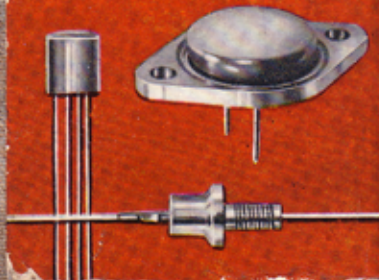
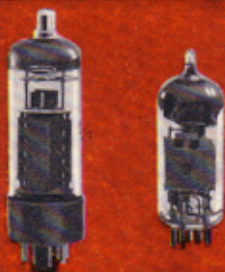


"Miniwatt"

TECHNICAL DATA

- VALVES
- PICTURE TUBES
- SEMI-CONDUCTOR DEVICES



7th. EDITION

25/-

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Seventh Edition

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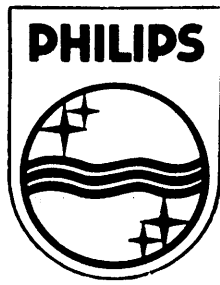
THE *"Miniwatt"* ELECTRONICS DIVISION

of

PHILIPS ELECTRICAL INDUSTRIES PTY. LIMITED

20 HERBERT STREET, ARTARMON, N.S.W.

P.O. BOX 34, ARTARMON



PREFACE

The seventh edition of the Miniwatt Technical Data book has been completely revised and amended to satisfy the requirements of engineers and servicemen for an up-to-date reference of comprehensive information. Data relating to more than 270 new valve types has been included in addition to recent releases of semi-conductors and television picture tubes. Data previously presented in the sixth edition has been retained and revised where applicable.

In all, the seventh edition contains some 1700 valve types, 160 semi-conductor types and no less than 68 television picture tube types. General information relating to valve operating conditions are to be found in the introductory sections and it is recommended that this information be referred to when interpreting the data concerned.

A comprehensive cross-reference index is provided to permit the identification of identical valves classified under different type numbering systems. As far as possible, details of all types of electronic valves, picture tubes and semi-conductor devices likely to be encountered in Australia have been included.

The inclusion of any individual type in this publication, however, does not necessarily imply its ready availability in this country.

RECEIVING VALVES AND THEIR TYPE NUMBERING

In the early years of valve manufacture, identification of different valve types was left to the choice of individual manufacturers. There was no recognised system. With the increase in valve usage and the introduction of a great number of new types, many of which varied only in some minor degree to an already established type, much confusion resulted.

Valve manufacturers in the United States of America were the first to attempt some degree of standardisation of type numbering. Ultimately, as a result of their efforts, this function was delegated to an independent co-ordinating authority—the Radio Manufacturers' Association (R.M.A.), which body has in recent years changed its name to the Electronic Industries Association (E.I.A.).

With very few exceptions all electronic devices manufactured in the U.S.A. to-day are registered with the E.I.A. and bear type numbers allocated by that organisation. The major disadvantage of the E.I.A. system of type numbering is that it does not indicate the class of valve involved and/or the purpose for which it is intended.

There is a present-day tendency for manufacturers in countries other than U.S.A. to also register their valves with the E.I.A. and in this way a commendable trend towards world standardisation is being evolved.

The position in Europe was always more difficult to resolve, as standardisation would have required an understanding on an international basis. Lacking any acceptable independent co-ordinating authority (similar to the American E.I.A.), valve-type numbering has remained the prerogative of the individual manufacturer. There has, however, been an increasing usage of the type-numbering system first introduced by Philips (Holland) in 1934. To-day by far the greater number of valves sold in Europe bear these Philips system type numbers.

The greatest advantage of the Philips system of type numbering is, that with a knowledge of the basic code, it is immediately possible to identify the type of construction and the purpose for which the valve is intended.

Because of its world-wide activities the Philips organisation is currently using both European and American type-numbering systems for its product, and in this publication cross-referencing has been used where identical valve types appear in both classifications.

Each type-numbering system does convey certain important information to the valve user, and an understanding of the basic concepts of each system as given below will prove invaluable.

1. EUROPEAN SERIES—OLDER SYSTEM (PRIOR TO 1934)

The type numbers allocated to Philips receiving valves prior to 1934 consisted of a letter followed by either a three- or four-figured number (e.g. A415, B2043). In this system the letter indicated the filament or heater current, whilst the first figure in the case of a three-figured number, and the first two figures in the case of a four-figured number, indicated the filament or heater voltage. The last two figures of the number indicated the amplification factor if the valve was a triode, or, in the case of a multi-grid valve, the type classification. The key to this system is given in the following tables.

Letter

- A—Filament current of 0.06–0.10 amps.
- B—Filament current of 0.10–0.20 amps.
- C—Filament current of 0.20–0.40 amps.
- D—Filament current of 0.40–0.70 amps.
- E—Filament current of 0.70–1.25 amps.
- F—Filament current of 1.25 amps. and over.

1st Figure or 1st and 2nd Figures (see text)

Filament or heater voltage.

2nd and 3rd Figures or 3rd and 4th Figures (see text)

- (i) *For triode valves.*—Amplification factor for published operating conditions.
- (ii) *For multi-grid valves.*—
 - 41, 51, 61, etc.: Tetrodes with space charge grid.
 - 42, 52, 62, etc.: Radio frequency tetrodes.
 - 43, 53, 63, etc.: Output pentodes.
 - 44, 54, 64, etc.: Diode triodes, diode tetrodes (binodes).
 - 45, 55, 65, etc.: Remote cut off R.F. tetrodes (selectodes).
 - 46, 56, 66, etc.: R.F. pentodes.
 - 47, 57, 67, etc.: Remote cut off R.F. pentodes (selectodes).
 - 48, 58, 68, etc.: Hexode mixers.
 - 49, 59, 69, etc.: Remote cut off hexode mixers.

2. EUROPEAN SERIES—PRESENT SYSTEM

The present system used consists of a number of capital letters followed by either one or two figures (e.g. EBC3, EL33). The first letter indicates the filament or heater rating, whilst the remaining letters give the type classification. The figures indicate both individual type identification and the valve base and/or type of valve construction used. In some cases a letter suffix is used to indicate a minor constructional or characteristic change (e.g. EL33—EL33A). The key to this system is given in the following tables.

1st Letter (Filament or Heater Ratings)

- A—4V. AC type
- B—180mA DC type.
- C—200mA AC/DC type.
- D—Battery types up to 1.4V. DC.
- E—6.3V. AC type.
- F—13V. car radio type.
- G—5V. AC type.
- K—2V. battery type.
- P—300mA AC/DC type.
- U—100mA AC/DC type.
- V—50mA AC/DC type.

2nd and Subsequent Letters (Type Classification)

- A—Single diode.
- B—Double diode.
- C—Triodes except output triodes.
- D—Output triode.
- E—Tetrode.
- F—Pentodes except output pentodes.
- H—Hexode or heptode.
- K—Octode.
- L—Output pentode.
- M—Tuning indicator.
- P—Secondary emission valve.
- W—Half wave gas-filled rectifier.
- X—Full wave gas-filled rectifier.
- Y—Half wave high-vacuum rectifier.
- Z—Full wave high-vacuum rectifier.

Number Sequence

- 1-10—Pinch type construction valves fitted with European 5-pin (V base) or 8-pin (P base) side contact bases or international octal bases with European basing connection sequence.
- 11-19—European type metal valves and glass valves fitted with European metal bases.
- 20-29—All-glass valves fitted with 8-pin Loktal type American bases.
- 30-39—Pinch type construction valves fitted with international octal bases with American basing connection sequence.
- 40-49—All-glass miniature valves fitted with 8-pin Rimlock base.
- 50-59—Special construction types fitted with bases applicable to design features used.
- 60-64—All-glass valves fitted with 9-pin base.
- 65-79—Sub-miniature all-glass valves with or without bases.
- 80-89—All-glass miniature valves fitted with 9-pin American "Noval" type base.
- 90-99—All-glass miniature valves fitted with 7-pin American "Button" type base.

Exceptions to Above

- (a) DAC21, DF21, DF22, DK21, DL21, DLL21 are of pinch type construction fitted with international octal bases with European base connection sequence.
- (b) ECH3G, ECH4G, EK2G, EK2G/GT, EL3G, EL3NG, KF3G, KK2G, KLAG are of pinch type construction fitted with international octal bases with American base connection sequence.
- (c) KK2 (Cap E) is of pinch type construction fitted with a medium 7-pin American base.
- (d) EBF2G, EBF2GT/G, EBF35 are of pinch type construction fitted with international octal bases with European base connection sequence.

3. AMERICAN SERIES—OLDER SYSTEM

The first system used in America after some degree of type numbering standardisation was achieved consisted of a two-letter prefix indicative of the base, followed by a three-figured number, the first figure of which supposedly indicated the valve manufacturer and the last two figures the type identification (e.g. UX280). With the establishment of additional manufacturers, this system was discarded and a two-figure number system established. Although some attempt was made initially to classify types into numerical sequence (e.g. rectifiers 80, 81, 82, 83, 84), the introduction of many new types rendered this impossible, and the type number in the majority of cases gave no indication of the valve type or purpose.

4. AMERICAN SERIES—PRESENT SYSTEM

The present system consists of a number sequence followed by either one or two capital letters and a further number, and, in some cases, a letter sequence suffix (e.g. 25L6GT).

The first number sequence is indicative of the filament or heater voltage. The first letter sequence is purely individual type identification without reference to classification. The second number represents the number of effective electrodes to which external connection is possible. The letter sequence suffix is indicative of type of construction. The following tables give the key to this system.

1st Figure Sequence

- 0—Cold cathode types.
- 1—1.4V. and 2V. battery types.
- 2—2.5V. AC types.
- 3—2.8V. battery types (centre tapped filament for either 1.4V. or 2.8V. operation).
- 5—5V. AC types.
- 6—6.3V. AC types.
- 7—7.0 V. AC types (all-glass, Loktal base), nominal operating heater voltage 6.3V.
- 12—12.6V. AC/DC types (in some cases centre tapped heaters for either 6.3V. or 12.6V. operation).
- 14—14.0V. AC/DC types (all-glass, Loktal base), nominal operating heater voltage 12.6V.
- 15 and above—Heater voltage to nearest indicated volt.

1st Letter Sequence

Type identification without reference to application except that in the case of two-letter sequences commencing with the letter "S" a single-ended construction is indicated (e.g. 6SK7GT).

2nd Figure Sequence

Indicates the number of effective electrodes to which external connection can be made. Internally-connected electrodes are disregarded.

N.B.—There have been many exceptions to this system in the past.

2nd Letter Sequence

The use of a suffix has developed generally as a result of the adaptation of an existing type to a different construction. The most common suffixes are “G,” “GT/G,” “G/GT,” and “GT.”

The suffix “G” was originally intended to denote a valve in a conventional dome-shaped glass bulb construction which was an electrical counterpart of an existing type in a metal construction (e.g. 6A8—6A8G). Later it was used to indicate any valve in either a dome-shaped or tubular glass bulb fitted with a small or medium shell octal base (e.g. 1A7G, 6U7G).

The suffixes “GT/G” and “G/GT” are synonymous and were introduced to indicate a valve electrically identical with a type bearing the “G” suffix, but in a tubular bulb fitted with either an intermediate shell or a metal sleeve small wafer octal base (e.g. 6A8GT/G). The use of these bases gives an overall reduction in height due to the bulb being seated within the base instead of on top of the base, as in the “G” construction.

The composite suffixes “GT/G” and “G/GT” have now been superseded by the “GT” suffix, which is applied to any valve in a tubular glass bulb fitted with either an intermediate shell or metal sleeve small wafer type octal base (e.g. 6V6GT, 1B3GT).

Other suffixes used either alternatively or additionally are as follows:—

A, H, P, T, V—Indicates a minor structural or electrical change.

L—Indicates a semi-ruggedised version of an existing type.

MG—Indicates a combined metal-glass construction.

S—Indicates a metal sprayed valve, with the exception of type 6B7S which indicates a remote cut off version of type 6B7.

W—Indicates a ruggedised version of an existing type.

X—Indicates the use of a ceramic base.

Y—Indicates the use of a low loss phenolic base.

LIST OF SYMBOLS AND ABBREVIATIONS

The symbols used in this book have been divided into two groups, viz.:

- (A) those used in the data columns;
- (B) those used in the base pin connection columns.

This procedure is necessary to obviate confusion arising from some degree of duplication existing in the conventionally adopted symbols used to indicate electrical units and valve electrodes.

In certain cases use has been made of both inferior and superior suffixes in association with the symbols. In general, these suffixes have three main applications, as follows:—

- (1) To identify the various grids of a multi-grid assembly, that grid closest to the cathode being designated as Grid No. 1; e.g.:
 G_1 represents Grid No. 1 or signal grid of a pentode,
 G_2 represents Grid No. 2 or screen grid of a pentode.
- (2) To identify the various sections of a multi-purpose valve; e.g.:
 G_1^h represents Grid No. 1 of the hexode section of a triode-hexode converter,
 G_1^t represents Grid No. 1 of the triode section of the same valve.
- (3) To identify the various sections of a multi-section valve, e.g.:
 A^I , G_1^I and K^I represent the anode, grid and cathode respectively of one section of a twin triode, while
 A^{II} , G_1^{II} and K^{II} represent the anode, grid and cathode respectively of the second triode.

Additionally, some suffixes have individual meanings: for instance, A_s represents the starting anode of a gas-filled rectifier. In general, it will be found that the meaning of the suffixes is self-evident when reference is made to the title given to each particular valve in the "Description" column.

(A) IN DATA COLUMNS

A amperes	mW milliwatts
°A degrees Angstrom	P.E. photo-electric
AC alternating current	R resistor
AF audio frequency	R_s shunting resistor
AVC automatic volume control	R.C. resistance-capacity
B+ DC voltage supply, positive terminal	coupled
B- DC voltage supply, negative terminal	R.F. radio frequency
cm centimetre	R.M.S. .. root mean square
D diode plate	U.H.F. .. ultra high frequency
DC direct current	μ amplification factor
d dynode	μA microamperes
dB decibels	μF microfarads
F filament	$\mu mhos$.. micromhos
°F degrees Fahrenheit	$\mu secs$... microseconds
FM frequency modulation	$\mu \mu F$ micro microfarads
G grid	V volts
G_m mutual conductance	V.H.F. .. very high frequency
H heater	W watts
I_a anode or plate current	Ω ohms
K cathode	approx. .. approximately
°K degrees Kelvin	auto. automatic
Kc/s kilocycles per second	conv. conversion
kV kilovolts	freq. frequency
Mc/s megacycles per second	max. maximum
M Ω megohms	min. minimum
mA milliamperes	osc. oscillator
mm. millimetres	sens. sensitivity
mV millivolts	> greater than,
	< less than

(B) IN BASE PIN CONNECTION COLUMNS

A anode or plate	H heater
A_s starter anode	H_t heater tap
BS base spigot	IC internal connection
D diode plate	IS internal shield
DE deflection electrode	J jumper connection
d dynode	K cathode
E electrode	M metallization
F filament	NC no connection
F+ filament positive	R resistance
F- filament negative	S shield or base shell
F_t filament tap	T target
G grid	TC top cap

CATHODE RAY TUBES AND THEIR TYPE NUMBERING

Just as with receiving valves, there are two major type numbering systems in present use for cathode ray tubes, of which picture tubes form one division. Details of each system are presented below.

1. EUROPEAN SYSTEM

This system consists of two capital letters followed by two sets of figures (e.g. AW-53-80). The first letter indicates the method of focus and deflection. The second letter indicates the screen properties. The first figure group indicates dimensions of the screen, while the second group of figures indicates a particular design.

The key to this system is given below:—

1st Letter

- A—Magnetic deflection, electrostatic focusing.
- D—Electrostatic deflection and focusing.
- M—Magnetic deflection and focusing.

2nd Letter

- B—Blue fluorescence and phosphorescence, short persistence.
- C—Blue violet fluorescence and phosphorescence, very short persistence.
- F—Orange fluorescence and phosphorescence, very long persistence.
- G—Green fluorescence and phosphorescence, medium persistence.
- L—Orange fluorescence and phosphorescence, long persistence.
- N—Blue-green fluorescence and green phosphorescence, long persistence.
- P—Blue fluorescence and greenish-yellow phosphorescence, very long persistence.
- R—Greenish-yellow fluorescence and yellow phosphorescence, long persistence.
- W—Screen for picture tubes, white screen colour, short persistence.

1st Group of Figures

- For round screens—Screen diameter in cms.
- For rectangular screens—Screen diagonal in cms.

2nd Group of Figures

- Type classification indicating a particular design.

2. AMERICAN SYSTEM

This system consists of one or two figures followed by a letter group, then the letter "P" followed by a number (e.g. 21ALP4).

The first figure or figures indicates the screen size. The first letter group indicates a particular design, while the letter "P" followed by a figure indicates the screen properties. The key to this system is given below.

1st Figure or Group of Figures

- For round screens—Screen diameter in inches.
- For rectangular screens—Screen diagonal in inches.

1st Letter Group

Letters are a particular classification applying to tubes of the same diagonal dimension.

Letter "P" and Succeeding Figure

The combination identifies a particular screen characteristic.

P1—Green fluorescence, medium persistence.

P4—White fluorescence, medium persistence.

P5—Bluish fluorescence, very short persistence.

P7—Bluish fluorescence, short persistence during excitation.

Greenish yellow phosphorescence, long persistence after excitation,

P11—Bluish fluorescence, short persistence.

P12—Orange fluorescence and phosphorescence, medium long persistence.

P14—Purple fluorescence, short persistence during excitation.

Orange phosphorescence, medium long persistence after excitation.

P15—Blue green and near ultraviolet fluorescence, very short persistence.

P16—Violet and near ultraviolet fluorescence and phosphorescence, very short persistence.

P22—Blue, green, and red phosphor combination, medium persistence.

P24—Blue green fluorescence, very short persistence.

Suffix Letters (if any)

The suffix (A, B, C, etc.), if used, indicates a modified version of the original type.

SEMI-CONDUCTORS AND THEIR TYPE NUMBERING

AMERICAN SYSTEM

The type numbering system used for designating semi-conductors in America follows essentially the principle used with receiving valves. The system consists of a figure preceding the letter "N" and followed by a figure group (e.g. 1N54, 2N109).

The key to this system is given below:—

First Figure

1-2 elements (equivalent to valve diode).

2-3 elements (equivalent to valve triode).

etc.

First Letter

N—Semi-conductor.

Figure Group

This indicates a particular design.

EUROPEAN SYSTEM

Prior to 1960, the European semi-conductor type numbering system also followed the principle used for receiving valves on that continent. However, since that date, a new system has been introduced by the major manufacturers.

Old system

The old system, following the valve type numbering principle, consisted of a two-letter prefix followed by a figure group (e.g. OA79, OC26). The key to this system is given below:—

First Letter

O—no heater.

Second Letter

- A—2 element device (equivalent to valve diode).
- C—3 element device (equivalent to valve triode).

Figure Group

This indicates a particular *design*.

NEW SYSTEM

Type numbers of semi-conductors manufactured for entertainment use, consist of *two letters and three figures*, while professional/industrial types consist of *three letters and two figures* (e.g. AF114, BY100).

The first letter indicates the material from which the semi-conductor is constructed. The second letter describes the semi-conductor type.

First Letter

- A—Germanium.
- B—Silicon.

Second Letter

- A—Diode (including voltage dependent capacitor).
- C—Low frequency transistor having $K > 0.015^{\circ}\text{C}/\text{mW}$.
- D—Low frequency power transistor having $K < 0.015^{\circ}\text{C}/\text{mW}$.
- E—Tunnel diode.
- F—High frequency transistor.
- L—High frequency power transistor.
- P—Photo semi-conductor.
- S—Switching transistor.
- T—Controlled rectifier, thyristor or Shockley diode.
- U—Power switching transistor.
- Y—Power diode (rectifier).
- Z—Reference or Zener diode.

Third Letter

Used for professional types only, and has no other significance.

Figure Group

This indicates a particular design.

SYMBOLS USED WITH SEMI-CONDUCTORS

- $-V_{CB}$ —collector to base voltage.
- $-V_{EB}$ —emitter to base voltage.
- $-V_{CE}$ —collector to emitter voltage.
- V_S —supply voltage.
- $-I_C$ —collector current.
- I_E —emitter current.
- $-I_{CBO}$ —collector cutoff current (common base circuit with $I_E = 0$).
- P_C —collector dissipation.
- h_{fe} —small signal current gain (common emitter circuit).
- h_{FE} —large signal or DC current gain (common emitter circuit).
- f_1 —frequency at which $|h_{fe}| = 1$.
- $f_{\alpha b}$ —alpha cutoff frequency (common base circuit).

GENERAL INFORMATION

RATING FOR RECEIVING VALVES APPLIED TO TELEVISION

The television receiver deflection and associated circuits require valves to operate under conditions uncommon to other applications. These conditions particularly apply to:

- Horizontal oscillator and amplifier stage.
- Vertical oscillator and amplifier stage.
- Booster diode and EHT rectifier stage.

The most important ratings and terms used are discussed below:—

1. **Maximum peak positive-pulse plate voltage** is based on the actual breakdown considerations at the pulse repetition frequency and supply impedances for the type of circuit in which the valve is to operate, and is expressed as an absolute maximum value.
2. **Maximum peak negative-pulse plate voltage** is based upon considerations of valve failure caused by plate emission at the time the plate swings negative with respect to the cathode.
3. **Maximum peak negative-pulse grid No. 1 voltage** is based upon grid-to-cathode leakage considerations and application requirements.
4. **Maximum peak inverse plate voltage** (used for high-voltage rectifiers and booster diodes) is based on the actual voltage breakdown at the pulse repetition frequency and impedances encountered for the type of circuit in which the valve is to operate, and is expressed as an absolute maximum value.

The maximum duration of the voltage pulse allowed for valves operating under peak pulse voltage conditions must not exceed 15% of one scanning cycle.

In the Australian 625-line 25 pictures/sec. television system, 15% of one horizontal scanning cycle is 10 μ secs., while 15% of one vertical scanning cycle is 3 milliseconds.

The following valve types, however, should be noted as exceptions to the above: 1S2, 6CJ6, 6CM5, 6CN6, 6R3, 6S2A, 6AB8, 16A5, and any others in the text individually specified.

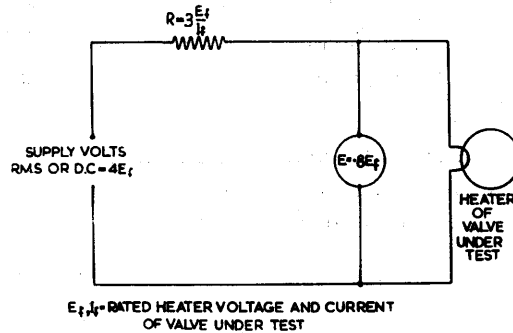
For those of the above types associated with horizontal deflection circuits the maximum duration of the peak voltage pulse must not exceed 18% of one horizontal scanning cycle with a maximum of 18 microseconds, while for those used in vertical deflection circuits the maximum duration of the peak voltage pulse must not exceed 10% of one vertical scanning cycle with a maximum of 2 milliseconds.

HEATER WARM-UP TIME FOR SERIES HEATERS IN TELEVISION

The heater warm-up time, as specified for some television valves, may be interpreted as follows:—

The heater is placed in series with a resistance having a value 3 times the heater operating resistance. A voltage of 4 times rated heater voltage is then

applied and the heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value.



E.H.T. FILAMENT VOLTAGE MEASUREMENT

Modern practice utilises the horizontal output transformer as a power source to operate the filament of the E.H.T. rectifier in television receivers. Adjustment of the filament voltage by direct measurement is therefore unpractical and unsafe, since it is at a high DC potential above ground.

To ensure that the rated voltage is applied to the filament several methods are in use. However, a simple method requiring a minimum amount of equipment utilises the visual colour comparison of two incandescent filaments in a darkened room.

In this method the RF filament voltage obtained from the horizontal output transformer is adjusted until the colour temperature of the filament matches that of another filament operated from a DC or low-frequency AC supply of rated filament voltage for the particular rectifier.

MINIMUM PLATE SUPPLY IMPEDANCE REQUIREMENTS FOR RECTIFIER CIRCUITS

The total plate supply impedance of a rectifier is the amount of resistance that must be present in the plate circuit in order to avoid flash-over and hence possible destruction of the valve or semiconductor.

The minimum requirements for the amount of impedance is always stated, and depends upon:

1. The applied voltage to the rectifier.
2. The output current drawn from the rectifier.
3. Type of filtering system and value of input capacitor, if used.

Where there is a transformer between the mains supply and the rectifying device, this protective resistance will be provided either fully or partially by the ohmic resistance of the transformer windings, in which case

$$R_t = R_s + n^2 R_p + R$$

where R_t = total resistance required/plate;

R_s = ohmic resistance provided by the secondary of the transformer, or half the secondary in a full wave circuit;

n = transformer turns ratio;

R_p = ohmic resistance provided by the transformer primary winding;

R = resistance that must be added to make up the total R_t /plate.

INSTALLATION AND HANDLING OF TELEVISION PICTURE TUBES

The installation and handling of television picture tubes must be carried out with the utmost care.

Because the bulb is completely evacuated, an atmospheric pressure of 14.7 lb. is exerted on every square inch of its surface. This represents a pressure of 1.9 ton exerted on the face plate of a 23" screen. Shock or damage to the tube can cause it to implode and shatter with possible disastrous results. Safety precautions and procedure are outlined below:—

1. Protective goggles and gloves should be worn, for personal safety, whenever handling is necessary.
2. Picture tubes should be removed from the shipping carton by placing both hands under the face plate. Handling of tubes by the neck is unsafe and should be avoided at all costs, since the neck is obviously the weakest part of the tube.
3. When not in actual use picture tubes should never be left standing in the open but should be placed in shipping cartons with the flaps closed.
4. If it is necessary to rest a tube on a bench temporarily, place it face downwards on a clean soft material away from any object that may strike the tube.
5. When removing a picture tube from a receiver, always ensure that the E.H.T. capacitor is discharged. The shock due to bodily contact with this is not severe, but can result in the tube being dropped or receiving a blow.
6. If a broken picture tube should have to be handled, remember that all phosphors cannot be guaranteed non-toxic. Treat any cuts immediately, and in any case the hands should be washed with soap and hot water after handling.

Remember that the picture tube manufacturer does not accept any responsibility for any damage or injury suffered in connection with the picture tube.

It is in your own interest to exercise extreme care at all times.

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
01A	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier	F	5.0	0.25	90	2.5	-4.5	—	—	725	8	0.011
						135	3.0	-9.0	—	—	800	8	0.010
0A2	VOLTAGE REGULATOR	Voltage Regulator	C O L D	—	—	150	5.0 to 30.0	—	—	—	—	—	—
0A3 / VR75	VOLTAGE REGULATOR	Voltage Regulator	C O L D	—	—	75	5.0 to 40.0	—	—	—	—	—	—
0A4G	GAS TRIODE	Relay Tube	C O L D	—	—	Supply 105 to 130 R.M.S.	D.C. Cathode Current 25.0 mA.	—	—	—	—	—	—
0B2	VOLTAGE REGULATOR	Voltage Regulator	C O L D	—	—	108	5.0 to 30.0	—	—	—	—	—	—
0C3 / VR105	VOLTAGE REGULATOR	Voltage Regulator	C O L D	—	—	105	5.0 to 40.0	—	—	—	—	—	—
0D3 / VR150	VOLTAGE REGULATOR	Voltage Regulator	C O L D	—	—	150	5.0 to 40.0	—	—	—	—	—	—
0E3	VOLTAGE REFERENCE	Voltage Reference	C O L D	—	—	85	1.0 to 8.0	—	—	—	—	—	—
0G3	VOLTAGE REFERENCE	Voltage Reference	C O L D	—	—	85	1.0 to 8.0	—	—	—	—	—	—
0Y4	HALF-WAVE GAS-FILLED RECTIFIER	Half- wave Rectifier	I O N I C	—	—	117	D.C. Output 50.0	—	—	—	—	—	—
0Z4 0Z4G	FULL-WAVE GAS-FILLED RECTIFIER	Full- wave Rectifier	C O L D	—	—	1000 peak max. plate to plate	D.C. Output 75.0 max. 30.0 min.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate-capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	8-1		8	F+	A	G	F-	—	—	—	—	—	—	—	—	01A
—	—	—	Starting Voltage = 155 Volts D.C.	21	A	K	IC	K	A	IC	K	—	—	—	—	—	0A2
—	—	—	Starting Voltage = 100 Volts D.C.	30	NC	K	J	—	A	—	J	NC	—	—	—	—	0A3 / VR75
—	—	—	Starter Anode Peak Voltage = 70 Volts. Cathode Peak Current 100 mA.	30	NC	K	NC	—	A	—	A _B	NC	—	—	—	—	0A4G
—	—	—	Starting Voltage = 115 Volts D.C.	21	A	K	IC	K	A	IC	K	—	—	—	—	—	0B2
—	—	—	Starting Voltage = 135 Volts D.C.	30	NC	K	J	—	A	—	J	NC	—	—	—	—	0C3 / VR105
—	—	—	Starting Voltage = 180 Volts D.C.	30	NC	K	J	—	A	—	J	NC	—	—	—	—	0D3 / VR150
—	—	—	Min. and max. operating plate voltages = 83 V. and 87 V. respectively. Quiescent current = 4 mA. Starting voltage = 125 V. D.C. A.C. Resistance = 430 Ω .	29	NC	A	NC	K	NC	NC	NC	K	—	—	—	—	0E3
—	—	—	Quiescent current = 4.5 mA. Starting voltage = 125 volts D.C. max. A.C. resistance = 290 Ω .	21	A	K	IC	K	A	IC	K	—	—	—	—	—	0G3
—	—	—	Condenser Input to Filter. Starter Electrode (100 V.) connected to Anode through a 10 Meg. resistor bypassed with a 0.002 μF capacitor. Min. Series Anode Resistance 50 Ω .	30	S	—	A _B	—	A	—	K	K	—	—	—	—	0Y4
—	—	—	Starting supply voltage per plate = 300 min. peak. Tube drop 24 volts. D.C. output 300 volts max.	30	S	NC	A ₂	—	A ₁	—	NC	K	—	—	—	—	0Z4
				30	NC	—	A ₂	—	A ₁	—	NC	K	—	—	—	—	0Z4G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
IA3	H.F. DIODE	Detector Rectifier	H	1.4	0.15	R.M.S. 117	D.C. Output 0.5 max.	—	—	—	—	—	—
IA4	REMOTE CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	★	—	★
IA4P	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	★	—	★
IA4T	REMOTE CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	★	—	★
IA5G IA5GT	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.05	85 90	3.5 4.0	-4.5 -4.5	85 90	0.7 0.8	800 850	— —	0.3 0.3
IA6	PENTAGRID	Frequency Converter	F	2.0	0.06	★	★	★	★	★	★	—	★
IA7G IA7GT	PENTAGRID	Frequency Converter	F	1.4	0.05	90	0.6	(G ₂) 0	(G ₃₊₄) 45	0.7	Conv. 250	—	0.6
IA8	HEPTODE	Frequency Converter	F	1.4	0.025	65	0.7	(G ₂) 0	(G ₄) 65	0.15	Conv. 300	—	1.0
IA85	POWER OUTPUT PENTODE	Class A Power Amplifier	F	1.25	0.04	67.5 45.0 30.0	2.0 1.0 0.5	-4.5 -3.0 -2.0	67.5 45.0 30.0	0.4 0.2 0.1	750 600 450	— — —	0.15 0.17 0.2
IA86	HEPTODE	Frequency Converter	F	1.4	0.05	35	0.65	(G ₂) 0	(G ₄) 60 See Note	0.14	Conv. 325	—	1.0
IA84	SHARP CUT-OFF PENTODE	R.F. Amplifier	F	1.25	0.1	45	3.0	0	45	0.8	2000	—	0.5
IA85	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.25	0.04	67.5	1.85	-6	67.5	0.75	735	—	0.7

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	—	Condenser input to Filter $2\mu\text{F}$.	21	H	A	K	NC	IC	A	H	—	—	—	—	—	—	IA3
—	—	—	★ For data and notes refer type ID5GT.	8	F	A	G ₂	F	—	—	—	—	—	G ₁	—	—	—	IA4
—	—	0.007	★ For data and notes refer type ID5GP.	8	F+	A	G ₂	F-	—	—	—	—	—	G ₁	—	—	—	IA4P
—	—	—	★ For data and notes refer type ID5GT.	8	F	A	G ₂	F	—	—	—	—	—	G ₁	—	—	—	IA4T
25000	0.1	—	Total Harmonic Distortion 10%.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	—	—	IA5G
25000	0.115	—	Total Harmonic Distortion 7%.															IA5GT
—	—	0.25	★ For data and notes refer type ID7G.	17	F+	A	G ₂	G ₁	G ₃ G ₅	F-	—	—	—	G ₄	—	—	—	IA6
—	—	0.5	Conversion Conductance = 5 μmhos at - 3 volts grid (G ₄) bias. Grid No.2 90 volts at 1.2 mA. Osc. Grid (G ₁) Resistor 0.2 meg. Osc. Grid Current 0.035 mA. Osc. Gm = 600 μmhos .	30	S	F+	A	G ₃ G ₅	G ₁	G ₂	F-	NC	—	G ₄	—	—	—	IA7G IA7GT
—	—	—	Grid No.2 35 V. at 1.65 mA. Osc. Grid (G ₁) Resistor 27,000 Ω . Osc. Grid (G ₁) voltage = 3 V. R.M.S.	21	F-	A	G ₂	G ₁	G ₄	G ₃	F+	—	—	—	—	—	—	1AB6
25000 40000 50000	0.05 0.015 0.005	—	Total Harmonic Distortion 10% in each case.	31	NC	G ₁	NC	F- G ₃	F+	NC	A	G ₂	—	—	—	—	—	IA65
—	—	0.11	Series screen (G ₄) resistor 0.18 meg. Grid 2 voltage = 30 V. (1.65 mA through 33,000 Ω from 90 V. supply). Osc. Grid (G ₁) resistor 27,000 Ω returned to F+. Osc. Grid Current 0.13 mA. Conversion Conductance 3.25 μmhos at - 6 V. grid (G ₂) bias.	21	F-	A	G ₂	G ₁	G ₄	G ₃	F+	—	—	—	—	—	—	1AC6
—	—	0.01	Mutual Conductance = 10 μmhos at - 3.5 volts grid bias.	50	A	G ₂	F- M G ₃	G ₁	F+ G ₃	—	—	—	—	—	—	—	—	1AD4
—	—	0.01	Plate Current = 10 μA for - 6 volts grid bias.	31	NC	G ₁	NC	F- G ₃	F+	NC	A	G ₂	—	—	—	—	—	1AD5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
1A4S	DIODE A.F. PENTODE	Detector, A.F. Amplifier	F	1.4	0.025	90	1.1	0	90	0.4	400	—	1.6
1A4J	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.025	85	1.65	0	64	0.55	750	—	1.0
						64	1.65	0	64	0.55	750	—	0.7
1A4N5	VARIABLE MUTUAL CONDUCTANCE R.F. PENTODE	R.F. Amplifier	F	1.4	0.025	85†	1.7	0	62*	0.7	940	—	0.45
						64†	1.7	0	63*	0.78	880	—	0.25
1AX2	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.4	0.65	Peak Inverse 25000 (absolute max.)	Peak 11 (max.) Average 1 (max.)	—	—	—	—	—	—
1B3GT	HALF-WAVE VACUUM RECTIFIER	TV E.H.T. Rectifier	F	1.25	0.2	Peak Inverse 26,000 (absolute max.)	Peak 50 (max.) Average 0.5 (max.)	—	—	—	—	—	—
		R.F. Rectifier				Peak Inverse 33,000 (absolute max.)	Peak 30 (max.) Average 1.0 (max.)	—	—	—	—	—	—
1B4	SHARP CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	★	★	—
1B4P	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	★	—	★
1B4T	SHARP CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	★	★	—
1B5 / 258	DUO-DIODE TRIODE	Detector, A.F. Amplifier	F	2.0	0.06	135	0.8	-3	—	—	575	20	0.035
1C4	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2.0	0.12	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.3	As R.C. Amplifier (85V. Supply) Following Grid Leak 1.0 meg. Plate Resistor 1.0 meg. Screen Resistor 2.7 meg. Grid Leak 10 meg. Gain = 55 Battery Current 85 μA .	21	F- G ₂	IC	D	G ₂	A	G ₁	F+	—	—	—	—	1A5
—	—	0.01	Mutual Conductance = 10 μmhos at - 5.5 and - 4.1 volts grid bias respectively.	21	F- G ₂ IS	A	G ₂	IC	F- G ₂ IS	G ₂	F+	—	—	—	—	1AJ4
—	—	0.01	†Based on H.T. battery voltage of 90 or 67.5 respectively, minus the bias of the output valve. Voltage relative to F-. Mutual conductance = 10 μmhos . at -5, -3.8 volts grid bias respectively. *Series screen resistor 33000 Ω with 90V supply. 1500 Ω with 67.5V supply.	21	F- IS	A	G ₂	G ₂	F- IS	G ₁	F+	—	—	—	—	1A5
—	—	—	*May be connected to one side of filament, or used as fila- ment resistor tie point. Other- wise do not use.	32	F IS	F	* NC	F IS	F IS	* NC	F	F IS	A	—	—	1AX2
—	—	—	*May be connected to Pin 7 or to Corona Shield: otherwise do not use. Pins 4 and 6 may be used for Filament Resistor Tie Point	30	IC *	F	IC *	—	IC *	NC	F IS	IC *	—	A	—	1B3GT
—	—	—	Frequency of Voltage Supply:— Minimum 1.5 Kc/s. Maximum 100 Kc/s.	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	★ For data and notes refer type 1E5GT.	8	F	A	G ₂	F	—	—	—	—	G ₁	—	—	1B4
—	—	0.007	★ For data and notes refer type 1E5GP.	8	F+	A	G ₂	F-	—	—	—	—	G ₁	—	—	1B4P
—	—	—	★ For data and notes refer type 1E5GT.	8	F	A	G	F	—	—	—	—	G ₁	—	—	1B4T
—	—	3-6	Diode No. 1 Detection. Diode No. 2 A.V.C.	17	F+	A	D ₂	D ₁	G ₁	F-	—	—	—	—	—	1B5 / 25S
—	—	0.01	★ For data and notes refer type 1M5G.	8	F+	A	G ₂	F- G ₃	—	—	—	—	G ₁	—	—	1C4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
1C5G 1C5GT	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	83	7.0	-7	83	1.6	1500	—	0.110
						90	7.5	-7.5	90	1.6	1550	—	0.115
1C6	PENTAGRID	Frequency Converter	F	2.0	0.12	★	★	★	★	★	—	★	
1C7G	PENTAGRID	Frequency Converter	F	2.0	0.12	135	1.3	-3	67.5	2.5	300	—	0.6
						180	1.5	(G ₄) -3	(G ₃₊₄) 67.5	2.0	Conv. 325	—	0.7
1D4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.24	★	★	★	★	★	—	★	
1D5G	REMOTE CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2.0	0.06	★	★	★	★	★	—	★	
1D5GP	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2.0	0.06	90	2.2	-3	67.5	0.9	720	—	0.6
						180	2.3	-3	67.5	0.8	750	—	1.0
1D5GT	REMOTE CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2.0	0.06	135	2.2	-3	67.5	0.7	625	—	0.35
						180	2.2	-3	67.5	0.7	650	—	0.6
1D6	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	H	25.0	0.3	R.M.S. 250 Max.	D.C. Output 100.0 Max.	—	—	—	—	—	
1D7G	PENTAGRID	Frequency Converter	F	2.0	0.06	135	1.2	-3	67.5	2.5	275	—	0.4
						180	1.3	(G ₄) -3	(G ₃₊₄) 67.5	2.4	Conv. 300	—	0.5
1D8GT	DIODE TRIODE POWER OUTPUT PENTODE	Detector, A.F. Amplifier, Power Amplifier	F	1.4	0.1	90	1.1	0	—	—	575	25	0.0435
						90	5.0	-9	90	1.0	925	—	0.2
1DN5	DIODE REMOTE CUTOFF PENTODE	Class "A" Amplifier	F	1.4	0.05	67.5	2.1	0	67.5	0.55	630	—	0.6
1E3	AMPLIFIER TRIODE	U.H.F. Amplifier	F	1.25	0.2	150	20	-3.5	—	—	3500	14	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
9000	0.2	—	Total Harmonic Distortion 10% in each case.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	1C5G
8000	0.24	—			1C5GT											
—	—	0.3	★ For data and notes refer type 1C7G.	17	F+	A	G ₂	G ₁	G ₃ G ₅	F-	—	—	—	G ₄	—	1C6
—	—	0.26	Conversion Conductance = 4 μmhos at - 14 volts grid (G ₄) bias. Grid No. 2 supply 180 V. (4.0 mA) through 20000 Ω . Osc. Grid (G ₁) Resistor 50000 Ω . Osc. Grid Current 0.2 mA. Osc. Gm = 1000 μmhos .	30	NC	F+	A	G ₃ G ₅	G ₁	G ₂	F-	NC	—	G ₄	—	1C7G
★	★	1.0	★ For data and notes refer type 1L5G.	15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	1D4
—	—	—	★ For data and notes refer type 1D5GT.	30	NC	F+	A	G ₂	NC	—	F-	NC	—	G ₁	—	1D5G
—	—	0.007	Mutual Conductance = 15 μmhos at - 15 volts grid bias.	30	NC	F+	A	G ₂	NC	—	F-	NC	—	G ₁	—	1D5GP
—	—	0.01	Mutual Conductance = 15 μmhos at - 15 volts grid bias.	30	NC	F+	A	G ₂	NC	—	F-	NC	—	G ₁	—	1D5GT
—	—	—	Condenser Input to Filter 16 μF . max. Plate Supply Impedance = 50 Ω min.	17	H	A	NC	K	A	H	—	—	—	—	—	1D6
—	—	0.25	Conversion Conductance = 4 μmhos at - 22.5 volts grid bias. Grid No. 2 supply 180 V. (2.3 mA) through 20,000 Ω . Osc. Grid (G ₁) Resistor 50,000 Ω . Osc. Grid Current 0.2 mA. Osc. Gm = 425 μmhos .	30	NC	F+	A	G ₃ G ₅	G ₁	G ₂	F-	NC	—	G ₄	—	1D7G
—	—	—	Triode Unit. Pentode Unit.	30	NC	F+	A ^p	G ₃ ^p	G ₁ ^p	A ^t	F-	D	—	G ₄ ^t	—	1D8GT
—	—	G ₁ -D 0.04	Mutual Conductance = 10 μmhos . at -11.5 volts (G ₁) bias. For use as detector, A.F. amplifier in battery operated receivers.	21	F-	A	G ₂	D	NC	G ₁	F+	—	—	—	—	1D95
—	See Note	1.5	Power output = 0.45 W. at 470 Mc/s. Pin No. 3 to be used for R.F. return to filament circuit.	32	G ₁	NC	F	F+	F-	NC	NC	A	NC	—	—	1E3

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
1E5G	SHARP CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2-0	0-06	★	★	★	★	★	★	—	
1E5GP	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2-0	0-06	90 180	1-6 1-7	-3 -3	67-5 67-5	0-7 0-6	600 650	— —	1-0 1-5
1E5GT	SHARP CUT-OFF R.F. TETRODE	R.F. Amplifier	F	2-0	0-06	180	1-7	-3	67-5	0-4	650	780	—
1E7G 1E7GT	TWIN POWER PENTODE	Class "AB ₁ " Power Amplifier	F	2-0	0-24	135	7-0	-7-5	135	2-0	—	—	—
1E8	PENTAGRID	Frequency Converter	F	1-25	0-04	67-5	1-0	(G ₂) 0	(G ₂₊₊) 67-5 Supply See Note.	1-5	Conv. 150	—	0-4
1F4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-0	0-12	★	★	★	★	★	★	—	★
1F5G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-0	0-12	90 135	4-0 8-0	-3 -4-5	90 135	1-1 2-4	1400 1700	— —	0-24 0-2
1F6	DUO DIODE PENTODE	Detector R.F. and A.F. Amplifier	F	2-0	0-06	★	★	★	★	★	★	—	★
1F7G 1F7GH 1F7GV	DUO DIODE PENTODE	Detector R.F. and A.F. Amplifier	F	2-0	0-06	180	2-2	-1-5	67-5	0-7	650	—	1-0
1G4G 1G4GT 1G4GT/G	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier	F	1-4	0-05	90	2-3	-6	—	—	825	8-8	0-0107
1G5G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-0	0-12	90 135	8-5 8-7	-6 -13-5	90 135	2-5 2-5	1500 1550	— —	0-133 0-160
1G6G 1G6GT 1G6GT/G	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	F	1-4	0-1	90	Zero Signal 2-0 Max. Signal 11-0	0	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type IE5GT.	30	NC	F	A	G ₂	NC	—	F	—	—	G ₁	—	IE5G
—	—	0.007	Plate Current Cut-off at -8 volts grid bias.	30	NC	F+	A	G ₂	NC	—	F-	NC	—	G ₁	—	IE5GP
—	—	—	Plate Current Cut-off at -8 volts grid bias.	30	NC	F	A	G ₂	NC	—	F	—	—	G ₁	—	IE5GT
Plate to Plate 24000	0.575	—	Push-Pull Class AB ₁ . Values are for both units.	30	NC	F+	A ¹¹	G ₁ ¹¹	G ₁ ¹	A ¹	F-	G ₂	—	—	—	IE7G IE7GT
—	—	0.4	Conversion Conductance = 5 μmhos at -9 volts grid (G ₂) bias. Series Screen Resistor 0.02 meg. Osc. Grid (G ₁) Resistor 0.1 meg. Osc. Grid Current 0.07 mA.	31	IC	G ₁	NC	F-	F+	A	G ₂	G ₃	—	—	—	IE8
★	★	—	★ For data and notes refer type IF5G.	15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	IF4
20000	0.11	—	Harmonic Distortion 6%.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	IF5G
16000	0.31	—	Harmonic Distortion 5%.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	IF5G
—	—	0.007	★ For data and notes refer type IF7G.	17	F+	A	G ₂	D ₂	D ₁	F-	—	—	—	G ₁	—	IF6
—	—	0.01	As R.C. Amplifier (135 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Screen Resistor 1.0 meg. Grid Bias - 1 volt. Gain = 48.	30	NC	F+	A	D ₂	D ₁	G ₂	F-	NC	—	G ₁	—	IF7G IF7GH IF7GV
—	—	2.8		30	NC	F+	A	NC	G ₁	—	F-	NC	—	—	—	IG4G IG4GT IG4GT/G
8500	0.25	—	Total Harmonic Distortion 6%.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	IG5G
9000	0.55	—	Total Harmonic Distortion 7%.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	IG5G
12000 plate to plate	0.35	—	Values are for the two units. Effective Grid Circuit Impedance per unit 2530 Ω at 400 cycles. Peak A.F. Grid to Grid volts = 48. Peak Grid Current per unit 6.0 mA.	30	NC	F+	A ¹¹	G ₁ ¹¹	G ₁ ¹	A ¹	F-	NC	—	—	—	IG6G IG6GT IG6GT/G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYPE	Voltage Volts	Current Amps								
1H2	HALF-WAVE VACUUM RECTIFIER	TV E.H.T. Rectifier	H	1.4	0.55	Peak Inverse 30,000 (design max.)	Peak 50 (design max.) Average 0.5 (design max.)	—	—	—	—	—	—
1H4G	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier	F	2.0	0.06	135	3.0	-9	—	900	9.3	0.0103	
		Class "B" Power Amplifier				157.5	Zero Signal 1.0 Peak 50.0 Max.	-15	—	—	—		
1H5G 1H5GT 1H5GT/G	DIODE HIGH μ TRIODE	Detector A.F. Amplifier	F	1.4	0.05	90	0.15	0	—	275	65	0.24	
1H6G	DUO-DIODE TRIODE	Detector A.F. Amplifier	F	2.0	0.06	135	0.8	-3	—	575	20	0.035	
1J3	HALF-WAVE VACUUM RECTIFIER	TV E.H.T. Rectifier	F	1.25	0.2	Peak Inverse 20,000 (design max.)	Peak 50 (design max.) Average 0.5 (design max.)	—	—	—	—	—	
1J6G 1J6GT	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	F	2.0	0.24	135	Zero Signal 10.0 Max. Signal 30.0	0	—	—	—	—	
1K3	HALF-WAVE VACUUM RECTIFIER	TV E.H.T. Rectifier	F	1.25	0.2	Peak Inverse 26,000 (design max.)	Peak 50 (design max.) average 0.5 (design max.)	—	—	—	—	—	
1K4	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	F	2.0	0.12	★	★	★	★	★	—	★	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	F.C.		B.S.
—	—	—		32	H K IS	H	NC	H K IS	H	H K IS	NC	H K IS	H	A	—	1H2
—	—	5.5	D.C. Resistance in the grid circuit should not exceed 2.0 megohms.	30	NC	F+	A	NC	G ₁	—	F-	NC	—	—	—	1H4G
Plate to Plate 8000	2.1		Maximum Signal Driving Power 260 mW.													
—	—	1.0		30	S	F+	A	NC	D	—	F-	NC	—	G ₁	—	1H5G 1H5GT 1H5GT/G
—	—	3.6	Diode No. 1 Detection. Diode No. 2 A.V.C.	30	NC	F+	A	D ₂	D ₁	G ₁	F-	NC	—	—	—	1H6G
—	—	—	*May be connected to Pin No. 7 or to Corona Shield: otherwise do not use. Pins 4 and 6 may be used for Filament Resistor Tie Point.	30	IC *	F	IC *	—	IC *	NC	F	IC *	—	A	—	1J3
Plate to Plate 10000	2.2	—	R.M.S. A.F. Grid to Grid Voltage = 50 volts. Effective Grid Circuit Impedance per unit 1300 Ω . Driving Power 170 mW. Total Distortion 10%. Values are for two units.	30	NC	F+	A ^{II}	G ₁ ^{II}	G ₁ ^I	A ^I	F-	NC	—	—	—	1J6G 1J6GT
—	—	—	*May be connected to Pin No. 7 or to Corona Shield: otherwise do not use. Pins 4 and 6 may be used for Filament Resistor Tie Point.	30	IC *	F	IC *	—	IC *	NC	F	IC *	—	A	—	1K3
—	—	0.01	★ For data and notes refer type 1K5G.	8	F+	A	G ₂	F-	—	—	—	—	—	G ₁	—	1K4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
IK5G	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	F	2-0	0-12	135	2-5	0	67-5	0-93	1050	—	1-0
IK6	DUO-DIODE SHARP CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	F	2-0	0-12	★	★	★	★	★	★	—	★
IK7G	DUO-DIODE SHARP CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	F	2-0	0-12	135	0-9	-3	90	0-35	600	—	2-0
						135	1-8	0	67-5	0-7	800	—	1-25
IL4	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	F	1-4	0-05	90	2-9	0	67-5	1-2	925	—	0-6
						90	4-5	0	90	2-0	1025	—	0-35
IL5G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-0	0-24	135	6-0	-4-5	135	1-5	2150	—	0-15
						180	9-5	-6	180	2-3	2400	—	0-137
IL6	PENTAGRID	Frequency Converter	F	1-4	0-05	90	0-5	(G ₄) 0	(G ₃₊₅) 45	0-6	Conv. 300	—	0-65
ILA4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1-4	0-05	90	4-0	-4-5	90	0-8	850	—	0-3

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.01	<p>Plate Current Cut-off at -6 V. grid bias. As R.C. Amplifier (135 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Screen Resistor 0.75 meg. Grid Bias -1.5 V. Gain = 75. As Triode Amplifier (Screen tied to plate). Plate 180 V. at 5.9 mA. Bias -6.0 V. Load = $10,000\Omega$. Power Output = 100 mW at 5% Distortion.</p>	30	NC	F+	A	G_2	NC	—	F-	NC	—	G_1	—	1K56
—	—	0.015	<p>★ For data and notes refer type 1K7G.</p>	17	F+	A	D_2	D_1	G_2	F-	—	—	G_1	—	1K6	
—	—	0.015	<p>Plate Current Cut-off at -6.5 V. and -4.0 V. grid bias respectively. As R.C. Amplifier (135 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Screen Resistor 1.0 meg. Grid Bias -1.5 V. Gain = 76. As Triode Amplifier (Screen tied to plate). Plate 180 V. at 3.5 mA. Bias -6.0 V. Load = $40,000\Omega$. Power Output = 60 mW at 5% Distortion.</p>	30	NC	F+	A	D_2	D_1	G_2	F-	NC	—	G_1	—	1K7G
—	—	0.008	<p>Plate Current = 10 μA for -6 V. and -8 V. grid bias respectively. As R.C. Amplifier (135 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 1.0 meg. Screen Resistor 2.1 meg. Gain = 53.</p>	21	F-	G_2	A	G_2	NC	F-	G_2	G_1	F+	—	—	1L4
15000	0.35	1.0	Total Harmonic Distortion 10% .	30	NC	F+	A	G_2	G_1	—	F-	NC	—	—	—	1L5G
15000	0.75		Total Harmonic Distortion 8% .													
—	—	0.46	<p>Oscillator plate (G_2) voltage 90. Oscillator plate (G_2) current 1.2 mA. Oscillator grid (G_1) resistor 0.2 mΩ.</p>	21	F-	A	G_2	G_1	NC	G_3	G_4	F+	—	—	—	1L6
—	—	0.15	<p>Total cathode current 2.35 mA. Conversion conductance = 10 μmhos at -3.5 volts grid (G_4) bias.</p>													
25000	0.15	—	Total Harmonic Distortion 7% .	29	F+	A	G_2	NC	NC	G_1	NC	F-	—	—	S	1LA4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
ILA6	PENTAGRID	Frequency Converter	F	1.4	0.05	90	0.55	(G ₄) 0	(G ₂₊₃) 45	0.6	Conv. 250	—	0.75
ILB4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.05	90	5.0	-9	90	1.0	925	—	0.2
ILC5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	90	1.15	0	45	0.3	775	—	1.5
ILC6	PENTAGRID	Frequency Converter	F	1.4	0.05	90	0.75	(G ₄) 0	(G ₂₊₃) 35	0.7	Conv. 275	—	0.65
ILD5	DIODE SHARP CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	F	1.4	0.05	90	0.6	0	45	0.1	575	—	0.75
ILE3	AMPLIFIER TRIODE	A.F. Amplifier	F	1.4	0.05	90 90	1.4 4.5	-3 0	— —	— —	760 1300	14.5 14.5	— —
ILG5	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	90 90	3.7 1.7	-1.5 0	90 45	0.9 0.4	1150 800	— —	0.5 1.0
ILH4	DIODE HIGH μ TRIODE	Detector A.F. Amplifier	F	1.4	0.05	90	0.15	0	—	—	275	65	0.24
ILN5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	90	1.6	0	90	0.35	800	—	1.1
IM3	TUNING INDICATOR	Tuning Indicator	F	1.4	0.025	90 See Note	See Note	See Note	—	—	—	—	—
IM5G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2.0	0.12	135	2.5	0	67.5	0.9	1000	—	0.8

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.4	Conversion Conductance = 10 μmhos at - 3 volts grid (G_4) bias. Grid No. 2 90 V. at 1.2 mA. Osc. Grid (G_1) Resistor 0.2 meg. Osc. Grid Current 0.035 mA. Osc. $G_m = 550 \mu\text{mhos}$.	29	F+	A	G_2	G_1	G_3 G_5	G_4	NC	F-	—	—	S	ILA6
12000	0.2	—	Total Harmonic Distortion 10%.	29	F+	A	G_2	IC	NC	G_1	NC	F- G_3	—	—	S	ILB4
—	—	0.007	Plate Current = 20 μA at - 2.5 volts grid bias.	29	F+	A	G_2	G_3	F- IS	G_1	NC	F- IS	—	—	S	ILC5
—	—	0.28	Conversion Conductance = 5 μmhos at - 3 volts grid (G_4) bias. Grid No. 2 45 V. at 1.4 mA. Osc. Grid (G_1) Resistor 0.2 meg. Osc. Grid Current 0.035 mA. Osc. $G_m = 550 \mu\text{mhos}$.	29	F+	A	G_2	G_1	G_3 G_5	G_4	NC	F-	—	—	S	ILC6
—	—	0.18	Plate Current Cut-off at - 2.5 V. grid bias.	29	F+	A	G_2	D	NC	G_1	NC	F- G_3	—	—	S	ILD5
—	—	1.7		29	F+	A	NC	NC	IC	G_1	NC	F-	—	—	S	ILE3
—	—	0.007	Mutual Conductance = 10 μmhos at - 19 volts bias. Mutual Conductance = 10 μmhos at - 10 volts bias.	29	F+	A	G_2	G_3	F- IS	G_1	NC	F- IS	—	—	S	ILG5
—	—	—		29	F+	A	NC	D	NC	G_1	NC	F-	—	—	S	ILH4
—	—	0.007	Plate Current Cut-off at - 4.5 volts bias.	29	F+	A	G_2	G_3	F-	G_1	NC	F-	—	—	S	ILN5
—	—	—	Min. plate voltage for uniform illumination = 60 volts. Grid voltage for extinction - 10 V. Grid voltage for max. light 0 V. Plate current at zero grid voltage = 0.1 mA. Lead wires = 32 millimetres.	31	G_1	IC	NC	F	F	NC	NC	A	—	—	—	IM3
—	—	0.01	Mutual Conductance = 4 μmhos at - 16 volts bias.	30	NC	F+	A	G_2	NC	—	F-	NC	—	G_1	—	IM5G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
1N2	HALF-WAVE VACUUM RECTIFIER	TV E.H.T. Rectifier	F	1-25	0-2	Peak Inverse 28,000 (design max.)	Peak 50 (design max.) Average 0-5 (max.)	—	—	—	—	—	
IN5G IN5GT IN5GT/G	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1-4	0-05	90	1-2	0	90	0-3	750	— 1-5	
IP5G IP5GT IP5GT/G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1-4	0-05	90	2-3	0	90	0-7	750	— 0-8	
IQ5G IQ5GT IQ5GT/G	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	1-4	0-1	90 85	9-5 7-0	-4-5 -5-0	90 85	1-3 0-8	2200 1950	— — 0-075 0-07	
IR5	PENTAGRID	Frequency Converter	F	1-4	0-05	90	1-6	0	67-5	3-2	300	—	
						67-5	1-4	0 (G ₄)	67-5 (G ₄₊₄)	3-2	Conv. 280	— 0-5	
1B2 1B2A	HALF-WAVE VACUUM RECTIFIER	E.H.T. Rectifier	H	1-4	0-55	Peak Inverse 22,000 (max.)	Peak 40 (max.) Average 0-5 (max.)	—	—	—	—	—	
1B4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1-4	0-1	90	7-4	-7	67-5	1-4	1575	—	
						67-5	7-2	-7	67-5	1-5	1550	—	
						45	3-8	-4-5	45	0-8	1250	—	
1B5	DIODE SHARP CUT-OFF PENTODE	Detector A.F. Amplifier	F	1-4	0-05	90	2-7	0	90	0-5	720	—	
						67-5	1-6	0	67-5	0-4	625	—	
1T4	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1-4	0-05	90	3-5	0	67-5	1-4	900	—	
						67-5	3-4	0	67-5	1-5	875	—	
1T5GT	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	1-4	0-05	90	6-5	-6	90	0-8	1150	—	
1T6	DIODE SHARP CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	F	1-25	0-04	67-5	1-6	0	67-5	0-4	600	—	
1U4	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1-4	0-05	90	1-6	0	90	0-45	900	—	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	*May be connected to Pin No. 7 or to Corona Shield: otherwise do not use. Pins 4 and 6 may be used for Filament Resistor Tie Point.	30	IC *	F	IC *	—	IC *	NC	F	IC *	—	A	—	1N2
—	—	0.007	Mutual Conductance = $5\mu\text{mhos}$ at - 4 volts bias.	30	S	F+	A	G_2	NC	—	F-	NC	—	G_1	—	1N5G 1N5GT 1N5GT/G
—	—	0.007	Mutual Conductance = $10\mu\text{mhos}$ at - 12 volts bias.	30	S	F+	A	G_2	NC	—	F-	NC	—	G_1	—	1P5G 1P5GT 1P5GT/G
8000 9000	0.27 0.25	—	Total Harmonic Distortion 6%. Total Harmonic Distortion 5.5%	30	NC	F+	A	G_2	G_1	—	F-	NC	—	—	—	1Q5G 1Q5GT 1Q5GT/G
—	—	0.4	Conversion Conductance = $5\mu\text{mhos}$ at - 14 volts grid (G_3) bias. Osc. Grid (G_1) Current 0.25 mA. Osc. Grid Resistor 0.1 meg. Total Cathode Current 5.0 mA.	21	F- G_3	A	G_2 G_4	G_1	F- G_5	G_3	F+	—	—	—	—	1R5
—	—	—	Pins 1, 4, 6, 9 may be used for fixing an anti-corona ring. Type 182-A has a chemically treated envelope for use under humid conditions.	32	H K IS	H	IC	H K IS	H	H K IS	IC	H	H K IS	A	—	182 182-A
8000 5000 8000	0.27 0.18 0.065	—	Total Distortion 12%. Total Distortion 10%. Total Distortion 12%.	21	F- G_3	A	G_1	G_2	F- G_3	A	F+	—	—	—	—	184
—	—	0.4	Mutual Conductance = $10\mu\text{mhos}$ at - 5 volts grid bias. ($V_b=67.5$) As R.C. Amplifier (135 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 1.0 meg. Screen Resistor 3.1 meg. Grid Leak 10.0 meg. Gain = 56.	21	F- G_3	NC	D	G_2	A	G_1	F+	—	—	—	—	185
—	—	0.01	Mutual Conductance = $10\mu\text{mhos}$ at - 16 volts bias.	21	G_3 F- IS	A	G_2	NC	G_3 F- IS	G_1	F+	—	—	—	—	1T4
14000	0.17	—	Total Distortion 7.5%.	30	NC	F+	A	G_2	G_1	—	F-	NC	—	—	—	1T5GT
—	—	—	Mutual Conductance = $25\mu\text{mhos}$ at - 5 volts grid bias.	31	A	NC	G_1	F- G_3	F+	D	NC	G_2	—	—	—	1T6
—	—	0.008	Mutual Conductance = $10\mu\text{mhos}$ at - 4.5 volts bias.	21	F- G_3 IS	A	G_2	NC	F- G_3 IS	G_1	F+	—	—	—	—	1U4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor*	Plate resistance Meg-ohms
			TYP E	Voltage Volts								
1U5	DIODE SHARP CUT-OFF PENTODE	Detector A.F. Amplifier	F	1.4	0.05	★	★	★	★	★	—	★
IV	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	H	6.3	0.3	Max. R.M.S. 325	D.C. Output 45	—	—	—	—	—
IV2	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	F	0.625	0.3	Peak Inverse 7500	Peak 10.0 Average 0.5	—	—	—	—	—
1X2-A	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.25	0.2	Peak [†] Inverse 18000 (max.)	Peak 10 (max.) Average 1 (max.)	—	—	—	—	—
1X2-B	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.25	0.2	Peak Inverse 22000 (absolute max.)	Peak 45 (max.) Average 0.5 (max.)	—	—	—	—	—
2A3	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	2.5	2.5	250	60.0	-4.5	—	5250	4.2	800 Ohms.
		Class "AB ₁ " Power Amplifier				300	Zero Signal 80.0 Max. Signal 100.0	See Note	—	—	—	—
2A5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	2.5	1.75	★	★	★	★	★	—	★
2A6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	2.5	0.8	★	★	★	—	—	★	★
2A7	PENTAGRID	Frequency Converter	H	2.5	0.8	★	★	★	★	★	—	★
2B7	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	2.5	0.8	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	—	★ For data and notes refer type IS5.	21	F- G ₃	A	G ₂	D	NC	G ₁	F+	—	—	—	—	—	—	1U5
—	—	—	With less than 40 μF condenser input to filter, minimum plate supply impedance = 75 Ω min. Greater supply impedances required for larger input capacities.	8	H	A	K	H	—	—	—	—	—	—	—	—	—	IV
—	—	—		32	IC	IC	IC	F	F	IC	IC	IC	A	—	—	—	—	IV2
—	—	—	*Pins 3 and 7 may be connected to one side of filament. Otherwise do not use. †Max. pulse duration 10 μsec .	32	F IS	F F	* NC	F IS	F F	F IS	* NC	F F	F IS	A	—	—	—	1X2-A
—	—	—	*Do not use. The D.C. component of peak inverse plate voltage given must not exceed 18000 volts.	32	F IS	F F	* NC	F IS	F F	F IS	* NC	F F	F IS	A	—	—	—	1X2-B
2500	3.5	16.5	Second Harmonic Distortion 5%. For Self-biased Operation the Cathode Bias Resistor should be 750 Ω .	8	F	A	G ₁	F	—	—	—	—	—	—	—	—	—	2A3
Plate to Plate 5000	10.0		Values are for two tubes. Peak A.F. Grid to Grid voltage = 156 volts. Cathode Bias Resistor 780 Ω . Total Harmonic Distortion 5%.															
★	★	—	★ For data and notes refer type 6F6G. For replacement consider also type 42.	17	H	A	G ₂	G ₁	K	H	—	—	—	—	—	—	—	2A5
—	—	1.7	★ For data and notes refer type 6SQ7GT. For replacement consider also types 6B6G and 75.	17	H	A	D ₂	D ₁	K	H	—	—	—	G ₁	—	—	—	2A6
—	—	0.3	★ For data and notes refer type 6A8. For replacement consider also type 6A7.	19	H	A	G ₃ G ₂	G ₂	G ₁	K	H	—	—	G ₄	—	—	—	2A7
—	—	0.007	★ For data and notes refer type 6B8G. For replacement consider also type 6B7.	19	H	A	G ₂	D ₂	D ₁	K G ₃	H	—	—	G ₁	—	—	—	2B7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
2D2I	GAS-FILLED TETRODE	Thyratron	H	6.3	0.6	117 R.M.S. 400	— —	R.M.S. 5.0 — 6	0 0	— —	— —	— —	— —
2E5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	2.5	0.8	★	★	★	—	—	—	—	—
2V3G	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	F	2.5	5.0	Peak Inverse 16500	Peak Average 12.0 2.0	—	—	—	—	—	—
2X2 / 879	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	H	2.5	1.75	Peak Inverse 12500	Peak Average 60.0 7.5	—	—	—	—	—	—
2X2A	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	H	2.5	1.75	Peak Inverse 12500	Peak Average 60.0 7.5	—	—	—	—	—	—
3A2	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	H	3.15	0.22	Peak Inverse 18000 (max.)	Peak Average 80 (max.) 1.5 (max.)	—	—	—	—	—	—
3A3	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	H	3.15	0.22	Peak Inverse 30000 (max.)	Peak Average 80 (max.) 1.5 (max.)	—	—	—	—	—	—
3A4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.8 1.4	0.1 0.2	150 135	13.3 14.8	-8.4 -7.5	90 90	2.2 2.6	1900 1900	— —	0.1 0.09
3A5	H.F. TWIN TRIODE	Class "C" R.F. Power Amplifier	F	2.8 1.4	0.11 0.22	135	30.0	-20	—	—	—	—	—
3A8GT	DIODE TRIODE R.F. PENTODE	Detector A.F. Amplifier, R.F. Amplifier	F	2.8 1.4	0.05 0.1	90 90	0.2 1.5	0 0	— 90	— 0.5	325 750	65 —	0.2 0.8

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
— —	— —	—	Minimum Anode Circuit Resistance 1200 Ω and 2000 Ω respectively. Cathode Current: Peak 0.5 A. max. Average 0.1 A. max.	21	G ₁	K	H	H	G ₂	A	G ₂	—	—	—	—	2D21
—	—	—	★ For data and notes refer type 6E5.	17	H	A	G ₁ ^t	T	K	H	—	—	—	—	—	2E5
—	—	—	For use with Cathode Ray Tubes.	30	NC	F	NC	—	NC	—	F	NC	—	A	—	2V3G
—	—	—	Replace with 2X2A.	8	H	NC	NC	H K	—	—	—	—	—	A	—	2X2 / 879
—	—	—	For use with Cathode Ray Tubes. R.M.S. Plate Volts 4500.	8	H	NC	NC	H K	—	—	—	—	—	A	—	2X2A
—	—	—	*Do not use.	32	H K IS	H	* NC	H K IS	H	H K IS	* NC	H	H K IS	A	—	3A2
—	—	—	*Do not use.	30	* IC	H	* IC	—	* IC	—	H K IS	* IC	—	A	—	3A3
8000 8000	0.7 0.6	0.34	Series Filaments between pins 1 and 7. Parallel Filaments between pin 5 and 1, 7 tied together.	21	F—	A	G ₂	G ₁	F _t G ₃	A	F+	—	—	—	—	3A4
—	2.0	3.2	Peak R.F. Grid to Grid V. = 90. D.C. Grid Current 5.0 mA. Driving Power 0.2 watt. Values for both units in push-pull at 40 megacycles.	21	F—	A ¹¹	G ₁ ¹¹	F _t	G ₁ ¹	A ¹	F+	—	—	—	—	3A5
— —	— —	2.0 0.012	Triode Unit. Pentode Unit.	30	F _t G ₂ ^p IS	F+	A ^p	G ₂ ^p	G ₁ ^t	A ^t	F—	D	—	G ₁ ^p	—	3A8GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
3B2	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	H	3-15	0-22	Peak Inverse 35000 (absolute max.)	Peak 80 (max.) Average 1-1 (max.)	—	—	—	—	—	—
3C4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1-4 2-8	0-05 0-025	85	5-0	-5-2	85	1-0	1400	—	—
3LF4	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	2-8 1-4	0-05 0-1	★	★	★	★	★	★	—	★
3Q4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-8 1-4	0-05 0-1	★	★	★	★	★	★	—	★
3Q5G 3Q5GT 3Q5GT/G	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	2-8 1-4	0-05 0-1	110 90	8-5 8-0	-6-6 -4-5	110 90	1-1 1-0	2000 2000	— —	0-11 0-08
3Q4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-8 1-4	0-05 0-1	110 90	10-0 9-5	-6-6 -4-5	110 90	1-4 1-3	2200 2200	— —	0-1 0-09
3B4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-8 1-4	0-05 0-1	67-5 90	6-0 6-1	-7-0 -7-0	67-5 67-5	1-2 1-1	1400 1425	— —	0-1 0-1
3B4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2-8 1-4	0-05 0-1	67-5 90	7-2 7-4	-7-0 -7-0	67-5 67-5	1-5 1-4	1550 1575	— —	0-1 0-1

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	<p>*Do not use.</p> <p>To aid in corona reduction:— Pins 1, 3, 5, 7 may be connected together. Pins 2, 6, 8 may be connected together. Pin 4 may be used as a high potential tie point, or may be connected to either pin 2 or pin 7.</p>	30	*	H	*	NC	*	*	H	*	—	A	—	3B2	
14,000	0.2	—		21	F—	A	G ₂	NC	F _t G ₃	G ₁	F+	—	—	—	—	3C4	
★	★	—	★ For data and notes, except filament base pin numbering, refer type 3Q5GT.	29	F+	A	G ₂	NC	NC	G ₁	F _t G ₃	F—	—	—	S	3LF4	
★	★	—	★ For data and notes refer type 3V4.	21	F—	A	G ₁	G ₂	F _t G ₃	A	F+	—	—	—	—	3Q4	
8000	0.33	0.6	<p>Filament Voltage applied across the two sections in series between pins 2 and 7. Grid Voltage referred to pin 7. Total Harmonic Distortion 8.5% in each case.</p>	30	NC	F+	A	G ₂	G ₁	—	F—	F _t G ₃	—	—	—	—	3Q5G 3Q5GT 3Q5GT/G
8000	0.23																
8000	0.4																
8000	0.27																
5000	0.16*	0.4	<p>Filament Voltage applied across the two sections in series between pins 1 and 7. Grid Voltage referred to pin 1. *Total Harmonic Distort. 12%. †Total Harmonic Distort. 13%.</p>	21	F—	A	G ₁	G ₂	F _t G ₃	A	F+	—	—	—	—	—	3B4
8000	0.235†																
5000	0.18*																
8000	0.27†																

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage	Current								
				Volts	Amps								
3V4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.8	0.05	90	7.7	-4.5	90	1.7	2000	—	0.12
				1.4	0.1	85	6.9	-5.0	85	1.5	1975	—	0.12
						90	9.5	-4.5	90	2.1	2150	—	0.1
4AU6	SHARP CUTOFF R.F. PENTODE	R.F., A.F. Amplifier	H	4.2	0.45	★	★	★	★	★	—	★	
4CB6	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	4.2	0.45	★	★	★	★	★	—	★	
4CM4	HIGH SLOPE U.H.F. TRIODE	U.H.F. Amplifier	H	3.8	0.3	★	★	★	—	—	★	★	—
4DT6	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	4.2	0.45	★	★	★	★	★	—	★	
5AR4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5.0	1.9	R.M.S. 2 × 550 (max.) 2 × 450 2 × 350	Full-load D.C. Output 160 250 (max.) 250 (max.)	—	—	—	—	—	—
5A84 5A84A	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5.0	3.0	R.M.S. 2 × 550 (max.) 2 × 450 2 × 300	Full-load D.C. Output 162 275 300	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
10000	0.24	0.2	Filament Voltage applied across the two sections in series between pins 1 and 7. Grid Voltage referred to pin 1. Total Harmonic Distortion 7%.	21	F-	A	G ₂	NC	F _t	G ₁	F+	-	-	-	-	3V4
10000	0.25*		Filament Voltage applied across the two sections in parallel between pin 5 and 1, 7 tied together. Grid Voltage referred to pin 5. *Total Harmonic Distort. 10%.		G ₃											
10000	0.27†		†Total Harmonic Distortion 7%.													
—	—	0.0035	Controlled Heater warm-up time = 11 secs. ★ For data and notes refer type 6AUG.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	-	-	-	-	4AUG
—	—	0.02	Controlled Heater warm-up time = 11 secs. ★ For data and notes refer type 6CB6.	21	G ₁	K	H	H	A	G ₂	G ₃ IS	-	-	-	-	4CB6
★	—	2.0	★ For data and notes refer type 6CM4.	32	A	G	K	H	H	G	K	G	A	-	-	4CM4
—	—	0.02	Controlled Heater warm-up time = 11 secs. ★ For data and notes refer type 6DT6.	21	G ₁	K IS	H	H	A	G ₂	G ₃	-	-	-	-	4DT6
—	—	—	Capacitor Input to Filter 60 μF . (max.). Full-load D.C. Output Voltage at Input to Filter 640, 480, 380 respectively. Total Effective Plate Supply Impedance per Plate 200, 150, 100 ohms respectively.	30	IC	F	-	A ₂	-	A ₁	-	H K	-	-	-	5AR4
—	—	—	Capacitor Input to Filter 40 μF . Full-load D.C. Output Voltage at Input to Filter 630, 460, 290 respectively. Total Effective Plate Supply Impedance per Plate 97, 67, 21 ohms respectively. Greater Supply Impedance required for larger Input Capacities.	30	NC	F	-	A ₂	-	A ₁	-	F	-	-	-	5A84 5A84A

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts								
5AU4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5.0	3.75	R.M.S. 2 x 500 (max.) 2 x 400 2 x 300	Full-load D.C. Output 210 325 350	—	—	—	—	—
5AZ4	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	F	5.0	2.0	R.M.S. 2 x 350	D.C. Output 125.0	—	—	—	—	—
5BQ7-A	MEDIUM μ TWIN TRIODE	R.F. Amplifier	H	5.6	0.45	★	★	★	—	—	★	★
5CU4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5.0	3.5	R.M.S. 2 x 260	Full-load D.C. Output 385	—	—	—	—	—
5R4GY	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5.0	2.0	Max. R.M.S. 2 x 750	D.C. Output 250.0	—	—	—	—	—
5T4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5.0	2.0	Max. R.M.S. 2 x 450	D.C. Output 225.0	—	—	—	—	—
5U4G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5.0	3.0	R.M.S. 450 300	Full load D.C. Output 225 245	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate-capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	Capacitor Input to Filter 40 μF . Full-load D.C. Output Voltage at Input to Filter 615, 395, 275 respectively. Total Effective Plate Supply Impedance per Plate 77, 50, 30 ohms respectively. Greater Supply Impedances required for larger input capacities.	30	NC	F	—	A ₂	—	A ₁	—	F	—	—	—	—	5AU4
—	—	—	With less than 40 μF . condenser input to filter, minimum plate supply impedance = 50 Ω per plate. Greater supply impedances required for larger input capacities.	29	NC	F	NC	A ^I	NC	A ^{II}	NC	F	—	—	S	—	5AZ4
—	—	1-15	Controlled Heater warm-up time = 11 secs. ★ For data and notes refer type 6BQ7-A.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	IS	—	—	—	5BQ7-A
—	—	—	Capacitor Input to Filter 40 μF . Full-load D.C. Output Voltage at Input to Filter 300. Total Effective Plate Supply Impedance per Plate 30 ohms. Greater Supply Impedances required for Larger Input Capacities.	30	K	H	—	A ₂	—	A ₁	—	H	—	—	—	—	5CU4
—	—	—	Condenser Input to Filter = 4 μF .	30	NC	F	—	A ^{II}	—	A ^I	—	F	—	—	—	—	5R4GY
—	—	—	With less than 40 μF . condenser input to filter, minimum plate supply impedance = 150 Ω per plate. Greater supply impedances required for larger input capacities.	30	S	F	—	A ^{II}	—	A ^I	—	F	—	—	—	—	5T4
—	—	—	Total Effective Plate Supply Impedance per plate 85, 35 Ω respectively. Filter Input Capacitor 40 μF . D.C. Output Voltage at Input to Filter 470, 290 volts.	30	NC	F	—	A ^I	—	A ^{II}	—	F	—	—	—	—	5U4G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
5U4GB	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	3-0	R.M.S. 2 x 550 (max.) 2 x 450 2 x 300	Full-load D.C. Output 162 275 300	—	—	—	—	—	—
5V3	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	3-8	R.M.S. 2 x 500 (max.) 2 x 425 2 x 300	Full-load D.C. Output 220 350 380	—	—	—	—	—	—
5W4 5W4GA	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5-0	2-0	R.M.S. 2 x 375 (max.)	Full-load D.C. Output 175 (max.)	—	—	—	—	—	—
5W4 5W4G 5W4GT 5W4GT/G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	1-5	Max. R.M.S. 2 x 350	D.C. Output 100-0	—	—	—	—	—	—
5X4G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	3-0	★	★	—	—	—	—	—	—
5Y3G 5Y3GT 5Y3GT/G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	2-0	R.M.S. 2 x 500 (max.) 2 x 350	Full-load D.C. Output 84 125	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	—	Capacitor Input to Filter 40 μF . Full-load D.C. Output Voltage at Input to Filter 630, 460, 290 respectively. Total Effective Plate Supply Impedance per Plate 97, 67, 21 ohms respectively. Greater Supply Impedances required for Larger Input Capacities.	30	NC	F	—	A ₂	—	A ₁	—	F	—	—	—	—	—	5U4GB
—	—	—	Capacitor Input to Filter 40 μF . Full-load D.C. Output Voltage at Input to Filter 630, 430, 285 respectively. Total Effective Plate Supply Impedance per Plate 75, 56, 24 ohms respectively. Greater Supply Impedances required for Larger Input Capacities.	30	NC	F	—	A ₂	—	A ₁	—	F	—	—	—	—	—	5V3
—	—	—	Capacitor Input to Filter 10 μF . Full-load D.C. Output Voltage at Input to Filter 410. Total Effective Plate Supply impedance per Plate 100 ohms. Greater Supply Impedances required for Larger Input Capacities.	30	NC	H	—	A ₂	—	A ₁	—	H	K	—	—	—	—	5V4G 5V4GA
—	—	—	With less than 4 μF . condenser input to filter, minimum plate supply impedance = 50 Ω per plate. Greater supply impedances required for larger input capacities.	30	S	F	—	A''	—	A'	—	F	—	—	—	—	—	5W4 5W4G 5W4GT 5W4GT/G
—	—	—	★ For data and notes refer type 5U4G.	30	NC	NC	A''	NC	A'	NC	F	F	—	—	—	—	—	5X4G
—	—	—	Capacitor Input to Filter 10 μF . Full-load D.C. Output Voltage at Input to Filter 560, 350 respectively. Total Effective Plate Supply Impedance per Plate 140, 50 ohms respectively. Greater Supply Impedances required for Larger Input Capacities.	30	NC	F	—	A ₂	—	A ₁	—	F	—	—	—	—	—	5Y3G 5Y3GT 5Y3GT/G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
5Y4G 5Y4GA 5Y4GT	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	2-0	R.M.S. 2 x 500 (max.) 2 x 350	Full-load D.C. Output 84 125	—	—	—	—	—	—
5Z3	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	3-0	★	★	—	—	—	—	—	—
5Z4 5Z4G 5Z4GT 5Z4GT/G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5-0	2-0	Max. R.M.S. 2 x 350	D.C. Output 125-0	—	—	—	—	—	—
6A3	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	6-3	1-0	Max. 250	60-0	-45	—	—	5250	4-2	800 Ohms.
		Class "AB ₁ " Power Amplifier				Max. 325	80-0 Zero Signal	See Note	—	—	—	—	—
6A4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	6-3	0-3	180	22-0	-12	180	3-9	2200	—	0-0455
6A6	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	H	6-3	0-8	★	★	★	—	—	—	—	—
6A7	PENTAGRID	Frequency Converter	H	6-3	0-3	★	★	★	★	★	★	—	★
6A8 6A8G 6A8GT	PENTAGRID	Frequency Converter	H	6-3	0-3	250	3-5	(G ₁) -3	(G _{1,2}) 100	2-7	Conv. 550	—	0-36
6AB4	TRIODE	R.F. Amplifier	H	6-3	0-15	100	3-0	-1	—	—	3500	58	—
						170	8-5	-1	—	—	5500	66	—
						200	11-5	-1	—	—	6400	66	—
						250	10-0	-2	—	—	5000	60	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Capacitor Input to Filter 10 μF . Full-load D.C. Output Voltage at Input to Filter 560, 350 respectively. Total Effective Plate Supply Impedance per Plate 140, 50 ohms respectively. Greater Supply Impedances required for Larger Input Capacities.	30	NC	NC	A ₂	NC	A ₁	NC	F	F	—	—	—	} 5Y4G 5Y4GA 5Y4GT
					NC	NC	A ₂	—	A ₁	—	F	F	—	—		
—	—	—	★ For data and notes refer type 5U4G. For replacement consider also type 5X4G.	8	F	A ^I	A ^{II}	F	—	—	—	—	—	—	—	5Z3
—	—	—	With less than 40 μF . condenser input to filter, minimum plate supply impedance = 50 Ω per plate. Greater supply impedances required for larger input capacities.	30	S	H	—	A ^{II}	—	A ^I	—	H	—	—	—	} 5Z4G 5Z4GT 5Z4GT/G
					NC	H	—	A ^{II}	—	A ^I	—	H	K	—		
2500	3.2	—	Second Harmonic Distortion 5%. For Self-biased Operation Cathode Bias Resistor should be 750 Ω .	8	F	A	G	F	—	—	—	—	—	—	—	6A3
5000 plate to plate	10.0	—	Cathode Bias Resistor 850 Ω . Total Harmonic Distortion 5%. Values are for two tubes.													
8000	1.4	—		15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	6A4
★	★	—	★ For data and notes refer type 6N7.	20	H	A ^{II}	G ₁ ^{II}	K	G ₁ ^I	A ^I	H	—	—	—	—	6A6
—	—	0.3	★ For data and notes refer type 6A8.	19	H	A	G ₃ G ₅	G ₂	G ₁	K	H	—	—	G ₄	—	6A7
—	—	0.06	Conversion Conductance = 6 μmhos at - 35 volts (G ₄) bias. Grid No. 2 Current 4.0 mA. through 20,000 Ω (250 volt supply). Osc. Grid (G ₁) Current 0.4 mA. Osc. Grid Resistor 50,000 Ω	30	S	H	A	G ₃ G ₅	G ₁	G ₂	H	K	—	G ₄	—	6A8
		0.26			NC	H	A	G ₃ G ₅	G ₁	G ₂	H	K	—	G ₄	—	6A8G
		0.26			S	H	A	G ₃ G ₅	G ₁	G ₂	H	K	—	G ₄	—	6A8GT
—	—	1.5		21	A	IS	H	H	NC	G ₁	K	—	—	—	—	6AB4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6AB5 6AB5/ 6N5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0-15	★	★	★	—	—	—	—	—
6AB7 6AB7/ 1853	TELEVISION MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-45	300	12-5	-3	200	3-2	5000	—	0-7
6AB8	MEDIUM μ TRIODE POWER OUTPUT PENTODE	A.F. Amplifier (Triode Section)	II	6-3	0-3	100	8-0	0	—	—	1900	20	—
		Class "A" Power Amplifier (Pentode Section)				250	14-0	-12-2	†	2-6	2600	—	0-2
		Pentode Sync. Pulse Sep.				170	15-0	-6-7	170	2-8	3200	—	0-15
		Vertical Deflection Amplifier (Pentode Section)				Plate Voltage 20 Suppressor Grid (G ₃) Voltage 0 Screen Grid (G ₂) Voltage 12 D.C. Plate Voltage without current 550 max. with current 400 max. Peak Positive—Pulse Plate Voltage 1200 max. Peak Negative—Pulse Plate Voltage 500 max. D.C. Screen Grid Voltage without current .. 550 max. with current .. 250 max.							
6AC5G 6AC5GT 6AC5GT/G	POWER OUTPUT TRIODE	Dynamic Coupled Power Amplifier	H	6-3	0-4	250	Average 32-0	See Note	—	—	3400	125	0-0367
6AC7 / 1852	TELEVISION SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-45	300	10-0	See Note	150	2-5	9000	—	1-0 Approx.
6AD4	HIGH μ TRIODE	A.F. Amplifier	H	6-3	0-15	100	1-4	See Note	—	—	2000	70	0-035
6AD7G	TRIODE POWER OUTPUT PENTODE	A.F. Amplifier, Class "A" Power Amplifier	H	6-3	0-85	250	4-0	-25	—	—	325	6	0-019
						250	34-0	-16-5	250	6-5	2500	—	0-08

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	★ For data and notes refer type 6N5.	17	H	A ^t	G ₁ ^t	T	K	H	—	—	—	—	—	—	6AB5 6AB5/ 6N5
—	—	0.015	Mutual Conductance = 50 μmhos at - 15 volts bias.	30	S	H	G ₃	G ₁	K	G ₂	H	A	—	—	—	—	6AB7 6AB7/ 1853
—	—	0.9	As R.C. Amplifier (250V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Grid Bias - 5.5 volts. Plate Current 0.75 mA. Gain = 11.0.	32	A ^t	G ₁ ^t	K IS	H	H	A ^p	G ₃ ^p	G ₁ ^p	G ₁ ^p	—	—	—	6AB8
17500	1.55	—	† Series screen resistor. 4700 Ω (250V. supply.) Total Harmonic Distortion 10% in each case.														
Control Grid G ₁ Voltage -1.4 Plate Current 0.1mA																	
Plate Dissipation 3.5 watts max. Screen Grid Dissipation 1.2 watts max. Cathode Current Peak 350 mA. max. Average 25 mA. max. Peak Heater Cathode Voltage .. 150 max.																	
7000	3.7	—	With type 76 as driver, bias is developed in the coupling circuit.	30	NC	H	A	—	G ₁	—	H	K	—	—	—	—	6AC5G 6AC5GT 6AC5GT/G
—	—	0.015	Cathode Bias Resistor 160 Ω minimum. Plate Current Cut-off at - 5 volts grid bias.	30	S	H	G ₃	G ₁	K	G ₂	H	A	—	—	—	—	6AC7 / 1852
—	—	0.8	Cathode Resistor 820 Ω . As R.C. Amplifier (250V. supply). Following grid resistor 0.47 m Ω . Plate resistor 0.27m Ω . Cathode resistor 2700 Ω Gain 49	31	G ₁	—	H	—	K	H	—	A	—	—	—	—	6AD4
—	—	—	Triode Unit (t). Pentode Unit (p). Total Harmonic Distortion 8%.	30	G ₁ ^t	H	A ^p	G ₂ ^p	G ₁ ^p	A ^t	H	K	—	—	—	—	6AD7G
7000	3.2	—															

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Volt-age Volts	Cur-rent Amps								
6AD8	DUO-DIODE MEDIUM CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6-3	0-3	250	6-7	-2	85	2-3	1100	—	1-0
6AE5G 6AE5GT 6AE5GT/G	AMPLIFIER TRIODE	A.F. Amplifier	H	6-3	0-3	95	7-0	-15	—	—	120	4-2	3500 Ohms.
6AE8	TRIODE HEXODE	Frequency Converter	H	6-3	0-3	250	3-5	(G ₁ ^h) -2	(G ₂₊₄ ^h) 85	3-2	Conv. 750	—	1-5
6AF3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1-2	Peak Inverse 4500 (Design max.)	Peak 750 (Design max.) Average 185 (Design max.)	—	—	—	—	—	—
6AF4-A	MEDIUM μ U.H.F. TRIODE	U.H.F. Amplifier	H	6-3	0-225	100	20	See Note	—	—	7500	16	2130 ohms
		U.H.F. Oscillator				100	22	-1*	—	—	—	—	—
6AF6G	TUNING INDICATOR	Twin Indicator	H	6-3	0-15	Target Volts 250	Target Current 2-2	—	—	—	—	—	—
6AG5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	7-0	See Note	150	2-0	5000	—	0-8
						100	5-5	Note	100	1-6	4750	—	0-3
6AG6G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	1-2	250	32-0	-6	250	6-0	10000	—	0-06
6AG7	POWER OUTPUT PENTODE	Video Amplifier	H	6-3	0-65	300	30	-3	150	7-0	11000	—	0-13

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.002	Mutual Conductance = 10 μmhos at - 15 volts bias.	32	G ₂	G ₁	K IS	H	H	A	D ₁	D ₂	G ₃	—	—	6AD8
—	—	—		30	NC	H	A	—	G ₁	—	H	K	—	—	—	6AE5G 6AE5GT 6AE5GT/G
—	—	0.05	Osc. Plate current 4.5 mA. through. 30,000 Ω (250V. supply). Osc. Grid Resistor 30,000 Ω . Osc. Grid Current 0.3mA. Osc. G _m when not oscillating = 28.00 μmhos . Conversion Conductance = 10 μmhos at - 25 volts grid G ₁ ^h bias.	32	G ₂ ^h G ₄ ^h	G ₁ ^h	K	H	H	A ^h	G ₁ ^t G ₃ ^h	A ^t	IC	—	—	6AE8
—	—	—	*Do not use as Tie Point. Design max. Peak Heater - Cathode voltage with Heater Negative with respect to Cathode 4500. Max. pulse duration 15% of a cycle. Controlled Heater warm-up time 11 secs.	32	* IC	* IC	* IC	H	H	IC	* IC	* IC	A	K	—	6AF3
—	—	1.9	Cathode resistor 150 Ω .	21	A	G ₁	H	H	K	G ₁	A	—	—	—	—	6AF4—A
—	0.16	—	*Grid voltage derived from 10000 Ω grid resistor. D.C. grid current 400 μA . Typical operating frequency 950Mc.	21	A	G ₁	H	H	K	G ₁	A	—	—	—	—	6AF6G
—	—	—	Ray Control Electrode Voltage = approx. 160 and 0 volts for shadow angles of 0° and 95° respectively.	30	NC	H	G ₁ ^h	G ₁ ^l	T	—	H	K	—	—	—	6AF6G
—	—	0.025	Cathode Bias Resistor 200 Ω . I _a = 10 μA . for Grid V. = - 8. Cathode Bias Resistor 100 Ω . I _a = 10 μA . for Grid Volts = - 5.	21	G ₁	K IS G ₃	H	H	A	G ₂	K IS G ₃	—	—	—	—	6AG5
9000	3.75	—		30	NC	H	A	G ₂	G ₁	—	H	K G ₂	—	—	—	6AG6G
10000	3.0	0.06	Total Harmonic Distortion 7%.	30	S	H	IS	G ₁	K	G ₂	H	A	—	—	—	6AG7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms	
			TYP E	Voltage Volts									Current Amps
6AH4-GT	MEDIUM μ POWER TRIODE	Class "A" Amplifier	H	6.3	0.75	250	30	-23	—	—	4500	8	1780 ohms
		TV Vertical Deflection Amplifier				D.C. Plate Voltage 500 max. Peak Positive—Pulse Plate Voltage 2000 max. D.C. Positive Grid Voltage 0 max. Peak Negative—Pulse Grid Voltage -200 max.							
6AH6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.45	300	10	See Note	150	2.5	9000	—	0.5
6AJ5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.175	28	2.7	-1.0	28	1.0	2500	—	0.1
6AJ8	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	250	3.25	-2.0	103 See Note	6.7	Conv. 775	—	1.0
6AK4	REMOTE CUT-OFF U.H.F. TRIODE	U.H.F. Amplifier	H	6.3	0.15	200	9.5	See Note	—	—	3800	20	5300 ohms
6AK5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.175	180	7.7	See Note	120	2.4	5100	—	0.69
6AK6	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.15	180	15	-9	180	2.5	2300	—	0.2
6AK8	TRIPLE DIODE HIGH μ TRIODE	Detector, A.F. Amplifier	H	6.3	0.48	250	1.0	-3	—	—	1400	70	0.05
						100	0.8	-1	—	—	1450	70	0.048
6AL3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6.3	1.5	Peak Inverse 6500 (max.)	Peak 550 (max.) Average 220 (max.)	—	—	—	—	—	—
6AL5	TWIN DIODE	Detector, Half-wave Rectifier	II	6.3	0.3	R.M.S. 150 per plate	Output Current 9.0 per plate	—	—	—	—	—	—
6AL7GT	F.M. TUNING INDICATOR	Tuning Indicator	II	6.3	0.15	Target Volts 315	—	See Note	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4.4	Plate current = 0.5 mA. at -40 volts grid bias.	30	G ₁	H	NC	—	A	—	H	K	—	—	—	6AH4-GT
Cathode current D.C.			60 mA. max.													
Peak			180 mA. max.													
Plate dissipation			7.5 watts max.													
Peak pulse heater cathode voltage			200 max.													
(D.C. component must not exceed)			100 volts.)													
—	—	0.03	Plate current = 10 μA . for grid bias = -7 volts. Cathode Resistor = 160 Ω .	21	G ₁	G ₃	H	H	A	G ₂	K	—	—	—	—	6AH6
—	—	0.03	Plate current = 10 μA . at -4.5 volts grid bias.	21	G ₁	K G ₃	H	H	A	G ₂	K G ₃	—	—	—	—	6AJ5
—	—	0.006	Conversion conductance = 7.75 μmhos at -23.5 volts grid (G ₁ ^b) bias. Osc. grid resistor 47,000 Ω . Osc. grid current 0.2 mA. Series screen resistor 22,000 Ω (250 V. supply).	32	G ₂ ^h G ₄ ^h	G ₁ ^h	IS K G ₃ ^h	H	H	A ^h	G ₃ ^h	A ^t	G ₁ ^t	—	—	6AJ8
—	—	1.4	Cathode resistor 680 Ω . Fixed bias operation not recommended. Plate current = 10 μA . at -20 volts grid bias.	31	G ₁	NC	H	NC	K	H	NC	A	—	—	—	6AK4
—	—	0.02	Plate Current Cut-off at -7 volts grid bias. Cathode Bias Resistor = 200 Ω .	21	G ₁	K IS G ₃	H	H	A	G ₂	K IS G ₃	—	—	—	—	6AK5
10000	1.1	0.12	Suppressor Grid connected to Cathode at socket. Total Distortion 10%.	21	G ₁	G ₃	H	H	A	G ₂	K	—	—	—	—	6AK6
—	—	2.0	Diode No. 1 is intended for A.M. detection and/or A.V.C. Diodes Nos. 2 and 3 are high permeance diodes for use in ratio detectors.	32	D ₃	D ₂	K _{d2}	H	H	D ₁	IS K _{d1} K _{d3}	G _{1t}	A _t	—	—	6AK8
—	—	—	*Do not use as Tie Point. Max. Plate Dissipation 5 watts. Peak Heater-Cathode Voltage Heater Negative with respect to Cathode 6500 (absolute max.). Max. Pulse Duration 22% of a cycle with max. of 18 μsec .	32	IC *	IC *	IC *	H	H	IC *	IC *	IC *	A	K	—	6AL3
—	—	—	Minimum Total Plate Supply Impedance 300 Ω . The two units may be used separately or in parallel.	21	K ^I	A ^{II}	H	H	K ^{II}	IS	A ^I	—	—	—	—	6AL5
—	—	—	Cathode Bias Resistor = 3300 Ω . Deflection Sens. = 1mm./V.	30	G	H	T	DE ^{II}	DE ^{III}	DE ^I	H	K	—	—	—	6AL7GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6AM4	U.H.F. HIGH μ TRIODE	Grounded Grid U.H.F. Amplifier	H	6.3	0.225	200	10.0	See Note	—	—	9800	85	8700
6AM5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.2	250	16.0	See Note	250	2.4	2800	—	0.13
6AM6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	10.0	-2	250	2.55	7650	—	1.0
6AM8 6AM8-A	DIODE SHARP CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6.3	0.45	200	11.5	See Note	150	2.7	7000	—	0.6
6AN4	U.H.F. HIGH μ TRIODE	Grounded Grid U.H.F. Amplifier	H	6.3	0.225	200	13.0	See Note	—	—	10000	70	0.7
		U.H.F. Mixer				125	7	See Note	—	—	Conv. 2900	—	—
6AN7	TRIODE HEXODE	Frequency Converter	H	6.3	0.23	250	3.0	(G ₁ ^h) -2.0	(G ₂₊₄ ^h) See Note	3.0	Conv. 750	—	>1.0
6AN8 6AN8A	MEDIUM μ TRIODE SHARP CUT-OFF R.F. PENTODE	R.F. Pentode Amplifier	H	6.3	0.45	125	12.0	See Note	125	3.8	7800	—	0.17
		Triode Amplifier Section				150	15.0	-3	—	—	4500	21	4700 ohms
6AQ4	R.F. TRIODE	Grounded Grid Triode	H	6.3	0.30	250	10	-1.5	—	—	8500	100	0.012

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Cathode Resistor 100 Ω . Plate Current = 10 μA . at -6.5 volts grid bias.	32	G ₁	K	G ₁	G ₁	A	G ₁	H	H	G ₁	—	—	6AM4
16000	1.4	0.5	Cathode Resistor 680 Ω . Total Distortion 10%.	21	G ₁	K G ₃	H	H	A	NC	G ₂	—	—	—	—	6AM5
—	—	0.008	Plate Current Cut-off at - 5 volts grid bias.	21	G ₁	K	H	H	A	G ₃ IS	G ₂	—	—	—	—	6AM6
—	—	0.015	Cathode resistor 120 Ω . Plate current = 10 μA . at -8 volts grid bias. Type 6AM8—A has controlled heater warm-up time = 11 secs.	32	K ^p	G ₁	G ₂	H	H	A	K ^d	D	G ₃ IS	—	—	6AM8 6AM8—A
—	—	—	Cathode resistor 100 Ω . Plate current = 20 μA . at -7 volts grid bias.	21	A	G ₁	H	H	K	G ₁	A	—	—	—	—	6AN4
—	—	—	Cathode resistor 270 Ω . R.M.S. oscillator injection voltage = 1.4.													
—	—	0.1	Screen connected to junction of two resistors in series, each 27,000 Ω , connected between B + and ground. Osc. Plate Current 4.8 mA. through 33,000 Ω (250 volts supply). Osc. Grid Resistor 47,000 Ω . Osc. Grid Current 0.2 mA. Effective Osc. $G_m = 550 \mu\text{mhos}$. Osc. G_m when not oscillating = 2800 μmhos . Hexode Plate Current Cut-off at - 29 volts grid (G_1^h) bias.	32	G ₂ ^h G ₄ ^h	G ₁ ^h	K IS	H	H	K	A ^h	A ^t	G ₃ ^h G ₁ ^t	—	—	6AN7
—	—	0.04	Cathode Resistor 56 Ω . Plate Current = 20 μA . at -6 volts grid bias.	32	A ^t	G ₁ ^t	K ^t	H	H	A ^p	G ₂	G ₁ ^p	IS G ₄ K _p	—	—	6AN8 6AN8A
—	—	1.5	Plate Current = 20 μA . at -17 volts grid bias. Type 6AN8A has Controlled Heater warm-up time = 11 secs.													
—	—	—	Cathode Resistor 150 Ω . Maximum operating frequency 250 Mc.	21	G ₁	K	H	H	K	G ₁	A	—	—	—	—	6AQ4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6AQ5 6AQ5A	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6.3	0.45	250	Zero Signal 45.0 Max. Signal 47.0	-12.5	250	Zero Signal 4.5 Max. Signal 7.0	4100	—	0.052
		Class "AB ₁ " Power Amplifier				250	Zero Signal 70.0 Max. Signal 79.0	-15.0	250	Zero Signal 5.0 Max. Signal 13.0	—	—	—
		Vertical Deflection Amplifier (triode connected)				D.C. Plate Voltage 250 max. Peak-Positive-pulse Plate Voltage 1110 absol. max. Peak Negative Pulse Grid No. 1 Voltage .. 250 max.							
6AQ6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.15	100	0.8	-1	—	—	1150	70	0.061
						250	1.0	-3	—	—	1200	70	0.058
6AQ7GT	DUO-DIODE HIGH μ TRIODE	Detector, A.F. Amplifier	H	6.3	0.3	250	2.3	-2	—	—	1600	70	0.044
6AQ8	HIGH μ TWIN TRIODE	R.F. Amplifier	H	6.3	0.435	250	10.0	-2.0	—	—	6000	57	9700 ohms
		Self Oscillating Mixer				250	5.2	—	—	—	Conv. 2300	—	0.022
6AR5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.4	250	32.0	-18	250	5.5	2300	—	0.068
						250	34.0	-16.5	250	5.7	2400	—	0.065
6AR7GT	DUO-DIODE MEDIUM CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6.3	0.3	250	7.0	-2	100	1.8	2500	—	1.0
6AS5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	6.3	0.8	150	35.0	-8.5	110	2.0	5800	—	—
6AS6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	II	6.3	0.175	120	5.2	-2 (G ₁)	120	3.5	3200	—	0.15
						120	3.6	-2	120	4.8	1850	—	—
6AS7G	TWIN POWER OUTPUT TRIODE	D.C. Amplifier	H	6.3	2.5	135	125	See Note	—	—	7000	2	280 Ohms.

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
5000	4.5	0.35	Total Harmonic Distortion 8%. Type 6AQ5A has Controlled Heater warm-up time = 11 secs.	21	G ₁	K G ₂	H	H	A	G ₂	G ₁	—	—	—	—	6AQ5 6AQ5A
10,000 Plate to Plate	10.0		Peak A.F. Grid to Grid Voltage = 30. Total Harmonic Distortion 5%.													
			Cathode Current Peak 105 mA. max. Average 35 mA. max. Plate Dissipation 9 watts max. Peak Heater-Cathode Voltage 200 max. (D.C. component must not exceed 100 volts.)													
—	—	1.8	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor = 0.47 meg. Cathode Resistor 6300 Ω . Gain = 50.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	6AQ6
—	—	3.0	K ^d provides the stream for Diode Plates D ₁ and D ₂ . K ^t provides the stream for the Triode Unit.	30	D ₂	K ^d	D ₁	G ₁ ^t	A ^t	K ^t	H	H	—	—	—	6AQ7GT
—	—	1.5	Plate Resistor 1800 Ω . Cathode Resistor 200 Ω .	32	A ⁱⁱ	G ₁ ⁱⁱ	K ⁱⁱ	H	H	A ⁱ	G ₁ ⁱ	K ⁱ	IS	—	—	6AQ8
—	—		Plate Resistor 12000 Ω . Grid Resistor 1m Ω . R.M.S. Oscillator Voltage 3.0													
7600	3.4	—	Total Distortion 11%.	21	G ₁	K G ₂	H	H	A	G ₂	NC	—	—	—	—	6AR5
7000	3.2		Total Distortion 7%.													
—	—	0.003	Mutual Conductance = 20 μmhos at - 25 volts grid bias.	30	H	IS	A	G ₂	D ₂	D ₁	G ₂ K	H	—	G ₁	—	6AR7GT
4500	2.2	0.6	Total Harmonic Distort. 10%.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	6AS5
—	—	0.025	Grid No. 3 voltage = 0. I _a = 100 μA at - 10 volts grid (G ₁) bias. I _a = 20 μA at - 15 volts grid (G ₂) bias. Grid No. 3 Voltage - 3 volts.	21	G ₁	K	H	H	A	G ₂	G ₃	—	—	—	—	6AS6
—	—															
—	—	—	Cathode Resistor 250 Ω values for each unit.	30	G ₁ ⁱⁱ	A ⁱⁱ	K ⁱⁱ	G ₁ ⁱ	A ⁱ	K ⁱ	H	H	—	—	—	6AS7G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
6A88	DIODE SHARP CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6-3	0.45	200	9.5	See Note	150	3.0	6200	—	0.30
6AT6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0.3	250	1.0	-3	—	—	1200	70	0.058
						100	0.8	-1	—	—	1300	70	0.054
6AT8 6AT8A	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode R.F. Amplifier	H	6-3	0.45	250	7.7	See Note	150	1.6	4600	—	0.75
		Triode Class "A" Amplifier				100	8.5	See Note	—	—	5800	40	6900 ohms
		Frequency Converter Pentode Mixer Triode Oscillator				150	6.2	-3.5	150	1.8	Conv. 2100	—	—
						150	13	—	—	—	—	—	—
6AU4-GT	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1.8	Peak Inverse 4500 (Absolute max.)	Peak 1050 (max.) Average 175 (max.)	—	—	—	—	—	—
6AU4-GTA	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1.8	Peak Inverse 4500 (Absolute max.)	Peak 1150 (max.) Average 190 (max.)	—	—	—	—	—	—
6AU5-GT	BEAM POWER PENTODE	Class "A" Amplifier	H	6-3	1.25	115	60	-20	175	6.8	5800	—	6000 ohms
		Horizontal Deflection Amplifier				D.C. Plate Supply Voltage 550 max. Peak Positive Pulse Plate Voltage 5500 absol. max. Peak Negative Pulse Plate Voltage 1250 max. Plate Dissipation 10 max. watts							

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.04	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -8 volts grid bias.	32	G ₂	G ₁	KP	H	H	D	G ₃ IS	K ^d	A	—	—	6A88
—	—	2.1	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Cathode Resistor 6300 Ω . Gain = 50.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	6AT6
—	—	0.025 max.	Cathode Resistor 200 Ω . Plate Current = 10 μA . at -10 volts grid bias.	32	G ₁ ^t	A ^t	K	H	H	AP	G ₂	G ₃	G ₁ P	—	—	6AT8 6AT8A
—	—	1.5	Cathode Resistor 100 Ω . Plate Current = 10 μA . at -10 volts grid bias.													
—	—	—	R.M.S. Oscillator Voltage at Mixer Grid (G ₁) = 2.6. Mixer Grid (G ₁) Resistor 0.12 M Ω . Oscillator Grid Resistor 2700 Ω . Oscillator Grid Current 3.6 mA. Max. operating frequency of oscillator 250 Mc. Type 6AT8A has Controlled Heater warm-up time = 11 secs.	—	—	—	—	—	—	—	—	—	—	—	—	—
—	0.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	*No connection. Do not use. Max. plate dissipation 6 watts. Peak Heater—cathode voltage with heater negative with respect to cathode 4500. (Absolute maximum.)	30	NC *	NC *	K	—	A	—	H	H	—	—	—	6AU4-GT
—	—	—	*No connection. Do not use. Other ratings same as for type 6AU4-GT.	30	NC *	NC *	K	—	A	—	H	H	—	—	—	6AU4-GTA
—	—	0.5	Plate Current = 1 mA. at -45 volts grid (G ₁) bias.	30	G ₁	H	K	—	A	—	H	G ₂	—	—	—	6AU5-GT
Peak Negative Pulse Grid (G ₁) Voltage 300 max. D.C. Screen Grid Voltage 200 max. Screen Grid Dissipation 2.5 watts max. Peak Heater Cathode Voltage .. 200 max.																

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6AU6 6AU6A	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6-3	0-3	250	10-6	See Note	150	4-3	5200	—	1-0
						100	5-0	See Note	100	2-1	3900	—	0-5
6AU8	MEDIUM μ TRIODE SHARP CUT-OFF R.F. PENTODE	Pentode R.F. Amplifier	H	6-3	0-6	200	15	See Note	125	3-4	7000	—	0-15
		Triode Class "A" Amplifier				150	9	See Note	—	—	4900	40	8200 ohms
6AV5-GT 6AV5-GA	BEAM POWER TETRODE	Class "A ₁ " Amplifier	H	6-3	1-2	250	55	-22-5	150	2-1	5500	—	0-02
		T.V. Horizontal Deflection Amplifier				D.C. Plate Voltage 550 max. Peak Positive—Pulse Plate Voltage . . 5500 absolute max. Peak Negative—Pulse Plate Voltage . . 1250 max. D.C. Screen Voltage 175 max. Peak Negative—Pulse Grid Voltage . . 300 max.							
6AV6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-3	100	0-5	-1	—	—	1250	100	0-08
						250	1-2	-2	—	—	1600	100	0-0625
6AW8 6AW8A	HIGH μ TRIODE SHARP CUT-OFF R.F. PENTODE	Pentode Class "A" Amplifier	H	6-3	0-6	200	13	See Note	150	3-5	9000	—	0-4
		Triode Class "A" Amplifier				200	4-0	-2-0	—	—	4000	70	0-0175
6AX4-GT	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1-2	Peak Inverse 4400 (absol. max.)	Peak 825 (max.) Average 137 (max.)	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu F$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	0.0035	Cathode Resistor 68, 150 ohms respectively. Grid No. 3 connected to Cathode at Socket. Plate Current = 10 μA at -6.5 volts and -4.2 volts grid bias respectively. As R.C. Amplifier (300 V. supply). Following Grid Resistor 1M Ω . Plate Resistor 0.47 M Ω . Grid No. 2 Resistor 1.1 M Ω . Cathode Resistor 1900 Ω . Gain = 318. Type 6AU6A has Controlled Heater warm-up time = 11 secs.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	—	—	6AU6 6AU6A
—	—	0.044	Cathode Resistor 82 Ω . Plate Current = 100 μA . at -8 volts grid bias.	32	K ^t	G ₁ ^t	A ^t	H	H	K ^P G ₃ IS	G ₁ ^P	G ₂	A ^P	—	—	—	6AU8	
—	—	2.2	Cathode Resistor 150 Ω . Plate Current = 100 μA . at -6.5 volts grid bias. Controlled Heater warm-up time = 11 secs.															
—	—	0.7 0.5	Plate Current = 1 mA. at -46 volts grid bias.	30	G ₁	H	K G ₃	—	A	—	H	G ₂	—	—	—	—	6AV5-GT 6AV5-GA	
Cathode Current Peak 400 mA. max. D.C. 110 mA. max. Plate Dissipation 11 watts max. Peak Heater—cathode voltage .. 200 max. (D.C. component must not exceed 100 volts.)																		
—	—	—	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor = 0.47 meg. Cathode Resistor = 5200 Ω . Gain = 73.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	—	6AV6	
—	—	0.036 6AW8 0.04 6AW8A	Cathode Resistor 180 Ω . Type 6AW8A has Controlled Heater warm-up time approx. 11 secs. Pentode for use as TV Video Amplifier. Triode for use as Sync. Separator, etc.	32	K ^t	G ₁ ^t	A ^t	H	H	K ^P G ₃ IS	G ₁ ^P	G ₂ ^P	A ^P	—	—	—	6AW8 6AW8A	
—	—	2.2																
—	—	—	*Do not use. Peak Heater Cathode Voltage with Heater Negative to Cathode 4400 absolute max. Max. Voltage Pulse Duration 15% of one Horizontal Scanning Cycle.	30	—	* NC	K	—	A	—	H	H	—	—	—	—	6AX4-GT	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6AX4-GTB	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1-2	Peak Inverse 5000 (design max.)	Peak 1000 (design max.) Average 165 (design max.)	—	—	—	—	—	—
6AX5GT	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	6-3	1-2	R.M.S. 2 x 350 2 x 450	D.C. Output 125-0 80-0	—	—	—	—	—	—
6AX8	MEDIUM μ TRIODE SEMI-REMOTE CUT-OFF R.F. PENTODE	Pentode R.F. Amplifier	H	6-3	0-45	250	10	See Note	110	3-5	4800	—	0-4
		Triode Section Class "A" Amplifier				150	18	See Note	—	—	8500	40	0-005
6AZ8	MEDIUM μ TRIODE SEMI-REMOTE CUT-OFF R.F. PENTODE	Pentode R.F. Amplifier	H	6-3	0-45	200	9-5	See Note	150	3-0	6000	—	0-3
		Triode Section Class "A" Amplifier				200	13-0	-6-0	—	—	3300	19	5750 ohms
6B4G	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	6-3	1-0	★	★	★	—	—	★	★	★
6B5	DIRECT-COUPLED POWER OUTPUT TRIODE	A.F. Amplifier and Class "A" Power Amplifier	H	6-3	0-8	★	★	★	—	—	★	★	★
6B6G	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-3	★	★	★	—	—	★	★	★
6B7	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	*Do not use. Peak Heater Cathode Voltage with Heater Negative to Cathode 5000 volts design maximum. Max. Voltage Pulse Duration 15% of one Horizontal Scanning Cycle.	30	—	*	K	—	A	—	H	H	—	—	—	6AX4-GTB
—	—	—	With less than 10 μF . condenser input to filter, minimum plate supply impedance per plate = 50 and 105 Ω respectively. Greater supply impedances required for larger input capacities.	30	NC	H	A ^{II}	—	A ^I	—	H	K	—	—	—	6AX5GT
—	—	0-006	Cathode Resistor 120 Ω . Plate Current = 10 μA . at -12 volts grid bias.	32	A ^t	G ₂ ^p	G ₂	H	H	A ^p	K ^p G ₂	K ^t	G ₁ ^t	—	—	6AX8
—	—	1-8	Cathode Resistor 56 Ω . Plate Current = 10 μA . at -12 volts grid bias. This type may be used for TV service with the pentode section as video amplifier and the triode section as sync. separator or amplifier.													
—	—	0-02	Cathode Resistor 180 Ω . Mutual Conductance = 10 μmhos at -12.5 volts grid bias.	32	A ^p	G ₂	K ^p	H	H G ₂ IS *	G ₁ ^p	K ^t	A ^t	G ₁ ^t	—	—	6AZ8
—	—	1-7	Plate current = 10 μA . at -19 volts grid bias. *Pin No. 5 must be earthed. This type may be used for TV service with the pentode section as video amplifier and the triode section as sync. amplifier.													
★	★	—	★ For data and notes refer type 6A3.	30	NC	F	A	NC	G ₁	NC	F	NC	—	—	—	6B4G
★	★	—	★ For data and notes refer type 6N6G.	17	H	A ^o	A ¹	G ₁ ¹	K	H	—	—	—	—	—	6B5
—	—	1-7	★ For data and notes refer type 6SQ7GT.	30	NC	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	6B6G
—	—	0-007	★ For data and notes refer type 6B8G.	19	H	A	G ₂	D ₂	D ₁	K G ₃	H	—	—	G ₁	—	6B7

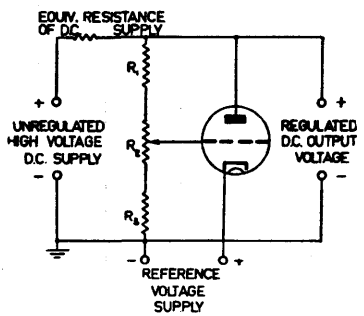
TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
6B7S	DUO-DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6.3	0.3	★	★	★	★	★	—	★	
6B8	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6.3	0.3	250	10.0	-3	125	2.3	1325	—	0.6
6B8G	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6.3	0.3	250	9.0	-3	125	2.3	1125	—	0.6
6BA5	SEMI-REMOTE CUT-OFF PENTODE	Pentode Voltage Amplifier	H	6.3	0.15	100	5.5	See Note	100	2.0	2150	—	0.175
6BA6	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	11.0	See	100	4.2	4400	—	1.5
						100	10.8	Note	100	4.4	4300	—	0.25
6BA7	PENTAGRID	Frequency Converter	H	6.3	0.3	250	3.8	-1	100	10.0	950	—	1.0
						100	3.6	(G_2) -1	100	10.2	Conv. 900	—	0.5
6BA8 6BA8A	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6.3	0.6	200	13	See Note	150	3.5	9000	—	0.4
		Triode Class "A" Amplifier				200	8.0	-8	—	—	2700	18	6700 ohms
6BC4	U.H.F. MEDIUM μ TRIODE	R.F. Amplifier	H	6.3	0.225	150	14.5	See Note	—	—	10000	48	4800 ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.007	★ For data and notes refer type 6B8G.	19	H	A	G ₂	D ₂	D ₁	K G ₃ IS	H	—	—	G ₁	—	6B7B
—	—	0.005	Refer to additional data and notes on 6B8G. These also apply to type 6B8.	30	S	H	A	D ₂	D ₁	G ₂	H	K	—	G ₁	—	6B8
—	—	0.01	Plate Current Cut-off at - 21 volts grid bias. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Screen Resistor 2.9 meg. Cathode Resistor 2500 Ω . Gain = 150.	30	NC	H	A	D ₂	D ₁	G ₂	H	K G ₃	—	G ₁	—	6B8G
—	—	0.1	Cathode Resistor 270 Ω . Plate Current = 10 μA . at -13.5 volts grid bias. As R.C. Amplifier (150V. supply) Following Grid Resistor 0.47m Ω . Plate Resistor 0.1m Ω . Cathode Resistor 1000 Ω . Gain 98.	31	G ₁	NC	H	NC	A	H	G ₂	K G ₃	—	—	—	6BA5
—	—	0.0035	Suppressor Grid connected to Cathode at Socket. Cathode Resistor 68 Ω . Mutual Conductance = 40 μmhos at - 20 volts grid bias.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	6BA6
—	—	0.19	Osc. Grid (G ₁) Resistor = 20,000 Ω in each case. Osc. Grid Current 0.35 mA.	32	G ₂ G ₄	G ₁	K	H	H	G ₅ IS	G ₃	IS	A	—	—	6BA7
—	—	0.04	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -10 volts grid bias.													
—	—	2.2	Plate Current = 10 μA . at -16 volts grid bias. Type 6B8A has Controlled Heater warm-up time = 11 secs. Pentode for use as TV Video Amplifier. Triode for use as Sync. Separator, etc.	32	K ^t	G ^t	A ^t	H	H	K ^P G ₃ IS	G ₁ ^P	G ₂	A ^P	—	—	6B8A 6B8A
—	—	1.6	Cathode Resistor 100 Ω . For use as R.F. Amplifier in cathode drive circuits of TV tuners covering the range 470—890 Mc.	32	A	G ₁	G ₁	H	H	K	G ₁	G ₁	A	—	—	6B64

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
6BC5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	7-5	See Note See Note	150	2-1	5700	—	0-8
						125	8-0		125	2-4	6100	—	0-5
6BC7	TRIPLE DIODE	Rectifier	H	6-3	0-45	Peak Inverse 330 (max.)	Peak 54 (max.) Average 12 (max.)	—	—	—	—	—	—
6BC8	SEMI-REMOTE CUT-OFF MEDIUM μ R.F. TWIN TRIODE	R.F. Amplifier	H	6-3	0-4	150	10	See Note	—	—	6200	35	5830 ohms
6BD4-A	SHARP CUT-OFF BEAM TRIODE High Voltage, Low Current Regulator Type	Shunt Voltage Regulator Tube (In accompanying circuit)	H	6-3	0-6	UNREGULATED SUPPLY D.C. Voltage 29800 36300 Equivalent Resistance 8-0 8-0 m Ω . Voltage Divider Values R ₁ 5 watts 120 220 m Ω . R ₂ 2 watts 1 1 m Ω . R ₃ 1/2 watts 2 3 m Ω . Reference Voltage Supply D.C. Value 500 500 Equivalent Resistance 1000 1000 Ω .							
6BD5-CT	POWER PENTODE	Horizontal Deflection Amplifier	H	6-3	0-9	Max. Plate Voltage 325 Max. Screen Voltage 325 Max. Plate Dissipation 10 watts Max. Screen Dissipation 3-0 watts Max. Cathode Current 100 mA.							
6BD6	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	9-0	-3	100	3-0	2000	—	0-8
						125	13-0	-3	125	5-0	2350	—	0-18
						100	13-0	-1	100	5-0	2550	—	0-15
6BD7	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-23	250	1-0	-3	—	—	1200	70	0-058

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0.03	Cathode Resistor 180Ω and 100Ω respectively. Plate Current = $10\mu\text{A}$. at $-8, -6$ V. grid bias respect. Useful at frequencies up to 400 Mc.	21	G ₁	K G ₂ IS	H	H	A	G ₂	K G ₂ IS	—	—	—	—	6BD5	
—	—	—	Peak Heater cathode voltage 200 max. Minimum total effective plate supply impedance = 560Ω per plate.	32	K ^{III}	D ^{III}	IS	H	H	D ^{II}	K ^{II}	D ^I	K ^I	—	—	6BD7	
—	—	1.4	Cathode Resistor 220Ω . Mutual Conductance = $50\mu\text{mhos}$ at -13 volts grid bias. For use in cascode type circuits of V.H.F. TV tuners.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	IS	—	—	6BC8	
Effective grid-plate transconductance 138 $116\mu\text{mhos}$. D.C. Plate Current: for load current of 0 mA. 1055 1035 μA . for load current of 1 mA. 100 100 μA . Regulated D.C. Output Voltage for load current of 0 mA. 20000 27000. for load current of 1 mA. 19700 26500.				30	K	H	NC	—	G ₁	—	H	NC	—	A	—	6BD4-A	
 <p>Shunt voltage regulator circuit</p>																	
Max. Peak-positive Surge Plate Voltage 4000 Max. Peak-negative Surge Grid Voltage 200 Max. Grid Circuit Resistance $1.0\text{ m}\Omega$. Max. Peak Cathode Current 300 mA. Max. Heater—Cathode Voltage 135				30	G ₁	H	K G ₂ IS	—	A	—	H	G ₂	—	—	—	—	6BD5-6T
—	—	0.005	Mutual Conductance $10\mu\text{mhos}$ at -35 volts bias. at -45 volts bias. at -35 volts bias.	21	G ₁	G ₂ IS	H	H	A	G ₂	K	—	—	—	—	6BD6	
—	—	1.3	As R.C. Amplifier (250 V. supply). Following Grid Leak 1.0 meg . Plate Resistor = 0.22 meg . Cathode Resistor = 1800Ω . Gain = 51.	32	A	G ₁	K	H	H	D ₁	IS	D ₂	IC	—	—	6BD7	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6BD7-A	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.23	250	1.0	-3.0	—	—	1200	70	0.058
6BE6	PENTAGRID	Frequency Converter	H	6.3	0.3	250	3.0	-1.5 (G ₂)	100 (G ₂₊₄)	7.1	475 Conv.	—	1.0
						100	2.8	-1.5	100	7.3	455	—	0.5
6BE7	ENNEODE	F.M. Detector and Limiter	H	6.3	0.2	Supply 250	0.28	See Note	20.0	1.5	—	—	5
6BE8	MEDIUM μ TRIODE SHARP CUT-OFF R.F. PENTODE	Pentode R.F. Amplifier	H	6.3	0.45	250	10	See Note	110	3.5	5200	—	0.4
		Triode Amplifier Class "A"				150	18	See Note	—	—	8500	40	0.005
6BF5	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6.3	1.2	110	36	-7.5	110	4	7500	—	12000 ohms
6BF6	DUO-DIODE TRIODE	Detector and A.F. Amplifier	H	6.3	0.3	250	9.5	-9	—	—	1900	16	8500 Ohms.
6BF7	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6.3	0.30	100	8.0	See Note	—	—	4800	35	7000 ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1-2	R.C. Amplifier (250 V. Supply). Following Grid Leak 1 m Ω . Plate Resistor 0.22 m Ω . Cathode Resistor 1800 Ω . Gain 51	32	A	G ₁	K	H	H	D ¹	IS	D ¹¹	IC	—	—	6BD7-A
—	—	0-3	Osc. Grid (G ₁) Resistor 20,000 Ω . Osc. Grid Current 0.5 mA. Conversion Conductance = 4 μmhos at -30 volts Grid (G ₂) Bias.	21	G ₁	K G ₅	H	H	A	G ₂ G ₄	G ₃	—	—	—	—	6BE6
—	—	—	Plate Load Resistor 0.47 meg. Pin 1 and pins 3 and 7 are connected to sections of a potentiometer between B + and B - consisting of:— R ₁ = 34,000 Ω . R ₂ = 3,900 Ω . R ₃ = 560 Ω . R ₁ is connected to B +. Pin 1 is connected to the junction of R ₁ and R ₃ . Pins 3 and 7 tied together are connected to the junction of R ₂ and R ₃ . Grids Nos. 3 and 5 R.M.S. Voltage = 12. Phase angle between R.M.S. voltages applied to Grids Nos. 3 and 5 = 90°.	32	G ₂ G ₄ G ₆	G ₃	K G ₇	H	H	A	G ₁	K G ₇	G ₅	—	—	6BE7
—	—	0-04	Cathode Resistor 68 Ω . Plate Current = 10 μA . at -10 volts grid bias.	32	G ₁ ^t	A ^t	K ^t G ₃ IS	H	H	A ^p	G ₂	K ^p	G ₁ ^p	—	—	6BE8
—	—	1-8	Cathode Resistor 56 Ω . Plate Current = 10 μA . at -12 volts grid bias. For use as V.H.F. Oscillator mixer.													
2500	1.9	0-65	Peak A.F. Grid Voltage 7.5 Max. Signal Plate Current 39 mA. Max. Signal Screen Current 10.5 mA. Total Harmonic Distortion 10%.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	6BF5
10000	0.3	2.0	Distortion as Power Amplifier 6.5%. As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.22 meg. Cathode Resistor 13,000 Ω . Gain = 12.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	6BF6
—	—	1-5	Cathode Resistor 100 Ω . Plate Current = 10 μA . at -7.5 volts grid bias.	31	A ¹	G ₁ ¹	H	K ¹	K ¹¹	H	G ₁ ¹¹	A ¹¹	—	—	—	6BF7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6BQ6-G 6BQ6-GA	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	0-9	250	75-0	-15-0	250	4	6000	—	0-025
		Horizontal Deflection Amplifier	D.C. Plate Volts 700 max. Peak Positive—Pulse Plate Voltage 6600 absol. max. Peak Negative—Pulse Plate Voltage 1500 max. D.C. Screen Voltage 350 max.										
6BH5	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-2	250	6-0	-2-5	See Note	1-7	2200	—	1-0
6BH6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-15	250	7-4	-1	150	2-9	4600	—	1-4
						100	3-6	-1	100	1-4	3400	—	0-7
6BH8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Amplifier	H	6-3	0-6	200	15	See Note	125	3-4	7000	—	0-15
		Triode Amplifier				150	9-5	-5	—	—	3300	17	5150 ohms
6BJ5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-64	250	35-0	-5-0	250	5-5	—	—	—
6BJ6	MEDIUM CUT-OFF PENTODE	R.F. Amplifier	H	6-3	0-15	250	9-2	-1	100	3-3	3800	—	1-3
						100	9-0	-1	100	3-5	3650	—	0-25
6BJ7	TRIPLE DIODE	D.C. Restorer Service	H	6-3	0-45	Peak Inverse Plate Voltage 330 max. Peak Plate Current 10 mA. max. D.C. Output Current 1 mA. max.							
6BJ8	DOUBLE DIODE MEDIUM μ TRIODE	Class "A" Amplifier	H	6-3	0-6	90	13-5	0	—	—	4700	22	4700 ohms
		250				8	-9	—	—	2800	20	7150 ohms	
		Vertical Deflection Amplifier	D.C. Plate Voltage 300 max. Peak Positive—Pulse Plate Voltage 1200 absolute max. Peak Negative—Pulse Grid Voltage 250 max. Plate Dissipation 3-5 watts max.										

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0-34 6BG6G 0-8 6BG6GA	Plate Current = 1 mA. at -45 volts grid bias.	30	NC	H	K G ₂	—	G ₁	—	H	G ₂	—	A	—	6BG6-G 6BG6-GA	
Peak Negative—Pulse Grid Voltage			300 max.														
Cathode Current Peak			400 mA, max.														
Average			110 mA, max.														
Plate Dissipation			20 watts max.														
Peak Heater Cathode Voltage			200 max.														
(D.C. component must not exceed 100 volts.)																	
—	—	0-002	Series Screen Resistor 90,000 Ω (250 volts supply). Mutual Conductance = 22 μmhos at -39 volts grid bias.	32	G ₂	G ₁	K G ₂ IS	H	H	A	IC	IC	NC	—	—	6BH5	
—	—	0-0035	Plate Current = 10 μA . at -7.7 volts bias.	21	G ₁	K	H	H	A	G ₂	G ₁	IS	—	—	—	—	6BH6
—	—	0-0035	Plate Current = 10 μA . at -5 volts bias.														
—	—	0-046	Cathode Resistor 82 Ω . Plate Current = 100 μA . at -8, -14 volts grid bias for pen- tode and triode respectively. Controlled Heater warm-up time = 11 seconds.	32	K ^t	G ₁ ^t	A ^t	H	H	G ₂	G ₁ ^P	G ₂	A ^P	—	—	—	6BH8
—	—	2-4	For use as a TV video ampli- fier and triode sync. amplifier, separator.														
7000	4-0	0-3	Total Distortion 9.2% The external grid circuit resist- ance should not exceed 0.25 meg. with auto. bias or 0.1 meg. with fixed bias.	21	G ₁	K G ₂	H	H	A	IC	G ₂	—	—	—	—	6BJ5	
—	—	0-0035	Mutual Conductance = 15 μmhos at -20 volts bias.	21	G ₁	K	H	H	A	G ₂	G ₂	IS	—	—	—	6BJ6	
Peak Heater Cathode Voltage :																	
Heater Negative to Cathode			330 max.	32	K ₂	A ₂	IS	H	H	A ₂	K ₂	A ₁	K ₁	—	—	6BJ7	
Heater Positive to Cathode			100 max.														
Average Plate Current 10 mA. for Plate Volts = 2.7																	
—	—	2-6	Plate Current = 10 μA . at -7, -18 volts grid bias respec- tively. Each Diode Unit : Peak Plate Current = 54 mA. max. D.C. Plate Current = 9 mA. max. Controlled Heater warm-up time = 11 secs.	32	D ₂	K _{d2}	K _{d1}	H	H	D ₁	A	G	K _t	—	—	6BJ8	
—	—	2-6	Cathode Current Peak														70 mA. max.
Average			20 mA. max.														
Peak Heater Cathode Voltage			200 max.														
(D.C. component 100 volts max.)																	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6BK4	SHARP CUT-OFF BEAM TRIODE High Voltage Low Current Regulator Type	Shunt Voltage Regulator Type (In Accompanying Circuit.)	H	6.3	0.2								
<p>UNREGULATED SUPPLY. D.C. Voltage 36000 Equivalent Resistance 11 mΩ. Voltage Divider Values R₁ (5 watt) 220 mΩ. R₂ (2 watt) 1 mΩ. R₃ ($\frac{1}{2}$ watt) 82000 Ω.</p> <p>REFERENCE SUPPLY VOLTAGE D.C. Value 200 Equivalent Resistance 1000 Ω. D.C. Plate Current for load current of 0 mA. 1000 μA. for load current of 1 mA. 45 μA. Regulated D.C. Output Voltage for load current of 0 mA. 25000 for load current of 1 mA. 24500</p>													
6BK5	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6.3	1.2	250	35	-5	250	3.5	8500	—	0.1
6BK7-A 6BK7-B	R.F. MEDIUM μ TWIN TRIODE	R.F. Amplifier	H	6.3	0.45	150	18	See Note	—	—	9300	43	4600 ohms
6BK8	SHARP CUTOFF A.F. PENTODE	A.F. Amplifier (low noise)	H	6.3	0.2	250	3.0	-2.0	140	0.55	1850	—	2.5
6BL4	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6.3	3.0	Peak Inverse 4500 (Absolute max.)	Peak 1200 (max.) Average 200 (max.)	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
			<p>* Do not use.</p> <p>Shunt voltage regulator circuit</p>	30	K	H	IC *	IC *	G ₁	IC *	H	IC *	—	A	—	6BK4
6500	3.5	0.6	<p>Peak A.F. Grid Voltage 5. Max. Signal Plate Current 37 mA. Max. Signal Screen Current 10 mA. Total Harmonic Distortion 10%.</p>	32	A	NC	G ₁	H	H	K G ₂	G ₁	G ₂	NC	—	6BK5	
—	—	1.8	<p>Cathode Resistor 56 Ω. Plate Current = 10 μA. at -11 volts grid bias. For use as a Cascode Amplifier below 300 Mc. Type 6BK7-B has Controlled Heater warm-up time = 11 secs.</p>	32	A ¹¹	G ₁ ¹¹	K ¹¹	H	H	A ¹	G ₁ ¹	K ¹	IS	—	6BK7-A 6BK7-B	
—	—	0.025	<p>Plate Current = 0 at -5 volts grid bias. As R.C. Amplifier (250 V. supply). Following Grid Leak 0.68 mΩ. Plate Resistor 0.22 mΩ. Screen Resistor 1.0 mΩ. Cathode Resistor 2200 Ω. Gain 180</p>	32	G ₂	IS	K	H	H	A	IS	G ₂	G ₁	—	6BK8	
—	—	—	<p>* Do not use. Peak Heater to cathode voltage, with heater negative with respect to cathode, 4500 Absolute maximum.</p>	30	IC *	IC *	K	IC *	A	IC *	H	H	—	—	6BL4	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
6BL7-GT 6BL7-GTA	MEDIUM μ TWIN TRIODE	Class "A" Amplifier Each Section	H	6-3	1-5	250	40	-9-0	—	—	7000	15	2150 ohms
		Vertical Deflection Amplifier				D.C. Plate Voltage 500 max. Peak Positive-Pulse Plate Voltage .. 2000 absolute max. Peak Negative-Pulse Grid Voltage .. 250 max.							
6BL8	MEDIUM μ TRIODE REMOTE CUT-OFF R.F. PENTODE	Pentode Class "A" Amplifier	H	6-3	0-45	170	10-0	-2-0	170	2-8	6200	—	0-4
		Triode Class "A" Amplifier				100	14-0	-2-0	—	—	5000	20	4000 ohms
		Frequency Converter				170	6-5	See Note	170	2-0	Conv. 2200	—	0-8
		Pentode Mixer				250	6-5	See Note	250	2-0	Conv. 2200	—	>0-5
		Triode Oscillator				100	7-5	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	6.0	Plate Current = 50 μA . at -23 volts grid bias.	30	G ₁ ¹¹	A ¹¹	K ¹¹	G ₁ ¹	A ¹	K ¹	H	H	—	—	—	6BL7-GT 6BL7-GTA
			Cathode Current Peak Average	210 mA. max. 60 mA. max.												
			Plate Dissipation both plates	10 watts max. 12 watts max.												
			Peak Heater Cathode Voltage (D.C. component must not exceed 100 volts).	200 max.												
			Type 6BL7GTA is capable of higher currents at lower voltages than type 6BL7GT.													
—	—	0.025	Input Resistance at 50 Mc. 10000 Ω . Equivalent Noise Resistance 1500 Ω .													
—	—	1.5		32	A ^t	G ₁ ^p	G ₂	H	H	A ^p	K ^p G ₂ IS	K ^t	G ₁ ^t	—	—	6BL8
—	—	—	Cathode Resistor 330 Ω . Screen Resistor 0 and 39 k Ω , respectively.													
—	—	—	Grid Resistor 0.1 m Ω . R.M.S. Oscillator Voltage at grid (G ₁ ^p) 3.5.													
—	—	—	Grid Resistor 22000 Ω . Grid Current 330 μamp . R.M.S. Oscillator Voltage 5.0													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms				
			TYP E	Voltage Volts	Current Amps												
6B8	HIGH μ TRIODE POWER PENTODE	Pentode Class "A" Amplifier	H	6.3	0.76	170	41	-11.5	170	9	7500	—	0.016				
		Triode Class "A" Amplifier				100	3.5	0	—	—	2200	70	—				
		Pentode Class "A" Audio Amplifier				272	Zero Signal 28 Max. Signal 27	See Note	See Note	Zero Signal 6.5 Max. Signal 10.8	—	—	—				
						200	Zero Signal 35 Max. Signal 37	See Note	See Note	Zero Signal 7.8 Max. Signal 13.3	—	—	—				
		Pentode Class "AB" Audio Amplifier				250	Zero Signal 2 x 28 Max. Signal 2 x 31	See Note	200	Zero Signal 2 x 5.8 Max. Signal 2 x 13	—	—	—				
		Vertical Deflection Amplifier (Pentode)				D.C. Plate Voltage 300 max. Peak Positive Pulse Plate Voltage 2500 max. Plate Dissipation 5 watts max. Grid No. 2 Voltage 300 max. Grid No. 2 Dissipation 2.0 watts max.											
		Vertical Deflection Oscillator (Triode)				D.C. Plate Voltage 300 max. Peak Positive Pulse Plate Voltage 600 max.											
6BN4 6BN4A	MEDIUM μ V.H.F. TRIODE	Class "A" Amplifier	H	6.3	0.2	Supply 150	9.0	See Note	—	—	6800 (6BN4) 8000 (6BN4A)	43	6300 (6BN4) 5400 (6BN4A)				
6B5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.2	225	26.0	See Note	225	4.1	3200	—	0.09				
		Class "AB" Power Amplifier				250	Zero Signal 2 x 20 Max. Signal 2 x 21.5	See Note	250	Zero Signal 2 x 3.2 Max. Signal 2 x 6.7	—	—	—				
6B6	GATED BEAM PENTODE	Limiter, Discriminator	H	6.3	0.3	80	0.23	See Note	60	5.0	—	—	—				

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0.3															
—	—	4.2	R.C. Amplifier (200 volt supply). Plate Load Resistor 0.22 M Ω . Cathode Resistor 2200 Ω . Following Grid Resistor 0.68 M Ω . Voltage Gain 52.														
8000	3.5		Cathode Resistor 650, 330 Ω respectively. Grid No. 2 Resistor 2200, 470 Ω respectively from a 272, 200 volt supply respectively. Total Harmonic Distortion 10%.	32	G ₁ ^t	K ^p G ₂ IS	G ₁ ^p	H	H	A ^p	G ₂	K ^t	A ^t	—	—		6BN8
4500	3.3																
10,000 Plate to Plate	10.5																
Cathode Current			50 mA. max.														
Heater Cathode Voltage			150 max.														
Plate Dissipation			1 watt max.														
Cathode Current			15 mA. max.														
Peak Positive Pulse Cathode Current			100 mA. max.														
—	—	1.2	Cathode Resistor 220 Ω . Plate Current = 100 μA . at -6 volts grid bias. For use as V.H.F. Amplifier.	21	K	G ₁	H	H	A	K	G ₁	—	—	—	—	—	6BN4 6BN4A
9000	2.8	0.2	Cathode bias resistor 360 Ω . Total harmonic distortion 12%. R.M.S. A.F. grid volts = 8 volts.	32	G ₁	G ₁	K	H	H	G ₂	A	G ₂	G ₂	—	—		6BN5
1500 Plate to Plate	7.0																
0.068	—	—	Cathode Resistor approx. 300 Ω . For use in F.M. limiter discriminator circuits.	21	K IS	G ₁	H	H	G ₂	G ₂	A	—	—	—	—	—	6BN6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPICAL	Voltage Volts	Current Amps								
6B8S	DOUBLE DIODE HIGH μ TRIODE	Class "A" Amplifier	H	6-3	0-6	100	1-5	-1	—	—	3500	75	0-021
						250	1-6	-3	—	—	2500	70	0-028
6BQ5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-78	250	Zero Signal 48-0 Max. Signal 49-2	-7-3	250	Zero Signal 5-5 Max. Signal 11-6	11300	—	0-038
						250	Zero Signal 36-0 Max. Signal 36-6	-6-4	210	Zero Signal 3-9 Max. Signal 7-3	10400	—	0-04
		Class "AB" Power Amplifier	300	Zero Signal 2 x 36-0 Max. Signal 2 x 46-0	See Note	300	Zero Signal 2 x 4-0 Max. Signal 2 x 11-0	—	—	—			
6BQ6-8T	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	1-2	250	55	-22-5	150	2-1	5500	—	0-02
		Horizontal Deflection Amplifier				550 Max.	—	—	175 Max.	—	—	—	—
6BQ6-8TB / 6C06	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	1-2	250	65	-22-5	150	2-1	6000	—	0-018
		Horizontal Deflection Amplifier				D.C. Plate Voltage 600 max. Peak Positive—Pulse Plate Voltage .. 6000 absolute max. Peak Negative—Pulse Plate Voltage .. 1250 max. D.C. Screen Voltage 200 max. D.C. Grid Voltage -50 max.							
6BQ7-A	MEDIUM μ R.F. TWIN TRIODE	R.F. Amplifier	H	6-3	0-4	150	9-0	See Note	—	—	6400	39	6100 ohms
		Grounded Grid R.F. Amplifier				135	10-0	-1-0	—	—	—	—	
						115	10-0	—	—	—	—	—	
6BR5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0-3	Target Volts 250	Target Current 2-0	-1-0 for shadow angle of 5°.	—	—	—	—	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	2.5	Controlled Heater warm-up time = 11 secs. Plate Current = 10 μA . at -2.5, -5.5 volts grid bias respectively.	32	D ₂	K _{d2}	K _{d1}	H	H	D ₁	A	G	K _t	—	—	6B8
5200	6.0	< 0.5	For each condition:— Cathode Resistor 135, 160 Ω . R.M.S. Input Voltage 4.7, 3.4 Output Power measured with fixed bias. Total Harmonic Distortion 11.7, 10%.	32	IC	G ₁	K G ₂	H	H	IC	A	IC	G ₂	—	—	6B5
7000	4.3															
8000 Plate to Plate	17		Cathode Resistor 130 Ω . R.M.S. Input Voltage 2 \times 10 Total Harmonic Distortion 4%													
—	—	0.6	Plate Current = 1 mA. at -46 volts grid bias.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	6B6-GT
—	—		Peak Positive Pulse plate voltage 5500 absolute max. For other data and notes refer type 6BQ6-GTB.													
—	—	0.6	Plate Current = 1 mA. at -46 volts grid bias.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	6B6-GTB / 6C6
Peak Negative—Pulse Grid Voltage 300 max. Cathode Current Peak 400 mA. max. Average 112.5 mA. max. Plate Dissipation 11 watts max. Peak Heater Cathode Voltage 200 max. (D.C. component must not exceed 100 volts.)																
—	—	1.15	Cathode Resistor 220 Ω . Plate Current = 10 μA . at -10 volts grid bias.	32	A ¹¹	G ₁ ¹¹	K ¹¹	H	H	A ¹	G ₁ ¹	K ¹	IS	—	—	6B7-A
—	—		Supply Voltage 250. Unit 1 is the driver section. Plate Current = 10 μA . at -14 volts grid (G ₁ ¹) bias.													
—	—	—	Triode Plate Resistor 0.5 m Ω . Shadow angle of 50° occurs at -16 volts grid (G ₁ ¹) bias.	32	G ₁ ¹	K G ₁ ¹	IC	H	H	IC	A ¹ DE	IC	T	—	—	6BR5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Implication factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
6BR7	SHARP CUT-OFF PENTODE	A.F. Amplifier (Low noise non-microphonic low hum)	H	6.3	0.15	250	2.1	-3	100	0.6	1250	—	2.4
						100	2.0	-3	100	0.7	1100	—	1.5
6BR8 6BR8A	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6.3	0.45	250	10	See Note	110	3.5	5200	—	0.4
						150	18	See Note	—	—	8500	40	5000 ohms
6BS4	U.H.F. TRIODE	U.H.F. Amplifier	H	6.3	0.225	100	16.0	-4.0	—	—	8000	15	—
		U.H.F. Oscillator				75	16.0	—	—	—	—	—	—
6BS7	SHARP CUTOFF A.F. PENTODE	Low noise Class "A" Pre-Amplifier	H	6.3	0.15	250	2.1	-3.0	100	0.6	1250	—	2.4
						100	2.0	-3.0	100	0.7	1100	—	1.5
6BS8	R.F. MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6.3	0.4	150	10.0	See Note	—	—	7200	36	5000 ohms
6BT4	FULL-WAVE RECTIFIER	Full-wave Rectifier	H	6.3	0.6	Max. R.M.S. 2×350	Max. D.C. Output 90	—	—	—	—	—	—
6BT8	DOUBLE DIODE SHARP CUT-OFF R.F. PENTODE	Class "A" Amplifier	H	6.3	0.45	200	9.5	See Note	150	2.8	6200	—	0.3

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0-01	Mutual Conductance = 12.5 and 11.0 μmhos at -9 V. and -8 V. grid bias respectively. As R.C. Amplifier (300 V. supply). Following grid leak 1.0 meg. Screen resistor 2.8 meg. Cathode resistor 2200 Ω . Gain = 185.	32	NC	G ₁	K	H	H	S	A	G ₂	G ₃	—	—	6BR7
—	—	0-015 max.	Cathode Resistor 68 Ω . Plate Current = 10 μA . at -10 volts grid bias.	32	G ^t	A ^t	K ^t	H	H	A ^p	G ₂	K ^p G ₃ IS	G ₁ ^p	—	—	6BR8 6BR8A
—	—	1-8	Cathode Resistor 56 Ω . Plate Current = 10 μA . at -12 volts grid bias. Types 6BR8, 6BR8A are intended for use in mixer oscillator service. Type 6BR8-A has Controlled Heater warm-up time = 11 secs.													
—	—	1-7	Maximum frequency limit with holder is approximately 1400 Mc/s.	21	A	G ₁	H	H	K	G ₁	A	—	—	—	—	6BR4
—	—		Grid Resistor 10000 Ω . Grid Current 400 μA .													
—	—	0-01	Mutual Conductance = 12.5 μmhos at -9 volts grid (G ₁) bias.	32	NC	NC	K	H	H	IS	A	G ₂	G ₃	G ₁	—	6BR7
—	—		Mutual Conductance = 11 μmhos at -8 volts grid (G ₁) bias. R.C. Amplifier (300 V. supply). Plate Resistor 0.47 m Ω . Cathode Resistor 2200 Ω . Series Screen Resistor 2.8 m Ω . Following Grid Leak 1.0 m Ω . Gain 185													
—	—	1-15	Cathode Resistor 220 Ω . Plate Current = 10 μA . at -7 volts grid bias. Useful up to 250 Mc/s.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	IS	—	—	6BR8
—	—	—	Capacitor Input to Filter 50 μF . max. Plate Supply Impedance per plate = 300 Ω min.	28	H	A ^I	—	IC	—	A ^{II}	K	H	—	—	—	6BT4
—	—	0-04	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -8 volts grid bias.	32	D ₂	D ₁	K _d	H	H	A	G ₂	G ₁	K ^p G ₃	—	—	6BT8

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts	Current Amps									
6BU8	SHARP CUT-OFF TWIN PENTODE (WITH COMMON CATHODE, GRID No. 1, GRID No. 2)	Class "A" Amplifier (Each unit with both units operating)	H	6-3	0-3	100	—	See Note G ₂ -10 G ₃ 0	67-5	6-5	—	—	—	
						100	2-2	67-5	3-3	—	—			
		Each unit operating separately (plate and G ₂ of other unit earthed)	H	6-3	0-3	100	—	0 See Note	67-5	—	G ₁ -A 1500 G ₂ -A 180	—	—	—
						100	2-2	67-5	—	—	—			
6BV7	DUO-DIODE POWER OUTPUT PENTODE	Detector, Class "A" Power Amplifier	H	6-3	0-8	250	38	-5	250	6-0	10,000	—	0-1	
						180	20	-4	180	3-5	8,000	—	0-13	
6BW4	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	6-3	0-9	R.M.S. 2 x 325	D.C. Output 100	—	—	—	—	—	—	
6BW6	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier and Class "AB ₁ " Power Amplifier	H	6-3	0-45	★	★	★	★	★	★	—	★	
6BW7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	9-5	See Note	250	3-5	8500	—	0-75	
6BW8	DOUBLE DIODE SHARP CUT-OFF PENTODE	Class "A" Amplifier	H	6-3	0-45	250	10	See Note	110	3-5	5200	—	0-25	
6BX6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	10-0	-2	See Note	2-4	7400	—	0-65	
						200	10-0	-2-55	200	2-6	7100	—	0-55	
						170	10-0	-2	170	2-5	7400	—	0-5	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	Grid No. 3 to plate (each unit) 1-9	G_1 Current adjusted for 100 μA . D.C.	32	K	G_2	A''	H	H	G_2''	G_1	A'	G_2'	—	—	6BW8
—	—	Grid No. 1 to all other electrodes 6	G_1 Current adjusted for 100 μA . D.C. Intended for use in TV receivers as combined Sync.-Separator - noise limiter and A.G.C. valve.			IS										
7000 7000	4-0 2-0	0-5	Total Harmonic Distortion 10% in each case.	32	D_1	A	G_2	H	H	D_2	K G_2	G_1	K G_2	—	—	6BW7
—	—	—	Capacitor Input to Filter = 40 μF . Total Effective Plate Supply Impedance per Plate = 82 Ω . Greater Supply Impedances for Larger Input Capacities.	32	A_2	NC	NC	H	H	NC	A_1	NC	K	—	—	6BW4
★	★	0-6	★ For data and notes refer type 6V6G.	32	IC	G_1	K	H	H	NC	A	G_2	BP	—	—	6BW6
—	—	0-01	Cathode Resistor 180 Ω . Equivalent Noise Resistance 920 Ω . Mutual Conductance = 85 μmhos at -8 volts grid bias.	32	K	G_1	K	H	H	IS	A	G_2	G_2	—	—	6BW7
—	—	0-02	Cathode Resistor 68 Ω . Plate Current = 10 μA . at -10 volts grid bias. Maximum Average Diode Current (each unit) 5 mA.	32	D_2	K_d	D_1	H	H	G_1	G_2 IS KP	G_1	A	—	—	6BW8
—	—	0-007	Series Screen Resistor 33 k Ω . Input Resistance at 50 Mc/s. (each case). 10000 Ω , 12000 Ω , 10000 Ω . Plate Current Cutoff (each case) at -7.5, -6.2, -5.6 volts grid (G_1) bias.	32	K	G_1	K	H	H	IS	A	G_1	G_2	—	—	6BX6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Volt- age Volts	Cur- rent Amps								
6BX7-GT	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6.3	1.5	250	42.0	See Note	—	—	7600	10	1300 ohms
		Vertical Deflection Oscillator and Deflection Amplifier	D.C. Plate Voltage 500 max. For Use as Amplifier :— Peak Positive—Pulse Plate Voltage .. 2000 absolute max. Peak Negative—Pulse Grid Voltage .. 250 max. For Use as Oscillator :— Peak Negative Pulse Grid Voltage .. 400 max. Cathode Current Peak 180 mA. max. Average 60 mA. max.										
6BY5-GA	FULL-WAVE VACUUM RECTIFIER	Booster Diode	H	6.3	1.6	Peak Inverse 3000 (Absolute Max.)	Peak 525 (Max.) Average 175 (Max.)	—	—	—	—	—	—
6BY6	PENTAGRID	Class "A" Amplifier	H	6.3	0.3	250	6.5	(G ₁) —2.5 (G ₂) —2.5	(G ₂ +4) 100	(G ₂ +4) 9.0	(G ₁ —A) 1900 (G ₂ —A) 500	—	—
		Sync. Separator Sync. Clipper				10.0	1.4	(G ₁) 0 (G ₂) 0	25.0	3.5	—	—	—
6BY7	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	10	—2	100	2.5	6000	—	0.5
6BY8	DIODE SHARP CUT-OFF R.F. PENTODE	Class "A" Amplifier	H	6.3	0.6	250	10.6	See Note See Note	150	4.3	5200	—	1.0
						100	5.0		100	2.1	3900		0.5
6BZ6	SEMI-REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	200	11.0	See Note	150	2.6	6100	—	0.6
6BZ7	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6.3	0.4	150	10.0	See Note	—	—	6800	38	5600 ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4.2	Cathode Resistor 390 Ω . Plate Current = 50 μA . at -40 volts grid bias.	30	G ₁ ¹¹	A ¹¹	K ¹¹	G ₁ ¹	A ¹	K ¹	H	H	—	—	—	6BX7-GT
Plate Dissipation: either plate 10 watts max. both plates (both units operating) 12 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts).																
—	—	—	* Do not use. Peak Heater Cathode Voltage with heater negative with respect to cathode = 450 max.	30	K ¹¹	H	NC*	A ¹¹	A ¹	—	H	K ¹	—	—	—	6BY5-GA
—	—	G ₁ -A 0.08 G ₂ -A 0.35		21	G ₁	K G ₅	H	H	A	G ₂ G ₄	G ₃	—	—	—	—	6BY6
—	—	—	With plate voltage = 25, screen grid (G ₂ + ₄) voltage = 25.—plate current = 50 μA . at -2.5 volts grid No. 1 (G ₁) bias with (G ₃) voltage = 0. Plate Current = 50 μA . at -2.3 volts grid No. 3 (G ₃) bias with (G ₁) voltage = 0.													
—	—	0.007	Mutual conductance = 60 μmhos at -35 volts grid bias. Equivalent noise resistance 1500 Ω .	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	6BY7
—	—	.0035	Cathode Resistor 68 Ω , 150 Ω respectively. Plate Current = 10 μA . at -6.5, -4.2 volts grid bias respectively. Controlled Heater warm-up time = 11 secs.	32	G ₁	G ₃ IS	K _d	H	H	D	A	G ₂	K _p	—	—	6BY8
—	—	0.02	Cathode Resistor 180 Ω . Mutual Conductance = 50 μmhos at -23 volts grid bias.	21	G ₁	K	H	H	A	G ₂ IS	—	—	—	—	—	6BZ6
—	—	1.15	Cathode Resistor 220 Ω . Plate Current = 10 μA . at -11 volts grid bias.	32	A ¹¹	G ₁ ¹¹	K ¹¹	H	H	A ¹	G ₁ ¹	K ¹	IS	—	—	6BZ7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
6BZ8	SEMI REMOTE CUT-OFF MEDIUM μ TWIN TRIODE	Class "A" R.F. Amplifier (Each Unit)	H	6.3	0.4	125	10	See Note	—	—	8000	45	5600 ohms
6C4	V.H.F. POWER TRIODE	A.F. Amplifier	H	6.3	0.15	250	10.5	-8.5	—	—	2200	17	7700 Ohms.
		Class "C" Power Amplifier, Oscillator				300	25.0	-27	—	—	—	—	—
6C5 6C5G 6C5GT 6C5GT/G	DETECTOR TRIODE	A.F. Amplifier	H	6.3	0.3	250	8.0	-8	—	—	2000	20	0.01
6C6	SHARP CUT-OFF PENTODE	Biased Detector and A.F. Amplifier	H	6.3	0.3	★	★	★	★	★	—	—	★
6C8G	TWIN TRIODE	A.F. Amplifier	H	6.3	0.3	250	3.2	-4.5	—	—	1600	36	0.0225
6C9	TWIN V.H.F. TETRODE	Class "A" Amplifier (each section)	H	6.3	0.4	125	10.0	-1.0	80	1.5	8000	—	0.1
6CA4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	1.0	R.M.S. 2 \times 450 (max.) 2 \times 350 2 \times 250	Full-load D.C. Output 100 150 160	—	—	—	—	—	—
6CA5	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	1.2	110	Zero Signal 32.0 Max. Signal 31.0	-4.0	110	Zero Signal 3.5 Max. Signal 7.5	8100	—	0.016
						125	Zero Signal 37.0 Max. Signal 36.0	-4.5	125	Zero Signal 4.0 Max. Signal 11.0	9200	—	0.015

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	Unit 1 1-15 (shield.)	Cathode Resistor 100 Ω . Mutual Conductance = 50 μmhos at -13 volts grid bias. Intended for use in V.H.F. Cascode Amplifier Service.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	IS	—	—	6BZ8
—	—	1-6	As Class "C" Power Amplifier and Oscillator D.C. Grid Current 7-0 mA. Driving Power 0-35 watt. Approx. 2-5 W. can be obtained when used at 150 Mc/s. as an oscillator with 1000 Ω grid resistor and maximum rated input.	21	A	IC	H	H	A	G	K	—	—	—	—	6C4
—	—	2-0 2-2 2-2 2-2	As R.C. Amplifier (300 volts supply). Following Grid Leak 1-0 meg. Plate Resistor = 0-25 meg. Cathode Resistor = 14,000 Ω . Gain = 14.	30	S	H	A	—	G ₁	—	H	K	—	—	—	6C5 6C5G 6C5GT 6C5GT/G
—	—	0-007	★ For data and notes refer type 6J7G. For replacement consider also type 6SJ7GT.	17	H	A	G ₂	G ₃	K IS	H	—	—	—	G ₁	—	6C6
—	—	2-6 1-8	Values for each unit. As R.C. Amplifier (300 volts supply). Following Grid Leak 1-0 meg. Plate Resistor = 0-5 meg. Cathode Resistor = 11,500 Ω . Gain = 27.	30	NC	H	A ¹¹	K ¹¹	G ₁ ¹	A ¹	H	K ¹	—	G ₁ ¹¹	—	6C8G
—	—	0-055	Plate Current = 20 μA . at -6 volts grid bias.	67	G ₁ ¹¹	G ₂ ¹¹	A ¹¹	H	H	K ¹	G ₁ ¹	G ₂ ¹	A ¹	Pin 10 K ¹¹ IS	—	6C9
—	—	—	Capacitor Input to Filter 50 μF . (max.). Full-load D.C. Output Voltage at Input to Filter 497, 352, 245 respectively. Total Effective Plate Supply Impedance per Plate 310, 230, 150 ohms respectively.	32	A ₁	IC	K	H	H	IC	A ₂	IC	IC	—	—	6CA4
3500	1-1	0-5	Total Harmonic Distortion 5%, 6% respectively.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	6CA5
4500	1-5															

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6CA7	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	1-5	250 See Note	100	-13.5	285	14.9	11,000	—	0.015
		Class "AB" Power Amplifier (two Valves)				Supply 375	Zero Signal 2 x 75 Max. Signal 2 x 95	See Note	See Note	Zero Signal 2 x 11.5 Max. Signal 2 x 22.5	—	—	—
		Class "B" Power Amplifier (two Valves)				775 See Note	Zero Signal 2 x 25 Max. Signal 2 x 91	-39	See Note	Zero Signal 2 x 3 Max. Signal 2 x 19	—	—	—
		Class "A" Power Amplifier (Triode Connected)				See Note	70	See Note	—	—	—	—	—
		Class "AB" Power Amplifier (two Valves Triode Connected)				See Note	Zero Signal 2 x 65 Max. Signal 2 x 71	See Note	—	—	—	—	—
6CB5-A	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	2-5	175	90.0	-30	175	6.0	8800	—	5000 ohms
		Horizontal Deflection Amplifier				D.C. Plate Voltage 800 max. Peak Positive—Pulse Plate Voltage .. 6800 absolute max. Peak Negative—Pulse Plate Voltage .. 1500 max. D.C. Screen Voltage 200 max. D.C. Grid Voltage -50 max.							
6CB6 6CB6A	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	200	9.5	See Note	150	2.8	6200	—	0.6
						125	13	See Note	125	3.7	8000	—	0.28
6CD6-G	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	2-5	175	75	-30	175	5.5	7700	—	7200 ohms
		Horizontal Deflection Amplifier				D.C. Plate Voltage 700 max. Peak Positive Pulse Plate Voltage .. 6600 absolute max. Peak Negative Pulse Plate Voltage .. 1500 max. D.C. Screen Grid Voltage 175 max. Peak Negative Pulse Grid (G ₁) Voltage 200 max.							

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
2000	11.0	1.0	Plate supply voltage = 265 V. Total Harmonic Distortion 10%.	30	G ₃	H	A	G ₂	G ₁	NC	H	K	—	—	—	6CA7
Plate to Plate 3400	35.0		Total Harmonic Distortion 5%. Cathode Bias Resistor 130 Ω . Common Series Screen Resistor 470 Ω (375 V. supply).													
Plate to Plate 11,000	100.0		Plate supply voltage = 800 V. Common Series Screen Resistor 750 Ω (400 V. supply). R.M.S. Grid to Grid volts = 46.8. Total Harmonic Distortion 5%.													
3000	6.0		Screen tied to plate (375 V. supply). Cathode Bias Resistor 370 Ω . Total Harmonic Distortion 8%.													
Plate to Plate 5000	16.5		Screen tied to plate (400 V. supply). Cathode Bias Resistor 220 Ω . R.M.S. Grid to Grid volts = 44. Total Harmonic Distortion 3%.													
—	—	0.4	Plate Current = 1 mA. at -60 volts grid bias.	30	G ₂	H	K	G ₁	G ₁	K	H	G ₂	—	A	—	6CB5-A
Peak Negative-Pulse Grid Voltage .. 200 max. Plate Dissipation 23 watts max. Cathode Current Peak 770 mA. max. Average 220 mA. max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																
—	—	0.025	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -8 volts grid bias.	21	G ₁	K	H	H	A	G ₂	G ₃	IS	—	—	—	6CB6 6CB6A
—	—		Cathode Resistor 56 Ω . Plate Current = 20 μA . at -6.5 volts grid bias. Type 6CB6A has Controlled Heater warm-up time = 11 secs.													
—	—	1.0	Plate Current = 1 mA. at -55 volts grid (G ₁) bias.	30	NC	H	K	—	G ₁	—	H	G ₂	—	A	—	6CD6-G
Plate Dissipation 15 watts max. Screen Dissipation 3 watts max. Cathode Current Peak 700 max. Average 200 max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
6CD6- 6A	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	2-5	175	75-0	-30	175	5-5	7700	—	7200 ohms
		Horizontal Deflection Amplifier				D.C. Plate Voltage 700 max. Peak Positive—Pulse Plate Voltage .. 7000 absolute max. Peak Negative—Pulse Plate Voltage .. 1500 max. D.C. Screen Grid Voltage 175 max. Peak Negative Pulse Grid Voltage .. 200 max. D.C. Grid (G ₁) Voltage -50 max.							
6CE5	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	125	11-0	-1-0	125	2-3	7600	—	0-3
6CF6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	200	9-5	See Note	150	2-8	6200	—	0-6
6CG7	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6-3	0-6	250	9-0	-8	—	—	2600	20	7700 ohms
		Vertical Deflection Amplifier				D.C. Plate Voltage 300 max. Peak Negative-pulse Grid Voltage 400 max. Cathode Current Peak 70 mA. max. Average 20 mA. max.							
6CG8 6CG8A	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6-3	0-45	250	7-7	See Note	150	1-6	4600	—	0-75
		Triode Class "A" Amplifier				100	8-5	See Note	—	—	5800	40	6900 ohms
		Converter Pentode Mixer Triode Oscillator at 250 Mc.				150	6-2	-3-5	150	1-8	Conv. 2100	—	—
						150	13	—	—	—	—	—	—
6CH6	BEAM POWER PENTODE	Class "A" Amplifier	H	6-3	0-75	250	40	-4-5	250	6-0	11000	—	0-05
		Class "A" Push-Pull Amplifier				250	80	See Note	250	12	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.1	Plate Current = 1 mA. at -55 volts grid bias.	30	NC	H	K G ₃	NC	G ₁	NC	H	G ₂	—	A	—	6CG6-GA
Cathode Current Peak 700 max. Average 200 max. Plate Dissipation 20 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																
—	—	0.003	Plate Current = 35 μA . at -5.0 volts grid bias.	21	G ₁	K G ₃	H	H	A	G ₂	K G ₃	—	—	—	—	6CE5
—	—	0.02	Cathode Resistor 180 Ω . Plate Current = 35 μA . at -6.5 volts grid voltages.	21	G ₁	K	H	H	A	G ₂	G ₃ IS	—	—	—	—	6CF6
—	—	4.0	Plate Current = 10 μA . at -18 volts grid bias. Controlled Heater warm-up time = 11 secs.	32	A''	G ₁ ''	K''	H	H	A	G ₁ '	K'	IS	—	—	6CG7
Plate Dissipation either plate .. 3.5 watts max. both plates .. 5 watts max. Peak Heater Cathode Voltage .. 200 (D.C. component must not exceed 100 volts.)																
—	—	0.03	Cathode Resistor 200 Ω . Plate Current = 10 μA . at -10 volts grid bias.	32	G ₁ ^t	A ^t	G ₃ K	H	H	A ^p	G ₂	G ₂ K	G ₁ ^p	—	—	6CG8 6CG8A
—	—	1.5	Cathode Resistor 100 Ω . Plate Current = 10 μA . at -10 volts grid bias.													
—	0.5	—	Oscillator Voltage at mixer grid (G ₁ ^p) = 2.6 R.M.S. Mixer Grid (G ₁ ^p) Resistor 0.12 M Ω . Oscillator grid (G ₁ ^t) Resistor 2700 Ω . Grid (G ₁ ^t) current 3.6 mA. Type 6CG8A has Controlled Heater warm-up time = 11 secs.													
6000	3.0	0.25	Cathode Resistor 100 Ω . Total Harmonic Distortion 8.5%	32	IC	G ₁	IC	H	H	IC	A	G ₂	G ₃	—	—	6CH6
plate / plate 9000	8.0		Cathode Resistor 50 Ω . Total Harmonic Distortion 7.5% For use also as video amplifier.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
6C68	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6-3	0-45	200	9-5	See Note	150	2-8	6200	—	0-3
		Triode Class "A" Amplifier				200	13-0	-6-0	—	—	3300	19	5750 ohms
6C65	REMOTE CUT-OFF R.F. AMPLIFIER	R.F. Amplifier	H	6-3	0-2	250	6-0	-2-5	See Note	1-7	2200	—	1-1
6C66	POWER PENTODE	Class "A" Amplifier	H	6-3	1-05	250	32	-38-5	250	2-4	4600	—	0-015
		Horizontal Deflection Amplifier				D.C. Plate, Screen Grid Voltage (without current) 550 max. (with current) 300 max. Peak Positive Pulse Plate Voltage 7000 max. Peak Negative Pulse Plate Voltage 7000 max. Plate Dissipation 8 watts max.							
6C64	POWER TRIODE	Class "A" Amplifier	H	6-3	1-25	250	40-0	-28	—	—	5500	6-6	1200 ohms
		Vertical Deflection Amplifier				Plate Voltage 550 Design max. Peak Positive-pulse Plate Voltage .. 2000 Absolute max. Peak Negative-pulse Grid Voltage .. 250 Design max.							
6C65	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-71	250	36-0	See Note	250	5-2	10000	—	0-04
		Class "AB" Power Amplifier				250	Zero Signal 2 \times 36-0 Max. Signal 2 \times 39-5	See Note	250	Zero Signal 2 \times 5-2 Max. Signal 2 \times 8-0	—	—	—
6C66	VIDEO OUTPUT PENTODE	Video Amplifier	H	6-3	0-71	250	36	-5-5	250	5-0	10,000	—	0-13
6C66	POWER PENTODE	Class "A" Power Amplifier	H	6-3	0-65	250	Zero Signal 30-0 Max. Signal 31-0	-3-0	150	Zero Signal 7-0 Max. Signal 7-2	11000	—	0-15

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.025	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -8 volts grid bias.	32	K ^t	A ^p	G ₂	H	H G ₃ IS	K ^p	G ₁ ^p	G ₁ ^t	A ^t	—	—	6CH8
—	—	1.6	Plate Current = 10 μA . at -19 volts grid bias. Pin No. 5 must be connected to ground.		—	—	—	—	—	—	—	—	—	—	—	
—	—	0.002	Series Screen Resistor 90000 Ω (250 volts supply). Mutual Conductance = 22 μmhos at -39 volts grid bias. Cathode Resistor 325 Ω .	28	H	A	IC	IC	G ₂	G ₁	K G ₃ IS	H	—	—	—	6CJ5
—	—	0.8		32	K	G ₁	K	H	H	IC	IC	G ₂	G ₃	A	—	6CJ6
Peak Heater Cathode Voltage .. 100 max. Screen Grid Dissipation .. 4.5 watts max. Plate and Screen Dissipation .. 10 watts					—	—	—	—	—	—	—	—	—	—	—	
—	—	6.5	Plate Current = 0.5 mA. at -50 volts grid bias.	30	G	H	G	—	A	—	H	K	—	—	—	6CK4
Plate Dissipation .. 12.0 watts Design max. Cathode Current Peak .. 350 mA. Design max. Average .. 100 mA. Design max.					—	—	—	—	—	—	—	—	—	—	—	
7000	3.9	1.0	Cathode Resistor 170 Ω . Total Harmonic Distortion 10%.	28	H	A	IC	—	G ₂	G ₁	K G ₃	H	—	—	—	6CK5
7000 Plate to Plate	9.4	—	Cathode Resistor 85 Ω . R.M.S. grid to grid input voltage = 11.2. Total Harmonic Distortion 4.6%.		—	—	—	—	—	—	—	—	—	—	—	
—	—	0.1		32	G ₂	G ₁	K	H	H	G ₃	A	IS	NC	—	—	6CK6
7500	2.8	0.12	Peak A.F. Input = 3 V. Total Harmonic Distortion 8%. Plate Current = 10 μA . at -14 volts grid bias. For use also as TV video power amplifier.	32	K	G ₁	G ₂	H	H	A	G ₂ IS	G ₂	G ₁	—	—	6CL6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms			
			TYPE	Current Amps											
6CL8 6CL8A	MEDIUM μ TRIODE SHARP CUT-OFF TETRODE	Triode Class "A" Amplifier	H	6.3	0.45	125	15	See Note	—	—	8000	40	5000 ohms		
		Tetrode Class "A" Amplifier				125	12	-1.0	125	4	6CL8 5800 6CL8A 6400	—	0.1		
6CM4	U.H.F. TRIODE	U.H.F. Amplifier	H	6.3	0.2	175	12	See Note	—	—	14,000	68	—		
		U.H.F. Self-Oscillating Mixer				Supply 220	12	—	—	—	—	—	—		
6CM5	POWER PENTODE	Class "A" Amplifier	H	6.3	1.25	100	100.0	-7.7	100	7.0	14000	—	5300 ohms		
		Class "B" Amplifier				300	Zero Signal 2 × 18.0 Max. Signal 2 × 100.0	-29.0	150	Zero Signal 2 × 0.5 Max. Signal 2 × 19.0	—	—	—		
		Horizontal Deflection Power Amplifier				D.C. Plate Voltage (No Current) 550 max. Peak Positive-pulse Plate Voltage 7000 max. Peak Negative-pulse Plate Voltage 1500 max. D.C. Screen Voltage (No Current) 550 max. Peak Negative Grid Voltage 1000 max.									
6CM6	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	0.45	250	45.0	-12.5	250	4.5	4100	—	0.05		
		Class "A" Push-pull Amplifier				285	Zero Signal 70.0 Max. Signal 92.0	-19.0	285	Zero Signal 4.0 Max. Signal 13.5	—	—	—		
		Vertical Deflection Amplifier				Plate Voltage 315 max. Peak Positive Plate Voltage 2000 absolute max. Plate Dissipation 8 watts max. Screen Voltage 285 max.									
6CM7	MEDIUM μ TRIODE WITH DIS- SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6.3	0.6	200	5.0	-7.0	—	—	2000	20	11000 ohms		
		Unit 2				250	20.0	-8.0	—	—	4400	18	4100 ohms		
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 500 max. Peak Negative-pulse Grid Voltage 200 max. Cathode Current Peak 70 mA. max. Average 15 mA. max.									
		Vertical Deflection Power Amplifier Unit 2				D.C. Plate Voltage 500 max. Peak Positive-pulse Plate Voltage 2200 absolute max. Peak Negative-pulse Grid Voltage 200 max.									

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.8	Cathode Resistor 56 ohms. Plate Current = 10 μA . at -9.0 volts grid bias.	32	G ^t	A ^t	K ^t	H	H	A ^{tet}	G ₂ ^{tet}	K ^{tet}	G ₁ ^{tet}	—	—	6CL8 6CL8A
—	—	6CL8 0.028 6CL8A 0.02	Controlled Heater warm-up time = 11 secs. Intended for use as V.H.F. Converter in TV Receivers.													
—	—	2.0	Cathode Resistor 125 Ω . Equivalent Noise Resistance 230 Ω .	32	A	G	K	H	H	G	K	G	A	—	—	6CM4
5600	—		Grid Resistor 47000 Ω . Grid Current 50 μA .													
—	—	1.1		30	IC	H	IC	G ₂	G ₁	—	H	K G ₃	—	A	—	6CM5
3500 Plate to Plate	44.5	—	Max. Signal Input 20 V. R.M.S. per tube. Total Harmonic Distortion 7.2%.													
Plate Dissipation 10 watts max. Screen Dissipation 5 watts max. Plate and Screen Dissipation .. 13 watts max. Cathode Current 200 mA. max. Peak Heater Cathode Voltage .. 100 max.																
5000	4.5	0.7	Total Harmonic Distortion 8%.	32	G ₂	NC	G ₁	H	H	G ₁	K G ₂ IS	NC	A	—	—	6CM6
8000 Plate to Plate	14	—	Total Harmonic Distortion 3.5%. Peak grid to grid input voltage = 38.													
Screen Dissipation 1.75 watts max. Peak Negative Screen Voltage .. 250 max. Cathode Current Peak 120 mA. max. Average 40 mA. max.																
—	—	3.8	Plate Current = 10 μA . at -14.0 volts grid bias.	32	A ^{II}	NC	K ^I	H	H	A ^I	G ₁ ^I	G ₁ ^{II}	K ^{II}	—	—	6CM7
—	—	3.0	Controlled Heater warm-up time = 11 secs.													
Plate Dissipation 1.25 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																
Cathode Current Peak 70 mA. max. Average 20 mA. max. Plate Dissipation 5.5 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
6CN8	HIGH μ TRIODE SHARP CUT-OFF PENTODE	Triode Class "A" Amplifier	H	6-3	0-45	Supply 250	1-8	-2	—	—	2000	100	0-05
		Pentode Class "A" Amplifier				Supply 200	9-5	See Note	150	2-8	6200	—	0-6
6CN6	POWER PENTODE	Class "A" Amplifier	H	6-3	1-4	250	100-0	-7-0	250	13-0	14300	—	0-02
		Horizontal Deflection Power Amplifier				Plate Voltage 800 max. Peak Positive-pulse Plate Voltage .. 4000 max. Plate Dissipation 25 watts max.							
6CN7	TWIN DIODE HIGH μ A.F. TRIODE	Class "A" Amplifier	H	6-3	0-3	250	1-0	-3-0	—	—	1200	70	0-058
				3-15	0-6								
6CQ6	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-2	250	8-0	-2-5	200	2-1	2500	—	—
6CQ8	MEDIUM μ TRIODE SHARP CUTOFF R.F. TETRODE	Tetrode Class "A" Amplifier	H	6-3	0-45	125	12-0	-1-0	125	4-2	5800	—	0-14
		Triode Class "A" Amplifier				125	15-0	See Note	—	—	8000	40	5000 chms
6CR6	DIODE REMOTE CUTOFF PENTODE	Class "A" Amplifier	H	6-3	0-3	250	9-5	-2-0	100	3-0	1950	—	0-2
6CS6	PENTAGRID	Class "A" Amplifier	H	6-3	0-3	100	0-8	(G ₁) 0 (G ₂) -1-0	(G ₂₊₄) 30	(G ₂₊₄) 5-5	(G _{2-A}) 1500	—	0-7
		Sync. Separator, Clipper				10	2-0	(G ₁) 0 (G ₂) 0	(G ₂₊₄) 30	(G ₂₊₄) 4-5	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.9	Controlled Heater warm-up time = 11 secs.	32	A ^t	G ₁ P	KP IS G ₂	H	H	A ^p	G ₂	K ^t	G ^t	—	—	6CM8
—	—	0.04	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -8.0 volts grid bias.													
—	—	1.2		30	G ₃	H	—	G ₂	G ₁	—	H	K	—	A	—	6CN6
Screen Voltage Screen Dissipation Cathode Current Average Heater Cathode Voltage			400 max. 8 watts max. 200 mA. max. 100 max.													
—	—	1.8	Controlled Heater warm-up time = 11 secs. R.C. Amplifier (180 V. supply). Plate Resistor 0.47 m Ω . Following Grid Leak 2.2 m Ω . Cathode Resistor 9100 Ω . Gain 47	32	D ₂	D ₁	K ^d IS	H	H	K ^t	G ₁	A	H ^t	—	—	6CN7
—	—	0.007	Mutual Conductance = 5 μmhos at -28 V. grid bias. Frequency limit 160 Mc/s.													
—	—	0.019	Plate Current = 100 μA . at -7 volts grid (G ₁) bias.	32	A ^t	G ₁	G ₂	H	H	A	K IS	K ^t	G ₁ ^t	—	—	6CQ8
—	—	1.8	Cathode Resistor 56 Ω . Plate Current = 100 μA . at -7 volts grid (G ₁) bias. Controlled Heater warm-up time = 11 secs.													
—	—	—	Mutual Conductance = 10 μmhos at -40 volts grid bias.	21	K	D	H	H	A	G ₂	G ₁	—	—	—	—	6CR6
—	—	(Cag ₁) 0.07 (Cag ₂) 0.36	Plate current = 50 μA . at -2.2 volts (G ₂) bias.	21	G ₁	K G ₂	H	H	A	G ₂ G ₄	G ₃	—	—	—	—	6CS6
—	—	—														

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms			
			T Y P E	Voltage Volts									Current Amps		
6687	MEDIUM μ DOUBLE TRIODE WITH DIS- SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6-3	0-6	250	10-5	-8-5	—	—	2200	17	7700 ohms		
		Unit 2				250	19-0	-10-5	—	—	4500	15-5	3450 ohms		
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 500 max. Peak Negative-pulse Grid Voltage .. 400 max. Plate Dissipation 1-25 watts max.									
		Vertical Deflection Power Amplifier Unit 2				D.C. Plate Voltage 500 max. Peak Positive-pulse Plate Voltage .. 2200 absolute max. Peak Negative-pulse Grid Voltage .. 250 max.									
6677	DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6-3	0-2	250	5-0	-2-0	85 See Note	1-5	2000	—	1-4		
66U5	BEAM POWER PENTODE	Class "A" Power Amplifier	H	6-3	1-2	120	49-0	-8-0	110	4-0	7500	—	10000 ohms		
66U7	TRIODE HEXODE	Triode Class "A" Amplifier	H	6-3	0-23	100	10-0	0	—	—	2800	22	—		
		Hexode Frequency Changer				250	3-0	(G ₁ ^h) -2-0	(G ₂₊₃₊₄) 85	3-0	Conv. 750	—	>1-0		
		Triode Oscillator				250	4-8	—	—	—	—	—			

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	2.6	Plate Current = 10 μA . at -24 volts grid bias.	32	A ¹¹	NC	G ₁ ¹¹	H	H	A ¹	G ₁ ¹	K ¹	K ¹¹	—	—	6667
—	—	2.6	Plate Current = 50 μA . at -22 volts grid bias. Controlled Heater warm-up time = 11 secs.													
Cathode Current Peak 70 mA. max. Average 20 mA. max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																
Plate Dissipation 6.5 watts max. Cathode Current Peak 105 mA. max. Average 30 mA. max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																
—	—	0.002	Mutual Conductance = 20 μmhos at -43 V. grid (G ₁) bias. Cathode Resistor 310 Ω . Series Screen Resistor 0.11 m Ω . As R.C. Amplifier 250 V. Supply Following grid leak 0.7 m Ω . Plate Resistor 0.22 m Ω . Screen Resistor 0.02 m Ω . Cathode Resistor 1500 Ω . Gain 120.	28	H	A	D	G ₃	G ₂	G ₁	K IS	H	—	—	—	6677
2500	2.3	0.7	Total Harmonic Distortion 15%.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	66U5
—	—	1.3														
—	—	0.1	Screen connected to junction of two series resistors each 27000 Ω connected between B+ and ground. Cathode Resistor 180 Ω .	28	H	A ^h	A ^t	G ₁ ^t G ₃	G ₂ G ₄	G ₁ ^h	K IS	H	—	—	—	66U7
—	—	—	Plate Resistor 33 k Ω . Oscillator Grid Resistor 47 k Ω . Oscillator Grid Current 200 μA . R.M.S. Oscillator Voltage 8.0													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYPE	Voltage Volts	Current Amps									
6CU8	MEDIUM μ TRIODE SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.45	200	9.5	See Note	150	2.8	6200	—	0.3	
6CV7	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.23	250	1.0	-3.0	—	—	1200	70	0.058	
6CW4	HIGH μ R.F. TRIODE NUVIATOR	Class "A" Amplifier	H	6.3	0.13	Supply 110	7.6	See Note	—	—	9800	62	6300 ohms	
6CW5	POWER PENTODE	Class "A" Amplifier	H	6.3	0.76	170	70	-12.5	170	3.5	11,000	—	0.026	
		Class "A" Audio Amplifier				200	Zero Signal 65 Max. Signal 64	See Note	See Note	Zero Signal 3.2 Max. Signal 11.4	—	—	—	
		Class "AB" Audio Amplifier				250	Zero Signal 2 x 50 Max. Signal 2 x 55	See Note	200	Zero Signal 2 x 2 Max. Signal 2 x 13	—	—	—	
		Vertical Deflection Amplifier				D.C. Plate Voltage 250 max. Peak Positive Pulse Plate Voltage 2000 max. (Max. pulse duration 4% of a cycle with 0.8 msec. max.) Plate Dissipation 10 watts max. Grid No. 2 Voltage 250 max.								
6CW7	R.F. TWIN TRIODE	Cascade R.F. Amplifier (each Triode)	H	6.3	0.33	90	12.0	-1.5	—	—	6000	24	—	
											Input Conductance at 200 mc/s.		Noise figure with 7.8 Mc/s. bandwidth.	
											250 μ mhos		6.5	
											700 μ mhos		5.0	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.		
—	—	Pentode 0.025 Triode 1.6	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -8 volts grid bias. Controlled Heater warm-up time = 11 secs. For use in multi-purpose TV applications.	32	K ^t G ₃ IS	A ^p	G ₂	H	H	K ^p	G ₁ ^p	G ₁ ^t	A ^t	—	—	6CW8	
—	—	1.5	As R.C. Amplifier (250V. Supply) Following Grid Leak 0.68 m Ω . Plate Resistor 0.22 m Ω . Cathode Resistor 1800 Ω . Gain 51	28	H	A	G ₁	IS	D ¹¹	D ¹	K	H	—	—	—	6CV7	
—	—	0.92	Cathode Resistor 130 Ω . Plate Current = 10 μA . for -4 volts grid bias.	68	IC	A	IC	G ₁	IC	IC	IC	K	IC	Pin 10 H	Pin 12 H	6CW4	
—	—	0.6	Cathode Resistor 215 Ω . Grid No. 2 Resistor 470 Ω . from 200 volt supply. Total Harmonic Distortion 10%.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	6CW5	
2500	5.3																
5500 Plate to Plate	18.5		Common Cathode Resistor 150 Ω . R.M.S. Signal Voltage 13. Total Harmonic Distortion 4.5%.														
Grid No. 2 Dissipation Cathode Current Heater Cathode Voltage			1.75 watts max. 100 mA. max. 200 max.														
—	—	(G ₁ ¹ -A ¹) 1.2 (G ₁ ¹¹ -A ¹¹) 2.3	For use as a TV Cascode R.F. Amplifier up to 220 Mc/s.	32	K ¹¹	G ₁ ¹¹ IS	A ¹¹	H	H	G ₁ ¹	K ₁ ¹	K ₀ ¹	A ¹	—	—	6CW7	
<p>Use pins 6, 7, 8, 9 as the grounded cathode section of the cascode amplifier.</p> <p>K₁¹ should be connected to the R.F. input circuit and K₀¹ to the chassis.</p>																	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6CX8	HIGH μ TRIODE SHARP CUT-OFF PENTODE	Triode Class "A" Amplifier	H	6-3	0-75	150	9-2	See Note	—	—	4000	40	8700 ohms
		Pentode Video Amplifier				200	24	See Note	125	5-2	10,000	—	0-07
6CY5	SHARP CUT-OFF V.H.F. TETRODE	V.H.F. Amplifier	H	6-3	0-2	125	10	-1-0	80	1-5	8000	—	0-1
6CY7	DOUBLE TRIODE WITH DIS-SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6-3	0-75	250	1-2	-3-0	—	—	1300	68	0-052
		Class "A" Amplifier Unit 2				150	30	See Note	—	—	5400	5	920 ohms
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 350 Design Max. Peak Negative-pulse Grid Voltage .. 400 Design Max. Plate Dissipation 1-0 watt Design max.							
		Vertical Deflection Power Amplifier Unit 2				D.C. Plate Voltage 350 Design max. Peak Positive-pulse Plate Voltage .. 1800 Design max. Peak Negative-pulse Grid Voltage .. 250 Design max.							
6CZ5	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	0-45	250	46-0	-14-0	250	4-6	4800	—	0-073
		Class "AB" Amplifier				350	Zero Signal 46-0 Max. Signal 103	-23-5	280	Zero Signal 3-0 Max. Signal 13-0	—	—	—
		110° Vertical Deflection Amplifier				D.C. Plate Voltage 315 max. Peak Positive—Pulse Plate Voltage .. 2200 absolute max. D.C. Screen (G_2) Grid Voltage .. 285 max. Peak Negative—Pulse Grid (G_1) Voltage 250 max.							
6D4	GAS TRIODE	Relaxation Oscillator	H	6-3	0-25	125-0 50-0	— —	-12-0 -6-0	— —	— —	— —	— —	— —
		R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4.4	Cathode Resistor 150 Ω . Plate Current = 100 μA . at -5.0 volts grid bias.	32	K ^t	G ^t	A ^t	H	H	K ^P IS G ₂	G ₁ ^P	G ₂	A ^P	—	—	6CX8
—	—	0.06	Cathode Resistor = 68 Ω . Plate Current = 100 μA . at -8.5 volts grid bias.		—	—	—	—	—	—	—	—	—	—	—	
—	—	0.03	Plate Current = 20 μA . at -6.0 volts grid bias.	21	G ₁	K IS	H	H	A	G ₂	K IS	—	—	—	—	6CY5
—	—	1.8	Plate Current = 10 μA . at -5.5 volts grid bias.	32	A ¹¹	NC	G ¹¹	H	H	A ¹	G ¹	K ¹	K ¹¹	—	—	6CY7
—	—	4.4	Cathode Resistor 620 Ω . Plate Current = 200 μA . at -40.0 volts grid bias.													
Peak Heater-Cathode Voltage .. 200 Design max. (D.C. component must not exceed 100 volts.)																
Plate Dissipation .. 5.5 watts Design max. Cathode Current Peak .. 120 mA. Design max. Average .. 35 mA. Design max. Peak Heater-Cathode Voltage 200 Design max. (D.C. component must not exceed 100 volts.)																
5000	5.4	0.7	Plate Current = 100 μA . at -35 volts grid bias. Total Harmonic Distortion 10%. * Do not use. Controlled Heater warm-up time = 11 secs.	32	G ₂	NC	G ₁	H	H	G ₁	K G ₂	* IC	A	—	—	6CZ5
plate / plate 7500	21.5		Total Harmonic Distortion 1%. Peak grid/grid input voltage 47.													
Cathode Current Peak 140 mA. max. Average 40 mA. max. Plate Dissipation 10 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts).																
—	—	—	Peak Cathode Current 100 mA. max. Grid voltage given is that re- quired to start conduction.	21	G ₁	—	H	H	K	—	A	—	—	—	—	6D4
—	—	0.007	★ For data and notes refer type 6U7G.	17	H	A	G ₂	G ₃	K	H	—	—	—	G ₁	—	6D6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6D8G	PENTAGRID	Frequency Converter	H	6-3	0-15	250	3-5	(G ₄) -3	(G ₃₊₂) 100	2-6	Conv. 550	—	0-4
6DA4	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1-2	Peak Inverse 4400 (Design max.)	Peak 900 (Design max.) Average 155 (Design max.)	—	—	—	—	—	—
6DA5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0-3	Target Volts 250	Target Current 2-0	-1 for shadow angle 65°	—	—	—	—	—
6DA6	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-2	250	9-0	-1-95	See Note	3-0	3500	—	0-90
6DB5	BEAM POWER PENTODE	Class "A" Amplifier	H	6-3	1-2	110	49	-7-5	110	4-0	8000	—	0-013
		200				46	See Note	125	2-2	8000	—	0-028	
						Plate Voltage 300 max. Peak Positive-pulse Plate Voltage .. 2000 absolute max. Plate Dissipation 10 watts max. Grid No. 2 Voltage 150 max.							
6DC6	SEMI-REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	200	9-0	See Note	150	3-0	5500	—	0-5
6DC8	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier Detector	H	6-3	0-3	200	11-0	-1-5	100	3-3	4500	—	0-6
6DE4	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	1-6	Peak Inverse 5000 (Design max.)	Peak 1100 (Design max.) Average 175 (Design max.)	—	—	—	—	—	—
6DE6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	200	9-5	See Note	150	2-8	6200	—	0-6

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.		
—	—	0.2	Conversion Conductance = 6 μmhos at - 35 volts grid (G_4) bias. Grid No. 2 Current 4.3 mA through 20,000 Ω (250 volts supply). Osc. Grid (G_1) Current 0.4 mA. Osc. Grid Resistor 50,000 Ω .	30	NC	H	A	G_3 G_6	G_1	G_2	H	K	—	G_4	—	6D8G	
—	—	—	*Do not use as Tie Points. Peak Heater-Cathode Voltage with Heater Negative with respect to Cathode, 4400 volts Design max. Plate Dissipation 5.5 watts Design max.	30	NC *	NC *	K	—	A	—	H	H	—	—	—	6DA4	
—	—	—	Plate Resistor 0.5 m Ω . Grid (G_1^1) voltage = -10.5 for shadow angle = 5°.	32	G_1^1	K G_1^1	IC	H	H	IC	A ^t D	IC	T	—	—	6DA5	
—	—	<0.002	Series Screen Resistor 50 k Ω (250 V. Supply). Cathode Resistor 160 Ω .	32	IS	G_1	K	H	H	IS	A	G_2	G_3	—	—	6DA6	
2000 4000	2.1 3.8	0.2	*Do not use. Cathode Resistor 180 Ω . Total Harmonic Distortion 10%.	32	G_2	K	G_1	H	H	G_1	G_3 K	IC *	A	—	—	6DB5	
Grid No. 2 Dissipation .. 1.25 watts max. Cathode Current Peak .. 200 mA. max. Average .. 55 mA. max.																	
—	—	0.02	Cathode Resistor 180 Ω . Mutual Conductance = 50 μmhos at -12.5 volts grid bias.	21	G_1	K	H	H	A	G_2	G_3 IS	—	—	—	—	6DC6	
—	—	<.0025	Series Screen Resistor 30 k Ω . Mutual Conductance = 120 μmhos at -20 volts grid bias.	32	G_2	G_1	K IS	H	H	A	D ^t	D ¹¹	G_3	—	—	6DC8	
—	—	—	*Do not use. Plate Dissipation = 6.5 watts Design max. Peak Heater-Cathode Voltage with Heater Negative with respect to Cathode = 5000 Design max.	30	—	IC *	K	—	A	—	H	H	—	—	—	6DE4	
—	—	0.02	Cathode Resistor 180 Ω . Plate Current = 10 μA . at -10 volts grid bias.	21	G_1	K	H	H	A	G_2	G_3 IS	—	—	—	—	6DE6	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms			
			T Y P E	Voltage Volts	Current Amps											
6DE7	TWIN TRIODE WITH DIS-SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6-3	0-9	250	5-5	-11	—	—	2000	17-5	8750 ohms			
		Class "A" Amplifier Unit 2				150	35	-17-5	—	—	6500	6-0	925 ohms			
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 330 Design max. Peak Negative-pulse Grid Voltage .. 400 Design max. Plate Dissipation 1-5 watts Design max.										
		Vertical Deflection Amplifier Unit 2				D.C. Plate Voltage 275 Design max. Peak Positive-pulse Plate Voltage .. 1500 Absolute max. Peak Negative-pulse Grid Voltage .. 250 Design max.										
6DG6-GT	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6-3	1-2	200	46-0	*0	125	2-2	8000	—	0-028			
						110	49-0	-7-5	110	4-0	8000	—	0-013			
6DJ8	HIGH-SLOPE TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6-3	0-365	90	15	-1-3	—	—	12,500	33	—			
6DK6	SHARP CUT-OFF R.F. PENTODE	Class "A" Amplifier	H	6-3	0-3	125	12	See Note	125	3-8	9800	—	0-35			
6DL5	POWER PENTODE	Class "A" Power Amplifier	H	6-3	0-2	250	24-0	-9-0	250	4-5	5000	—	0-075			
6DN6	BEAM POWER PENTODE	Class "A" Amplifier	H	6-3	2-5	125	70-0	-18-0	125	6-3	9000	—	4000 ohms			
		Horizontal Deflection Power Amplifier				D.C. Plate Voltage 700 max. Peak Positive-pulse Plate Voltage .. 6600 absolute max. Peak Negative-pulse Plate Voltage .. 1500 max. Plate Dissipation 15 watts max.										
6DN7	TWIN TRIODE WITH DIS-SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6-3	0-9	250	8-0	-8-0	—	—	2500	22-5	9000 ohms			
		Class "A" Amplifier Unit 2				250	41	-9-5	—	—	7700	15-4	2000 ohms			
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 350 Design max. Peak Negative-pulse Grid Voltage .. 400 Design max. Plate Dissipation 1-0 watt Design max.										
		Vertical Deflection Amplifier Unit 2				D.C. Plate Voltage 550 Design max. Peak Positive-pulse Plate Voltage .. 2500 Design max. Peak Negative-pulse Grid Voltage .. 250 Design max.										

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4.0	Plate current = 10 μA . at -20 volts grid bias.	32	A ¹¹	G ¹¹	G ¹¹	H	H	A ¹	G ¹	K ¹	K ¹¹	—	—	6DE7
—	—	8.5	Plate current = 50 μA . at -44 volts grid bias.													
Cathode Current Peak .. 77 mA. Design max. Average .. 22 mA. Design max. Peak Heater-Cathode Voltage 200 Design max. (D.C. Component must not exceed 100 volts.)																
Plate Dissipation .. 7.0 watts Design max. Cathode Current Peak .. 175 mA. Design max. Average .. 50 mA. Design max. Peak Heater-Cathode Voltage 200 Design max. (D.C. Component must not exceed 100 volts.)																
4000 2000	3.8 2.1	0.6	*Cathode Resistor 180 Ω . Total Harmonic Distortion 10%. Peak Grid Voltage 8.5 and 7.5, respectively.	30	NC	H	A	G ₂	G ₁	H	K G ₂	—	—	—	—	6DG6-GT
—	—	1.4	Equivalent Noise Resistance 300 Ω . Intended for use as Cascode Amplifier in TV tuners.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	IS	—	—	6DJ8
—	—	0.02	Cathode Resistor 56 Ω . Plate Current = 20 μA . at -6.5 volts grid bias.	21	G ₁	K	H	H	A	G ₂	G ₃ IS	—	—	—	—	6DK6
10000	3.0	0.4	Total Harmonic Distortion 11%.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	6DL5
—	—	0.8	Controlled Heater warm-up time = 11 secs.	30	NC	H	K G ₃ IS	—	G ₁	—	H	G ₂	—	A	—	6DN6
D.C. Screen Grid Voltage .. 175 max. D.C. Screen Grid Dissipation .. 3.0 watts max. Cathode Current Peak .. 700 mA. max. Average .. 200 mA. max.																
—	—	4.0	Plate current = 10 μA . at -18 volts grid bias.	30	G ¹¹	A ¹¹	K ¹¹	G ¹	A ¹	K ¹	H	H	—	—	—	6DN7
—	—	5.5	Plate Current = 50 μA . at -23 volts grid bias.													
—	—	—	Peak Heater-Cathode Voltage = 200 volts Design max.													
Plate Dissipation .. 10 watts Design max. Cathode Current Peak .. 150 mA. Design max. Average .. 50 mA. Design max. Peak Heater-Cathode Voltage 200 volts Design max.																

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms			
			TYP E	Voltage Volts	Current Amps											
6DQ5	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	2-5	175	110	-25	125	5	10500	—	5500 ohms			
		Horizontal Deflection Amplifier												D.C. Plate Voltage 900 max. Peak Positive Pulse Plate Voltage .. 7000 absolute max. D.C. Screen Voltage 175 max. Peak Negative—Pulse Grid (G ₁) Voltage 260 max.		
6DQ6-A	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	1-2	250	75-0	-22.5	150	2-4	6600	—	0-02			
		Horizontal Deflection Power Amplifier												D.C. Plate Voltage 700 max. Peak Positive-pulse Plate Voltage .. 6000 absolute max. Peak Negative-pulse Plate Voltage .. 1375 max. D.C. Screen Grid Voltage 200 max. D.C. Grid (G ₁) Voltage -50 max.		
6DQ6B	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	1-2	250	75	-22.5	150	2-4	6600	—	0-02			
		Horizontal Deflection Amplifier												D.C. Plate Voltage 770 Design max. Peak Positive-pulse Plate Voltage .. 6500 Design max. Peak Negative-pulse Plate Voltage .. 1500 Design max. D.C. Grid No. 2 Voltage 220 Design max. Peak Negative-pulse Grid Voltage .. 330 Design max.		
6DR7	TWIN TRIODE WITH DIS-SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6-3	0-9	250	1-4	-3	—	—	1600	68	0-04			
		Class "A" Amplifier Unit 2												150	35	-17.5
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 330 Design max. Peak Negative-pulse Grid Voltage .. 400 Design max. Plate Dissipation 1-0 watt Design max.										
		Vertical Deflection Amplifier Unit 2				D.C. Plate Voltage 275 Design max. Peak Positive-pulse Plate Voltage .. 1500 Absolute max. Peak Negative-pulse Grid Voltage .. 250 Design max.										
6DR8	DUO DIODE R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	6-3	0-12	See Note	6-3	0-04	450	—	0-65			
						12-6	0-45	See Note	12-6	0-14	1000	—	1-0			
6DS5	BEAM POWER PENTODE	Class "A" Amplifier	H	6-3	0-8	250	27	See Note	200	3-0	5800	—	0-028			

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.5	Plate Current = 1 mA. at -55 volts grid (G_1) bias.	30	G_1	H	K G_3	G_2	G_1	K G_3	H	G_2	—	A	—	6DQ5
Cathode Current Peak 1000 mA. max. Average 285 mA. max. Plate Dissipation 24 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts).																
—	—	0.55	Plate current = 1 mA. at -46 volts grid bias.	30	NC	H	NC	G_2	G_1	—	H	K G_3	—	A	—	6DQ6-A
Peak Negative-Pulse Grid (G_1) Voltage 300 max. Cathode Current Peak 440 max. Average 140 max. Plate Dissipation 15 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts).																
—	—	0.5	Plate Current = 1 mA. at -46 volts grid bias.	30	NC	H	NC	G_2	G_1	—	H	K G_3	—	A	—	6DQ6B
Cathode Current Peak .. 550 mA. Design max. Average .. 175 mA. Design max. Plate Dissipation 17.5 watts Design max. Peak Heater-Cathode Voltage 200 Design max. (D.C. component must not exceed 100 volts.) Controlled heater warm-up time = 11 secs.																
—	—	4.5	Plate current = 10 μA . at -5.5 volts grid bias.	32	A ^{II}	G ^{II}	G ^{II}	H	H	A ^I	G ^I	K ^I	K ^{II}	—	—	6DR7
—	—	8.5	Plate Current = 50 μA . at -44 volts grid bias.													
Cathode Current Peak .. 70 mA. Design max. Average .. 20 mA. Design max. Peak Heater-Cathode Voltage 200 Design max. (D.C. Component must not exceed 100 volts.)																
Plate Dissipation 7.0 watts Design max. Cathode Current Peak .. 175 mA. Design max. Average .. 50 mA. Design max. Peak Heater Cathode Voltage 200 Design max.																
—	—	2.5	Grid Resistor 2.2 $\text{m}\Omega$.	32	G_2	G_1	K IS	H	H	A	D_1	D_2	G_3	—	—	6DR8
8000	3.6	—	Cathode Resistor 270 Ω . Total Harmonic Distortion 10%. Peak grid/grid input voltage 9.2	21	G_1	K G_3	H	H	A	G_2	G_1	—	—	—	—	6DS5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6DS8	TRIODE HEPTODE	Frequency Converter Heptode	H	6-3	0-3	6-3	0-05	See Note	6-3	0-08	Conv. 90	—	1-3
						12-6	0-17	See Note	12-6	0-3	Conv. 220	—	1-5
		Triode Section	H	6-3	0-3	6-3	0-3	See Note	—	—	800	14-6	—
						12-6	0-75	See Note	—	—	1400	18-3	—
6DT5	BEAM POWER PENTODE	Class "A" Amplifier	H	6-3	1-2	250	44	-16.5	250	1-5	6200	—	—
		Vertical Deflection Amplifier				Plate Voltage	315 Design max.	Peak Positive-pulse Plate Voltage ..	2200 Absolute max.	Peak Negative-pulse Grid Voltage ..	250 Design max.	Grid No. 2 Voltage	285 Design max.
6DT6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	150	1-1	See Note	100	2-1	(G ₁ -A) 800 (G ₂ -A) 515	—	0-15
6DT8	HIGH μ TWIN TRIODE	R.F. Amplifier (Each Unit)	H	6-3	0-3	100	3-7	See Note	—	—	4000	60	0-015
						250	10-0		—	—	5500	60	0-019
6DW5	BEAM POWER TETRODE	Vertical Deflection Amplifier	H	6-3	1-2	200	55	-22.5	150	2-0	5500	—	0-015
						Plate Voltage	330 Design max.	Peak Positive-pulse Plate Voltage ..	2200 Absolute max.	Peak Negative-pulse Grid Voltage ..	250 Design max.	Grid No. 2 Voltage	220 Design max.
6DX8	HIGH μ TRIODE POWER PENTODE	Pentode Class "A" Amplifier	H	6-3	0-72	170	18	-2-1	170	3-0	11,000	—	>0-1
						200	18	-2-9	200	3-0	10,400	—	>0-13
						220	18	-3-4	220	3-0	10,000	—	>0-15
		Triode Class "A" Amplifier	200	3	-1-7	—	—	4000	65	—			
Pentode Video Amplifier	Supply	200	18	-2-8	200	3-1	10,000	—	—				
	Pentode Class "AB" Push-pull Audio Amplifier	Supply	250	Zero Signal 2 x 16 Max. Signal 2 x 18	See Note	Supply 250	Zero Signal 2 x 2-7 Max. Signal 2 x 4-7	—	—	—			

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	6.0	Grid Resistor 1 m Ω . Grid (G ₃) Resistor 47 k Ω . R.M.S. Oscillator Voltage 1.1, 1.7 respectively.	32	G ₂	G ₁ ^h	K IS	H	H	A	G ₃	A ^t	G ₁ ^t	—	—	6DS8
—	—	1.0			G ₄											
—	—	0.57	Plate Current = 100 μA . at -35 volts grid bias.	32	G ₂	NC	G ₁	H	H	G ₁	K G ₃	IC	A	—	—	6DT5
			Plate Dissipation .. 9.0 watts Design max. Cathode Current Peak .. 190 mA. Design max. Average .. 55 mA. Design max. Grid No. 2 Dissipation .. 2.0 watts Design max. Peak Heater Cathode Voltage 200 Design max.													
—	—	0.02	Cathode Resistor 560 Ω . Plate Current = 10 μA . at -4.5 volts grid (G ₁) bias. For use as F.M. Detector.	21	G ₁	K IS	H	H	A	G ₂	G ₃	—	—	—	—	6DT6
—	—	1.6	Cathode Bias Resistor 270, 200 ohms respectively. Plate Current = 10 μA . at -5 volts and -12 volts respectively.	32	A ^h	G ^h	K ^h	H	H	A ^j	G ^j	K ^j	IS	—	—	6DT8
—	—	0.5	Plate Current = 0.1 mA. at -55 volts grid bias.													
			Plate Dissipation .. 11 watts Design max. Cathode Current Peak .. 225 mA. Design max. Average .. 65 mA. Design max. Grid No. 2 Dissipation .. 2.5 watts Design max. Peak Heater Cathode Voltage 200 volts Design max.	32	G ₂	NC	G ₁	H	H	G ₁	G ₃ K	NC	A	—	—	6DW5
—	—	<0.1														
—	—	2.7														
3000	—	—		32	G ^t	A ^t	K ^t	H	H	A ^p	K ^p G ₃ IS	G ₁	G ₂	—	—	6DX8
17,500	5.4	—	Common Cathode Resistor 117 ohms. R.M.S. Signal Input Voltage 3.5. Total Harmonic Distortion 4%.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms			
			TYP E	Voltage Volts									Current Amps		
6DZ7	TWIN BEAM POWER PENTODE with common cathode, Grid No. 2, Grid No. 3	Class "A" Amplifier (Each Unit)	H	6-3	1-52	250	48	-7-3	250	5-5	11,300	—	0-038		
		Class "AB ₁ " Power Amplifier (Both Units)				300	Zero Signal 66 Max. Signal 88	See Note	250	Zero Signal 7-0 Max. Signal 15	—	—	—		
6E5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0-3	Target Volts 250	Target Current 2-0	-7-5 For Shadow Angle 0°	—	—	—	—	—		
6EA5	SHARP CUT-OFF R.F. TETRODE	R.F. Amplifier	H	6-3	0-2	250	10	-1-0	140	0-95	8000	—	0-15		
6EA7	TWIN TRIODE WITH DISSIMILAR SECTIONS	Class "A" Amplifier (Sect. 1)	H	6-3	1-05	250	1-5	-3-0	—	—	1900	65	0-034		
		Class "A" Amplifier (Sect. 2)				175	48-0	-25-0	—	—	6500	5-0	770 ohms		
		Vertical Deflection Oscillator (Sect. 1)				D.C. Plate Voltage 350 design max. Peak Negative Pulse Grid Voltage 400 design max. Plate Dissipation 1-0 watt design max.									
		Vertical Deflection Amplifier (Sect. 2)				D.C. Plate Voltage 550 design max. Peak Positive Pulse Plate Voltage 1500 design max. Plate Dissipation 10 watts design max.									
6EA8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode (Class "A" Amplifier)	H	6-3	0-45	125	12	-1	125	4	6400	—	0-08		
		Triode (Class "A" Amplifier)				150	18	See Note	—	—	8500	40	5000 ohms		
6EB5	DOUBLE DIODE	Rectifier (Each Section)	H	6-3	0-3	Peak Inverse 550 (design max.)	Peak 40 (design max.)	—	—	—	—	—	—		

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.									
					1	2	3	4	5	6	7	8	9	T.C.		B.S.								
—	—	0.7 (Unit 1) 0.5 (Unit 2)	Intended for use in stereophonic sound systems.																					
9000 Plate to Plate	12	—	Cathode Resistor 120 Ω . Total Harmonic Distortion 3.5%. Peak A.F. Grid to Grid Voltage 22 volts.	30	G ₁ ^{II}	H	A ^{II}	G ₂	G ₁ ^I	A ^I	H	K G ₂	—	—	—	—	—	—	—	—	—	6DZ7		
—	—	—	Triode Plate Resistor 1.0 meg. Triode Plate Current 0.2 mA.	17	H	A	G ₁ ^I	T	K	H	—	—	—	—	—	—	—	—	—	—	—	6E5		
—	—	0.06		21	G ₁	K IS	H	H	A	G ₂	K IS	—	—	—	—	—	—	—	—	—	—	6EA5		
—	—	4.0	Plate Current = 20 μA . at -5 volts grid bias.	30	G ₁ ^I	A ^I	K ^I	G ₁ ^{II}	A ^{II}	K ^{II}	H	H	—	—	—	—	—	—	—	—	—	—	6EA7	
—	—	8.0	Plate Current = 200 μA . at -55 volts grid bias.																					
Peak Cathode Current		77 mA. design max.		30	G ₁ ^I	A ^I	K ^I	G ₁ ^{II}	A ^{II}	K ^{II}	H	H	—	—	—	—	—	—	—	—	—	—	—	6EA7
Average Cathode Current		22 mA. design max.																						
Peak Cathode Current		175 mA. design max.		32	A ^I	G ₁ ^P	G ₂	H	H	A ^P	K ^P G ₂ IS	K ^t	G ^t	—	—	—	—	—	—	—	—	—	—	6EA8
Average Cathode Current		50 mA. design max.																						
—	—	0.02 max.	Controlled Heater warm-up time = 11 secs. Plate Current = 10 μA . at -9 volts grid bias.	32	A ^I	G ₁ ^P	G ₂	H	H	A ^P	K ^P G ₂ IS	K ^t	G ^t	—	—	—	—	—	—	—	—	—	—	6EA8
—	—	1.7	Cathode Resistor 56 Ω . Plate Current = 10 μA . at -12 volts grid bias. Type 6EA8 is intended for use as V.H.F. Converter.	32	A ^I	G ₁ ^P	G ₂	H	H	A ^P	K ^P G ₂ IS	K ^t	G ^t	—	—	—	—	—	—	—	—	—	6EA8	
—	—	—		21	K ^{II}	A ^I	H	H	K ^I	IS	A ^{II}	—	—	—	—	—	—	—	—	—	—	—	6EB5	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage	Plate current	Grid bias (approx.)	Screen voltage	Screen current	Mutual conductance	Amplification factor	Plate resistance
			TYP E	Voltage Volts	Current Amps	Volts	Milli-amps	Volts	Volts	Milli-amps	μ mhos		Meg-ohms
6EB8	HIGH μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6-3	0-75	200	25	See Note	125	7	12,500	—	0-075
		Triode Class "A" Amplifier				250	2	-2	—	—	2700	100	0-037
6EH5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	1-2	110	Zero Signal 42 Max. Signal 42	See Note	115	Zero Signal 11.5 Max. Signal 14.5	14,600	—	11,000 ohms
		Class "AB ₁ " Power Amplifier				Supply 140	Zero Signal 47 Max. Signal 51	See Note	Supply 120	Zero Signal 11 Max. Signal 17.7	—	—	—
6EH7	SEMI-REMOTE CUT-OFF R.F. PENTODE	Class "A" Amplifier	H	6-3	0-3	200	12	-2-0	90	4.5	12,500	—	0-5
		TV I.F. Amplifier				200	—	-2-0	Supply 200 See Note	—	12,500	—	—
6EH8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6-3	0-45	125	12	-1-0	125	4-0	6000	—	0-17
		Triode Class "A" Amplifier				125	13.5	-1-0	—	—	7500	40	—
6EJ7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	170	10	-2-0	170	4-1	15,600	—	0-33
						200	10	-2.5	200	4-1	15,000	—	0-38
						230	10	-3-0	230	4-1	14,400	—	0-45
6EM5	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	0-8	250	35	-18	250	3	5100	—	—
		Vertical Deflection Amplifier				Plate Voltage 315 max. Peak Positive-pulse Plate Voltage .. 2200 absolute max. Plate Dissipation 10 watts max. Screen Voltage 285 max.							

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.1 max.	Cathode Resistor 68 Ω . Plate Current = 100 μA . at -9 volts grid bias. Pentode intended for Video Amplifier usage.	32	K ^t	G ^t	A ^t	H	H	KP G ₃	G ₁ P	G ₂	A ^P	—	—	6EB8
—	—	4.4	Plate Current = 20 μA . at -5 volts grid bias. Triode intended for Sync. Separator, Amplifier usage.		IS											
3000	1.4	0.65	Cathode Resistor 62 Ω . Total Harmonic Distortion 7%.	21	K											6EN5
6000 Plate to Plate	3.8		Cathode Resistor 68 Ω . Total Harmonic Distortion 5%.		G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	
—	—	0.005 max.	Input Resistance at 40 Mc/s. 10,000 ohms.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	6EH7
—	—		Grid No. 2 Resistor 24,000 ohms. Mutual Conductance = 125 μmhos at -19 volts grid bias.													
—	—	0.020 max.	Controlled Heater warm-up time = 11 secs. Plate Current = 20 μA . at -10 volts grid bias.	32	K					KP G ₃	G ₁ P	G ₂	A ^P	—	—	6EH8
—	—	1.8	Plate Current = 20 μA . at -9 volts grid bias.		G ₃	G ^t	A ^t	H	H	IS						
—	—	0.0055 max.	Input Resistance at 40 Mc/s. 8500, 10,000, 11,500 ohms respectively.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	6EJ7
—	—	0.7 max.	Plate Current = 0.2 mA. at -37 volts grid bias. *Do not use.													
Screen Dissipation 1.5 watts max. Peak Negative-pulse Grid Voltage 250 max. Cathode Current Peak . . . 210 mA. max. Average 60 mA. max. Peak Heater-Cathode Voltage 200 volts max.				32	G ₂	NC	G ₁	H	H	G ₁	K G ₃	IC *	A	—	—	6EM5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
6EM7	TWIN TRIODE WITH DIS-SIMILAR UNITS	Class "A" Amplifier Unit 1	H	6-3	0-9	250	1-4	-3	—	—	1600	68	0-04
		Class "A" Amplifier Unit 2				150	50	-20	—	—	7200	5-4	750 ohms
		Vertical Deflection Oscillator Unit 1				D.C. Plate Voltage 330 Design max. Peak Negative-pulse Grid Voltage 400 Design max. Plate Dissipation 1-5 Design max.							
		Vertical Deflection Amplifier Unit 2				D.C. Plate Voltage 330 Design max. Peak Positive-pulse Plate Voltage 1500 Absolute max. Peak Negative-pulse Grid Voltage 250 Design max.							
6EQ7	DIODE REMOTE CUT-OFF PENTODE	Class "A" Amplifier	H	6-3	0-3	100	9-0	See Note	100	3-5	3800	—	0-25
6ER5	SEMI-REMOTE CUT-OFF V.H.F. TRIODE	Class "A" Amplifier	H	6-3	0-18	200	10	-1-2	—	—	10,500	80	8000 ohms
6ES5	SEMI-REMOTE CUT-OFF V.H.F. TRIODE	Class "A" Amplifier	H	6-3	0-2	200	15	-1-0	—	—	9500	70	7400 ohms
6ES6	R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	6-3	0-8	*-0-85	3-15	0-3	900	—	0-07
						12-6	2-5	*-0-8	6-3	0-9	1800	—	0-1
		Mixer				6-3	0-35	See Note	3-15	0-45	Conv. 250	—	—
						12-6	1-0	See Note	6-3	1-35	500	—	—
6ES8	SEMI-REMOTE CUT-OFF V.H.F. TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6-3	0-365	90	15	-1-4	—	—	12,500	—	2500 ohms
6ET6	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	6-3	1-6	-0-85	6-3	0-65	1700	—	0-025
						12-6	1-85	-0-85	6-3	0-55	2000	—	0-2
6ET7	DOUBLE DIODE SHARP CUT-OFF PENTODE	Class "A" Amplifier	H	6-3	0-75	200	25	See Note	150	5-5	11,500	—	0-06
6EU7	HIGH μ TWIN TRIODE (low noise)	Class "A" Amplifier (Each unit)	H	6-3	0-3	100	0-5	-1	—	—	1250	100	0-08
						250	1-2	-2	—	—	1600	100	0-0625

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4.5	Plate Current = 10 μA . at -5.5 volts grid bias.	30	G ¹¹	A ¹¹	K ¹¹	G ¹	A ¹	K ¹	H	H	—	—	—	6E67
—	—	10	Plate Current = 100 μA . at -45 volts grid bias.													
Cathode Current Peak .. 77 mA. Design max. Average .. 22 mA. Design max. Peak Heater-Cathode Voltage 200 Design max.																
Plate Dissipation 10 watts Design max. Cathode Current Peak .. 175 mA. Design max. Average .. 50 mA. Design max. Peak Heater-Cathode Voltage 200 Design max.																
—	—	0.002 max.	Grid No. 1 Resistor (bypassed) = 2.2 m Ω . Mutual Conductance = 40 μmhos at -20 volts grid bias.	32	G ₃	G ₁	K	H	H	G ₂	A	D	IS	—	—	6E67
—	—	0.38	Mutual Conductance = 100 μmhos at -5.6 volts grid bias.	21	K	G	H	H	A	IS	K	—	—	—	—	6E65
—	—	0.36	Plate Current = 100 μA . at -9 volts grid bias.	21	K	G	H	H	A	IS	K	—	—	—	—	6E65
—	—	0.02	* Grid (G ₁) Resistor 10 m Ω .	21	G ₁	K	H	H	A	G ₂	G ₃	—	—	—	—	6E66
—	—		Grid (G ₂) Resistor 0.1 m Ω . R.M.S. Oscillator Voltage 5, 10 respectively. Grid (G ₁) Resistor 10 m Ω .													
—	—	1.9	Mutual Conductance = 0.05 of nominal value at -5 volts grid bias. Mutual Conductance = 0.01 of nominal value at -9 volts grid bias.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	IS	—	—	6E68
—	—	0.02	Grid (G ₃) Voltage 3-15, 6-3 respectively.	21	G ₁	K	H	H	A	G ₂	G ₃	—	—	—	—	6E66
—	—	0.1 max.	Cathode Resistor 100 Ω . Plate Current = 100 μA . at -10 volts grid bias.	32	K ^d S	D ₂	D ₁	H	H	K ^p G ₃ IS	G ₁	G ₂	A ^p	—	—	6E67
—	—	1.5		32	H	H	NC	K ¹¹	G ¹¹	A ¹¹	A ¹	G ¹	K ¹	—	—	6E67

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms			
			TYP E	Voltage	Current											
				Volts	Amps											
6EU8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6.3	0.45	125	12	-1.0	125	4.0	6400	—	0.08			
		Triode Class "A" Amplifier				150	18	See Note	—	—	8500	40	5000 ohms			
6EV5	R.F. TETRODE	R.F. Amplifier	H	6.3	0.2	250	11.5	-1	80	0.9	8800	—	0.15			
6EV7	TWIN TRIODE	Class "A" Amplifier (Each Section)	H	6.3	0.6	250	9.2	-2.0	—	—	5200	60	11,500 ohms			
6EW6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.4	125	11	See Note	125	3.2	14,000	—	0.2			
6EW7	TWIN TRIODE WITH DISSIMILAR SECTIONS	Class "A" Amplifier (Sect. 1)	H	6.3	0.9	250	5.5	-11	—	—	2000	17.5	8750 ohms			
		Class "A" Amplifier (Sect. 2)				150	45	-17.5	—	—	7500	6.0	800 ohms			
		Vertical Deflection Oscillator (Sect. 1)				D.C. Plate Voltage 330 design max. Peak Negative Pulse Grid Voltage 400 design max. Plate Dissipation 1.5 watts design max.										
		Vertical Deflection Amplifier (Sect. 2)				D.C. Plate Voltage 330 design max. Peak Positive Pulse Plate Voltage 1500 design max. Plate Dissipation 10 watts design max.										
6EX6	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	2.25	175	67	-30	175	3.3	7700	4.2	8500 ohms			
		Horizontal Deflection Amplifier				D.C. Plate Supply Voltage 770 Design max. Peak Positive Plate Voltage 7000 Absolute max. Peak Negative Plate Voltage 1500 Absolute max. Grid No. 2 Voltage 195 Design max. Peak Negative Grid No. 1 Voltage .. 220 Design max.										
6EY6	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	0.68	250	44	-17.5	250	3.0	4400	—	0.06			
		Vertical Deflection Amplifier				Plate Voltage 350 Design max. Peak Positive Plate Voltage 2500 Design max. Plate Dissipation 11 watts Design max. Grid No. 2 Voltage 300 Design max.										

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.02 max.	Plate Current = 10 μA . at -9 volts grid bias. Controlled Heater warm-up time = 11 secs.	32	AP	G ^t	A ^t	H	H	K ^t	G ₁ ^P	KP G ₂ IS	G ₂	—	—	6EUS
—	—	1.7	Cathode Resistor 56 Ω . Plate Current = 10 μA . at -12 volts grid bias. Type 6EUS is intended for use as converter in TV receivers.													
—	—	0.035 max.	Grid bias for Mutual Conductance of 100 μmhos = -4.5 volts. For use in TV tuners.	21	G ₁	K IS	H	H	A	G ₂	K IS	—	—	—	—	6EV5
—	—	3.4	Plate Current = 100 μA . at -9 volts grid bias.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	NC	—	—	6EV7
—	—	0.04 max.	Cathode Resistor 56 Ω . Plate Current = 20 μA . at -3.5 volts grid bias.	21	G ₁	K	H	H	A	G ₂	G ₃	—	—	—	—	6EW6
—	—	4.2	Plate Current = 10 μA . at -20 volts grid bias.	32	A ^{II}	G ₁ ^{II}	G ₁ ^{II}	H	H	A ^I	G ^I	K ^I	K ^{II}	—	—	6EW7
—	—	9.0	Plate Current = 100 μA . at -40 volts grid bias.													
Cathode Current—Peak			77 mA. design max.													
Average			22 mA. design max.													
Cathode Current—Peak			175 mA. design max.													
Average			50 mA. design max.													
—	—	1.1	Plate current = 1.0 mA. at -50 volts grid bias.	30	NC	H	K G ₃	—	G ₁	—	H	G ₂	—	A	—	6EX6
Plate Dissipation ..			22 watts Design max.													
Grid No. 2 Dissipation ..			3.5 watts Design max.													
Cathode Current Peak ..			770 mA. Design max.													
Average ..			220 mA. Design max.													
Peak Heater-Cathode Voltage			200 Design max.													
—	—	0.7	Plate Current = 100 μA . at -48 volts grid bias.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	6EV6
Cathode Current Peak ..			180 mA. Design max.													
Average ..			60 mA. Design max.													
Grid No. 2 Dissipation ..			2.75 watts Design max.													
Peak Heater-Cathode Voltage			200 Design max.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6EZ5	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	0.8	250	43	-20	250	3.5	4100	—	0.05
		Vertical Deflection Amplifier				Plate Voltage 350 Design max. Peak Pulse Plate Voltage .. . 2500 Design max. Grid No. 2 Voltage 300 Design max. Plate Dissipation 12 watts Design max.							
6EZ8	TRIPLE TRIODE	Class "A" Amplifier (Each Unit)	H	6.3	0.45	125	4.2	-1.0	—	—	4200	57	0.0136
6F5 6F5GT	HIGH μ TRIODE	A.F. Amplifier	H	6.3	0.3	250	0.9	-2	—	—	1500	100	0.066
6F6 6F6G 6F6GT 6F6GT/G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.7	250	Zero Signal 34.0 Max. Signal 36.0	-16.5	250	Zero Signal 6.5 Max. Signal 10.5	2500	—	0.08
		Class "AB ₂ " Power Amplifier				375	Zero Signal 54.0 Max. Signal 77.0	Self Bias	250	Zero Signal 8.0 Max. Signal 18.0	—	—	—
6F7	TRIODE REMOTE CUT-OFF PENTODE	A.F. and R.F. Amplifier	H	6.3	0.3	★	★	★	★	★	★	★	★
6F8G	TWIN TRIODE	A.F. Amplifier	H	6.3	0.6	250	9.0	-8	—	—	2600	20	7700 Ohms.
6FA7	DIODE SHARP CUT-OFF TWIN-PLATE TETRODE	Class "A" Amplifier (Either tetrode plate with other earthed)	H	6.3	0.3	100	2.2	See Note	100	3	1900	—	0.13

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.6	Plate Current = 100 μA . at -50 volts grid bias.	30	—	H	A	G_2	G_1	—	H	G_3	—	—	—	6EZ5
Cathode Current Peak .. 260 mA. Design max. Average .. 75 mA. Design max. Grid No. 2 Dissipation .. 2.75 watts Design max. Peak Heater-Cathode Voltage 200 Design max.																
—	—	1.5 (Each Unit)	Plate Current = 20 μA . at -4 volts grid bias.	32	K ^{III}	G ^{III}	A ^{III}	H K ^{II} K ^I	H	A ^{II}	G ^{II}	A ^I	G ^I	—	—	6EZ8
—	—	2.4 2.8	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor = 0.5 meg. Cathode Resistor = 5400 Ω . Gain = 70.	30	S NC	H H	NC NC	A A	NC NC	— —	H H	K K	— —	G_1 G_1	— —	6F5 6F5GT
7000	3.2	0.2	Total Harmonic Distortion 8%. For Self-biased Operation the Cathode Bias Resistor should be 410 Ω .	30	S	H	A	G_2	G_1	—	H	K	—	—	—	6F6
Plate to Plate 10000	19.0	0.5 0.5 0.5	Cathode Resistor 340 Ω . Peak A.F. Grid to Grid Volts = 94. Values are for two tubes. Total Harmonic Distortion 5%.		NC	H	A	G_2	G_1	—	H	K	—	—	—	—
—	—	2.0 0.008	★ For data and notes refer type 6P7G.	19	H	AP	G_2	A ^t	G_1^t	K	H	—	—	G_1^p	—	6F7
—	—	3.8 _{t1} 3.2 _{t2}	Values for each unit. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Cathode Resistor 6950 Ω . Gain = 14.	30	NC	H	A ^{II}	K ^{II}	G_1^I	A ^I	H	K ^I	—	G_1^{II}	—	6F8G
—	—	0.04 (Grid No. 1 to plate A) 0.03 max. (Grid No. 1 to plate B)	Grid No. 1 Resistor (bypassed) = 2.2 M Ω .	32	A ₁	NC	D	H	H	K IS	G_1	G_2	A ₂	—	—	6FA7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
6FE5	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6-3	1-2	Supply 130	88	See Note	Supply 130	5-0	9500	—	8000 ohms
		Class "A ₁ " Push-pull Power Amplifier				Supply 130	Zero Signal 150 Max. Signal 154	See Note	Supply 130	Zero Signal 7-2 Max. Signal 17	—	—	—
6FG6	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0-21	Target Volts 250	Target Current 1-0	0 for Max. Shadow Length	—	—	—	—	—
6FH5	V.H.F. TRIODE	Class "A" Amplifier	H	6-3	0-2	135	11	-1-0	—	—	9000	50	5600 ohms
6FM8	DOUBLE DIODE HIGH μ TRIODE	Triode Class "A" Amplifier	H	6-3	0-45	250	1-0	-3	—	—	1200	70	0-058
6FQ5A	V.H.F. HIGH SLOPE TRIODE	Class "A" Amplifier	H	6-3	0-18	135	8-9	-1-2	—	—	12,000	74	6300 ohms
6FV6	V.H.F. TETRODE	Class "A" Amplifier	H	6-3	0-2	125	10	-1	80	1-5	8000	—	0-1
6FV8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier				125	12	-1-0	125	4-0	6500	—	0-2
		Triode Class "A" Amplifier	H	6-3	0-45	125	14	-1-0	—	—	8000	40	5000 ohms
		Triode Unit as Vertical Deflection Oscillator				Plate Voltage 330 Design max. Peak Negative-pulse Grid Voltage .. 250 Design max. Plate Dissipation 2-0 watts Design max.							
6FW8	MEDIUM μ V.H.F. TWIN TRIODE	Class "A" Amplifier (Each unit)	H	6-3	0-4	100	15	-1-2	—	—	13,000	33	2500 ohms
6G5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0-3	★	★	★	—	—	—	—	—
6GG6	POWER OUTPUT PENTODE	Class "A ₁ " Power Amplifier	H	6-3	0-15	135	11-5	-6	135	2-0	2100	—	0-17
						180	15-0	-9	180	2-5	2300	—	0-175

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
1000	3.5	0.44	Cathode Resistor 120 Ω . Peak Signal Voltage 11.9. Total Harmonic Distortion 10%.	30	—	H	A	G ₂	G ₁	—	H	K	—	—	—	6FE5	
1600 Plate to Plate	7.0	—	Cathode Resistor 75 Ω . Peak Grid to Grid Signal Input voltage 25.8. Total Harmonic Distortion 6%.		—	—	—	—	—	—	—	G ₂	—	—	—		
—	—	—	Triode Plate Resistor 0.47 M Ω . (250 V. supply). Grid Bias -22 volts for Zero Shadow Length.	32	G ^t	IC	K G ^l	H	H	T	DE	IC	A ^t	—	—	6FG6	
—	—	0.6	Plate Current = 100 μA . at -5.5 volts grid bias.	21	K	G	H	H	A	IS	K	—	—	—	—	6FH5	
—	—	1.8	D.C. Diode Plate Volts = 5. D.C. Diode Plate Current = 20 mA.	32	K _{d11}	D ^l	K _{d1}	H	H	D ¹¹	K	G	A	—	—	6FM8	
—	—	0.52	Plate Current = 100 μA . at -4.5 volts grid bias.	21	K	G ₁	H	H	A	IS	K	—	—	—	—	6FQ5A	
—	—	0.03 max.	Plate Current = 20 μA . at -6 volts grid bias.	21	G ₁	IS	H	H	A	G ₂	K	—	—	—	—	6FV6	
—	—	0.02 max.	Plate Current = 20 μA . at -9 volts grid bias. Controlled Heater warm-up time = 11 secs.	32	G ^t	A ^t	K ^t	H	H	A ^p	G ₂	K	G ₁ ^p	IS	—	—	6FV8
—	—	1.8	Plate Current = 20 μA . at -9 volts grid bias.									—					
Cathode Current Peak .. 70 mA. Design max. Average .. 20 mA. Design max. Peak Heater-Cathode Voltage 200 Design max.																	
—	—	1.9	Mutual Conductance = 70 μmhos at -6 volts grid bias.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	IS	—	—	6FW8	
—	—	—	★ For data and notes refer type 6U5/6G5.	17	H	A ^t	G ₁ ^t	T	K	H	—	—	—	—	—	6G5	
12000	0.6	0.5	Total Distortion 7.5%.	30	NC	H	A	G ₂	G ₁	—	H	K	—	—	—	6GG6	
10000	1.1		Total Distortion 10%.														

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age	Cur- rent								
				Volts	Amps								
6G8G	DUO-DIODE REMOTE CUT-OFF PENTODE	Detector, R.F. and A.F. Amplifier	H	6-3	0-3	250	0-5	-3	125	2-2	1210	—	0-51
						250	6-5	-3	100	1-5	1100	—	0-85
6G6C	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	1-2	250	75	-22-5	150	2-4	6600	—	0-02
		Horizontal Deflection Amplifier				Plate Supply Voltage 770 Design max. Peak Positive Plate Voltage 6500 Design max. Peak Negative Plate Voltage 1500 Design max.							
6GH8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6-3	0-45	125	12-0	-1	125	4-0	7500	—	0-2
		Triode Class "A" Amplifier				125	13-5	-1	—	—	8500	46	5400 ohms
6GJ8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Triode Class "A" Amplifier	H	6-3	0-6	125	13-5	-1-0	—	—	8500	40	5000 ohms
		Pentode Class "A" Amplifier				125	12-0	-1-0	125	4-5	7500	—	0-15
6GK5	V.H.F. HIGH SLOPE TRIODE	Class "A" Amplifier	H	6-3	0-18	135	11-5	-1-0	—	—	15,000	78	5400 ohms
6GK6	POWER PENTODE	Class "A" Power Amplifier	H	6-3	0-76	250	48	See Note	250	5-5	11,300	19	0-038
		Class "AB" Push-pull Amplifier				250	Zero Signal 62 Max. Signal 75	See Note	250	Zero Signal 7 Max. Signal 15	—	—	—
						300	Zero Signal 72 Max. Signal 92	—	300	Zero Signal 8 Max. Signal 22	—	—	—
6QM6	SEMI REMOTE CUT-OFF R.F. PENTODE	Class "A" Amplifier	H	6-3	0-4	Supply 125	14	See Note	Supply 125	3-4	13,000	—	0-2

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.007	Mutual Conductance = 10 μmhos at - 43 volts (125 volts Screen) and - 35 volts (100 volts Screen) Grid Bias. As R.C. Amplifier. Plate and Screen Supply 250 V. Plate Load Resistor 0.25 meg. Following Grid Leak 1.0 meg. Cathode Resistor 2000 Ω . Screen Voltage from a voltage divider of 1.0 meg. to B + and 0.25 meg. to B -. Gain = 93.	30	NC	H	A	D ₂	D ₁	G ₂	H	G ₂ K IS	—	G ₁	—	6G8G
—	—	0.55	Plate Current = 1 mA. at -46 volts grid bias.	30	—	H	K G ₃	G ₂	G ₁	—	H	G ₂	—	A	—	6G8C
Plate Dissipation Cathode Current Peak Average Peak Heater-Cathode Voltage 17.5 watts Design max. .. 550 mA. Design max. .. 175 mA. Design max. 200 volts Design max.													
—	—	0.02 max.	Plate Current = 10 μA . at -8 volts grid bias for both triode and pentode. Controlled Heater warm-up time = 11 secs.	32	A ^t	G ₁ P	G ₂ P	H	H	A ^P	K ^P G ₂ P IS	K ^t	G ^t	—	—	6G8B
—	—	1.6														
—	—	2.6	Plate Current = 20 μA . at -9 volts grid bias.	32	A ^t	G ₁ P	G ₂	H	H	A ^P	K G ₃	K ^t	G ₁ ^t	—	—	6G8B
—	—	0.036	Plate Current = 20 μA . at -6.5 volts grid bias.													
—	—	0.52	Mutual Conductance = 150 μmhos at -4.2 volts grid bias.	21	K	G	H	H	A	IS	K	—	—	—	—	6GK5
5200	5.7	0.14	Cathode Resistor 135 Ω . R.M.S. Signal Input Voltage 4.3. Total Harmonic Distortion 10%.	32	K	G ₁	G ₃ IS	H	H	NC	A	G ₂	G ₃ IS	—	—	6GK6
8000 plate to plate	11	—	Cathode Resistor 130 Ω in each case. R.M.S. Signal Input Voltage Grid to Grid 8, 10 volts respectively. Total Harmonic Distortion 3%, 4% respectively.													
8000 Plate to Plate	17															
—	—	0.036 max.	Cathode Resistor 56 ohms. Mutual Conductance 60 μmhos at -15 volts grid bias.	21	G ₁	K	H	H	A	G ₂	G ₃ IS	—	—	—	—	6GK6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
6GN8	HIGH μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier	H	6-3	0.75	200	25	See Note	150	5.5	11,500	—	0.06
		Triode Class "A" Amplifier				250	2	-2	—	—	2700	100	0.037
6GS8	SHARP CUT-OFF TWIN PENTODE [Common Cathode Grid No. 1 Grid No. 2]	Class "A" Amplifier Each unit with both units operating	H	6-3	0.3	100	—	See Note G_a -10	67.5	6.0	—	—	—
		Each unit operating separately with plate and Grid No. 3 of opposite section earthed.				100	2.0	See Note G_a 0	67.5	3.6	—	—	—
						100	—	0 Grid No. 3 0	67.5	—	(A- G_1) 1200	—	—
						100	2.0	* Grid No. 3 0	67.5	—	(A- G_2) 270	—	—
6GV8	HIGH μ TRIODE POWER PENTODE	Triode Class "A" Amplifier	H	6-3	0.9	100	10	0	—	—	5500	50	9000 ohms
		Pentode Vertical Deflection Amplifier				Plate Voltage 250 max. Peak Positive-pulse Plate Voltage .. 2000 max. (Max. pulse duration 5% of a cycle with max. of 1 m.sec.) Plate Dissipation 7 watts max. Grid No. 2 Voltage 250 max. Grid No. 2 Dissipation 1.5 watts max. Cathode Current 75 mA. max.							
6GW8	HIGH μ TRIODE POWER PENTODE	Triode Class "A" Amplifier	H	6-3	0.7	250	1.2	-1.9	—	—	1600	100	—
		Pentode Class "A" Power Amplifier				250	36	See Note	250	6	10,000	—	0.048
		Pentode Class "AB" Push-pull Amplifier				250	Zero Signal 2×35 Max. Signal 2×37.3	See Note	250	Zero Signal 2×5.6 Max. Signal 2×9	—	—	—
						300	Zero Signal 2×31 Max. Signal 2×37	See Note	300	Zero Signal 2×5 Max. Signal 2×10.6	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.1 max.	Cathode Resistor 100 Ω . Plate Current = 100 μA . at -10 volts grid bias.	32	K ^t	G ^t	A ^t	H	H	K G ₃ IS	G ₁ ^p	G ₂	A	—	—	6G8
—	—	4.4	Plate Current = 20 μA . at -5 volts grid bias.													
—	—		Grid No. 1 Current adjusted for 100 μA . D.C.													
—	—	Grid No. 3 to Plate (Each Unit) 2.0	Type 6G88 is intended for use in TV receivers as combined Sync. Separator-clipper and AGC valve.	32	K IS	G ₂	A ¹¹	H	H	G ₃ ¹¹	G ₁	A ¹	G ₂ ¹	—	—	6G88
—	—	Grid No. 1 to all 6.0	*Grid No. 1 Current adjusted for 100 μA . D.C. Plate Current = 100 μA . when $V_{g1} = -2$ volts.													
—	—		Plate Current = 100 μA . when $V_{g3} = -3.7$ volts.													
—	—			32	A ^t	G ^t	K ^t	H	H	A ^p	G ₂	K ^p G ₃ IS	G ₁ ^p	—	—	6G8
End of Scan Plate Voltage ..			50	65												
Grid No. 2 Voltage ..			170	210												
Grid No. 1 Voltage ..			-1.0	-1.0												
Peak Anode Current ..			200	285 mA.												
Peak Grid No. 2 Current ..			35	45 mA.												
—	—	1.4	R.C. Coupled Amplifier (250 volt supply). Plate Resistor .. 0.22 M Ω . Grid No. 1 Resistor 10 M Ω . Following Grid No. 1 Resistor 0.68 M Ω . Voltage Gain .. 70.													
7000	4.0	0.4 max,	Cathode Resistor.. 170 ohms. R.M.S. Signal Input Voltage 3.2. Total Harmonic Distortion 10%.	32	G ₁ ^t	K ^t	G ₂	H	H	A ^p	K ^p IS G ₃	G ₁ ^p	A ^t	—	—	6G8
8200 Plate to Plate	10.0		Cathode Resistor 90 ohms, 145 ohms respectively. R.M.S. Signal Input Voltage 5.1, 8.7 volts respectively. Total Harmonic Distortion 4.5, 5% respectively.													
9100 Plate to Plate	14.3															

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms			
			TYP E	Voltage Volts	Current Amps											
6H6 6H6G 6H6GT 6H6GT/G	TWIN DIODE	Detector Full-wave Rectifier	H	6.3	0.3	Max. R.M.S. 2 x 117	D.C. Output per Plate 4.0	—	—	—	—	—	—			
6H6GA	TWIN DIODE	Detector Rectifier	H	6.3	0.2	★	★	—	—	—	—	—	—			
6HC8	HIGH μ TRIODE POWER PENTODE	Triode Class "A" Amplifier	H	6.3	1.2	250	1.4	-3	—	—	2000	68	0.034			
		Pentode Class "A" Amplifier				250	38	-18	250	3	5100	—	0.055			
		Triode Vertical Deflection Oscillator				D.C. Plate Voltage 330 design max. Peak Negative Pulse Grid Voltage 400 design max. Plate Dissipation 1.0 watt design max.										
		Pentode Vertical Deflection Amplifier				D.C. Plate Voltage 350 design max. Grid No. 2 Voltage 315 design max. Peak Positive Pulse Plate Voltage 2200 design max.										
6HG8	MEDIUM μ TRIODE HIGH SLOPE PENTODE	Pentode Class "A" Amplifier	H	6.3	0.38	170	10.0	-1.2	150	3.3	12,000	—	0.35 min.			
		Triode Class "A" Amplifier				100	14.0	-3.0	—	—	5500	17	—			
		Frequency Converter Pentode Mixer				190	8.5	See Note	See Note	2.7	Conv. 4500	—	—			
		Triode Oscillator				Supply 190	12	See Note	—	—	3500	—	—			
6J4	U.H.F. TRIODE	Grounded Grid Amplifier	H	6.3	0.4	100	10.0	See Note	—	—	11000	55	5000 Ohms.			
						150	15.0	Note	—	—	12000	55	4500			
6J5 6J5G 6J5GT 6J5GT/G	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier	H	6.3	0.3	250	9.0	-8	—	—	2600	20	7700 Ohms.			
6J6	TWIN TRIODE	R.F. Amplifier	H	6.3	0.45	100	8.5	See Note	—	—	5300	38	7100 Ohms.			

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	With less than 40 μF . condenser input to filter, minimum plate supply impedance = 15 Ω per plate. Greater Supply Impedances required for larger input capacities.	30	S	H	D ₂	K ^{II}	D ₁	—	H	K ^I	—	—	—	6H6 6H6G 6H6GT 6H6GT/G
—	—	—			IS	H	D ₂	K ^{II}	D ₁	—	H	K ^I	—	—		
—	—	—	★ For data and notes refer type EB34.	30	S	H	D ₁	K ^I	D ₂	—	H	K ^{II}	—	—	—	6H6GA
—	—	4.4	Plate Current = 20 μA . at -5 volts grid bias.	32	G ₁ ^t	K ^P IS G ₃	G ₁ ^P	H	H	A ^P	G ₂ ^P	K ^t	A ^t	—	—	6H6S
—	—	0.2	Plate Current = 100 μA . at -39 volts grid bias.													
Cathode Current—Peak Average			70 ma. design max. 20 mA. design max.													
Plate Dissipation Cathode Current—Peak Average			11 watts design max. 230 mA. design max. 65 mA. design max.													
—	—	0.012		32	K ^P G ₃ K ^t IS	G ₁ ^P	K ^P G ₃ K ^t IS	H	H	G ₁ ^t	A ^t	A ^P	G ₁ ^P	—	—	6H6S
—	—	2.0														
—	—	—	Grid No. 1 Resistor 0.1 M Ω . Grid No. 2 Resistor 18,000 Ω from 190 volt supply.													
—	—	—	Plate Resistor 8200 Ω . Grid No. 1 Resistor 10,000 Ω .													
—	—	4.0	Cathode Resistor 100 Ω .	21	G ₁	K	H	H	G ₁	G ₁	A	—	—	—	—	6J4
—	—	3.4 3.8 3.8 3.8	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Cathode Resistor 6950 Ω . Gain = 14.	30	S	H	A	—	G ₁	—	H	K	—	—	—	6J5 6J5G 6J5GT 6J5GT/G
—	—	1.5	Values per Section. Cathode Resistor 50 Ω .	21	A ^{II}	A ^I	H	H	G ₁ ^I	G ₁ ^{II}	K	—	—	—	—	6J6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6J7	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier (Pentode Connected)				250	2.0	-3	100	0.5	1225	—	> 1.0
6J7G			H	6.3	0.3								
6J7GT		A.F. Amplifier (Triode Connected)				250	6.5	-8	—	—	1900	20	0.0105
6J7G / 1620	SHARP CUT-OFF PENTODE	Low Noise Amplifier	H	6.3	0.3	★	★	★	★	★	★	★	★
6J8G	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	250	1.3	(G_1^h) -3	(G_{2+4}^h) 100	2.9	Conv. 290	—	4.0
6J8GA	TRIODE HEPTODE	Frequency Converter	H	6.3	0.45	250	1.3	(G_1^h) -3	(G_{2+4}^h) 100	2.9	Conv. 290	—	4.0
6K4	OSCILLATOR TRIODE	U.H.F. Amplifier	H	6.3	0.15	100	13	-2	—	—	5500	20	3640 ohms
6K5 6K5G 6K5GT 6K5GT/G	HIGH μ TRIODE	A.F. Amplifier	II	6.3	0.3	250	1.1	-3	—	—	1400	70	0.05
6K6G 6K6GT 6K6GT/G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.4	250	Zero Signal 32.0 Max. Signal 33.0	-18	250	Zero Signal 5.5 Max. Signal 10.0	2300	—	0.068
6K7 6K7G 6K7GT	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250 250	7.0 10.5	-3 -3	100 125	1.7 2.6	1450 1650	— —	0.8 0.6

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.005	Cathode Current Cut-off at -7 volts grid bias. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Screen Resistor 2.9 meg. Cathode Resistor 2200 Ω . Gain = 200.		S	H	A	G_2	G_3	—	H	K	—	G_1	—	6J7
		0.007		30	IS	H	A	G_2	G_3	—	H	K	—	G_1	—	6J7G
—	—	0.005	Grids Nos. 2 and 3 connected to plate. As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Cathode Resistor 14,000 Ω . Gain = 14.		S	H	A	G_2	G_3	—	H	K	—	G_1	—	6J7GT
—	—	0.007	★ For data and notes refer type 6J7G. Type 6J7G/1620 is especially selected for low microphonics and low hum.	30	IS	H	A	G_2	G_3	—	H	K	—	G_1	—	6J7G / 1620
—	—	0.01	Conversion Conductance = 2 μmhos at -20 volts grid bias. Osc. Plate Current 5.0 mA. through 20,000 Ω (250 volts supply). Osc. Grid Current 0.4 mA. Osc. Grid Resistor 50,000 Ω . Osc. $G_m = 1600 \mu\text{mhos}$.	30	NC	H	A^h	G_2^h G_4^h	G_1^t G_3^h	A^t	H	K	—	G_1^h	—	6J8G
—	—	0.01	Conversion Conductance = 2 μmhos at -20 volts grid bias. Osc. Plate Current 5.0 mA through 20,000 Ω (250 volts supply). Osc. Grid Current 0.4 mA. Osc. Grid Resistor 50,000 Ω .	30	NC	H	A^h	G_2^h G_4^h	G_1^t G_3^h	A^t	H	K	—	G_1^h	—	6J8GA
—	0.75	—		31	G_1	A	H	A	NC	H	K	A	—	—	—	6K4
—	—	2.0 2.0 2.0	For data as an R.C. Amplifier refer type 6Q7.	30	S	H	A	NC	NC	—	H	K	—	G_1	—	6K5 6K5R 6K5GT 6K5GT/G
7600	3.4	0.5	Total Harmonic Distortion 11%.	30	NC	H	A	G_2	G_1	—	H	K	—	—	—	6K6G 6K6GT 6K6GT/G
—	—	0.005 0.007 0.005	Mutual Conductance = 2 μmhos at -42.5 volts bias (100 volts screen).	30	S NC S	H H H	A A A	G_2 G_2 G_2	G_3 G_3 G_3	— — —	H H H	K K K	— — —	G_1 G_1 G_1	— — —	6K7 6K7R 6K7GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
6K8 6K8G 6K8GT	TRIODE HEXODE	Frequency Converter	H	6-3	0-3	250	2-5	(G ₃ ^h) -3	(G ₂₊₄ ^h) 100	6-0	Conv. 350	—	0-6
6L4	OSCILLATOR TRIODE	Amplifier	H	6-3	0-225	80	9-5	See Note	—	—	6400	28	4400 Ohms.
6L5G	DETECTOR TRIODE	Amplifier	H	6-3	0-15	250	8-0	-9	—	—	1900	17	9000 Ohms.
6L6 6L6G 6L6GA 6L6GB 6L6GC	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6-3	0-9	250	Zero Signal 72-0 Max. Signal 79-0	-14	250	Zero Signal 5-0 Max. Signal 7-3	6000	—	0-0225
	Class "AB ₂ " Power Amplifier	360				Zero Signal 88-0 Max. Signal 205-0	-22-5	270	Zero Signal 5-0 Max. Signal 16-0	—	—	—	
6L7 6L7G	PENTAGRID	Mixer	H	6-3	0-3	250	2-4	-3 (G ₁)	100 (G ₂₊₄)	7-1	Conv. 375	—	> 1-0
	R.F. Amplifier	250				5-3	-3	100	6-5	1100	—	0-6	
6M5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-71	250	36-0	See Note	250	5-2	10,000	—	0-04
	Class "AB ₁ " Power Amplifier	200				30-0	200		4-1	—	—		
		150	20-0	150	2-7	—	—						
					250	Zero Signal 2 x 36-0 Max. Signal 2 x 39-5	See Note	250	Zero Signal 2 x 5-2 Max. Signal 2 x 8-0	—	—	—	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.03	Conversion Conductance = 2 μmhos at - 30 volts grid (G_3) bias.	30	S	H	A ^h	G_2^h G_4^h	G_1^h G_1^t	A ^t	H	K	—	G_3^h	—	6K8
		0.08	Triode Plate 100 volts 3.8 mA. Osc. Grid Current 0.15 mA. Osc. Grid Resistor 50,000 Ω . Osc. G_m = 3000 μmhos .		NC	H	A ^h	G_2^h G_4^h	G_1^h G_1^t	A ^t	H	K	—	G_3^h	—	6K8G
		0.08			S	H	A ^h	G_2^h G_4^h	G_1^h G_1^t	A ^t	H	K	—	G_3^h	—	6K8GT
—	—	1.6	Cathode Bias Resistor = 150 Ω .	25	H	G	A	A	G	H	K	—	—	—	—	6L4
—	—	2.7	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Cathode Resistor 10,750 Ω . Gain = 13.	30	NC	H	A	—	G_1	—	H	K	—	—	—	6L5G
2500	6.5	6L6GC 0.6	Total Harmonic Distortion 10%.	30	S	H	A	G_2	G_1	—	H	K G_3	—	—	—	6L6
3800 Plate to Plate	47.0		Peak Signal Grid to Grid Voltage 72. Values are for two tubes. Total Harmonic Distortion 2%.		NC	H	A	G_2	G_1	—	H	K G_3	—	—	—	6L6G 6L6GA 6L6GB 6L6GC
—	—	0.001 0.005	Conversion Conductance = 5 μmhos at - 30 volts grid (G_1) bias. Osc. Injector grid (G_2) - 10 volts bias. Peak Oscillator grid (G_2) volts = 12 min. Mutual Conductance = 5 μmhos at - 15 volts grid (G_1 and G_2 simultaneously) bias.	30	S	H	A	G_2 G_4	G_3	—	H	K G_5	—	G_1	—	6L7
—	—		NC		H	A	G_2 G_4	G_3	—	H	K G_5	—	G_1	—	6L7G	
7000 7000 7000	3.9 2.75 1.3	1.0	Cathode bias resistors:— 170 Ω 140 Ω 160 Ω Total harmonic distortion 10% in each case.	32	G_2	G_1	K G_3	H	H	IC	A	IC	NC	—	—	6M5
7000 Plate to Plate	9.4		Cathode bias resistor 85 Ω . Total harmonic distortion 4.6%. R.M.S. Grid to Grid input voltage = 11.2 V.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
6N3	HALF-WAVE VACUUM RECTIFIER	Full-Wave Rectifier (two valves)	H	6.3	0.9	Max. R.M.S. 2×300	Max. D.C. Output 360	—	—	—	—	—	—
6N5	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6.3	0.15	Target Volts 135	Target Current 2.0	-10 For Shadow Angle 0°	—	—	—	—	—
6N6G	DIRECT COUPLED POWER AMPLIFIER	A.F. Amplifier and Class "A" Power Amplifier	H	6.3	0.8	300 300	9 42	Internally Developed	— —	— —	Input to Output 2400	58	— 0.024
6N7 6N7G 6N7GT 6N7GT/G	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier and A.F. Amplifier	H	6.3	0.8	300	35.0 Min. 70.0 Max.	0	— —	— —	— —	— —	— —
6N8	DUO-DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6.3	0.3	250	5.0	-2	85*	1.75	2200	—	1.4
6P5G 6P5GT 6P5GT/G	AMPLIFIER TRIODE	A.F. Amplifier	H	6.3	0.3	250 100	5.0 2.5	-13.5 -5.0	— —	— —	1450 1150	13.8 13.8	9500 Ohms. 12000
6P7G	TRIODE REMOTE CUT-OFF R.F. PENTODE	Amplifier	H	6.3	0.3	100 250	3.5 6.5	-3 -3	— 100	— 1.5	500 1100	8 —	0.016 0.85
6Q4	V.H.F. TRIODE	Grounded Grid Amplifier	H	6.3	0.48	250	15.0	-1.5	—	—	12000	80	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Direct Output Voltage 268. Min. Plate Supply Impedance per plate 110 Ω . Input Capacitor to filter 60 μF . max.	32	1C	1C	K	H	H	1C	1C	1C	A	—	—	6N3
—	—	—	Triode Plate Resistor 0.25 meg. Triode Plate Current = 0.5 mA.	17	H	A	G_1^t	T	K	H	—	—	—	—	—	6N5
—	—	—	Input Triode. Output Triode. Total Harmonic Distortion 5%.	30	NC	H	A^o	A^1	G_1^1	—	H	K	—	—	—	6N6G
8000 Plate to Plate	10.0	—	Peak Grid Current = 22.0 mA. per unit. Peak A.F. Grid to Grid volts = 82. Total Harmonic Distortion 8%. Third Harmonic Distortion 7.5%. Fifth Harmonic Distortion 2.5%. Values are for the two units. As R.C. Phase Inverter (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Cathode Resistor 6100 Ω . Gain = 24.	30	S	H	A''	G_1''	G_1^1	A^1	H	K	—	—	—	6N7 6N7G 6N7GT/G
—	—	0.0025	Mutual Conductance = 22 μmhos at - 41.5 volts grid bias. *Series Screen Resistor 95,000 Ω (250 volts supply). As R.C. Amplifier (250 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.22 meg. Screen Resistor 0.32 meg. Cathode Resistor 1800 Ω . Gain = 110.	32	G_2	G_1	K IS	H	H	A	D_1	D_2	G_3	—	—	6N8
—	—	2.6 2.6 2.6	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Cathode Resistor 18,300 Ω . Gain = 10.	30	NC	H	A	—	G_1	—	H	K	—	—	—	6P5G 6P5GT 6P5GT/G
—	—	2.0 0.008	Triode Unit. Pentode Unit $\left\{ \begin{array}{l} G_m = 10 \mu\text{mhos} \\ \text{at } - 35 \text{ V. bias.} \end{array} \right.$	30	NC	H	H	A^p	G_2	A^t	G_1^t	K	—	G_1^p	—	6P7G
—	—	3.4		32	G_1	G_1	K	H	H	NC	G_1	G_1	A	—	—	6Q4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms	
			T Y P E	Voltage Volts	Current Amps									
6Q7 6Q7G 6Q7GT	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	1.0	-3	—	—	1200	70	0.058	
6R3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6.3	0.81	Peak Inverse 5600 (absolute max.)	Peak 450 (Max.) Average 150 (max.)	—	—	—	—	—	—	
6R4	U.H.F TRIODE	Oscillator (Up to 1500 Mcs.)	H	6.3	0.2	230 275	18.2 17.0	— —	— —	— —	— —	— —	— —	
6R7 6R7G 6R7GT 6R7GT/G	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	9.5	-9	—	—	1900	16	8500 Ohms.	
6S2 6S2A	HALF-WAVE VACUUM RECTIFIER	E.H.T. Rectifier	H	6.3	0.09	Peak Inverse 22,000 (max.)	Peak 40 (Max.) Average 0.5 (max.)	—	—	—	—	—	—	
6S4 6S4-A	MEDIUM μ TRIODE	Class "A" Amplifier	H	6.3	0.6	250	26.0	-8.0	—	—	4500	16	3600 ohms	
		Vertical Deflection Amplifier				D.C. Plate Voltage 500 max. Peak Positive-pulse Plate Voltage 2200 absolute max. Peak Negative-pulse Grid Voltage 250 max.								
6S7 6S7G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	250	8.5	-3	100	2.0	1750	—	1.0	
6S8GT	TRIPLE DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	0.9	-2	—	—	1100	100	0.091	
6SA7 6SA7GT 6SA7GT/G	PENTAGRID	Frequency Converter	H	6.3	0.3	250	3.5	0	(G ₂₊₊) 100	8.5	Conv. 450	—	1.0	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	1-4	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor = 0.47 meg. Cathode Resistor = 6300 Ω . Gain = 50.	30	S	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	6Q7	
		1-5			NC	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	6Q7G	
		1-6			S	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	6Q7GT	
—	—	—	Boost Capacitor = 4 μF . max. Voltage between cathode and heater during flyback = 5600 absolute max.	32	IC	IC	IC	H	H	IC	IC	IC	A	K	—	6R3	
—	0.7	1.5	750 Mc/s. Grid Current = 1.8 mA. 375 Mc/s. Grid Current = 3.0 mA.	32	G ₁	NC	K	H	H	NC	NC	A	NC	—	—	6R4	
—	1.8				—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	2-4	As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.22 meg. Cathode Resistor 13,000 Ω . Gain = 12.	30	S	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	6R7	
		2-4			NC	H	A	D ₂	D ₁	—	H	K	—	G ₁	}	6R7G	
		2-2			—	—	—	—	—	—	—	—	—	—		—	6R7GT
		2-2			—	—	—	—	—	—	—	—	—	—		—	6R7GT/G
—	—	—	Pins 1, 4, 6, 9 may be used for fixing an anticorona ring. Type 6S2-A has a chemically treated envelope for use under humid conditions.	32	H K IS	H	IS	H K IS	H	H K IS	IC	H	H K IS	A	—	6S2 6S2A	
—	—	2-6	* Do not use. Type 6S4 has no Controlled Heater warm-up time. Plate Current = 50 μA . at -23 volts grid bias. 6S4-A Heater warm-up time = 11 secs.	32	*	—	*	—	—	—	—	—	—	—	—	6S4	
Cathode Current Peak 105 mA. max. Average 30 mA. max. Plate Dissipation 7.5 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)					IC	K	IC	H	H	G ₁	IC	IC	A	—	—	6S4-A	
—	—	0.005	Mutual Conductance = 10 μmhos at -38.5 volts bias.	30	S	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	6S7	
		0.008			NC	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	6S7G	
—	—	1-2	K ₁ provides stream for D ₂ , D ₃ and Triode Unit. K ₂ provides stream for D ₁ . For data as R.C. Amplifier refer type 6SQ7.	30	D ₃	K ₁	D ₁	D ₂	K ₂	A	H	H	—	G ₁	—	6S8GT	
—	—	0.06	Conversion Conductance = 2 μmhos at -35 volts grid (G ₂) bias. Coupling Coil in Cathode Lead. Osc. Grid (G ₁) Current 0.5 mA. Osc. Grid Resistor 20,000 Ω . Osc. G _m = 4500 μmhos .	30	S	—	A	G ₂	—	—	—	—	—	—	—	—	6SA7
		0.2			G ₅	H	—	G ₄	G ₁	K	H	G ₃	—	—	—	}	6SA7GT 6SA7GT/G
		0.2			NC	H	A	G ₂	G ₁	K	H	G ₃	—	—	—		

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
68B7	PENTAGRID	Frequency Converter	H	6-3	0-3	250	3-8	(G ₂) -1	(G ₂₊₄) 100	10-0	Conv. 950	—	1-0
68B7-Y	PENTAGRID	Mixer (Separate Excitation)	H	6-3	0-3	250	3-8	(G ₂) -1-0	(G ₂₊₄) 100	(G ₂₊₄) 10-0	Conv. 950	—	1-0
68C7	TWIN TRIODE	A.F. Amplifier	H	6-3	0-3	250	2-0	-2	—	—	1325	70	0-053
68E7-GT	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	4-5	-1-5	100	1-5	3100	—	1-0
68F5 68F5GT	HIGH μ TRIODE	A.F. Amplifier	H	6-3	0-3	250	0-9	-2	—	—	1500	100	0-066
68F7	DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6-3	0-3	250	12-4	-1	100	3-3	2050	—	0-7
68G7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	9-2	-2-5	150	3-4	4000	—	1-0
						250	11-8	-1	125	4-4	4700	—	0-9
						100	8-2	-1	100	3-2	4100	—	0-25
68H7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	10-8	-1	150	4-1	4900	—	0-9
						100	5-3	-1	100	2-1	4000	—	0-35
68J7 68J7GT	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier (Pentodes Connected)	H	6-3	0-3	250	3-0	-3	100	0-8	1650	—	> 1-0
		A.F. Amplifier (Triode Connected)				250	9-2	-8-5	—	—	2500	19	7800 Ohms.
68K7 68K7GT 68K7GT/G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	9-2	-3	100	2-6	2000	—	0-8

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.13	Osc. Grid (G_1) Resistor 20,000 Ω . Osc. Grid Current 0.35 mA. Conv. Conductance 3.5 μmhos . at - 20 volts grid (G_2) bias.	30	S	H	A	G_2 G_4	G_1	K	H	G_3	—	—	—	68B7
—	—	(G_3 -A) 0.13 (G_1 -A) 0.06	Total Cathode Current 14.2 mA. Oscillator grid (G_1) Current 0.35 mA. Oscillator Grid (G_1) Resistor 20000 Ω .	30	S	H	A	G_2 G_4	G_1	K	H	G_3	—	—	—	68B7-Y
—	—	2.0	Values are for each unit. As R.C. Phase Inverter (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Cathode Resistor 2980 Ω . Gain = 48.	30	S	A ^{II}	G_1 ^{II}	G_1 ^I	A ^I	K	H	H	—	—	—	68C7
—	—	0.005	Cathode Resistor 250 Ω . Plate Current = 10 μA . at -5 volts grid bias.	30	NC	H	G_3 IS	G_1	K	G_2	H	A	—	—	—	68E7-GT
—	—	2.4	As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor = 0.5 meg. Cathode Resistor 5400 Ω . Gain = 70.	30	S	K	G_1	—	A	—	H	H	—	—	—	68F5
—	—	—	—	30	NC	K	G_1	—	A	—	H	H	—	—	—	68F5GT
—	—	0.004	Mutual Conductance = 10 μmhos at - 35 volts bias.	30	S	G_1	K	G_2	D	A	H	H	—	—	—	68F7
—	—	0.003	$G_m = 40 \mu\text{mhos}$ at - 17.5 volts bias. $G_m = 40 \mu\text{mhos}$ at - 14.0 volts bias. $G_m = 40 \mu\text{mhos}$ at - 11.5 volts bias.	30	S	H	K	G_1	K	G_2	H	A	—	—	—	68G7
—	—	0.003	$I_a = 10 \mu\text{A}$ at - 5.5 volts bias. $I_a = 10 \mu\text{A}$ at - 4.0 volts bias.	30	S	H	K	G_1	K	G_2	H	A	—	—	—	68H7
—	—	0.005	For Pentode Connection. Plate Current = 10 μA at - 8 volts grid bias. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Screen Resistor 2.2 meg. Cathode Resistor 1410 Ω . Gain = 238.	30	S	H	G_3	G_1	K	G_2	H	A	—	—	—	68J7 68J7GT
—	—	0.003 0.005 0.005	Mutual Conductance = 10 μmhos at - 35 volts grid bias.	30	S	H	G_3	G_1	K	G_2	H	A	—	—	—	68K7 68K7GT 68K7GT/G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6SL7GT	HIGH μ TWIN TRIODE	A.F. Amplifier	H	6.3	0.3	250	2.3	-2	—	—	1600	70	0.044
6SN7GT	TWIN TRIODE	A.F. Amplifier	H	6.3	0.6	250	9.0	-8	—	—	2600	20	7700 Ohms.
6SN7-GTA 6SN7-GTB	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6.3	0.6	250	9.0	-8.0	—	—	2600	20	7700 ohms
		Vertical Deflection Power Amplifier				D.C. Plate Voltage 450 max. Peak Positive-pulse Plate Voltage .. 1500 absolute max. Peak Negative-pulse Grid Voltage .. 250 max.							
		Vertical Deflection Oscillator				D.C. Plate Voltage 450 max. Peak Negative-pulse Grid Voltage .. 400 max.							
6SQ7 6SQ7GT 6SQ7GT/G	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	0.9	-2	—	—	1100	100	0.091
6SR7 6SR7GT	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
6SS7	REMOTE CUT-OFF R F. PENTODE	R.F. Amplifier	H	6.3	0.15	250	9.0	-3	100	2.0	1850	—	1.0
						100	12.2	-1	100	3.1	1930	—	0.12
6ST7	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.15	250	9.5	-9	—	—	1900	16	8500 Ohms.
6SZ7	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.15	250	1.0	-3	—	—	1200	70	0.0587
						100	0.8	-1	—	—	1150	70	0.061

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	2.8	Values for each unit. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Cathode Resistor 6900 Ω . Gain = 50.	30	G ₁ ^{II}	A ^{II}	K ^{II}	G ₁ ^I	A ^I	K ^I	H	H	—	—	—	68L7GT
—	—	3.8 (t ₁) 4.0 (t ₂)	Values for each unit. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.25 meg. Cathode Resistor 6950 Ω . Gain = 14.	30	G ₁ ^{II}	A ^{II}	K ^{II}	G ₁ ^I	A ^I	K ^I	H	H	—	—	—	68N7GT
—	—	(G ₁ ^I —A ^I) 4.0 (G ₁ ^{II} —A ^{II}) 3.8	Plate Current = 10 μA . at —18 volts grid bias. Type 6SN7—GTB has controlled heater warm-up time = 11 secs.	30	G ₁ ^{II}	A ^{II}	K ^{II}	G ₁ ^I	A ^I	K ^I	H	H	—	—	—	68N7-GTA 68N7-GTB
Cathode Current Peak 70 mA. max. Average 20 mA. max. Plate Dissipation either plate .. 5 watts max. both plates .. 7.5 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																
Other ratings as for operation as power amplifier.																
—	—	1.6 1.8 1.8	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Cathode Resistor 6100 Ω . Gain = 60.	30	S	G ₁	K	D ₂	D ₁	A	H	H	—	—	—	69Q7 68Q7GT 68Q7GT/G
★	★	2.4	★ For data and notes refer type 6BF6.	30	S	G ₁	K	D ₂	D ₁	A	H	H	—	—	—	68R7 68R7GT
—	—	0.004	Mutual Conductance = 10 μmhos at — 35 volts grid bias in each case.	30	S	H	G ₃	G ₁	K	G ₂	H	A	—	—	—	68S7
—	—	1.5	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.22 meg. Cathode Resistor 13,000 Ω . Gain = 12.	30	S	G ₁	K	D ₂	D ₁	A	H	H	—	—	—	68T7
—	—	1.1	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Cathode Resistor 6300 Ω . Gain = 50.	30	S	G ₁	K	D ₂	D ₁	A ^t	H	H	—	—	—	68Z7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
6T4	U.H.F. MEDIUM μ TRIODE	R.F. Amplifier	H	6-3	0.225	20	18.0	See Note	—	—	7000	13	—
		U.H.F. Oscillator				200 Max.	—	—	—	—	—	—	—
6T7G	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0.15	250	1.2	-3	—	—	1050	65	0.062
6T8 6T8A	TRIPLE DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0.45	250	1.0	-3	—	—	1200	70	0.058
						100	0.8	-1	—	—	1300	70	0.054
6U3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6-3	0.9	★	★	—	—	—	—	—	—
6U4-6T	HALF-WAVE RECTIFIER	Booster Diode	H	6-3	1.2	Peak Inverse 3850 Max.	Peak 660 (Max.) Average 138 (Max.)	—	—	—	—	—	—
6U5 6U5/6E5 6U5G	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6-3	0.3	Target Volts 250	Target Current 4.0	-22 For Shadow Angle 0°	—	—	—	—	—
6U7G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0.3	250	8.2	-3	100	2.0	1600	—	0.8
6U8 6U8A	MEDIUM μ TRIODE SHARP CUT-OFF R.F. PENTODE	Triode Section Class "A" Amplifier	H	6-3	0.45	150	18	See Note	—	—	8500	40	5000 ohms
		Pentode R.F. Amplifier				250	10	See Note	110	3.5	5200	—	0.4
6V3	HALF-WAVE VACUUM RECTIFIER	Rectifier 50 Cycles	H	6-3	1.75	Max. R.M.S. 350	D.C. Output 125 Max.	—	—	—	—	—	—
		Booster Diode				Peak Inverse 6000 (absolute max.)	Average 135 (Max.) Peak 600 (Max.)	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.7	Cathode Resistor 150 Ω . Plate Current = 50 μA . at -15 volts grid bias.	21	A	G ₁	H	H	K	G ₁	A	—	—	—	—	6T4
—	—	—	Grid Current 8 mA. max. Cathode Current 30 mA. max. Plate Dissipation 3.5 W. max. Peak Heater Cathode Voltage 50 max. (D.C. component must not exceed 25 volts.)		—	—	—	—	—	—	—	—	—	—	—	
—	—	1.7	As R.C. Amplifier (300 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Cathode Resistor 6300 Ω . Gain = 50.	30	NC	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	6T7G
—	—	1.7	Type 6T8A has Controlled Heater warm-up time = 11 secs.	32	D ₂	D ₂	K ^d IS	H	H	D ₁	K ^t K ^d K ^d IS	G ₁	A	—	—	6T8 6T8A
—	—	—	★ For data and notes refer type 19X3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	6U3
—	—	—	Max. Peak Heater Cathode Voltage; with Heater Negative with respect to cathode 3850. With Heater Positive with respect to cathode 110.	30	NC	—	K	—	A	—	H	H	—	—	—	6U4-RT
—	—	—	Triode Plate Resistor 1.0 meg. Triode Plate Current 0.24 mA.	17	H	A DE	G ₁ ^t	T	K	H	—	—	—	—	—	6U5 6U5/6G5
—	—	0.007	Mutual Conductance = 2 μmhos at -50 volts grid bias.	30	NC	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	6U7G
—	—	1.8	Cathode Resistor 56 Ω . Plate Current = 10 μamp . at -12 volts grid bias.	32	A ^t	G ₁ ^p	G ₂	H	H	A ^p	K ^p G ₂ IS	K ^t	G ₁ ^t	—	—	6U8 6U8A
—	—	0.01	Cathode Resistor 68 Ω . Plate Current = 10 μA . at -10 volts grid bias. Type 6U8A has Controlled Heater warm-up time = 11 secs.		—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	Capacitor Input to Filter 20 μF . Minimum Plate Supply Impedance = 145 Ω .	32	NC	A	NC	H	H	NC	A	NC	A	K	—	6V3
—	—	—	Peak Heater Cathode Voltage during flyback = 6750 absolute maximum.		—	—	—	—	—	—	—	—	—	—	—	—

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts	Current Amps									
6V3-A	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6·3	1·75	Peak Inverse 6000 (absolute max.)	Peak 800 (Max.) Average 135 (max.)	—	—	—	—	—	—	
6V4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6·3	0·6	R.M.S. 2 × 250 2 × 300 2 × 350 (max.)	Full load D.C. Output 90 90 90	—	—	—	—	—	—	
6V6	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	6·3	0·45	250	Zero Signal 45·0 Max. Signal 47·0	—12·5	250	Zero Signal 4·5 Max. Signal 7·0	4100	—	0·052	
6V6G		Class "AB ₁ " Power Amplifier				285	Zero Signal 70·0 Max. Signal 92·0	—19	285	Zero Signal 4·0 Max. Signal 13·5	—	—	—	—
6V6GT/G						Class "A" Power Amplifier	200	46·0	See Note	125	2·2	8000	—	0·028
6V6GTA							Vertical Deflection Power Amplifier	D.C. Plate Voltage 300 max. Peak Positive-pulse Plate Voltage 1200 absolute max. Peak Negative-pulse Grid (G ₁) Voltage 250 max.						
6W4GT	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	6·3	1·2	R.M.S. 350	D.C. Output 125·0	—	—	—	—	—	—	
6W6-GT	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6·3	1·2	200	46·0	See Note	125	2·2	8000	—	0·028	
6W7G	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6·3	0·15	250	2·0	—3	100	0·5	1225	—	1·5	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Peak Heater Cathode Voltage during flyback = 6750 absolute maximum. (D.C. component must not exceed 750 volts.)	32	NC	A	NC	H	H	NC	A	NC	A	K	—	6V3—A
—	—	—	Total Effective Plate Supply Impedance per plate 125, 215, 300 Ω respectively. Filter Input Capacitor 50 μF . D.C. Output Voltage 265, 310, 360 volts respectively.	32	A ^I	IC	K	H	H	IC	A ^{II}	IC	IC	—	—	6V4
5000	4.5	0.3 for 6V6	Type 6V6GTA has Controlled Heater warm-up time = 11 secs. Total Harmonic Distortion 8%.	30	S	H	A	G ₂	G ₁	—	H	K	—	—	—	6V6
8000 Plate to Plate	14.0	0.7 for 6V6G 6V6GT 6V6GT/G	Peak A.F. Grid to Grid Volts = 38. Total Harmonic Distortion 3.5%.		NC	H	A	G ₂	G ₁	—	H	K	—	—	—	6V6G 6V6GT 6V6GT/G 6V6GTA
—	—	—	Condenser Input to Filter = 20 μF . Plate Supply Impedance = 145 Ω minimum.	30	NC	NC	K	—	A	—	H	H	—	—	—	6W4GT
4000	3.8	0.5	Cathode Resistor 180 Ω . Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K	—	—	—	6W6—GT
Cathode Current Peak 140 mA. max. Average 40 mA. max. Plate Dissipation 7.5 watts max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)			NC		H	A	G ₂	G ₁	—	H	G ₂	K	—	—	—	
—	—	0.007	As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.5 meg. Screen Resistor 2.9 meg. Cathode Resistor 2200 Ω . Gain = 200.	30	NC	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	6W7G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
6X2	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	6-3	0-09	Max. R.M.S. 5000	D.C. Output Average 3-0 Max.	—	—	—	—	—	—
						Peak Inverse 17000 max.	Average 0-35 max.	—	—	—	—	—	
						Peak Inverse 17000 max.	Average 3-0 max.	—	—	—	—	—	
6X4	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	II	6-3	0-6	R.M.S. 2 x 325	D.C. Output 70-0	—	—	—	—	—	
6X5 6X5G 6X5GT 6X5GT/G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6-3	0-6	Max. R.M.S. 2 x 325	D.C. Output 70-0 Max.	—	—	—	—	—	
6X8 6X8A	MEDIUM μ TRIODE SHARP CUT-OFF R.F. PENTODE	Triode Class "A" Amplifier	H	6-3	0-45	100	8-5	See Note	—	—	5800	40	6900 ohms
		Pentode R.F. Amplifier				250	7-7	See Note	150	1-6	4600	—	0-75
		Frequency Converter Pentode Mixer				150	6-2	-3-5	150	1-8	Conv. 2100	—	—
		Triode Oscillator at 250 Mc.				150	13-0	—	—	—	—	—	—
6Y6G 6Y6GA 6Y6GT	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6-3	1-25	200	Zero Signal 61-0 Max. Signal 66-0	-14	135	Zero Signal 2-2 Max. Signal 9-0	7100	—	0-0183

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	Condenser input to filter = 0.1 μF . max. Plate supply impedance = 0.1 meg. min. Values for operation at 50 c/s. with sinusoidal input voltage.														
—	—	—	Condenser input to filter 0.005 μF . max. Peak plate current = 80 mA. max. with max. pulse duration 0.5% of the time between 2 pulses with a max. of 5 μsecs . Values for use in pulse type E.H.T. Supply.	3	H K	H	A	—	—	—	—	—	—	—	—	—	6X2
—	—	—	Condenser input to filter 0.01 μF . max. Plate supply impedance 0.1 meg. min. Values for operation at 10 kc/s. to 500 kc/s. with sinusoidal input voltage.														
—	—	—	With less than 10 μF . condenser input to filter, minimum plate supply impedance = 520 Ω per plate. Greater Supply Impedances required for larger input capacities.	21	A ¹	NC	H	H	NC	A ¹¹	K	—	—	—	—	—	6X4
—	—	—	Condenser Input to Filter = 4 μF . Maximum. Plate Supply Impedance per plate = 150 Ω minimum.	30	S NC	H H	A ¹¹ A ¹¹	— —	A ¹ A ¹	— —	H H	K K	— —	— —	— —	— —	6X5 6X5G 6X5GT 6X5GT/G
—	—	1.4	Type 6X8A has Controlled Heater warm-up time = 11 secs. Cathode Resistor 100 Ω . Plate Current = 10 μA . at -10 volts grid bias.														
—	—	0.09 max.	Cathode Resistor 200 Ω . Plate Current = 10 μA . at -10 volts grid bias.														
—	—	—	Mixer Grid Resistor = 0.12 M Ω . R.M.S. Oscillator Voltage at Mixer grid = 2.6. Mixer Grid Current 2.0 μA . Oscillator Grid Resistor = 2700 Ω . Oscillator Grid Current 3.6 mA.	32	G ₃	G ₁ ^t	A ^t	H	H	K	G ₁ P	G ₂	A ^P	—	—	—	6X8 6X8A
—	0.5	—															
2600	6.0	0.7	Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	—	6Y6G 6Y6GA 6Y6GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
6Z7G	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	H	6.3	0.3	180	2 x 4-2 Zero Signal	0	—	—	—	—	—
6ZY5G	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	6.3	0.3	Max. R.M.S. 2 x 325	D.C. Output 40.0 Max.	—	—	—	—	—	—
7A4	DETECTOR TRIODE	A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
7A5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	6.3	0.75	125 110	44.0 40.0	-9 -7.5	125 110	3.3 3.0	6000 5800	— —	0.017 0.014
7A6	TWIN DIODE	Detector, Rectifier	H	6.3	0.15	Max. R.M.S. 150	D.C. Output 8.0 Max.	—	—	—	—	—	—
7A7	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★
7A8	OCTODE	Frequency Converter	H	6.3	0.15	250	3.0	(G ₄) -3	(G ₃₊₄) 100	3.2	Conv. 550	—	0.7
7AD7	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.6	300	28	See Note	150	7.0	9500	—	0.3
7AF7	TWIN TRIODE	A.F. Amplifier	H	6.3	0.3	250 100 100	9.0 5.0 10.8	See Note	—	—	2100 1900 2600	16 16 17	7600 Ohms. 8400 Ohms. 6500 Ohms.
7AG7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	250	6.0	See Note	250	2.0	4200	—	0.75
7AH7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	250	6.8	See Note	250	1.9	3300	—	1.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
Plate to Plate 12000	4.2	—	Peak Plate Current = 60.0 mA. per plate. Average Input of 320 mW. applied between grids.	30	NC	H	A ¹¹	G ₁ ¹¹	G ₁ ¹	A ¹	H	K	—	—	—	6Z7G
—	—	—	With less than 40 μF . condenser input to filter, minimum plate supply impedance = 225 Ω per plate. Greater Supply Impedances required for larger input capacities.	30	NC	H	A ¹¹	—	A ¹	—	H	K	—	—	—	6ZY5G
—	—	4.0	★ For data and notes refer type 6J5GT.	29	H	A	NC	NC	IC	G ₁	K	H	—	—	S	7A4
2700 2500	2.2 1.5	—	Total Harmonic Distortion 10%, in each case.	29	H	A	G ₂	NC	NC	G ₁	K	H	—	—	S	7A5
—	—	—	Values for each diode.	29	H	K ¹¹	D ₂	NC	IS	D ₁	K ¹	H	—	—	S	7A6
—	—	0.005	★ For data and notes refer type 6SK7GT.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7A7
—	—	0.15	Conversion conductance = 2 μmhos at - 30 volts grid (G_4) bias. Grid No. 2 current 4.2 mA. through 20,000 Ω (250 volts supply). Osc. Grid (G_1) current 0.4 mA. Osc. Grid Resistor 50,000 Ω .	29	H	A	G ₂	G ₁	G ₃ G ₄	G ₄	K	H	—	—	S	7A8
—	—	0.03	Cathode Bias Resistor = 68 Ω .	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7AD7
—	—	2.3	Cathode Bias Resistor 1100 Ω . Cathode Bias Resistor 600 Ω . Cathode Bias Resistor 0 Ω .	29	H	K ¹¹	A ¹¹	G ₁ ¹¹	G ₁ ¹	A ¹	K ¹	H	—	—	S	7AF7
—	—	0.005	Cathode Bias Resistor 250 Ω . Plate Current = 10 μA at - 10 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7AG7
—	—	0.005	Cathode Bias Resistor 250 Ω . $G_m = 35 \mu\text{mhos}$ at - 20 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7AH7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
7AK7	SHARP CUT-OFF PENTODE	Class "A" Amplifier	H	6.3	0.8	150	40.0	$G_1=0$ $G_2=0$	90	21.0	5500	—	11500 ohms
						150	2.0 Max.	$G_1=0$ $G_2=-9.5$	90	43.0 Max.	—	—	
7AN7	R.F. TWIN TRIODE	Cascode R.F. Amplifier	H	7.0	0.3	★	★	★	—	—	★	★	—
7B4	HIGH μ TRIODE	A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
7B5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.4	★	★	★	★	★	★	—	★
7B6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
7B7	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	250	8.5	-3	100	1.7	1750	1200	0.75
7B8	PENTAGRID	Frequency Converter	H	6.3	0.3	★	★	★	★	★	★	—	★
7C4	U.H.F. DIODE	Detector, Rectifier	H	6.3	0.15	Max. 117	Max. D.C. Output 5.0	—	—	—	—	—	—
7C5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	6.3	0.45	★	★	★	★	★	★	—	★
7C6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.15	250	1.3	-1	—	—	1000	100	0.1
7C7	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.15	250	2.0	-3	100	0.5	1300	—	2.0
7DJ8	V.H.F. SHARP CUT-OFF TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	7.0	0.3	90	15	-1.3	—	—	12,500	33	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.7	For use as a Gating Tube with Suppressor Grid Control. Max. Grid Resistance must not exceed 0.1 m Ω .	29	H	A	G ₁	G ₂ IS	—	G ₁	K	H	—	—	—	7A7
—	—	(G ₁ ^I -A ^I) 1:2 (G ₁ ^{II} -A ^{II}) 2:3	For use as a TV Cascode R.F. Amplifier operating up to 220 Mc. ★ For other data and notes refer type 6CW7.	32	K ^{II}	G ₁ ^{II} IS	A ^{II}	H	H	G ₁ ^I	K ₁ ^I	K ₀ ^I	A ^I	—	—	7AN7
—	—	2.4	★ For data and notes refer type 6SF5GT.	29	H	A	NC	NC	NC	G ₁	K	H	—	—	S	7B4
★	★	0.8	★ For data and notes refer type 6K6GT.	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	S	7B5
—	—	1.6	★ For data and notes refer type 6SQ7GT.	29	H	A	G ₁	IC	D ₂	D ₁	K IS	H	—	—	S	7B6
—	—	0.007	Mutual Conductance = 10 μmhos at - 40 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7B7
—	—	0.2	★ For data and notes refer type 6A8GT.	29	H	A	G ₂	G ₁	G ₃ G ₃	G ₄	K	H	—	—	S	7B8
—	—	—		29	H	NC	NC	A	NC	NC	K	H	—	—	S	7C4
★	★	0.4	★ For data and notes refer type 6V6GT.	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	S	7C5
—	—	1.4	As R.C. Amplifier (250 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Cathode Resistor 4700 Ω . Gain = 65.	29	H	A	G ₁	K	D ₂	D ₁	K	H	—	—	S	7C6
—	—	0.007	As R.C. Amplifier (250 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Screen Resistor 2.2 meg. Cathode Resistor 1500 Ω . Gain = 245. Mutual Conductance = 75 μmhos at - 7 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7C7
—	—	1.4	Equivalent Noise Resistance 300 Ω .	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	IS	—	—	7DJ8

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
7E6	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
7E7	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6.3	0.3	250	7.5	-3	100	1.6	1300	—	0.7
7F7	TWIN TRIODE	A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
7F8	TWIN TRIODE	A.F. Amplifier	H	6.3	0.3	250	6.0	See Note	—	—	3300	48	0.0145
7G7 7G7/ 1232	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.45	250	6.0	-2	100	2.0	4500	—	0.8
7H7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	10	See Note	150	3.2	4200	—	0.8
7J7	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	250	1.4	-3	100	2.8	Conv. 290	—	1.5
7K7	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	2.3	-2	—	—	1600	70	0.044
7L7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	4.5	-1.5	100	1.5	3100	—	1.0
7N7	TWIN TRIODE	A.F. Amplifier	H	6.3	0.6	★	★	★	—	—	★	★	★
7Q7	PENTAGRID	Frequency Converter	H	6.3	0.3	250	3.5	(G ₂) -2	(G ₂₊₄) 100	8.5	Conv. 550	—	1.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	1.5	★ For data and notes refer type 6BF6. For replacement, consider also type 6SR7GT.	29	H	A	G ₁	IC	D ₂	D ₁	K	H	—	—	S	7E6
—	—	0.005	Mutual Conductance = 2 μmhos at - 42.5 volts Grid Bias.	29	H	A	D ₂	D ₁	G ₂	G ₁	K G ₃	H	—	—	S	7E7
—	—	1.6	★ For data and notes refer type 6SL7GT.	29	H	K ^{''}	A ^{''}	G ₁ ^{''}	G ₁ [']	A [']	K [']	H	—	—	S	7F7
—	—	1.2	Cathode Bias Resistor 500 Ω . Values for each unit. As R.C. Amplifier (125 V. supply). Following Grid Leak 0.47 meg. Plate Resistor 0.27 meg. Cathode Resistor 2200 Ω . Gain = 36.	29	G ₁ ^{''}	H	A ^{''}	K ^{''}	K [']	A	H	G ₁ [']	—	—	S	7F8
—	—	0.007	Cathode Current Cut-off at - 7 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7G7 7G7/ 1232
—	—	0.007	Cathode Bias Resistor 180 Ω . Mutual Conductance = 35 μmhos at - 19 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7H7
—	—	0.03	Osc. Plate Current 5 mA. through 20,000 Ω (250 volts supply). Osc. Grid Current 0.4 mA. Osc. Grid Resistor 50,000 Ω . Osc. G _m = 1400 μmhos . Conversion Conductance = 2 μmhos at - 20 volts Grid Bias.	29	H	A ^h	A ^t	G ₁ ^t G ₃ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K G ₂ ^h IS	H	—	—	S	7J7
—	—	1.7	K ₁ Triode Cathode. K ₂ Diode Cathode. For data as R.C. Amplifier refer type 6SL7GT.	29	H	K ₁	A	G ₁	D ₂	D ₁	K ₂	H	—	—	S	7K7
—	—	0.01	Plate Current Cut-off at - 6 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7L7
—	—	3.0	★ For data and notes refer type 6SN7GT.	29	H	K ^{''}	A ^{''}	G ₁ ^{''}	G ₁ [']	A [']	K [']	H	—	—	S	7N7
—	—	0.2	Coupling Coil in Cathode Lead. Osc. Grid (G ₁) Current = 0.5 mA. Osc. Grid Resistor 20,000 Ω . Osc. G _m 4500 μmhos . Conversion Conductance = 2 μmhos at - 35 volts Grid (G ₃) Bias.	29	H	A	G ₂ G ₄	G ₁	G ₃	G ₃	K	H	—	—	S	7Q7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
7R7	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6.3	0.3	250	6.2	-1	100	1.6	3400	—	1.0
787	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	250	1.8	-2	100	3.0	Conv. 525	—	1.25
7V7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.45	300	10.0	See Note	See Note	3.9	5800	—	0.3
7W7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.45	★	★	★	★	★	★	—	★
7X3	FULL-WAVE RECTIFIER	Full-Wave Voltage Doubler	H	6.3	1.2	R.M.S. 2 x 117	D.C. Output 75.0 (Max.)	—	—	—	—	—	—
		Half-Wave Rectifier				R.M.S. 235	D.C. Output 75.0 (Max.)	—	—	—	—	—	
7X7	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	1.9	-1	—	—	1500	100	0.067
						100	1.2	0	—	—	1000	85	0.085
7Y4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.9	Max. R.M.S. 2 x 325	D.C. Output 70.0 Max.	—	—	—	—	—	—
7Z4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.9	Max. R.M.S. 2 x 325	D.C. Output 100.0	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.004	As R.C. Amplifier (250 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Screen Resistor 1.8 meg. Cathode Resistor 1800 Ω . Gain = 255. Mutual Conductance = 2 μmhos at - 20 volts Grid Bias.	29	H	A	D ₂	D ₁	G ₂	G ₁	K G ₃	H	—	—	S	7R7
—	—	0.03	Osc. Plate Current 5.0 mA through 20,000 Ω (250 volts supply). Osc. Grid Current 0.4 mA. Osc. Grid Resistor 50,000 Ω . Osc. G _m = 1650 μmhos . Conversion Conductance = 2 μmhos at - 21 volts Grid Bias.	29	H	A ^h	A ^t	G ₁ ^t G ₂ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K G ₂ ^h IS	H	—	—	S	7B7
—	—	0.004	Cathode Bias Resistor 160 Ω . Series Screen Resistor 40,000 Ω (300 volts supply). I _a = 10 μA at - 16 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	7V7
—	—	0.0025	★ For data and notes refer type 7V7.	29	H	A	G ₂	K IS	G ₃ IS	G ₁	K	H	—	—	S	7W7
—	—	—	Capacitor Input to Filter 16 μF . Minimum Total Effective Plate Supply Impedance 15 Ω .	29	H	K ¹	A ¹	—	—	A ¹¹	K ¹¹	H	—	—	—	7X6
—	—	—	Capacitor Input to Filter 16 μF . Minimum Total Effective Plate Supply Impedance 100 Ω .													
—	—	—	K ₁ provides the stream for Triode and D ₁ . K ₂ provides the stream for D ₂ .	29	H	A	G ₁	K ₁ IS	D ₁	D ₂	K ₂	H	—	—	S	7X7
—	—	—	With less than 40 μF Condenser Input to Filter, minimum Plate Supply Impedance per Plate = 150 ohms. Greater Supply Impedances are required for larger Input Capacities.	29	H	NC	A ¹¹	NC	NC	A ¹	K	H	—	—	S	7Y4
—	—	—	With less than 40 μF condenser input to filter, minimum plate supply impedance per plate = 75 ohms. Greater supply impedances are required for larger input capacities.	29	H	NC	A ¹¹	NC	NC	A ¹	K	H	—	—	S	7Z4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
8D3	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	★	★	★	★	★	—	★	
8D8	SHARP CUT-OFF A.F. PENTODE	A.F. Amplifier (low noise)	H	6.3	0.15	250	3	-2	140	0.6	1900	—	2.5
9A8	MEDIUM μ TRIODE REMOTE CUT-OFF R.F. PENTODE	Frequency Converter	H	9.0	0.3	★	★	★	★	★	★	★	
9AK8	TRIPLE DIODE HIGH μ TRIODE	Detector A.F./R.F. Amplifier	H	9.5	0.3	200	1.0	-2.3	—	—	1400	70	0.05
						100	0.8	-1.0	—	—	1450	70	0.048
9AQ8	HIGH μ TWIN TRIODE	R.F. Amplifier	H	9.0	0.3	200	10.0	-2.1	—	—	5800	48	—
		Additive Mixer (for TV)				170	10.0	-1.5	—	—	6200	50	—
						200	5.2	—	—	—	Conv. 2300	—	0.015
9D6	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	★	★	★	★	★	—	★	
9D7	REMOTE CUTOFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	10.0	See Note	100	3.3	8400	—	0.75
9U8 9U8-A	MEDIUM μ TRIODE SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	9.5	0.3	★	★	★	★	★	★	★	
10	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	7.5	1.25	425	18.0	-40	—	—	1600	8	5000 Ohms.
11	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	F	1.1	0.25	135	3.0	-10.5	—	—	440	6.6	0.015
12	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	F	1.1	0.25	★	★	★	—	—	★	★	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0.005	★ For data and notes refer type 6AM6.	21	G ₁	K	H	H	A	G ₃ S	G ₂	—	—	—	—	8D3	
—	—	0.05 max.	As R.C. Amplifier (250 V. supply): Following Grid Leak 0.68 M Ω . Plate Resistor 0.22 M Ω . Screen Resistor 1.0 M Ω . Cathode Resistor 2200 Ω . Gain 180.	32	G ₂	IS	K	H	H	A	IS	G ₃	G ₁	—	—	8D8	
—	—	(G ₁ ^p -A ^p) 0.025 (G ₁ ^t -A ^t) 1.5	★ For data and notes refer type 6BL8.	32	A ^t	G ₁ ^p	G ₂	H	H	A ^p	K ^p G ₃ IS	K ^t	G ₁ ^t	—	—	9A8	
—	—	2.0	As R.C. Amplifier (200 V. supply) Following Grid Leak 0.68 m Ω . Plate Resistor 0.22 m Ω . Gain 53 Pin 5 should be grounded. For use in F.M./A.M. receivers.	32	D ₃	D ₂	K _{d3}	H	H	D ₁	IS K _t K _{d1} K _{d3}	G ₁	A	—	—	9AK8	
—	—	1.5	Plate Resistor 8200 Ω . Grid Resistor 1 m Ω . R.M.S. Oscillator Volt. 2.8	32	A ^t	G ₁ ^t	K ^t	H	H	A ^{tt}	G ₁ ^{tt}	K ^{tt}	IS	—	—	9AQ8	
—	—	0.007	★ For data and notes refer type 6CQ6.	21	G ₁	K	H	H	A	G ₃ IS	G ₂	—	—	—	—	9D6	
—	—	0.01	Cathode Resistor 100 Ω . Mutual Conductance = 7 μmhos at -20 volts grid bias.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	9D7	
—	—	Triode 1.8 Pentode 0.906	★ For data and notes refer type 6U8. Type 9U8-A has Controlled Heater warm-up time = 11 secs.	32	A ^t	G ₁ ^p	G ₂	H	H	A ^p	K ^p G ₃ IS	K ^t	G ₁ ^t	—	—	9U8 9U8-A	
10,200	1.6	7.0	Second Harmonic Distortion 5%.	8	F	A	G ₁	F	—	—	—	—	—	—	—	10	
—	—	3.3	As Biased Detector adjust zero signal plate current to 0.2 mA. Plate volts = 135 volts, max. Grid Bias - 18 volts, approx.	5	F+	A	F-	G ₁	—	—	—	—	—	—	—	—	11
—	—	3.3	★ For data and notes refer type 11.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	12

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
12A	DETECTOR AMPLIFIER TRIODE	Class "A" Power Amplifier and Biased Detector	F	5.0	0.25	135	6.2	-9	—	—	1650	8.5	5100 Ω
							180	7.7	-13.5	—	—	1800	8.5
12A4	MEDIUM μ TRIODE	Class "A" Amplifier Vertical Deflection Power Amplifier	H	6.3	0.6	250	23.0	-9.0	—	—	8000	20	2500 Ω
				12.6	0.3	D.C. Plate Voltage 450 max. Peak Positive-pulse Plate Voltage 1000 absolute max. Plate Dissipation 5.9 watts max. Peak Negative-pulse Grid Voltage 250 max.							
12A5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	12.6	0.3	180	Zero Signal 45	-25	180	Zero Signal 8.0	2400	—	0.035
				6.3	0.6		Max. Signal 48						
12A7	RECTIFIER POWER OUTPUT PENTODE	Half-wave Rectifier	H	12.6	0.3	Max. R.M.S. 125	D.C. Output 30 Max.	—	—	—	—	—	—
		Class "A" Power Amplifier				135	9.0	-13.5	135	2.5	975	—	0.102
12A8G 12A8GT 12A8GT/G	PENTAGRID	Frequency Converter	H	12.6	0.15	★	★	★	★	★	—	★	
12AB5	BEAM POWER TETRODE	Class "A" Power Amplifier	H	12.6	0.2	250	45.0	-12.5	250	4.5	4100	—	0.05
		Class "A" Push-pull Power Amplifier				250	Zero Signal 70 Max. Signal 79	-15	250	Zero Signal 5.0 Max. Signal 13.0	—	—	—
12AC5	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.1	200	7.2	-3.0	See Note	2.1	2300	—	1.0
12AC6	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	12.6	0.55	0	12.6	0.2	730	—	0.5

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
9000 10,650	0.13 0.285	8.5	As Biased Detector adjust zero signal plate current to 0.2 mA. Plate Volts = 180 volts. Grid Bias - 21 volts, approx.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	12A
—	—	5.6	Plate Current = 50 μA . at -19 volts grid bias.	32	K	G ₁	H _t	H	H	NC	G ₁	NC	A	—	—	12A4	
Cathode Current Peak 105 mA. max. Average 30 mA. max. Peak Heater Cathode Voltage .. 200 max. (D.C. component must not exceed 100 volts.)																	
3300	3.4	—	Total Harmonic Distortion 11%. Second Harmonic Distortion 6.5%. Third Harmonic Distortion 8%.	19	H	A	G ₂	G ₁	K	H _t	H	—	—	—	—	12A5	
—	—	—	Condenser input to filter.	19	H	A ^P	G ₂ ^P	K ^r	A ^r	K ^P	H	—	—	G ₁ ^P	—	12A7	
13,500	0.55	—															
—	—	0.26	★ For data and notes refer type 6ASGT.	30	S	H	A	G ₃ G ₅	G ₁	G ₂	H	K	—	G ₄	—	12A8G 12A8GT 12A8GT/G	
5000	4.5	0.7	Total Harmonic Distortion 8%.	32	G ₂	NC	G ₁	H	H	G ₁	K G ₃	G ₂	A	—	—	12AB5	
10000 Plate to Plate	10	—	Total Harmonic Distortion 5%. Peak A.F. Grid to Grid Input Voltage = 30.														
—	—	< 0.002	Cathode Resistor 325 Ω . Series Screen Resistor 40 k Ω (200 V. supply). Cathode Resistor 325 Ω . Mutual Conductance = 23 μmhos at -34 volts grid bias.	28	H	A	IC	IC	G ₂	G ₁	K G ₃ S	H	—	—	—	12AC5	
—	—	0.005	Mutual Conductance = 10 μmhos at -5.2 volts grid (G ₁) bias.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	12AC6	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
12AD6	PENTAGRID (for direct use with 12v. car battery)	Frequency Converter	H	12-6	0-15	12-6	0-45	See Note	G ₁₊₄ 12-6	1-5	Conv. 260	—	1-0
12AD7	HIGH μ TWIN TRIODE	Class "A" Amplifier	H	12-6 6-3	0-225 0-45	250	1-25	-2-0	—	—	1600	100	0-0625
12AE6	DUO DIODE MEDIUM μ TRIODE (for direct use with 12v. car battery)	Detector A.F. Amplifier	H	12-6	0-15		12-6	0-75	0	—	—	1000	15
12AE6A	DUO DIODE MEDIUM μ TRIODE (for direct use with 12v. car battery)	Detector A.F. Amplifier	H	12-6	0-15	12-6	0-32	See Note	—	—	715	14-3	0-02
						12-6	1-0	0	—	—	1300	16-7	0-013
12AE7	TWIN TRIODE WITH DISSIMILAR SECTIONS (for direct use with 12v. car battery)	Class "A" Amplifier Unit 1	H	12-6	0-45	12-6	1-9	See Note	—	—	4000	13	3250 ohms
						12-6	7-5	See Note	—	—	6500	6-4	985 ohms
12AF6	SHARP CUTOFF R.F. PENTODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-15	12-6	0-75	0	12-6	0-35	1150	—	0-3
12AH7GT	TWIN TRIODE	A.F. Amplifier	H	12-6	0-15	180	7-6	-6-5	—	—	1900	16	8400 Ohms
12AH8	TRIODE HEPTODE	Frequency Converter	H	12-6	0-15	250	2-6	-3	100	4-4	550 Conv. 520	—	1-5
				6-3	0-3		100	2-5	-3	100		4-5	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	G_1 —A 0.1 G_3 —A 0.3	Mixer Grid (G_2) Resistor 2.2 m Ω . Oscillator Grid (G_1) Resistor 33 k Ω . R.M.S. Oscillator Grid (G_1) Voltage 1.6. Oscillator Grid (G_1) Current 50 μA . Conversion Conductance = 5 μmhos at Mixer Grid (G_3) voltage of -2.2. For use in Auto radios operated from nominal 12 volt battery.	21	G_1	K	H	H	A	G_2 G_4	G_3	—	—	—	—	12AD6
—	—	1.8	As R.C. Amplifier (250 V. supply) Following Grid Leak 0.47 m Ω . Plate Resistor 0.27 m Ω . Unbypassed Cathode Resistor 3300 Ω . For use as non-microphonic audio preamplifier.	32	A ¹	G_1 ¹	K ¹	H	H	A ¹¹	G_1 ¹¹	K ¹¹	H _t	—	—	12AD7
—	—	2.0	R.C. Amplifier 14.4 (supply). Plate Resistor 0.47 M Ω . Following Grid Resistor 2.2 M Ω . Grid Leak Resistor 2.2 M Ω . Gain 10.	21	G	K	H	H	D ₂	D ₁	A ^t	—	—	—	—	12AE6
—	—	2.0	Grid Resistor 10 M Ω .	21	G ^t	K	H	H	D ₂	D ₁	A ^t	—	—	—	—	12AE6A
—	—	3.9	Developed across 1.5 M Ω . Resistor.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	H _t	—	—	12AE7
—	—	3.4	Developed across 1.0 M Ω . Resistor.													
—	—	0.006	Mutual Conductance = 40 μmhos at -2.7 grid (G_1) bias.	21	G_1	G_3 IS	H	H	A	G_2	K	—	—	—	—	12AF6
—	—	3.0 _{t1} 2.2 _{t2}	Values are for each unit.	30	G_1 ¹¹	K ¹¹	A ¹¹	K ¹	G_1 ¹	A ¹	H	H	—	—	—	12AH7GT
—	—	0.025	Conversion conductance = 5.5 and 5.2 μmhos respectively at -22 V. grid bias. Triode plate voltage = 100 V. in each case. Triode plate resistor 27000 Ω . (250 V. supply) and 0 Ω (100 V. supply). Osc. grid resistor 47000 Ω in each case. Osc. grid current 0.2 mA. in each case.	32	G_2 ^h G_4 ^h	G_1 ^h	K G_5 ^h	H	H	A ^h	G G_3 ^h	A ^t	H _t	—	—	12AH8

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age	Cur- rent								
				Volts	Amps								
12AJ6	TWIN DIODE MEDIUM μ TRIODE (for direct use with 12v. car battery)	Detector A.F. Amplifier	H	12-6	0-15	12-6	0-75	0	—	—	1200	55	0-045
12AJ7	MEDIUM μ TRIODE R.F. HEPTODE	Heptode R.F. Amplifier	H	12-6	0-15	200	7-4	-2-3	(G ₁₊₄) 117	(G ₂₊₄) 4-6	2400	—	0-5
		Triode Class "A" Amplifier				100	13-5	0	—	—	3700	22	—
		Converter (Triode Oscillator)				200	5-4	—	—	—	—	—	—
		Heptode Mixer				200	3-7	-2-3	(G ₁₊₄) 119	(G ₂₊₄) 8-1	Conv. 775	—	1-0
12AL5	TWIN DIODE	Detector, Rectifier	H	12-6	0-15	R.M.S. 117 per Plate	D.C. Output 9-0 per Plate	—	—	—	—	—	
12AL8	MEDIUM μ TRIODE SPACE CHARGE GRID TETRODE (for direct use with 12v. car battery)	Triode Class "A" Amplifier	H	12-6	0-55	12-6	0-5	-0-9 See Note	—	—	1000	13	0-013
		Tetrode Class "A" Amplifier				12-6	Zero Signal 40 Signal Applied 8-0	See Note	—	—	(A-G ₁) 15,000	7-2	480 ohms
12AN7	TRIODE HEXODE	Frequency Converter	H	12-6	0-112	★	★	★	★	★	★	★	
12AQ5	BEAM POWER TETRODE	Power Output Amplifier	H	12-6	0-225	★	★	★	★	★	★	—	★
12AT6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
12AT7	HIGH μ TWIN TRIODE	R.F. Amplifier	H	12-6	0-15	250	10-0	-2	—	—	5000	60	—
						200	11-5	-1	—	—	6400	66	—
						170	8-5	-1	—	—	5500	66	—
						100	3-0	-1	—	—	3500	58	—
12AU6	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	12-6	0-15	★	★	★	★	★	—	★	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	2.0	R.C. Amplifier (12.6 V. supply). Plate Resistor 1 m Ω . Following Grid Resistor 2 m Ω . Gain 16.	21	G ₁	K	H	H	D ₂	D ₁	A ^t	—	—	—	—	12AJ6
—	—	0.008	Series Screen Resistor 18 k Ω . Input Resistance 100 Mc. = 2100 Ω .	32	G ₂ G ₄	G ₃ ^p	K G ₅ IS	H	H	A ^h	G ₃	A ^t	G ₁ ^t	—	—	12AJ7
—	—	1.0	Plate Resistor 15 k Ω . Grid (G ₂₊₃) Current 230 μA . Grid (G ₂₊₃) Resistor 47 k Ω .													
—	—	—	Series Screen (G ₂₊₄) Resistor 10 k Ω . Grid (G ₂₊₄) Resistor 47 k Ω . Grid (G ₂₊₄) Current 230 μA .													
—	—	—	Plate Supply Impedance per plate = 300 Ω , min. In Half-wave service the two units may be used separately or in parallel.	21	K ^l	A ^h	H	H	K ^h	IS	A ^l	—	—	—	—	12AL5
—	—	5.7	Developed across 2.2 M Ω Resistor.	32	A ^t	G ₂	G ₁ ^{tet}	H	H	A ^{tet}	K ^{tet}	G	K ^t	—	—	12AL8
800	40 mW	Grid No. 1 Voltage (space charge grid) 12.6. Grid No. 1 Current (space charge grid) 75 mA. Grid No. 2 Voltage —0.5 developed across 2.2 M Ω Resistor.														
—	—	0.1	★ For data and notes refer type 6AN7.	32	G ₂ ^h G ₄ ^h	G ₁ ^h	K IS	H	H	IC	A ^h	A ^t	G ₃ ^h G ₁ ^t	—	—	12AN7
★	★	0.35	★ For data and notes refer type 6AQ5.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	12AQ5
—	—	2.1	★ For data and notes refer type 6AT6.	21	G ₁	K	F	H	D ₂	D ₁	A	—	—	—	—	12AT6
—	—	1.7	Values for each unit.	32	A ^h	G ₁ ^h	K ^h	H	H	A ^l	G ₁ ^l	K ^l	H _t	—	—	12AT7
—	—	0.0035	★ For data and notes refer type 6AU6.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	12AU6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μmhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
12AU7 12AU7-A	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	12-6 6-3	0-15 0-3	250	10-5	-8-5	—	—	2200	17	7700 ohms
		100				11-8	0	—	—	3100	20	6500	
		Horizontal Deflection Oscillator											
		Vertical Deflection Oscillator				D.C. Plate Voltage 300 max. Peak Negative Pulse Grid Voltage 600 max. Cathode Current Peak 300 mA. max. Average 20 mA. max.							
						D.C. Plate Voltage 300 max. Peak Negative Pulse Grid Voltage 400 max. Cathode Current Peak 60 mA. max. Average 20 mA. max.							
12AV6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
12AV7	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	12-6	0-225	150	18	See Note	—	—	8500	41	4800 ohms
				6-3	0-45								
12AW6	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12-6	0-15	250	7-0	See Note	150	2-0	5000	—	0-8
12AX4-GT 12AX4-GTA	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	12-6	0-6	★	★	—	—	—	—	—	—
12AX7	HIGH μ TWIN TRIODE	A.F. Amplifier	H	12-6	0-15	250	1-2	-2	—	—	1600	100	0-0625
				6-3	0-3								
12AY7	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	12-6 6-3	0-15 0-3	250	3-0	-4-0	—	—	1750	40	—
12AZ7	HIGH μ TWIN TRIODE	R.F. Amplifier	H	12-6	0-225	250	10	See Note	—	—	5500	60	0-011
				6-3	0-45								

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.5	R.C. Amplifier (300 V. supply). Plate Resistor 0.22 m Ω . Following Grid Resistor 1.0 m Ω . Cathode Resistor 11 k Ω . Gain 12. Structural changes result in type 12AU7-A possessing improved mechanical and electrical qualities.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	12AU7 12AU7-A
Plate Dissipation 2.75 watts max. Peak Heater Cathode Voltage . . . 200 max. (The D.C. component must not exceed 100 volts.)																
Plate Dissipation 2.75 watts max. Peak Heater Cathode Voltage . . . 200 max. (The D.C. component must not exceed 100 volts.)																
—	—	—	★ For data and notes refer type 6AV6.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	12AV6
—	—	1.9	Cathode Resistor 56 Ω . Plate Current = 10 μA . at -12 volts grid bias.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	12AV7
—	—	0.025	Cathode Bias Resistor 200 Ω . Plate Current = 10 μA at -8 volts Grid Bias.	21	G ₁	K	H	H	A	G ₂	G ₃ IS	—	—	—	—	12AW6
—	—	—	★ For data and notes refer type 6AX4-GT. Type 12AX4-GTA has Controlled Heater warm-up time of 11 seconds. * Do not use.	30	* NC	* NC	K	—	A	—	H	II	—	—	—	12AX4-GT 12AX4-GTA
—	—	1.7	Values for each unit. As R.C. Amplifier (300 volts supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Cathode Resistor 5200 Ω . Gain = 73.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	12AX7
—	—	1.3	As R.C. Amplifier (150 V. supply). Following Grid Leak 0.1 m Ω . Plate Resistor 0.02 m Ω . Cathode Resistor 2700 Ω . Voltage Gain 12.5 For use as a low noise, low microphonic audio preamplifier.	32	A ^I	G ₁ ^I	K ^I	H	H	A ^{II}	G ₁ ^{II}	K ^{II}	H _t	—	—	12AY7
—	—	1.9	Cathode Resistor 200, 270 Ω respectively. Plate Current = 10 μA . at -12, -5 volts grid bias, respectively.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	12AZ7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
12B4-A	LOW μ POWER TRIODE	Class "A" Amplifier	H	6.3	0.6	150	34	-17.5	—	—	6300	6.5	1030 ohms
		Vertical Deflection Amplifier	H	12.6	0.3								
D.C. Plate Voltage 550 max. Peak Positive—Pulse Plate Voltage .. 1000 absolute max. Peak Negative—Pulse Grid Voltage .. 250 max.													
12B8GT	TRIODE REMOTE CUT-OFF PENTODE	A.F. and R.F. Amplifier	H	12.6	0.3	90	2.8	0	—	—	2400	90	0.037
			H	12.6	0.3	90	7.0	-3	90	2.0	1800	—	0.2
12BA6	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	—	★	
12BA7	PENTAGRID	Frequency Converter	H	12.6	0.15	★	★	★	★	★	—	★	
12BD6	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	—	★	
12BE6	PENTAGRID	Frequency Converter	H	12.6	0.15	★	★	★	★	★	—	★	
12BF6	TWIN DIODE MEDIUM μ TRIODE	Detector A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	
12BH7 12BH7-A	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	12.6	0.3	250	11.5	-10.5	—	—	3100	16.5	5300 ohms
		Vertical Deflection Amplifier	H	6.3	0.6								
D.C. Plate Voltage 450 max. Peak Positive—Pulse Plate Voltage .. 1500 absolute max. Peak Negative—Pulse Grid Voltage .. 250 max. Peak Negative—Pulse Grid Voltage .. 400 max. (When used as vertical deflection oscillator.)													
12BK5	BEAM POWER TETRODE	Power Amplifier	H	12.6	0.6	★	★	★	★	★	★	★	
12BL6	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	12.6	1.35	0	12.6	0.5	1350	—	0.5
12BN6	GATED BEAM PENTODE	Limiter Discriminator	H	12.6	0.15	★	★	★	★	★	—	★	
12BQ6-GTB	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	12.6	0.6	★	★	★	★	★	—	★	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4-8	Plate Current = 200 μA . at -32 volts grid bias. Controlled Heater warm-up time = 11 seconds.	32	K	G ₁	H ₁	H	H	NC	G ₁	NC	A	—	—	12B4-A
Cathode Current Peak 105 mA. max. Average 30 mA. max. Plate Dissipation 5.5 watts max. Peak Heater Cathode Voltage .. 200 max. (The D.C. component must not exceed 100 volts.)																
—	—	2-3	Triode Unit.	30	K ^P	H	A ^P	G ₂ ^P	A ^t	K ^t	H	G ₁ ^t	—	G ₁ ^P	—	12B3GT
—	—	0-15	Pentode Unit. Mutual Conductance = 2 μmhos at -42.5 volts Grid Bias.													
—	—	0-0035	★ For data and notes refer type 6BA6.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	12BA6
—	—	0-19	★ For data and notes refer type 6BA7.	32	G ₂ G ₄	G ₁	K	H	H	G ₅ IS	G ₃	IS	A	—	—	12BA7
—	—	0-005	★ For data and notes refer type 6BD6.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	12BD6
—	—	0-3	★ For data and notes refer type 6BE6.	21	G ₁	K G ₅	H	H	A	G ₂ G ₄	G ₃	—	—	—	—	12BE6
—	—	2-0	★ For data and notes refer type 6BF6.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	12BF6
—	—	2-6 each unit.	Controlled Heater warm-up time = 11 seconds. Plate Current = 50 μA . at -23 volts grid bias.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H ₁	—	—	12BH7 12BH7-A
Cathode Current Peak 70 mA. max. Average 20 mA. max. Plate Dissipation 3.5 watts max. Peak Heater Cathode Voltage .. 200 max. (The D.C. component must not exceed 100 volts.)																
★	★	0-6	★ For data and notes refer type 6BK5.	32	A	NC	G ₁	H	H	K G ₃	G ₁	G ₂	NC	—	—	12BK5
—	—	0-006	Mutual Conductance = 10 μmhos at -6 volts (G ₁) bias.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	12BL6
—	—	(G ₁ -G ₂) 0-004	★ For data and notes refer type 6BN6.	21	K IS	G ₁	H	H	G ₂	G ₃	A	—	—	—	—	12BN6
★	★	0-6	★ For data and notes refer type 6BQ6-6TB/6CU6.	30	NC	H	NC	G ₂	G ₁	H	K G ₃	—	A	—	—	12BQ6- 6TB

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
12BR7	DUO DIODE HIGH μ TRIODE	Class "A" Amplifier	H	12-6 6-3	0-225 0-45	250	10	See Note	—	—	5500	60	0-011
12BV7	HIGH SLOPE R.F. PENTODE	Video Amplifier	H	12-6 6-3	0-3 0-6								
12BY7 12BY7-A	SHARP CUT-OFF R.F. PENTODE	Video Amplifier	H	12-6 6-3	0-3 0-6	250	25	See Note	150	6-0	12000	—	0-09
12BZ7	HIGH μ TWIN TRIODE	Class "A" Amplifier	H	12-6 6-3	0-3 0-6								
12C8	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	12-6	0-15	★	★	★	★	★	—	★	
12CA5	BEAM POWER PENTODE	Class "A" Power Amplifier	H	12-6	0-6	125	37	-4-5	125	4-0	9200	—	0-015
12CN5	SHARP CUT-OFF PENTODE <small>(for direct use with 12v. car battery)</small>	Class "A" Amplifier	H	12-6	0-45								
12CR6	DIODE REMOTE CUT- OFF PENTODE	Class "A" Amplifier	H	12-6	0-15	250	9-6	-2-0	100	2-6	2200	—	0-8
12CT8	MEDIUM μ TRIODE R.F. PENTODE	Pentode Class "A" Amplifier	H	12-6	0-3								
		Triode Class "A" Amplifier				150	9-0	See Note	—	—	4900	40	8200 ohms
12CU5	BEAM POWER PENTODE	Class "A" Power Amplifier	H	12-6	0-6	★	★	★	★	★	★	—	★
12CX6	SHARP CUT-OFF R.F. PENTODE <small>(for direct use with 12v. car battery)</small>	R.F. Amplifier	H	12-6	0-15	12-6	3-0	See Note	12-6	1-4	3100	—	0-04
12DK7	DOUBLE DIODE TETRODE <small>(for direct use with 12v. car battery)</small>	Class "A" Driver	H	12-6	0-5								

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.9	Cathode Resistor 200 Ω . Plate Current = 10 μA . at -12 volts grid bias.	32	A	G ₁	K ^t	H	H	D ₂	D ₁	K ^d IS	H _t	—	—	12BR7
—	—	0.055	Cathode Resistor 68 Ω . Plate Current = 20 μA . at -12 volts grid bias.	32	K	G ₁	G ₃ IS	H	H	H _t	A	G ₂ IS	G ₃ IS	—	—	12BV7
—	—	0.055	Cathode Resistor 68 Ω . Plate Current = 20 μA . at -10 volts grid bias. Type 12BY7-A has Controlled Heater warm-up time = 11 secs.	32	K	G ₁	G ₃ IS	H	H	H _t	A	G ₂ IS	G ₃ IS	—	—	12BY7 12BY7-A
—	—	2.5		32	A ¹¹	G ₁ ¹¹	K ¹¹	H	H	A ¹	G ₁ ¹	K ¹	H _t	—	—	12BZ7
—	—	0.005	★ <i>For data and notes refer type 6B8.</i>	30	S	H	A	D ₂	D ₁	G ₂	H	K	—	G ₁	—	12C8
4500	1.5	0.5	Controlled Heater warm-up time = 11 secs. Total Harmonic Distortion 6%.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	12CA5
—	—	0.25	Developed across 2.2 M Ω Resistor.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	12CN5
—	—	—	Mutual Conductance = 10 μmhos at -32 volts grid bias.	21	K G ₃	D	H	H	A	G ₂	G ₁	—	—	—	—	12CR6
—	—	0.044	Cathode Resistor 82 Ω . Plate Current = 100 μA . at -8 volts grid bias.	32	A ^t	G ^t	K ^t	H	H	A ^p	G ₂	G ₁ ^p	K ^p G ₃	—	—	12CT8
—	—	2.2	Cathode Resistor 150 Ω . Plate Current = 100 μA . at -6.5 volts grid bias. Controlled Heater warm-up time = 11 secs.	32	A ^t	G ^t	K ^t	H	H	A ^p	G ₂	G ₁ ^p	K ^p G ₃	—	—	12CT8
★	★	0.7	Controlled Heater warm-up time = 11 seconds. ★ <i>For data and notes refer type 6CU5.</i>	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	12CU5
—	—	0.05 max.	Developed across 2.2 M Ω Resistor. Plate Current = 10 μA . at -4.5 volts grid bias.	21	G ₁	G ₃	H	H	A	G ₂	K	—	—	—	—	12CX6
—	—	—	Grid No. 1 Resistor 2.2 M Ω .	32	G ₁	K	G ₂	H	H	D ¹¹	A	IC	D ¹	—	—	12DK7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
12DL8	DUO-DIODE SPACE CHARGE GRID TETRODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-55	12-6	Zero Signal 40 Signal Applied 8-0	See Note	—	—	A-G ₃ 15,000	7-2	480 ohms
12DQ6-A	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	12-6	0-6	★	★	★	★	★	—	★	
12DQ7	HIGH SLOPE POWER PENTODE	Class "A" Amplifier	H	12-6 6-3	0-3 0-6	200	26-0	See Note	125	5-6	10,500	—	0-053
12D67	DUO-DIODE SPACE CHARGE GRID TETRODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-4								
12DU7	DUO DIODE TETRODE (for direct use with 12v. car battery)	Class "A" A.F. Amplifier	H	12-6	0-25	12-6	12	See Note	12-6	1-5	6200	—	6000 ohms
12DV7	DUO DIODE MEDIUM μ TRIODE (for direct use with 12v. car battery)	Class "A" A.F. Amplifier	H	12-6	0-15	12-6	0-4	See Note	—	—	750	14	0-019
12DV8	DUO DIODE SPACE CHARGE GRID TETRODE (for direct use with 12v. car battery)	A.F. Amplifier	H	12-6	0-375	12-6	Zero Signal 9 Signal Applied 6-8	See Note	—	—	(A-G ₂) 8500	—	900 ohms
12DW7	TWIN TRIODE WITH DISSIMILAR SECTIONS	Class "A" Amplifier (Sect. 1)	H	12-6	0-15	100	0-5	-1	—	—	1250	100	0-08
		Class "A" Amplifier (Sect. 2)		6-3	0-3								

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
800	40 mW	Grid No. 2 to Plate 14	Grid No. 1 (space charge grid) Voltage 12.6. Grid No. 1 (space charge grid) Current 75 mA. Grid No. 2 (control grid) Voltage -2.0 volts developed across 2.2 M Ω .	32	D ₂	K ^{tet}	G ₁	H	H	A	G ₂	K ^d IS	D ₁	—	—	12DL8
★	★	0.55	Controlled Heater warm-up time = 11 seconds. ★ For data and notes refer type 6DQ6-A.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	12DQ6-A
—	—	0.01	Cathode Resistor 68 Ω . Controlled Heater warm-up time = 11 secs. Plate Current = 100 μA . at -9 volts grid bias.	32	K	G ₁	G ₃ IS	H	H	H _t	A	G ₂	G ₃ IS	—	—	12DQ7
800	40 mW	Grid No. 2 to Plate 12.5	Grid No. 1 (space charge grid) Voltage 12.6. Grid No. 1 (space charge grid) Current 75 mA. Grid No. 2 (control grid) Voltage -0.5 developed across 2.2 M Ω .	32	D ₂	NC	G ₁	H	H	A	G ₂	K	D ₁	—	—	12DS7
2700	25 mW	0.6	Grid No. 1 Resistor 2.2 M Ω . Total Harmonic Distortion 10%.	32	G ₁	K	G ₂	H	H	A	D ₂	IC	D ₁	—	—	12DU7
—	—	1.6	Grid No. 1 Resistor 2.2 M Ω . Plate Current = 10 μA . at -2 volts grid bias.	32	K ^d IS	D ₂	D ₁	H	H	A ^p	G ^p	K ^p	H _t	—	—	12DV7
1250	5 mW	Grid No. 2 to Plate 12	Grid No. 1 (space charge grid) 12.6. Grid No. 1 (space charge grid) Current 53 mA. Grid No. 2 (control grid) Resistor 4.7 M Ω . Cathode Resistor 18 Ω .	32	D ₂	K ^{tet}	G ₁	H	H	A	G ₂	K ^d IS	D ₁	—	—	12DV8
—	—	1.7	Section 1 is similar to type 12AX7, and Section 2 is similar to type 12AU7.	32	A ¹¹	G ₁ ¹¹	K	H	H	A ¹	G ₁ ¹	K ¹	H _t	—	—	12DW7
—	—	1.5														

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
12DW8	DIODE TWIN TRIODE WITH DIS-SIMILAR UNITS (for direct use with 12v. car battery)	Class "A" Amplifier Triode 1	H	12-6	0-45	Supply 12-6	1-0	See Note	—	—	2700	9-5	—
		Triode 2				Supply 12-6	7-5	See Note	—	—	6500	6-4	—
12DY8	TRIODE TETRODE (for direct use with 12v. car battery)	Triode Class "A" Amplifier	H	12-6	0-35	12-6	1-2	0	—	—	2000	20	0-010
		Tetrode Class "A" Amplifier				12-6	14-0	See Note	12-6	2-0	6000	—	5000 ohms
12DZ6	REMOTE CUT-OFF R.F. PENTODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-19	12-6	4-5	See Note	12-6	2-2	3800	—	0-025
12EA6	SHARP CUT-OFF PENTODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-19	12-6	3-2	See Note	12-6	1-4	3800	—	0-032
12EG8	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE (for direct use with 12v. car battery)	Pentode Class "A" Amplifier	H	12-6	0-225	12-6	0-66	See Note	12-6	0-28	2000	—	0-75
		Triode Class "A" Amplifier				12-6	2-4	0 See Note	—	—	4700	25	6000 ohms.
12EG6	PENTAGRID (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-15	12-6	0-4	—0-8 (G ₁) —0-8 (G ₂)	12-6	2-4	(A-G ₃) 800	—	0-15
12EK6	SHARP CUT-OFF R.F. PENTODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-10	12-6	4-0	See Note	12-6	1-7	4200	—	0-05
12EL6	DUO DIODE HIGH μ TRIODE (for direct use with 12v. car battery)	A.F. Amplifier	H	12-6	0-15	12-6	0-75	0	—	—	1200	55	0-045
12EM6	DIODE POWER TETRODE (for direct use with 12v. car battery)	A.F. Amplifier	H	12-6	0-5	12-6	Zero Signal 6-0 Signal Applied 2-5	See Note	12-6	1-0	5000	—	4000 ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1-8	Grid Resistor 1.5 M Ω . Plate Voltage Dropping Resistor 100 Ω .	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	D	—	—	12DW8
—	—	3-2	Grid Resistor 1.0 M Ω . Plate Voltage Dropping Resistor 100 Ω .	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	D	—	—	12DW8
—	—	1-5	Plate Current = 10 μA . at -2 volts grid bias.	32	G ₁ ^{tet}	K ^{tet}	G ₂	H	H	A ^{tet}	K ^t IS	A ^t	G ^t	—	—	12DY8
—	—	0-74	Grid No. 1 Resistor 2.2 M Ω . Plate Current = 20 μA . at -9 volts grid bias.	32	G ₁ ^{tet}	K ^{tet}	G ₂	H	H	A ^{tet}	K ^t IS	A ^t	G ^t	—	—	12DY8
—	—	0-05 max.	Grid No. 1 Resistor 10 M Ω . Grid No. 3 Resistor (bypassed) 10 M Ω .	21	G ₁	G ₃	H	H	A	G ₂	K	—	—	—	—	12DZ6
—	—	0-04 max.	Grid No. 1 Resistor (bypassed) 10 M Ω . Plate Current = 10 μA . at -3.4 volts grid bias.	21	G ₁	G ₃ IS	H	H	A	G ₂	K	—	—	—	—	12EA6
—	—	0-02 max.	Grid No. 1 Resistor 33000 Ω . Plate Current = 10 μA . at -1.6 volts grid bias.	32	G ^t	A ^t	K ^t	H	H	A ^p	G ₂	K ^p G ₃ IS	G ₁ ^p	—	—	12EC8
—	—	1-7	Grid Resistor 4700 Ω . Plate Current = 10 μA . at -2.2 volts grid bias.	32	G ^t	A ^t	K ^t	H	H	A ^p	G ₂	K ^p G ₃ IS	G ₁ ^p	—	—	12EC8
—	—	Grid No. 3 to Plate 0-25 max.		21	G ₁	K	H	H	A	G ₂ G ₄	G ₃	—	—	—	—	12EG6
—	—	0-036 max.	Grid No. 1 Resistor 2.2 M Ω . Plate Current 10 μA . at -3.8 volts grid bias.	21	G ₁	G ₃	H	H	A	G ₂	K	—	—	—	—	12EK6
—	—	1-8	As R.C. Amplifier : Plate Supply Voltage 12.6. Grid Resistor 1 M Ω . Plate Load Resistor 1 M Ω . Following Grid Resistor 2 M Ω . Voltage Gain 16.	21	G	A	H	H	D ₂	D ₁	K	—	—	—	—	12EL6
3500	10 mW	—	Grid No. 1 Resistor 2.2 M Ω .	32	G ₁	K	G ₂	H	H	A	IC	IC	D	—	—	12EM6

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
12EN6	POWER PENTODE	Class "A" Amplifier	H	12-6	0-6	200	50	-9-5	110	2-2	8000	—	0-028
12F5GT	HIGH μ TRIODE	A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
12F8	DUO DIODE PENTODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-15	12-6	1-0	0	12-6	0-38	1000	—	0-33
12FK6	DUO DIODE MEDIUM μ TRIODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-15	12-6	1-3	See Note	—	—	1200	7-4	6200
12FM6	DUO DIODE TRIODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12-6	0-15	12-6	1-0	See Note	—	—	1300	10	7700 ohms
12FR8	DIODE TRIODE SHARP CUT-OFF PENTODE (for direct use with 12v. car battery)	Pentode Class "A" Amplifier	H	12-6	0-32	12-6	1-9	-0-7 See Note	12-6	0-7	2700	—	0-4
		Triode Class "A" Amplifier				12-6	1-0	-0-6 See Note	—	—	1200	10	—
12FX8	TRIODE HEPTODE (for direct use with 12v. car battery)	Frequency Converter Heptode	H	12-6	0-3	12-6	0-29	G ₁ -1-6 G ₂ -0-5	12-6	1-25	300 Conv.	—	0-5
		Triode Section				12-6	1-3	-0-8 See Note	—	—	1400	10	—
12G4	MEDIUM μ TRIODE	Class "A" Amplifier	H	12-6	0-15	250	9-0	-8	—	—	2600	20	7700 ohms
12H6	TWIN DIODE	Detector Rectifier	H	12-6	0-15	★	★	—	—	—	—	—	—
12J5GT	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.65	Plate Current Cutoff at -35 volts grid bias.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	12EN6
—	—	2.8	★ For data and notes refer type 6F5GT.	30	NC	H	NC	A	NC	—	H	K	—	G ₁	—	12F5GT
—	—	0.06	Mutual Conductance = 10 μmhos at -5 volts (G ₁) bias.	32	D ₂	G ₂	A	H	H	D ₁	K	G ₁	G ₃	—	—	12F8
—	—	1.6	Grid Resistor (bypassed) 2.2 M Ω . Plate Current = 0.08 mA. at -3 volts grid bias.	21	G	K	H	H	D ₂	D ₁	A	—	—	—	—	12FK6
—	—	1.7	Grid Resistor 2.2 M Ω .	21	G	K	H	H	D ₂	D ₁	A	—	—	—	—	12FM6
—	—	0.015 max.	Developed across 2.2 M Ω Grid Resistor.	32	G ^t	K ^t	G ₁ ^p	H	H K ^p G ₃ IS	G ₂	A ^p	D	A ^t	—	—	12FR8
—	—	1.7	Grid Resistor 2.2 M Ω . Plate Current = 10 μA . at -3.5 volts grid bias.													
—	—	Grid No. 3 to Plate 0.28 max.	Developed across 2.2 M Ω Grid No. 3 Resistor.	32	G ₃ G ₄	G ₁ ^h	A ^b	H	K ^t H	G ^t	K ^b G ₄ IS	A ^t	G ₃	—	—	12FX8
—	—	1.3	Developed across 2.2 M Ω . Plate Current = 10 μA . at -3.2 volts grid bias.													
—	—	3.4	Plate Current = 10 μA . at -18 volts grid bias.	21	A	IC	H	H	A	G ₁	K	—	—	—	—	12G4
—	—	—	★ For data and notes refer type 6H6.	30	S	H	A ¹¹	K ¹¹	A ¹	—	H	K ¹	—	—	—	12H6
—	—	—	★ For data and notes refer type 6J5GT.	30	NC	H	A	—	G ₁	—	H	K	—	—	—	12J5GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
12J7G 12J7GT 12J7GT/G	SHARP CUT-OFF PENTODE	A.F. and R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	—	★	
12J8	DUO DIODE POWER TETRODE (for direct use with 12v. car battery)	Audio Driver	H	12.6	0.325	12.6	Zero Signal 12	See Note	12.6	1.5	5500	—	6000 ohms
12K5	POWER TETRODE (for direct use with 12v. car battery)	Class "A" Amplifier	H	12.6	0.45	12.6	8.0	G ₂ -2.0	G ₁ 12.6	G ₁ 85	7000	—	800 ohms
12K7G 12K7GT 12K7GT/G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	—	★	
12K8 12K8G 12K8GT	TRIODE HEXODE	Frequency Converter	H	12.6	0.15	★	★	★	★	★	—	★	
12L6-GT	BEAM POWER TETRODE	Power Amplifier	H	12.6	0.6	200	46.0	See Note	125	2.2	8000	—	0.028
12L8GT	TWIN POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	12.6	0.15	180	Zero Signal 13.0 Max. Signal 13.5	-9	180	Zero Signal 2.8 Max. Signal 4.6	2150	—	0.16
12Q7G 12Q7GT 12Q7GT/G	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
1287	DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	12.6	0.1	200	5.0	-2.0	85 See Note	1.5	2000	—	1.0
1288GT	TRIPLE DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0-007 0-005 0-005	★ For data and notes refer type 6J7G, 6J7GT and 6J7GT/G, respectively.	30	S	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	12J7G 12J7GT 12J7GT/G
2700	20 mW	0-7	Grid No. 1 Resistor 2-2 M Ω .	32	G ₁ ^{tet}	K ^{tet}	G ₂	H	H	A ^{tet}	K ^d	D ^u	D ^t	—	—	12J8
800	0-035	—	Type 12K5 contains a space charge grid G ₁ , the control grid being G ₂ . Source impedance 0-1 m Ω . Total Harmonic Distortion 10%.	21	K	G ₂	H	H	G ₁	G ₁	A	—	—	—	—	12K5
—	—	0-007 0-005 0-005	★ For data and notes refer type 6K7GT.	30	S	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	12K7G 12K7GT 12K7GT/G
—	—	0-03 0-08 0-08	★ For data and notes refer types 6K8 and 6K8GT respectively.	30	S NC S	H	A ^h	G ₂ ^h G ₄ ^h	G ₁ ^h G ₁ ^t	A ^t	H	K	—	G ₃ ^h	—	12K8 12K8G 12K8GT
4000	3-8	0-3	Controlled Heater warm-up time = 11 secs. Cathode Resistor 180 Ω . Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	12L6-GT
10,000	1-0	0-7	Values for each unit. Total Harmonic Distortion 10%.	30	G ₁ ^t	K G ₃	G ₁ ^u	A ^u	G ₂ ^t G ₂ ^u	H	H	A ^t	—	—	—	12L8GT
—	—	1-5 1-6 1-6	★ For data and notes refer types 6Q7G and 6Q7GT.	30	S	H	A	D ₂	D ₁	—	H	K	—	G ₁	—	12Q7G 12Q7GT 12Q7GT/G
—	—	0-002	Series Screen Resistor 76000 Ω (200 V. supply). Mutual Conductance = 20 μmhos at -34 volts grid bias. As R.C. Amplifier (170 V. supply). Following grid leak 0-7 m Ω . Plate Resistor 0-22 m Ω . Screen Resistor 0-82 m Ω . Cathode Resistor 2700 Ω . Gain 80.	28	H	A	D	G ₃	G ₂	G ₁	K IS	H	—	—	—	12S7
—	—	1-2	★ For data and notes refer type 6S8GT.	30	D ₃	K ₁	D ₁	D ₂	K ₂	A	H	H	—	G ₁	—	12S8GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
128A7 128A7GT 128A7GT/G	PENTAGRID	Frequency Converter	H	12-6	0-15	★	★	★	★	★	★	—	★
128G7	TWIN TRIODE	A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
128F5 128F5GT	HIGH μ TRIODE	A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
128F7	DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	12-6	0-15	★	★	★	★	★	★	—	★
128G7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12-6	0-15	★	★	★	★	★	★	—	★
128H7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12-6	0-15	★	★	★	★	★	★	—	★
128J7 128J7GT	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier (Pentode connected) A.F. Amplifier (Triode connected)	H	12-6	0-15	★	★	★	★	★	★	★	★
128K7 128K7GT 128K7GT/G	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12-6	0-15	★	★	★	★	★	★	—	★
128L7GT	HIGH μ TWIN TRIODE	A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
128N7GT	TWIN TRIODE	A.F. Amplifier	H	12-6	0-3	★	★	★	—	—	★	★	★
128Q7 128Q7GT	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
128R7	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	12-6	0-15	★	★	★	—	—	★	★	★
12U7	MEDIUM μ TWIN TRIODE (for direct use with 12v. car battery)	Class "A" Amplifier (Each Unit)	H	12-6	0-15	12-6	1-0	0	—	—	1600	20	0-0125

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	9.5	★ For data and notes refer types 6SA7 and 6SA7GT respectively.	30	S	H	A	G ₂	G ₁	K	H	G ₃	—	—	—	12SA7 12SA7GT 12SA7GT/G
		11.0			G ₃		G ₃		K							
		11.0			NC	H	A	G ₂	G ₁	K	H	G ₃	—	—	—	
—	—	2.0	★ For data and notes refer type 6SC7.	30	S	A ¹¹	G ₁ ¹¹	G ₁ ¹	A ¹	K	H	H	—	—	—	12SC7
—	—	2.4	★ For data and notes refer types 6SF5 and 6SF5GT respectively.	30	S	K	G ₁	—	A	—	H	H	—	—	—	12SF5
					NC	K	G ₁	—	A	—	H	H	—	—	—	12SF5GT
—	—	0.004	★ For data and notes refer type 6SF7.	30	S	G ₁	K	G ₂	D	A	H	H	—	—	—	12SF7
—	—	0.003	★ For data and notes refer type 6SG7.	30	S	H	K	G ₁	K	G ₂	H	A	—	—	—	12SG7
—	—	0.003	★ For data and notes refer type 6SH7.	30	S	H	K	G ₁	K	G ₂	H	A	—	—	—	12SH7
—	—	0.005	★ For data and notes refer types 6SJ7 and 6SJ7GT respectively.	30	S	H	G ₂	G ₁	K	G ₂	H	A	—	—	—	12SJ7 12SJ7GT
—	—	0.003 0.005 0.005	★ For data and notes refer types 6SK7 and 6SK7GT respectively.	30	S	H	G ₂	G ₁	K	G ₂	H	A	—	—	—	12SK7 12SK7GT 12SK7GT/G
—	—	2.8	★ For data and notes refer type 6SL7GT.	30	G ₁ ¹¹	A ¹¹	K ¹¹	G ₁ ¹	A ¹	K ¹	H	H	—	—	—	12SL7GT
—	—	3.8 _{t1} 4.0 _{t2}	★ For data and notes refer type 6SN7GT.	30	G ₁ ¹¹	A ¹¹	K ¹¹	G ₁ ¹	A ¹	K ¹	H	H	—	—	—	12SN7GT
—	—	1.6	★ For data and notes refer types 6SQ7 and 6SQ7GT respectively.	30	S	G ₁	K	D ₂	D ₁	A	H	H	—	—	—	12SQ7
		1.8														12SQ7GT
—	—	2.4	★ For data and notes refer type 6BF6.	30	S	G ₁	K	D ₂	D ₁	A	H	H	—	—	—	12BF6
—	—	1.5	Plate Current = 10 μA . at —1.5 volts grid bias.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	H _t	—	—	12U7

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
12V6-GT	BEAM POWER OUTPUT TETRODE	Audio Power Output Amplifier	H	12.6	0.225	★	★	★	★	★	★	—	★
12W6-GT	BEAM POWER TETRODE	Vertical Deflection Amplifier	H	12.6	0.6	★	★	★	★	★	★	—	★
12X4	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	12.6	0.3	★	★	—	—	—	—	—	—
12Z3	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	12.6	0.3	Max. R.M.S. 235	Max. D.C. Output 55	—	—	—	—	—	—
14A4	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
14A5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	12.6	0.15	250	Zero Signal 30 Max. Signal 32	—12.5	250	Zero Signal 3.5 Max. Signal 5.5	3000	—	0.07
14A7 14A7/ 12B7	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	★	—	★
14AF7	TWIN TRIODE	A.F. Amplifier	H	12.6	0.15	250	9.0	See Note	—	—	2100	16	7600 Ohms
14B6	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
14B8	PENTAGRID	Frequency Converter	H	12.6	0.15	★	★	★	★	★	★	—	★
14C5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier — (Class "AB ₁ ") Power Amplifier	H	12.6	0.225	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	0.7	★ For data and notes refer type 6V6-GT.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	12V6-GT
—	—	0.5	Controlled Heater warm-up time = 11 secs. Peak Heater/Cathode Voltage, with Heater Negative with respect to cathode 300 max. ★ For other data and notes refer type 6W6-GT.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	12W6-GT
—	—	—	★ For data and notes refer type 6X4.	21	A ^{II}	NC	H	H	NC	A ^I	K	—	—	—	—	12X4
—	—	—	With less than 40 μF Condenser Input to Filter, minimum plate supply impedance = 75 ohms. Greater Supply Impedances are required for larger Input capacitances.	8	H	A	K	H	—	—	—	—	—	—	—	12Z3
—	—	4.0	★ For data and notes refer type 6J5GT. For replacement, consider also type 7A4.	29	H	A	NC	NC	IC	G ₁	K	H	—	—	S	14A4
7500	2.8	0.4	Total Harmonic Distortion = 7%. For Automatic Bias Cathode Resistor 370 Ω .	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	S	14A5
—	—	0.005	★ For data and notes refer type 6SK7GT. For replacement, consider also type 12SK7GT.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	14A7 14A7/ 12B7
—	—	2.3	Values for each unit. Cathode Bias Resistor 1100 Ω .	29	H	K ^{II}	A ^{II}	G ₁ ^{II}	G ₁ ^I	A ^I	K ^I	H	—	—	S	14AF7
—	—	1.6	★ For data and notes refer type 6SQ7GT. For replacement, consider also 7B6 and 12SQ7GT.	29	H	A	G ₁	IC	D ₂	D ₁	K ^I IS	H	—	—	S	14B6
—	—	0.2	★ For data and notes refer type 6A8GT. For replacement, consider also types 7B8 and 12A8GT.	29	H	A	G ₂	G ₁	G ₃ G ₅	G ₄	K	H	—	—	S	14B8
★	★	0.4	★ For data and notes refer type 6V6GT. For replacement, consider also type 7C5.	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	S	14C5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μmhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
14C7	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	250	2.2	-3	100	0.7	1575	—	>1.0
14E6	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
14E7	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	★	—	★
14F7	TWIN TRIODE	A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
14F8	TWIN TRIODE	A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
14H7	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	★	—	★
14J7	TRIODE HEPTODE	Frequency Converter	H	12.6	0.15	★	★	★	★	★	★	—	★
14K7	TRIODE HEXODE	Frequency Converter	H	14.0	0.1	200	3.0	(G ₁ ^h) -2.0	(G ₂₊₄ ^h) 85 See Note	3.0	Conv. 750	—	>1.0
14L7	DUO DIODE TRIODE	Detector A.F. Amplifier	H	14.0	0.1	170	1.5	-1.55	—	—	1650	70	0.042
14N7	TWIN TRIODE	A.F. Amplifier	H	12.6	0.15	★	★	★	—	—	★	★	★
14Q7	PENTAGRID	Frequency Converter	H	12.6	0.15	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0.007	Cathode Current Cut-off at - 7 volts Grid Bias.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	14C7	
★	★	1.5	★ For data and notes refer type 6BF6. For replacement, consider also types 7E6 and 12SR7.	29	H	A	G ₁	IC	D ₂	D ₁	K	H	—	—	S	14E6	
—	—	0.005	★ For data and notes refer type 7E7.	29	H	A	D ₂	D ₁	G ₂	G ₁	K G ₃	H	—	—	S	14E7	
—	—	1.6	★ For data and notes refer type 6SL7GT. For replacement, consider also types 7F7 and 12SL7GT.	29	H	K ^{II}	A ^{II}	G ₁ ^{II}	G ₁ ^I	A ^I	K ^I	H	—	—	S	14F7	
—	—	1.2	★ For data and notes refer type 7F8.	29	G ₁ ^{II}	H	A ^{II}	K ^{II}	K ^I	A ^I	H	G ₁ ^I	—	—	S	14F8	
—	—	0.007	★ For data and notes refer type 7H7.	29	H	A	G ₂	G ₃	IS	G ₁	K	H	—	—	S	14H7	
—	—	0.03	★ For data and notes refer type 7J7.	29	H	A ^h	A ^t	G ₁ ^t G ₃ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K G ₃ ^h IS	H	—	—	S	14J7	
—	—	1.3	Screen connected to junction of two resistors R ₁ and R ₂ in series, R ₁ of 18000 Ω is connected to B+ and R ₂ of 27000 Ω is connected to B- Conversion conductance = 7.5 μmhos at -27.5 volts grid (G ₁ ^h) bias. Oscillator plate current 5.2 mA. through 22000 Ω (200 V. supply). Osc. Grid Resistor 47000 Ω . Osc. grid current 0.2 mA.	28	H	A ^h	A ^t	G ₁ ^t G ₃ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K IS	H	—	—	—	S	14K7
—	—	1.3	As R.C. Amplifier (170 V. supply). Following grid leak 0.68m Ω Plate Resistor 0.22 m Ω . Cathode Resistor 5600 Ω . Gain 44.	28	H	A	G ₂	IS	D ₂	D ₁	K	H	—	—	—	S	14L7
—	—	3.0	★ For data and notes refer type 6SN7GT. For replacement consider also types 7N7 and 12SN7GT.	29	H	K ^{II}	A ^{II}	G ₁ ^{II}	G ₁ ^I	A ^I	K ^I	H	—	—	S	14N7	
—	—	0.2	★ For data and notes refer type 7Q7.	29	H	A	G ₂ G ₄	G ₁	G ₅	G ₃	K	H	—	—	S	14Q7	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
14R7	DUO-DIODE MEDIUM CUT-OFF PENTODE	Detector A.F. and R.F. Amplifier	H	12.6	0.15	★	★	★	★	★	★	—	★
14S7	TRIODE HEPTODE	Frequency Converter	H	12.6	0.15	★	★	★	★	★	★	★	★
15	R.F. PENTODE	R.F. Amplifier	H	2.0	0.22	135	1.85	-1.5	67.5	0.3	750	—	0.8
15A6	VIDEO OUTPUT PENTODE	Video Amplifier	H	15.0	0.3	200	36	-3.5	200	5.0	10,500	—	0.1
						170	36	-2.3	170	5.0	10,500	—	0.1
15CW5	POWER PENTODE	Class "A" Amplifier	H	15.0	0.3	★	★	★	★	★	★	—	★
15DQ8	HIGH μ TRIODE POWER PENTODE	Video Amplifier	H	15.0	0.3	★	★	★	★	★	★	★	★
16A5	POWER PENTODE	Class "A" Amplifier	H	16.5	0.3	200	45	-13.9	See Note	8.5	7600	—	0.024
		Vertical Deflection Amplifier				D.C. Plate Voltage 450 max. Peak Positive Pulse Plate Voltage 2500 max. Peak Negative Pulse Plate Voltage 500 max. Plate Dissipation 4.5 watts max.							
16A8	HIGH μ TRIODE POWER PENTODE	Triode A.F. Amplifier Pentode Power Amplifier	H	16	0.3	★	★	★	★	★	★	—	★
17AX4-GT	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	16.8	0.45	★	★	—	—	—	—	—	—
17BQ6-GTB	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	16.8	0.45	★	★	★	★	★	★	—	★
17C8	DUO DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	17	0.1	200	5.0	-2.0	See Note	1.75	2200	—	1.0
17DQ6-A	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	16.8	0.45	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.004	★ For data and notes refer type 7R7.	29	H	A	D ₂	D ₁	G ₂	G ₁	K G ₃	H	—	—	S	14R7
—	—	0.03	★ For data and notes refer type 7S7.	29	H	A ^h	A ^t	G ₁ ^t G ₃ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K G ₃ ^h IS	H	—	—	S	14S7
—	—	0.01		15	H	A	G ₂	K G ₃	H	—	—	—	—	G ₁	—	15
—	—	0.1		32	G ₂	G ₁	K	H	H	G ₃	A	IS	NC	—	—	15A6
★	★	0.6	★ For data and notes refer type 6CW5.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	15CW5
★	★	T < 0.1 P 2.7	★ For data and notes refer type 6DX8.	32	G ^t	A ^t	K ^t	H	H	A ^p	K ^p G ₃ IS	G ₁ ^p	G ₂ ^p	—	—	15DQ8
4000	4.2	1.0	Series Screen Resistor 680Ω.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	16A5
D.C. Screen Grid Voltage 250 max. Peak Heater Cathode Voltage .. 200 max. Average Cathode Current 75 max.																
★	★	0.3	★ For data and notes refer type 6BMS.	32	G ₁ ^t	K ^p G ₃ IS	G ₁ ^p	H	H	A ^p	G ₂ ^h	K ^t	A ^t	—	—	16A8
—	—	—	Controlled Heater warm-up time = 11 secs. * Do not use. ★ For data and notes refer type 6AX4-GT.	30	NC	NC	K	—	A	—	H	H	—	—	—	17AX4-GT
—	—	0.55	Controlled Heater warm-up time = 11 secs. ★ For data and notes refer type 6BQ6-GTB.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	17BQ6-GTB
—	—	0.0025	Series Screen Resistor 68000 Ω (200 V. supply). Mutual Conductance = 22 μmhos at -31.5 volts grid bias.	32	G ₂	G ₁	K IS	H	H	A	D ₁	D ₂	G ₃	—	—	17C8
—	—	0.55	Controlled Heater warm-up time = 11 secs. ★ For data and notes refer type 6DQ6-A.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	17DQ6-A

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
17Z3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	17-0	0-3	★	★	—	—	—	—	—	
19	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	F	2-0	0-26	★	★	★	—	—	—	—	
19AU4	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	18-9	0-6	Peak Inverse 4500 (absolute max.)	Peak 1050 (max.) Average 175 (max.)	—	—	—	—	—	
19BG6-GA	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	18-9	0-3	★	★	★	★	★	—	★	
19D8	TRIODE HEPTODE	Frequency Converter	H	19	0-1	200	3-7	-2-6 See Note	119 See Note	8-1	Conv. 775	—	1-0
19J6	TWIN TRIODE	R.F. Amplifier	H	18-9	0-15	100	8-5	See Note	—	—	5300	38	7100 Ohms
19T8	TRIPLE DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	18-9	0-15	★	★	★	—	—	★	★	★
19X3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	19-0	0-3	Peak Inverse 4000 Max. ★	Average 180 Max. Peak 400 Max.	—	—	—	—	—	
19X8	MEDIUM μ TRIODE SHARP CUTOFF R.F. PENTODE	Frequency Converter	H	18-9	0-15	★	★	★	★	★	★	—	★
19Y3	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	19-0	0-3	Max. R.M.S. 250	D.C. Output 180 Max.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ Refer type 6R3	32	IC	IC	IC	H	H	IC	IC	IC	A	K	—	17Z3
★	★	—	★ For data and notes refer type 1J6G.	17	F+	A ^{II}	G ₁ ^{II}	G ₁ ^I	A ^I	F-	—	—	—	—	—	19
—	—	—	Max. Plate Dissipation 6 watts. Peak Heater Cathode Voltage with heater negative with respect to cathode 4500 absolute maximum. With heater positive with respect to cathode 300. (The D.C. component must not exceed 100 volts). Controlled Heater warm-up time = 11 seconds. * Do not use.	30	* NC	* NC	K	—	A	—	H	H	—	—	—	19AU4
—	—	0.8	★ For data and notes refer type 6BG6-G.	30	NC	H	K G ₂	NC	G ₁	NC	H	G ₂	—	A	—	19BG6-GA
—	—	0.006	Conversion Conductance 7.75 μmhos at -28 volts grid (G ₁ ^h) bias. Cathode Resistor 150 Ω . Oscillator Plate Current 5.4 mA. through 15000 Ω (200 V. supply). Osc. Grid Resistor 47000 Ω . Osc. Grid Current 0.23 mA. Series Screen Resistor 10000 Ω . (200 V. supply).	32	G ₂ ^h G ₄ ^h	G ₁ ^h	IS K G ₂ ^h	H	H	A ^b	G ₃ ^h	A ^t	G ₁ ^t	—	—	19D8
—	—	1.5	Values for each unit. Cathode Resistor 50 Ω .	21	A ^{II}	A ^I	H	H	G ₁ ^I	G ₁ ^{II}	K	—	—	—	—	19J6
—	—	2.2	★ For data and notes refer type 6T8.	32	D ₃	D ₂	K ₁	H	H	D ₁	K ₂	G ₁	A	—	—	19T8
—	—	—	★ Max. pulse duration 18% of one cycle with maximum of 18 μsecs .	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	19X3
—	—	Triode 1.4 Pentode 0.09	★ For data and notes refer type 6X8.	32	G ₃	G ₁ ^t	A ^t	II	H	K	G ₁ ^p	G ₂	A ^p	—	—	19X8
—	—	—	Condenser input to filter 60 μF maximum. Plate supply impedance = 125 Ω minimum.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	19Y3

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms	
			TYP E	Voltage Volts									Current Amps
20	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	3.3	0.132	135	6.5	-22.5	—	—	525	3.3	6300 Ohms
20AV	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	150	0.01	—	—	—	—	—	—
20CG	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90	0.005	—	—	—	—	—	—
20CV	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100	0.01	—	—	—	—	—	—
21A6	POWER PENTODE	Horizontal Deflection Amplifier	H	21.5	0.3	★	★	★	★	★	★	—	★
22	R.F. TETRODE	R.F. Amplifier	F	3.3	0.132	135	3.7	-1.5	67.5	1.3	500	—	0.325
24A	R.F. TETRODE	R.F. Amplifier	H	2.5	1.75	250	4.0	-3	90	1.7	1050	—	0.6
25A6 25A6G 25A6GT 25A6GT/G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	25.0	0.3	160	Zero Signal 33.0 Max. Signal 36.0	-18	120	Zero Signal 6.5 Max. Signal 12.0	2375	—	0.042
25A7G 25A7GT 25A7GT/G	RECTIFIER POWER OUTPUT PENTODE	Half-wave Rectifier Class "A" Power Amplifier	H	25.0	0.3	R.M.S. 117 100	D.C. Output 75 Max. Zero Signal 20.5	— -15	— 100	— Zero Signal 4.0	— 1800	— —	— 0.05
25AC5G 25AC5GT 25AC5GT/G	HIGH μ POWER OUTPUT TRIODE	Class "B" Power Amplifier (two valves)	H	25.0	0.3	180	Zero Signal 4.0	0	—	—	—	—	—
25AV5-GT	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	25	0.3	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
6500	0.11	4.1		8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	20
—	—	—	For daylight and bluish light Sensitivity = 45 $\mu\text{A/Lumen}$ at 2700° K. Dark current 0.05 μA at 150 v. Caesium-Antimony Cathode.	30	NC	A	NC	K	NC	A	NC	NC	—	—	—	—	20AV
—	—	—	For incandescent light and near infra-red Sensitivity = 150 $\mu\text{A/Lumen}$ at 2700° K. Dark current at 90 v. = 0.1 μA . Gas amplification factor = 10 max. Caesium on Oxidised Silver Cathode.	30	NC	K	NC	NC	NC	K	NC	A	—	—	—	—	20CG
—	—	—	For incandescent light and near infra-red, Sensitivity = 25 $\mu\text{A/Lumen}$ at 2700° K. Dark current at 250 v. = 0.05 μA . Caesium on Oxidised Silver Cathode.	30	NC	K	NC	NC	NC	K	NC	A	—	—	—	—	20CV
—	—	0.8	★ Refer type 6CJ6.	32	IC	G ₁	K	H	H	IC	IC	G ₂	G ₃	A	—	—	21A6
—	—	0.02		8	F+	A	G ₂	F-	—	—	—	—	—	G ₁	—	—	22
—	—	0.007		15	H	A	G ₂	K	H	—	—	—	—	G ₁	—	—	24A
5000	2.2	0.2	Total Harmonic Distortion 10%.	30	S	H	A	G ₂	G ₁	—	H	K	—	—	—	—	25A6
					NC	H	A	G ₂	G ₁	—	H	K	—	—	—	—	25A6G 25A6GT 25A6GT/G
—	—	—	Condenser input to filter 16 μF . Plate supply impedance 15 Ω minimum.	30	K ^r	H	A ^D	G ₂ ^D	G ₁ ^D	A ^r	H	K ^P	—	—	—	—	25A7G 25A7GT 25A7GT/G
4500	0.77	—	Total Harmonic Distortion 9%.									G ₃ ^D	—	—	—	—	
4800 Plate to Plate	6.0	—	Values are for two tubes. Peak Input Power = 810 mV. Peak A.F. Grid to Grid volts = 60.	30	NC	H	A	—	G ₁	—	H	K	—	—	—	—	25AC5G 25AC5GT 25AC5GT/G
—	—	0.7	★ For data and notes refer type 6AV5-GT.	30	G ₁	H	K G ₃	—	A	—	H	G ₂	—	—	—	—	25AV5- GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
25B8G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	25-0	0-3	200	Zero Signal 62-0 Max. Signal 71-0	-23	135	Zero Signal 1-8 Max. Signal 13-0	5000	—	0-018
25BQ6-GT	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	25	0-3	★	★	★	★	★	★	—	★
25BQ6-GTB	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	25	0-3	★	★	★	★	★	★	—	★
25CD6-GA	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	25	0-6	★	★	★	★	★	★	—	★
25DN6	BEAM POWER TETRODE	Horizontal Deflection Amplifier	H	25	0-6	★	★	★	★	★	★	—	★
25E5	POWER PENTODE	Horizontal Deflection Amplifier	H	25	0-3	★	★	★	★	★	★	—	★
25L6	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	25-0	0-3	200	Zero Signal 50-0 Max. Signal 55-0	-8	110	Zero Signal 2-0 Max. Signal 7-0	9500	—	0-03
25L6G 25L6GT 25L6GT/G	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	25-0	0-3	200	Zero Signal 46-0 Max. Signal 47-0	See Note	125	Zero Signal 2-2 Max. Signal 8-5	8000	—	0-028
25W4-GT	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	25	0-3	★	★	—	—	—	—	—	—
25Y5	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	25-0	0-3	Max. R.M.S. 235	D.C. Output 75-0 Max. per Plate	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		R.S
2500	7.1	—	Total Harmonic Distortion 15%. Second Harmonic Distortion 8.5%. Third Harmonic Distortion 11%.	30	NC	H	A	G ₂	G ₁	—	H	K	—	—	—	25B6G
—	—	0.6	★ For data and notes refer type 6BQ6-GT.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	25BQ6-GT
—	—	0.6	★ For data and notes refer type 6BQ6-GTB.	30	NC	H	NC	G ₂	G ₁	—	H	K G ₃	—	A	—	25BQ6-GTB
—	—	0.8	Controlled Heater warm-up time = 11 seconds. Peak Heater Cathode Voltage 200 max. (The D.C. component must not exceed 100 volts.) ★ For data and notes refer type 6CD6-G.	30	NC	H	K G ₃	—	G ₁	—	H	G ₂	—	A	—	25CD6-GA
—	—	0.8	Controlled Heater warm-up time = 11 seconds. ★ For data and notes refer type 6DN6.	30	NC	H	K G ₃	—	G ₁	—	H	G ₂	—	A	—	25DN6
★	★	1.1	Peak Heater Cathode Voltage with cathode positive 250 max with cathode negative 200 max ★ For other data and notes refer type 6CM5.	30	IC	H	IC	G ₂	G ₁	—	H	K G ₃	—	A	—	25E5
3000	4.3	0.3	Total Harmonic Distortion 10%.	30	S	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	25L6
4000	3.8	—	Cathode Bias Resistor 180 Ω .	30	S	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	25L6G
		0.8	Total Harmonic Distortion 10%.		NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	25L6GT 25L6GT/G
—	—	—	★ For data and notes refer type 6W4-GT.	30	NC	NC	K	—	A	—	H	H	—	—	—	25W4-GT
—	—	—	In half-wave service the two units may be used separately or in parallel. With less than 40 μF condenser input to filter plate supply impedance per plate = 0 Ω . Greater supply impedances required for larger input capacities.	17	H	A ¹¹	K ¹¹	K ¹	A ¹	H	—	—	—	—	—	25Y5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
25Z4G	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	25.0	0.3	Max. R.M.S. 250	D.C. Output 100 Max.	—	—	—	—	—	—
25Z5	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	25.0	0.3	★	★	—	—	—	—	—	—
25Z6 25Z6G 25Z6GT 25Z6GT/G	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	25.0	0.3	R.M.S. 235	D.C. Output 75.0 Max. per Plate	—	—	—	—	—	—
26	TRIODE	Class "A" Amplifier	F	1.5	1.05	180	6.2	-14.5	—	—	1150	8.3	7300 Ohms
27	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	H	2.5	1.75	250	5.2	-21	—	—	975	9	9250 Ohms
30	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier Class "B" Power Amplifier	F	2.0	0.06	★	★	★	—	—	★	★	★
30A5	POWER OUTPUT PENTODE	Class "A" Amplifier	H	30	0.15	100	43	-6.7	100	3.0	9200	—	0.022
30AE3	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	30	0.3	★	★	—	—	—	—	—	—
31	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	2.0	0.13	135 180	8.0 12.3	-22.5* -30†	— —	— —	925 1050	3.8 3.8	4100 Ω 3600 Ω
31A3	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	31	0.1	Max. R.M.S. 250	D.C. Output 100 (max.)	—	—	—	—	—	—
32	R.F. TETRODE	R.F. Amplifier and Biased Detector	F	2.0	0.06	135 180	1.7 1.7	-3 -3	67.5 67.5	0.4 0.4	640 650	— —	0.95 1.2

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Condenser input to filter = 32 μF maximum. Plate supply impedance = 100 Ω minimum.	30	NC	H	A	NC	A	—	H	K	—	—	—	25Z4G
—	—	—	★ <i>For data and notes refer type 25Z6.</i>	17	H	A ¹¹	K ¹¹	K ¹	A ¹	H	—	—	—	—	—	25Z5
—	—	—	In half-wave service the two units may be used separately or in parallel. Condenser input to filter = 16 μF . Plate supply impedance per plate = 100 Ω min.	30	S	H	A ¹¹	K ¹¹	A ¹	—	H	K ¹	—	—	—	25Z6
—	—	—	Grid bias referred to centre of A.C. operated filament.	8	NC	H	A ¹¹	K ¹¹	A ¹	—	H	K ¹	—	—	—	25Z6G 25Z6GT 25Z6GT/G
—	—	8.1	As biased detector zero signal plate current adjusted to 0.2 mA. Plate volts = 250 volts. Grid Bias — 30 volts.	8	F	A	G ₁	F	—	—	—	—	—	—	—	26
—	—	3.3	★ <i>For data and notes refer type 1H4G.</i>	15	H	A	G ₁	K	H	—	—	—	—	—	—	27
★	★	6.0	Total Harmonic Distortion 10%.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	30
2400	1.9	0.3	*Do not use as tie point. ★ <i>For data and notes refer type 6AL3.</i>	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	30A5
—	—	—	* Cathode Bias Resistor 2815 Ω . † Cathode Bias Resistor 2440 Ω . Full or partial self-biasing is recommended and is essential if a grid resistor is used. Maximum grid resistor 1.0 meg.	32	IC *	IC *	IC *	H	H	IC *	IC *	IC *	A	K	—	30AE3
7000 5700	0.185 0.375	5.7	Condenser input to filter 50 μF . max. Plate supply impedance 210 Ω minimum.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	31
—	—	—	As biased detector zero signal plate current adjusted to 0.2 mA. Plate volts 180 volts. Grid Bias — 6 volts.	28	H	A	—	IC	—	IC	K	H	—	—	—	31A3
—	—	0.015	—	8	F+	A	G ₂	F-	—	—	—	—	—	G ₁	—	32

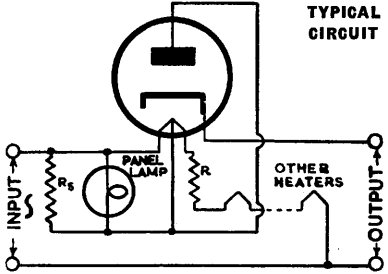
TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
32L7GT	RECTIFIER BEAM POWER OUTPUT TETRODE	Rectifier and Class "A" Power Amplifier	H	32.5	0.3	90	27	-7	90	2.0	4800	—	0.017
33	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.26	135	14.5	-13.5	135	3.0	1450	—	0.05
						180	22.0	-18	180	5.0	1700	—	0.055
34	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2.0	0.06	135	2.8	-3	67.5	1.0	600	—	0.6
						180	2.8	-3	67.5	1.0	620	—	1.0
35	REMOTE CUT-OFF R.F. TETRODE	R.F. Amplifier	H	2.5	1.75	250	6.5	-3	90	2.5	1050	—	0.4
35A5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	35.0	0.15	200	Zero Signal 41.0 Max. Signal 44.0	-8	110	Zero Signal 2.0 Max. Signal 7.0	5900	—	0.04
35B5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	35.0	0.15	110	Zero Signal 40.0 Max. Signal 41.0	-7.5	110	Zero Signal 3.0 Max. Signal 7.0	5800	—	0.013
35C5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	35.0	0.15	★	★	★	★	★	★	—	★
35L6G 35L6GT 35L6GT/G	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	35.0	0.15	200	Zero Signal 41.0 Max. Signal 44.0	-8	110	Zero Signal 2.0 Max. Signal 7.0	5900	—	0.04

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
2600	1.0	—	Total Harmonic Distortion 9%. Rectifier Unit (half-wave) Condenser Input to filter Max. R.M.S. 125 volts. D.C. Output 60.0 mA max.	30	K ^r	H	A ^t	G ₂ ^t	G ₁ ^t	A ^r	H	K ^t	—	—	—	32L7GT
7000 6000	0.7 1.4	1.0	Total Harmonic Distortion 7% in each case.	15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	33
— —	— —	0.015	Mutual Conductance 15 μmhos at - 22.5 volts grid bias.	8	F+	A	G ₂	F-	—	—	—	—	G ₁	—	—	34
—	—	0.007	Mutual Conductance 15 μmhos at - 40 volts grid bias.	15	H	A	G ₂	K	H	—	—	—	G ₁	—	—	35
4500	3.3	—	Total Harmonic Distortion 10%	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	S	35A5
2500	1.5	0.4	Total Harmonic Distortion 10%.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	35B5
★	★	0.57	★ For data and notes refer type 35B5.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	35C5
4500	3.3	— 0.8 0.8	Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	35L6G 35L6GT 35L6GT/G

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Volt-age Volts								
35W4	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier (without Panel Lamp)		35-0	0-15	R.M.S. 117	D.C. Output 100 Max.	—	—	—	—	—
		Half-wave Rectifier (with Panel Lamp of 6 to 8 V. at 0-15 A)	H	32-0	See Notes	R.M.S. 117	See Notes	—	—	—	—	—
35Y4	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier (without Panel Lamp)		35-0	0-15	R.M.S. 235	D.C. Output 100 Max.	—	—	—	—	—
		Half-wave Rectifier (with Panel Lamp of 6 to 8 V. at 0-15 A)	H	32-0	See Notes	R.M.S. 235	D.C. Output 60 Max.	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.					
					1	2	3	4	5	6	7	8	9	T.C.		B.S.				
—	—	—	Heater circuit connection pins 3 and 4. No connection to pin 6. Condenser input to filter 40 μF . Plate supply impedance = 15 Ω minimum.																	
			 <p>TYPICAL CIRCUIT</p>	21	NC	NC	H	H	A	H _t	K	—	—	—	—					35W4
—	—	—	Heater circuit connection pins 3 and 4. Panel lamp connection pins 4 and 6 (5.5 volts with lamp alight). Heater current between pins 3 and 6 = 0.15 A. For output current = 90 mA, R _s = 100 Ω . 80 mA, R _s = 150 Ω . 70 mA, R _s = 300 Ω . 60 mA, R _s = —. Condenser input to filter 40 μF . Plate supply impedance = 15 Ω minimum.																	
—	—	—	Heater circuit connection pins 1 and 8. No connection to pin 4. Condenser input to filter 40 μF . Plate supply impedance = 100 Ω minimum.																	
—	—	—	For typical circuit refer type 35W4. Heater circuit connection pins 1 and 8. Panel lamp connection pins 1 and 4 (5.5 volts with lamp alight). Heater current between pins 4 and 8 = 0.15 A. R _s not required for 60 mA Output. Condenser input to filter 40 μF . Plate supply impedance = 100 Ω minimum. For 117 V. R.M.S. input, with and without panel lamp, operational characteristics of type 35Y4 are identical to those of type 35W4.	29	H	A	NC	H _t	NC	NC	K	H	—	—	—	S				35Y4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
35Z3	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	35-0	0-15	★	★	—	—	—	—	—	—
35Z4GT	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	35-0	0-15	Max. R.M.S. 235	D.C. Output 100 Max.	—	—	—	—	—	—
35Z5G 35Z5GT 35Z5GT/G	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier (without Panel Lamp)		35-0	0-15	R.M.S. 235	D.C. Output 100 Max.	—	—	—	—	—	—
		Half-wave Rectifier (with Panel Lamp of 6 to 8 volts at 0-15 A)	H	32-0	See Notes	R.M.S. 235	D.C. Output 60 Max.	—	—	—	—	—	—
36	R.F. TETRODE	R.F. Amplifier and Biased Detector	H	6-3	0-3	250	3-2	-3	90	1-7	1080	—	0-55
37	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	H	6-3	0-3	250	7-5	-18	—	—	1100	9-2	8400 Ohms
38	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-3	250	22-0	-25	250	3-8	1200	—	0-1
38A3	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	38	0-1	R.M.S. 250 (max.)	110 (max.)	—	—	—	—	—	—
39 / 44	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	250	5-8	-3	90	1-4	1050	—	1-0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type 35Z4GT.	29	H	A	NC	NC	NC	NC	K	H	—	—	S	35Z3
—	—	—	With less than 40 μF condenser input to filter, plate supply impedance = 100 Ω min. Greater supply impedances required for larger input capacities.	30	NC	H	NC	—	A	—	H	K	—	—	—	35Z4GT
—	—	—	Heater circuit connections pins 2 and 7. No connection to pin 3. Condenser input to filter 40 μF . Plate supply impedance = 100 Ω minimum.													
—	—	—	For typical circuit refer type 35W4. Heater circuit connection pins 2 and 7. Panel lamp connection pins 2 and 3 (5.5 volts when lamp alight). Heater current between pins 3 and 7 = 0.15 A. R_s not required for 60 mA output. Condenser input to filter 40 μF . Plate supply impedance = 100 Ω minimum. For 117 V. R.M.S. input, with and without panel lamp, operational characteristics of type 35Z5G, etc., are identical to those of type 35W4.	30	NC	H	H _t	—	A	—	H	K	—	—	—	35Z5G 35Z5GT 35Z5GT/G
—	—	0.007	As biased detector zero signal plate current adjusted to 0.1 mA. Plate volts 250 V. Grid bias — 8 V.	15	H	A	G ₂	K	H	—	—	—	—	G ₁	—	36
—	—	2.0	As biased detector zero signal plate current adjusted to 0.2 mA. Plate volts 250 V. Grid bias — 28 V.	15	H	A	G ₁	K	H	—	—	—	—	—	—	37
10,000	2.5	0.3	Total Harmonic Distortion 8%.	15	H	A	G ₂	K	H	—	—	—	—	G ₁	—	38
—	—	—	Maximum filter input capacitor 100 μF . Peak Inverse Plate Voltage 700 max.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	38A3
—	—	0.007	Mutual conductance = 2 μmhos at — 42.5 volts grid bias.	15	H	A	G ₂	K	H	—	—	—	—	G ₁	—	39 / 44

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
40	TRIODE	A.F. Amplifier	F	5.0	0.25	180 Supply	0.2	-3	—	—	200	30	0.15
40A1	GAS FILLED CURRENT STABILISER	Horizontal Deflection Stabilizer	F	20 60	70 95	—	—	—	—	—	—	—	—
41	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.4	★	★	★	★	★	★	—	★
42	POWER OUTPUT PENTODE	Class "A" Power Amplifier Class "AB ₂ " Power Amplifier	H	6.3	0.7	★	★	★	★	★	★	—	★
43	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	25.0	0.3	★	★	★	★	★	★	—	★
45	POWER OUTPUT TRIODE	Class "A" Power Amplifier				275	36.0	-56	—	—	2050	3.5	1700 Ohms
		Class "AB ₂ " Power Amplifier	F	2.5	1.5	275	Zero Signal 28.0 Max. Signal 138.0	-68	—	—	—	—	—
		Class "AB ₂ " Power Amplifier				275	Zero Signal 36.0 Max. Signal 90.0	See Note	—	—	—	—	—
45A5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	45	0.1	170 110 100	53 32 29	-10.4 -6.4 -5.7	170 110 100	10.0 6.0 5.5	9500 8500 8000	— — —	0.02 0.018 0.018

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	8.0	Plate load resistor 0.25 meg.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	40
—	—	—	VOLTAGE INPUT 20 40 60 CURRENT OUTPUT 74 mA. 84 mA. 90 mA.	30	NC	R	—	NC	—	—	R	NC	—	—	—	—	40A1
★	★	—	★ For data and notes refer type 6K6G.	17	H	A	G ₂	G ₁	K	H	—	—	—	—	—	—	41
★	★	—	★ For data and notes refer type 6F6G.	17	H	A	G ₂	G ₁	K	H	—	—	—	—	—	—	42
★	★	—	★ For data and notes refer type 25A6.	17	H	A	G ₂	G ₁	K	H	—	—	—	—	—	—	43
4600	2.0	7.0	Grid bias referred to centre of A.C.-operated filament. Resistance coupling (max. grid resistance 1.0 meg.) only permissible with cathode bias. Cathode bias not essential but recommended in all other cases.	8	F	A	G ₁	F	—	—	—	—	—	—	—	—	45
3200 Plate to Plate	18.0		Fixed bias condition. Grid bias referred to centre of A.C.-operated filament. Values are for two valves. Total Harmonic Distortion 5%. Grid to grid input power 656 mW.														
5060 Plate to Plate	12.0		Cathode bias resistor 775 Ω . Values are for two valves. Total Harmonic Distortion 5%. Grid to grid input power 460 mW.														
3000 3000 3000	4.25 1.7 1.35	1.0	Total Harmonic Distortion in each case 10%.	28	H	A	IC	NC	G ₂	G ₁	K G ₃	H	—	—	—	—	45A5

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
45B5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	45	0.1	170 100	70 43	-12.5 -6.7	170 100	5.0 3.0	10000 9000	— —	0.023 0.023
		Class "AB" Power Amplifier				170	Zero Signal 2×56.5 Max. Signal 2×57.5	See Note	170	Zero Signal 2×3.0 Max. Signal 2×20.5	—	—	—
45Z3	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	45.0	0.075	Max. R.M.S. 117	D.C. Output 65 Max.	—	—	—	—	—	—
45Z5GT	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier (without Panel Lamp)	H	45.0	0.15	R.M.S. 235	D.C. Output 100 Max.	—	—	—	—	—	—
		Half-wave Rectifier (with Panel Lamp of 6 to 8 V. at 0.15 A)				42.0	See Notes	R.M.S. 235	D.C. Output 60 Max.	—	—	—	—
46	POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	2.5	1.75	250	22.0	(G ₁) -33	—	—	2350	5.6	2380 Ohms
		Class "B" Power Amplifier				400	Zero Signal 6.0	(G ₁₊₂) 0	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
2400 2400	5.6 1.9	0.6	Total harmonic distortion 10% in each case.	32	IC	G ₁	K G ₂	H	H	IC	A	IC	G ₃	—	—	45B5
plate to plate 3500	13.0		Cathode Resistor 120 Ω . Total harmonic distortion 4.5%. Max. R.M.S. Input Voltage = 13.1.													
—	—	—	Condenser input to filter. Plate supply impedance = 15 ohms minimum.	21	H	A	IC	K	NC	A	H	—	—	—	—	45Z3
—	—	—	Heater circuit connections pins 2 and 7. No connection to pin 3. With less than 40 μF condenser input to filter, minimum plate supply impedance = 100 Ω minimum. Greater supply impedances required for larger input capacities.	30	NC	H	H [†]	—	A	—	H	K	—	—	—	45Z5GT
—	—	—	For typical circuit refer type 35W4. Heater circuit connection pins 2 and 7. Panel lamp connection pins 2 and 3 (5.5 volts when lamp alight). Heater current between pins 3 and 7 = 0.15 A. R _g not required for 60 mA output. With less than 40 μF condenser input to filter, minimum plate supply impedance = 100 Ω minimum. Greater supply impedances required for larger input capacities. For 117 V. R.M.S. input, with and without panel lamp, operational characteristics of type 45Z5GT are identical to those of type 35Z5GT.													
6400	1.25	—	Grid No. 2 tied to plate at socket. Grid bias referred to centre of A.C.-operated filament.	15	F	A	G ₁	G ₂	F	—	—	—	—	—	—	46
5800 Plate to Plate	20		Values are for two valves. Grids Nos. 1 and 2 tied at socket. Grid and plate returns connected to centre-tap of filament winding or centre-tap of 20 Ω resistor across winding. Peak A.F. Grid to Grid volts = 116 at 650 mW.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Volt- age Volts									Cur- rent Amps
47 47M	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.5	1.75	250	31	-16.5	250	6.0	2500	—	0.06
			H										
48	POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	30.0	0.4	125	56	-20	100	9.5	3900	—	—
49	POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	2.0	0.12	135	6.0	(G ₁) -20	—	—	1125	4.7	4175 Ohms
						180	Zero Signal 2.0 per Tube	(G ₁₊₂) 0	—	—	—	—	
50	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	7.5	1.25	450	55	-84	—	—	2100	3.8	1800 Ohms
50A5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	50	0.15	200	Zero Signal 50 Max. Signal 55	-8	100	Zero Signal 1.5 Max. Signal 6.0	8250	—	0.035
50B5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	50	0.15	110	Zero Signal 49 Max. Signal 50	-7.5	110	Zero Signal 4.0 Max. Signal 8.5	7500	—	0.014
50C5	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	50	0.15	110	Zero Signal 49 Max. Signal 50	-7.5	110	Zero Signal 4.0 Max. Signal 8.5	7500	—	0.01
50C6G	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	50	0.15	200	Zero Signal 61 Max. Signal 66	-14	135	Zero Signal 2.2 Max. Signal 9.0	7100	—	18,300 Ohms
50L6G 50L6GT	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	50	0.15	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
7000	2.7	1.2	Total Harmonic Distortion 6%. Grid Bias referred to centre of A.C.-operated filament. 47M { Cathode internally tied to centre of heater.	15	F	A	G ₁	G ₂	F	—	—	—	—	—	—	47 47M
					H	A	G ₁	G ₂	H	—	—	—	—	—	—	
1500	2.5	—	Total Harmonic Distortion 9%. Plate Resistance is subject to large variations.	17	H	A	G ₂	G ₁	K	H	—	—	—	—	—	48
11,000	0.17	—	Grid No. 2 tied to plate at socket.	15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	49
12,000 Plate to Plate	3.5	—	Unless otherwise stated values are for two valves. Grids Nos. 1 and 2 tied at socket.		F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	
4350	4.6	7.1	Grid Bias referred to centre of A.C. operated filament. Resistance coupling (maximum resistance 10,000 Ω) only per- missible with cathode bias. Cathode bias not essential, but recommended in all other cases.	8	F	A	G ₁	F	—	—	—	—	—	—	—	50
3000	4.3	—	Total Harmonic Distortion 10%.	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	S	50A5
2500	1.9	0.5	Total Harmonic Distortion 9%.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	50B5
2500	1.9	0.64	Total Harmonic Distortion 9%.	21	K G ₃	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	50C5
2600	6.0	—	Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	50C6
★	★	—	★ For data and notes refer type 25L6GT.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	50L6G 50L6GT

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
50X6	FULL-WAVE VACUUM RECTIFIER	Half* Wave Rectifier	H	50	0.15	R.M.S. per Plate 235	D.C. Output per Plate 75	—	—	—	—	—	—
		Full-wave Voltage Doubler				R.M.S. per Plate 117	D.C. Output 75	—	—	—	—	—	—
50Y6GT	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	50	0.15	★	★	—	—	—	—	—	—
50Y7GT	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier (without Panel Lamp)		50.0	0.15	R.M.S. 235	D.C. Output 150 Max.	—	—	—	—	—	—
		Half-wave Rectifier (with Panel Lamp of 6 to 8 V. at 0.15 A)	H	46.0	See Notes	R.M.S. 235 per Plate	D.C. Output per Plate 65 Max.	—	—	—	—	—	—
51	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	2.5	1.75	★	★	★	★	★	★	—	★
53	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	H	2.5	2.0	★	★	★	—	—	—	—	—
55	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	2.5	1.0	★	★	★	—	—	★	★	★
56	TRIODE	A.F. Amplifier	H	2.5	1.0	★	★	★	—	—	★	★	★
57	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	2.5	1.0	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	Filter input capacitor 16 μF . Minimum total effective plate supply impedance per plate = 100 Ω . * In half-wave rectifier service, the two units may be used separately or in parallel.	29	H	K ^{''}	A ^{''}	NC	NC	A [']	K [']	H	—	—	S	50X6	
—	—	—	Filter input capacitor 16 μF . Minimum total effective plate supply impedance 15 Ω .	30	NC	H	A ^{''}	K ^{''}	A [']	—	H	K [']	—	—	—	50Y6GT	
—	—	—	★ For data and notes refer type 25Z6GT.	30	NC	H	A ^{''}	K ^{''}	A [']	H _t	H	K [']	—	—	—	50Y7GT	
—	—	—	Heater circuit connection pins 2 and 7. No connection to pin 6. Condenser input to filter 16 μF . Plate supply impedance per plate = 100 Ω min. Values are for two units in parallel.	30	NC	H	A ^{''}	K ^{''}	A [']	H _t	H	K [']	—	—	—	50Y7GT	
—	—	—	For typical heater circuit refer type 35W4. Heater circuit connection pins 2 and 7. Panel lamp connection pins 6 and 7 (5.5 volts when lamp alight). Heater current between pins 2 and 6 = 0.15 A. Panel lamp shunting resistor = 250 Ω . Condenser input to filter 16 μF . Plate supply impedance per plate = 100 Ω min.	30	NC	H	A ^{''}	K ^{''}	A [']	H _t	H	K [']	—	—	—	—	50Y7GT
—	—	—	★ For data and notes refer type 35.	15	H	A	G ₂	K	H	—	—	—	—	G ₁	—	51	
★	★	—	★ For data and notes refer type 6N7.	20	H	A ^{''}	G ₁ ^{''}	K	G ₁ [']	A [']	H	—	—	—	—	53	
★	★	1.5	★ For data and notes refer type 85.	17	H	A	D ₂	D ₁	K	H	—	—	—	G ₁	—	55	
★	★	3.2	★ For data and notes refer type 6P5G. For replacement consider also type 76.	15	H	A	G ₁	K	H	—	—	—	—	—	—	56	
—	—	0.007	★ For data and notes refer type 6J7. For replacement consider also type 6C6.	17	H	A	G ₂	G ₂	K	H	—	—	—	G ₁	—	57	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
58	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	2.5	1.0	★	★	★	★	★	—	★	
58CG	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90	0.001	—	—	—	—	—	
58CV	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90	0.003 Max.	—	—	—	—	—	
59	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	2.5	2.0	250	35.0	-18	250	9.0	2500	—	0.04
70B1	VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	70	5.0 to 15.0	—	—	—	—	—	—
70L7GT	RECTIFIER—BEAM POWER OUTPUT TETRODE	Half-wave Rectifier				Max. R.M.S. 117	D.C. Output 70 Max.	—	—	—	—	—	—
		Class "A" Power Amplifier	H	70	0.15	110	Zero Signal 40 Max. Signal 43	-7.5	110	Zero Signal 3.0 Max. Signal 6.0	7500	—	0.015
71A	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	5.0	0.25	180	20.0	-40.5	—	—	1700	3	1750 Ohms
75	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
76	TRIODE	A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
77	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	250	2.3	-3	100	0.5	1250	—	> 1.0
78	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.007	★ For data and notes refer type 6U7G. For replacement consider also type 6D6.	17	H	A	G ₂	G ₃	K	H	—	—	—	G ₁	—	58
—	—	—	For red and near infra-red. Sensitivity = 85 $\mu\text{A/Lumen}$ at 2700° K. Dark current at 90 V. = 0.1 μA . Caesium on oxidised silver cathode.	53	A	K	—	—	—	—	—	—	—	—	—	58CG
—	—	—	For red and near infra-red. Sensitivity = 15 $\mu\text{A/Lumen}$ at 2700° K. Dark current at 100 V. = 0.05 μA . Caesium on oxidised silver cathode.	53	A	K	—	—	—	—	—	—	—	—	—	58CV
6000	3.0	—	Total Harmonic Distortion 7%.	20	H	A	G ₂	G ₁	G ₃	K	H	—	—	—	—	59
—	—	—	Starting voltage = 100 volts D.C.	31	A	K	IC	K	IC	IC	IC	K	—	—	—	70B1
—	—	—	Condenser input to filter = 90 μF max. Plate supply impedance = 15 ohms minimum.	30	K ^r	H	A ^t	G ₂ ^t	G ₁ ^t	K ^t	H	A ^r	—	—	—	70L7GT
2000	1.8	—	Total Harmonic Distortion 10%.													
4800	0.79	7.5		8	F+	A	G ₁	F-	—	—	—	—	—	—	—	71A
—	—	1.7	★ For data and notes refer type 6SQ7GT. For replacement consider also type 6B6G.	17	H	A	D ₂	D ₁	K	H	—	—	—	G ₁	—	75
—	—	2.8	★ For data and notes refer type 6P5G.	15	H	A	G ₁	K	H	—	—	—	—	—	—	76
—	—	0.007	Cathode current cut-off at - 7.5 volts grid bias.	17	H	A	G ₂	G ₃	K	H	—	—	—	G ₁	—	77
—	—	0.007	★ For data and notes refer type 6K7.	17	H	A	G ₂	G ₃	K	H	—	—	—	G ₁	—	78

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
79	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	H	6.3	0.6	250	Zero Signal 5.3 per Plate	0	—	—	—	—	—
80	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5.0	2.0	★	★	—	—	—	—	—	—
808	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5.0	2.0	★	★	—	—	—	—	—	—
81	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	7.5	1.25	Max. R.M.S. 700	D.C. Output 85.0 Max.	—	—	—	—	—	—
82	FULL-WAVE GAS-FILLED RECTIFIER	Full-wave Rectifier	F	2.5	3.0	Max. R.M.S. 2 X 450	D.C. Output 115.0	—	—	—	—	—	—
83	FULL-WAVE GAS-FILLED RECTIFIER	Full-wave Rectifier	F	5.0	3.0	Max. R.M.S. 2 x 450	D.C. Output 225.0 Max.	—	—	—	—	—	—
83V	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5.0	2.0	★	★	—	—	—	—	—	—
84 / 624	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.5	Max. R.M.S. 2 x 325	D.C. Output 60.0 Max.	—	—	—	—	—	—
85	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.3	250	8.0	-20	—	—	1100	8.3	7500 Ohms
85A1	VOLTAGE REFERENCE	Voltage Reference	COLD	—	—	★	★	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
14,000 Plate to Plate	8-0	—	Average power input = 380 mW applied between grids. As phase inverter (300 volts supply). Following grid leak 1.0 meg. Plate resistor 0.5 meg. Cathode resistor 3600 Ω . Gain = 46.	17	H	A''	G ₁ ''	K	A'	H	—	—	—	G ₁ '	—	79
—	—	—	★ For data and notes refer type 5Y3G.	8	F	A''	A'	F	—	—	—	—	—	—	—	80
—	—	—	★ For data and notes refer type 5Z4G. For replacement consider also types 5Y3GT and 80.	8	K H	A'	A''	H	—	—	—	—	—	—	—	80S
—	—	—		8	F	A	NC	F	—	—	—	—	—	—	—	81
—	—	—	Tube voltage drop 15 volts. With less than 40 μF condenser input to filter, min. supply impedance per plate = 50 Ω . Greater supply impedances are required for larger input capacities.	8	F	A''	A'	F	—	—	—	—	—	—	—	82
—	—	—	Tube voltage drop 15 volts. With less than 40 μF condenser input to filter, min. supply impedance per plate = 50 Ω . Greater supply impedances are required for larger input capacities.	8	F	A''	A'	F	—	—	—	—	—	—	—	83
—	—	—	★ For data and notes refer type 5V4G.	8	H	A''	A'	H K	—	—	—	—	—	—	—	83V
—	—	—	With less than 40 μF condenser input to filter, minimum supply impedance per plate = 65 Ω . Greater supply impedances are required for larger input capacities.	15	H	A''	A'	K	H	—	—	—	—	—	—	84 / 6Z4
20,000	0.35	1.5	As R.C. amplifier (300 V. supply). Following grid leak 1.0 meg. Plate resistor 0.25 meg. Cathode resistor 23,600 Ω . Gain = 5.8.	17	H	A	D ₂	D ₁	K	H	—	—	—	G ₁	—	85
—	—	—	★ For data and notes refer type OE3.	29	NC	A	NC	K	NC	NC	NC	K	—	—	—	85A1

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
85A2	VOLTAGE REFERENCE	Voltage Reference	C O L D	—	—	★	★	—	—	—	—	—	—
89	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.4	250	32.0	-25	250	5.5	1800	—	0.07
90AV	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100	0.005	—	—	—	—	—	—
900G	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90	0.002	—	—	—	—	—	—
90CV	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	50	0.005	—	—	—	—	—	—
99	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	F	3.0	0.06	90	2.5	-4.5	—	—	425	6.6	0.0155
100E1	NEON-FILLED VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	100	50.0 to 200.0	—	—	—	—	—	—
10531	VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	105	5.0 to 15.0	—	—	—	—	—	—
112A	DETECTOR AMPLIFIER TRIODE	Class "A" Power Amplifier and Biased Detector	F	5.0	0.25	★	★	★	—	—	★	★	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type OG3.	21	A	K	IC	K	A	IC	K	—	—	—	—	85A2
6750	3.4	—	Total Harmonic Distortion 9%.	17	H	A	G ₂	G ₃	K	H	—	—	—	G ₁	—	89
—	—	—	For daylight and bluish light Sensitivity = 45 $\mu\text{A}/\text{Lumen}$ at 2700°K. Dark current at 100 volts = 0.05 μA . Caesium—Antimony Cathode. External connections to cathode should be made to pins 1 and 7 connected together.	21	K	NC	A	A	A	NC	K	—	—	—	—	90AV
—	—	—	For incandescent light and near infra-red. Sensitivity = 125 $\mu\text{A}/\text{Lumen}$ at 2700°K. Dark current at 90 V. = 0.1 μA . Caesium on oxidised silver cathode. Gas amplification factor = 10 maximum.	21	NC	K	NC	A	NC	K	NC	—	—	—	—	90CG
—	—	—	For incandescent light and near infra-red. Sensitivity = 20 $\mu\text{A}/\text{Lumen}$ at 2700°K. Dark current at 100 volts = 0.05 μA . Caesium on oxidised silver cathode.	21	NC	K	NC	A	NC	K	NC	—	—	—	—	90CV
—	—	3.3	As biased detector adjust zero signal plate current to 0.2 mA. Plate volts = 90 volts. Grid bias = 10.5 volts.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	99
—	—	—	Quiescent current = 125 mA. Starting voltage = 140 volts D.C. A.C. resistance = 30 Ω max.	10	A	NC	K	NC	—	—	—	—	—	—	—	100E1
—	—	—														105B1
★	★	8.5	★ For data and notes refer type 12A.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	112A

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
117L7GT / 117M7GT	RECTIFIER BEAM POWER OUTPUT TETRODE	Half-wave Rectifier and Class "A" Power Amplifier	H	117	0.09	★	★	★	★	★	—	★	
117N7GT	RECTIFIER BEAM POWER OUTPUT TETRODE	Half-wave Rectifier	H	117	0.09	Max. R.M.S. 117	D.C. Output 75.0 Max.	—	—	—	—	—	—
		Class "A" Power Amplifier				100	51.0	-6	100	5.0	7000	—	0.016
117P7GT	RECTIFIER BEAM POWER OUTPUT TETRODE	Half-wave Rectifier				Max. R.M.S. 117	D.C. Output 75 Max.	—	—	—	—	—	—
		Class "A" Power Amplifier	H	117	0.09	105	Zero Signal 43 Max. Signal 43	-5.2	105	Zero Signal 4.0 Max. Signal 5.5	5300	—	0.017
117Z3	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	117	0.04	R.M.S. 117	D.C. Output 90 Max.	—	—	—	—	—	—
117Z4GT	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	117	0.04	R.M.S. 117	D.C. Output 90 Max.	—	—	—	—	—	—
117Z6G 117Z6GT 117Z6GT/G	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	117	0.075	R.M.S. 235	D.C. Output per Plate 60 Max.	—	—	—	—	—	—
150A1	VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	150	1.0 to 8.0	—	—	—	—	—	—
150B1	VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	150	5.0 to 15.0	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	—	★ For data and notes refer type 117P7GT.	30	K ^r	H	A ^t	G ₁ ^t	G ₂ ^t	A ^r	H	K ^t	—	—	—	117L7GT / 117M7GT
—	—	—	With less than 40 μF condenser input to filter, minimum plate supply impedance = 15 Ω . Greater supply impedances are required for larger input capacities.	30	NC	H	A ^t	G ₁ ^t	G ₂ ^t	K ^t	A ^r H	K ^r	—	—	—	117N7GT
3000	1.2	—	Total Harmonic Distortion 6%.													
—	—	—	Condenser input to filter = 40 μF maximum. Plate supply impedance = 15 Ω minimum.													
4000	0.85	—	Total Harmonic Distortion 5%.	30	NC	H	A ^t	G ₁ ^t	G ₂ ^t	K ^t	H A ^r	K ^r	—	—	—	117P7GT
—	—	—	Condenser input to filter = 40 μF maximum. Plate supply impedance = 15 Ω minimum.	21	IC	NC	H	H	A	K	NC	—	—	—	—	117Z3
—	—	—	With less than 40 μF condenser input to filter, minimum plate supply impedance = 30 Ω . Greater supply impedances are required for larger input capacities.	30	NC	H	NC	—	A	—	H	K	—	—	—	117Z4GT
—	—	—	In half-wave service the two units may be used separately or in parallel. Condenser input to filter 40 μF . Plate supply impedance = 100 Ω minimum per plate.	30	NC	H	A ^{II}	K ^{II}	A ^I	—	H	K ^I	—	—	—	117Z6G 117Z6GT 117Z6GT/G
—	—	—	Quiescent current = 4 mA. Starting voltage = 205 V. D.C. A.C. resistance = 1140 Ω .	26	NC	NC	NC	NC	K	NC	NC	A	—	—	—	150A1
—	—	—														150B1

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
150C1	VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	150	5-0 to 40-0	—	—	—	—	—	—
161	CURRENT REGULATOR	Current Regulator	F	100 to 200	0-16	—	—	—	—	—	—	—	—
302	CURRENT REGULATOR	Current Regulator	F	112 to 195	0-3	—	—	—	—	—	—	—	—
329	CURRENT REGULATOR	Current Regulator	F	10 to 30	1-15	—	—	—	—	—	—	—	—
373	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4-0	1-0	Max. R.M.S. 220	D.C. Output 40 Max.	—	—	—	—	—	—
505	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4-0	1-0	Max. R.M.S. 400	D.C. Output 60 Max.	—	—	—	—	—	—
506	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4-0	1-0	Max. R.M.S. 2 x 300	D.C. Output 75 Max.	—	—	—	—	—	—
807 807W	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6-3	0-9	250	72	-14	250	5-0	6000	—	0-0225
		Class "AB ₁ " Power Amplifier				400	Zero Signal 2 x 28 Max. Signal 2 x 71-5	-30	300	Zero Signal 2 x 1-0 Max. Signal 2 x 8-0	—	—	—
868	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100 Max.	0-002 Max.	—	—	—	—	—	—
874	VOLTAGE REGULATOR	Voltage Regulator	C O L D	—	—	90	10 to 50	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Quiescent current = 20 mA max. Starting voltage = 205 V. D.C. A.C. resistance = 200 Ω .	26	NC	NC	NC	NC	K	NC	NC	A	—	—	—	150C1
—	—	—		40	R	R	—	—	—	—	—	—	—	—	—	161
—	—	—		40	R	R	—	—	—	—	—	—	—	—	—	302
—	—	—		4	NC	R	R	—	—	—	—	—	—	—	—	329
—	—	—		4	A	F	F	—	—	—	—	—	—	—	—	373
—	—	—		4	A	F	F	—	—	—	—	—	—	—	—	505
—	—	—	Condenser input to filter = 16 μF maximum.	10	A ¹¹	F	A ¹	F	—	—	—	—	—	—	—	506
2500	6.5		Total Harmonic Distortion 10%.	15	H	G ₂	G ₁	K G ₃	H	—	—	—	—	A	—	807 807W
6800 Plate to Plate	36.0	Peak Signal Voltage Grid to Grid = 60 volts. Type 807W has low loss phenolic base and different bulb to 807.														
—	—	—	For 8000 \pm 1000° A (Red- Infra Red). Sensitivity = 90 μA /Lumen with 0. cycles/sec. at 2870° K and 1.0 meg. series resistor. Dark current at 90 V. = 0.1 μA . Gas amplification factor = 8 maximum.	8	NC	A	NC	K	—	—	—	—	—	—	—	868
—	—	—	Starting voltage = 115 V. D.C.	8	K	J	A	J	—	—	—	—	—	—	—	874

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts								
876	CURRENT REGULATOR	Current Regulator	F	40 to 60	1.7	—	—	—	—	—	—	—
878	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	2.5	5.0	Max. R.M.S. 7100	Peak 20 Average 5	—	—	—	—	—
879	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	2.5	1.75	★	★	—	—	—	—	—
884	GAS TRIODE	Relaxation Oscillator	H	6.3	0.6	Max. Peak 300	Peak 300 Max. Average 2	—	—	—	—	—
885	GAS TRIODE	Relaxation Oscillator	H	2.5	1.5	★	★	—	—	—	—	—
886	CURRENT REGULATOR	Current Regulator	F	40 to 60	2.05	—	—	—	—	—	—	—
919	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	Max. Peak 500	Peak 0.03 Max. Average 0.01 Max.	—	—	—	—	—
920	GAS-FILLED PHOTO-ELECTRIC CELL	Twin P.E. Cell	P E	—	—	Max. Peak 90	Peak 0.006 Max. Average 0.002 Max.	—	—	—	—	—
926	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	Max. Peak 500	Peak 0.015 Max. Average 0.005 Max.	—	—	—	—	—
927	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	Max. Peak 90	Peak 0.006 Max. Average 0.002 Max.	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	Ambient temperature 150° F.	42	R	R	—	—	—	—	—	—	—	—	—	—	876
—	—	—	Filament voltage applied between pins 1 and 4. Peak inverse volts = 20,000 For use with cathode ray tubes.	8	F+	F+	F-	F-	—	—	—	—	—	—	A	—	878
—	—	—	★ For data and notes refer type 2X2A.	8	H	NC	NC	H K	—	—	—	—	—	—	A	—	879
—	—	6.0	Grid resistor not less than 1000 Ω per maximum instantaneous unit voltage applied to the grid. Peak grid current 1.0 mA max.	30	NC	H	A	—	G ₁	—	H	K	—	—	—	—	884
—	—	6.0	★ For data and notes refer type 884.	15	H	A	G ₁	K	H	—	—	—	—	—	—	—	885
—	—	—	Ambient temperature 150° F.	42	R	R	—	—	—	—	—	—	—	—	—	—	886
—	—	—	For 8000 \pm 1000° A (Red-Infra Red). Sensitivity = 20 $\mu\text{A}/\text{Lumen}$ at 2870° K with 1.0 meg. series resistor. Dark current at 250 volts = 0.005 μA .	8	NC	A	NC	NC	—	—	—	—	—	—	K	—	919
—	—	—	For 8000 \pm 1000° A (Red-Infra Red). Sensitivity = 100 $\mu\text{A}/\text{Lumen}$ at 0 cycles/sec. at 2870° K with 1.0 meg series resistor. Dark current at 90 volts = 0.1 μA . Gas amplification factor = 9. Values are for each unit.	8	K ¹¹	A ¹¹	A ¹	K ¹	—	—	—	—	—	—	—	—	920
—	—	—	For 4200 \pm 1000° A (Ultra Violet-Blue). Sensitivity = 6.5 $\mu\text{A}/\text{Lumen}$ at 2870° K with 1.0 meg. series resistor. Dark current at 250 volts = 0.005 μA .	34	K	A	—	—	—	—	—	—	—	—	—	—	926
—	—	—	For 8000 \pm 1000° A (Red-Infra Red). Sensitivity = 125 $\mu\text{A}/\text{Lumen}$ with 0 cycles/sec. at 2870° K with 1.0 meg. series resistor. Dark current at 90 volts = 0.1 μA . Gas amplification factor = 10 maximum.	41	NC	A	K	—	—	—	—	—	—	—	—	—	927

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
929	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	Peak 250	Peak 0.02 Max. Average 0.005 Max.	—	—	—	—	—	—
930	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	Peak 90	Peak 0.01 Max. Average 0.003 Max.	—	—	—	—	—	—
931A	MULTIPLIER PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	Peak 1250	Peak 10.0 Max. Average 1.0 Max.	—	—	—	—	—	—
954	SHARP CUT-OFF R.F. PENTODE	R.F. and A.F. Amplifier	H	6.3	0.15	★	★	★	★	★	★	—	★
955	DETECTOR OSCILLATOR AMPLIFIER TRIODE	R.F. and A.F. Amplifier	H	6.3	0.15	180	4.5	-5	—	—	2000	25	0.0125
956	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	★	★	★	★	★	★	—	★
957	DETECTOR OSCILLATOR AMPLIFIER TRIODE	R.F. Amplifier	F	1.25	0.05	135	2.0	-5	—	—	650	13.5	0.0208
958A	OSCILLATOR AMPLIFIER TRIODE	R.F. Amplifier	F	1.25	0.1	135	3.0	-7.5	—	—	1200	12	0.01
959	DETECTOR AMPLIFIER R.F. PENTODE	R.F. Amplifier	F	1.25	0.05	135	1.7	-3	67.5	0.4	600	—	0.8
991	VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	48 to 67	Max. 2.0 Min. 0.4	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS											TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.	
—	—	—	For 4000 \pm 500° A (Ultra Violet-Blue). Sensitivity = 45 $\mu\text{A/Lumen}$ at 2870° K with 1.0 meg. series resistor. Dark current at 250 volts = 0.0125 μA .	30	NC	NC	—	A	—	NC	—	K	—	—	—	929
—	—	—	For 8000 \pm 1000° A (Red-Infra Red). Sensitivity = 135 $\mu\text{A/Lumen}$ at 0 cycles/sec. at 2870° K with 1.0 meg. series resistor. Dark current at 90 V. = 0.1 μA . Gas amplification factor = 10 maximum.	30	NC	NC	—	A	—	NC	—	K	—	—	—	930
—	—	—	d for dynode. For 4000 \pm 500° A (Ultra Violet-Blue). With 100 volts per dynode stage and 100 volts between dynode No. 9 and anode:— Sensitivity = 10 A/Lumen at 2870° K with 0.1 meg. series resistor. Dark current = 0.25 μA . Current amplification = 10 ⁶ .	44	1 d ₁	2 d ₂	3 d ₃	4 d ₄	5 d ₅	6 d ₆	7 d ₇	8 d ₈	9 d ₉	10 A	11 K	931A
—	—	0.007	★ For data and notes refer type 9001.	22	H	G ₂	G ₃	H	K	G ₁	A	—	—	—	954	
20,000	0.135	1.4	Especially for wavelengths between 0.5 and 5.0 metres. As R.C. amplifier (250 volts supply). Plate resistor 0.25 meg. Grid bias — 3.5 volts. Plate current 0.42 mA. Gain = 20.	13	H	A	G ₁	H	K	—	—	—	—	—	955	
—	—	0.007	★ For data and notes refer type 9003.	22	H	G ₂	G ₃	H	K	G ₁	A	—	—	—	956	
—	—	1.2		13	F+	A	G ₁	F-	F-	—	—	—	—	—	957	
—	—	2.6	Capable of producing a useful power output at frequencies up to 350 Mc/s approx.	13	F+	A	G ₁	F-	F-	—	—	—	—	—	958A	
—	—	0.015		22	F+	G ₂	G ₃	F-	F-	G ₁	A	—	—	—	959	
—	—	—	Starting voltage 87 V. D.C. Additional circuit resistance may be required to limit the current to 2.0 mA max.	35	E	E	—	—	—	—	—	—	—	—	991	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
1247	V.H.F. MEASURING DIODE	Diode Probe	F	0.7	0.065	Peak Inverse 850 (max.) Max. R.M.S. 300	Peak 5.0 (max.) D.C. 1.0 (max.)	—	—	—	—	—	—
1561	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	2.0	Max. R.M.S. 2 x 500	D.C. Output 120.0 Max.	—	—	—	—	—	—
1603	SHARP CUT-OFF PENTODE	Low-noise Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★
1620	SHARP CUT-OFF PENTODE	Low-noise Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★
1805	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	1.0	Max. R.M.S. 2 x 500	D.C. Output 60.0 Max.	—	—	—	—	—	—
1815	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	2.5	Max. R.M.S. 2 x 500	D.C. Output 180.0 Max.	—	—	—	—	—	—
1832	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4.0	1.3	Max. R.M.S. 700	D.C. Output 120.0 Max.	—	—	—	—	—	—
1852	TELEVISION SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.45	★	★	★	★	★	★	—	★
1867	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	4.0	2.4	Max. R.M.S. 2 x 350	D.C. Output 120	—	—	—	—	—	—
1875	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4.0	2.3	Max. R.M.S. 5000	D.C. Output 5.0 Max.	—	—	—	—	—	—
1876	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4.0	0.3	Max. R.M.S. 850	D.C. Output 5.0 Max.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS													TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.			
—	—	—	For use as diode probe in vacuum tube voltmeters operating up to 300 Mc/s.	3	F	F	A	—	—	—	—	—	—	—	—	—	—	1247
—	—	—	Condenser Input to Filter = 32 μF max.	26 10 8	NC A' F	F F A'	NC A'' A''	NC F F	A'' — —	NC — —	NC — —	A' — —	— — —	— — —	— — —	— — —	1561	
—	—	0.007	★ For additional data and notes refer type 6J7G. For applications critical as to microphonics, noise and hum.	17	H	A	G ₂	G ₂	K	H	—	—	—	G ₁	—	—	1603	
—	—	0.005	★ For additional data and notes refer type 6J7. For applications critical as to microphonics.	30	S	H	A	G ₂	G ₂	—	H	K	—	G ₁	—	—	1620	
—	—	—	Condenser Input to Filter = 32 μF max.	10	A'	F	A''	F	—	—	—	—	—	—	—	—	1605	
—	—	—	Condenser Input to Filter = 32 μF max.	10	A'	F	A''	F	—	—	—	—	—	—	—	—	1615	
—	—	—	Condenser Input to Filter = 32 μF max.	4	A	F	F	—	—	—	—	—	—	—	—	—	1632	
—	—	—	★ For data and notes refer type 6AC7/1852.	30	S	H	G ₂	G ₁	K	G ₂	H	A	—	—	—	—	1852	
—	—	—		8	H	A''	A'	K H	—	—	—	—	—	—	—	—	1867	
—	—	—	Condenser input to filter = 0.5 μF max. Plate supply impedance = 10,000 Ω min.	26	NC	F	F	NC	NC	NC	NC	NC	—	A	—	—	1875	
—	—	—	Condenser input to filter = 0.5 μF max.	26	NC	F	F	NC	NC	NC	NC	A	—	—	—	—	1876	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
1877	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	4-0	0-65	Max. R.M.S. 5000	D.C. Output 3-0 Max.	—	—	—	—	—	—
1878	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	4-0	0-7	Max. R.M.S. 10,500	D.C. Output 2-0 Max.	—	—	—	—	—	—
1904	CURRENT REGULATOR	Current Regulator	F	30 to 80	0-1	—	—	—	—	—	—	—	—
1910	CURRENT REGULATOR	Current Regulator	F	5 to 15	1-4	—	—	—	—	—	—	—	—
1927	CURRENT REGULATOR	Current Regulator	F	40 to 120	0-18	—	—	—	—	—	—	—	—
1928	CURRENT REGULATOR	Current Regulator	F	80 to 240	0-18	—	—	—	—	—	—	—	—
1941	CURRENT REGULATOR	Current Regulator	F	80 to 200	0-3	—	—	—	—	—	—	—	—
1945	CURRENT REGULATOR	Current Regulator	F	80 to 120	0-275	—	—	—	—	—	—	—	—
1949	CURRENT REGULATOR	Current Regulator	F	30 to 90	0-3	—	—	—	—	—	—	—	—
1954	CURRENT REGULATOR	Current Regulator	F	100 to 160	0-15	—	—	—	—	—	—	—	—
2050	GAS-FILLED THYRATRON	Relay and Grid-Controlled Rectifier	H	6-3	0-6	R.M.S. 400	—	-6	—	—	—	—	—
2051	GAS-FILLED THYRATRON	For Relay Service	H	6-3	0-6	R.M.S. 220	—	R.M.S. 4-0	—	—	—	—	—
3006	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4-0	0-08	Max. R.M.S. 40-0	D.C. Output 1-0	—	—	—	—	—	—
3510	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	500 Max.	0-003 Max.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Condenser input to filter = 0.5 μF max. Plate supply impedance = 20,000 Ω min.	10	NC	H K	NC	H	—	—	—	—	—	A	—	1877
—	—	—		40	H	H K	—	—	—	—	—	—	—	A	—	1878
—	—	—		10	NC	R	NC	R	—	—	—	—	—	—	—	1904
—	—	—		4	NC	R	R	—	—	—	—	—	—	—	—	1910
—	—	—	Permissible voltage when switching on = 150 V.	10	NC	R	NC	R	—	—	—	—	—	—	—	1927
—	—	—	Permissible voltage when switching on = 240 V.	10	NC	R	NC	R	—	—	—	—	—	—	—	1928
—	—	—		10	NC	R	NC	R	—	—	—	—	—	—	—	1941
—	—	—		40	R	R	—	—	—	—	—	—	—	—	—	1941
—	—	—		26	NC	NC	NC	NC	R	NC	NC	R	—	—	—	1945
—	—	—		10	NC	R	NC	R	—	—	—	—	—	—	—	1949
—	—	—		30	NC	R	—	NC	—	NC	—	R	—	—	—	1954
2000	—	0.26	Grid No. 2 voltage = 0. Plate Circuit Resistance = 2000 Ω . Conditions given are for Relay Service.	30	NC	H	A	NC	G ₁	G ₂	H	K	—	—	—	2050
2000	—	0.26	Grid No. 2 voltage = 0. Plate Circuit Resistance = 2000 Ω .	30	NC	H	A	NC	G ₁	G ₂	H	K	—	—	—	2051
—	—	—	For use as "C" Bias Supply Unit.	4	A	F	F	—	—	—	—	—	—	—	—	3006
—	—	—	For 5350 \pm 500° A (Green- Yellow). Sensitivity = 3 μA /Lumen. Potassium Cathode.	10	A	NC	NC	NC	—	—	—	—	—	K	—	3510

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
3512	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	500 Max.	0-005 Max.	—	—	—	—	—	—
3530	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100 Max.	0-002	—	—	—	—	—	—
3533	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100 Max.	0-002	—	—	—	—	—	—
3534	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90 Max.	0-002	—	—	—	—	—	—
3537	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100 Max.	0-002	—	—	—	—	—	—
3538	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100 Max.	0-002	—	—	—	—	—	—
3540	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90 Max.	0-005	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 20 $\mu\text{A/Lumen}$. Caesium Cathode.	10	A	NC	NC	NC	—	—	—	—	—	—	K	—	3512
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A/Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Maximum Plate Current = 0.0075 mA. Caesium Cathode.	36	A	K	—	—	—	—	—	—	—	—	—	—	3530
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A/Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Maximum Plate Current = 0.0075 mA. Caesium Cathode.	10	A	NC	NC	K	—	—	—	—	—	—	—	—	3533
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A/Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Maximum Plate Current = 0.0075 mA. Caesium Cathode.	8	NC	A	NC	K	—	—	—	—	—	—	—	—	3534
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A/Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Maximum Plate Current = 0.0075 mA. Caesium Cathode.	37	A	K	—	—	—	—	—	—	—	—	—	—	3537
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A/Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Maximum Plate Current = 0.0075 mA. Caesium Cathode.	36	A	K	—	—	—	—	—	—	—	—	—	—	3538
—	—	—	Operational Range 6500° A to 8000° A (Red-Infra Red). Sensitivity = 125 $\mu\text{A/Lumen}$ at 2600° K.	38	A	K	—	—	—	—	—	—	—	—	—	—	3540

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mbhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts								
3541	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	100 Max.	0-002	—	—	—	—	—
3543	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90 Max.	0-002	—	—	—	—	—
3545	VACUUM PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	250 Max.	—	—	—	—	—	—
3546	GAS-FILLED PHOTO-ELECTRIC CELL	P.E. Cell	P E	—	—	90 Max.	0-002	—	—	—	—	—
4060	ELECTROMETER TRIODE	Valve Voltmeter	F	0-7*	0-6	4	0-14	-2-5	—	28	0-5	—
4065	ELECTROMETER TRIODE	Valve Voltmeter	F	1-25	0-013	9	0-1	-2-5	—	80	1-7	—
4066	ELECTROMETER TRIODE	Valve Voltmeter	F	1-25	0-015	4-5	0-01	-3	—	10	1	—
4357	NEON VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	85 to 100	10 to 40	—	—	—	—	—
4376	NEON VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	90 to 100	10 Min.	—	—	—	—	—
4377 4496	NEON VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	100 to 115	10 to 30	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A}/\text{Lumen}$ with 1.0 meg. Series Resistor. Caesium Cathode. Maximum Plate Current = 0.0075 mA.	10	A	NC	NC	K	—	—	—	—	—	—	—	—	3541
—	—	—	Operational Range 7500° A to 9500° A (Infra Red). Sensitivity = 150 $\mu\text{A}/\text{Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Caesium Cathode. Maximum Plate Current = 0.005 mA.	39	A	K	—	—	—	—	—	—	—	—	—	—	3543
—	—	—	For Red and Infra Red Radiation. Sensitivity = 20 $\mu\text{A}/\text{Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Caesium Cathode. Max. Cathode Current Density = 5 $\mu\text{A}/\text{cm}^2$.	37	A	K	—	—	—	—	—	—	—	—	—	—	3545
—	—	—	For Red and Infra Red Radiation. Sensitivity = 150 $\mu\text{A}/\text{Lumen}$ at 2600° K with 1.0 meg. Series Resistor. Caesium Cathode. Max. Cathode Current Density = 7.5 $\mu\text{A}/\text{cm}^2$.	37	A	K	—	—	—	—	—	—	—	—	—	—	3546
—	—	—	* Exact value of heater voltage should be adjusted to that indicated on each individual valve. Grid Current < 10^{-14} A.	4	A	F	F	—	—	—	—	—	—	G ₁	—	4060	
—	—	—	Grid Current < 12.5×10^{-14} A.	49	F-	A	F+	G ₁	—	—	—	—	—	—	—	—	4065
—	—	—	Grid Current < 5×10^{-15} A.														4066
—	—	—	Starting Voltage 125 V. D.C. Quiescent Current 20 mA. A.C. Resistance = 75 Ω max.	10	NC	K	NC	A	—	—	—	—	—	—	—	—	4357
—	—	—	Starting Voltage 110 V. D.C. Quiescent Current 45 mA.	35 40	E	E	—	—	—	—	—	—	—	—	—	—	4376
—	—	—	Starting Voltage 130 V. D.C. max. Quiescent Current 20 mA. A.C. Resistance = 250 Ω .	40 26	E NC	E NC	— NC	— NC	— K	— NC	— NC	— A	— —	— —	— —	— —	4377 4496

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
4624	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	7.2	1.1	800	35	-90	—	—	2300	7	3000 Ohms
4630	AMPLIFIER TRIODE	A.F. Pre-amplifier	F	4.2	0.25	130	8.5	-8.4	—	—	1300	—	5500 Ohms
4631	AMPLIFIER TRIODE	A.F. Pre-amplifier	F	2.0	0.25	130	0.7	-1.5	—	—	500	—	0.055
4636	R.F. PENTODE	R.F. Amplifier	H	4.0	1.1	200	3.0	-2	100	1.2	2300	—	2.2
4641	POWER OUTPUT TRIODE	Class "B" Power Amplifier (2 Valves)	F	4.0	2.1	1500	Zero Signal 2 x 10 Max. Signal 2 x 41	-144	—	—	—	—	—
4646	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	4.0	1.3	Max. R.M.S. 1000	D.C. Output 75.0 Max.	—	—	—	—	—	—
4652	FULL-WAVE GAS-FILLED RECTIFIER	Full-wave Rectifier	F	4.0	2.4	★	★	—	—	—	—	—	—
4654K	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.35	250	72	-14	275	8.0	8500	—	0.022
4654P		Class "B" Power Amplifier	H			420 See Note	Zero Signal 2 x 20 Max. Signal 2 x 93	-38	See Note	Zero Signal 2 x 2.2 Max. Signal 2 x 21	—	—	—
4657	AMPLIFIER TRIODE	A.F. Amplifier	H	4.0	1.0	200	1.0	-1.5	—	—	2200	99	0.045
4662	NEON TUNING INDICATOR	Tuning Indicator	C O L D	—	—	150 to 170	2.0	—	—	—	—	—	—
4671	AMPLIFIER TRIODE	R.F. Amplifier	H	6.3	0.15	★	★	★	—	—	★	★	★
4672	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.15	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
11,000	9	—		11	A	F	F	G ₁	—	—	—	—	—	—	—	—	4624
6000	—	—	Stage gain = 3.6.	6	F	A	G ₁	F	—	—	—	—	—	—	—	—	4630
600,000	—	—	Stage gain = 27.	6	F	A	G ₁	F	—	—	—	—	—	—	—	—	4631
—	—	0.006		14	G ₂	H	G ₁	H	K M G ₃	—	—	—	—	A	—	—	4636
Plate to Plate 40,000	68	7.0	Fixed Bias Conditions. Total Harmonic Distortion 1.9%. R.M.S. Grid to Grid volts = 210 V.	11	A	F	F	G ₁	—	—	—	—	—	—	—	—	4641
—	—	—	Condenser Input to Filter 12 μF maximum. Plate Supply Impedance = 200 Ω minimum.	11	A	F	F	NC	—	—	—	—	—	—	—	—	4646
—	—	—	★ For data and notes refer type AX1.	10	A ¹	F	A ¹¹	F	—	—	—	—	—	—	—	—	4652
3500	8.8	0.8	Total Harmonic Distortion 10%. Cathode Bias Resistor 175 Ω .	30	M	H	NC	G ₂	G ₁	G ₃	11	K	—	A	—	—	4654K
5000 Plate to Plate	48		Plate Supply Voltage = 425. Series Screen Resistor 500 Ω (425 V. supply). Total Harmonic Distortion 2.5%.	26	NC	H	H	K M	G ₃	G ₁	G ₂	NC	—	A	—	—	—
—	—	3.0		14	A	H	G ₁	H	K M	—	—	—	—	—	—	—	4657
—	—	—	Auxiliary Anode (A ¹¹) starting voltage 165-190 V. Auxiliary Anode Current 0.04 to 0.05 mA.	5	NC	A ¹	A ¹¹	K	—	—	—	—	—	—	—	—	4662
—	—	1.5	★ For data and notes refer type E1C.	13	H	A	G ₁	H	K	—	—	—	—	—	—	—	4671
—	—	0.007	★ For data and notes refer type E1F.	22	H	G ₂	G ₃	H	K	G ₁	A	—	—	—	—	—	4672

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
4673	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	4-0	1-35	250	8-0	-2-5	200	1-5	5000	—	1-5
4682	POWER OUTPUT PENTODE	Class "AB" Power Amplifier (2 Valves)	H	4-0	1-0	375	Zero Signal 2 x 24 Max. Signal 2 x 29	See Note	250	Zero Signal 2 x 3-5 Max. Signal 2 x 4-0	—	—	—
4683	POWER OUTPUT TRIODE	Class "AB" Power Amplifier (Two Valves)	F	4-0	0-95	350	Zero Signal 2 x 43 Max. Signal 2 x 46	See Note	—	—	—	—	—
4686	GAS TRIODE (Argon)	Relaxation Oscillator	H	4-0	1-2	Max. Peak 300	Max. Peak 300	—	—	—	—	—	—
4687 4687K 4687A	NEON VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	85 to 100	10 to 40	—	—	—	—	—	—
4688	POWER OUTPUT PENTODE	Class "AB" Power Amplifier (Two Valves)	H	4-0	2-0	375	Zero Signal 2 x 48 Max. Signal 2 x 62	See Note	275	Zero Signal 2 x 5 Max. Signal 2 x 9	—	—	—
4689K 4689P	POWER OUTPUT PENTODE	Class "AB" Power Amplifier (Two Valves)	H	6-3	1-35	★	★	★	★	★	—	—	—
4690	GAS TRIODE (Helium)	Relaxation Oscillator	H	4-0	1-3	Max. Peak 500	Max. Peak 750	—	—	—	—	—	—
4694	POWER OUTPUT PENTODE	Class "AB" Power Amplifier (Two Valves)	H	6-3	0-9	400	Zero Signal 2 x 22 Max. Signal 2 x 25	See Note	425	Zero Signal 2 x 2-8 Max. Signal 2 x 6-2	—	—	—
4695	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-15	250	6-7	-3	100	2-7	1700	—	0-6

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.12	Plate Current Cut-off at - 6 volts Grid Bias.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	4673
Plate to Plate 15,000	14.0	1.5	R.M.S. Grid to Grid = 50 volts. Cathode Bias Resistor 540 Ω . Total Harmonic Distortion = 5%.	26	NC	H	H	K G ₃	NC	NC	G ₂	A	—	G ₁	—	4682
Plate to Plate 8000	15.6	20	R.M.S. Grid to Grid volts = 102 volts. Cathode Bias Resistor 850 Ω . Total Harmonic Distortion 2.3%.	26	NC	F	F	NC	NC	G ₁	NC	A	—	—	—	4683
—	—	2.7	Arc voltage = 17 V. Mean Plate Current 3.0 mA. Max. freq. 50,000 cycles/sec.	26	NC	H	H	K	NC	NC	NC	A	—	G ₁	—	4686
—	—	—	Starting voltage 115 V. D.C. Quiescent Current 20 mA.	26	NC	NC	NC	NC	K	NC	NC	A	—	—	—	4687
				30	NC	K	NC	NC	A	NC	NC	NC	—	—	—	4687K
				10	A	NC	K	NC	—	—	—	—	—	—	—	4687A
Plate to Plate 6500	28.5	1.0	R.M.S. Grid to Grid volts = 32 volts. Cathode Bias Resistor 165 Ω . Total Harmonic Distortion 2.3%.	26	NC	H	H	K G ₃	NC	G ₁	G ₂	A	—	—	—	4688
★	★	0.8	★ For data and notes refer type 4688.	30	M	H	A	G ₂	G ₁	NC	H	K G ₃	—	—	—	4689K
				26	NC	H	H	K G ₃ M	NC	G ₁	G ₂	A	—	—	—	4689P
—	—	—	Arc voltage = 50 volts. Mean Plate Current 10 mA. Max. freq. 150,000 cycles/sec. Grid to Cathode capacity 3.7 $\mu\mu\text{F}$.	26	NC	H	H	K S	NC	G ₁	NC	NC	—	A	—	4690
Plate to Plate 20,000	13.0	0.8	R.M.S. Grid to Grid volts = 18 volts. Cathode Bias Resistor 315 Ω . Total Harmonic Distortion 2.3%.	26	NC	H	H	K G ₃ M	NC	G ₁	G ₂	A	—	—	—	4694
—	—	0.007	Mutual Conductance = 2 μmhos at - 46 volts Grid Bias.	22	H	G ₂	G ₃	H	K	G ₁	A	—	—	—	—	4695

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Volt-age Volts	Cur-rent Amps								
4699 4699N	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.0	250	72	See Note	250	8.0	14,500	—	0.02
5642	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.25	0.2	Peak Inverse 10,000 (max.)	Peak 5.0 (max.) Average 0.25 (max.)	—	—	—	—	—	—
5654	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.175	180	7.7	See Note	120	2.4	5100	—	0.5
5672	SUBMINIATURE OUTPUT PENTODE	Class "A" Amplifier	F	1.25	0.05	67.5	Zero Signal 3.25	-6.2	67.5	Zero Signal 1.0	—	—	—
5676	TRIODE	V.H.F. Amplifier	F	1.25	0.12	135	4.0	-5	—	—	1600	15	—
5678	SUBMINIATURE R.F. PENTODE	R.F. Amplifier	F	1.25	0.05	67.5	1.8	0	67.5	0.48	1100	—	1.0
5718	SPECIAL QUALITY SUBMINIATURE U.H.F. TRIODE	U.H.F. Amplifier	H	6.3	0.15 ± 0.0012	100	8.5 ± 2.5	See Note	—	—	5800 ± 1000	27 ± 4	4650 ohms
5726	TWIN DIODE	Half-wave Rectifier	H	6.3	0.3	Peak Inverse 360 (max.)	Peak 60 (max.)	—	—	—	—	—	—
5840	SPECIAL QUALITY SUBMINIATURE R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	100	7.5	See Note	100	2.4	5000	—	0.26
5847	SPECIAL QUALITY SHARP CUT-OFF PENTODE	Wide Band Amplifier	H	6.3	0.3	160	13.0	+8.5 See Note	160	4.5	12,500	—	—
5861	AMPLIFIER TRIODE	U.H.F. Amplifier	H	6.3	0.4	250	20	-3.5	—	—	6000	30	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
3500	8.0	0.7	Cathode Bias Resistor 90Ω . Total Harmonic Distortion 10%.	26	NC	H	H	K G ₃ M	NC	G ₁	G ₂	A	—	—	—	4699
					NC	H	H	K G ₃	NC	G ₁	G ₂	A	—	—	—	
—	—	—	Minimum supply frequency 5Kc/s.	3	F	F	A	—	—	—	—	—	—	—	—	5642
—	—	—	Cathode Resistor 180Ω . Plate Current = $10 \mu\text{A}$. at -8.5 volts (G ₁) bias. Type 5654 is a ruggedised version of type 6AK5.	21	G ₁	K G ₃ IS	H	H	A	G ₂	K G ₃ IS	—	—	—	—	5654
15,000	85 mW.	< 0.2		50	A	G ₂	F+	G ₁	F— G ₃	—	—	—	—	—	—	5672
—	—	1.4	Plate current = $15 \mu\text{A}$. at -10 volts grid bias.	53	A	F+	G ₁	F—	—	—	—	—	—	—	—	5676
—	—	< 0.01		50	A	G ₂	F— G ₃ M	G ₁	F+	G ₃	—	—	—	—	—	5678
—	—	1.3	Cathode Resistor 150Ω . Grid No. 1 Voltage for Plate Current $10 \mu\text{A}$. = -7 volts. Intended for oscillator service up to 1000 Mc/s.	31	G	NC	H	NC	K	H	NC	A	—	—	—	5718
—	—	—	Type 5726 is a ruggedised version of type 6AL5.	21	K ^I	D ^{II}	H	H	K ^{II}	IS	D ^I	—	—	—	—	5726
—	—	< 0.03	Cathode Resistor 150Ω .	31	G ₁	K G ₃	H	K G ₃	A	H	G ₂	K G ₃	—	—	—	5840
—	—	0.05 max.	Cathode Resistor 600Ω . Special quality type for use in broad-band amplifiers.	32	G ₁	NC	H	K G ₃ IS	NC	A	NC	G ₂	H	—	—	5847
—	—	1.1	Disc-seal Triode for use up to 3000 Mc/s.	43	H	H K	G ₁	A	—	—	—	—	—	—	—	5861

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
5881	BEAM POWER PENTODE	Class "A" Audio Amplifier	H	6.3	0.9	300	Zero Signal 48 Max. Signal 55	-12.5	200	Zero Signal 2.5 Max. Signal 4.7	5300	—	0.035
		Class "AB ₁ " Audio Amplifier				360	Zero Signal 88 Max. Signal 132	-22.5	270	Zero Signal 5 Max. Signal 15	—	—	—
5882	AMPLIFIER TRIODE	U.H.F. Amplifier	F	1.25	0.2	★	★	★	—	—	★	★	—
5899	SPECIAL QUALITY SUBMINIATURE R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	100	7.2	-1.1	100	2.0	4500	—	0.175 (min.)
5920	MEDIUM μ TWIN TRIODE	Class "A" Amplifier	H	6.3	0.4	100	8.5 \pm 4	*-2.1	—	—	6000 \pm 1500	27	—
6007	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.013	22.5 Supply	Zero Signal 0.5 Max. Signal 0.34	0	22.5	Zero Signal 0.095 Max. Signal 0.09	420	—	0.4
						45 Supply	0.42	See Note	45	0.08	—	—	—
6008	SHARP CUT-OFF PENTODE	A.F. Amplifier	F	0.625	0.0133	22.5	0.05	-1.15	18	0.01	100	—	4.0
6080	SPECIAL QUALITY LOW μ TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3	2.5	100	100	See Note	—	—	6500	2	300 ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.C.
4500	6.5	0.9	Total Harmonic Distortion 11%.	30	NC	H	A	G_2	G_1	—	H	K G_3	—	—	—	5881
6600 Plate to Plate	26.5		Total Harmonic Distortion 2%.													
—	★	1.5	★ For data and notes refer type IE3.	32	G_1	NC	F	F+	F-	NC	NC	A	NC	—	—	5882
—	—	<0.03	Mutual Conductance for Grid No. 1 voltage = $-15.5 = 25 \mu\text{mhos}$.	31	G_1	K G_3	H	K G_3	A	H	G_2	K G_3	—	—	—	5899
—	—	$A^I-G_1^I$ 3.5 ± 0.5 $A^{II}-G_1^{II}$ 3.2 ± 0.5	* Cathode Resistor 250 Ω . For use in computer circuits. Life expectancy 10,000 hours.	21	A ^I	A ^{II}	H	H	G_1^{II}	G_1^I	K	—	—	—	—	5920
*	0.0018	0.2	Primarily intended for hearing aids. * High impedance choke shunted by 0.1 meg. resistor. Grid leak 10.0 meg. Total Harmonic Distortion 10%.	46	F+	A	G_2	G_1	F-	—	—	—	—	—	—	6007
*	0.006		Bias resistor 5600 Ω . * High impedance choke shunted by 0.1 meg. resistor. Grid leak 3.0 meg.													
—	—	0.2	Primarily intended for hearing aids. Plate current cut-off at -2.3 volts grid bias. As R.C. Amplifier (22.5 V. supply). Following grid leak 5.0 meg. Plate resistor 1.0 meg. Screen resistor 3.9 meg. Grid leak 10.0 meg. Gain = 31.	46	F+	A	G_2	G_1	F-	—	—	—	—	—	—	6008
				G_3												
—	—	Unit 1 7.5 Unit 2 6.5	Cathode Resistor 300 Ω . Special quality type for use as Series Regulator in D.C. power supplies or in servo applications.	30	G^{II}	A ^{II}	K ^{II}	G^I	A ^I	K ^I	H	H	—	—	—	6080

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
6084	SHARP CUT-OFF PENTODE	Low-noise A.F. Pre-amplifier	H	6.3	0.3	250	3.0	-2	100	0.55	1850	—	2.0
6085	TWIN TRIODE	A.F. and Class "A" Power Amplifier	H	12.6 6.3	0.3 0.6	250	6.0	-5.6	—	—	2900	32	0.011
6086	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-amplifier	H	18.0	0.1	210	10.0 ± 1.3	See Note	120	2.1 ± 0.4	9000 ± 1200	—	0.5
		Class "A" Power Amplifier	H	18.0	0.1	210 Supply	8.3	See Note	See Note	1.7	8200	—	0.44
6201	PREMIUM QUALITY HIGH μ TWIN TRIODE	Class "A" Amplifier	H	12.6	0.15	250	10.0	See Note See Note	—	—	5500	60	0.011
				6.3	0.3								
6211	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3 12.6	0.3 0.15	100	4.6	See Note	—	—	3600	28	7800 ohms
6227	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.75	200	30.0	-4.5	200	4.2	9000	—	—
6267	SHARP CUT-OFF A.F. PENTODE	A.F. Amplifier (Low-noise)	H	6.3	0.2	250	3.0	-2	140	0.55	1850	—	2.5

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.02	As R.C. Amplifier (250 V. supply). Plate resistor 0.33 meg. Screen resistor 1.5 meg. Cathode resistor 2200 Ω . Gain = 210. Plate current cut-off at - 10 V. grid bias. Ruggedised, long-life valve.	32	G ₂	IS	K	H	H	A	S	G ₃	G ₁	—	—	6084
15,000	0.28	2.6 _{t1} 2.75 _{1a}	As R.C. Amplifier (400 V. supply). Following grid leak 0.33 meg. Plate resistor 0.1 meg. Cathode resistor 2200 Ω . Gain = 24. % Values for each unit. Ruggedised, long-life tube.	32	A ¹	G ₁ ¹	K ¹	H	H	A ¹¹	G ₁ ¹¹	K ¹¹	H _t	—	—	6085
—	—	0.15	Cathode bias resistor 165 Ω . Plate current cut off at - 5 V. grid bias. Ruggedised long life tube.	32	G ₂	G ₁	K	H	H	A	IC	IC	G ₃ IS	—	—	6086
20,000	0.66		Series screen resistor 5600 Ω (120 V. supply). Cathode bias resistor 180 Ω . Total harmonic distortion 10%. R.M.S. Grid voltage = 1.1 volts.													
—	—	Grid Drive 1.6 Cathode Drive 0.2	Plate current = 10 μA . at -12, -5 volts grid bias respectively. Cathode Resistor 200, 270 Ω . For use under shock, vibration, or cycling control operation. Type 6201 is a premium version of type 12AT7.	32	A ¹¹	G ₁ ¹¹	K ¹¹	H	H	A ¹	G ₁ ¹	K ¹	H _t	—	—	6201
—	—															
—	—	2.22	Special quality type for use in Computer Circuits. Cathode Resistor 470 Ω .	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	H _t	—	—	6211
7000	2.5	0.1	Ruggedised, long-life tube. Total Harmonic Distortion 10%.	32	S	G ₁	K	H	H	S	A	G ₂	G ₃	—	—	6227
—	—	0.025	Plate current cut-off at - 5 V. grid bias. As R.C. Amplifier (250 volts supply). Following grid leak 0.68 meg. Plate resistor 0.22 meg. Screen resistor 1.0 meg. Cathode resistor 2200 Ω . Gain = 180.	32	G ₂	S	K	H	H	A	S	G ₃	G ₁	—	—	6267

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
6374	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	6.3	1.0	Peak Inverse 2000 (max.)	Peak 900 (max.)	—	—	—	—	—	
						Max. R.M.S. 625	D.C. Output 125						
6375	U.H.F. MEDIUM μ TRIODE	U.H.F. Amplifier or Oscillator	F	1.25	0.2	150	12.0	-4.5	—	—	3400	14	4000 ohms
6483	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3	0.6	250	14.5	See Note	—	—	5200	20	—
				12.6	0.3								
6550	BEAM POWER PENTODE	Class "A" Audio Amplifier	H	6.3	1.6	250	140	-14	250	12	11,000	—	12,000 ohms
		Class "AB" Audio Amplifier				400	Zero Signal 180 Max. Signal 270	-23	275	Zero Signal 9 Max. Signal 44	—	—	—
6686	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier	H	18.0	0.15	210	15	See Note	210	4.0	10000	—	0.4
		Class "A" Power Amplifier				210	20	See Note	210	5.3	11000	—	0.3
6687	DUAL CONTROL HEPTODE	Dual Control Amplifier	H	6.3	0.27	150	< 0.2	See Note	75	—	—	—	—
6688	SPECIAL QUALITY SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.3	190	13.0	See Note	160	3.3	16500	—	0.09

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.		
—	—	—	Maximum filter input capacitor 24 μF . For use at high altitudes. Maximum average current output 150 mA.	32	IC	IC	K	H	H	IC	IC	IC	IC	A	—	6374	
—	—	1.4	Operating conditions as oscillator at 500 Mc/s. Plate voltage 150. Cathode current 20 mA. Power output 0.45 watt.	31	G ₁	—	—	F-	F+	—	—	A	—	—	—	6375	
—	—	Unit 1 5.2 Unit 2 5.4	Cathode Resistor 620 Ω . Special quality type for use in computer circuits.	32	A''	K''	G''	H	H	A'	K'	G'	H ₁	—	—	6463	
1500	12.5	0.85	Total Harmonic Distortion 7%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	6550	
3500	55	Total Harmonic Distortion 3%.															
20000*	—	0.02	* Choke or transformer coupling. Cathode bias resistor 180 Ω . Stage gain 170. Plate current cutoff at -7 volts grid bias.	32	IS	G ₁	K	H	H	IS	A	G ₂ G ₃	G ₃	—	—	6686	
15000	1.0	Cathode bias resistor 120 Ω . Total harmonic distortion 5%. Long life valve.															
—	—	0.08	Grid (G ₁) bias -10 volts through 47000 Ω resistor. Plate Resistor 20000 Ω . Series Screen Resistor 470 Ω . Grid (G ₃) Resistor 47000 Ω . Grid (G ₂) Voltage 0. For use in computer circuits.	21	G ₁	K G ₃	F	F	A	G ₂ G ₄	G ₃	—	—	—	—	6687	
—	—	0.03	Cathode Resistor 630 Ω . Grid No. 3 Voltage 0. Equivalent H.F. noise Resistance 460 Ω . Plate current cutoff at -4 volts grid bias. Input conductance at 100 Mc. 500 μmbos . For use under shock conditions in wide band R.F. equipment.	32	K	G ₁	K	F	F	IC	A	G ₃ IS	G ₃	—	—	6688	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T	Voltage	Current								
			Y P E	Volts	Amps								
6689	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier				210	10 ±1.3	See Note	120	2.1 ±0.4	9000 ±1200	—	0.5
		Class "A" Power Amplifier	H	6.3	0.3	210	8.3	See Note	See Note	1.7	8200	—	0.44
6922	SPECIAL QUALITY R.F. TWIN TRIODE	Cascode R.F. Amplifier	H	6.3	0.3	100	15.0	See Note	—	—	12500	33	—
6923	U.H.F. MEASURING DIODE	Measuring Diode	H	6.3	0.3	Peak Inverse 1000 (max.) 3.0	— 0.5	—	—	—	—	—	—
6973	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	0.45	250	46	-15	250	3.5	4800	—	0.073
6977	SPECIAL QUALITY VOLTAGE INDICATOR	Voltage Indicator	F	1.0	0.03	50	585 μA. See Note	0 See Note	—	—	—	—	—
7025	HIGH μ TWIN TRIODE	A.F. Amplifier (Low-noise)	H	12.6 6.3	0.15 0.3	★	★	★	—	—	★	★	★
7027A	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	0.9	250	72	-14	250	5	6000	—	0.0225
7062	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3 12.6	0.4 0.2	150	8.5	-1.85	—	—	6400	46	7200 ohms
7119	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3 12.6	0.64 0.32	120	36	-2.0	—	—	15,000	24	—
7189 7189A	BEAM POWER PENTODE	Class "A" Amplifier				250	48	-7.3	250	5.5	11,300	—	0.04
		Class "AB," Audio Amplifier	H	6.3	0.75	400	Zero Signal 15 Max. Signal 105	-15	300	Zero Signal 1.6 Max. Signal 25	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0-015	Cathode Resistor 165 Ω . Plate current cut-off at -5 volts grid bias. Ruggedised long life tube.	32	G ₂	G ₁	K	H	H	A	IC	IC	G ₃ IS	—	—	6689
20000	0.66		Cathode Resistor 180 Ω . Series Screen Resistor 5600 Ω (120 V. supply). Total Harmonic Distortion 10%. R.M.S. Grid Voltage 1.1													
—	—	Unit 1 1.4 Unit 2 1.4	Cathode Resistor 680 Ω . Special quality type for use in computer circuits or wide band R.F. amplifiers.	32	A ^I	G ₁ ^I	K ^I	H	H	A ^{II}	G ₁ ^{II}	K ^{II}	IS	—	—	6922
—	—	—	Peak inverse plate voltage for $f > 100$ Mc/s. is $\left[1000 \times \frac{100}{f} \right]$ V max. Peak cathode current 5 mA. maximum.	54	H	H	K	A	—	—	—	—	—	—	—	6923
—	—	0.7 max.		32	G ₂	NC	G ₁	H	H	G ₁	K G ₃	G ₂	A	—	—	6973
—	—	—	Grid Resistor 100 k Ω . Conditions given for max. light output. For zero light output Grid Bias = -3 volts and Plate Current is less than 5 μA .	64	F+	G	F-	A	—	—	—	—	—	—	—	6977
—	—	1.7	★ For data and notes refer type 12AX7. Type 7025 is a low-noise version of the 12AX7.	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	H _t	—	—	7025
—	—	1.5	It is essential that free air circulation be provided around the bulb.	30	G ₂	H	A	G ₂	G ₁	G _t	H	K G ₃	—	—	—	7027A
—	—	Unit 1 2.2 Unit 2 2.3	Special quality type for use in computer circuits.	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	H _t	—	—	7062
—	—	Unit 1 4.0 Unit 2 4.1	Special quality type for use in computer circuits.	32	A ^{II}	G ^{II}	K ^{II}	H	H	K ^I	G ^I	H _t	A ^I	—	—	7119
—	—	0.5		32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	7189
8000 Plate to Plate	24		Total Harmonic Distortion 4%.		G ₁	G ₁	K G ₃	H	H	G ₂	A	IC	G ₂	—	—	7189A

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
7199	MEDIUM μ TRIODE SHARP CUT-OFF PENTODE	Pentode Class "A" Amplifier (Low noise)	H	6.3	0.45	Supply 220	12.5	See Note	Supply 130	3.5	7000	—	0.4
		Triode Class "A" Amplifier (Low noise)				Supply 215	9	-8.5	—	—	2100	17	8100 ohms
7247	TWIN TRIODE WITH DIS-SIMILAR UNITS	Class "A" Amplifier (Low noise) Unit 1	H	12.6 6.3	0.15 0.3	100	0.5	-1	—	—	1250	100	0.08
						250	1.2	-2	—	—	1600	100	0.0625
		100				11.8	0	—	—	3100	20	6500 ohms	
		250				10.5	-8.5	—	—	2200	17	7700 ohms	
7316	SPECIAL QUALITY MEDIUM μ TWIN TRIODE	Class "A" Amplifier (Each unit)	H	12.6 6.3	0.15 0.3	100	11.8	0	—	—	3100	19.5	6250 ohms
7475	NEON VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	90 to 110	1.0 to 8.0	—	—	—	—	—	—
7534	SPECIAL QUALITY HIGH SLOPE POWER PENTODE	Class "A" Amplifier	H	6.3	1.7	250	100	-15.5	150	4.0	25,000	—	0.01
7543	LOW NOISE SHARP CUT-OFF PENTODE	Class "A" Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★
7687	LOW NOISE TRIODE PENTODE	Triode Class "A" Amplifier	H	6.3	0.5	215	7.5	-8.5	—	—	2500	18	0.0072
		Pentode Class "A" Amplifier				220	10	See Note	130	3.4	5800	—	0.5
9001	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.15	250	2.0	-3	100	0.7	1400	—	>1.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.06 max.	Cathode Resistor : 62 Ω .	32	A ^t	A ^p	G ₂	H	H	K ^p G ₃ IS	G ₁ P	K ^t	G ^t	—	—	7199
—	—	2														
—	—	1.7		32	A ^u	G ^u	K ^u	H	H	A ¹	G ¹	K ¹	H _t	—	—	7247
—	—	1.4														
—	—	1.5	Intended for computer application. Typical cutoff condition :— Plate Supply Voltage 250. Grid Voltage —30. Plate Load Resistor 1 M Ω . Plate Current < 30 μA .	32	A ^u	G ^u	K ^u	H	H	A ¹	G ¹	K ¹	H _t	—	—	7316
—	—	—	Starting voltage 140 V. D.C. Quiescent Current 4.0 mA. A.C. Resistance = 700 Ω .	10	A	NC	K	NC	—	—	—	—	—	—	—	7475
—	—	2.0 max.	For use as Series Tube in Stabilised D.C. Power Supply units.	30	IC	H	IC	G ₂	G ₁	IC	H	K G ₃	—	—	—	7534
—	—	0.0035	Type 7543 is a low noise version of valve type 6AU6. ★ For data and notes refer type 6AU6.	21	G ₁	G ₃	H	H	A	G ₂	K	—	—	—	—	7543
—	—	2.4	Plate Current = 10 μA . at —21 volts grid bias.	32	A ^t	G ₁ P	G ₂	H	H	A ^p	K ^p G ₃	K ^t	G ₁ ^t	—	—	7687
—	—	0.15	Cathode Resistor 62 Ω .													
—	—	0.01	Plate Current Cut-off at — 6 volts Grid Bias. As R.C. Amplifier (250 V. supply). Plate Resistor 0.25 meg. Screen voltage 50 V. D.C. Grid Bias — 2.1 V. D.C. Plate Current 0.5 mA. Gain = 100.	21	G ₁	K	H	H	A	G ₂	K G ₃ IS	—	—	—	—	9001

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
9002	DETECTOR OSCILLATOR AMPLIFIER TRIODE	R.F.	H	6-3	0-15	250	6-3	-7	—	—	2200	25	0-0114
		Amplifier				90	2-5	-2-5	—	—	1700	25	0-0147
9003	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-15	250	6-7	-3	100	2-7	1800	—	0-7
9004	U.H.F. DIODE	Detector, Rectifier	H	6-3	0-15	Max. R.M.S. 117	D.C. Output 5-0 Max.	—	—	—	—	—	—
9005	U.H.F. DIODE	Detector, Rectifier	H	3-6	0-165	Max. R.M.S. 117	D.C. Output 1-0 Max.	—	—	—	—	—	—
9006	U.H.F. DIODE	Detector, Rectifier	H	6-3	0-15	R.M.S. 270	D.C. Output 5-0	—	—	—	—	—	—
13201 13201A	NEON VOLTAGE STABILIZER	Voltage Stabilizer	C O L D	—	—	90 to 110	15 to 200	—	—	—	—	—	—
18004	TELEPHONE REPEATER AMPLIFIER TRIODE	Class "A" Power Amplifier	F	4-4	0-97	130	22	-25	—	—	1000	2-3	2300 Ohms
18013	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier	H	4-0	1-3	200	8-0	See Notes	200	1-5	5000	—	1-0
		Class "A" Power Amplifier				200	8-0	See Notes	200	1-5	5000	—	1-0
18014	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier	H	4-0	1-6	200	35-0	See Notes	200	4-6	8000	—	0-05
		Class "A" Power Amplifier				200	35-0	See Notes	200	4-6	8000	—	0-05
18015	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier	H	21-0	0-285	125	4-5	See Notes	125	1-3	5500	—	0-55
		Class "A" Power Amplifier				125	8-0	See Notes	125	2-5	8300	—	0-35

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μMF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1-4		21	A	K	H	H	A	G ₁	K	—	—	—	—	9002
—	—	0-01	Mutual Conductance = 2 μmhos at - 45 volts Grid Bias.	21	G ₁	K	H	H	A	G ₂	K G ₃ IS	—	—	—	—	9003
—	—	—		13	H	A	K	H	NC	—	—	—	—	—	—	9004
—	—	—		13	H	K	A	H	IC to pin 4	—	—	—	—	—	—	9005
—	—	—	Plate Supply Impedance = 100 Ω minimum.	21	A	K	H	H	A	NC	K	—	—	—	—	9006
—	—	—	Overall length 154 m.m. Starting voltage 140 V. D.C. Quiescent Current 100 mA. A.C. Resistance = 90 Ω . Overall length 174 m.m.	10	A	NC	K	NC	—	—	—	—	—	—	—	13201 13201A
2100	0.2	4.5	Total Harmonic Distortion 5%. Long-life valve.	6	F	A	G ₁	F	—	—	—	—	—	—	—	18004
20,000*	—	0-012	* Choke or transformer coupling. Cathode Bias Resistor 265 Ω . Stage gain = 100. Plate Current Cut-off at - 7 volts Grid Bias.	23	K	H	H	G ₃	A	M	G ₂	—	—	G ₁	—	18013
30,000	0.1		Cathode Bias Resistor 265 Ω . Total Harmonic Distortion 5%. Long-life valve.													
8000*	—	0.6	* Choke or transformer coupling. Cathode Bias Resistor 125 Ω . Stage gain = 56. Plate Current Cut-off at - 15 volts Grid Bias.	23	K	H	H	G ₂	NC	M	A	—	—	G ₁	—	18014
8000	0.8		Cathode Bias Resistor 125 Ω . Total Harmonic Distortion 3%. Long-life valve.		G ₃											
16,000*	—	0-02	* Choke or transformer coupling. Cathode Bias Resistor 440 Ω . Stage gain = 50. Plate Current Cut-off at - 4.5 volts Grid Bias.	23	K	H	H	G ₃	A	M	G ₂	—	—	G ₁	—	18015
30,000	0.1		Cathode Bias Resistor 200 Ω . Total Harmonic Distortion 5%. Long-life valve.		S											

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
18016	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier				125	48	See Notes	125	9.5	9000	—	0.0165
		Class "A" Power Amplifier	H	21.0	0.335	125	48	See Notes	125	9.5	9000	—	0.0165
18040	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier				210	15	See Note	210	4.0	10,000	—	0.4
		Class "A" Power Amplifier	H	18.0	0.27	210	20	See Note	210	5.3	11,000	—	0.3
18042	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier and Class "A" Power Amplifier	H	18.0	0.1	★	★	★	★	★	★	—	★
18043	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier and Class "A" Power Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★
18045	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-Amplifier				210	15	See Note	210	4.0	10,000	—	0.4
		Class "A" Power Amplifier	H	18.0	0.15	210	20	See Note	210	5.3	11,000	—	0.3
18046	TELEPHONE REPEATER AMPLIFIER PENTODE	Pre-amplifier and Class "A" Power Amplifier	H	20.0	0.135	★	★	★	★	★	★	—	★
A409	AMPLIFIER TRIODE	Amplifier	F	4.0	0.065	150	3.5	-9	—	—	900	9	0.01
A415	AMPLIFIER TRIODE	Amplifier	F	4.0	0.085	150	4.0	-4.5	—	—	1500	15	0.01
A425	AMPLIFIER TRIODE	Amplifier	F	4.0	0.065	200	0.25	-2.5	—	—	—	25	0.08

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
3300*	—	0.25	* Choke or transformer coupling. Cathode Bias Resistor 115 Ω . Stage gain = 20. Plate Current Cut-off at — 19 volts Grid Bias.	23	K													18016
3300	0.8		Cathode Bias Resistor 115 Ω . Total Harmonic Distortion 3%. Long-life valve.		G ₃	H	H	G ₂	NC	M	A	—	—	G ₁	—			
20,000*	—	0.02	* Choke or transformer coupling. Cathode Bias Resistor 185 Ω . Stage gain = 170. Plate Current Cut-off at — 7. volts Grid Bias.	29														18040
15,000	1.0		Cathode Bias Resistor 120 Ω . Total Harmonic Distortion 5%.		H	A	G ₂	G ₃	S ₂	G ₁	K	H	—	—	—			
—	—	0.015	★ For data and notes refer type 6086.	32	G ₂	G ₁	K	H	H	A	IC	IC	G ₂	—	—		18042	
—	—	0.015	★ For data and notes refer type 6086.	32	G ₂	G ₁	K	H	H	A	IC	IC	G ₃	—	—		18043	
20,000*	—	0.02	*Choke or transformer coupling. Cathode Bias Resistor 180 Ω . Stage gain = 170. Plate Current Cut-off at — 7 volts Grid Bias.	32														18045
15,000	1.0		Cathode Bias Resistor 120 Ω . Total Harmonic Distortion 5%. Long-life valve.		IS	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—			
★	★	0.02	★ For data and notes refer type 18045.	32	S	G ₁	K	H	H	S	A	G ₂	G ₃	—	—		18046	
—	—	4.0		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	A409	
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—		
—	—	4.5		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	A415	
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—		
320,000	—	3.0		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	A425	
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—		

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
A609	AMPLIFIER TRIODE	Amplifier	F	6.0	0.06	150	4.0	-9	—	—	1500	9	6000 Ohms
A615	AMPLIFIER TRIODE	Amplifier	F	6.0	0.08	150	4.0	-4.5	—	—	2400	15	6250 Ohms
A630	AMPLIFIER TRIODE	Amplifier	F	6.0	0.06	150	0.7	-1.5	—	—	1500	30	0.02
AB1	TWIN DIODE	Detector Rectifier	H	4.0	0.65	★	★	—	—	—	—	—	—
AB2	TWIN DIODE	Detector Rectifier	H	4.0	0.65	Max. R.M.S. 200 per Plate	D.C. Output 0.8 per Plate	—	—	—	—	—	—
AB61	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	4.0	0.65	250	4.0	-7	—	—	2000	27	0.0135
ABL1	DUO-DIODE POWER OUTPUT PENTODE	Detector, Class "A" Power Amplifier	H	4.0	2.4	★	★	★	★	★	★	—	★
AC2	AMPLIFIER TRIODE	Amplifier	H	4.0	0.65	250	6.0	-5.5	—	—	2500	30	0.012
AC044	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	1.0	300	50	-38	—	—	5000	—	1200 Ohms
AD1	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	0.95	250	60	-45	—	—	6000	4	670 Ohms
AF2	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	4.0	1.1	200	4.25	-2	100	1.8	2500	—	1.4
AF3	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	4.0	0.65	250	8.0	-3	100	2.6	1800	—	1.2
AF7	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	4.0	0.65	250	3.0	-2	100	1.1	2100	—	2.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	A609
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—		
—	—	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	A615
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—		
—	—	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	A630
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—		
—	—	—	★ For data and notes refer type AB2.	14	D ₁	H	M	H	K	—	—	—	—	D ₁	—	AB1	
—	—	—		12	D ₁	D ₂	H	H	K M	—	—	—	—	—	—	AB2	
—	—	1.7	As R.C. Amplifier (250 V. supply). Plate Resistor 0.2 meg. Cathode Resistor 4000 Ω . Gain = 21.	26	M	H	H	K	D ₁	D ₁	NC	A	—	G ₁	—	ABC1	
★	★	—	★ For data and notes refer type EBL1.	26	NC	H	H	M K G ₂	D ₁	D ₂	G ₂	A	—	G ₁	—	ABL1	
—	—	1.7	As R.C. Amplifier (250 V. supply). Plate Resistor 0.32 meg. Cathode Resistor 8000 Ω . Gain = 19.	26	M	H	H	K	NC	NC	NC	A	—	G ₁	—	A02	
2300	3.5	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	AC044	
				8	F	A	G ₁	F	—	—	—	—	—	—	—		
2300	4.2	23	Total Harmonic Distortion 1.5%.	26	NC	F	F	NC	NC	G ₁	NC	A	—	—	—	AD1	
—	—	0.006	Mutual Conductance = 2 μmhos at - 22 volts Grid Bias.	14	G ₂	H	G ₁	H	K M G ₃	—	—	—	—	A	—	AF2	
				20	H	K	G ₂	M	G ₁	NC	H	—	—	A	—		
—	—	0.003	Mutual Conductance = 2 μmhos at - 55 volts Grid Bias.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	AF3	
—	—	0.003	Plate Current Cut-off at - 5 volts Grid Bias. As R.C. Amplifier (250 V. supply). Plate Resistor 0.32 meg. Screen Resistor 0.8 meg. Cathode Resistor 4000 Ω . Gain = 157.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	AF7	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
AH1	HEXODE	Frequency Mixer	H	4.0	0.65	250	1.7	(G ₁) -2	(G ₂₊₃) 80	2.6	Conv. 550	—	2.0
		R.F. Amplifier				250	3.0	(G ₁ & G ₃) -2	80	1.1	1800	—	2.0
AK1	OCTODE	Frequency Converter	H	4.0	0.65	200	1.6	(G ₄) -1.5	(G ₃₊₅) 70	3.8	Conv. 600	—	1.5
AK2	OCTODE	Frequency Converter	H	4.0	0.65	250	1.6	(G ₄) -1.5	(G ₃₊₅) 70	3.8	Conv. 600	—	1.6
AL1	POWER OUTPUT PENTODE	Class "A" Amplifier	F	4.0	1.1	250	36.0	-15	250	6.8	2800	—	0.043
AL2 AL2X	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	4.0	1.0	250	36.0	-25	250	5.0	2600	—	0.06
AL3 AL4	POWER OUTPUT PENTODE	Class "A" "AB" Power Amplifier	H	4.0	1.75	★	★	★	★	★	★	—	★
AL5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	4.0	2.0	★	★	★	★	★	★	—	★
AM1	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	4.0	0.3	Target Volts 250	Target Current 0.13	-5 For Shadow Angle 0°	—	—	—	—	—
AX1	FULL-WAVE GAS-FILLED RECTIFIER	Full-wave Rectifier	F	4.0	2.4	Max. R.M.S. 2 x 500	D.C. Output 125.0 Max.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0-003	Conversion Conductance = 2 μmhos at - 24 volts Grid (G_1) Bias. Oscillator Injector Grid (G_2) - 12 volts Bias. Osc. Grid (G_3) volts = 9 V. R.M.S.	26	M	H	H	K	G_3	G_4	G_2	A	—	G_1	—	AK1
—	—		Mutual Conductance = 2 μmhos at - 20 volts Grid Bias (G_1 and G_3 simultaneously biased).													
—	—	0-06	Conversion Conductance = 2 μmhos at - 25 volts Grid (G_4) Bias. Grid No. 2 90 V. at 2.0 mA. Osc. Grid (G_1) Current 0.19 mA. Osc. Grid Resistor 50,000 Ω .	24	A	K M G_6	H	H	G_3 G_5	G_1	G_2	—	—	G_4	—	AK1
				20	H	K M	A	G_2	G_1	G_5	H	—	—	G_4	—	
—	—	0-06	Conversion Conductance = 2 μmhos at - 25 volts Grid (G_4) Bias. Grid No. 2 90 V. at 2.0 mA. Osc. Grid (G_1) Current 0.19 mA. Osc. Grid Resistor 50,000 Ω .	26	M	H	H	K G_6	G_2	G_1	G_3 G_2	A	—	G_4	—	AK2
7000	3-1	—	Total Harmonic Distortion 6%. Cathode Bias Resistor 350 Ω .	26	NC	F G_3	F	NC	NC	G_1	G_2	A	—	—	—	AL1
7000	3-8	0-7	Total Harmonic Distortion = 10%. Cathode Bias Resistor 625 Ω .	26	NC	H	H	K G_3	NC	NC	G_2	A	—	G_1	—	AL2
				26	NC	H	H	K G_3	NC	G_1	G_2	A	—	—	—	AL2X
★	★	0-8	★ For data and notes refer type EL33.	26	NC	H	H	K G_3	NC	G_1	G_2	A	—	—	—	AL3
				26	NC	H	H	K G_3	NC	G_1	G_2	A	—	—	—	AL4
★	★	0-8	★ For data and notes refer type EL5.	26	NC	H	H	K G_3	NC	G_1	G_2	A	—	—	—	AL5
—	—	—	Triode Plate Resistor 2.0 meg. Triode Plate Current 0.095 mA.	26	NC	H	H	K	NC	G_1^t	T	A^t	—	—	—	AM1
—	—	—	Condenser Input to Filter 64 μF max. Plate Supply Impedance per Plate = 200 Ω min. Tube voltage drop 15 volts max.	10	A'	F	A''	F	—	—	—	—	—	—	—	AX1

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
AX50	FULL-WAVE GAS-FILLED RECTIFIER	Full-wave Rectifier	F	4.0	3.75	Max. R.M.S. 2 x 500	D.C. Output 275.0 Max.	—	—	—	—	—	—
AZ1	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	1.1	★	★	—	—	—	—	—	—
AZ3	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	4.0	2.0	Max. R.M.S. 2 x 500	D.C. Output 120.0 Max.	—	—	—	—	—	—
AZ4	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	2.3	R.M.S. 2 x 300 2 x 500	D.C. Output 200.0 120.0	—	—	—	—	—	—
AZ11	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	1.1	★	★	—	—	—	—	—	—
AZ12	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	2.3	★	★	—	—	—	—	—	—
AZ31	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	1.1	R.M.S. 2 x 300 2 x 500	D.C. Output 100 60	—	—	—	—	—	—
AZ41	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	0.72	R.M.S. 2 x 300 2 x 500	D.C. Output 70 60	—	—	—	—	—	—
AZ50	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	4.0	3.0	Max. R.M.S. 2 x 500	D.C. Output 250	—	—	—	—	—	—
B240	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	F	2.0	0.2	150	Zero Signal 2 x 15	0	—	—	—	—	—
B405	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	0.15	150	11.0	-18	—	—	1600	5	3000 Ohms
B406	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	0.1	150	8.0	-15	—	—	1300	6	4500 Ohms
B409	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	0.15	250	12.0	-16	—	—	1800	9	5000 Ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	—	Condenser Input to Filter 64 μF max. Plate Supply Impedance per Plate = 200 Ω min. Tube voltage drop 15 volts max.	10	A ¹	F	A ¹¹	F	—	—	—	—	—	—	—	—	—	AZ50
—	—	—	★ For data and notes refer type AZ31.	26	NC	F	F	NC	A ¹	NC	NC	A ¹¹	—	—	—	—	—	AZ1
—	—	—		26	NC	H	H	K	A ¹¹	NC	NC	A ¹	—	—	—	—	—	AZ3
—	—	—	Condenser Input to Filter 60 μF max. Plate Supply Impedances per Plate = 60 Ω min. and 100 Ω min., respectively.	26	NC	F	F	NC	A ¹¹	NC	NC	A ¹	—	—	—	—	—	AZ4
—	—	—	★ For data and notes refer type AZ31.	27	A ¹	NC	NC	NC	F	F	NC	A ¹¹	—	—	—	—	—	AZ11
—	—	—	★ For data and notes refer type AZ4.	27	A ¹	NC	NC	NC	F	F	NC	A ¹¹	—	—	—	—	—	AZ12
—	—	—	Condenser Input to Filter 60 μF max. Plate Supply Impedance per Plate = 60 Ω min. and 100 Ω min., respectively.	30	NC	F	—	A ¹	—	A ¹¹	—	F	—	—	—	—	—	AZ31
—	—	—	Condenser Input to Filter 50 μF max. Plate Supply Impedance per Plate = 100 Ω min. and 200 Ω min., respectively.	28	IC	A ¹	IC	IC	IC	A ¹¹	F	F	—	—	—	—	—	AZ41
—	—	—	Condenser Input to Filter 64 μF max. Plate Supply Impedance per Plate = 200 Ω min.	10	A ¹	F	A ¹¹	F	—	—	—	—	—	—	—	—	—	AZ50
Plate to Plate 14,000	1.3	—	Total Harmonic Distortion 10%.	24	A ¹¹	G ₁ ¹	F	F	G ₁ ¹¹	A ¹	NC	—	—	—	—	—	—	B240
				17	F+	A ¹¹	G ₁ ¹¹	G ₁ ¹	A ¹	F-	—	—	—	—	—	—	—	
5000	0.5	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	—	B405
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	—	
7000	0.3	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	—	B406
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	—	
12,000	0.65	—	Total Harmonic Distortion 5%.	10	A	F	G ₁	F	—	—	—	—	—	—	—	—	—	B409
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	—	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
B443	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	4.0	0.15	250	12.0	-19	150	2.4	1300	—	0.045
B605	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	6.0	0.12	150	9.0	-18	—	—	1800	5	2800 Ohms
C1	CURRENT REGULATOR	Current Regulator	F	80 to 200	0.2	—	—	—	—	—	—	—	—
C2	CURRENT REGULATOR	Current Regulator	F	35 to 100	0.2	—	—	—	—	—	—	—	—
C3	CURRENT REGULATOR	Current Regulator	F	100 to 200	0.2	—	—	—	—	—	—	—	—
C3M	SPECIAL QUALITY SHARP CUT-OFF PENTODE	Class "A" Amplifier	H	20	0.125	220	16.0	See Note	150	3.0	6500	19 (G ₂ to G ₁)	0.25
C8	CURRENT REGULATOR	Current Regulator	F	80 to 200	0.2	—	—	—	—	—	—	—	—
C9	CURRENT REGULATOR	Current Regulator	F	35 to 100	0.2	—	—	—	—	—	—	—	—
C10	CURRENT REGULATOR	Current Regulator	F	35 to 100	0.2	—	—	—	—	—	—	—	—
C12	CURRENT REGULATOR	Current Regulator	F	80 to 200	0.2	—	—	—	—	—	—	—	—
				and 35 to 100	0.2	—	—	—	—	—	—	—	—
C243N	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.2	150	9.5	-4.5	150	2.2	2400	—	0.075
C405	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	0.3	250	20.0	-32	—	—	1900	5	2800 Ohms
C408	AMPLIFIER TRIODE	Amplifier	F	4.0	0.25	150	14.0	-7	—	—	2700	8	3000 Ohms
C443	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	4.0	0.25	300	20.0	-25	200	4.5	1700	—	0.037

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
20,000	1.35	—	Total Harmonic Distortion 10%.	14	A	F	G ₁	F	G ₂	—	—	—	—	—	—	—	B443
5000	0.5	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	B605
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	
—	—	—	Type C1 can be replaced by type C8 provided pins 1 and 2 on socket are not used.	26	NC	NC	NC	NC	R	NC	NC	R	—	—	—	—	C1
—	—	—		26	NC	NC	NC	NC	R	NC	NC	R	—	—	—	—	C2
—	—	—	Pins 1 and 2 tied together in base.	26	J	J	NC	NC	R	NC	NC	R	—	—	—	—	C3
—	—	0.018 max.	Cathode Resistor 250 Ω . Special quality General Purpose Pentode.	29	H	A	G ₃	G ₂	M	G ₁	K IS	H	—	—	—	—	C3M
—	—	—	Pins 1 and 2 tied together in base.	26	J	J	NC	NC	R	NC	NC	R	—	—	—	—	C8
—	—	—	Pins 3, 4 and 6 connected in base. Pins 7 and 8 connected in base. Type C9 may be replaced by C10 provided pin 2 on socket is not used.	26	NC	NC	J ₁	J ₁	R	J ₁	J ₂	J ₂ R	—	—	—	—	C9
—	—	—	Pins 2, 3, 4 and 6 connected in base. Pins 7 and 8 connected in base. For replacement consider type C9.	26	NC	J ₁	J ₁	J ₁	R	J ₁	J ₂	J ₂ R	—	—	—	—	C10
—	—	—	80-200 V. 0.2 A pins 5 and 8. 35-100 V. 0.2 A pins 5 and 7.	26	NC	NC	NC	NC	R ₁ R ₂	NC	R ₂	R ₁	—	—	—	—	C12
15,000	0.58	—	Total Harmonic Distortion 10%.	14	A	F	G ₁	F	G ₂	—	—	—	—	—	—	—	C243N
				15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	—	
5200	1.1	4.8		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	C405
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	
—	—	—	For use in Valve Voltmeters and other measuring instruments.	10	A	F	NC	F	—	—	—	—	—	G ₁	—	—	C408
				8	F+	A	G ₂	F-	—	—	—	—	—	—	—	—	
15,000	2.8	1.3	Total Harmonic Distortion 10%.	10	A	F	G ₁	F	G ₂	—	—	—	—	—	—	—	C443
				15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	—	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
C803	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	6.0	0.25	180	20.0	-40.5	—	—	1700	3	1750 Ohms
C8C1	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	13.0	0.2	250	4.0	-7	—	—	2000	27	0.0135
C8L1	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	44.0	0.2	200	45.0	-8.5	200	6.0	8000	—	0.04
C8L6	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	44.0	0.2	200	40	-9.2	100	9	6200	—	0.037
						100	45	-8	100	12	6500	—	0.02
C8L31	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	44.0	0.2	200	45	-8.5	200	6.0	8000	—	0.035
C81	AMPLIFIER TRIODE	Amplifier	H	13.0	0.2	200	4.6	-3.7	—	—	2000	50	0.025
C82	AMPLIFIER TRIODE	Amplifier	H	13.0	0.2	200	6.0	-4	—	—	2500	30	0.012
C8H35	TRIODE HEXODE	Frequency Converter	H	7.0	0.2	★	★	★	★	★	★	—	★
C8F1	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	13.0	0.2	200	3.0	-2	100	0.9	3200	—	0.7
C8F2	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	13.0	0.2	200	4.5	-2	100	1.4	2000	—	1.4
C8F3	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	13.0	0.2	200	8.0	-3	100	2.6	1800	—	0.9
C8F7	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	13.0	0.2	200	3.0	-2	100	1.1	2100	—	2.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
4800	0.79	—		10	A	F	G ₁	F	—	—	—	—	—	—	—	—	CB03
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	—	
—	—	—	As R.C. Amplifier. Plate Resistor 0.1 meg. Cathode Resistor 8000 Ω . Gain = 14.	26	M	H	H	K	D ₂	D ₁	NC	A	—	G ₁	—	CB01	
4500	4.0	1.0	Total Harmonic Distortion 10%.	26	NC	H	H	M K G ₃	D ₁	D ₂	G ₂	A	—	G ₁	—	CBL1	
5000 2200	3.8 1.8	0.5	Total Harmonic Distortion 10% in each case.	26	NC	H	H	M K G ₃	D ₁	D ₂	G ₂	A	—	G ₁	—	CBL6	
4500	4.0	—	Total Harmonic Distortion 10%.	30	M	H	A	D ₁	D ₂	G ₂	H	K G ₃	—	G ₁	—	CBL31	
—	—	—		26	M	H	H	K	NC	NC	NC	A	—	G ₁	—	CC1	
—	—	1.7	As R.C. Amplifier (250 V. supply). Plate Resistor 0.32 meg. Cathode Resistor 8000 Ω . Gain = 19.	26	M	H	H	K	NC	NC	NC	A	—	G ₁	—	CC2	
—	—	0.003	★ For data and notes refer type ECH35.	30	M	H	A ^h	G ₂ ^h G ₄ ^h	G ₁ ^t G ₃ ^h	A ^t	H	K	—	G ₁ ^h	—	CGH35	
—	—	0.003	Plate Current Cut-off at - 4.5 V. Grid Bias. As R.C. Amplifier (200 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.25 meg. Cathode Resistor 4000 Ω . Gain = 135.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	CF1	
—	—	0.003	Mutual Conductance = 2 μmhos at - 22 volts Grid Bias.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	CF2	
—	—	0.003	Mutual Conductance = 2 μmhos at - 55 volts Grid Bias.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	CF3	
—	—	0.003	Plate Current Cut-off at - 5 V. Grid Bias. As R.C. Amplifier (200 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.25 meg. Cathode Resistor 4000 Ω . Gain = 135.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	CF7	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
CF50	MICROPHONE PRE-AMPLIFIER PENTODE	A.F. Amplifier	H	30.0	0.2	250	1.5	-2	100	0.3	3300	—	2.5
GK1	OCTODE	Frequency Converter	H	13.0	0.2	200	1.6	(G ₄) -1.5	(i ₃₊₅) 70	3.8	Conv. 600	—	1.5
GL1	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	13.0	0.2	250	20	-23	250	2.0	1500	—	0.08
GL2	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	24.0	0.2	200	40	-19	100	5.0	3100	—	0.023
GL4	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	33.0	0.2	★	★	★	★	★	★	—	★
GL6	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	35.0	0.2	200	45	See Note	100	5.5	8000	—	0.022
GL33	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	33.0	0.2	200	45	-8.5	200	6.0	8000	—	0.035
CY1	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	20.0	0.2	Max. R.M.S. 250	D.C. Output 80 Max.	—	—	—	—	—	—
CY2	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	30.0	0.2	★	★	—	—	—	—	—	—
CY31	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	20.0	0.2	Max. R.M.S. 250	D.C. Output 120 Max.	—	—	—	—	—	—
CY32	FULL-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	30.0	0.2	Max. R.M.S. 250	D.C. Output 120 Max.	—	—	—	—	—	—
DA50	DIODE	Rectifier	F	1.2	0.3	125 Max.	0.2 Max.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.03	As R.C. Amplifier (250 V. supply). Following Grid Leak 0.7 meg. Plate Resistor 0.3 meg. Screen Resistor 0.9 meg. Cathode Resistor 2000 Ω . Gain = 315.	26	K G ₃	H	H	K G ₃	M	NC	G ₂	A	—	G ₁	—	CF50
—	—	0.06	Conversion Conductance = 2 μmhos at - 25 volts Grid (G ₄) Bias. Grid No. 2 90 V. at 2.0 mA. Osc. Grid (G ₁) Current 0.19 mA. Osc. Grid Resistor 50,000 Ω .	26	M	H	H	K G ₄	G ₂	G ₁	G ₃ G ₅	A	—	G ₄	—	CK1
12,500	1.7	—		26	NC	H	H	K G ₃	NC	NC	G ₂	A	—	G ₁	—	CL1
5000	3.0	1.5	Total Harmonic Distortion 10%.	26	NC	H	H	K G ₃	NC	NC	G ₂	A	—	G ₁	—	CL2
★	★	1.0	★ For data and notes refer type CL33.	26	NC	H	H	K G ₃	NC	NC	G ₂	A	—	G ₁	—	CL4
4500	4.0	0.5	Self Bias only. Cathode Bias Resistor 190 Ω . Total Harmonic Distortion 10%.	26	NC	H	H	K M G ₃	NC	NC	G ₂	A	—	G ₁	—	CL6
4500	4.0	—	Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	CL33
—	—	—	Condenser Input to Filter 32 μF maximum. Plate Supply Impedance = 125 Ω minimum.	26	NC	H	H	K	NC	NC	NC	A	—	—	—	CY1
—	—	—	★ For data and notes refer type CY32.	26	K ^I	H	H	K ^{II}	A ^I	NC	NC	A ^{II}	—	—	—	CY2
—	—	—	Condenser Input to Filter 32 μF maximum. Plate Supply Impedance = 125 Ω minimum.	30	NC	H	NC	—	A	—	H	K	—	—	—	CY31
—	—	—	Condenser Input to Filter 32 μF maximum. Plate Supply Impedance per Plate = 125 Ω minimum.	30	NC	H	A ^{II}	K ^{II}	A ^I	—	H	K ^I	—	—	—	CY32
—	—	—	Designed especially for measuring instruments.	2	F	D	F	—	—	—	—	—	—	—	—	DA50

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
DA90	R.F. DIODE	Rectifier	H	1.4	0.15	★	★	—	—	—	—	—	
DAC21	DIODE TRIODE	Detector A.F. Amplifier	F	1.4	0.025	★	★	★	—	—	★	★	
DAC31	DIODE TRIODE	Detector A.F. Amplifier	F	1.4	0.025	120 90	0.75 0.45	0 0	— —	— —	400 300	40 40	0.1 0.13
DAC32	DIODE HIGH μ TRIODE	Detector A.F. Amplifier	F	1.4	0.05	★	★	★	—	—	★	★	
DAF40	DIODE SHARP CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	F	1.4	0.025	120	0.85	0	See Note	0.2	700	—	2.6
DAF41	DIODE SHARP CUT-OFF PENTODE	Detector A.F. Amplifier	F	1.4	0.025	Supply 180 Max.	—	-0.2 Max.	Supply 180 Max.	—	—	—	—
DAF70	DIODE PENTODE	Detector A.F. Amplifier	F	1.25	0.025	67.5	0.8	0	67.5	0.3	450	—	0.2
DAF91	DIODE SHARP CUT-OFF PENTODE	Detector A.F. Amplifier	F	1.4	0.05	★	★	★	★	★	★	—	★
DAF92	DIODE SHARP CUT-OFF PENTODE	Detector A.F. Amplifier	F	1.4	0.05	★	★	★	★	★	★	—	★
DAF96	DIODE R.F. PENTODE	Detector R.F. Amplifier	F	1.4	0.025	★	★	★	★	★	★	—	★
DBC31	DUO-DIODE TRIODE	Detector A.F. Amplifier	F	1.4	0.05	120 90	1.6 1.4	-1.5 -0.5	— —	— —	900 850	25 25	0.028 0.03
DC70	U.H.F. TRIODE	U.H.F. Amplifier and Oscillator	F	1.25	0.2	150	12.0	-4.5	—	—	3400	14	4000 Ohms
DC80	AMPLIFIER TRIODE	U.H.F. Amplifier	F	1.25	0.2	★	★	★	—	—	★	★	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type 1A3.	21	H	D	K	NC	IC	D	H	—	—	—	—	DA90
—	—	1.6	★ For data and notes refer type DAC31.	30	F- S	M	A	NC	NC	D	NC	F+	—	G ₁	—	DA621
—	—	1.6	As R.C. Amplifier (120 V. supply). Plate Resistor 0.5 meg. Grid volts = 0. Gain = 25.	30	M	F+	A	NC	D	NC	F-	NC	—	G ₁	—	DA631
—	—	1.0	★ For data and notes refer type 1H5GT.	30	M	F+	A	NC	D	—	F-	NC	—	G ₁	—	DA632
—	—	0.0065	Series Screen Resistor 270,000 Ω (120 V. supply). Mutual Conductance = 7 μmhos at - 6.8 volts Grid Bias.	28	F+ G ₃ IS	A	D	IC	G ₂	G ₁	IC	F- IS	—	—	—	DAF40
—	—	0.0065	As R.C. Amplifier (150 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.47 meg. Screen Resistor 2.2 meg. Grid Bias 0 volts. Gain = 112.	28	F+ G ₃ IS	A	D	IC	G ₂	G ₁	IC	F- IS	—	—	—	DAF41
—	—	0.15	As R.C. Amplifier (67.5 V. Supply). Following Grid Leak 3.3 meg. Plate Resistor 1.0 meg. Screen Resistor 4.7 meg.	31	A	NC	G ₁	F- G ₃	F+	D	NC	G ₂	—	—	—	DAF70
—	—	—	★ For data and notes refer type 1S5.	21	F- G ₃	NC	D	G ₂	A	G ₁	F+	—	—	—	—	DAF91
—	—	—	★ For data and notes refer type 1U5.	21	F- G ₃	A	G ₂	D	NC	G ₁	F+	—	—	—	—	DAF92
—	—	—	★ For data and notes refer type 1AH5.	21	F- G ₃	NC	D	G ₂	A	G ₁	F+	—	—	—	—	DAF96
—	—	2.6	As R.C. Amplifier (120 V. supply). Plate Resistor 0.5 meg. Plate Current 0.14 mA. Grid Bias - 1 volt. Gain = 19.5.	30	M	F+	A	D ₂	D ₁	NC	F-	NC	—	G ₁	—	DB631
—	—	1.4	Operating conditions as oscillator at 500 Mc/s. Plate voltage 150 V. Cathode current 20 mA. Power output 0.45 watts.	31	G ₁	NC	NC	F-	F+	NC	NC	A	—	—	—	DC70
—	★	1.5	★ For data and notes refer type 1E3.	32	G ₁	NC	F	F+	F-	NC	NC	A	NC	—	—	DC80

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
DC90	V.H.F. MEDIUM TRIODE μ	R.F. Amplifier	F	1.4	0.05	90	3.0	-3.0	—	—	1100	11.5	—
DCC90	H.F. TWIN TRIODE	Class "C" R.F. Power Amplifier	F	2.8 1.4	0.11 0.22	★	★	★	—	—	—	—	—
DCH31	TRIODE HEXODE	Frequency Converter	F	1.4	0.15	120 90	1.0 1.0	0 0	60 60	1.5 1.5	450 450 Conv.	— —	1.0 0.5
DF21	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.025	120	1.0	-0.5	See Note	0.21	660	—	3.0
DF22	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	120	1.4	-1.5	See Note	0.3	1100	—	2.5
DF31	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	F	1.4	0.025	120	1.2	0	See Note	0.25	650	—	1.5
DF32	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	120	1.4	-1.5	See Note	0.3	1100	—	1.0
DF33	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	★	★	★	★	★	★	—	★
DF64	SUB MINIATURE A.F. PENTODE	A.F. Amplifier	F	0.625	0.01	15.0	0.060	-0.62	15.0	0.02	100	—	1.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	3.3	When used as self-oscillating frequency-changer in F.M. battery operated receivers. Grid Resistor 1 m Ω . Grid Current 6 μA . R.M.S. Oscillator Voltage 5.5.	21	F-	A	A	IC	G ₁	G ₁	F+	—	—	—	—	—	—	DC90
—	★	3.2	★ For data and notes refer type 3A5.	21	F-	A ^h	G ₁ ^h	F _t	G ₁ ^t	A ^t	F+	—	—	—	—	—	—	DC90
—	—	—	Conversion Conductance = 4.5 μmhos at - 8 volts Grid Bias. Osc. Plate 60 V. at 2.0 mA. Osc. Grid Leak 35,000 Ω . Osc. Grid Current 0.22 mA. Osc. G _m = 1300 μmhos .	30	M	F-	A ^h	G ₂ ^h G ₄ ^h	G ₁ ^t	A ^t	F+	NC	—	G ₁ ^h	—	—	—	DGH31
—	—	0.006	Series Screen Resistor 0.12 meg. (120 V. supply). Mutual Conductance = 6.6 μmhos at - 4.6 volts Grid Bias.	30	F-	M	A	G ₂	NC	G ₃	NC	F+	—	G ₁	—	—	—	DF21
—	—	0.005	Series Screen Resistor 0.1 meg. (120 V. supply). Mutual Conductance = 11 μmhos at - 8 volts Grid Bias.	30	F-	M	A	G ₂	NC	G ₃	NC	F+	—	G ₁	—	—	—	DF22
—	—	0.005	Series Screen Resistor 0.12 meg. (120 V. supply). Mutual Conductance = 6.5 μmhos at - 4.5 volts Grid Bias. As R.C. Amplifier (120 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 1.0 meg. Screen Resistor 5.0 meg. Grid Bias - 0.5 volt. Gain = 81.	30	M	F+	A	G ₂	G ₃	NC	F-	NC	—	G ₁	—	—	—	DF31
—	—	0.005	Series Screen Resistor 0.1 meg. (120 V. supply). Mutual Conductance = 11 μmhos at - 9 volts Grid Bias.	30	M	F+	A	G ₂	G ₃	NC	F-	NC	—	G ₁	—	—	—	DF32
—	—	0.007	★ For data and notes refer type 1N5GT.	30	M	F+	A	G ₂	NC	—	F-	NC	—	G ₁	—	—	—	DF33
—	—	<0.2	As R.C. Amplifier (18 V. supply). Plate Resistor 2.2 m Ω . Following Grid Resistor 5.0 m Ω . Series Screen Resistor 3.3 m Ω . Grid Bias -0.62 Gain 26.5 For use in hearing aids.	50	A	G ₂	F-	G ₁	F+	—	—	—	—	—	—	—	—	DF64

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
DF65	SHARP CUT-OFF PENTODE	A.F. Amplifier	F	0.625	0.0133	★	★	★	★	★	—	★	
DF66	SHARP CUT-OFF PENTODE	A.F. Amplifier	F	0.625	0.015	22.5	0.05	-1.05	22.5	0.015	100	—	2.0
DF67	SHARP CUT-OFF PENTODE	A.F. Amplifier	F	0.625	0.0133	★	★	★	★	★	—	★	
DF70	SHARP CUT-OFF PENTODE	A.F. Amplifier	F	0.625	0.025	30	0.05	-1.85	30	0.018	100	—	2.5
DF72	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.25	0.025	67.5	1.7	0	67.5	0.75	1000	—	0.65
DF73	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.25	0.025	67.5	1.7	0	67.5	0.5	800	—	0.45
DF91	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.05	★	★	★	★	★	—	★	
DF92	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	F	1.4	0.05	★	★	★	★	★	—	★	
DF96	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.025	★	★	★	★	★	—	★	
DF97	REMOTE CUTOFF R.F. PENTODE	R.F. Amplifier	F	1.4	0.025	★	★	★	★	★	—	★	
DH76	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	13.0	0.16	250	—	-3	—	—	1200	70	0.058

TECHNICAL DATA

Load resistance Ohms	Power out, ut Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0.2	★ For data and notes refer type 6008.	45	F+ G ₃	A	G ₂	G ₁	F—	—	—	—	—	—	—	—	DF65
—	—	0.15	Primarily intended for hearing aids. Plate Current Cut-off at — 2.5 volts Grid Bias. As R.C. Amplifier (22.5 V. supply). Plate Resistor 1.0 meg. Screen Resistor 2.0 meg. Grid Bias — 0.625 volts. Cathode Current 16 μA . Gain = 33.	50	A	G ₂	F+	G ₁	F— G ₃	—	—	—	—	—	—	—	DF66
—	—	0.2	★ For data and notes refer type 6008.	46	F+ G ₃	A	G ₂	G ₁	F—	—	—	—	—	—	—	—	DF67
—	—	0.5	Primarily intended for hearing aids. Plate Current Cut-off at — 2.75 V. Grid Bias. As R.C. Amplifier (45 V. supply). Following Grid Leak 10.0 meg. Screen Resistor 3.5 meg. Plate Resistor 1.0 meg. Grid Leak 3.0 meg. Gain = 38.	31	IC	G ₁	IC	F— IS G ₃	F+	IC	A	G ₂	—	—	—	—	DF70
—	—	0.014	Plate Current = 20 μA at — 5 volts Grid Bias.	31	NC	G ₁	NC	F— G ₃ IS	F+	NC	A	G ₂	—	—	—	—	DF72
—	—	0.014	Mutual Conductance = 8 μmhos at — 14 -volts Grid Bias.	31	NC	G ₁	NC	F— G ₃ IS	F+	NC	A	G ₂	—	—	—	—	DF73
—	—	0.01	★ For data and notes refer type 1T4.	21	F— IS G ₃	A	G ₂	NC	F— IS G ₃	G ₁	F+	—	—	—	—	—	DF91
—	—	0.008	★ For data and notes refer type 1L4.	21	F— IS G ₃	A	G ₂	NC	F— IS G ₃	G ₁	F+	—	—	—	—	—	DF92
—	—	0.008	★ For data and notes refer type 1AJ4.	21	F— G ₃ IS	A	G ₂	NC	F— G ₃ IS	G ₁	F+	—	—	—	—	—	DF96
—	—	0.01	★ For data and notes refer type 1AN5.	21	F— IS	A	G ₂	G ₃	F— IS	G ₁	F+	—	—	—	—	—	DF97
—	—	1.8	As R.C. Amplifier (250V. supply). Plate Resistor 0.2 meg. Cathode Resistor 3000 Ω .	30	S	H	A	D ₁	D ₂	—	H	K	—	G ₁	—	—	DH76

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
DH77	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.3	★	★	★	—	—	★	★	★
DH107	DUO-DIODE HIGH μ TRIODE	Class "A" Amplifier	H	19.0	0.1	250	1.0	-3.0	—	—	70	1200	0.058
DK21	OCTODE	Frequency Converter	F	1.4	0.05	120	1.5	(G ₄) 0	(G ₆) See Note	0.25	500	—	1.5
DK31	OCTODE	Frequency Converter	F	1.4	0.05	90	1.0	(G ₄) 0	(G ₆) 90	0.2	Conv. 400	—	1.0
DK32	PENTAGRID	Frequency Converter	F	1.4	0.05	★	★	★	★	★	★	—	★
DK40	OCTODE	Frequency Converter	F	1.4	0.05	135	1.0	(G ₄) 0	(G ₆) See Note	0.25	425	—	1.0
DK91	PENTAGRID	Frequency Converter	F	1.4	0.05	★	★	★	★	★	★	—	★
DK92	HEPTODE	Frequency Converter	F	1.4 for Par'l filaments	0.05	★	★	★	★	★	★	—	★
				1.35 for Series filament		★	★	★	★	★	★	—	★
DK96	HEPTODE	Frequency Converter	F	1.4	0.025	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	2:1	★ For data and notes refer type 6AT6.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	DH77
—	—	1:35	Cathode Resistor 2000 Ω .	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	DH107
—	—	0.1	Series Screen Resistor 0.12 meg. (120 V. supply). Conversion Conductance = 5 μmhos at - 8 V. Grid (G ₄) Bias. Grid No. 2 Current 2.4 mA through 25,000 Ω . Osc. Grid (G ₁₊₃) Resistor 35,000 Ω . Osc. Grid Current 0.2 mA. Osc. G _m = 950 μmhos .	30	F+ G ₆	M	A	G ₅	G ₁ G ₃	NC	G ₂	F-	—	G ₄	—	DK21
—	—	0.1	Conversion Conductance = 4 μmhos at - 8 volts Grid (G ₄) Bias. Osc. Grid (G ₁₊₃) Current 0.2 mA. Osc. Grid Resistor 35,000 Ω . Osc. G _m = 800 μmhos .	30	M	F+	A	G ₅	G ₁ G ₃	G ₂	F-	NC	—	G ₄	—	DK31
★	★	—	★ For data and notes refer type 1A7GT.	30	M	F+	A	G ₅ G ₆	G ₁	G ₂	F-	NC	—	G ₄	—	DK32
—	—	0.125	Series Screen Resistor 0.27 meg. (135 V. supply). Conversion Conductance = 4.2 μmhos at - 18.5 V. Grid (G ₄) Bias. Grid No. 2 Current 2.6 mA through 26,000 Ω . Osc. Grid (G ₁₊₃) Resistor 35,000 Ω . Osc. Grid voltage = 8 volts R.M.S.	28	F+ G ₄	A	G ₂	G ₁ G ₃	G ₅	G ₄	NC	F-	—	—	—	DK40
—	—	0.4	★ For data and notes refer type 1R5.	21	F- G ₅	A	G ₂ G ₄	G ₁	F- G ₅	G ₃	F+	—	—	—	—	DK91
—	—	0.11	★ For data and notes refer type 1AC6.	21	F-	A	G ₂	G ₁	G ₄	G ₃	F+ G ₅	—	—	—	—	DK92
—	—	—	★ For data and notes refer type 1AB6.	21	F-	A	G ₂	G ₁	G ₄	G ₃	F+ G ₅	—	—	—	—	DK96

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms	
			TYP E	Voltage Volts									Current Amps
DL21	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.05	★	★	★	★	★	—	★	
DL31	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.05	120	5.0	-4.8	120	0.9	1400	—	0.35
						90	4.0	-3.0	90	0.7	1300	—	0.3
DL33	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	—	★	
				2.8	0.05								
DL35	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	—	★	
DL36	BEAM POWER OUTPUT TETRODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	—	★	
DL41	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.05	120	5.0	-5.8	120	0.82	1350	—	0.165
				1.4	0.1	120	10.0	-5.6	120	1.65	2550	—	0.08
				2.8	0.05	120	9.0	-5.45	120	1.45	2450	—	0.095
DL64	SUB MINIATURE POWER PENTODE	Class "A" Power Amplifier	F	1.25	0.01	15	0.15	-1.55	15	0.034	180	—	0.4
DL85	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.013	★	★	★	★	★	★	—	★
						★	★	★	★	★	★	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	0.5	★ For data and notes refer type DL31.	30	F- G ₃	NC	A	G ₂	G _t	NC	NC	F+	—	—	—	DL21
24,000 22,500	0.27 0.16	0.5	Total Harmonic Distortion 10% in each case.	30	NC	F+	A	G ₂	G ₁	NC	F-	NC	—	—	—	DL31.
★	★	—	★ For data and notes refer type 3Q5G.	30	NC	F+	A	G ₂	G ₁	—	F-	F _t G ₃	—	—	—	DL33
★	★	—	★ For data and notes refer type 1C5G.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	DL35
★	★	—	★ For data and notes refer type 1Q5G.	30	NC	F+	A	G ₂	G ₁	—	F-	NC	—	—	—	DL36
24,000	0.27	0.5	Total Harmonic Distortion 10%. Filament voltage applied between pins 1 and 8. Grid voltage referred to pin 8.	28	F _t	A	IC	NC	G ₂	G ₁	F+	F- G ₃	—	—	—	DL41
12,000	0.55		Total Harmonic Distortion 10%. Filament voltage applied between pins 1 and 7, 8 tied together. Grid voltage referred to pins 7 and 8.													
13,500	0.49		Total Harmonic Distortion 10%. Filament voltage applied between pins 7 and 8. Grid voltage referred to pin 8.													
100,000	950 μW .	<0.25	Total Harmonic Distortion 10%. Maximum R.M.S. input voltage 0.85. For use in hearing aids.	50	A	G ₂	F-	G ₁	F+	—	—	—	—	—	—	DL64
★	★	0.2	★ For data and notes refer type 6007.	45	F+	A	G ₂	G ₁	F-	—	—	—	—	—	—	DL65
★	★				G ₃											

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYPE	Current Amps									
DL66	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.015	22.5	0.3	-1.4	22.5	0.075	350	—	0.3
						45	0.9	-3.0	45	0.2	—	—	—
DL67	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.013	★	★	★	★	★	—	—	—
DL68	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.025	22.5 Supply	0.6	-2	22.5	0.15	430	—	—
DL70	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.1	150	7.0	-8.5	90	1.2	1000	—	—
DL71	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.025	45	0.6	-1.25	45	0.15	500	—	0.35
DL72	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.025	45	1.25	-4.5	45	0.4	500	—	0.225
DL75	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.25	0.025	90	1.3	-3	90	0.3	670	—	0.5
DL91	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	★	—	★
DL92	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	★	—	★
				2.8	0.05								
DL93	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.2	★	★	★	★	★	★	—	★
				2.8	0.1								
DL94	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	★	—	★
				2.8	0.05								
DL95	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	★	★	★	★	★	★	—	★
				2.8	0.05								
DL96	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.05	★	★	★	★	★	★	—	—
				2.8	0.025								

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	0-0027 0-0165	0-2	Primarily intended for hearing aids. Total Harmonic Distortion 10%.	50	A	G ₂	F+	G ₁	F— G ₃	—	—	—	—	—	—	—	—	DL66
★	★	0-2	★ For data and notes refer type 6007.	46	F+ G ₃	A	G ₂	G ₁	F—	—	—	—	—	—	—	—	—	DL67
37,500	0-005	0-15	Primarily intended for hearing aids. Total Harmonic Distortion 10%.	50	A	G ₂	F+	G ₁	F— G ₃	—	—	—	—	—	—	—	—	DL68
—	0-63	—		31	IC	G ₁	NC	F— G ₃	F+	NC	A	G ₂	—	—	—	—	—	DL70
*	0-006	—	Primarily intended for hearing aids. * High Impedance Choke shunted by 0-1 meg Resistor. Grid Leak 10-0 meg. Total Harmonic Distortion 10%.	31	IC	G ₁	IC	F— G ₂	F+	IC	A	G ₂	—	—	—	—	—	DL71
*	0-023	—	Primarily intended for hearing aids. * High Impedance Choke shunted by 0-1 meg Resistor. Grid Leak 10-0 meg. Total Harmonic Distortion 10%.	31	IC	G ₁	IC	F— G ₃	F+	IC	A	G ₂	—	—	—	—	—	DL72
60,000	0-047	0-5	Primarily intended for hearing aids. Total Harmonic Distortion 10%.	31	IC	G ₁	NC	F— G ₃	F+	NC	A	G ₂	—	—	—	—	—	DL75
★	★	—	★ For data and notes refer type 1S4.	21	F— G ₃	A	G ₁	G ₂	F— G ₃	A	F+	—	—	—	—	—	—	DL91
★	★	0-4	★ For data and notes refer type 3S4.	21	F—	A	G ₁	G ₂	F _t G ₃	A	F+	—	—	—	—	—	—	DL92
★	★	0-34	★ For data and notes refer type 3A4.	21	F—	A	G ₂	G ₁	F _t G ₃	A	F+	—	—	—	—	—	—	DL93
★	★	0-2	★ For data and notes refer type 3V4.	21	F—	A	G ₂	NC	F _t G ₃	G ₁	F+	—	—	—	—	—	—	DL94
★	★	0-2	★ For data and notes refer type 3V4.	21	F—	A	G ₁	G ₂	F _t G ₃	A	F+	—	—	—	—	—	—	DL95
★	★	—	★ For data and notes refer type 3C4.	21	F—	A	G ₂	NC	F _t G ₃	G ₁	F+	—	—	—	—	—	—	DL96

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts								
DLL21	TWIN POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	1.4	0.1	120	Zero Signal 2 x 1.0 Max. Signal 2 x 4.15	-8.7	120	Zero Signal 0.32 Max. Signal 2.2	—	—
				1.4	0.2	135	Zero Signal 2 x 2.0 Max. Signal 2 x 8.8	-9.4	135	Zero Signal 0.7 Max. Signal 4.6	—	—
				2.8	0.1	135	Zero Signal 2 x 1.5 Max. Signal 2 x 8.2	-9.5	135	Zero Signal 0.5 Max. Signal 4.8	—	—
DLL31	TWIN POWER OUTPUT PENTODE	Power Amplifier	F	1.4	0.1	120	Zero Signal 2 x 1.0 Max. Signal 2 x 4.15	-7.5	120	Zero Signal 0.32 Max. Signal 2.2	—	—
				1.4	0.2	135	Zero Signal 2 x 2.0 Max. Signal 2 x 8.0	-9.0	135	Zero Signal 0.64 Max. Signal 4.6	—	—
DM70	TUNING INDICATOR	Tuning Indicator	F	1.4	0.025	★	★	★	—	—	—	—
DM71	TUNING INDICATOR	Tuning Indicator	F	1.4	0.025	★	★	★	—	—	—	—
DM160	SPECIAL QUALITY VOLTAGE INDICATOR	Voltage Indicator	F	1.0	0.03	★	★	★	—	—	—	—
DY30	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	F	1.25	0.2	★	★	—	—	—	—	—
DY70	HALF-WAVE VACUUM RECTIFIER	High Voltage Rectifier	F	1.25	0.14	Peak Inverse 10,000	2.0 Max.	—	—	—	—	—
DY80	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.25	0.2	Peak Inverse 23000 (max.)	Peak 10 (max.) Average 1.0 (max.)	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.	B.S.				
30,000 Plate to Plate	0.6	0.6	Total Harmonic Distortion 3%. Filament voltage applied to pins 1 and 8.	30														DLL21	
15,000 Plate to Plate	1.5		Total Harmonic Distortion 3.8%. Filament voltage applied to pins 1 and 7, 8 tied together.		F ₁ G ₃ ^I G ₅ ^{II}	G ₁ ^I	A ^I	G ₂ ^I G ₂ ^{II}	G ₁ ^{II}	A ^{II}	F	F	—	—	—				
15,000 Plate to Plate	1.5		Total Harmonic Distortion 3.6%. Filament voltage applied to pins 7 and 8.																
30,000 Plate to Plate	0.6	—	Total Harmonic Distortion 5.7%.	30	F+	F+	A ^I	G ₁ ^I	G ₁ ^{II}	A ^{II}	F-	G ₁	—	—	—			DLL31	
15,000 Plate to Plate	1.5		Total Harmonic Distortion 3%.																
—	—	—	★ For data and notes refer type 1M3.	31	G ₁	IC	NC	F	F	NC	NC	A	—	—	—			DM70	
—	—	—	★ For data and notes refer type 1M3, except length of lead wires. Short leads for use in socket.	31	G ₁	IC	NC	F	F	NC	NC	A	—	—	—			DM71	
—	—	—	★ For data and notes refer type 6977.	64	F+	G	F-	A	—	—	—	—	—	—	—			DM160	
—	—	—	★ For data and notes refer type 1B3GT.	30	IC	F	IC	—	IC	—	F IS	IC	—	A	—			DY30	
—	—	—		3	F	F	A	—	—	—	—	—	—	—	—			DY70	
—	—	—	* Do not use.	32	F IS	F IC	* IC	F IS	F IS	F IS	* IC	F IS	F IS	A	—			DY80	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
DY86	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	H	1.4	0.55	★	★	—	—	—	—	—	—
DY87	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	H	1.4	0.55	★	★	—	—	—	—	—	—
E1C	AMPLIFIER TRIODE	R F and A.F. Amplifier	II	0.3	0.15	180	4.5	-5	—	—	2000	25	0.0125
						135	3.5	-3.75	—	—	1900	25	0.0132
						90	2.5	-2.5	—	—	1700	25	0.0147
E1F	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.15	250	2.0	-3	100	0.7	1400	—	1.5
E1T	SPECIAL QUALITY DECADE COUNTER	Decade Counter	H	6.3	0.3	Supply Voltage 300 volts Grid No. 2 Voltage 300 volts Cathode Current 0.95 mA. Grid No. 2 Current 0.1 mA. Target Voltage 200 volts							
E2F	REMOTE CUT-OFF R.F. PENTODE	U.H.F. Amplifier	II	6.3	0.15	250	6.7	-3	100	2.7	1700	—	0.6
E800C	SPECIAL QUALITY TWIN TRIODE	A.F. and Class "A" Power Amplifier	H	12.6	0.3	★	★	★	—	—	★	★	★
				6.3	0.6								
E800F	SPECIAL QUALITY RF TRIODE PENTODE	Class "A" Amplifier	H	6.3	0.33	★	★	★	★	★	★	★	★
E80F	SPECIAL QUALITY SHARP CUT-OFF PENTODE	Low Noise A.F. Pre-Amplifier	H	6.3	0.3	★	★	★	★	★	★	—	★
E80L	SPECIAL QUALITY POWER PENTODE	Class "A" Power Amplifier	H	6.3	0.75	★	★	★	★	★	★	—	—
E80T	SPECIAL QUALITY BEAM DEFLECTION TUBE	Impulse Phase Discriminator	H	6.3	0.15	Plate Voltage 100 volts Grid No. 3, Grid No. 4 Voltage 250 volts Grid No. 2 Voltage 70 volts Grid No. 1 Voltage 0 volts Deflection Plate No. 1 Voltage 120 volts Deflection Plate No. 2 Voltage 120 volts							

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS											TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.C.	
—	—	—	★ For data and notes refer type 1S2.	32	F K IS	F	IC	F K IS	F	F K IS	IC	F	F K IS	A	—	DY86
—	—	—	★ For data and notes refer type 1S2-A.	32	F K IS	F	IC	F K IS	F	F K IS	IC	F	F K IS	A	—	DY87
—	—	1.5	As R.C. Amplifier (180 V. supply). Plate Resistor 0.3 meg. Cathode Resistor 6000 Ω . Gain = 19.	13	H	A	G ₁	H	K	—	—	—	—	—	—	E10
—	—	0.007	As R.C. Amplifier (250 V. supply). Following Grid Leak 0.7 meg. Plate Resistor 0.3 meg. Screen Resistor 1.0 meg. Cathode Resistor 4000 Ω . Gain = 184.	22	H	G ₂	G ₃	H	K	G ₁	A	—	—	—	—	E1F
Grid No. 1 Voltage .. +11.9 volts. Cathode Resistor .. 15,000 ohms. Plate No. 1 Resistor .. 39,000 ohms. Grid No. 4 Resistor .. 47,000 ohms. Plate No. 2 Resistor .. 1 M Ω .			65	1 H	2 G ₁	3 K G ₃ G ₅	4 D ¹¹	5 A ₂	6 G ₄	7 T	8 A ₁	9 D ¹	10 G ₂	11 IC	—	E1T
—	—	0.007	Mutual Conductance = 2 μmhos at - 40 volts Grid Bias.	22	F	G ₂	G ₃	F	K	G ₁	A	—	—	—	—	E2F
★	★	2.6 ₁₁ 2.75 ₁₂	★ For data and notes refer type 6085.	32	A ¹	G ₁ ¹	K ¹	H	H	A ¹¹	G ₁ ¹¹	K ¹¹	H _t	—	—	E80C0
—	—	P < 0.025 T 1.5	★ For data and notes refer type 7643.	32	A ^t	G ₁ ^P	G ₂	H	H	A ^P	K ^P G ₃ IS	K ^t	G ^t	—	—	E80CF
—	—	0.02	★ For data and notes refer type 6084.	32	G ₂	IS	K	H	H	A	S	G ₃	G ₁	—	—	E80F
★	★	0.1	★ For data and notes refer type 6227.	32	IS	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	E80L
Plate Current .. 1.35 mA. Cathode Current .. 2.0 mA. Type E80T with ribbon-shaped beam is for use as impulse phase discriminator in impulse-governed oscillators in communication equipment, carrier telephone systems and frequency standards.			32	G ₃ G ₄	G ₁	K G ₅	H	H	G ₂	D ¹¹	IC	D ¹	A	—	—	E80T

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
E81L	SPECIAL QUALITY POWER PENTODE	Class "A" Power Amplifier	H	6-3	0-48	★	★	★	★	★	★	—	—
E83F	SPECIAL QUALITY HIGH SLOPE PENTODE	Pre-Amplifier and Class "A" Power Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
E88CC	SPECIAL QUALITY R.F. TWIN TRIODE	Cascode R.F. Amplifier	H	6-3	0-3	★	★	★	—	—	★	★	★
E90CC	SPECIAL QUALITY TWIN TRIODE	A.F. Amplifier	H	6-3	0-4	★	★	★	—	—	★	★	★
E90F	SPECIAL QUALITY SHARP CUTOFF R.F. PENTODE	Class "A" Amplifier	H	6-3	0-15	Supply 250	7-4	See Note	Supply 150	2-9	4600	48 (G ₂ to G ₁)	1-0
E91H	SPECIAL QUALITY DUAL CONTROL HEPTODE	Dual Control Amplifier	H	6-3	0-27	★	★	★	★	★	★	—	★
E92CC	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6-3	0-4	1-0	8-5	-1-7	—	—	6000	45	—
E99F	SPECIAL QUALITY SEMI-REMOTE CUT-OFF R.F. PENTODE	Class "A" Amplifier	H	6-3	0-15	Supply 250	9-2	See Note	Supply 100	3-3	3800	(G ₂ to G ₁) 25	1-0
E130L	SPECIAL QUALITY HIGH-SLOPE POWER PENTODE	Series Stabiliser or Power Amplifier	H	6-3	1-7	★	★	★	★	★	★	★	★
E180CC	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6-3 12-6	0-4 0-2	★	★	★	—	—	★	★	★
E180F	SPECIAL QUALITY SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
E182CC	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6-3 12-6	0-64 0-32	★	★	★	—	—	★	★	—
E182F	SPECIAL QUALITY SHARP CUT-OFF PENTODE	Wide Band Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	0-02	★ For data and notes refer type 6686.	32	IS	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	E81L
—	—	0-015	★ For data and notes refer type 6689.	32	G ₂	G ₁	K	H	H	A	IC	IC	G ₃ IS	—	—	E83F
—	—	1-4	★ For data and notes refer type 6922.	32	A ¹	G ₁ ¹	K ¹	H	H	A ¹¹	G ₁ ¹¹	K ¹¹	IS	—	—	E88CC
—	—	3-8 _{t1} 3-7 _{t2}	★ For data and notes refer type 5920.	21	A ¹	A ¹¹	H	H	G ₁ ¹¹	G ₁ ¹	K	—	—	—	—	E90CC
—	—	0-0035 max.	Cathode Resistor 100 Ω .	21	G ₁	K	H	H	A	G ₂	G ₂ IS	—	—	—	—	E80F
—	—	0-08	★ For data and notes refer type 6687.	21	G ₁	K G ₅	H	H	A	G ₂ G ₄	G ₂	—	—	—	—	E91H
—	—	Unit 1 2-2 Unit 2 2-1		21	A	A ¹¹	H	H	G ₁ ¹¹	G ¹	K	—	—	—	—	E92CC
—	—	0-0035 max.	Cathode Resistor 80 Ω .	21	G ₁	K	H	H	A	G ₂	G ₂ IS	—	—	—	—	E99F
—	—	2-0 max.	★ For data and notes refer type 7534.	30	IC	H	IC	G ₂	G ₁	IC	H	K G ₃	—	—	—	E130L
—	—	Unit 1 2-2 Unit 2 2-3	★ For data and notes refer type 7062.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	H _t	—	—	E180CC
★	★	0-03	★ For data and notes refer type 6688.	32	K	G ₁	K	H	H	IC	A	G ₂ IS	G ₂	—	—	E180F
—	—	Unit 1 4-0 Unit 2 4-1	★ For data and notes refer type 7119.	32	A ¹¹	G ¹¹	K ¹¹	H	H	K ¹	G ¹	H _t	A ¹	—	—	E182CC
—	—	0-05 max.	★ For data and notes refer type 5847.	32	G ₁	NC	H	K G ₃ IS	NC	A	NC	G ₂	H	—	—	E182F

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
E188CC	SPECIAL QUALITY TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3	0.335	★	★	★	—	—	★	★	★
E406N	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	1.0	500	24.0	-68	—	—	3000	6	2000 Ohms
E408N	POWER OUTPUT TRIODE	Class "A" Power Amplifier	F	4.0	1.0	400	30.0	-36	—	—	2700	8	3000 Ohms
E415	AMPLIFIER TRIODE	A.F. Amplifier	H	4.0	1.0	200	6.0	-8	—	—	1400	15	0.011
E424	AMPLIFIER TRIODE	A.F. Amplifier	H	4.0	1.0	200	6.0	-6	—	—	1800	24	0.013
E424N	AMPLIFIER TRIODE	A.F. Amplifier	H	4.0	1.0	200	6.0	-3.5	—	—	2400	30	0.0125
E442	R.F. TETRODE	R.F. Amplifier	H	4.0	1.0	200	1.5	-1.3	100	0.6	900	—	0.8
E4428	R.F. TETRODE	R.F. Amplifier	H	4.0	1.0	200	4.0	-2	60	0.5	1000	—	0.4
E443H	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	4.0	1.1	250	36.0	-15	250	6.8	3000	—	0.043
E443N	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	4.0	1.1	400	30.0	-40	200	5.2	1800	—	0.055
E444N	DIODE TETRODE	Detector R.F. Amplifier	H	4.0	1.1	200	4.0	-3	90	0.5	Max. 3000	—	0.2
E446	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	4.0	1.1	200	3.0	-2	100	1.2	2300	—	2.2

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.4	★ For data and notes refer type 7308.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	IS	—	—	E1880C
11,500	5.3	2.9	Total Harmonic Distortion 5%.	10	A	F	G ₁	F	—	—	—	—	—	—	—	E408N
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	
6000	2.6	12.0	Total Harmonic Distortion 5%	10	A	F	G ₁	F	—	—	—	—	—	—	—	E408N
				8	F+	A	G ₁	F-	—	—	—	—	—	—	—	
—	—	3.5		14	A	H	G ₁	H	K	—	—	—	—	—	—	E415
				14	A	H	G ₁	H	K	—	—	—	—	—	—	
				15	H	A	G ₁	K	H	—	—	—	—	—	—	
—	—	3.5		14	A	H	G ₁	H	K	—	—	—	—	—	—	E424
				14	A	H	G ₁	H	K	—	—	—	—	—	—	
				15	H	A	G ₁	K	H	—	—	—	—	—	—	
—	—	2.0		14	A	H	G ₁	H	K	—	—	—	—	—	—	E424N
				14	A	H	G ₁	H	K	—	—	—	—	—	—	
				15	H	A	G ₁	K	H	—	—	—	—	—	—	
—	—	0.005		14	G ₂	H	G ₁	H	K	—	—	—	A	—	E442	
—	—	0.02		14	G ₂	H	G ₁	H	K	—	—	—	A	—	E442S	
7000	3.1	1.1	Total Harmonic Distortion 10%.	14	A	F	G ₁	F	G ₂	—	—	—	—	—	—	E443H
				15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	
13,500	5.4	0.9	Total Harmonic Distortion 10%.	14	A	F	G ₁	F	G ₂	—	—	—	—	—	—	E443N
				15	F+	A	G ₁	G ₂	F-	—	—	—	—	—	—	
—	—	0.003	G _m measurement at zero bias.	18	D	K	H	H	G ₂	G ₁	—	—	—	A	—	E444N
				17	H	G ₂	D	G ₁	K	H	—	—	—	A	—	
—	—	0.006	Plate Current Cut-off at - 5 volts Grid Bias.	14	G ₂	H	G ₁	H	K	—	—	—	A	—	E446	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYPE	Voltage Volts	Current Amps								
E447	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	4-0	1-1	200	4-5	-2	100	1-9	2300	—	1-0
E452T	R.F. TETRODE	R.F. Amplifier	H	4-0	1-0	200	3-0	-2	100	0-7	2000	—	0-45
E454	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	4-0	1-2	200	3-5	-3-5	—	—	1600	30	0-019
E463	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	4-0	1-35	250	36-0	-22	250	3-2	2700	—	0-037
E810F	SPECIAL QUALITY HIGH SLOPE SHARP CUT-OFF PENTODE	Wide Band Amplifier	H	6-3	0-34	Supply 135	35	Supply +12-5 See Note	Supply 165	5	50,000	58 (G ₂ to G ₁)	—
EA40	DIODE	Detector Rectifier	H	6-3	0-2	Peak Inverse 6500	Max. 25-0	—	—	—	—	—	—
EA50	DIODE	Diode Detector for Television Receivers	H	6-3	0-15	200 Max.	D.C. Output 5-0 Max.	—	—	—	—	—	—
EA52	U.H.F. MEASURING DIODE	Measuring Diode	H	6-3	0-3	★	★	—	—	—	—	—	—
EA76	DIODE	Detector Rectifier	H	6-3	0-15	150 Max.	D.C. Output 9-0 Max.	—	—	—	—	—	—
EAA91	TWIN DIODE	Detector Half-wave Rectifier	H	6-3	0-3	★	★	—	—	—	—	—	—
EAB1	TRIPLE DIODE	Detector Rectifier	H	6-3	0-2	Max. Peak 200 per Plate	D.C. Output 0-8 Max. per Plate	—	—	—	—	—	—
EAB80	TRIPLE DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-55	★	★	★	—	—	★	★	★
EA091	DIODE TRIODE	U.H.F. Converter	H	6-3	0-3	200	7-5	-2-8	—	—	2800	36	0-0128

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.006	Mutual Conductance = 2 μmhos at - 50 volts Grid Bias.	14	G_3	H	G_1	H	K M G_3	—	—	—	—	A	—	E447
				20	H	K	G_2	M	G_1	NC	H	—	—	A	—	
—	—	0.003		14	G_3	H	G_1	H	K M	—	—	—	—	A	—	E452T
—	—	—		20	H	K	A	D_2	M	D_1	H	—	—	G_1	—	E454
8000	4.1	1.0	Total Harmonic Distortion 10%.	18	A	K G_3	H	H	G_2	G_1	—	—	—	—	—	E463
				20	H	K	A	NC	G_1	G_2	H	—	—	—	—	
—	—	0.04 max.	Cathode Resistor 360 Ω . Input Conductance at 100 Mc/s. 2000 μmhos .	32	K	G_1	K	H	H	G_2	A	G_3 IS	G_2	—	—	E810F
—	—	—	Peak Plate Current = 100 mA max.	28	H	—	—	D	—	—	K	H	—	—	—	EA40
—	—	—	Cathode to Plate capacity 2.1 $\mu\mu\text{F}$.	1	H	K	H	D	—	—	—	—	—	—	—	EA50
—	—	—	★ For data and notes refer type 6923.	54	H	H	K	A	—	—	—	—	—	—	—	EA52
—	—	—	Peak Inverse voltage = 420 V. maximum. Peak Plate Current = 54 mA maximum.	47	H	A	K	H	A	—	—	—	—	—	—	EA76
—	—	—	★ For data and notes refer type 6AL5.	21	K^I	A^{II}	H	H	K^{II}	IS	A^I	—	—	—	—	EAA91
—	—	—	For replacement consider type EBC3 using Grid No. 1 as the third diode with the triode plate connected as a grounded shield.	26	M	H	H	K	D_3	NC	D_2	D_1	—	—	—	EAB1
—	—	2.2	★ For data and notes refer type 6AK5.	32	D_3	D_2	K_{d2}	H	H	D_1	IS K_t K_{d1} K_{d3}	G_1	A_t	—	—	EABC80
—	—	1.6	Frequency limit as Frequency Changer, 300 Mc/s. As Oscillator, 600 Mc/s.	21	D	K^d	H	H	K^t	G_1	A_t	—	—	—	—	EAC91

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
EA41	DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6.3	0.2	250	5.0	-2	See Note	1.6	1800	—	1.2
EA42	DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6.3	0.2	★	★	★	★	★	★	—	★
EB4	TWIN DIODE	Detector Rectifier	H	6.3	0.2	★	★	—	—	—	—	—	—
EB11	TWIN DIODE	Detector Rectifier	H	6.3	0.2	★	★	—	—	—	—	—	—
EB34	TWIN DIODE	Detector Rectifier	H	6.3	0.2	200 Max. per Plate	D.C. Output 0.8 Max. per Plate	—	—	—	—	—	—
EB41	TWIN DIODE	Detector Rectifier	H	6.3	0.3	150 Max. per Plate	D.C. Output 9.0 Max. per Plate	—	—	—	—	—	—
EB91	TWIN DIODE	Detector Rectifier	H	6.3	0.3	★	★	—	—	—	—	—	—
EB63	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.2	★	★	★	—	—	★	★	★
EB11	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.2	250	5.0	-8	—	—	2200	25	0.0115
EB633	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	6.3	0.2	250	5.0	-5.5	—	—	2000	30	0.015
EB41	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6.3	0.23	★	★	★	—	—	★	★	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.002	Mutual Conductance = 18 μmhos at - 40 volts Grid (G_1) Bias. Series Screen Resistor 95.000 Ω (250 V. supply). As R.C. Amplifier (250 V. supply). Following Grid Leak 0.7 meg. Plate Resistor 0.2 meg. Screen Resistor 0.8 meg. Cathode Resistor 1600 Ω . Gain = 105.	28	H	A	D	IC	G_2	G_1	K G_3 IS	H	—	—	—	EAF41
—	—	0.002	★ For data and notes refer type 6CT7.	28	H	A	D	G_3	G_2	G_1	K IS	H	—	—	—	EAF42
—	—	—	★ For data and notes refer type EB34.	26	M	H	H	K^I	D_1	IS	D_2	K^{II}	—	—	—	EB4
—	—	—	★ For data and notes refer type EB34.	27	D_2	K^{II}	K^I M	NC	H	H	NC	D_1	—	—	—	EB11
—	—	—		30	IS M	H	D_1	K^I	D_2	—	H	K^{II}	—	—	—	EB34
—	—	—	Peak Plate Current per Plate = 54 mA maximum.	28	H	NC	K^{II}	D_2	IS	D_1	K^I	H	—	—	—	EB41
—	—	—	★ For data and notes refer type 6AL5.	21	K^I	A^{II}	H	H	K^{II}	IS	A^I	—	—	—	—	EB91
—	—	1.3	★ For data and notes refer type EBC33.	26	M	H	H	K	D_2	D_1	NC	A	—	G_1	—	EBC3
—	—	—	As R.C. Amplifier (250 V. supply). Plate Resistor 0.2 meg. Cathode Resistor 5000 Ω . Gain = 18.	27	A	G_1	K M	NC	H	H	D_1	D_2	—	—	—	EBC11
—	—	1.4	As R.C. Amplifier (300 V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Cathode Resistor 3900 Ω . Gain = 23.5	30	M	H	A	D_1	D_2	—	H	K	—	G_1	—	EBC33
—	—	1.3	★ For data and notes refer type 6CV7.	28	H	A	G_1	IS	D_2	D_1	K	H	—	—	—	EBC41

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
EBC80	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-23	★	★	★	—	—	★	★	★
EBC81	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-23	★	★	★	—	—	★	★	★
EBC90	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-3	★	★	★	—	—	★	★	★
EBC91	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	6-3	0-3	★	★	★	—	—	★	★	★
EBF2 EBF2G	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	II	6-3	0-2	★	★	★	★	★	★	—	★
EBF11	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	II	6-3	0-2	250	5-0	-2	100 See Note	1-8	1800	—	2-0
EBF32 EBF35	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6-3	0-2	250	5-0	-2	100 See Note	1-6	1800	—	1-3
EBF80	DUO-DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EBF81	DUO-DIODE MEDIUM CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EBF83	DUO DIODE R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EBF89	DUO DIODE REMOTE CUTOFF R.F. AMPLIFIER	R.F. Amplifier Detector	II	6-3	0-3	★	★	★	★	★	★	—	★
EBL1	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	6-3	1-18	250	36	-6	250	4-0	9000	—	0-05

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate-capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.3	★ For data and notes refer type 6BD7.	32	A	G ₁	K	H	H	D ₂	IS	D ₂	IC	—	—	EBG80
—	—	1.3	★ For data and notes refer type 6BD7.	32	A	G ₁	K	II	H	D ₁	IS	D ₂	IC	—	—	EBG81
—	—	2.1	★ For data and notes refer type 6AT6.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	EBG90
—	—	—	★ For data and notes refer type 6AV6.	21	G ₁	K	H	H	D ₂	D ₁	A	—	—	—	—	EBG91
—	—	0.002	★ For data and notes refer type EBF32.	26	M	H	H	K G ₃	D ₃	D ₁	G ₂	A	—	G ₁	—	EBF2
				30	H	M	A	G ₂	D ₁	D ₂	G ₃ K	H	—	G ₁	—	EBF2G
—	—	0.002	Series Screen Resistor 85,000 Ω (250 V. supply). Mutual Conductance = 9 μmhos at - 45 volts Grid Bias.	27	G ₂	G ₁	K G ₃ M	A	H	H	D ₁	D ₂	—	—	—	EBF11
—	—	0.002	Series Screen Resistor 0.1 meg (250 V. supply). Mutual Conductance = 18 μmhos at - 38 volts Grid Bias.	30	M	H	A	D ₂	D ₁	G ₂	H	K G ₃	—	G ₁	—	EBF32
				30	H	M	A	G ₂	D ₁	D ₂	G ₃ K	H	—	G ₁	—	EBF35
—	—	0.002	★ For data and notes refer type 6NS.	32	G ₂	G ₁	K IS	II	H	A	D ₁	D ₂	G ₃	—	—	EBF80
—	—	0.002	★ For data and notes refer type 6ADS.	32	G ₂	G ₁	K IS	II	II	A	D ₁	D ₂	G ₃	—	—	EBF81
—	—	2.5	★ For data and notes refer type 6DR8.	32	G ₂	G ₁	K IS	H	H	A	D ₁	D ₂	G ₃	—	—	EBF83
—	—	0.0025	★ For data and notes refer type 6DC8.	32	G ₂	G ₁	K IS	H	II	A	D ₁	D ₂	G ₃	—	—	EBF89
7000	4.5	0.8	Total Harmonic Distortion 10%.	26	NC	H	H	K G ₃ M	D ₁	D ₂	G ₂	A	—	G ₁	—	EBL1

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
EBL21	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	6.3	0.8	250	44	-6.2	275	5.8	9500	—	0.05
						250	36	-6.0	250	4.5	9000	—	0.05
EBL31	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	6.3	1.5	250	36	-6.0	250	5.0	9500	—	0.05
EC31	POWER OUTPUT TRIODE	A.F. and Class "A" Power Amplifier	H	6.3	0.65	250	20	-16	—	—	3200	10.5	3300 Ohms
EC40	V.H.F. HIGH μ TRIODE	Grounded Grid Amplifier	H	6.3	0.48	275	15.0	1.5	—	—	12000	77	6500 ohms
EC50	GAS-FILLED TRIODE	Relaxation Oscillator	H	6.3	1.3	Peak 1000 Max.	Peak 750 Max. Average 10 Max.	—	—	—	—	—	—
EC52	OSCILLATOR TRIODE	U.H.F. Amplifier	H	6.3	0.43	250	10	-2.6	—	—	6500	60	9200 Ohms
EC53	OSCILLATOR TRIODE	U.H.F. Amplifier	H	6.3	0.25	200	7.5	-3.3	—	—	2900	33	0.0114
EC55	DISC-SEAL TRIODE	U.H.F. Amplifier	H	6.3	0.4	★	★	★	—	—	★	★	—
EC56	LIGHTHOUSE TRIODE	U.H.F. Amplifier	H	6.3	1.25	250	30	-2	—	—	14,000	50	—
EC57	DISC SEAL TRIODE	U.H.F. Power Amplifier	H	6.3	0.65	180	60.0	-1.8	—	—	19000	35	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate-capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS											TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.	
5700 7000	5.5 4.5	1.4	Total Harmonic Distortion 10% in each case.	29	H	A	G ₁	G ₂	D ₂	D ₁	K G ₃	H	—	—	—	EBL21
7000	4.3	—	Total harmonic distortion 10%. Cathode bias resistor = 150 Ω	30	M	H	A	D ₁	D ₂	G ₂	H	K G ₃	—	G ₁	—	EBL31
10,000	0.5	—	Total Harmonic Distortion 5%. As R.C. Amplifier (550 V. supply). Plate Resistor 0.16 meg. Cathode Resistor 9000 Ω . Gain = 7.4.	30	—	H	A	—	G ₁	—	H	K	—	—	—	EC31
—	—	0.04	Input Resistance at 300 Mc/s. 80 Ω .	30	H	G ₁	G ₁	A	G ₁	G ₁	K	H	—	—	—	EC40
—	—	2.3	Grid Resistor not less than 750 Ω per max instantaneous unit voltage applied to Grid. Max. Frequency 150 Kc/s.	26	NC	H	H	K	NC	G ₁	NC	NC	—	A	—	EC50
—	—	3.1	Frequency limit as Oscillator 400 Mc/s.	33	H	G ₁	K	A	NC	NC	NC	NC	H	—	—	EC52
—	—	1.3	Frequency limit 600 Mc/s.	16	H	K	H	G ₁	A	—	—	—	—	—	—	EC53
—	—	1.1	★ For data and notes refer type 5861.	43	H	H K	G ₁	A	—	—	—	—	—	—	—	EC55
—	—	1.5	Connection No. 9 used for R.F. connection to Cathode. As an Oscillator at 4000 Mc/s. power output = 0.5 watts. As an Amplifier with 50 Mc/s band-width at 4000 Mc/s voltage gain = 9 to 10 dB.	52	1 IC	2 H	3 K	4 —	5 K	6 —	7 H	8 K	9 K	10 G ₁	11 A	EC56
—	—	1.6	Pins 3 and 8 are connected internally to the R.F. cathode connection. Power output 3 watts at 4000 Mc/s. with 50 Mc/s. band-width between half power points.	52	IC	H	K	—	IC	—	H	K	—	—	—	EC57

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
EC70	OSCILLATOR TRIODE	U.H.F. Amplifier	H	6.3	0.15	★	★	★	—	—	★	★	★
EC71	SUB-MINIATURE V.H.F. TRIODE	V.H.F. Amplifier	H	6.3	0.15	★	★	★	—	—	★	★	★
EC80	V.H.F. TRIODE	Grounded Grid Amplifier	H	6.3	0.48	★	★	★	—	—	★	★	—
EC81	U.H.F. TRIODE	Oscillator (Up to 1500 Mc/s)	H	6.3	0.2	★	★	—	—	—	—	—	—
EC86	V.H.F. TRIODE	V.H.F. Amplifier V.H.F. Self-Oscillating Mixer	H	6.3	0.2	★	★	★	—	—	★	—	—
EC90	V.H.F. POWER TRIODE	A.F. Class "C" Power Amplifier	H	6.3	0.15	★	★	★	—	—	★	★	★
EC91	U.H.F. TRIODE	Grounded-Grid Amplifier	H	6.3	0.3	250	10	-1.5	—	—	8500	100	0.012
EC92	TRIODE	R.F. Amplifier	H	6.3	0.15	★	★	★	—	—	★	★	—
EC93	U.H.F. TRIODE	U.H.F. Amplifier Oscillator	H	6.3	0.225	★	★	★	—	—	★	★	★
EC95	SEMI-REMOTE CUT-OFF V.H.F. TRIODE	R.F. Amplifier	H	6.3	0.18	★	★	★	—	—	★	★	—
ECC31	TWIN TRIODE	A.F. Amplifier	H	6.3	0.95	250	6.0	-4.6	—	—	2300	32	0.014
ECC32	TWIN TRIODE	A.F. Amplifier	H	6.3	0.95	250	6.0	-4.6	—	—	2300	32	0.014
ECC33	TWIN TRIODE	A.F. Amplifier	H	6.3	0.4	250	9.0	-4	—	—	3600	35	9700 Ohms

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	★	—	★ For data and notes refer type 6K4.	31	G ₁	A	H	A	NC	H	K	A	—	—	—	EC70
			★ For data and notes refer type 5718.	31	G	NC	H	NC	K	H	NC	A	—	—	—	EC71
—	—	3-4	★ For data and notes refer type 6Q4.	32	G ₁	G ₁	K	H	H	NC	G ₁	G ₁	A	—	—	EC80
—	★	1.5	★ For data and notes refer type 6R4.	32	G ₁	NC	K	H	H	NC	NC	A	NC	—	—	EC81
★	—	2.0	★ For data and notes refer type 6CM4.	32	A	G	K	H	H	G	K	G	A	—	—	EC86
—	—	1.6	★ For data and notes refer type 6C4.	21	A	IC	H	H	A	G ₁	K	—	—	—	—	EC90
—	—	2.5	Frequency limit 250 Mc/s.	21	G ₁	K	H	H	K	G ₁	A	—	—	—	—	EC91
—	—	1.5	★ For data and notes refer type 6AB4.	21	A	IS	H	H	NC	G ₁	K	—	—	—	—	EC92
—	—	1.7	★ For data and notes refer type 6BS4.	21	A	G ₁	H	H	K	G ₁	A	—	—	—	—	EC93
—	—	0.38	★ For data and notes refer type 6ER5.	21	K	G	H	H	A	IS	K	—	—	—	—	EC95
—	—	3.4 _{t2} 3.75 _{t1}	Values are for each unit.	30	NC	H	A ¹	G ₁ ¹	G ₁ ¹¹	A ¹¹	H	K	—	—	—	EC031
—	—	4.3	As R.C. Amplifier (400 V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Cathode Resistor 3900 Ω . Gain = 27.5. Values are for each unit.	30	G ₁ ¹	A ¹	K ¹	G ₁ ¹¹	A ¹¹	K ¹¹	H	H	—	—	—	EC032
—	—	2.5	As R.C. Amplifier (400 V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Cathode Resistor 3900 Ω . Gain = 28. Values are for each unit.	30	G ₁ ¹	A ¹	K ¹	G ₁ ¹¹	A ¹¹	K ¹¹	H	H	—	—	—	EC033

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
ECC34	TWIN TRIODE	A.F. Amplifier	H	6.3	0.95	250	10	-16	—	—	2200	11.5	5200 Ohms
ECC35	HIGH μ TWIN TRIODE	A.F. Amplifier	H	6.3	0.4	250	2.3	-2.5	—	—	2000	68	0.034
ECC40	TWIN TRIODE	Class "A" Power Amplifier and A.F. Amplifier	H	6.3	0.6	250	6.0	See Note	—	—	2900	32	0.011
ECC70	SUB-MINIATURE MEDIUM μ TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	6.3	0.3	100	6.5	-1.0	—	—	5400	35	6500 ohms
ECC81	HIGH μ TWIN TRIODE	R.F. Amplifier	H	12.6 6.3	0.15 0.3	★	★	★	—	—	★	★	—
ECC82	TWIN TRIODE	A.F. Amplifier	H	12.6 6.3	0.15 0.3	★	★	★	—	—	★	★	★
ECC83	HIGH μ TWIN TRIODE	A.F. Amplifier	H	12.6 6.3	0.15 0.3	★	★	★	—	—	★	★	★
ECC84	TWIN TRIODE	R.F. Amplifier	H	6.3	0.4	★	★	★	—	—	★	★	—
ECC85	HIGH μ TWIN TRIODE	R.F. Amplifier	H	6.3	0.435	★	★	★	—	—	★	★	—
ECC86	R.F. TWIN TRIODE (for direct use with 6v, 12v or 24v car battery)	R.F. Amplifier (Each Unit)	H	6.3	0.33	★	★	★	—	—	★	—	★
ECC88	HIGH-SLOPE V.H.F. TWIN TRIODE	R.F. Amplifier (Each Unit)	H	6.3	0.365	★	★	★	—	—	★	★	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	4.0	Values are for each unit.	30	G ₁ ^I	A ^I	K ^I	G ₁ ^{II}	A ^{II}	K ^{II}	H	H	—	—	—	ECC34
—	—	2.5 _{t1} 3.0 _{t2}	As R.C. Amplifier (400 V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Cathode Resistor 4700 Ω . Gain = 46. Values are for each unit.	30	G ₁ ^I	A ^I	K ^I	G ₁ ^{II}	A ^{II}	K ^{II}	H	H	—	—	—	ECC35
15,000	0.28	2.8 _{t1} 2.7 _{t2}	Cathode Bias Resistor 920 Ω . Total Harmonic Distortion 8.5%. As R.C. Amplifier (400 V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Cathode Resistor 3900 Ω . Gain = 25. Values are for each unit.	28	H	A ^{II}	G ₁ ^{II}	K ^{II} IS	A ^I	G ₁ ^I	K ^I	H	—	—	—	ECC40
—	—	1.6	Intended for use at V.H.F.	31	A ^{II}	G ^{II}	H	K ^{II}	K ^I	H	G ^I	A ^I	—	—	—	ECC70
—	—	★	★ For data and notes refer type 12AT7.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	ECC81
—	—	1.6	★ For data and notes refer type 12AU7.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	ECC82
—	—	1.7	★ For data and notes refer type 12AX7.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	H _t	—	—	ECC83
—	—	1.1 _{t1} 1.2 _{t2}	★ For data and notes refer type 6CW7.	32	K ^{II}	G ₁ ^{II} S	A ^{II}	H	H	G ₁ ^I	K ₁ ^I	K ₀ ^I	A ^I	—	—	ECC84
—	—	1.5	★ For data and notes refer type 6AQ8.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	S	—	—	ECC85
—	—	1.3	★ For data and notes refer type 6GM8.	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	IS	—	—	ECC86
—	—	1.4	★ For data and notes refer type 6DJ8.	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	IS	—	—	ECC88

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
ECC91	TWIN TRIODE	R.F. Amplifier	H	6.3	0.45	★	★	★	—	—	★	★	★
ECC186	SPECIAL QUALITY MEDIUM μ TWIN TRIODE	Computer Use (Each Unit)	H	12.6 6.3	0.15 0.3	★	★	★	—	—	★	★	★
ECC189	SEMI-REMOTE CUT-OFF R.F. TWIN TRIODE	R.F. Amplifier (Each Unit)	H	6.3	0.365	★	★	★	—	—	★	—	★
ECC230	SPECIAL QUALITY LOW μ TWIN TRIODE	Series Regulator or Booster Triode	H	6.3	2.5 ± 0.24	★	—	★	—	—	—	—	—
ECF1	TRIODE REMOTE CUT-OFF PENTODE	A.F. and R.F. Amplifier	H	6.3	0.2	150 250	8.0 5.0	-3 -2	— See Note	— 2.0	2200 2000	20 —	9000 Ohms 1.6
ECF80	MEDIUM μ TRIODE REMOTE CUTOFF R.F. PENTODE	Frequency Converter Amplifier	H	6.3	0.45	★	★	★	★	★	★	★	★
ECF82	MEDIUM μ TRIODE SHARP CUTOFF R.F. PENTODE	Frequency Converter	H	6.3	0.45	★	★	★	★	★	★	★	★
ECF86	MEDIUM μ TRIODE HIGH SLOPE PENTODE	Frequency Converter	H	6.3	0.38	★	★	★	★	★	★	★	★
ECH2	TRIODE HEPTODE	Frequency Converter	H	6.3	0.95	250	3.25	(G_2^h) -2.5	(G_{2+3}^h) 100	6.0	Conv. 750	—	1.5
ECH3 EGH3G	TRIODE HEXODE	Frequency Converter	H	6.3	0.2	★	★	★	★	★	★	—	★
ECH4 ECH4G	TRIODE HEPTODE	Frequency Converter	H	6.3	0.35	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS													TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.			
—	—	1.6	★ For data and notes refer type 6J6.	21	A ^{II}	A ^I	H	H	G ₁ ^I	G ₁ ^{II}	K	—	—	—	—	ECC91		
—	—	1.5	★ For data and notes refer type 7316.	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	H _t	—	—	ECC186		
—	—	1.0	★ For data and notes refer type 6E8S.	32	A ^{II}	G ^{II}	K ^{II}	H	H	A ^I	G ^I	K ^I	IS	—	—	ECC189		
—	—	8.6	★ For data and notes refer type 6080.	30	G ^{II}	A ^{II}	K ^{II}	G ^I	A ^I	K ^I	H	H	—	—	—	ECC230		
—	—	1.4 0.004	Series Screen Resistor 75,000 Ω Mutual Conductance = 20 μmhos at - 40 volts Grid (G ₁ P) Bias.	26	M	H	H	K G ₃ ^P	A ^t	G ₁ ^t	G ₂ ^P	A ^P	—	G ₁ ^P	—	ECF1		
—	—	Triode 1.5 Pentode 0.025	★ For data and notes refer type 6BL8.	32	A ^t	G ₁ ^P	G ₂	H	H	A ^P	K ^P G ₃ IS	K ^t	G ₁ ^t	—	—	ECF80		
—	—	Triode 1.8 Pentode 0.01	★ For data and notes refer type 6U8.	32	A ^t	G ₁	G ₂	H	H	A ^P	K ^P G ₃ IS	K ^t	G ₁ ^t	—	—	ECF82		
—	—	Pentode 0.012 triode 2.0	★ For data and notes refer type 6HG8.	32	K ^P G ₃ K ^t IS	G ₁ ^P	K ^P G ₂ K ^t IS	H	H	G ₁ ^t	A ^t	A ^P	G ₂ ^P	—	—	ECF86		
—	—	0.015	Conversion Conductance = 2 μmhos at - 34 volts Grid (G ₁ ^h) Bias. Osc. Plate 100 V. at 9.5 mA. Osc. Grid Current 0.2 mA. Osc. Grid Resistor 50,000 Ω .	26	M	H	H	K G ₅ ^h	A ^t	G ₃ ^h	G ₂ ^h	A ^h	—	G ₁ ^h	—	ECH2		
—	—	0.003	★ For data and notes refer type ECH33.	26	M	H	H	K	A ^t	G ₃ ^h	G ₂ ^h	A ^h	—	G ₁ ^h	—	ECH3		
				30	M	H	A ^h	G ₂ ^h G ₄ ^h	G ₁ ^t	A ^t	H	K	—	G ₁ ^h	—	ECH3G		
—	—	0.002	★ For data and notes refer type ECH34.	26	K M G ₃ ^h	H	H	A ^t	G ₃ ^h	G ₁ ^t	G ₂ ^h G ₄ ^h	A ^h	—	G ₁ ^h	—	ECH4		
				30	G ₃ ^h	H	A ^h	G ₂ ^h G ₄ ^h	G ₁ ^t	A ^t	H	G ₅ ^h K M	—	G ₁ ^h	—	ECH4G		

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
ECH11	TRIODE HEXODE	Frequency Converter	H	6.3	0.2	250	2.2	(G_1^h) -2	(G_{2+3}^h) See Note	2.8	Conv. 640	—	>1.0
ECH21	TRIODE HEPTODE	Frequency Converter	H	6.3	0.33	★	★	★	★	★	★	—	★
ECH33 ECH33B	TRIODE HEXODE	Frequency Converter	H	6.3	0.2	250	3.0	(G_1^h) -2	(G_{2+3}^h) See Note	3.0	Conv. 650	—	1.3
ECH34	TRIODE HEPTODE	Frequency Converter	H	6.3	0.35	250	3.0	(G_1^h) -2	(G_{2+3}^h) 100 See Note	6.2	Conv. 750	—	1.4
ECH35	TRIODE HEXODE	Frequency Converter	H	6.3	0.3	250	3.0	(G_1^h) -2	(G_{2+3}^h) 100	3.0	Conv. 650	—	1.3
ECH35A	TRIODE HEXODE	Frequency Converter	H	6.3	0.2	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0-001	Screen connected to junction of two Resistors in series, $R_1 = 35,000 \Omega$ and $R_2 = 60,000 \Omega$, R_1 is connected to B+ and R_2 to B-. Osc. Plate 150 V. at 3.3 mA. Osc. Grid Current 0.2 mA. Osc. Grid Resistor 50,000 Ω . Osc. $G_m = 2800 \mu\text{mhos}$. Conversion Conductance = 6.4 μmhos at - 16 volts Grid Bias.	27	G_2^h G_4^h	G_1^h	K M	A^h	H	H	G_3^h G_1^t	A^t	—	—	—	ECH11
—	—	0-002	★ For data and notes refer type ECH34.	29	H	A^h	A^t	G_1^t	G_2^h G_4^h	G_1^h	G_3^h	H	—	—	K G_2^h S	ECH21
—	—	0-003	ECH33B fitted with larger top-cap. Screen connected to junction of two Resistors in series, $R_1 = 24,000 \Omega$ and $R_2 = 33,000 \Omega$, R_1 is connected to B+ and R_2 to B-. Conversion Conductance = 6.5 μmhos at - 23.5 volts Grid (G_1^b) Bias. Osc. Plate 100 V. at 3.3 mA. Osc. Grid Current 0.2 mA. Osc. Grid Resistor 50,000 Ω . Osc. $G_m = 2800 \mu\text{mhos}$.	30	M	H	A^h	G_2^h G_4^h	G_1^t	A^t	H	K	—	G_1^h	—	ECH33 ECH33B
—	—	0-003	Series Screen Resistor 24,000 Ω (250 V. supply). Conversion Conductance = 7.5 μmhos at - 24.5 volts Grid (G_1^b) Bias. Osc. Plate 120 V. at 4.5 mA fed from 250 V. through 20,000 Ω . Osc. Grid Current 0.19 mA. Osc. $G_m = 550 \mu\text{mhos}$.	30	G_3^h	H	A^h	G_2^h G_4^h	G_1^t	A^t	H	G_7^h K M	—	G_1^h	—	ECH34
—	—	0-003	Conversion Conductance = 6.5 μmhos at - 17 volts Grid G_1^h Bias. Osc. Plate 100 V. at 3.3 mA. Osc. Grid Current 0.2 mA. Osc. Grid Resistor 50,000 Ω . Osc. $G_m = 2800 \mu\text{mhos}$.	30	M	H	A^h	G_2^h G_4^h	G_1^t G_3^h	A^t	H	K	—	G_1^h	—	ECH35
—	—	0-003	★ For data and notes refer type ECH33.	30	M	H	A^h	G_2^h G_1^h	G_1^t	A^t	H	K	—	G_1^h	—	ECH35A

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
ECH41	TRIODE HEXODE	Frequency Converter	H	6.3	0.225	250	3.0	(G ₁ ^h) -2	(G ₂₊₃ ^h) See Note	2.2	Conv. 500	—	2.0
ECH42	TRIODE HEXODE	Frequency Converter	H	6.3	0.23	★	★	★	★	★	★	—	★
ECH80	TRIODE HEXODE	Frequency Converter	H	6.3	0.23	★	★	★	★	★	★	—	★
ECH81	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	★	★	★	★	★	★	—	★
ECH83	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	★	★	★	★	★	★	★	★
ECL11	TRIODE POWER OUTPUT TETRODE	A.F. and Class "A" Power Amplifier	H	6.3	1.0	250	2.0	-2.5	—	—	2000	70	0.035
						250	36.0	-6	250	4.0	9000	—	0.025
ECL80	TRIODE POWER OUTPUT PENTODE	A.F., Class "A" Power, Frame Output Amplifier	H	6.3	0.3	★	★	★	★	★	★	★	★
ECL82	HIGH μ TRIODE POWER PENTODE	Amplifier	H	6.3	0.78	★	★	★	★	★	★	★	★
ECL83	HIGH μ TRIODE POWER PENTODE	Pentode Class "A" A.F. Amplifier	H	6.3	0.6	170	Zero Signal 30	-9.5 See Note	170	Zero Signal 5.0	5500	—	0.053
						170	1.6	-1.5	—	—	2100	82	0.04

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.1	Screen connected to junction of two resistors in series, $R_1 = 33,000 \Omega$ and $R_2 = 47,000 \Omega$, R_1 is connected to B+ and R_2 to B-. Conversion Conductance = 5 μhos at - 28 volts Grid (G_1^b) Bias. Osc. Plate Current 4.9 mA through $30,000 \Omega$ (250 V. supply). Osc. Grid Resistor $20,000 \Omega$. Osc. Grid Current 0.35 mA. Osc. $G_m = 550 \mu\text{hos}$.	28	H	A ^b	A ^t	G_1^t G_3^h	G_2^h G_4^h	G_1^h	K	H	—	—	—	ECH41
—	—	0.1	★ For data and notes refer type 6CU7.	28	H	A ^b	A ^t	G_1^t G_3^h	G_2^h G_4^h	G_1^h	K	H	—	—	—	ECH42
—	—	0.1	★ For data and notes refer type 6AN7.	32	G_2^b G_4^h	G_1^h	K G_2^h IS	H	H	IC	A ^b	A ^t	G_3^h G ^t	—	—	ECH80
—	—	0.01	★ For data and notes refer type 6AJ8.	32	G_2^b G_4^h	G_1^h	IS K G_2^h	H	H	A ^b	G_3^h	A ^t	G_1^t	—	—	ECH81
—	—	Hept. 6.0 Triode 1.0	★ For data and notes refer type 6D88.	32	G_2 G_4	G_1^h	K IS	H	H	A	G_3	A ^t	G_1^t	—	—	ECH83
—	—	1.5	Triode Unit (t).	27	A ^t	G_1^t	K	A ^o	H	H	G_2^o	G_1^o	—	—	—	ECL11
7000	3.8	0.9	{ Tetrode Unit (o). Total Harmonic Distortion 10%.													
★	★	1.0 0.2	★ For data and notes refer type 6AB8.	32	A ^t	G_1^t	K IS	H	H	A ^p	G_3^p	G_2^p	G_1^p	—	—	ECL80
★	★	Triode 4.2 Pentode 0.3	★ For data and notes refer type 6BM8.	32	G_1^t	K ^p G_3 IS	G_1^p	H	H	A ^p	G_3^p	K ^t	A ^t	—	—	ECL82
5500	2.2	< 0.2	Cathode Resistor 270Ω . Total Harmonic Distortion 10%.	32	A ^t	G ^t	K ^t	H	H	A ^p	K ^p G_3	G_2	G_1	—	—	ECL83
—	—	1.6	R.C. Amplifier (170 volt supply). Plate Resistor $0.1 \text{ M}\Omega$. Cathode Resistor 1800Ω . Following Grid Resistor $0.33 \text{ M}\Omega$. Voltage Gain 49.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			T Y P E	Voltage Volts	Current Amps								
ECL84	HIGH μ TRIODE POWER PENTODE	Pentode Video Amplifier Triode Sync. Separator	H	6.3	0.72	★	★	★	★	★	★	★	—
ECL85	HIGH μ TRIODE POWER PENTODE	Vertical Deflection Oscillator Amplifier	H	6.3	0.9	★	★	★	★	★	★	★	★
ECL86	HIGH μ TRIODE POWER PENTODE	Audio Amplifier	H	6.3	0.7	★	★	★	★	★	★	★	★
EDD11	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	H	6.3	0.4	250	Zero Signal 2 x 3.5 Max. Signal 2 x 17.5	-6.3	—	—	—	—	—
EEP1	SECONDARY EMISSION TETRODE	Wide-band Amplifier	H	6.3	0.6	250	8.0	-2.5	150	0.45	17,000	—	0.05
EF2	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.4	250	4.5	-2	100	1.4	2800	—	1.4
EF5	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	250	8.0	-3	100	2.6	1700	—	1.2
EF6	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.2	★	★	★	★	★	★	—	★
EF8	LOW-NOISE REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier (Low Noise)	H	5.3	0.2	★	★	★	★	★	★	—	★
EF9	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	★	★	★	★	★	★	—	★
EF11	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	250	5.7	-2	100 See Note	2.0	2200	—	2.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	—	Pentode < 0.1 Triode 2.7	★ For data and notes refer type 6DX8.	32	G ^t	A ^t	K ^t	H	H	A ^p	K ^p G ₃ IS	G ₁ ^p	G ₂ ^p	—	—	ECL84
—	—	—	★ For data and notes refer type 6GV8.	32	A ^t	G ^t	K ^t	H	H	A ^p	G ₂ K ^p G ₃ IS	G ₁ ^p	—	—	ECL85	
★	★	—	★ For data and notes refer type 6GW8.	32	G ^t	K ^t	G ₂	H	H	A ^p	K ^p G ₃ IS	G ₁ ^p	A ^t	—	—	ECL86
Plate to Plate 16,000	5.5	—	Driver Transformer Step-down ratio 3 : (1 + 1).	27	A ^t	G ₁ ^t	K M	NC	H	H	G ₁ ^u	A ^u	—	—	—	EDD11
—	—	0.006	Auxiliary Cathode (K ^u) voltage 150 V. at - 6.5 mA.	26	M	H	H	K ^l S	K ^u	NC	G ₂	A	—	G ₁	—	EEP1
—	—	0.003	Mutual Conductance = 2 μmhos at - 22 volts Grid Bias.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	EF2
—	—	0.003	Mutual Conductance = 2 μmhos at - 46.5 volts Grid Bias.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	EF5
—	—	0.003	★ For data and notes refer type EF36.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	EF6
—	—	0.007	★ For data and notes refer type EF38.	26	M	H	H	K	G ₄	G ₂	G ₃	A	—	G ₁	—	EF8
—	—	0.002	★ For data and notes refer type EF39.	26	M	H	H	K	G ₃	NC	G ₂	A	—	G ₁	—	EF9
—	—	0.002	Series Screen Resistor 75,000 Ω (250 V. supply). Mutual Conductance = 22 μmhos at - 45 volts Grid Bias. As R.C. Amplifier (250 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.6 meg. Cathode Resistor 1500 Ω . Gain = 98.	27	G ₂	G ₁	K G ₃ M	NC	H	H	NC	A	—	—	—	EF11

TYPE No	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age	Cur- rent								
				Volts	Amps								
EF12	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.2	250	3.0	-2	100	1.0	2100	—	2.0
EF13	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier (Low Noise)	H	6.3	0.2	250	4.5	-2	100	0.6	2300	—	0.5
EF22	MEDIUM CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.2	250	6.0	-2.5	100	1.7	2200	—	1.2
EF36	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	6.3	0.2	★	★	★	★	★	★	—	★
EF37	SHARP CUT-OFF PENTODE	A.F. Amplifier (Non-Microphonic)	H	6.3	0.2	★	★	★	★	★	★	—	★
EF37A	SHARP CUT-OFF PENTODE	A.F. Amplifier (Non-Microphonic, Low Hum)	H	6.3	0.2	250	3.0	-2	100	0.8	1800	—	2.5
						200	3.0	-2	100	0.8	1800	—	2.0
						100	3.0	-2	100	0.8	1800	—	1.0
EF38	LOW-NOISE REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier (Low Noise)	H	6.3	0.2	250	8.0	-2.5	(G ₂) 250	0.2	1800	—	0.45
EF39	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	250	6.0	-2.5 See Note	100 See Note	1.7	2200	—	1.25

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.002	Plate Current Cut-off at - 5 volts Grid Bias. As R.C. Amplifier (250 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.5 meg. Cathode Resistor 1600 Ω . Gain = 181.	27	G ₂	G ₁	K G ₃ M	NC	H	H	NC	A	—	—	—	EF12
—	—	0.005	Grid No. 3 tied to Cathode. Mutual Conductance = 23 μmhos at - 17 volts Grid Bias.	27	G ₂	G ₁	K M	NC	H	H	G ₃	A	—	—	—	EF13
—	—	0.002	Mutual Conductance = 22 μmhos at - 19 volts Grid Bias. As R.C. Amplifier (250 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.8 meg. Cathode Resistor 1750 Ω . Gain = 106.	29	H	A	G ₂	G ₃ S	NC	G ₁	K	H	—	—	—	EF22
—	—	0.003	★ For data and notes refer type EF37A.	30	M	H	A	G ₂	G ₃	NC	H	K	—	G ₁	—	EF36
—	—	0.02	★ For data and notes refer type EF37A.	30	M	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	EF37
—	—	0.02	Plate Current Cut-off at - 4.5 volts Grid Bias. As R.C. Amplifier (300 V. supply). Following Grid Leak 0.7 meg. Plate Resistor 0.3 meg. Screen Resistor 0.8 meg. Cathode Resistor 4000 Ω . Gain = 175.	30	M	H	A	G ₂	G ₃	—	H	K	—	G ₁	—	EF37A
—	—	0.007	Grid Nos. 2 and 4 tied to Cathode. Mutual Conductance = 18 μmhos at - 34 volts Grid Bias. Equivalent Noise Resistance = 3200 Ω .	30	M G ₂	H	A	G ₃	G ₄	NC	H	K	—	G ₁	—	EF38
—	—	0.003	Cathode Bias Resistor 325 Ω . Series Screen Resistor 90,000 Ω (250 V. supply). Mutual Conductance = 4.5 μmhos at - 49 volts Grid Bias.	30	M	H	A	G ₂	G ₃	NC	H	K	—	G ₁	—	EF39

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
EF40	SHARP CUT-OFF PENTODE	A.F. Amplifier	H	6.3	0.2	250	3.0	-2	140	0.55	1850	—	2.5
EF41	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	★	★	★	★	★	★	—	★
EF42	SHARP CUT-OFF R.F. PENTODE	Wide-band Amplifier	H	6.3	0.33	250	10.0	-2	250	2.3	9500	—	0.5
EF43	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.33	250	15.0	-2	135 See Note	3.5	6400	—	0.5
EF50	REMOTE CUT-OFF R.F. PENTODE	Wide-band Amplifier	H	6.3	0.3	250	10.0	(G ₁) -2	250	3.0	6500	—	1.0
EF51	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.35	250	14.0	-2	250	2.6	9500	—	0.5
EF54	SHARP CUT-OFF R.F. PENTODE	U.H.F. Amplifier	H	6.3	0.3	250	10.0	-1.7	250	1.45	7700	—	0.5
EF55	SHARP CUT-OFF PENTODE	Video Amplifier	H	6.3	1.0	250	40	-4.5	250	5.5	12,000	—	0.055
EF70	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6.3	0.2	100	3.0	-2	100	3.0	2300	—	0.1
EF72	R.F. PENTODE	R.F. Amplifier	H	6.3	0.15	100	7.0	-1.4	100	2.2	5000	—	0.3
EF73	REMOTE CUT-OFF PENTODE	A.F. Amplifier	H	6.3	0.2	100	7.5	-2	100	2.5	5000	—	0.25

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.04	Plate Current Cut-off at - 5 volts Grid Bias. As R.C. Amplifier (250 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.22 meg. Screen Resistor 1.0 meg. Cathode Resistor 1500 Ω . Gain = 180.	28	H	A	IC	G ₃	G ₁	G ₂	K IS	H	—	—	—	EF40
—	—	0.002	★ For data and notes refer type type 6CJ5.	28	H	A	IC	IC	G ₂	G ₁	K G ₂ IS	H	—	—	—	EF41
—	—	0.005	Plate Current Cut-off at - 4.5 volts Grid Bias.	28	H	A	IS	G ₃	G ₂	G ₁	K	H	—	—	—	EF42
—	—	0.006	Series Screen Resistor 33,000 Ω (250 V. supply). Mutual Conductance = 64 μmhos at - 28 volts Grid Bias.	28	H	A	IS	G ₃	G ₂	G ₁	K	H	—	—	—	EF43
—	—	0.007	Grid No. 3 Bias = 0. Gain Control by means of Grid No. 3. Mutual Conductance = 45 μmhos at - 54 volts Grid (G ₃) Bias.	33	H	G ₂	A	G ₃	IS	K	G ₁	S	H	—	M	EF50
—	—	0.007	Mutual Conductance = 100 μmhos at - 8 volts Grid Bias.	29	H	A	K	G ₃ IS	G ₂	G ₁	K	H	—	—	—	EF51
—	—	0.02	Plate Current Cut-off at - 6 volts Grid Bias.	33	H	A	G ₂	K G ₂ IS	K G ₂ IS	G ₁	K G ₂ IS	K G ₂ IS	H	—	—	EF54
—	—	0.15	Plate Current Cut-off at - 10 volts Grid Bias.	33	H	G ₂	A	G ₃	IS	K	G ₁	IS	H	—	—	EF55
—	—	0.02	Plate Current = 0.1 mA at - 8 volts Grid (G ₁) Bias. Plate Current = 0.1 mA at - 8 volts Grid (G ₂) Bias.	31	G ₁	G ₃	H	K	A	H	G ₂	G ₃	—	—	—	EF70
—	—	0.04		31	G ₁	K G ₃	H	K G ₃	A	H	G ₂	K G ₃	—	—	—	EF72
—	—	0.5	Plate Current = 0.1 mA at - 50 volts Grid Bias.	31	G ₁	G ₃	H	A	G ₂	H	K	A	—	—	—	EF73

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
EF80	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EF81	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-2	★	★	★	★	★	★	—	★
EF83	REMOTE CUT-OFF A.F. PENTODE	Class "A" Amplifier	H	6-3	0-2	200	4-0	-1-6	See Note 50	1-15	1600	—	1-6
EF85	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EF86	SHARP CUT-OFF A.F. PENTODE	A.F. Amplifier (Low-noise)	H	6-3	0-2	★	★	★	★	★	★	—	★
EF89	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-2	250	9-0	-2†	100*	3-0	3600	—	1-0
EF91	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EF92	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-2	★	★	★	★	★	★	—	—
EF93	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	II	6-3	0-3	★	★	★	★	★	★	—	★
EF94	SHARP CUT-OFF PENTODE	R.F. and Amplifier A.F.	H	6-3	0-3	★	★	★	★	★	★	—	★
EF95	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-175	★	★	★	★	★	★	—	★
EF97	R.F. PENTODE WITH VARIABLE MUTUAL CONDUCTANCE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0-007	★ For data and notes refer type 6BX6.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	EF80
—	—	0-002	★ For data and notes refer type 6BH5.	32	G ₂	G ₁	K G ₁ IS	H	H	A	IC	IC	NC	—	—	EF81
—	—	0-05	Plate Resistor 0.1 m Ω . Series Screen Resistor 0.30 m Ω . Following Grid Resistor 1.0 m Ω . Gain 85.	32	G ₂	IS	K	H	H	A	IS	G ₂	G ₁	—	—	EF83
—	—	0-005	★ For data and notes refer type 6BY7.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	EF85
—	—	0-025	★ For data and notes refer type 3BK8.	32	G ₂	IS	K	H	H	A	IS	G ₂	G ₁	—	—	EF86
—	—	0-002	Mutual Conductance = 36 μmhos at - 40 volts grid (G ₁) bias. * Series screen resistor 50000 Ω (250 volts supply). † Cathode bias resistor 165 Ω .	32	S	G ₁	K	H	H	S	A	G ₂	G ₃	—	—	EF89
—	—	0-008	★ For data and notes refer type 6AM6.	21	G ₁	K	H	H	A	G ₂ IS	G ₂	—	—	—	—	EF91
—	—	0-004	★ For data and notes refer type 6CQ6.	21	G ₁	K	H	H	A	G ₂ IS	G ₂	—	—	—	—	EF92
—	—	0-0035	★ For data and notes refer type 6BA6.	21	G ₁	G ₂ IS	H	H	A	G ₂	K	—	—	—	—	EF93
—	—	0-0035	★ For data and notes refer type 6AU6.	21	G ₁	G ₂ IS	H	H	A	G ₂	K	—	—	—	—	EF94
—	—	0-02	★ For data and notes refer type 6AK5.	21	G ₁	K IS G ₂	H	H	A	G ₂	K IS G ₂	—	—	—	—	EF95
—	—	0-02	★ For data and notes refer type 6ES6.	21	G ₁	K	H	H	A	G ₂	G ₂	—	—	—	—	EF97

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
EF98	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EF183	SEMI-REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	☆	—	☆
EF184	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-3	★	★	★	★	★	★	—	★
EF730	SUBMINIATURE DUAL CONTROL R.F. PENTODE	Class "A" Amplifier	H	6-3	0-15	100	5-3	-1-4	100	4-1	See Note	—	0-11
EF731	SUBMINIATURE SEMI-REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	6-3	0-15	100	7-2	-1-1	100	2-2	4500	—	0-26
EF732	SUBMINIATURE R.F. PENTODE	R.F. Amplifier	H	6-3	0-15	100	7-5	-1-5	100	2-4	5000	—	0-26
EF734	SUBMINIATURE R.F. PENTODE	R.F. Amplifier	H	6-3	0-15	100	7-5	-1-5	100	2-4	5000	—	0-26
EFF50	SHARP CUT-OFF R.F. PENTODE	Push-pull R.F. Amplifier	H	6-3	0-58	300	10-0	-2	225	1-5	10,000	—	0-25
EFF51	TWIN SHARP CUT-OFF R.F. PENTODE	Push-pull R.F. Amplifier	H	6-3	0-75	300	10-0	-2	225	1-8	9000	—	0-25
EFM1	MEDIUM CUT-OFF PENTODE and TUNING INDICATOR	A.F. Amplifier and Tuning Indicator	H	6-3	0-2	Supply 250	0-8	(G ₁ P) -2	40	0-6	—	—	0-8

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	0.02	★ For data and notes refer type 6E76.	21	G ₁	K	H	H	A	G ₂	G ₃	—	—	—	—	—	EF98
—	—	0.005 max.	★ For data and notes refer type 6EH7.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	—	EF183
—	—	0.005 max.	★ For data and notes refer type 6EJ7.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	—	EF184
—	—	Grid No. 1 to Plate < 0.034	Mutual conductances :— Grid No. 1 to plate 3200 μmhos . Grid No. 3 to plate 500 μmhos . For Plate Current = 10 μA . :— Grid No. 1 Voltage = -7.5. Grid No. 3 Voltage = -8.	31	G ₁	K	H	G ₃	A	H	G ₂	K	—	—	—	—	EF730
—	—	< 0.03		31	G ₁	K G ₃	H	K G ₃	A	H	G ₂	K G ₃	—	—	—	—	EF731
—	—	< 0.03	Plate Current = 10 μA . at -9.0 volts grid bias.	31	G ₁	K G ₃	H	K G ₃	A	H	G ₂	K G ₃	—	—	—	—	EF732
—	—	< 0.03	Plate Current = 10 μA . at -9.0 volts grid bias.	31	G ₁	K IS	H	G ₃	A	H	G ₂	K IS	—	—	—	—	EF734
—	—	0.04	Values are for each unit. Frequency limit 500 Mc/s. Equivalent Noise Resistance 600 Ω	33	H	A ¹	G ₂ ¹	G ₁ ¹	K ¹ K ¹ G ₃ ¹ G ₃ ¹¹	G ₁ ¹¹	G ₂ ¹¹	A ¹¹	H	—	—	—	EFF50
—	—	0.04	Plate Current Cut-off at - 4.5 volts Grid Bias. Values are for each unit. Frequency limit 500 Mc/s. Equiv. Noise Resistance 750 Ω .	33	H	A ¹	G ₂ ¹	G ₁ ¹	K ¹ K ¹¹ G ₃ ¹ G ₃ ¹¹	G ₁ ¹¹	G ₂ ¹¹	A ¹¹	H	—	—	—	EFF51
—	—	—	As R.C. Amplifier (250 V. supply). Plate Resistor 0.13 meg. Screen Resistor 0.35 meg. Cathode Resistor 980 Ω . Tuning Indicator Screen 250 V. at 0.65 mA. Gain = 60. Shadow angle of a single sector > 70° measured at edge of screen with - 2 volts Grid (G ₁ P) Bias and < 5° with - 20 volts Grid (G ₁ P) Bias.	26	M	H	H	K G ₃ ^P G ₁ ¹	T	G ₁ ^P	G ₂ ^P DE	A ^P	—	—	—	—	EFM1

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ nhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
EFM11	MEDIUM CUT-OFF PENTODE and TUNING INDICATOR	A.F. Amplifier and Tuning Indicator	H	6.3	0.2	Supply 250	1.0	(G ₁) -1.5	30	0.63	—	—	0.7
EPF60	SECONDARY EMISSION SHARP CUT-OFF PENTODE	Wide-band Amplifier	H	6.3	0.37	250	20	-2	250	1.5	25,000	—	0.07
EH90	PENTAGRID	Sync. Separator Limiter	H	6.3	0.3	★	★	★	★	★	★	—	★
EK1	OCTODE	Frequency Converter	H	6.3	0.4	250	1.6	(G ₁) -1.5	(G ₃₊₄) 70	2.8	Conv. 600	—	1.5
EK2 EK2G	OCTODE	Frequency Converter	H	6.3	0.2	★	★	★	★	★	★	—	★
EK3	BEAM OCTODE	Frequency Converter	H	6.3	0.6	250	2.5	(G ₁) -2.5	(G ₃₊₄) 100	5.5	Conv. 650	—	2.0
EK32	OCTODE	Frequency Converter	H	6.3	0.2	250	1.0	(G ₁) -2	(G ₃₊₄) 50	0.8	Conv. 550	—	2.0
EK90	PENTAGRID	Frequency Converter	H	6.3	0.3	★	★	★	★	★	★	—	★
EL1	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.4	250	32	-18.5	250	4.5	2600	—	0.048
EL2	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.2	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	As R.C. Amplifier (250 V. supply). Plate Resistor 0.13 meg. Screen Resistor 0.35 meg. Cathode Resistor 650 Ω . Tuning Indicator Screen 250 V. at 0.65 mA. Gain = 80. Shadow angle of a single sector 70° measured at edge of screen with - 1.5 volts Grid (G_1P) Bias and 3° with - 20 volts Grid (G_1P) Bias.	27	AP	G_1^h	K G_3^p G_1^l	T	H	H	NC	G_2^p DE	—	—	—	EFM11
—	—	0.004	Auxiliary Cathode (K'') voltage 150 V. at - 15.6 mA. Plate Current Cut-off at - 4 volts Grid Bias.	33	H	K^l	G_1	K^l	K''	A	G_3 IS	G_2	H	—	—	EFP60
—	—	0.07	★ For data and notes refer type 6CS6.	21	G_1	K G_3	H	H	A	G_2 G_4	G_3	—	—	—	—	EH90
—	—	—	Grid No. 2 70 V. at 2.0 mA. Osc. Grid (G_1) Current 0.19 mA. Osc. Grid Resistor 50,000 Ω .	26	M	H	H	K G_4	G_2	G_1	G_3 G_5	A	—	G_4	—	EK1
—	—	0.07	★ For data and notes refer type 1K32.	26	M	H	H	K G_4	G_2	G_1	G_3 G_5	A	—	G_4	—	EK2
				30	M	H	A	G_3 G_5	G_1	G_2	H	G_4 K	—	G_4	—	EK2G
—	—	0.07	Conversion Conductance = 6.5 μmhos at - 38 volts Grid (G_1) Bias. Grid No. 2 100 V. at 5.0 mA. Osc. Grid (G_1) Current 0.3 mA. Osc. Grid Resistor 50,000 Ω . Cathode Resistor 190 Ω .	26	M	H	H	K G_4	G_2	G_1	G_3 G_5	A	—	G_1	—	EK3
—	—	0.07	Conversion Conductance = 2 μmhos at - 25 volts Grid (G_1) Bias. Grid No. 2 200 V. at 2.5 mA. Osc. Grid (G_1) Current 0.3 mA maximum. Osc. Grid Resistor 50,000 Ω . Cathode Resistor 500 Ω .	30	M	H	A	G_3 G_5	G_1	G_2	H	K G_4	—	G_4	—	EK32
—	—	0.3	★ For data and notes refer type 6BE6.	21	G_1	K G_5	H	H	A	G_2 G_4	G_3	—	—	—	—	EK90
7000	See Note	1.1	Power output = 2.8 W. at 10% Total Harmonic Distortion or 1.4 W. at 5% Total Harmonic Distortion.	26	NC	H	H	K G_3	NC	NC	G_2	A	—	G_1	—	EL1
★	★	0.6	★ For data and notes refer type EL32.	26	NC	H	H	K G_3	NC	NC	G_2	A	—	G_1	—	EL2

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			T Y P E	Voltage Volts									Current Amps
EL3N EL3NG	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.9	★	★	★	★	★	—	★	
EL5 EL5G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.3	250	72	-14	275	7.0	8500	—	0.022
EL6	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.2	250	72	-7	250	8.0	14,500	—	0.02
EL11 EL11N	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.9	250	36	-6	250	4.0	9000	—	0.05
EL12	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.2	250	72	-7	250	8.0	15,000	—	0.025
EL22	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.7	250	44	-7	250	5.2	9500	—	—
EL31	POWER OUTPUT PENTODE	Class "AB" Power Amplifier	H	6.3	1.4	800	Zero Signal 2 x 30 Max. Signal 2 x 107	-26	400	Zero Signal 2 x 3.1 Max. Signal 2 x 28.5	—	—	—
EL32	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.2	250	32	-18	250	5.0	2800	—	0.07
EL33 EL33A EL33B	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.9	250	36	-6	250	4.0	9000	—	0.05
		Class "AB" Power Amplifier (two Valves)				250	Zero Signal 2 x 24 Max. Signal 2 x 28.5	See Note	250	Zero Signal 2 x 2.8 Max. Signal 2 x 4.6	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	0.8	★ For data and notes refer type EL33.	26	NC	H	H	K G ₃ M	NC	G ₁	G ₂	A	—	—	—	EL3N
				30	NC	H	A	G ₂	G ₁	—	H	K G ₃ M	—	—	—	
3500	8.8	0.8	Cathode Resistor for Self-bias 175 Ω . Total Harmonic Distortion 10%.	26	NC	H	H	K G ₃ M	NC	G ₁	G ₂	A	—	—	—	EL5
				30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	
3500	8.0	0.7	Cathode Resistor for Self-bias 90 Ω . Total Harmonic Distortion 10%.	26	NC	H	H	K G ₃ M	NC	G ₁	G ₂	A	—	—	—	EL6
7000	4.5	0.8	Cathode Resistor for Self-bias 150 Ω . Total Harmonic Distortion 10%.	27	G ₂	G ₁	K G ₃	NC	H	H	NC	A	—	—	—	EL11
					G ₄	G ₁	K G ₃ M	NC	H	H	NC	A	—	—	—	EL11N
3500	8.0	0.7	Cathode Resistor for Self bias 90 Ω . Total Harmonic Distortion 10%.	27	G ₂	G ₁	K M G ₃	NC	H	H	NC	A	—	—	—	EL12
5750	5.2	1.0	Cathode Resistor for Self-bias 140 Ω . Total Harmonic Distortion 10%.	29	H	A	G ₂	NC	NC	G ₁	K G ₃	H	—	—	—	EL22
Plate to Plate 10,000	120	1.2	R.M.S. A.F. Grid to Grid volts = 36. Total Harmonic Distortion = 5%.	30	G ₃	H	NC	G ₂	G ₁	—	H	K	—	A	—	EL31
8000	3.6	—	Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	NC	—	H	K G ₃	—	G ₁	—	EL32
7000	4.5	1.0	Cathode Resistor for Self-bias 150 Ω . Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	EL33
					NC	H	A	G ₂	G ₁	—	H	K M G ₃	—	—	—	EL33A
Plate to Plate 10,000	8.2	—	Cathode Bias Resistor 140 Ω . Total Harmonic Distortion 3.1%.	—	M	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	EL33B

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms	
			TYP E	Voltage Volts									Current Amps
EL34	POWER OUTPUT PENTODE	Power Amplifier	H	6.3	1.5	★	★	★	★	★	—	★	
EL35	POWER OUTPUT PENTODE	Class "A" Power Amplifier				250	72	-15.5	250	8.0	5000	—	0.0155
		Class "AB" Power Amplifier (two Valves Self-bias)	H	6.3	1.3	360	Zero Signal 2 x 44 Max. Signal 2 x 53	See Note	270	Zero Signal 8.5 Max. Signal 17.5	—	—	—
		Class "AB" Power Amplifier (two Valves fixed bias)				360	Zero Signal 2 x 44 Max. Signal 2 x 70	-26	270	Zero Signal 8.5 Max. Signal 19.5	—	—	—
EL36	POWER PENTODE	Horizontal Deflection Amplifier	H	6.3	1.25	★	★	★	★	★	—	★	
EL37	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.4	250	100	-13.5	250	13.5	11,000	—	0.0135
EL38	POWER OUTPUT PENTODE	Horizontal Deflection Amplifier	H	6.3	1.4	★	★	★	★	★	—	★	
EL41	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.71	★	★	★	★	★	—	★	
EL42	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	0.2	225	26	See Note	225	4.1	3200	—	0.09
EL50	POWER OUTPUT PENTODE	Class "B" Power Amplifier (two Valves)	H	6.3	1.35	775 See Note	Zero Signal 2 x 15 Max. Signal 2 x 70	-40	See Note	Zero Signal 2 x 1.6 Max. Signal 2 x 24	—	—	—
EL51	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6.3	1.9	750	60	-37.5	750	10.0	8000	—	0.05
						500	87	-20.0	500	13.0	11,000	—	0.033
EL60	POWER OUTPUT PENTODE	Class "A" Power Amplifier Class "AB" Power Amplifier	H	6.3	1.35	★	★	★	★	★	—	★	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	1.0	★ For data and notes refer type 6CA7.	30	G ₃	H	A	G ₂	G ₁	NC	H	K	—	—	—	EL34
2500	6.0	1.0	Total Harmonic Distortion 10%. Cathode Resistor for Self-bias 180 Ω .	30	—	H	A	G ₂	G ₁	—	H	K	—	—	—	EL35
Plate to Plate 7000	21.0		Total Harmonic Distortion 3%. Cathode Bias Resistor 250 Ω .									G ₃				
Plate to Plate 6250	26.0		Total Harmonic Distortion 3%.													
—	—	1.1	★ For data and notes refer type 6CM5.	30	IC	H	IC	G ₂	G ₁	—	H	K	—	A	—	EL36
2500	10.5	1.0	Total Harmonic Distortion 10%. Cathode Resistor for Self-bias 120 Ω .	30	—	H	A	G ₂	G ₁	—	H	K	—	—	—	EL37
—	—	1.2	★ For data and notes refer type 6CN6.	30	G ₃	H	NC	G ₂	G ₁	—	H	K	—	A	—	EL38
★	★	1.0	★ For data and notes refer type 6CK5.	28	H	A	IC	NC	G ₂	G ₁	K	H	—	—	—	EL41
9000	2.8	0.2	Total Harmonic Distortion 12%. Cathode Bias Resistor 360 Ω .	28	H	A	IC	NC	G ₃	G ₁	K	H	—	—	—	EL42
Plate to Plate 18,000	80	0.8	Plate supply voltage = 800 V. Series Screen Resistor 500 Ω . (400 V. supply). Total Harmonic Distortion 10%. R.M.S. Grid to Grid volts = 28.	26	NC	H	H	K	G ₃	G ₁	G ₂	NC	—	A	—	EL50
—	—	1.5		26	NC	H	H	K	NC	G ₁	G ₂	NC	—	A	—	EL51
—	—							G ₃								
★	★	1.1	★ For data and notes refer type EL34.	33	H	G ₃	A	NC	NC	G ₂	G ₁	K	H	—	—	EL60

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
EL70	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-45	100	31	-9	100	2-2	5000	—	0-015
EL71	SUBMINIATURE POWER PENTODE	Class "A" Amplifier	H	6-3	0-45	100	30	-8-3	100	1-2	4200	—	0-15
		Audio Power Amplifier				110	30	See Note	110	1-2	—	—	—
EL80	POWER OUTPUT PENTODE	Class "A" Power Amplifier Class "AB ₁ " Power Amplifier	H	6-3	0-71	★	★	★	★	★	★	—	★
EL81	LINE OUTPUT PENTODE	Line Output Amplifier and Class "B" Power Amplifier	H	6-3	1-05	★	★	★	★	★	★	—	—
EL82	POWER PENTODE	Class "A" Amplifier	H	6-3	0-8	200	45	-13-9	See Note	8-5	7600	—	0-024
		Class "A" Push Pull Amplifier				200	Zero Signal 2 × 45 Max. Signal 2 × 52	See Note	200	Zero Signal 2 × 8-5 Max. Signal 2 × 19-0	—	—	—
EL83	PENTODE	Video Amplifier	H	6-3	0-71	★	★	☆	★	★	☆	—	★
EL84	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-76	★	★	★	★	★	★	—	★
EL85	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-76	★	★	★	★	★	★	—	★
EL86	POWER PENTODE	Single Ended Push Pull Amplifier	H	6-3	0-76	★	★	★	★	★	★	—	★
EL90	BEAM POWER OUTPUT TETRODE	Power Amplifier	H	6-3	0-45	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
3000	1.25	—		31	G ₁	K	H	G ₃	A	H	G ₂	G ₃	—	—	—	EL70
—	—	< 0.2	Cathode Resistor 270 Ω . Total Harmonic Distortion 10%.	31	G ₁	K G ₃	H	K G ₃	A	H	G ₂	K G ₂	—	—	—	EL71
3000	1.0															
★	★	1.0	★ For data and notes refer type 6M5.	32	G ₂	G ₁	K G ₃	H	H	IC	A	IC	NC	—	—	EL80
—	—	—	★ For data and notes refer type 6CJ6	32	IC	G ₁	K	H	H	IC	IC	G ₂	G ₃	A	—	EL81
4000	4.2	1.0	Series Screen Resistor 680 Ω . Total Harmonic Distortion 10%.	32	IC	G ₁	K G ₃	H	H	IC	A	IG	G ₁	—	—	EL82
Plate to plate 4000	12.0		Cathode Resistor 135 Ω . Total Harmonic Distortion 5%. Maximum R.M.S. Input Voltage 2×13.5 .													
—	—	0.1	★ For data and notes refer type 6CK6.	32	G ₂	G ₁	K	H	H	G ₃	A	IS	NC	—	—	EL83
★	★	0.5	★ For data and notes refer type 6BQ5.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	EL84
★	★	0.2	★ For data and notes refer type 6BN5.	32	G ₁	G ₁	K	H	H	G ₃	A	G ₂	G ₂	—	—	EL85
★	★	0.6	★ For data and notes refer type 6CW5.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	EL86
★	★	0.35	★ For data and notes refer type 6AQ5.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	EL90

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
EL91	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-2	★	★	★	★	★	★	—	★
EL95	POWER PENTODE	Audio Power Amplifier	H	6-3	0-2	★	★	★	★	★	★	—	★
ELL80	TWIN POWER PENTODE	Class "A" Power Amplifier (per unit)	H	6-3	0-55	250	24	-9-0	250	4-5	6000	—	0-08
		Class "AB ₁ " Power Amplifier				250	Zero-Signal 2 × 21 Max.-Signal 2 × 26	See Note	250	Zero-Signal 2 × 4-2 Max.-Signal 2 × 8-0	—	—	—
EM1	TUNING INDICATOR with TRIODE	Tuning Indicator	II	6-3	0-2	Target Volts 250	Target Current 0-13	0 for Shadow Angle 74°	—	—	—	—	—
EM2	TUNING INDICATOR with TRIODE	Tuning Indicator	II	6-3	0-2	Target Volts 250	Target Current 0-15	0 for Max. Shadow Angle	—	—	—	—	—
EM3	TUNING INDICATOR with TRIODE	Tuning Indicator	H	6-3	0-2	Target Volts 250	Target Current 0-3	0 for Max. Shadow Angle	—	—	—	—	—
EM4	TUNING INDICATOR with TRIODES	Tuning Indicator	H	6-3	0-2	★	★	★	—	—	—	—	—
EM34	TUNING INDICATOR with TRIODES	Tuning Indicator	H	6-3	0-2	Target Volts 250	Target Current 2-0	0 for Shadow Angle of 90° in each case	—	—	—	—	—
EM80	TUNING INDICATOR WITH TRIODE	Tuning Indicator	II	6-3	0-3	Target Volts 250	Target Current 2-0	-1 for shadow angle of 5°	—	—	—	—	—
EM81	TUNING INDICATOR WITH TRIODE	Tuning Indicator	II	6-3	0-3	★	★	★	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\text{M}\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	0.5	★ For data and notes refer type 6AM5.	21	G ₁	K G ₂	H	H	A	NC	G ₂	—	—	—	—	EL91
★	★	0.4	★ For data and notes refer type 6DL5.	21	G ₁	K G ₃	H	H	A	G ₂	G ₁	—	—	—	—	EL95
10,000	3	0.2 max.	Cathode Resistor 180 Ω . Total Harmonic Distortion 5%. R.M.S. Grid to Grid Input Voltage = 2×8.0 volts.	32	G ₂ ¹	G ₁ ¹	A ¹	H	H	G ₁ ¹	K G ₃ IS	A ¹¹	G ₁ ¹¹	—	—	ELL80
10,000 Plate to Plate	8.5				—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	Triode Plate Resistor 2.0 meg. Triode Plate Current 0.095 mA. Shadow Angle 0° for - 5 volts Grid (G ₁ ¹) Bias.	26	NC	H	H	K	NC	G ₁ ¹	T	A ¹ DE	—	—	—	EM1
—	—	—	Triode Plate Resistor 2.0 meg. Triode Plate Current 0.1 mA. Min. Shadow Angle at - 6 volts Grid (G ₁ ¹) Bias.	26	NC	H	H	K	G ₁ ¹	G ₁ ¹	T	A ¹ DE	—	—	—	EM2
—	—	—	Triode Plate Resistor 1.0 meg. Triode Plate Current 0.2 mA. Min. Shadow Angle at - 21 volts Grid (G ₁ ¹) Bias.	26	NC	H	H	K G ₁ ¹	NC	G ₁ ¹	T	A ¹ DE	—	—	—	EM3
—	—	—	★ For data and notes refer type EM34.	26	NC	H	H	K G ₁ ¹	A ¹ DE ¹	G ₁ ¹	T	A ¹¹ DE ¹¹	—	—	—	EM4
—	—	—	Dual sensitivity type. Triode Plate Resistor 1.0 meg for each plate lead. Min. Shadow Angles occur at - 5 volts and - 16 volts Grid (G ₁ ¹) Bias, respectively.	30	NC	H	A ¹ DE ¹	G ₁ ¹	T	A ¹¹ DE ¹¹	H	K G ₁ ¹	—	—	—	EM34
—	—	—	Triode plate resistor 0.5 meg. Shadow angle of 50° occurs at - 16 volts grid (G ₁ ¹) bias.	32	G ₁ ¹	K G ₁ ¹	IC	H	H	IC	A ¹ DE	IC	T	—	—	EM80
—	—	—	★ For data and notes refer type 6DA5.	32	G ₁ ¹	K G ₁ ¹	IC	H	H	IC	A ¹ DE	IC	T	—	—	EM81

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
EM84	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6.3	0.21	★	★	★	—	—	—	—	—
EM85	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	6.3	0.3	Target Volts 200	Target Current 1.4	0 for Shadow angle of 100°	—	—	—	—	—
EN31	GAS-FILLED TRIODE	Relaxation Oscillator	H	6.3	1.3	1000 Peak Max.	10 Max.	—	—	—	—	—	—
		Half-wave Rectifier				350 Max.	D.C. Output 40 Max.	—	—	—	—	—	—
EQ40	ENNEODE	F.M. Detector and Limiter	H	6.3	0.2	★	★	★	★	★	—	—	★
EQ80	ENNEODE	F.M. Detector and Limiter	H	6.3	0.2	★	★	★	★	★	—	—	★
EY51	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	6.3	0.09	★	★	—	—	—	—	—	—
EY70	HALF-WAVE RECTIFIER	Half-wave Rectifier	H	6.3	0.45	Max. R.M.S. 300	D.C. Output 45 Max.	—	—	—	—	—	—
EY80	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6.3	0.9	★	★	—	—	—	—	—	—
EY81	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	6.3	0.81	★	★	—	—	—	—	—	—
EY82	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	6.3	0.9	★	★	—	—	—	—	—	—
EY84	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	6.3	1.0	★	★	—	—	—	—	—	—
EY86	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	6.3	0.09	★	★	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type 6FG6.	32	G ^t	IC	K G ¹	H	H	T	DE	IC	A ^t	—	—	EM84
—	—	—	Plate Resistor 0.47 m Ω . (250 V. supply). Grid bias -14 volts for shadow angle = 0°.	32	G ₁ ^t	IC	K G ₁ ^t	H	H	T	DE	IC	A ^t	—	—	EM85
—	—	2:3	Valve voltage drop 33 V. Grid Resistor not less than 750 Ω per max. instantaneous unit voltage applied to the Grid. Frequency limit 150 Kc/s.	30	NC	H	NC	—	G ₁	—	H	K	—	A	—	EN31
—	—	—	Grid connected to Cathode Condenser Input to Filter 6 μF maximum. Plate Supply Impedance = 100 Ω minimum.													
—	—	—	★ For data and notes refer type 6BE7.	28	H	A	G ₂ G ₄ G ₆	G ₅	G ₁	G ₃	G ₇ K	H	—	—	—	EQ90
—	—	—	★ For data and notes refer type 6BE7.	32	G ₂ G ₄ G ₆	G ₃	K G ₇	H	H	A	G ₁	K G ₇	G ₅	—	—	EQ90
—	—	—	★ For data and notes refer type 6X2.	3	H K	H	A	—	—	—	—	—	—	—	—	EY51
—	—	—		31	NC	A	H	A	K	H	NC	A	—	—	—	EY70
—	—	—	★ For data and notes refer type 19X3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	EY80
—	—	—	★ For data and notes refer type 6R3.	32	IC	IC	IC	H	H	IC	IC	IC	A	K	—	EY81
—	—	—	★ For data and notes refer type 6N3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	EY82
—	—	—	★ For data and notes refer type 6374.	32	IC	IC	K	H	H	IC	IC	IC	IC	A	—	EY84
—	—	—	★ For data and notes refer type 682.	32	H K IS	H	IC	H K IS	H	H K IS	IC	H	H K IS	A	—	EY86

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage	Plate current	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance
			TYP E	Voltage Volts	Current Amps	Volts	Milliamps						Megohms
EY87	HALF-WAVE VAGUUM RECTIFIER	Pulsed Rectifier	H	6-3	0.09	★	★	—	—	—	—	—	—
EY88	HALF-WAVE VAGUUM RECTIFIER	Booster Diode	H	6-3	1.55	Supply Voltage 250 (max.) Peak Inverse 7500 (Absol. max.)	Peak 550 (max.) Average 220 (max.)	—	—	—	—	—	—
EY91	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	6-3	0.42	Max. R.M.S. 250	D.C. Output 75 Max.	—	—	—	—	—	—
EY189	HALF-WAVE VAGUUM RECTIFIER	Booster Diode	H	6-3	1.5	★	★	—	—	—	—	—	—
EZ2	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.4	Max. R.M.S. 2 x 350	D.C. Output 60 Max.	—	—	—	—	—	—
EZ2 / 6X5GT	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.6	★	★	—	—	—	—	—	—
EZ3	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.65	Max. R.M.S. 2 x 400	D.C. Output 100 Max.	—	—	—	—	—	—
EZ4	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.9	Max. R.M.S. 2 x 400	D.C. Output 175 Max.	—	—	—	—	—	—
EZ11	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.29	Max. R.M.S. 2 x 250	D.C. Output 60 Max.	—	—	—	—	—	—
EZ12	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.85	Max. R.M.S. 2 x 500	D.C. Output 100 Max.	—	—	—	—	—	—
EZ35	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.6	★	★	—	—	—	—	—	—
EZ40	FULL-WAVE VAGUUM RECTIFIER	Full-wave Rectifier	H	6-3	0.6	★	★	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type 6S2-A.	32	H K IS	H	IC	H K IS	H	H K IS	IC	H	H K IS	A	—	EY87
—	—	—	*Do not use as tie point. Max. Plate Dissipation 5 watts. Peak Heater-Cathode Voltage with Heater Negative with respect to Cathode 6600 (max.).	32	IC *	IC *	IC *	H	H	IC *	IC *	IC *	A	K	—	EY88
—	—	—	Condenser Input to Filter 32 μF maximum. Plate Supply Impedance = 100 Ω minimum.	21	A	K	H	H	A	NC	NC	—	—	—	—	EY91
—	—	—	★ For data and notes refer type 6AL3. *Do not use as tie point.	32	IC *	IC *	IC *	H	H	IC *	IC *	IC *	A	K	—	EY189
—	—	—	Condenser Input to Filter 16 μF maximum. Plate Supply Impedance per Plate = 500 Ω min.	26	NC	H	H	K	A'	NC	NC	A''	—	—	—	EZ2
—	—	—	★ For data and notes refer type 6X5GT.	26	NC	H	H	K	A'	NC	NC	A''	—	—	—	EZ2 / 6X5GT
—	—	—	Condenser Input to Filter 16 μF maximum. Plate Supply Impedance per Plate = 300 Ω min.	26	NC	H	H	K	A''	NC	NC	A'	—	—	—	EZ3
—	—	—	Condenser Input to Filter 16 μF maximum. Plate Supply Impedance per Plate = 300 Ω min.	26	NC	H	H	K	A''	NC	NC	A'	—	—	—	EZ4
—	—	—	Condenser Input to Filter 60 μF maximum. Plate Supply Impedance per Plate = 600 Ω min.	27	A'	K	M	NC	H	H	NC	A''	—	—	—	EZ11
—	—	—	Condenser Input to Filter 32 μF maximum. Plate Supply Impedance per Plate = 300 Ω min.	27	A'	K	NC	NC	H	H	NC	A''	—	—	—	EZ12
—	—	—	★ For data and notes refer type 6X5G.	30	NC	H	A'	NC	A''	NC	H	K	—	—	—	EZ35
—	—	—	★ For data and notes refer type 6BT4.	28	H	A'	NC	NC	NC	A''	K	H	—	—	—	EZ40

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μmhos	Amplification factor	Plate resistance Megohms	
			TYP E	Voltage Volts									Current Amps
EZ41	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.4	Max. R.M.S. 2 x 250	D.C. Output 60 Max.	—	—	—	—	—	
EZ80	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.6	★	★	—	—	—	—	—	
EZ81	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	6.3	1.0	★	★	—	—	—	—	—	
EZ82	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.6	Max. R.M.S. 2 x 300† 2 x 260*	D.C. Output 80† Max. 50* Max.	—	—	—	—	—	
EZ90	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	6.3	0.6	★	★	—	—	—	—	—	
F443N	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	4.0	2.0	300	83	-40	300	4.6	3900	—	0.02
						550	45	-30	200	1.4	3200	—	0.03
FW4/500	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	F	4.0	3.0	R.M.S. 2 x 500 (max.)	250 (max.)	—	—	—	—	—	
FW4/800	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	F	4.0	3.0	R.M.S. 2 x 850 (max.)	125 (max.)	—	—	—	—	—	
GZ30	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5.0	2.0	★	★	—	—	—	—	—	
GZ32	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	5.0	2.0	R.M.S. 2 x 300	300 (max.)	—	—	—	—	—	
						2 x 500 (max.)	125	—	—	—	—	—	
GZ33	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	5.0	3.0	R.M.S. 2 x 500 (max.)	Full load D.C. Output 250	—	—	—	—	—	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Condenser Input to Filter $32\ \mu\text{F}$. Plate Supply Impedance = $300\ \Omega$ min.	28	H	A ^I	NC	NC	NC	A ^{II}	K	H	—	—	—	EZ41
—	—	—	★ For data and notes refer type 6V4.	32	A ^I	NC	K	H	H	NC	A ^{II}	NC	NC	—	—	EZ80
—	—	—	★ For data and notes refer type 6CA4.	32	A ^I	IC	K	H	H	IC	A ^{II}	IC	IC	—	—	EZ81
—	—	—	† With heater connected to Cathode, Plate Supply Impedance per Plate = $215\ \Omega$ min. * With heater not connected to Cathode, Plate Supply Impedance per Plate = $150\ \Omega$ min.	32	A ^I	NC	K	H	H	NC	A ^{II}	NC	NC	—	—	EZ82
—	—	—	★ For data and notes refer type 6X4.	21	A ^I	NC	H	H	NC	A ^{II}	K	—	—	—	—	EZ90
3600 12,000	10-3 12-0	3-0	Cathode Bias Resistor $455\ \Omega$. Total Harmonic Distortion 10% in each case. Cathode Bias Resistor $650\ \Omega$.	14 15	A F+	F A	G ₁ G ₁	F G ₂	G ₂ F-	— —	— —	— —	— —	— —	— —	F443N
—	—	—	Peak Inverse Plate Voltage 1600. Maximum Filter Input Capacitor $16\ \mu\text{F}$. Minimum Supply Impedance $200\ \Omega$.	10	A ^I	F	A ^{II}	F	—	—	—	—	—	—	—	FW4/500
—	—	—	Maximum Filter Input Capacity $4\ \mu\text{F}$. Minimum Supply Impedance $300\ \Omega$.	10	A ^I	F	A ^{II}	F	—	—	—	—	—	—	—	FW4/800
—	—	—	★ For data and notes refer type 5Z4.	30	S	H	—	A ^{II}	—	A ^I	—	H K	—	—	—	GZ30
—	—	—	Maximum Filter Input Capacity $60\ \mu\text{F}$. Minimum Total Effective Plate Supply Impedance $150\ \Omega$.	30	—	H	—	A ^I	—	A ^{II}	—	H K	—	—	—	GZ32
—	—	—	Capacitor Input to Filter $60\ \mu\text{F}$. (max.). Full-load D.C. Output Voltage at Input to Filter 493. Total Effective Plate Supply impedance per plate $250\ \Omega$ min.	30	NC	H	—	A ^{II}	—	A ^I	—	H K	—	—	—	GZ33

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
GZ34	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	H	5.0	1.9	★	★	—	—	—	—	—	—
GZ37	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	5.0	2.8	R.M.S. 2 × 500 Max. 2 × 300	Full load D.C. Output 250 250	—	—	—	—	—	—
HCH81	MEDIUM μ TRIODE R.F. HEPTODE	Frequency Converter	H	12.6	0.15	★	★	★	★	★	★	★	★
HL94	POWER PENTODE	Power Amplifier	H	30	0.15	★	★	★	★	★	★	—	★
KB2	TWIN DIODE	Detector, Rectifier	H	2.0	0.095	Peak 125 Max. per Plate	0.5 Max. per Plate	—	—	—	—	—	—
KBC1	DUO-DIODE TRIODE	Detector A.F. Amplifier	F	2.0	0.115	135	2.5	-4.5	—	—	1000	16	0.016
KBC32	DUO-DIODE TRIODE	Detector A.F. Amplifier	F	2.0	0.05	100	2.4	0	—	—	1200	25	0.021
KC1	AMPLIFIER TRIODE	A.F. Amplifier	F	2.0	0.065	135	1.2	-1.5	—	—	600	25	0.04
KC3	AMPLIFIER TRIODE	A.F. Amplifier	F	2.0	0.21	135	3.0	-2.8	—	—	2500	30	0.012
KC4	AMPLIFIER TRIODE	A.F. Amplifier	F	2.0	0.1	135	2.2	-1.5	—	—	1400	30	0.0215

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	★ For data and notes refer type 5AR4.	30	IC	H	—	A ₂	—	A ₁	—	H K	—	—	—	GZ34
—	—	—	Capacitor Input to Filter 4.0 μF . Full-load D.C. Output Voltage at Input to Filter 486, 238 respectively. Total Effective Plate Supply Impedance per Plate 75 Ω min. each case	30	NC	H	—	A ¹¹	—	A ¹	—	H K	—	—	—	GZ37
—	—	Triode 1.0 Heptode 0.006	★ For data and notes refer type 12AJ7.	32	G ₂ G ₄	G ₁	K G ₂ IS	H	H	A ^h	G ₂	A ^t	G ₄ ^t	—	—	HCH81
★	★	0.3	★ For data and notes refer type 30A5.	21	K G ₂	G ₁	H	H	G ₁	G ₂	A	—	—	—	—	HL94
—	—	—		12	D ₁	D ₂	F+	F— M	K	—	—	—	—	—	—	KB2
—	—	3.1	As R.C. Amplifier (135 V. supply). Plate Resistor 0.2 meg. Grid Bias — 2 volts. Plate Current 0.35 mA. Gain = 12.5.	26 17	M F+	F— A	F+ D ₁	NC D ₂	D ₁ M	D ₂ F—	NC —	A —	— G ₁	G ₁ —	—	KBC1
—	—	3.1	As R.C. Amplifier (120 V. supply). Plate Resistor 0.1 meg. Grid Bias — 0.9 volts. Plate Current 0.5 mA.	30	M	F+	A	D ₁	D ₂	—	F—	—	G ₁	—	KBC32	
—	—	3.5	As R.C. Amplifier (135 V. supply). Plate Resistor 0.32 meg. Grid Bias — 1.5 volts. Plate Current 0.18 mA. Gain = 19	26	NC	F	F	NC	NC	G ₁	NC	A	—	—	—	KC1
—	—	6.3	Designed to drive a class B Output Valve KDD1 using a Driver Transformer having a ratio of 2 : (1 + 1).	26	NC	F	F	NC	NC	G ₁	NC	A	—	—	—	KC3
—	—	2.9	As R.C. Amplifier (135 V. supply). Plate Resistor 0.2 meg. Grid Bias — 1.5 volts. Plate Current 0.32 mA. Gain = 21.5.	26	M	F	F	NC	NC	G ₁	NC	A	—	—	—	KC4

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Volt- age Volts	Cur- rent Amps								
KCF30	TRIODE PENTODE	Frequency Converter	F	2-0	0-2	100	—	(G ₁ ¹) 0	—	—	1700	18	—
						120	0-53	(G ₁ ^p) -1-5			60	0-97	260 Conv.
KCH1	TRIODE HEXODE	Frequency Converter	F	2-0	0-18	135	1-0	(G ₁ ^h) -0-5	55	1-2	Conv. 325	—	1-5
KDD1	TWIN POWER OUTPUT TRIODE	Class "B" Power Amplifier	F	2-0	0-22	135	Zero Signal 2 x 1-5 Max. Signal 2 x 1-4	0	—	—	—	—	—
KF1	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2-0	0-2	135	3-0	0	135	1-0	1800	—	0-9
KF2	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2-0	0-2	135	3-0	0	135	1-0	1300	—	1-1
KF3 KF3G	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2-0	0-045	135	2-0	-0-5	135	0-6	650	—	1-3
KF4	SHARP CUT-OFF PENTODE	R.F. and A.F. Amplifier	F	2-0	0-065	135	2-6	-0-5	135	1-0	800	—	0-8
KF35	SHARP CUT-OFF R.F. PENTODE	R.F. Amplifier	F	2-0	0-05	120	1-45	-1-5	60	0-5	1080	—	—
KK2 KK2G	OCTODE	Frequency Converter	F	2-0	0-13	★	★	★	★	★	★	—	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig	PIN CONNECTIONS										TYPE No		
					1	2	3	4	5	6	7	8	9	T.C.		B.S.	
—	—	2.0	Conversion Conductance = 10 μmhos at - 14 volts Grid (G_1^p) Bias. Triode Grid Resistor 50,000 Ω returned to F+. Peak Osc. Grid Voltage applied to Pentode Grid No. 3 = 8 V. min.	30	M	F+	A ^p	G_2^p	G_1^t	A ^t	F-	NC	—	G_1^p	—	KCF30	
—	—	0.01															
—	—	0.05	Conversion Conductance = 3 μmhos at - 8 volts Grid (G_1^h) Bias. Osc. Plate 70 V. at 3.0 mA. Osc. Grid Resistor 25,000 Ω Osc. Grid Current 0.28 mA. Osc. $G_m = 1300 \mu\text{mhos}$.	26	M	F	F	NC	A ^t	G_1^t	G_2^h	A ^h	—	G_1^h	—	KCH1	
10,000	2.0	—	Total Harmonic Distortion 10%.	26	NC	F	F	NC	A ^h	G_1^t	G_1^h	A ^t	—	—	—	KDD1	
—	—	0.01	Plate Current Cut-off at - 3.5 volts Grid Bias.	24	G_2	NC	F	F	G_3	G_1	M	—	—	A	—	KF1	
				17	F	G_2	M	G_1	G_3	F	—	—	—	A	—		
—	—	0.01	Mutual Conductance = 2 μmhos at - 16 volts Grid Bias.	24	G_2	NC	F	F	G_3	G_1	M	—	—	A	—	KF2	
				17	F	G_2	M	G_1	G_3	F	—	—	—	A	—		
—	—	0.006	Mutual Conductance = 6.5 μmhos at - 13.5 volts Grid Bias.	26	M	F	F	NC	G_3	NC	G_2	A	—	G_1	—	KF3	
				30	M	F	A	G_2	NC	—	F	NC	—	G_1	—	KF3G	
—	—	0.008	Plate Current Cut-off at - 7 volts Grid Bias. As R.C. Amplifier (135 V. supply). Following Grid Leak 1.0 meg. Plate Resistor 0.32 meg. Screen Resistor 0.64 meg. Bias - 1.5 volts (Cathode Current 0.41 mA). Gain = 72.	26	M	F	F	NC	G_3	NC	G_2	A	—	G_1	—	KF4	
—	—	0.1	Mutual Conductance = 10 μmhos at - 9.5 volts Grid Bias.	30	M	F+	A	G_2	G_3	—	F-	—	—	G_1	—	KF35	
—	—	0.07	★ For data and notes refer type KK32.	26	M	F-	F+	NC	G_2	G_1	G_3	A	—	G_4	—	KK2	
				20	F-	M	A	G_2	G_1	G_3	G_5	F+	—	—	G_4		—
				30	M	F+	A	G_2	G_1	G_2	G_2	F-	NC	—	G_4		—

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
KK32	OCTODE	Frequency Converter	F	2.0	0.13	135	0.7	(G ₄) -0.5	(G ₃₊₅) 45	0.7	Conv. 270	—	2.5
KL2	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.265	135	18.0	-12	135	2.0	2000	—	0.03
KL4 KL4G	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.15	135	7.0	-5	135	1.1	2100	—	0.13
KL5	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.1	135	8.5	-6.5	135	1.5	1700	—	0.135
KL35	POWER OUTPUT PENTODE	Class "A" Power Amplifier	F	2.0	0.15	135	5.6	-4.5	135	—	2200	—	0.15
KLL32	TWIN POWER OUTPUT PENTODE	Push-pull Power Amplifier	F	2.0	0.3	135	Zero Signal 3.8 Max. Signal 16.9	-11.3	135	Max. Signal 5.7	—	—	—
KT33(C)	POWER TETRODE	Class "A" Power Amplifier	H	25	0.3	200	60	-13.3	200	10.0	—	—	—
		Class "AB" Power Amplifier				200	113	-19.1	200	18.0	—	—	—
KT61	POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	6.3	0.95	250	40	See Note	250	7.5	10,500	—	0.075
KT66	BEAM POWER TETRODE	Class "A" Amplifier	H	6.3	1.27	250	85	-15	250	6.3	6300	—	0.0225
		Class "AB" Push Pull Amplifier				250	Zero Signal 162 Max. Signal 165	-17.5	250	Zero Signal 12.0 Max. Signal 20	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.
					1	2	3	4	5	6	7	8	9	T.C.	B.S.		
—	—	0.07	Conversion Conductance = 2 μmhos at - 12 volts Grid (G_1) Bias. Grid No. 2 135 V. at 2.1 mA. Osc. voltage = 8.5 V. R.M.S.	30	M	F+	A	G_3 G_4	G_1 G_2	G_2 G_3	F-	—	—	G_4	—	KK32	
6000	0.8	—		26	NC	F G_3	F	NC	NC	G_1 G_2	G_2 G_3	A	—	—	—	KL2	
19,000	0.44	—	Total Harmonic Distortion 10%.	26	NC	F G_3	F	NC	NC	G_1 G_2	G_2 G_3	A	—	—	—	KL4	
				30	NC	F+	A	G_2 G_1	G_1 G_2	—	F- G_3	NC	—	—	—	—	KL4G
16,000	0.53	0.6	Total Harmonic Distortion 10%.	26	NC	F G_3	F G_3	NC	NC	G_1 G_2	G_2 G_3	A	—	—	—	KL5	
19,000	0.34	—	Fixed Bias condition. Total Harmonic Distortion 10%.	30	—	F+	A	G_2 G_1	G_1 G_2	—	F- G_3	—	—	—	—	KL35	
Plate to Plate 16,000	1.2	—	Total Harmonic Distortion 2.8%.	30	NC	F	A ^{II}	G_1 ^{II}	G_1 ^I	A ^I	F G_3 ^I G_3 ^{II}	G_2 ^I G_2 ^{II}	—	—	—	KLL32	
3000	5.0	1.2	Mutual Conductance = 10000 μmhos . At Plate Voltage = 175. Screen Voltage = 175. Grid Voltage = -7. Total Harmonic Distortion 8%.	30	H _t	H	A	G_2	G_1	NC	H	K	—	—	—	KT33(C)	
Plate to plate 4000	15.5		Cathode Resistor per valve 240 Ω . Total Harmonic Distortion 7.5%.														
6000	4.3	1.6	Cathode Bias Resistor 90 Ω . Total Harmonic Distortion 8%.	30	NC	H	A	G_2	G_1	—	H	K	—	—	—	KT61	
2200	7.25	1.1	Cathode Resistor 160 Ω . Total Harmonic Distortion 9%. Peak Input Voltage 15.	30	NC	H	A	G_2	G_1	—	H	K G_3	—	—	—	KT66	
plate to plate 4000	17		Cathode Resistor per valve 200 Ω . Total Harmonic Distortion 4%. Peak Input Voltage grid to grid 36.														

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
KT71	POWER OUTPUT TETRODE	Class "A" Power Amplifier	H	48-0	0-16	175	70	-9-8	175	12	—	—	—
KT81	BEAM POWER TETRODE	Class "A" Power Amplifier	H	6-3	0-95	250	40	See Note	250	7-5	10800	—	—
KT88	BEAM POWER TETRODE	Class "A" Amplifier	H	6-3	1-8	250	140	—	250	—	11000	—	0-012
		Class "AB" Push-Pull Amplifier				360	Zero Signal 120 Max. Signal 135	See Note	255	Zero Signal 7-5 Max. Signal 25-0	—	—	—
L83	MEDIUM μ TRIODE	Class "A" Amplifier	R	6-3	0-3	250	7-6	-8-0	—	—	2600	20	7700 ohms
N37	POWER PENTODE	Class "A" Amplifier	H	13-0	0-3	165	53-0	-9-3	165	9-0	9500	—	0-023
		Class "AB" Push-Pull Amplifier				165	Zero Signal 107 Max. Signal 110	-11-9	165	Zero Signal 18 Max. Signal 36	—	—	—
N78	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	6-3	0-64	★	★	★	★	★	—	—	—
N108	POWER PENTODE	Power Amplifier	H	40	0-1	★	★	★	★	★	★	★	★
N709	POWER PENTODE	Class "A" Amplifier	II	6-3	0-76	250	48	-7-5	250	5-5	11300	—	0-038
PAB680	TRIPLE DIODE HIGH μ TRIODE	Detector, A.F. Amplifier	H	9-5	0-3	★	★	★	—	—	★	★	★

TECHNICAL DATA

Load resistance Ohm.s	Power output Watts	Grid-plate capacitance μ F	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
2500	5.0	1.2	Cathode Resistor for Self-bias 120 Ω . Total Harmonic Distortion 9%.	30	NC	H	A	G ₂	G ₁	—	H	K	—	—	—	KT71
6000	4.3	—	Cathode Resistor 90 Ω .		H	A	G ₂	NC	NC	G ₁	K	H	—	—	—	KT81
—	—	1.2	Total Harmonic Distortion 3%. Supply Voltage 400. Cathode Resistor per valve 440 Ω . Maximum Signal Input grid to grid 50 V.	30	S	H	A	G ₂	G ₁	—	H	K	—	—	—	KT88
plate to plate 6000	34											G ₃				
—	—	4.2		30	IS	H	A	NC	G ₁	—	H	K	—	—	—	L83
3000	4.1	0.3	Cathode Resistor 150 Ω . Total Harmonic Distortion 10%. Peak Input Voltage 8.5.	21	G ₁	G ₃ K	H	H	A	IC	G ₂	—	—	—	—	N37
plate to plate 3000	9.0		Cathode Resistor per valve 150 Ω . Total Harmonic Distortion 4.6%.													
★	★	0.3	★ For data and notes refer type 6BJ5.	21	G ₁	K G ₃	H	H	A	IC	G ₂	—	—	—	—	N78
★	★	0.3	★ For data and notes refer type N37.	21	G ₁	G ₃ K	H	H	A	IC	G ₂	—	—	—	—	N108
5000	6.0	0.5	Total Harmonic Distortion 10%.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	N709
—	—	2.2	★ For data and notes refer type 6AK8.	32	D ₂	D ₂	K _{d2}	H	H	D ₁	S K _t K _{d1} K _{d3}	G ₁	A	—	—	PABC80

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
PC86	HIGH-SLOPE U.H.F. TRIODE	U.H.F. Amplifier	H	3.8	0.3	★	★	★	—	—	★	★	★
PC95	SEMI-REMOTE CUT-OFF V.H.F. TRIODE	R.F. Amplifier	H	3.6	0.3	★	★	★	—	—	★	★	—
PCC84	TWIN TRIODE	R.F. Amplifier	H	7.4	0.3	★	★	★	—	—	★	★	—
PCC85	HIGH μ TWIN TRIODE	R.F. Amplifier	H	9.0	0.3	★	★	★	—	—	★	★	—
PCC88	SHARP CUTOFF V.H.F. TWIN TRIODE	Class "A" Amplifier (Each Unit)	H	7.0	0.3	★	★	★	—	—	★	★	—
PCC89	SEMI-REMOTE CUT-OFF V.H.F. TWIN TRIODE	R.F. Amplifier (Each Unit)	H	7.5	0.3	90	15	-1.2	—	—	12,300	36	2900 ohms
PCF80	MEDIUM μ TRIODE REMOTE CUT-OFF R.F. PENTODE	V.H.F. Frequency Changer	H	9.0	0.3	★	★	★	★	★	★	★	★
PCF82	MEDIUM μ TRIODE SHARP CUTOFF R.F. PENTODE	Frequency Converter	H	9.5	0.3	★	★	★	★	★	★	★	★
PCL81	MEDIUM μ TRIODE POWER PENTODE	Pentode Power Amplifier	H	12.6	0.3	170	30.0	-5.3	170	5.3	8750	—	0.022
		Triode Class "A" Amplifier				170	0.35	-1.5	—	—	—	—	—
PCL82	HIGH μ TRIODE POWER PENTODE	Triode Voltage Amplifier Pentode Power Amplifier	H	16.0	0.3	★	★	★	★	★	★	★	★
PCL83	LOW μ TRIODE POWER PENTODE	Triode Class "A" Amplifier	H	12.6	0.3	250	10.5	-8.5	—	—	2200	17	7700 ohms
		Pentode Power Amplifier				170	30	-9.5	170	4.8	5500	—	0.053

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	2.0	★ For data and notes refer type 6CM4.	32	A	G	K	H	H	G	K	G	A	—	—	PC86
—	—	0.38	★ For data and notes refer type 6ER5.	21	K	G	H	H	A	IS	K	—	—	—	—	PC85
—	—	1.1 _{t1} 2.3 _{t2}	★ For data and notes refer type 7AN7.	32	K ¹¹	G ₁ ¹¹ S	A ¹¹	H	H	G ₁ ¹	K ₁ ¹	K ₀ ¹	A ¹	—	—	PCC84
—	—	1.5	★ For data and notes refer type 9AQS.	32	A ¹¹	G ₁ ¹¹	K ¹¹	H	H	A ¹	G ₁ ¹	K ¹	S	—	—	PCC85
—	—	1.4	★ For data and notes refer type 6DJ8.	32	A ¹¹	G ¹¹	K ¹¹	H	H	A ¹	G ¹	K ¹	IS	—	—	PCC88
—	—	Unit 1 1.9 Unit 2 4.1		32	K ¹¹	G ¹¹ IS	A ¹¹	H	H	G ¹	K ¹	K ¹	A ¹	—	—	PCC89
—	—	Pentode 0.02 Triode 1.5	★ For data and notes refer type 9A8.	32	A ^t	G ₁ ^D	G ₂ ^D	H	H	A ^D	IS K ^D G ₃ ^D	K ^t	G ₁ ^t	—	—	PCF80
—	—	Triode 1.8 Pentode 0.01	★ For data and notes refer type 9U8.	32	A ^t	G ₁	G ₂	H	H	A ^D	K ^D G ₃ IS	K ^t	G ₁ ^t	—	—	PCF82
5700	2.0		Total Harmonic Distortion 10%.	32	G ₁ ^t	G ₂	K G ₃	H	H	A ^D	A ^t	K G ₃	G ₁ ^D	—	—	PCL81
—	—		Plate Resistor 0.2 m Ω . Voltage gain 43.													
★	★	Triode 4.2 Pentode 0.3	★ For data and notes refer type 16A8.	32	G ₁ ^t	K ^D G ₃ IS	G ₁ ^D	H	H	A ^D	G ₂	K ^t	A ^t	—	—	PCL82
—	—	1.6		32	A ^t	G ^t	K ^t	H	H	A ^D	K ^D G ₃	G ₂	G ₁	—	—	PCL83
5500 ohms	2.2	< 0.2	Total Harmonic Distortion 10%. Also intended for use as Triode Vertical Blocking Oscillator and Pentode Deflection Amplifier.													

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYP E	Voltage Volts	Current Amps								
PCL84	HIGH μ TRIODE POWER PENTODE	Pentode Video Amplifier Triode Sync. Separator	H	15.0	0.3	★	★	★	★	★	★	★	—
PL2D21	THYRATRON	For Relay Service	H	6.3	0.6	R.M.S. 400	—	-6.0	0	—	—	—	—
PL33	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	19.0	0.3	225	32	-5.3	225	3.4	9000	—	0.05
PL36	POWER PENTODE	Horizontal Deflection Amplifier	H	25	0.3	★	★	★	★	★	★	—	★
PL81	LINE OUTPUT PENTODE	Line Output Amplifier and Class "B" Power Amplifier	H	21.5	0.3	★	★	★	★	★	★	—	—
PL82	POWER OUTPUT PENTODE	Frame Output Amplifier, Class "A" Power Amplifier	H	16.5	0.3	★	★	★	★	★	★	—	★
PL83	VIDEO OUTPUT PENTODE	Video Amplifier	H	15.0	0.3	★	★	★	★	★	★	—	★
PL84	POWER PENTODE	Power Amplifier	H	15.0	0.3	★	★	★	★	★	★	—	★
PL5727	GAS-FILLED THYRATRON	Grid-controlled Rectifier	H	6.3	0.6	Peak Inverse Plate Voltage .. 1300 Absolute max. Peak Plate Voltage 650 Absolute max. Peak Cathode Current 500 mA. Absolute max. Cathode Current averaged over any 30 second period 100 mA. Absolute max. Surge Current Max. Duration 0.1 second 10 amp. Absolute max.							
PK84	TUNING INDICATOR WITH TRIODE	Timing Indicator	H	4.2	0.3	Target Volts 170	Target Current 0.6	0 for Shadow Length 20 m.m.	—	—	—	—	—
PY31	HALF-WAVE RECTIFIER	Half-wave Rectifier	H	17.0	0.3	Max. R.M.S. 250	D.C. Output 125 Max.	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	—	Pentode < 0.1 Triode 2-7	★ <i>For data and notes refer type 6DX8.</i>	32	G ^t	A ^t	K ^t	H	H	AP	K ^P G ₃ IS	G ₁ ^P	G ₂ ^P	—	—	PCL84
—	—	0.026	Grid Resistor 1.0 m Ω . Plate Resistor 20 k Ω . Peak (G ₁) Signal Voltage 6	21	G ₁	K	H	H	G ₂	A	G ₂	—	—	—	—	PL2D21
7000	3.3	1.0	Total Harmonic Distortion 10%.	30	NC	H	A	G ₂	G ₁	—	H	K G ₃	—	—	—	PL33
—	—	1.1	★ <i>For data and notes refer type 25E5.</i>	30	IC	H	IC	G ₂	G ₁	—	H	K G ₃	—	A	—	PL36
—	—	0.8	★ <i>For data and notes refer type 21A6.</i>	32	IC	G ₁	K	H	II	IC	IC	G ₂	G ₃	A	—	PL81
★	★	0.1	★ <i>For data and notes refer type 16A5.</i>	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	PL82
—	—	0.1	★ <i>For data and notes refer type 15A6.</i>	32	G ₂	G ₁	K	H	H	G ₃	A	IS	NC	—	—	PL83
★	★	0.6	★ <i>For data and notes refer type 6CW5.</i>	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	PL84
Grid No. 1 Voltage before Conduction —100. Grid No. 1 Voltage during Conduction —10. Grid No. 2 Voltage before Conduction —100. Grid No. 2 Voltage during Conduction —10.				21	G ₁	K	H	H	G ₂	A	G ₂	—	—	—	—	PL5727
—	—	—	Triode Plate Resistor 0.47 M Ω . Grid bias for zero shadow length = —15 volts.	32	G ^t	IC	K G ₁	H	H	T	DE	IC	A ^t	—	—	PM84
—	—	—	Condenser Input to Filter 60 μF maximum. Plate Supply Impedance 175 Ω minimum.	30	NC	H	NC	—	A	—	H	K	—	—	—	PY31

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage	Plate current	Grid bias (approx) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance
			TYP E	Voltage Volts	Current Amps	Volts	Milliamps						Meg-ohms
PY32	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	29	0.3	R.M.S. 250 (max.) 200	Full-load D.C. Output 210 325 (max.)	—	—	—	—	—	—
PY80	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	19.0	0.3	★	★	—	—	—	—	—	—
PY81	HALF-WAVE VACUUM RECTIFIER	Booster Diode	F	17.0	0.3	★	★	—	—	—	—	—	—
PY82	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	19.0	0.3	★	★	—	—	—	—	—	—
PY83	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	20.0	0.3	Peak Inverse 5000 (max.)	Peak 450 (max.) Average 150 (max.)	—	—	—	—	—	—
PY88	HALF-WAVE VACUUM RECTIFIER	Booster Diode	H	30	0.3	★	★	—	—	—	—	—	—
PZ30	FULL-WAVE RECTIFIER	Half-wave Rectifier	H	52.0	0.3	Max. R.M.S. 240	200 per Plate Max.	—	—	—	—	—	—
R10	HALF-WAVE VACUUM RECTIFIER	High Voltage Rectifier	H	4.0	0.5	Peak Inverse no load 15500 (max.)	Peak 40 (max.)	—	—	—	—	—	—
R12	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	H	6.3	0.09	Peak Inverse 17000 (max.)	Average 0.1 (max.)	—	—	—	—	—	—
R17	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	6.3	0.8	R.M.S. 350	125	—	—	—	—	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance μF	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Capacitor Input to Filter 100 μF max. D.C. Output Voltage at Input to Filter 264, 182 respectively. Total Effective Plate Supply Impedance 33, 23 Ω min.	30	—	H	A	—	A	—	H	K	—	—	—	PY32
—	—	—	★ For data and notes refer type 19X3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	PY80
—	—	—	★ For data and notes refer type 17Z3.	32	IC	IC	IC	F	F	IC	IC	IC	A	K	—	PY81
—	—	—	★ For data and notes refer type 19Y3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	PY82
—	—	—	Max. Heater Cathode Voltage during flyback 5000.	32	IC	IC	IC	H	H	IC	IC	IC	A	K	—	PY83
—	—	—	★ For data and notes refer type 30AE3. * Do not use as tie point.	32	IC *	IC *	IC *	H	H	IC *	IC *	IC *	A	K	—	PY88
—	—	—	Condenser Input to Filter 50 μF maximum. Plate Supply Impedance per Plate = 50 Ω min.	30	NC	H	A ^I	K ^I	A ^{II}	H _t	H	K ^{II}	—	—	—	PZ30
—	—	—	Supply Frequency 100 Kc/s.	21	K	K	H	H	K	K	K	—	—	A	—	R10
—	—	—	Series Plate Impedance .1 m Ω minimum. Filter capacitor 0.1 μF max.	3	H	H K	—	—	—	—	—	—	—	A	—	R12
—	—	—	Total Effective Plate Supply Impedance 50 Ω min. Input Filter Capacitor 32 μF max. Peak Inverse Plate Voltage 1450 max. Peak Plate Current 750 mA.	32	IC	IC	K	H	H	IC	IC	IC	IC	A	—	R17

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
R18	HALF-WAVE VACUUM RECTIFIER	Half-Wave Rectifier	H	6.3	1.1	R.M.S. 500	150 (max.)	—	—	—	—	—	
R19	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.25	0.2	Peak Inverse 25000 (max.)	Peak 12 (max.) Average 2.0 (max.)	—	—	—	—	—	
RL7	SHARP CUT-OFF R.F. PENTODE	U.H.F. Amplifier	H	6.3	0.3	★	★	★	★	★	—	★	
RL16	OSCILLATOR TRIODE	U.H.F. Amplifier	H	6.3	0.43	★	★	★	—	—	★	★	
RL18	OSCILLATOR TRIODE	U.H.F. Amplifier	H	6.3	0.25	★	★	★	—	—	★	★	
TH1	THERMO-COUPLE	Thermo-Couple	—	—	0 to 0.015	—	—	—	—	—	—	—	
TH2	THERMO-COUPLE	Thermo-Couple	—	—	0 to 0.03	—	—	—	—	—	—	—	
TH3	THERMO-COUPLE	Thermo-Couple	—	—	0 to 0.075	—	—	—	—	—	—	—	
TH4	THERMO-COUPLE	Thermo-Couple	—	—	0 to 0.15	—	—	—	—	—	—	—	
TH5	THERMO-COUPLE	Thermo-Couple	—	—	0 to 0.3	—	—	—	—	—	—	—	
U30	CURRENT REGULATOR	Current Regulator	F	70 to 122.5	0.1	—	—	—	—	—	—	—	
U37	HALF-WAVE VACUUM RECTIFIER	Pulsed Rectifier	F	1.4	0.14	Peak Inverse 15000 (max.)	Peak 12.0 (max.) Average 2.0 (max.)	—	—	—	—	—	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	—	Peak Heater Cathode Voltage 900 max. Peak Inverse Plate Voltage 1800 max. Minimum Supply Impedance 200 Ω . Maximum Filter Input Capacitor 8 μF .	32	IC	IC	K	H	H	IC	IC	IC	IC	A	—	R18
—	—	—	* May be used as a filament resistor tie point or connected to filament. Otherwise do not use.	32	F IS	F	* NC	F IS	F	F IS	* NC	F	F IS	A	—	R19
—	—	0.02	★ For data and notes refer type EF54.	33	H	A	G ₂	K G ₃ IS	K G ₃ IS	G ₁	K G ₄ IS	K G ₃ IS	H	—	—	RL7
—	—	3.1	★ For data and notes refer type EC52.	33	H	G ₁	K	A	NC	NC	NC	NC	H	—	—	RL16
—	—	1.3	★ For data and notes refer type EC53.	16	H	K	H	G ₁	A	—	—	—	—	—	—	RL18
—	—	—	12 mV at 10 mA heater current. Thermo-resistance 5.5 Ω . Heater Resistance 75 Ω .	10	—E	F	+E	F	—	—	—	—	—	—	—	TH1
—	—	—	12 mV at 20 mA heater current. Thermo-resistance 3.0 Ω . Heater Resistance 23 Ω .	10	—E	F	+E	F	—	—	—	—	—	—	—	TH2
—	—	—	12 mV at 40 mA heater current. Thermo-resistance 3.0 Ω . Heater Resistance 7.3 Ω .	10	—E	F	+E	F	—	—	—	—	—	—	—	TH3
—	—	—	12 mV at 100 mA heater current. Thermo-resistance 3.0 Ω . Heater Resistance 2.2 Ω .	10	—E	F	+E	F	—	—	—	—	—	—	—	TH4
—	—	—	12 mV at 200 mA heater current. Thermo-resistance 3.0 Ω . Heater Resistance 1.1 Ω .	10	—E	F	+E	F	—	—	—	—	—	—	—	TH5
—	—	—		30	NC	NC	R	NC	NC	NC	R	NC	—	—	—	U30
—	—	—	For applications where full A.C. plate voltage is applied on switching the peak inverse plate voltage is limited to 10,000 volts.	3	F	F	—	—	—	—	—	—	—	A	—	U37

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
U52 / 5U4G	FULL-WAVE VACUUM RECTIFIER	Full-wave Rectifier	F	5-0	2-25	Max. R.M.S. 2 x 500	D.C. Output 250 Max.	—	—	—	—	—	—
U76	HALF-WAVE VACUUM RECTIFIER	Half-wave Rectifier	H	30-0	0-16	Max. R.M.S. 250	D.C. Output 100 Max.	—	—	—	—	—	—
U107	HALF-WAVE VACUUM RECTIFIER	Rectifier	H	40	0-1	R.M.S. 250 (max.)	90 (max.)	—	—	—	—	—	—
U709	FULL-WAVE VACUUM RECTIFIER	Full-Wave Rectifier	H	6-3	0-95	★	★	—	—	—	—	—	—
UABC80	TRIPLE DIODE HIGH μ TRIODE	Detector, A.F. Amplifier	H	28-0	0-1	★	★	★	—	—	★	★	★
UAF41	DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	12-6	0-1	200	6-0	-2-4	See Note	1-9	1900	—	1-3
UAF42	DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	12-6	0-1	200	5-0	-2	85 See Note	1-5	2000	—	1-0
UB41	TWIN DIODE	Detector Rectifier	H	19-0	0-1	150 Max. per Plate	9-0 Max. per Plate	—	—	—	—	—	—
UB01	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	12-6	0-1	200	3-0	-1-7	—	—	2000	65	0-033

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.			
					1	2	3	4	5	6	7	8	9	T.C.		B.S.		
—	—	—	Condenser Input to Filter 8 μF . Plate Supply Impedance per Plate = 310 Ω min.	30	NC	F	—	A ¹¹	—	A ¹	—	F	—	—	—	—	U52 / 5U4G	
—	—	—	Plate Supply Impedance per Plate = 100 Ω min.	30	NC	H	—	—	A	—	H	K	—	—	—	—	U76	
—	—	—	Max. Filter Input Capacitor 16 μF . Minimum Plate Supply Impedance 75 Ω . Peak Inverse Plate Voltage 700 max.	21	H	A	K	NC	NC	A	H	—	—	—	—	—	U107	
—	—	—	★ For data and notes refer type 6CA4.	32	A ¹¹	IC	K	H	H	IC	A ¹	IC	IC	—	—	—	U709	
—	—	2:2	★ For data and notes refer type 6AK8.	32	D ₃	D ₂	K _{d3}	H	H	D ₁	IS K _{d1} K _t K _{d3}	G ₁	A _t	—	—	—	UABC80	
—	—	0.002	Series Screen Resistor 44,000 Ω (200 V. supply). Mutual Conductance = 19 μmhos at - 34 volts Grid Bias. As R.C. Amplifier (170 V. supply). Following Grid Leak 0.7 meg. Plate Resistor 0.2 meg. Screen Resistor 0.73 meg. Cathode Resistor 2700 Ω . Gain = 78.	28	H	A	D	IC	G ₂	G ₁	K G ₃ IS	H	—	—	—	—	UAF41	
—	—	0.002	Series Screen Resistor 76,000 Ω (200 V. supply). Mutual Conductance = 20 μmhos at - 34 volts Grid Bias. As R.C. Amplifier (170 V. supply). Following Grid Leak 0.7 meg. Plate Resistor 0.22 meg. Screen Resistor 0.82 meg. Cathode Resistor 2700 Ω . Gain = 80.	28	H	A	D	G ₃	G ₂	G ₁	K IS	H	—	—	—	—	—	UAF42
—	—	—		28	H	NC	K ¹¹	D ₂	IS	D ₁	K ¹	H	—	—	—	—	UB41	
—	—	—		30	H	M	A	NC	D ₂	K	D ₁	H	—	G ₁	—	—	UBC1	

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
UBC41	DUO-DIODE TRIODE	Detector A.F. Amplifier	H	14-0	0-1	170	1-5	-1-55	—	—	1650	70	0-042
UBC80	DUO DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	14-0	0-1	★	★	★	—	—	★	★	★
UBC81	DUO-DIODE HIGH μ TRIODE	Detector A.F. Amplifier	H	14-0	0-1	★	★	★	—	—	★	★	★
UBF2	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	12-6	0-1	200	5-0	-2	100	1-6	1800	—	1-0
UBF11	DUO-DIODE REMOTE CUT-OFF PENTODE	Detector R.F. and A.F. Amplifier	H	20-0	0-1	200	5-0	-2	80	1-7	1800	—	1-5
UBF80	DUO-DIODE REMOTE CUT-OFF R.F. PENTODE	Detector R.F. Amplifier	H	17-0	0-1	200	5-0	-2	See Note	1-75	2200	—	1-0
UBF89	DUO DIODE REMOTE CUTOFF R.F. PENTODE	Detector R.F. Amplifier	H	19-0	0-10	200	11-0	-1-5	*100	3-3	4500	—	0-6
UBL1	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	55-0	0-1	200	55	-11-5	200	11-0	8500	—	0-02
UBL21	DUO-DIODE POWER OUTPUT PENTODE	Detector Class "A" Power Amplifier	H	55-0	0-1	200	55-0	-13	200	9-5	8000	—	0-025
						180	61-0	-10	180	10-0	9000	—	0-022
						100	32-5	-5-3	100	5-5	7500	—	0-025
UC92	R.F. HIGH μ TRIODE	R.F. Amplifier	H	9-5	0-1	200	11-5	-1-0	—	—	6700	70	0-015
UCC85	HIGH μ TWIN TRIODE	R.F. Amplifier	H	26-0	0-1	★	★	★	—	—	★	★	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	1.3	As R.C. Amplifier (170 V. supply). Following Grid Leak 0.68 meg. Plate Resistor 0.22 meg. Cathode Resistor 5600 Ω . Gain = 44.	28	H	A	G ₁	IS	D ₂	D ₁	K	H	—	—	—	UBC41
—	—	1.3	★ For data and notes refer type EBC80.	32	A	G ₁	K	H	H	D ₁	IS	D ₂	IC	—	—	UBC80
—	—	1.3	★ For data and notes refer type UBC41.	32	A	G ₁	K	H	H	D ₁	IS	D ₂	IC	—	—	UBC81
—	—	0.002		30	H	M	A	G ₂	D ₂	K	D ₁	H	—	G ₁	—	UBF2
—	—	0.002	As R.C. Amplifier (200 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.7 meg. Cathode Resistor 2400 Ω . Gain = 82.	27	G ₂	G ₁	G ₂ K M	A	H	H	D ₁	D ₂	—	—	—	UBF11
—	—	0.0025	Series Screen Resistor 68,000 Ω (200 V. supply). Mutual Conductance = 22 μmhos at - 31.5 volts Grid Bias.	32	G ₂	G ₁	K IS	H	H	A	D ₁	D ₂	G ₃	—	—	UBF80
—	—	0.0025	* Series Screen Resistor 30,000 Ω . Mutual Conductance = 120 μmhos at -20 volts grid bias.	32	G ₂	G ₁	K IS	H	H	A	D ₁	D ₂	G ₃	—	—	UBF89
3500	5.2	0.8	Total Harmonic Distortion 10%.	30	H	NC	A	G ₂	D ₂	K G ₃	D ₁	H	—	G ₁	—	UBL1
3500	4.8	1.2	Total Harmonic Distortion 10% in each case.	29	H	A	G ₁	G ₂	D ₂	D ₁	K G ₃	H	—	—	—	UBL21
3000	4.8															
3000	1.35															
—	—	1.6	For use as oscillator or mixer in F.M./A.M. receivers.	21	A	IS	H	H	—	G ₁	K	—	—	—	—	UC92
—	—	1.5	★ For data and notes refer type PCC85.	32	A ^{II}	G ₁ ^{II}	K ^{II}	H	H	A ^I	G ₁ ^I	K ^I	S	—	—	UCC85

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milliamps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milliamps	Mutual conductance μ mhos	Amplification factor	Plate resistance Megohms
			TYPE	Voltage Volts	Current Amps								
UGH4	TRIODE HEPTODE	Frequency Converter	H	20-0	0-1	★	★	★	★	★	★	—	★
UGH11	TRIODE HEXODE	Frequency Converter	H	20-0	0-1	200	2-5	(G ₁ ^h) -2	(G ₂₊₄ ^h) 80 See Note	3-0	Conv. 750	—	1-0
UGH21	TRIODE HEPTODE	Frequency Converter	H	20-0	0-1	200	3-5	(G ₁ ^h) -2	(G ₂₊₄ ^h) 100 See Note	6-5	Conv. 750	—	1-0
UGH41	TRIODE HEXODE	Frequency Converter	H	14-0	0-1	200	3-0	(G ₁ ^h) -2.2	(G ₂₊₄ ^h) 105 See Note	2-1	Conv. 550	—	1-0
UGH42	TRIODE HEXODE	Frequency Converter	H	14-0	0-1	200	3-0	(G ₁ ^h) -2	(G ₂₊₄ ^h) 85 See Note	3-0	Conv. 750	—	>1-0
UGH80	TRIODE HEXODE	Frequency Converter	H	14-0	0-10	★	★	★	★	★	★	★	★

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.002	★ For data and notes refer type UCH21.	30	H	K M G _s	A ^b	G ₂ ^h G ₄ ^h	G ₁ ^t	G ₃ ^h	A ^t	H	—	G ₁ ^h	—	UCH4
—	—	0.001	Series Screen Resistor 40,000 Ω (200 V. supply). Conversion Conductance = 7.5 μmhos at - 18 volts Grid (G ₁ ^h) Bias. Osc. Plate 200 V. at 2.8 mA. Osc. Grid Resistor 50,000 Ω . Osc. Grid Current 0.16 mA. Osc. G _m = 3000 μmhos .	27	G ₂ ^h G ₄ ^h	G ₁ ^h	K M	A ^h	H	H	G ₁ ^t G ₃ ^h	A ^t	—	—	—	UCH11
—	—	0.002	Series Screen Resistor 15,500 Ω (200 V. supply). Conversion Conductance = 7.5 μmhos at - 28 volts Grid (G ₁ ^h) Bias. Osc. Plate Current 4.1 mA through 20,000 Ω (200 V. supply). Osc. Grid Resistor 50,000 Ω . Osc. Grid Current 0.19 mA.	29	H	A ^h	A ^t	G ₁ ^t	G ₂ ^h G ₄ ^h	G ₁ ^h	G ₃ ^h	H	—	—	K G _s ^h S	UCH21
—	—	0.1	Screen connected to junction of two Resistors R ₁ and R ₂ in series, R ₁ of 22,000 Ω is connected to B+ and R ₂ of 47,000 Ω to B-. Conversion Conductance = 5 μmhos at - 27 volts Grid (G ₁ ^h) Bias. Osc. Plate Current 4.6 mA through 20,000 Ω (200 V. supply). Osc. Grid Resistor 20,000 Ω . Osc. Grid Current 0.36 mA.	28	H	A ^h	A ^t	G ₁ ^t G ₃ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K	H	—	—	—	UCH41
—	—	0.1	Screen connected to junction of two Resistors R ₁ and R ₂ in series, R ₁ of 18,000 Ω is connected to B+ and R ₂ of 27,000 Ω to B-. Conversion Conductance = 7.5 μmhos at - 27.5 volts Grid (G ₁ ^h) Bias. Osc. Plate Current 5.2 mA through 22,000 Ω (200 V. supply). Osc. Grid Resistor 47,000 Ω . Osc. Grid Current 0.2 mA.	28	H	A ^h	A ^t	G ₁ ^t G ₃ ^h	G ₂ ^h G ₄ ^h	G ₁ ^h	K IS	H	—	—	—	UCH42
—	—	0.1	★ For data and notes refer type 6AN7.	32	G ₂ ^h G ₄ ^h	G ₁ ^h	K G _s ^h IS	H	H	IC	A ^h	A ^t	G ₃ ^h G ₁ ^t	—	—	UCH80

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
UCH81	TRIODE HEPTODE	Frequency Converter	H	19.0	0.1	200	3.7	-2.6 See Note	119 See Note	8.1	Conv. 775	—	1.0
UCL11	TRIODE POWER OUTPUT TETRODE	A.F. and Class "A" Power Amplifier	H	60.0	0.1	200	2.0	-2	—	—	2100	63	0.03
						200	45.0	-8.5	200	6.0	9000	—	0.018
UCL82	HIGH μ TRIODE POWER PENTODE	Triode Voltage Amplifier Pentode Power Amplifier	H	50	0.1	★	★	★	★	★	★	★	★
UF8	LOW-NOISE MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.1	200	6.0	-2	(G ₂) 200	0.12	1600	—	0.45
UF9	MEDIUM CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.1	200	6.0	-2.5	100	1.7	2200	—	1.2
UF11	REMOTE CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	15.0	0.1	200	6.0	-2	80	1.7	2200	—	1.5
UF21	MEDIUM CUT-OFF PENTODE	R.F. and A.F. Amplifier	H	12.6	0.1	200	6.0	-2.5	100	1.7	2200	—	1.0
UF41	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.1	200	7.2	-3	See Note	2.1	2300	—	1.0

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.006	Conversion Conductance = 7.75 μmhos at - 28 V. grid (G_1^h) bias. Cathode bias resistor 150 Ω . Osc. plate current 5.4 mA. through 15000 Ω (200 volts supply). Osc. grid resistor 47000 Ω . Osc. grid current 0.23 mA. Series screen resistor 10000 Ω (200 V. supply).	32	G_2^h G_4^h	G_1^h	IS K G_2^h	H	II	A ^b	G_3^h	A ^t	G_1^t	—	—	UCH81
—	—	1.4	Triode Unit (t).	27	A ^t	G_1^t	K	A ^o	H	H	G_2^o	G_1^o	—	—	—	UCL11
4500	4.0	0.9	Tetrode Unit (o). Total Harmonic Distortion 10%.													
★	★	Triode 4-2 Pentode 0-3	★ For data and notes refer type 6BM8.	32	G_1^t	KP G_3 IS	G_1^p	H	H	AP	G_2^p	K ^t	A ^t	—	—	UCL82
—	—	0.007	Grids Nos. 2 and 4 tied to Cathode. Equivalent Noise Resistance 3200 Ω . Mutual Conductance = 16 μmhos at - 26 volts Grid Bias.	30	H	M	A	G_3	G_2	G_4	K	H	—	G_1	—	UF8
—	—	0.002	Mutual Conductance = 22 μmhos at - 16 volts Grid Bias.	30	H	M	A	G_2	NC	G_3	K	H	—	G_1	—	UF9
—	—	0.002	Mutual Conductance = 22 μmhos at - 42 volts Grid Bias. As R.C. Amplifier (200 V. supply). Plate Resistor 0.2 meg. Screen Resistor 0.6 meg. Cathode Resistor 2000 Ω . Gain = 77.	27	G_2	G_1	K G_3 M	NC	H	H	NC	A	—	—	—	UF11
—	—	0.002	Mutual Conductance = 22 μmhos at - 19 volts Grid Bias.	29	H	A	G_2	G_3 IS	NC	G_1	K	H	—	—	—	UF21
—	—	0.002	Series Screen Resistor 40,000 Ω (200 V. supply). Mutual Conductance = 23 μmhos at - 34 volts Grid Bias.	28	H	A	IC	IC	G_2	G_1	K G_3 IS	H	—	—	—	UF41

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
UF42	SHARP CUT-OFF R.F. PENTODE	Wide-band Amplifier	H	21-0	0-1	170	10-0	-2	170	2-3	8500	—	0-3
UF43	MEDIUM CUT-OFF R.F. PENTODE	Wide-band Amplifier	H	21-0	0-1	200	15	-2 See Note	135 See Note	3-5	6400	—	0-4
UF80	SHARP CUTOFF R.F. PENTODE	R.F. Amplifier	H	19-0	0-1	★	★	★	★	★	★	—	★
UF81	REMOTE CUTOFF R.F. PENTODE	R.F. Amplifier	H	12-6	0-1	★	★	★	★	★	★	—	★
UF85	REMOTE CUTOFF R.F. PENTODE	R.F. Amplifier	H	19-0	0-1	200	11-4	-2-3	116	3-1	6100	—	0-35
UF86	SHARP CUT-OFF A.F. PENTODE	A.F. Amplifier (low noise)	H	12-6	0-1	200	3-0	-2-0	140	0-6	2000	38	2-5
UF89	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	12-6	0-1	170	10-0	-2	★	3-4	3600	—	0-5
						100	8-8	-1-5	†	3-3	3600	—	0-3
UL1	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	0-0	0-1	200	55	-11-5	200	1-0	8500	—	0-02
UL41	POWER OUTPUT PENTODE	Class "A" Power Amplifier	H	45-0	0-1	170	53	-10-4	170	10-0	9500	—	0-02
						110	32	-6-4	110	6-0	8500	—	0-018
						100	29	-5-7	100	5-5	8000	—	0-018
UL44	LINE OUTPUT PENTODE	Line Output Amplifier	H	45-0	0-1	175	28-5	-13-5	175	4-7	7000	—	—

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.005	Plate Current Cut-off at - 6 volts Grid Bias.	28	H	A	IS	G ₃	G ₂	G ₁	K	H	—	—	—	UF42
—	—	0.006	Cathode bias resistor 105 Ω . Series screen resistor 18000 Ω (200 V. supply). Mutual Conductance = 64 μmhos at - 22 V. grid bias. Equivalent noise resistance = 1700 Ω .	28	H	A	IS	G ₃	G ₂	G ₁	K	H	—	—	—	UF43
—	—	0.007	★ For data and notes refer type 6BX6.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	UF80
—	—	0.002	★ For data and notes refer type 6BH5.	32	G ₂	G ₁	K G ₃ IS	H	H	A	IC	IC	NC	—	—	UF81
—	—	0.007	Series Screen Resistor 27 k Ω . Mutual Conductance = 61 μmhos at -28 volts grid bias.	32	K	G ₁	K	H	H	IS	A	G ₂	G ₃	—	—	UF85
—	—	0.025	R.C. Amplifier (200 volt supply). Plate Load Resistor 0.1 M Ω . Grid No. 2 Resistor 0.39 M Ω . Cathode Resistor 1000 Ω . Voltage Gain 115. Following Grid Resistor .33 M Ω .	32	G ₂	IS	K	H	H	A	IS	G ₂	G ₁	—	—	UF86
—	—	0.002	★ Series screen resistor 18000 Ω (170 V. supply). Mutual Conductance = 36 μmhos at - 27 V. grid bias. † Series screen resistor 1500 Ω (100 V. supply). Mutual Conductance = 36 μmhos at - 15 volts grid bias.	32	IS	G ₁	K	H	H	S	A	G ₂	G ₃	—	—	UF89
3500	5.5	0.8		30	H	NC	A	G ₂	G ₁	NC	K	H	—	—	—	UL1
3000	4.25										K					
3000	1.7	1.0	Total Harmonic Distortion 10% in each case.	28	H	A	IC	NC	G ₂	G ₁	K G ₃	H	—	—	—	UL41
3000	1.35															
—	—	1.0	Peak Plate Voltage = 3 kV. maximum.	28	H	NC	IC	G ₃	G ₂	G ₁	K	H	—	A	—	UL44

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μmhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
UL80	POWER PENTODE	Power Amplifier	H	45	0.1	★	★	★	★	★	—	★	
UL84	POWER PENTODE	Power Amplifier	H	45	0.1	★	★	★	★	★	—	★	
UM4	TUNING INDICATOR with TRIODES	Tuning Indicator	H	12.6	0.1	Target Volts 200	Target Current 1.4	0 for Shadow Angle of 90° in each case.	—	—	—	—	
UM34	TUNING INDICATOR with TRIODES	Tuning Indicator	H	12.6	0.1	★	★	—	—	—	—	—	
UM80	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	19.0	0.1	Target volts 200	Target Current 5.7	—1.0 for Shadow angle 4°	—	—	—	—	
UM81	TUNING INDICATOR WITH TRIODE	Tuning Indicator	H	19.0	0.1	Target volts 200	Target current 5.7	0 for Shadow angle 90°	—	—	—	—	
UQ80	ENNEODE	F.M. Detector Limiter	H	12.6	0.1	★	★	★	★	★	—	★	
UR3C	FULL-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	30.0	0.2	★	★	—	—	—	—	—	
UY1N	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	50.0	0.1	★	★	—	—	—	—	—	
UY11	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	50.0	0.1	★	★	—	—	—	—	—	
UY21	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	50.0	0.1	Max. R.M.S. 250	D.C. Output 140 Max.	—	—	—	—	—	
UY31	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	50.0	0.1	Max. R.M.S. 250	D.C. Output 125 Max.	—	—	—	—	—	
UY41	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	31.0	0.1	Max. R.M.S. 250	D.C. Output 100 Max.	—	—	—	—	—	

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
★	★	1.0	★ For data and notes refer type 6M5.	32	G ₂	G ₁	K G ₃	H	H	IC	A	IC	NC	—	—	UL80
★	★	0.6	★ For data and notes refer type 45B5.	32	IC	G ₁	K G ₃	H	H	IC	A	IC	G ₂	—	—	UL84
—	—	—	Dual sensitivity type. Triode Plate Resistor 1.0 meg. for each plate lead Min. shadow angles occur at - 4.2 volts and - 12.5 volts Grid (G ₁ ^t) Bias respectively.	30	H	NC	A ¹¹ DE ¹¹	T	G ₁ ^t	A ¹ DE ¹	K G ₁ ⁱ	H	—	—	—	UM4
—	—	—	★ For data and notes refer type 6M34.	30	NC	H	A ¹ DE ¹	G ₁ ^t	T	A ¹¹ DE ¹¹	H	K G ₁ ⁱ	—	—	—	UM34
—	—	—	Triode Plate Resistor 0.5 m Ω . Grid Resistor 3 m Ω . Shadow angle of 50° occurs at -14 volts (G ₁ ^t) bias.	32	G ₁ ^t	K G ₁ ⁱ	IC	H	H	IC	A ^t DE	IC	T	—	—	UM80
—	—	—	Triode Plate Resistor 0.5 m Ω . Grid Resistor 3 m Ω . Shadow angle of 0° occurs at -14 volts (G ₁ ^t) bias.	32	G ₁ ^t	K G ₁ ⁱ	IC	H	H	IC	A ^t DE	IC	T	—	—	UM81
—	—	—	★ For data and notes refer type 6BE7.	32	G ₂ G ₄ G ₆	G ₃	K G ₇	H	H	A	G ₁	K G ₇	G ₅	—	—	UQ80
—	—	—	★ For data and notes refer type CY2.	23	K ¹¹	H	H	K ¹	A ¹	NC	A ¹¹	—	—	—	—	UR30
—	—	—	★ For data and notes refer type UY21.	30	H ₁	NC	A	NC	H ₂	NC	K	H ₂	—	—	—	UY1N
—	—	—	★ For data and notes refer type UY21.	27	NC	K	NC	NC	H	H	NC	A	—	—	—	UY11
—	—	—	Condenser Input to Filter 60 μF maximum. Plate Supply Impedance = 175 Ω minimum.	29	H	A	NC	A	NC	A	K	H	—	—	—	UY21
—	—	—		30	NC	H	NC	NC	A	NC	H	K	—	—	—	UY31
—	—	—	Condenser Input to Filter 50 μF maximum. Plate Supply Impedance = 210 Ω minimum.	28	H	A	NC	IC	NC	IC	K	H	—	—	—	UY41

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			T Y P E	Voltage Volts	Current Amps								
UY42	HALF-WAVE VAGUUM RECTIFIER	Half-wave Rectifier	H	31.0	0.1	Max. R.M.S. 110	D.C. Output 100 Max.	—	—	—	—	—	—
UY82	HALF-WAVE VAGUUM RECTIFIER	Rectifier	H	55	0.1	★	★	—	—	—	—	—	—
UY85	HALF-WAVE VAGUUM RECTIFIER	Rectifier	H	38	0.1	★	★	—	—	—	—	—	—
UY92	HALF-WAVE VAGUUM RECTIFIER	Rectifier	H	26	0.1	R.M.S. 145 (max.)	70 (max.)	—	—	—	—	—	—
V99	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	F	3.0	0.06	★	★	★	—	—	★	★	★
VR75/30	VOLTAGE REGULATOR	Voltage Regulator	C O L L D	—	—	★	★	—	—	—	—	—	—
VR105/30	VOLTAGE REGULATOR	Voltage Regulator	C O L L D	—	—	★	★	—	—	—	—	—	—
VR150/30	VOLTAGE REGULATOR	Voltage Regulator	C O L L D	—	—	★	★	—	—	—	—	—	—
W76	REMOTE CUT-OFF R.F. PENTODE	R.F. Amplifier	H	13.0	0.16	250	7.6	-3	100	1.9	1500	—	—
W107	REMOTE CUTOFF R.F. PENTODE	R.F. Amplifier	H	12.6	0.1	200	8.0	-2.6	200	2.0	2500	—	0.5
X61M	TRIODE HEXODE	Frequency Converter	H	6.3	0.3	250	3.7	(G ₁ ^b) -3	100	2.8	Conv. 620	—	—
X76M	TRIODE HEXODE	Frequency Converter	H	13.0	0.16	250	3.8	(G ₁ ^b) -3	100	3.0	Conv. 620	—	0.7

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.C.
—	—	—	Condenser Input to Filter 50 μF maximum.	28	H	A	NC	IC	NC	IC	K	H	—	—	—	UY42
—	—	—	★ For data and notes refer type 19Y3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	UY82
—	—	—	★ For data and notes refer type 38A3.	32	IC	IC	K	H	H	IC	IC	IC	A	—	—	UY85
—	—	—	Maximum Filter Input Capacity 100 μF . Peak Inverse Plate Voltage 400 max.	21	IC	IC	H	H	A	IC	K	—	—	—	—	UY82
—	—	3-3	★ For data and notes refer type 99.	9	G ₁	F+	A	F-	—	—	—	—	—	—	—	V99
—	—	—	★ For data and notes refer type OA3.	30	NC	K	J	—	A	—	J	NC	—	—	—	VR75/30
—	—	—	★ For data and notes refer type OC3.	30	NC	K	J	—	A	—	J	NC	—	—	—	VR105/30
—	—	—	★ For data and notes refer type OD3.	30	NC	K	J	—	A	—	J	NC	—	—	—	VR150/30
—	—	0-007	Cathode Resistor for Self-bias 330 Ω .	30	S	H	A	G ₂	G ₃	—	H	K IS	—	G ₁	—	W78
—	—	0-006	Cathode Resistor 270 Ω .	21	G ₁	K	H	H	A	G ₃	G ₂	—	—	—	—	W107
—	—	0-085	Conversion Conductance = 5 μmhos at - 25 volts Grid (G ₁ ^h) Bias. Osc. Plate Current 3.5 mA through 30,000 Ω (250 V. supply). Optimum Osc. Grid Voltage = 15 V. peak.	30	S	H	A ^h	G ₂ ^h G ₃ ^h	G ₁ ^t G ₃ ^h	A ^t	H	K	—	G ₁ ^h	—	X61M
—	—	0-085	Conversion Conductance = 5 μmhos at - 25 volts Grid (G ₁ ^h) Bias. Osc. Plate Current 3.6 mA through 30,000 Ω (250 V. supply). Optimum Osc. Grid Voltage = 15 V. peak.	30	S	H	A ^h	G ₂ ^h G ₄ ^h	G ₁ ^t G ₃ ^h	A ^t	H	K	—	G ₁ ^h	—	X76M

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA			Plate voltage Volts	Plate current Milli-amps	Grid bias (approx.) Volts	Screen voltage Volts	Screen current Milli-amps	Mutual conductance μ mhos	Amplification factor	Plate resistance Meg-ohms
			TYP E	Voltage Volts	Current Amps								
X79	TRIODE HEXODE	Frequency Converter	H	6.3	0.3	★	★	★	★	★	—	★	
X81	TRIODE HEPTODE	Frequency Converter	H	6.3	0.3	250	1.8	-2.0	100	3.0	Conv. 525	—	1.25
X99	DETECTOR AMPLIFIER TRIODE	A.F. Amplifier and Biased Detector	F	3.0	0.06	★	★	★	—	—	★	★	★
Y61	TUNING INDICATOR with TRIODE	Tuning Indicator	H	6.3	0.3	Target Volts 250	Target Current 4.0	0 for Shadow Angle 90°	—	—	—	—	—
Z66	R.F. PENTODE	R.F. Amplifier	H	6.3	0.63	200	8.0	-1.85	200	2.0	7500	—	1.5

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.	
					1	2	3	4	5	6	7	8	9	T.C.		B.S.
—	—	0.11	★ For data and notes refer type 6A88.	32	G ₂ ^h G ₄ ^h	G ₃ ^h	K	H	H	A ^h	G ₂ ^h G ₁ ^t	A ^t	IC	—	—	X79
—	—	Triode 1.0 Heptode 0.1	Triode Plate Voltage 250 Triode Plate Current 5.0 mA. Triode Plate Resistor 20 k Ω . Cathode Resistor 195 Ω . Triode grid (G ₁ ^t) and, Heptode grid (G ₃ ^h) resistor 0.05 m Ω .	29	H	A ^h	A ^t	G ₂ ^h G ₁ ^t	G ₂ ^h G ₄ ^h	G ₃ ^h	K G ₂ ^h IS	H	—	—	S	X81
—	—	3.3	★ For data and notes refer type 99.	8	F+	A	G ₁	F-	—	—	—	—	—	—	—	X89
—	—	—	Triode Plate Resistor 0.5 meg. Triode Plate Current 0.19 mA. Grid Bias — 8 volts for shadow angle. 0°.	30	NC	H	A ^t	T	G ₁ ^t	—	H	K	—	—	—	Y61
—	—	0.006	Cathode Resistor 180 Ω .	30	NC	H	A	G ₂	G ₃	—	H	K	G ₁	—	—	Z66

TYPE No.	DESCRIPTION	DATA WHEN USED AS	CATHODE DATA		Plate voltage Volts	Plate current Milli- amps	Grid bias (ap- prox.) Volts	Screen voltage Volts	Screen current Milli- amps	Mutual con- duct- ance μ mhos	Ampli- fication factor	Plate resist- ance Meg- ohms
			T Y P E	Volt- age Volts								

TECHNICAL DATA

Load resistance Ohms	Power output Watts	Grid-plate capacitance $\mu\mu\text{F}$	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS										TYPE No.					
					1	2	3	4	5	6	7	8	9	T.C.		B.S.				

"Miniwatt" TECHNICAL DATA

TYPE No.	Nominal screen size (diagonal) Ins.	Defl. angle Deg.	Focus	Metal Backing	Ion trap magnet	Heater voltage Volts	Heater current Amps	Final Anode voltage Volts	Focusing Electrode voltage Volts	Grid (G ₂) voltage Volts	Grid (G ₁) voltage for extinction of raster Volts	CAPACITY μF.	
												Cathode input	Min. external dag
A43-64	17	70	M	No	Yes	6.3	0.3	14000	—	300	-38 to -87	5.0	1100
AME1950PB	19	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	1500
AME1951B	19	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	1500
AME1953B	19	114	E	Yes	No	12.6	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	1500
AME2350PB	23	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	2000
AME2351B	23	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +300	300	-30 to -72	5.0	2000
AME2352B	23	110	E	Yes	No	12.6	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	2000
AME2354B	23	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	2000
AW36-80	14	90	E	Yes	Yes	6.3	0.3	12000	(G ₃ , G ₅) -70 to +230	300	-35 to -75	4.0	500
AW43-20	17	70	E	Yes	No	6.3	0.3	14000	0 to +400	300	-33 to -77	5.0	750
AW43-80	17	90	E	Yes	Yes	6.3	0.3	16000	(G ₃ , G ₅) -75 to +235	300	-35 to -75	4.0	900
AW43-88	17	110	E	Yes	No	6.3	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	4.0	700
AW47-30	19	114	E	Yes	No	6.3	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	4.0	700
AW53-80	21	90	E	Yes	Yes	6.3	0.3	16000	(G ₃ , G ₅) -75 to +235	300	-35 to -75	4.0	1250
AW53-88	21	110	E	Yes	No	6.3	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	4.0	1200

PICTURE TUBES

Maximum heater-cathode voltage (cathode positive) Volts	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.	
			1	2	3	4	5	6	7	8	9	10	11	12		Cap.
200	Type A43-64A is identical, additionally having a metal backed screen.	55	H	G ₁	—	—	—	NC	—	—	—	G ₂	K	H	A G ₃	A43-64
180	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME1950PB
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME1951B
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME1953B
180	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME2350PB
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME2351B
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME2352B
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AME2354B
200		55	H	G ₁	—	—	—	G ₃ G ₅	NC	—	—	G ₂	K	H	A G ₄ G ₆	AW36-80
200		55	H	G ₁	—	—	—	G ₄	NC	—	—	G ₂	K	H	A G ₃	AW43-20
200		55	H	G ₁	—	—	—	G ₃ G ₅	NC	—	—	G ₂	K	H	A G ₄ G ₆	AW43-80
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AW43-88
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AW47-30
200		55	H	G ₁	—	—	—	G ₃ G ₅	NC	—	—	G ₂	K	H	A G ₄ G ₆	AW53-80
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AW53-88

Miniwatt TECHNICAL DATA

TYPE No.	Nominal screen size (diagonal) Ins.	Def. angle Deg.	Focus	Metal Backing	Ion trap magnet	Heater voltage Volts	Heater current Amps	Final Anode voltage Volts	Focusing Electrode voltage Volts	Grid (G ₂) voltage Volts	Grid (G ₁) voltage for extinction of raster Volts	CAPACITY $\mu\mu\text{F.}$	
												Cathode input	Min. external dag
AW59-30	23	114	E	Yes	No	6.3	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	4.0	1200
AW59-90	23	110	E	Yes	No	6.3	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	4.0	1200
CME1704	17	110	E	Yes	No	6.3	0.6	14000	(G ₄) 0 to +400	300	-30 to -72	5.0	1700 Av.
CME2101	21	110	E	Yes	No	12.6	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	5.0	2000 Av.
CME2102	21	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-30 to -72	5.0	2000 Av.
CME2302	23	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-30 to -72	5.5	2000
CRM171	17	70	M	Yes	Yes	12.6	0.3	16000	—	300	-30 to -72	6.5	None
CRM172	17	70	M	Yes	Yes	12.6	0.3	16000	—	300	-30 to -72	6.5	1400 Av.
CRM211	21	70	M	Yes	Yes	12.6	0.3	18000	—	300	-30 to -72	6.5	700 Av.
CRM212	21	90	M	Yes	Yes	12.6	0.3	18000	—	300	-30 to -72	6.5	700 Av.
MW43-64	17	70	M	No	Yes	6.3	0.3	14000	—	300	-35 to -81	5.0	1100 Av.
MW43-69	17	70	M	Yes	Yes	6.3	0.3	14000	—	300	-35 to -81	5.0	1100 Av.
MW53-20	21	70	M	Yes	Yes	6.3	0.3	16000	—	300	-35 to -75	5.0	700
MW53-21	21	70	M	No	Yes	6.3	0.3	16000	—	300	-35 to -75	5.0	1500
MW53-80	21	90	M	Yes	Yes	6.3	0.3	16000	—	300	-35 to -75	4.0	1250

PICTURE TUBES

Maximum heater-cathode voltage (cathode positive) Volts	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.	
			1	2	3	4	5	6	7	8	9	10	11	12		Cap.
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AW59-30
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	AW59-90
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	CME1704
180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	CME2101
180	Type CME2102H is identical except for physical differences in the bulb.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	CME2102
180	Twin panel faceplate. This type now designated AME2350PB.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	CME2302
180		55	H	G ₁	—	—	—	—	—	—	—	G ₂	K	H	A G ₃	CRM171
180		55	H	G ₁	—	—	—	—	—	—	—	G ₂	K	H	A G ₃	CRM172
180		55	H	G ₁	—	—	—	—	—	—	—	G ₂	K	H	A G ₃	CRM211
180		55	H	G ₁	—	—	—	—	—	—	—	G ₂	K	H	A G ₃	CRM212
200	Prefocusing electrode (G ₃) voltage 0, 250.	55	H	G ₁	—	—	—	NC	G ₃	—	—	G ₂	K	H	A G ₄	MW43-64
200	Prefocusing electrode (G ₃) voltage 0, 250.	55	H	G ₁	—	—	—	NC	G ₃	—	—	G ₂	K	H	A G ₄	MW43-69
200	Prefocusing electrode (G ₃) voltage 0, 300.	55	H	G ₁	—	—	—	NC	G ₃	—	—	G ₂	K	H	A G ₄	MW53-20
200	Prefocusing electrode (G ₃) voltage 0, 300.	55	H	G ₁	—	—	—	NC	G ₃	—	—	G ₂	K	H	A G ₄	MW53-21
200	Prefocusing electrode (G ₃) voltage 0, 300.	55	H	G ₁	—	—	—	NC	G ₃	—	—	G ₂	K	H	A G ₄	MW53-80

Miniwatt TECHNICAL DATA

TYPE No.	Nominal screen size (diagonal) Ins.	Defl. angle Deg.	Focus	Metal Backing	Ion trap magnet	Heater voltage Volts	Heater current Amps	Final Anode voltage Volts	Focusing Electrode voltage Volts	Grid (G ₂) voltage Volts	Grid (G ₁) voltage for extinction of raster Volts	CAPACITY $\mu\mu\text{F}$.	
												Cathode input	Min. external dag
5-3T	17	70	E	Yes	No	8.5	0.3	17000	800	450	-42	5.0	1800
14ASP4	14	110	E	Yes	No	6.3	0.6	12000	(G ₄) -50 to +350	300	-28 to -72	5.0	500
14RP4	14	90	E	No	Yes	6.3	0.6	10000	(G ₄) -50 to +350	300	-26 to -70	5.0	500
14RP4-A	14	90	E	Yes	Yes	6.3	0.6	10000	(G ₄) -50 to +350	300	-26 to -70	5.0	500
14WP4	14	90	E	Yes	No	6.3	0.6	12000	(G ₄) -50 to +350	300	-28 to -72	5.0	800
17AVP4	17	90	E	No	Yes	6.3	0.6	14000	(G ₄) -55 to +310	300	-28 to -72	5.0	1000
17AVP4-A	17	90	E	Yes	Yes	6.3	0.6	14000	(G ₄) -55 to +310	300	-28 to -72	5.0	1000
17BJP4	17	90	E	Yes	No	6.3	0.6	14000	(G ₄) -50 to +350	300	-28 to -72	5.0	1000
17BP4-B	17	70	M	Yes	Yes	6.3	0.6	14000	—	300	-28 to -72	5.0	750
17BZP4	17	110	E	Yes	No	6.3	0.6	14000	(G ₄) 0 to 400	300	-28 to -72	5.0	800
17CGP4	17	70	E	Yes	No	6.3	0.6	14000	(G ₄) -50 to +350	300	-28 to -72	5.0	750
17HP4	17	70	E	No	Yes	6.3	0.6	14000	(G ₄) 0 to +350	300	-28 to -72	5.0	750
17HP4-B	17	70	E	Yes	Yes	6.3	0.6	14000	(G ₄) 0 to +350	300	-28 to -72	5.0	750
19AFP4	19	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	1000
19AKP4	19	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	1000
19ARP4	19	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	1000

PICTURE TUBES

Maximum heater-cathode voltage (cathode positive) Volts	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.	
			1	2	3	4	5	6	7	8	9	10	11	12		Cap.
200		56	G ₃	G ₂ G ₄	G ₁	IC	H	K	H	—	—	—	—	—	A	5-3T
Peak 180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	14A8P4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	14RP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	14RP4-A
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	14WP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	17AVP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	17AVP4-A
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	17BJP4
Peak 150		55	H	G ₁	—	—	—	NC	—	—	—	G ₂	K	H	A G ₃	17BP4-B
Peak 180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	17BZP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	17CGP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	17HP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	17HP4-B
Peak 200	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	19AFP4
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	19AKP4
Peak 200	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	19ARP4

Miniwatt TECHNICAL DATA

TYPE No.	Nominal screen size (diagonal) Ins.	Defl. angle Deg.	Focus	Metal Backing	Ion trap magnet	Heater voltage Volts	Heater current Amps	Final Anode voltage Volts	Focusing Electrode voltage Volts	Grid (G ₂) voltage Volts	Grid (G ₁) voltage for extinction of raster Volts	CAPACITY μF.	
												Cathode input	Min. external dag
19XP4	19	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	400	-36 to -94	5.0	1000
21ALP4-A 21ALP4-B	21	90	E	Yes	Yes	6.3	0.6	16000	(G ₄) -65 to +350	300	-28 to -72	5.0	500
21ATP4	21	90	E	Yes	Yes	6.3	0.6	16000	(G ₄) -65 to +350	300	-28 to -72	5.0	1200
21CBP4 21CBP4-A	21	90	E	Yes	No	6.3	0.6	16000	(G ₄) -50 to +350	300	-28 to -72	5.0	2000
21CEP4	21	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	400	-36 to -94	5.0	2000
21DAP4	21	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	400	-36 to -94	5.0	2000
21DEP4	21	110	E	Yes	No	6.3	0.6	17000	(G ₄) 0 to +400	300	-35 to -72	5.0	2000
21ZP4A	21	70	M	No	Yes	6.3	0.6	16000	—	300	-28 to -72	5.0	500
21ZP4B	21	70	M	Yes	Yes	6.3	0.6	16000	—	300	-28 to -72	5.0	500
23ARP4	23	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	2000
23AVP4	23	110°	E	Yes	No	6.3	0.6	18000	(G ₄) 0 to +400	400	-42 to -78	5.0	1000
23CP4	23	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	2000
23CRP4	23	110°	E	Yes	No	6.3	0.3	16000	(G ₄) 0 to +400	300	-30 to -72	4.0	1200
23HP4	23	110	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	2000
23MP4	23	114	E	Yes	No	6.3	0.6	18000	(G ₄) 0 to +400	400	-36 to -94	5.0	1700
23MP4J	23	110	E	Yes	No	6.3	0.6	18000	(G ₄) 0 to +400	400	-36 to -94	5.0	1700

PICTURE TUBES

Maximum heater-cathode voltage (cathode positive) Volts	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS												TYPE No.	
			1	2	3	4	5	6	7	8	9	10	11	12		Cap.
Peak 200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	19XP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	21ALP4-A 21ALP4-B
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	21ATP4
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	21CBP4 21CBP4-A
Peak 180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	21CEP4
Peak 180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	21DAP4
200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	21DEP4
Peak 180		55	H	G ₁	—	—	—	NC	—	—	—	G ₂	K	H	A G ₃	21ZP4A
Peak 180		55	H	G ₁	—	—	—	NC	—	—	—	G ₂	K	H	A G ₃	21ZP4B
Peak 200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23ARP4
Peak 180	Twin Panel Anti-glare Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23AVP4
Peak 180	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23CP4
200	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23CRP4
Peak 180	Twin Panel Faceplate.	66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23HP4
Peak 200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23MP4
Peak 200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23MP4J

Miniwatt TECHNICAL DATA

TYPE No.	Nominal screen size (diagonal) Ins.	Defl. angle Deg.	Focus	Metal Backing	Ion trap magnet	Heater voltage Volts	Heater current Amps	Final Anode voltage Volts	Focusing Electrode voltage Volts	Grid (G ₂) voltage Volts	Grid (G ₁) voltage for extinction of raster Volts	CAPACITY $\mu\mu\text{F.}$	
												Cathode input	Min. external dag
23WP4	23	114	E	Yes	No	6.3	0.6	16000	(G ₄) 0 to +400	300	-35 to -72	5.0	2000
24AEP4	24	90	E	Yes	No	6.3	0.6	18000	(G ₄) -50 to +350	300	-28 to -72	5.0	2000
24AHP4	24	110	E	Yes	No	6.3	0.6	16000	(G ₄) -50 to +350	300	-28 to -72	5.0	2000
24DP4-A	24	90	E	Yes	Yes	6.3	0.6	18000	(G ₄) -72 to +400	300	-28 to -72	5.0	2000
27SP4	27	90	E	Yes	Yes	6.3	0.6	18000	(G ₄) -72 to +396	300	-28 to -72	5.0	500
27VP4	27	90	E	Yes	No	6.3	0.6	18000	(G ₄) -50 to +350	300	-28 to -72	5.0	500

PICTURE TUBES

Maximum heater-cathode voltage (cathode positive) Volts	ADDITIONAL DATA AND NOTES	Base Fig.	PIN CONNECTIONS														TYPE No.
			1	2	3	4	5	6	7	8	9	10	11	12	Cap.		
Peak 200		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	23WP4	
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	24AEP4	
Peak 180		66	H	G ₁	G ₂	G ₄	—	G ₁	K	H	—	—	—	—	A G ₃ G ₅	24HP4	
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	24DP4-A	
Peak 180		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	27SP4	
200		55	H	G ₁	—	—	—	G ₄	—	—	—	G ₂	K	H	A G ₃ G ₅	27VP4	

Miniwatt™ TECHNICAL DATA

TYPE No.	DESCRIPTION	Material	MAXIMUM RATINGS AT 25°C					
			Peak Inverse Voltage	Continuous Operating Inverse Voltage	Peak Rectified Current	Average Rectified Current	Surge Current	Duration
			V	V	mA.	mA.	Amps	for secs.
IN34A	GENERAL PURPOSE	Germanium	—	60	150	50	0.5	1.0
IN66	GENERAL PURPOSE	Germanium	—	60	150	50	0.5	1.0
IN67	GENERAL PURPOSE	Germanium	—	80	100	35	0.5	1.0
IN294	GENERAL PURPOSE	Germanium	—	60	150	50	0.5	1.0
IN295	GENERAL PURPOSE	Germanium	—	40	125	35	0.3	1.0
IN440B	POWER RECTIFIER	Silicon	100	100	3.5A	750 at 50°C	15	One cycle at 60 cps.
IN1169	POWER RECTIFIER	Silicon	400	400	—	520 at 100°C	—	—
IN1763	POWER RECTIFIER	Silicon	400	—	5.0A at 75°C	500 at 75°C	35 at 75°C	0.002
IN1764	POWER RECTIFIER	Silicon	500	—	5.0A at 75°C	500 at 75°C	35 at 75°C	0.002
IN2091	POWER RECTIFIER	Silicon	100	100	5.0A	500 at 85°C	minimum surge limiting resistor 5Ω	
IN2094	POWER RECTIFIER	Silicon	400	400	5.0A	500 at 85°C	minimum surge limiting resistor 5Ω	
IN2095	POWER RECTIFIER	Silicon	500	500	5.0A	500 at 85°C	minimum surge limiting resistor 10Ω	
BA100	GENERAL PURPOSE	Silicon	—	60	100	90	0.2	1.0
BA102	VOLTAGE-DEPENDENT CAPACITOR	Silicon	Capacitance at $-V_D = 4$ volts, freq. = 0.5 Mc/s. . . . 45 $\mu\mu\text{F}$ max. Capacity ratio at 0.5 Mc/s. $\frac{C_D \text{ at } -V_D = 10\text{V}}{C_D \text{ at } -V_D = 4\text{V}}$ 0.7					

GERMANIUM AND SILICON DIODES

TYPICAL CHARACTERISTICS AT 25°C.				ADDITIONAL DATA AND NOTES	TYPE No.
Forward Current (min.)	at	Forward Voltage	Reverse Current (max.)		
mA.		V	at		
5.0		1.0	30		IN34A
—		—	500	10 50	
5.0		1.0	50	10	White band indicates cathode end. IN66
—		—	800	50	
4.0		1.0	5.0	5.0	White band indicates cathode end. IN67
—		—	50	50	
5.0		1.0	10	10	White band indicates cathode end. IN294
—		—	800	50	
—		—	200	10	White band indicates cathode end. IN295
750 at 50°C		1.5	0.3	100	Cathode connected to base. IN440B
—		—	500	400	IN1169
15.0A		3.0	100	400	As full-wave voltage doubler : R.M.S. supply voltage = 117. Filter input capacitor (each) = 100 μ F. Total effective surge-limiting resistance = 5.6 Ω . D.C. output voltage at filter input :— at half load 250 mA. 280 V. at full load 500 mA. 260 V. Cathode connected to case. IN1763
15.0A		3.0	100	500	Cathode connected to case. IN1764
500 at 85°C		0.5	250	100 at 85°C	IN2091
500 at 85°C		0.5	250	400 at 85°C	IN2094
500 at 85°C		0.5	250	500 at 85°C	IN2095
1.0 30		1.0 1.5	10.0 20 at 75°C	10.0 60	White band indicates cathode end. BA100
—		—	5 at 80°C	20	White band indicates cathode end. BA102

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	Material	MAXIMUM RATINGS AT 25°C					
			Peak Inverse Voltage	Continuous Operating Inverse Voltage	Peak Rectified Current	Average Rectified Current	Surge Current	Duration for
			V	V	mA.	mA.	Amps	secs.
BY100	POWER RECTIFIER	Silicon	800 (see note)	—	5.0A	550 at 50°C	—	—
GK935	POWER RECTIFIER	Silicon	400	—	5.0A at 75°C	500 at 75°C	35 at 75°C	0.002
F4	POWER RECTIFIER	Silicon	400	—	5.0A at 100°C	500 at 100°C	75 at 100°C	0.004
F8T1/4	POWER RECTIFIER	Silicon	400	—	5.25A	500 at 50°C	35	0.005
GD3	VIDEO DETECTOR	Germanium	25	—	100	30	—	—
GD4	GENERAL PURPOSE	Germanium	50	—	100	30	—	—
GD5	GENERAL PURPOSE	Germanium	85	—	100	30	—	—
GD6	RATIO DETECTOR	Germanium	70	70	150	50	—	—
GD8	HIGH BACK RESISTANCE	Germanium	85	75	100	30	—	—
GD9	SERIES INTERFERENCE LIMITER	Germanium	125	100	100	50	—	—
GD10	SHUNT INTERFERENCE LIMITER	Germanium	150	120	80	40	—	—
GD11	HIGH LEVEL DETECTOR	Germanium	50	40	200	100	—	—
GD12	VIDEO DETECTOR	Germanium	25	—	80	40	—	—
GEX34	HIGH BACK RESISTANCE	Germanium	Effective R.F. Turnover Voltage 60 min.	—	100	30	0.5	—
GEX35	GENERAL PURPOSE	Germanium	Turnover Voltage 30 min.	—	100	30	0.5	—

GERMANIUM AND SILICON DIODES

TYPICAL CHARACTERISTICS AT 25°C.				ADDITIONAL DATA AND NOTES	TYPE No.
Forward Current (min.)	at	Forward Voltage			
mA.		V			
5.0A		1.5		Withstands transient inverse voltages of 1250 V. for 10 msec. duration.	BY100
15.0A		3.0		Cathode connected to case.	CK935
—		—			F4
500 at 50°C		1.1			F8T1/4
3		1.0		Shunt capacitance = 1.0 $\mu\mu\text{F}$. Red marking indicates cathode end.	GD3
3		1.0		Shunt capacitance = 1.0 $\mu\mu\text{F}$. For use as video detector or noise limiter. Red marking indicates cathode end.	GD4
3		1.0		Shunt capacitance = 1.0 $\mu\mu\text{F}$. For use in high impedance detector or limiter circuits. Red marking indicates cathode end.	GD5
4		1.0		Shunt capacitance = 1.0 $\mu\mu\text{F}$.	GD6
3		1.0		Shunt capacitance = 1.0 $\mu\mu\text{F}$.	GD8
6		1.0		Shunt capacitance = 1.5 $\mu\mu\text{F}$.	GD9
5		1.0		Shunt capacitance = 1.8 $\mu\mu\text{F}$.	GD10
10		1.0		Shunt capacitance = 2.0 $\mu\mu\text{F}$.	GD11
5		1.0		Shunt capacitance = 1.0 $\mu\mu\text{F}$.	GD12
1.0		1.0		Shunt capacitance = 0.9 $\mu\mu\text{F}$. Red marking indicates cathode end.	GEX34
1.0		1.0		Shunt capacitance = 0.9 $\mu\mu\text{F}$. Red marking indicates cathode end.	GEX35

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	Material	MAXIMUM RATINGS AT 25°C					
			Peak Inverse Voltage	Continuous Operating Inverse Voltage	Peak Rectified Current	Average Rectified Current	Surge Current	Duration for
			V.	V.	m.A.	m.A.	Amps	secs.
GEX39	GENERAL PURPOSE	Germanium	—	—	100	30	0.5	—
GEX45/1	GENERAL PURPOSE	Germanium	Turnover Voltage 75 min.	—	100	30	0.5	—
GEX54	HIGH BACK RESISTANCE	Germanium	Turnover Voltage 100 min.	—	100	30	0.5	—
GEX54/3	GENERAL PURPOSE	Germanium	Turnover Voltage 120 min.	—	100	30	0.5	—
HR25	POWER RECTIFIER	Silicon	500	500	—	500 at 75°C	35	0.02
OA70	VIDEO DETECTOR	Germanium	22.5	15	150	50	0.4	1.0
OA72	HIGH BACK RESISTANCE	Germanium	45	30	100	35	0.2	1.0
OA74	GENERAL PURPOSE	Germanium	60	40	150	35	0.2	1.0
OA79	HIGH BACK RESISTANCE	Germanium	45	30	100	35	0.2	1.0
OA80	VIDEO DETECTOR	Germanium	30	20	45	10	0.2	1.0
OA81	HIGH BACK RESISTANCE	Germanium	115	90	150	50	0.5	1.0
OA85	HIGH BACK RESISTANCE	Germanium	115	90	150	50	0.5	1.0
OA90	VIDEO DETECTOR	Germanium	30	20	45	10	0.2	1.0
OA91	GENERAL PURPOSE	Germanium	115	90	150	50	0.5	1.0

GERMANIUM AND SILICON DIODES

TYPICAL CHARACTERISTICS AT 25°C.				ADDITIONAL DATA AND NOTES	TYPE No.	
Forward Current (min.)	at	Forward Voltage	Reverse Current (max.)			
mA.		V	at			
15		1.0	100	10	Shunt capacitance = 0.9 $\mu\mu\text{F}$. Red marking indicates cathode end.	GEX39
4.0		1.0	1000	50	Shunt capacitance = 0.9 $\mu\mu\text{F}$. Red marking indicates cathode end.	GEX45/1
3.0		1.0	10	10	Shunt capacitance = 0.9 $\mu\mu\text{F}$. Red marking indicates cathode end	GEX54
—		—	100	50		
3.0		1.0	6	3	Shunt capacitance = 0.9 $\mu\mu\text{F}$. Red marking indicates cathode end.	GEX54/3
—		—	625	100		
—		—	100	500		HR25
0.1		0.25	30	1.5	Shunt capacitance = 1.0 $\mu\mu\text{F}$. White band indicates cathode end.	OA70
10 typ.		1.4	0.8 typ.	1.5	White band indicates cathode end. Matched pairs type 2-OA72 are suitable for discriminator circuits.	OA72
30 typ.		2.4	4.5 typ.	10		
—		—	50 typ.	30		
4		1.05	25	10	White band indicates cathode end.	OA74
30		3.5	200	40		
0.1		0.3	1.0	0.1	White band indicates cathode end. Matched pairs type 2-OA79 are suitable for discriminator circuits.	OA79
10		2.2	2.8	1.5		
—		—	18	10		
30		4.0	150	30		
—		—	350	45		
0.1		0.25	10	1.5	White band indicates cathode end. Maximum ratings referred to 75°C ambient temperature.	OA80
10		1.5	135	10		
30		3.2	450	20		
—		—	1100	30		
0.1		0.25	11	10	White band indicates cathode, end.	OA81
10		1.9	180	75		
30		3.3	275	100		
0.1		0.25	7	10	White band indicates cathode end.	OA85
10		1.5	110	75		
30		2.6	250	100		
0.1		0.25	10	1.5	White band indicates cathode end. Maximum ratings referred to 75°C ambient temperature.	OA90
10		1.5	135	10		
30		3.2	450	20		
—		—	1100	30		
10		1.9	11	10	White band indicates cathode end.	OA91
—		—	275	100		

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	Material	MAXIMUM RATINGS AT 25°C					
			Peak Inverse Voltage	Continuous Operating Inverse Voltage	Peak Rectified Current	Average Rectified Current	Surge Current	Duration for
			V	V	mA.	mA.	Amps	secs.
OA95	GENERAL PURPOSE	Germanium	115	90	150	50	0.5	1.0
OA210	POWER RECTIFIER	Silicon	400	—	5.0A at 70°C	500 at 70°C	Minimum total external surge limiting resistance required 4Ω	
OA211	POWER RECTIFIER	Silicon	800*	—	4.0* A	400*	Minimum total external surge limiting resistance required 8Ω	
OA214	POWER RECTIFIER	Silicon	700*	—	5.0* A	500*	Minimum total external surge limiting resistance required 7Ω	
8D94	POWER RECTIFIER	Silicon	400	—	—	550 at 50°C	—	—
8FD106	VIDEO DETECTOR	Germanium	25	25	90	30	0.35	1.0
8FD108	GENERAL PURPOSE	Germanium	115	100	90	30	0.3	1.0
8FD110	GENERAL PURPOSE	Germanium	45	45	90	30	0.3	1.0

GERMANIUM AND SILICON DIODES

TYPICAL CHARACTERISTICS AT 25°C.				ADDITIONAL DATA AND NOTES	TYPE No.
Forward Current (min.) at mA.	Forward Voltage V	Reverse Current (max.) at μA	Inverse Voltage V		
10 —	1.5 —	7 250	10 100	White band indicates cathode end.	OA95
500 typ. at 125°C T _{mb}	1.05	45 typ. at 125°C T _{mb}	400	Cathode connected to case. As full-wave voltage doubler: R.M.S. supply voltage = 127 V. Charge capacitors (each unit) = 200 μF. Total effective surge-limiting resistance = 4Ω. D.C. output voltage 311 volts for output current 350 mA.	OA210
400 typ. at 125°C T _{mb}	1.0	15 typ. at 125°C T _{mb}	800	Cathode connected to case. *Heat sink 0.775 sq. ins. minimum at 60°C.	OA211
500 typ. at 125°C T _{mb}	1.05	65 typ. at 125°C T _{mb}	700	Cathode connected to case. *Heat sink 0.775 sq. ins. minimum at 70°C.	OA214
—	—	800 at 100°C	400		8D94
1.0 30	0.4 2.7	10 200	2 25	Grey dot indicates cathode end.	SFD106
1.0 30	0.45 2.9	3.2 250	1.0 100	Orange dot indicates cathode end.	SFD108
1.0 30	0.45 2.1	21 350	10 45	Orange dot indicates cathode end.	SFD110

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
2N109	PNP AUDIO POWER AMPLIFIER	25	150	—	12	150
2N139	PNP I.F. AMPLIFIER	16	—	15	12	80
2N140	PNP CONVERTER	16	—	15	12	80
2N175	PNP AUDIO AMPLIFIER	10	—	2	10	50
2N176	PNP AUDIO POWER AMPLIFIER	Peak 40	3A	—	—	10W at T _{mb} = 80°C
2N185	PNP AUDIO POWER AMPLIFIER	-V _{CE} 20	—	150	—	150
2N217	PNP AUDIO POWER AMPLIFIER	25	150	—	12	150
2N218	PNP I.F. AMPLIFIER	16	—	15	12	80
2N219	PNP CONVERTER	16	—	15	12	80
2N220	PNP AUDIO AMPLIFIER	10	—	2	10	50
2N247	PNP R.F. AMPLIFIER	35	—	10	1-0	80
2N250	PNP AUDIO AMPLIFIER	30	—	3A	—	25W
2N251	PNP AUDIO POWER AMPLIFIER	60	—	3A	—	25W

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C					ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.	
TEST CONDITION		-I _{CB0}		h _{fe} or [h _{FE}]				f _{αb} or {f _β }
-V _{CE} or (-V _{CB}) V	-I _C or (I _E) mA	μA		Typical Range				Mc/s
(25) 1.0	(0) 50	—	14	[75] — —		As Class "B" push-pull output stage with V _s = -9V : Load resistance per collector = 200Ω. Power output = 160mW.	58 2N109	
(12) 9.0 (9.0)	(0) 1.0 1.0	—	6.0	48 — —	4.7		58 2N139	
(12) 9.0 (9.0)	(0) 0.6 0.6	—	6.0	48 — —	7.0	As self-excited converter at 1 Mc/s : V _{CE} = -9V. I _E = 0.6mA. R.M.S. base to emitter oscillator injection voltage = 100mV.	58 2N140	
4.0 (4.0)	0.5 0.5			65 — —	0.85		58 2N175	
(30) 2.0	(0) 500	—	3mA	[63] — —		As Class "A" power amplifier with V _s = -14.4V : Load resistance = 25Ω. Power output = 2W.	62 2N176	
(10) 0.5	(0) 100	—	10	[55] [30] —		As Class "B" push-pull output stage with V _s = -9V : Collector to collector load resistance = 375Ω. Power output = 300mW.	70 2N185	
(25) 1.0	(0) 50	—	14	[75] — —		Physically different only to type 2N109.	59 2N217	
(12) 9.0 (9.0)	(0) 1.0 1.0	—	6.0	48 — —	4.7	Physically different only to type 2N139.	59 2N218	
(12) 9.0 (9.0)	(0) 0.6 0.6	—	6.0	48 — —	7.0	Physically different only to type 2N140.	59 2N219	
4.0 (4.0)	0.5 0.5			65 — —	0.85	Physically different only to type 2N175.	59 2N220	
(1.0) 9.0 (9.0)	(0) 1.0 1.0	—	10	60 — —	30		60 2N247	
(30) —	(0) 500	300	1000	[90] [30] —		As Class "A" power amplifier with V _s = -14V : Load resistance = 20Ω. Power output = 1.5W.	62 2N250	
(30) —	(0) 500	300	1000	[90] [30] —			62 2N251	

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
2N252	PNP CONVERTER	-V _{CE} 16	—	5	—	30
2N270	PNP AUDIO POWER AMPLIFIER	25	150	75	—	250
2N278	PNP AUDIO POWER AMPLIFIER	40	—	13A	—	55W
2N301	PNP AUDIO POWER AMPLIFIER	40	3A	1.5A	12	11W at T _{mb} = 80°C
2N301A	PNP AUDIO POWER AMPLIFIER	60	3A	1.5A	12	11W at T _{mb} = 80°C
2N308	PNP I.F. AMPLIFIER	-V _{CE} 20	—	5	—	30
2N309	PNP I.F. AMPLIFIER	-V _{CE} 20	—	5	—	30
2N351	PNP AUDIO POWER AMPLIFIER	40	3A	—	—	10W at T _{mb} = 80°C
2N362	PNP AUDIO DRIVER	20	—	6	—	167
2N363	PNP AUDIO DRIVER	40	—	6	—	167
2N370	PNP R.F. AMPLIFIER	24	—	10	1.5	80
2N371	PNP LOCAL OSCILLATOR	24	—	10	0.5	80
2N372	PNP MIXER	24	—	10	0.5	80
2N373	PNP I.F. AMPLIFIER	24	—	10	0.5	80

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C					ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.	
TEST CONDITION		$-I_{CB0}$		h_{fe} or $[h_{FE}]$				$f_{\alpha b}$ or $\{f_p\}$
$-V_{CE}$ or $(-V_{CB})$ V	$-I_C$ or (I_E) mA	μA		Typical Range				Mc/s
		Typical	Max.	Typical	Range			
(12)	(0)	5.0	10				70	2N252
(25) 1.0	(0) 150	—	16	[70]	— —		58	2N270
							62	2N278
(0.5) 1.5	(0) 1000	—	100	[70]	— —		62	2N301
(0.5) 1.5	(0) 1000	—	100	[70]	— —		62	2N301A
(9.0)	(0)	5.0	10				70	2N308
(9.0)	(0)	5.0	10				70	2N309
(30) 2	(0) 700	—	3mA	[65]	— —		62	2N351
(20) 6.0	(0) (1.0)	10	25	100	— —		59	2N362
(20) 6.0	(0) (1.0)	10	25	50	— —		59	2N363
(12) 12 (12)	(0) (1.0) (1.0)	—	20	60	— —		60	2N370
(12) (12)	(0) (1.0)	—	20			30	60	2N371
(12) 12 (12)	(0) (1.0) (1.0)	—	20	60	— —		60	2N372
(12) 12 (12)	(0) (1.0) (1.0)	—	8.0	60	— —		60	2N373

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
2N374	PNP CONVERTER	24	—	10	0.5	80
2N376	PNP AUDIO POWER AMPLIFIER	40	3A	—	—	10A at T _{mb} = 80°C
2N405	PNP AUDIO DRIVER AMPLIFIER	20	—	70	2.5 (D.C. + peak A.C.)	150
2N406	PNP AUDIO DRIVER AMPLIFIER	20	—	70	2.5 (D.C. + peak A.C.)	150
2N407	PNP AUDIO POWER AMPLIFIER	20	—	150	2.5	150
2N408	PNP AUDIO POWER AMPLIFIER	20	—	150	2.5	150
2N409	PNP I.F. AMPLIFIER	13	—	15	0.5	80
2N410	PNP I.F. AMPLIFIER	13	—	15	0.5	80
2N411	PNP CONVERTER	13	—	15	0.5	80
2N412	PNP CONVERTER	13	—	15	0.5	80
2N422	PNP AUDIO PREAMPLIFIER	35	200	100	12	150
2N464	PNP AUDIO AMPLIFIER	45	200	100	12	150
2N465	PNP AUDIO AMPLIFIER	45	200	100	12	150

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C						ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.
TEST CONDITION		$-I_{CBo}$		h_{re} or $[h_{FE}]$	$f_{\alpha b}$ or $\{f_1\}$			
$-V_{CE}$ or $(-V_{CB})$ V	$-I_C$ or (I_E) mA	μA		Typical Range	Mc/s			
(12) 12 (12)	(0) (1.0) (1.0)	—	8.0	60	— —	30	60	2N374
(30) 2.0	(0) 700	—	3mA	[78]	— —		62	2N376
(12) 6 (6)	(0) (1.0) (1.0)	—	14	35	— —	0.65	58	2N405
(12) 6 (6)	(0) (1.0) (1.0)	—	14	35	— —	0.65	59	2N406
(12) 1.0	(0) 50	—	14	[65]	— —		58	2N407
(12) 1.0	(0) 50	—	14	[65]	— —		59	2N408
(13) 9.0 (9.0)	(0) (1.0) (1.0)	—	10	48	— —	6.7	58	2N409
(13) 9.0 (9.0)	(0) (1.0) (1.0)	—	10	48	— —	6.7	59	2N410
(13) 9.0 (9.0)	(0) (0.6) (0.6)	—	10	75	— —	10	58	2N411
(13) 9.0 (9.0)	(0) (0.6) (0.6)	—	10	75	— —	10	59	2N412
(20) 6.0	(0) (1.0)	6.0	15	50	— —	0.8	59	2N422
(20) 6.0	(0) (1.0)	6.0	15	26	14 —	0.7	59	2N464
(20) 6.0	(0) (1.0)	6.0	15	45	27 —	0.8	59	2N465

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
2N466	PNP AUDIO AMPLIFIER	35	200	100	12	150
2N467	PNP AUDIO AMPLIFIER	35	200	100	12	150
2N481	PNP LOCAL OSCILLATOR	Supply 12	—	20	—	150
2N482	PNP I.F. AMPLIFIER	Supply 12	—	20	—	150
2N483	PNP I.F. AMPLIFIER	Supply 12	—	20	6	150
2N484	PNP I.F. AMPLIFIER	Supply 12	—	20	6	150
2N485	PNP I.F. AMPLIFIER	Supply 12	—	10	6	150
2N486	PNP CONVERTER	Supply 12	—	10	6	150
2N544	PNP R.F. AMPLIFIER	18	—	10	1.0 (D.C. + peak A.C.)	80
2N591	PNP AUDIO DRIVER AMPLIFIER	32	—	40	12	50
2N631	PNP AUDIO POWER AMPLIFIER	25	100	50	6	167
2N632	PNP AUDIO POWER AMPLIFIER	30	100	50	6	167
2N633	PNP AUDIO POWER AMPLIFIER	35	100	50	6	167
2N640	PNP R.F. AMPLIFIER	34	—	10	1.0	80
2N641	PNP I.F. AMPLIFIER	34	—	10	1.0	80

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C								ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.
TEST CONDITION		-I _{CB0}		h _{re} or [h _{FE}]		f _{αb} or {f ₁ }	Mc/s			
-V _{CE} or (-V _{CB}) V	-I _C or (I _E) mA	μA		Typical	Range					
		Typical	Max.							
(20) 6.0	(0) (1.0)	6.0	15	90	56 —	1.0		59	2N486	
(20) 6.0	(0) (1.0)	6.0	15	180	112 —	1.2		59	2N487	
(12) 6.0	(0) (1.0)	3.0	10	50	— —	3.0		59	2N481	
(12) 6.0	(0) (1.0)	3.0	10	50	— —	3.5		59	2N482	
(12) 6.0	(0) (1.0)	3.0	10	60	— —	5.5		59	2N483	
(12) 6.0	(0) (1.0)	3.0	10	90	— —	10		59	2N484	
(12) 6.0	(0) (1.0)	3.0	10	50	— —	7.5		59	2N485	
(12) 6.0	(0) (1.0)	3.0	10	100	— —	12		59	2N486	
(12) 12 (12)	(0) (1.0) (1.0)	—	4.0	60	— —	30		60	2N544	
(1.0) 12	(0) (2.0)	—	7.0	70	— —			59	2N591	
(20) 6.0 6.0	(0) (10) (1.0)	10	25	150	— —	1.2		59	2N631	
(20) 6.0 (6.0)	(0) (10) (1.0)	10	25	100	— —	1.0		59	2N632	
(20) 6.0 (6.0)	(0) (10) (1.0)	10	25	60	— —	0.8		59	2N633	
(12) 12 (12)	(0) 1.0 1.0	—	5.0	60	— —	42		60	2N640	
(12) 12 (12)	(0) 1.0 1.0	—	7.0	60	— —	42		60	2N641	

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
2N642	PNP CONVERTER	34	—	10	1.0	80
2N1107	PNP R.F. AMPLIFIER	16	—	5	—	30
2N1108	PNP CONVERTER	16	—	5	—	30
2N1110	PNP I.F. AMPLIFIER	16	—	5	—	30
2N1111	PNP I.F. AMPLIFIER	20	—	5	—	30
AG107	PNP AUDIO PREAMPLIFIER	15	10	5	5	83
AF102	PNP R.F. AMPLIFIER	25	—	10	—	50 at 45°C
AF114	PNP R.F. AMPLIFIER	20	—	10	0.5	50 at 45°C
AF115	PNP R.F. AMPLIFIER	20	—	10	0.5	50 at 45°C
AF116	PNP I.F. AMPLIFIER	20	—	10	0.5	50 at 45°C
AF117	PNP CONVERTER	20	—	10	0.5	50 at 45°C
AF118	PNP MEDIUM POWER R.F. AMPLIFIER	50	—	30	—	250* at 45°C
AT874	PNP AUDIO DRIVER AMPLIFIER	-V _{CB} 28	50	—	6	150
AT1138	PNP AUDIO POWER AMPLIFIER	40	—	3A	20	P _{tot} = 15W at T _{mb} = 70°C
OC16 2-OC16	PNP AUDIO POWER AMPLIFIER	32	3A	1.5A	10	10W at T _{mb} = 65°C
OC16G 2-OC16G	PNP AUDIO POWER AMPLIFIER	Peak 30	2A	—	Peak 8	10W at T _{mb} = 65°C

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C								ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.
TEST CONDITION		-I _{CB0}		h _{fe} or [h _{FE}]		f _{αβ} or {f ₁ }	Mc/s			
-V _{CE} or (-V _{CB}) V	-I _C or (I _E) mA	μA		Typical	Range					
		Typical	Max.							
(12) 12 (12)	(0) 1.0 1.0	—	7.0	60	— —		42		60	2N642
(12) (6.0) (5.0)	(0) 0.5 1.0	5.0	10	34db (See note)	— —	40	h _{fe} measured at 455 kc/s.	70	2N1107	
(12) (6.0) (5.0)	(0) 0.5 1.0	5.0	10	33db (See note)	— —	35	h _{fe} measured at 455 kc/s.	70	2N1108	
(12) (6.0) (5.0)	(0) 0.5 1.0	5.0	10	29db (See note)	— —	35	h _{fe} measured at 455 kc/s.	70	2N1110	
(12) (6.0) (5.0)	(0) 0.5 1.0	5.0	10	25db (See note)	— —	35	h _{fe} measured at 455 kc/s.	70	2N1111	
(2.0) 6.0	(0) (1.0)	0.5	1.1	—	40 250	2.0	Low noise figure.	58	AC107	
(12) 12 (12)	(0) 1.0 (1.0)	—	10	—	20 —	{180}		60	AF102	
(6.0) 6.0 (6.0)	(0) (1.0) (1.0)	1.2	8.0	150	— —	{75}		60	AF114	
(6.0) 6.0 (6.0)	(0) (1.0) 1.0	1.2	8.0	150	— —	{75}		60	AF115	
(6.0) 6.0 (6.0)	(0) (1.0) (1.0)	1.2	8.0	150	— —	{75}		60	AF116	
(6.0) 6.0 (6.0)	(0) (1.0) (1.0)	1.2	8.0	150	— —	{75}		60	AF117	
(0.5) 6	(0) 10	—	5			{175}	*With cooling fin	60	AF118	
(20)	(0)	10	25					59	AT874	
(25)	(0)	—	2mA					62	AT1138	
(14) 14 7	(0) (30) (300)	20	100	[40] [45]	[17] [110] [16] [90]		Type 2-OC16 is a matched pair of OC16.	57	OC16 2-OC16	
(30) 14 7	(0) (30) (300)	—	3000	[40] [45]	— — — —		Type 2-OC16G is a matched pair of OC16G.	57	OC16G 2-OC16G	

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
0C26 2-0C26	PNP AUDIO POWER AMPLIFIER	40	—	3-5A	10	12.5W at T _{mb} = 75°C
0C30 2-0C30	PNP AUDIO POWER AMPLIFIER	Peak 32 D.C. 16	1.4A	1.4A	10	2W at T _{mb} = 60°C
0C44	PNP CONVERTER, R.F. AMPLIFIER	15	10	5	12	83
0C45	PNP I.F. AMPLIFIER	15	10	5	12	83
0C57	PNP AUDIO AMPLIFIER	7	10	5	7	10
0C58	PNP AUDIO AMPLIFIER	7	10	5	7	10
0C59	PNP AUDIO AMPLIFIER	7	10	5	7	10
0C60	PNP AUDIO POWER AMPLIFIER	7	10	5	7	10
0C65	PNP AUDIO AMPLIFIER	10	—	10	10	25 at T _{amb} = 45°C
0C66	PNP AUDIO AMPLIFIER	10	—	10	10	25 at T _{amb} = 45°C
0C70	PNP AUDIO AMPLIFIER	-V _{CE} 30 See Note	50	10	—	125
0C71	PNP AUDIO AMPLIFIER	-V _{CE} 30 See Note	50	10	—	125

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C					ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.	
TEST CONDITION		-I _{CB0}		h _{fe} or [h _{FE}]				f _{αb} or {f ₁ }
-V _{CE} or (-V _{CB}) V	-I _C or (I _E) mA	μA		Typical Range				Mc/s
(0.5)	(0)	15	100			62	0C26 2-0C26	
14	30			[40] [20] [75]				
(14) 14 7.0 (7.0)	(0) (10) (100) (100)	12	40	[32] — — [36] — —	0.3	62	0C30 2-0C30	
(2.0) 6.0 (6.0)	(0) (1.0) (1.0)	0.5	2.0	100 45 225	15	58	0C44	
(2.0) 6.0 (6.0)	(0) (1.0) (1.0)	0.5	2.0	50 25 125	6.0	58	0C45	
(2.0) 0.5	(0) (0.25)	1.5	—	35 20 —		61	0C57	
(2.0) 0.5	(0) (0.25)	1.5	—	55 30 —		61	0C58	
(2.0) 0.5	(0) (0.25)	1.5	—	80 50 —		61	0C59	
(2.0) 2.0	(0) (0.5)	1.5	—	60 — —		61	0C60	
(4.5) 2.0	(0) (0.5)	5	12	30 — —		58	0C65	
(4.5) 2.0	(0) (3.0)	5	12	47 — —		58	0C66	
(4.5) 2.0	(0) 0.5	5	12	30 20 40		58	0C70	
(4.5) 2.0	(0) 3.0	4.5	12	47 30 75		58	0C71	

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
0C72 2-0C72	PNP AUDIO POWER AMPLIFIER	32	125	50	10	125
0C73	PNP GENERAL PURPOSE	32	—	10	30	125
0C74 2-0C74	PNP AUDIO POWER AMPLIFIER	20	—	300	6	225
0C75	PNP AUDIO AMPLIFIER	-V _{CE} 30 See Note	50	10	—	125
0C76	PNP SWITCHING AND PULSE OSCILLATOR	32	250	125	Peak 10	P _{tot} 125
0C78	PNP AUDIO POWER AMPLIFIER	Peak 20 Average 10	170	70	—	P _{tot} 200
0C79	PNP AUDIO AMPLIFIER	-V _{CE} 26	—	300	—	225
0C80	PNP SWITCHING AND PULSE OSCILLATOR	32	600	300	20	550
0C169	PNP I.F. AMPLIFIER	20	—	10	—	50 at T _{amb} = 45°C
0C170	PNP CONVERTER, R.F. AMPLIFIER	20	—	10	—	50 at T _{amb} = 45°C
0C171	PNP R.F. AMPLIFIER	20	—	10	—	50 at T _{amb} = 45°C
SFT107	PNP I.F. AMPLIFIER	18	—	100	12	150
SFT108	PNP CONVERTER, R.F. AMPLIFIER	18	—	100	12	150

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C					ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.	
TEST CONDITION		-I _{CB0}		h _{fe} or [h _{FE}]				f _{αB} or {f _β }
-V _{CE} or (-V _{CB}) V	-I _C or (I _E) mA	μA		Typical Range				Mc/s
		Typical	Max.					
(10) 5.4 0.7 (6)	(0) (10) (80) (10)	4.5	10	[70] [45] [120] [50] [30] [90]	0.35 min.	58	OC72 2-OC72	
(4.5) 10 (10)	(0) (0.5) (0.5)	3.5	6.0	45 30 65	0.5	58	OC73	
(9) (6)	(0) (50)	—	20		1.5	58	OC74 2-OC74	
(4.5) 2.0	(0) 3.0	4.5	12	90 65 130		58	OC75	
(10) 5.4 0.7 (6)	(0) (10) (125) (10)	4.5	10	— [45] [330] — [25] [170]	0.9	58	OC76	
(10) 1.0	(0) 125	—	10	— 25 —		58	OC78	
(12) 6	(0) 50	10	20	[60] [35] [110]		58	OC79	
(12) 6 (6)	(0) (50) (50)	10	20	[180] — —	2.0	58	OC80	
(6) (6)	(0) (1.0)	1.5	13	100 20 —	{70}	60	OC169	
(6) (6)	(0) (1.0)	1.5	13	100 20 —	{70}	60	OC170	
(6) 6	(0) (1.0)	1.5	13	100 20 —	{70}	60	OC171	
(15) 6.0 (6.0)	(0) 1.0 1.0	2.0	10	40 25 120	7.0	58	8FT107	
(15) 6.0 6.0	(0) 1.0 1.0	2.0	10	70 40 160	13	58	8FT108	

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		-V _{CB} V	-I _C mA		-V _{EB} V	P _C at 25°C Ambient mW
			Peak	Average		
8FT122	PNP AUDIO POWER AMPLIFIER	24	—	250	12	200
8FT123	PNP AUDIO POWER AMPLIFIER	24	—	250	12	200
8FT151	PNP AUDIO AMPLIFIER	24	—	150	12	200
8FT152	PNP AUDIO AMPLIFIER	24	—	150	12	200
8FT153	PNP AUDIO AMPLIFIER	24	—	150	12	200
8FT213	PNP AUDIO POWER AMPLIFIER	40	—	3A	20	30W at T _{mb} = 25°C
T81	PNP AUDIO AMPLIFIER	-V _{CE} 20	—	25	—	125
T82	PNP AUDIO AMPLIFIER	-V _{CE} 20	—	25	—	125
T83	PNP AUDIO AMPLIFIER	-V _{CE} 20	—	25	—	125
T83-Z	PNP AUDIO DRIVER AMPLIFIER	-V _{CE} 30	—	25	—	125
T813	PNP AUDIO AMPLIFIER	-V _{CE} 20	—	25	—	125
T814	PNP AUDIO AMPLIFIER	-V _{CE} 20	—	25	—	125
V30/20P	PNP AUDIO POWER AMPLIFIER	30	—	3A	10	10W

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C					ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.	
TEST CONDITION		$-I_{CBo}$ μA		h_{fe} or $[h_{FE}]$				$f_{\alpha b}$ or $\{f_t\}$
$-V_{CE}$ or $(-V_{CB})$ V	$-I_C$ or (I_E) mA	Typical	Max.	Typical				Range
(24) 6-0 1-0 (6-0)	(0) 1-0 100 1-0	5-0	15	50 [50]	32 85 [40] [60]	1-6	58 8FT122	
(24) 6-0 1-0 (6-0)	(0) 1-0 100 1-0	5-0	15	85 [85]	55 200 [60] [150]	2-6	58 8FT123	
(24) 1-0 (6-0)	(0) 10 1-0	5-0	15	30	— —	1-6	58 8FT151	
(24) 6-0 1-0 (6-0)	(0) 1-0 10 1-0	5-0	15	50 [57]	40 60 — —	1-6	58 8FT152	
(24) 6-0 1-0 (6-0)	(0) 1-0 10 1-0	5-0	15	80 [92]	60 150 — —	2-4	58 8FT153	
(40) 5-0 2-0 (1-0)	(0) 1A 2A 100	100	1000	40 [40]	— — [20] [150]	0-2	62 8FT213	
(10) 4-0 (4-0)	(0) 2-0 2-0	6-0	—	20	— —	0-6	As Class "AB" push-pull output stage with $V_B = -6V$: Load resistance collector to collector $= 325\Omega$. Power output $= 100mW$. 69 T81	
(10) 4-0 (4-0)	(0) 2-0 2-0	6-0	—	40	— —	0-7	69 T82	
(10) 4-0 (4-0)	(0) 2-0 2-0	6-0	—	70	— —	1-2	69 T83	
(10) 4-0 (4-0)	(0) 2-0 2-0	6-0	—	70	— —	1-2	69 T83-Z	
(9-0) 9-0 (9-0)	(0) 1-0 1-0	2-0	10	52	40 90	0-75	69 T813	
(9-0) 9-0 (9-0)	(0) 1-0 1-0	2-0	10	32	20 45	0-6	69 T814	
(1-5) (1-5)	(0) 200	—	100	[24]	[20] [30]	0-2	62 V30/20P	

Miniwatt TECHNICAL DATA

TYPE No.	DESCRIPTION	MAXIMUM RATINGS (Absolute Maximum)				
		$-V_{CB}$	$-I_C$		$-V_{EB}$	P_C at 25°C Ambient
		V	mA		V	mW
			Peak	Average		

TRANSISTORS

TYPICAL CHARACTERISTICS AT 25°C					ADDITIONAL DATA AND NOTES	Base Fig.	TYPE No.	
TEST CONDITION		$-I_{CB0}$ μA		h_{fe} or $[h_{FE}]$				$f_{\alpha b}$ or $\{f_T\}$
$-V_{CE}$ or $(-V_{CB})$ V	$-I_C$ or (I_E) mA	Typical	Max.	Typical				Range

VALVE CROSS-REFERENCE INDEX

E.I.A. (American) — European					
E.I.A. Type No.	European Type No.	E.I.A. Type No.	European Type No.	E.I.A. Type No.	European Type No.
OE3	85A1	6AB4	EC92	6CH6	EL821
OG3	85A2	6AB8	ECL80	6CJ5	EF41
1A3	DA90	6AD8	EBF81	6CJ6	EL81
1A7GT	DK32	6AE8	X79	6CK5	EL41
1AB6	DK96	6AJ8	ECH81	6CK6	EL83
1AC6	DK92	6AK5	EF95	6CM4	EC86
1AH5	DAF96	6AK8	EABC80	6CM5	EL36
1AJ4	DF96	6AL3	EY189	6CN6	EL38
1AN5	DF97	6AL5	EAA91	6CQ6	EF92
1B3GT	DY30	6AM5	EL91	6CS6	EII90
1C5GT	DL35	6AM6	EF91	6CT7	EAF42
1E3	DC80	6AN7	ECH80	6CU7	ECH42
1H5GT	DAC32	6AQ4	EC91	6CV7	EBC41
1L4	DF92	6AQ5	EL90	6CW5	EL86
1M3	DM70	6AQ8	ECC85	6CW7	ECC84
1N3	DM71	6AT6	EBC90	6DA5	EM81
1N5GT	DF33	6AU6	EF94	6DA6	EF89
1Q5GT	DL36	6AV6	EBC91	6DC8	EBF89
1R5	DK91	6BA6	EF93	6DJ8	ECC88
1S2	DY86	6BD7	EBC80	6DL4	EC88
1S4	DL91	6BE6	EK90	6DL5	EL95
1S5	DAF91	6BE7	EQ80	6DR8	EBF83
1T4	DF91	6BH5	EF81	6DS8	ECH83
1U5	DAF92	6BJ5	N78	6DX8	ECL84
1V6	DCE60	6BK8	EF86	6DY5	EL82
1X2A	R19	6BL8	ECF80	6EH7	EF183
2B35	EA50	6BM8	ECL82	6EJ7	EF184
2D21	PL21	6BN5	EL85	6ER5	EC95
3A4	DL93	6BQ5	EL84	6ES6	EF97
3A5	DCC90	6BQ7A	ECC180	6ES8	ECC189
3C4	DL96	6BR5	EM80	6ET6	EF98
3Q4	DL95	6BS4	EC93	6FC7	ECC89
3Q5GT	DL33	6BT4	EZ40	6FG6	EM84
3S4	DL92	6BX6	EF80	6FV5	EL136
3V4	DL94	6BY7	EF85	6FY5	EC97
4CM4	PC86	6C4	EC90	6GB5	EL500
4DL4	PC88	6CA4	EZ81	6GM8	ECC86
4ER5	PC95	6CA7	EL34	6GV8	ECL185
5AQ4	GZ32	6CB6	EF190	6GW8	ECL86
5AR4	GZ34	6CD7	EM34	6GX8	EAM86
5Z4GT	GZ30	6CF4	EZ30	6HIG8	ECF86

VALVE CROSS-REFERENCE INDEX

E.I.A. (American) — European

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6HU8	ELL80	12AX7	ECC83	45A5	UL41
6J6	ECC91	12BA6	HF93	45B5	UL84
6K4	EC70	12BE6	HK90	50BM8	UCL82
6M5	EL80	12BY7	EL180	50C5	HL92
6N3	EY82	12S7	UAF42	55N3	UY82
6N8	EBF80	12X4	HZ90	5861	EC55
6Q4	EC80	14GW8	PCL86	5882	DC80
6R3	EY81	14K7	UCH42	5920	E90CC
6R4	EC81	14L7	UBC41	6007	DL67
6S2	EY86	15A6	PL83	6008	DF67
6U3	EY80	15DQ8	PCL84	6084	E80F
6U8	ECF82	15CW5	PL84	6085	E80CC
6V4	EZ80	16A5	PL82	6218	E80T
6X2	EY51	16A8	PCL82	6227	E80L
6X4	EZ90	17C8	UBF80	6267	EF86
6X5GT	EZ35	17Z3	PY81	6374	EY84
7AN7	PCC84	18GV8	PCL85	6375	DC70
7DJ8	PCC88	19D8	UCH81	6686	E81L
7ES8	PCC189	19FL8	UBF89	6687	E91H
7FC7	PCC89	19X3	PY80	6688	E180F
7HG8	PCF86	19Y3	PY82	6689	E83F
9A8	PCF80	21A6	PL81	6922	E88CC
9AK8	PABC80	25E5	PL36	6923	EA52
9AQ8	PCC85	28GB5	PL500	7062	E180CC
9U8	PCF82	30AE3	PY88	7118	E181CC
12AC5	UF41	30A5	HL94	7119	E182CC
12AJ7	HCH81	30C1	PCF80	7308	E188CC
12AU6	HF94	30L1	PCC84	7316	ECC186
12AQ5	HL90	31A3	UY41	7534	E130L
12AT6	HBC90	31AV3	UY89	7643	E80CF
12AT7	ECC81	35FV5	PL136	7693	E90F
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VALVE CROSS-REFERENCE INDEX

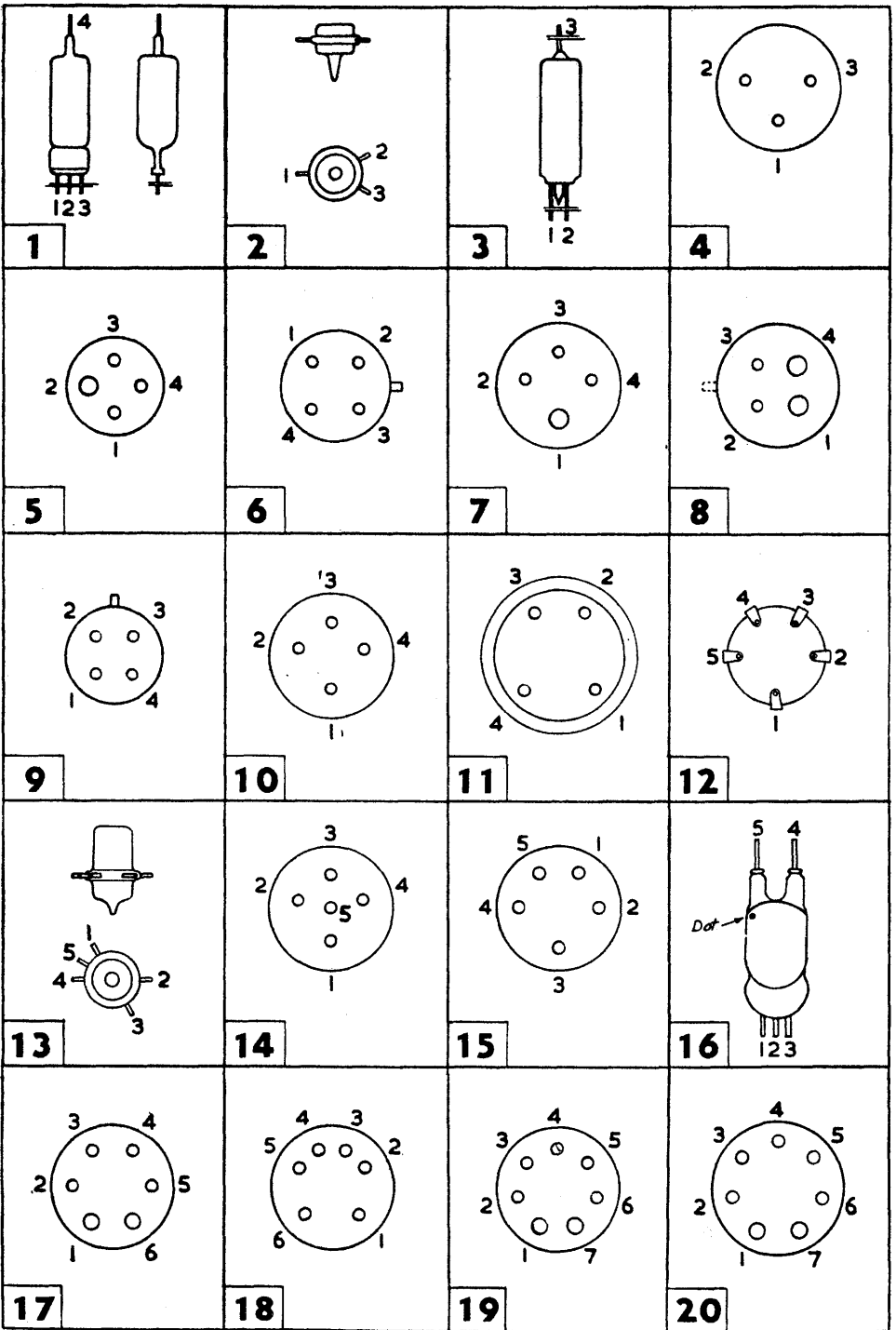
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DAC32	1H5GT	E91H	6687	ECC89	6FC7
DAF91	1S5	E99F	7694	ECC180	6BQ7A
DAF93	1U5	E130L	7534	ECC186	7316
DAF96	1AH5	E180CC	7062	ECC189	6ES8
DC70	6375	E181CC	7118	ECF86	6HG8
DC80	1E3	E182CC	7119	ECF80	6BL8
DCC90	3A5	E186F	7737	ECF82	6U8
DCF60	1V6	E188CC	7308	ECH42	6CU7
DF33	1N5GT	EA52	6293	ECH80	6AN7
DF67	6008	EAA91	6AL5	ECH81	6AJ8
DF91	1T4	EABC80	6AK8	ECH83	6DS8
DF92	1L4	EAF42	6CT7	ECL80	6AB8
DF96	1AJ4	EB91	6AL5	ECL82	6BM8
DF97	1AN5	EAM86	6GX8	ECL84	6DX8
DK32	1A7GT	EBC41	6CV7	ECL85	6GV8
DK91	1R5	EBC80	6BD7	ECL86	6GW8
DK92	1AC6	EBC90	6AT6	EF41	6CJ5
DK96	3C4	EBC91	6AV6	EF80	6BX6
DL33	3Q5GT	EBF80	6N8	EF81	6BH5
DL35	1C5GT	EBF81	6AD8	EF85	6BY7
DL36	1Q5GT	EBF83	6DR8	EF86	6BK8/6267
DL91	1S4	EBF89	6DC8	EF89	6DA6
DL92	3S4	EC55	5861	EF91	6AM6
DL93	3A4	EC70	6K4	EF92	6CQ6
DL94	3V4	EC80	6Q4	EF93	6BA6
DL95	3Q4	EC81	6R4	EF94	6AU6
DL96	3C4	EC86	6GM8	EF96	6AK5
DM70	1M3	EC88	6DJ8	EF97	6ES6
DM71	1N3	EC90	6C4	EF98	6ET6
DY30	1B3GT	EC91	6AQ4	EF183	6EH7
DY86	1S2	EC92	6AB4	EF184	6EJ7
E80CC	6085	EC93	6BS4	EF190	6CB6
E80CF	7643	EC95	6ER5	EH90	6CS6
E80F	6084	EC97	6FY5	EK90	6BE6
E80L	6227	ECC81	12AT7	EL34	6CA7
E80T	6218	ECC82	12AU7	EL36	6CM5
E81L	6686	ECC83	12AX7	EL38	6CN6
E83F	6689	ECC84	6CW7	EL41	6CK5
E88CC	6922	ECC85	6AQ8	EL80	6M5
E90CC	6920	ECC86	6GM8	EL81	6CJ6

VALVE CROSS-REFERENCE INDEX

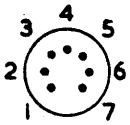
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EL82	6DY5	GZ34	5AR4	PL82	16A5
EL83	6CK6	HBC90	12AT6	PL83	15A6
EL84	6BQ5	HBC91	12AV6	PL84	15CW5
EL85	6BN5	HCH81	12AJ7	PL136	35FV5
EL86	6CW5	HF93	12BA6	PL500	28GB5
EL90	6AQ5	HF94	12AU6	PY80	19X3
EL91	6AM5	HK90	12BE6	PY81	17Z3
EL95	6DL5	HL90	12AQ5	PY82	19Y3
EL136	6FV5	HL92	50C5	PY88	30AE3
EL180	12BY7	HL94	30A5	R19	1X2A
EL821	6CH6	HY90	35W4	UAF42	12S7
EL500	6GB5	HZ90	12X4	UBC41	14L7
ELL80	6HU8	N78	6BJ5	UBF80	17C8
EM34	6CD7	N144	6AM5	UBF89	19FL8
EM80	6BR5	PABC80	9AK8	UCH42	14K7
EM81	6DA5	PC86	4CM4	UCH81	19D8
EM84	5FG6	PC88	4DL4	UCL82	50BM8
EQ80	6BE7	PC95	4ER5	UF41	12AC5
EY51	6X2	PCC84	7AN7	UL41	45A5
EY80	6U3	PCC85	9AQ8	UL84	45B5
EY81	6R3	PCC88	7DJ8	UY41	31A3
EY82	6N3	PCC89	7FC7	UY82	55N3
EY84	6374	PCC189	7ES8	UY85	38A3
EY86	6S2	PCF80	9A8	UY89	31AV3
EY189	6AL3	PCF82	9U7	X17	1R5
EZ30	6CF4	PCF86	7HG8	X18	1AC6
EZ35	6X5GT	PCL82	16A8	X79	6AE8
EZ40	6BT4	PCL84	15DQ8	X719	6AJ8
EZ80	6V4	PCL85	18GV8	X727	6BE6
EZ81	6CA4	PCL85	14GW8	30C1	9A8
EZ90	6X4	PL21	2D21	30L1	7AN7
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BASE FIGURES

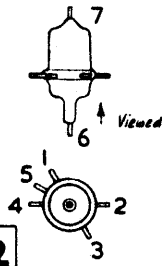


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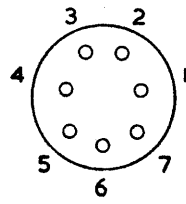
BASE FIGURES



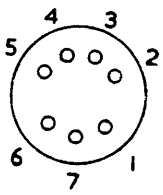
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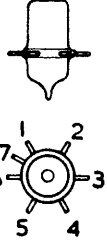
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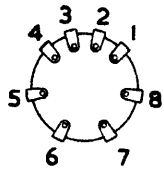
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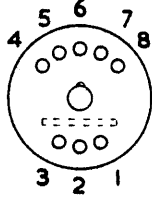
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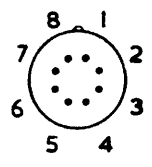
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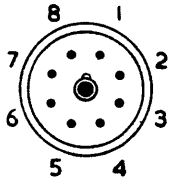
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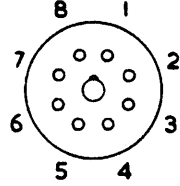
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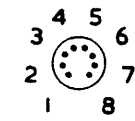
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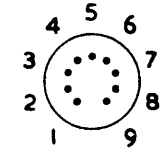
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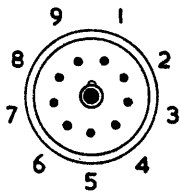
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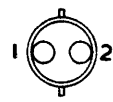
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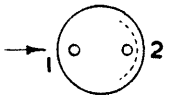
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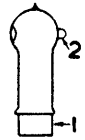
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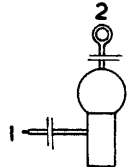
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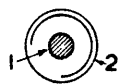
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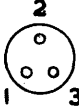
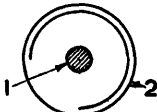

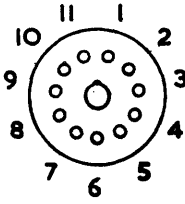
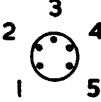

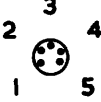
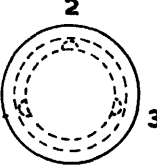

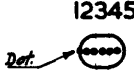

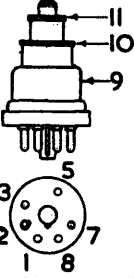
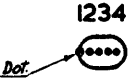
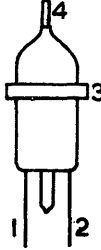
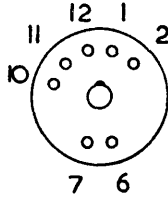
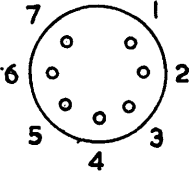
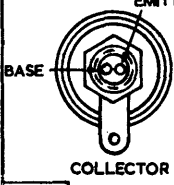
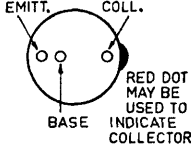
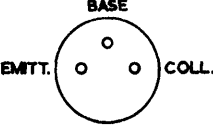
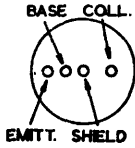


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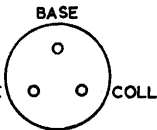
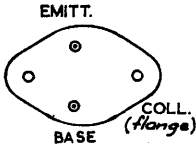
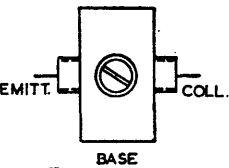
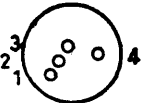
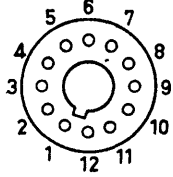
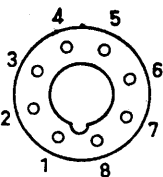
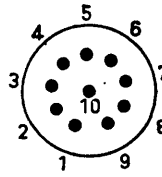
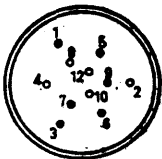
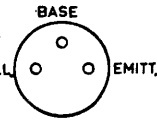
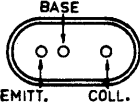


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BASE FIGURES

			
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BASE FIGURES

			
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BASE NOMENCLATURE

In the description of bases given below, reference is made to the country in which the base was originally introduced. Throughout the years, however, with an ever-increasing tendency towards world standardisation, many of the bases shown are now internationally accepted.

To-day their use in countries other than that of their origin is not merely confined to the production of types equivalent to those of the originating country, but also includes types of purely local development.

Drawing No.

1. European special all-glass miniature construction.
2. European radial 3-pin base.
3. European special wire-in all-glass miniature construction.
4. European 3-pin base.
5. American W.D. 4-pin base.
6. American 4-pin bayonet base.
7. European special 4-pin base.
8. American { dwarf shell
medium shell
small shell } 4-pin base with or without bayonet pin.
9. American small 4-pin NUB base.
10. European 4-pin base.
11. European special large 4-pin base.
12. European side contact 5-pin base.
13. American radial 5-pin base.
14. European 5-pin base.
15. American { small shell
medium shell } 5-pin base.
16. European special all-glass miniature construction .
17. American { small shell
medium shell } 6-pin base.
18. European 6-pin base.
19. American small shell 7-pin base.
20. American medium shell 7-pin base.
21. American miniature button 7-pin base.
22. American radial 5-pin base with end terminal.
23. European 7-pin base.
24. European 7-pin base.
25. American radial 7-pin base.
26. European side contact 8-pin base.
27. European 8-pin base with locating spigot.
28. European 8-pin miniature base (Rimlock) .
29. American 8-pin lock-in base.
30. American { dwarf shell
small shell
intermediate shell
small wafer with metal shell
medium shell } octal base, 5-, 6-, 7- or 8-pin.
31. American small button sub-minar 8-pin base.
32. American small button Noval 9-pin base.
33. European 9-pin lock-in base.
34. American special photo-electric cell construction.
35. Candelabra double contact bayonet base (international electric lamp cap).
36. European special 2-pin base.
37. European special 2-pin base.
38. European special photo-electric cell construction.
39. European special photo-electric cell construction.
40. Edison screw base (international electric lamp cap).

BASE NOMENCLATURE

In the description of bases given below, reference is made to the country in which the base was originally introduced. Throughout the years, however, with an ever-increasing tendency towards world standardisation, many of the bases shown are now internationally accepted.

To-day their use in countries other than that of their origin is not merely confined to the production of types equivalent to those of the originating country, but also includes types of purely local development.

Drawing No.

41. American Pee Wee 3-pin base.
42. Giant Edison screw base (international electric lamp cap).
43. European special coaxial construction.
44. American small shell sub-magnal 11-pin base.
45. European sub-miniature 5-pin base (10 mm.).
46. As No. 45 after forming leads.
47. European sub-miniature 5-pin base (5 mm.).
48. European special side contact 3-pin base.
49. European sub-miniature 4-pin base.
50. American oval sub-miniature 5-pin base.
51. European end-on photo-electric cell construction 2-pin wire-in base.
52. Special disc-seal (lighthouse) construction, with American octal 5-pin base.
53. American oval sub-miniature 4-pin base.
54. European special construction.
55. Small shell Duodecal 6- or 7-pin base.
56. English all-glass construction 7-pin base.
57. European direct mounting transistor base.
58. American small round linotetrar 3-pin transistor base.
59. American small round flexible lead transistor base.
60. American small round linotetrar 4-pin transistor base.
61. American small round symmetrical flexible lead transistor base.
62. American direct mounting transistor base.
63. European direct mounting transistor base.
64. European miniature flexible lead base.
65. Universal duodecal 12-pin base.
66. American small button eightar 8-pin base.
67. American small button 10-pin base.
68. American medium ceramic-wafer twelvar base.
69. English small round flexible lead transistor base.
70. American small oval linotetrar 3-pin base.

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