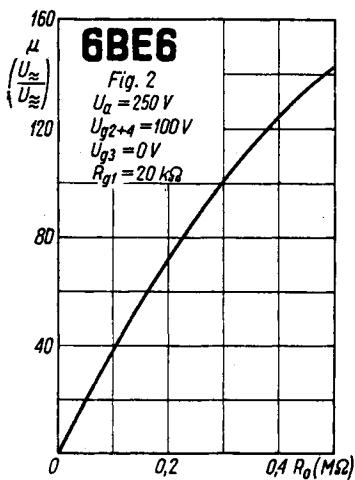
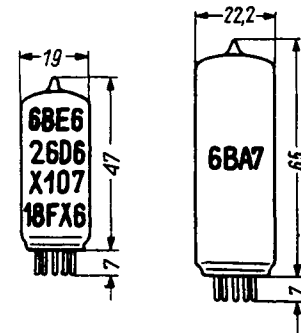
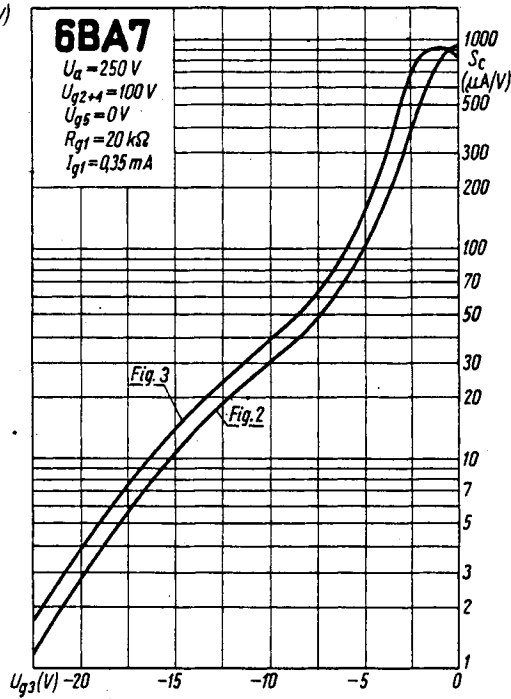
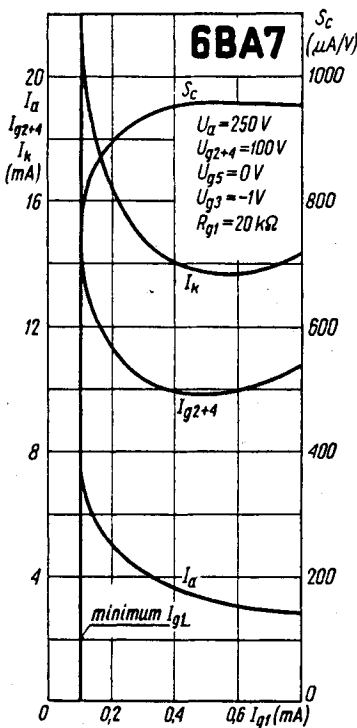
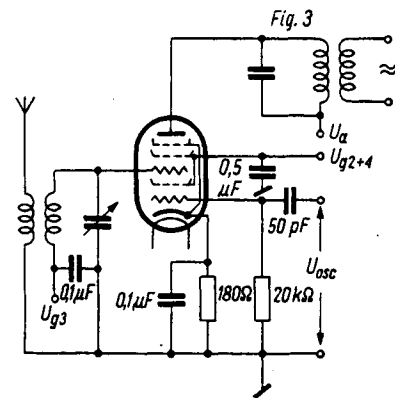
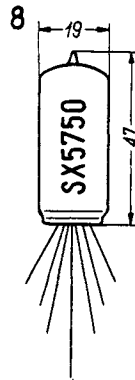
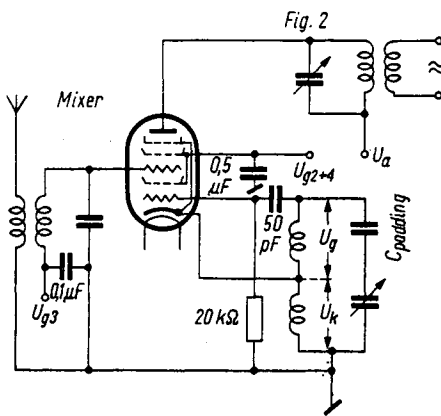
⁶⁾ vide * 4, a, b ($U_f = 6,3 \text{ V} \pm 10\%$)

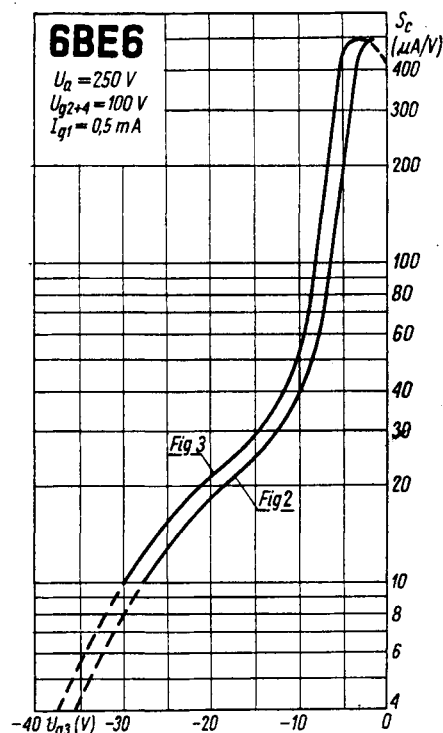
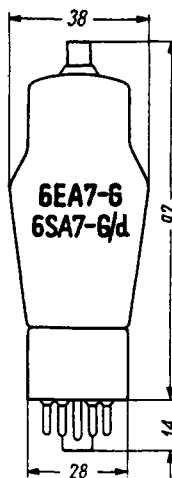
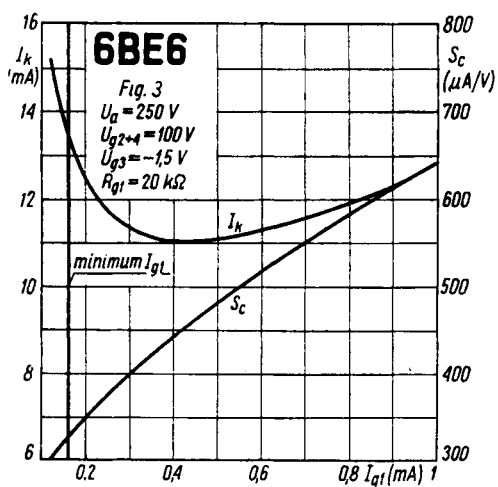
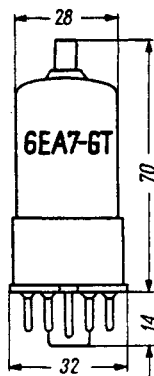
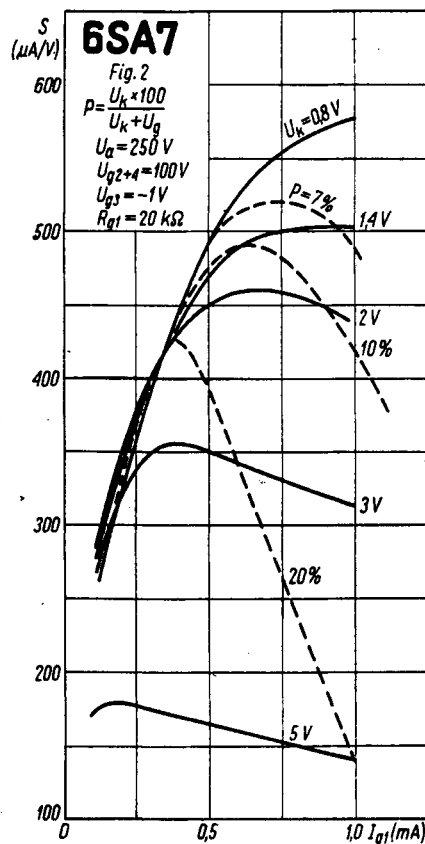
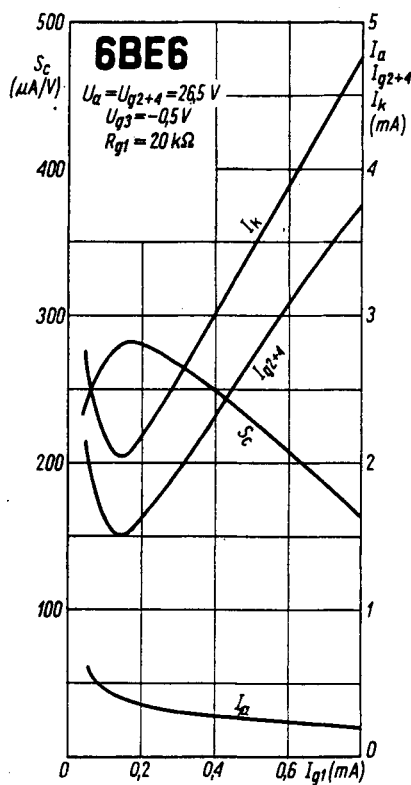
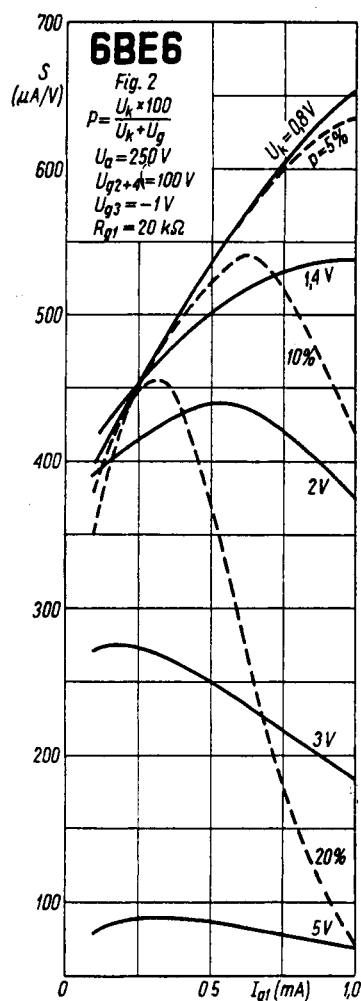
Equivalents

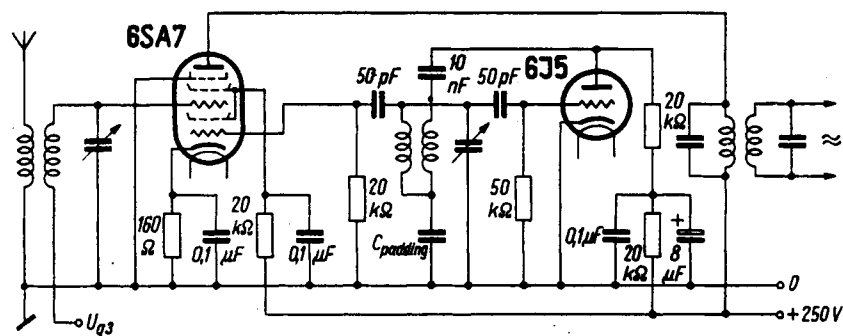
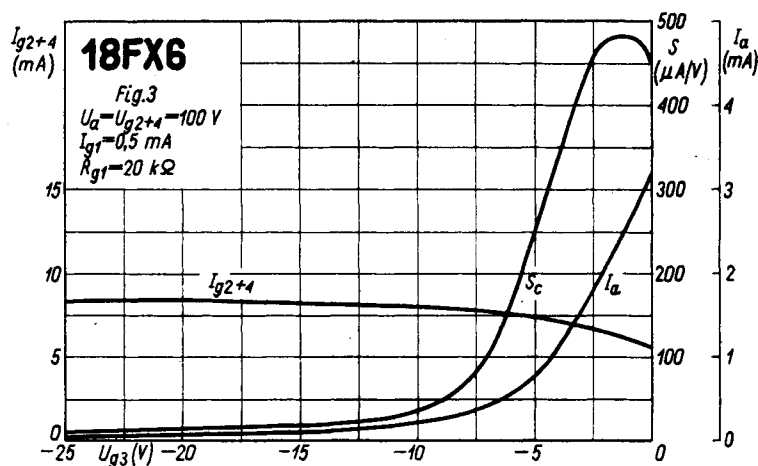
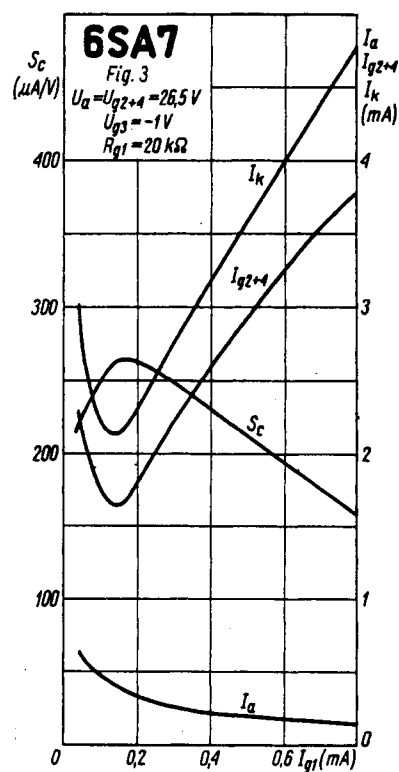
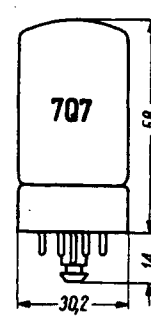
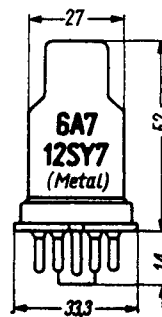
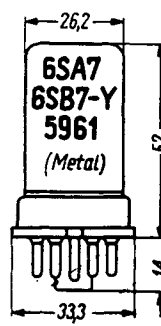
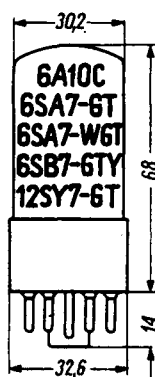
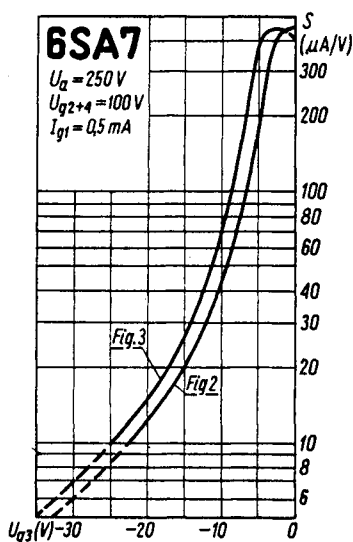
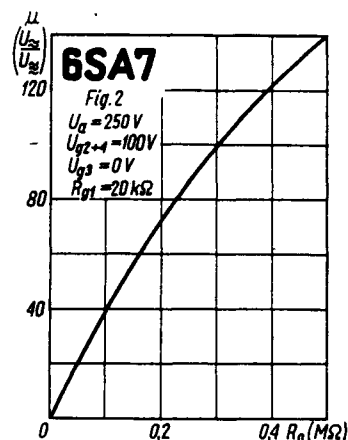
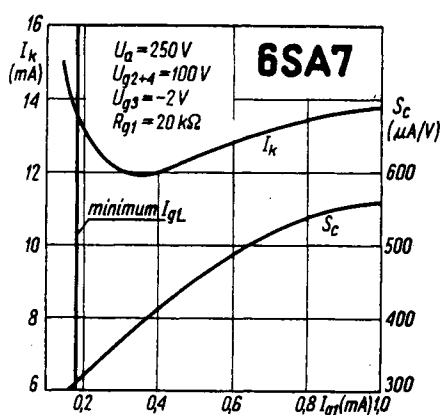
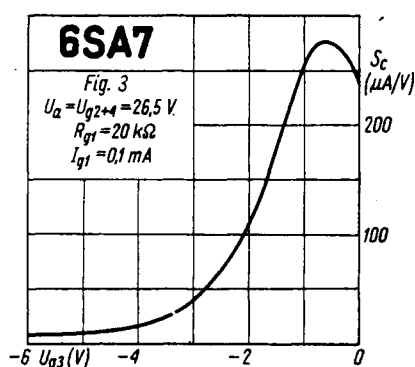
CK 5750 ⁴⁾	Ray = 6 BE 6	6 A 7	CCCP = 6 SA 7
EK 90	eur = 6 BE 6	6 A 10	CCCP = 6 SA 7
FF/5750 ⁵⁾	Bri = SX/5750	6 A 10 C	CCCP = 6 SA 7
GL 5750 ⁶⁾	GE = 6 BE 6	6 BA 7-H	RB = 6 BA 7
HF 3104	RFT = 6 SA 7	6 BE 6-N	Maz = 6 BE 6
HK 90	eur = 12 BE 6	6 BE 6-W ⁶⁾	amer = 6 BE 6
HM 04	SFR = 6 BE 6	6 EA 7-GT	Fiv = 6 EA 7-G
JT-99	CCCP = 6 BE 6	6 H 31	Tes = 6 BE 6
OSW 3104	RFT = 6 SA 7	6 SA 7-WGT ⁶⁾	amer = 6 SA 7-GT
SF/5750 ⁷⁾	Bri = SX/5750	6 SB 7-GTY	amer = 6 SB 7-Y
XF/5750 ⁸⁾	Bri = SX/5750	12 H 31	Tes = 12 BE 6
X 77	Marc = 6 BE 6	12 SY 7-GT	amer = 12 SY 7
X 727	Marc = 6 BE 6	18 FX 6A	Syl = 18 FX 6
6 A I E	CCCP = 6 SA 7	5750 ⁹⁾	amer = 6 BE 6
6 A 2 II	CCCP = 6 BE 6	5961 ¹⁰⁾	amer = 6 SA 7

T.	C_{g3}	C_a	C_{g1}	$C_{g3/a}$	$C_{g3/g1}$	$C_{g1/k}$	$C_{g1/k}$	C_k
	pF	pF	pF	pF	pF	pF	pF	pF
6 BA 7	9,5	8,3	6,7	0,19	0,1	0,05	3,4	4
6 BE 6	7	13	5,5	0,25	0,15	0,05	3	20
6 EA 7-G	8	5,5	8,5	0,16	0,15	0,2	6	6
6 EA 7-GT	8	5,5	7,5	0,16	0,15	0,15	5	4,5
6 SA 7	9,5	12	7	0,13	0,15	0,06	4,4	5
6 SA 7-GT	11	11	8	0,5	0,4	0,2	5	14
6 SA 7-G/d	8	8	12	0,25	0,15	0,2	8	10
7 Q 7	9	9	7	0,2	0,2	0,15	5	6
12 SY 7	9,5	12	7	0,13	0,15	0,06	4,4	5
18 FX 6	7	13	5,5	0,25	0,15	0,05	3	20





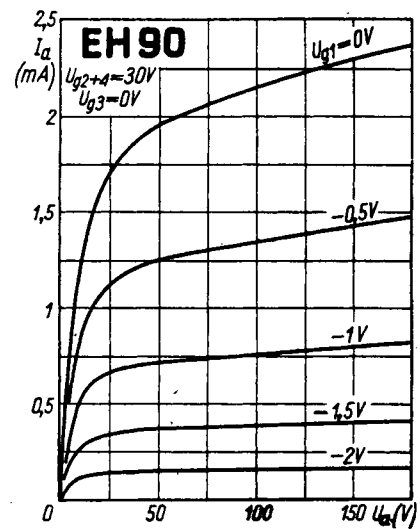
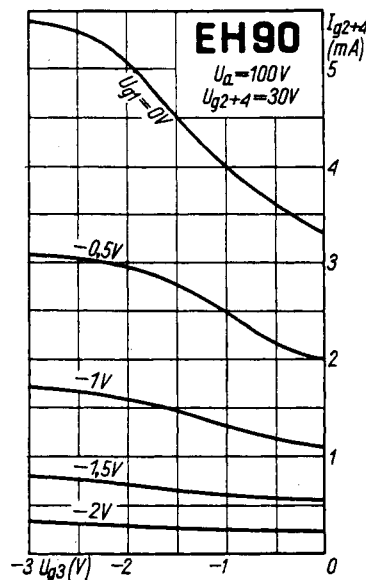
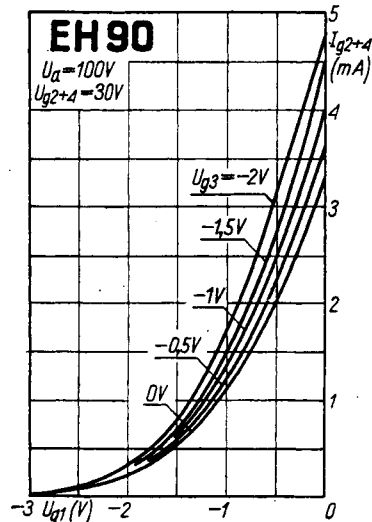
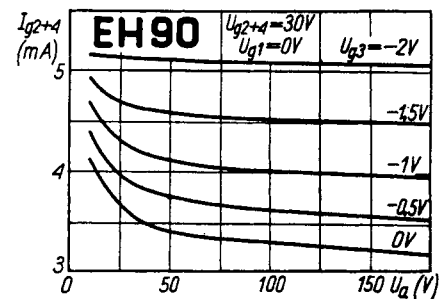
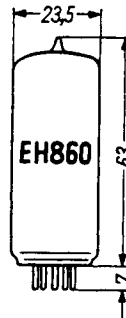
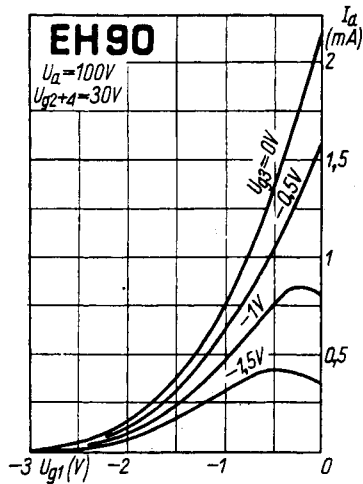
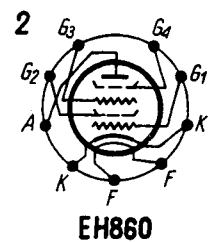
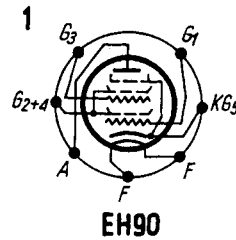


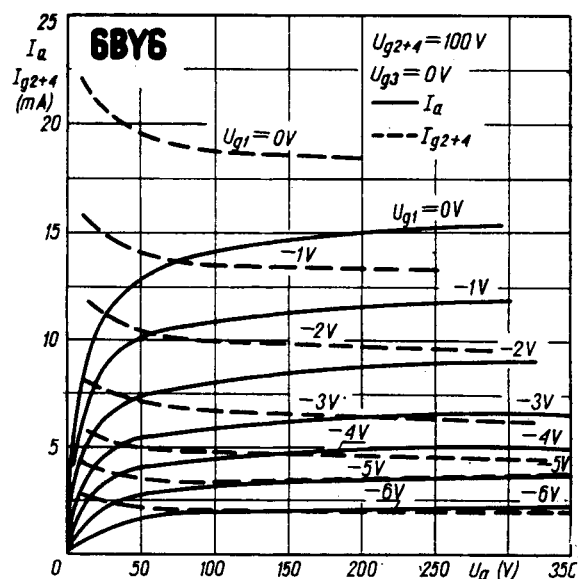
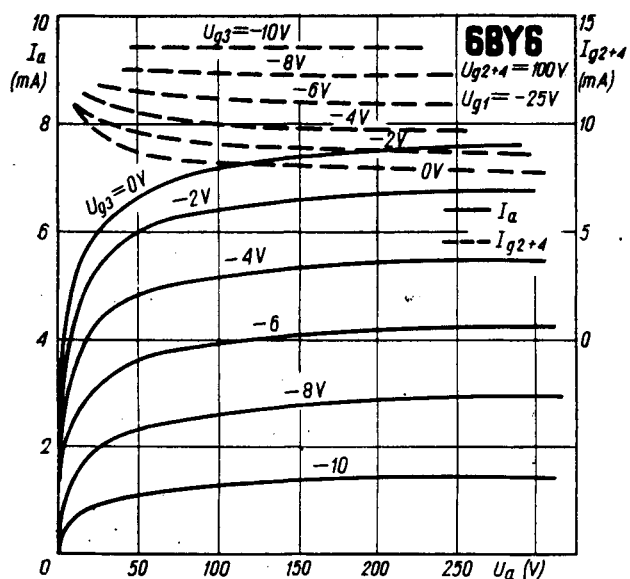
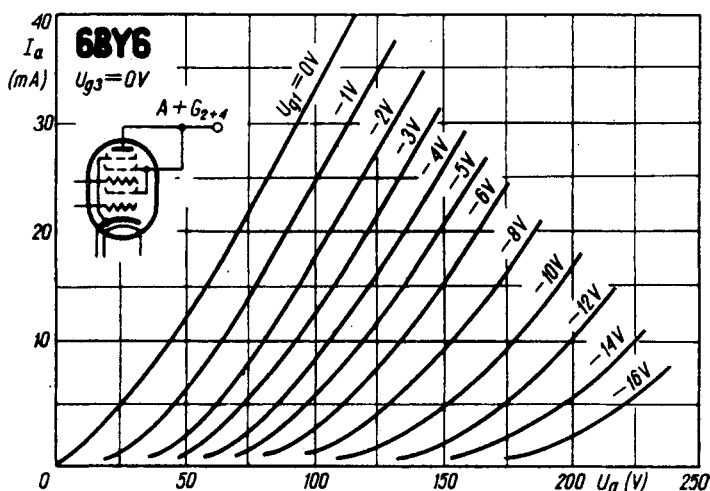
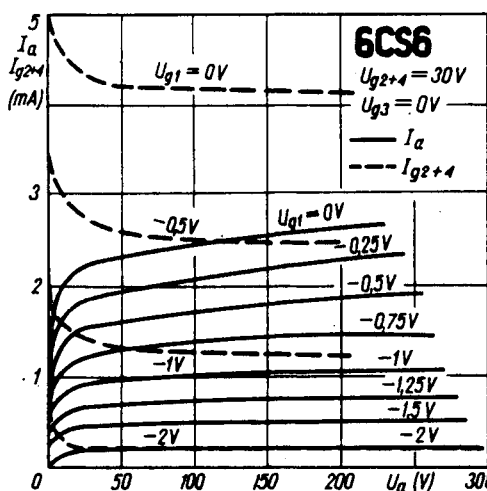
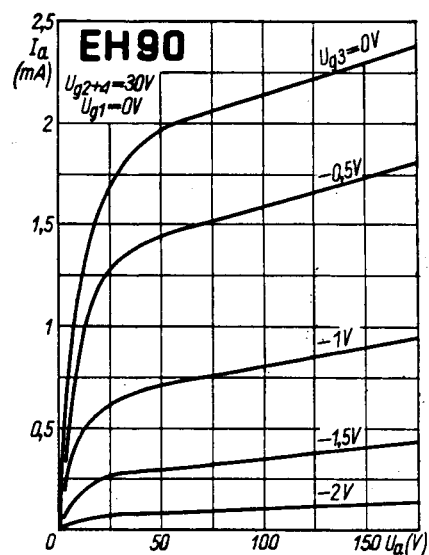
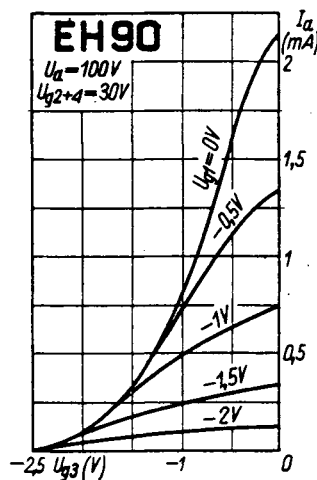
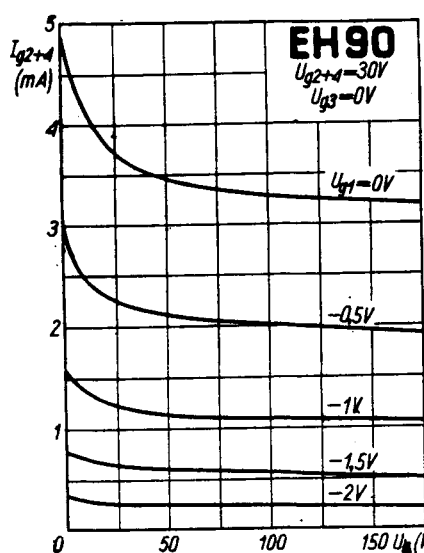


T.			U_f	I_f	U_a	U_{g2+4}	U_{g3}	U_{g1}	I_a	I_{g2+4}	$S(a/g_1)$	$S(a/g_3)$	R_i	U_f/k	I_k	P_a
			V	A	V	V	V	V	mA	mA	mA/V	mA/V	MΩ	V	mA	W
EH 90	eur	I	6,3	0,3	10	30	0	0	1,2	4,1						
3 CS 6	amer	I	3,15	0,6	100	30	0	-1 ÷ -2,5	0,75 ÷ 0,05	1,1	0,95					
4 CS 6	amer	I	4,2	0,45	100	30	-1 ÷ -2,2	0	0,8 ÷ 0,05	4		1,25				
6 CS 6	amer	I	6,3	0,3	300	100			maximum ¹⁾							
12 CS 6	amer	I	12,6	0,15												
EH 860	RFT	2	0,3	0,32	250	100	-2,5 ÷ -8,5	-2,5 ÷ -8,5	5,5 ÷ 0,2	3	1,5	0,8	0,2			
					250	250			maximum ¹⁾							
3 BY 6	amer	I	3,15	0,6	10	25	0	0	1,4	3,5						
6 BY 6	amer	I	6,3	0,3	250	100	-2,5	-2,5	6,5	9	1,9	0,5				
					300	125	-50		maximum ¹⁾							

¹⁾ $P_{g2+4} = I W$

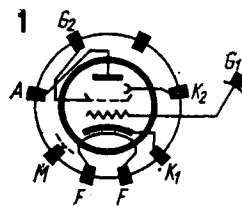
T.	C_{g3}	C_{g1}	C_a	$C_{g1/a}$	$C_{g3/a}$	$C_{g1/g3}$
	pF	pF	pF	pF	pF	pF
EH 90	7	5,5	7,5	0,07	0,36	0,22
EH 860	6,8	5,2	8,8	0,002	0,16	0,07
6 BY 6	6,9	5,4	7,6	0,08		
6 CS 6	7	5,5	7,5	0,05	0,36	0,15



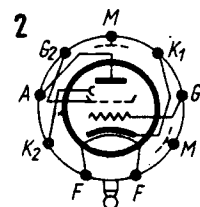


T.			U_f	I_f	U_a	U_{g2}	U_{k2}	U_{g1}	I_a	I_{g2}	I_{k2}	S	R_i	U_f/k_1	I_{k1}	P_{k2}	P_{g2}	P_a
			V	A	V	V	V	V	mA	mA	mA	mA/V	kΩ	V	mA	W	W	W
EE 1	Phl	1	6,3	0,6	250	150	150	-2,5	8	0,45	-6,5	17	50					
EEP 1	Phl	1	6,3	0,6	400	150	200				maximum			50	10	2	0,1	2
EE 50	eur	2	6,3	0,3	250	250	150	-3	10	0,6	-8	14	250					
EFP 20	eur	3	6,3	0,44	250	250	150	-2	5	0,22	-4	12	500					
TSE 4	Mul	4	4	1,1	250	150	150	-2,5	8	0,7	-6	14,5	100					
4696	Phl	1	6,3	0,6	250	150	150				maximum			50	4	1,1	0,11	2

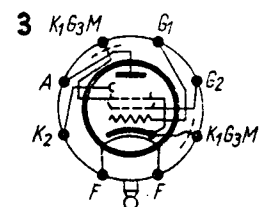
T.	C_{g1}	C_a	$C_{g1/a}$	$C_{k2/g1}$
	pF	pF	pF	pF
EEP 1	10,6	7,5	0,006	0,001
TSE 4	10	9,3	0,004	



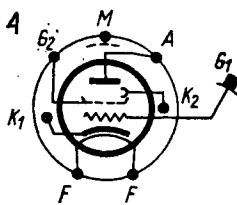
EE1



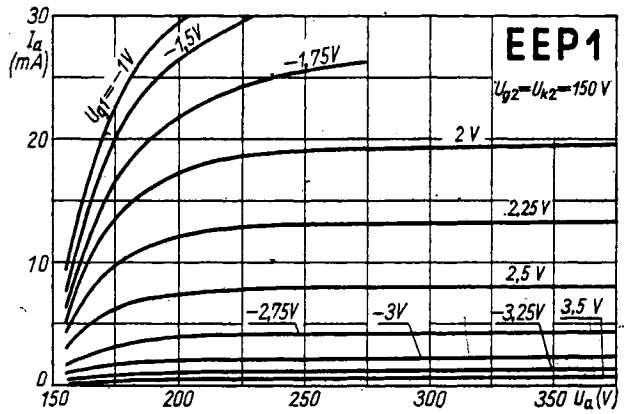
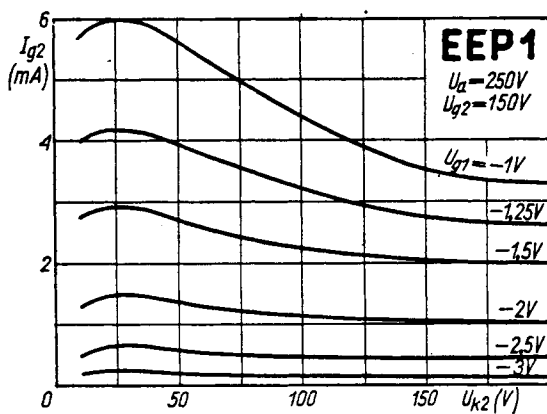
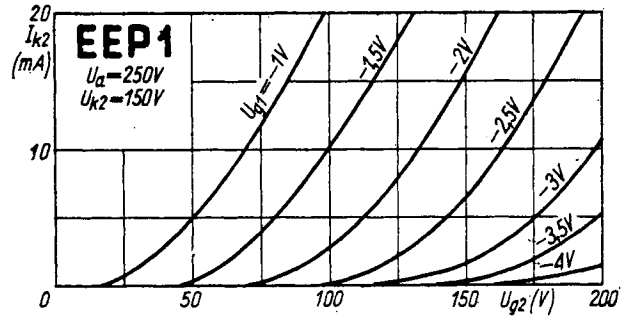
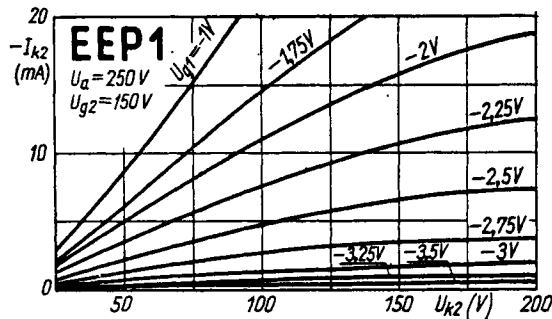
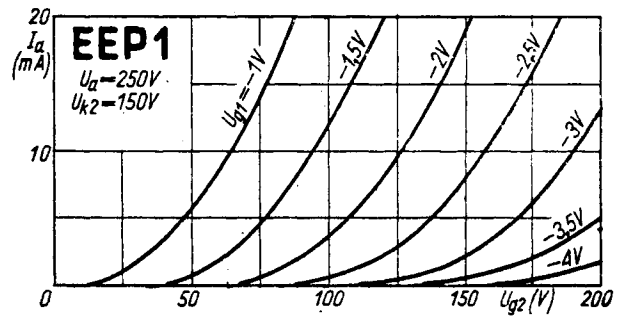
EE50



EFP20

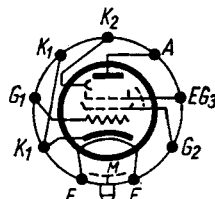


TSE4

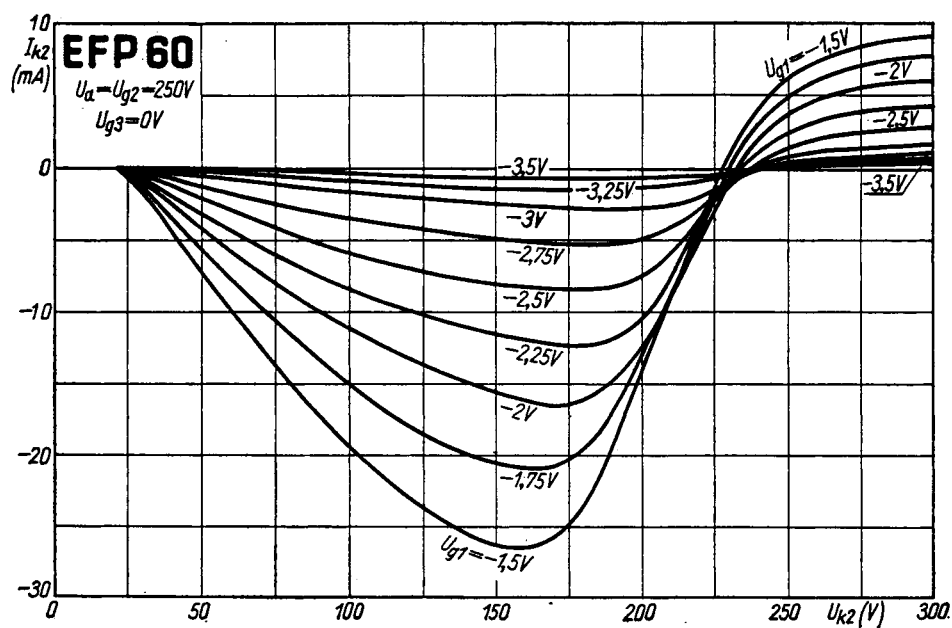
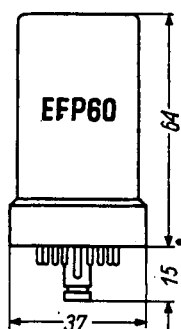
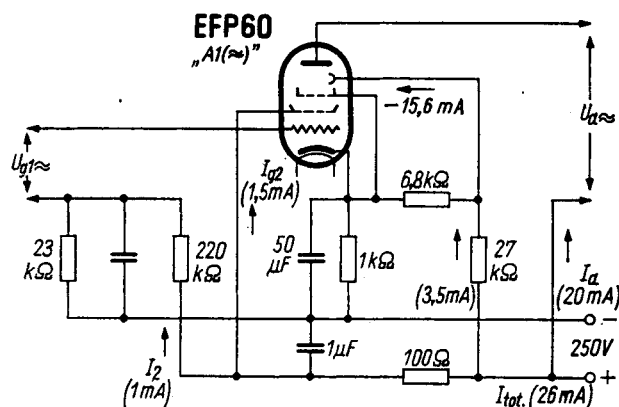
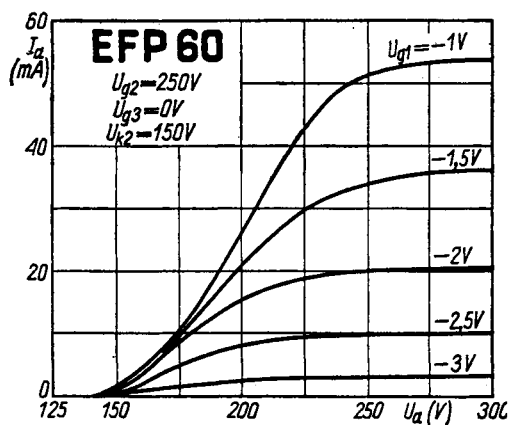
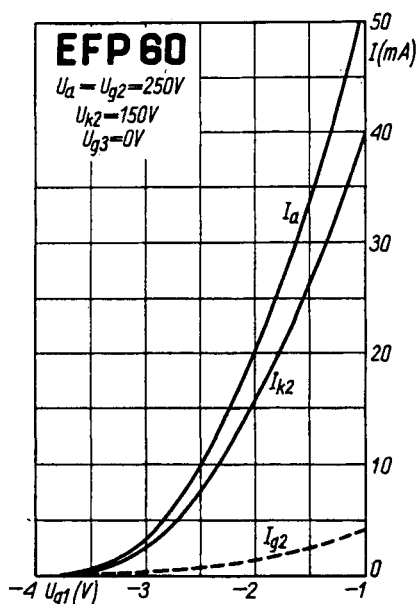


T.		U_f	I_f	U_a	U_{g2}	U_{k2}	U_{g1}	I_a	I_{g2}	I_{k2}	S	R_i	U_f/k_1	I_{k1}	P_{k2}	P_{g2}	P_a
		V	A	V	V	V	V	mA	mA	mA	mA/V	k Ω	V	mA	W	W	W
EFP 60	Phl	6,3	0,37	$\begin{cases} 250 \\ 300 \end{cases}$	$\begin{cases} 250 \\ 300 \end{cases}$	$\begin{cases} 150 \\ 150 \end{cases}$	-2	20	1,5	-15,6	25	70	50	8	1	0,4	2
											maximum						

C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
9,2	6	0,004



EFP60



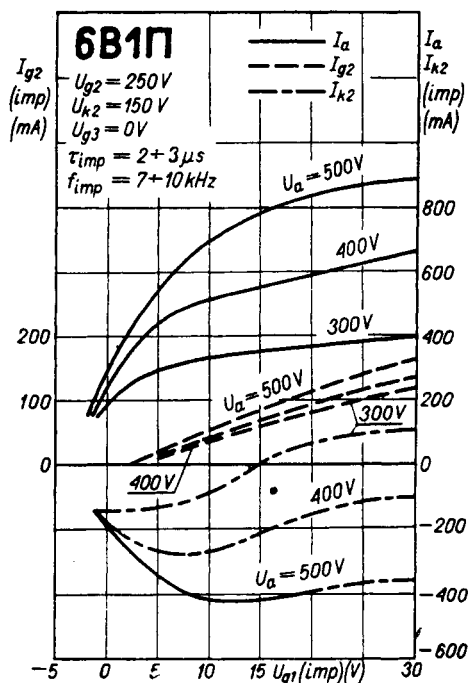
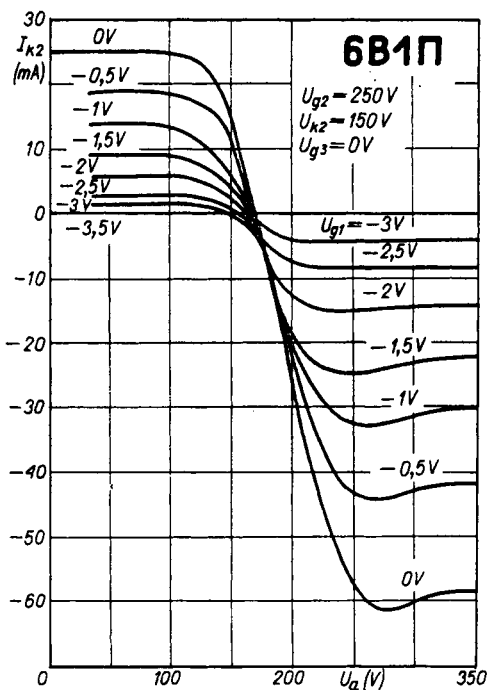
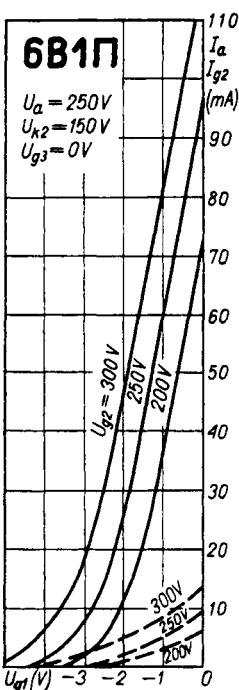
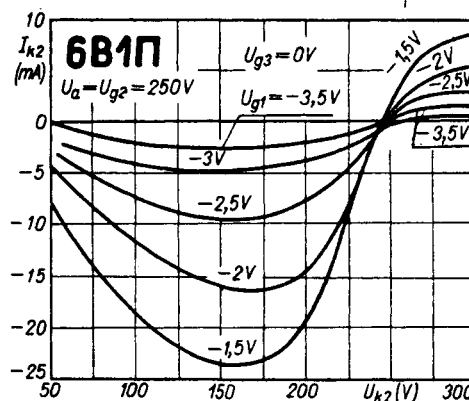
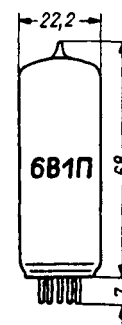
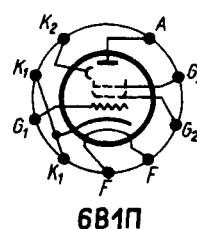
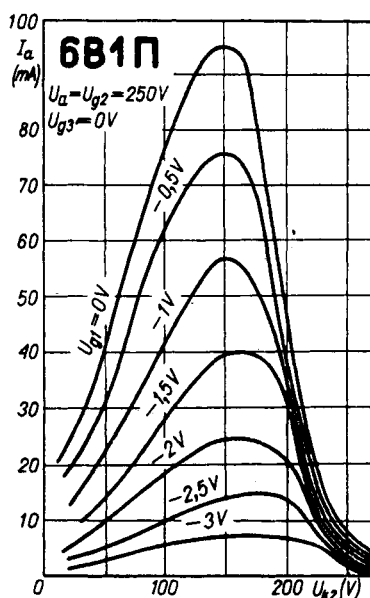
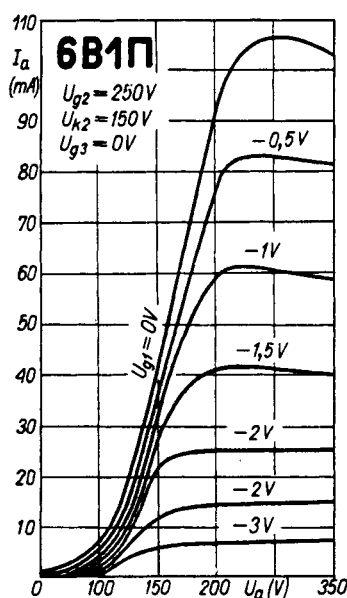
T.		U_f V	I_f A	U_a V	U_{g1} V	U_{k2} V	U_{g1} V	I_a mA	I_{g2} mA	I_{k2} mA	$S(I_a)$ mA/V	$S(I_{k2})$ mA/V	R_k Ω	P_{g1} W	P_{g2} W	P_{k2} W	P_a W
6Б1П	СССР	6,3	0,4	$\begin{cases} 250 \\ 500 \\ 550 \end{cases}$	$\begin{cases} 250 \\ 500 \\ 500 \end{cases}$	$\begin{cases} 150 \\ 200 \\ 120 \end{cases}$	$\begin{cases} -15 \\ 500 \end{cases}$	26	$\begin{cases} 3,5 \\ \text{maximum} \end{cases}$	-20	28	21	200	0,1	0,8	0,8	4,5
impulse $\approx 2 \div 3 \mu\text{s}$; $f_{\text{imp}} = 7 \div 10 \text{ kHz}$																	

¹⁾ $U_{f+/-} = 160 \text{ V}$; $U_{f-/+} = 250 \text{ V}$; $P_a = I_a(U_a - U_{k2})$; $P_{k2} = U_{k2}(I_a - I_{k2})$

C_{g1}	C_a	C_{k2}	$C_{g1/a}$	$C_{g1/k2}$	$C_{a/k2}$	$C_{f/k}$
pF	pF	pF	pF	pF	pF	pF
9	4,8	6,2	0,008	0,028	2,4	8,5

Equivalents

ЛП 34 СССР

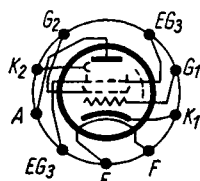
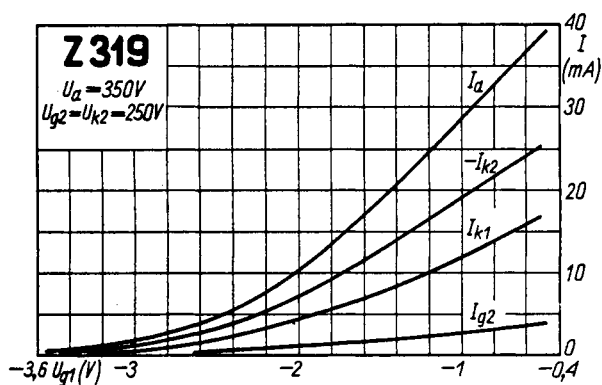
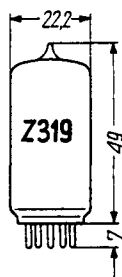


T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{k2} V	I_a mA	I_{g2} mA	I_{k1} mA	I_{k2} mA	S mA/V	R_i k Ω	μ (g_2/g_1)	R_{k1} Ω	P_{k2} W	P_{g2} W	P_a W
Z 319	Eng	6,3	0,3	$\left\{ \begin{array}{l} \text{stat} \\ A(\infty) \end{array} \right.$	350 350 400	250 250 250	250 250 250	15 15,5	1,2	6,3	-10,4 maximum	19 $U_f/I_{k1} = 150 \text{ V}$	50	100	270	2	0,8	2,5

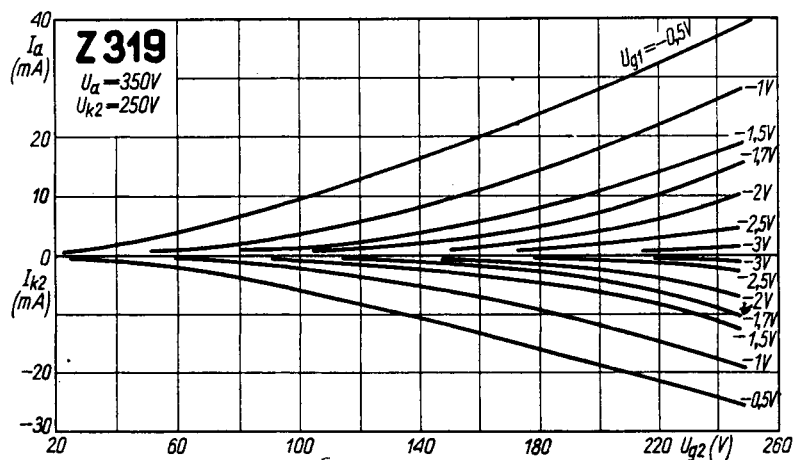
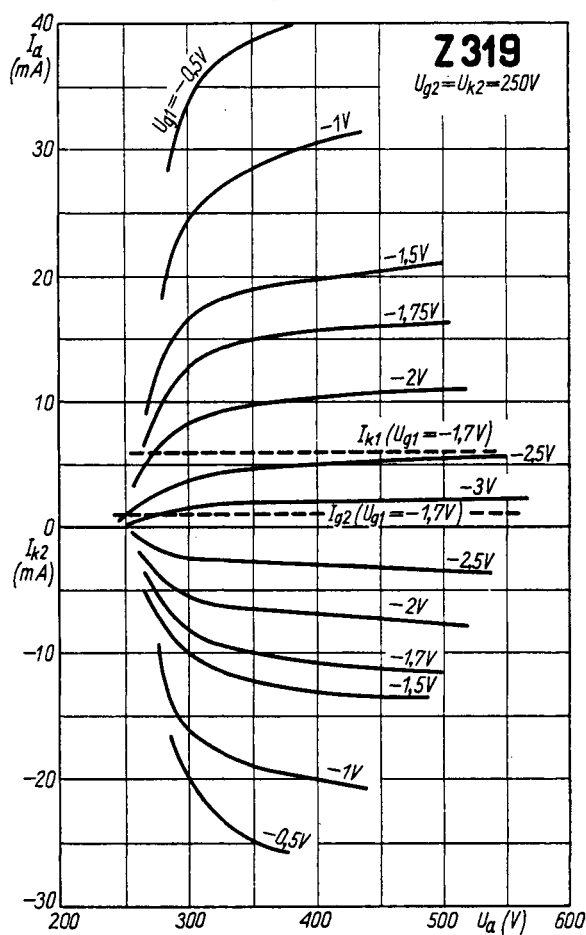
Equivalents

6351	amer
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C_{g1}	C_a	$C_{g1/a}$
pF	pF	pF
8	3	0,003



Z319



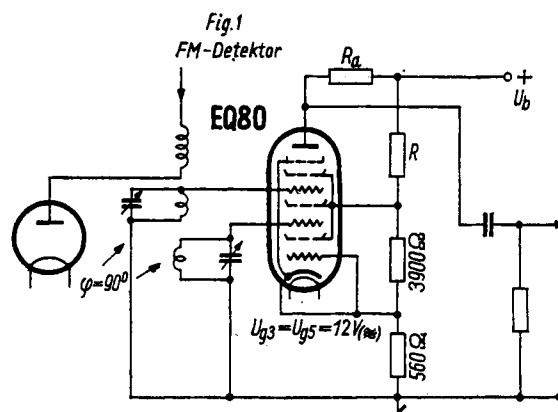
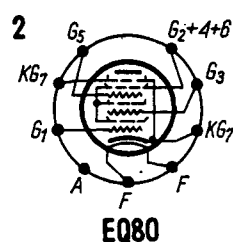
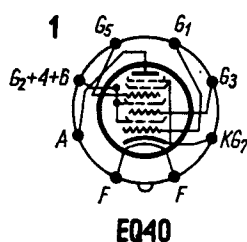
T.			U_f V	I_f A		U_a V	U_{g2+4+6} V	$U_{g3^{(1)}}$ V	$U_{g5^{(1)}}$ V	$U_{g1^{(1)}}$ V	$U_{f/k}$ V	I_k mA	P_{g2+4+6} W	P_a W
EQ 40	eur	1	6,3	0,2	maximum	300	100	-1,3	-1,3	-1,3	10	3	0,1	0,1
EQ 80	eur	2	6,3	0,2										
UQ 80	eur	2	12,6	0,1										

¹⁾ $I_{g1} = I_{g3} = I_{g5} = 0,3 \mu A$

Equivalents

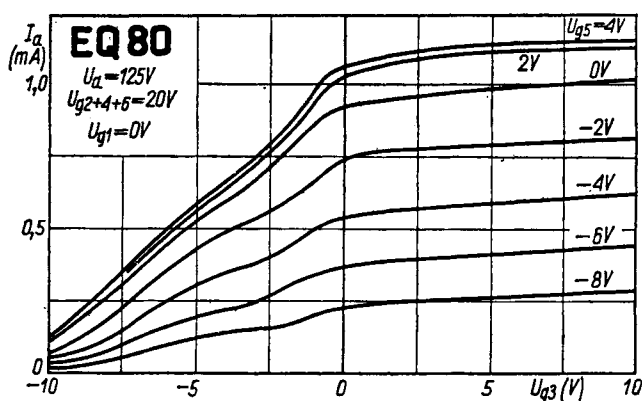
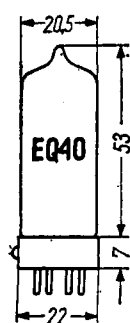
6 BE 7 amer = EQ 80

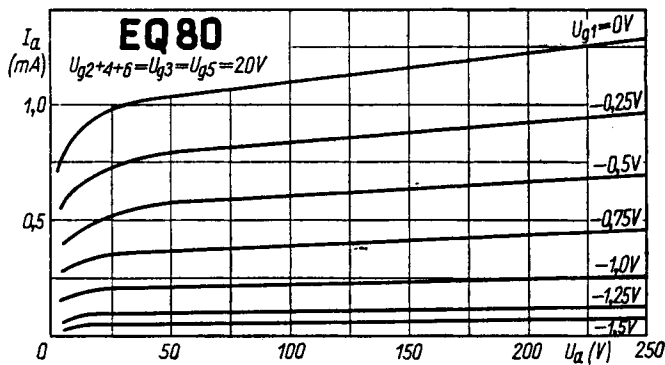
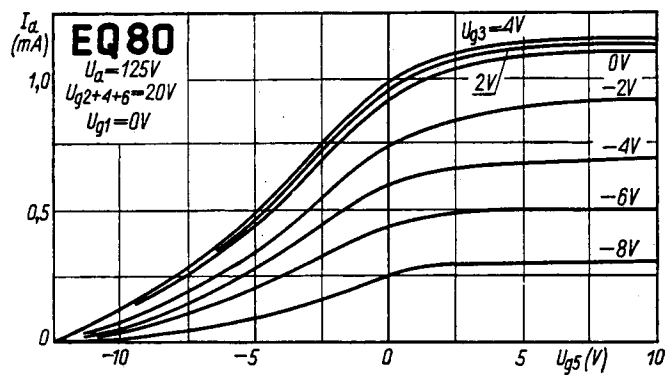
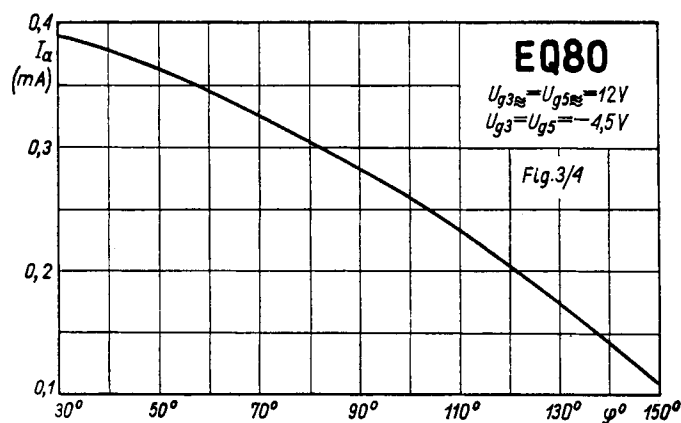
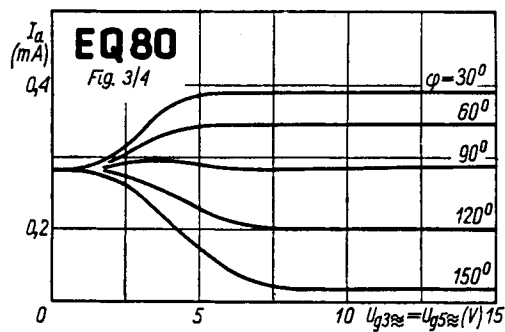
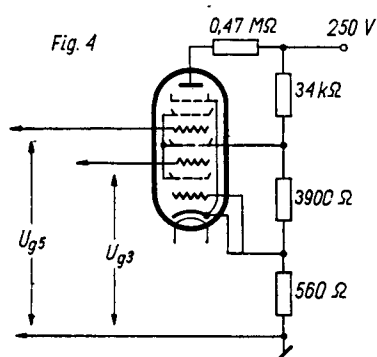
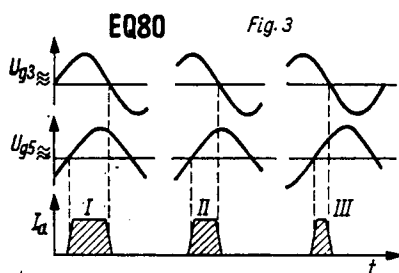
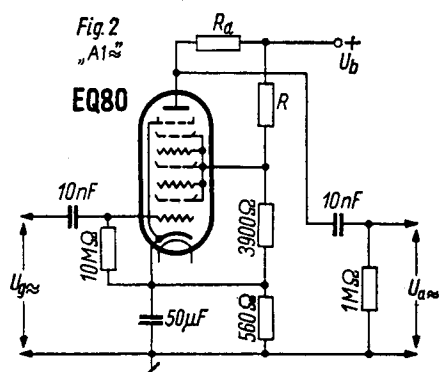
T.	C_{g1} pF	C_{g3} pF	C_{g5} pF	C_a pF	$C_{a/g1}$ pF	$C_{a/g3}$ pF	$C_{a/g5}$ pF	$C_{g1/f}$ pF	$C_{g3/f}$ pF	$C_{g5/f}$ pF
EQ 80	4,5	6,3	8,7	9,6	0,4	0,15	0,35	0,4	0,2	0,15



FM — Detektor Fig. 1

U_b V	U_{g2+4+6} V	U_{g3} V	U_{g5} V	U_{g1} V	R_a kΩ	R kΩ	I_a mA	I_{g2+4+6} mA	I_{g3} mA	I_{g5} mA	U_{g3} V	U_{g5} V
170	20	-4	-4	0	330	21	0,28	1,5	0,09	0,03	12	12
200	20	-4	-4	0	330	26	0,28	1,5	0,09	0,03	12	12
250	20	-4	-4	0	470	34	0,28	1,5	0,09	0,03	12	12





Ampl. — „A1“ Fig. 2

U_b	I_a	R_a	R	$U_{a\approx}$	μ	h
V	mA	kΩ	kΩ	V	$U_{a\approx}/U_{g\approx}$	%
170	0,28	330	21	10	100	2,8
200	0,28	330	26	10	100	2,8
250	0,28	470	34	15	150	2,8

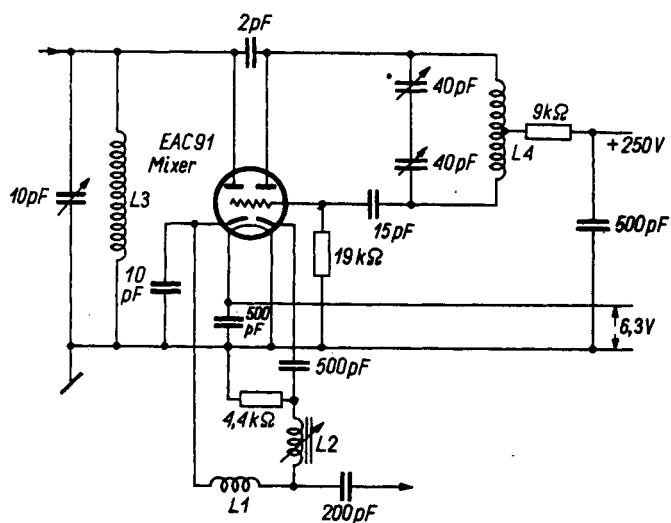
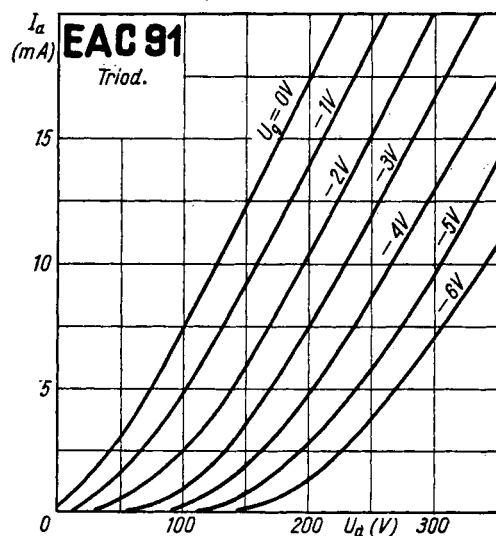
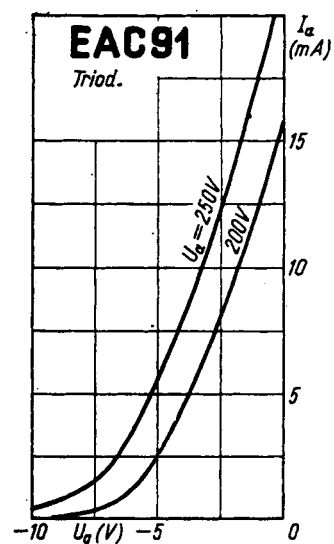
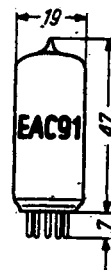
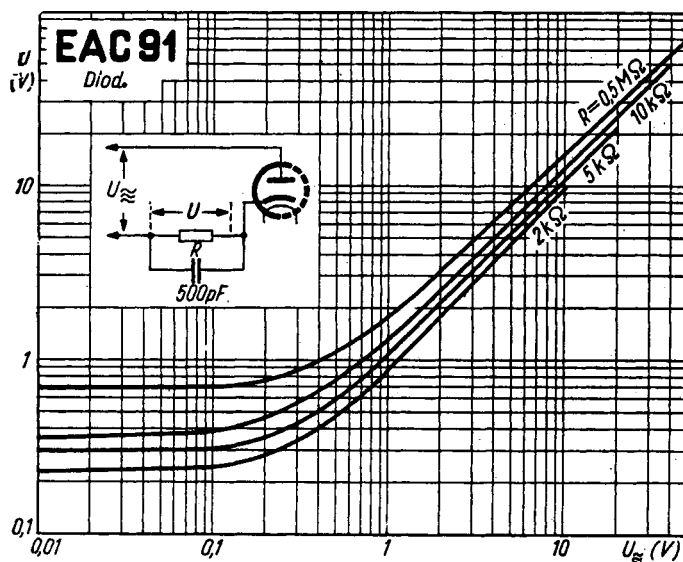
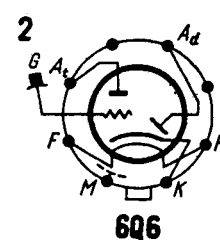
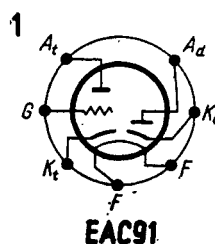
T.			U_f	I_f		U_a	U_g	I_a	S	R_i	μ	$U_{f/k}$	I_k	P_a
			V	A		V	V	mA	mA/V	k Ω	V/V	V	mA	W
EAC 91	eur	1	6,3	0,3	{ triod. diod.	{ 200 250	—3,2	7,5	2,8	12,8	36	50	10	2
						50			5	maximum				
6 Q 6	amer	2	6,3	0,15	triiod.	250	—3	1,2	1,05	61	65			
12 B 6	amer	2	12,6	0,15	triiod.	250	—2	1	1,1	90	100			

Equivalents

M 8097 ¹⁾	Mul = EAC 91
6 Q 6-G	amer = 6 Q 6
12 B 6-M	amer = 12 B 6

¹⁾ vide *4

T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{gT/aD}$ pF	$C_{aT/aD}$ pF	$C_{aD/kD}$ pF	$C_{kD/kT}$ pF	$C_{aD/f}$ pF
EAC 91	1,85	1,15	1,7	0,05	0,2	1,6	0,01	0,25

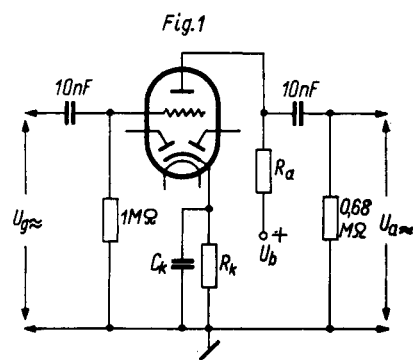
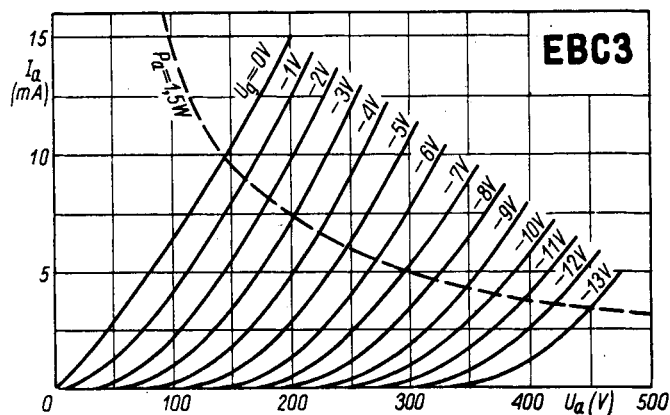
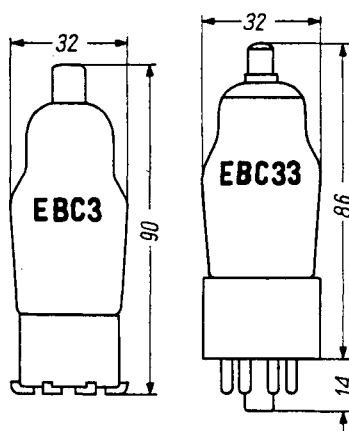
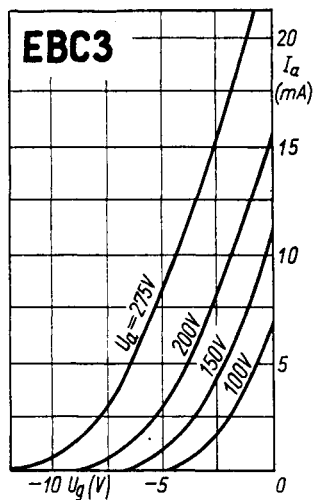
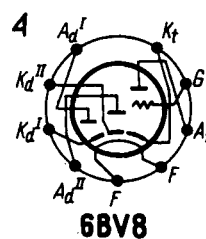
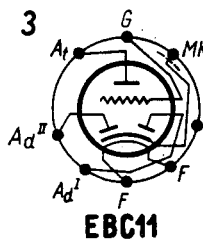
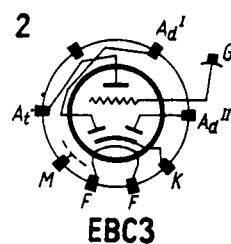
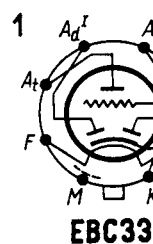


T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$I_a(\text{diod.})$	U_f/k	I_k	P_a
			V	A	A	V	mA	mA/V	k Ω	V/V	mA	V	mA	W
DH 73	Eng	I	6,3	0,16	250	-3	4,5	2	22	44				
DL 63	Marc	I	6,3	0,3	250	-3	5	1,6	22,5	36				
EBC 3	eur	2	6,3	0,2	100	-2,1	2	1,6	19	30				
EBC 33	eur	I	6,3	0,2	200	-4,3	4	2	15	30				
					250	-5,5	5	2	15	30				
					300		maximum				0,8	100	10	1,5
EBC 11	eur	3	6,3	0,2	100	-3,2	2	1,8	14	25				
					200	-6,3	4	2	12,5	25				
					250	-8	5	2,2	11,5	25				
					300		maximum				0,8	100	10	1,5
6 BV 8	amer	4	6,3	0,6	200		11	5,6	5,9	33	($R_k = 330\Omega$)			
					330		maximum					200	10	2,7

Equivalents

DDT 6	Tu	= EBC 3
DDT 6 S	Tu	= EBC 33
DH 73 M	Eng	= DH 73
DH 147	Eng	= EBC 33
DT 620	Tri	= EBC 3
EBC 30	eur	= EBC 3
EDDT 71	Sat	= EBC 3
OM 4	Cos	= EBC 33
TABC 3	Tu	= EBC 3
TABC 33	Tu	= EBC 33

T.		$C_{a/k}$	$C_{a/a}$	$C_{a/gT}$
diod.		pF	pF	pF
EBC 3	I sect.	1,9	0,5	0,005
	II sect.	2,5		0,005
EBC 11	I sect.	2,5	0,5	0,001
	II sect.	2,8		0,001
EBC 33	I sect.	2,6	0,7	0,001
	II sect.	3,2		0,005
6 BV 8	I sect.	2,4	0,45	0,03
	II sect.	2,4		0,07



EBC 33 Fig 1

U_b	R_a	R_k	I_a	μ	$U_{a\sim}$	h
V	M Ω	k Ω	mA	V/V	V	%
100	0,05	6	0,4	17	5 ÷ 10	1,6 ÷ 7
100	0,2	12,5	0,2	19	5 ÷ 10	1 ÷ 4,6
200	0,05	6	0,8	19	5 ÷ 10	1,5 ÷ 3,2
200	0,2	12,5	0,35	22	5 ÷ 10	1 ÷ 1,8
250	0,05	2	1,8	22	5 ÷ 10	I
250	0,2	4	0,75	26	5 ÷ 10	I
300	0,05	2	2,3	22	5 ÷ 10	I
300	0,2	4	0,9	26	5 ÷ 10	I

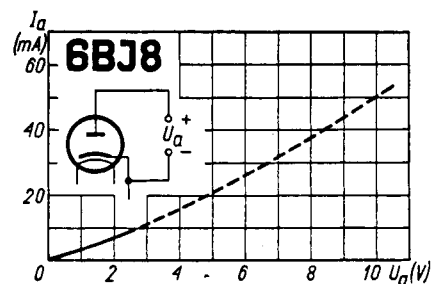
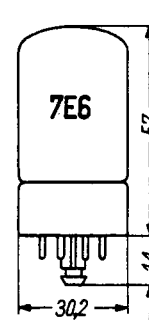
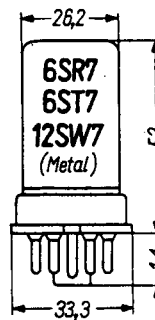
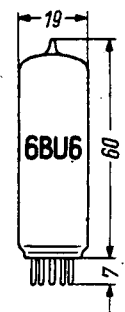
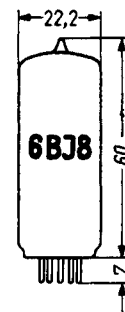
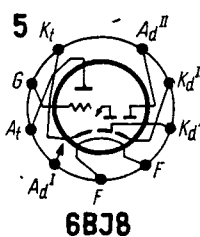
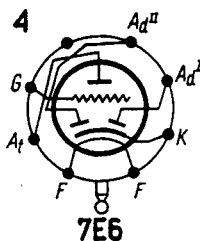
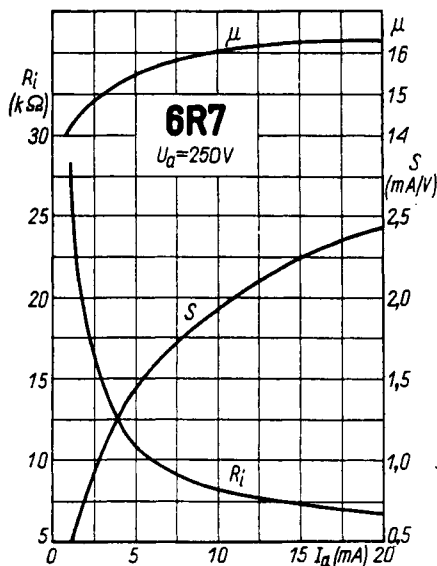
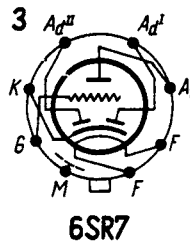
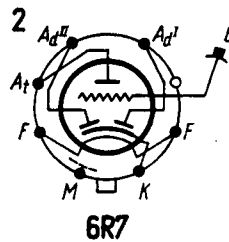
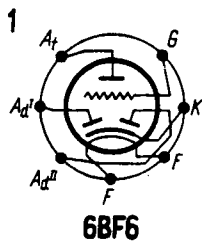
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	U_f/k	P_a
			V	A	V	V	mA	mA/V	kΩ	V/V	Ω	W	W
3 BF 6	int	1	3,15	0,6	26	—0,5	1,1	1,1	15,5	17	770	90	2,5
6 BF 6	int	1	6,3	0,3									
6 R 7	int	2	6,3	0,3									
6 SR 7	int	3	6,3	0,3									
6 ST 7	amer	3	6,3	0,15									
7 E 6	amer	4	6,3	0,3									
12 BF 6	int	1	12,6	0,15									
12 SR 7	int	3	12,6	0,15	300	—9	9,5	1,9	8,5	16	950	200	3,5
14 E 6	amer	4	12,6	0,15									
26 C 6	amer	1	26,5	0,07									
maximum ($I_a(diod) = 1 \text{ mA}$)													
6 BJ 8	amer	5	6,3	0,6	90	0	13,5	4,7	4,7	22			
					250	—9	8	2,8	7,15	20			
maximum $I_a(diod) = 9 \text{ mA}$													

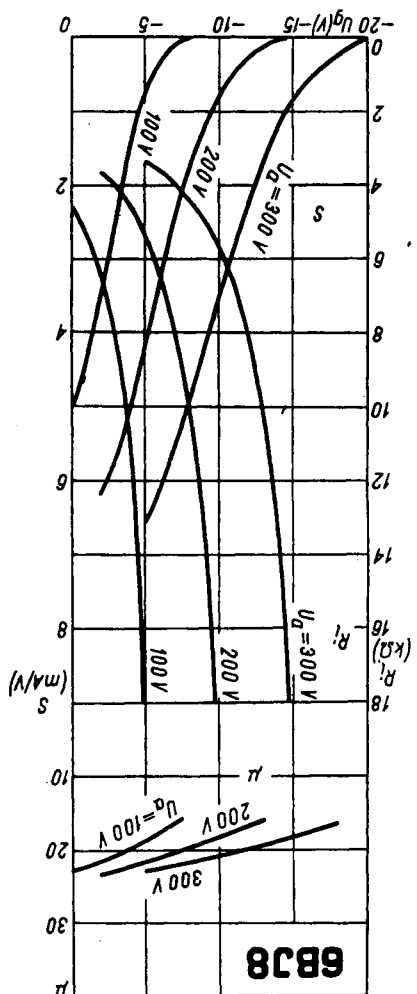
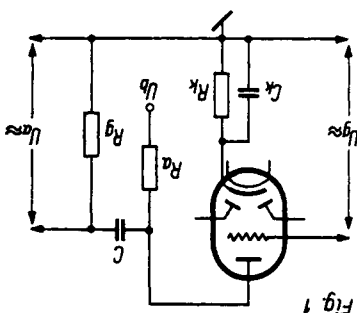
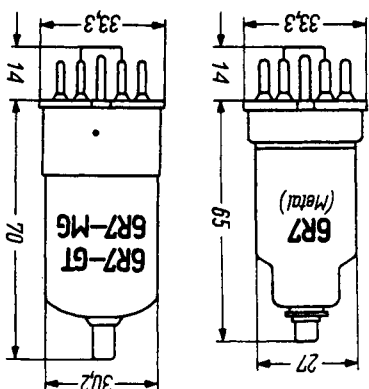
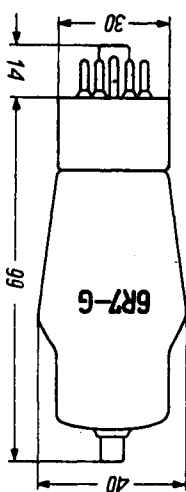
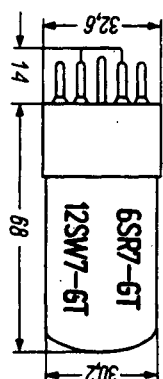
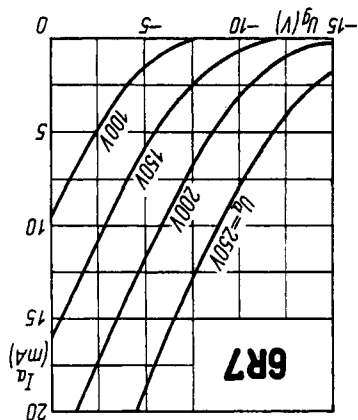
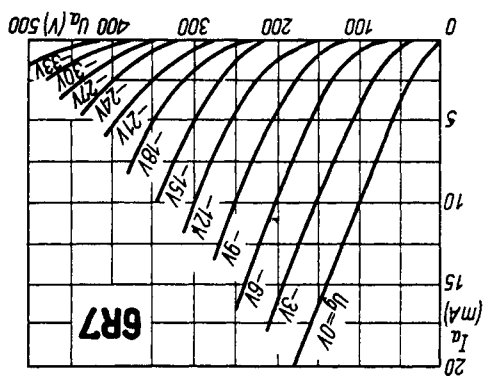
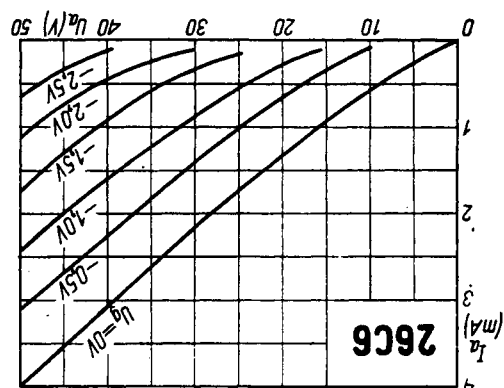
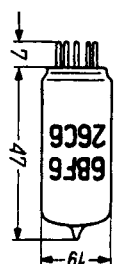
Equivalents

6 BU 6	amer	= 6 BF 6
6 Г 1	СССР	= 6 SR 7
6 P 1 Б	СССР	= 6 SR 7
6 R 7-G	int	= 6 R 7
6 R 7-GT	int	= 6 R 7
6 R 7-MG	Frc	= 6 R 7
6 SR 7-GT	int	= 6 SR 7
12 BU 6	amer	= 12 BF 6
12 Г 1	СССР	= 12 SR 7
12 P 1 Б	СССР	= 12 SR 7
12 SR 7-GT	int	= 12 SR 7
12 SW 7	amer	= 12 SR 7
12 SW 7-GT	amer	= 12 SR 7

T. (triode).	C_g	C_a	C_g/a
	pF	pF	pF
6 BF 6	1,8	0,8	2
6 BJ 8	2,8	0,31	2,6
6 R 7	4,8	3,8	2,4
6 R 7-G	2,6	5,2	2,4
6 SR 7	3,6	2,8	2,4
6 ST 7	2,8	3	1,5
7 E 6	3	2,4	1,5
12 SW 7	3	2,8	2,4
26 C 6	1,8	1,4	2

T. (diod.)		$C_{a/k+f}$	$C_{k/a+f}$	$C_{a/gT}$
		pF	pF	pF
6 BF 6	I sect.	1,4		0,06
	II sect.	1,5		0,05
6 BJ 8	I sect.	1,9	4,6	0,07
	II sect.	1,9	4,6	0,11





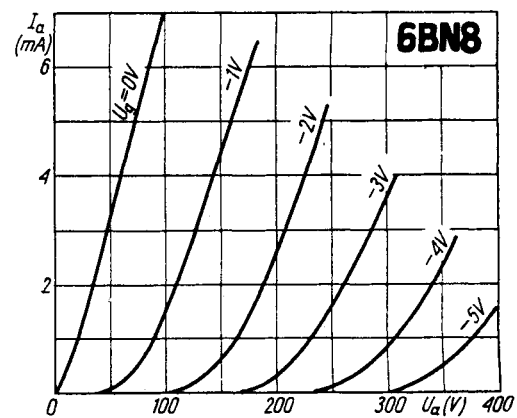
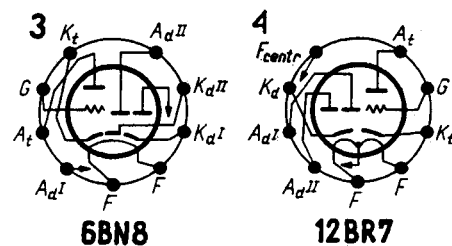
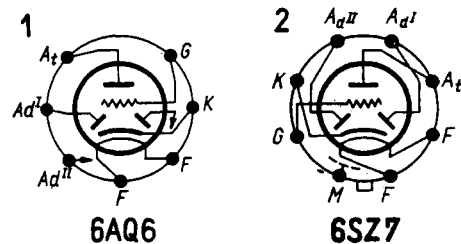
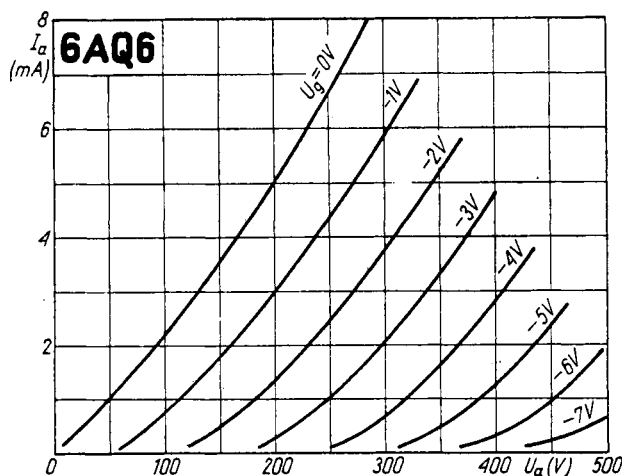
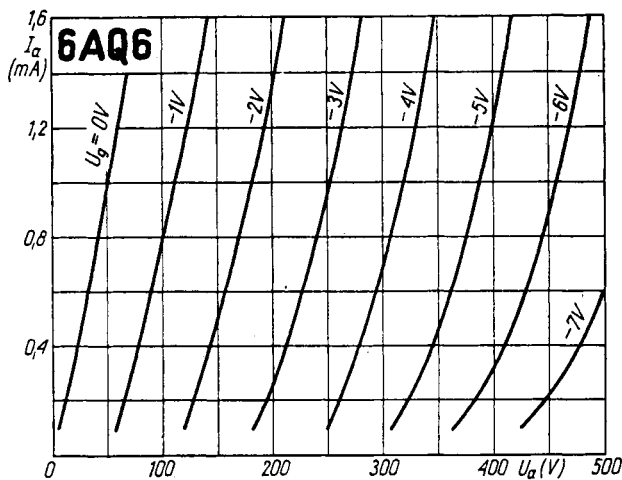
U_b	R_a	$M\Omega$	R_g	$M\Omega$	$k\Omega$	R_k	μF	C_k	nF	C	μ	V/V	$U_{a\sim}$
90	0,047	0,22	3,2	1,7	15								
90	0,1	0,22	6,4	0,9	7								
90	0,22	1	14	0,43	3,5								
180	0,047	0,22	3	1,9	16								
180	0,1	0,47	6,2	0,9	7								
180	0,22	1	13	0,4	0,4								
300	0,047	0,22	2,9	2	16								
300	0,1	0,47	6,2	0,95	7								
300	0,22	1	13	0,43	3,5								

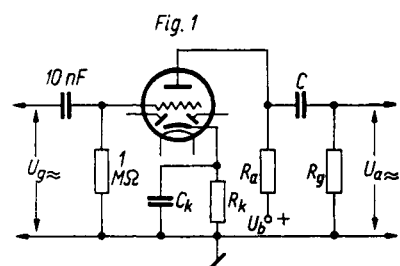
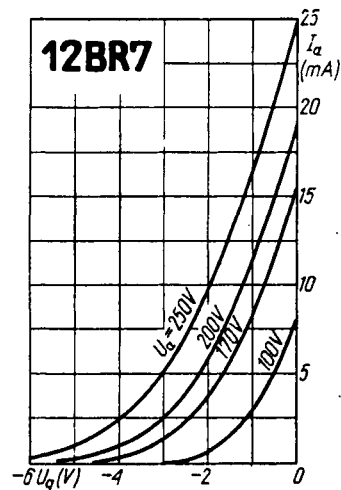
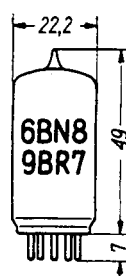
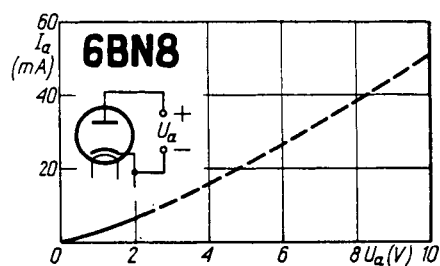
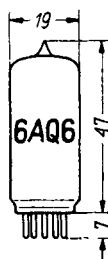
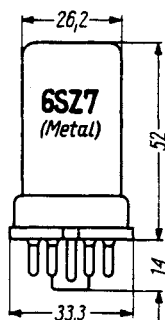
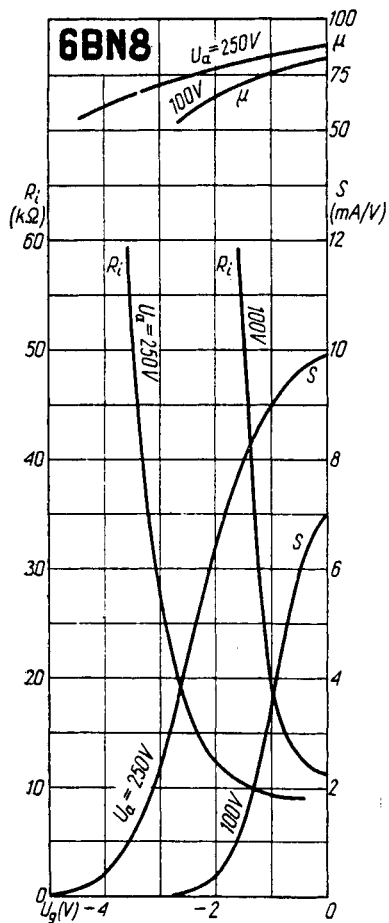
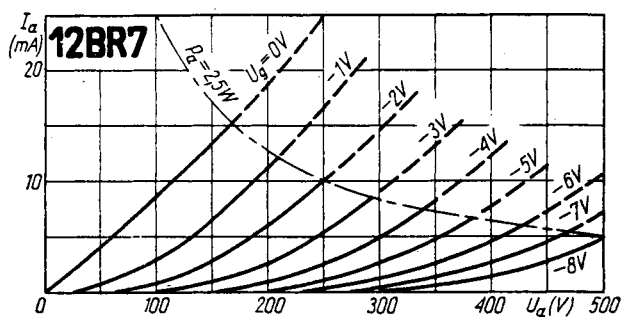
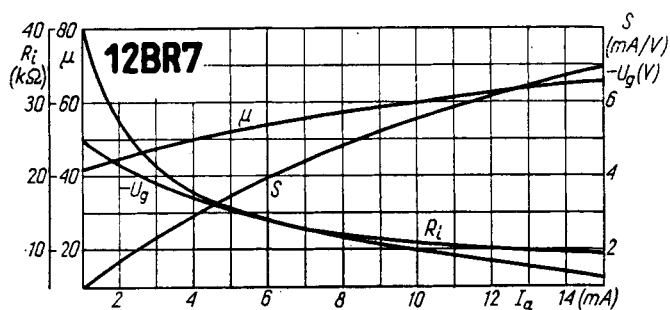
6 BF 6 Fig. 1

T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$I_a(\text{diod.})$	$U_{f+}/k-$	$U_{f-}/k+$	P_a
			V	A	V	V	mA	mA/V	kΩ	V/V	mA	V	V	W
6 AQ 6	amer	1	6,3	0,15	{ 100 250 300	—1	0,8	1,15	61	70	1	90		0,5
6 SZ 7	amer	2	6,3	0,15		—3	1	1,2	58	70				
maximum														
6 BN 8	amer	3	6,3	0,6	{ 100 250 300	—1	1,5	3,5	21	75	9	100	200	1,5
8 BN 8	amer	3	8,4	0,45		—3	1,6	2,5	28	70				
maximum														
9 BR 7	amer	4	4,7/9,4	0,6/0,3	{ 100 250 300	—1	3,7	4	15	60	10	100	200	2,5
12 BR 7	amer	4	6,3/12,6	0,45/0,225		—2	10	5,5	10,9	60				
12 BR 7-A	amer	4	6,3/12,6	0,45/0,225		maximum								

T. triad.	C_g pF	C_a pF	$C_{g/a}$ pF
6 AQ 6	1,7	1,5	1,8
6 BN 8	3,6	0,25	2,5
6 SZ 7	2,6	2,8	1,1
9 BR 7	2,8	1	1,9

T. diod.	$C_{a/k+f}$ pF	$C_{k/a+f}$ pF	$C_{a/gT}$ pF	$C_{a/a}$ pF	$C_{a/f+kT+kD+aT+oD+gT}$ pF
6 BN 8 { I sect. II sect.	1,9 1,9	4,8 4,8	0,06 0,1	0,07	3 3





6 AQ 6; 6 SZ 7: Fig. 1

U_b	R_a	R_g	R_k	C_k	C	μ	$U_{a \approx}$
V	MΩ	MΩ	kΩ	μF	nF	V/V	V
90	0,1	0,47	4,8	2	6,5	30	9,1
90	0,22	1	8,1	1,1	3,5	37	12
90	0,47	2,2	15	0,6	2	41	16
180	0,1	0,47	2,5	2,8	6,5	37	32
180	0,22	1	4,6	1,5	3,5	44	38
180	0,47	2,2	9,1	0,8	2	47	43
300	0,1	0,47	2,1	3	6,5	41	63
300	0,22	0,1	3,7	1,6	3,5	48	77
300	0,47	2,2	7,2	0,9	2	51	85

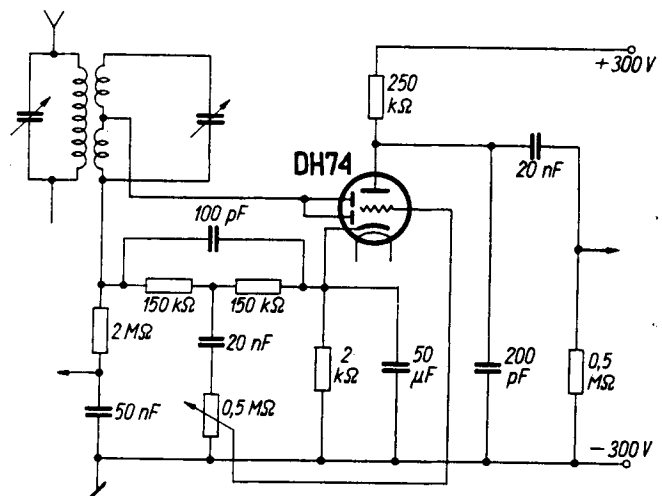
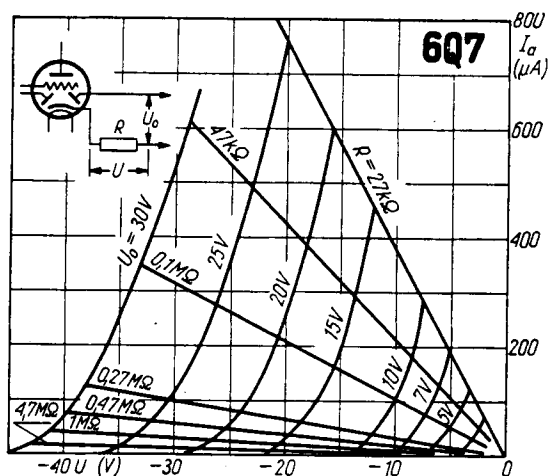
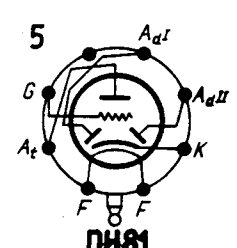
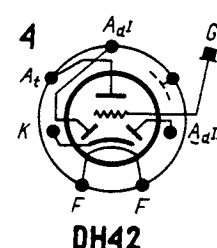
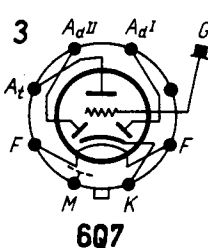
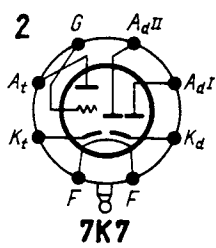
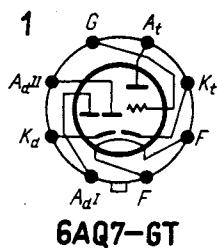
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$I_{a(diod.)}$	$U_{f/k}$	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	mA	V	W
6 AQ 7-GT 7 K 7	amer int	1 2	6,3 6,3	0,3 0,3	{ 250 250	-2	2,3	1,6 maximum	44	70	0,9	90	1
6 Q 7 11 Q 7	int amer	3 3	6,3 11	0,3 0,18									
12 Q 7	int	3	12,6	0,15	{ 100 250 300	-1,5 -3	0,35 1,1	0,8 1,2 maximum	88 58	70 70	1	90	0,5
DH 42	Eng	4	4	0,6									
DH 74	Eng	3	13	0,16									
DH 81	Eng	5	6,3	0,3									
DH 101	Eng	5	19	0,1									
6 T 7-G	amer	3	6,3	0,15	{ 100 250 250	-1,5 -3	0,3 1,2	0,68 1,05 maximum	95 62	65 65	1	90	0,5

Equivalents

DH 33	Eng	= 6 Q 7	6 Q 7-G	int	= 6 Q 7
DH 63	Eng	= 6 Q 7	6 Q 7-GM	Frc	= 6 Q 7
DH 63 M	Eng	= 6 Q 7	6 Q 7-GT	int	= 6 Q 7
DH 76	Eng	= DH 74	6 Q 7-MG	Frc	= 6 Q 7
E 1813	Marc	= DH 101	6 T 7-GT	amer	= 6 T 7-G
WT-T-124	WT	= 7 K 7	12 G 7-G	amer	= 12 Q 7-G
6 T 7	CCCP	= 6 Q 7	12 G 7-GT	amer	= 12 Q 7-G
6 P 7	CCCP	= 6 Q 7	12 Q 7-G	int	= 12 Q 7
6 P 7 B	CCCP	= 6 Q 7	12 Q 7-GT	int	= 12 Q 7
6 Q 6-G	int	= 6 T 7-G	6118	amer	= 6 Q 7

T. diod.	C_a/k	C_a/a
	pF	pF
DH 74		3,7
6 AQ 7-GT	2,2	0,5
6 Q 7-G	2,5	
6 Q 7-GT	2,8	
7 K 7	1,2	0,12

T. triode	C_g	C_a	C_g/a
	pF	pF	pF
DH 63 M	2,5	7	1,6
DH 74	1,5	5	1,5
6 AQ 7-GT	2,8	3,2	3
6 Q 7	5	3,8	1,4
6 Q 7-G	3,2	5	1,5
6 Q 7-GT	2,7	5	1,6
6 T 7-G	1,8	3,1	1,7
7 K 7	1,7	1,6	1,65



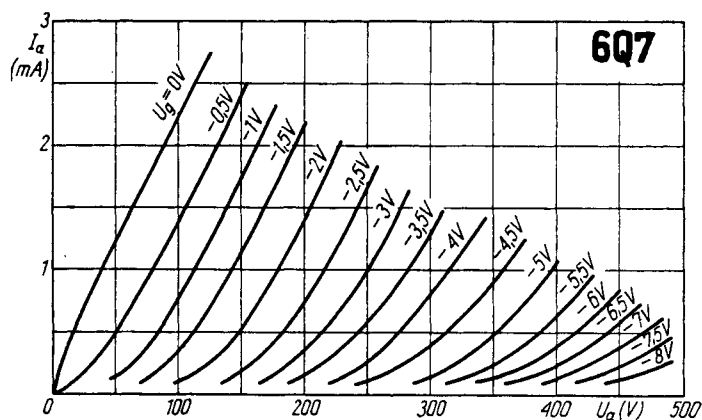
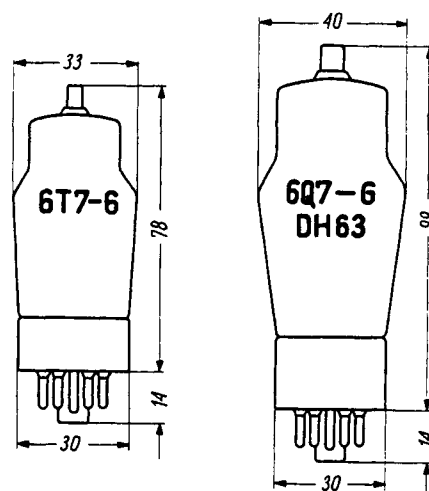
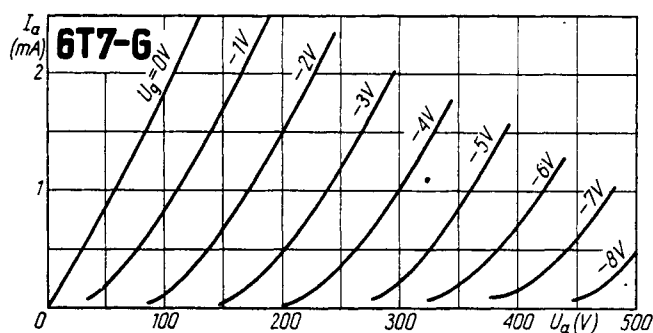
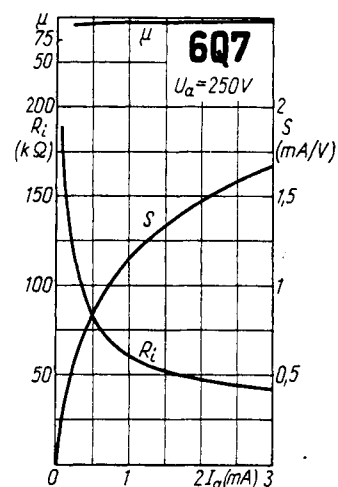
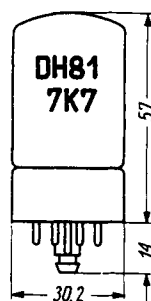
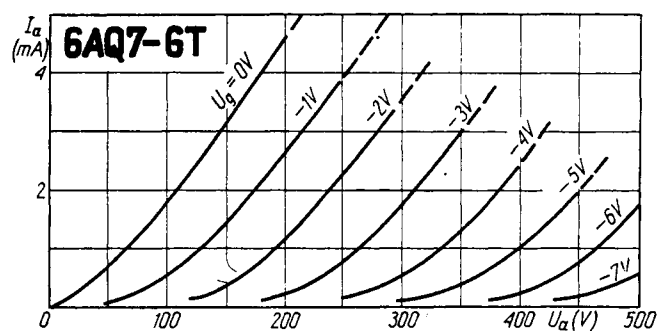
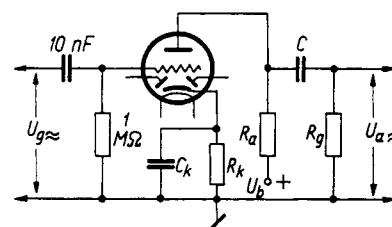
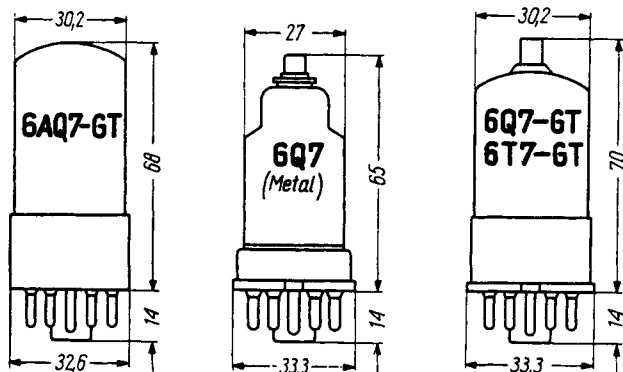


Fig. 1



6 AQ 7; 6 Q 7; 6 T 7-G. Fig. 1

U_b	R_a	R_g	R_k	C_k	C	μ	$U_{a\sim}$
V	MΩ	MΩ	kΩ	μF	nF	V/V	V
90	0,1	0,47	4,8	2	6,5	30	9,1
90	0,22	1	8,1	1,1	3,5	37	12
90	0,47	2,2	15	0,6	2	41	16
180	0,1	0,47	2,5	2,8	6,5	37	32
180	0,22	1	4,6	1,5	3,5	44	38
180	0,47	2,2	9,1	0,8	2	47	43
300	0,1	0,47	2,1	3	6,5	41	63
300	0,22	0,1	3,7	1,6	3,5	48	77
300	0,47	2,2	7,2	0,9	2	51	85



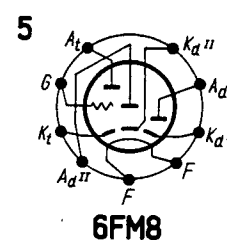
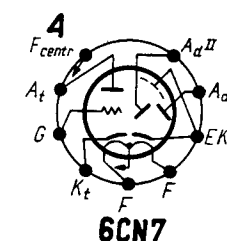
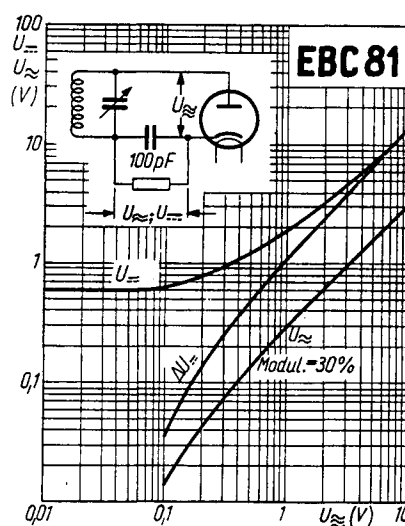
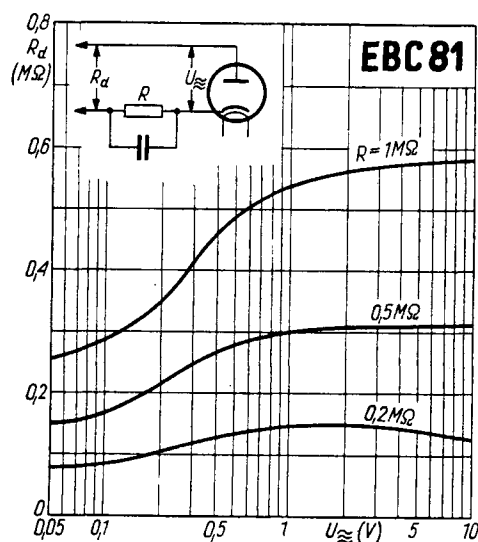
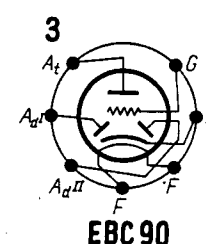
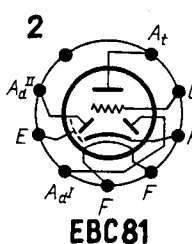
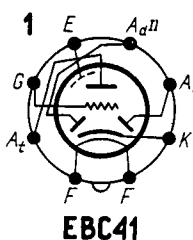
T.			U_f	I_f	U_a	U_g	I_a	S	R_t	μ	$I_a(\text{diod.})$	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	mA	V	mA	W
EBC 41	eur	1	6,3	0,23	100	—1	0,8	1,4	50	70				
EBC 81	eur	2	6,3	0,23	170	—1,6	1,5	1,65	42	70				
UBC 41	eur	1	14	0,1	250	—3	1	1,2	58	70				
UBC 81	eur	2	14	0,1	300		maximum		EBC 41/81		0,8	100	5	0,5
					250		maximum		UBC 41/81		0,8	100	5	0,5
EBC 90	eur	3	6,3	0,3										
HBC 90	eur	3	12,6	0,15	100	—1	0,8	1,3	54	70				
DH 107	Eng	3	19	0,1	250	—3	1	1,2	58	70				
6 CN 7	amer	4	3,15/6,3	0,6/0,3	300		maximum		EBC/HBC 90		1	90	5	0,5
8 CN 7	amer	4	4,2/8,4	0,45/0,225	300		maximum		6/8 CN 7		5	200	10	1
6 FM 8	amer	5	6,3	0,3										

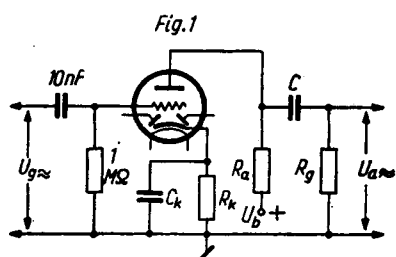
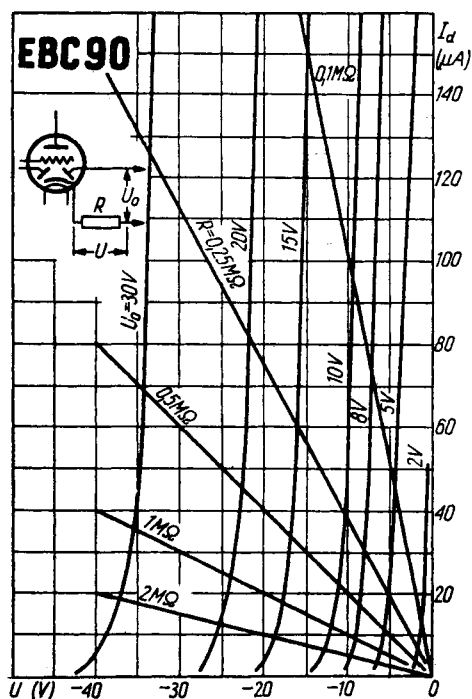
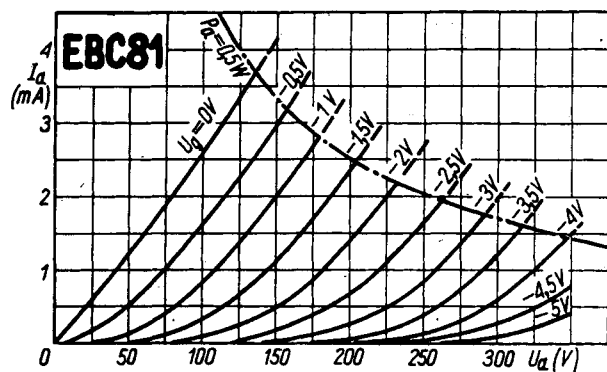
Equivalents

DH 77	Eng	= EBC 90	6 LD 3	Eds	= EBC 41
DH 118	Eng	= UBC 41	6 LD 13	Eds	= EBC 81
DH 119	Eng	= UBC 81	10 LD 3	Eds	= UBC 41
DH 142	Eng	= UBC 41	10 LD 13	Eds	= UBC 81
DH 150	Eng	= EBC 41	12 AT 6	int	= HBC 90
DH 718	Marc	= EBC 41	12 BT 6	amer	= HBC 90
E 1913	Marc	= DH 107	14 L 7	amer	= UBC 41
6 AT 6	int	= EBC 90	15 BD 7-A	amer	= UBC 81
6 BD 7	amer	= EBC 80	62 DDT	Cos	= EBC 41
6 BD 7-A	amer	= EBC 81	141 DDT	Cos	= UBC 41
6 BT 6	amer	= EBC 90	6066	Bri	= EBC 90
6 CV 7	amer	= EBC 41			

T. (diod.)		$C_{a/k}$	$C_{a/f}$	$C_{a/a}$	$C_{a/gT}$	$C_{a/aT}$	$C_{a/kI+II+f}$
		pF	pF	pF	pF	pF	pF
EBC 41	I sect.	0,8	0,1		0,007		
	II sect.	0,7	0,07	0,3	0,03	0,01	
EBC 81	I sect.	0,9	0,25		0,007	0,005	
	II sect.	0,9	0,05	0,2	0,007	0,01	
EBC 90	II sect.				0,025		
DH 77	I sect.	1,1			0,04	0,24	
	II sect.	1,5		0,4	0,05	0,17	
DH 107	I sect.				0,02		2,2
	II sect.			0,64	0,035		2,2
6 CN 7	I sect.				0,006		3,6
	II sect.				0,006		3,6

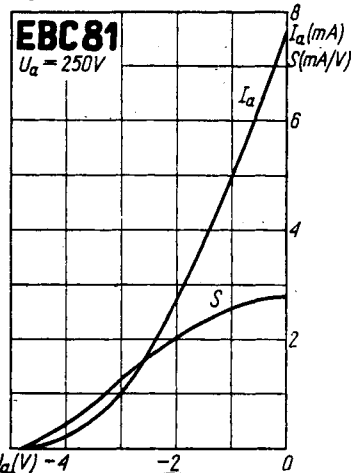
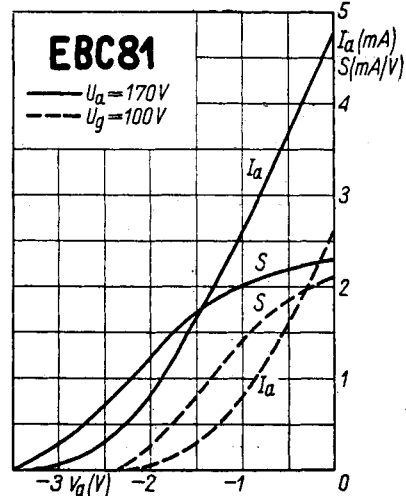
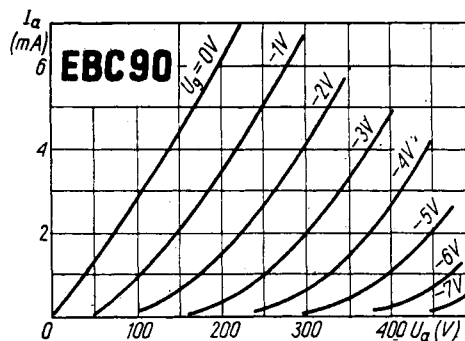
T. (triode.)	C_g	C_a	$C_{g/a}$
	pF	pF	pF
EBC 41	2,75	1,5	1,3
EBC 81	2,3	2,3	1,2
EBC 90	2,3	1,1	2,1
DH 77	2	1,1	1,9
DH 177	2,65	2	1,3
6 CN 7	1,5	0,5	1,8
6 LD 3	3	1,9	1,3
6 LD 13	2,6	2,9	1,9





EBC 90 Fig. 1 R = 1 MΩ

U_b	R_a	R_g	R_k	C_k	C	μ	$U_{a\sim}$
V	MΩ	MΩ	kΩ	μF	nF	V/V	V
90	0,1	0,47	4,8	2	6,5	30	9,1
90	0,22	1	8,1	1,1	3,5	37	12
90	0,47	2,2	15	0,6	2	41	16
180	0,1	0,47	2,5	2,8	6,5	37	32
180	0,22	1	4,6	1,5	3,5	44	38
180	0,47	2,2	9,1	0,8	2	47	43
300	0,1	0,47	2,1	3	6,5	41	63
300	0,22	0,1	3,7	1,6	3,5	48	77
300	0,47	2,2	7,2	0,9	2	51	85



EBC 81 Fig. 1 C = 10 nF; C_k = 50 μF

U_b	R_a	R_g	R	R_k	I_a	μ	$U_{a\sim}$	h
V	MΩ	MΩ	MΩ	kΩ	mA	V/V	V	%
100	0,22	0,68	1	5,6	0,18	41	3÷5	1,4÷1,9
100	0,1	0,33	1	3,9	0,28	34	3÷5	2 ÷3,5
100	0,22	0,68	22	0	0,21	41	3÷5	1,4÷2
100	0,1	0,33	22	0	0,35	35	3÷5	1,6÷2,8
170	0,22	0,68	1	5,6	0,28	44	3÷8	1,1÷1,85
170	0,1	0,33	1	3,9	0,45	37	3÷8	1,1÷2,6
170	0,22	0,68	22	0	0,46	48	3÷8	0,95÷1,3
170	0,1	0,33	22	0	0,82	42	3÷8	1÷1,2
250	0,22	0,68	1	1,8	0,7	51	5÷10	0,55÷0,9
250	0,1	0,33	1	1,2	1,15	43	5÷10	0,6÷1,1
250	0,22	0,68	22	0	0,76	52	5÷10	0,5÷0,8
250	0,1	0,33	22	0	1,4	44	5÷10	0,7÷0,9

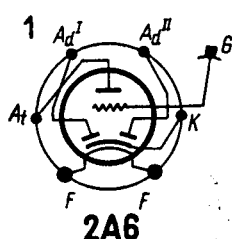
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$I_a(\text{diod.})$	U_f/k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	mA	V	W
2 A 6	amer	1	2,5	0,8	100	—1	0,4	0,9	110	100	1	90	0,5
6 B 6-G	amer	2	6,3	0,3									
6 SQ 7	int	3	6,3	0,3									
7 B 6	amer	4	6,3	0,3									
12 SQ 7	int	3	12,6	0,15									
14 B 6	amer	4	12,6	0,15	250	—2	0,9	1,1	91	100	1	90	0,5
75	amer	1	6,3	0,3	300								
6 AW 7	amer	5	6,3	0,75	100	0	1,4	1,2	66,6	80	1	90	0,5
7 C 6	int	6	6,3	0,15	100	0	1	0,85	100	85			
					250	—1	1,3	1	100	100			
					300	maximum							
7 X 7	amer	7	6,3	0,3	100	0	1,2	1	85	85	1	90	0,5
14 X 7	amer	7	12,6	0,15	250	—1	1,9	1,15	67	100			
					300	maximum							

Equivalents

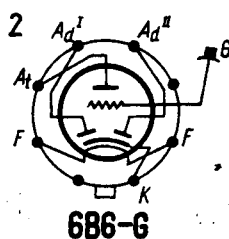
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DH 149	Marc	= 7 C 6	7 B 6-LM	Syl	= 7 B 6
HF 3105	RFT	= 6 SQ 7	12 T 2	CCCP	= 12 SQ 7
OSW 3105	RFT	= 6 SQ 7	12 P 17 E	CCCP	= 12 SQ 7
XX FM	amer	= 7 X 7	12 SQ 7-GT	int	= 12 SQ 7
2 A 6 S	amer	= 2 A 6	75 S	amer	= 75
6 T 2	CCCP	= 6 SQ 7	175	amer	= 75
6 P 17 E	CCCP	= 6 SQ 7	375	amer	= 75
6 SQ 7-GT	int	= 6 SQ 7	675	amer	= 75
			1659	amer	= 2 A 6

T.	C_g	C_a	$C_{g/a}$	$C_{dI/gT}$	$C_{dII/gT}$
	pF	pF	pF	pF	pF
6 SQ 7	3,2	3	1,6		
6 SQ 7-GT	4,2	3,4	1,8	0,01	0,04
7 B 6	3	2,4	1,6		
7 C 6	2,8	2,4	1,6	0,01	0,04

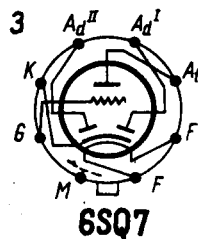
¹⁾ vide * 4, a, b. $U_f = 6,3V \pm 10\%$



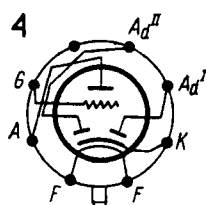
2A6



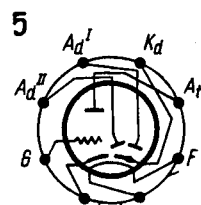
6B6-G



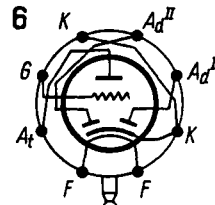
6SQ7



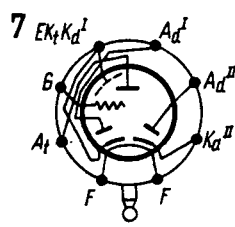
7B6



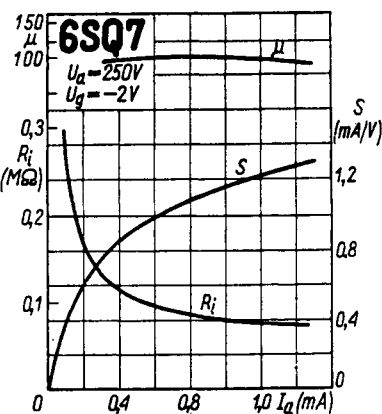
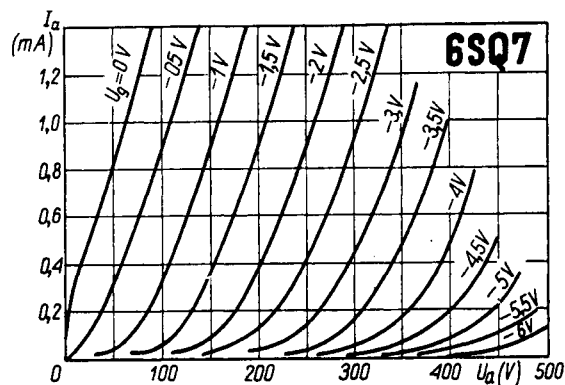
6AW7



7C6



7X7



T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$I_a(\text{diod.})$	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	mA	V	mA	W
EBC 91	eur	I	6,3	0,3	100	— 1	0,5	1,25	80	100				
HBC 91	eur	I	12,6	0,15	250	— 2	1,2	1,6	62,5	100				
3 AV 6	amer	I	3,15	0,6	300	— 50		maximum				100	5	0,5
26 BK 6	amer	I	26,5	0,07										

diod.	$C_{a/k+f}$	$C_{a/f}$	$C_{a/a}$	$C_{a/gT}$	$C_{a/aT}$
	pF	pF	pF	pF	pF
I sect.	0,7	0,06		0,06	0,65
II sect.	1	0,2	1,2	0,04	0,5

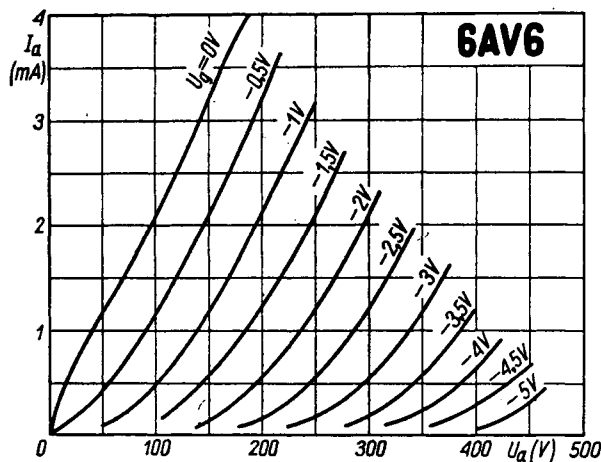
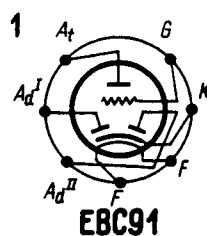
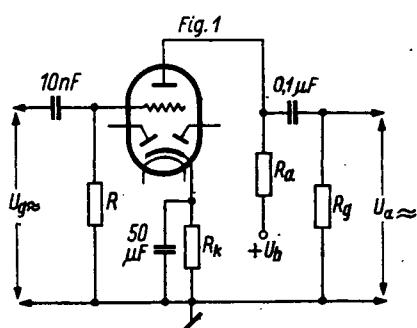
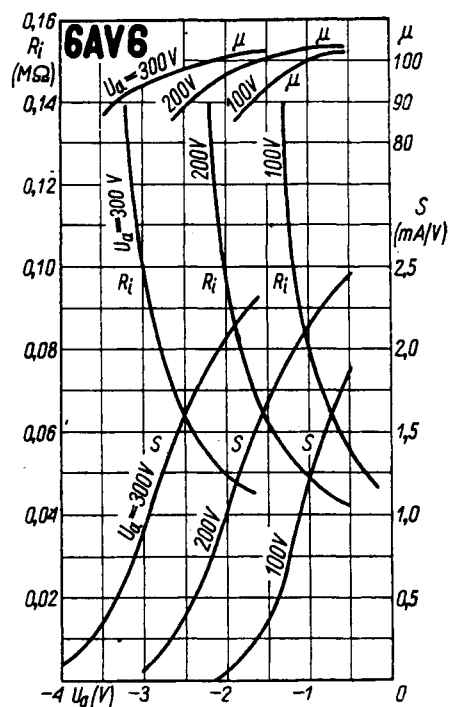
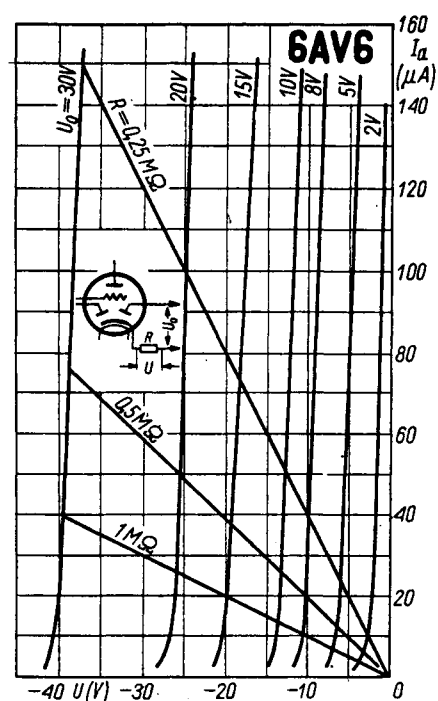
triad.	C_g	C_a	$C_{g/a}$	$C_{g/f}$
	pF	pF	pF	pF
	2,2	0,8	2	0,1

EBC 91 Fig. 1

U_b	R_a	R_k	R	R_g	I_a	$U_{a\approx}$	μ	h
V	M Ω	k Ω	M Ω	M Ω	mA	V	V/V	%
200	0,22	3,3	1	0,68	0,36	24	56	4,6
200	0,1	1,8	1	0,33	0,65	20	50	4,8
250	0,22	2,7	1	0,68	0,48	28	66,5	3,4
250	0,1	1,5	1	0,33	0,86	26	54,5	3,9
200	0,22	—	10	0,68	0,39	24	58	4,6
200	0,1	—	10	0,33	0,7	20	50	3,9
250	0,22	—	10	0,68	0,56	28	62	2,7
250	0,1	—	10	0,33	1,0	26	51	2,6

Equivalents

6 Г 2 П-К	CCCP = EBC 91
6 AV 6	amer = EBC 91
6 BC 32	Tes = EBC 91
6 BK 6	amer = EBC 91
12 AV 6	amer = HBC 91
12 BC 32	Tes = HBC 91
12 BK 6	amer = HBC 91

EBC91
26BK6

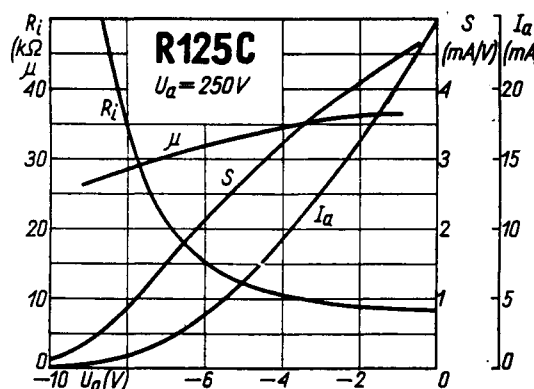
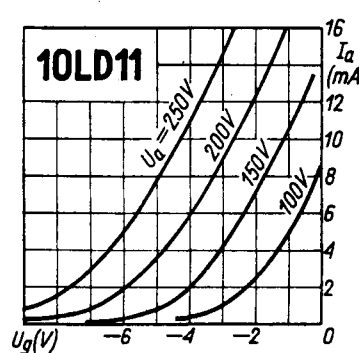
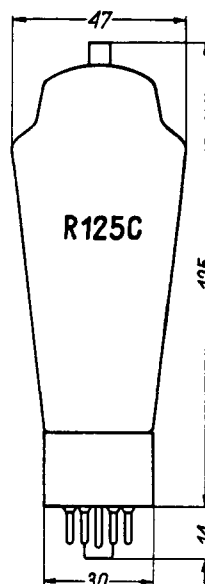
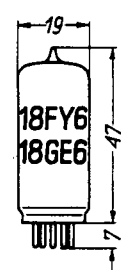
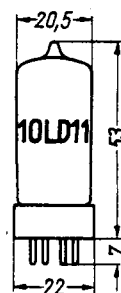
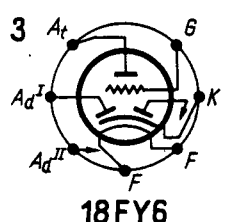
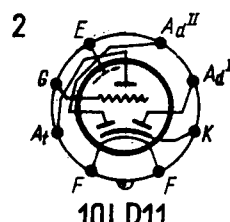
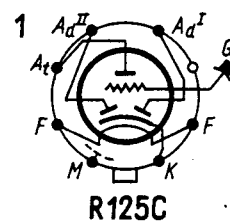
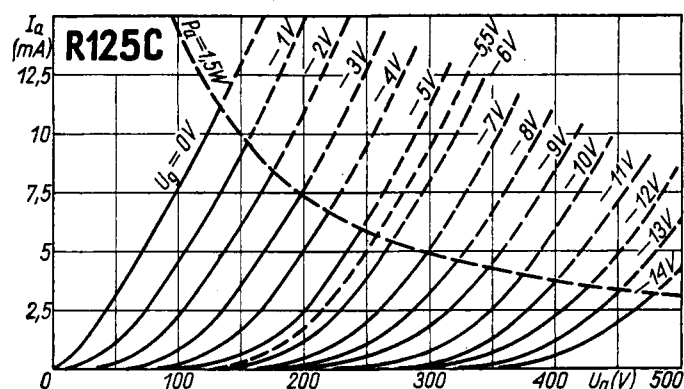
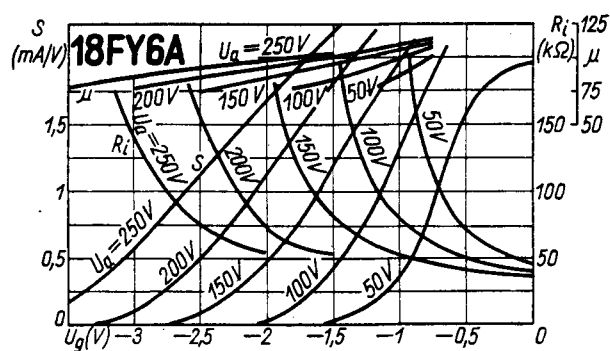
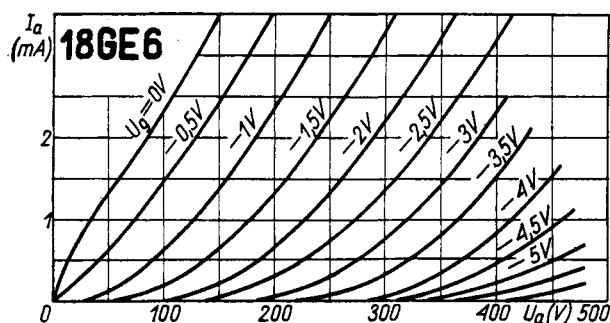
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	$I_a(\text{diod.})$	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	k Ω	mA	V	mA	W
R 125 C ¹⁾	Frc	1	18	0,4			250	2,5	13	32,5	1,1				
R 125 N ¹⁾	Frc	1	18	0,275			275	maximum				1,5	50	10	1,5
6 LD 20	Eds	2	6,3	0,25			100	0	8,2	3,4	9,3	31,5			
10 LD 11	Eds	2	15	0,1			250	maximum				0,1	165	5	1,25
18 FY 6 A	Syl	3	18	0,1			100	—1	0,6	1,3	77	100			0,5
18 GE 6 A	Syl	3	18	0,1			150	maximum				1	100		0,5
							100	—1	1	1,7	40	70			0,5
							150	maximum				1	100		0,5

¹⁾ vide * 4, c = 10.000

T.	C_g	C_a	$C_{g/a}$	$C_{d^1/a^{II}}$	$C_{d^{II}/a}$
	pF	pF	pF	pF	pF
R 125 C	8	12	2	1	
10 LD 11	3,6	3,7	1,5	0,45	0,0019
18 FY 6 A	2,4	0,22	1,8		0,2
18 GE 6 A	2,4	0,2	1,8		0,2

Equivalents

DL 145 Marc = 10 LD 11
 PTT 101 B¹⁾ Frc = R 125 N
 18 FY 6 Syl = 18 FY 6 A
 18 GE 6 Syl = 18 GE 6 A



T.			U_f	I_f	U_a	U_g	I_a	S	R_t	μ	$U_{f/k}$	P_a					
			V	A	V	V	mA	mA/V	k Ω	V/V	V	W					
EABC 80	eur	I	6,3	0,45	100	—I	0,8	1,4	50	70	150	1					
HABC 80	eur	I	19	0,15													
PABC 80	eur	I	9,5	0,3													
UABC 80	eur	I	28,5	0,1													
5 T 8 ¹⁾	amer	I	4,7	0,6													
6 V 8	amer	2	6,3	0,45	250	—3	1	1,2	58	70							
19 V 8	amer	2	18,9	0,15	300	maximum											
6 R 8	amer	I	6,3	0,45	250	—9	9,5	1,9	8,5	16							
					250								maximum				
6 S 8-GT	amer	3	6,3	0,3	50								0	0,07	0,3	285	85
12 S 8-GT	amer	3	12,6	0,15	100								—I	0,4	0,9	110	100
					250								—2	0,9	1,1	91	100
					300	maximum					90	0,5					
19 C 8	amer	I	18,9	0,15	100	—I	0,5	1,25	80	100							

¹⁾ vide diod.

Equivalents

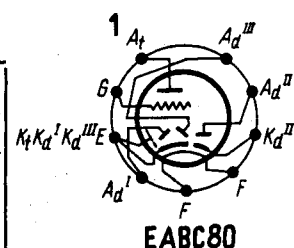
DH 109	Eng	=	UABC 80
DH 719	Eng	=	EABC 80
6 AK 8	amer	=	EABC 80
6 T 3 II	CCCP	=	EABC 80
6 LD 12	Eds	=	EABC 80
6 T 8 ¹⁾	amer	=	EABC 80
6 T 8-A ¹⁾	amer	=	EABC 80
9 ABC 40	Tes	=	PABC 80
9 AK 8	amer	=	PABC 80
9 T 8	Fiv	=	PABC 80
10 LD 12	Eds	=	UABC 80
19 AK 8	amer	=	HABC 80
19 T 8 ¹⁾	amer	=	HABC 80
28 AK 8	amer	=	UABC 80

¹⁾ vide diod.

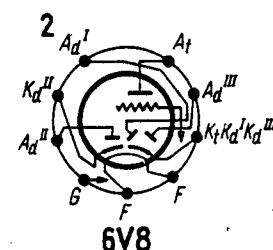
T.	diod.	stat.			peak		$I_{a...}$
		U_a	$I_a =$	R_t	U_a	I_a	
		V	mA	Ω	V	mA	mA
EABC 80	I	10	2	5000	350	6	I
	II = III	5	25	200	350	75	10
6 T 8	I = II = III	5	20	200			5
6 V 8	I	10	2	5000			
	II = III	5	40	100			
6 S 8-GT		10	2,5				I

T.	C_g	C_a	$C_{g/a}$
triode.	pF	pF	pF
EABC 80	1,9	1,4	2,3
6 T 3 II	2	1,25	2,3
6 R 8	1,5	1,1	2,4
6 S 8-GT	2	3,8	1,2
6 T 8	1,6	1,1	1,8

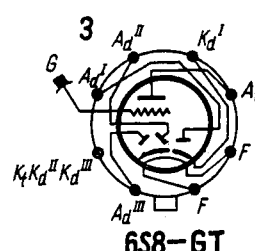
T.	diod.	C_a	$C_{a/f}$	C_k	$C_{k/f}$	$C_{a/aT}$	$C_{k/aT}$	$C_{a/gT}$	$C_{k/gT}$
		pF	pF	pF	pF	pF	pF	pF	pF
EABC 80	I sect.	0,8	0,25	4,9	2,5	0,12	0,01	0,07	0,005
	II sect.	4,8	0,2			0,1		0,02	
	III sect.	4,8							
6 Г 3 П	I sect.	1	5,4	2,8	0,1	0,01	0,05	0,005	
	II sect.	4,9					0,1		0,02
	III sect.	4,5							
6 Т 8	I sect.	3,8	3,8				0,035	0,035	
	II sect.	4,5					0,035		
	III sect.	3,8					0,035		



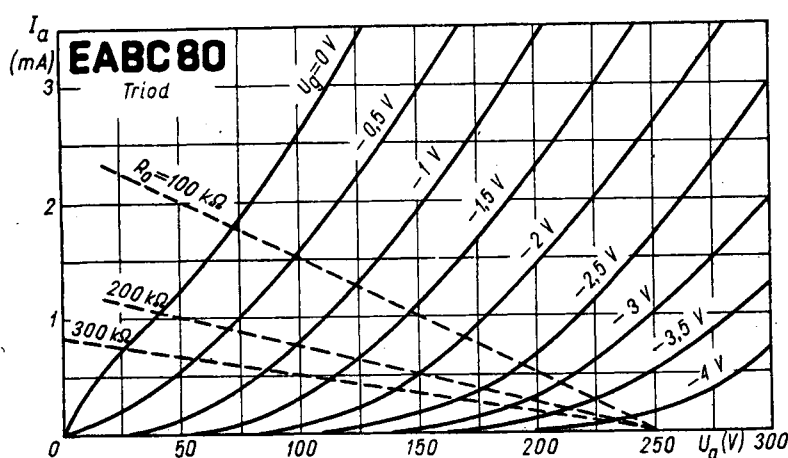
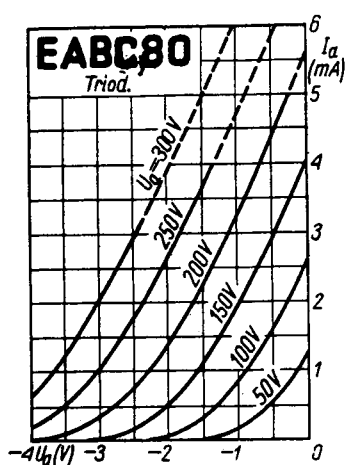
EABC80



6V8



6S8-GT



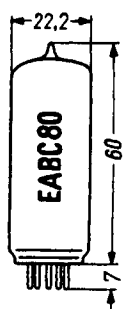
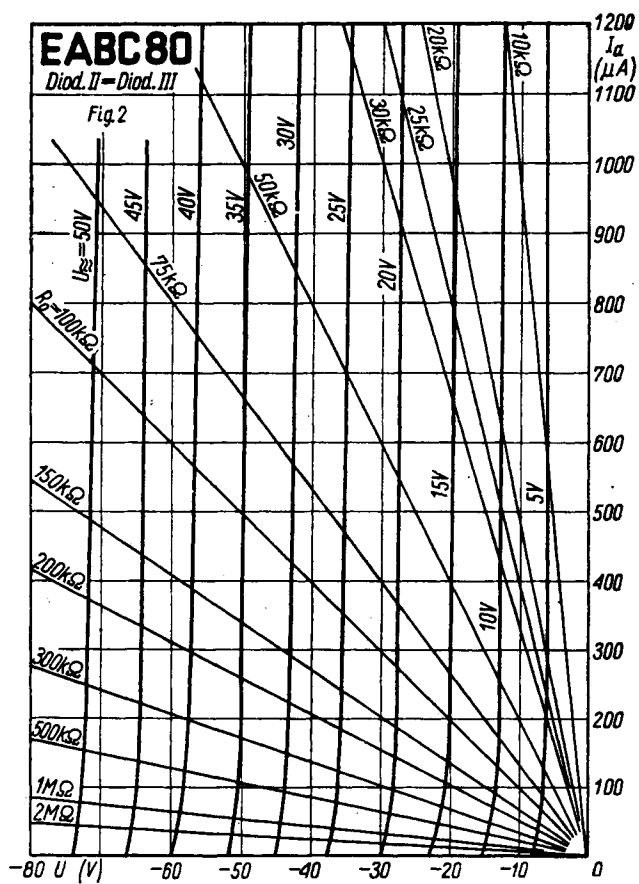
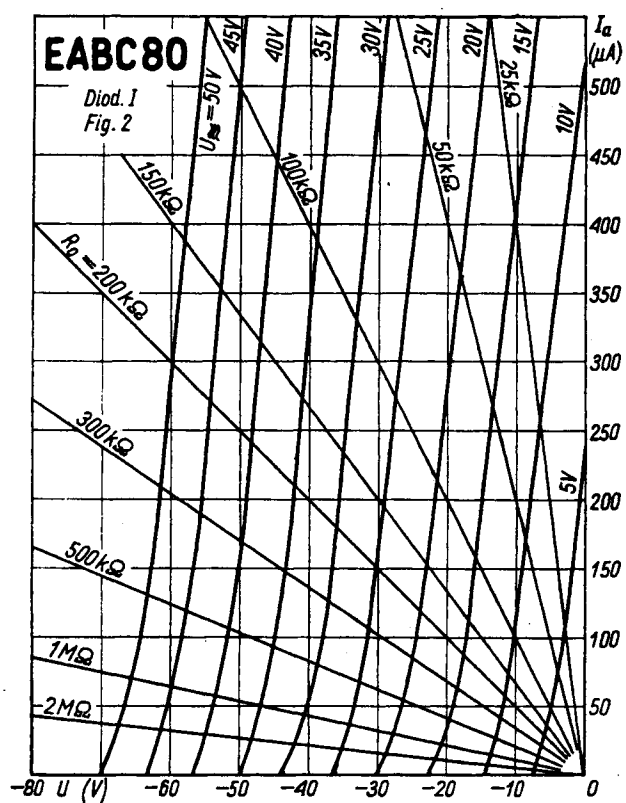
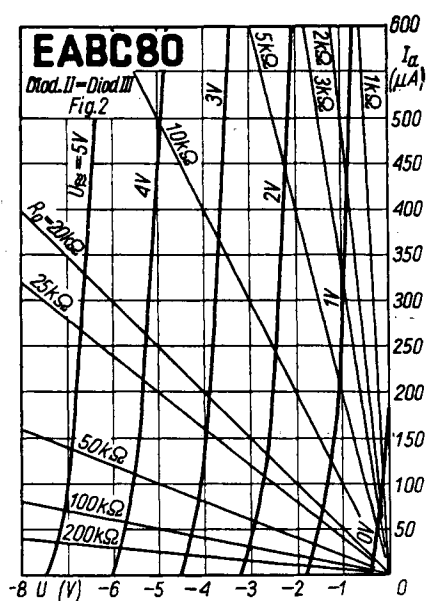
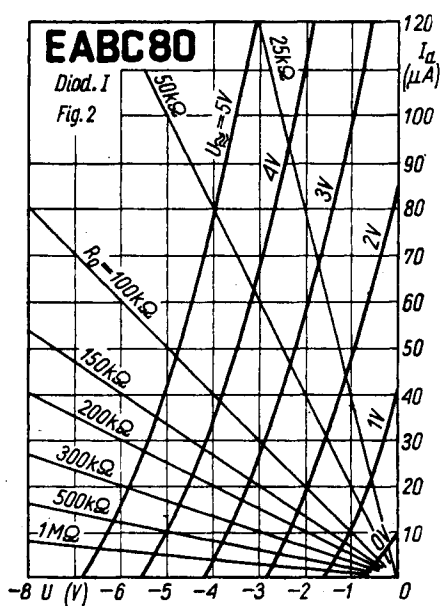
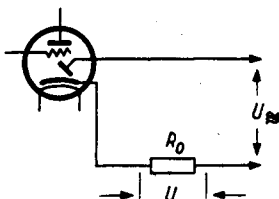


Fig. 2

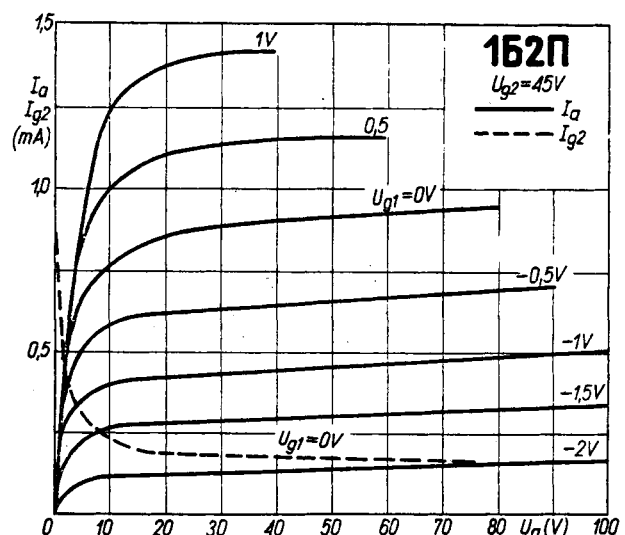
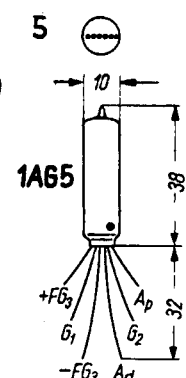
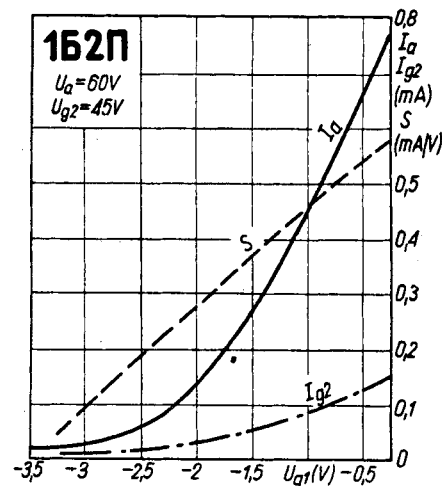
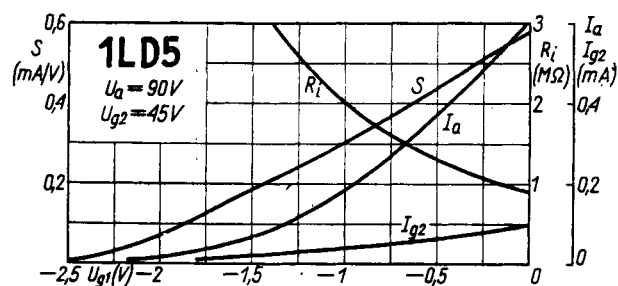
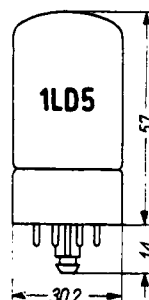
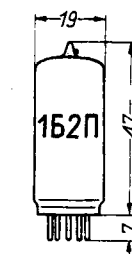
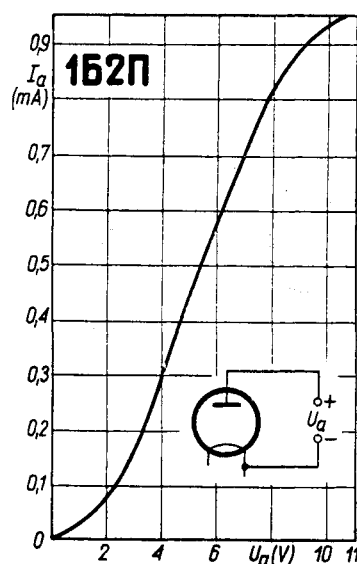
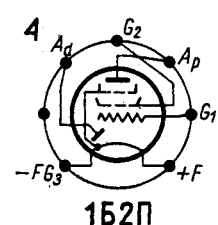
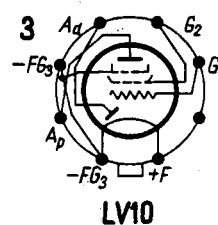
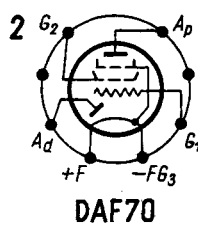
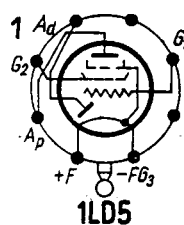


T.			U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	$I_a(\text{diod.})$ mA	I_k mA	P_a W
DAF 26	Tu	I	1,4	50	67,5	67,5	0	1,6	0,4	0,62	0,6			
DAF 70	Mul	2	1,25	25	67,5	0	0	1	0,25	0,44	0,4			
LV 10	Tif	3	1,2	100	45	45	-2,5	3	0,6	1,5	0,8	0,2		0,6
1 AG 5	amer	5	1,25	30	45	45	0	0,8	0,25	0,35	0,2			
1 AJ 5	amer	5	1,25	40	45	45	0	1	0,3	0,42	0,3			
1 Б 2 П	CCCP	4	1,2	30	60 90	45 75	0	0,9	0,18	0,55	1	0,1	2	0,15
1 LD 5	int	1	1,4	50	45 90 110	45 45 50	0 0	0,55 0,6	0,12 0,1	0,55 0,57	0,9 0,75	0,5		
2 E 41	amer	5	1,25	30	22,5	22,5	0	0,35	0,12	0,37	0,25			
551 AXA	Ray	5	1,25	30	22,5	22,5	0	0,17	0,04	0,24	0,7			

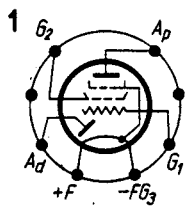
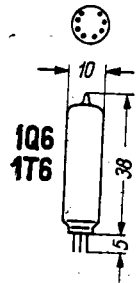
Equivalents

CK 551 AXA	Ray = 551 AXA
2 E 42	amer = 2 E 41

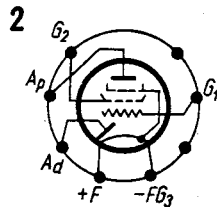
T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
DAF 70	2	4,3	0,15
1 AG 5	1,7	2,4	0,1
1 Б 2 П	1,85	2,1	0,27
1 LD 5	3,2	6	0,18
2 E 41	2,7	4,3	0,1



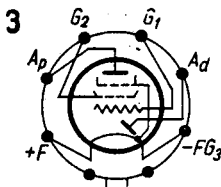
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	I_k
			V	mA	V	V	V	mA	mA	mA/V	MΩ	mA
1N 6-G	amer	3	1,4	50	90	90	-4,5	3,1	0,6	0,8	0,3	
1SB 6-GT	amer	4	1,4	50	45	45	0	0,6	0,16	0,5	0,9	
					90	67,5	0	1,45	0,38	0,665	0,7	
1Q 6	amer	2	1,25	40	30	30	0	0,33	0,1	0,33	0,5	
1S 6	Syl	1	1,25	40	45	45	0	0,75	0,21	0,475	0,5	
1T 6	amer	1	1,25	40	67,5	67,5	0	1,6	0,4	0,6	0,4	
maximum ($I_a(\text{diod}) = 0,25 \text{ mA}$)												2



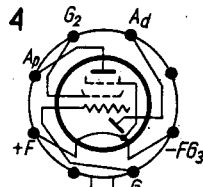
1T6



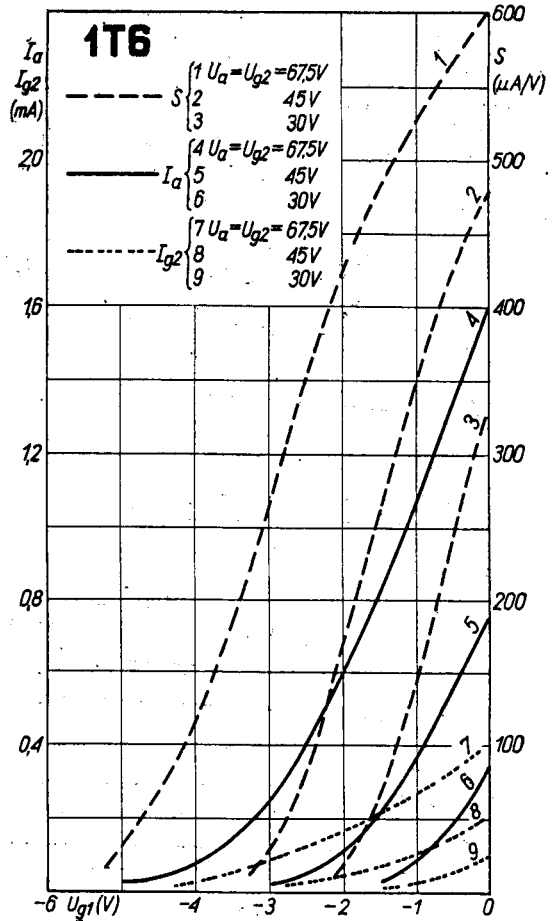
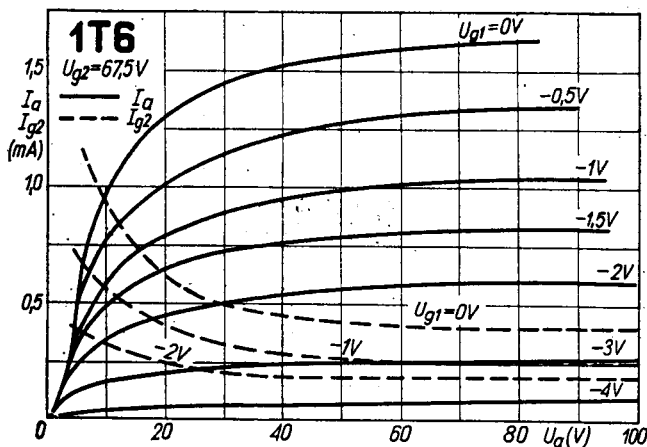
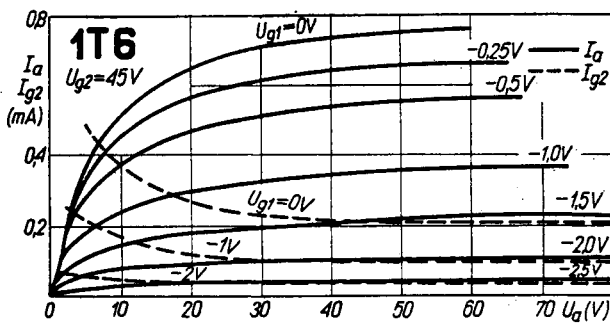
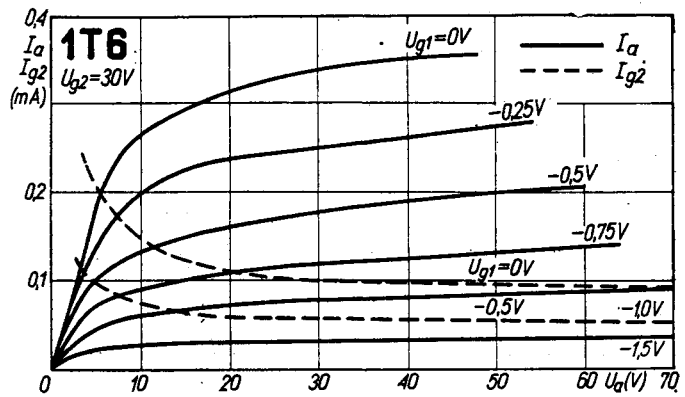
1Q6



1N6-6



1SB6-6T

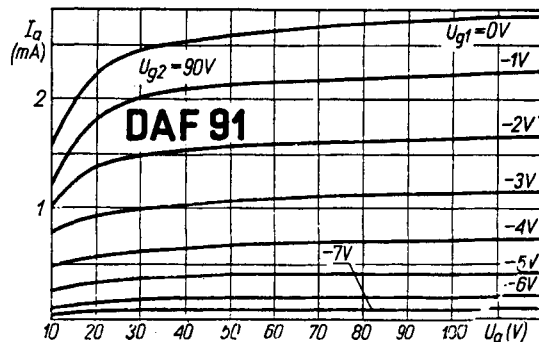
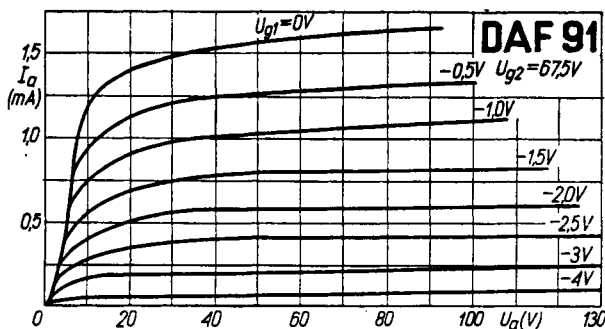
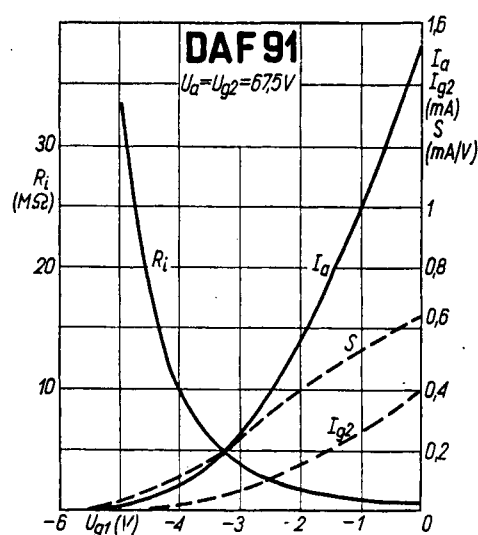
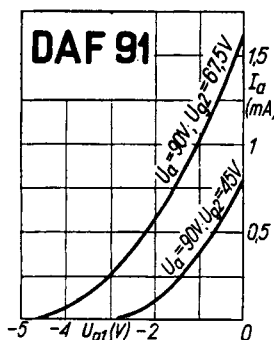
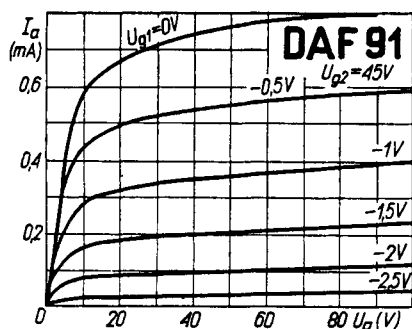
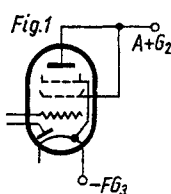
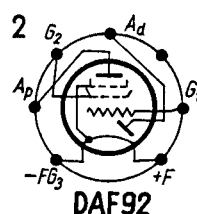
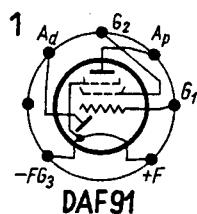
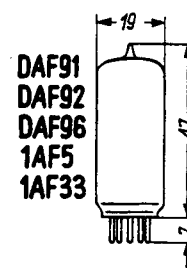


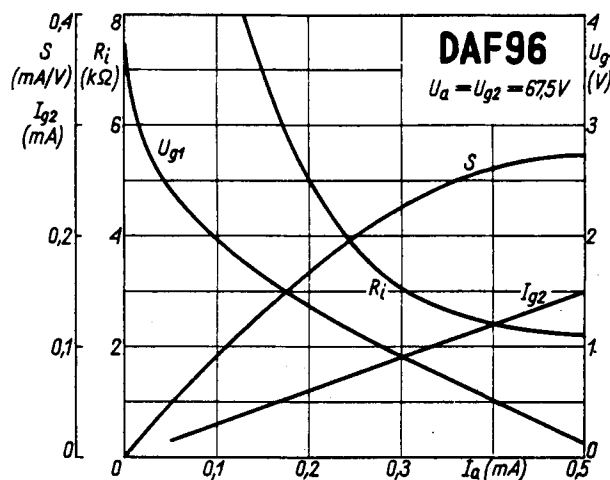
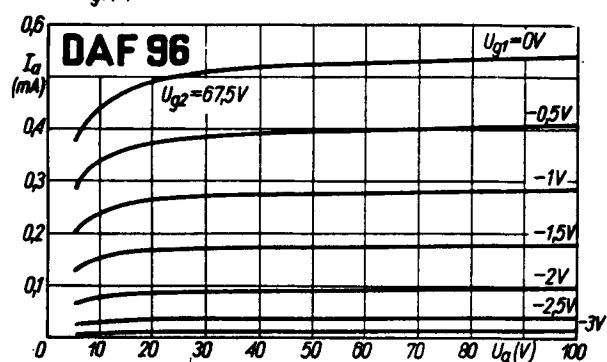
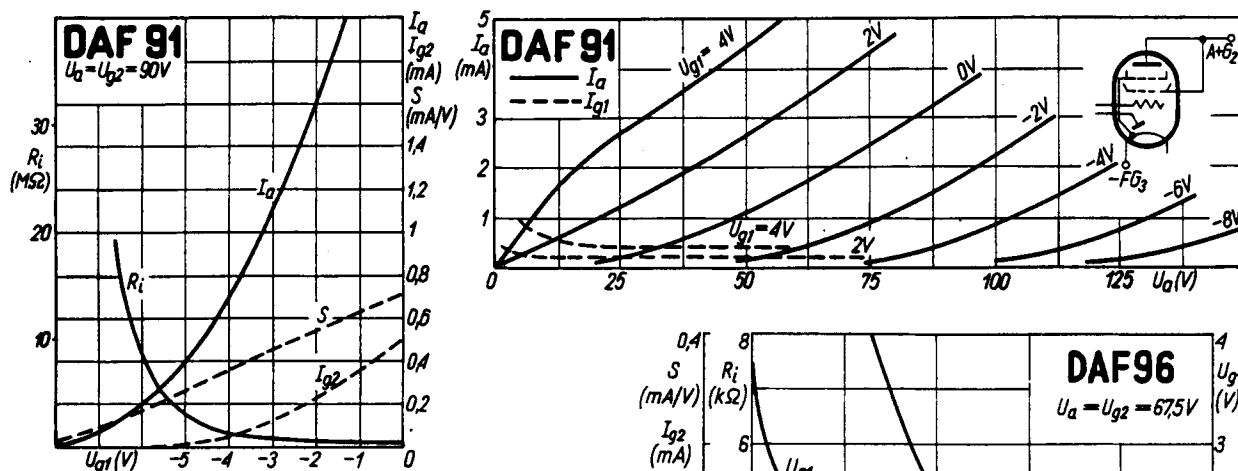
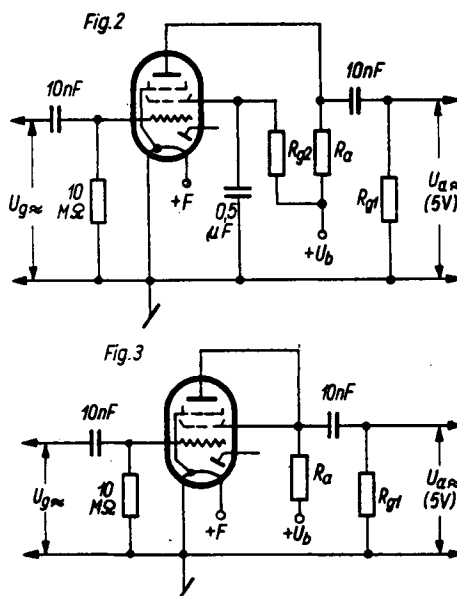
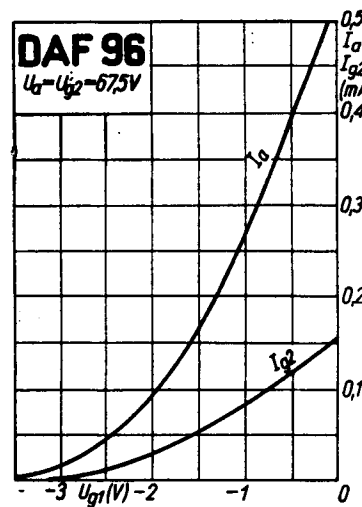
T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	$I_a(\text{diode})$	I_k	P_{g2}	P_a
			V	mA	V	V	V	mA	mA	mA/V	MΩ	mA	mA	W	W
DAF 91	eur	I	1,4	50	45	45	0	0,75	0,15	0,42	0,6				
DAF 92	eur	2	1,4	50	67,5	67,5	0	1,6	0,4	0,625	0,6				
1 AF 33	Tes	I	1,4	25	90	90	0	2,7	0,6	0,72	0,5				
1 AF 34	Tes	I	1,2	60	90	90		maximum				0,2	4,5	0,06	0,25
1 S 5 T	TuM	I	1,4	25	67,5		0	2		0,8	0,0175	Fig. 1; $\mu = 14$)			
DAF 96	eur	I	1,4	25	67,5	67,5	0	0,53	0,16	0,25	2				
					120	90		maximum				0,2	0,25	0,01	0,03
DAF 191	RFT	I	1,4	50	67,5	67,5	0	2,2	0,8	0,7	0,6				
DAF 961	RFT	I	1,2	60	90	90		maximum				0,2	2,5	0,05	0,15
1 AF 5	amer	I	1,4	25	67,5	67,5	0	0,7	0,25	0,5	2,3				
					90	90	0	1,1	0,4	0,6	2				
					110	110		maximum				0,7			

Equivalents

ZD 17	Eng = DAF 91
ZD 25	Eng = DAF 96
1 AH 5	amer = DAF 96
1 S 1 II	CCCP = 1 AF 34
1 FD 1	Eds = DAF 96
1 FD 9	Eds = DAF 91
1 S 5	amer = DAF 91
1 U 5	amer = DAF 92

T.	C_{g1}	C_a	$C_{g1/a}$	$C_a D_{1/f}$	$C_a D_{g1}$	$C_a D_{1aP}$
	pF	pF	pF	pF	pF	pF
DAF 91	2	2,8	0,4	1,5	0,1	0,9
DAF 92	1,8	2,7	0,3	1,1	0,03	0,9
1 AF 5	2,5	4,8	0,17			
1 AF 33	2,4	4,6	0,3	1,5		



DAF 91 Fig. 2 ($R_{g1} = 2 M\Omega$)DAF 91 Fig. 3 ($R_{g1} = 1 M\Omega$)

U_b	R_a	I_a	μ	h
V	MΩ	μA	V/V	%
45	0,22	85	9,5	2,5
45	0,47	45	10	3
67,5	0,22	170	10,5	0,9
67,5	0,47	85	11	1
90	0,22	270	11	0,6
90	0,47	140	11,5	0,7
120	0,22	380	11,5	1
120	0,47	200	12	0,5

DAF 96 Fig. 2 ($R_a = 1 M\Omega$; $R_{g2} = 2,7 M\Omega$)

U_b	R_{g1}	I_a	I_{g2}	μ	h
V	MΩ	μA	μA	V/V	%
64	1	42	13	50	3,5
64	2,2	42	13	63	1,8
85	1	64	21	55	1,4
85	2,2	64	21	70	2,4

U_b	R_a	R_{g2}	$I_a + I_{g2}$	μ	h
V	MΩ	MΩ	μA	V/V	%
45	0,47	1,8	70	38	4
45	0,47	2,2	60	37	5
45	1	3,9	40	42	5
45	1	4,7	30	40	8
67,5	0,47	1,8	125	50	1
67,5	0,47	2,2	115	50	1
67,5	1	3,9	60	55	3
67,5	1	4,7	55	55	2,5
90	0,47	1,8	170	56	1
90	0,47	2,2	160	57	1
90	1	3,9	85	60	2
90	1	4,7	80	64	1,7
120	0,47	1,8	260	60	3
120	0,47	2,2	240	66	1
120	1	3,9	115	66	1,8
120	1	4,7	110	70	1,5

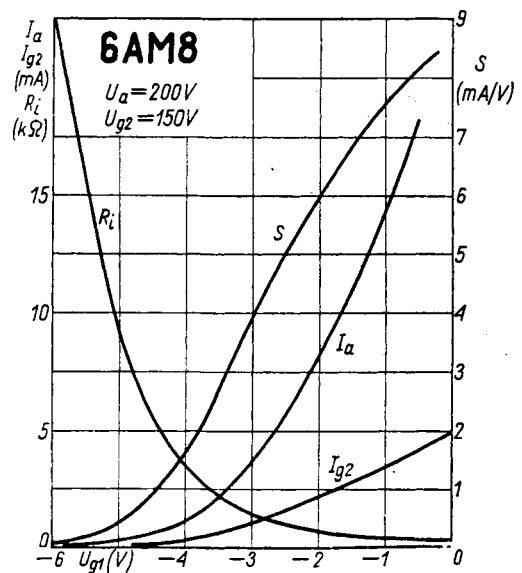
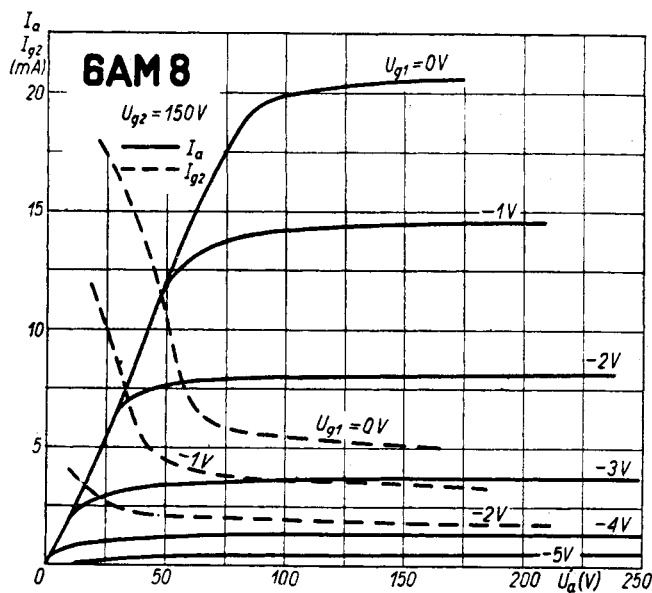
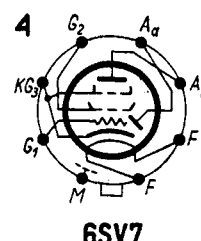
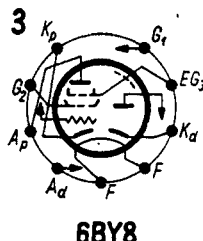
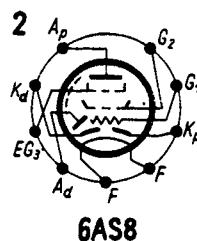
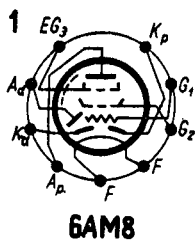
DAF 96 Fig. 3

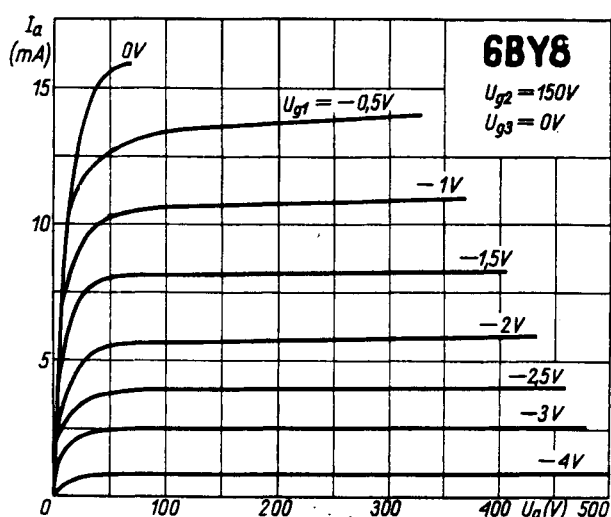
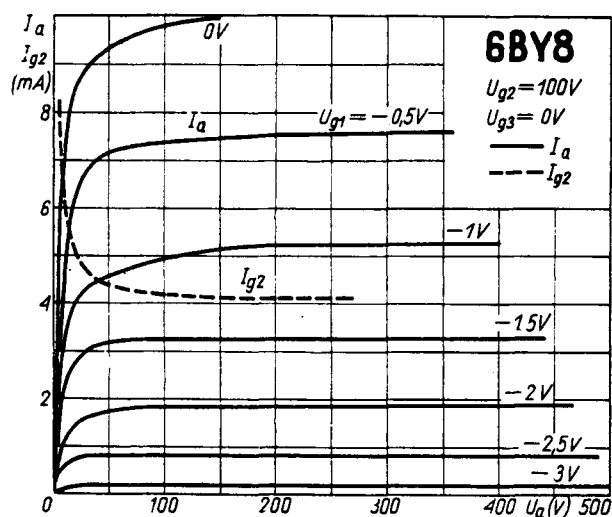
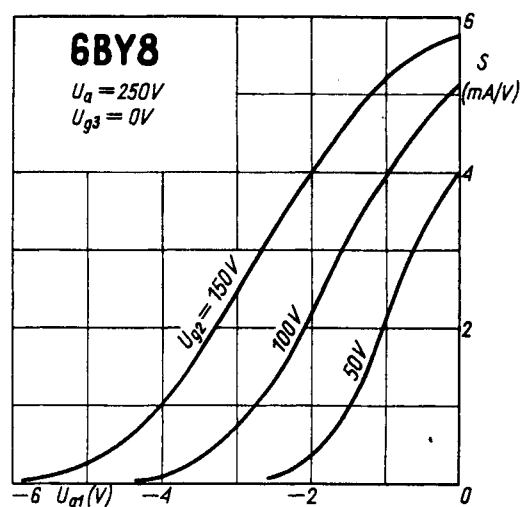
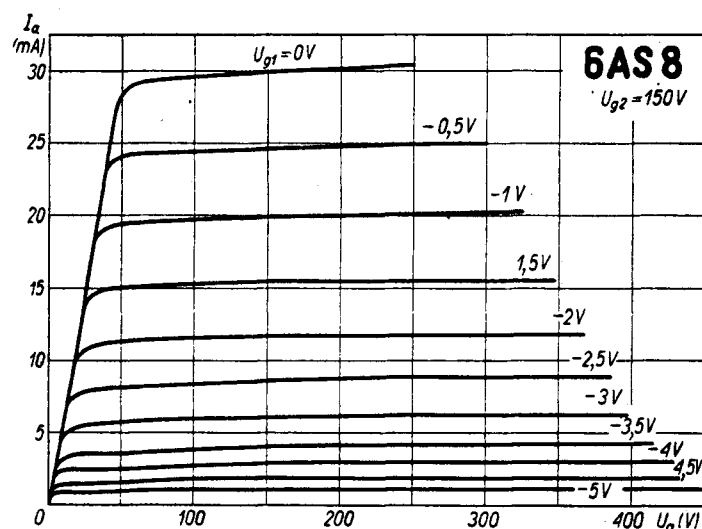
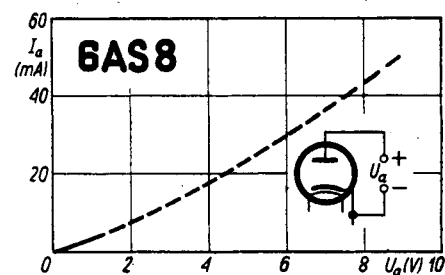
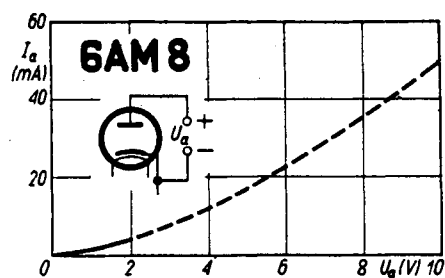
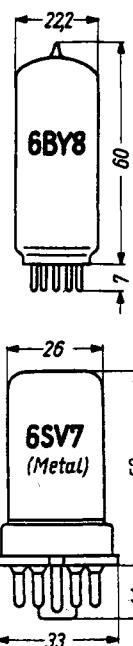
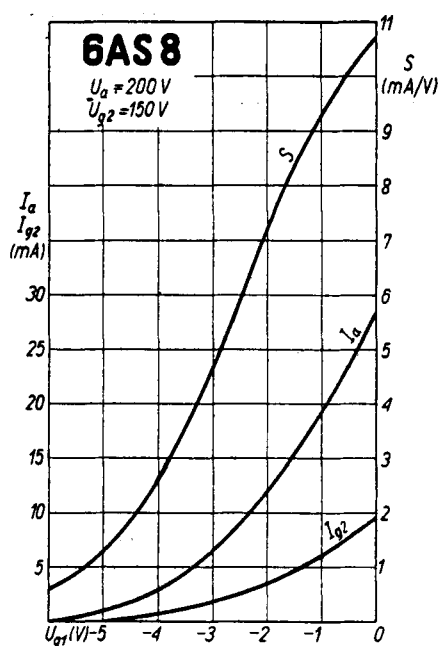
U_b	R_a	R_{g1}	I_a	μ	h
V	MΩ	MΩ	μA	V/V	%
64	0,47	1	70	12	2
64	0,47	2,2	70	12,5	1,3
64	1	1	38	12	2,5
64	1	2,2	38	13	1,5
85	0,47	1	110	12,5	1
85	0,47	2,2	110	13	1
85	1	1	56	12,5	1,2
85	1	2,2	56	13,5	1,2

T.			U_f V	I_f A	U_a V	U_{g2} V	U_{g3} V	I_a mA	I_{g2} mA	S mA/V	R_i M Ω	R_k Ω	U_{f+k-} V	U_{f-k+} V	P_{g2} W	P_a W
5 AM 8	amer	1	4,7	0,6	125	125	0	12,5	3,2	7,8	0,3	56				
6 AM 8	amer	1	6,3	0,45	200	150	0	11,5	2,7	7	0,6	120				
6 AM 8-A	amer	1	6,3	0,45	300	200			maximum				100	200	0,55	3,2
5 AS 8	amer	2	4,7	0,6	200	150	0	9,5	3	6,2	0,3	180				
6 AS 8	amer	2	6,3	0,45	300	200			maximum				100	200	0,5	2,5
6 BY 8	amer	3	6,3	0,6	100	100	0	5	2,1	3,9	0,5	150				
					250	125	0	7,6	3	4,5	1,5	100				
					250	150	0	10,6	4,3	5,2	1	68				
					300	200			maximum				100	200	0,65	3
6 SV 7	amer	4	6,3	0,3	100	100	0	3,7	1,4	2,6	0,7					
					250	150	0	7,5	2,8	3,6	1,5					

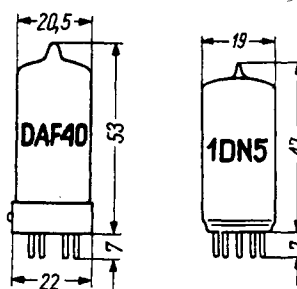
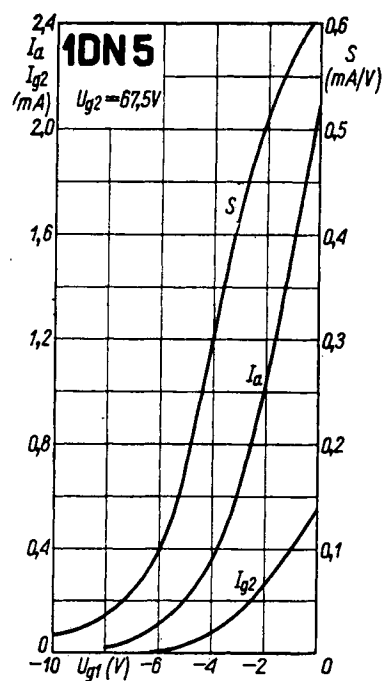
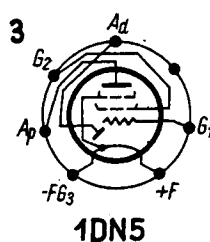
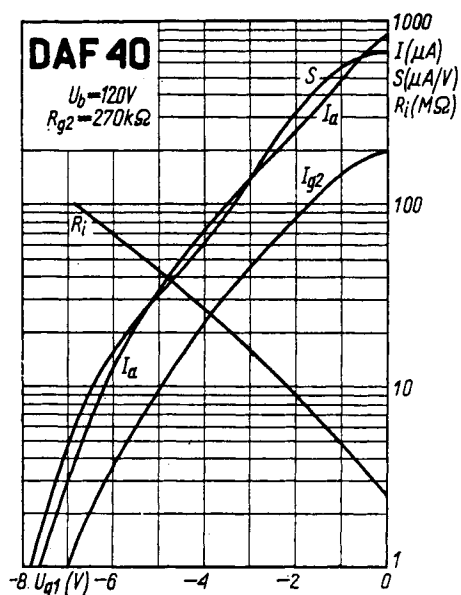
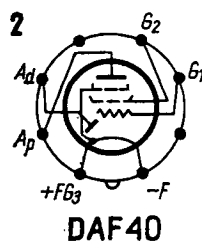
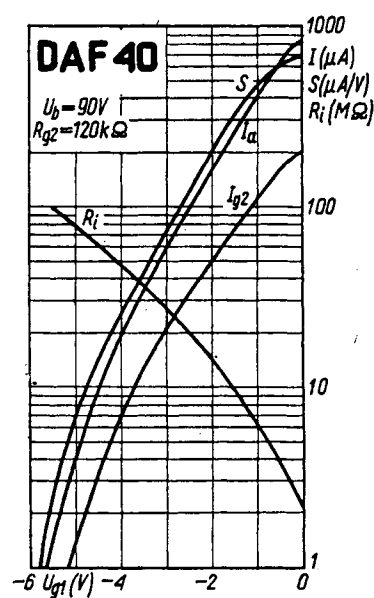
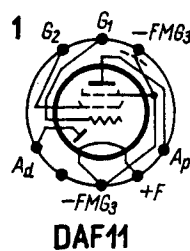
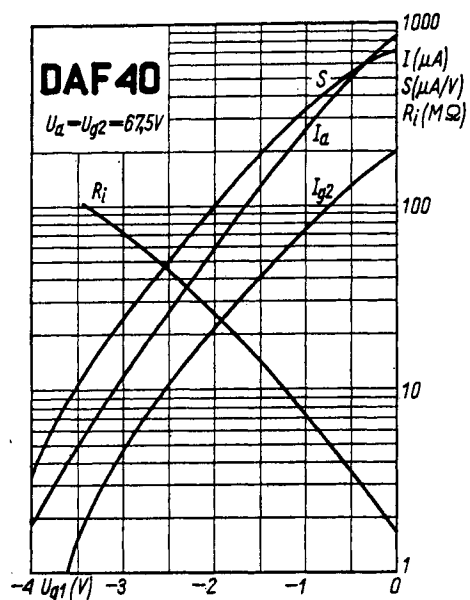
T. diod.	$I_a(max)$ mA	$I_a(peak)$ mA	$U_a(peak)$ V
6 AM 8	5		
6 AS 8	5	50	330
6 BY 8	45	180	530
6 SV 7	10		

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{aD/k}$ pF	$C_{g1/aD}$ pF	$C_{aP/kD}$ pF	$C_{aP/aD}$ pF	vide
6 AM 8	6	2,6	0,015	1,7	0,006	0,15	0,1	* 5
	6	3,4	0,015	2,3	0,005	0,15	0,035	* 6
6 AS 8	7	2,2	0,04	3	0,005	0,15	0,1	* 5
6 BY 8	5,5	5	0,0035	4,8				
6 SV 7	6,5	6	0,004					





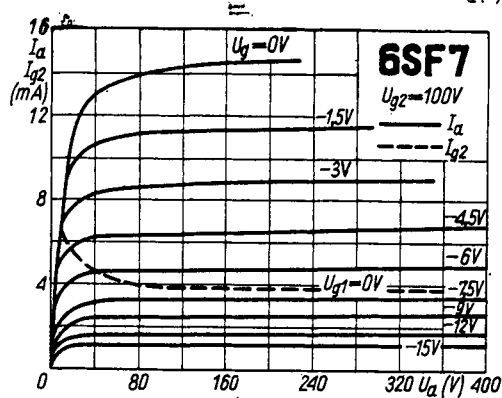
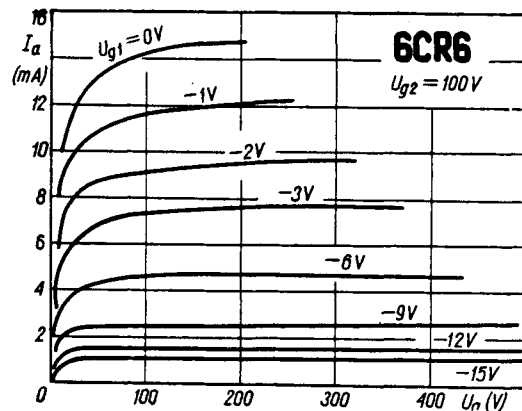
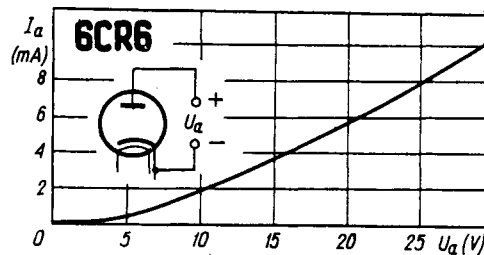
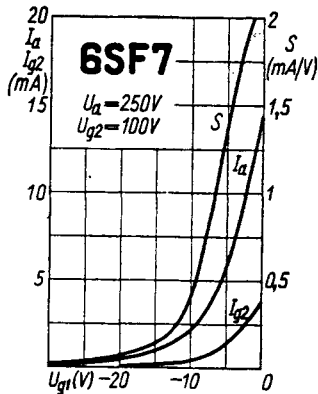
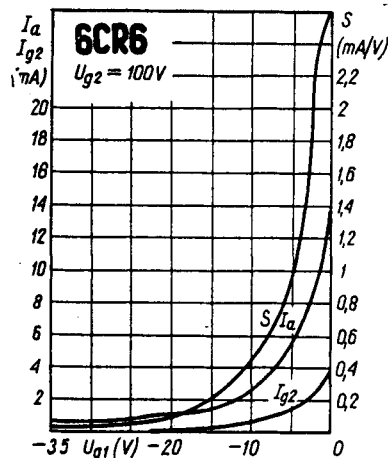
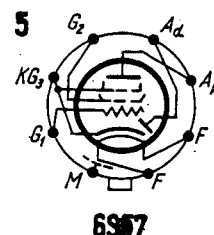
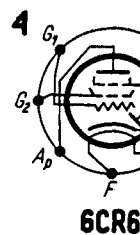
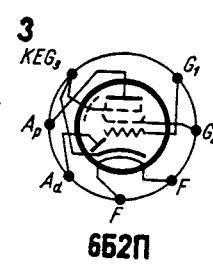
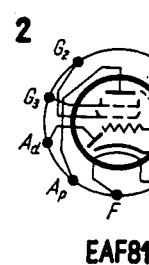
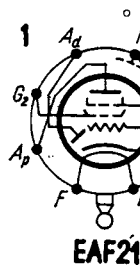
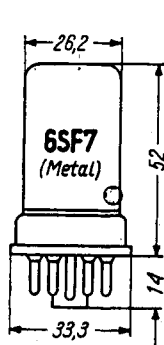
T.			U_f	I_f		$U_a = U_b$	R_{g2}	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	I_k	P_{g2}	P_a
			V	mA		V	MΩ	V	V	mA	mA	μA/V	MΩ	mA	W	W
DAF 11	TiF	1	1,2	50	pent.	90		60	0	1,4	0,2	600	0,9	4	0,2	0,6
DAF 40	Phi	2	1,4	25	pent.	67,5	0	67,5	0 ÷ -3,7	0,85	0,2	700 ÷ 7	1,7			
						90	0,12	67,5	0 ÷ -5	0,85	0,2	700 ÷ 7	2,2			
						120	0,27	67,5	0 ÷ -6,8	0,85	0,2	700 ÷ 7	2,6			
DAF 41	Phi	2	1,4	25	diod.	135		85		maximum				1,2	0,02	0,2
1 DN 5	RCA	3	1,4	50	pent.	67,5		67,5	0 ÷ -11,5	2,1	0,55	630 ÷ 10	0,6			
						90		90	-50			maximum				
						67,5				0,25		maximum				

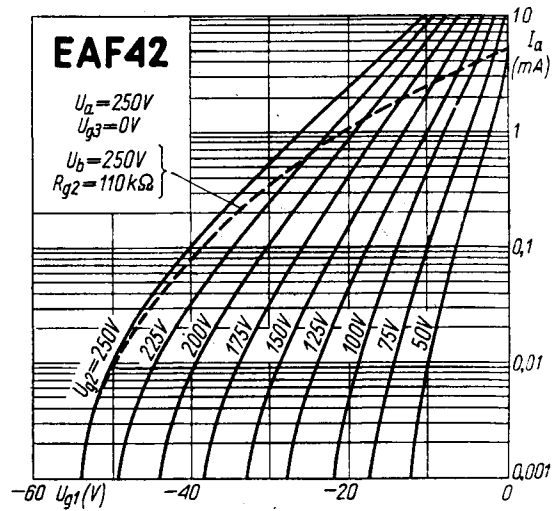
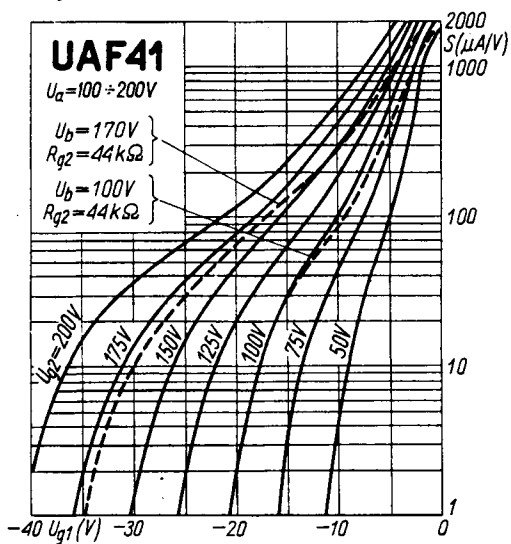
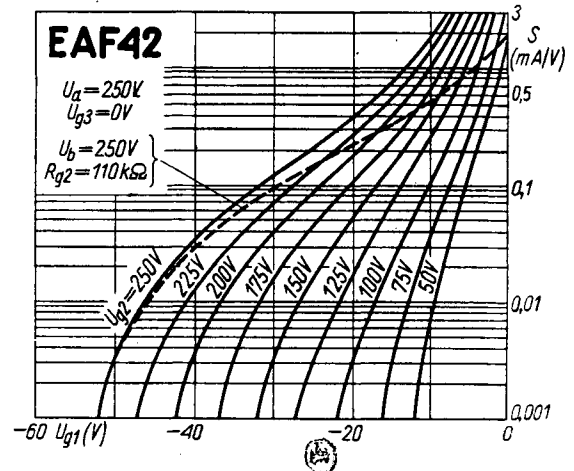
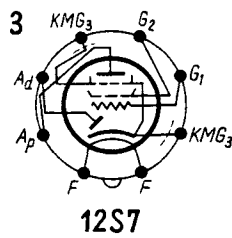
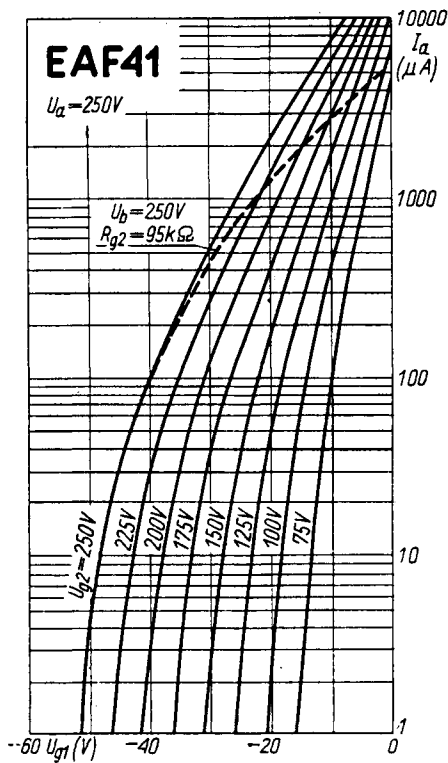
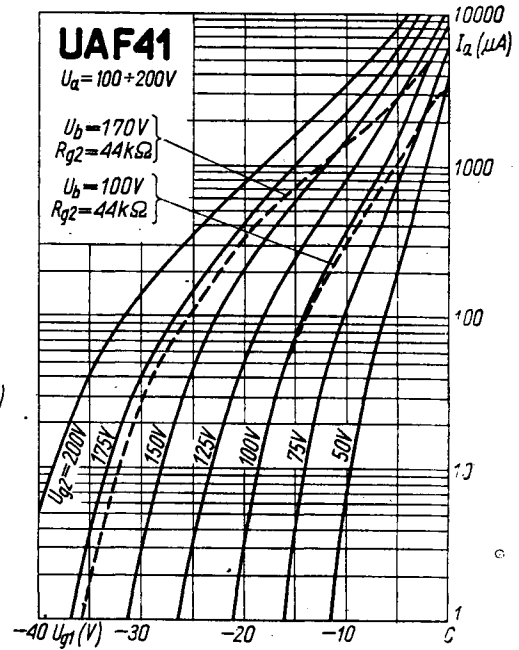
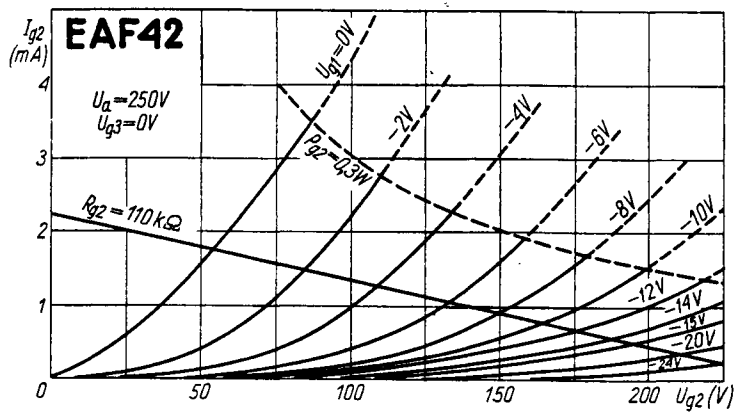


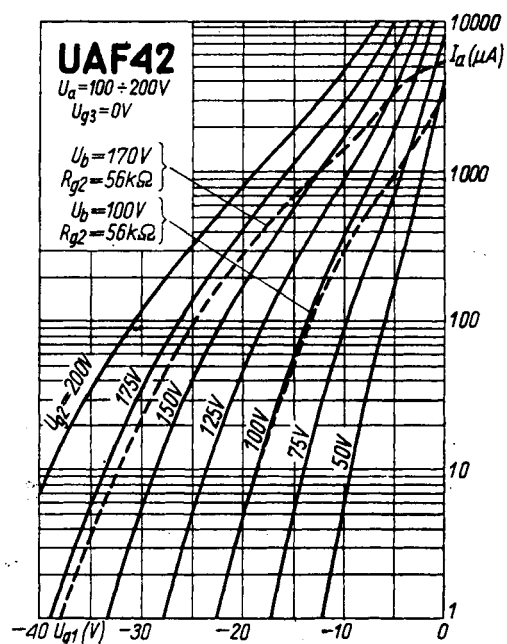
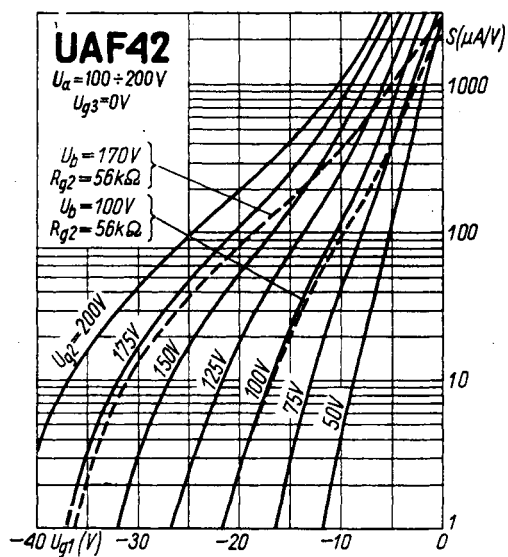
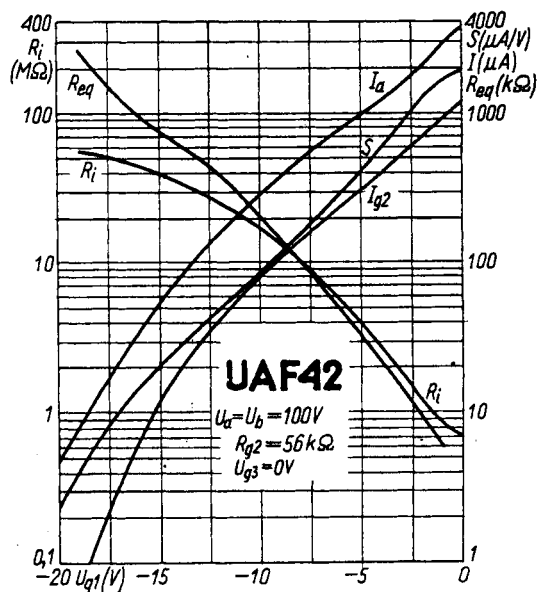
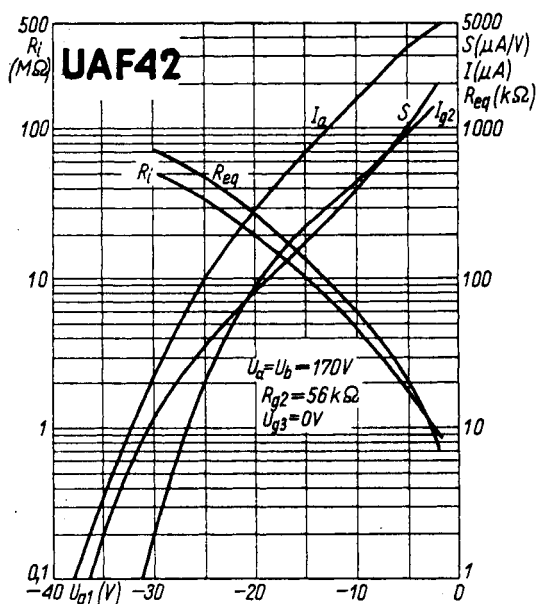
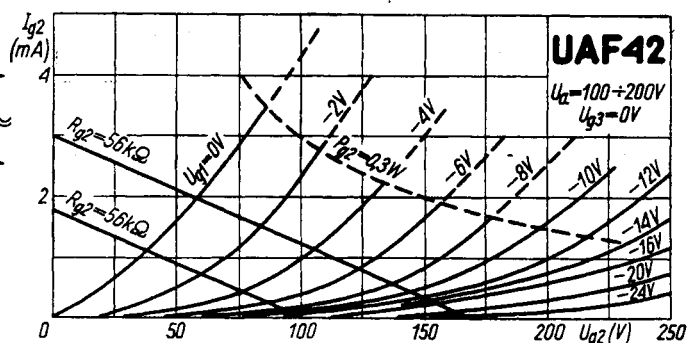
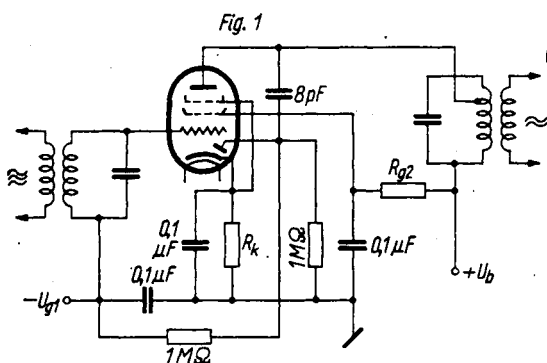
T.			U_f	I_f		U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	U_f/k	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	MΩ	V	mA	W	W
EA 21	Tu	1	6,3	0,33	{ pent.	{ 250 ¹⁾	100	—2	6	1,6	2,8÷0,028	1,5	100	10	0,3	2
UAF 21	Tu	1	20	0,1		{ 300	125		maximum							
					diod.	200			0,8			maximum				
EA 81	eur	2	6,3	0,3	{ pent.	{ 250	100	—2÷—46	9	3	3,6÷0,036	1	100	16	0,4	2,25
				0,1		{ 300	150		maximum							
					diod.	200			5			maximum				
6 Б 2 П	CCCP	3	6,3	0,3	pent.	{ 250	100	—1,5	6,5	1,6	2,7	0,7	100		0,4	1,1
Ж-100	CCCP	3	6,3	0,1		{ 330	140		maximum							
6 CR 6	amer	4	6,3	0,3	{ pent.	{ 250	100	—2÷—32	9,6	2,6	2,2÷0,01	0,8	100		0,3	2,5
12 CR 6	amer	4	12,6	0,15		{ 300	150		maximum							
					diod.	200			1			maximum	100			
6 SF 7	amer	5	6,3	0,3	{ pent.	{ 100	100	—1÷—35	12	3,4	1,97÷0,01	0,2	—		0,5	3,5
12 SF 7	amer	5	12,6	0,15		{ 250	100		—1÷—35	12,4	3,3	2,05÷0,01				
					diod.	200			0,8			maximum				

1) UAF 21, $U_a = 200$ V

T.	C_{g1} pF	C_{aP} pF	$C_{g1/aP}$ pF
EA 21 EA 81	5	8	0,002
6 Б 2 П 6 SF 7	5,3	5,5	0,002
	4,2	4,1	0,008
	5,5	6	0,004





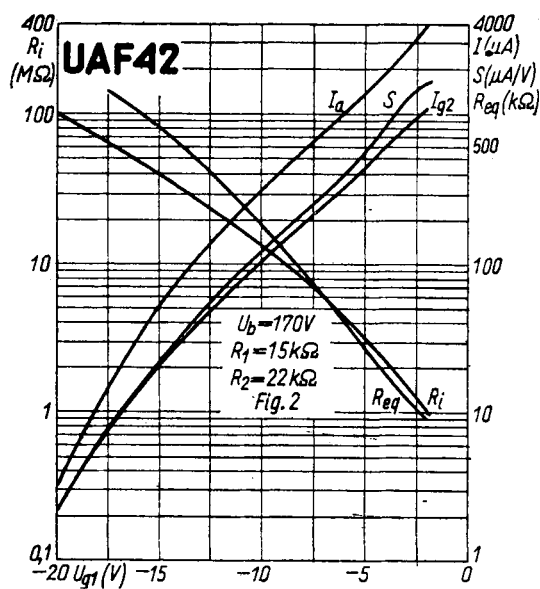
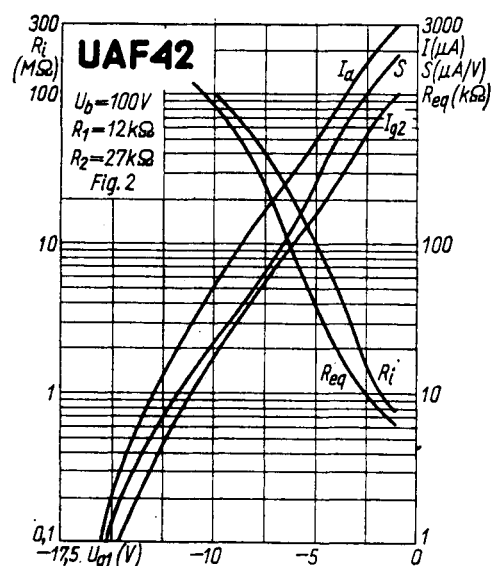
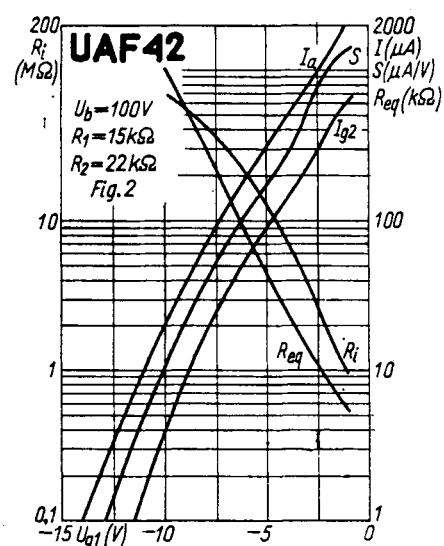
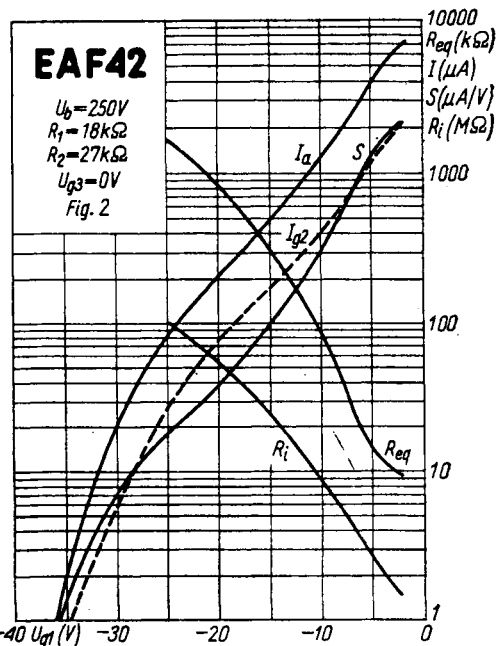
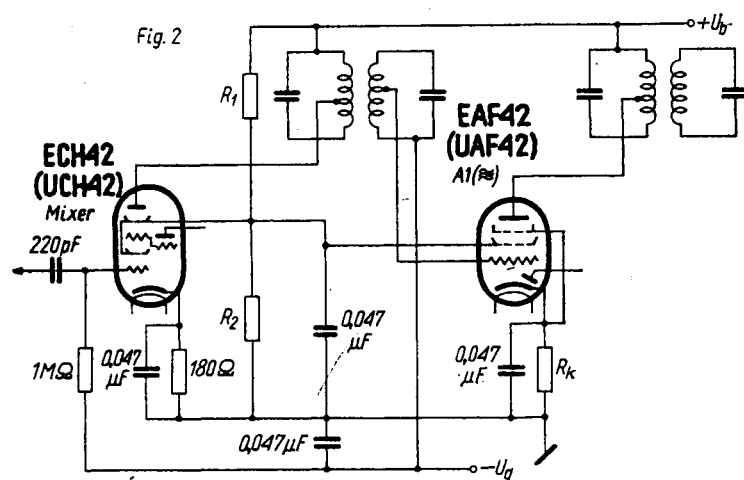


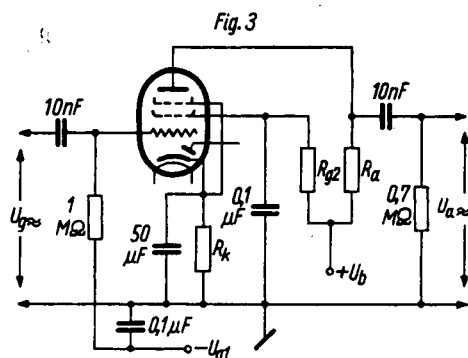
EAF 42 — Fig. 2 ($U_{g3} = 0V$)

$U_a = U_b$	U_{g2}	U_{g1}	R_1	R_2	R_k	I_a	I_{g2}	S	R_i
V	V	V	k Ω	k Ω	Ω	mA	mA	mA/V	M Ω
250	105 $\div$ 147	-2 $\div$ -23,5	18	27	220	6,9	2,1	2,15 $\div$ 0,021	1,4 $\div$ 10
250	85 $\div$ 137	-2 $\div$ -20,5	22	27	310	5	1,5	2 $\div$ 0,02	1,4 $\div$ 10

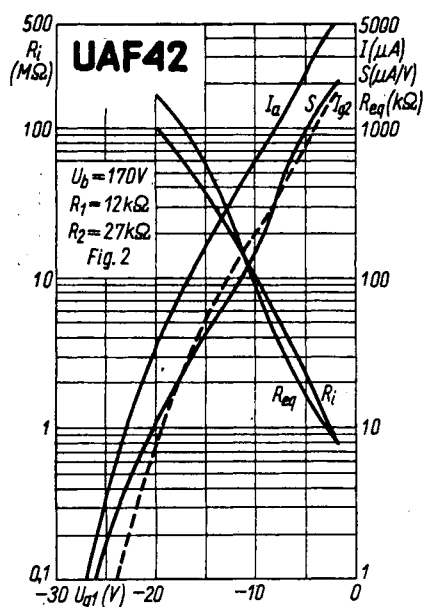
UAF 42 — Fig. 2 ($U_{g3} = 0V$)

$U_a = U_b$	U_{g2}	U_{g1}	R_1	R_2	R_k	I_a	I_{g2}	S	R_i
V	V	V	k Ω	k Ω	Ω	mA	mA	mA/V	M Ω
100	53 $\div$ 69	-1 $\div$ -10,5	12	27	250	3	1	1,85 $\div$ 0,018	0,75 $\div$ 10
100	43 $\div$ 58	-1 $\div$ -9,5	15	22	330	2,3	0,65	1,5 $\div$ 0,015	0,95 $\div$ 10
170	87 $\div$ 117	-1,8 $\div$ -18	12	27	250	5,5	1,7	2,1 $\div$ 0,021	0,8 $\div$ 10
170	70 $\div$ 99	-1,8 $\div$ -15,5	15	22	330	4	1,1	1,75 $\div$ 0,017	0,95 $\div$ 10



EAF 41 — Fig. 3 ($U_b = 250$ V)

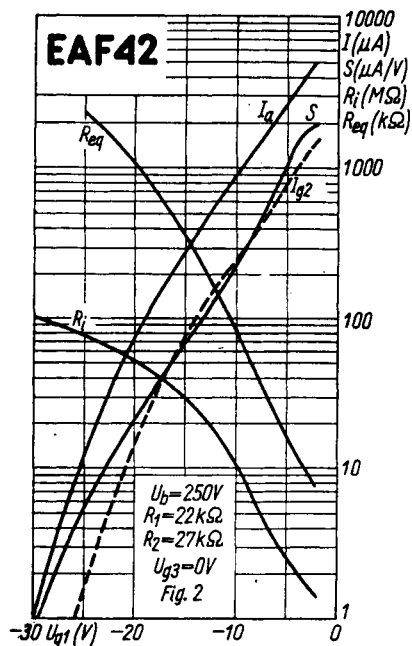
R_a	R_{g2}	R_k	U_{g1}	I_a	I_{g2}	μ	$U_{a\sim}$	h
kΩ	kΩ	kΩ	V	mA	mA	$U_{a\sim}/U_{g\sim}$	V	%
100	400	0,9	0	1,57	0,5	85	3÷10	0,9÷2,5
			-10	0,91	0,28	16	3÷10	2,2÷4,1
			-25	0,36	0,12	6	3÷10	2,5÷9
200	800	1,6	0	0,86	0,28	105	3÷10	1 ÷ 2,7
			-10	0,56	0,18	21	3÷10	1,1÷3,9
			-25	0,24	0,08	8	3÷10	1,8÷7,5

EAF 42 — Fig. 3 ($U_b = 250$ V)

R_a	R_{g2}	R_k	U_{g1}	I_a	I_{g2}	μ	$U_{a\sim}$	h
kΩ	kΩ	kΩ	V	mA	mA	$U_{a\sim}/U_{g\sim}$	V	%
100	390	0,68	0	1,52	0,53	100	3÷8	0,8÷1
			-5	1,2	0,4	35	3÷8	1 ÷ 2,4
			-10	0,94	0,3	20	3÷8	1,2÷3,2
			-15	0,7	0,23	13	3÷8	1,4÷3,7
			-20	0,52	0,17	9	3÷8	1,8÷6
220	820	1,5	0	0,8	0,26	120	3÷8	0,9÷1,2
			-5	0,65	0,2	40	3÷8	1,3÷2,5
			-10	0,52	0,17	23	3÷8	1,3÷2,7
			-15	0,41	0,14	16	3÷8	1,5÷3,2
			-20	0,31	0,11	11	3÷8	1,8÷5,5

UAF 41 — Fig. 3 ($R_k = 2,7$ kΩ)

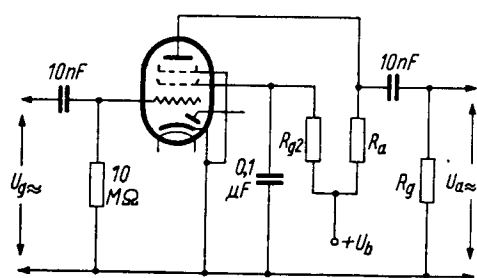
U_b	R_a	R_{g2}	U_{g1}	I_a	I_{g2}	μ	$U_{a\sim}$	h
V	kΩ	kΩ	V	mA	mA	$U_{a\sim}/U_{g\sim}$	V	%
100	200	730	0	0,34	0,1	73	3÷5	0,8÷1
			-7,5	0,18	0,04	10	3÷5	3,8÷5,7
			-12,5	0,08	0,01	5,5	3÷5	5,7÷9
170	200	730	0	0,58	0,18	78	3÷8	0,8÷1,6
			-15	0,26	0,05	10	3÷8	2,6÷5,8
			-25	0,12	0,01	5	3÷8	5,1÷13



UAF 42 — Fig. 3

U_b	R_a	R_{g2}	R_k	U_{g1}	I_a	I_{g2}	μ	$U_{a\sim}$	h
V	kΩ	kΩ	kΩ	V	mA	mA	$U_{a\sim}/U_{g\sim}$	V	%
100	100	330	1,5	0	0,58	0,21	60	3÷5	0,9÷1
				-5	0,31	0,1	12	3÷5	3,5÷6
				-10	0,14	0,05	5	3÷5	7 ÷ 11
100	220	820	2,7	0	0,29	0,09	75	3÷5	0,9÷1,1
				-5	0,17	0,05	15	3÷5	3,2÷5
				-10	0,1	0,03	7	3÷5	5,2÷8
170	100	330	1,5	0	1,05	0,37	68	3÷8	0,75÷1,1
				-10	0,48	0,17	10	3÷8	2,4÷5,5
				-20	0,16	0,07	3,5	3÷8	5,2÷12
170	220	820	2,7	0	0,5	0,17	80	3÷8	0,8÷1,2
				-10	0,28	0,09	14	3÷8	1,9÷5
				-20	0,14	0,04	6	3÷8	3,6÷9

Fig. 4

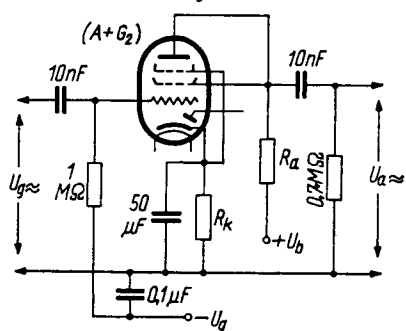
EAF 42 — Fig. 4 ($U_b = 250$ V)

R_a	R_{g2}	R_g	I_a	I_{g2}	μ	$U_{a\approx}$	h
kΩ	kΩ	kΩ	mA	mA	$U_{a\approx}/U_{g\approx}$	V	%
100	390	330	1,6	0,56	100	3 ÷ 8	0,35 ÷ 0,7
220	1000	680	0,76	0,23	160	3 ÷ 8	0,55 ÷ 1

EAF 41 — Fig. 5

U_b	R_a	R_k	U_{g1}	$I_a + I_{g2}$	μ	$U_{a\approx}$	h
V	kΩ	kΩ	V	mA	$U_{a\approx}/U_{g\approx}$	V	%
250	100	0,9	0	1,95	15,5	3 ÷ 10	1,4 ÷ 5,2
			-10	1,1	6	3 ÷ 10	0,9 ÷ 3
			-25	0,45	3,3	3 ÷ 10	1,6 ÷ 5,2
250	50	0,5	0	3,6	15,5	3 ÷ 10	1,1 ÷ 3,8
			-10	1,85	5,9	3 ÷ 10	1,1 ÷ 5
			-25	0,65	2,8	3 ÷ 10	2,4 ÷ 8

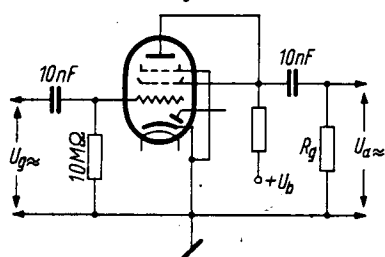
Fig. 5



EAF 42 — Fig. 5

U_b	R_a	R_k	U_{g1}	$I_a + I_{g2}$	μ	$U_{a\approx}$	h
V	kΩ	kΩ	V	mA	$U_{a\approx}/U_{g\approx}$	V	%
250	50	0,39	0	3,8	14	3 ÷ 8	0,7 ÷ 1,1
			-5	2,7	9	3 ÷ 8	1,1 ÷ 2,6
			-10	2	6,5	3 ÷ 8	1,1 ÷ 2,6
			-15	1,44	5	3 ÷ 8	1,1 ÷ 2,6
			-20	1,05	4	3 ÷ 8	1,4 ÷ 3,4
250	100	0,68	0	2	15	3 ÷ 8	0,9 ÷ 1,2
			-5	1,5	8,5	3 ÷ 8	1,1 ÷ 2,4
			-10	1,17	6	3 ÷ 8	1,1 ÷ 2,4
			-15	0,9	5	3 ÷ 8	1,1 ÷ 2,4
			-20	0,68	4	3 ÷ 8	1,2 ÷ 2,6

Fig. 6



UAF 42 — Fig. 5

U_b	R_a	R_k	U_{g1}	$I_a + I_{g2}$	μ	$U_{a\approx}$	h
V	kΩ	kΩ	V	mA	$U_{a\approx}/U_{g\approx}$	V	%
100	50	1,2	0	1,18	12	3 ÷ 5	1,7 ÷ 2,6
			-5	0,56	5	3 ÷ 5	3,6 ÷ 5,7
			-10	0,24	2,5	3 ÷ 5	6,5 ÷ 10
100	100	1,8	0	0,7	12	3 ÷ 5	2 ÷ 2,2
			-5	0,36	5	3 ÷ 5	2,4 ÷ 4,5
			-10	0,17	3	3 ÷ 5	4,2 ÷ 6,6
170	50	1,2	0	2,05	12	3 ÷ 8	1,3 ÷ 2,9
			-10	0,92	4,5	3 ÷ 8	1,7 ÷ 4,8
			-20	0,32	2,2	3 ÷ 8	4,5 ÷ 11
170	100	1,8	0	1,2	12	3 ÷ 8	1,4 ÷ 3,2
			-10	0,58	5	3 ÷ 8	1,4 ÷ 3,8
			-20	0,22	2,5	3 ÷ 8	3,2 ÷ 8

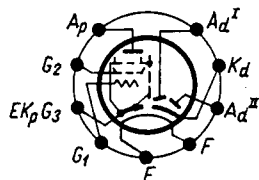
UAF 41 — Fig. 5

U_b	R_a	R_k	U_{g1}	$I_a + I_{g2}$	μ	$U_{a\approx}$	h
V	kΩ	kΩ	V	mA	$U_{a\approx}/U_{g\approx}$	V	%
100	100	2,3	0	0,55	12	3 ÷ 5	1,9 ÷ 2,8
			-5	0,3	4,9	3 ÷ 5	2,3 ÷ 4,9
			-10	0,15	2,8	3 ÷ 5	6 ÷ 10
170	100	1,2	0	1,3	15	3 ÷ 8	1,2 ÷ 3,4
			-10	0,6	5	3 ÷ 8	1,3 ÷ 3
			-20	0,2	2,6	3 ÷ 8	4 ÷ 9,5

EAF 42 — Fig. 6

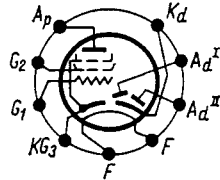
U_b	R_a	R_g	$I_a + I_{g2}$	μ	$U_{a\approx}$	h
V	kΩ	kΩ	mA	$U_{a\approx}/U_{g\approx}$	V	%
250	47	150	4,5	13,5	3 ÷ 8	0,5 ÷ 1,4
250	100	330	2,15	14	3 ÷ 8	0,7 ÷ 2

9



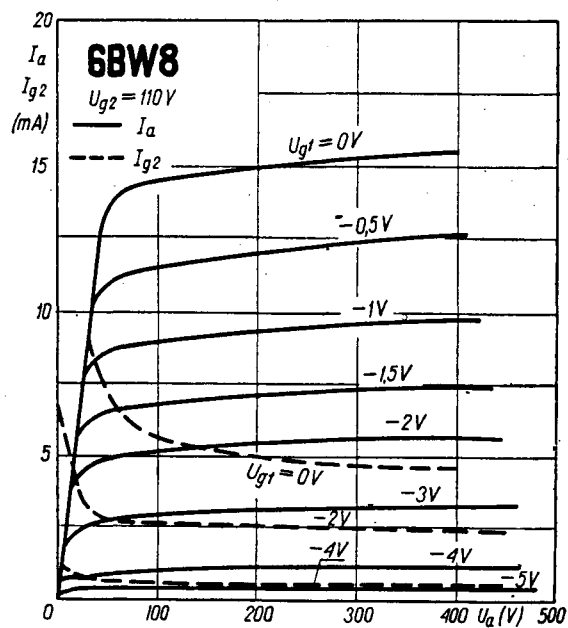
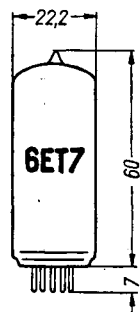
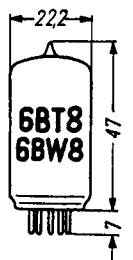
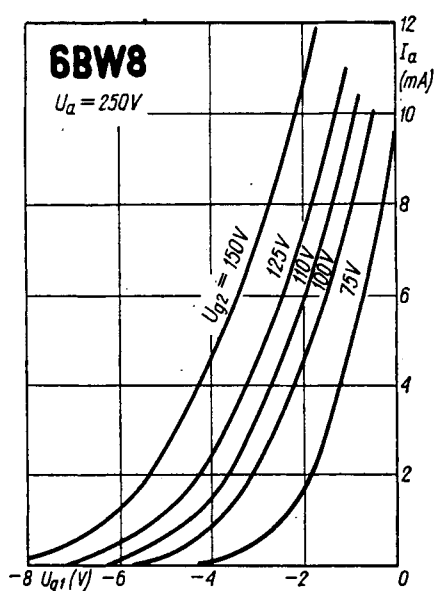
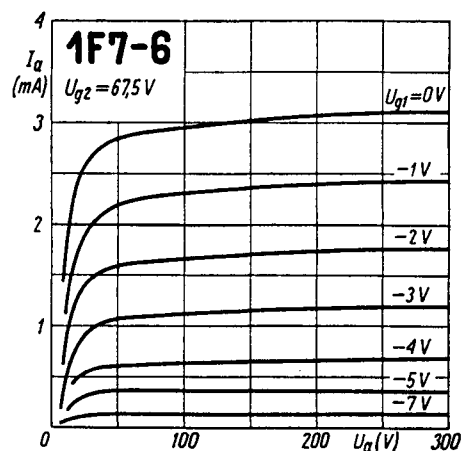
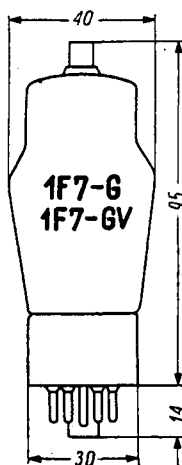
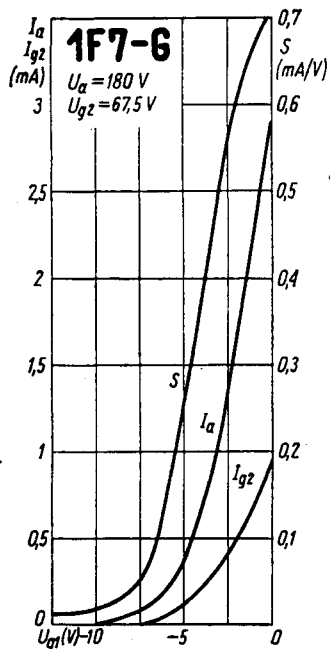
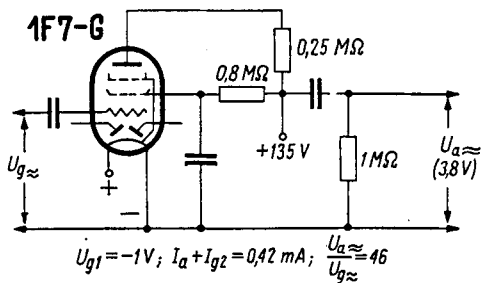
6BW8

10



6ET7

1F7-G

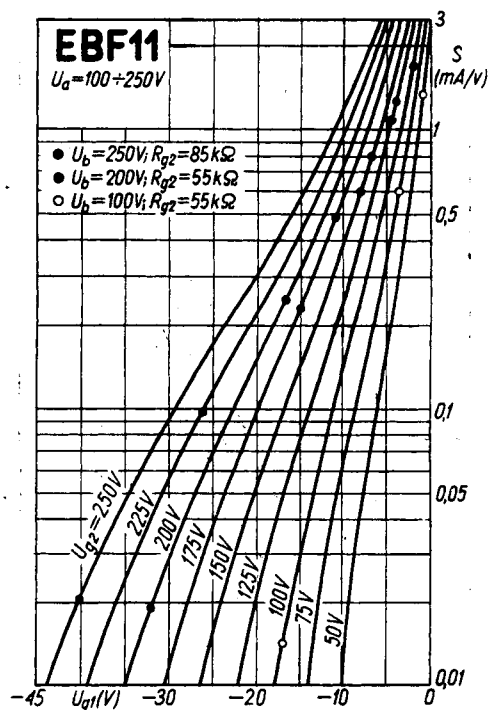
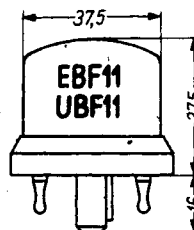
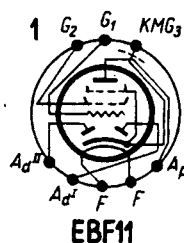
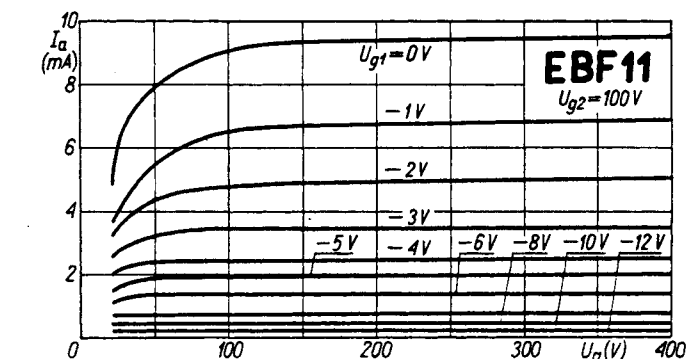
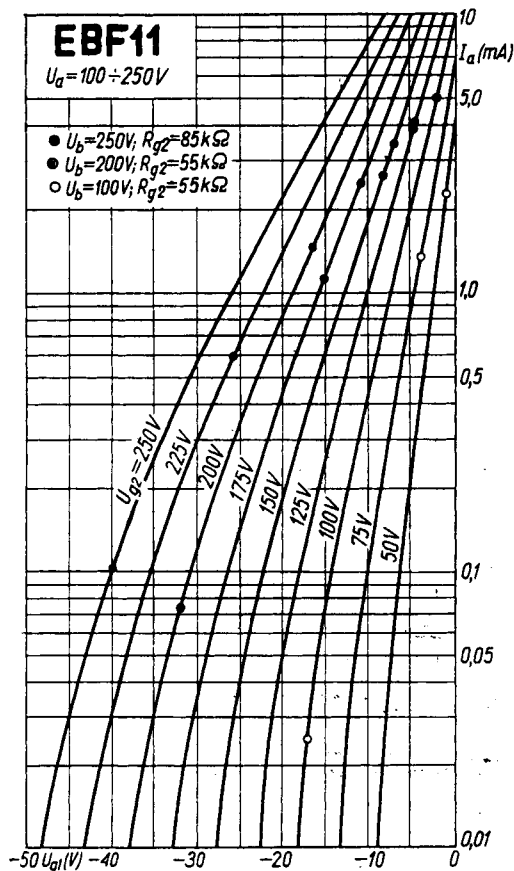


T.		U_f V	I_f A	$U_b = U_a$ V	R_{g2} kΩ	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	R_k Ω	$I_a(\text{diod.})$ mA	P_{g2} W	P_a W
EBF 11	eur	6,3	0,2	100 200 250 300	55 55 85 125	50 100 100 125	-1 ÷ -18 -2 ÷ -35,5 -2 ÷ -45 maximum ($U_{f/k} = 100 \text{ V}; I_k = 10 \text{ mA}$)	2,2 5 5 maximum	0,9 1,8 1,8 maximum	1,4 ÷ 0,009 1,8 ÷ 0,009 1,8 ÷ 0,009 maximum	0,5 1,5 2 maximum	300 300 300 maximum	0,8 ¹⁾	0,3	1,5
UBF 11	eur	20	0,1	100 100	80 —	40 40	-1 ÷ -20 -1 ÷ -8	2,6 2,6	0,8 0,8	1,4 ÷ 0,014 1,4 ÷ 0,014	0,8 0,8	300 300	0,8 ¹⁾	0,3	1,5
VBF 11	eur	35	0,05	200 200 250	80 80 125	76 80 125	-2 ÷ -37 -2 ÷ -15 maximum ($U_{f/k} = 125 \text{ V}; I_k = 10 \text{ mA}$)	5 5 maximum	1,6 1,7 maximum	1,8 ÷ 0,018 1,8 ÷ 0,018 maximum	1,5 1,5 maximum	300 300 300	0,8 ¹⁾	0,3	1,5

¹⁾ $I_a(\text{peak}) = 5 \text{ mA}; U_a(\text{peak}) = 350 \text{ V}$

T. pentod.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{g1/f}$ pF
EBF 11	5,2	6,2	0,002	0,001
UBF 11	6	6,5	0,002	0,001

T. diod.		$C_a/k+f$ pF	C_a/f pF	C_a/a pF ·	$C_a/g1^P$ pF	$C_{a+a/g1^P}$ pF	C_a/a^P pF	C_{a+a/a^P} pF
EBF 11	I sect.	2,3	0,5	0,5	0,001	0,001	0,015	0,015
	II sect.	2,7	0,12	0,5	0,001	0,001	0,015	0,015
UBF 11	I sect.	2,7	0,65	0,5	0,001	0,002	0,015	0,015
	II sect.	3	0,1	0,5	0,001	0,002	0,01	0,015



T.			U_f	I_f	$U_b=U_a$	R_{g2}	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$I_a(\text{diod.})$	P_{g2}	P_a
			V	A	V	k Ω	V	V	mA	mA	mA/V	M Ω	Ω	mA	W	W
EBF 2	eur	1	6,3	0,2		0	100	-2 ÷ -16,5	5	1,6	1,8 ÷ 0,018	0,4	300			
EBF 32	eur	2	6,3	0,2	100	60	100	-2 ÷ -32,5	5	1,6	1,8 ÷ 0,018	1	300			
EBF 35	Mul	3	6,3	0,2	200	95	100	-2 ÷ -38	5	1,6	1,8 ÷ 0,018	1,8	300			
OBF 2	Phi	4	8,5	0,15	250 ¹⁾											
UBF 2	Phi	4	12,6	0,1	300											

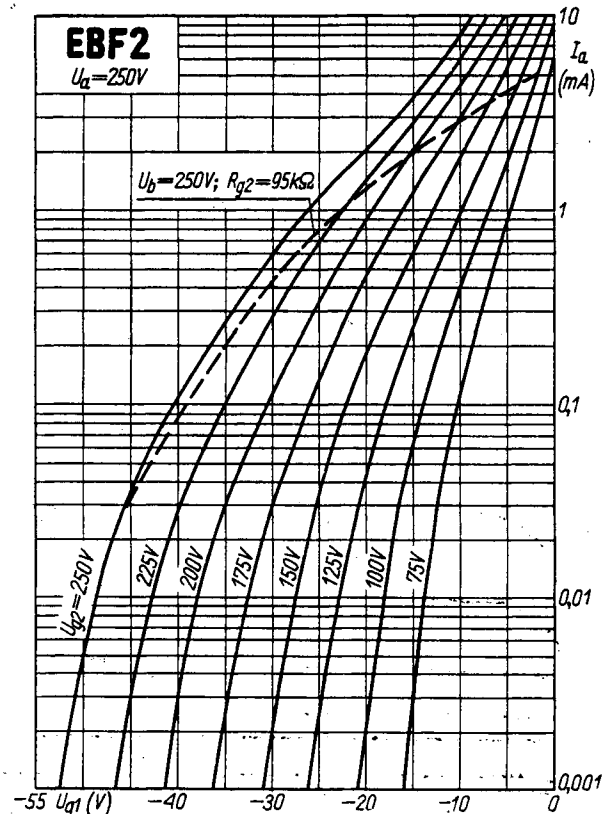
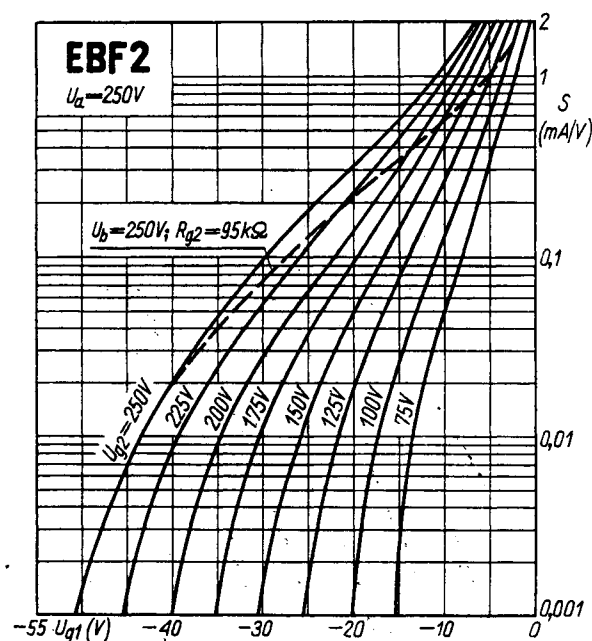
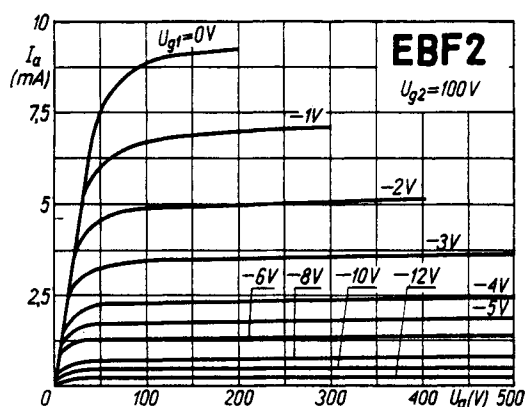
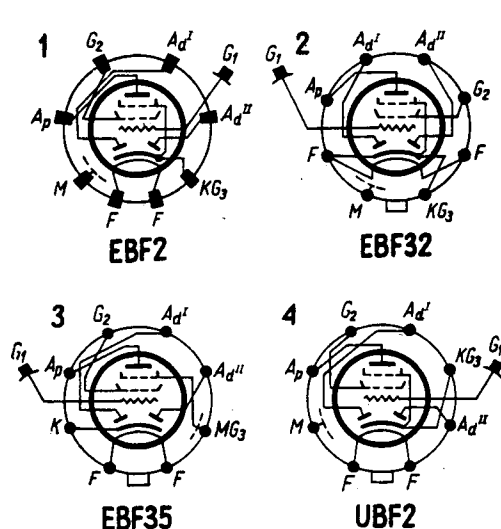
¹⁾ UBF 2- $U_a = 200$ V, $U_a(\text{max}) = 250$ V; ²⁾ $I_a(\text{peak}) = 5$ mA; $U_a(\text{peak}) = 200$ V

Equivalents

EBF 2 G	Phi = EBF 35
E 1 R/92	Phi = EBF 2
13 BF 2 U	Phi = UBF 2

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pentod.	pF	pF	pF	pF
EBF 2	4,4	8,6	0,002	0,01
EBF 32	3,9	8,5	0,002	0,01

T.		C_{a1k+f}	$C_{a/a}$	$C_{a/g1^P}$	C_{a/a^P}
diod.		pF	pF	pF	pF
EBF 2	I sect.	3		0,0005	0,3
	II sect.	3	0,3	0,0005	0,25
EBF 32	I sect.	2,9		0,001	0,5
	II sect.	2,9	0,45	0,001	0,25



T.			U_f	I_f	$U_b=U_a$	R_{g2}	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_l	R_k	$I_a(\text{diod.})$	P_{g2}	P_a
			V	A	V	kΩ	V	V	V	mA	mA	mA/V	MΩ	Ω	mA	W	W
EBF 80	eur	I	6,3	0,3	100	47	53	0	-1,15 ÷ -15,5	2,8	1	1,9 ÷ 0,019	0,9	300			
UBF 80	eur	I	17	0,1	170	47	93	0	-2 ÷ -26,5	5	1,75	2,2 ÷ 0,022	0,9	300			
12 N 8	amer	I	12,6	0,15	200	68	81	0	-2 ÷ -31,5	5	1,75	2,2 ÷ 0,022	1	300			
					250	95	85	0	-2 ÷ -41,5	5	1,75	2,2 ÷ 0,022	1,4	300			
					300 ¹⁾										0,8 ²⁾	0,3	1,5

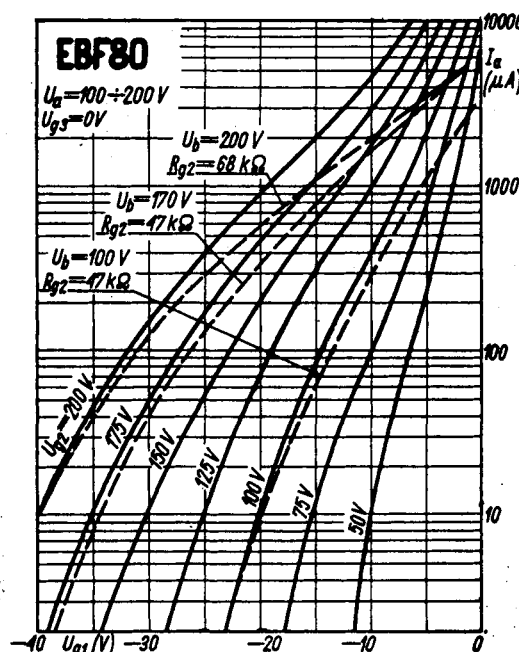
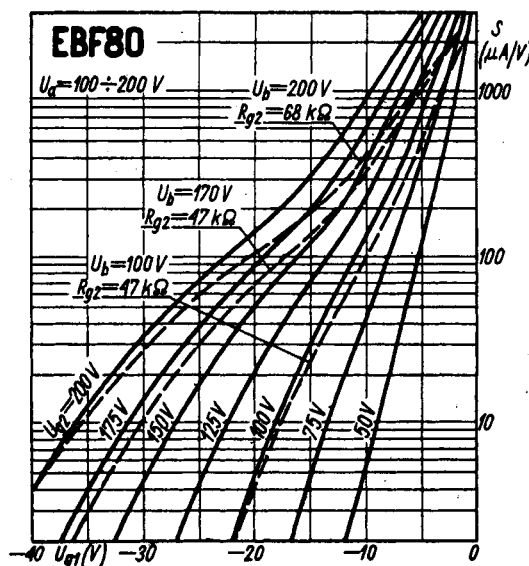
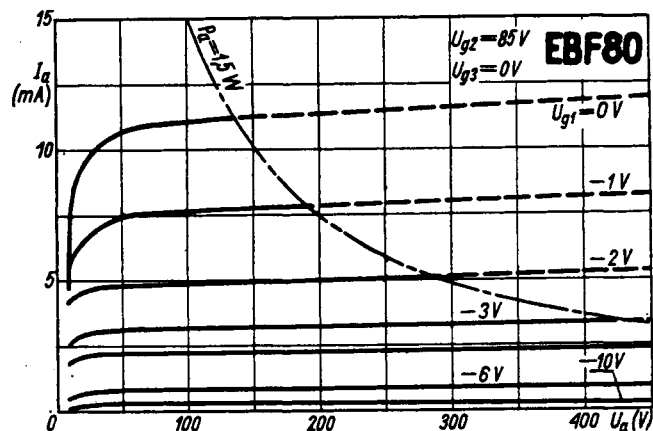
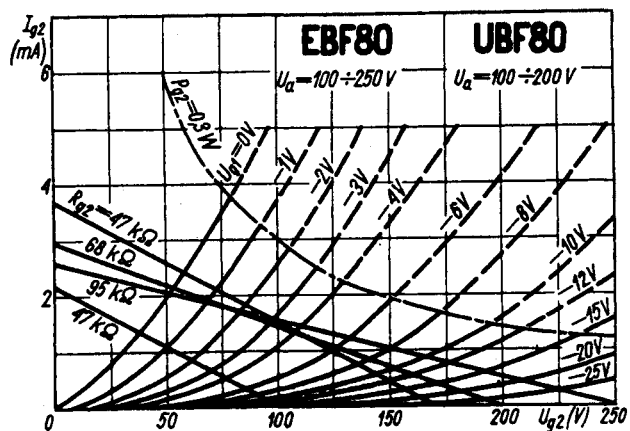
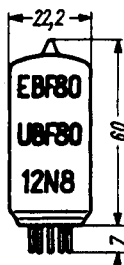
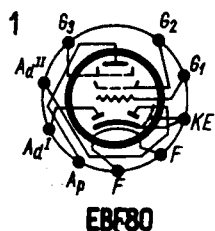
¹⁾ UBF 80 - $U_a(\text{max}) = 250$ V; $U_{f/k} = 150$ V; ²⁾ $I_a(\text{peak}) = 5$ mA; $U_a(\text{peak}) = 350$ V

Equivalents

WD 709	Eng = EBF 80
ZD 152	Marc = EBF 80
6 N 8	amer = EBF 80
17 C 8	amer = UBF 80
17 N 8	amer = UBF 80
171 DDP	Cos = UBF 80

	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pentod.	pF	pF	pF	pF
	4,2	4,9	0,0025	0,07

diod.	$C_{a/k+f}$	$C_{a/f}$	$C_{a/a}$	$C_{a/g1^p}$	C_{a/a^p}
	pF	pF	pF	pF	pF
I sect.	2,2	0,02		0,0008	0,2
II sect.	2,35	0,005	0,35	0,001	0,05



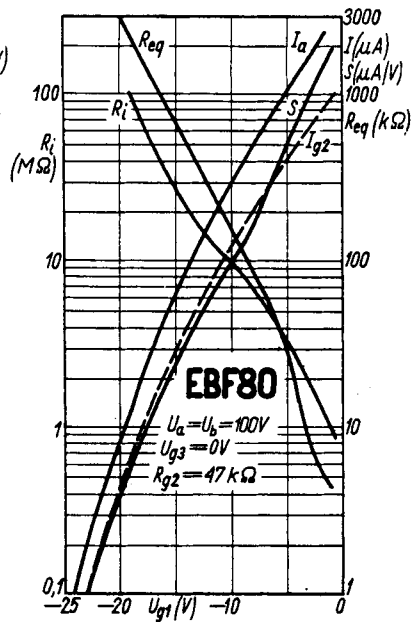
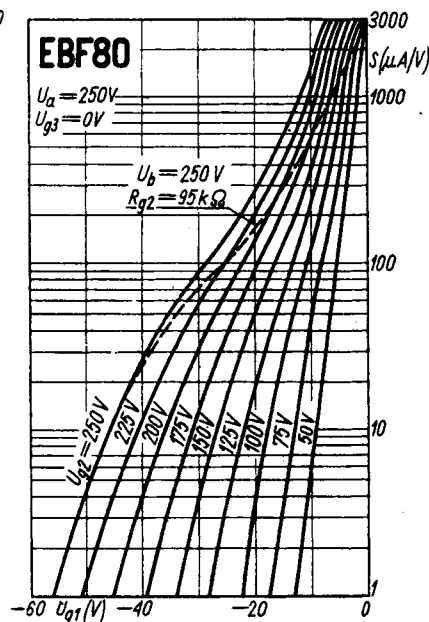
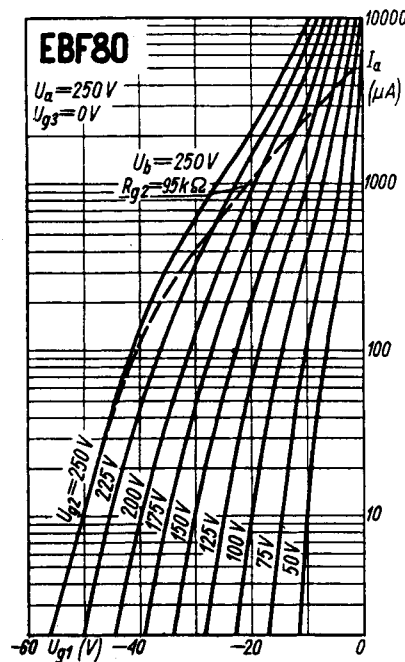


Fig. 1

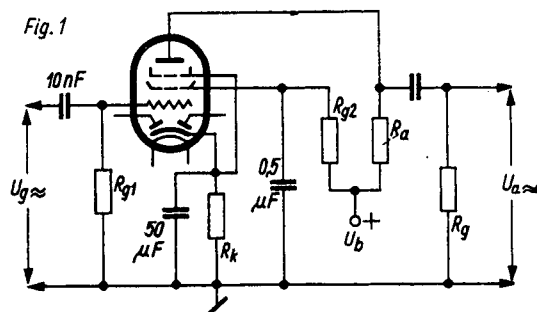


Fig. 2

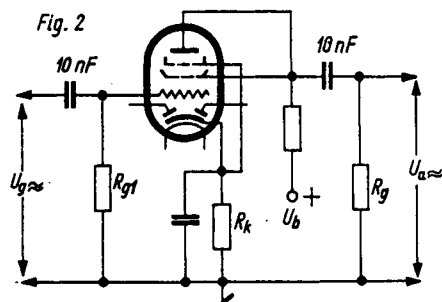


Fig. 1

U_b	R_a	R_{g2}	R_{g1}	R_g	R_k	I_a	I_{g2}	μ	$U_{a\approx}$	h
V	MΩ	MΩ	MΩ	MΩ	kΩ	mA	mA	V/V	V	%
100	0,22	0,68	1	0,68	2,7	0,32	0,12	82	3 ÷ 5	1,4 ÷ 1,9
100	0,1	0,27	1	0,33	2,7	0,73	0,29	67	3 ÷ 5	1,4 ÷ 1,8
100	0,22	0,82	10	0,68	0	0,32	0,11	100	3 ÷ 5	2,8 ÷ 3
100	0,1	0,33	10	0,33	0	0,66	0,25	70	3 ÷ 5	1,7 ÷ 3,2
170	0,22	0,68	1	0,68	2,7	0,56	0,2	85	3 ÷ 8	1,2 ÷ 1,8
170	0,1	0,27	1	0,33	1	1,25	0,5	70	3 ÷ 8	1,2 ÷ 2
170	0,22	0,82	10	0,68	0	0,56	0,19	140	3 ÷ 8	0,8 ÷ 1,4
170	0,1	0,33	10	0,33	0	1,16	0,46	100	3 ÷ 8	0,8 ÷ 2
250	0,22	0,82	1	0,68	1,8	0,75	0,3	110	3 ÷ 8	0,75 ÷ 2
250	0,1	0,39	1	0,33	1	1,5	0,53	80	3 ÷ 8	0,9 ÷ 2,2
250	0,22	1	10	0,68	0	0,75	0,25	160	3 ÷ 8	0,8 ÷ 2,1
250	0,1	0,47	10	0,33	0	1,5	0,5	110	3 ÷ 8	0,8 ÷ 2,1

Fig. 2

U_b	R_a	R_{g1}	R_g	R_k	I_a	μ	$U_{a\approx}$	h
V	kΩ	MΩ	kΩ	kΩ	mA	V/V	V	%
100	100	1	330	1,8	0,74	11	3 ÷ 5	3,2 ÷ 4,9
100	47	1	150	1	1,4	11	3 ÷ 5	3 ÷ 4,8
100	100	10	330	0	0,8	12	3 ÷ 5	3 ÷ 4,7
100	47	10	150	0	1,5	12	3 ÷ 5	3 ÷ 4,8
170	100	1	330	1,8	1,25	11	3 ÷ 8	2,1 ÷ 4,8
170	47	1	150	1	2,4	11	3 ÷ 8	1,8 ÷ 4,6
170	100	10	330	0	1,4	14	3 ÷ 8	2,5 ÷ 5,0
170	47	10	150	0	2,8	14	3 ÷ 8	2,1 ÷ 4,7
250	100	1	330	0,82	2,08	14	3 ÷ 8	1,6 ÷ 4,3
250	47	1	150	0,56	4,1	13	3 ÷ 8	1,3 ÷ 2,9
250	100	10	330	0	2,16	15	3 ÷ 8	2 ÷ 4,8
250	47	10	150	0	4,5	15	3 ÷ 8	1,7 ÷ 4,1

T.			U_f	I_f	$U_b=U_a$	R_{g2}	U_{g3}	U_{g3}	U_{g1}	I_a	I_{g3}	S	R_i	$I_a(\text{diod.})$	I_k	P_{g2}	P_a
			V	A	V	kΩ	V	V	V	mA	mA	mA/V	MΩ	mA	mA	W	W
EBF 89	eur	I	6,3	0,3	100	0	100	0	-2 ÷ -10	8,5	2,8	3,5 ÷ 0,11	0,3				
UBF 89	eur	I	19	0,1	200	30	100	0	-1,5 ÷ -20	11	3,3	4,5 ÷ 0,12	0,6				
					250	62	83	0	-1 ÷ -20	9	2,7	4,5 ÷ 0,2	0,9				
					250	56	100	0	-2 ÷ -20	9	2,7	3,8 ÷ 0,2	1				
					(300 ¹⁾				maximum ($U_{f/k} = 100 \text{ V}$)					0,8 ²⁾	16,5	0,45	2,25

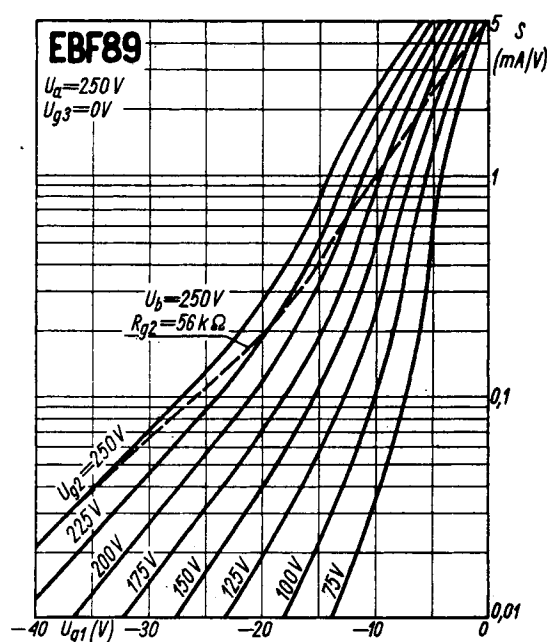
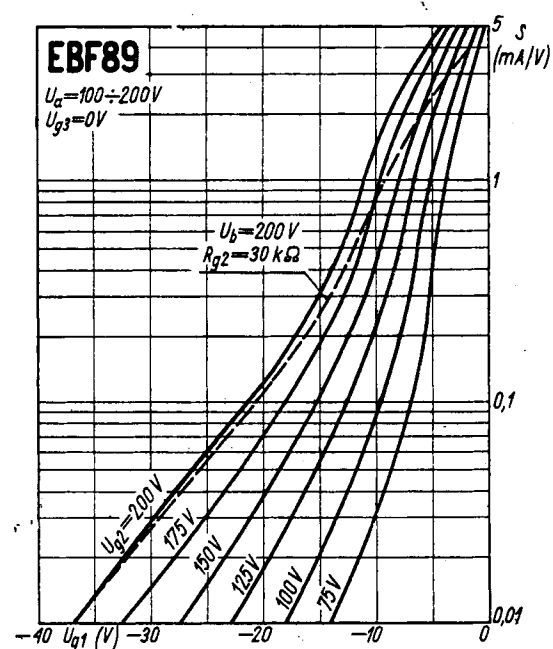
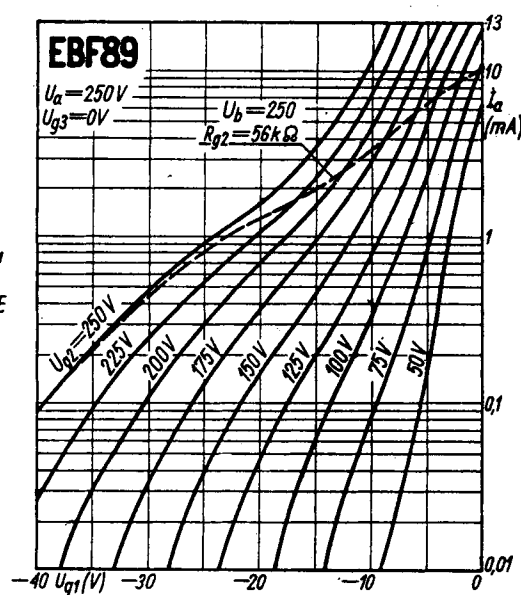
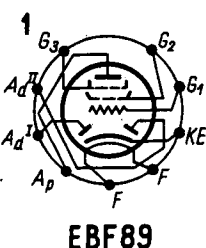
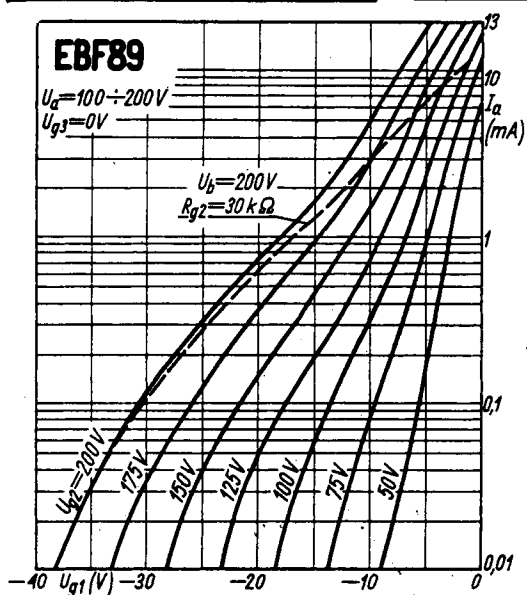
¹⁾ UBF 89- $U_a(\text{max}) = 250 \text{ V}$; $U_{f/k} = 150 \text{ V}$; ²⁾ $I_{a(\text{peak})} = 5 \text{ mA}$; $U_a(\text{peak}) = 200 \text{ V}$

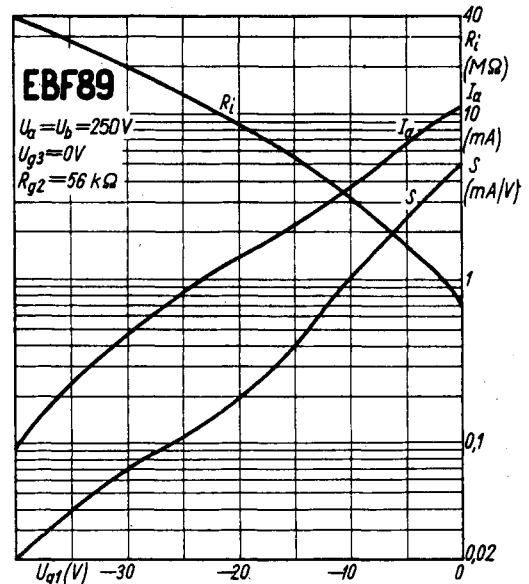
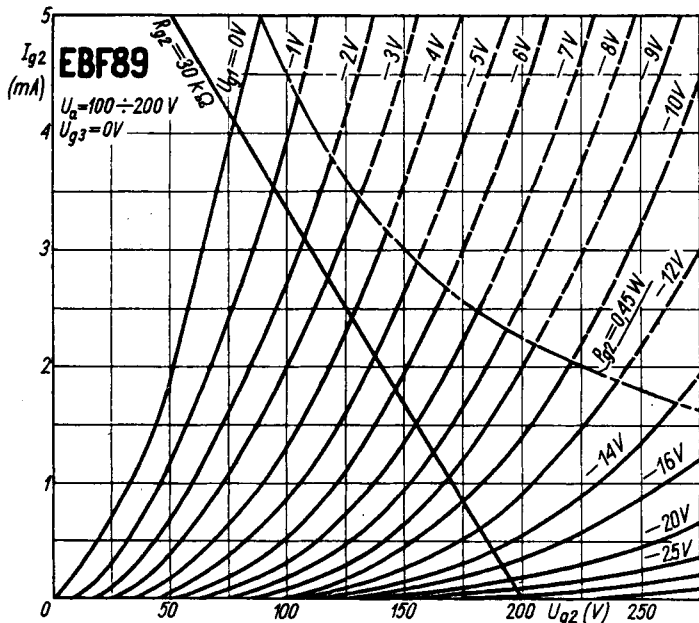
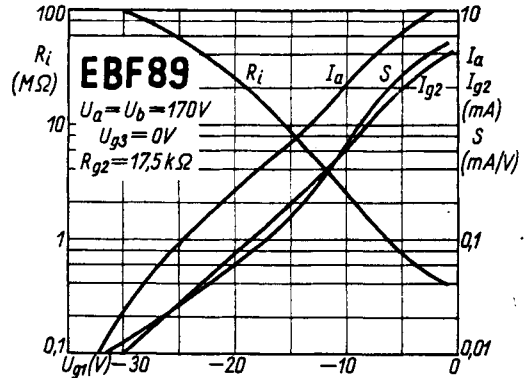
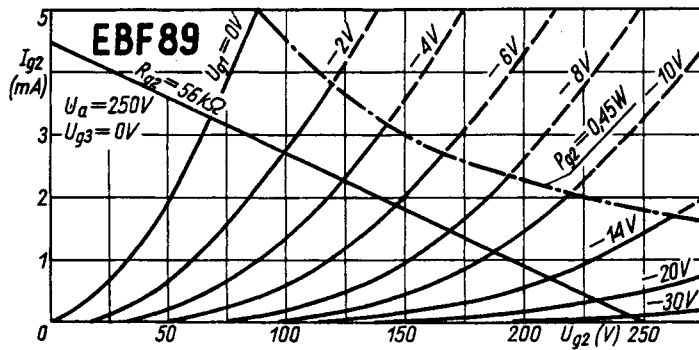
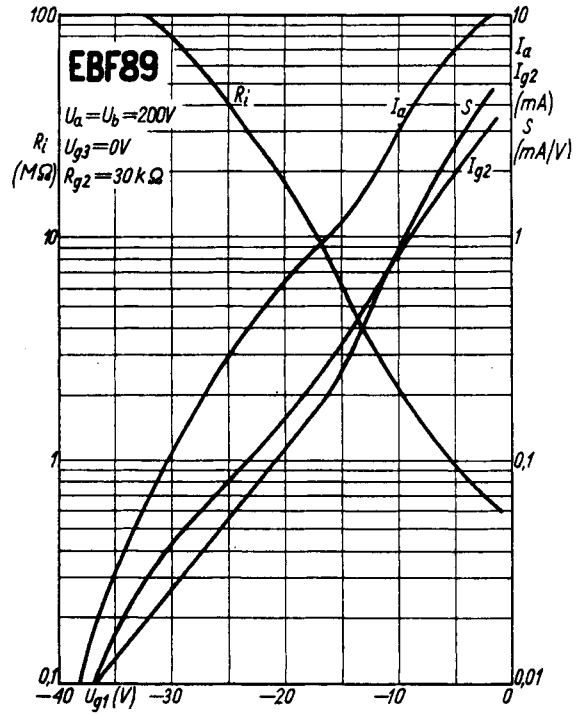
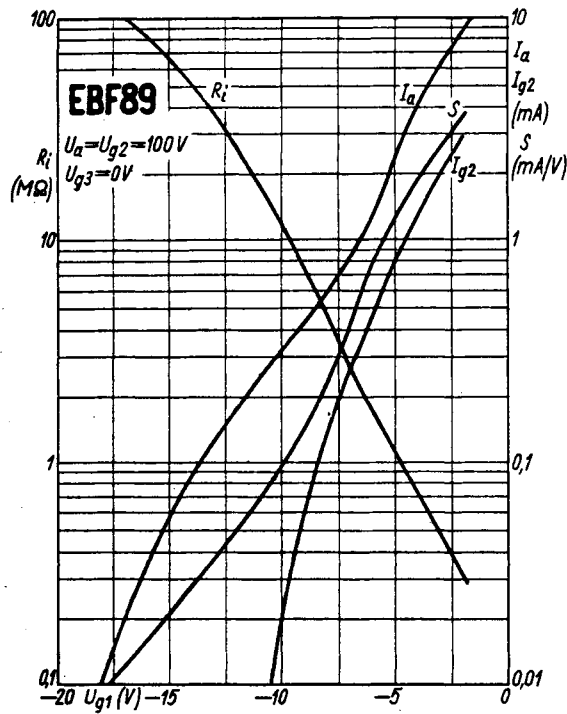
Equivalents

WD 119	Eng	= UBF 89
6 DC 8	amer	= EBF 89
6 FD 12	Eds	= EBF 89
10 FD 12	Eds	= UBF 89
19 DC 8	amer	= UBF 89
19 FL 8	amer	= UBF 89
7125	amer	= EBF 89

	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$
pentod.	pF	pF	pF	pF
	5	5,2	0,0025	0,05

diod.	C_{a1k+f}	C_{a1f}	C_{a1a}	C_{a1g1^P}	C_{a1a^P}
	pF	pF	pF	pF	pF
I sect.	2,5	0,015	0,25	0,0008	0,15
II sect.	2,5	0,003	0,25	0,001	0,025

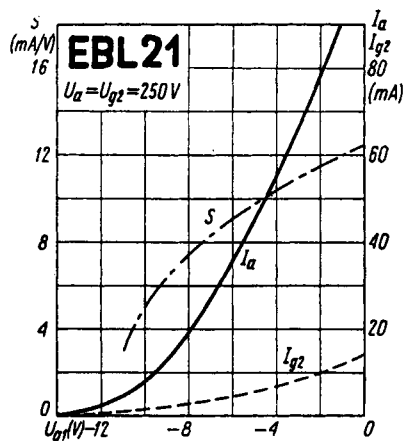




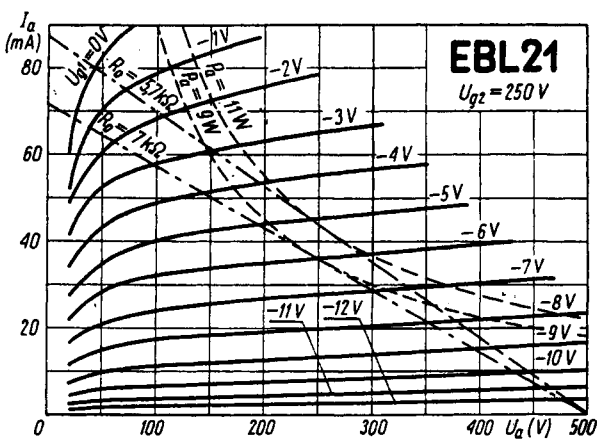
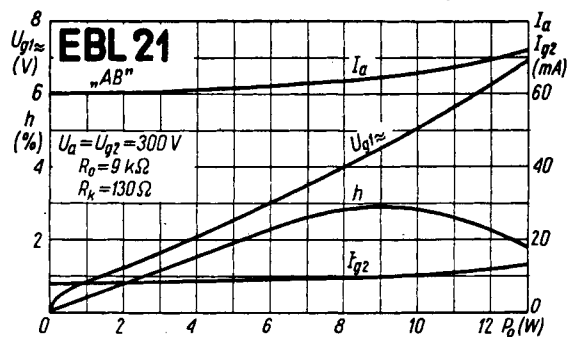
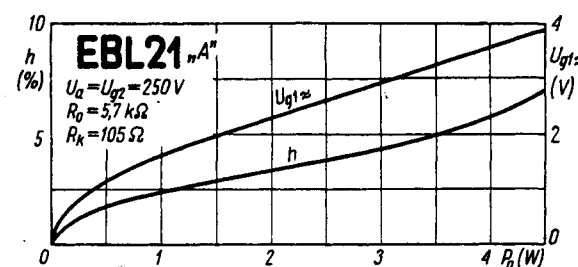
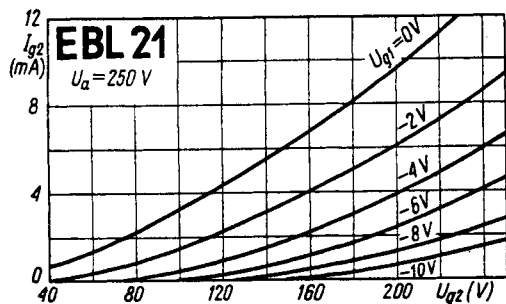
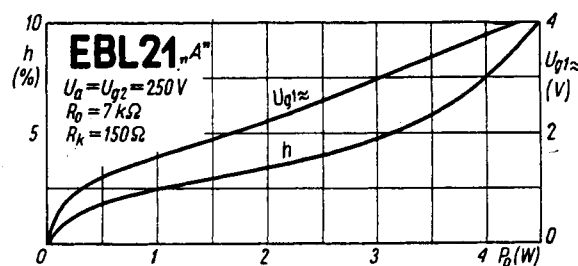
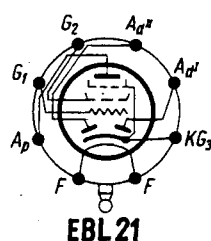
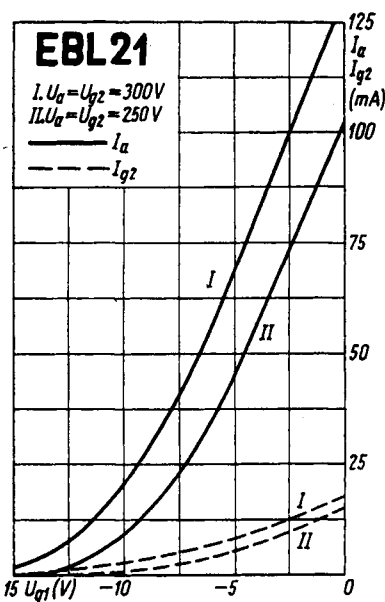
T.		U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_k	$R_o(R_o/a)$	P_o	$U_{g1\approx}$	h	P_a
		V	A		V	V	V	mA	mA	mA/V	kΩ	Ω	kΩ	W	V	%	W
EBL 21	eur	6,3	0,8	{ A AB	250	250	—6	36	4,5	9	50	150	7	4,5	4,2	10	11
					250	275	—6,2	44	5,8	9,5	50	125	5,7	5,5	4,5	10	
					300	300		60÷72	7,6÷13			130	(9)	13,2	7	1,8	
					300	300	maximum ($U_f: k = 50$ V; $I_k = 60$ mA; $P_{g2} = 1,7$ W)										

Equivalents

DN 143	Eng
EBL 71	Lor
PDD 2	BB



diod.	I_a	U_a
	mA	V
maximum	0,8	200
peak	5	350

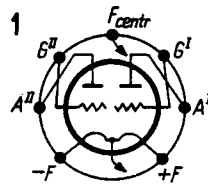


T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	I_g mA	S mA/V	R_i k Ω	μ V/V	R_o k Ω	P_o W	P_a W
DCC 90	eur	1	1,4/2,8	0,22/0,11	stat. C-Tgr Push-P.	90 135 135	-2,5 -20 -30	3,7 30 30	5 5	1,8 maximum (f = 40 MHz)	8,3 11	15	2	2
1 H 3 C	CCCP	2	1,2	0,12	A	120 150	-5,5	2,5		0,8 maximum	13,7	11	7	0,4
2 B 5	TS	3	1,2/2,4	0,26/0,13	stat.	90	-1	2,6		1,15	18,7	21,5		
3 B 7	amer	4	1,4/2,8	0,22/0,11	AB	90 135 180	0 0	10,4 $\div$ 21 18,2 $\div$ 22 22	3,6 2,7 8	1,85 1,9	20 20	8 16	1 1,5	0,55
3 C 6	amer	5	1,4/2,8	0,1/0,05	A	90	0	3,2		1,3	12	14,1		2,7

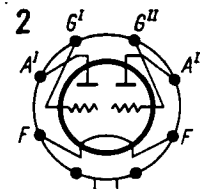
Equivalents

XX B	amer	=	3 C 6
1 H 1	CCCP	=	1 H 3 C
3 A 5	amer	=	DCC 90
1288	amer	=	3 B 7
1291	amer	=	3 B 7
1292	amer	=	3 B 7

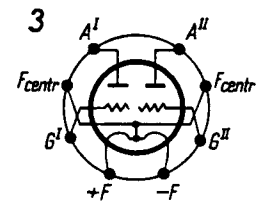
T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{a/a}$ pF
DCC 90	0,9	1	3,2	0,32
3 B 7	1,4	1,8	2,6	



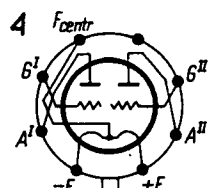
DCC90



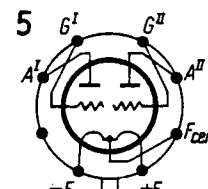
1H3C



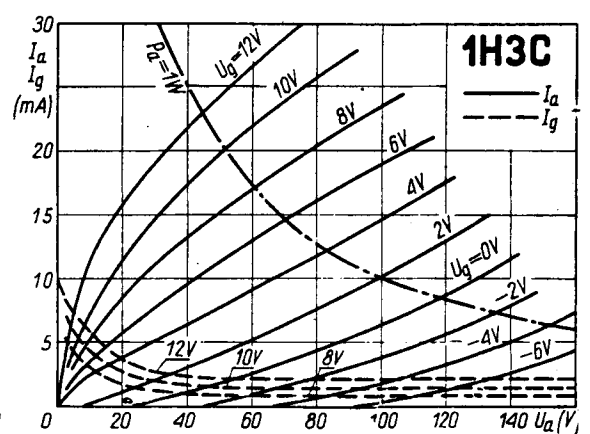
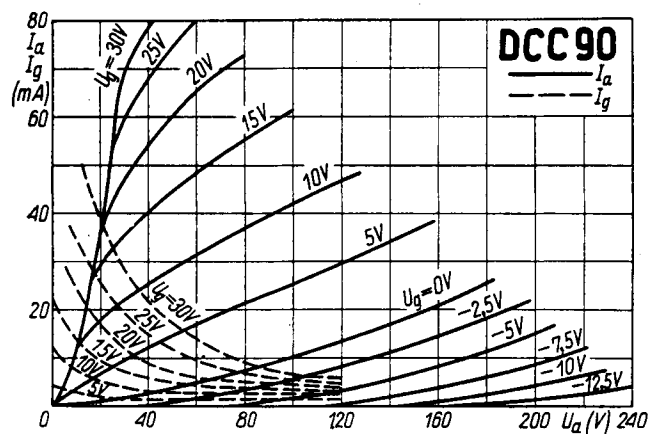
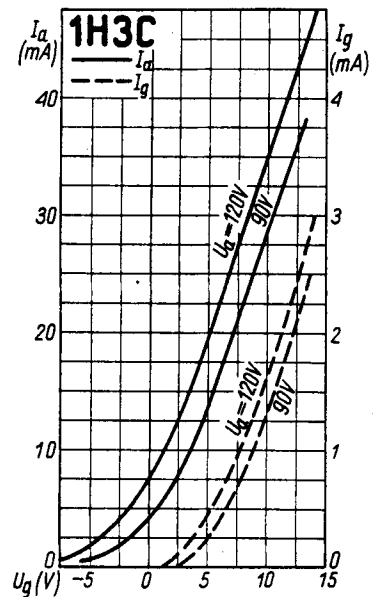
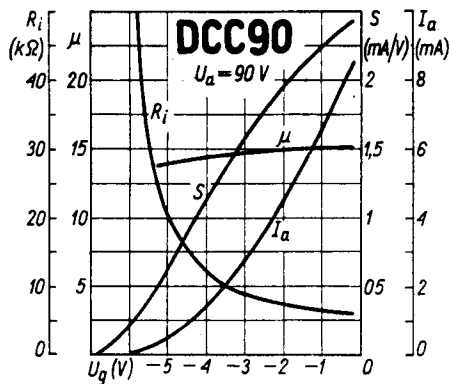
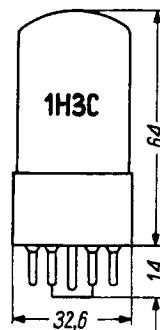
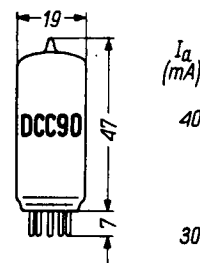
2B5



3B7



3C6



T.			U_f V	I_f A	U_a V	U_g V	I_a mA	S mA/V	R_i Ω	μ V/V	R_k Ω	U_f/k V	P_a W
6 AS 7-G 6080 6082	int int int	I I I	6,3 6,3 26,5	2,5 2,5 0,6	$\begin{cases} 100 \\ < 135^1) \\ 250 \\ -1700 \\ -3000 \end{cases}$	$\begin{cases} -2300 \\ -30 \end{cases}$	$\begin{cases} 100 \\ 100 \div 150 \end{cases}$	$\begin{cases} 6,5 \\ 5,8 \div 8,2 \end{cases}$	$\begin{cases} 300 \\ 280 \end{cases}$	$\begin{cases} 2 \\ 1,4 \div 2,6 \end{cases}$	$\begin{cases} 300 \\ 250 \end{cases}$	$\begin{cases} 300 \\ \text{Impulse} \leq 10 \mu\text{sec} \\ (15\%) \end{cases}$	13
6 H 13 C 6336 6394	CCCP int amer	I I I	6,3 6,3 26,5	2,8 4,75 1,2	$\begin{cases} 90 \\ 250 \\ 190 \\ 400 \end{cases}$	$\begin{cases} -30 \end{cases}$	$\begin{cases} 48 \div 112 \\ 130 \\ 170 \div 200 \\ 400 \end{cases}$	$\begin{cases} 3,5 \div 6,5 \\ 8 \div 14 \end{cases}$	$\begin{cases} 460 \\ 250 \end{cases}$	$\begin{cases} 2,3 \\ 2 \div 3,4 \end{cases}$	$\begin{cases} 200 \end{cases}$	$\begin{cases} 300 \\ 300 \end{cases}$	$\begin{cases} 13 \\ 30 \end{cases}$

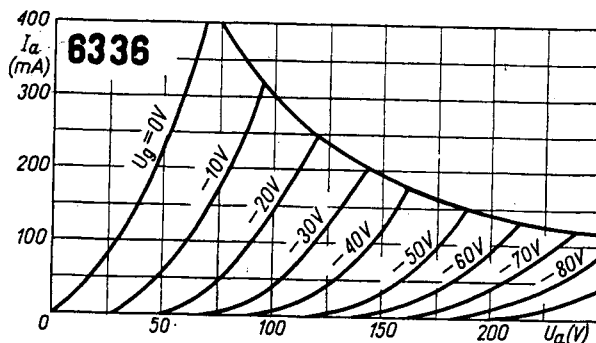
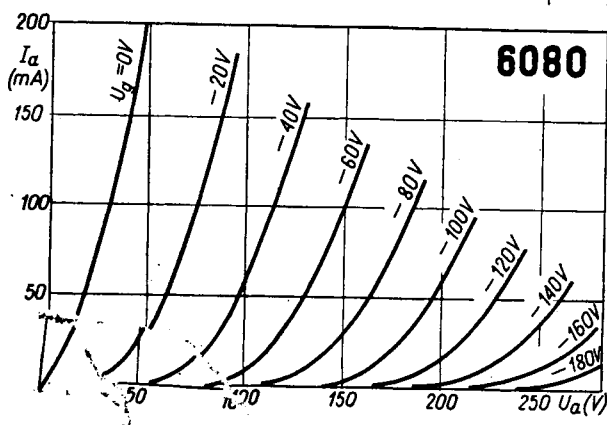
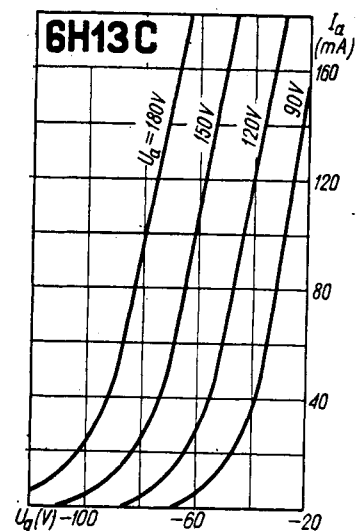
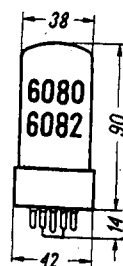
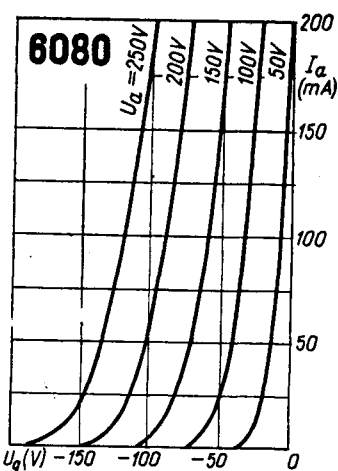
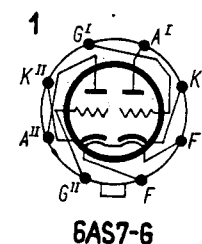
¹⁾ $U_b = 135 \text{ V}$, $R_a = 2 \text{ k}\Omega$

Equivalents

A 1834	Marc	= 6 AS 7-G
A 4475	amer	= 6 AS 7-G
E 6080	SFR	= 6080
ECC 230	eur	= 6080
RK 6080	Ray	= 6080
6 AS 7-GA	amer	= 6 AS 7-G
6 AS 7-W ¹⁾	amer	= 6 AS 7-G
6 H 5 C	CCCP	= 6 AS 7-G
6 H 11	CCCP	= 6 AS 7-G
6080-WA ¹⁾	int	= 6080
6520 ¹⁾	amer	= 6080

¹⁾ vide 4, a, b, g

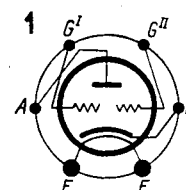
T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{g/g}$ pF	$C_{a/a}$ pF	C_f/k pF
6 AS 7-G	6,8	2,3	10,5	0,7	1,65	11
6 H 5 G	9,5	5	9,5			
6 H 13 C	7	4,2	9			
6080	5,5	2,5	8,6	0,5	2,2	7
6336	14	5	16			14



T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	mA	W
A-Auto	amer	1.	6,3	0,4	250	-16	7	1	10	10			
BL 63	Marc	2	6,3	1,27	250	-16	14	4,2	2,8	12			
ECC 34	Mul	3	6,3	0,95	250	-16	10	2,2	11,5	5,2			
					300			maximum					
2 C 50	amer	3	12,6	0,3	200	-11	18	2,9	3,4	10			
6 AE 6-G	amer	4	6,3	0,15	250	-1,5	6,5	1	25	25			
6 AE 7-G	amer	5	6,3	0,5	250	-13,5	5	1,5	9,3	14			
6/30 L 2	Eds	6	6,3	0,3	200	-8	10	3,4	5,3	18			
					250			maximum					
1642	amer	7	6,3	0,6	250	-16,5	8,3	1,4	7,6	10,4			

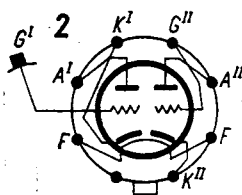
Equivalents 1642

RK 33	Ray
2 C 21	amer
33	Ray

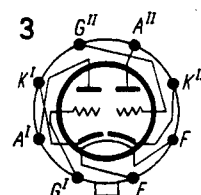


A-Auto

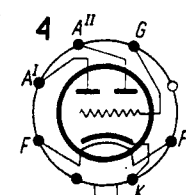
T.		C_g	C_a	$C_{g/a}$	$C_{a/a}$
		pF	pF	pF	pF
ECC 34	I = II sect.	3,5	1,8	4	0,48
	I sect.	2,5	2,1	2,5	
	II sect.	2,4	2	2,5	0,038
6/30 L 2	$C_{g/g} = 0,006$ pF; $C_{g/II} = 0,014$ pF; $C_{g/II/a} = 0,012$ pF				



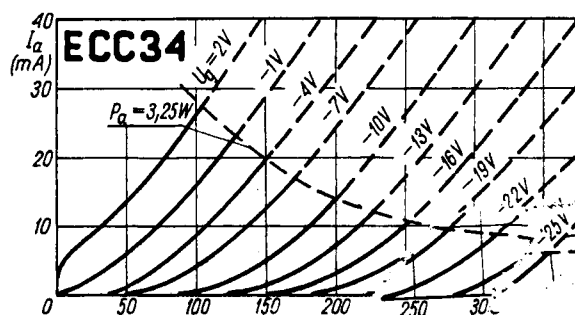
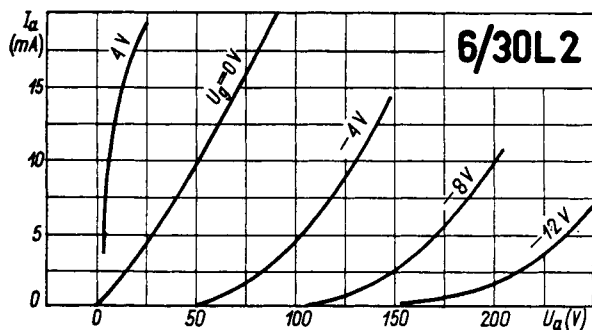
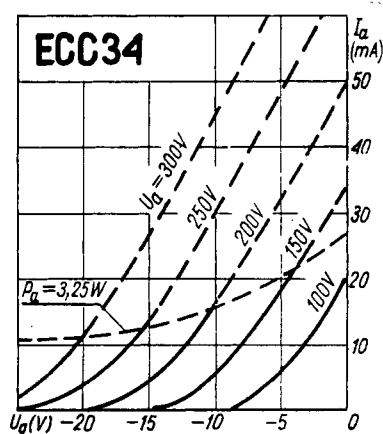
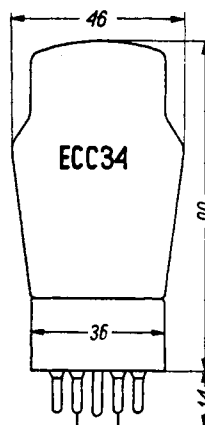
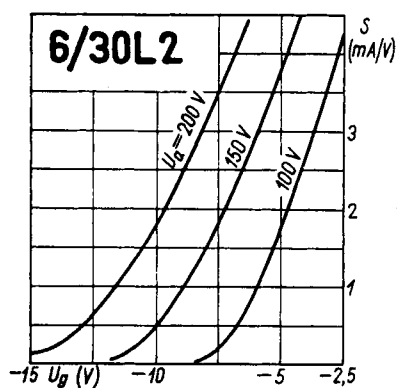
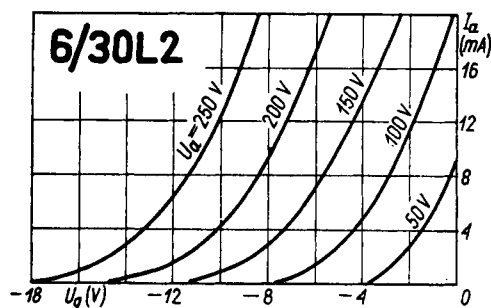
BL63



ECC34



6AE6-G

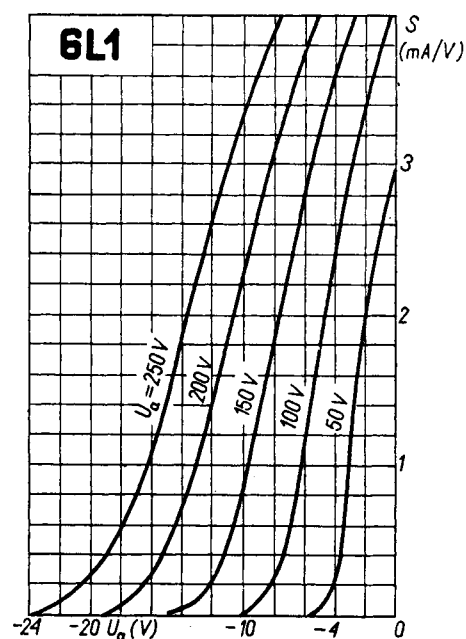
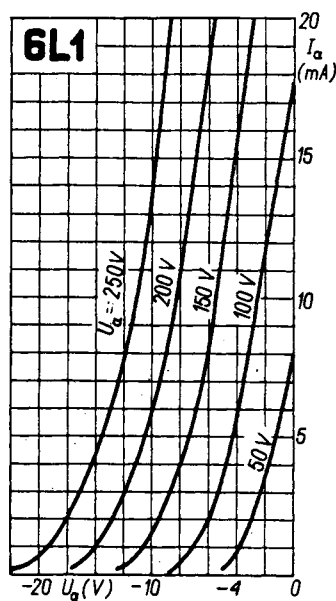
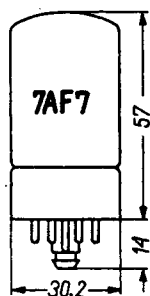
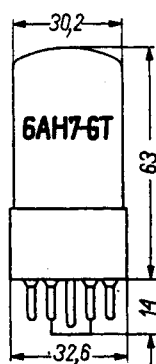
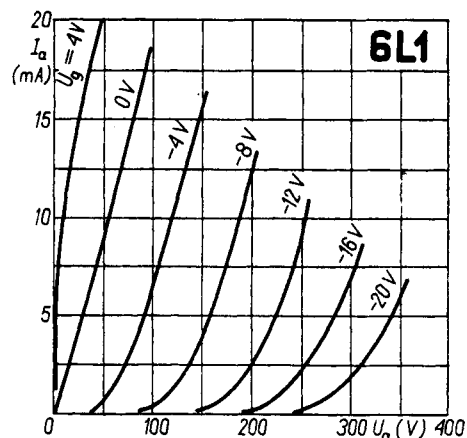
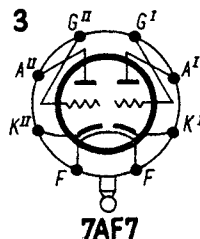
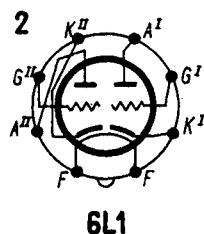
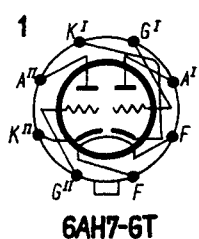


T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	U_f/k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	Ω	V	W
6 AH 7-GT	int	I	6,3	0,3	100	-3,6	3,7	1,55	10,3	16			
12 AH 7-GT	int	I	12,6	0,15	180	-6,5	7,6	1,9	8,4	16			
					250	-9	12	2,35	6,7	16			
					250			maximum				200	2
6 L I	Eds	2	6,3	0,4	200	-8,5	10	2,8	5,7	16			
20 L I	Eds	2	12,6	0,2	250			maximum				250	3
					100	0	10,8	2,6	6,5	17	0		
7 AF 7	amer	3	6,3	0,3	100	-3	5	1,9	8,4	16	600		
14 AF 7	amer	3	12,6	0,15	250	-10	9	2,1	7,6	16	1100		
					300			maximum				90	2,5

T.		C_g	C_a	$C_{g/a}$	$C_{gI/gII}$	$C_{aI/aII}$	$C_{aI/gII}$	$C_{gII/aI}$
		pF	pF	pF	pF	pF	pF	pF
6 AH 7-GT	I sect.	2,8	2,6	3				
	II sect.	3,2	3	2,2	0,06	0,4		
6 L I	I sect.	2,8	2,4	2,7				
	II sect.	2,8	2,2	2,6	0,016	0,62	0,033	0,09

Equivalents

XXD amer = 14 AF 7
 12 H II C CCCP = 12 AH 7-GT
 12 H II M CCCP = 12 AH 7-GT

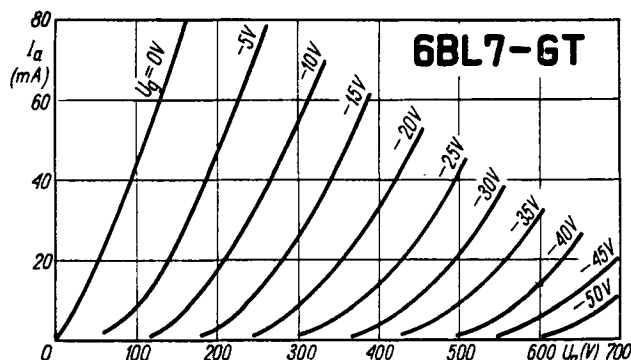
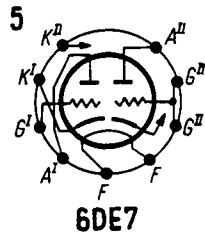
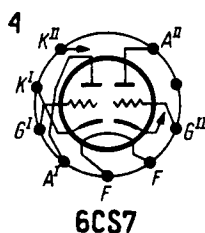
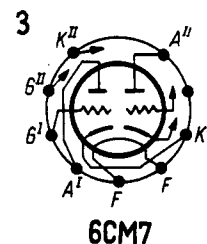
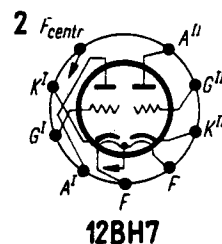
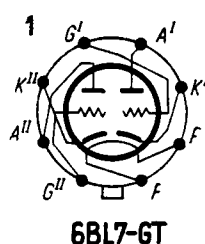


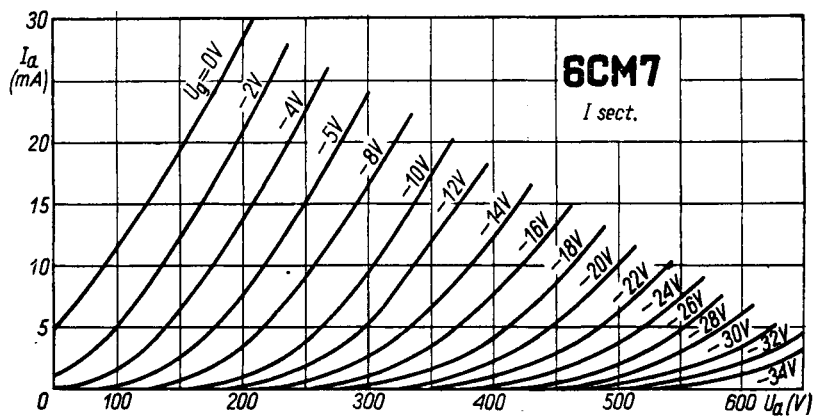
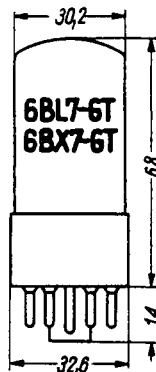
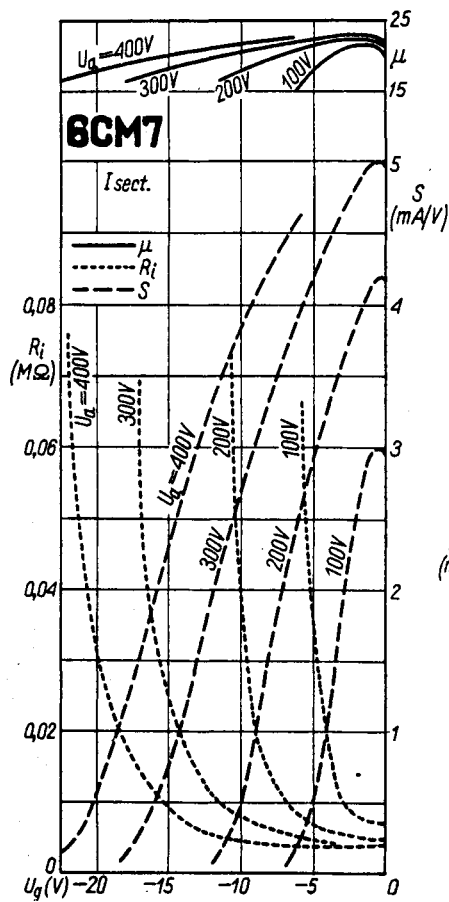
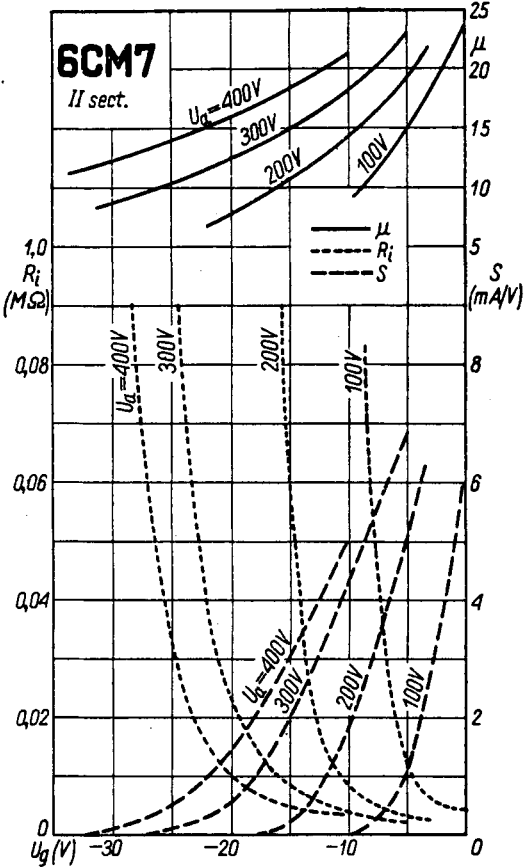
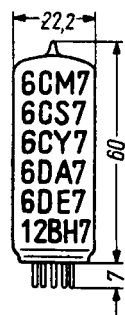
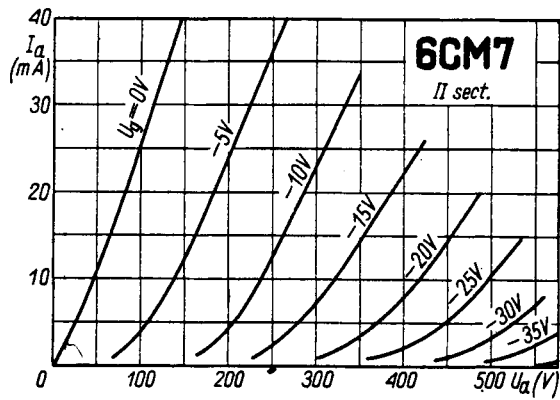
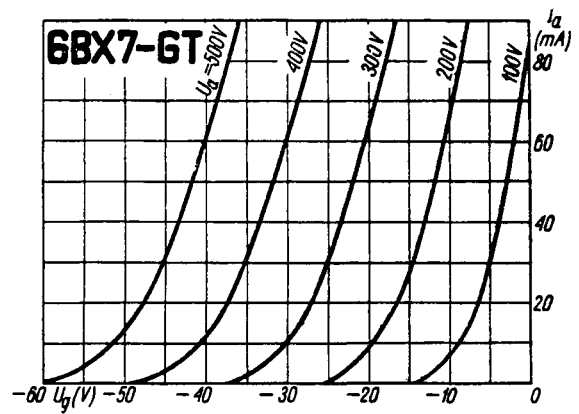
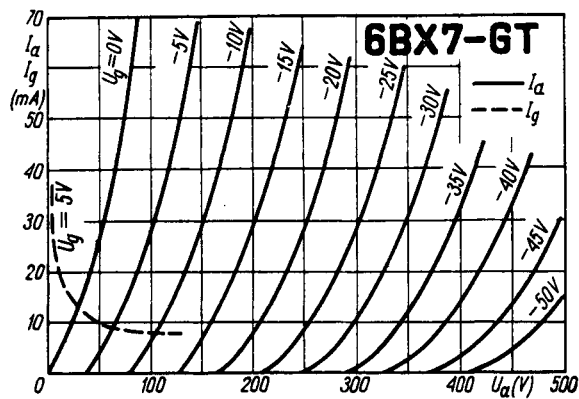
T.		U_f	I_f	Cl.	U_a	$U_a(imp)^1$	U_g	$U_g(imp)^1$	I_a	S	R_i	μ	I_k	$I_k(imp)^1$	P_a
		V	A		V	V	V	V	mA	mA/V	k Ω	V/V	mA	mA	W
6 BL 7-GT	amer	I	6,3	1,5	stat.	250	—9	—	40	6,2	2,15	15			
6 BL 7-GTA	amer	I	6,3	1,5	VD-Osc.	500		—400		maximum			60	210	10
					VD-Ampl.	500	2000	—250		maximum			60	210	10
6 BX 7-GT	int	I	6,3	1,5	stat.	250	(390 Ω) ³⁾	—	42	7,6	1,3	10			
31 BX 7-GT	amer	I	31,5	0,3	VD-Osc.	500		—400		maximum			60	180	10
					VD-Ampl.	500	2000	—		maximum			60	180	10
12 BH 7	int	2	6,3/1,26	0,6/0,3	stat.	85	0	—	20	6,2	3,4	21			
12 BH 7-A	amer	2	6,3/12,6	0,6/0,3	VD-Osc.	250	—10,5	—600 ³⁾	11,5	3,1	5,3	16,5	20		3,5
					VD-Ampl.	450		—250		maximum			20	300	3,5
					VD-Osc.	450	1500	—400		maximum			20	70	3,5
					VD-Osc.	450		—		maximum			20	70	3,5
6 CM 7	amer	3	6,3	0,6	VD-Osc.	200	—7	—200	5	2	10,5	21	15	70	1,25
8 CM 7	amer	3	8,4	0,45	I sect.	500		—		maximum					
					VD-Ampl.	250	—8	—200	20	4,4	4,1	18	20	70	5,5
					II sect.	500	2200	—200		maximum					
6 CS 7	amer	4	6,3	0,6	VD-Osc.	250	—8,5	—400	10,5	2,2	7,7	17	20	70	1,25
8 CS 7	amer	4	8,4	0,45	I sect.	500		—		maximum					
					VD-Ampl.	250	—10,5	—250	19	4,5	3,45	15,5	30	105	6,5
					II sect.	500	2200	—		maximum					
6 CY 7 ¹⁾	amer	4	6,3	0,75	VD-Osc.	250	—3	—400	1,2	1,3	52	68			1
8 CY 7	amer	4	7,9	0,6	I sect.	350		—		maximum					
11 CY 7	amer	4	11	0,45	VD-Ampl.	150	(620 Ω) ⁴⁾	—250	30	5,4	0,92	5	35	120	5,5
					II sect.	350	1800	—		maximum					
6 DA 7	amer	4	6,3	1	VD-Osc.	250	—8	—400	9	2,6	7,7	20	20	70	2
10 DA 7	amer	4	10,5	0,6	I sect.	300	—50	—400		maximum					
					VD-Ampl.	150	—17,5	—400	40	5,7	1,1	6,3	40	120	6
					II sect.	500	—50	—400		maximum					
6 DE 7	amer	5	6,3	0,9	VD-Osc.	250	—11	—400	5,5	2	8,75	17,5	22	77	1,5
10 DE 7	amer	5	9,7	0,6	I sect.	330		—		maximum					
13 DE 7	amer	5	13	0,45	VD-Ampl.	150	—17,5	—250	35	6,5	0,925	6	50	175	7
19 DE 7	amer	5	19,4	0,3	II sect.	275	1500	—		maximum					

¹⁾ Impulse $\leq 2,5$ msec.; $R_g = 2,2$ M Ω ; $U_{f-}/k_+ = 200$ V; ²⁾ Impulse ≤ 10 μ sec.; ³⁾ $R_k = 390$ Ω ; ⁴⁾ $R_k = 620$ Ω ; ⁵⁾ vide gr. 343

T.	vide * 5	C_g	C_a	$C_{g/a}$
		pF	pF	pF
6 BL 7-GT ¹⁾	I sect.	4,4	1,1	4,2
6 BX 7-GT	II sect.	4,8	1,2	4
12 BH 7 ¹⁾	I sect.	3,2	0,5	2,6
	II sect.	3,2	0,4	2,6
6 CM 7	I sect.	2	0,5	3,8
	II sect.	3,5	0,4	3
6 CS 7	I sect.	1,8	0,5	2,6
	II sect.	3	0,5	2,6
6 CY 7	I sect.	1,5	0,3	1,8
	II sect.	5	1	4,4
6 DA 7	I sect.	2	0,41	2,3
	II sect.	5,5	0,82	6,9
6 DE 7	I sect.	2,2	0,52	4
	II sect.	5,5	1	8,5

¹⁾ $C_{g/g} = 0,11$ pF; $C_{a/a} = 1,5$ pF; ²⁾ $C_{a/a} = 0,8$ pF





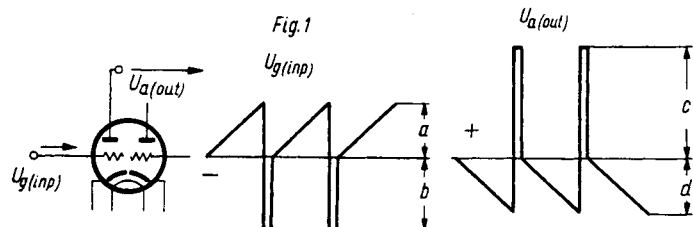
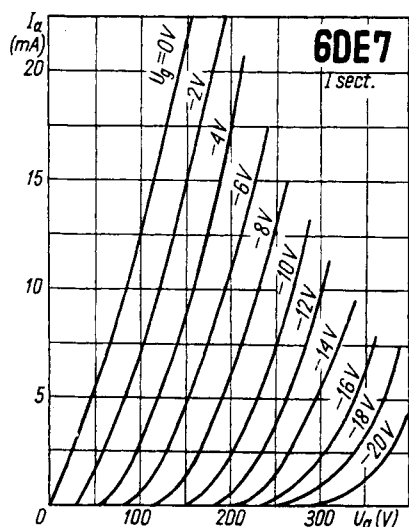
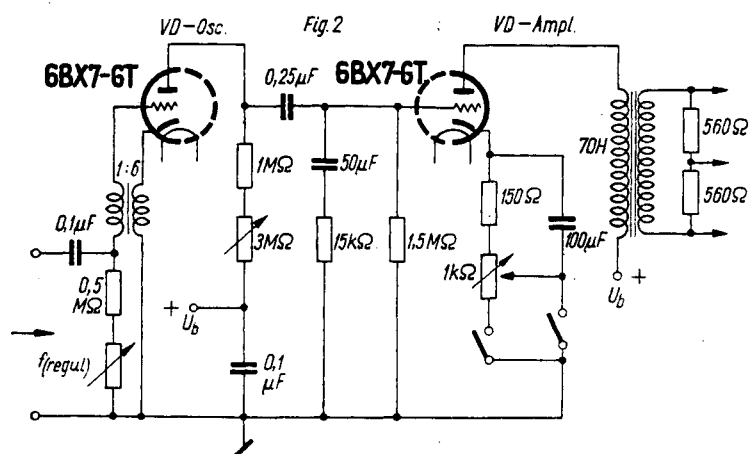
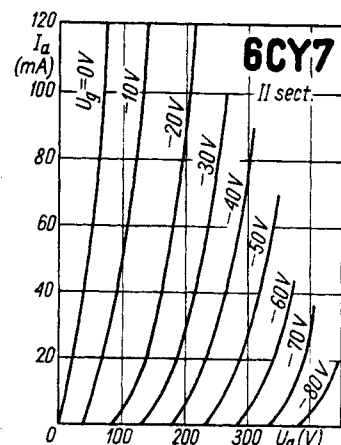
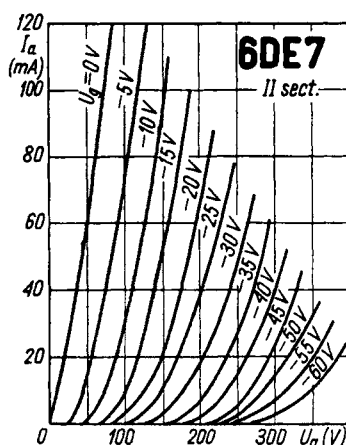
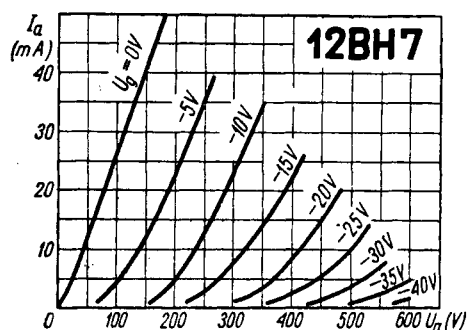
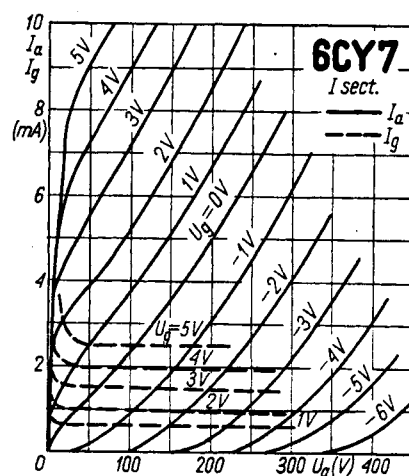
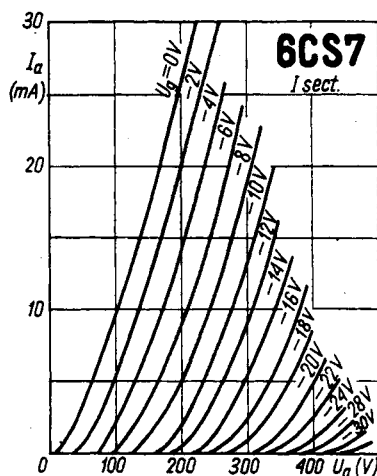
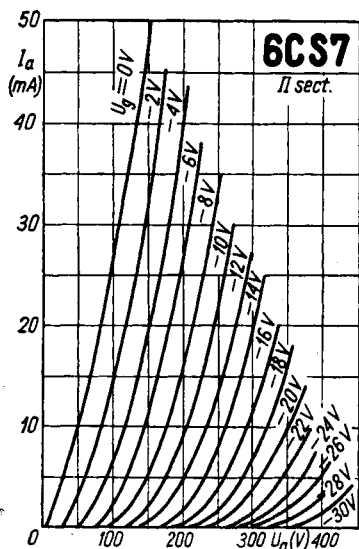


Fig. 1

T.	a	b	c	d
	V	V	V	V
6 BL 7-GT	44	36	600	270
6 BX 7-GT	70	41	840	160
12 BH 7	32	25	670	230

T.			U_f	I_f	Cl.	U_a	U_g	I_a	S	R_i	μ	R_k	R_o	P_o	$U_{g\approx}$	h	I_k	P_a
			V	A		V	V	mA	mA/V	kΩ	V/V	Ω	kΩ	mW	V	%	mA	W
6 AU 7 7 AU 7 9 AU 7 12 AU 7 F/6067 ¹⁾	amer amer amer int Bri	I I I I 1/2	3,15/6,3 3,5/7 4,7/9,4 6,3/12,6 6,3/12,6	0,6/0,3 0,6/0,3 0,45/0,225 0,3/0,15 0,3/0,15	stat A AB HD-Osc VD-Osc. VD- -Ampl stat	100	0	11,8	3,2	6,25	20							
						170	—4	10	2,5	7,2	18							
						200	—5,5	11	2,5	7,2	18							
						250	—8,5	10,5	2,2	7,7	17							
						250	—9,4	9,2÷9,6				1	13	27	5,9	10		
						250	—11	13,2÷14,4				0,8	30	715	8,2	4		
						300											20	2,75
						—600											300	
						300											20	2,75
						—400											60	
maximum (Impulse ≤ 10 μsec; $R_g = 2,2 \text{ M}\Omega$)																		
maximum (Impulse ≤ 2,5 msec; $R_g = 2,2 \text{ M}\Omega$)																		
maximum (Impulse ≤ 2,5 msec; $R_k = 2,2 \text{ M}\Omega$)																		
maximum ($U_{f/k} = 180 \text{ V}$)																		

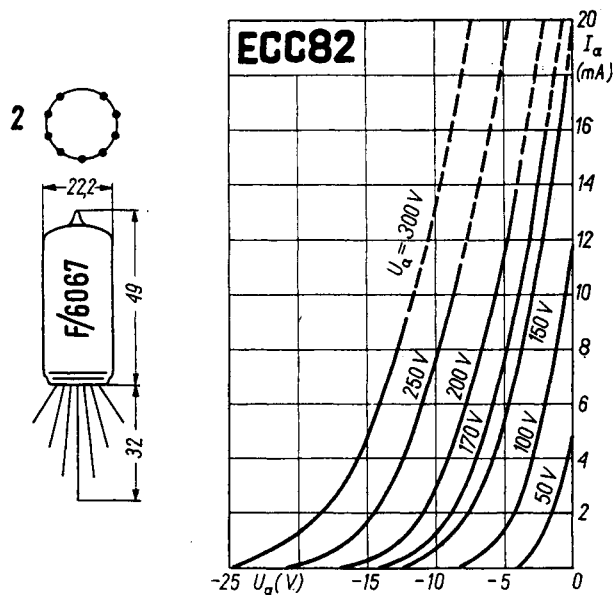
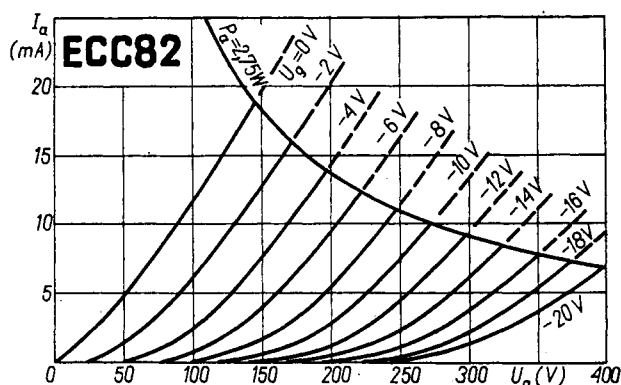
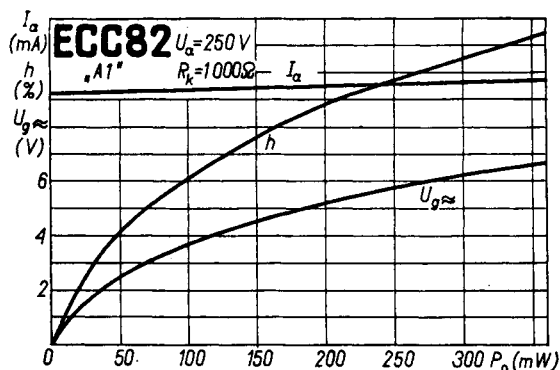
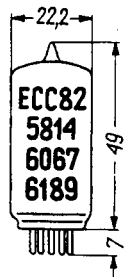
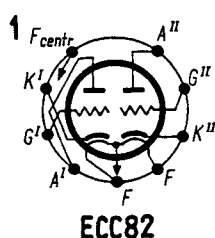
Equivalents

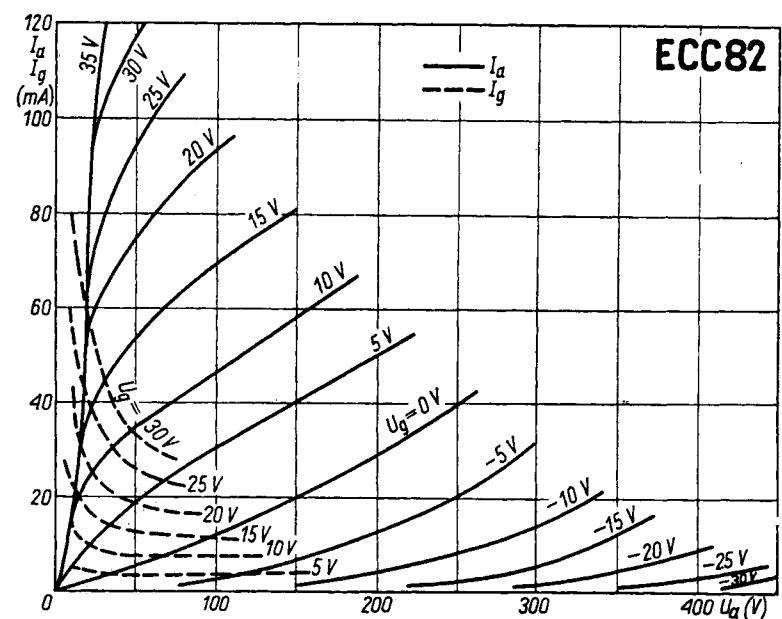
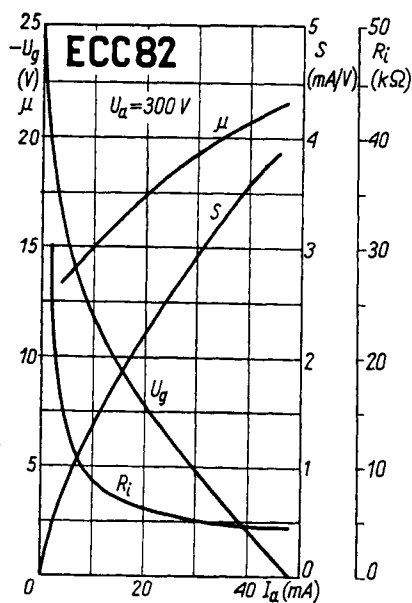
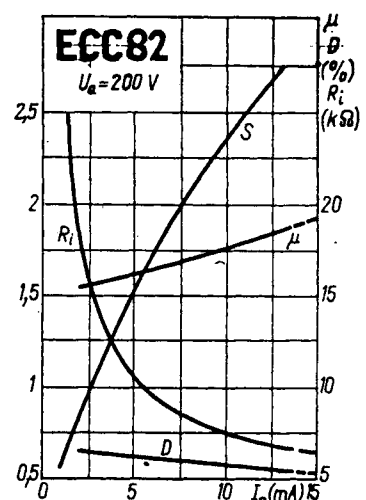
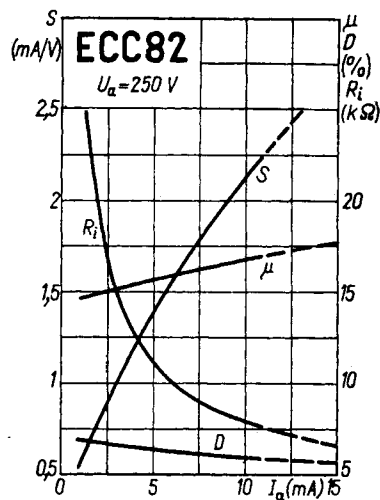
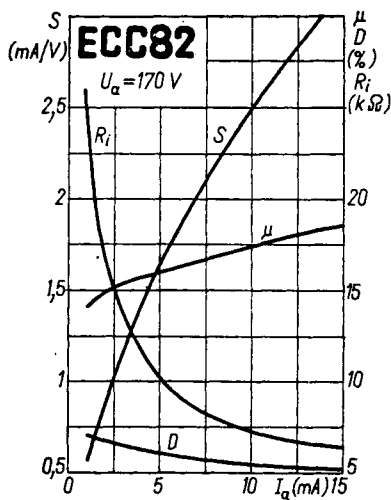
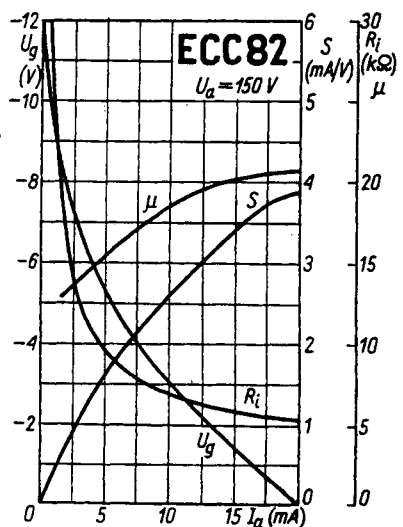
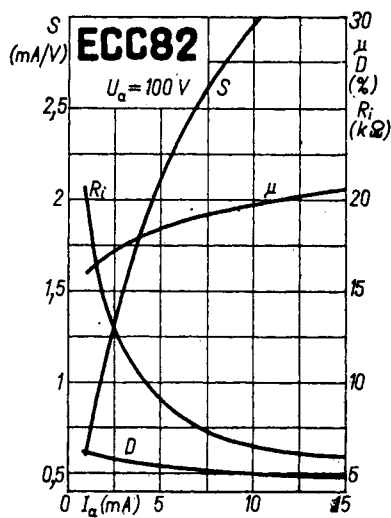
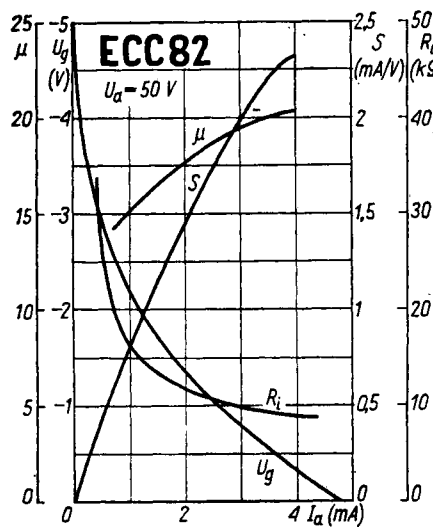
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CC 82 E ¹⁾	Siem = 12 AU 7	XCC 82	Phl = 7 AU 7
CK 5814	Ray = 12 AU 7	XF/6067 ¹⁾	Bri = F/6076
CK 5814-A	Ray = 12 AU 7	6 CC 40	Tes = 6 AU 7
CK 5814-WA ¹⁾	Ray = 12 AU 7	12 AU 7-A	amer = 12 AU 7
E 82 CC ¹⁾	eur = 12 AU 7	12 AU 7-WA ¹⁾	amer = 12 AU 7
ECC 82	eur = 12 AU 7	12 AU 7 R	RT = 12 AU 7
ECC 802	Lor = 12 AU 7	12 AU 7 S ¹⁾	RT = 12 AU 7
ECC 802 S ¹⁾	Tif = 12 AU 7	5814	amer = 12 AU 7
FF/6067 ¹⁾	Bri = F/6067	5814-A	amer = 12 AU 7
GL 5814	GE = 12 AU 7	5814-WA ¹⁾	amer = 12 AU 7
M 8134 ¹⁾	Mul = 12 AU 7	6067 ¹⁾	Bri = 12 AU 7
M 8149 ¹⁾	Mul = F/6067	6189 ¹⁾	int = 12 AU 7
QB 329 ¹⁾	Marc = 12 AU 7	6680	amer = 12 AU 7
SF/6067 ¹⁾	Bri = F/6067	7730	Hyc = 12 AU 7

vide * 5	C_g	C_a	$C_{g/a}$	$C_{g/f}$	$C_{a/a}$	$C_{g/g}$	$C_{gI/aII}$	$C_{gII/aI}$
	pF	pF	pF	pF	pF	pF	pF	pF
I sect.	1,8	0,5	1,6	0,14	1,1	0,008	0,05	0,09
II sect.	1,8	0,37	1,6	0,14	1,1	0,008	0,05	0,09

¹⁾ vide * 4 a, b, c = 10.000, f, g ($U_f = 6,3/12,6 \text{ V} \pm 5\%$)

²⁾ vide * 4 a, b, c = 10.000, f, g ($U_f = 6,3/12,6 \text{ V} \pm 10\%$;
 $I_f = 0,35/0,175 \text{ A}$)





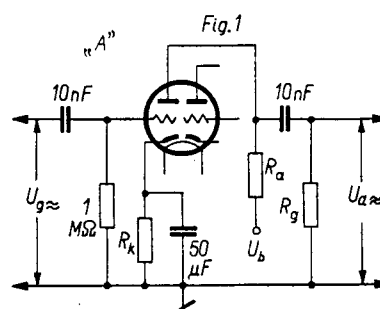
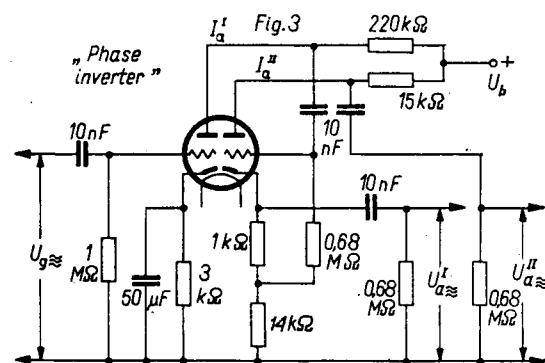
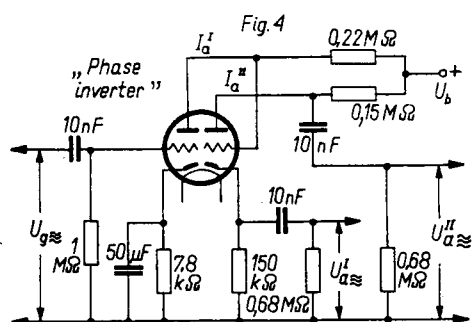
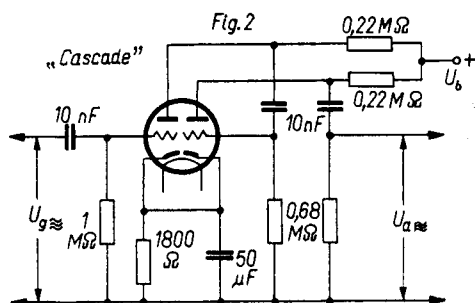
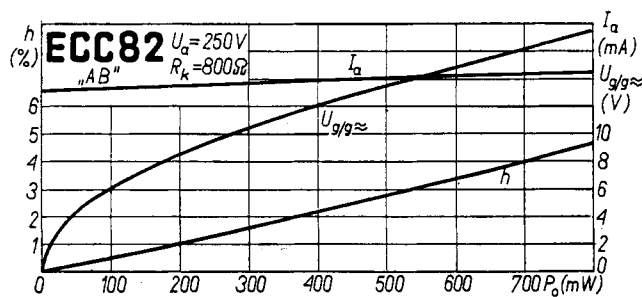
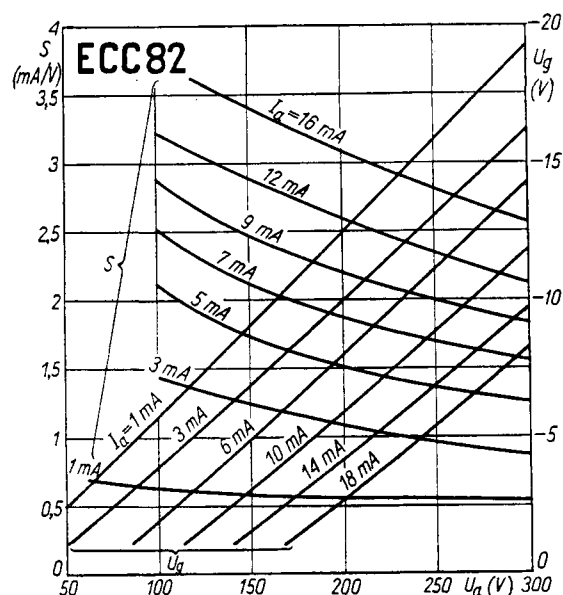


Fig. 1

U_b V	R_a MΩ	R_g MΩ	R_k kΩ	I_a mA	$U_{g\sim}$ V	μ V/V	h %
100	0,047	0,15	1,2	1,2	11	13,5	5,6
100	0,1	0,33	2,2	0,66	10	14	4,8
100	0,22	0,68	3,9	0,33	8	14,5	4
150	0,047	0,15	1,2	1,82	18	13,5	6,1
150	0,1	0,33	2,2	0,98	17	14	5,6
150	0,22	0,68	3,9	0,5	15	14,5	4,4
200	0,047	0,15	1,2	2,41	26	13,5	6,3
200	0,1	0,33	2,2	1,3	25	14	5,8
200	0,22	0,68	3,9	0,66	22	14,5	4,7
250	0,047	0,15	1,2	3,02	34	13,5	6,4
250	0,1	0,33	2,2	1,63	32	14	5,9
250	0,22	0,68	3,9	0,82	28	14,5	4,8
300	0,047	0,15	1,2	3,65	43	13,5	6,5
300	0,1	0,33	2,2	1,97	41	14	6,0
300	0,22	0,68	3,9	0,98	36	14,5	4,9
350	0,047	0,15	1,3	4,3	51	13,5	6,6
350	0,1	0,33	2,2	2,3	49	14	6,1
350	0,22	0,68	3,9	1,16	43	14,5	5,0
400	0,047	0,15	1,2	5	59	13,5	6,7
400	0,1	0,33	2,2	2,62	57	14	6,2
400	0,22	0,68	3,9	1,31	50	14,5	5,1

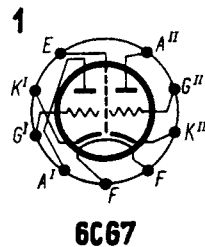
	U_b V	$I_a I$ mA	$I_a II$ mA	$U_{g\sim}$ V	μ V/V	h %
Fig. 2	250	1,66		15	178	2
	350	2,33		25	178	2
Fig. 3	250	0,82	4,5	13	11	1,5
	350	1,16	6,3	20	11	1,5
Fig. 4	250	0,7	0,68	15	11	1
	350	1	0,93	24	11	1

T.		U_f	I_f	Cl.	U_a	U_g	I_a	S	R_i	μ	R_g	U_f/k	I_k	P_a
		V	A		V	V	mA	mA/V	k Ω	V/V	M Ω	V	mA	W
6 CG 7	amer	1	6,3	0,6	stat.	26,5	1,8	1,8	11,5	21	0,05			
6 F 8-G	amer	2	6,3	0,6		90	0	10	3	20				
6 SN 7-GT	int	3	6,3	0,6		250	8	9	2,6	20				
7 N 7	amer	4	6,3	0,6		450	—600		peak		2,2		300	5
8 CG 7	amer	1	8,4	0,45	HD-Osc.	1500	—250		peak	(2 msec.)	2,2		70	5
8 SN 7-GTB	amer	3	8,4	0,45	VD-Osc.								20	2,5
12 SN 7-GT	int	3	12,6	0,3	stat.	300	maximum 6/8 CG 7; 6/12/25 SN 7-GT; 7/14 N 7					90	20	
14 N 7	amer	4	12,6	0,3		450	maximum 6/18/12 SN 7 7-GTA/GTB					200	20	5
25 SN 7-GT	amer	3	25	0,15										

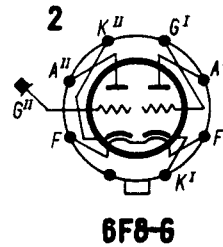
T.		C_g	C_a	$C_{g/a}$
		pF	pF	pF
6 CG 7	I sect.	2,3	2,2	4
	II sect.	2,3	2,2	4
6 F 8-G	I sect.	3,2	1	3,8
	II sect.	1,9	1,9	3,2
6 H 8 C	I sect.	2,8	0,8	3,8
	II sect.	3	1,2	4
6 SN 7	I sect.	2,2	0,8	4
	II sect.	2,2	0,8	4
6 SN 7-GT	I sect.	2,8	0,8	3,8
	II sect.	3	1,2	4
6 SN 7-GTA	I sect.	2,2	0,7	4
6 SN 7-GTB	II sect.	2,6	0,7	3,8
7 N 7	I sect.	3,4	2	3
	II sect.	2,9	2,4	3
12 SX 7-GT	I sect.	3	0,8	3,6
	II sect.	2,8	1,2	3,6
5692	I sect.	2,3	2,5	3,5
	II sect.	2,6	2,7	3,3
B 65	I sect.	2,95	0,77	4,15
	II sect.	2,85	0,68	4,05

Equivalents

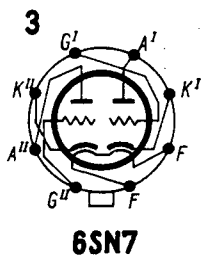
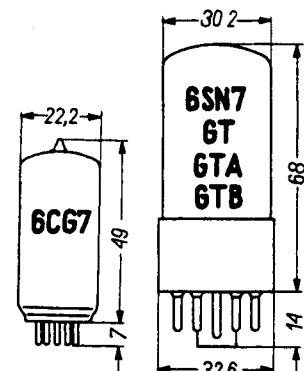
B 36	Eng = 12 SN 7-GT	6 SN 7-GTB	amer = 6 SN 7-GT
B 65	Eng = 6 SN 7-GT	6 SN 7-WGT ¹⁾	amer = 6 SN 7 GT
E 1606	Marc = 6 SN 7-GT	6 SN 7-WGTA ¹⁾	TS = 6 SN 7-GT
HF 3129	RFT = 6 SN 7	7 N 7-TV	Syl = 7 N 7
OSW 3129	RFT = 6 SN 7	12 SN 7-GTA	amer = 12 SN 7-GT
QA 2408 ¹⁾	Osar = 6 SN 7-GT	12 SN 7-GTB	amer = 12 SN 7-GT
QB 65 ¹⁾	Marc = 6 SN 7-GT	12 SX 7-GT	amer = 12 SN 7-GT
6 CC 10	Tes = 6 SN 7-GT	13 D 1	Bri = 25 SN 7-GT
6 H 8 C	CCCP = 6 SN 7-GT	13 D 2	Bri = 12 SN 7-GT
6 H 8 M	CCCP = 6 SN 7-GT	1633	RCA = 25 SN 7-GT
6 SN 7	RFT = 6 SN 7-GT	5692 ¹⁾	amer = 6 SN 7-GT
6 SN 7-GTA	amer = 6 SN 7-GT	6042	Bri = 25 SN 7-GT
		6180	amer = 6 SN 7-GT

¹⁾ vide* 4²⁾ vide* 4, a, b ($U_f = 6,3 \text{ V} \pm 10\%$)³⁾ vide* 4, a, b, c = 10.000, f, g ($U_f = 6 \div 6,6 \text{ V}$)

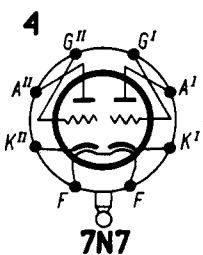
6CG7



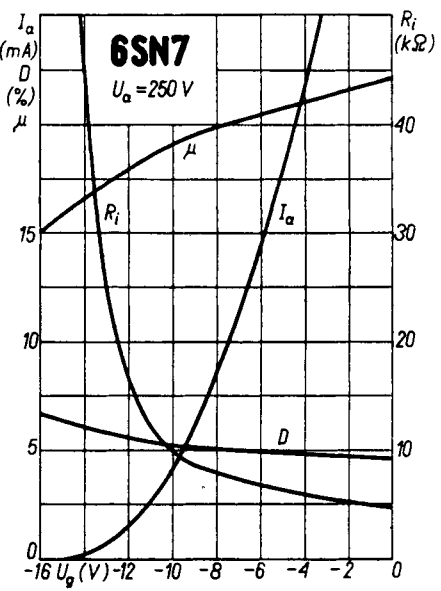
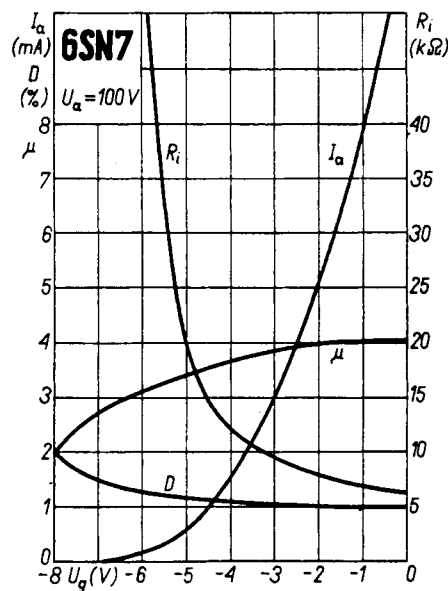
6F8-6



6SN7



7N7



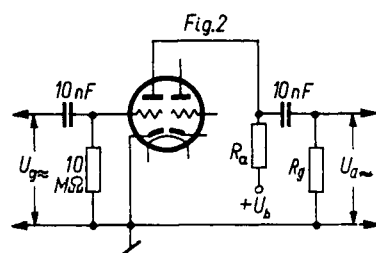
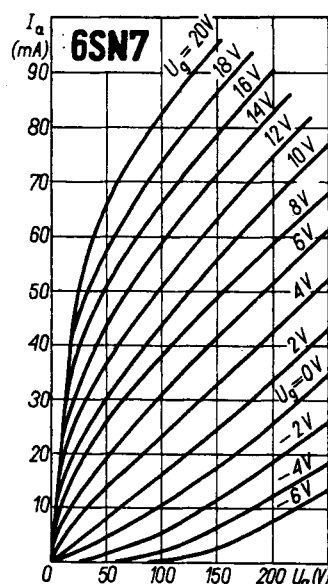
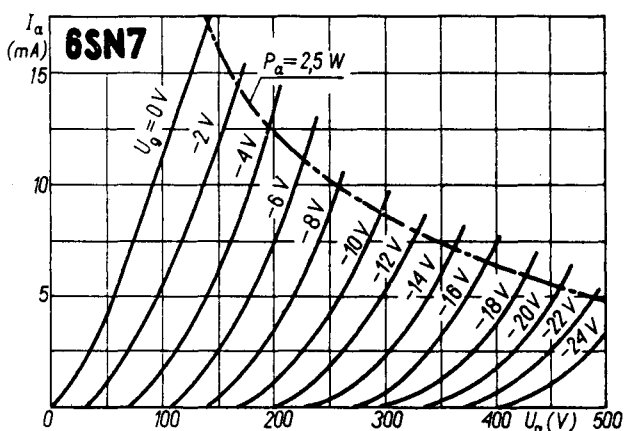
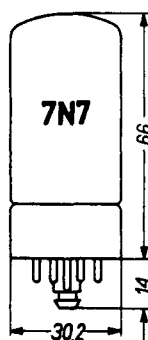
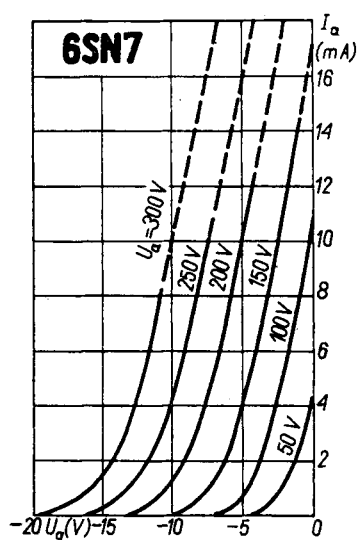
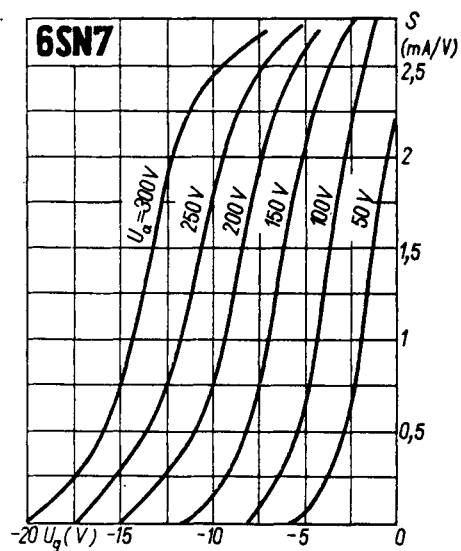
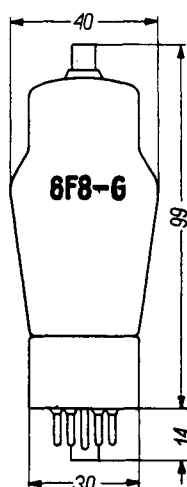
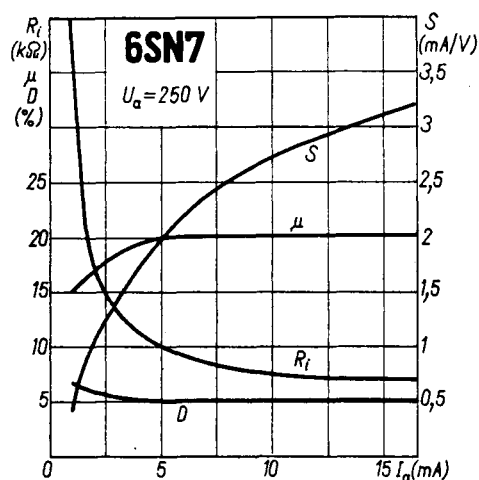


Fig. 1

U_b	R_a	R_k	R_g	$U_{g\sim}$	$U_{a\sim}$	μ	h
V	kΩ	kΩ	kΩ	V	V	V/V	%
100	50	2	300	1,13	15,5	13,5	4,2
100	100	5	500	1,3	19,2	14,7	4,7
100	300	10	500	1,2	17,7	14,7	4,5
180	100	2,5	250	2,2	33	15	5
180	250	7	500	2,6	39	15	5
180	500	10	1000	2	32	16	5
250	50	2	300	3,5	52,5	15	4,9
250	100	4	500	3,3	53	16,1	4,6
250	300	8	500	3,05	49,4	16,2	4,5
300	100	2,5	250	3,4	51	15	5
300	250	5	500	3,4	54	16	5
300	500	7,5	1000	2,8	45	16	5

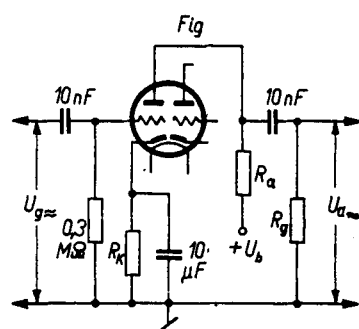


Fig. 2

U_b	R_a	R_g	$U_{g\sim}$	$U_{a\sim}$	μ	h
V	kΩ	kΩ	V	V	V/V	%
180	250	250	2	33	16	5
180	250	500	2,2	38	17	5
180	500	500	1,8	32	18	5
180	500	1000	2,3	41	18	5
300	250	250	2,7	46	17	5
300	250	500	3,4	62	18	5
300	500	500	2,9	53	18	5
300	500	1000	3,6	68	19	5

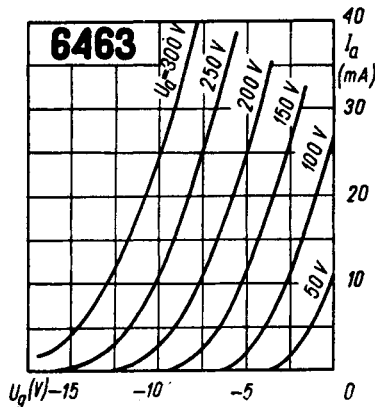
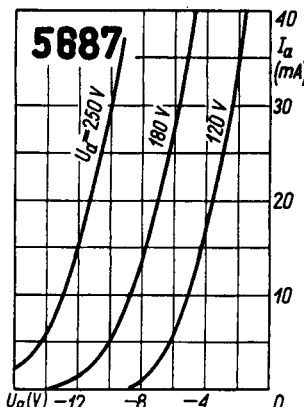
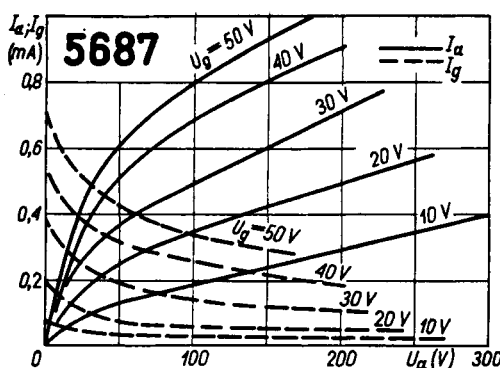
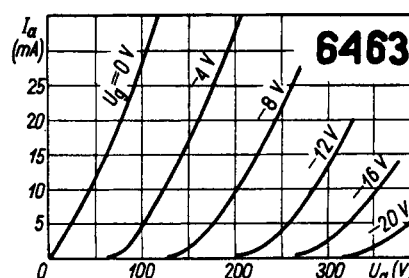
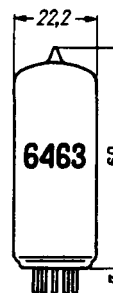
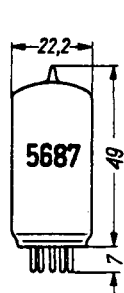
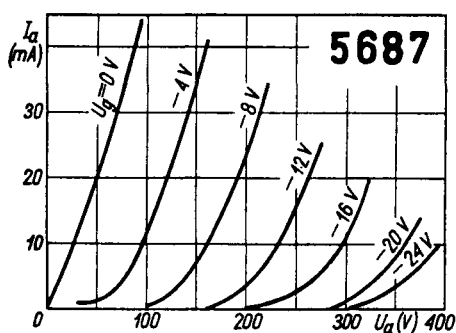
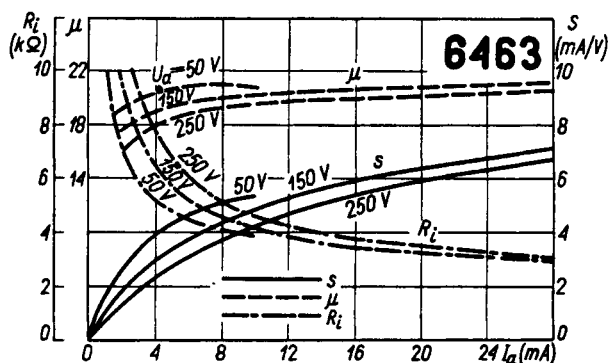
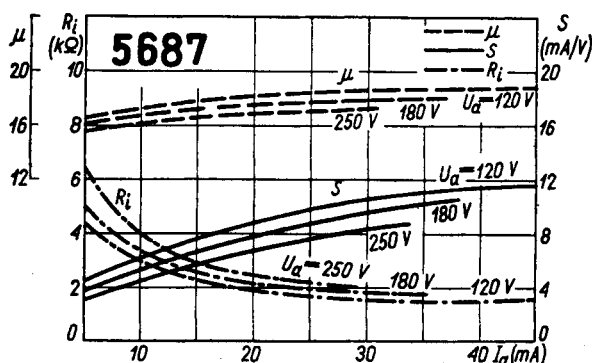
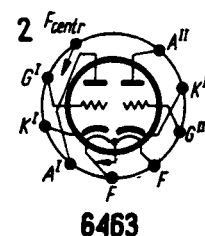
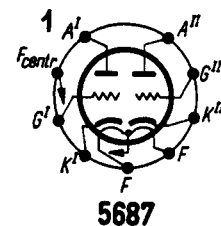
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	mA	W
5687	int	1	6,3/12,6	0,9/0,45	120 180 250 300	— 2 — 7 —12,5	36 21 12,5	11 8,25 5,5	1,7 2,1 3	18,5 17,5 16,5			
								maximum			100	65	4,2
6463 ¹⁾	int	2	6,3/12,6	0,6/0,3	250 300 660	(—9,5) ²⁾ —85 —350	14,5 —	5,2 maximum maximum (impulse $\leq 10 \mu\text{sec}$)	3,85 —	20	100 ⁴⁾	31 330	4,4

¹⁾ vide *4, a, b, c = 10.000, d, e, f, g ²⁾ vide *3, $U_f = 6,3/12,6 \text{ V} \pm 5\%$; ³⁾ $R_k = 620 \Omega$; ⁴⁾ $U_{f+k} = 200 \text{ V}$

Equivalents

CC 86 E ¹⁾	Siem	= 6463
CK 5687	Ray	= 5687
CK 5687-WA ¹⁾	Ray	= 5687
TS 229 ¹⁾	Phl	= 5687
5687 S ¹⁾	Frc	= 5687
5687-WA ¹⁾	amer	= 5687

T.	vide *5	C_g	C_a	$C_{g/a}$	$C_{f/k}$	$C_{g/g}$	$C_{a/a}$
		pF	pF	pF	pF	pF	pF
5687	I sect.	4	0,6	4	8		
	II sect.	4	0,5	4	8	0,025	0,75
6463	I sect.	3	0,6	5	4,6		
	II sect.	3	0,5	5	4,6	0,016	0,9



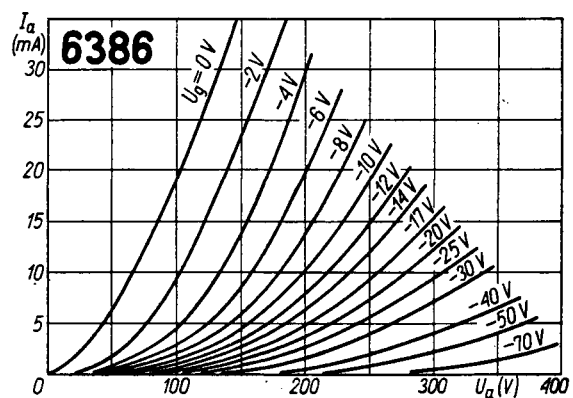
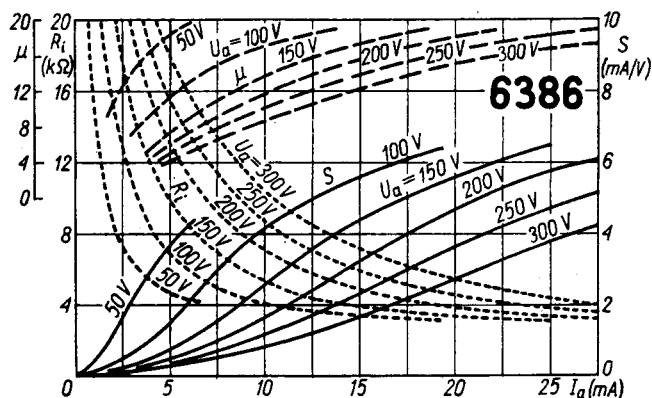
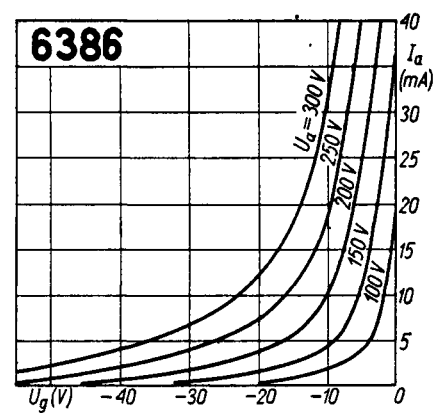
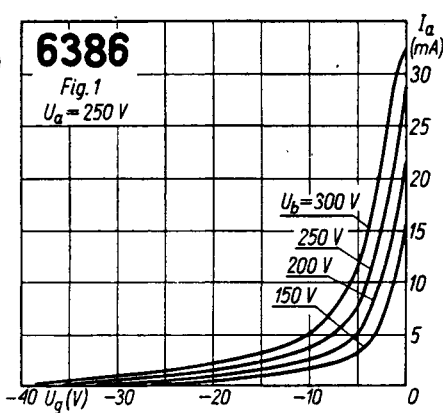
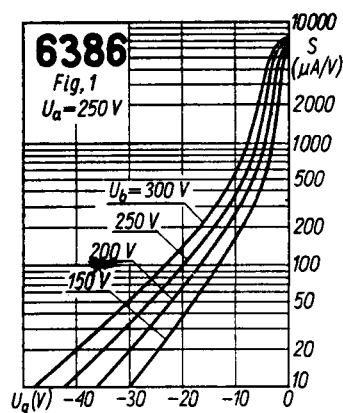
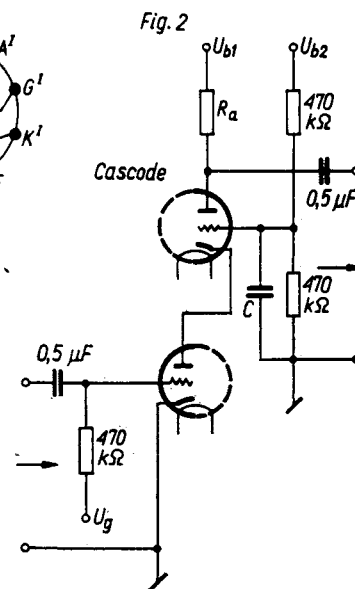
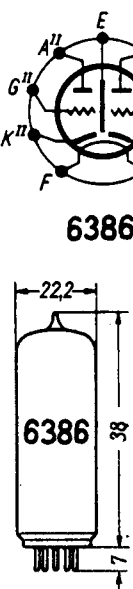
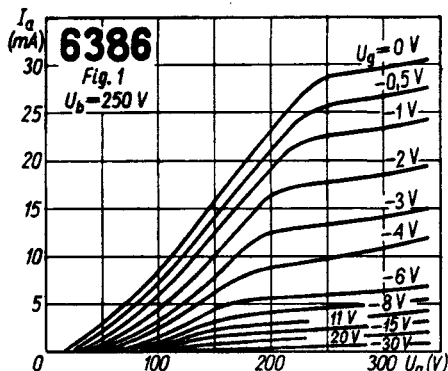
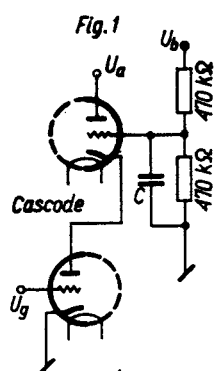
T.		U_f V	I_f A	Cl.	U_a V	U_{b1} V	U_{b2} V	R_a k Ω	U_g V	I_a mA	S mA/V	R_t k Ω	μ V/V	R_k Ω	U_f/k V	I_k mA	P_a W
6386 ¹⁾	GE	6,3	0,35	stat. Fig. 2	100 300	300 200	250 200	10 0	-5 -2	9,6 10,5	4 4	4,25	17	200			
												maximum			90	18	1,5

¹⁾ vide * 4, a, b, ξ ; ($U_f = 6,3$; $V \pm 10\%$)

Equivalents

GL-6386	GE
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C_g	C_a	$C_{g/a}$	$C_{f/k}$	$C_{g/g}$	$C_{a/a}$
pF	pF	pF	pF	pF	pF
2	1,1	1,2	2,6	0,003	0,11

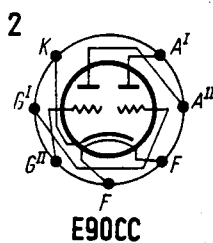
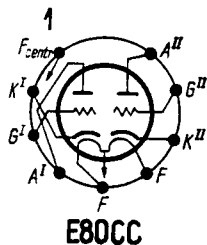


T.			U_f	I_f	U_a	U_g	I_a	I_g	S	R_i	μ	R_k	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA	mA/V	k Ω	V/V	Ω	V	mA	W
E 80 CC ¹⁾	eur	I	6,3/12,6	0,6/0,3	$\begin{cases} 250 \\ 300 \end{cases}$	-200	$6 \pm 0,6$	$\begin{cases} 0,3 \\ 30 \end{cases}$	$2,7 \pm 0,5$	10	27	920	120	12	2
E 90 CC ²⁾	eur	2	6,3	0,4	$\begin{cases} 100 \\ 300 \end{cases}$	$\begin{cases} -2,1 \\ -100 \end{cases}$	$8,5 \pm 4$	$\begin{cases} 0,25 \\ 1 \end{cases}$	$6 \pm 1,5$	4,5	27	250	100	15	2
6211 ³⁾	int	I	6,3/12,6	0,3/0,15	$\begin{cases} 100 \\ 200 \end{cases}$	$\begin{cases} -100 \\ -200 \end{cases}$	$4,6 \pm 1$	$\begin{cases} 2 \\ 50 \end{cases}$	$3,6 \pm 0,9$	7,8	28	470	90	14	1,5

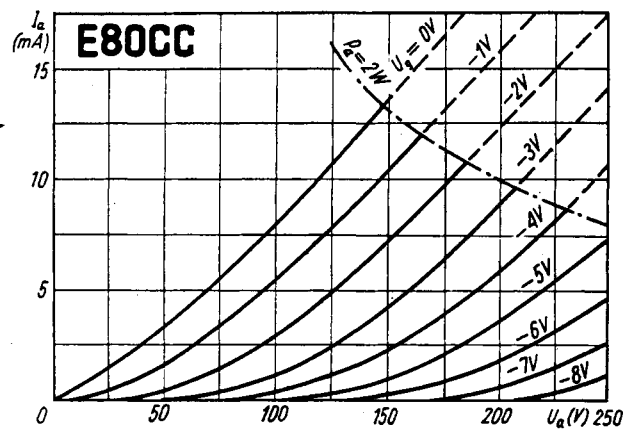
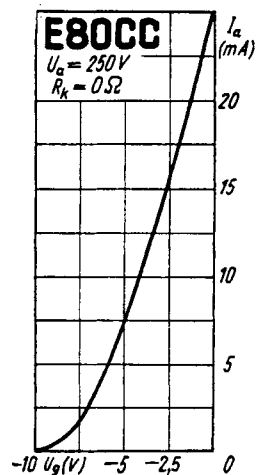
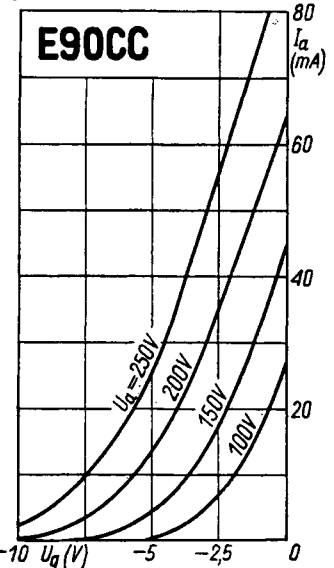
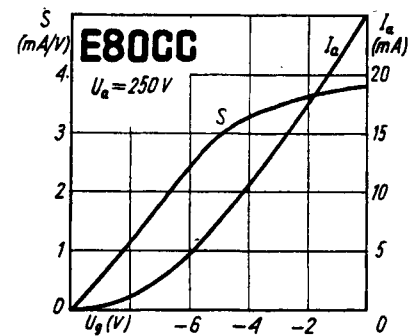
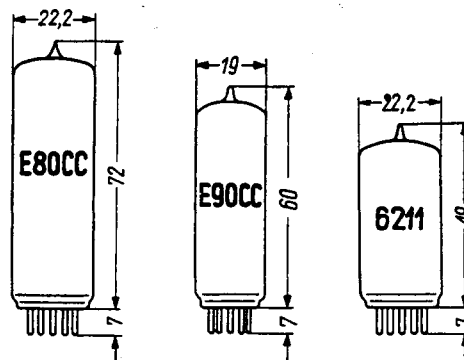
¹⁾ vide * 4, a, b, c = 10.000, e, f, g; $U_f = 6,3/12,6 \text{ V} \pm 5\%$; ²⁾ vide * 3

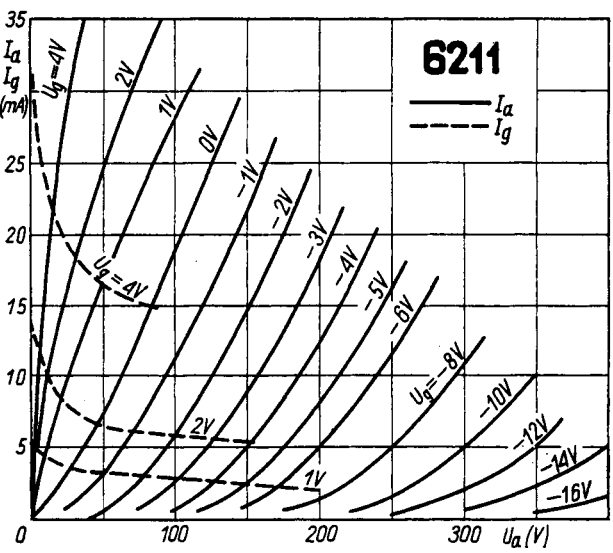
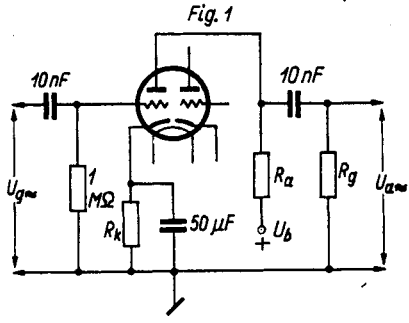
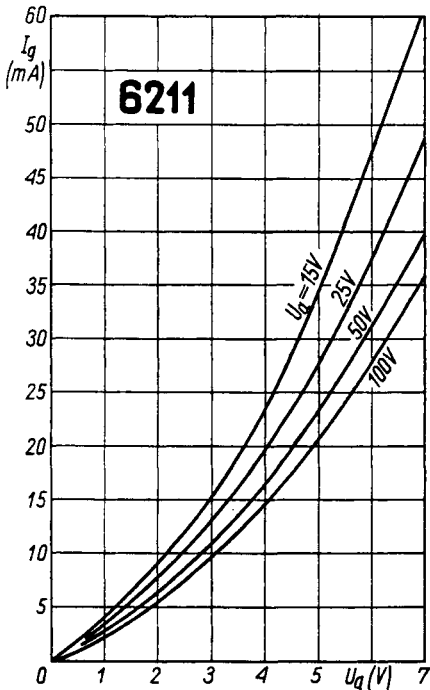
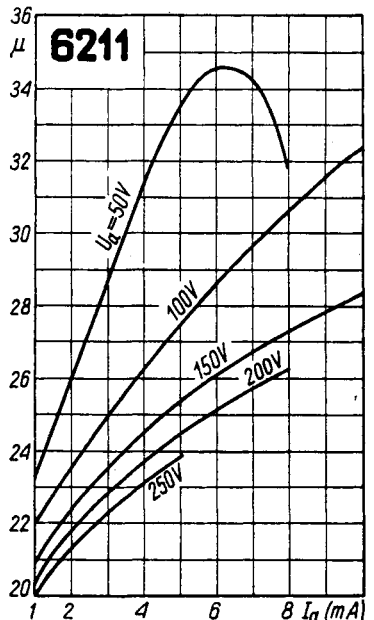
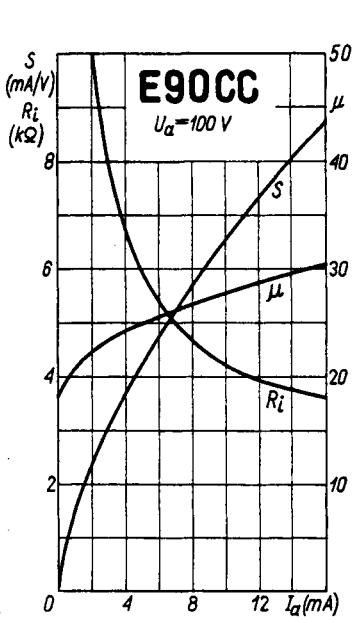
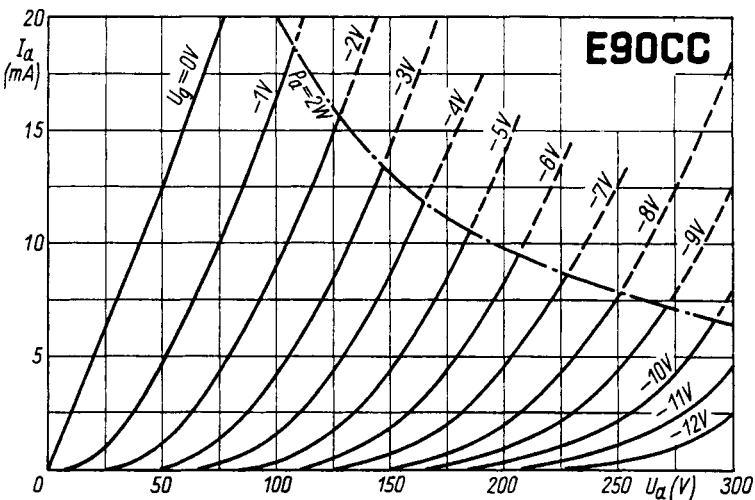
Equivalents

ECC 87	Siem	= E 80 CC
ECC 960	RFT	= E 90 CC
5920	amar	= E 90 CC
6085	Phi	= E 80 CC



T.		C_g	C_a	$C_{g/a}$	$C_{f/k}$	$C_{g/f}$	$C_{g/g}$	$C_{a/a}$	$C_{a1/gII}$	$C_{aII/gI}$	
		pF	pF	pF	pF	pF	pF	pF	pF	pF	
E 80 CC	I sect.	2,4	0,45	3,1	4,8	0,23					
	II sect.	2,4	0,55	3	4,8	0,23	0,013	1,45	0,1	0,065	vide * 5
	I sect.	2,6	3,5	3	4,8	0,23					
	II sect.	2,6	3	3	4,8	0,23	0,013	1,3	0,1	0,065	vide * 6
E 90 CC	I sect.	3,4	0,35	2,5	6,5	0,15					
	II sect.	3,4	0,4	2,5	6,5	0,3	0,22	1,4	0,35	0,15	vide * 5
6211	I sect.	2,6	0,4	2,5	2,8						
	II sect.	2,6	0,35	2,5	2,8		0,06	0,9			





E 80 CC Fig. 1

U_b V	R_a kΩ	R_g kΩ	R_k kΩ	I_a mA	μ U_a/U_g	$U_{a\sim}$ V	h %
200	47	150	1,2	1,86	18,5	20	3,3
250	47	150	1,2	2,45	18,5	30	3,8
300	47	150	1,2	3,15	18,5	40	4,0
350	47	150	1,2	3,8	18,5	50	4,1
400	47	150	1,2	4,4	18,5	60	4,2
200	100	330	2,2	1,0	20	22	3,1
250	100	330	2,2	1,3	20	32	3,4
300	100	330	2,2	1,65	20	2	3,5
350	100	330	2,2	1,95	20	52	3,6
400	100	330	2,2	2,3	20	63	3,7
200	220	680	3,9	0,52	21	19	2,3
250	220	680	3,9	0,67	21	29	2,6
300	220	680	3,9	0,83	21	38	3,0
350	220	680	3,9	0,99	21	47	3,1
400	220	680	3,9	1,15	21	58	3,2

T.			U_f	I_f	U_a	U_g	I_a	I_g	S	R_i	μ	R_k	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA	mA/V	k Ω	V/V	Ω	V	mA	W
E 182 CC ¹⁾	eur	I	6,3/12,6	0,64/0,32	120 300	-2 1 $\div$ -100 30 $\div$ -200	26 $\div$ 45	8 200	11,2 $\div$ 18,8	1,6	24 maximum peak ⁴⁾	55	200	60 400	4,5
E 288 CC ¹⁾	Tlf	4	6,3	0,475	60 100 250	0 9 -50 -150	15 28 $\div$ 32		14 15 $\div$ 21,5	1,8 1,4	25 25 maximum peak ⁴⁾	80 350	150	40 400	3
6350	eur	2	6,3/12,6	0,6/0,3	120 150	-2 -5	14 $\div$ 25 11		5,2 $\div$ 8,6 4,6	3,9	18 maximum peak, impulse $\leq$ 0,08 μ sec.		100	45 350	4
6913	Syl	3	6,3/12,6	0,6/0,3	330 1000	4 $\div$ -80 14 $\div$ -440		5,5 110							
6840 ¹⁾	GE	2	6,3/12,6	0,8/0,4	250 300 600	1 $\div$ -75 22 $\div$ -300	11 $\div$ 17	70	5,3 $\div$ 8,1	3	20 maximum peak ⁴⁾	620	100	35 500	4
6900	amer	1	6,3/12,6	0,9/0,45	120	-2	26 $\div$ 45		10	1,9	19				
6955	amer	3	6,3/12,6	0,35/0,175	250		11,5		2,35	7	16,5				

¹⁾ vide * 3

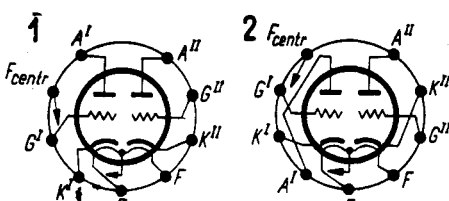
²⁾ vide * 4, a, b, c = 10.000, e.f.g ($U_f = 6,3/12,6 \text{ V} \pm 5\%$)

³⁾ vide * 4, a, b, c = 10.000, d, e, f, g ($U_f = 6,3/12,6 \text{ V} \pm 5\%$)

⁴⁾ impulse $\leq 10 \mu$ sec; $f = 1000 \text{ Hz}$.

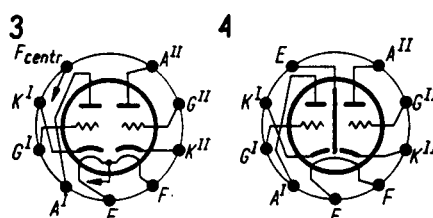
Equivalents

7044 Syl = 6900
7119 amer = E 182 CC
8223 amer = E 288 CC



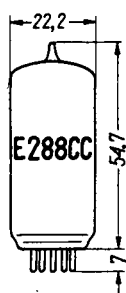
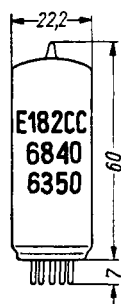
E182CC

6350

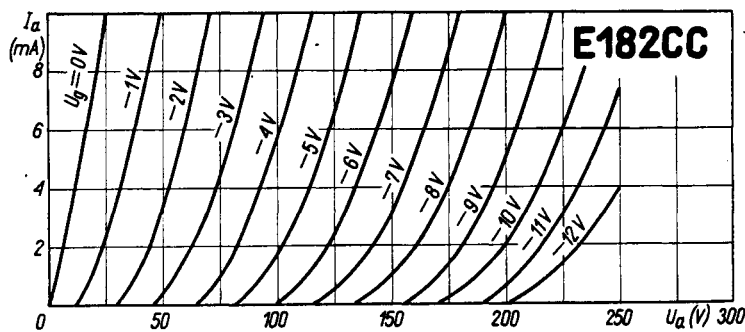
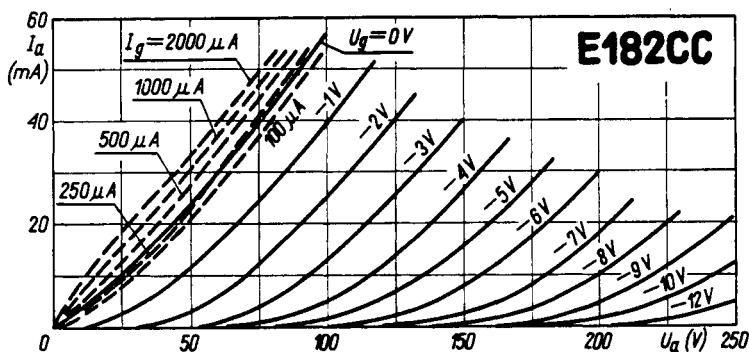


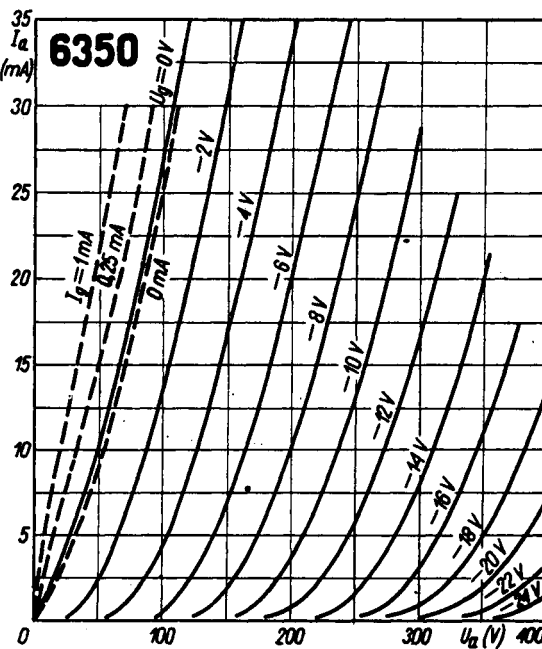
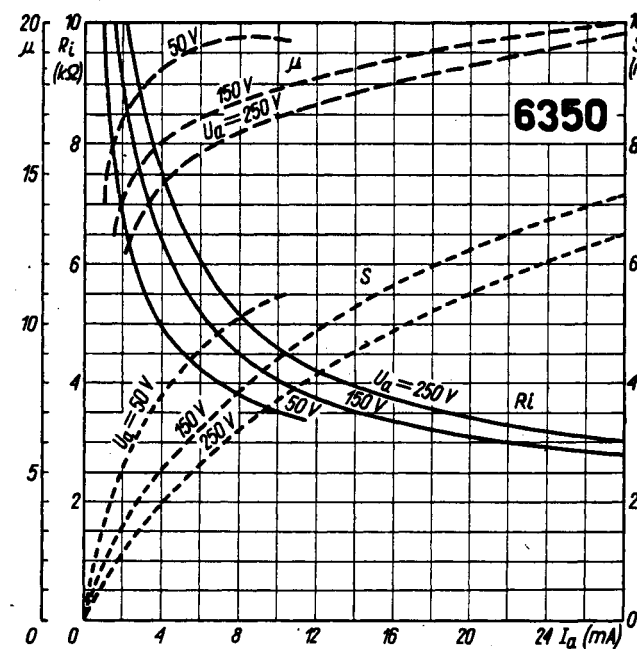
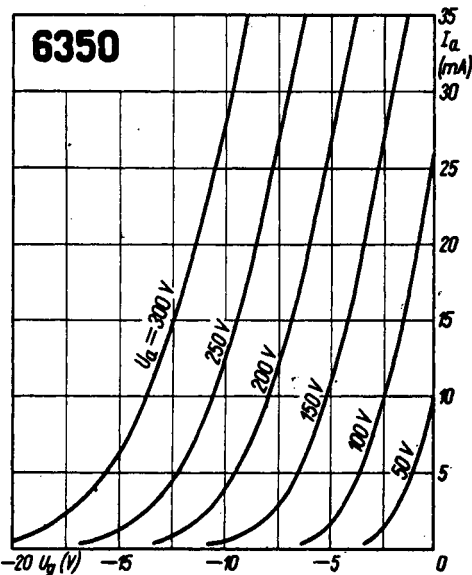
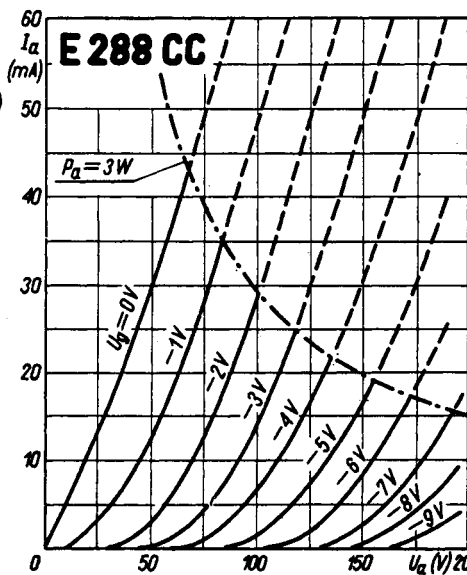
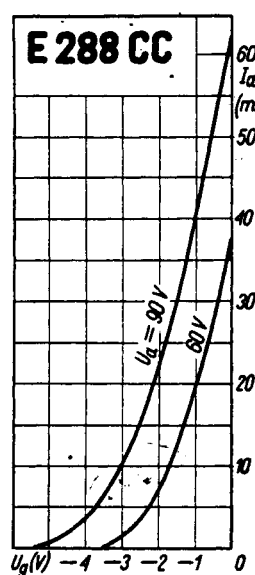
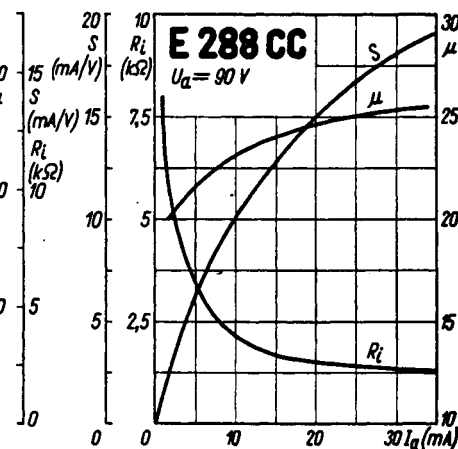
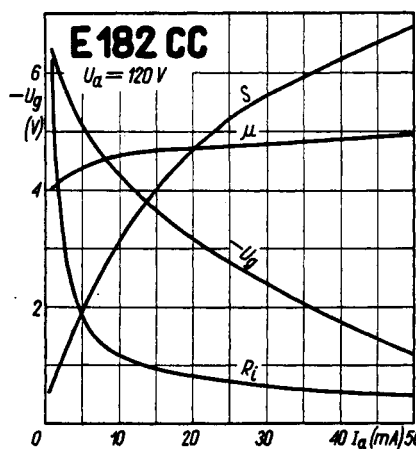
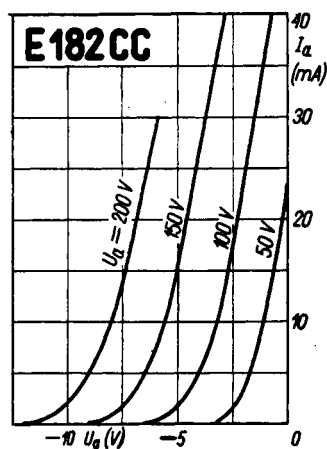
6913

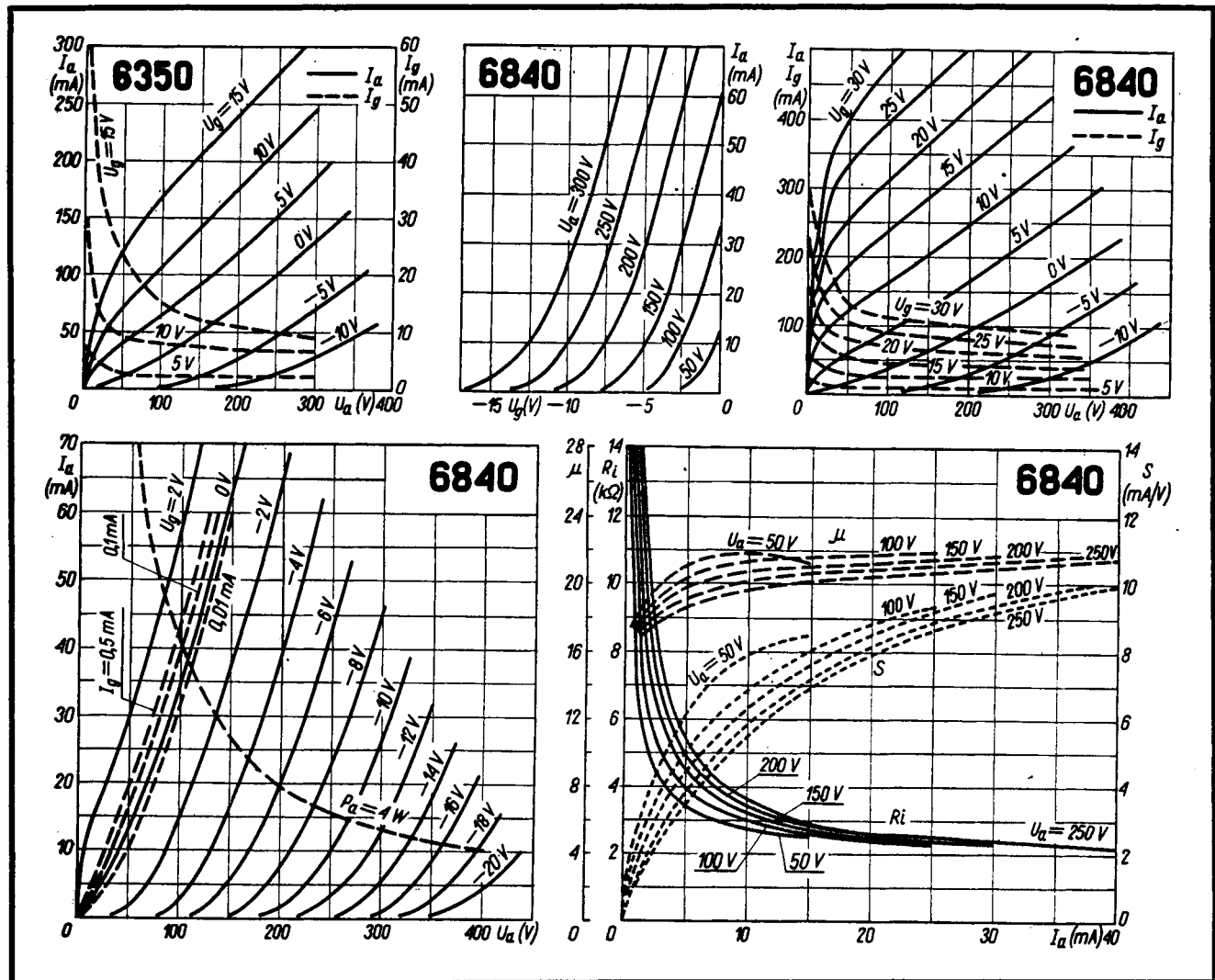
E288CC



T.		C_g	C_a	$C_{g/a}$	$C_{f/k}$	$C_{g/g}$	$C_{a/a}$
		pF	pF	pF	pF	pF	pF
E 182 CC	I sect.	5,3 $\div$ 6,7	0,75 $\div$ 1,45	3,4 $\div$ 4,6	4		
	II sect.	5,3 $\div$ 6,7	0,65 $\div$ 1,35	3,4 $\div$ 4,8	4	0,15	0,6
E 288 CC	I sect.	4,7	1,9	1,8		0,005	0,05
	II sect.	4,7	1,8	1,8			
6350	I-II sect.	3,6	0,6	3,2	4,6	0,042	1
6840	I sect.	3 $\div$ 5	0,56 $\div$ 0,84	4,5 $\div$ 6,7	7,5		
	II sect.	3 $\div$ 5	0,51 $\div$ 0,77	4,5 $\div$ 6,7	7,5	0,03	1
6900	I sect.	4,8	0,65	6			
	II sect.	4,8	0,55	6			
6913	I-II sect.	3,6	0,5	3,4			







T.		U_f	I_f		U_a	U_g	I_a	S	R_i	μ	U_f/k	I_k	P_a
		V	A		V	V	mA	mA/V	kΩ	V/V	V	mA	W
12 BW 7	Syl	6,3/12,6	0,3/0,15	I sect. ¹⁾	100	— 1	0,5	1,25	80	100	180	8	1,2
					250	— 2	1,2	1,6	62,5	100			
					330	— 55	maximum						
				II sect. ²⁾	100	0	11,8	3,2	6,5	20	100	22	3,3
					250	— 8,5	10,5	2,2	7,7	17			
					330		maximum						

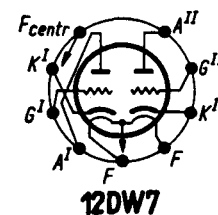
¹⁾ vide ECC 83, gr. 345; ²⁾ vide ECC 82, gr. 312

	C_g	C_a	C_{g1a}
	pF	pF	pF
I sect.	1,6	0,44	1,7
II sect.	1,7	0,4	1,6

Equivalents

7247

GE

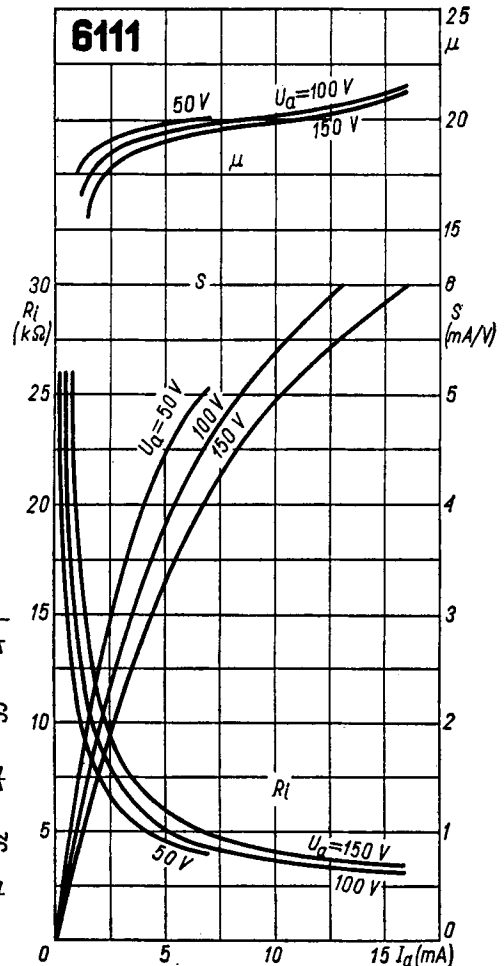
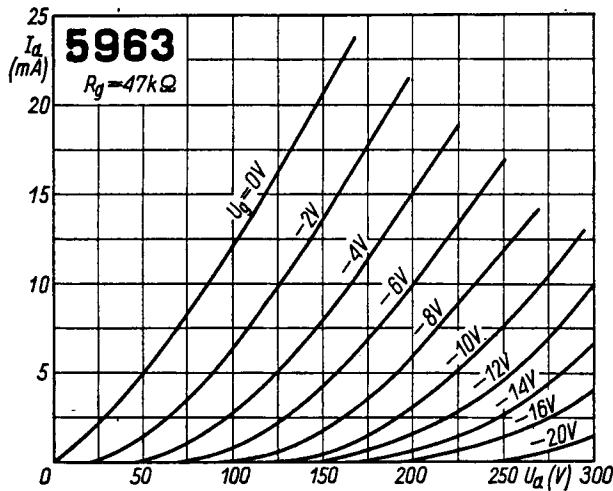
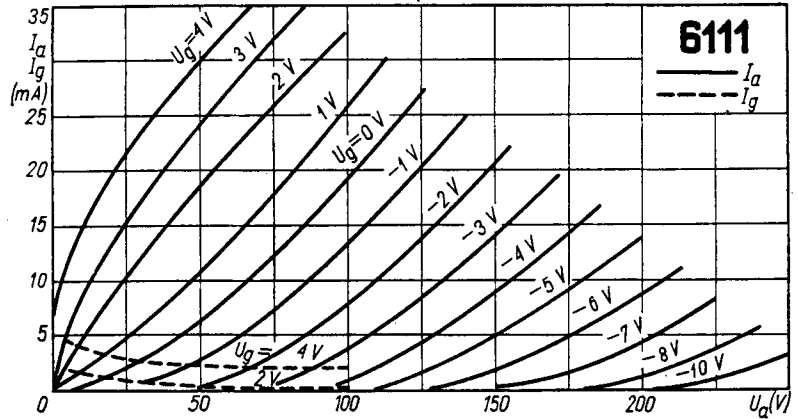
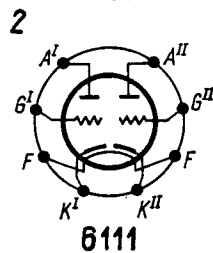
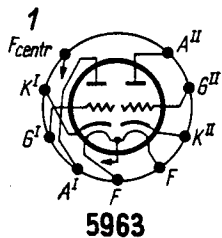
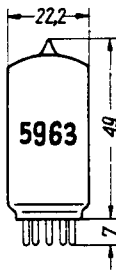


T.			U_f	I_f	U_a	U_g	I_a	S	R_t	μ	R_k	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	Ω	V	mA	W
5963	amer	I	6,3/12,6	0,3/0,15	$\begin{cases} 67,5 \\ 250 \end{cases}$	$\begin{cases} 0 \\ -100 \end{cases}$	8,5	3,2	6,6	21		90	20	2,5
6111 ¹⁾	int	2	6,3	0,3	$\begin{cases} 100 \\ 165 \end{cases}$	$\begin{cases} 0 \\ -55 \end{cases}$	8,5	5	4	20	220	200	22	1,1

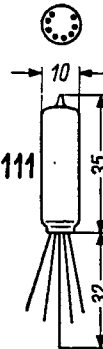
¹⁾ vide * 4, a, b, c = 10.000, d, e, f, g: $U_f = 6,3 \text{ V} \pm 5 \%$

Equivalents 6111

CK 6111 ¹⁾	Ray
CK 7079 ¹⁾	Ray
XR 9	Hiv
7079 ¹⁾	Ray



T.		C_g	C_a	$C_{g/a}$	$C_{g/g}$	$C_{a/a}$	vide
		pF	pF	pF	pF	pF	
5963	I sect.	1,9	0,5	1,5			* 5
	II sect.	1,9	0,35	1,5	0,1		* 5
6111	I sect.	1,9	0,28	1,5			* 5
	I sect.	2,1	1,3	1,4			* 6
	II sect.	1,9	0,32	1,5	0,011	0,5	* 5
	II sect.	2,1	1,4	1,4	0,01	0,3	* 6

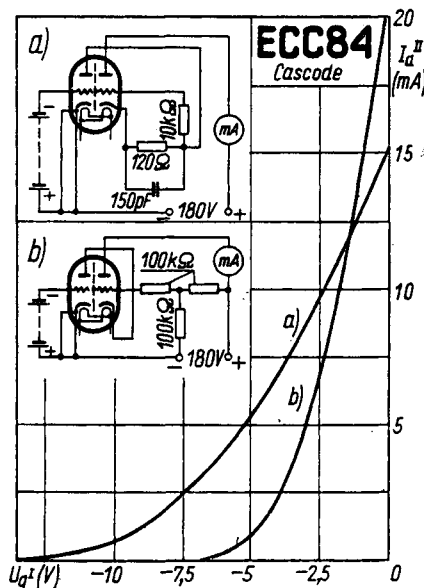
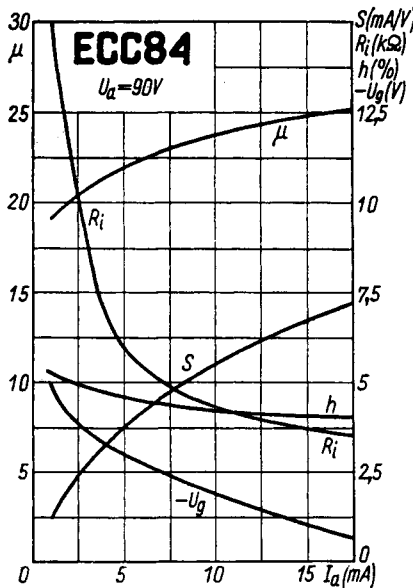
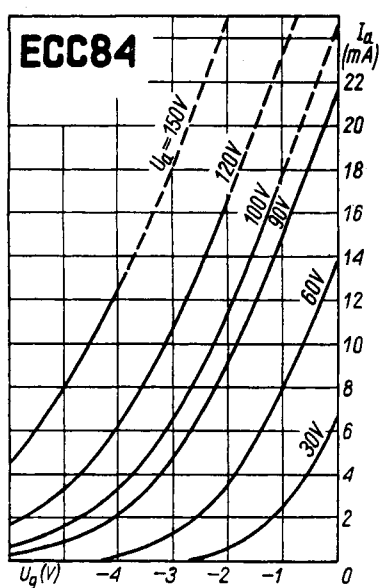
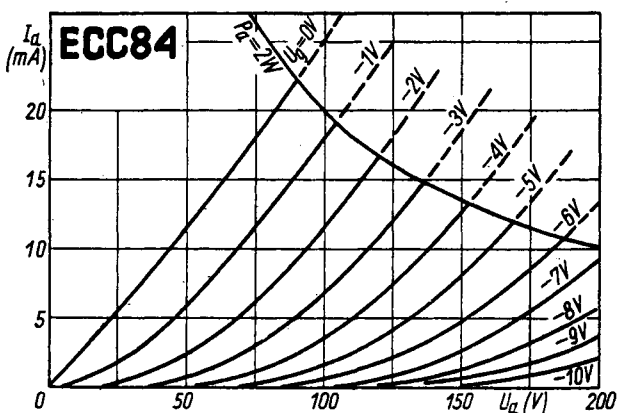
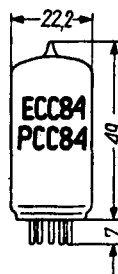
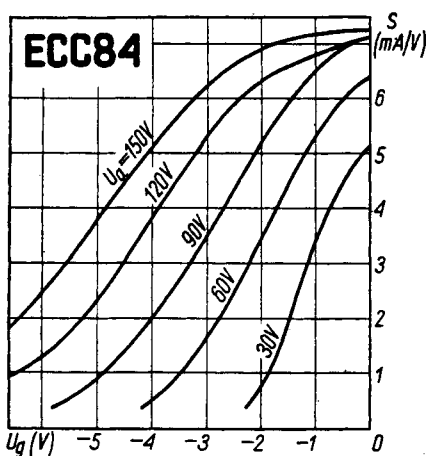
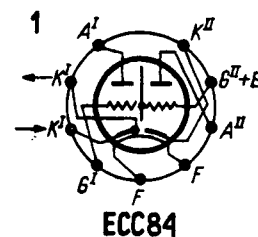
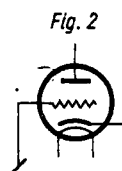
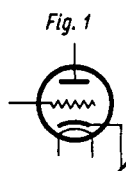


T.		U_f V	I_f A	U_a V	U_g V	I_a mA	S mA/V	R_i k Ω	μ V/V	f MHz	U_f/k V	I_k mA	P_a W
ECC 84	eur	I	6,3	0,33	90	— 1,5	12	6	4	24			
PCC 84	eur	I	7÷7,4	0,3	180	— 50							
UCC 84	eur	I	21	0,1			maximum						

vide *5	$C_{g/k+f}$ pF	$C_{a/k+f}$ pF	$C_{g/a}$ pF	$C_{g/f}$ pF	$C_{k/g+f}$ pF	$C_{k/f}$ pF	$C_{a/k}$ pF	$C_{a/g+f}$ pF	$C_{gI/aII}$ pF	$C_{aI/aII}$ pF	$C_{aI/kI+gII+f}$ pF
I sect. Fig. 1	2,1	0,45	1,2	0,25	4,7	2,7	0,16	2,5	0,006	0,035	1,2
II sect. Fig. 2			2,3								

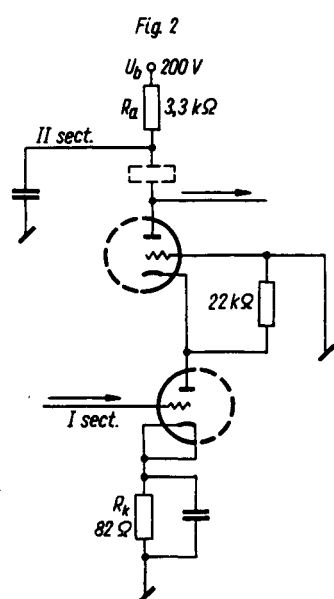
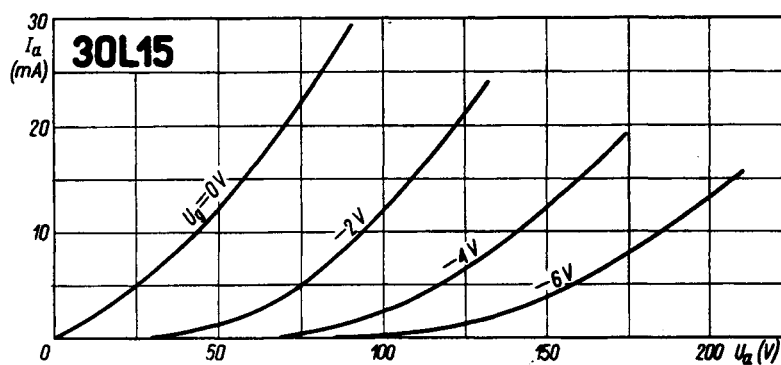
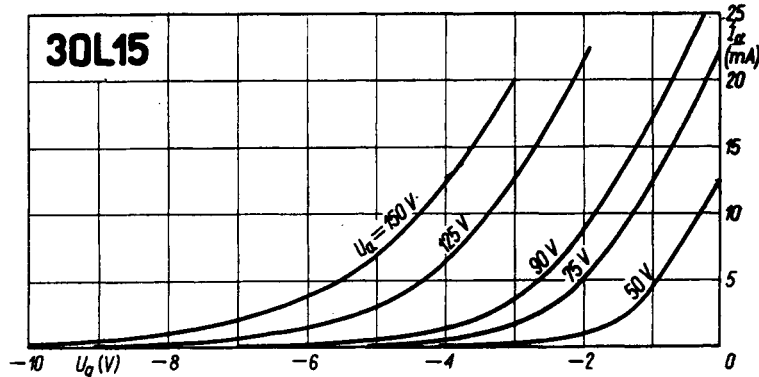
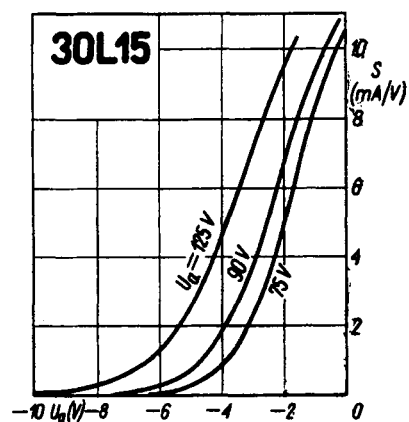
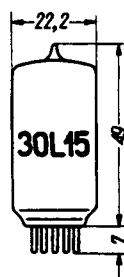
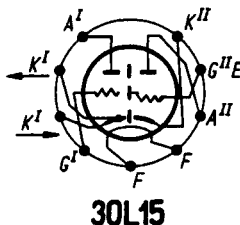
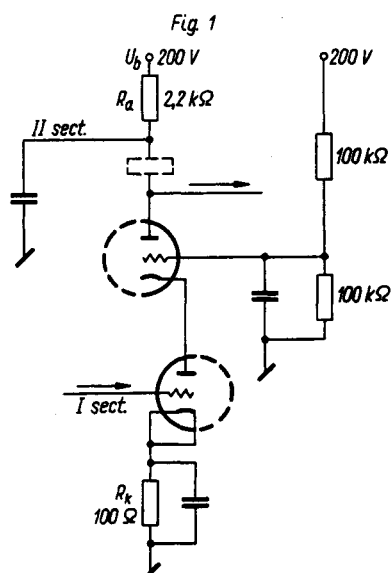
Equivalents

B 319	Eng	= PCC 84	7 AN 7	amer	= PCC 84
6 CW 7	amer	= ECC 84	7 CW 7	amer	= PCC 84
6 H 14	Π CCCP	= ECC 84	21 CW 7	amer	= UCC 84
6 L 16	Eds	= ECC 84	30 L I	Eds	= PCC 84



T.		U_f V	I_f A	Cl.	U_b V	R_a k Ω	U_a V	U_g V	I_a mA	S mA/V	R_f k Ω	μ V/V	R_k Ω	I_k mA	P_a W
30 L 15	Eds	7	0,3	stat. Casc. Fig. 1 Casc. Fig. 2	200	2,2	90 250 — 1,53 15,3 8,5 100 16 2	— 1,2 —50 — 1,53 15,3 8,5 100 16 2	15	9	3	26 maximum			
					200	3,3		— 1,2	14,8	8,6			82		

$C_{gI/kI+f+e}$ pF	$C_{aI/kI+f+e}$ pF	$C_{aI/gI}$ pF	$C_{aII/kI+f+e}$ pF	$C_{kII/kI+f+e}$ pF	$C_{aII/kII}$ pF	$C_{aI/aII}$ pF	$C_{gI/aII}$ pF	vide
3,1	1,9	1,5	3,6	5,4	0,19	0,011	0,0058	* 5
4,1	2,8	1,5	4,5	6,3	0,21	0,013	0,0096	* 6



T.			U_f	I_f	Cl.	$U_a(U_b)$	U_g	I_a	$S(S_c)$	R_f	μ	$R_o(R_{a/a})$	P_o	$U_{g\sim}$	h
			V	mA		V	V	mA	mA/V	k Ω	V/V	k Ω	W	V	%
ECC 88 E 88 CC ¹⁾ E 188 CC ¹⁾ PCC 88 UCC 88	eur	I	6,3	365	stat. A	90 220	-1,2 -6,8	15 6,5÷9,2	12,5	26,5	33	20	0,5	4,5	7
					B	200	-6	10÷18				(22)	1,2	4	3
						200	-6	10÷27				(10)	1,5	4	4
					Casc. Fig. 1	(90)	0	12	11,5			R = 120 Ω			
						(100)	+9	15	12,5			R _k = 680 Ω			
					Mixer	60 (90) (150)		4,7 7,7 11	(2,9) (3,5) (4,1)	8,3 7 6,1		R _a = 0 Ω ; U _{osc} = 2 V; R _g = 1 M Ω R _a = 1 k Ω ; U _{osc} = 2,5 V; R _g = 1 M Ω R _a = 3,9 k Ω ; U _{osc} = 3 V; R _g = 1 M Ω			

¹⁾ vide* 4, a, b, c = 10.000, e, f, g; $U_f = 6,3 \text{ V} \pm 5\%$; ²⁾ impulse $\leq 0,2 \text{ msec}$.

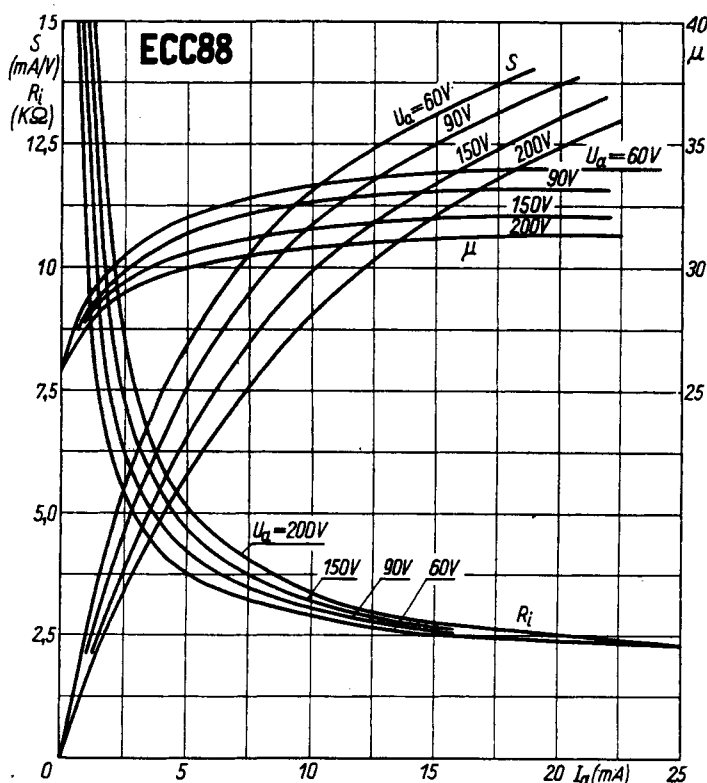
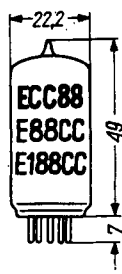
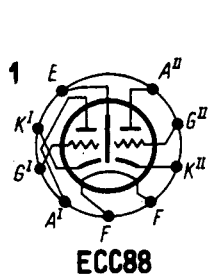
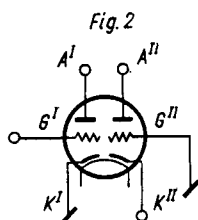
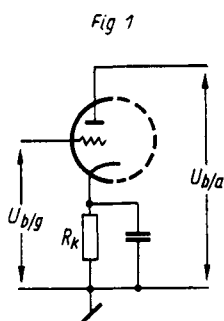
Equivalents

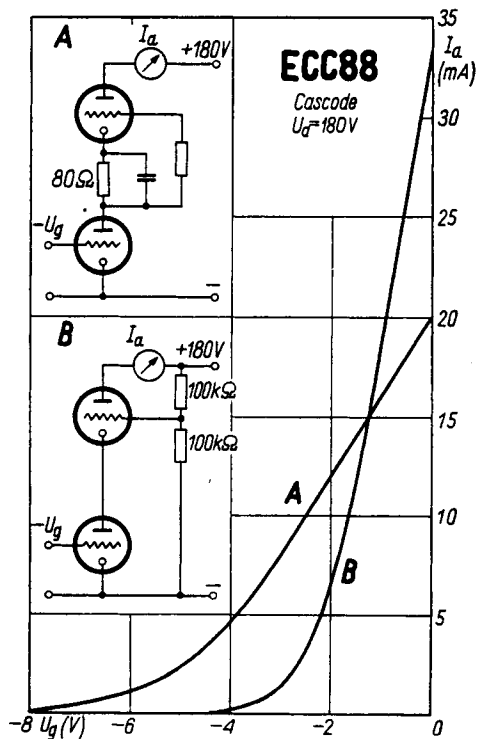
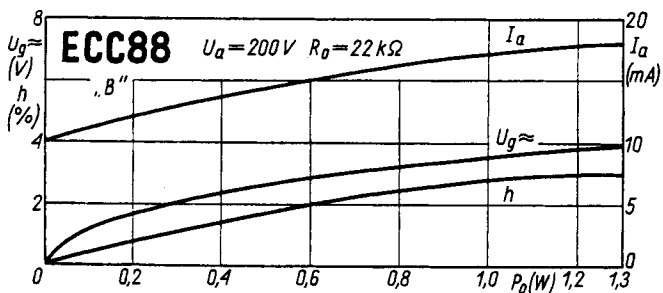
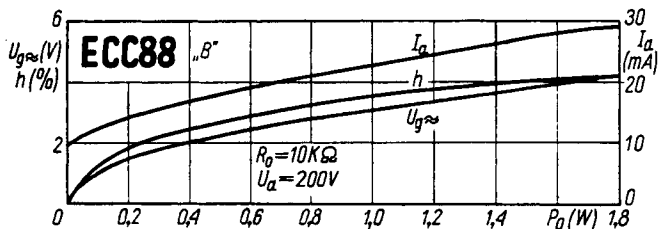
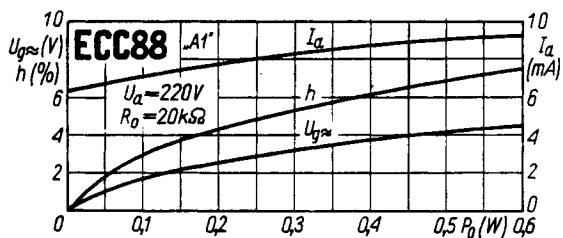
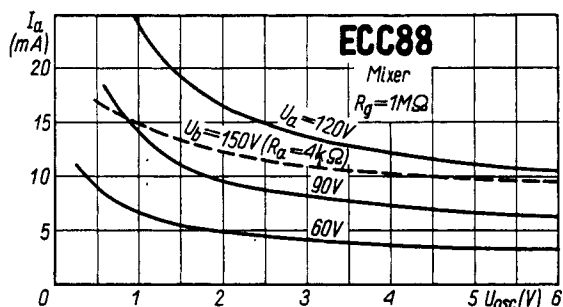
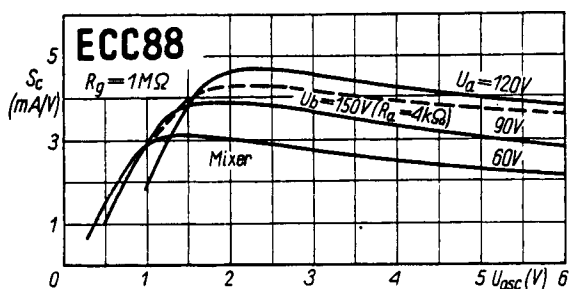
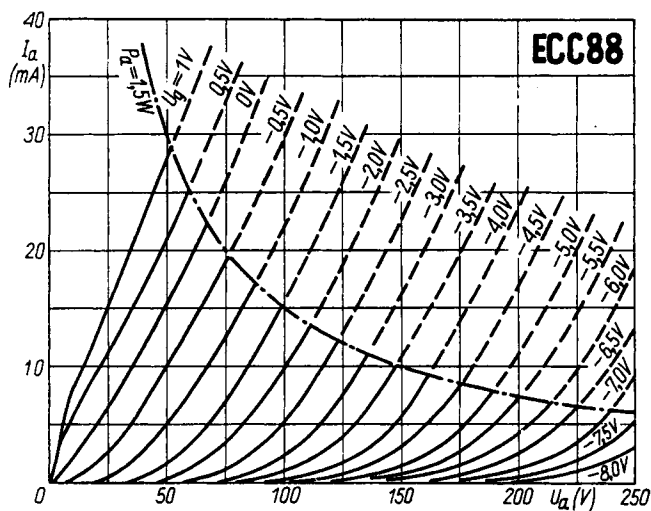
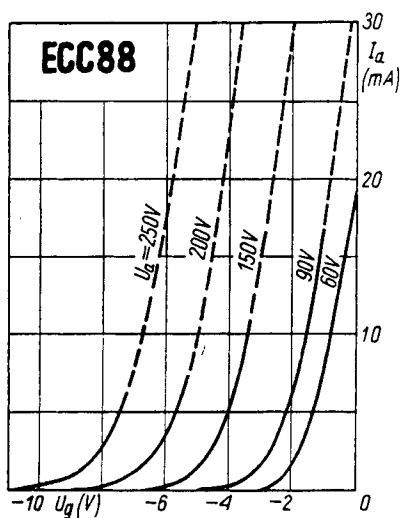
T.	maximum								
	U_a	U_g	$U_{g(\text{imp})}^{1)}$	I_k	$I_{k(\text{imp})}^{1)}$	$U_{f+/-k-}$	$U_{f-/-k+}$	P_g	P_a
	V	V	V	mA	mA	V	V	mW	W
ECC 88	130	-50		25		50	150		1,8
PCC/UCC 88	130	-50		25		80	180		1,8
E 88 CC	220	-100	-200	20	100	60	120	30	1,5
E 188 CC	250	-110	-200	22	110	60	120	30	1,65

CCa ¹⁾	Siem = E 88 CC
ECC 868	RFT = E 88 CC
6 DJ 8	amer = ECC 88
6 H 23 II	CCCP = ECC 88
7 DJ 8	amer = PCC 88
21 DJ 8	amer = UCC 88
6922 ²⁾	amer = E 88 CC
6922-WA ¹⁾	amer = E 88 CC
7308 ¹⁾	amer = E 188 CC

T.		C_g	C_a	$C_{g/a}$	$C_{g/f}$	$C_{k/g+f+e}$	$C_{a/g+f+e}$	$C_{k/f}$	$C_{a/k}$	$C_{a/a}$	$C_{gI/aII}$	$C_{a/k+f}$	$C_{g/k+f}$	vide
		pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	
ECC 88 Fig. 2	I sect.	3,3	1,8	1,4	0,13									*5
	I sect.	3,3	2,5	1,4	0,13									*6
	II sect.			1,4		6	2,8	2,7	0,18	0,045	0,005			*5
	II sect.			1,4		6	3,7	2,7	0,16	0,015	0,005			*6
E 88 CC ¹⁾ E 188 CC ¹⁾	I sect.	3,1	1,75	1,4				2,6	0,18			0,5	3,1	*5
	II sect.	3,1	1,65	1,4				2,7	0,18	0,045	0,005	0,4	3,1	*5

¹⁾ $C_{g/g} = C_{aI/gII} = C_{gI/kII} = C_{gII/kI} = 0,005 \text{ pF}$





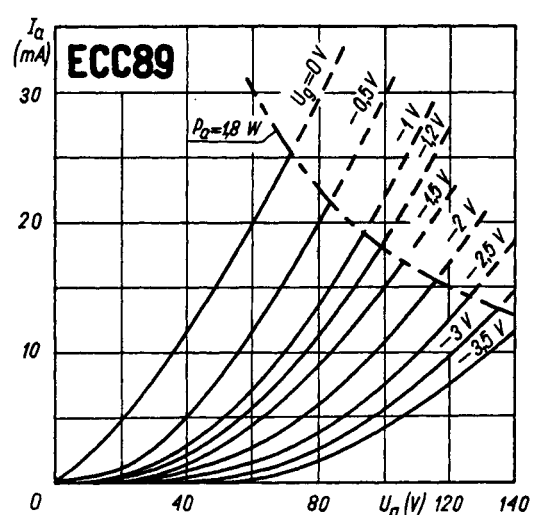
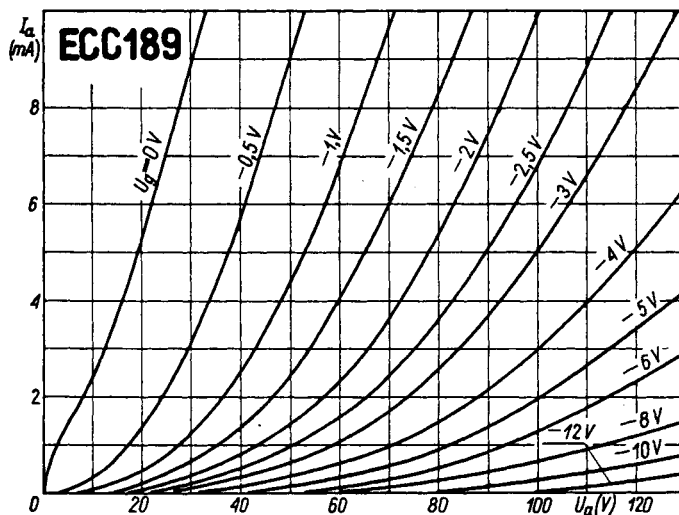
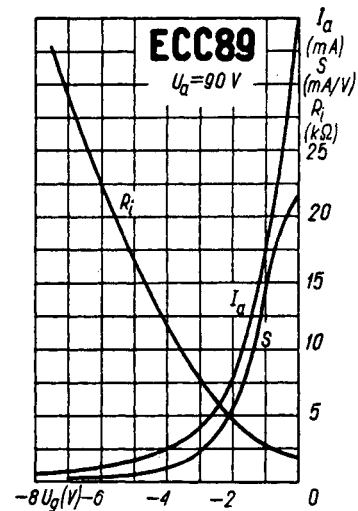
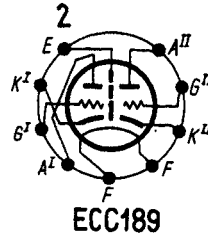
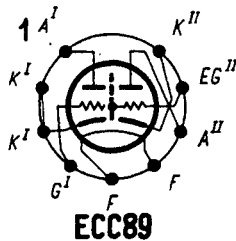
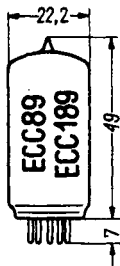
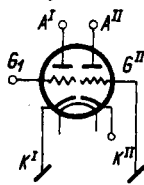
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	U_f/k^I	U_f-k+II	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	V	mA	W
ECC 89	Mul	I	6,3	0,365	90	-1,2	15	12,3	2,9	36	50	200	18	1,8
PCC 89	Mul	I	7,2	0,3	130	-50		maximum						
XCC 89	Mul	4,5	0,6											
YCC 89	Mul	5,2	0,5											
ECC 189	eur	2	6,3	0,365	90	-1,2	15	12,5	2,7	34	50	150	22	1,8
PCC 189	eur	2	7,2	0,3	130	-50		maximum						
UCC 189	eur	2	21	0,1										
XCC 189	eur	2	4,5	0,6										
YCC 189	eur	2	5,2	0,5										

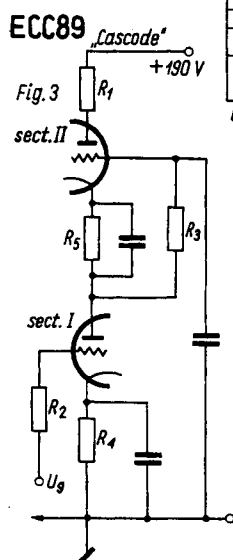
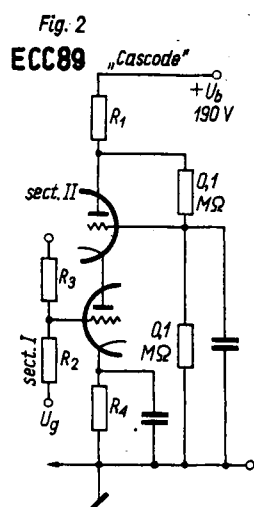
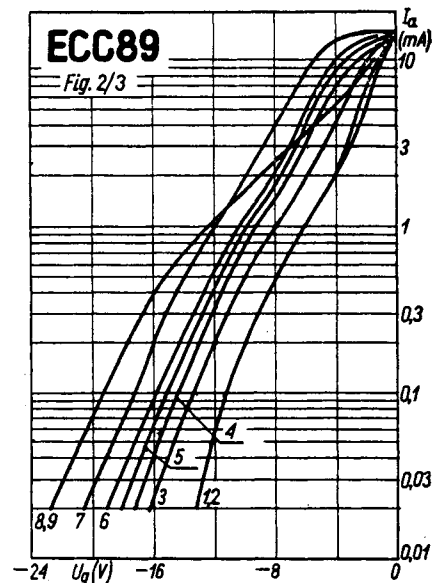
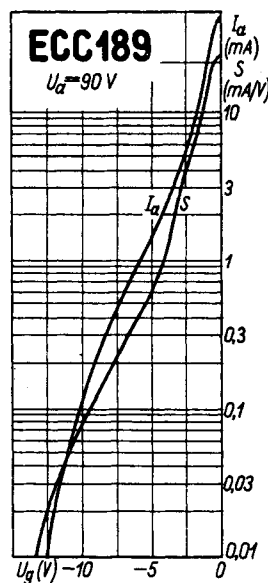
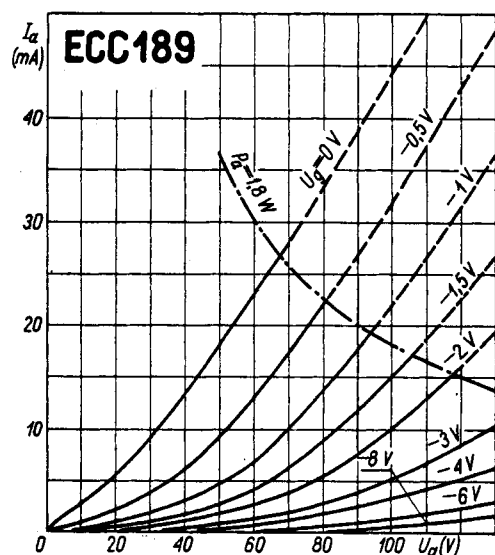
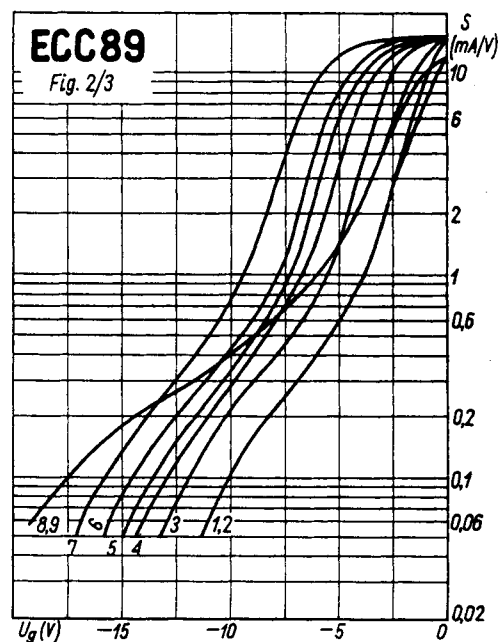
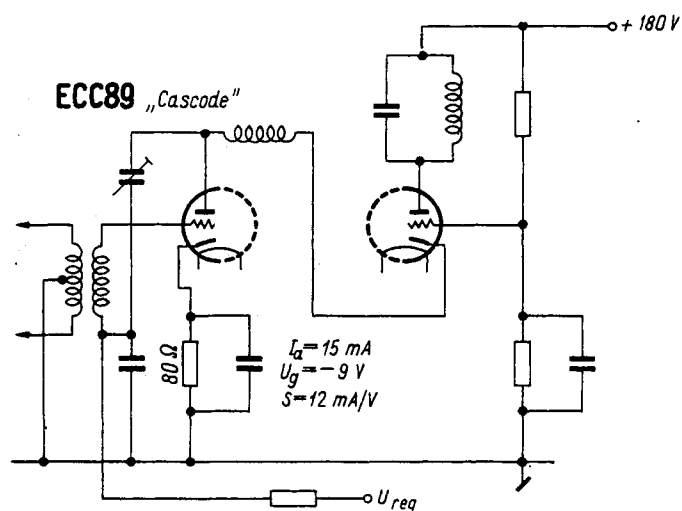
Equivalents

4 ES 8	amer = XCC 189
5 ES 8	amer = YCC 189
6 ES 8	amer = ECC 189
6 FC 7	amer = ECC 89
7 FC 7	amer = PCC 89
7 ES 8	amer = PCC 189
21 ES 8	amer = UCC 189

T.		C_g	C_a	$C_{g/a}$	$C_{g/f}$	$C_{a/k}$	$C_{k/f}$	$C_{k/g+f+e}$	$C_{g^I/a^{II}}$	$C_{a/a}$	vide
		pF	pF	pF	pF	pF	pF	pF	pF	pF	
ECC 89	I sect.	3,8	2,5	1,9	0,3						*6
	II sect.		4,5	4,1		0,2	2,9	6,3	0,005	0,015	*6
ECC 189	I sect.	3,4	1,7	1,9	0,22						*5
	II sect.	3,4	2,4	1,9	0,22						*6
	III sect.		3,3	1,9		0,18	3	6,3	0,004	0,045	*5
	IV sect.		3,9	1,9		0,17	3	6,3	0,004	0,015	*6

Fig. 1





ECC 89

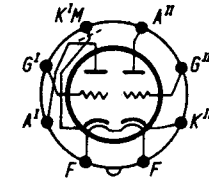
Fig.	n°	U_b V	R_1 kΩ	R_2 kΩ	R_3 MΩ	R_4 Ω	R_5 Ω	U_g V	I_a mA	S mA/V
2	1	190	1,5	—	—	68	—	-9,3	15	13
2	2	190	3,3	470	—	0	—	-9	14,8	14,4
2	3	190	3,9	470	22	0	—	-11	14,7	14,7
2	4	190	3,9	470	15	0	—	-12	14,9	14,8
2	5	190	3,9	470	—	0	—	-12,5	15	14,9
2	6	190	3,9	470	10	0	—	-13,5	15,1	15
2	7	190	4,7	470	—	0	—	-15	14	14,7
3	8	190	1,5	470	—	68	68	-16,5	15	13
3	9	190	3,3	470	0,47	0	0	-16	14,4	14,3

T.		U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	$U_{f/k}$	I_k	P_a
		V	A	V	V	mA	mA/V	V/V	k Ω	Ω	V	mA	W
ECC 40	eur	6,3	0,6	$\begin{cases} 250 \\ 300 \end{cases}$	-5,6	6	2,9	32	11	920	100	10	1,5
maximum ($R_g = 1 \text{ M}\Omega$)													

	C_g	C_a	$C_{g/a}$	$C_{g/f}$	$C_{k/f}$	$C_{g/g}$	$C_{a/a}$	$C_{g^I/a^{II}}$	C_{g^{II}/a^I}
	pF	pF	pF	pF	pF	pF	pF	pF	pF
I triod.	2,8	1,1	2,7	0,1	3	0,1	0,8	0,1	0,1
II triod.	2,6	0,7	2,8	0,1	3	0,1	0,8	0,1	0,1

Equivalents

AA 61 Maz



ECC40

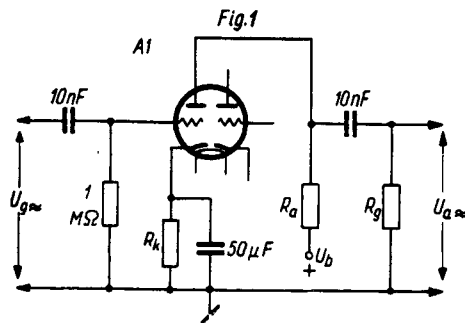
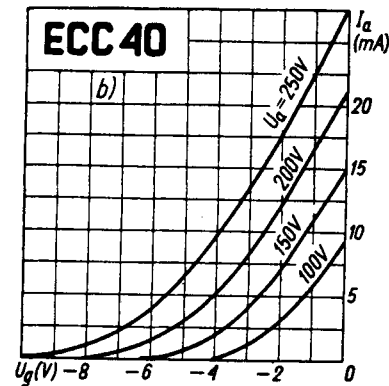
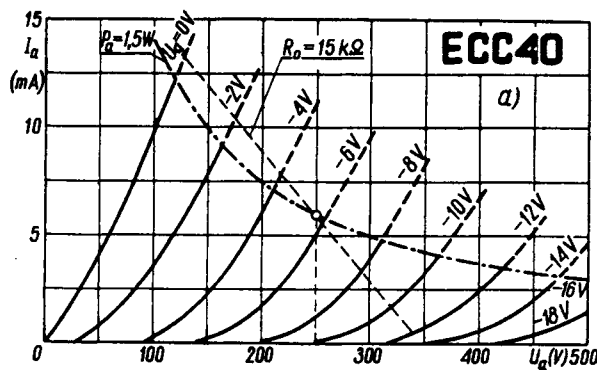
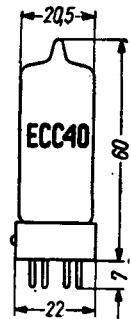


Fig. 1

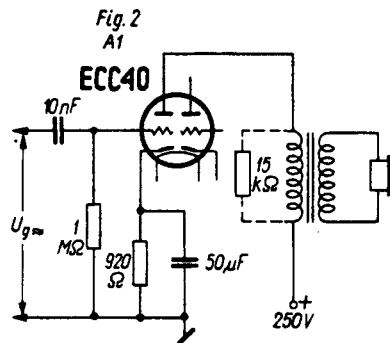
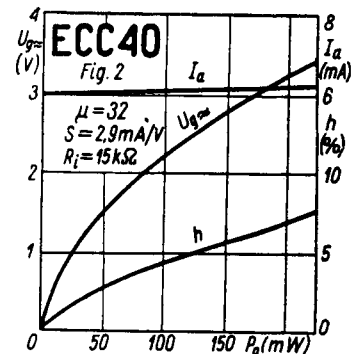


Fig. 2



U_b	R_a	R_g	R_k	I_a	μ	$U_{a\approx}$	h
V	k Ω	M Ω	k Ω	mA	V/V	V	%
200	47	0,15	1,2	2,0	20	30	3,4
250	47	0,15	1,2	2,6	20	40	3,8
300	47	0,15	1,2	3,1	20	50	4,0
350	47	0,15	1,2	3,6	20	60	4,1
400	47	0,15	1,2	4,1	21	72	4,4
200	100	0,33	2,2	1,1	24	33	3,6
250	100	0,33	2,2	1,4	24	44	3,7
300	100	0,33	2,2	1,6	24	54	3,8
350	100	0,33	2,2	1,9	24	65	3,9
400	100	0,33	2,2	2,2	24	76	3,9
200	220	0,68	3,9	0,58	24	32	3,5
250	220	0,68	3,9	0,72	25	44	3,6
300	220	0,68	3,9	0,87	25	53	3,7
350	220	0,68	3,9	1,0	25	63	3,7
400	220	0,68	3,9	1,1	25	72	3,8

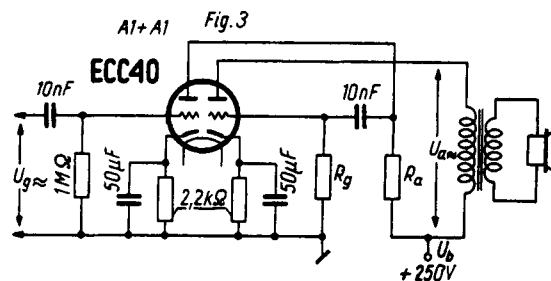


Fig. 3

U_b	R_a	R_g	I_a	μ	$U_{a\approx}$	h
V	k Ω	k Ω	mA	V/V	V	%
250	100	330	1,4	24	30	2,2
250	220	680	0,9	25	18	1,3

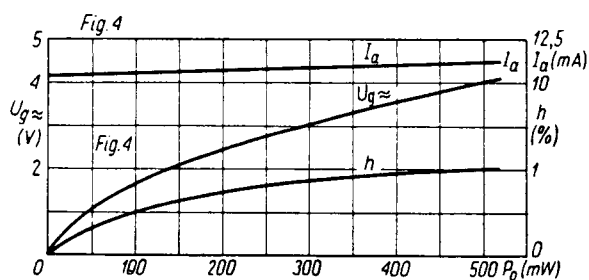


Fig. 5

U_b	R	I_a	μ	$U_{a\sim}$	h
V	k Ω	mA	V/V	V	%
250	100	2,5	740	30	1,9
250	220	2,0	780	18	1,2

Fig. 6

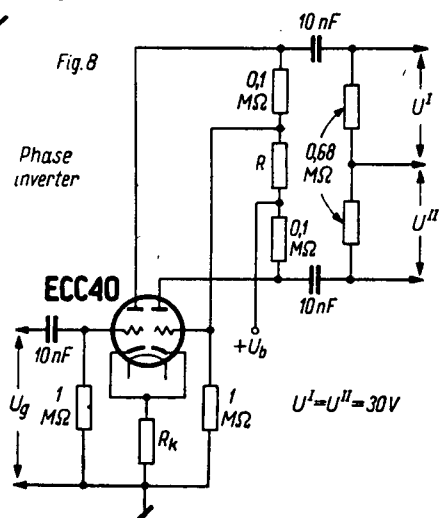
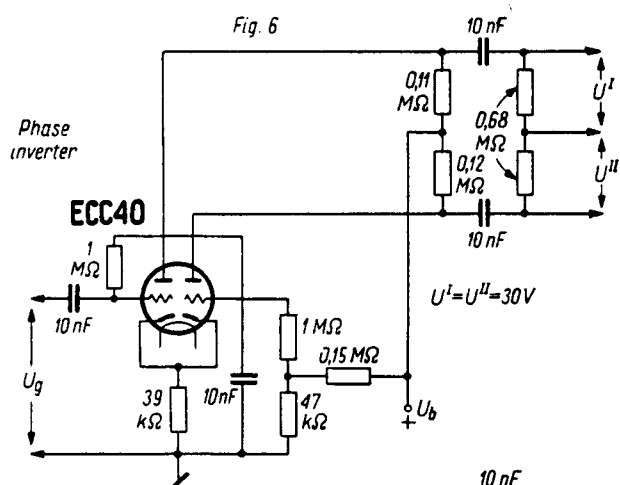
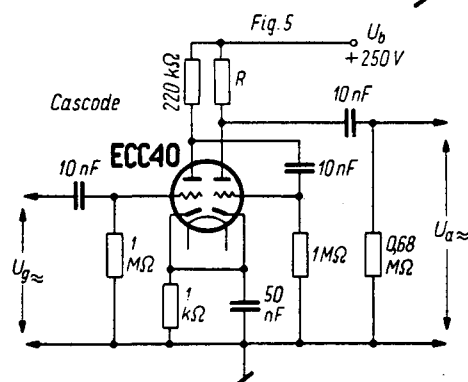
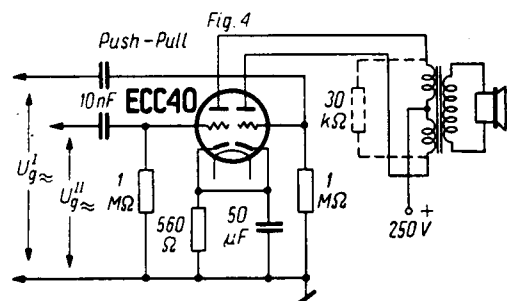
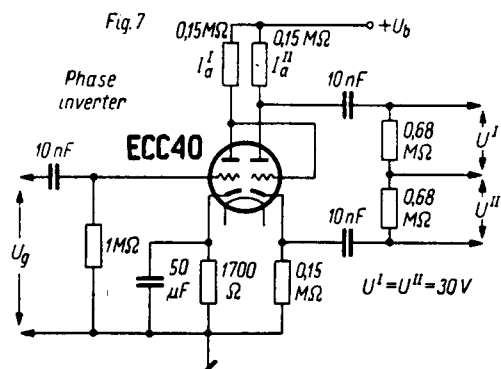
U_b	I_a	μ	h
V	mA	V/V	%
250	3	11,5	0,6
300	4,5	12	0,4

Fig. 7

U_b	I_{aI}	I_{aII}	μ	$U^I = U^{II}$	h
V	mA	mA	V/V	V	%
250	1,12	0,55	27	18	1
350	1,57	0,78	27	30	1

Fig. 8

U_b	R	R_k	I_a	μ	h^I	h^{II}
V	k Ω	Ω	mA	V/V	%	%
250	3,9	1000	3	26	1,1	0,3
350	3,8	750	4,3	27,5	1,5	0,5



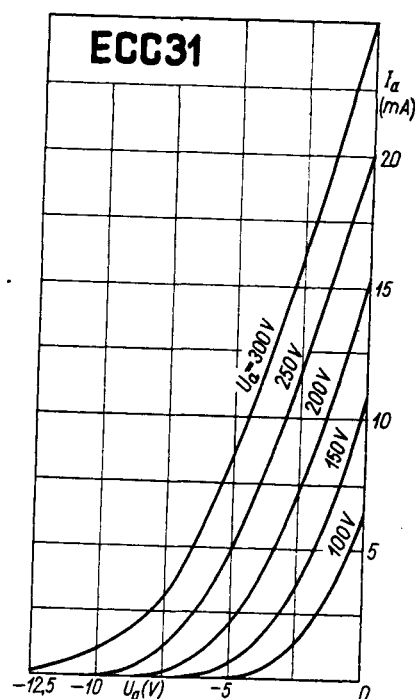
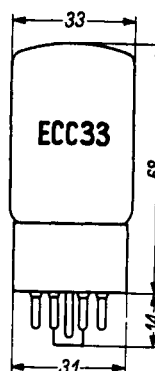
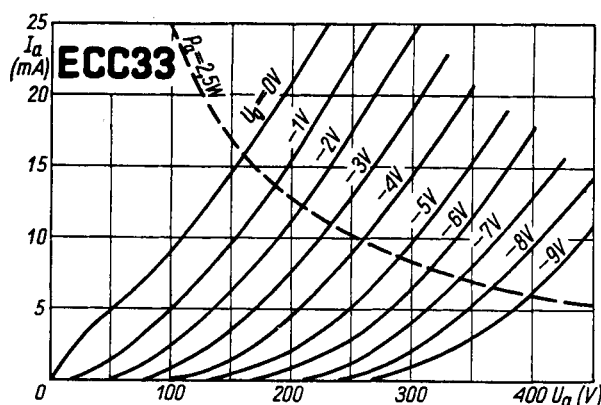
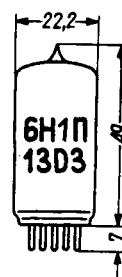
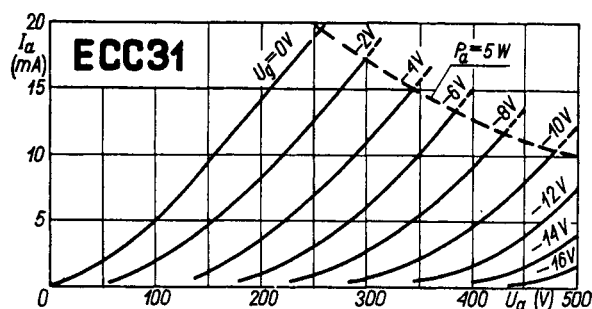
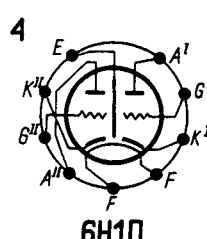
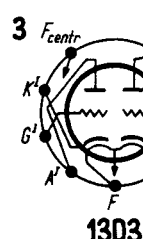
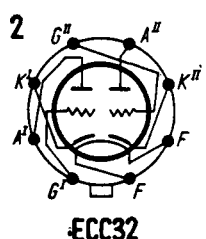
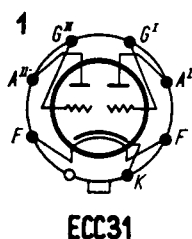
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	mA	W
ECC 31	Mul	1	6,3	0,95	250 300	-4,6	6	2,3	14	32	50	50	5
ECC 32	Mul	2	6,3	0,95									
F/6158 ¹⁾	Bri	3/5	6,3/12,6	0,6/0,3									
I3 D 3 ¹⁾	Bri	3	6,3/12,6	0,6/0,3	250 300	-4	9	3,6	9,7	35	100	20	2,5
ECC 33	Mul	2	6,3	0,4									
6 H I П	CCCP	4	6,3	0,6									
					250 300	-5,5 ²⁾	8	3,2	11	35	100	25	2

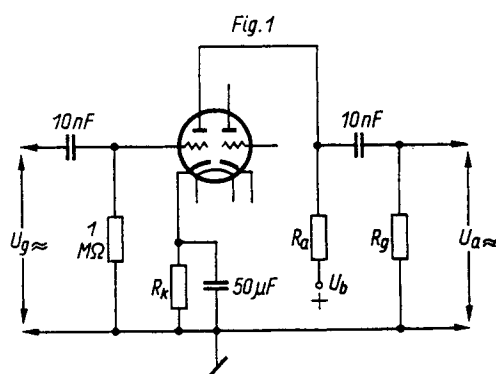
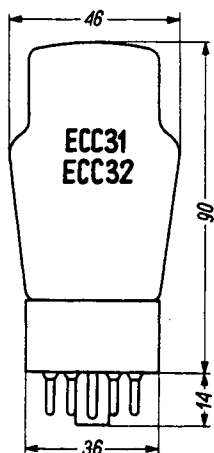
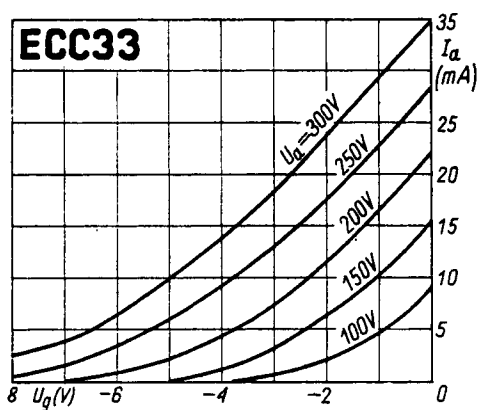
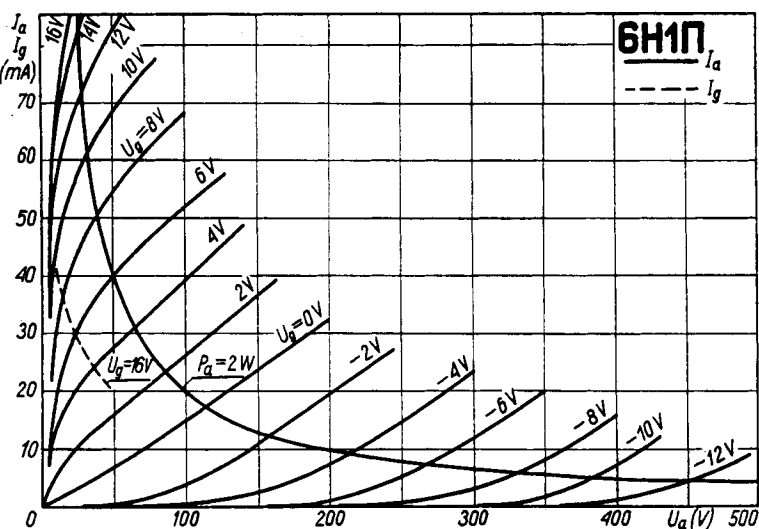
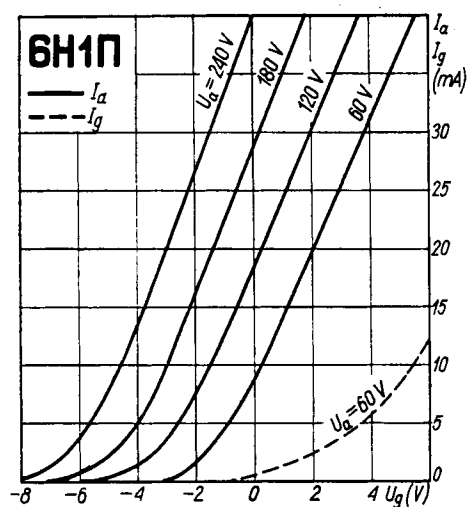
¹⁾ vide *4, a, b, c, f, g; ²⁾ $R_k = 600 \Omega$; ³⁾ vide *4, a, b, d, e; ⁴⁾ vide *4, a, b, c = 5000 d

T.		C_g	C_a	$C_{g/a}$	$C_{a/a}$
		pF	pF	pF	pF
ECC 31	I sect.	4	1,9	3,4	
	II sect.	4	1	3,75	1
ECC 32	I = II sect.	4,3	2	4,3	0,8
ECC 33	I = II sect.	3,5	1,2	2,5	0,75
I3 D 3	I = II sect.	2,3	0,95	2,1	1

Equivalents F/6158

FF/6158¹⁾ Bri = F/6158
 SF/6158¹⁾ Bri = F/6158
 SX/6158¹⁾ Bri = F/6158
 XF/6158¹⁾ Bri = F/6158
 6 H I II-B³⁾ CCCP = 6 H I П
 6 H I II-E⁴⁾ CCCP = 6 H I П





ECC 31 Fig. 1

U_b	R_a	R_g	R_k	I_a	μ	$U_{a\approx}$	h
V	kΩ	kΩ	kΩ	mA	V/V	V	%
200	47	150	1,2	1,9	19,5	26	3,2
250	47	150	1,2	2,4	19,5	37	3,4
300	47	150	1,2	2,9	20	48	3,5
350	47	150	1,2	3,4	20,5	57	3,6
400	47	150	1,2	3,9	21	67	3,7
200	100	330	2,2	1,0	24	32	2,4
250	100	330	2,2	1,3	24,5	44	2,6
300	100	330	2,2	1,6	24,5	54	2,8
350	100	330	2,2	1,8	25	69	2,9
400	100	330	2,2	2,1	25	81	3,0
200	220	680	3,9	0,55	26,5	34	2,0
250	220	680	3,9	0,7	27	45	2,1
300	220	680	3,9	0,85	27	56	2,2
350	220	680	3,9	0,95	27,5	68	2,2
400	220	680	3,9	1,1	27,5	81	2,3

ECC 33 Fig. 1

U_b	R_a	R_g	R_k	I_a	μ	$U_{a\approx}$	h
V	kΩ	kΩ	kΩ	mA	V/V	V	%
200	47	150	1,2	2,0	24,5	30,5	5,3
250	47	150	1,2	2,5	25	41	5,6
300	47	150	1,2	3,0	25	50	5,6
350	47	150	1,2	3,5	25	62,5	5,9
400	47	150	1,2	4,0	25,5	74	6,1
200	100	330	2,2	1,0	26,5	32	5,2
250	100	330	2,2	1,3	27	43	5,4
300	100	330	2,2	1,5	27	54,5	5,6
350	100	330	2,2	1,8	27,5	66,5	5,6
400	100	330	2,2	2,0	28	78,5	5,7
200	220	680	3,9	0,5	27	30,5	4,8
250	220	680	3,9	0,7	27,5	41	4,8
300	220	680	3,9	0,8	28	51	5,0
350	220	680	3,9	1	28	63	5,0
400	220	680	3,9	1,1	28	74,5	5,1

T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	U_f/k	I_k	P_a	
			V	A	V	V	mA	mA/V	k Ω	V/V	Ω	V	mA	W	
ECC 70	Mul	I	6,3	0,3	$\begin{cases} 100 \\ 165 \end{cases}$	$\begin{matrix} -1 \\ -55 \end{matrix}$	$\begin{matrix} 6,5 \\ 22 \end{matrix}$	$\begin{matrix} 5,4 \\ \\ \end{matrix}$	$\begin{matrix} 6,5 \\ \text{maximum} \\ 8 \end{matrix}$	$\begin{matrix} 35 \\ 34 \end{matrix}$	150	200	27,5	1,1	
SN 955 B	Syl	I	6,3	0,45	100		5,5	4,2	8	34	100				
6 BF 7	amer	I	6,3	0,3	$\begin{cases} 100 \\ 300 \end{cases}$		$\begin{matrix} 8,5 \\ \\ \end{matrix}$	$\begin{matrix} 5,3 \\ \\ \end{matrix}$	$\begin{matrix} 7,1 \\ \text{maximum} \end{matrix}$	$\begin{matrix} 38 \\ \\ \end{matrix}$	50				

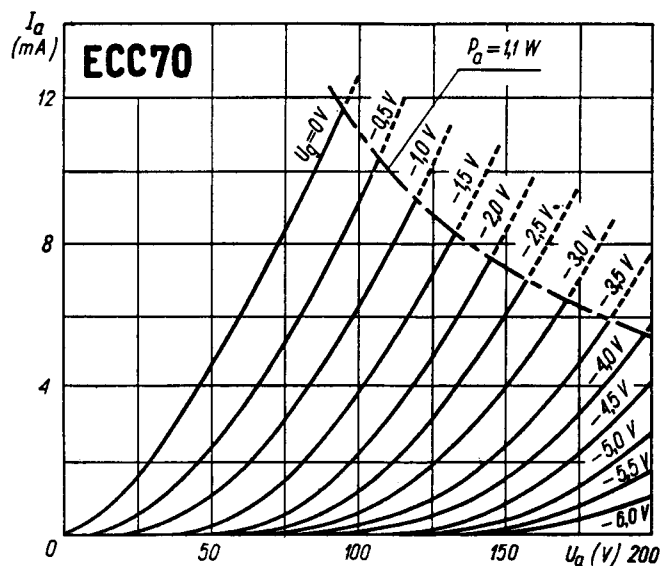
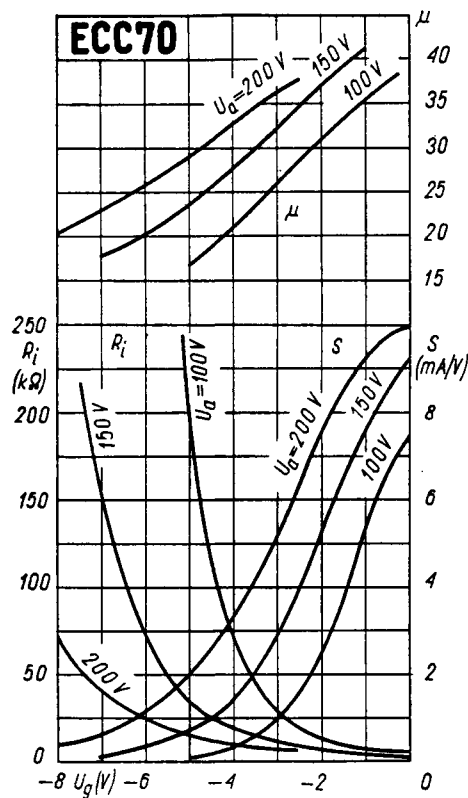
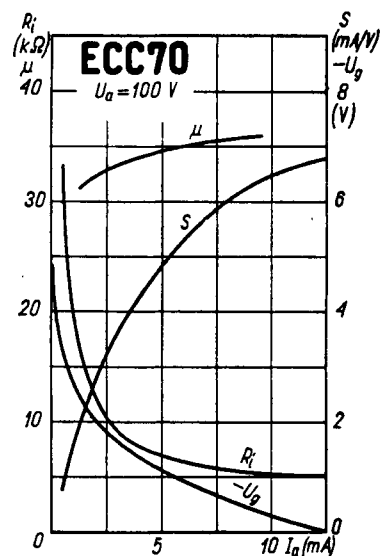
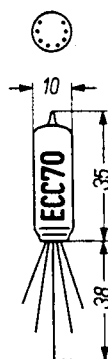
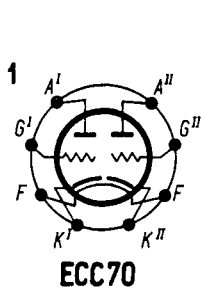
T.		C_g pF	C_a pF	$C_{g/a}$ pF	$C_{g/g}$ pF	$C_{a/a}$ pF	vide
ECC 70	I sect.	2,4	0,3	1,6			* 5
	II sect.	2,4	0,35	1,6	0,015	0,52	
	I sect.		1,2	1,4			* 6
	II sect.		1,3	1,4	0,011	0,33	
6 BF 7	I = II sect.	2	0,3	1,5			* 5

Equivalents

6 BF 7-A amer = 6 BF 7
 6 BF 7-W²⁾ amer = 6 BF 7
 6 BG 7 amer = 6 BF 7
 6021³⁾ int. = ECC 70

¹⁾ vide * 4, a, b, g ($U_f = 6,3 \text{ V} \pm 10\%$)

²⁾ vide * 4, a, b, c = 10.000, d, e, f, g ($U_f = 6,3 \text{ V} \pm 5\%$)



T.			U_f	I_f	U_a	U_g	I_a	S	μ	R_t	R_k	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	V/V	k Ω	Ω	V	mA	W
6 CH 7	amer	I	6,3	0,4	150		10	6,8	36	5,3	220			
6 H 5 II	CCCP	2	6,3	0,6	200		8	3,5	27	7,7	600	250	25	2
6 H 6 II	CCCP	2	6,3	0,75	120	-2	30	11	20	1,9	68			
6 H 6 II-H ¹⁾	CCCP	2	6,3	0,9	300			maximum				200	45	4,8
6 H 12 C	CCCP	3	6,3	0,9	180	-7	23	6,4	17	2,65		100	45	4,2
6 H 16 B	CCCP	5	6,3	0,4	100		6,3	5	25	5	325	150	14	0,9
6 H 18 B	CCCP	5	6,3	0,33	200			maximum						
1539	CCCP	2	6,3	0,6	250		7	4,2	33	7,9	600	250	25	2,5
5844	amer	4	6,3	0,3	100		4,8	3,7	28	7,5	470			
5964 ²⁾	amer	4	6,3	0,45	100	-0,45	9,5	6	39	6,5	50			
6045	Syl	4	6,3	0,35	100		9	5,9	38	6,4	50			
7244	amer	4	6,3	0,45	100		9	6	37,8	6,3	50			

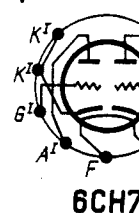
¹⁾ Maximum $U_{a(imp)} = 450$ V; $I_{k(imp)} = 3,5$ A; ²⁾ vide *4, c = 10,000; ³⁾ vide *4, a, b, d, e

T.		C_g	C_a	$C_{g/a}$	$C_{a/a}$
		pF	pF	pF	pF
6 CH 7	I=II sect.	2,4	0,8	1,1	
6 H 5 II	I sect.	3	1,5	2,25	
	II sect.	3	1,7	2,25	0,2
6 H 6 II	I sect.	4,4	1,9	3,5	
6 H 6 II-II	II sect.	4,4	2,1	3,5	
6 H 16 B	I=II sect.	2,7	1,65	1,5	0,5
6 H 18 B	I=II sect.	2,6	1,5	1,7	0,45
1539	I sect.	3,3	1,6	2,8	
	II sect.	3,3	1,8	2,8	0,15
5844	I sect.	2,6	0,5	2,6	
	II sect.	2,6	0,4	2,6	
5964	I sect.	2	0,45	1,3	
6045	II sect.	2	0,34	1,3	

Equivalents

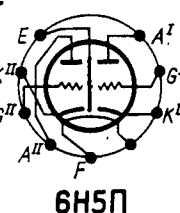
6 H 16-B³⁾ CCCP = 6 H 16 B
 6 H 16-B-II³⁾ CCCP = 6 H 16 B
 6 H 18-B-B³⁾ CCCP = 6 H 18 B

1



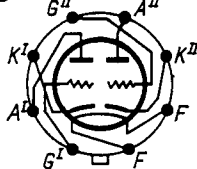
6CH7

2



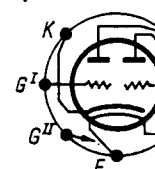
6H5II

3



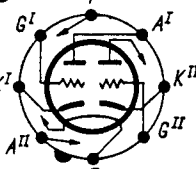
6H12C

4

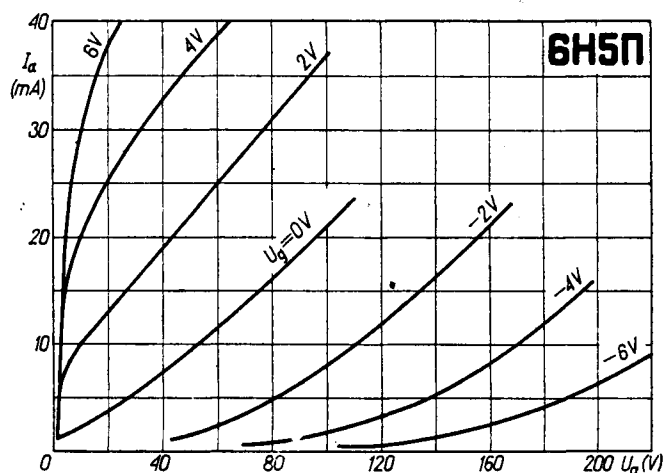
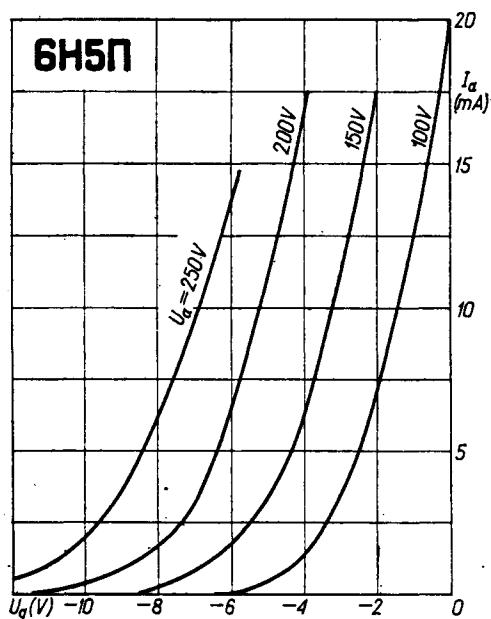


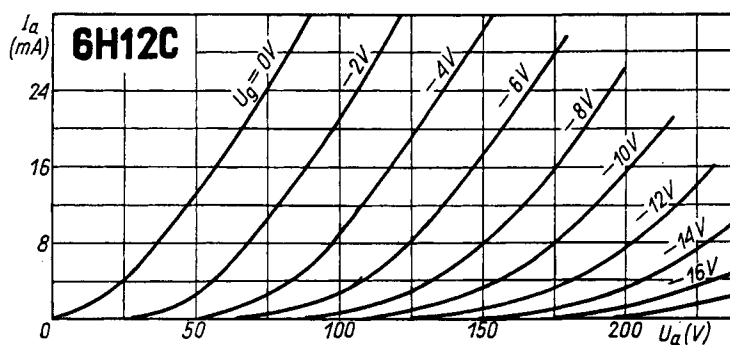
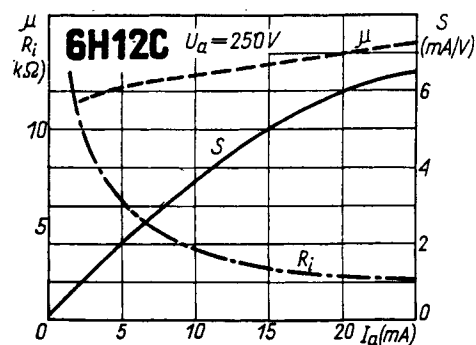
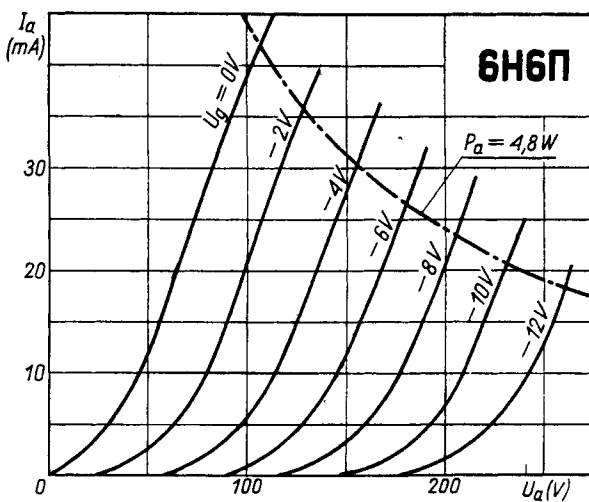
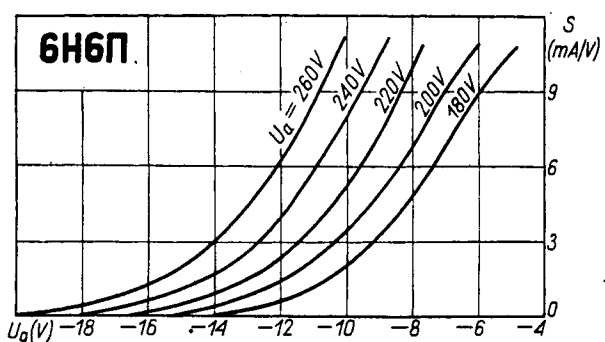
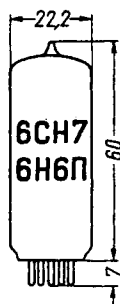
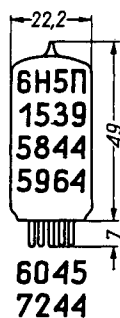
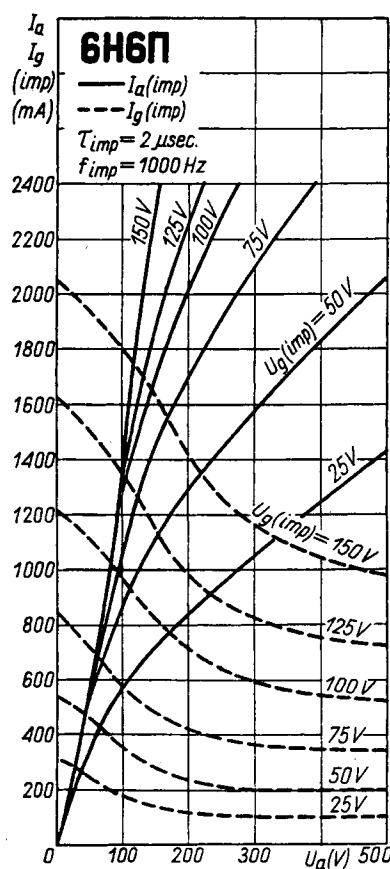
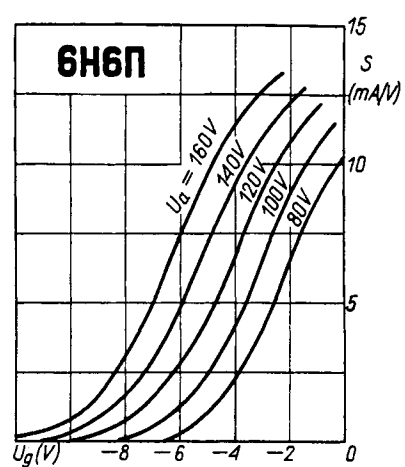
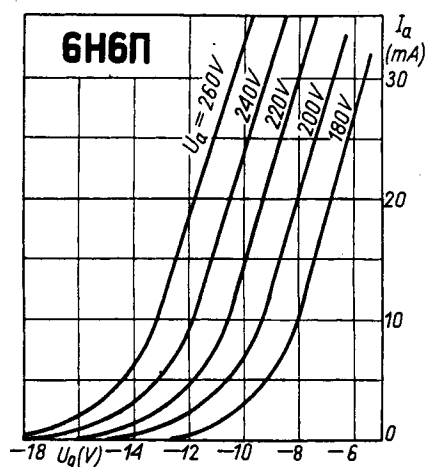
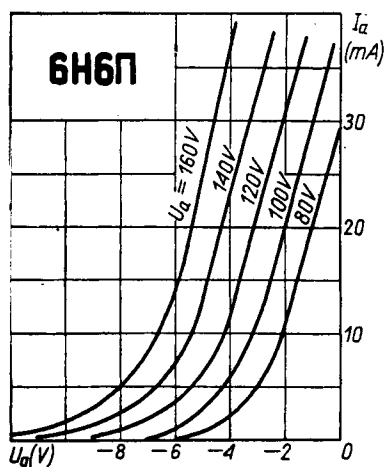
5844

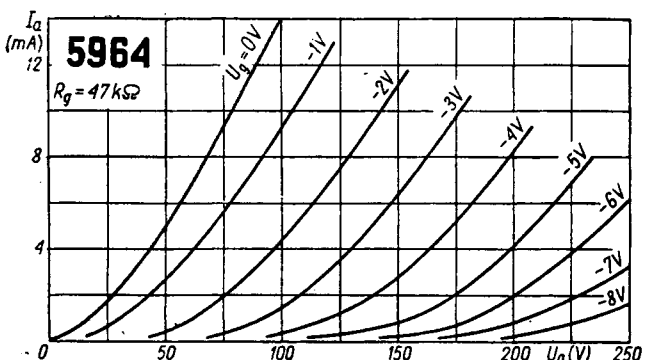
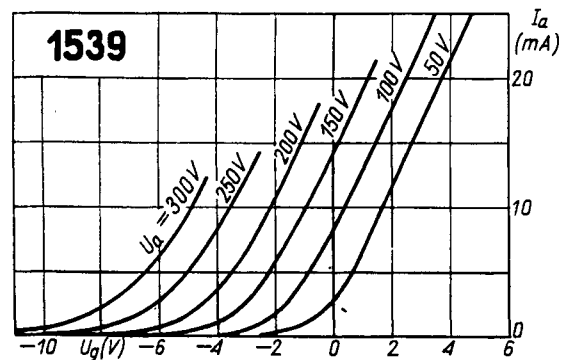
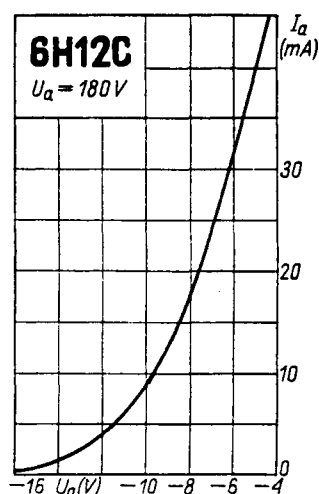
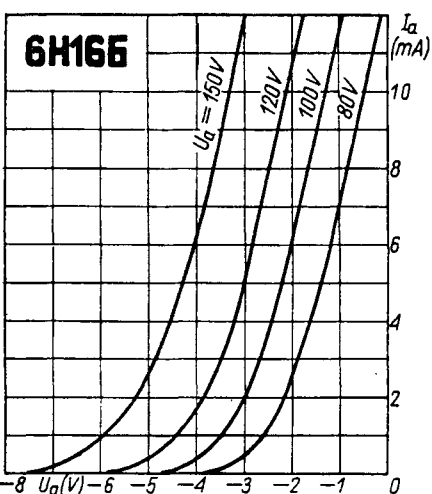
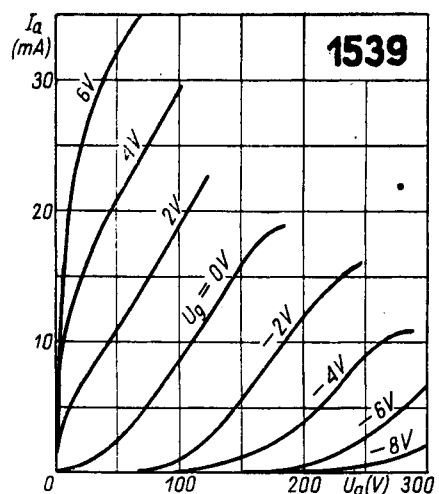
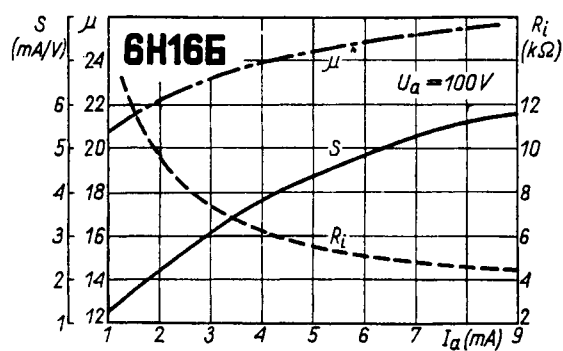
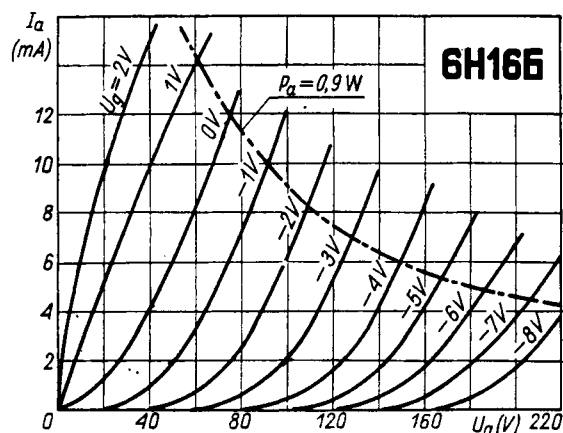
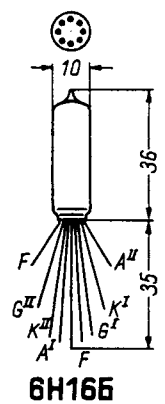
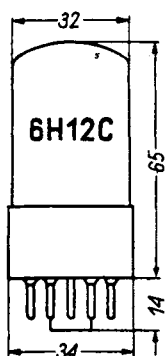
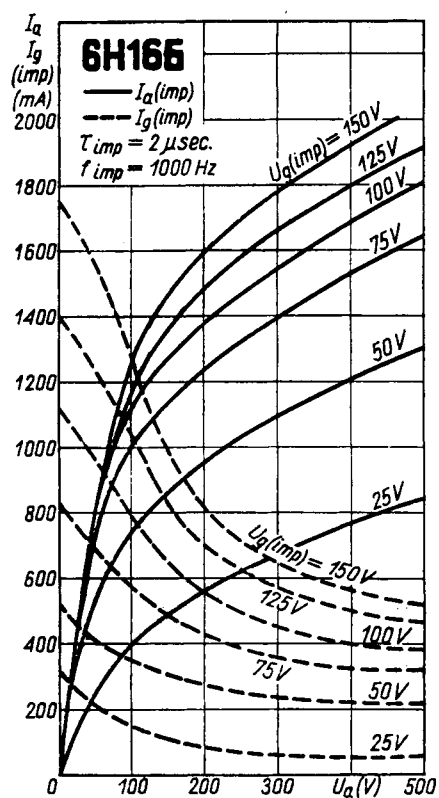
5



6H16B







T.			U_f V	I_f A	U_a V	I_a mA	S mA/V	R_i kΩ	μ V/V	R_k Ω	U_f/k V	I_k mA	P_a W
4 BC 8	amer	I	4,2	0,6	150	10	6,2	5,6	35	220			
6 BC 8	amer	I	6,3	0,4	250			maximum			100	20	2
6 BQ 7	amer	I	6,3	0,4	150	9	6	5,8	35	220	100	20	2
4 BQ 7-A	amer	I	4,2	0,6	250			maximum					
4 CX 7	amer	2	4,2	0,6									
5 BQ 7-A	amer	I	5,6	0,45									
6 BQ 7-A	int	I	6,3	0,4	150	9	6,4	6,1	39	220	10	20	2
6 CX 7	amer	2	6,3	0,4	250			maximum					
8 BQ 7-A	eur	I	8,4	0,3									
9 BQ 7-A	amer	I	8,4	0,3									

T.	vide * 6	C_g pF	C_a pF	C_g/a pF	C_f/k pF	C_g/g pF	C_a/a pF	$C_{aII/aI+gI}$ pF
6 BC 8	I = II sect.	2,5	1,3	1,4	2,3	0,007	0,015	
6 BQ 7-A	I sect.	2,6	1,2	1,2	2,6	0	0,01	0,024
	II sect.			1,2	2,6			
	Fig. I	5	2,2					
6 CX 7	I sect.	2,4	1,3	1,2	2,4		0,17	0,27
	II sect.			2,4				
	Fig. I	4,2	1,7					

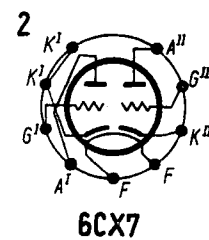
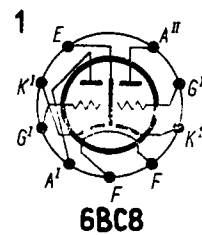
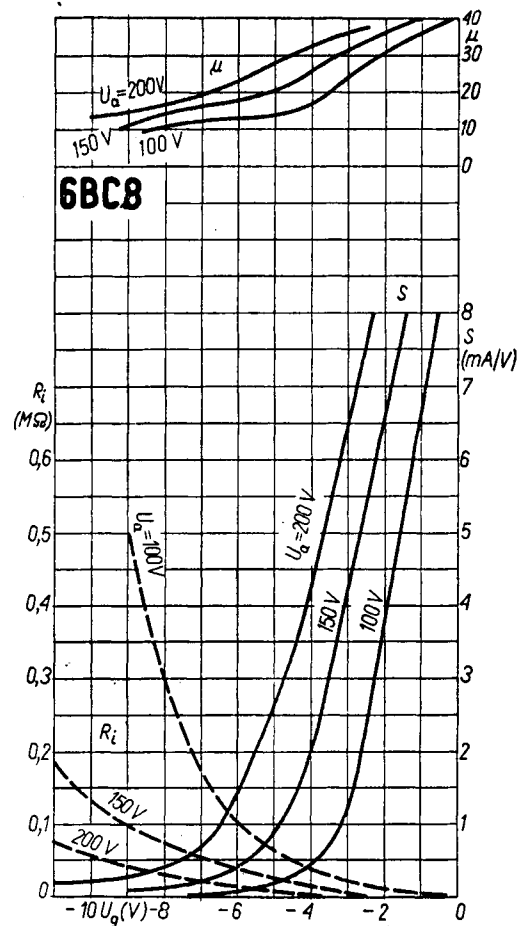
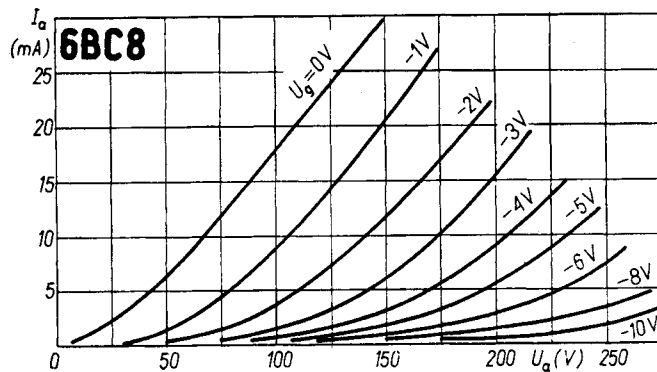
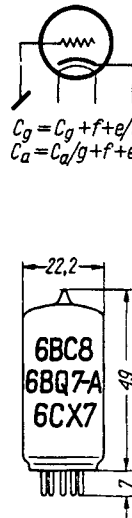
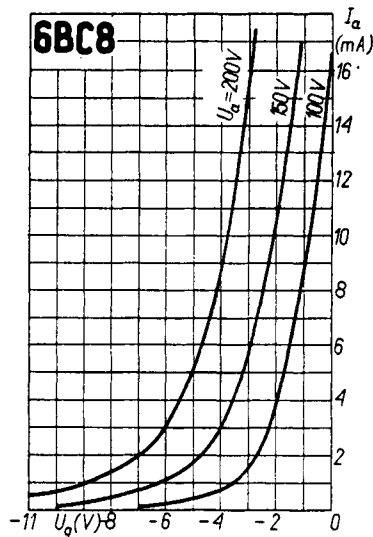
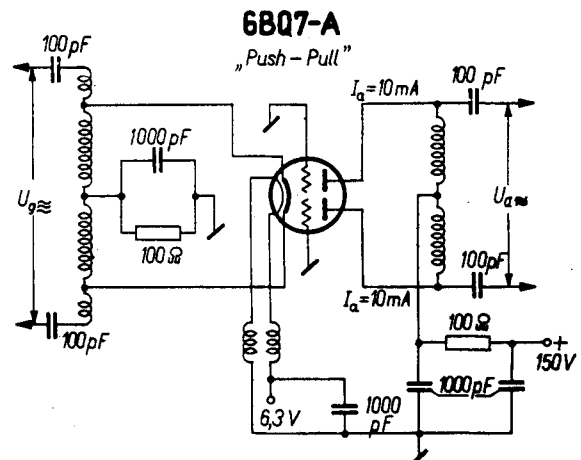
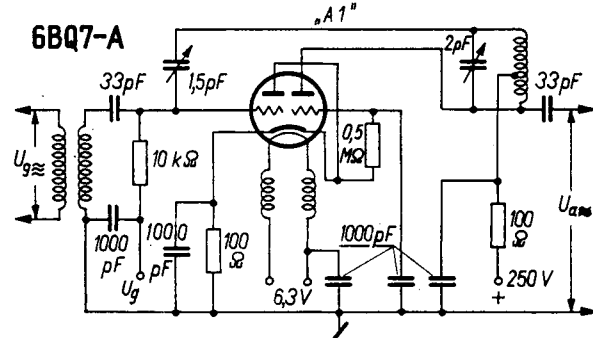
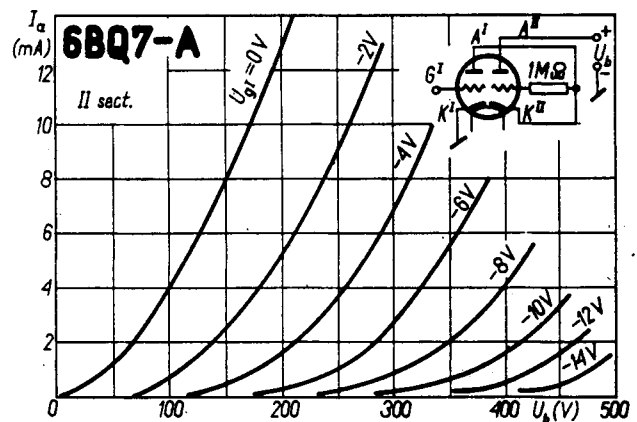
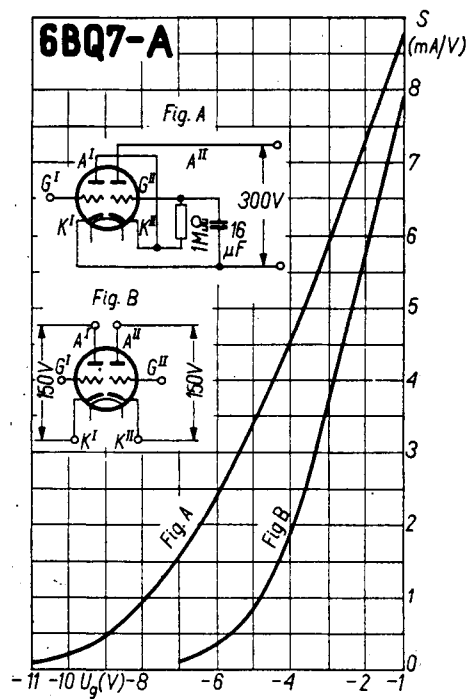
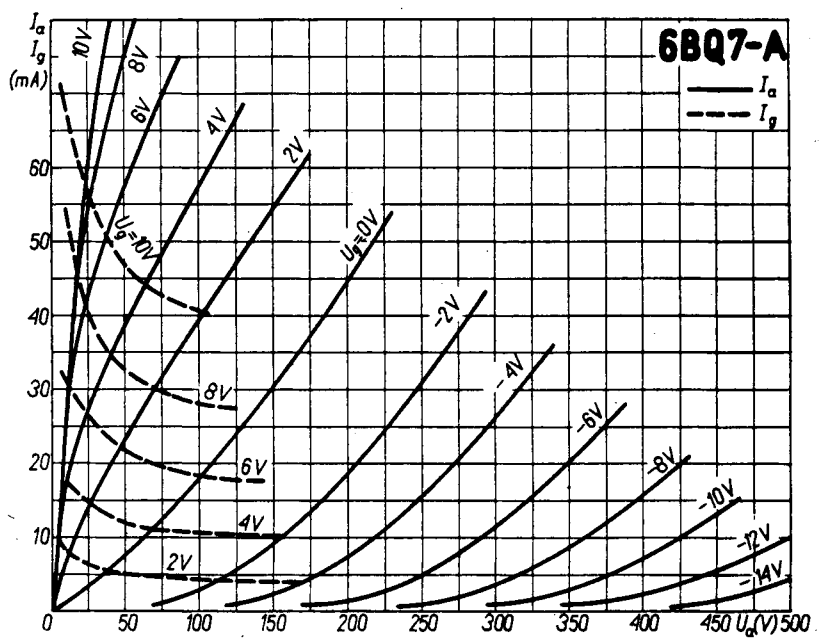
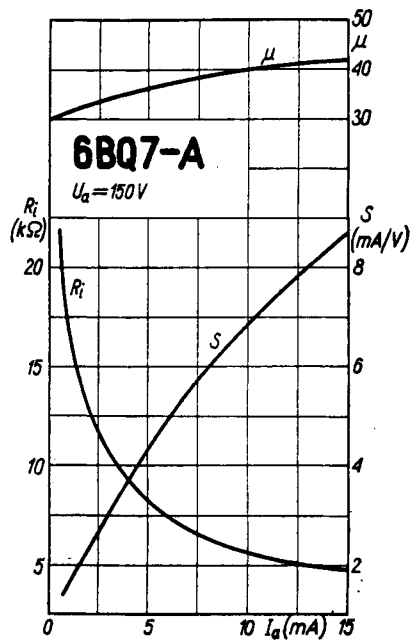


Fig. 1





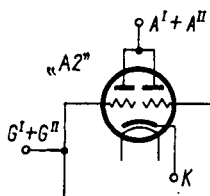
T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	I_g mA	S mA/V	R_i kΩ	μ V/V	$R_o(R_{a/a})$ kΩ	P_o W	$U_{g/g\sim}$ V	h %
6 A 6	amer	1	6,3	0,8	A1	250	-5	3	1,6	23	35	30	0,2		
6 N 7	int	2	6,3	0,8		250	-5	6	3,1	11,5	35	20	0,4		
11 A 6	amer	1	11	0,45	A2	294	-6	7	3,2	11,3	35	40	0,4		
11 N 7	amer	2	11	0,45		300	0	35÷70				(8)	10	82	4
53	amer	1	2,5	2	B										
5694	Ray	3	6,3	0,8		• 300									

maximum $P_a = 5,5$ W; $I_k = 125$ mA; $U_{f/k} = 90$ V

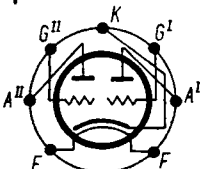
T.		C_g pF	C_a pF	$C_{g/a}$ pF	$C_{g/g}$ pF	$C_{a/a}$ pF	$C_{a^I/g^{II}}$ pF
6 N 7	I = II sect.	1,5	2	1,5	0,03	0,4	0,01

Equivalents

CK 5694	Ray	= 5694
B 63	Marc	= 6 A 6
WT-T-125	WT	= 6 N 7
WT-210-0084	WT	= 6 N 7
6 H 7	CCCP	= 6 N 7
6 H 7 C	CCCP	= 6 N 7
6 N 7-G	int	= 6 N 7
6 N 7-GT	int	= 6 N 7

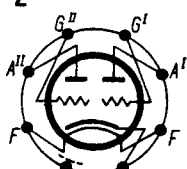


1



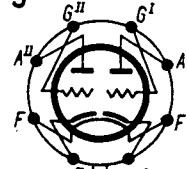
6A6

2

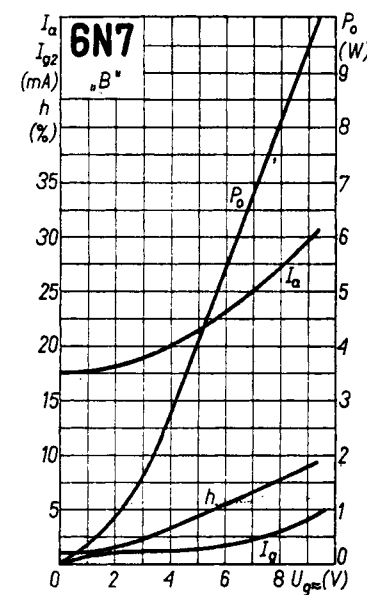
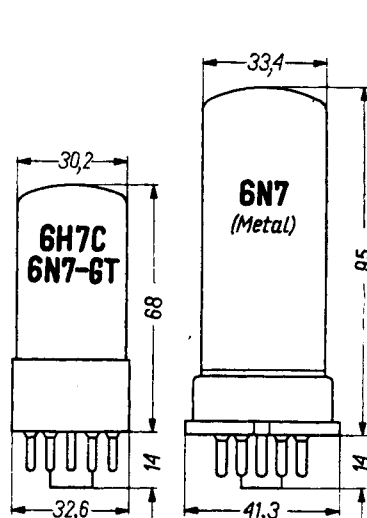
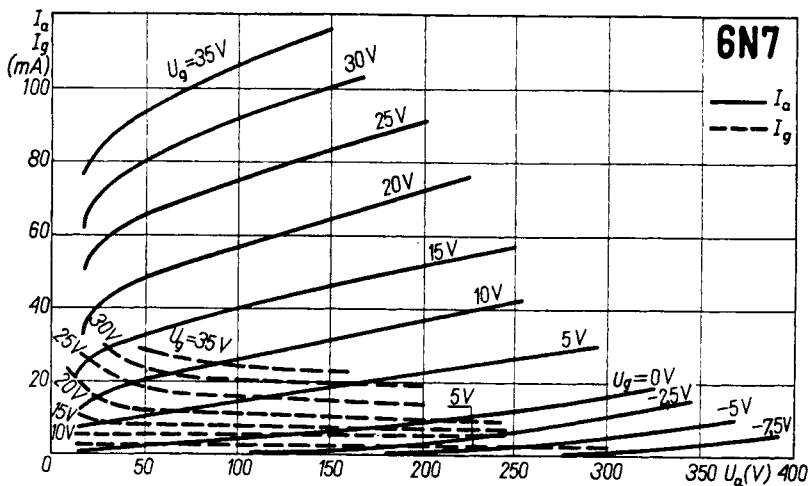
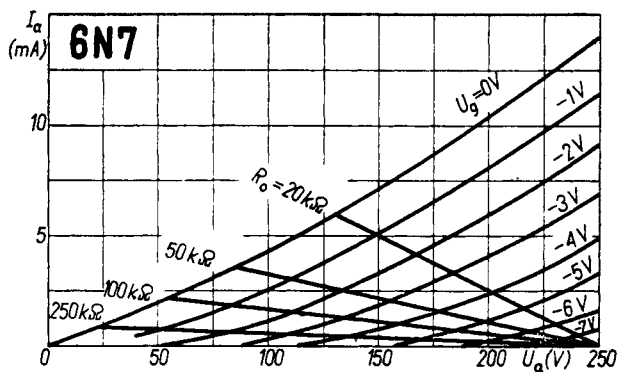


6N7

3



5694

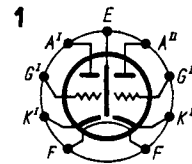


T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	f	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	Ω	MHz	V	mA	W
2 C 51	int	1	6,3	0,3 ÷ 0,35	130	-1,5	7,6	5,4	6,5	35	200				
18 C 51 ¹⁾	SER	1	18	0,1	150	-2	8,2	5,6	6,5	35	240				
407 A ¹⁾	int	2	20/40	0,1/0,05	300			maximum				800	90	18	1,5

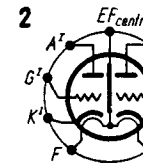
Equivalents 2 C 51

CK 5670 ²⁾	Ray	6 H 3 II-E ³⁾	CCCP
CK 5670-WA ¹⁾	Ray	6 H 3 II-H ³⁾	CCCP
GL 5670 ²⁾	GE	396 A	WE
2 C 51 L ¹⁾	SER	5670 ²⁾	int
6 CC 42	Tes	5670-WA ¹⁾	amer
6 H 3 II	CCCP	6385	amer
		6854	amer

T.	C_g	C_a	$C_{g/a}$	C_{ala}
	pF	pF	pF	pF
2 C 51	2,2	1	1,3	0,1
407 A				



2C51

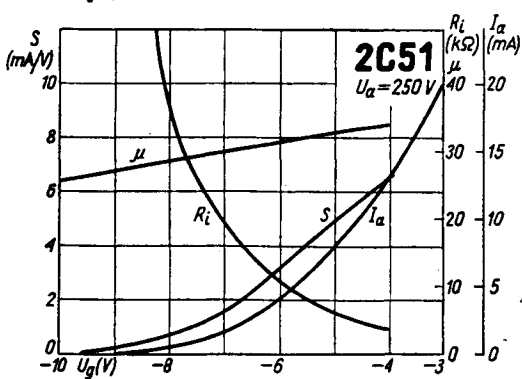
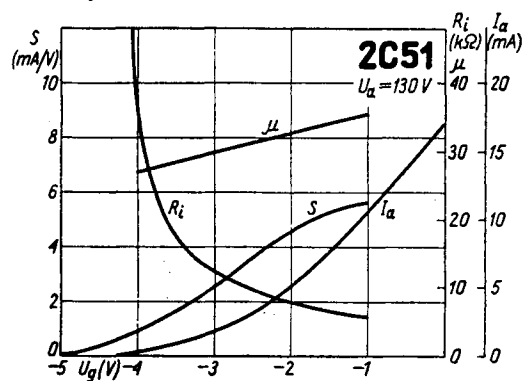
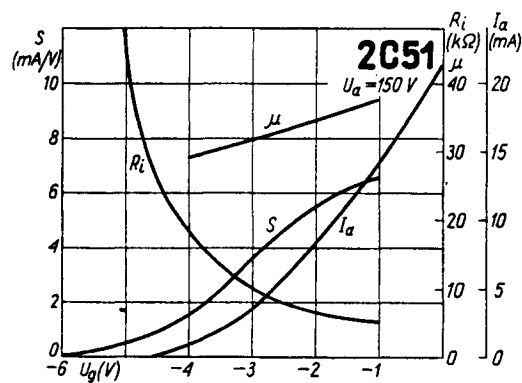
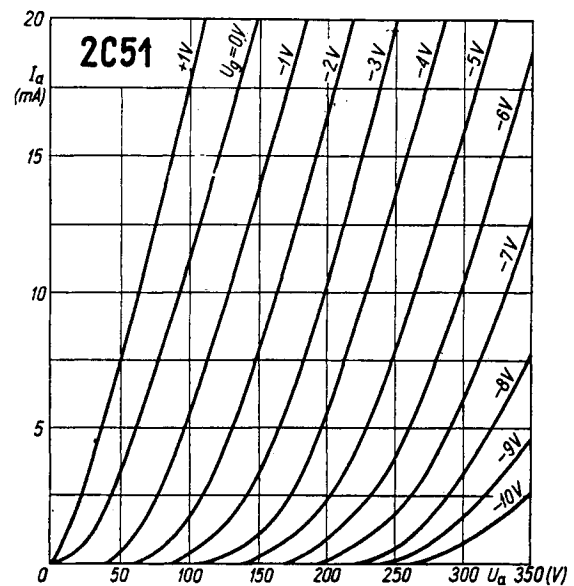
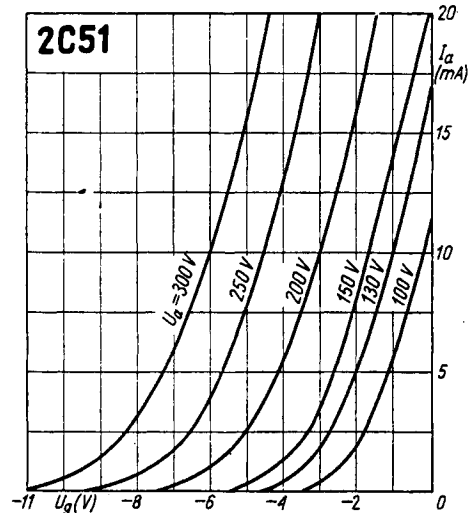


407A

¹⁾ vide *4, a, b, c = 10.000, d, e, f, g ($U_f = 6,3; 18, 20/40 \text{ V} \pm 5\%$)

²⁾ vide *4, a, b, c = 10.000, f, g ($U_f = 6,3 \text{ V} \pm 10\%$)

³⁾ vide *4, a, b, c = 5000, e; ⁴⁾ impulse operat.

2C51
18C51
407A

T.			U_f	I_f	Cl.	U_a	U_g	I_a	I_g	$S(S_c)$	R_i	μ	R_k	P_o	f	U_f/k	P_a
			V	A		V	V	mA	mA	mA/V	k Ω	V/V	Ω	W	MHz	V	W
5 J 6	amer	I	4,7	0,6	stat. C-Tgr Push-P Mixer	100	-0,85	8,5		5,3	7,1	38	50				
6 J 6	int	I	6,3	0,45		230	-4	7		3,6	10	36	400			100	1,5
9 J 6	Fot	I	9,5	0,3		300	-40	15	8								
19 J 6	int	I	18,9	0,15		150	-10	30	16				220	3,5	50	($P_{dr} = 0,35W$)	
6 J 6 L ¹⁾	SER	I	6,3	0,33	stat.	150		4,8		(1,9)	10		820		600	($U_{osc} = 3 V$)	
18 J 6 ¹⁾	SER	I	18	0,115		100		6,5		5	7,5		68				
						130		7,7		5,3	7,2		100		600	90	1,3

Equivalents 6 J 6

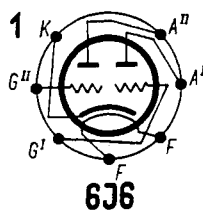
A 4434	amer	T 2 MO 5	SFR	6Ж6П	CCCP
CK 6101 ¹⁾	Ray	TS 52 ¹⁾	Phi	6 H 15	CCCP
ECC 91	eur	6 CC 31	Tes	6 H 15 II	CCCP
ECC 91 W ¹⁾	eur	6 J 6-A	amer	6030 ¹⁾	amer
HF 2025	RFT	6 J 6-R	Dar	6099 ¹⁾	amer
M 8081 ¹⁾	Mul	6 J 6-W ¹⁾	amer	6101 ¹⁾	amer
OSW 2025	RFT	6 J 6-WA ¹⁾	amer	6535 ¹⁾	amer
				6927 ¹⁾	amer

T.	C_g	C_a	$C_{g/a}$	vide
	pF	pF	pF	
6 J 6	2,2	0,4	1,6	* 5
6 J 6 L	2	0,45	1,5	* 5
18 J 6	2,6	1,6	1,5	* 6

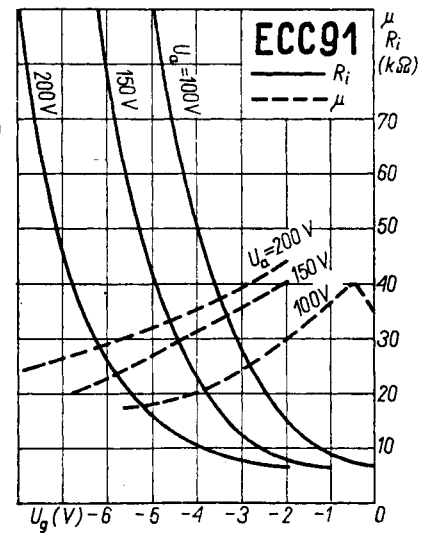
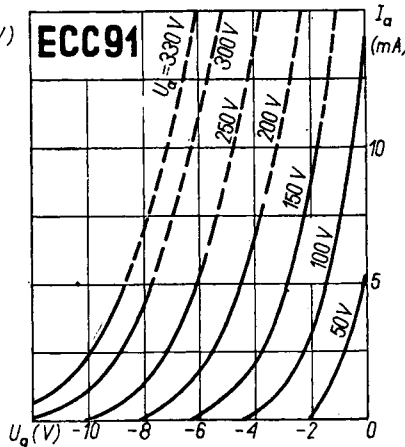
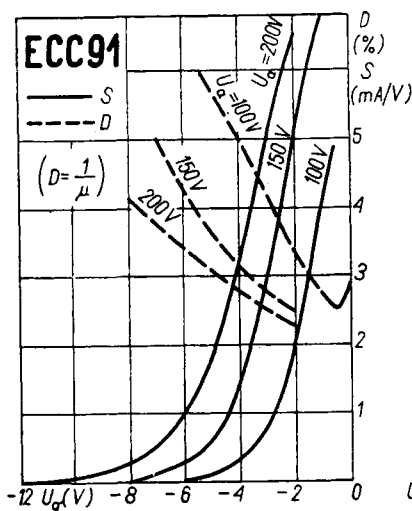
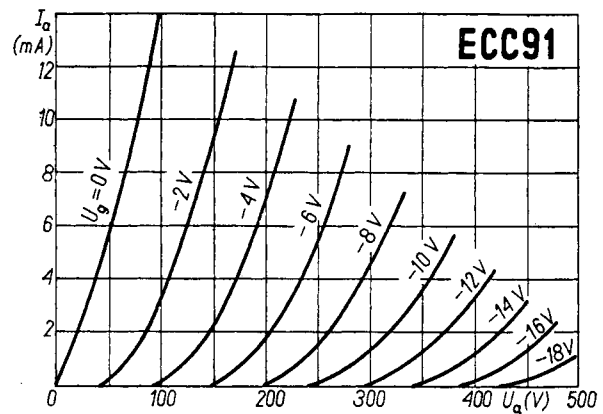
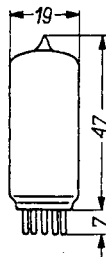
¹⁾ vide * 4, a, b, c = 10.000, d, f, g ($U_f = 6,3(18)V \pm 5\%$)

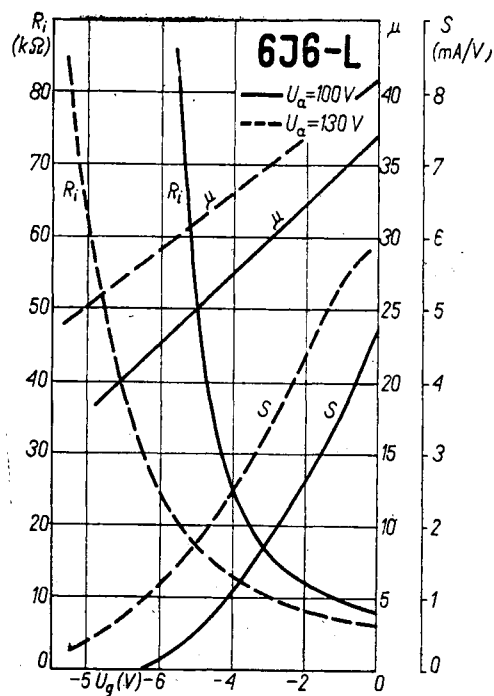
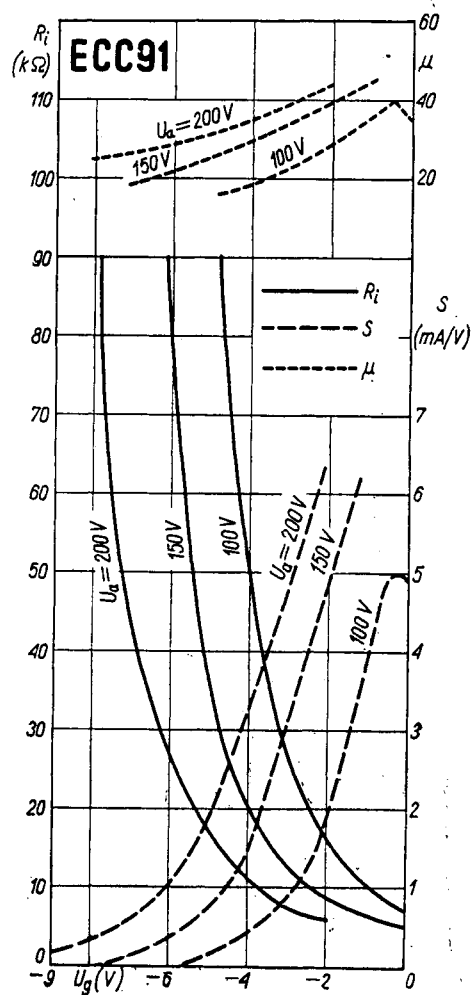
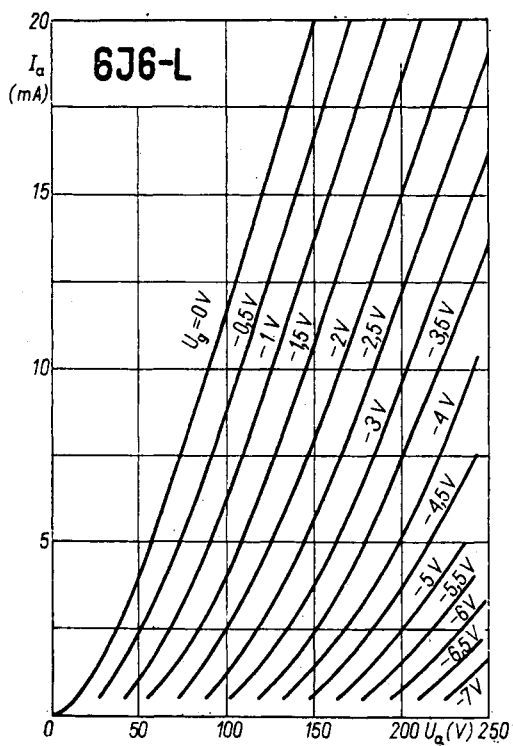
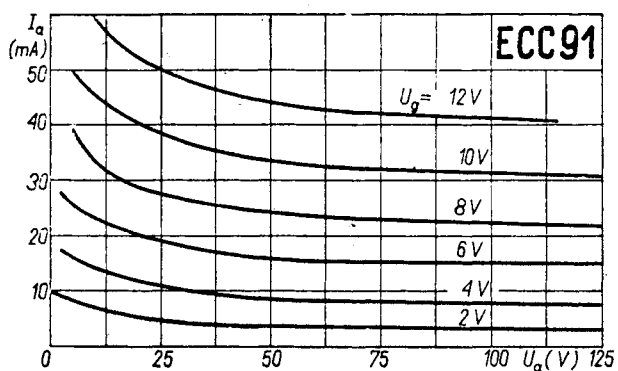
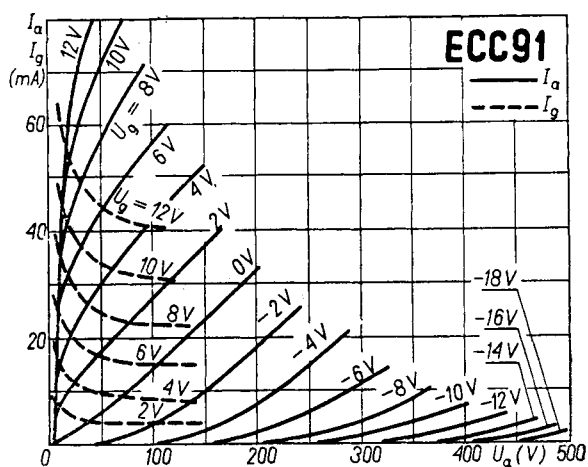
²⁾ vide * 4, a, b, c = 10.000, f, ($U_f = 6,3 V \pm 10\%$)

³⁾ vide * 4, a, b, f, g ($U_f = 6,3 V \pm 10\%$)



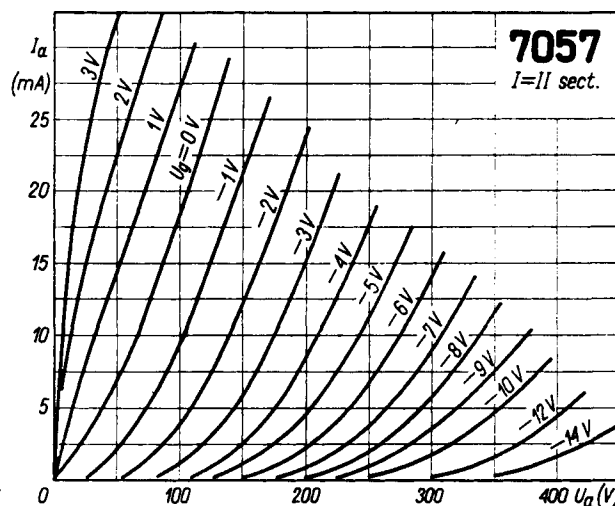
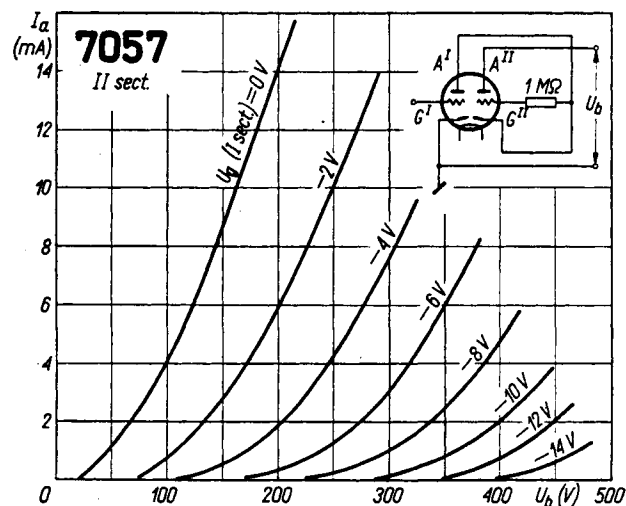
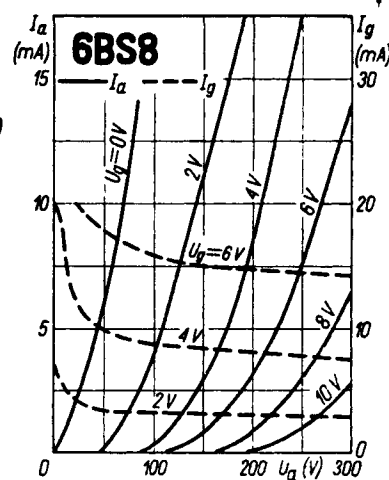
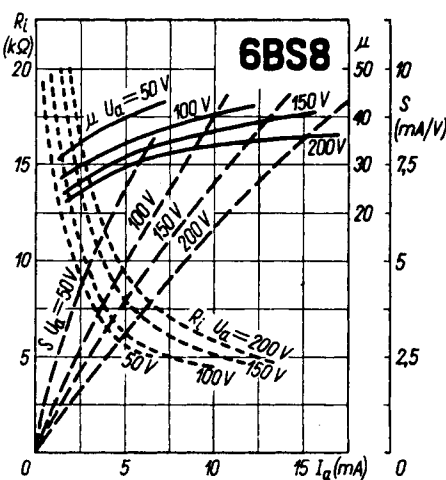
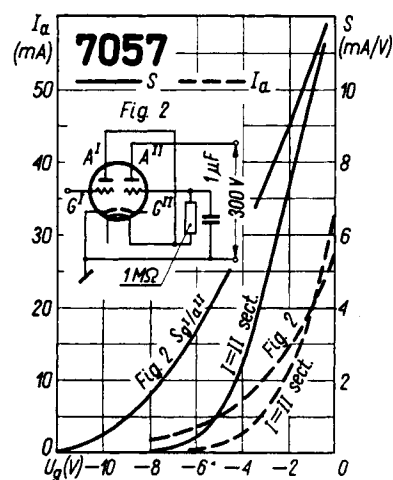
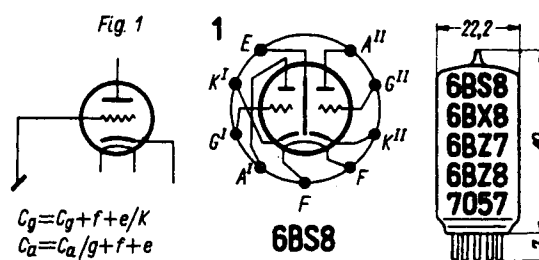
6J6
6J6-L





T.		U_f V	I_f A	Cl.	U_a V	U_g V	I_a mA	S mA/V	R_i kΩ	μ V/V	R_k Ω	$U_{f/k}$ V	I_k mA	P_a W
4 BS 8	amer	I	4,5	0,6	stat { 150 150 Casc. <250	—I	10	7,2 maximum 10	5	36	220	200	20	2
5 BS 8	amer	I	5,6	0,45										
6 BS 8	amer	I	6,3	0,4										
4 BX 8	TS	I	4,5	0,6	stat { 65 150 Casc. <125	—I	9	6,7 maximum 7,5		25		200	20	2
6 BX 8	TS	I	6,3	0,4										
4 BZ 7	amer	I	4,2	0,6	stat { 150 250 275		10	6,8 maximum maximum	5,3	36	220	200	20	2
5 BZ 7	amer	I	5,6	0,45										
6 BZ 7	amer	I	6,3	0,4										
7057	amer	I	13,5	0,18								150		2,2
4 BZ 8	amer	I	4,2	0,6	stat { 125 250 Casc. <250		10	8 maximum 10	5,6	45	100	200	20	2,2
6 BZ 8	amer	I	6,3	0,4										

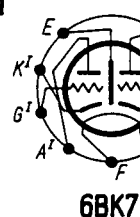
T.	vide * 6	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{f/k}$ pF	$C_{a/k}$ pF	$C_{a/a}$ pF	$C_{aII/aI+gI}$ pF
6 BS 8	I sect.	2,6	1,2	1,2	2,6	0,12	—	—
6 BZ 7	II sect.			1,2	2,6	0,12	0,01	0,024
6 BZ 8								
7057	Fig. 1	5	2,2					



T.		U_f V	I_f A	U_a V	U_g V	I_a mA	S mA/V	R_i kΩ	μ V/V	R_k Ω	U_f/k V	P_a W
5 BK 7	amer	1	4,7	0,6	100	9	6,1	6,1	37	120		
6 BK 7	int	1	6,3	0,45	150	18	8,5	4,7	40	56		
12 AV 7	amer	2	6,3/12,6	0,45/0,225	300	—50		maximum			90	2,7
5 BK 7-A	amer	1	4,7	0,6	150	18	9,3	4,6	43	56		
6 BK 7-A	int.	1	6,3	0,4	300	—50		maximum			90	2,7
6 BK 7-B	amer	1	6,3	0,45								
9 BK 7-A	amer	1	9,45	0,3								

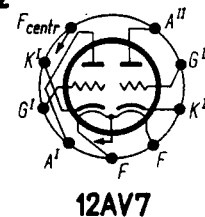
T.	vide *6	C_g pF	C_a pF	$C_{p/a}$ pF	$C_{f/k}$ pF	$C_{g/g}$ pF	$C_{a/a}$ pF	$C_{a/k}$ pF
6 BK 7	I sect. II sect. Fig. I	3 3 6	1,1 1 2,8	1,9 1,9 —	3,2 3,4 —	— 0,003 —	— 0,075 —	— — 0,24
6 BK 7-A	I sect.	3	1	1,8	2,8	—	—	—
6 BK 7-B	II sect. Fig. I	3 6	0,9 2,4	1,8 —	3 —	0,004 —	0,075 —	— 0,22
12 AV 7	I sect. II sect. Fig. I	3,1 3,1 6,9	1,3 1,6 2	1,9 1,9 —	4 4 —	— — —	— — —	— — 0,24

1



6BK7

2

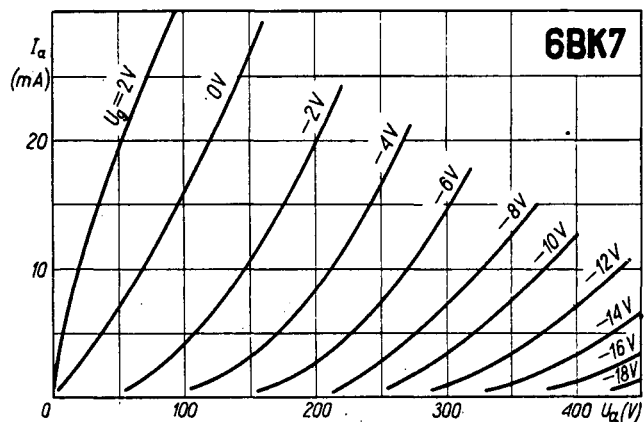
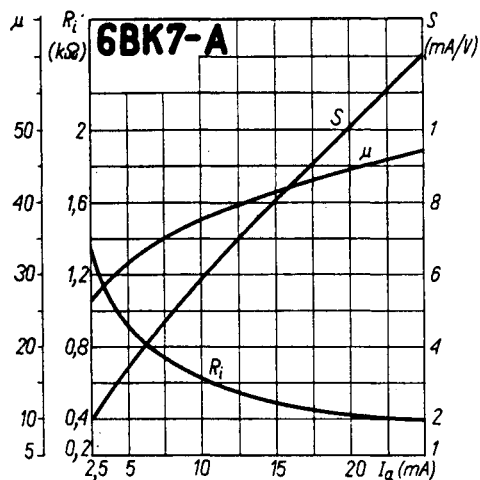
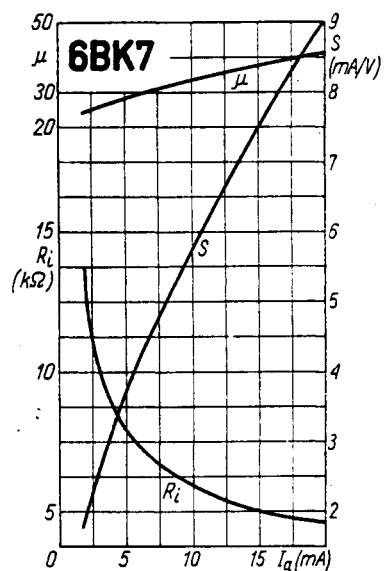
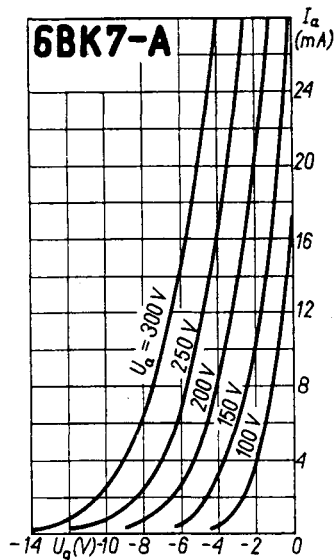
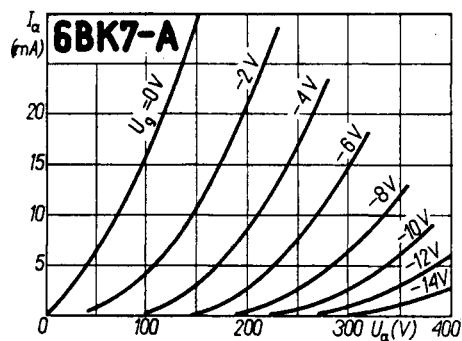


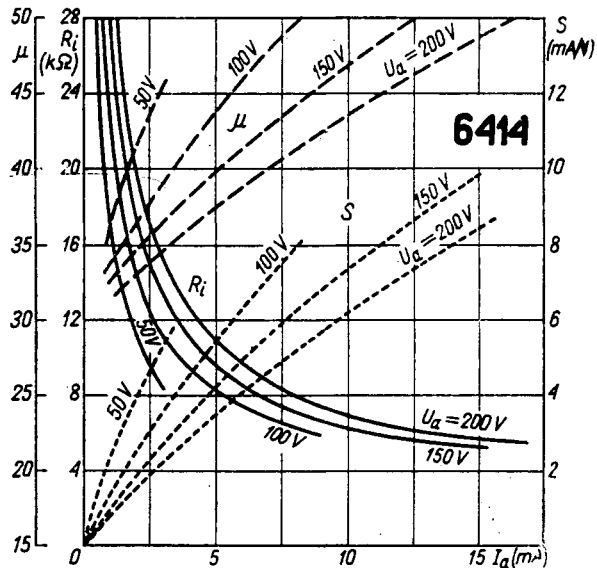
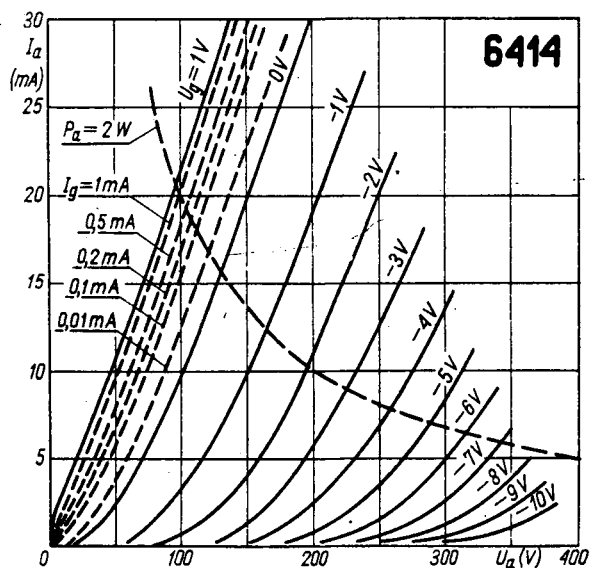
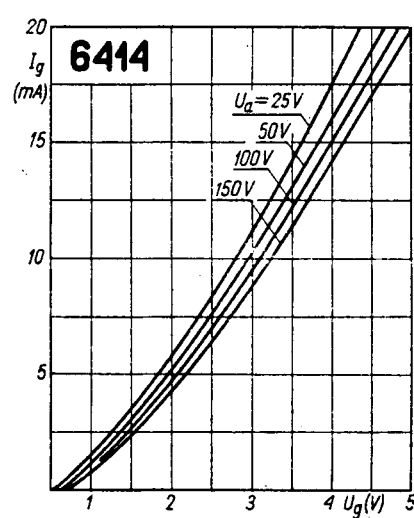
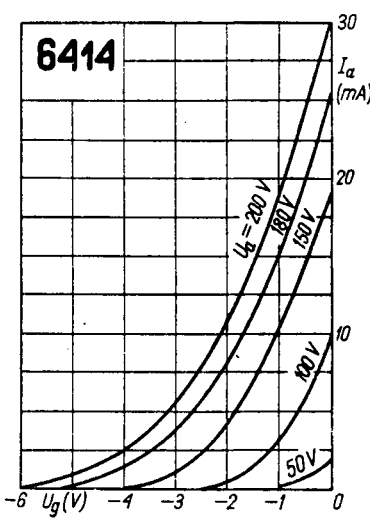
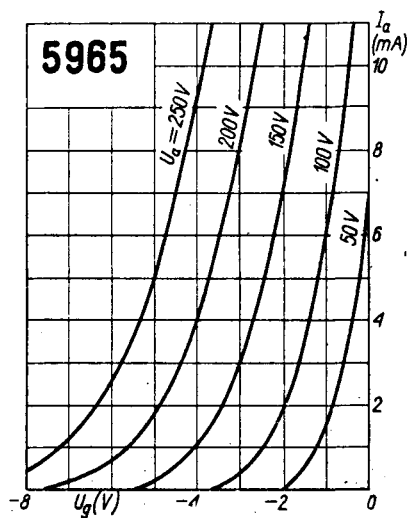
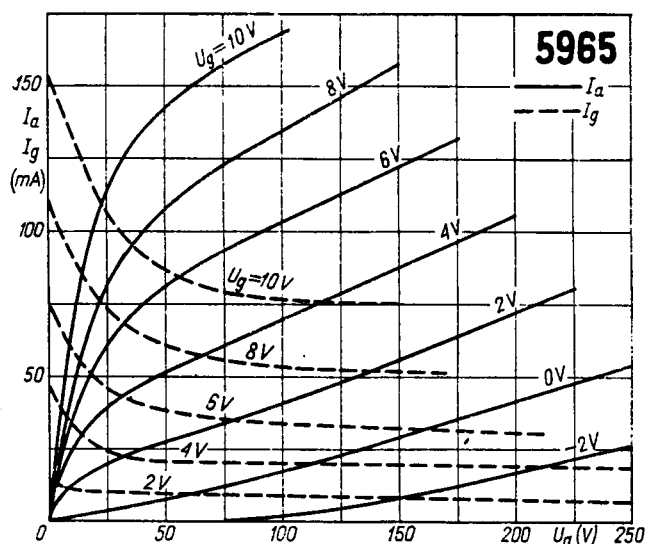
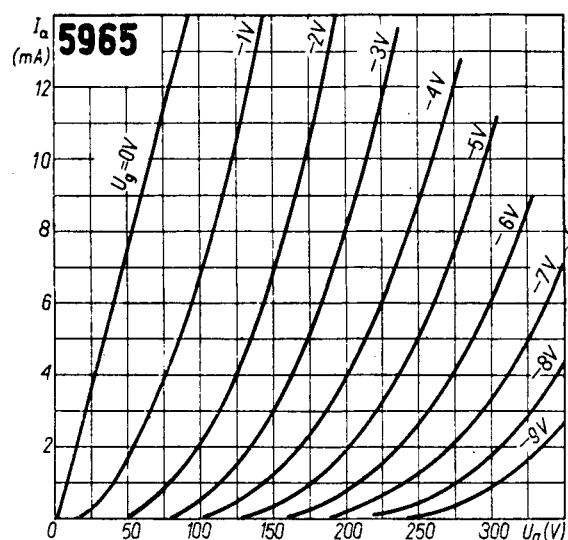
12AV7

Fig. 1

$$C_g = C_g + f + e/k$$

$$C_a = C_a/g + f + e$$





T.		U_f	I_f	U_a	U_g	I_a	I_g	S	R_i	μ	R_k	U_f/k	I_k	P_a
		V	A	V	V	mA	μA	mA/V	k Ω	V/V	Ω	V	mA	W
E92CC ¹⁾	eur	6,3	0,4	$\begin{cases} 150 \\ 300 \end{cases}$	$\begin{cases} -1,7 \\ 0,5 \div -100 \\ -200 \end{cases}$	$4,5 \div 12,5$	$\begin{cases} -0,2 \\ 250 \\ 1000 \end{cases}$	$4,5 \div 7,5$	7,5	45	200	100	$\begin{cases} 15 \\ 75 \end{cases}$	2

¹⁾ vide * 3; ²⁾ vide * 4, c = 10.000, d, f, g ($U_f = 6,3 V \pm 5\%$)

Equivalents

ECC 962	RFT
---------	-----

	C_g	C_a	$C_{g/a}$	$C_{g/g}$	$C_{a/a}$
	pF	pF	pF	pF	pF
I sect.	2,2 ÷ 4	0,22 ÷ 0,42	1,9 ÷ 2,6		
II sect.	2,2 ÷ 4	0,28 ÷ 0,48	1,7 ÷ 2,5	0,29	2

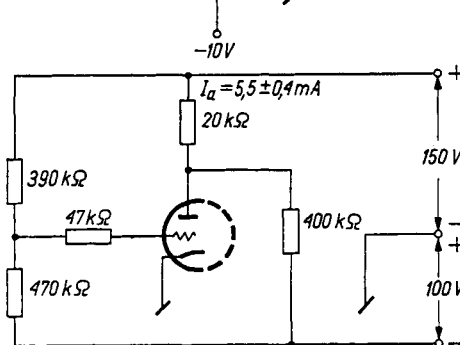
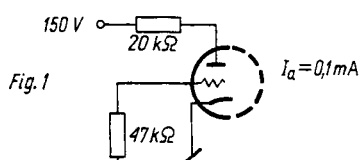
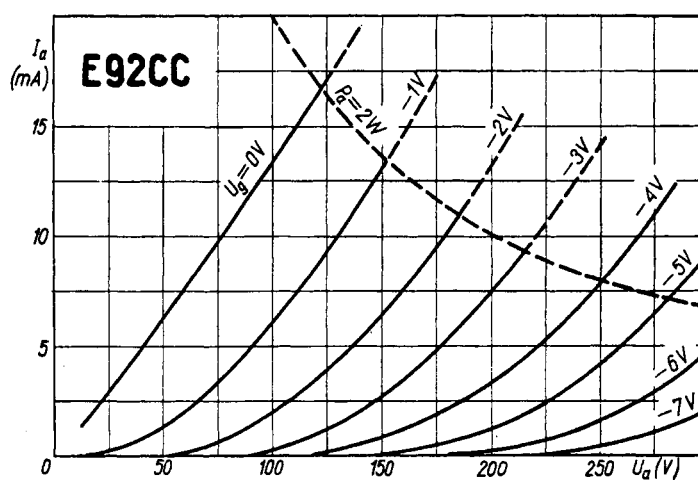
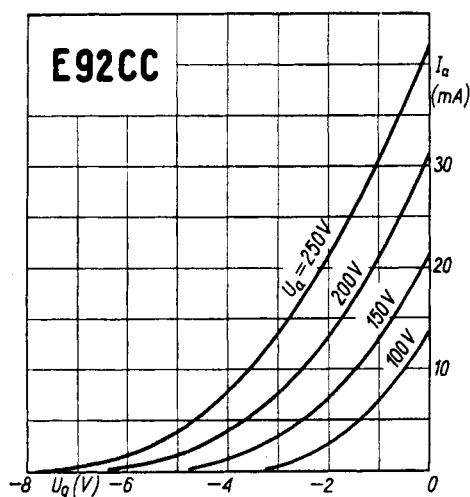
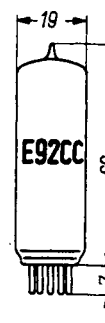
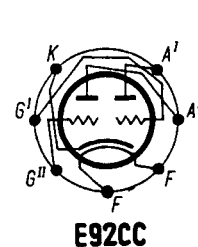


Fig. 2

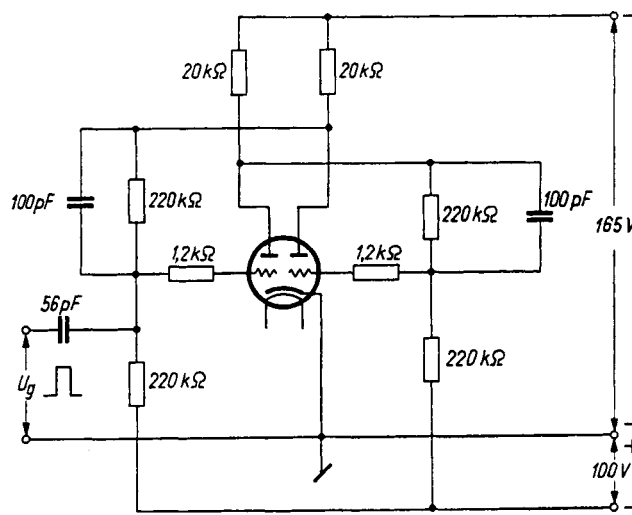


Fig. 3

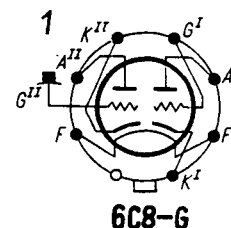
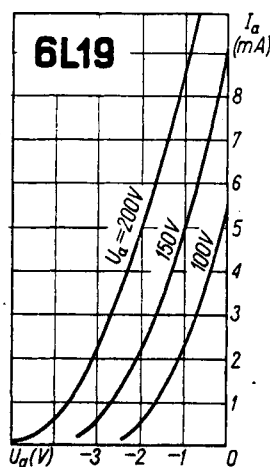
T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	U_j/k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	W
6 C 8-G	amer	I	6,3	0,3	250	-4,5	3,2	1,6	22,5	36		I
					250			maximum				
6 L 19	Eds	2	6,3	0,4	250	-2	5	3,3	16	55	150	1,5
					250			maximum				
6 SC 7	int	3	6,3	0,3	250	-2	2	1,32	53	70	90	
12 SC 7	int	3	12,6	0,15	250			maximum				
7 F 8	amer	4	6,3	0,3	250		6	3,3	14,5	48	($R_k = 500\Omega$)	
14 F 8	amer	4	12,6	0,15	300			maximum			90	3

Equivalents

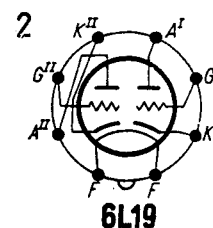
E 1709	Marc = 6 SC 7
6 C 8-BG	amer = 6 C 8-G
6 H 10 C	CCCP = 6 SC 7
6 H 10 M	CCCP = 6 SC 7
6 SC 7-GT	int = 6 SC 77
7 F 8-W ¹⁾	amer = 7 F 8
12 H 10 C	CCCP = 12 SC 7
12 H 10 M	CCCP = 12 SC 7
1634	RCA = 12 SC 7
1655	RCA = 6 SC 7

¹⁾ vide *4

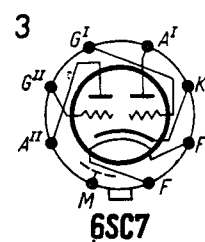
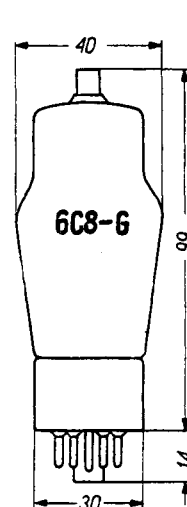
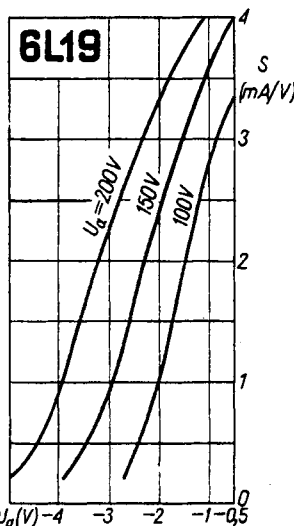
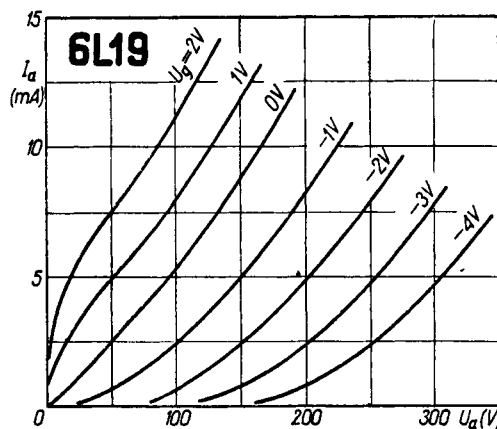
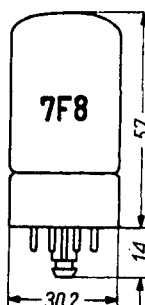
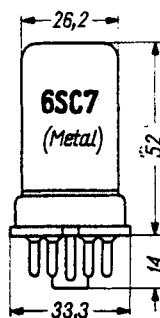
T.		C_g	C_a	$C_{g/a}$	$C_{g/g}$	$C_{a/a}$
		pF	pF	pF	pF	pF
6 C 8-G	I sect.	2,6	2	2,6		
	II sect.	1,3	2,2	1,8	0,1	2
6 L 19	I sect.	2,8	2,5	2,5		
	II sect.	2,9	2,3	2,5	0,014	0,65
6 SC 7	I = II sect.	2	3	2		
7 F 8	I = I sect.	2,8	1,4	1,2	0,1	0,5



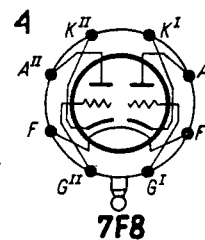
6C8-G



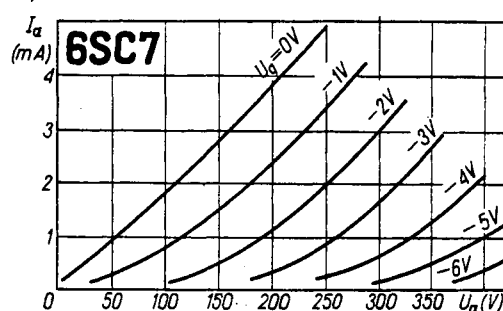
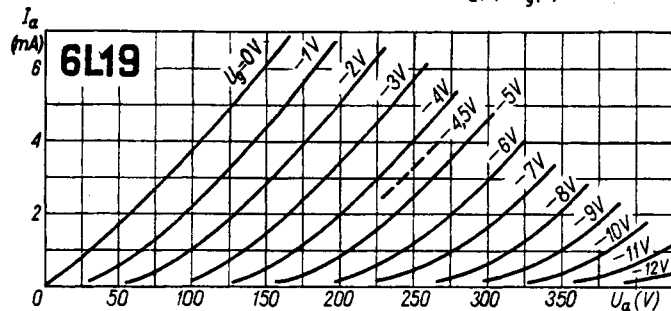
6L19



6SC7



7F8



T.			U_f V	I_f A	U_a V	U_g V	I_a mA	S mA/V	R_i kΩ	μ V/V	$U_{f/k}$ V	I_k mA	P_a W
12 AY 7 6072 ¹⁾	amer amer	I I	6,3/12,6 6,3/12,6	0,3 / 0,15 0,35/0,175	$\begin{cases} 250 \\ 300 \end{cases}$	$\begin{cases} -4 \\ -50 \end{cases}$	3	1,75 maximum	25	44	90	10	1,5

¹⁾ vide * 4, a, b, c, f, g. ($U_f = 6,3/12,6 \text{ V} \pm 10\%$)

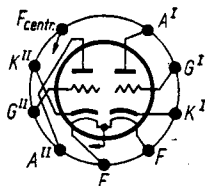
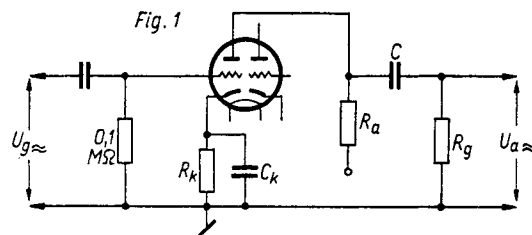
Fig. 1

T.		C_g pF	C_a pF	$C_{g/a}$ pF
6 H 4 II	I sect.	1,6	1,6	1,3
	II sect.	1,6	1,4	1,3
12 AY 7	I=II sect.	1,3	0,6	1,3
6072	I sect.	1,3	0,5	1,2
	II sect.	1,5	0,38	1,4

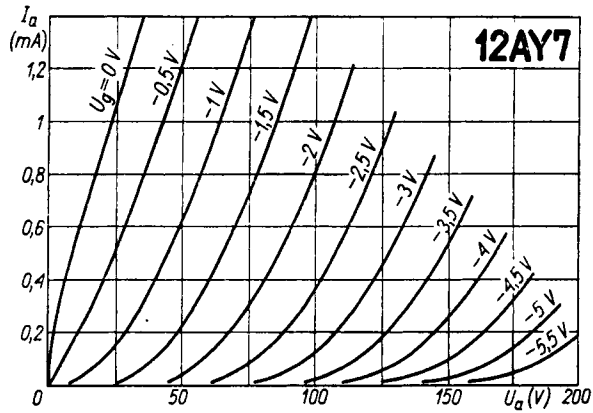
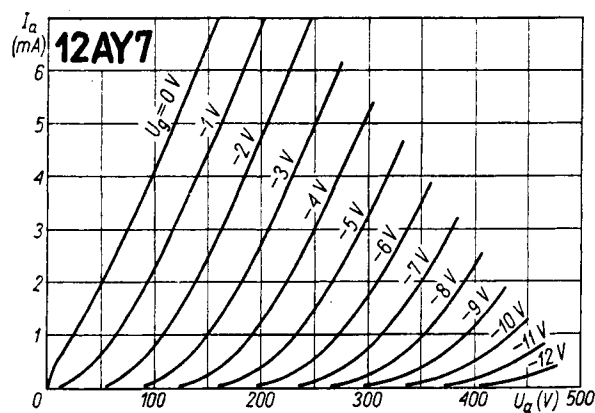
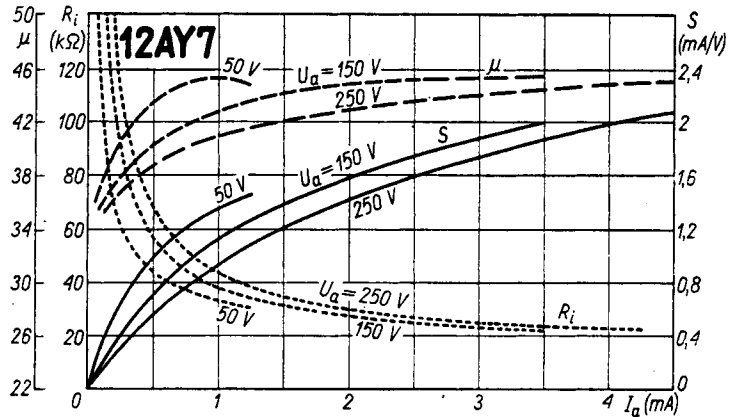
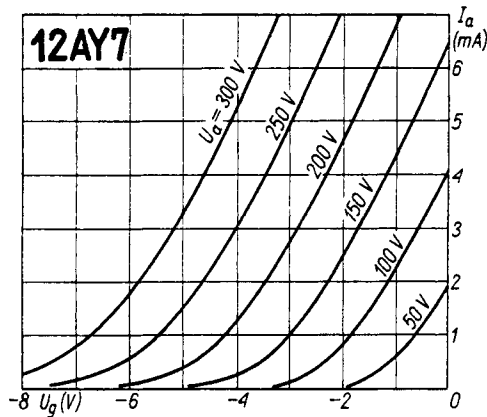
U_b V	R_a MΩ	R_g MΩ	R_k kΩ	$U_{a \approx}$ V	μ V/V
90	0,1	0,24	3	12	23
90	0,24	0,51	6,2	13	25
90	0,51	1	12	14	26
180	0,1	0,24	1,9	27	27
180	0,24	0,51	4,1	29	28
180	0,51	1	8,1	31	29
300	0,1	0,24	1,6	48	28
300	0,24	0,51	3,4	51	30
300	0,51	1	6,7	54	30

Equivalents

6 H 4 II CCCP = 12 AY 7
12 H 4 II CCCP = 12 AY 7
GL-6072 GE = 6072



12AY7



T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	R_k	U_f/k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	Ω	V	W
5635 ¹⁾	Syl	1	6,3	0,45	100	— 1	4,8	3,8	10	38	100		
5873	Ray	2	6,3	0,3	150	— 3	9	2,9	7,4	22			
6112 ¹⁾	int	3	6,3	0,3	100		0,8	1,8	38,9	70	1500		
					150	—55	1,75	2,5	28	70	820	200	0,55
					165		3,3		maximum				
6832	Ray	3	6,3	0,4	100		0,75	1	26	26	3000		
6947 ¹⁾	Syl	3	6,3	0,35	150		6,5	4	8,75	35	270		0,75
6948 ¹⁾	Syl	3	6,3	0,45	100		0,8	1,65	42,4	70	1500	200	0,55
					165	—55	3,3		maximum				

¹⁾ vide * 4, a, b, c, d, e, f ($U_f = 6,3 \text{ V} \pm 5\%$)

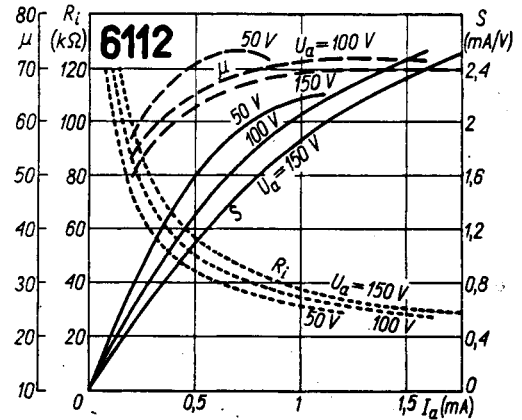
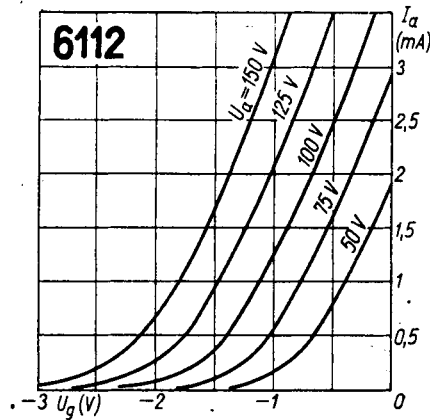
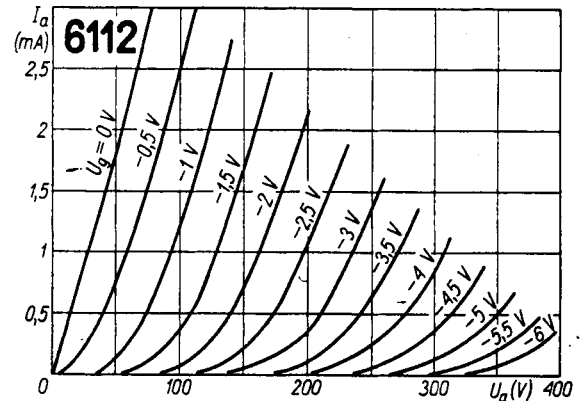
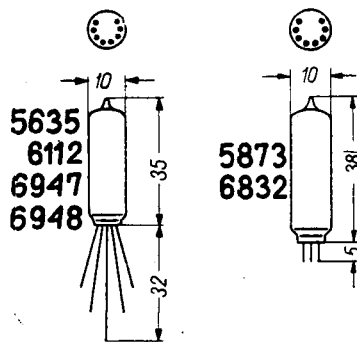
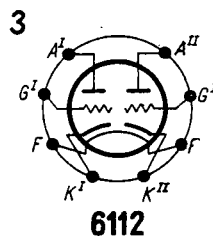
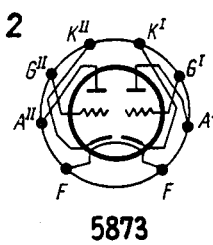
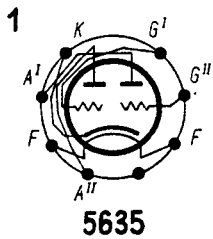
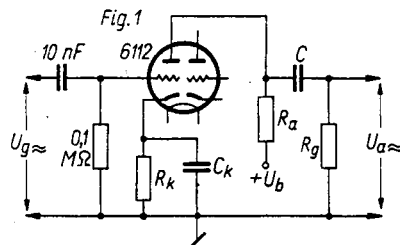
T.		C_g	C_a	C_g/u
		pF	pF	pF
5635	I=II sect.	2,6	1,6	1,2
6112	I sect.	1,7	0,23	1
	II sect.	1,7	0,28	1
6947	I sect.	1,6	0,2	1,2
	II sect.	1,6	0,25	1,2
6948	I sect.	1,6	0,2	0,75
	II sect.	1,6	0,25	0,75

Equivalents

CK 5873 Ray = 5873
 CK 6112 Ray = 6112
 CK 6832 Ray = 6832
 GL-6112 GE = 6112
 6112-A amer = 6112

6112 Fig. 1

U_b	R_a	R_g	R_k	$U_a \approx$	μ
V	M Ω	M Ω	k Ω	V	V/V
90	0,1	0,24	2,5	6	38
90	0,24	0,51	5,5	7,8	42
90	0,51	1	11,0	9	43
150	0,1	0,24	1,6	15	45
150	0,24	0,51	3,7	17	49
150	0,51	1	7,6	19	50
225	0,1	0,24	1,2	31	50
225	0,24	0,51	2,8	32	55
225	0,51	1	6,0	34	55



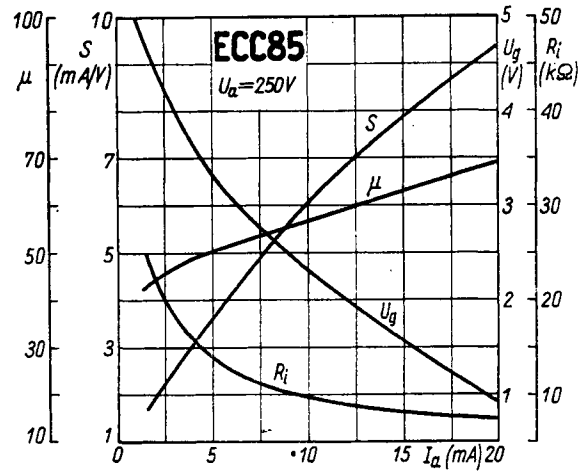
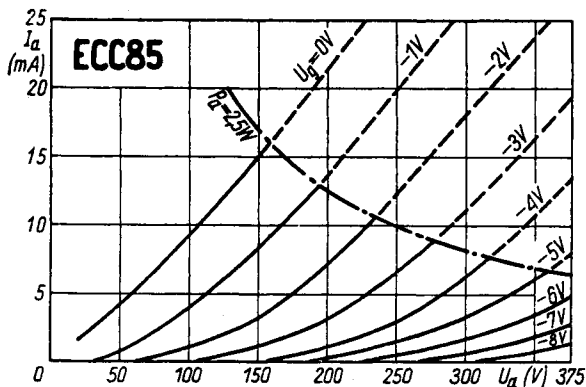
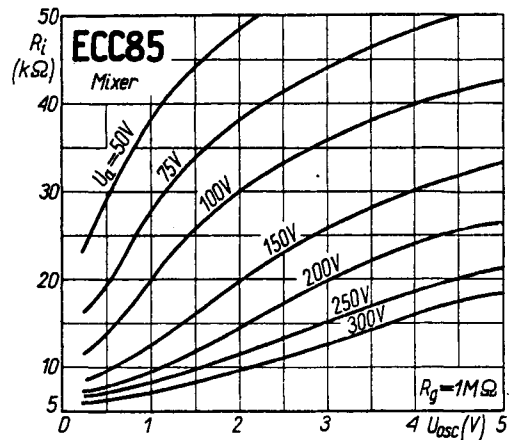
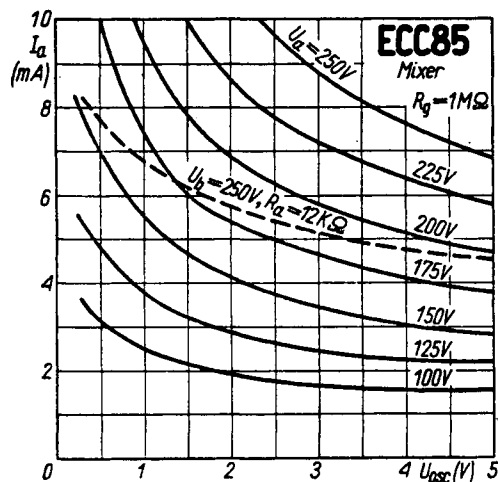
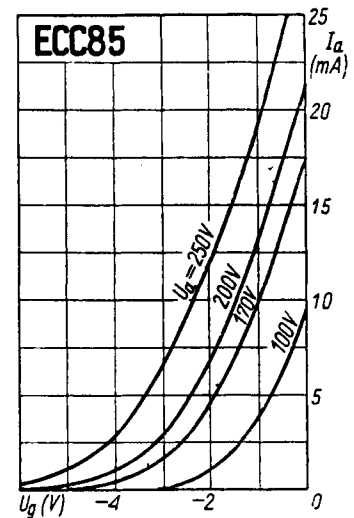
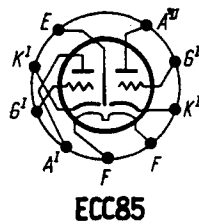
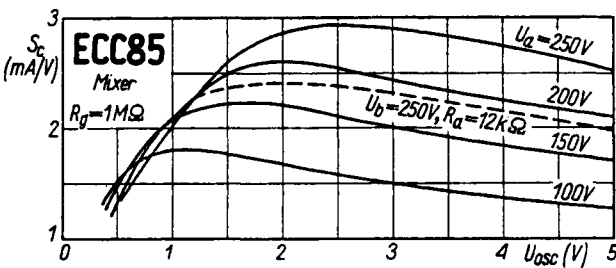
T.		U_f V	I_f A	Cl.	U_b V	R_a k Ω	U_a V	U_g V	I_a mA	$S(S_c)$ mA/V	R_i k Ω	μ V/V	R_k Ω	f MHz	U_f/k V	I_k mA	P_a W
ECC 85	eur	6,3	0,435	stat. A Mixer	550 250 250	1,8 12	250 300 230	— 2,3 —100 — 2	10 10 5,2	5,9 6 (2,3)	9,7 maximum 22	57	200 ($R_g/k = 1 M\Omega$; $U_{osc} = 3 V$)	100	90	15	2,5

Equivalents

B 719	Eng	6 AQ 8	amer
ECC 805 S ¹⁾	Tif	6 CC 43	Tes
ECC 845 ¹⁾	RFT	6 L 12	Eds

¹⁾ vide *4, a, b, c = 10.000, e, f, g ($U_f = 6,3 V \pm 5\%$)

C_g, C_a vide PCC 85 gr. 340



T.			U_f	I_f	Cl.	U_a	U_g	I_a	$S(S_c)$	R_f	μ	I_g	U_f/k	I_k	P_a
			V	A		V	V	mA	mA/V	k Ω	V/V	μA	V	mA	W
ECC 81	eur	1	6,3/12,6	0,3/0,15	stat.	100	—	1	3,75	16,5	62				
F/6060 ¹⁾	Bri	1/4	6,3/12,6	0,3/0,15		170	—	1	5,9	11	66				
R 162 ¹⁾	Frc	2	18	0,105		200	—	1	6,7	10,5	70				
6 DT 8	amer	3	6,3	0,3		250	—	2	5,5	11	60				
12 AZ 7	amer	1	6,3/12,6	0,45/0,225		300	—	50	maximum				90	15	2,5
12 DT 8	amer	3	12,6	0,15	Mixer ²⁾	100	—	3	(1,3)	17		3			
						170	—	3,7	(1,7)	24,5		3,7			
						200	—	4,2	(1,9)	21,5		4,2			
						250	—	4,2	(2,1)	17,5		4,2			
R 148 ¹⁾	Frc	2	18	0,2	stat.	220	—	1,5	5,5	11	60				
						250	—	100	maximum				70	15	2,5

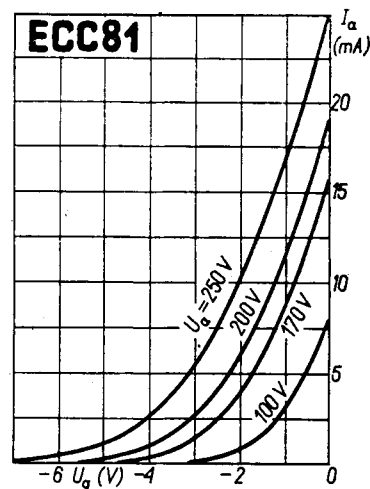
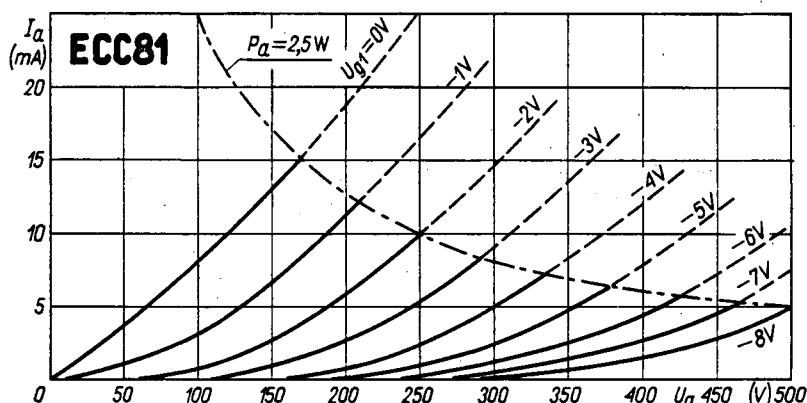
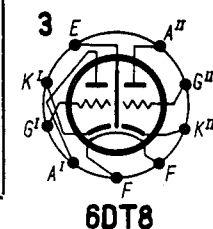
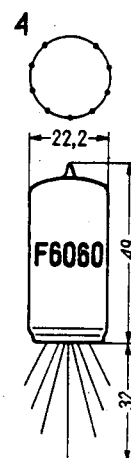
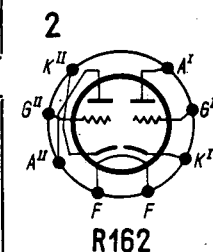
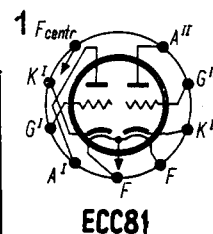
¹⁾ vide * 4, a, b, c = 10.000, f, g ($U_f = 6,3/12,6$ (18)V $\pm 5\%$); ²⁾ $U_{osc} = 2,5$ V; $R_g = 1$ M Ω $f = 100$ MHz

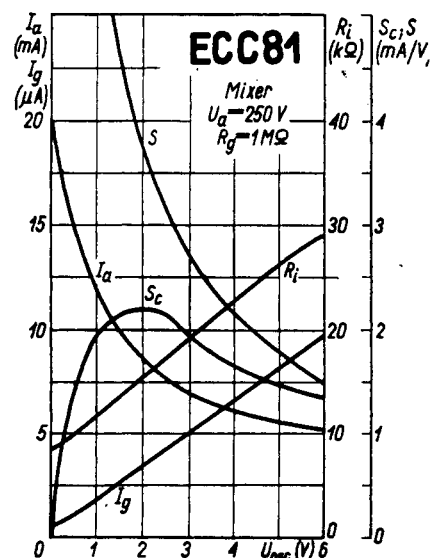
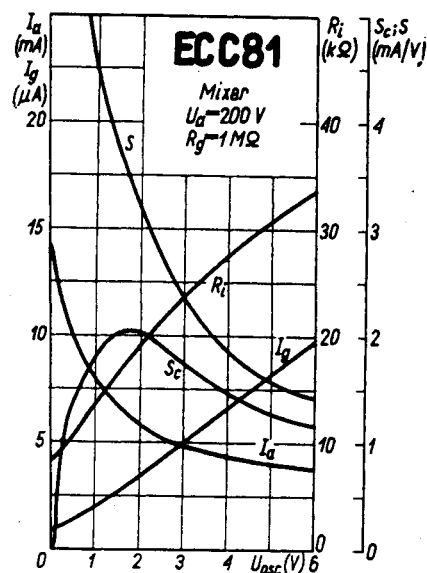
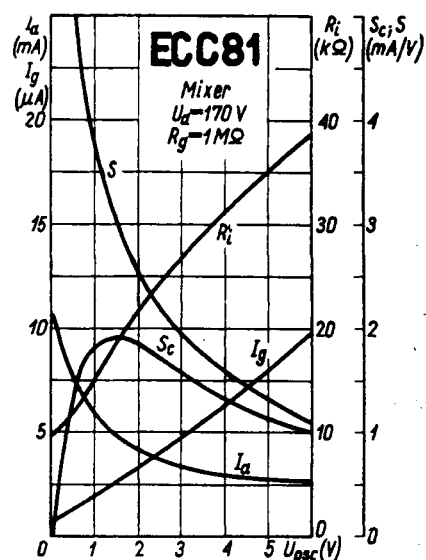
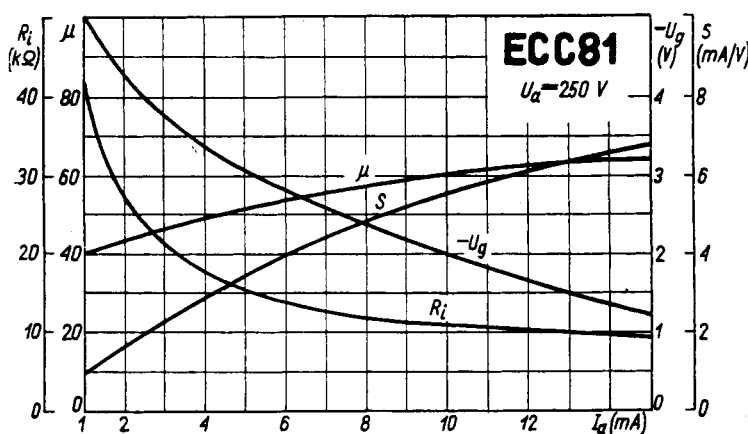
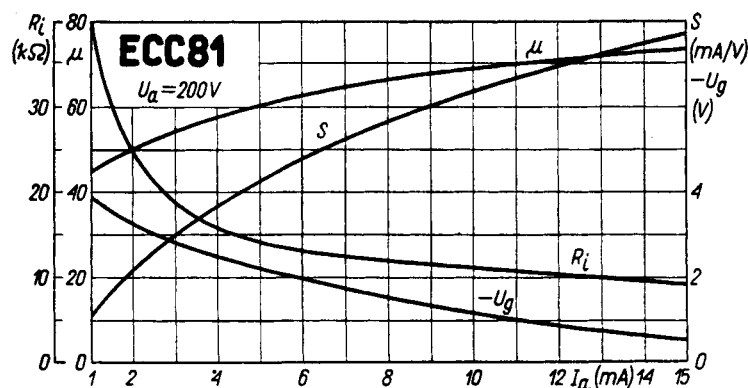
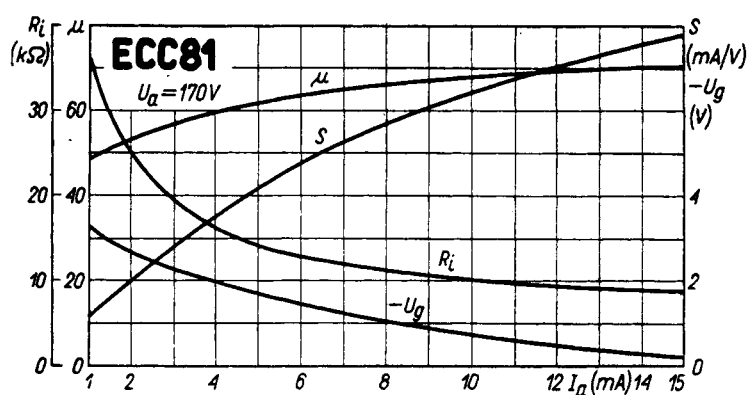
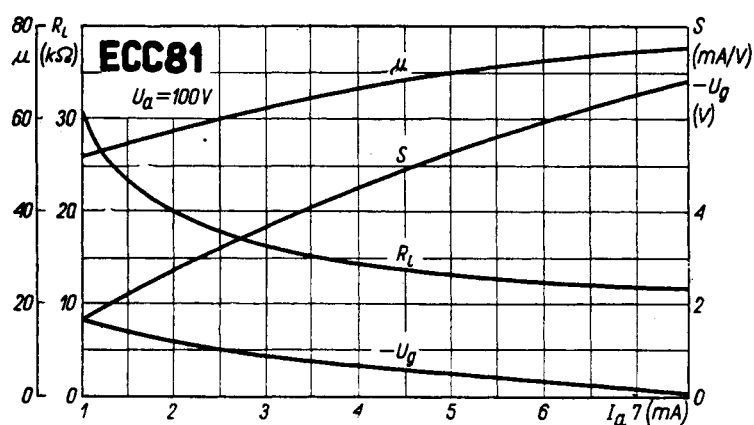
Equivalents

B 152	Eng = ECC 81	M 8144 ¹⁾	Mul = F/6060	XF/6060 ¹⁾	Bri = F/6060
B 309	Marc = ECC 81	M 8162 ¹⁾	Mul = ECC 81	6 AT 7 N	Vis = 6 DT 8
CC 81 E ¹⁾	Siem = ECC 81	PTT 120 P ¹⁾	Frc = R 148	12 AT 7	int = ECC 81
E 2157	Marc = ECC 81	PTT 122 P	Frc = R 162	12 AT 7-WA ¹⁾	int = ECC 81
E 81 CC ¹⁾	eur = ECC 81	QA 2406 ¹⁾	Osr = ECC 81	6060 ¹⁾	Bri = ECC 81
ECC 81 WA	Frc = ECC 81	QS 2406 ¹⁾	Osr = ECC 81	6201 ¹⁾	int = ECC 81
ECC 801	Lor = ECC 81	QB 309 ¹⁾	Marc = ECC 81	6679	amer = ECC 81
ECC 801 S ¹⁾	Tif = ECC 81	SF/6060 ¹⁾	Bri = F/6060	7728	Hyt = ECC 81
FF/6060 ¹⁾	Bri = F/6060	SX/6060 ¹⁾	Bri = F/6060		

T.		C_g	C_a	$C_{g/a}$	$C_{a/k}$	$C_{k/f}$	$C_{k/g+f}$	$C_{a/g+f}$	$C_{a/a}$
		pF	pF	pF	pF	pF	pF	pF	pF
ECC 81	I sect.	2,3	0,45	1,6	0,2	2,5	4,7	1,9	
	II sect.	2,3	0,35	1,6	0,2	2,5	4,7	1,8	0,4
R 148	I = II sect.	3	0,9	2,4		3,2			0,7
R 162	I = II sect.	2,5	0,5	1,9		2,5			0,24
6 AT 7 N	I = II sect.	2,2	0,4	1,5		2,4			
6 DT 8	I = II sect.	2,7	0,6	1,6		3	5,3	2,8	
12 AZ 7	I = II sect.	3,1	0,5	1,9	0,24	3,8	6,9	2	
6201	I sect.	2,5	0,45	1,6	0,2	2,8	5	1,9	
	II sect.	2,5	0,38	1,6	0,84	2,8	5	1,8	0,24

ECC 81— $C_{g/f} = 0,17$ pF; $C_{g/g} = 0,005$ pF; $C_{aI/gII} = 0,07$ pF; $C_{aII/gI} = 0,04$ pF





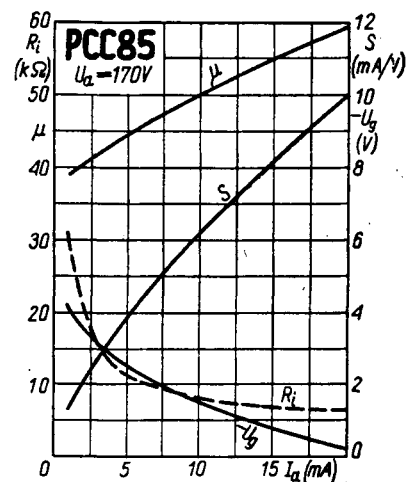
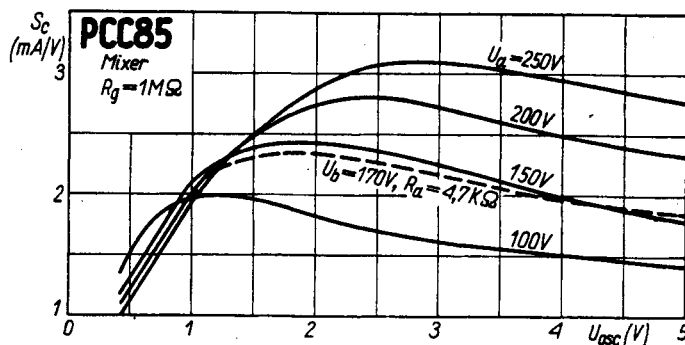
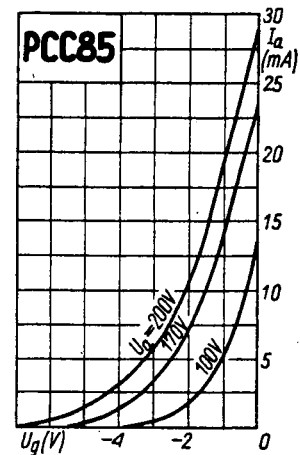
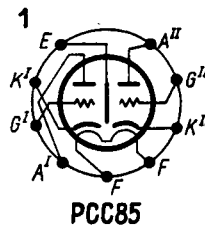
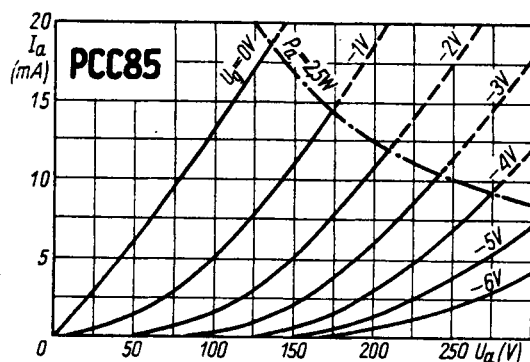
T.			U_f	I_f	Cl.	U_b	R_a	U_a	U_g	I_a	$S(S_c)$	R_i	μ	R_k	I_g	U_{osc}	I_k	P_a
			V	A		V	k Ω	V	V	mA	mA/V	k Ω	V/V	Ω	μA	V	mA	W
HCC 85	eur	I	16,8 ÷ 17	0,15	A	stat.		100	-1,1	4,5	4,6	10,8	50					
PCC 85	eur	I	8 ÷ 9	0,3				170	-1,5	10	6,2	8	50					
UCC 85	eur	I	23,5 ÷ 26	0,1				200	-2,1	10	5,8	8,3	48					
								500	-100			maximum ¹⁾					15	2,5
								100	-0,85	5,2	5,2	10						
								170	-1,4	8,7	6	8,4						
								170	-2	6	4,7	10,5						
								200	-4,8	5,2	(2,3)	15						
								100	-3,5	2,2	(1,7)	20						
								170	-4,4	4,8	(2,2)	16						
								200	-4,8	5,2	(2,3)	15						
								100	-3,5	4,2	(2,2)							
								170	-4,4	3,5	(2)							
								200	-4,8	6,2	(2,5)							
								200	-4,8	6	(2,5)							
								100	-3,5	4,2	(2,2)							
								170	-4,4	3,5	(2)							
								200	-4,8	6,2	(2,5)							
								200	-4,8	6	(2,5)							

¹⁾ $U_f/k+ = 200 V$; $U_f/k- = 90 V$

T.	vide * 5	C_g	C_a	C_g/a	C_a/k	C_g/g	C_a/a	C_a^I/g^{II}	C_a^I/k^{II}	C_g^I/k^{II}	C_g^I/a^{II}	C_g^{II}/k^I	C_a^{II}/k^I
		pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF
ECC/PCC/UCC 85	I = II sect.	3	1,2	1,5	0,18	0,003	0,04	0,008	0,008	0,003	0,008	0,003	0,008

Equivalents

B 109	Eng = UCC 85	10 LD 14	Eds = UCC 85
9 AQ 8	amer = PCC 85	17 EW 8	amer = HCC 85
10 L 14	Eds = UCC 85	25 AQ 8	amer = UCC 85
		26 AQ 8	amer = UCC 85



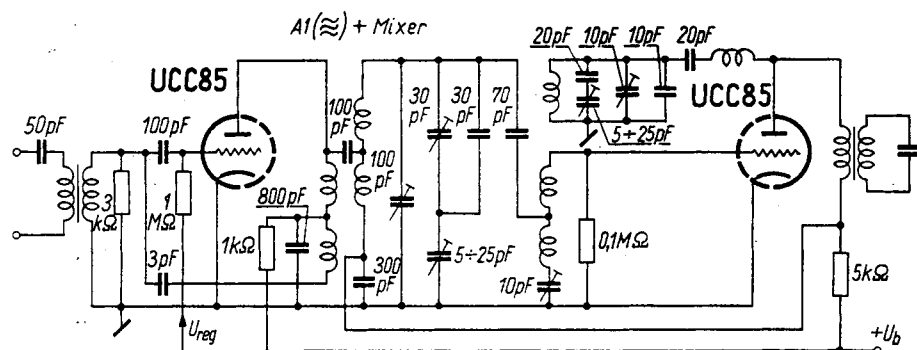
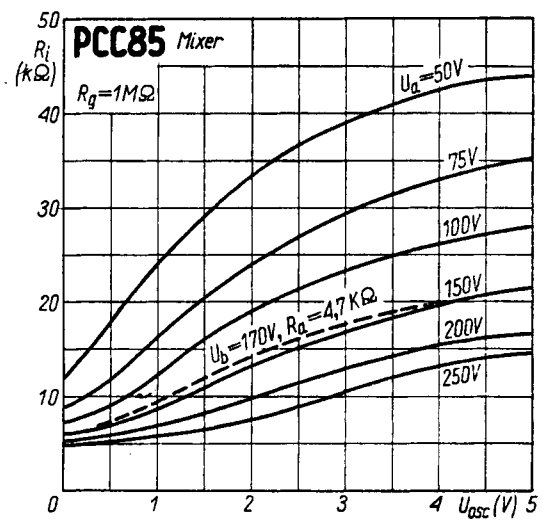
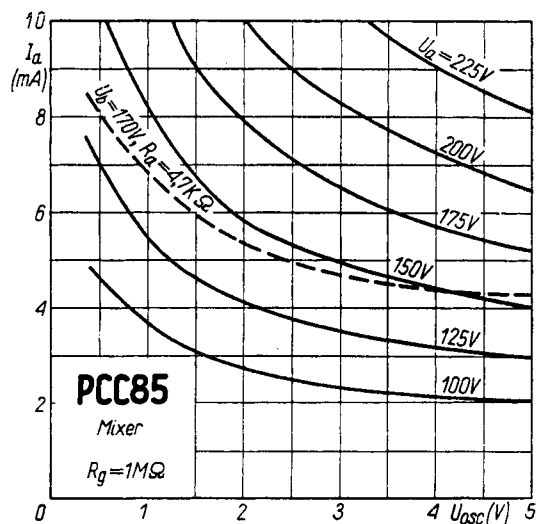
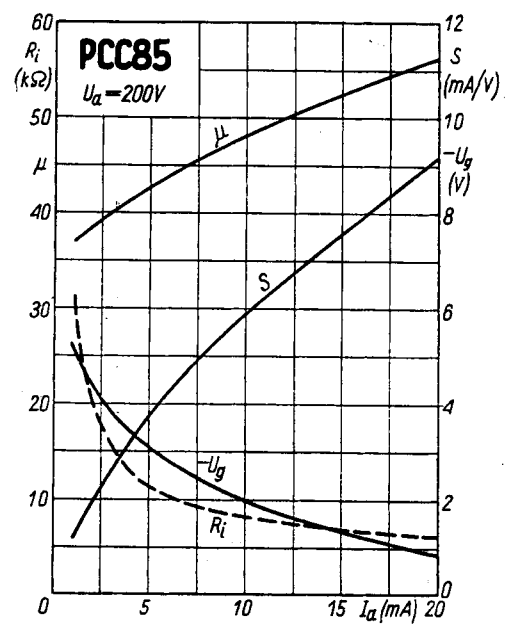
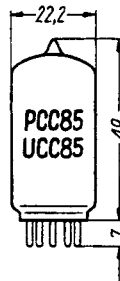
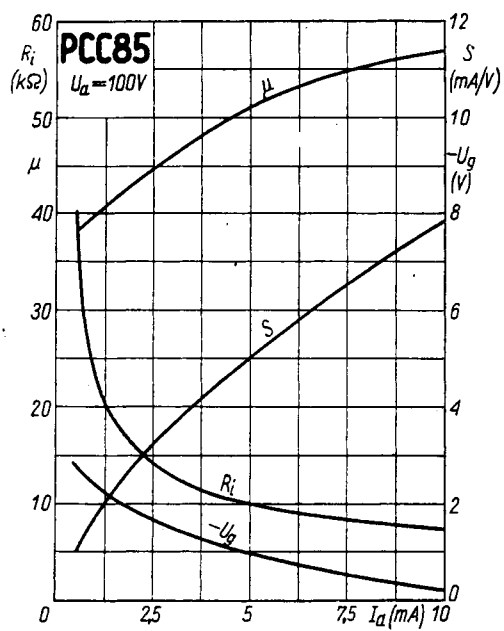


Fig. 1

U_b	R_a	R_g	R_k	$U_{a\sim}$	μ
V	M Ω	M Ω	k Ω	V	V/V
90	0,1	0,24	2,4	13	27
90	0,24	0,51	5,3	15	28
90	0,51	1,0	11	16	28
180	0,1	0,24	1,4	28	33
180	0,24	0,51	3,6	31	33
180	0,51	1,0	7,1	33	32
300	0,1	0,24	1,2	47	33
300	0,24	0,51	2,9	52	34
300	0,51	1,0	6,4	55	34

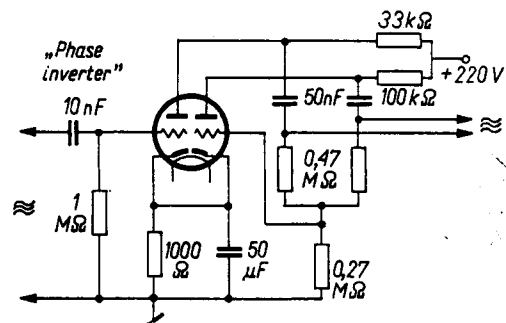
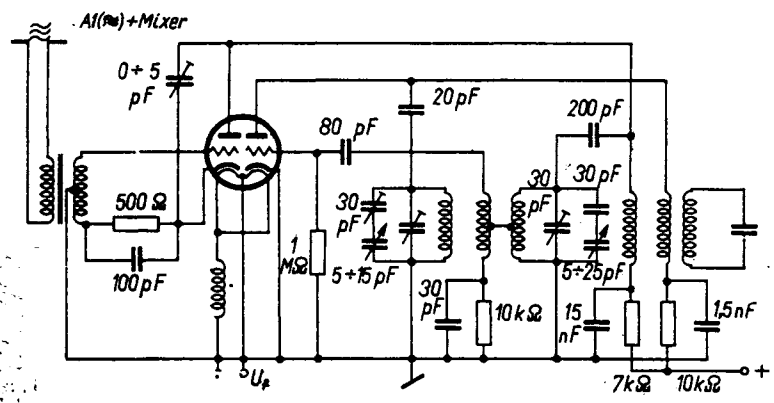
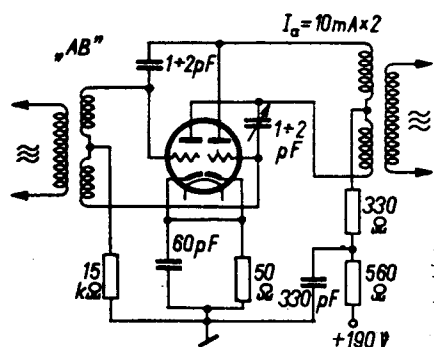
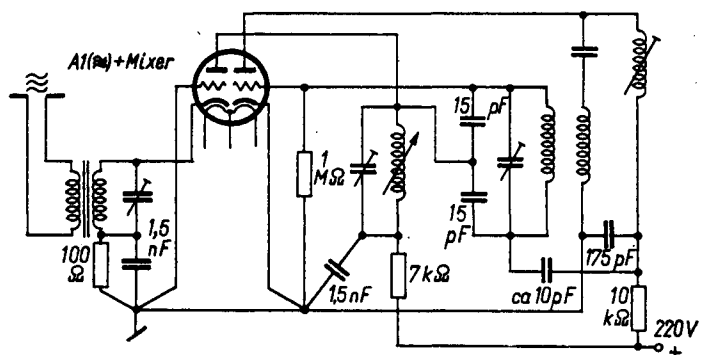
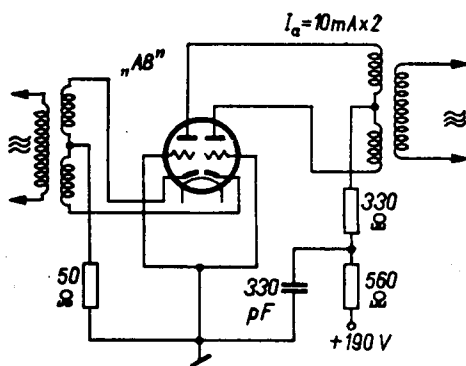
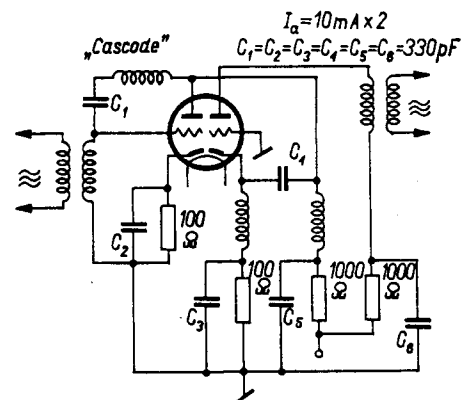
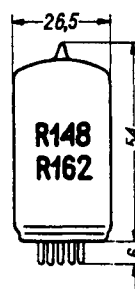
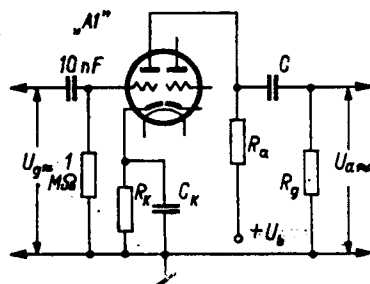
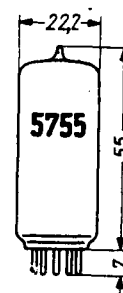


Fig. 1



T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	$U_{f/k}$	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	mA	W
ECC 35	Mul	1	6,3	0,4	250 300	-2,5	2,3	2	34	68			
6 SL 7	int	1	6,3	0,3			maximum				90	8	1,5
7 F 7	amer	2	6,3	0,3									
12 SL 7-GT	int	1	12,6	0,15	250	-2	2,3	1,6	44	70			
14 F 7	amer	2	12,6	0,15	300		maximum				90	10	1
5691 ¹⁾	amer	1	6,3	0,6									
5755 ²⁾	amer	3	6,3/12,6	0,36/0,18									



¹⁾ vide *4,a,b,c = 10.000, f,g; $U_f = 6,3 \text{ V} \pm 5\%$

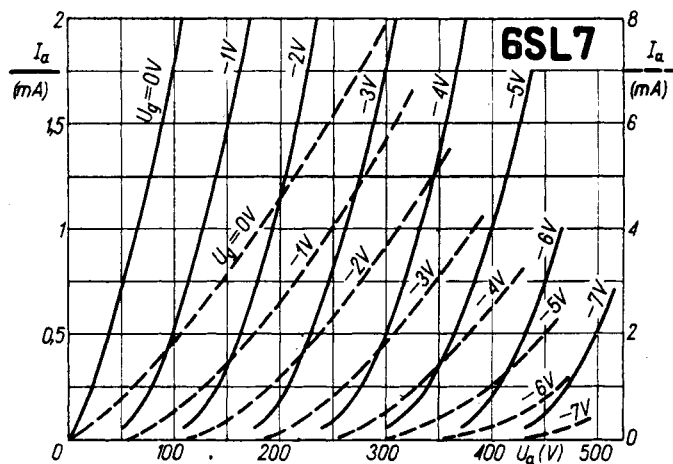
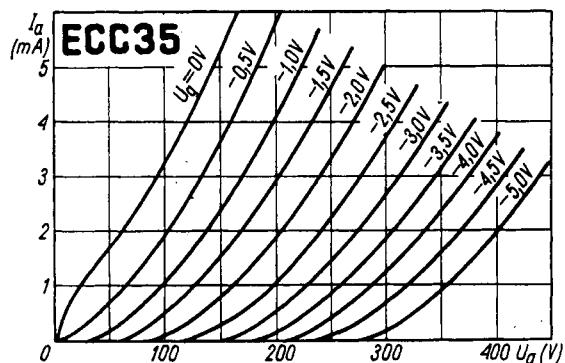
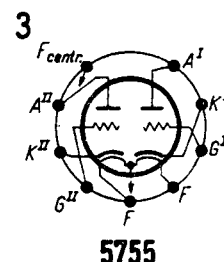
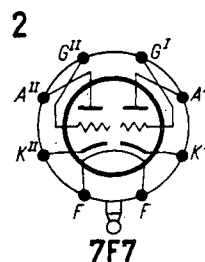
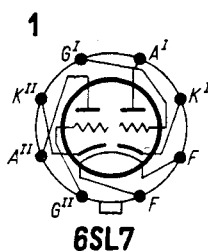
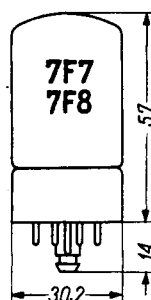
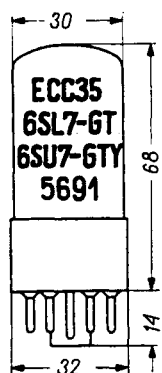
²⁾ vide *4,a,f; $U_f = 6,3/12,6 \text{ V} \pm 10\%$

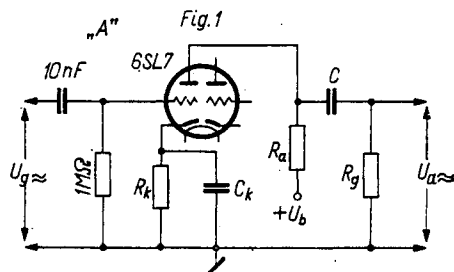
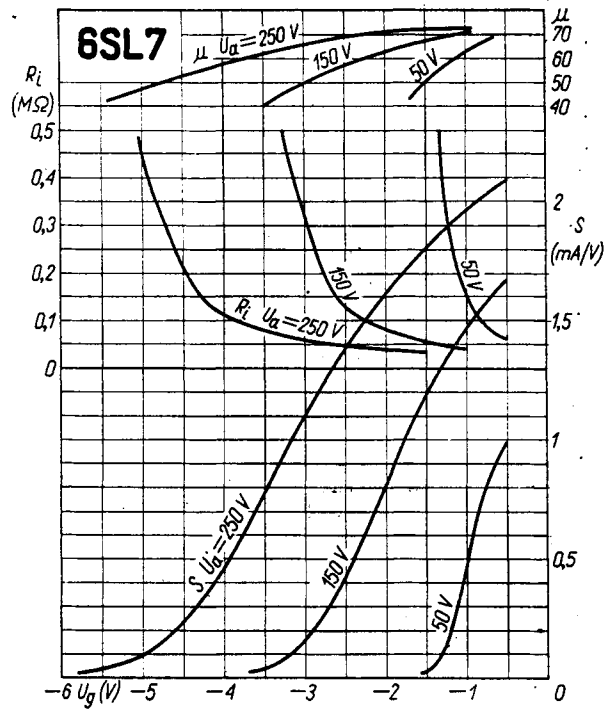
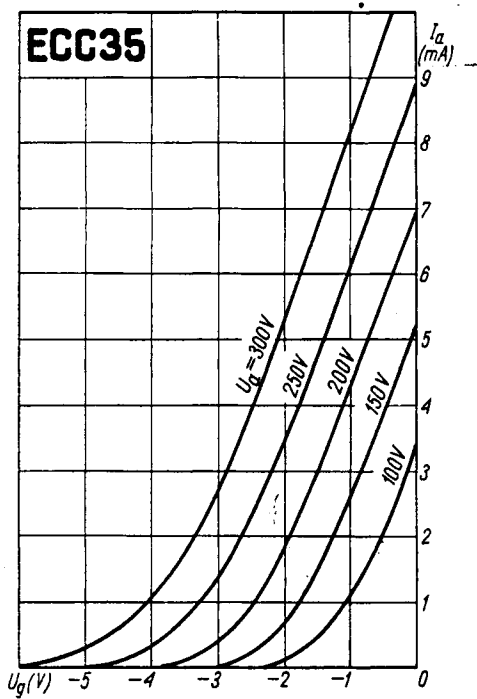
³⁾ vide *4,a,b,c = 10.000, f,g; $U_f = 6,3 \text{ V} \pm 10\%$

T.		C_g	C_a	$C_{g/a}$	$C_{g/g}$	$C_{a/a}$	$C_{a1/g11}$
		pF	pF	pF	pF	pF	pF
ECC 35	I sect.	3	1				
	II sect.	3	1,3	3		0,75	
6 SL 7	I = II sect.	1,5	2	1,5	0,03	0,4	0,01
6 SL 7-GT	I sect.	2,5	0,6	2,85			
	II sect.	2,2	0,75	2,9	0,2	0,3	0,12
7 F 7	I = II sect.	2,4	2	1,6	0,2	1	

Equivalents

CK 5755 ¹⁾	Ray = 5755	6 SU 7-GTY	amer = 6 SL 7
6 H 9 C	CCCP = 6 SL 7	6 SU 7-WGT ²⁾	amer = 6 SL 7
6 H 9 M	CCCP = 6 SL 7	7 F 7-TV	Syl = 7 F 7
6 SL 7-GT	int = 6 SL 7	420 A ³⁾	WE = 5755
6 SL 7-GTY	Syl = 6 SL 7	6113	amer = 6 SL 7
6 SL 7-WA ³⁾	amer = 6 SL 7	6188 ³⁾	amer = 6 SL 7
6 SL 7-WGT ³⁾	amer = 6 SL 7		



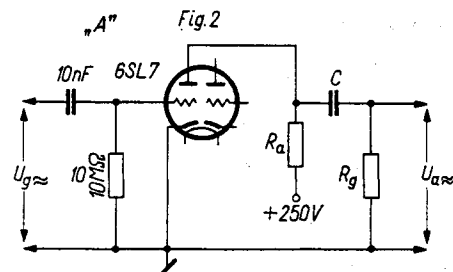


6 SL 7 (Fig. 1)

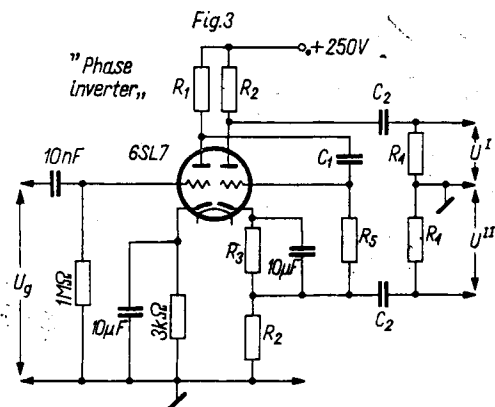
U_b	R_a	R_g	R_k	C_k	C	$U_{a\approx}$	μ
V	MΩ	MΩ	kΩ	μF	nF	V	V/V
90	0,1	0,47	4,8	2	6,5	9,1	30
90	0,22	1	9,1	1,1	3,5	12	37
90	0,47	2,2	15	0,6	2	16	41
180	0,1	0,47	2,5	2,8	6,5	32	37
180	0,22	1	4,6	1,5	3,5	38	44
180	0,47	2,2	9,1	0,8	2	43	47
300	0,1	0,47	2,1	3	6,5	63	41
300	0,22	1	3,7	1,6	3,5	77	48
300	0,47	2,2	7,2	0,9	2	85	51

6 SL 7 (Fig. 2)

R_a	R_g	C	$U_{a\approx}$	μ
MΩ	MΩ	nF	V	V/V
0,1	0,25	25	29	51
0,25	0,5	10	35	67



6 SL 7 (Fig. 3)

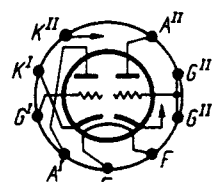


R_1	R_2	R_3	R_4	R_5	C_1	C_2	$U_{a\approx}$	μ
kΩ	kΩ	kΩ	kΩ	MΩ	nF	nF	V	V/V
100	50	1	125	25	50	21	21	60
250	125	3	250	0,5	10	25	23	64

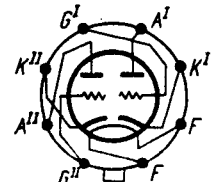
T.		U V	I_f A	Cl.	U_a V	$U_a(imp)^1$ V	U_g V	$U_g(imp)^1$ V	I_a mA	S mA/V	R_i kΩ	μ V/V	I_k mA	$I_k(imp)^1$ mA	P_a W
6 DR 7 13 DR 7	amer amer	1 13	0,9 0,45	VD-Osc I sect. VD-Ampl. II sect.	250 330 150 275	1500	-3 -17,5	-400 -250	1,4 35	1,6 6,5 0,925 peak	40 6	68	20 50	70 175	1 7
6 EM 7 13 EM 7	amer amer	2 13	0,9 0,45	VD-Osc I sect. VD-Ampl. II sect.	250 330 150 330	1500	-3 -20	-400 -250	1,4 50	1,6 7,2 0,75 peak	40 5,4	68	22 50	77 175	1,5 10

¹⁾ Impulse < 2,5 msec.; $U_{f+ik-} = 100$ V; $U_{f-ik+} = 200$ V; ²⁾ vide 6 CY 7, gr. 311

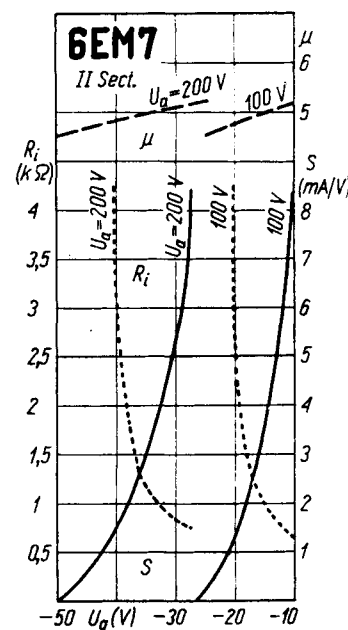
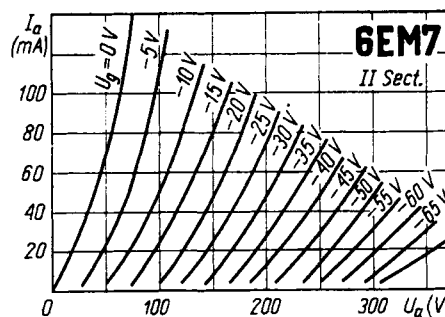
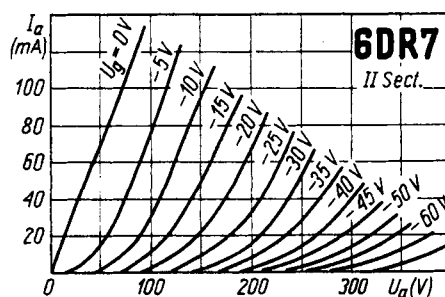
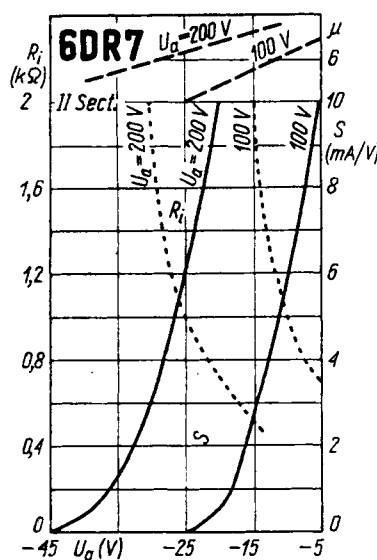
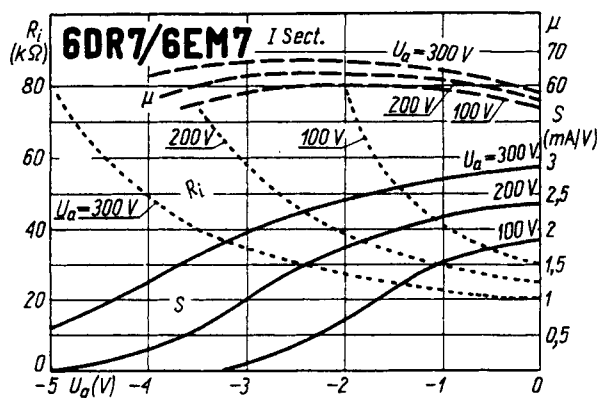
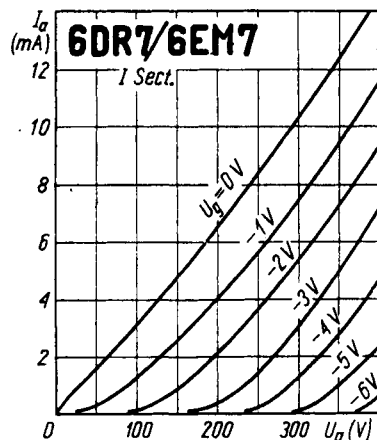
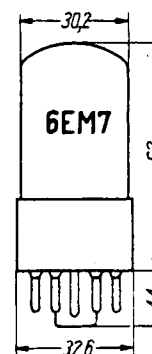
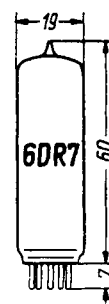
T.	vide * 5	C_g pF	C_a pF	$C_{g/a}$ pF
6 DR 7	I sect.	2,2	0,34	4,5
	II sect.	5,5	1	8,5
6 EM 7	I sect.	2,2	0,6	4,8
	II sect.	7	1,8	10



6DR7



6EM7



T.		U_f	I_f	U_a	I_a	S	μ	R_i	R_k	$U_{f/k}$	P_a
		V	A	V	mA	mA/V	V/V	k Ω	Ω	V	W
6 H 17 B	CCCP	6,3	0,4	$\begin{cases} 200 \\ 250 \end{cases}$	3,3	3,8	75	20	325	150	0,9
								maximum			

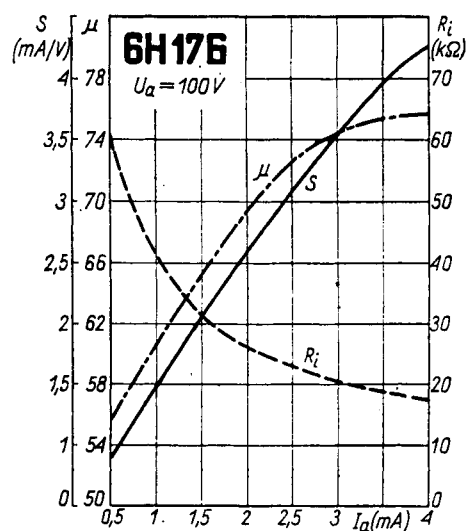
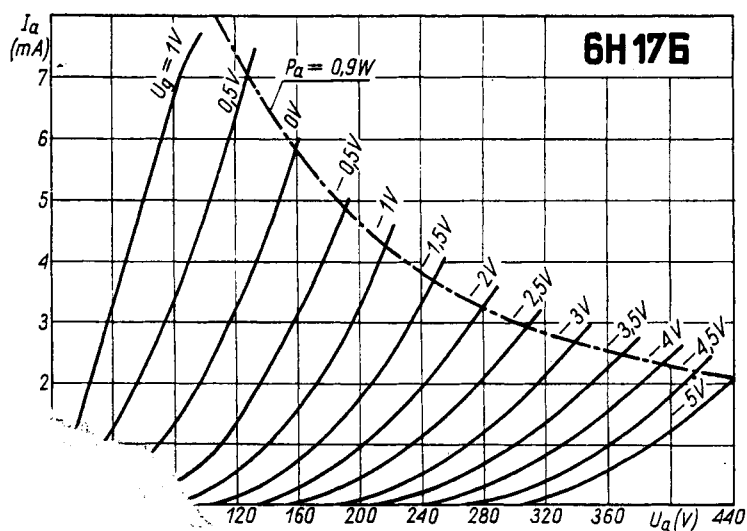
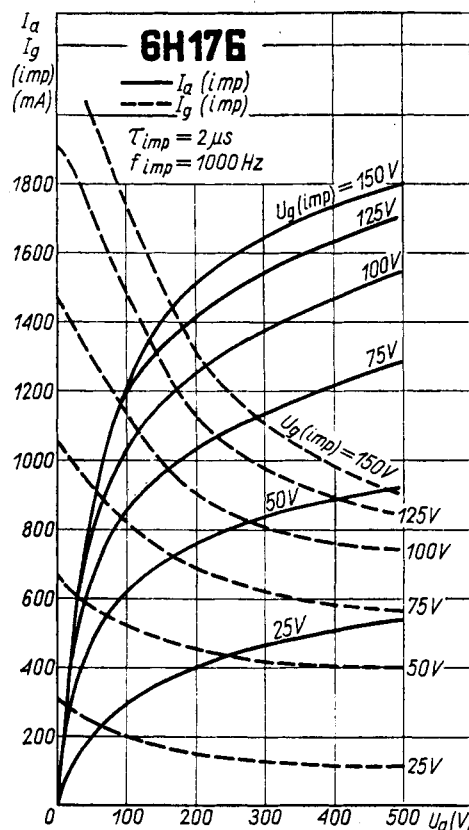
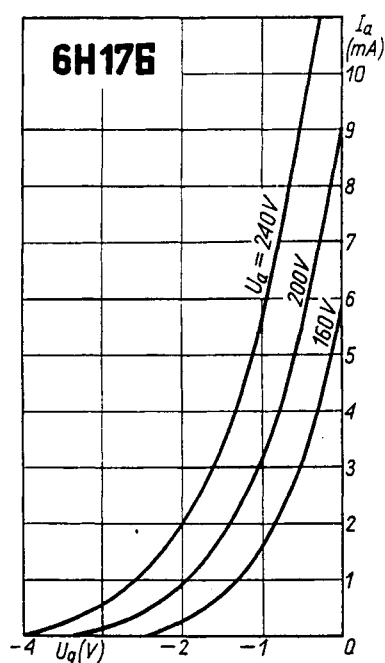
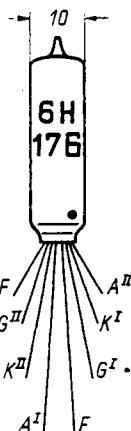
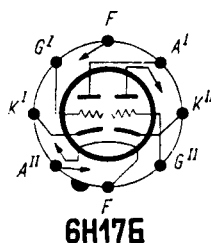
C_g	C_a	$C_{g/a}$	$C_{a/k}$	$C_{f/k}$	vide
pF	pF	pF	pF	pF	
2,8	1,55	1,6	0,5	3,5	* 6

Equivalents

6 H 17-B¹⁾

CCCP

1) vide * 4, a, b, d, e



T.			U_f	I_f	U_a	U_g	I_a	S	R_i	μ	U_f/k	I_k	P_a
			V	A	V	V	mA	mA/V	k Ω	V/V	V	mA	W
ECC 83	eur	1	6,3/12,6	0,3/0,15	100 250 300	— 1 — 2 — 50	0,5 1,2	1,25 1,6 maximum	80 62,5 100	100	100	8	1
E 283 CC ¹⁾	Siem	2	6,3	0,33									
F/6057 ²⁾	Bri	1/5	6,3/12,6	0,3/0,15									
2 C 52	amer	3	12,6	0,3									
6 AX 7	int	1	3,15/6,3	0,6/0,3									
12 AD 7	TS	1	6,3/12,6	0,45/0,225	250 300	— 1,5 — 2 — 50	2,3 2,5	2,1 3,2 maximum	46,5 31,8 100	97,5	100	10	1
12 AK 7	TS	4	12,6	0,15									
5751 ³⁾	amer	1	6,3/12,6	0,35/0,175									
7058	RCA	4	13,5	0,155									
6 H 2 II	CCCP	4	6,3	0,34									
6 CC 4I	Tes	4	6,3	0,3	250 300	— 2 — 50	2,5	3,2 maximum	31,8 100	100	180	1,5	
12 BZ 7	amer	1	6,3/12,6	0,6/0,3									

¹⁾ vide * 3; vide * 4, c = 10.000; $U_f = 6,3 \text{ V} \pm 5 \%$

²⁾ vide * 4, a b, c = 10.000, f, g

³⁾ vide * 4, a, b, c = 10.000, f, g; $U_f = 6,3 \text{ V}/12,6 \text{ V} \pm 10 \%$

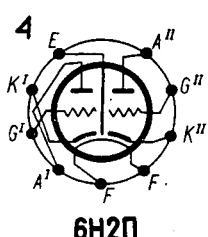
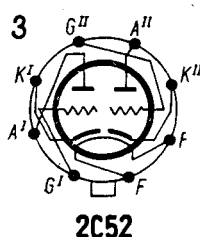
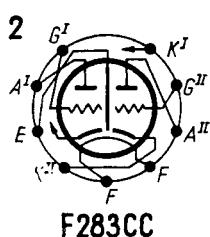
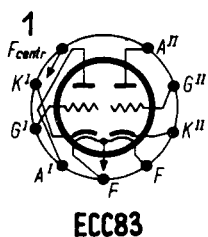
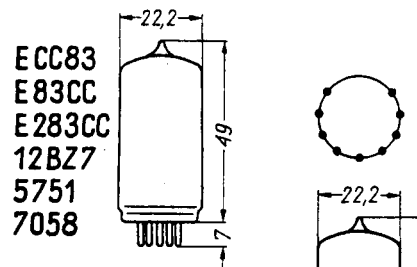
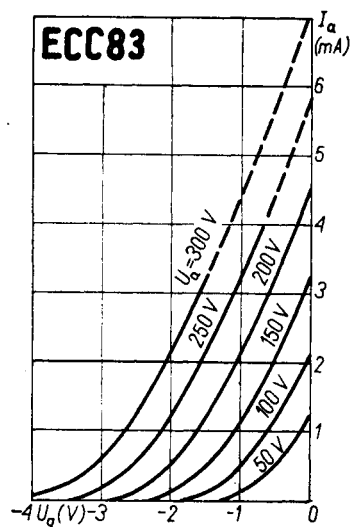
$I_f = 0,15 \text{ A-S} = 1,6 \text{ mA/V} - \mu = 100$

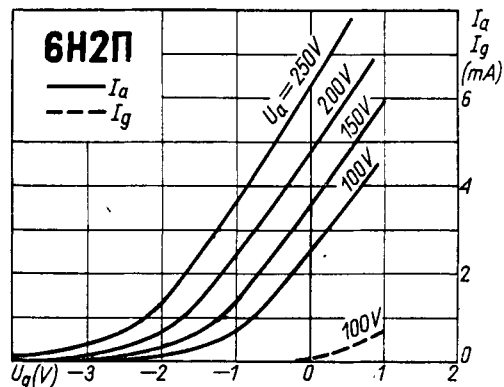
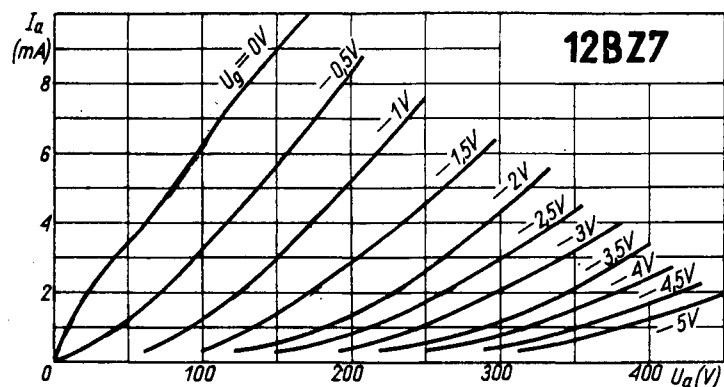
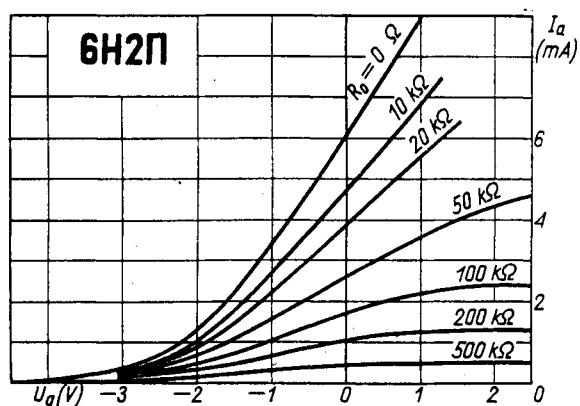
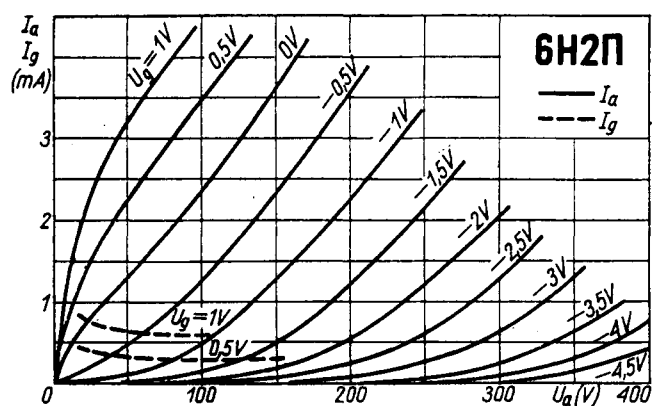
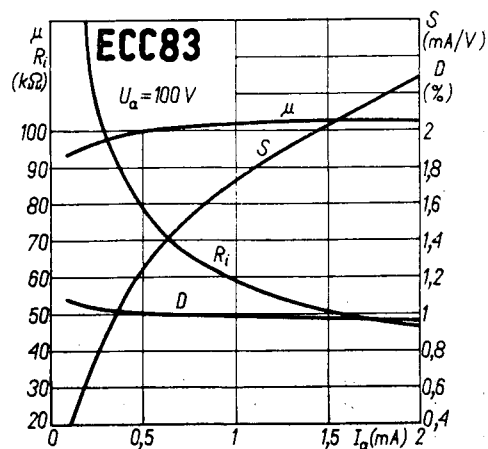
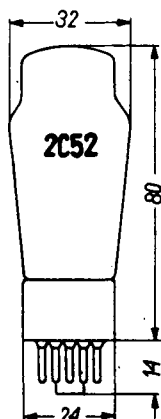
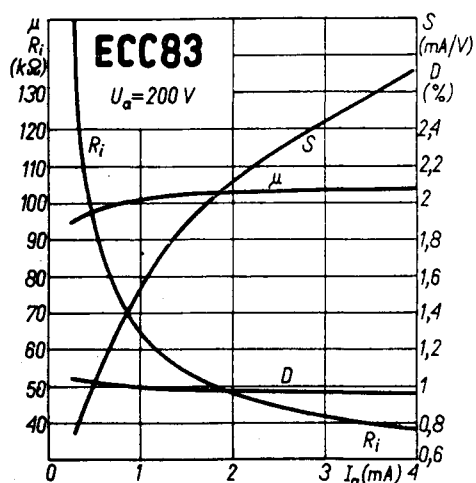
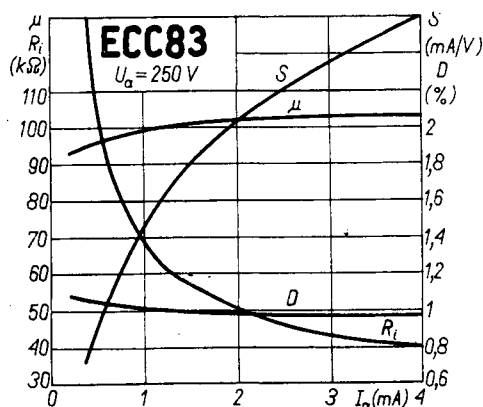
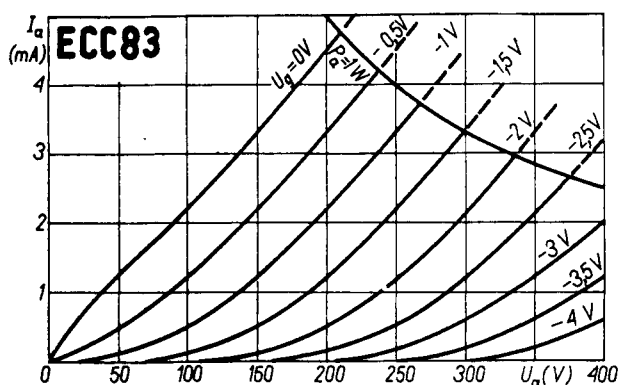
$I_f = 0,175 \text{ A-S} = 1,2 \text{ mA/V} - \mu = 70$

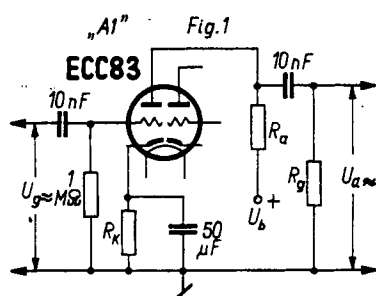
Equivalents

B 339	Eng	= ECC 83	QB 339 ¹⁾	Marc	= ECC 83	12 AX 7 S ¹⁾	Frc	= ECC 83
CK 5751 ²⁾	Ray	= 5751	SF/6057 ²⁾	Bri	= F/6057	12 DF 7	TS	= ECC 83
ECC 803	Lor	= ECC 83	SX/6057 ²⁾	Bri	= F/6057	12 DT 7	TS	= ECC 83
ECC 803S ²⁾	Tlf	= ECC 83	XF/6057 ²⁾	Bri	= F/6057	5721 ²⁾	amer	= ECC 83
E 83 CC ²⁾	eur	= ECC 83	6 L 13	Eds	= ECC 83	5751-WA ²⁾	amer	= 5751
FF/6057 ²⁾	Bri	= F/6057	12 AX 7	int	= ECC 83	6057 ²⁾	Bri	= ECC 83
GL 5751 ²⁾	GE	= 5751	12 AX 7-A	amer	= ECC 83	6681	amer	= ECC 83
M 8137 ²⁾	Mul	= ECC 83	12 AX 7-WA ²⁾	amer	= ECC 83	7025	amer	= ECC 83
M 8214 ²⁾	Mul	= F/6057	12 AX 7 R	RT	= ECC 83	7729	Hyt	= ECC 83

T.		C_g	C_a	$C_{g/a}$	$C_{g/f}$	$C_{g/g}$	$C_{a/a}$	$C_{aI/gII}$	$C_{aII/gI}$
		pF	pF	pF	pF	pF	pF	pF	pF
ECC 83	I sect.	1,6	0,46	1,7	0,15				
	II sect.	1,6	0,34	1,7	0,15	0,01	1,2	0,1	0,1
E 83 CC	I sect.	1,7	0,46	1	0,15				
7058	II sect.	1,7	0,34	1	0,15	0,01	0,6	0,06	0,06
E 283 CC	I sect.	2	2	1,1	0,01				
	II sect.	2	2	1,1	0,02	0,01	0,1	0,06	0,01
6 H 2	I sect.	2,35	2,95	0,7					
	II sect.	2,35	3,15	0,7			0,3		
12 BZ 7	I sect.	6,5	0,7	2,5					
	II sect.	6,5	0,55	2,5			1,3		

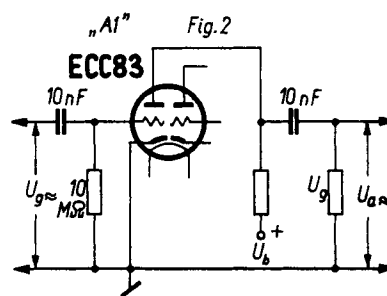






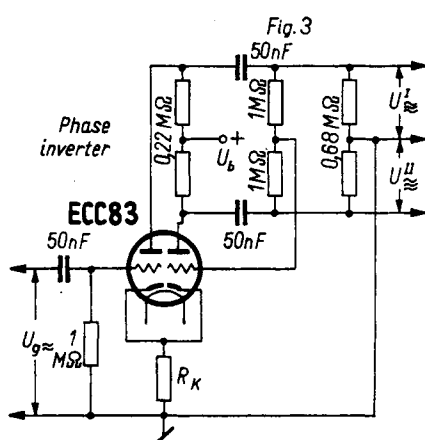
ECC 83 Fig. 1

U_b	R_a	R_g	R_k	I_a	$U_{a \sim}$	μ	h
V	kΩ	kΩ	kΩ	mA	V	V/V	%
200	47	150	1,5	0,86	18	34	8,5
200	100	330	1,8	0,65	20	50	4,8
200	220	680	3,3	0,36	24	56	4,6
250	47	150	1,2	1,18	23	37,5	7,0
250	100	330	1,5	0,86	26	54,5	3,9
250	220	680	2,7	0,48	28	66,5	3,4
300	47	150	1,0	1,55	26	40	5,0
300	100	330	1,2	1,11	30	57	2,7
300	220	680	2,2	0,63	36	72	2,6
350	47	150	0,82	1,98	33	42,5	4,4
350	100	330	1,0	1,4	36	61	2,2
350	220	680	1,5	0,85	37	75,5	1,6
400	47	150	0,68	2,45	37	44	3,6
400	100	330	0,82	1,72	38	63	1,7
400	220	680	1,2	1,02	38	76,5	1,1



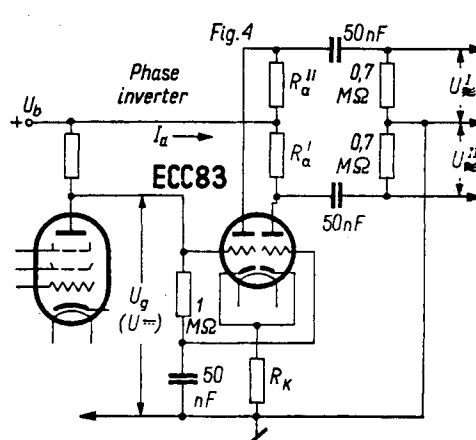
ECC 83 Fig. 2

U_b	R_a	R_g	I_a	$U_{a \sim}$	μ	h
V	kΩ	kΩ	mA	V	V/V	%
200	47	150	1,02	18	37	5,6
200	100	330	0,7	20	50	3,9
200	220	680	0,39	24	58	4,6
250	47	150	1,45	23	39	4,2
250	100	330	1,0	26	51	2,6
250	220	680	0,56	28	62	2,7
300	47	150	2,5	33	44	2,7
300	100	330	1,29	30	54	2,0
300	220	680	0,74	36	66	2,2
350	47	150	2,5	33	44	2,7
350	100	330	1,62	36	56	1,8
350	220	680	0,88	37	67	1,7
400	47	150	3,1	37	45	2,5
400	100	330	1,95	38	58	1,6
400	220	680	1,09	38	68	1,4



ECC 83 Fig. 3

U_b	R_k	I_a	$U_{a \sim}$	μ	h
V	kΩ	mA	V	V/V	%
250	1,2	1,08	35	58	5,5
350	0,82	1,7	45	62	3,5



ECC 83 Fig. 4

U_b	$U_{a \sim}$	I_a	R_k	R_{aI}	R_{aII}	$U_{a \sim}$	μ	h
V	V	mA	kΩ	MΩ	MΩ	V	V/V	%
250	65	1	68	0,1	0,1	20	25	1,8
350	90	1,2	82	0,15	0,15	35	27	1,8

T.			U_f	I_f	Cl.	U_a	U_{gs}	U_{ga}	I_a	I_{gs}	S	R_i	μ
			V	A		V	V	V	mA	mA	mA/V	k Ω	V/V
ECF 801	eur	1	6,3	0,41	stat. triod.	100		-3	15		9	2,3	20
PCF 801	eur	1	8,5	0,3	stat. pent.	125		-50			maximum ¹⁾		
					osc. triod.	170	120	-1,2	10	3	11	350	
					pent.	250	250	-50			maximum ²⁾		
					osc. triod.	200 ³⁾			16		3,7		
					mixer. pent.	200 ⁴⁾			12		3,7		
					pent.	200 ⁵⁾	200	-1,2	10	3	5		
					ampl. pent.	200	200	0	9	2,8	4,7		
					pent.	200	200	-1,2	10	3	11		
					pent.	200	200	0	12,5	3,7	14		
ECF 804	Bri	2	6,3	0,45	triad.	150		-1,5	13,5		7,2	5,2	38
					pent.	150	150	-2	7	2,2	11	350	
PCE 80	eur	3	10	0,3	triad.	200			10		3,4	5,2	18
					pent.	180	180		10		12,5		
PCE 800	eur	3	9,4	0,3	triad.	200			10		3,4	5,2	18
					pent.	170	170	-2	10		7,5		
PCF 84	eur	4	9	0,3	triad.	100		-2	14		2,5		
					pent.	170	170	0	8	2,7	2,5		
PCF 87	eur	5	7,4	0,3	triad.	100		-3	15		8,5	2,3	20
					pent.	170	155		6,4	2	15		-
PCF 800	eur	5	9	0,3	triad.	120			6		5	4	20
					pent.	200	138		7,6	2,3	8,5		
5 EU 8	amer	6	4,7	0,6	triad.	150		(56 Ω)	18		8,5	5	42,5
6 EU 8	amer	6	6,3	0,45	pent.	125	125	-1	12	4	6,4	80	
5 FG 7	amer	7	4,7	0,6	triad.	125		-1	13		7,5	5,7	43
6 FG 7	amer	7	6,3	0,45	pent.	125	125	-1	11	4	6	180	
6 GE 8	amer	8	6,3	0,9	triad.	150		-2,1	35		5,4	1,08	5,5
					pent.	150	150	-2	5,5	1,7	3,2	340	
6 GJ 8	amer	2	6,3	0,6	triad.	125		-1	13,5		8,5	5	42,5
					pent.	125	125	-1	12	4,5	7,5	180	
6 JC 8	amer	9	6,3	0,45	triad.	125		-1	12		6,5	6	40
					pent.	125	125	-1	9	2,2	5,5	300	
18 D 2	Bri	10	9,45	0,3	triad.	150		-1,8	12,5		10	5,5	55
					pent.	170	125	-1,65	10	3,5	10		
18 D 3	Bri	2	6,3	0,45	triad.	150		-1	18		8,5	4,5	40
					pent.	150	150	-2	7	2,2	11	350	
19 HV 8	amer	11	18,9	0,15	triad.	100		-1	0,8		1,3	54	70
					pent.	125	125	-1	12	4	6,5	200	
7687	amer	2	6,3	0,5	triad.	215		-8,5	2,5		2,5	7,2	18
					pent.	220	130	(62 Ω)	10	3,4	5,8	500	

¹⁾ $U_f/k = 100$ V; $I_k = 20$ mA;
 $P_a = 1,5$ W

²⁾ $U_f/k = 100$ V; $I_k = 18$ mA;
 $P_{gs} = 0,4$ W; $P_a = 2$ W

³⁾ $U_b = 200$ V; $R_a = 8,2$ k Ω ;
 $R_g = 10$ k Ω ; $U_{osc} = 4,5$ V

⁴⁾ $U_b = 200$ V; $R_a = 12$ k Ω ;
 $R_g = 10$ k Ω ; $U_{osc} = 3,5$ V

⁵⁾ $U_b = 200$ V; $R_a = 2,7$ k Ω ;
 $R_{gs} = 27$ k Ω ; $R_{g1} = 100$ k Ω ;

$I_{g1} = 10$ μ A

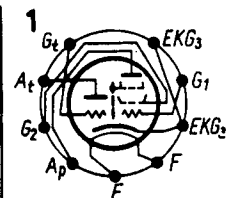
⁶⁾ $U_b = 200$ V; $R_a = 4,7$ k Ω ;
 $R_{gs} = 27$ k Ω ; $R_{g1} = 1$ M Ω ;

$I_{g1} = 2,3$ μ A

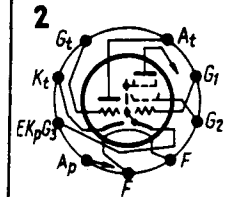
⁷⁾ $U_a(\text{triad}) = 250$ V

Equivalents

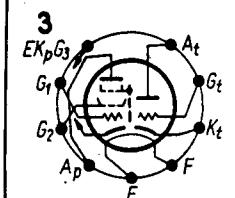
PCE 82 ⁷⁾	eur	=	PCE 80
6 GJ 7	amer	=	ECF 801
9 GJ 7	amer	=	PCF 801
30 FL 12 ⁷⁾	Eds	=	PCE 80
30 FL 13	Eds	=	PCE 80
7734	amer	=	6 GE 8



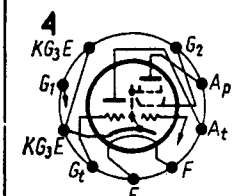
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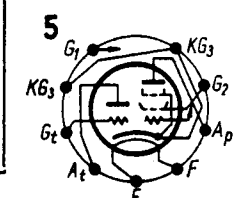
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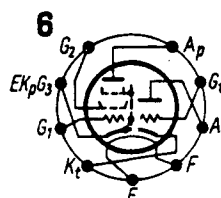
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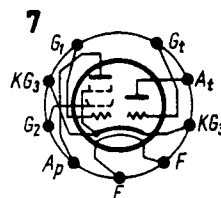
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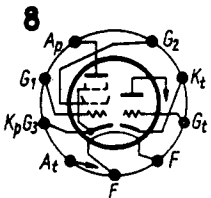
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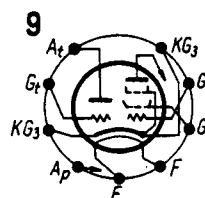
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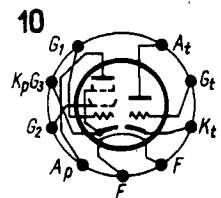
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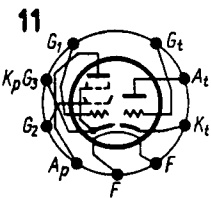
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6JC8



18D2

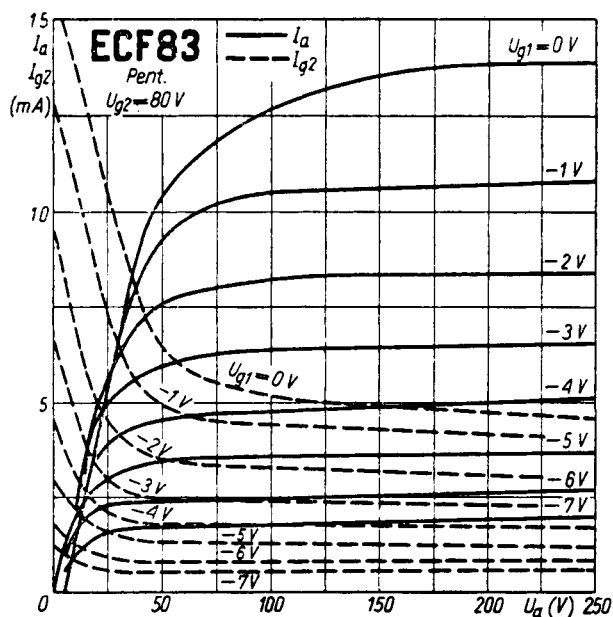
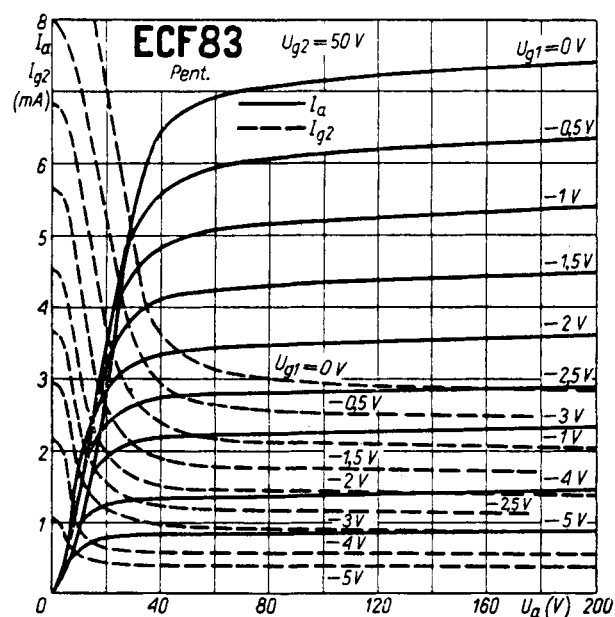
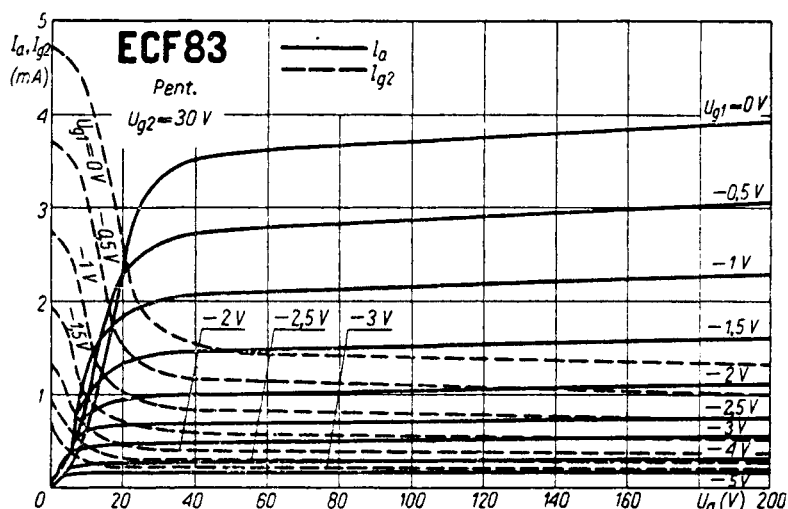
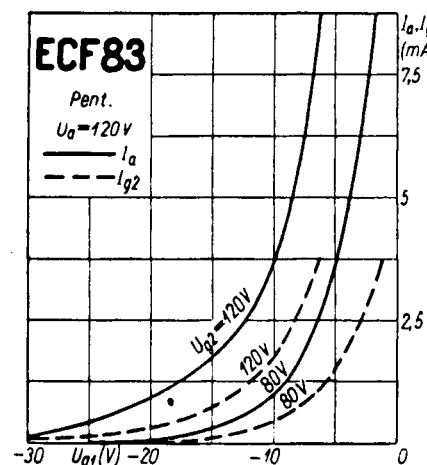
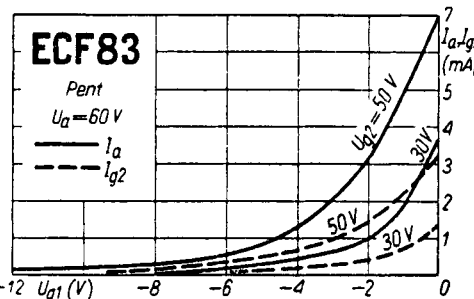
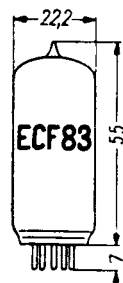
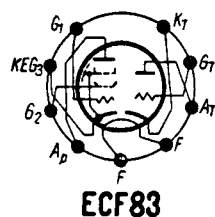


19HV8

T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	μ (g_2/g_1)	R_i k Ω	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
ECF 83	TH	6,3	0,4	stat.	60		-3,7	6,5		3,6	11	3				
				triode.	300					maximum ($R_g = 3 \text{ M}\Omega$)			100	16		1
				stat.	60	50	-2,3	3	1,25	1,3	(10)	600				
				pent.	300	200				maximum ($R_{g1} = 3 \text{ M}\Omega$)			100	6	0,2	1

	$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{g1/f}$
	pF	pF	pF	pF
triode.	2,7	2,4	2,8	0,12
pent.	4,1	4,1	0,025	0,01

$C_{aT/aP}$	$C_{aT/g1P}$	$C_{gT/aP}$	$C_{gT/g1P}$
pF	pF	pF	pF
0,1	0,005	0,01	0,01



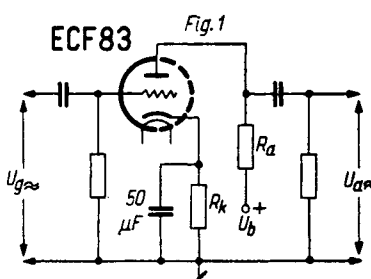
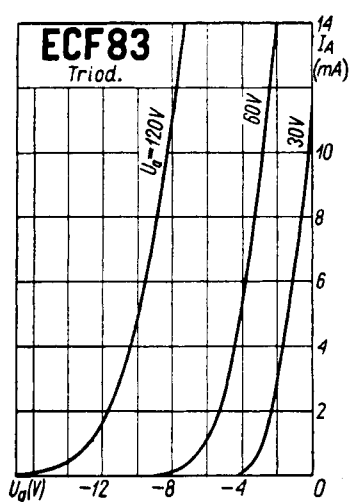
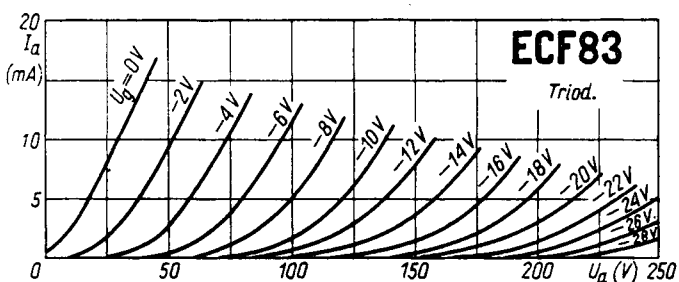
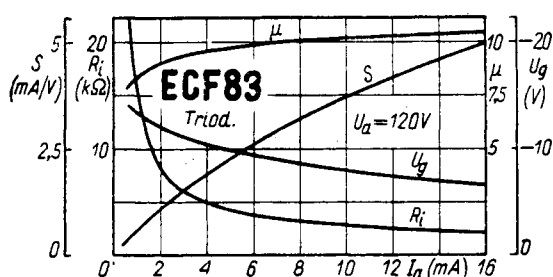
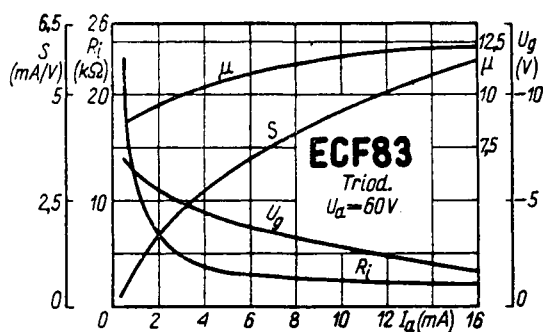
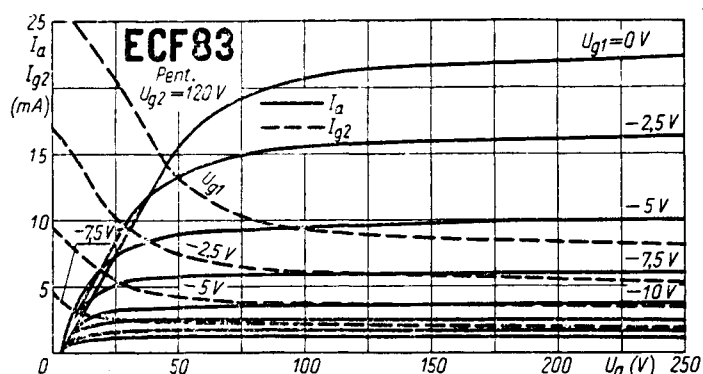


Fig. 1

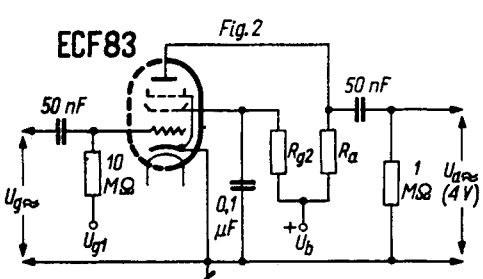


Fig. 2

U_b	R_a	R_k	I_a	U_{g1}	P_o	h
V	kΩ	kΩ	A	V	mW	%
60	6.5	0.63	6	2.7	>50	10
120	16	1.6	6	3.7	>70	10

U_b	R_a	R_{g2}	U_{g1}	μ
V	MΩ	MΩ	V	V/V
60	0.25	0.8	0 ÷ -2	60 ÷ 32
120	0.2	0.7	0 ÷ -2	100 ÷ 58

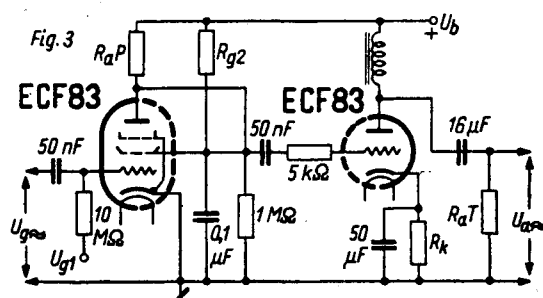
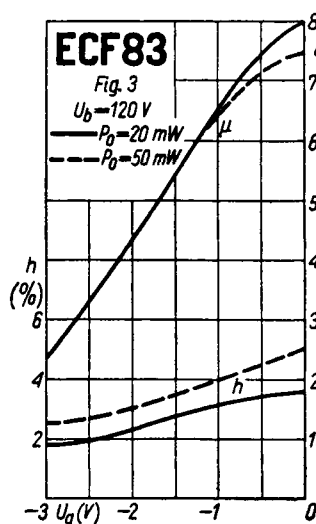
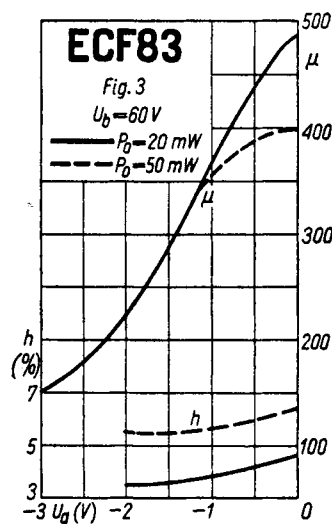


Fig. 3

U_b	R_{aP}	R_{aT}	R_{g2}	R_k	P_o	U_{g1}	μ	h
V	MΩ	kΩ	MΩ	kΩ	mW	V	V/V	%
60	0.25	6.5	0.8	0.63	20	0 ÷ -2	480 ÷ 225	4.5 ÷ 3
120	0.2	16	0.7	1.6	20	0 ÷ -2	800 ÷ 430	3.8 ÷ 2.2

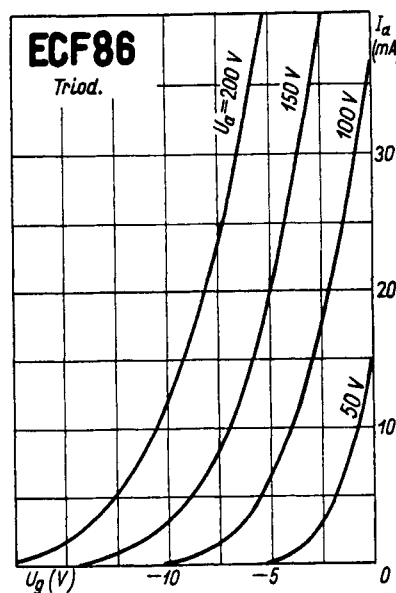
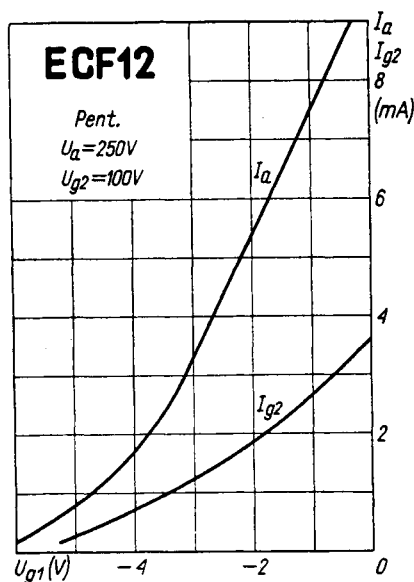
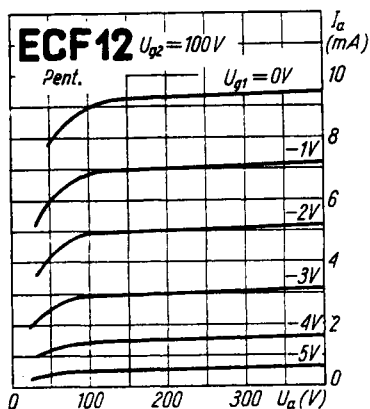
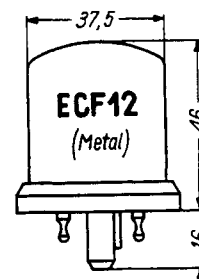
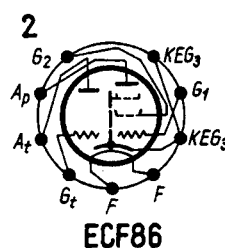
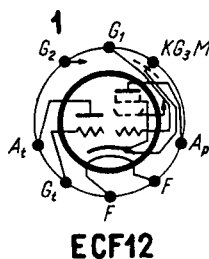
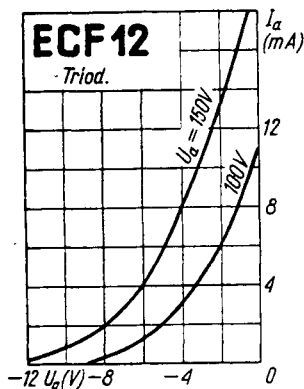
T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	$S(S_c)$ mA/V	R_i kΩ	μ (g_m/g_1)	U_f/k V	I_k mA	P_{g2} W	P_a W
ECF 12	eur	1	6,3	0,3	stat. triod.	100		0	11	3	5,5	16,5				1
UCF 12	eur	1	20	0,1	stat. triod.	150				maximum						
					stat. pent.	250 ¹⁾	100	-2	5	1,7	2	1500				
					pent.	250	125			maximum					0,5	2
ECF 86	eur	2	6,3	0,45	stat. triod.	100		-3	14	5,5	3	17				1,5
PCF 86	eur	2	8	0,3	stat. triod.	125				maximum			100	15		
4 FS 7	amer	2	4,6	0,6	stat. pent.	170	150	-1,2	10	3,3	12	350	(70)			
17 HG 8	amer	2	16,8	0,15	pent.	250	150			maximum			100	18	0,5	2
					mixer pent.	190	<190 ²⁾		8,5	2,7	(4,5)					

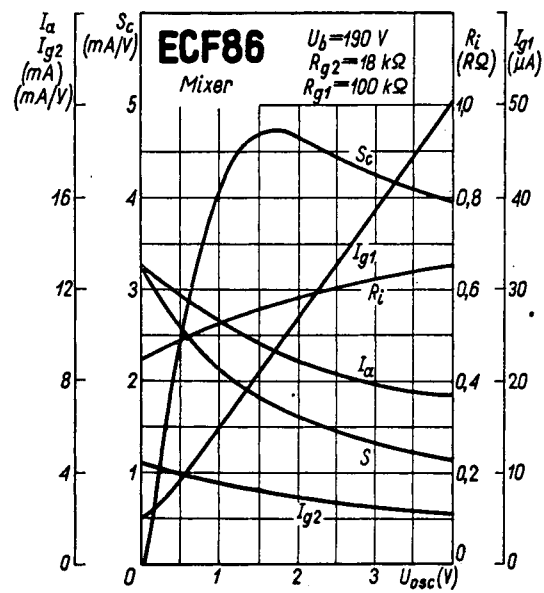
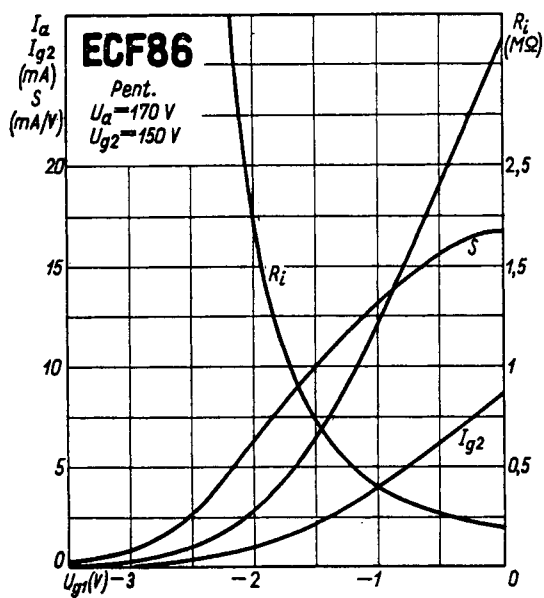
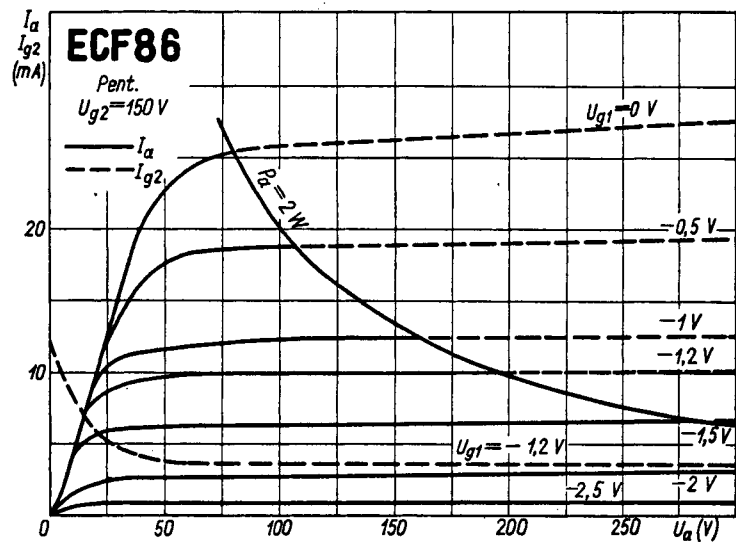
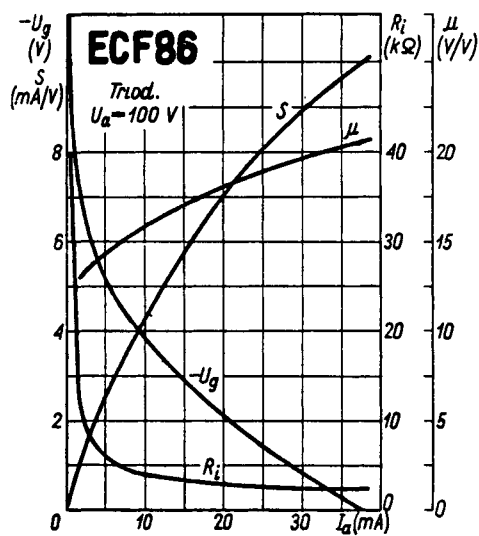
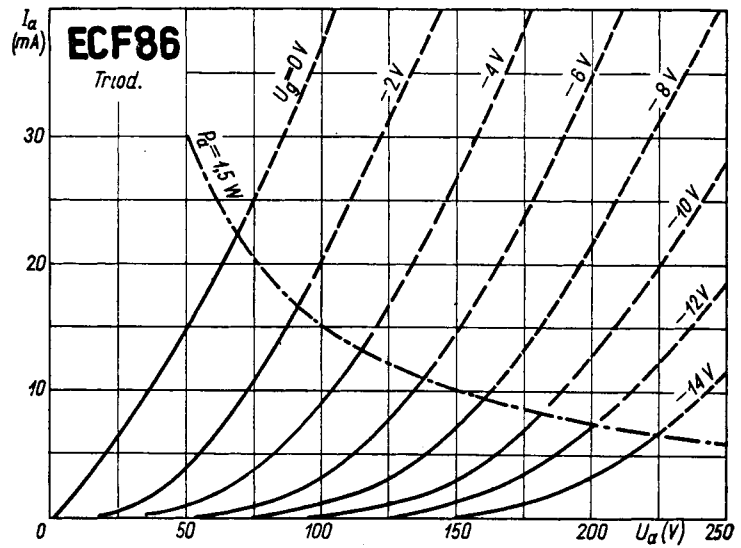
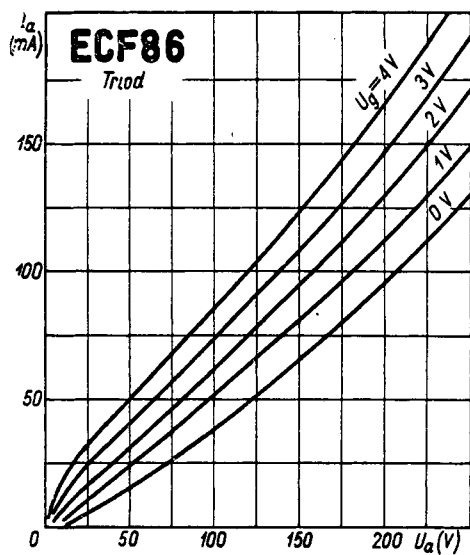
¹⁾ UCF 12, $U_a = 200$ V; ²⁾ $U_{b/g2} = 190$ V, $R_{g2} = 18$ kΩ, $R_{g1} = 100$ kΩ, $U_{osc} = 2,3$ V

Equivalents

ECF 806	Mul = ECF 86
PCF 806	Mul = PCF 86
6 HG 8	amer = ECF 86
8 HG 8	amer = PCF 86

T.	vide * 5	C_{g1} pF	C_a pF	$C_{g1/a}$ pF	$C_{a/a}$ pF	$C_{aT/g1P}$ pF	$C_{gT/g1P}$ pF
ECF 12	triad.	3,3	2,7	1,8			
	pent.	5	5	0,002	0,005	0,001	
ECF 86	triad.	2,4	1,1	2			
	pent.	6	3,5	0,0012	0,014	0,001	0,001

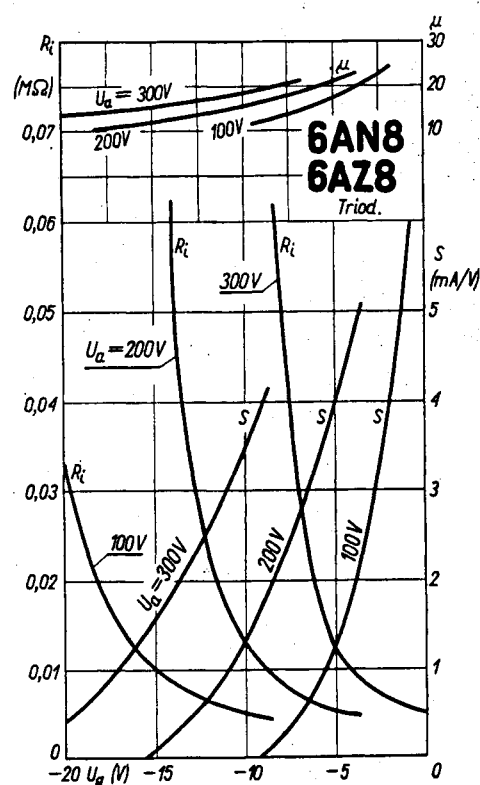
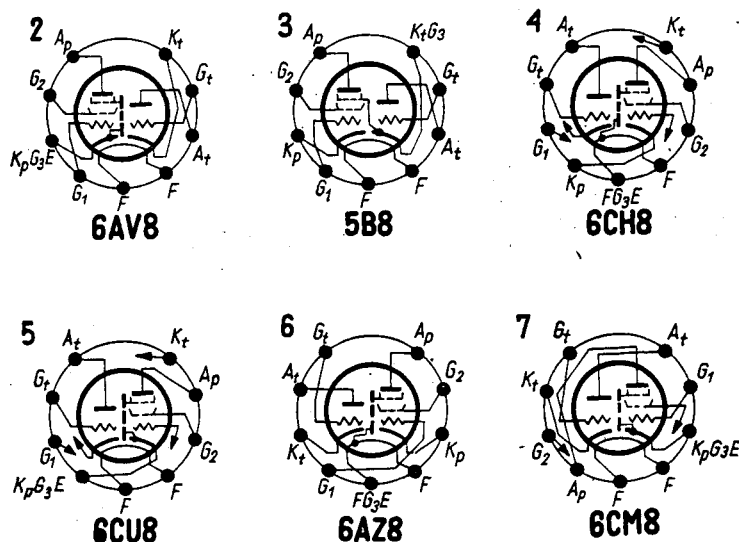
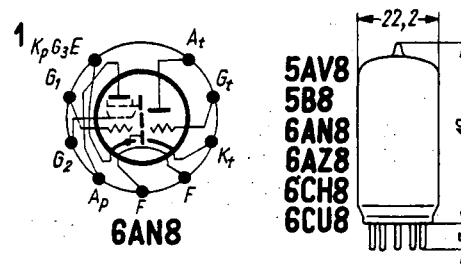


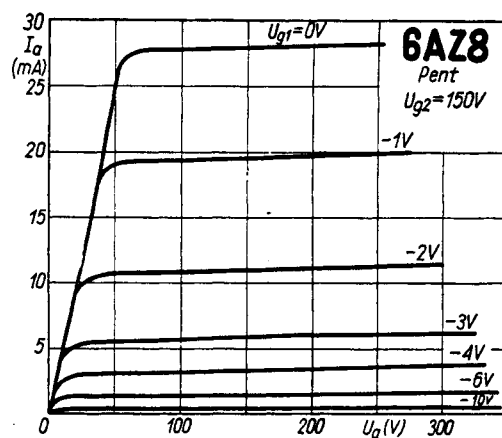
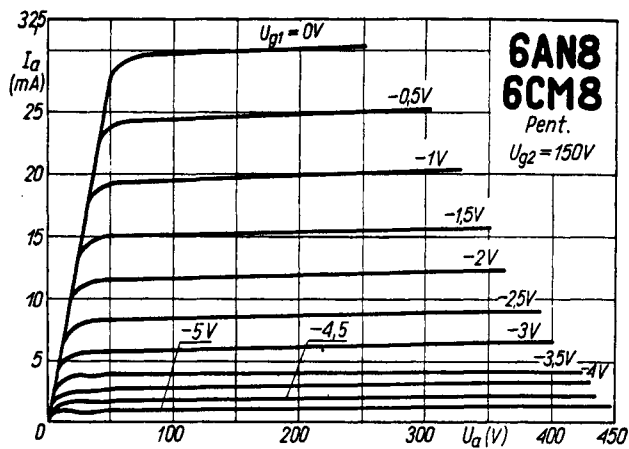
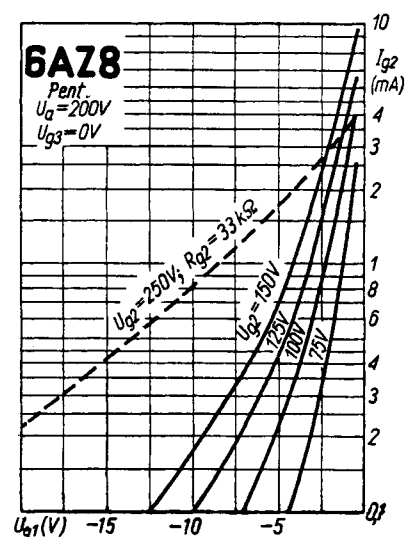
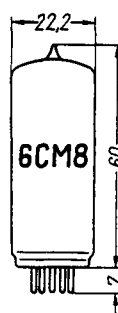
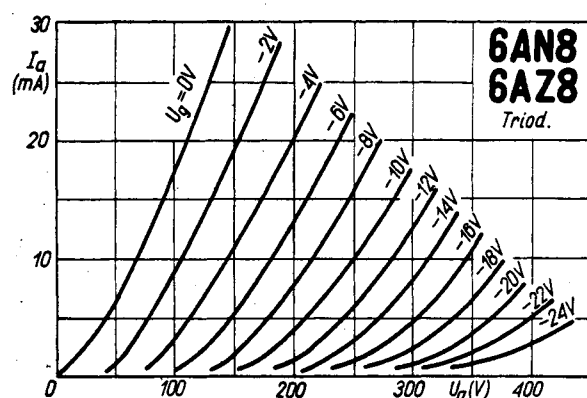
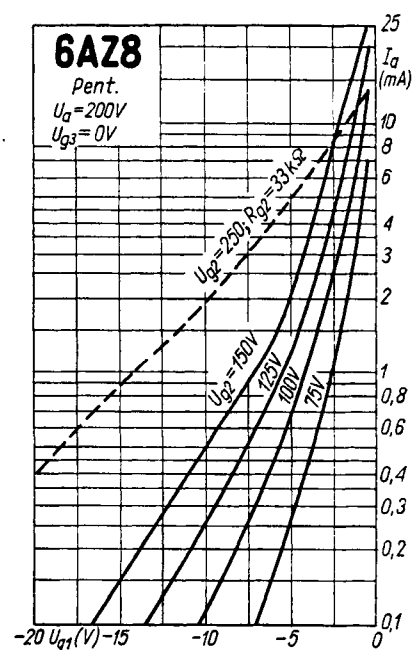
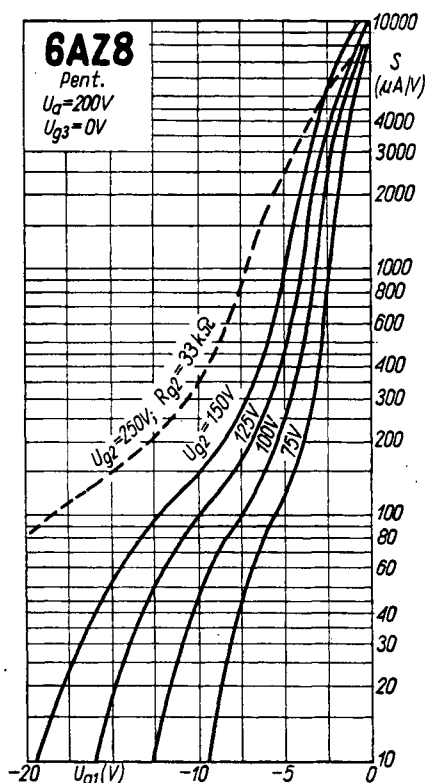
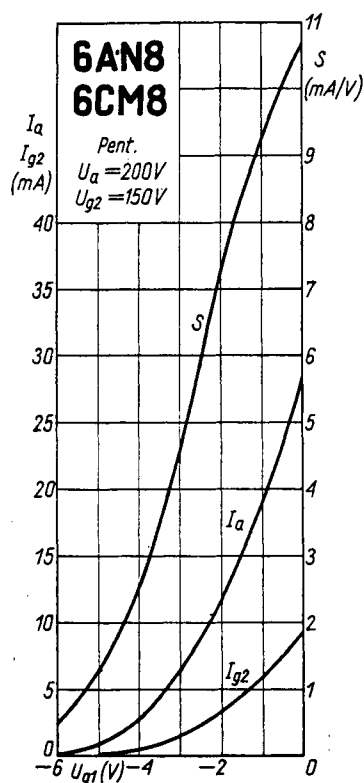


T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	μ V/V	R_k Ω	P_{g2} W	P_a W
5 AN 8	amer	1	4,7	0,6	A triode. A pent.	{ 200 300 200 150 300 200		-6	13		3,3 maximum 2,8 maximum ¹⁾	5,75	19			2,6
5 AV 8	amer	2	4,7	0,6												
5 B 8	amer	3	4,7	0,6												
6 AN 8	amer	1	6,3	0,45												
6 AN 8-A	amer	1	6,3	0,45												
6 AV 8	amer	2	6,3	0,45												
6 CH 8	amer	4	6,3	0,45	A triode. A pent.	{ 200 300 200 150 300 200		-6	13		3,3 maximum 2,8 maximum ¹⁾	5,75	19		180	0,5
6 CU 8	amer	6	6,3	0,45												
6 AZ 8	amer	6	6,3	0,45												
5 CM 8	amer	7	4,7	0,6												
6 CM 8	amer	7	6,3	0,45												
6 CM 8	amer	7	6,3	0,45												

¹⁾ maximum: $f = 250$ MHz; $U_{f+/-} = 100$ V; $U_{f-/+} = 200$ V

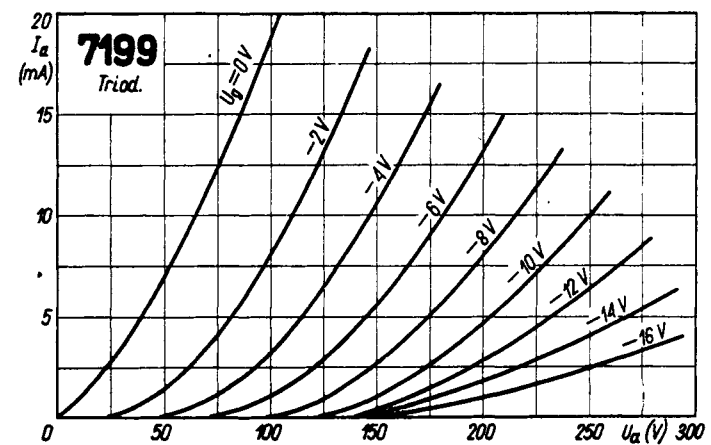
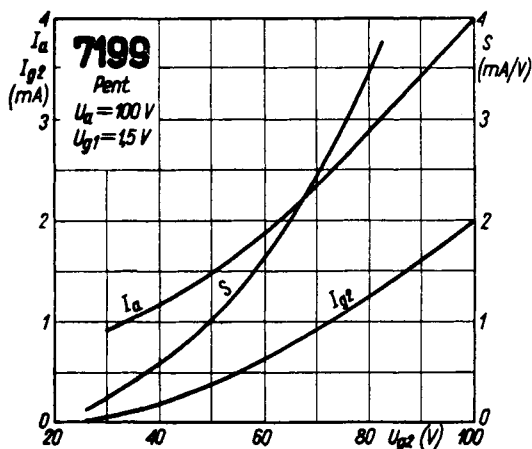
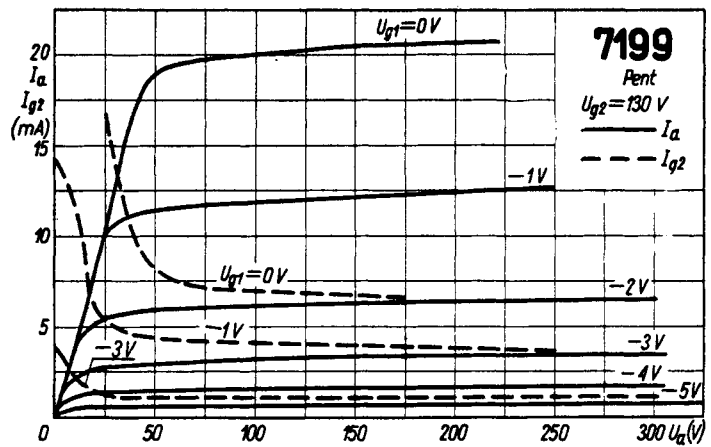
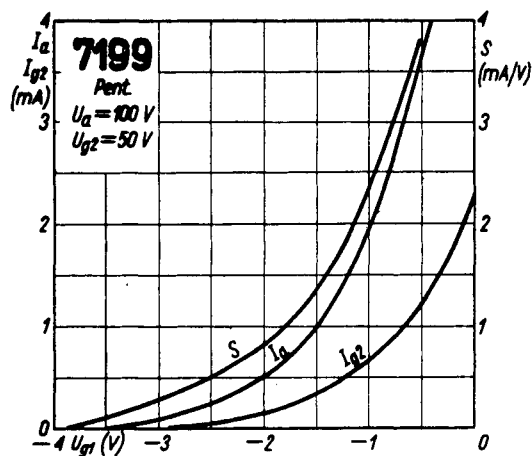
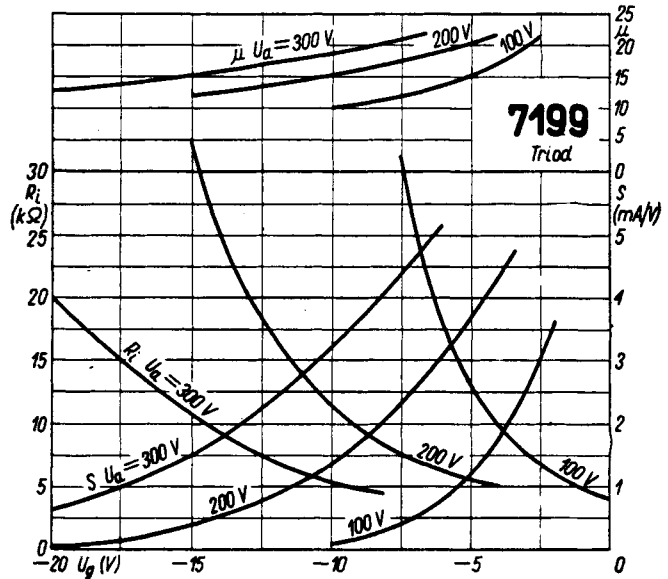
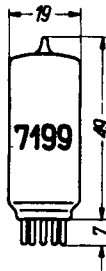
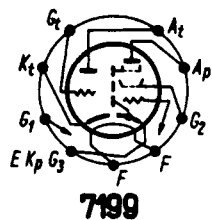
(vide * 5)		$C_{g1/k}$ pF	$C_{a/k}$ pF	$C_{g1/a}$ pF	$C_{gT/aP}$ pF	$C_{aT/g1}$ pF	$C_{aT/aP}$ pF
5 AV 8	{ triode. pent.	2 7	0,34 3	1,5 0,04	0,005	0,006	0,045
5 B 8	{ triode. pent.	1,9 6	1,4 2,6	1,7 0,05	0,0078	0,0033	0,06
6 AN 8	{ triode. pent.	2 7	0,27 2,3	1,5 0,04	0,005	0,006	0,045
6 AZ 8	{ triode. pent.	2 6,5	1,7 2,2	1,7 0,02	0,027	0,02	0,045
6 CH 8	{ triode. pent.	1,9 7	1,6 2,25	1,6 0,025	0,005	0,02	0,04
6 CM 8	{ triode. pent.	1,6 6	0,22 2,6	1,9 0,02	0,01	0,15	0,1
6 CU 8	{ triode. pent.	1,9 7	1,8 2,4	1,4 0,025	0,005	0,02	0,04





T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i MΩ	μ V/V	R_k Ω	U_f/k V	P_{g2} W	P_a W
7199	RCA	6,3	0,45	A triod. A pent.	$\begin{cases} 215 \\ 330 \end{cases}$ $\begin{cases} 100 \\ 220 \\ 330 \end{cases}$	$\begin{cases} 50 \\ 130 \\ 165 \end{cases}$	-8,5	9 1,1 12,5	$\begin{cases} 2,1 \\ 0,35 \\ 3,5 \end{cases}$ maximum	$\begin{cases} 0,0081 \\ 1 \\ 0,4 \end{cases}$ maximum	17		$\begin{cases} 1000 \\ 62 \end{cases}$	200 200	0,6	2,4 3

vide *5	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
triode.	2,3	0,3	2
pent.	5	2	0,06



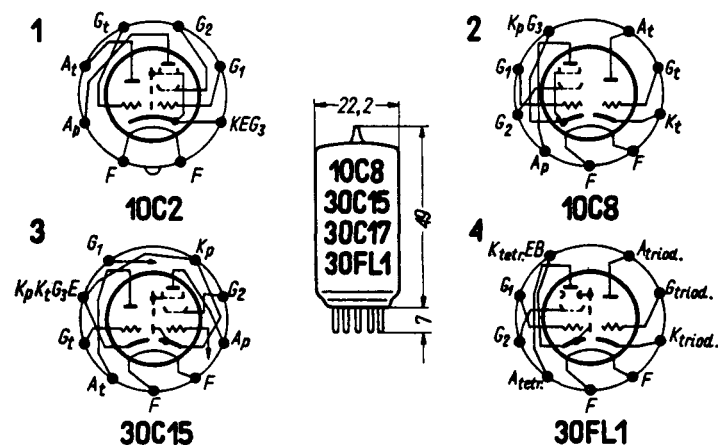
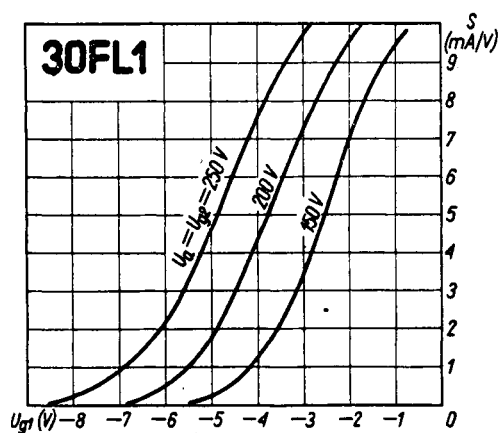
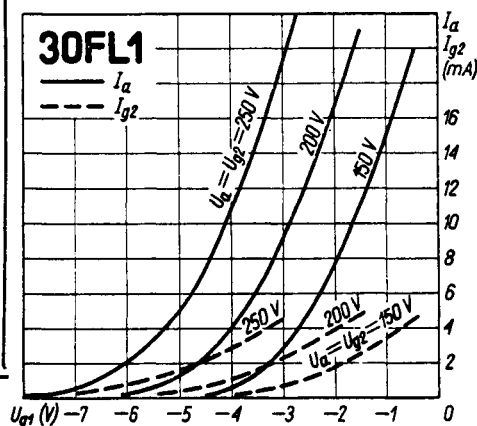
T.			U_f	I_f	Cl.	U_a	U_{g2}	I_a	I_{g2}	$S(S_c)$	R_i	μ	R_k	U_f/k	I_k	P_{g2}	P_a
			V	A		V	V	mA	mA	mA/V	k Ω	V/V	Ω	V	mA	W	W
10 C 2	Eds	1	28	0,1	triad.	100 150				4 4 17 maximum							
					pent. mixer	135 150 250	135 150 250	5 4,7	1,5 1,3	(2) (2,1) maximum				200		0,5	1
10 C 8	amer	2	10,5	0,3	triad.	250 300		7,3		4,4 12 53 maximum			390				2
					pent.	135 300	135 250	11,5	3,2	8 190 40 maximum			100	100		0,55	2,2
30 C 15	Eds	3	9	0,3	triad.	100 250		14		5 4 20 maximum					14		1,5
					pent.	170 250	170 175	10		8,5 maximum				200	14	0,6	1,7
30 C 17	Eds	3	7,4	0,3	triad.	100 250		15		8,5 2,5 20 maximum					18		2
					pent. mixer	170 250	155 230	6,4	2	(4,9) maximum			100	200	18	0,5	1,7
30 FL 1	Eds	4	9,4	0,3	triad.	200 250		10		3,4 5 18 maximum							2
					pent.	170 250	170 250	10		7,5 ($U_{g1} = -2,1$ V) maximum				150		0,15	2

T.		C_{g1}	C_a	$C_{g1/a}$	$C_{aT/aP}$	$C_{aT/g1}$	$C_{gT/aP}$	$C_{gT/g1}$	vide
		pF	pF	pF	pF	pF	pF	pF	
10 C 2	triad.	4,1	1,6	1,7					* 5
	pent.	5,4	2,9	1,9					* 6
10 C 8	triad.	7,5	2,6	0,012	0,12	0,03		0,55	* 5
	pent.	9	4,1	0,013	0,32	0,031		0,56	* 6
30 C 15	triad.	2,4	0,2	1,6					* 5
	pent.	7	2,2	0,04	0,06	0,008	0,006		* 6
30 C 17	triad.	3,2	3,2	1,6					* 5
	pent.	4	4	1,8					* 6
30 FL 1	triad.	6,7	5	0,014					* 5
	pent.	7,6	6	0,017					* 6
30 C 15	triad.	3,5	2,6	1,8					* 6
	pent.	6,6	3,1	0,008	0,01	0,005	0,002	0,01	* 6
30 FL 1	triad.	3,6	2,6	2,7					* 5
	pent.	4,6	3,6	3					* 6
30 FL 1	triad.	7,9	3,2	0,03	0,037	0,008	0,0068		* 5
	pent.	9,2	4,5	0,048	0,374	0,01	0,0074		* 6

Equivalents

9 EN 7
9 GB 8

amer = 30 C 15
amer = 30 FL 1



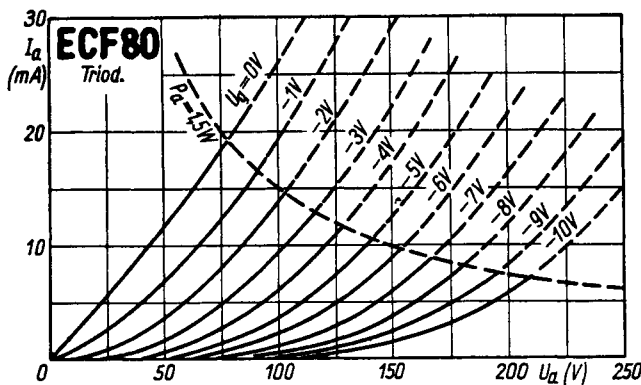
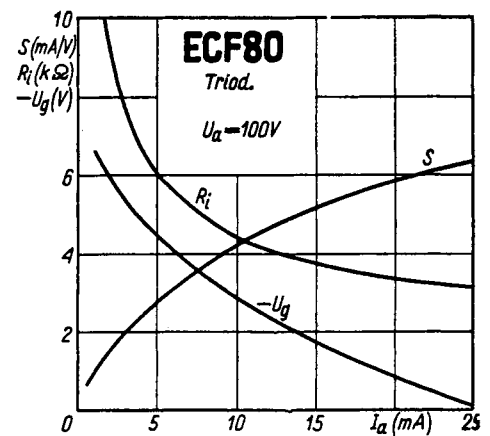
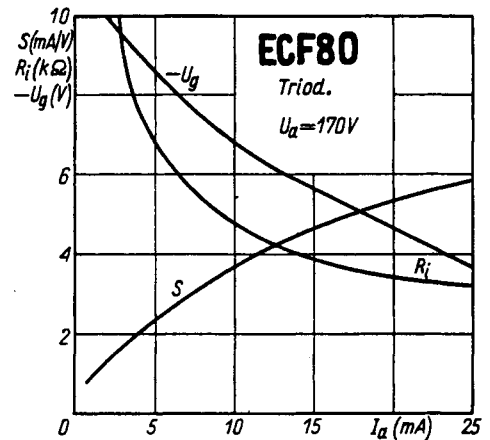
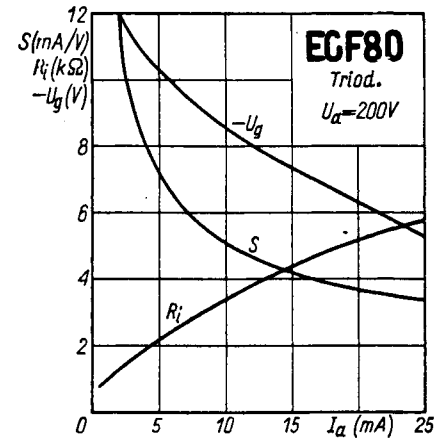
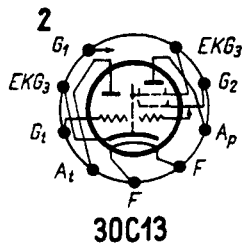
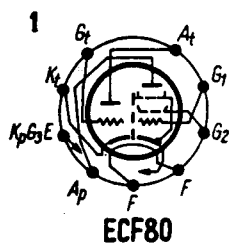
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	$S(S_c)$	R_t	μ	R_k	$U_{f+1/k-}$	I_k	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	(g_s/g_1)	Ω	V	mA	W
ECF 80	eur	1	6,3	0,45	stat. triode. stat. pent. mixer pent.²)	100		-2	14		5	4	20				
E 80 CF¹)	eur	1	6,3	0,33		250					maximum				100	14	1,5
PCF 80	eur	1	9	0,3		170	170	-2	10	2,8	6,2	400	(47)				
UCF 80	eur	1	27	0,1		250	200				maximum ($P_{g2} = 0,75$ W)				100	14	1,7
XCF 80	Phi	1	4,6	0,6	mixer pent.²)	170	170		6,5	2	2,2	800		330			
30 C 13	Eds	2	9	0,3		170	170		5,2	1,5	2,1	870		820			

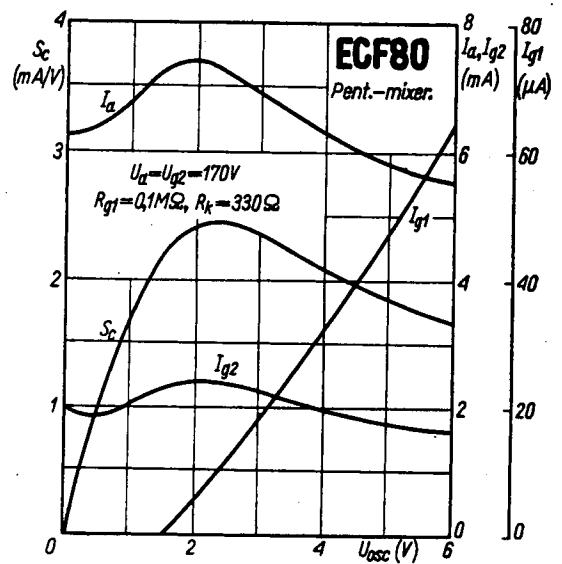
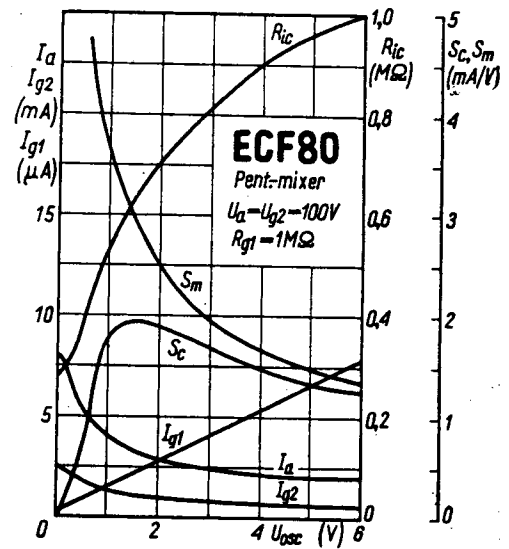
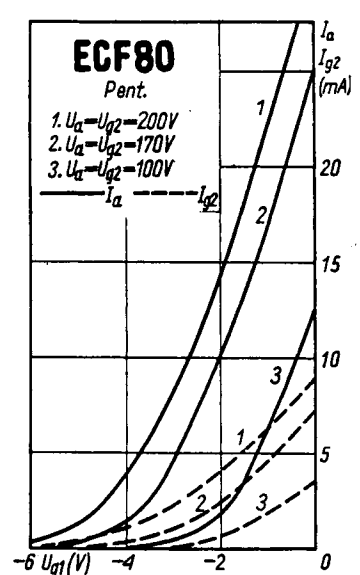
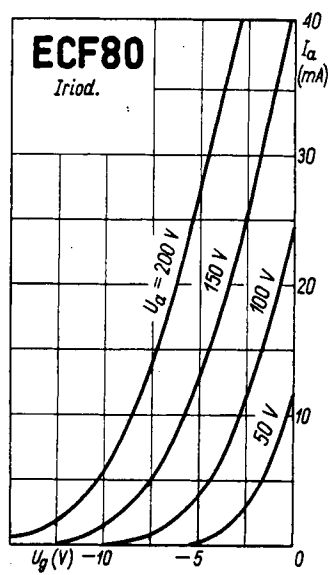
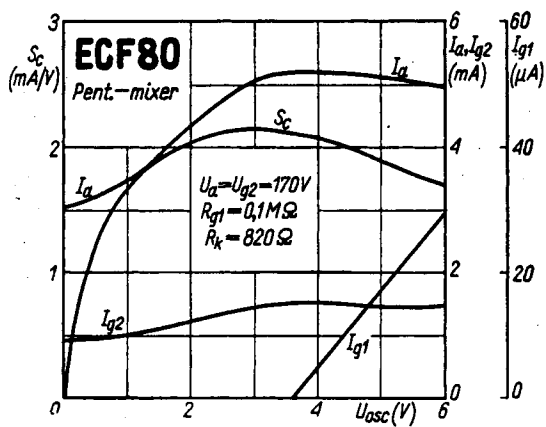
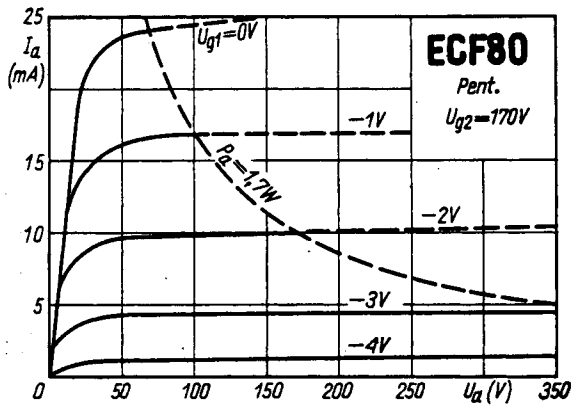
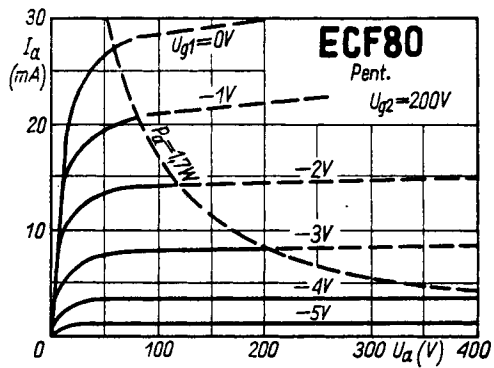
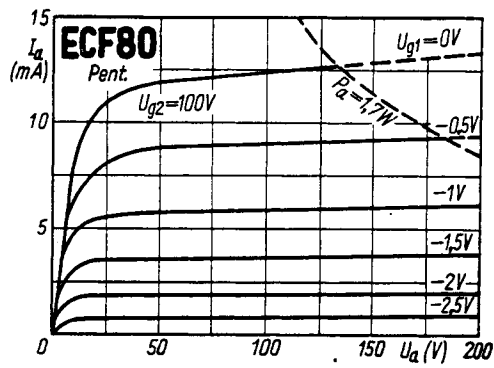
¹) vide * 4, a, b, c = 100.000, e, f, g; ²) $U_{osc} = 3,5$ V; $R_{g1} = 100$ k Ω

T.		$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{gT/aP}$	$C_{aT/aP}$	$C_{g1P/aT}$
		pF	pF	pF	pF	pF	pF
ECF 80	triode.	2,5	1,8	1,5			
E 80 CF	pent.	5,2	3,4	0,025	0,02	0,07	0,16
LZ 319	triode.	3	0,5	2			
	pent.	4,5	4	0,02			
LZ 329	triode.	3,1	2,9	1,7			
	pent.	6,1	4,9	0,013	0,007	0,023	0,3

Equivalents

LZ 319	Eng = PCF 80	8 A 8	amer = PCF 90
LZ 329	Eng = PCF 80	8 CF 40	Tes = PCF 80
4 BL 8	amer = XCF 80	9 A 8	amer = PCF 80
6 BL 8	amer = ECF 80	9 C 8	amer = PCF 80
6 C 16	Eds = ECF 80	27 BL 8	amer = UCF 80
6 Φ I II CCCP	= ECF 80	30 C 1	Eds = PCF 80
		7643¹)	amer = E 80 CF





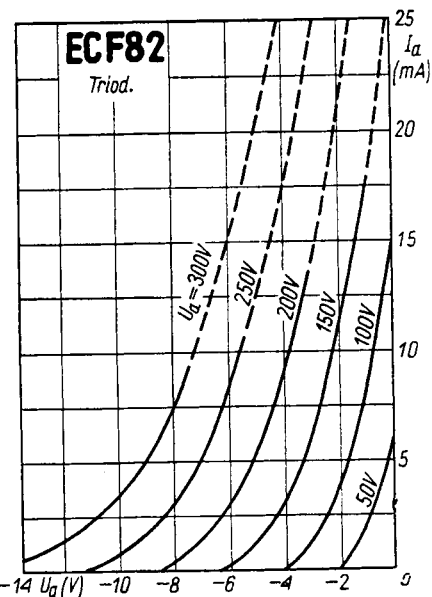
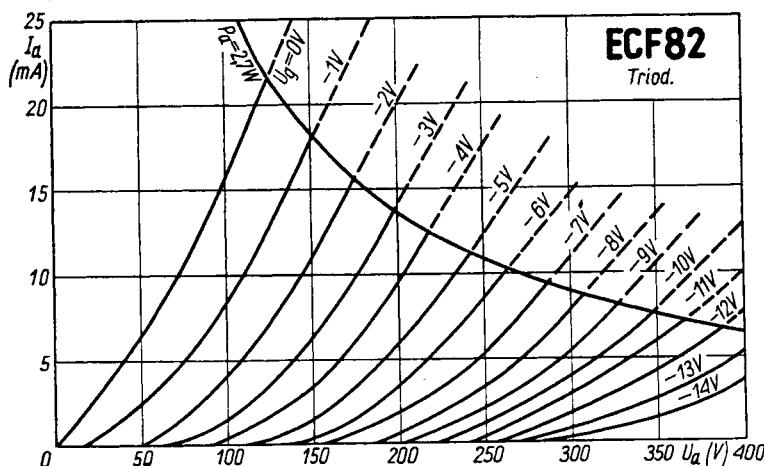
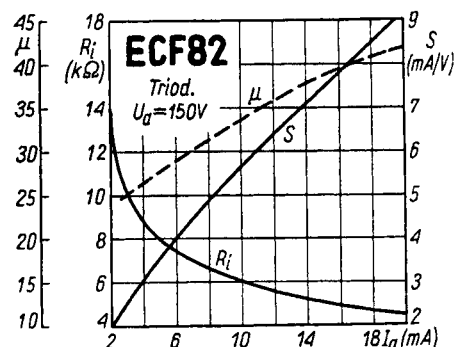
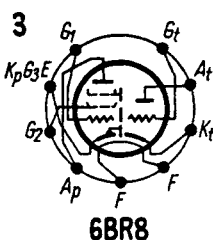
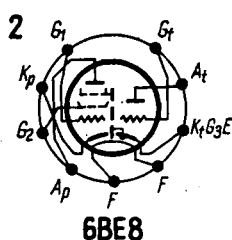
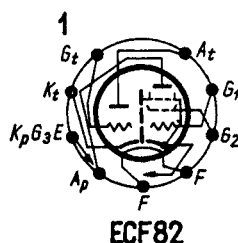
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	$S(S_c)$	R_i	μ	R_k	$U_{f+}/k-$	I_k	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	(g_1/g_2)	Ω	V	mA	W
ECF 82	eur	1	6,3	0,45	stat. triode.	150		-1	18		8,5	4,7	40	56	90	20	2,7
PCF 82	eur	1	9,5	0,3		300					maximum						
XCF 82	eur	1	4,7	0,6		200	110	-0,9	10	3,5	5,2	400	(35)	68			
5 BE 8	amer	2	4,7	0,6	stat. pent.	300	300				maximum		$(P_{g2} = 0,5 \text{ W})$		90	20	2,8
5 BR 8	amer	3	4,7	0,6													
6 BE 8	amer	2	6,3	0,45		104			3,3		2,8						
6 BR 8	amer	3	6,3	0,45	osc. triode. ¹⁾	118			4,1		3,2						
6 BR 8	amer	3	6,3	0,45		136			5,7		4						
9 BR 8	amer	3	9,45	0,3		170	110	0	4,7	2	(1,65)						
7059	amer	1	13,5	0,195	mixer pent. ²⁾	200	115	0	4,9	1,9	(1,8)						
						250	117	0	5,2	1,9	(1,9)						

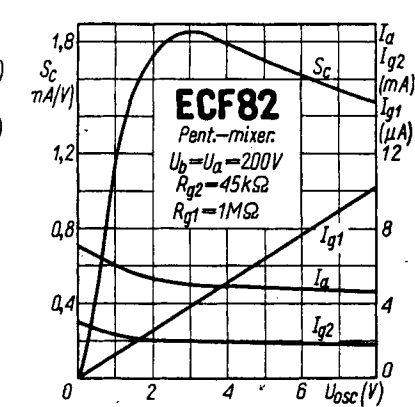
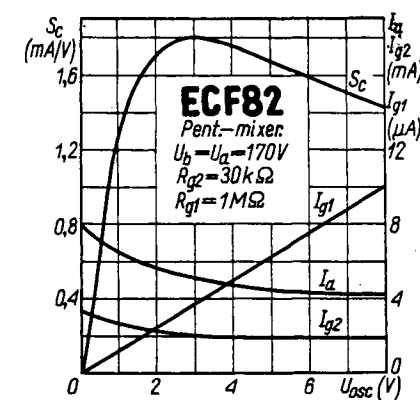
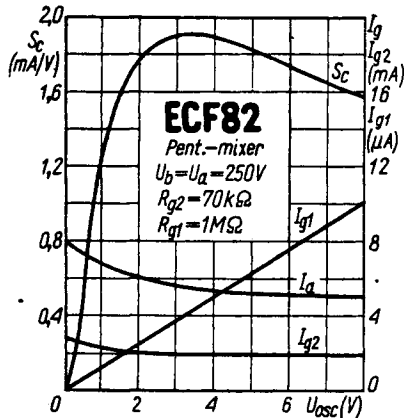
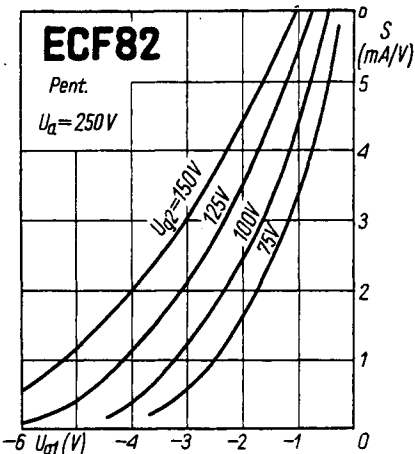
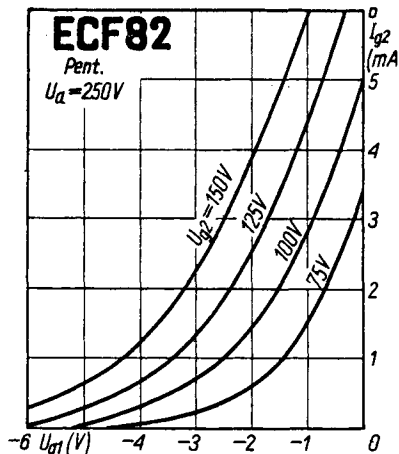
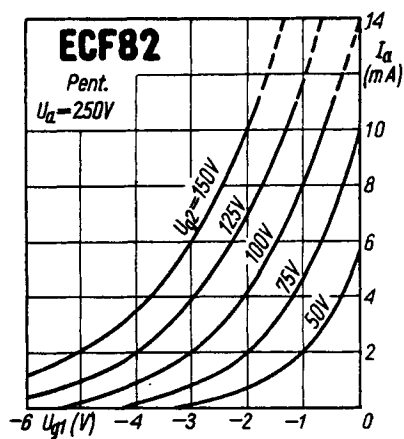
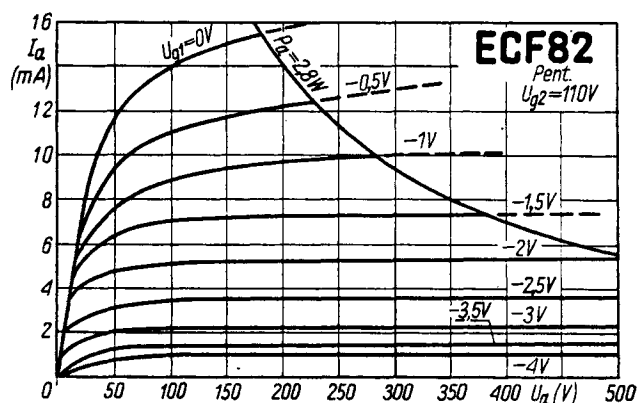
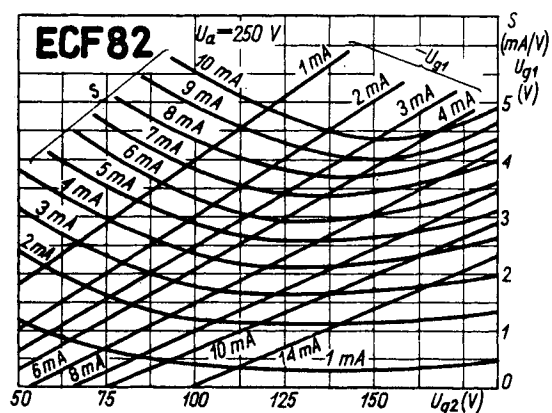
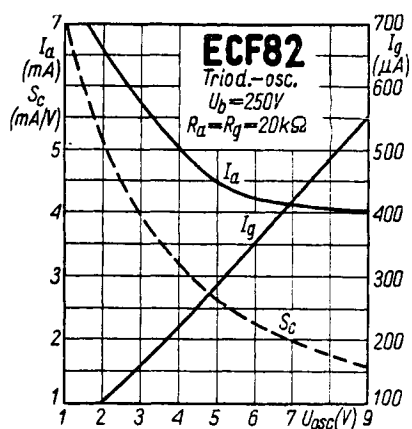
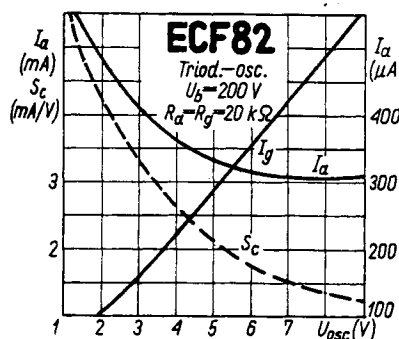
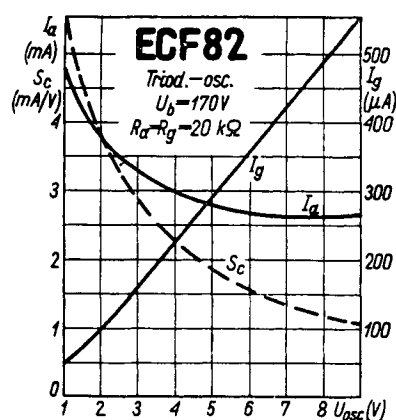
¹⁾ $R_g = 20 \text{ k}\Omega$; $I_g = 0,16 \text{ mA}$; $U_{osc} = 3 \text{ V}$; $f = 250 \text{ MHz}$; ²⁾ $R_{g1} = 1 \text{ M}\Omega$; $I_{g1} = 3,7 \mu\text{A}$; $U_{osc} = 3 \text{ V}$

Equivalents

5 U 8	amer = XCF 82
6 AX 8	amer = ECF 82
6 BE 8-A	amer = 6 BE 8
6 U 8	amer = ECF 82
6 U 8-A	amer = ECF 82
9 U 8	amer = PCF 82
9 U 8-A	amer = PCF 82
6678	RCA = ECF 82
7731	Hyt = ECF 82

T.		$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{gT/aP}$	$C_{aT/aP}$	$C_{k/f}$	vide
		pF	pF	pF	pF	pF	pF	
ECF 82	triode.	2,5	0,4	1,8				* 5
	triode.	2,5	1	1,8				* 6
	pent.	5	2,6	0,01		0,07	2,6	* 5
	pent.	5	3,5	0,006			2,6	* 6
6 BE 8	triode.	2,8	1,5	1,8				
	pent.	4,4	2,6	0,04	0,01	0,065		





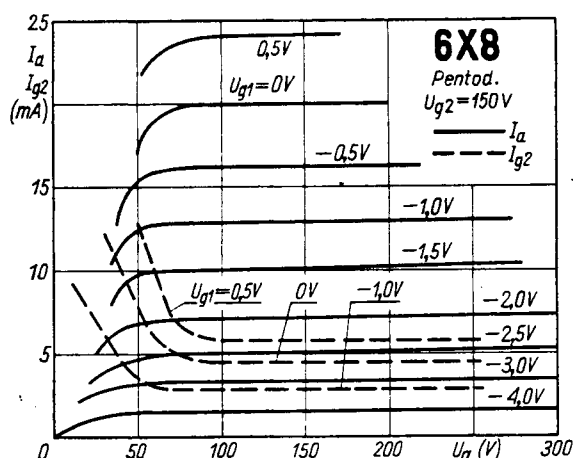
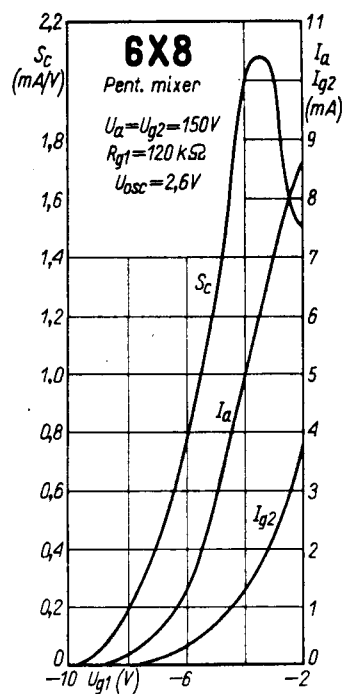
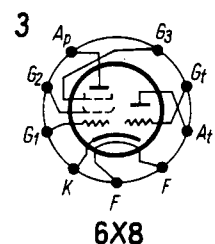
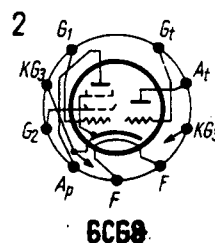
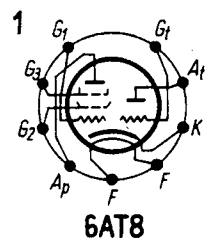
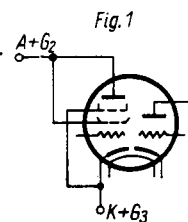
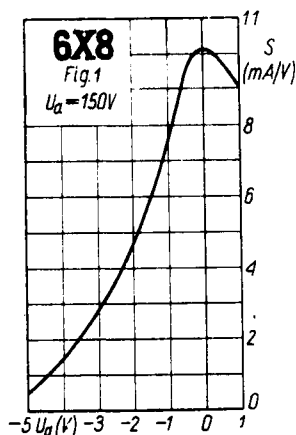
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	$S(S_c)$	R_i	μ	R_k	U_f/k	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	(E_2/g_1)	Ω	V	W
5 AT 8	amer	1	4,7	0,6	stat. triod.	100			8,5		5,8	6,9	40	100	100	1,5
5 CG 8	amer	2	4,7	0,6	stat. pent.	250	150	-40	7,7	1,6	4,6	750		200	100	2
5 X 8	amer	3	4,7	0,6	osc. ¹⁾	250	250	-40								
6 AT 8	amer	1	6,3	0,45	tri.	150			13							
6 CG 8	amer	2	6,3	0,45	tri.	150										
6 X 8	amer	3	6,3	0,45	mixer ²⁾	150	150	-3,5	6,2	1,8	(2,1)					
9 X 8	amer	3	9,5	0,3	pent.	150										
19 X 8	amer	3	19,8	0,15	stat. Fig. 1	150			7,8		4	7,9	42	250		

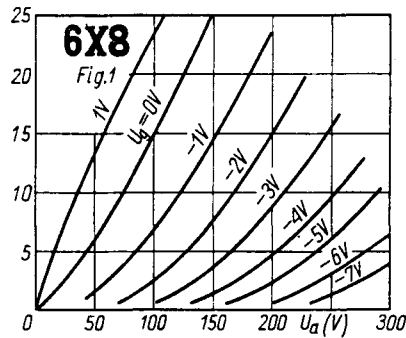
¹⁾ $R_g = 2700 \Omega$; $I_g = 3,6 \text{ mA}$; $P_o = 0,5 \text{ W}$; $f = 250 \text{ MHz}$; ²⁾ $R_{g1} = 120 \text{ k}\Omega$; $I_{g1} = 2 \mu\text{A}$; $U_{osc} = 2,6 \text{ V}$

Equivalents

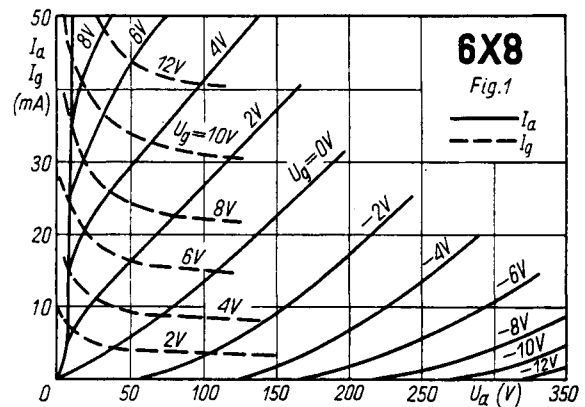
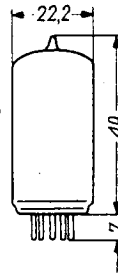
6 AT 8-A	amer = 6 AT 8
6 CG 8-A	amer = 6 CG 8
6 X 8-A	amer = 6 X 8
9 X 8-A	amer = 9 X 8
19 X 8-A	amer = 19 X 8

T.		$C_{g1/k}$	C_a/k	$C_{g1/a}$	$C_a T/g_1 P$	$C_a T/a P$	C_k/f	vide
		pF	pF	pF	pF	pF	pF	
6 AT 8	tri.	2	0,5	1,5				*5
	tri.	2,4	1	1,5				*6
	pent.	4,5	0,9	0,025	0,05	0,05	6,5	*5
	pent.	4,7	1,6	0,016	0,04	0,007	6,5	*6
	Fig. 1	3	1,7	1,3				*5
6 CG 8	Fig. 1	3,3	2,5	1,3				*6
	tri.	2,5	0,5	1,5				*5
	tri.	3	1	1,5				*6
	pent.	4,8	0,9	0,03	0,05	0,05	5,5	*5
	pent.	5	1,5	0,016	0,04	0,007	5,5	*6
6 X 8	tri.	2	0,5	1,4				*5
	tri.	2,5	1	1,4				*6
	pent.	4,3	0,7	0,09	0,045	0,04	6	*5
	pent.	4,5	1,4	0,06	0,035	0,008	6	*6
	Fig. 1	3	1,6	1,4				*5
	Fig. 1	3,2	2	1,4				*6



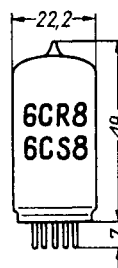


6AT8
6CG8
6X8

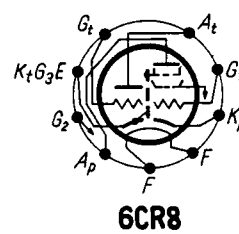


T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	P_a
			V	A		V	V	V	mA	mA	mA/V	kΩ	V/V	Ω	W
5 CR 8	amer	1	4,7	0,6	triode.	125		-2	12		4	5,5			
6 CR 8	amer	1	6,3	0,45	pent.	125	125		13	3	7,7	300		56	
6 CS 8	amer	2	6,3	0,45											
5 DH 8	amer	3	5,2	0,6	triode.	250			7,3		4,4	12	53	390	2
6 DH 8	amer	3	6,3	0,45	pent.	125	125		13,5	3,8	8,6	150			2,2
5 EA 8	amer	4	4,7	0,6											
6 EA 8	amer	4	6,3	0,45	triode.	150			18		8,5	5	42,5	56	
19 EA 8	amer	4	18,9	0,15	pent.	125	125	-1	12	4	6,4	80			
5 EH 8	amer	5	4,7	0,6	triode.	125		-1	13,5		7,5	5,3	40		
6 EH 8	amer	5	6,3	0,45	pent.	125	125	-1	12	4	6	170			
5 FV 8	amer	6	4,7	0,6	triode.	125		-1	14		8	5	40		
6 FV 8	amer	6	6,3	0,45	pent.	125		-1	12	4,6	6,5	200			
5 GH 8	amer	4	4,7	0,6	triode.	125		-1	13,5		8,5	5,4	46		
6 GH 8	amer	4	6,3	0,45	pent.	125	125	-1	12	4	7,5	200			
					triode.	150		-3	15		4,5	4,7	21		
7258	amer	7	12,6	0,21	pent.	125	125		12	3,8	7,8	170		56	

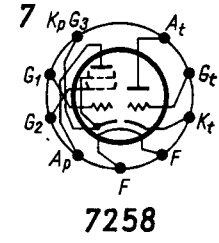
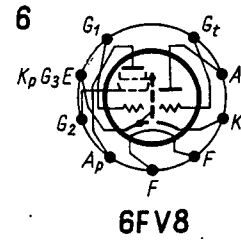
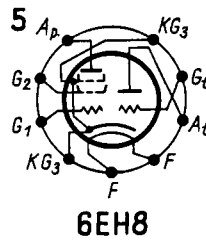
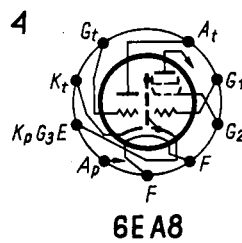
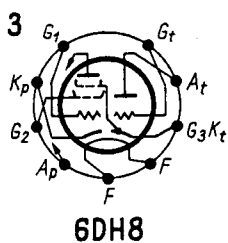
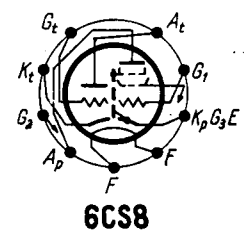
T.	(vide * 6)	C_{g1}	C_a	$C_{g1/a}$
		pF	pF	pF
6 CR 8	triode.	2	1,4	1,6
	pent.	6	2,8	0,018
6 CS 8	triode.	1,9	0,26	1,6
	pent.	6	2,8	0,02
6 DH 8	triode.	2,4	1,4	1,6
	pent.	6,5	2,2	0,03



1



2



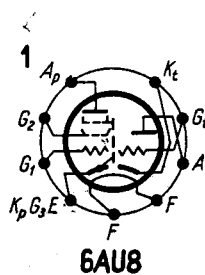
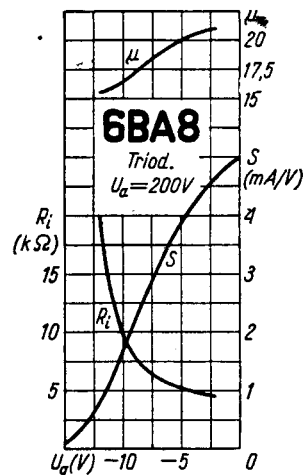
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	V/V	Ω	W	W
6 AU 8	amer	1	6,3	0,6	A triod.	150			9		4,9	8,2	40	150		2,5
8 AU 8	amer	1	8,4	0,45		300					maximum					
12 AU 8	Fiv	1	12,6	0,3		200			15	3,4	7	150		82		3
12 CT 8	amer	2	12,6	0,3	A pent.	200	125				maximum ¹⁾					
7060	RCA	2	13,5	0,28		300	200									
						200		-2	4		4	17,5	70			
6 AW 8	amer	1	6,3	0,6	A triod.	150			13	3,5	9	400		180		3,25
8 AW 8	amer	1	8,4	0,45		300	200				maximum ¹⁾					
						200		-8	8		2,7	6,7	18			
6 BA 8	amer	1	6,3	0,6	A triod.	150			13	3,5	9	400		180		2
8 BA 8	amer	1	8,4	0,45		300	200				maximum ¹⁾					
						200		-5	9,5		3,3	5,15	17			
6 BH 8	amer	1	6,3	0,6	A triod.	150			15	3,4	7	150		82		2,5
8 BH 8	amer	1	8,4	0,45		300	200				maximum ¹⁾					
						200										

¹⁾ maximum: $f = 250$ MHz; $U_{f-1k+} = 100$ V; $U_{f+1k-} = 200$ V

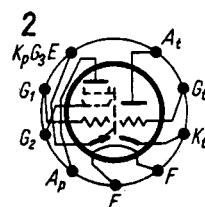
T.		$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{g1/aP}$	$C_{aT/g1P}$	$C_{aT/aP}$	vide
		pF	pF	pF	pF	pF	pF	
6 AU 8	triad.	2,6	0,34	2,2				* 5
6 AU 8-A	pent.	7,5	2,4	0,044	0,022	0,006	0,12	* 5
	triad.	3,2	0,32	2,2				* 6
6 AW 8	triad.	3,4	1,7	2,2				* 5
	pent.	11	2,8	0,036	0,03	0,008	0,2	* 6
	pent.	11	3,6	0,03	0,008	0,005	0,05	* 5
	triad.	3,2	0,32	2,2				* 6
6 AW 8-A	triad.	3,4	1,7	2,2				* 5
	pent.	10	3,6	0,04	0,016	0,006	0,15	* 6
	pent.	10	4,5	0,03	0,006	0,003	0,023	* 5
	triad.	2,5	0,4	2,2				* 6
6 BA 8	triad.	2,7	1,9	2,2				* 5
	pent.	9,5	2,8	0,036	0,022	0,01	0,2	* 6
	pent.	9,5	3,6	0,03	0,012	0,005	0,05	* 5
	triad.	2,5	0,4	2,2				* 6
6 BA 8-A	triad.	2,7	1,9	2,2				* 5
	pent.	10	3,6	0,04	0,016	0,006	0,15	* 6
	pent.	10	4,5	0,03	0,006	0,003	0,023	* 5
	triad.	2,6	0,38	2,4				* 6
6 BH 8	pent.	7	2,4	0,046	0,016	0,004	0,095	* 5

Equivalents

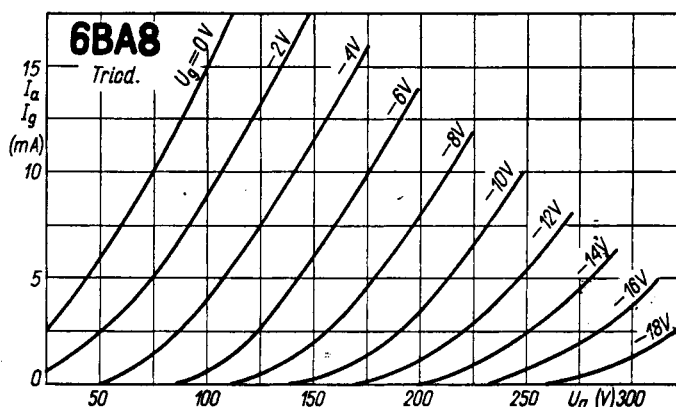
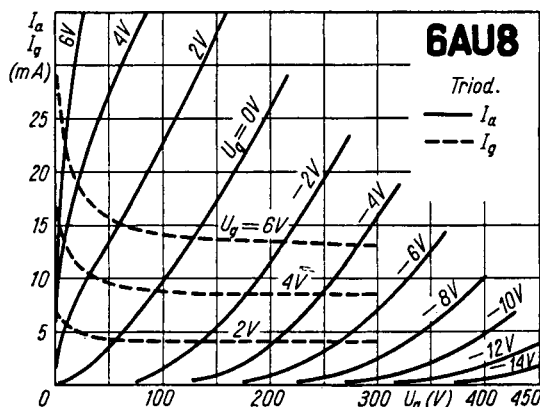
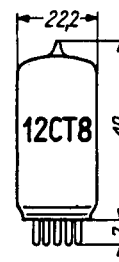
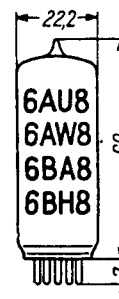
6 AU 8-A	amer = 6 AU 8
6 AW 8-A	amer = 6 AW 8
6 BA 8-A	amer = 6 BA 8
8 AU 8-A	amer = 8 AU 8
8 AW 8-A	amer = 8 AW 8
8 BA 8-A	amer = 8 BA 8

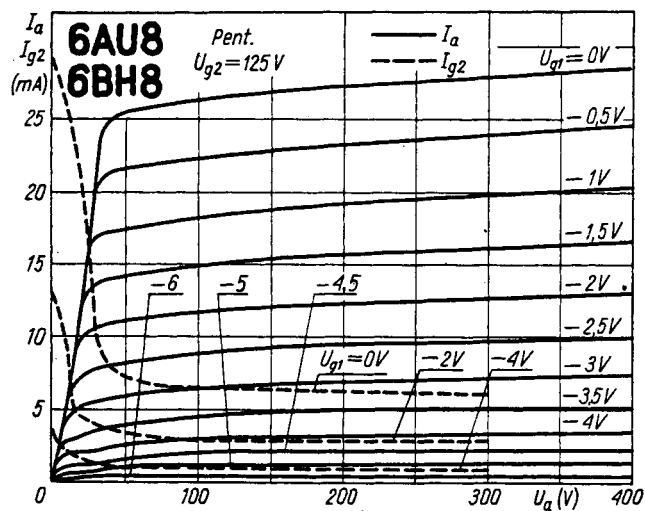
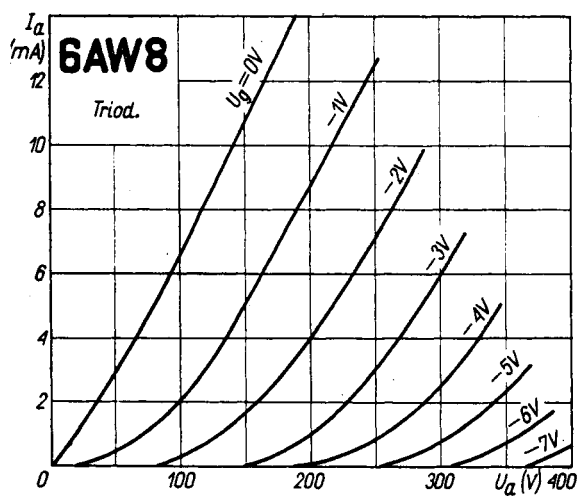
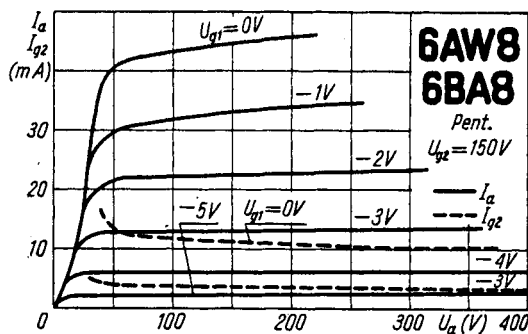
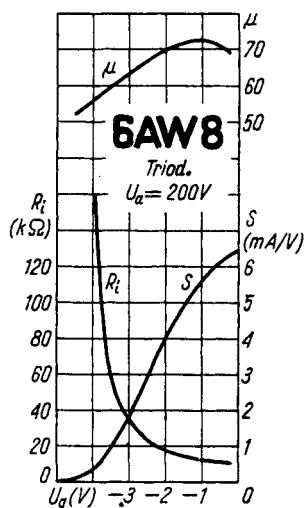
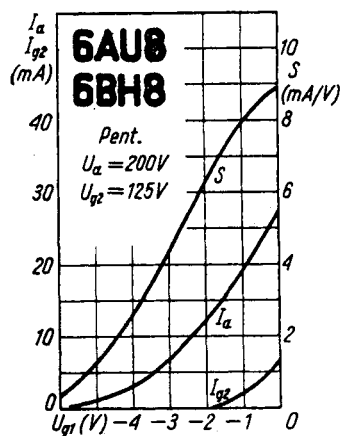
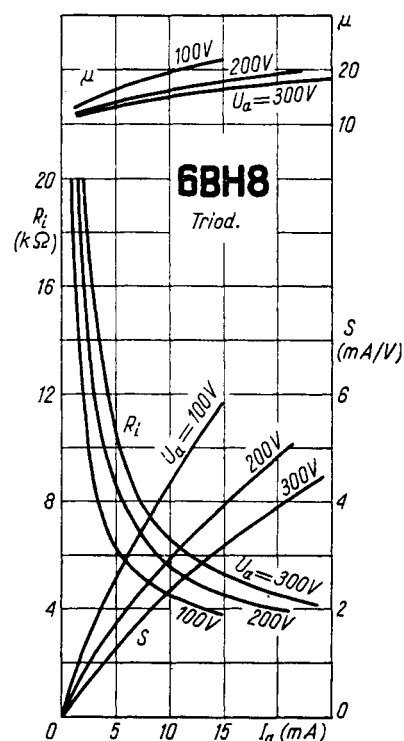
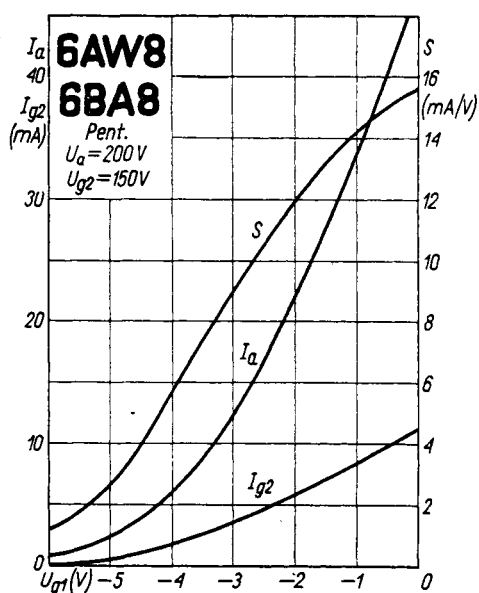
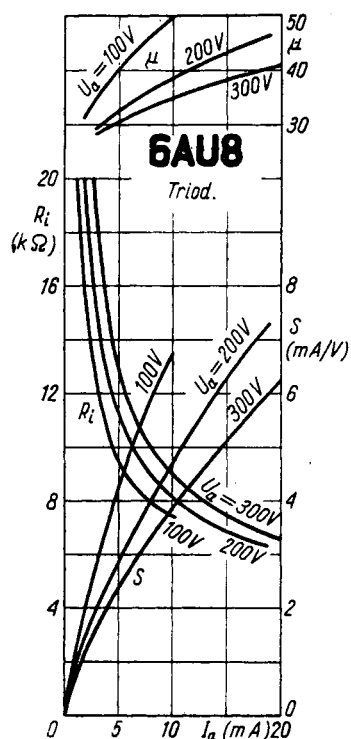


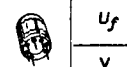
6AU8



12CT8





T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	P_{g2}	P_a		
			V	A		V	V	V	mA	mA	mA/V	kΩ	V/V	Ω	W	W		
5 CL 8	amer	1	4,7	0,6	A triod.	{ 125 300	15	8	5	40	56	2,7						
5 CQ 8	amer	2	4,7	0,6														
6 CL 8	amer	1	6,3	0,45														
6 CQ 8	amer	2	6,3	0,45														
9 CL 8	amer	1	9,5	0,3														
19 CL 8	amer	1	18,9	0,15	A tetr.	{ 125 300	125 200	—1	12	4,2	5,8	140	0,5	2,8				
										maximum								
										maximum')								

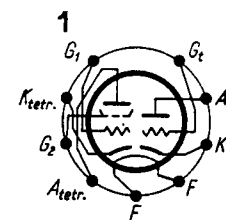
¹⁾ maximum: $f = 250$ MHz; $U_{f-k+} = 100$ V; $U_{f+k-} = 200$ V

T.		$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{a/a}$	C_f/k	vide
		pF	pF	pF	pF	pF	
6 CL 8	triad.	2,7	0,4	1,8			* 5
	triad.	2,7	1,2	1,8			* 6
	tetr.	5	2	0,028		2,5	* 5
	tetr.	5	3	0,016		2,5	* 6
6 CL 8-A	triad.	2,7	0,4	1,8			* 5
	triad.	2,7	1,2	1,8			* 6
	tetr.	5	2,4	0,82		2,5	* 5
	tetr.	5	3,4	0,01		2,5	* 6
6 CQ 8	triad.	2,7	0,4	1,8			* 5
	triad.	2,7	1,2	1,8			* 6
	tetr.	5	2,5	0,019	0,07	3	* 5
	tetr.	5	3,3	0,015	0,01	3	* 6

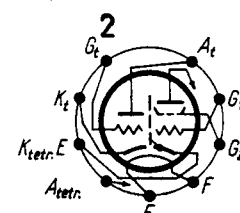
Equivalents

5 CL 8-A ¹⁾	amer = 5 CL 8
6 CL 8-A ¹⁾	amer = 6 CL 8
6 CQ 8-A	amer = 6 CQ 8
19 CL 8-A	amer = 19 CL 8

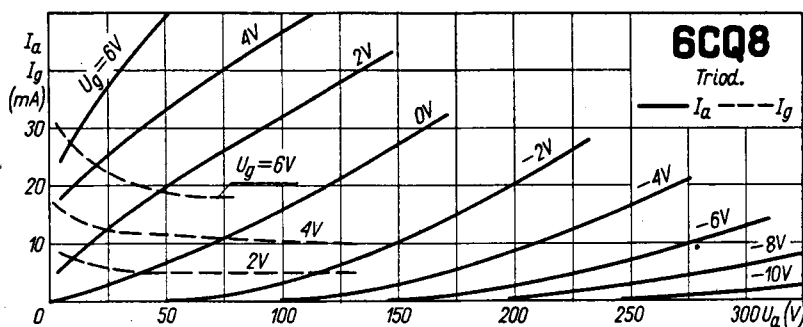
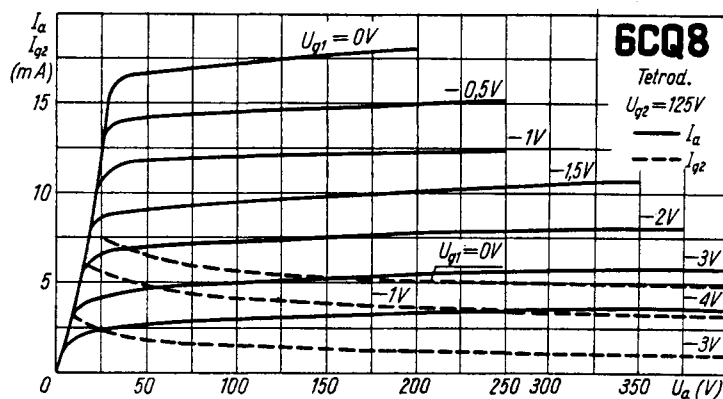
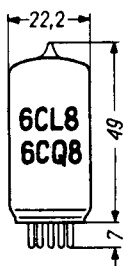
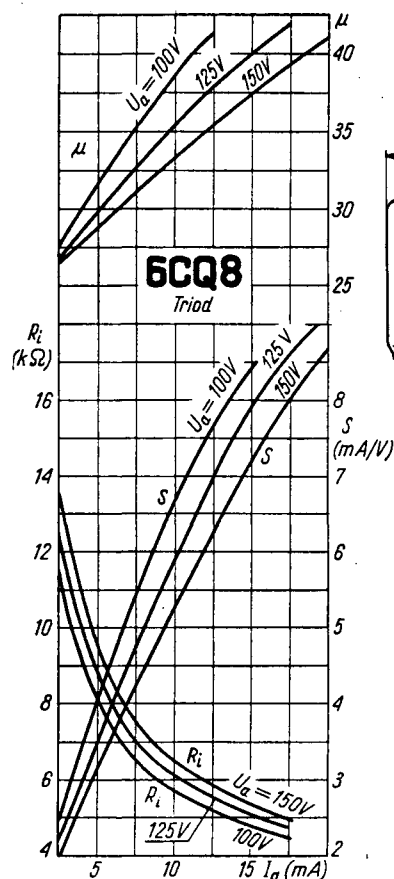
²⁾ S-tetrod. = 6,4 mA/V



6CL8



6CQ8

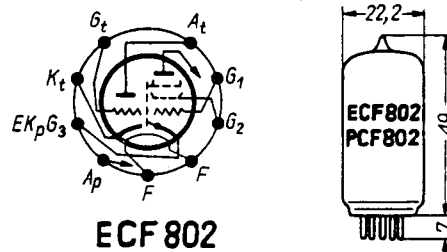


T.		U_j V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_2/g_1)	U_f/k V	I_k mA	P_{g2} W	P_a W
ECF 802	eur	1	6,3	0,45	stat. triode. stat. pent.	200		—2	3,5	3,5	20	70				
PCF 802	eur	1	9	0,3		250		maximum					100	10		1,4
						100	100	—1	6	1,7	5,5	(47)	100	15	0,8	1,2
						250	250		maximum							

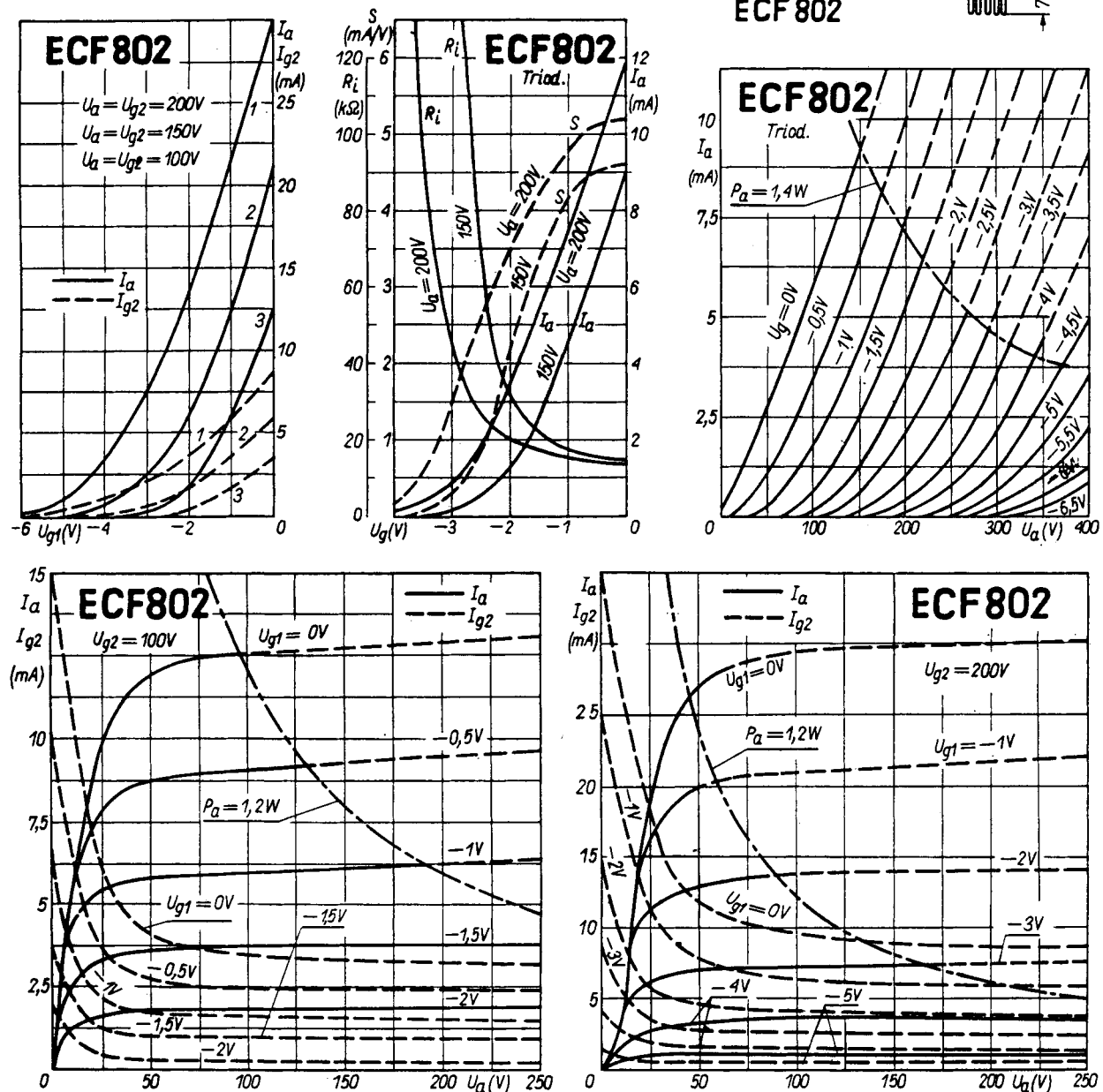
T.	C_{g1} pF	$C_{g1/a}$ pF	$C_{g1/f}$ pF
triode.	2,4	1,5	0,1
pent.	5,4	0,06	0,1

Equivalents

6 JW 8	amer = ECF 802
9 JW 8	amer = PCF 802



ECF 802



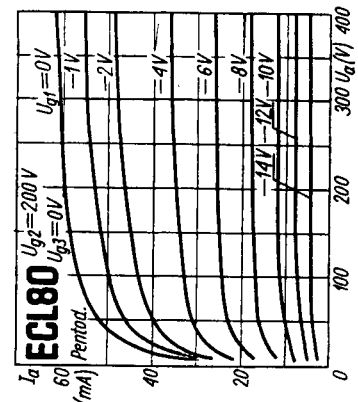
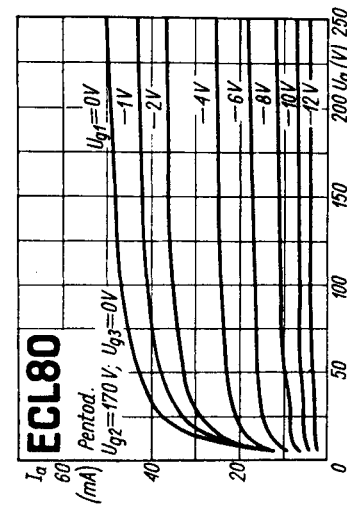
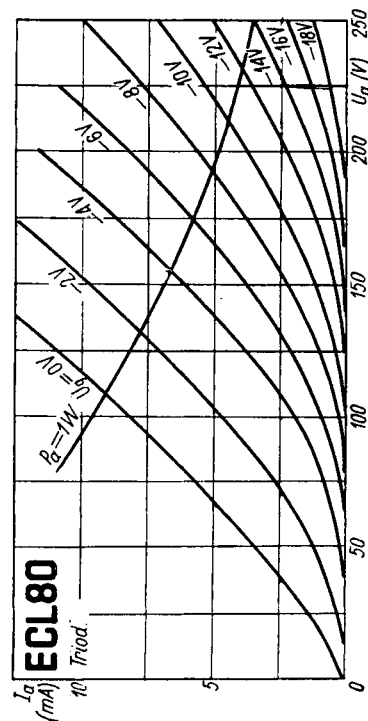
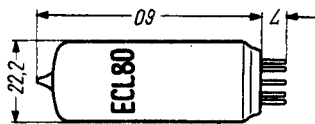
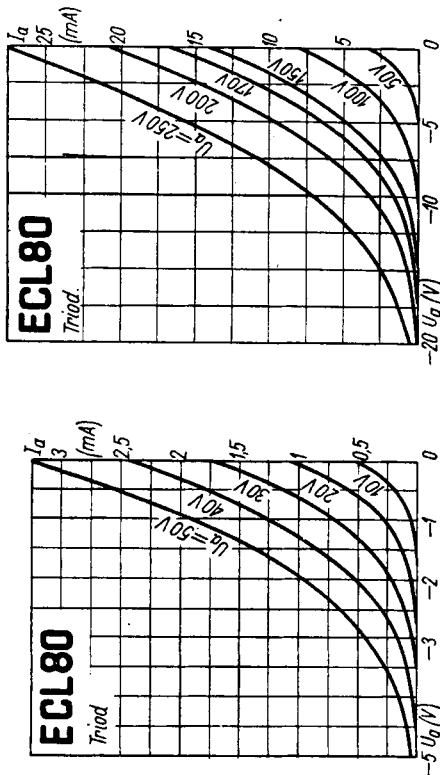
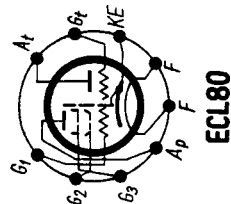
T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_m/g_i)	R_o k Ω	P_o W	$U_{g1 \sim}$ V	h %	$U_{f/k}$ V	$I_{f/k}$ mA	P_{ga} W	P_a W
ECL 80	eur	6.3	0.3	stat. triode.	100 200	170 200 250	0	0	8	2.8 3.3 2.6	maximum	11	20	11	1	3.7 4.1 5.3	10 10 10	150	8		1
				pent.	400	250	0	-12.2	14	2.6	maximum	200	(14)	17.5	1.55	5.3		150	25	1.2	3.5
				VD	-500 $\div$ +1200	250	0												350		

¹⁾ $U_{b/g2} = 250$ V, $R_{g2} = 4700 \Omega$

	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	$C_{g1/dP}$	$C_a T_{1dP}$	$C_g T_{1g1P}$	$C_a T_{1g1P}$	$C_a T_{1dP}$
	pF	pF	pF	pF	pF	pF	pF	pF	pF
triode.	2.1	0.8	0.9	0.05					
pent.	4.3	4.8	0.2	0.25	0.12	0.2	0.2	1.2	

Equivalents

LN 152	Eng
6 AB 8	amer
63 TP	Cos



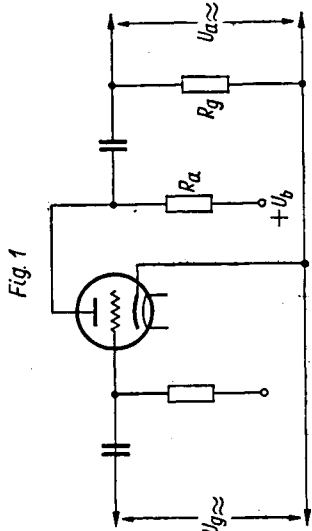
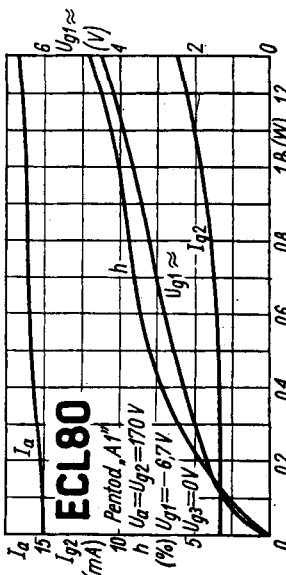
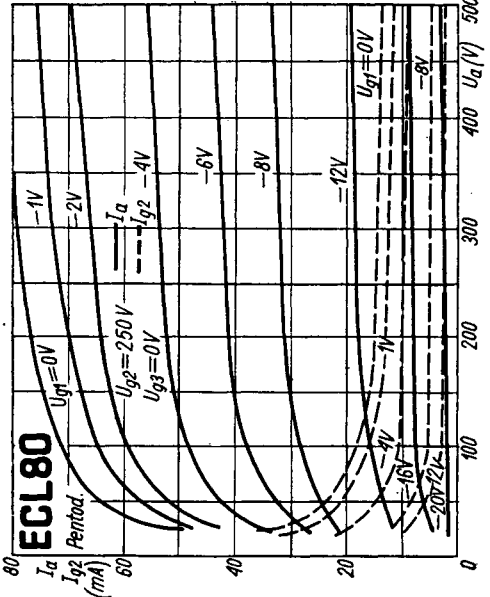
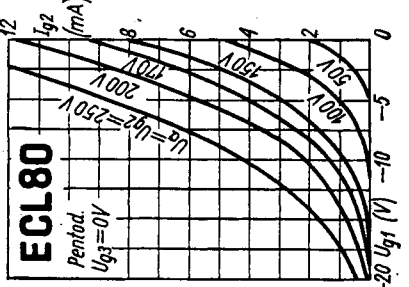
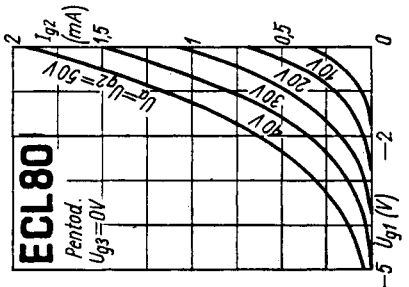
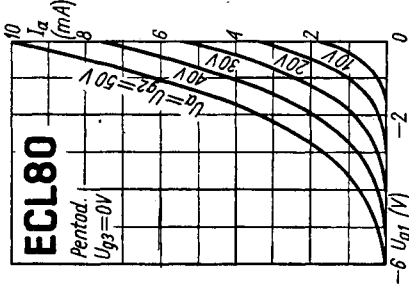
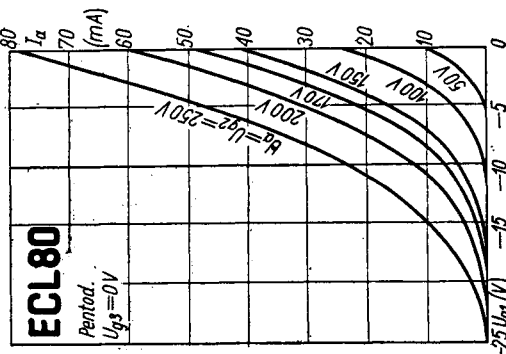
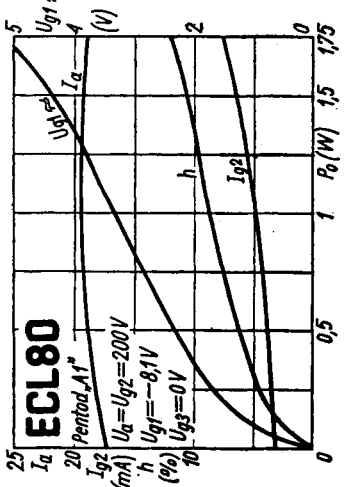
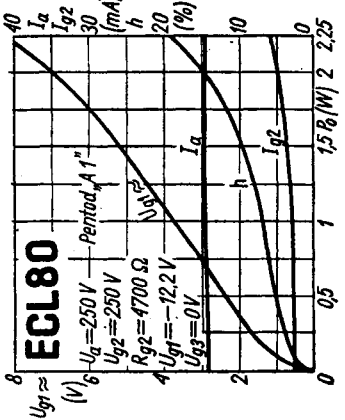


Fig. 1

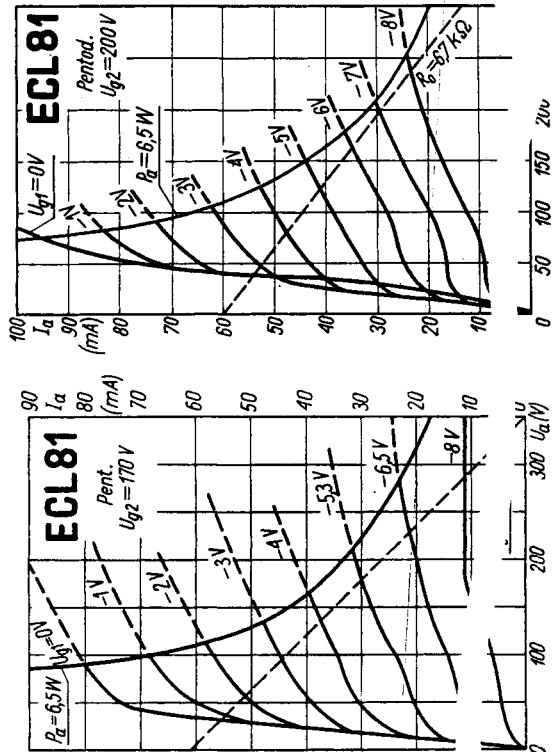
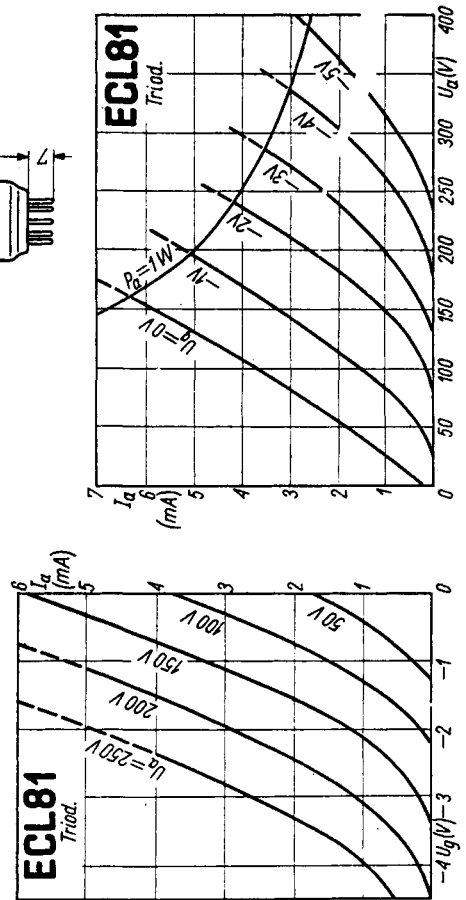
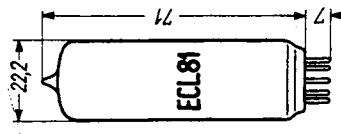
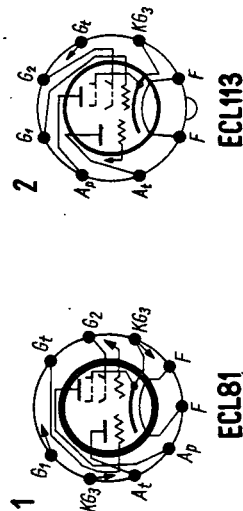
Fig. 1

U_b	U_g	R_g	I_a	μ	$U_{a^{max}}$	h
V	V	kΩ	mA	V/V	V	%
170	-3.5	150	1.8	9.5	22	8.7
170	-3.5	350	1	10	24	7.6
170	-3.5	680	0.5	11	24.5	6.5
200	-4.2	150	2.2	9.5	27	9
200	-4.2	330	1.2	10	29	8
200	-4.2	680	0.6	11	30	3.5
250	-5.5	150	1.5	9.5	36	9.2
250	-5.5	330	1.5	10	39	8.3
250	-5.5	680	0.75	11	40	7



T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t k Ω	μ (gm/gm)	$R_0(R_{a1}/a)$ k Ω	P_0 W	$U_{g1\sim}$ V	h %	U_{f1k} V	I_{fk} mA	P_{g2} W	P_a W
ECL 81	1		6,3	0,6	stat. triod.	150		-1,9	1,3		1,6	34	55						8		1
PCL 81	1		12,6	0,3	A	170	170	-5,3	30	5,3	8,75	22	(44)	5,7	2	3	10				
UCL 81	1		39	0,1	pent.	200	200	-7	30	5,3	8,75	22	(44)	6,7	2,4	3,7	10	75 ¹⁾	45	1,5	6,5
						250	250														
					stat. triod.	150		-1	2		1,6	35	56						8		1
					A	250	250	-3,5	25	3,5	8,5	40	33	12,5	2,25	2,1	10				
					pent.	250	250												40		6,5
					AB pent.	250	250		22,8-28,4	3,4-5,8				(20)	4	3,8	1,9	50	40	1	
					B pent.	250	250		13-30	1,9-5,8				(20)	4	3,4	3				
ECL 113	2	TH	6,3	0,6		250	250	-6,3													

¹⁾ PCL 81, UCL 81 — $U_{f1k} = 220$ V



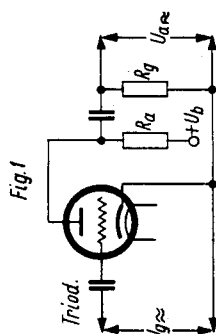
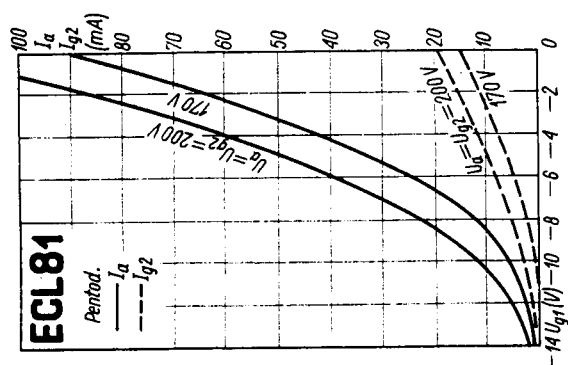
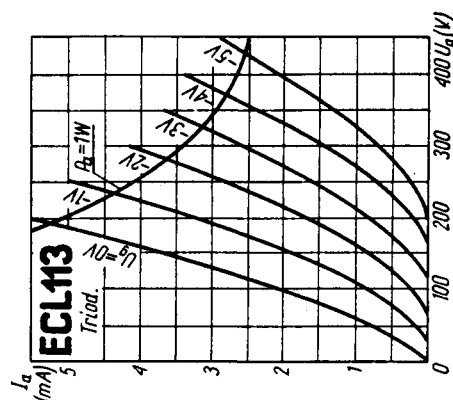
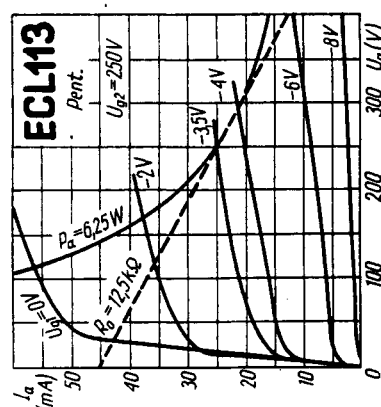
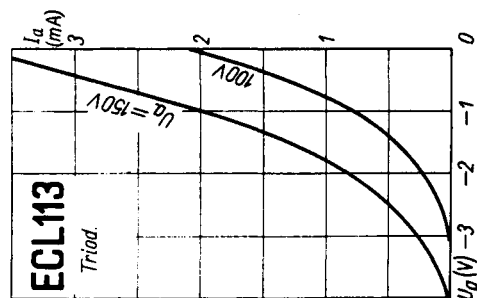
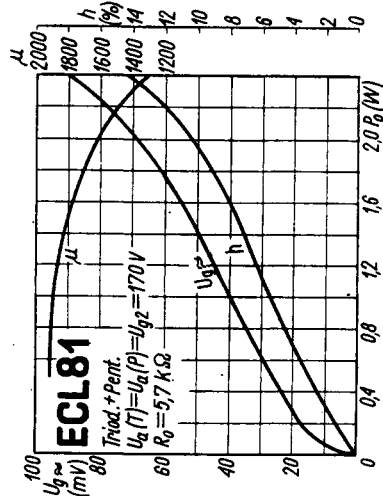
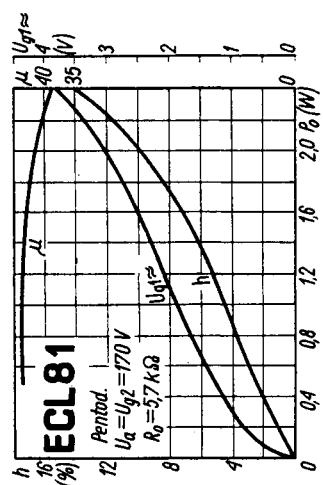
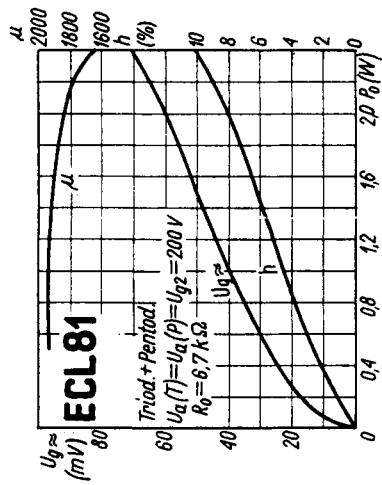
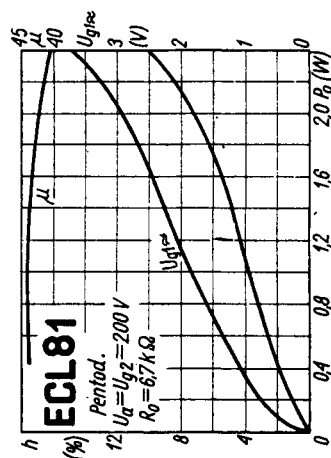
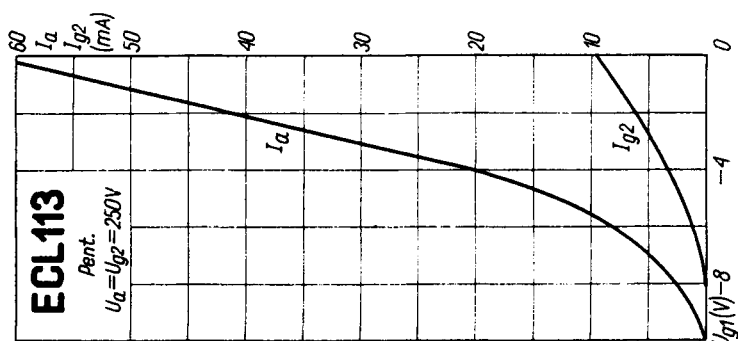


Fig. 1

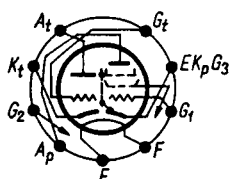
T.	U_b V	U_{g1} V	R_a kΩ	I_a mA	μ V/V
ECL 81	170	-1,5	100	0,65	41
	170	-1,5	200	0,35	43
	200	-1,5	100	0,8	41
	200	-1,5	200	0,5	43
ECL 113	250	-1,5	100	1,1	40
	250	-1,5	200	0,6	45



T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k
			V	A		V	V	V	mA	mA	mA/V	k Ω	V/V	Ω
PCL 800	Eds	1	16	0,3	triode. pent.	250 250	250		2 30	10	3,4 7,5	5,3	18	
6 GK 8	amer	1	6,3	0,75	triode.	200			10		3,4	5,5	18	
16 GK 8	amer	1	16	0,3	pent.	250	250		30	10	7,5			
6 GN 8	amer	2	6,3	0,75	triode.	250		-2	2		2,7	37	100	
8 GN 8	amer	2	8	0,6	pent.	200	150		25	5,5	11,5	60		100
6 HB 8	amer	3	6,3	0,9										
8 HB 8	amer	3	8	0,7										
18 HB 8	amer	3	18	0,3	triode.	115			2,5		3,9	19		410
30 HB 8	amer	3	30	0,2	pent.	115	115		33	10	6,25			150
35 HB 8	amer	3	35	0,15										
6 HC 8	amer	1	6,3	1,2	triode.	250		-3	1,4		2	34	68	
17 HC 8	amer	1	17	0,44	pent.	250	250	-18	38	3	5,1	55		
6 HF 8	amer	2	6,3	0,75	triode.	200		-2	4		4	17,5	70	
8 HF 8	amer	2	8	0,6	pent.	200	125		25	7	12,5	75		68
10 HF 8	amer	2	10,5	0,45										
6 HZ 8	amer	2	6,3	1,25	triode.	200		-2	3,5		4	17,5	70	
8 HZ 8	amer	2	8	1	pent.	250	170		29	6	12,6	140		100
6 JE 8	amer	2	6,3	0,78	triode.	200		-2	4,5		4,2	16,6	70	
8 JE 8	amer	2	8,2	0,6	pent.	250	170		22	4	12	140		82
11 JE 8	amer	2	10,9	0,45										
6 JV 8	amer	2	6,3	0,6	triode. pent.	200 125		-2 -1	4 22		4 11,5	17,5 100	70	
7716	Hyt	2	13,6	0,35	triode. pent.	125 200	125	-1 -1	1,5 24		2,9 10	35 70	102	68

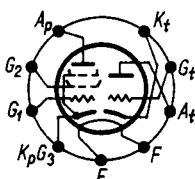


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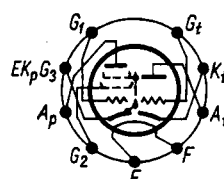
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2

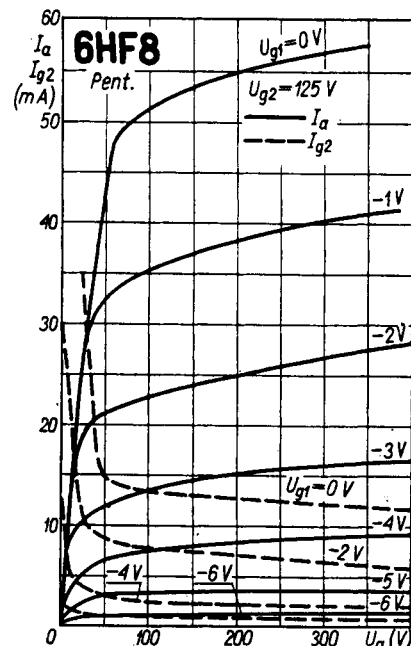
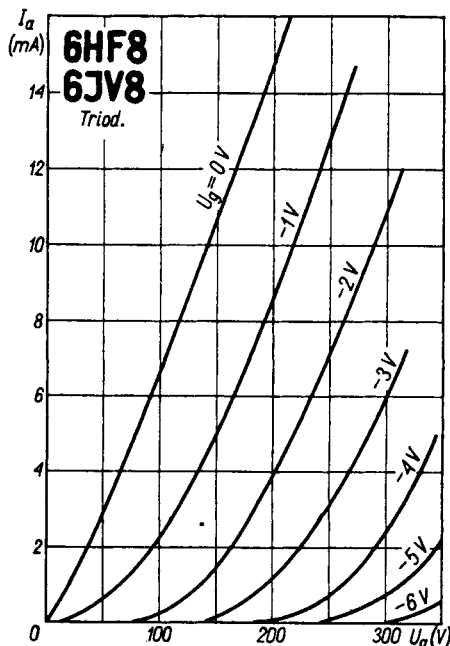
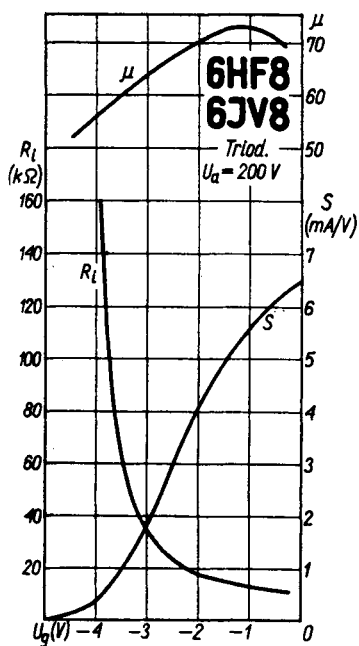


6GN8

3



6HB8

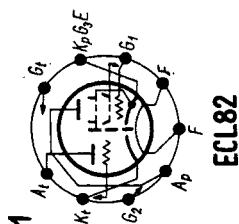


T.		U_f V	I_f A	Cl.	U_a V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_{m1})	R_k Ω	$R_0(R_{a1/d})$ k Ω	P_0 W	$U_{g1 \approx}$ V	h %	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
ECL 82	eur			stat.	100	0	3,3		2,5	28	70									
PCL 82	eur			triad.	300				maximum ECL 82/XCL 82											
UCL 82	eur	6,3	0,78	A	170	-6	26	5	6,8	15	(10)	230	3,9	1,05	3,8	10	100	15		
XCL 82	eur	16	0,3	pent.	200	-11,5	41	8	7,5	16	(9,5)	230	3,9	3,3	6	10	200	15		
YCL 82	eur	50	0,1		200	-12,5	35	6,5	6,8	20,5	(9,5)	380	5,6	3,4	5,8	10				
32 A 8	Phl	8,2	0,6		250	-16	35	7	6,4	20	(9,5)	680	9	3,4	6,6	10				
	Phl	10,8	0,45	AB	100	-22,5	40-45	8-14				150	(5)	2,3	6,2	4				
	amer	32	0,15	pent.	170		66-74	12,4-30				135	(5)	7	9	4				
					200		70-76	12-33				165	(5)	9	10,9	4,8				
				stat.	250		43-55	84-18,4				390	(10)	9	19	5				
				pent.	300															

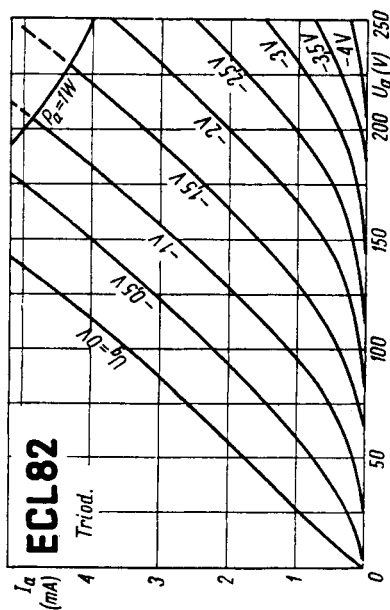
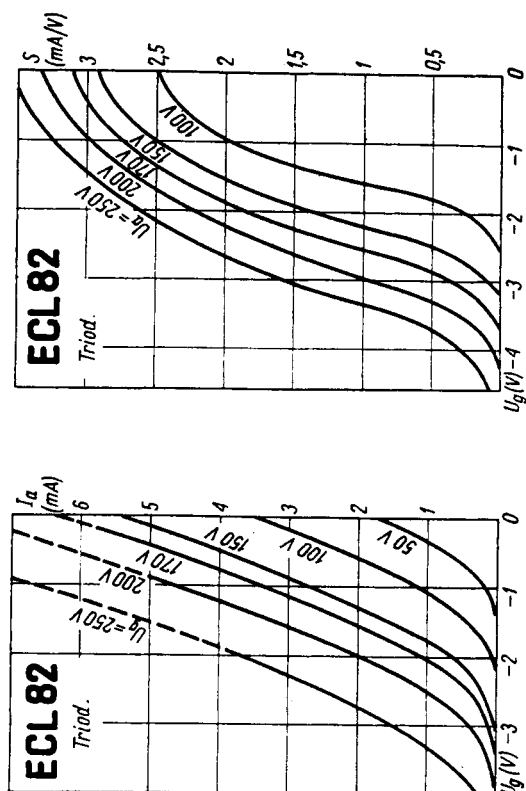
¹⁾ $U_{b/g2} = 250$ V; $R_{g2} = 2200 \Omega$; ²⁾ $U_{b/g2} = 250$ V; $R_{g2} = 2700 \Omega$

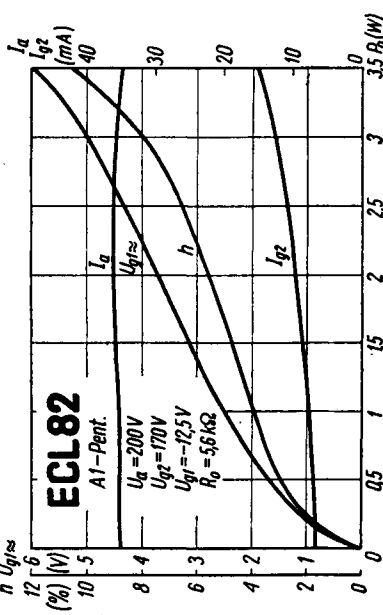
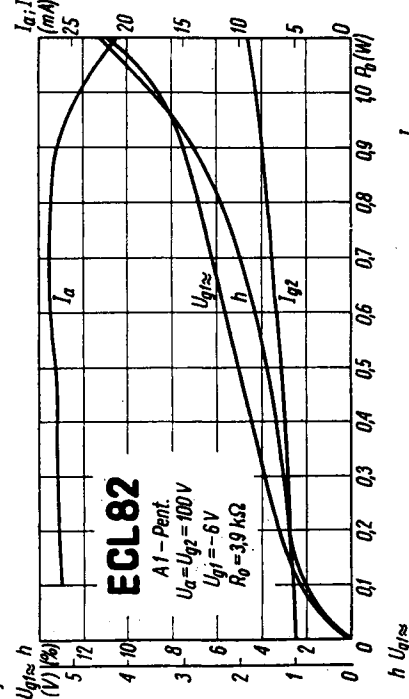
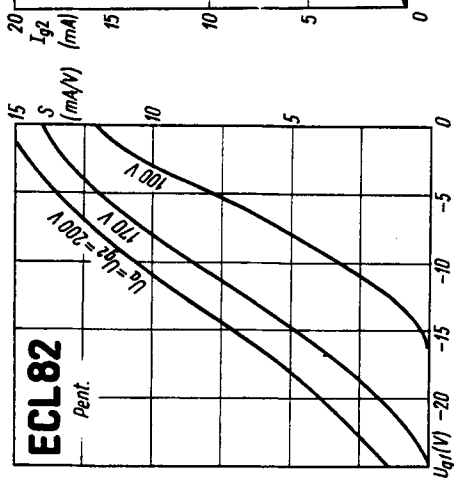
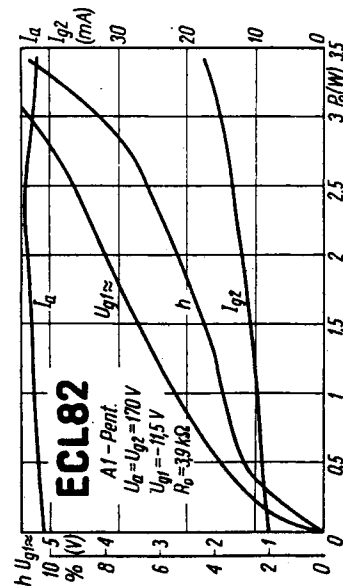
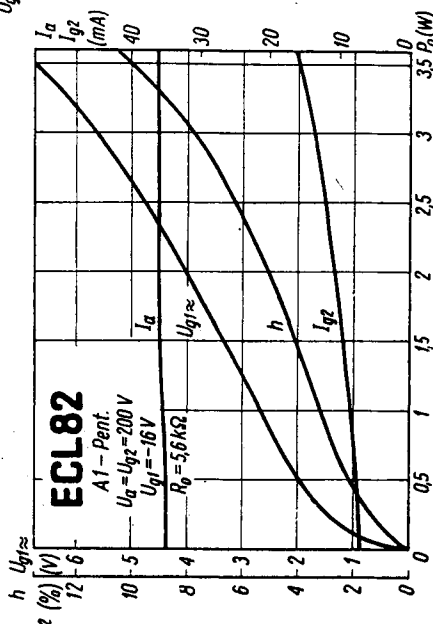
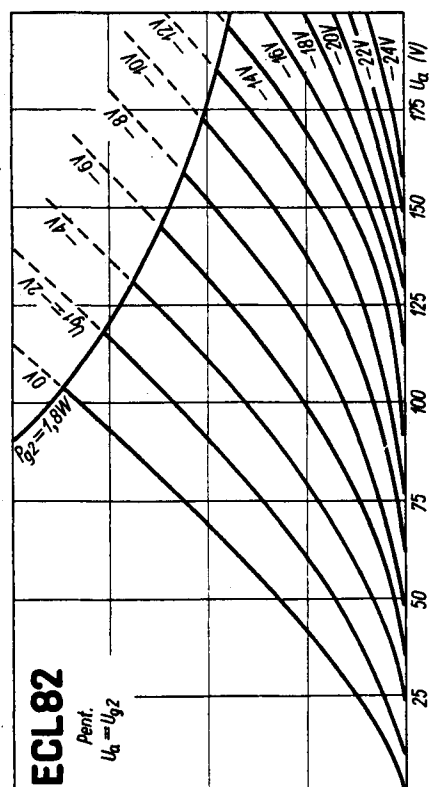
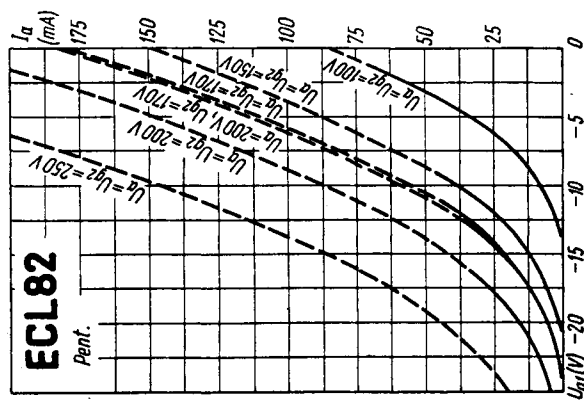
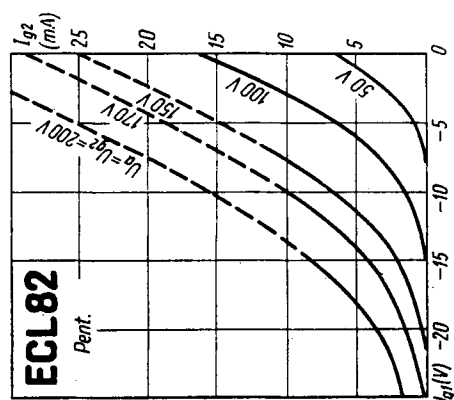
Equivalents

LN 119	Eng = UCL 82	10 PL 12	Eds = UCL 82
LN 369	Eng = PCL 82	16 A 8	amer = PCL 82
6 BM 8	amer = ECL 82	48 A 8	amer = UCL 82
8 B 8	amer = XCL 82	50 BM 8	amer = UCL 82
10 DB 8	amer = YCL 82		



ECL82





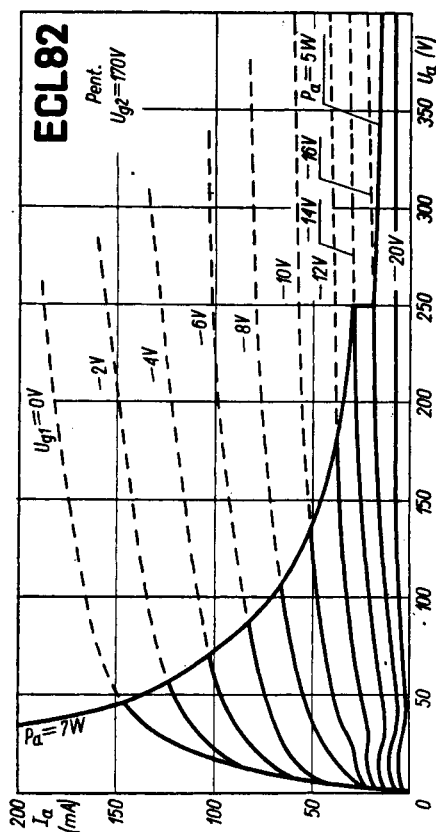


Fig.1
ECL82 - "AB"

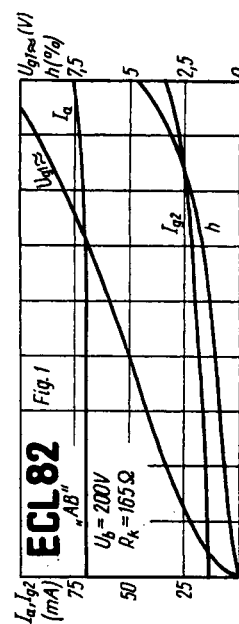
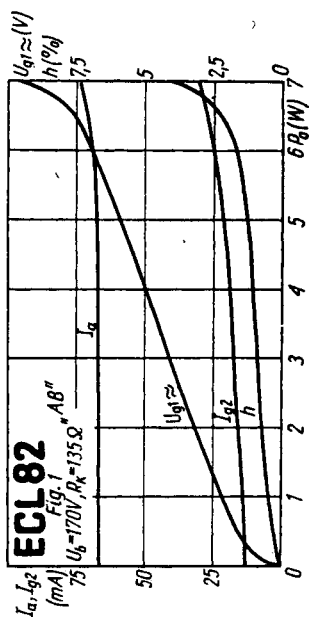
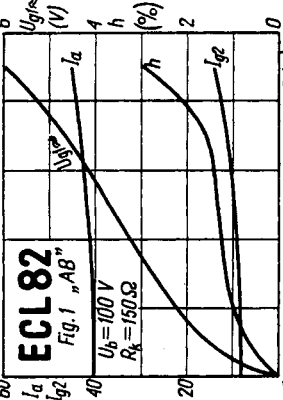
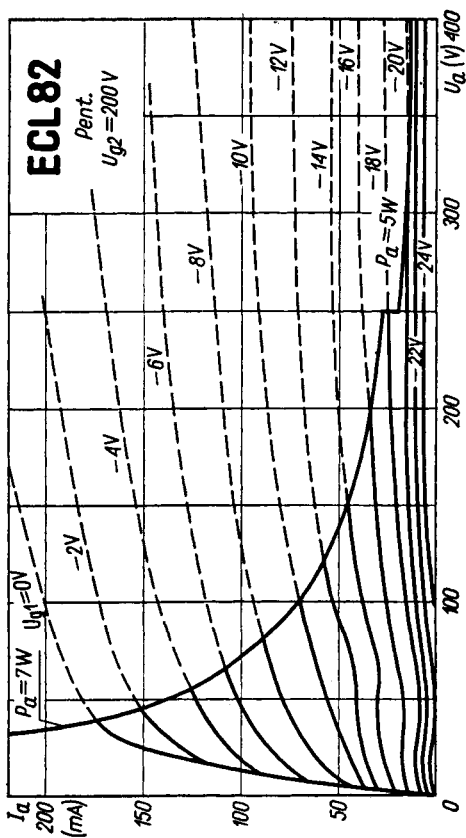
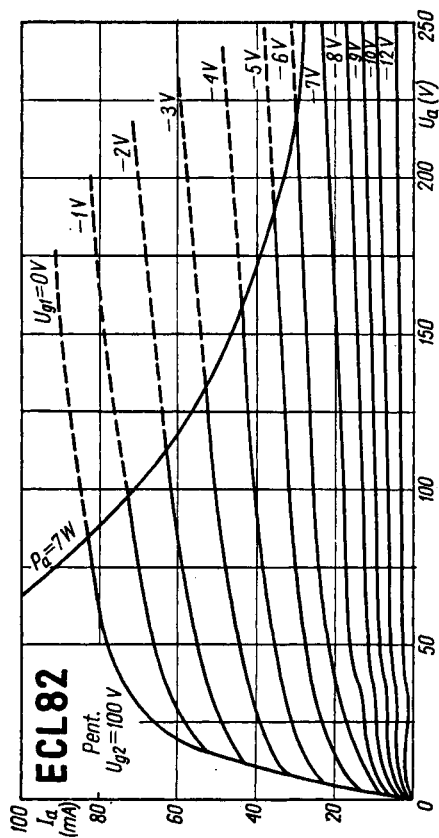
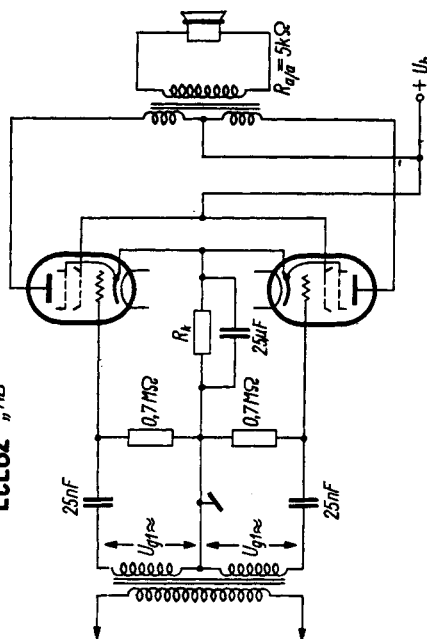


Fig. 2

U_b	R_a	R	R_k	I_a	$U_{a\sim}$	μ	h
V	k Ω	M Ω	k Ω	mA	V	V/V	%
100	100	3	1,8	0,38	11	42	2,8
100	220	3	2,7	0,23	15	47	4,0
170	100	3	1,8	0,67	25	46	2,8
170	220	3	2,7	0,43	25	51	2,3
200	100	3	1,5	0,84	30	47	2,3
200	220	3	2,2	0,52	26	52	1,5
100	100	22	0	0,37	8	42	1,3
100	220	22	0	0,22	9	46	1,5
170	100	22	0	0,86	19	49	1,4
170	220	22	0	0,5	20	53	1,4
200	100	22	0	1,05	24	50	1,5
200	220	22	0	0,61	25	55	1,4

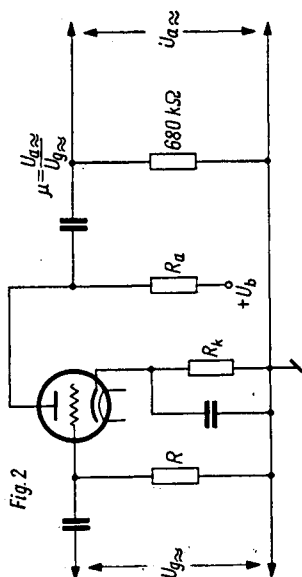
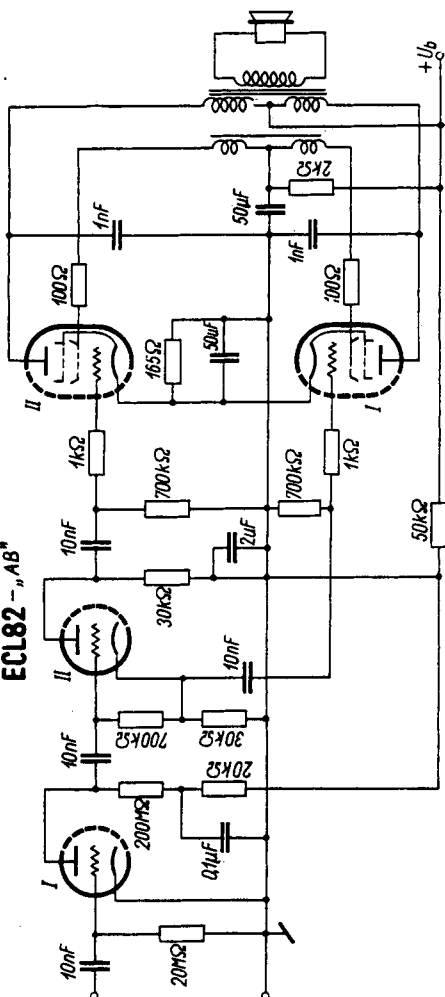
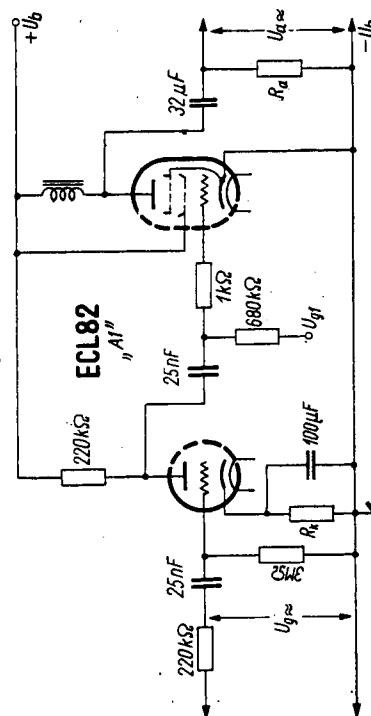
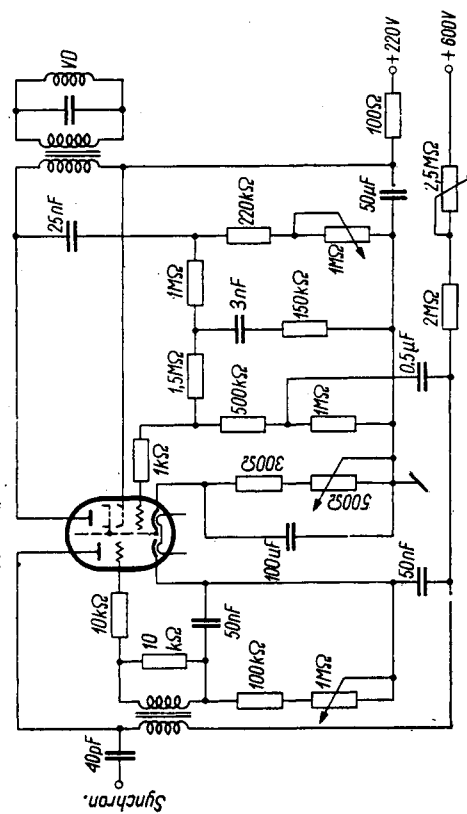
Fig. 3
ECL82 "AB"

Fig. 4

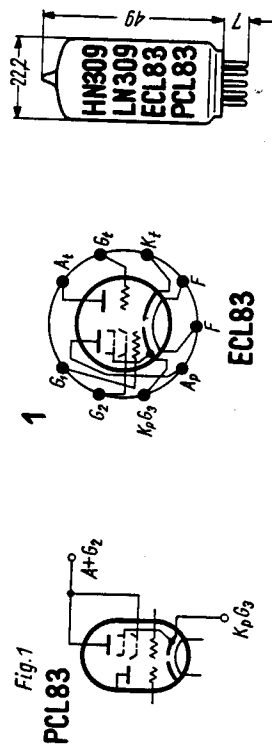
Fig. 5
ECL82 "VD"

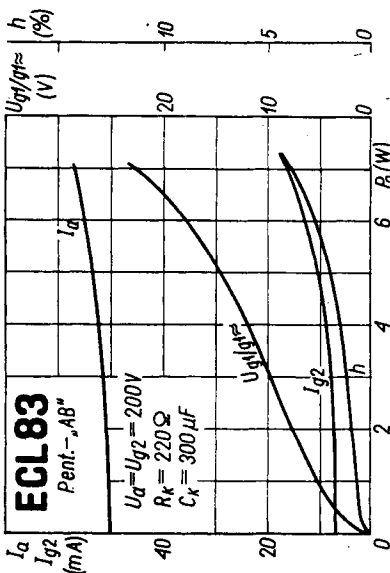
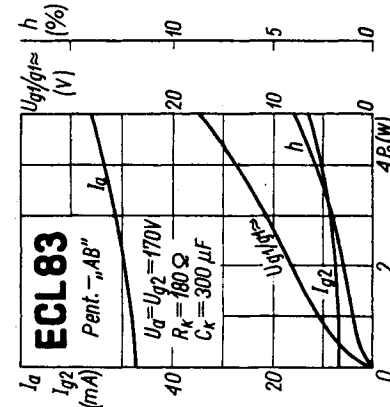
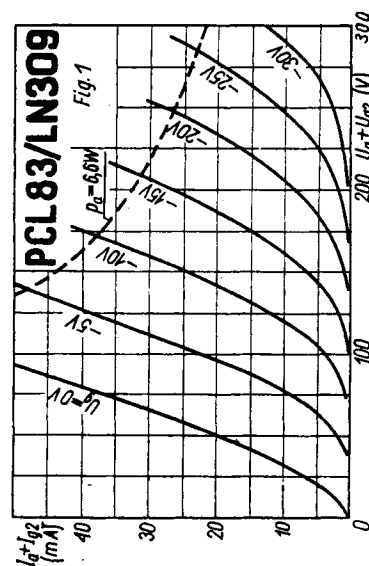
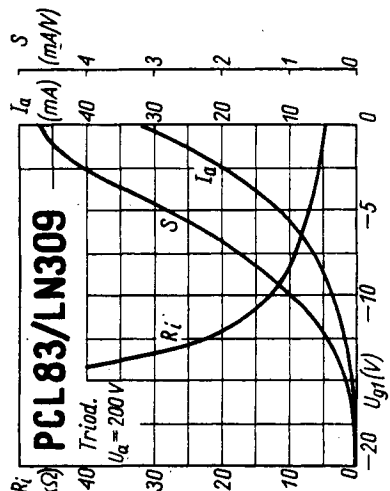
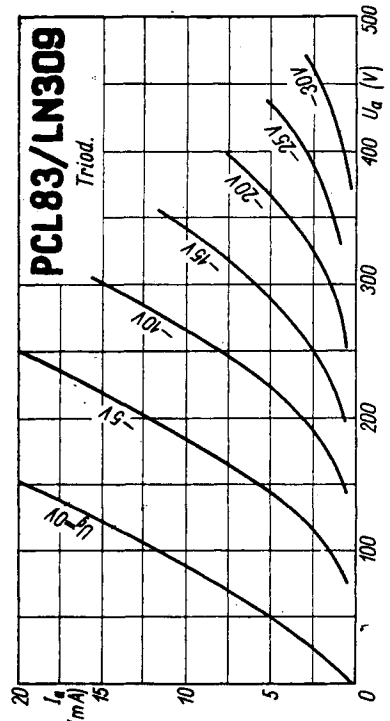
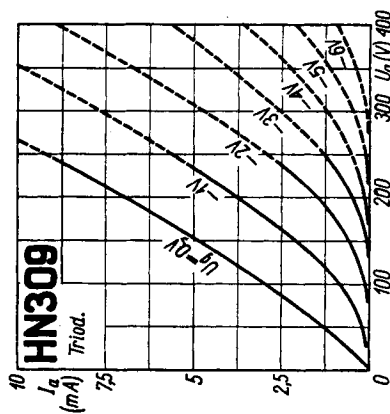
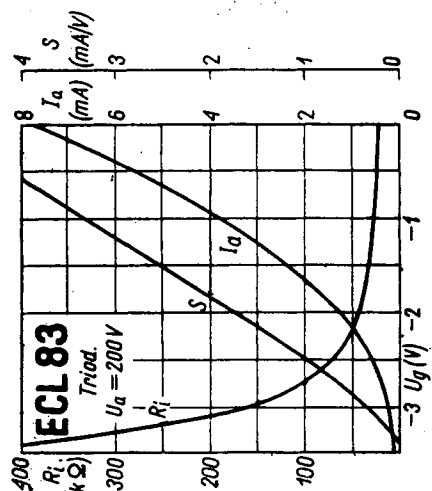
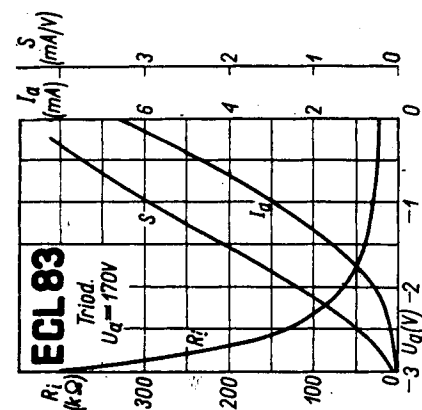
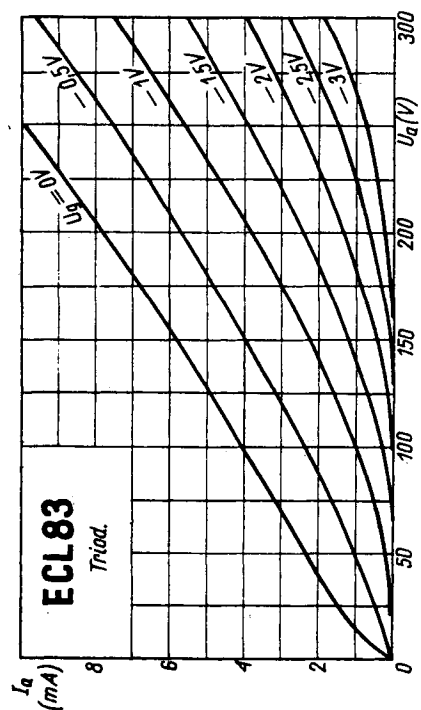
T.			U_f	I_f	Cl.	U_d	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	$R_0(R_{ajal})$	P_0	$U_{g1 \approx}$	h	U_{f-k+}	I_k	$P_{ga.}$	P_d
			V	A		V	V	V	mA	mA	mA/V	k Ω	(g_{s1g})	Ω	k Ω	W	V	%	V	mA	W	W
ECL 83	Mul	I	6,3	0,6	{stat.	170		-1,5	1,6		2,1	40	82									
UCL 83	Mul	I	38	0,1	{triode.	200		-1,5	2,4		2,5	34	85							15		3,5
PCL 83	Mul	I	12,6	0,3	{stat.	250		-8,5	10,5		2,2	7,7	17									
					{triode.	250						maximum										
ECL 83					{stat.	170	170	-9,5	30	5	5,5	53	(10)									3,5
PCL 83					{pent.	200	200	-13	27	4,4	5	65	(10)									3,5
UCL 83					{stat.	250	250					maximum										
					A	170	170	-9,5	30	5				270	5,5	2,2	5	10				5,4
					{pent.	200	200	-13	27	4,4				410	7,5	2,5	5,2	10,5				
					AB	170	170		48-55	7,6-12,5				180	(6,5)	5	8,5	3,6				
					{pent.	200	200		50-58	7,8-17				220	(7,5)	7,2	11,8	4,2				
HN 309	Eng	I	12,6	0,3	{stat.	250	250	-2	3,5		2,2	31	68									3,5
					{triode.	250						maximum										
					{stat.	250	250	-8,5			2,2	7,7	17									3,5
LN 309	Eng	I	12,6	0,3	{triode.	250								maximum								3,5
					{stat.	165	165	-9			5,6	1,7	9,5									6,6
					{Fig. 1	250								maximum								
					{stat.	165	165	-9	30	5	4,7	45	(9)									5,4
					{pent.	250	250						maximum									
HN 309					A	100	100	-5	20	3				220	5	0,8	4	10				1,2
LN 309					{pent.	165	165	-8,4	32	6				220	6	2,1	6,5	10				
					AB	165	165		46-56	6-12				220	(6)	5,2	14	2,3				
					{pent.	200	160	-11,5	46-54	6-11				220	(6)	5,4	13,5	2,6				

Equivalents

LN 329 Eng = PCL 83

T.	$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{g1/f}$	$C_{aT/g1P}$	$C_{aT/dP}$	$C_{gT/g1P}$	$C_{gT/dP}$
	pF	pF	pF	pF	pF	pF	pF	pF
ECL 83	2,3	0,32	1,6	0,4	0,1	1,6	0,03	0,05
UCL 83	5,7	4,7	0,2	0,4				
PCL 83	2	0,35	1,6	0,1				
	5,7	4,7	0,2	0,4				
HN 309	1,7	0,3	1,5		0,2	1,9	0,03	0,02
	6	6,9	0,2					
LN 309	1,7	0,3	1,5		0,12	1,9	0,03	0,05
	6	6,9	0,2					





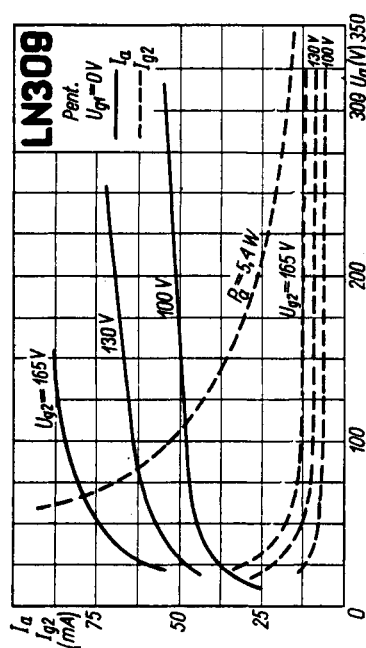
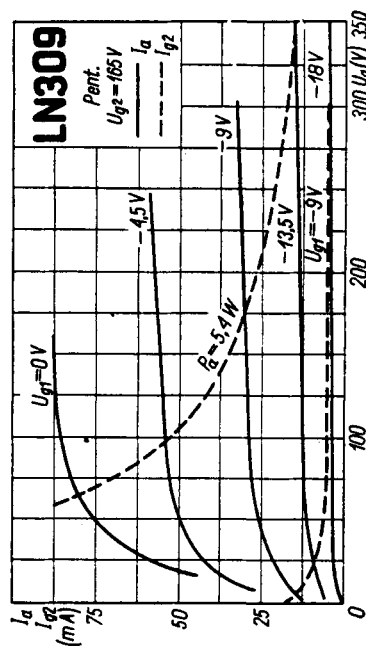
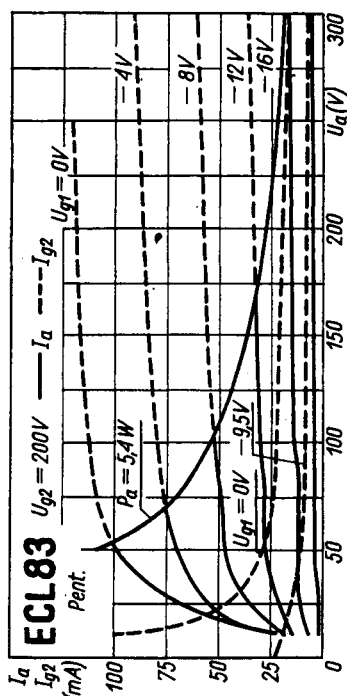
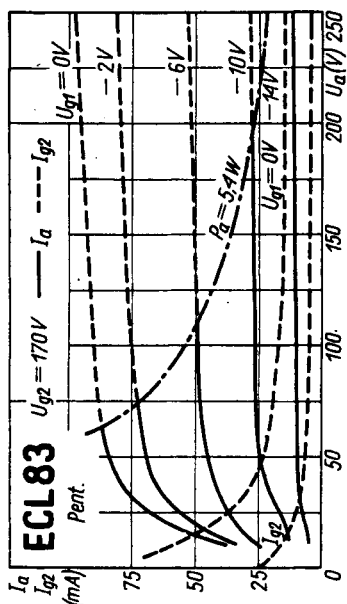
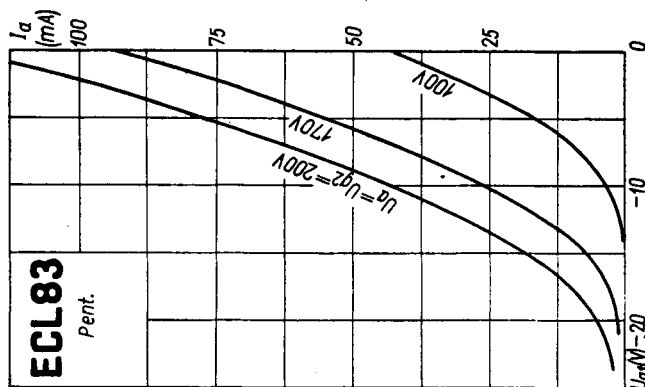
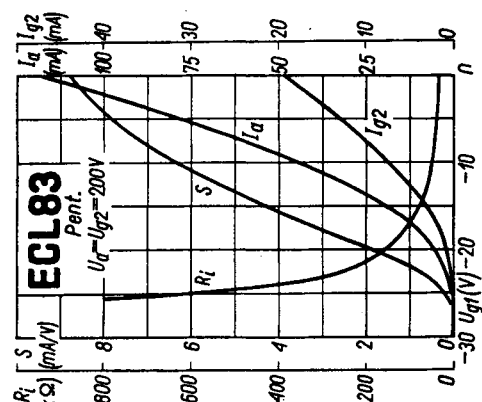
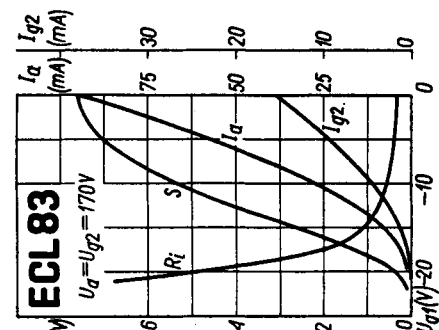
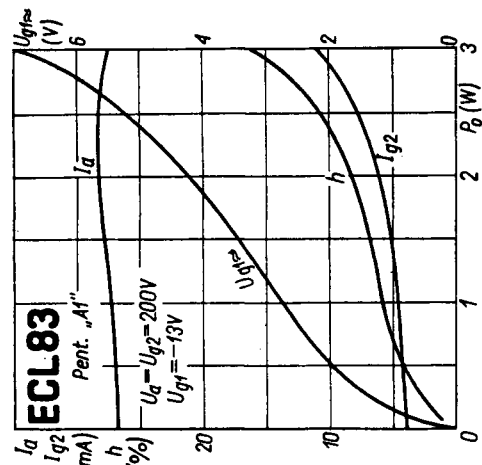
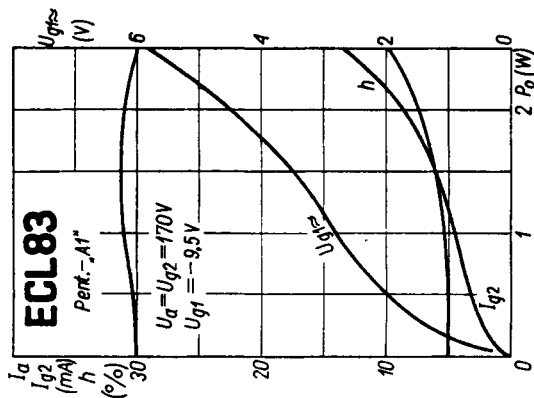
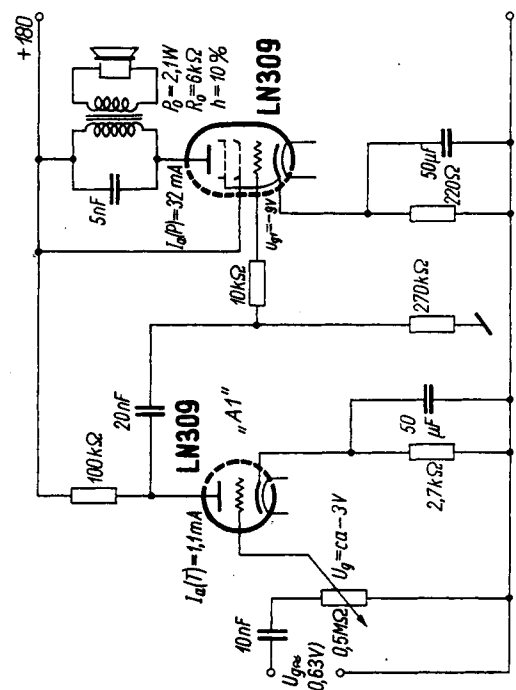
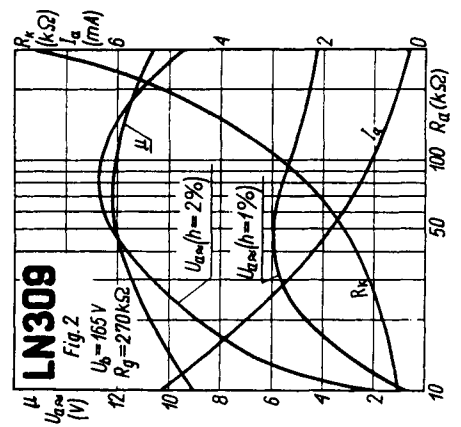
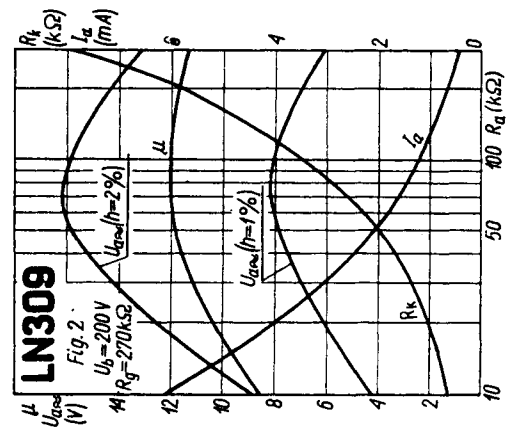
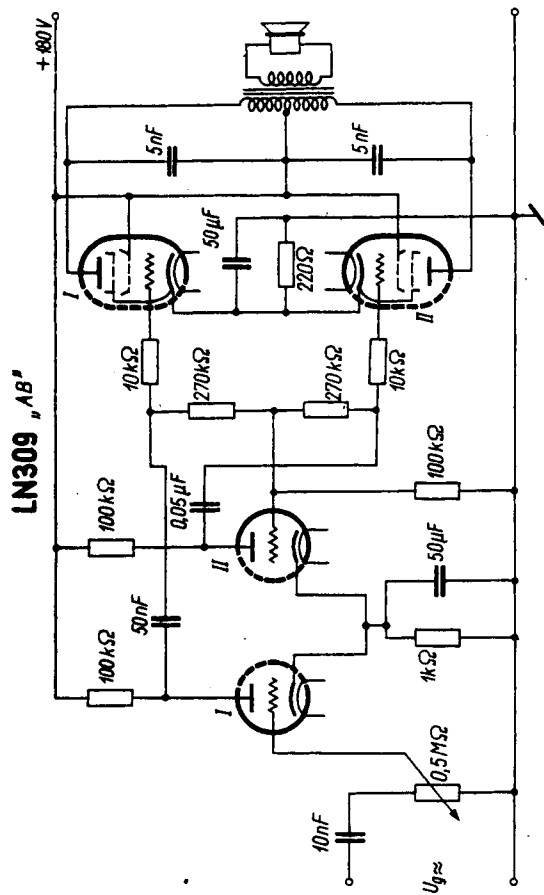
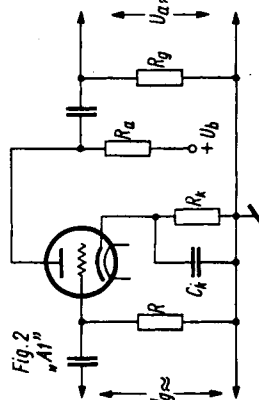


Fig. 2

T.	U_b V	R_a k Ω	R_k k Ω	R_g k Ω	I_a mA	$U_{a\approx}$ V	μ V/V	h %
ECL 83	170	100	1.8	330	0.65	15.3	49	5
UCL 83	200	100	2.2	330	0.72	17.7	47	5
PCL 83	170	100	2.7	330	1.07	21	14	5
	200	100	3.3	330	1.17	26.5	13.5	5
	165	150	2.2		0.55	10.2	55	2
HN 309	200	150	2.2		0.7	11.4	50	2
	250	150	2.2		0.7	16.6	45	2
	165	100	2.7	270	1.1	12.5	12	2
LN 309	200	200	3.3	270	1.3	16	12	2



T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_t	μ	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	($g_{s1/g1}$)	V	mA	W	W
84	eur	I	6,3	0,71	stat. triode.	200		-1,7	3	maximum	4	16,2	65	150	12		1
84	eur	I	15	0,3		250											
84	eur	I	45	0,1	stat. pent.	170	170	-2,1	18	3	11	100	(36)	200	40	1,7	4
84	Phi	I	7,5	0,6		200	200	-2,9	18	3	10,4	130	(36)				
84	Phi	I	10	0,45	A pent. video	220	220	-3,4	18	3	10	150	(36)				
84	Phi	I				250	250			maximum							
						<170'	170	-2	18	3,2	10,4						
						<200'	200	-2,8	18	3,1	10						
						<220'	220	-3,3	18	3,1	9,7						

Equivalents

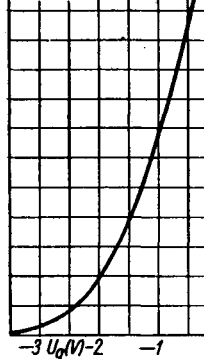
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X 8	amer = ECL 84	15 DX 8	amer = PCL 84
Q 8	amer = XCL 84	45 DQ 8	amer = UCL 84
X 8	amer = XCL 84	45 DX 8	amer = UCL 84
X 8	amer = YCL 84		

	$C_{g1/k}$	$C_{a/k}$	$C_{g1/a}$	$C_{g1/f}$	$C_{aT/g1P}$	$C_{gT/g1P}$
	pF	pF	pF	pF	pF	pF
triode.	3,8	2,3	2,7	0,1	0,01	0,01
pent.	8,7	4,2	0,1	0,1	0,01	0,01

¹⁾ $U_{b/a} = U_{g2}$; $R_a = 3000 \Omega$

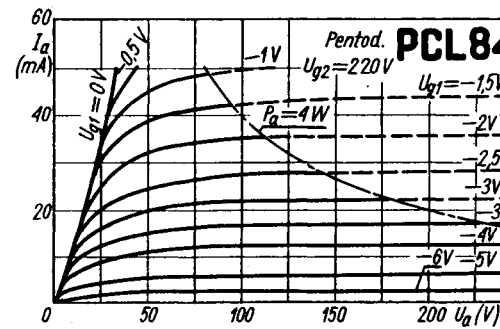
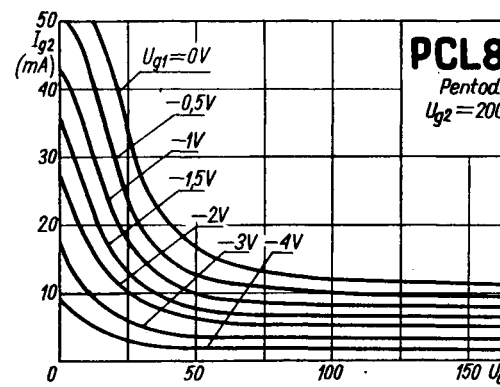
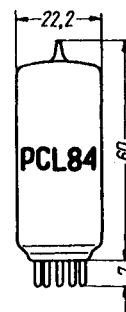
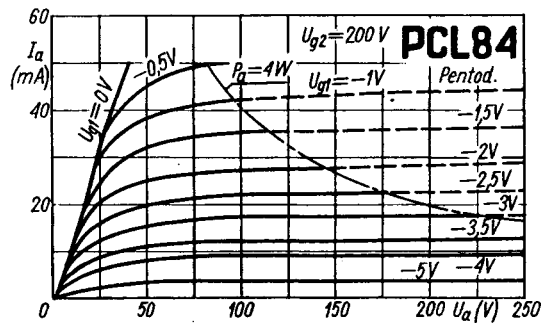
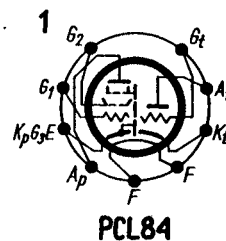
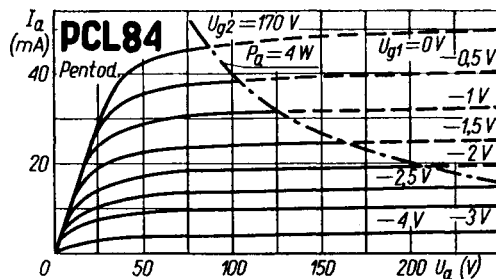
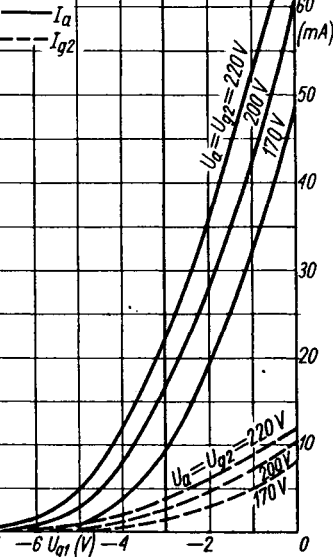
PCL84

Triode.
 $U_a = 200 V$



PCL84

Pentod.

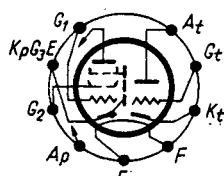
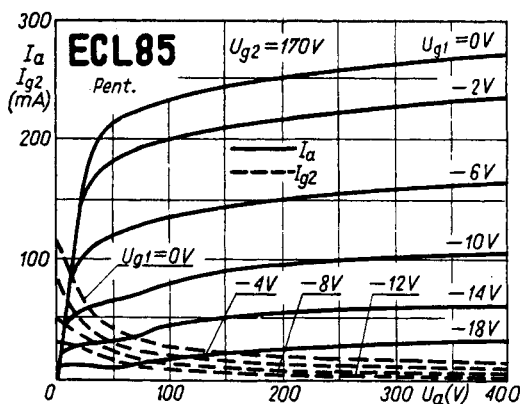
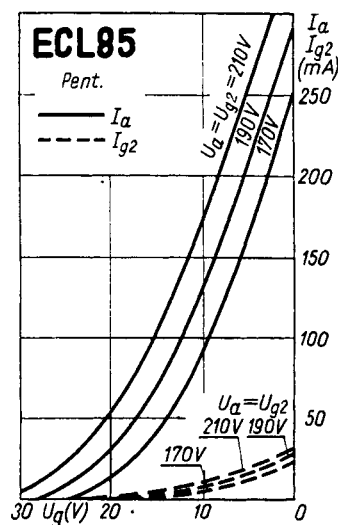
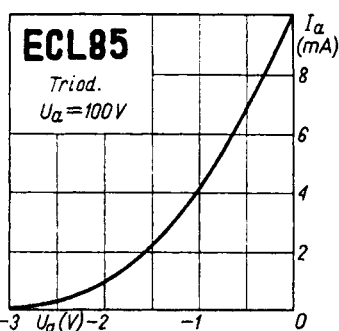
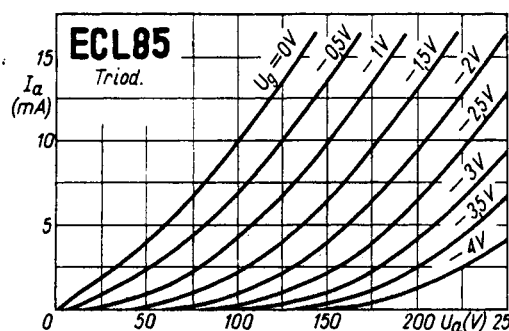


T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	U_f/k	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	V/V	V	mA	W	W
ECL 85	eur	I	6,3	0,9	stat. criod.	100 250		0	10		5,5 maximum	9	50	200	15		0,5
PCL 85	eur	I	18	0,3	stat. pent. pent. imp.	250 50 65	250 170 210	—1 —1	200 285	35 45	impulse 0,2÷0,8 msec			200	75	1,5	7

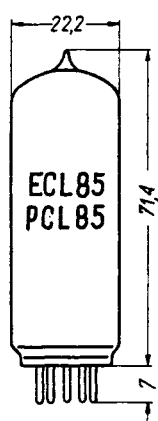
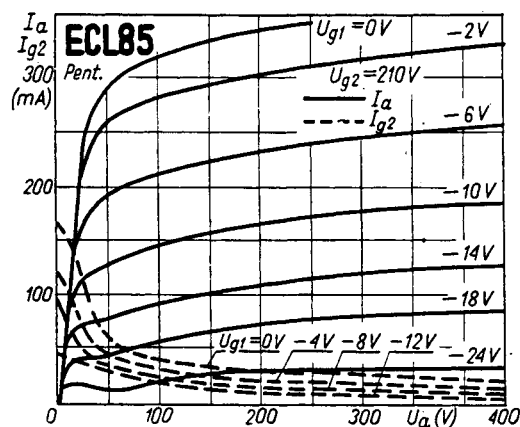
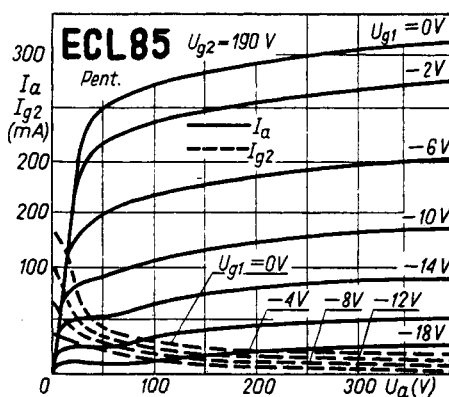
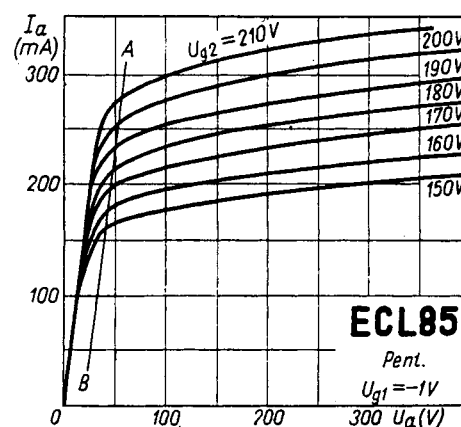
Equivalents

6 GV 8	amer = ECL 85
18 GV 8	amer = PCL 85

$C_{gT/aP}$	$C_{gT/f}$	$C_{g1P/aP}$	$C_{g1P/aT}$	$C_{g1P/f}$
pF	pF	pF	pF	pF
0,03	0,12	0,6	0,08	0,2



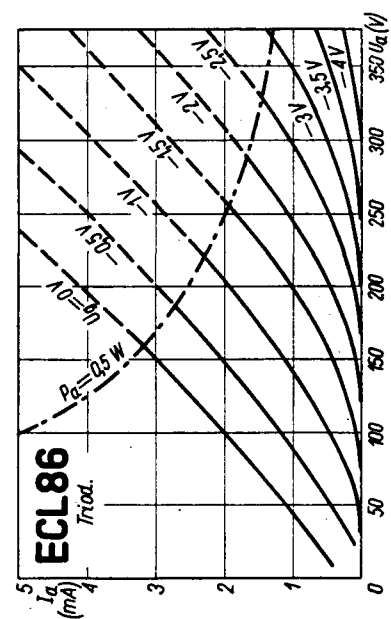
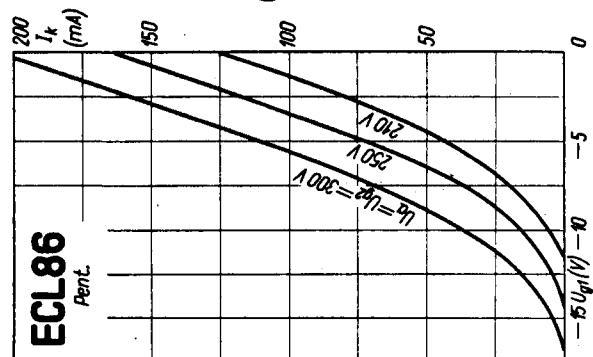
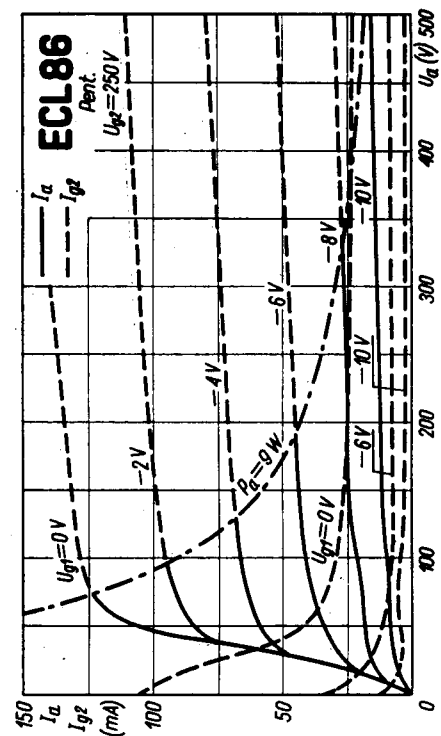
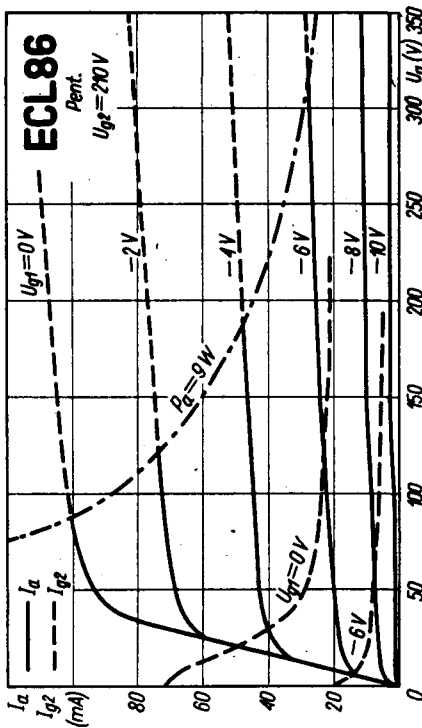
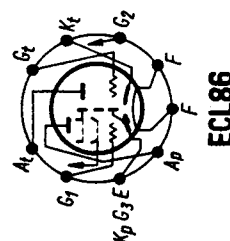
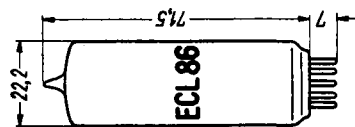
ECL85

ECL85
PCL85

ECL85

T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_{g2} mA	S mA/V	R_i k Ω	μ (g_m/g_s)	R_k Ω	$R_{d1}(R_{d1}/a)$ k Ω	P_o W	$U_{g1 \approx}$ V	h %	U_{flk} V	I_k mA	P_a W
ECL 86	eur	—	6,3	0,7	stat.	250	—	—1,9	1,2	1,6	62	100	—	—	—	—	—	100	4	0,5
XCL 86	eur	—	7,2	0,6	stat.	300	250	—	—	—	49	maximum	—	—	—	—	—	100	—	—
YCL 86	eur	—	10	0,45	stat.	250	300	—	—	—	—	(21)	—	—	—	—	—	100	—	—
6 GW 8	amer	—	6,3	0,7	pent.	300	210	—5,3	36	5,6	130	7	7	4	4	3,1	10	—	—	—
7 GW 8	amer	—	7,2	0,6	A	250	250	—8,1	26	4,4	270	10	10	2,8	2,7	10	—	—	—	—
8 GW 8	amer	—	8	0,55	pent.	250	250	—7	36	6	170	7	7	4	3,2	10	—	—	—	—
10 GW 8	amer	—	10	0,45	AB	250	250	—	70÷75,6	11,2÷18	180	(8)	(8)	10	5,1	4,5	—	—	—	—
ECL 86	eur	—	6,3	0,7	pent.	300	300	—	62÷74	10÷21,2	290	(9)	(9)	14,3	8,7	5	—	—	—	—

	$C_{g1/k}$	$C_{a1/k}$	$C_{g1/a}$	$C_{g1/f}$	$C_{gT/aP}$	$C_{aT/g1P}$	$C_{gT/g1P}$	$C_{aT/aP}$
triad.	pF	pF	pF	pF	pF	pF	pF	pF
pent.	2,1	2,5	1,6	0,006	0,2	0,006	0,02	0,15
	10	9,5	0,4	0,2	0,006	0,02	0,15	



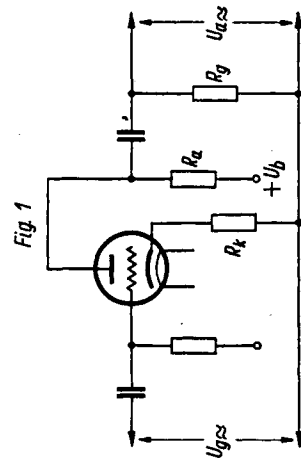
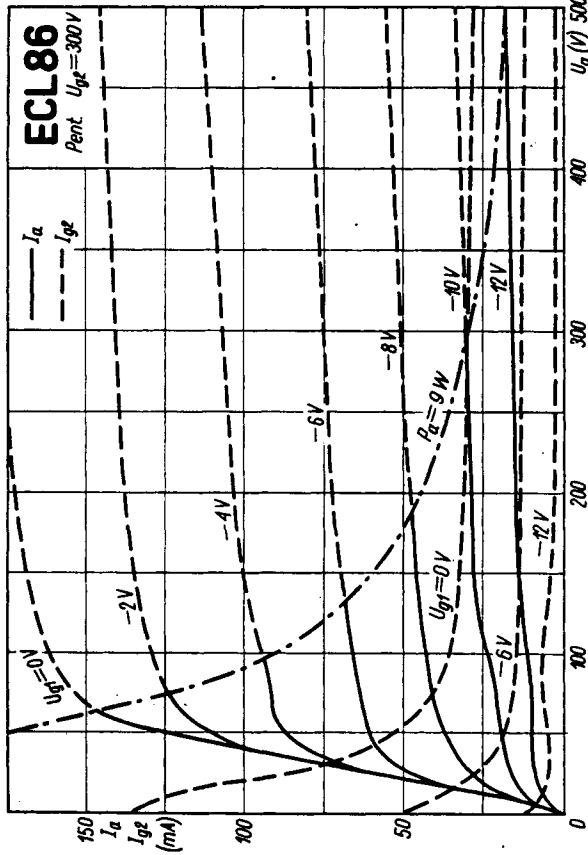
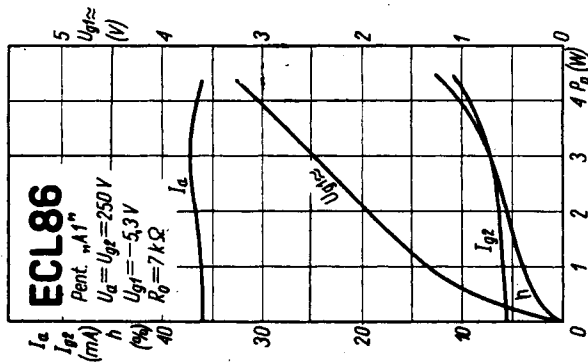
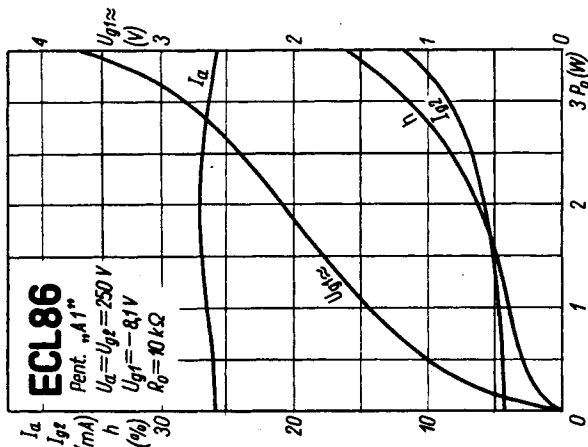
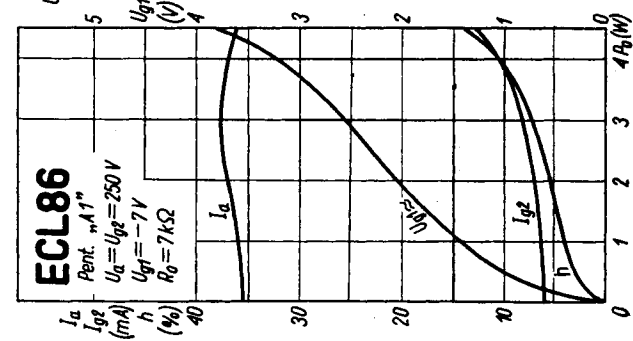
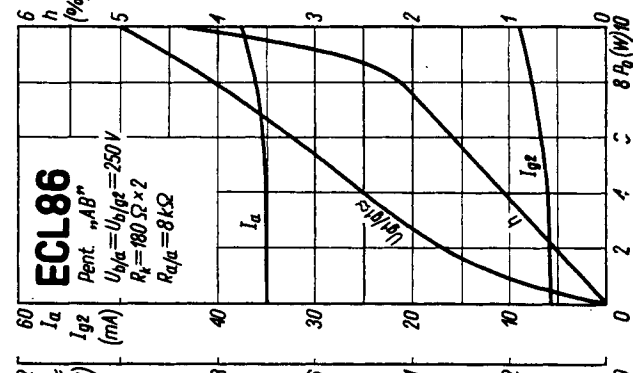
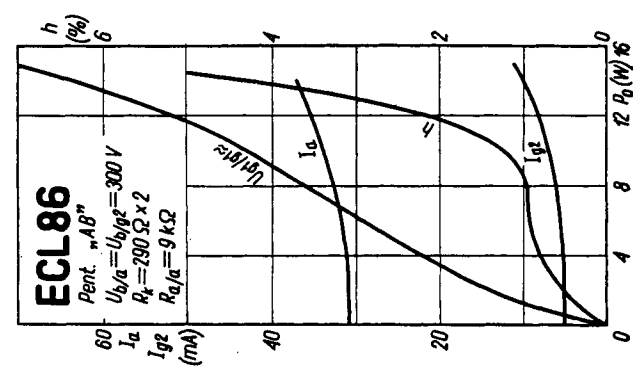


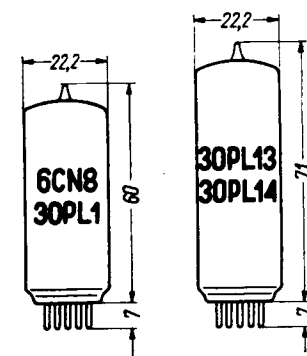
Fig. 1

U_b	R_a	R_k	R_g	I_a	U_{g2}	μ	h
V	k Ω	k Ω	k Ω	mA	V	V/V	%
250	47	2.2	150	0.9	12.5	36	5
300	47	1.5	150	1.3	22	40	5
250	100	3.3	330	0.6	18.5	50	5
300	100	2.2	330	0.88	32.5	55	5
250	220	4.7	680	0.38	27	62	5
300	220	3.9	680	0.5	38.5	65	5

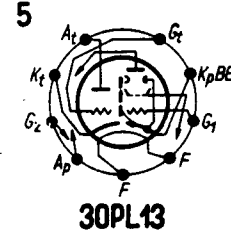
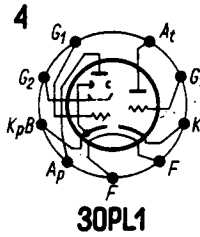
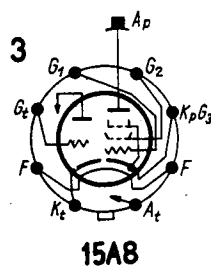
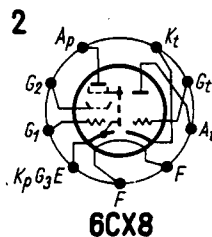
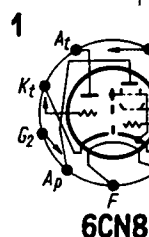


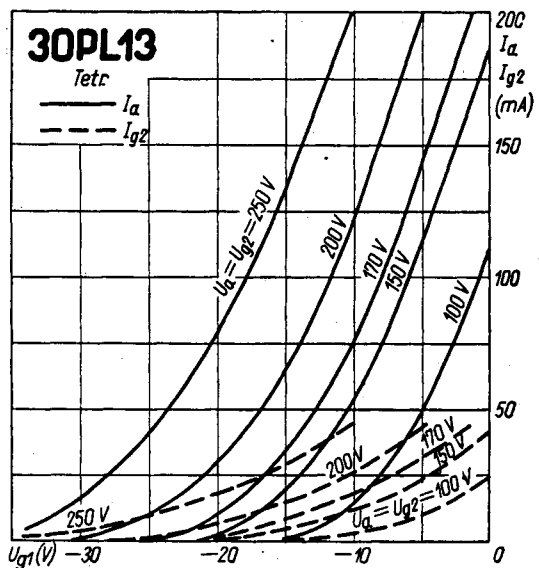
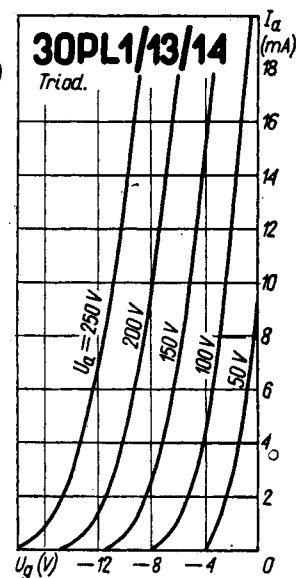
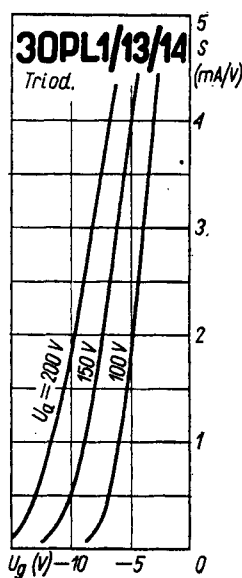
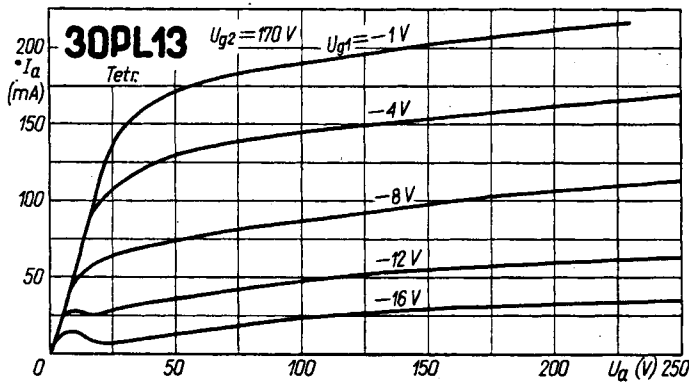
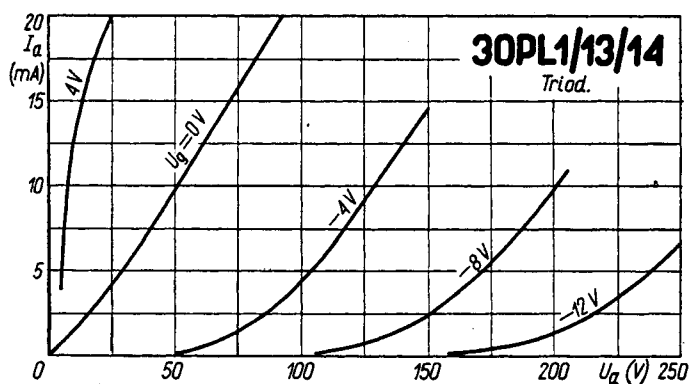
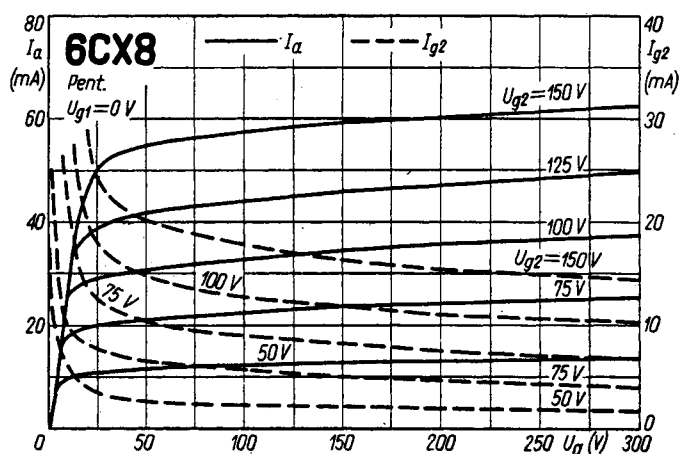
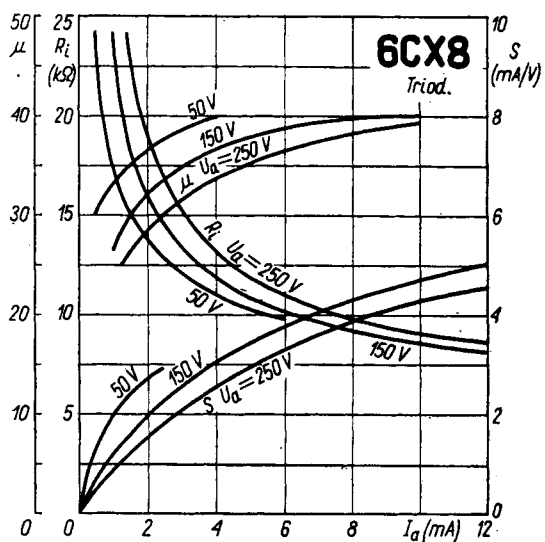
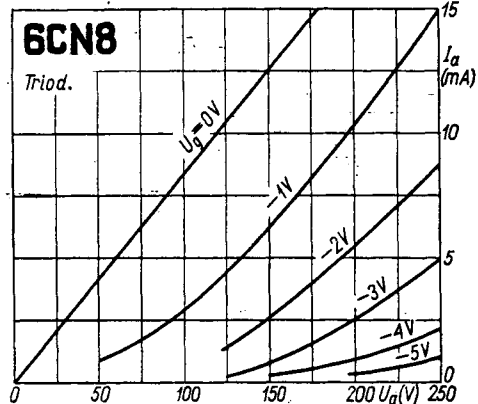
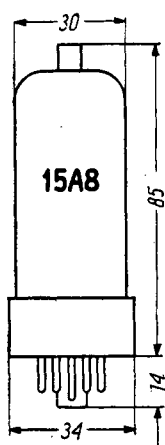
T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ	R_k	R_o	P_o	$U_{f/k}$	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	(g_m/g_1)	Ω	k Ω	W	V	W
6 CN 8	amer	1	6,3	0,7	stat.	100			3,3		3,6	16,7	60	300				
16 CN 8	amer	1	16	0,3	triode.	250			9		4,9	12	60	220				
						300					maximum						90	2,25
					A)	100	100	-6	26	5	6,8	15	(10)		3,9	1,05		
					pent.	170	170	-11,5	41	8	7,5	16	(9,5)	230	3,9	3,3		
						200	200	-16	35	7	6,4	20	(9,5)	380	5,6	7,5		
						250	250				maximum		($I_k = 50 \text{ mA}$; $P_{g2} = 1,8 \text{ W}$)				7	
6 CX 8	amer	2	6,3	0,75	stat.	150			9,2		4,6	8,7	40	150				
8 CX 8	amer	2	8	0,6	triode.	330					maximum						100	2
					stat.	200	125		24	5,2	10	70		68				
					pent.	330	300				maximum		($P_{g2} = 1,1 \text{ W}$)				5	
6 DZ 8	amer	1	6,3	0,9	stat.													
9 DZ 8	amer	1	9	0,6	triode.	120			0,8		1,4	70	100	1500				
12 DZ 8	amer	1	12,6	0,45	stat.													
18 DZ 8	amer	1	18	0,3	stat.	145	120		45		7,5			180				
35 DZ 8	amer	1	35	0,15	pent.													
6 EB 8	amer	1	6,3	0,75	stat.	250		-2	2		2,7	36	100					
8 EB 8	amer	1	8	0,6	triode.													
10 EB 8	amer	1	10,5	0,45	stat.	200	125		25	7	12,6	75		68				
18 EB 8	amer	1	18	0,25	pent.													
6 FY 8	amer	1	6,3	1,2	stat.	125		-1,5	2,5		2							
12 FY 8	amer	1	12,6	0,6	triode.													
25 FY 8	amer	1	25	0,3	A	125	125	-13,5	50	10	7				2	2,7		
50 FY 8	amer	1	50	0,15	pent.													
15 A 8	amer	3	15	0,6	stat.	250		-8	9		2,6	7,7	20					
					triode.													
					stat.	110	110	-7,5	45		7,3	13						
					pent.													
30 PL 1	Eds	4	13	0,3	stat.	203		-8	10		3,4	5,3	18				150	2
30 PL 13	Eds	5	16	0,3	triode.	250					maximum							
30 PL 14	Eds	5	16	0,3														
					A	170	180	-9,6	28	6,5				270	5,3	2,35		
					tetr.	180	190		28	6,5					6,2	2,2		
						250	250				maximum		($P_{g2} = 1,5 \text{ W}$)				150	5,5
30 PL 13					stat.	250	250				maximum		($I_k = 75 \text{ mA}$; $P_{g2} = 2,4 \text{ W}$)				150	7
30 PL 14					stat.	250	250				maximum		($I_k = 75 \text{ mA}$; $P_{g2} = 2 \text{ W}$)				150	8

1) vide ECL/PCL 82 gr. 362



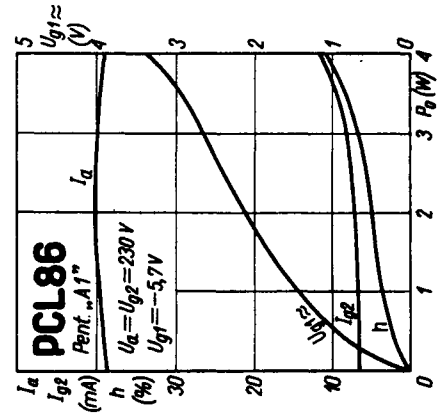
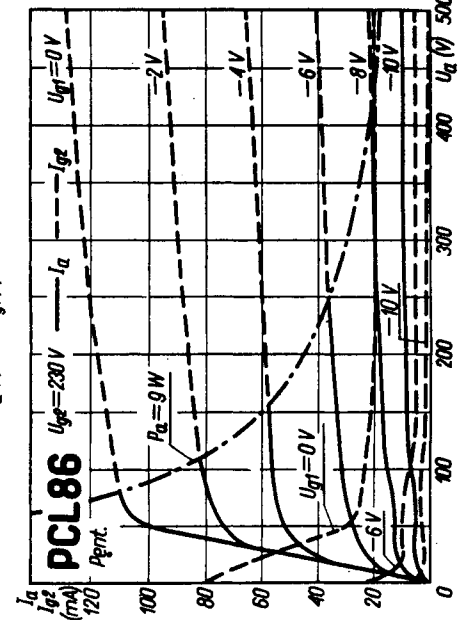
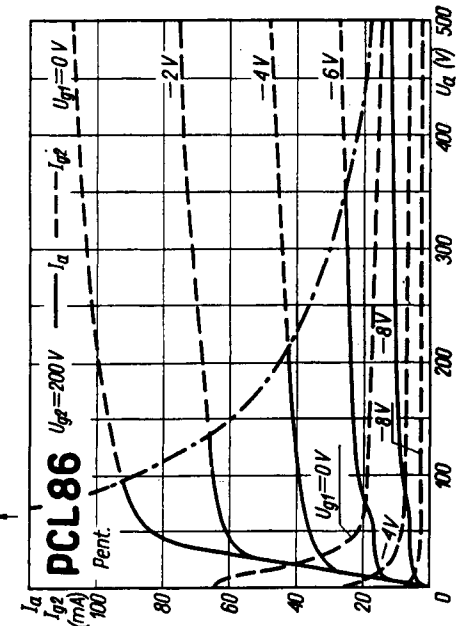
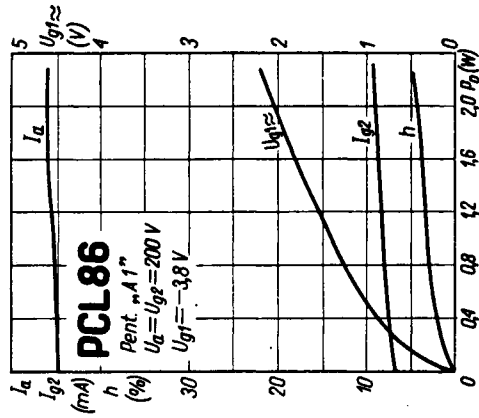
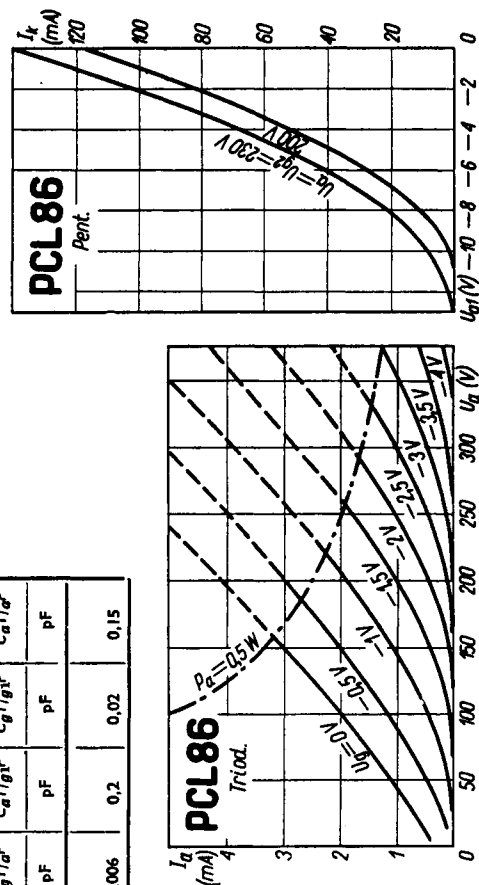
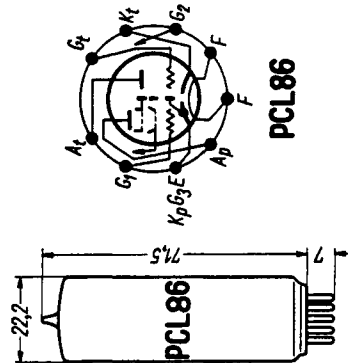
T.		C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	$C_{aT/g1P}$	$C_{aT/aP}$	$C_{gT/g1P}$	$C_{gT/aP}$
		pF	pF	pF	pF	pF	pF	pF	pF
6 CN 8	triode.	2,7	2,5	1,4	0,1				
	pent.	9	8	0,3	0,3	0,015	0,1	0,02	0,015
6 CX 8	triode.	2,2	0,38	4,4					
	pent.	9	4,4	0,06		0,005	0,17		0,018
30 PL 1	triode.	2,6	2	2,4					
	pent.	9,8	7,3	0,21		0,1	1	0,014	0,093





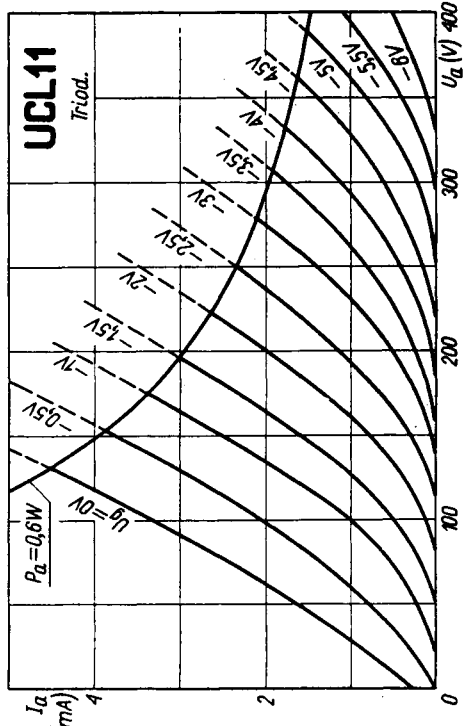
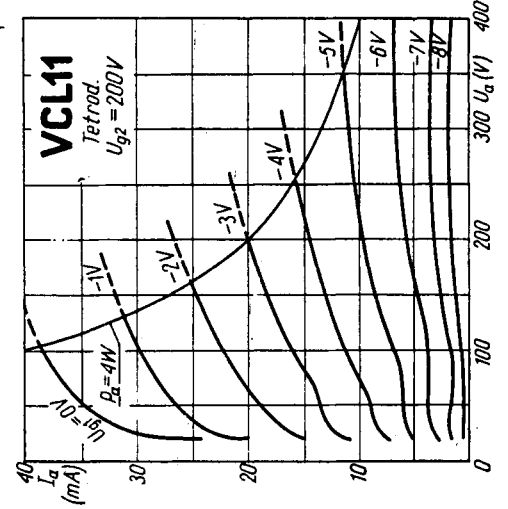
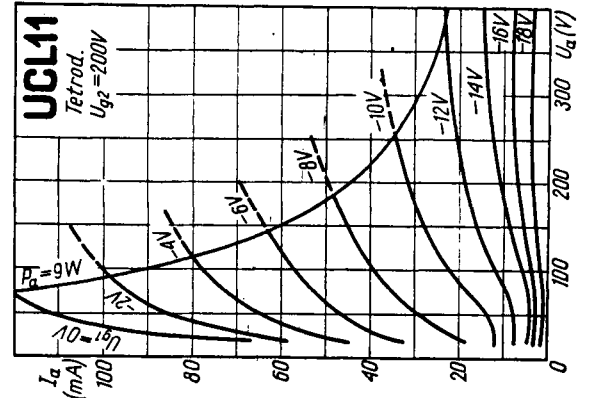
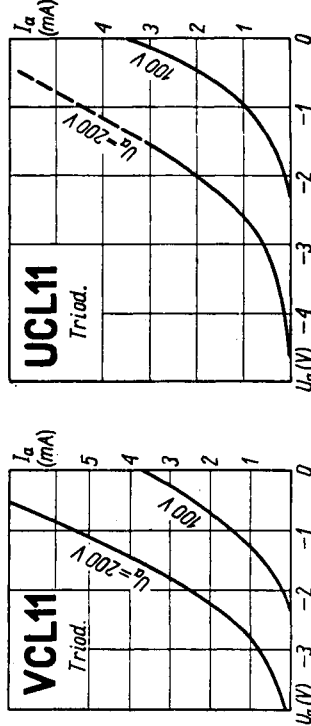
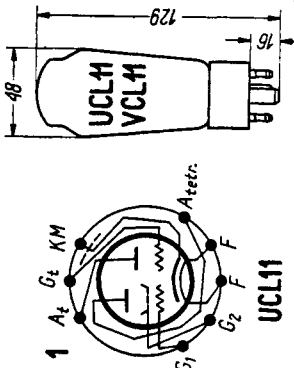
T.			U_f	I_f	Cl.	U_a	U_{g1}	I_a	I_{g2}	S	R_f	μ	R_k	R_0	P_0	U_{gr}	h	$U_{f/k}$	I_k	P_a
			V	A		V	V	mA	mA	mA/V	k Ω	(ea/ea_0)	Ω	k Ω	W	V	%	V	mA	W
PCL 86	eur	I	14,5	0,3	stat. triod.	230	-1,7	1,2		1,6	62	100						100	4	0,5
UCL 86	eur	I	44	0,1	stat.	230	-5,7	39	6,5	10,5	48	(21)						100	55	9
14 GW 8	amer	I	14,5	0,3	pent.	250	-3,8	45	7,5									100	55	9
44 GW 8	amer	I	44	0,1	pent.	200	-5,7	39	6,5									100	55	9

	$C_{g1/k}$	$C_{a1/k}$	$C_{g1/a}$	$C_{g1/f}$	$C_{g1/g2}$	$C_{a1/g2}$	$C_{g2/g1}$	$C_{a1/g1}$	$C_{a1/g2}$
	pF	pF	pF	pF	pF	pF	pF	pF	pF
triad.	2,1	2,5	1,6	0,006	0,2	0,02	0,15		
pent.	10	9,5	0,4	0,2	0,006	0,2	0,15		



T.			U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{gs}	S	R_f	μ	R_o	P_o	$U_{g1 \sim}$	h	U_f / I_k	I_k	P_{g2}	P_a
			V	A		V	V	V	mA	mA	mA/V	k Ω	(g_m/g_1)	k Ω	W	V	%	V	mA	W	W
UCL 11	eur	I	60	0,1	{ stat. triode. A tetr. }	{ 100 200 250 }	{ -1 -2 }	{ -1 -2 }	{ 1 2 }	{ 2,8 6 }	{ 1,6 2 }	{ 40 33 }	{ 66 66 }	{ 4,5 4,5 }	{ 0,9 4 }	{ 2,8 5 }	{ 10 10 }	{ 125 75 }	{ 1,5 9 }	{ 0,6 0,8 }	{ 4 4 }
VCL 11	eur	I	90	0,05	{ stat. triode. A tetr. }	{ 100 200 250 }	{ -2 -4,5 }	{ -2 -4,5 }	{ 6 12 }	{ 0,7 1,2 }	{ 2,4 2 }	{ 80 70 }	{ 25 16 }	{ 17 17 }	{ 0,25 1,2 }	{ 1,4 2,7 }	{ 10 10 }	{ 150 25 }	{ 0,5 4 }	{ 0,8 0,8 }	{ 4 4 }

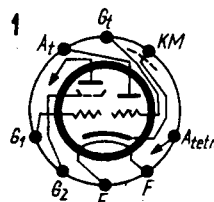
T.	C_g	C_{g1f}	C_{g1a}	$C_{g2triode.}$	$C_{g2tetr.}$
UCL 11	5,3	0,016	1,5	0,02	0,14
VCL 11	4,2	0,06	3,5	0,14	0,14



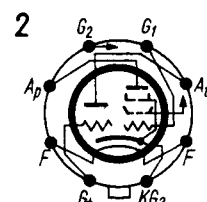
T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ (g_1/g_2)	$U_{f/k}$ V	P_{g2} W	P_a W
ECL 11	eur	I	6,3	I	triode. tetr.	$\begin{cases} 250 \\ 300 \end{cases}$		-2,5	2		2	35	66			0,6
						$\begin{cases} 250 \\ 250 \end{cases}$	250	-6	36	4	9	25	(25)			
						$\begin{cases} 250 \\ 285 \end{cases}$	275				maximum ($I_k = 60$ mA)			50	1,3	9
6 AD 7-G	amer	2	6,3	0,85	triode. pent. ¹⁾	$\begin{cases} 250 \\ 285 \end{cases}$		-25	4		0,32	19	6			I
						$\begin{cases} 250 \\ 375 \end{cases}$	250	-16,5	34	6,5	2,5	80				
							285			maximum				90	2,7	8,5

¹⁾ Pentod 6 AD 7-G = 6 F 6 gr. 221

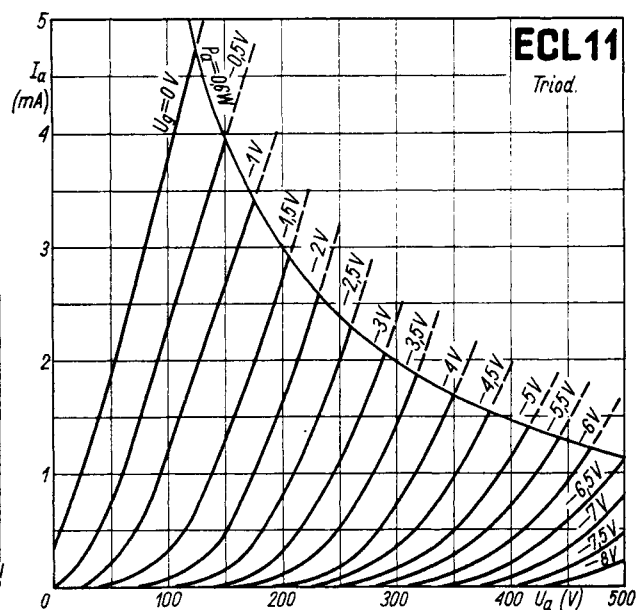
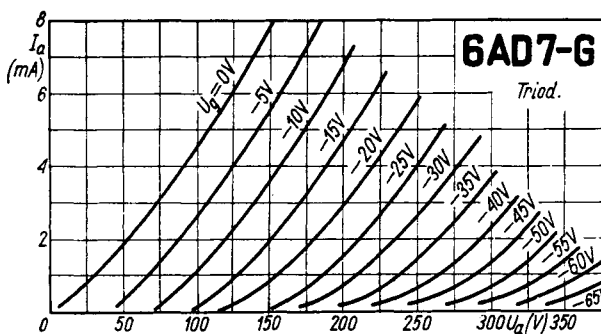
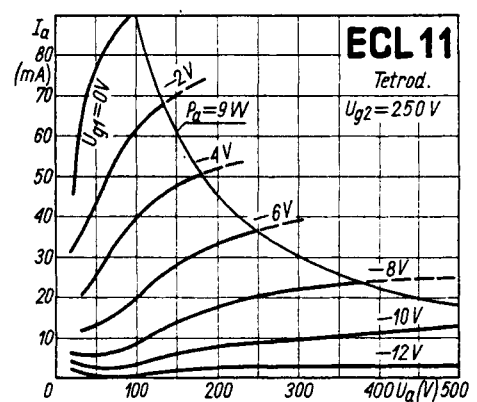
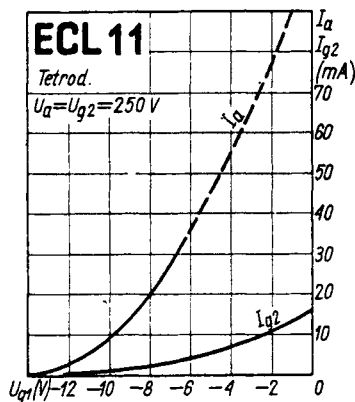
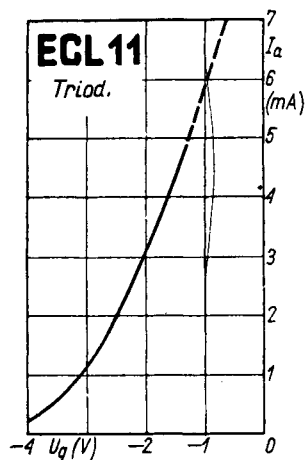
T.	C_g pF	C_a pF	$C_{g/a}$ pF	$C_{g/f}$ pF
ECL 11-triode.	5,3	4,4	1,5	0,02



ECL11



6AD7-G

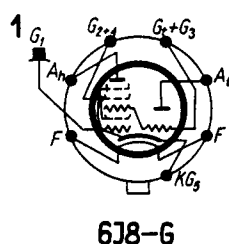


T.			U_f	I_f	Cl.	U_a	U_{g2+4}	$U_{g1}(U_{g2})$	I_a	I_{g2+4}	$I_{g3}(I_{g1})$	$S_c(S)$	R_t	$R_{g3}(R_{g1})$	R_k	P_a
			V	A		V	V	V	mA	mA	mA	$\mu A/V$	M Ω	k Ω	Ω	W
6 J 8-G	amer	1	6,3	0,3	{ mixer hept. mixer hept. osc. triod.	100	100	-3 ÷ -20	1,4	3	0,3	250 ÷ 2	0,9	50		
14 J 8-G	amer	1	14,7	0,15		250	100	-3 ÷ -20	1,3	2,9	0,4	290 ÷ 2	1	50		
20 J 8-G	amer	1	20	0,1		100			3							
7 J 7	amer	2	6,3	0,3	{ mixer hept. mixer hept. osc. triod.	100	100	-3 ÷ -20	1,5	2,6	0,3	280 ÷ 2	0,5	50		
14 J 7	amer	2	12,6	0,15		250	100	-3 ÷ -20	1,4	2,8	0,4	290 ÷ 2	1,5	50		
20 J 7	amer	2	20	0,1		100			3,2							
					stat. triod.	150	maximum		7,5	$(\mu = 14)$		(1350)				
6 K 8	int	3	6,3	0,3	{ mixer hex. mixer hex. stat. hex.	100	100	(-3 ÷ -30)	2,3	6	(0,15)	330 ÷ 2	0,4	(50)	220	
12 K 8	int	3	12,6	0,15		250	100	(-3 ÷ -30)	2,5	6,2	(0,15)	360 ÷ 2	0,6	(50)	300	0,75
20 D 2	Bri	4	13	0,15		300	150		3,8							0,75
					osc. triod.	100	maximum			$(P_{g2+4} = 0,7 \text{ W}; U_f/k = 100 \text{ V})$						
					stat. triod.	125	maximum			$I_k(\text{triode} + \text{hexod.}) = 16 \text{ mA}$						0,75

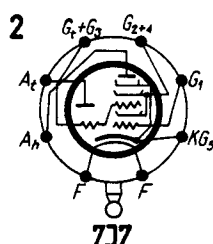
T.		C_{g1}	C_a	$C_{g1/a}$	$C_{g1/aT}$	$C_{g1/gT}$	C_{g3}	$C_{g3/aT}$
		pF	pF	pF	pF	pF	pF	pF
6 J 8-G	{ hept. triode.	4,4	8,8	0,01	0,015	0,13	11,7	
			5,5	2,2				
6 K 8-G	{ hexod. triode.		4,8	0,08	1,8	0,15	4,6	0,05
		6,5	3,4					

Equivalents

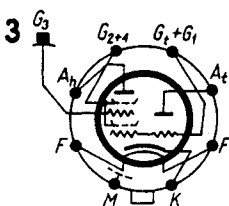
WT-T 128	WT = 6 K 8	7 D 7	TS = 7 J 7
6 J 8-EG	eur = 6 J 8-G	12 K 8-G	int = 12 K 8
6 J 8-GA	amer = 6 J 8-G	12 K 8-GT	int = 12 K 8
6 K 8-G	int = 6 K 8	12 K 8-Y	RCA = 12 K 8
6 K 8-GT	int = 6 K 8	14 J 8-EG	eur = 14 J 8-G
6 K 8-MS	int = 6 K 8	20 J 8-GM	eur = 20 J 8-G



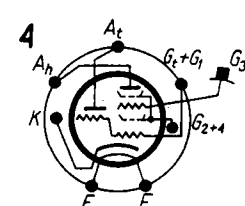
6J8-G



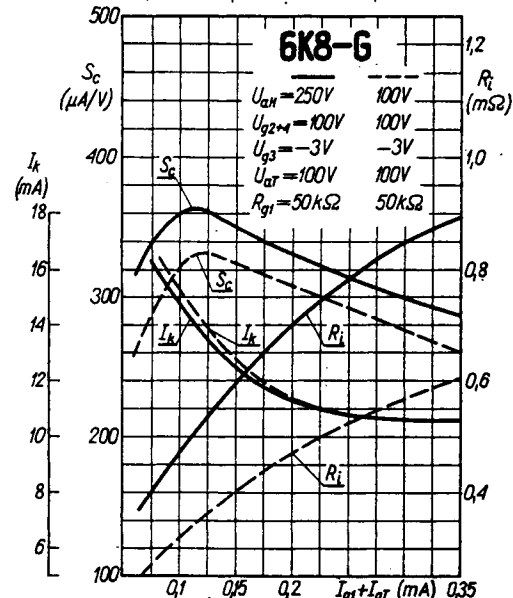
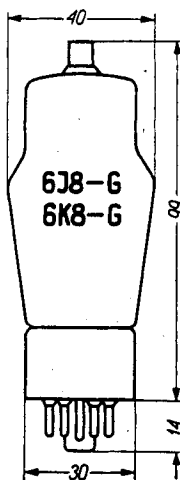
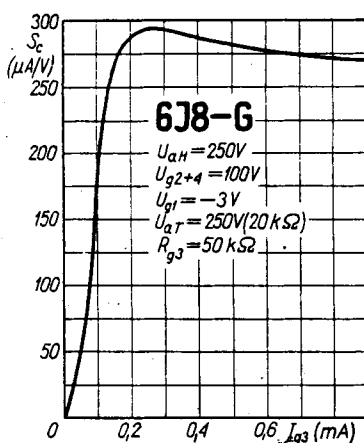
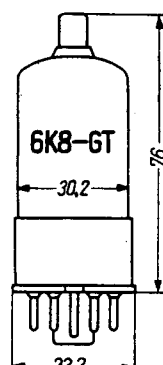
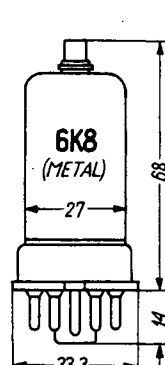
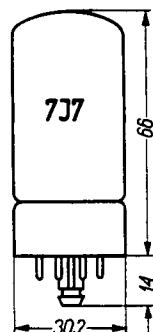
7J7



6K8



20D2

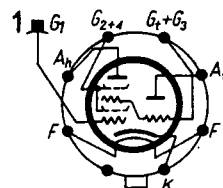
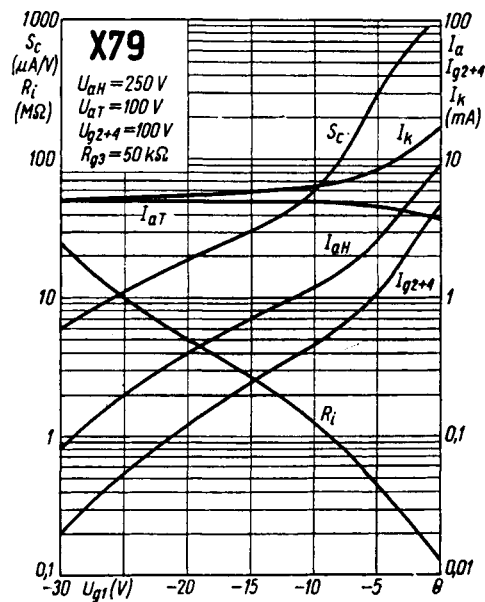
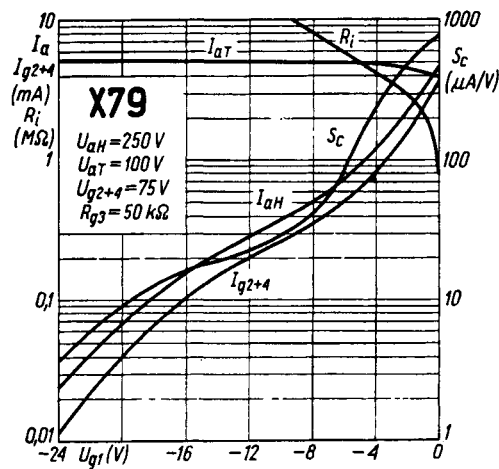


T.			U_f	I_f	Cl.	U_a	U_{g2+4}	U_{g1}	I_a	I_{g3+4}	$S_c(S)$	μ	R_i	R_{g3}	f	$I_k(H+T)$
			V	A		V	V	V	mA	mA	$\mu A/V$	V/V	M Ω	k Ω	MHz	mA
X 65	Eng	1	6,3	0,3	mixer.-hex. osc.-triad.	250	100	-3 ÷ -45	1,6	4,6	225 ÷ 0,2		2,5	100		
X 75	Eng	1	15	0,16		100			4,6							
X 78	Eng	2	6,3	0,3	mixer.-hex. mixer.-hex. osc.-triad. stat.-hex. stat.-triad.	175	75	0 ÷ -20,5	4,3	3,6	710 ÷ 7,1		0,25	50		
X 79	Eng	3	6,3	0,3		250	75	0 ÷ -21	4,5	3,4	780 ÷ 7,8		0,7	50		
X 108	Eng	2	19	0,1		100			4,5							
X 109	Eng	3	19	0,1		250	100								100	20
						100			10	maximum (2800)		22				
X 81	Eng	4	6,3	0,3	mixer.-hex.	250	100	-2	3	2,4	650	1				
X 101	Eng	4	19	0,1												

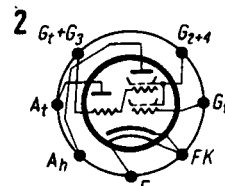
T.		C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g3}$	$C_{g1/a}$	$C_{g3/a}$
		pF	pF	pF	pF	pF	pF
X 78	hexod.	4,1	4,34	0,11	0,22		
X 79	triad.	5,47	1,5			0,08	1,48

Equivalents

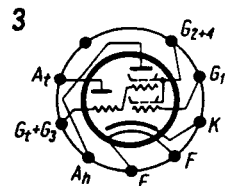
E 1793	Marc = X 101
E 1969	Marc = X 81
E 1980	Marc = X 101
X 66	Eng = X 65
6 AE 8	amer = X 79



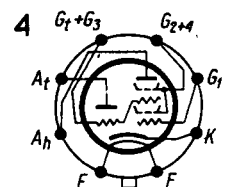
X65



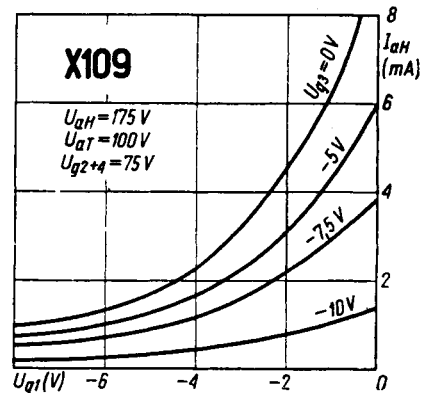
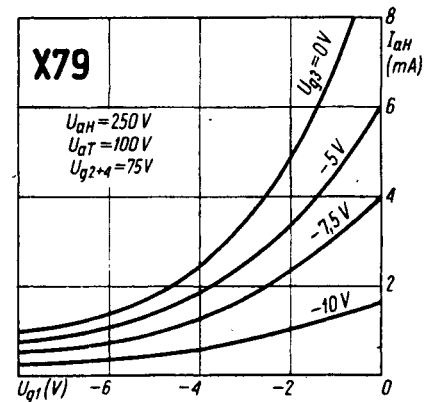
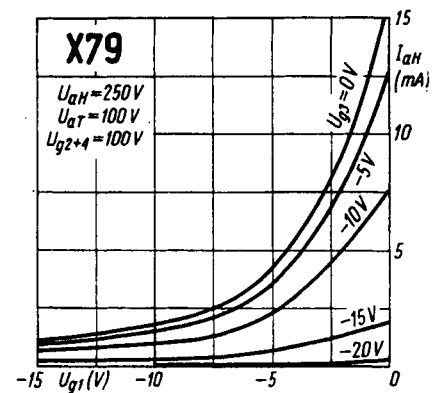
X78

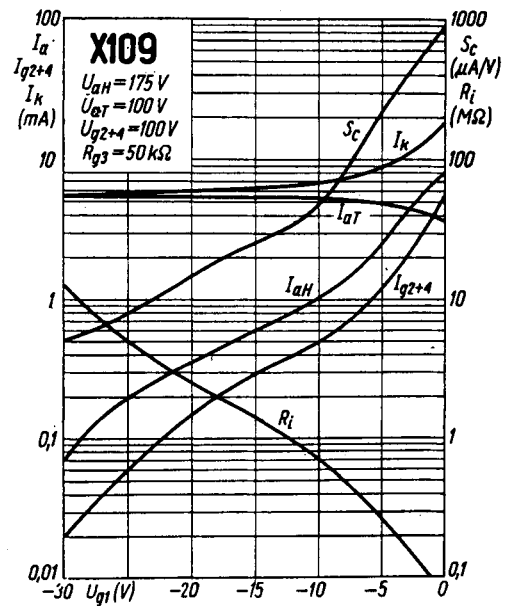
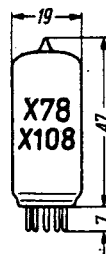
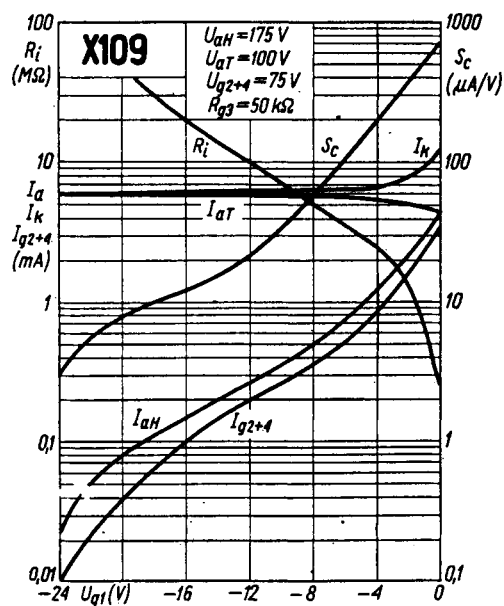
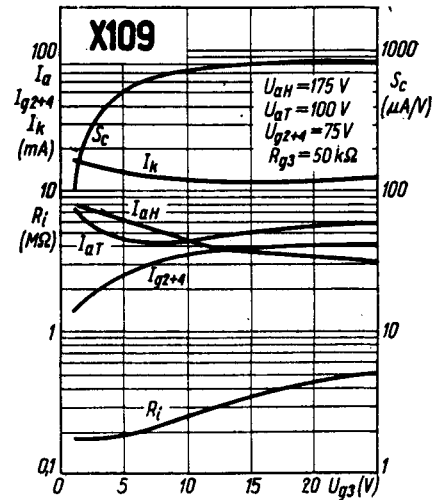
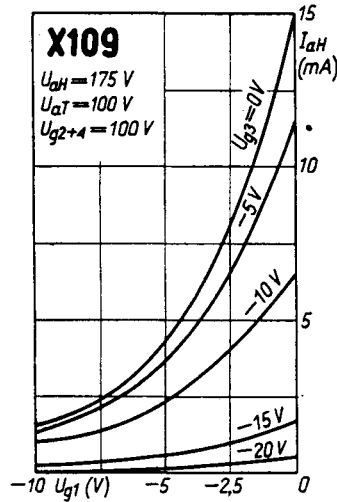
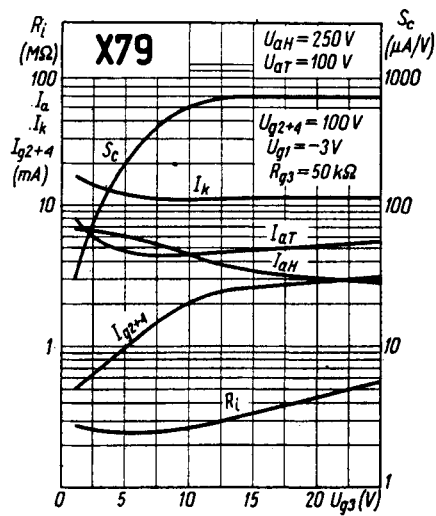
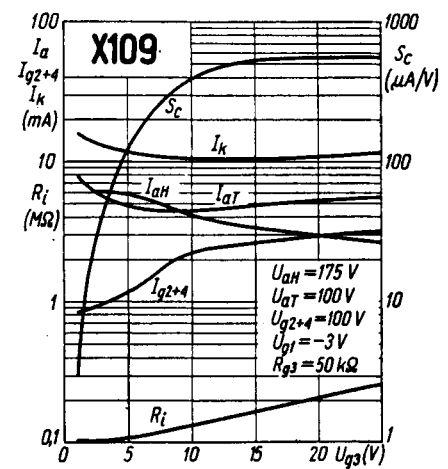
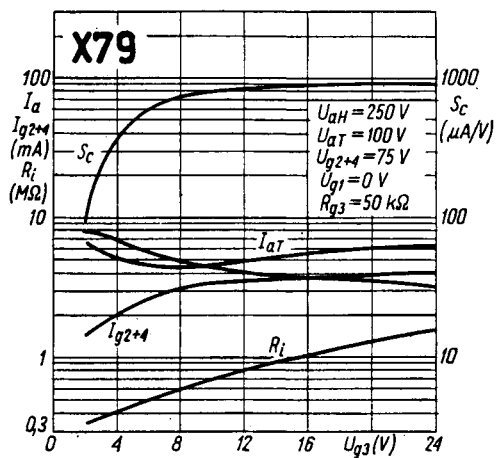


X79



X81



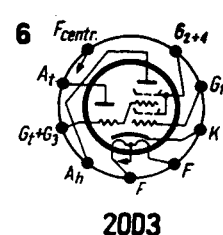
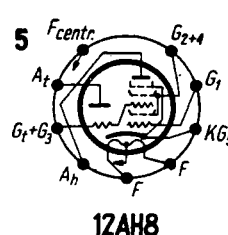
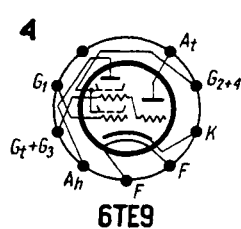
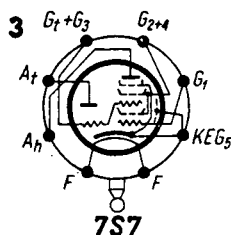
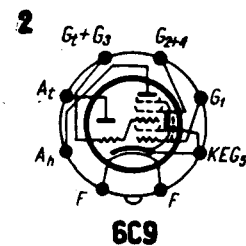
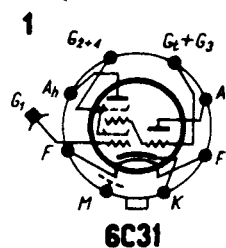


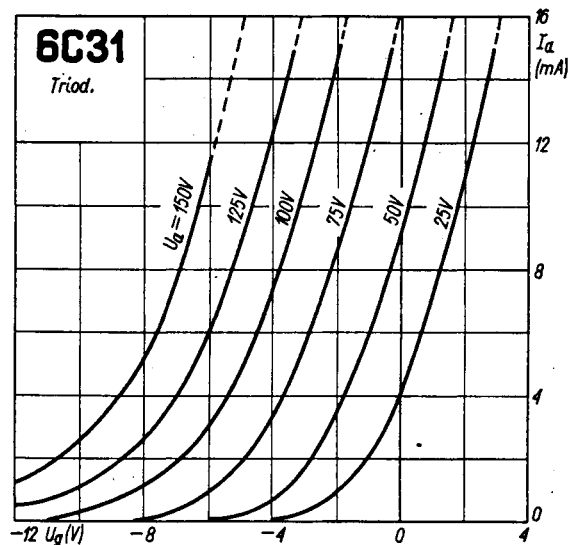
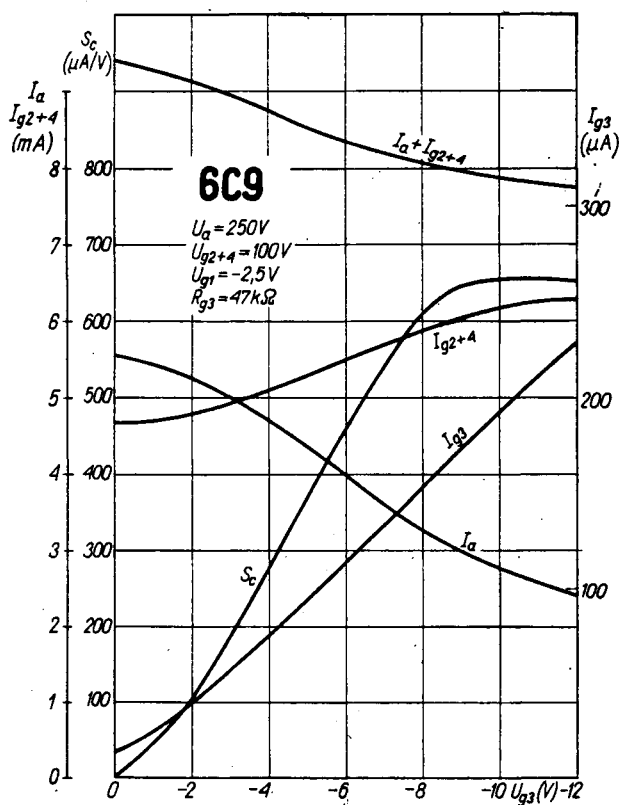
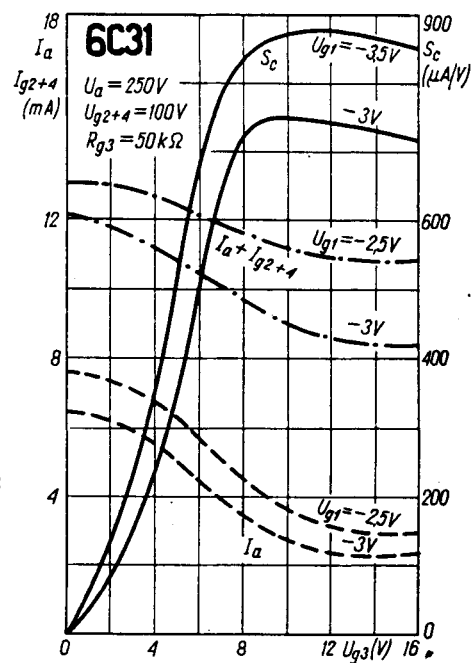
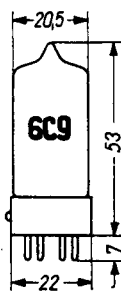
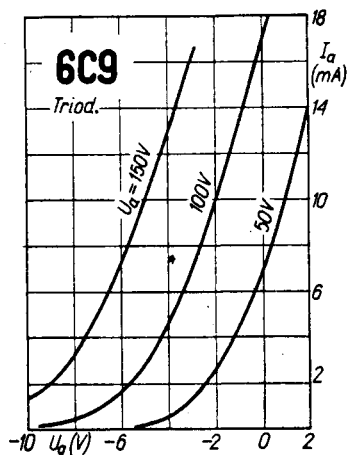
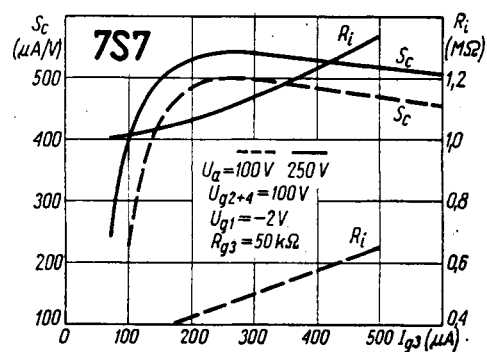
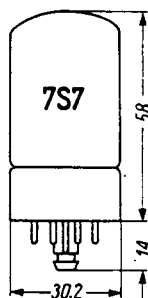
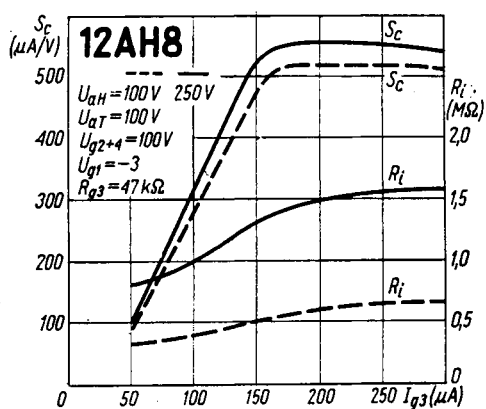
T.			U_f	I_f	Cl.	U_a	U_{g2+4}	U_{g1}	I_a	I_{g2+4}	I_{g3}	$S_c(S)$	μ	R_i	R_{g3}	R_k	P_a
			V	A		V	V	V	mA	mA	mA	$\mu A/V$	V/V	M Ω	k Ω	Ω	W
X 62	Eng	1	6,3	1,27	mixer.-hex. mixer.-hept. osc. triod. stat.-hept. stat.-triode.	250 250 80 250 100	120 100	-1,5 -2,5	($I_k = 18$ mA) 3 6	0,18	1750 650		0,33 3		47	100	
6 C 9	Maz	2	6,3	0,45	stat.-hept. stat.-triode.	250 100	250	0	maximum ($I_k = 10$ mA; $P_{g2+4} = 0,75$ W) 17,5 6,5		(4000) 17						1
6 C 31	Eds	1	6,3	0,83	mixer.-hex. mixer.-hex. osc. triod. stat. triod.	250 250 80 100	100 100	-2,5 ÷ -43 -3 ÷ 43	3,8 3 5	7,5 6		870 ÷ 3 750 ÷ 3		1,2 1,6	50 50		
6 P 8 G	Bri	1	6,3	0,8	mixer.-hex. osc. triod.	250 100	80	-3	2,2 2,3	3	0,25	650		0,7	50	200	
6 TE 9	Fiv	4	6,3	0,3	mixer.-hex. mixer.-hex. mixer.-hex. osc. triod.	100 180 250 100	55 75 100	0 ÷ -11 -1 ÷ -16 -2 ÷ -20	1,9 2,1 3	5,5 4,5 4,5	0,2 0,2 0,2	570 ÷ 5,7 700 ÷ 7 750 ÷ 7,5		0,75 1 1	50 50 50		
12 TE 9	Fiv	4	12,6	0,15	stat.-hex. stat.-triode. stat.-triode.	250 100 125	125	maximum ($I_k(H+T) = 15$ mA; $U_f/k = 80$ V; $P_{g2+4} = 0,5$ W) 0 11				(3000) 22					1,5 0,8
6 TH 8	Tu	1	6,3	0,6	mixer.-hex. osc. triod.	250 100	80	-1,5 ÷ -25 4	5,5 4	6	0,48 0,48	1000 ÷ 10 (1200)			25 25	150	
7 S 7	int	3	6,3	0,3	mixer.-hept. mixer.-hept. osc. triod.	100 250 100	120 100	-2 ÷ -21 -2 ÷ -21	1,9 1,8	3 3	0,3 0,4	500 ÷ 5 530 ÷ 5,3		0,5 1,25	50 50	250 250	
14 S 7	int	3	12,6	0,15	stat. hept. stat. triod. stat. triode.	300 100 175	100	maximum ($I_k(H+T) = 14$ mA; $U_f/k = 100$ V; $P_{g2+4} = 0,4$ W) 0 6,5				(1650) 18					0,6 1
12 AH 8	Bri	5	6,3/12,6	0,3/0,15	mixer.-hept. mixer.-hept. osc. triod. stat.-hept. stat.-triode.	100 250 100 300 100	100 100 125	-3 ÷ -22 -3 ÷ -22	2,5 2,6 5,7	4,5 4,4	0,2 0,2	520 ÷ 5 550 ÷ 5		0,6 1,5	47 47	220 220	
20 D 3	Bri	6	6,3/12,6	0,3/6,15	mixer.-hex. osc. triod. stat. triode.	250 100 100	100	-3 0	3,6 4,8	4,6	0,2	690 (3600)		0,7	50 50	220	

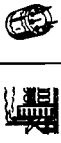
T.		C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g3}$	$C_{g1/aT}$
		pF	pF	pF	pF	pF
6 C 9	hept. triode.	8,3 7,7	3 1,7	1,8	0,12	0,13
6 C 31	hexod. triode.	9,5 11,5	13 4,4	0,0012 3	0,5	0,09
6 TE 9	hexod. triode.	5,7 7,4	14 2,4	0,025 1,7		0,1
7 S 7	hept. triode.	5 7	8 3,5	0,03 1	0,35	0,1
12 AH 8	hept. triode.	5 7	8 2,5	0,025 1,2		

Equivalents

X 148 Eng = 7 S 7

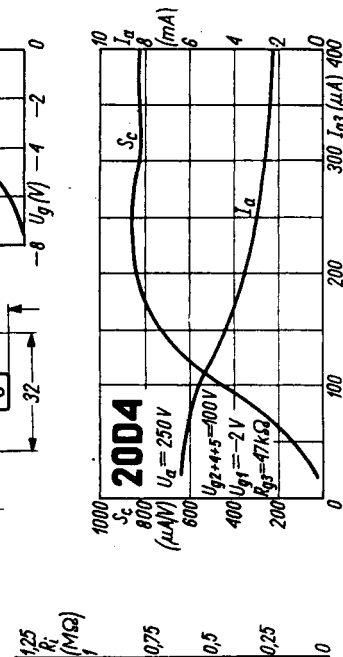
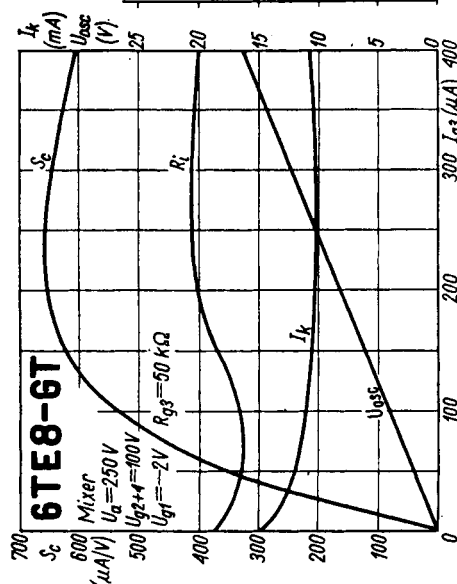
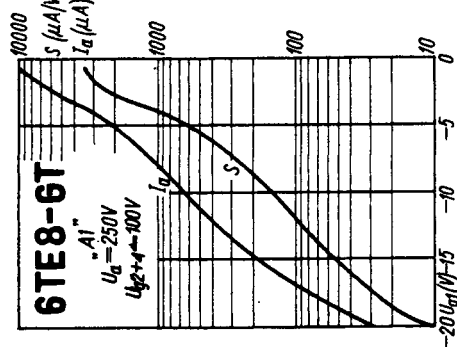
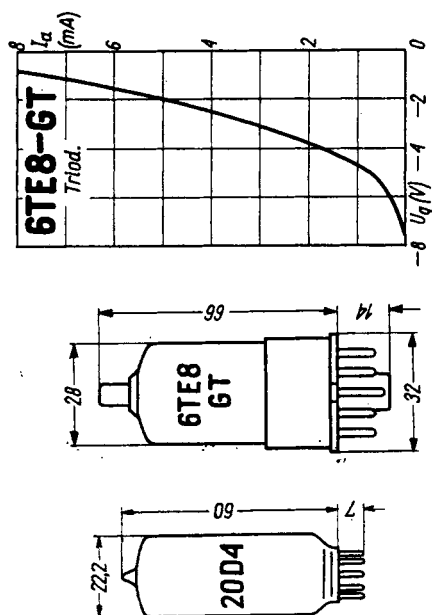
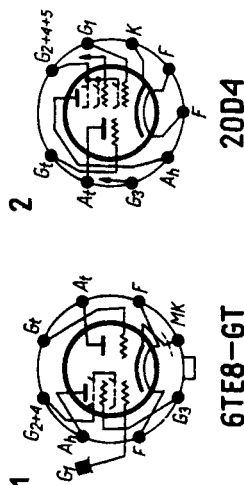




T.			U_f	I_f	Cl.	U_a	U_{g2+4}	U_{g3}	U_{g1}	I_a	I_{g2+4}	I_{g3}	$S_c(S)$	μ	R_{g1}	R_{g3}	$I_{k(H+T)}$
			V	A		V	V	V	V	mA	mA	mA	$\mu A/V$	V/V	M Ω	k Ω	mA
6 TR 8-GT 12 TE 8-GT	Fiv	I	6,3	0,3	{ mixer-heptod. mixer-heptod. A1 (Ξ)-heptod. A1 (Ξ)-heptod. A1 (Ξ)-triode. A1 (Ξ)-triode. osc.-triode. stat.-triode. stat.-heptod.	100 250 100 250 <250 ¹⁾ <250 ¹⁾ 100 100 300	55 100 50 100 125	0 0 0 0 0	-1,25 -2,5 -1,5 -2,5 -2 -2 -4 0	1 3,7 2,35 6,7 -1 0,86 3,4 11	2,6 3,8 1,1 1,5	0,2 0,2	450 650 $\pm$ 6,5 (1800 $\pm$ 18) (2600 $\pm$ 26) maximum (3200)		1 1 0,36 0,6	50 50	7,2 10,5
	Fiv	I	12,6	0,15													
20 D 4	Bri	2	6,3	0,3	{ mixer-heptod. A1 (Ξ)-heptod. stat.-triode. stat.-heptod.	250 250 100 300	100 100 100 125	0 0 0 0	-2 -2 0 0	3 7 15	3,6 2,3	0,25 maximum (3500)	850 (2800 $\pm$ 100)		0,9	50	16
																	17,5

1) $U_b = 250$ V, $R_g = 200$ k Ω ; $\mu = U_{g2+4}/U_{g1}$

T.		C_{g1}	C_a	C_{g1+a}
		pF	pF	pF
6 TE 8-GT 20 D 4	{ heptod. triode.	4,6 3,3	11,6 8,2	0,002 0,034
	{ heptod. triode.	4,5 2,1	0,87	

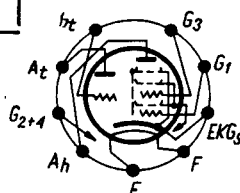
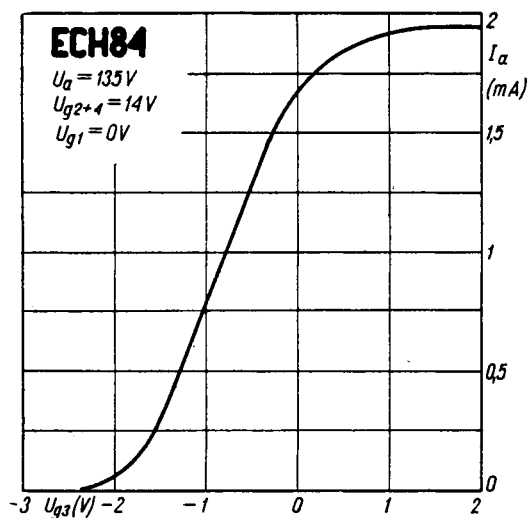


T.		U_f	I_f	Cl.	U_a	U_{g2+4}	U_{g3}	U_{g1}	I_a	I_{g2+4}	S	μ	U_{fjk}	I_k	P_{g2+4}	P_a
		V	A		V	V	V	V	mA	mA	mA/V	V/V	V	mA	W	W
ECH 84	eur	6,3	0,3	stat. hept.	135	14	0	0	1,7	0,9	2,2					
					250	10÷250	-2 0 -1,3	0 -1,9 -1,3	0,02 0,02							
				stat. triode.	50				maximum				100	12,5	0,8	1,7
					200		-150	-150	peak		3,7	50				
					250		0 -11	0 -11	3 0,1				100	10		1,3
							maximum peak									

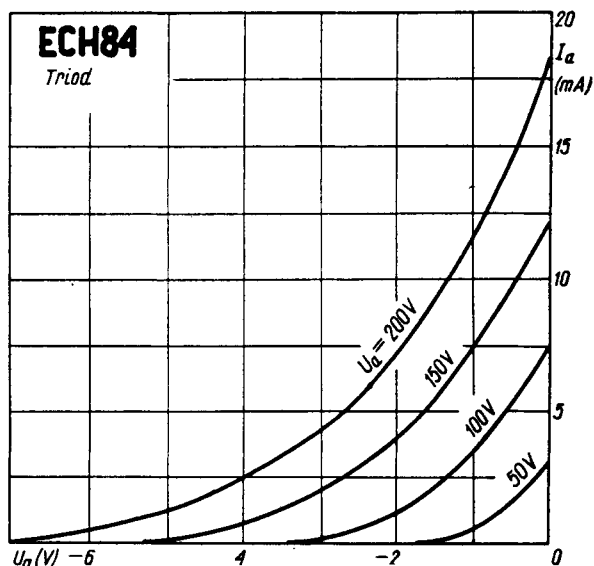
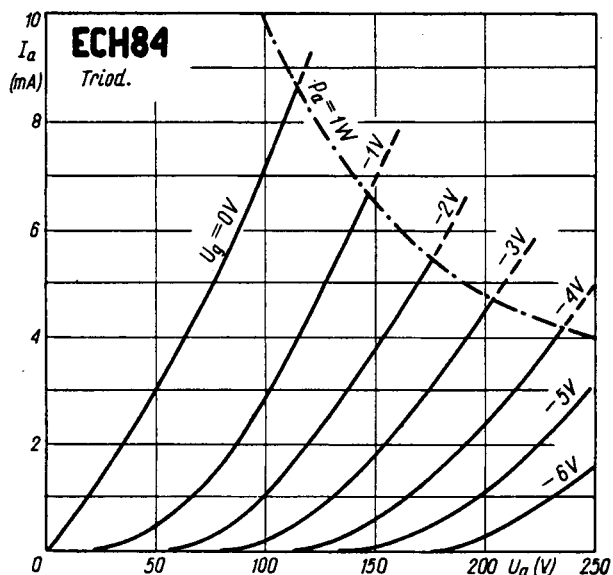
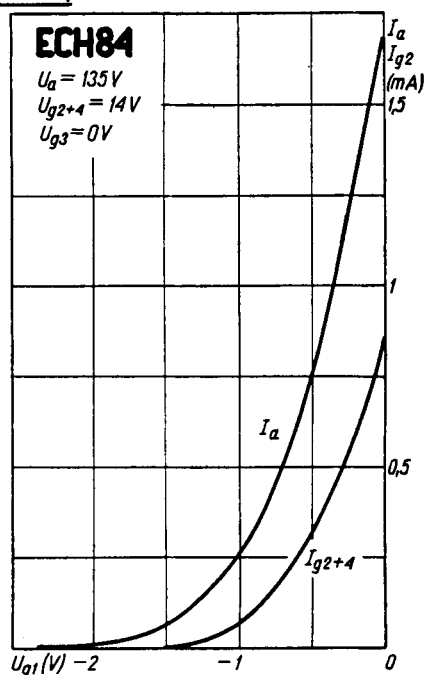
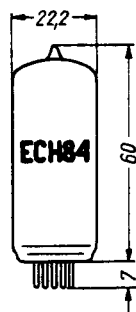
$C_{aH/g1}$	C_{gT}	$C_{aT/gT}$	$C_{g1/gT}$	$C_{g1/aT}$	$C_{g3/aT}$	$C_{aH/gT}$	$C_{aH/aT}$
pF	pF	pF	pF	pF	pF	pF	pF
0,009	3	1,1	0,1	0,08	0,15	0,09	0,25

Equivalents

6 J X 8 amer



ECH84

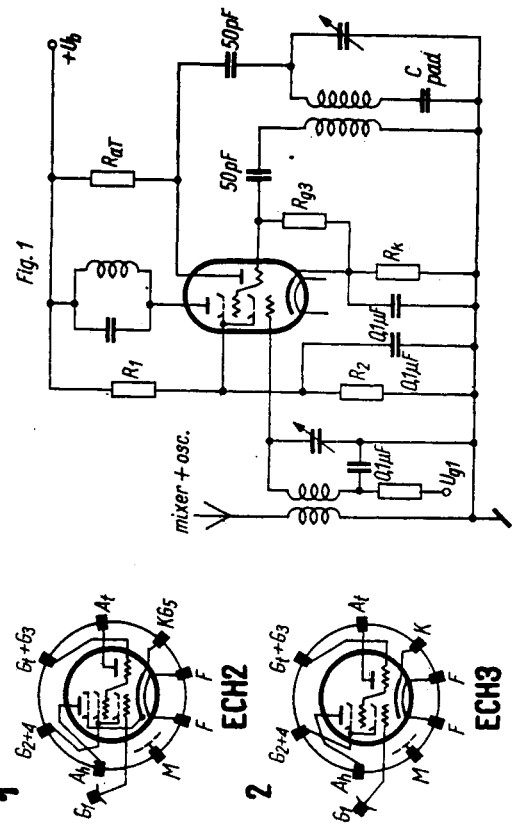


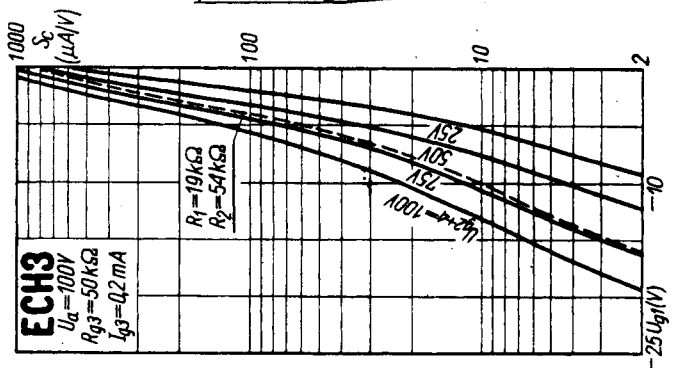
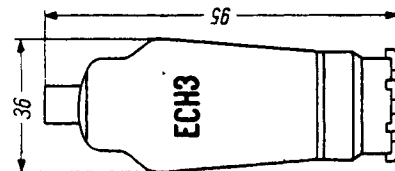
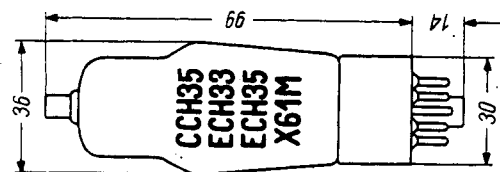
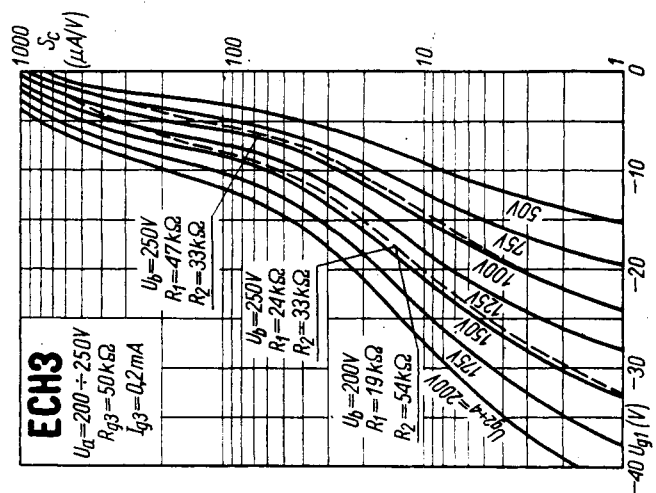
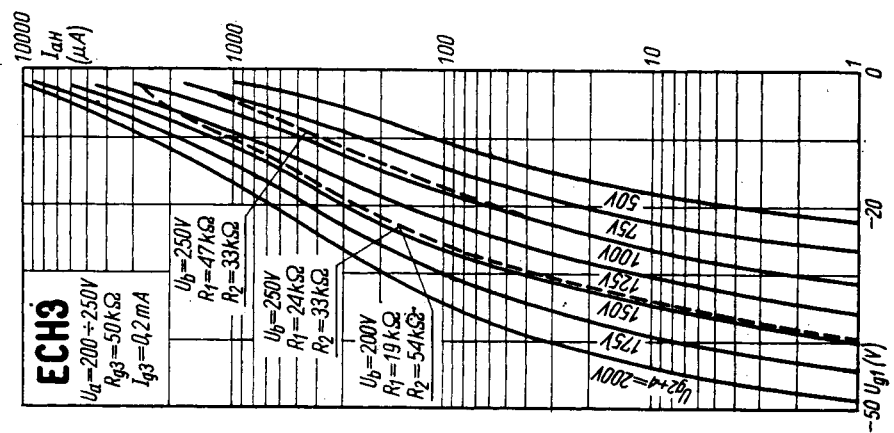
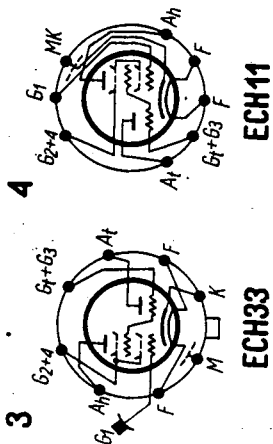
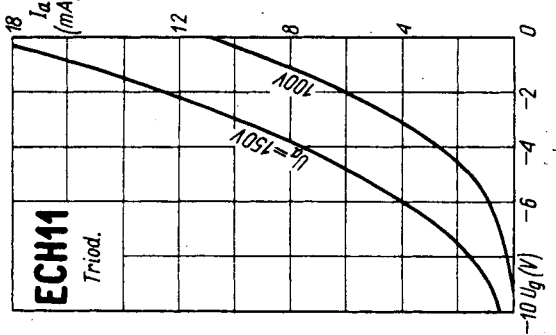
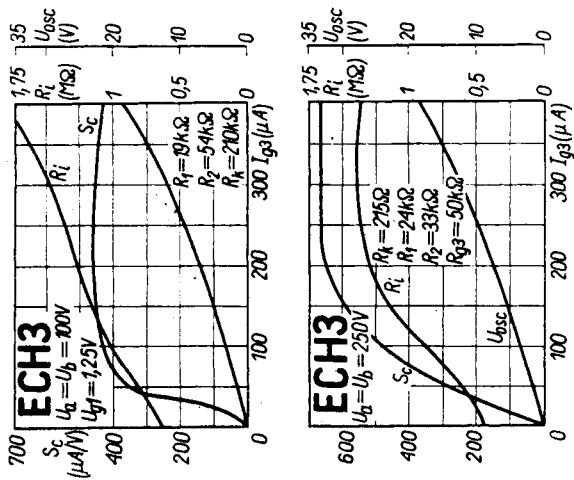
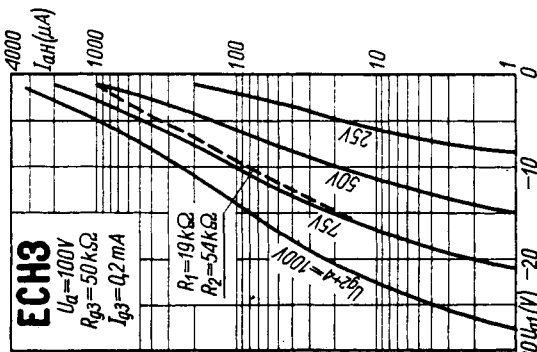
T.			U_f		Cl.	U_b	$R_1^{(1)}$	$R_2^{(1)}$	$R_a T$	U_a	U_{g3+4}	U_{g1}	I_a	I_{g3+4}	I_{g2}	$S_c(S)$	μ		R_i	R_{g3}	R_k	$U_{f/k}$		$I_{k(H+T)}$		P_{g3+4}		P_a						
			V	A													V/V	M Ω				k Ω	V	V	mA	mA	mA		$\mu A/V$	V	mA	W	W	
ECH 2	eur	1/2	6,3	0,9	{ mixer-hept. stat.-triode.	250	8,5	10		250	100	$-2,5 \div -25$ 0	3,25	6	0,2	$750 \div 7,5$ (5500)	17,5	1,5	50	140														
						{ 100 200 250	{ 19 54 24	{ 54 33 —		55	$-1,25 \div -13,5$ $-2 \div -23,5$ $-2 \div -17$	1 3 3	1,4 3 3	0,2 0,2 0,2	$450 \div 4,5$ $650 \div 6,5$ $650 \div 6,5$		1,3 0,9 1,3	50 50 50	210 210 215															
						{ 100 150 250	{ 100 150 250	{ 0 0 45		100		3,3 8 3,3			0,2 0,2 0,2																			
										300	125																100	15		0,6	1,2			
										{ 100 150				{ 100 150			0	10		maximum			24											1,5
ECH 11	eur	4	6,3	0,2	{ mixer-hex. osc.-triode. — stat.-hex. stat.-triode.	{ 100 200 250	{ 35 35 35	{ 100 100 60		100	45	$-1 \div -8,8$ $-2 \div -15,8$ $-2 \div -16$	0,75 1,7 2,2	1,2 2,2 2,8	0,16 0,33 0,33	$470 \div 4,7$ $590 \div 5,9$ $640 \div 6,4$		1 1 1	30 30 30	300 300 250														
						{ 100 200 250		{ 30 30 30		64 122 148		1,2 2,6 3,4																						
										300	125																							
										{ 100 150				{ 100 150		0	11		maximum			20											0,6	1,8
																				maximum														
X 61 M X 71 M	Eng Eng	3 3	6,3 13	0,3 0,16	{ mixer-hex. osc.-triode.	250 250	15 10			250 145	100	$-3 \div -25$	3,5 3,5	3			$620 \div 5$		0,7	50	200													

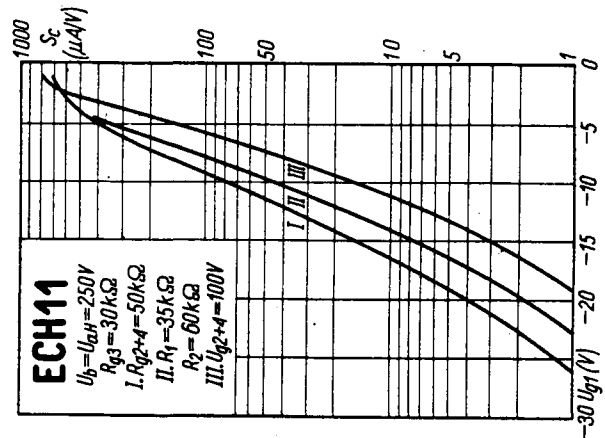
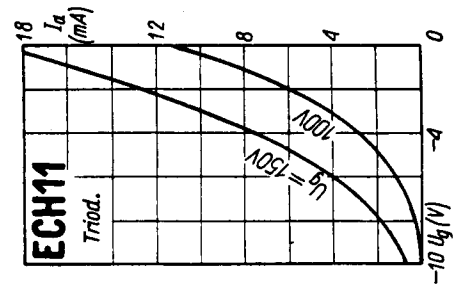
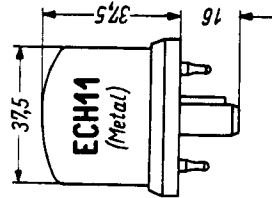
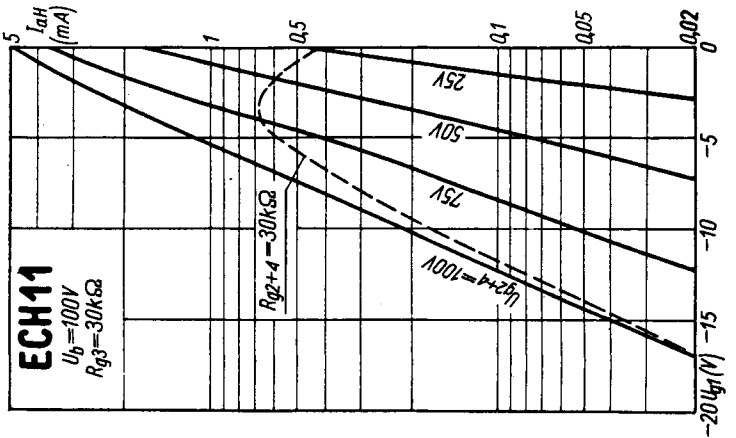
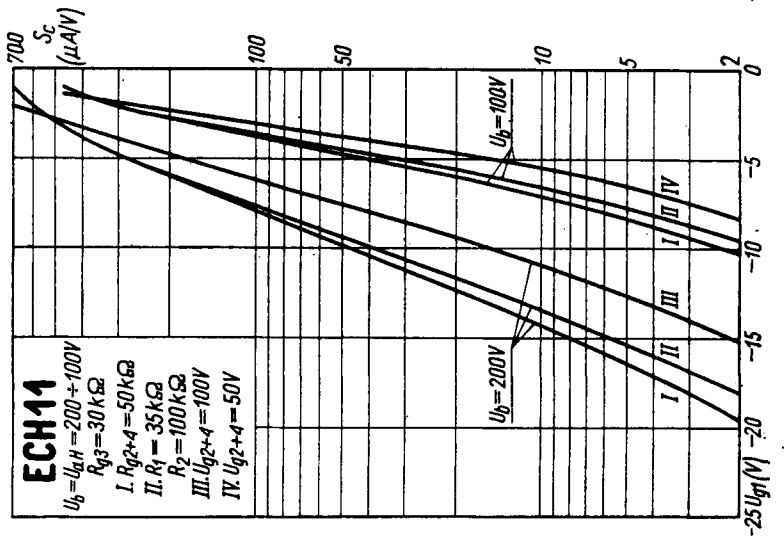
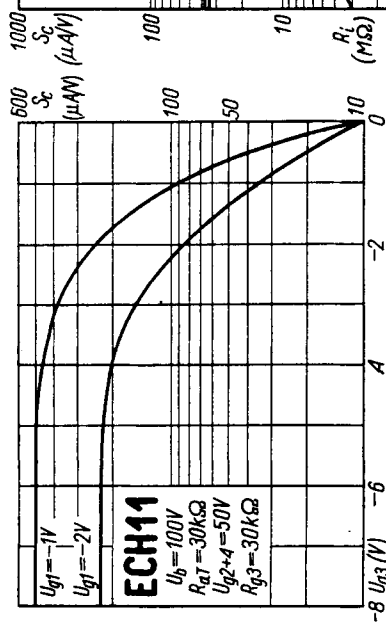
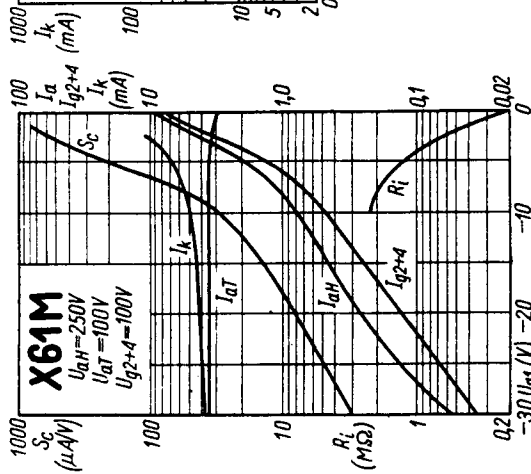
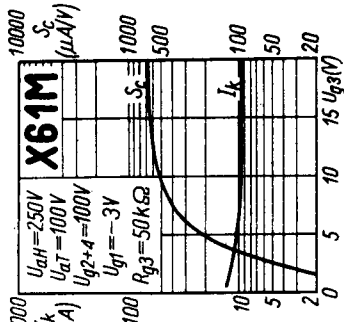
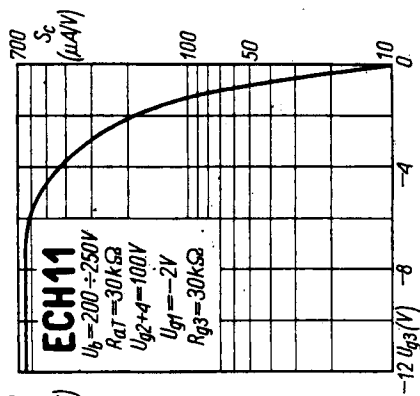
1) vide Fig. 1.

Equivalents

ECH 3 B	eur	=	ECH 33
ECH 3 F	eur	=	ECH 3
ECH 3 G	eur	=	ECH 33
ECH 3 S	eur	=	ECH 33
ECH 35	eur	=	ECH 33
E 1416	Marc	=	X 61 M
KT2 61	Marc	=	X 61 M
OM 10	Cos	=	ECH 33
WE 20	Tif	=	ECH 2
X 61	Eng	=	X 61 M
X 76	Eng	=	X 71 M
X 76 M	Eng	=	X 71 M
X 147	Eng	=	ECH 33
6 E 8-G	Frc	=	ECH 33
6 E 8-MG	Frc	=	ECH 33





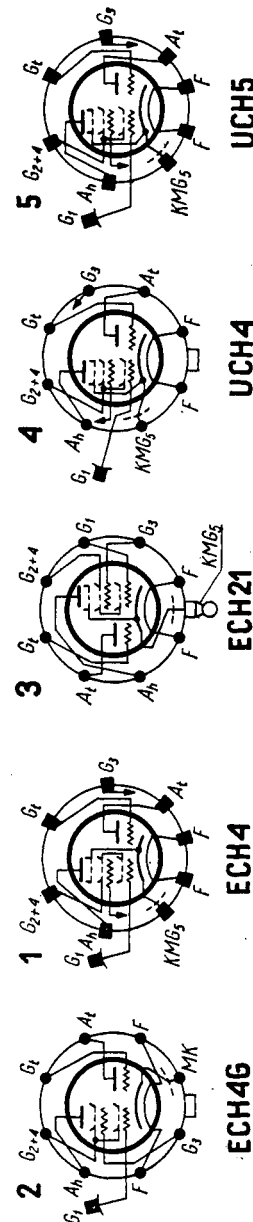
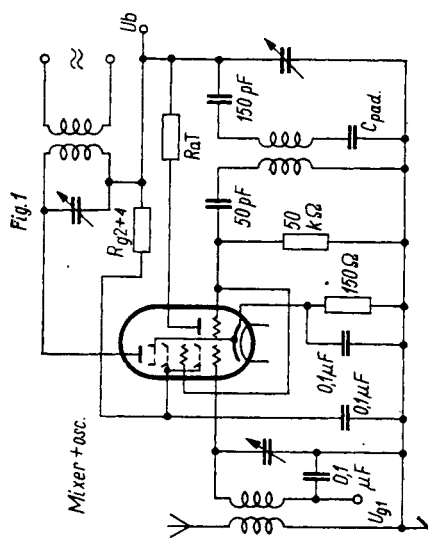
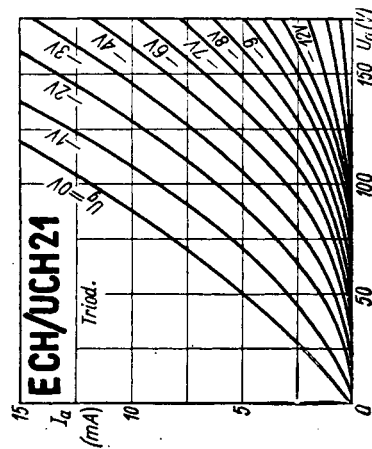


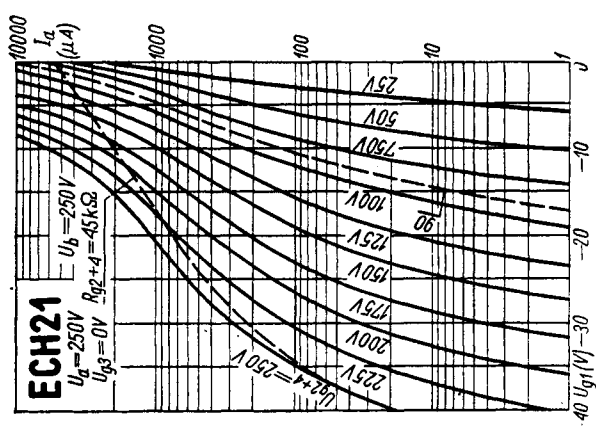
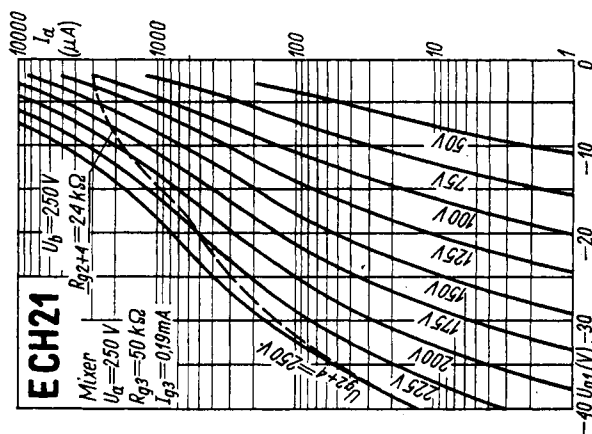
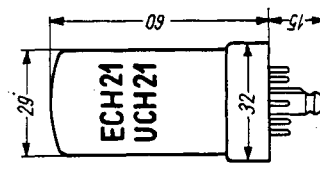
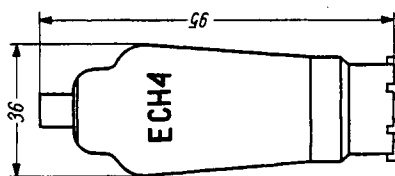
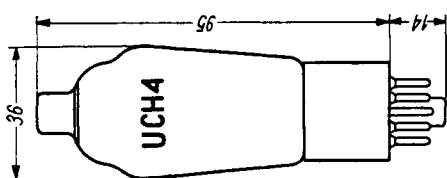
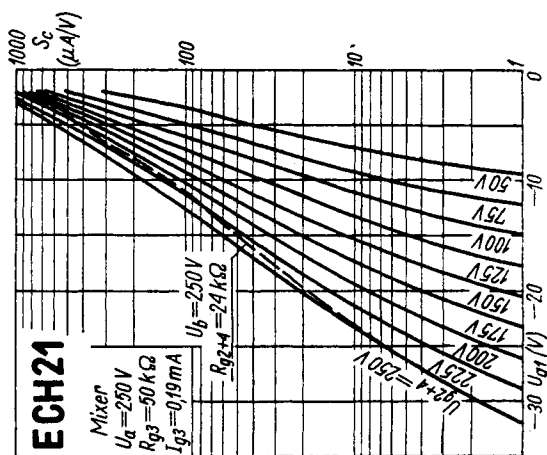
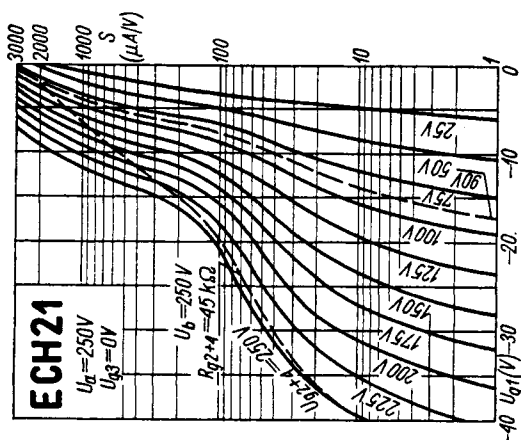
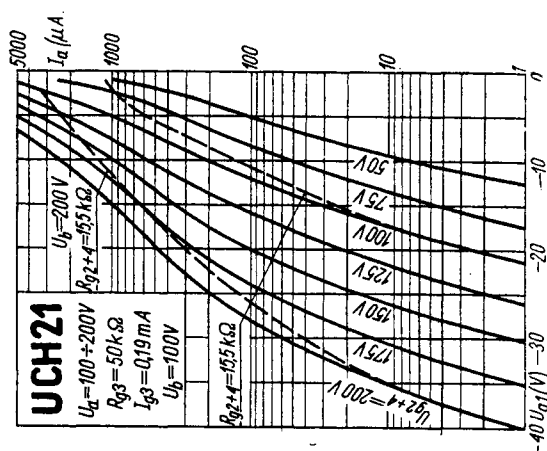
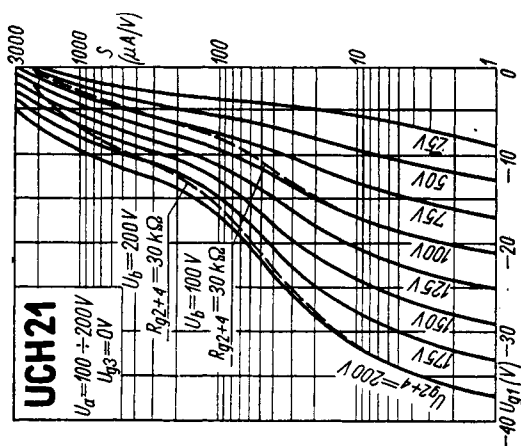
T.			U_f V	I_f A	Cl.	U_b V	R_{g1+4} k Ω	R_{aT} k Ω	U_a V	U_{g2+4} V	U_{g3} V	U_{g1} V	I_a mA	I_{g1+4} mA	I_{g3} mA	$S_c(S)$ $\mu A/V$	μ V/V	R_i M Ω	U_{f1k} V	$I_{k(H+T)}$ mA	P_{g^a} W	P_a W
ECH 4	eur	1	6,3	0,45	mixer	100	15,5		100	53		-1 ÷ -14	1,5	3	0,095	580 ÷ 5,8		1				
ECH 4 G	Phl	2	6,3	0,45	hept. Fig. 1	200	15,5		200	100		-2 ÷ -28	3,5	6,5	0,19	750 ÷ 7,5		1				
ECH 21	eur	3	6,3	0,33	hept.	250	24		250	100		-2 ÷ -24,5	3	6,2	0,19	750 ÷ 7,5		1,4				
UCH 4	Phl	4	15	0,15	hept.	100	30		120	50	0	-1 ÷ -15	2,6	1,9		(2000 ÷ 20)		0,7				
UCH 4	eur	4	20	0,1	osc.	200	30	20	200	94	0	-2 ÷ -28	5,2	3,5		(2000 ÷ 22)		0,7				
UCH 5	eur	5	20	0,1	triode.	250	45	20	250	90	0	-2 ÷ -36	5,3	3,5		(2000 ÷ 22)		0,9				
UCH 21	eur	3	20	0,1	stat. hept.	100		20	62				1,9									
					stat. triode.	200		20	118				4,1									
						250		20	160				4,5									
									250	100						maximum UCH 4/5/21			150	15	1	1,5
									300	100						maximum ECH 4/21			50	15	1	1,5
									100							maximum						0,8

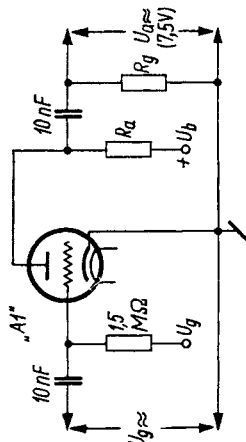
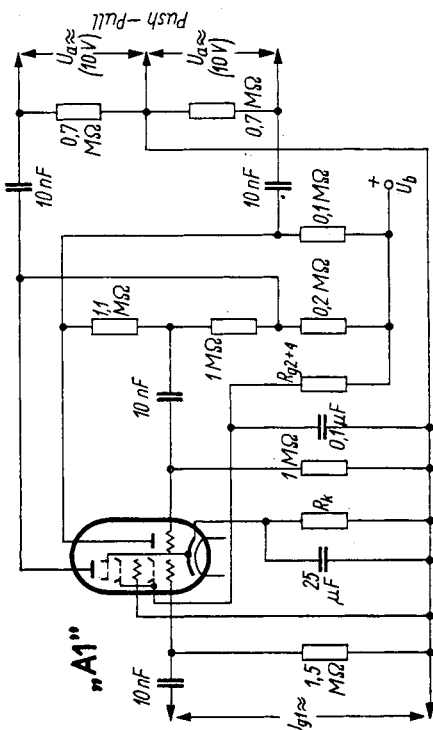
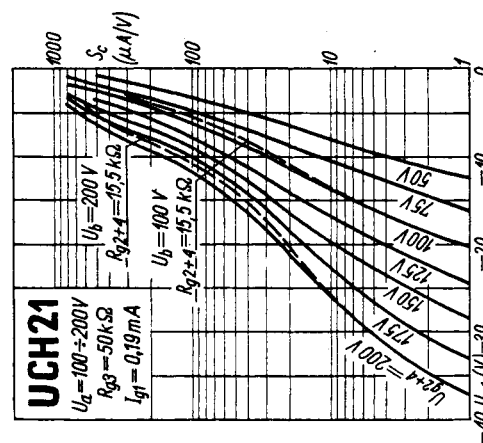
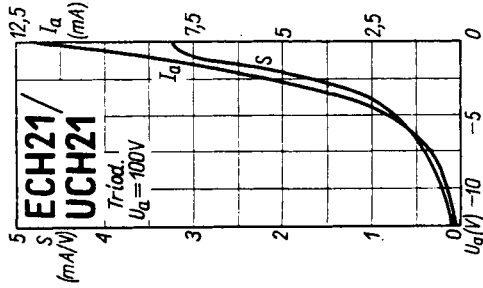
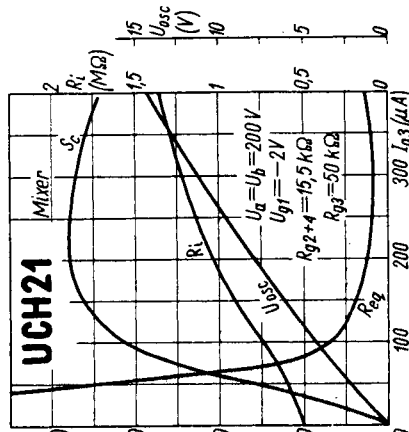
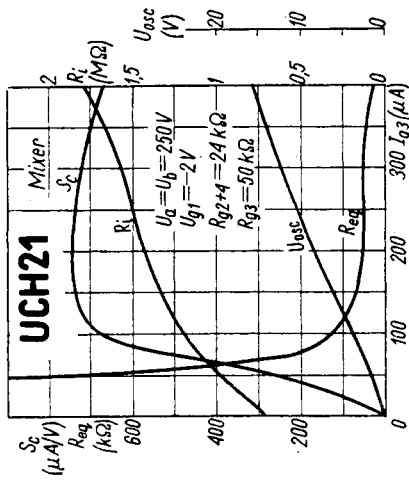
T.	C_{g1} pF	C_a pF	C_{g3} pF	$C_{g1/a}$ pF	$C_{g1/g3}$ pF	$C_{g1/f}$ pF	$C_{g1/k}$ pF	$C_{gT/g1}$ pF	$C_{gT/g3}$ pF	$C_{gT+g3/g1}$ pF
ECH 4	hept. 5,6 triode. 6	9,2 5,4	8,9	0,002 2,1	0,2	0,001 0,3	3	0,1	14	0,25
ECH 21	hept. 6,8 triode. 4,5	9,5 3,5	8	0,002 1,1	0,3	0,007 0,06	3,2	0,1	12,8	0,35
UCH 4	hept. 5,6 triode. 5,9	9,7 5,2	9,1	0,002 2,1	0,3	0,0015 0,3	2,8	0,1	13,8	0,25

Equivalents

E / R	Phl = ECH 4	UCH 71	Lor = UCH 21
ECH 71	Lor = ECH 21	X 143	Eng = ECH 21
TH 1	BB = ECH 21	20 CH 4	Phl = UCH 4

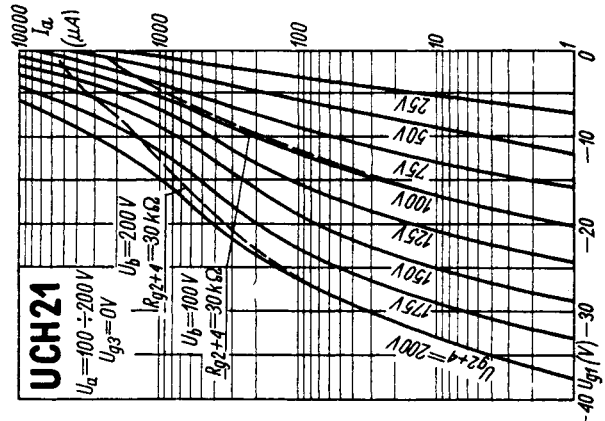






U_b	R_a	U_g	I_a	μ	h
V	kΩ	V	mA	$U_a \approx / U_g \approx$	%
100	50	-1	1.3	11	5.4
100	100	-1	0.68	10.5	5.8
100	200	-1	0.37	10	6.0
200	50	-2	2.8	11	2.2
200	100	-2	1.5	10.5	2.8
200	200	-2	0.8	10	2.8
250	50	-4	3	13	1.5
250	100	-4	1.7	13	1.6
250	200	-4	0.9	12	2.0

U_b	R_{g2+4}	R_k	$I_{a(H+T)}$	I_{g2+4}	U_{g1}	μ	h
V	MΩ	Ω	mA	mA	V	$U_a \approx / U_{g1} \approx$	%
100	0.18	700	1.1	0.4	0.15	65	3.1
200	0.18	700	2.1	0.8	0.13	75	2.5
250	0.25	650	2.5	0.75	0.1	100	0.8



T.			U_f	I_f	Cl.	$U_a=U_b$	R_1	R_2	R_{aT}	U_{gs+4}	U_{gt}	I_a	I_{gs+4}	I_{gs}	$S_c(S)$	μ	R_t	R_{gs}	R_k	$U_{f/k}$	I_k	P_{gs+4}	P_a
			V	A		V	k Ω	k Ω	k Ω	V	V	mA	mA	μA	$\mu A/V$	V/V	M Ω	k Ω	Ω	V	mA	W	W
ECH 41 UCH 41	eur eur	1	6,3 14	0,23 0,1	mixer hexod. Fig. 1	$\begin{cases} 100 \\ 170 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 22 \\ 22 \\ 22 \\ 33 \end{cases}$	$\begin{cases} 47 \\ 47 \\ 47 \\ 47 \end{cases}$		$\begin{cases} 53 \\ 87 \\ 105 \\ 105 \end{cases}$	$\begin{cases} -1 \div -14 \\ -1,8 \div -22 \\ -2,2 \div -27 \\ -2 \div -28 \end{cases}$	$\begin{cases} 1 \\ 2,2 \\ 3 \\ 3 \end{cases}$	$\begin{cases} 1 \\ 1,9 \\ 2,1 \\ 2 \end{cases}$	$\begin{cases} 200 \\ 320 \\ 360 \\ 350 \end{cases}$	$\begin{cases} 320 \div 3,2 \\ 450 \div 4,5 \\ 500 \div 5 \\ 500 \div 5 \end{cases}$		$\begin{cases} 1,4 \\ 1,2 \\ 1 \\ 2 \end{cases}$	$\begin{cases} 20 \\ 20 \\ 20 \\ 20 \end{cases}$	$\begin{cases} 200 \\ 200 \\ 225 \\ 200 \end{cases}$				
ECH 42 ECH 80 UCH 42 UCH 80 X 150 141 TH	eur eur eur eur Eng Cos	$\begin{cases} 1 \\ 2 \\ 1 \\ 2 \\ 3 \\ 4 \end{cases}$	$\begin{cases} 6,3 \\ 6,3 \\ 14 \\ 14 \\ 6,3 \\ 14 \end{cases}$	$\begin{cases} 0,23 \\ 0,23 \\ 0,1 \\ 0,1 \\ 0,33 \\ 0,1 \end{cases}$	osc. triiod. Fig. 1	$\begin{cases} 100 \\ 170 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 18 \\ 18 \\ 18 \\ 27 \end{cases}$	$\begin{cases} 27 \\ 27 \\ 27 \\ 27 \end{cases}$		$\begin{cases} 43 \\ 70 \\ 85 \\ 85 \end{cases}$	$\begin{cases} -1 \div -13,5 \\ -1,85 \div -25 \\ -2 \div -27,5 \\ -2 \div -29 \end{cases}$	$\begin{cases} 1,2 \\ 2,1 \\ 3 \\ 3 \end{cases}$	$\begin{cases} 1,4 \\ 2,6 \\ 3 \\ 3 \end{cases}$	$\begin{cases} 175 \\ 350 \\ 350 \\ 350 \end{cases}$	$\begin{cases} 530 \div 5,3 \\ 670 \div 6,7 \\ 750 \div 7,5 \\ 750 \div 7,5 \end{cases}$				$\begin{cases} 180 \\ 180 \\ 180 \\ 180 \end{cases}$				
					stat. hexod. Fig. 2	$\begin{cases} 100 \\ 170 \\ 250 \end{cases}$	$\begin{cases} 15 \\ 15 \\ 22 \end{cases}$	$\begin{cases} 22 \\ 22 \\ 27 \end{cases}$		$\begin{cases} 43 \\ 70 \\ 85 \end{cases}$	$\begin{cases} -1 \div -9,6 \\ -1,8 \div -15,5 \\ -2 \div -20,5 \end{cases}$	$\begin{cases} 1,2 \\ 2,1 \\ 3 \end{cases}$	$\begin{cases} 1,4 \\ 2,6 \\ 3 \end{cases}$	$\begin{cases} 175 \\ 350 \\ 350 \end{cases}$	$\begin{cases} 530 \div 14 \\ 670 \div 20 \\ 750 \div 24 \end{cases}$				$\begin{cases} 180 \\ 180 \\ 180 \end{cases}$				
					osc. triiod. Fig. 1	$\begin{cases} 100 \\ 170 \\ 200 \\ 250 \end{cases}$			$\begin{cases} 10 \\ 10 \\ 22 \\ 33 \end{cases}$			$\begin{cases} 3,4 \\ 6,5 \\ 5,5 \\ 5,1 \end{cases}$		$\begin{cases} 175 \\ 350 \\ 350 \\ 350 \end{cases}$	$\begin{cases} 700 \\ 750 \\ 650 \\ 600 \end{cases}$								
					stat. hexod.	$\begin{cases} 250 \\ 300 \end{cases}$				$\begin{cases} 125 \\ 125 \end{cases}$				$\begin{cases} \text{maximum} \\ \text{maximum} \end{cases}$	$\begin{cases} \text{UCH 41} \\ \text{ECH 41} \end{cases}$					$\begin{cases} 150 \\ 100 \end{cases}$	$\begin{cases} 7 \\ 7 \end{cases}$	$\begin{cases} 0,3 \\ 0,3 \end{cases}$	$\begin{cases} 0,8 \\ 0,8 \end{cases}$
					stat. triiod.	$\begin{cases} 100 \\ 175 \end{cases}$					$\begin{cases} 0 \\ 0 \end{cases}$	$\begin{cases} 8,5 \\ 19 \end{cases}$		$\begin{cases} \text{maximum} \\ \text{maximum} \end{cases}$	$\begin{cases} (1900) \\ \text{maximum} \end{cases}$					$\begin{cases} 100 \\ 100 \end{cases}$	$\begin{cases} 5,5 \\ 6 \end{cases}$		$\begin{cases} 0,9 \\ 0,8 \end{cases}$

Equivalents

CF 61	Maz = ECH 41	6 AN 7	amer = ECH 80
CF 141	Maz = UCH 41	6 CU 7	amer = ECH 42
ECH 43	eur = ECH 42	6 C 10	Eds = ECH 42
ECH 113	eur = ECH 42	14 K 7	amer = UCH 42
UCH 43	eur = UCH 42	14 Y 7	amer = UCH 80
X 142	Eng = UCH 42	62 TH	Cos = ECH 42

T.	C_{gt}	C_a	$C_{a/gt}$	$C_{gt/gs}$	$C_{gs/aH}$	$C_{aT/aH}$	$C_{gl/aT}$
	pF	pF	pF	pF	pF	pF	pF
ECH 41 UCH 41	$\begin{cases} 3,4 \\ 4,9 \end{cases}$	$\begin{cases} 6 \\ 1,5 \end{cases}$	$\begin{cases} 0,1 \\ 1,2 \end{cases}$	$\begin{cases} 0,35 \\ 0,35 \end{cases}$	$\begin{cases} 0,2 \\ 0,2 \end{cases}$	$\begin{cases} 0,5 \\ 0,5 \end{cases}$	$\begin{cases} 0,06 \\ 0,06 \end{cases}$
ECH 42 UCH 42	$\begin{cases} 4 \\ 5,9 \end{cases}$	$\begin{cases} 9,4 \\ 2,4 \end{cases}$	$\begin{cases} 0,1 \\ 1,3 \end{cases}$	$\begin{cases} 0,35 \\ 0,35 \end{cases}$	$\begin{cases} 0,2 \\ 0,2 \end{cases}$	$\begin{cases} 0,5 \\ 0,5 \end{cases}$	$\begin{cases} 0,06 \\ 0,06 \end{cases}$

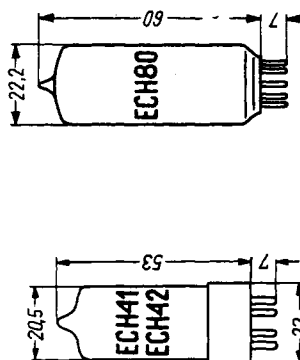
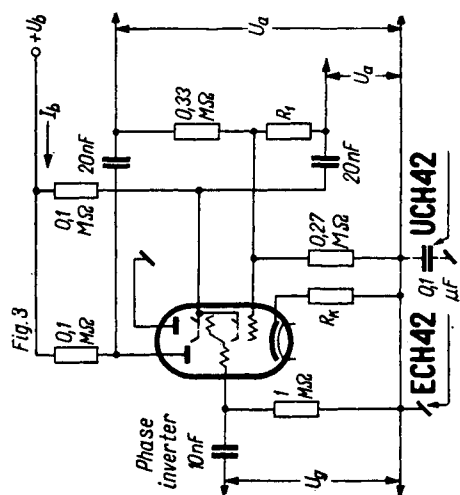
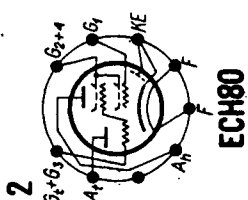
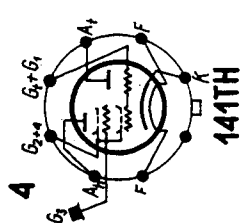


Fig. 3

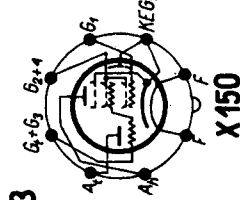
T.	U_b	I_b	$U_a \approx$	h
ECH 41	100	1.2	5	1.5
($R_1 = 0.56 \text{ M}\Omega$)	170	2	5 ÷ 10	1 ÷ 1.8
($R_2 = 1800 \Omega$)	250	3	5 ÷ 15	0.8 ÷ 1.8
($\mu = 10$)	350	4.2	5 ÷ 15	0.7 ÷ 1.6
ECH 42	100	1.4	5	1.9
($R_1 = 0.47 \text{ M}\Omega$)	165	2.4	5 ÷ 10	1.5 ÷ 1.6
($R_2 = 1200 \Omega$)	250	3.6	5 ÷ 15	1.2 ÷ 1.7
($\mu = 11$)	350	5.1	5 ÷ 15	1.1 ÷ 1.4



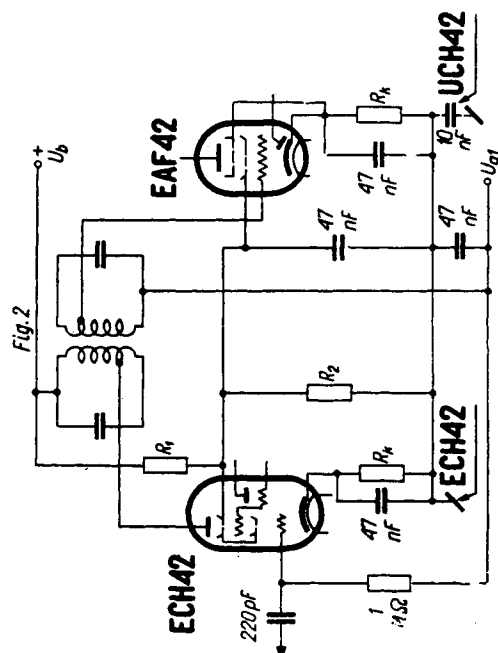
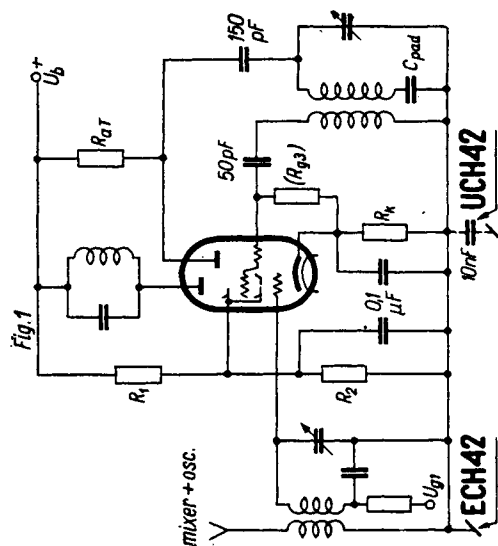
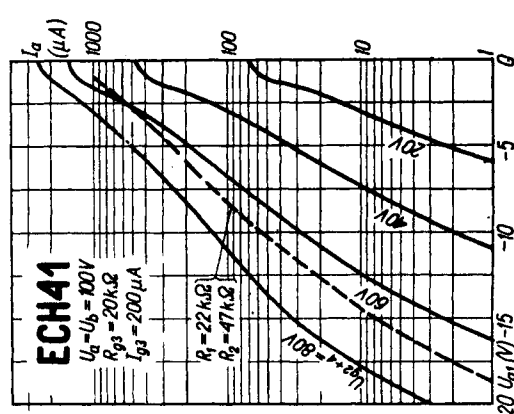
ECH42

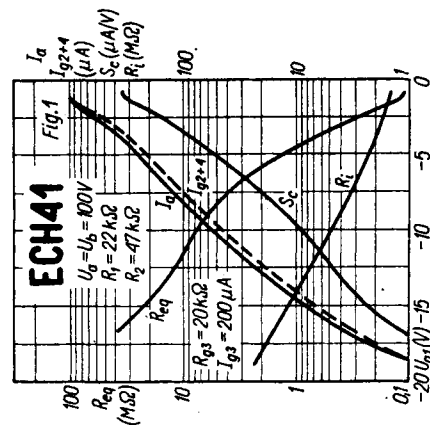
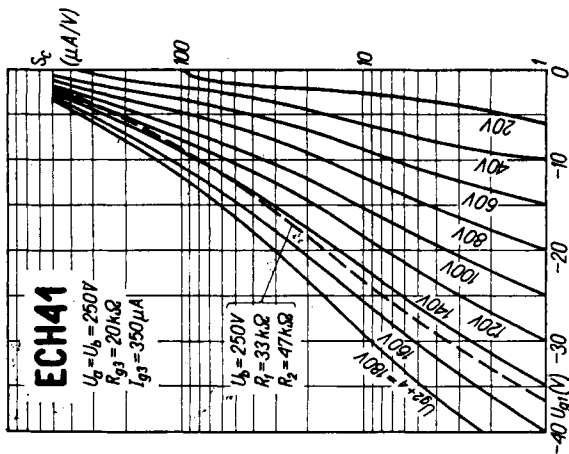
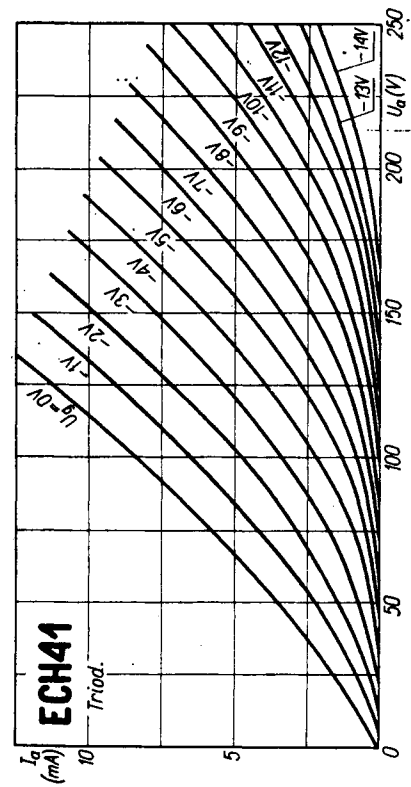
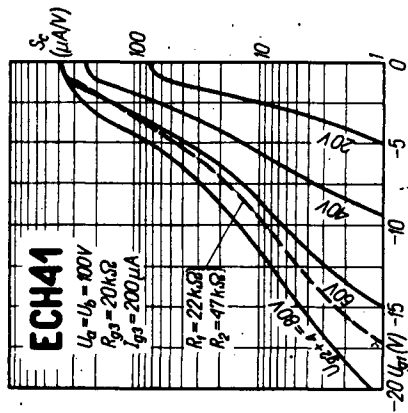
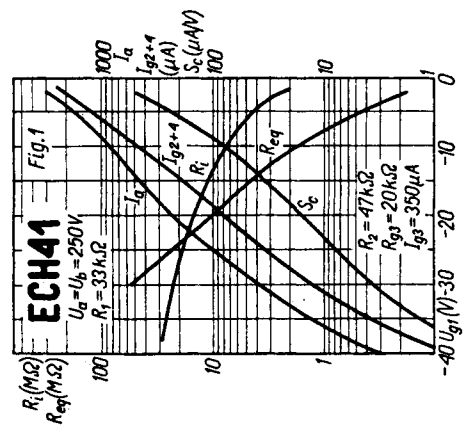
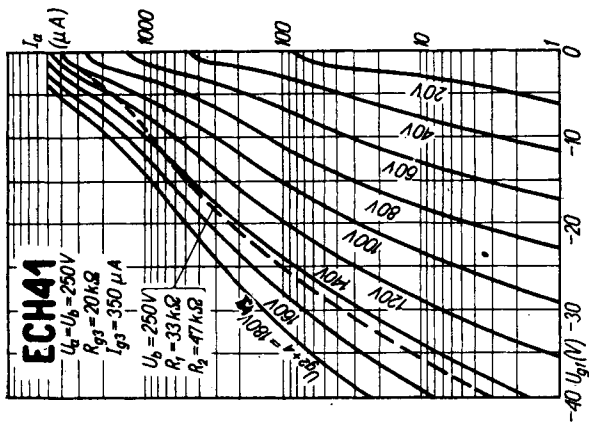


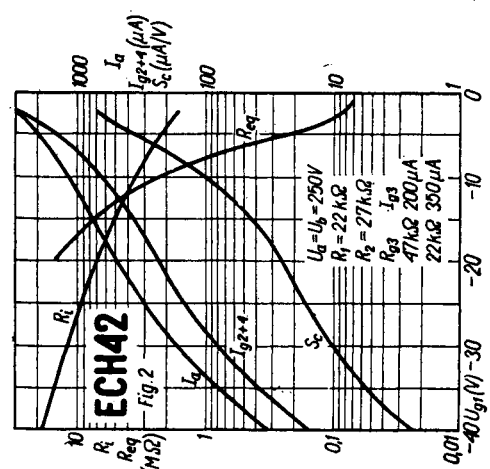
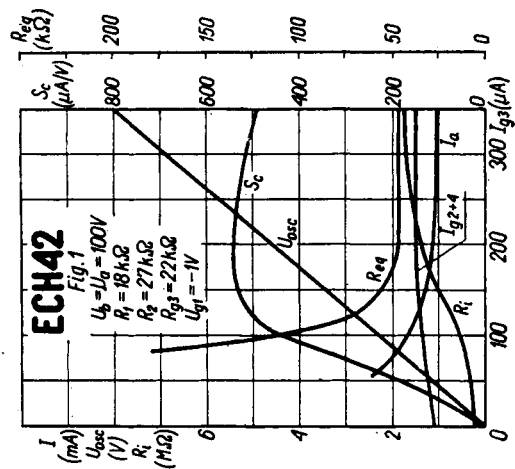
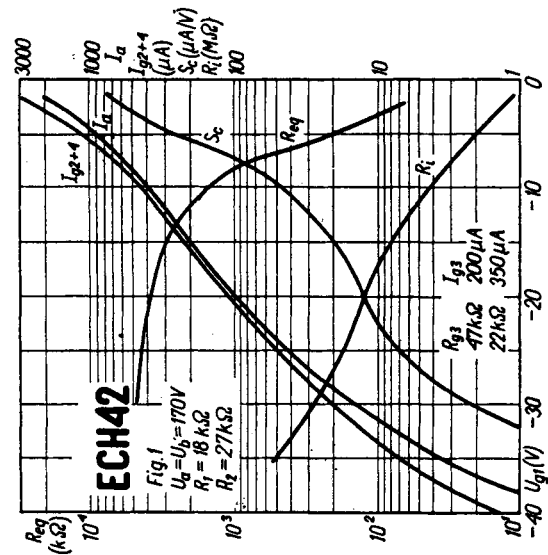
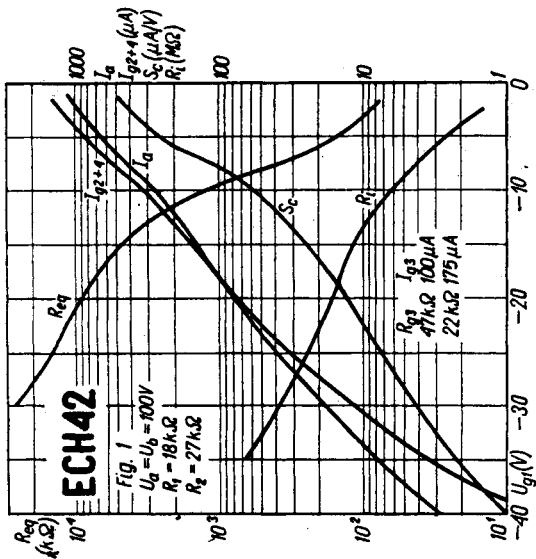
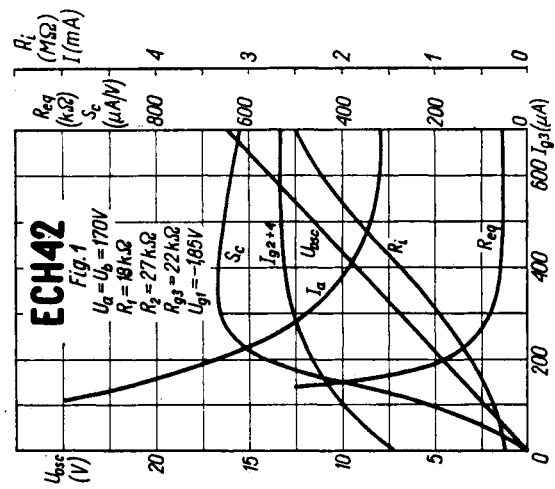
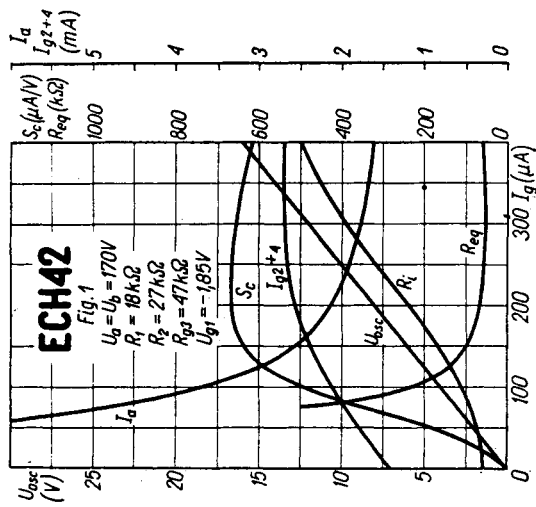
141TH

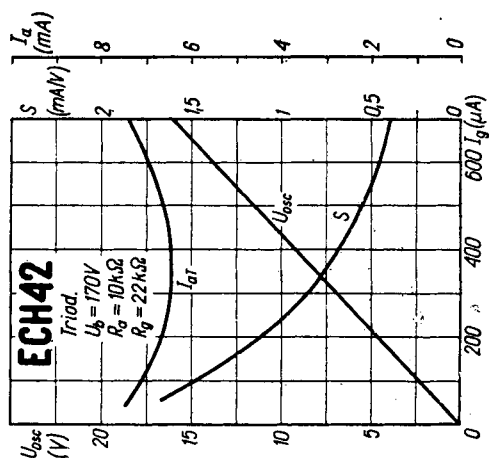
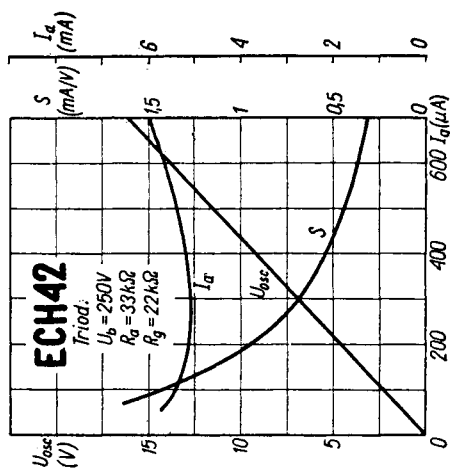
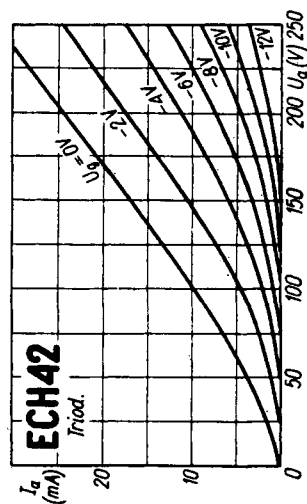
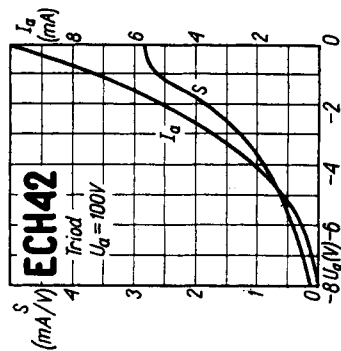
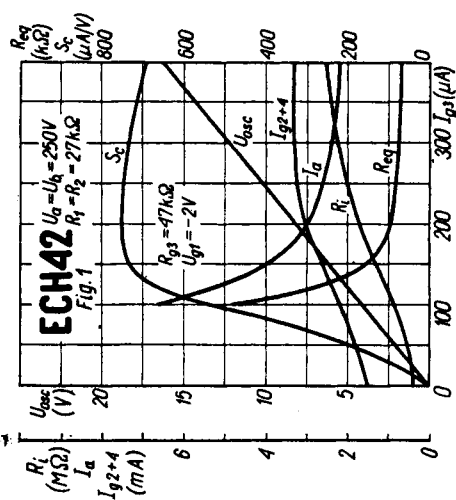
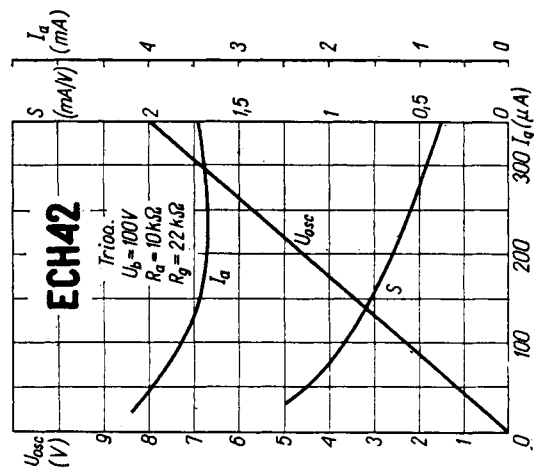
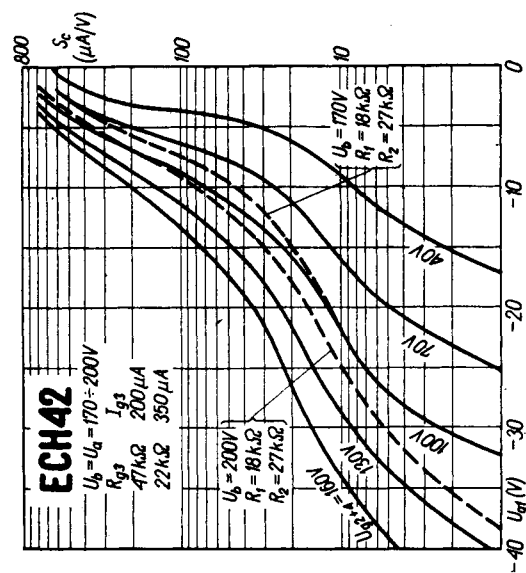


X150

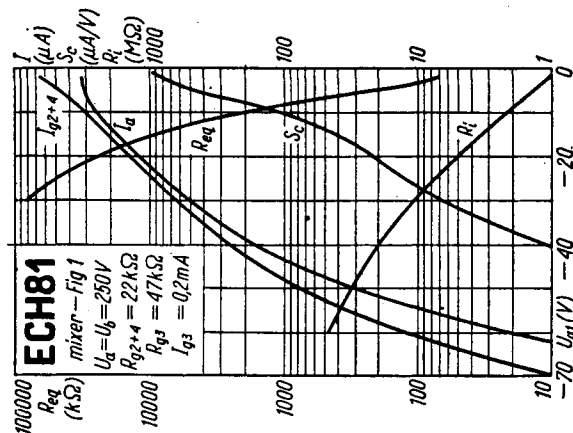
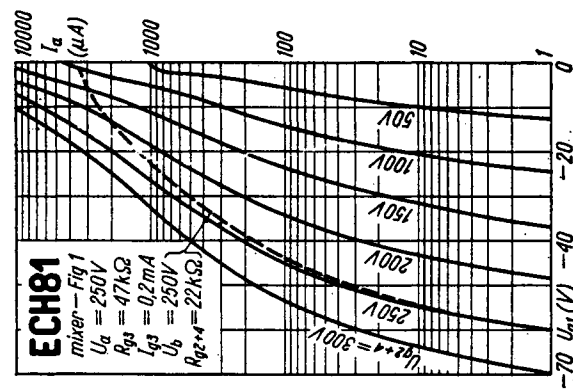
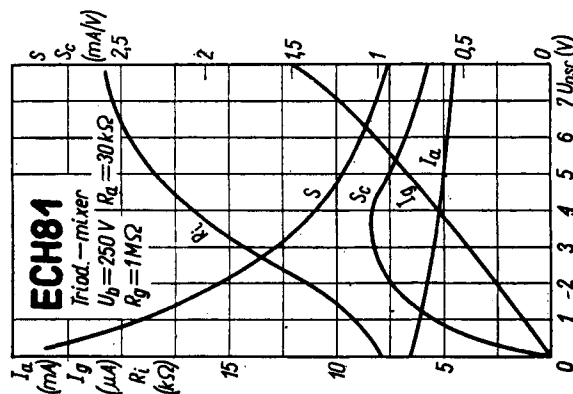
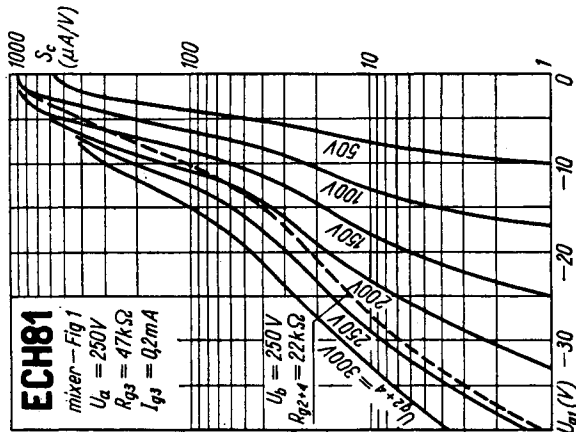
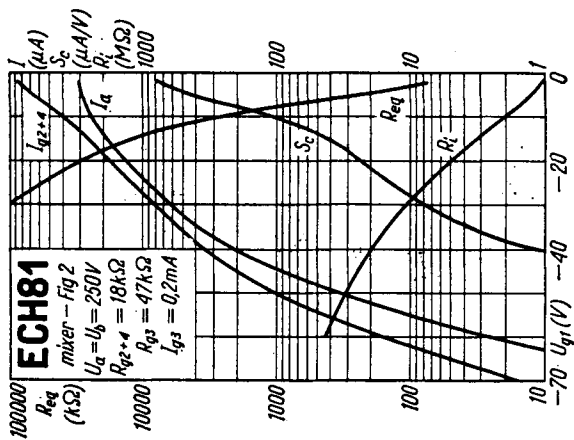
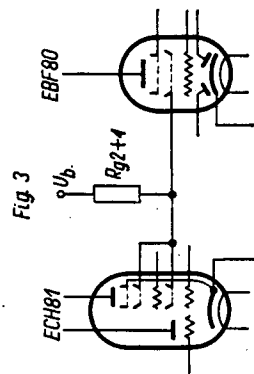
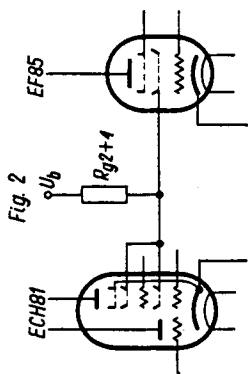
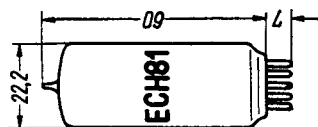
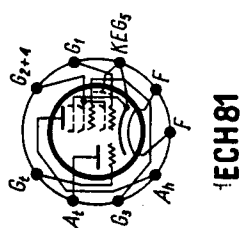
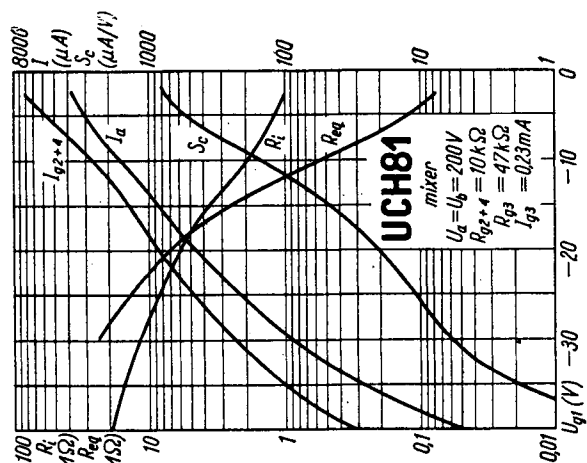


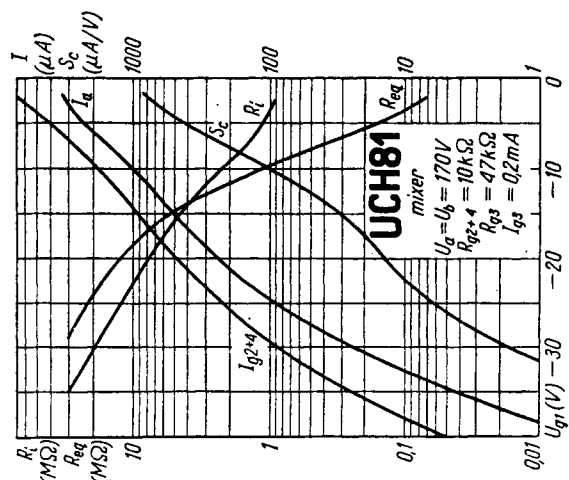
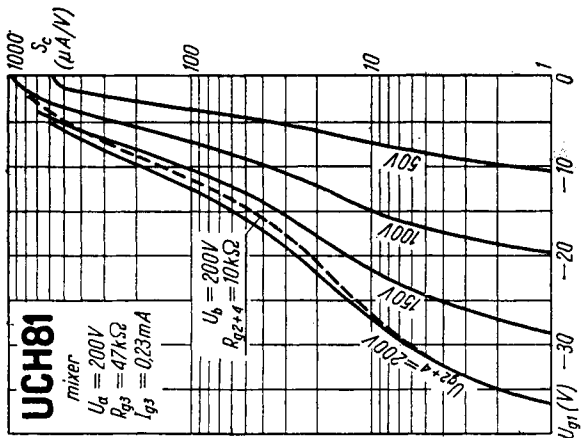
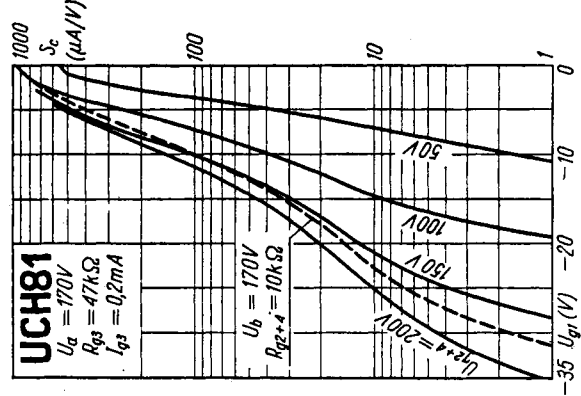
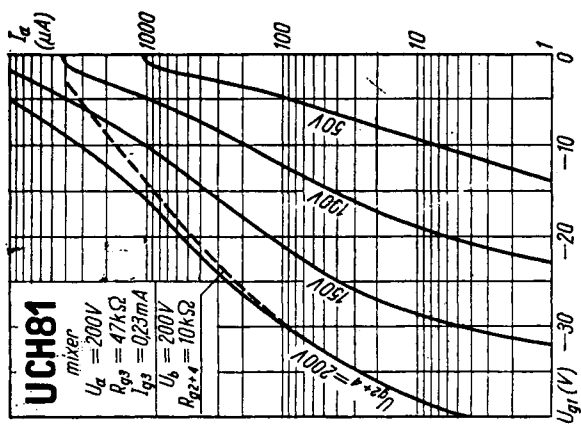
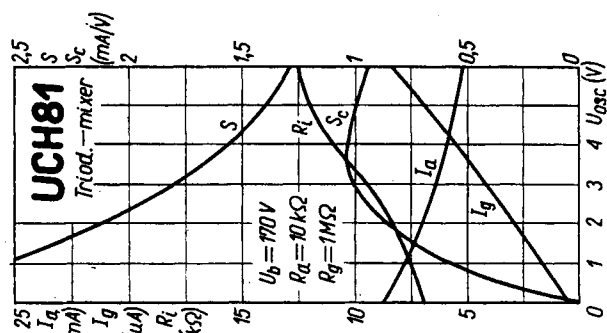
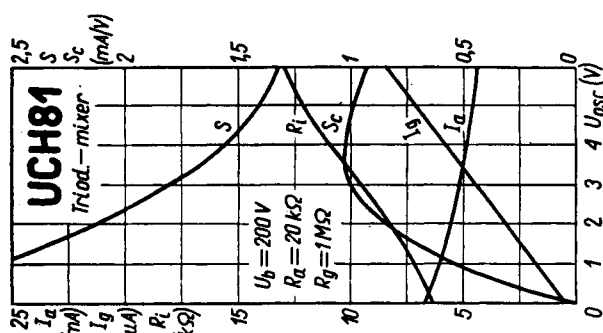
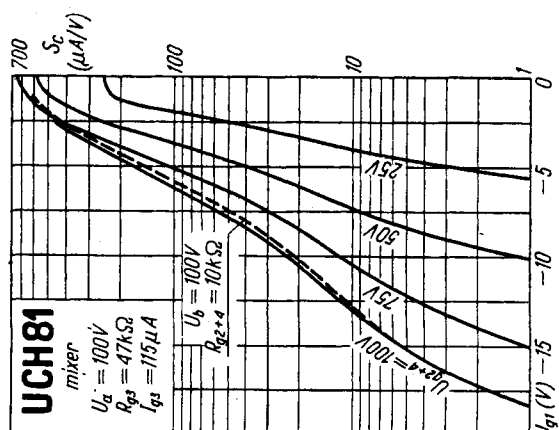
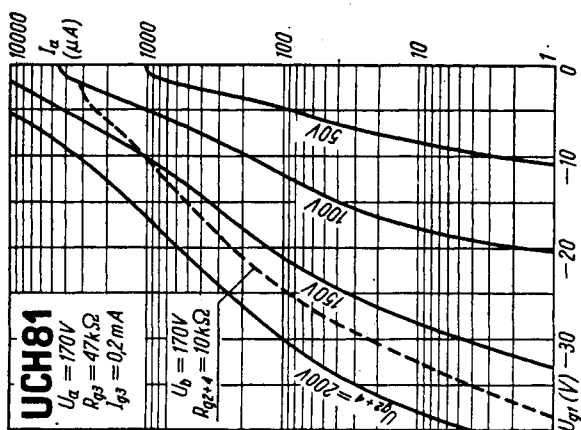


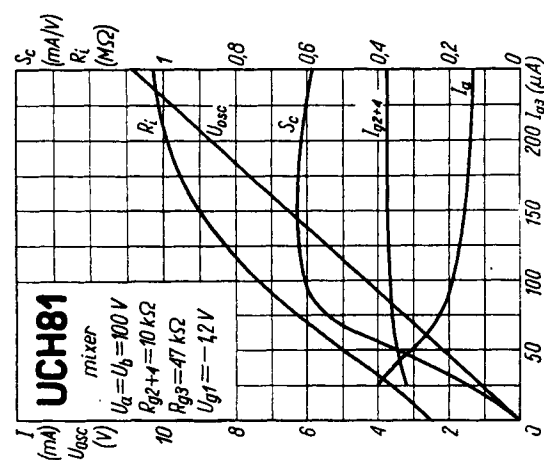
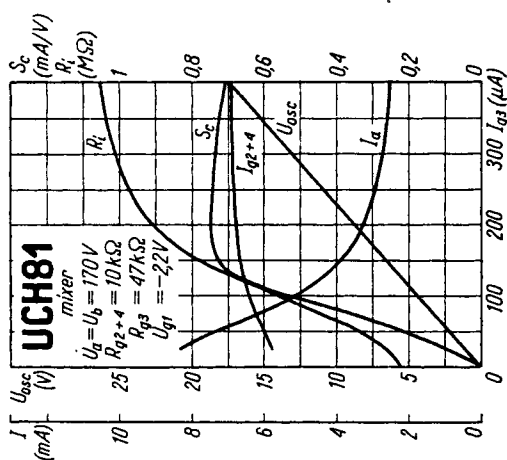
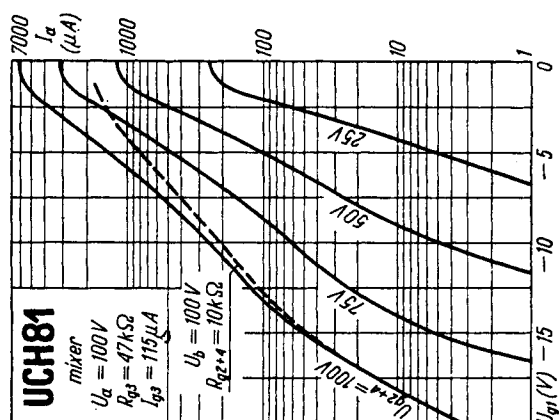
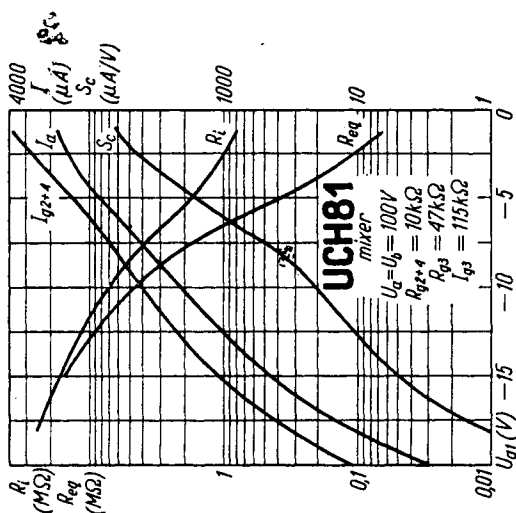
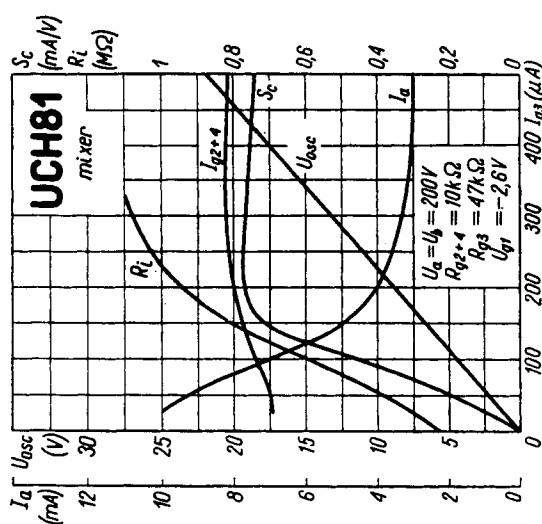
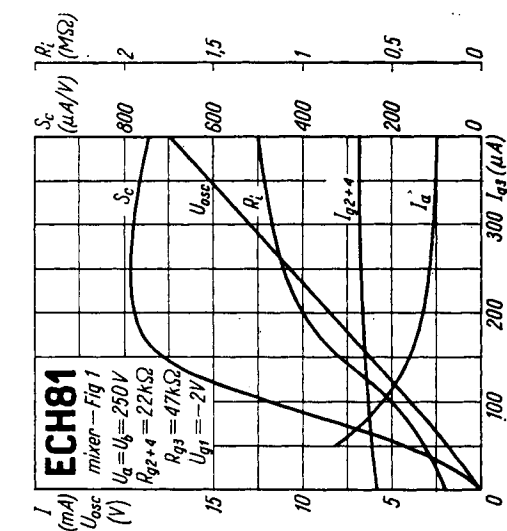


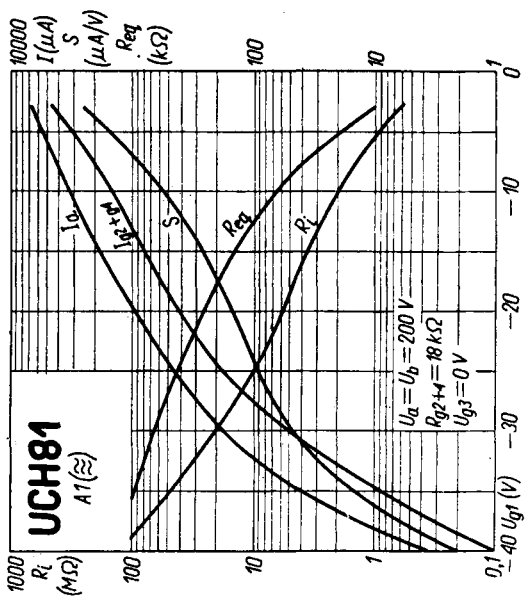
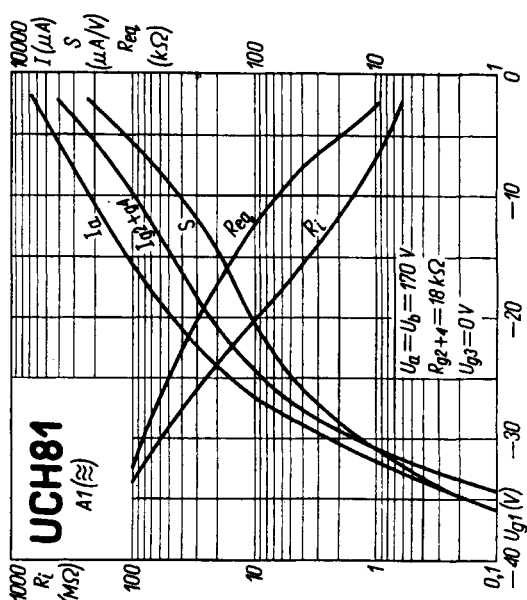
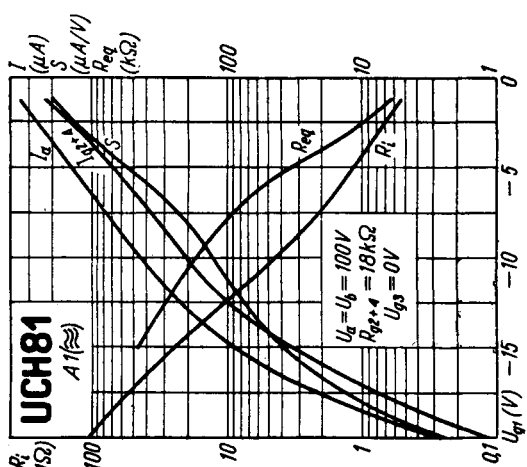
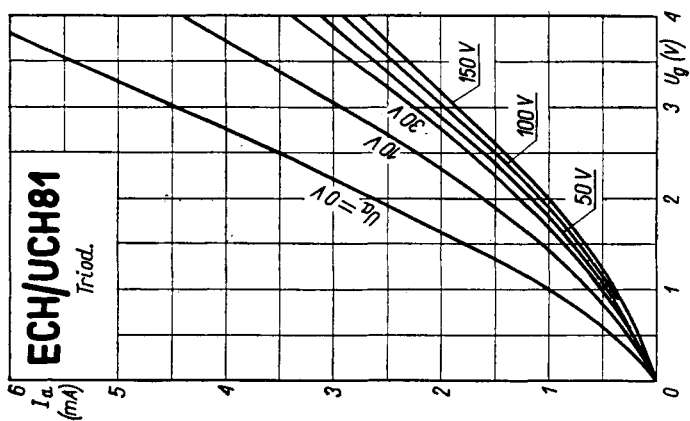
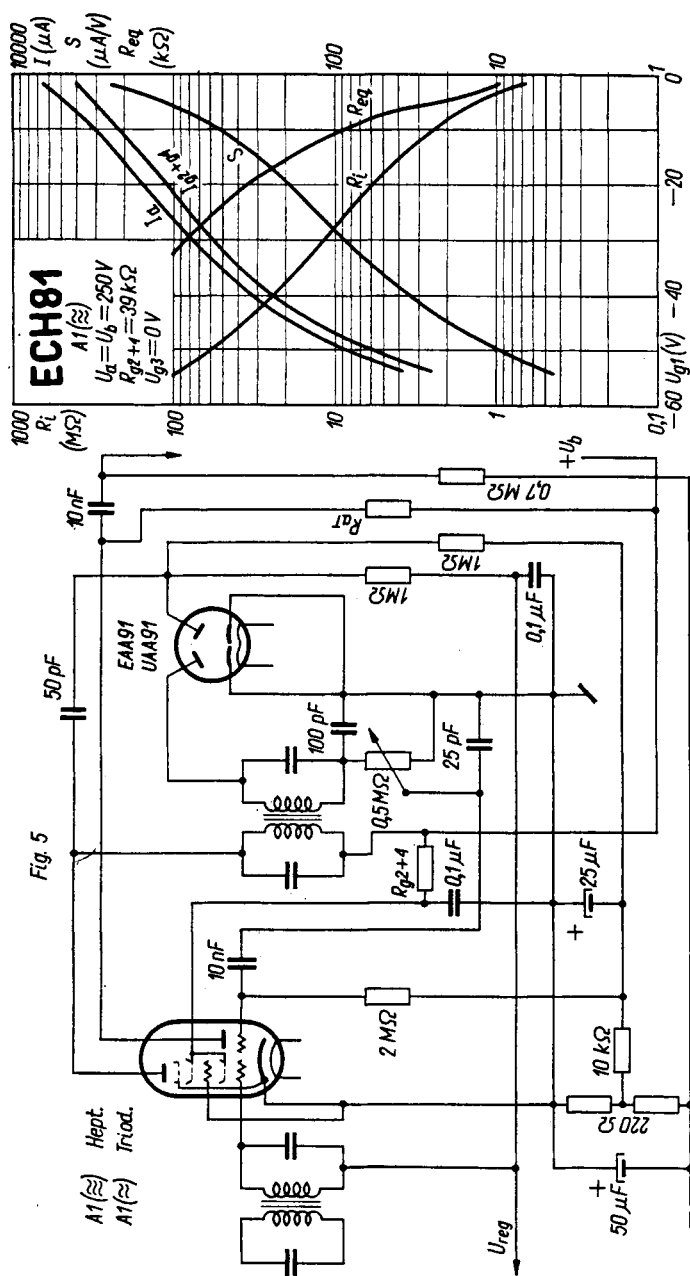


T.			U_f	I_f	Cl.	U_b	R_{g2+4}	R_aT	U_a	U_{g2+4}	U_{g1}	I_a	I_{g2+4}	I_{g3}	$S_c(S)$	μ	R_f	U_f/k	I_k	P_{g2+4}	P_a
			V	A		V	k Ω	k Ω	V	V	V	mA	mA	mA	$\mu A/V$	(g_m/g_n)	M Ω	V	mA	W	W
ECH 81 HCH 81 UCH 81 XCH 81	eur	1	6,3	0,3	mixer.-hept. Fig. 1	$\left\{ \begin{matrix} 100 \\ 170 \\ 200 \end{matrix} \right\}$	$\left\{ \begin{matrix} 10 \\ 10 \\ 10 \end{matrix} \right\}$		100	63	$\left\{ \begin{matrix} -1,2 \div -14,5 \\ -2,2 \div -24 \\ -2,6 \div -28 \end{matrix} \right\}$	$\left\{ \begin{matrix} 1,7 \\ 3,2 \\ 3,7 \end{matrix} \right\}$	$\left\{ \begin{matrix} 3,7 \\ 6,8 \\ 8,1 \end{matrix} \right\}$	$\left\{ \begin{matrix} 0,115 \\ 0,2 \\ 0,23 \end{matrix} \right\}$	$\left\{ \begin{matrix} 620 \div 6,2 \\ 750 \div 7,5 \\ 775 \div 7,75 \end{matrix} \right\}$		$\left\{ \begin{matrix} 0,8 \\ 0,9 \\ 1 \end{matrix} \right\}$				
	eur	1	12,6	0,15	mixer.-hept. Fig. 2	250	18		250	97	$1,9 \div -28,5$	3	$6,1 \div 2,4$	0,2	$750 \div 7,5$	1	1				1,7
	eur	1	19	0,1	mixer.-hept. Fig. 3	250	12		250	92	$2 \div -28,5$	2,5	$5,5 \div 7,7$	0,2	$700 \div 7$	1	1				1,7
	eur	1	3,15	0,6	All (Ξ)-hept. Fig. 5	$\left\{ \begin{matrix} 100 \\ 170 \\ 200 \end{matrix} \right\}$	$\left\{ \begin{matrix} 18 \\ 18 \\ 18 \end{matrix} \right\}$		100	60	$\left\{ \begin{matrix} -1,2 \div -16,5 \\ -2,2 \div -28 \\ -2,6 \div -33 \end{matrix} \right\}$	$\left\{ \begin{matrix} 3,4 \\ 6,2 \\ 7,6 \end{matrix} \right\}$	$\left\{ \begin{matrix} 2,2 \\ 3,8 \\ 4,3 \end{matrix} \right\}$	$\left\{ \begin{matrix} 0 \\ 0 \\ 0 \end{matrix} \right\}$	$\left\{ \begin{matrix} (2000 \div 20) \\ (2300 \div 23) \\ (2400 \div 24) \end{matrix} \right\}$	$\left\{ \begin{matrix} (20) \\ (20) \\ (20) \end{matrix} \right\}$	$\left\{ \begin{matrix} 0,5 \\ 0,6 \\ 0,6 \end{matrix} \right\}$				
ECH 81 HCH 81 UCH 81 XCH 81	eur	1	3,15	0,6	All (Ξ)-hept. Fig. 2	250	39		250	100	$-2 \div -42$	6,5	3,8	0	$(2400 \div 24)$	(20)	0,7				0,8
						250	22		250	103	$-2,1 \div -42$	6,5	$4,1 \div 2,6$	0	$(2400 \div 24)$	(20)	0,7				
					osc.-triode.	$\left\{ \begin{matrix} 100 \\ 170 \\ 200 \end{matrix} \right\}$	$\left\{ \begin{matrix} 15 \\ 15 \\ 15 \end{matrix} \right\}$		63			$\left\{ \begin{matrix} 2,5 \\ 4,5 \\ 5,4 \end{matrix} \right\}$	$\left\{ \begin{matrix} 0,12 \\ 0,2 \\ 0,24 \end{matrix} \right\}$	$\left\{ \begin{matrix} 0,12 \\ 0,2 \\ 0,24 \end{matrix} \right\}$	$\left\{ \begin{matrix} 530 \\ 580 \\ 580 \end{matrix} \right\}$						
					stat.-hept.	250	33		100	125		4,5	0,2	0,2	650						
ECH 81 HCH 81 UCH 81 XCH 81					stat.-triode.	$\left\{ \begin{matrix} 100 \\ 100 \\ 250 \end{matrix} \right\}$			$\left\{ \begin{matrix} 300 \\ 300 \\ 250 \end{matrix} \right\}$	125	0										
										125	-3										









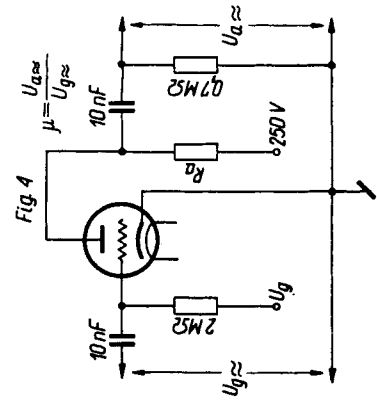
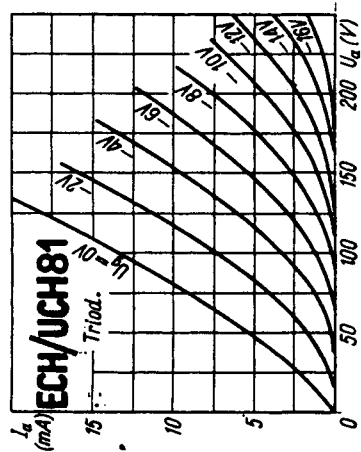
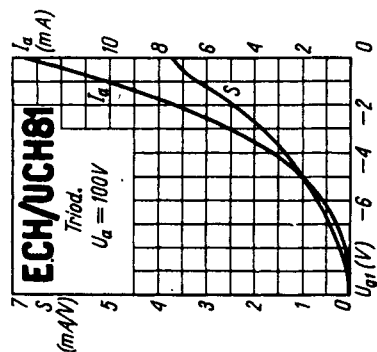
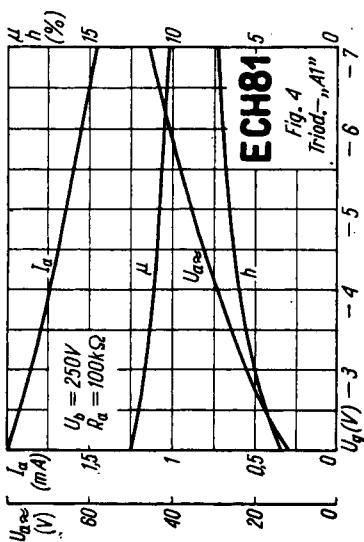
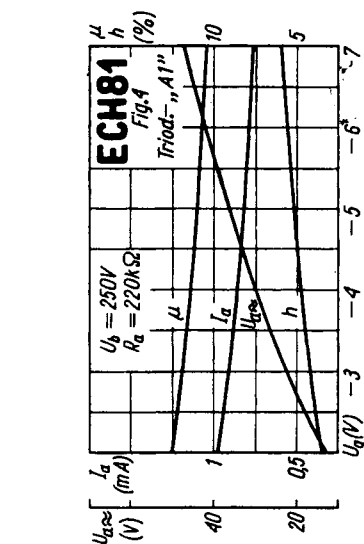
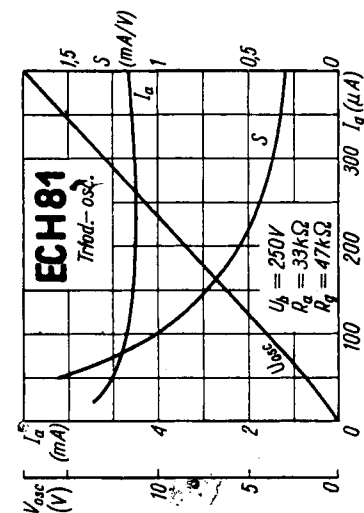
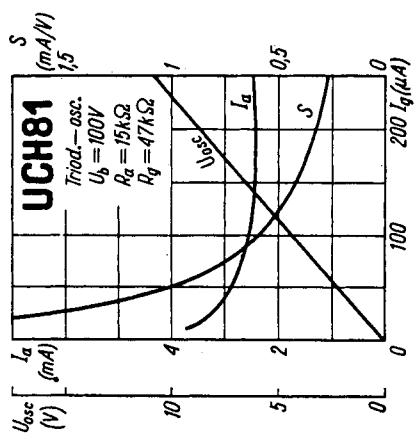
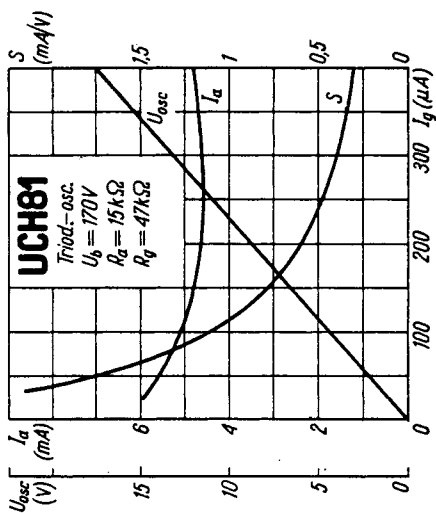
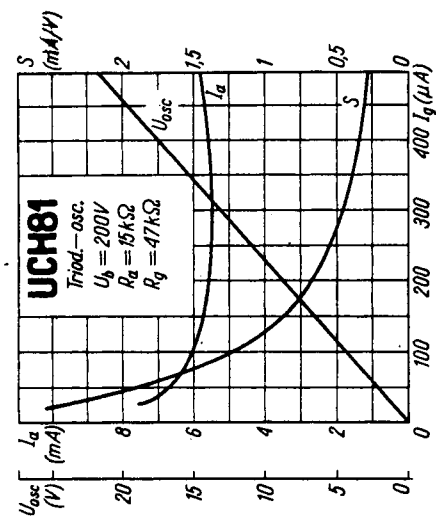


Fig. 4/5

R_a	U_b	I_a	$U_a \approx$	μ	h
$k\Omega$	V	mA	V	$U_a \approx / U_g \approx$	%
100	-2	2	12	12.5	3.5
100	-4	1.75	30	11.1	6
200	-2	0.97	13	12.5	2.5
200	-4	0.85	30	11.3	4.7

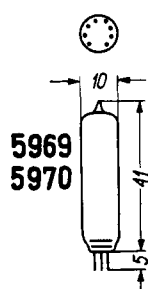
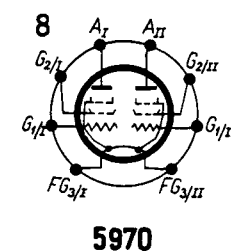
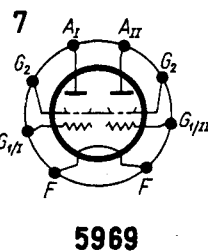
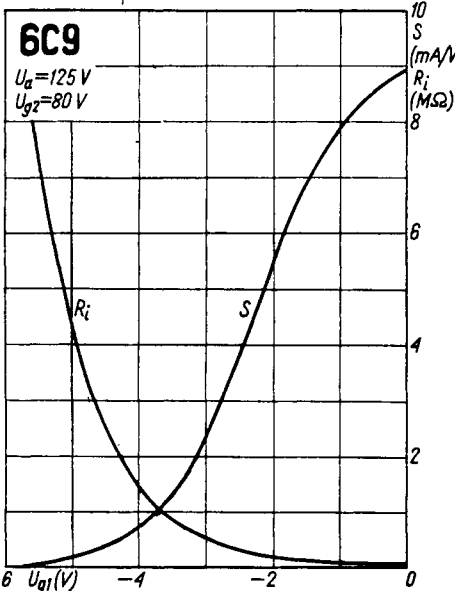
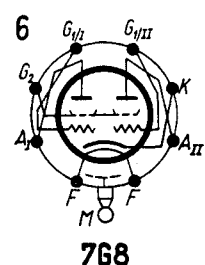
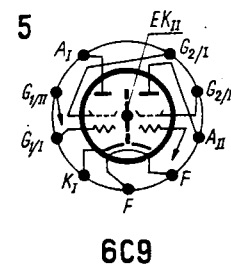
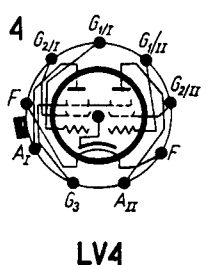
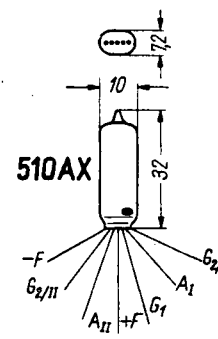
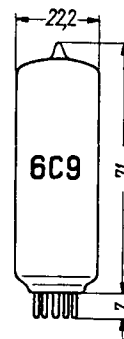
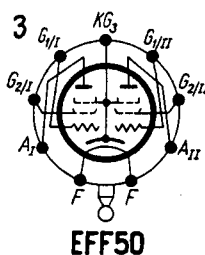
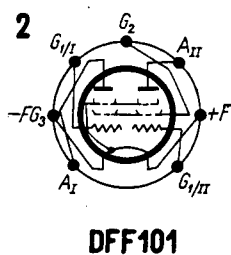
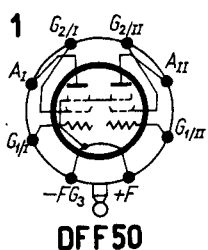
T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g2}	S	R_i	$U_{f/k}$	I_k	P_{g2}	P_a
			V	A	V	V	V	mA	mA	mA/V	k Ω	V	mA	W	W
DFF 50	Phi	1	1,4	0,1	25	25	-1,1	2,25	0,5	1,2	32,5				
DFF 51	Phi	1	1,4	0,05	25	25	0	2,1	0,4	0,7	55				
DFF 101	TuU	2	1,4	0,025	45	45	0	1	0,4	0,22	450				
EFF 50	Phi	3	6,3	0,6	250	200	-2	6	0,8	8	350				3
					300	225	-2	10	1,5	10	250				
EFF 51	Phi	3	6,3	0,75	250	200	-2	6	1,2	7,5	350				
					300	225	-2	10	1,8	9	250				
					300	225			maximum			50	15	0,5	3
LV 4	TIf	4	12,6	0,3	250	200	-1,75	10	1,9	8,5	300				
					300	300			maximum			50	15	0,6	3
6 C 9	Syl	5	6,3	0,4	125	80	-1	10	1,5	8	100				
17 C 9	Syl	5	16,8	0,15	250	180			maximum			100	20	0,5	1,5
7 G 8	amer	6	6,3	0,3	250	100	-2,5	4,5	0,8	2,1	225				
510 AX	Ray	9	0,625	0,05	30	30 ¹⁾		0,06		0,065	500				
5969	Ray	7	1,25	0,2	135	45	-3	6	0,5	1,7					
5970	Ray	8	1,25	0,16	45	45		3	0,9	1,85	170				

¹⁾ $U_{b/g2} = 30$ V, $R_{g2} = 200$ k Ω , $R_{g1} = 5$ M Ω

Equivalents

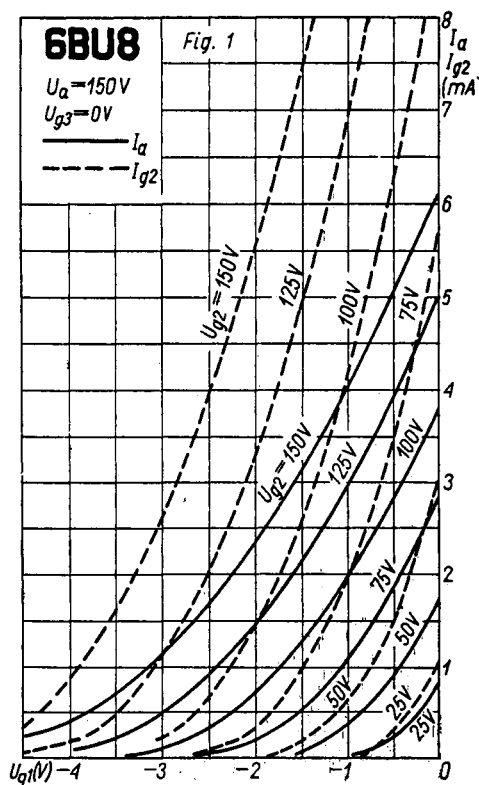
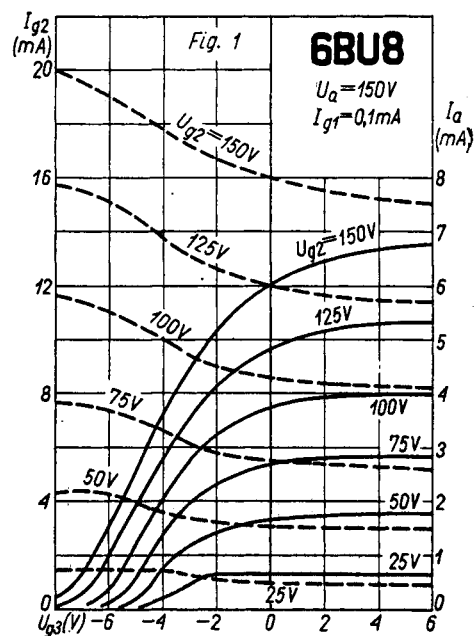
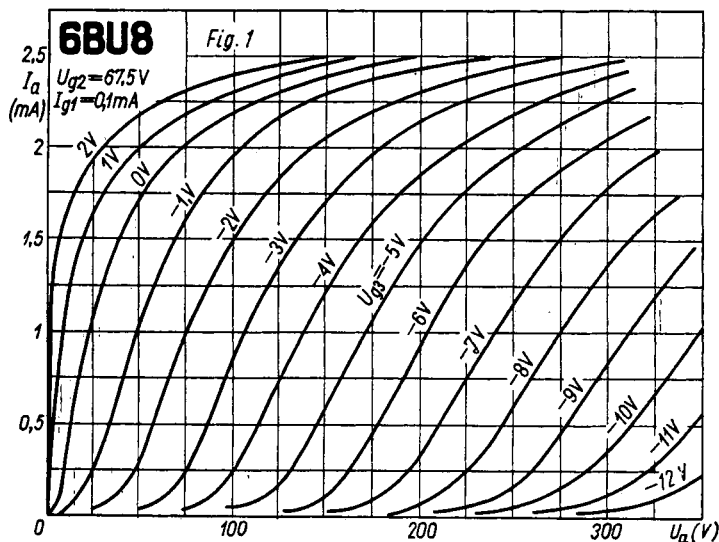
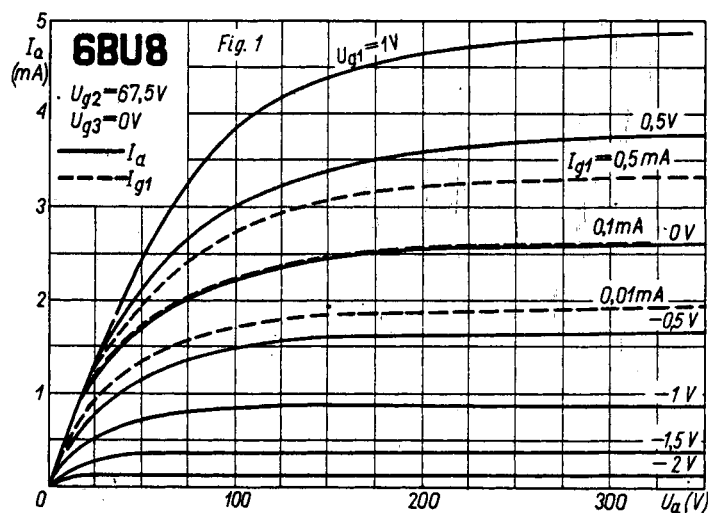
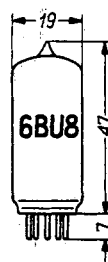
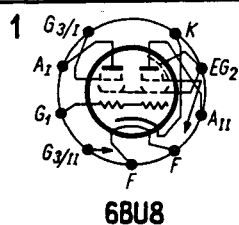
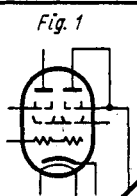
CK 510 AX	Ray	= 510 AX
CK 5969	Ray	= 5969
CK 5970	Ray	= 5970
1206	amer	= 7 G 8

T.	sect.	C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	C_f/k	$C_{aI/aII}$	$C_{g1I/g1II}$	$C_{g1I/aII}$	$C_{g1II/aI}$
		pF	pF	pF	pF	pF	pF	pF	pF	pF
EFF 51	I = II	9,6	4,5	0,04	0,1					
6 C 9	I	4,4	2,2	0,055		4,2				
	II	4,2	2,2	0,06		4,8	0,003	0,001	0,001	0,032



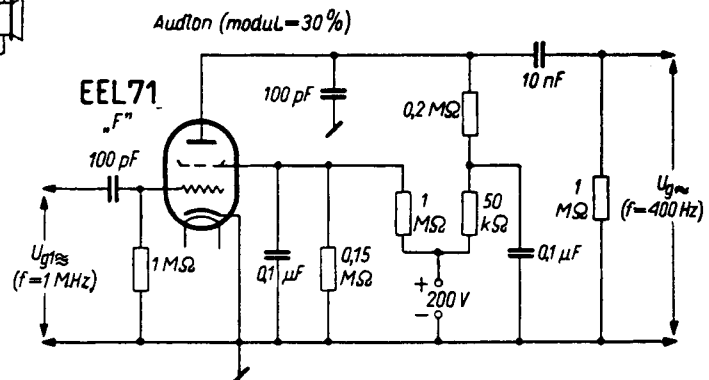
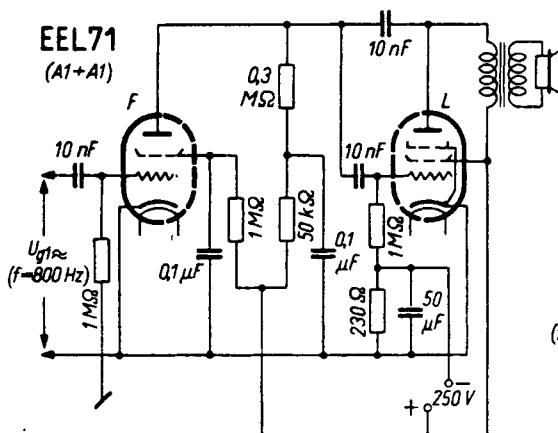
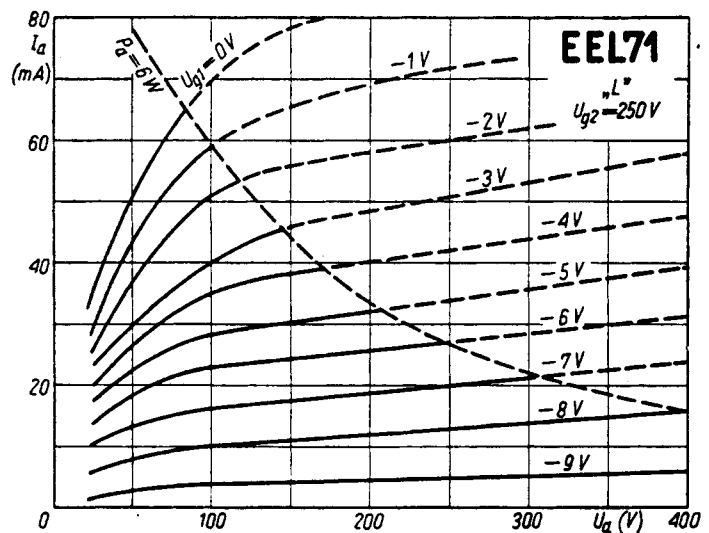
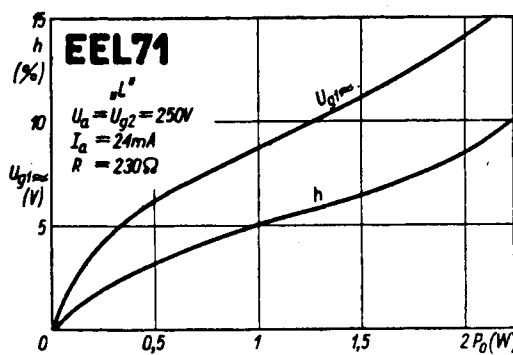
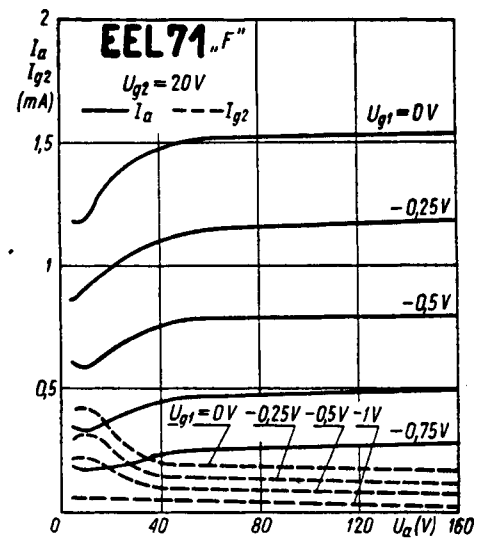
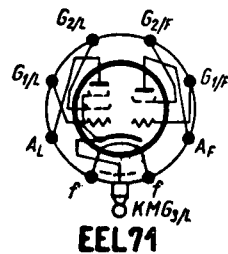
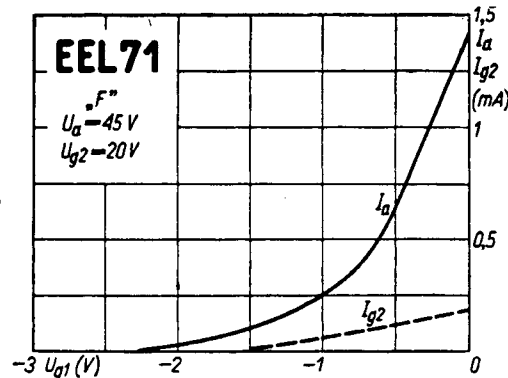
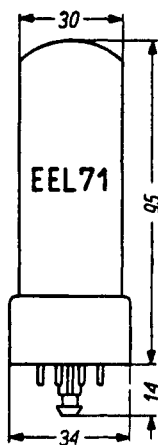
T.		U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2} mA	I_{g1} mA	$S(g_1/a)$ mA/V	$S(g_3/a)$ mA/V	$U_{f/k}$ V	I_k mA	P_{g2} W	P_a W
3 BU 8	amer	3,15	0,6	Fig. 1 A	100	67,5	0	0	2,2		0,1	1,5					
4 BU 8	amer	4,2	0,45		100	67,5				6,5	0,1		0,18		6,6		
6 BU 8	amer	6,3	0,3		100	67,5	-10								7,8		
12 BU 8	amer	12,6	0,15		100	67,5	0		2,2	3,3	0,1	maximum		200	10,5	0,6	0,9

	C_{g1} pF	C_a pF	C_{g2} pF	$C_{g3/a}$ pF	$C_{g3/g3}$ pF
I = II sect.	6	3	3,6	1,9	0,015



T.		U_f	I_f	Cl.	U_a	U_{g1}	U_{g2}	I_a	I_{g1}	S	R_i	R_k	R_o	P_o	$U_{g1\sim}$	h	R_{g1}	I_k	P_{g1}	P_a
		V	A		V	V	V	mA	mA	mA/V	k Ω	Ω	k Ω	W	V	%	M Ω	mA	W	W
EEL 71	Lor	6,3	0,73	stat. (F)	50	30	-0,85	1	0,1	1,4	800									
				A(≈) (L)	250	250				maximum										
				stat. (L)	250	250	-6,5	24	4	6,5	70	230	9	2,3	3,1	10	2	3	0,15	0,65
										maximum ($U_{f/k} = 50$ V)							1,2	30	1,2	6

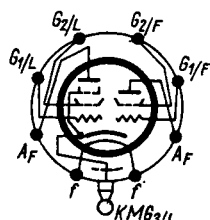
	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
F	5,6	5,7	0,12
L			0,6



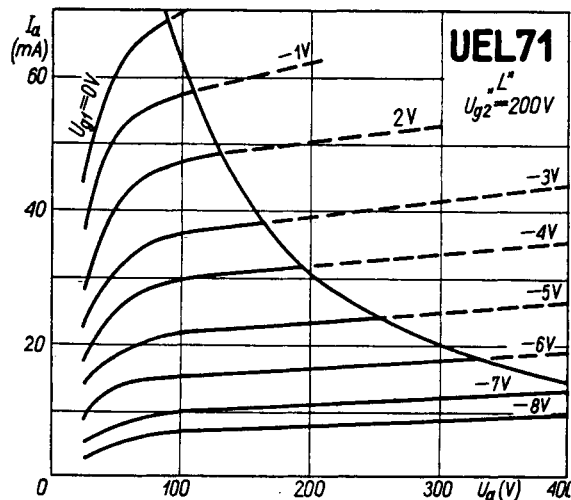
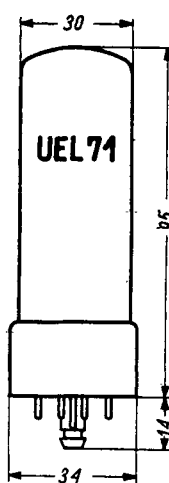
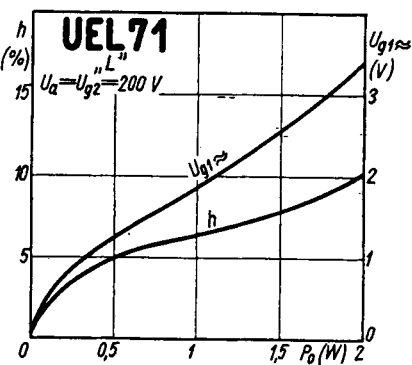
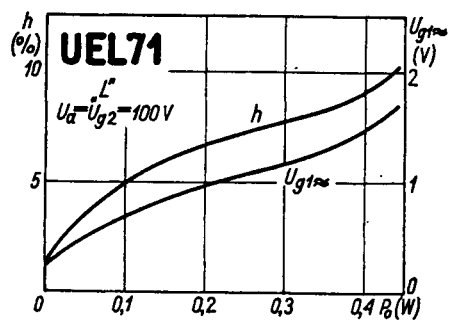
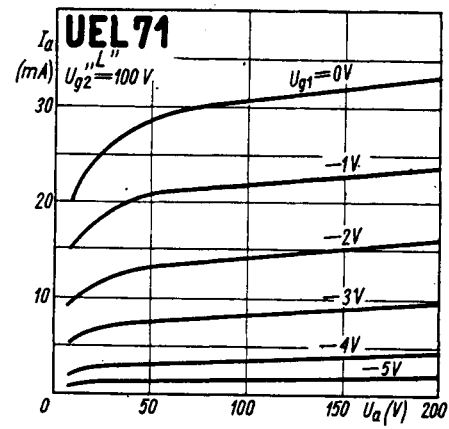
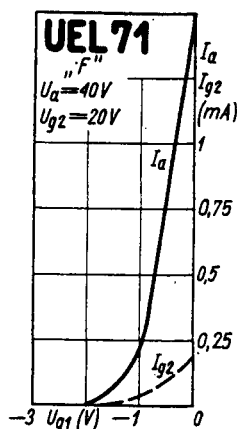
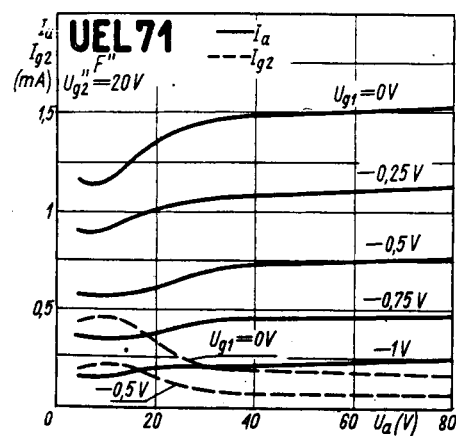
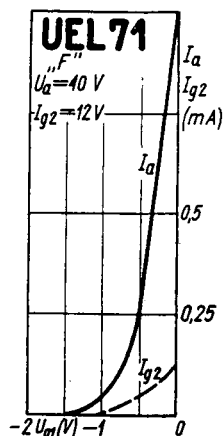
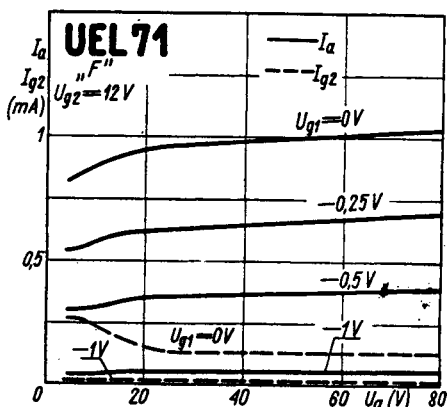
T.		U_f	I_f	Cl.	U_a	U_b	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	P_o	$U_{g1 \sim}$	I_k	P_{g2}	P_a
		V	A		V	V	V	V	mA	mA	mA/V	MΩ	W	V	mA	W	W
UEL 71	Lor	45	0,1	$\left\{ \begin{array}{l} \text{stat.} \\ \text{F} \\ \text{Detect.} \\ \text{Audion} \end{array} \right.$	50	100 200	30	—0,85	1	0,1	1,4	0,8			3	0,15	0,65
					12		12		0,24	0,03	0,9	1,3					
					20		20		0,64	0,08	1,15	0,8					
					250		250	maximum									
					100	200 250	100	—2,6	11	1,8	5,8	0,07	0,45	1,7	30	1,2	6
					200		200	—5,2	22	3,5	6,5	0,07	2	3,2			
					250		250	maximum ($U_{f/k} = 150$ V)									

¹⁾ $R_k = 200 \Omega$; $R_o = 9 \text{ k}\Omega$; $h = 10\%$

	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
F	5,6	5,7	0,12
L			0,6



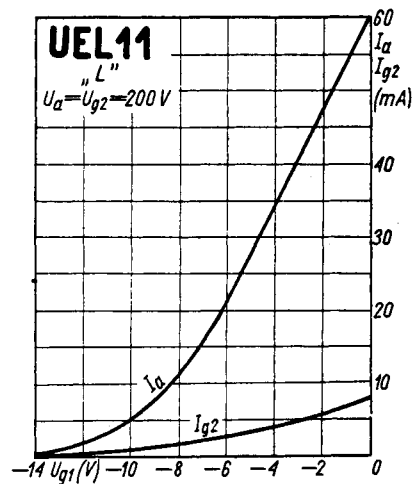
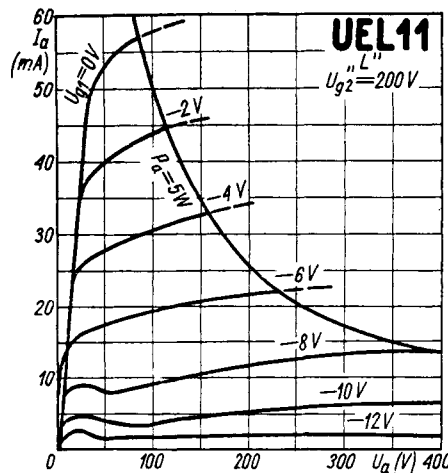
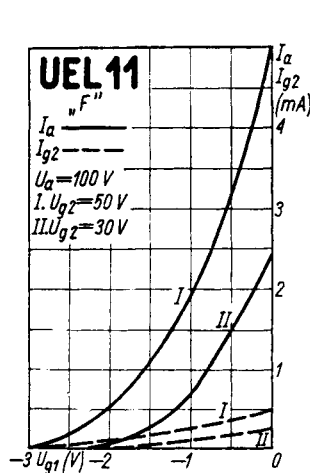
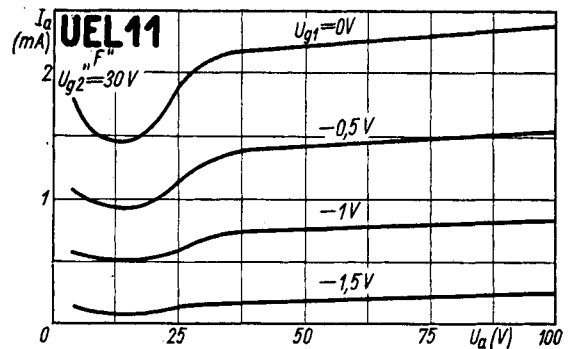
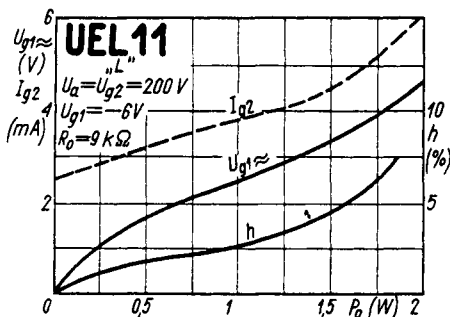
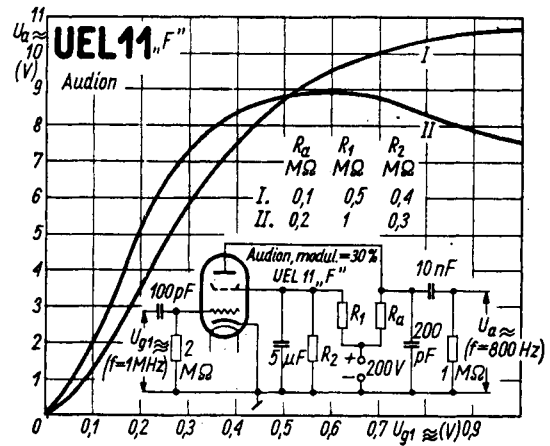
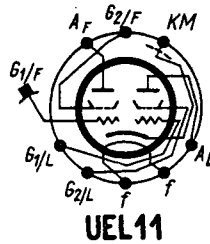
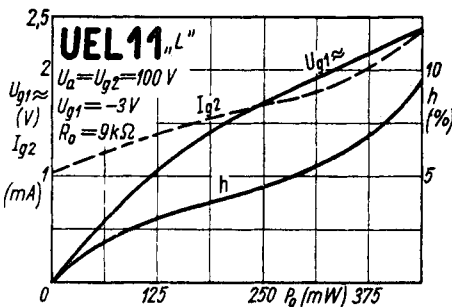
UEL 71



T.			U_f V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	P_o W	$U_{g1\sim}$ V	I_k mA	P_{g2} W	P_a W
UEL 11	TH	I	48	100	$\left\{ \begin{array}{l} \text{stat} \\ \text{Audion} \\ \text{L} \end{array} \right.$	100	30	0	2,4	0,2	1,6						
VEL 11	TH	I	90	50		30	10		0,35								
						40	30		0,8								
						250	100									0,2	5
						100	100	-3	10	2	4,5	25	0,42	2,2			
						200	200	-6	22	6	5,2	30	2	4,5			
						250	250				maximum				30	0,8	5

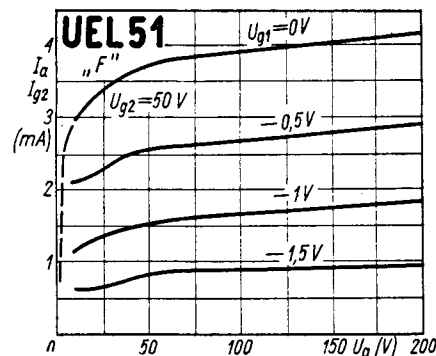
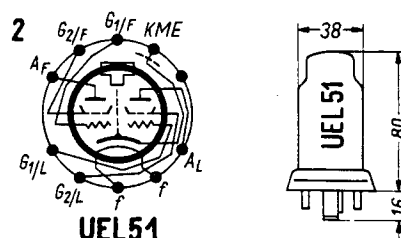
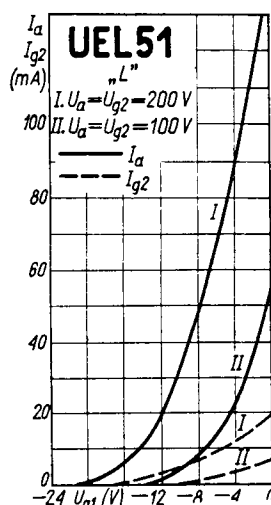
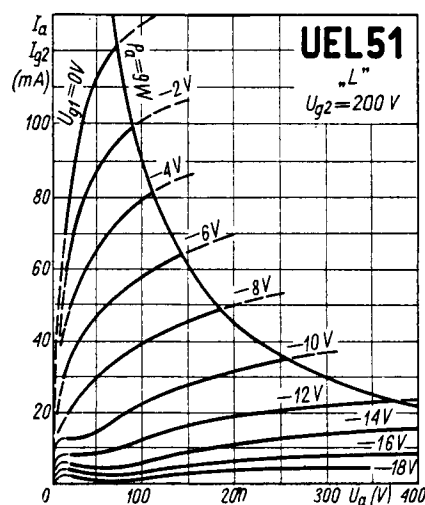
¹⁾ $R_k = 250 \Omega$; $R_o = 9 \text{ k}\Omega$; $h = 10\%$

C_{g1}	C_a	$C_{g1/a}$	$C_{g1/f}$	$C_{g1/f/aL}$
pF	pF	pF	pF	pF
F	5,4	5,8	0,14	0,005

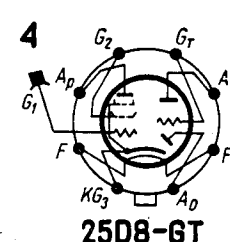
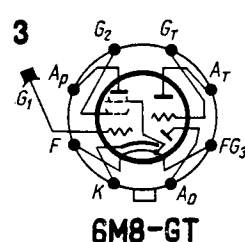
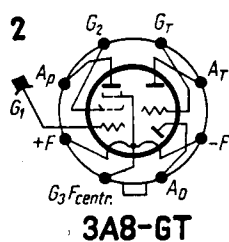
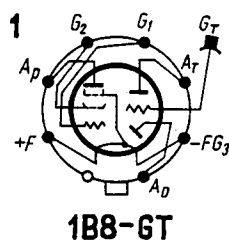


T.		U_f	I_f	Cl.	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	$U_{g1 \approx}$	h	P_{g2}	P_a	
		V	A		V	V	V	mA	mA	mA/V	kΩ	kΩ	W	V	%	W	W	
UEL 51	RFT	62	0,1	$\left\{ \begin{array}{l} F \left\{ \begin{array}{l} \text{Audion} \\ \text{stat.} \end{array} \right. \\ L \left\{ \begin{array}{l} \text{AI}(\approx) \end{array} \right. \end{array} \right.$	85	50		0,76	0,3									
					100	50		2	0,55	1,8	300							
					250	250				maximum							0,25	0,75
					200	200	-8,5	45	9	9	17	4,5	4	5	10			
					250	250	maximum ($U_f/k = 125 \text{ V}; I_k = 75 \text{ mA}$)										1,5	9

	C_{g1} pF	C_a pF	$C_{g1/f}$ pF	$C_{g1/f/aL}$ pF		C_{g1} pF	C_a pF
F	6	5	0,004	0,005	L	13	7,5



T.			U_f V	I_f A	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i k Ω	μ V/V	R_o k Ω	P_o W
1 B 8-GT	amer	I	1,4	0,1	$\begin{cases} \text{tri.} \\ \text{pent.} \end{cases}$	90		0	0,15		0,275				
						90	90	-6	6,3	1,4	1,15			14	0,21
1 D 8-GT	mer	I	1,4	0,1	$\begin{cases} \text{tri.} \\ \text{pent.} \end{cases}$	90		0	1,1		0,575	43,5	25		
						90	90	-9	5	1	0,925	200		12	0,2
3 A 8-GT	amer	2	1,4/2,8	0,1/0,05	$\begin{cases} \text{tri.} \\ \text{pent.} \end{cases}$	90		0	0,2		0,325	200	65		
						90	90	0	1,5	0,5	0,75	800			
6 M 8-G/GT	amer	3	6,3	0,6	$\begin{cases} \text{tri.} \\ \text{pent.} \end{cases}$	100		-1	0,5		1,1	91	100		
						100	100	-3	8,3	2,7	1,9	200			

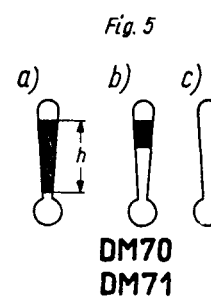
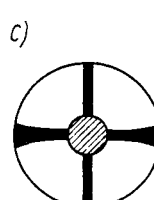
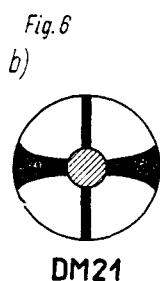
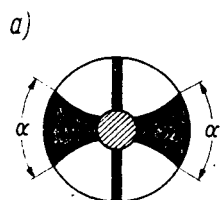
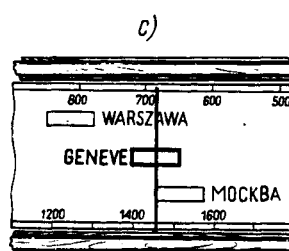
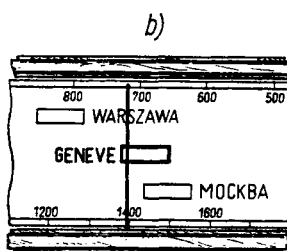
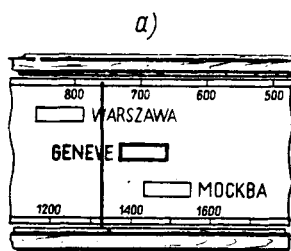
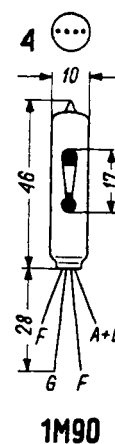
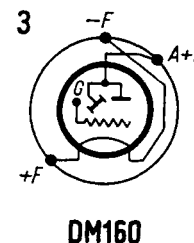
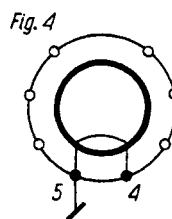
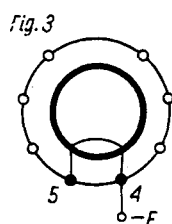
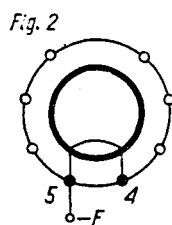
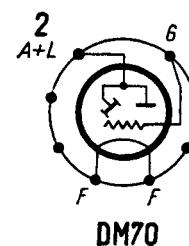
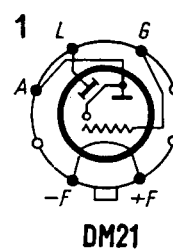
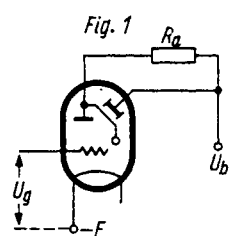


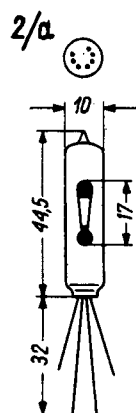
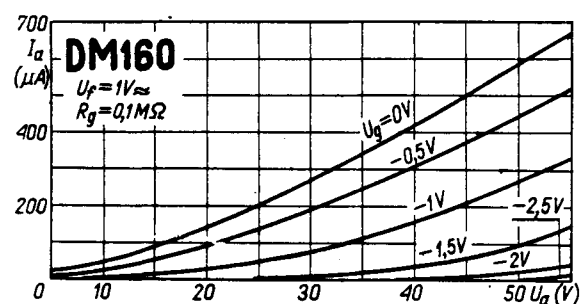
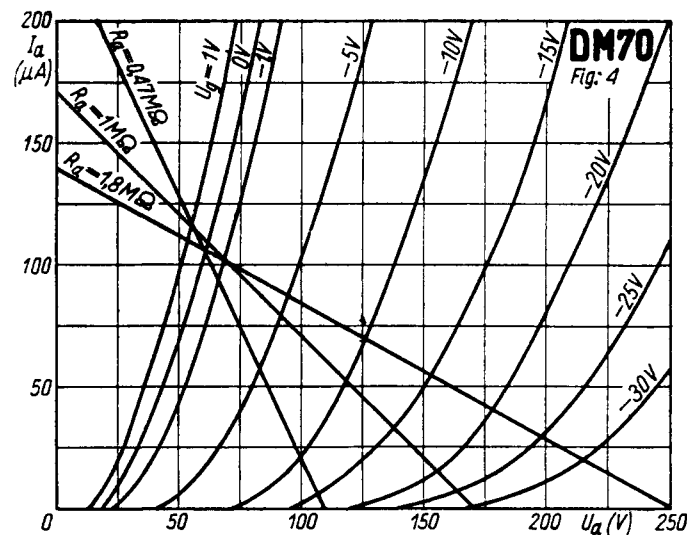
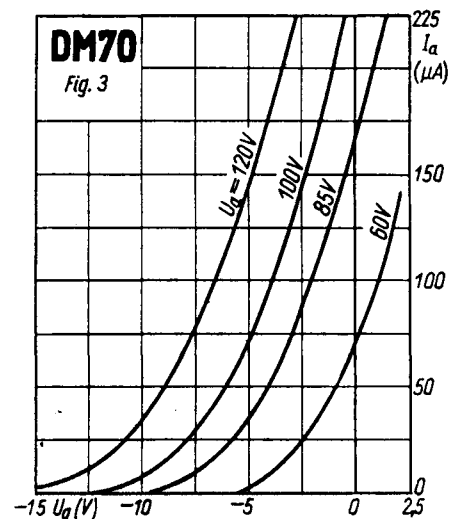
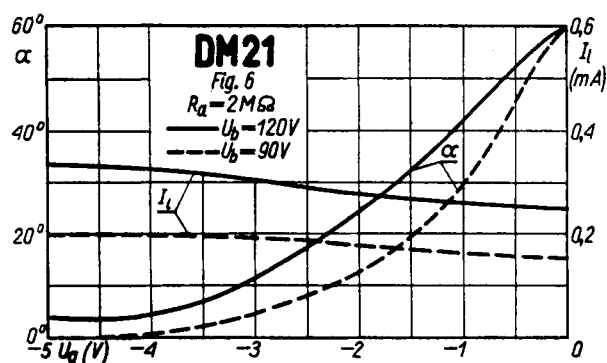
T.			U_f	I_f	Fig.	U_b	R_a	U_g	I_a	I_l	h	α°	U_a	R_g
			V	mA		V	M Ω	V	μ A	μ A	mm		V	M Ω
DM 21	eur	I	1,1 $\div$ 1,5	25	$\left\{ \begin{array}{l} 6 \\ 6 \end{array} \right.$	90 120 150	2 2	0 $\div$ -3 0 $\div$ -4	25 45	150 250		60 $\div$ 5 60 $\div$ 5	50 $\div$ 120	3
									maximum					
DM 70	eur	2/a	1,3 $\div$ 1,4	25	$\left\{ \begin{array}{l} 2 \\ 3 \\ 4 \\ 4 \end{array} \right.$	67,5 90 110 170	0 0 0,47 1	0 $\div$ -7 0 $\div$ -10 0 $\div$ -15 0 $\div$ -23	105 170 105 110		10 $\div$ 0 10 $\div$ 0 10 $\div$ 0 10 $\div$ 0			
DM 71	eur	2/b	1,3 $\div$ 1,4	25										
1 M 90	Tes	4	0,95 $\div$ 1,6	25		250 300	1,8	0 $\div$ -34	105		10 $\div$ 0			
									maximum			45 $\div$ 150	10	
DM 160 ¹⁾	eur	3	I	30	$\left\{ \begin{array}{l} 50 \\ 100 \end{array} \right.$			0 $\div$ -3 -50	585 750		maximum		50 65	0,1 1

¹⁾ vide * 4

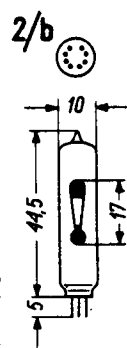
Equivalents

Y 21	Eng = DM 71
Y 25	Eng = DM 70
1 M 1	Eds = DM 70
1 M 3	amer = DM 70
1 X 3	amer = DM 71
25 M 1 D	Phl = DM 21
6977	amer = DM 160

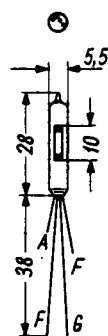




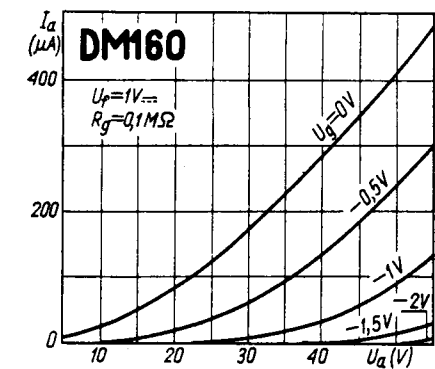
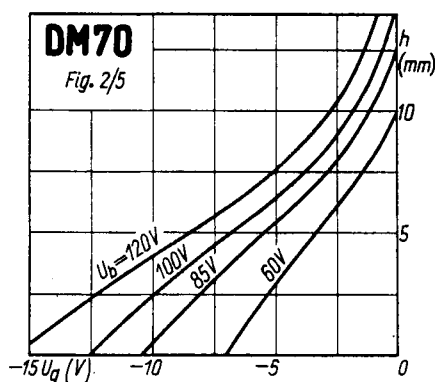
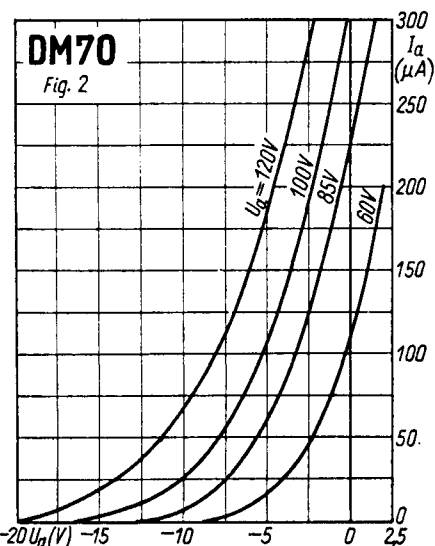
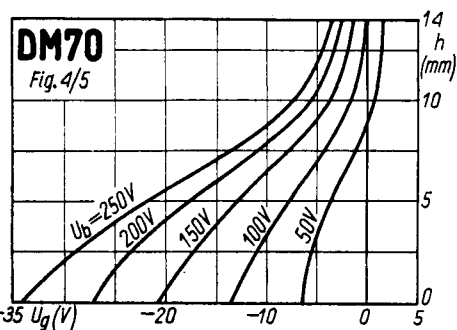
DM70



DM71



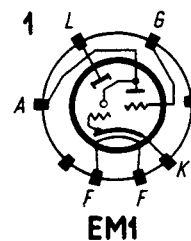
DM160



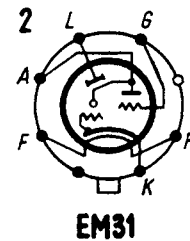
T.			U_f	I_f	$U_b=U_l$	R_a	U_g	I_a	I_l	α^0	U_a	R_g	$U_{f,k}$
			V	A	V	M Ω	V	μ A	mA		V	M Ω	V
AM 1	eur	1	4	0,3	200	2	0÷-4	75÷20	0,14	20÷90			
EM 1	eur	1	6,3	0,2	250	2	0÷-5	95÷20	0,13	16÷90			
EM 31	Mul	2	6,3	0,2	125÷275			maximum			250	2,5	100
EM 3	eur	1	6,3	0,2	200	1	0÷-18	175	0,25	10÷90			
					250	1	0÷-21	220	0,3	10÷90			
					125÷275			maximum			250	2,5	100
EM 71	eur	3	6,3	0,3	100	0,5	0÷-9	200÷50	0,6	110÷0			
HM 71	eur	3	12,6	0,15	200	0,5	0÷-14	400÷100	1,6	115÷0			
					250	0,5	0÷-20	500÷150	2,5	120÷0			
					100÷300			maximum		300	2	2	100
FT 4	Fer	2	4	0,5	250	2	0÷-6		0,5				
ME 4	Tu	1	4	0,3	250	2	0÷-5	1000	1,3	90÷0			
ME 6	Tu	1	6,3	0,2									
ME 4 S	Tu	1	4	0,3	250	2	0÷-5	120	2	90÷0			
ME 6 S	Tu	1	6,3	0,2	200÷250			maximum			250		100
ME 41	Eds	4	4	0,5	250	1	-0,5÷-22,5	230	1,16	85÷0			
ME 91	Eds	3	9	0,2	150	1	-0,5÷-17	135	2,1	85÷0			
					175	1	-0,5÷-19	160	2,7	85÷0			
ME 920	Eds	5	9	0,2									
VFT 4	Fer	2	4	0,5									
VME 4	Tu	5	4	0,5	100	0,5	0÷-8	190	0,7÷1	90÷0			
2 G 5	int	6	2,5	0,8	200	1	0÷-18,5	190	1,5÷3	90÷0			
6 G 5	int	6	6,3	0,3	250	1	0÷-22	240	2÷5	90÷0			
6 G 5-G	int	2	6,3	0,3	125÷285			maximum			250	2	90
12 G 5-G	int	2	12,6	0,15									
19 G 5-G	amer	2	19	0,1									
TV 4 A	Mul	1	4	0,3	200	1	0÷-18	175	0,25	10÷90			
					250	1	0÷-21	220	0,3	10÷90			
Y 73	Eng	2	6	0,16	180	1	0÷-21	250	5	90÷0			
					135	0,25	0÷-10	500	2	90÷0			
6 AB 5	amer	6	6,3	0,3	135	1	0÷-15,5	130	1,9	90÷0			
					100÷180			maximum			180		
2 E 5	amer	6	2,5	0,8	125	1	0÷-4	100	0,8	90÷0			
6 E 5	amer	6	6,3	0,3	250	1	0÷-7,5	200	2	90÷0			
6 E 5 C	CCCP	7	6,3	0,3	125÷250			maximum			250	3	90
					100	0,5	0÷-3,3	190	1	90÷0			
6 E 5-GT	int	2	6,3	0,3	200	1	0÷-6,5	190	3	90÷0			
6 S 5	amer	8	6,3	0,3	250	1	0÷-8	240	4	90÷0			
1629	int	2	12,6	0,15	100÷250			maximum			250	3	90
6 M 1	Eds	2	6,3	0,3	250	1	-0,5÷-22,5	230	1,16	85÷0			

Equivalents

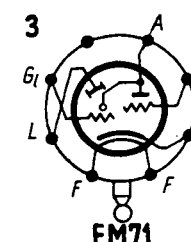
AC/ME	Eds = VME 4	Y 4678	Val = EM 1
AD 77	Dar = AM 1	Y 61	Eng ≈ 6 G 5-G
AW 5	Eng = ME 41	Y 62	Eng ≈ 6 G 5-G
AW 6	Eng = EM 31	Y 63	Eng = 6 G 5-G
A 4-CAT	Cas = AM 1	Y 64	Eng = 6 G 5-G
EM 71a	Lor = EM 71	6 EG 5	Frc = 6 E 5
EM 72 ¹⁾	Lor = EM 71	6 H 5	amer = 6 G 5
ED 78	Dae = EM 1	6 N 5	amer = 6 AB 5
E 1180	Marc = EM 31	6 S 5-G	Vis = 6 S 5
E 1320	Marc = 6 G 5/G	6 T 5	amer = 6 G 5
HF 3110	RFT = 6 E 5	6 U 5	int = 6 G 5
OSW 3110	RFT = 6 E 5	6 U 5-G	int = 6 G 5-G
TH 1	Dar = AM 1	6 X 6	amer = 6 E 5-GT
TK 406	Tri = AM 1	6 X 6-G	amer = 6 E 5-GT
TK 606	Tri = EM 1	12 M 71	Lor = HM 71
TV 4	Mul = AM 1	12 U 5-G	int = 12 G 5-G
TV 6	Mul = EM 1	19 U 5-G	int = 19 G 5-G
U 6-CAT	Cas = EM 1	41 ME	Cos = AM 1
VEM 1	Val = EM 1	63 ME	Cos = 6 G 5-G
VFT 6	Fer = 6 G 5-G	4678	Phl = EM 1

¹⁾ $\alpha = 70 \div 20^\circ$ 

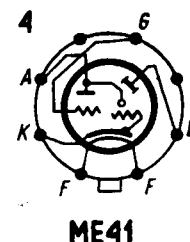
EM1



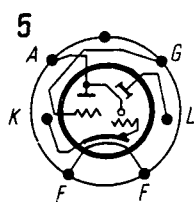
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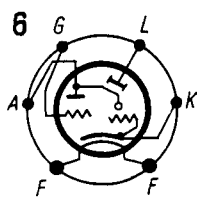
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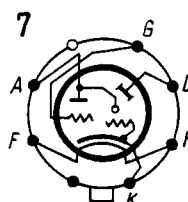
ME41



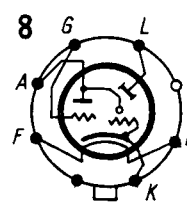
ME920



665

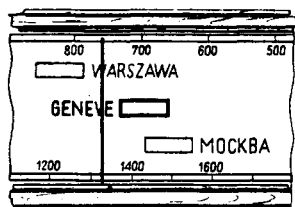


6E5C

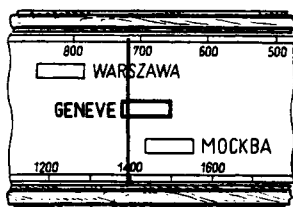


6S5

a)



b)



c)

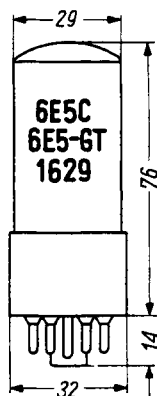
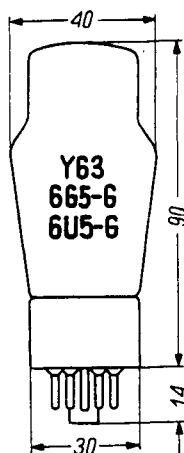
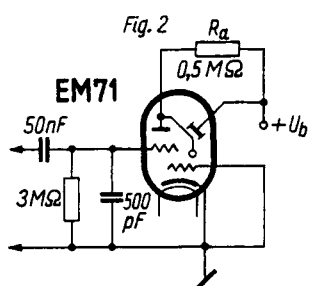
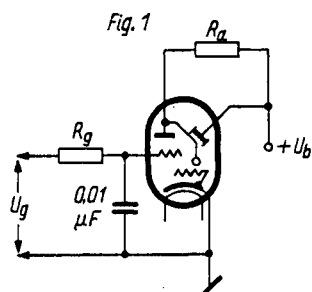
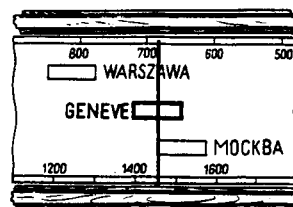
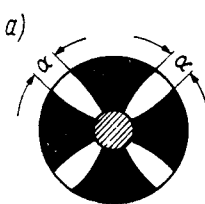
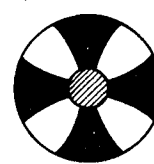


Fig. 3

a)
AM1
EM1
EM3
EM31



b)



c)

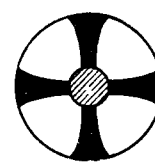
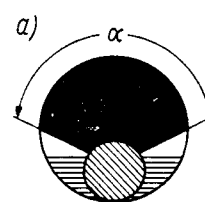
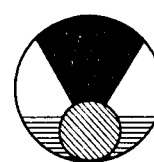


Fig. 4

a)
EM71
HM71



b)



c)

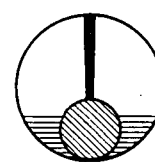
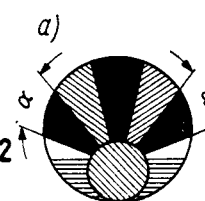
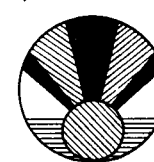


Fig. 5

a)
EM72



b)



c)

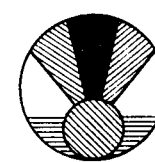
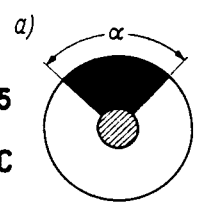
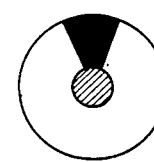


Fig. 6

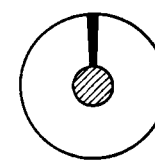
a)
6AB5
6G5
6E5C
6S5
1629

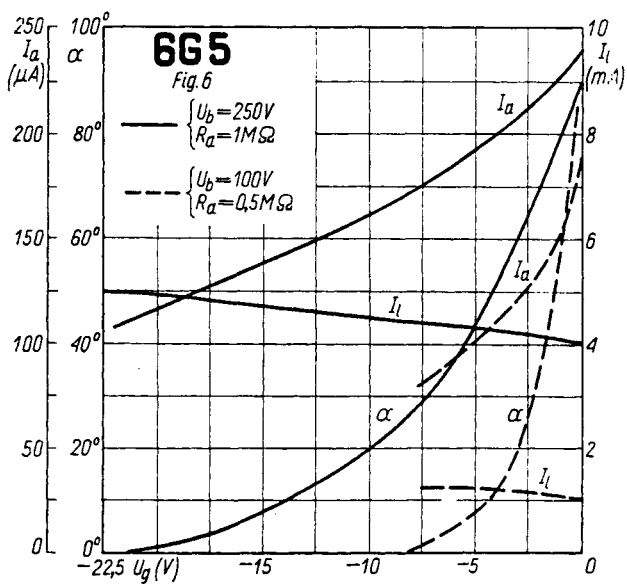
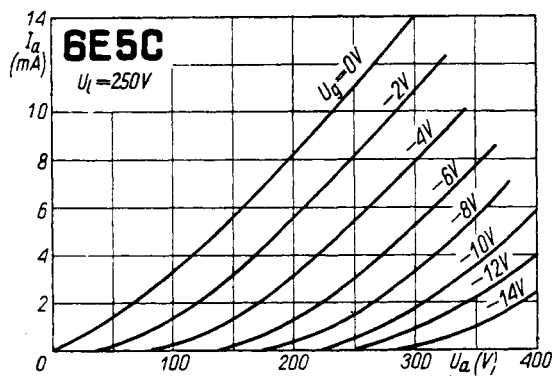
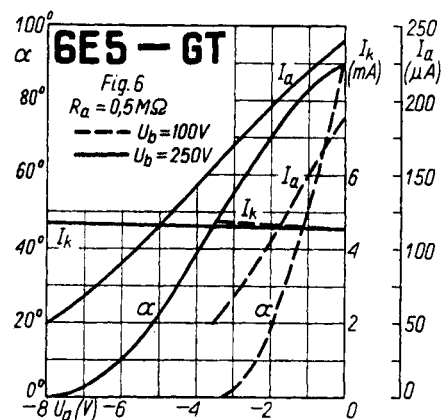
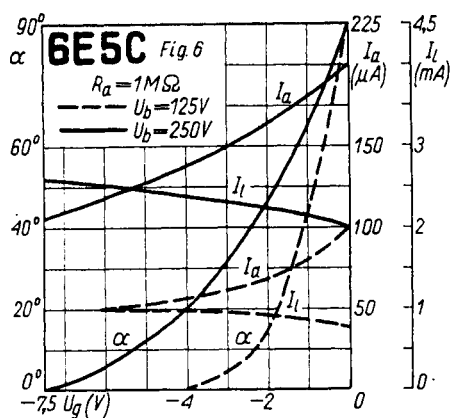
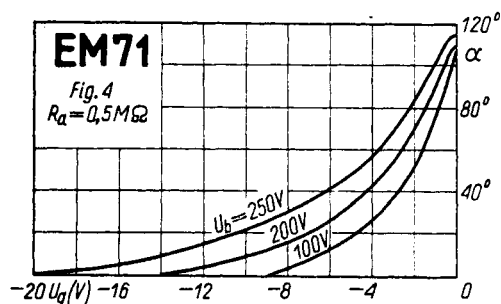
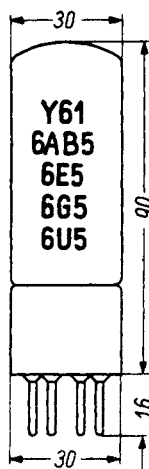
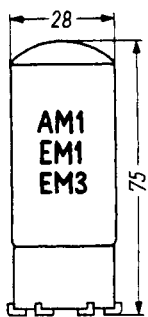
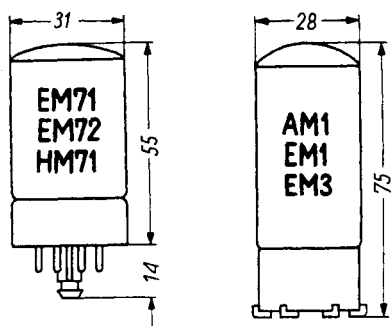
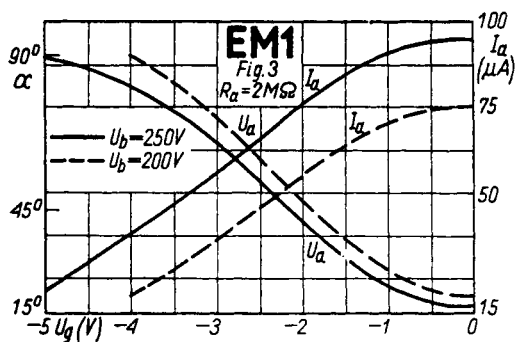
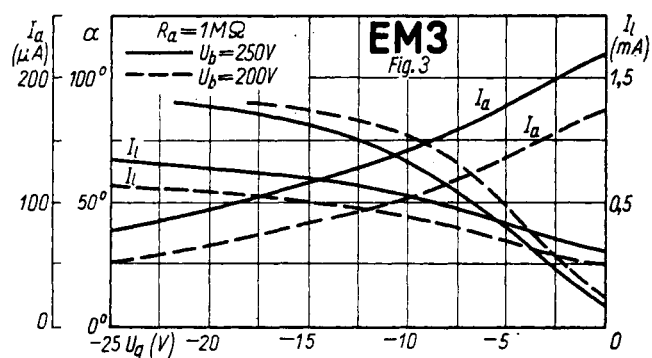


b)



c)





T.			U_f	I_f	Fig.	U_b	U_L	U_d	U_g	I_a	I_L	I_d	α°	I_k	U_f/k
			V	A	n°	V	V	V	V	mA	mA	μA		mA	V
EM 85	Lor	I	6,3	0,3	1	100	100		0 ÷ -6	0,2 ÷ 0,07	0,5		100 ÷ 0		
HM 85	Lor	I	12,6	0,15		200	200		0 ÷ -14	0,4 ÷ 0,1	1,4		100 ÷ 0		
UM 85	Lor	I	19	0,1		250	250		0 ÷ -18	0,5 ÷ 0,12	2,1		100 ÷ 0		
					2	100	5 ÷ 60				0,5	3 ÷ 50	110 ÷ 0		
						200	5 ÷ 125				1,4	3 ÷ 130	110 ÷ 0		
						250	5 ÷ 160				2,1	5 ÷ 180	110 ÷ 0		
						300	165 ÷ 300			maximum				3	100

Equivalents

JOH 7 amer = EM 85
DU 6 amer = EM 85

Fig. 1

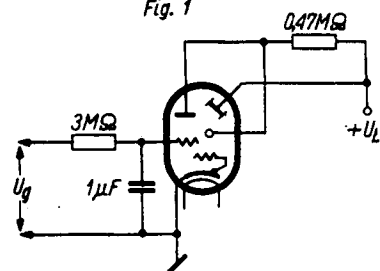
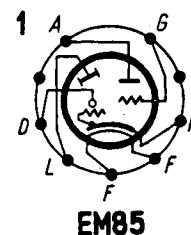
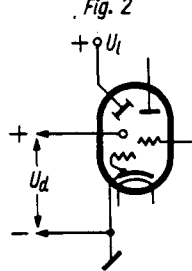
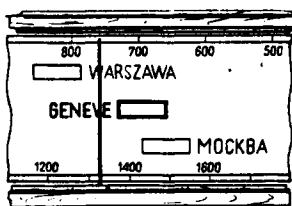


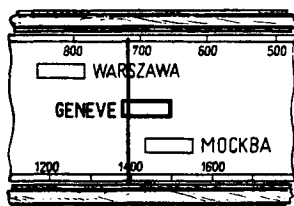
Fig. 2



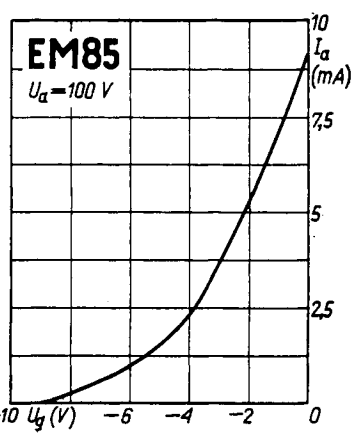
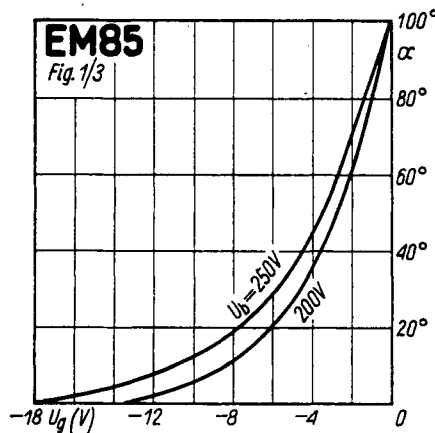
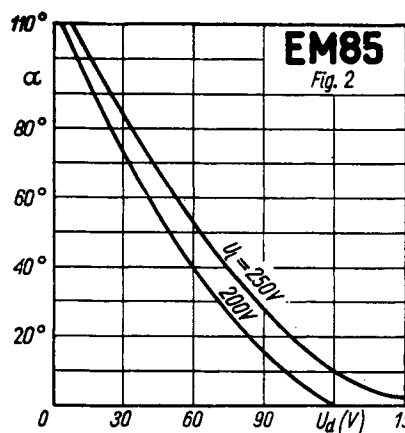
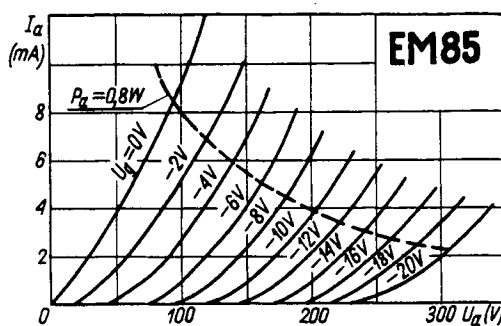
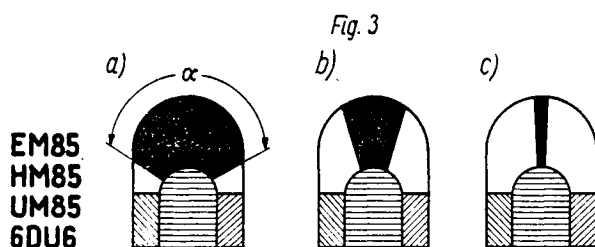
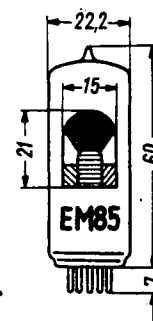
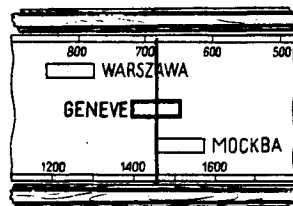
a)



b)



c)

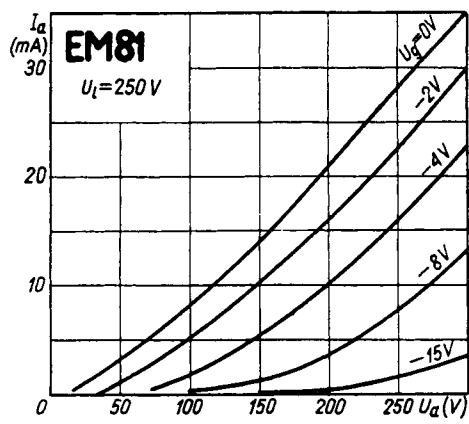
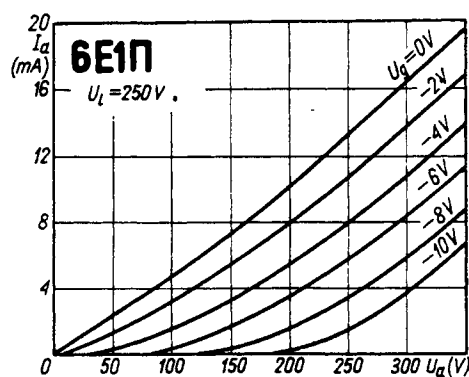
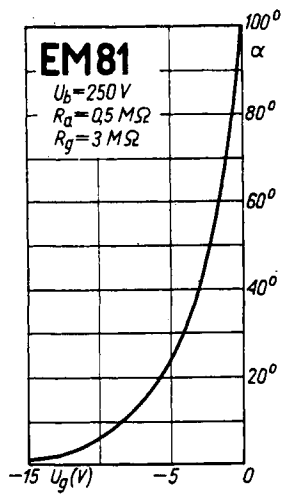
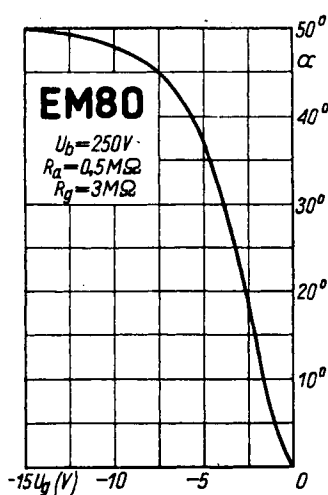
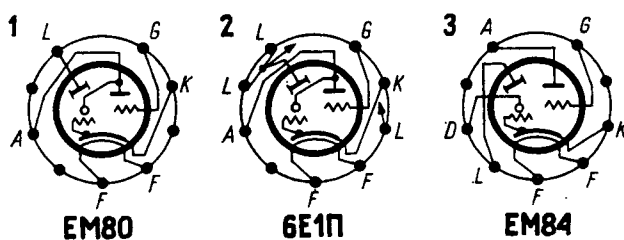
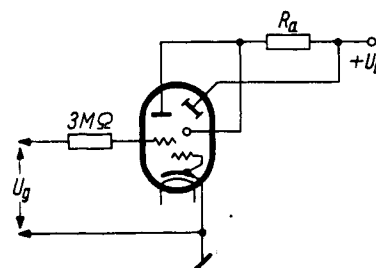


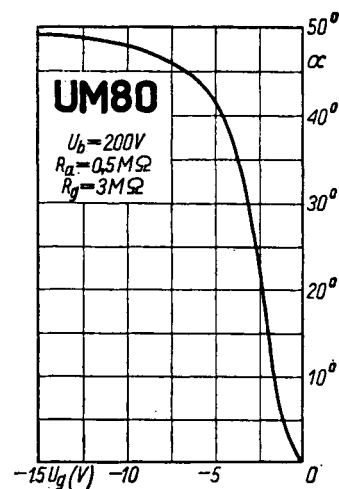
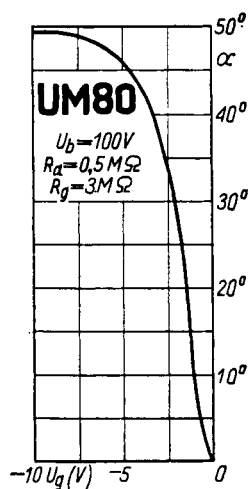
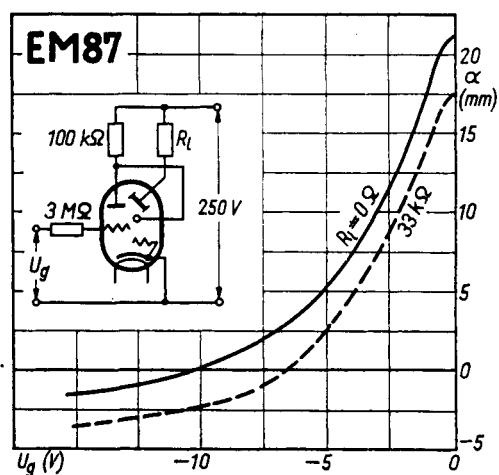
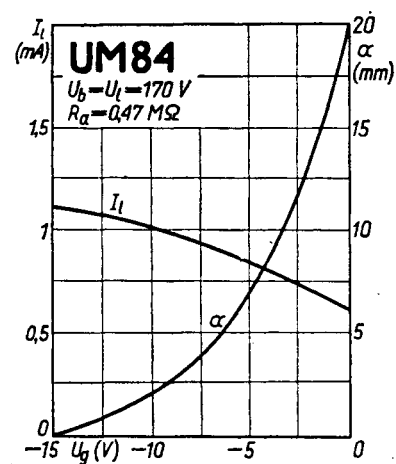
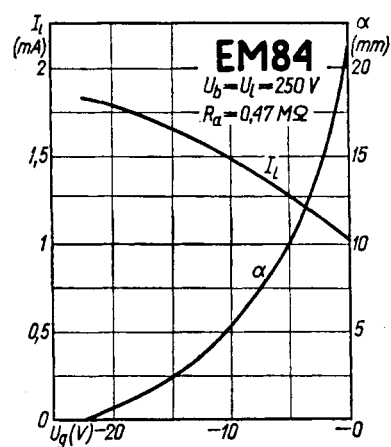
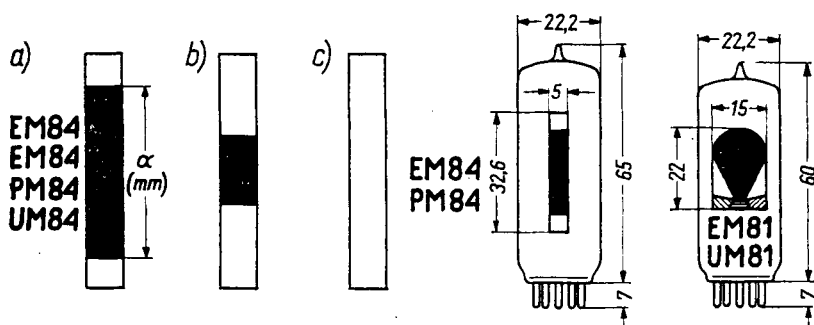
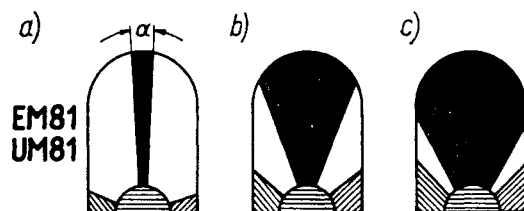
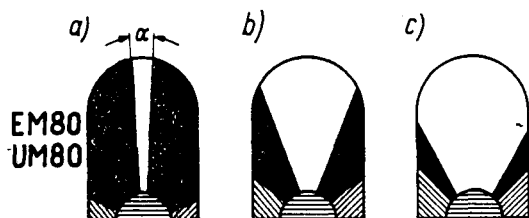
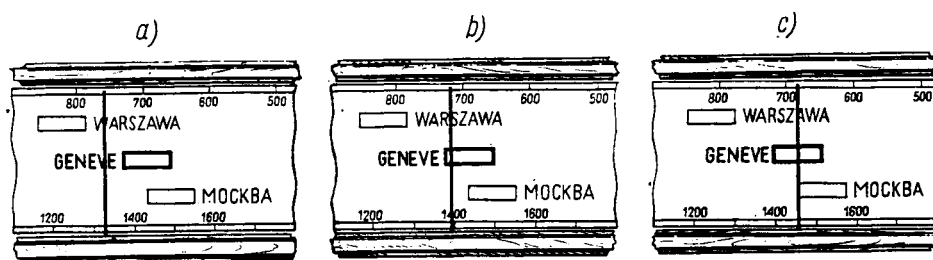
T.			U_f	I_f	$U_b = U_l$	R_a	U_g	I_a	I_l	α°	R_g	U_a	I_k	$U_{f/k}$
			V	A	V	M Ω	V	μ A	mA	(mm)	M Ω	V	mA	V
EM 80	eur	1	6,3	0,3	250	0,5	-1÷-14	370÷10	2÷2,3	5÷50	3			
6 E I II	CCCP	2	6,3	0,3	165÷300				maximum			300	3	100
EM 81	eur	1	6,3	0,3	250	0,5	-1÷-10,5	370÷20	2÷2,3	5÷65	3	300	3	100
					165÷300				maximum					
EM 84	eur	3	6,3	0,27	250	0,47	0÷-22	450÷60	1÷1,8	(21÷0)	3	300	3	100
					170÷300				maximum					
EM 87	eur	3	6,3	0,3	250	0,1	0÷-10	2000÷500	1÷1,8	(21÷0)	3			
					250	0,1	0÷-15	2000÷200	1÷2	(21÷-1,5)	3	300	5	250
					170÷300				maximum					
UM 80	eur	1	19	0,1	100	0,5	-1÷-7	180÷10	2,1÷2,5	8÷50	3			
					170	0,5	-1÷-12	300÷10	4,5÷5,7	5÷50	3			
					200	0,5	-1÷-14	350÷10	5,7÷7	4÷50	3	250	10	150
					90÷250				maximum					
UM 81	eur	1	19	0,1	200	0,5	-1÷-10,5	370÷20	2÷2,3	0÷65	3	250	3	150
					90÷250				maximum					
UM 84	eur	3	12	0,1	170	0,47	0÷-15	300÷40	0,6÷1,05	(20÷0)	3			
PM 84	Phi	3	4,2	0,3	220	0,47	0÷-19,5	400÷55	0,85÷1,5	(21÷0)	3	250	3	250
PM 84	Lor	3	5,3	0,3	170÷450				maximum					

1) vide * 4

Equivalents

EM 840 ¹⁾	eur = EM 84	6 HU 6	amer = EM 87
Y 119	Eng = UM 80	6 M 40	eur = EM 80
4 FG 6	amer = PM 84	12 FG 6	amer = UM 84
6 BR 5	amer = EM 80	19 BR 5	amer = UM 80
6 DA 5	amer = EM 81	19 DA 5	amer = UM 81
6 FG 6	amer = EM 84	65 ME	Cos = EM 80



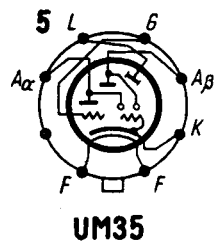
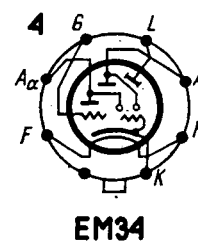
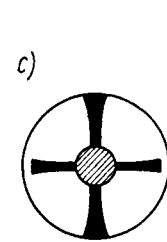
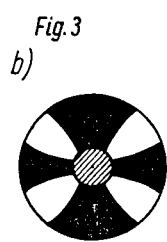
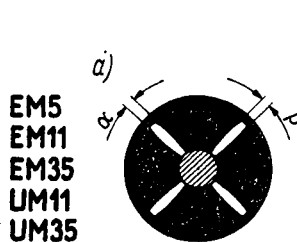
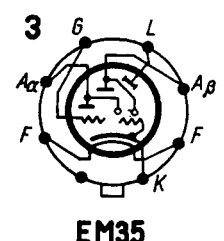
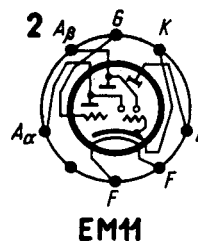
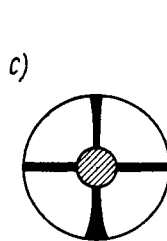
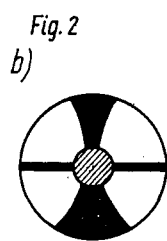
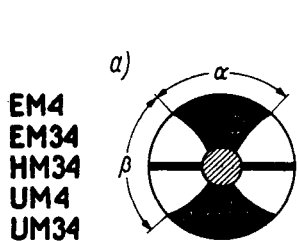
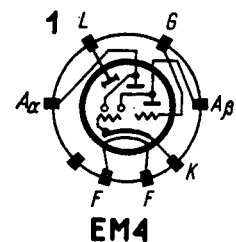
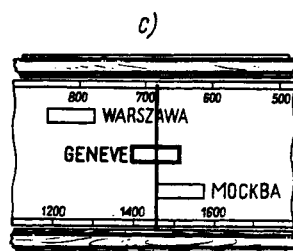
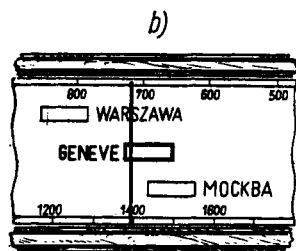
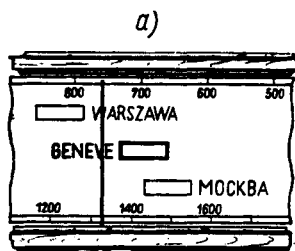
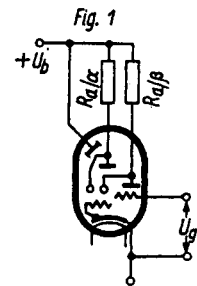


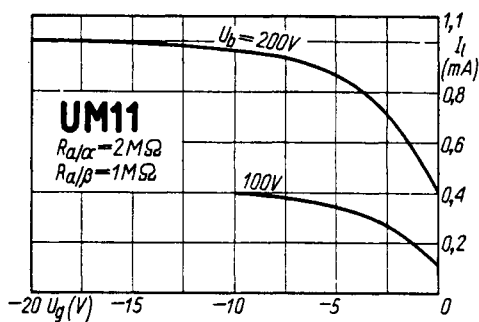
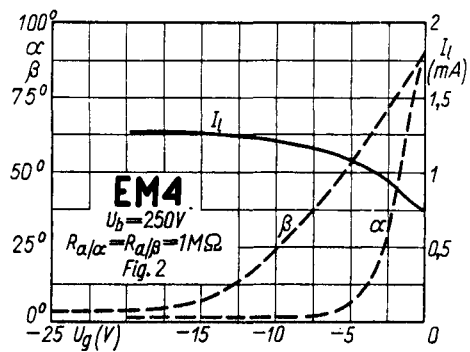
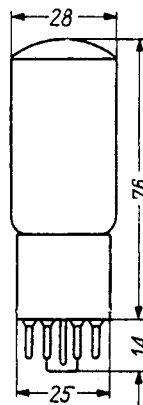
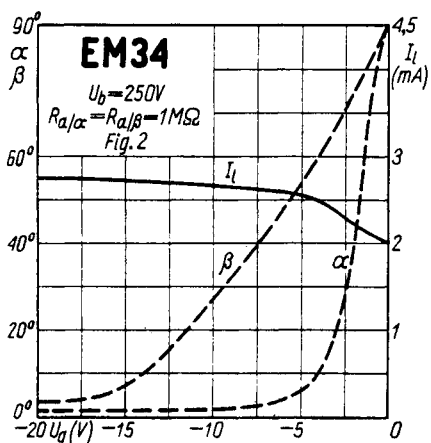
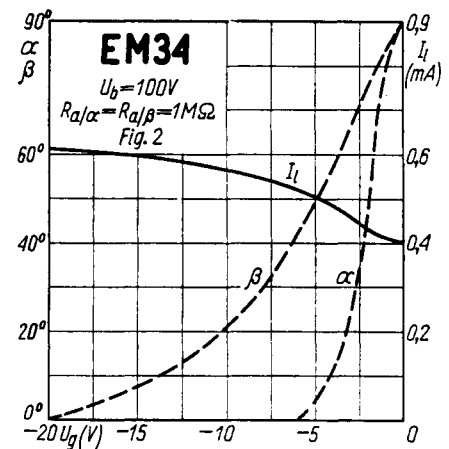
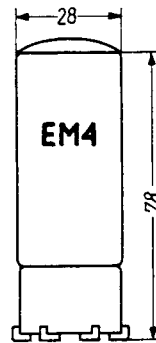
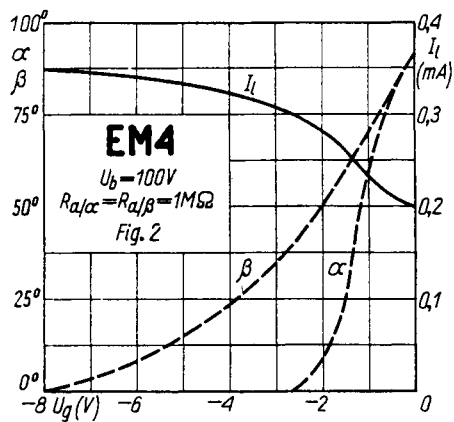
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			V	A	V	M Ω	M Ω	V	V	μ A	μ A	mA		
EM 4	eur	I	6,3	0,2	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2,5 \\ 0 \div -4,2 \\ 0 \div -5 \end{cases}$	$\begin{cases} 0 \div -8 \\ 0 \div -12,5 \\ 0 \div -16 \end{cases}$			$\begin{cases} 0,2 \\ 0,55 \\ 0,75 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$
EM 5	Tlf	I	6,3	0,2	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 2 \\ 2 \\ 2 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2 \\ 0 \div -3 \\ 0 \div -4 \end{cases}$	$\begin{cases} 0 \div -10 \\ 0 \div -20 \\ 0 \div -20 \end{cases}$	$\begin{cases} 50 \div 30 \\ 100 \div 60 \\ 170 \div 120 \end{cases}$	$\begin{cases} 100 \div 30 \\ 200 \div 60 \\ 250 \div 80 \end{cases}$	$\begin{cases} 0,1 \\ 0,33 \\ 0,46 \end{cases}$	$\begin{cases} 75 \div 15 \\ 75 \div 18 \\ 75 \div 15 \end{cases}$	$\begin{cases} 80 \div 3 \\ 82 \div 3 \\ 85 \div 5 \end{cases}$
EM 34	eur	4	6,3	0,2	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2,5 \\ 0 \div -4,2 \\ 0 \div -5 \end{cases}$	$\begin{cases} 0 \div -8 \\ 0 \div -12,5 \\ 0 \div -16 \end{cases}$			$\begin{cases} 0,4 \\ 1,4 \\ 2 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$
HM 34	Tu	4	8,5	0,15	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2,5 \\ 0 \div -4,2 \\ 0 \div -5 \end{cases}$	$\begin{cases} 0 \div -8 \\ 0 \div -12,5 \\ 0 \div -16 \end{cases}$			$\begin{cases} 0,4 \\ 1,4 \\ 2 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$
UM 4	eur	5	12,6	0,1	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2,5 \\ 0 \div -4,2 \\ 0 \div -5 \end{cases}$	$\begin{cases} 0 \div -8 \\ 0 \div -12,5 \\ 0 \div -16 \end{cases}$			$\begin{cases} 0,4 \\ 1,4 \\ 2 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$
UM 34	eur	4	12,6	0,1	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2,5 \\ 0 \div -4,2 \\ 0 \div -5 \end{cases}$	$\begin{cases} 0 \div -8 \\ 0 \div -12,5 \\ 0 \div -16 \end{cases}$			$\begin{cases} 0,4 \\ 1,4 \\ 2 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 5 \\ 90 \div 5 \end{cases}$
OM 5	Phi	5	6,3	0,3	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -5 \\ 0 \div -15 \end{cases}$	$\begin{cases} 0 \div -15 \end{cases}$			$\begin{cases} 0,55 \end{cases}$	$\begin{cases} 90 \div 0 \end{cases}$	$\begin{cases} 90 \div 0 \end{cases}$
PM 5	Phi	5	12,6	0,15	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -5 \\ 0 \div -15 \end{cases}$	$\begin{cases} 0 \div -15 \end{cases}$			$\begin{cases} 0,55 \end{cases}$	$\begin{cases} 90 \div 0 \end{cases}$	$\begin{cases} 90 \div 0 \end{cases}$
UM 11	Tlf	2	15	0,1	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 2 \\ 2 \\ 2 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2 \\ 0 \div -3 \end{cases}$	$\begin{cases} 0 \div -10 \\ 0 \div -20 \end{cases}$	$\begin{cases} 50 \div 30 \\ 100 \div 60 \end{cases}$	$\begin{cases} 100 \div 40 \\ 190 \div 80 \end{cases}$	$\begin{cases} 0,1 \\ 0,4 \end{cases}$	$\begin{cases} 75 \div 15 \\ 78 \div 25 \end{cases}$	$\begin{cases} 77 \div 5 \\ 75 \div 10 \end{cases}$
UM 35	Tlf	5	12,6	0,1	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 2 \\ 2 \\ 2 \end{cases}$	$\begin{cases} 1 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2 \\ 0 \div -3 \end{cases}$	$\begin{cases} 0 \div -10 \\ 0 \div -20 \end{cases}$	$\begin{cases} 50 \div 30 \\ 100 \div 60 \end{cases}$	$\begin{cases} 100 \div 40 \\ 190 \div 80 \end{cases}$	$\begin{cases} 0,1 \\ 0,4 \end{cases}$	$\begin{cases} 75 \div 15 \\ 78 \div 25 \end{cases}$	$\begin{cases} 77 \div 5 \\ 75 \div 10 \end{cases}$
6 AF7-G	Maz	4	6,3	0,3	$\begin{cases} 100 \\ 200 \\ 250 \end{cases}$	$\begin{cases} 0,5 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0,5 \\ 1 \\ 1 \end{cases}$	$\begin{cases} 0 \div -2 \\ 0 \div -4,5 \\ 0 \div -6 \end{cases}$	$\begin{cases} 0 \div -5 \\ 0 \div -15 \\ 0 \div -19 \end{cases}$	$\begin{cases} 120 \\ 130 \\ 180 \end{cases}$	$\begin{cases} 150 \\ 160 \\ 200 \end{cases}$	$\begin{cases} 0,4 \\ 2,5 \\ 3 \end{cases}$	$\begin{cases} 60 \div 0 \\ 60 \div 0 \\ 60 \div 0 \end{cases}$	$\begin{cases} 60 \div 0 \\ 60 \div 0 \\ 60 \div 0 \end{cases}$

T.	$U_a(max)$	$U_l(min)$	$U_l(max)$	$U_f/k(max)$	$R_g(max)$
	V	V	V	V	M Ω
EM 4	275		275	100	3
EM 5	250	90	250	100	3
EM 11	250	90	250	100	3
EM 34	300		300	100	3
EM 35	250	90	250	100	3
HM 34	300		300	100	3
UM 4	250		250	150	3
UM 11	300	90	250	200	3
UM 34	250		250	150	3
UM 35	300	90	250	200	3
6 AF7-G	250	100	250		

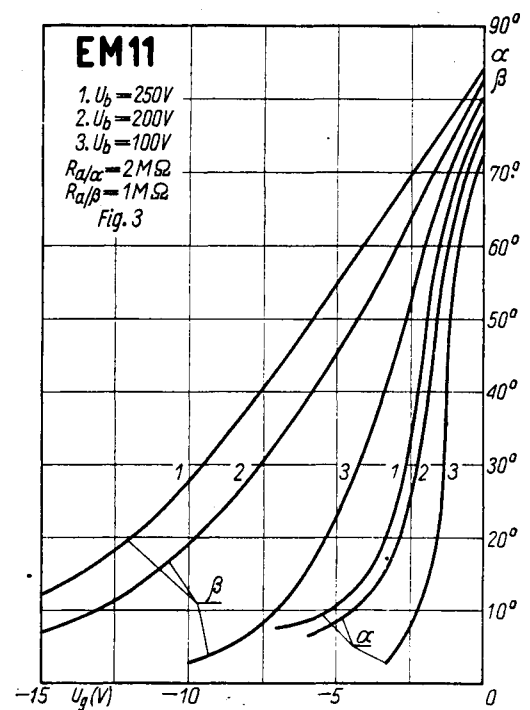
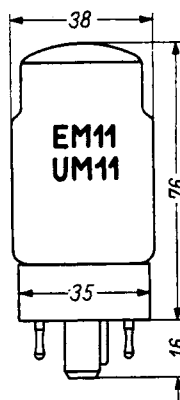
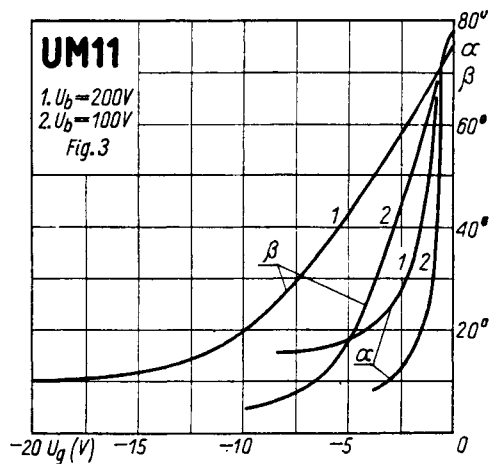
Equivalents

WE 12	Tlf = EM 4
6 CD 7	Phi = EM 34
6 M 2	Eds = EM 34
10 M 2	Eds = UM 34
12 CD 7	Phi = UM 34
13 M 4 U	Phi = UM 4
64 ME	Cos = EM 34





**EM34
 EM35
 UM4
 UM34
 UM35
 6AF7-6**

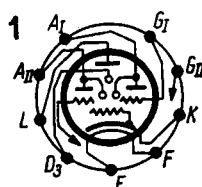


T.			U_f	I_f	$U_b = U_L$	R_a	U_g	U_g/I	I_a	I_L	h	R_g	U_a	I_k	$U_{f/k}$
			V	A	V	MΩ	V	V	μA	mA	mm	MΩ	V	mA	V
EM 83	RFT	I	6,3	0,3	250	1	0 ÷ -8				4 ÷ 23				
UM 83	RFT	I	19	0,1	250	1	0 ÷ -16				3 ÷ 18				
					100 ÷ 300			maximum				3	300	8	100
EMM 801	Tif	2	6,3	0,3	200	0,4	0 ÷ -16	0	430 ÷ 125	2,8 ÷ 5	27 ÷ 0	2			
					250	0,4	0 ÷ -20	0	540 ÷ 150	3,8 ÷ 7	27 ÷ 0	2			
					300			maximum				3	300	12	100
								$S = 1 \text{ mA/V}; \mu = 19$					100	stat. triod.	
E 82 M	Val	3	6,3	0,8	250		-2		2,7						
					150 ÷ 300		-2,5								
6 AL 7-GT	int	4	6,3	0,15	220 ÷ 365			maximum				3	300	8	100
															90

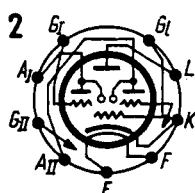
Equivalents

5624

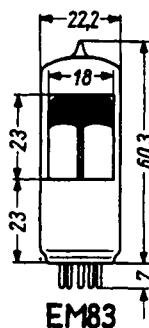
amer = E 82 M



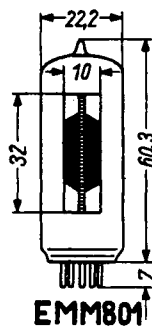
EM83



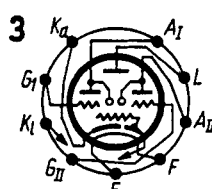
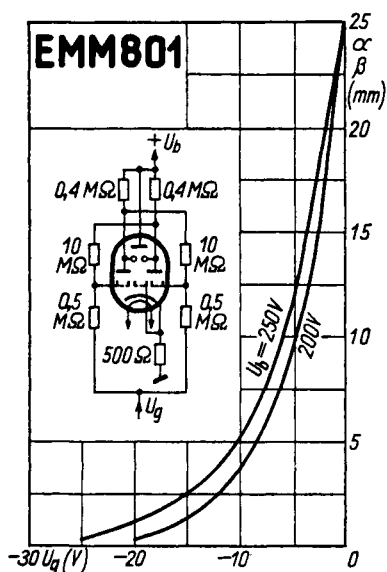
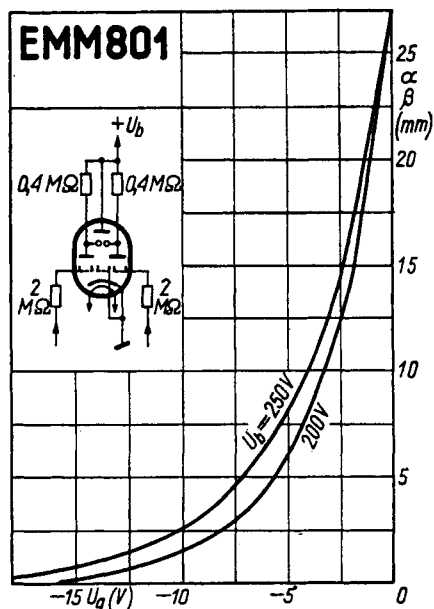
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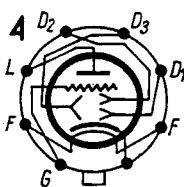
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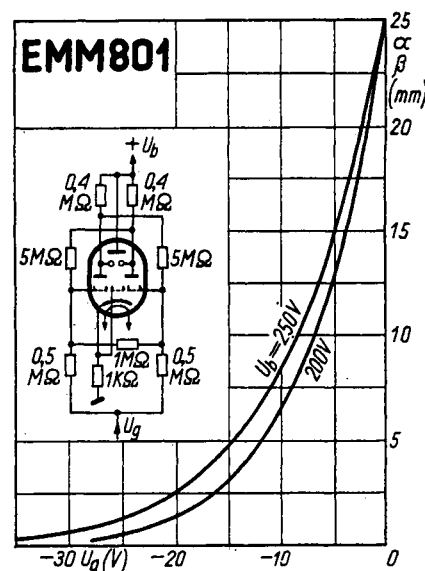
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E 82M



6AL7-GT



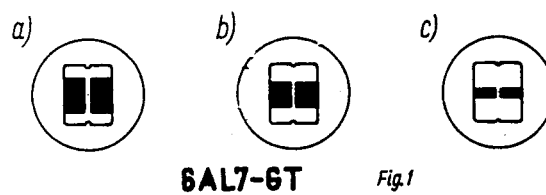
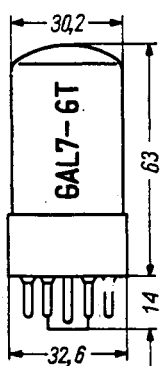
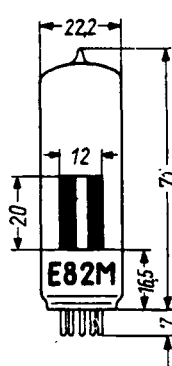
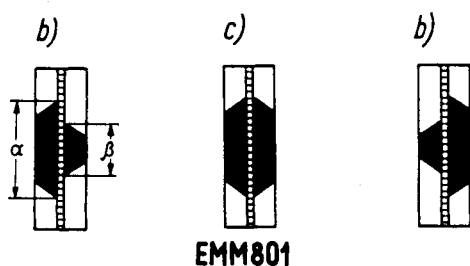
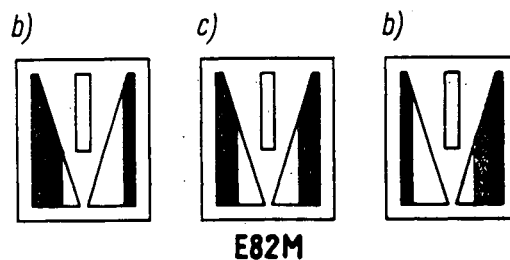
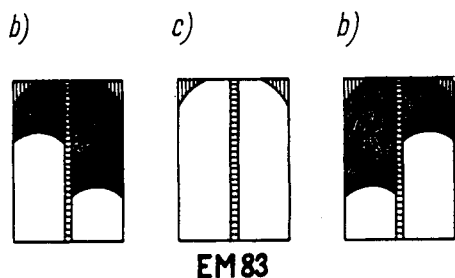
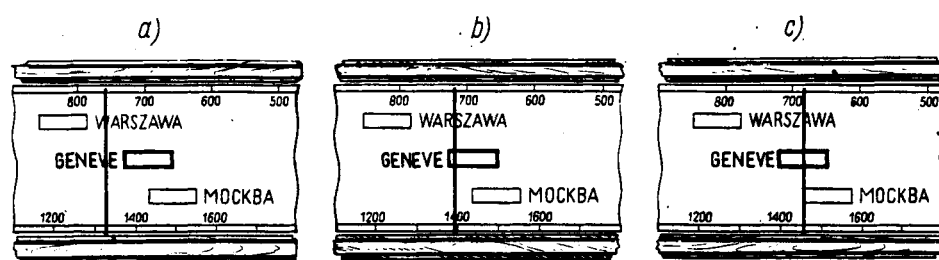


Fig. 1

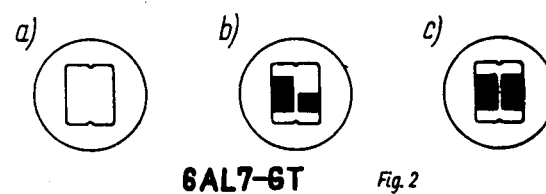


Fig. 2

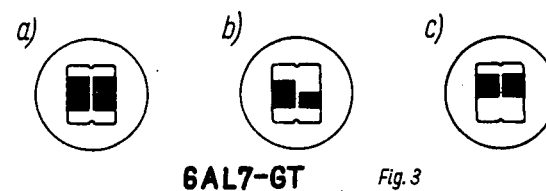
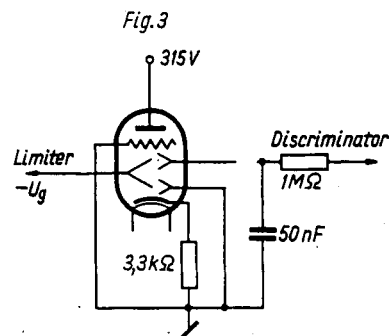
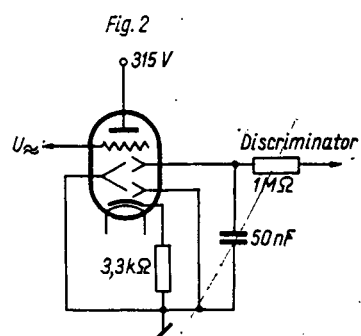
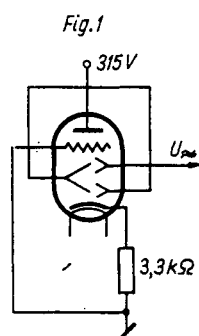


Fig. 3



T.		U_f V	I_f A	Cl.	$U_b=U_L$ V	R_a k Ω	U_g V	I_a mA	I_L mA	R_g M Ω	α mm	U_a V	$I_k(T)$ mA	$I_k(D)$ mA	U_f/k V
EAM 86	Tif	6,3	0,3	M Fig. 1	200	100	0÷-7	1,4÷0,35	1,5÷3	3	12÷-3	300	5	5	200
					200	200	0÷-7	1,2÷0,2	1,5÷3	3	16÷-1,5				
					250	100	0÷-8	1,8÷0,5	2÷4	3	13÷-2,5				
					250	200	0÷-8	1,5÷0,3	2÷4	3	17÷-2				
					170÷250			maximum		3					
				diod.	stat.			0,5				5			200
					peak			5				-150			

	$C_{a/k+f+1}$	$C_{a/f}$
	pF	pF
diod.	1	0,25

Equivalents

6 GX 8 amer

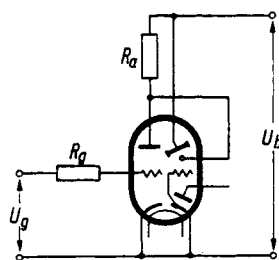


Fig. 1

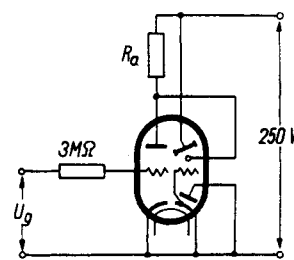
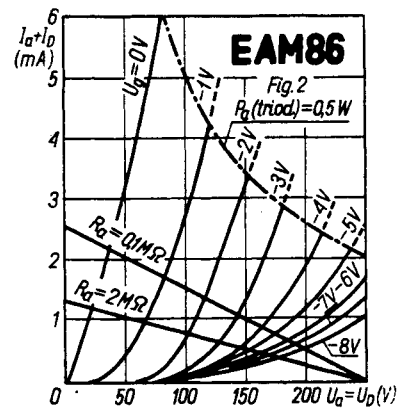
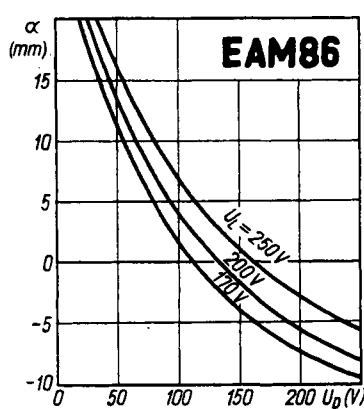
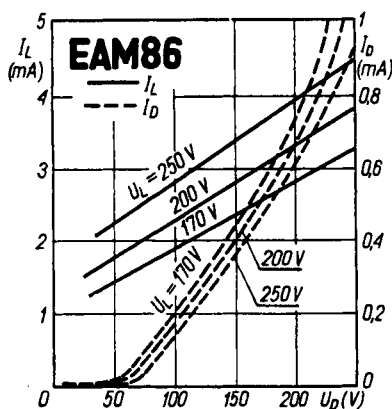
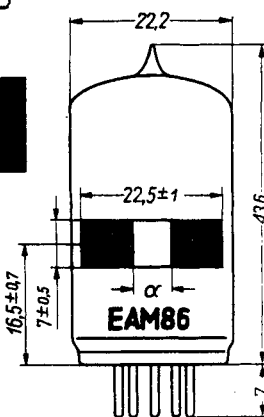
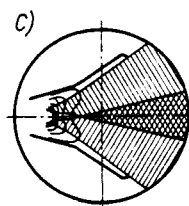
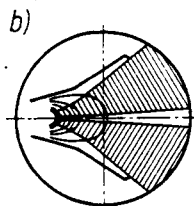
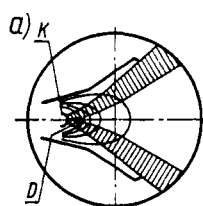
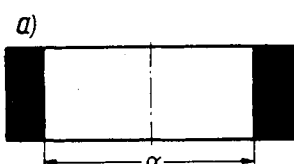
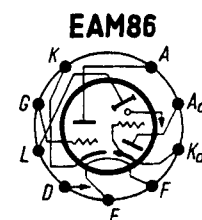
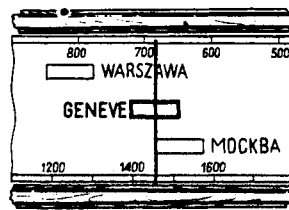
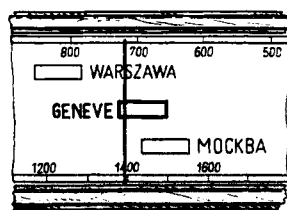
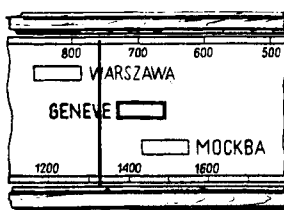


Fig. 2

a)

b)

c)

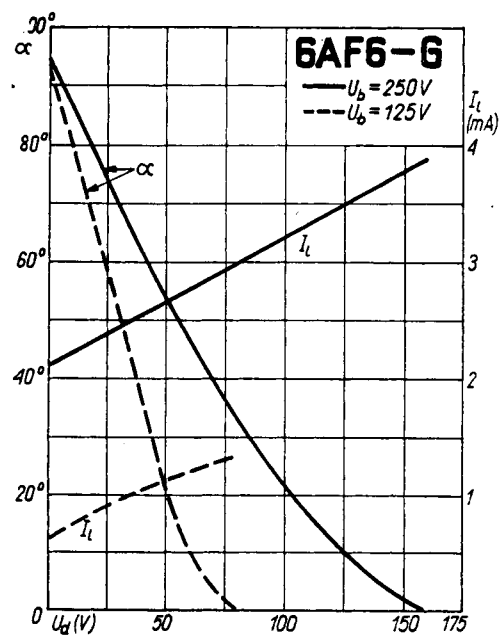
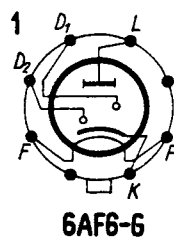
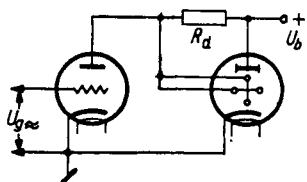
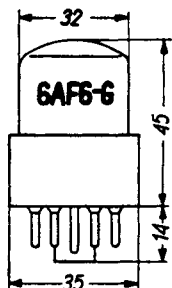


394

M+M

394

T.			U_f V	I_f A	$U_b=U_l$ V	R_d MΩ	$U_{d1}=U_{d2}$ V	I_l mA	α°	U_f/k V
6 AD 6-G	amer	I	6,3	0,15	$\begin{cases} 100 \\ 150 \end{cases}$		$\begin{cases} 23 \div 45 \\ 50 \div 75 \end{cases}$	$\begin{cases} 0,8 \\ 1,2 \end{cases}$	$\begin{cases} 90 \div 0 \\ 135 \div 0 \end{cases}$	
6 AF 6-G	amer	I	6,3	0,15	$\begin{cases} 125 \\ 250 \\ 250 \end{cases}$	$\begin{cases} 0,5 \\ 1 \end{cases}$	$\begin{cases} 0 \div 80 \\ 0 \div 160 \end{cases}$ maximum	$\begin{cases} 0,65 \\ 2,2 \end{cases}$	$\begin{cases} 90 \div 0 \\ 90 \div 0 \end{cases}$	90



395

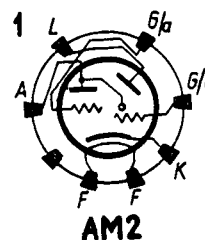
M+C

395

T.			U_f V	I_f A	Cl.	$U_a=U_l$ V	$U_{g1/a}$ V	$U_{g1/l}$ V	I_a mA	I_l mA	S mA/V	μ V/V	α°
AM 2	eur	I	4	0,32	C	250	-3,5		3		2	50	
EM 2	eur	I	6,3	0,2	M	250	-7	$-6 \div 0 \div +3$	0	1			$5 \div 150 \div 160$

Equivalents

C/EM 2 eur = EM 2	4677	Phi = AM 2	4697	Phi = AM 2
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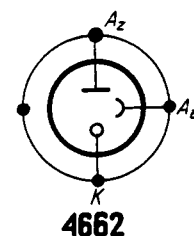
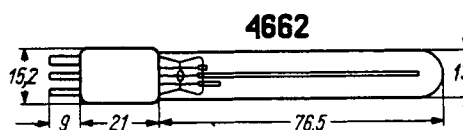


396

M (Neon)

396

T.			U_e V	U_z V	I_e μ A	I_z mA
4662	Phi	I	$165 \div 190$	$150 \div 170$	$40 \div 50$	2

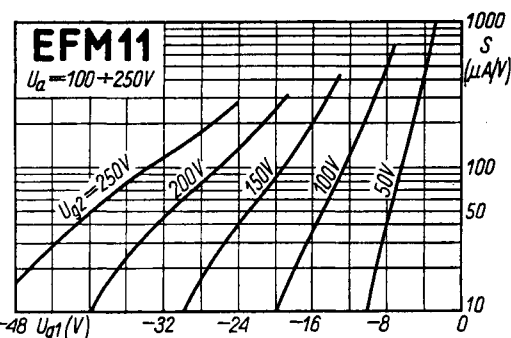
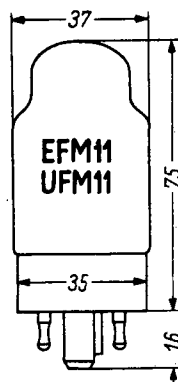
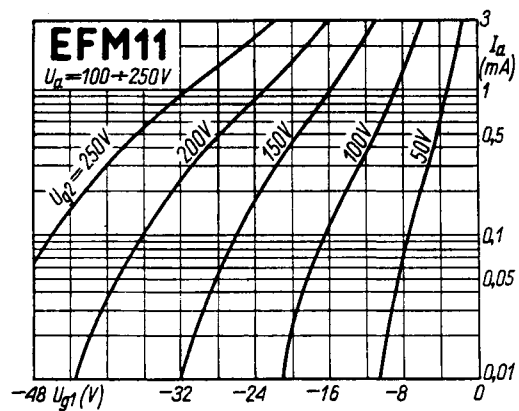
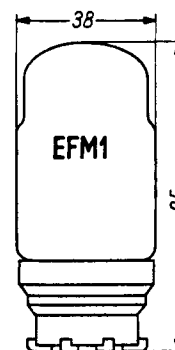
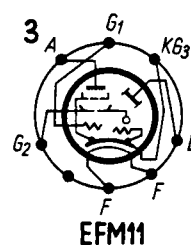
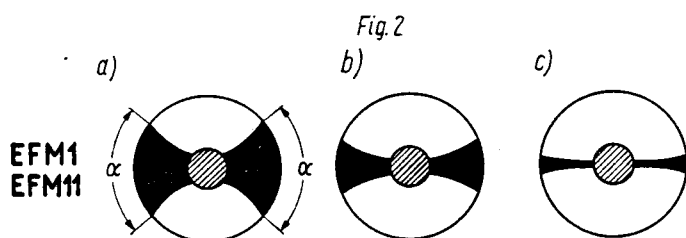
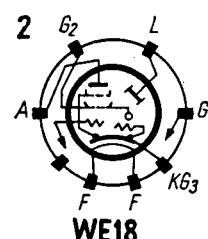
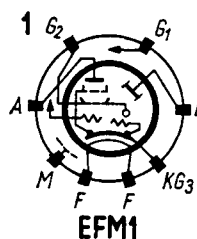
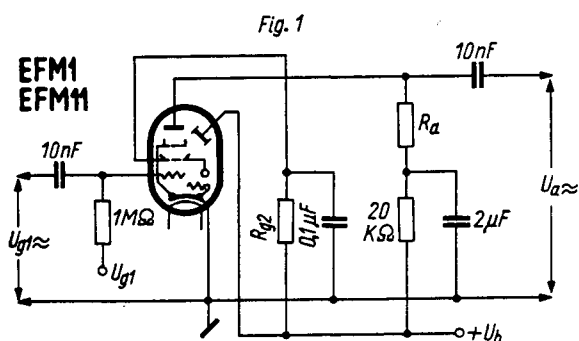


T.		U_f V	I_f A	$U_b=U_L$ V	R_a M Ω	R_{g2} M Ω	U_{g1} V	I_a mA	I_{g2} mA	I_L mA	R_L M Ω	α^*
EFM I WE 18	eur Tif	1 2	6,3 6,3	0,2 0,3	250	0,13	0,35	-2÷-20	0,8÷0,2	0,6÷0,2	0,65÷0,8	70÷5
EFM II	eur	3	6,3	0,2	100	0,16	0,5	-0,5÷-10	0,35÷0,21	0,19÷0,05	0,2÷0,35	77÷4
UFM II	eur	3	15	0,1	200	0,16	0,5	-0,5÷-18	0,77÷0,44	0,37÷0,12	0,5÷0,9	81÷9
					250	0,16	0,5	-0,8÷-20	0,98÷0,6	0,46÷0,18	0,75÷1,2	84÷12

Fig. 1

T.	U_b V	U_{g1} V	$U_a \approx$ V (eff)	μ $U_a \approx U_{g1} \approx$	h %
EEM I	250	-2÷-20	5	60÷13	2÷1,7
EFM II	100	-0,5÷-10	3	77÷10	2,3÷3
	200	-0,5÷-18	3÷5	104÷13	1,1÷2,2
	250	-0,8÷-20	3÷5	115÷17	0,6÷1,7

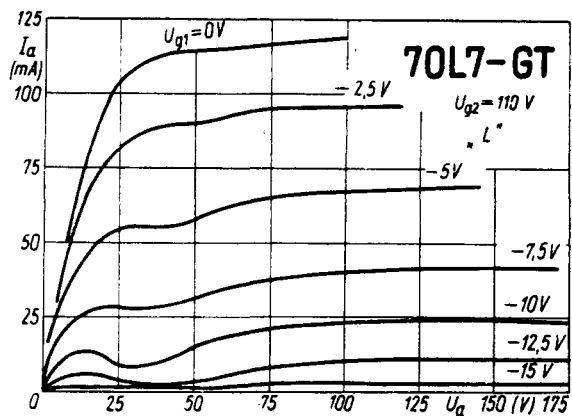
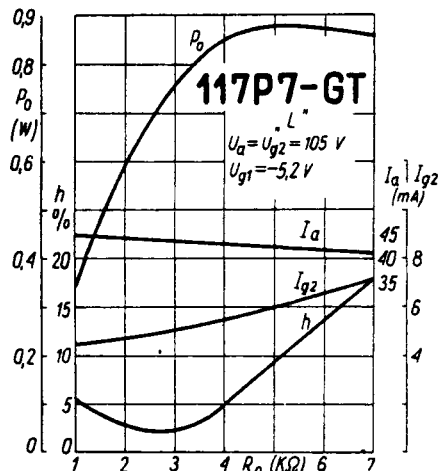
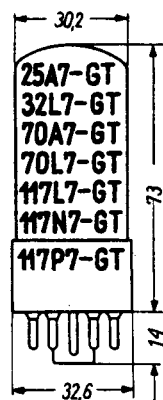
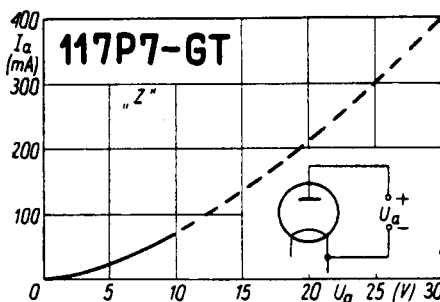
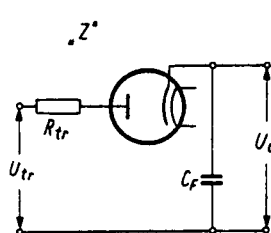
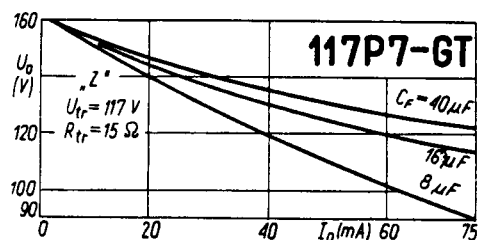
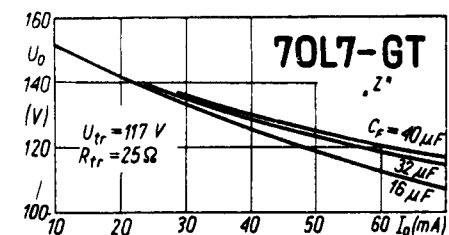
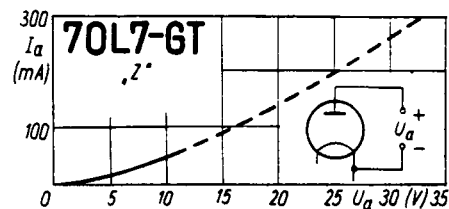
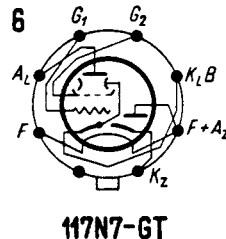
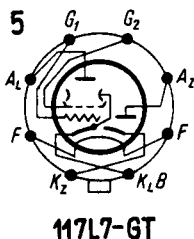
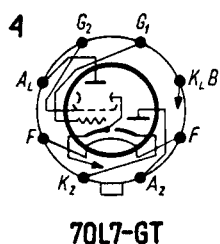
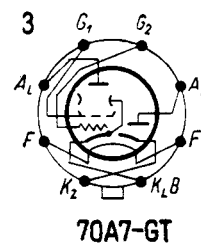
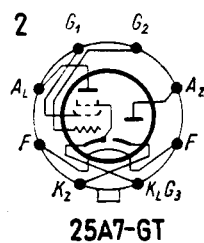
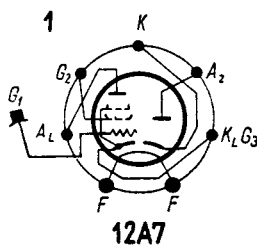
T.	$U_a(max)$ V	$U_{g2(max)}$ V	$U_L(min)$ V	$U_L(max)$ V	P_a W	P_{g2} W	I_k mA	R_{g2} M Ω	$U_{j/k}$ V
EFM I	300	300	200	300	0,4	0,4	5	3	100
EFM II	300	300	100	275	0,4	0,2	4	3	100



T.			U_f	I_f	U_{tr}	I_o	R_{tr}	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_o	P_o	h	P_{g2}	P_a
			V	A	V	mA	Ω	V	V	V	mA	mA	mA/V	k Ω	k Ω	W	%	W	W
12 A 7	int	1	12,6	0,3	125	30		135	135	-13,5	9	2,5	1	102	13,5	0,55			
25 A 7-G	int	2	25	0,3	117	75	15	100	100	-15	20,5	4	1,8	50	4,5	0,77	9	0,8	2,25
32 L 7-GT	int	3	32,5	0,3	125	60		90	90	-5	27	2	4,8	17	2,6	1			
70 A 7-GT	int	3	70	0,15	125	60		110	110	-7,5	40	3	5,8		2,5	1,5	10	1	5
70 L 7-GT	int	4	70	0,15	117	70	25	110	110	-7,5	40	3	7,5	15	2	1,8			
117 L 7-GT	int	5	117	0,09	117	75	15	105	105	-5,2	43	4	5,3	17	4	0,85	5	1	6
117 P 7-GT	int	6																	
117 N 7-GT	int	6																	
117 N 7-GT	int	6	117	0,09	117	75	15	100	100	-6	51	5	7	16	3	1,2	6	1	5,5

Equivalents

WT-210-0037	WT = 117 L 7-GT
WT-210-0061	WT = 117 N 7-GT
WT-T-115	WT = 117 N 7-GT
25 A 7-GT	int = 25 A 7-G
117 M 7-GT	amer = 117 L 7-GT

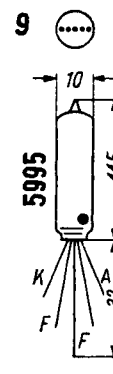
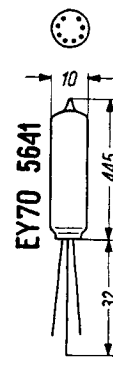
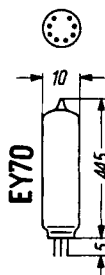
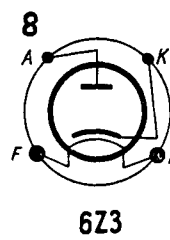
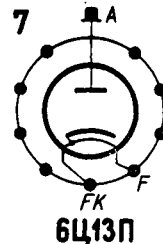
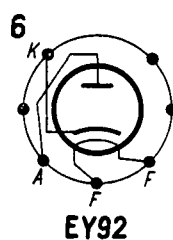
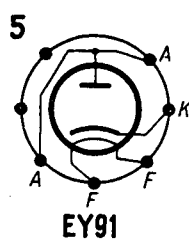
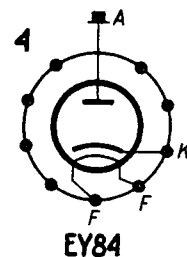
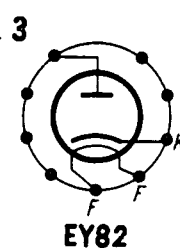
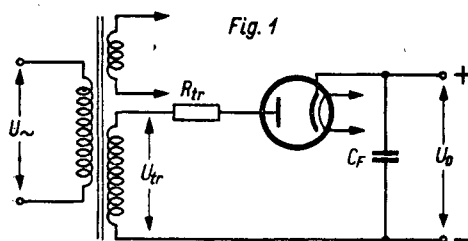


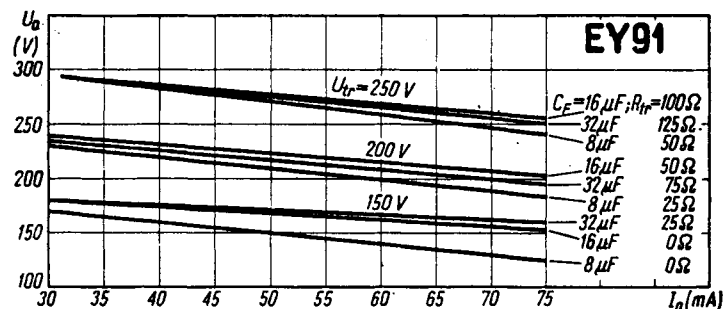
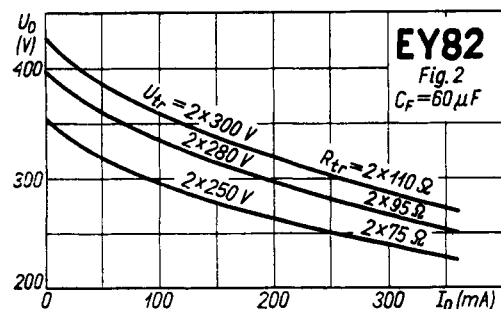
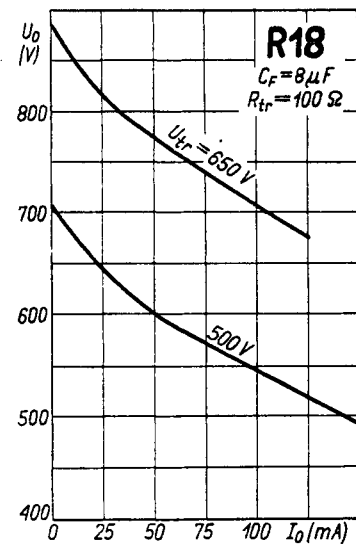
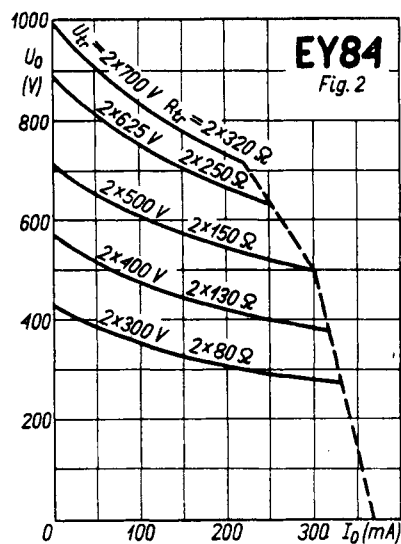
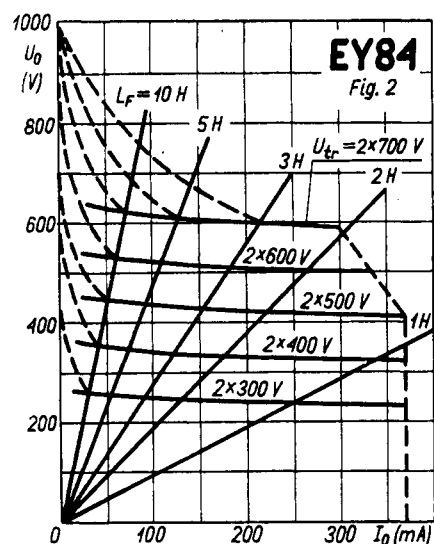
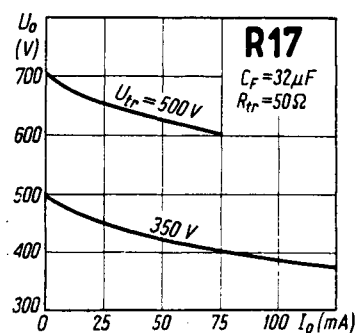
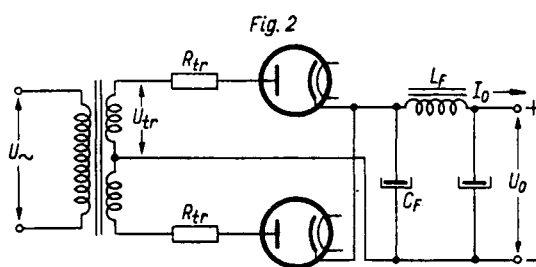
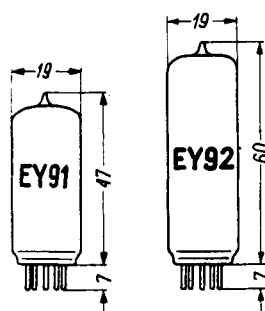
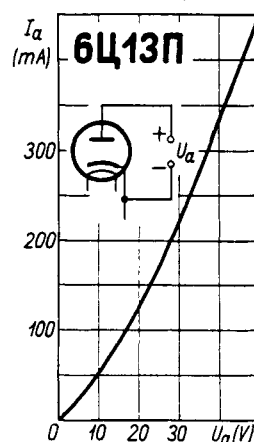
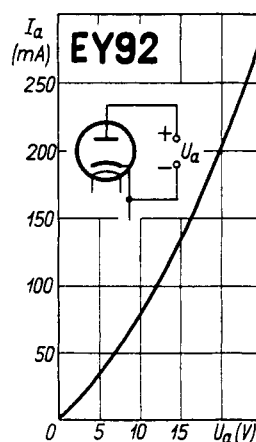
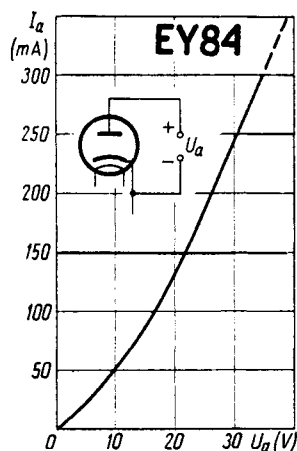
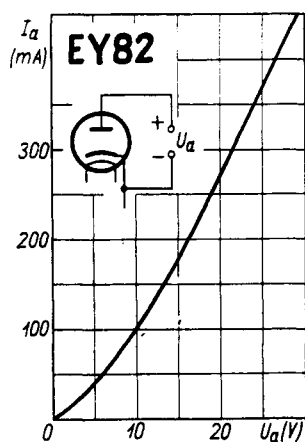
T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	R_{tr}	C_F	U_f/k
			V	A	V	V	mA	mA	Ω	μF	V
EA 111	TH	1	6,3	1,4	250		80	250			
EY 70	Mul	2	6,3	0,45	235	850	45	270	270	20	425
EY 82	eur	3	6,3	0,9	250 300	850	180 180		75 110	60 60	450
EY 84	eur	4	6,3	1	500 625	2000	150 125	900	150 250	16 16	650
EY 89	eur	3	6,3	0,5	110 250	700	100 100	600	0 210	50 50	550
EY 91	eur	5	6,3	0,42	150 250		75 75		25 100	32 32	300
EY 92	eur	6	6,3	0,4	145	400	70	450	0	100	400
R 17	Bri	4	6,3	0,8	350 500	1450	125 75	750	50 50	32 32	700
R 18	Bri	4	6,3	1,1	500 625		150 125	900	200 160	8 8	900
6 II 13 II	CCCP	7	6,3	0,95	650	1600	120	900		4	
6 Z 3	amer	8	6,3	0,3	325		45	270			
564 ¹⁾	int	2	6,3	0,45	117 235		48 45	300		16 16	465
5995	amer	9	6,3	0,3	300	850	45	270			

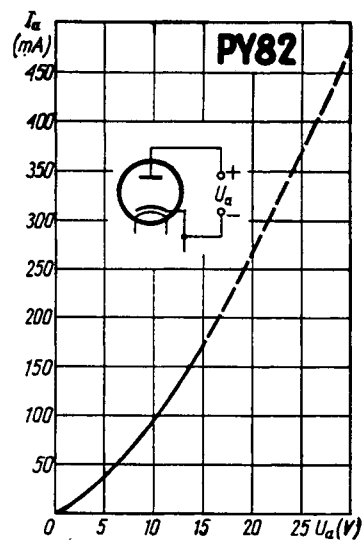
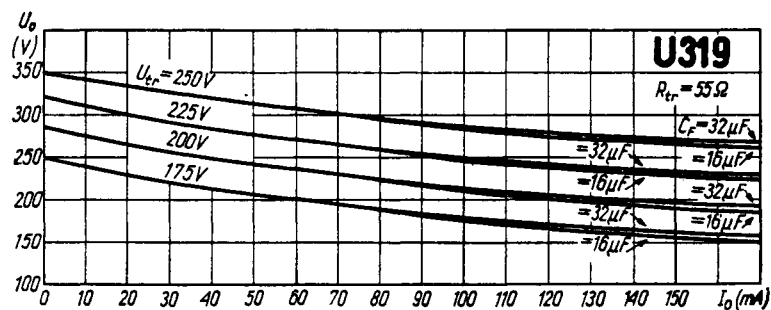
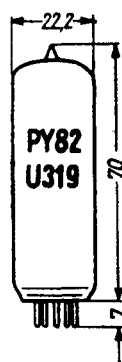
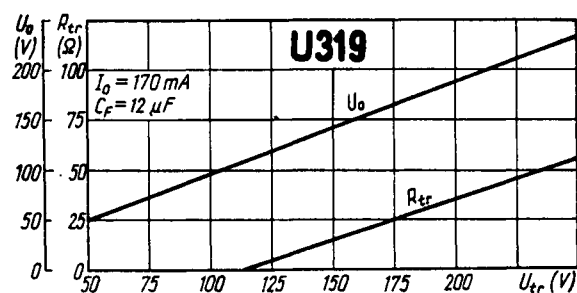
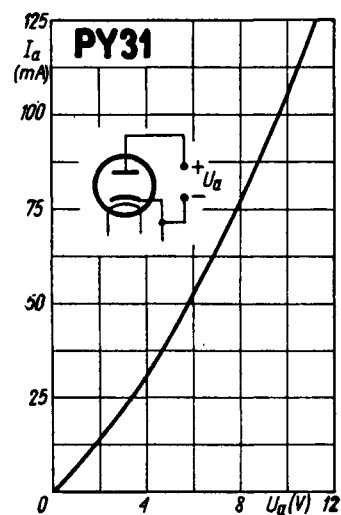
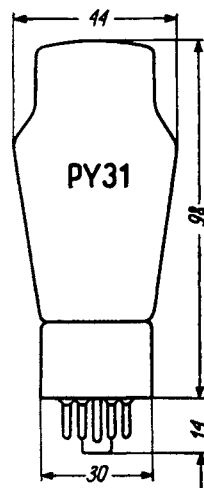
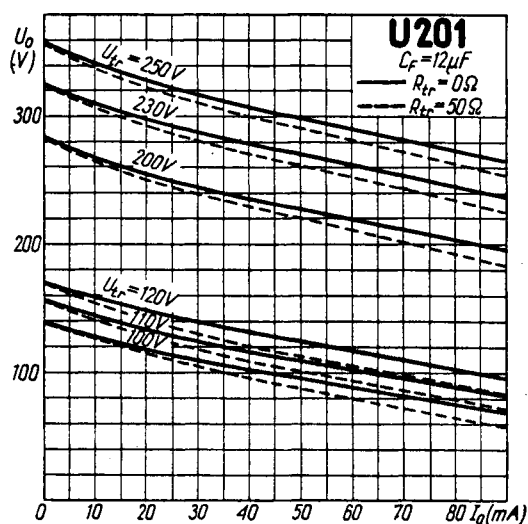
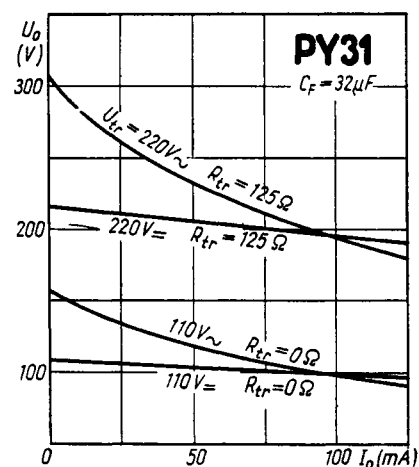
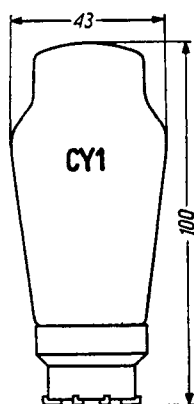
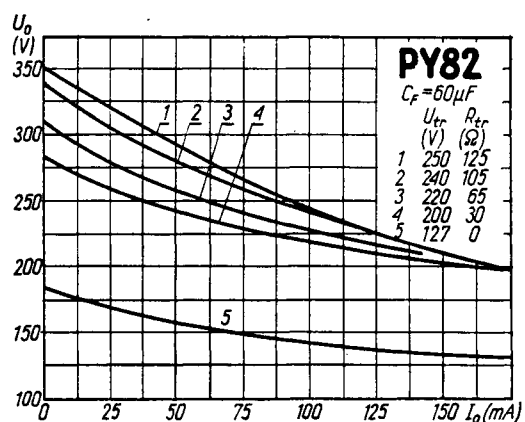
¹⁾ vide * 4, a, b, c, d, e, f, g: $U_f = 5,3 \text{ V} \pm 5\%$; ²⁾ vide * 4; ³⁾ vide * 4, a, b, c = 5000, e

Equivalents

AD	amer = 6 Z 3
C 1	amer = 6 Z 3
CE 1	Cat = 6 Z 3
CK 5995	Ray = 5995
DDR 3	Cos = EY 91
KR 1	amer = 6 Z 3
M 809 ³⁾	Mul = EY 84
M 814 ²⁾	Mul = EY 84
SN 954 ²⁾	Syl = 5641
SN 977 C ¹⁾	Syl = 5641
VX 8055	Mul = EY 70
I	amer = 6 Z 3
I KR 1	amer = 6 Z 3
I V	amer = 6 Z 3
6 N 3	amer = EY 82
6157	amer = R 17
6374	amer = EY 84
6443	amer = EY 84

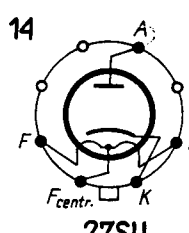
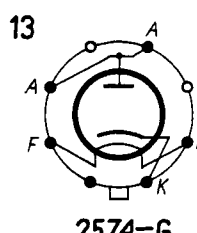
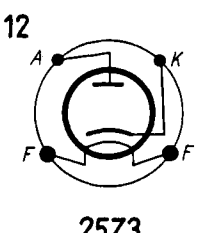
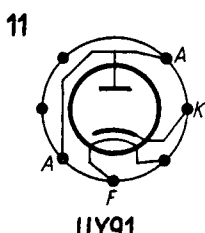
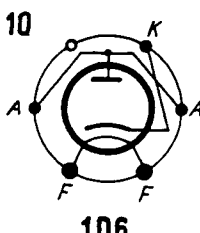
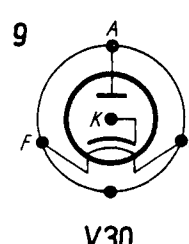
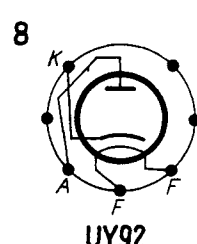
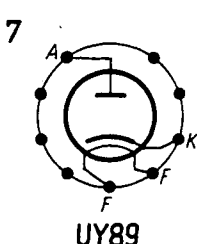
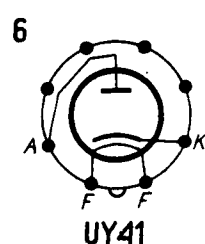
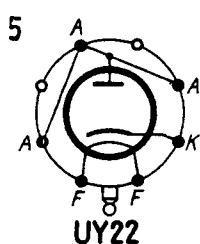
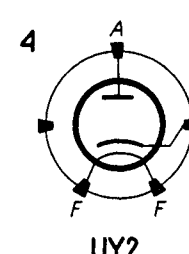
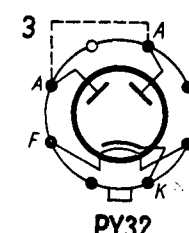
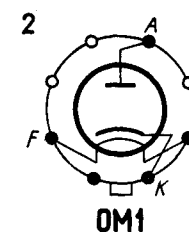
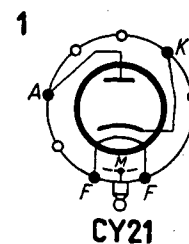






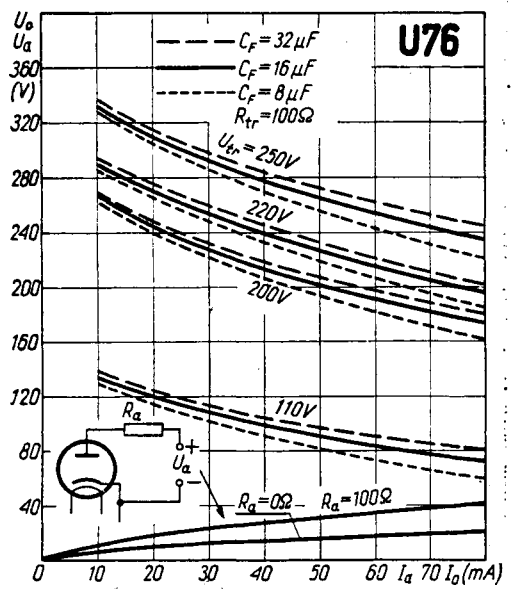
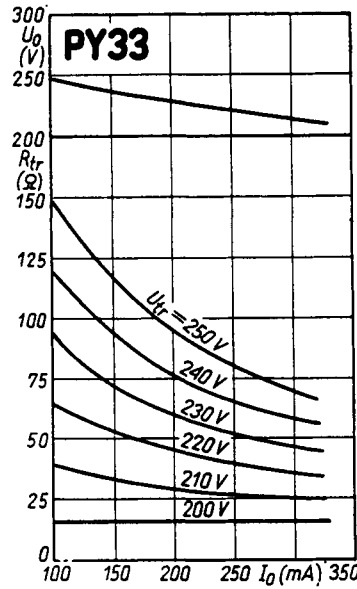
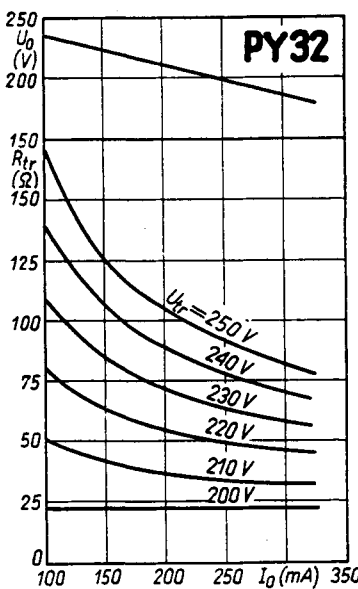
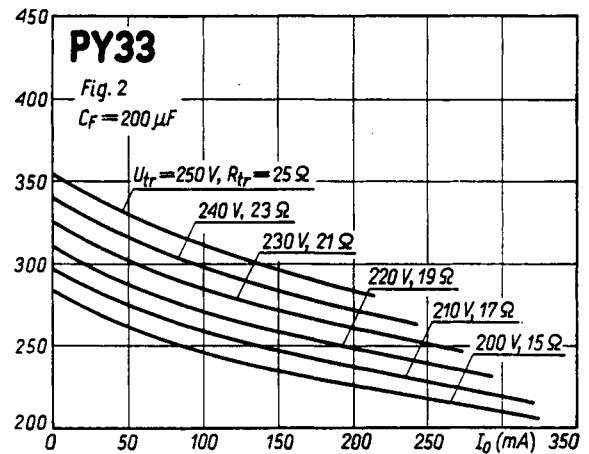
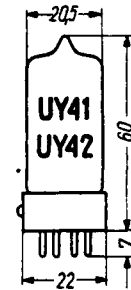
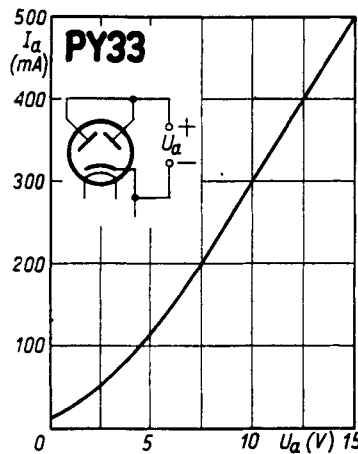
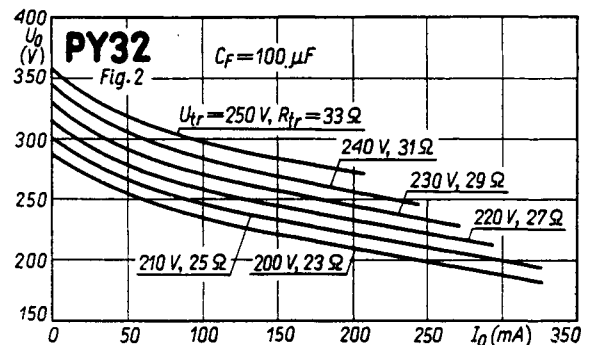
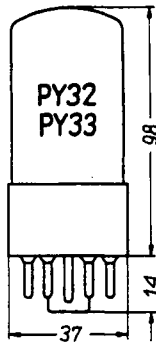
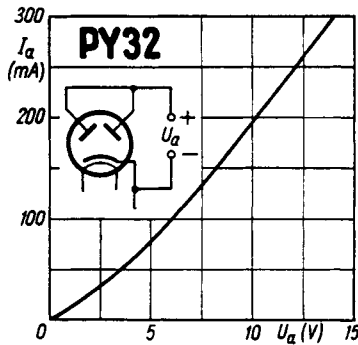
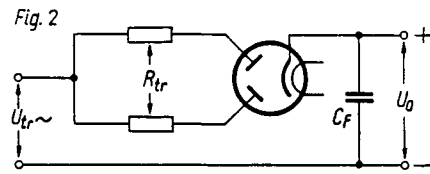
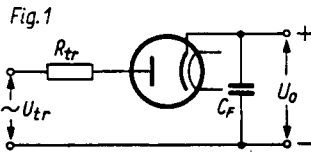
T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	R_{tr}	C_F	U_{fik}
			V	A	V	V	mA	mA	Ω	μF	V
CY 21	Tu	1	25	0,2	250		100				
OM 1	Cos	2	30	0,2	250		120				
PY 32	Mul	3	29	0,3	200		325		23	100	
					210		325		25	100	
					220		296		27	100	
					230		267		29	100	
					240		238		31	100	
					250	700	210	2100	33	100	550
PY 33	Mul	3	29	0,3	200		325		15	200	
					210		325		17	200	
					220		295		19	200	
					230		270		21	200	
					240		240		23	200	
					250	700	220	2600	25	200	625
U 31	Eng	2	26	0,3	250	700	120	750	100	32	350
U 71	Eng	2	30	0,16	250		75				
U 76	Eng	2	30	0,16	250	700	100		100	32	
UY 2	eur	4	26	0,1	250		45		20	32	550
UY 22	Tu	5	26	0,1	110		60		0	50	350
UY 41	eur	6	31	0,1	110		100		0	50	
UY 42	Phl	6	31	0,1	127		100		0	50	
UY 89	eur	7	31	0,1	220		100		160	50	
					250	700	100	600	210	50	550
UY 42	eur	6	31	0,1	110		90		0	50	350
UY 91	eur	11	26	0,1	250		75		100	32	
UY 92	eur	8	26	0,1	110		70		0	100	
					117		70		0	100	
					127		70		0	100	
					145	400	70	450	0	100	400
V 30	Tu	9	30	0,2	175		80			16	
					275		120			16	
VY 2	eur	4	30	0,05	250		35		20	32	550
I D 6	Bri	10	25	0,3	250	700	100	450	100	32	350
25 X 5	amer	2	25	0,15	110		100				
25 Y 4-G	amer	2	25	0,15	125		75				
25 Z 3	amer	12	25	0,3	250		50				
25 Z 4-G	amer	13	25	0,3	117		100				
					250	700	100	450	100	32	350
27 SU	Cos	14	26,5 ¹⁾	0,45	250		250				
30 II I M	CCCP	2	30	0,3	250	500	90				500

¹⁾ $U_f = 13,25/26,5$ V; $I_f = 0,9/0,45$ A.

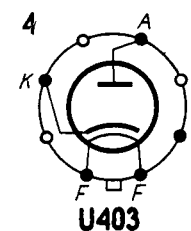
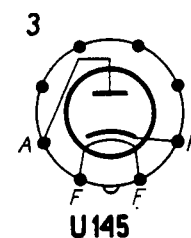
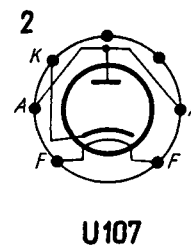
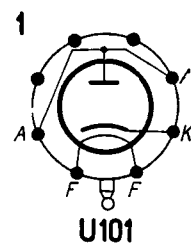


Equivalents

U 74	Eng = U 71
U 142	Eng = UY 41
U 291	Eds = PY 32
V 311	Maz = UY 41
V 312	Maz = UY 42
25 Z 4-GT	amer = 25 Z 4-G
30 BZ	CCCP = 30 II I M
31 A 3	amer = UY 41
31 AV 3	amer = UY 89
311 SU	Cos = UY 41



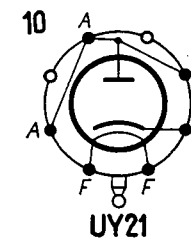
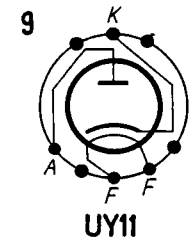
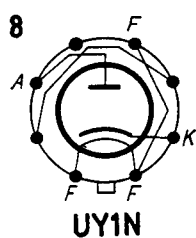
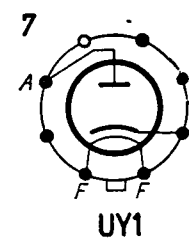
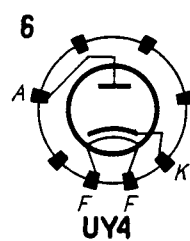
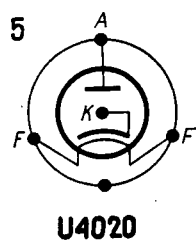
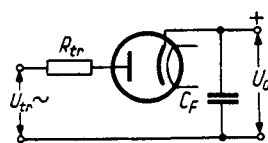
T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	R_{tr}	C_F	$U_{f/k}$
			V	A	V	V	mA	mA	Ω	μF	V
U 101	Eng	1	50	0,1	250		100		75	32	
U 107	Eng	2	40	0,1	250	700	90	540	75	16	350
U 145	Eng	3	40	0,1							
U 403	Eds	4	40	0,2	200		120				
U 4020	Eds	5	40	0,2	230		120	960	50	16	500
U 404	Eds	3	40	0,1	220		70		50	16	
					220	750	90	700	100	16	470
UY 4	eur	6	35	0,1	250		55				
UY 1	eur	7	50	0,1	127		140		0	32	
UY 1 N	eur	8	50	0,1	170		140		0	16	
UY 3	eur	6	50	0,1	170		140		20	32	
UY 11	eur	9	50	0,1	250		140		0	16	
UY 21	eur	10	50	0,1	250		140		20	32	550
					127		125		0	60	
					170		125		30	16	
UY 31	eur	11	50	0,1	170		125		100	60	
					250		125		0	8	
					250		125		175	60	
					127		180		0	60	
UY 82	eur	12	55	0,1	200		180		30	60	
					220		180		65	60	
					240		180		105	60	
					250	700	180	1100	125	60	550
					110		110			100	
UY 85	eur	13	38	0,1	127		110			100	
					220		110			100	
					250	700	110	660		100	550
YY 1	eur	6	55	0,05	250		60				
1 D 5	Bri	5	40	0,2	250	700	100	450	50	16	350
35 A 3	amer	14	35	0,15	220	700	100				
35 C 3	amer	14	35	0,15	110	300	100				
35 X 4	int	14	35	0,15							
35 Z 3	int	15	35	0,15	117		100		15	40	
35 Z 4-GT	int	11	35	0,15	235	700	100	60	100	40	350
35 Y 31	Tes	14	35	0,15	120		140		0	32	
					220	700	140	850	125	32	550
40 SUA	Cos	5	40	0,2	250		75				
45 Z 3	amer	16	45	0,075	117	350	65	390	15		175

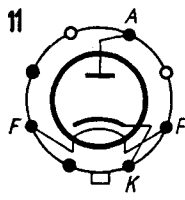


Equivalents

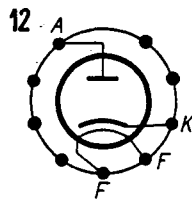
R 6130	amer	= 45 Z 3
U 118	GEC	= U 145
U 119	Eng	= UY 85
U 381	Eds	= UY 85
UY 1 NS ¹⁾	Tes	= UY 1 N
38 A 3	amer	= UY 85
50 Y 1 U	Phl	= UY 1
55 N 3	amer	= UY 82

¹⁾ $U_{tr} = 275$ V, $I_o = 140$ mA, $C_F = 60 \mu$.

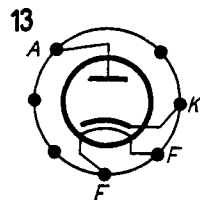




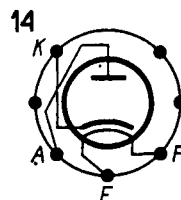
UY31



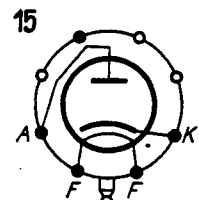
UY82



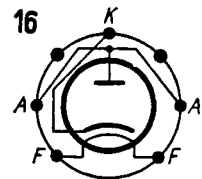
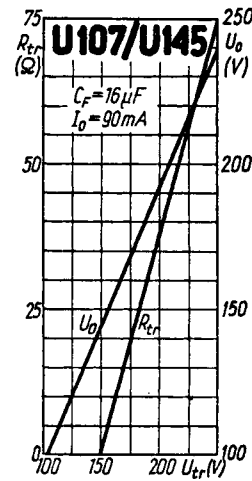
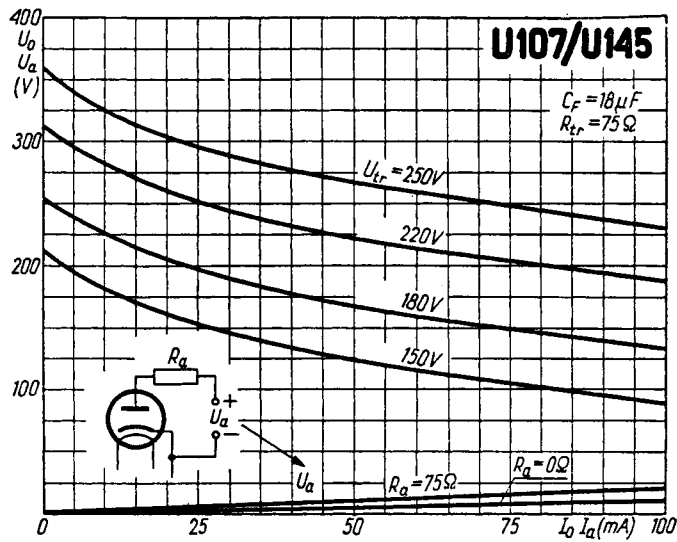
UY85



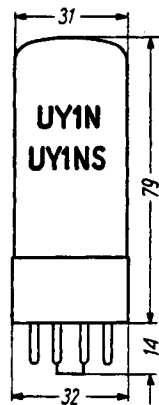
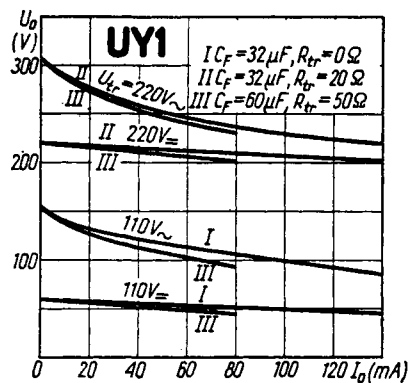
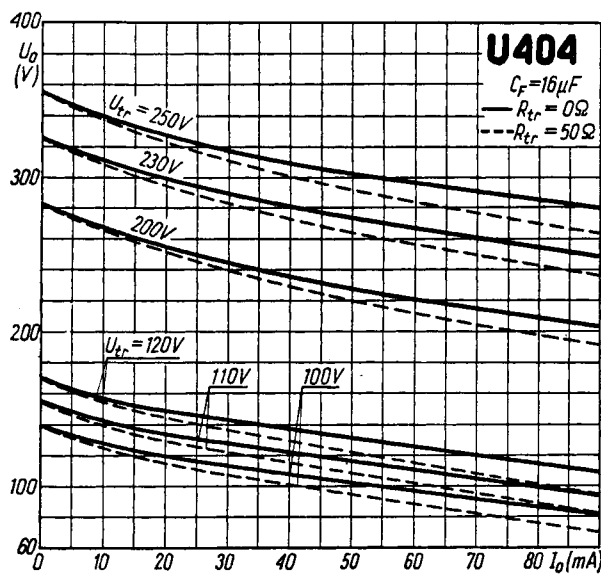
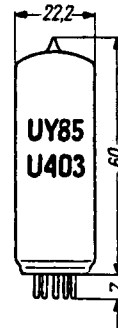
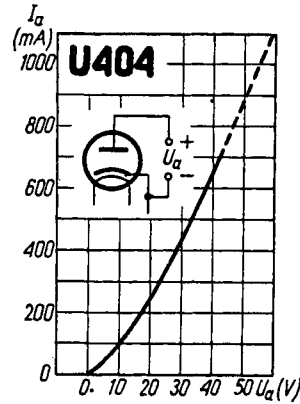
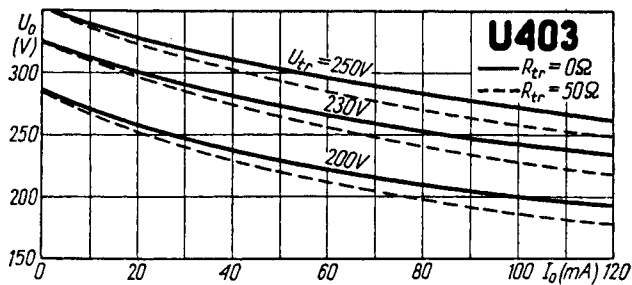
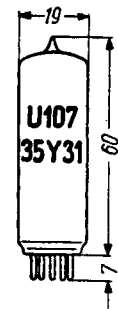
35Y31

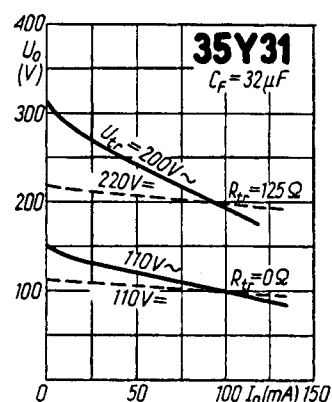
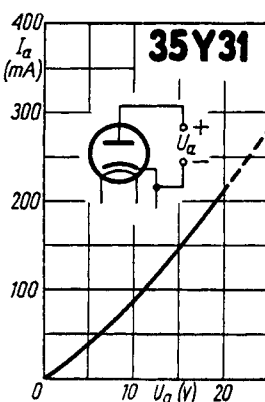
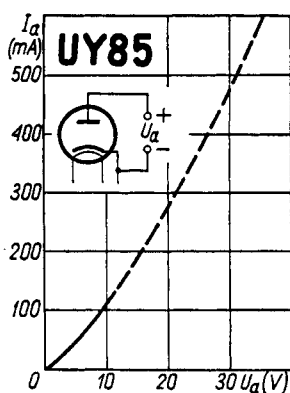
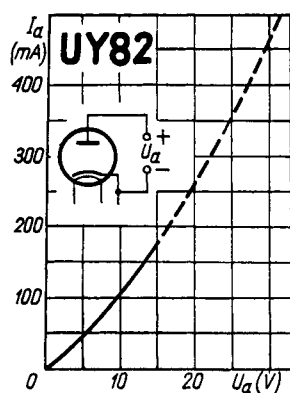
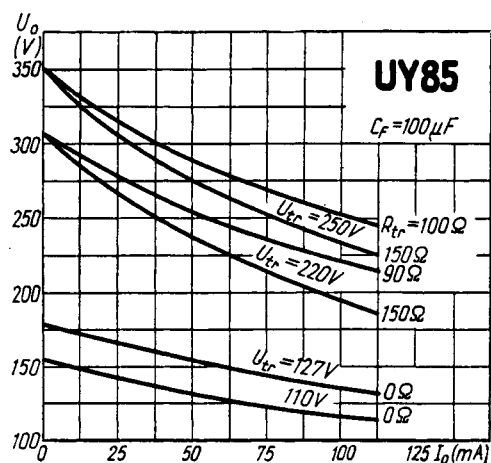
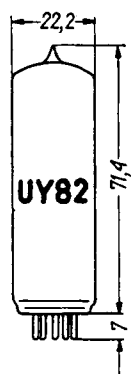
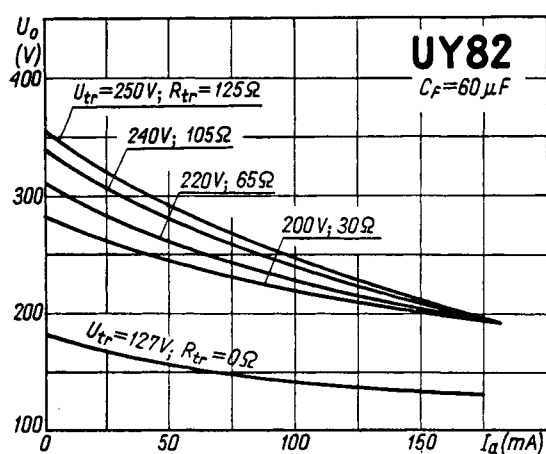


35Z3

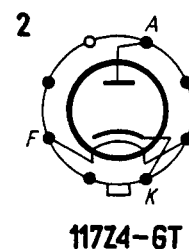
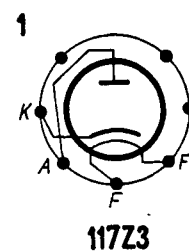
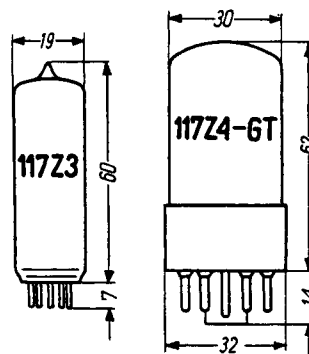
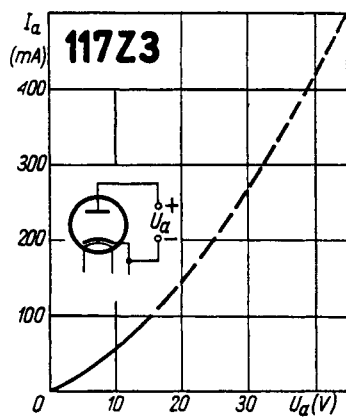
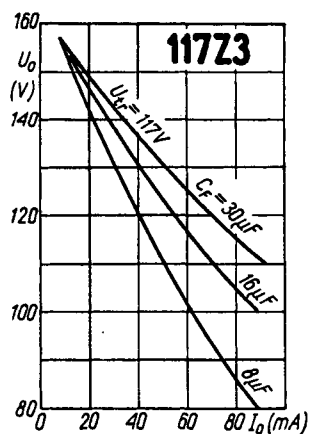


45Z3





T.			U_f V	I_f mA	U_{tr} V	U_p V	I_o mA	I_p mA	R_{tr} Ω	C_F μF	U_{f-k+} V	U_{f-k-} V
117 Z 3 117 Z 4-GT	int amer	1) 2)	117	40	117	330	90	540	15	40	175	100

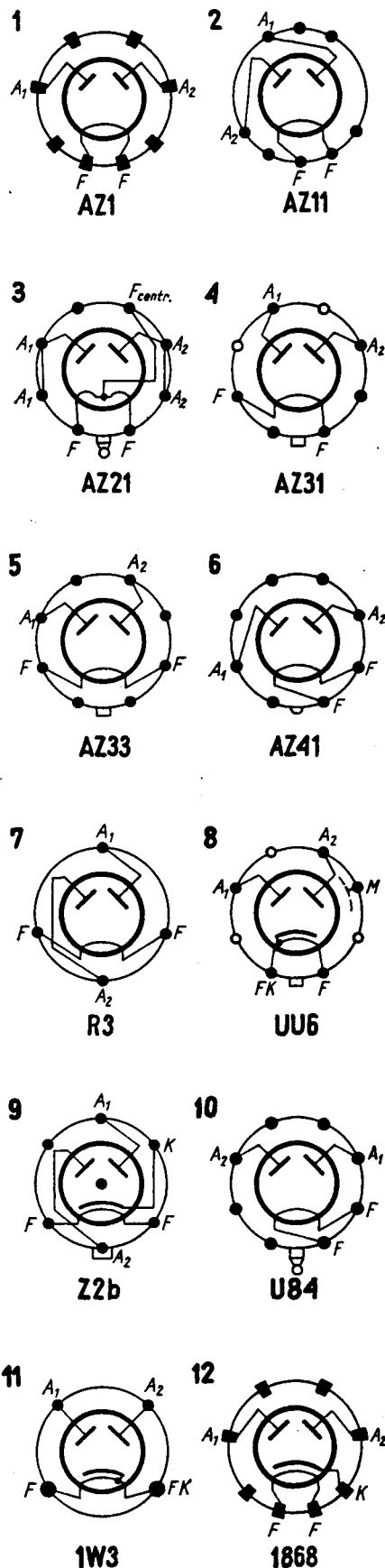


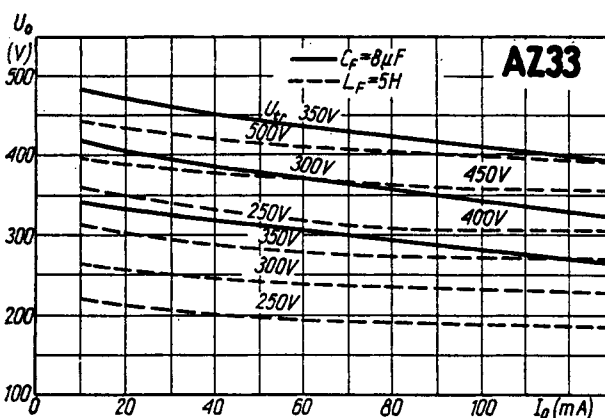
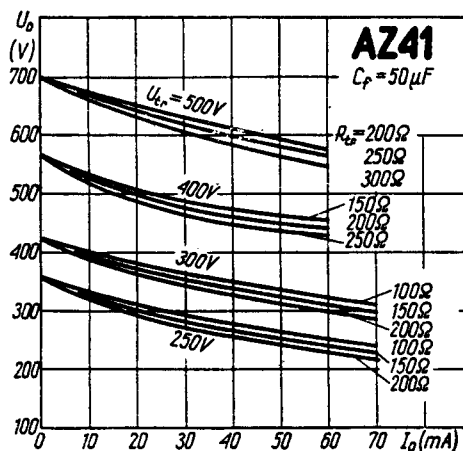
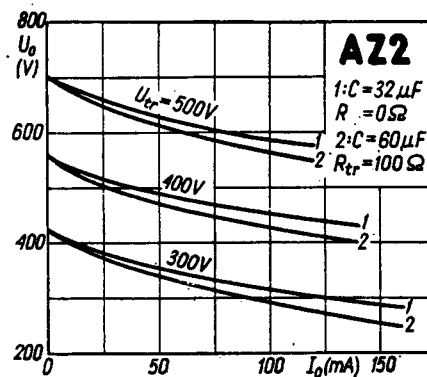
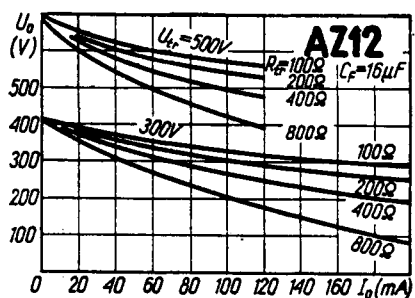
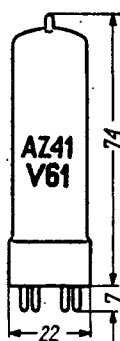
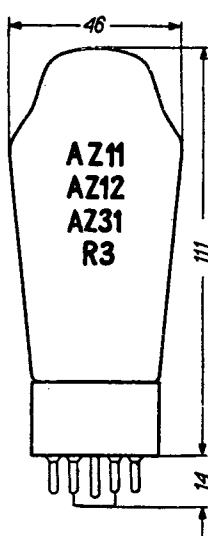
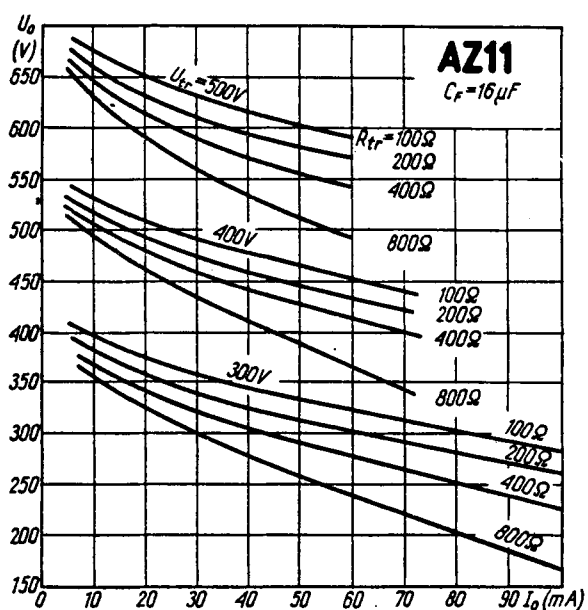
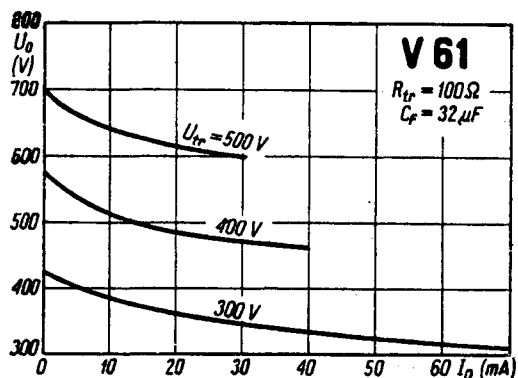
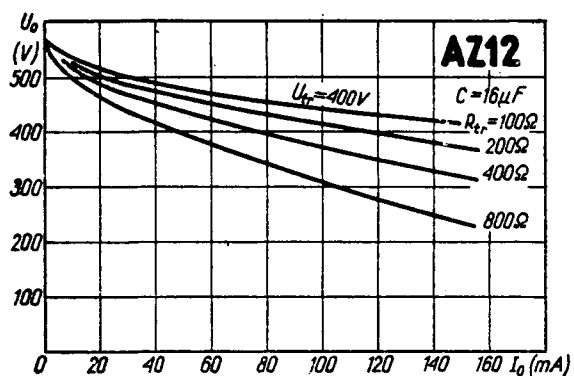
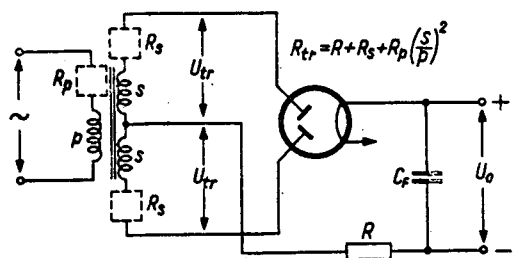
T.			U_f	I_f	U_{tr}	I_o	R_{tr}	C_F
			V	A	V	mA	Ω	μF
AZ 1	eur	1	4	1,1	300	100	60	60
AZ 11	eur	2	4	1,1	400	75	80	60
AZ 31	eur	4	4	1,1	500	60	100	60
AZ 2	eur	1	4	2	300	160	30	32
AZ 32	eur	4	4	2	400	140	40	32
					500	120	50	32
AZ 3	eur	1	4	2	350	120	60	8
AZ 33	eur	5	4	2				
AZ 4	eur	1	4	2,2	300	200	60	60
AZ 12	eur	2	4	2,2	400	150	80	60
					500	120	100	60
AZ 21	eur	3	4	1	300	120	60	60
					400	90	80	60
					500	70	100	60
AZ 41	eur	6	4	1,1	300	70	100	50
					400	65	150	50
					500	60	200	50
BO-188	CCCP	7	4	2	500	150		
BO-202	CCCP	7	4	0,7	250	60		
R 2	Bri	7	4	2	350	120	60	8
R 3	Bri	7	4	2,5	500	120	50	32
RV 120/250	Tu	7	4	2	250	120		
RV 120/350 S	Tu	1	4	2,4	350	120		
U 84	Eng	10	4	1	250	75		
UU 6	Eds	8	4	2,3	350	120		
V 61	Maz	6	4	0,62	300	70	100	32
					400	40	100	32
					500	30	100	32
Z 2 b ¹⁾	Grm	9	4	1,6	400	100		
I W 3	Mul	11	4	2,4	350	120		
506	Phi	7	4	1	300	75		
1801	Phi	7	4	0,5	250	30		
1805	Phi	7	4	1,1	500	60	100	60
1831	Phi	7	4	1	700	60		
1868	Phi	12	4	2	250	120		

¹⁾ vide * 4

Equivalents

AP 4200	Tu	= 506	RV 120/350	Tu	= R 2
APV 4100	Tu	= R 3	RV 120/500	Tu	= R 3
APV 4200	Tu	= 1805	RV 120/500 S	Tu	= AZ 2
AX 1	Phi	= R 3	U 9	Eng	= 1805
BO-116	CCCP	= R 2	U 10	Eng	= BO-202
DW 1	Mul	= 1801	U 12	Eng	= R 2
DW 2	Mul	= BO-202	U 14	Eng	= R 3
DW 3	Mul	= R 2	U 143	Eng	= AZ 31
DW 4	Mul	= R 3	UU 3	Eds	= BO-202
DW 7	Mul	= 1805	UU 4	Eds	= R 2
G 2 b ¹⁾	Siem	= Z 2 b	UU 5	Eds	= R 3
G 430	Val	= 1801	UU 7	Eds	= UU 6
G 490	Val	= 506	V 41	Maz	= AZ 41
PV 30	Tu	= 1801	I A 7	Bri	= R 2
PV 495	Tu	= 506	I W 4	Mul	= R 3
PV 4100	Tu	= 1805	408 BU	Cos	= 1801
PV 4200	Tu	= R 3	412 BU	Cos	= BO-202
R 1	Bri	= BO-202	442 BU	Cos	= R 2
R 4	Fer	= R 2	460 BU	Cos	= R 3
R 42	Fer	= R 3	1561	Phi	= R 3
RGN 504	Tif	= 1801	1807	Phi	= R 2
RGN 1054	Tif	= 506	1821	Phi	= BO-202
RGN 1064	Tif	= 1805	1823	Phi	= 1805
RGN 1074	Tif	= 1805	1861	Phi	= R 3
RGN 1504	Tif	= 506	1867	Phi	= I W 3
RGN 2004	Tif	= R 3	1881	Phi	= BO-202



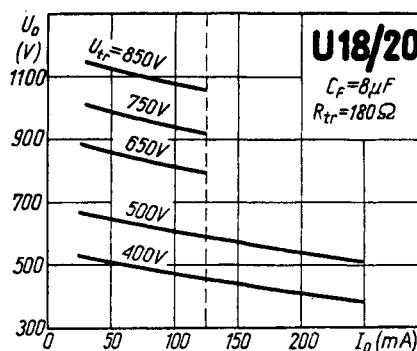
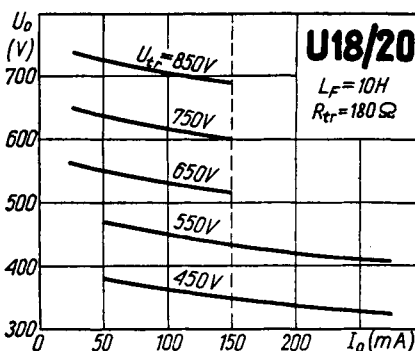
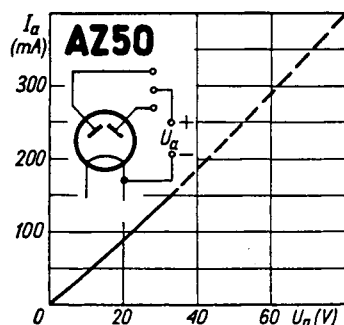
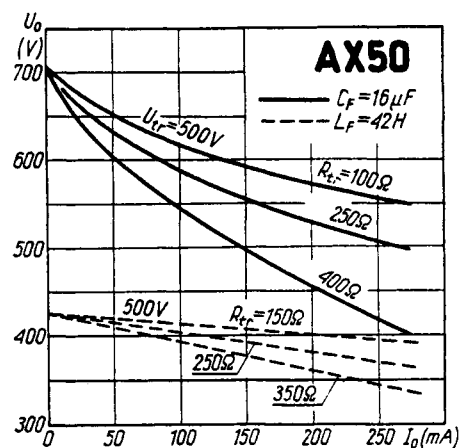
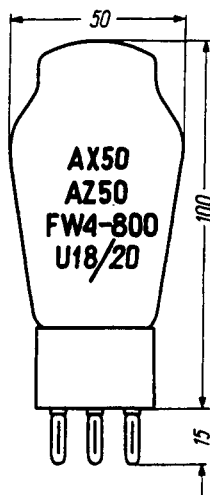
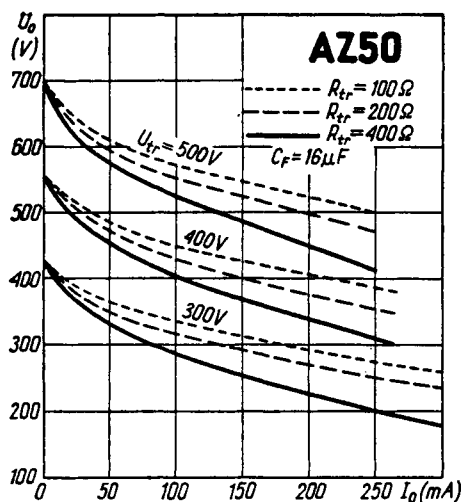
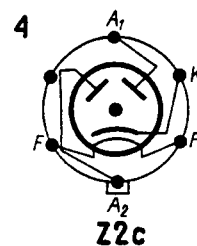
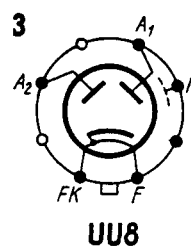
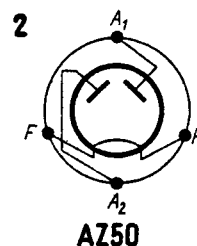
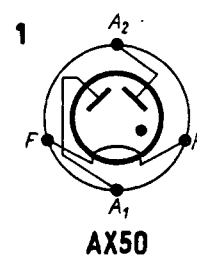


T.			U_f	I_f	$U_{tr}(C)$	$U_{tr}(L)$	U_p	I_o	I_p	R_{tr}	C_F	L_F
			V	A	V	V	V	mA	mA	Ω	μF	H
AX 50	eur	1	4	3,75	500	500	275	275	1000	100	16	42
AZ 50	eur	2	4	3	300		300	275		100	16	
					400		275	150		150	32	
					500	1600	250	200		200	64	
BO-197	CCCP	2	4	5	500		300	200		100	10	
PV 200/600	Tu	2	4	3,4	600		200					
RGN 2504	Tif	2	4	2,3	500		180					
RGN 4004	Tif	2	4	4	350		300					
U 18	Eng	2	4	3,5	500	1400	250	750	180	16		
U 18/20	Eng	2	4	2,4	850	2400	125	400	180	8		
						500	1400	275	180			10
						850	2400	150	180			10
UU 8	Eds	3	4	2,8	350		250		0			16
Z 2 c ¹⁾	Grm	4	4	4	400		300					

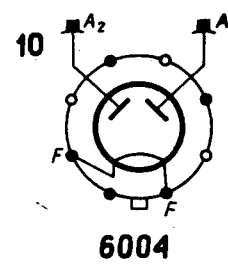
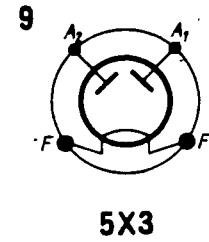
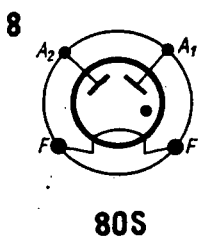
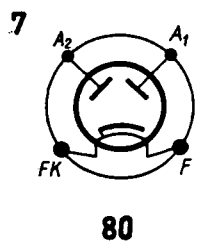
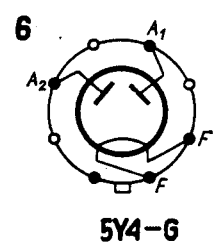
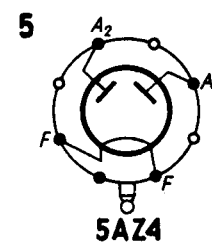
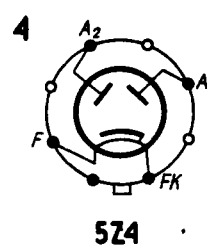
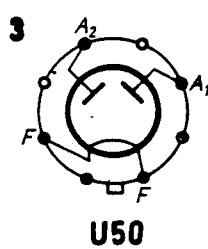
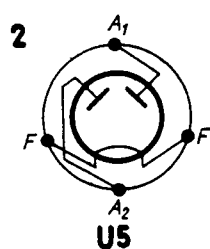
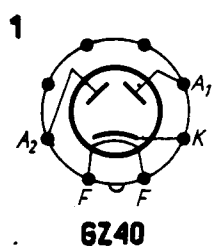
1) vide * 4

Equivalents

AZ 150	Tif = AZ 50	GR 4	Fer = RGN 4004
E 4 F	Mul = RGN 2504	PV 4201	Tu = RGN 2504
E 4 G	Mul = RGN 4004	RV 200/600	Tu = BO-197
FW 4-500	Mul = AZ 50	UU 10	Eds = RGN 2504
FW 4-800	Mul = U 18	45 IU	Cos = U 18
G 2 c ¹⁾	Siem = Z 2 c	1815	Phi = RGN 2504
G 4250	Val = RGN 2504	1817	Phi = RGN 4004
G 4400	Val = RGN 4004	4100 BU	Cos = AZ 50



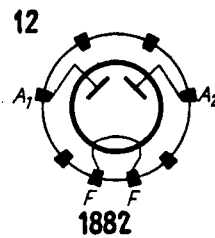
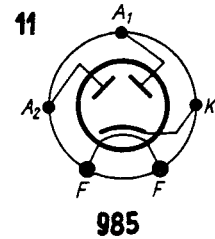
T.			U_f	I_f	$U_{tr}(C)$	$U_{tr}(L)$	U_p	I_o	I_p	R_{tr}	C_F	L_F	U_f/k
			V	A	V	V	V	mA	mA	Ω	μF	H	V
GZ 30	Mul	4	5	2	$\left\{ \begin{array}{l} 250 \\ 300 \\ 350 \end{array} \right.$	$\left\{ \begin{array}{l} 300 \\ 400 \\ 500 \end{array} \right.$	1400	$\left\{ \begin{array}{l} 125 \\ 125 \\ 125 \\ 125 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 240 \\ 310 \\ 380 \end{array} \right.$	$\left\{ \begin{array}{l} 50 \\ 50 \\ 50 \end{array} \right.$		$\left\{ \begin{array}{l} 10 \\ 10 \\ 10 \end{array} \right.$	
GZ 40	eur	1	5	0,75	$\left\{ \begin{array}{l} 250 \\ 300 \\ 350 \end{array} \right.$			$\left\{ \begin{array}{l} 90 \\ 90 \\ 90 \end{array} \right.$	$\left\{ \begin{array}{l} 125 \\ 215 \\ 300 \end{array} \right.$	$\left\{ \begin{array}{l} 50 \\ 50 \\ 50 \end{array} \right.$			500
GZ 41	Phi	1	5	0,75	$\left\{ \begin{array}{l} 325 \\ 450 \end{array} \right.$	1250		$\left\{ \begin{array}{l} 70 \\ 70 \end{array} \right.$	$\left\{ \begin{array}{l} 520 \\ 210 \end{array} \right.$	$\left\{ \begin{array}{l} 16 \\ 10 \end{array} \right.$			450
U 5	Eng	2	5	1,6	$\left\{ \begin{array}{l} 400 \\ 350 \end{array} \right.$	1000		$\left\{ \begin{array}{l} 120 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 370 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 32 \\ 100 \end{array} \right.$			
U 50	Eng	3	5	2	$\left\{ \begin{array}{l} 350 \\ 350 \end{array} \right.$	350		$\left\{ \begin{array}{l} 100 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 800 \\ 800 \end{array} \right.$	$\left\{ \begin{array}{l} 50 \\ 10 \end{array} \right.$			
U 51	Eng	3	5	1	$\left\{ \begin{array}{l} 350 \\ 500 \end{array} \right.$	1650		$\left\{ \begin{array}{l} 100 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 800 \\ 800 \end{array} \right.$	$\left\{ \begin{array}{l} 50 \\ 10 \end{array} \right.$			
Γ PI-0,25/1,5	CCCP	8	5	3	$\left\{ \begin{array}{l} 350 \\ 500 \end{array} \right.$	500	1400	$\left\{ \begin{array}{l} 125 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 375 \\ 375 \end{array} \right.$	$\left\{ \begin{array}{l} 50 \\ 10 \end{array} \right.$			
5 AZ 4	amer	5	5	2	$\left\{ \begin{array}{l} 400 \\ 550 \end{array} \right.$	110		$\left\{ \begin{array}{l} 135 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 100 \\ 300 \end{array} \right.$	$\left\{ \begin{array}{l} 4 \\ 8 \end{array} \right.$			
5 Y 3-G	int	3	5	2	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	500	1400	$\left\{ \begin{array}{l} 100 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 300 \\ 50 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 4 \end{array} \right.$			
5 Y 4-G	amer	6	6	2	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	500	1400	$\left\{ \begin{array}{l} 125 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 375 \\ 300 \end{array} \right.$	$\left\{ \begin{array}{l} 50 \\ 10 \end{array} \right.$			
5 Z 4	int	4	5	2	$\left\{ \begin{array}{l} 400 \\ 1275 \end{array} \right.$	400		$\left\{ \begin{array}{l} 110 \\ 30 \end{array} \right.$	$\left\{ \begin{array}{l} 415 \\ 415 \end{array} \right.$	$\left\{ \begin{array}{l} 4 \\ 4 \end{array} \right.$			
80	int	7	5	2	$\left\{ \begin{array}{l} 400 \\ 250 \end{array} \right.$	400		$\left\{ \begin{array}{l} 150 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 10 \end{array} \right.$			
80 S	int	8	5	3	$\left\{ \begin{array}{l} 400 \\ 250 \end{array} \right.$	400		$\left\{ \begin{array}{l} 150 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 10 \end{array} \right.$			
6004	amer	9	5	2	$\left\{ \begin{array}{l} 400 \\ 250 \end{array} \right.$	400		$\left\{ \begin{array}{l} 150 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 10 \end{array} \right.$			
5 Y 3-GB	Maz	4	5	1,7	$\left\{ \begin{array}{l} 400 \\ 550 \end{array} \right.$	550	1400	$\left\{ \begin{array}{l} 100 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 300 \\ 50 \end{array} \right.$	$\left\{ \begin{array}{l} 8 \\ 4 \end{array} \right.$			
5 Y 3-GR	Fiv	3	5	1	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	500	1400	$\left\{ \begin{array}{l} 100 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 300 \\ 50 \end{array} \right.$	$\left\{ \begin{array}{l} 8 \\ 4 \end{array} \right.$			
5 CG 4	amer	4	5	2	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	500	1400	$\left\{ \begin{array}{l} 100 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 300 \\ 50 \end{array} \right.$	$\left\{ \begin{array}{l} 8 \\ 4 \end{array} \right.$			
5 W 4	amer	3	5	1,5	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	500	1400	$\left\{ \begin{array}{l} 100 \\ 125 \end{array} \right.$	$\left\{ \begin{array}{l} 300 \\ 50 \end{array} \right.$	$\left\{ \begin{array}{l} 8 \\ 4 \end{array} \right.$			
5 X 3	amer	9	5	2	$\left\{ \begin{array}{l} 400 \\ 1275 \end{array} \right.$	400		$\left\{ \begin{array}{l} 110 \\ 30 \end{array} \right.$	$\left\{ \begin{array}{l} 415 \\ 415 \end{array} \right.$	$\left\{ \begin{array}{l} 4 \\ 4 \end{array} \right.$			
5 II 4 M	CCCP	4	5	2	$\left\{ \begin{array}{l} 400 \\ 250 \end{array} \right.$	400		$\left\{ \begin{array}{l} 150 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 10 \end{array} \right.$			
985	amer	11	5	0,5	$\left\{ \begin{array}{l} 400 \\ 250 \end{array} \right.$	400		$\left\{ \begin{array}{l} 150 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 10 \end{array} \right.$			
986	amer	11	5	1	$\left\{ \begin{array}{l} 400 \\ 250 \end{array} \right.$	400		$\left\{ \begin{array}{l} 150 \\ 135 \end{array} \right.$	$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 10 \\ 10 \end{array} \right.$			
1560	Phi	2	5	2	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	350		$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 370 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 32 \\ 100 \end{array} \right.$			
1882	Phi	12	5	2	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	350		$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 370 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 32 \\ 100 \end{array} \right.$			
1883	Phi	12	5	1,6	$\left\{ \begin{array}{l} 350 \\ 400 \end{array} \right.$	350		$\left\{ \begin{array}{l} 120 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 370 \\ 100 \end{array} \right.$	$\left\{ \begin{array}{l} 32 \\ 100 \end{array} \right.$			



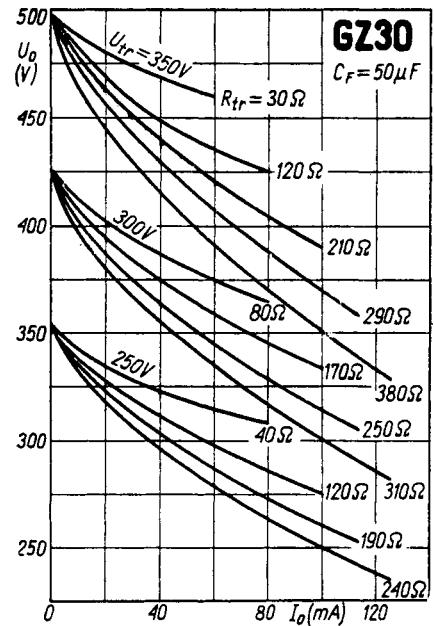
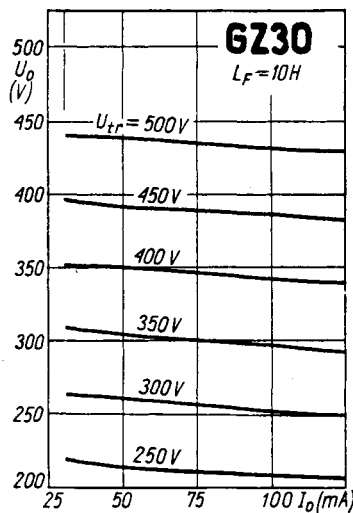
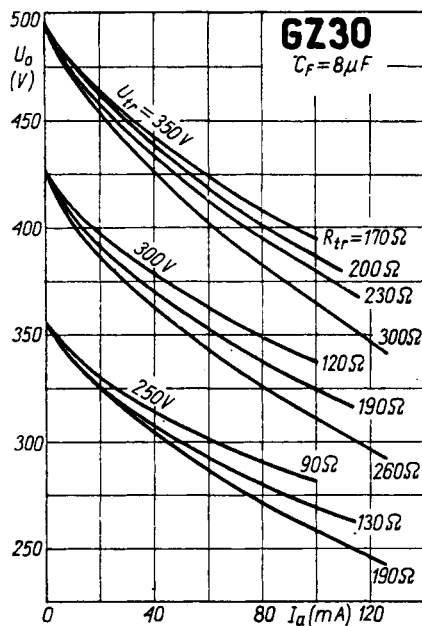
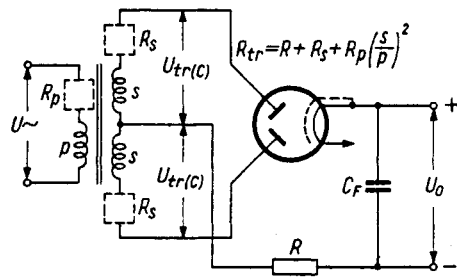
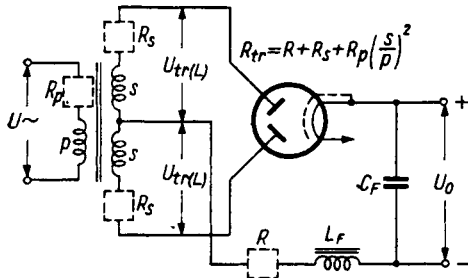
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BT 8	CCCP =	TP-0,25/1,5
CX 313	amer =	5 Y 3-G
D 1	amer =	5 Y 3-G
DW 8	Mul =	1560
EX 680	amer =	80
G 80	amer =	80
G 1882	Val =	1882
G 1883	Val =	1883
G 2005	Val =	1560
GA 0,25/1,5	CCCP =	TP-0,25/1,5
GL 4/25	Sat =	1882
GX 5200	Val =	1882
PVX 2200	Tu =	1560
PVX 2800/41	Tu =	1560
PVX 2800/44	Tu =	1560
R 5	Fer =	1560
R 52	Fer =	5 Y 3-G
R 80	amer =	80
R 256	Rec =	1560
R 5100	Zen =	1560
R 5200	Zen =	1560
RE 1	amer =	5 Y 3-G
RGN 1882	Tif =	1882
RGN 1883	Tif =	1883
RGN 2005	Tif =	1560
RO 531	Rtn =	1560

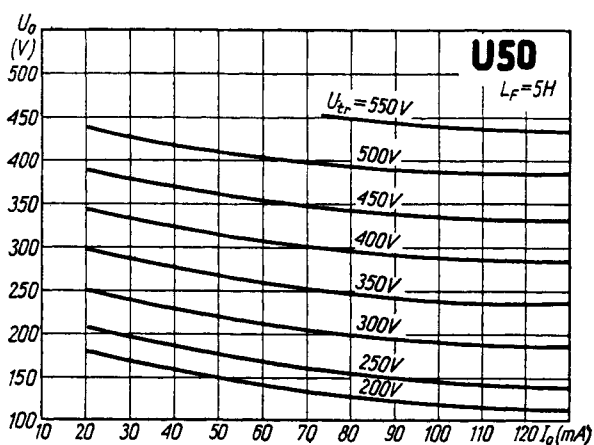
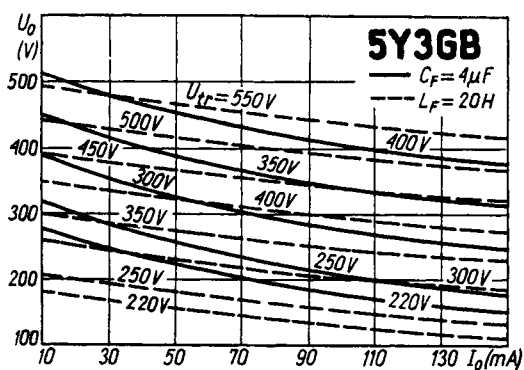
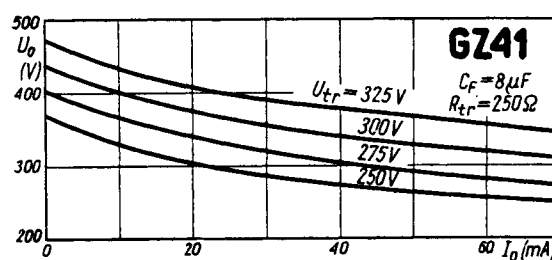
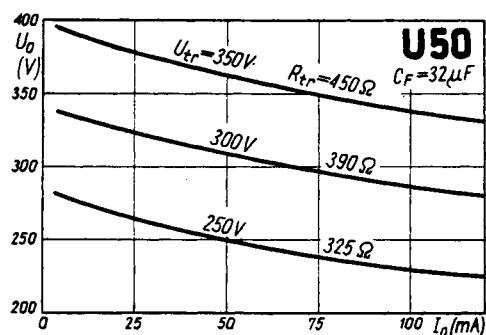
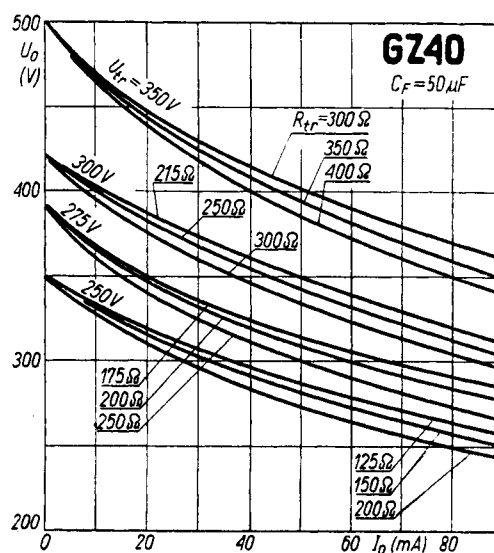
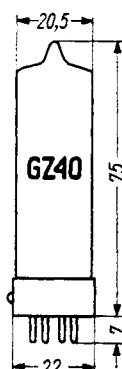
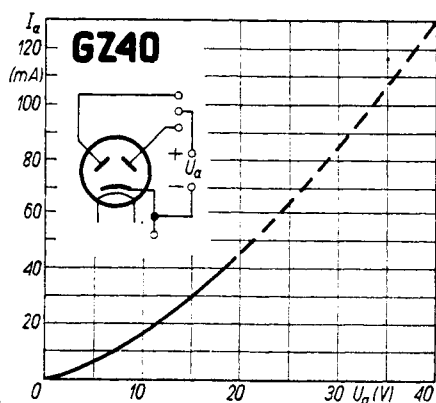
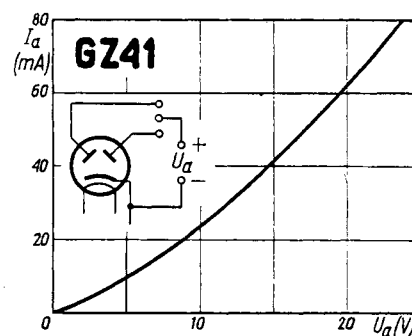
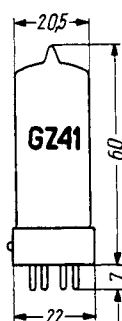
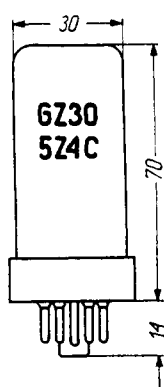
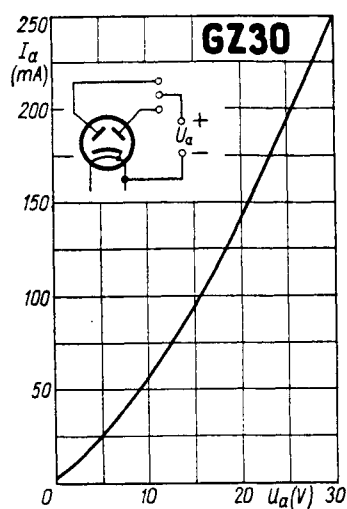
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TR 280	Tri =	1560
TR 1560	Adz =	1560
UX 213	amer =	80
UX 280	amer =	80
UX 380	amer =	80
V 30	Fot =	1560
V 51	Maz =	GZ 40
V 580	Vis =	1560
WT-270	WT =	80
WT-210-0012	WT =	80
WT-210-0042	WT =	5 Y 3-G
WTT-102	amer =	5 Y 3-GT
XV 280	amer =	80
5 BX 1	CCCP =	5 Z 4
5 BX 2	CCCP =	5 Y 3-G
5 W 4-G	amer =	5 W 4
5 W 4-GT	amer =	5 W 4
5 Y 3 C	CCCP =	5 Y 3-G
5 Y 3-GA	amer =	5 Y 3-G
5 Y 3-GT	int =	5 Y 3-G
5 Y 3-WGT ¹⁾	amer =	5 Y 3-GT
5 Y 3-WGTA ¹⁾	amer =	5 Y 3-GT
5 Y 3-WGTB ¹⁾	amer =	5 Y 3-GT
5 Y 4-GA	amer =	5 Y 4-G
5 Y 4-GT	int =	5 Y 4-G
5 Y 4-SG	Syl =	5 Z 4
5 Z 4 C	RFT =	5 Z 4
5 Z 4-G	int =	5 Z 4

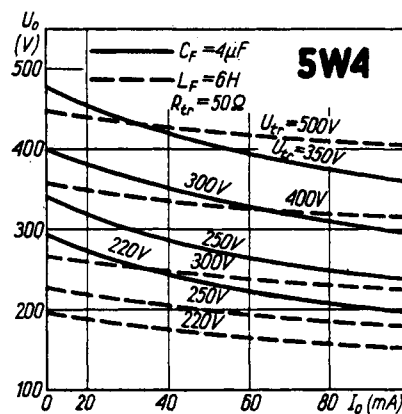
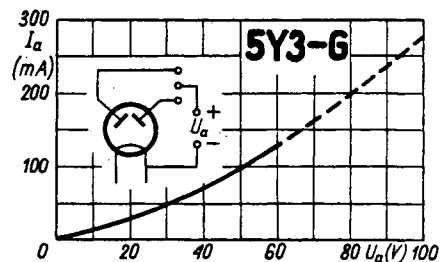
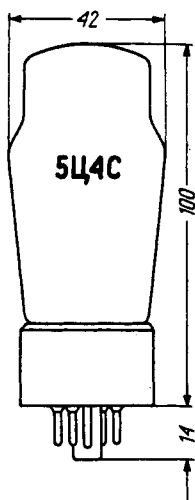
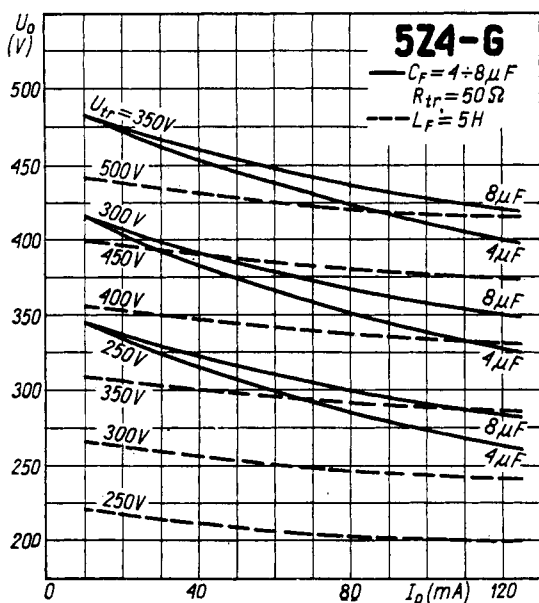
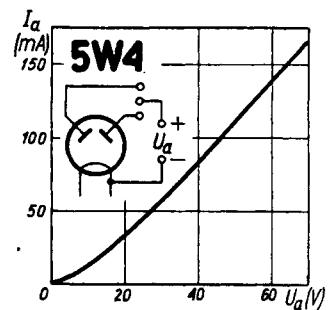
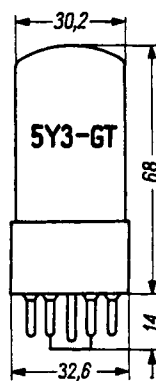
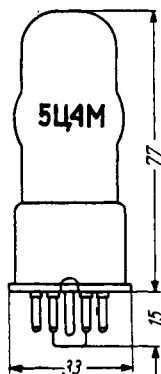
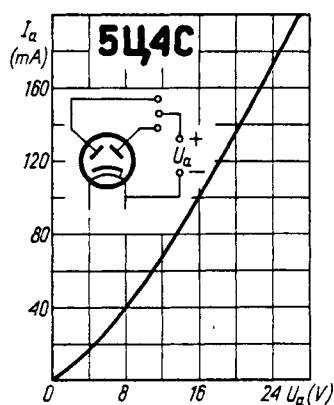
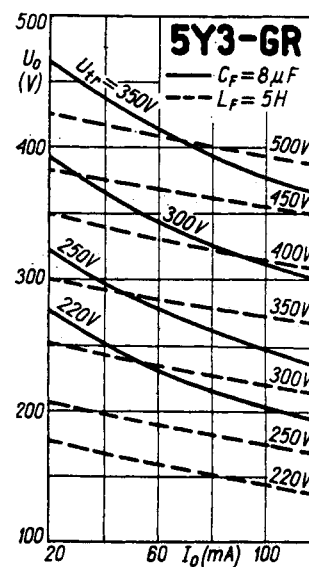
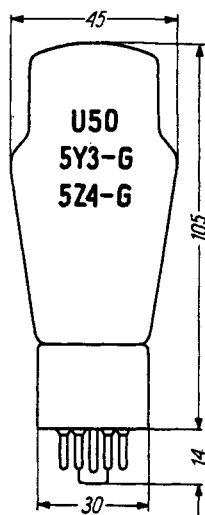
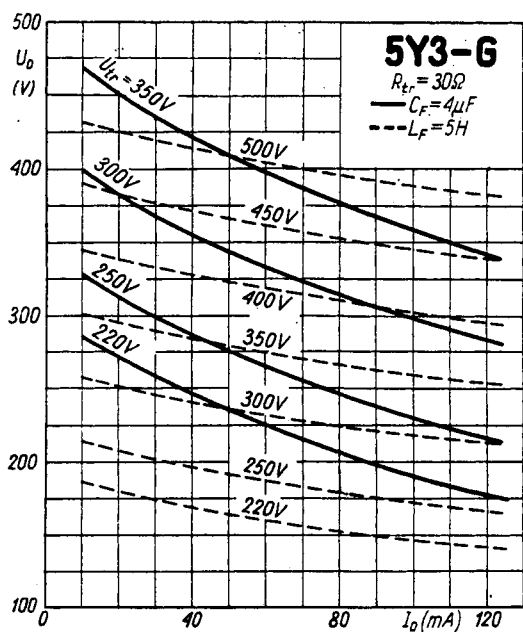
5 Z 4-MG int	=	5 Z 4
5 Z 5-MG int	=	5 Z 4
5 LI 4 C CCCP	=	5 Z 4
13	amer =	5 Y 3-G
13 B	amer =	80
80/41	amer =	80
80 A	amer =	80
80 M	amer =	80
88	amer =	80
113	amer =	80
113 B	amer =	80
180	amer =	80
213	amer =	80
213 B	amer =	80
268	amer =	80 S
280	amer =	80
280 M	amer =	80 S
288	amer =	80 S
313	amer =	80
313 B	amer =	80
380	amer =	80
480	amer =	80
580	amer =	80
580	amer =	80
28J0	amer =	80
6C87	amer =	5 Y 3-G
6106 ¹⁾	amer =	5 Y 3-G
38080	amer =	80



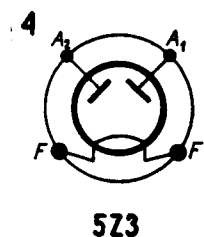
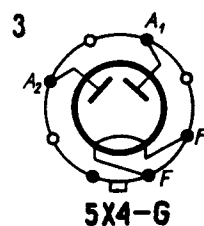
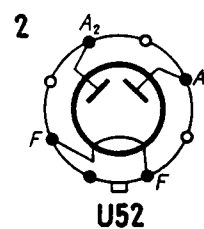
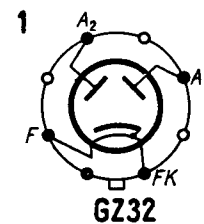
¹⁾ vide * 4, a, b, c, d, g







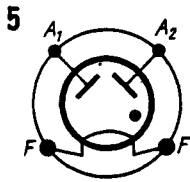
T.			U_f	I_f	$U_{tr}(C)$	$U_{tr}(L)$	U_p	I_o	I_p	R_{tr}	C_F	L_F
			V	A	V	V	V	mA	mA	Ω	μF	H
GZ 32	eur	1	5	2	300 350	400 500		300 250 300 250		150 150	60 60	10 10
GZ 33	Mul	1	5	3	300 400 500	300 400 500	1400	250 250 250 300 300 300	750	140 200 250	60 60 60	10 10 10
GZ 34	eur	1	5	1,9	300 400 500 550	350 450 500 550	1500	250 250 200 160 250 250	750	75 125 175 200	60 60 60 60	10 10 10 10
GZ 37	Mul	1	5	2,8	300 400 500	300 400 500	1600	250 250 250 350 350 350	750	75 75 75	4 4 4	10 10 10
U 52	Eng	2	5	2,25	500	550	1430	250 275	770	180 180	16	10
U 54	Eng	1	5	2	500		1250	250	1550	75	4	
5 AU 4	amer	2	5	4,5	300 400	500	1400	350 325 325	1075	30 50	40 40	10
5 AW 4	Hyt	2	5	4	450	550	1550	250 250	750		10	10
5 BC 3	amer	6	5	3	450			275				
5 CU 4	amer	7	5	3,3	275		800	425				
5 DJ 4	amer	8	5	3	550			275				
5 T 4	amer	2	5	2								
5 U 4-G	int	2	5	3	300			245		170	32	
5 X 4-G	amer	3	5	3	450			225		170	32	
5 Z 3	int	4	5	3		550	1550	225	675			10
83	int	5	5	3								
1275	Syl	4	5	1,75								
5 U 4-GA	amer	2	5	3	450	550	1550	250 250	900	150	32	10
5 U 4-GB	int	2	5	3	300			300		21	32	
5 Z 3-GB	int	4	5	3	450	550	1550	275 275	1000	67	32	10
5 V 3	amer	2	5	3,8	300 425	500		380 350 350		24 56	40 40	10
5 II 3 C	CCCP	2	5	3	500 500		1200 1300	250 225	730 750	50 50	4 20	



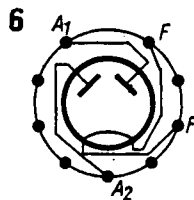
Equivalents

WT-210-0013	WT = 5 Z 3	5 AQ 4	amer = GZ 32	5 U 4-WG ¹⁾	amer = 5 U 4-G	22 S/200 A	STCE = 5 Z 3
WT-210-0019	WT = 83	5 AR 4	amer = GZ 34	5 V 3-A	amer = 5 V 3	22 V/310 A	STCE = 83
WT-210-0048	WT = 5 U 4-G	5 AS 4	amer = 5 U 4-GB	5 V 4-GB	amer = GZ 32	53 KU	Cos = GZ 33
WT-301	WT = 83	5 AS 4-A	amer = 5 U 4-GB	5 Z 10	Tes = 5 II 3 C	54 KU	Cos = GZ 32
WT-270 X	WT = 5 Z 3	5 BX 3	CCCP = 5 II 3 C	22 S 2	STCS = 5 Z 3	5931 ¹⁾	amer = 5 U 4-G
WTT-135	WT = 5 U 4-G	5 C 3 S	Pol = 5 II 3 C				

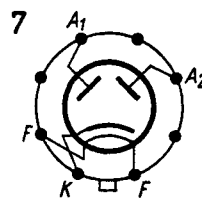
¹⁾ vide * 4, a, b; $U_f = 5 V \pm 10\%$



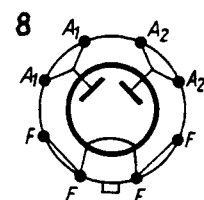
83



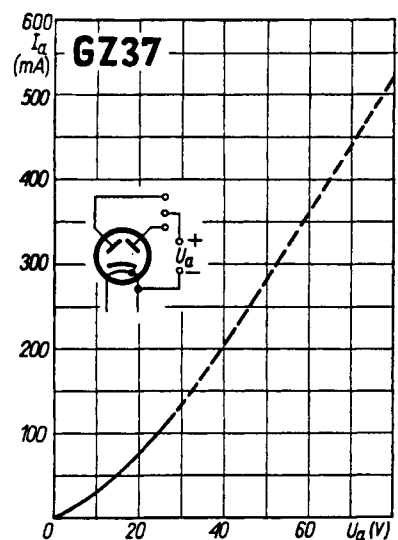
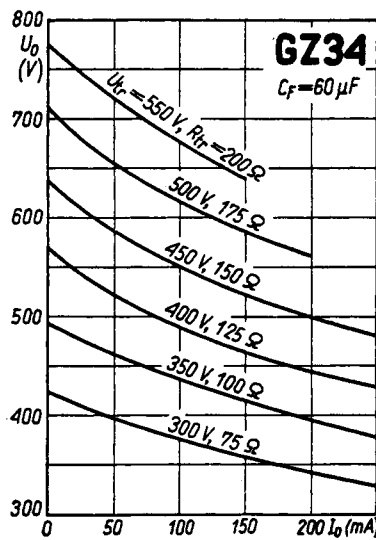
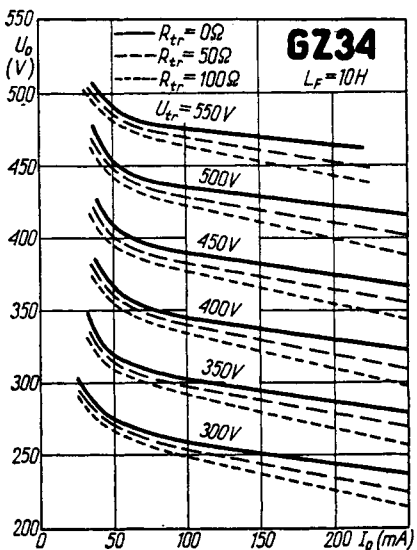
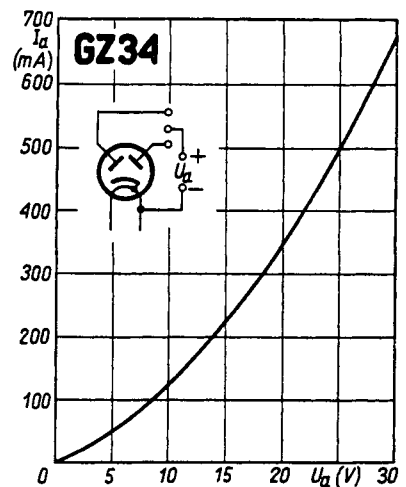
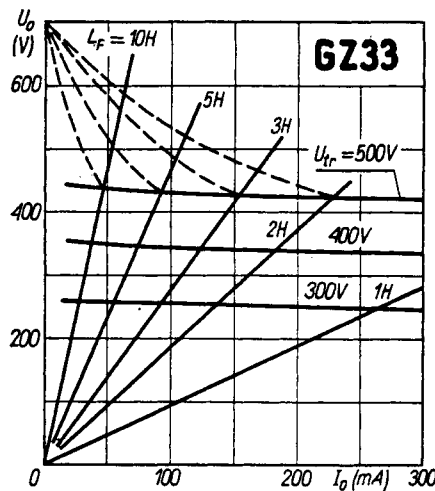
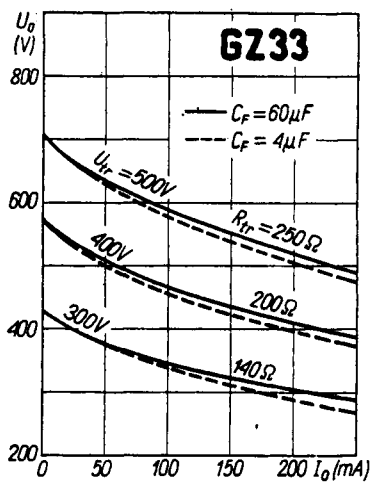
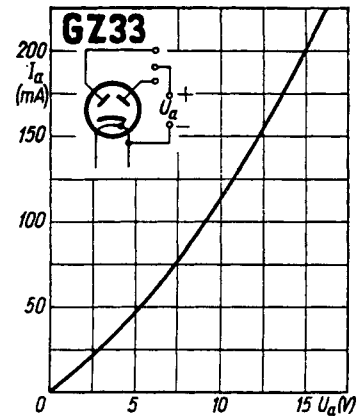
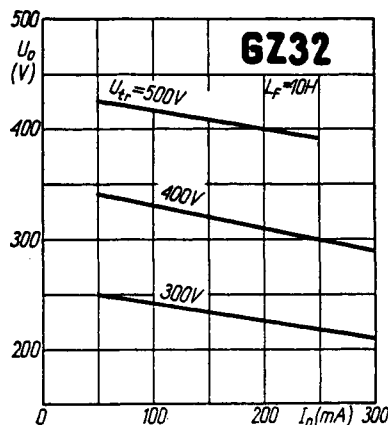
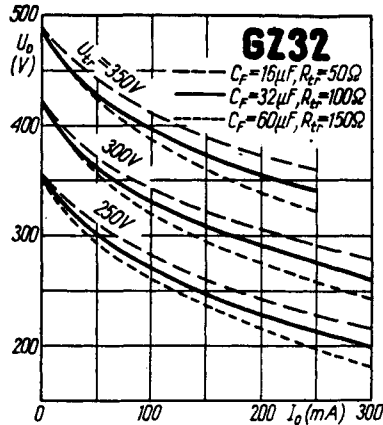
5BC3

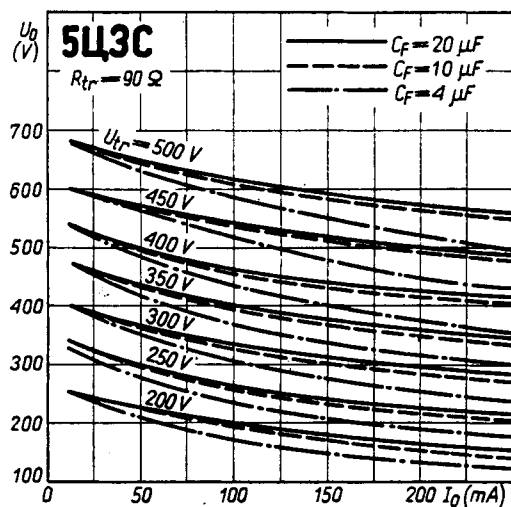
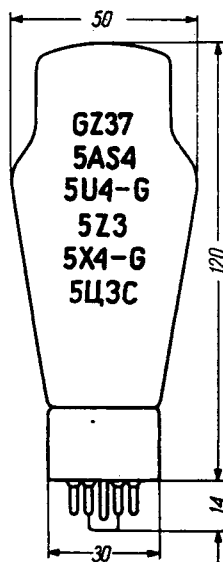
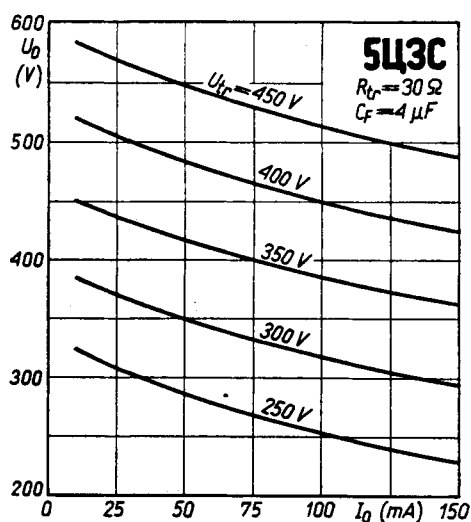
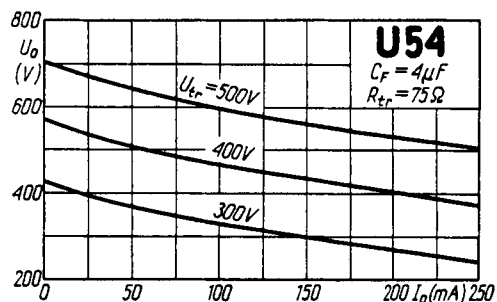
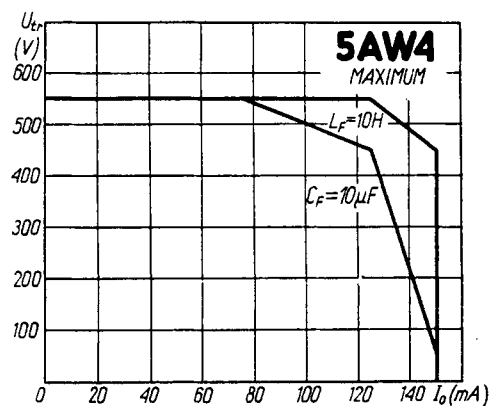
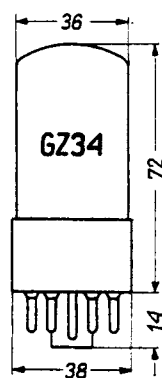
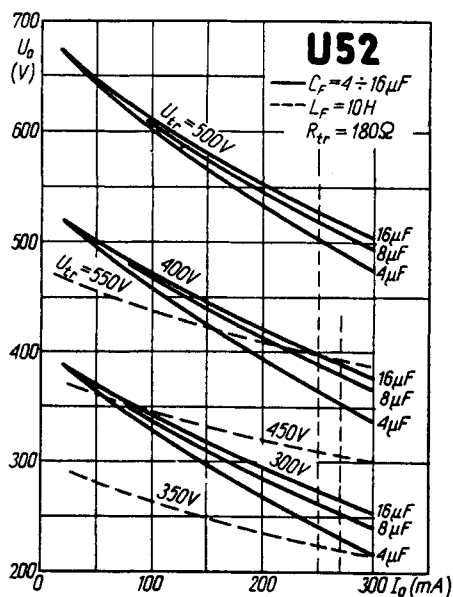
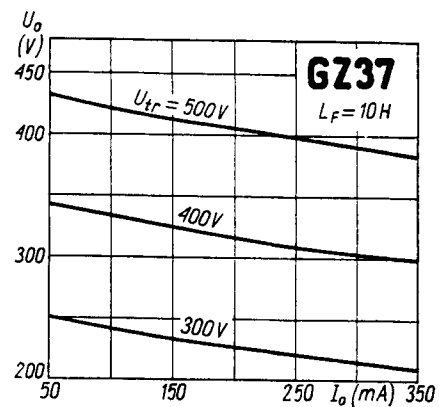
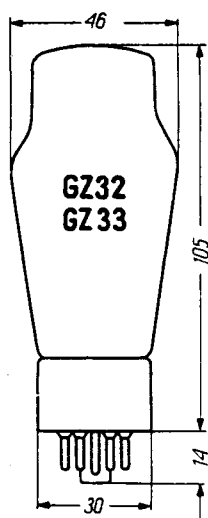
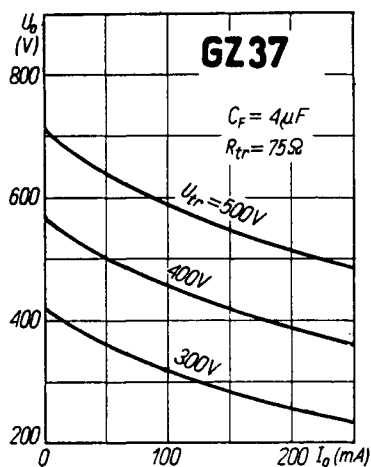


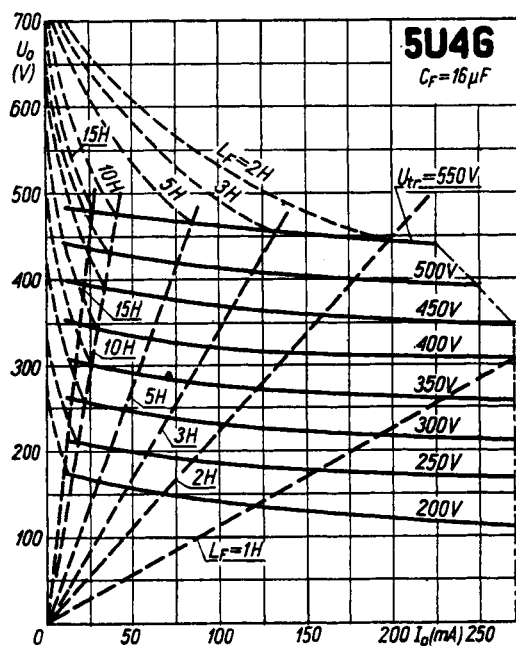
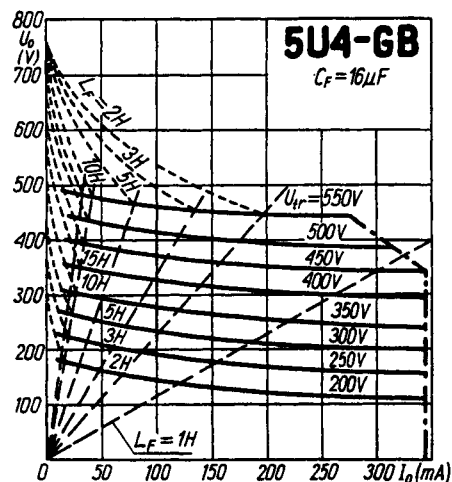
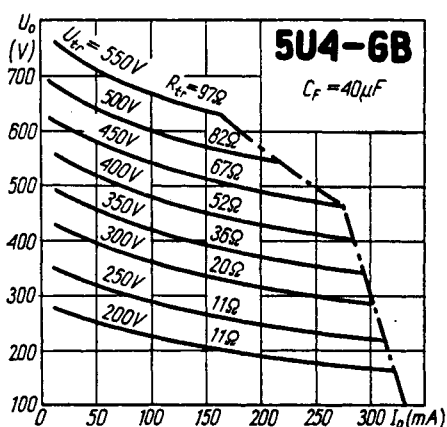
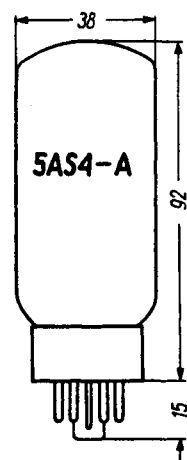
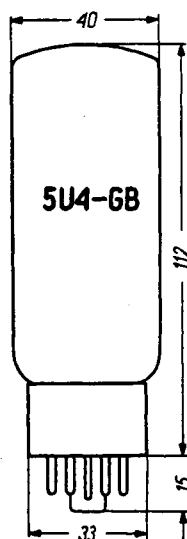
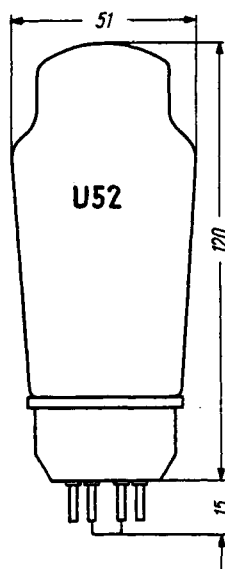
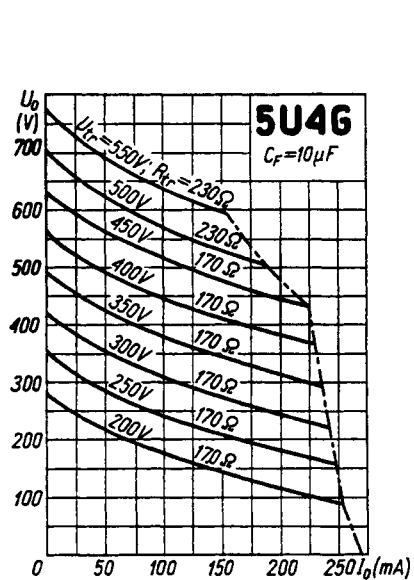
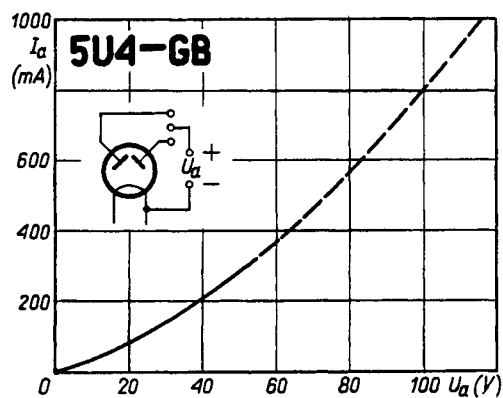
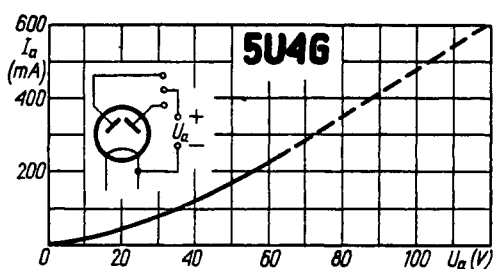
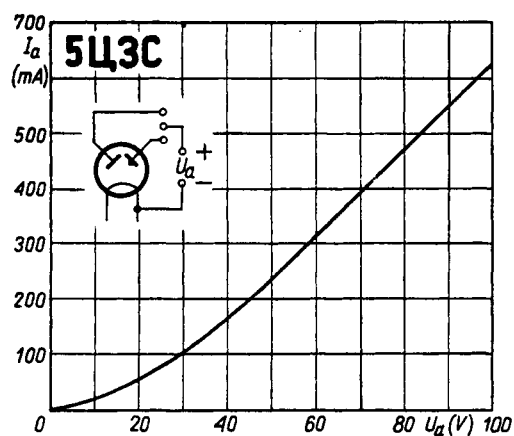
5CU4



5DJ4





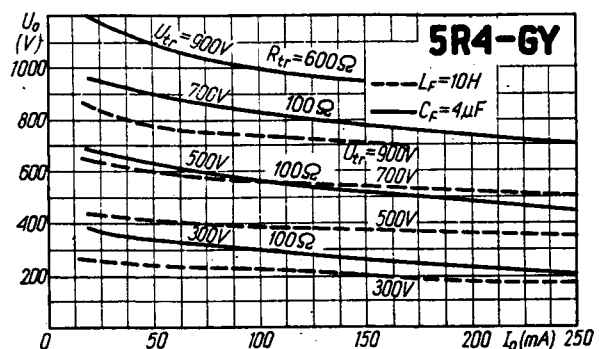
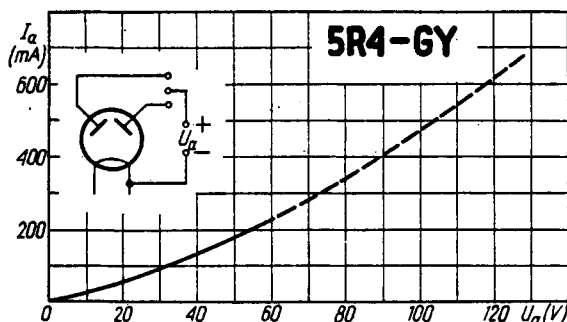
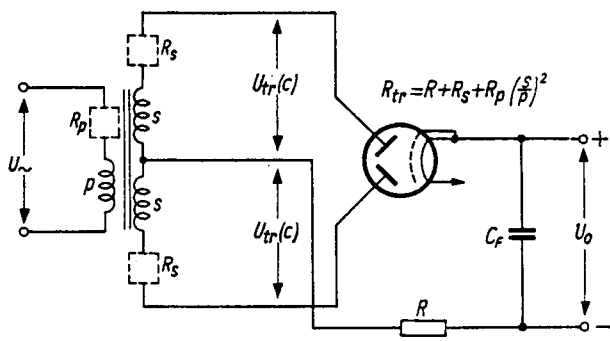
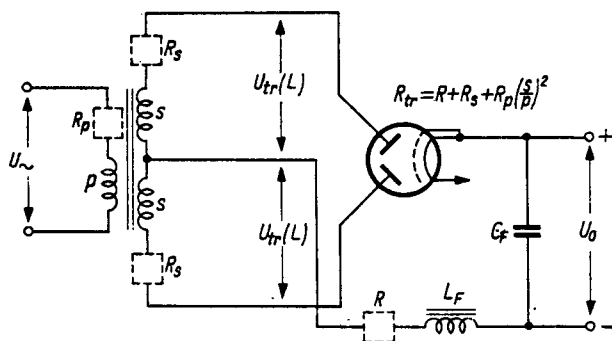
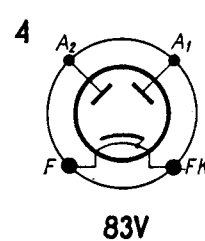
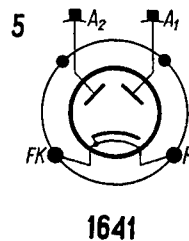
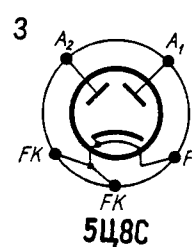
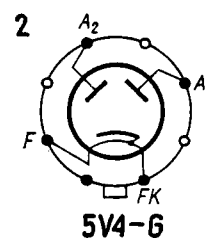
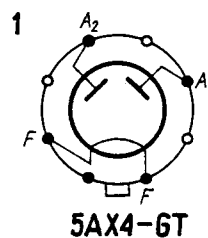


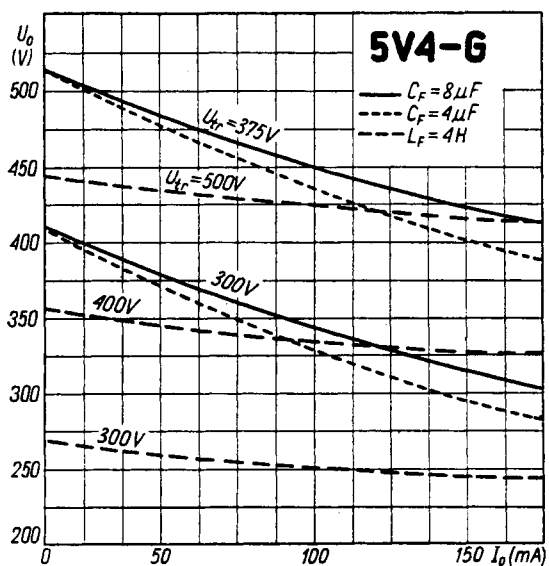
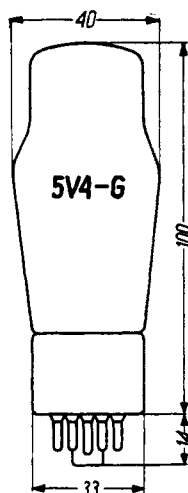
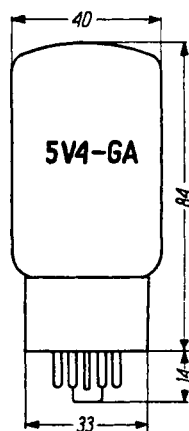
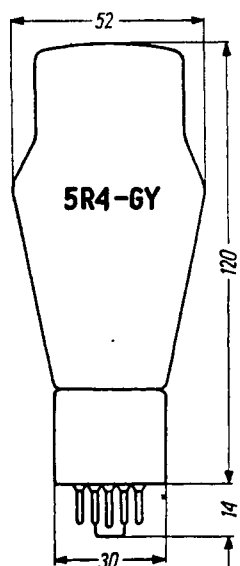
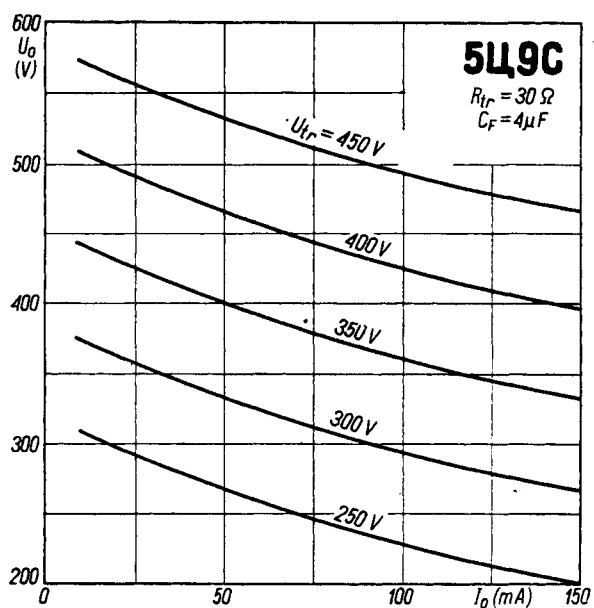
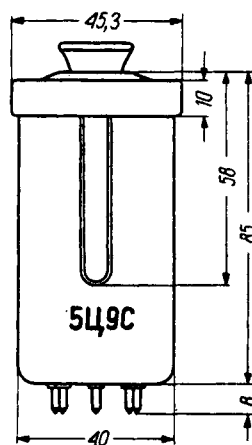
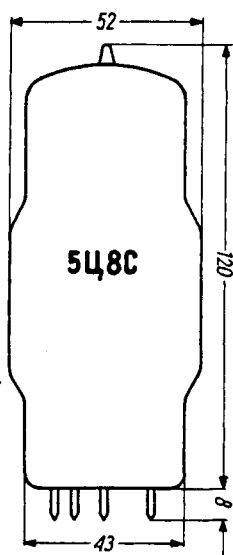
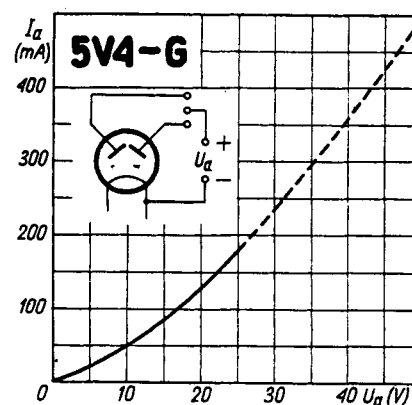
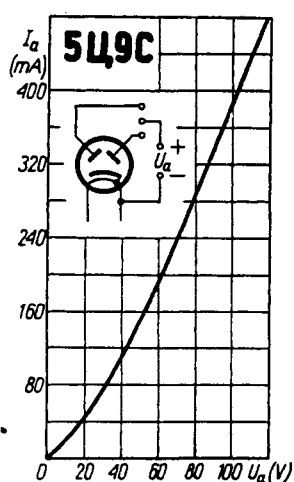
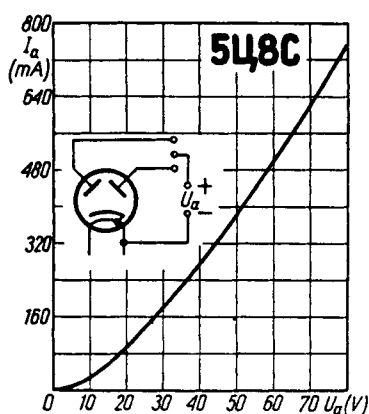
T.			U_f	I_f	$U_{tr}(C)$	$U_{tr}(L)$	U_p	I_o	I_p	R_{tr}	C_F	L_F
			V	A	V	V	V	mA	mA	Ω	μF	H
5 AX 4-GT	amer	1	5	2,5	350	500	1400	175	525	50	10	10
5 II 8 C	CCCP	3	5	5	500		1700	400	1200	30	4	
5 II 9 C	CCCP	3	5	3	500		1700	200	600	30	4	
5 R 4-GY 1641	int amer	1 5	5 5	2 3	750		2100	250		250	4	
					850		2800	150		500	4	
					1000		2800	150		575	4	
5 V 4-G 83 V	int int	2 4	5 5	2 2	375	850	2100	175	650	100	10	5 10
						1000	2800	175				
52 KU	Cos	2	5	2	500			150				4
274 A	WE	4	5	2	500		1650	175	525			
274 B	WE	2	5	2								

Equivalents

GL-1641	GE = 1641
GZ 31	Mul = 5 V 4-G
WT-274 B	WT = 5 R 4-GY
RK 60	Ray = 1641
5 II 9 C-E ¹⁾	CCCP = 5 II 9 C
5 R 4	amer = 5 R 4-GY
5 R 4-GYA	amer = 5 R 4-GY
5 R 4-WGY ²⁾	amer = 5 R 4-GY
5 R 4-GYS ²⁾	RT = 5 R 4-GY
5 V 4-GA	amer = 5 V 4-G
60	Ray = 1641
4274 A	STCE = 274

¹⁾ vide * 4, a, b, c = 5000, e
²⁾ vide * 4, a, b, c = 10.000





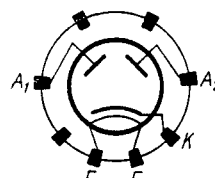
T.			U_f	I_f	$U_{tr}(C)$	$U_{tr}(C)$	U_p	I_o	I_p	R_{tr}	C_F	L_F	$U_{f/k}$
			V	A	V	V	V	mA	mA	Ω	μF	H	V
EZ 1	eur	1	6,3	0,5	250			60		150	8		350
FZ 1	eur	1	13	0,25									
EZ 2	eur	1	6,3	0,4	300			60		500	16		500
PVA 6	Tu	4	6,3	0,4				60		500	32		500
RA	Fer	4	13	0,25	350								
EZ 11	eur	2	6,3	0,29	250			60		600	32		350
EZ 35	Mul	5	6,3	0,6	325			70		350	16		350
EZ 82	eur	17	6,3	0,6	300			80					
EZ 90	eur	6	6,3	0,6	325			70		520	16		450
F/6063 ¹⁾	Bri	6/18	6,3	0,6		450	1250	70	210			10	450
HZ 90	eur	6	12,6	0,3									
RG 12 D 60	Tif	9	12,6	0,2	300			60					
6 II 4 II	CCCP	8	6,3	0,6	350		1000	75	300	200	8		400
6 II 5 C	CCCP	5	6,3	0,6	400		1100	70		300	8		450
6 X 5-G	int	5	6,3	0,6	325								
11 X 5	amer	5	11	0,35			1250	70	210	150	32		450
12 X 5	amer	5	12,6	0,3									
6 Y 5	amer	10	6,3	0,3	350		1500	50					
6 Z 4/84	int	11	6,3	0,5	325	450	1250	60	180				
6 Z 5/12 Z 5	amer	12	6,3/12,6	0,8/0,4	230			60					
6 ZY 5-G	amer	5	6,3	0,3	325	450	1250	40	120	225	40		
7 Y 4	amer	7	6,3	0,5	325			70		150	32		
14 Y 4	amer	7	12,6	0,25		450	1250	70	200			10	450
28	amer	11	6,3	0,5	350			50					
612 BU	Cos	13	6	0,4	250			50					
1005	Ray	14	6,3	0,6	160		450	70					
5838 ¹⁾	amer	5	12,6	0,6	350		1375	75	270				
5852 ¹⁾	amer	5	6,3	1,2	350		1375	70	270	130			450
5993 ¹⁾	amer	15	6,3	0,8	300		1250	50	250				
6202 ¹⁾	GE	6	6,3	0,6	325	450	1250	50	200	175	4	8	450
6203 ¹⁾	GE	16	6,3	0,9		450	1250	70	270	150	4	8	450

Equivalents

CK 1005	Ray = 1005	TE 5 ¹⁾	Bnd = 5852	6 X 4	amer = EZ 90
EZ 90 W ¹⁾	eur = EZ 90	U 70	Eng = EZ 35	6 X 4-W ¹⁾	amer = EZ 90
EZ 900	Lor = EZ 90	U 78	Eng = EZ 90	6 X 4-WS ²⁾	CIF = EZ 90
FF/6063 ¹⁾	Bri = F/6063	U 82	Eng = 7 Y 4	6 X 4-S ¹⁾	Frc = EZ 90
GL-6202 ¹⁾	GE = 6202	U 147	Marc = EZ 35	6 X 4 II	CCCP = 6 II 4 II
GL-6203 ¹⁾	GE = 6203	U 149	Marc = 7 Y 4	6 X 5 C	CCCP = 6 II 5 C
G 650	Tri = EZ 1	U 650	Lis = 612 BU	6 X 5-GT	amer = 6 X 5-G
G 660	Tri = EZ 2	UX 237	amer = 6 X 5-G	6 X 5-WGT ¹⁾	amer = 6 X 5-G
G 1380	Tri = FZ 1	V 2 M 70	SFR = EZ 90	6 Y 5 V	amer = 6 Y 5
HF 3116	RFT = EZ 35	V Z 1	Dar = EZ 1	6 Y 5 W	amer = 6 Y 5
K 98	amer = 28	WT-210-0021	WT = 6 X 5-G	6 Y 5 S	amer = 6 Y 5
KR 98	amer = 28	WT-210-0040	WT = EZ 90	6 Z 31	Tes = EZ 90
M 8138 ¹⁾	Mul = EZ 90	WT-263	WT = 6 Z 4	84	amer = 6 Z 4
OSW 3116	RFT = EZ 35	WT-308	WT = 6 X 5-G	84/6 Z 4	amer = 6 Z 4
P 864	amer = 6 Z 4	WT-T-100	WT = 6 X 4	98	amer = 28
PVA 6 S	Tu = EZ 2	WZ 1	Dar = FZ 1	184	amer = 6 Z 4
QA 2407 ¹⁾	Osr = EZ 90	XF/6063 ¹⁾	Bri = F/6063	284	amer = 6 Z 4
QU 78 ¹⁾	Marc = EZ 90	6 AW 4	Fi = 6 Z 4	384	amer = 6 Z 4
RE 1330	Vat = FZ 1	6 BX 1	CCCP = 6 5 C	1274	amer = 7 Y 4
SF/6063 ¹⁾	Bri = F/6063	6 II 4 II -B ¹⁾	CCCP = 6 II 4 II	1550	CCCP = 6 II 4 II
SX/6063 ¹⁾	Bri = F 6063	6 II 4 II -E ¹⁾	CCCP = 6 II 4 II	6882	amer = 5838
TE 3 ¹⁾	Bnd = 5838	6 R 7	Ult = EZ 2	6063 ¹⁾	amer = EZ 90

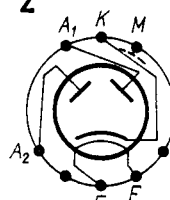
¹⁾ vide * 4, a,b,c,d,e; ²⁾ vide * 4, a,b,c; ³⁾ vide * 4, a,b,d,e; ⁴⁾ 4, a,b,c,d,e,f,g; ⁵⁾ vide * 4, a,c = 10.000, d = 25.000 mtr., e,f,g
⁶⁾ vide * 4, a,b,c, = 5.000, d

1



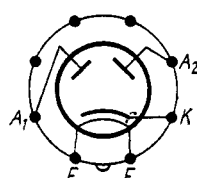
EZ1

2



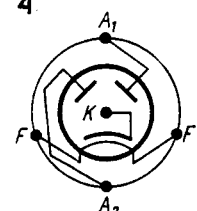
EZ11

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EZ41

4



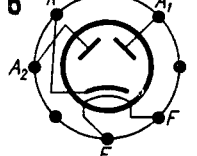
PVA 6

5

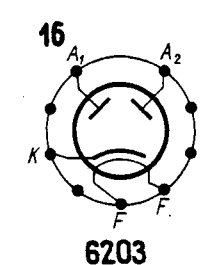
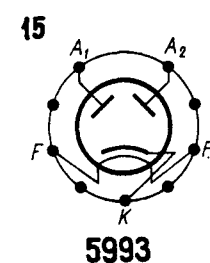
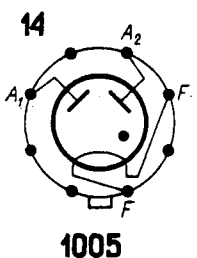
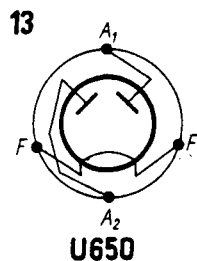
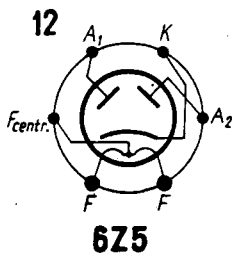
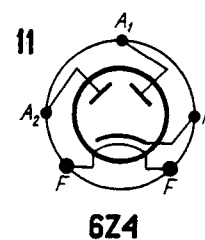
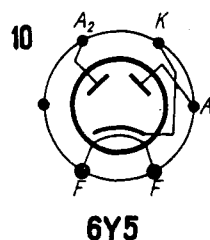
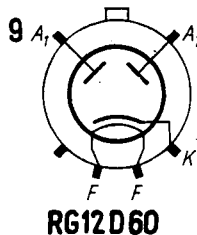
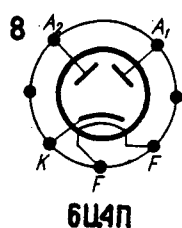
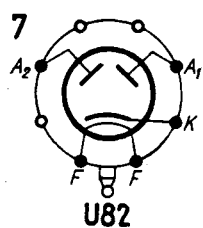


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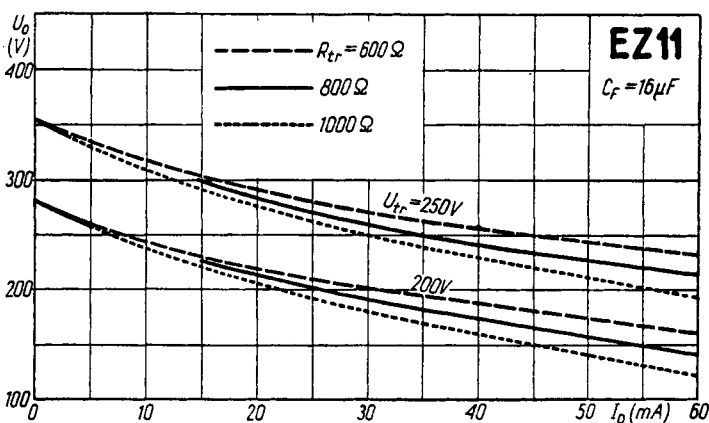
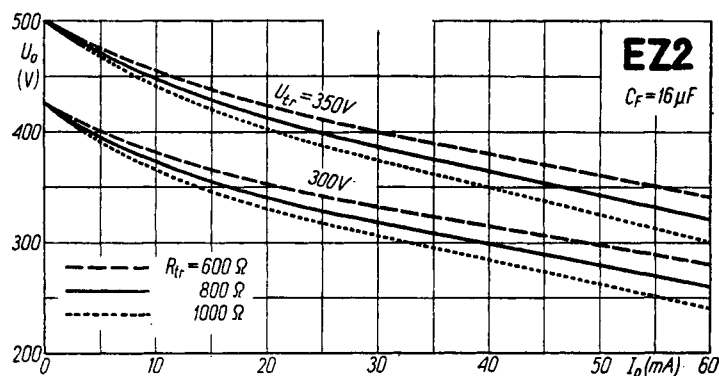
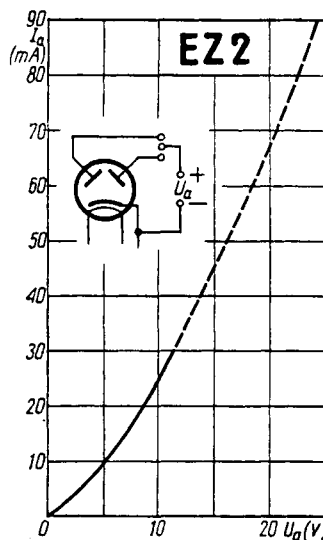
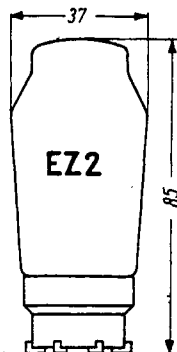
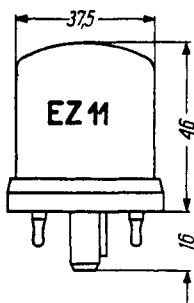
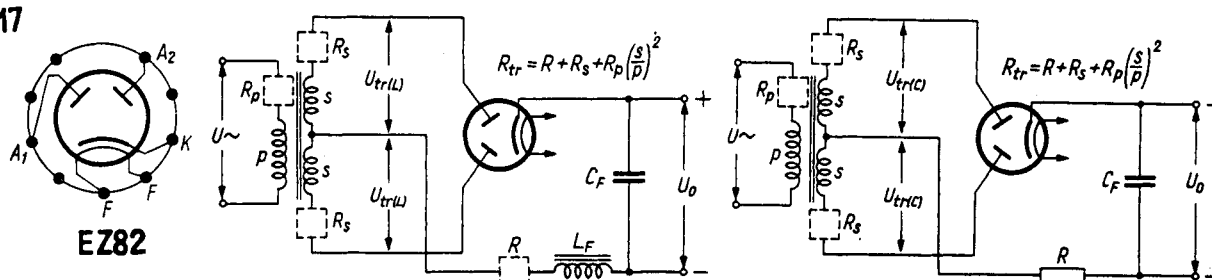
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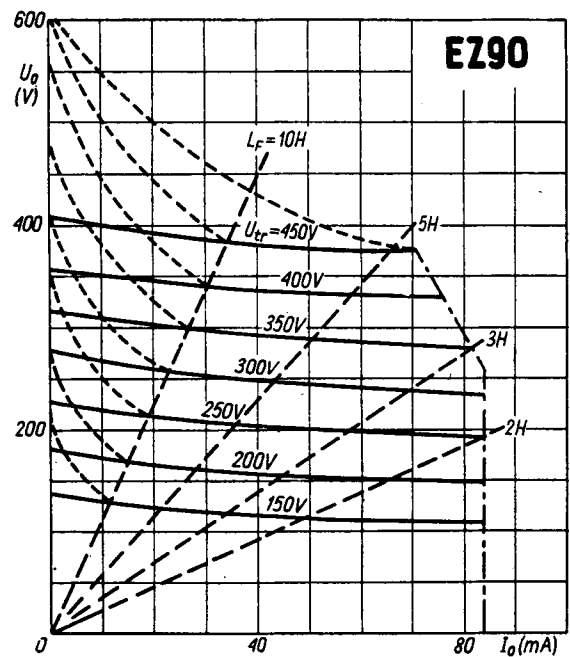
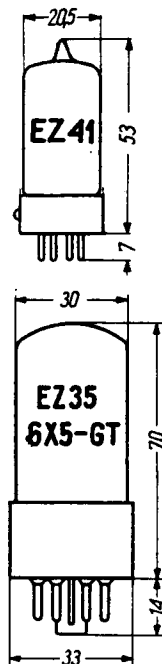
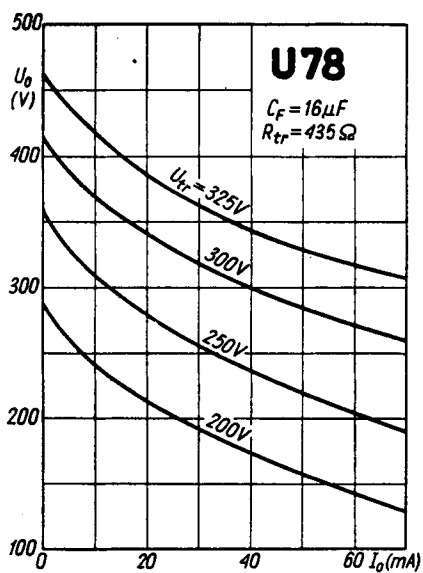
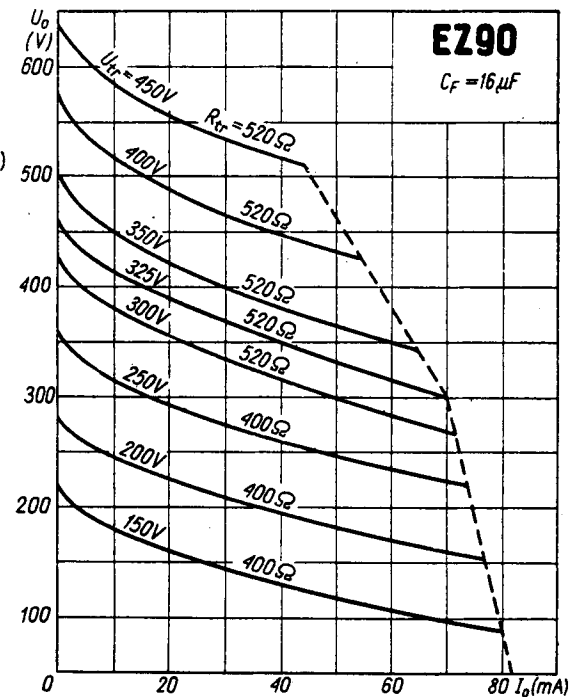
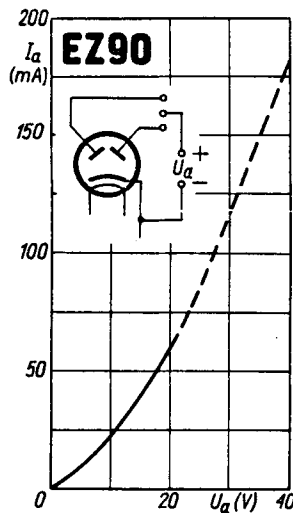
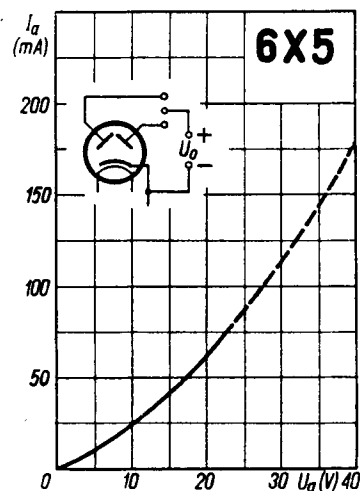
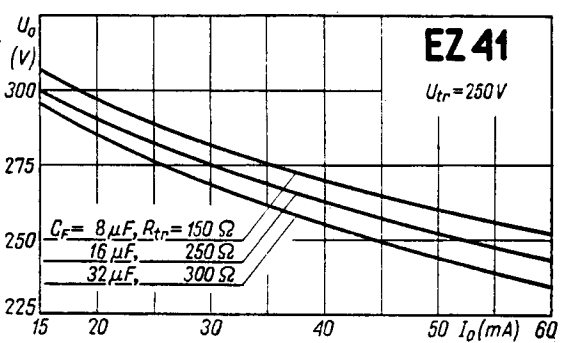
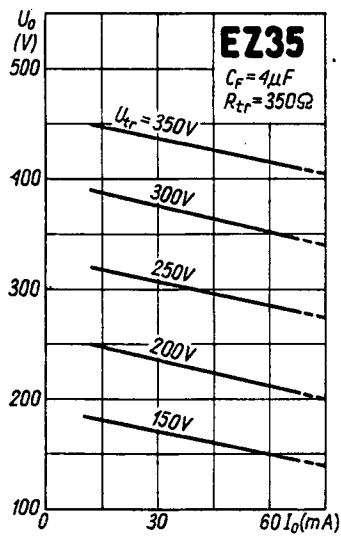
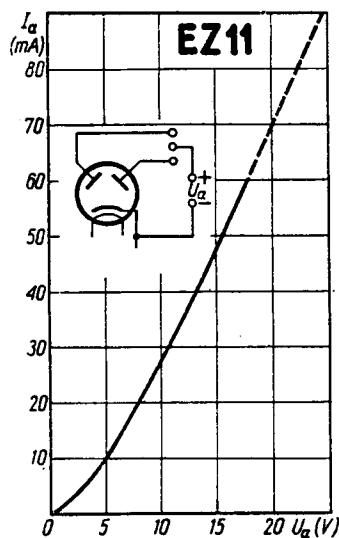


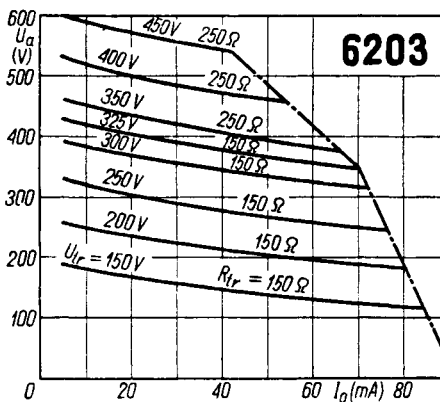
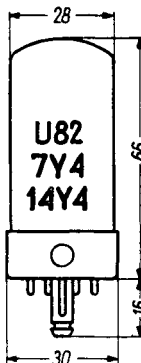
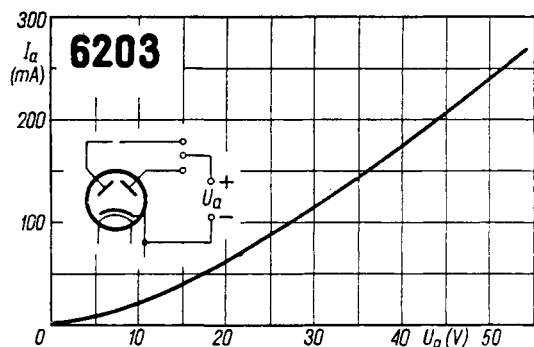
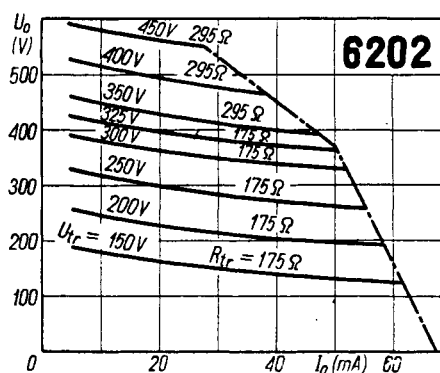
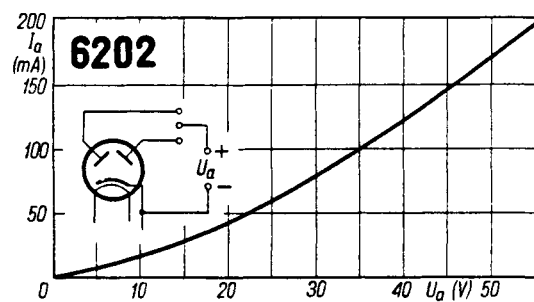
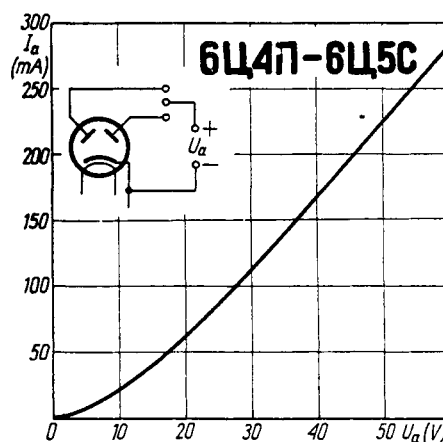
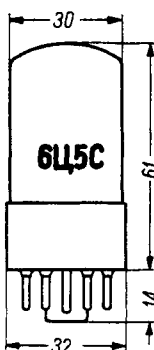
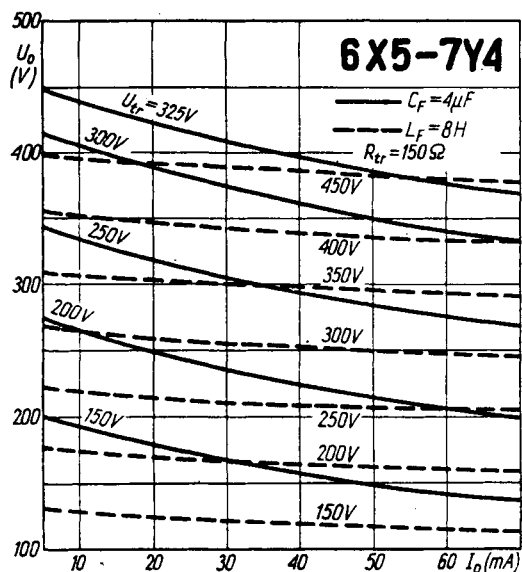
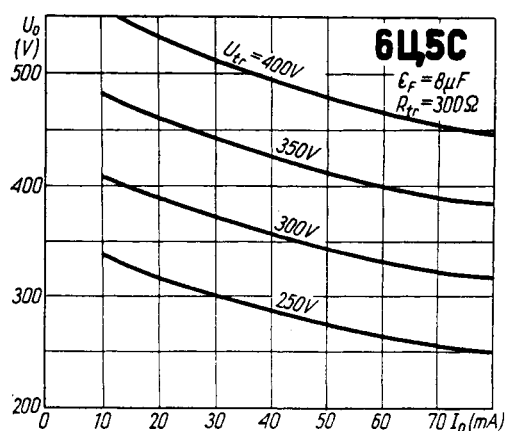
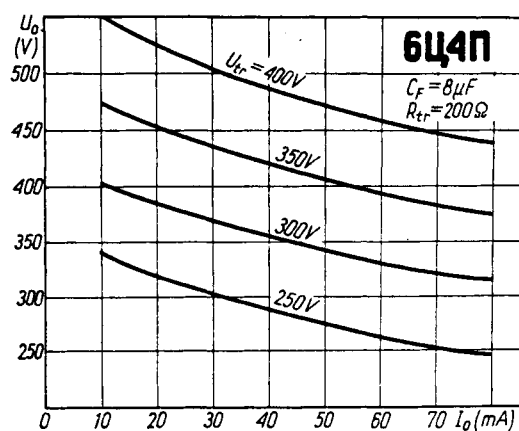
EZ90



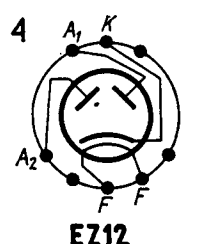
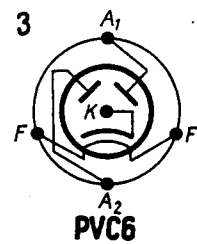
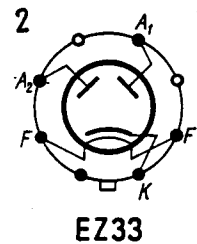
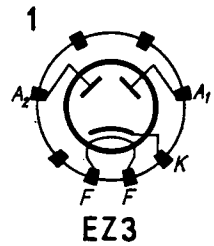
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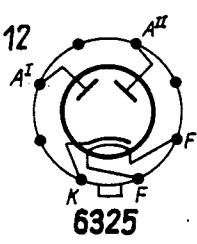
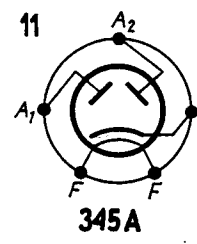
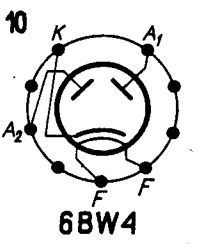
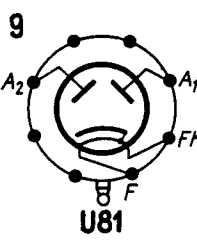
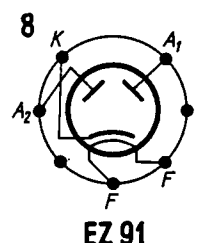
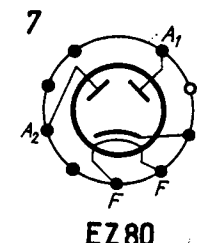
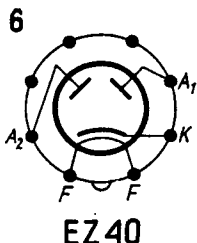
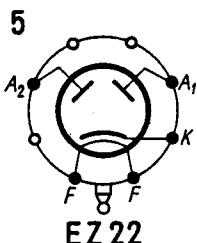
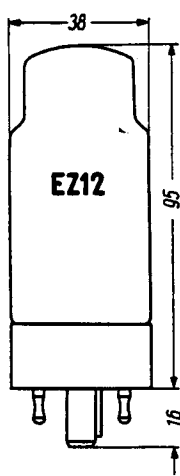


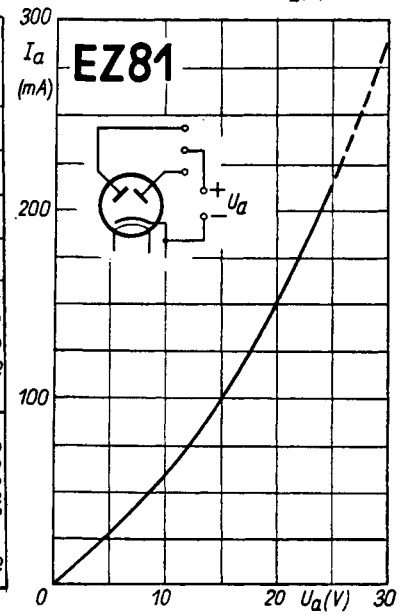
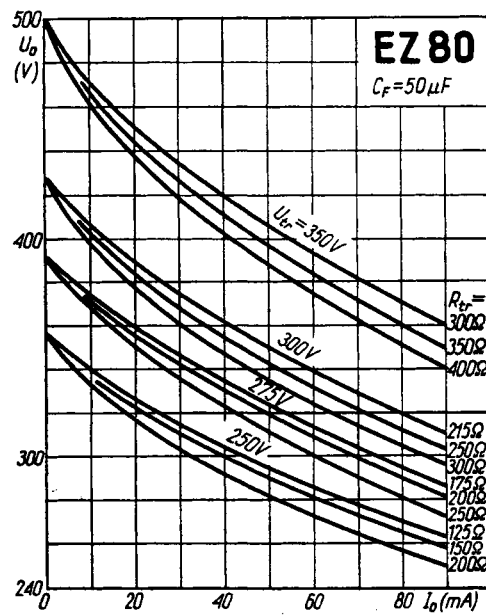
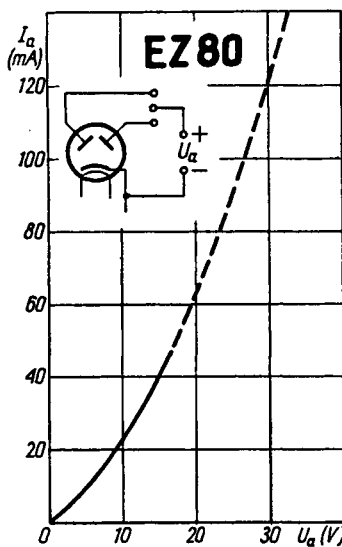
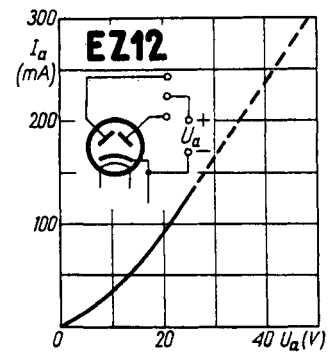
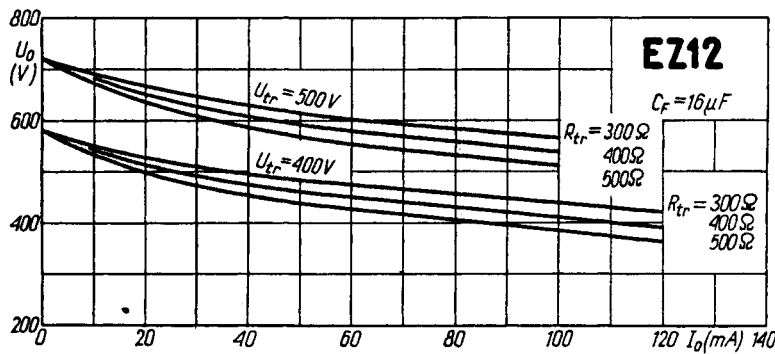
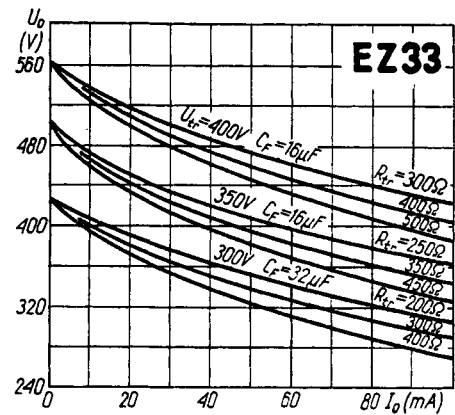
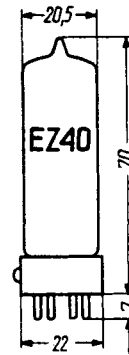
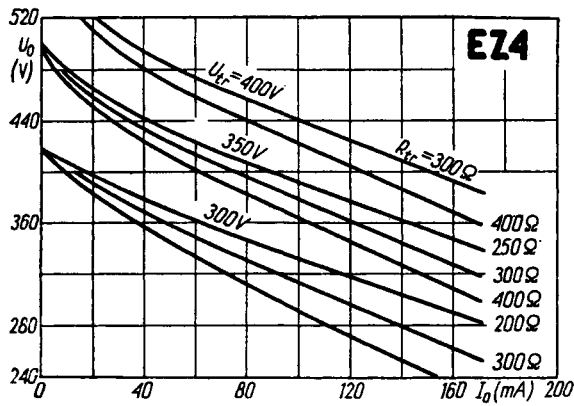
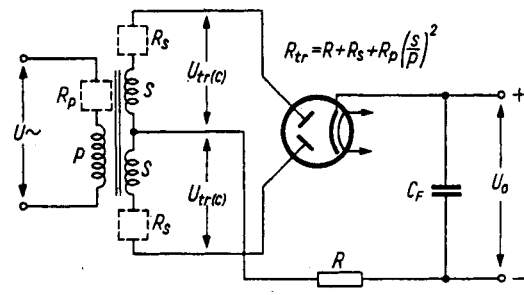
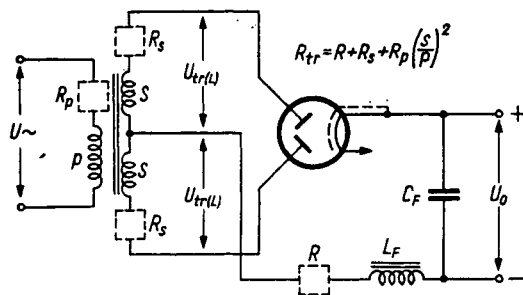
T.			U_f	I_f	$U_{tr}(C)$	$U_{tr}(L)$	U_p	I_o	I_p	R_{tr}	C_F	L_F	$U_{f/H}$
			V	A	V	V	V	mA	mA	Ω	μF	H	V
EZ 3	eur	1	6,3	0,65	400		1100	100		600	32		500
EZ 33	eur	2	6,3	0,65									
PVB 6	Tu	3	6,3	0,65									
EZ 4	eur	1	6,3	0,9	300		1200	175		200	32		550
PVC 6	Tu	3	6,3	0,9									
EZ 12	eur	4	6,3	0,9	400 500			125 100		300 300	32 32		550
EZ 22	Phi	5	6,3	0,9	450			100					
EZ 40	eur	6	6,3	0,6	250 275 300 350			90 90 90 90		125 175 215 300	50 50 50 50		
EZ 80	eur	7	6,3	0,6									
EZ 91	eur	8	6,3	0,6									
					250 350 450	450	1250	90	270	150 150 100 180 180	50 50 50	8 10 10 10	500
EZ 81	eur	7	6,3	1	250 350 450	250		100 180 180	500	310	50		500
U 81	Eng	9	6,3	1,6	500		1400	150	450	270	8		450
U 709	Marc	7	6,3	0,95	350								
UU 9	Eds	6	6,3	0,63	350								
6 AX5-GT	amer	2	6,3	1,2	350	450	1275	100	350	82	40	10	450
6 BW 4	amer	10	6,3	0,9	325								
12 BW 4	amer	10	12,6	0,45									
6 W 5-G	amer	2	6,3	0,9	325	450	1250	90		75	32	6	450
6 Y 4	amer	7	6,3	0,9									
7 Z 4	inc	5	6,3	0,9	325	450	1250	100	300				
345 A	WE	11	6,3	1	350		1375	110	330				
351 A	WE	2	6,3	1									
6325	amer	12	6,3	2,7	780								

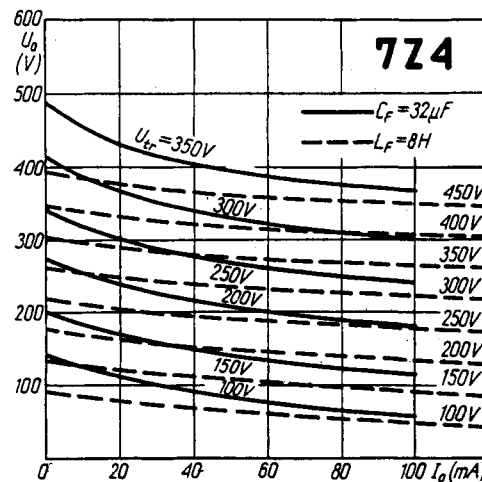
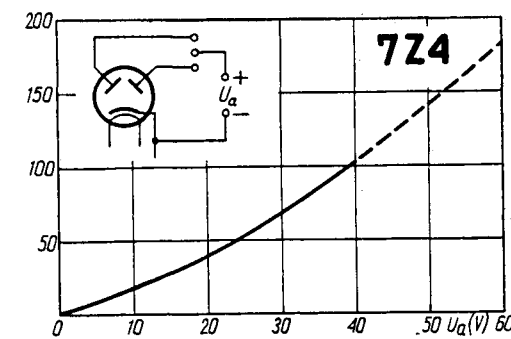
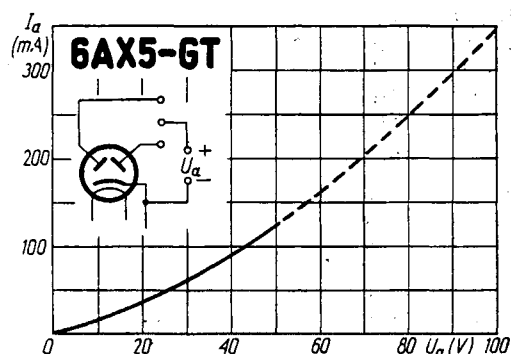
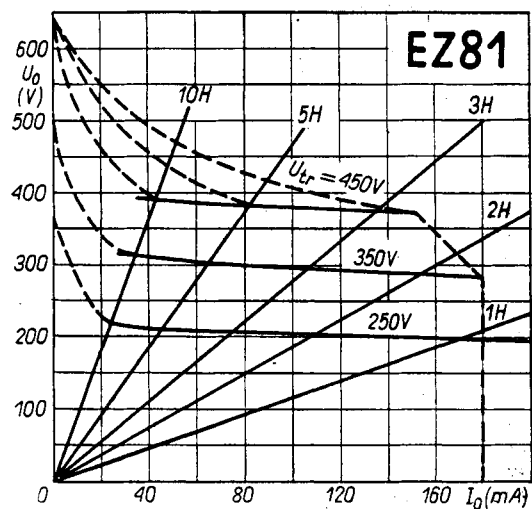
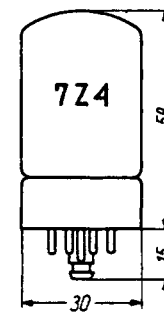
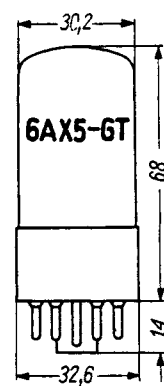
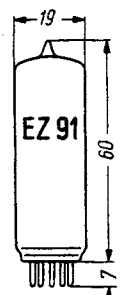
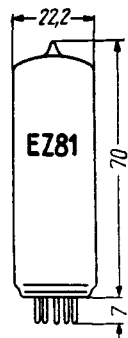
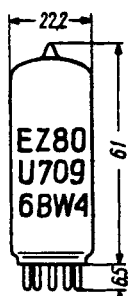
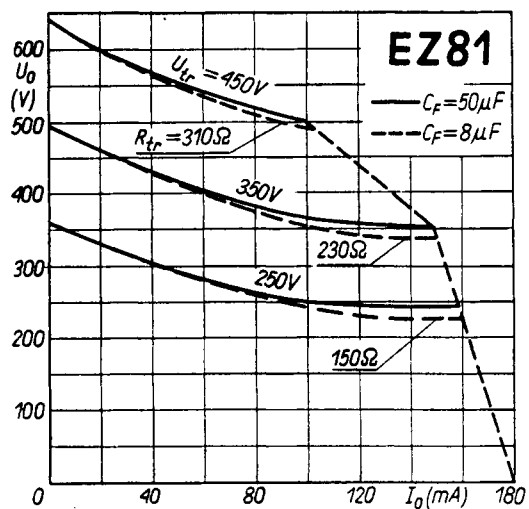


Equivalents

EZ 2/3	TuM = EZ 3	U 718	GEC = UU 9	6 FX 4	Fiv = EZ 91
EZ 3 N	Phi = EZ 3	UU 12	Eds = U 709	6 GG 6	TKD = EZ 12
EZ 4 N	Dar = EZ 4	VEZ 4	Vat = EZ 4	6 R 3	Ult = EZ 3
PVB 6 S	Tu = EZ 3	6 AV 4	amer = EZ 91	6 R 4	Ult = EZ 4
PVC 6 S	Tu = EZ 4	6 BT 4	amer = EZ 40	6 V 4	amer = EZ 80
TEZ 3	Tu = EZ 3	6 BX 4	amer = EZ 91	6 Z 4	amer = EZ 91
TEZ 4	Tu = EZ 4	6 BX 4/6Z4	Vis = EZ 91	6 Z 40	Tes = EZ 81
U 150	Eng = EZ 40	6 CA 4	amer = EZ 81	66 KU	Cos = EZ 40





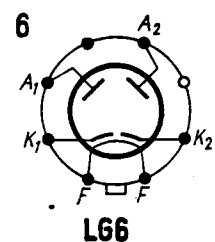
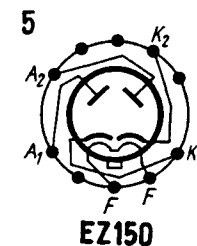
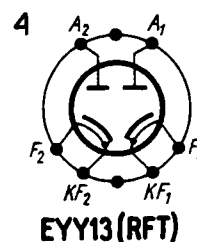
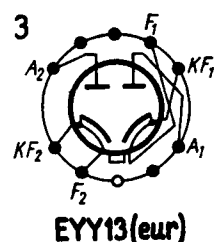
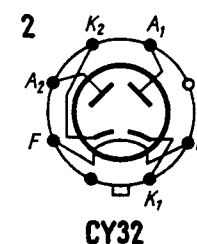
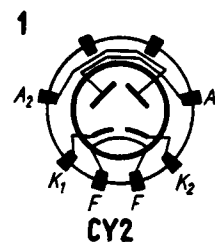


T.			U_f	I_f	Fig.	$U_{tr}(C)$	$U_{tr}(L)$	U_p	I_0	I_p	R	C_F	L_F	$U_{f/k}$
			V	A		V	V	V	mA	mA	Ω	μF	H	V
CY 2	eur	1	30	0,2	1	250			120		75	16		350
CY 32	eur	2	30	0,2										
EYY 13	eur	3	6,3	1,25	1/2	400			175		100	32		
EYY 13	RFT	4	6,3	1,25	1/2	550			125		100	32		
EYY 53	eur	3	6,3	1,4	3	400			350		100	32		
UY 53	RFT	4	82	0,1	3	550		1500	250		100	32		
					1	400			550		100	16		
					1	500			450		100	16		
					1	600			380		100	16		
EZ 150	Tif	5	6,3	3	3		400		600		50	32	5	
					3		500		600		50	32	5	
					3		600		560		50	32	5	750
LG 6	Tif	6	12,6	0,63	3	500			250					
PV 25	Tu	7	25	0,3	1	275			100		75	16		
PV 30	Tu	7	30	0,2	1	250			120		75	16		350
PV 30 S	Tu	1	30	0,2	1	250								
PV 3018	Tu	7	30	0,2	1	250			100					
PV 4018	Tu	7	40	0,18	1	250								
PZ 30	Mul	8	26/52	0,6/0,3	1	240			400		50	50		
GZ 30	Mul	8	40/80	0,4/0,2	2	240		1000	200		30	32		650
U 30	Eng	9	13/26	0,6/0,3	1	250			120			32		
V 25	Tu	7	25	0,3	2	250			75			8		
6 AW 5-G	int	2	6,3	0,6	2	220			70		20			
					3	325			70		150	16		
6 AX 6-G	amer	2	6,3	2,5	3	350		1250	250	600	145	40		
6 BY 5-G	amer	10	6,3	1,6	3	375		3000 ¹⁾	175	525	100	8		450
6 Z 6-G	amer	2	6,3	0,5	3	350			50					
12 DF 5	amer	14	6,3/12,6	0,9/0,45	3	325		1275	100	350	82			
7 X 6	amer	11	6,3	1,2										
25 X 6	amer	2	25	0,15	1	117			75		15	16		
25 Z 5	int	12	25	0,3	1	235			75		100	16		
25 Z 6	int	2	25	0,3	2	117		700	75	450	15	16		350
26 Z 5-W ²⁾	amer	12	26,5	0,3										
30 II 6 C	CCCP	2	30	0,3	1	150			120			16		
					2	250			90			16		350
35 RE	int	12	35	0,3	1	235			110					
35 Z 6-G	int	2	35	0,3	2	117			110					350
50 AX 6-G	amer	2	50	0,3	3	350		1250	250	600	145	40		450
50 X 6	amer	11	50	0,15	1	117			75		15	16		
50 Y 6-G	amer	2	50	0,15	2	117		700	75	450	15	16		350
50 Z 6-G	Syl	2	50	0,3	3	235			250					
					1	117			60		15	40		
					1	150			60		40	40		
					1	235			60		100	40		
					2	117			60		30			
117 Z 6-GT	int	2	117	0,075										
					1	117								
					1	150								
					1	235								
					2	117								
5690 ³⁾	RCA	13	6,3/12,6	2,4/1,2	3	350			110			10		
					3		350	1120	135	375			10	400
6754	amer	15	6,3	1	1	450			90			10		

¹⁾ Impulse = 10 μ sec; ²⁾ vide * 4,a,b,c = 10000, d,e,f,g; ³⁾ vide * 4,a,b,c,d

Equivalents

G 3060	Tri = CY 2	UR 3 C	Mul = CY 32	25 X 6-GT	amer = 25 X 6
G 3120	Tri = PV 30	UU 4020	Eds = CY 2	25 Y 5	int = 25 Z 5
NEG 3002	Sat = PY 30	UVG 51	Sac = CY 2	25 Y 5-G	int = 25 Z 5
NVG 3002	Sat = PV 30 S	UY 2	Dar = CY 2	25 Y 6	amer = 25 X 6
PV 30 V	Tu = CY 2	VY 2	Vat = CY 2	25 Z 5-MG	Syl = 25 Z 6
RE 3020	Vat = CY 2	I D 4	Bri = CY 2	25 Z 6-G	int = 25 Z 5
TCY 2	Tu = CY 2	6 BY 5-GA	amer = 6 BY 5-G	25 Z 6-GT	int = 25 Z 6
TW 2	Dar = PV 30	6 Z 6-GM	Syl = 6 Z 6-G	25 Z 6-WGT ³⁾	amer = 25 Z 6
TW 2 P	Dar = CY 2	13 U 7	Ult = CY 2	30 BX 1	CCCP = 30 II 6 C
UR 2	Mul = CY 2	25 RE	ift = 25 Z 5	30 NG	Low = C Y 2
UR 3	Mul = CY 2	25 V 5-G	amer = 25 Z 6		



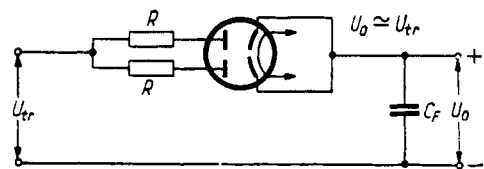
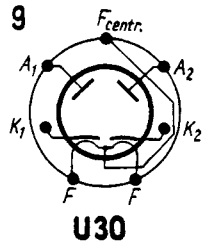
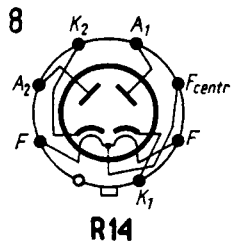
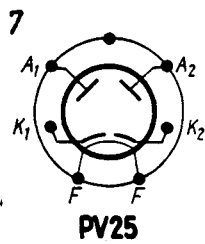


Fig. 1

$$U_0 \approx 2U_{tr}$$

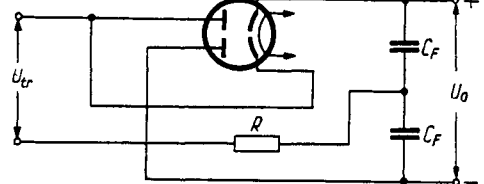
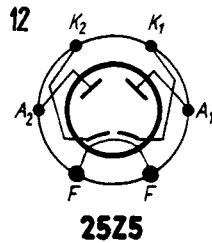
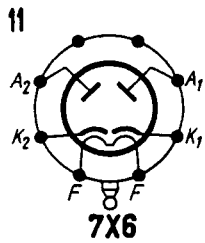
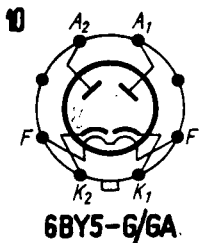


Fig. 2

$$U_0 \approx U_{tr}$$

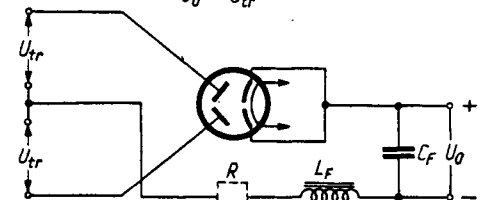
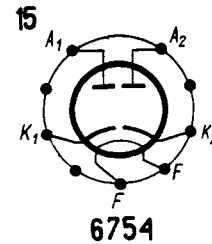
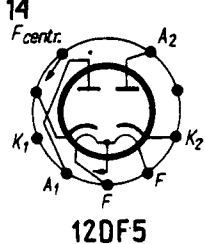
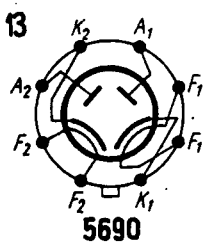
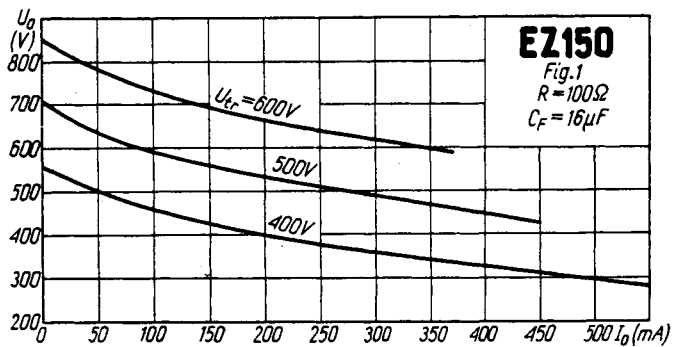
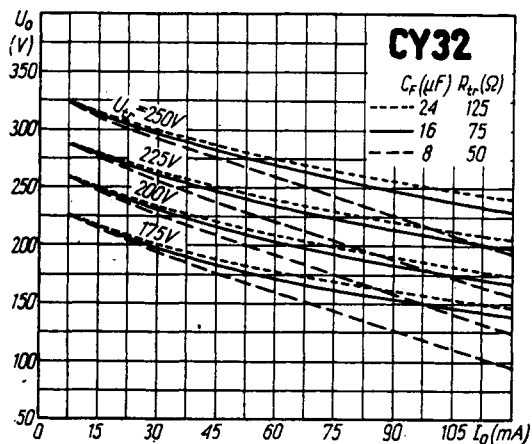
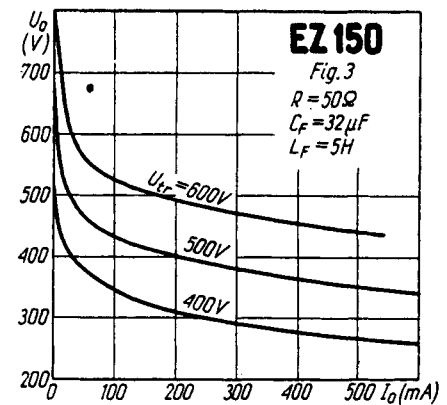
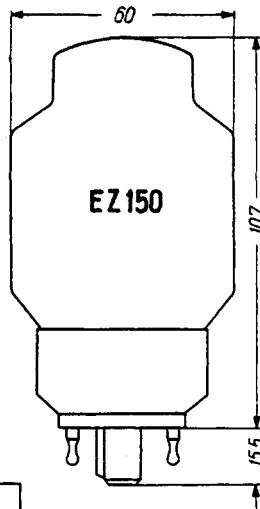
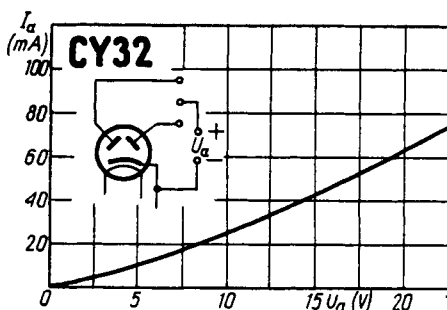
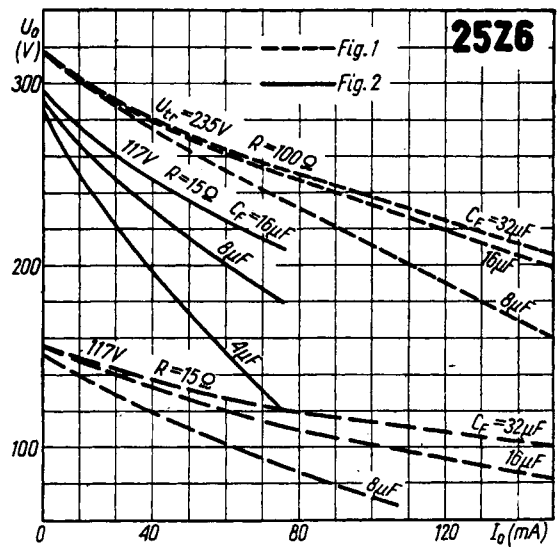
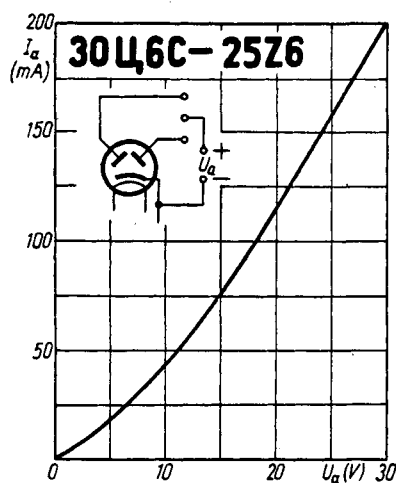
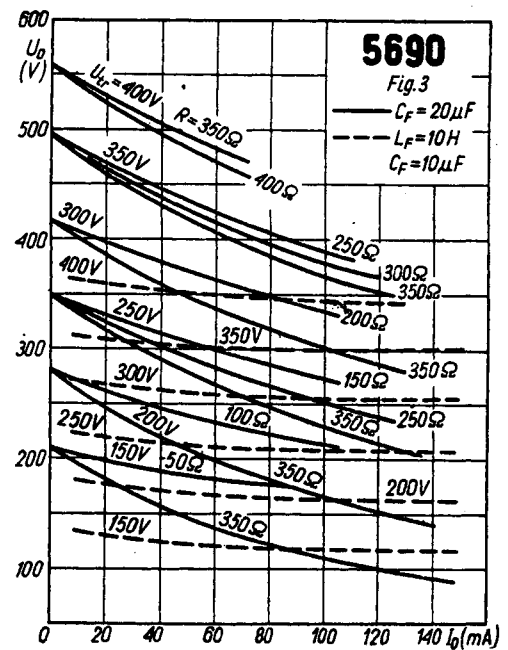
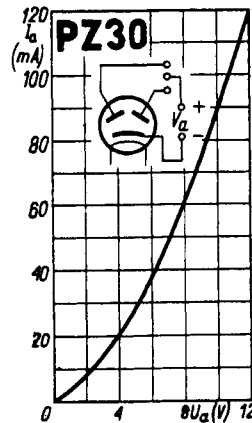
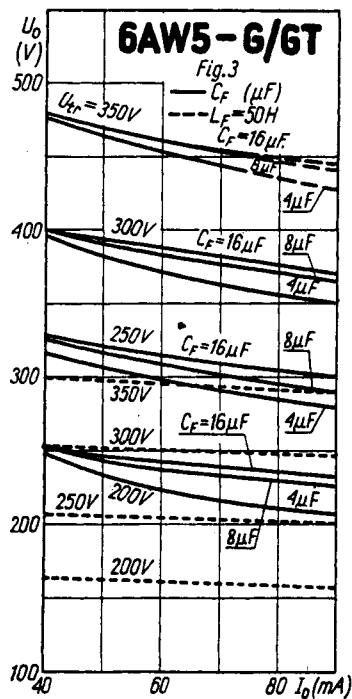
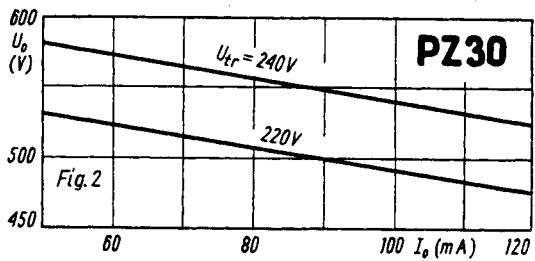
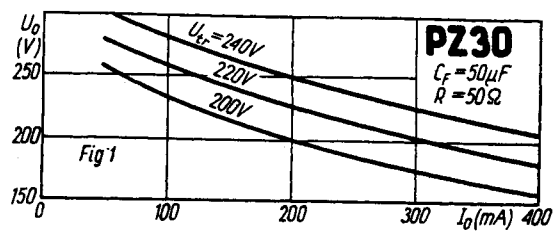
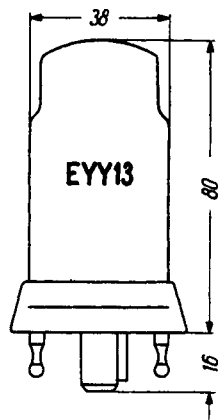
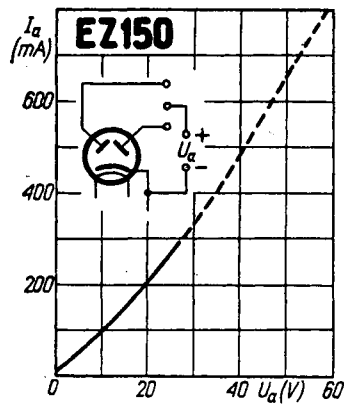
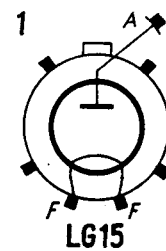


Fig. 3





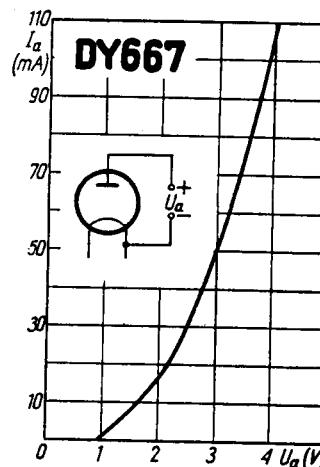
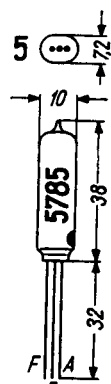
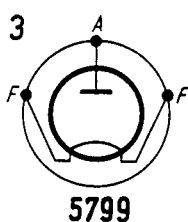
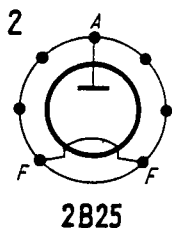
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				V	mA	V	V	mA	mA
DY 667	RFT	4		0,625	13	1500 ¹⁾	3000	0,015	0,1
LG 15	TIF	1		1,2	90	2000	6000	2	3
2 B 25	amer	2		1,4	110	1250	2900	1,5	9
5785	Ray	5		1,25	15		3500	0,1	0,45
5799	amer	3		1,25	10		3000	0,2	0,6



¹⁾ $R_{tr} = 0,5 \text{ M}\Omega$; $C_F = 2000 \text{ pF}$; $C_{a/f} = 0,8 \text{ pF}$

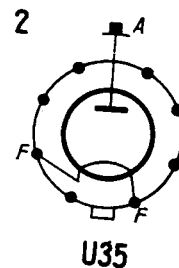
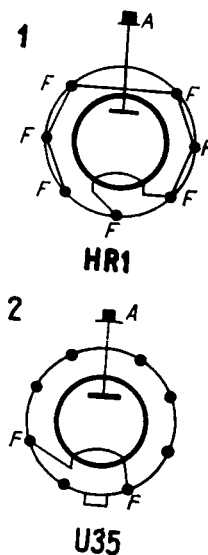
Equivalents

CK 1091	Ray	= 2 B 25
CK 5785	Ray	= 5785
VX 21	amer	= 5799
1091	Ray	= 2 B 25



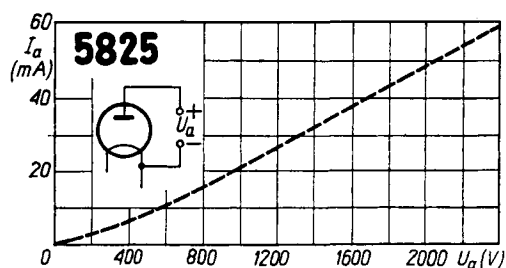
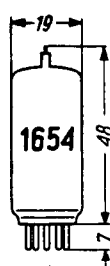
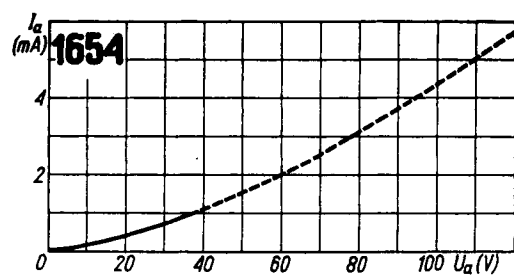
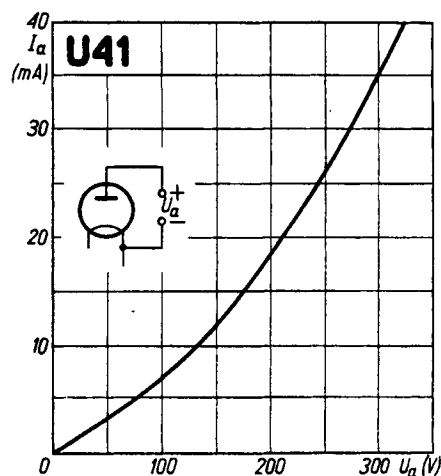
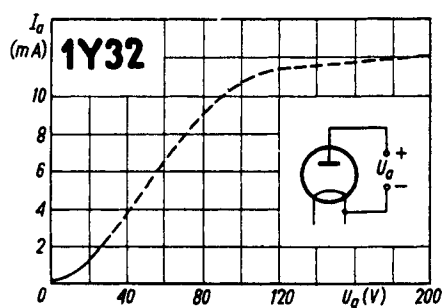
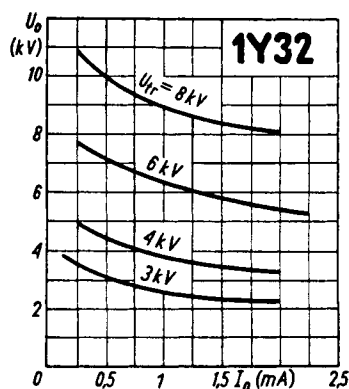
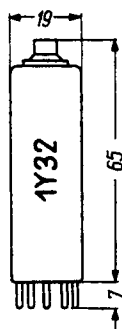
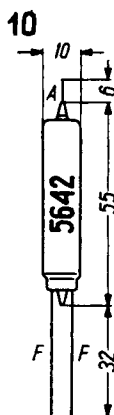
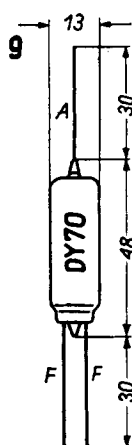
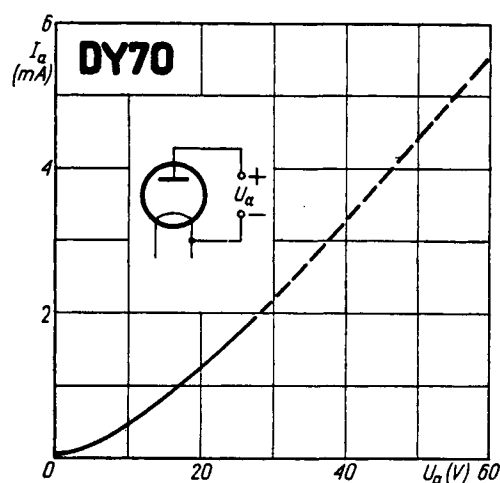
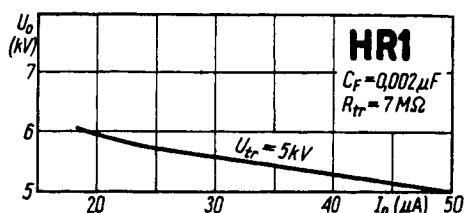
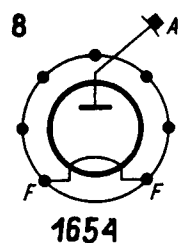
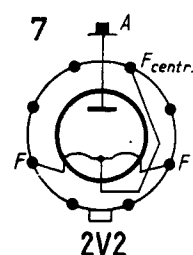
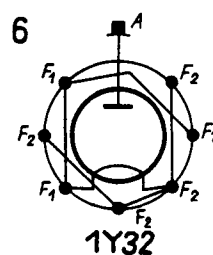
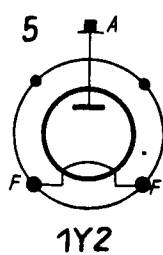
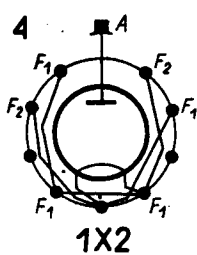
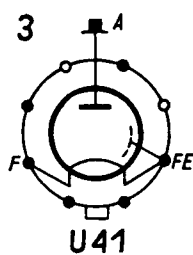
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				V	A	kV	kV	kV	mA	mA	kHz	pF	pF
DY 70	Mul	9		1,25	0,14	2,9		10	2	10	0,4	1000	1,3
HR 1	Fer	1		0,65	0,055	5		12,5	0,05	0,5	500	2000	0,7
U 35	Eng	2		1,4	0,12	3,5			2				
U 41	Eng	3		1,25	0,2	12,5	15	35	2	12	350	10000	1,5
1 K 3	amer	3		1,25	0,2	22			0,05				
1 X 2	amer	4		1,25	0,2			15	1	10	300		1
1 X 2-A	amer	4		1,25	0,2		14	20	1,1	11	300		1
1 Y 2	TS	5		1,25 ÷ 1,5	0,26			50	2	10	300		
1 Y 32	Tes	6		1,4	0,265		8	20	2	10	300	600	0,6
1 Z 2	amer	6		1,5	0,3			25	2	10	300		
2 B 3	TS	3		1,75	0,25			27	0,5	50			
2 V 2	amer	7		1,25/2,5	0,4/0,2			15	2	80			
								21	1	80			
								30	0,2				
1654	int	8		1,4	0,05	2,5	2,3	7	1	6 ¹⁾	0,5	25000	
5642	amer	10		1,25	0,2	3,6		10	2	10			
5825	RCA	5		1,6	1,25	21	27	60	2	2 ²⁾	70	3500	2,2
6215	GE	3		1,25	0,2			18	1	30	250		

¹⁾ $\tau \leq 0,1 \text{ sec}$; $I_p = 15 \text{ mA}$; ²⁾ $R_{tr} = 120 \text{ k}\Omega$; ³⁾ vida * 4,a,b,c = 5.000, e"



Equivalents

1 J 3	amer = 1 K 3	SN 956 B ¹⁾	Syl = 5642	VM 1	SFR = 1654
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T.			U_f	I_f	U_{tr}	U_o	U_p	I_o	I_p	C_F	$t_1^{(3)}$	$t_2^{(3)}$	$C_{a/k}$
			V	A	kV	kV	kV	mA	mA	pF	%	μ sec	pF
DY 30	eur	1	1,1÷1,4	0,2	{	21	30	2	17	5000	≤ 15	≤ 10	1,5
DY 80	Tlf	2	1,25	0,2			26	0,5	50		≤ 15	≤ 10	1,25
DY 86	eur	3	1)	0,53	{	18	22	0,15	40	2000	≤ 18	≤ 18	1,7
							5	3			≤ 18	≤ 10	
R 19	Bri	3	1,25	0,2	{	7	25	2	10	1000	≤ 15	≤ 10	1
U 37	Eng	7	1,4	0,14			5,3	7,5	0,1		12	≤ 15	≤ 10
IAX 2	amer	2	1,2÷1,6	0,65	{	20	15	0,1	(oscillator) maximum	≤ 15		≤ 10	0,55
							25	1		11	≤ 15	≤ 10	
IG 3-GT	RCA	1	1,05÷1,45	0,2	{	21	33	1	30 ⁴⁾	5000	≤ 15	≤ 10	1,3
IN 2-A	Syl	1	1,25	0,2			26	0,5	50		≤ 15	≤ 10	1,4
IT 2	Bri	7	1,4	0,14	{	13	28	0,5	50	5000	≤ 5	≤ 5	0,65
							15	2	12		≤ 15	≤ 10	
IV 2	int	4	0,625	0,3	{	14	6,6	8,3	10	5000	≤ 15	≤ 10	0,8
IX 2-A	RCA	2	1,25	0,2			14	17,5	0,18		≤ 15	≤ 10	1
IX 2-B	amer	2	1,25	0,2	{	18	16	1	10	1200	≤ 15	≤ 10	1
							18	0,1	≤ 15		≤ 10		
IY 32T	Tes	5	1,19÷1,61	0,265	{	15	22	0,5	45	200 000 ⁴⁾	≤ 18	≤ 18	1,5
I II 1 C	CCCP	1	0,7	0,185			14	15	0,5		5	≤ 15	≤ 12
I II 11 II	CCCP	6	1,08÷1,32	0,2	{	18	20	0,3	2	5000	≤ 12	≤ 12	1
							18	20	0,3		2	≤ 12	≤ 12

¹⁾ $U_f = 1,2 \div 1,64$ V; $I_o \leq 0,2$ mA; $U_f = 1,3 \div 1,5$ V, $I_o > 0,2$ mA;

²⁾ $f = 50$ Hz;

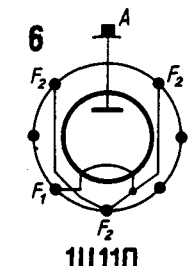
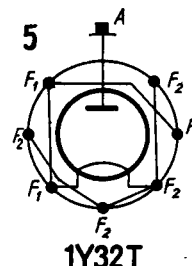
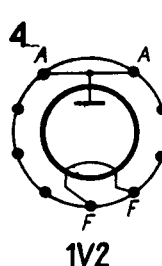
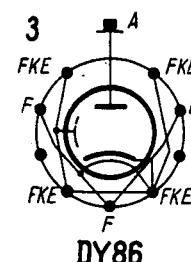
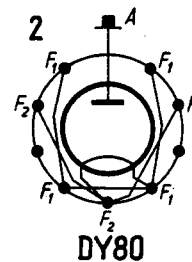
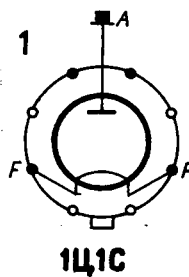
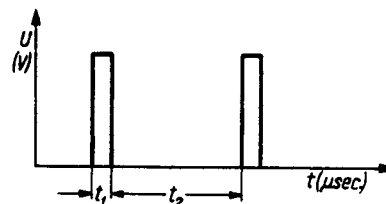
³⁾ vide Fig. 1;

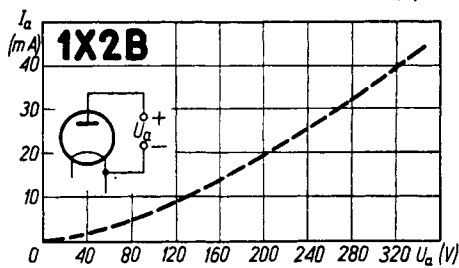
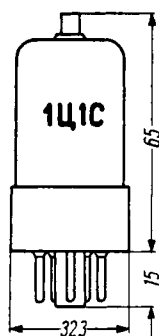
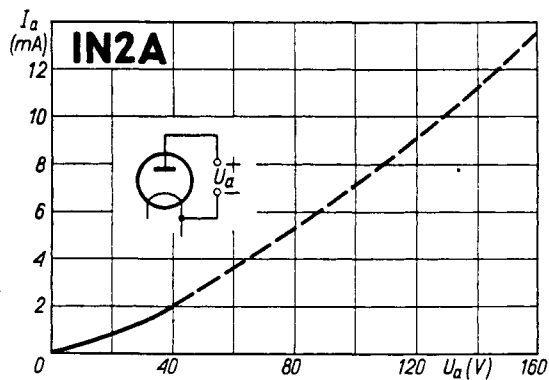
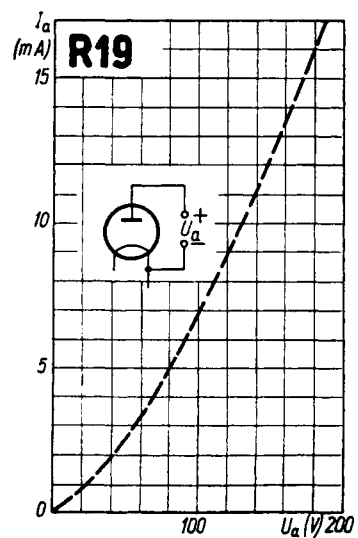
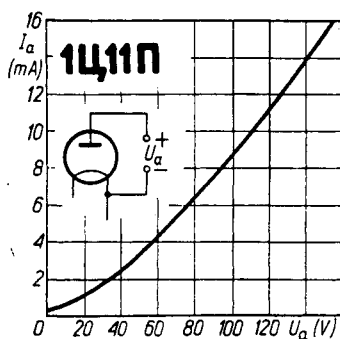
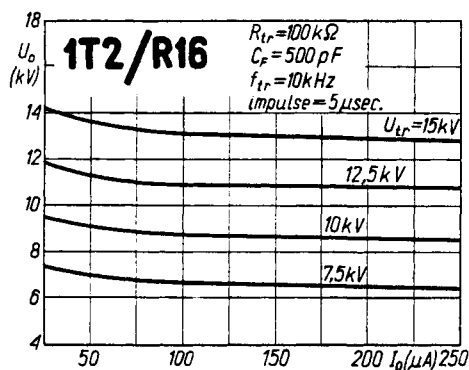
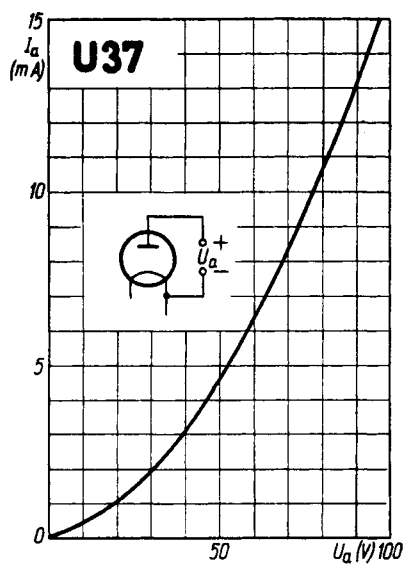
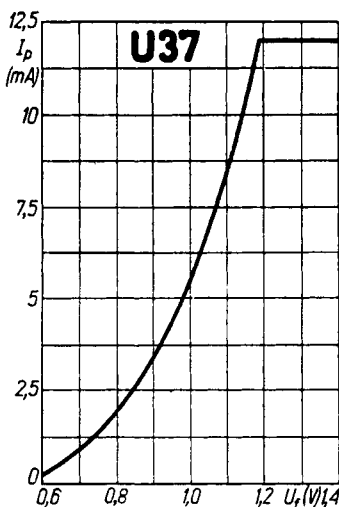
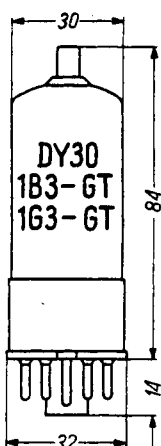
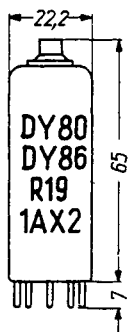
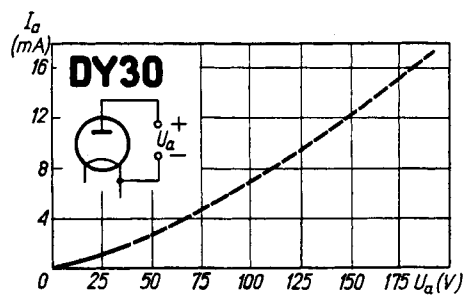
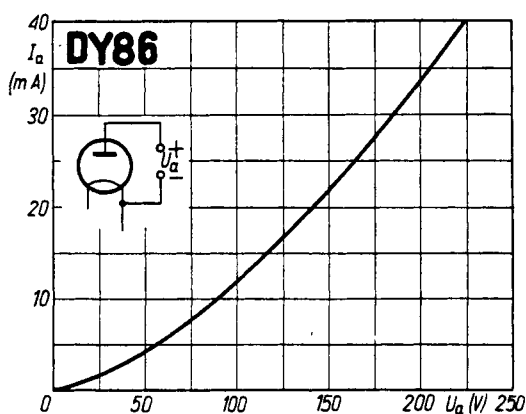
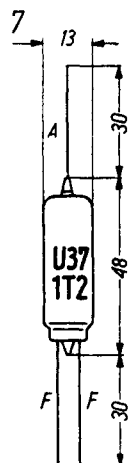
⁴⁾ $f_{max} = 100$ kHz

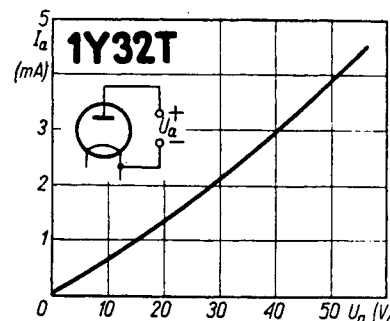
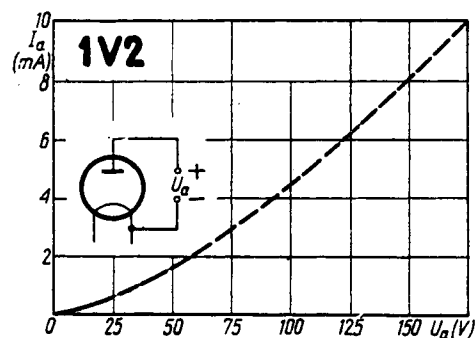
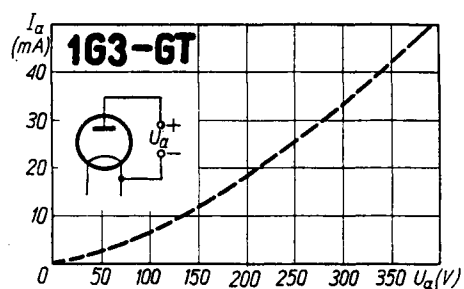
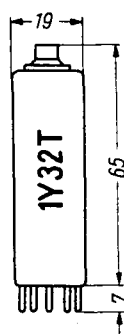
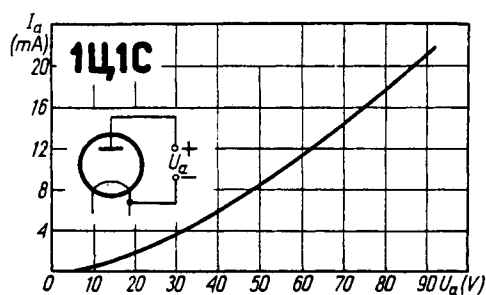
Equivalents

DY 87	Phi = DY 86
R 16	Bri = IT 2
R 19/I X 2 B	Bri = R 19
IB 3-GT	amer = DY 30
IB II 1	CCCP = I II 1 C
IB II 2	CCCP = DY 30
IG 3-GT/IB 3-GT	amer = IG 3-GT
I H 2	amer = DY 86
IS 2	amer = DY 86
IS 2-A	amer = DY 86
I Z 1	RFT = I II 1 C
I II 1	CCCP = I II 1 C
I II 7 C	CCCP = DY 30
8016	amer = DY 30

Fig 1





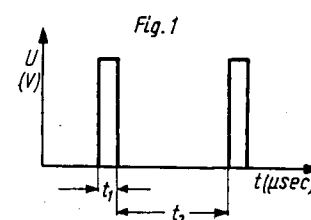
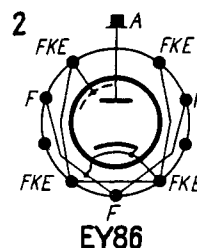
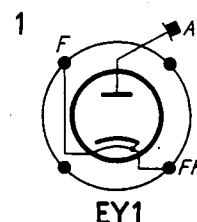


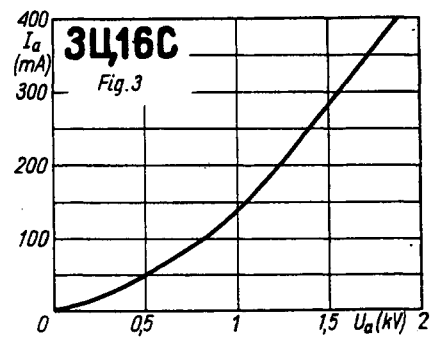
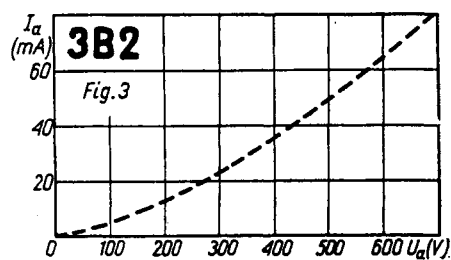
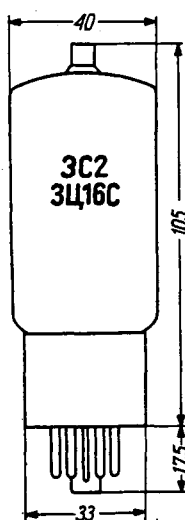
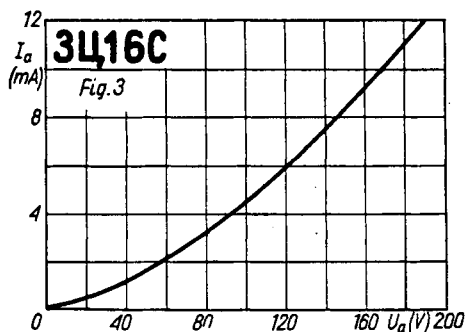
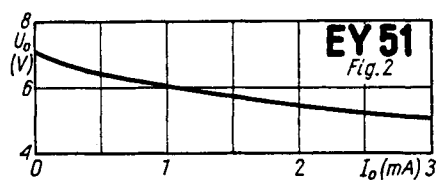
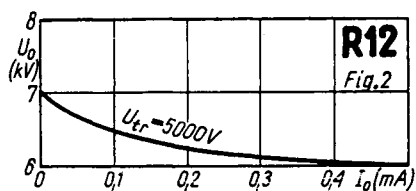
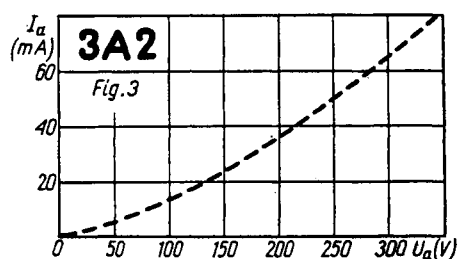
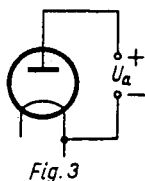
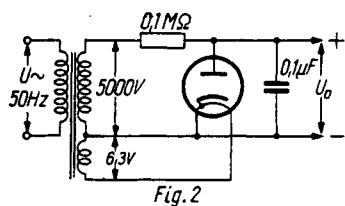
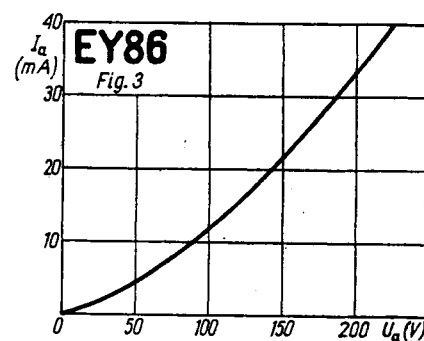
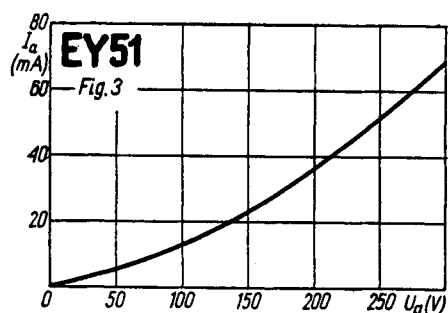
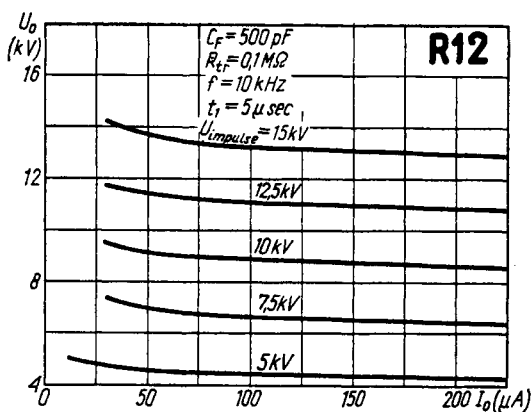
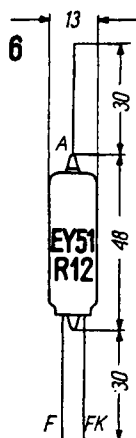
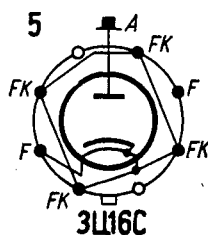
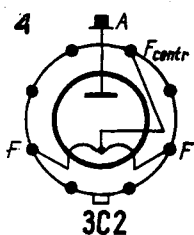
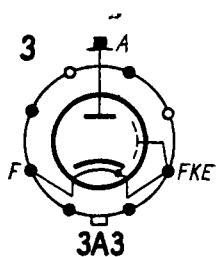
T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	f_{max}	$t_1^{(9)}$	$t_2^{(9)}$	$C_{a/k}$
			V	mA	kV	kV	mA	mA	kHz	%	μsec	pF
EY 1	eur	1	6,3	80	5	17	3	18	0,05 ¹⁾			
EY 51	eur	6	6,3	90	5	17	0,5	4	10÷500 ²⁾	$\leq 0,5$	≤ 5	0,8
EY 86	eur	2	3)	90	5	18	0,15	3	0,05 ⁴⁾	≤ 18	≤ 18	
						27	0,8 ⁵⁾	40	0,05	≤ 10	≤ 10	1,7
R 12	Bri	6	6,3	90	5	17	0,5	0,5	0,05 ⁴⁾	$\leq 0,5$	≤ 5	
						17	0,1	11	10÷500 ²⁾	$\leq 0,5$	≤ 5	
3 A 2	amer	2	3,15	220		18	1,5	80		≤ 15	≤ 10	1
3 A 3	amer	3	3,15	220		30	1,5	80		≤ 15	≤ 10	1,5
3 B 2	amer	3	3,15	220		35	1,1	80		≤ 15	≤ 10	1,8
3 C 2	TS	4	1,58/3,15	420/210		33	1,1	80		≤ 15	≤ 10	
3 II 16 C ¹⁾	CCCP	5	3,15	210		35	1,1	80		$\leq 12^{(9)}$		1,5
6 AX 2	amer	2	6,3	100		25	0,3	11		≤ 15	≤ 10	0,55

1) vide * 4, a, b, d, e; $U_f = 2,85 \div 3,45$ V; 2) $U_o \leq 18$ kV; 3) $U_f = 5,35 \div 7,25$ V, $I_o \leq 0,2$ mA; $U_f = 5,85 \div 6,74$ V
 $I_o > 0,2$ A; 4) $R_{tr} = 100$ k Ω , $C_F = 0,1$ μ F; 5) $C_F = \frac{5000}{f}$ pF; 6) $C_F = 2000$ pF; 7) $U_p = 18$ kV; 8) $U_{tr} = 6$ kV; 9) vide Fig. 1

Equivalents

EY 87	Phi = EY 86	6 AX 2 N	RB = 6 AX 2
SU 61	Cos = R 12	6 H 2	amer = EY 86
U 43	Eng = EY 51	6 S 2	amer = EY 86
U 45 ⁷⁾	Eng = EY 51	6 S 2 A	amer = EY 86
U 49	Eng = EY 86	6 X 2	amer = EY 51
U 151 ¹⁾	Eng = EY 51	90 V 9	Fot = EY 1



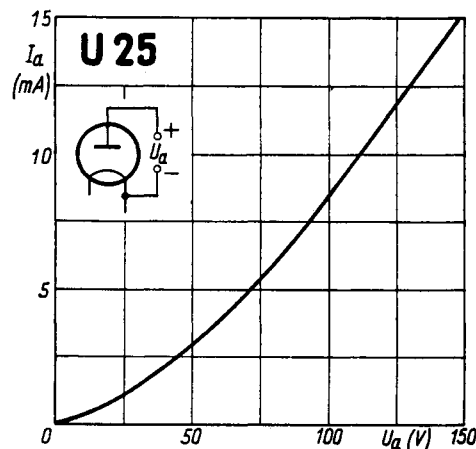
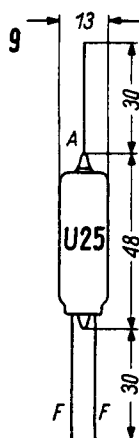
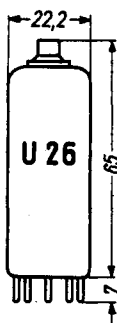
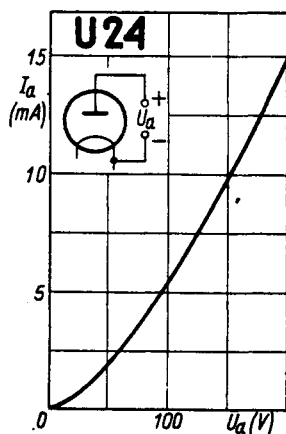
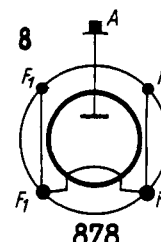
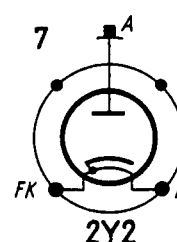
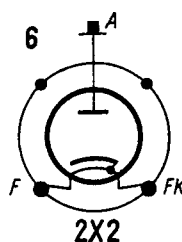
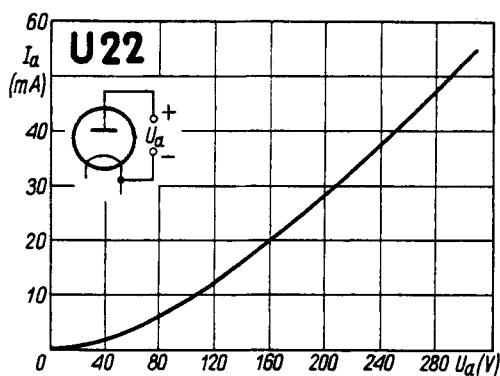
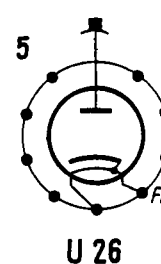
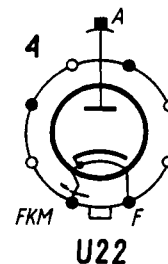
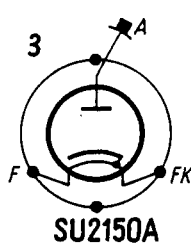
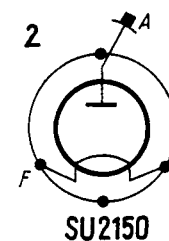
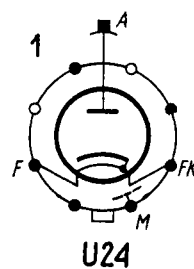


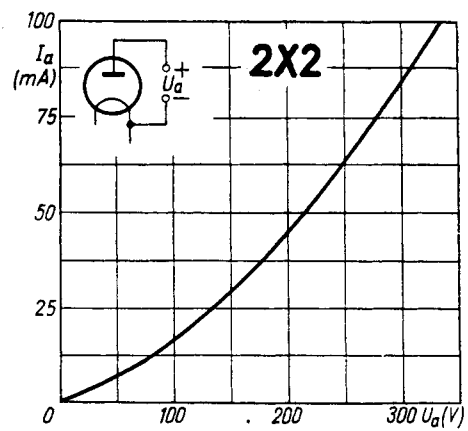
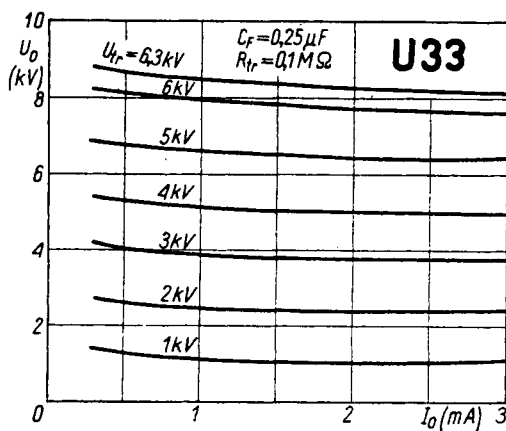
T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	C_a/k
			V	A	kV	kV	mA	mA	pF
SU 25	Cos	1	2	0,5	7		1,5		
SU 2130	Cos	2	2	1	5		2		
SU 2150	Cos	2	2	1,15	8		2		
SU 2150 A	Cos	3	2	1,5	5		5		
U 21	Eds	3	2	1,85	4,5	12,5	5	55	
U 22	Eds	4	2	2	5,2	14,5	1	20	2,2
U 24	Eds	1	2	0,15	7,8	20	0,5	15	1,3
U 25	Eds	9	2	0,2	7,8	20	0,5	15	0,6
U 26	Eds	5	2	0,35		25	0,2		
U 33	Eng	2	2	1	6,3	18	3	20	2,5
WL-481	Wst	6	2,5	5		25	5		
2 V 3-G	amer	1	2,5	5	6	16	2	12	
2 X 2	int	6	2,5	1,75	5,5 ¹⁾	12,5	7,5	60	
2 Y 2	amer	7	2,5	1,75	4,4		5		
878	amer	8	2,5	5	7,1 ¹⁾	20	5		

¹⁾ $C_F = 0,1 \mu F$; ²⁾ $C_F = 0,5 \mu F$; ³⁾ $U_p = 27 kV$

Equivalents

8 II 8	CCCC = 2 X 2
U 47	Marc = U 25
2 B 21	amer = 2 X 2
2 J 2	amer = U 26
2 X 2-A	amer = 2 X 2
2 II 2 C	CCCC = 2 X 2
878-A	amer = 878
879	amer = 2 X 2



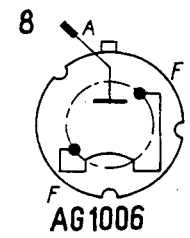
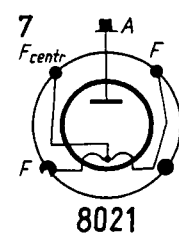
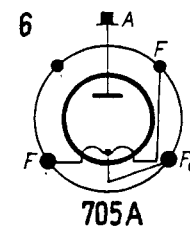
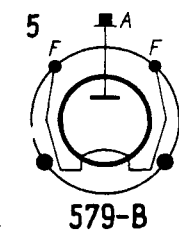
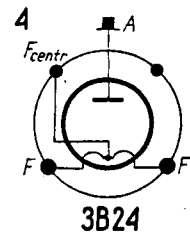
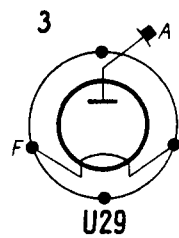
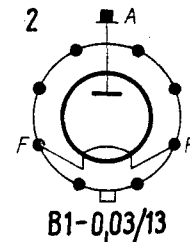
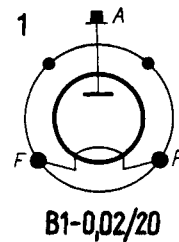


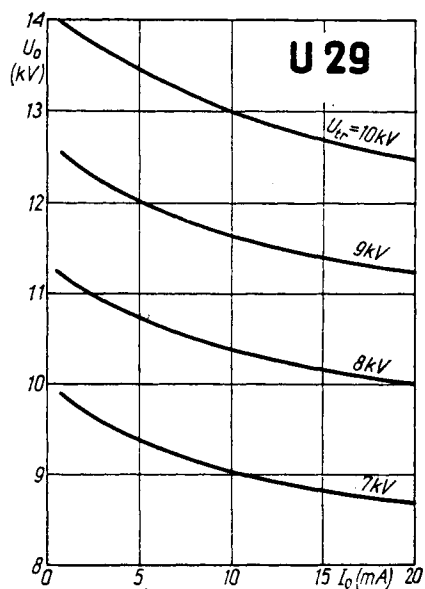
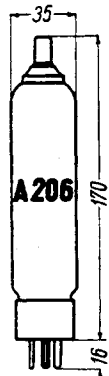
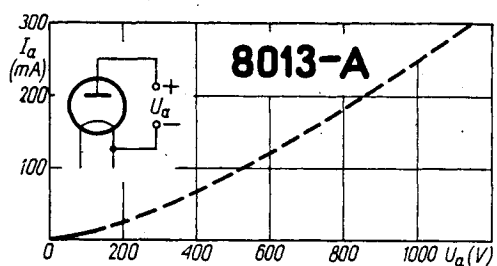
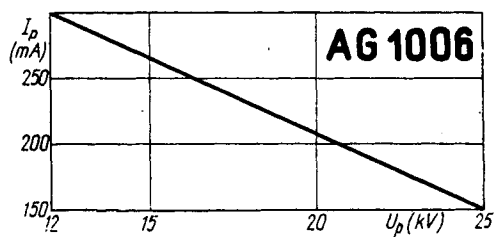
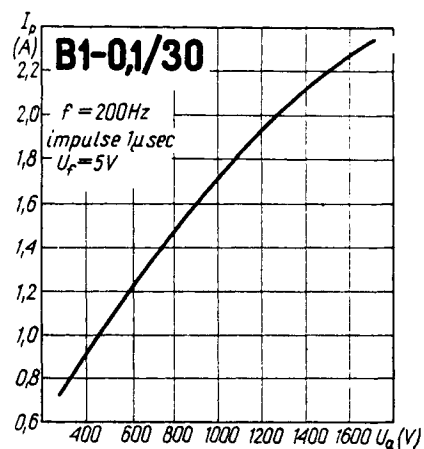
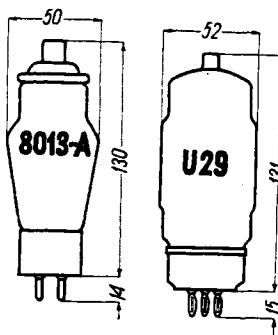
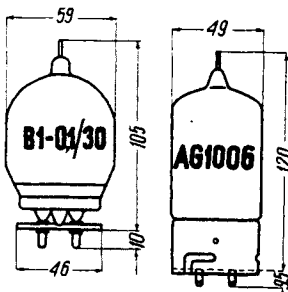
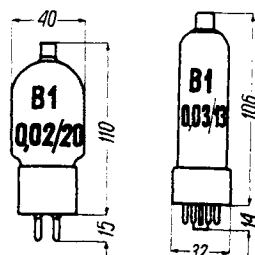
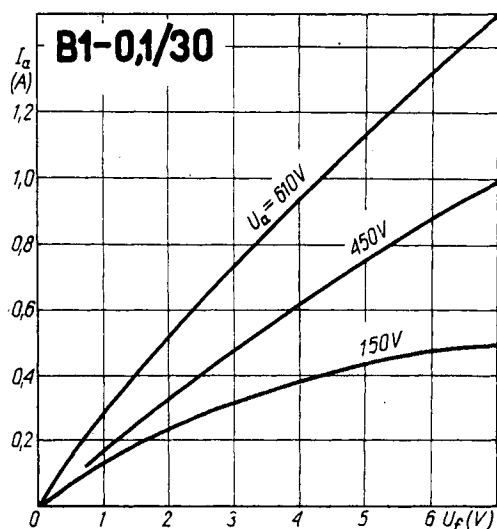
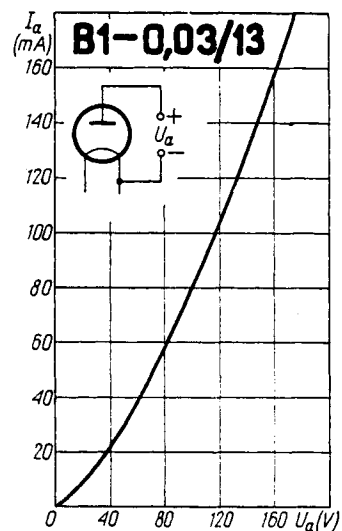
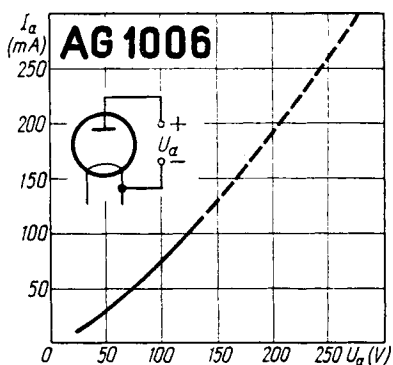
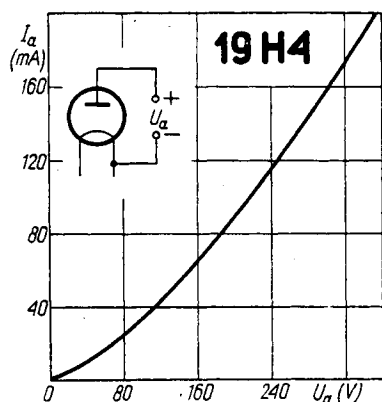
T.			U_f	I_f	U_o	U_p	I_o	I_p
			V	A	kV	kV	mA	mA
A 206	EEV	1	2.5	6		20	25	270
AG 1006 ¹⁾	RFT	8	3	3		25		150
						12		300
B1-0,02/20	CCCP	1	2.5	3.2	7	20	20	100
B1-0,03/13	CCCP	2	2.5	4.65	4.5	13	30	300
CE-220	Cet	1	2.5	3	6	20	20	200
U 29	Eng	3	2	2.75		30	20	120
3 B 24	amer	4	2.5	3		20	30	150
			5	3		20	60	300
3 B 26	amer	2	2.5	4.75		15	20	
19 H 4	Eds	2	2.5	1.7		20	30	180
72	amer	1	2.5	3		20	30	150
73	amer	1	2.5	4.5		13	20	
579-B	RCA	5	2.5	6		20	25	270
			2.5	5	10	30	50	200
			5	5	10	30	100	400
			5	5	5	15	150	600
705-A	amer	6/7						
5934	amer	1	2.5	6		20	25	
8013	amer	1	2.5	5		40	20	150

¹⁾ vide + 4,a,b; ²⁾ $C_a/k = 1 \div 2$ pF

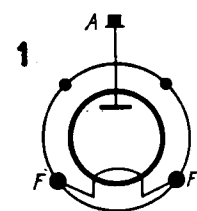
Equivalents

A 232	EEV	= 705-A	RK 72	Ray	= 72
A 239	EEV	= 3 B 24	RK 73	Ray	= 73
B1-0,1/30	CCCP	= 705-A	RK 705-A	Ray	= 705-A
B 13/30	CCCP	= B 1-0,03/13	RX 235	amer	= 72
B 20/20	CCCP	= B 1-0,02/20	WE 705-A	WE	= 705-A
B II H I	CCCP	= 705-A	2T/450 E	STCE	= 705-A
CE-3 B 24	Cet	= 3 B 24	3 B 24 W ¹⁾	amer	= 3 B 24
CE-230	Cet	= 3 B 24	3 B 24 WA ¹⁾	amer	= 3 B 24
GRS 251	RFT	= AG 1006	4705-A	STCE	= 705-A
REL 52	Canada	= 8013	8013-A	RCA	= 8013
RK-3 B 24	Ray	= 3 B 24	8021	amer	= 705-A

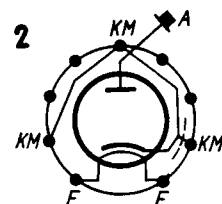




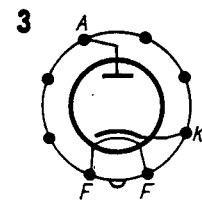
T.			U_f	I_f	U_{tr}	U_p	I_o	I_p	R_{tr}	C_F
			V	A	kV	kV	mA	mA	k Ω	μ F
A 235	EEV	1	6,3	3		25	50	200		
A 2272	Marc	2	6,3	1,6	5,5	16	100	600	4	0,25
EA 40	Phi	3	6,3	0,2		6,5	25			
ER 4	Fer	4	4	1	5		3			
HR 2	Fer	5	4	0,5	5,5	13	5	40	50	0,25
HR 3	Fer	5	4	0,5	5	11,5	15	80	30	1
HR 4	Fer	5	4	0,5	2,5	7	30	180	5,4	1
HR 5	Fer	5	4	0,5	5	14	30	180		
HR 6	Fer	6	4	1,25	4,5	11,5	40	280	4,5	1
HR 7	Fer	6	4	1,25	6,2	15	40	240		
HR 8	Fer	6	4	1,25	5	12,5	50	350	4	1
R 11	Bri	4	4	11	5	12,5	50	350	4	1
RFG 3	Tif	7	4	4	10	30	5			
					3	8,5	10		20	0,1
RFG 5	Tif	8	6,3	0,2	5,5	16	2		20	0,05
U 17	Eng	4	4	1	2,5	7,1	30	200		
U 22	Eds	9	4	0,65	5	15	3			
V 21/7000	Tu	4	4	0,95	7		20			
V 22/7000	Tu	10	6,3	0,68	3,5	10	25		20	0,5
					7	20	12	100	20	0,5
V 1913	Eds	4	4	3	27,5	8	125	900		
V 1920	Eds	4	4	2,1	5,8	16,5	75	600		
2 W 10 A	Eds	4	4	5	3		30			
5 II 12 II	CCCP	11	5	0,87	2	5	50	350		1
6 Y 3-G	amer	6	6,3	0,7	5	14	7,5	100		
19 G 3	Eds	5	4	1,4		6,5	75	375	1,8	
19 H 1	Eds	4	4	2		15	75	600	2,5	0,5
1875	eur	12	4	2,3	5	14	5		10	0,5
1877	eur	4	4	0,65	6	20	3		20	0,5



A235



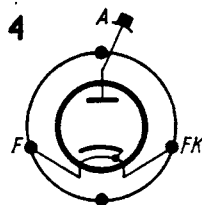
A2272



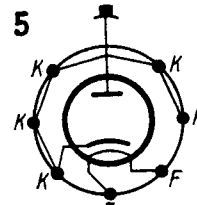
EA40

Equivalents

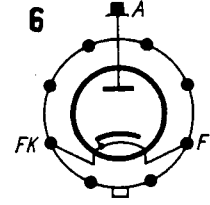
E 1097	Marc = R 11
E 1132	Marc = R 11
E 1956	Marc = HR 2
HG 1	Val = 1875
HVR 2	Mul = 1877
HVU 1	Hiv = 1877
R 10	Bri = HR 2
SU 44	Cos = HR 2
SU 45	Cos = HR 4
SU 4150 A	Cos = 1877
U 21	Eds = 1877
U 27	Eds = R 11
V 1907	Eds = R 11
V 1928	Eds = HR 2
2 T/270 K	STCE = HR 2
19 G 6	Eds = HR 4
6305	amer = HR 2



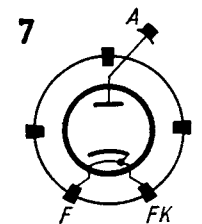
ER4



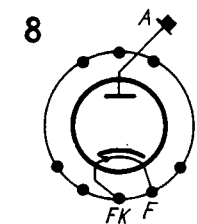
HR2



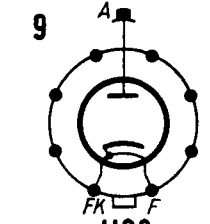
HR6



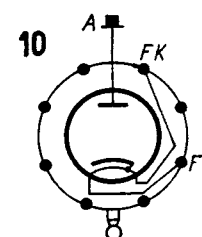
RFG3



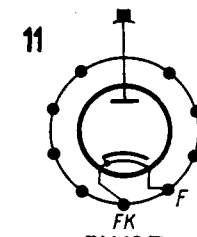
RFG5



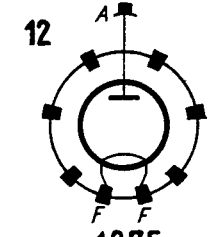
U22



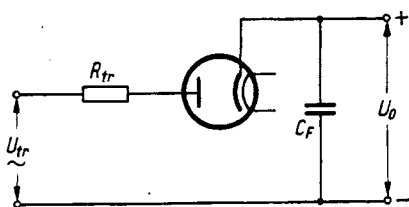
V22/7000

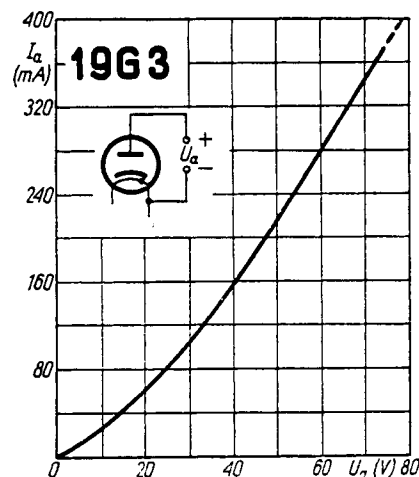
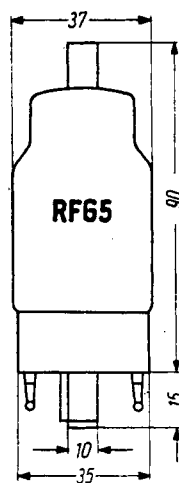
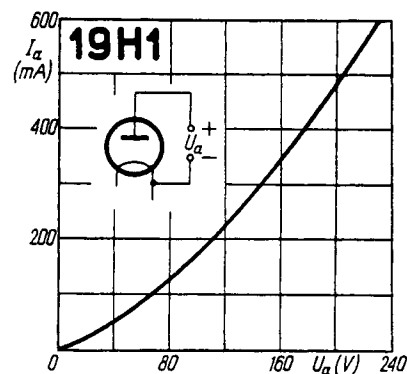
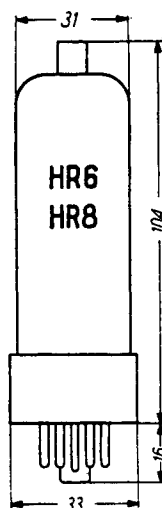
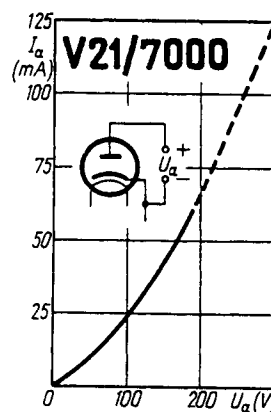
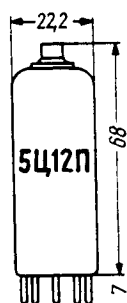
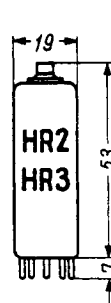
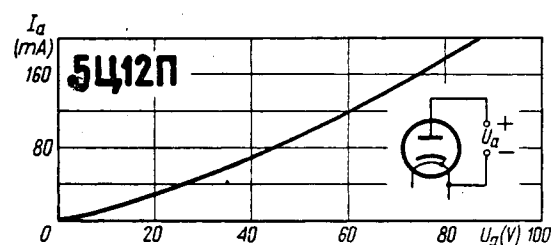
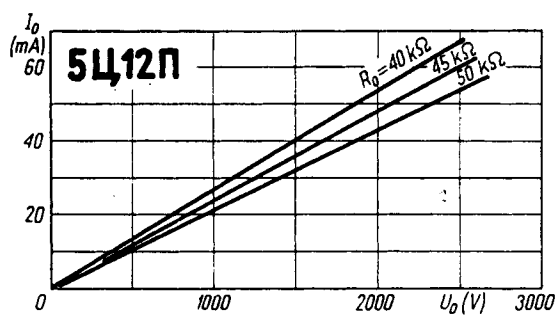
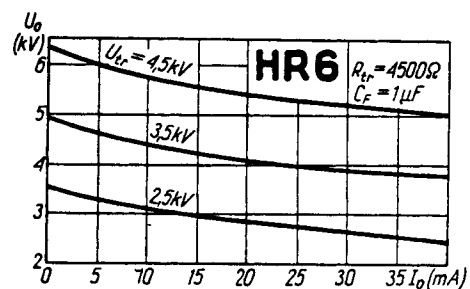
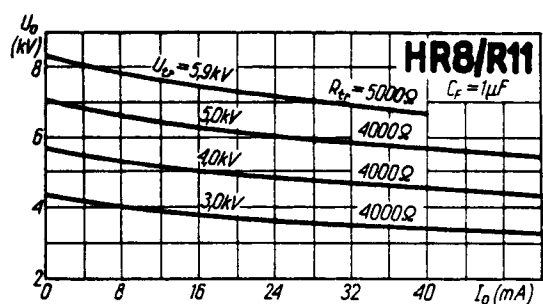
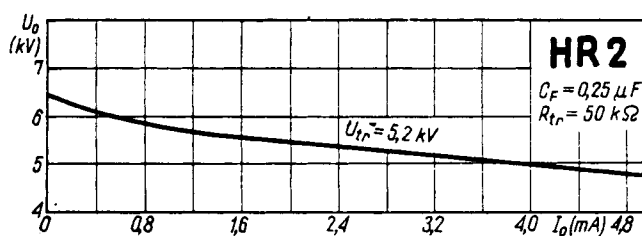
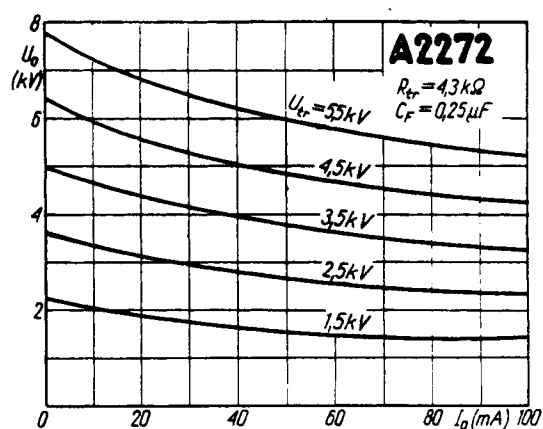


5412II

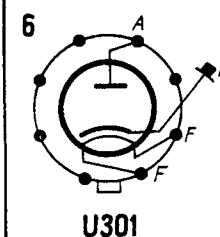
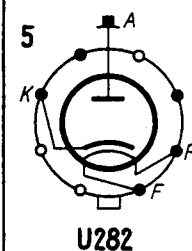
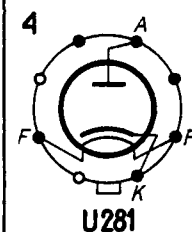
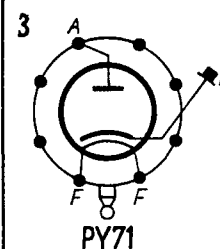
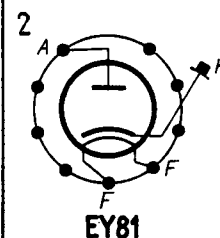
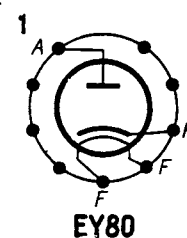


1875





T.			U_f	I_f	U_p	I_o	I_p	$U_{f-/+}$	$U_{f+/-}$	$t_1^{1)}$	$t_2^{1)}$
			V	A	kV	mA	mA	kV	kV	%	μsec
EY 80 PY 80	eur	1	6,3	0,9	{	180	400	4	0,65	≤ 18	≤ 18
	eur	1	19	0,3							
EY 81 PY 81	eur	2	6,3	0,81	{	150	450	0,8 4,5	3	≤ 18	≤ 18
	eur	2	17	0,3							
EY 83 PY 83	eur	2	6,3	1	{	140	420	0,6 4,5	3	≤ 18	≤ 18
	eur	2	20	0,3							
EY 88 PY 88 XY 88	eur	2	6,3	1,55	{	220	550	6,6		≤ 22	≤ 18
	eur	2	26 16	0,3 0,6		175	525				
PY 71	Lor	3	21,5	0,3	{	140		0,5 6		≤ 18	≤ 18
PY 800	Mul	2	19	0,3	{	150	350	5,75	3	≤ 22	≤ 22
U 281	Eds	4	28	0,2	{	120 150	600 450	0,4 1		≤ 15	≤ 15
U 282 U 301	Eds	5 6	28 30	0,2 0,2		120 150	600 450				
U 309	Eng	1	20	0,3	{	170	1000	0,35 0,7		≤ 15	≤ 15
U 329	Eng	2	25	0,3	{	120	720	2 7		≤ 15	≤ 15
U 339	Eng	6	19	0,3	{	150	450	4,5		≤ 15	≤ 15
6 AF 3 12 AF 3	amer	2	6,3	1,2	{	185	550	4,5		≤ 15	≤ 15
	amer	2	12,6	0,6							
6 AU 4-GTA 19 AU 4-GTA	amer	7	6,3	1,8	{	190	1150	0,9 4,5	0,1 0,3	≤ 15	≤ 10
	amer	7	18,9	0,6							
6 AX 4-GT 12 AX 4-GT 17 AX 4-GT 25 AX 4-GT	amer	7	6,3	1,2	{	125	750	0,9 4,4	0,1 0,3	≤ 15	≤ 10
	amer	7	12,6	0,6							
	amer	7	16,8	0,45							
	amer	7	25	0,3							
6 B 3 12 B 3	amer	9	6,3	1,2	{	150	450	4,4		≤ 15	≤ 10
	amer	9	12,6	0,6							
6 BL 4	amer	7	6,3	3	{	200	1200	0,9 4,5	0,1 0,3	≤ 15	≤ 10
6 Д 14 П	CCCP	9	6,3	1,1	{	150	600	0,75 5,6	0,1	≤ 12	
12 D 4 17 D 4 25 D 4	amer	7	12,6	0,6	{	145					
	amer	7	16,8	0,45							
	amer	7	25	0,3							
6 DA 4 17 DA 4	amer	7	6,3	1,2	{	155	465	4,4			
	amer	7	16,8	0,45							
6 DE 4 17 DE 4 25 DE 4	amer	7	6,3	1,6	{	175					
	amer	7	17	0,6							
	amer	7	22,4	0,45							
6 M 3	TS	8	6,3	3	{	320	1100	6		≤ 15	≤ 10



¹⁾ vide Fig. 1

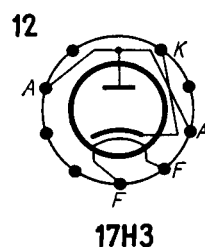
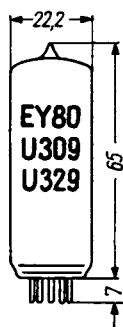
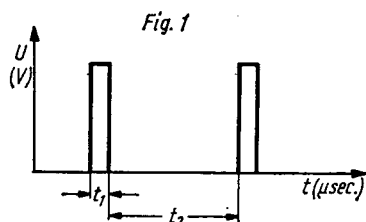
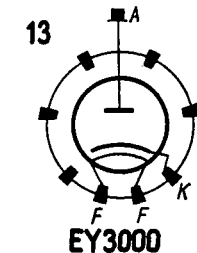
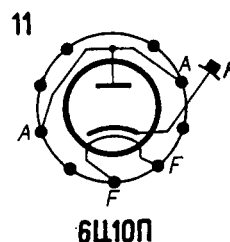
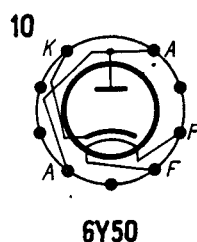
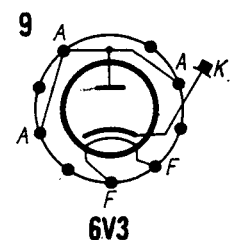
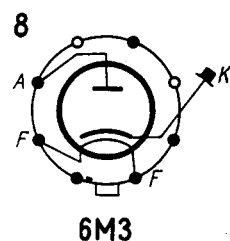
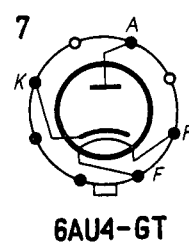
T.			U_f	I_f	U_p	I_o	I_p	$U_{f-}/k+$	$U_{f+}/k-$	$t_1^{(1)}$	$t_2^{(1)}$
			V	A	kV	mA	mA	kV	kV	%	μsec
6 U 4-GT	amer	7	6,3	1,2	38,5	138	660	0,55	0,11	≤ 15	≤ 15
25 U 4-GT	amer	7	25	0,3				3,85			
6 V 3	amer	9	6,3	1,75	6	135	800	0,75	0,1	≤ 15	≤ 10
								6,75	0,3		
6 W 4-GT	amer	7	6,3	1,2	3,85	125	750	0,5	0,1	≤ 15	≤ 10
25 W 4-GT	amer	7	25	0,3				2,3	0,3		
6 Y 50	Tes	10	6,3	1,65	3,5	220	700	0,1			
EY 3000	Tes	13	6,3	1,33							
EY 3000 N	Tes	13	6,3	1,65							
6 Ц 10 П	CCCP	11	6,3	1,05	4,5	120	450	0,75		≤ 12	≤ 12
								4,5			
6 Ц 17 C	CCCP	7	6,3	1,8	4,5	200	1200	0,9	0,1	≤ 12	≤ 12
17 H 3	amer	12	17,5	0,3		75		4,5	0,3		
					2				0,2		

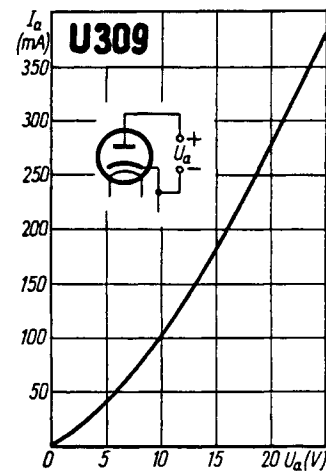
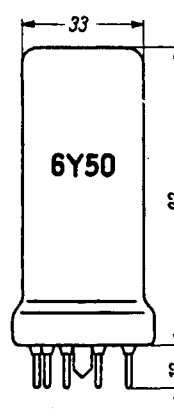
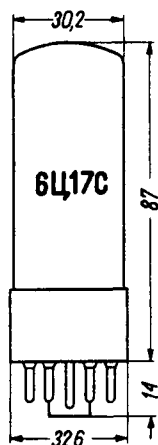
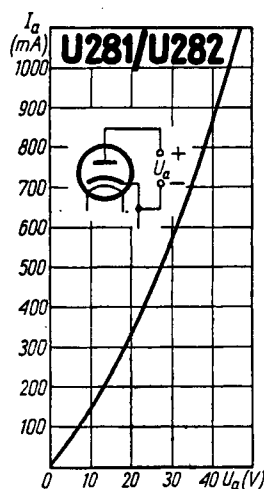
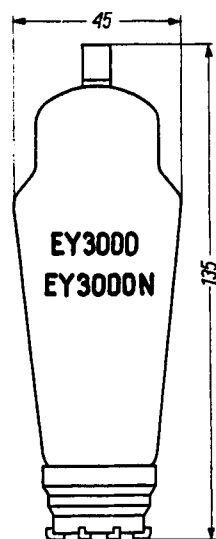
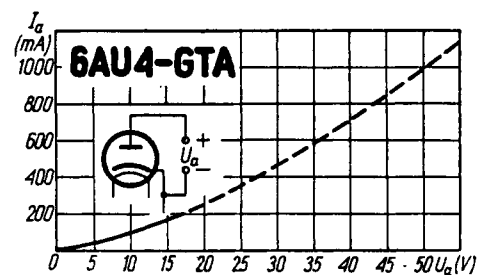
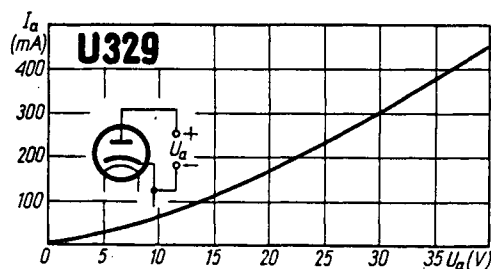
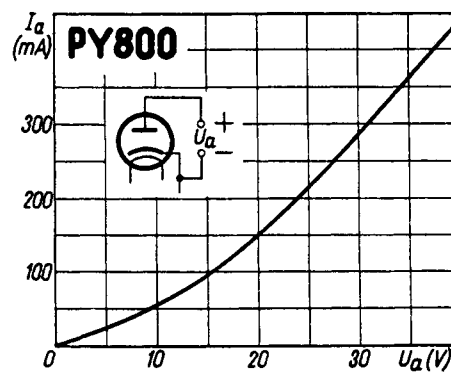
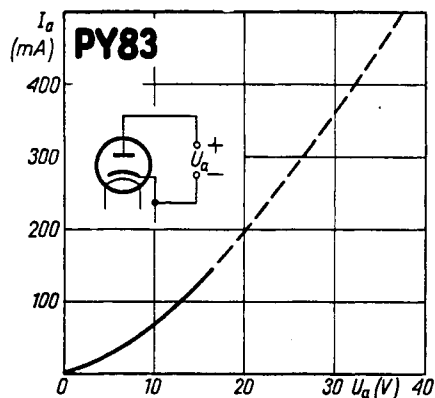
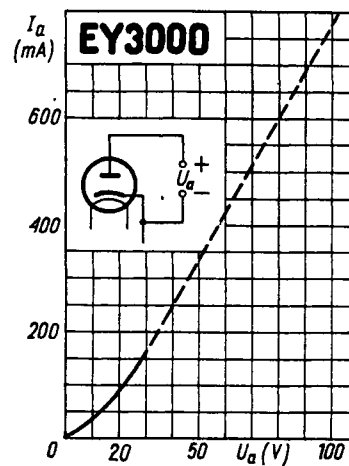
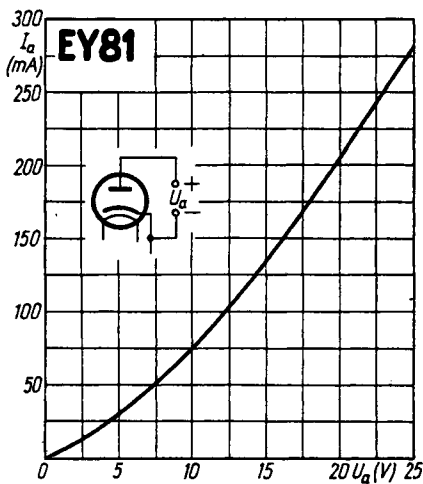
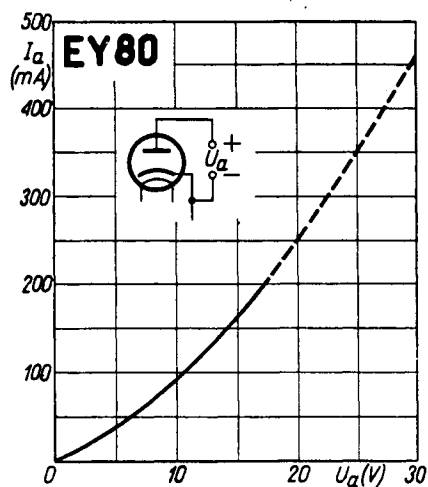
¹⁾ vide Fig. 1.

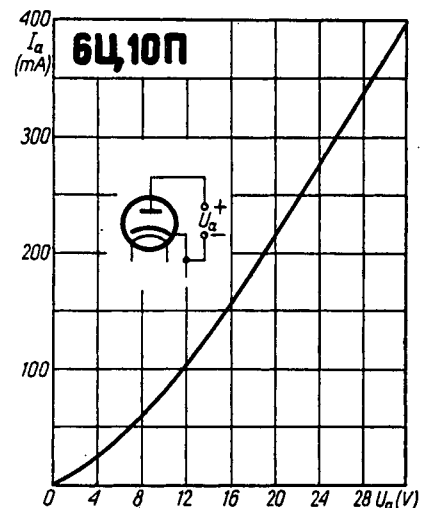
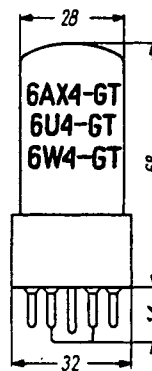
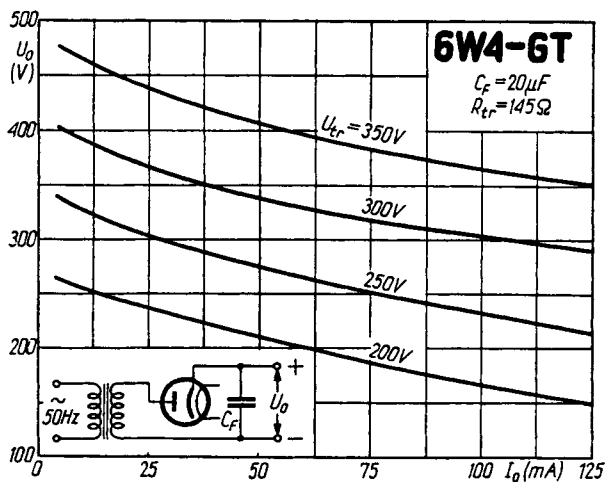
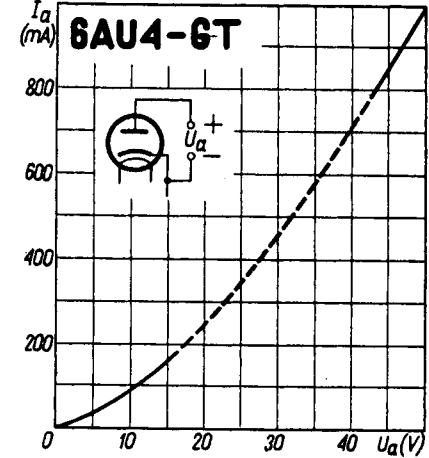
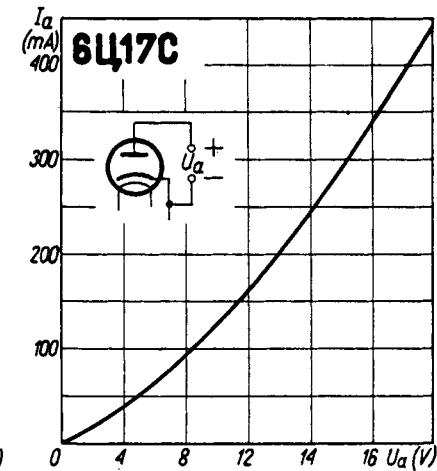
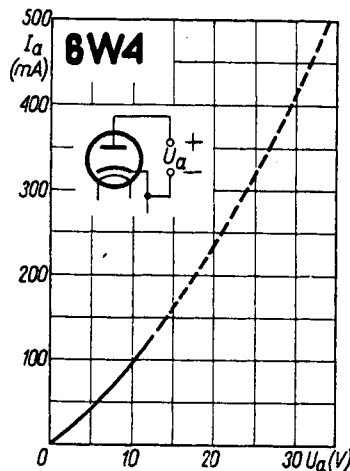
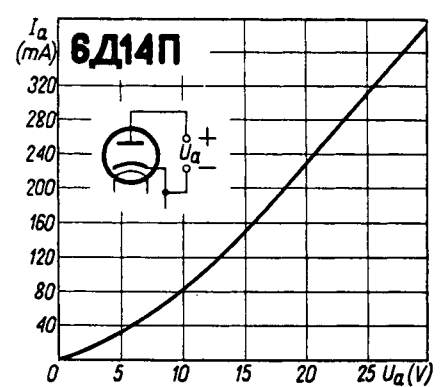
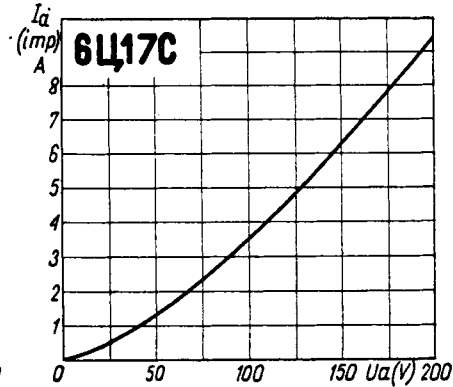
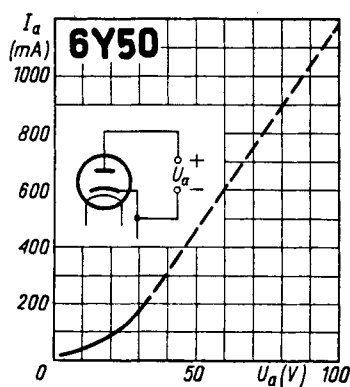
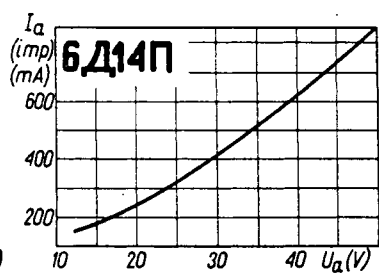
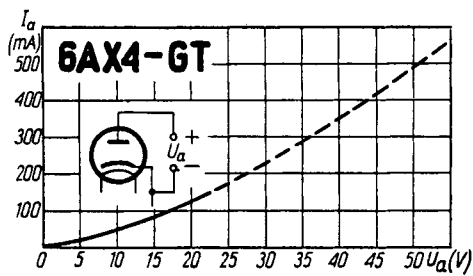
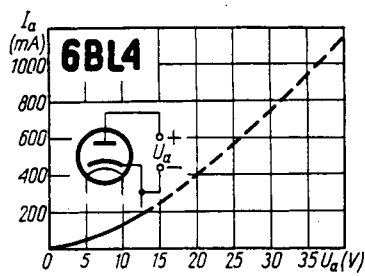
Equivalents

U 152	Eng = PY 80
U 153	Eng = PY 81
U 191	Eds = U 339
U 251	Eds = U 329
6 AE 6	amer = EY 88
6 AL 3	amer = EY 88
6 AU 4-GT	amer = 6 AU 4-GTA
6 R 3	amer = EY 81
6 U 3	amer = EY 80
6 V 3-A	amer = 6 V 3
6 V 3-P	Vis = 6 V 3
12 AX 4-GTA	amer = 12 AX 4-GT
12 AX 4-GTB	amer = 12 AX 4-GT
16 AQ 3	amer = XY 88
17 Z 3	amer = PY 81
19 AU 4-GT	amer = 19 AU 4-GTA
19 BD 4	Cos = PY 80
19 U 3	amer = PY 80
19 W 3	amer = PY 80
19 X 3	amer = PY 80
20 Y 40	Tes = PY 83
26 AE 6	amer = PY 88
30 AE 3	amer = PY 88

T.	$C_{a/k}$	$C_{a/k+f}$	$C_{k/f}$	$C_{k/a+f}$
	pF	pF	pF	pF
EY 80		5,5		
EY 81		6,4		9,9
EY 83	6,2		2,8	9,2
EY 88	8,6		2,4	
EY 3000	5		2	
EY 3000 N	5			
PY 71	5	1,2	2	
PY 800	4,7		1,9	
U 251		6,1	3,2	
U 281		9,6	12,5	
U 282	7,3	1,3	12,6	
U 309		8		
U 329		6,1	3,2	
6 AU 4-GT		8,5	4	11,5
6 AU 4-GTA		8,5	4	11,5
6 AX 4-GT	4,6	5	4	8,5
6 BL 4		11,5	5	16
6 Ц 14 П			3,5	10
6 U 4-GT			8,5	
6 V 3	7,5	8	1,5	9
6 W 4-GT		6	7	13
6 Y 50	5			
6 Ц 10 П	6,9		5	11,8
6 Ц 17 C	11		5	
12 D 4		6	3	8





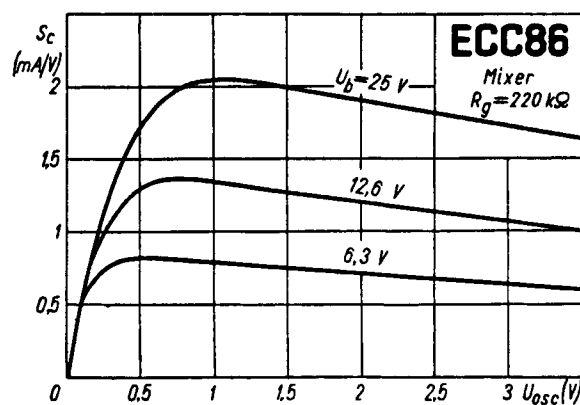
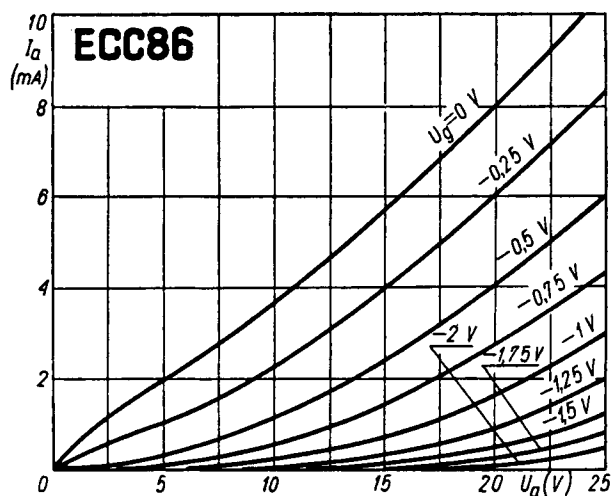
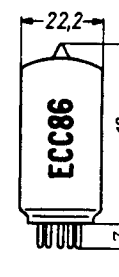
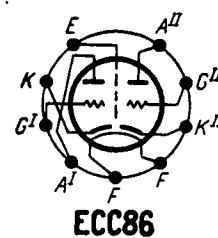
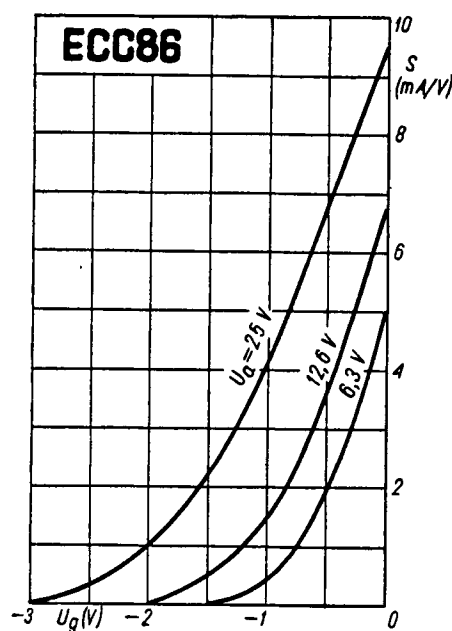
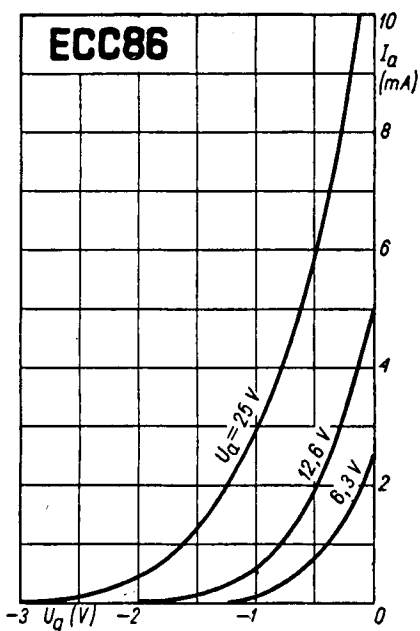


T.		U_f	I_f	Cl.	U_b	R_a	U_a	U_g	U_{osc}	I_a	S	S_c	μ	R_i	R_g	P_a
		V	A			V	Ω	V	V	V	mA	mA/V	mA/V	V/V	k Ω	k Ω
ECC 86	eur	6,3	0,33	{ A Mixer stat	{ 6,3 12,6 25	500 500 500	{ 6,3 12,6 25	0 0 0	0,7 1 1,5	{ 0,9 2,5 7,5	2,6 4,6 7,8	0,8 1,3 2	14	5 3,4 2,1	100 100 100	220 220 220
								6,3 30	-0,4	0,9	2,6 $I_k = 20 \text{ mA}; U_{f/k} = 30 \text{ V}$				0,6	
maximum																

Equivalents

6 GM 8 amer

C_g	C_a	$C_{g/a}$	$C_{aI/aII}$	$C_{gI/gII}$	$C_{aI/gII}$	$C_{aII/gI}$
pF	pF	pF	pF	pF	pF	pF
3	1,8	1,3	0,05	0,005	0,005	0,005

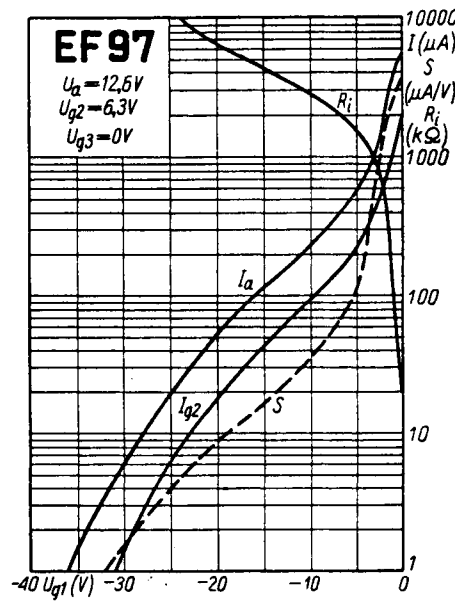
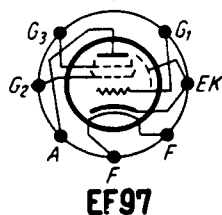
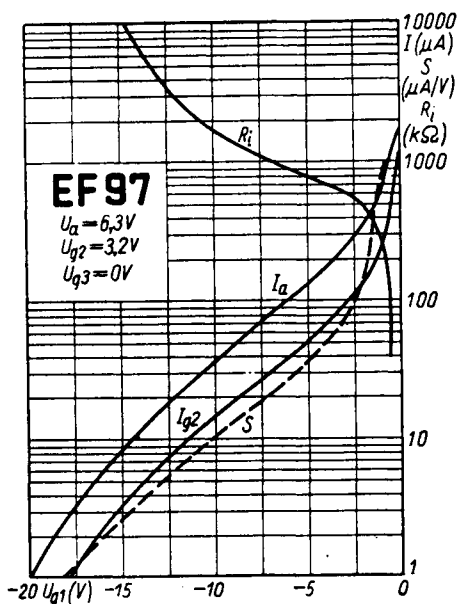
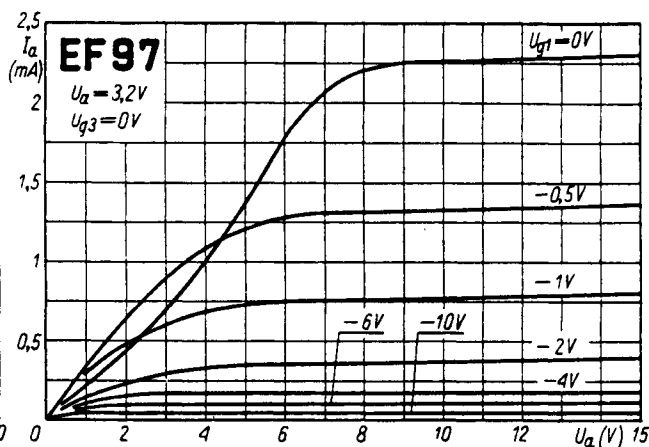
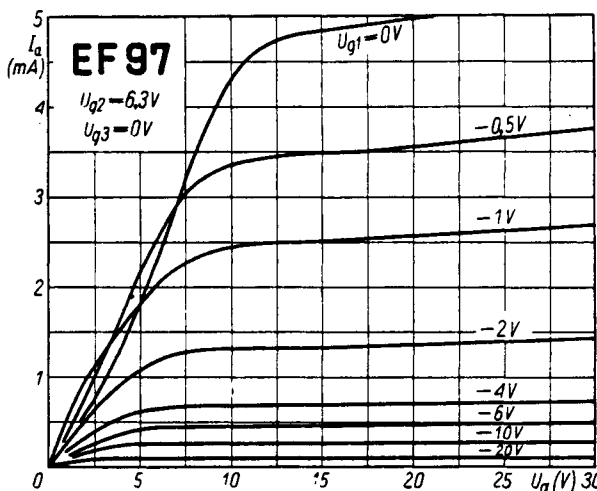
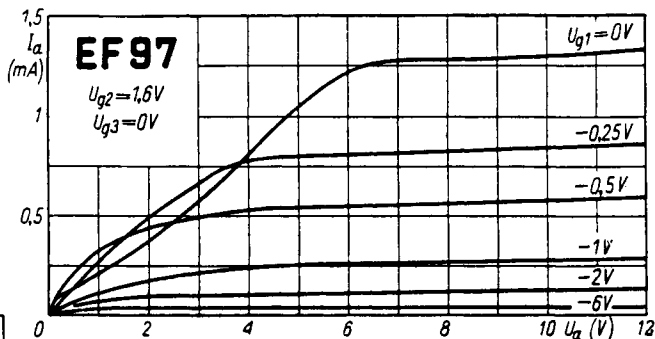
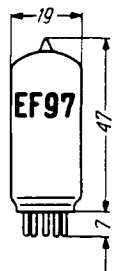


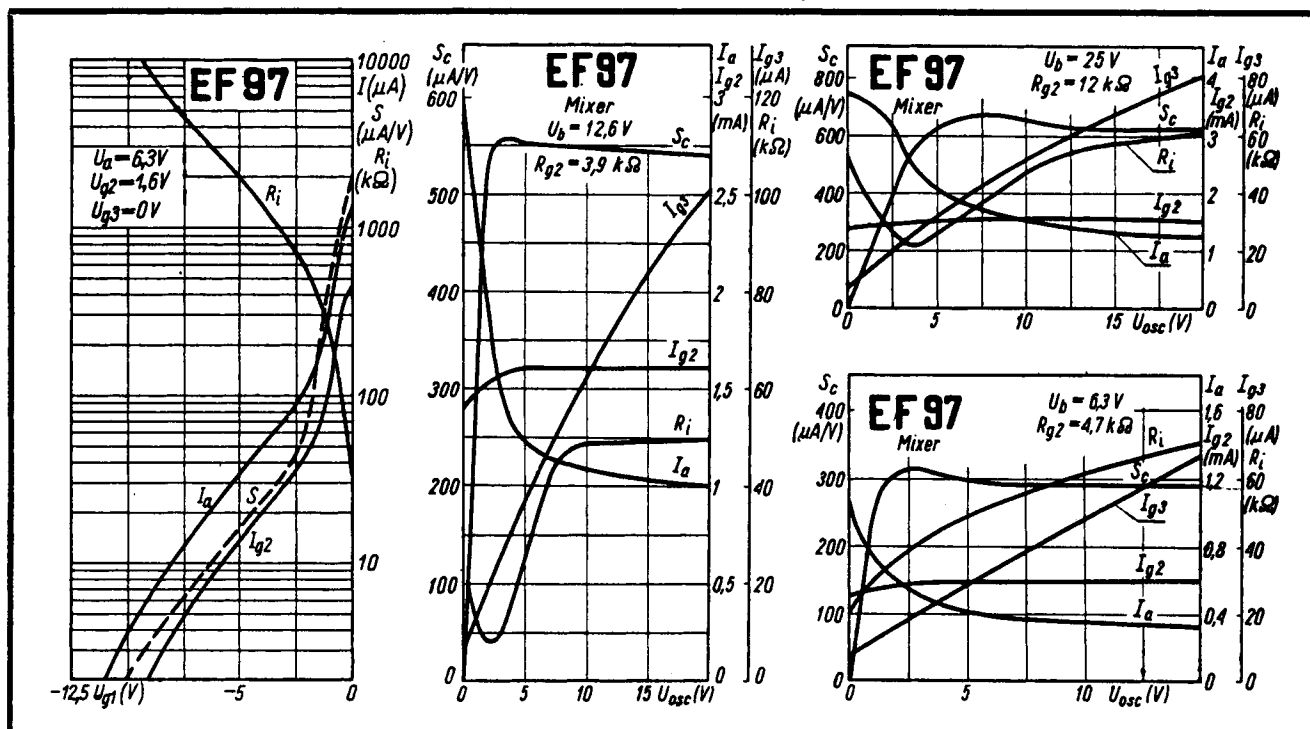
T.		U_f	I_f	Cl.	U_b	R_{g2}	U_a	U_{g2}	$U_{g3}(U_{osc})$	U_{g1}	I_a	I_{g2}	I_{g3}	$S(S_c)$	R_i	P_a						
		V	A		V	kΩ	V	V	V	V	mA	mA	μA	μA/V	kΩ	W						
EF 97	eur	6,3	0,3	$\left\{ \begin{array}{l} A \\ R_{g1} = 10 \text{ M}\Omega \\ \text{Mixer} \\ R_{g1} = 10 \text{ M}\Omega \\ R_{g2} = 0,1 \text{ M}\Omega \\ \text{stat} \end{array} \right.$	$\left\{ \begin{array}{l} 6,3 \\ 12,6 \\ 25 \end{array} \right.$	$\left\{ \begin{array}{l} 4,7 \\ 3,9 \\ 12 \end{array} \right.$	$\left\{ \begin{array}{l} 6,3 \\ 6,3 \\ 12,6 \\ 12,6 \\ 25 \end{array} \right.$	$\left\{ \begin{array}{l} 1,6 \\ 3,2 \\ 3,2 \\ 6,3 \\ 6,3 \end{array} \right.$	$\left\{ \begin{array}{l} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right.$	$\left\{ \begin{array}{l} -0,7 \div -3,5 \\ -0,7 \div -4 \\ -0,7 \div -4 \\ -0,7 \div -5 \\ -0,7 \div -5 \end{array} \right.$	$\left\{ \begin{array}{l} 0,4 \\ 1 \\ 1 \\ 3 \\ 3,3 \end{array} \right.$	$\left\{ \begin{array}{l} 0,15 \\ 0,4 \\ 0,35 \\ 1,1 \\ 0,95 \end{array} \right.$	$\left\{ \begin{array}{l} 500 \div 25 \\ 1000 \div 50 \\ 1100 \div 55 \\ 1900 \div 95 \\ 2100 \div 105 \end{array} \right.$	$\left\{ \begin{array}{l} 200 \\ 70 \\ 200 \\ 150 \\ 50 \end{array} \right.$	$\left\{ \begin{array}{l} (300 \div 15) \\ (500 \div 27,5) \\ (655 \div 33) \end{array} \right.$	$\left\{ \begin{array}{l} 30 \\ 25 \\ 50 \end{array} \right.$						
							50	50	50	maximum $I_k = 15 \text{ mA}$; $P_{g2} = 0,5 \text{ W}$; $U_{fjk} = 50 \text{ V}$												
							0,5															

Equivalents

6 ES 6	amer
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C_{g1}	C_a	$C_{g1/a}$	$C_{g1/g2}$
pF	pF	pF	pF
6,5	4	0,015	3



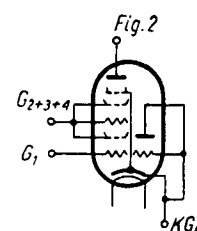
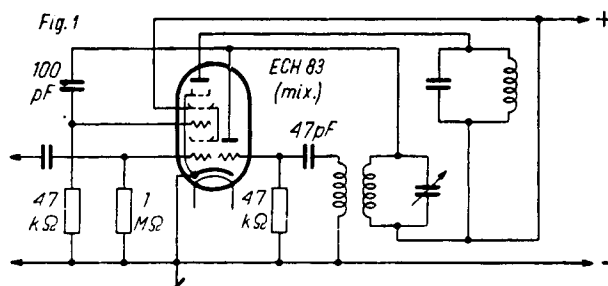


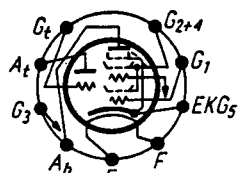
T.		U_f V	I_f A	Cl.	U_a V	U_{g2+4} V	I_a mA	I_{g2+4} mA	I_{g3} μA	$S(S_c)$ mA/V	R_i M Ω	R_{g1} M Ω	U_{osc} V	μ V/V
ECH 83	eur	6,3	0,3	Mixer	6,3	6,3	0,02	0,1	28	(0,05)	3,7	1	0,9	
				Hept. Fig. 1	12,6	12,6	0,1	0,35	32	(0,16)	3,8	1	1,2	
					25	25	0,46	1,25	54	(0,39)	1,1	1	2	
				Af ($\approx$)	6,3	6,3	0,11	0,08		0,35	0,6	1		
				Hept. Fig. 2	12,6	12,6	0,4	0,25		0,75	0,85	1		
					25	25	1,25	0,85		1,5	0,2	1		
				Osc. Triod.	6,3		0,3			0,8		0,047		14,6
					12,6		0,75			1,4		0,047		18,3
					25		2			2,2		0,047		20
				Hept. Triod.	30	30	maximum $U_f/k = 30V$; $I_k = 5mA$							
					30		maximum $I_k = 3mA$							

C_{g1H}	C_{aH}	$C_{aH/g1H}$	C_{g3H}	$C_{g1H/g3H}$	C_{gT}	C_{aT}	$C_{gT/aT}$	$C_{aH/aT}$	$C_{aH/gT}$	$C_{g1H/aT}$	$C_{g1H/gT}$	$C_{g1H/gT+g3H}$	$C_{aH/gT+g3H}$
pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF	pF
4,8	7,9	0,012	6	0,3	2,6	2,1	1	0,2	0,09	0,06	0,17	0,45	0,35

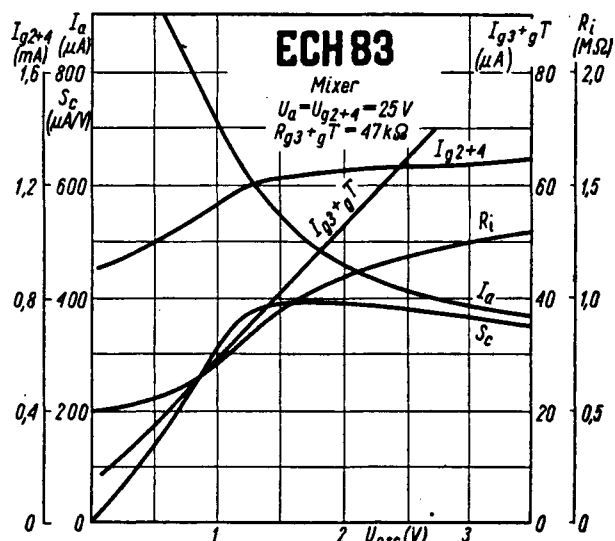
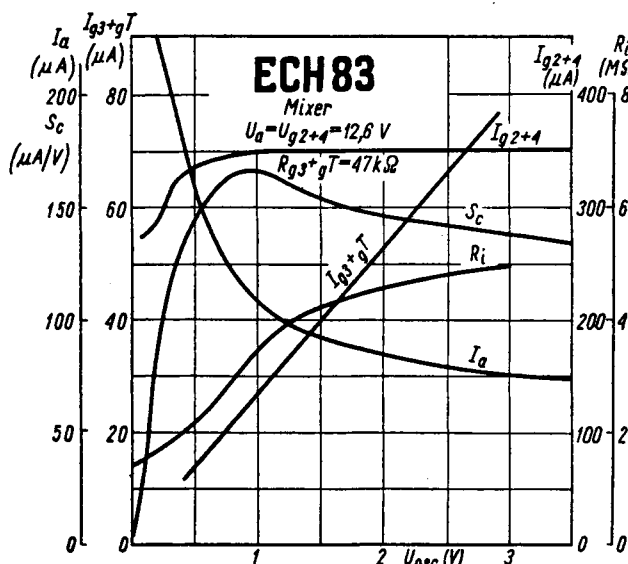
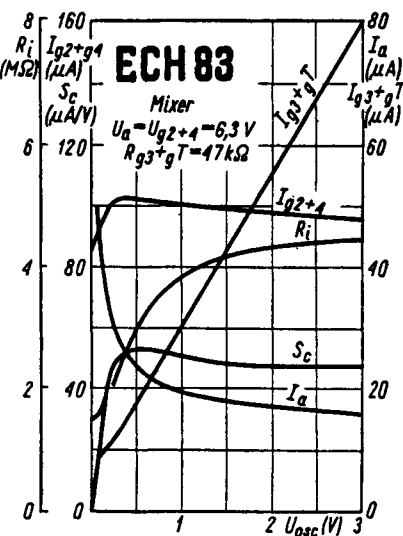
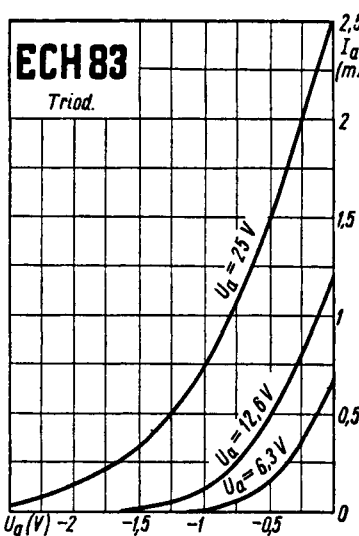
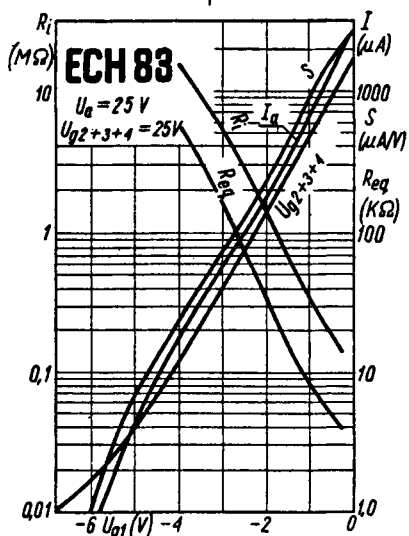
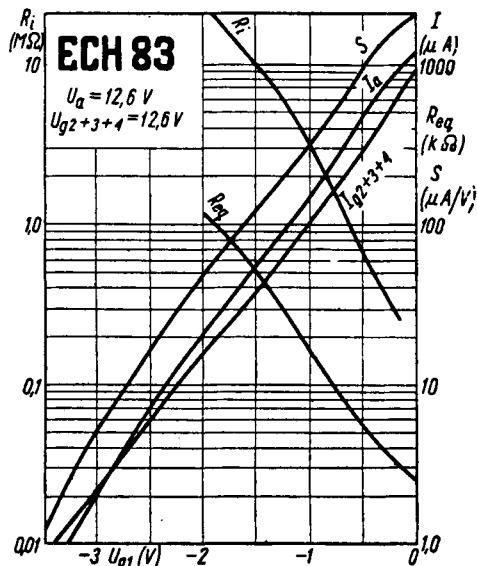
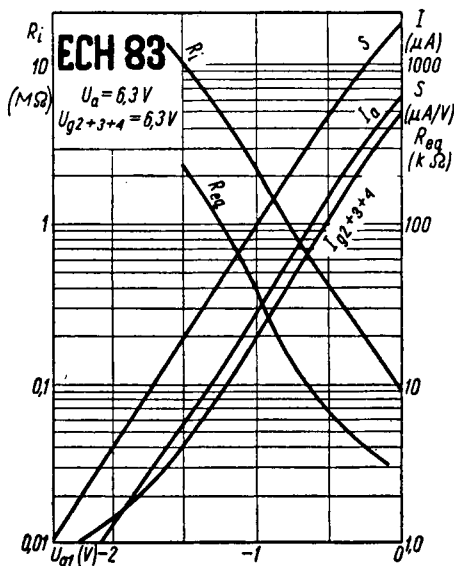
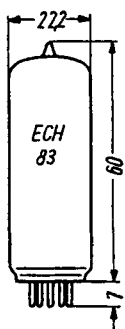
Equivalents

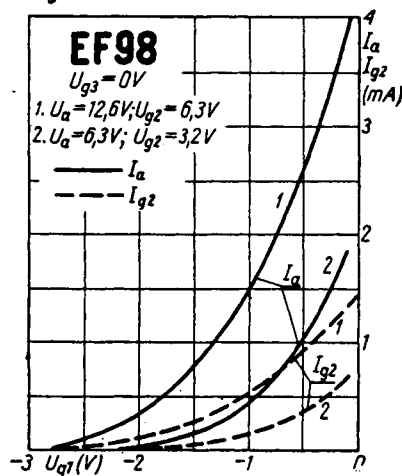
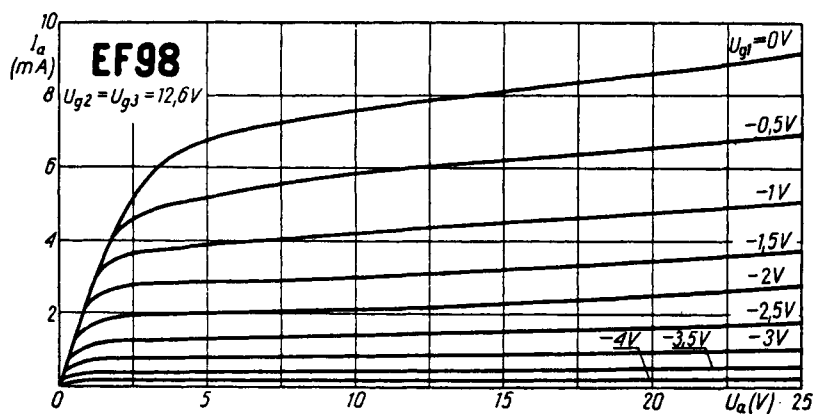
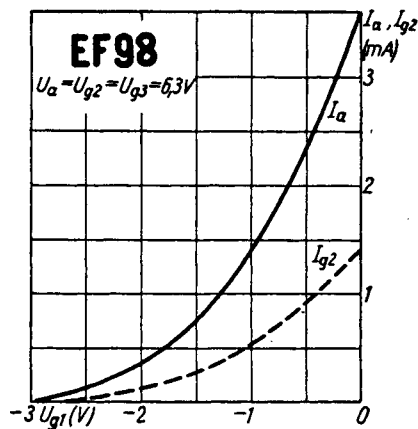
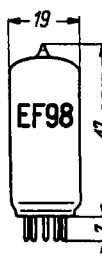
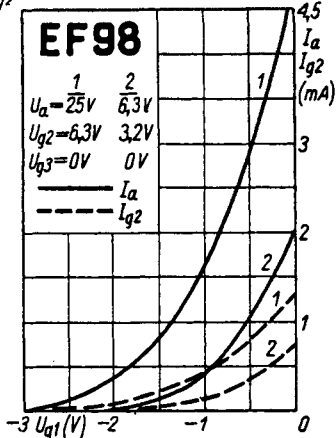
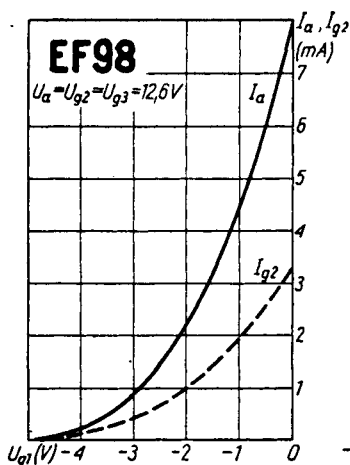
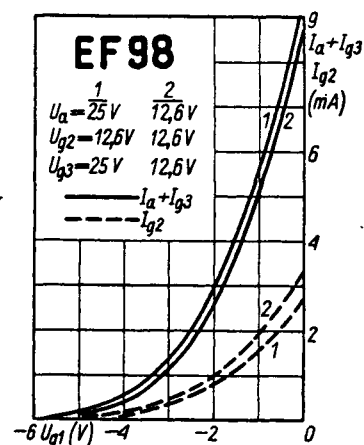
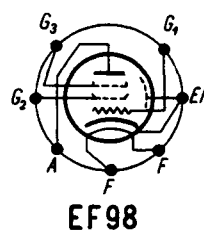
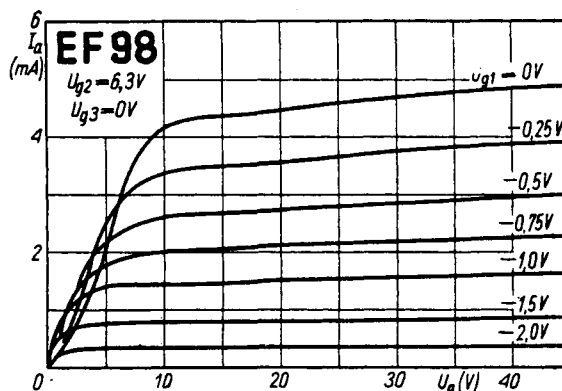
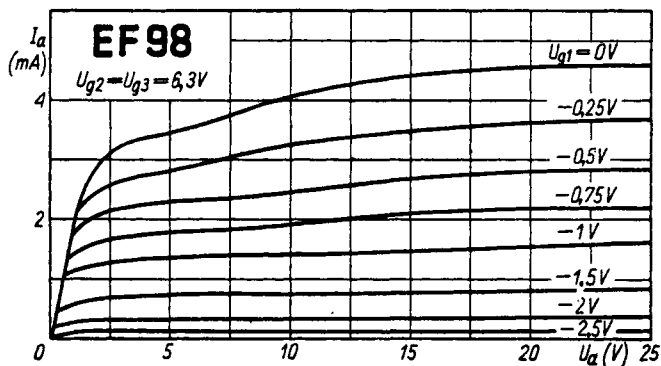
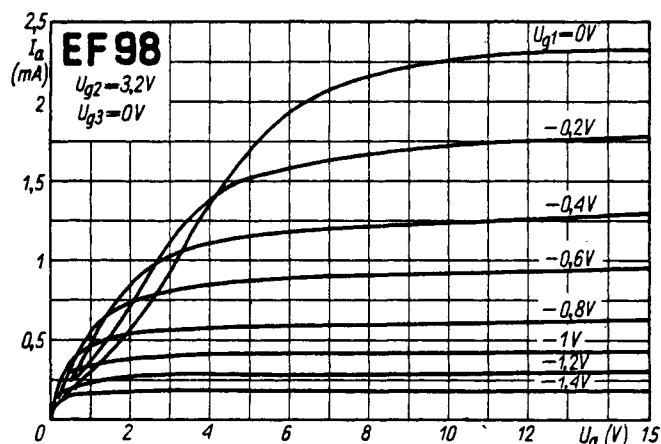
6 DS 8 amer





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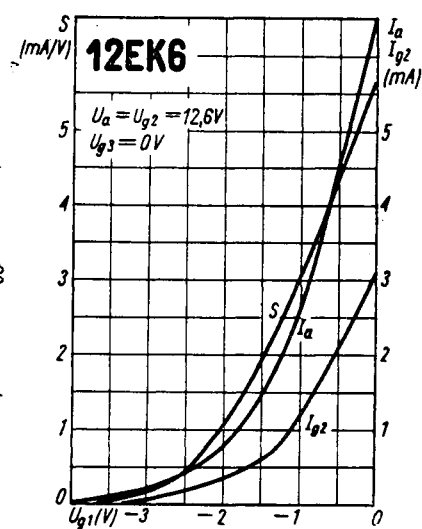
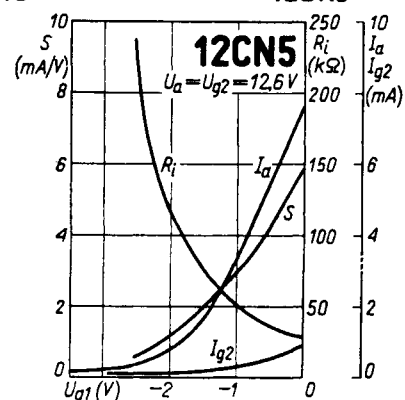
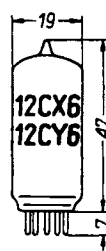
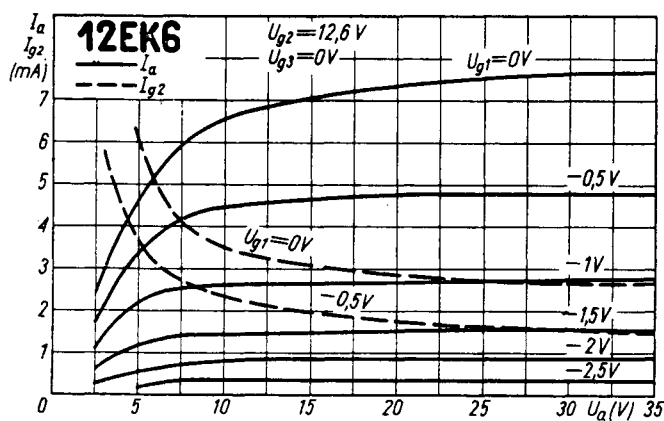
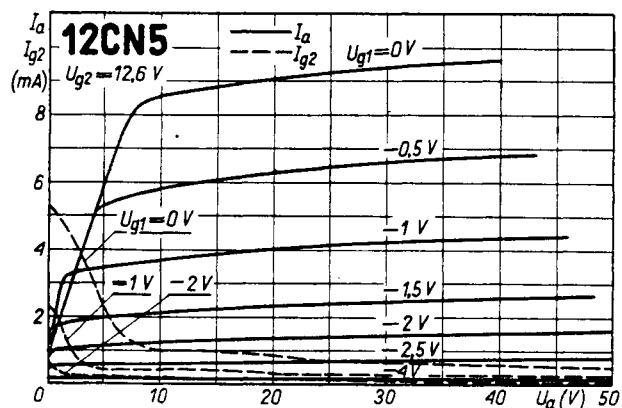
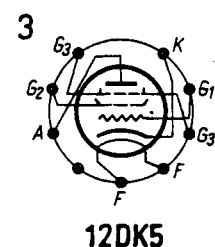
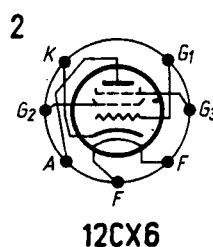
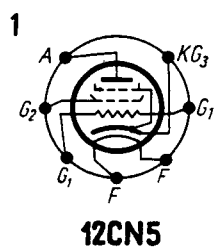




T.			$U_f^{(1)}$	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	R_{g1}	U_{f1k}
			V	mA	V	V	V	mA	mA	mA/V	k Ω	M Ω	V
12 CN 5	amer	1	12,6	450	12,6 16	12,6 16	0	4,5	0,35 maximum	3,8	40	2,2 2,2	16
12 CX 6	amer	2	12,6	150	12,6 33	12,6 33		3	1,4 maximum	3,1	40	2,2 10	30
12 CY 6	amer	2	12,6	200	12,6 33	12,6 33		1,6	0,4 maximum	3,25	140	2,2 10	30
12 DK 5	amer	3	12,6	300	12,6 16	12,6 16	0	2	0,65 maximum	3,3	100	2,2 10	16
12 DZ 6	amer	2	12,6	175	12,6	12,6		5,3	2,6	3,6	30	2,2	
12 EA 6	amer	2	12,6	175	12,6	12,6		3,2	1,4	3,8	32	2,2	
12 EK 6	amer	2	12,6	200	12,6 16	12,6 16	0	4,4	2 maximum	4,2	40	2,2 10	16
12 EZ 6	amer	2	12,6	175	12,6	12,6	-0,7	1,9	0,7	2,7	400		

¹⁾ $U_f = 10 \div 15,9$ V

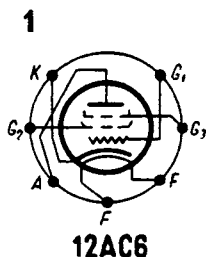
T.	C_{g1}	C_a	$C_{g1/a}$
	pF	pF	pF
12 CN 5			0,25
12 CX 6	7,6	6,2	0,05
12 CY 6	8,5	4	0,18
12 DK 5	9,5	2,6	0,045
12 DZ 6	9,5	4	0,15
12 EA 6	11	4	0,04
12 EK 6	10	5,5	0,032



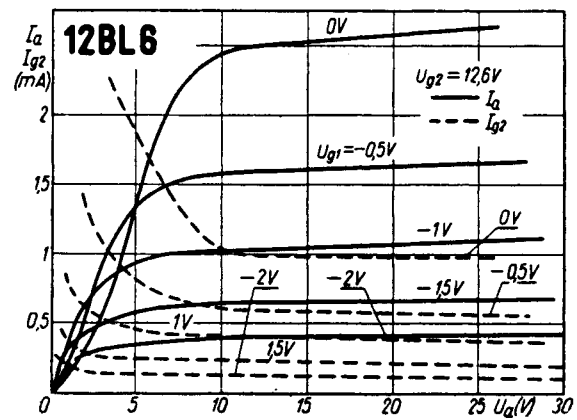
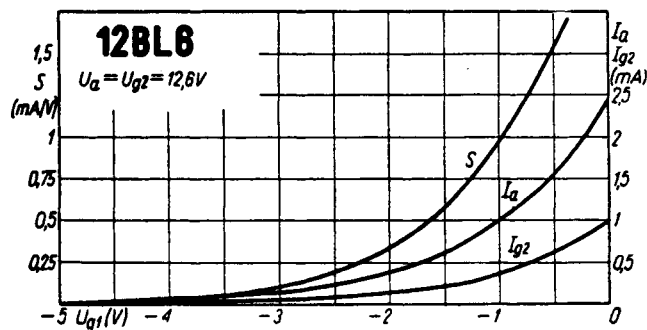
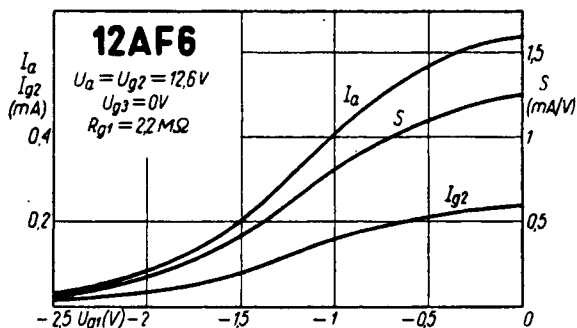
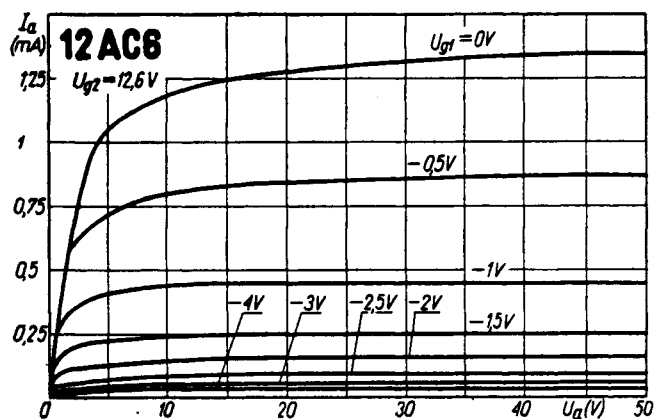
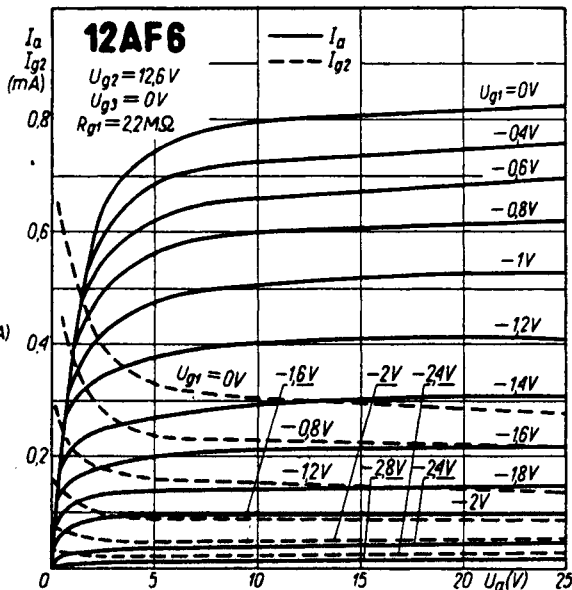
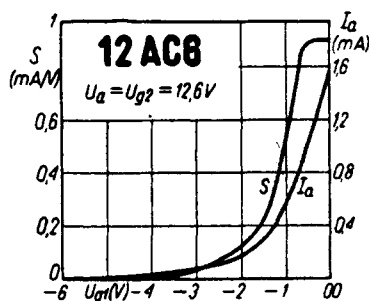
T.			$U_f^{(1)}$	I_f	U_a	U_{g2}	U_{g3}	U_{g1}	I_a	I_{g2}	S	R_i	R_{g1}	$U_{f/k}$	I_k
			V	mA	V	V	V	V	mA	mA	mA/V	MΩ	MΩ	V	mA
12 AC 6	ampr	I	12,6	150	12,6 30	12,6 30	0 0	0 ÷ -5,2	0,55 maximum	0,2 maximum	0,73 ÷ 0,01	0,5	2,2 10	30	20
12 AF 6	ampr	I	12,6	150	12,6 16	12,6 16	0 0	0 ÷ -3,5	1,1 maximum	0,45 maximum	1,5 ÷ 0,01	0,35	2,2 10	16	
12 BL 6	ampr	I	12,6	150	12,6 30	12,6 30	0 0	-0,65 ÷ 6	1,35 maximum	0,5 maximum	1,35 ÷ 0,01	0,5	2,2 10	30	20

¹⁾ $U_f = 10 \div 15,9$ V

T.	C_{g1}	C_a	$C_{g1/a}$	vide
	pF	pF	pF	
12 AC 6	4,3	5	0,005	*5
12 AF 6	4,3	5	0,004	*6
12 BL 6	5,5	4,8	0,006	*5
12 BL 6	5,5	4,8	0,006	*6



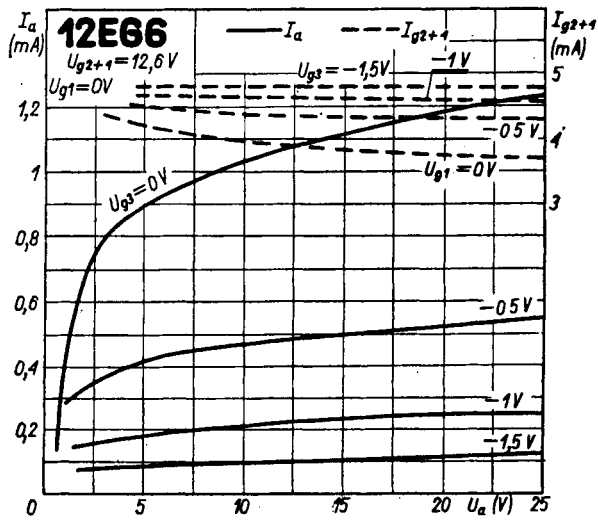
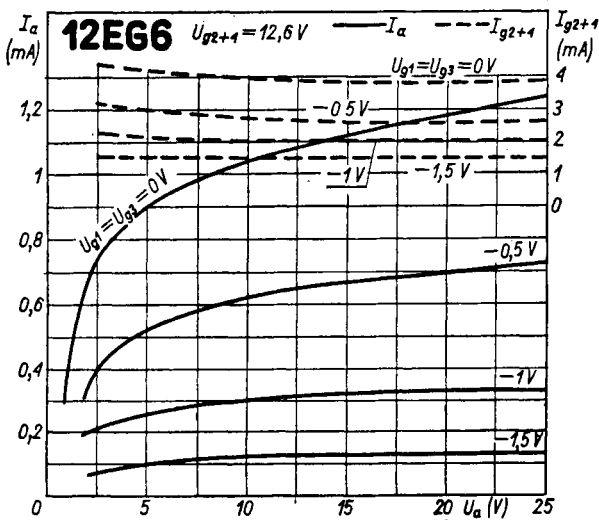
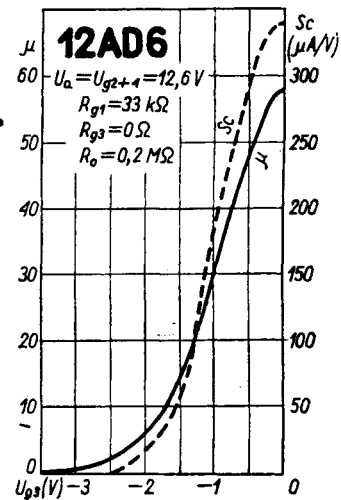
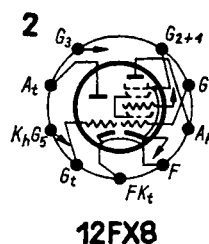
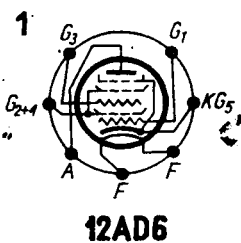
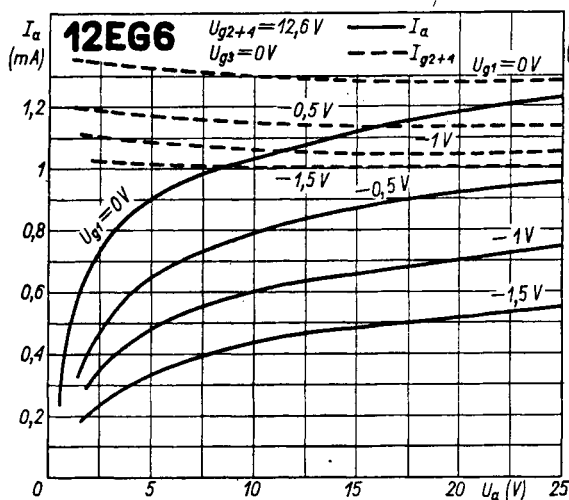
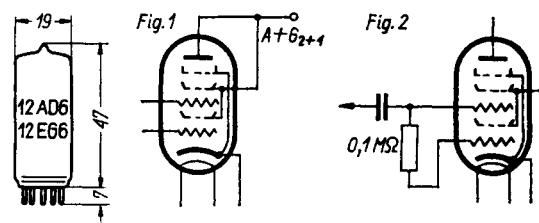
12AC6
12AF6
12BL6



T.		$U_f^{(1)}$ V	I_f mA	Cl.	U_a V	U_{g2+4} V	U_{g3} V	U_{g1} V	I_a mA	I_{g2+4} mA	$S_c(S)$ $\mu A/V$	R_i M Ω	R_{g3} M Ω	I_k mA	U_f/k V
12 AD 6	amer	1	12,6	150	mixer ¹⁾ osc. Fig. 1	12,6	12,6		0,45	1,5	260	1	2,2	2	
						12,6		0			(3800)	$\mu = 9$		5	
12 AG 6	amer	1	12,6	150	mixer ²⁾ AI (Σ) Fig. 2	30	30	0 ÷ -30		maximum			10	20	30
						12,6	12,6		0,55	1,4	300				
12 EG 6	amer	1	12,6	150	mixer	12,6	12,6	-0,6	0,55	2,8	(800)	0,15			
						30	30	0 ÷ -30		maximum			10	20	30
12 FA 6	amer	1	12,6	150	mixer heptod. triode.	12,6	12,6	-0,85	0,67	1,2	300				
						12,6	12,6	-0,5	0,03	1,25	300	0,5			
12 FX 8	amer	2	12,6	300				0,8	1,3		(1400)	$\mu = 10$			

1) $U_f = 10 \div 15,9$ V; 2) $I_{g1} = 50 \mu A$; $U_{osc} = 1,6$ V; $R_{g1} = 33$ k Ω ; 3) $I_{g1} = 50 \mu A$; $R_{g1} = 20$ k Ω

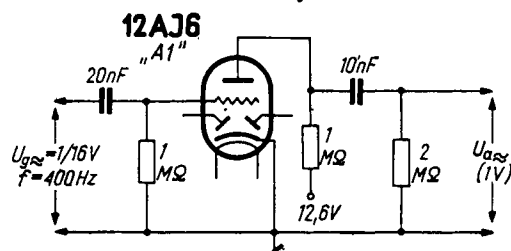
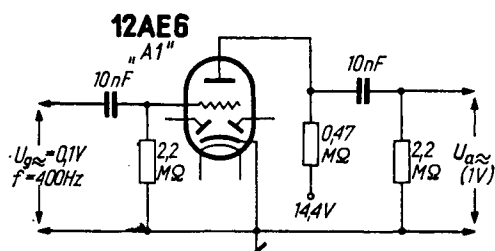
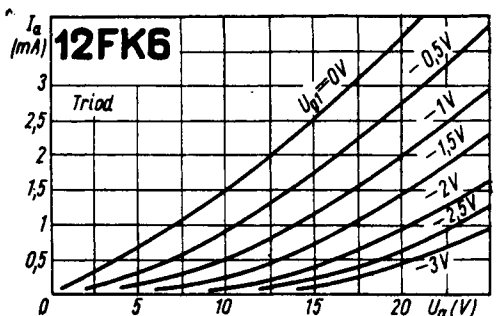
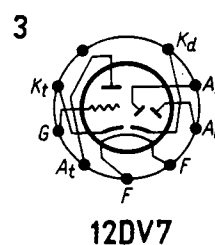
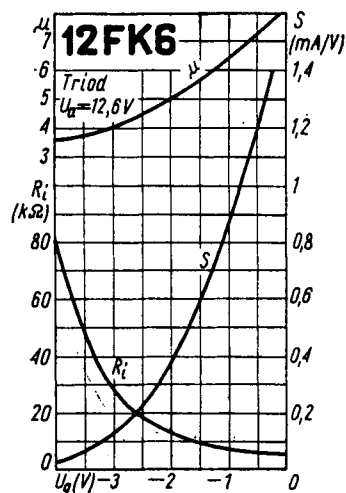
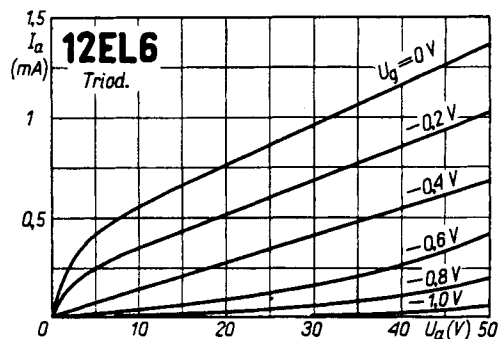
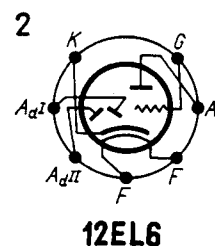
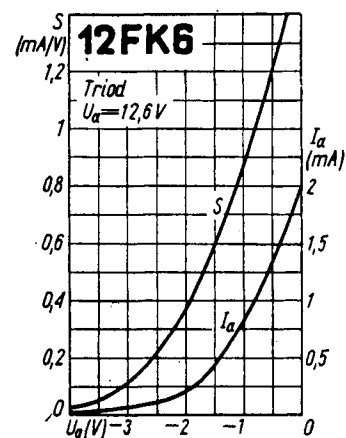
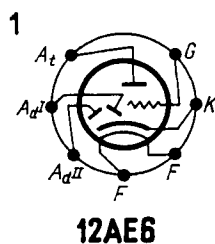
T.	C_{g1} pF	C_{g3} pF	C_a pF	$C_{g3/a}$ pF	$C_{g1/k}$ pF	$C_{g1/a}$ pF	$C_{g1/g3}$ pF	C_k pF	vide
12 AD 6	5,5	8	8	0,3	3	0,1	0,15	15	* 5
	5,5	8	13	0,25	3	0,05	0,15	20	* 6
12 EG 6	5,7	6,5	12	0,25	3,2	0,04	0,15	23	* 6



T.			$U_f^{1)}$	I_f	Cl.	U_a	U_g	I_a	S	μ	R_i	R_g	U_f/k	I_k
			V	mA		V	V	mA	mA/V	V/V	k Ω	M Ω	V	mA
12 AE 6	amer	I	12,6	150	triad. diod.	12,6 30 10	0	0,75 2	1 maximum	15	15	10	30	20
12 AJ 6	amer	I	12,6	150	triad.	12,6 30 10	0	0,75 2	1,2 maximum	55	45	10	30	20
12 EL 6	Syl	2	12,6	150	diod.	12,6 30 10		0,4 2	0,75 1,2	14	18,6	2,2		
12 DV 7	amer	3	12,6	150	triad.	12,6 16 10		1,3 2	1,2 maximum	7,4	6,2	2,2	16	
12 FK 6	amer	I	12,6	150	triad. diod.	12,6 16 10	—16	1 2	1,3 1,9	10 15	7 7,6			
12 FM 6	amer	I	12,6	150	triad.	12,6								
12 FT 6	amer	I	12,6	150	triad.	12,6								

¹⁾ $U_f = 10 \div 15,9$ V

T.	C_g	C_a	C_g/a	$C_a T/a D$
	pF	pF	pF	pF
12 AE 6	1,8	1,1	2	0,9
12 AJ 6	2,2	0,8	2	0,9
12 EL 6	2,2	1	1,8	1
12 FK 6	1,8	0,7	1,6	0,9

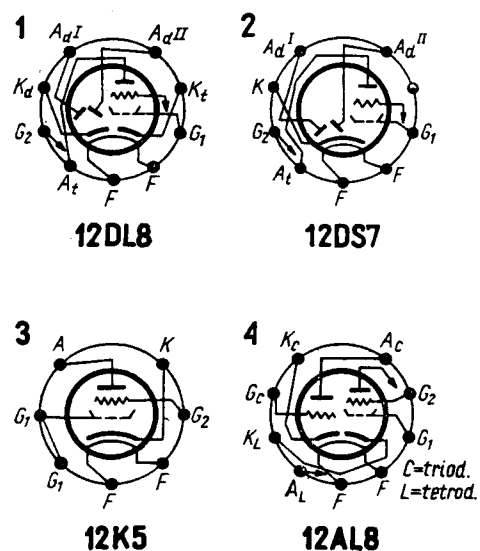
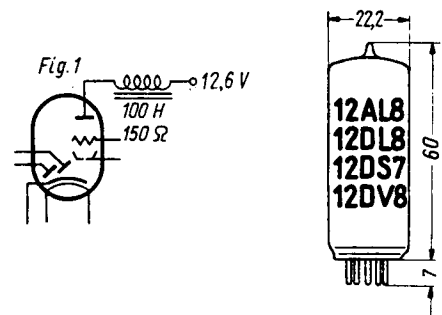
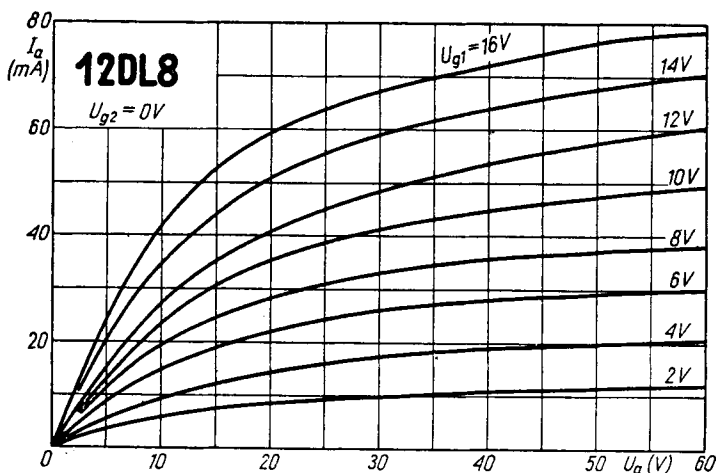
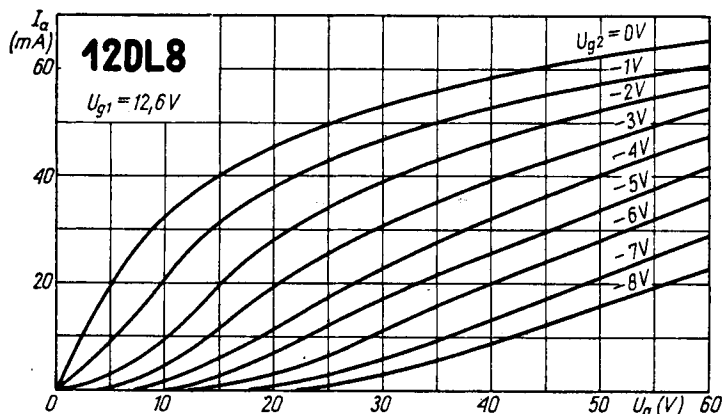


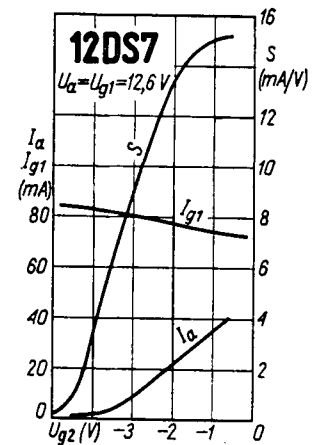
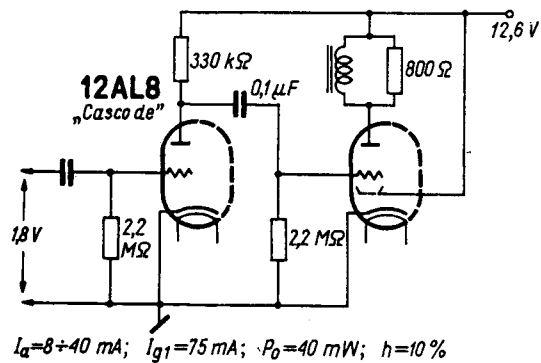
T.			$U_f^{(1)}$ V	I_f mA	Cl.	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g1} mA	$S_{(g2/a)}$ mA/V	μ (ϵ_s/a)	R_i Ω	R_{g2} M Ω	R_o k Ω	P_o mW	h %	$U_{g2^{max}}$ V
12 DV 8	Syl	I	12,6	375	stat. AI diod.	12,6 12,6 10 16	0 ²⁾ 0 ²⁾ —16	12,6 12,6 16	9 6,8 3	53 54	8,5	7,6	900	4,7 4,7	1,25	5	3	1,2
12 AL 8	amer	4	12,6	550	stat. AI	12,6 12,6	—0,5 —2	12,6 12,6	40 8÷40	75 75	15	7,2	480	2,2 2,2	0,8	40	10	2,5
12 DL 8	amer	1	12,6	550	AI	12,6 ³⁾	0 ²⁾	12,6	13÷23	77				1,8	1,25	10	8	2,8
12 DS 7	RCA	2	12,6	400	diod.	10			3									
12 K 5	amer	3	12,6	400		16 30	—16 —20	16 16										
12 AL 8					triode.	12,6		—0,9	0,5		1	13						

¹⁾ $U_f + 10 \div 15,9$ V; ²⁾ $R_k = 18 \Omega$; ³⁾ vide Fig. 1

T.	C_{g2} pF	C_{aT} pF	$C_{g2/aT}$ pF	C_{aD^I} pF	$C_{aD^{II}}$ pF	$C_{aD^I/aD^{II}}$ pF	$C_{aD^I/g2}$ pF	$C_{aD^{II}/g2}$ pF
12 DL 8	12	1,3	14	1,6	1,6	0,03	0,02	0,006
12 DS 7	13	2	12,5	0,5	0,5	0,1	0,15	0,15
12 DV 8	9	1	12	1,7	0,015	0,1	0,015	0,015

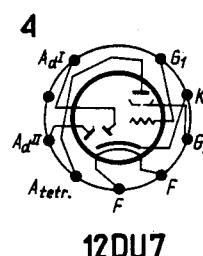
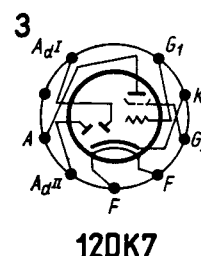
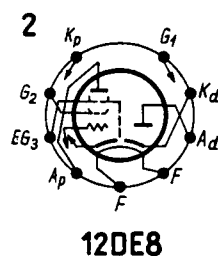
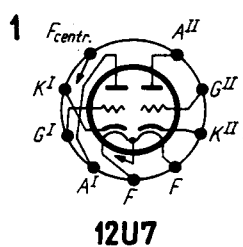
T.	C_{g2} pF	C_a pF	$C_{g2/a}$ pF	C_g pF	$C_{g/a}$ pF	$C_{g2/g}$ pF
12 AL 8 { tetr. triode.	13	1,6 5,7	14		1,8 5,7	0,01



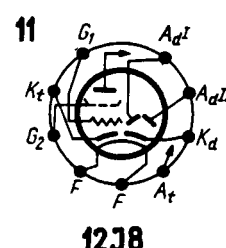
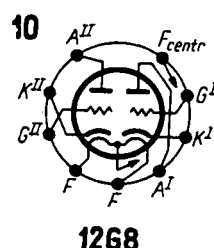
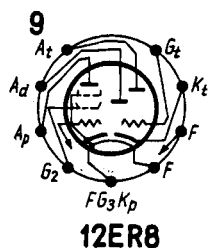
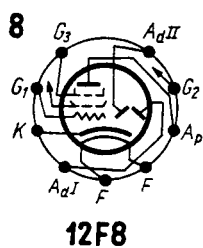
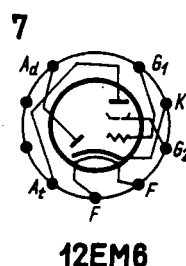
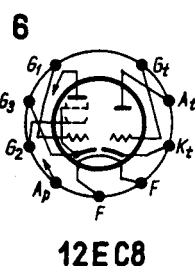
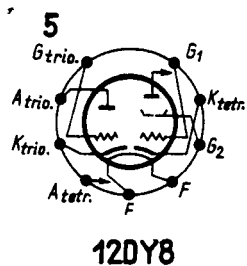
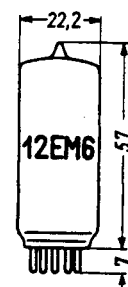
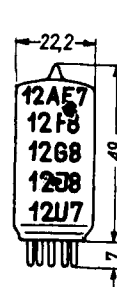


T.				$U_f^{1)}$ V	I_f mA		U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_i kΩ	R_{g1} MΩ
12 AE 7	C + C	Syl.	I	12,6	450	I sect. II sect.	12,6 12,6			1,9 7,5		4 6,5	3,25 0,98	1,5 1
12 DE 8	A + Fv-mu	amer	2	12,6	200	pent. diod.	12,6 10	12,6	-0,8 ÷ -6	1,3 3	0,5	1,5	300	
12 DK 7	A + A + L	TS	3	12,6	500	tetr. diod.	12,6 10	12,6		6 5	1	5	4	2 ²⁾
12 EM 6	A + L	amer	7	12,6	500		30	30		maximum ($U_f/k = 30 \text{ V}$)				
12 DU 7	A + A + L	amer	4	12,6	275	tetr. diod.	12,6 10	12,6		12 5	1,5	6,2	6	2,2 ³⁾
12 DY 8	C + L	amer	5	12,6	350	triode. tetr.	12,6 12,6	12,6	0	1,2 14	2	6	5	2,2
12 EC 8	C + F	amer	6	12,6	225	triode. pent.	12,6 12,6	12,6	(Rk) ⁴⁾	2,4 0,66		4,7 2	5,3 750	0,03
12 F 8	A + A + F	amer	8	12,6	150	pent. diod.	12,6 10	12,6	0	1 2	0,38	1	330	
12 FR 8	A + C + F	amer	9	12,6	320	triode. pent.	12,6 12,6	12,6	-0,6 -0,7	1 1,9		1,2 2,7	8,3 400	
12 G 8	C + C	amer	10	12,6	400	I-II sect.	12,6		0	3		2,6	8,5	
12 J 8	A + A + L	amer	11	12,6	325	tetr. diod. I diod. II	12,6 5 5	12,6		12 8,5 12	1,5	5,5	6	2,2 ³⁾
12 U 7	C + C	amer	I	12,6	150	I-II sect.	12,6 30		0	maximum ($U_f/k = 30 \text{ V}$)				
											maximum ($I_k = 15 \text{ mA}; U_f/k = 30 \text{ V}$)			

¹⁾ $U_f = 10 \div 15,9 \text{ V}$; ²⁾ $R_o = 3500 \Omega, P_o = 10 \text{ mW}, h = 10\%, P_a = 0,5 \text{ W}$; ³⁾ $R_o = 2700 \Omega, P_o = 20 \text{ mW}, U_{g1} \approx 1,6 \text{ V}; h = 5\%$. ⁴⁾ $R_k = 4700 \Omega$

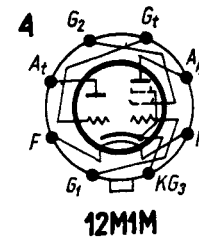
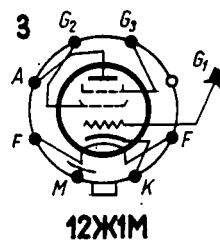
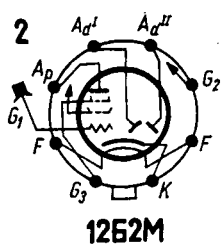
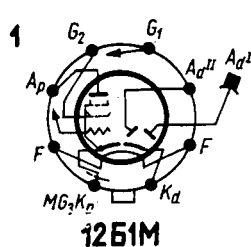


T.		C_{g1}	C_a	$C_{g1/a}$	$C_{aD^I/aD^{II}}$	$C_{aD^I/g1}$	$C_{aD^{II}/g1}$
		pF	pF	pF	pF	pF	pF
12 AE 7		4,7	0,75	3,9	-	0,04	0,015
12 DE 8		4,2	0,85	3,4			
12 F 8		5,5	5,7	0,06	0,3	0,04	0,015
12 J 8		4,5	3	0,06			
12 U 7		10,5	4,4	0,7			
		1,6	0,4	1,5			
		1,6	0,32	1,5			



T.				U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	S	R_i	μ
				V	mA	V	V	V	mA	mA	mA/V	kΩ	V/V
12 B 1 M	A + A + L	CCCP	1	12,5	220	25	25	-1	1,1	0,4	1,9	7,5	17
12 B 2 M	A + A + F	CCCP	2	12,5	150	25	25	-1	1,3	0,3	0,8	150	
12 Ж 1 M	F	CCCP	3	12,5	225	25	25	-1,5	2	0,5	1,4	200	
12 K 1 M	Fv-mu	CCCP	3	12,5	225	25	25	-1,5	2	0,5	1,4	200	
12 M 1 M	C + L	CCCP	4	22,5	225	25	25	-1	1,1	0,3	1,9	7,5	
12 SW 7 ¹⁾	A + A + C	RCA		12,6	150	26,5	25	-1	1,1	0,3	1,1	15,5	

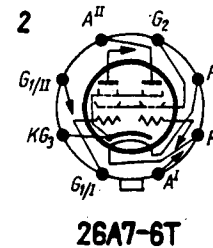
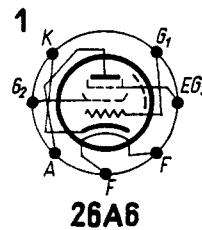
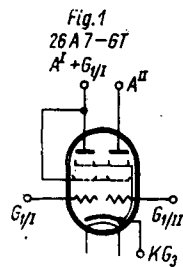
vide gr. 285.



T.				U_f V	I_f mA	U_a V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_L kΩ	μ V/V	U_f/k V	P_{g2} W	P_a W
26 A 6	Fv-mu	amer	1	26,5	70	$\begin{cases} 26,5 \\ 250 \\ 300 \end{cases}$	$\begin{cases} 26,5 \\ 100 \\ 100 \end{cases}$	$\begin{cases} 0 \div -8 \\ -2 \div -25 \end{cases}$	$\begin{cases} 1,7 \\ 10,5 \end{cases}$	$\begin{cases} 0,7 \\ 4 \end{cases}$	$\begin{cases} 2 \div 0,02 \\ 4 \div 0,04 \end{cases}$	$\begin{cases} 250 \\ 1000 \end{cases}$		90	0,4	3
26 A 7-GT	L + L	amer	2	26,5	600	$\begin{cases} 26,5 \\ 26,5 \\ 50 \end{cases}$	$\begin{cases} 26,5 \\ 50 \\ 50 \end{cases}$	$\begin{cases} -4,5 \\ -3 \end{cases}$	$\begin{cases} 20,5 \\ 32 \end{cases}$	$\begin{cases} 5,5 \\ 8 \end{cases}$	$\begin{cases} 5,7 \\ 8 \end{cases}$	$\begin{cases} 18 \\ 2,6 \end{cases}$	21	(Fig. 1) 90	0,5	2
26 D 6 ¹⁾	H	amer	3	26,5	70	$\begin{cases} 26,5 \\ 300 \end{cases}$	$\begin{cases} 26,6 \\ 100 \end{cases}$	$\begin{cases} 0 \div -6 \end{cases}$	$\begin{cases} 0,45 \end{cases}$	$\begin{cases} 1,6 \end{cases}$	$\begin{cases} 0,27 \end{cases}$			90	1	1
28 D 7	L + L	amer	4	28	400	28	28	-3,5	12,5	1,9	3,4	4,2				
5797 ²⁾	F	amer	5	26,5	45	$\begin{cases} 26,5 \\ 55 \end{cases}$	$\begin{cases} 26,5 \\ 55 \end{cases}$	0	2,75	0,9	3,45	70				
5798 ³⁾	C + C	amer	6	26,5	90	26,5		0	2,3		3,15	6,7	21			
5904 ⁴⁾	C	amer	7	26,5	45	$\begin{cases} 26,5 \\ 55 \end{cases}$		0	3		5	3,8	19			
5905 ⁵⁾	F	amer	8	26,5	45	$\begin{cases} 26,5 \\ 55 \end{cases}$	$\begin{cases} 26,5 \\ 55 \end{cases}$	0	2,3	0,9	2,85	110				
5907 ⁵⁾	F	amer	8	26,5	45	$\begin{cases} 26,5 \\ 55 \end{cases}$	$\begin{cases} 26,5 \\ 55 \end{cases}$	0	2,7	1,1	3	125				
5908 ⁵⁾	F	amer	9	26,5	45	$\begin{cases} 26,5 \\ 55 \end{cases}$	$\begin{cases} 26,5 \\ 55 \end{cases}$	0	2,3	1,8	1,75	30				
7227	L	amer	10	27,5	175	27,5	27,5	-2,5	8,8	1,5	5	85				

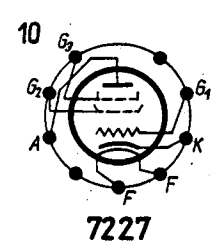
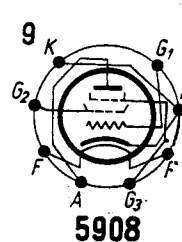
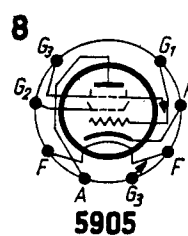
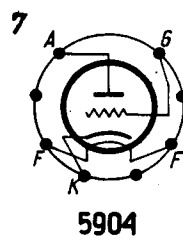
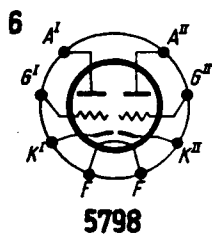
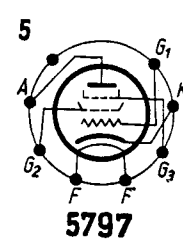
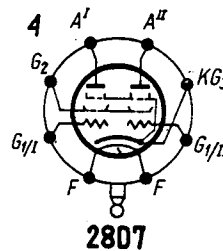
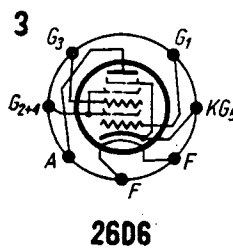
¹⁾ vide 6 BE 6, gr. 276; ²⁾ vide * 4, a, b, c, e, f, g; ³⁾ vide * 4, a, b, c, d, e, f, g; ⁴⁾ vide * 4, a, b, c = 5000, e; ⁵⁾ vide * 4, a, b

T.	C_{g1} pF	C_a pF	$C_{g1/a}$ pF
26 A 6	6	5	0,0035
26 A 7-GT	16	13	1,2
5904	2,2	0,8	1,8
5907	4	3	0,05



Equivalents

SD 988 C ⁴⁾	Syl = 5904
SD 990 B ⁴⁾	Syl = 5907
SN 983 B ⁴⁾	Syl = 5905
SN 984 ⁴⁾	Syl = 5908
Z 1723	amer = 5797
Z 1724	amer = 5798
28 D 7-W ⁴⁾	amer = 28 D 7
6055 ⁵⁾	amer = 5904
6056 ⁵⁾	amer = 5907



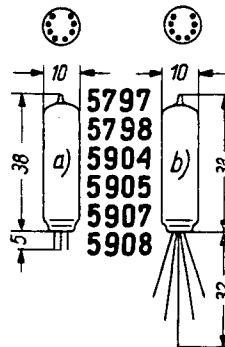
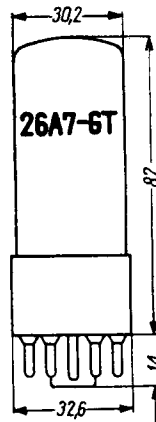
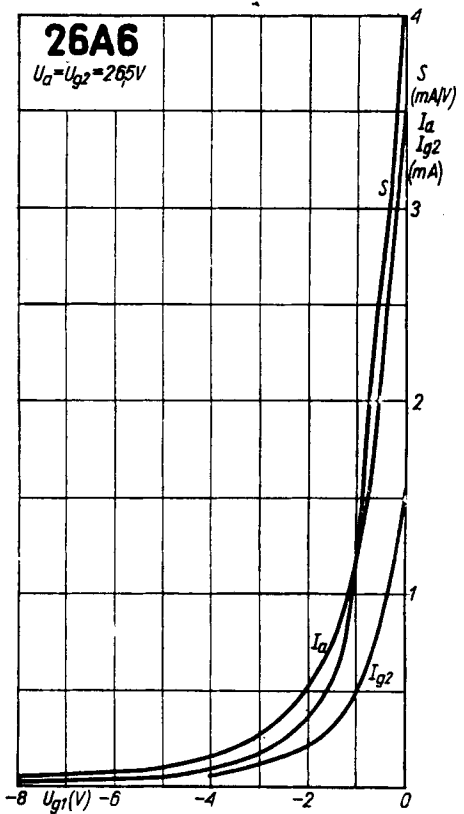
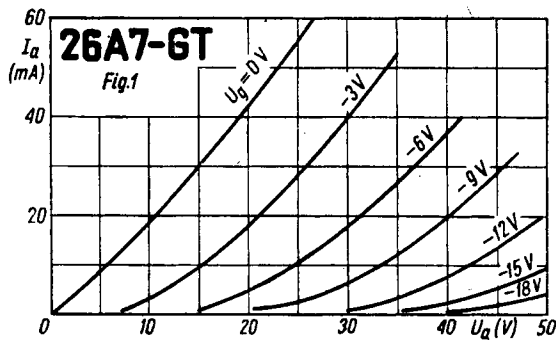
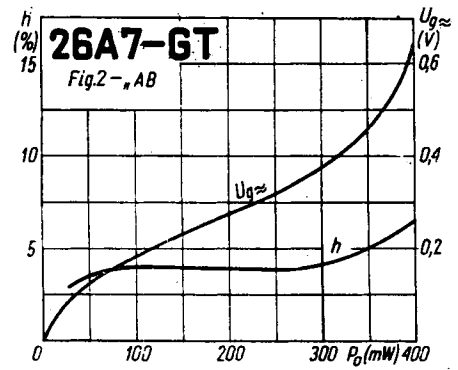
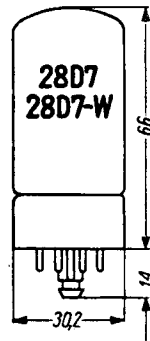
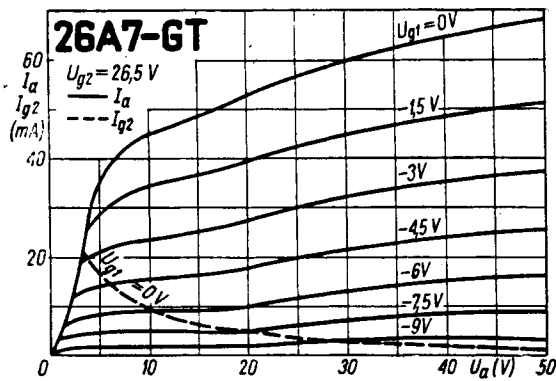
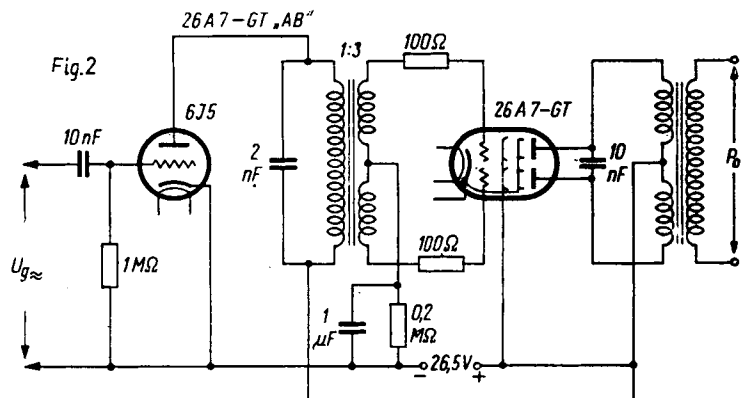


Fig. 2
26A7-GT „AB”

$U_a = U_{g2}$	U_{g1}	I_a	I_{g2}	R_o	P_o
V	V	mA	mA	kΩ	W
26,5	-7	19 ÷ 30	2 ÷ 17	2,5	0,5

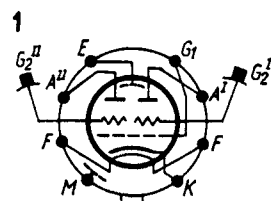


T.			U_f	I_f	U_a	U_{g1}	U_{g2}	I_a	I_{g1}	I_{g2}	S	μ	R_{g1}	I_k	C_{g1}
			V	mA	V	V	V	μA	$10^{-15} A$	μA	$\mu A/V$	(a/g_2)	Ω	mA	pF
BDM 20	Fer	1	8	120	6 8 8 12 15	0 ÷ -2	4 6 5 4 8	130 ÷ 250 ¹⁾ 400 600		290	55 maximum 100 100 75	1,8	5×10^{14}	1	4,5
MR 01	RFT	2	20	100	< 12 ²⁾	-2,2 -2,2 -2,2	< 12 ²⁾	-1000			maximum ³⁾			1,5	
2Э2П	CCCP	3	2	55	6	-3	4	20 ÷ 70	-80	750	15 ÷ 30	1,3			4
6196	Maz	4	3	50	9 9	-4 -2	6 6	40	-2	500	20 maximum		10^{15}		3,7

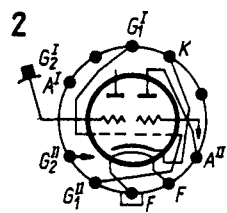
¹⁾ vide Tabl. I; ²⁾ vide Fig. 1; ³⁾ $P_{g1} = 20$ mW, $P_a = 40$ mW

Tabl. I

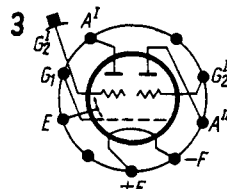
U_{g1}	U_{g2}	I_a	I_{g1}
V	V	μA	μA
0	-2	230	150
-2	-2	130	250
-2	0		



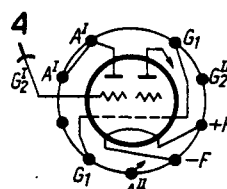
BDM20



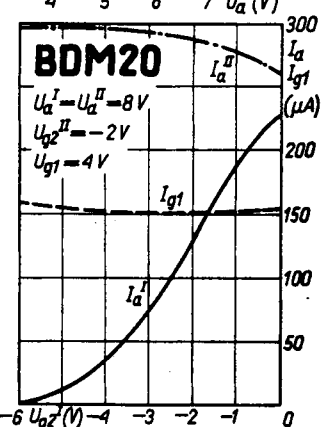
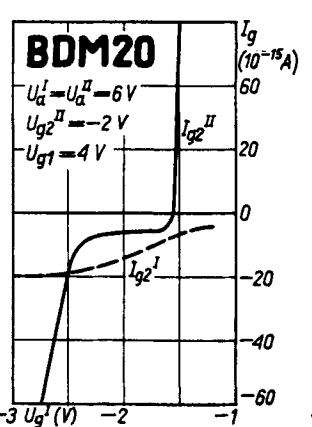
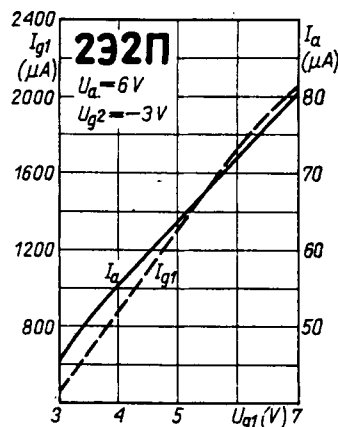
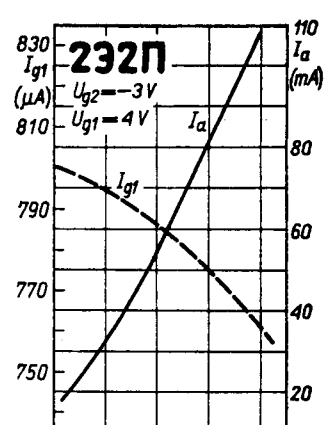
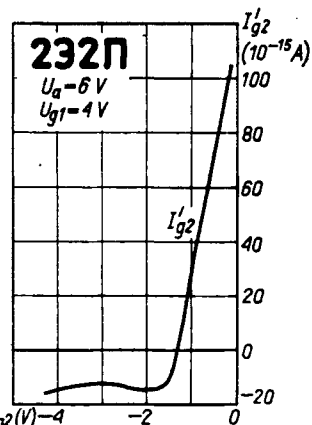
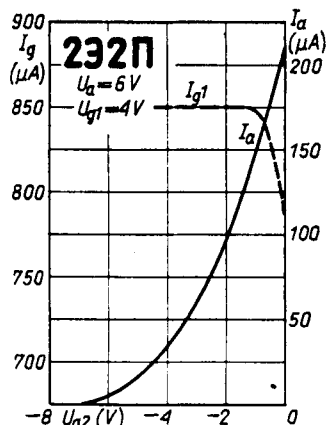
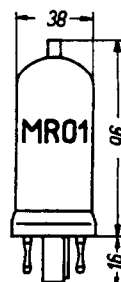
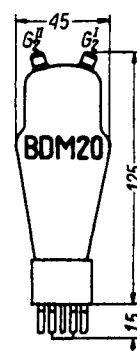
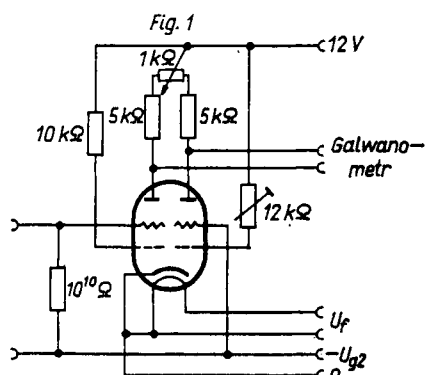
MR01



232П



6196



T.			U_f	I_f	U_a	U_g	I_a	I_g	S	μ	R_g	$U_g/x^1)$
			V	mA	V	V	μA	$10^{-15} A$	$\mu A/V$	V/V	Ω	V
DF 703 ¹⁾	TH		1,25	10	10,5	-3	200	-250	17,5	1,8		
3M-4	CCCP	1	1,3	24	8	-3	300	-100	80	2,2		-1,4
3M-7	CCCP	7	1	18	7	-2	200	-50	80	1,6		
ET 1	GEC	2	1	100	4	-2			50			
					6	-2			100			
					6	-2			70	1		
ET 3	GEC	6	1,25	25	6	-3,5					$>10^{14}$	
					9			maximum				
ME 1400 ²⁾	eur		4,5	160	45	-2	100	-5000		20		
ME 1401	Mul	3	1,25	13	9	-2 ÷ -3,75	100	-85	70 ÷ 90	1,7 ÷ 2,7		-1,3
					25		250	-125		maximum		-1,6
ME 1404	Mul	3	1,25	14	9	-2 ÷ -3,75	100	-160	60 ÷ 90	1,6 ÷ 2,7		-1,4
					25			-1000		maximum		-1,7
VX-55	Vic	7	1,25	10	7,5	-2,2	70 ÷ 140	-50	100 ÷ 130	1,8 ÷ 2,2		
					50			-100		maximum		
XE 2	Hiv	7	1,25	15	9	-2,9	100	-150	90		$>10^{14}$	
XE 3	Hiv	7	1,25	15	6	-3,9	40	-10	32		10^{14}	
					7,5			maximum				
XE 4	Hiv	7	1,25	15	7,5	-2,9	100	-100	70		10^{14}	
					7,5			maximum				
4060	Mul	4	0,7	300	4	-2,5			28	0,5		
4060	Phi	5	0,7	300	6			maximum				

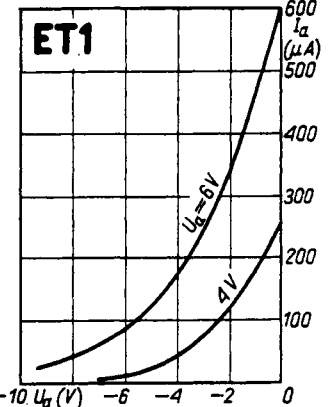
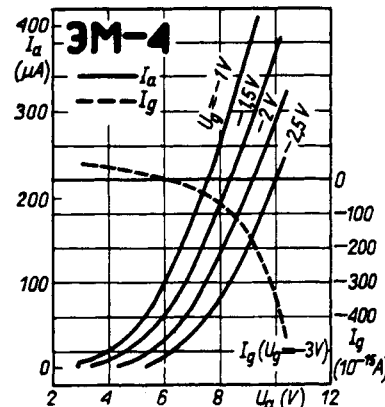
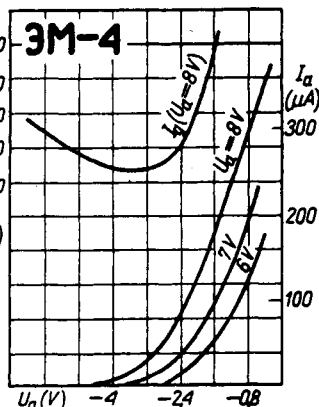
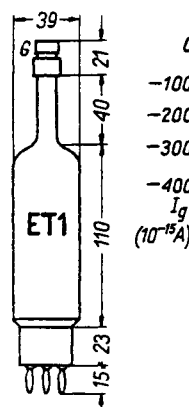
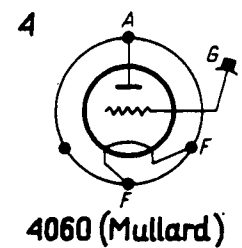
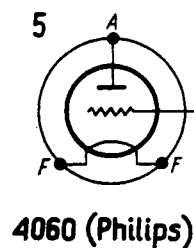
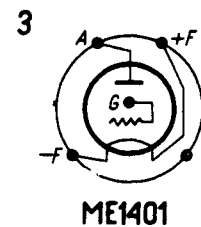
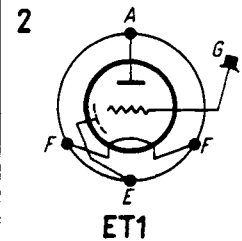
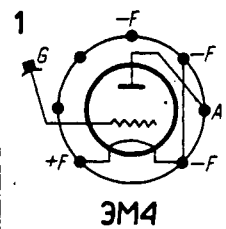
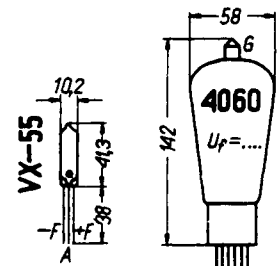
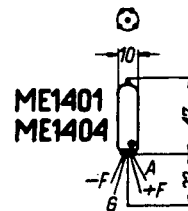
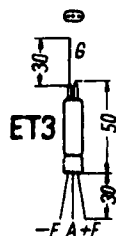
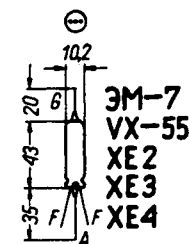
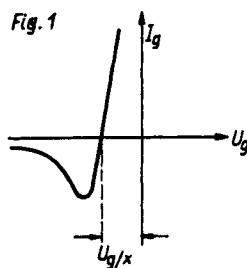
¹⁾ vide Fig. 1; ²⁾ vide gr. 435

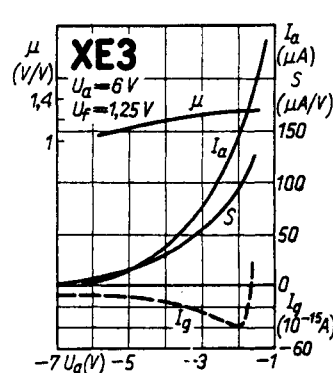
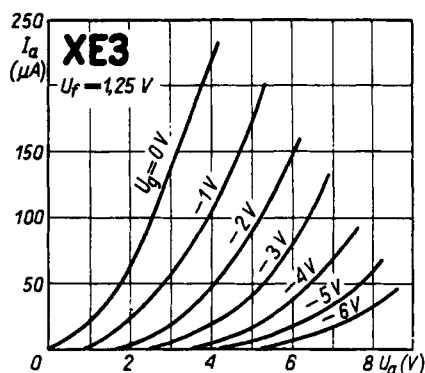
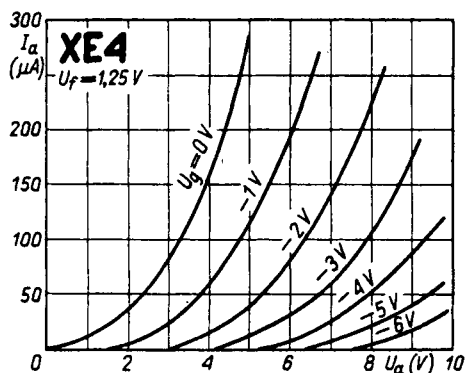
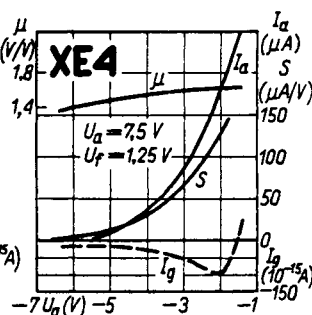
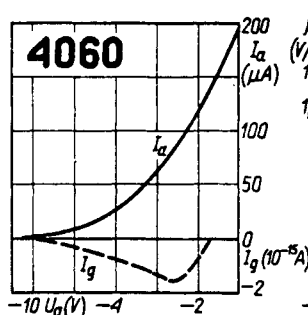
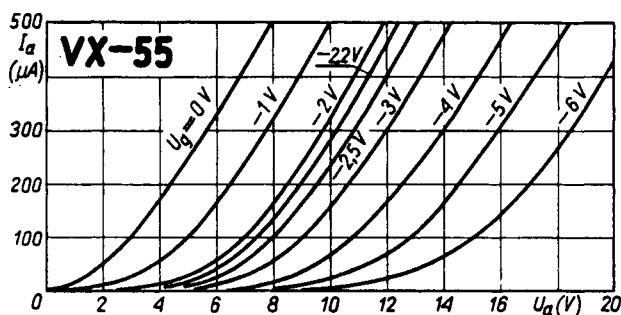
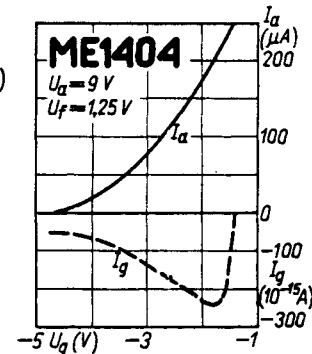
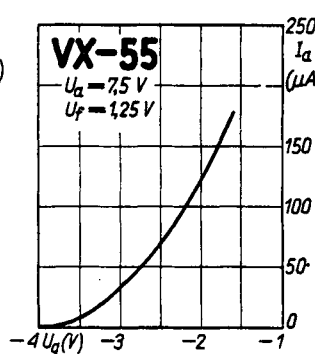
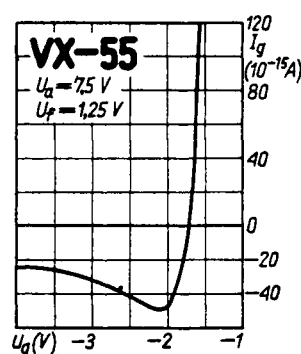
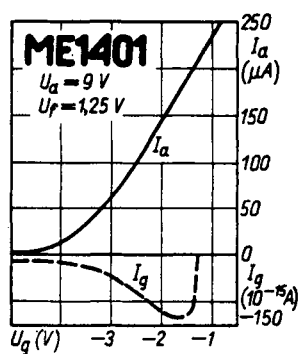
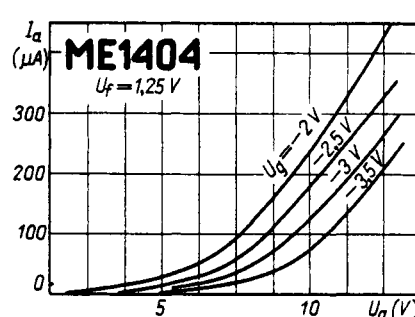
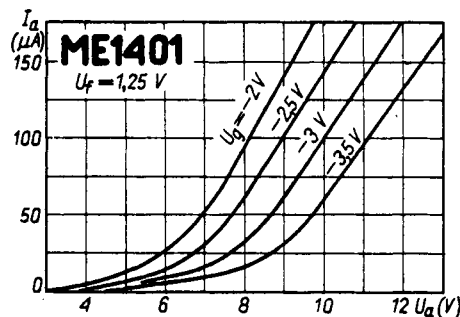
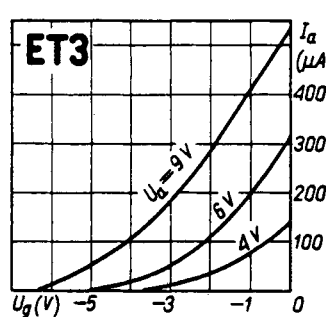
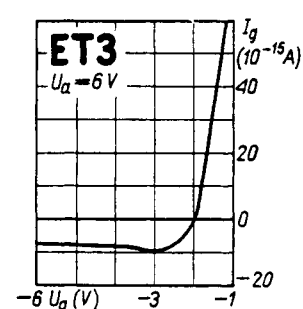
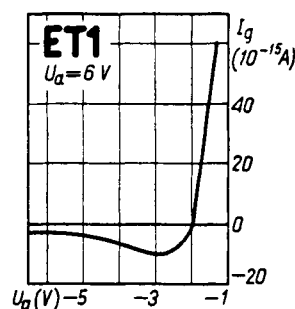
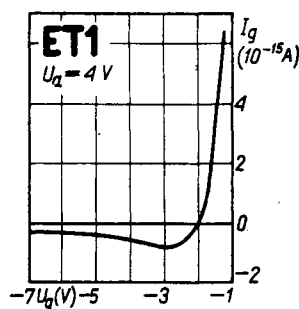
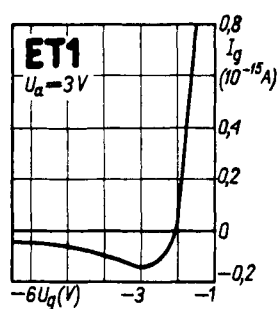
Equivalents

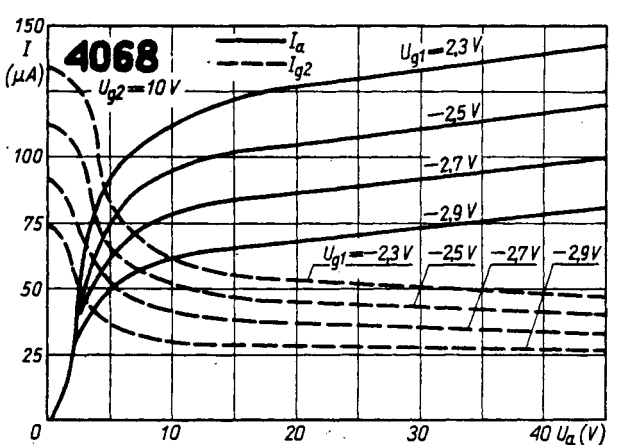
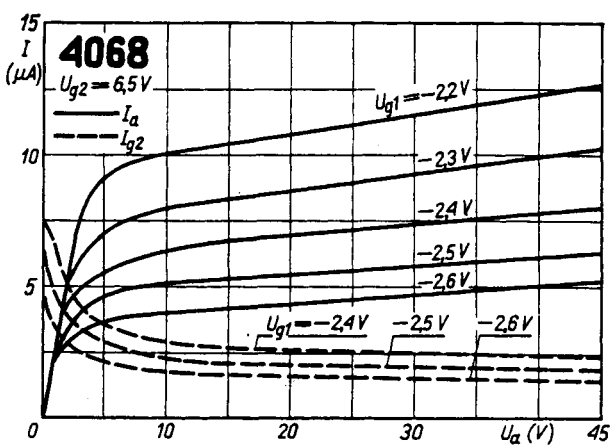
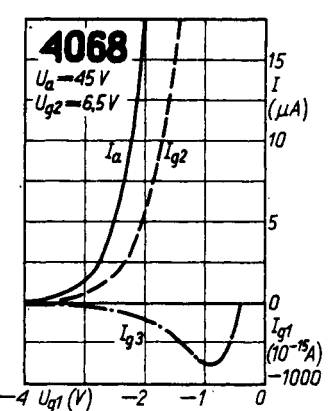
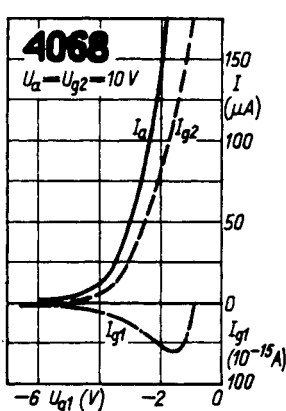
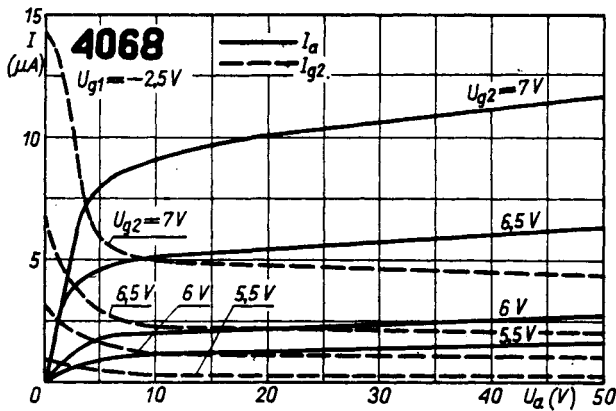
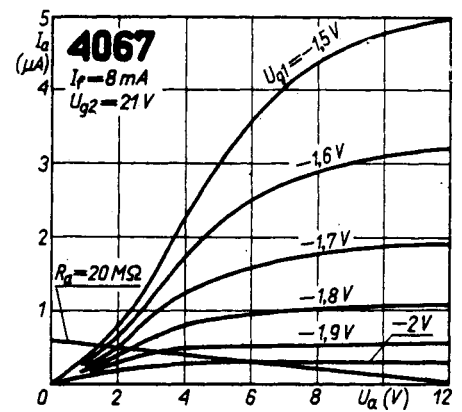
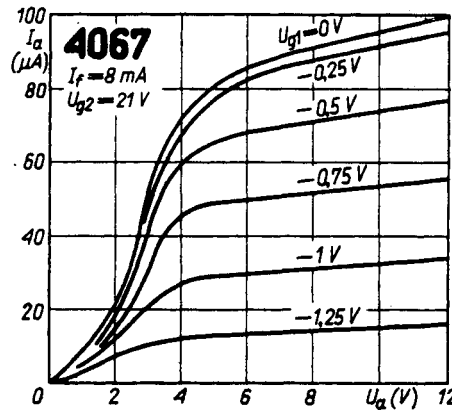
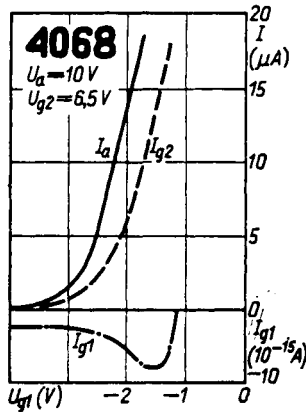
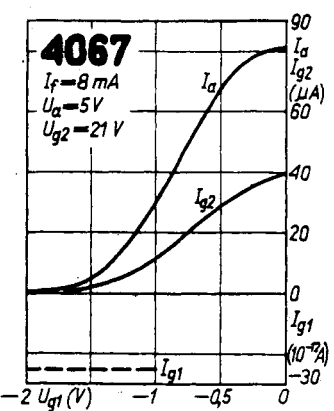
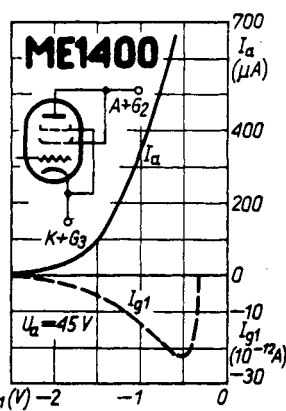
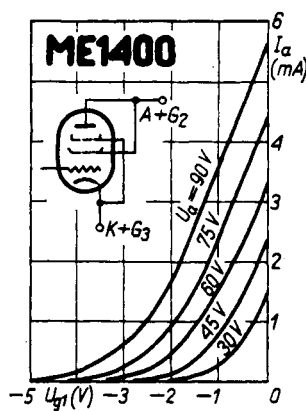
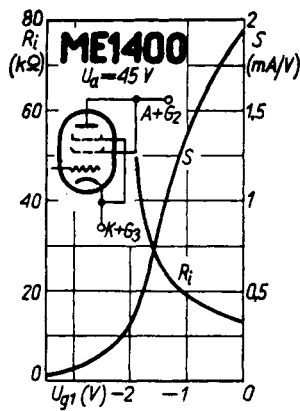
1 3 3 II	CCCP = 3M-4
4065	Phi = ME 1401
4069	Phi = ME 1404
5802	amer = ME 1401
5803	amer = VX-55

T.	C_g	C_a	$C_{g/a}$
	pF	pF	pF
3M-4	3,5		
ET 1	2		
ET 3	1,7		0,2
ME 1401	0,6	0,8	2
ME 1404	0,5	0,8	2
VX-55	2	1,5	
XE 2	2,1		1,8
XE 3	2,1		1,8
XE 4	2,1		1,8

Fig. 1







T.			U_f	I_f	U_a	U_{g2}	U_{g1}	I_a	I_{g2}	I_{g1}	S	μ	I_k
			V	mA	V	V	V	μA	$10^{-12} A$	μA	$\mu A/V$	V/V	μA
BM 4 A	Fer	1	4	240	4	-2,25	3	120	— 4	160	85	2	
BM 8 A	Fer	1	8	120	4,6	— 3	6	260	— 22	380	175	2	
					6	— 3	4	197	— 14	200	100	1,8	
					8		6			maximum			
BM 30	Fer	2	4	125	5	— 2	3	35	— 2	115	32	1,7	
					6	— 2	4	85	— 5	185	54	1,7	
					6	— 2,5	6	120	— 13,5	316	65	1,5	
					8		6			maximum			
T 113	Grm	3	3	100	10	— 3	10	240	— 500		180	2,5	
T 116	Tif	3	1,25	50	12		12			maximum			
131 П	CCCP	4	1	46	6	— 3	4	100 ¹⁾	— 70	400	50	1,3	
1 NE 9	Tes	5	1,25	30	10	— 2,5	8	250	— 300		70		
2 NE 9	Tes	5	1,25	30	8	— 2	4	150	— 20		30		
4066	Phi	6	1,25	13	4,5	— 3,2 ¹⁾	3	20	— 2,5	250	17		300
					10				— 6	maximum			
5800	amer	7	1,25	10	4,5	— 3	3,4	12	— 1	300	15	1	500
					50				— 3	maximum			
6250	Maz	8	2,5	45	9	— 4	6	75	— 2	500	40		
					9	— 2	6			maximum			

¹⁾ $I_a = 40 \div 160 \mu A$; $S = 35 \div 65 \mu A/V$; $U_{g2/x} = -1,6 V$; vide Fig. 1

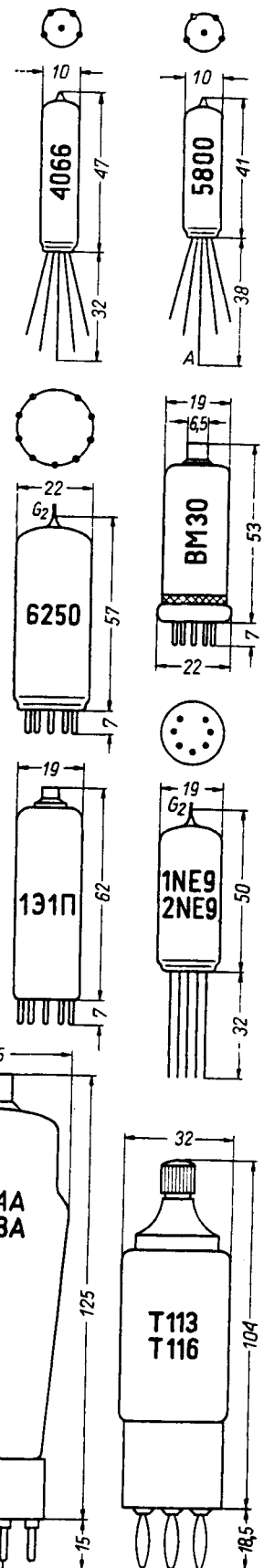
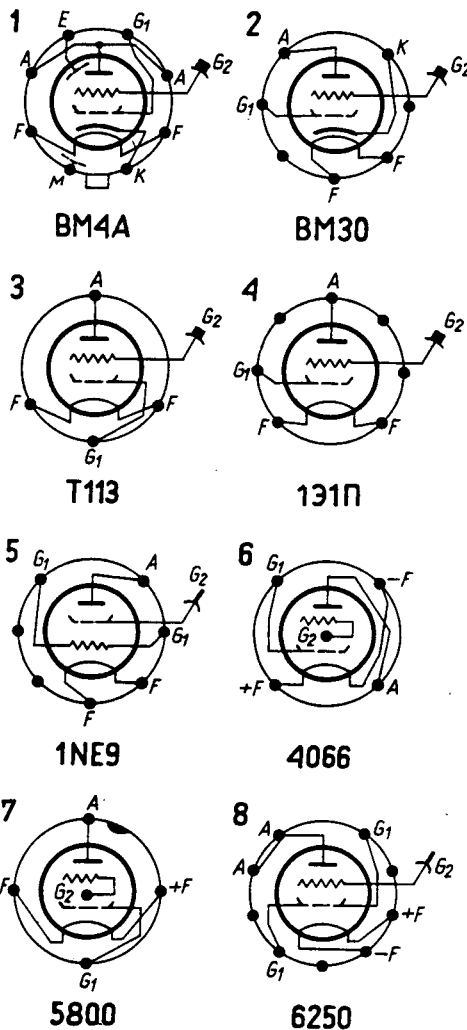
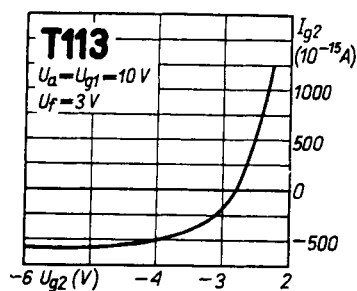
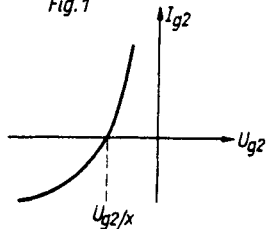
²⁾ $U_{g2} = -2 \div -4,5 V$; $U_{g1} = 2 \div 4 V$; $S = 10 \div 24 \mu A/V$; $U_{g2/x} = -1,75 V$; vide Fig. 1

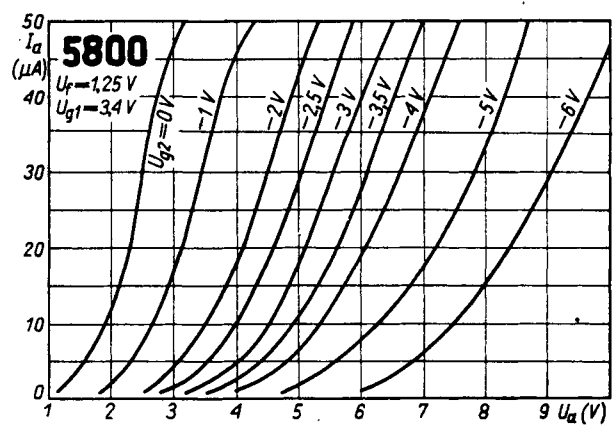
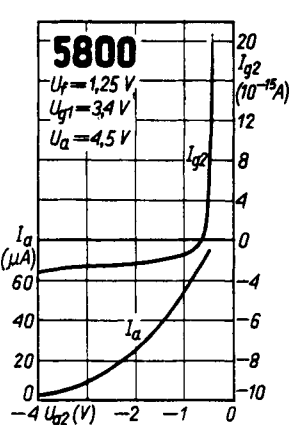
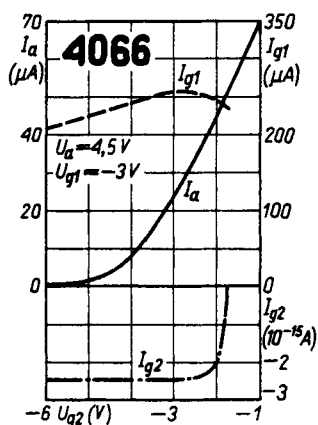
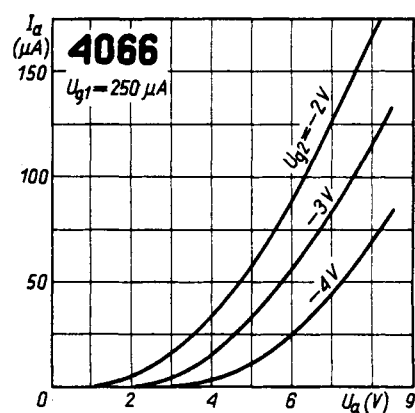
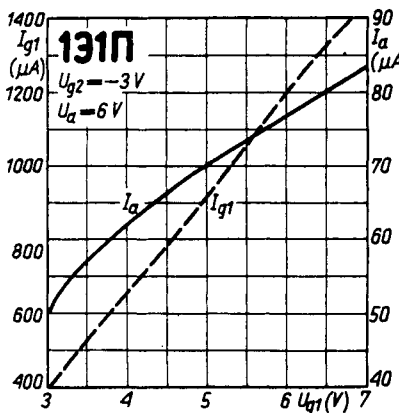
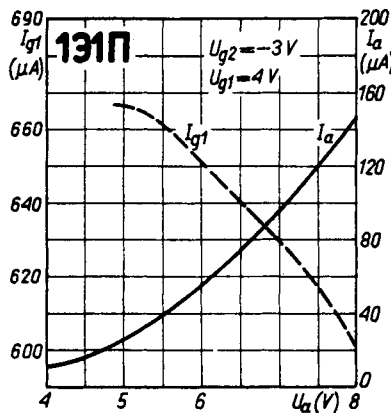
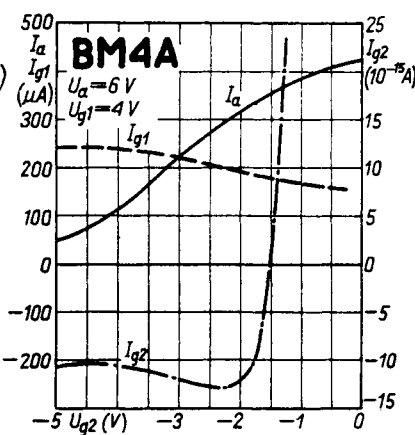
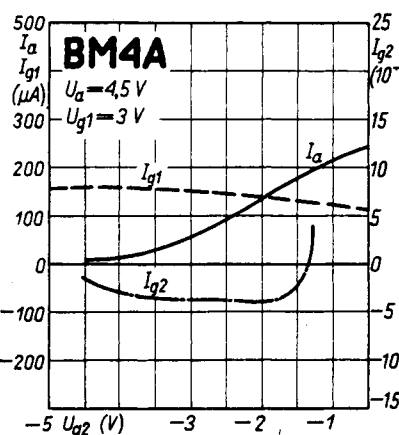
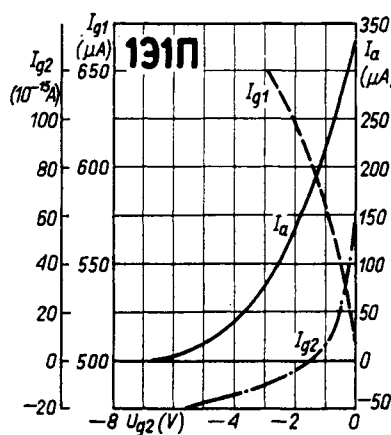
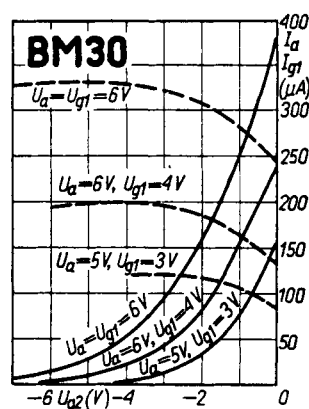
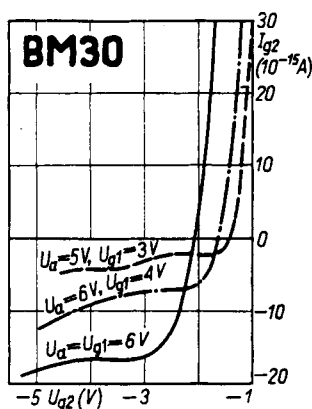
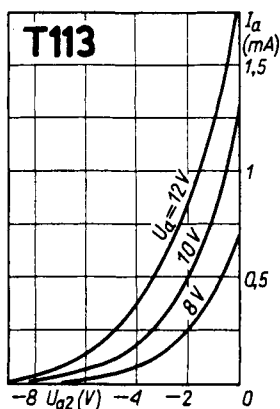
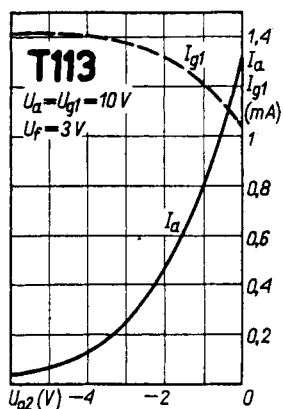
Equivalents

ME 1402	Mul = 4066
VX-41 A	Vic = 5800

T.	C_{g2}	C_a	$C_{g2/a}$	$C_{g2/a}$
	pF	pF	pF	pF
BM 4 A	2,9	6,9	5	1,9
BM 30	0,8	1,9	5,8	0,8
T 113	2,8	4	1,8	
131 П	3,5			
BM 4 A	2,9			
5800	2	3		2
6250	5,8			

Fig. 1

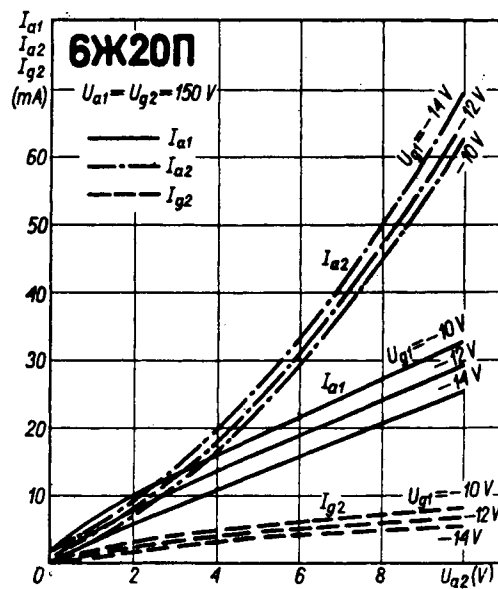
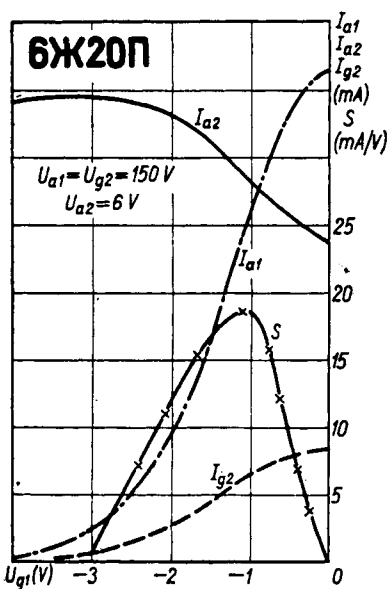
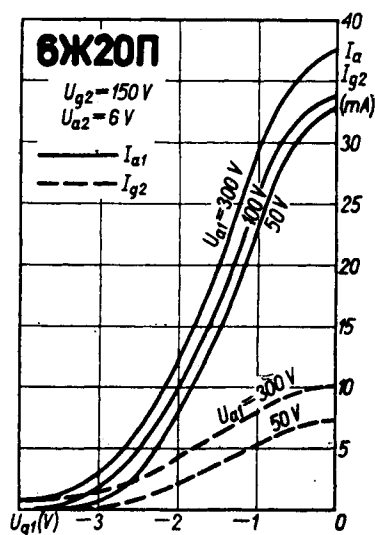
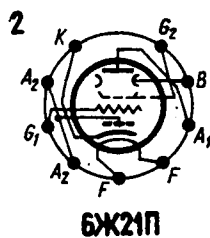
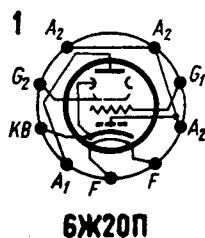


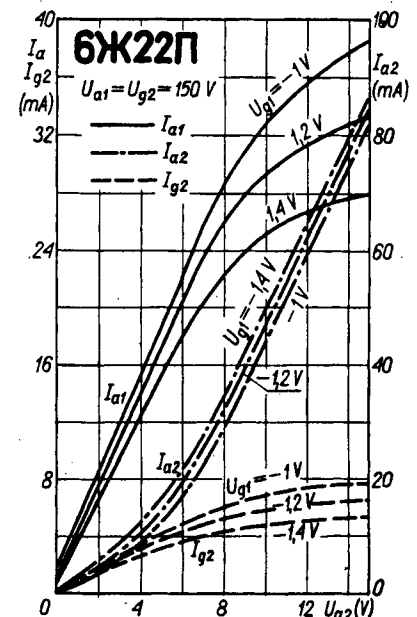
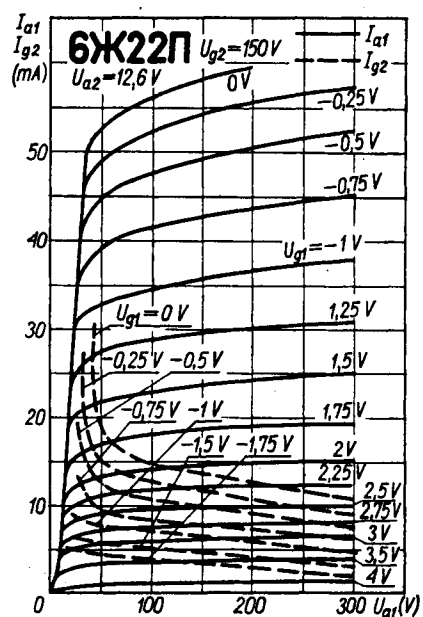
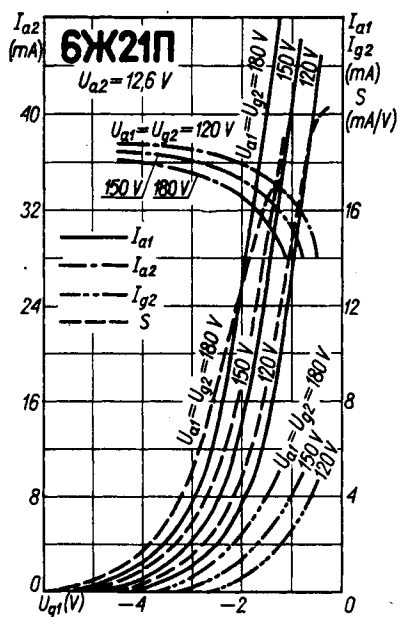
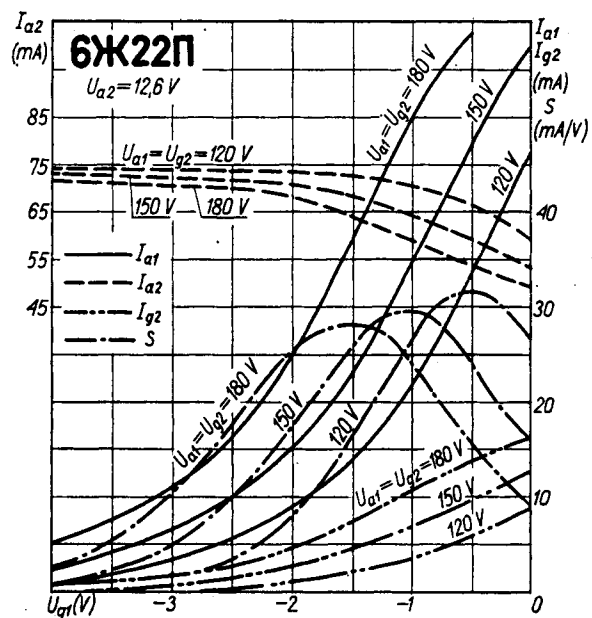
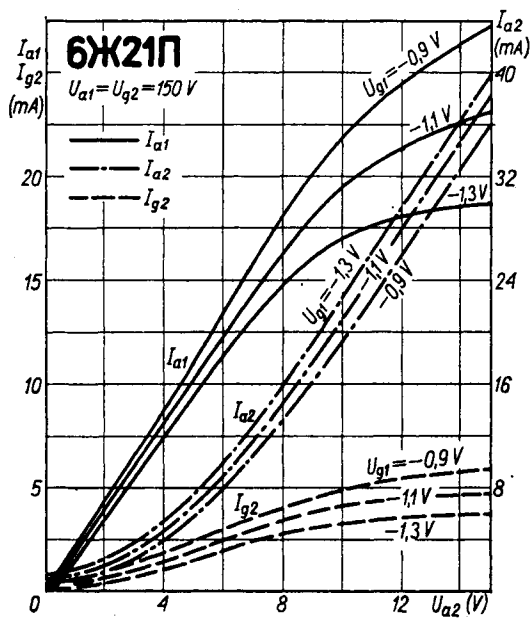
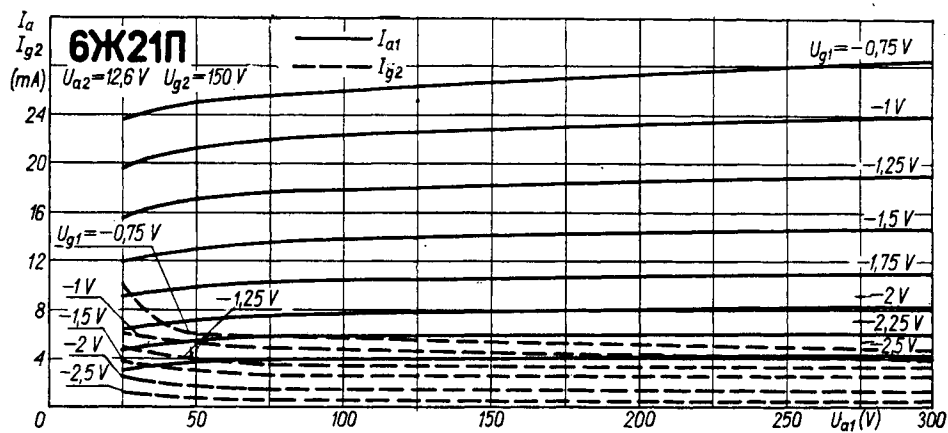


T.			U_f	I_f		U_{a1}	$U_{a2}^{1)}$	U_{g2}	U_{g1}	I_{a1}	I_{g2}	S	R_L	f	U_f/k	P_{g2}	P_a
			V	A		V	V	V	V	mA	mA	mA/V	kΩ	MHz	V	W	W
6Ж20П	СССР	1	6,3	0,45	$\begin{cases} A_1 \\ A_2 \end{cases}$	$\begin{cases} 150 \\ 200 \end{cases}$	$\begin{cases} 6 \\ 6,6 \end{cases}$	150 200	$\begin{matrix} \text{*)} \\ -20 \end{matrix}$	16,5 35	6 maximum	16,5 maximum	90	245	150	1,2	4 0,25
6Ж21П	СССР	2	6,3	0,34	$\begin{cases} A_1 \\ A_2 \end{cases}$	$\begin{cases} 150 \\ 200 \end{cases}$	$\begin{cases} 12,6 \\ 14 \end{cases}$	150 200	$\begin{matrix} -1,1 \\ -15 \end{matrix}$	15 38	6 maximum	15 maximum	95	400	150	1,2	4 0,55
6Ж22П	СССР	2	6,3	0,46	$\begin{cases} A_1 \\ A_2 \end{cases}$	$\begin{cases} 150 \\ 200 \end{cases}$	$\begin{cases} 12,6 \\ 14 \end{cases}$	150 200	$\begin{matrix} -1,2 \\ -20 \end{matrix}$	27 80	9 maximum	25 maximum	55	400	150	1,8	7 1

1) $A_2 = G_{\text{katod}}$; 2) $R_k = 70 \Omega$

T.	C_{g1}	C_a	$C_{g1/a}$	$C_{f/k}$
	pF	pF	pF	pF
6Ж20П	7,6 ÷ 9,6	2,15 ÷ 2,75	0,04	7
6Ж21П	5,2 ÷ 6	1,7 ÷ 2,1	0,037	7
6Ж22П	8,4 ÷ 9,6	2,1 ÷ 2,5	0,055	





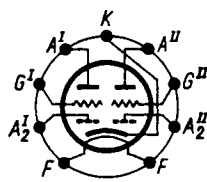
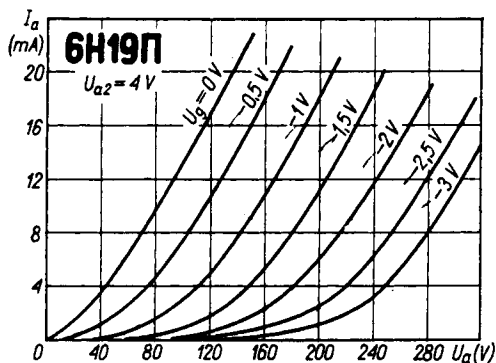
T.		U_f V	I_f A	Cl.	U_a V	$U_{a2}^{(1)}$ V	U_g V	I_a mA	I_{a2} mA	I_g mA	S mA/V	R_k Ω
6H19П	СССР	6,3	0,65	stat.	150 200 200	4 5 -3	-4 10 10	14,5 0,5 0,5	30		13,5	25
				(imp. ²⁾	50	10	10	85	60	30		

¹⁾ $A_s = G_{kated.}$; ²⁾ impulse = 2 μ sec; $f(imp) = 10$ kHz

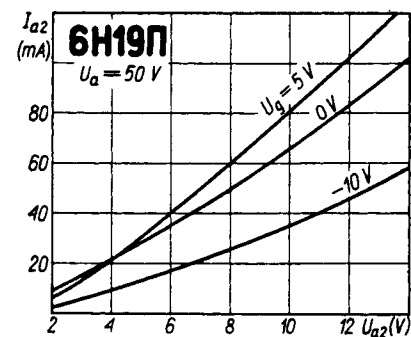
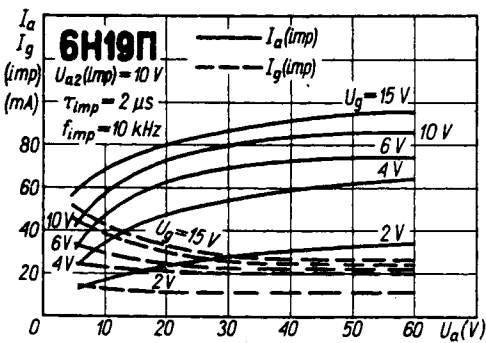
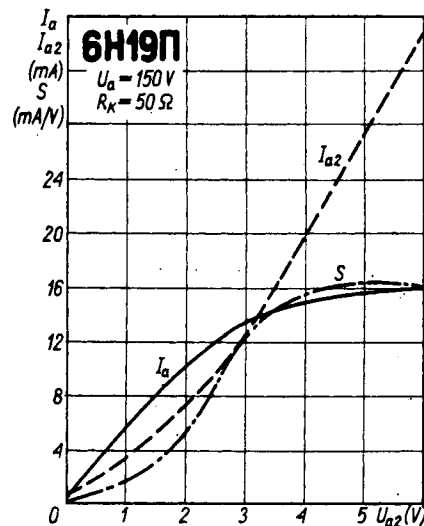
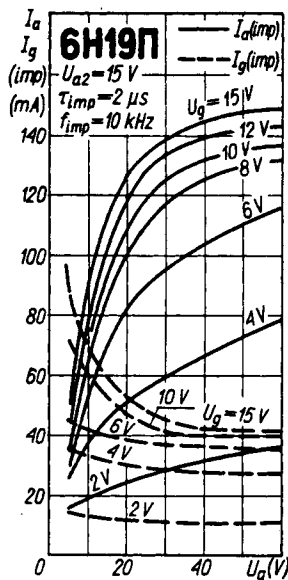
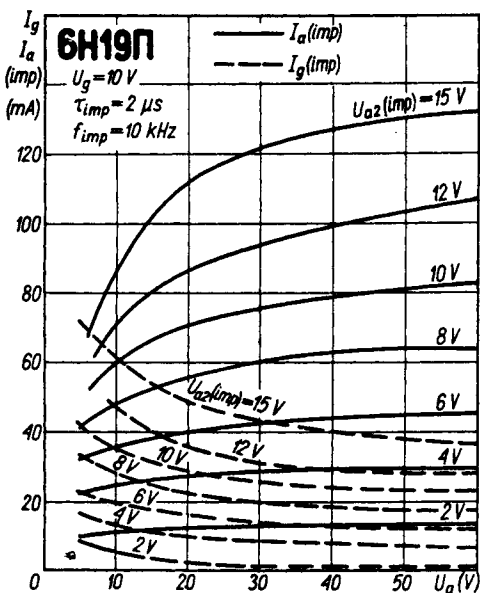
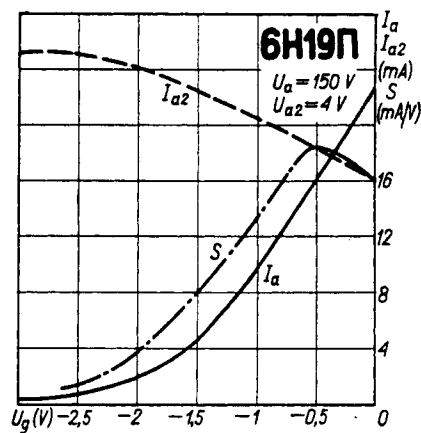
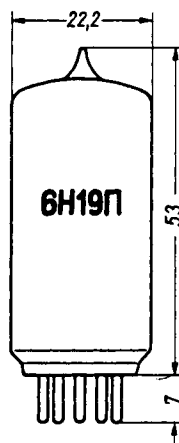
stat. maximum

U_a	U_{f-k+}	I_k	P_g	P_{a2}	P_a
V	V	mA	W	W	W
250	100	50	0,15	0,3	2

C_g	C_a	C_{g1a}	C_{a1a}
pF	pF	pF	pF
3,8	1,2	3,4	0,05



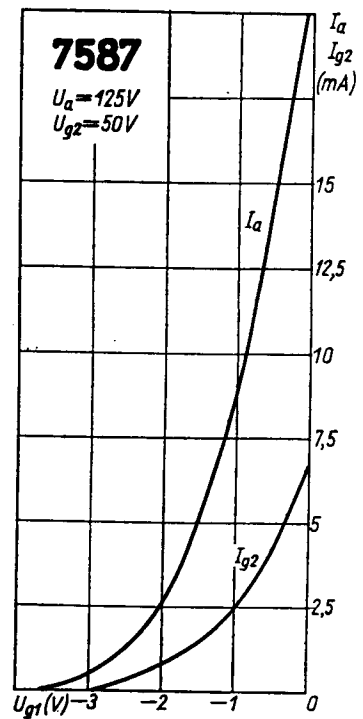
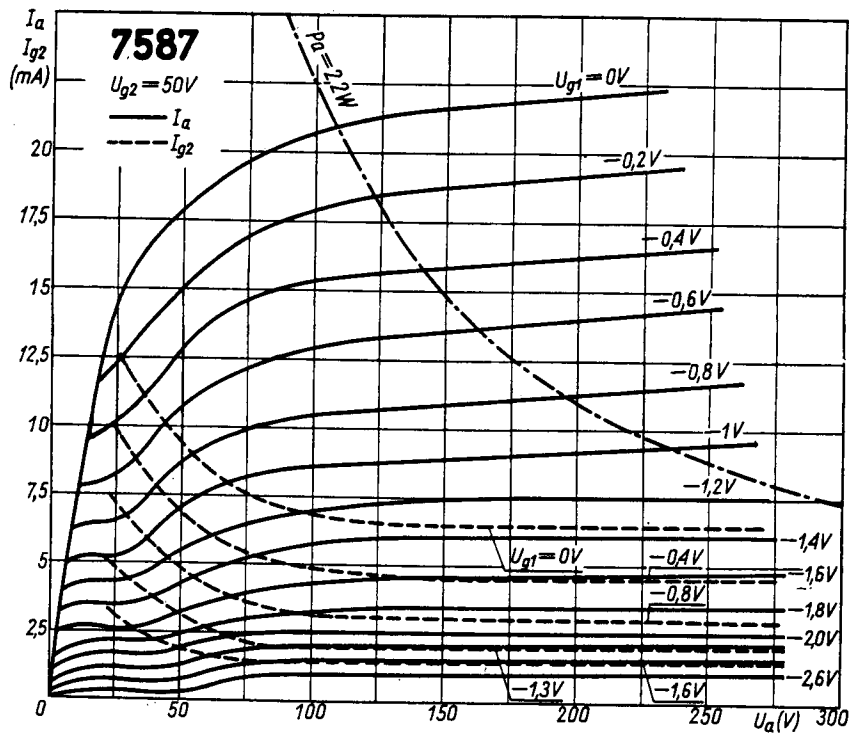
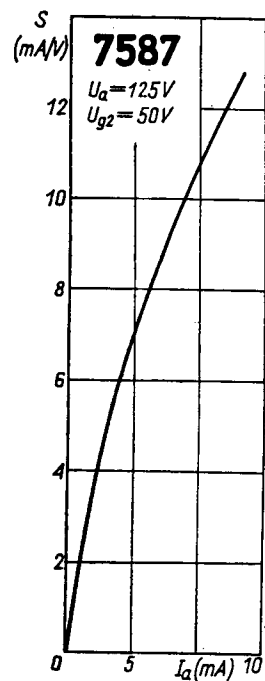
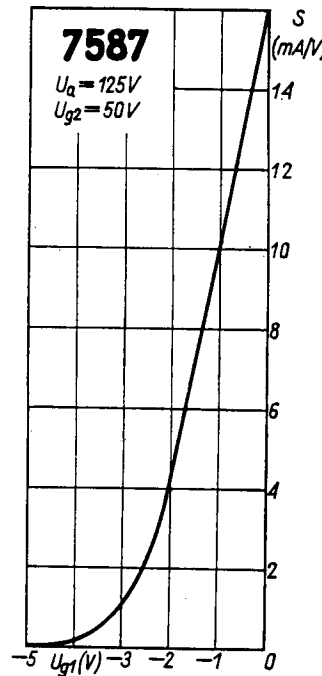
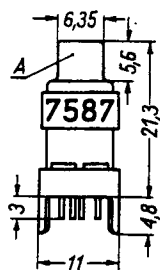
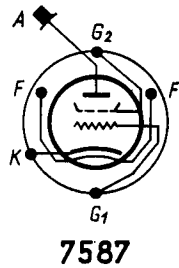
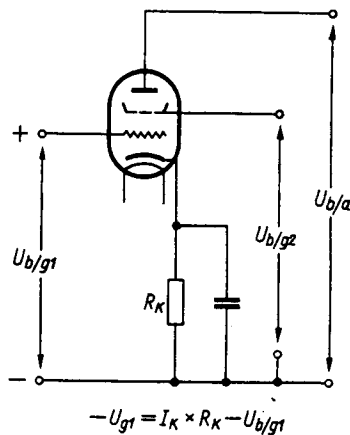
6H19П



T.		U_f V	I_f mA	$U_{b/a}$ V	U_a V	$U_{b/g2}$ V	U_{g2} V	U_{g1} V	I_a mA	I_{g2} mA	S mA/V	R_t kΩ	R_k Ω	I_k mA	P_{g2} W	P_a W
7587 ¹⁾	int	6,3	150	$\begin{cases} 125 \\ 330 \end{cases}$	250	$\begin{cases} 50 \\ 330 \end{cases}$	110	$+2 \div -55$	$8,5 \div 11,5$ maximum ($I_{g1} = 2$ mA, $U_{f/k} = 100$ V)	$1,8 \div 3,6$	$9 \div 12,2$	200	68	20	0,2	2,2

¹⁾ vide * 4, a, b, c = 10.000, d = 30.000 mtr., e, f, g.

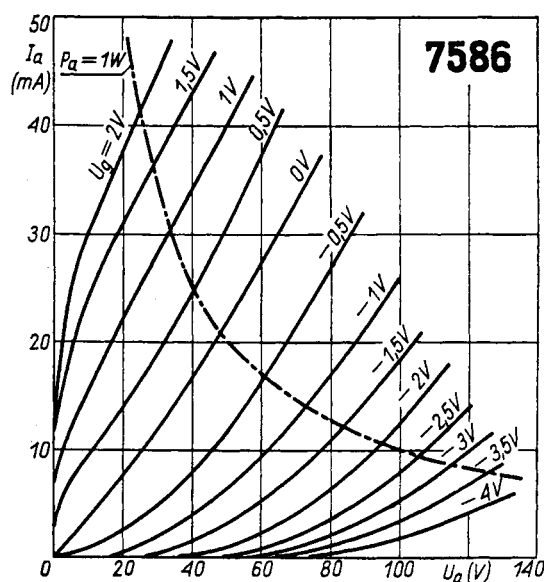
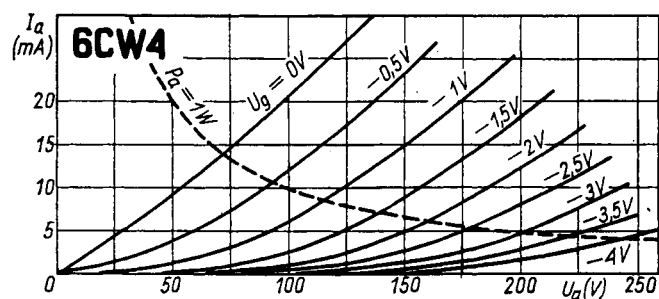
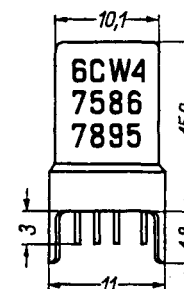
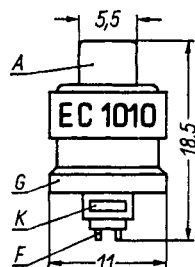
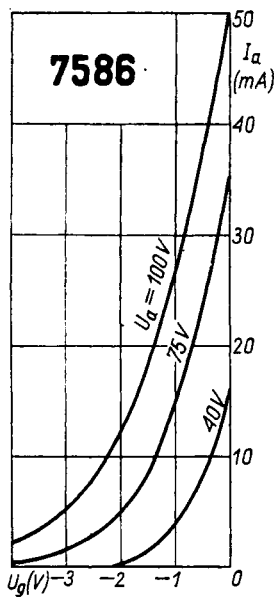
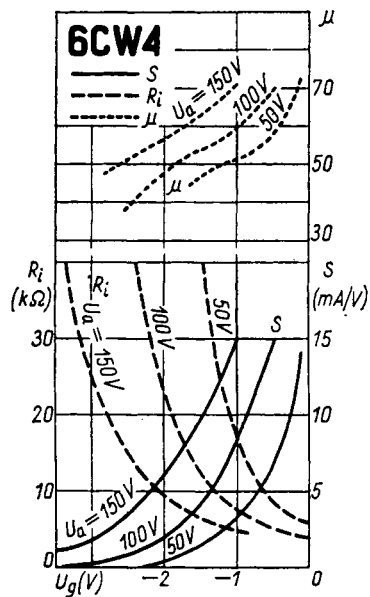
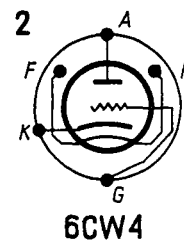
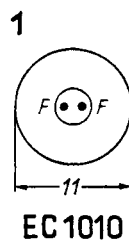
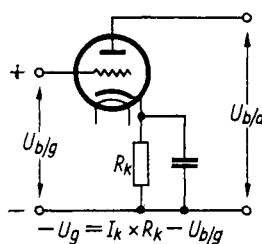
C_{g1}	C_a	$C_{g1/a}$	$C_{k/f}$
pF	pF	pF	pF
6,5	1,4	0,01	1,4

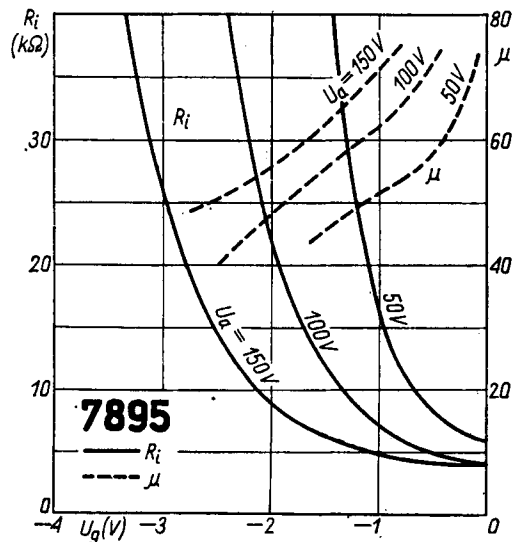
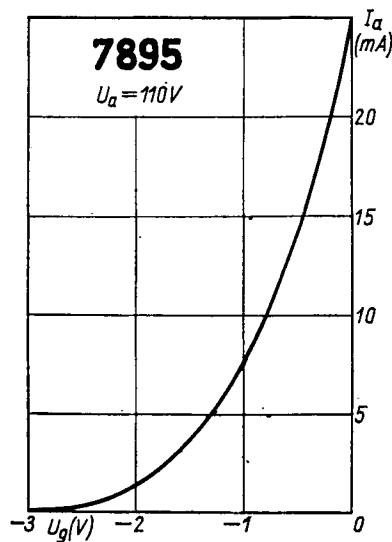
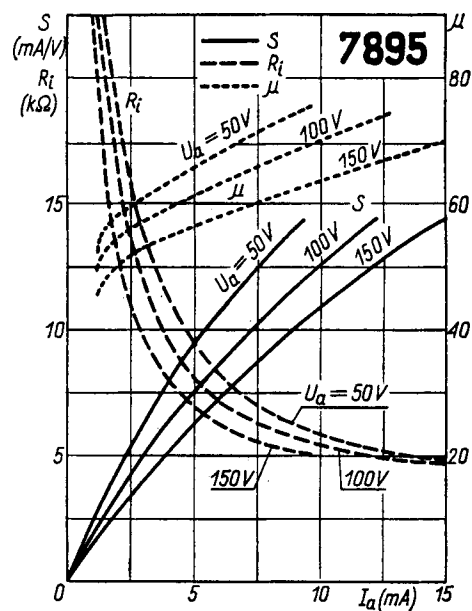
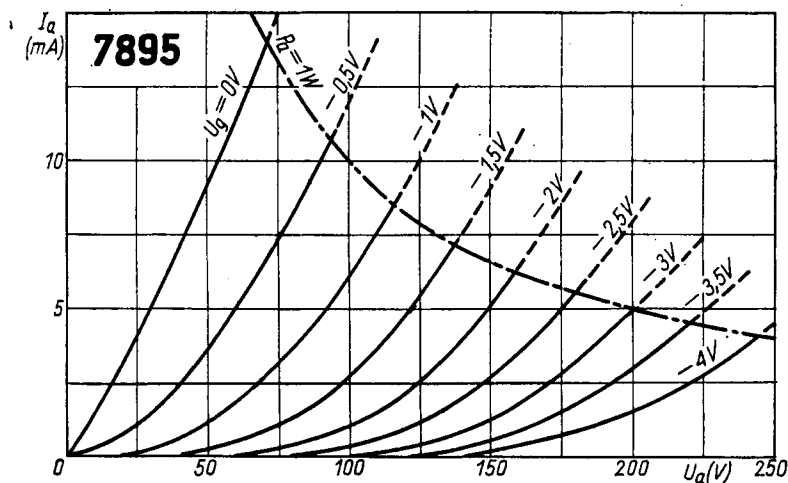
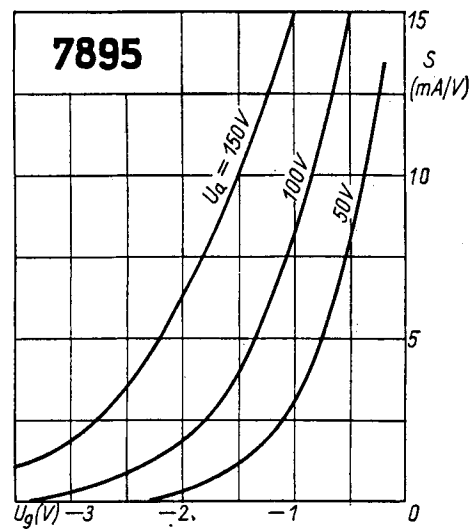
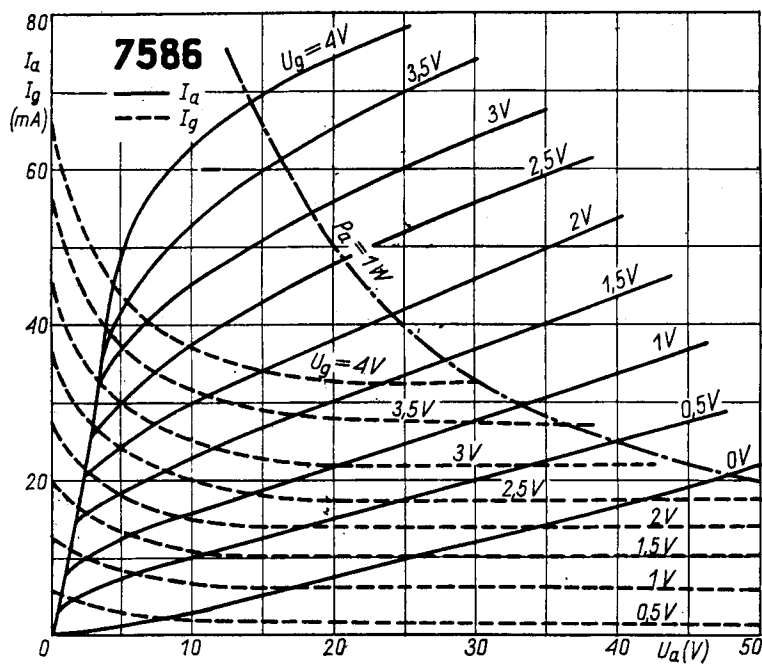


T.			U_f	I_f	$U_{b/a}$	U_a	U_g	I_a	I_g	S	μ	R_i	R_g	R_k	$U_{f/k}$	I_k	P_a									
			V	mA	V	V	V	mA	mA	mA/V	V/V	k Ω	M Ω	Ω	V	mA	W									
EC 1010 ¹⁾	Siem	1	6,3	135	{ 330	100 110 125	+2÷-5	12,5 8,4	2	14 10	65 64 6,4	4,64 6,4	1	22 110	100	15	1,5									
2 CW 4 6 CW 4	RCA	2	2	450		70		0		8	12,5 68	5,44		0,047												
	RCA	2	6,3	130		110 300		125		0÷-55	7,6	9,8 62						6,3	130	15	1					
7586 ¹⁾	Int	2	6,3	140	{ 75 330	26,5 40	+4÷-55	2,8 6,8 10,5	2	7 11 11,5	31 35 33	4,4 3,2 2,9	0,5 0,5 0	0 0 130	100	20	1									
						7895 ¹⁾		int		2	6,3	135	{ 110 330	125				+2÷-55	7	2	9,4 64	6,8	150	100	15	1

¹⁾ vide * 4, a, b, c = 10.000, d = 30.000 mtr., e, f, g: $U_f = 6,3 \text{ V} \pm 5\%$

T.	C_g	C_a	$C_{g/a}$	$C_{a/k}$	$C_{k/f}$
	pF	pF	pF	pF	pF
EC 1010	5		1,5	0,04	1,6
6 CW 4	4,1	1,7	0,92	0,18	1,3
7586	4	1,4	2,2	0,2	1,3
7895	4,2	1,7	0,9	0,22	1,3

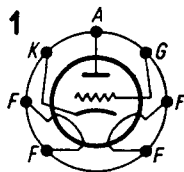




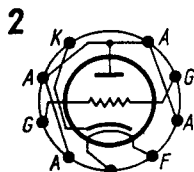
T.		U_f	I_f	U_a	U_g	I_a	S	μ	R_i	R_k	U_f/k	I_k	P_a
		V	A	V	V	mA	mA/V	V/V	Ω	Ω	V	mA	W
6 C 18 C	CCCP	I	6,3/12,6	6,6/3,3	{ 120 250	560	40	3,2	80	35	300	350 x 2	45 x 2
6 C 33 C ¹⁾	CCCP	I	6,3/12,6	6,6/3,3		—150	maximum						
6 C 19 II	CCCP	2	6,3	I	{ 110 350	95	7,5	2,25	300	130	250	140	11
						—7 —200	maximum						

1) vide * 4

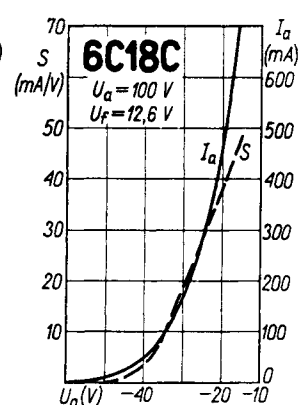
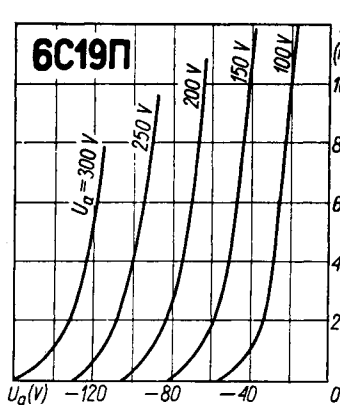
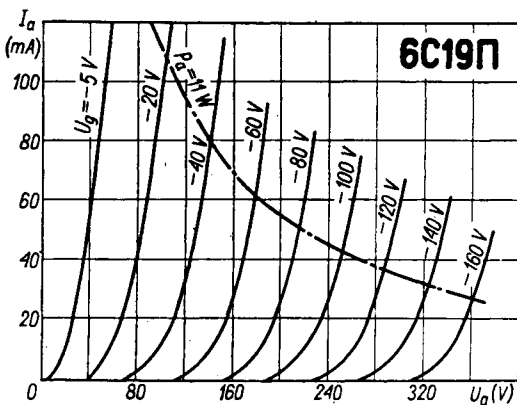
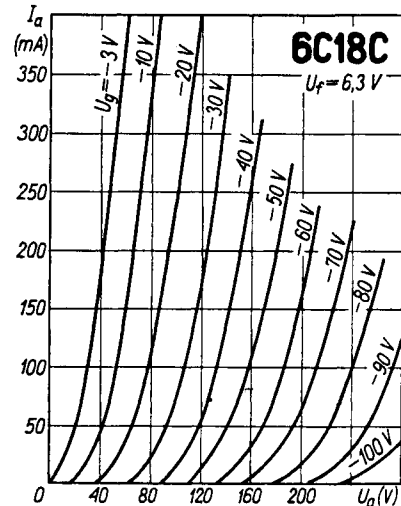
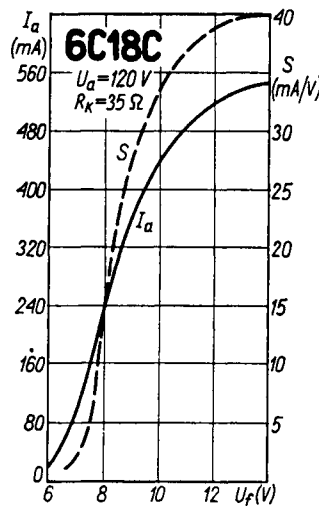
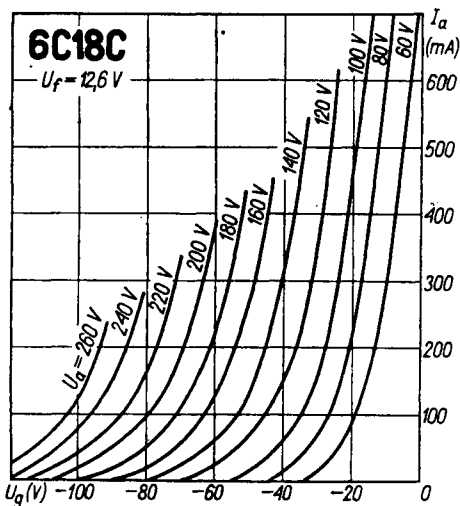
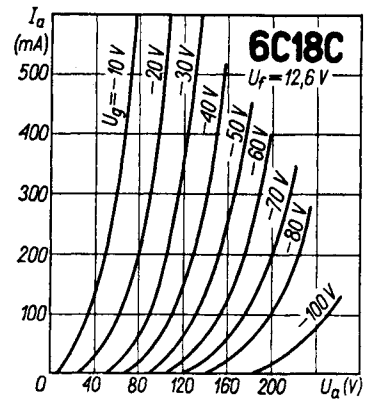
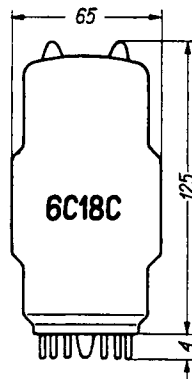
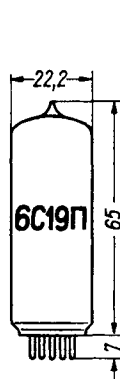
T.	C_g	C_a	C_g/a	C_f/k
	pF	pF	pF	pF
6 C 18 C	30	9	31	45
6 C 19 II	6,5	2,5	8	



6C18C



6C19II



T.			U_f V	I_f A	U_b V	S mA/V	Reg	R_1 MΩ	R_2 MΩ	R_3 MΩ	U_{unreg} V	U_{reg} V	I_{reg} mA	I_a mA
6 BD 4-A	amer	I	6,3	0,6	500	0,138	8	120	I	2	29800	20000	0	1,055
					500	0,116	8	220	I	3	36300	19700	I	0,1
6 BK 4	amer	I	6,3	0,2	200	0,2	11	220	I	0,82	55000	27000	0	1,035
											26500	24500	I	0,1
6 C 20 C	CCCP	I	6,3	0,2		0,25					55000	25000	0	1,5
6 C 39 C	CCCP	2	6,3	0,2		0,2					40000	25000	I	1,5
											30000	30000	I	2,5

T.	C_g pF	C_a pF	C_g/a pF
6 BD 4	3,8	0,04	I
6 BK 4	2,6	I	0,03
6 C 20 C	2,5	0,7	0,1
6 C 39 C	3,5	1,2	0,1

Equivalents

3 B/254 D STCE = 6 BD 4
6 BD 4 amer = 6 C 20 C

T.	U V	μ V/V	U_f k V	P_a W
6 BD 4	-125	1650	180	25
6 BK 4	-125	2000	225	25
6 C 20 C	-225	2500	225	25
6 C 39 C	-225	500	225	75

