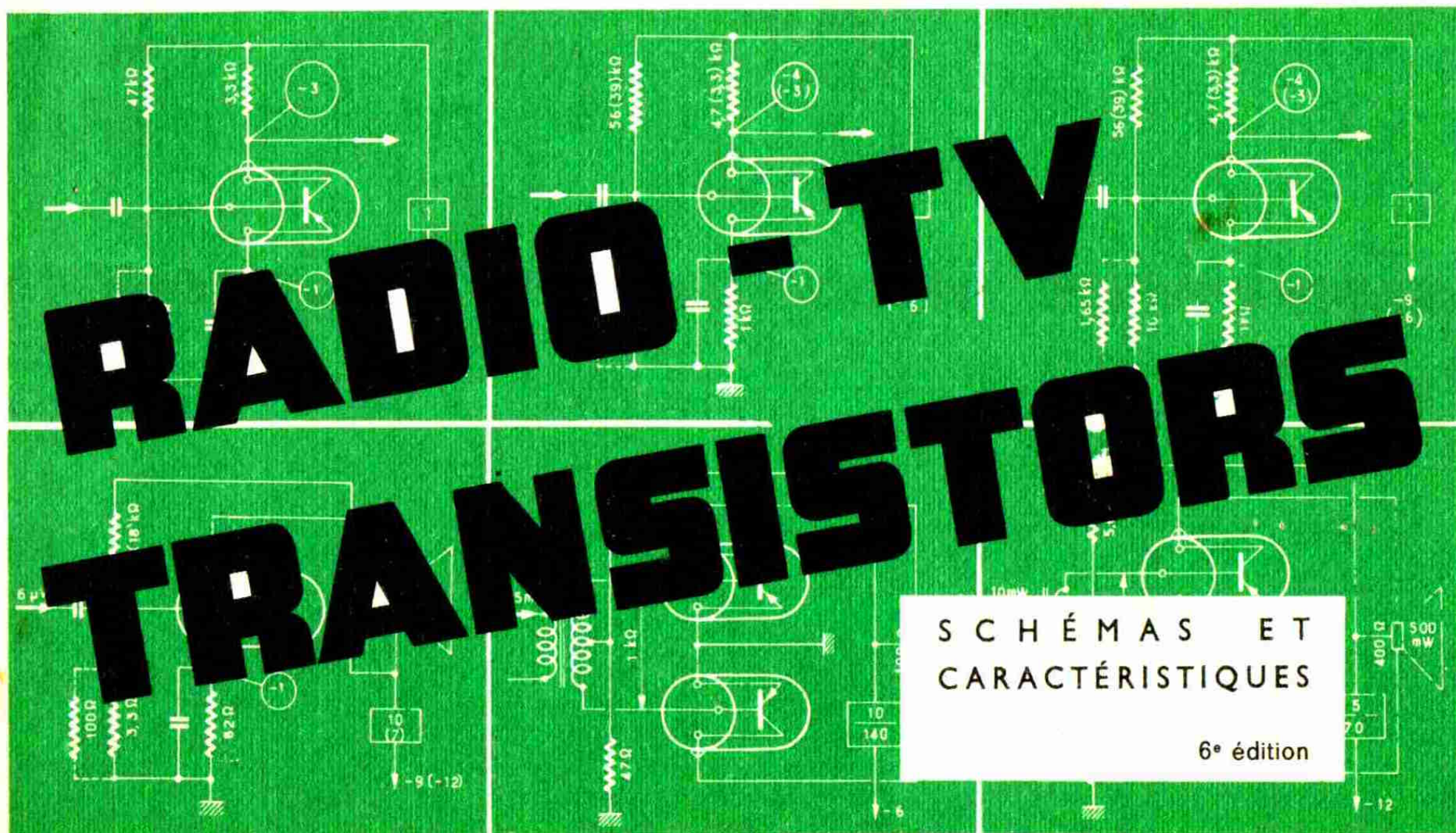


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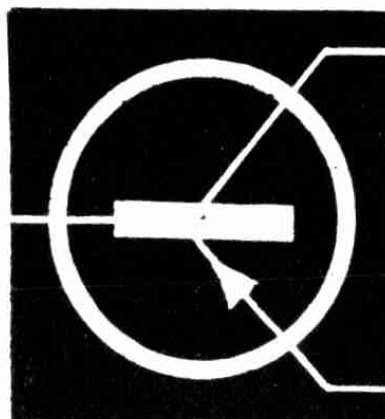
RADIO - TRANSISTORS

CARACTÉRISTIQUES ESSENTIELLES ET SCHÉMAS D'UTILISATION

Essential constants and
practical circuit diagrams



Características esenciales
y esquemas de utilizacion



Wichtigste Betriebsdaten
und Schaltungen



Onmisbare Karakteristieken
en gebruikschema's

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OUVRAGES DU MEME AUTEUR

Appareils à Transistors

Guide Mondial des Semi-conducteurs

Initiation à la Pratique des Récepteurs à Transistors

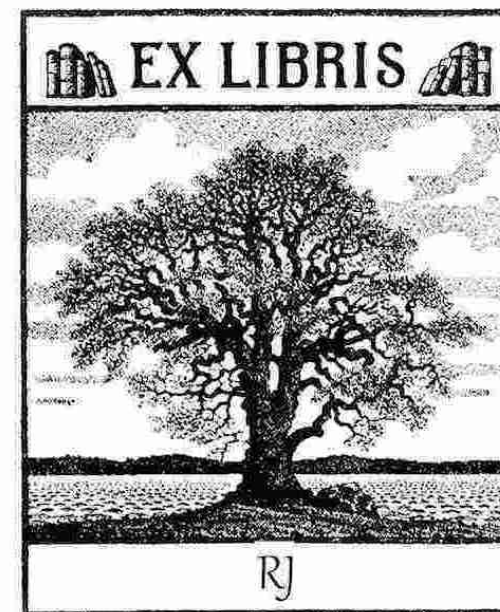
Le Multi-tracer (*épuisé*)

Technique de la modulation de fréquence (*épuisé*)

Technique et Applications des Transistors

Réparation des récepteurs à transistors

Les montages à transistors au laboratoire et dans l'industrie



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Préface

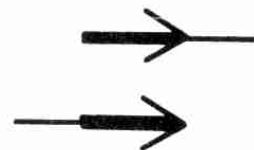
RADIO-TRANSISTORS ne supplante pas les recueils de caractéristiques tels que le GUIDE MONDIAL DES TRANSISTORS (principales caractéristiques limites et de fonctionnement de tous les transistors) ou la collection des CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS (courbes et données détaillées sur les transistors les plus courants). Mais, étant de conception tout à fait différente, il les complète harmonieusement.

RADIO-TRANSISTORS est une collection de schémas d'utilisation de tous les transistors employés actuellement en radio. Ces schémas sont classés par ordre alphanumérique de l'appellation du transistor; *les lettres ont priorité sur les chiffres*. Ils indiquent, avec les valeurs des éléments essentiels d'utilisation, certaines caractéristiques importantes, tels que les gains en courant et en puissance, facteur de bruit, fréquence de travail, etc. Un coup d'œil rapide sur un petit schéma permet de connaître immédiatement toutes les données pratiques d'utilisation.

Dans *RADIO-TRANSISTORS*, seuls des signes conventionnels et bien connus ont été utilisés. Tout le monde doit donc pouvoir comprendre les renseignements contenus dans cet ouvrage, et cela sans avoir lu la présente introduction... ou après l'avoir oubliée. Malgré cela, et pour la tranquillité de sa conscience, l'auteur préfère rappeler le principe des notations utilisées.



- Le branchement des transistors est présenté vu par en dessous.



- Pour faciliter la lecture des schémas, des flèches indiquent l'entrée et la sortie des signaux à amplifier.
- L'appellation du transistor est indiquée au coin supérieur gauche de chaque schéma. Elle peut être suivie d'une autre appellation; cela signifie que les deux transistors mentionnés ont des caractéristiques suffisamment voisines pour que le même schéma d'utilisation soit valable. Si la deuxième appellation est mise entre parenthèses, les valeurs correspondantes du schéma apparaissent également entre parenthèses. De la même façon, la parenthèse peut encore être utilisée pour caractériser différentes conditions de fonctionnement dans un même montage (valeur des éléments pour différentes tensions d'alimentation, etc.). En dessous de l'appellation du transistor, se trouve l'indication de la *fonction* suivant les symboles classiques :

Osc : Oscillateur.

HF : Haute fréquence.

Conv : Conversion de fréquence.

MF : Moyenne fréquence.

BF : Basse fréquence.

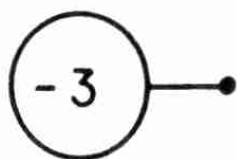
P : Amplification de puissance (étage de sortie).

VHF : Transistor utilisable aux très hautes fréquences.

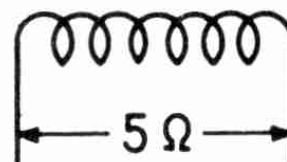
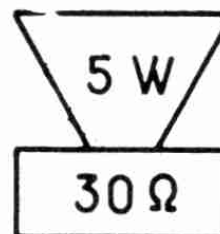
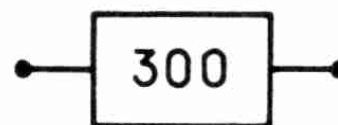
- En haut de chaque schéma, sont indiqués les caractéristiques essentielles du transistor et du montage :

β : Gain de courant (en basse fréquence, sauf indication spéciale).
 F_b : Facteur de bruit.
 GP : Gain en puissance du montage.
 GC : Gain de conversion.
 f_t : Fréquence de transition (à laquelle $\beta = 1$).
 Dans le cas des transistors à effet de champ (F.E.T.), on trouve les notations :
 I_{DSS} : Courant de drain à tension de gate nulle.
 s : Pente, transconductance, ou conductance mutuelle.
 V_{GSO} : Tension de blocage ou de cut-off du gate.
 ρ : Résistance interne de sortie.

- La fréquence de travail est indiquée dans le cas des montages amplificateurs HF ou MF, ainsi que dans certains quadripôles dont les éléments dépendent de la fréquence. Ces dessins de quadripôles contiennent également la mention de la tension de collecteur (V_c) et du courant de collecteur (I_c) correspondant aux valeurs indiquées.
- Plusieurs schémas peuvent être consacrés à un même transistor lorsque celui-ci peut avoir plusieurs fonctions ou travailler sous différentes conditions d'utilisation.



- Les chiffres enfermés dans des cercles indiquent, en volts, les tensions continues qui existent entre le point d'attache du cercle et la masse. La polarité est exprimée par les signes + ou -.



- Les intensités continues sont indiquées dans des carrés intercalés dans les circuits comme des appareils de mesure; elles sont toujours exprimées en milliampères. Dans le cas d'amplificateurs classe AB, les intensités minimale et maximale sont indiquées l'une dessous de l'autre, dans le même carré.
- Les chiffres enfermés dans des triangles indiquent des tensions alternatives.
- Le dessin du haut-parleur contient des chiffres exprimant l'impédance de charge et puissance maximale de sortie. Cette dernière n'est pas la valeur théorique extrême, mais celle qu'on peut obtenir avec un transformateur de sortie de faibles pertes.
- La valeur ohmique apparaissant entre les bornes de sortie ou d'entrée d'un transformateur indique l'impédance d'adaptation de l'enroulement correspondant.
- Les éléments dessinés en pointillé indiquent les résistances ou capacités internes que possède le montage entre les points correspondants.

Preface

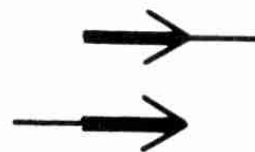
RADIO-TRANSISTORS does not replace the handbooks such as the *GUIDE MONDIAL DES TRANSISTORS* (principal characteristics and applications of all transistors) or the manual *CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS* (graphs and complete data on the main types). But being of a conception totally different, *RADIO-TRANSISTORS* completes them harmoniously.

RADIO-TRANSISTORS is a collection of schematic diagrams of all the transistors used at present in radio. These diagrams are classified by the alphabetical and numerical designation of the transistors *letters having priority over the numbers*. They indicate, along with the values of the components used, certain important characteristics, such as gain in current and power, noise factor, working frequency, etc. A glance at the diagram gives all the practical details.

In *RADIO-TRANSISTORS* only usual and well-known symbols are used. Everyone should therefore be able to grasp the information contained in this handbook even without having read the present introduction or after having forgotten it. Nevertheless to sooth his conscience, the author prefers enumerating the following notations.



- The connections of the transistors are as seen from below.



- To facilitate the comprehension of the diagrams, the arrows indicate the input and output of the signals being amplified.
- The designation of the transistor is indicated in the upper left-hand corner of each diagram. It may be followed by another; this means that both transistors mentioned are sufficiently similar so that the same diagram can be used. If the second designation is between parenthesis, the corresponding values of the diagram are similarly indicated between parentheses. In a like manner, the parenthesis can be used to indicate different conditions of operation in the same layout (values for different voltages applied, etc.). Below the designation of the transistor, will be found the classic indication of the *function* :

OSC : Oscillator.

HF : High-frequency.

Conv : Frequency converter.

MF : Intermediate frequency.

BF : Audio frequency.

P : Power amplification (output stage).

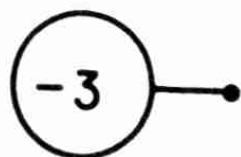
VHF : Very high frequency application.

- At the top of each diagram, the main indications of the transistor and its allied components are indicated.

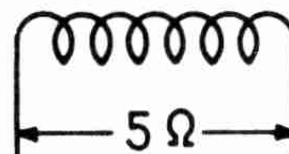
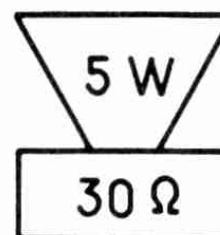
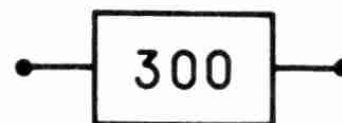
β : Current gain (at audio frequencies except special indication).
 F_b : Noise factor.
 GP : Power gain of the set-up.
 GC : Conversion gain.
 f_t : Transition frequency (at which $\beta = 1$).
 In the case of field effect transistors (F.E.T.), the following indications are given :
 I_{DSS} : Drain current at null gate voltage.
 g_s : Slope, transconductance, or mutual conductance.
 V_{GSO} : Gate blockage or cut-off voltage.
 ρ : Internal output resistance.

- The *working frequency* is indicated in the case of high or intermediate frequency amplifiers as well as in certain *four-pole units* of which the elements are dependent on the frequency. These drawings of the four-pole units also contain the mention of the collector voltage (V_c) and collector current (I_c) corresponding to the values indicated.

- Several diagram may be devoted to the same transistor when it has several functions or can work under different conditions of utilisation.



- The figures in the circles indicate in volts, the D.C. voltages, that exist between the point where the circle is attached and the bus. Polarity is expressed by the signs + or —.



- The D.C. currents are indicated in the squares that are intercalated in the circuits as many measuring instruments; they are always expressed in *milliamps*. In the case of class AB amplifiers, the minimum and maximum currents are indicated one below the other in the same box.

- The figures enclosed in the triangles indicate A.C. voltages.

- The drawing of the loud-speaker contains the figures expressing the *impedance load* at maximum *power output*, the latter not being the extreme theoretical value but the one that can be obtained with a low-loss output transformer.

- The ohms value that appears at the input or output lugs of a transformer indicates the *adaptation impedance* of the corresponding winding.

- The elements drawn in dotted lines indicate the internal resistances or capacities that exist between the corresponding points.

Vorwort

RADIO-TRANSISTORS ergänzt harmonisch zwei bereits gut bekannte Sammlungen von Transistor-Kenndaten: *GUIDE MONDIAL DES TRANSISTORS* (wichtigste Grenz- und Betriebswerte aller Transistoren) und *CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS* (Kennlinien und Parameter der gebräuchlichsten Transistoren).

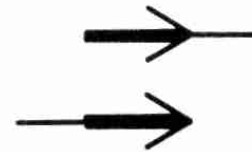
RADIO-TRANSISTORS ist eine Schaltungssammlung mit Anwendungsbeispielen aller zur Zeit in der Rundfunk- und Niederfrequenztechnik verwendeten Transistoren. Die Schaltungen sind alphanummerisch nach den Bezeichnungen der Transistoren eingeordnet; die *Buchstaben sind den Ziffern vorangesetzt*. Neben den Werten der hauptsächlichsten Schaltelemente enthalten diese Zeichnungen Angaben über einige wichtige Daten, wie Strom- und Leistungsverstärkung, Rauschfaktor, Betriebsfrequenz, usw. Ein kurzer Blick auf die kleine Schaltung genügt, um sofort alle praktischen Angaben über die Verwendung des Transistors zur Verfügung zu haben.

RADIO-TRANSISTORS enthält nur allgemein bekannte und gebräuchliche Zeichen und Symbole. Somit kann jeder ohne weiteres die in dieser Broschüre enthaltenen Angaben verstehen, und das selbst, wenn er diese Einführung nicht gelesen... oder bereits wieder vergessen hat.

Trotzdem möchte der Verfasser, auch in Hinsicht auf sein ruhiges Gewissen, das Prinzip der verwendeten Bezeichnungen kurz erläutern.



- Die *Anschlüsse* der Transistoren sind von der *unteren* (Anschluss-) Seite aus gesehen.



- Das Lesen der Schaltungen wird durch *Pfeile* vereinfacht, die Ein- und Ausgang der zu verstärkenden Signale angeben.

- Die Typenbezeichnung des Transistors ist in der linken oberen Ecke jeder Schaltung angegeben. Eine zweite Bezeichnung kann darauf folgen; es handelt sich dann um zwei Transistoren deren *Kennwerte* so ähnlich sind, dass ein gleiches Anwendungsbeispiel für beide gültig ist. Wenn die zweite Bezeichnung in Klammern steht, dann erscheinen die entsprechenden Angaben im Schaltbild ebenfalls in Klammern. Ähnlich werden die Klammern auch verwendet, um in einer Schaltung mehrere Betriebsbedingungen anzugeben (Dimensionierung für verschiedene Speisespannungen, usw.). Unter der Typenbezeichnung wird die *Funktion* wie folgt angegeben:

Osc : Oszillator.

HF : Hochfrequenzverstärker.

Conv : Mischstufe.

MF : Zwischenfrequenzverstärker.

BF : Niederfrequenzverstärker.

P : Leistungs- (End-) Stufe.

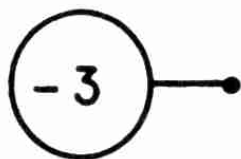
VHF : Bei sehr hohen Frequenzen verwendbarer Transistor.

- Im oberen Teil jedes Schaltbildes sind folgende wichtige Kennwerte des Transistors oder der Schaltung angegeben :

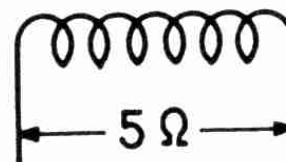
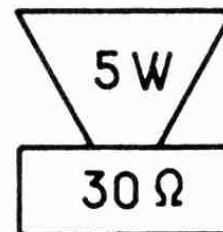
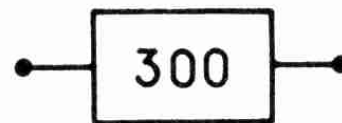
β : Stromverstärkung bei Niederfrequenz (oder bei der hinter dem Wert angegebenen Frequenz).
 F_b : Rauschfaktor.
 GP : Leistungsgewinn der Schaltung.
 GC : Mischverstärkung.
 f_t : Transistfrequenz (Frequenz, bei der $\beta = 1$).
 Bei Feldeffekttransistoren (F.E.T.) werden folgende Abkürzungen verwendet :
 I_{DSS} : Drainstrom bei Gatespannung null.
 s : Steilheit oder Transkonduktanz.
 V_{GSO} : Sperr - oder cut-off-Spannung des Gates.
 ρ : Innerer Ausgangswiderstand.

- Die *Betriebsfrequenz* ist bei den Hoch- und Zwischenfrequenzverstärker-Schaltungen angegeben; sie ergänzt auch gewisse *Vierpoldarstellungen* deren Elemente frequenzabhängig sind. Diese Vierpole sind auch mit Angaben über die entsprechende Kollektorspannung (V_c) und den Kollektorstrom (I_c) versehen.

- Mehrere Schaltbilder können sich auf denselben Transistor beziehen, wenn dieser mehrere Funktionen haben oder unter verschiedenen Bedingungen verwendet werden kann.



- Von *Kreisen* umgebene Zahlen geben, in Volt, die *Gleichspannungen* an, die man zwischen Masse und dem mit dem Kreise verbundenen Punkt der Schaltung misst. Die Zeichen + oder - geben die Polarität an.



- *Gleichstromwerte* sind in *Vierecken* angegeben, die wie Messinstrumente in die Stromkreise eingelegt sind. Die Angabe folgt immer in Milliampère. Bei AB-Verstärkern sind Ruhe- und Spitzenstrom untereinander in selbigen Viereck angegeben.

- Wechselspannungen sind in Dreiecke eingeschrieben.

- Das Schaltzeichen des *Lautsprechers* enthält Angaben über den *Anpassungswiderstand* und die maximale *Ausgangsleistung*. Letztere entspricht nicht dem theoretischen Höchstwert, sondern der Leistung, die man mit einem Ausgangstransformator guter Qualität erzielen kann.

- Eine Widerstandsangabe zwischen den Eingangs- oder Ausgangsklemmen eines Transformators gibt den *Anpassungswiderstand* der entsprechenden Wicklung an.

- Mit unterbrochenem Strich gezeichnete Schaltzeichen stellen die *inneren Widerstände* oder *Kapazitäten* dar, welche die Schaltung zwischen den entsprechenden Punkten aufweist.

Prefacio

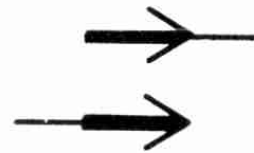
RADIO-TRANSISTORS no suplanta las colecciones de características tales como el GUIDE MONDIAL DES TRANSISTORS (*Guía Mundial de Transistores*) (principales características límites y de funcionamiento de todos los transistores) o la colección de las CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS (*Características Universales de los Transistores*) (curvas y datos detallados sobre los transistores mas corrientes) pero, siendo de concepción completamente diferente, las completa armoniosamente.

RADIO-TRANSISTORS es una colección de esquemas de empleo de todos los transistores utilizados actualmente en radio. Estos esquemas están clasificados por orden alfa-numérico de la apelación del transistor : *las letras tienen prioridad sobre las cifras*. Indican, con los valores de los elementos esenciales de empleo, ciertas características importantes, tales como las ganancias en corriente y en potencia, factor de ruido, frecuencia e trabajo, etc. Una rápida ojeada sobre un pequeño esquema permite conocer inmediatamente todos los datos prácticos de utilización.

En *RADIO-TRANSISTORS*, sólo se utilizan signos convencionales y perfectamente conocidos. Así pues, todo el mundo debe poder comprender las informaciones contenidas en esta obra, y sin haber leído la presente introducción... o después de haberla olvidado. A pesar de ello y para tranquilidad de su conciencia, el autor prefiere recordar el principio e las anotaciones utilizadas.



- La conexión de los transistores se ha presentado vista por debajo.



- Para facilitar la lectura de los esquemas, las flechas indican la entrada y la salida de las señales a amplificar.

- La apelación del transistor está indicada en el extremo superior izquierdo de cada esquema. Puede estar seguida de otra apelación, lo cual significa que los dos transistores mencionados tienen características suficientemente próximas para que el mismo esquema de empleo sea utilizable. Si la segunda apelación está dispuesta entre paréntesis, los valores correspondientes del esquema aparecen igualmente entre paréntesis. De igual manera, el paréntesis puede también ser utilizado para caracterizar diferentes condiciones de funcionamiento en un mismo montaje (valores de los elementos para diferentes tensiones de alimentación, etc.). Debajo de la denominación del transistor, se encuentra la indicación de la *función*, según los símbolos clásicos :

Osc : Oscilador.

HF : Alta frecuencia.

Conv : Conversión de frecuencia.

MF : Frecuencia intermedia.

BF : Baja frecuencia.

P : Amplificación de potencia (etapa de salida).

VHF : Transistor utilizable para muy altas frecuencias.

- En la parte superior de cada esquema, se indican las características esenciales del transistor y del montaje :

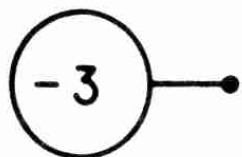
β : Ganancia de corriente (en baja frecuencia, salvo indicación especial).
 F_b : Factor de ruido
 GP : Ganancia en potencia del montaje.
 GC : Ganancia de conversión.
 f_t : Frecuencia de transición (en la que $\beta = 1$).

En los casos en que se trata de transistores de efecto de campo (F.E.T.), se encuentran notaciones :

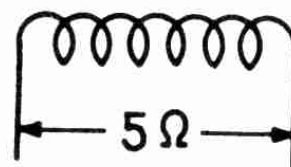
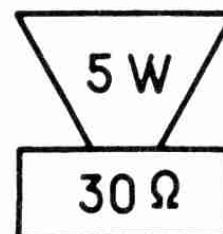
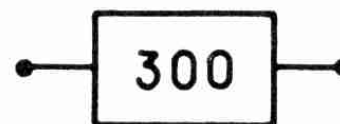
I_{DSS} : Corriente de drenaje de tensión de umbral nula.
 s : Pendiente, transconductancia o conductancia mutua.
 V_{GSO} : Tensión de bloqueo o de corte del umbral (gate).
 ρ : Resistencia interna de salida.

- La *frecuencia de trabajo* se indica en el caso de los montajes amplificadores AF o FI, así como en ciertos *quadripolos* cuyos elementos dependen de la frecuencia. Estos dibujos de cuadripolos contienen igualmente la mención de la tensión de colector (V_c) y de la corriente de colector (I_c) correspondiente a los valores indicados.

- Varios esquemas pueden ser consagrados a un mismo transistor cuando este puede tener varias funciones o trabajar bajo diferentes condiciones de empleo.



- Las cifras encerradas en círculos indican, en *voltios*, las *tensiones continuas* que existen entre el punto de ataque del círculo y masa. La polaridad se expresa por los signos + o —.



- Las intensidades continuas se indican en *cuadrados* intercalados en los circuitos de aparatos de medición; siempre se expresa en *miliamperios*. En el caso de los amplificadores clase AB, las intensidades mínima y máxima se indican una debajo de la otra en el mismo cuadrado.

- Las cifras encerradas en *triángulos* indican *tensiones alternas*.

- El dibujo del *altavoz* contiene cifras expresando la *impedancia de carga* y la *potencia máxima de salida*. Esta última no es el valor teórico extremo, sino el que se puede obtener con un transformador de salida de reducidas pérdidas.

- El valor óhmico que aparece en los bornes de salida o de entrada de un transformador indica la *impedancia de adaptación* del devanado correspondiente.

- Los elementos dibujados en *punteado* indican las resistencias o capacidades *interiores* que posee el montaje entre los puntos correspondientes.

Voorwoord

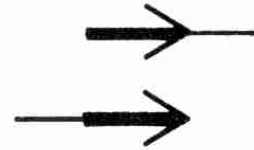
RADIO-TRANSISTORS vervangt niet de verzameling van gegevens zoals de GUIDE MONDIAL DES TRANSISTORS (*Transistor-Wereldgids*) (voornaamste eigenschappen en functies van alle transistors) of de verzameling CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS (*Universele Transistor-Karakteristieken*), doch zijnde van geheel andere aard vult deze harmonisch aan.

RADIO-TRANSISTORS is een verzameling praktijk-schemas van alle thans voor radio in gebruik zijnde transistors. Deze schemas zijn in alfabetisch-numerieke volgorde naar type-benaming gerangschikt, *waarbij letters voorrang hebben boven de cijfers*. Zij vermelden, met de waarden der wezenlijke gebruiksbestanddelen, zekere belangrijke gegevens zoals de stroom- en energieversterking, ruisfaktor, werkfrequentie, enz. Een vluchtige blik op een klein schema doet onmiddellijk alle gegevens voor het praktische gebruik zien.

In *RADIO-TRANSISTORS* zijn slechts gangbare en welbekende tekens gebruikt. Iedereen zal dus de in deze uitgave vervatte inlichtingen kunnen begrijpen, zelfs zonder deze inleiding te hebben gelezen... of na haar te hebben vergeten. Desondanks en voor de gerustheid van zijn geweten, geeft de samensteller er de voorkeur aan het principe der gebruikte tekens in herinnering te brengen.



- De aansluiting der transistors is voorgesteld van anderen gezien.



- Om het lezen der schemas te vergemakkelijken wordt de ingang en de uitgang der signalen van de versterker door pijlen aangegeven.
- De benaming van de transistor is vermeld in de linker bovenhoek van elk schema. Zij kan gevolgd worden door een andere type-aanduiding, hetgeen betekent dat de twee genoemde transistors elkander voldoende naderbij komende karakteristieken hebben om het zelfde gebruik-schema te doen gelden. Indien de tweede benaming tussen haakjes geplaatst is, zijn de dienovereenkomstige waarden van het schema eveneens tussen haakjes. Op dezelfde wijze kunnen haakjes nog gebruikt worden om verschillende funktievoorwaarden in een zelfde konstruktie te karakteriseren (waarden der elementen voor verschillende voedingsspanningen, enz.). Onder de benaming van de transistor bevindt zich de aanduiding der *funktie* volgens de klassieke symbolen :

Osc : Oscillator.

HF : Hoge frequentie.

Conv : Conversie.

MF : Midden frequentie.

BF : Lage frequentie.

P : Eindversterking.

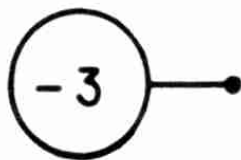
VHF : Transistor bruikbaar voor zeer hoge frequenties.

- Boven elk schema zijn de belangrijkste gegevens van de transistor en van de schakeling aangeduid :

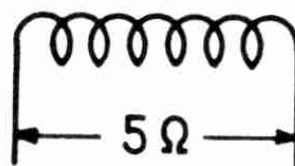
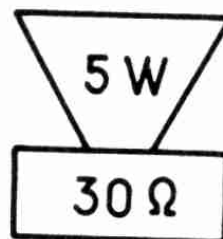
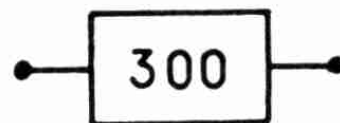
β : Stroomversterking (op lage frekventies, behoudens speciale aanduiding).
 F_b : Ruisfaktor.
 GP : Energieversterking van de schakeling.
 GC : Conversieversterking.
 f_t : Overgangsfrequentie (waarbij $\beta = 1$).
 In het geval van transistors met veld effect (F.E.T.) treft men de volgende noteringen aan :
 I_{DSS} : Draineerstroom zonder gate spanning.
 s : Helling, transconductantie, of onderling geleidingsvermogen.
 V_{GSO} : Blokkeringspanning of gate afsluitingspanning.
 ρ : Inwendige uitgangsweerstand.

- De *werkfrequentie* is aangeduid in geval van HF of MF versterkerschakelingen, zoals ook in zekere vierpolen waarvan de elementen van de frequentie afhangen. Deze tekeningen van vierpolen bevatten eveneens de vermelding van de kollektorspanning (V_c) en van de kollektorstroom (I_c) overeenkomstig de aangegeven waarden.

- Verschillende schemas kunnen gebruikt worden voor een zelfde transistor, wanneer deze verschillende functies kan hebben of onder verschillende voorwaarden kan werken.



- Door de cijfers in cirkels worden aangeduid, in volts, de *gelijkspanningen* tussen het aansluitpunt van de cirkel en de massa. De polariteit is aangeduid door de tekens + of -.



- De gelijkstroomwaarden zijn aangeduid in vierkanten welke als meetinstrumenten in de stroomkring ingelast zijn; zij zijn steeds uitgedrukt in *milliampères*. In het geval van klasse AB versterkers, worden de minimale en maximale waarden onder elkander in hetzelfde vierkant aangeduid.

- De cijfers in de *driehoeken* geven de *wisselspanningen*.

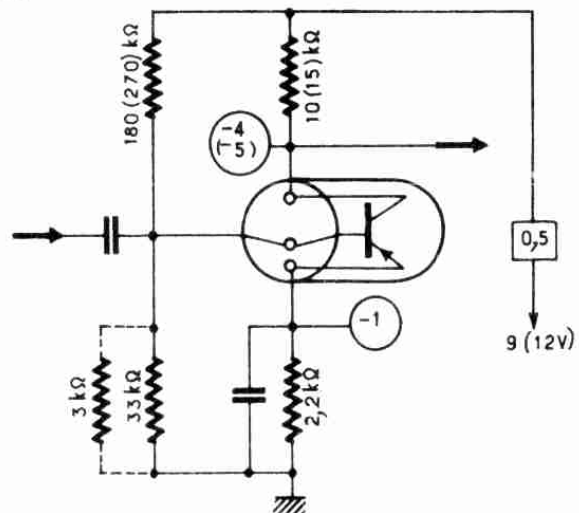
- De tekening van de *luidspreker* bevat cijfers welke de *belastingsimpedantie* en het maximale *uitgangsvermogen* weergeven. Dit laatste is niet de theoretisch uiterste waarde, maar die welke men met een uitgangstransformator met zwakke verliezen kan verkrijgen.

- De tussen de uitgangs- of ingangsaansluitingen van een transformator genoemde ohmwaarde geeft de *aanpassingsimpedantie* van de betreffende wikkeling.

- Door de met een stippellijn getekende elementen worden de *inwendige weerstanden* of *kapaciteiten* van de schakeling tussen de betreffende punten aangegeven.

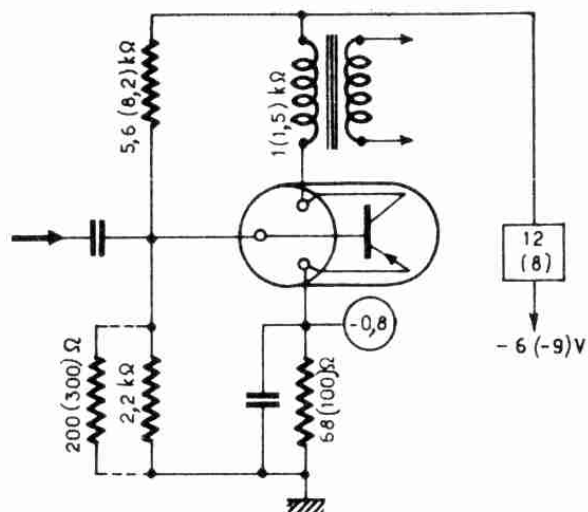
AC107

BF

$$\beta = 40$$
$$F_b = < 8 \text{ dB}$$


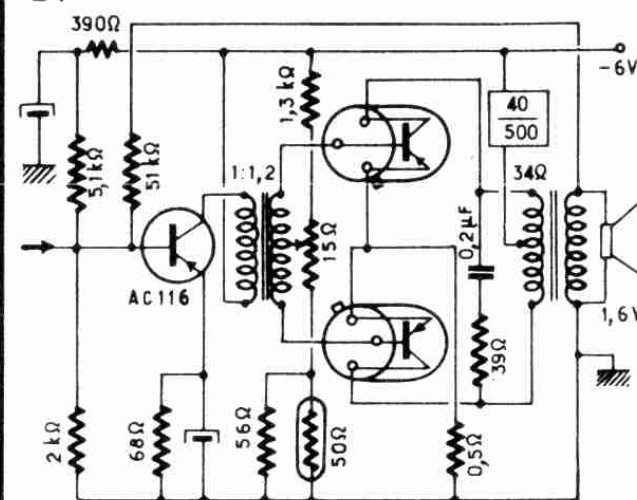
AC116

BF

$$\beta = 85$$
$$GP = 30 \text{ dB}$$


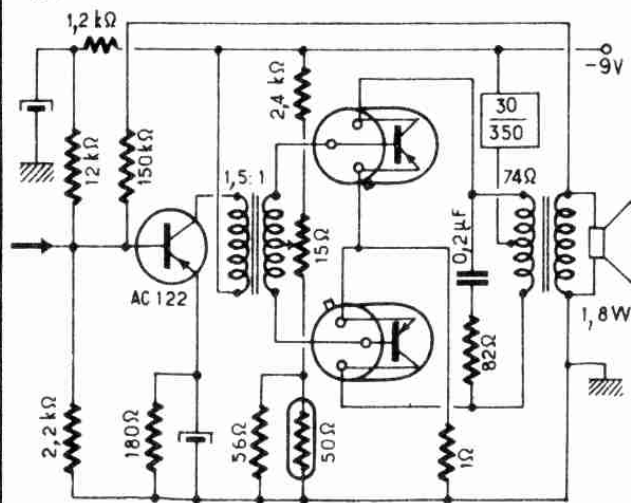
AC117

BF

$$\beta = 70$$


AC117

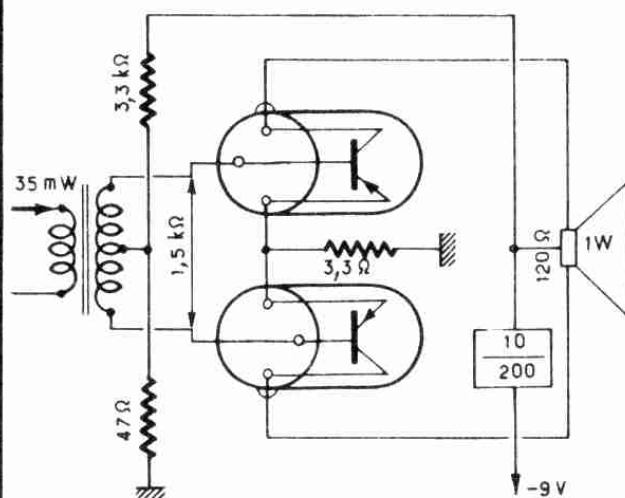
BF

$$\beta = 70$$


AC121

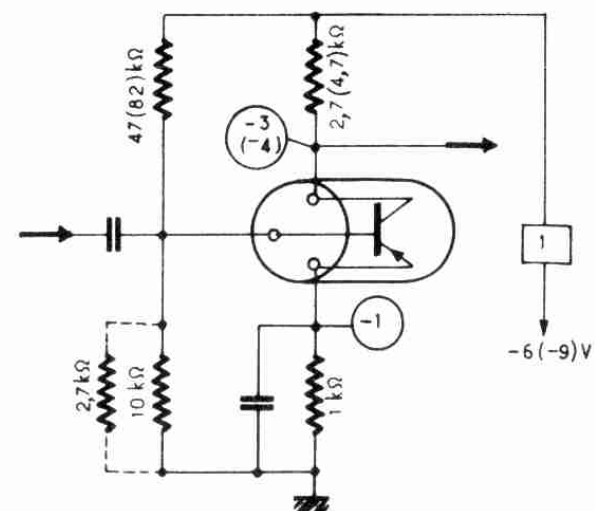
BF

$\beta = 30 \dots 250$
GP = 15...20dB



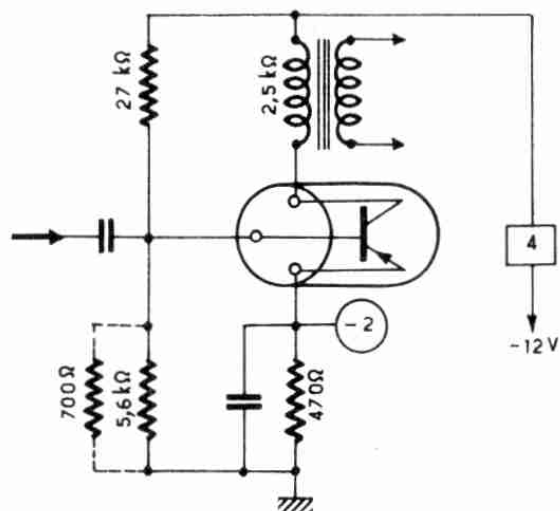
AC122

BF

$$\beta = 85$$
$$F_b = 5,5 \text{ dB}$$


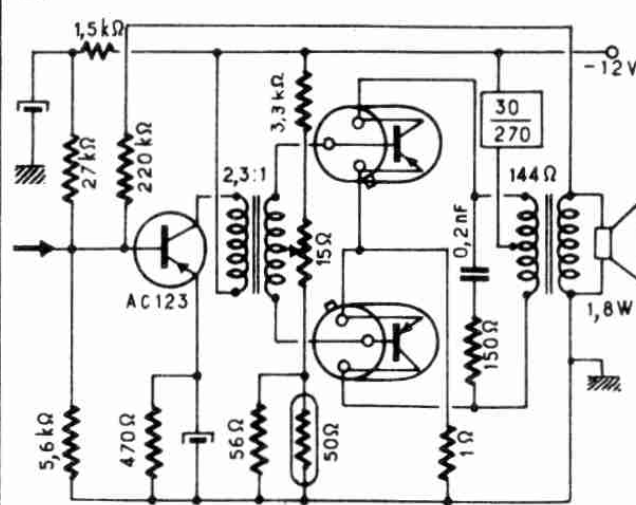
AC123

BF

 $\beta = 85$
GP = 32 dB

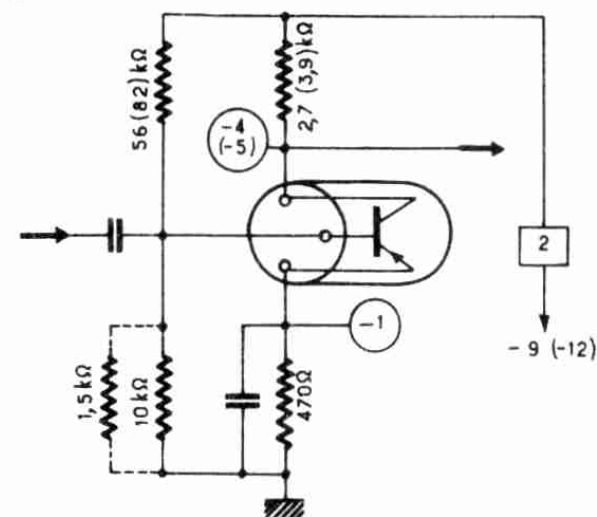
AC124

BF

 $\beta = 50$ 

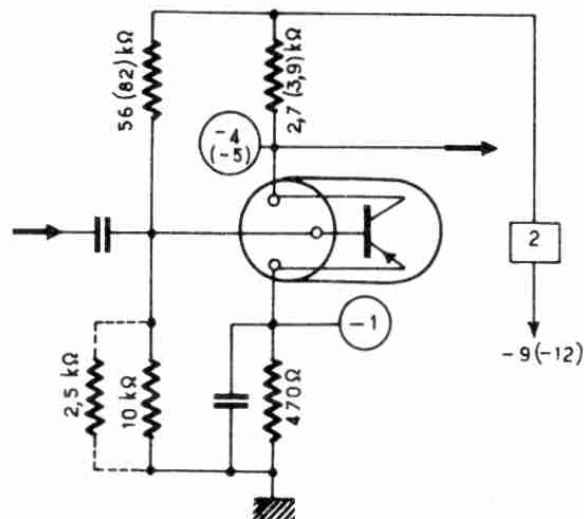
AC125

BF

 $\beta = 80...160$ 

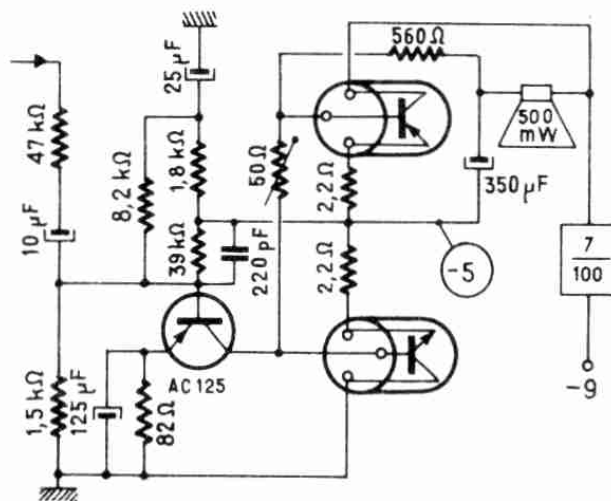
AC126

BF

 $\beta = 130...300$ 

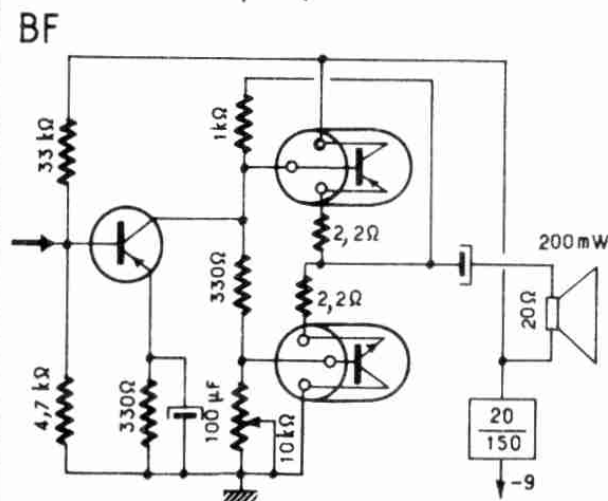
AC127

AC128

n-p-n
p-n-p $\beta = 115$
 $\beta = 55...175$ 

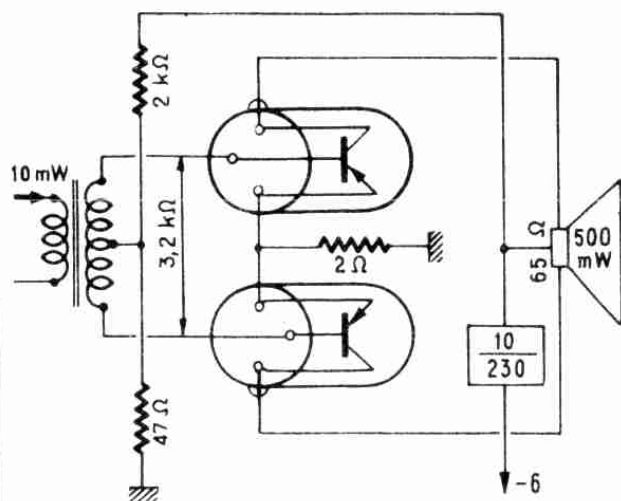
AC127

AC132

n-p-n
p-n-p $\beta = 115$ 

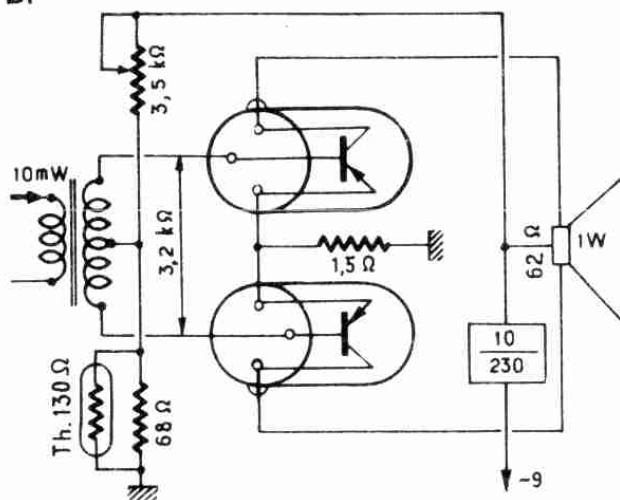
AC 128 BF

$\beta = 50 \dots 175$
GP = 11 ... 14 dB



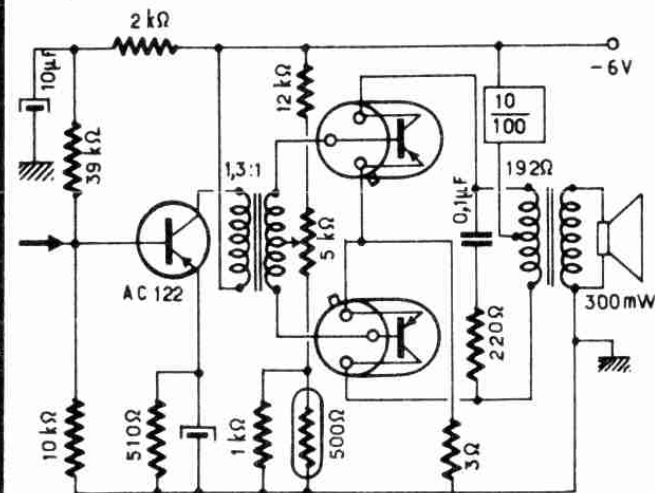
AC 128 BF

$\beta = 50 \dots 175$
GP = 18 ... 21 dB



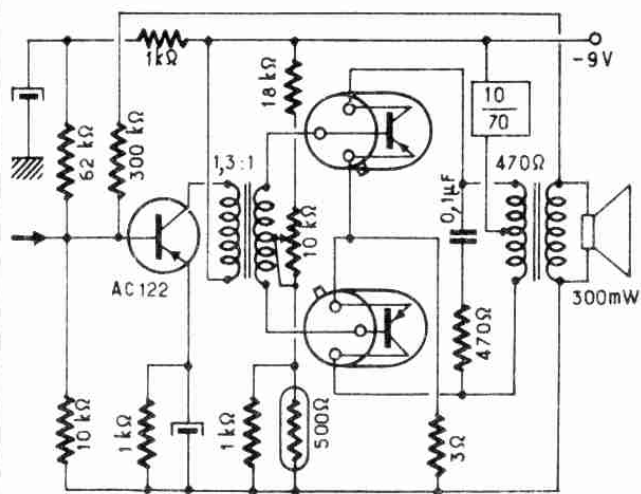
AC 131 BF

$\beta = 67$



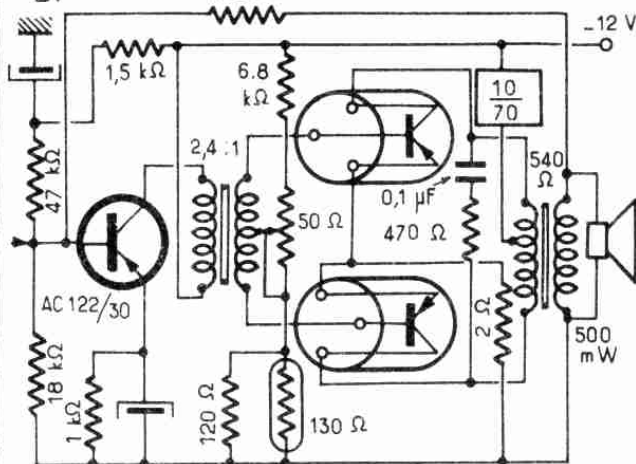
AC 131 BF

$\beta = 67$



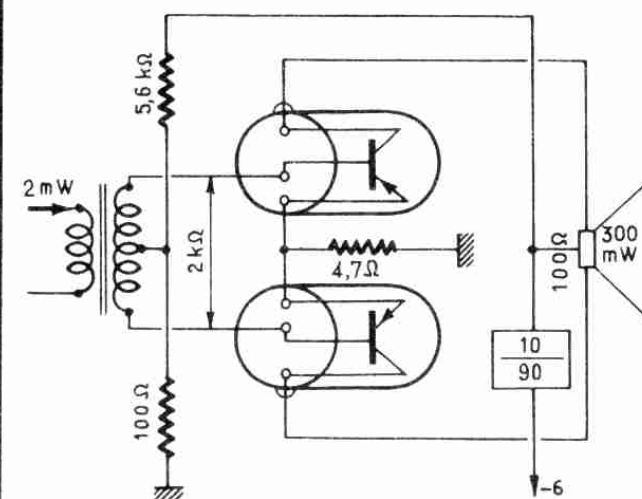
AC 131/30 BF

$\beta = 67$



AC 132 BF

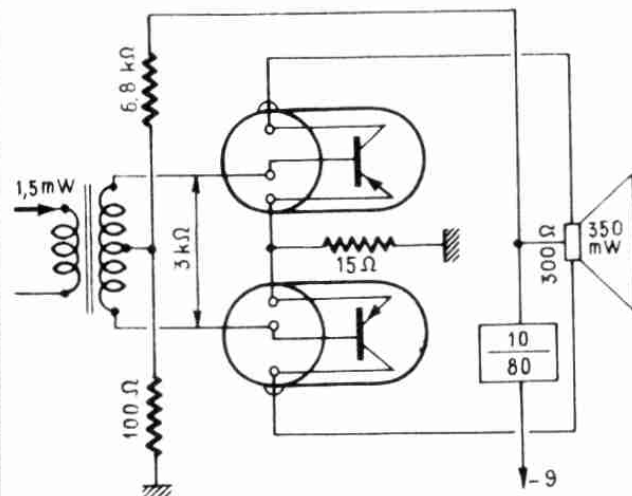
$\beta = 115$
GP = 22 dB



AC 132

BF

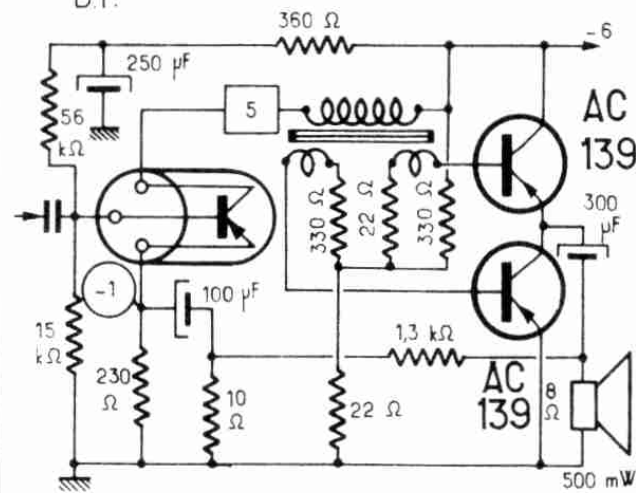
$\beta = 115$
GP = 25 dB



AC 138

B.F.

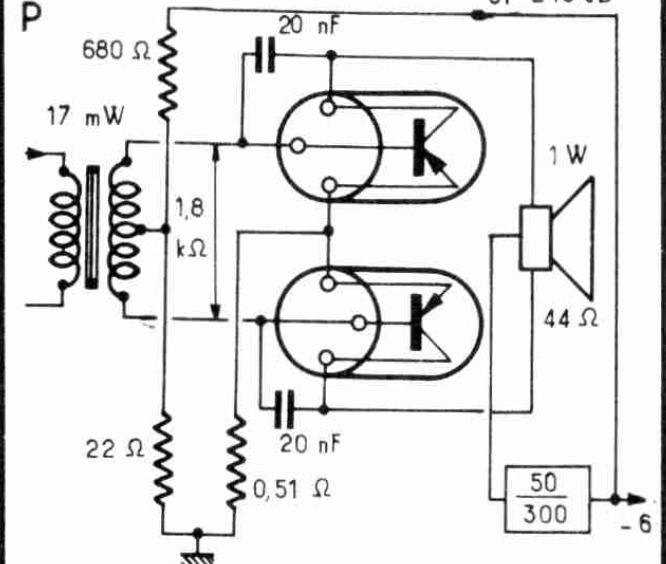
$\beta = 100$



AC 139

P

$\beta = 85$
GP = 18 dB



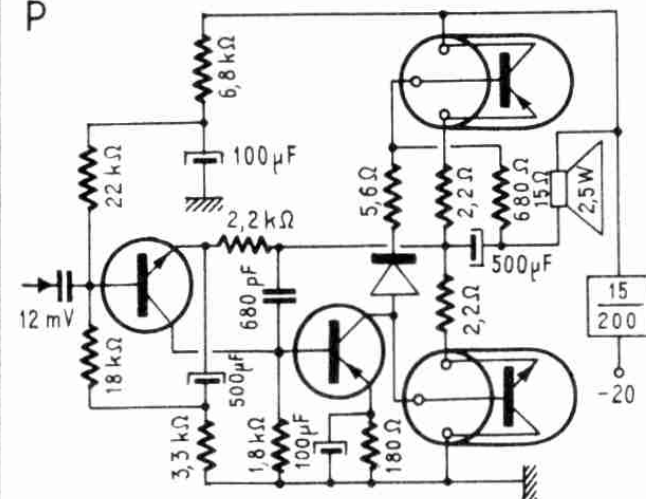
AC 141

AC 142

P

n-p-n
p-n-p

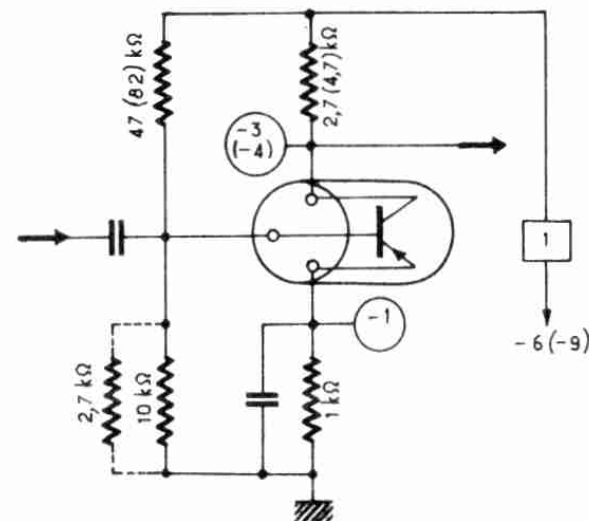
$\beta = 40 \dots 180$



AC 150

BF

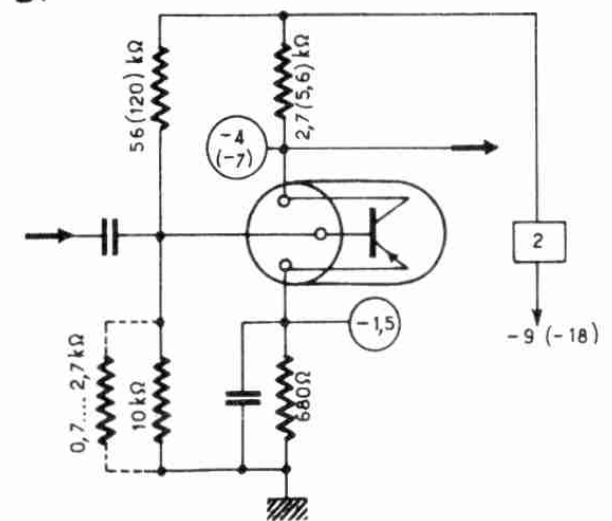
$\beta = 85$
 $F_b = < 5$ dB



AC 151

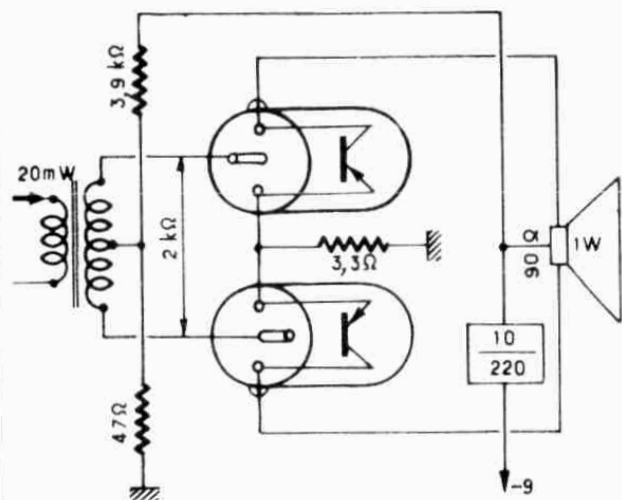
BF

$\beta = 45 \dots 170$



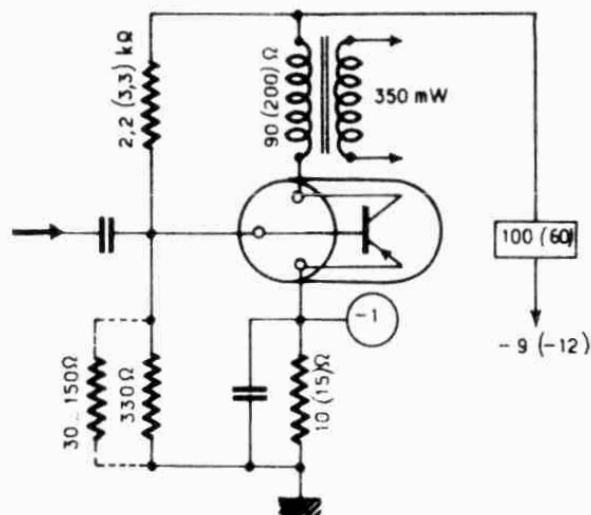
AC152

BF

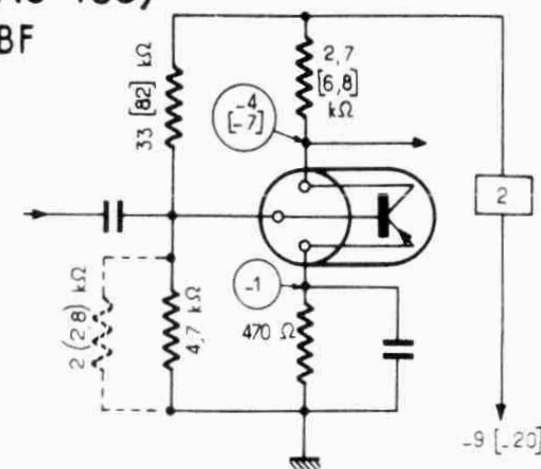
 $\beta = 30 \dots 150$
 $GP = 18 \text{ dB}$


AC153

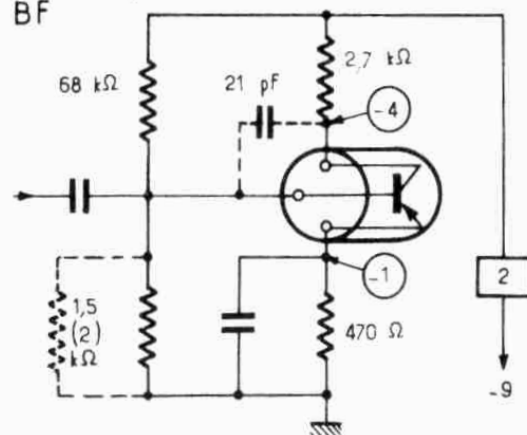
BF

 $\beta = 50 \dots 250$
 $GP = 35 \dots 45 \text{ dB}$
AC 162
(AC 163)

BF

 $\beta = 80 \dots 170$
 $(130 \dots 300)$
 $F_b = 4 \text{ dB}$
AC 170
(AC 171)

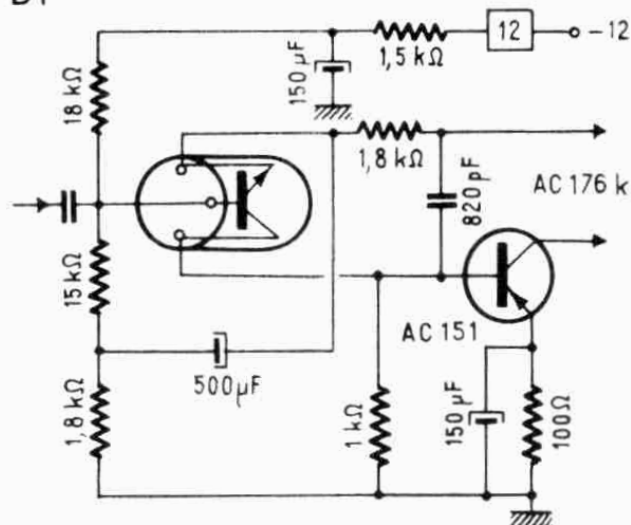
BF

 $\beta = 80 \dots 170$
 $(130 \dots 300)$
 $F_b = 5 \text{ dB}$


AC 176

BF

n-p-n

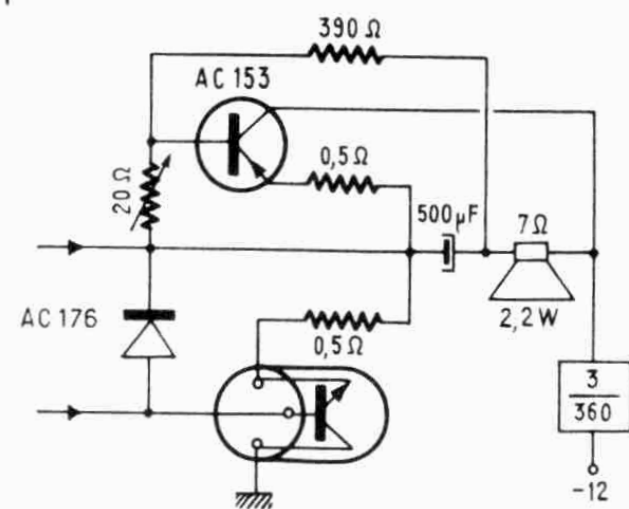
 $\beta = 100 (>50)$


AC 176 k

n-p-n

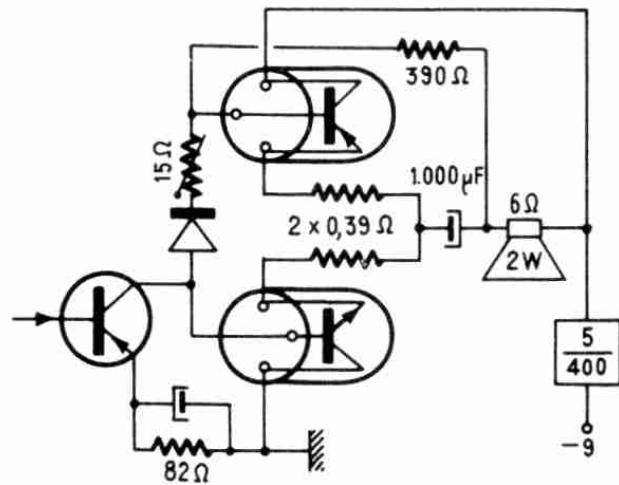
 $\beta = 100 (>50)$

P



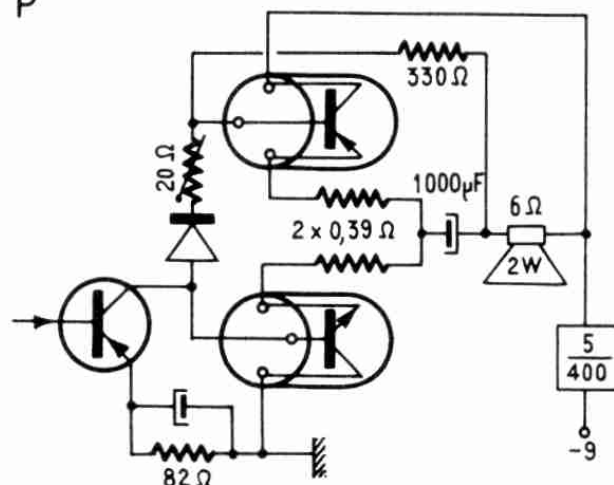
AC 178
AC 179

p-n-p $\beta = 60 \dots 400$
n-p-n



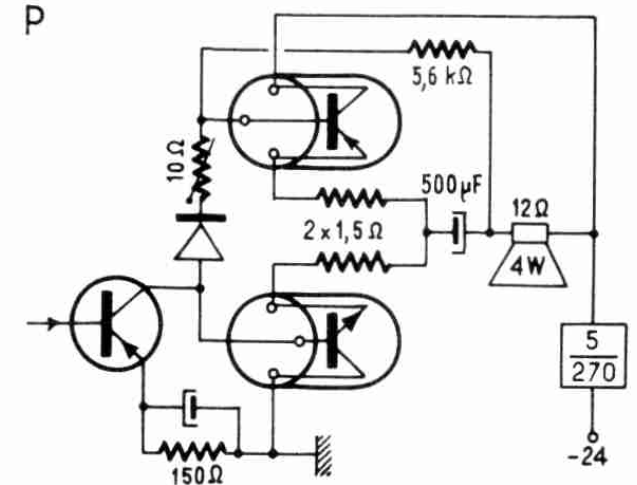
AC 180
AC 181
P

p-n-p $\beta = 50 \dots 250$
n-p-n



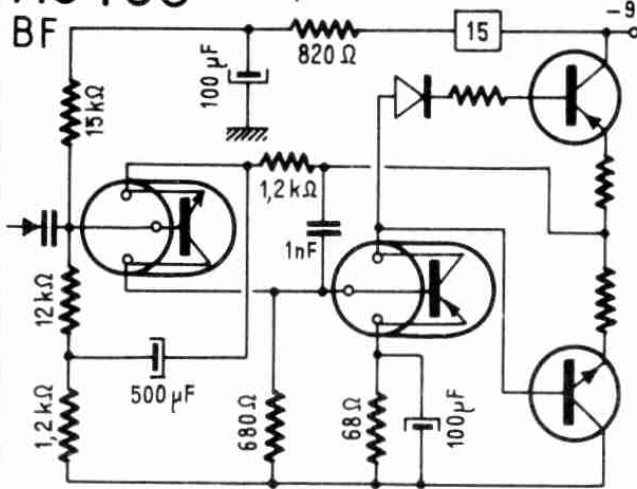
AC 180 k
AC 181 k
P

p-n-p $\beta = 50 \dots 250$
n-p-n



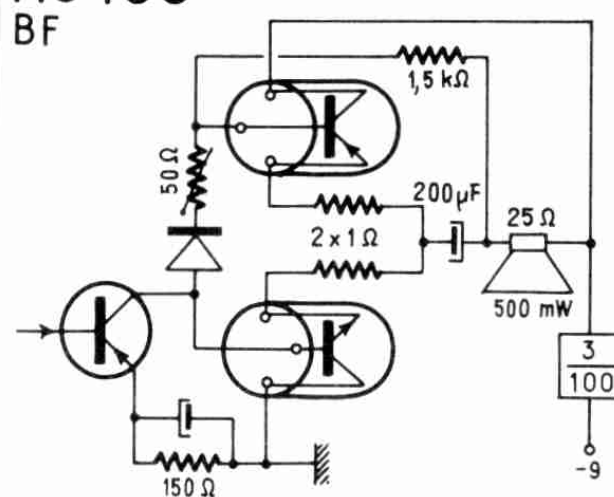
AC 182
AC 183

p-n-p $\beta = 50 \dots 250$
n-p-n



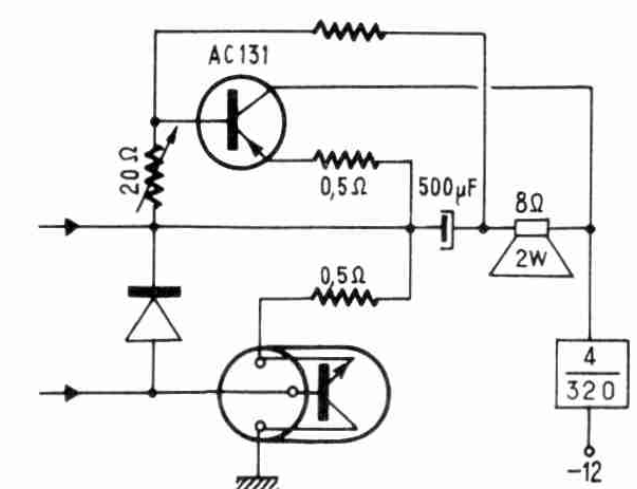
AC 184
AC 185
BF

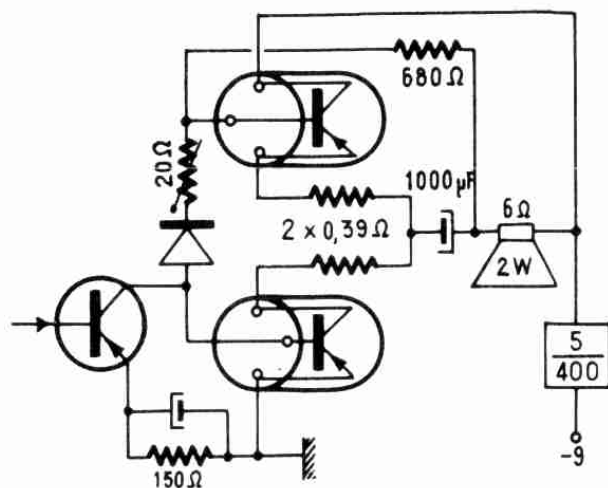
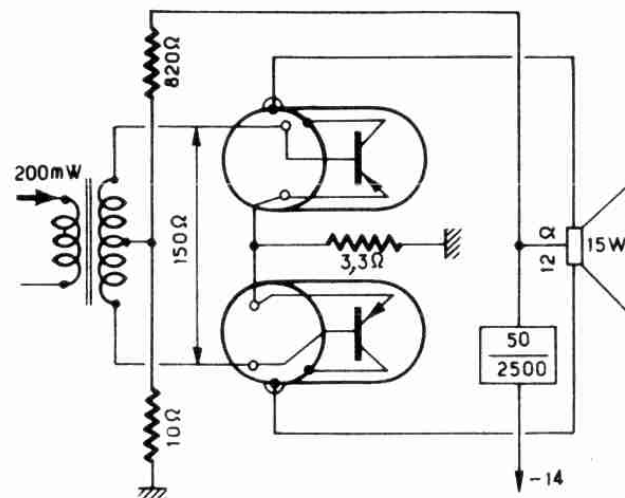
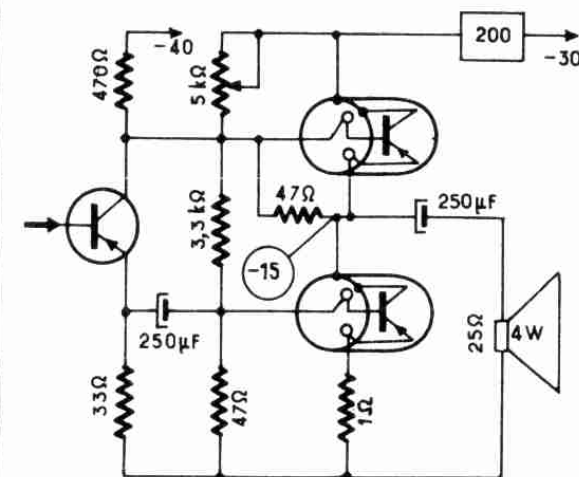
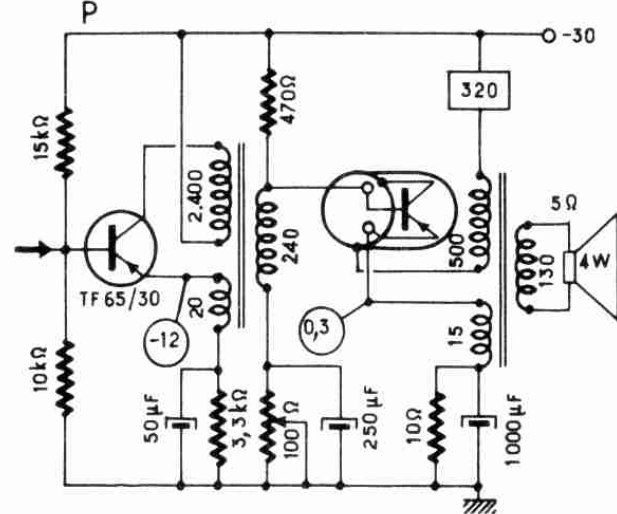
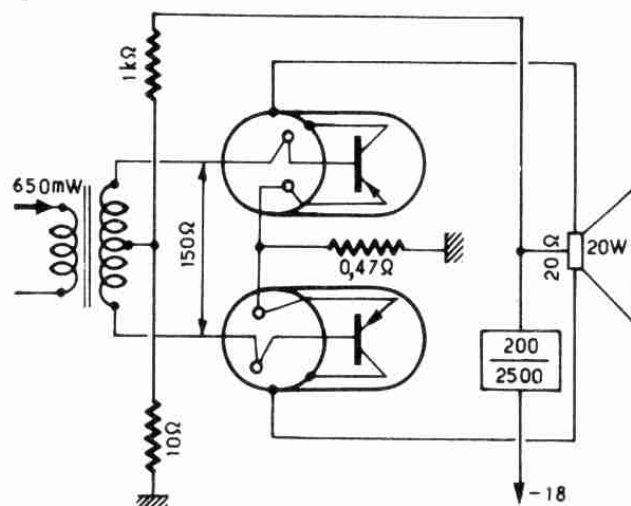
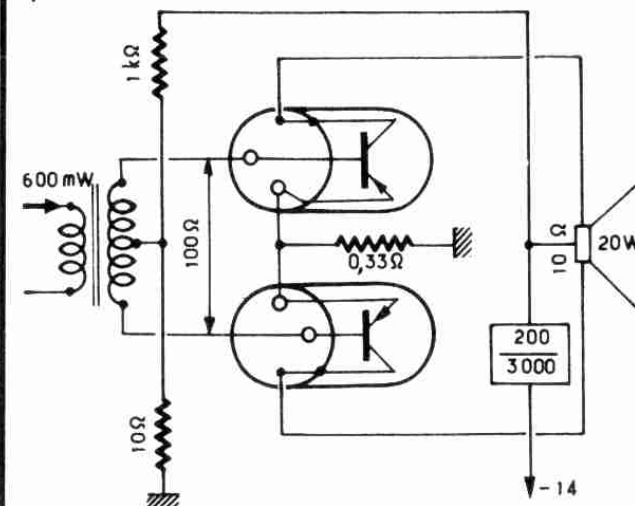
p-n-p $\beta = 50 \dots 250$
n-p-n



AC 186
P

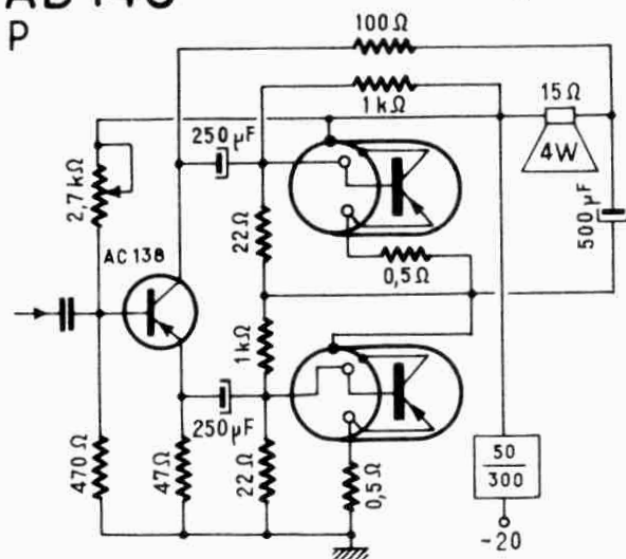
n-p-n $\beta = 120 (>60)$



AC 187
AC 188n-p-n
p-n-p $\beta > 100$ AD 130
P $\beta = 20 \dots 100$
GP = 16 ... 19 dBAD 131
P $\beta = 20 \dots 40$ (III)
30 ... 60 (IV)
50 ... 100 (V)AD 132
P $\beta = 15 \dots 60$ AD 133
P $\beta = 20 \dots 60$
GP = 15 dBAD 136
P $\beta = 20 \dots 100$
GP > 16 dB

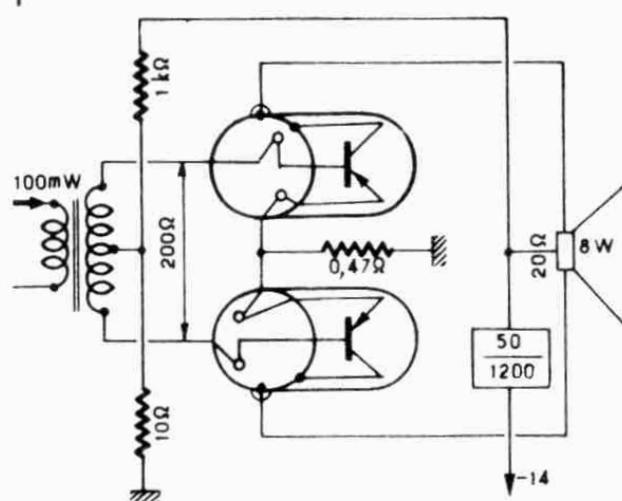
AD 145

P

 $\beta > 30$ 

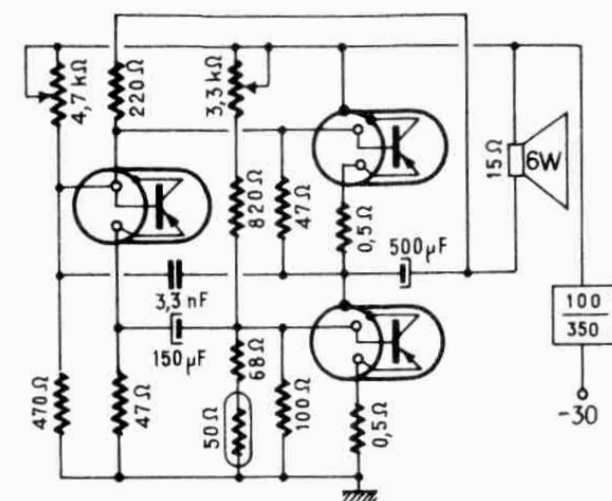
AD 148

P

 $\beta = 30 \dots 100$
GP = 19 dB

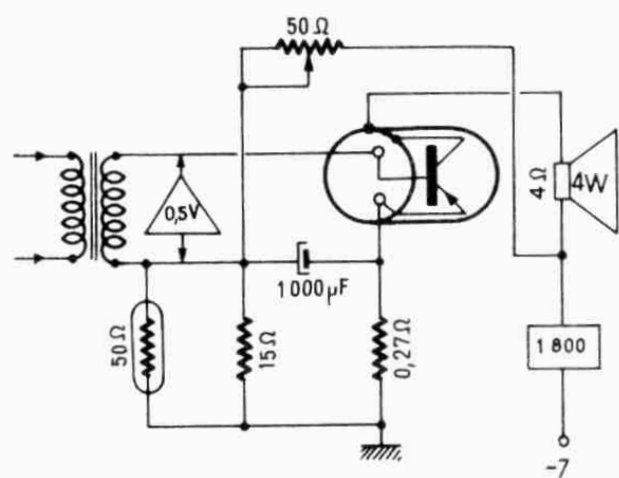
AD 148

P

 $\beta = 30 \dots 100$ 

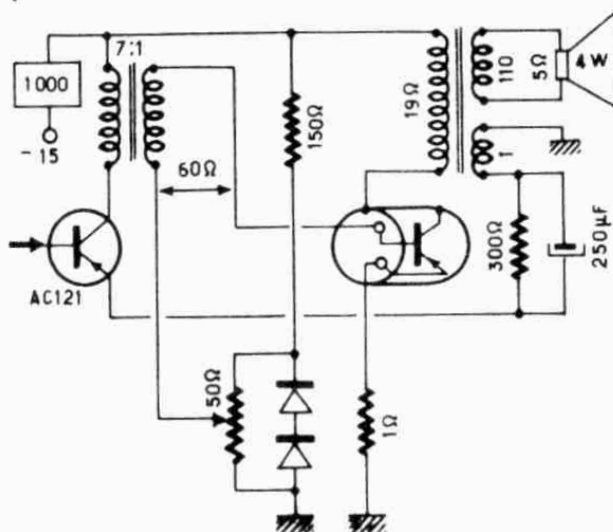
AD 149

P

 $\beta = 30 \dots 100$
GP = 15 ... 18 dB

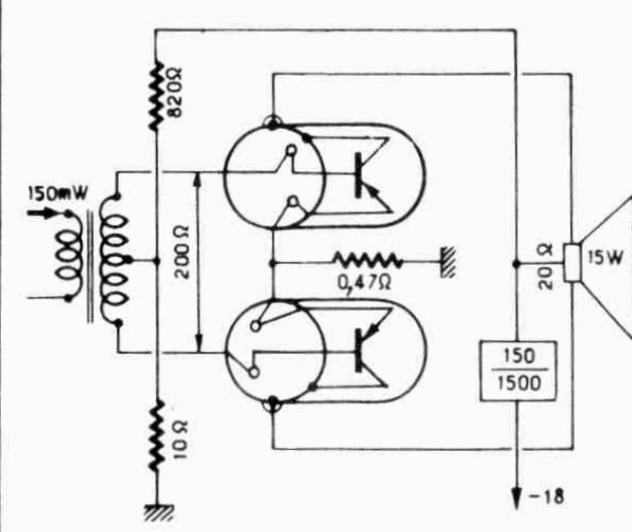
AD 149

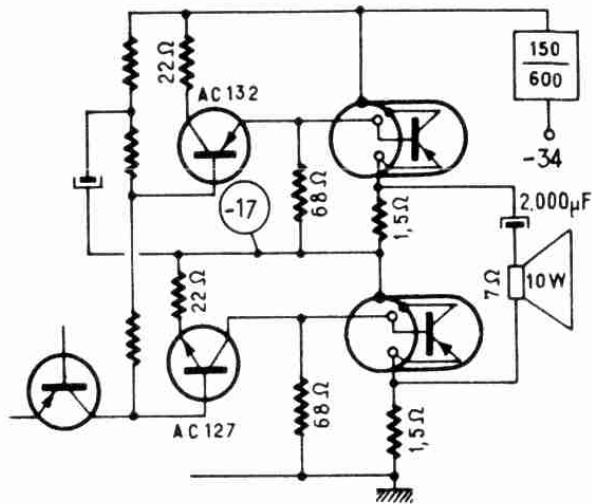
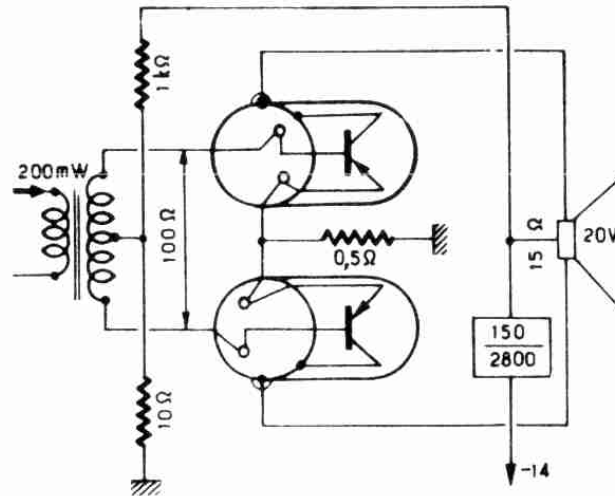
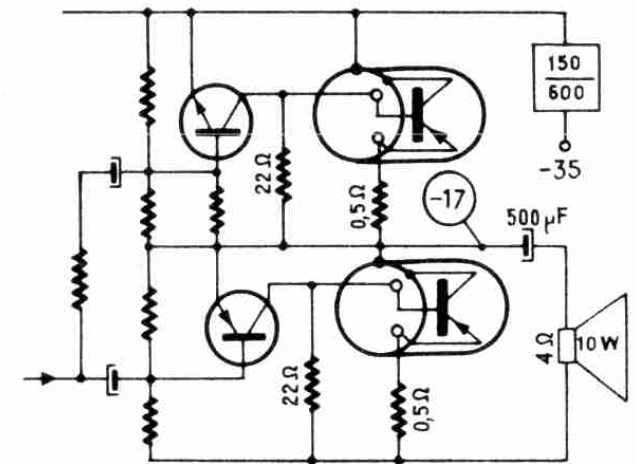
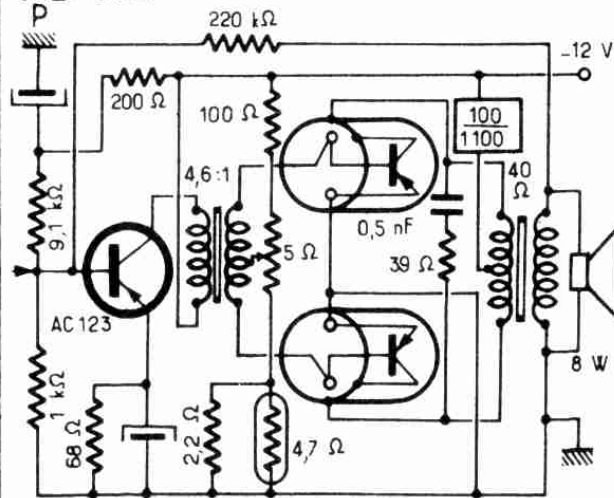
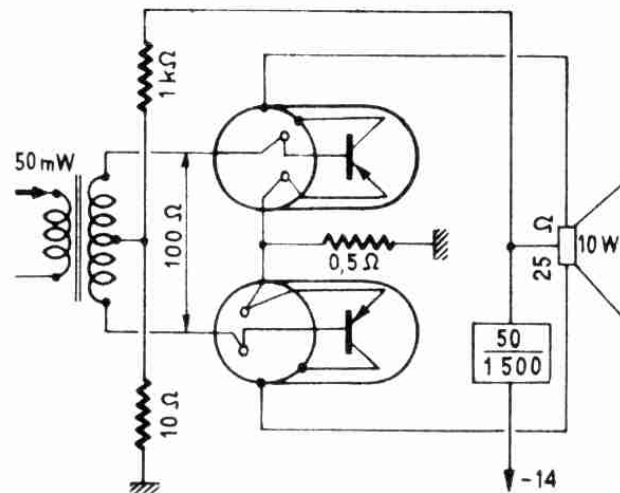
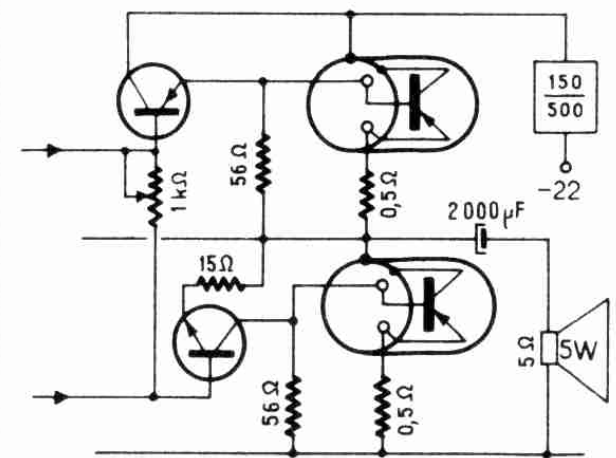
P

 $\beta = 30 \dots 100$
GP = 20 dB

AD 149

P

 $\beta = 30 \dots 100$
GP = 20 dB

AD 149
P $\beta = 30 \dots 100$ AD 150
P $\beta = 30 \dots 100$
GP = 20 dBAD 150
P $\beta = 30 \dots 100$ AD 152
P $\beta = 50 \dots 150$ AD 153
P $\beta = 50$
GP = 23 dBAD 155
P $\beta = 115 (> 40)$ 

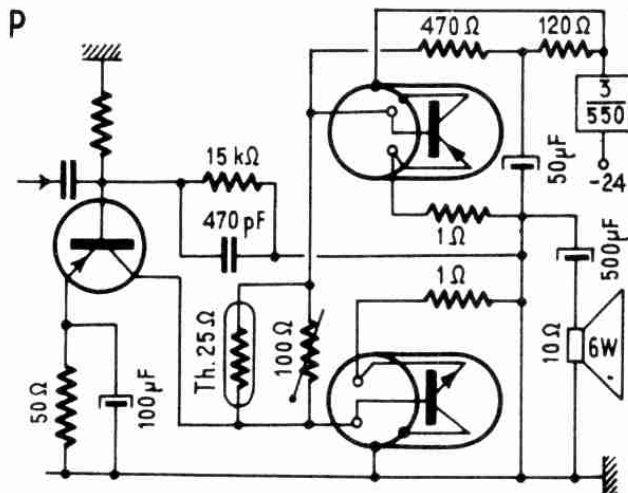
AD 161

22

ADZ11

AD 161
AD 162

n-p-n
p-n-p

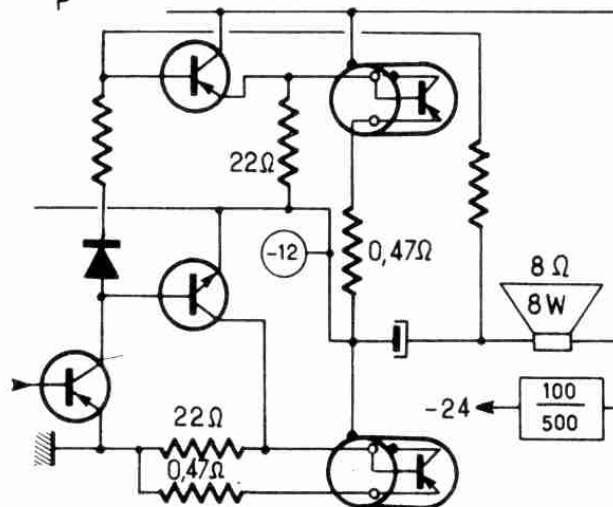
$$\beta = 50 \dots 250$$


AD 162
(AD164)
P

p-n-p

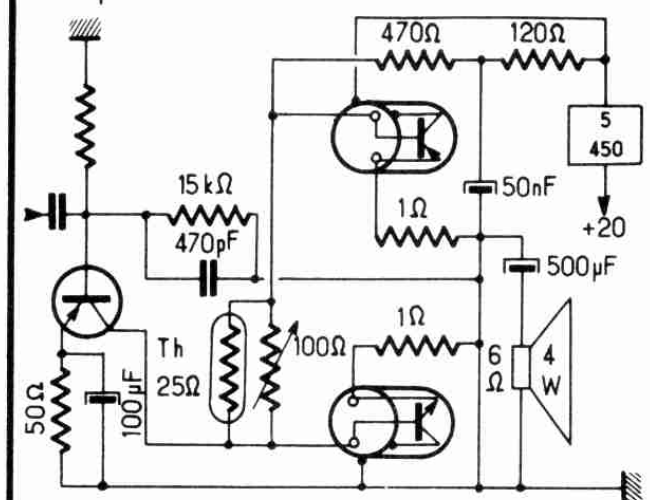
$$\beta = 50 \dots 250$$

(>60)



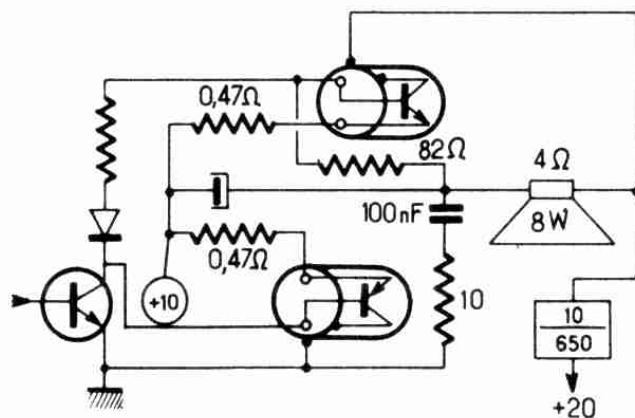
AD 164
AD 165
P

p-n-p
n-p-n

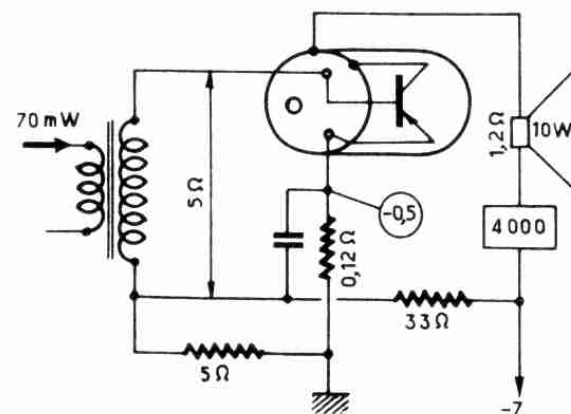
 $\beta = 185 (> 60)$ 

AD 262
BD 162
P

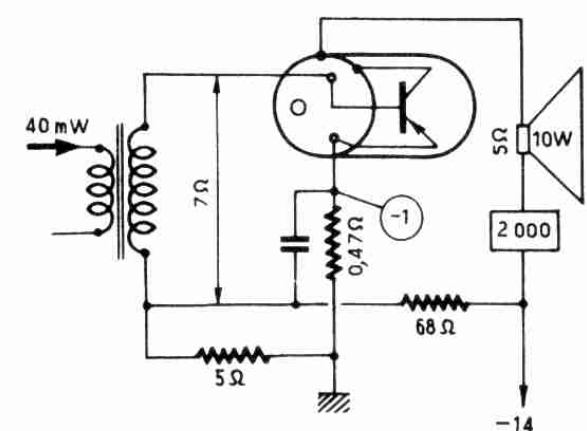
p-n-p	Ge
n-p-n	Si

 $\beta > 30$ 

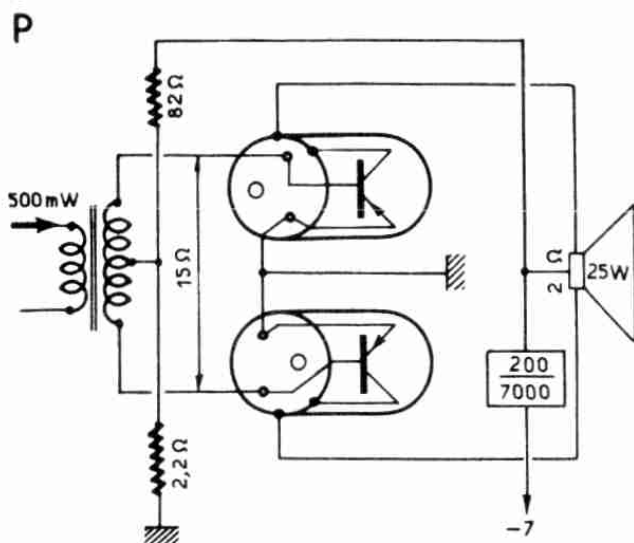
ADZ 11
P

$$\beta = 35$$
$$GP = 22 \text{ dB}$$


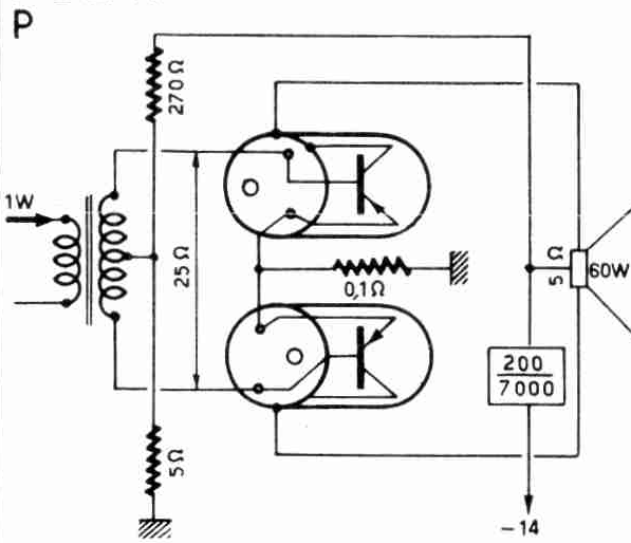
ADZ 11
P

$$\beta = 35$$
$$GP = 24 \text{ dB}$$


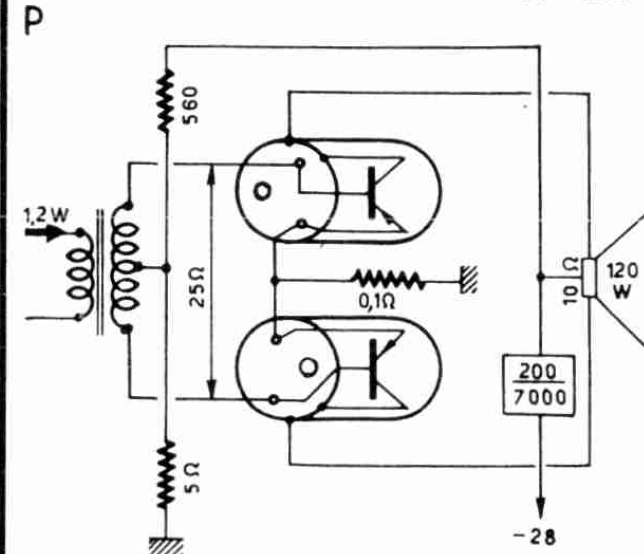
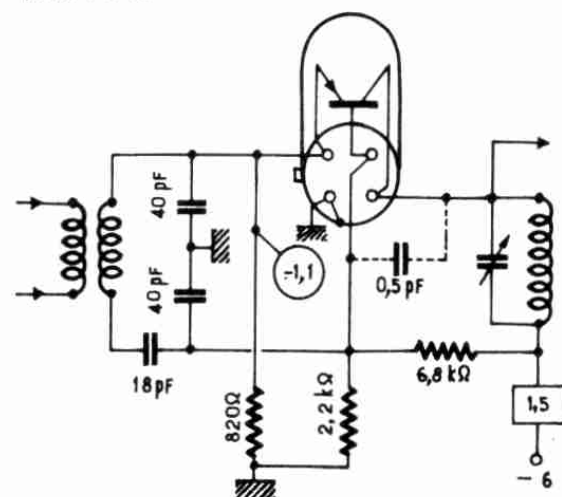
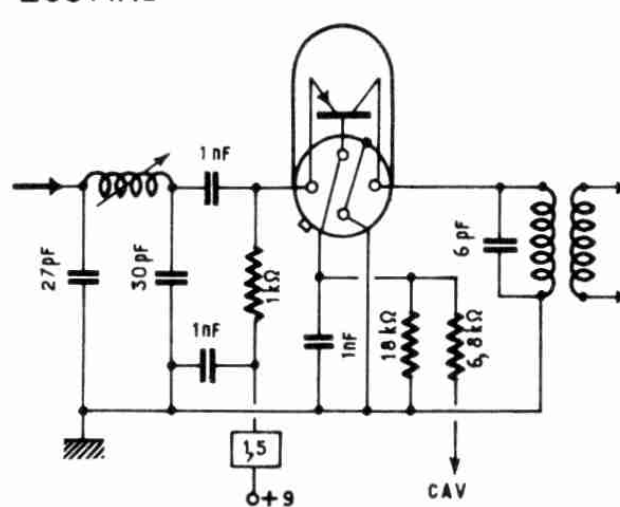
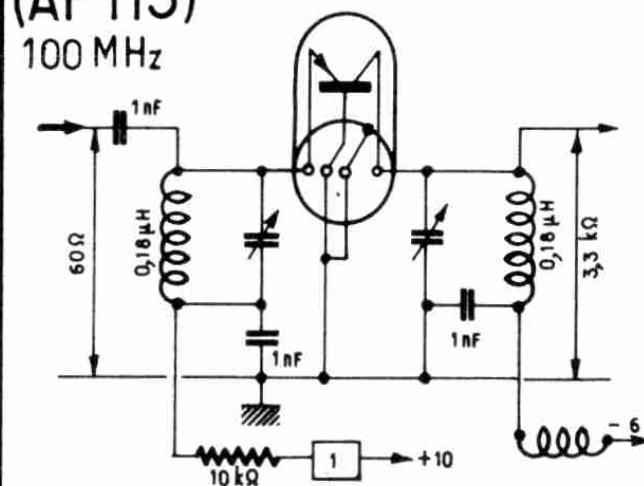
ADZ11

 $\beta = 35$
GP = 17 dB

ADZ11

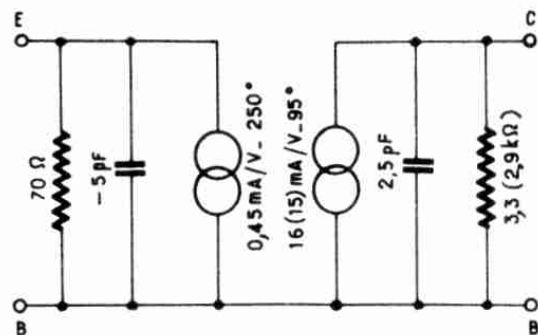
 $\beta = 35$
GP = 18 dB

ADZ12

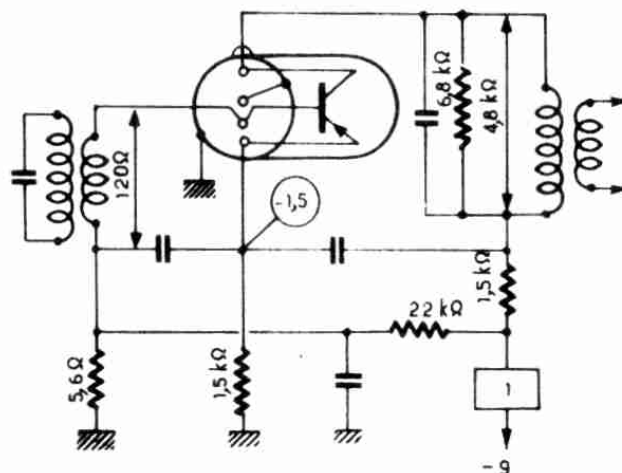
 $\beta > 15$
GP = 20 dBAF106
100 MHz $\beta = 50 \dots 120$
 $F_b = 5,5$ dBAF106 (AF109)
200 MHz $\beta = 50 \dots 120$
 $F_b = 5,5$ dB
GP = 14 (13) dBAF114
(AF115)
100 MHz $\beta = 150$
 $F_b = 8$ dB (100 MHz)
GP = 14 (13) dB

AF 114
(AF 115)

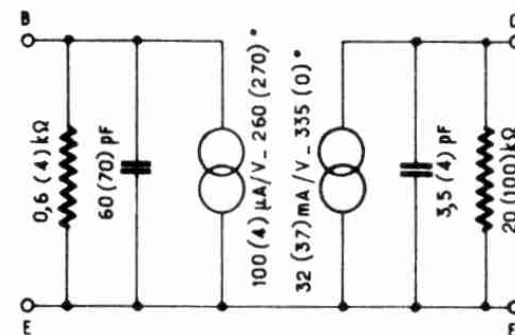
$V_c = 6V$
 $I_c = 1mA$
 $f = 100MHz$

AF 116
10,7 MHz

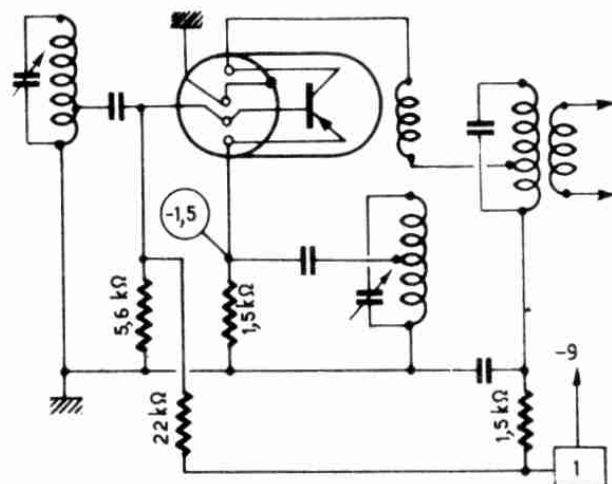
$\beta = 150$
 $F_b = 3dB10(MHz)$
 $GP = 25dB$

AF 116
10,7 (0,45)MHz

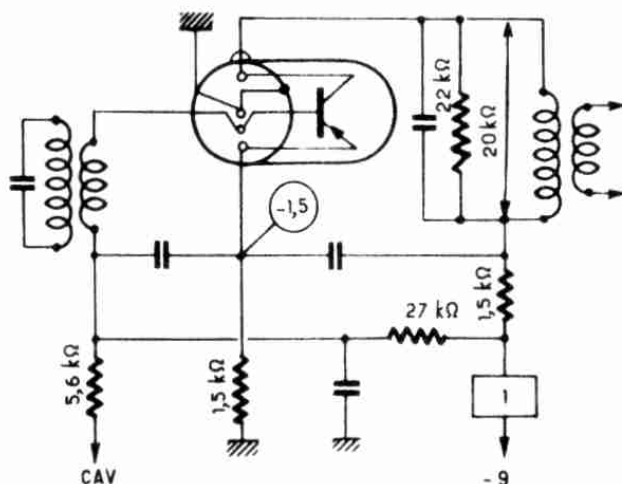
$V_c = 6V$
 $I_c = 1mA$

AF 117
Conv. < 2MHz

$\beta = 150$
 $F_b = 4dB (Conv.)$

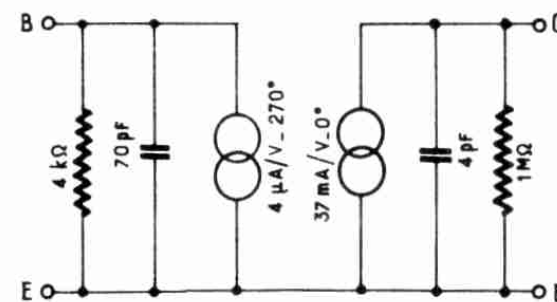
AF 117
MF 450 kHz

$\beta = 150$
 $F_b = 1.5dB (1MHz)$
 $GP = 42dB$



AF 117

$V_c = 6V$
 $I_c = 1mA$
 $f = 450kHz$

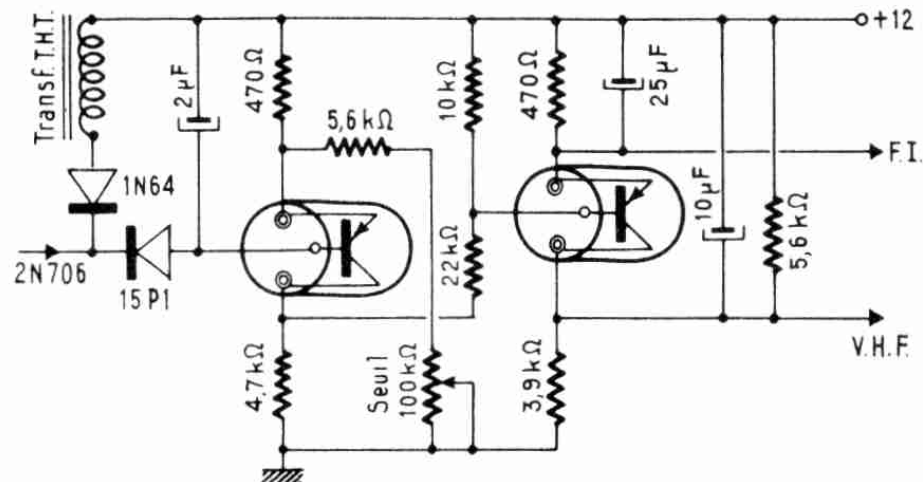


2N 396

p-n-p Ge

 $\beta = 30 \dots 150$

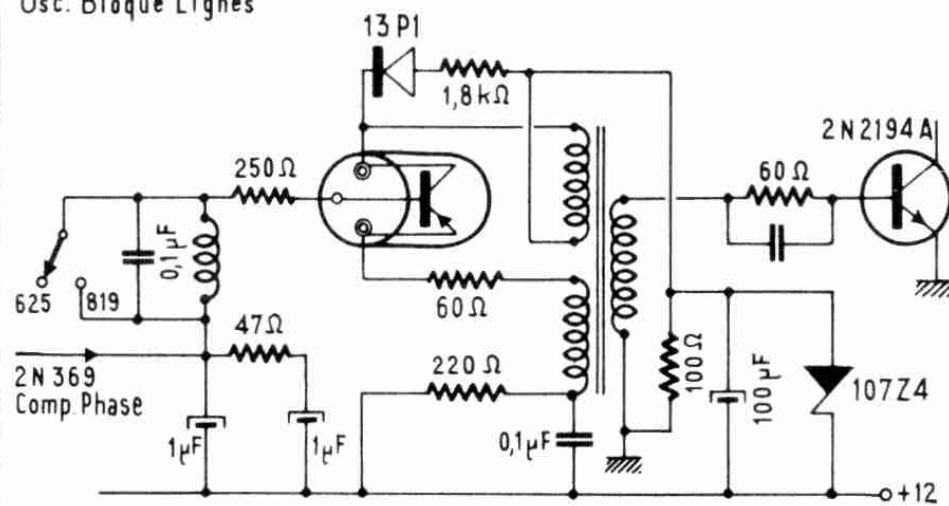
C.A.G.

**2N 397**

p-n-p Ge

 $\beta = 40 \dots 150$

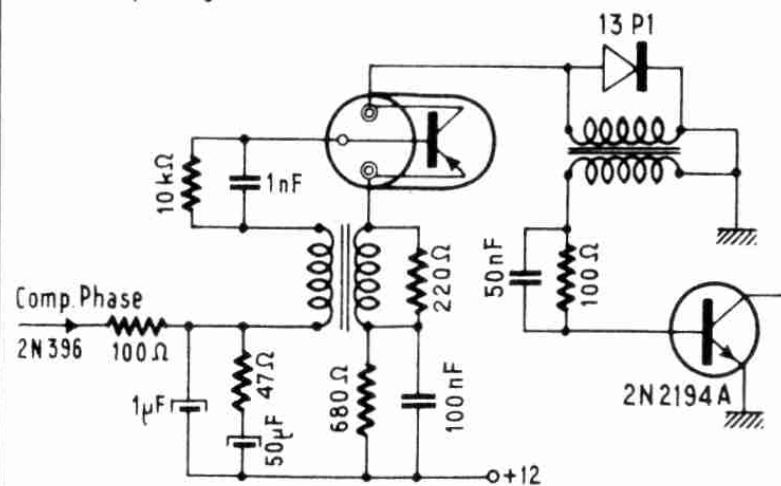
Osc. Bloqué Lignes

**2N 397**

p-n-p Ge

 $\beta = 40 \dots 150$

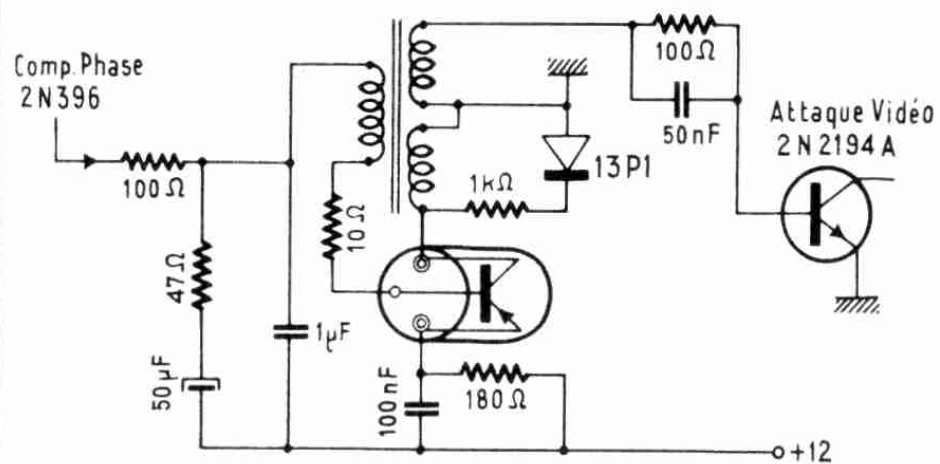
Osc. Bloqué Lignes

**2N 397**

p-n-p Ge

 $\beta = 40 \dots 150$

Osc. Bloqué Lignes

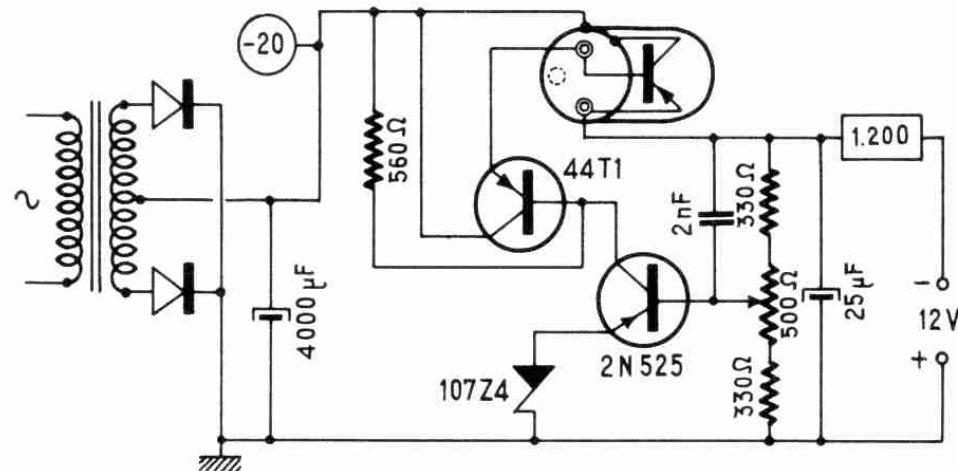


2N441

p-n-p Ge Alliage

 $\beta = 20...40$
à $I_C = 5A$

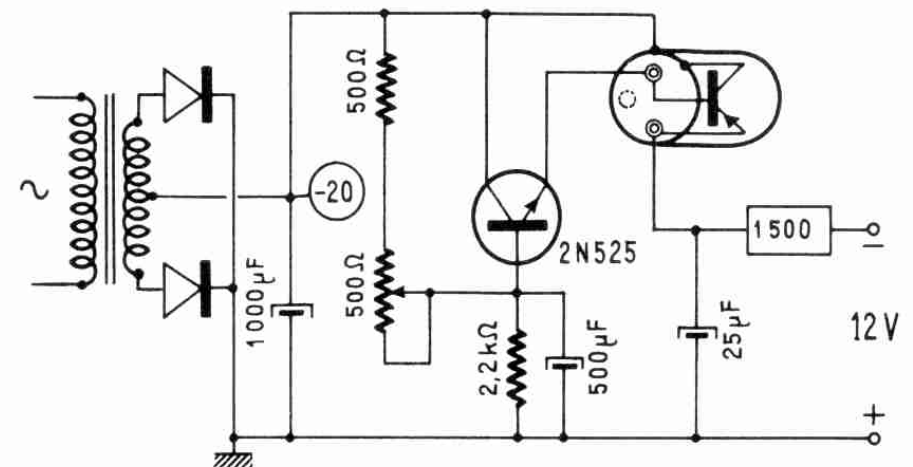
Alim. Stabilisée

**2N441**

p-n-p Ge Alliage

 $\beta = 20...40$
à $I_C = 5A$

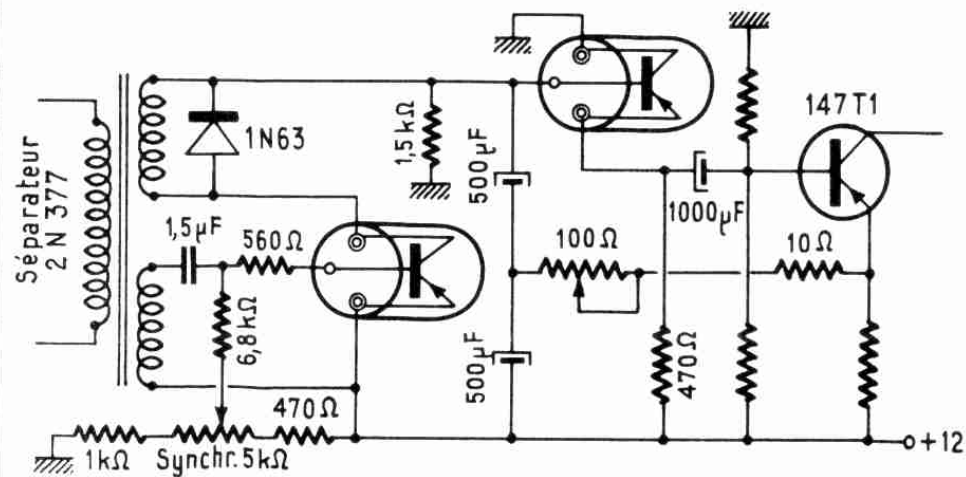
Alim. Filtrée

**2N525**

p-n-p Ge Alliage

 $\beta = 30...64$

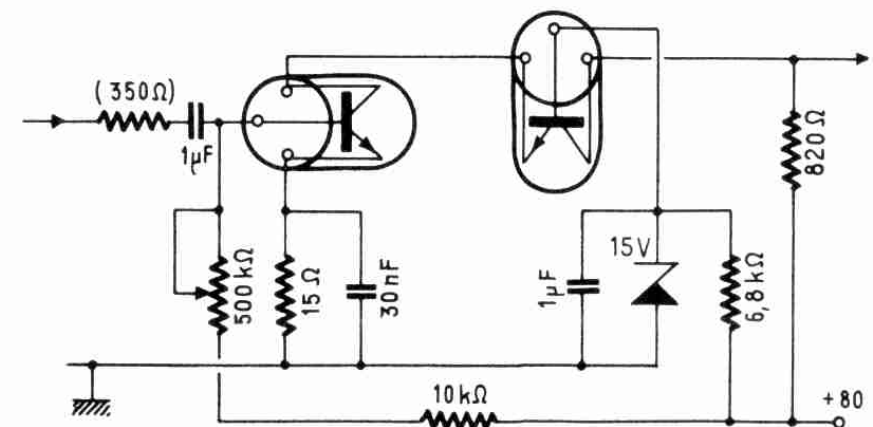
Osc. Bloqué Im. 819L

**2N697**

n-n-n Si Planar

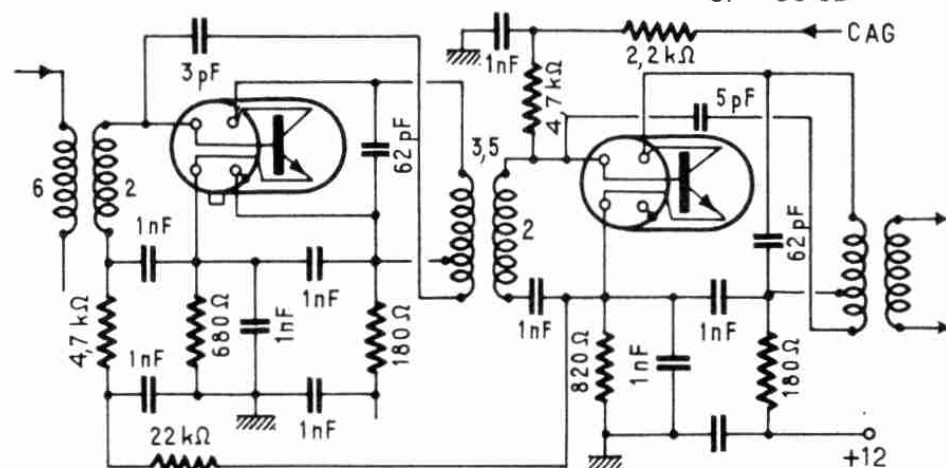
 $\beta = 40...120$
 $GV = 50$
 $t_r = 70 ns$

Vidéo



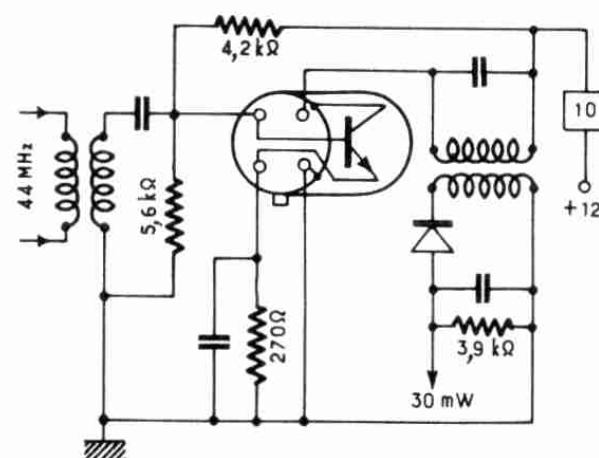
2N918

n-p-n Si Pl. Epit. $\beta = 50 (>20)$
(9 à 100 MHz)
 $F_b = 3 \text{ dB (60 MHz)}$
 $GP = 30 \text{ dB}$

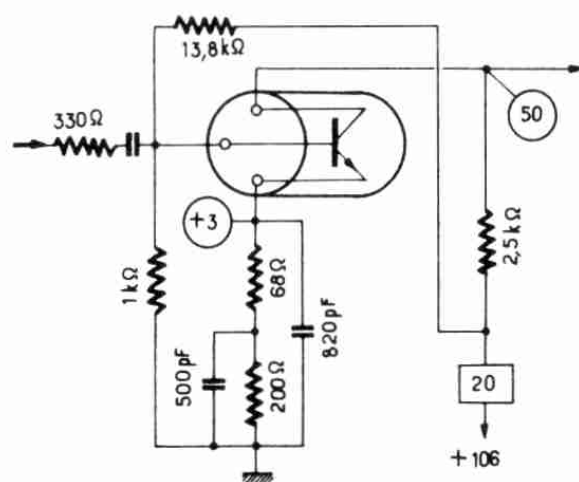
FI 45 MHz $\Delta F = 4 \text{ MHz}$ **2N918**

n-p-n Si Pl. Epit. $\beta < 20$
 $GP = 30 \text{ dB}$

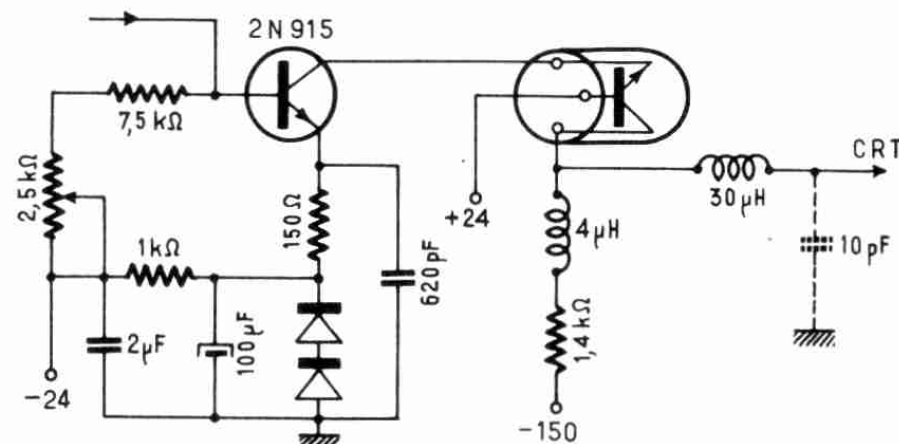
FI Image (III)

**2N1335, 36, 37**

n-p-n Si $\beta = 15$
 $GV = 18 \text{ dB}$

Vidéo $< 6.5 \text{ MHz}$ **2N1974**n-p-n Si Planar $\beta = 70$

Sortie Vidéo



2 N 699

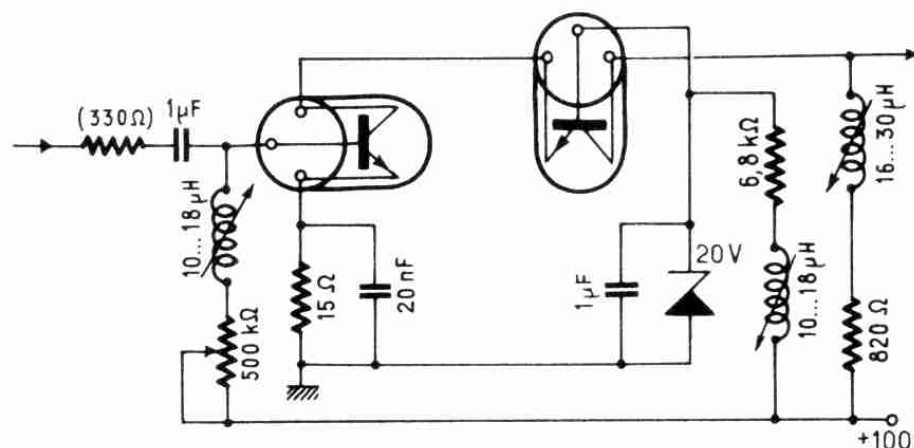
n-p-n Si Planar

 $\beta = 40 \dots 120$

GV = 50

 $t_r = 60 \text{ ns}$

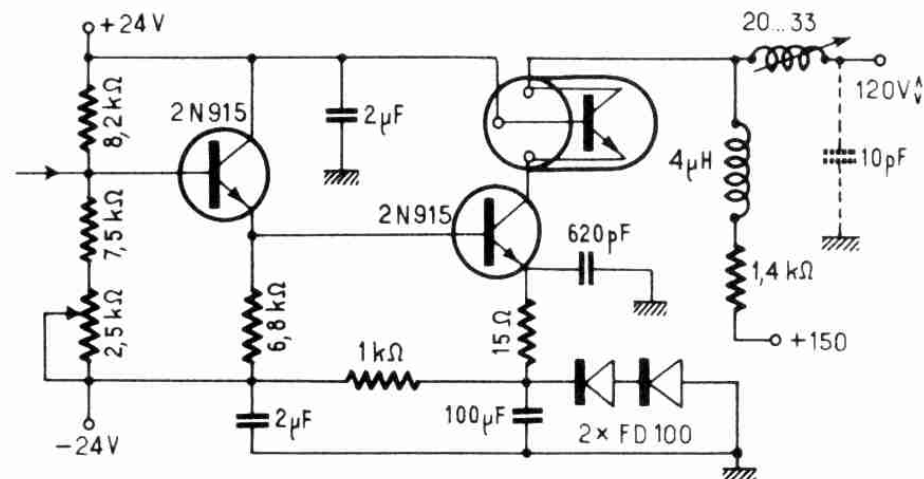
Vidéo

**2 N 699B**

n-p-n Si Planar

 $\beta = 40 \dots 120$ $t_r = 40 \text{ ns}$

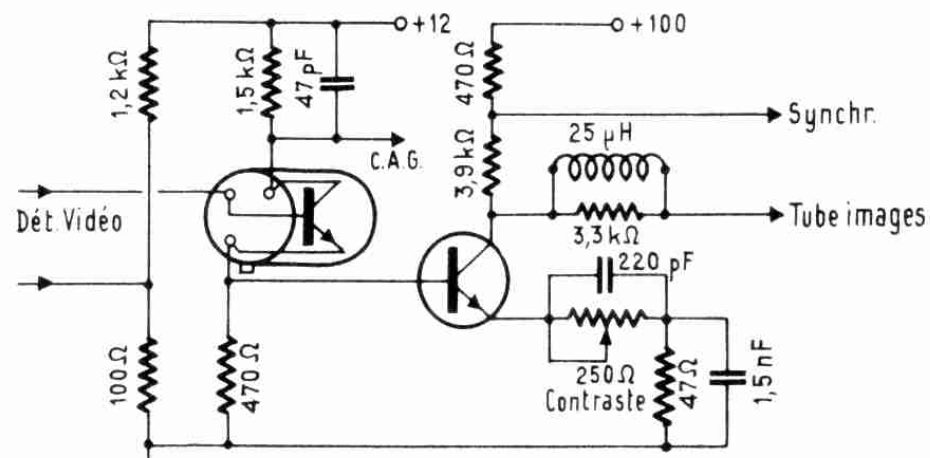
Vidéo

**2 N 706**

n-p-n Si Planar

 $\beta > 20$

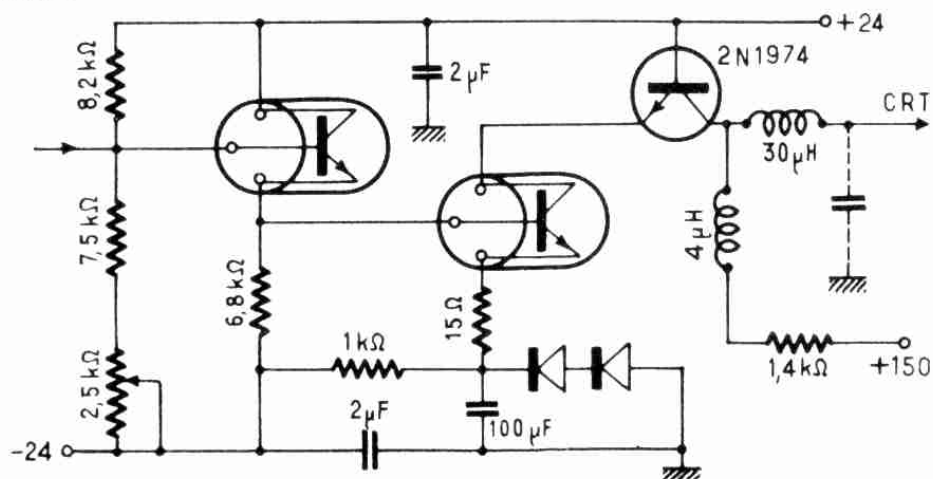
Préamplif. Vidéo 819 L

**2 N 915**

n-p-n Si Planar

 $\beta = 50 \dots 200$

Vidéo

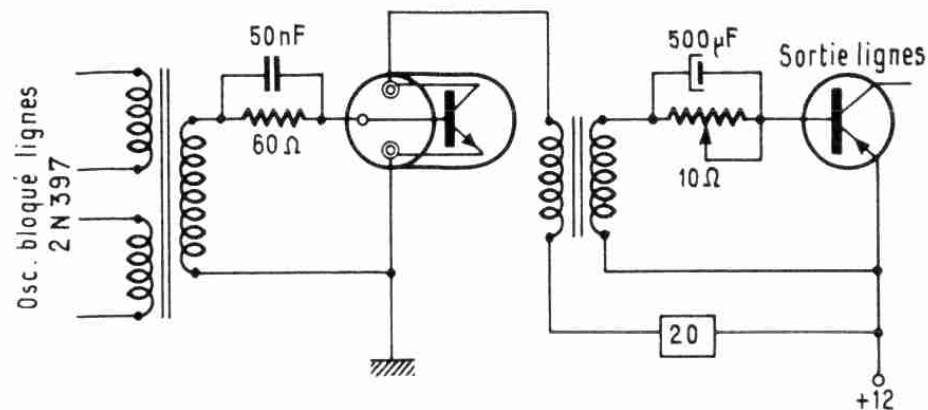


2N2194 A

n-p-n Si
Planar épitaxial

$\beta > 15$

Attaque Dév. Hor. 819 L

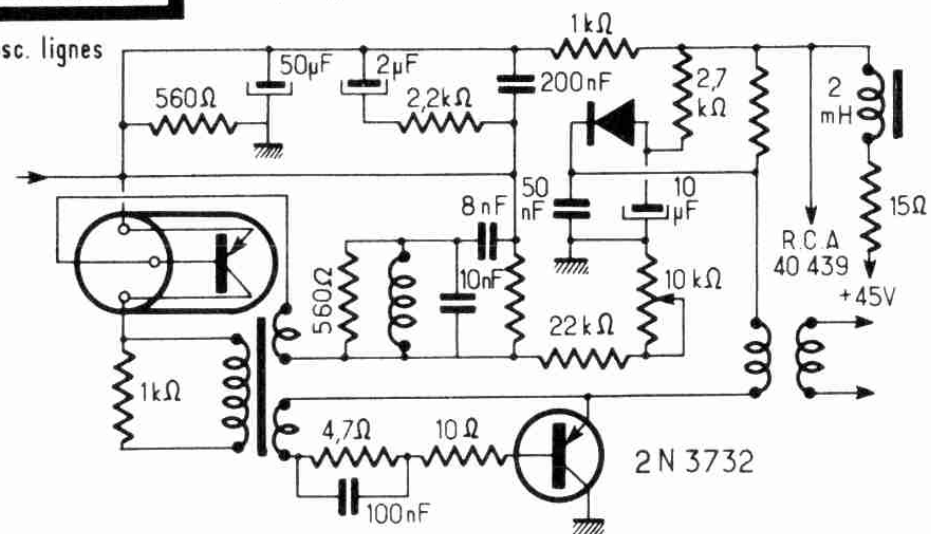


2N2614

p-n-p Ge

$\beta = 160$ $f_t = 10 \text{ MHz}$

Osc. lignes

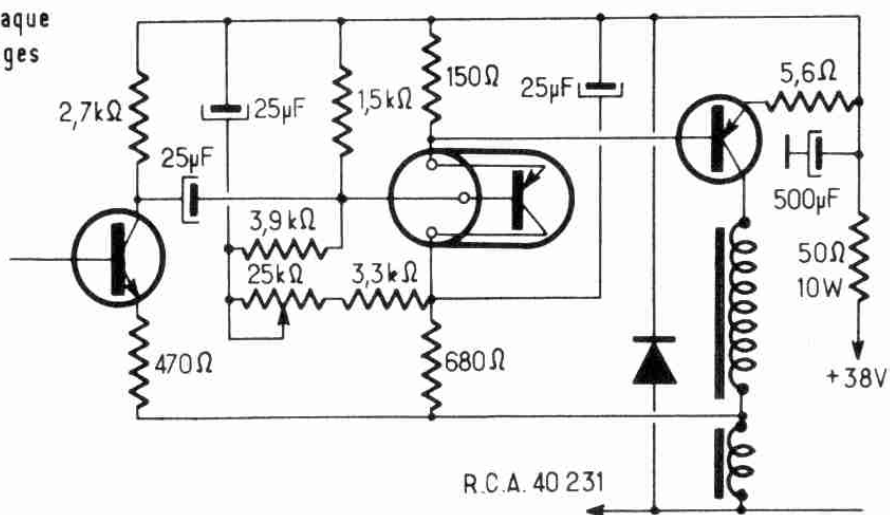


2N2614

p-n-p Ge All.

$\beta = 160$

Attaque images

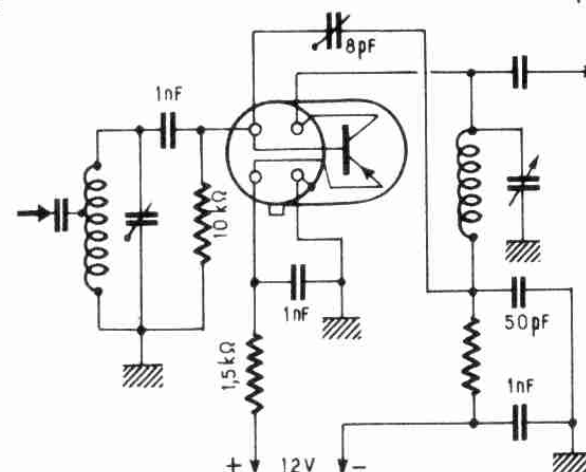


2N2708

p-n-p Ge

$\beta = 30 \dots 180$
 $GP = 15 \dots 22 \text{ dB}$
 $F_b < 8,5 \text{ dB}$

200 MHz

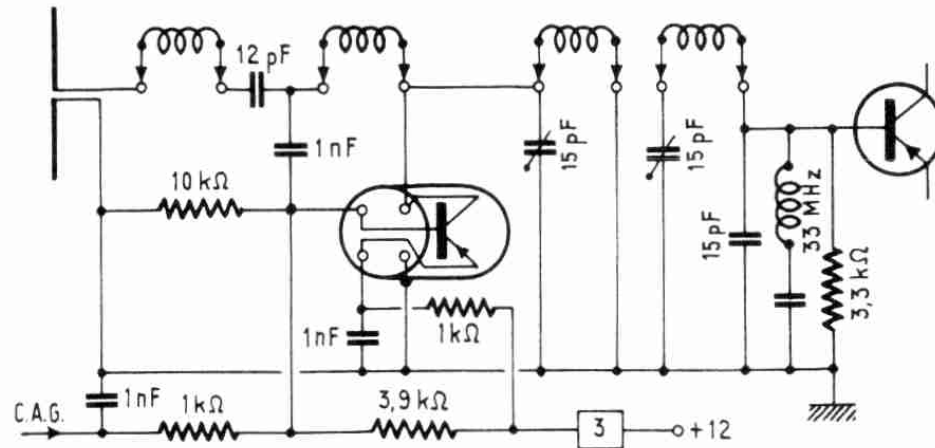


2N3783

p-n-p Ge

$F_b < 65 \text{ dB}$ $\beta > 20$
 $f_T > 800 \text{ MHz}$ $GP > 20 \text{ dB}$

Entrée VHF



2N3784

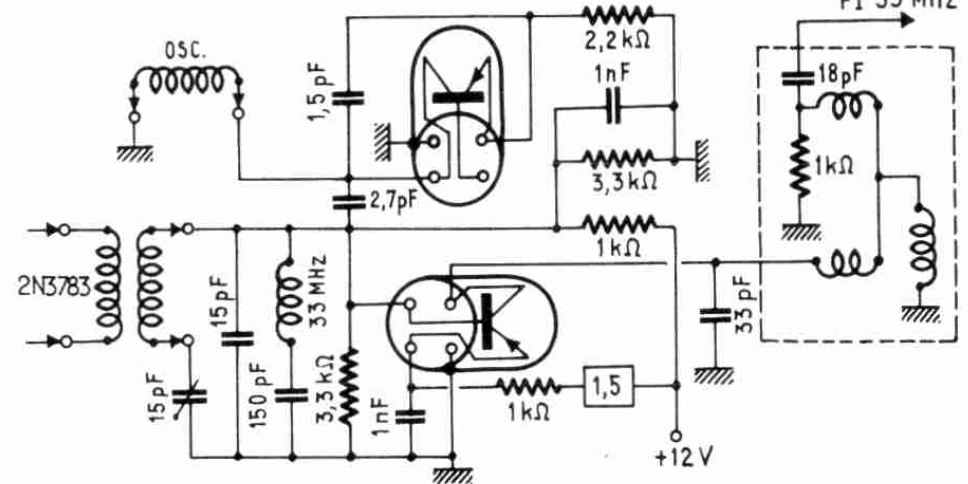
2N3785

p-n-p Ge

$\beta > 20 (> 13)$

Conv.VHF 819 L

Osc.VHF

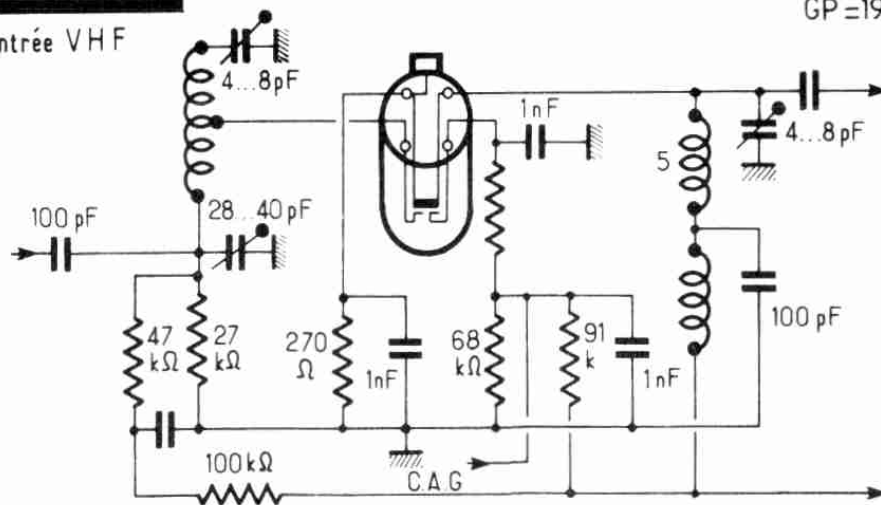


3N140

MOS Canal N

$s = 6 \dots 10 \text{ mA/V}$
 $F_b = 3,5 \text{ dB}$
 $GP = 19 \text{ dB}$

Entrée VHF

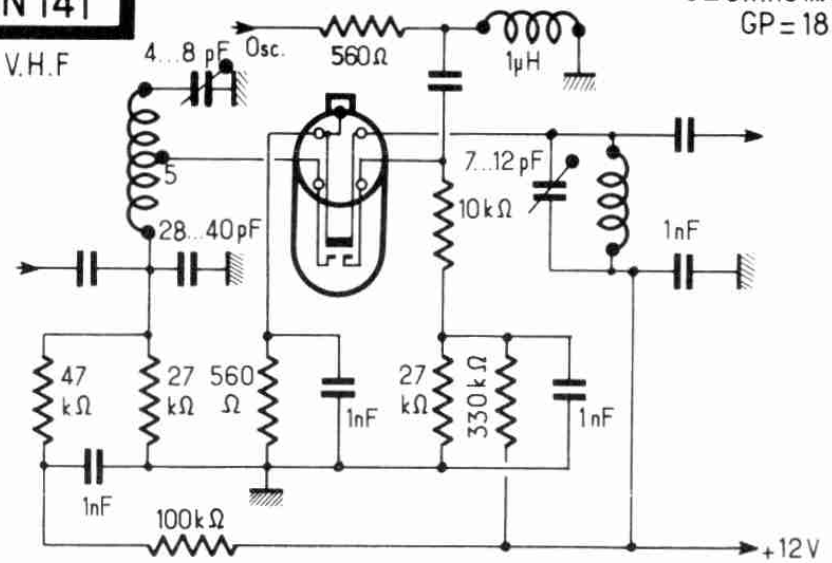


3N141

MOS Canal N

$s = 6 \dots 10 \text{ mA/V}$
 $GP = 18 \text{ dB}$

Conv. V.H.F

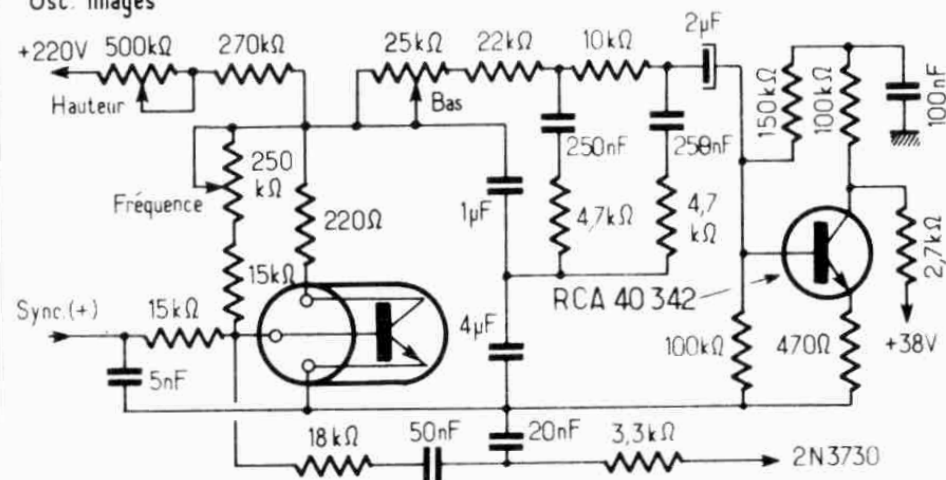


40231 RCA

n-p-n Si Planar

 $\beta = 80$

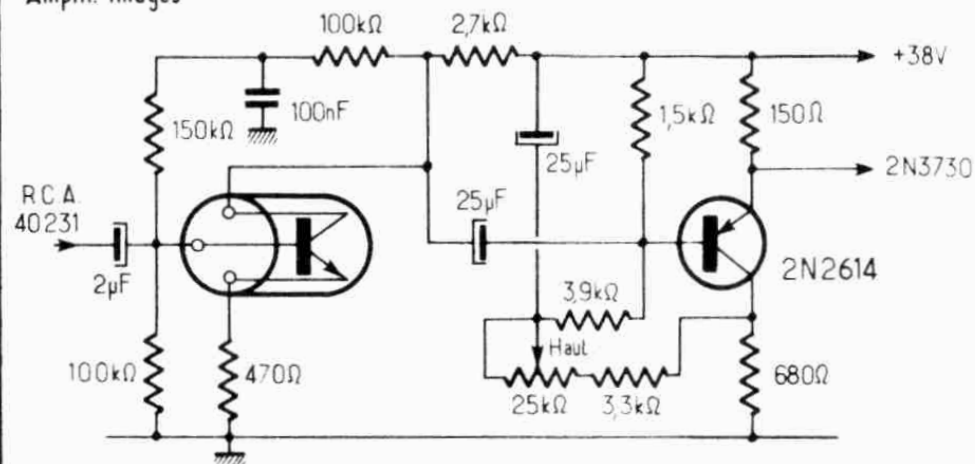
Osc. images

**40232 RCA**

n-p-n Si Planar

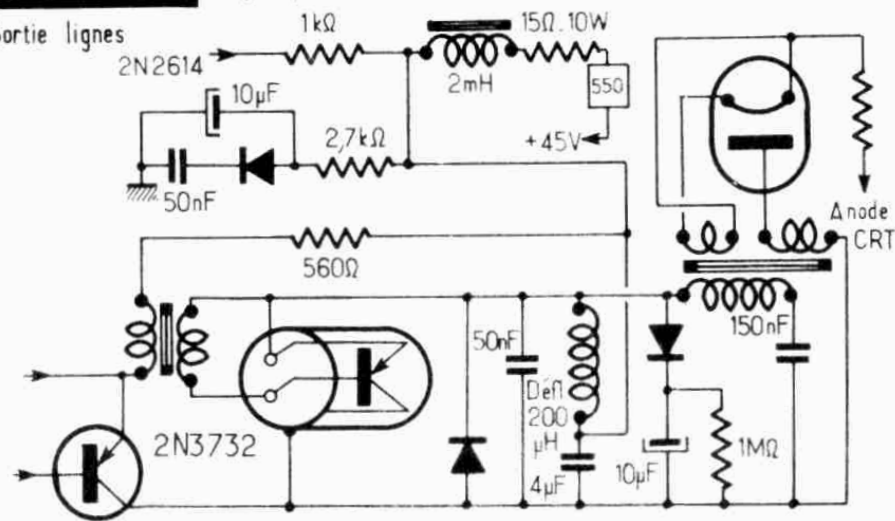
 $\beta = 175$

Amplif. images

**40439 RCA**

p-n-p Ge Diff.

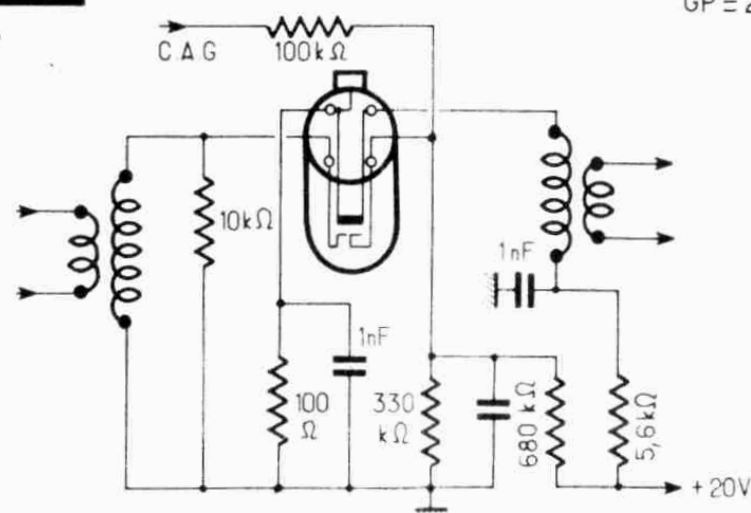
Sortie lignes

**40602 RCA**

MOS Canal N

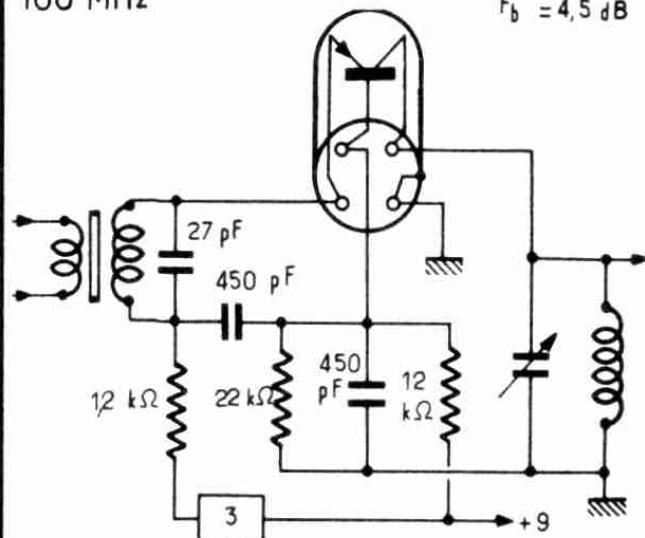
 $s = 10 \text{ mA/V}$
 $GP = 28 \text{ dB}$

F.I. image



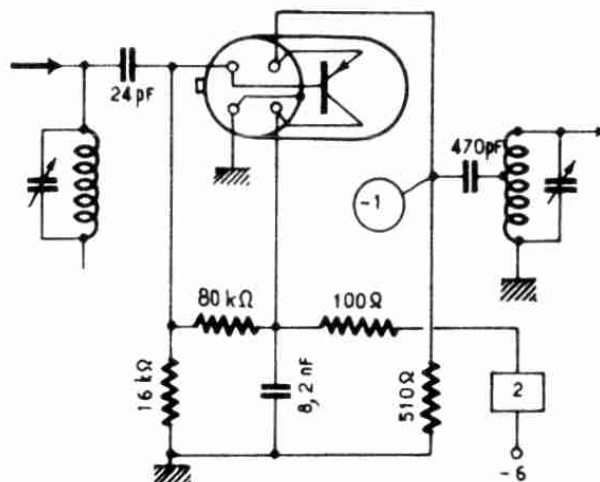
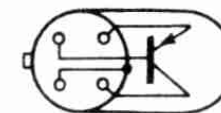
AF 121

100 MHz

 $\beta = 80$
 GP = 19 dB
 $F_b = 4,5$ dB


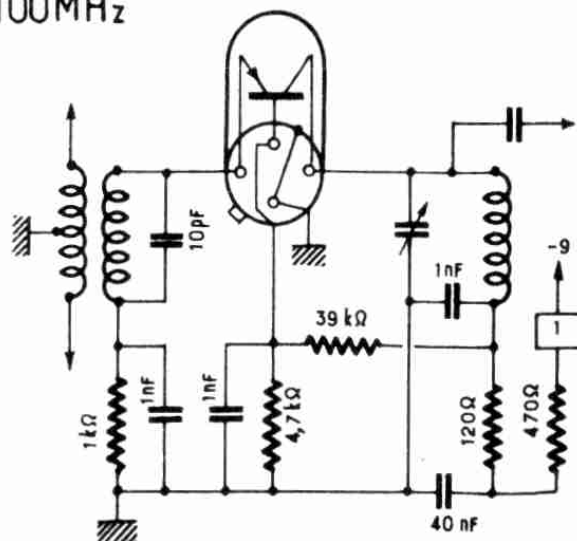
AF124 (= AF 114)

100 MHz

 $\beta = 150$
 $F_b = 8$ dB
 GP = 14 dB

 AF 125 = AF115
 AF 126 = AF116
 AF 127 = AF117


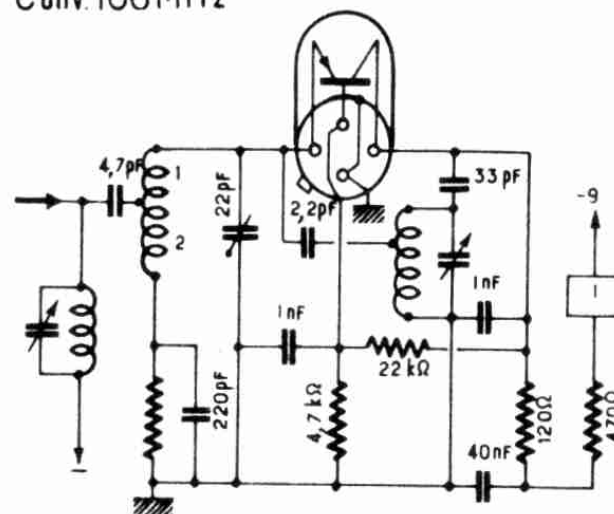
AF134

100 MHz

 $\beta = 110$ 

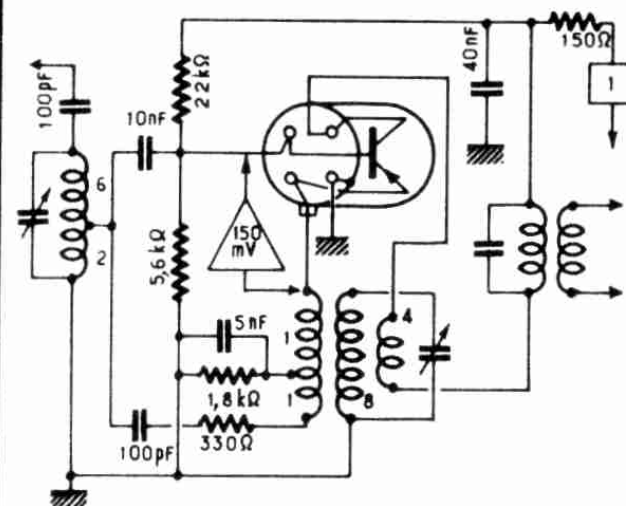
AF135

Conv. 100 MHz

 $\beta = 100$ 

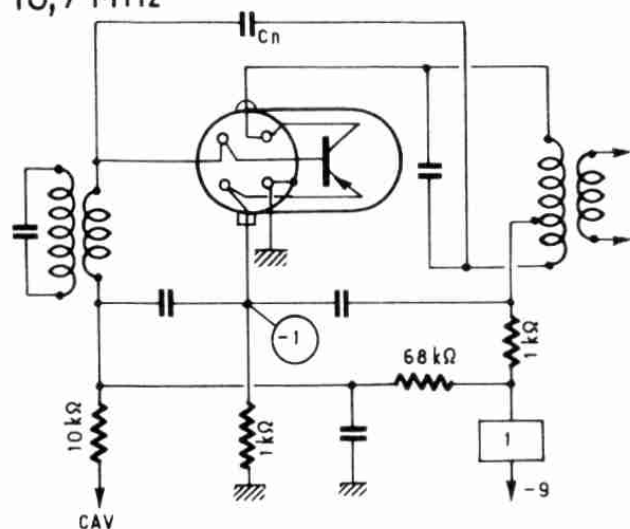
AF136

Conv. < 23 MHz



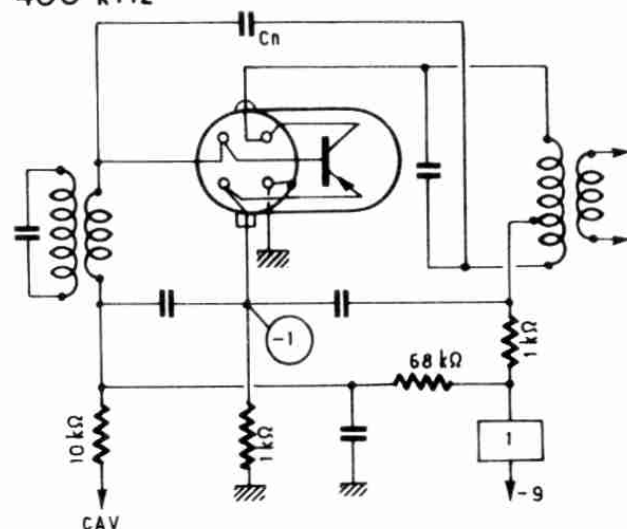
AF 137

10,7 MHz

 $\beta = 60$ 

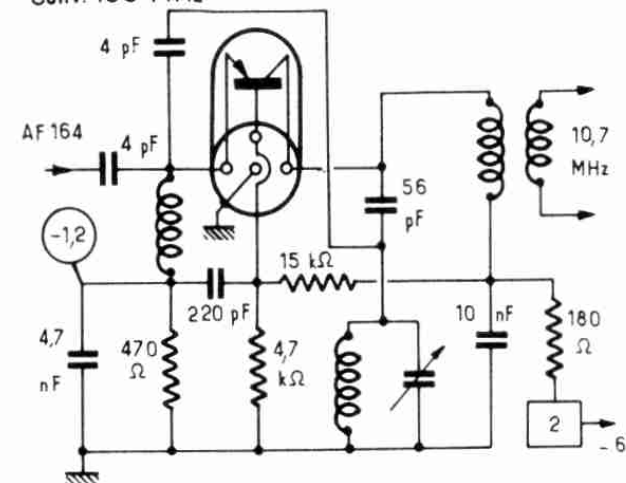
AF 138

455 kHz

 $\beta = 80$ 

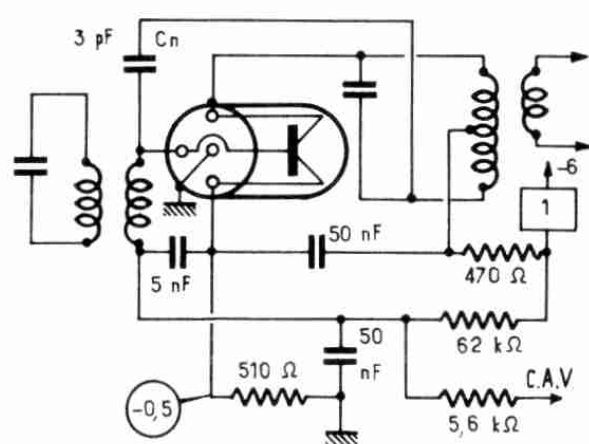
AF 165

Conv. 100 MHz

 $\beta = 85$ 

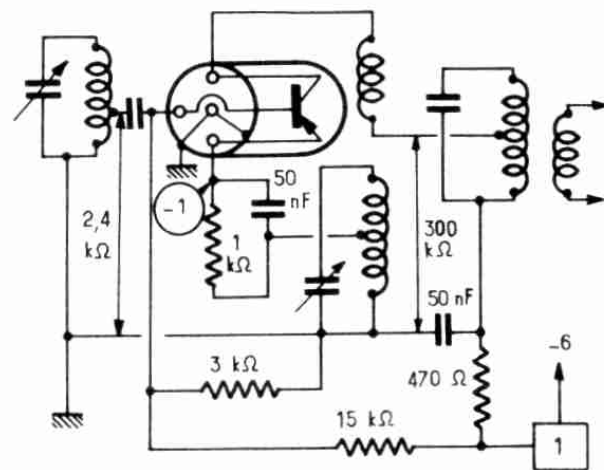
AF 166

10,7 MHz

 $\beta = 85$ 

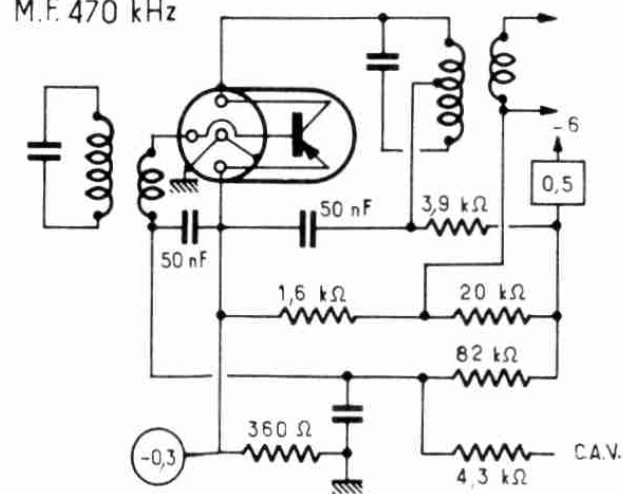
AF 170

Conv. < 2 MHz

 $\beta = 80$
GP = 33 dB

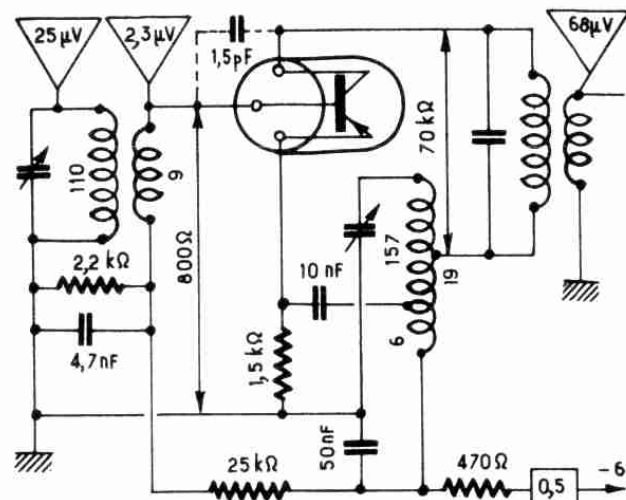
AF 172

M.F. 470 kHz

 $\beta = 70$
GP = 27 dB

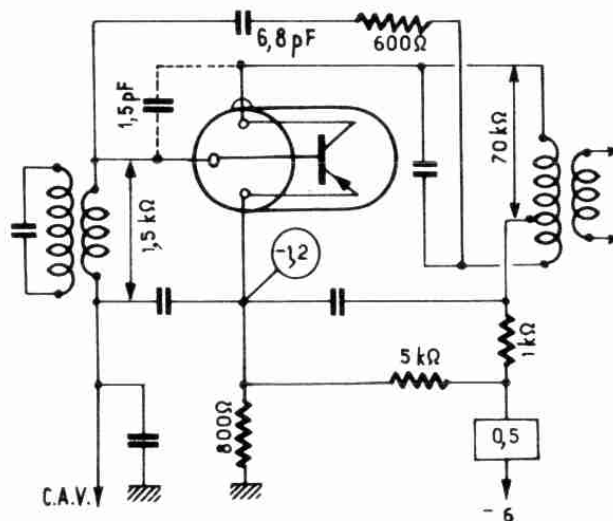
AF 185

Conv. < 2 MHz



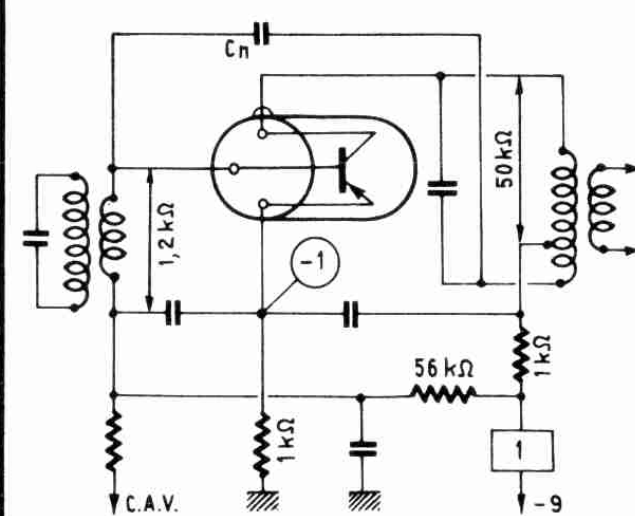
AF 185

MF 470 kHz



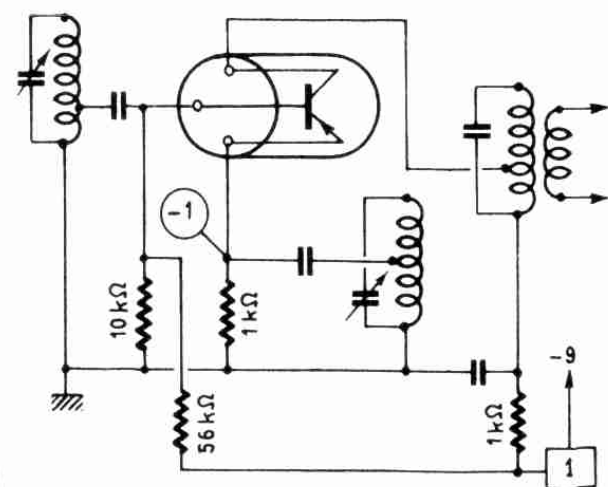
AF 187

MF 470 kHz



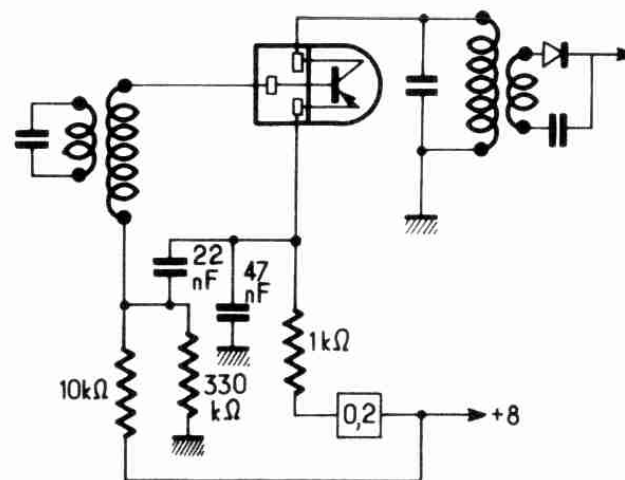
AF 188

Conv. < 2 MHz

 $\beta = 70$ 

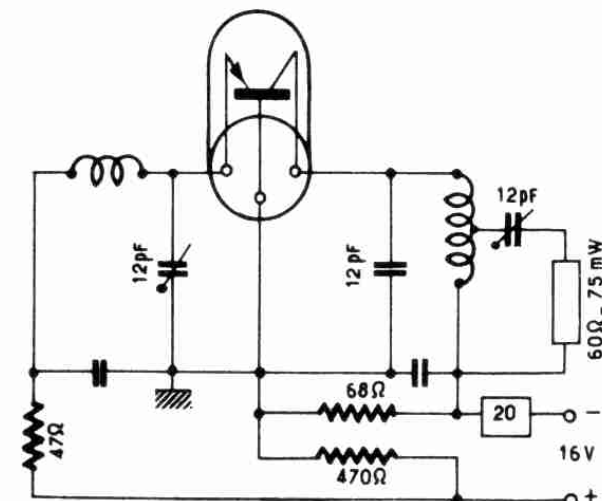
AF 256

455 kHz

 $\beta = 30 (>10)$
 $f_t > 170 \text{ MHz}$ 

AFY 10

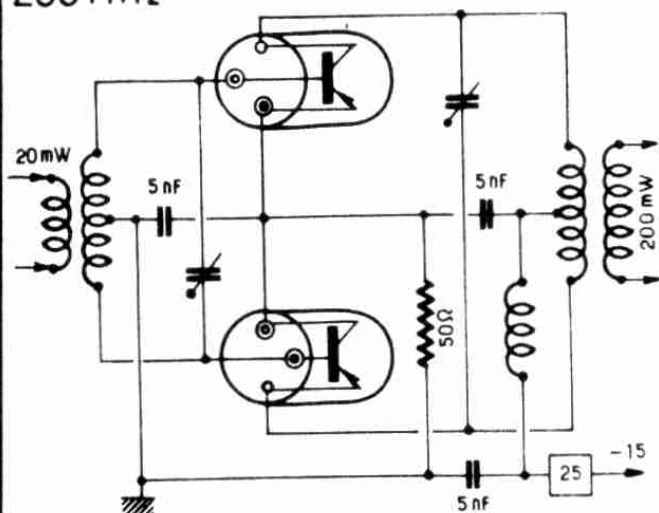
Osc. 200 MHz

 $\beta = 60$
 $\beta = 1 (250 \text{ MHz})$ 

AFY 11

200 MHz

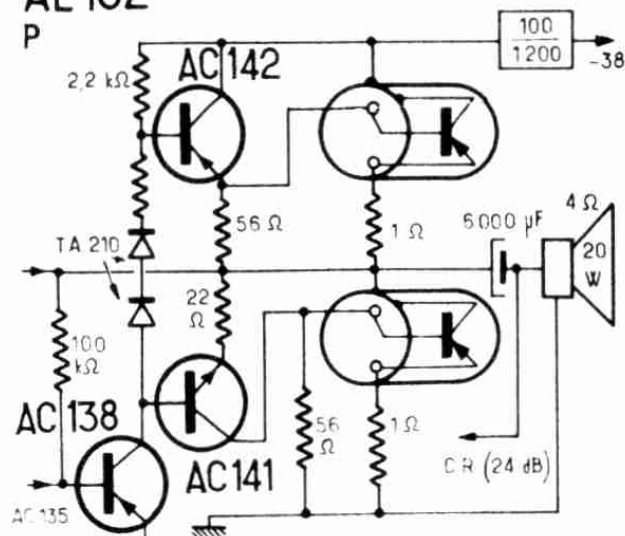
$\beta = 60$
 $\beta = 1 (300 \text{ MHz})$
 GP = 10 dB



AL 102

Base diff.

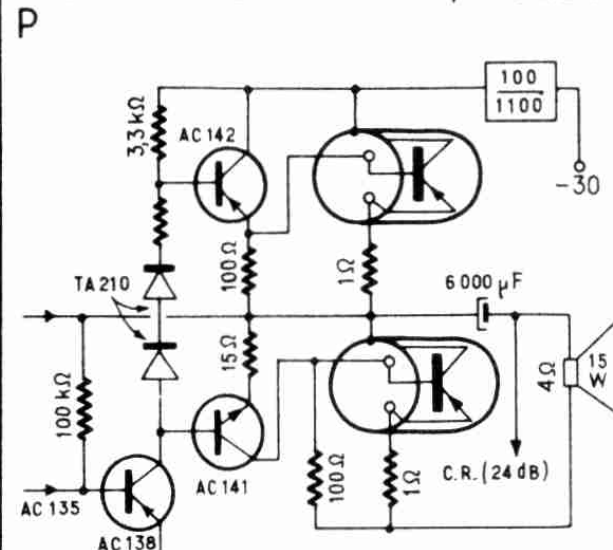
$\beta = 150$ à $I_c = 1 \text{ A}$



AL103

Base diff.

$\beta = 40 \dots 250$

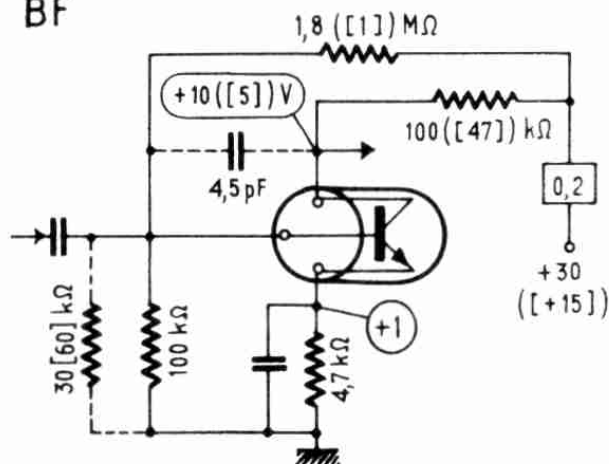


BC 107

(BC 108)
[BC 109]
BF

n-p-n
Si

$\beta = 125 \dots 500$
 $F_b = < 6 [< 4] \text{ dB}$

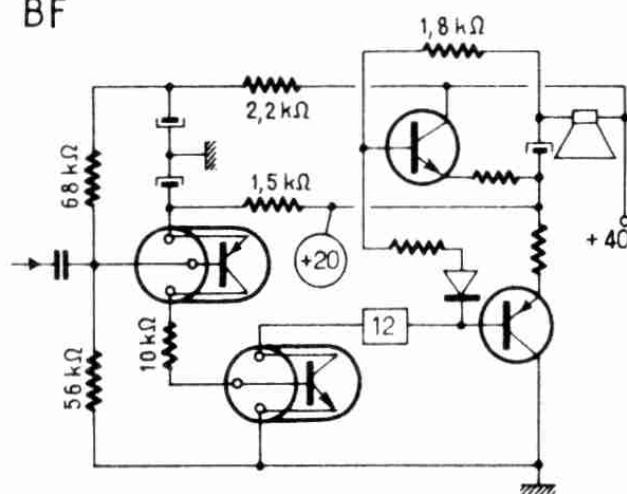


BC 107

BC 177
BF

n-p-n
p-n-p Si

$\beta = 20 \dots 300$

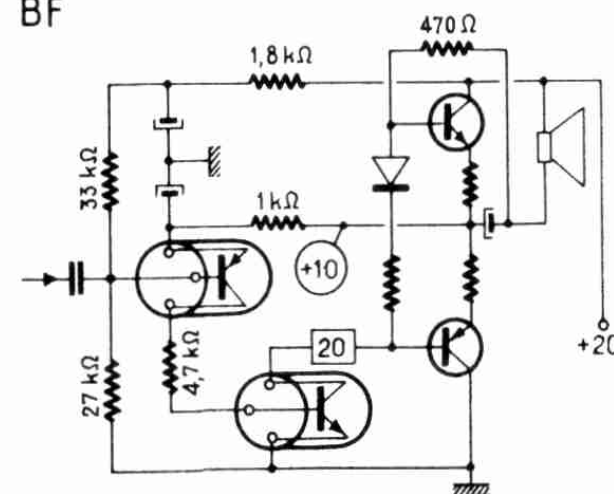


BC 108

BC 178
BF

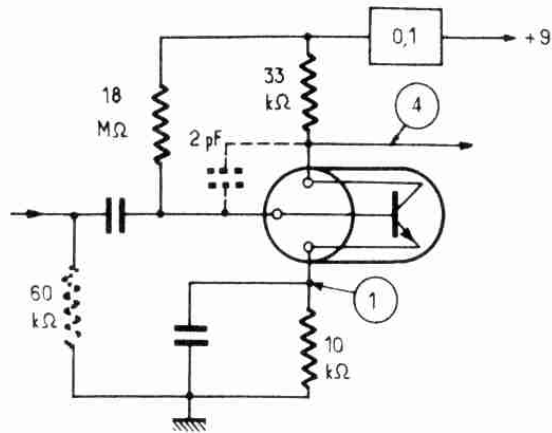
n-p-n
p-n-p Si

$\beta = 80 \dots 500$



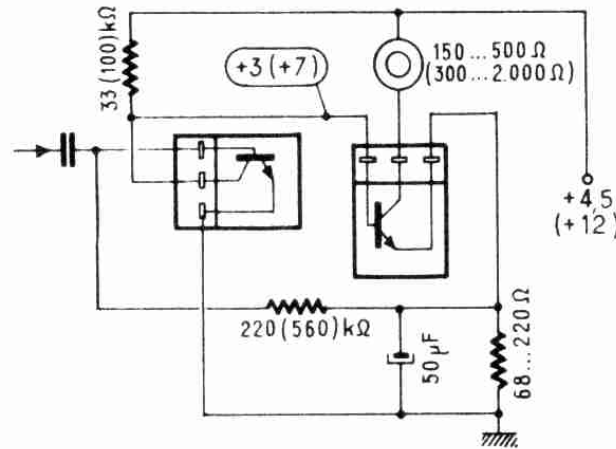
BC 113
[BC 114]

n-p-n Si $\beta = 200 \dots 1000$
($I_c = 1 \text{ mA}$)
Planar $F_b = 1,5 \text{ dB}$



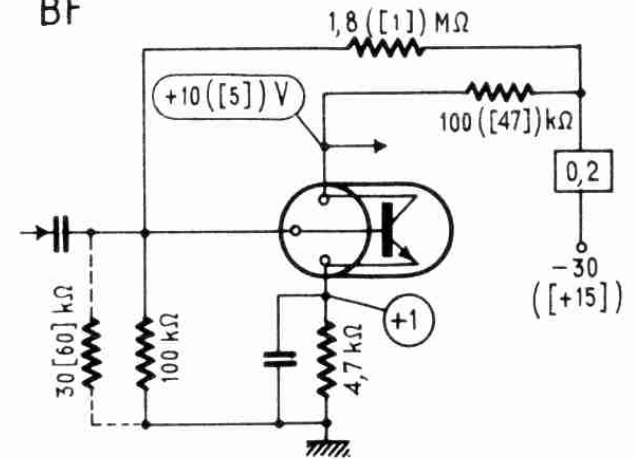
BC 121
(BC 122)
BF

n-p-n Si $\beta = 70 \dots 600$



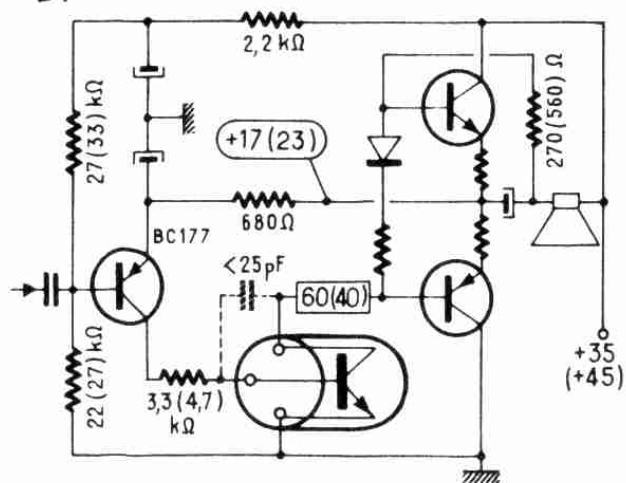
BC 129
(BC 130)
[BC 131]
BF

n-p-n Si $\beta = 125 \dots 500$
[240 ... 900]
 $F_b = < 6$ [4] dB



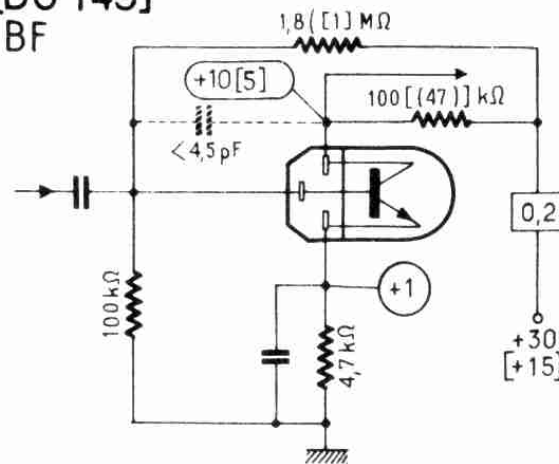
BC 140
(BC 141)
BF

n-p-n Si $\beta = 40 \dots 120$
 $f_t > 60 \text{ MHz}$



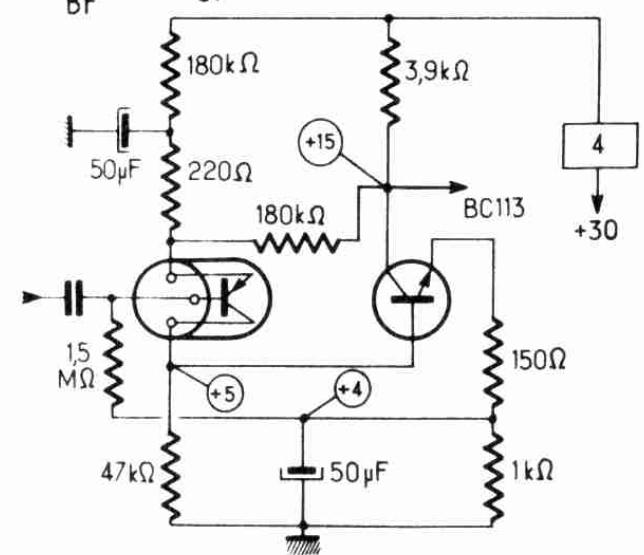
BC 147
(BC 148)
[BC 149]
BF

n-p-n Si $\beta = 125 \dots 500$
[240 ... 900]
 $F_b < 10$ [4] dB
 $f_t > 150 \text{ MHz}$



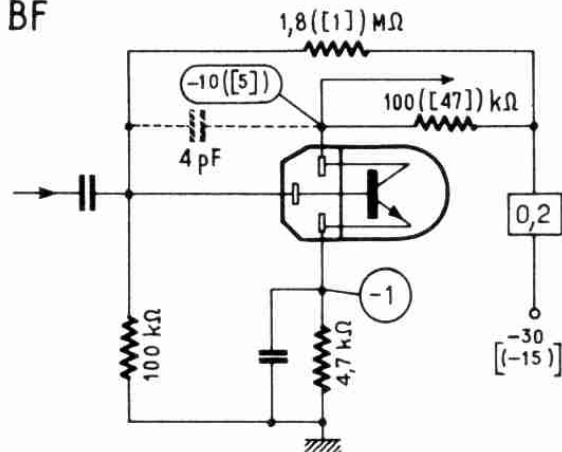
BC 154
BF

p-n-p Si $\beta = 200$
 $F_b < 2,5 \text{ dB}$



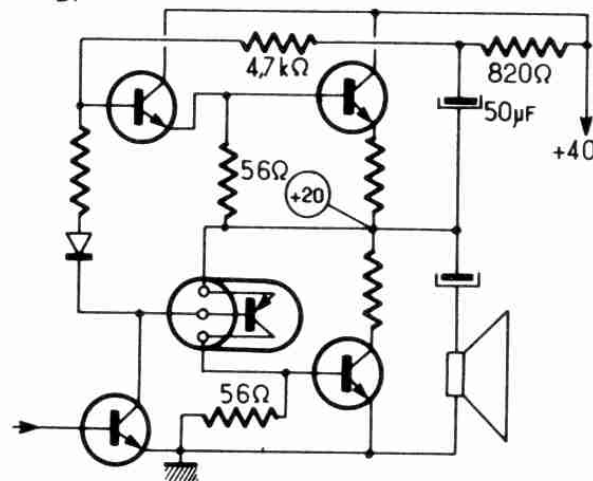
BC 157
(BC 158)
[BC 159]
BF

p-n-p
Si
 $\beta = 50 \dots 350$
[150...350]
 $F_b < 10$ [4] dB
 $f_t = 200$ MHz



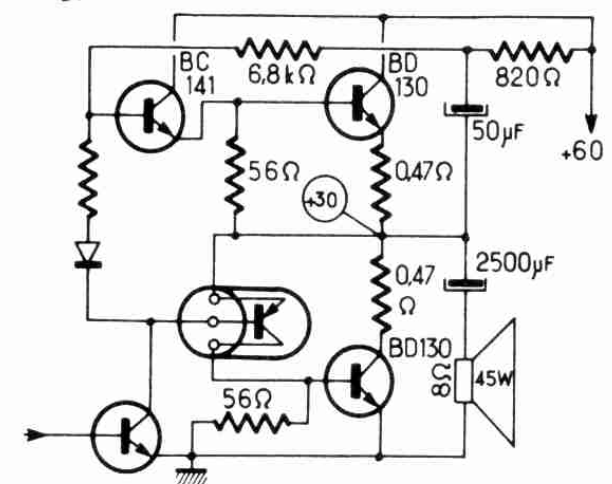
BC 160-6 p-n-p Si
(BC 160-10)(BC 160-16)
BF

$\beta = 40 \dots 100$
(63...160)
(100...250)



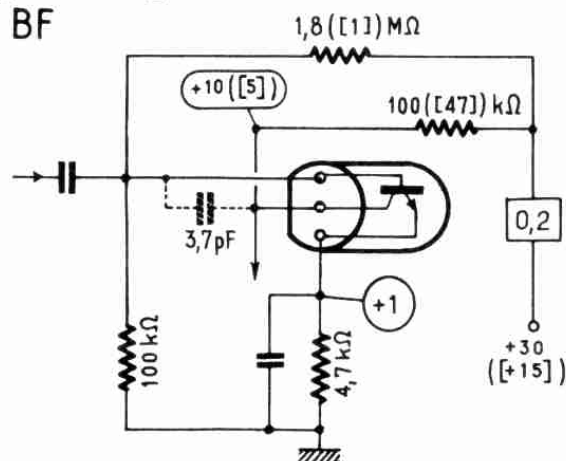
BC 161-6 p-n-p Si
(BC 161-10)(BC 161-16)
BF

$\beta = 40 \dots 100$
(63...160)
(100...250)



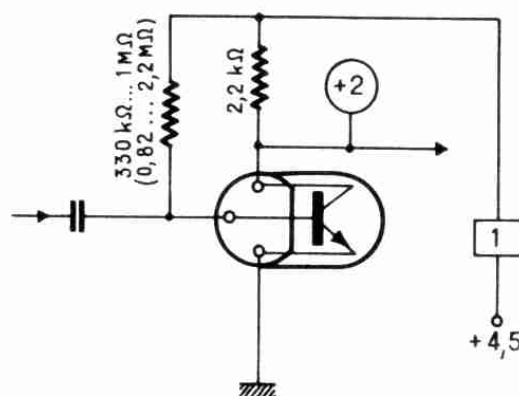
BC 167
(BC 168)
[BC 169]
BF

n-p-n
Si
 $\beta = 125 \dots 500$
[240...900]
 $F_b < 10$ [4] dB
 $f_t > 150$ MHz



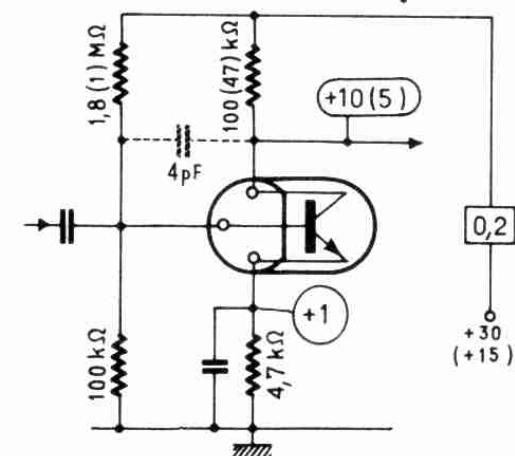
BC 170 A
(BC 170 B)
BF

n-p-n
Si
 $\beta = 80 \dots 250$
(200...600)

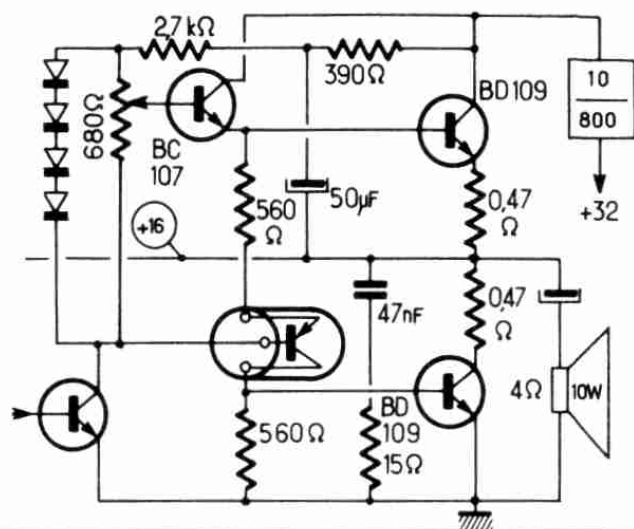


BC 171
(BC 172)
BF

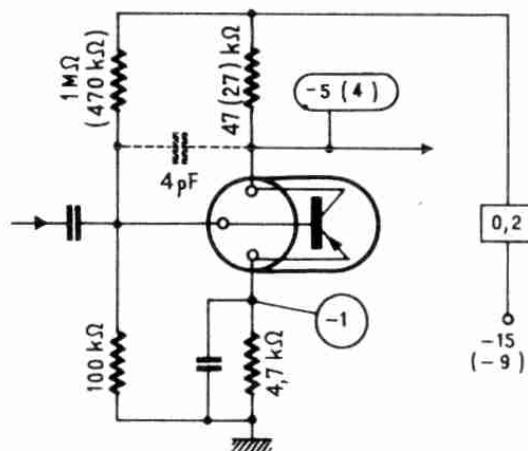
n-p-n
Si
 $\beta = 125 \dots 260$ [A]
= 240...500 [B]
= 450...900 [C]
 $F_b < 6$ dB
 $f_t > 150$ MHz



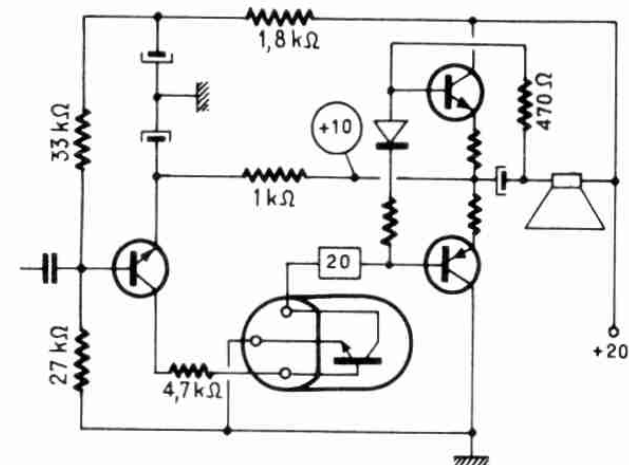
BC177 p-n-p Si $\beta = 75 \dots 260$
BF $f_T = 130 \text{ MHz}$



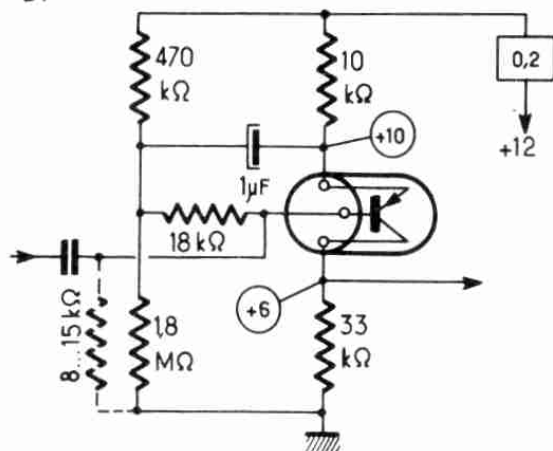
BC179 p-n-p Si $\beta = 240 \dots 500$
BF $F_b < 4 \text{ dB}$
 $f_t = 200 \text{ MHz}$



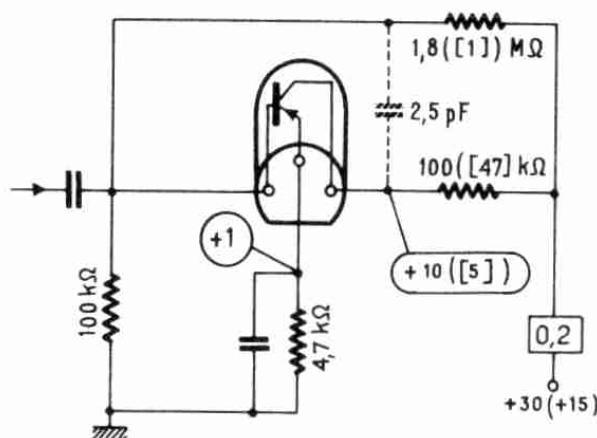
BC181 n-p-n Si $\beta > 60 (> 100)$
(BC181A) BF



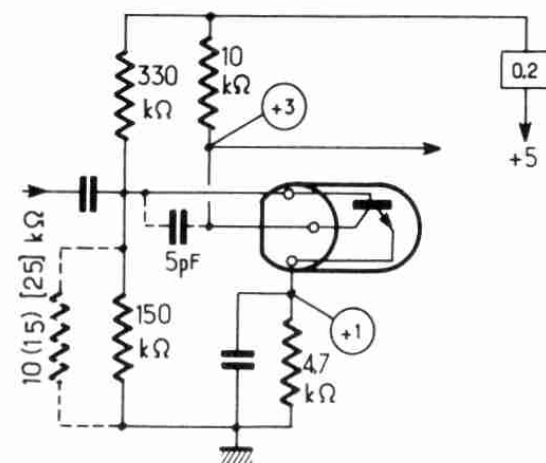
BC181A p-n-p Si $\beta = 50 \dots 200$
(BC181B)(BC181C) $F_b = 1 (0.8) (0.7) \text{ dB}$
BF



BC182 n-p-n Si $\beta = 100 \dots 480$
(BC183) $(100 \dots 850)$
[BC184] $[> 250]$
 $F_b < 10 [< 4] \text{ dB}$
 $f_t > 150 \text{ MHz}$



BC200-01 n-p-n Si $\beta = 50 \dots 100$
(BC200-02)(BC200-03) $(85 \dots 200) (165 \dots 400)$
BF $F_b = 2 (1.5) (2) \text{ dB}$

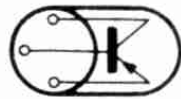


BC 204 = BC 257 = BC 307 = BC 157

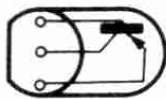
BC 205 = BC 258 = BC 308 = BC 158

BC 206 = BC 259 = BC 309 = BC 159

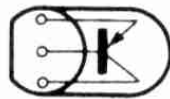
p-n-p



BC204,5,6



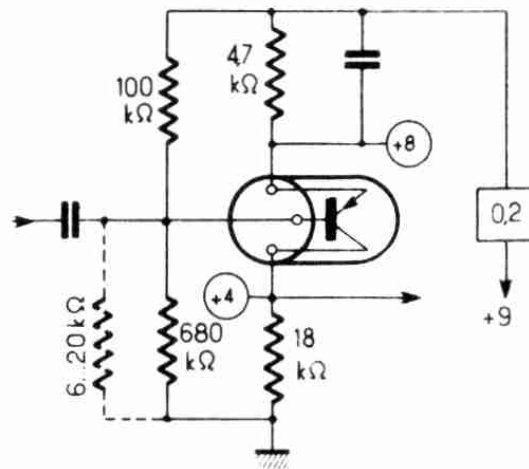
BC257,8,9



BC157,8,9

BC 206

BF

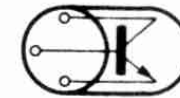
p-n-p
Si $\beta = 50 \dots 500$
 $F_b < 4 \text{ dB}$
 $f_T = 200 \text{ MHz}$ 

BC 207 = BC 237 = BC 167

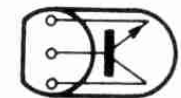
BC 208 = BC 238 = BC 168

BC 209 = BC 239 = BC 169

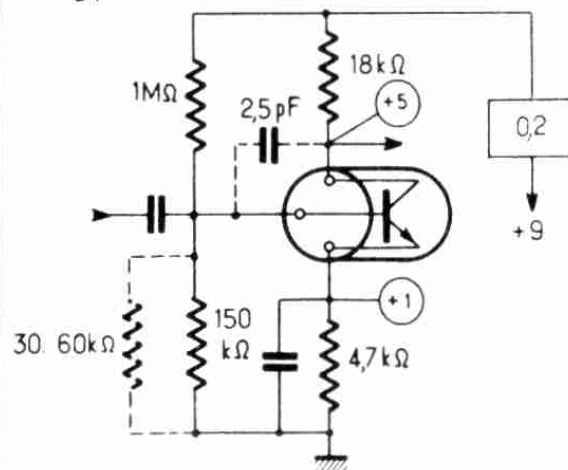
n-p-n



BC207,8,9



BC237,8,9

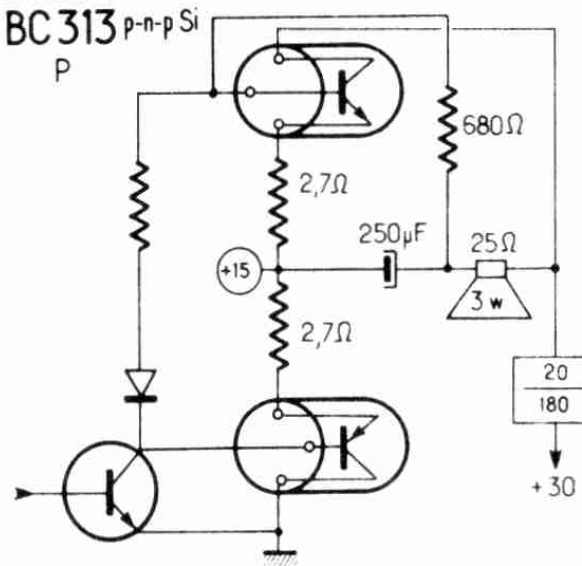
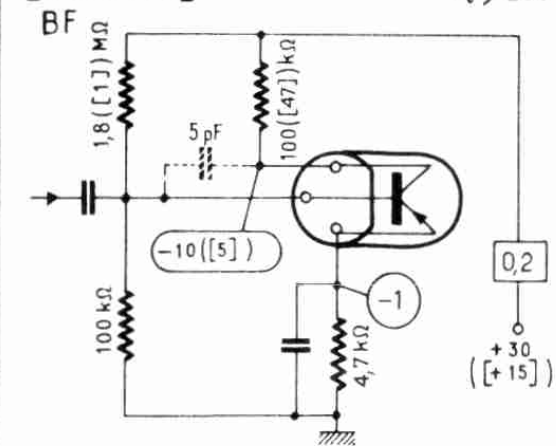
BC 209
BFn-p-n
Si $\beta = 240 \dots 900$
 $F_b < 4 \text{ dB}$
 $f_T = 300 \text{ MHz}$ BC 211
P

n-p-n Si

 $\beta > 50$

BC 313

p-n-p Si

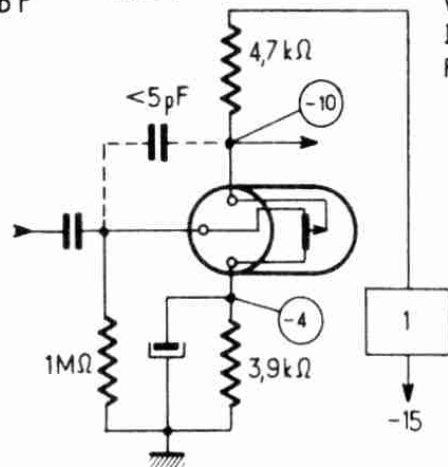
BC 212
(BC 213)
[BC 214]p-n-p
Si $\beta = 60 \dots 300$
(50...400)
[140...400]
 $F_b = 2.5 [> 2] \text{ dB}$
 $f_T > 200 \text{ MHz}$ 

BC 219

FET Si
Canal P

BF

$s = 2 \dots 8 \text{ mA/V}$
 $\rho > 10 \text{ k}\Omega$
 $V_p > 10 \text{ V}$
 $I_{DSS} = 3 \dots 30 \text{ mA}$
 $F_b = 0.1 \text{ dB}$

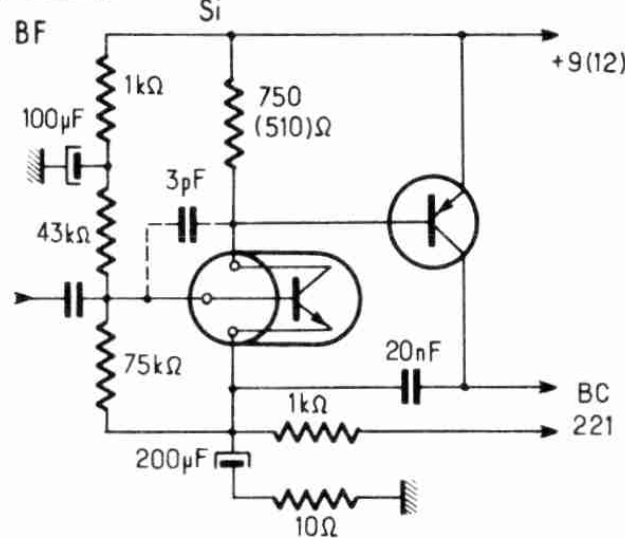


BC 220

n-p-n
Si

$\beta = 225 (>100)$

BF

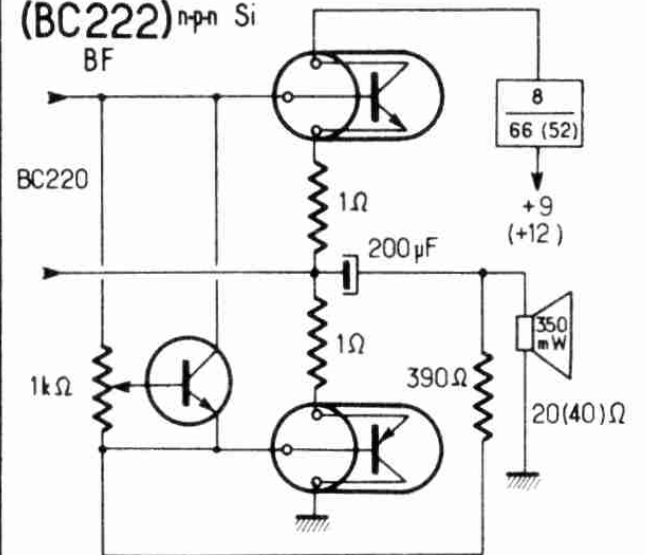


BC 221 (BC 222)

p-n-p Si
n-p-n Si

$\beta = 115 (>50)$

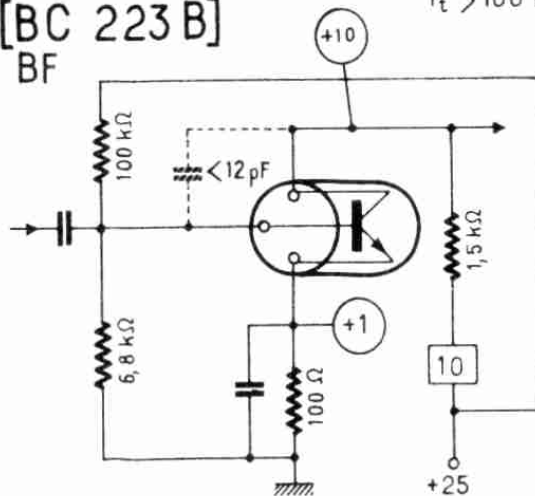
BF



BC 223 (BC 223A) [BC 223B]

n-p-n
Si

$\beta = 100 \dots 400$
(100...300)
[200...450]
 $f_t > 100 \text{ MHz}$

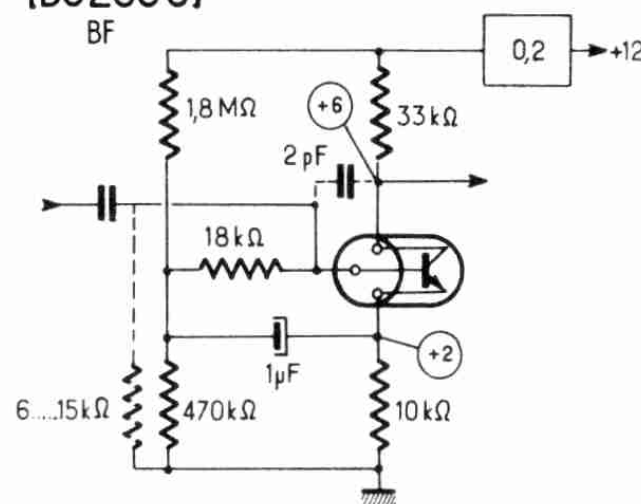


BC 280A (BC 280B) [BC 280C]

n-p-n
Si

$\beta = 100 \dots 300$ [(200...600)]
 $F_b = 2.5 (2) [1.5] \text{ dB}$

BF

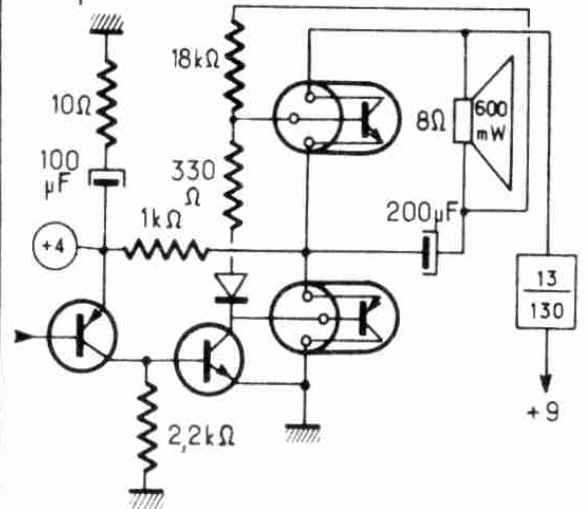


BC 282 BC 283

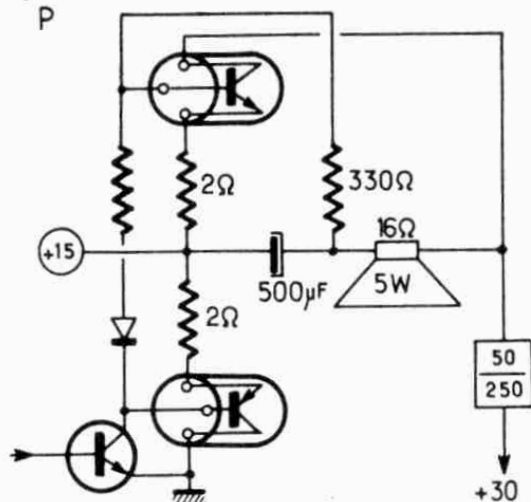
n-p-n Si
p-n-p Si

$\beta = 40 \dots 300$

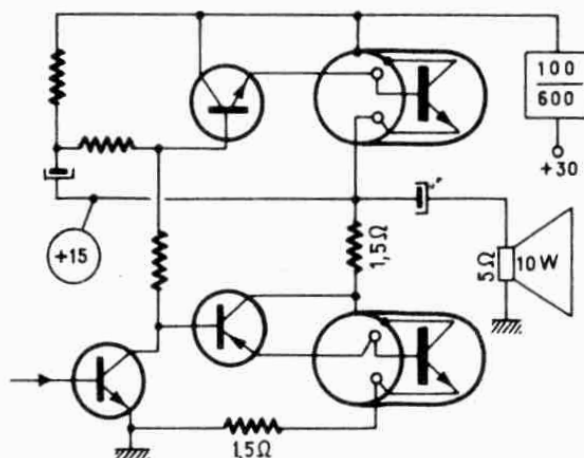
P



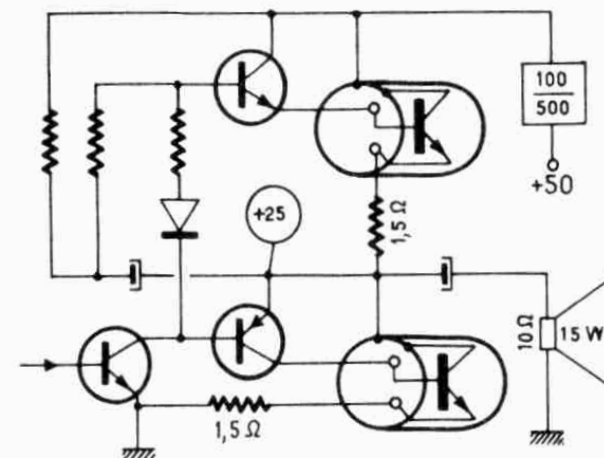
BC 286 n-p-n Si $\beta = 20 \dots 200$
 BC 287 p-n-p Si



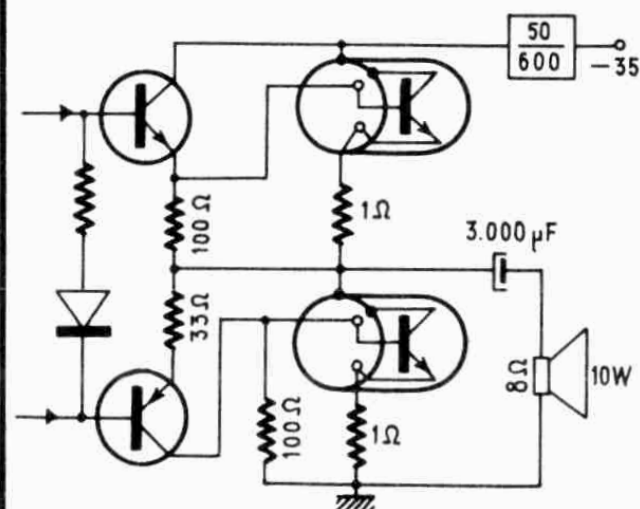
BD 106 A n-p-n $\beta = 50 \dots 150$
 (BD 106 B) Si $(100 \dots 300)$
 $f_t = 100 \text{ MHz}$



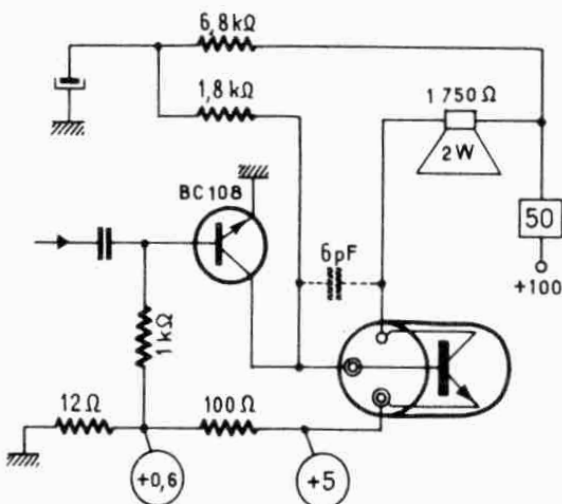
BD 107 A n-p-n $\beta = 50 \dots 150$
 (BD 107 B) Si $(100 \dots 300)$
 $f_t = 100 \text{ MHz}$



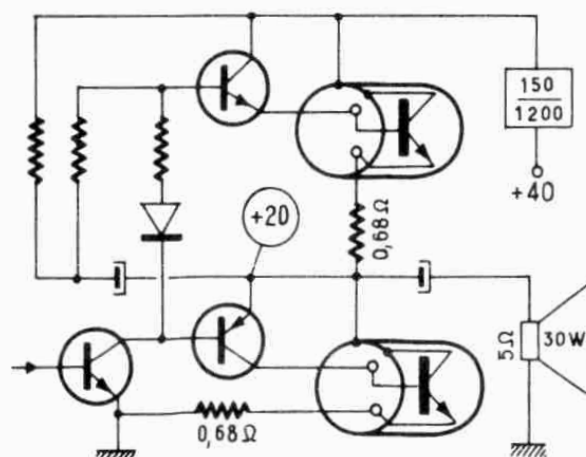
BD 109 n-p-n $\beta = 20 \dots 120$
 P Si



BD 115 n-p-n $\beta = 50 (> 20)$
 P Si $f_t = 120 \text{ MHz}$

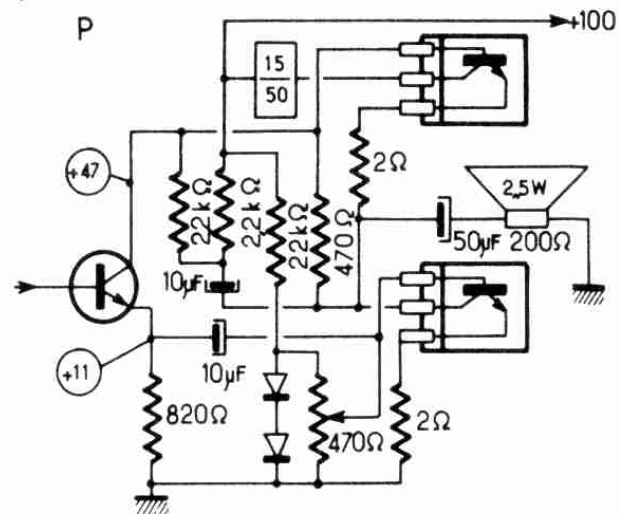


BD 117 n-p-n $\beta = 20 \dots 100$
 P Si $f_t > 50 \text{ MHz}$



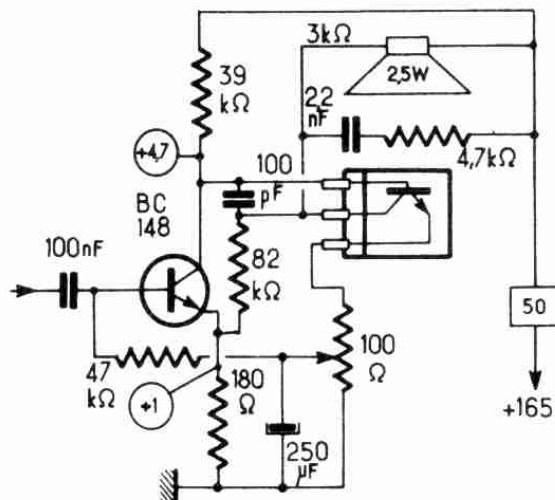
BD 127
BD 128

n-p-n
Si $\beta = 30$



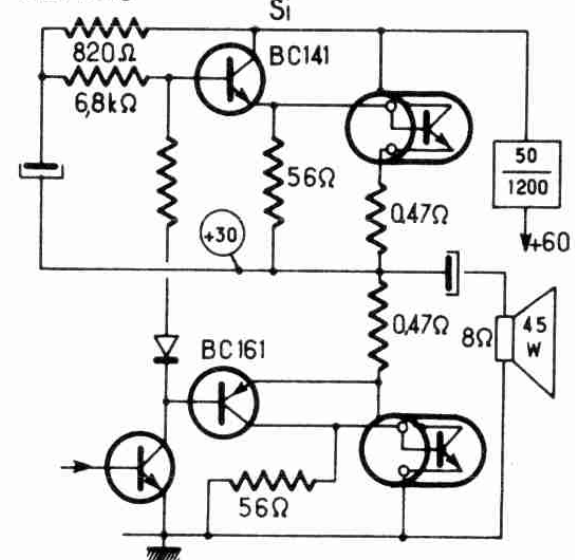
BD 129

n-p-n
Si $\beta = 30$
GP = 58dB



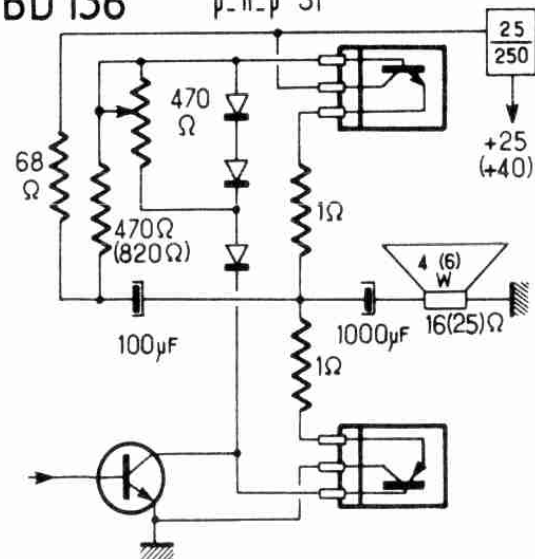
BD 130

n-p-n
Si $\beta = 20 \dots 70$



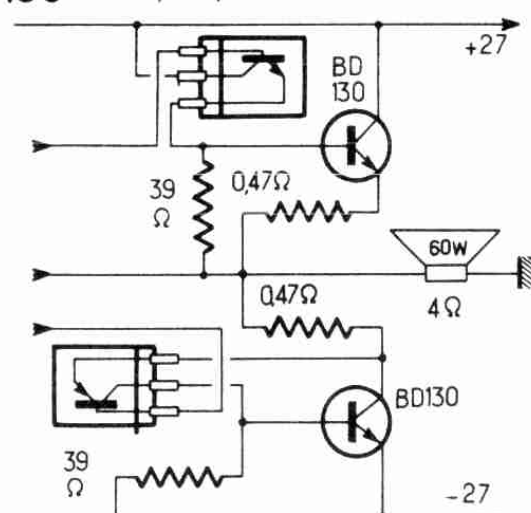
BD 135
BD 136

n-p-n Si $\beta = 40 \dots 250$
p-n-p Si



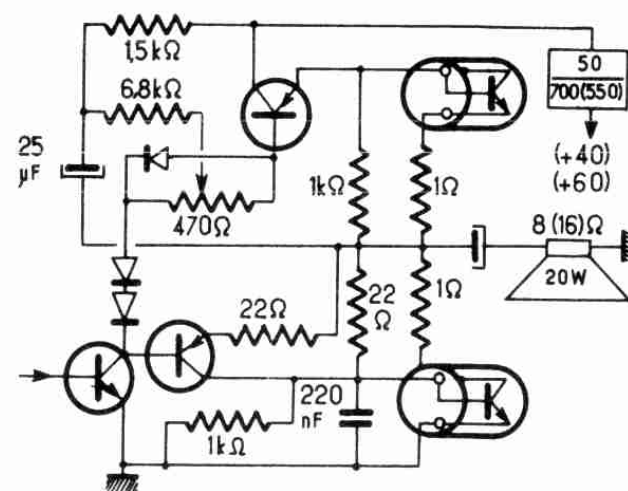
BD 137
BD 138

n-p-n Si $\beta = 40 \dots 160$
p-n-p Si



BDY 23

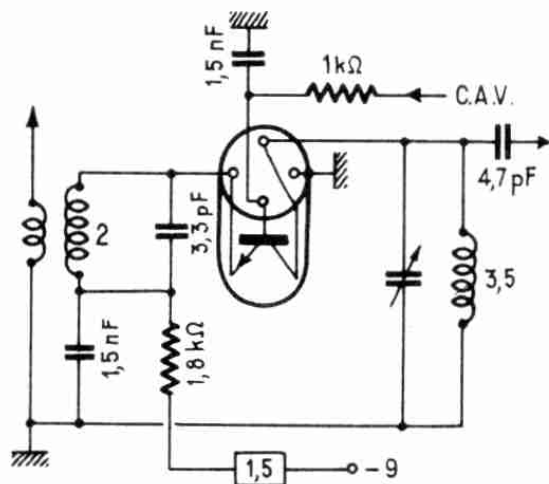
n-p-n
Si $\beta = 15 \dots 180$



BF 115
100 MHz

n-p-n
Si

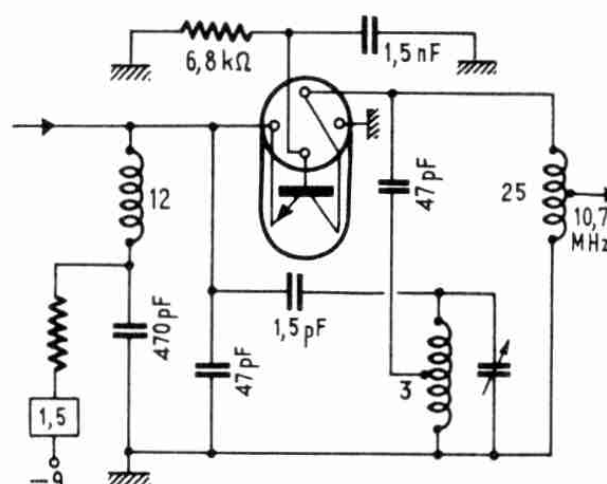
$\beta = 45 \dots 165$
 $F_b = 3,5 \text{ dB}$



BF 115
Conv. 100 MHz

n-p-n
Si

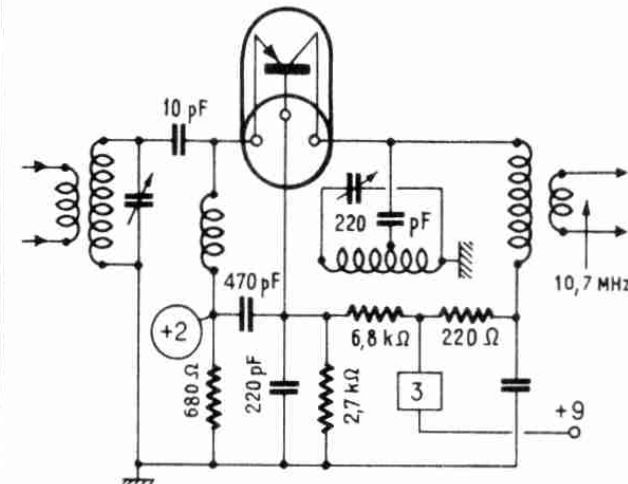
$\beta = 45 \dots 165$



BF 160
Conv. 100 MHz

n-p-n
Si

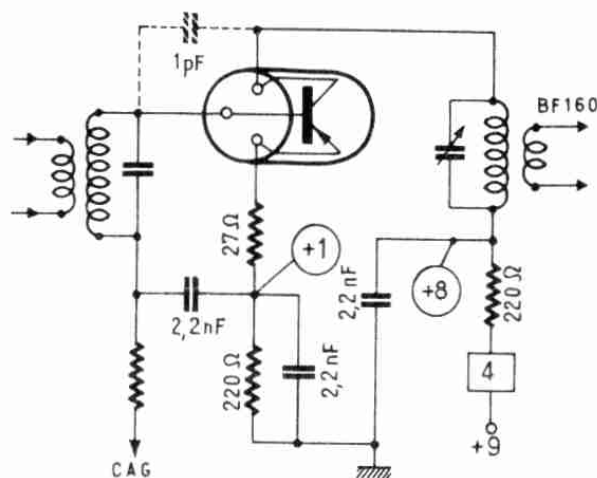
$\beta = 50 (>20)$
 $f_t > 400 \text{ MHz}$



BF 162
100 MHz

n-p-n
Si

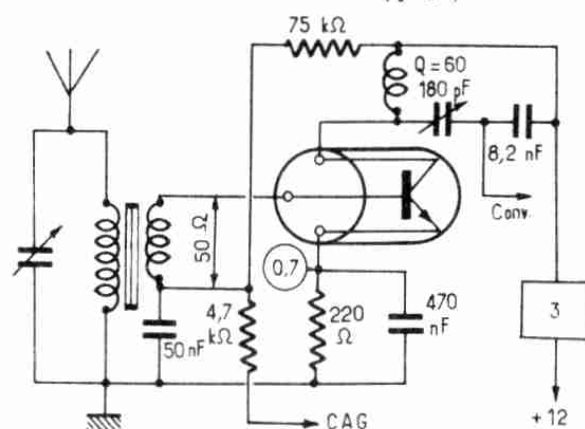
$\beta = 70 (>30)$
 $f_t > 400 \text{ MHz}$
 $F_b = 4 \text{ dB}$



BF 165
< 2 MHz

n-p-n
Planar
Si

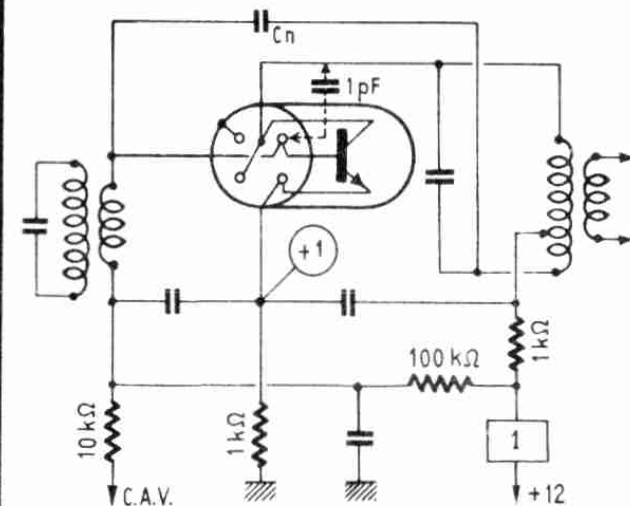
$\beta = 35 (>20)$
($>2 \text{ à } 100 \text{ MHz}$)
 $GP = 42 \text{ dB (1 MHz)}$
 $F_b = 3,7 \text{ dB}$



BF 184
MF 470 kHz

n-p-n
Si

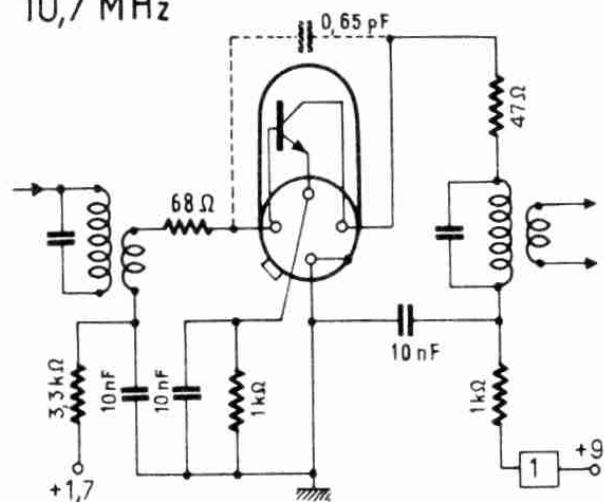
$\beta = 90 \dots 650$



BF 184
(BF 185)
10,7 MHz

n-p-n
Si

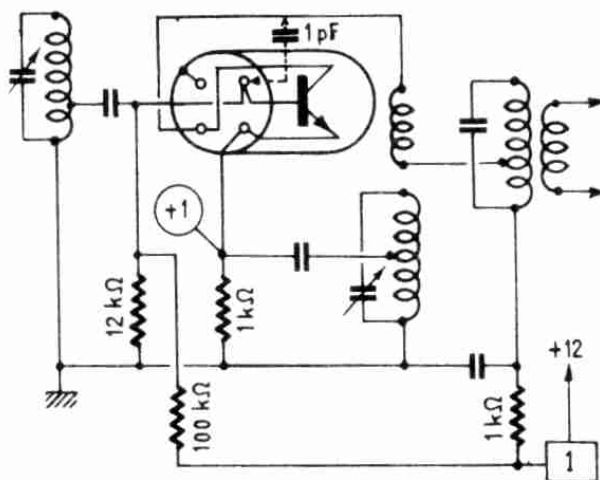
β 75 ... 750
(40 ... 125)
 $f_t = 300$ (220 MHz)



BF 185

n-p-n
Si
Conv. < 20 MHz

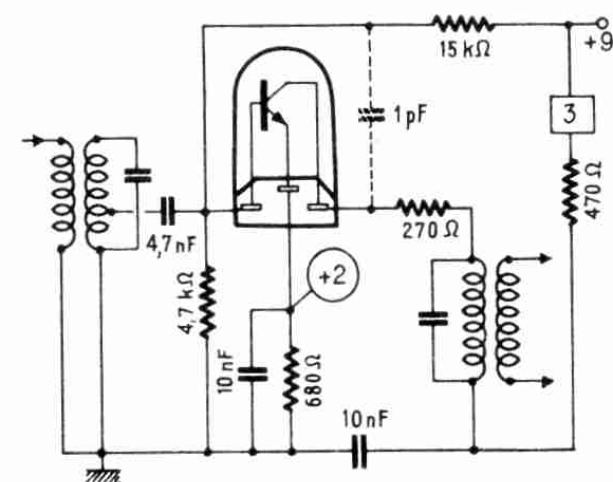
$\beta = 40 \dots 125$
 $F_b = 4$ dB (5 MHz)



BF 194
10,7 MHz

n-p-n
Si

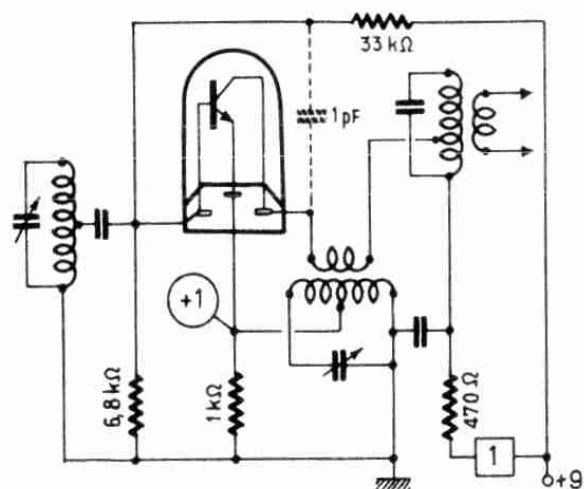
$\beta = 115$
 $f_t = 300$ MHz



BF 195

n-p-n
Si
Conv. < 20 MHz

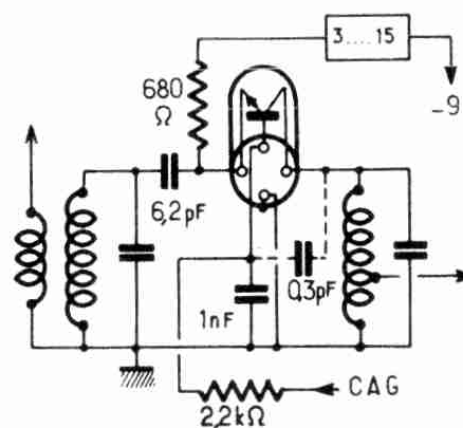
$\beta = 67$
 $f_t = 220$ MHz
 $F_b = 2.5$ dB



BF 200

n-p-n
Si
100 MHz

$\beta > 15$
GP = 28 dB
 $F_b = 2$ dB
 $f_T = 650$ MHz

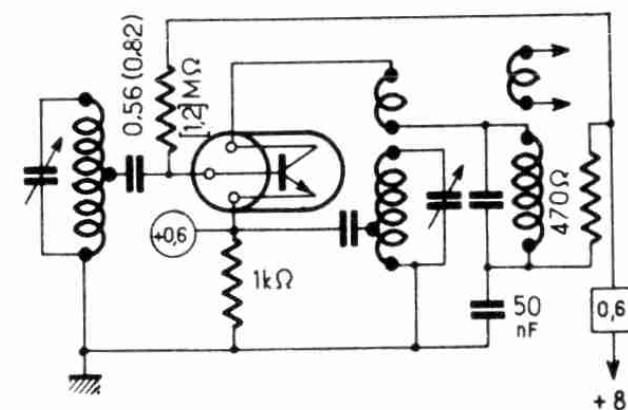


BF 233-2
(BF 233-3) (BF 233-4)

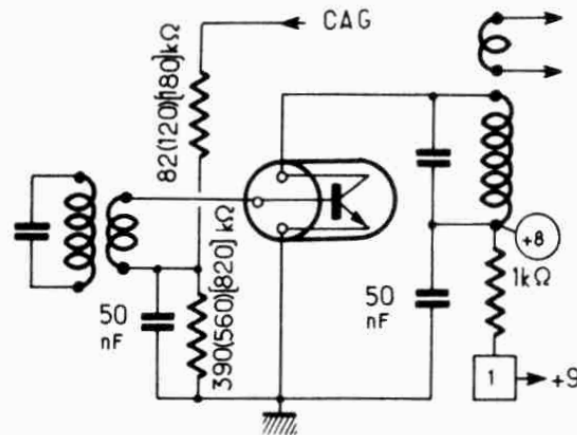
n-p-n Si

Conv. < 20 MHz

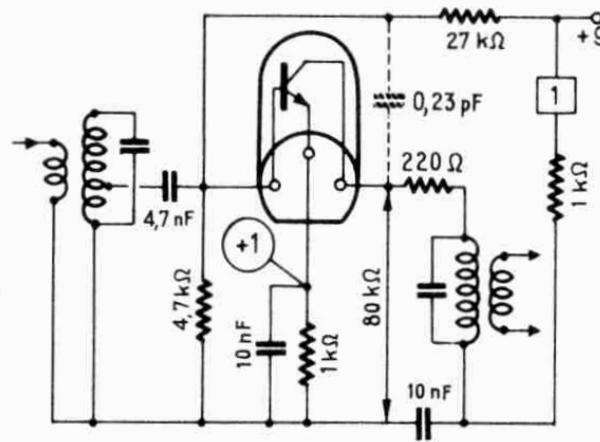
$\beta = 40 \dots 70$
(60 ... 100)
(90 ... 150)
 $F_b = 3.5$ dB



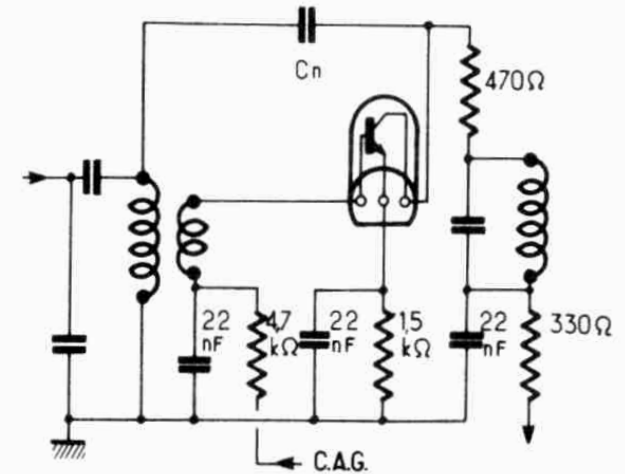
BF 233-3 n-p-n Si $\beta = 60 \dots 100$
(BF233-4)(BF233-5)
455 kHz



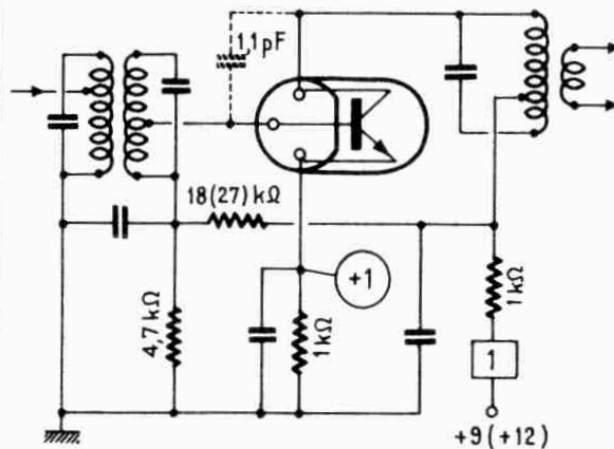
BF 237 n-p-n $\beta > 30 (> 70)$
(BF 238) Si
10,7 MHz



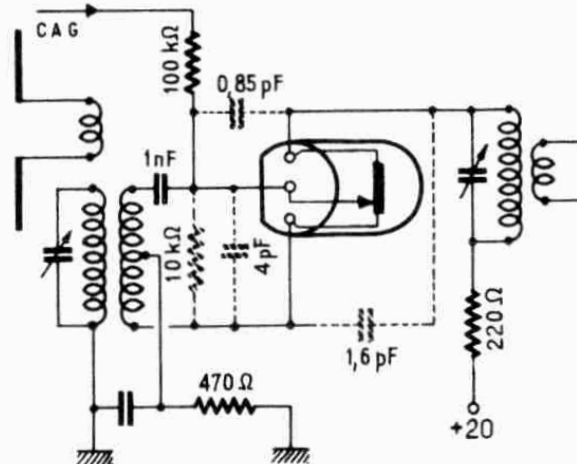
BF 241 n-p-n $\beta > 35$
10,7 MHz Si $f_T = 400 \text{ MHz}$



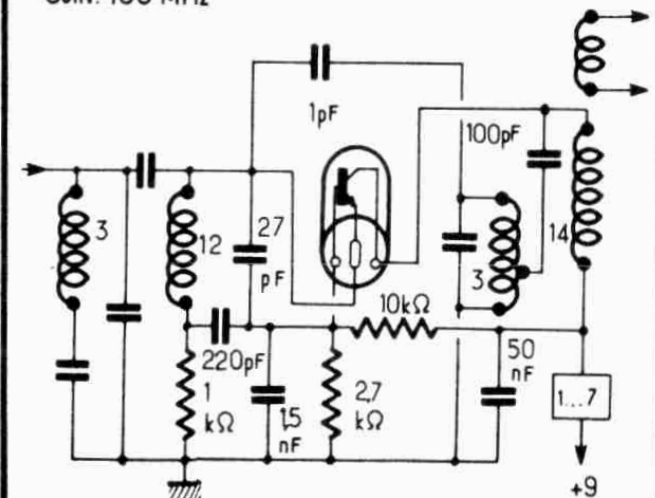
BF 243 n-p-n $\beta > 30$
455 kHz Si $f_T > 80$
GP = 35 dB $F_b = 1 \text{ dB}$



BF 245 F.E.T. Si $\delta = 3 \dots 6,5 \text{ mA/V}$
100 MHz Canal N $I_{DSS} = 2 \dots 25 \text{ mA}$



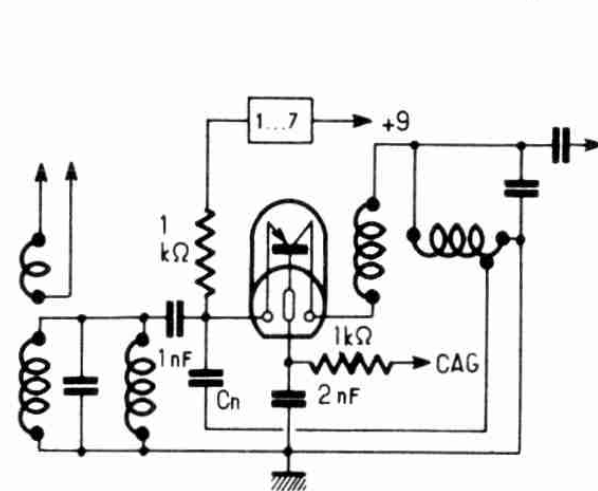
BF 255 $\beta = 67 (> 30)$
($\approx$ BF195) $f_T = 200 \text{ MHz}$
Conv. 100 MHz $F_b = 4 \text{ dB}$



BF 314

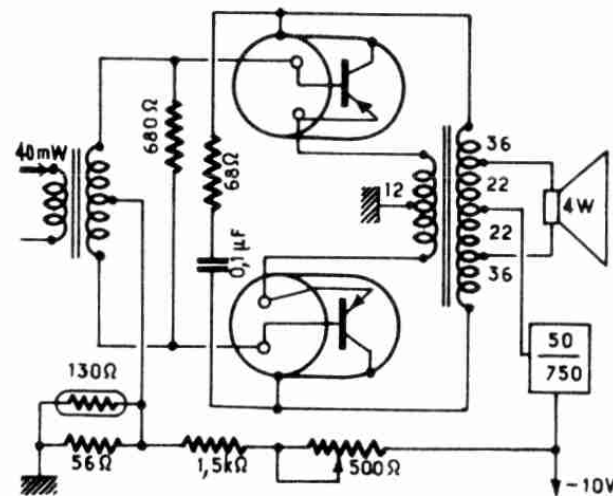
n-p-n

Si

 $\beta > 30$
 $f_T = 450 \text{ MHz}$
 $F_b < 2 \text{ dB}$


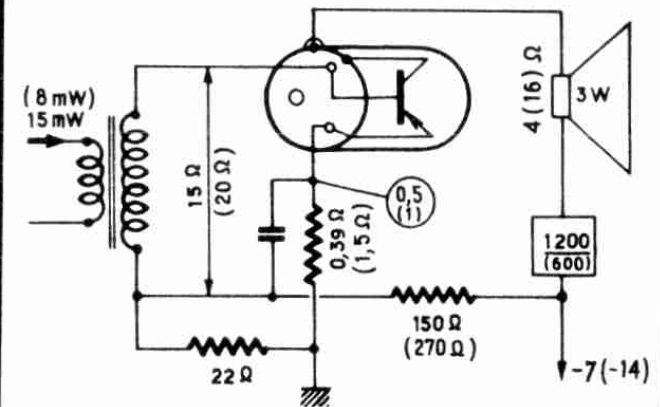
OC 22

P

 $\beta = 150$
 $GP = 20 \text{ dB}$


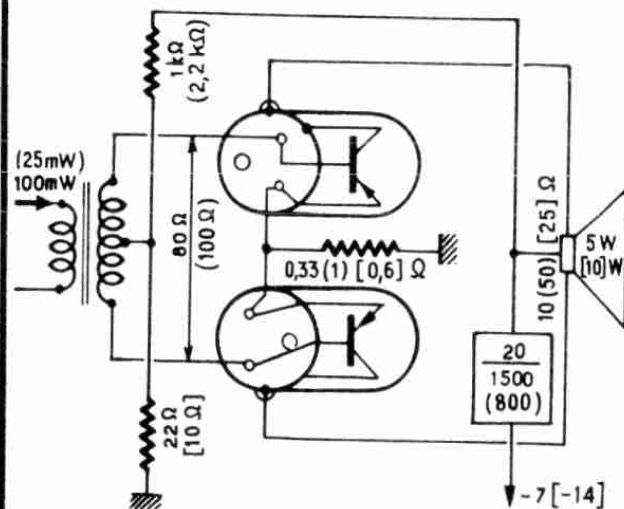
OC 26

P

 $\beta = 30$
 $GP = 23 \text{ dB}$
 (26 dB)


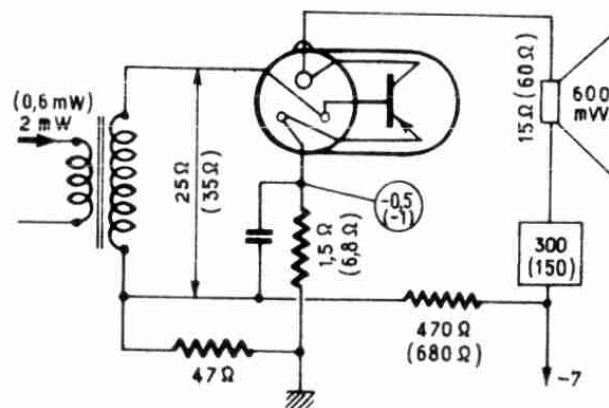
OC 26

P

 $\beta = 30$
 $GP = 17 \text{ dB}$
 (23 dB)
 $[20 \text{ dB}]$


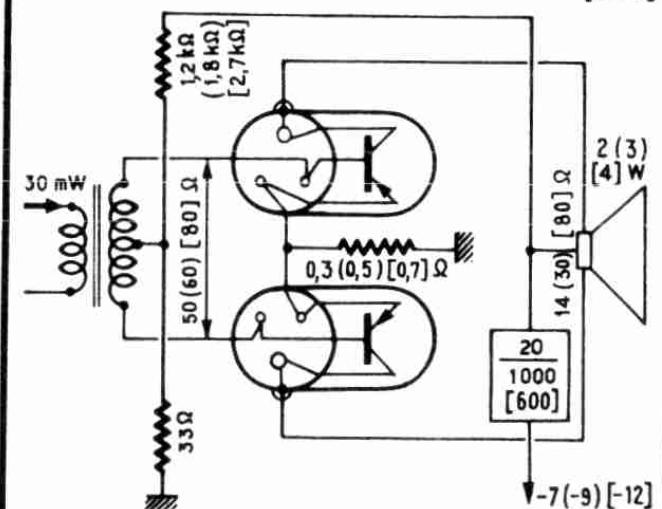
OC 30

P

 $\beta = 30$
 $GP = 25 \text{ dB}$
 (30 dB)


OC 30

P

 $\beta = 30$
 $GP = 18 \text{ dB}$
 (20 dB)
 $[22 \text{ dB}]$


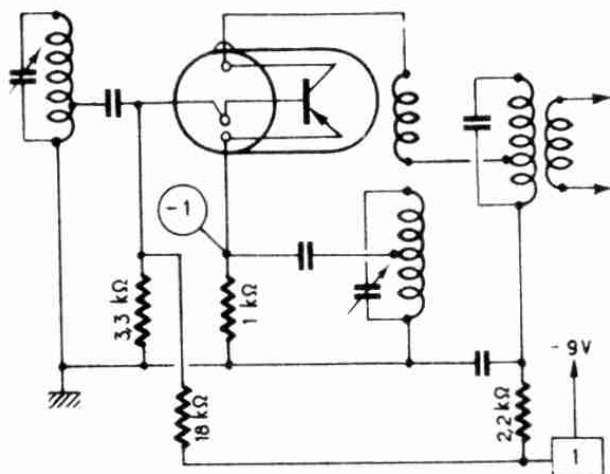
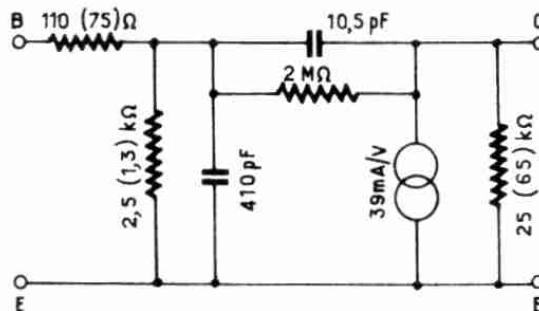
OC 44

40

OC 59

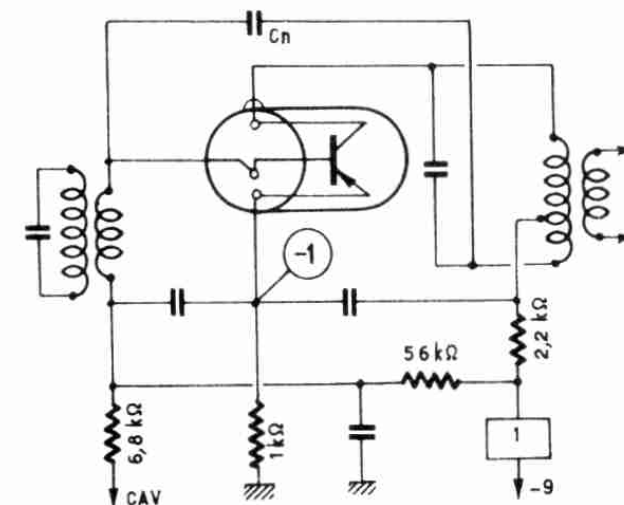
OC 44

Conv. < 2 MHz

 $\beta = 100$
 $GC = 28 \text{ dB}$
OC44
(OC 45)
 $V_c = 6 \text{ V}$
 $I_c = 1 \text{ mA}$


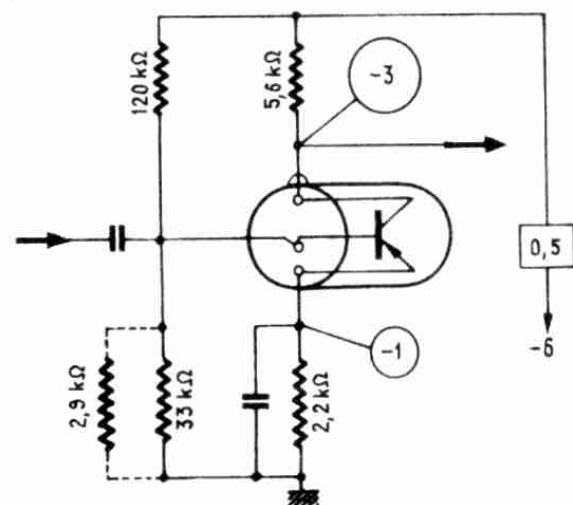
OC 45

MF 470 kHz

 $\beta = 50$
 $GP = 38 \text{ dB}$


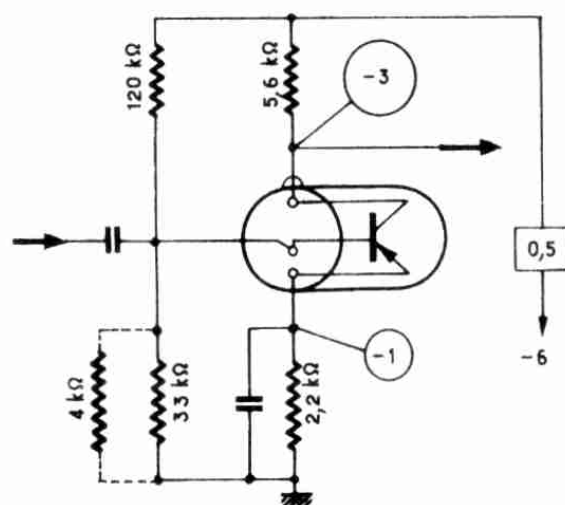
OC 57

BF

 $\beta = 35$
 $F_b = 10 \text{ dB}$


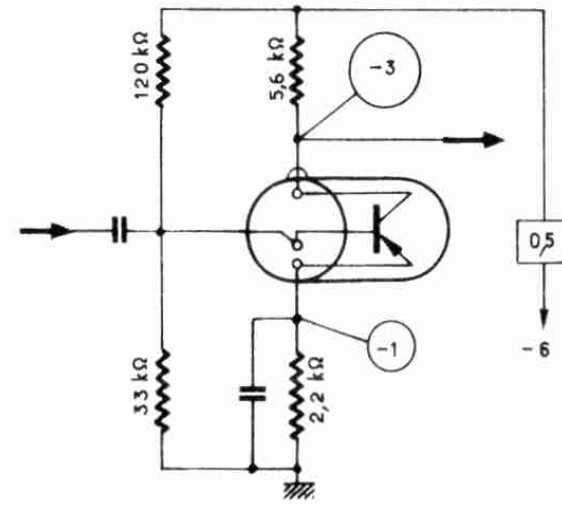
OC 58

BF

 $\beta = 55$
 $F_b = 10 \text{ dB}$


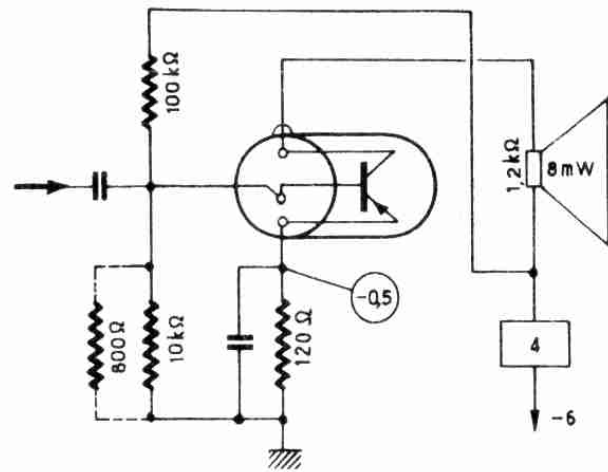
OC 59

BF

 $\beta = 80$
 $F_b = 10 \text{ dB}$


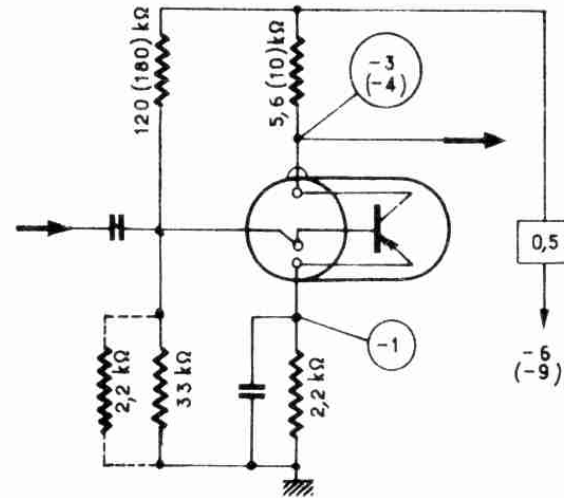
OC 60

BF

 $\beta = 60$ 

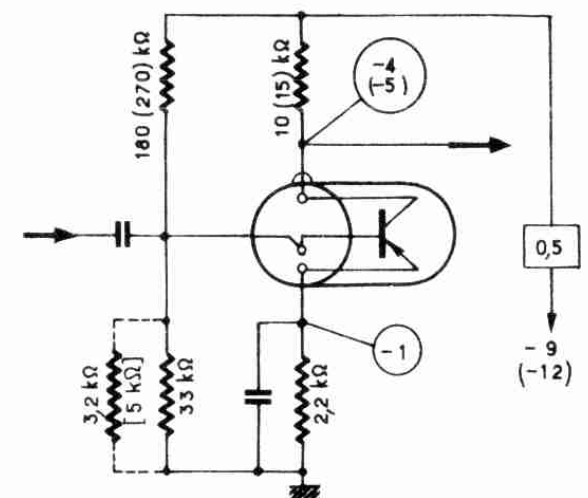
OC 70

BF

 $\beta = 30$
 $F_b = 10 \text{ dB}$ 

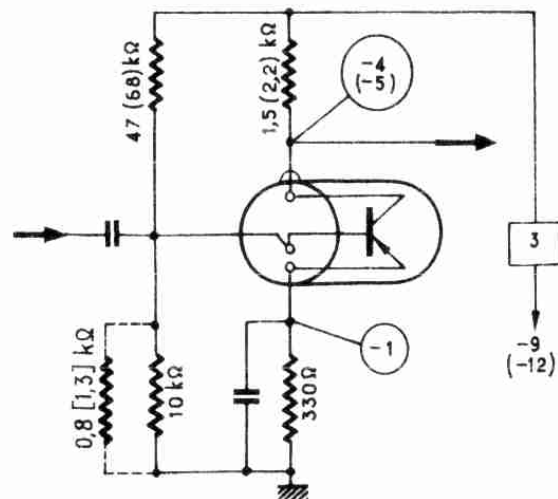
OC 71 [OC 75]

BF

 $\beta = 50 [90]$
 $F_b = 10 \text{ dB}$ 

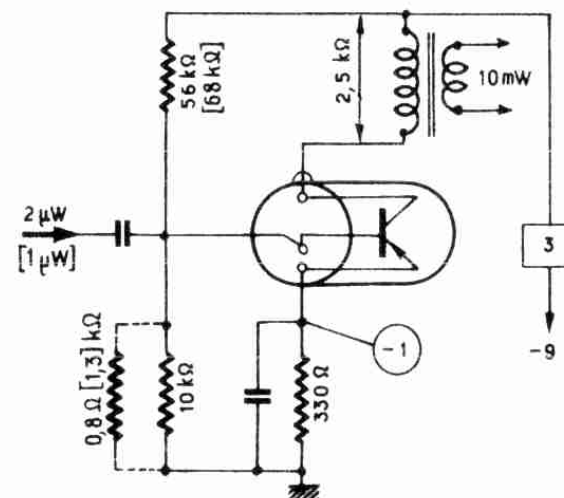
OC 71 [OC 75]

BF

 $\beta = 50 [90]$
 $F_b = 10 \text{ dB}$ 

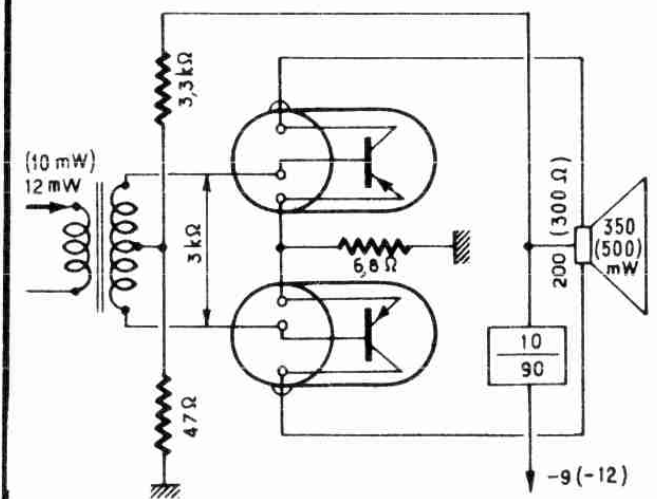
OC 71 [OC 75]

BF

 $\beta = 50 [90]$
 $GP = 37 \text{ dB}$
 $[40 \text{ dB}]$ 

OC 72

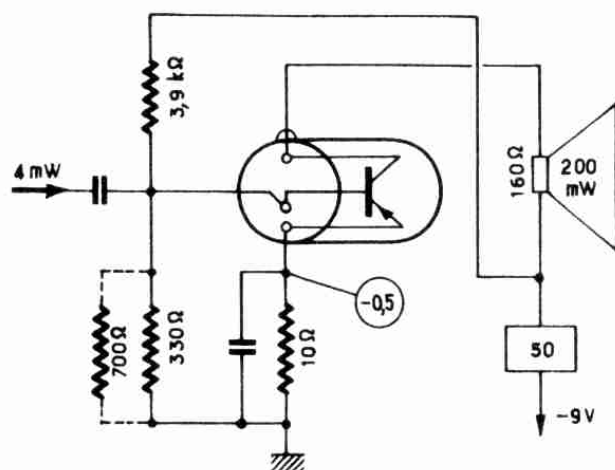
BF

 $\beta = 70$
 $GP = 15 \text{ dB}$
 (17 dB) 

OC 74

BF

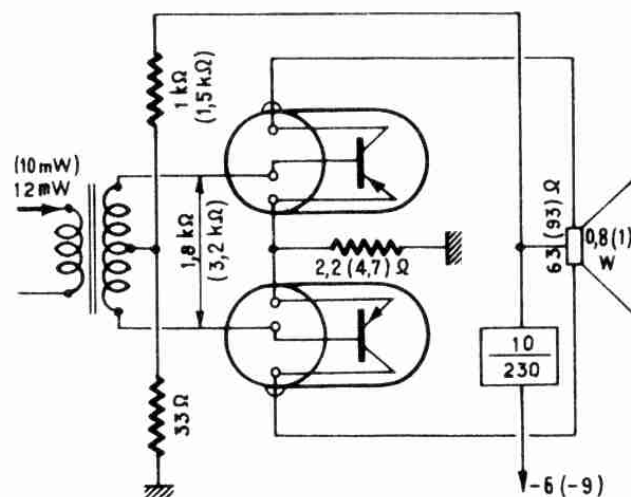
$\beta = 100$
GP = 27dB



OC 74

BF

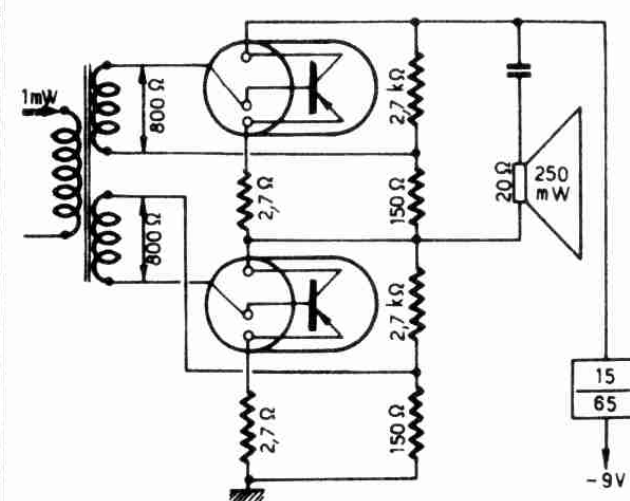
$\beta = 100$
GP = 18dB
(20dB)



OC 74

BF

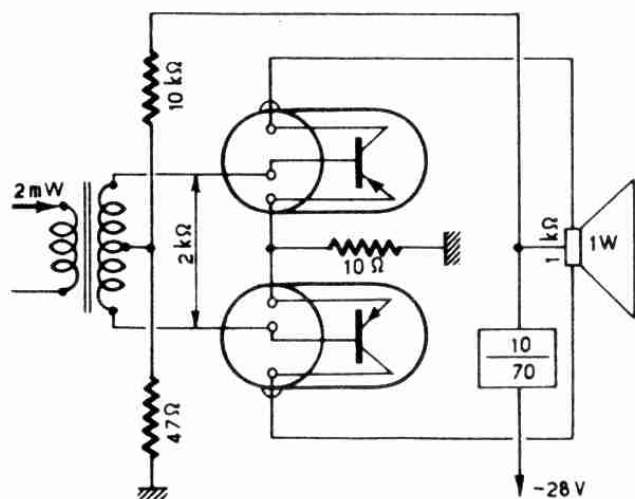
$\beta = 100$
GP = 24dB



OC 77

BF

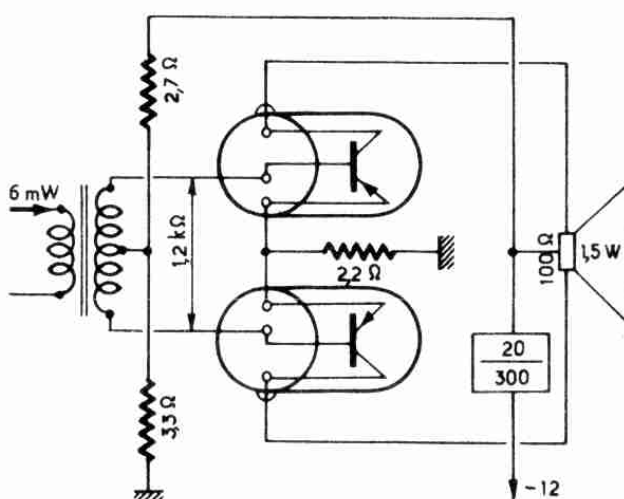
$\beta = 50$
GP = 27dB



OC 80

BF

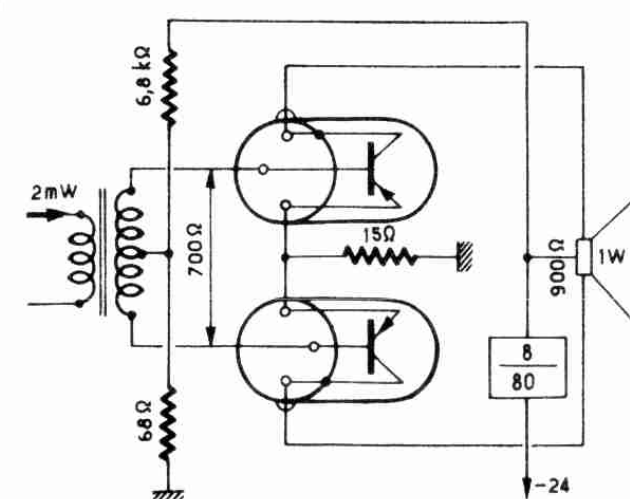
$\beta = 85$
GP = 24dB



SFT 234

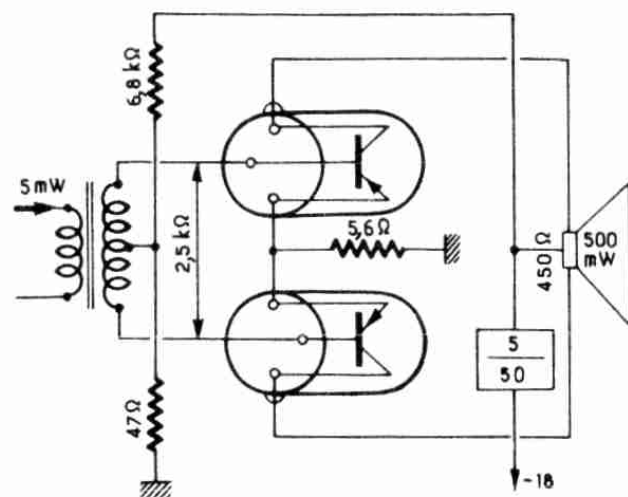
BF

$\beta = 40$
GP = 27dB



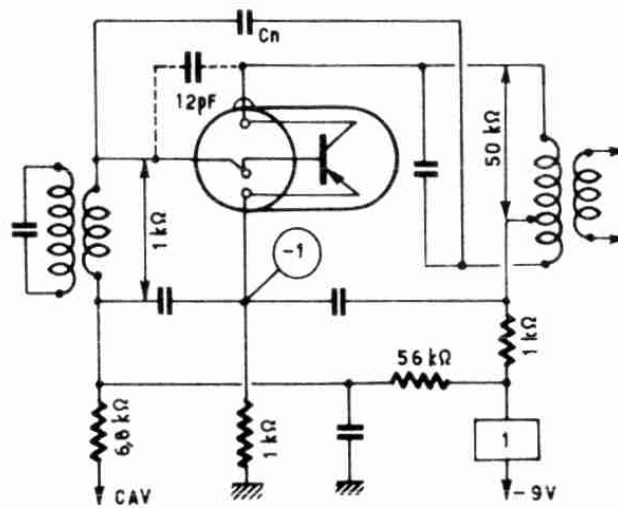
SFT243

BF

 $\beta = 30 \dots 60$
 $GP = 20 \text{ dB}$


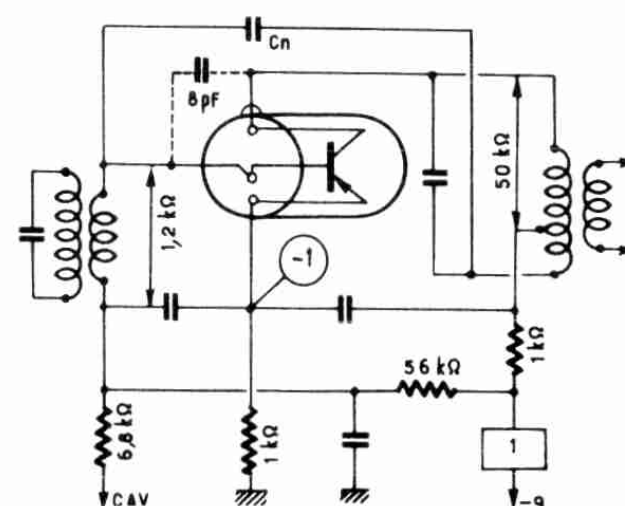
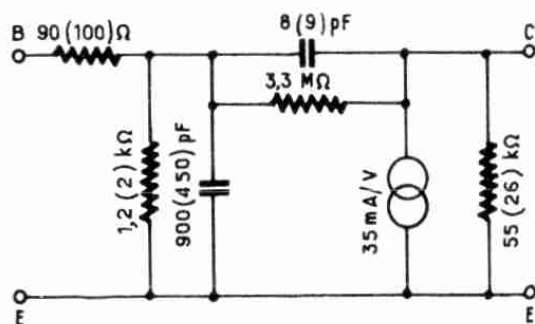
SFT306

MF 470 kHz

 $\beta = 30$
 $GP = 36 \text{ dB}$


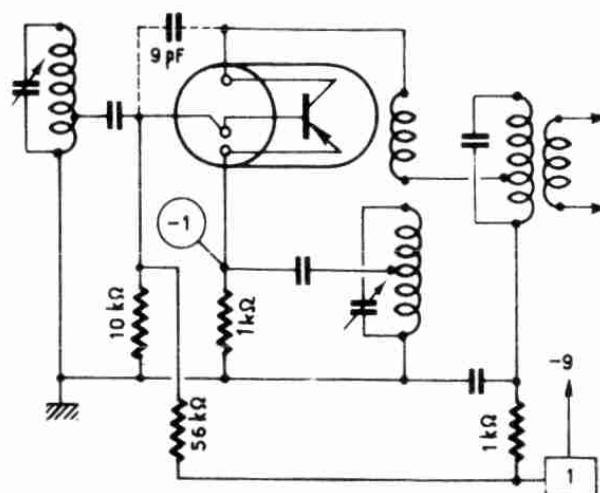
SFT307

MF 470 kHz

 $\beta = 40$
 $GP = 38 \text{ dB}$
SFT307
(SFT 308)
 $V_e = 6 \text{ V}$
 $I_c = 1 \text{ mA}$


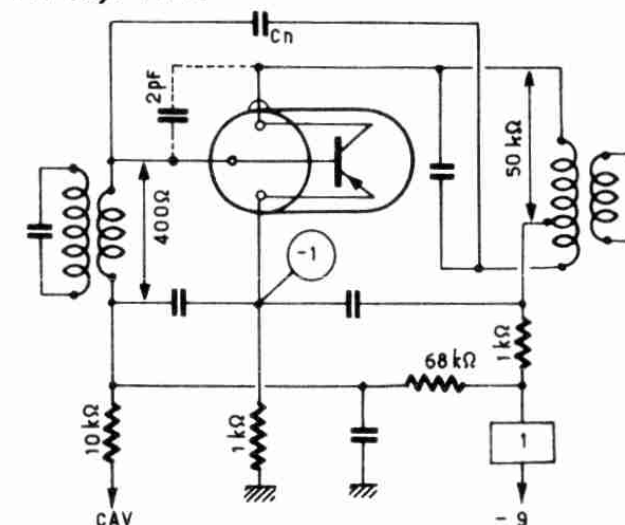
SFT308

Conv. < 2 MHz

 $\beta = 70$ 

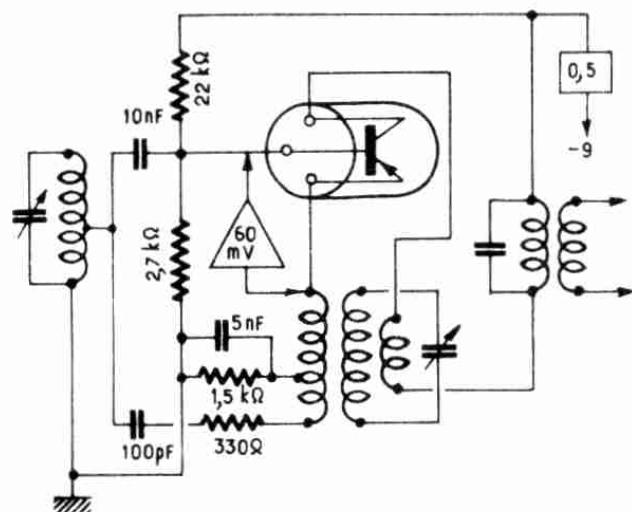
SFT316

MF 10,7 MHz

 $\beta = 120$
 $GP = 25 \text{ dB}$


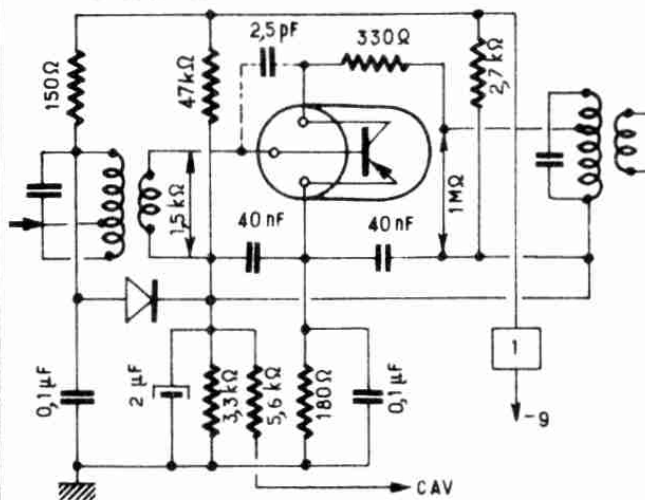
SFT 317

Conv. < 18 MHz

 $\beta = 20 \dots 100$ 

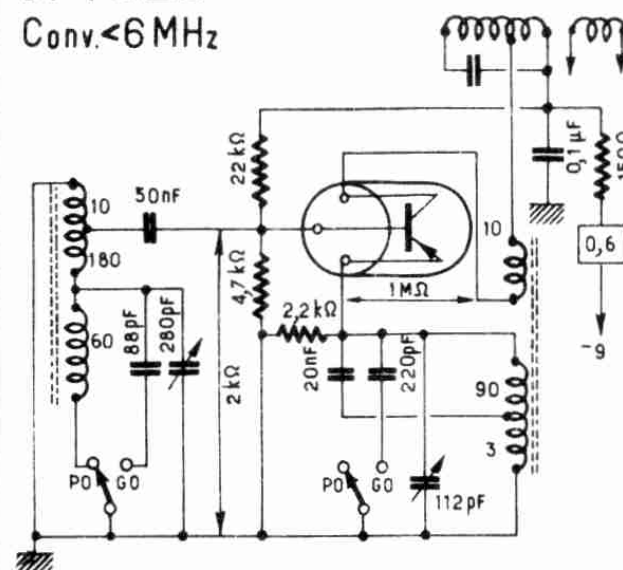
SFT 319

MF 470 kHz

 $\beta = > 20$
GP = 30 dB

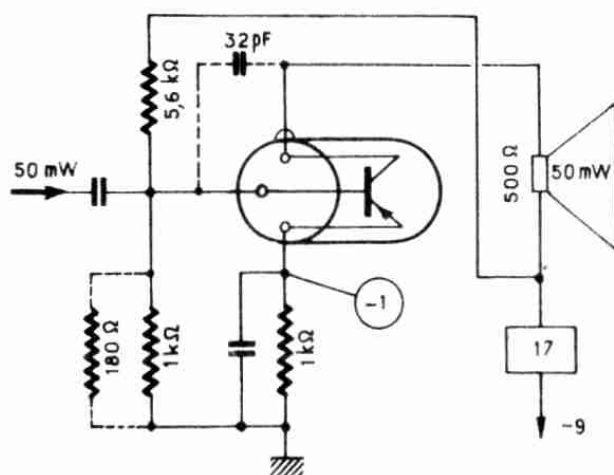
SFT 320

Conv. < 6 MHz

 $\beta = 80$ 

SFT 321

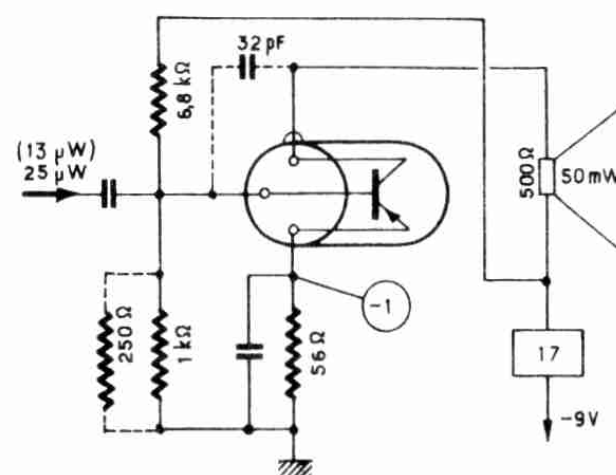
BF

 $\beta = 30$
GP = 30 dB

SFT 322

(SFT 323)

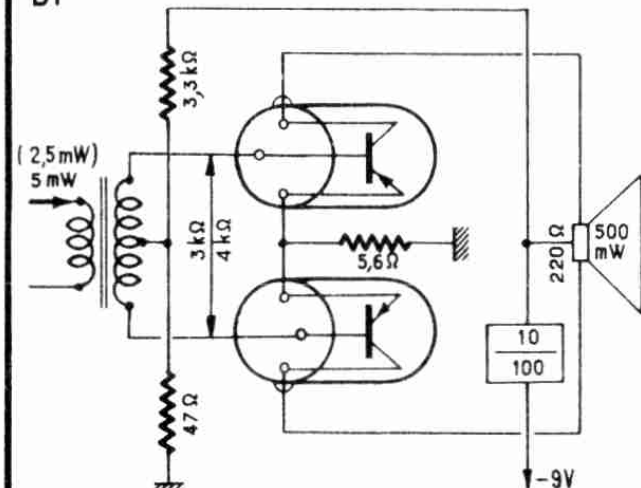
BF

 $\beta = 50 (80)$
GP = 33 dB
(36 dB)

SFT 322

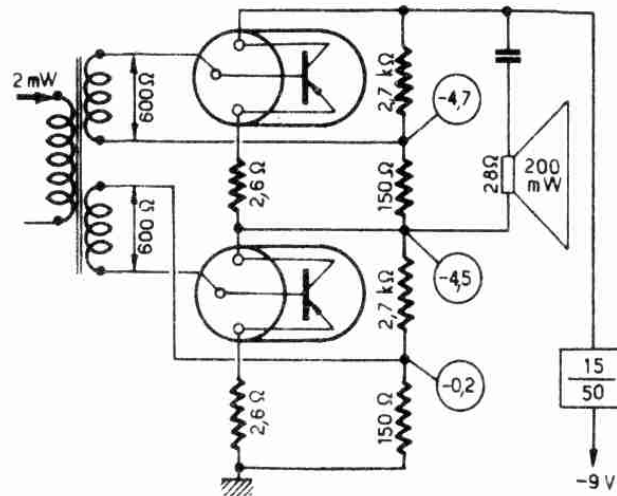
(SFT 323)

BF

 $\beta = 50 (80)$
GP = 20 dB
(23 dB)

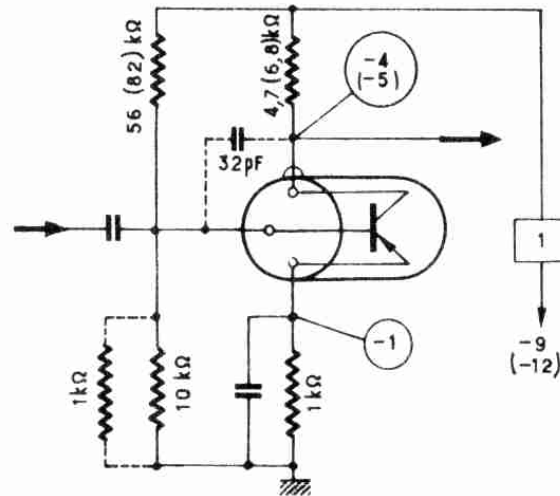
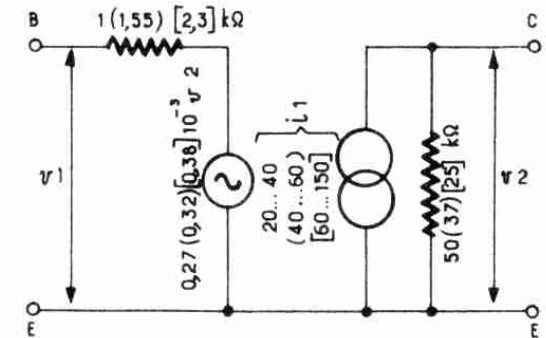
SFT 322

BF

 $\beta = 50$
 $GP = 20 \text{ dB}$


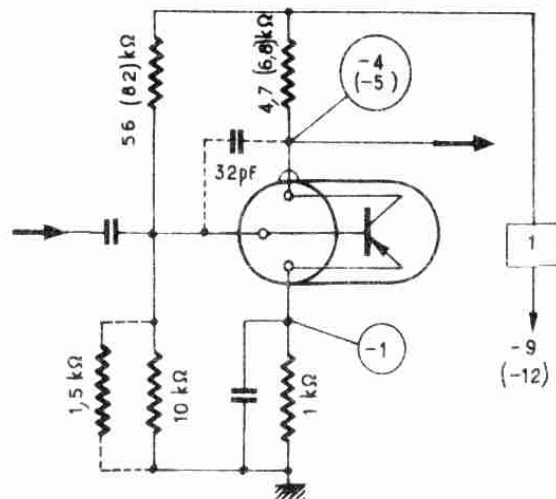
SFT 351

BF

 $\beta = 30$
 $Fb = 8 \text{ dB}$
SFT 351
(SFT 352)
(SFT 353)
 $V_c = -6 \text{ V}$
 $I_c = 1 \text{ mA}$
 $f = 1 \text{ kHz}$
 $Fb = 8 \text{ dB}$


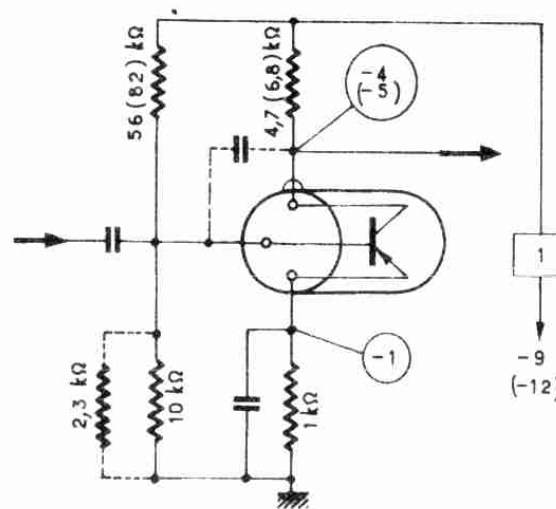
SFT 352

BF

 $\beta = 50$
 $Fb = 8 \text{ dB}$


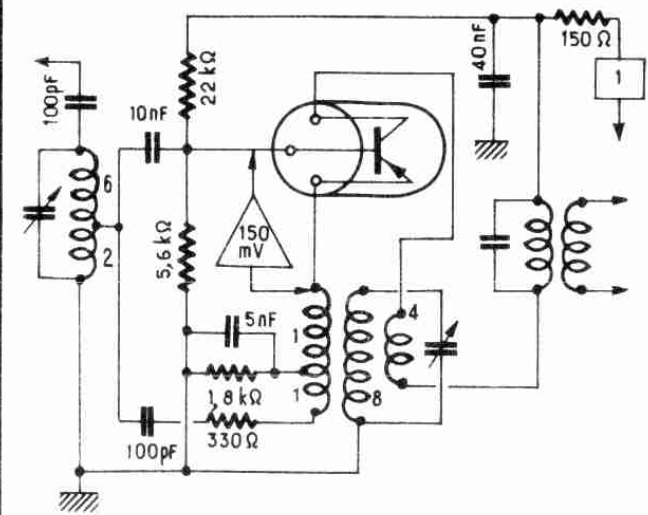
SFT 353

BF

 $\beta = 80$
 $Fb = 8 \text{ dB}$


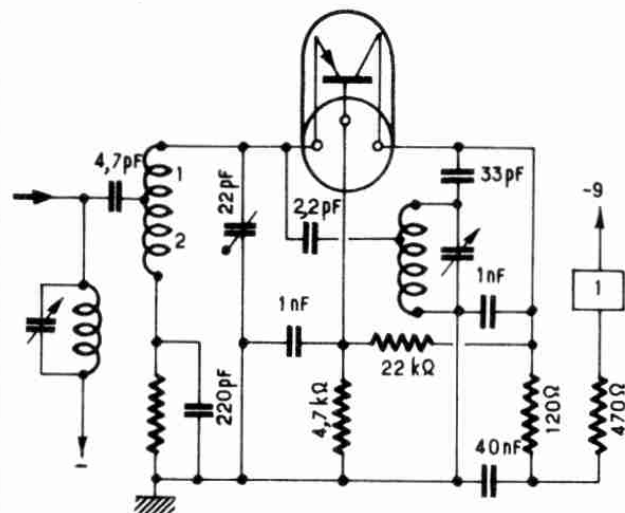
SFT 354

Conv. < 23 MHz

 $\beta = 100$ 

SFT 357

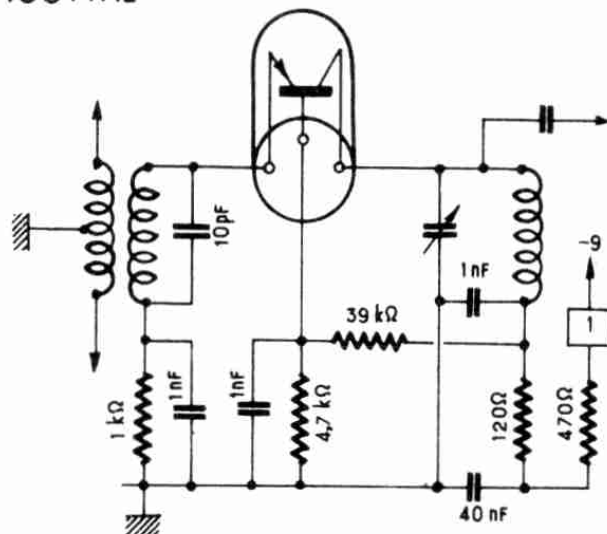
Conv. 100MHz

 $\beta = 100$ 

SFT 358

100MHz

$\beta = 150$
 $G_P = 14 \text{ dB}$
 $F_b = 7 \text{ dB}$

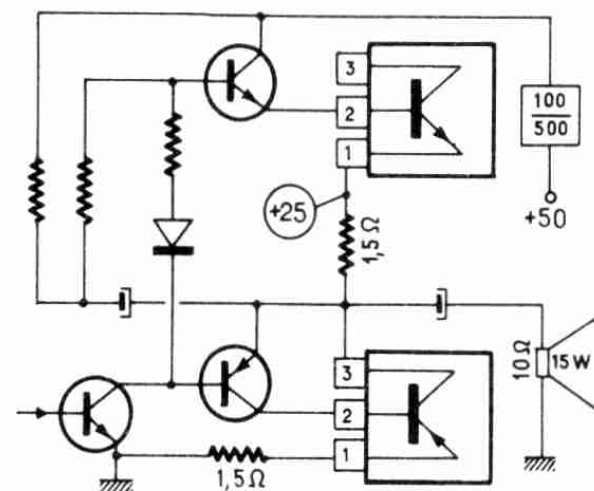


TIP 14,24

P

n-p-n
 Si

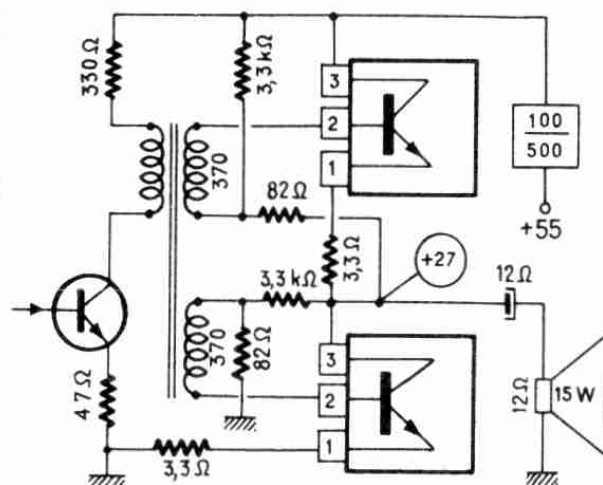
$\beta > 20$
 $f_t > 40 \text{ MHz}$



TIP 24

P

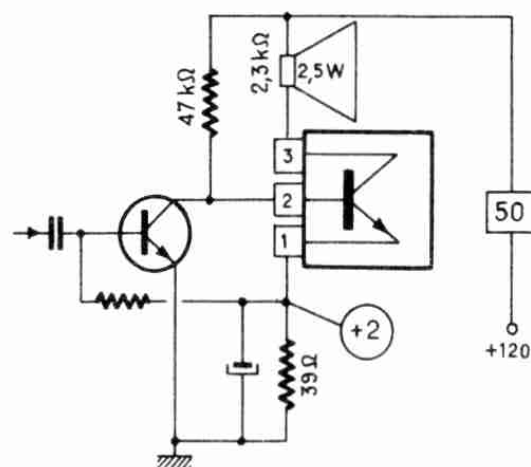
n-p-n
 Si

 $\beta > 20$ 

TIP 27

P

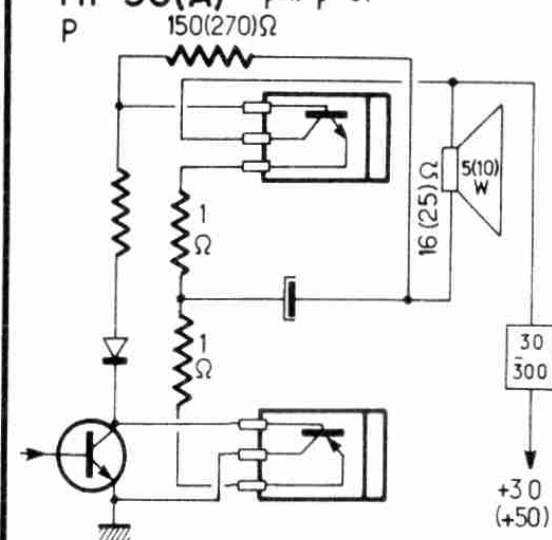
n-p-n
 Si

 $\beta = 25 \dots 150$ 

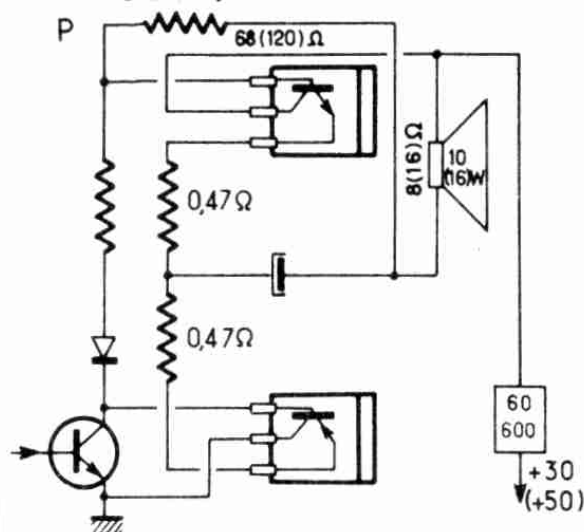
TIP 29(A)

P

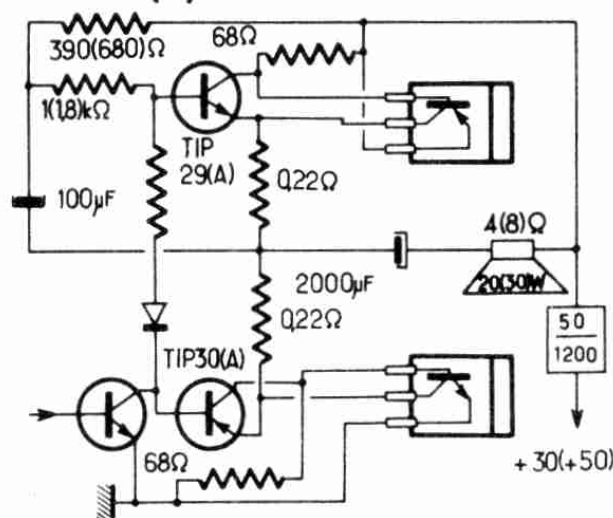
n-p-n Si
 p-n-p Si

 $\beta = 40 \dots 200$ 

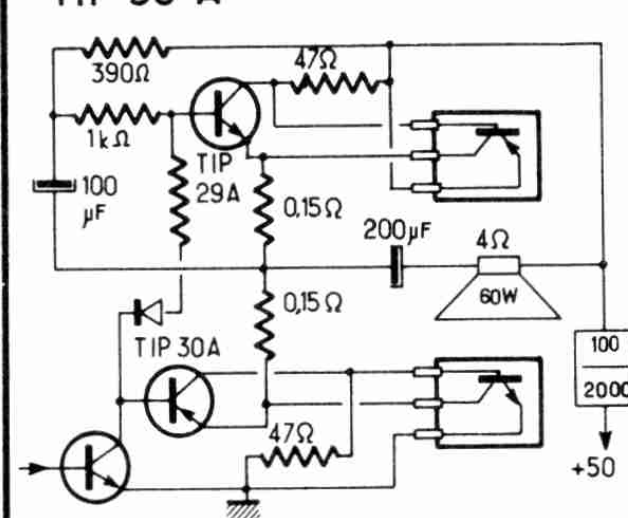
TIP 31 (A) n-p-n Si $\beta = 20 \dots 100$
 TIP 32 (A) p-n-p Si



TIP 33 (A) p n-p-n Si $\beta = 25 \dots 125$
 TIP 34 (A) p n-p-n Si

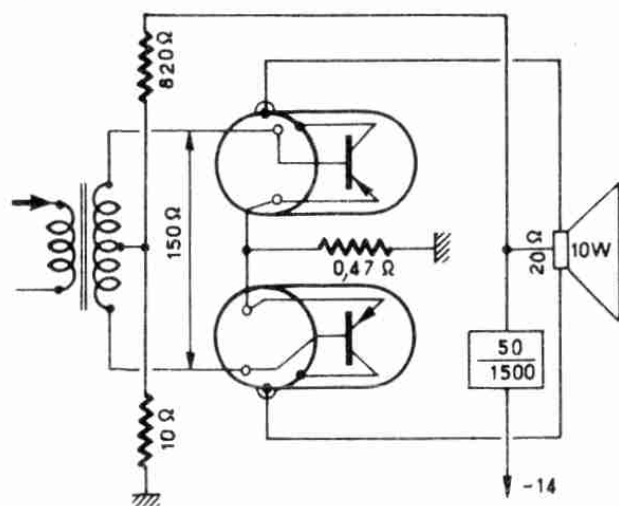


TIP 35 A n-p-n Si
 TIP 36 A p n-p-n Si



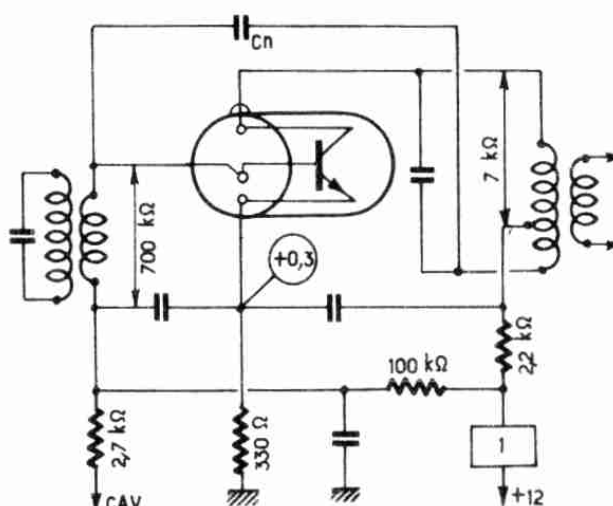
2N 155
 P

$\beta > 24$
 GP = 17 dB



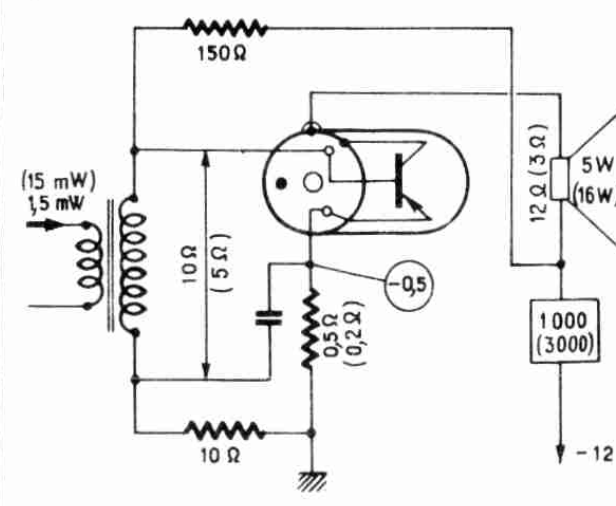
2N 169 A n-p-n
 MF 470 kHz

$\beta = 72$
 GP = 24 dB



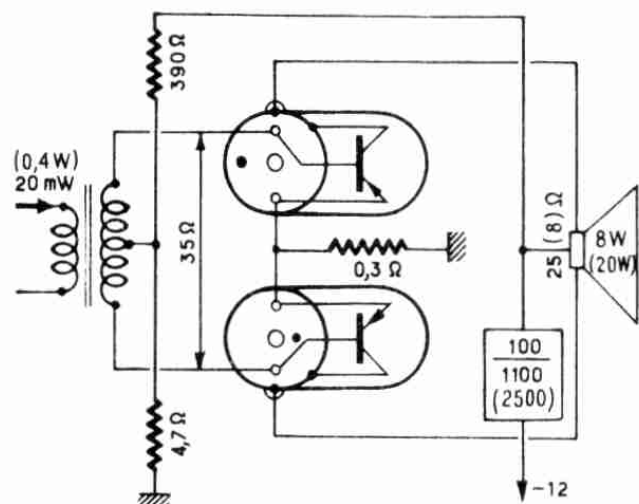
2N 173
 P

$\beta = 85$
 GP = 36 dB
 (30 dB)



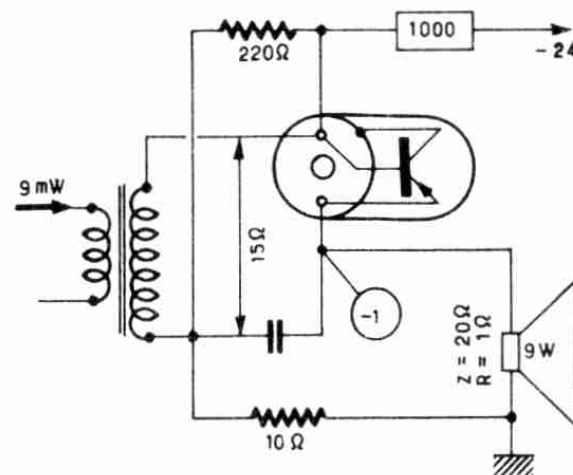
2N 173

P

 $\beta = 50 \dots 85$
 $GP = 27 \text{ dB}$
 (17 dB)


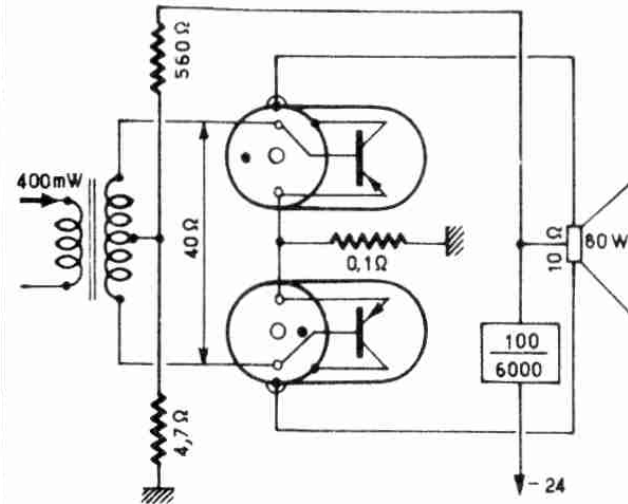
2N174

P

 $\beta = 40$
 $GP = 30 \text{ dB}$


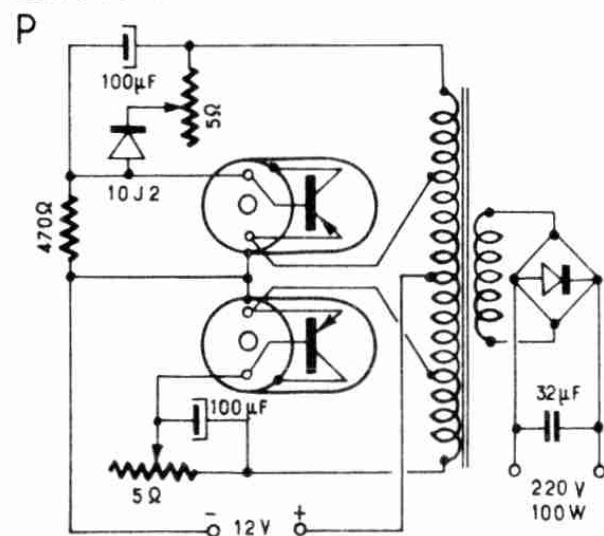
2N 174

P

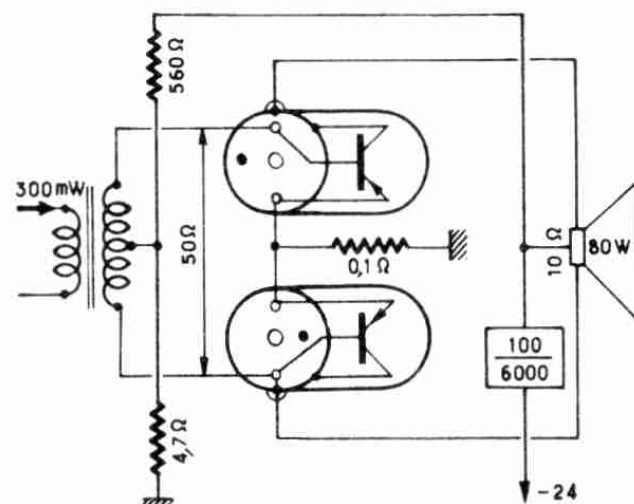
 $\beta = 40$
 $GP = 23 \text{ dB}$


2N174

P

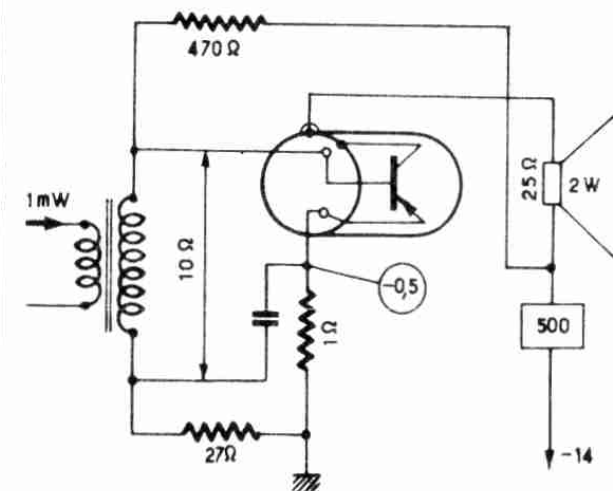
 $\beta = 40$ 

2N 174 A

 $\beta = 50$
 $GP = 24 \text{ dB}$


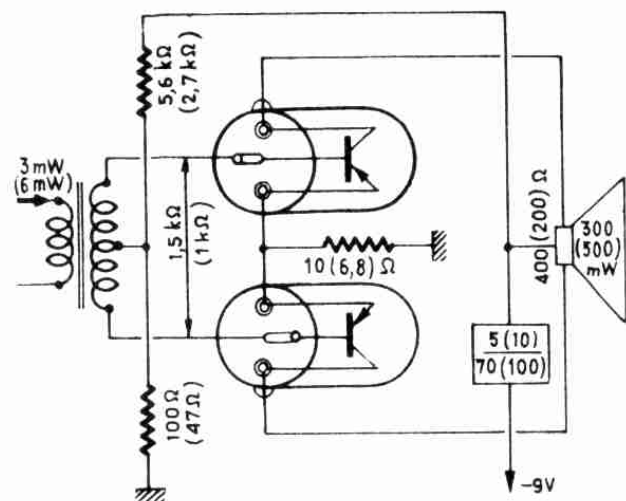
2N 176

P

 $\beta = 63$
 $GP = 35 \text{ dB}$


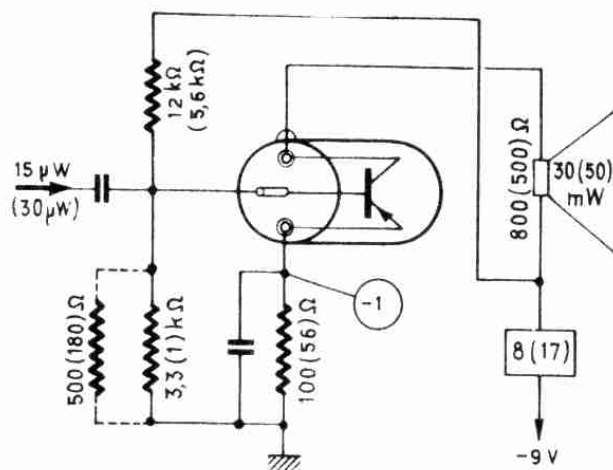
2N 186, (A)

BF

 $\beta = 24$
GP = 20(18)dB

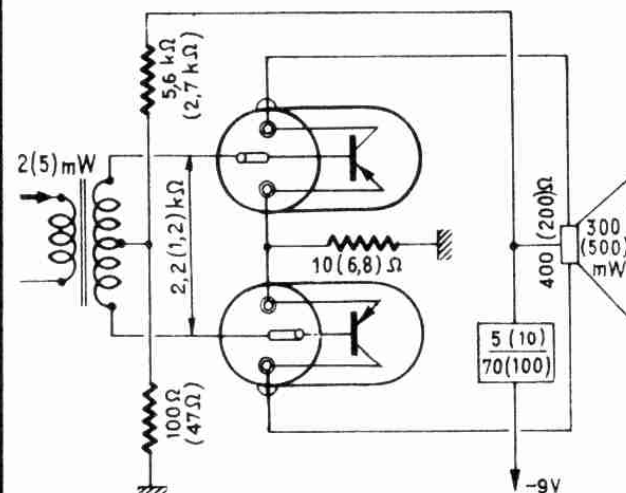
2N 187, (A)

BF

 $\beta = 36$
GP = 33(30)

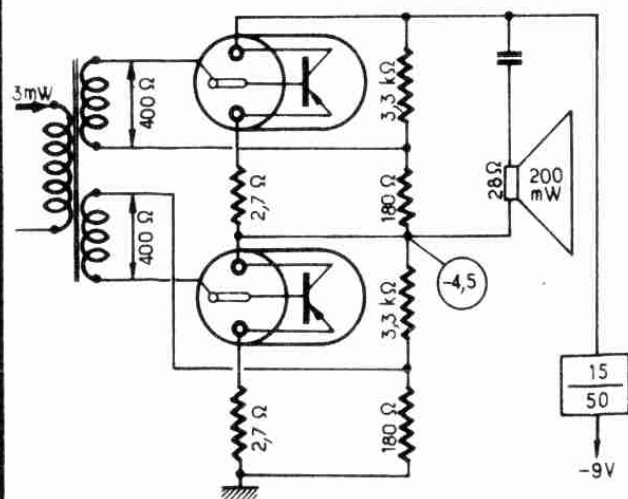
2N 187, (A)

BF

 $\beta = 36$
GP = 22(20)dB

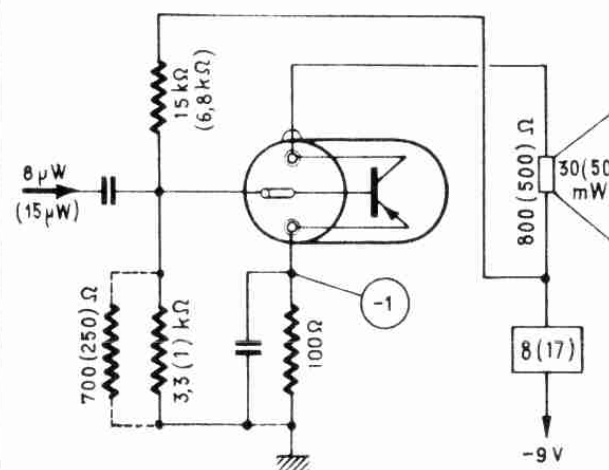
2N 187A

BF

 $\beta = 36$
GP = 18 dB

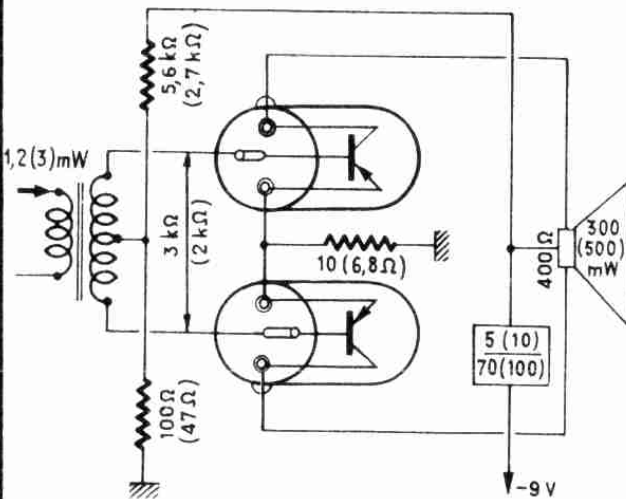
2N 188, (A)

BF

 $\beta = 54$
GP = 36(24)dB

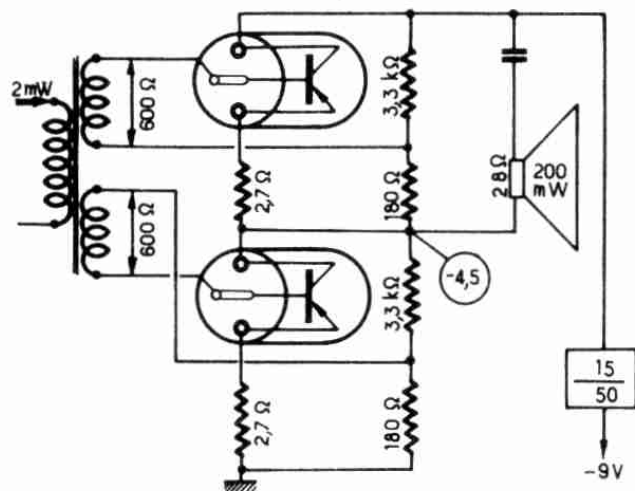
2N 188, (A)

BF

 $\beta = 54$
GP = 24(22)dB

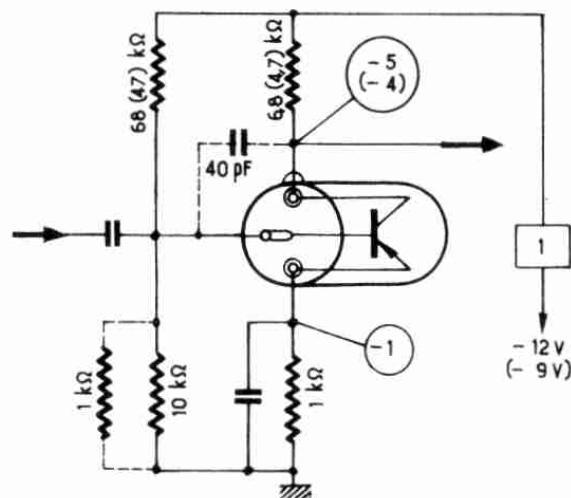
2N 188A

BF

 $\beta = 54$
GP = 20 dB

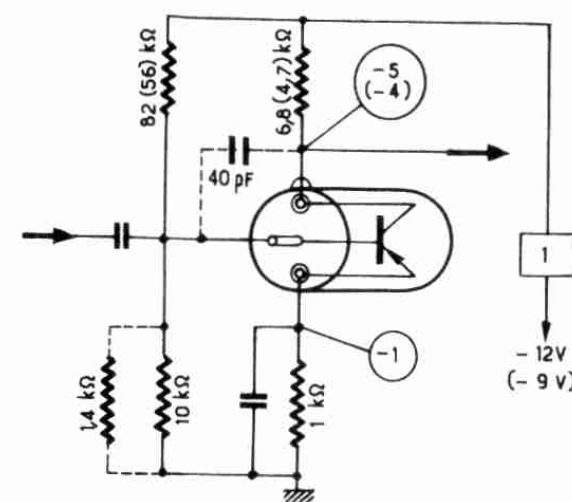
2N 189

BF

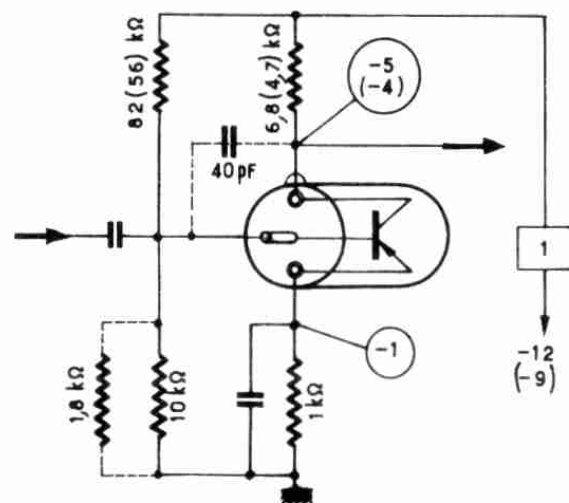
 $\beta = 24$
GP = 15 dB

2N 190

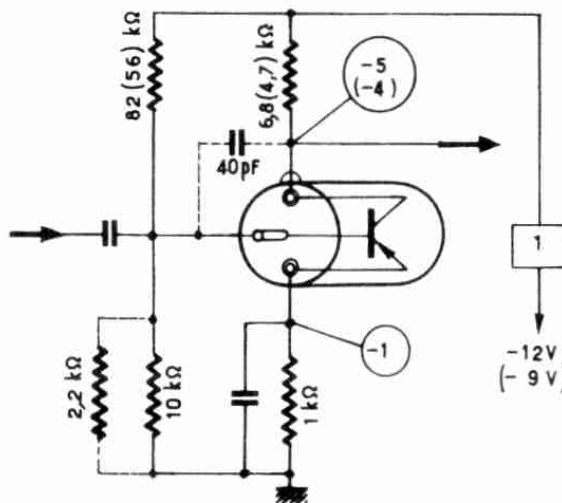
BF

 $\beta = 38$
Fb = 15 dB

2N 191

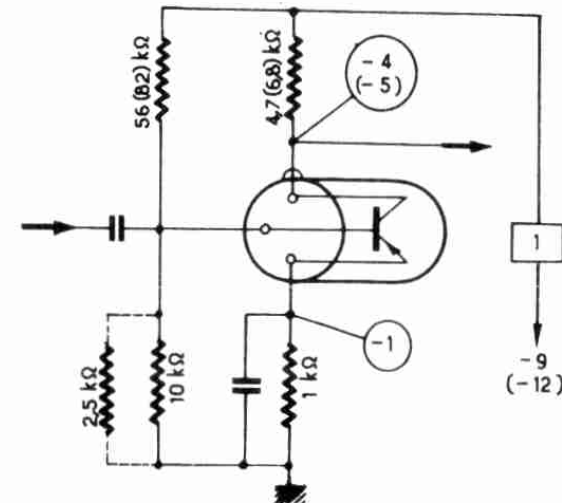
 $\beta = 54$
Fb = 15 dB

2N 192

 $\beta = 75$
Fb = 15 dB

2N 217

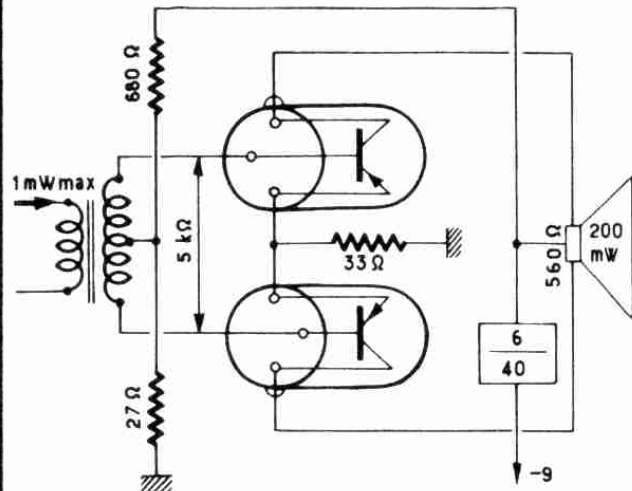
BF

 $\beta = 75$ 

2N 217

BF

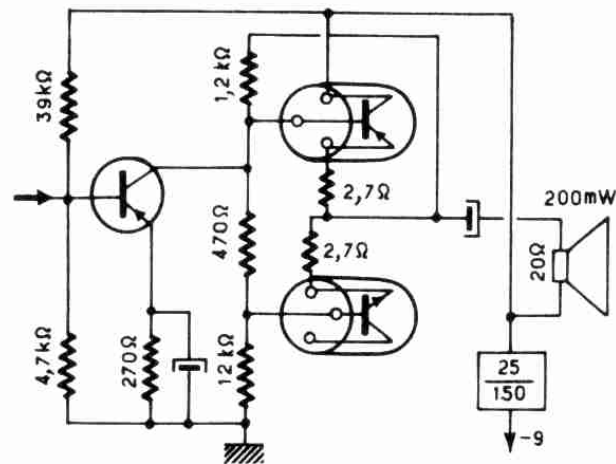
$\beta = 75$
GP = 30 dB max



2N229 2N226

n-p-n
p-n-p

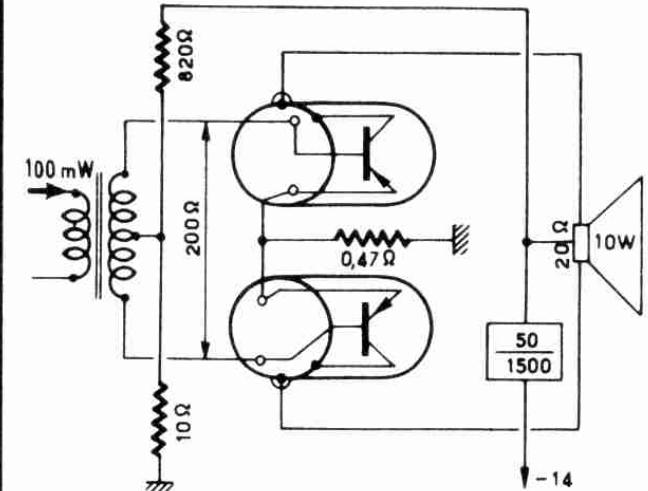
= 25...100



2N 235 A,B

P

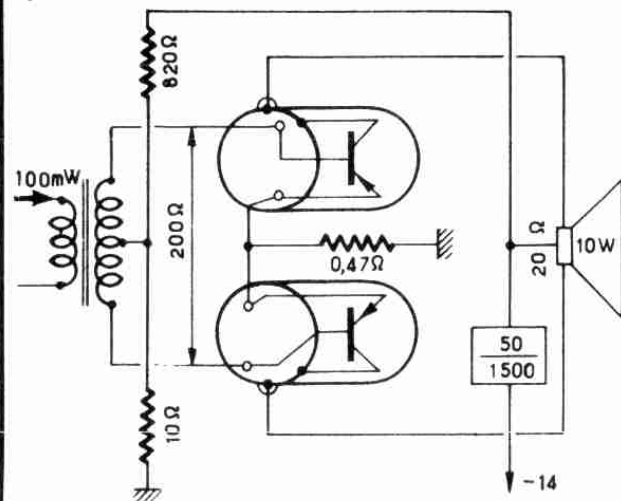
$\beta = 50$
GP = 20 dB



2N 236 B

P

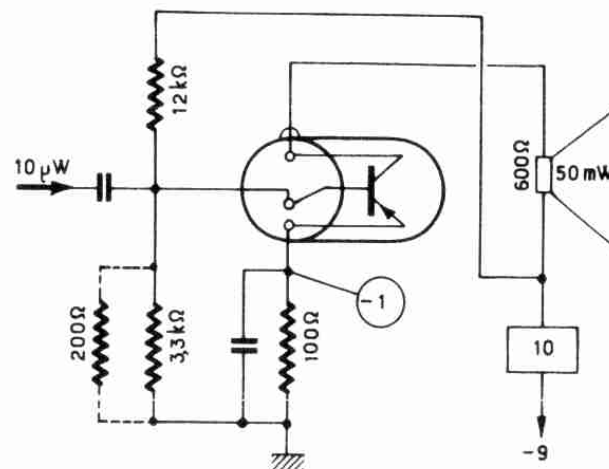
$\beta = 60$
GP = 20 dB



2N 238

BF

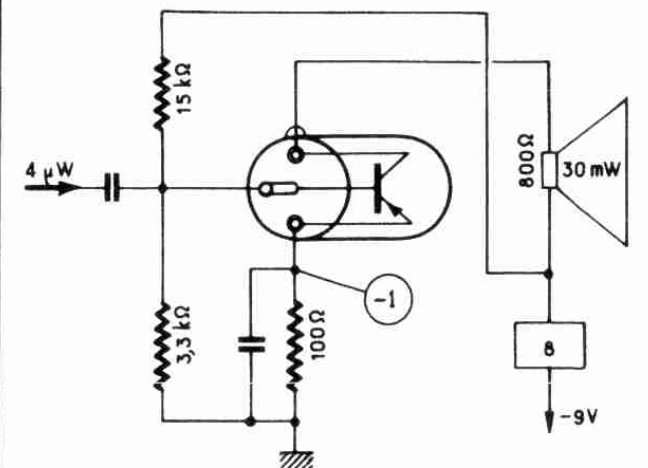
$\beta = 50$
GP = 33 dB

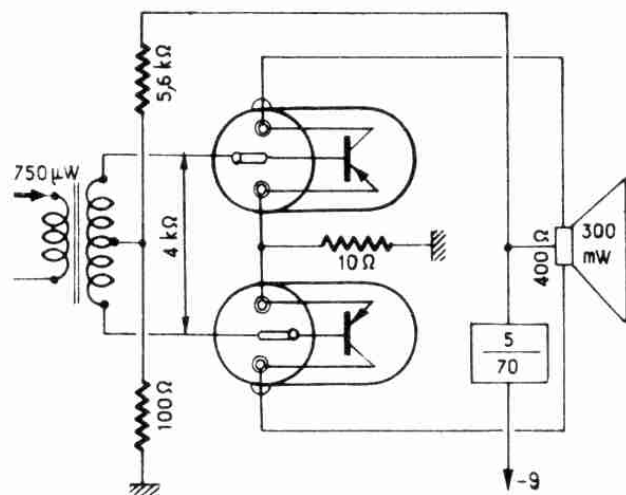
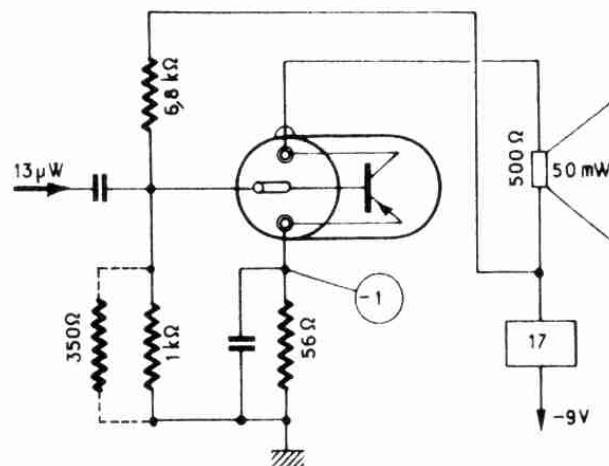
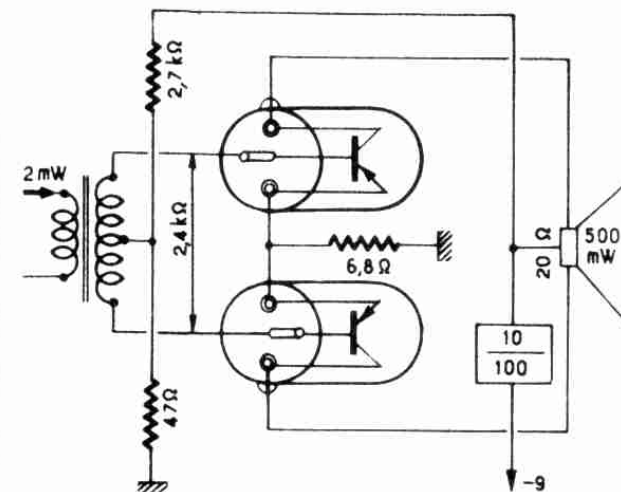
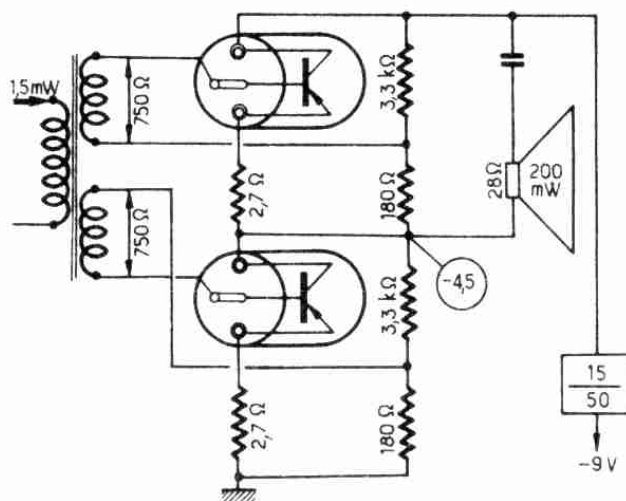
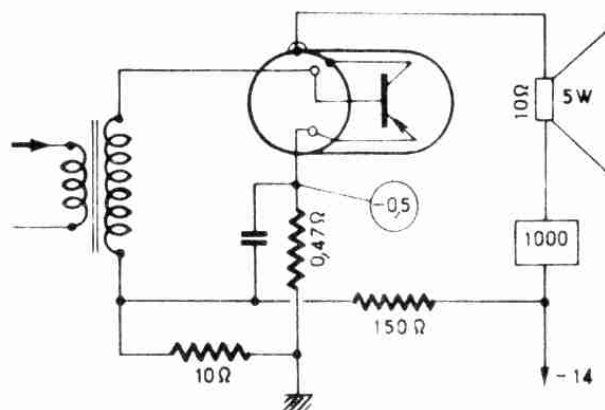
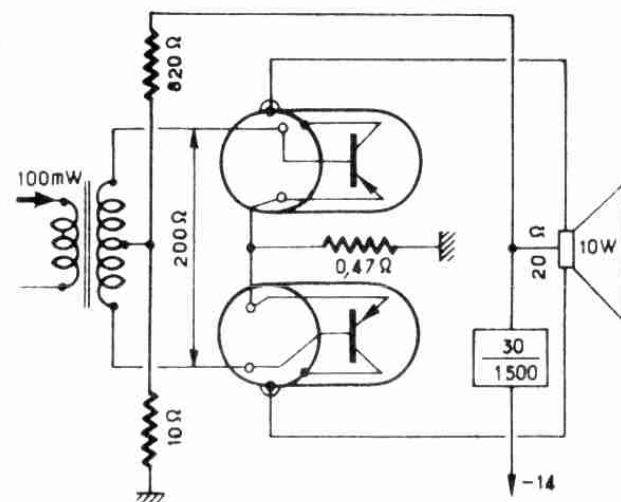


2N 241

BF

$\beta = 73$
GP = 39 dB

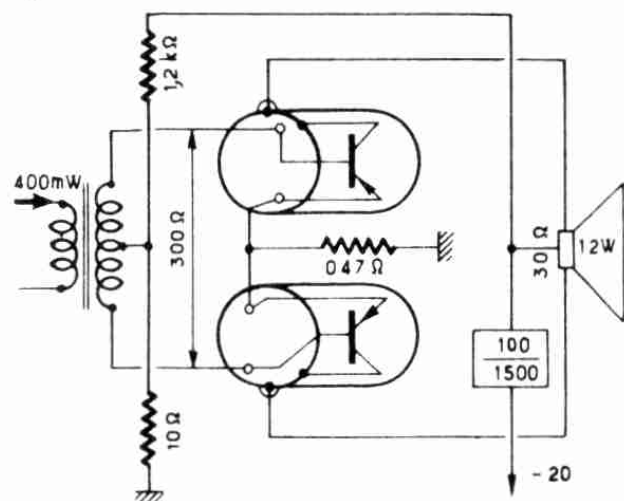


2 N 241
BF $\beta = 73$
GP = 26 dB2 N 241 A
BF $\beta = 73$
GP = 36 dB2 N 241 A
BF $\beta = 73$
GP = 24 dB2 N 241 A
BF $\beta = 73$
GP = 22 dB2 N 242
P2 N 250
P $\beta = 50$
GP = 20 dB

2N 251

P

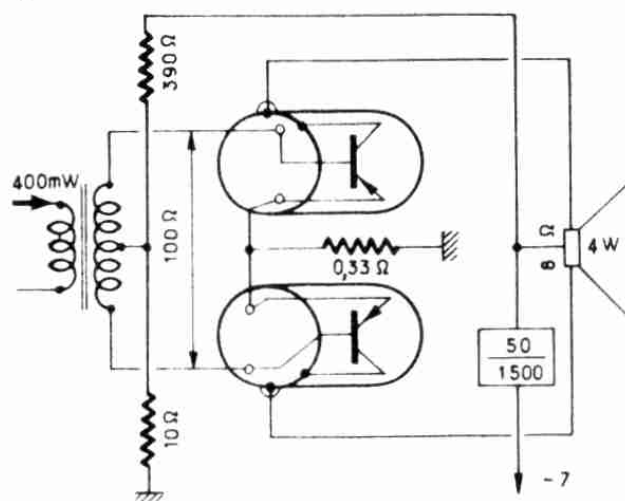
$\beta = 30$
GP = 15 dB



2N 255

P

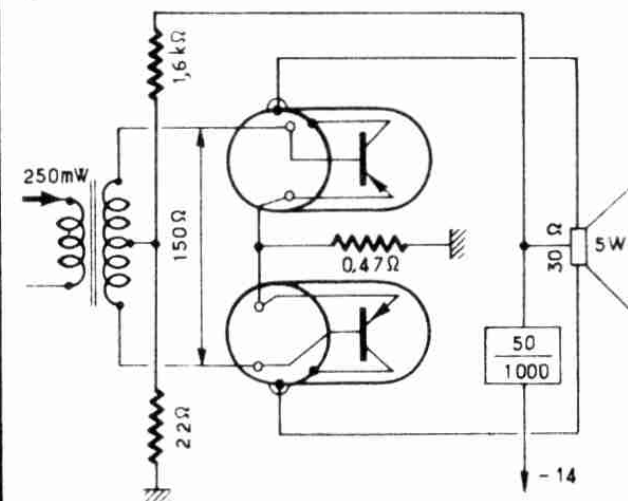
$\beta > 15$
GP > 10 dB



2N 256

P

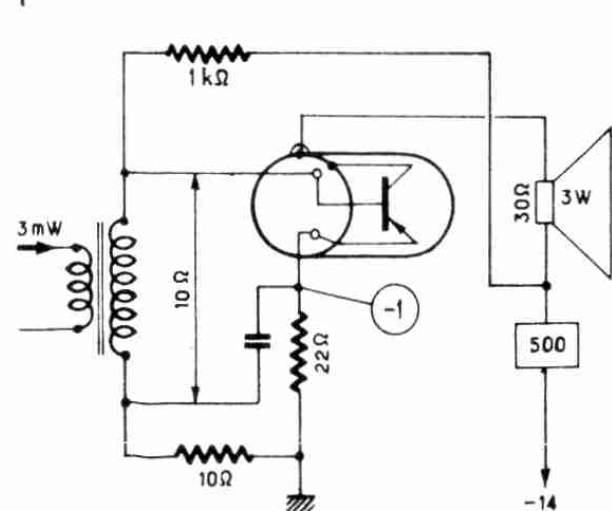
$\beta > 15$
GP > 13 dB



2N 257

P

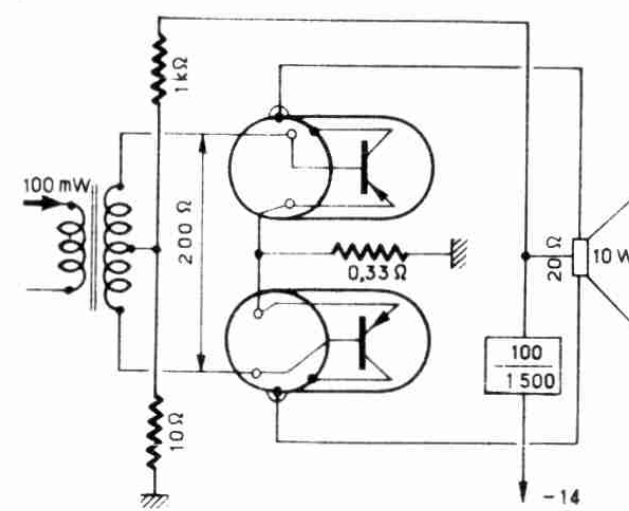
$\beta = 50$
GP = 30 dB



2N 257

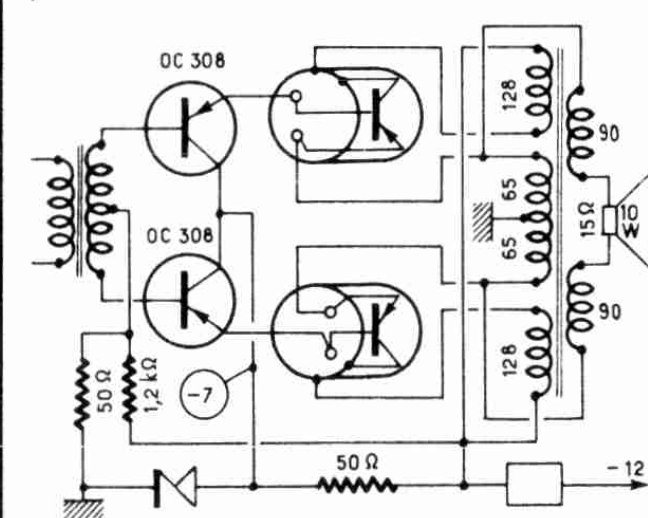
P

$\beta = 50$
GP = 20 dB



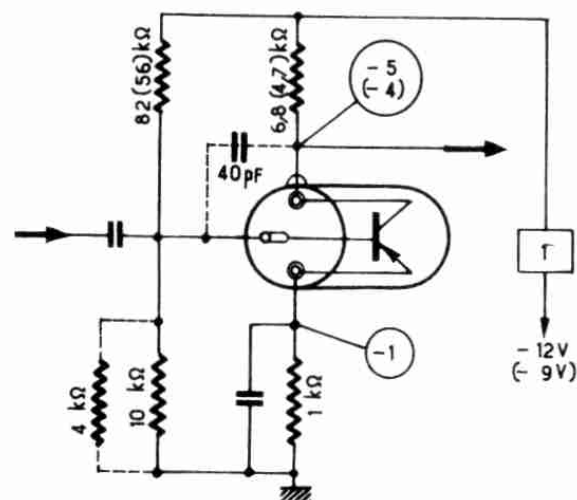
2N 257

P



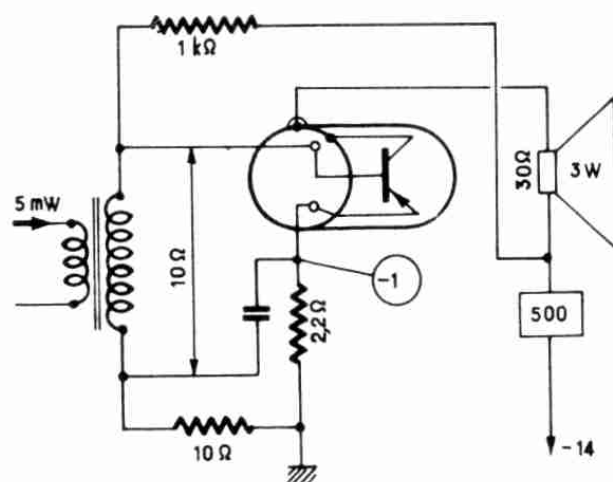
2 N 265

BF

$$\beta = 110$$
$$F = 15 \text{ dB}$$


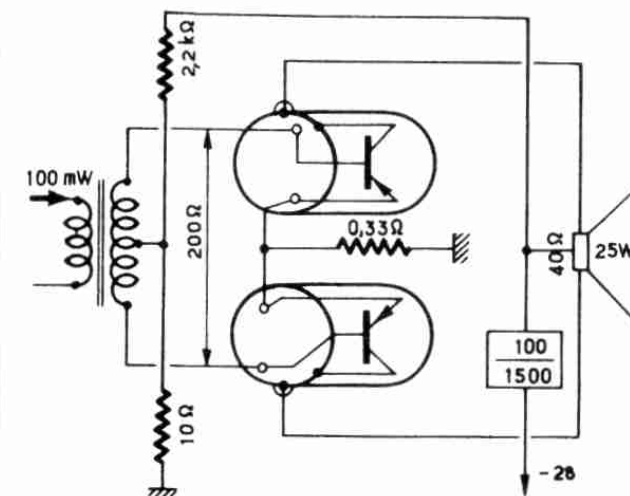
2N 268

P

$$\beta = 50$$
$$GP = 20 \text{ dB}$$


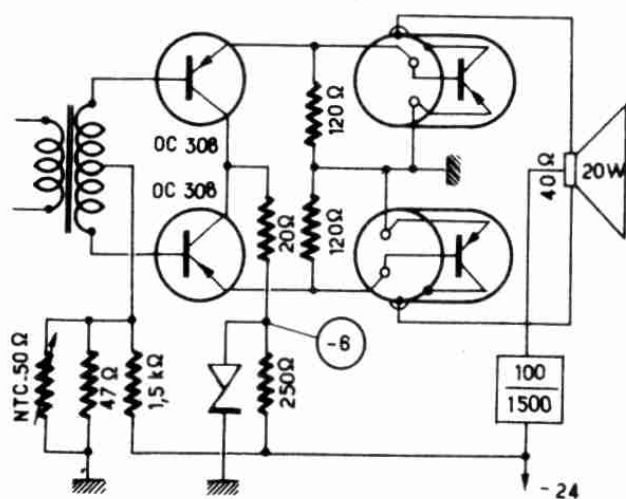
2 N 268

P

$$\beta = 50$$
$$GP = 25 \text{ dB}$$


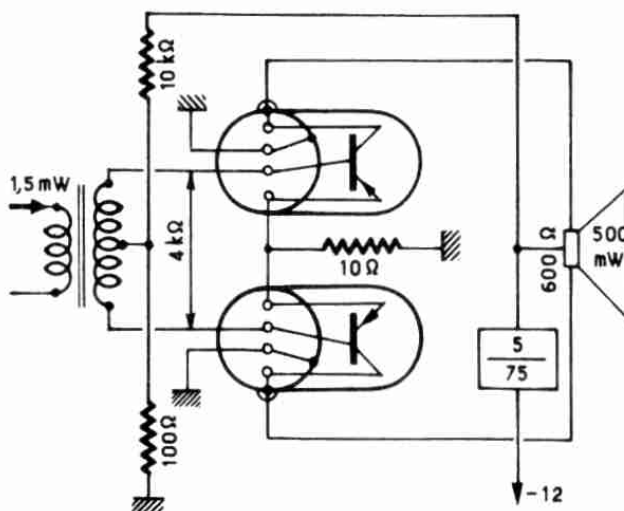
2N 268

P



2N 270

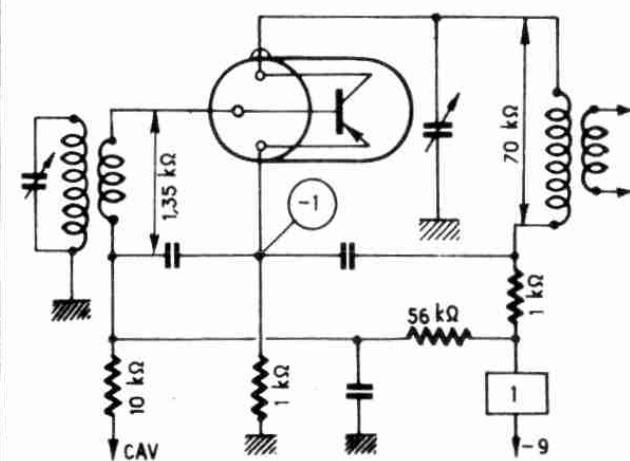
BF

$$\beta = 70$$
$$GP = 25 \text{ dB}$$


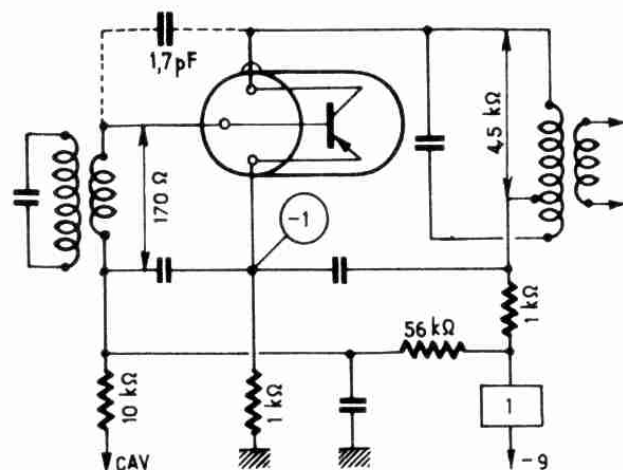
2 N 274

H.F_0,5... 1,6 MHz

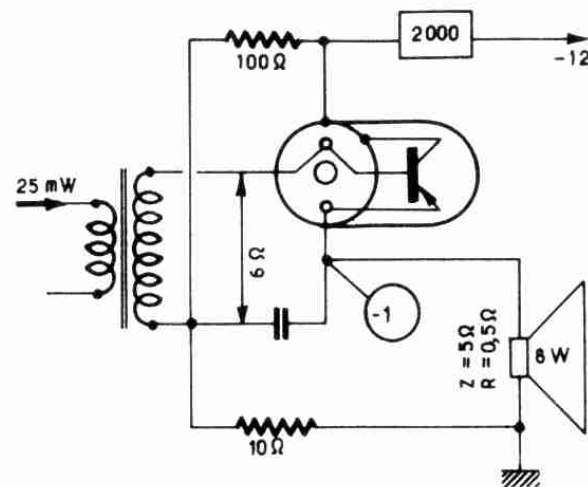
$\beta = 80$
 $GP = 37dB$



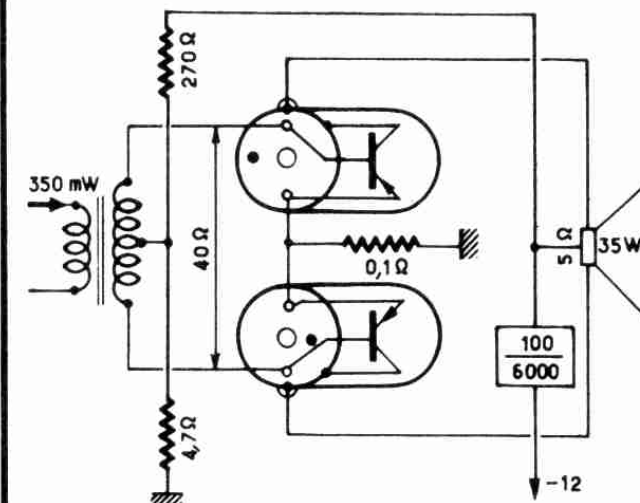
2N 274
MF_10 MHz

 $\beta \approx 80$


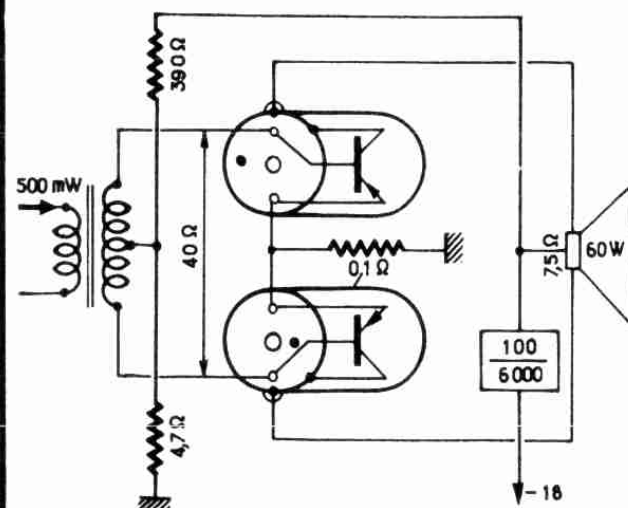
2N277
P

 $\beta = 40$
GP = 25 dB


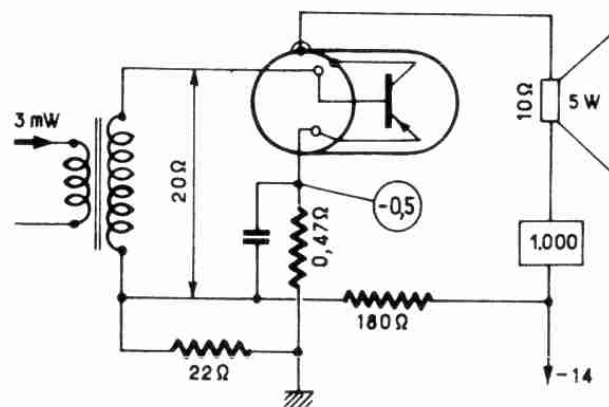
2N 277
P

 $\beta = 40$
GP = 20 dB


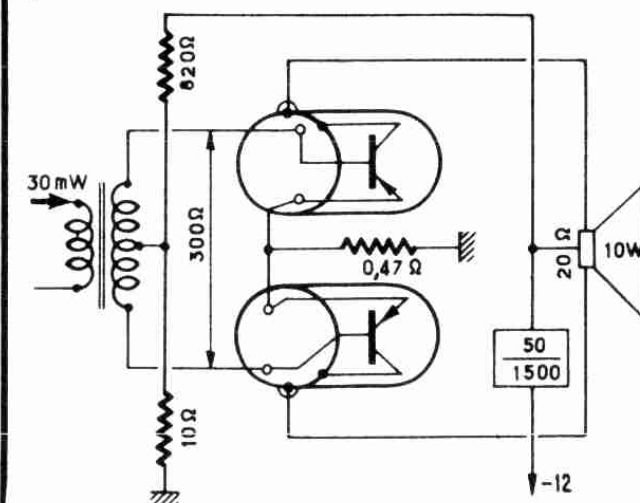
2N 278
P

 $\beta = 40$
GP = 21 dB


2N 285 A
P

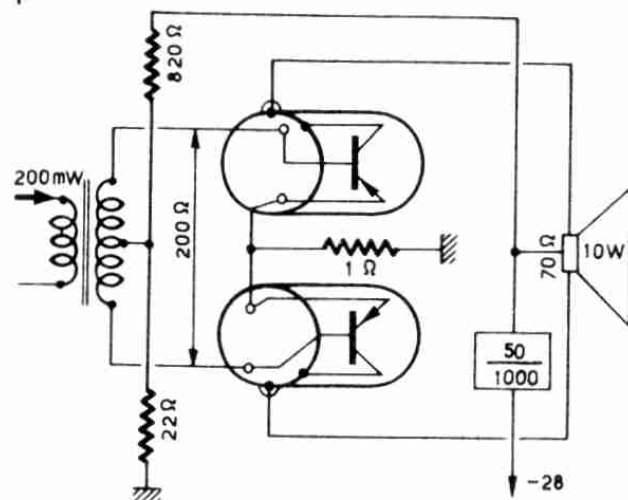
 $\beta = 150$
GP = 33 dB


2N 285 A
P

 $\beta = 150$
GP = 26 dB


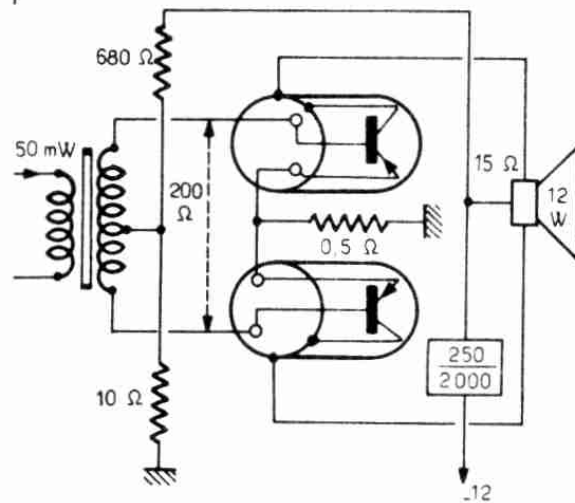
2N 296

P

 $\beta > 20$
 $GP > 17 \text{ dB}$


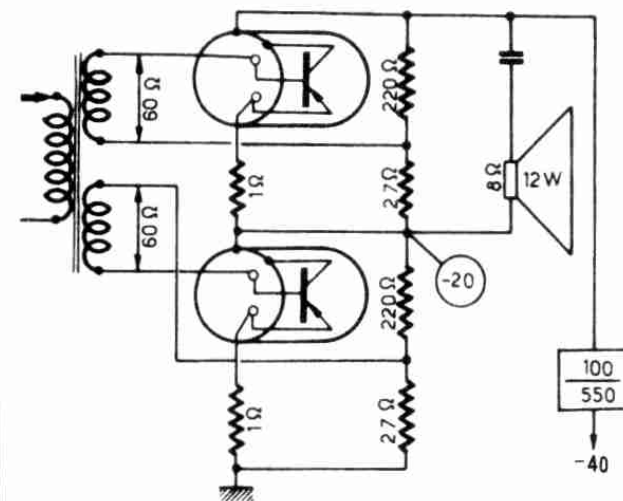
2N 297A

P

 $\beta = 40 \dots 100$
 $GP = 24 \text{ dB}$


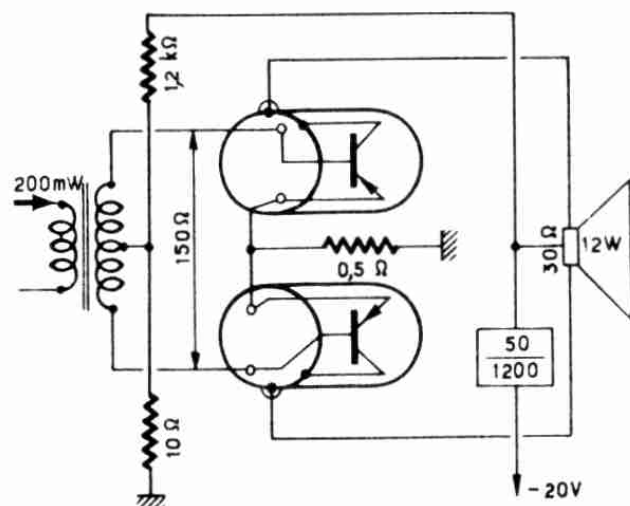
2N 301

P

 $\beta = 70$


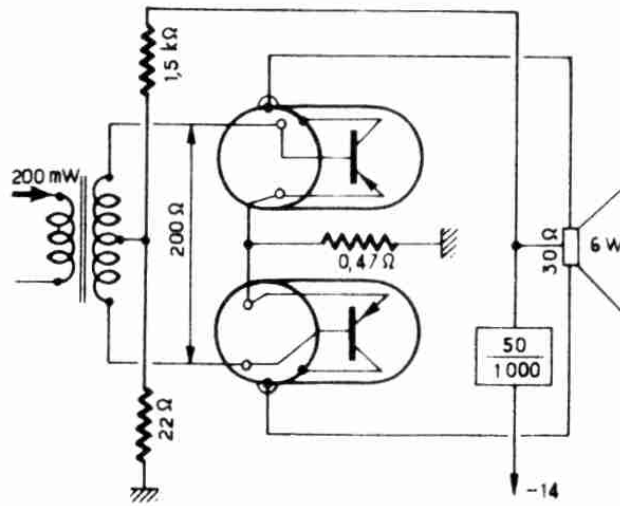
2N 301,A

P

 $\beta = 70$
 $GP = 18 \text{ dB}$


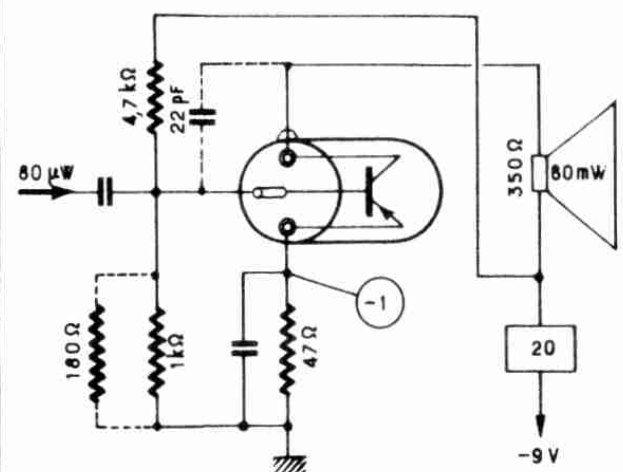
2N 307, A

P

 $\beta > 20$
 $GP > 15 \text{ dB}$


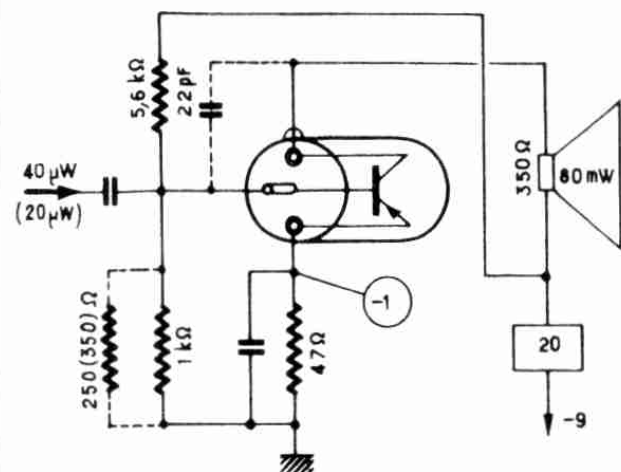
2N 319

BF

 $\beta = 16 \dots 41$
 $GP = 30 \text{ dB}$


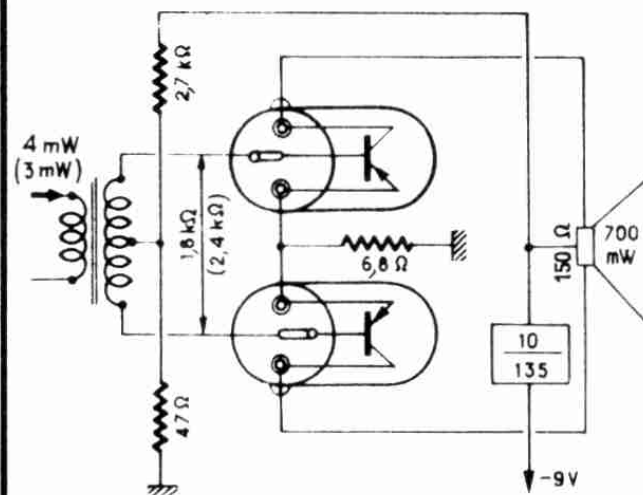
2N 320,(21)

BF

 $\beta = 30 \dots 64$ (44...80)
GP = 33 (36) dB

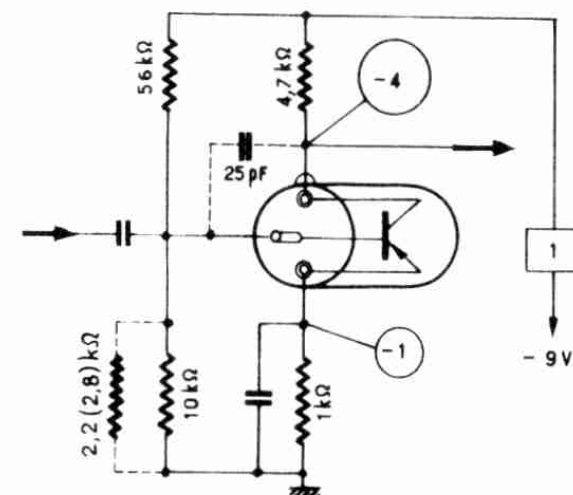
2N 320,(21)

BF

 $\beta = 30 \dots 64$ (44...80)
GP = 22 (24) dB

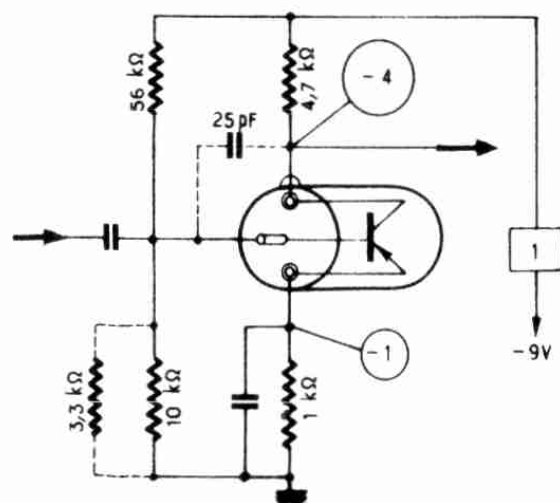
2N 322,(3)

BF

 $\beta = 48$ (70)
Fb = 8 dB

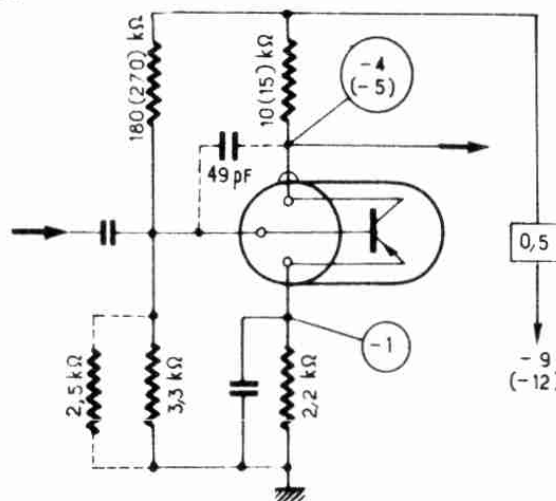
2N 324

BF

 $\beta = 90$
Fb = 8 dB

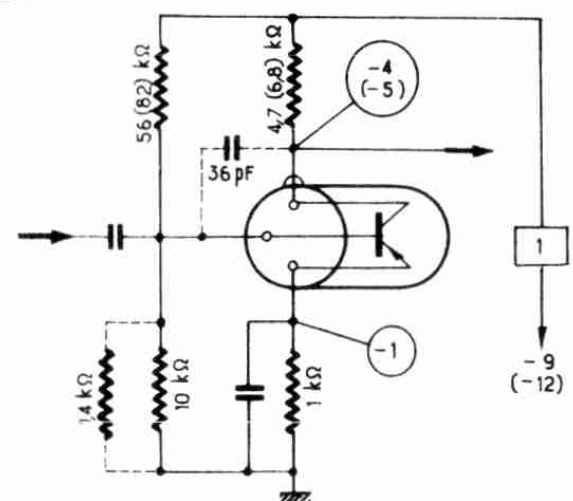
2N 331

BF

 $\beta = 50$
Fb = 9 dB

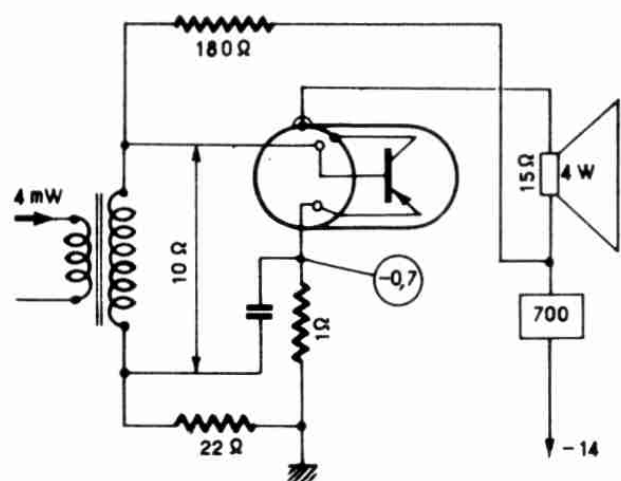
2N 331

BF

 $\beta = 50$
Fb = 9 dB

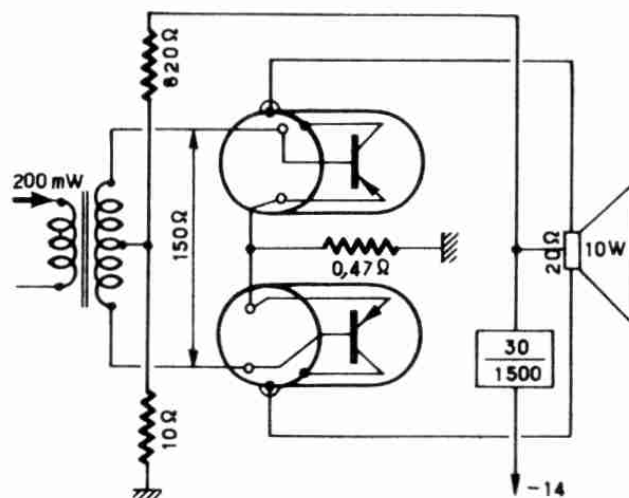
2 N 350 A

P

 $\beta = 30$
GP = 31 dB

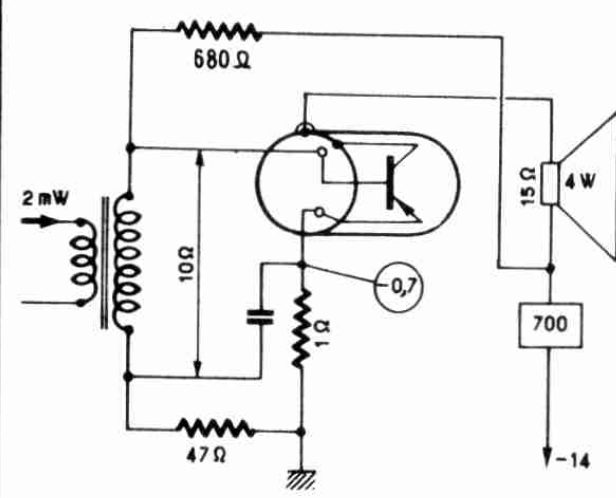
2 N 350 A

P

 $\beta = 30$
GP = 17 dB

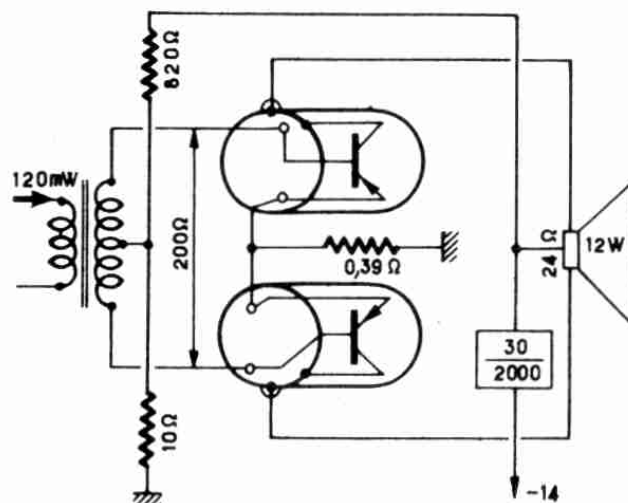
2 N 351, A

P

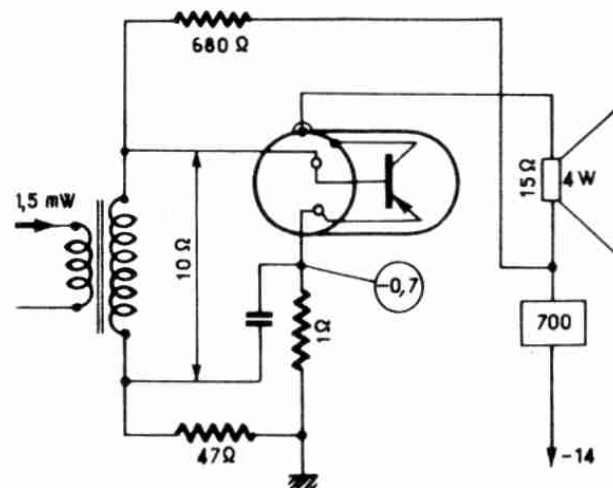
 $\beta = 85$
GP = 33,5 dB

2 N 351 A

P

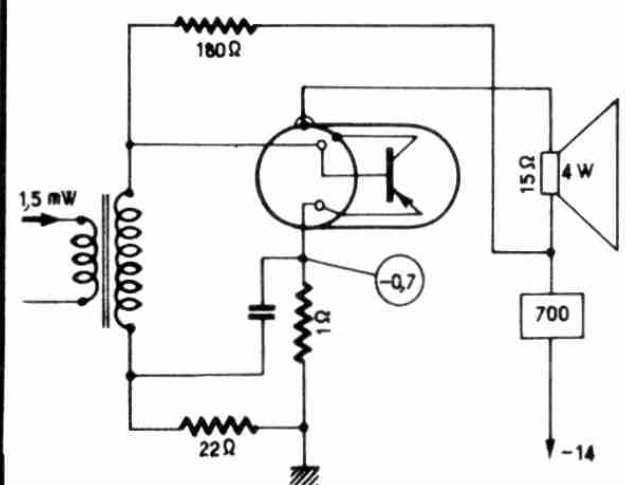
 $\beta = 45$
GP = 20 dB

2 N 376

 $\beta = 78$
GP = 35 dB

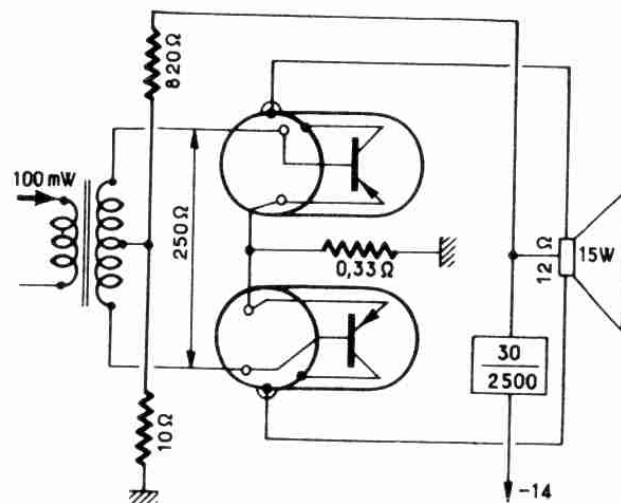
2 N 376 A

P

 $\beta = 80$
GP = 35 dB

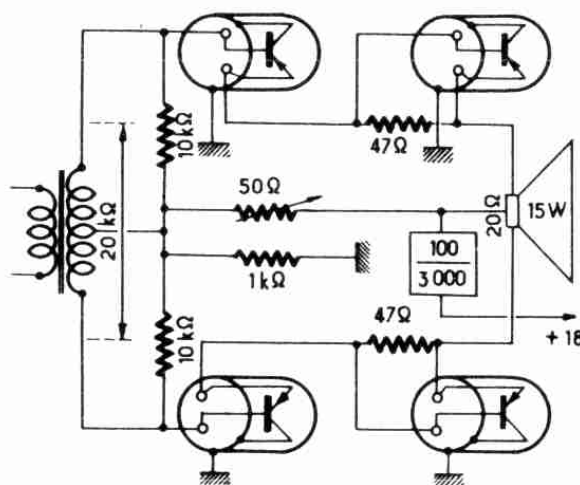
2N376A

P

 $\beta = 60$
 $GP = 22 \text{ dB}$


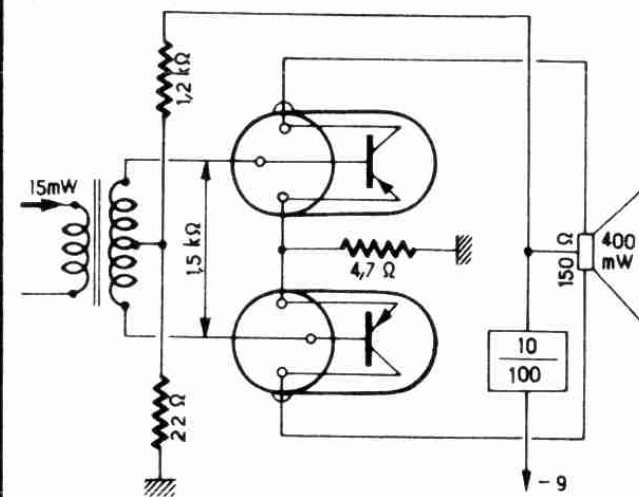
2N376A

P

 $\beta = 65$
 $GP_{tot} = 26 \text{ dB}$


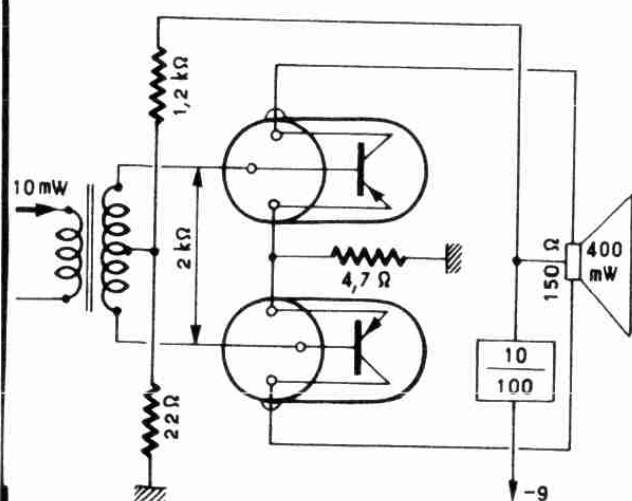
2N381

BF

 $\beta = 24 \dots 45$
 $GP > 15 \text{ dB}$


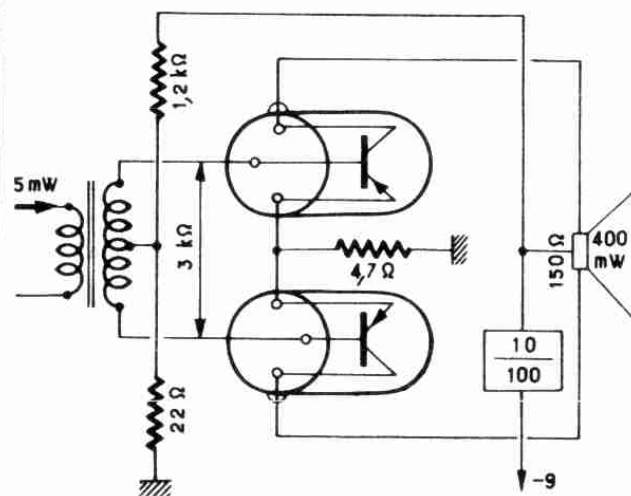
2N382

BF

 $\beta = 40 \dots 76$
 $GP > 17 \text{ dB}$


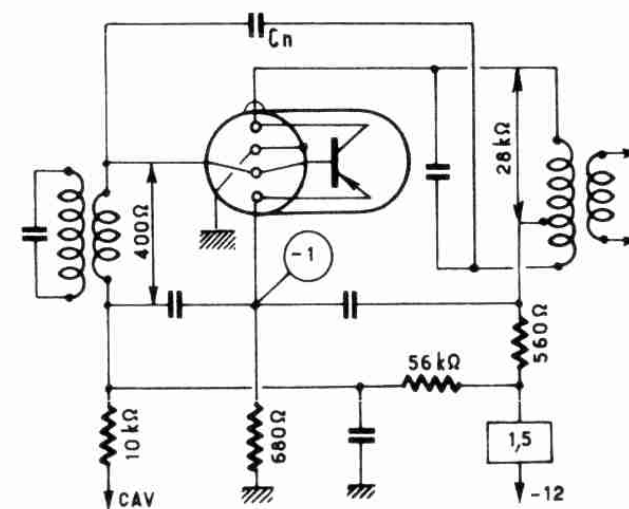
2N383

BF

 $\beta = 55 \dots 110$
 $GP > 20 \text{ dB}$


2N384

10 MHz

 $\beta = 60$
 $GP = 34$


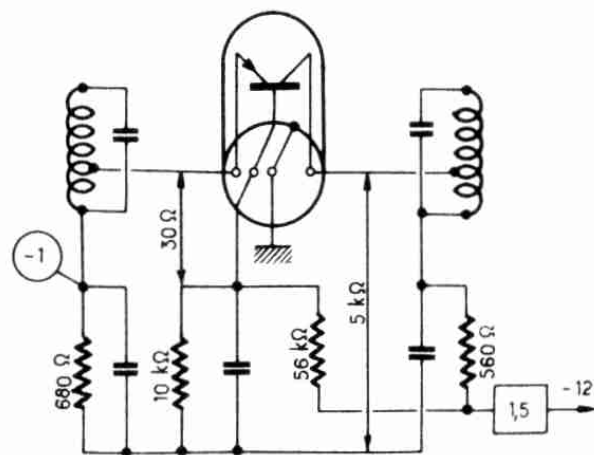
2N384

60

2N407

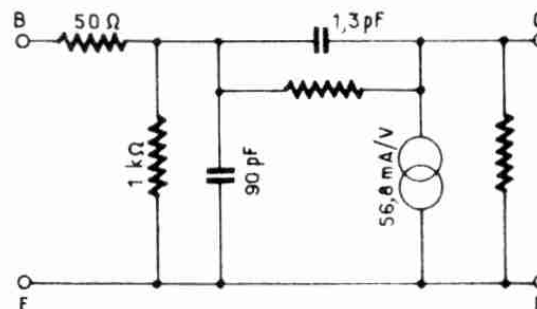
2N 384
VHF_50 MHz

$\alpha = 0,984$
GP = 15 dB



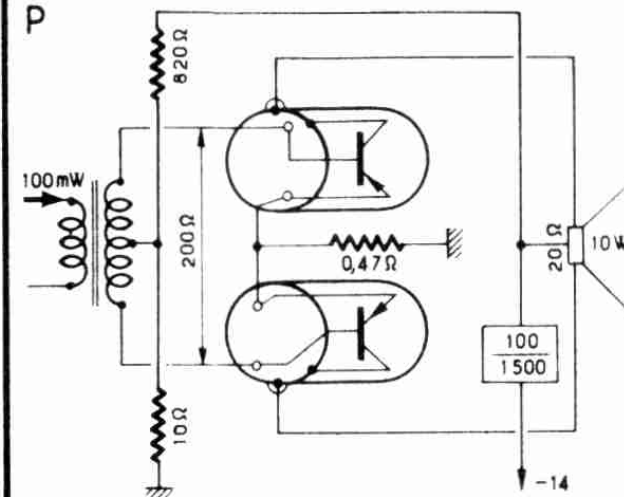
2N 384
VHF

$V_c = -12 V$
 $I_c = 1,5 mA$



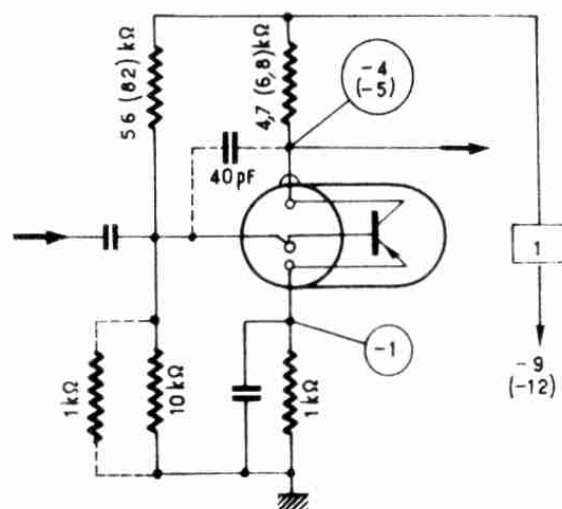
2N 399
2N 401
P

$\beta = 40$
GP = 20 dB



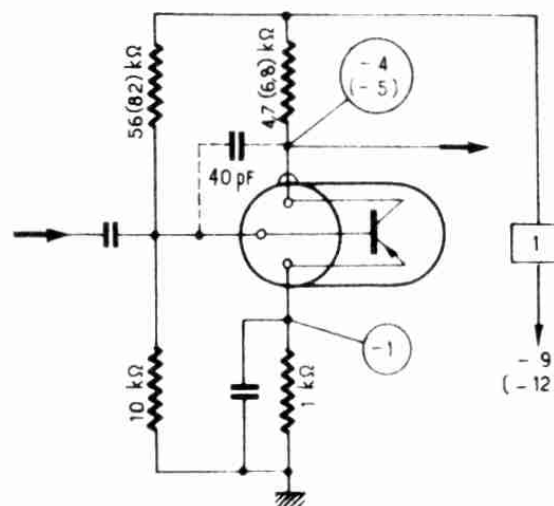
2N 405
BF

$\beta = 35$



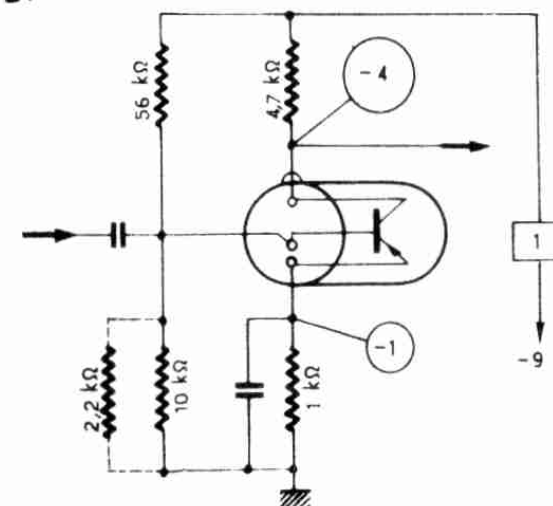
2N 406
BF

$\beta = 35$



2N 407
BF

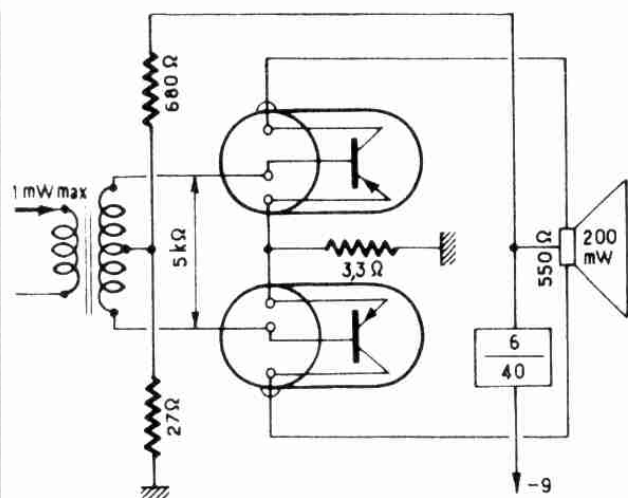
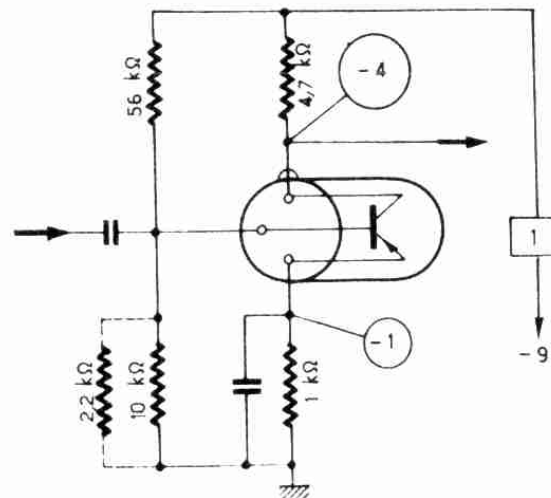
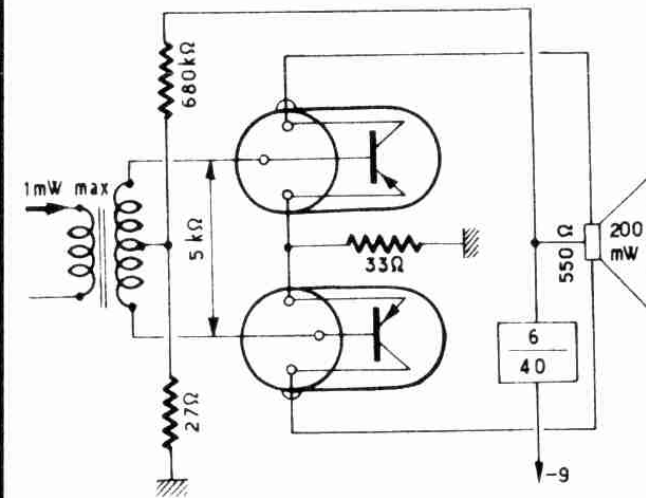
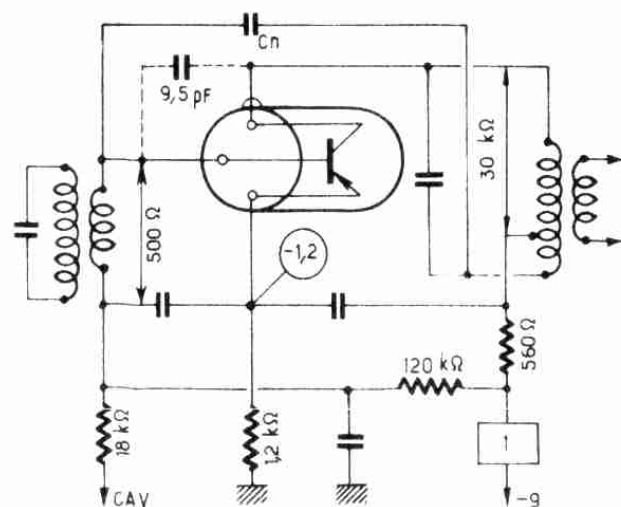
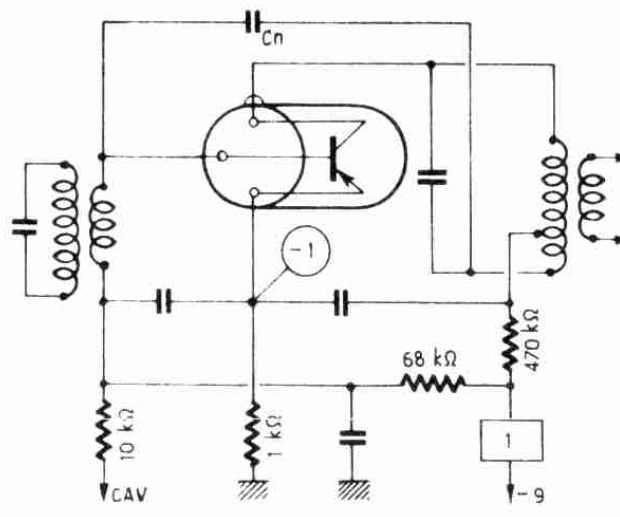
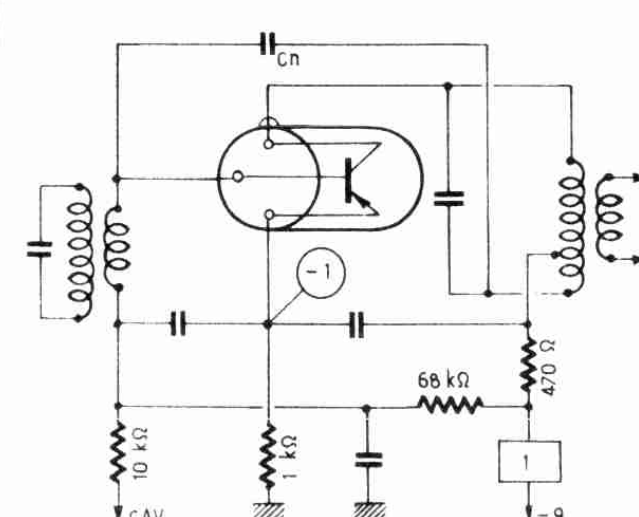
$\beta = 65$



2N407

61

2N414A

2N407
BF $\beta = 65$
GP = 30 dB max2N408
BF $\beta = 65$ 2N408
BF $\beta = 65$
GP = 30 dB max2N410
MF_470kHz $\beta = 48$
GP = 31 dB2N413A
MF_470kHz $\beta = 30$
GP = 30 dB2N414A
MF_470kHz $\beta = 60$
GP = 32 dB

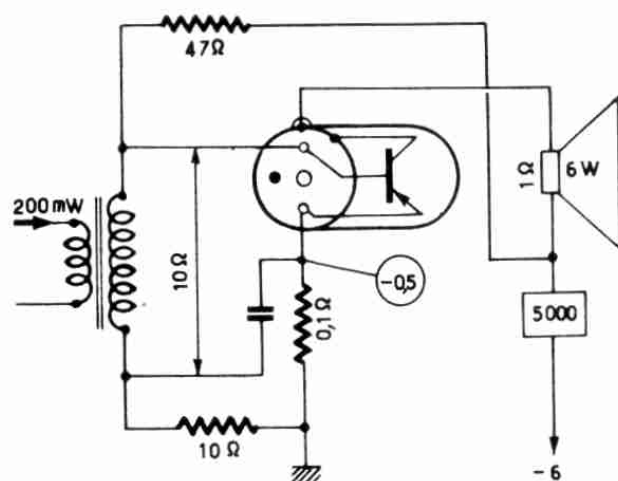
2N441

62

2N457

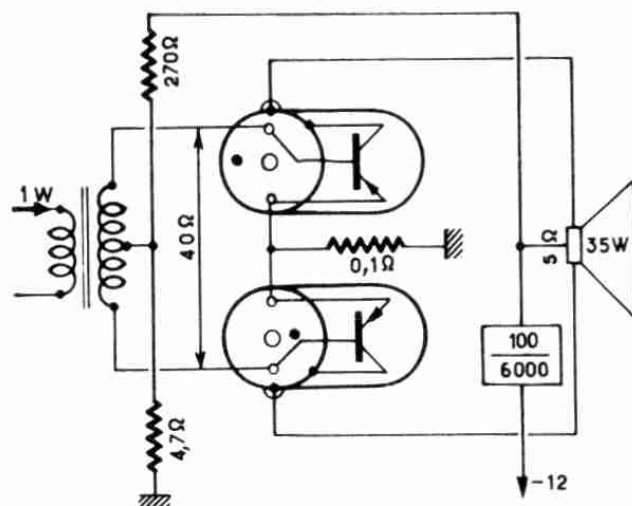
2N441

P

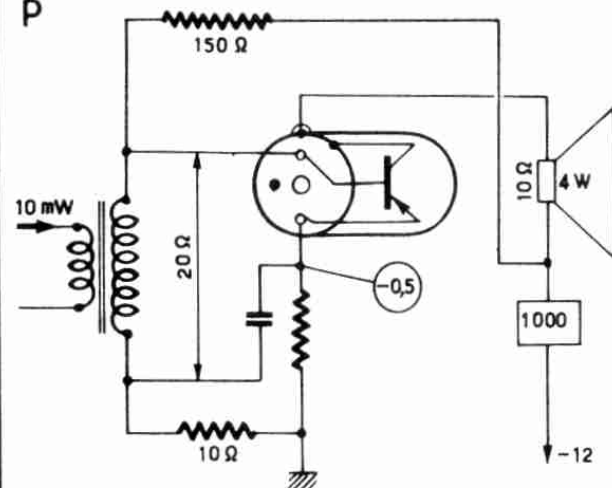
 $\beta = 30$
 $GP = 16 \text{ dB}$


2N441

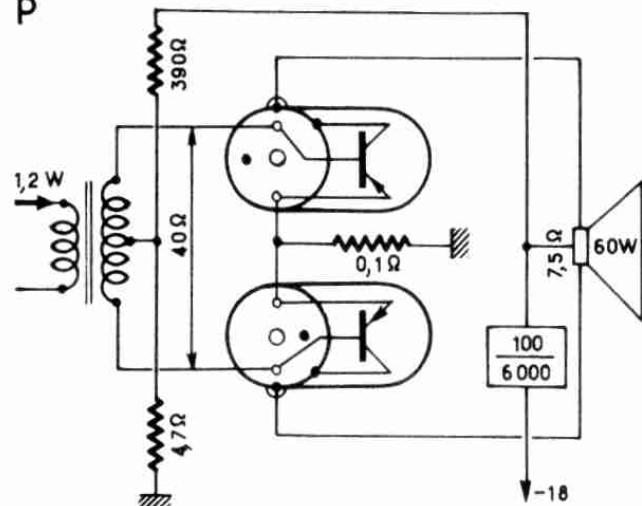
P

 $\beta = 30$
 $GP = 16 \text{ dB}$
2N442
2N443

P

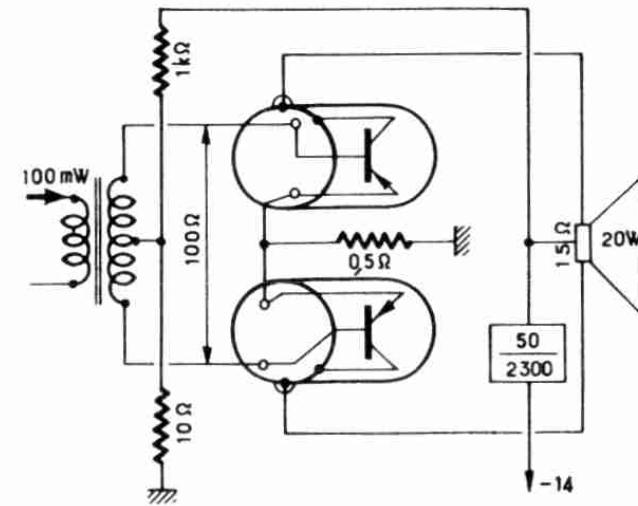
 $\beta = 35$
 $GP = 27 \text{ dB}$
2N442
2N443

P

 $\beta = 30$
 $GP = 17 \text{ dB}$


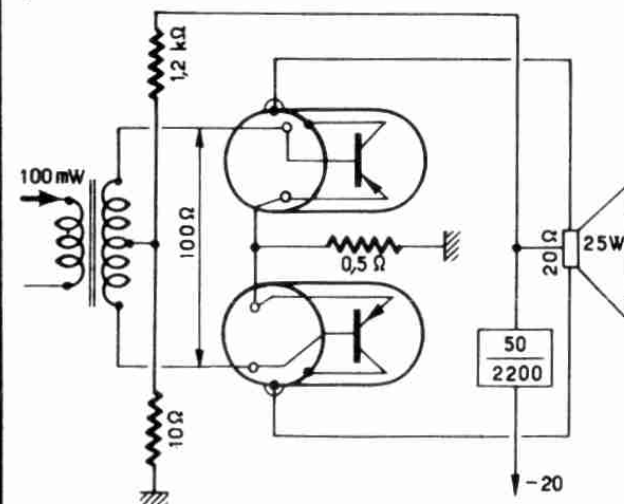
2N456

P

 $\beta = 52$
 $GP = 23 \text{ dB}$


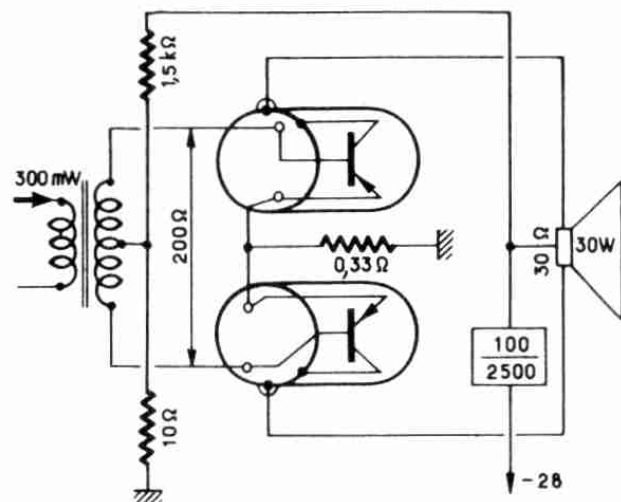
2N457

P

 $\beta = 52$
 $GP = 24 \text{ dB}$


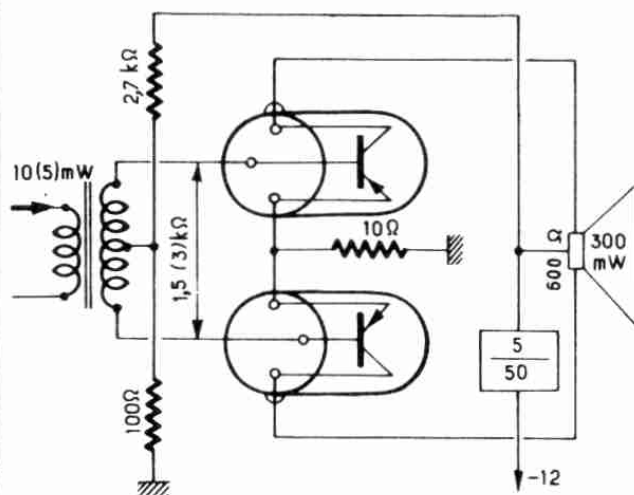
2N458
P

$\beta = 40 \dots 200$
GP = 20 dB



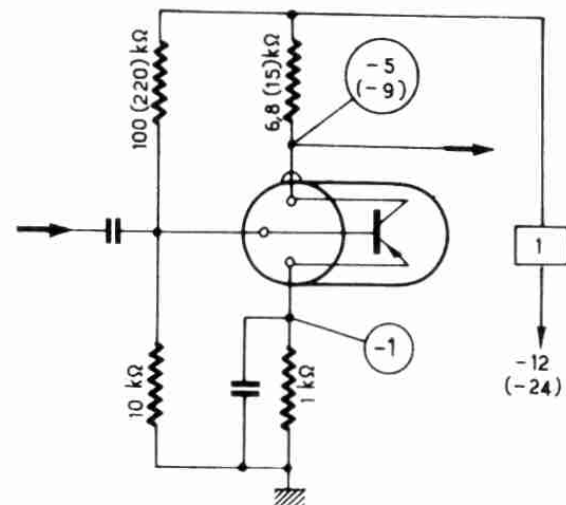
2N460
2N461

$\beta = 24 (49)$
GP = 15 (18) dB



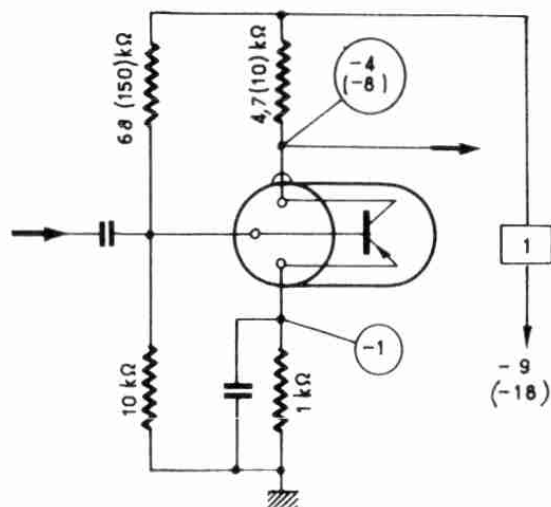
2N464
BF

$\beta = 22$
Fb = 12 dB



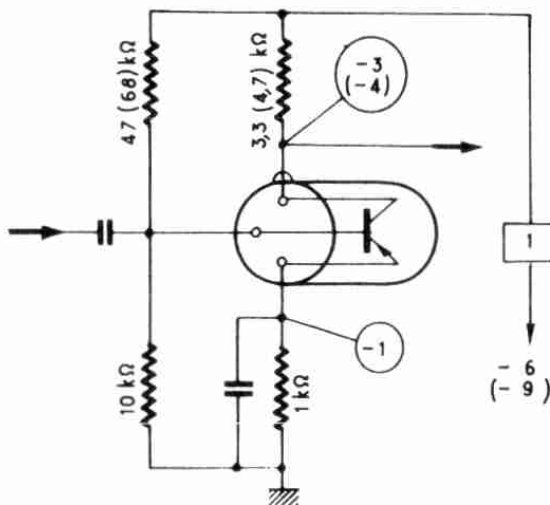
2N465
BF

$\beta = 45$
Fb = 12 dB



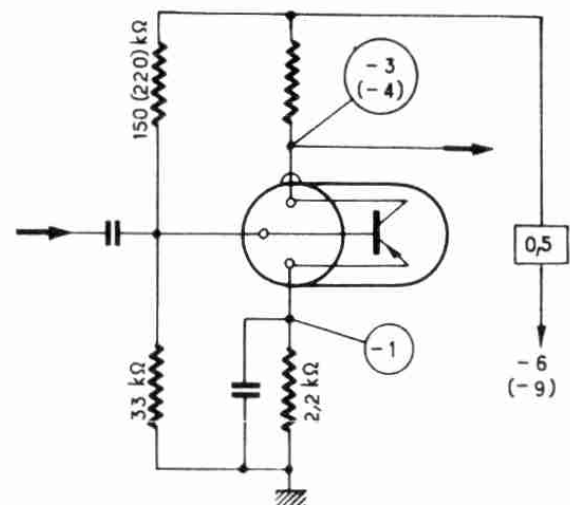
2N466
BF

$\beta = 90$
Fb = 12 dB



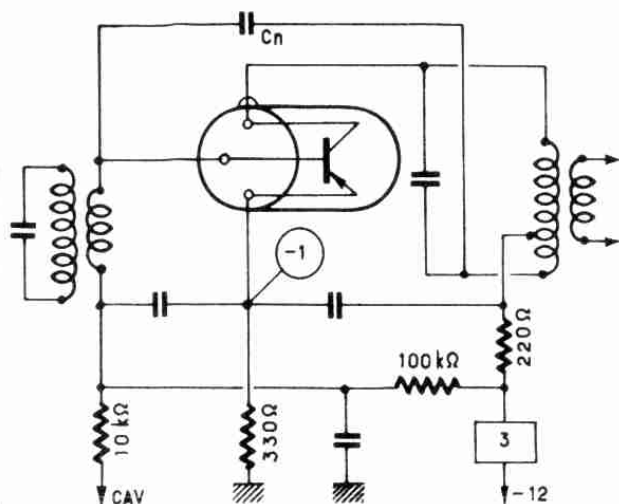
2N467
BF

$\beta = 180$
Fb = 12 dB



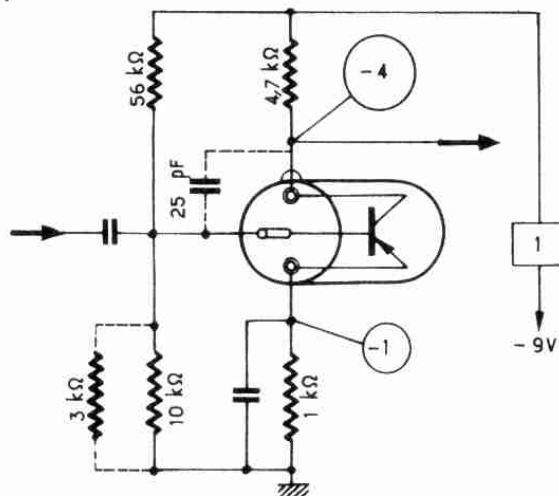
2N 504

MF 470 kHz

 $\beta > 16$
 $GP = 43 \text{ dB}$


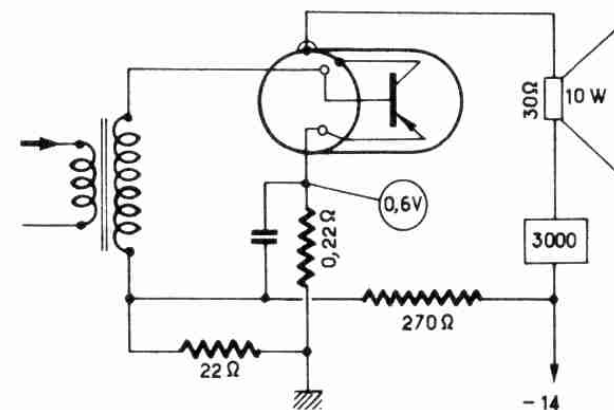
2N 508

BF

 $\beta = 112$
 $Fb = 6 \text{ dB}$


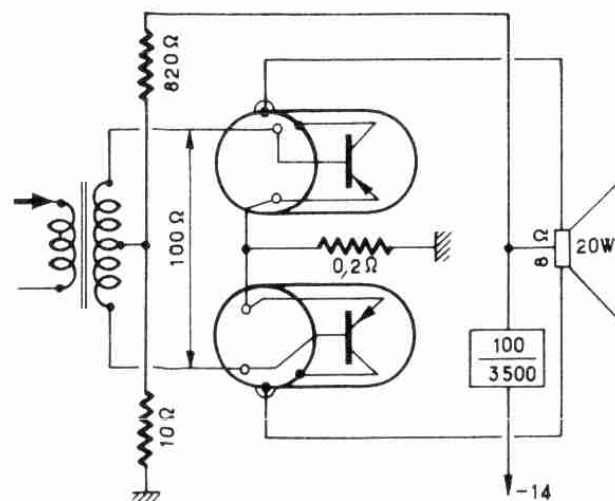
2N 511

P

 $\beta > 10$


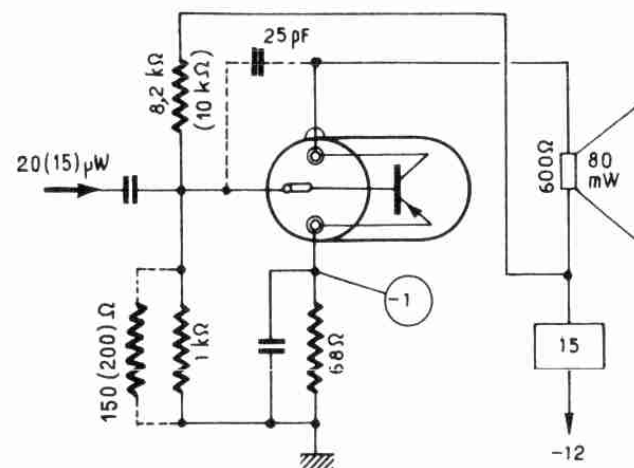
2N 511

P

 $\beta > 10$
 $GP > 10 \text{ dB}$


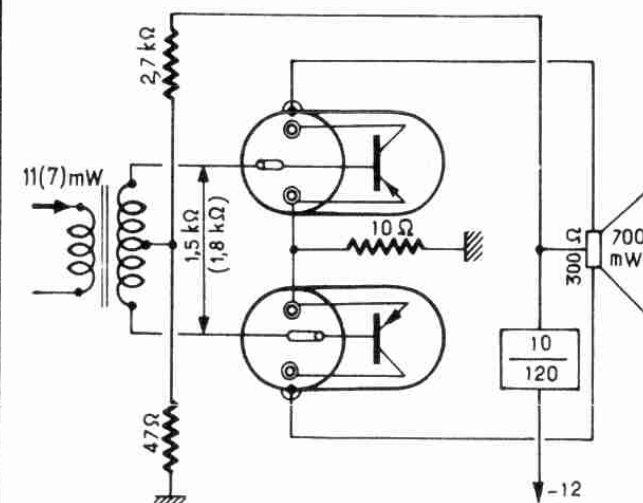
2N524, (25)

BF



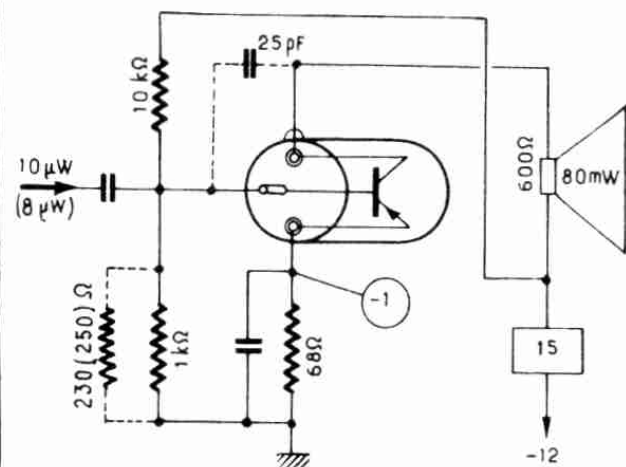
2N524, (25)

BF



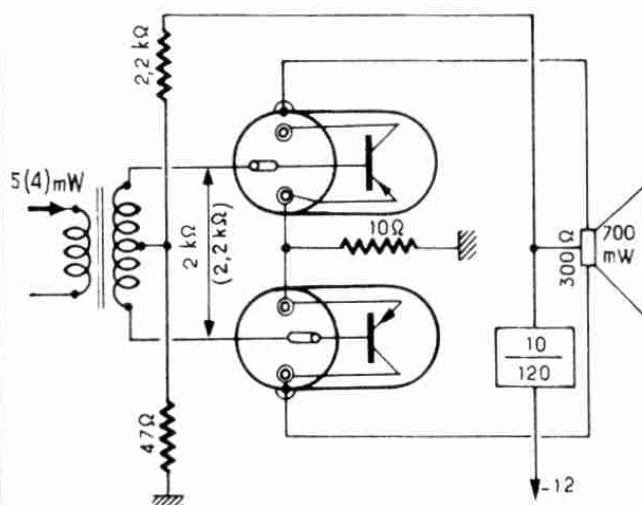
2N526,(27)

BF

 $\beta = 44 \dots 88 (60 \dots 120)$ 

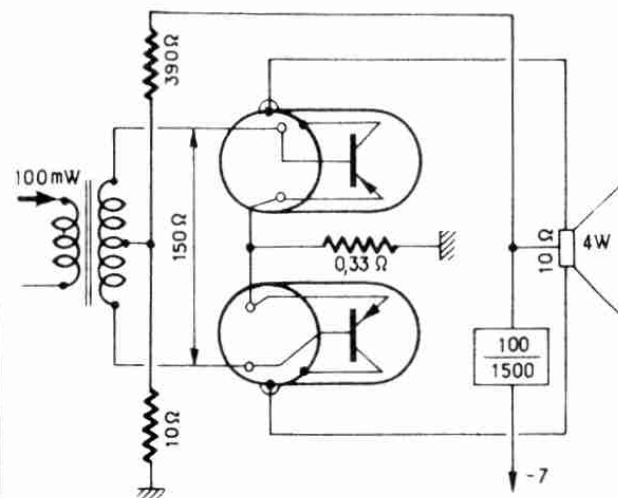
2N526,(27)

BF

 $\beta = 44 \dots 88 (60 \dots 120)$
GP = 21 (22 dB)

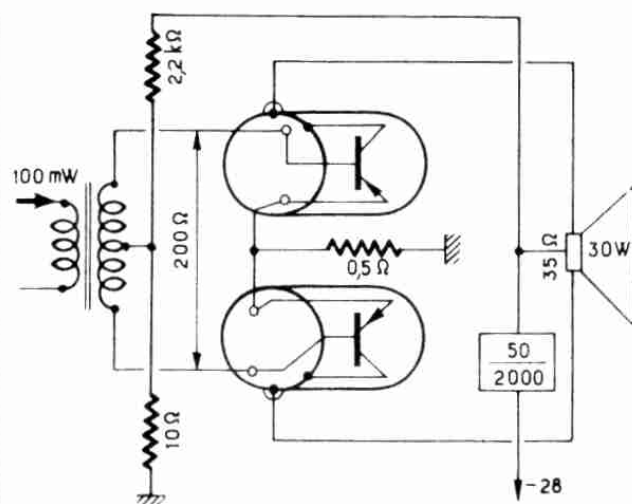
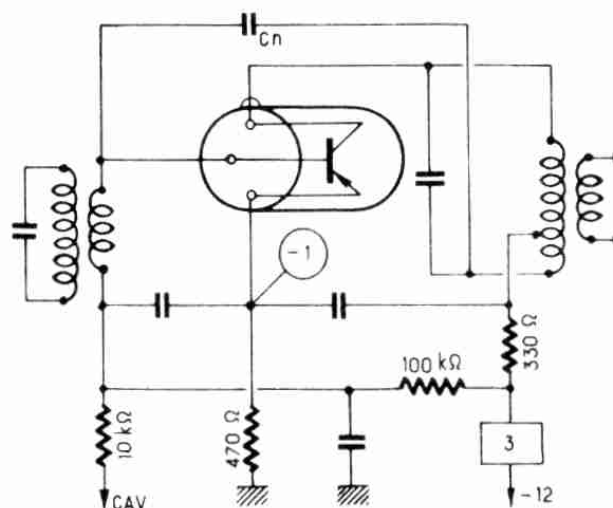
2N554

P

 $\beta = 30$
GP = 16 dB

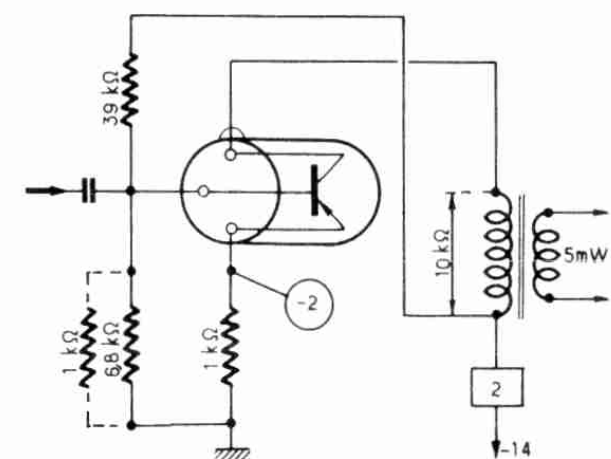
2N561

P

 $\beta = 75$
GP = 25 dB2N588
VHF 30 MHzGP = 18 dB
Fb = 5 dB/10 MHz

2N591

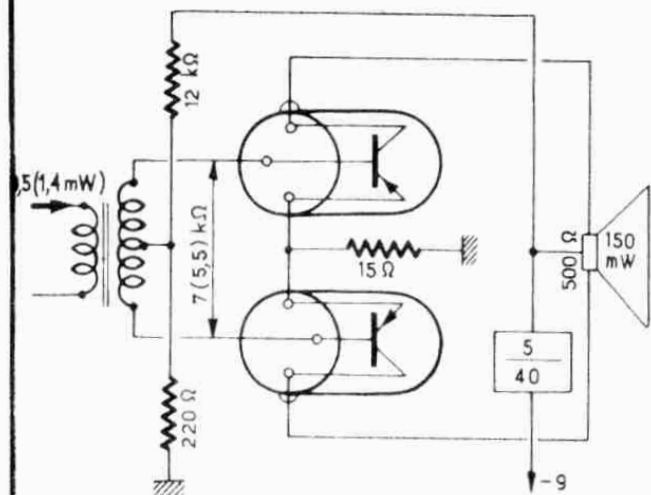
BF

 $\beta = 70$
GP = 40 dB

2 N 632, (33)

BF

$\beta = 100 (60)$
GP = 25 dB
(21 dB)

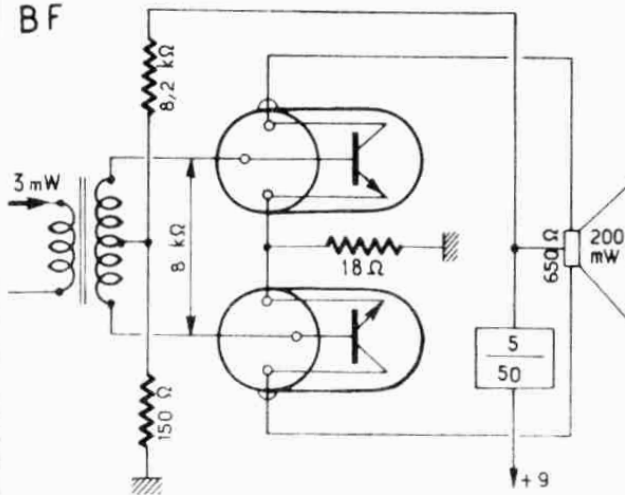


2 N 647
2 N 649

BF

n-p-n

$\beta = 70$
GP = 17 dB

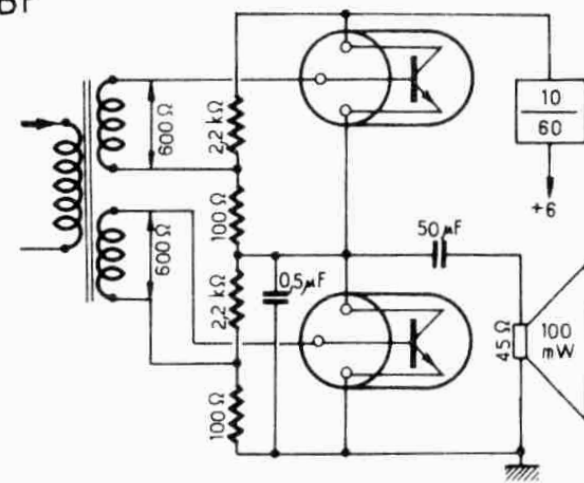


2 N 647
2 N 649

BF

n-p-n

$\beta = 70$

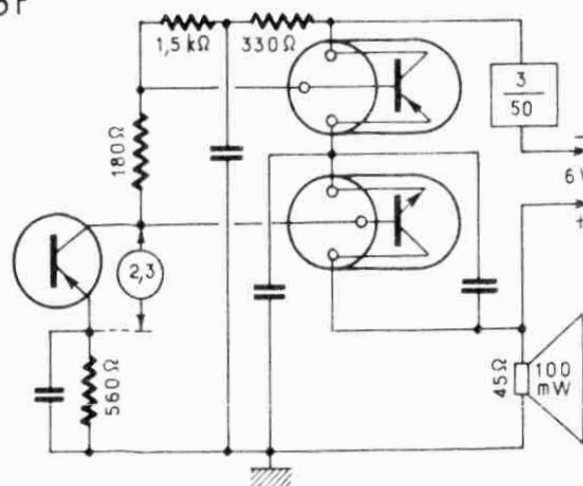


2 N 647
2 N 217

BF

n-p-n
p-n-p

$\beta = 70$

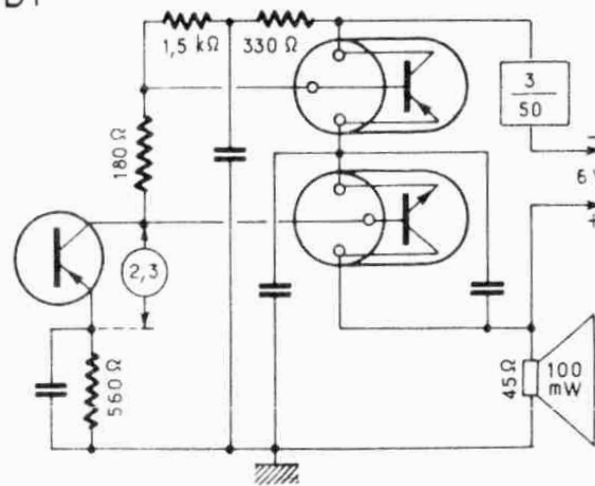


2 N 649
2 N 408

BF

n-p-n
p-n-p

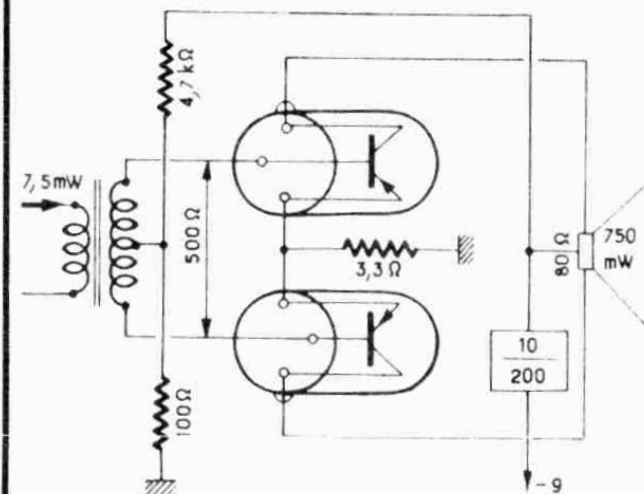
$\beta = 65$



2 N 650

BF

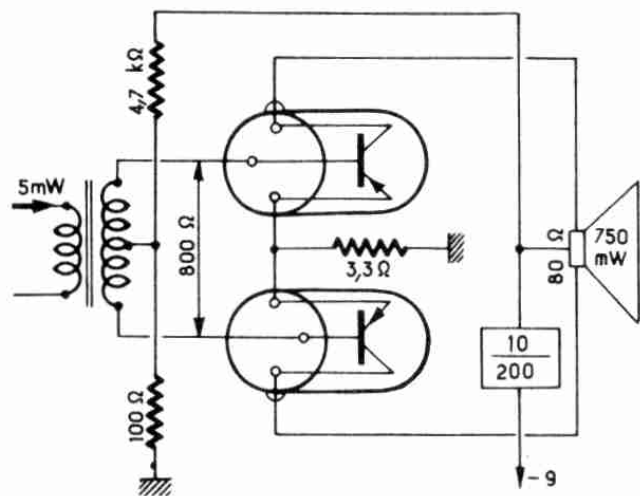
$\beta = 45$
GP = 20 dB



2N651

BF

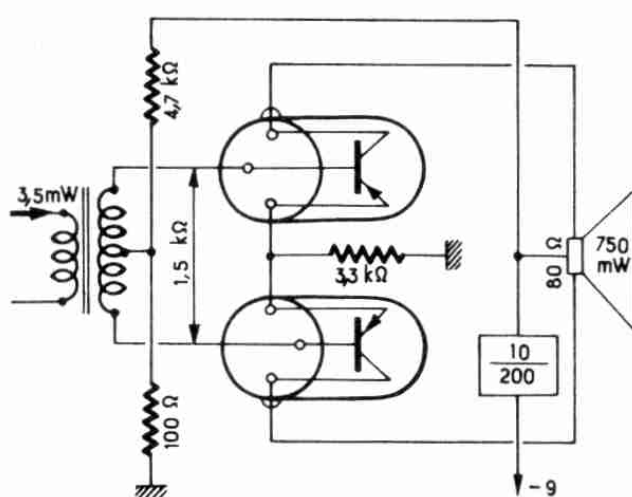
$\beta = 70$
GP = 22 dB



2N652

BF

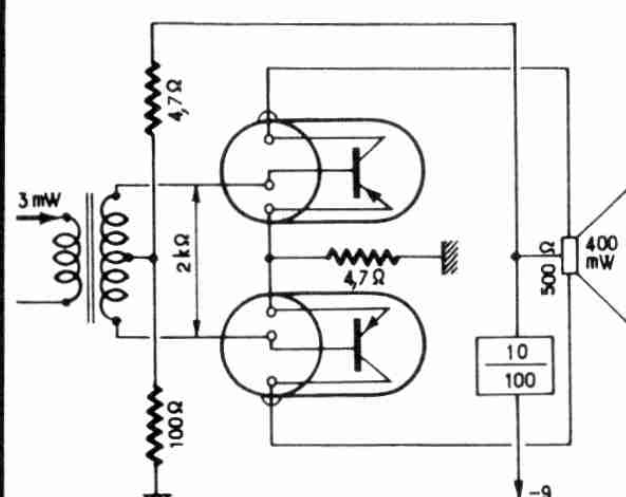
$\beta = 120$
GP = 24 dB



2N680

BF

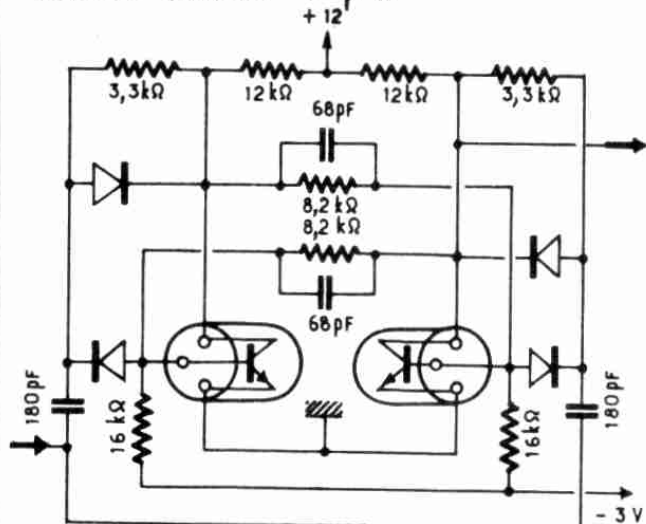
$\beta = 35$
GP = 21 dB



2N702 (753)

Si
Bascule 5 MHz

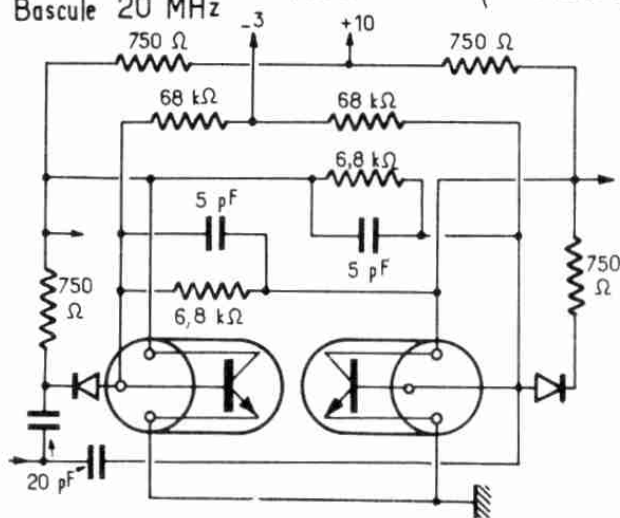
$\beta = 20 \dots 60$



2N706

n-p-n Planar
Bascule 20 MHz

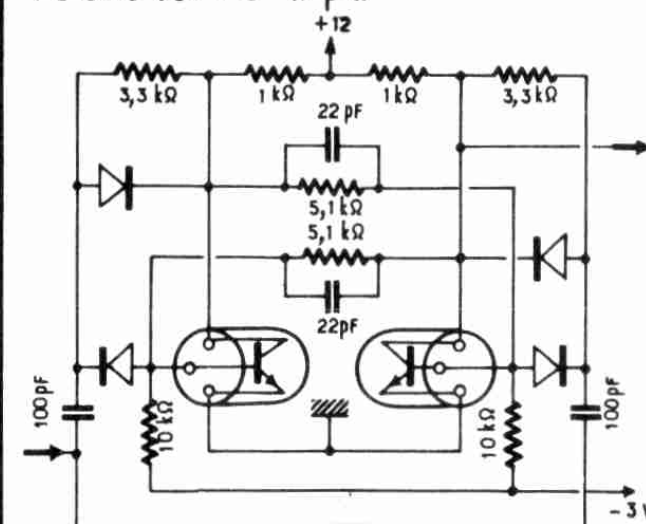
$\beta > 20$
(> 2 à 100 MHz)



2N706A

Si
Bascule 10 MHz

$\beta = 20 \dots 6$

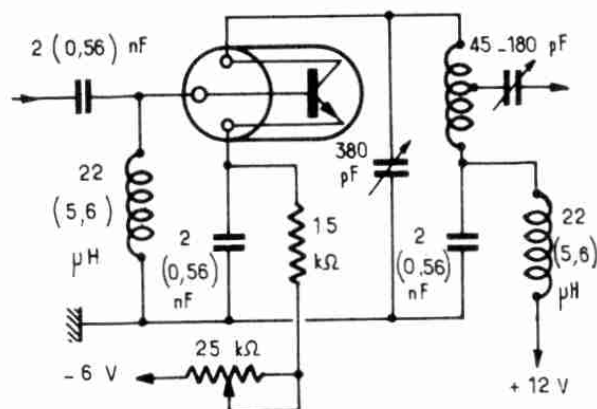


2N743

n-p-n Si

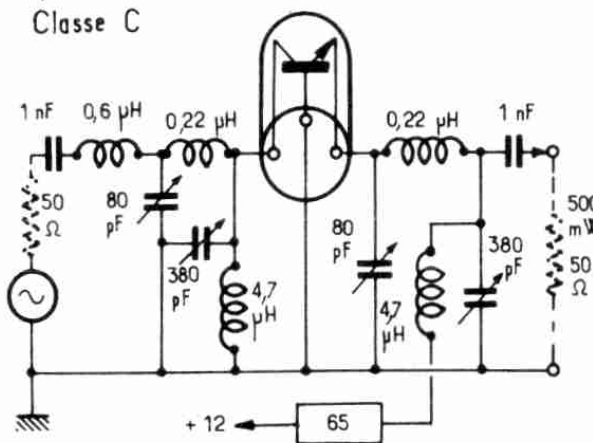
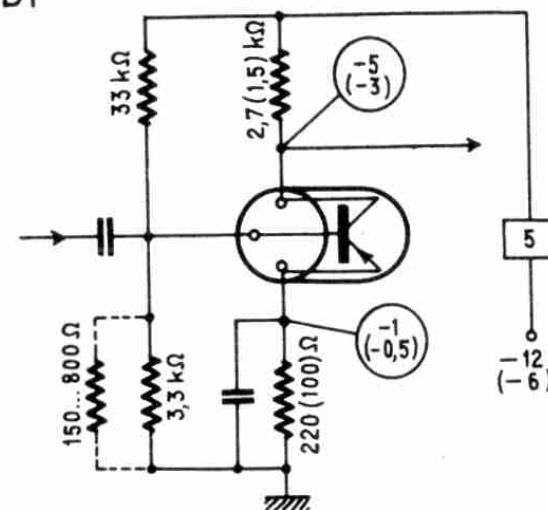
 $\beta = 20 \dots 60$

Amplif. 30 (60) MHz



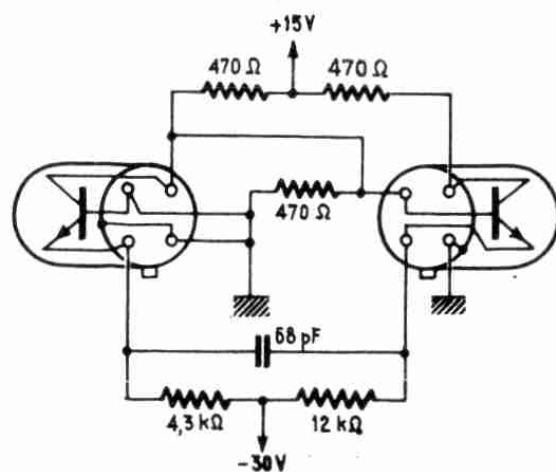
2N743

n-p-n Si

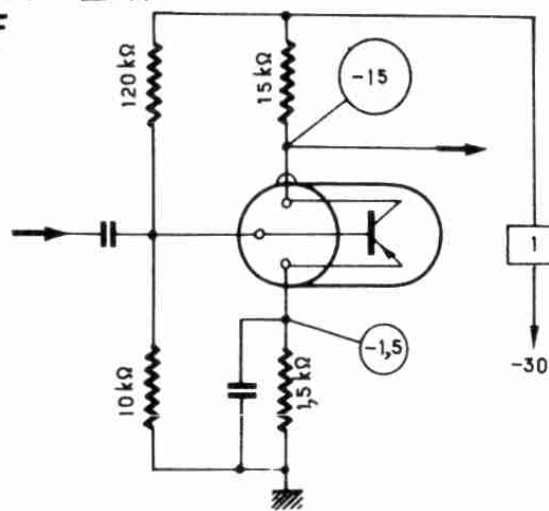
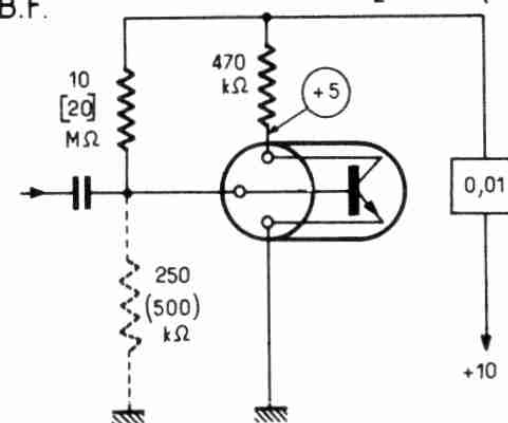
 $\beta = 20 \dots 60$ Amplif. 70 MHz
Classe C $G_p = 6 \text{ dB}$ 2N863, (64)
BF $\beta = 20 \dots 100$ 

2N918

Si

 $\beta < 20$ Multiv. 2 MHz
n-p-n2N923
(2N924)
BF

Si

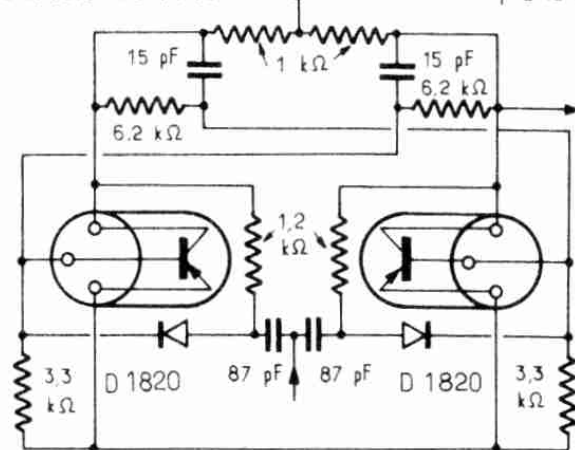
 $\beta = 21 (47)$ 2N 929
[2N 930]
B.F.n-p-n Si
Planar $\beta = 40 \dots 120 (10 \mu\text{A})$
 $60 \dots 350 (0,5 \dots 10 \text{ mA})$
 $[100 \dots 300 (10 \mu\text{A})]$
 $[150 \dots 600 (0,5 \dots 10 \text{ mA})]$ 

2N964

Mésa

 $\beta = 70$ $t_r = 6 \text{ ns}$ $t_f = 12 \text{ ns}$

Bascule 30 MHz -12

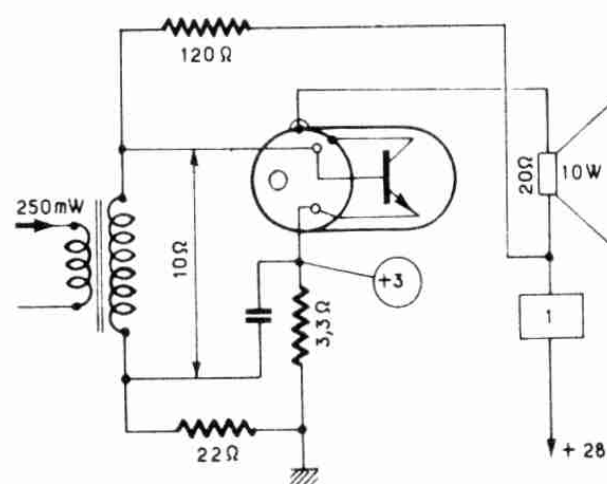


2N1015 B

n-p-n
Si $\beta > 10$

GP = 16dB

P

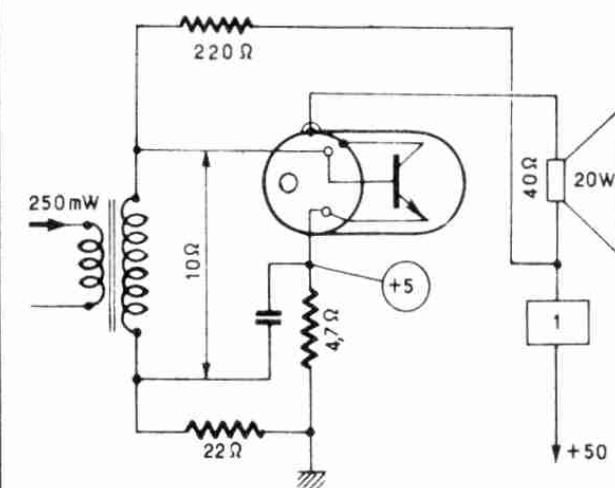


2N1015 C

n-p-n
Si $\beta > 10$

GP = 19dB

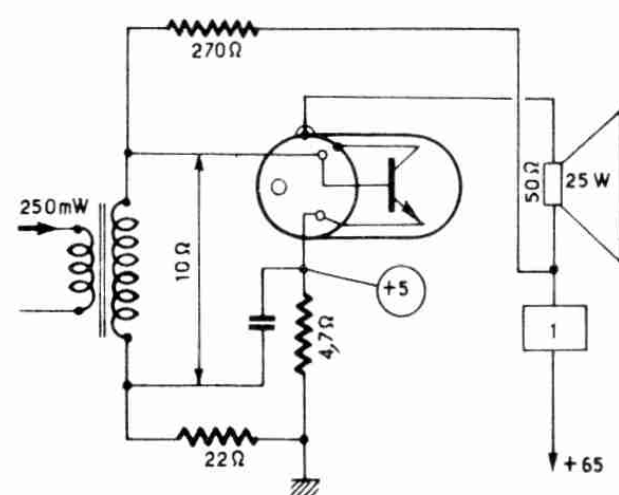
P



2N1015 D

n-p-n
Si $\beta > 10$
GP = 20dB

P

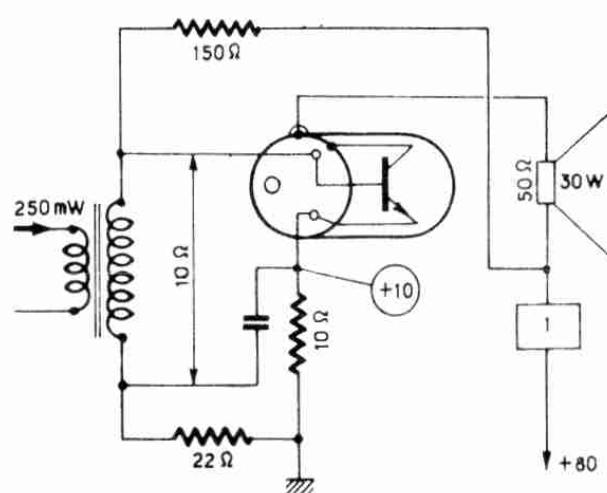


2N1015 E

n-p-n
Si $\beta > 10$

GP = 21dB

P

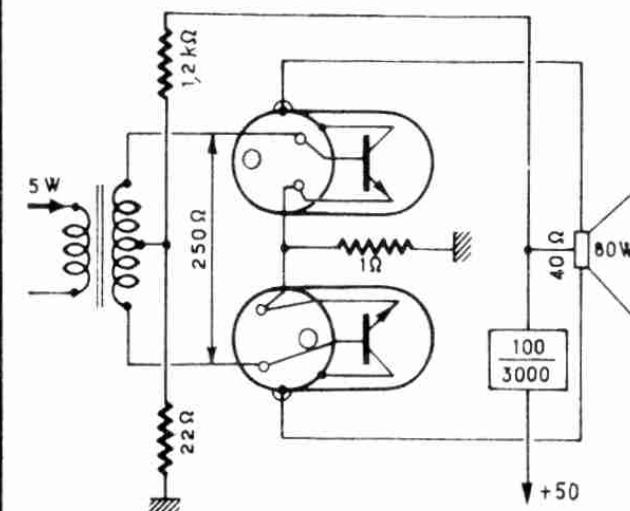


2N1016 C

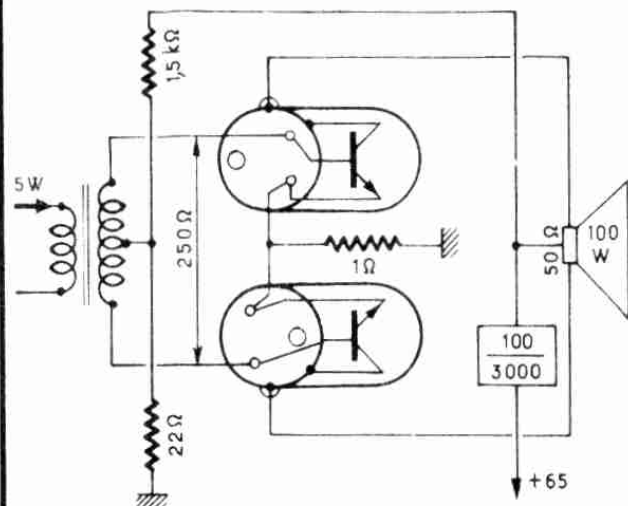
n-p-n
Si $\beta > 10$

GP = 12dB

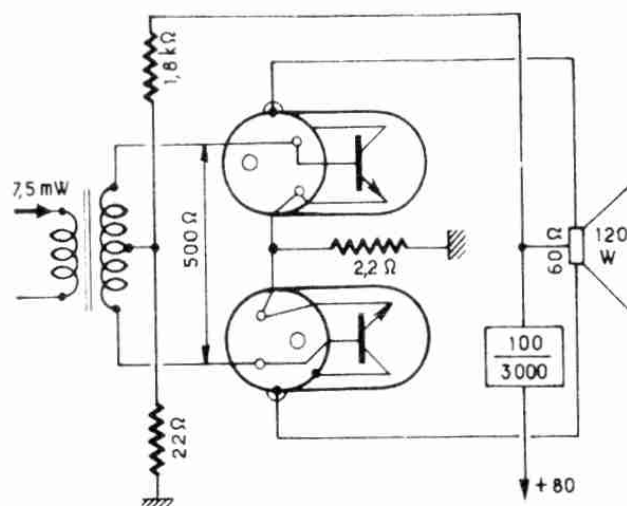
P



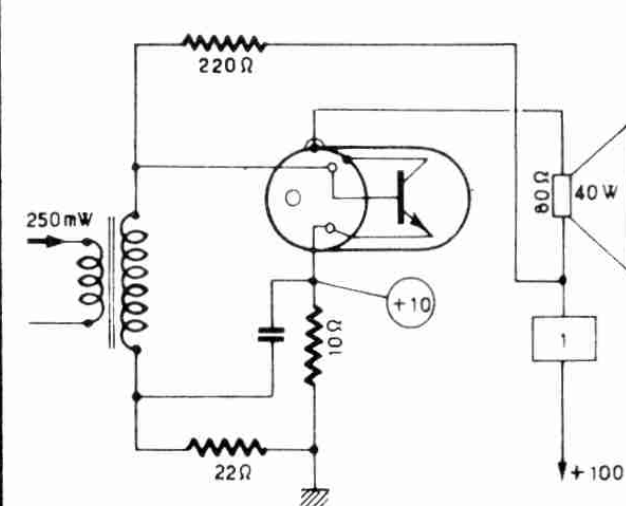
2N1016 D

n-p-n
Si $\beta > 10$
GP = 13 dB

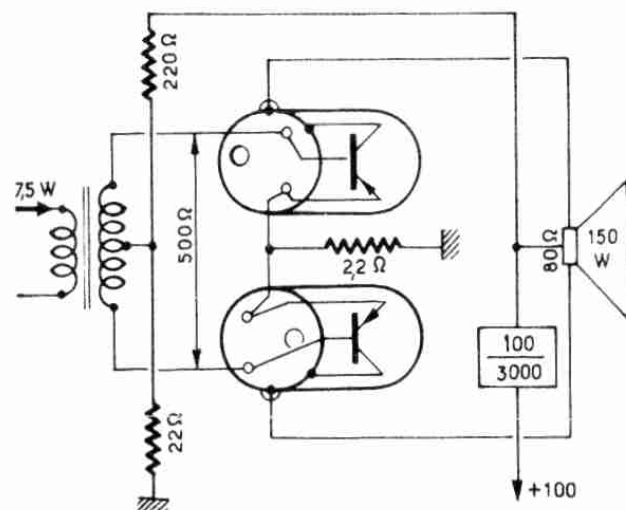
2N1016 E

n-p-n
Si $\beta > 10$
GP = 12 dB

2N1016 F

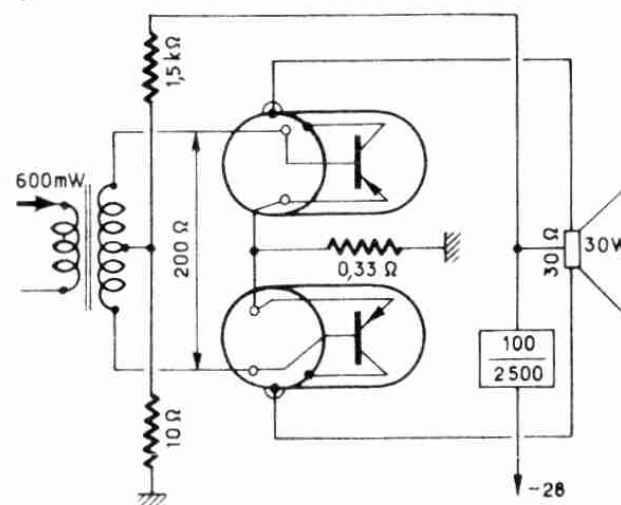
n-p-n
Si $\beta > 10$
GP = 22 dB

2N1016 F

n-p-n
Si $\beta > 10$
GP = 13 dB

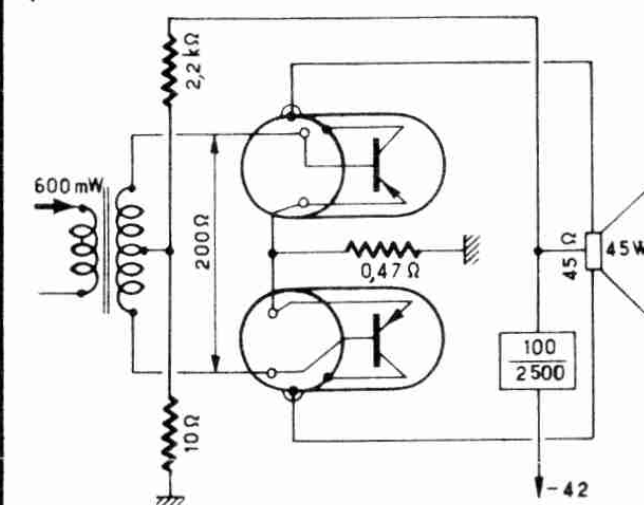
2N1021

P

 $\beta = 23$
GP = 17 dB

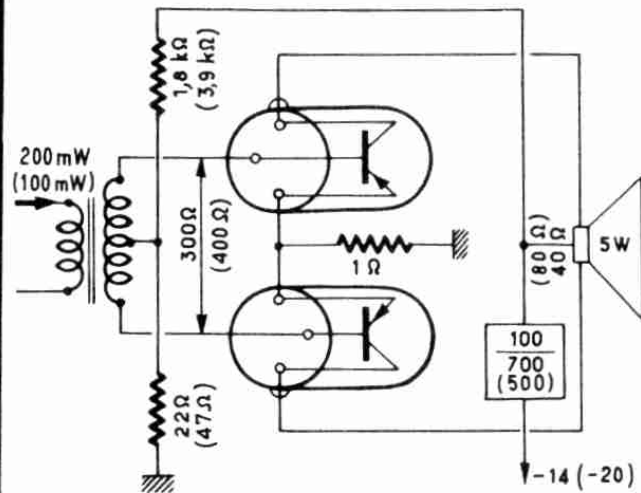
2N1022

P

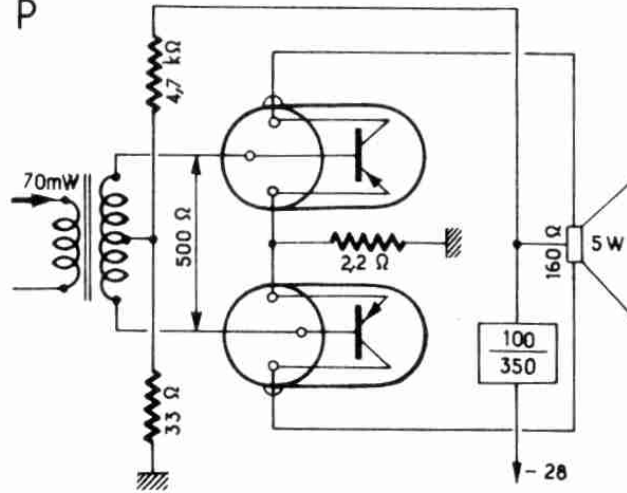
 $\beta = 23$
GP = 19 dB

2N 1038, (39)

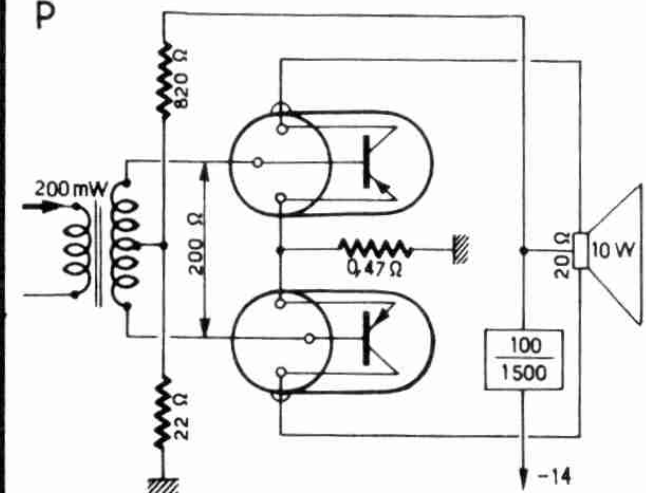
P

 $\beta = 20 \dots 60$
 $GP = 15 \text{ dB}$
 (17 dB)
2N 1040
2N 1041

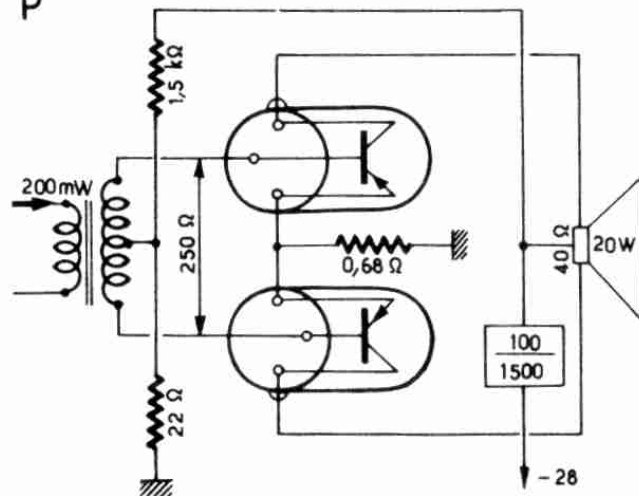
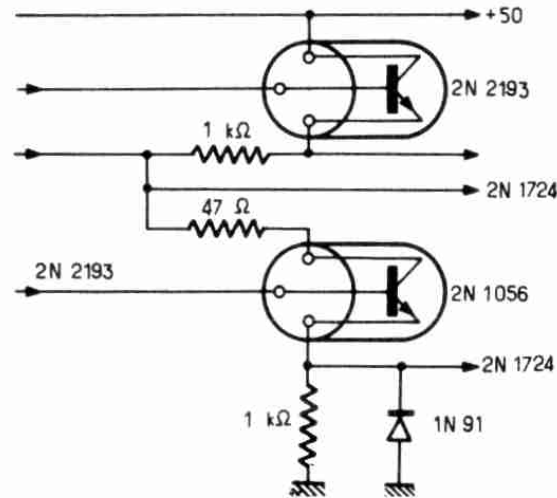
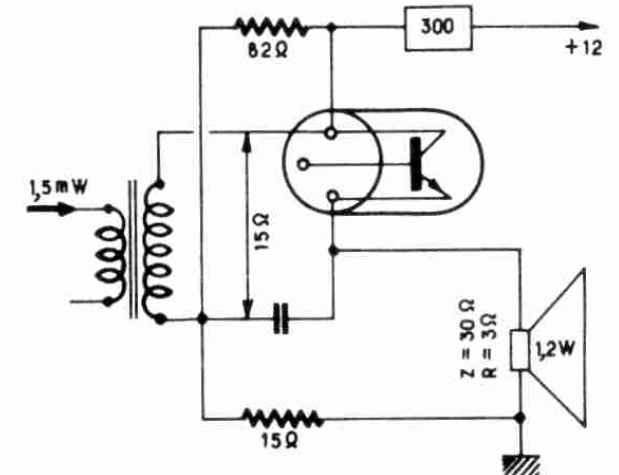
P

 $\beta = 20 \dots 60$
 $GP = 19 \text{ dB}$
2N 1042
2N 1043

P

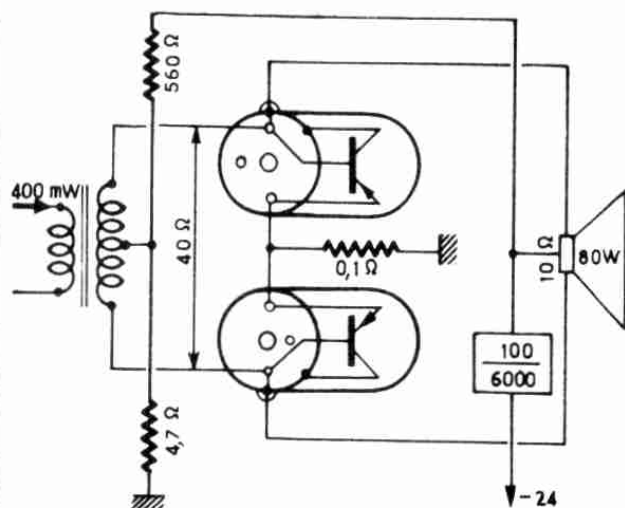
 $\beta = 20 \dots 60$
 $GP = 17 \text{ dB}$
2N 1044
2N 1045

P

 $\beta = 20 \dots 60$
 $GP = 20 \text{ dB}$
2N 1056
B.F.
 $\beta = 25$
 $F_b < 20 \text{ dB}$
2N1067
Pn-p-n
Si
 $\beta = 15 \dots 75$
 $GP = 29 \text{ dB}$


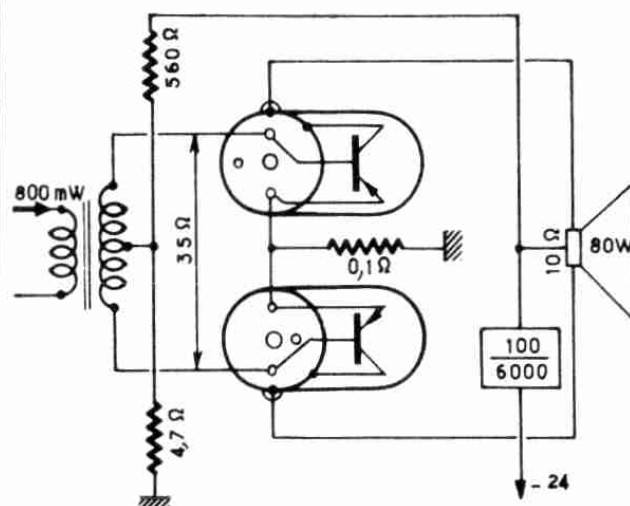
2N 1099

P

 $\beta = 40$
GP = 23 dB

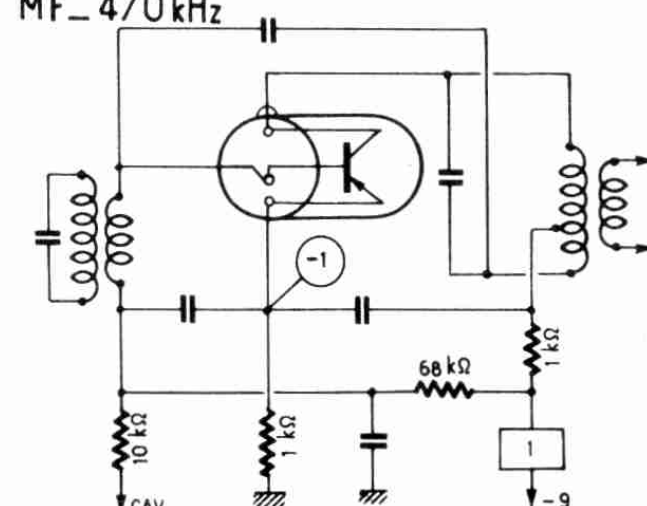
2N 1100

P

 $\beta = 30$
GP = 20 dB2N 1109
(2N 1110)

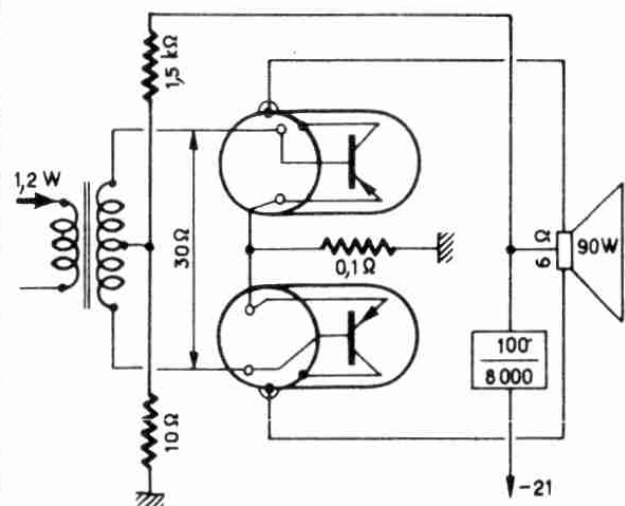
MF - 470 kHz

GP = 30 (29) dB



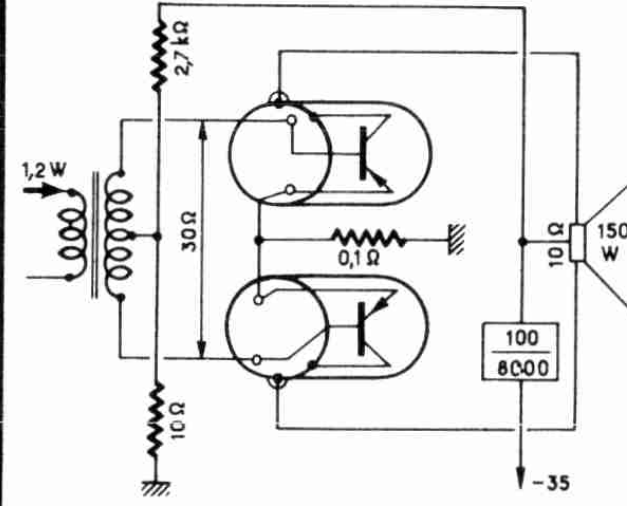
2N 1146 A

P

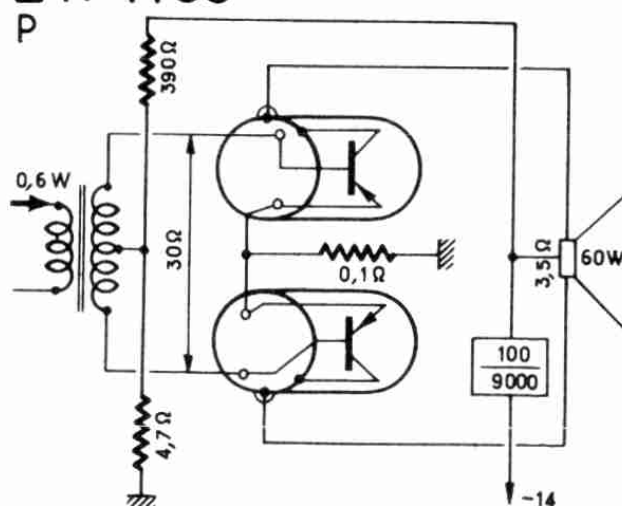
 $\beta = 30 \dots 200$
GP = 18 dB

2N 1146 C

P

 $\beta = 30 \dots 200$
GP = 21 dB2N 1162
2N 1163

P

 $\beta = 65$
GP = 20 dB

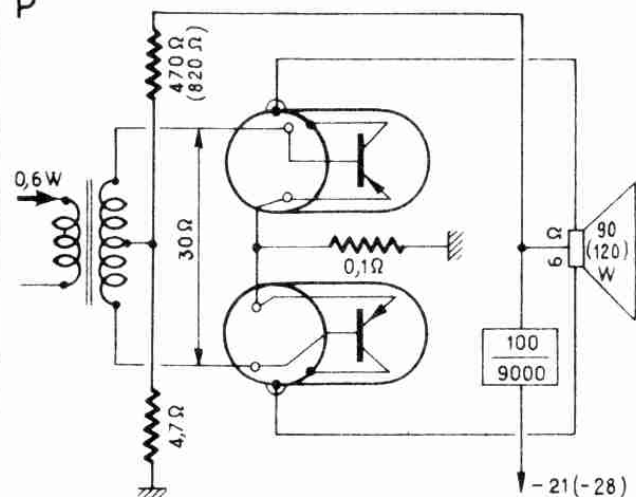
2N1164

74

2N1192

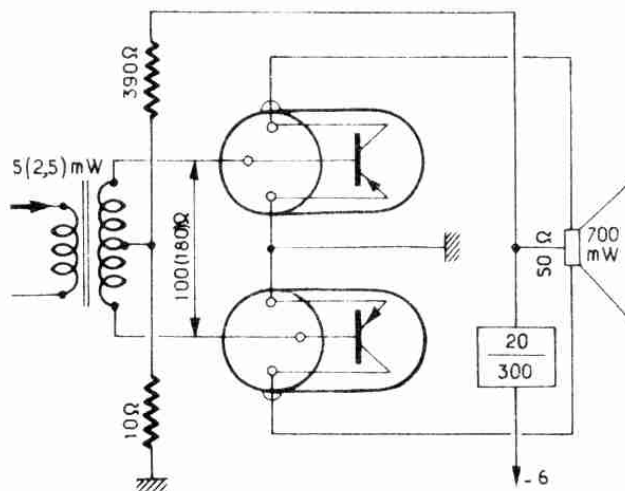
2N1164, (66)
2N1165, (67)
P

$\beta = 65$
GP = 22 dB
(23 dB)



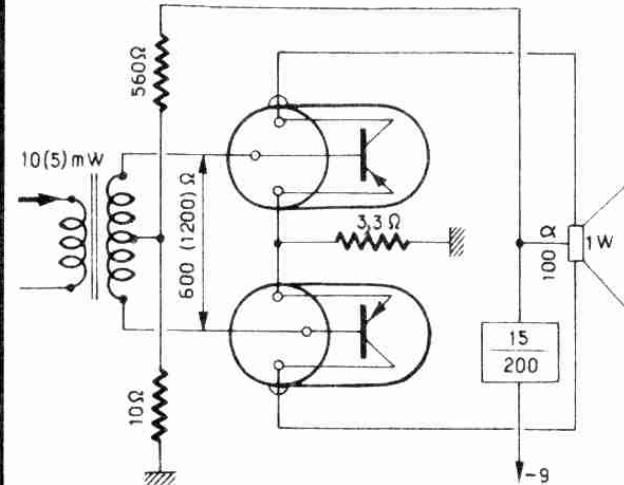
2N1183
(2N1184)

$\beta > 20 (> 40)$
GP = 21 (24) dB



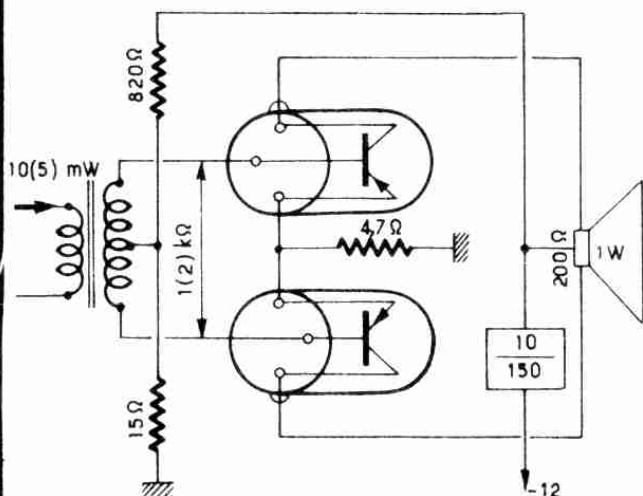
2N1183 A
(2N1184 A)

$\beta > 20 (> 40)$
GP = 20 (23) dB



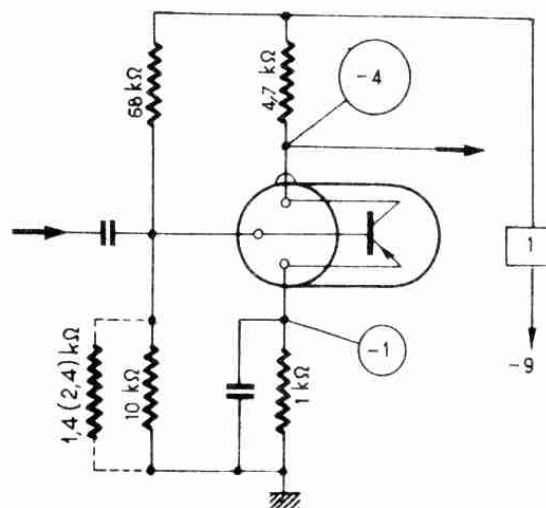
2N1183 B
(2N1184 B)

$\beta > 20 (> 40)$
GP = 20 (23) dB



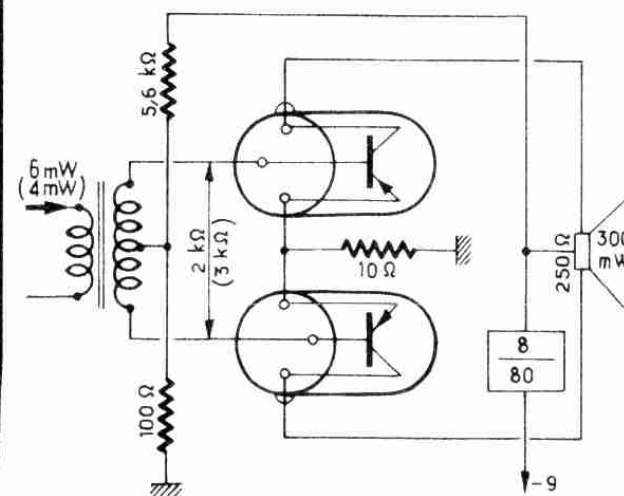
2N1191, (92)
BF

$\beta = 40 (75)$
Fb = 10 dB



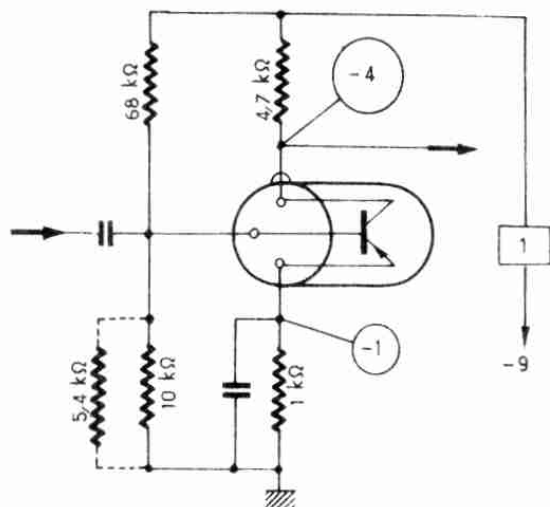
2N1191, (92)
BF

$\beta = 40 (75)$
GP = 17 dB
(19 dB)



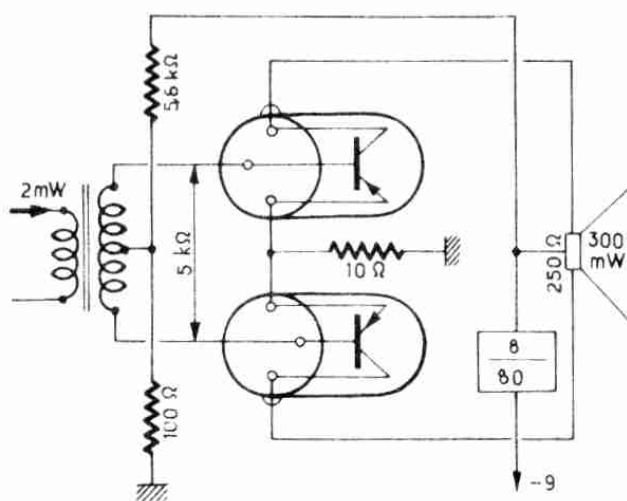
2 N 1193

BF

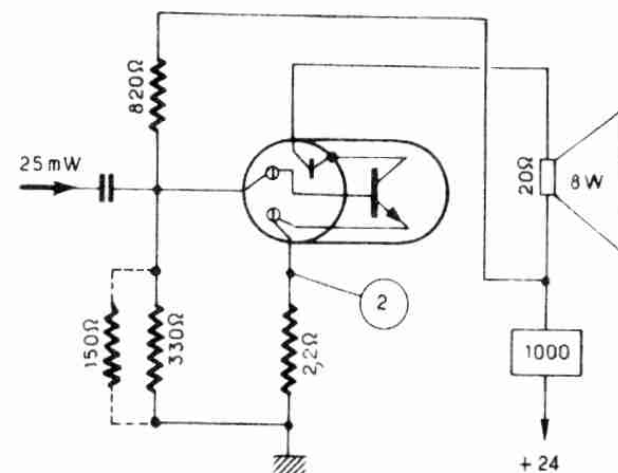
 $\beta = 160$
Fb = 10 dB

2 N 1193

BF

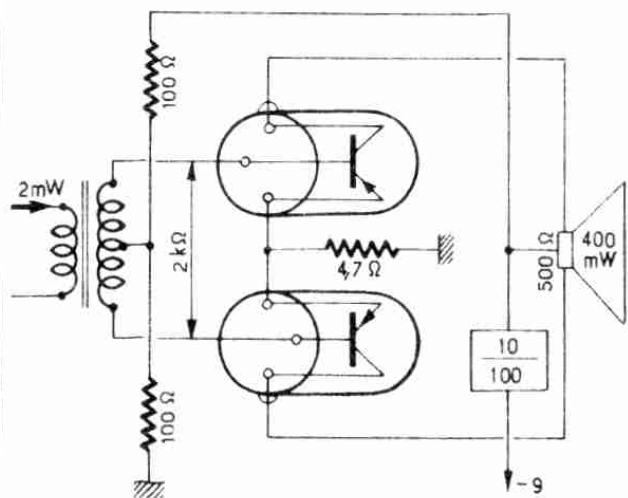
 $\beta = 160$
GP = 22 dB

2 N 1208

n-p-n
Si $\beta = 40$
GP = 25 dB

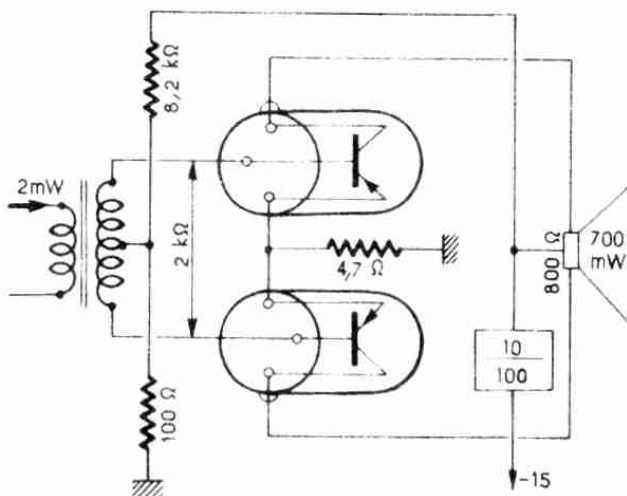
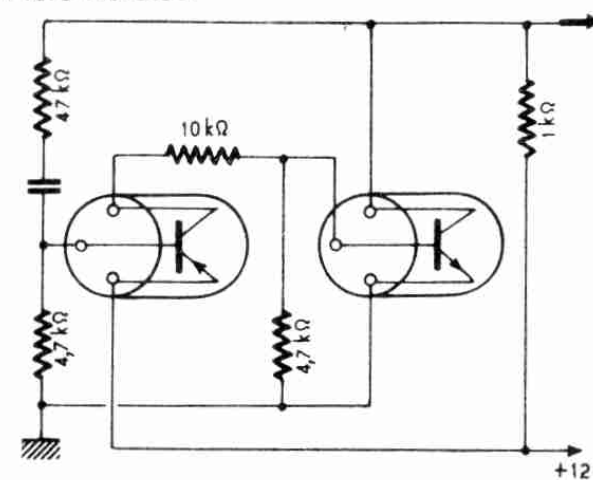
2 N 1273

BF

 $\beta = 50$
GP = 24 dB

2 N 1274

BF

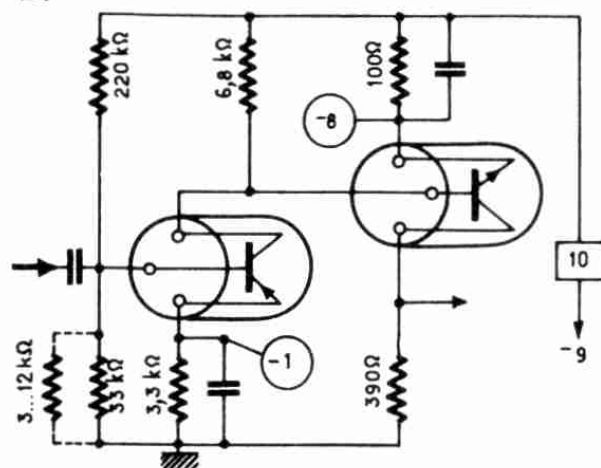
 $\beta = 50$
GP = 26 dB2 N 1302 n-p-n
2 N 1303 p-n-p
Multivibrateur $\beta > 20$ 

2N1304
2N1305

n-p-n
p-n-p

 $\beta = 40 \dots 200$

BF

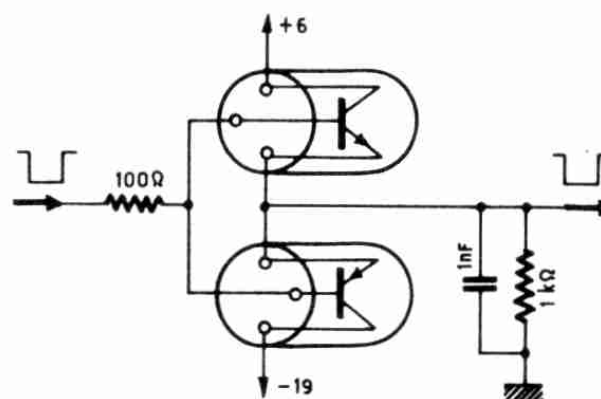


2 N1306
2 N1307

n-p-n
p-n-p

$$\beta = 60 \dots 300$$

Adapt. impéd.

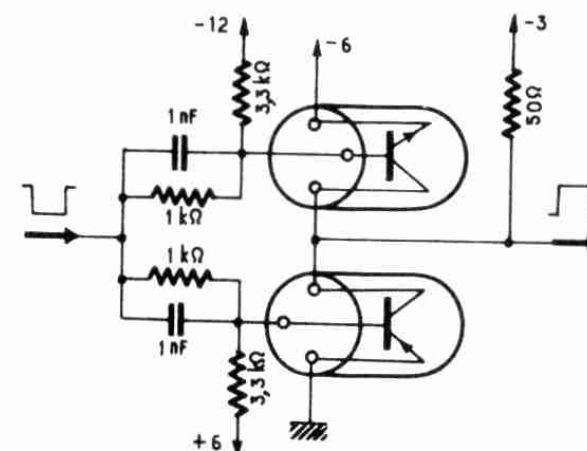


2N1308
2N1309

n-p-n
p-n-p

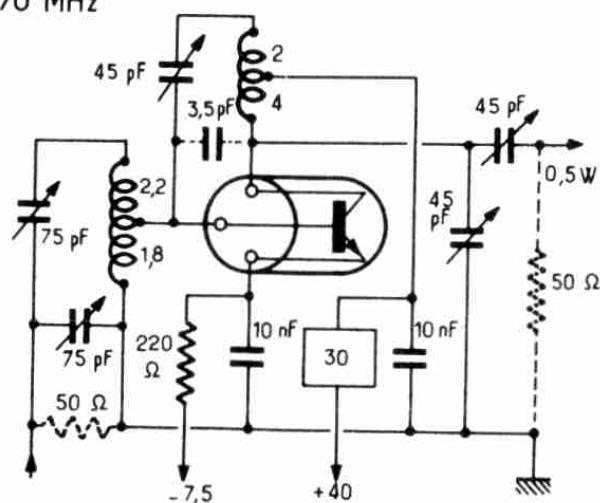
$\delta > 80$

Inverseur



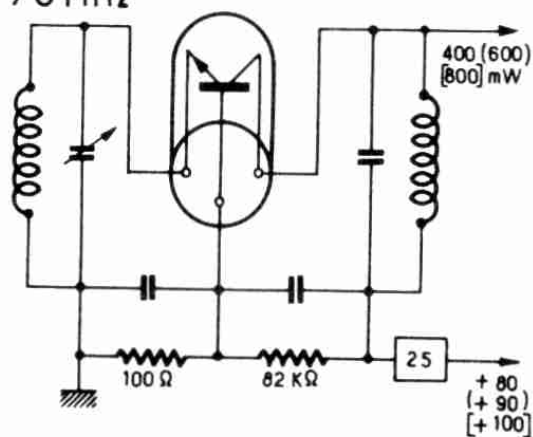
2N 1338
70 MHz

GP = 10 dB



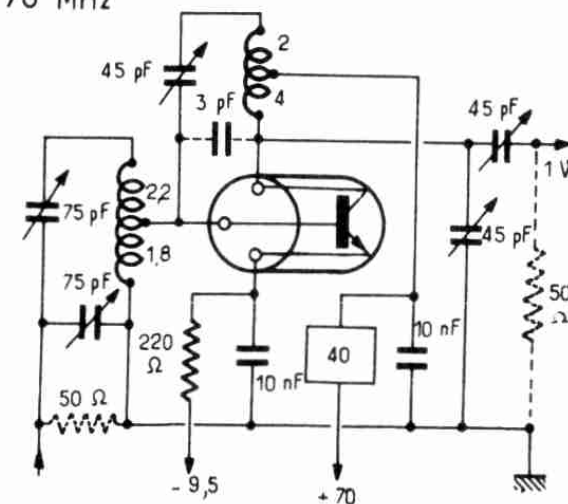
2 N 1339
(2 N 1340)
[2 N 1341]
Osc. 70 MHz

n - p - n
Si

 $\beta = 15$ 

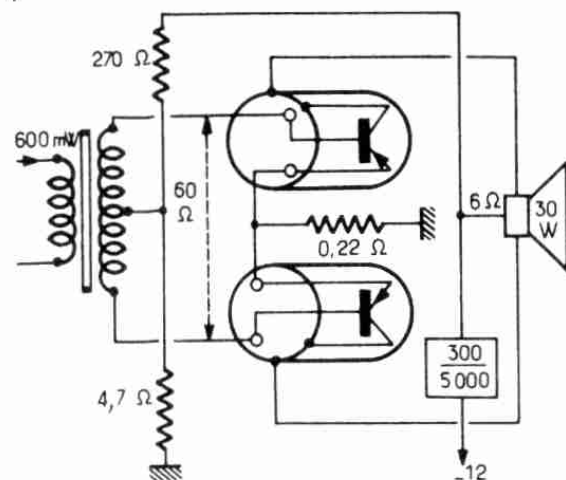
2N 1342
70 MHz

$$\beta = 15$$

$$GP = 10 \text{ dB}$$


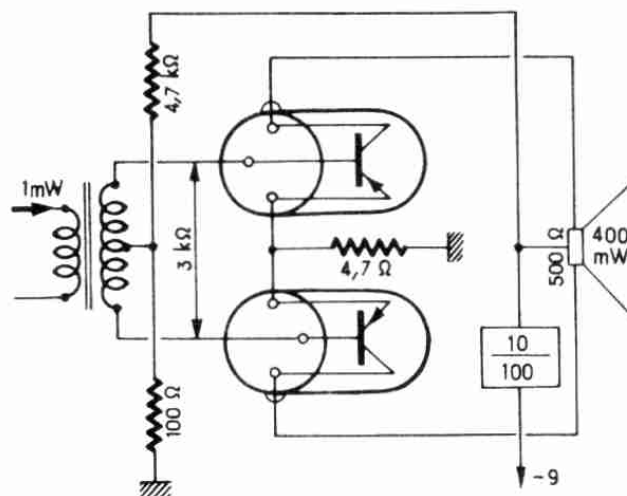
2N 1358

P

 $\beta = 50$
 GP = 23 dB


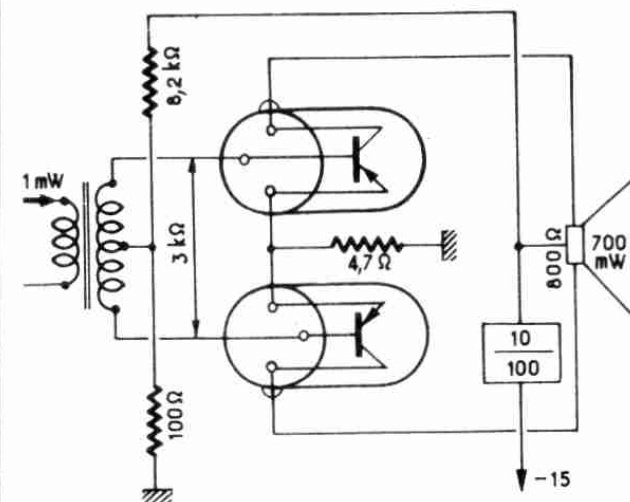
2N 1370

BF

 $\beta = 80$
 GP = 26 dB


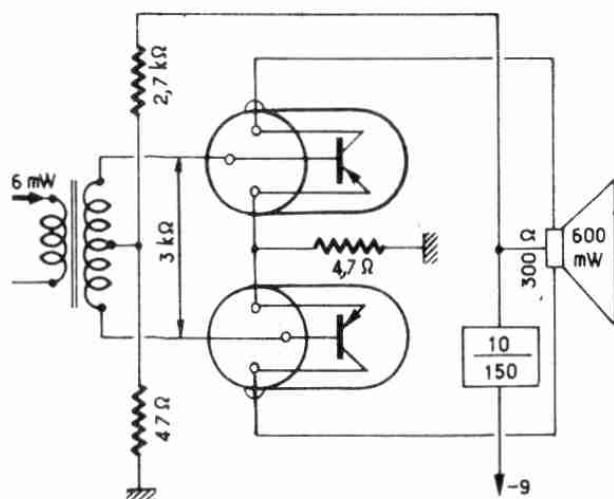
2N 1371

BF

 $\beta = 80$
 GP = 28 dB


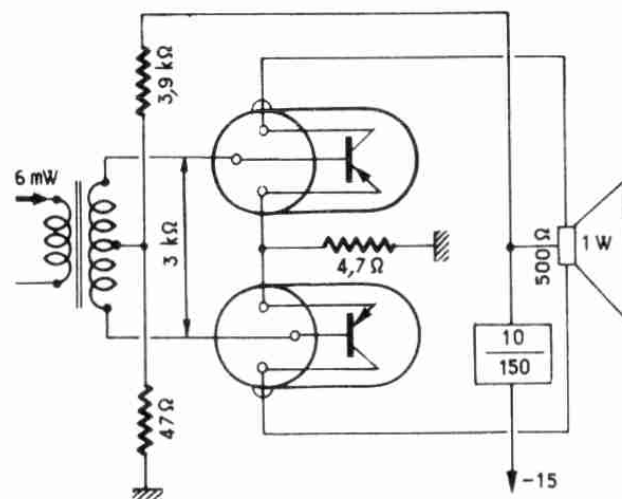
2N 1372

BF

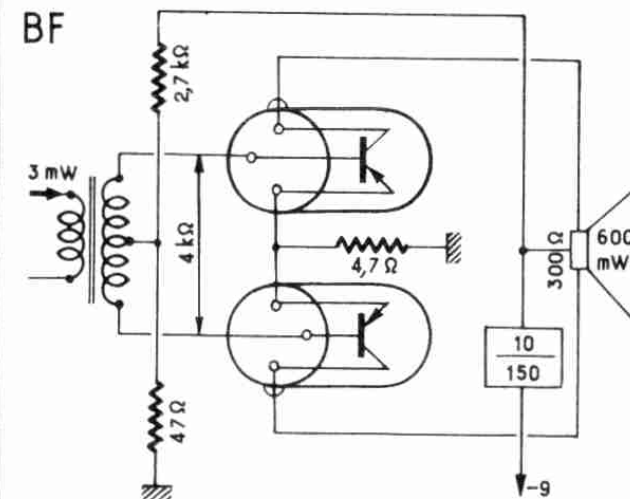
 $\beta = 45$
 GP = 20 dB


2N 1373

BF

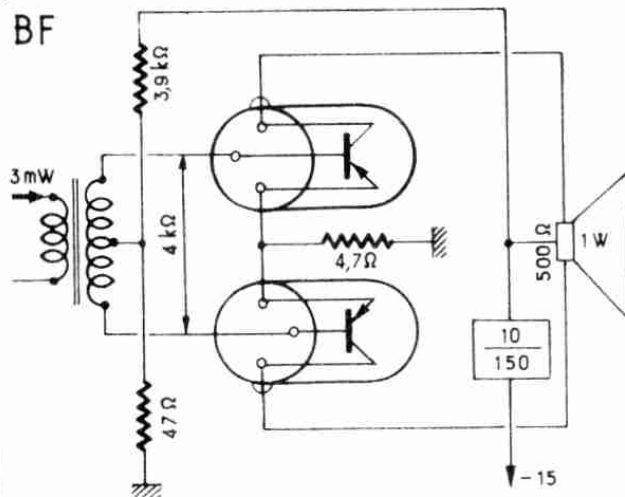
 $\beta = 45$
 GP = 22 dB
2N 1374
(2N 1376)

BF

 $\beta = 80 (95)$
 GP = 23 dB


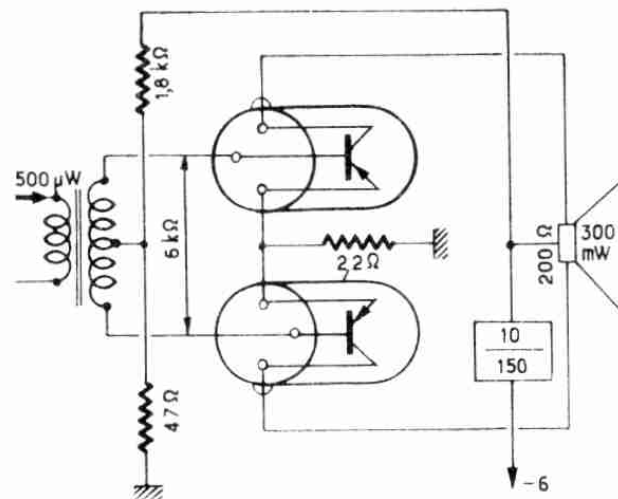
2N1375 (2N1377)

$\beta = 80$ (95)
GP = 25 dB



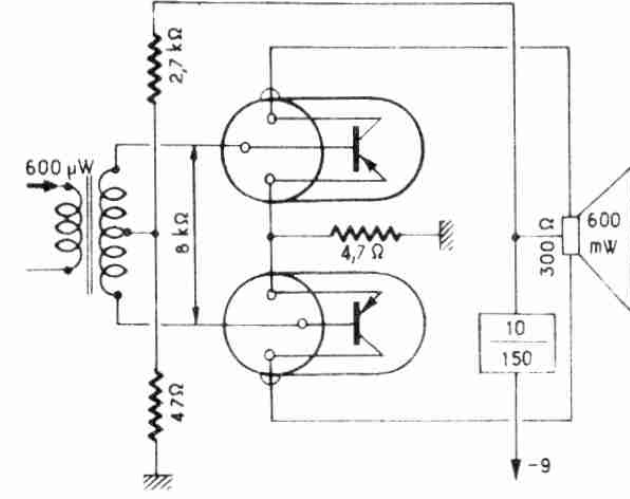
2N1378 BF

$\beta = 200$
GP = 28 dB



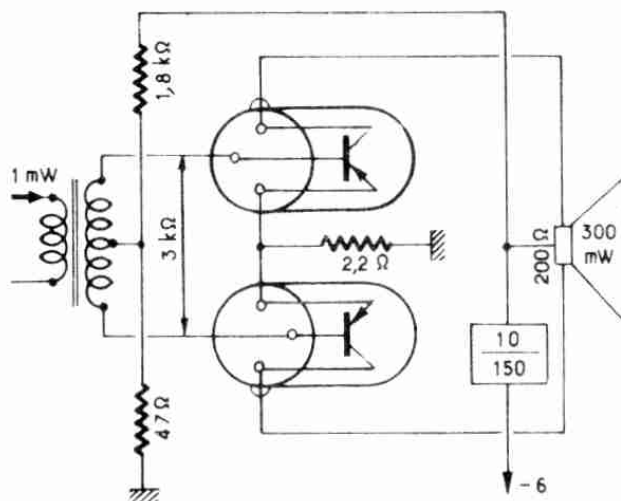
2N1379 BF

$\beta = 200$
GP = 22 dB



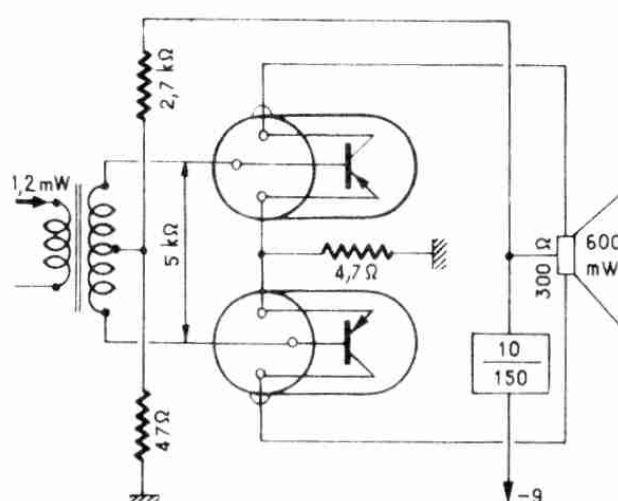
2N1380 BF

$\beta = 100$
GP = 25 dB



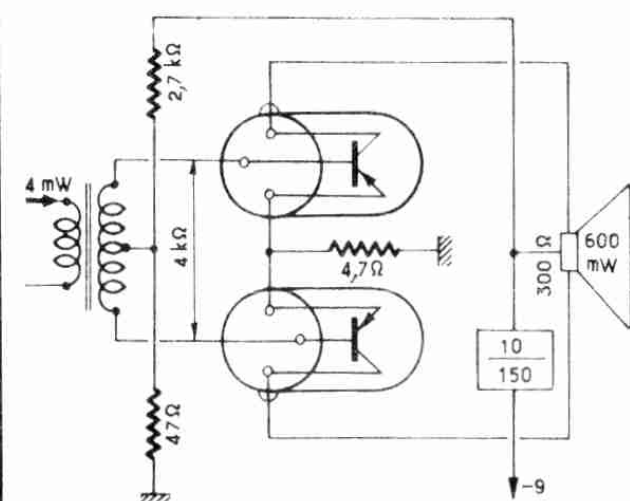
2N1381 BF

$\beta = 100$
GP = 27 dB



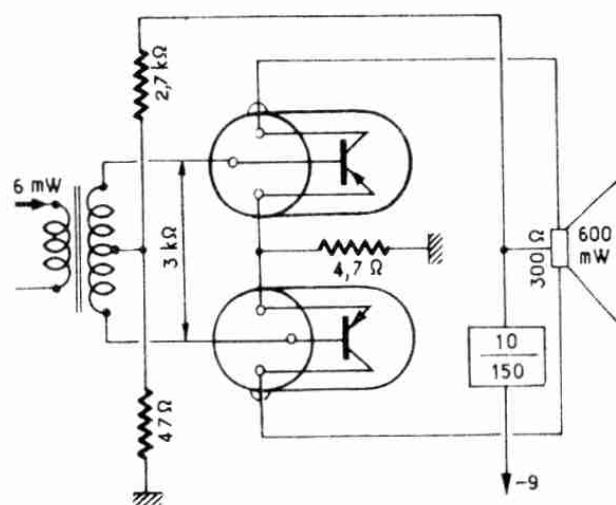
2N1382 BF

$\beta = 80$
GP = 22 dB



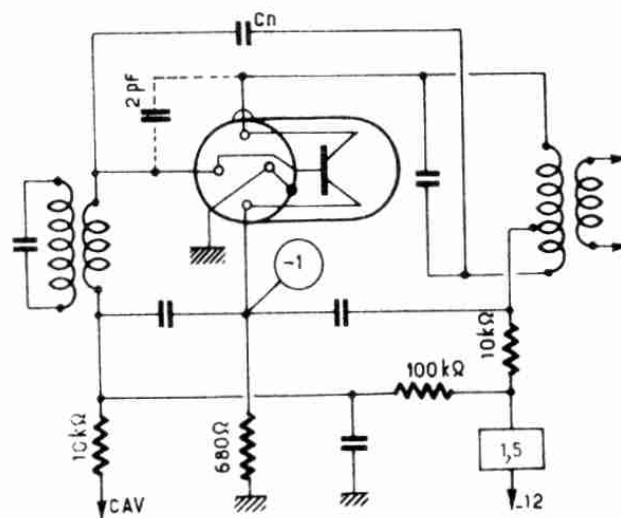
2N1383

BF

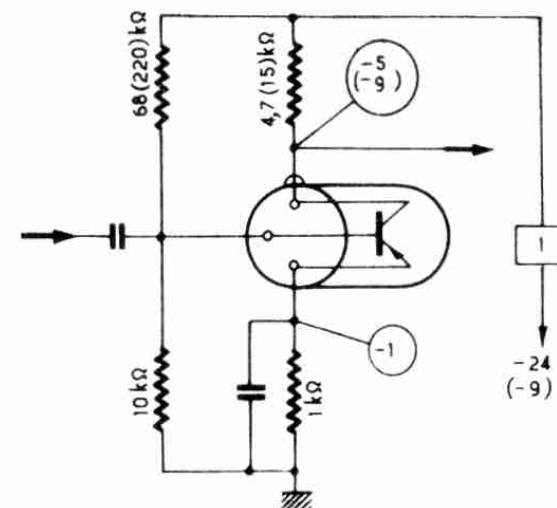
 $\beta = 50$
 $GP = 20 \text{ dB}$


2N1395

MF470 kHz

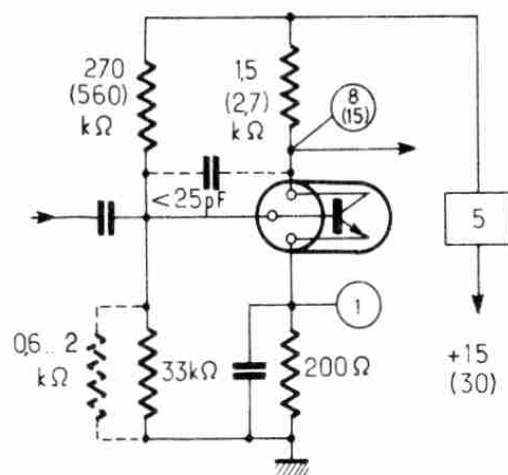
 $\beta = 90$
 $GP = 45 \text{ dB}$


2N1413, 14, 15

 $\beta = 30, 44, 64$


2N1420

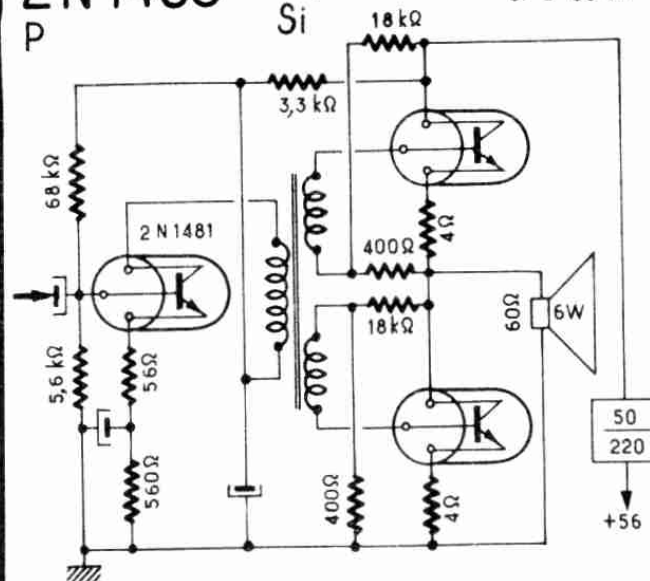
BF-HF

 $\beta = 100 \dots 300$
 $f_T = 100 \text{ MHz}$


2N1485

p

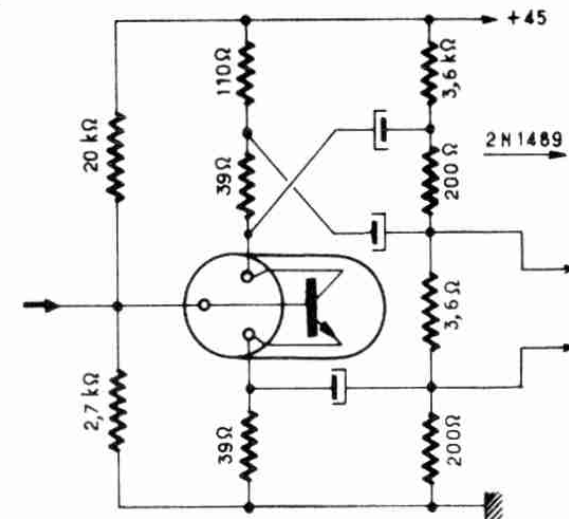
n-p-n
Si

 $\beta > 35$
 $GP = 60 \text{ dB}$


2N1485

BF

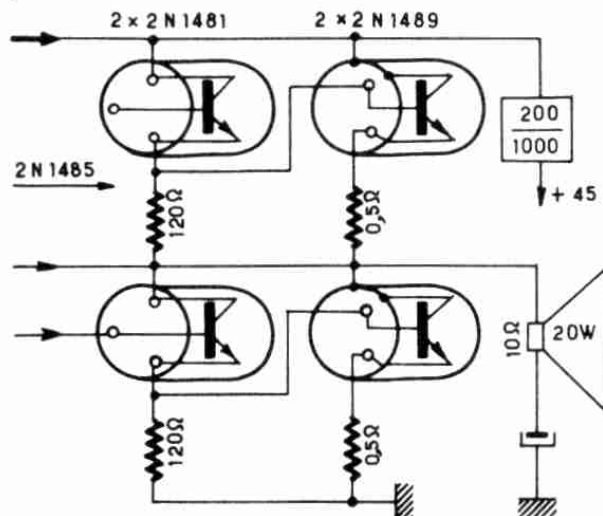
n-p-n
Si

 $\beta > 35$


2N1489
P

n-p-n
Si

$\beta = > 25$
GP = 36 dB

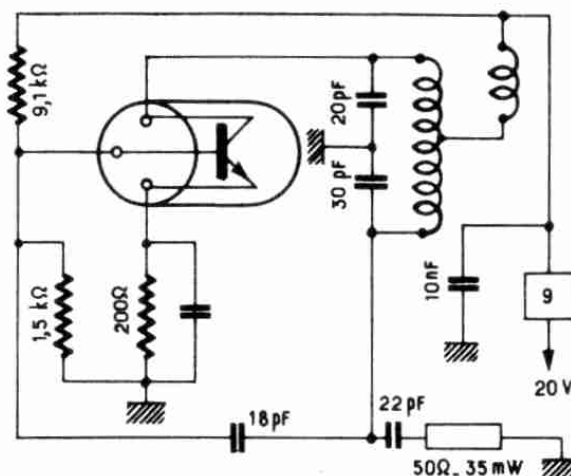


2N1491

HF Osc.
70 MHz

n-p-n
Si

$\beta = 50$

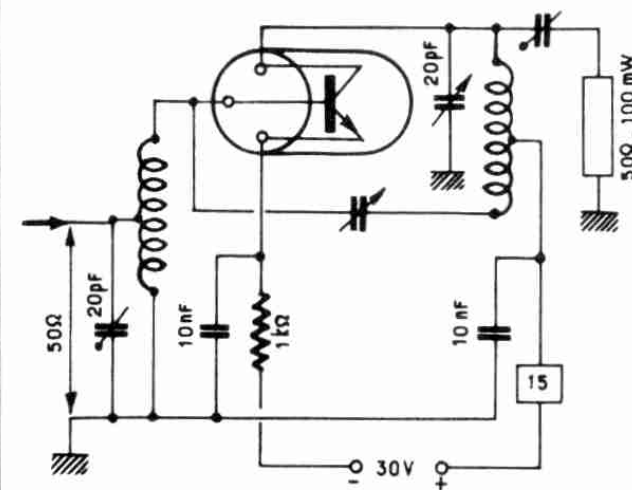


2N1492

HF 70 MHz

n-p-n
Si

$\beta = 50$
GP = 15 dB

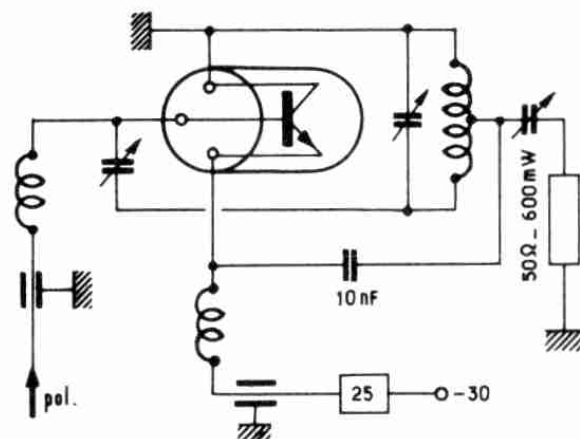


2N1493

P. Osc.
70 MHz

n-p-n
Si

$\beta = 50$

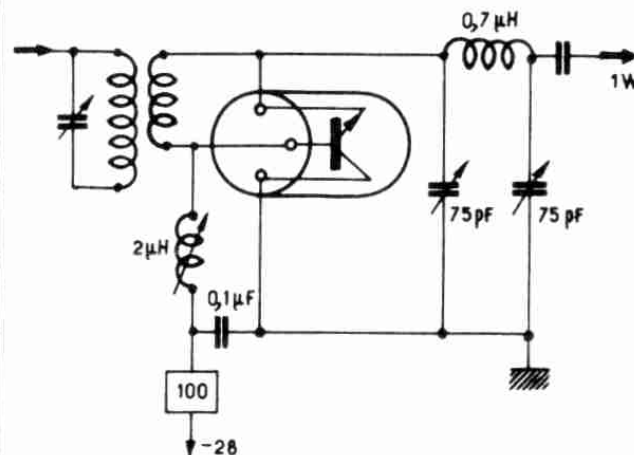


2N1506

30 MHz

n-p-n
Si

$\beta = 10 \dots 50$
GP = 18 dB

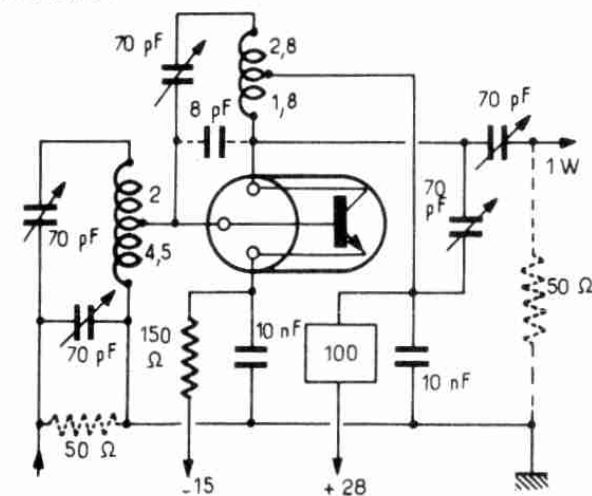


2N 1506

70 MHz

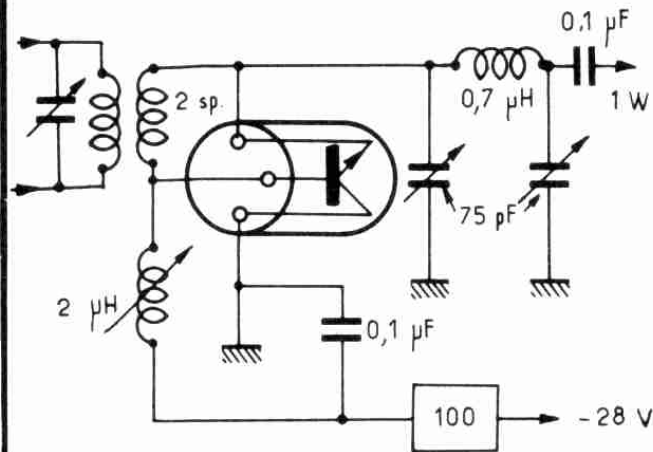
$\beta > 15$

GP = 9...12 dB

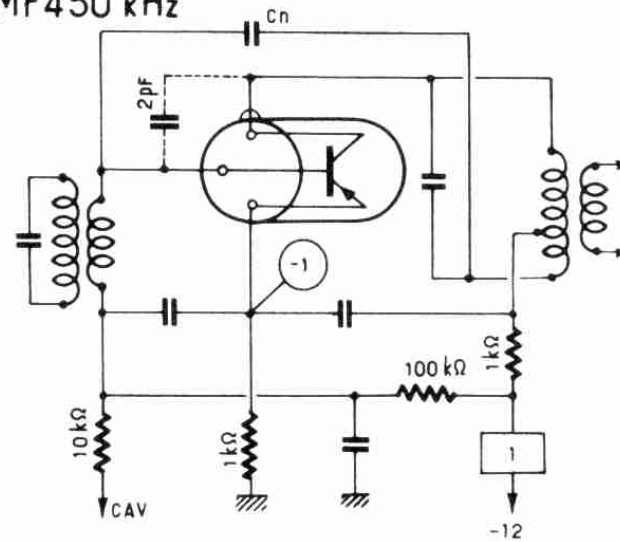


2N 1506 A

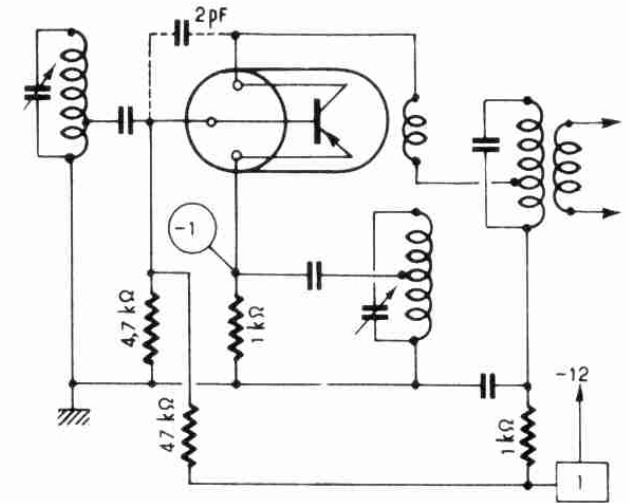
30 MHz

n-p-n Si
triple diffusion $\beta = 40$
GP = 18 dB**2N1524**

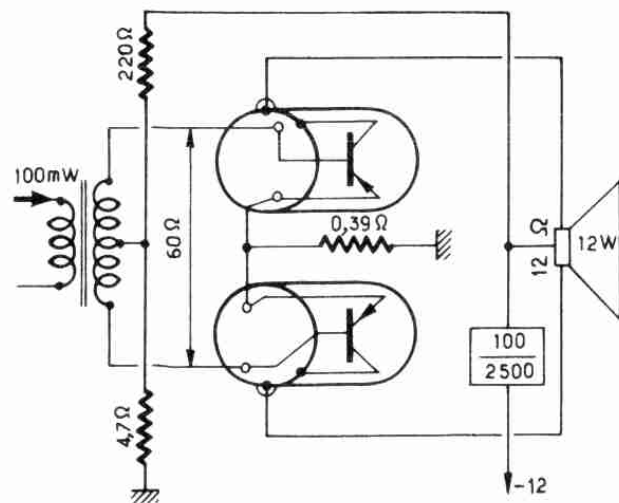
MF450 kHz

 $\beta = 60$
GP = 33 dB**2N1526**

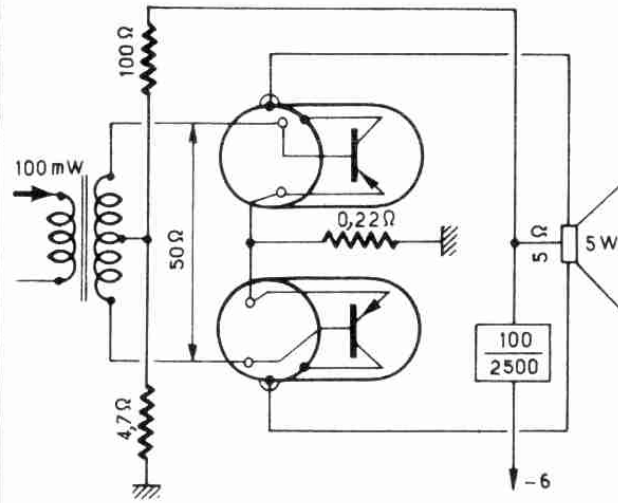
Conv. 6 MHz

 $\beta = 130$
GC = 31 dB**2N1529,30A**

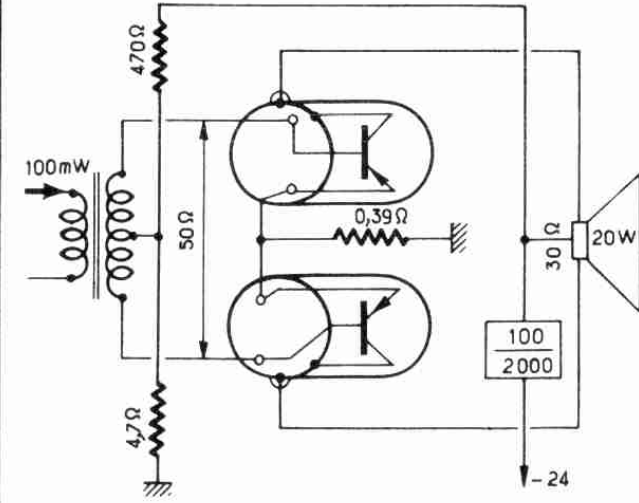
P

 $\beta = 20 \dots 40$
GP = 21 dB**2N1529 A**

P

 $\beta = 20 \dots 40$
GP = 17 dB**2N1531**

P

 $\beta = 20 \dots 40$
GP = 23 dB

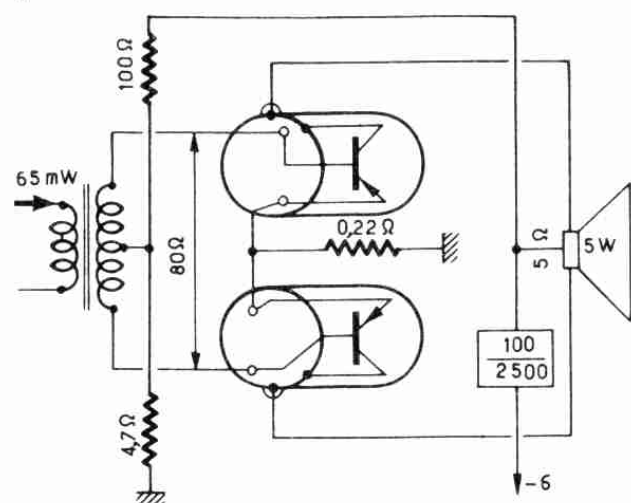
2N1534,A

82

2N1613

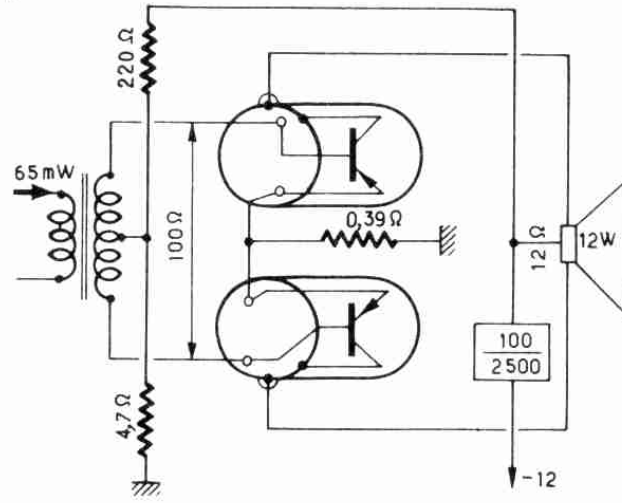
2N1534,A

P

 $\beta = 35 \dots 70$
GP = 19 dB

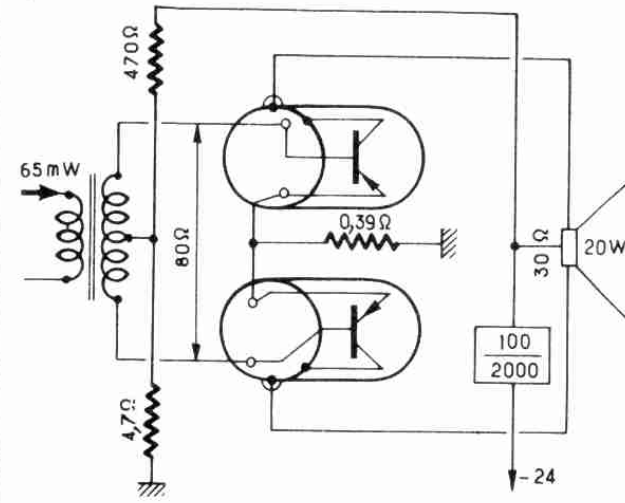
2N1535,A

P

 $\beta = 35 \dots 70$
GP = 23 dB

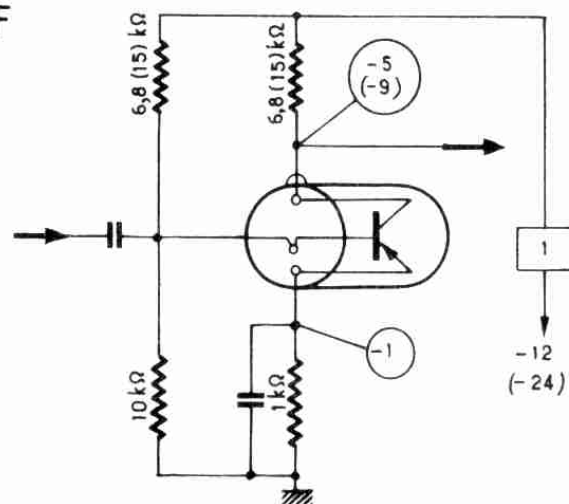
2N1536

P

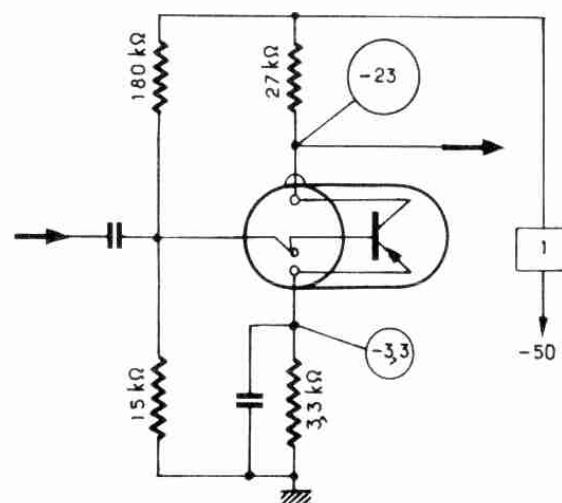
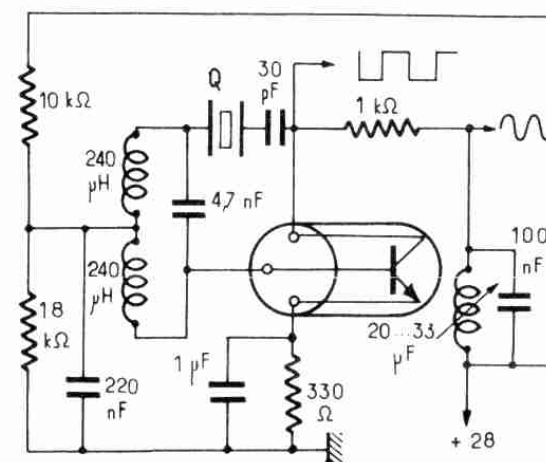
 $\beta = 35 \dots 70$
GP = 25 dB2N1592
(2N1593)

BF

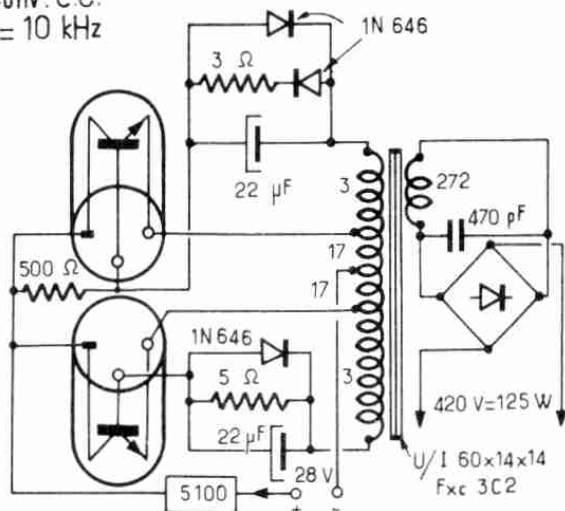
Si

 $\beta = 140$ 2N1594
BF

Si

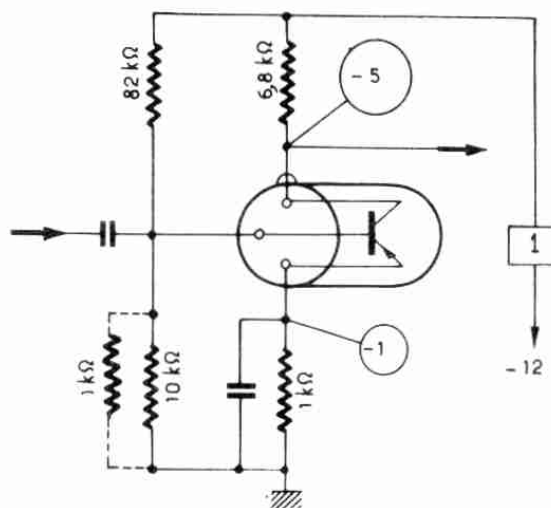
 $\beta = 140$ 2N1613
Osc. 100 kHzn-p-n Si
Planar $\beta = 40 \dots 120$ 

2N 1618

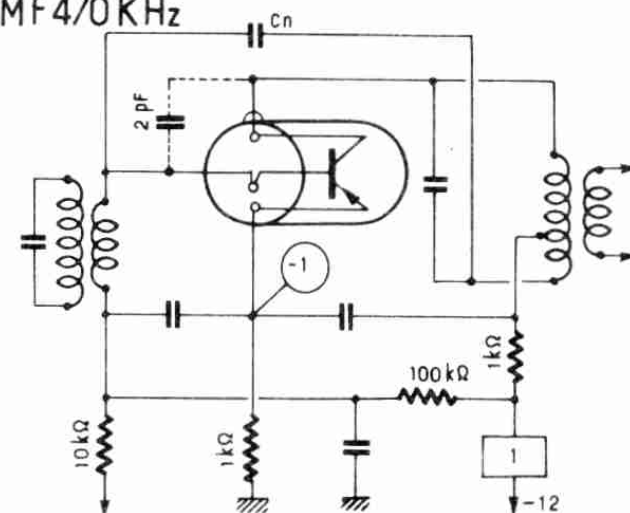
Conv. C.C.
f = 10 kHzn-p-n Si $\beta = 15 \dots 75$
Mesa

2N1623

Si

 $\beta = 25$
 $F_b < 18 \text{ dB}$ 2N1632
(2N1634)

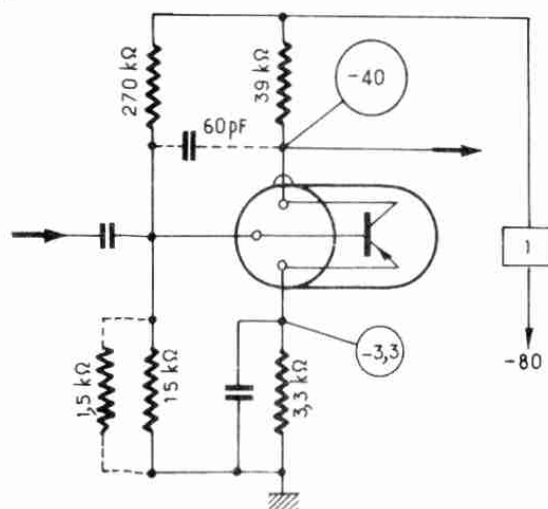
MF 470 KHz

 $\beta = 80(75)$
 $GP = 46(36) \text{ dB}$ 

2N1654

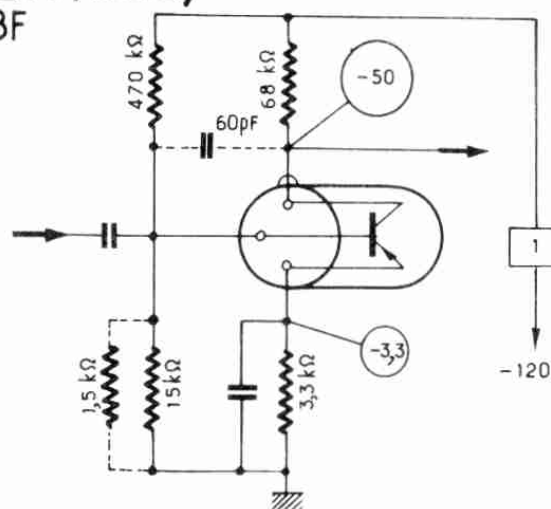
BF

Si

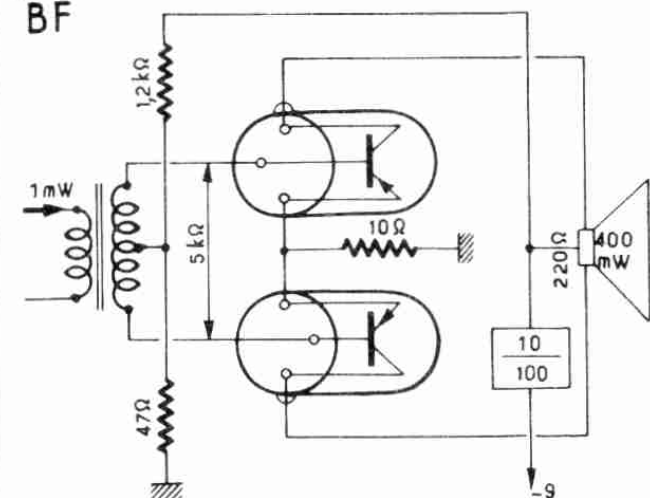
 $\beta = 30$ 2N1655
(2N1656)

BF

Si

 $\beta = 15(30)$ 2N1706
(2N1707)

BF

 $\beta = 90(95)$
 $GP = 26 \text{ dB}$ 

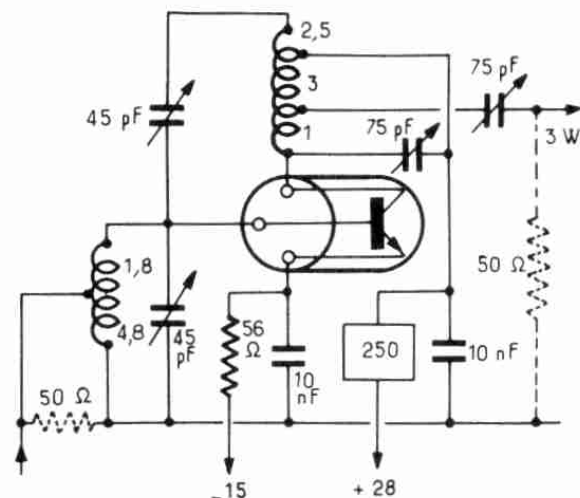
2N1709

84

2N1893

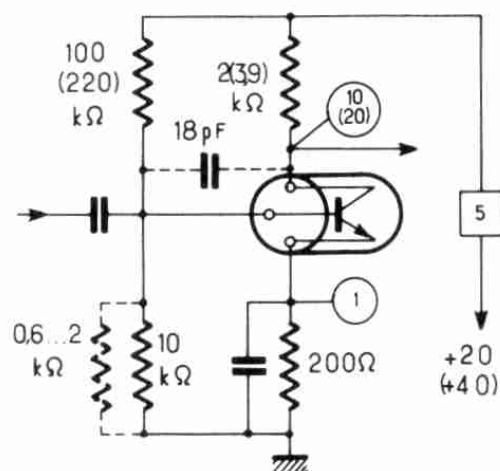
2N 1709

70 MHz

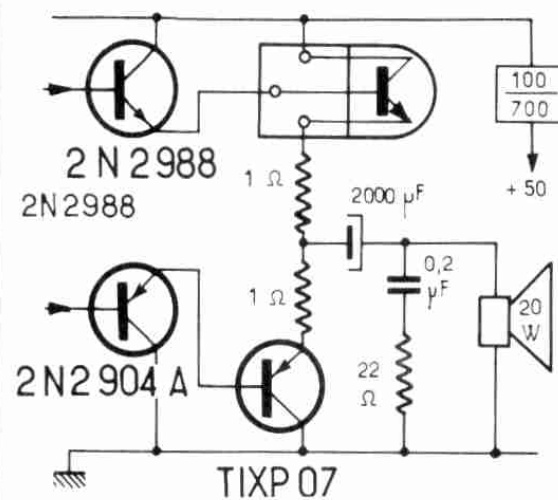
 $\beta = 75 \dots 75$ 

2N1711

BF-HF

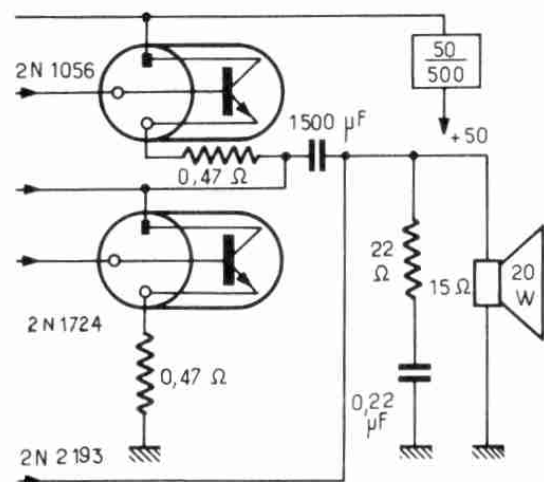
n-p-n
Si $\beta = 100 \dots 300$
 $f_T = 100 \text{ MHz}$ 

2N1722

n-p-n Si
mésa $\beta = 20 \dots 90$ 

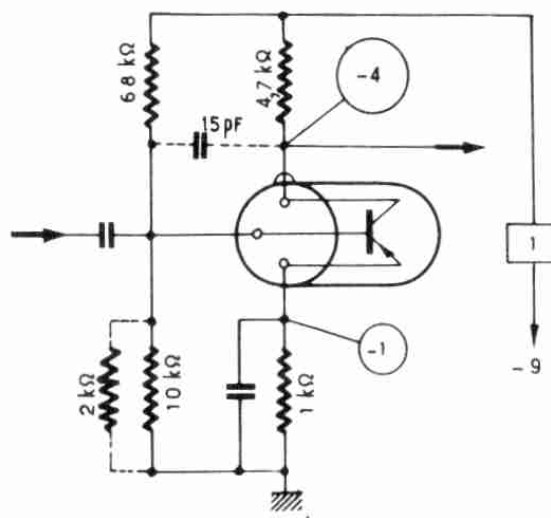
2N 1724

P

n-p-n Si
Mesa $\beta = 20 \dots 90$ 

2N1808

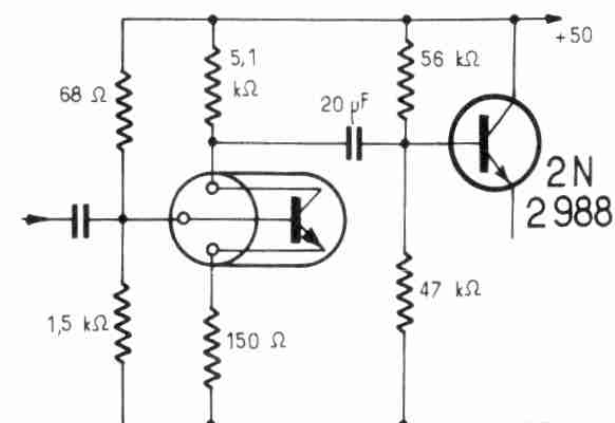
BF

 $\beta = 60$ 

2N1893

BF

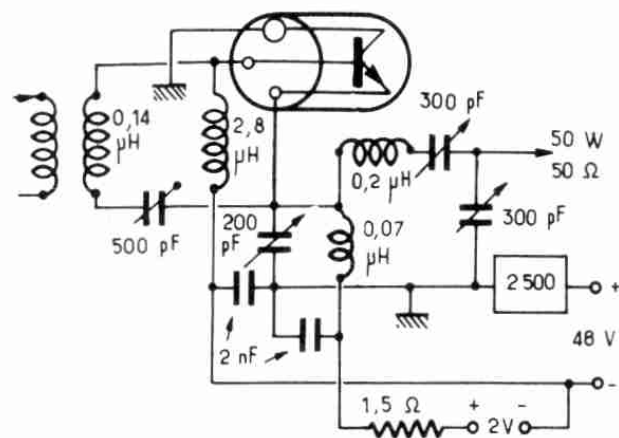
n-p-n Si

 $\beta = 40 \dots 120$ 

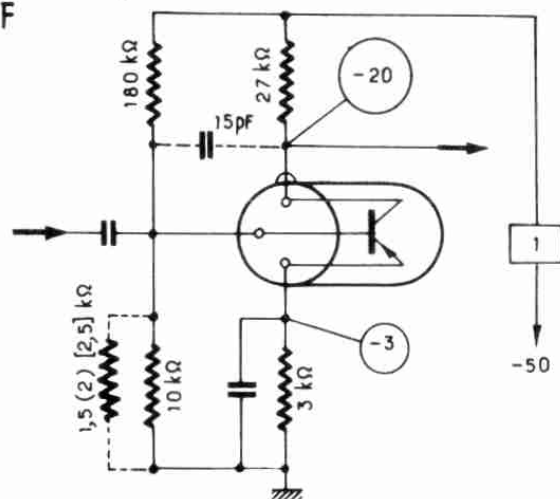
2N 1900,03

30 MHz

n-p-n Si

 $\beta > 8$ 2N 1924
(2N 1925)
[2N 1926]

BF

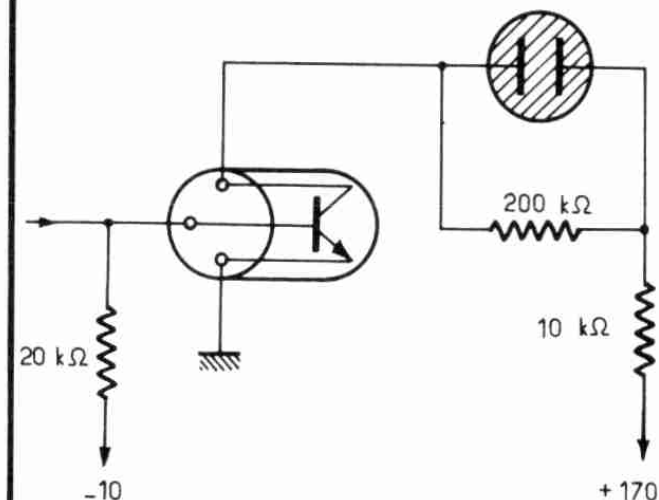
 $\beta = 45(65)[80]$ 

2N 1990

Commande Néon

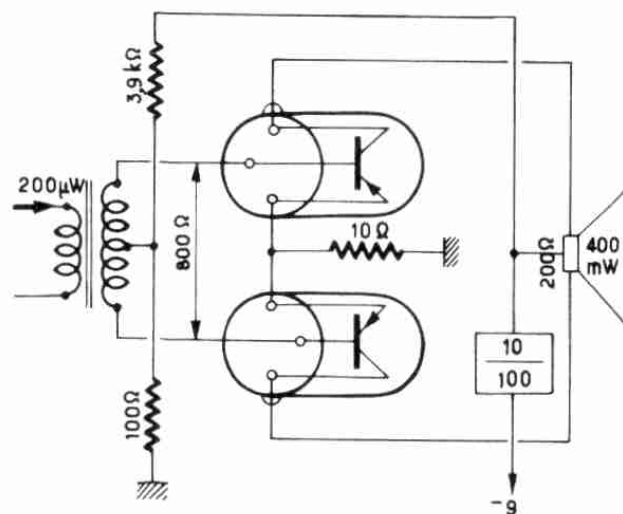
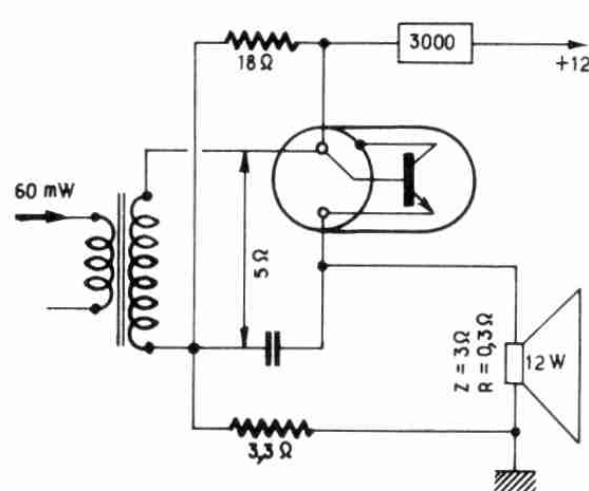
n-p-n
Planar

Si

 $\beta > 20$ 

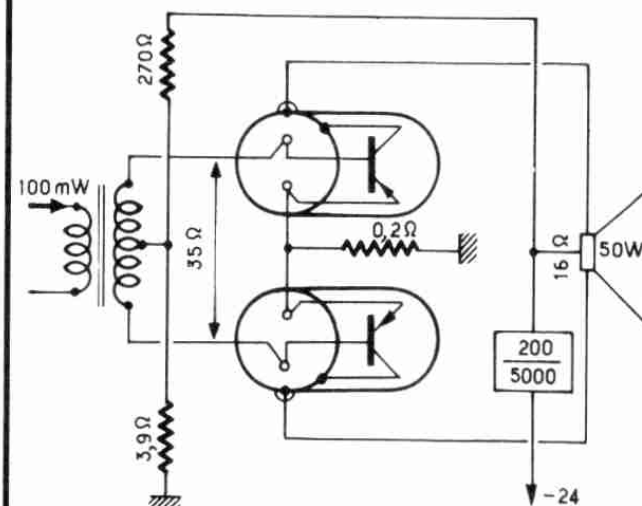
2N 2000

BF

 $\beta = 150$
GP = 33 dB2N 2015
Pn-p-n
Si $\beta = 15 \dots 50$
GP = 23 dB

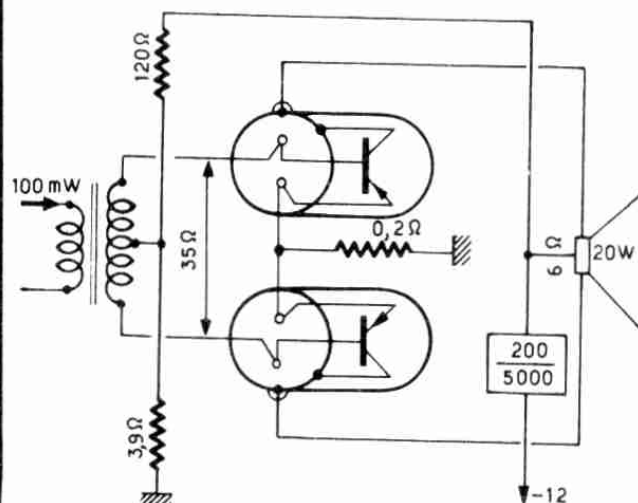
2N2080,A

P

 $\beta = 35 \dots 70$
GP = 27 dB

2N2082,A
P

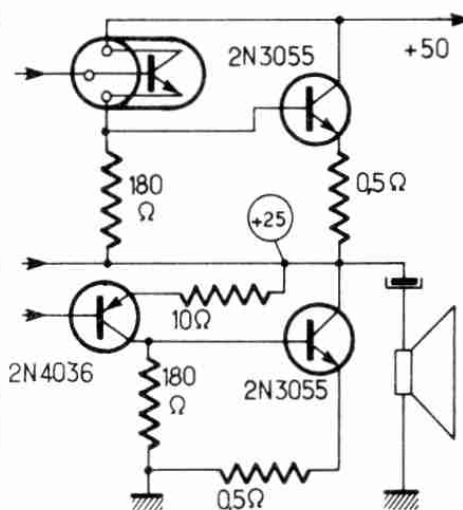
$\beta = 35 \dots 70$
GP = 23 dB



2N2102
BF

n-p-n
Si

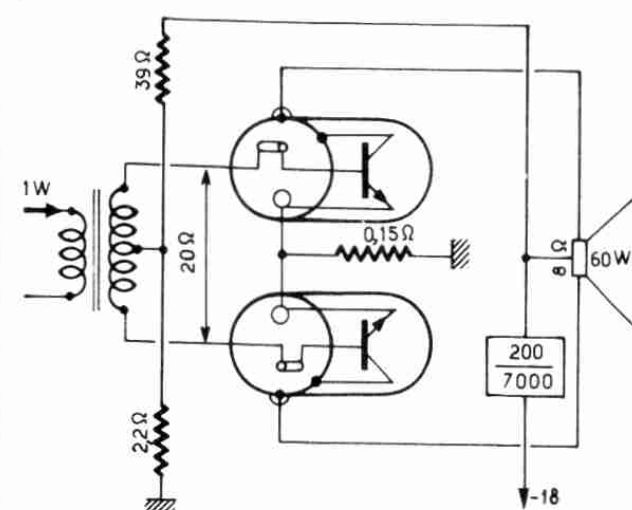
$\Omega = 40 \dots 120$
 $f_T = 60 \text{ MHz}$



2N2109
P

n-p-n
Si

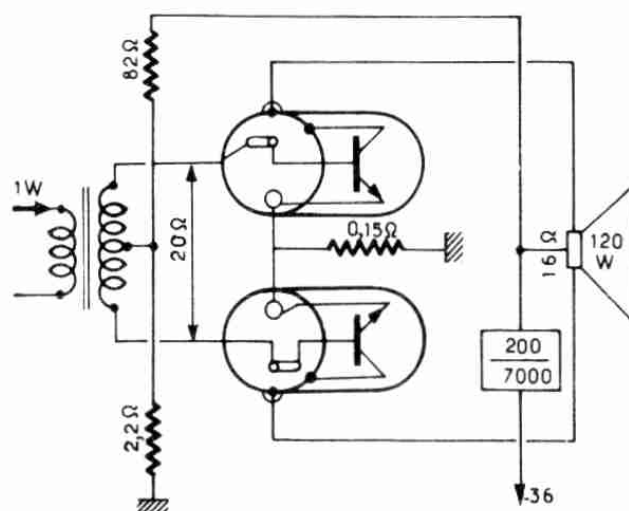
$\beta = 14$
GP = 18 dB



2N2110
P

n-p-n
Si

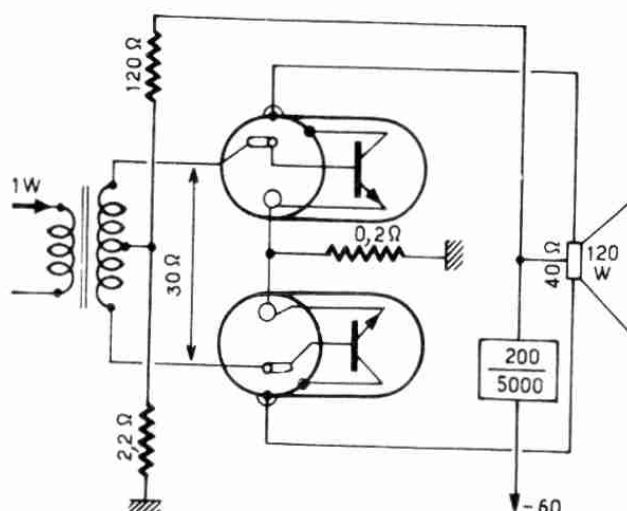
$\beta = 14$
GP = 21 dB



2N2111
P

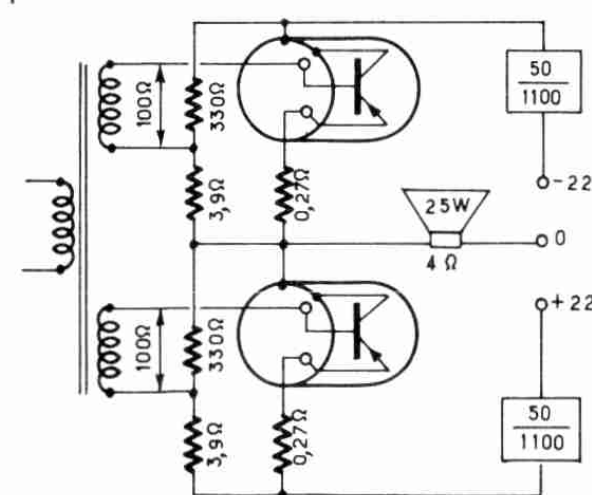
n-p-n
Si

$\beta = 14$
GP = 21 dB



2N2147
P

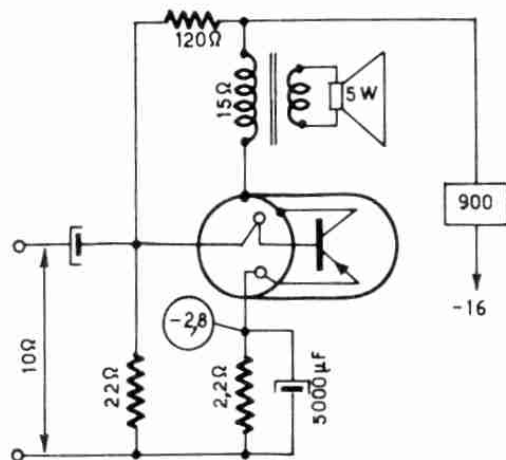
$\beta = 75 \dots 300$
GP = 32 dB



2N2148

P

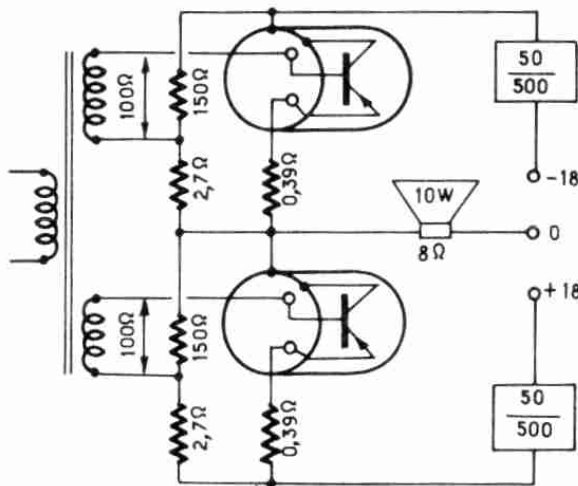
$\beta = 30 \dots 100$
GP = 36 dB



2N2148

P

$\beta = 30 \dots 100$
GP = 29 dB

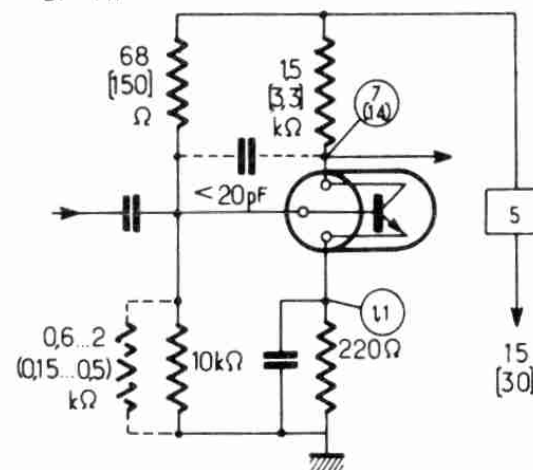


2N2192
(2N2194)

BF-HF

n-p-n
Si

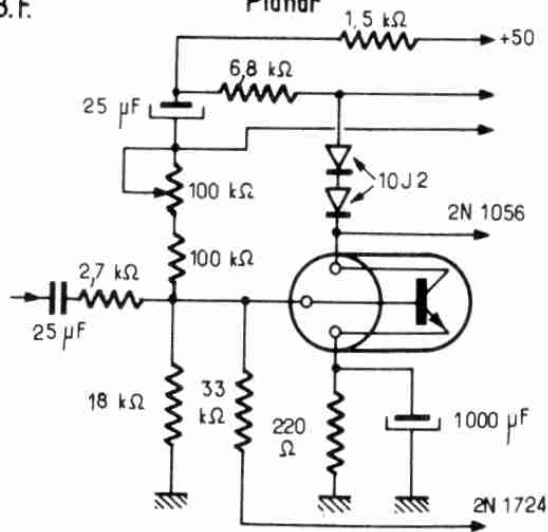
$\beta = 100 \dots 300$
(20...60)
 $f_T = 50 \text{ MHz}$



2N 2193
B.F.

n-p-n
Planar

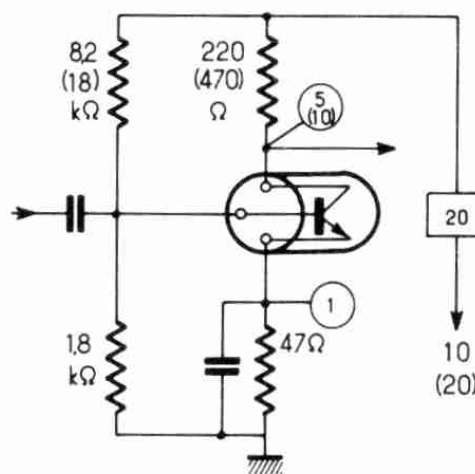
$\beta = 20 \dots 120$



2N2195
BF-HF

n-p-n
Si

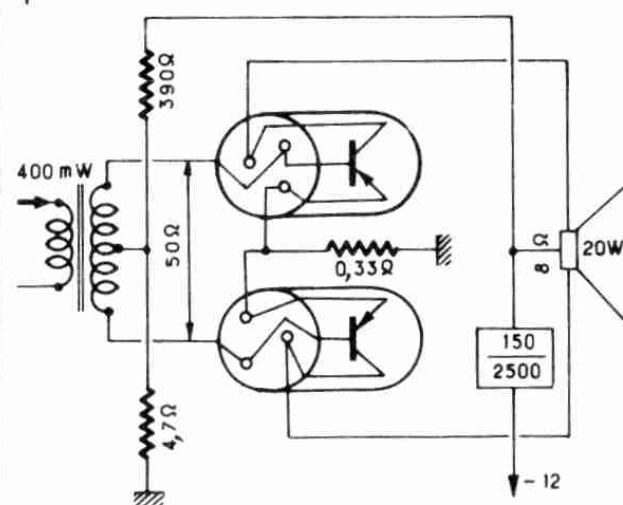
$\beta > 20$



2N2266...69

P

$\beta = 25 \dots 75$
GP = 17 dB

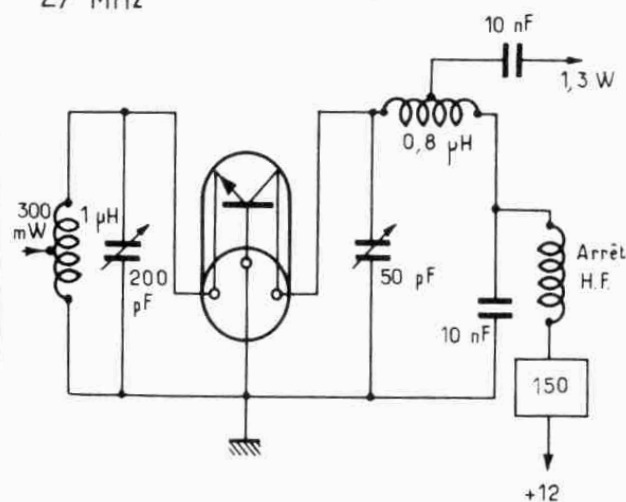


2N2297

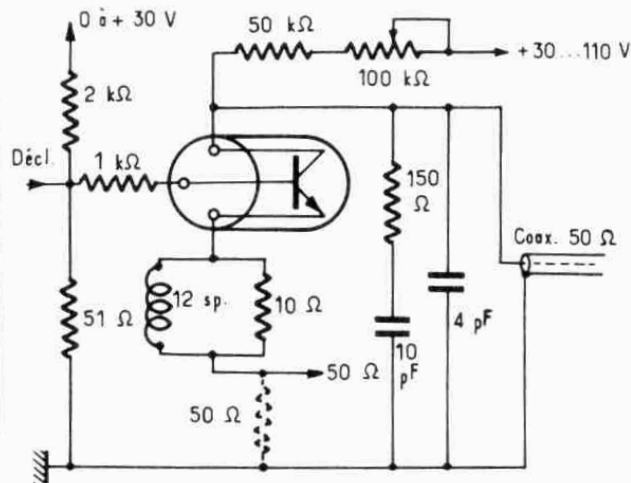
88

2N2553

2N2297 n-p-n Si $\beta = 40 \dots 120$
 27 MHz Planar Epitax. GP = 6,5 dB

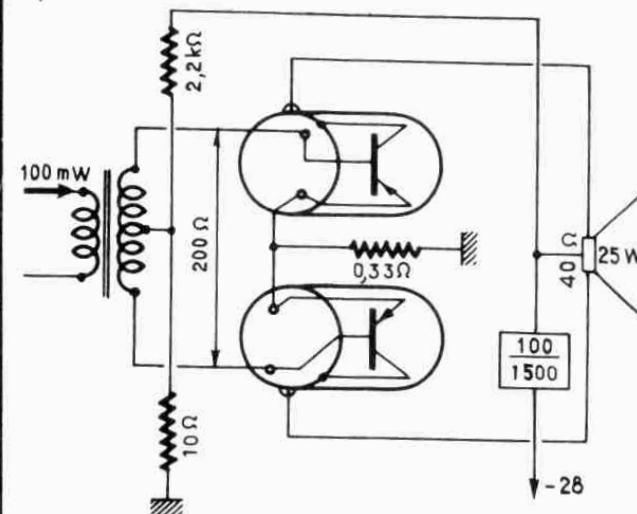


2N2369 n-p-n Si $\beta = 40 \dots 120$
 Gen. Avalanche Planar Epitax. $t_r < 1 \text{ ns}$

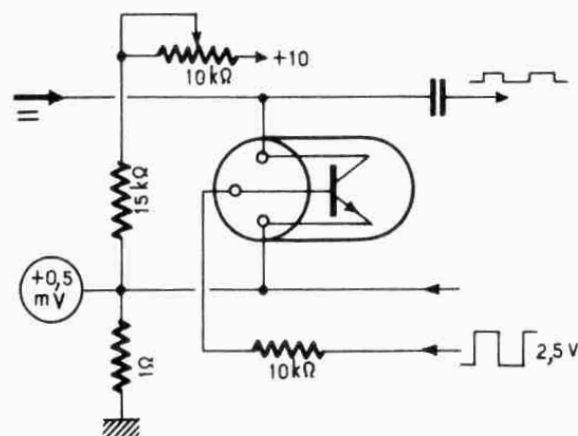


2N2423
 P

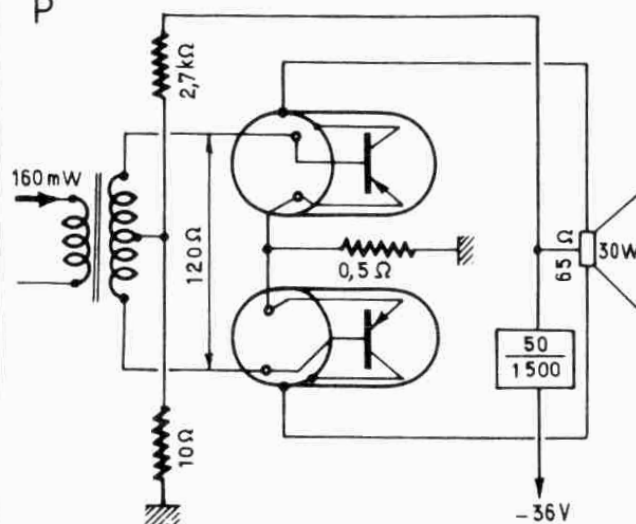
$\beta = 20 \dots 100$
 GP = 25 dB



2N2432 Si $\beta > 2$
 Chopper n-p-n

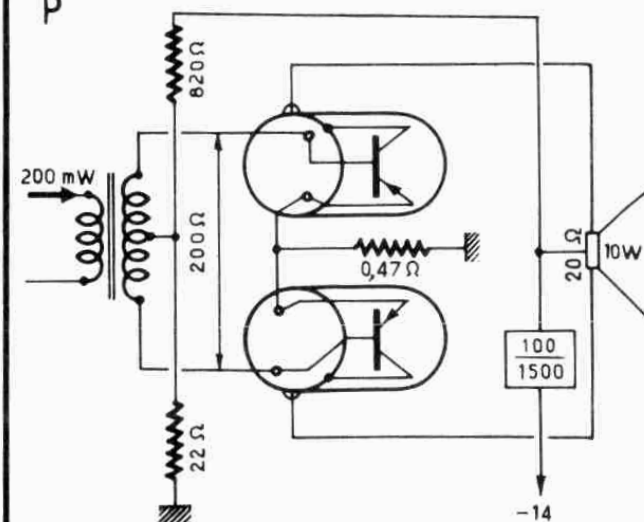


2N2526, 27
 P $\beta = 20 \dots 50$



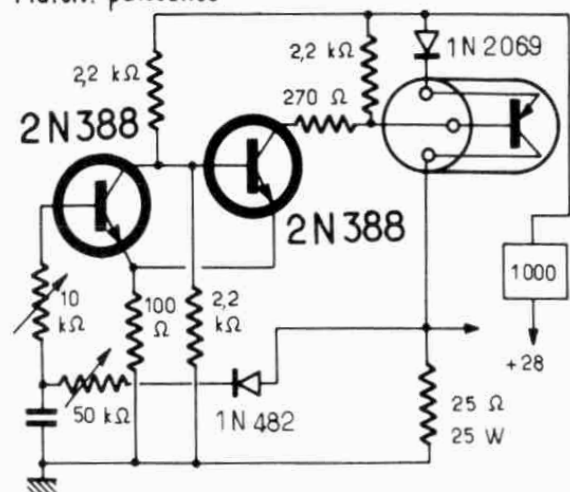
2N2552, 53
 P

$\beta = 20 \dots 60$
 GP = 17 dB

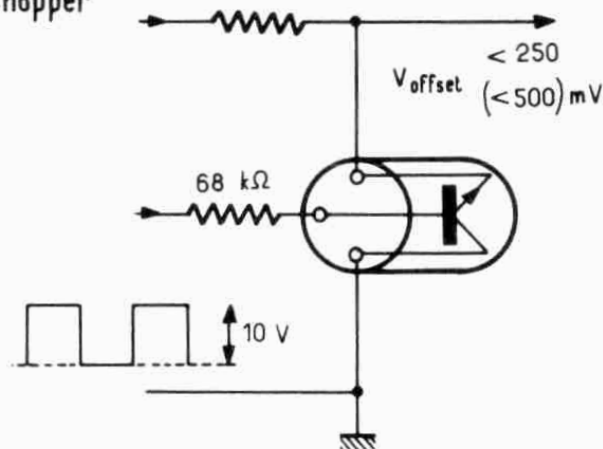


2N 2557

Multiv. puissance

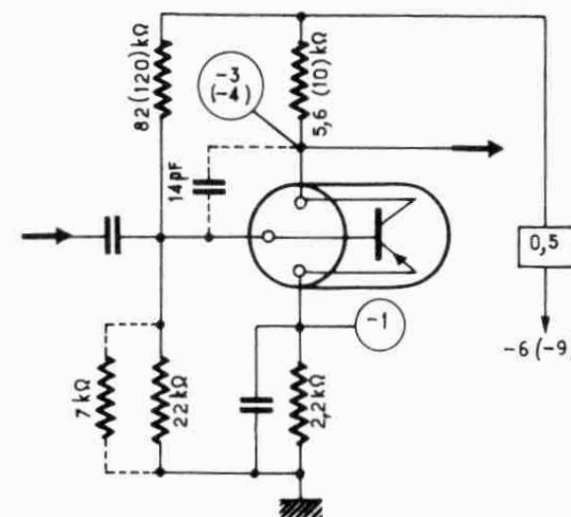
 $\beta = 20 \dots 60$ 2N 2569
(2N 2570)n-p-n Si $\beta = 50$
Planar Epitaxial $\beta_{inv} = 4 \dots 10$

Chopper



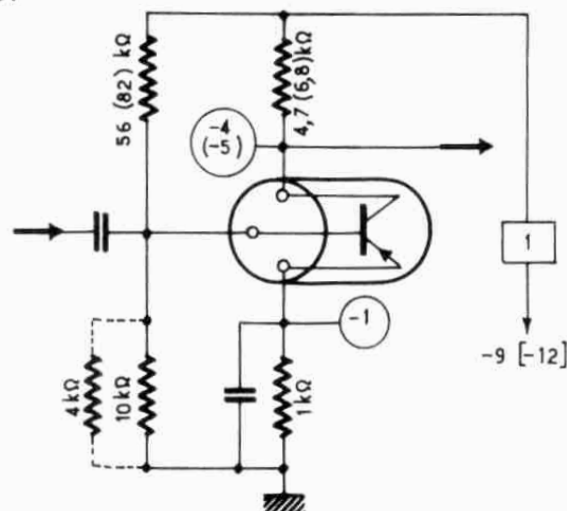
2N2613

BF

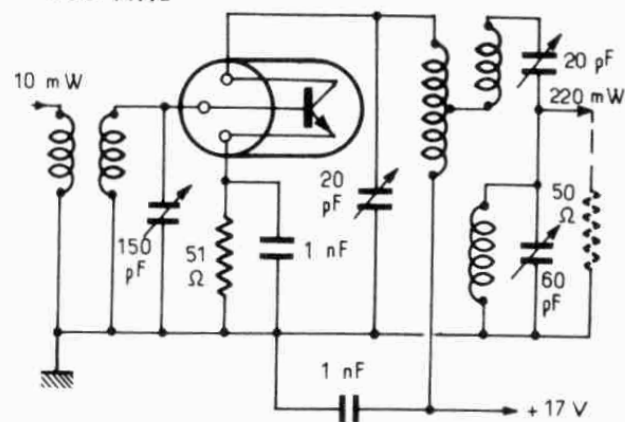
 $\beta = 125$
 $F_b < 5 \text{ dB}$ 

2N2614

BF

 $\beta = 160$ 

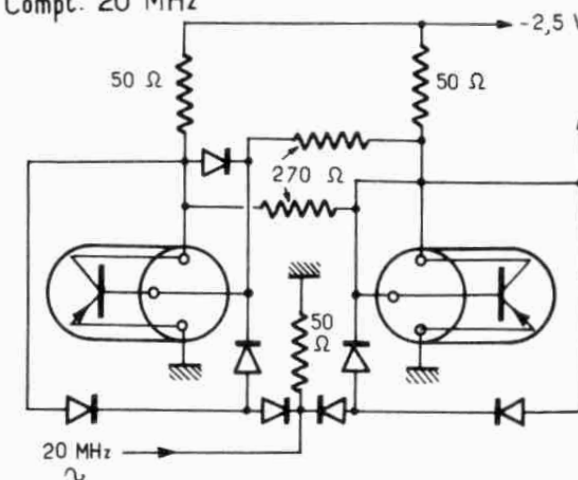
2N 2656

Doubleur 130 -
260 MHzn-p-n Si
planar épitaxial $\beta = 65$
 $GP = 3,5 \text{ dB}$ 

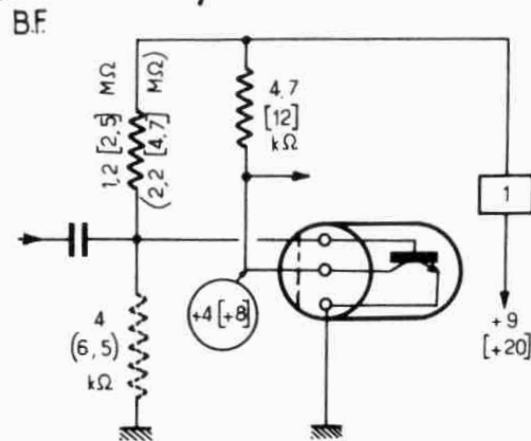
2N 2695

2N 2696

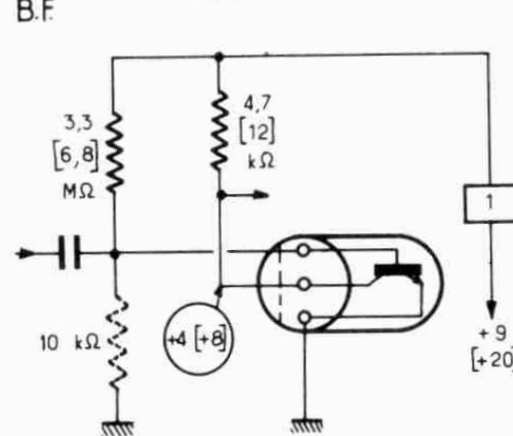
Compt. 20 MHz

p-n-p Si
Planar Epitax. $\beta = 30 \dots 130$ 

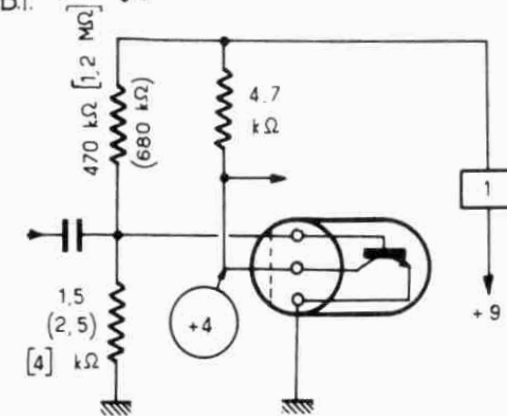
2N2923
(2N2924) n-p-n Si $\beta = 90 \dots 180$
Planar $(150 \dots 300)$
 $F_b = 2,8 \text{ dB}$



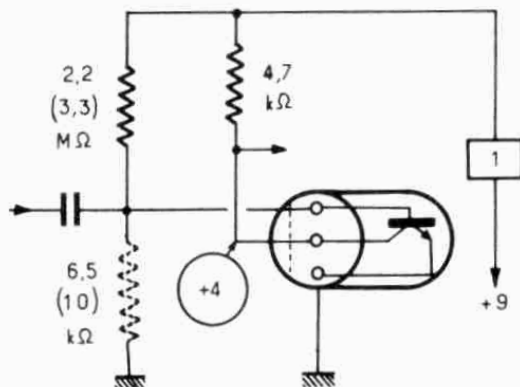
2N2925 n-p-n Si $\beta = 235 \dots 470$
Planar $F_b = 2,8 \text{ dB}$



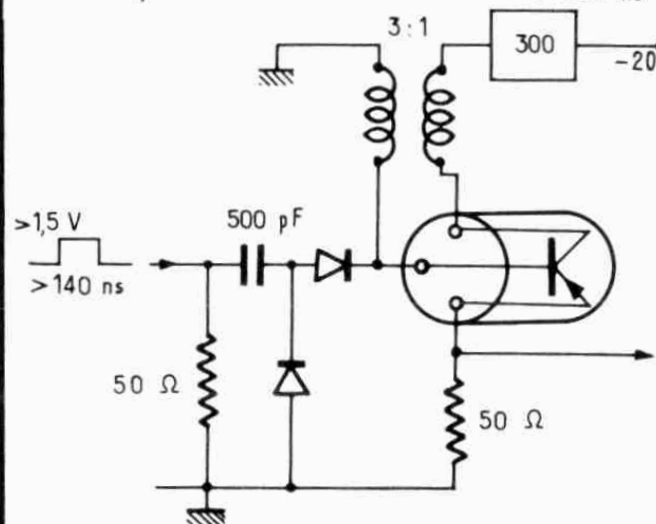
2N2926 n-p-n Si $\beta = 35 \dots 70$
macron (rouge) Planar $(55 \dots 110)$
B.F. [orange] $[90 \dots 180]$



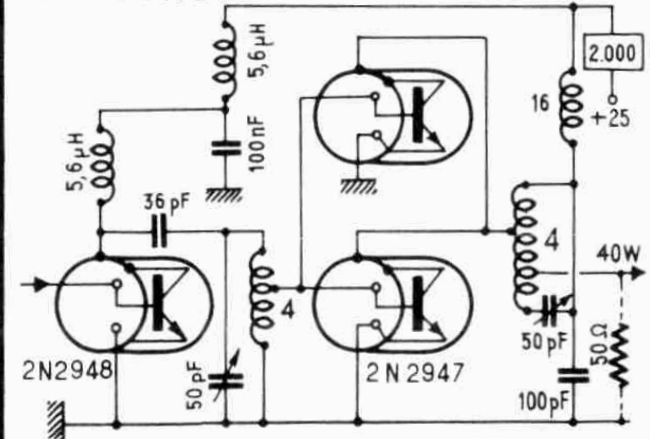
2N2926 n-p-n Si $\beta = 150 \dots 300$
jaune (vert) Planar $(235 \dots 470)$
B.F. $F_b = 2,8 \text{ dB}$



2N2927 p-n-p Si $\beta = 30 \dots 130$
Planar Epitax. $t_r = 40 \text{ ns}$
Osc. bloqué $t_f = 20 \text{ ns}$



2N2947 n-p-n $\beta = 25 \dots 35$
(2N2948) Si $(2,5 \dots 100)$
P 50 MHz

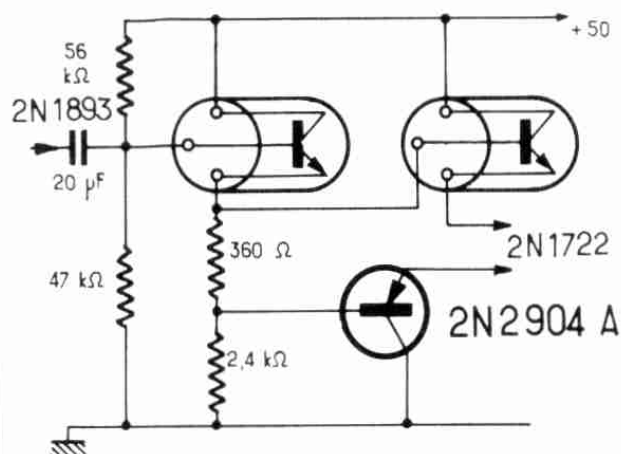


2 N 2988

n-p-n Si

 $\beta = 25 \dots 75$

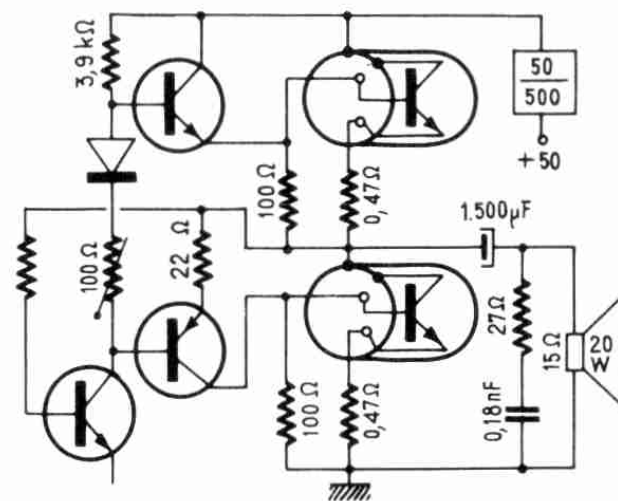
BF



2 N 3055

n-p-n
Si $\beta = 20 \dots 70$

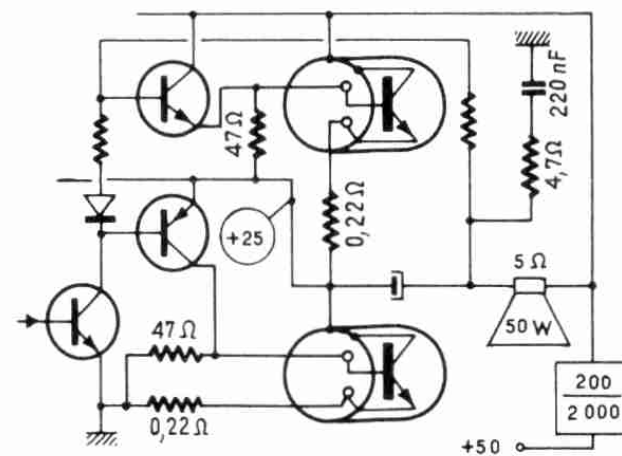
P



2 N 3055

n-p-n
Si $\beta = 20 \dots 70$

P



2 N 3073

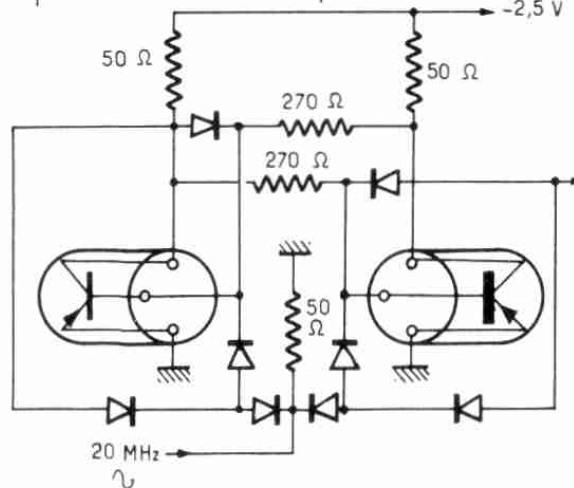
p-n-p Si

 $\beta = 30 \dots 130$

Compt. 20 MHz Planar Epitax.

 $(> 1,3 \text{ à } 100 \text{ MHz})$

-2,5 V



2 N 3120

p-n-p Si

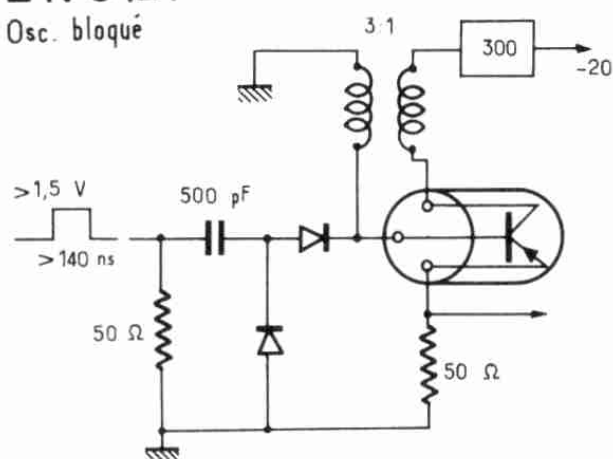
 $\beta = 30 \dots 130$

2 N 3121

Planar Epitax.

 $t_r = 40 \text{ ns}$ $t_f = 20 \text{ ns}$

Osc. bloqué

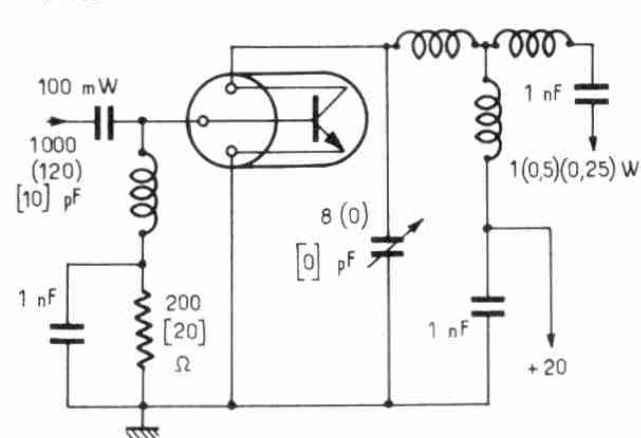


2 N 3137

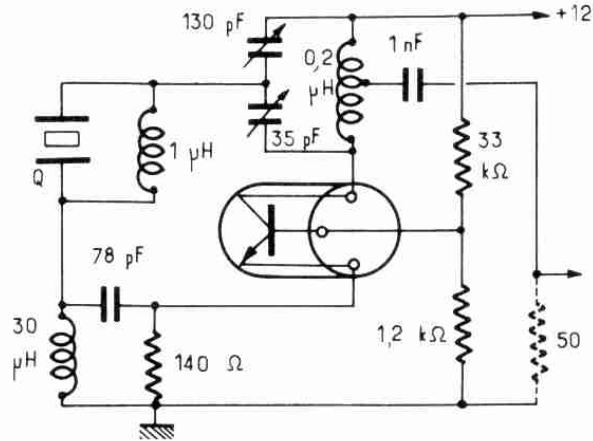
n-p-n Si
Planar Epitax. $\beta = 20 \dots 120$ $(> 5 \text{ à } 100 \text{ MHz})$

GP = 10 (7) [4] dB

125 (250) [500] MHz

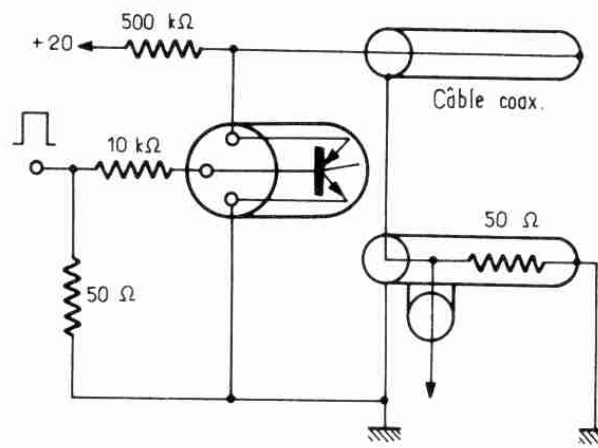


2 N 3137 n-p-n Si $\beta = 20 \dots 120$
Osc. 80 MHz Planar Epitax (> 5 à 100 MHz)

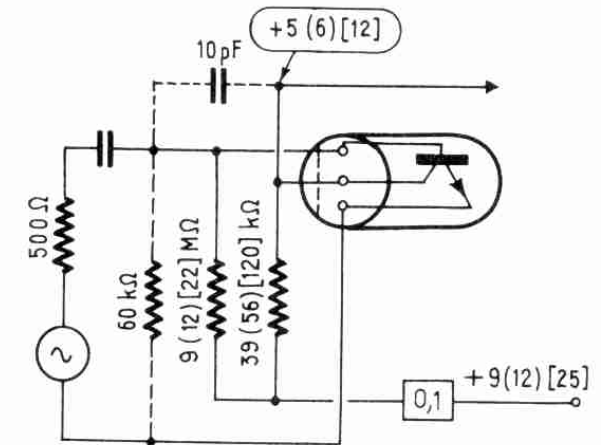


2 N 3255
Gén. impuls.

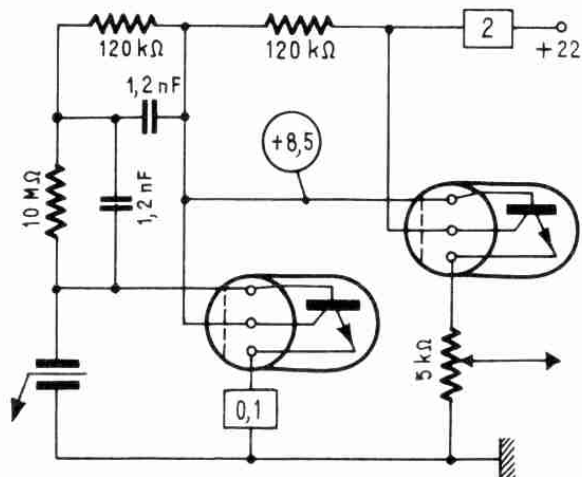
$t_r = 18 \dots 28$ ns



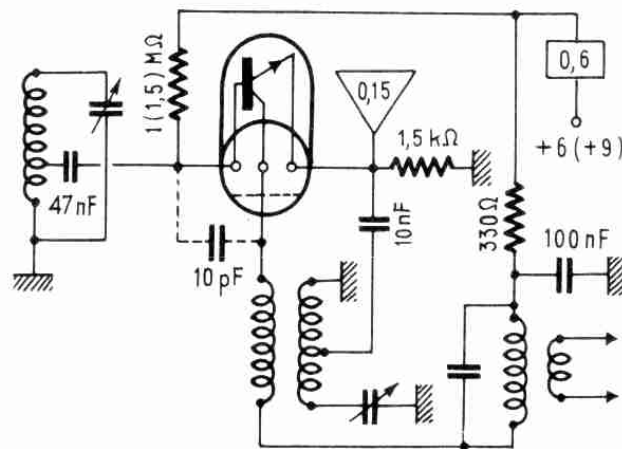
2 N 3391 n-p-n $\beta = 170$ à $I_c = 0,1$ mA
BF Si $F_b = 1,9$ dB



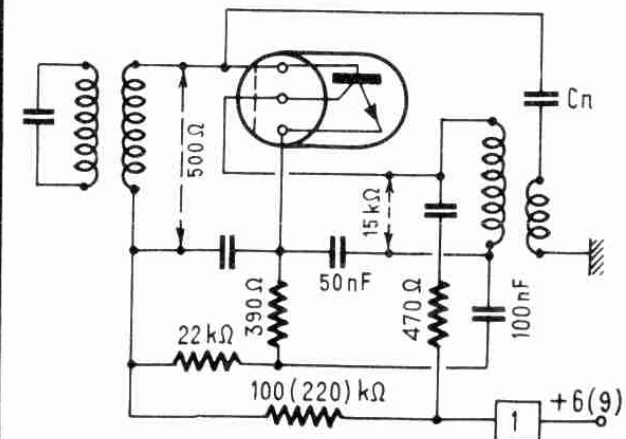
2 N 3392 (95), [96] $\beta = 150 \dots 500$
P.U. Piézoél. n-p-n Si (150...800) [90...800]



2 N 3393 n-p-n $\beta = 90 \dots 400$
Conv. < 2 MHz Si GP = 30...35 dB

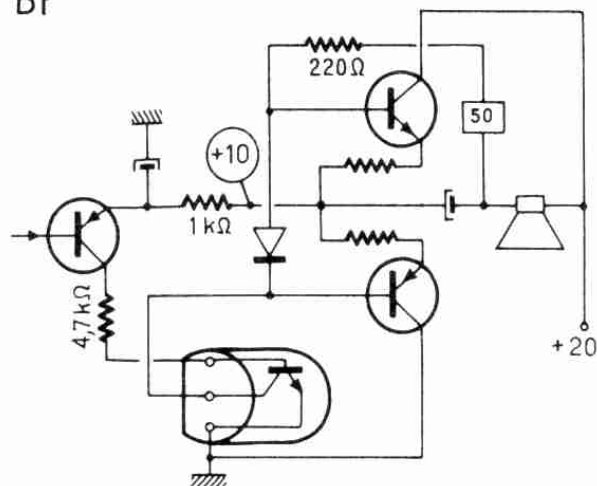


2 N 3393 (2 N 3394) n-p-n $\beta = 90 \dots 400$
MF 470 kHz Si GP = 37...41 dB



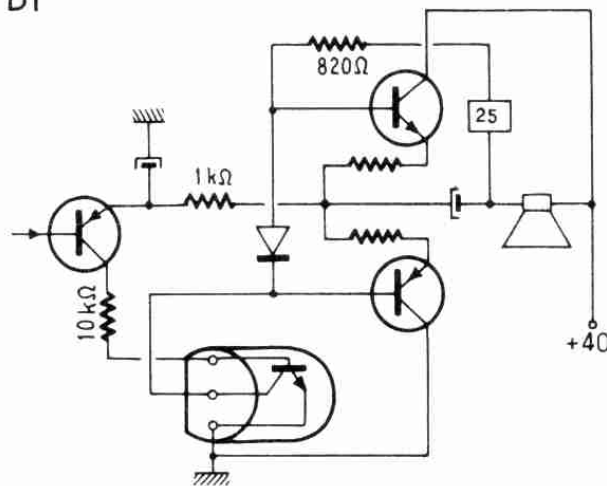
2 N 3402
(2 N 3403)
BF

n-p-n
Si

$$\beta = 75 \dots 225$$
$$(180 \dots 540)$$


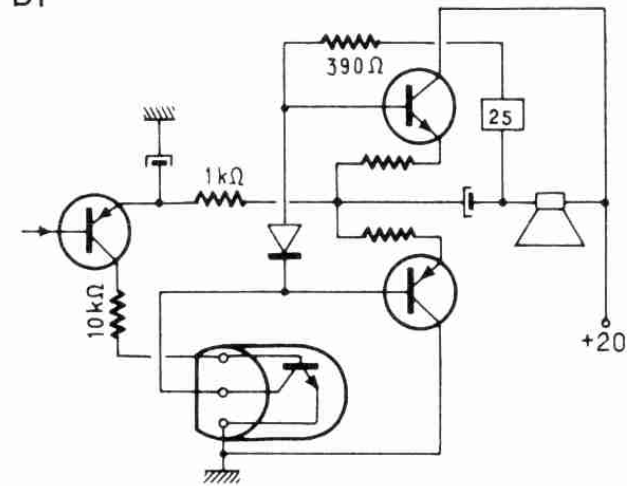
2 N 3404
(2 N 3405)
BF

n-p-n
Si

$$\beta = 75 \dots 225$$
$$(180 \dots 540)$$


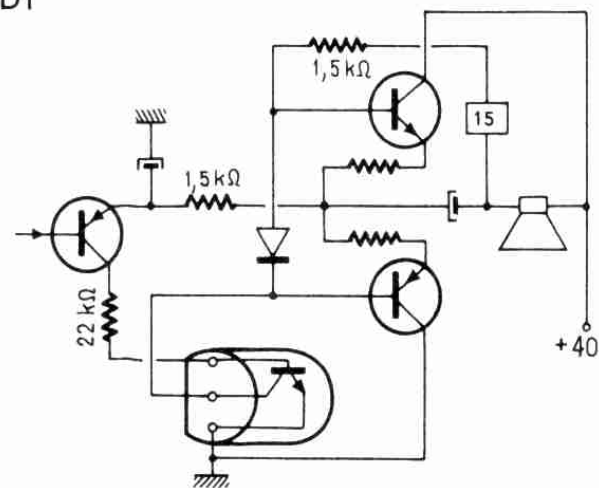
2 N 3414
(2 N 3415)
BF

n - p - n
Si

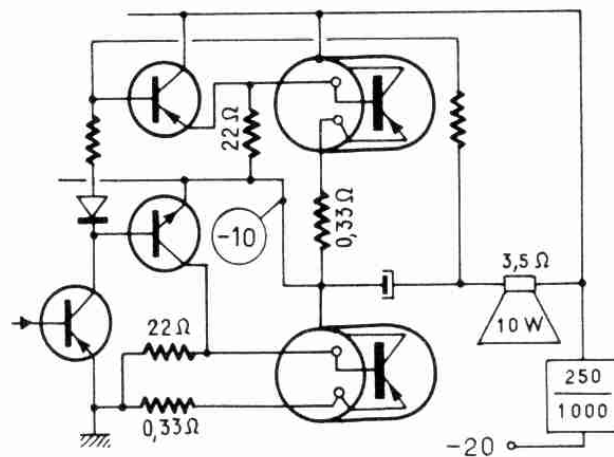
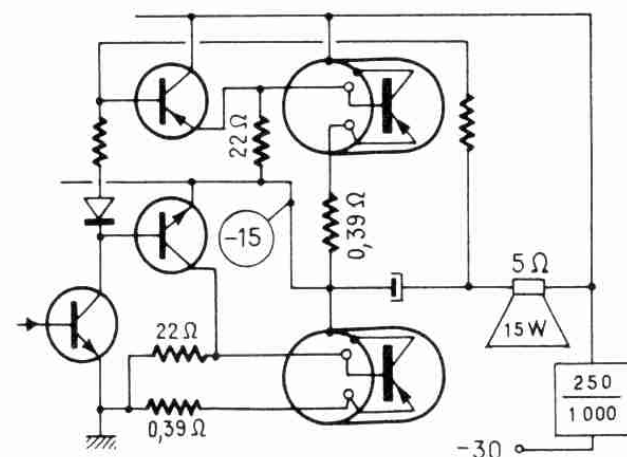
$$\beta = 75 \dots 225$$
$$(180 \dots 540)$$


2 N 3416
(2 N 3417)
BF

n - p - n
Si

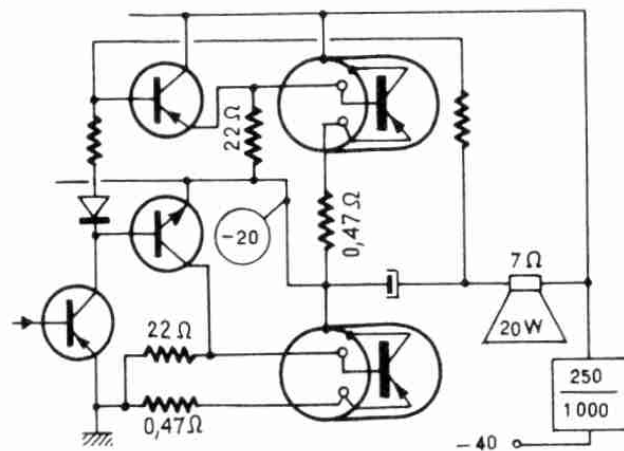
$$\beta = 75 \dots 225$$
$$(180 \dots 540)$$

$$\begin{array}{l} 2N3611 \\ (2N3613) \\ P \end{array}$$
$$\beta = 40 \dots 100$$

(60 ... 150)


$$\begin{array}{l} 2 \text{ N } 3612 \\ (2 \text{ N } 3614) \\ \text{P} \end{array}$$
$$\beta = \begin{matrix} 40 \dots 100 \\ (60 \dots 150) \end{matrix}$$


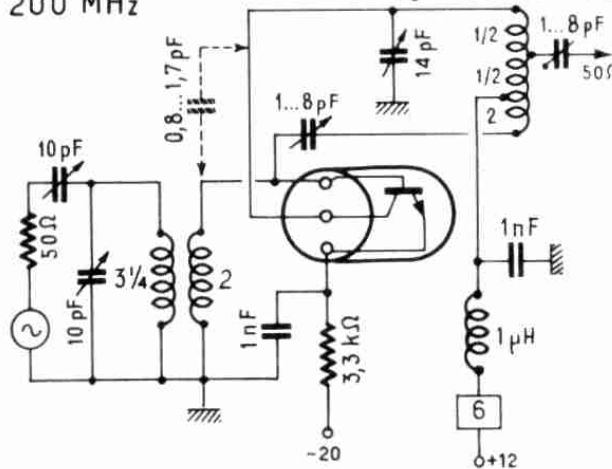
2 N 3615
(2 N 3617)
P

$\beta = 40 \dots 100$
(60...150)



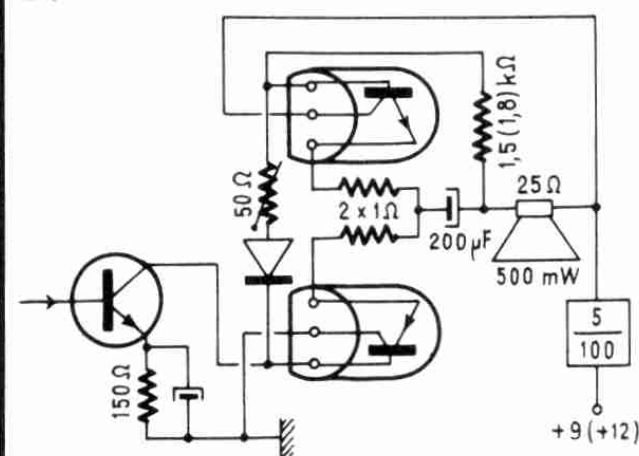
2 N 3662
(2 N 3663)
200 MHz

n-p-n
Si
 $\beta = 20 \dots 75$
 $f_t = 0.7 \dots 2.1$ GHz
GP=16 (19 dB)
 $F_b = 4$ dB (60 MHz)



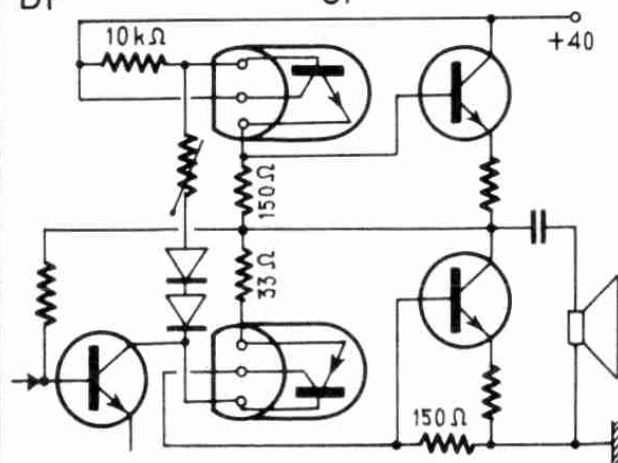
2 N 3702
2 N 3704
BF

p-n-p
n-p-n
Si
 $\beta = 60 \dots 300$



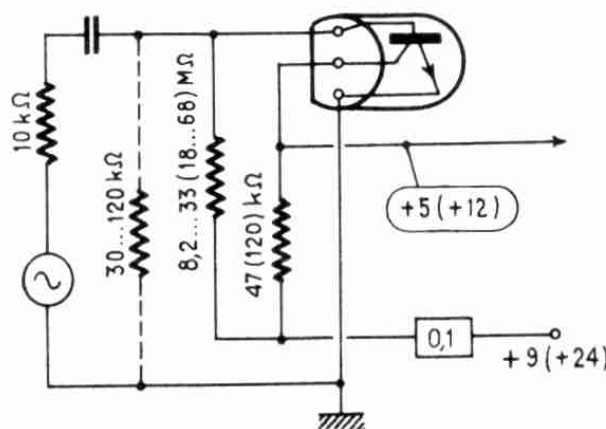
2 N 3703
2 N 3705
BF

p-n-p
n-p-n
Si
 $\beta = 30 \dots 150$



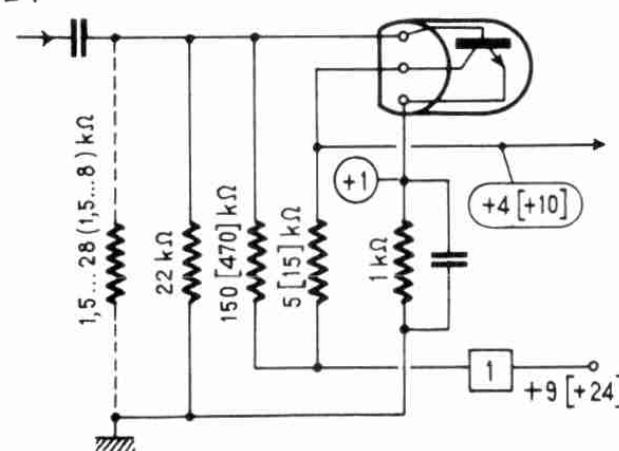
2 N 3707
BF

n-p-n
Si
 $\beta = 100 \dots 550$
 $F_b = 1.9$ dB



2 N 3708
(2 N 3709)
BF

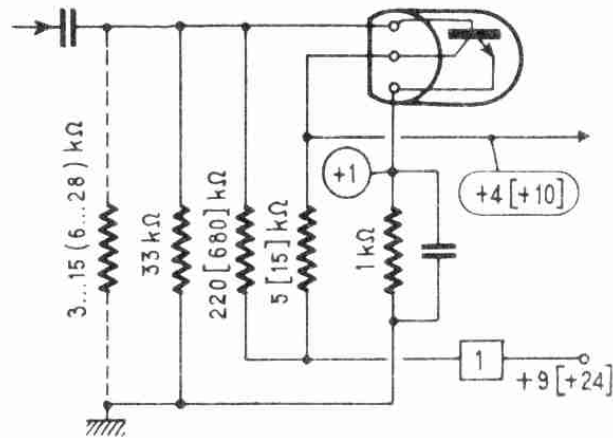
n-p-n
Si
 $\beta = 45 \dots 800$
(45...250)



2N 3710
(2N 3711)

n-p-n
Si

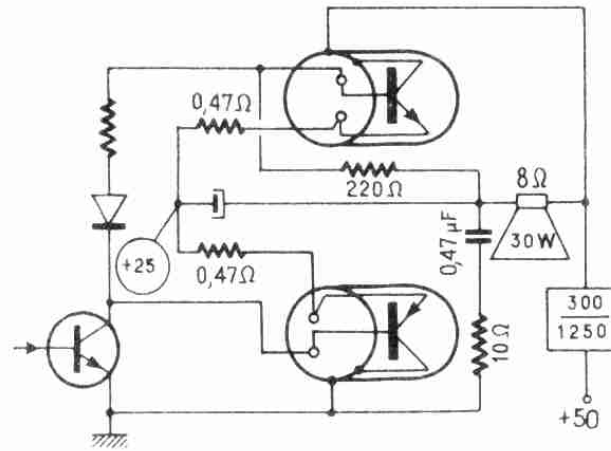
$\beta = 90 \dots 450$
(180...800)



2N 3715
2N 3791
P

n-p-n
p-n-p Si

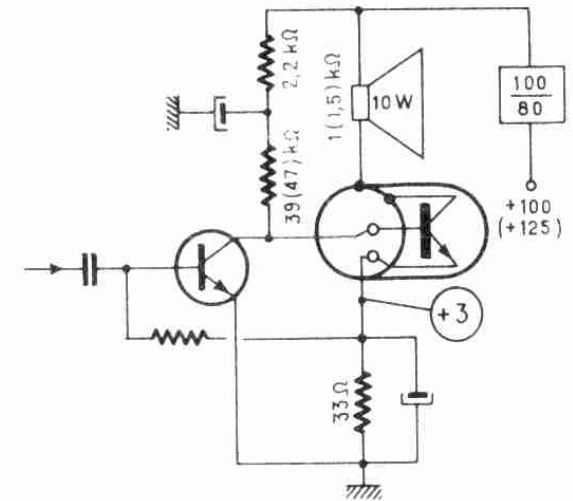
$\beta > 30$ à $I_c = 3A$
 $f_t > 4 \text{ MHz}$



2N 3738
(2N 3739)

n-p-n
Si

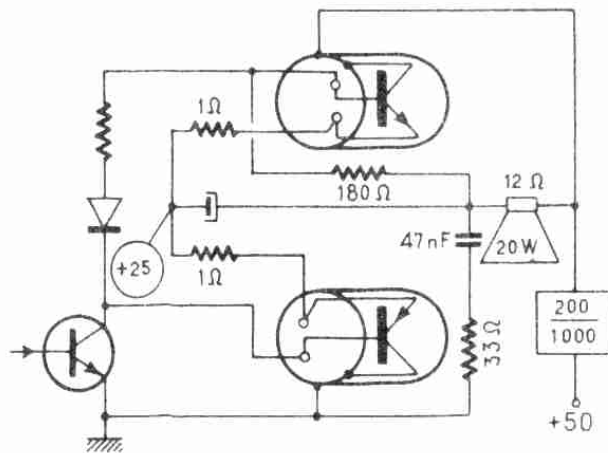
$\beta = 40 \dots 200$
 $f_b > 15 \text{ MHz}$



2N 3740
2N 3766
P

p-n-p
n-p-n Si

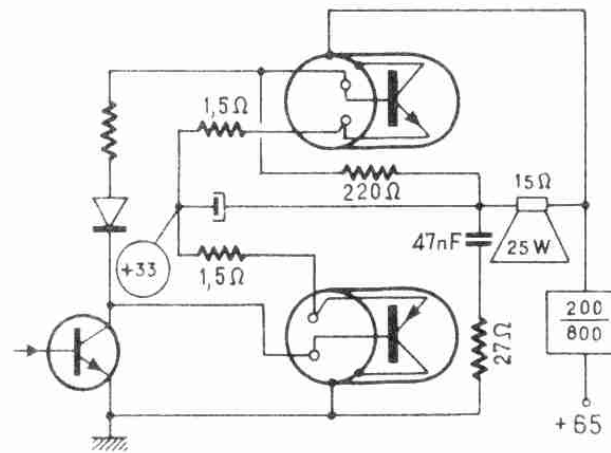
$\beta = 30 \dots 100$
 $f_t > 15 \text{ MHz}$



2N 3741
2N 3767
P

p-n-p
n-p-n Si

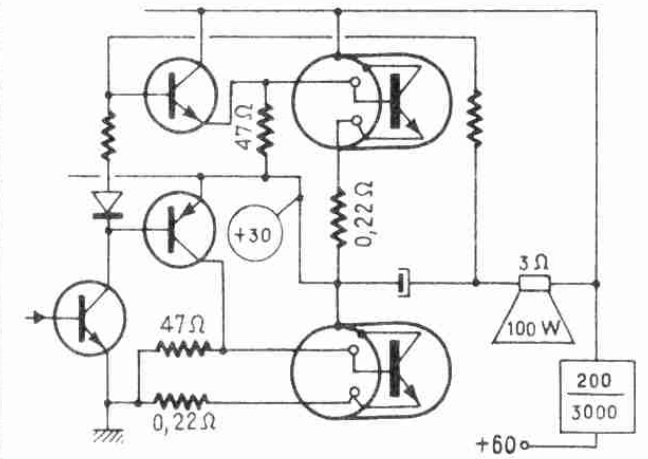
$\beta = 30 \dots 100$
 $f_t > 15 \text{ MHz}$



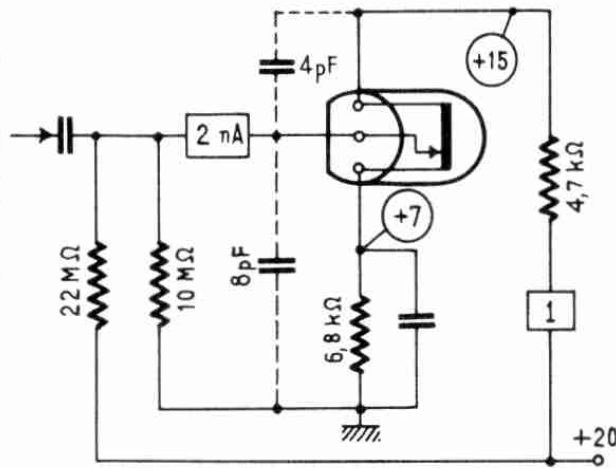
2N 3772
P

n-p-n
Si

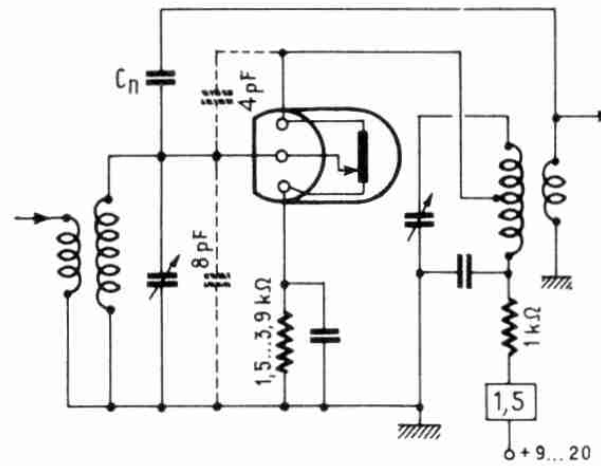
$\beta = 15 \dots 60$



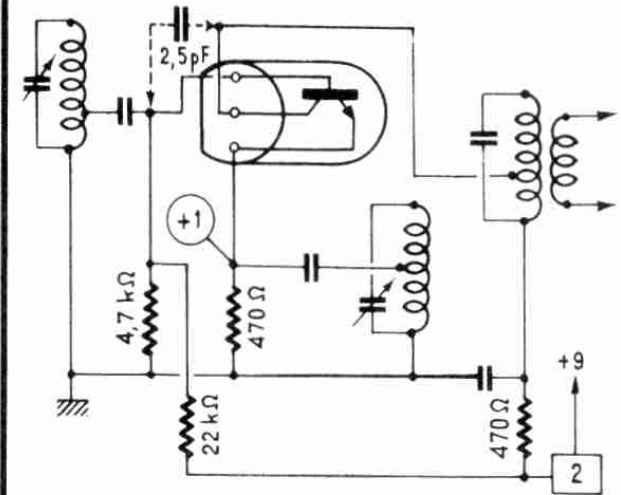
2 N 3819 FET $\Delta = 2 \dots 6,5 \text{ mA/V}$
BF Canal N $V_{GS0} < -8 \text{ V}$
 $\rho < 20 \text{ k}\Omega$



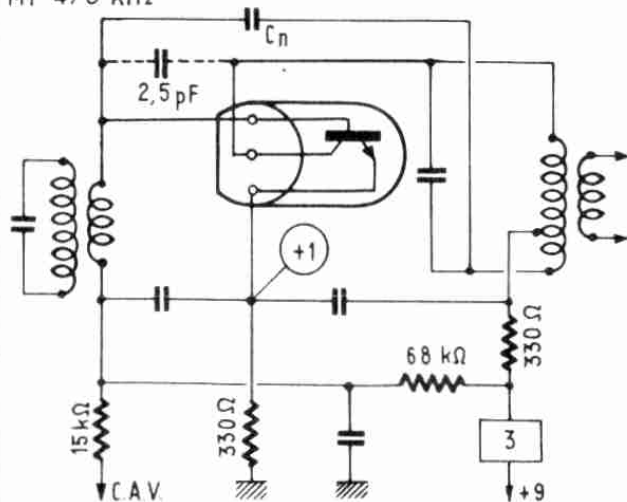
2 N 3819 FET Si $\Delta = 2 \dots 6,5 \text{ mA/V}$
HF Canal N $V_{GS0} < -8 \text{ V}$
 $I_{DSS} = 2 \dots 20 \text{ mA}$
 $\rho < 20 \text{ k}\Omega$



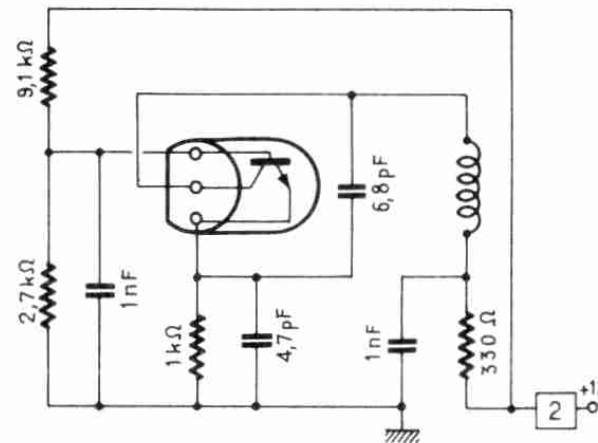
2 N 3825 n-p-n $\beta > 20$
Conv. < 2 MHz Si $(2 \dots 8 \text{ a } 100 \text{ MHz})$
 $F_b < 5,5 \text{ dB}$



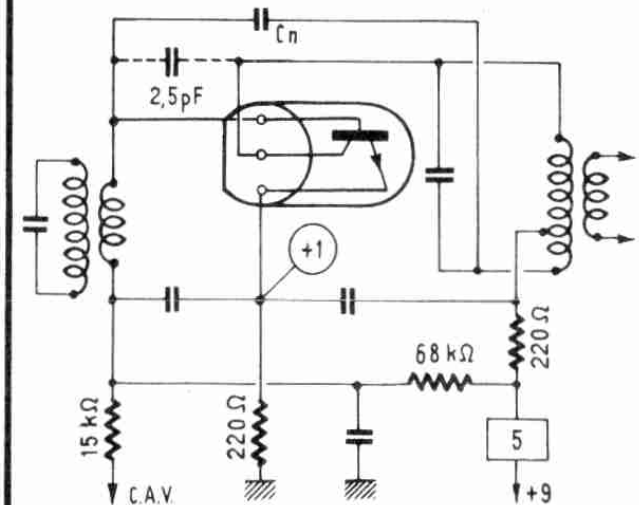
2 N 3826 n-p-n $\beta = 40 \dots 160$
(2 N 3827) Si $(100 \dots 400)$
MF 470 kHz GP = 42 (45) dB



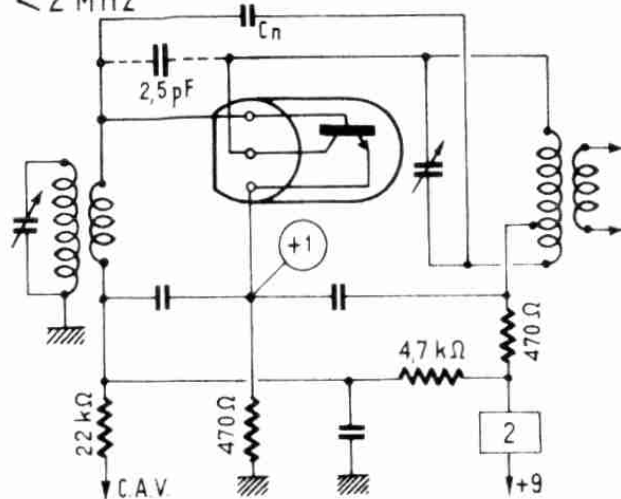
2 N 3826 n-p-n $\beta = 40 \dots 160$
Osc. 100 MHz Si $f_t = 200 \dots 800 \text{ MHz}$



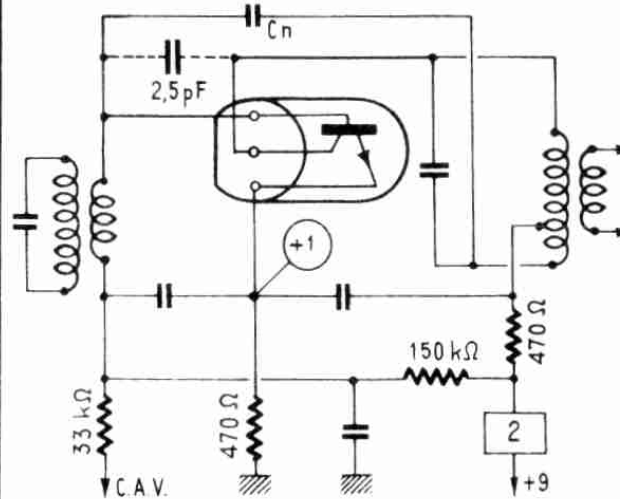
2 N 3827 n-p-n $\beta = 100 \dots 400$
10,7 MHz Si GP = 34 dB



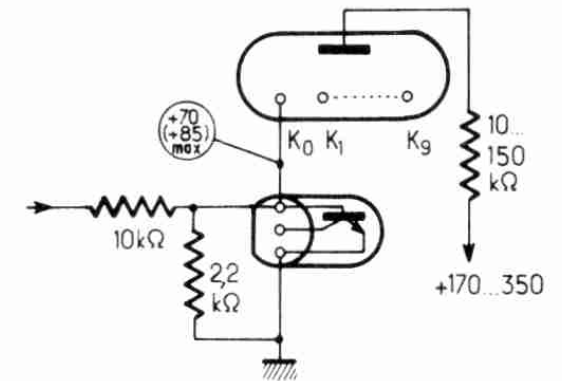
2N3843A n-p-n $\beta = 20 \dots 40$
(2N3845A) Si (60...120)
< 2 MHz



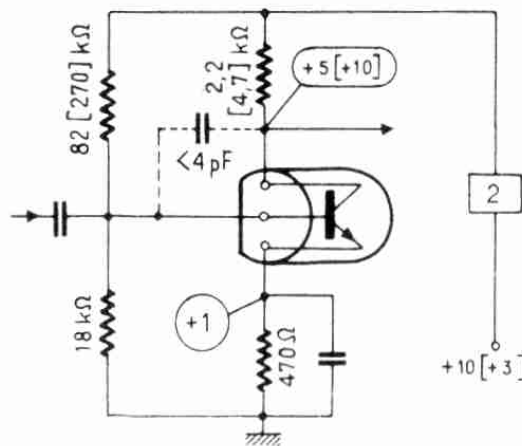
2N3860 n-p-n $\beta = 150 \dots 300$
MF 470 kHz Si



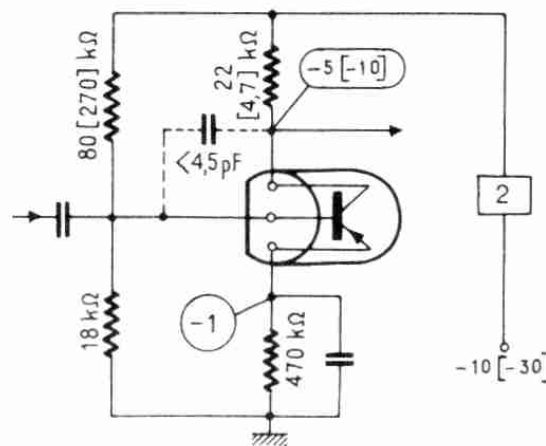
2N3877 n-p-n $\beta > 20 \dots 250$
(2N3877A) Si
Néon



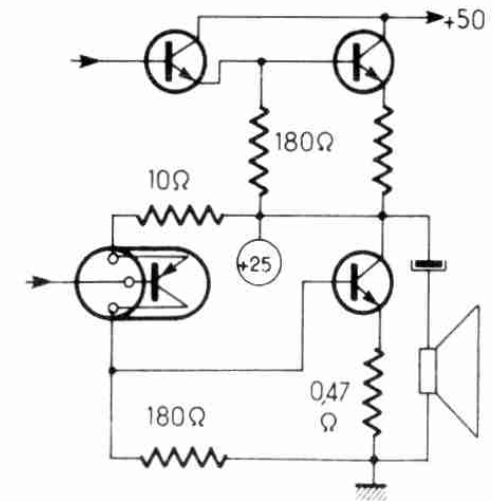
2N3903 n-p-n $\beta = 50 \dots 150$
(2N3904) Si (100...300)
BF $f_t > 250 \text{ MHz}$



2N3905 p-n-p $\beta = 50 \dots 150$
(2N3906) Si (100...300)
BF $f_t > 250 \text{ MHz}$



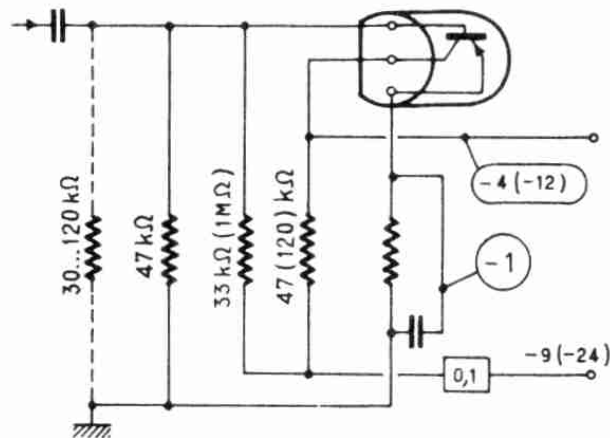
2N4036 n-p-n $\beta = 14 \dots 140$
BF Si $f_T > 60 \text{ MHz}$



2N4058
BF

p-n-p
Si

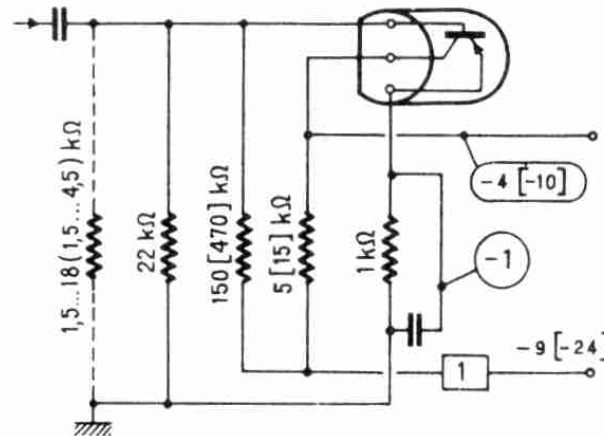
$\beta = 100 \dots 400$
 $F_b = 1,7 (< 5) \text{ dB}$



2N4059
(2N4060)
BF

p-n-p
Si

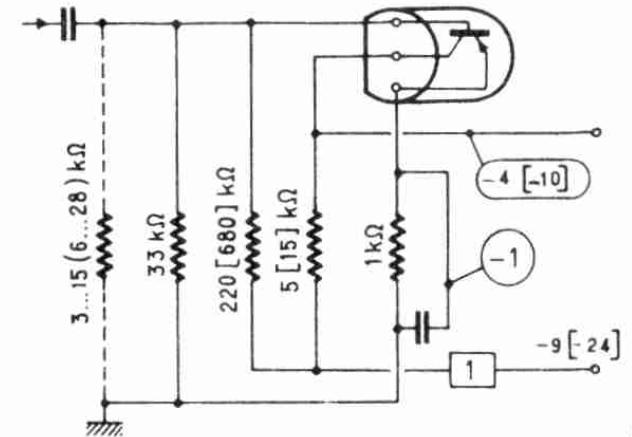
$\beta = 45 \dots 660$
(45...165)



2N4061
(2N4062)
BF

p-n-p
Si

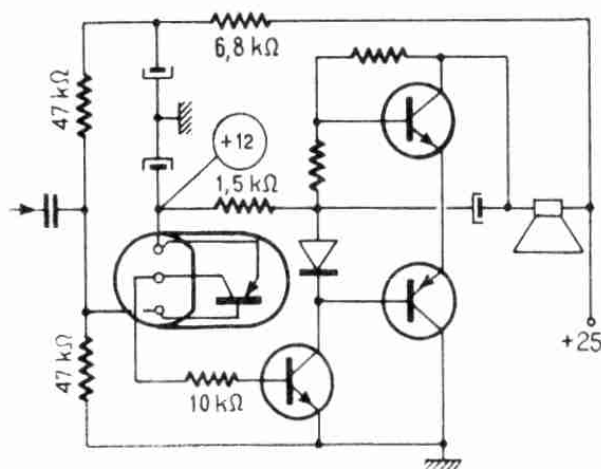
$\beta = 90 \dots 450$
(180...800)



2N4061
BF

p-n-p
Si

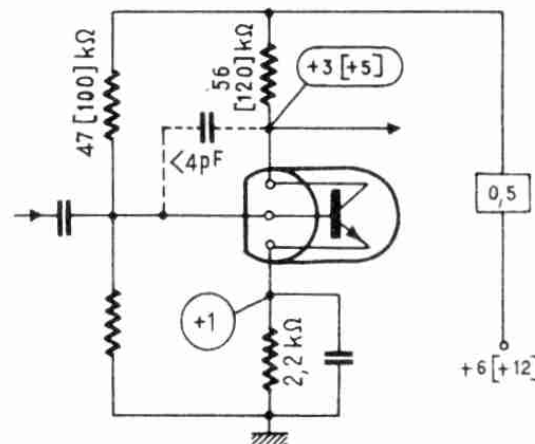
$\beta = 90 \dots 450$



2N4123
(2N4124)
BF

n-p-n
Si

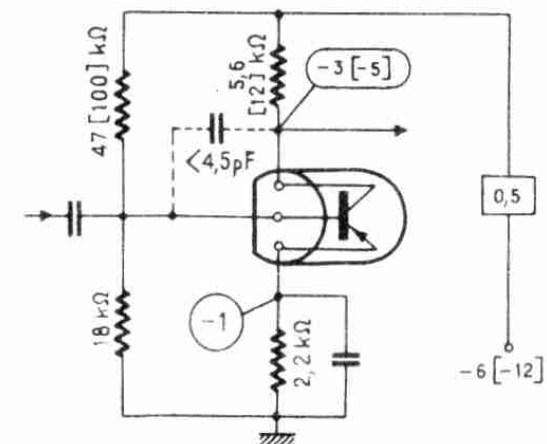
$\beta = 50 \dots 150$
(120...360)
 $F_b < 6 \text{ dB}$



2N4125
(2N4126)
B

p-n-p
Si

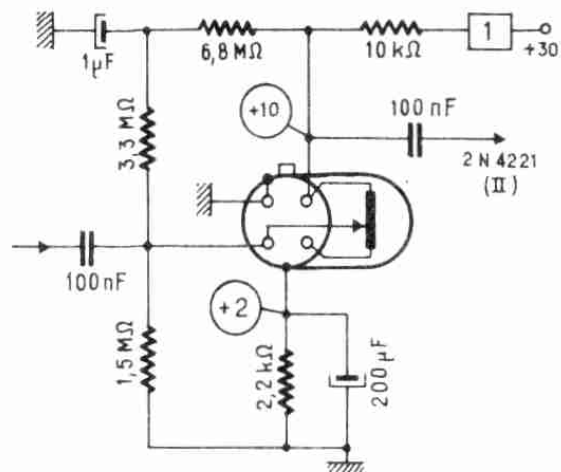
$\beta = 50 \dots 150$
(120...360)
 $f_t > 200 \text{ MHz}$
 $F_b < 5 \text{ dB}$



2N4221
BF (I)

FET Si
Canal N

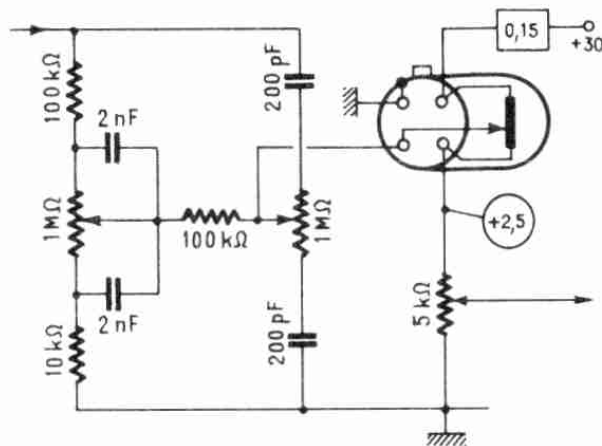
$\Delta = 2 \dots 5 \text{ mA/V}$
 $\rho = 50 \text{ k}\Omega$
 $I_{DSS} = 2 \dots 6 \text{ mA}$



2N4221
BF (II)

FET Si
Canal N

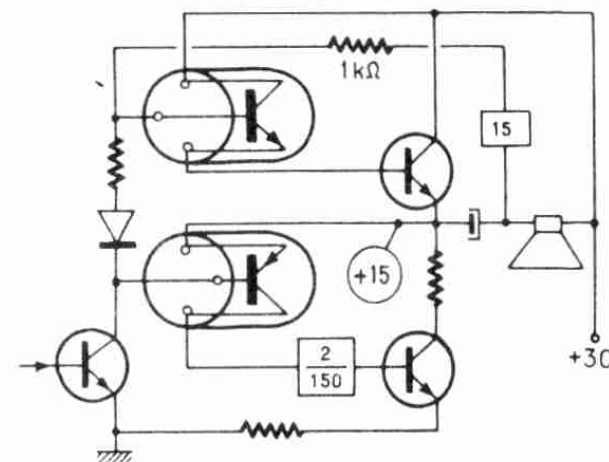
$\Delta = 2 \dots 5 \text{ mA/V}$
 $\rho > 50 \text{ k}\Omega$
 $I_{DSS} = 2 \dots 6 \text{ mA}$



2N4234
2N4237
BF

p-n-p Si
n-p-n Si

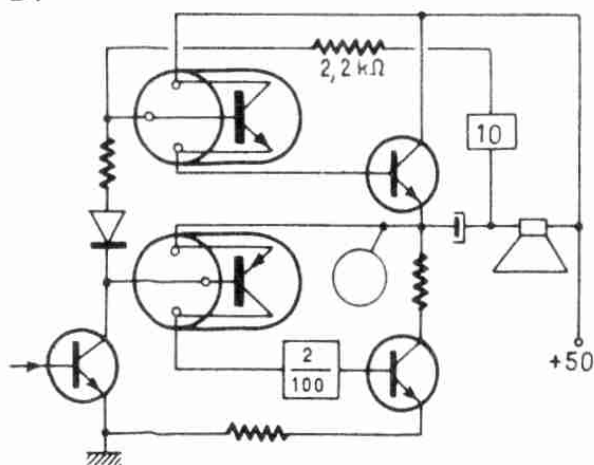
$\beta = 30 \dots 150$
 $f_t > 3 \text{ MHz}$



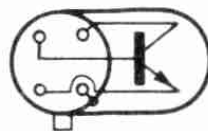
2N4235
2N4238
BF

p-n-p Si
n-p-n Si

$\beta = 30 \dots 150$
 $f_t = 3 \text{ MHz}$



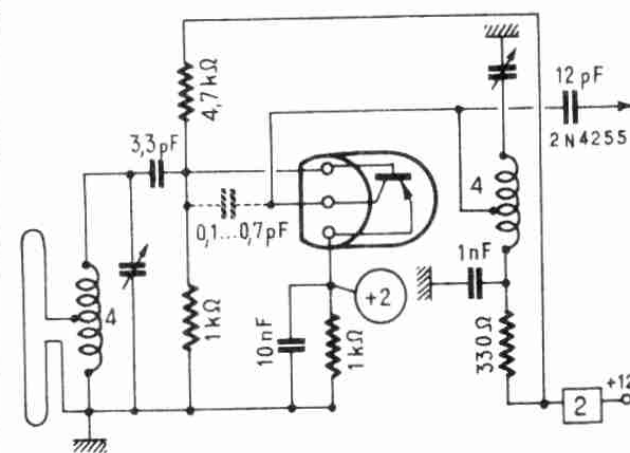
2N4252 = 2N4254
2N4253 = 2N4255



2N4254
100 MHz

n-p-n Si

$\beta > 50$
 $f_t = 0.6 \dots 1.4 \text{ GHz}$
 $F_b = 2.5 \text{ dB}$

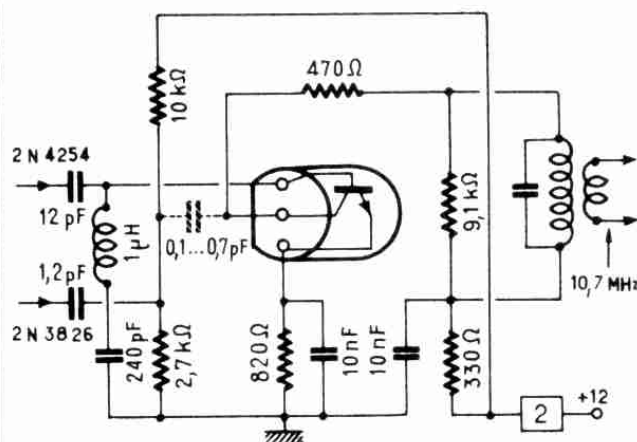


2N4255

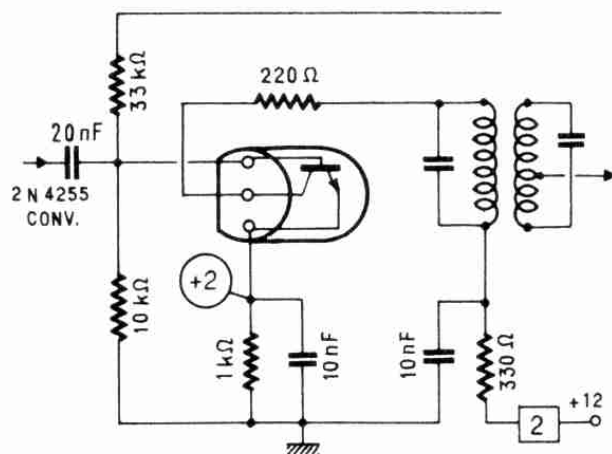
102

2N4416

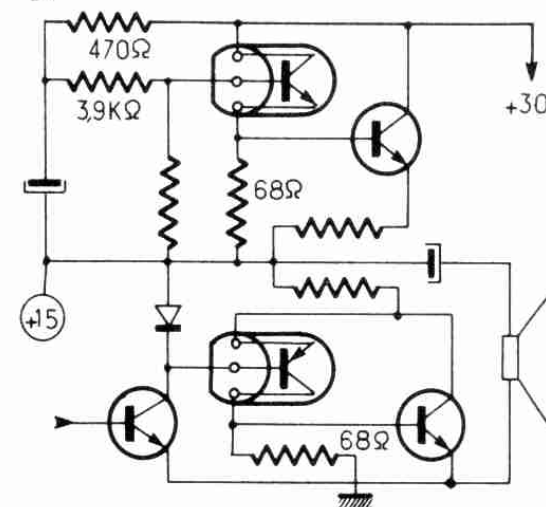
2N4255 n-p-n Si $\beta = 30 \dots 150$
 $f_t = 0,6 \dots 1,4 \text{ GHz}$
 Conv. 100 MHz GP (2N4254 + 2N4255)
 $= 25 \text{ dB}$



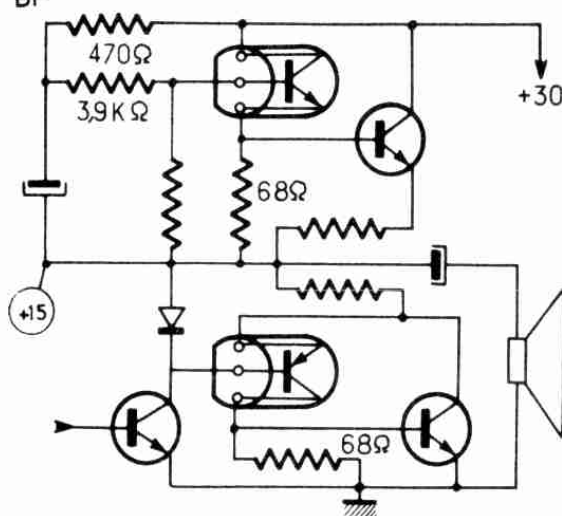
2N4255 $\beta = 30 \dots 150$
 $f_t = 0,6 \dots 1,4 \text{ GHz}$
 10,7 MHz



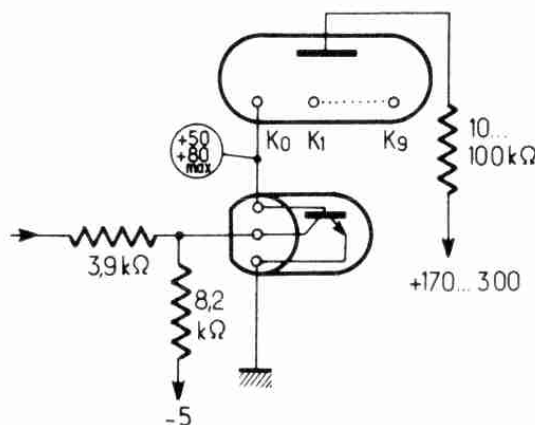
2N4400 n-p-n Si $\beta = 50 \dots 150$
2N4402 p-n-p Si $f_T > 150 \text{ MHz}$
 BF



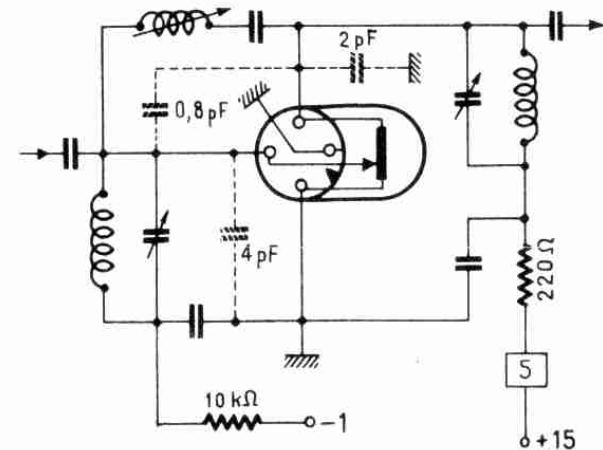
2N4401 n-p-n Si $\beta = 100 \dots 300$
2N4403 p-n-p Si $f_T > 200 \text{ MHz}$
 BF



2N4409 n-p-n $\beta = 60 \dots 400$
(2N4410) Si
 Néon



2N4416 FET Si $A = 4,5 \dots 7,5 \text{ mA/V}$
 VHF Canal N $I_{DSS} < 15 \text{ mA}$



2N4918

p-n-p

 $\beta = 20 \dots 100$

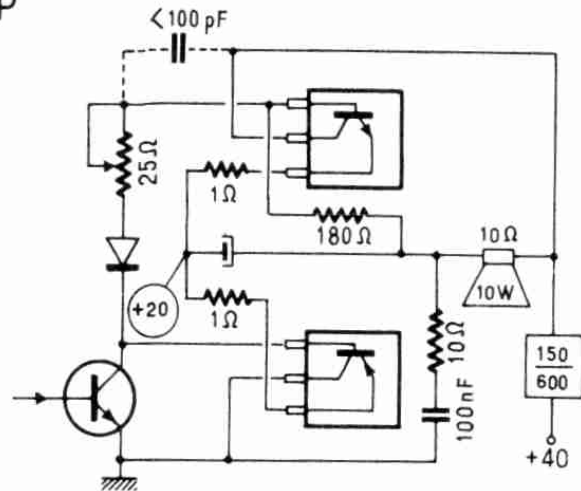
2N4921

n-p-n

Si

 $f_t > 3 \text{ MHz}$

P



2N4919

p-n-p

 $\beta = 20 \dots 100$

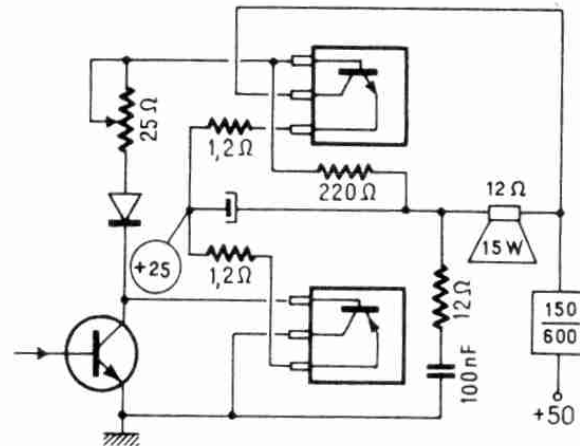
2N4922

n-p-n

Si

 $f_t > 3 \text{ MHz}$

P



2N4920

p-n-p

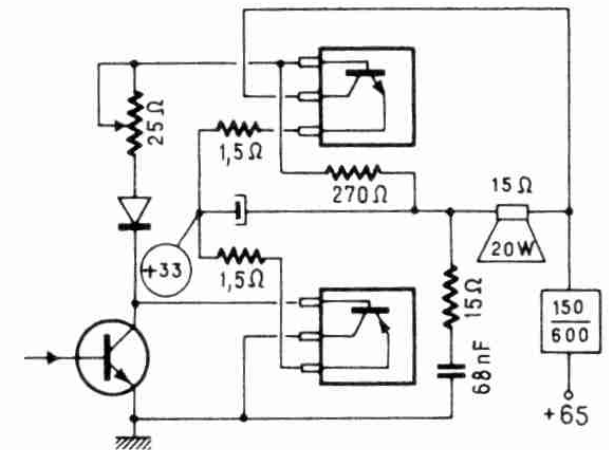
 $\beta = 20 \dots 100$

2N4923

n-p-n

 $f_t > 3 \text{ MHz}$

P



2N4994

n-p-n

GP = 42 (45) dB (470 kHz)

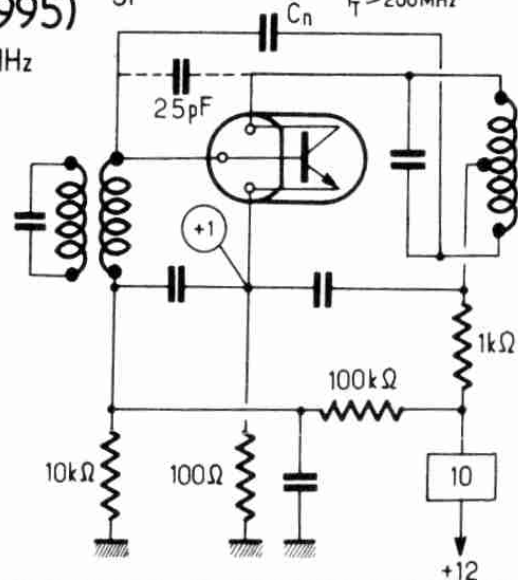
(2N4995)

Si

GP = 34 dB (10.7 MHz)

 $f_t > 200 \text{ MHz}$

10.7 MHz



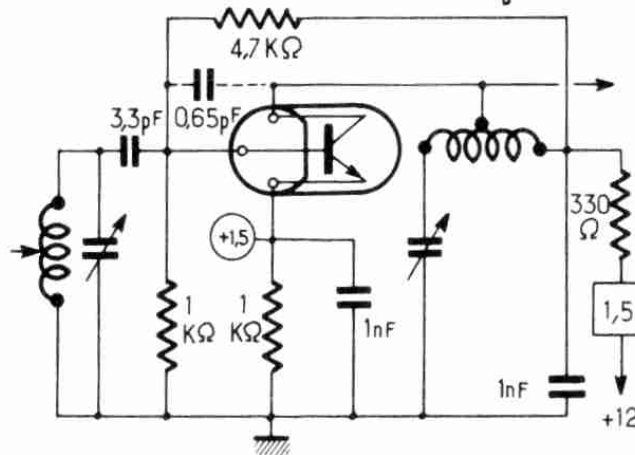
2N4996

n-p-n

Si

 $\beta > 50$

100 MHz

 $f_T > 600 \text{ MHz}$ $F_b = 2.5 \text{ dB}$ 

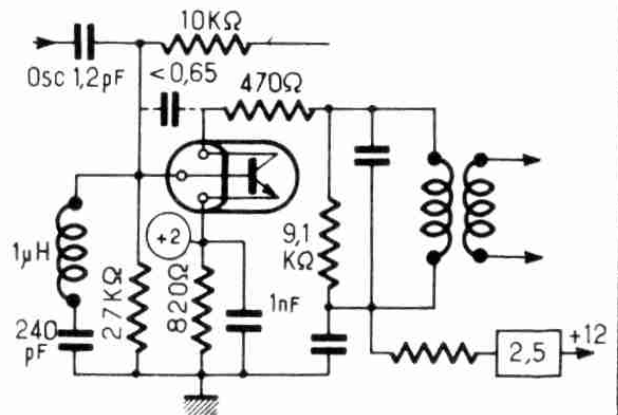
2N4997

n-p-n

Si

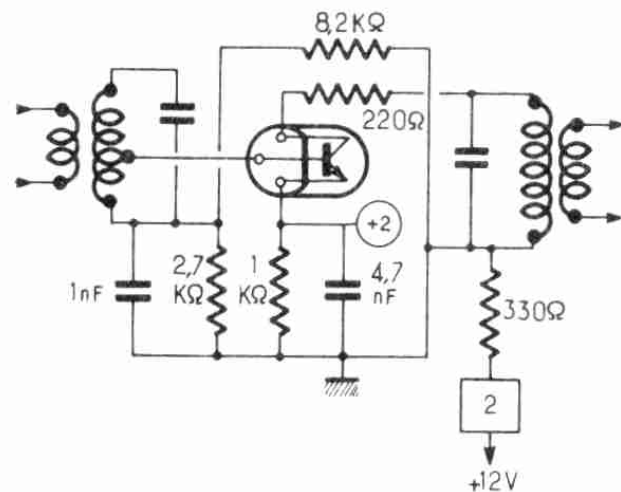
 $\beta = 30 \dots 150$

Conv. 100 MHz

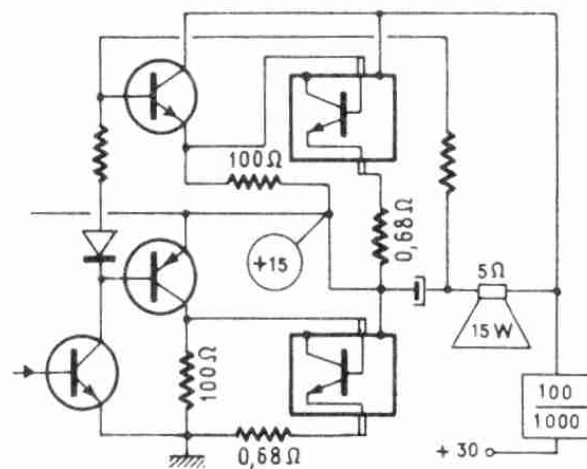
 $f_T > 600 \text{ MHz}$ 

2N4997

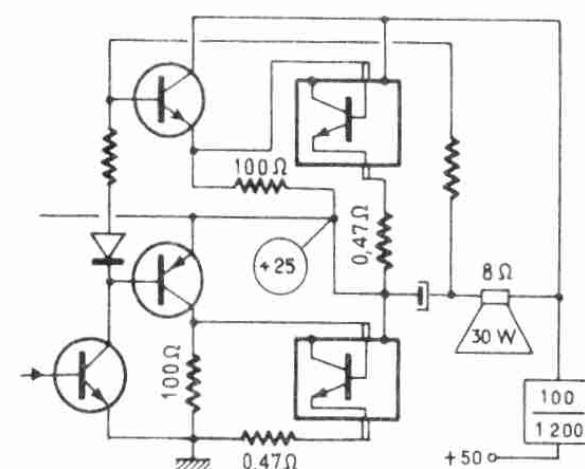
10,7 MHz

 $\beta = 30 \dots 150$
 $f_T > 600 \text{ MHz}$
 $GP = 23 \text{ dB}$
**2N5034****2N5035**

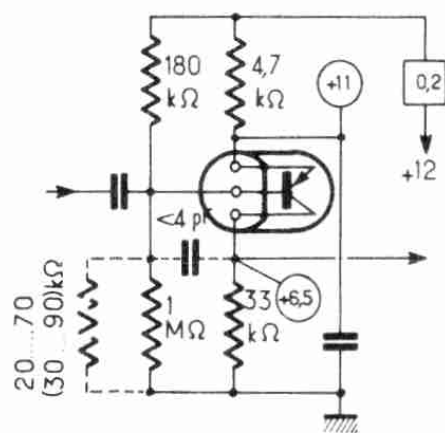
P

n-p-n
Si $\beta > 20$ **2N5036****2N5037**

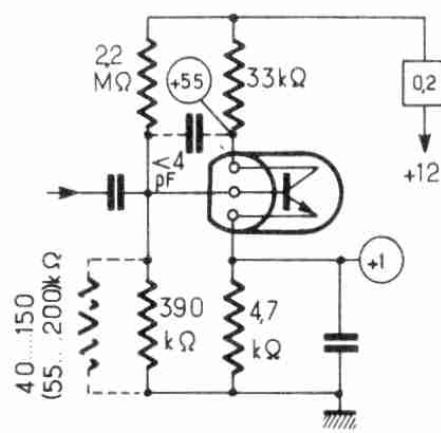
P

n-p-n
Si $\beta > 20$ **2N5086**
(2N5087)

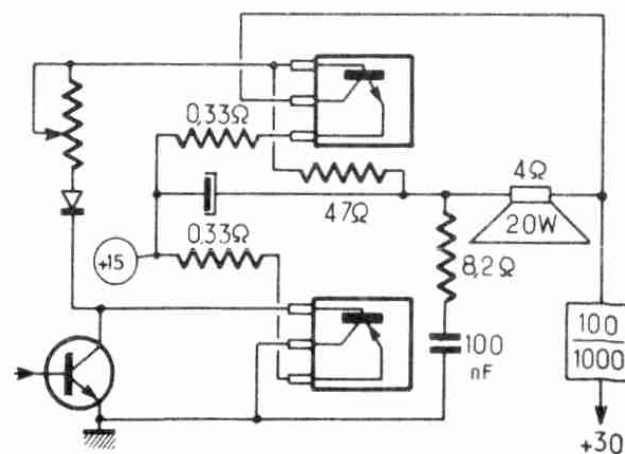
BF

p-n-p
Si
 $\beta = 150 \dots 500$
 $(250 \dots 800)$
 $F_b > 3(2) \text{ dB}$
**2N5088**
(2N5089)

BF

n-p-n
Si
 $\beta = 350 \dots 1400$
 $(450 \dots 1800)$
 $F_b < 3(2) \text{ dB}$
**2N5190**
2N5193

P

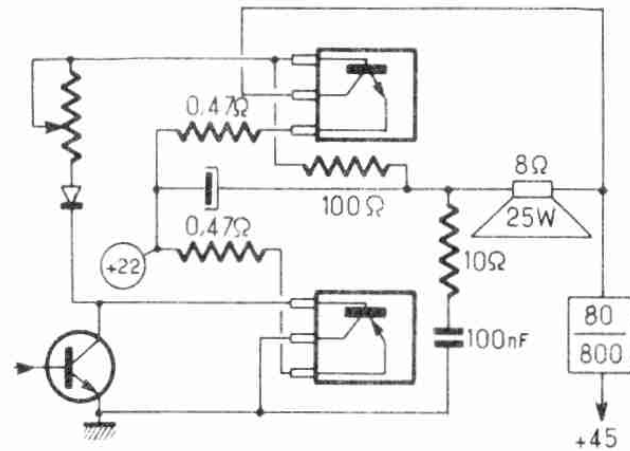
n-p-n Si
p-n-p Si
 $\beta = 25 \dots 100$
 $f_T > 2 \text{ MHz}$


2N5191

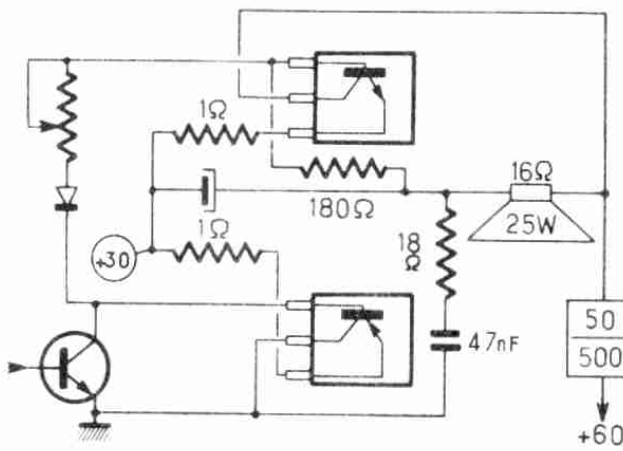
105

2N5221

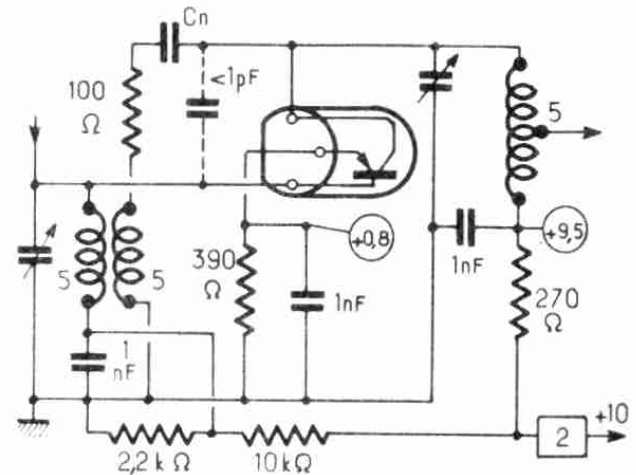
2N5191 n-p-n Si $\beta = 25 \dots 100$
 2N5194 p-n-p Si $f_T > 2 \text{ MHz}$
 P



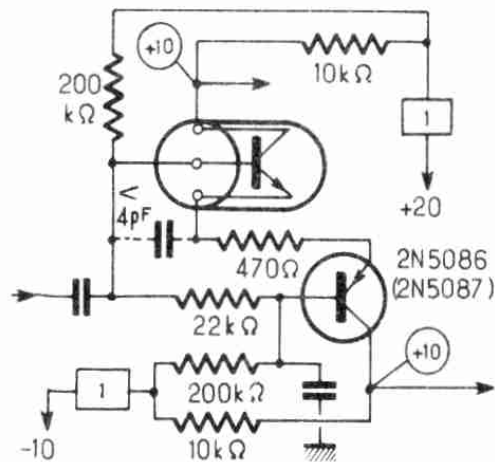
2N5192 n-p-n Si $\beta = 20 \dots 80$
 2N5195 p-n-p Si $f_T > 2 \text{ MHz}$
 P



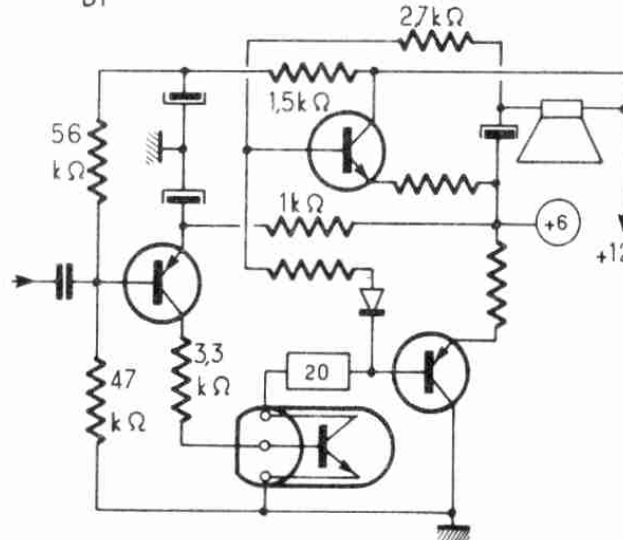
2N5208 p-n-p Si $\beta = 20 \dots 120$
 100 MHz $f_T > 300 \text{ MHz}$
 $F_b < 3 \text{ dB}$
 $GP > 22 \text{ dB}$



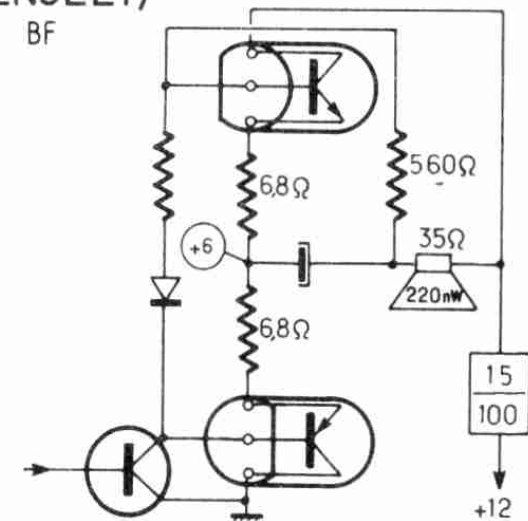
2N5209 n-p-n Si $\beta = 150 \dots 600$
 (2N5210) $(250 \dots 900)$
 BF $f_T > 30 \text{ MHz}$
 $F_b < 4 (\approx 3) \text{ dB}$



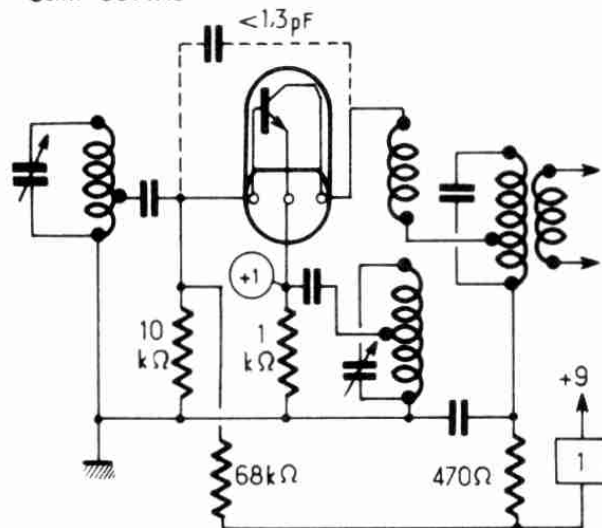
2N5219 n-p-n Si $\beta = 35 \dots 500$
 BF $F_T > 150 \text{ MHz}$



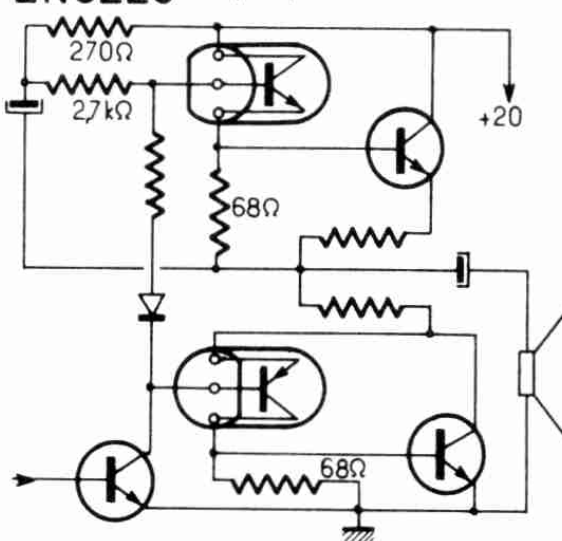
2N5220 n-p-n Si $\beta = 35 \dots 500$
 (2N5221) p-n-p Si $F_T > 150 \text{ MHz}$
 BF



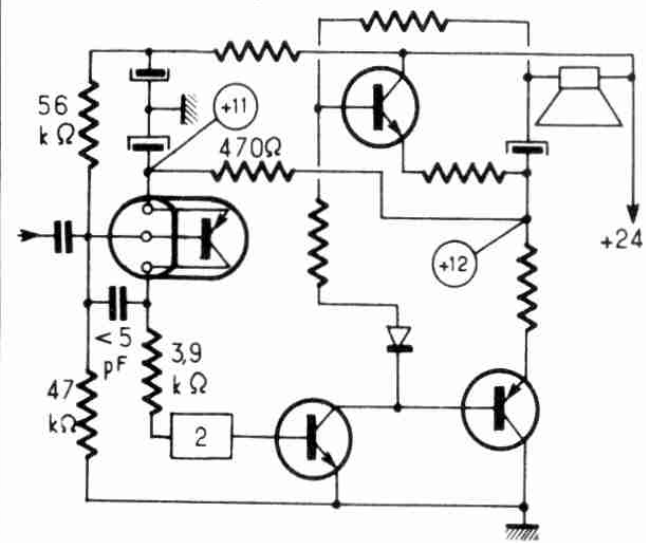
2N5222 n-p-n Si $\beta = 20 \dots 1500$
Conv. < 30 MHz $f_T > 400$ MHz



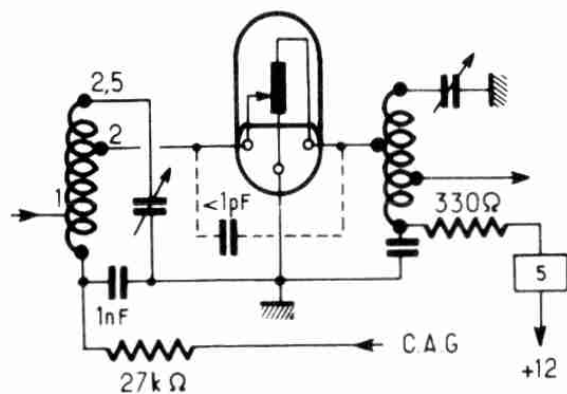
2N5225 n-p-n Si $\beta = 30 \dots 600$
2N5226 BF p-n-p Si $f_T > 50$ MHz



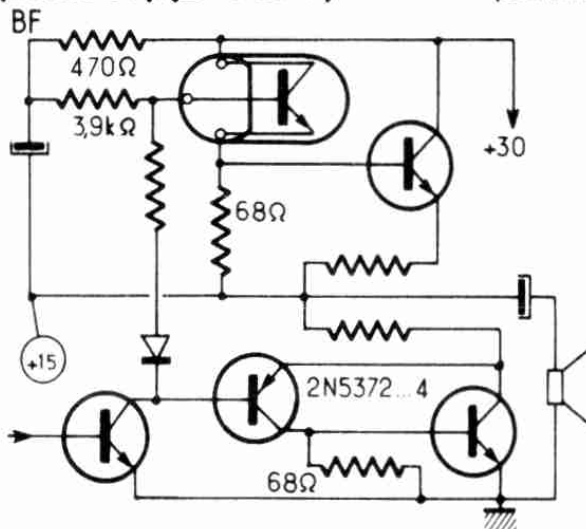
2N5227 p-n-p Si $\beta = 50 \dots 700$
BF $f_T > 100$ MHz



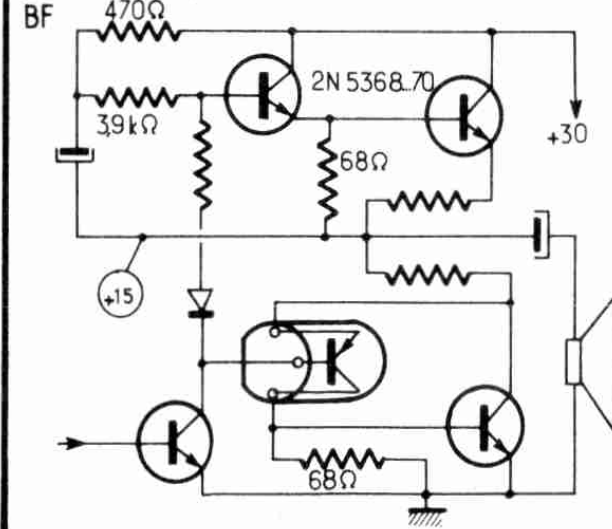
2N5245 FET Si $s = 4.5 \dots 7.5$ mA/V
100 MHz Canal N $V_p = 1 \dots 6$ mA/V
 $GP > 18$ dB $F_b < 2$ dB



2N5368 n-p-n Si $\beta = 60 \dots 200$
(2N5369) (2N5370) $(100 \dots 300)$
BF $(200 \dots 600)$



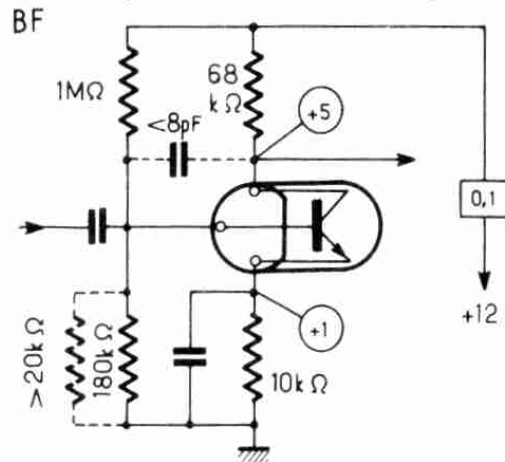
2N5372 p-n-p Si $\beta = 40 \dots 120$
(2N5373) (2N5374) $(100 \dots 300)$ $(200 \dots 400)$
BF



2N5376
(2N5377)

n-p-n Si

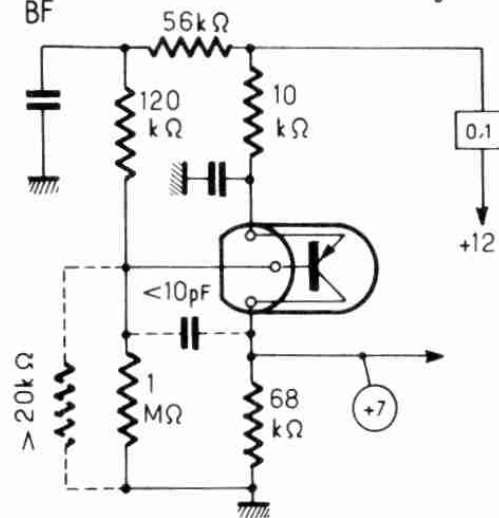
$\beta = 120 \dots 600$
(100 ... 500)
 $F_b < 2 (< 3) \text{ dB}$



2N5378
(2N5379)

p-n-p Si

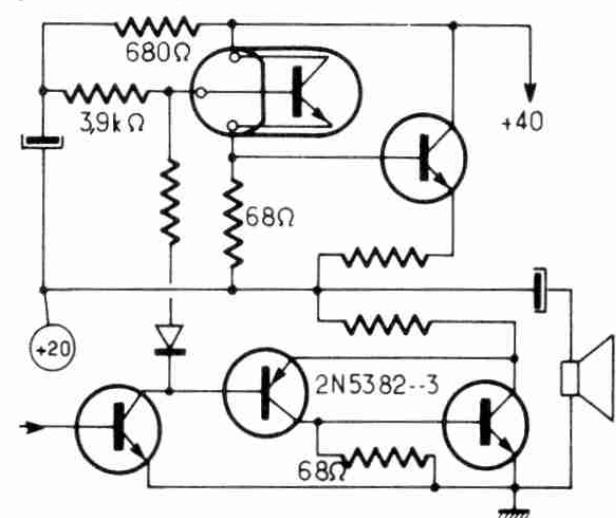
$\beta = 150 \dots 600$
(100 ... 500)
 $F_b < 2 (< 3) \text{ dB}$



2N5380
(2N5381)

n-p-n Si
BF

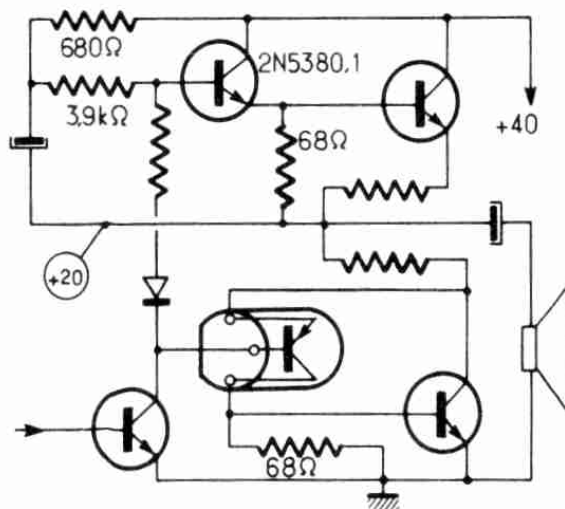
$\beta = 50 \dots 150$
(100 ... 300)



2N5382
2N5383

BF p-n-p Si

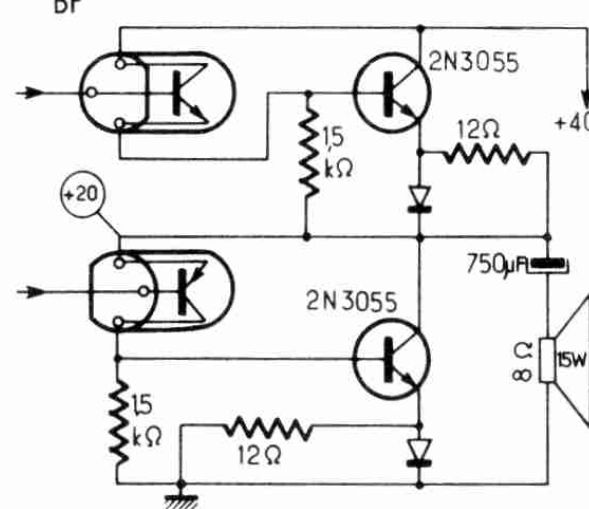
$\beta = 50 \dots 150$
(100 ... 300)



2N5447
2N5449

BF p-n-p Si
n-p-n Si

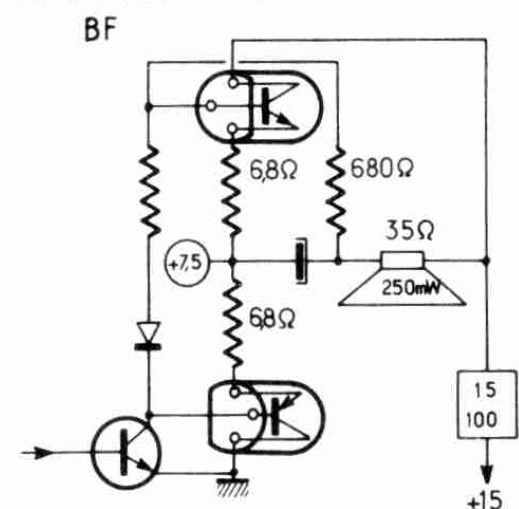
$\beta = 100 \dots 300$
 $f_T > 100 \text{ MHz}$



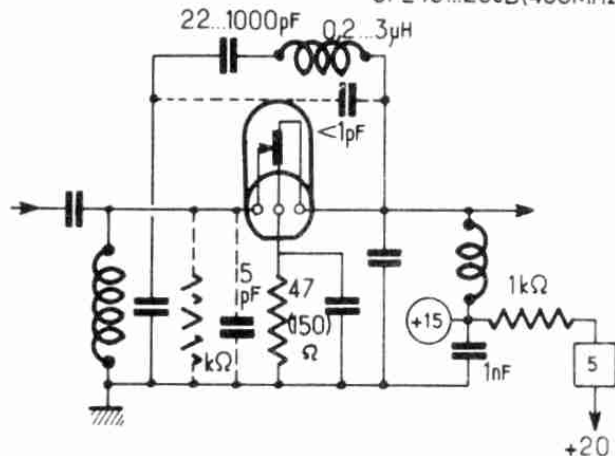
2N5447
2N5451

BF p-n-p Si
n-p-n Si

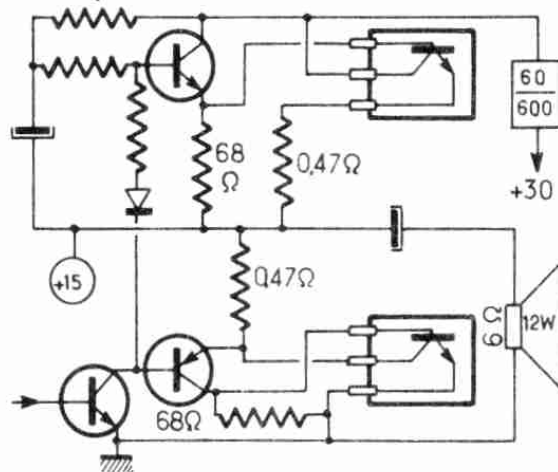
$\beta = 30 \dots 600$



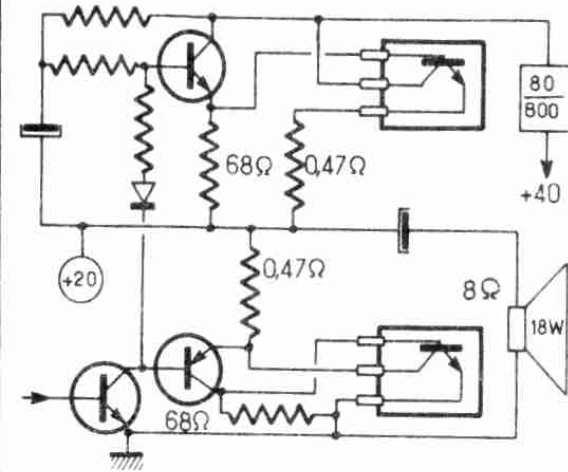
2N5485 FET Si $s = 3,5 \dots 7 (4 \dots 8) \text{ mA/V}$
(2N5486) Canal N $I_{DSS} = 4 \dots 10 (8 \dots 20) \text{ mA}$
 $F_b = 2 \dots 4 \text{ dB(max)}$
 $GP = 18 \dots 30 \text{ dB(100MHz)}$
 $GP = 10 \dots 20 \text{ dB(400MHz)}$
 100... 400 MHz



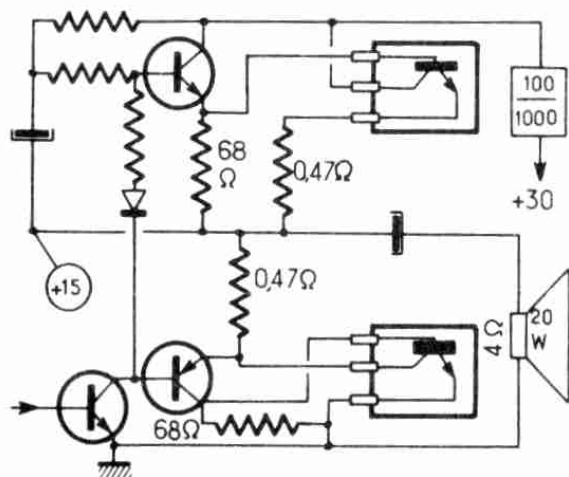
2N5490 n-p-n $\beta = 20 \dots 100$
2N5491 Si $f_T = 1 \text{ MHz}$



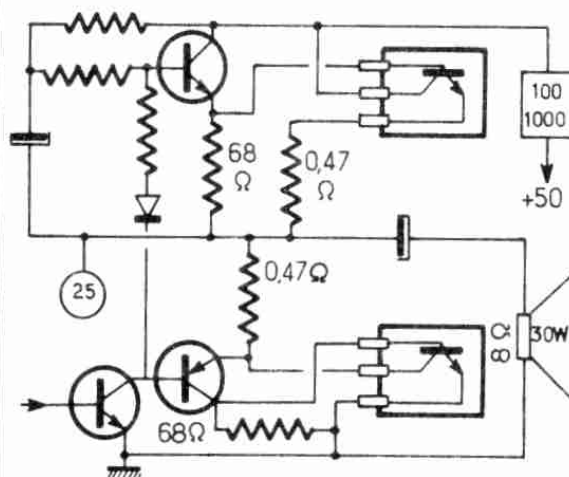
2N5492 P n-p-n $\beta = 20 \dots 100$
2N5493 Si $f_T = 1 \text{ MHz}$



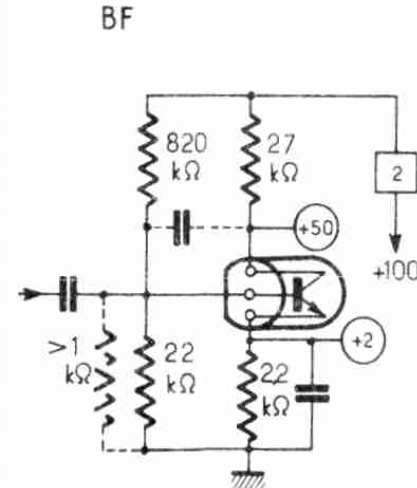
2N5494 P n-p-n $\beta = 20 \dots 100$
2N5495 Si $f_T = 1 \text{ MHz}$



2N5496 P n-p-n $\beta = 20 \dots 100$
2N5497 Si $f_T = 1 \text{ MHz}$



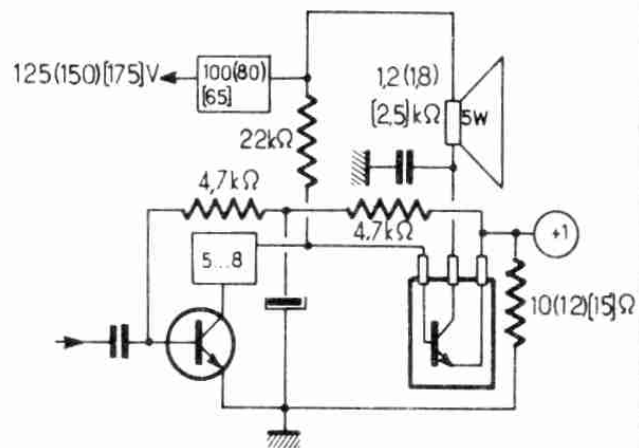
2N5550 n-p-n $\beta = 60 \dots 250$
(2N5551) Si $(80 \dots 250)$
 BF $f_T > 100 \text{ MHz}$



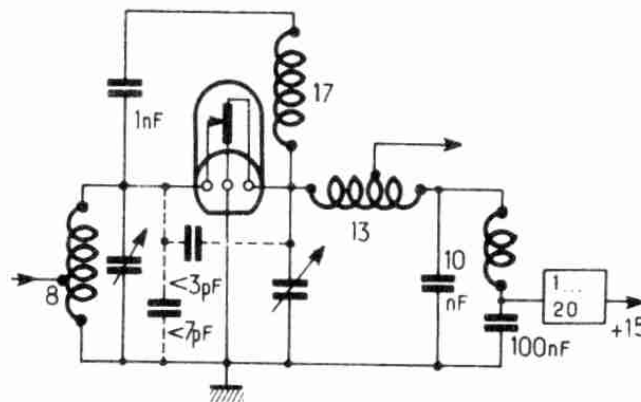
2N5655
(2N5656)(2N5657) P

n-p-n

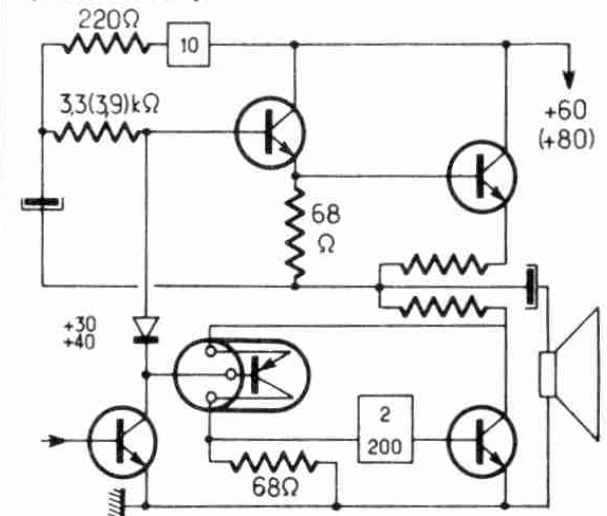
Si

 $\beta = 25 \dots 250$
 $f_T > 10 \text{ MHz}$


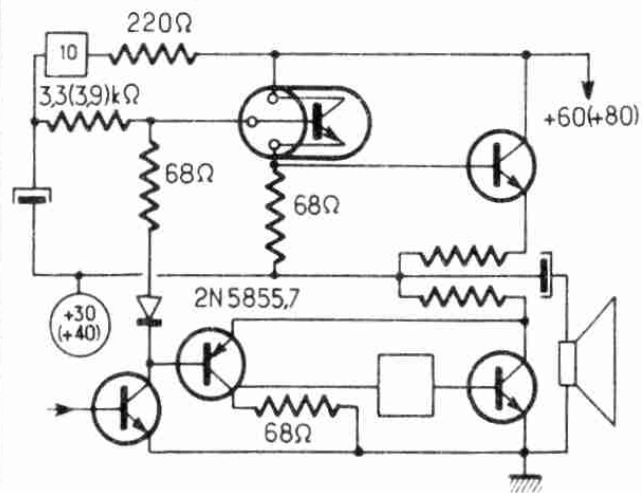
2N5668 FET Si Canal N
(2N5669)(2N5670) 100 MHz

 $s = 1.5 \dots 6.5$
 $(2 \dots 6.5)(3 \dots 7.5) \text{ mA/V}$
 $GP > 16 \text{ dB}$
 $F_b < 2.5 \text{ dB}$


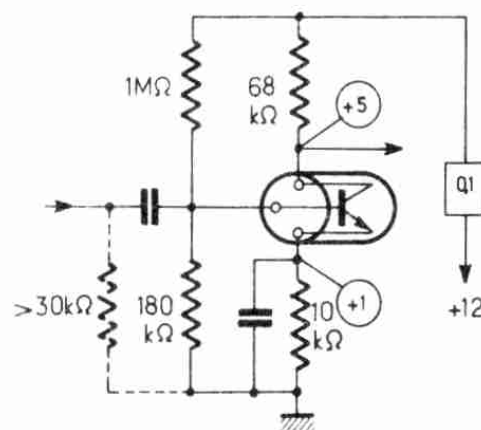
2N5855 BF
(2N5857) p-n-p Si

 $\beta = 50 \dots 300$
 $f_T > 15 \text{ MHz}$


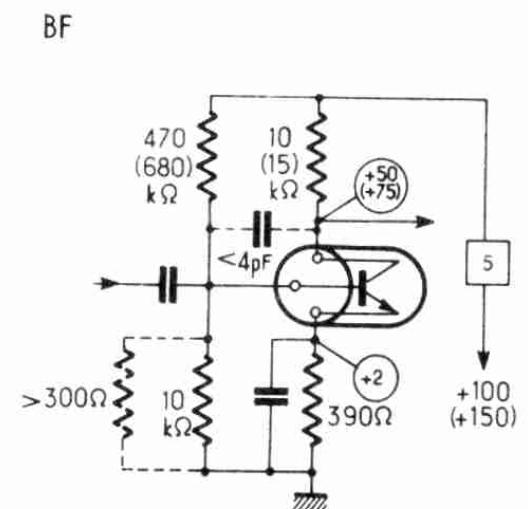
2N5856 BF
(2N5858) n-p-n Si

 $\beta = 50 \dots 300$
 $f_T > 200 \text{ MHz}$


2N5961
(2N5962)(2N5963) BF

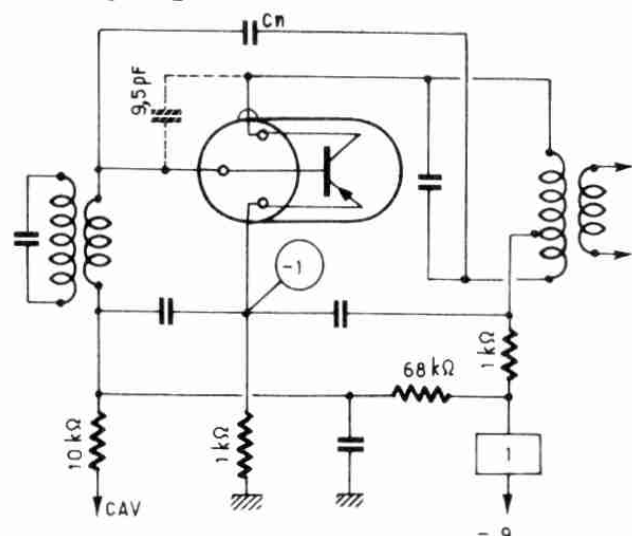
 $\beta = 150 \dots 950$
 $(600 \dots 1500)$
 $(1200 \dots 2200)$
 $F_b = 2.5 \text{ dB}$


2N5964
(2N5965) n-p-n Si

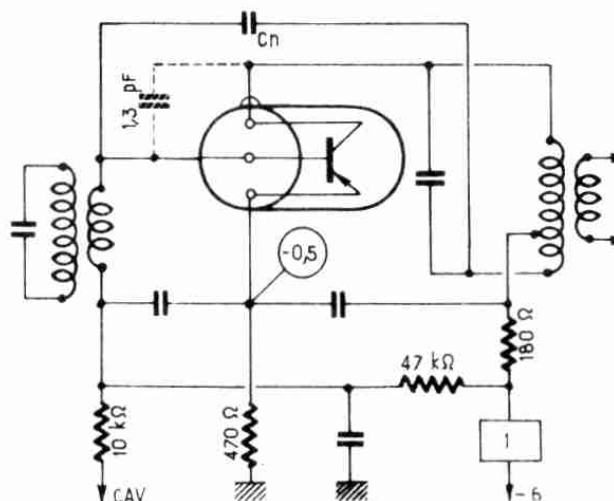
 $\beta = 50 \dots 250$
 $f_T > 100 \text{ MHz}$


2 SA 31,36

MF 470 kHz

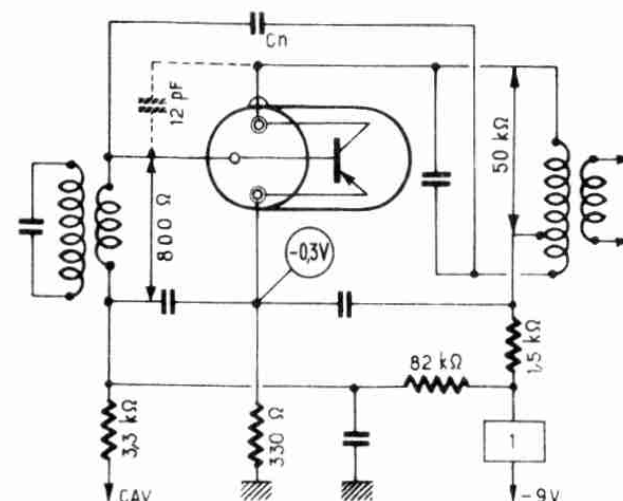
 $\beta = 50$
GP = 37 dB

2 SA 121

(2 SA 122)
[2 SA 123] 10 MHz $\beta = 9...82$
GP = 24 (30) [35] dB

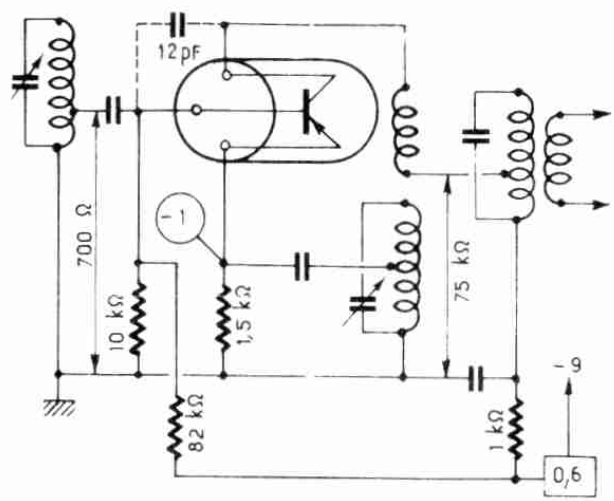
2 SA 141

MF 470 kHz

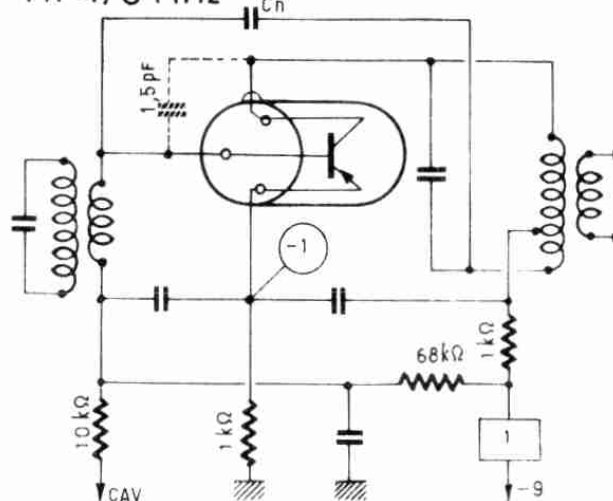
 $\beta = 70$
GP = 33 dB

2 SA 142

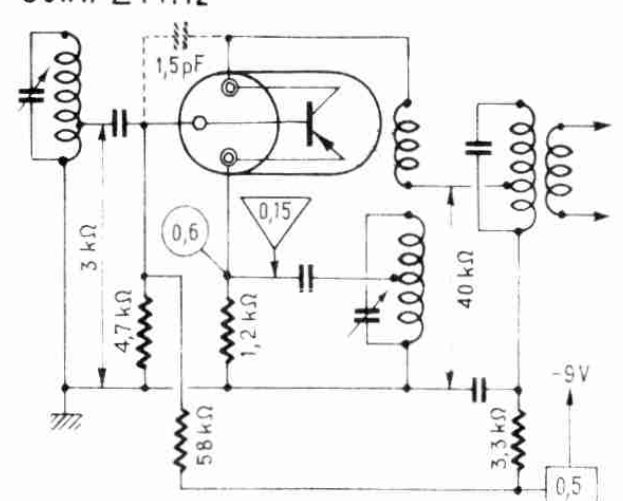
Conv. < 2 MHz

 $\beta = 75$ 2 SA 155
(2 SA 156)

MF 470 MHz

 $\beta = 30 (50)$
GP = 39 (42) dB2 SA 159
(2 SA 160)

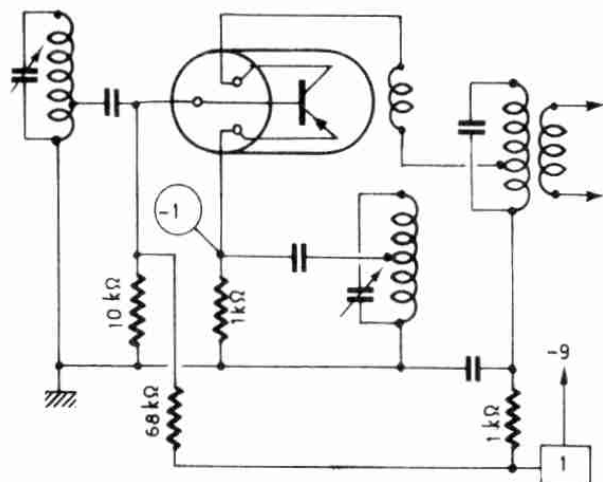
Conv. 2 MHz

 $\beta = 50 (60)$
GC = 36 (39) dB

2SA188,189

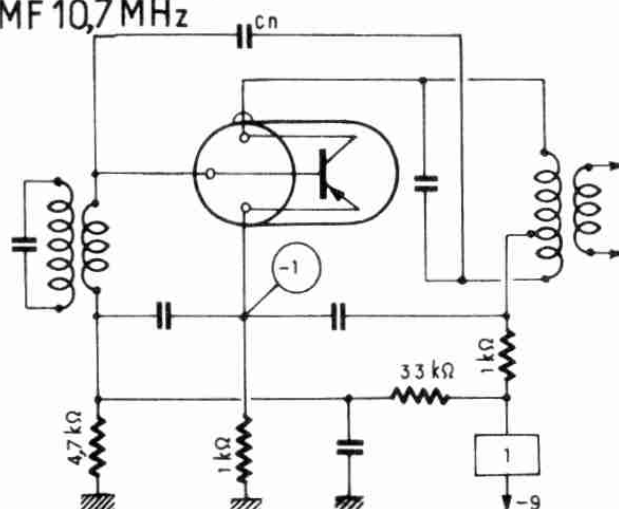
Conv. < 2 MHz

$\beta = 65$
GC = 30 dB



2SA 201
(2SA 202)
MF 10,7 MHz

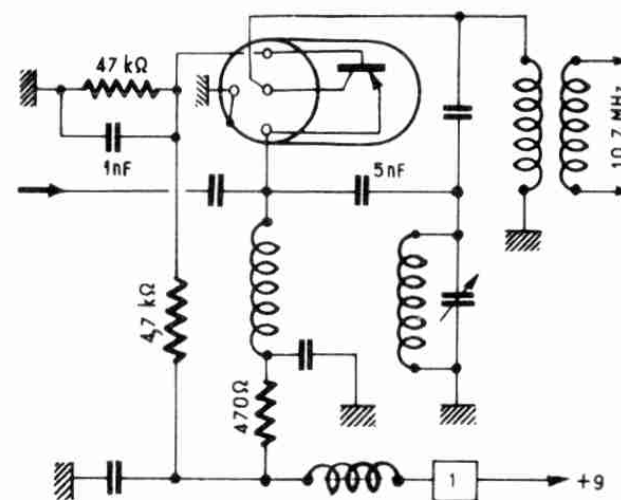
$\beta = 50$
GP = 24(27) dB



2 SA 444

Conv. 100 MHz

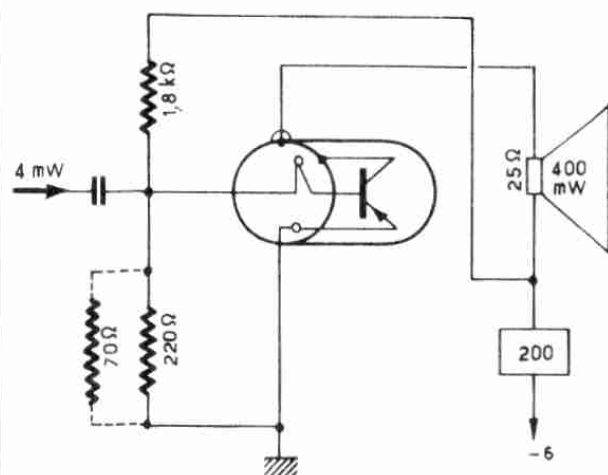
$\beta = 80$



2SB 27

P

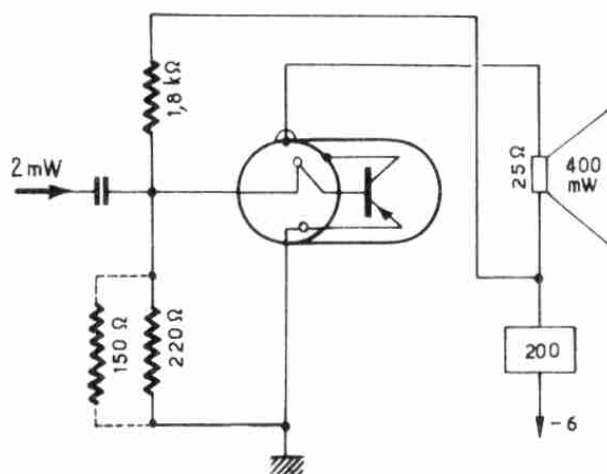
$\beta = 29$
GP = 20 dB



2SB 28

P

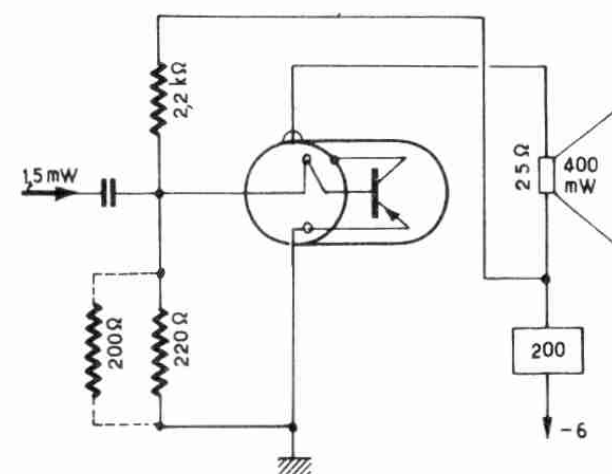
$\beta = 68$
GP = 23 dB



2SB 29

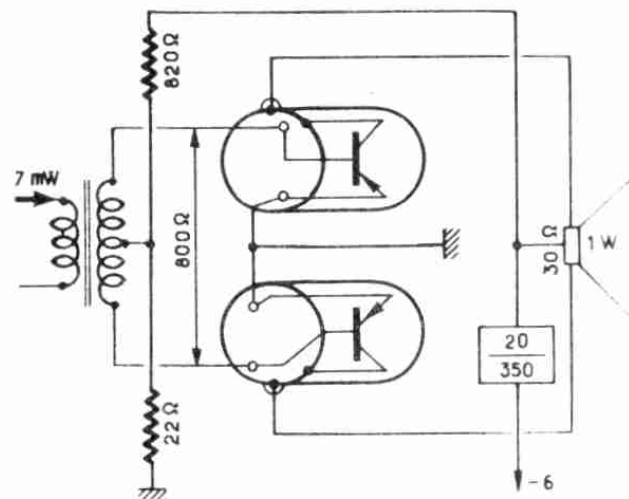
P

$\beta = 115$
GP = 25 dB

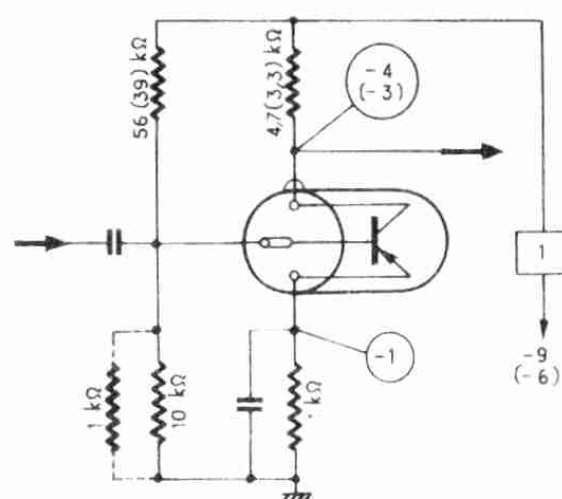


2SB31

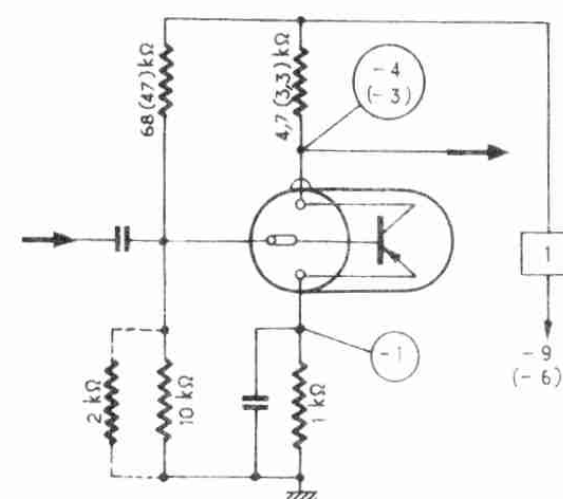
BF

 $\beta = 115$
GP = 22 dB**2SB48**

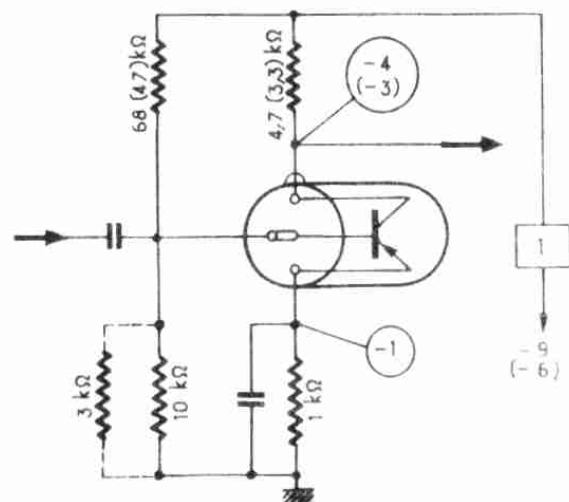
BF

 $\beta = 36$
Fb = 6 dB**2SB49**

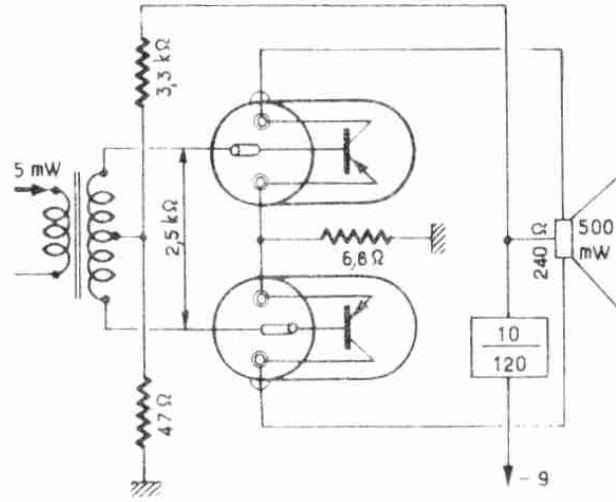
BF

 $\beta = 66$
Fb = 6 dB**2SB50**

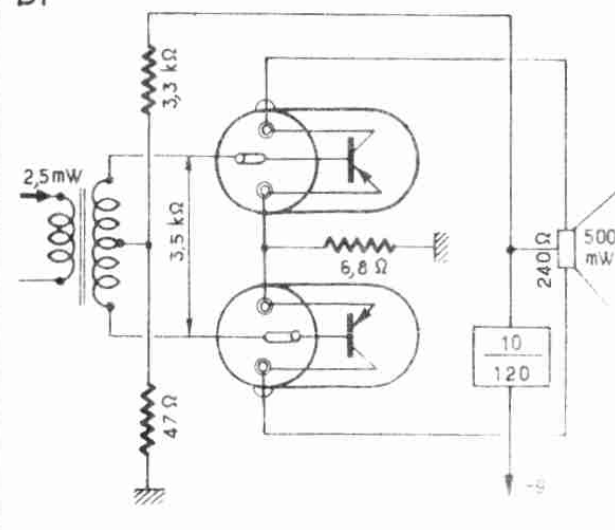
BF

 $\beta = 100$
Fb = 6 dB**2SB51**

BF

 $\beta = 36$
GP = 20 dB**2SB52**

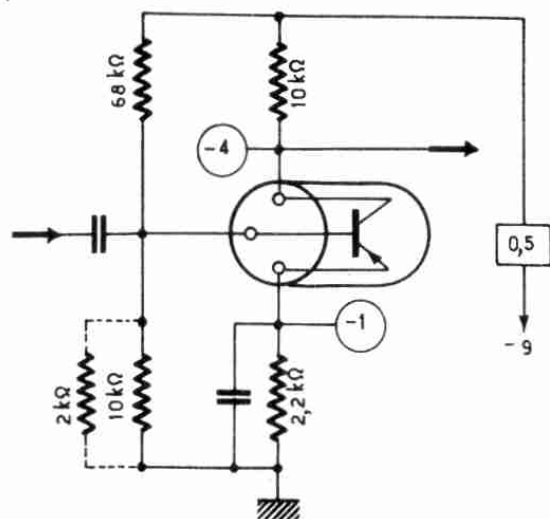
BF

 $\beta = 66$
GP = 23 dB

2SB56,59,60A

$\beta = 60 \dots 90$

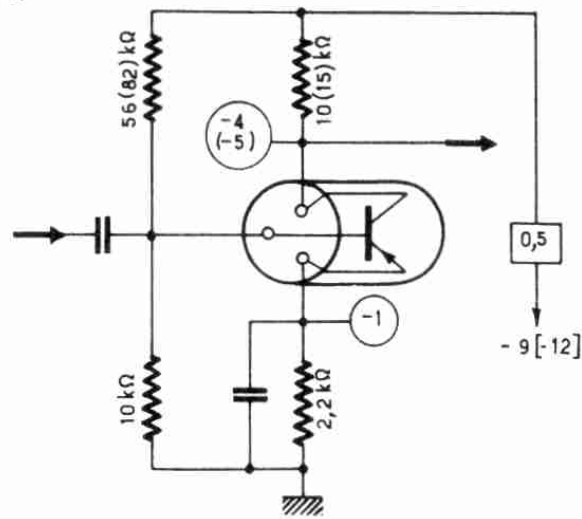
BF



2SB61

$\beta = 50$

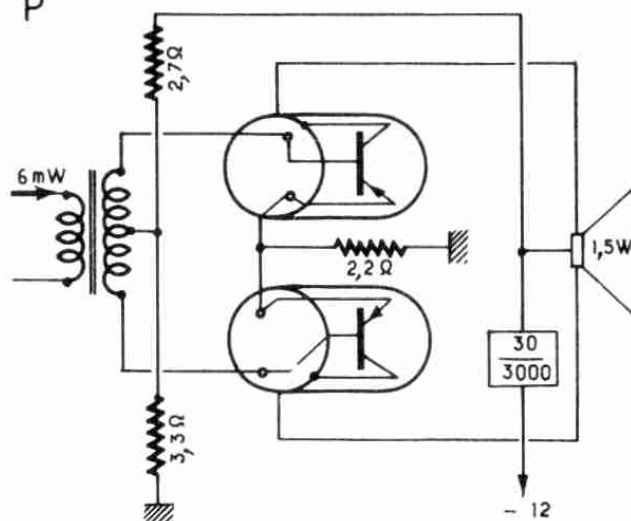
BF



2SB62,63

$\beta = 30 \dots 120$
 $GP = 24 \text{ dB}$

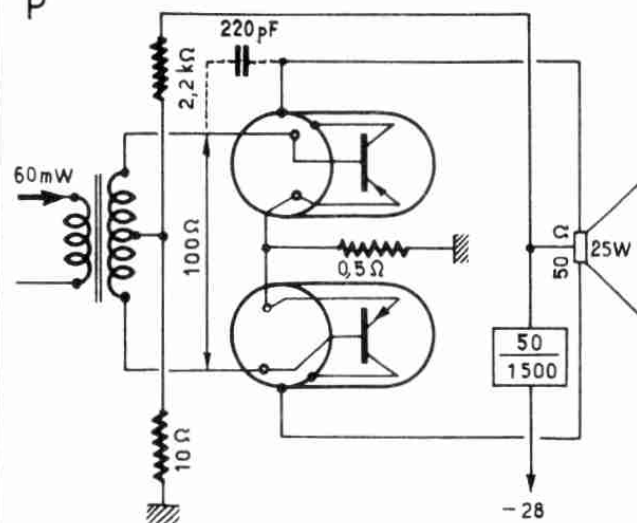
P



2SB64

$\beta = 60$
 $GP = 26 \text{ dB}$

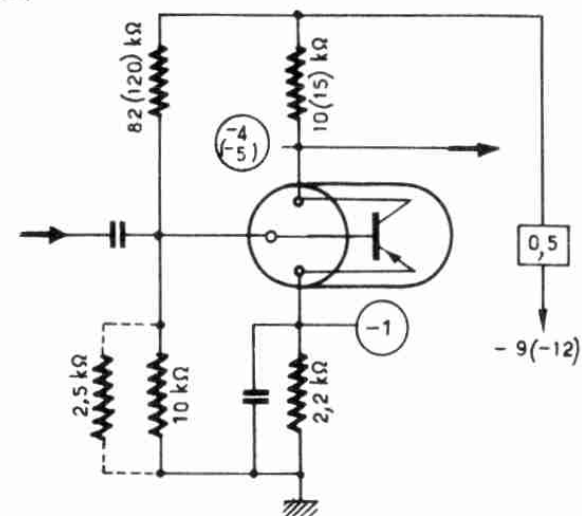
P



2SB66

$\beta = 75$

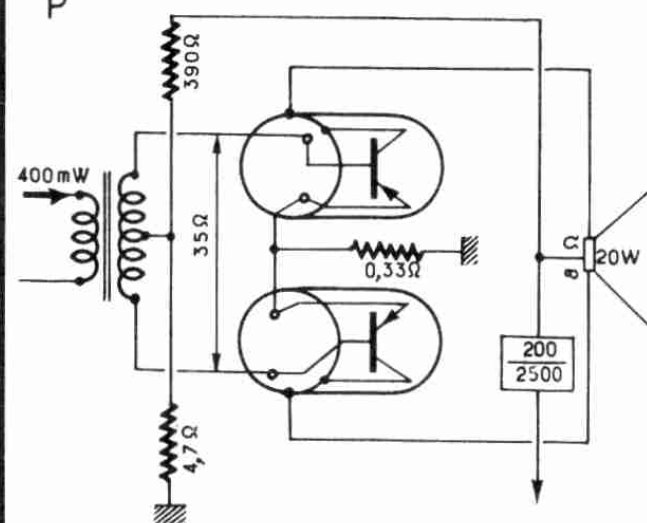
BF



2SB69

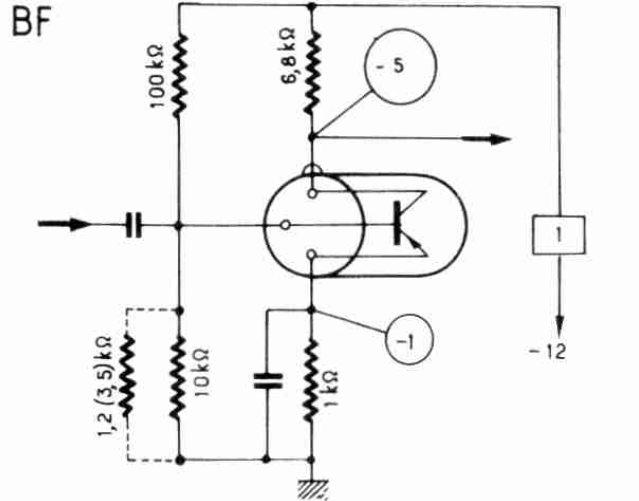
$\beta = 60$
 $GP = 17 \text{ dB}$

P



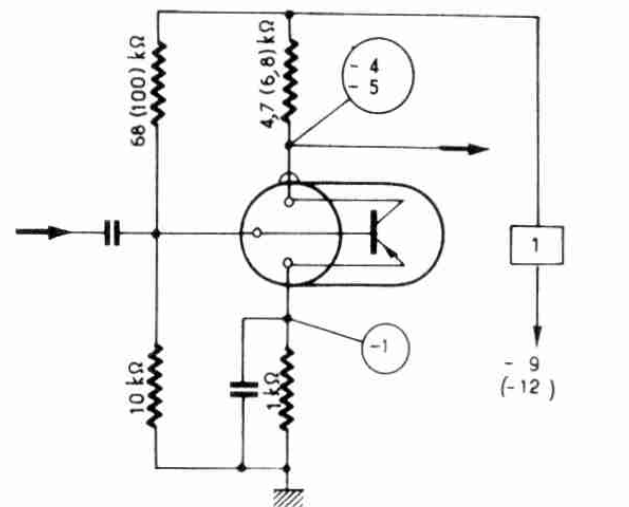
2 SB 98

(2 SB 99)



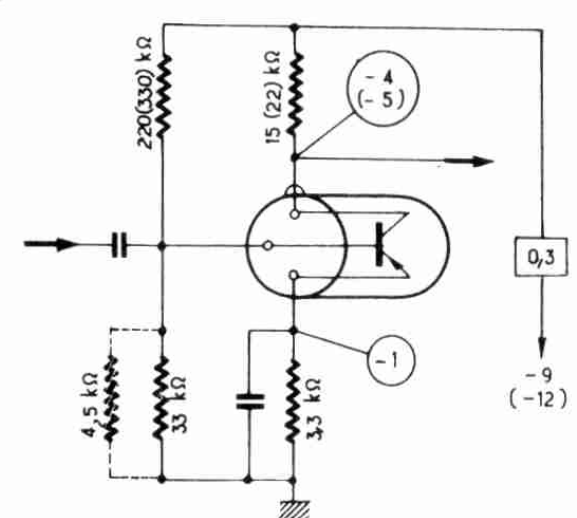
2 SB 110, 11, 12, 13

BF



2 SB 134

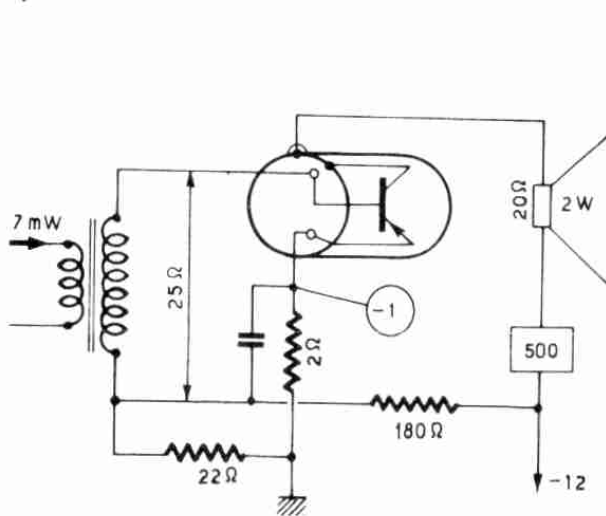
BF



2 SB 142

P

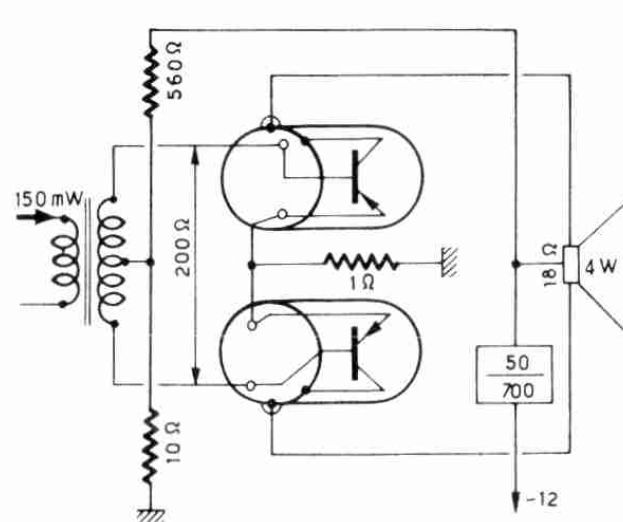
$\beta = 24$
 $GP = 25 \text{ dB}$



2 SB 142

P

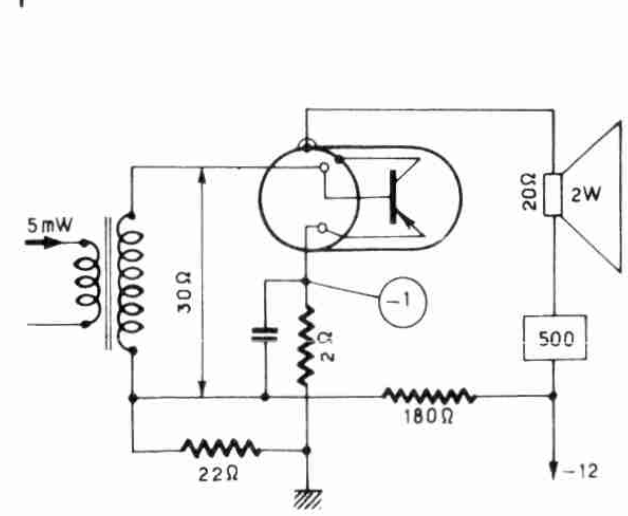
$\beta = 24$
 $GP = 15 \text{ dB}$



2 SB 143

P

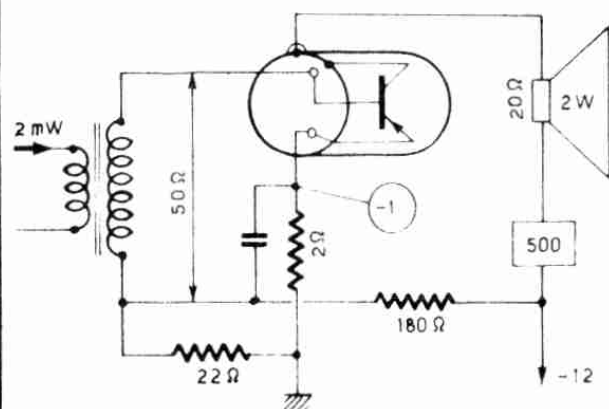
$\beta = 37$
 $GP = 27 \text{ dB}$



2SB144

 $\beta = 75$
GP = 30 dB

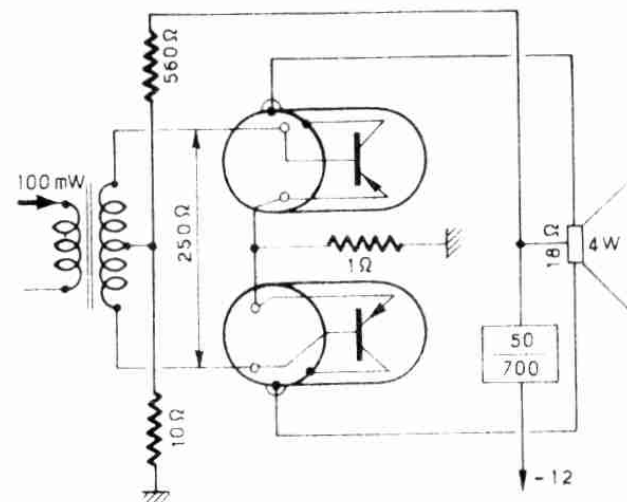
P



2SB145

 $\beta = 37$
GP = 18 dB

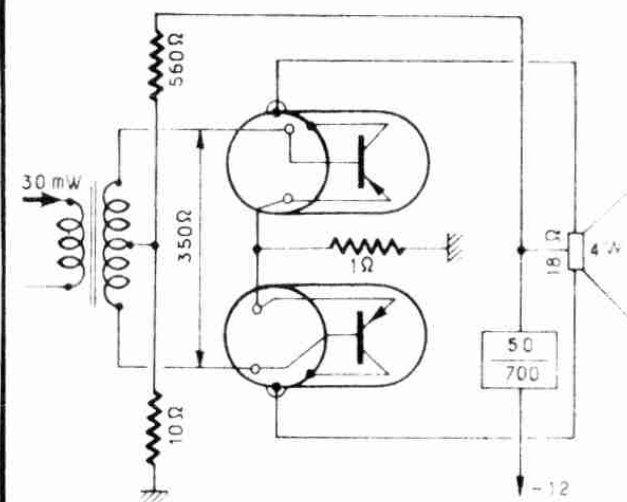
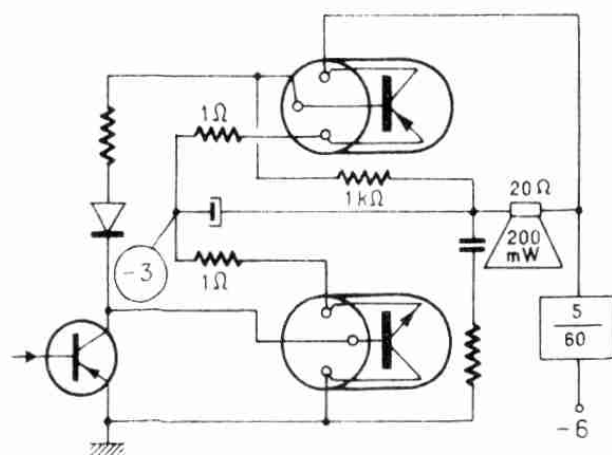
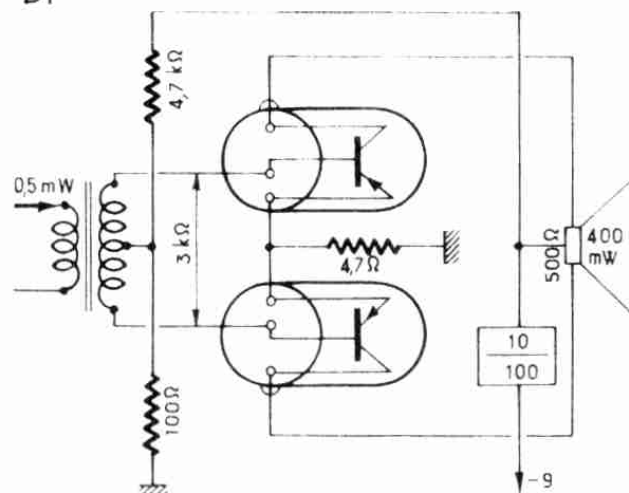
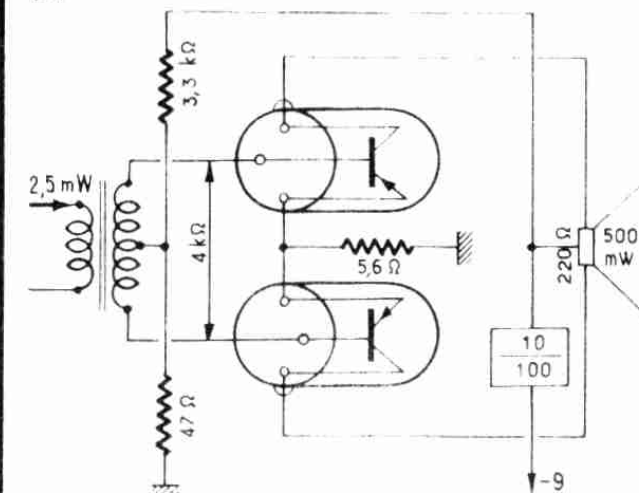
P



2SB146

 $\beta = 75$
GP = 21 dB

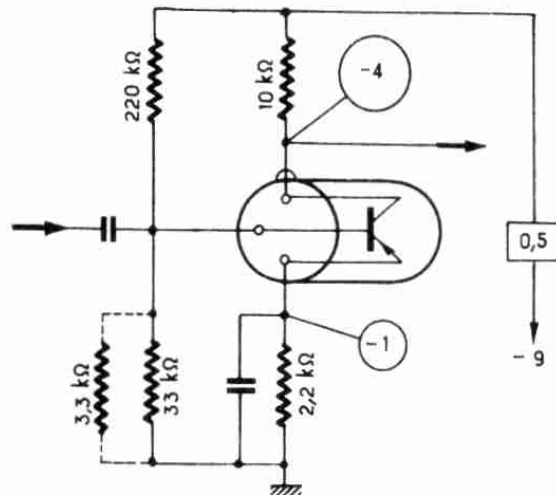
P

2SB181
2SD181p-n-p
n-p-n $\beta = 100$ 2SB221
(2SB222)
BF $\beta = 50 \dots 90$
(70 ... 120)
GP = 29 dB2SB221A
(2SB222A)
BF $\beta = 50 \dots 90$
(70 ... 120)
GP = 23 dB

2SB 264

BF

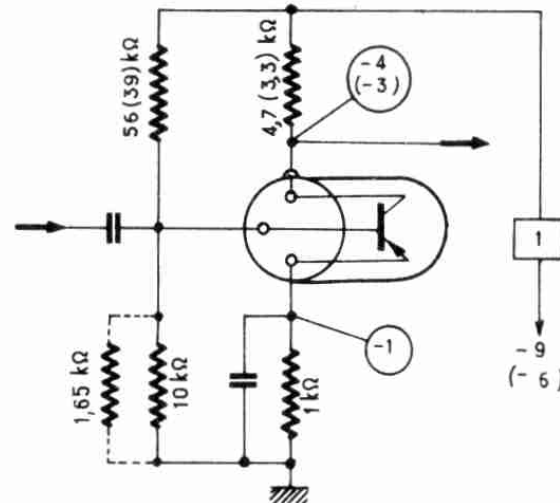
$\beta = 45 \dots 100$
 $F_b = 3 \text{ dB}$



2SB 400

BF

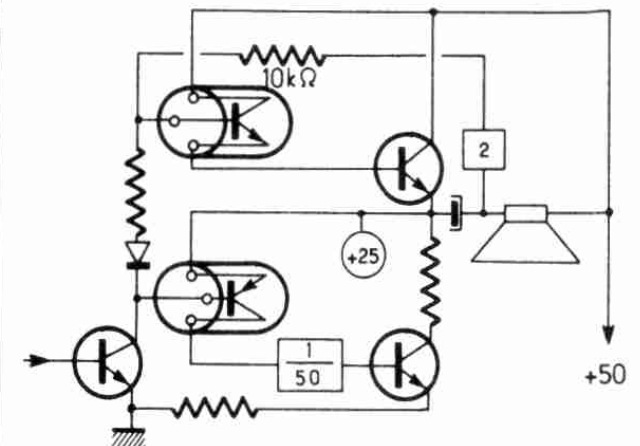
$\beta = 120$



2SB 421 2SC 292

BF

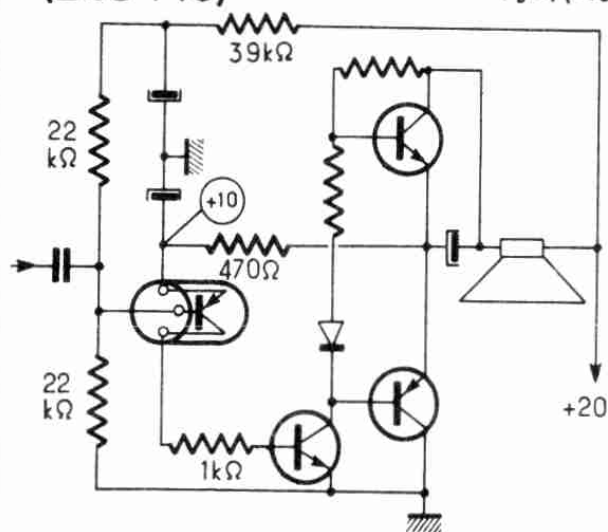
p-n-p Ge $\beta = 70$
 n-p-n Si



2SB 439 (2SB 440)

BF

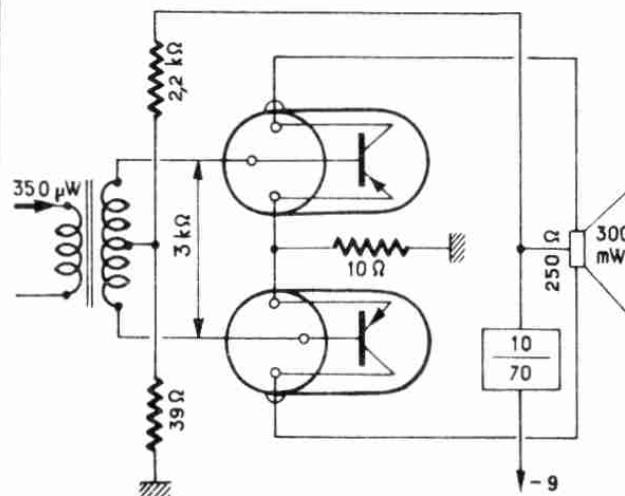
$\beta = 70 \dots 270$
 $F_b < 7 (< 5) \text{ dB}$



2SB 457

BF

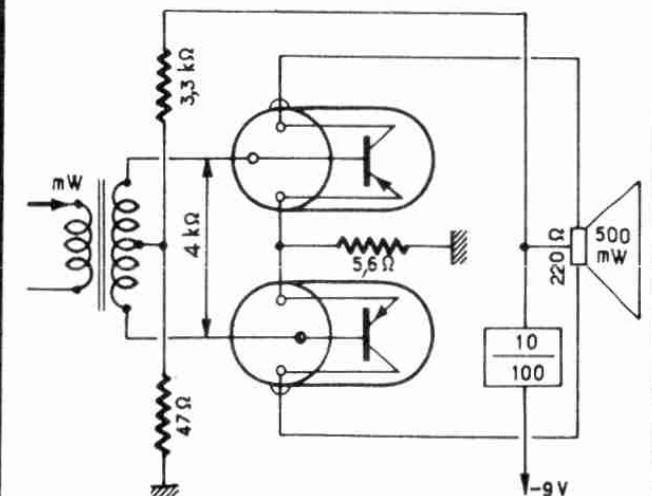
$\beta = 110$
 $GP = 29 \text{ dB}$



2SB 494

BF

$\beta = 0$
 $GP = \text{dB}$

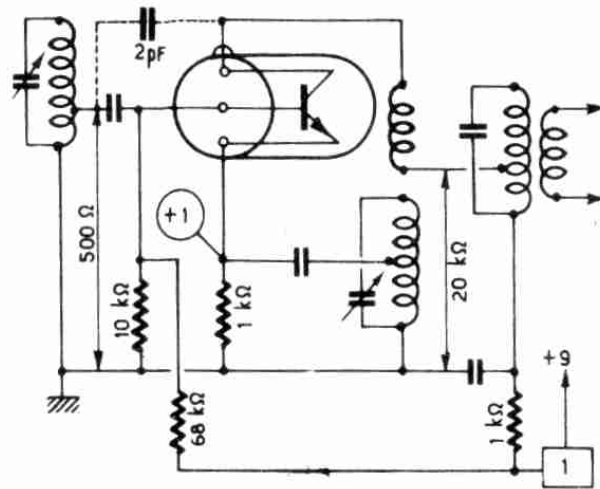


2SC73

n-p-n

 $\beta = 41$
GC = 27dB

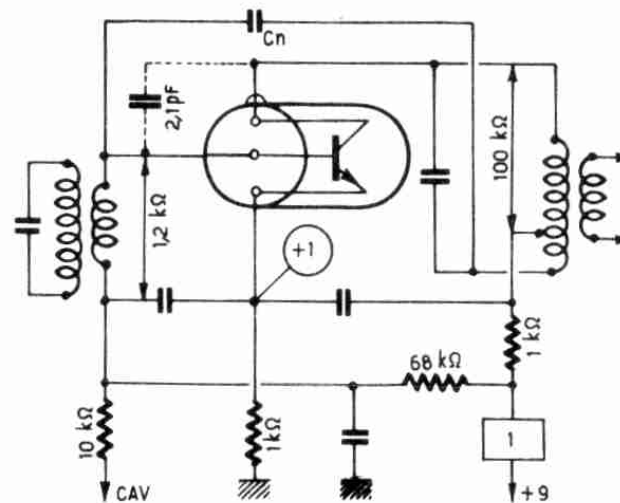
Conv. <2 MHz

**2SC75**

n-p-n

 $\beta = 9...82$
GP = 41dB

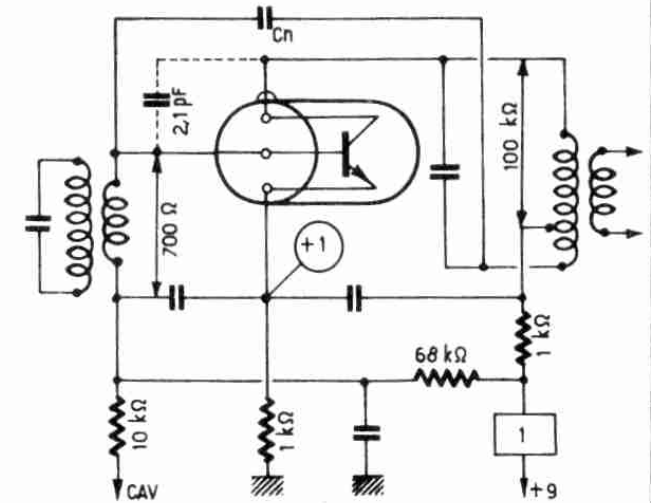
MF 470 kHz

**2SC76**

n-p-n

 $\beta = 9...82$
GP = 37dB

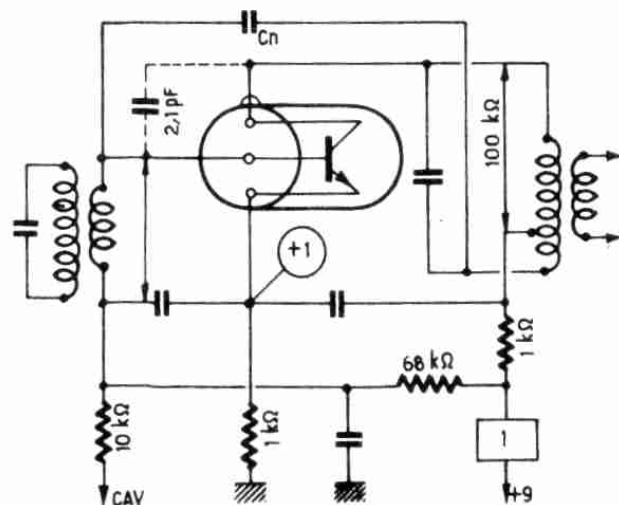
MF 470 kHz

**2SC77**

n-p-n

 $\beta = 9...82$
GP = 32dB

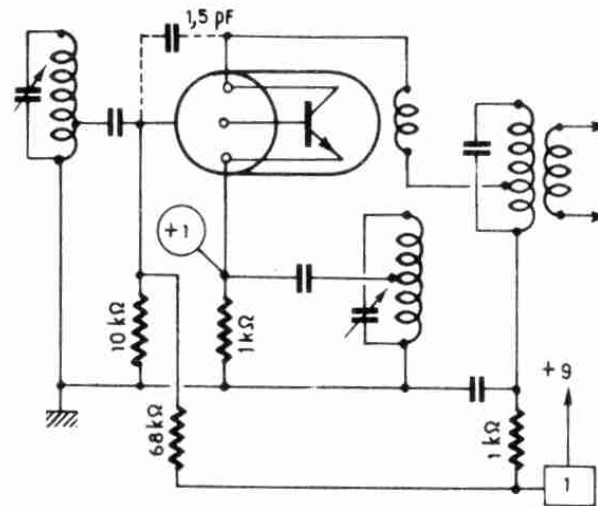
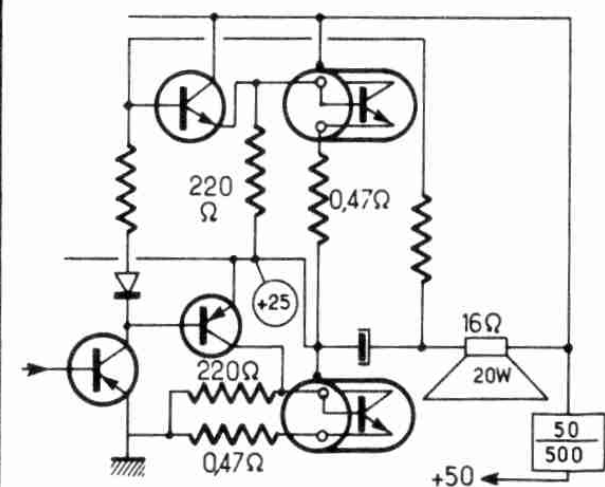
MF 470 kHz

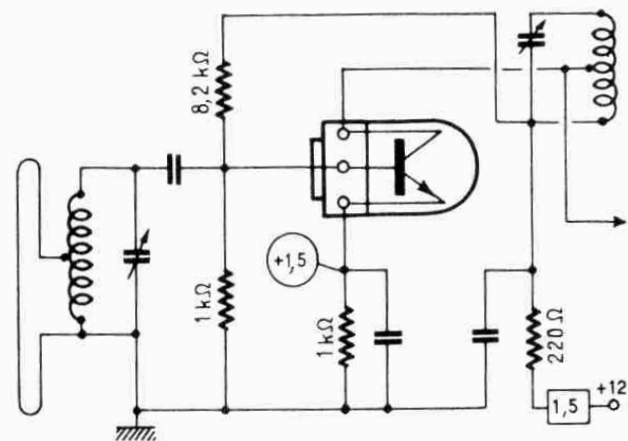
**2SC78**

n-p-n

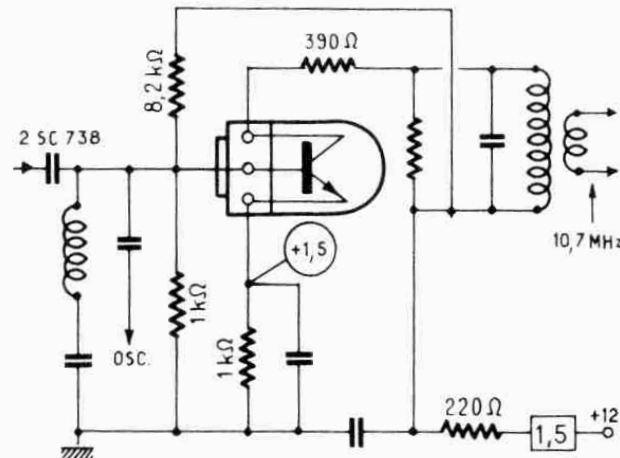
 $\beta = 49$
GC = 26dB

Conv. <2 MHz

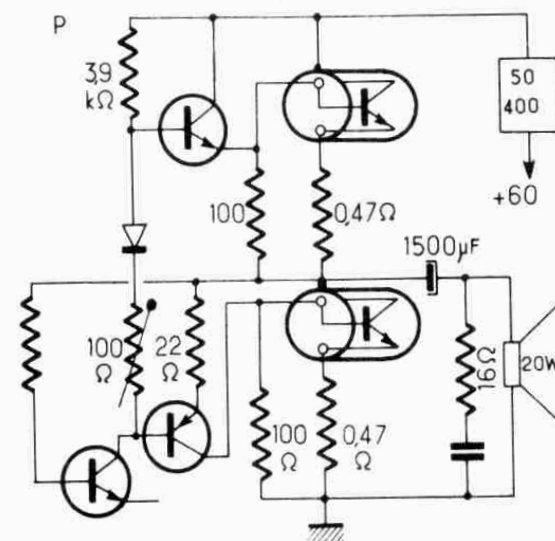
**2SC245**n-p-n
Si $\beta = 40(>15)$
 $f_T = 35\text{MHz}$ 

2SC738n-p-n
Si $\beta = 20 \dots 300$
 $f_t = 400 \text{ MHz}$ **2SC739**

Conv. 100 MHz

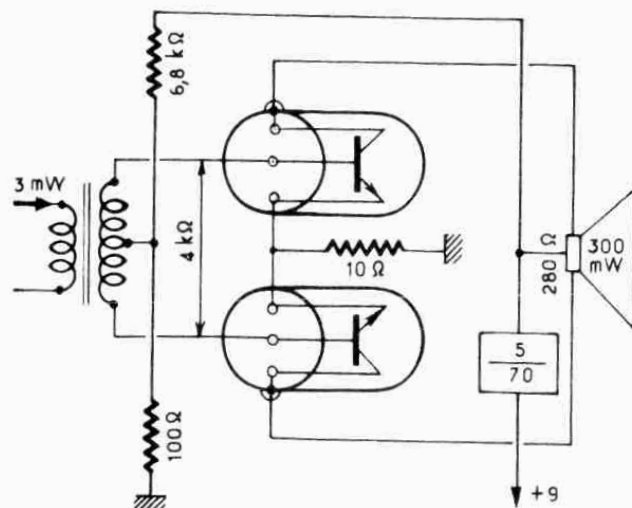
n-p-n
Si $\beta = 20 \dots 300$
 $f_t = 350 \text{ MHz}$ **2SD45**

n-p-n Si

 $\beta = 12 \dots 120$ **2SD63**

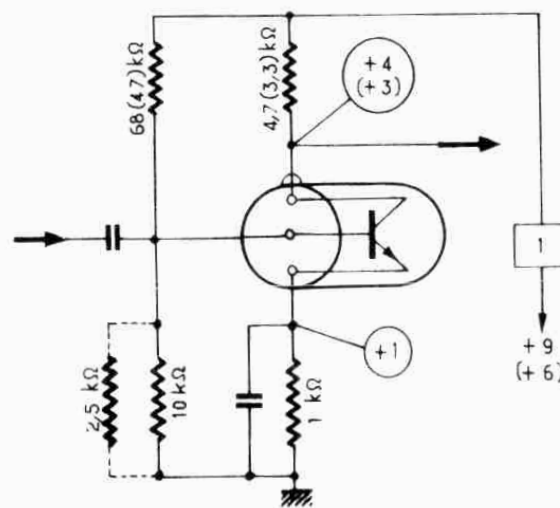
BF

n-p-n

 $\beta = 50$
 $G_B = 20 \text{ dB}$ **2SD64**

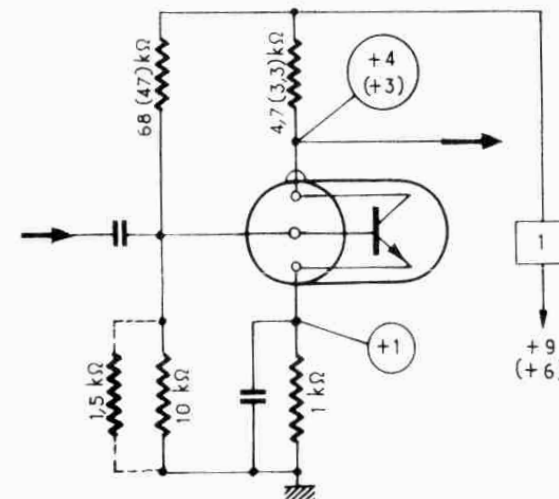
BF

n-p-n

 $\beta = 76$
 $F_b = 8 \text{ dB}$ **2SD65**

BF

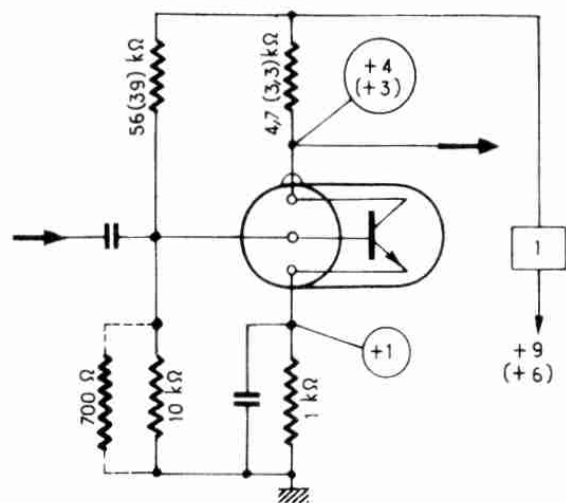
n-p-n

 $\beta = 43$
 $F_b = 8 \text{ dB}$ 

2SD66
BF

n-p-n

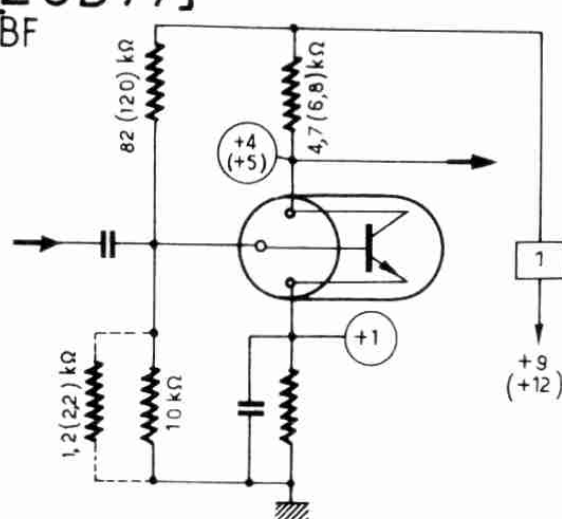
$\beta = 23$
 $F_b = 8 \text{ dB}$



2SD75
[2SD77]
BF

n-p-n

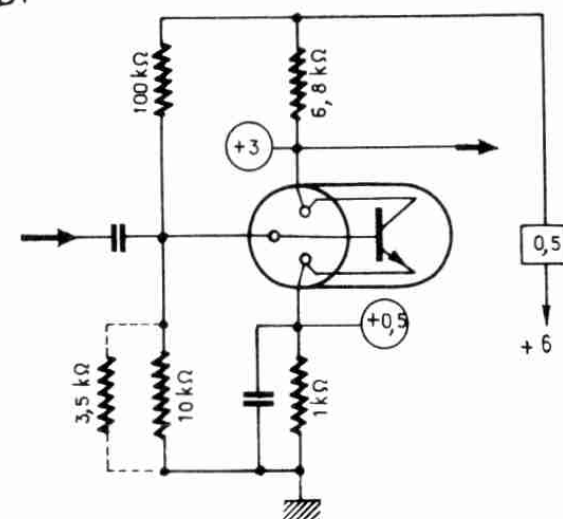
$\beta = 40 [70]$



2SD162
BF

n-p-n

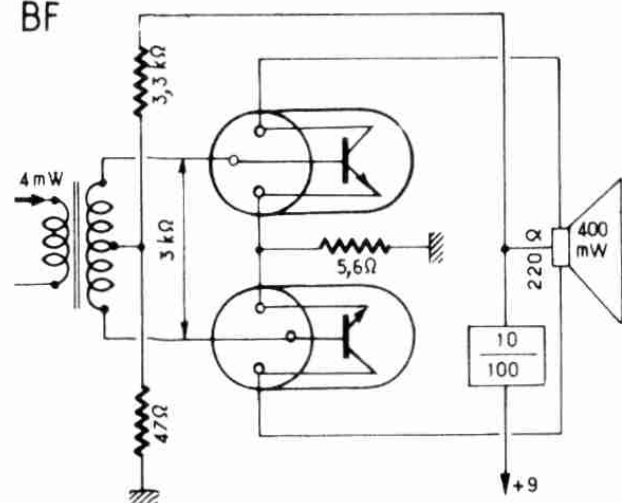
$\beta = 60$



2SD186
2SD187
BF

n-p-n

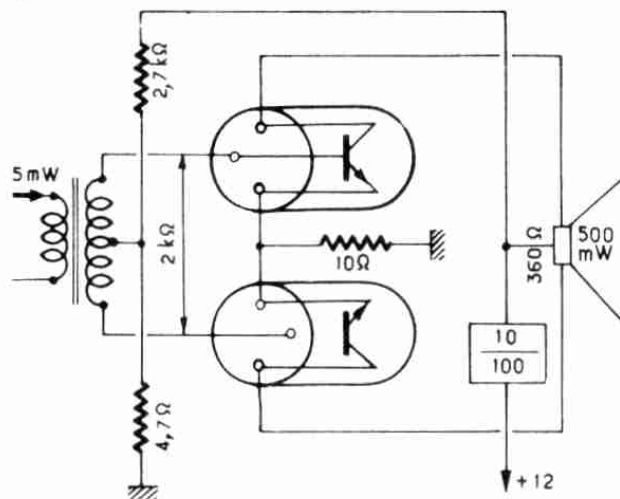
$\beta = 150$
 $GP = 20 \text{ dB}$



2SD193
BF

n-p-n

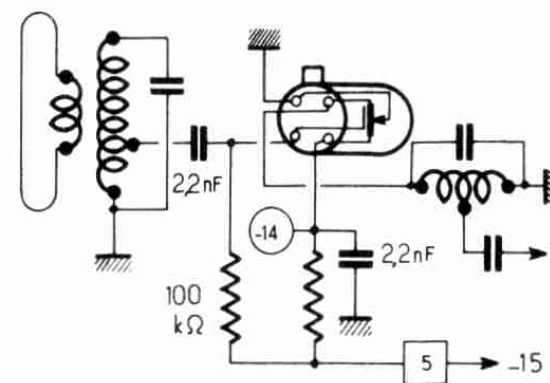
$\beta = 100$
 $GP = 20 \text{ dB}$



3N142
100MHz

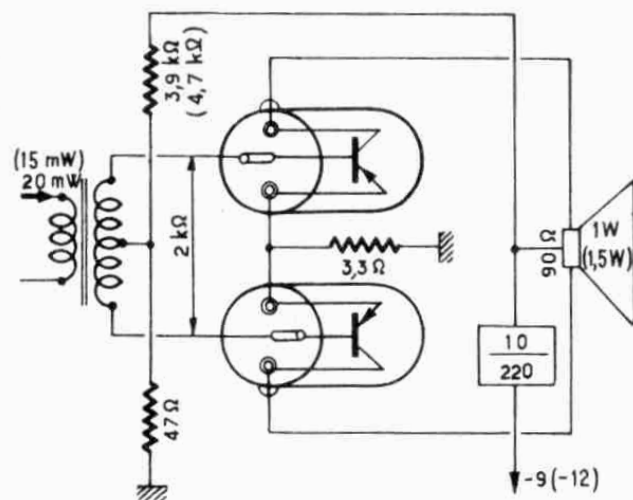
FET Si
Canal N

$S = 7,5(>4) \text{ mA/V}$
 $GP = 14 \text{ dB}$
 $F_b < 5 \text{ dB}$



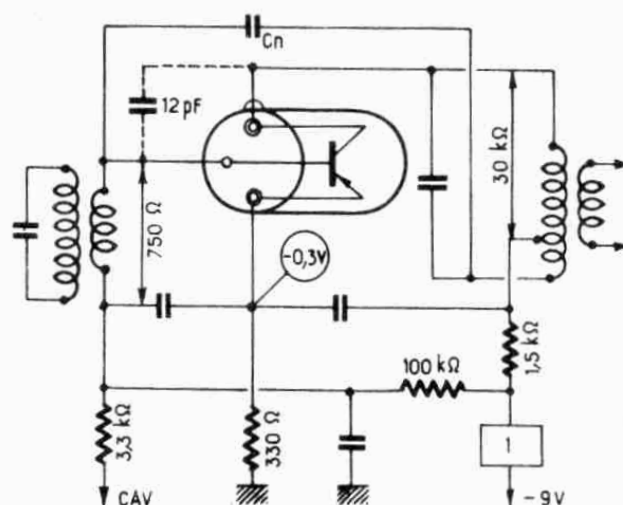
44 T1
P

$\beta = 54$
GP = 18 dB
(20 dB)



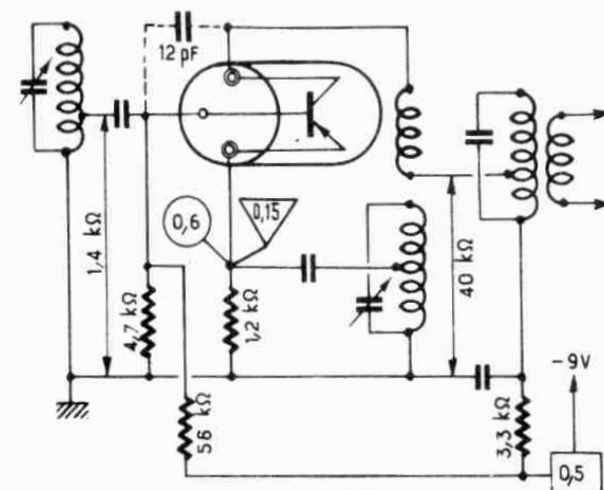
36 T1
MF470 kHz

$\beta = 60$
GP = 30 dB



37 T1
Conv. < 2 MHz

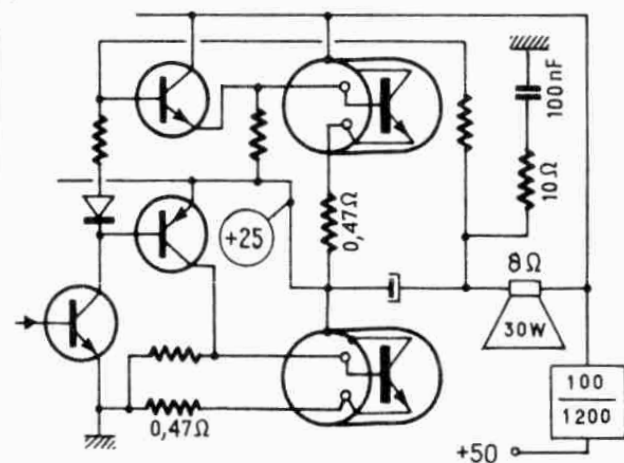
$\beta > 25$
GC = 30 dB



180 T1
A, (B), [C]
P

n p n
Si

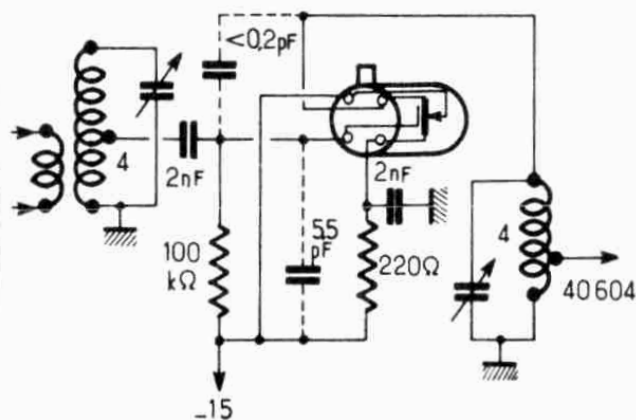
$\beta = 15 \dots 45$
(30...90)
[75...180]



40 468 A
100 MHz

MOS
Canal N

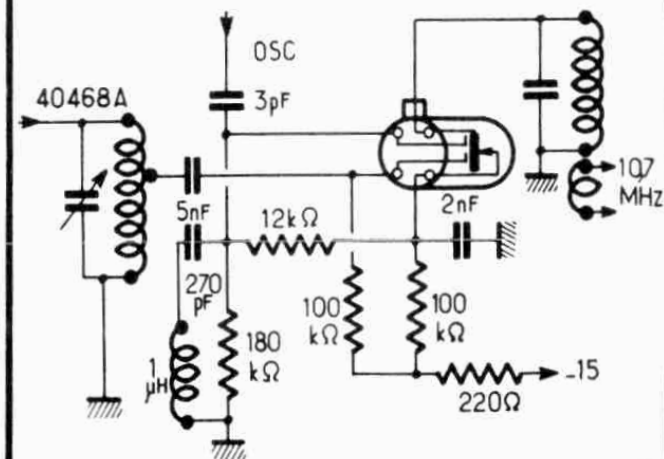
$S_{75} = 57.5 \text{ mA/V}$
GP = 14 dB
 $F_b < 5 \text{ dB}$



40604
Conv. 100 MHz

MOS
Canal N

$s_c = 2.8 \text{ mA/V}$
GP = 23 dB



TV - TRANSISTORS

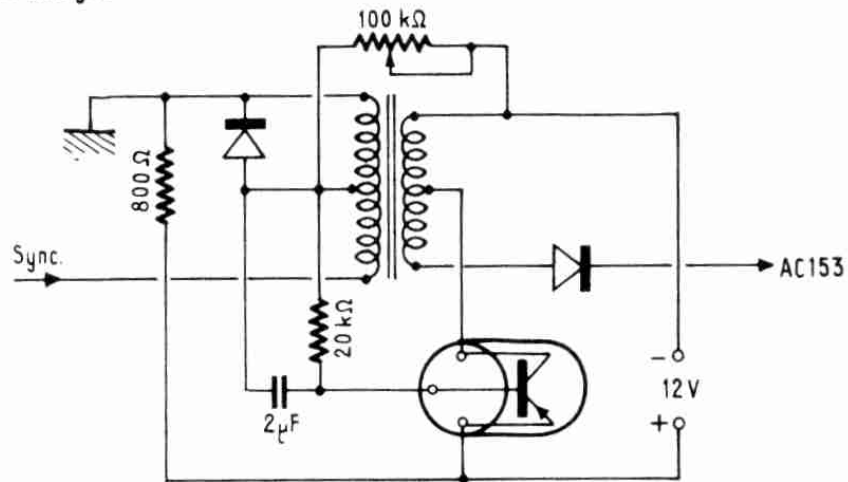
ABBREVIATIONS

Alim.	Alimentation	Power Supply	Speiseeinheit	Alimentació	Voeeding
All.	Alliage	Alloy	Legierungstransistor	Aleación	Legering
A.M.	Modulation d'amplitude	Amplitude Modulation	Amplitudenmodulation	Modulacion de amplitud	Geluidsterkte modulator
Amplif.	Amplificateur	Amplifier	Verstärker	Amplificador	Versterker
Ant.	Antenne	Antenna	Antenne	Antena	Antenne
Arrêt	Bobine d'arrêt	Stop reel	Drosselspule	Bobina de parada	Regelingsspoel
Attaque	Etage d'attaque	Attack Stage	Treiberstufe	Fase de ataque	Aanvangverdiep
Bal.	Balayage	Scanning	Ablenkung	Exploración	Wegdrijven
Bande	Bande de fréquence	Frequency band	Frequenzband	Faja de frecuencia	Frequentie band
BC	Base commune	Common Base	Basisschaltung	Base común	Grondbasis
Blank.	Blanking	Blanking	Austastimpuls	Supresión de haz	Blanking
Cable	Cable coaxial	Coaxial cable	Koaxialkabel	Cable coaxial	Co-axiale kabel
CAF	Commande automatique de fréquence	Automatic Frequency Control	Automatische Frequenzreglung	Mando automático de frecuencia	Automatische frekwentieregeling
CAG	Commande automatique de gain	Automatic Gain Control	Automatische Verstärkungsregelung	Mando automático de ganancia	Automatische versterkingsregeling
C.V.	Capacité variable	Variable capacity	Veränderliche Kapazität	Capacidad variable	Veranderlijke kracht
Comp.	Comparateur	Comparator	Vergleichsstufe	Comparador	Vergelijker
Contr.	Contraste	Contrast	Kontrast	Contraste	Contrast
Conv.	Conversion	Conversion	Mischstufe	Conversión	Omzetting
Corr.	Correction	Correction	Korrektur	Corrección	Correctie

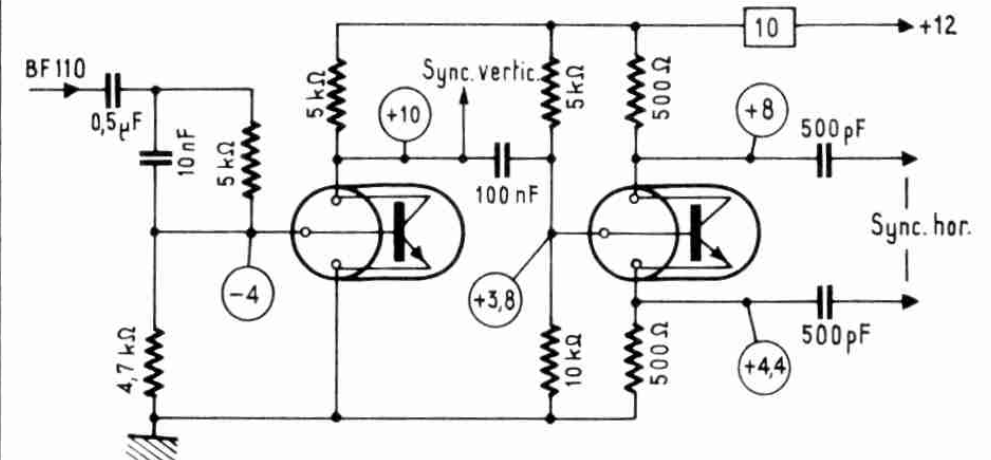
CRT	Tube cathodique	Cathode Tube	Katodenstrahlröhre	Tubo catódico	Katodische buis
Défl.	Bobine de déflexion	Déflexion coil	Ablenkspule	Bobina de deflección	Deflectie Spoolen
Diff.	Base diffusée	Diffused Base	Diffundierte Basis	Base difundida	Verspreide basis
E.C.	Emetteur commun	Common Transmitter	Emitterschaltung	Emisor común	Gemene uitzender
Epitax.	Epitaxial	Epitaxial	Epitaxial	Epitaxial	Epitaxial
Entrée	Etage d'entrée	Input Stage	Eingangsstufe	Fase de entrada	Ingangsverdiep
F_b	Facteur de bruit	Noise factor	Rauschfaktor	Factor de ruido	Geruchtsfactor
f_t	Fréquence de transition	Transition frequency	Transitfrequenz	Frecuencia de transición	Transitie frequentie
FI	Fréquence intermédiaire	Intermediate Frequency	Zwischenfrequenz	Frecuencia intermedia	Tussenfrekwentie
Ge	Germanium	Germanium	Germanium	Germanio	Germanium
GP	Gain en puissance	Power gain	Leistungsverstärkung	Ganancia de potencia	Krachtversterking
GV	Gain en tension	Voltage Gain	Spannungsverstärkung	Ganancia en tensión	Spanningsversterking
Hauteur	Hauteur d'image	Image height	Bildhöhe	Altura de imagen	Beeldhoogte
I_C	Courant de collecteur	Collector current	Kollektorstrom	Corriente de colector	Collectorstroom
Im.	Image	Image	Bild	Imagen	Beeld
L, Lig.	Ligne	Line	Zeile	Linea	Lijn
Lin.	Linéarité	Linearity	Linearität	Linearidad	Lijnvorming
Osc.	Oscillateur	Oscillator	Oszillator	Oscilador	Oscillator
Osc.bloqué	Oscillateur bloqué	Blocked Oscillator	Sperrschwinger	Oscilador bloqueado	Vastgelegde oscillator
Pl.	Planar	Planar	Planar	Planar	Planar
Préamplif.	Préamplificateur	Pre-amplifier	Vorverstärker	Preamplificador	Voorversterker
Redr.	Redresseur	Rectifier	Gleichrichter	Rectificador	Gelijkrichter
Retour	Ligne de retour	Feedback line	Rückführung	Linea de regreso	Terugvoerlijn
Sép.	Séparateur	Separatur	Impulstrennung	Separador	Onderscheider
Si	Silicium	Silicon	Silizium	Silicio	Silicium
Son	Son	Sound	Ton	Sonido	Geluid
Sortie	Etage de sortie	Out put Stage	Ausgangsstufe	Fase de salida	Uitgangsverdiep
THT	Très haute tension	Very High Voltage	Höchstspannung	Muy alta tensión	Zeer hoge spanning
Tr.	Transformateur	Transformer	Transformator	Transformador	Transformator
t_r	Temps de montée	Rise time	Anstiegszeit	Tiempo de subida	Opvoertijd

AC 121p-n-p Ge Alliage $\beta = 30 \dots 250$

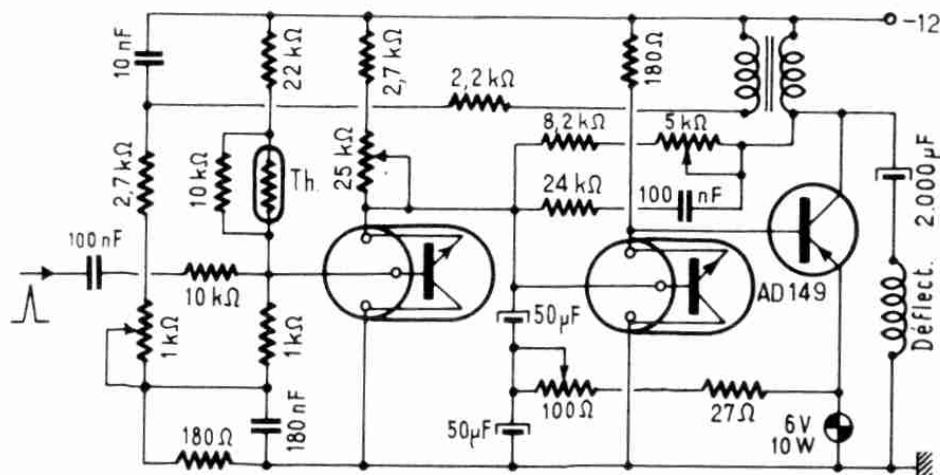
Osc. Images

**AC 127**n-p-n Ge Alliage $\beta = 65 \dots 200$

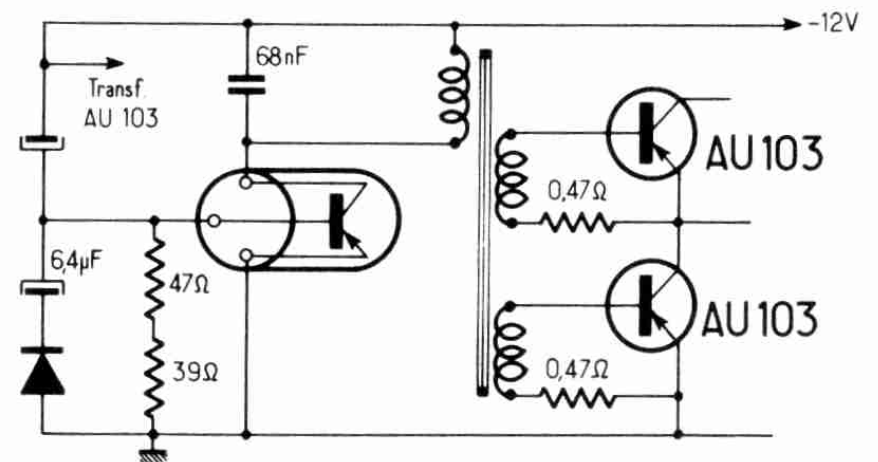
Séparateur

**AC 127**n-p-n Ge All. $\beta = 65 \dots 200$

Bal. Images

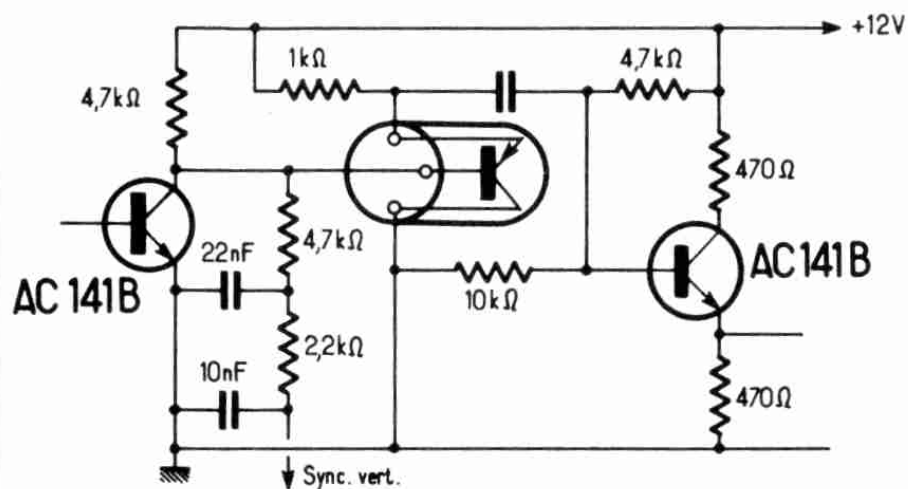
**AC 128**p-n-p Ge. All. $\beta = 60 \dots 175$

Bal. 625 I.

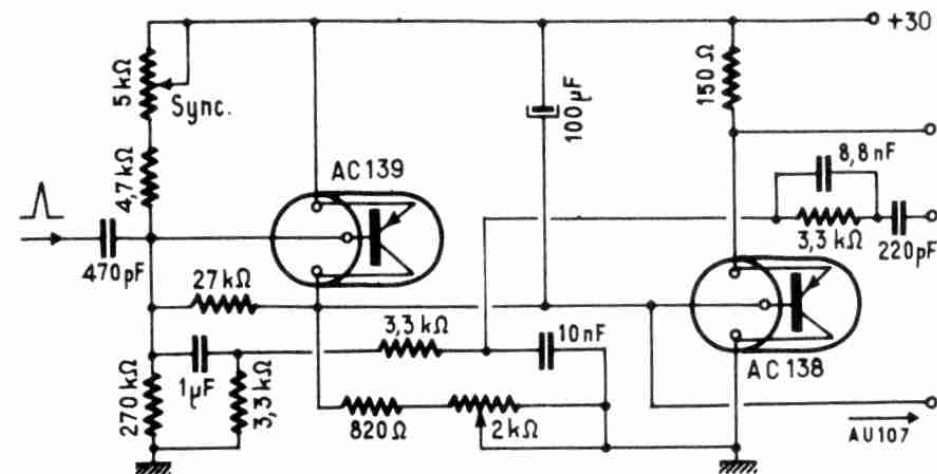


AC 137p-n-p Ge All. $\beta = 170$

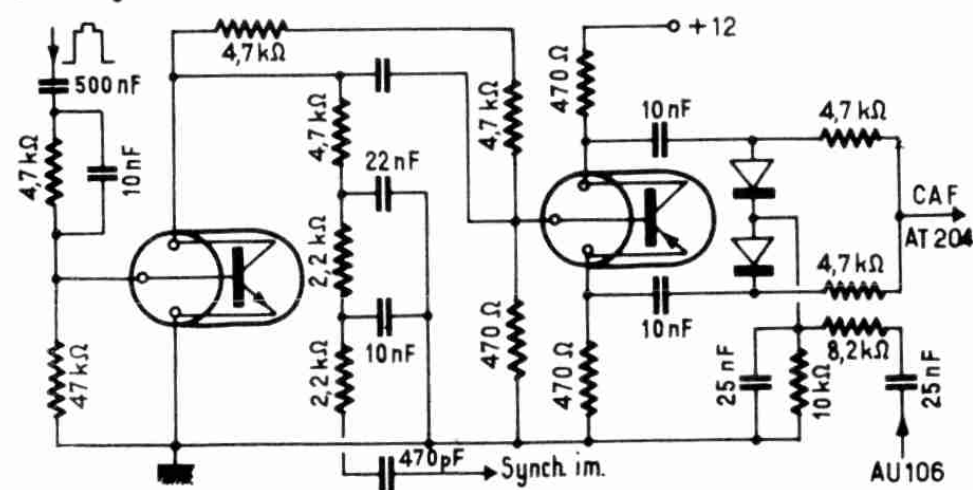
Amplif. sync.

**AC 138****AC 139**p-n-p Ge All. $\beta = 100$

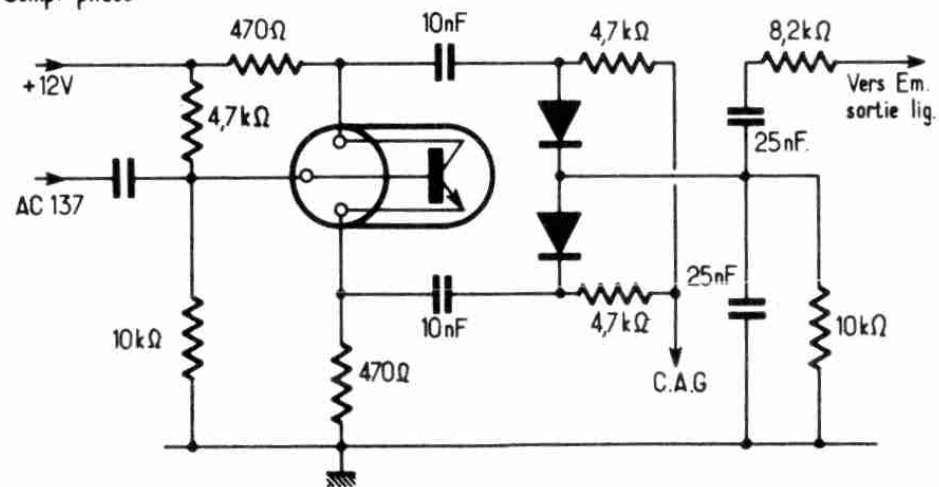
Bal. Images

**AC 141**n-p-n Ge All. $\beta = 40..180$

CAF Lignes

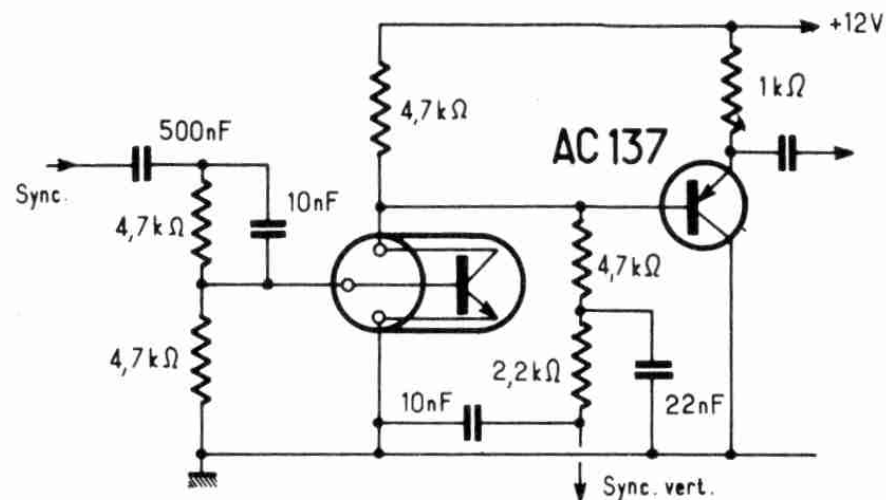
**AC 141 B**n-p-n Ge All. $\beta = 30..250$
 $f_t = 3\text{MHz}$

Comp. phase



AC 141 B

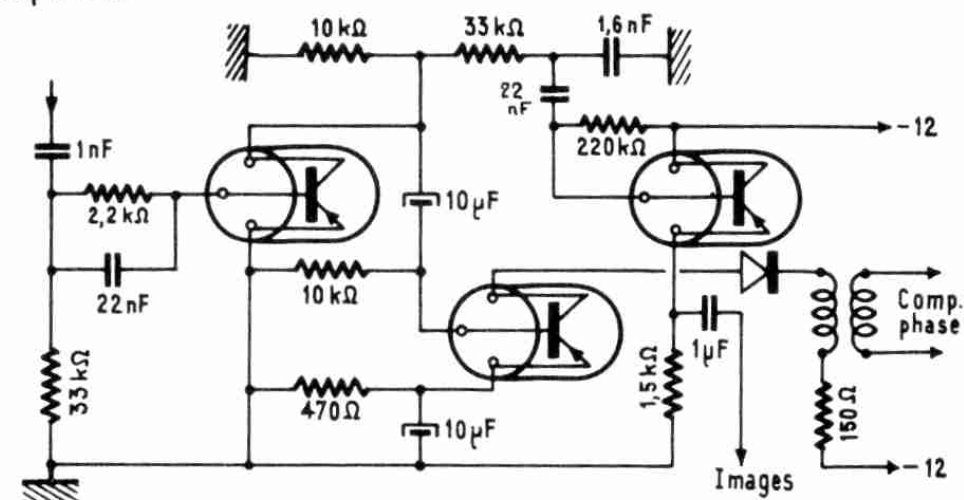
n-p-n Ge. All.

 $\beta = 30 \dots 250$
 $f_t = 3 \text{ MHz}$ 

AC 151

p-n-p Ge Alliage $\beta = 50$

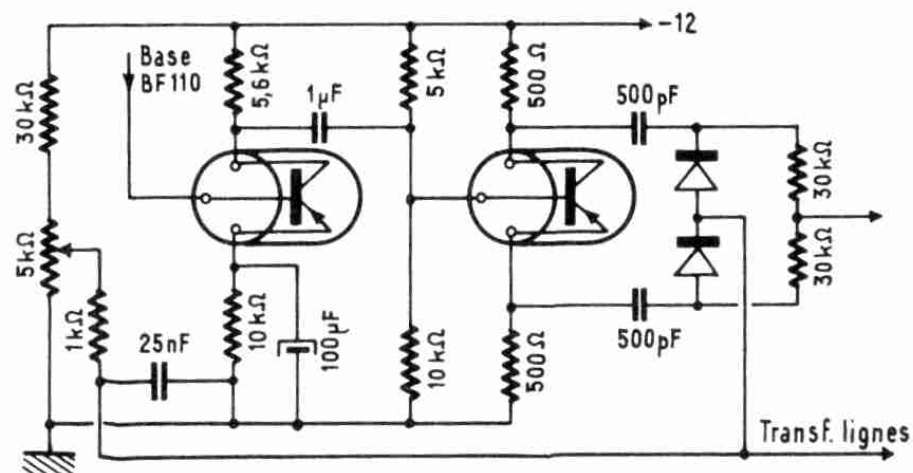
Séparateur



AC 151

p-n-p Ge Alliage $\beta = 50$

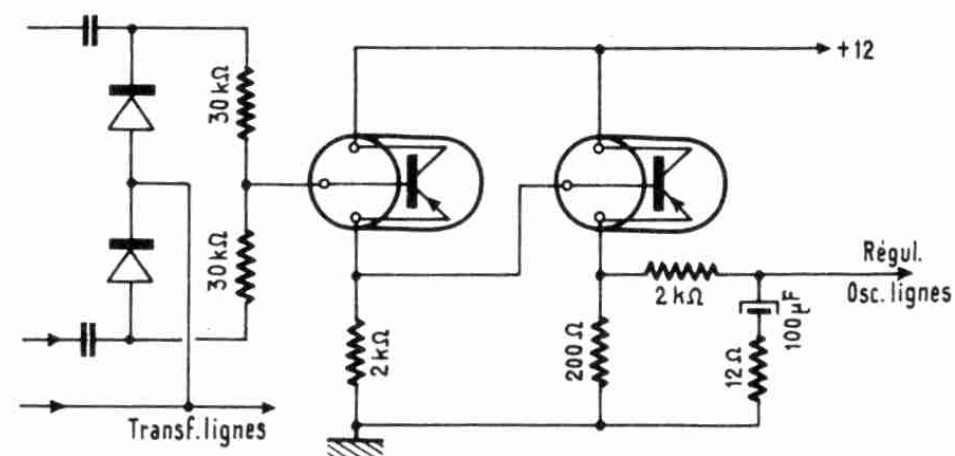
Comp. phase (I)



AC 151

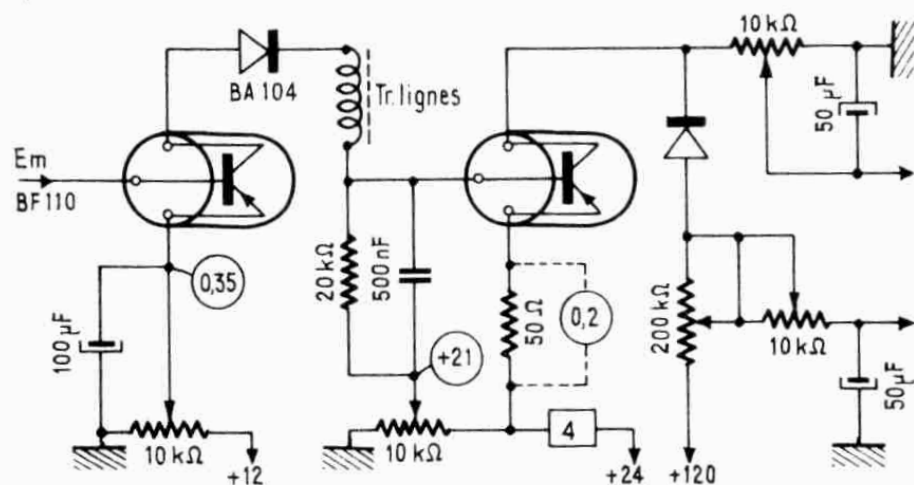
p-n-p Ge Alliage $\beta = 50$

Comp. Phase (II)

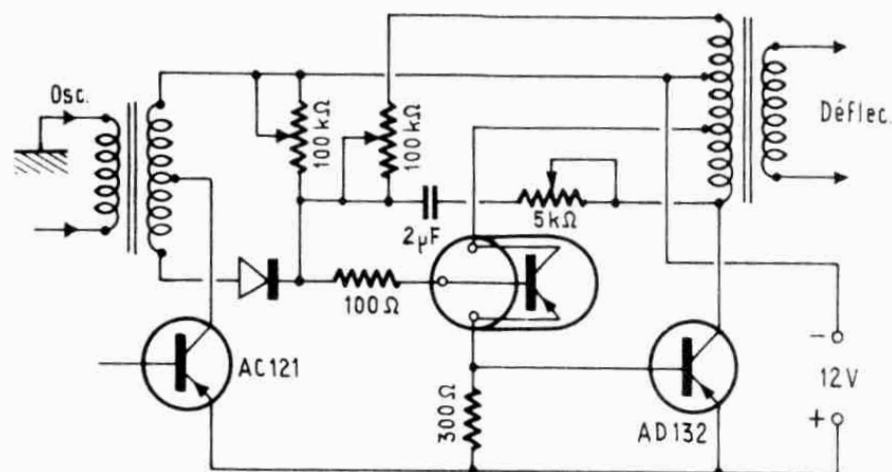


AC 152p-n-p Ge Alliage $\beta = 30 \dots 150$

Amplif. C.A.G.

**AC 153**p-n-p Ge Alliage $\beta = 50 \dots 250$

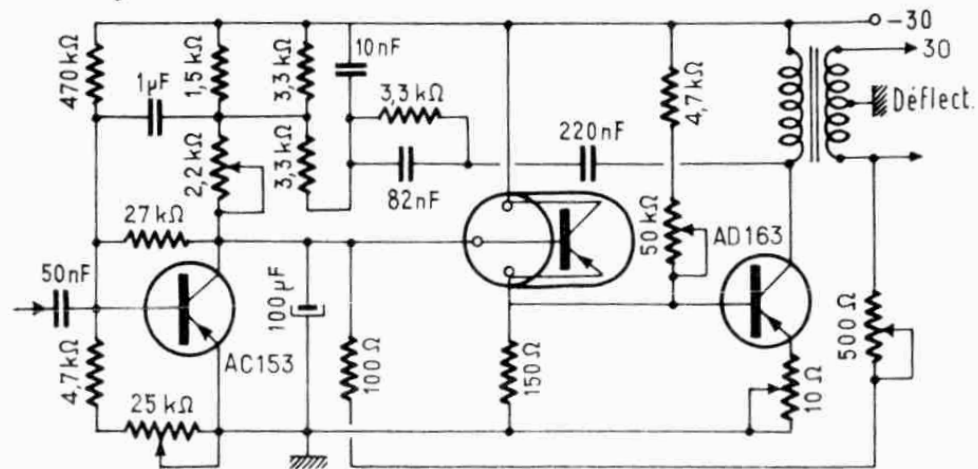
Bal. images

**AC 153 K**

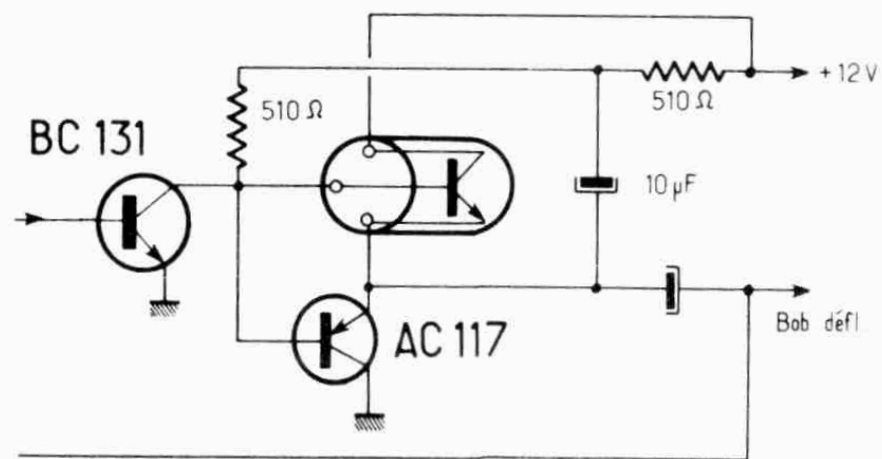
p-n-p

 $\beta = 50$

Bal. Images

**AC 175**

n-p-n Ge All.

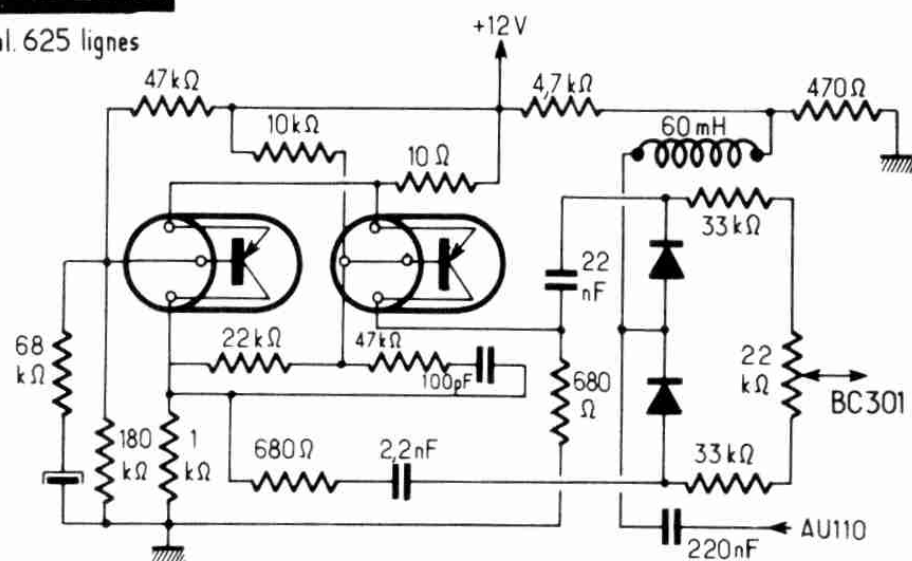
 $\beta = 60 \dots 165$ 

AC 192

p-n-p Ge

 $\beta = 30 \dots 500$

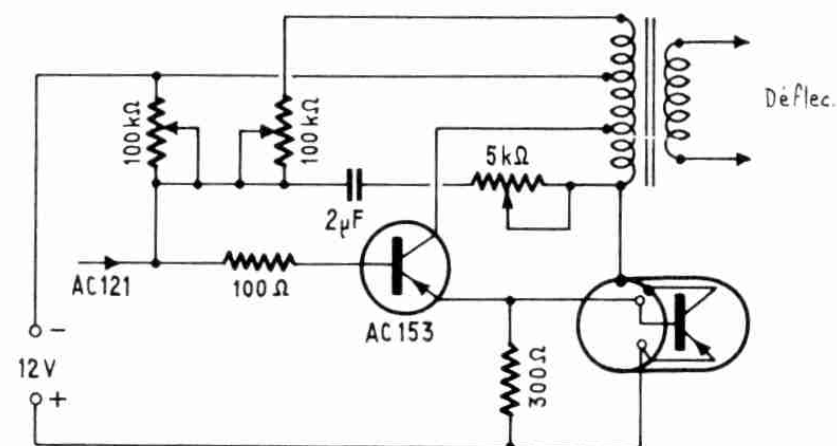
Bal. 625 lignes



AD 132

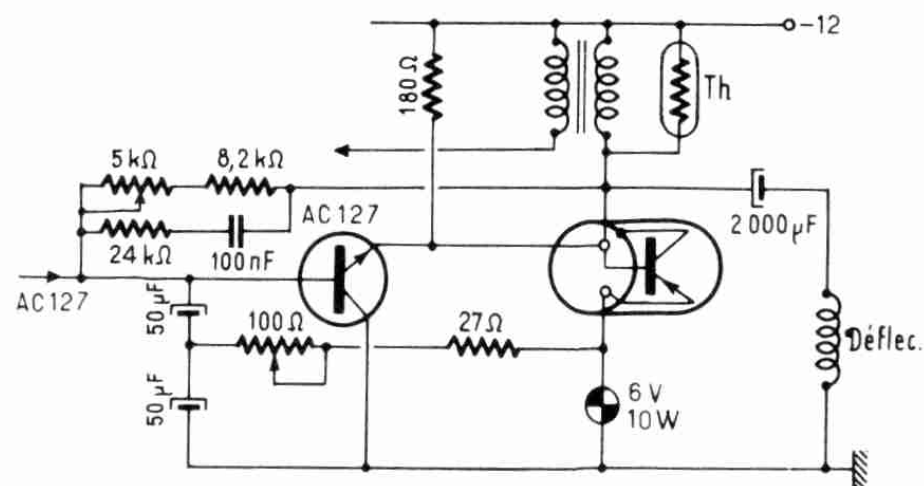
p-n-p Ge Alliage $\beta = 20 \dots 100$

Bal. images



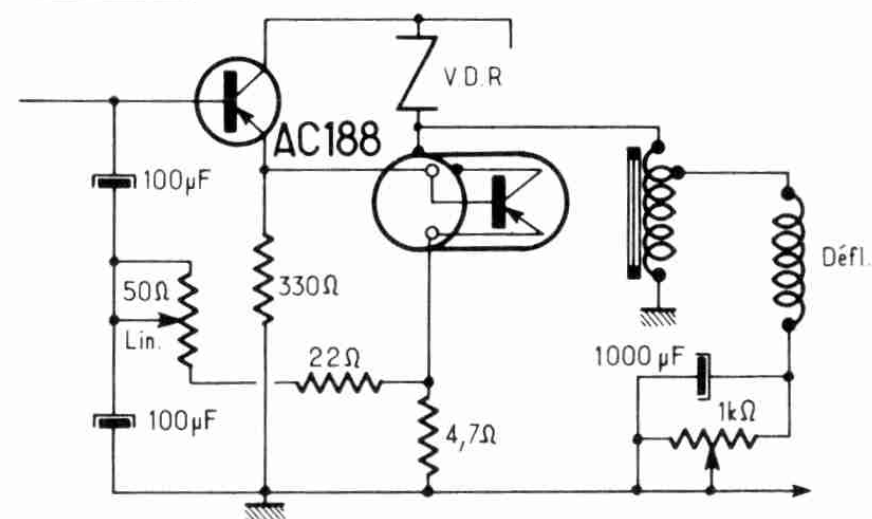
AD 149

p-n-p Ge All.

 $\beta = 50 \dots 100$ 

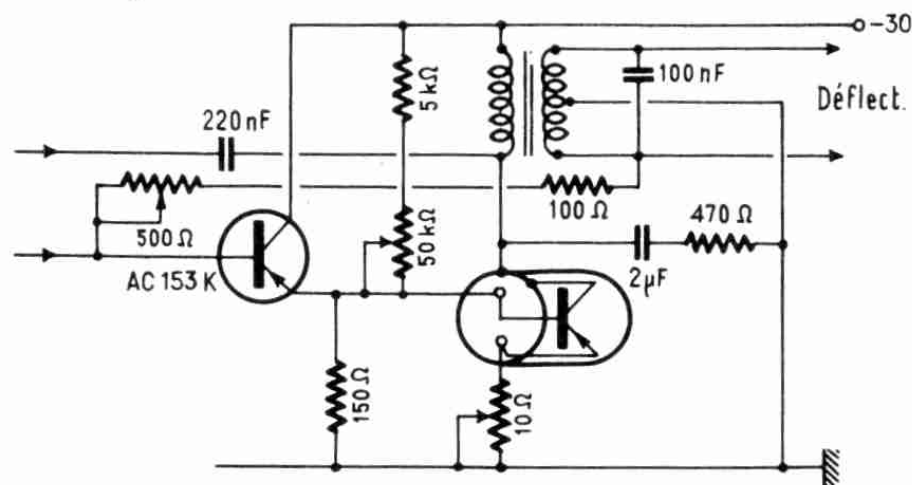
AD 162

p-n-p Ge Al.

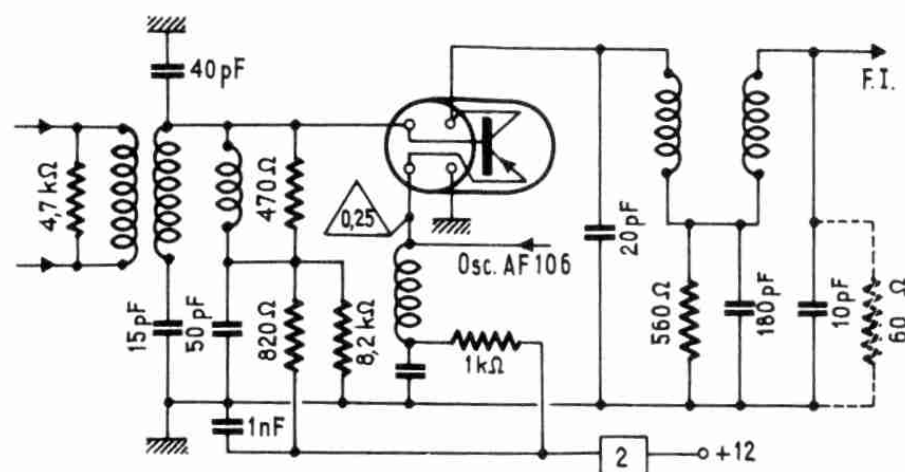
 $\beta = 50 \dots 350$ 

AD 163p-n-p Ge All. $\beta = 12...60$

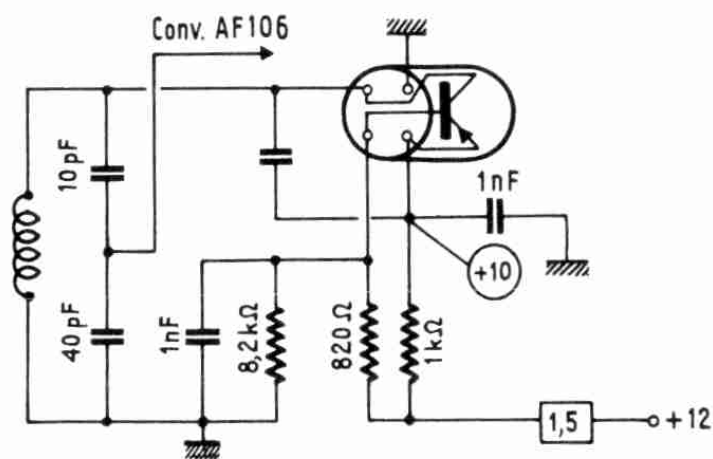
Sortie Images

**AF 106**p-n-p Ge Mesa $\beta = 70$
 $F_b = 9 \text{ dB}$

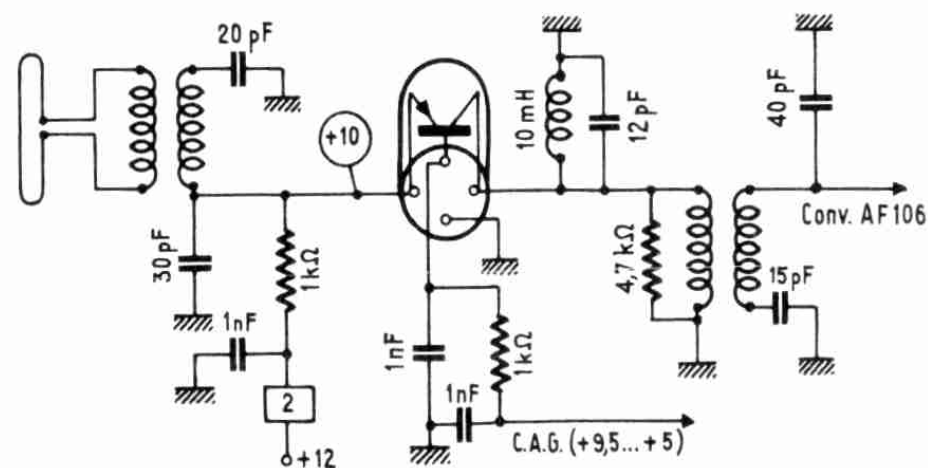
Conv. VHF

**AF106**p-n-p Ge Mesa $\beta = 70$

Osc. VHF

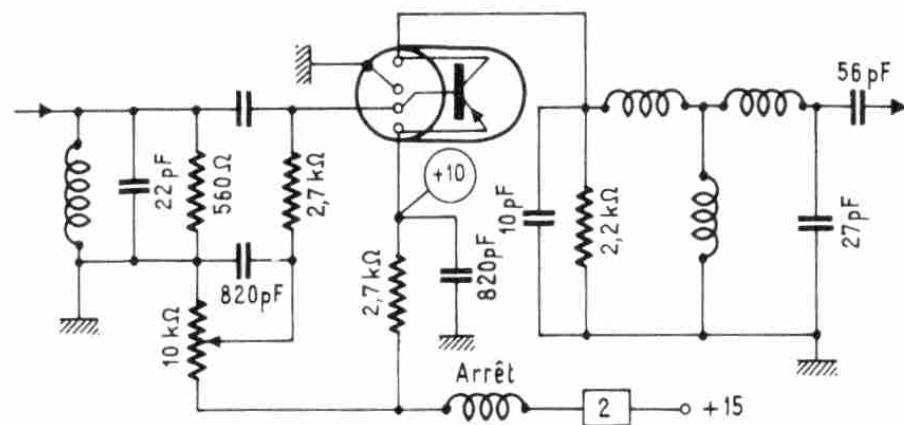
**AF109**p-n-p Ge Mesa $\beta = 100$
 $GP = 15 \text{ dB}$
 $F_b = 5 \text{ dB}$

Entrée VHF



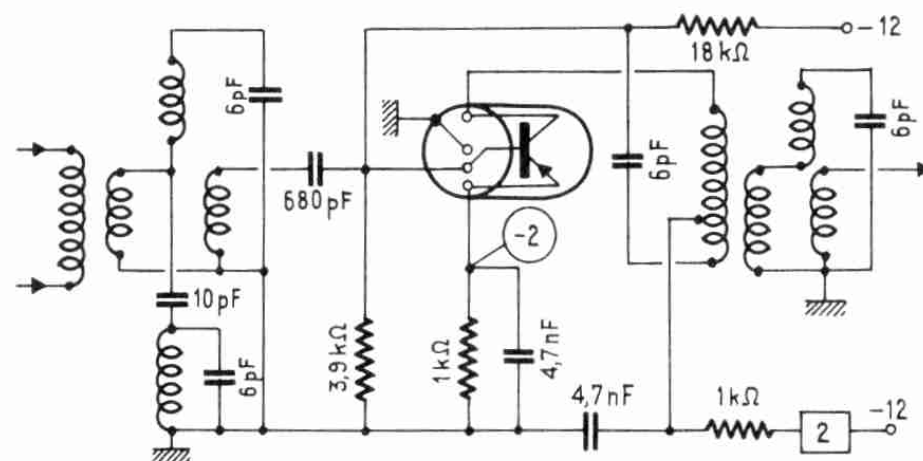
AF114p-n-p Ge Mesa $\beta = 150$

F.I. 819 L

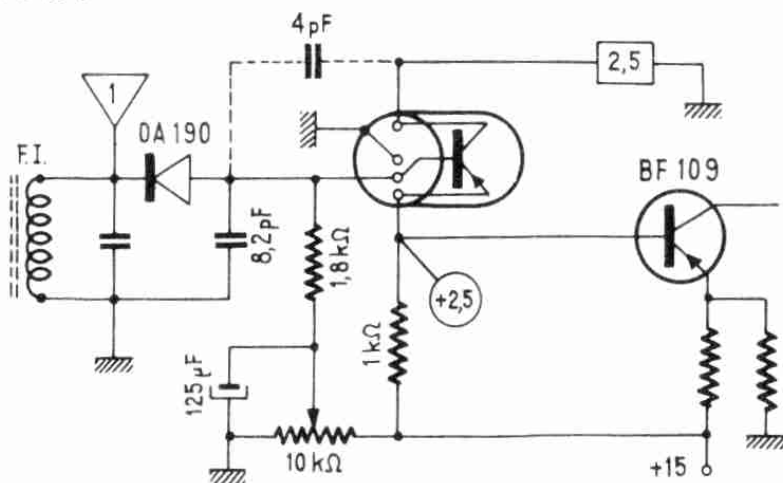
**AF115**

p-n-p Ge Mesa

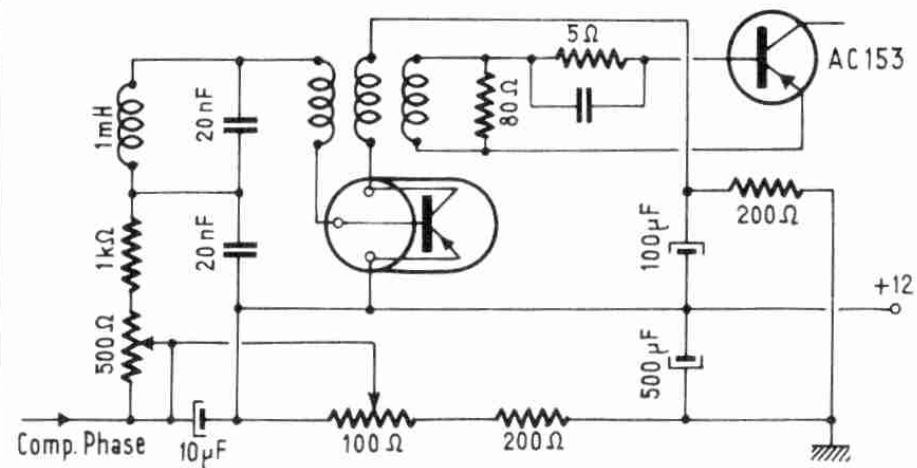
F.I.

**AF117**p-n-p Ge Mesa $\beta = 150$

Vidéo 819 L

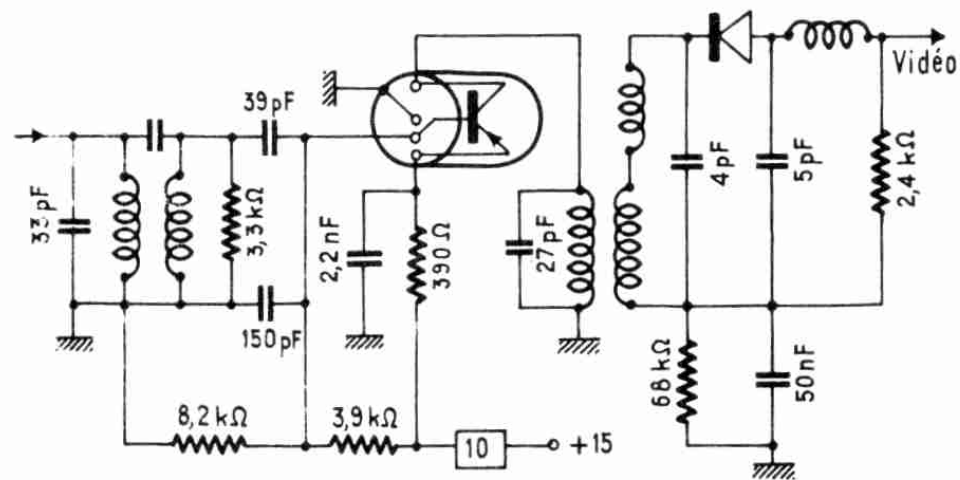
**AF117**p-n-p Ge Mesa $\beta = 140$

Osc. lignes (625)

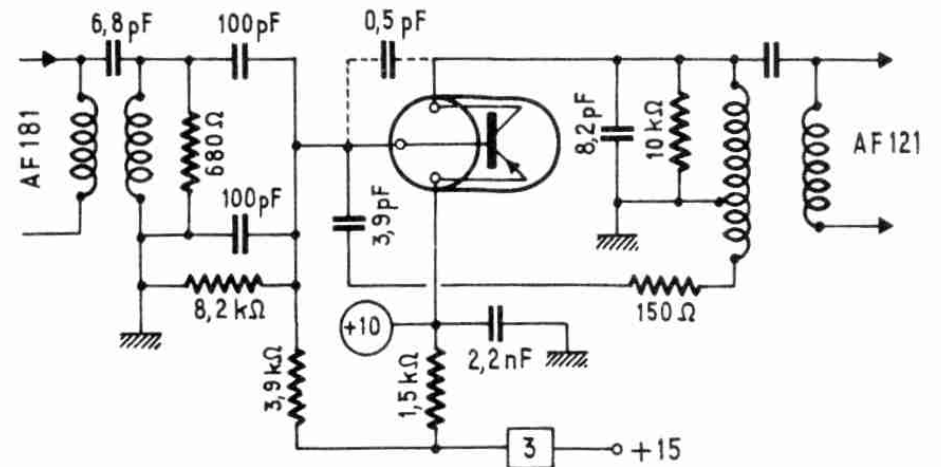


AF118p-n-p Ge Mesa $\beta = 200$

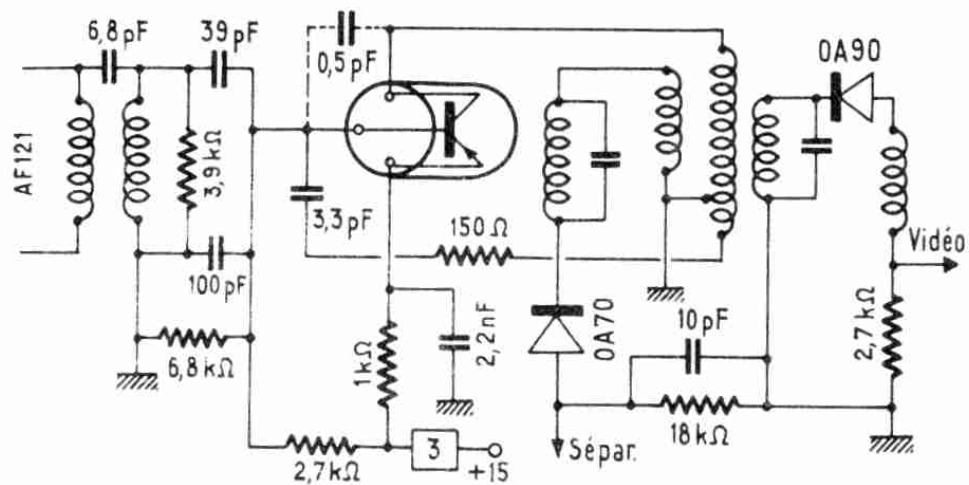
Sortie F.I

**AF 121**p-n-p Ge All.-diff. $\beta = 50$

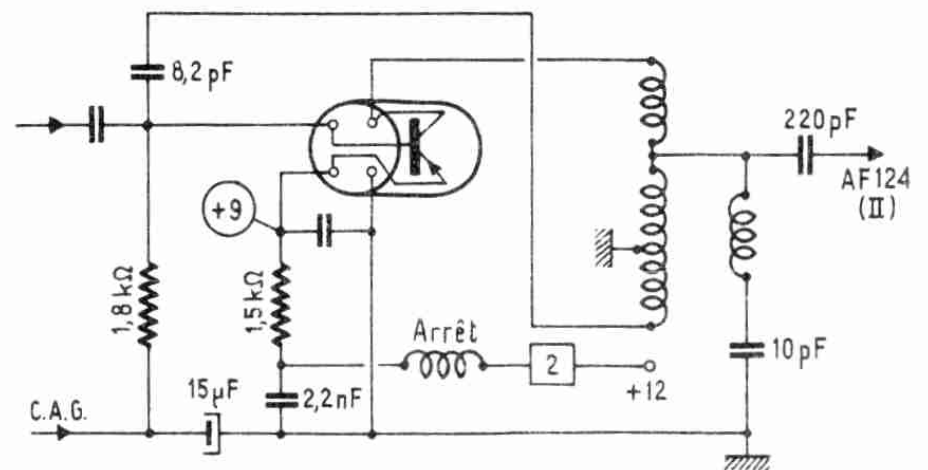
F.I II 625 I

**AF121**p-n-p Ge All.-diff. $\beta = 50$

F.I. III 625 L.

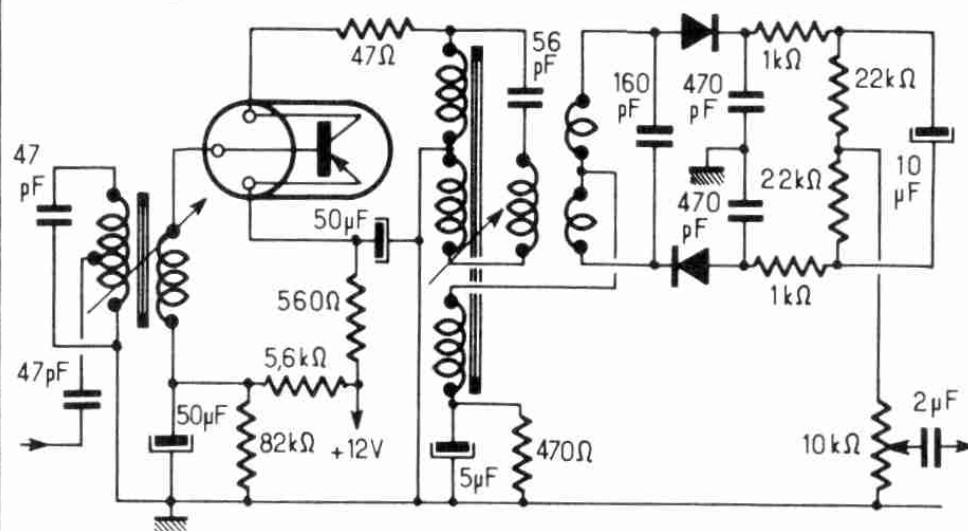
**AF 124**p-n-p Ge Mesa $\beta = 150$

F.I. (I)



AF 166

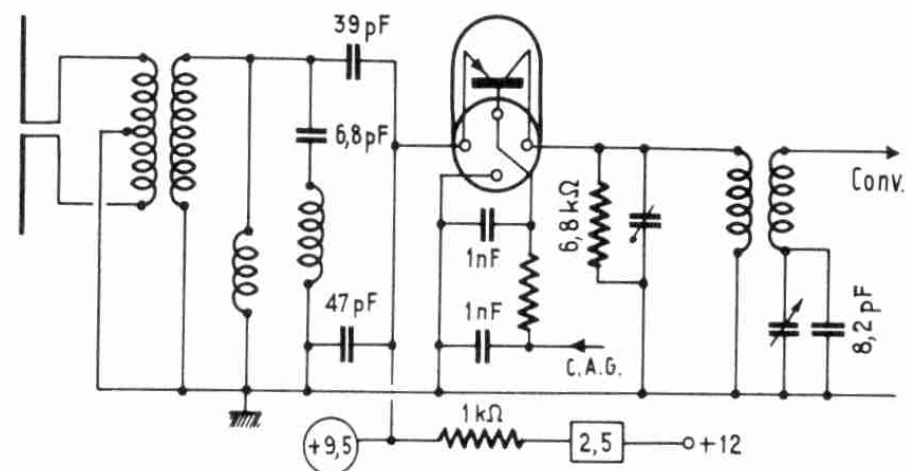
p-n-p Ge Drift

 $\beta = 85$ 

AF 180

p-n-p Ge All.-diff. $\beta > 15$

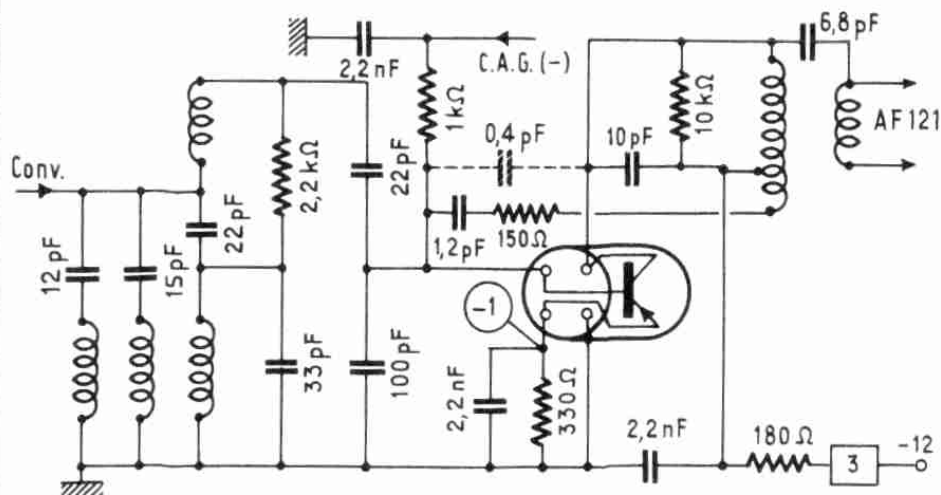
Entrée VHF



AF 181

p-n-p Ge All.-diff. $\beta > 25$

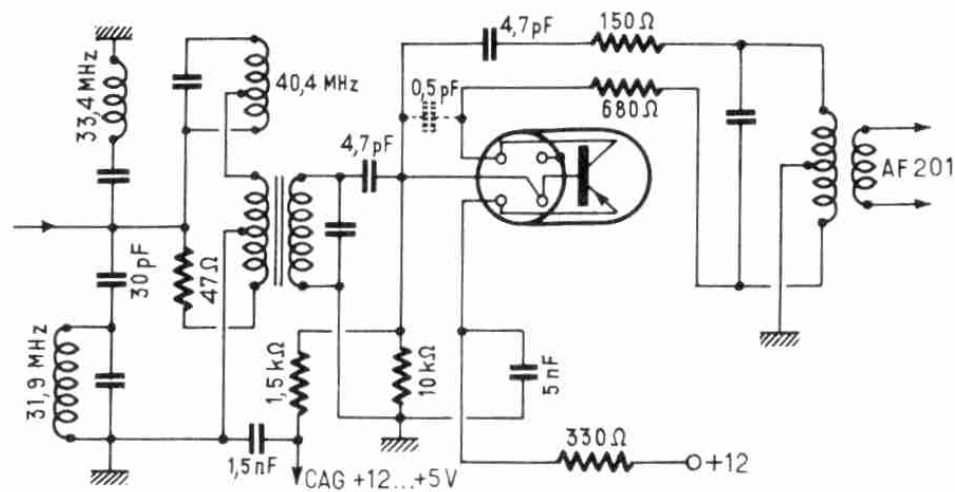
F.I. 625 L.



AF 200

p-n-p Ge Mesa $\beta = 150$
GP = 29 dB max

FI 625 L (I)

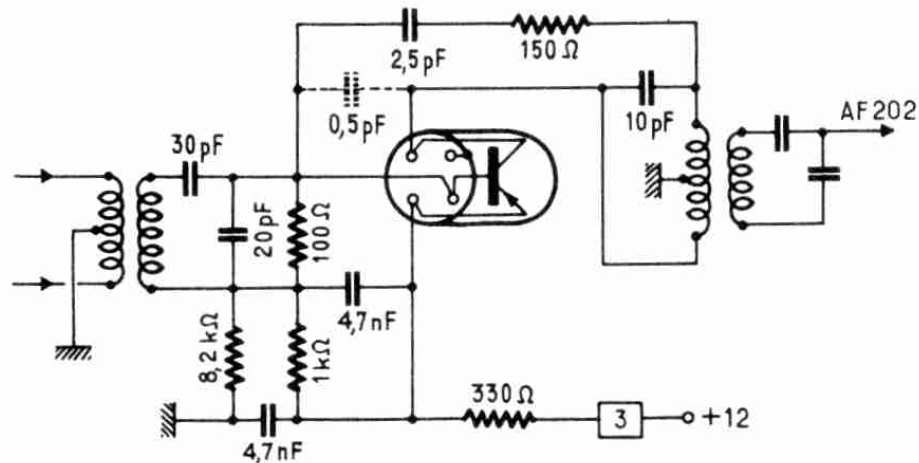


AF 201

p-n-p Ge Mesa

 $\beta = 150$
GP = 30 dB

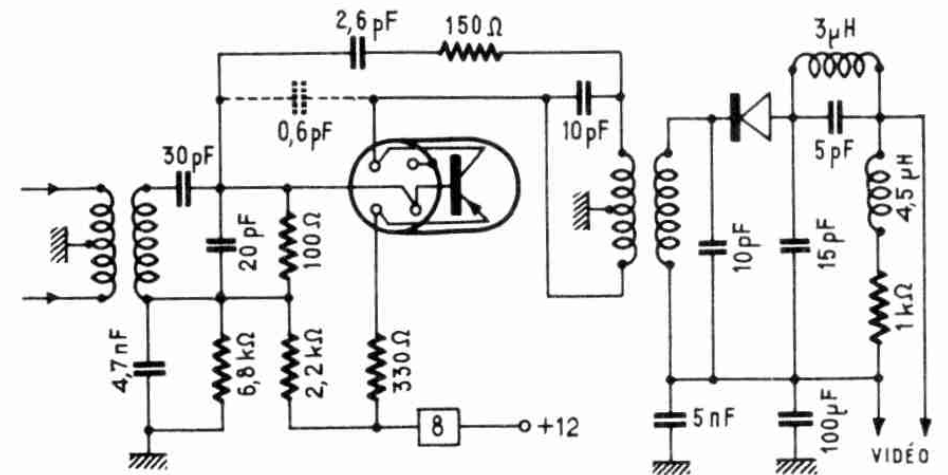
FI 625 L (II)

**AF 202**

p-n-p Ge Mesa

 $\beta = 150$
GP = 31 dB max

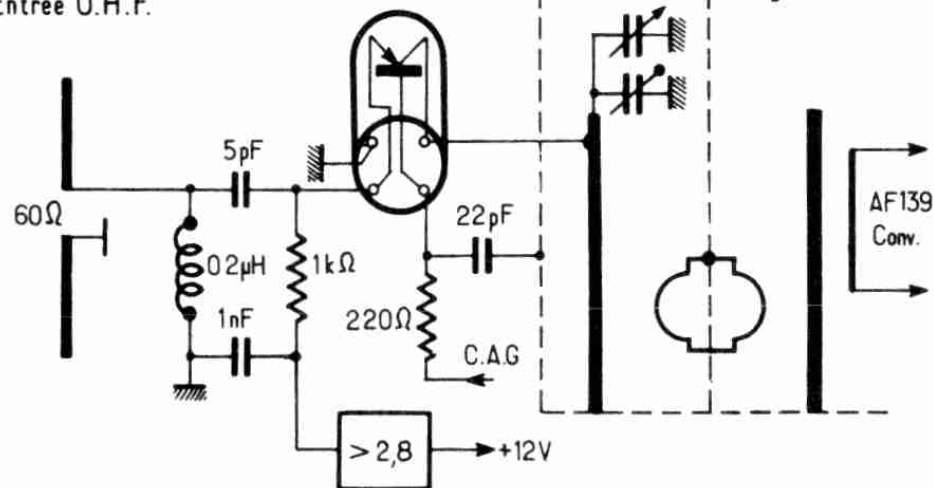
FI 625 L (III)

**AF 239**

p-n-p Ge Mesa

 $\beta = 33(>10)$ GP = 11...14 dB
 $F_b \leq 6$ dB

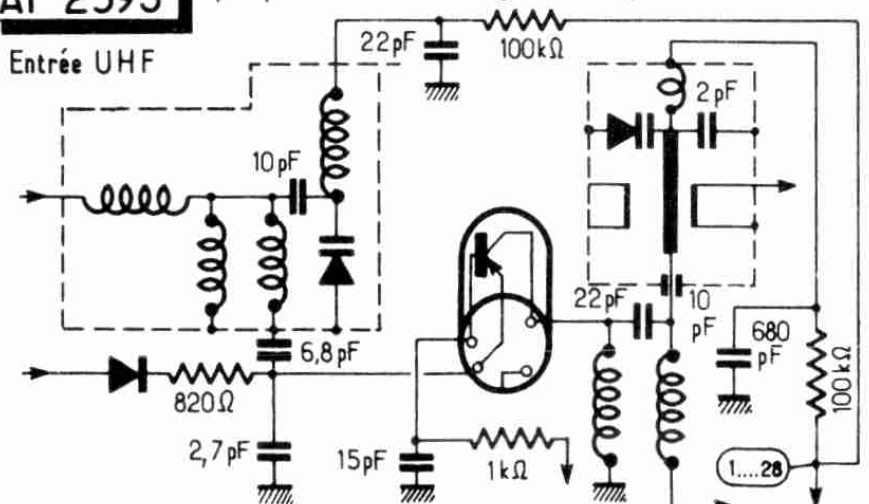
Entrée U.H.F.

**AF 239S**

p-n-p Ge

 $F_b > 6$ dB $f_t = 780$ MHz $\beta = 50(>10)$

Entrée UHF

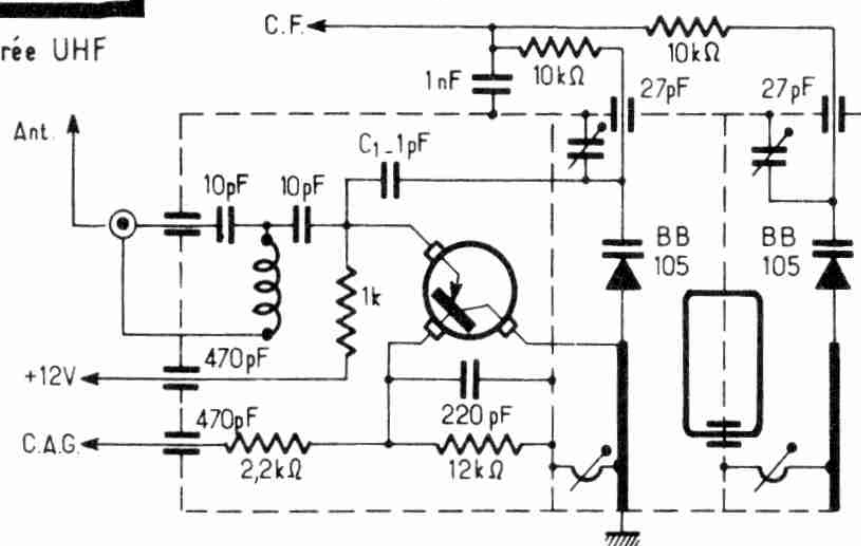


AF 279

n-p-n Ge

 $F_b = 5 \text{ dB}$ $F_T = 780 \text{ MHz}$ $\beta = 50 (>10)$

Entrée UHF

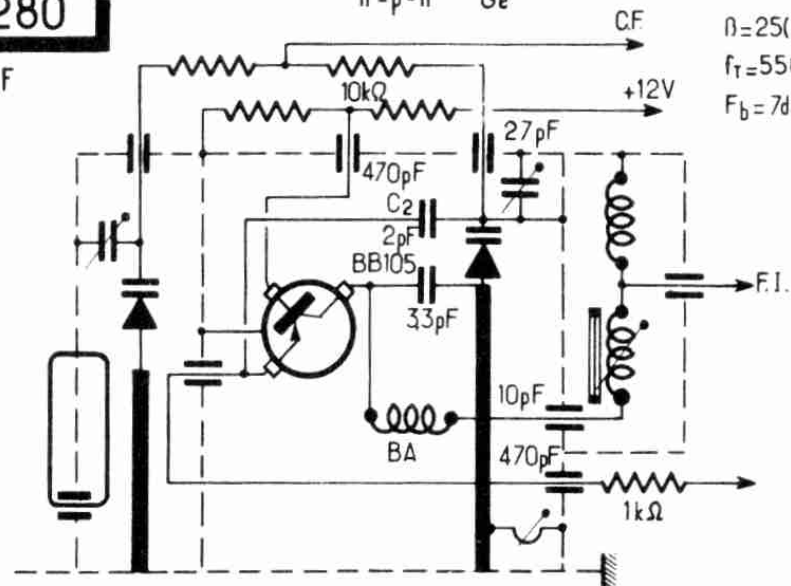


AF 280

n-p-n Ge

 $\beta = 25 (>10)$
 $f_T = 550 \text{ MHz}$
 $F_b = 7 \text{ dB}$

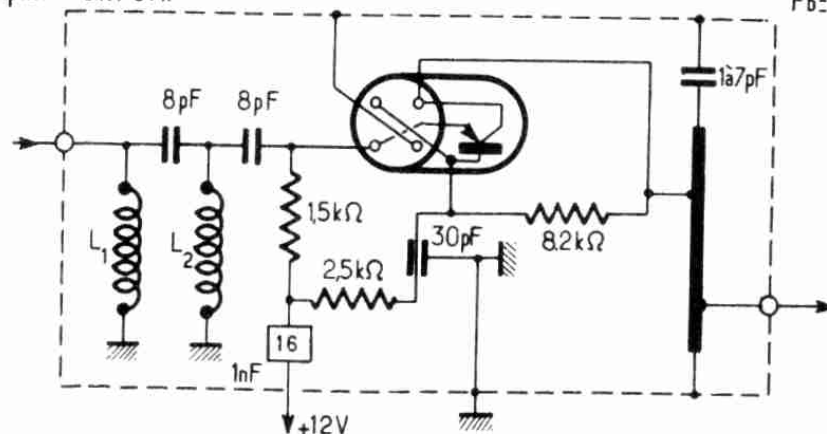
Conv. UHF



AFY 42

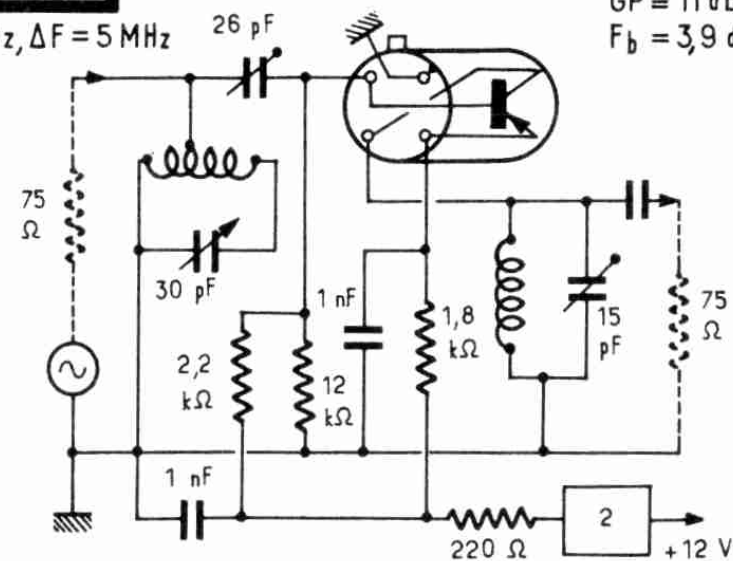
p-n-p
Ge Mesa $\beta = 5 (>10)$
 $f_T = 700 \text{ MHz}$
 $GP = 12 \text{ dB}$
 $F_b = 4 \text{ dB}$

Amplif. ant. UHF



AFZ 12

p-n-p

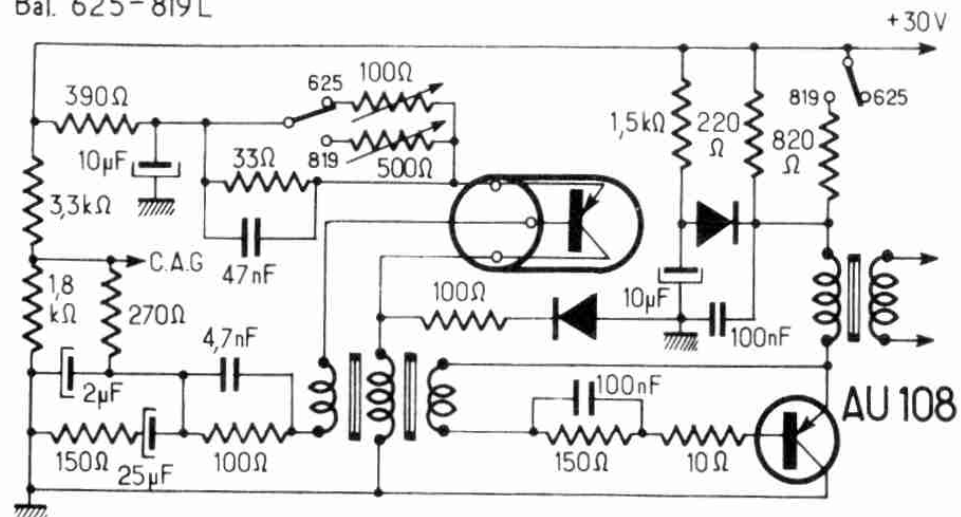
 $\beta = 60$
 $GP = 11 \text{ dB}$
 $F_b = 3,9 \text{ dB}$ 200 MHz, $\Delta F = 5 \text{ MHz}$ 

AT 209

p-n-p Ge All.

 $\beta = 30 \dots 500$
 $F_t = 7 \text{ MHz}$

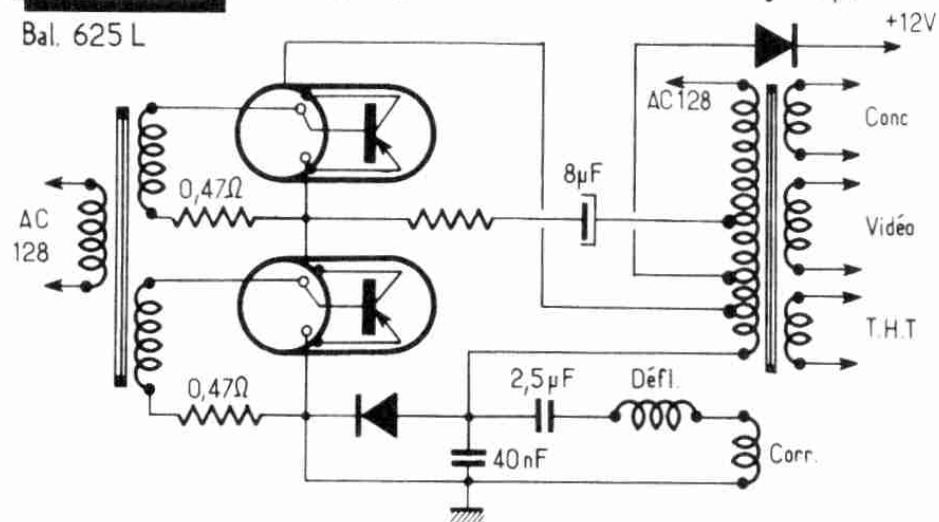
Bal. 625-819 L

**AU 103**

p-n-p Ge All.

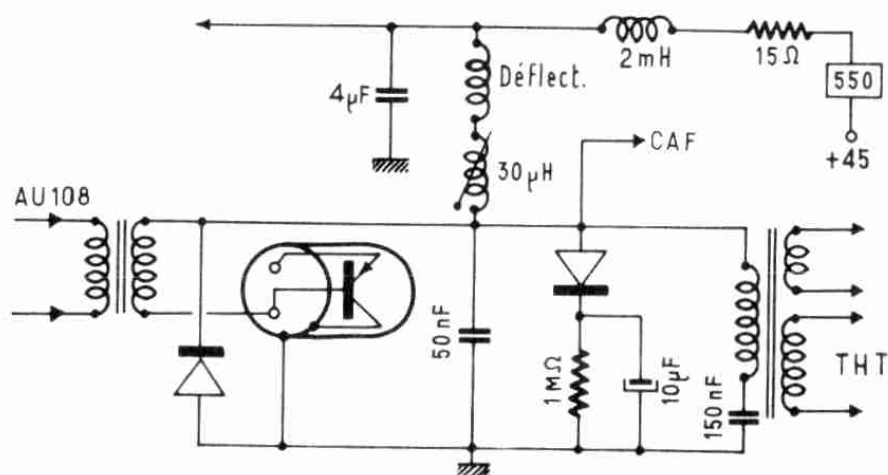
 $\beta > 15$ $t_s < 3 \mu s$

Bal. 625 L

**AU 106**

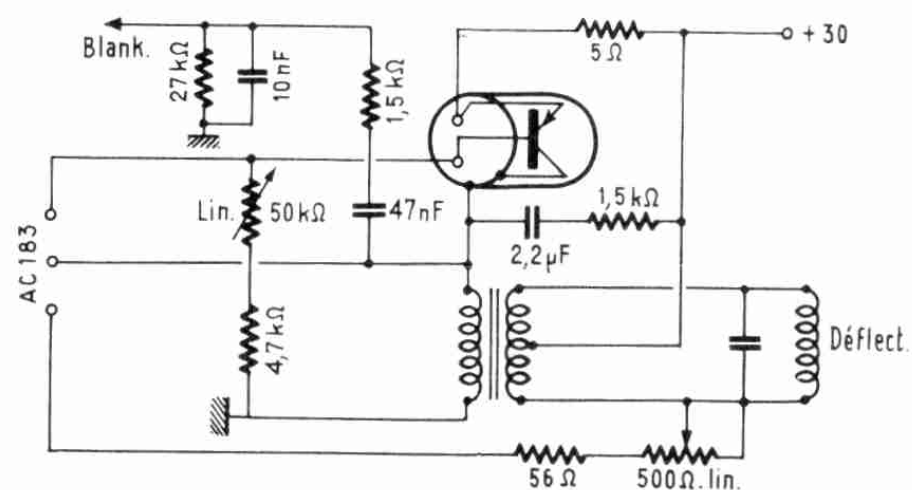
p-n-p Ge Diffusion

Sortie Lignes

**AU 107**

p-n-p Ge

Sortie Images

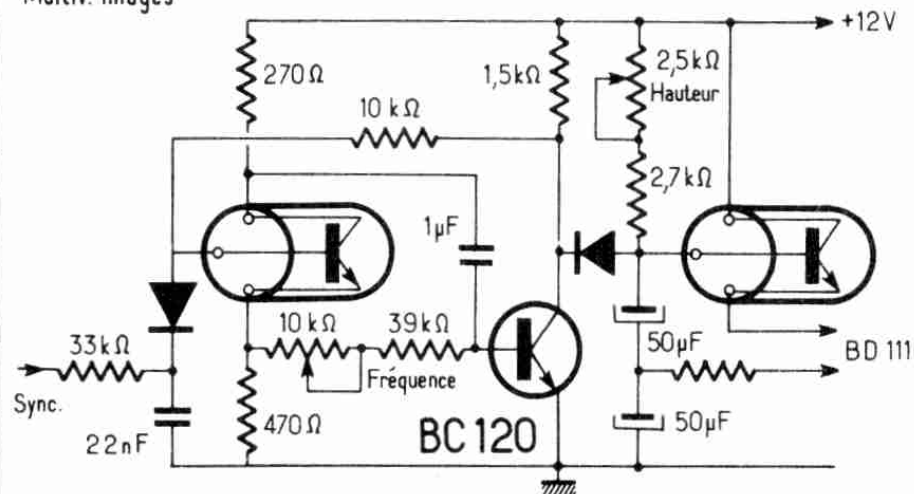


BC 115

n-p-n Si Planar

 $\beta = 100 \dots 400$

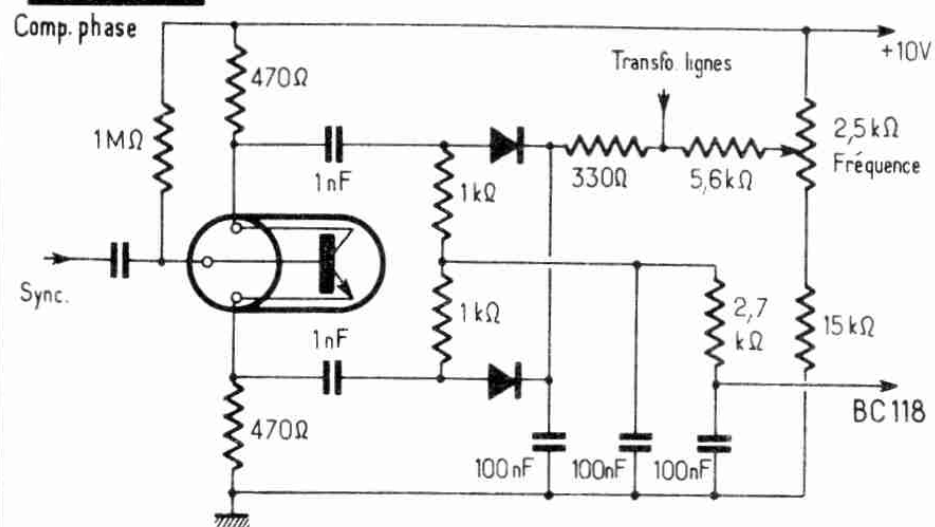
Multiv. images

**BC 115**

n-p-n Si Planar

 $\beta = 100 \dots 400$

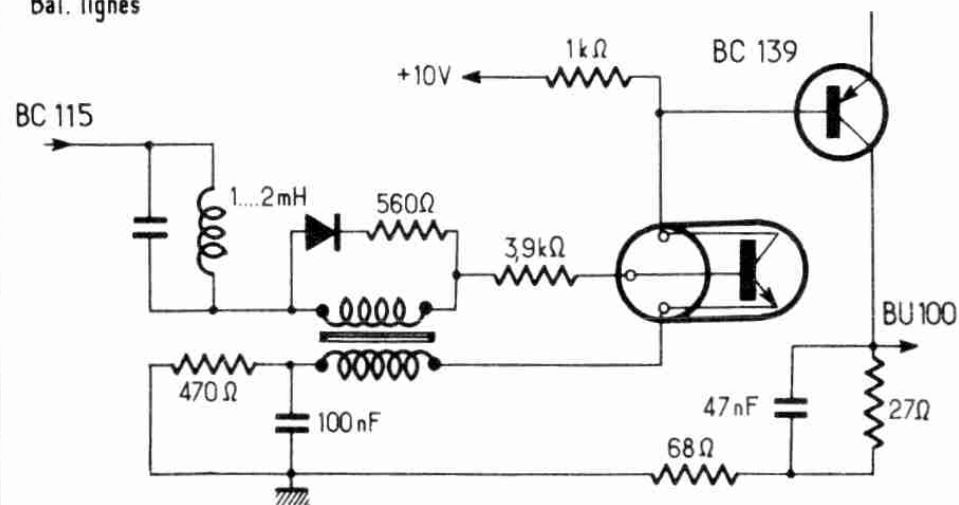
Comp. phase

**BC 118**

n-p-n Si Planar

 $\beta = 40 \dots 160$

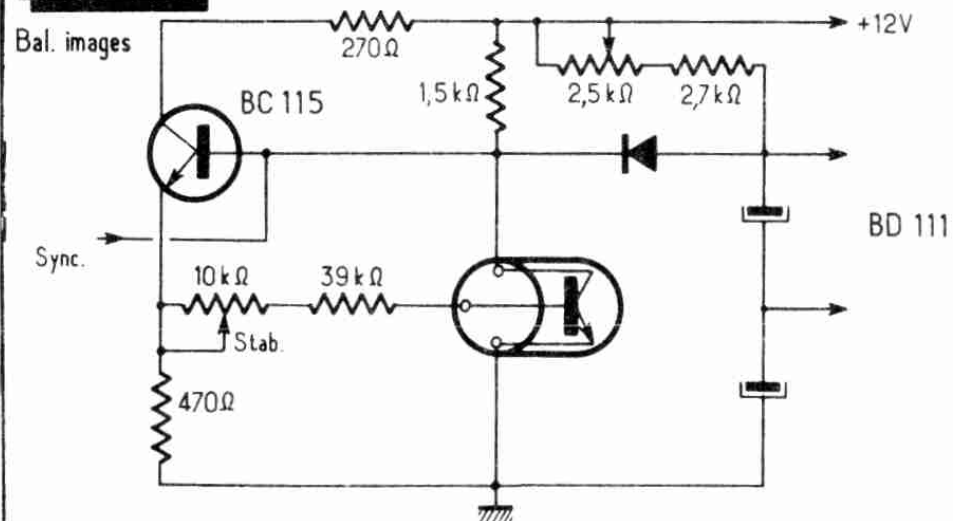
Bal. lignes

**BC 120**

n-p-n Si

 $\beta = 60 (> 20)$

Bal. images

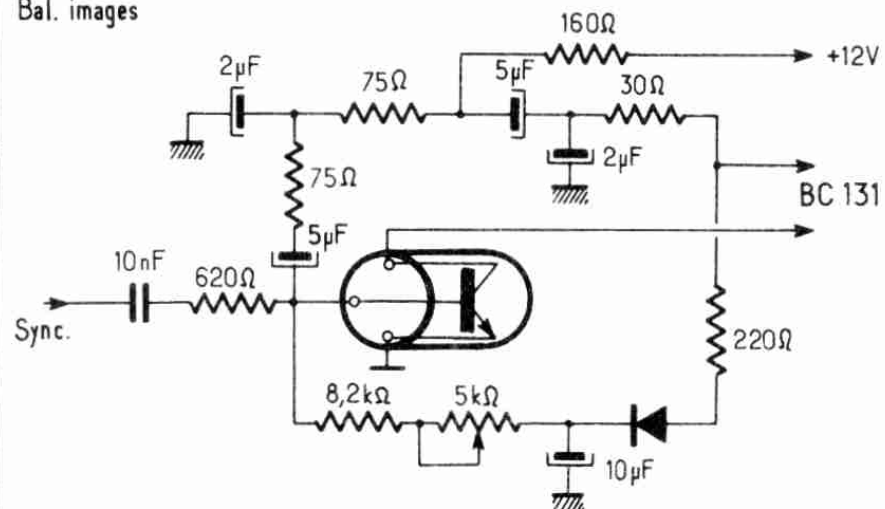


BC 130

n-p-n Si Planar

 $\beta = 125 \dots 500$

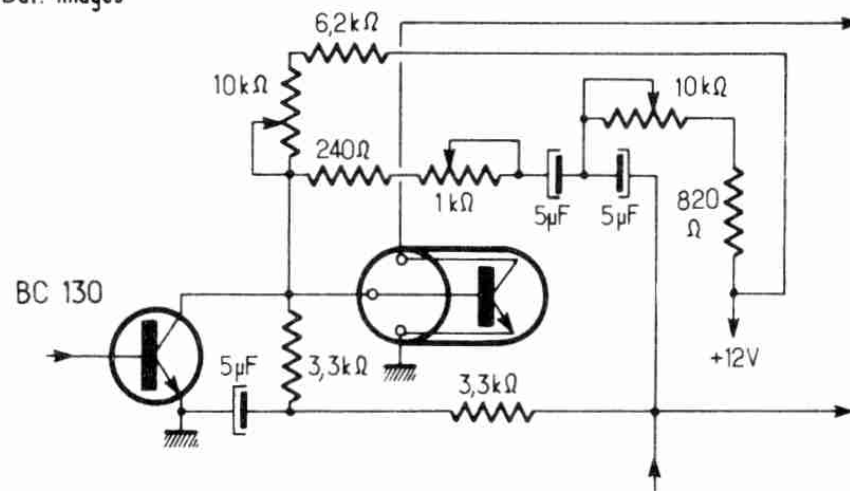
Bal. images

**BC 131**

n-p-n Si Planar

 $\beta = 240 \dots 900$

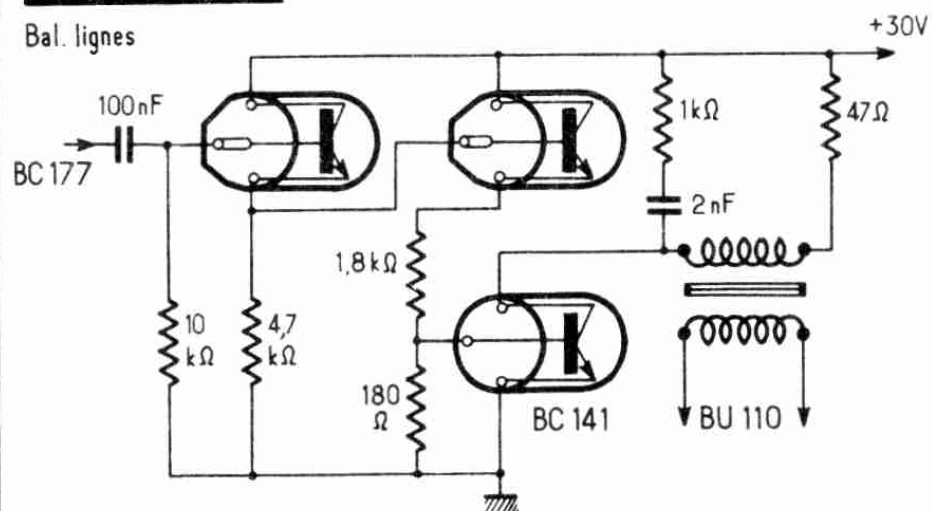
Bal. images

**BC141-BC147**

n-p-n Si

 $\beta = 40 \dots 250$
 $\beta = 125 \dots 500$

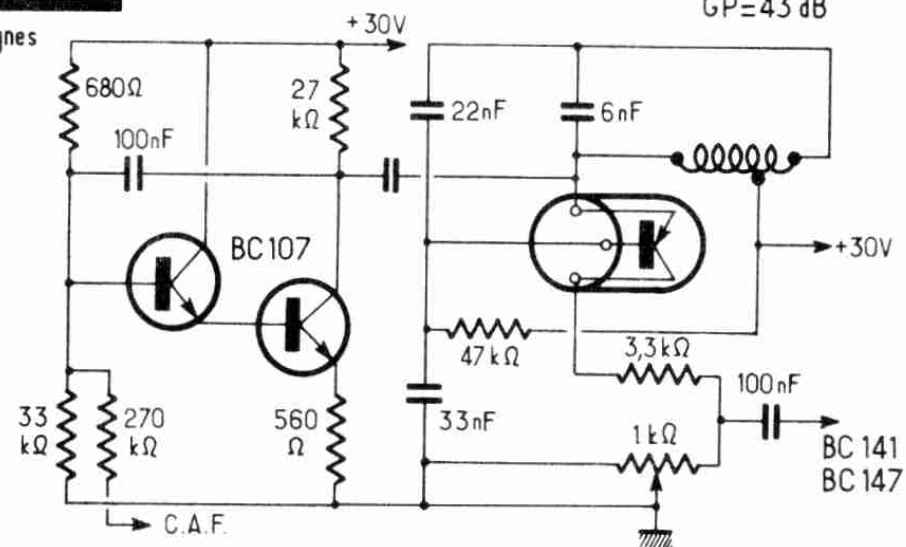
Bal. lignes

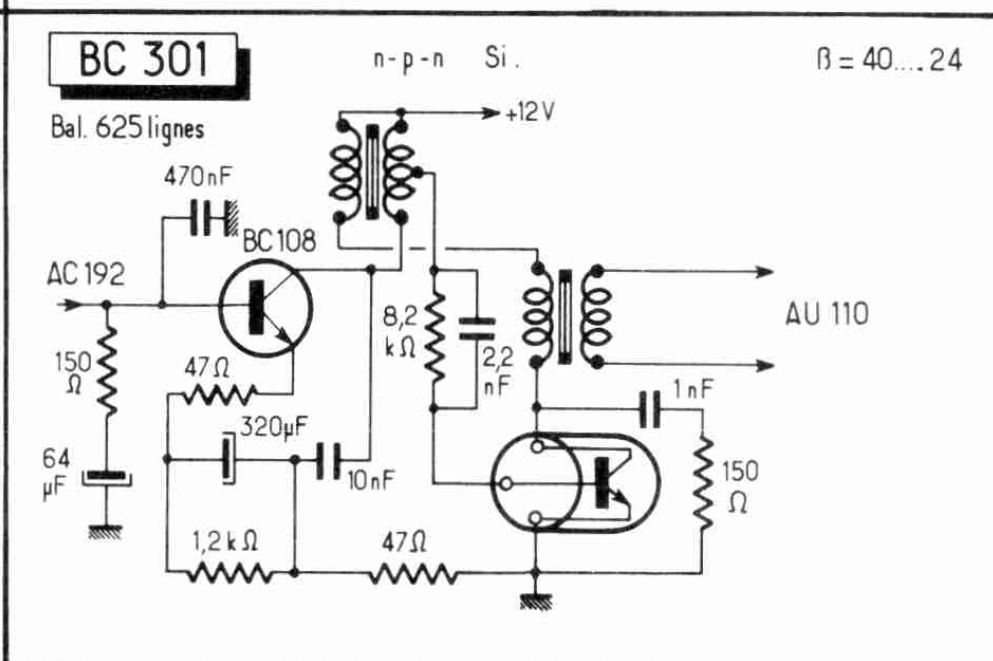
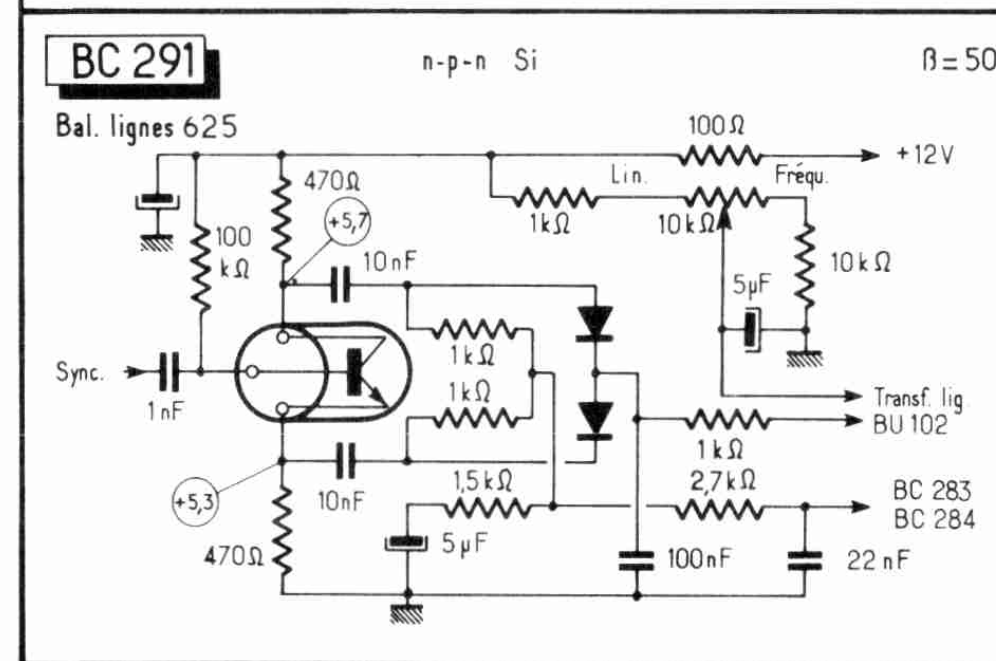
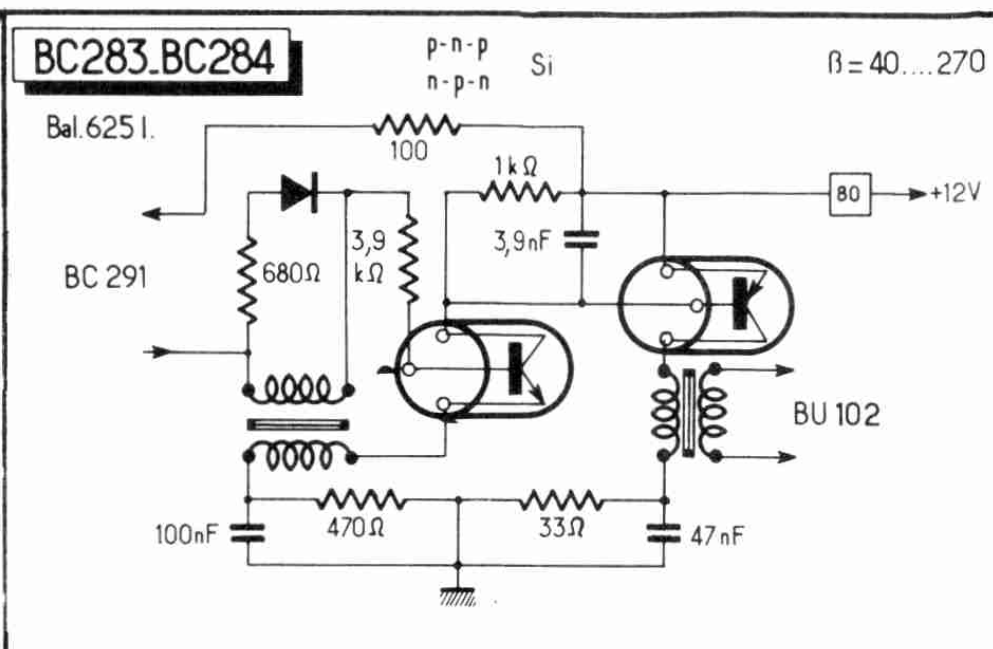
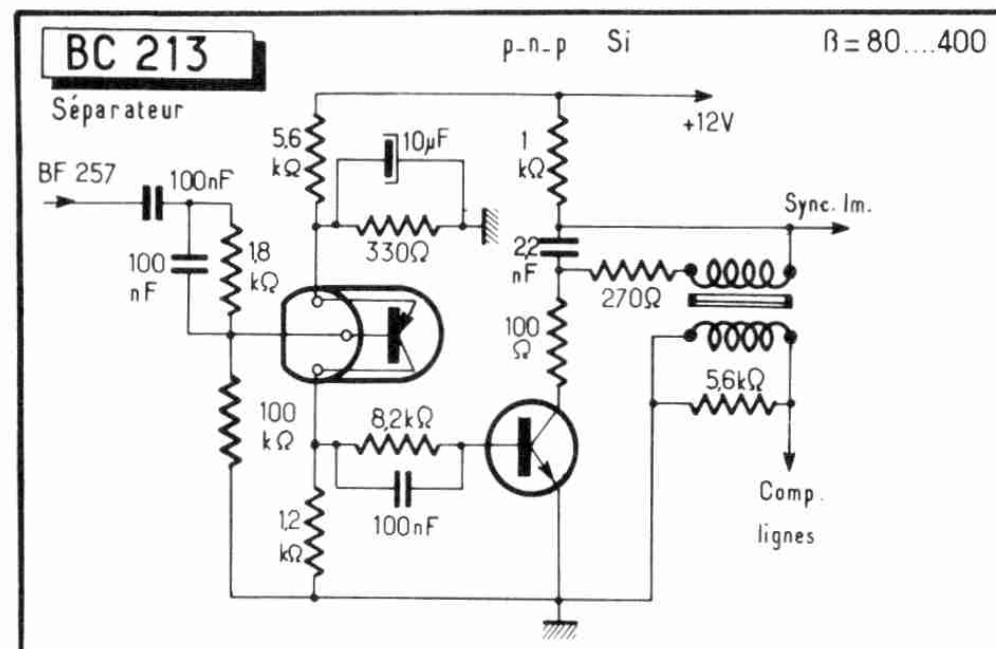
**BC 177**

n-p-n Si

 $\beta = 75 \dots 260$
GP = 43 dB

Osc. lignes



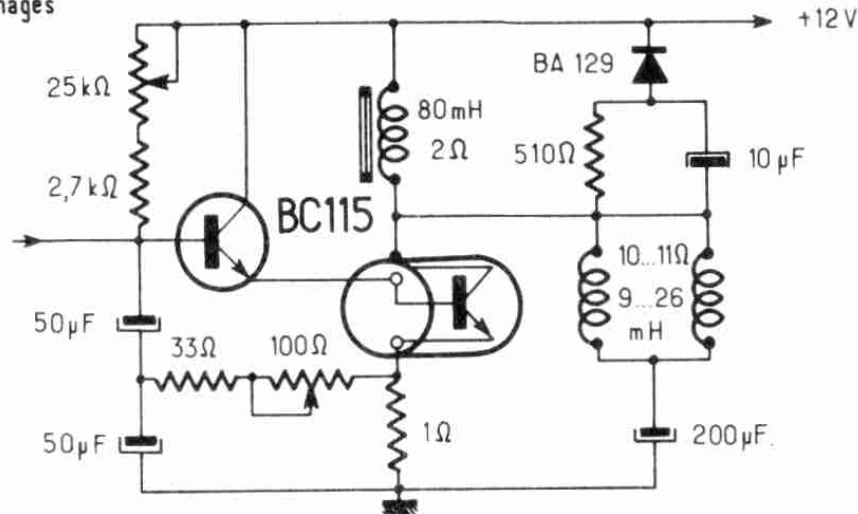


BD 111

n-p-n Si

 $\beta = 40 \dots 100$

Bal. images

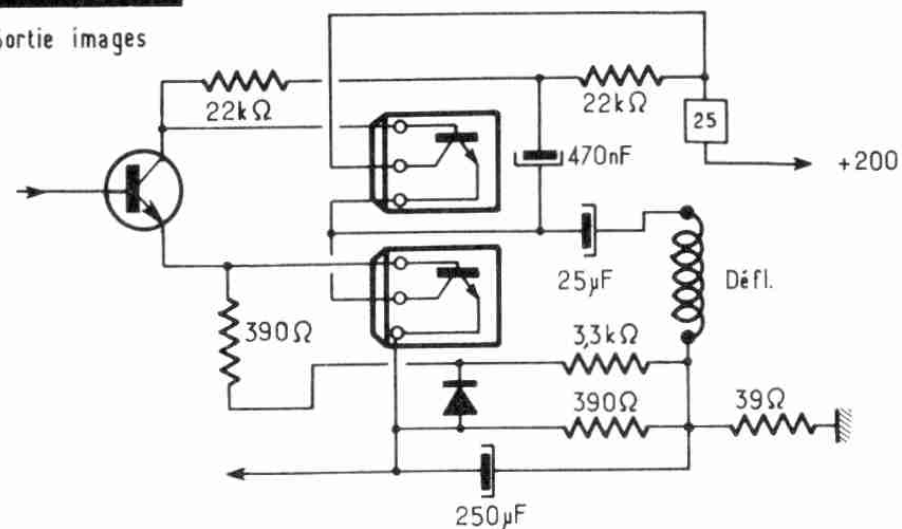


BD 127

n-p-n Si

 $\beta = 50$

Sortie images

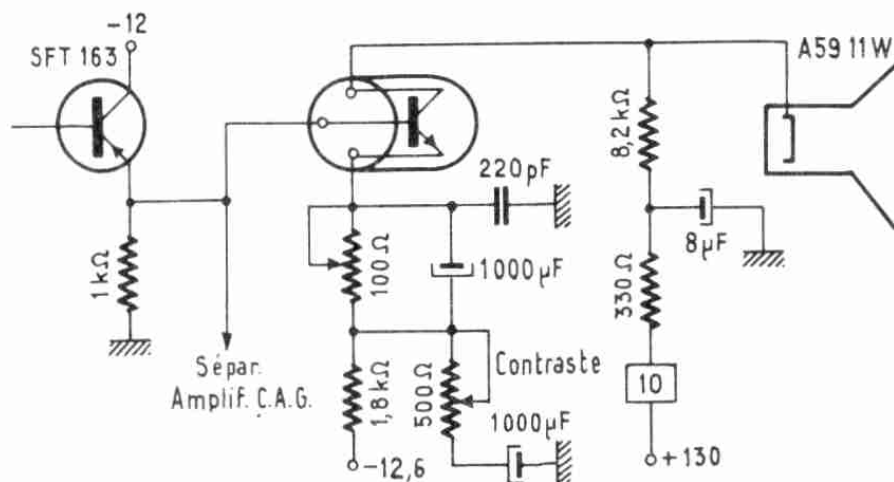


BF 108

n-p-n Si

 $\beta > 25$

Vidéo 819 L.

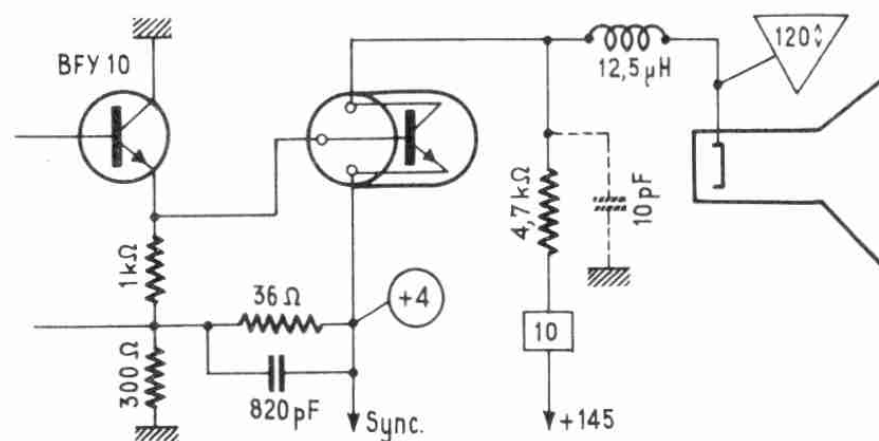


BF 109

n-p-n Si Mésa

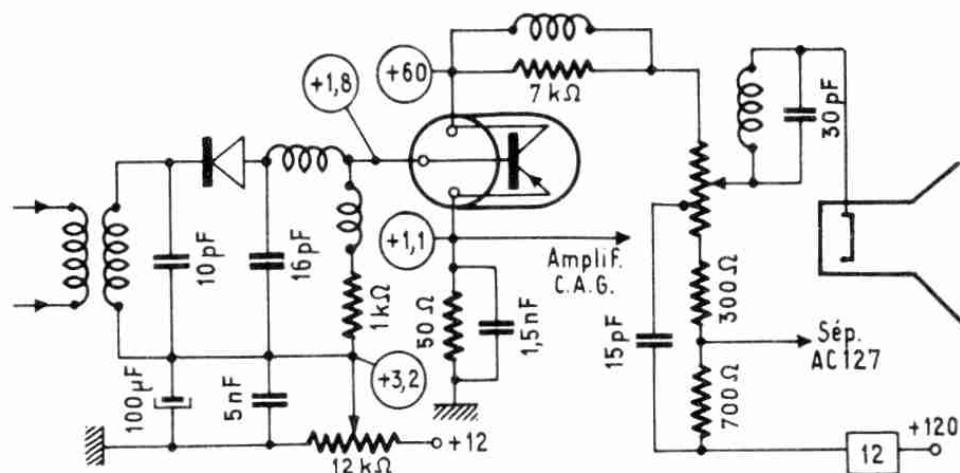
 $\beta > 20$

Vidéo 819 L.



BF 110n-p-n Si Mésa $\beta > 20$

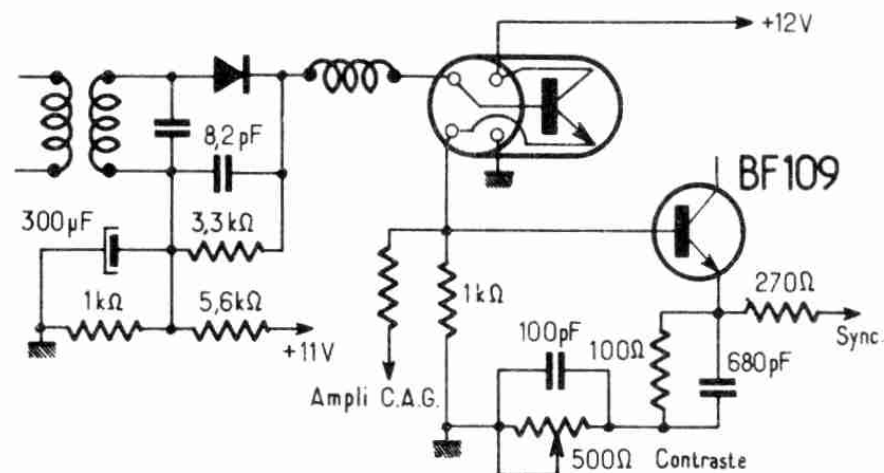
Vidéo 625 L.

**BF 115**

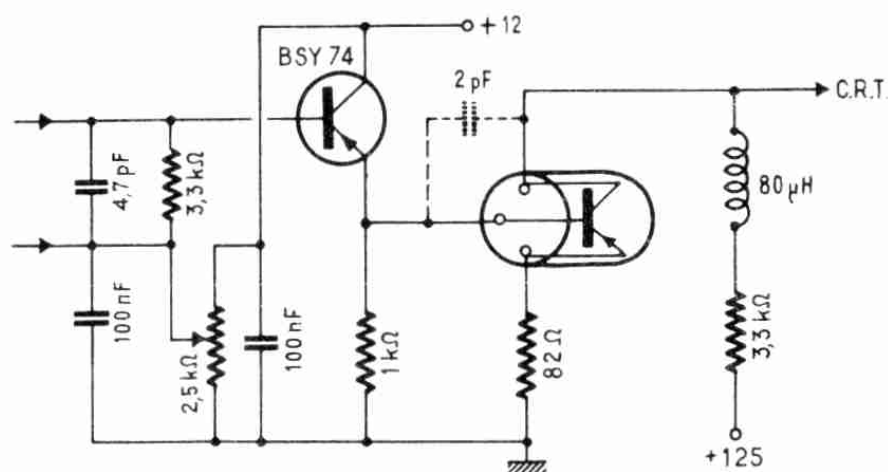
n-p-n Si Planar

 $\beta = 45 \dots 165$
 $f_t = 270 \text{ MHz}$

Vidéo 819 L.

**BF 117**n-p-n Si Planar $\beta > 25$

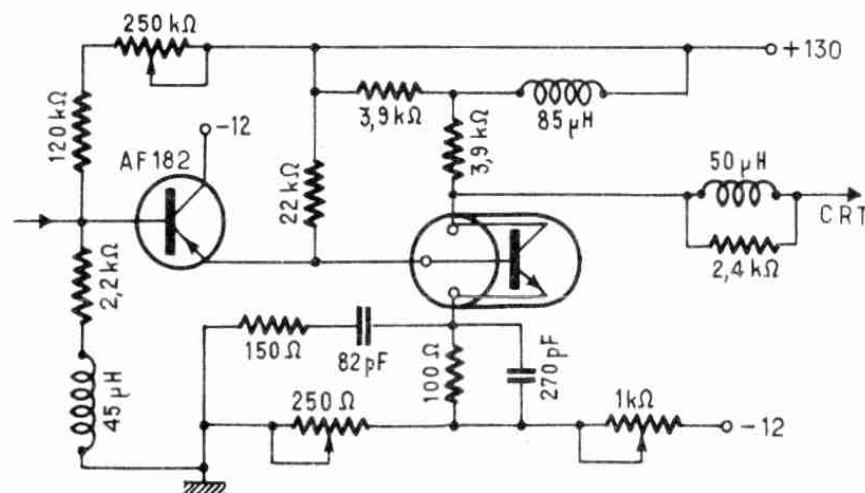
Sortie Vidéo

**BF 140**

n-p-n Si Planar

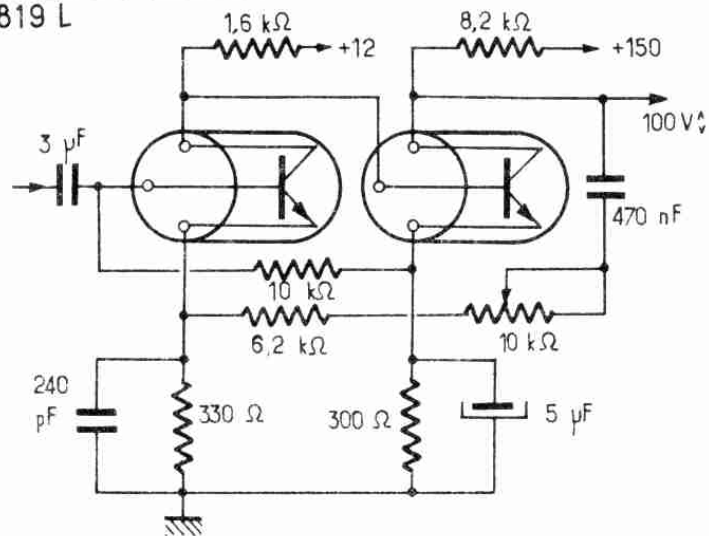
 $GV = 40$
 $t_r = 50 \text{ ns}$

Vidéo 625 L

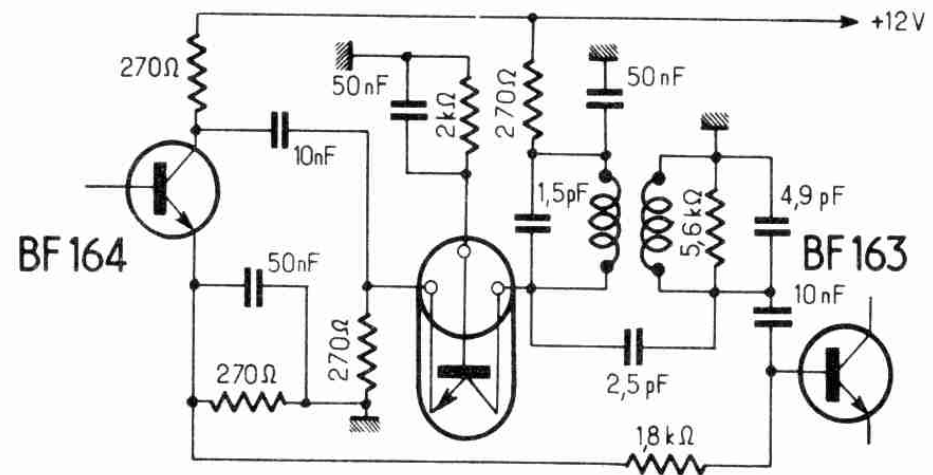


BF 154 **BF 156** n-p-n Si Planar $\beta = 50 (>30)$
GV = 50

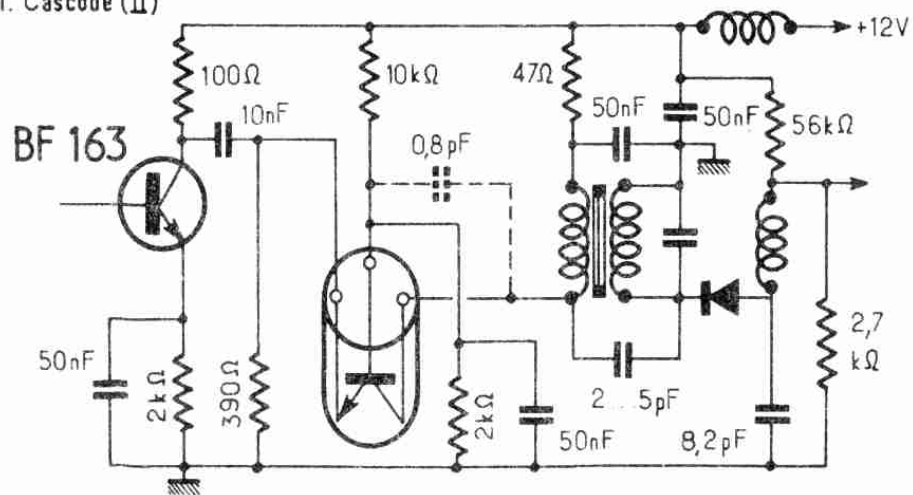
Vidéo 819 L



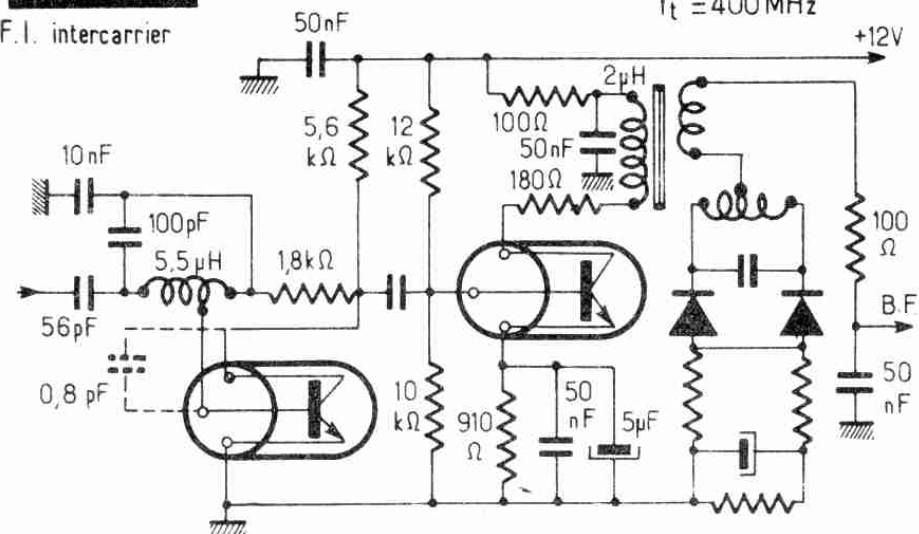
BF 158 n-p-n Si Pl. Epitax. $\beta = 50 (>20)$ $F_b = 3.5$ dB
f_t > 600 MHz
F.I. Cascode (I)



BF 159 n-p-n Si Pl. Epitax. $\beta = 50 (>20)$ $F_b = 3.5$ dB
F.I. Cascode (II)



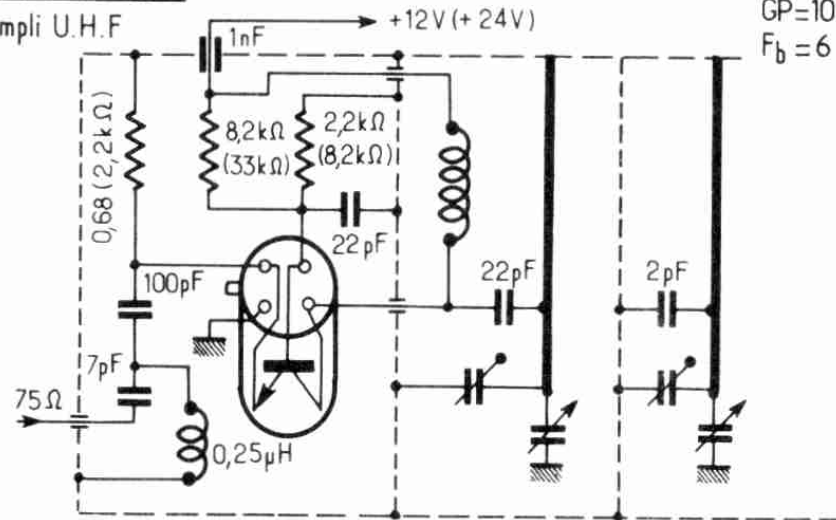
BF 160 n-p-n Si Pl. Epitax. $\beta = 50 (>20)$ GV = 800
f_t = 400 MHz
F.I. intercarrier



BF 161

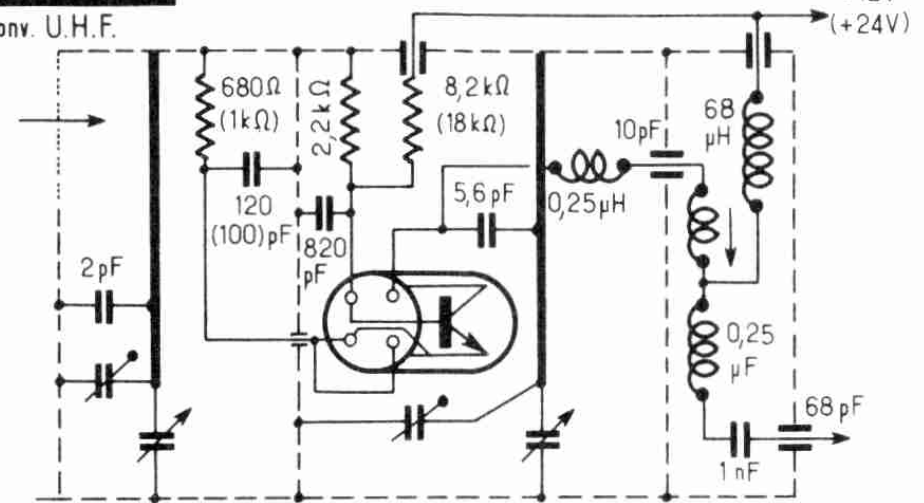
n-p-n Si Diff.
Ampli U.H.F.

$\beta = 70 (>20)$
GP=10(12) dB
 $F_b = 6.5$ dB

**BF 161**

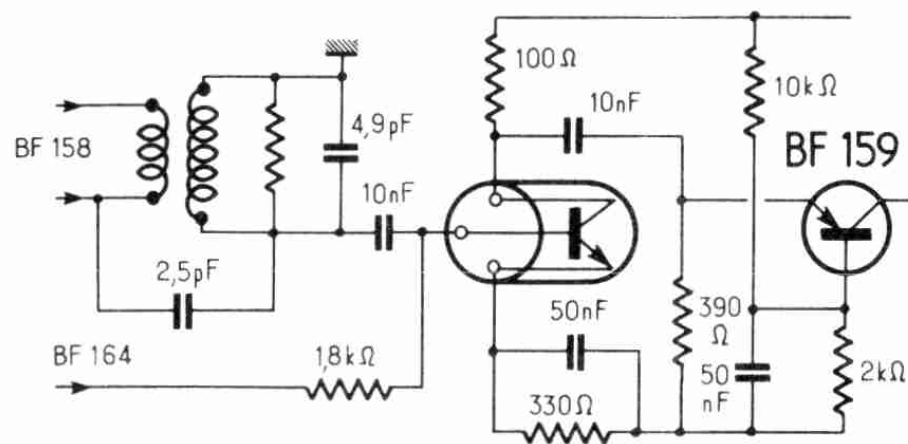
n-p-n Si Diff.
Conv. U.H.F.

$\beta = 70 (>20)$

**BF 163**

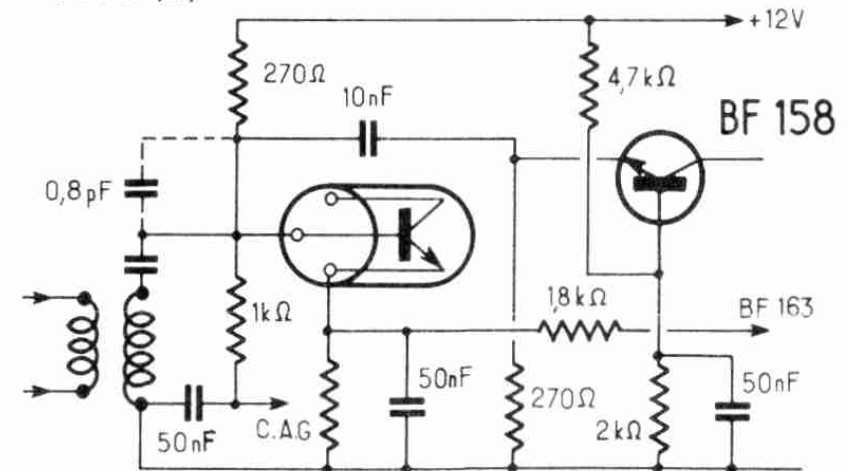
n-p-n Si Diff.
F.I. Cascode (II)

$\beta = 70 (>30)$ $F_b = 3$ dB

**BF 164**

n-p-n Si Diff.
F.I. Cascode (I)

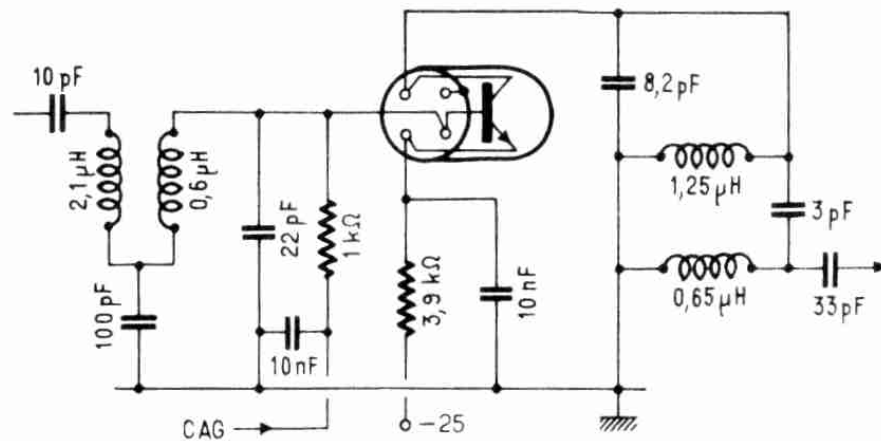
$\beta = 70 (>30)$ $F = 3$ dB



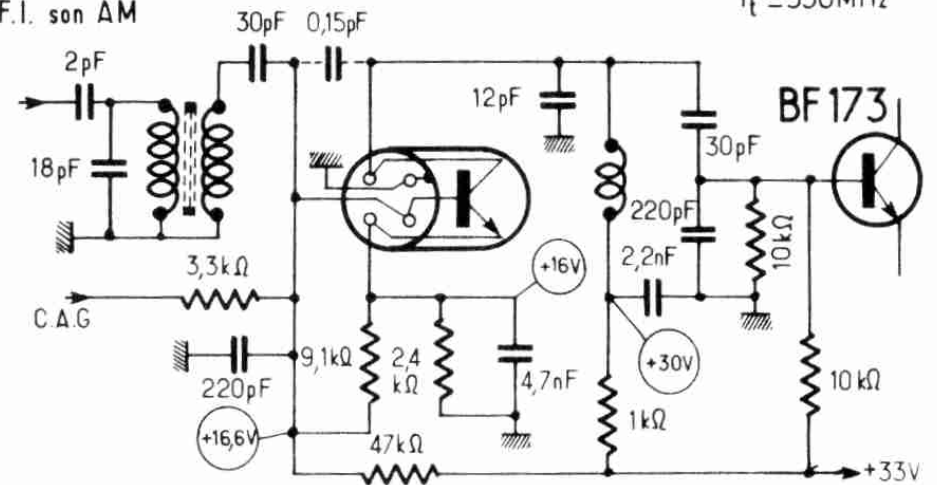
BF 167

n-p-n Si Planar GP = 20 dB

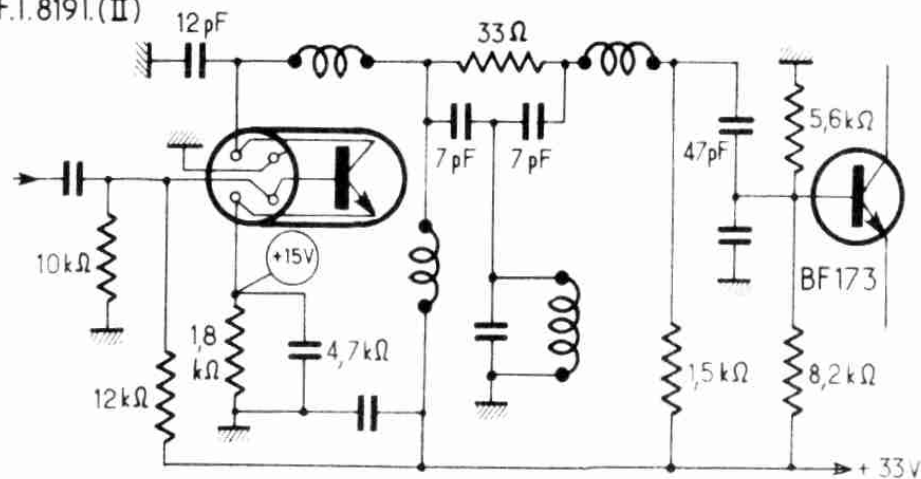
FI 625 L

**BF 167**n-p-n Si Planar $\beta = 57(>26)$ $F_b = 3$ dB
 $f_t = 350$ MHz

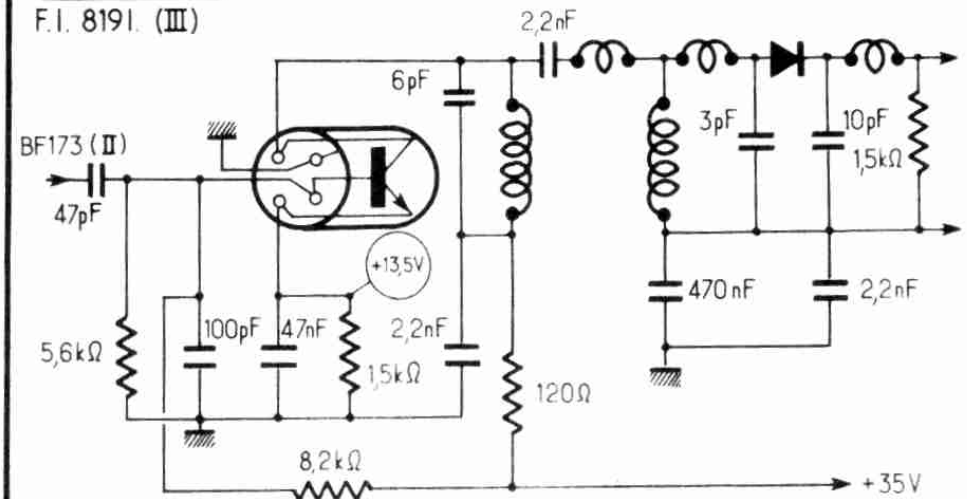
F.I. son AM

**BF 173**n-p-n Si Planar $\beta = 88(>38)$ $f_t = 550$ MHz

F.I. 819 I. (II)

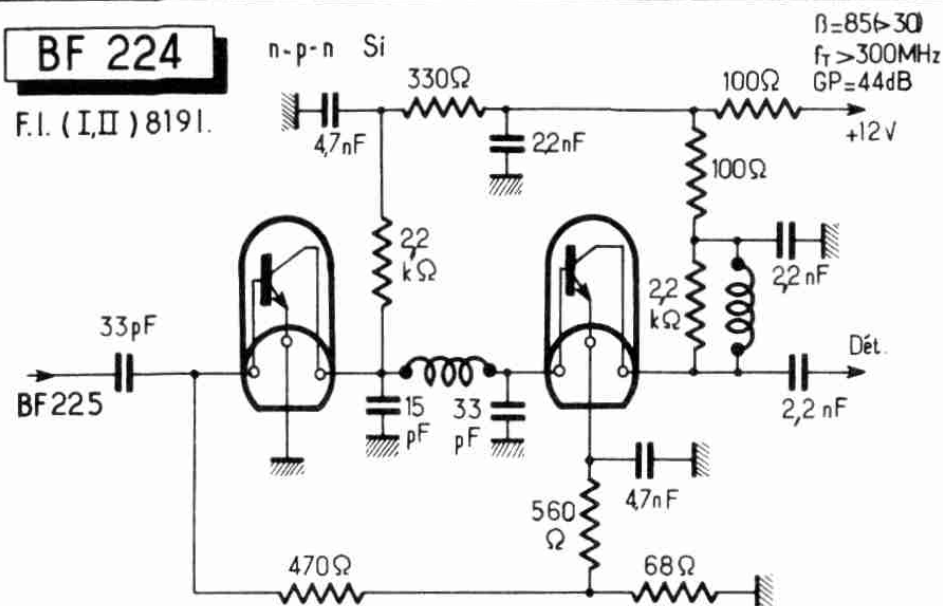
**BF 173**n-p-n Si Planar $\beta = 88(>38)$ $f_t = 550$ MHz

F.I. 819 I. (III)



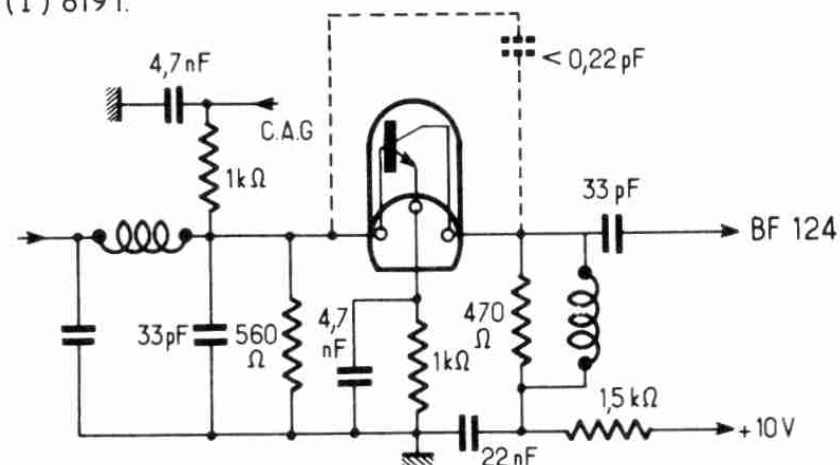
BF 224

F.I. (I, II) 819 I.

**BF 225**

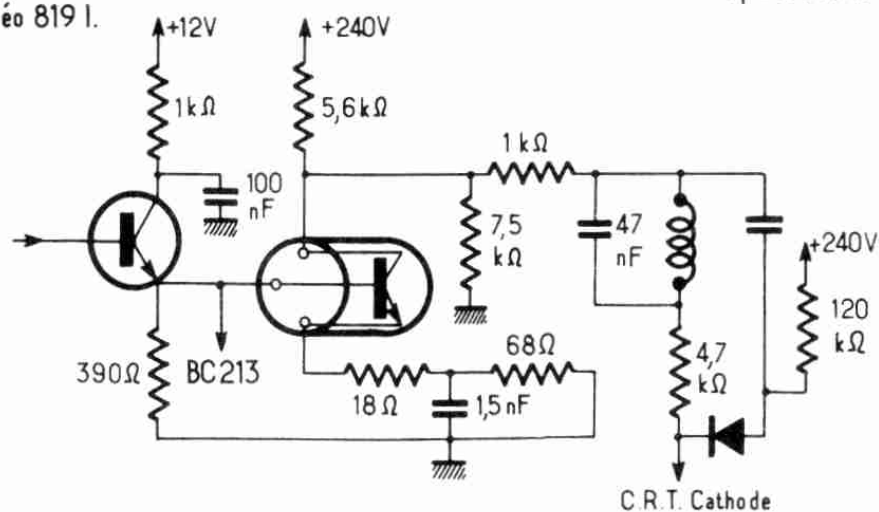
F.I. (I) 819 I.

n-p-n Si.

 $\beta = 75 (> 30)$
 $f = 400 \text{ MHz}$
**BF 257**

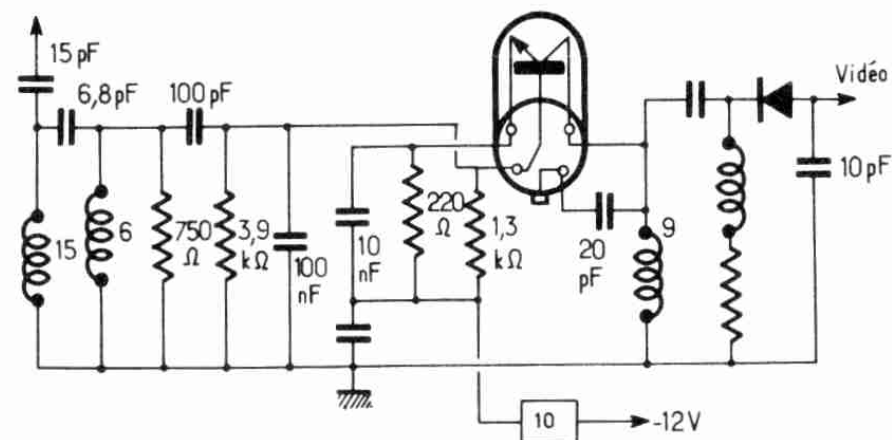
Vidéo 819 I.

n-p-n Si

 $\beta > 25$
 $f_T = 110 \text{ MHz}$
**BF 271**

F.I. 625 lignes

n-p-n Si

 $\beta = 75 (> 30)$
 $f_T = 900 \text{ MHz}$
 $GP = > 24 \text{ dB}$


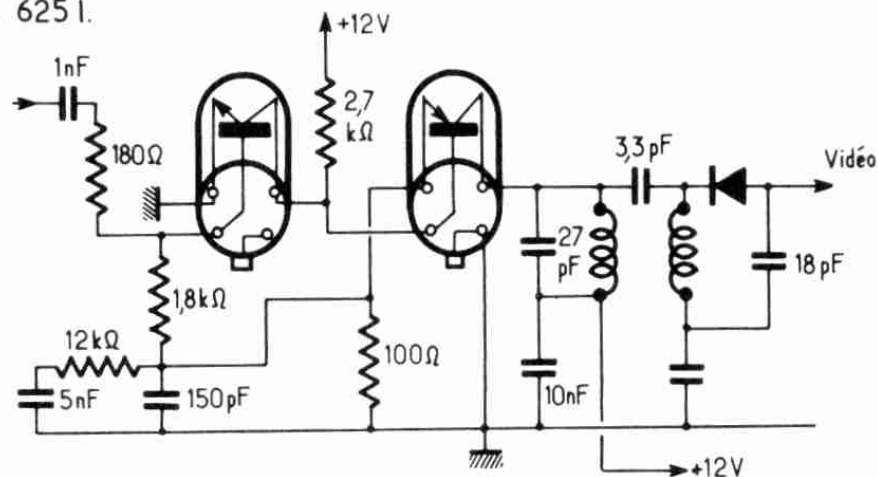
BF 271

n-p-n Si

$$\beta = 75 (> 30)$$

$$F_T > 900 \text{ MHz}$$

F.I. 625 I.

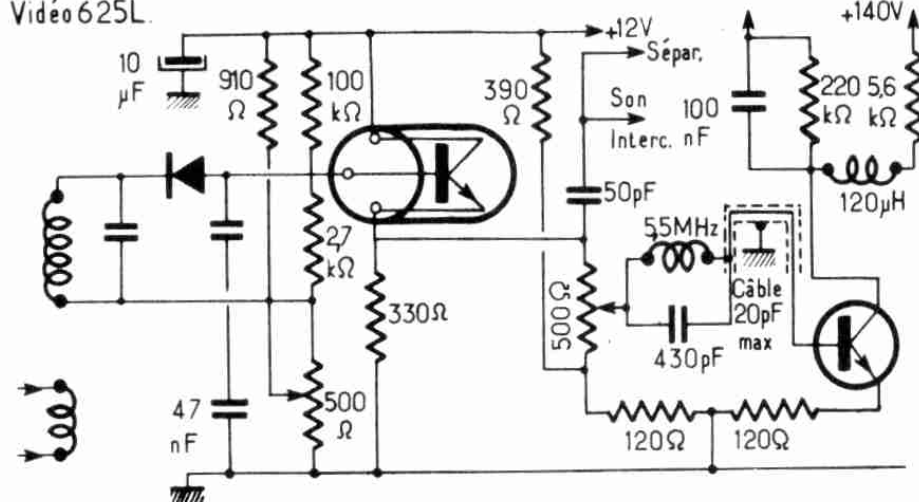


BF 291

n - p - n Si

 $f_T = 260 \text{ MHz} \quad \beta = 105$

Vidéo 625L

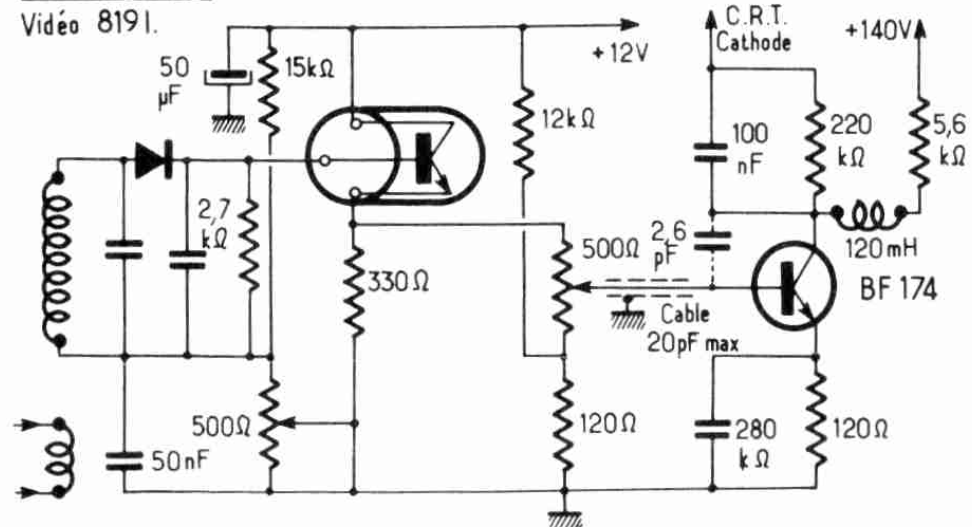


BF 291

n-p-n Si

 $f_T > 260\text{MHz}$ $\beta = 105$

Vidéo 8191.

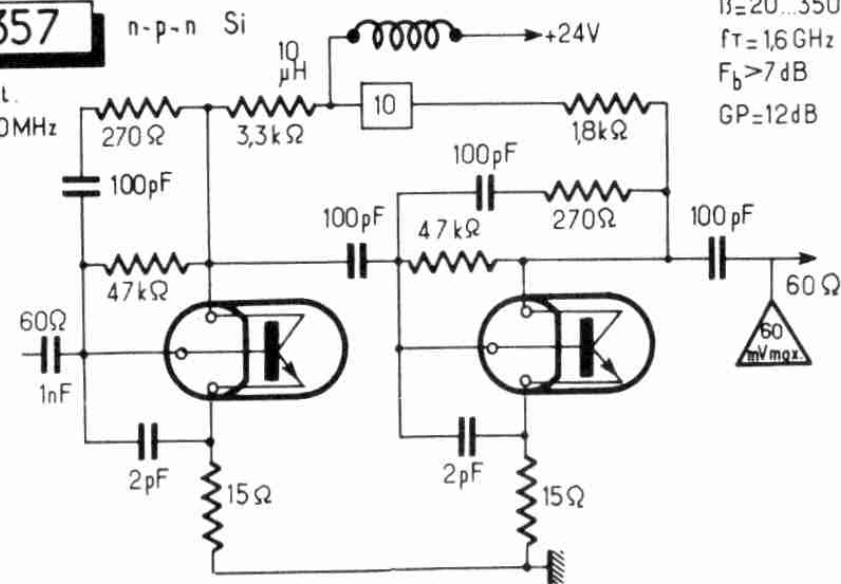


BF 357

n-p-n Si

$\beta = 20 \dots 350$
 $f_T = 1,6 \text{ GHz}$
 $F_b > 7 \text{ dB}$
 $GP = 12 \text{ dB}$

Amplif Ant.
40...900MHz

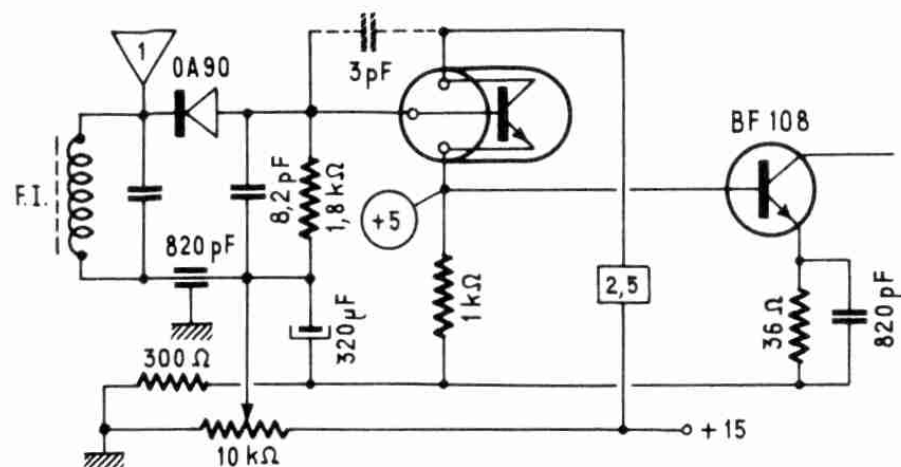


BFY 10

n-p-n Si Mesa

$$\beta > 25$$

Vidéo 819 L.

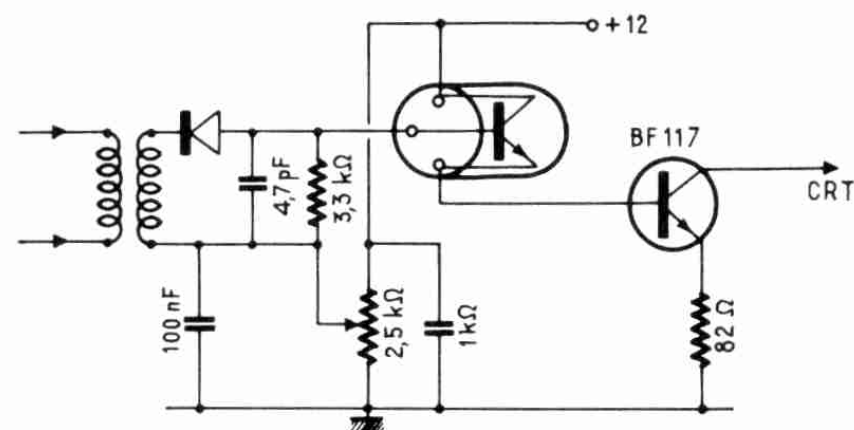


BSY 74

n-p-n Si
Pl. Epitax

$$\beta = 80 \dots 250$$

Vidéo

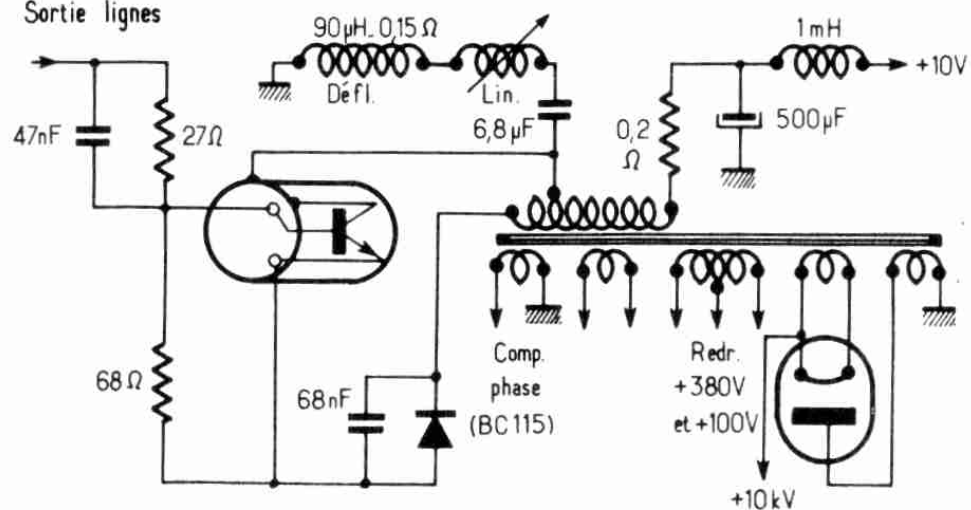


BU 100

n-p-n Si. Pl. Epitax.

 $\beta = 100 (> 45)$

Sortie lignes

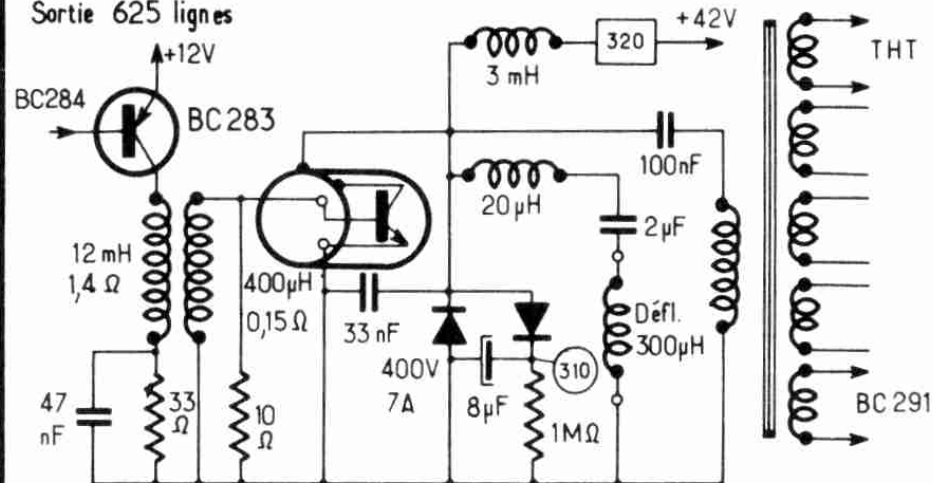


BU 102

n - p - n Si

 $\beta = 110 (> 30)$

Sortie 625 lignes

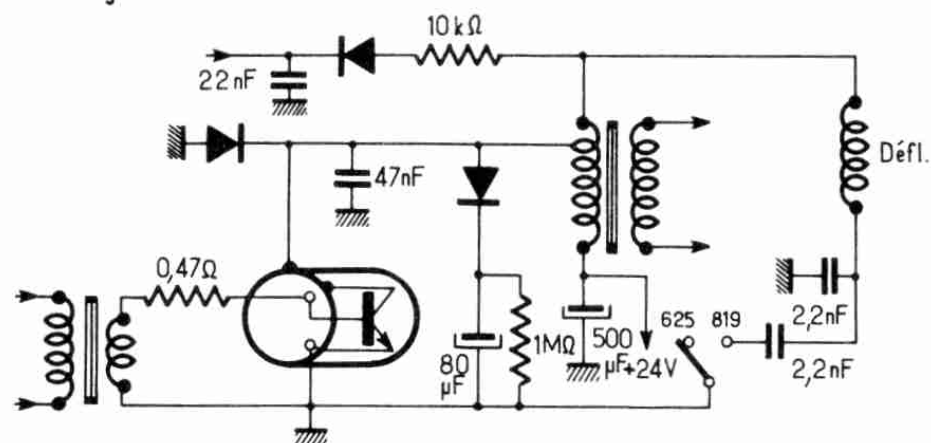


BU 104

n-p-n Si

 $\beta = 10 \dots 50$

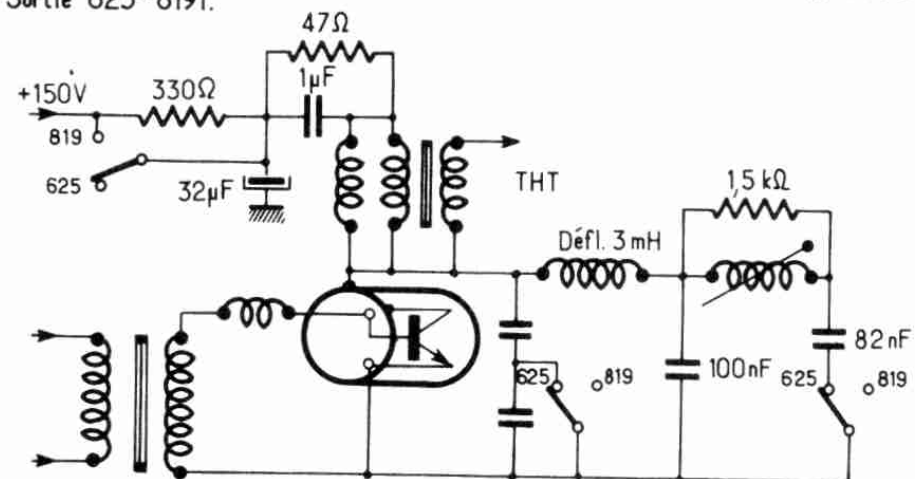
Sortie lignes

**BU 105**

n-p-n Si

 $\beta = 3$ $t_{off} = 700ns$

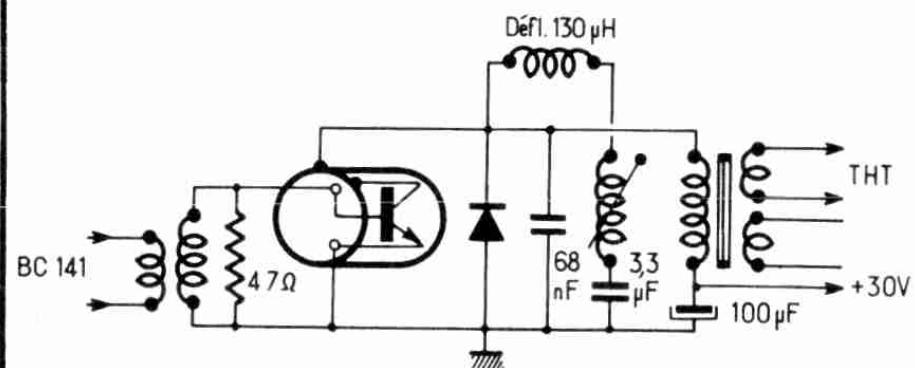
Sortie 625-819I.

**BU 110**

n-p-n Si

 $\beta > 8$

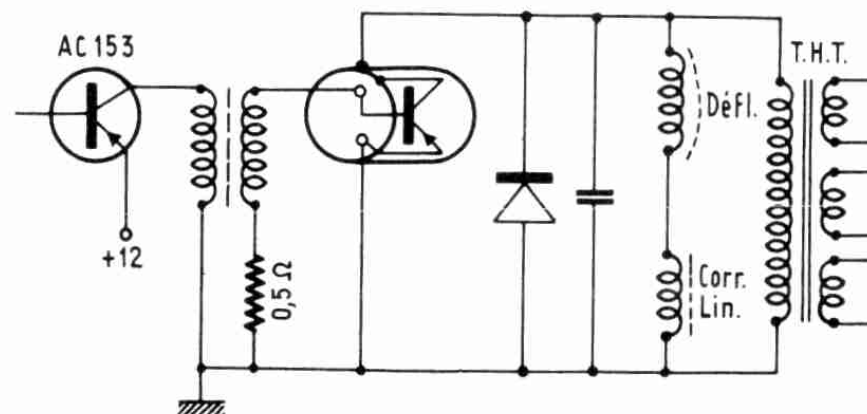
Sortie 625 I.

**BUY 12**

n-p-n Si Mésa

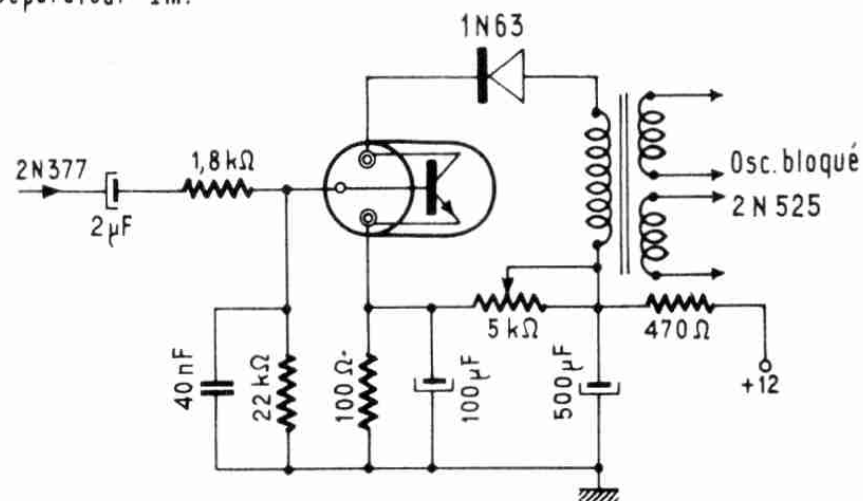
 $\beta = 30$

Bal. Lignes (625)

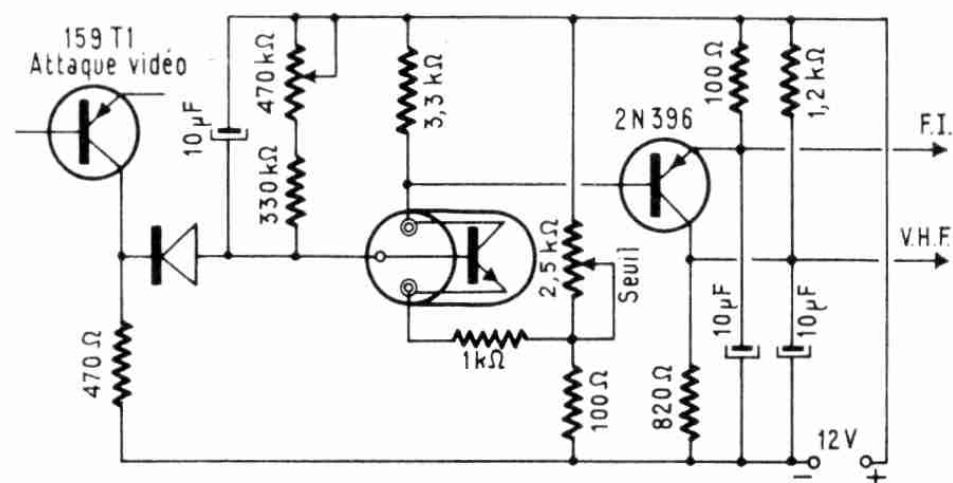


2N 377n-p-n Ge Alliage $\beta = 20...60$

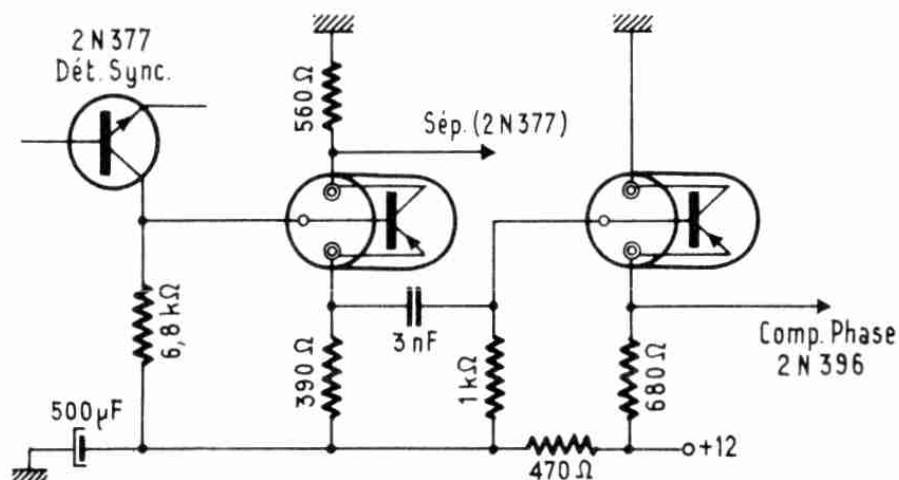
Séparateur Im.

**2N 388**n-p-n Ge Alliage $\beta = 30...180$

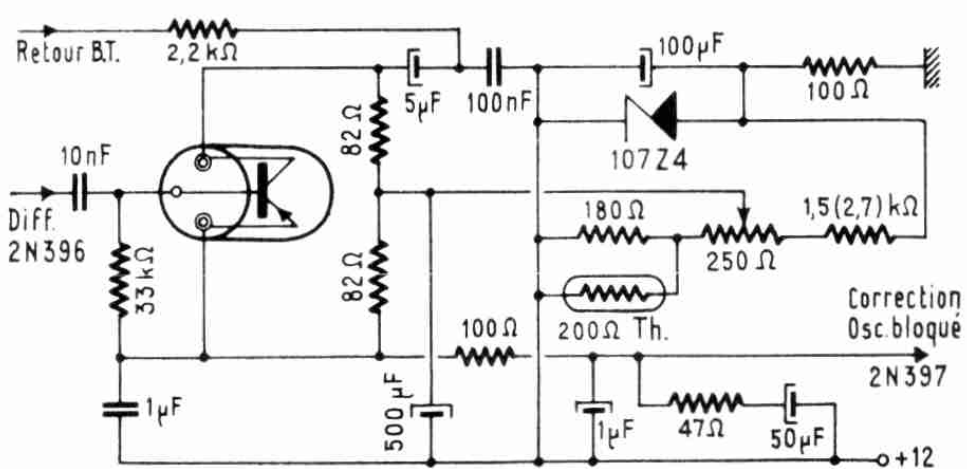
C.A.G.

**2N 396**p-n-p Ge $\beta = 30...150$

Différentiateur

**2N 396**p-n-p Ge $\beta = 30...150$

Comp. Phase 819 (625) L



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