

H. SCHREIBER

OC 75

BF

$f = 80$
 $CF = 40dB$

OC 77

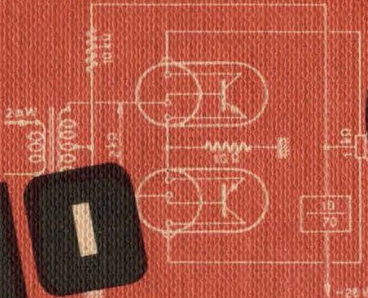
BF

$f = 55$
 $CF = 27dB$

OC 80

BF

$f = 85$
 $CF = 24dB$



RADIO TRANSISTORS

OC 9

MF 470kHz

$f = 100$
 $CF = 34dB$
 $CF = 50dB$

OC 169

MF 10M

SCHÉMAS ET
CARACTÉRISTIQUES
3^e édition

SOCIÉTÉ DES ÉDITIONS RADIO — PARIS

Retronik.fr

LIBRAIRIE LAVOISIER

TECHNIQUE & DOCUMENTATION

11, Rue Lavoisier PARIS-8^e (Place St.-Augustin)

Tél. 265-24-50 et 39-95

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TOUTE L'ÉLECTRONIQUE

Anciennement : **TOUTE LA RADIO**

Revue mensuelle de technique
expliquée et appliquée
Fondée en 1934

Directeur : **E. AISBERG**

Le numéro : 3,30 F

TÉLÉVISION

Magazine mensuel
fondé en 1939

Directeur : **E. AISBERG**

Le numéro : 2,10 F

RADIO CONSTRUCTEUR

Revue mensuelle
de pratique radioélectrique
Fondée en 1937

Rédacteur en chef : **W. SOROKINE**

Le numéro : 2,10 F

françaises

ÉLECTRONIQUE Industrielle

Revue mensuelle
de technique moderne
destinée aux promoteurs
et aux utilisateurs des
méthodes et appareils
— électroniques. —

Le numéro : 4,80 F

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mondiale

SOCIÉTÉ DES ÉDITIONS RADIO

9, RUE JACOB, 9
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H. SCHREIBER



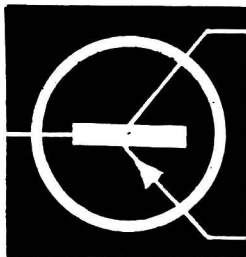
RADIO - TRANSISTORS

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 gebruikschemas

SOCIETE DES EDITIONS RADIO

9, rue Jacob - Paris - 6°

OUVRAGES DU MEME AUTEUR

Appareils à Transistors

Guide Mondial des Transistors

Initiation à la Pratique des Récepteurs à Transistors

Le Multi-tracer (épuisé)

Technique de la modulation de fréquence

Technique et Applications des Transistors

Préface

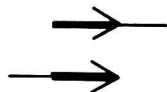
RADIO-TRANSISTORS ne supplante pas les recueils de caractéristiques tels que le *GUIDE MONDIAL DES TRANSISTORS* (principales caractéristiques limites et de fonctionnement de tous les transistors) ou la collection des *CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS* (courbes et données détaillées sur les 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).

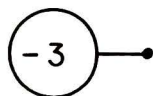
F_b : Facteur de bruit.

GP : Gain en puissance du montage (inférieure au gain maximum théorique, cette indication tient compte de faibles pertes de liaison).

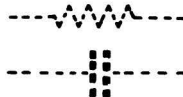
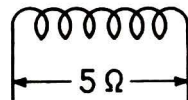
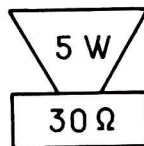
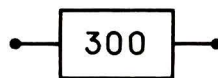
GC : Gain de conversion.

- 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 des amplificateurs classe AB, les intensités minimale et maximale sont indiquées l'une en 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 la *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

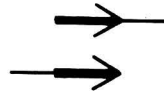
RADIO-TRANSISTORS does not replace the handbooks such as the *GUIDE MONDIAL DES TRANSISTORS* (principal characteristics and applications of all transistors) or the manual *CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS* (graphs and complete data on the main types). But being of a conception totally different,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

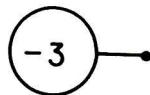
F_b : Noise factor.

GP : Power gain of the set-up (inferior to the maximum theoretical gain; this indication allows for the slight losses in hook-up).

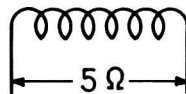
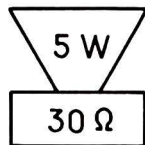
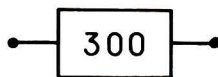
GC : Conversion gain.

- 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 so 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* and 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 indicate 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.

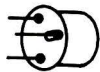
Vorwort

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

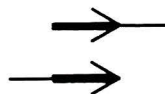
RADIO-TRANSISTORS ist eine Schaltungssammlung mit Anwendungsbeispielen aller zur Zeit in der Rundfunk- und Niederfrequenztechnik verwendeten Transistoren. Die Schaltungen sind alphanummerisch nach den Bezeichnungen der Transistoren eingeordnet: die *Buchstaben sind den Ziffern vorangesetzt*. Neben den 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).

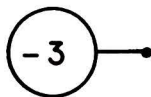
F_b : Rauschfaktor.

GP : Leistungsgewinn der Schaltung. (Der angegebene Wert ist nicht der theoretische Maximalwert, sondern trägt leichten Übertragungsverlusten Rechnung.)

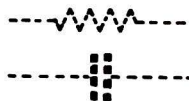
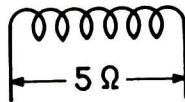
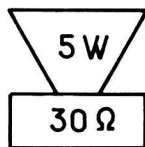
GC : Mischverstärkung.

- Die *Betriebsfrequenz* ist bei den Hoch- und Zwischenfrequenzverstärker-Schaltungen angegeben; sie ergänzt auch gewisse *Vierpol-darstellungen* 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 im selben *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 *Ein- 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

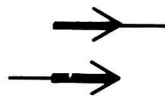
RADIO-TRANSISTORS no suplanta las colecciones de características tales como el **GUIDE MONDIAL DES TRANSISTORS** (*Guía Mundial de Transistores*) (principales características límites y de funcionamiento de todos los transistores) o la colección de las **CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS** (*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 de 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 de 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 izquierda 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).

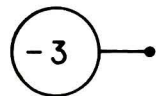
F_b : Factor de ruido.

GP : Ganancia en potencia del montaje (inferior a la ganancia máxima teórica, esta indicación tiene en cuenta las reducidas pérdidas de enlace).

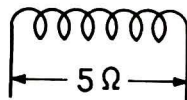
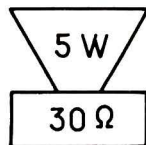
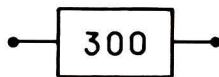
GC : Ganancia de conversión.

- 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 como aparatos de medición; siempre se expresan 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 *internas* que posee el montaje entre los puntos correspondientes.

Voorwoord

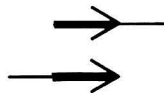
RADIO-TRANSISTORS vervangt niet de verzameling van gegevens zoals de **GUIDE MONDIAL DES TRANSISTORS** (*Transistor-Wereldgids*) (voornaamste eigenschappen en functies van alle transistors) of de verzameling **CARACTÉRISTIQUES UNIVERSELLES DES TRANSISTORS** (*Universele Transistor-Karakteristieken*), 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, ruisfactor, 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 nabij 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 functievoorwaarden in een zelfde konstruktie te karakteriseren (waarden der elementen voor verschillende voedingsspanningen, enz.). Onder de benaming van de transistor bevindt zich de aanduiding der *functie* 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).

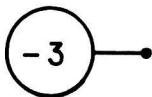
F_b : Ruisfaktor.

GP : Energieversterking van de schakeling (minder dan de theoretisch maximale versterking, deze aanduiding houdt rekening met zwakke verliezen in de onderdelen van de schakeling).

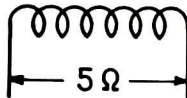
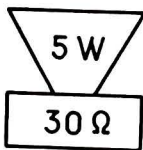
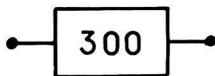
GC : Conversieversterking.

- De *werkfrekwentie* is aangeduid in geval van HF of MF versterkerschakelingen, zoals ook in zekere *vierpolen* waarvan de elementen van de frekwentie 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 funkties 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 -.



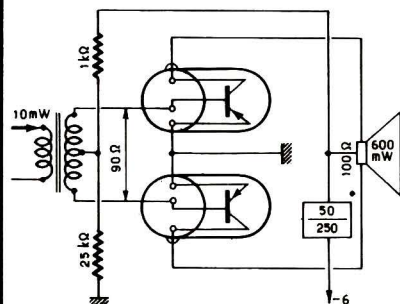
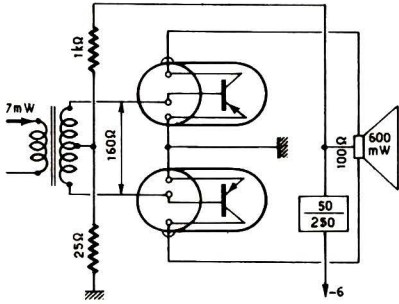
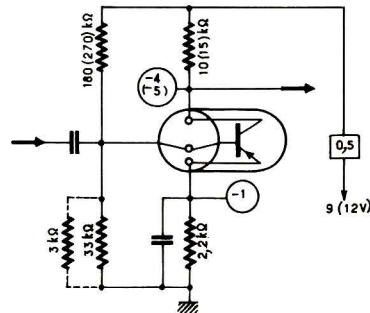
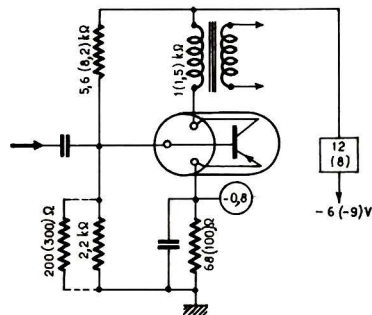
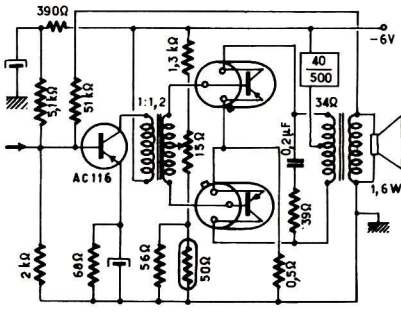
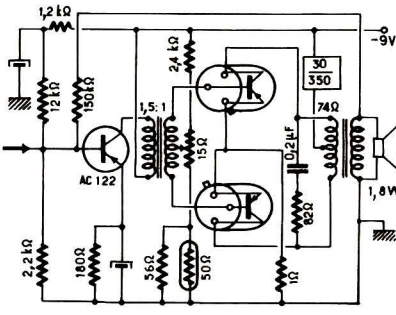
- De gelijkstroomwaarden zijn aangeduid in vierkanten welke als meetinstrumenten in de stroomkring ingelast zijn; zij zijn steeds uitgedrukt in *milliampères*. In het geval van klasse AB versterkers, worden de *minimale* en *maximale* waarden onder elkander in hetzelfde vierkant aangeduid.

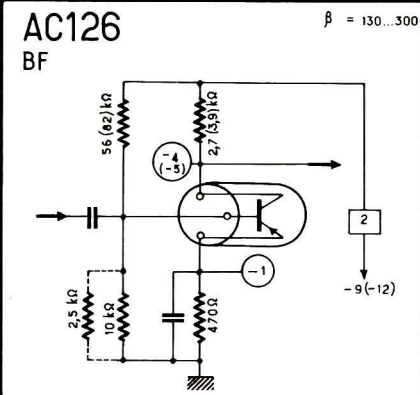
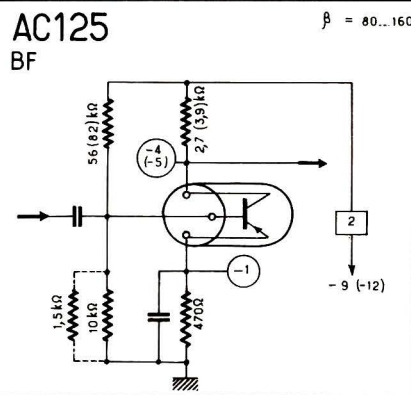
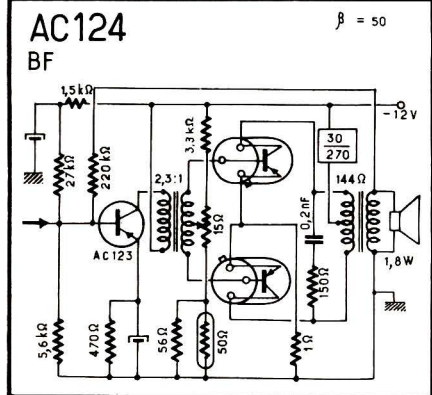
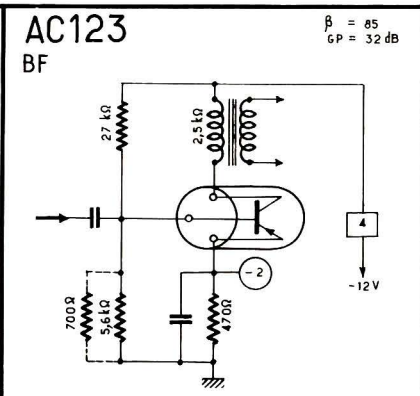
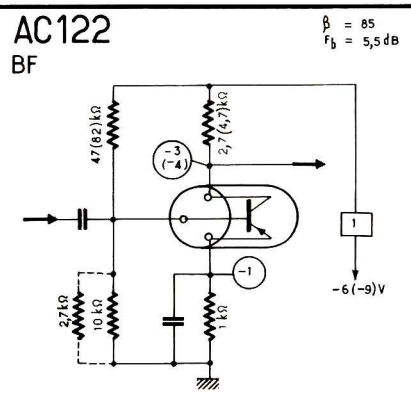
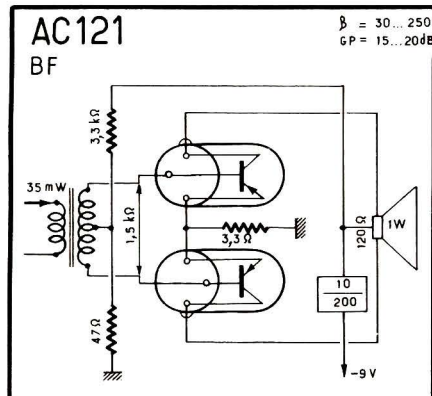
- De cijfers in de *driehoeken* geven de *wisselspanningen*.

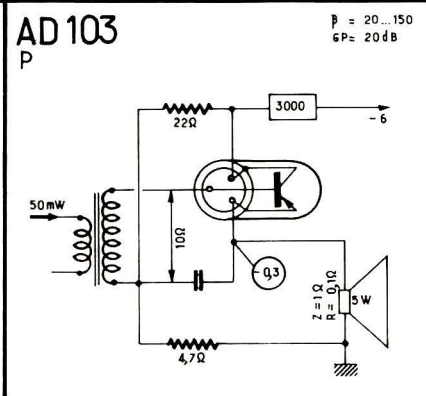
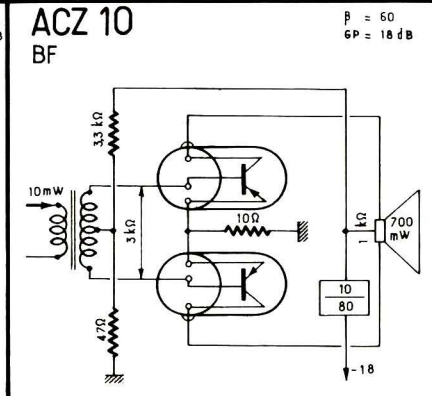
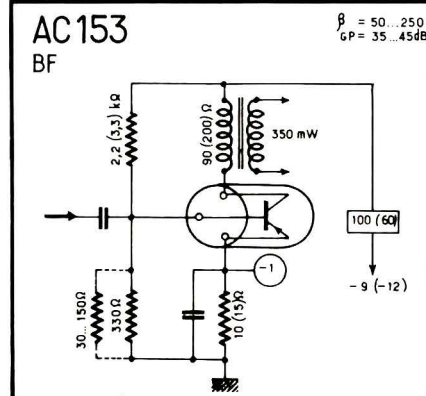
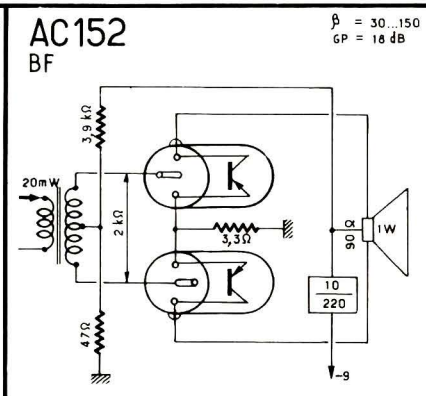
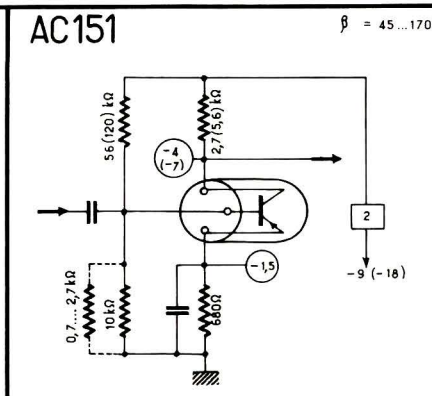
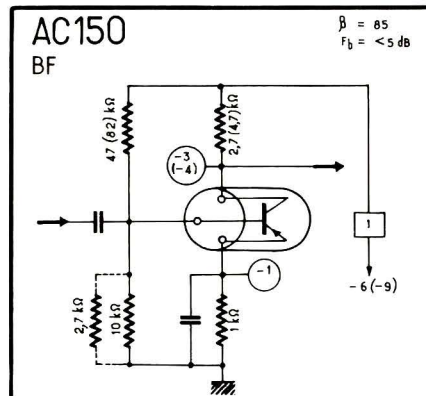
- De tekening van de *luidspreker* bevat cijfers welke de *belastingimpedantie* en het *maximale uitgangsvermogen* weergeven. Dit laatste is niet de theoretisch uiterste waarde, maar die welke men met een uitgangstransformator met zwakke verliezen kan verkrijgen.

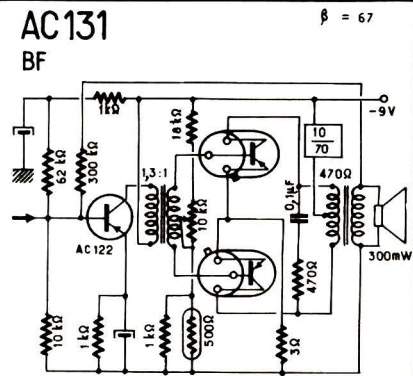
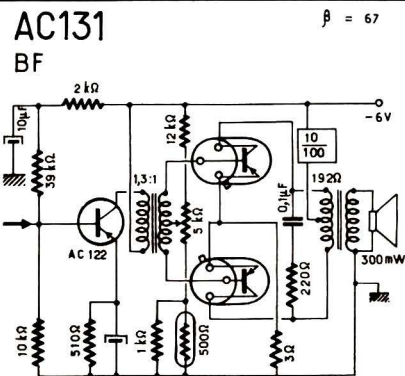
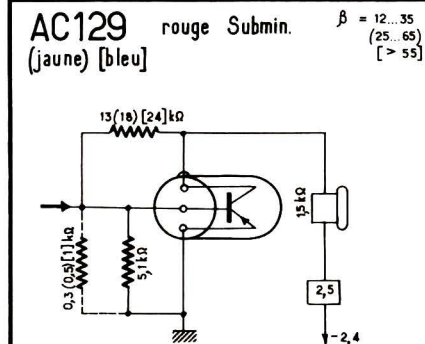
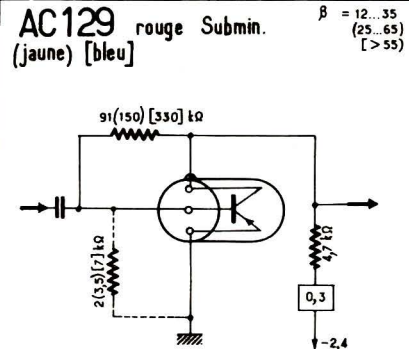
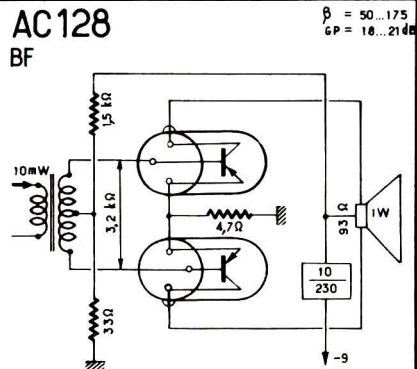
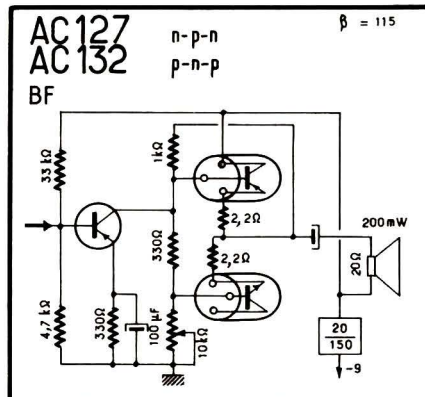
- De tussen de uitgangs- of ingangsaansluitingen van een transformator genoemde *ohmse* waarde geeft de *aanpassingsimpedantie* van de betreffende wikkeling.

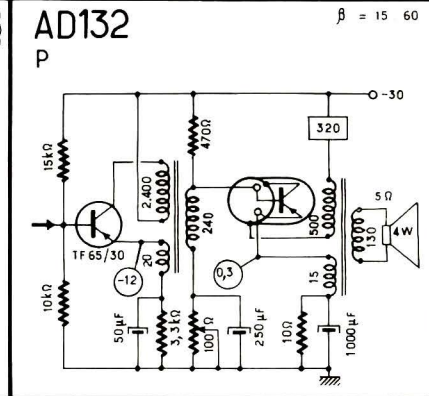
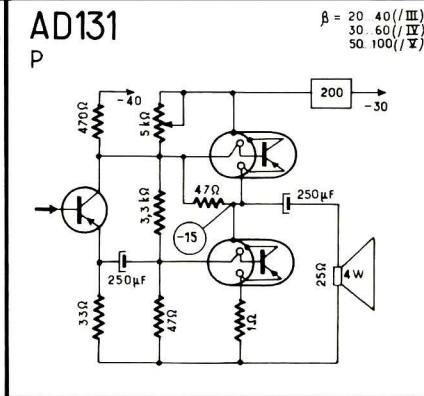
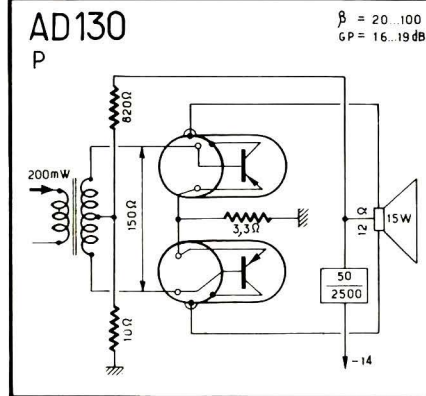
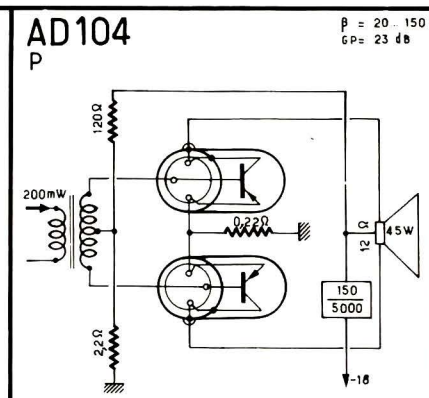
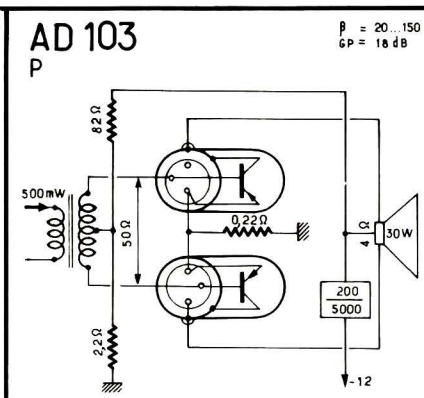
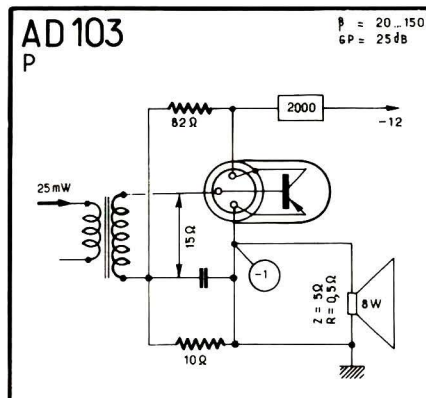
- Door de met een stippellijn getekende elementen worden de *inwendige weerstanden* of *kapaciteiten* van de schakeling tussen de betreffende punten aangegeven.

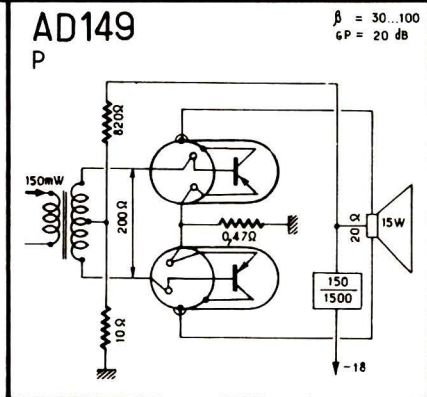
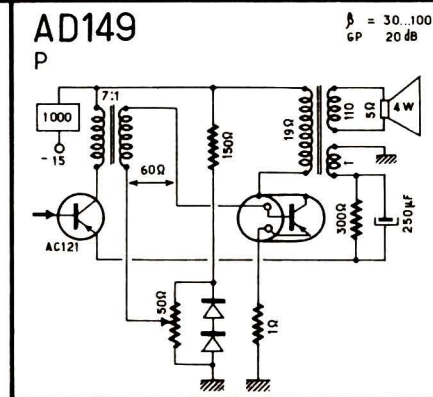
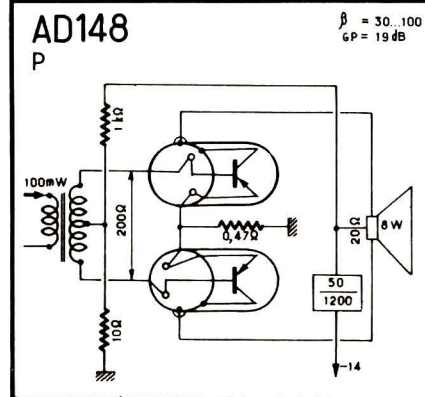
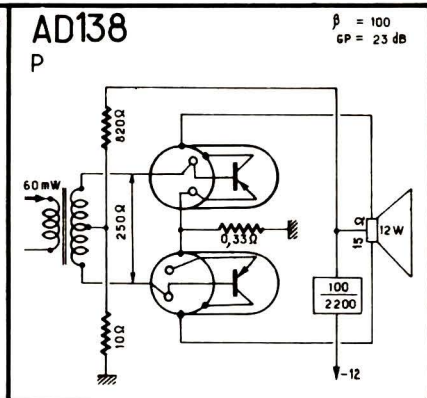
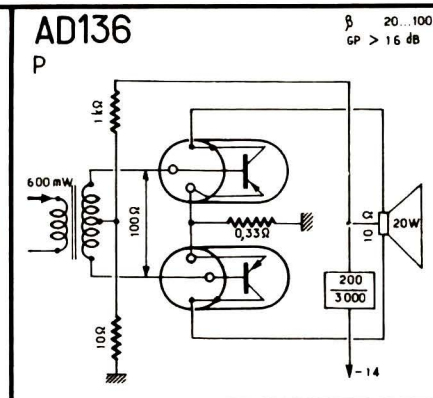
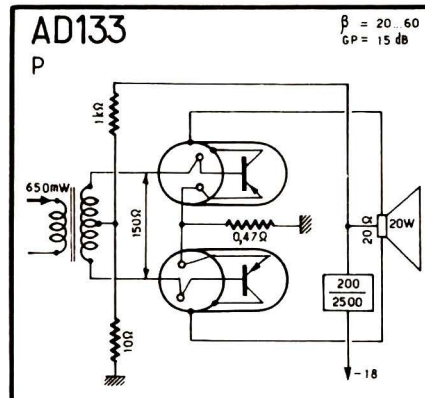
AC 105
BF
 $\beta = 35$
 $GP = 18 \text{ dB}$
AC 106
BF
 $\beta = 60$
 $GP = 20 \text{ dB}$
AC107
BF
 $\beta = 40$
 $F_b = 8 \text{ dB}$
AC116
BF
 $\beta = 85$
 $GP = 30 \text{ dB}$
AC117
BF
 $\beta = 70$
AC117
BF
 $\beta = 70$


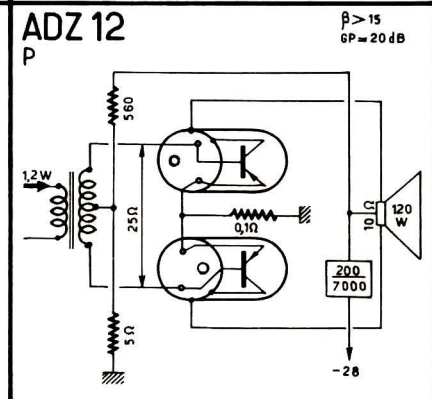
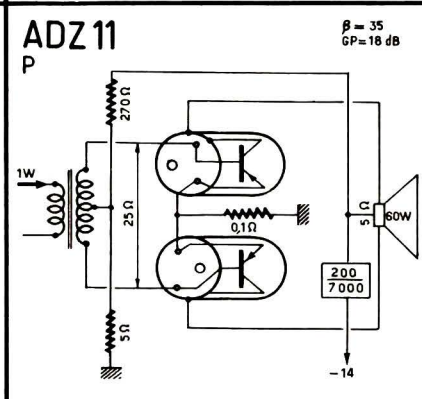
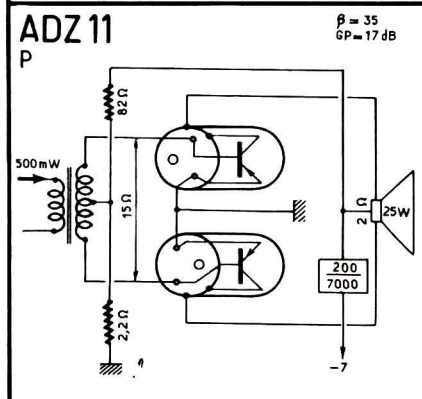
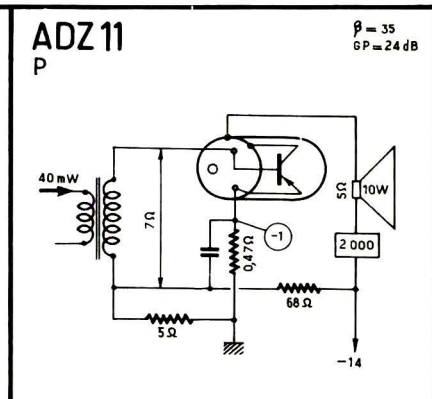
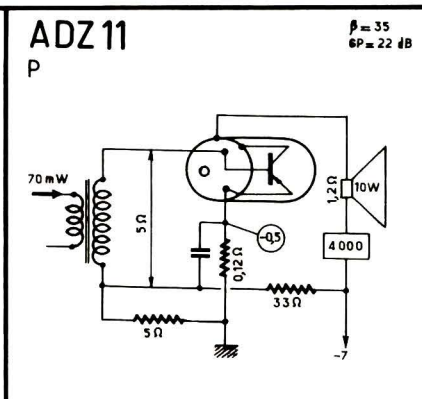
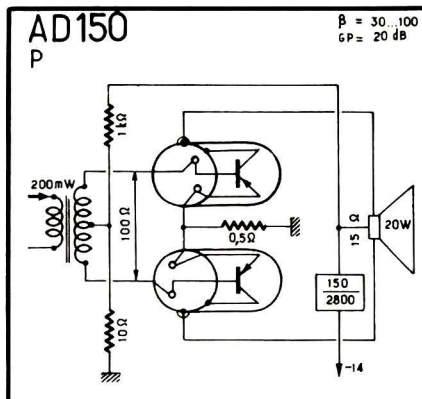


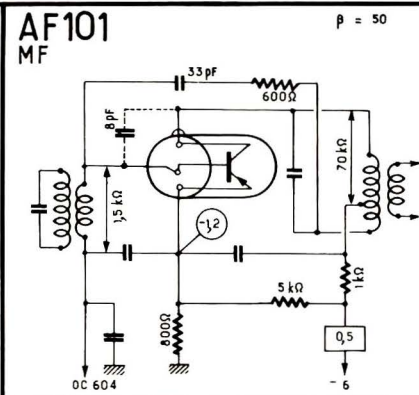
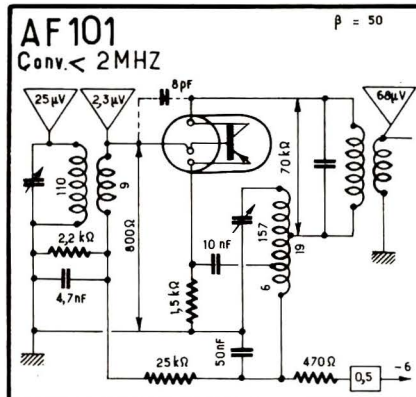






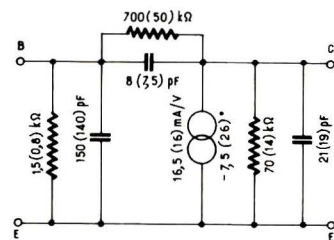






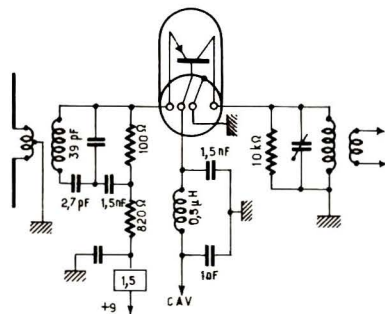
AF 101
0,47 (2) MHz

$V_c = 6V$
 $I_c = 0,5 mA$



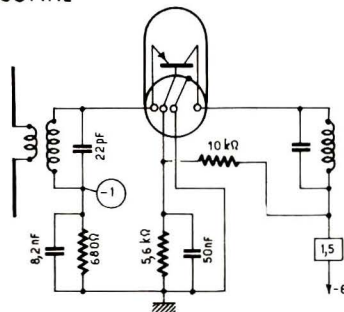
AF102
200 MHz

$\beta = > 20$



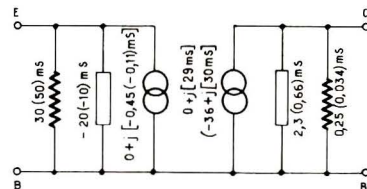
AF102
100 MHz

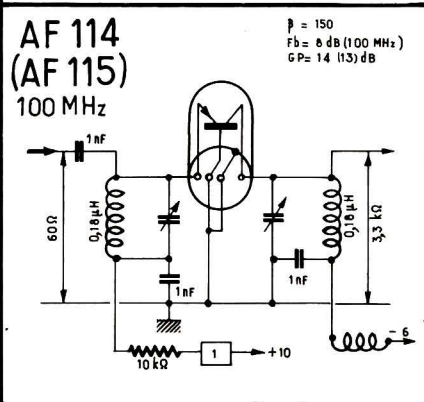
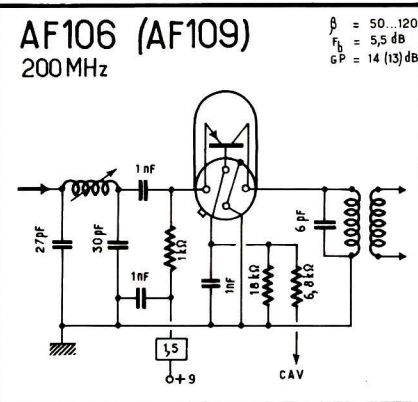
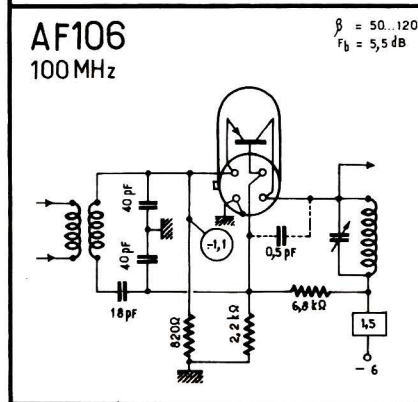
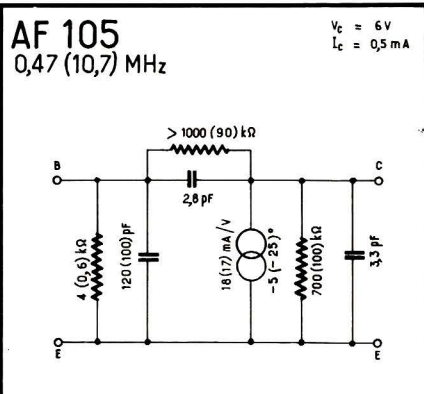
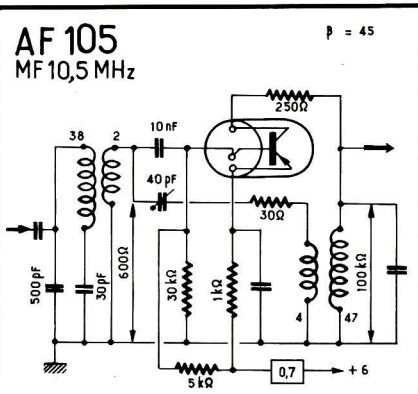
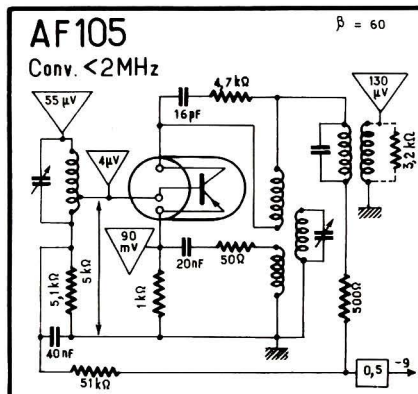
$\beta = < 20$



AF102
200 (50) MHz

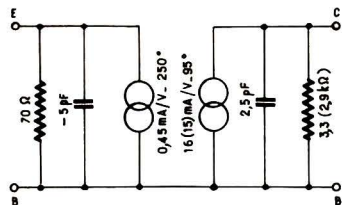
$\beta = < 20$



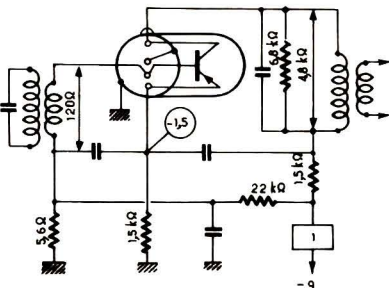


AF 114
(AF 115)

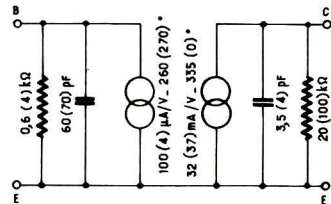
$V_c = 6V$
 $I_c = 1mA$
 $f = 100MHz$

AF 116
10,7MHz

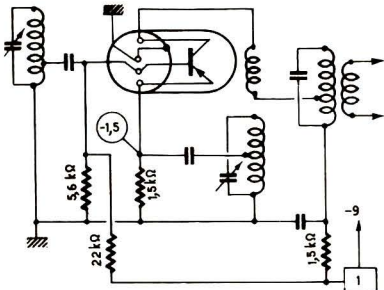
$\beta = 150$
 $F_b = 3dB10(MHz)$
 $GP = 25dB$

AF 116
10,7 (0,45)MHz

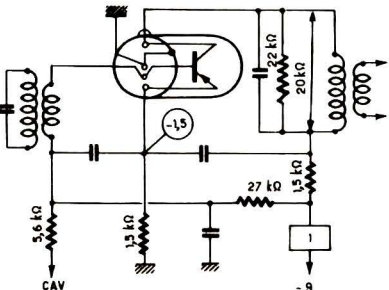
$V_c = 6V$
 $I_c = 1mA$

AF 117
Conv. < 2MHz

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

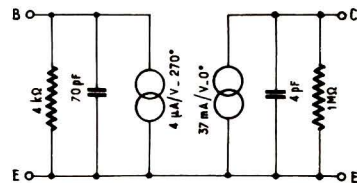
AF 117
MF 450 kHz

$\beta = 150$
 $F_b = 1,5 dB (1MHz)$
 $GP = 42 dB$



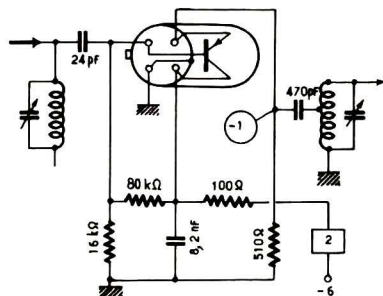
AF 117

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



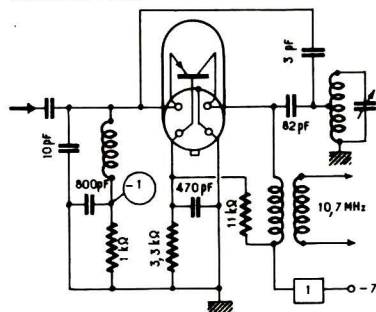
AF124 (= AF 114)
100MHz

$\beta = 150$
 $F_b = 8 \text{ dB}$
 $GP = 14 \text{ dB}$

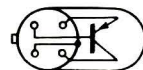


AF125 (= AF 115)
Conv. 100MHz

$\beta = 150$
 $F_b = 4 \text{ dB (Conv)}$

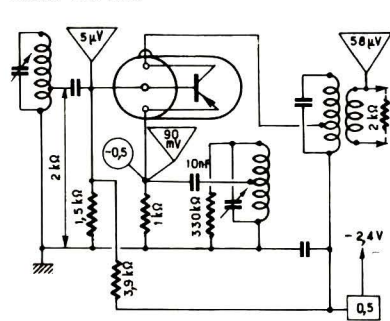


AF126 = AF116
AF127 = AF117



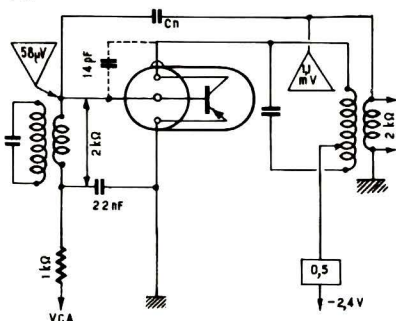
AF128 Submin.
Conv. < 2MHz

$\beta = 40$



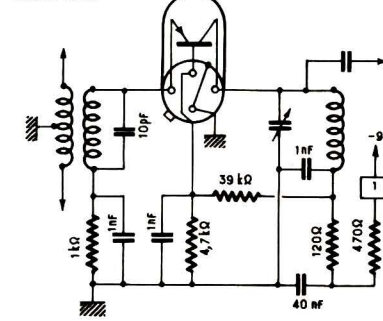
AF128 Submin.
MF

$\beta = 40$



AF134
100MHz

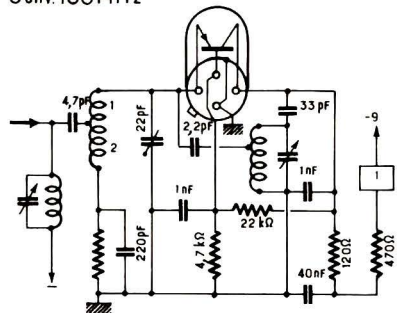
$\beta = 110$



AF135

 $\beta = 100$

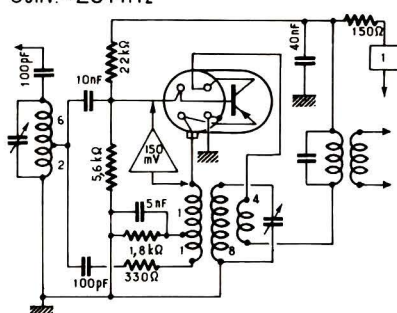
Conv. 100MHz



AF136

 $\beta =$

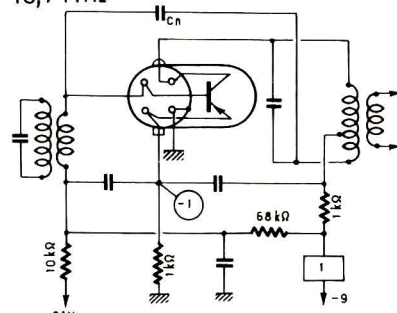
Conv. <23MHz



AF137

 $\beta = 60$

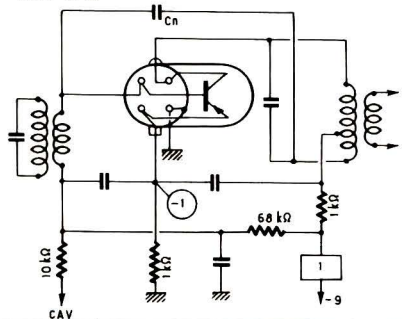
10,7 MHz



AF138

 $\beta = 80$

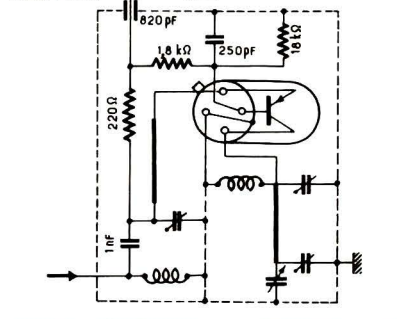
455 kHz



AF139

 $\beta = 50$
 $f_b = 7,5 \text{ dB}$
 $G_P = 10 \text{ dB}$

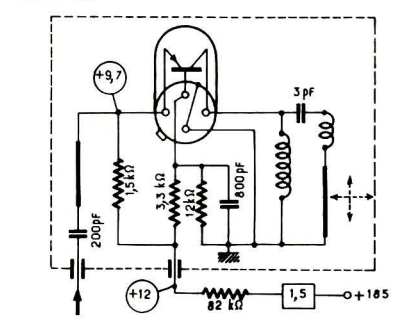
800MHz



AF139

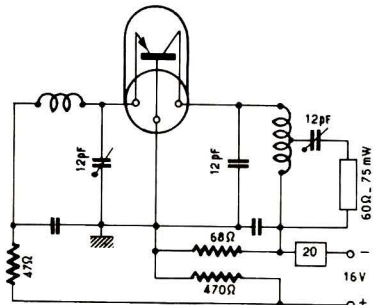
 $\beta = 50$
 $f_b = 7,5 \text{ dB}$
 $G_P = 10 \text{ dB}$

800 MHz



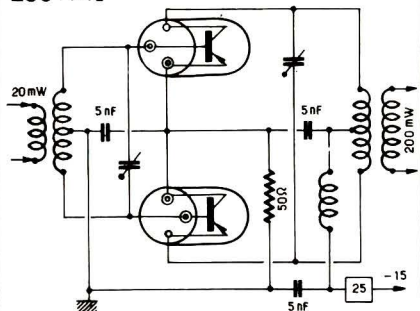
AFY 10

Osc. 200 MHz

 $\beta = 60$
 $\beta = 1$ (250MHz)


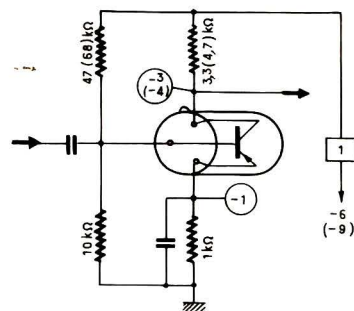
AFY 11

200 MHz

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


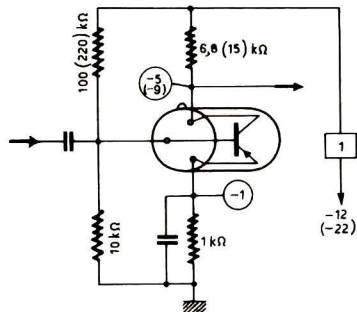
CK 22

BF submin.

 $\beta = 90$
 $F_b < 6$ dB


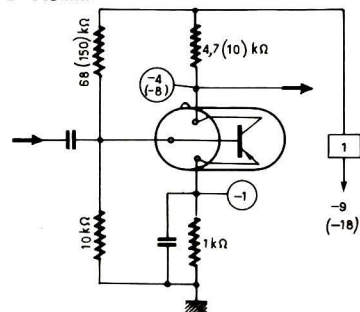
CK 64

BF submin.

 $\beta = 22$
 $F_b = 12$ dB


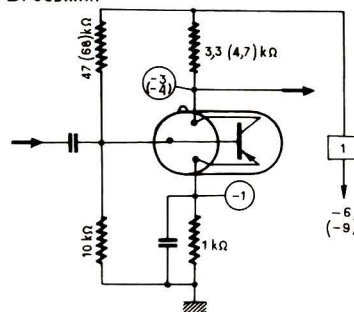
CK 65

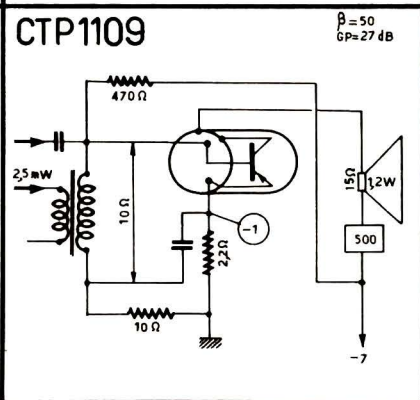
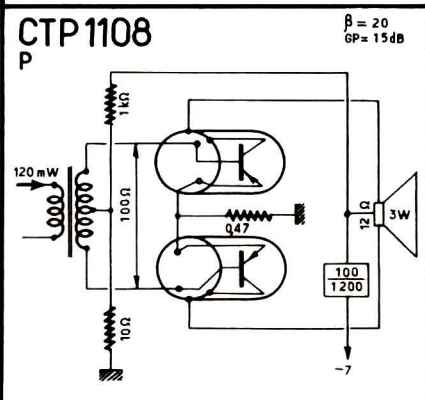
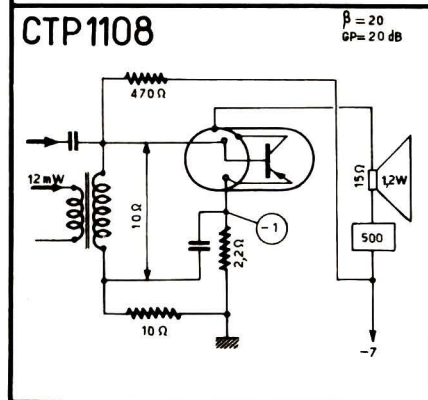
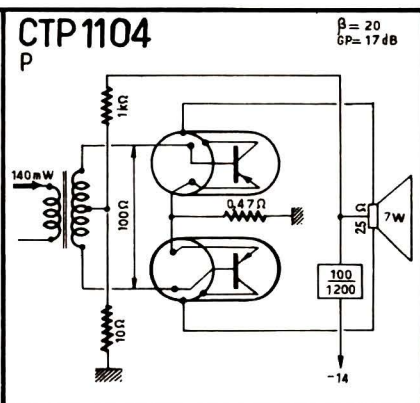
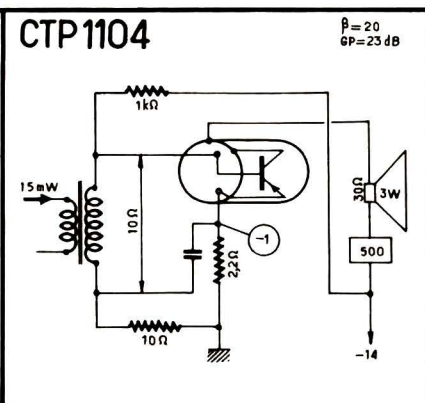
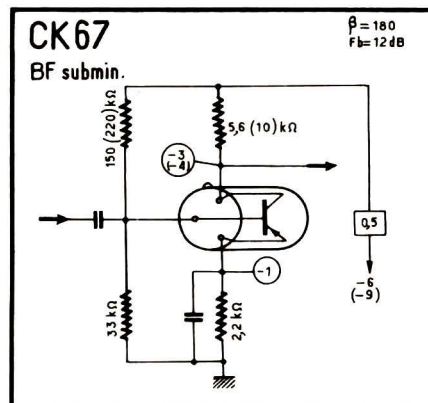
BF submin.

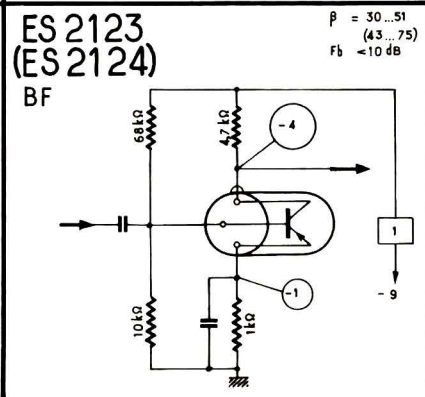
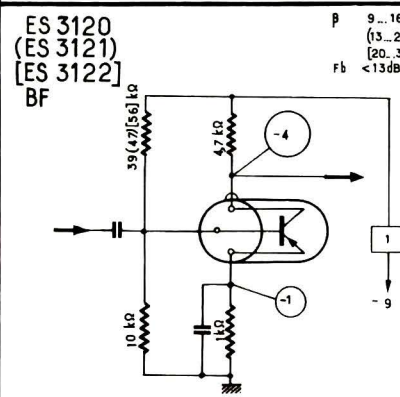
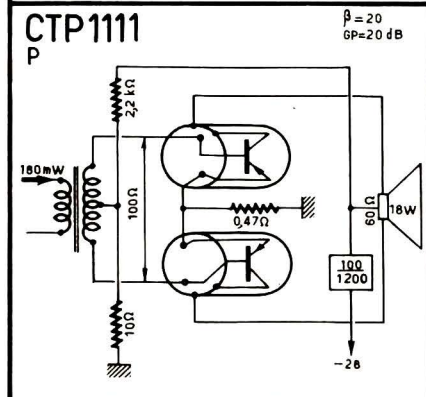
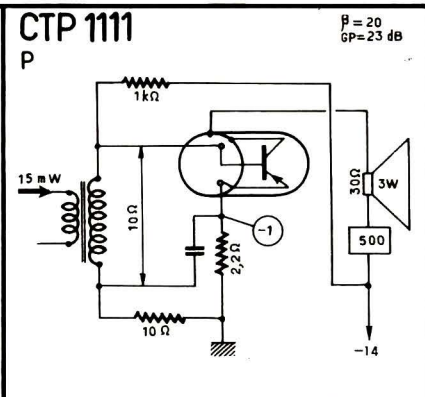
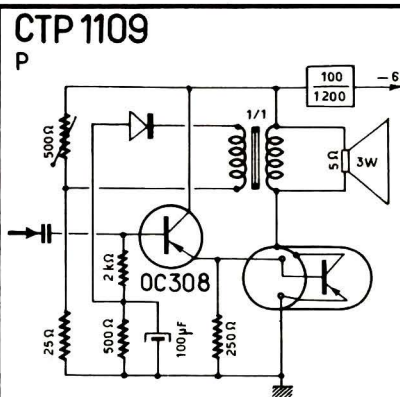
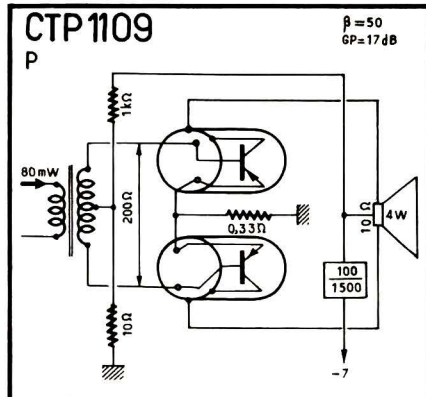
 $\beta = 45$
 $F_b = 12$ dB


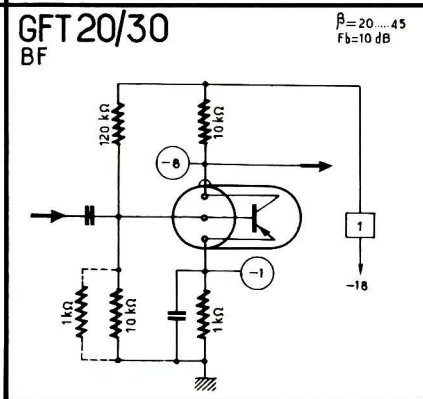
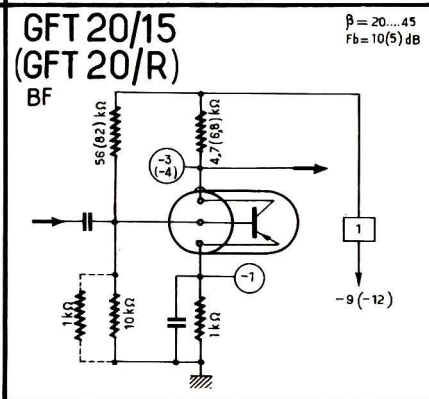
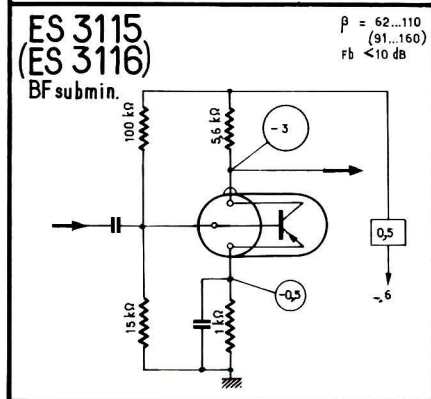
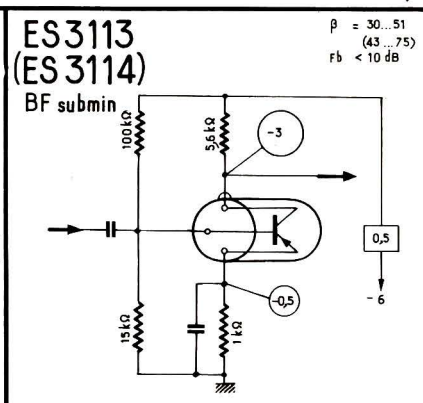
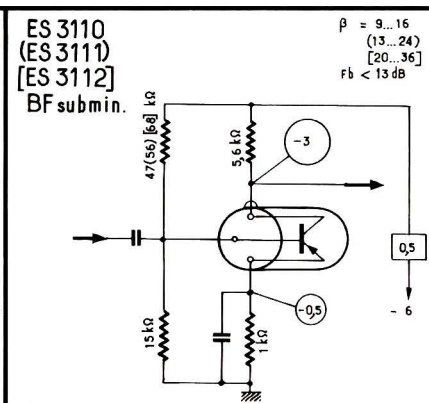
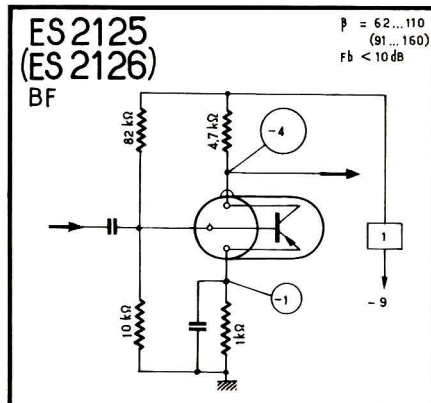
CK 66

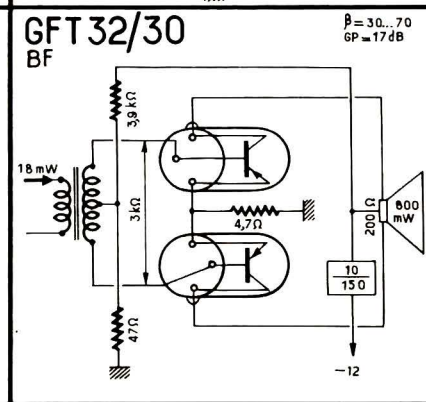
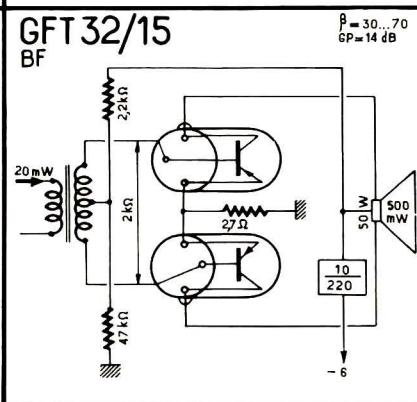
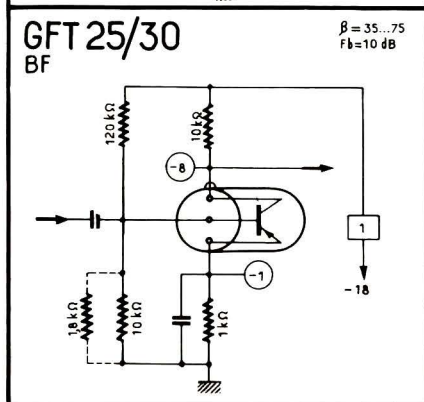
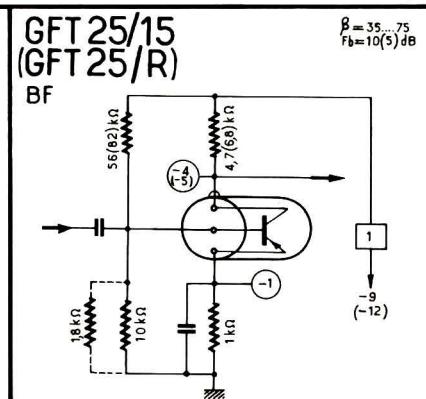
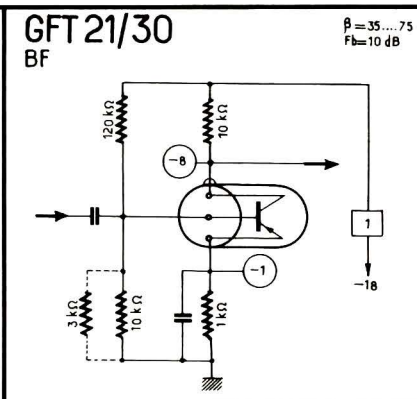
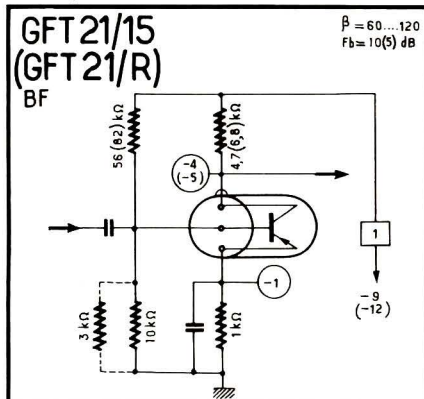
BF submin.

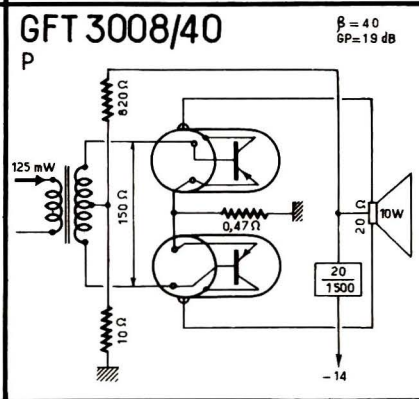
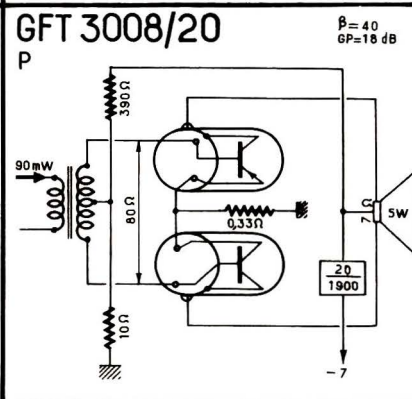
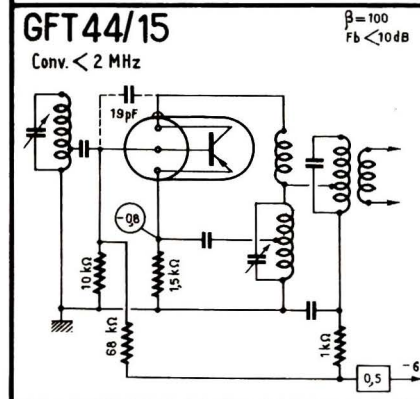
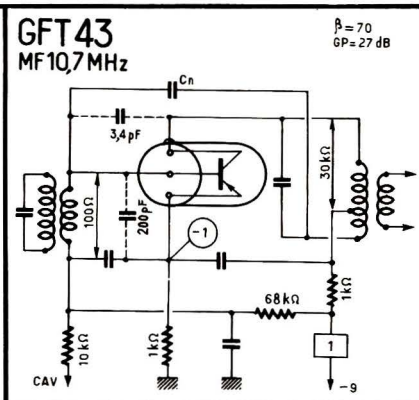
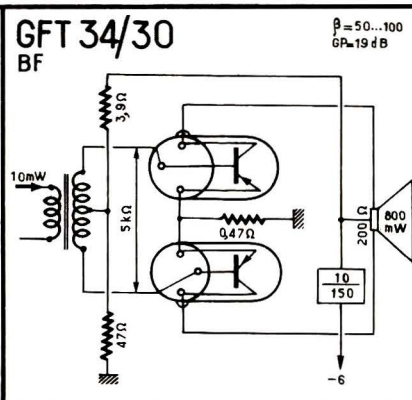
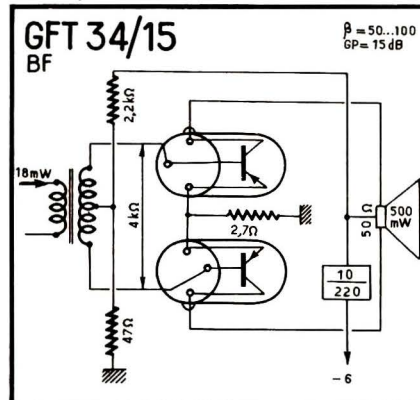
 $\beta = 90$
 $F_b = 12$ dB


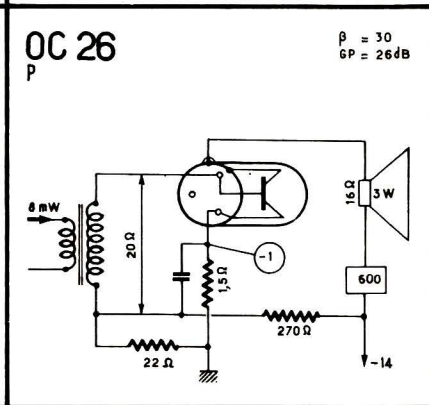
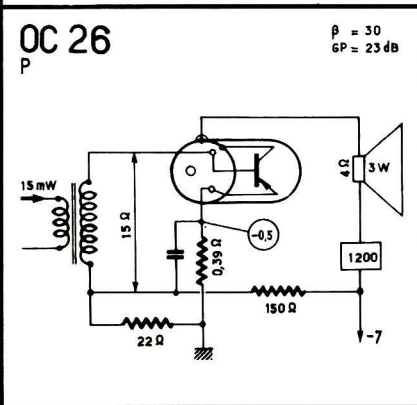
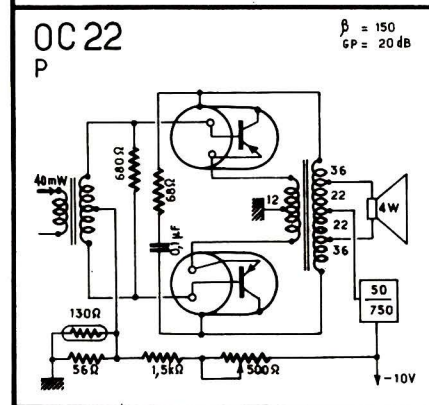
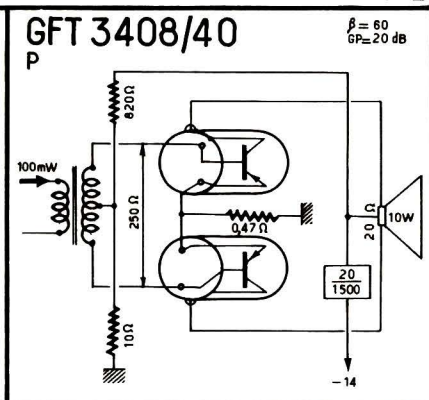
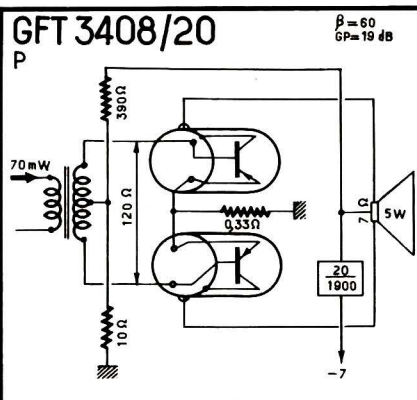
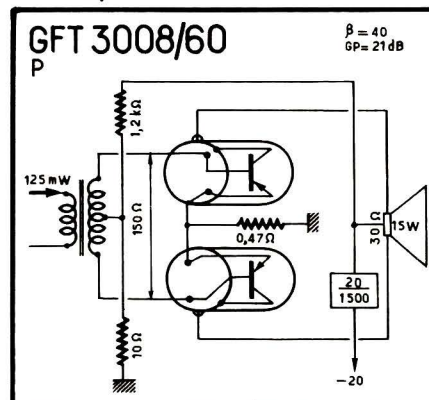


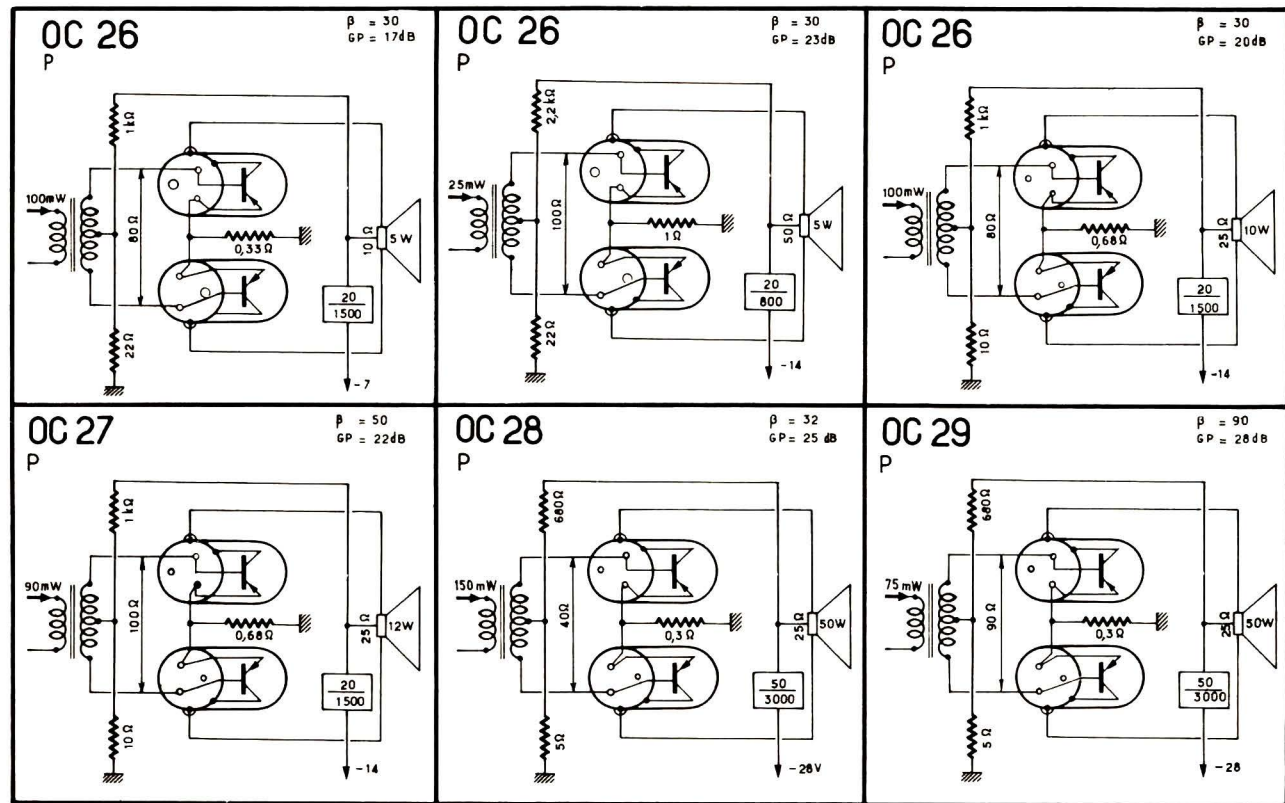


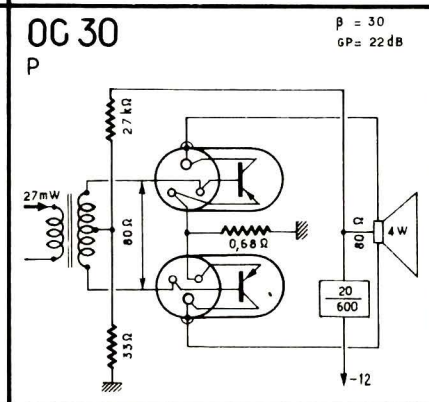
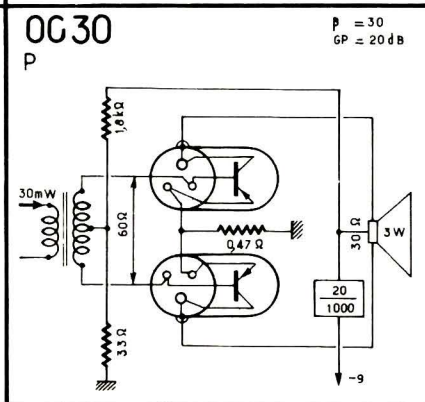
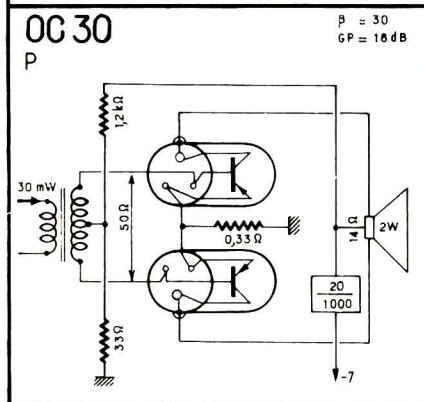
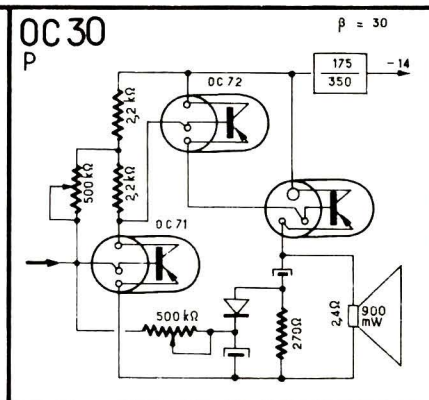
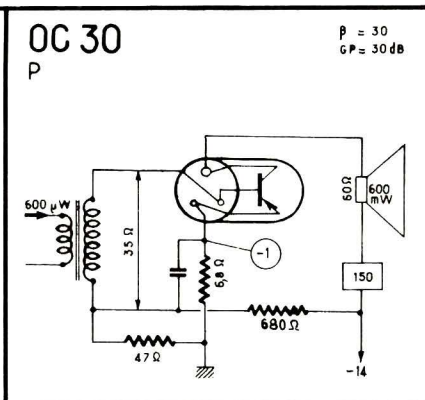
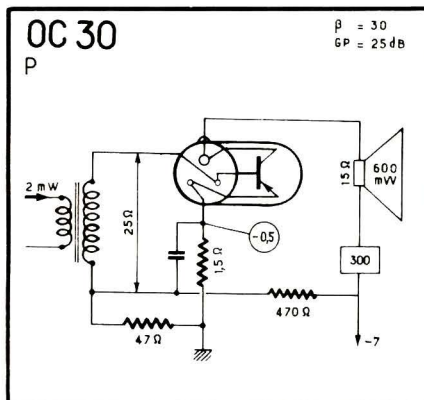






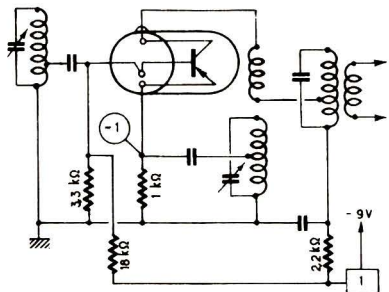
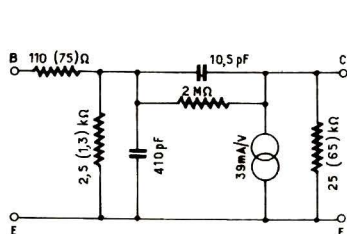






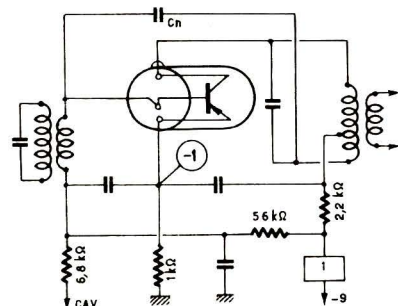
OC 44

Conv. < 2 MHz

 $\beta = 100$
GC = 28 dBOC44
(OC 45) $V_c = 6V$
 $I_c = 1mA$ 

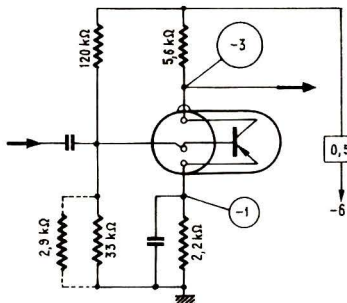
OC 45

MF 470 kHz

 $\beta = 50$
GP = 38 dB

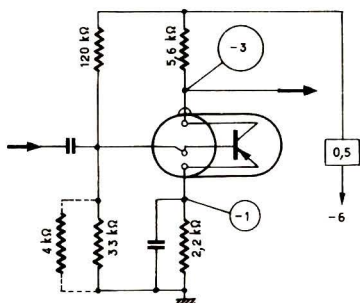
OC 57

BF

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

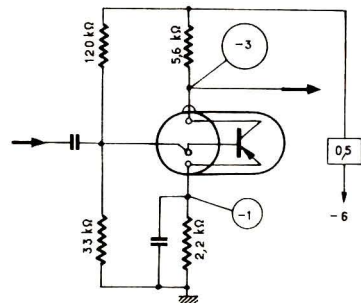
OC 58

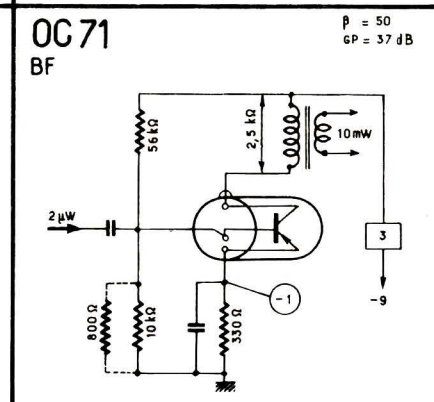
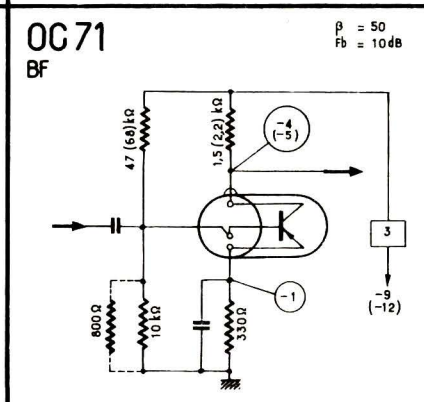
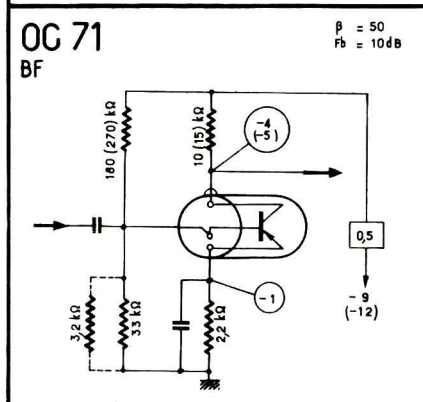
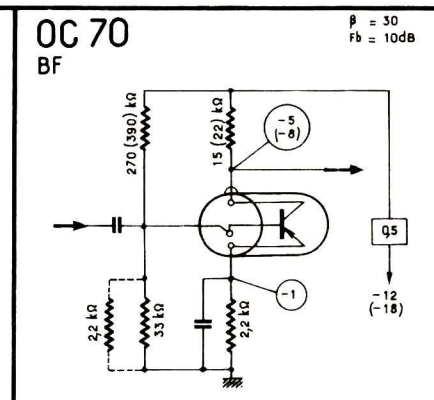
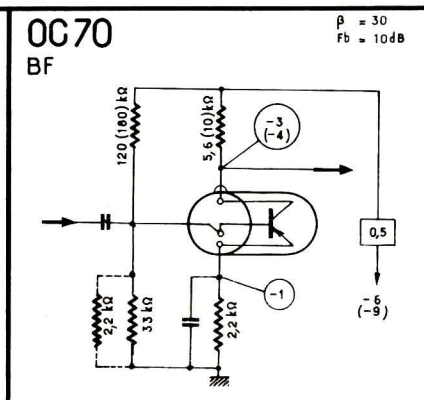
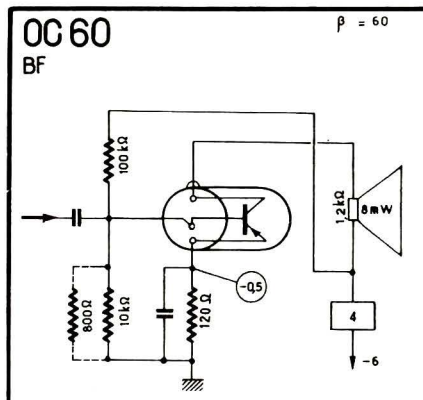
BF

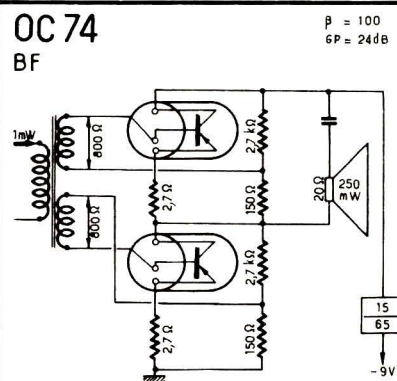
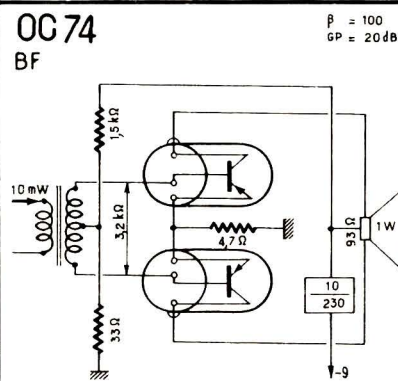
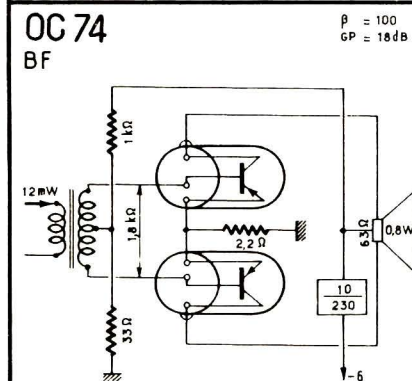
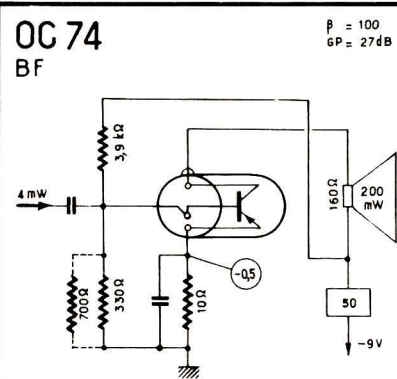
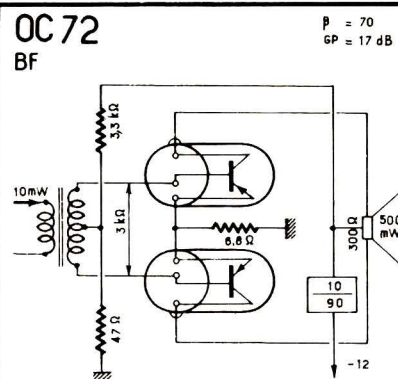
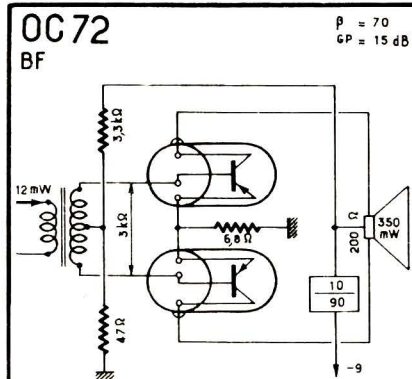
 $\beta = 55$
 $F_b = 10 \text{ dB}$ 

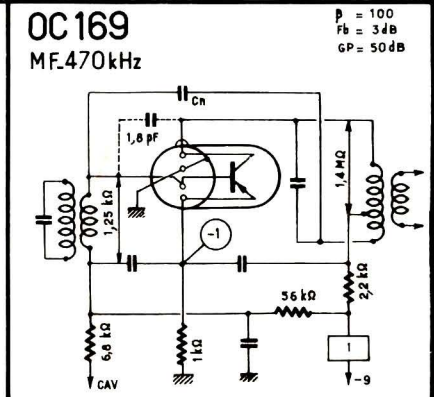
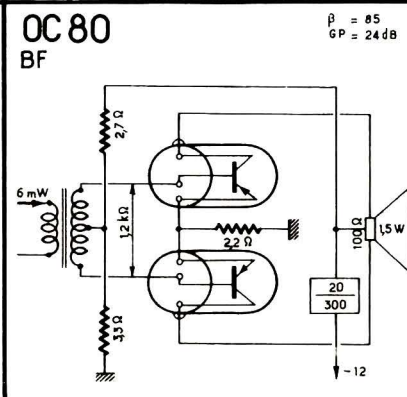
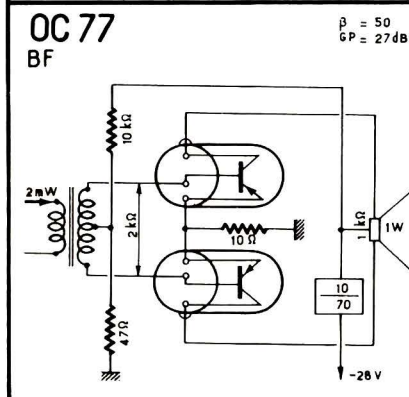
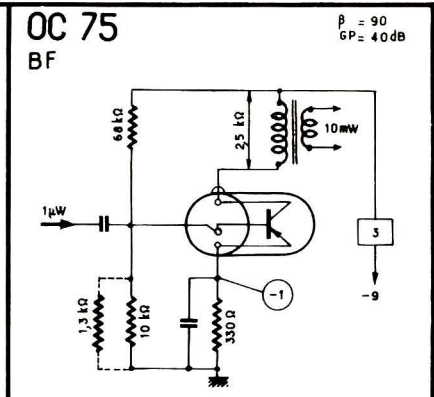
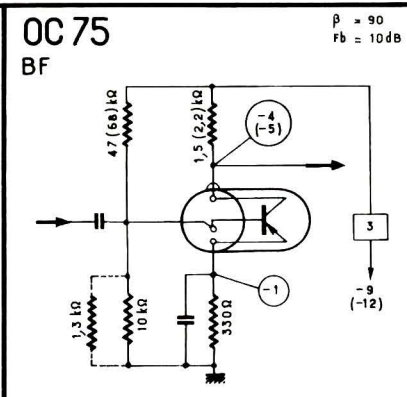
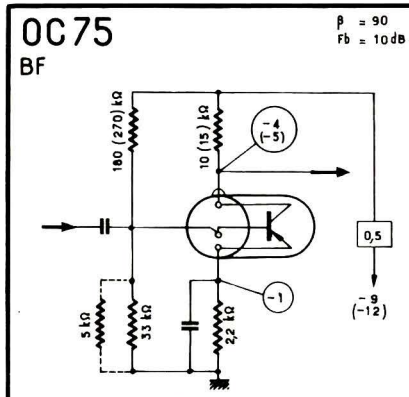
OC 59

BF

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

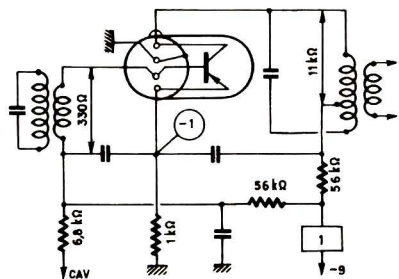






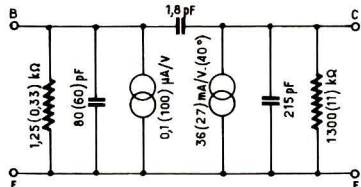
0C169
MF.10MHz

$\beta = 100$
 $F_b = 5 \text{ dB}(10 \text{ MHz})$
 $GP = 17 \text{ dB}$



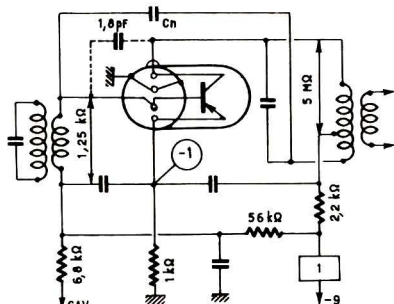
0C169
MF_HF

$V_c = 6 \text{ V}$
 $I_c = 1 \text{ mA}$
470 kHz (10 MHz)



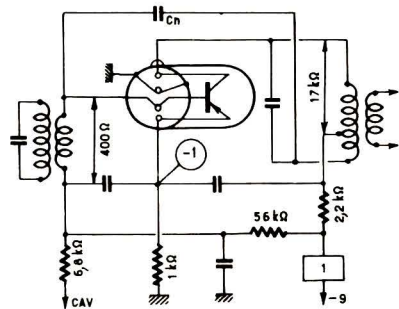
0C170
MF 470 kHz

$\beta = 100$
 $F_b = 3 \text{ dB}$
 $GP = 66 \text{ dB max}$



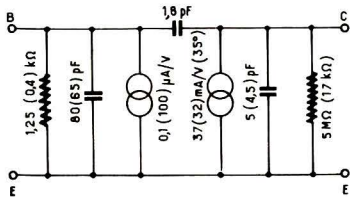
0C170
MF 10 MHz

$\beta = 100$
 $F_b = 4 \text{ dB}(10 \text{ MHz})$
 $GP = 32 \text{ dB max}$



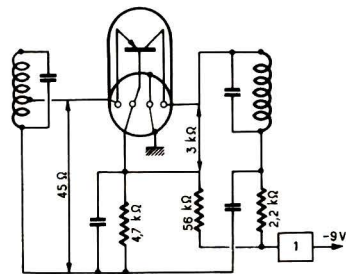
0C170
HF MF

$V_c = 6 \text{ V}$
 $I_c = 1 \text{ mA}$
470 kHz (10 MHz)



0C171
VHF

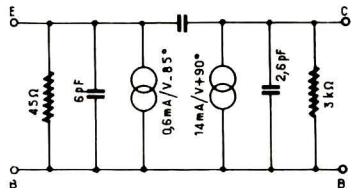
$\beta = 100$
 $F_b = 9 \text{ dB}(100 \text{ MHz})$



0C 171

VHF

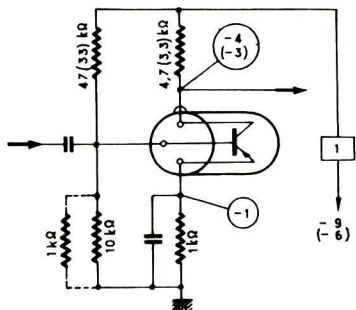
$V_c = 6V$
 $I_c = 1mA$
 100 MHz



0C 303

BF

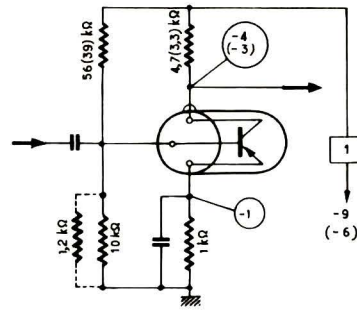
$\beta = 24$
 $F_b = 12dB$



0C304/1

BF

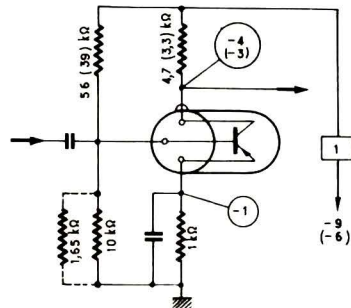
$\beta = 40$
 $F_b = 12dB$



0C 304/2

BF

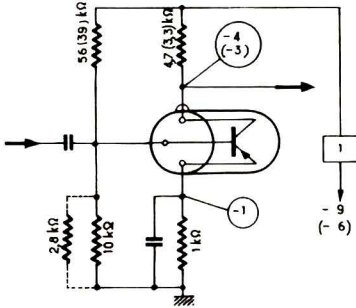
$\beta = 65$
 $F_b = 12dB$



0C 304/3

BF

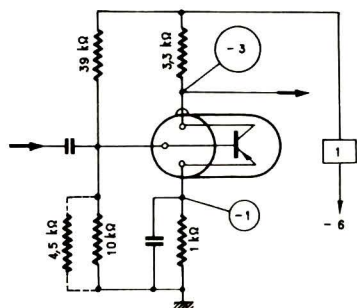
$\beta = 100$
 $F_b = 7dB$



0C 305/1

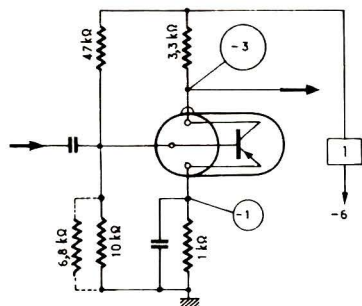
BF

$\beta = 150$
 $F_b = 12dB$



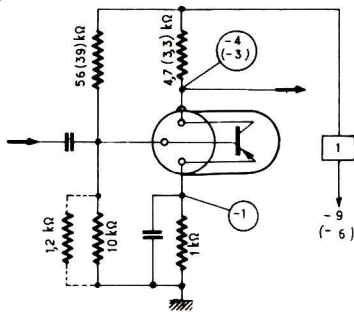
OC 305/2
BF

$\beta = 230$
 $F_b = 12 \text{ dB}$



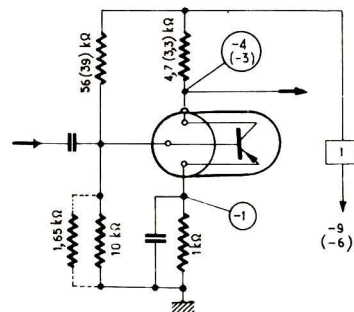
OC 306/1
BF

$\beta = 30 \dots 50$
 $F_b = 5 \text{ dB}$



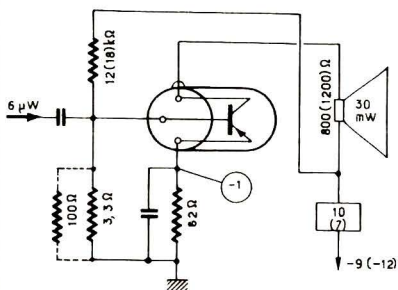
OC.306/2
BF

$\beta = 50 \dots 80$
 $F_b = 5 \text{ dB}$



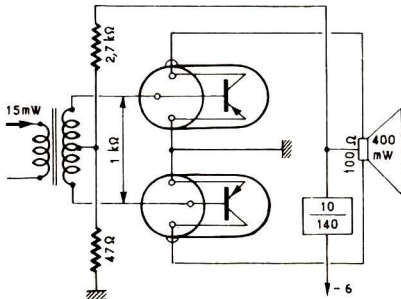
OC 308
BF

$\beta = 40$
 $GP = 37 \text{ dB}$



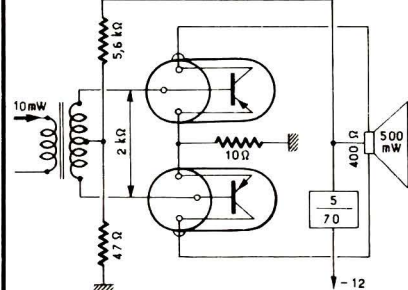
OC 308
BF

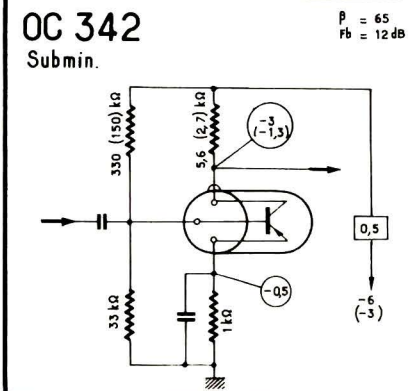
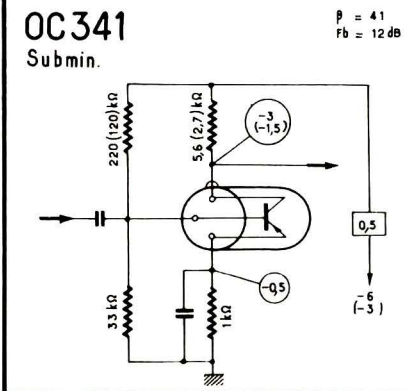
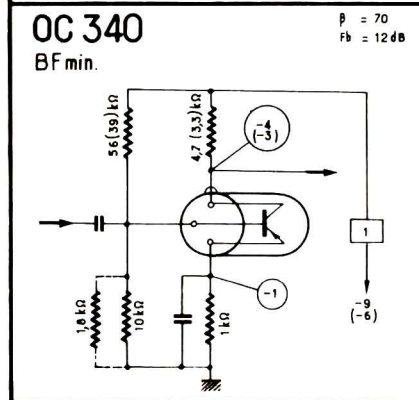
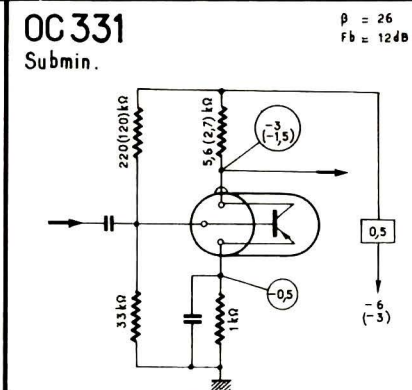
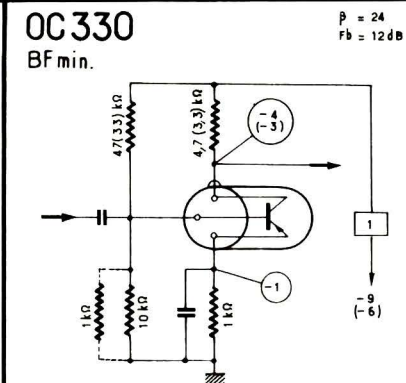
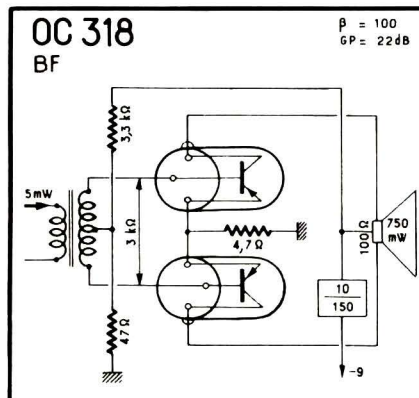
$\beta = 40$
 $GP = 15 \text{ dB}$



OC 308
BF

$\beta = 40$
 $GP = 16 \text{ dB}$

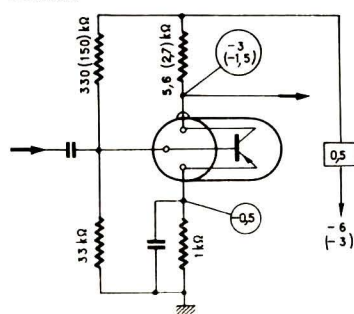




OC 343

Submin.

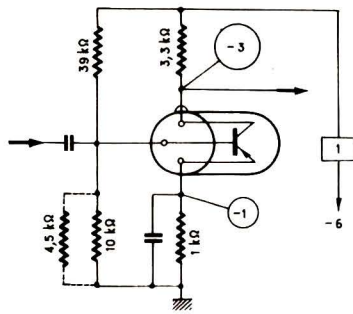
$\beta = 100$
 $F_b = 12 \text{ dB}$



OC 350

BF min.

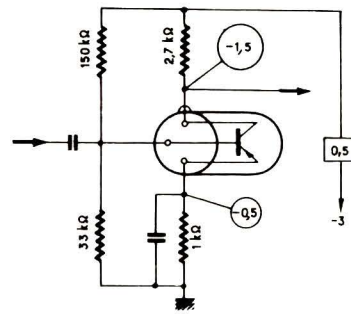
$\beta = 150$
 $F_b = 12 \text{ dB}$



OC 351

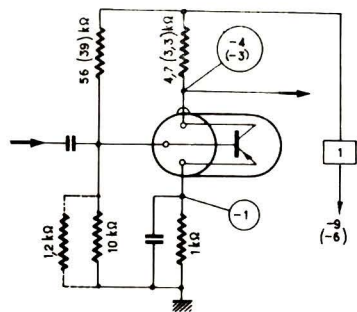
Submin.

$\beta = 170$
 $F_b = 12 \text{ dB}$



OC 360

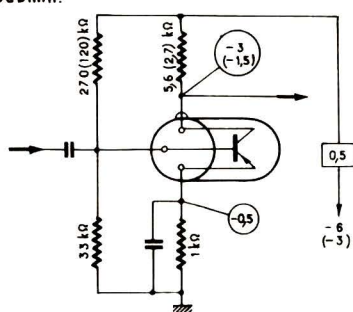
$\beta > 20$
 $F_b = 5 \text{ dB}$



OC 361

Submin.

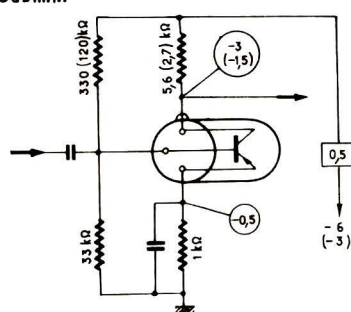
$\beta = 41$
 $F_b = 4 \text{ dB}$



OC 362

Submin.

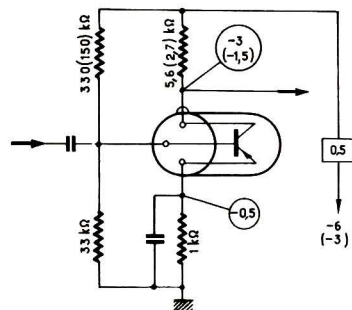
$\beta = 65$
 $F_b = 4 \text{ dB}$



OC 363

Submin.

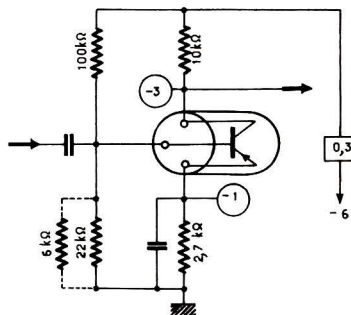
$\beta = 100$
 $F_b = 4 \text{ dB}$



OC364

Submin.

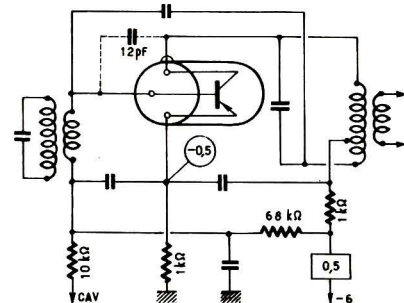
$\beta = 50..1000$
 $F_b < 5 \text{ dB}$



OC 390

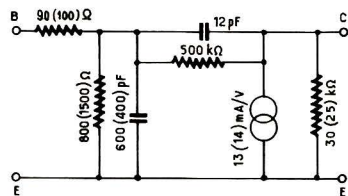
MF 470 kHz

$\beta = 40$



OC 390
(OC 400)

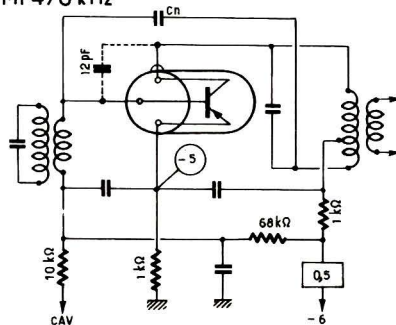
$V_c = 5V$
 $I_c = 0,5 \text{ mA}$



OC400

MF470 kHz

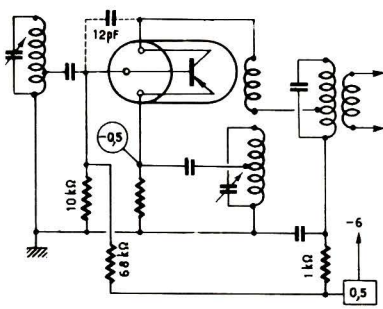
$\beta = 75$



OC 410

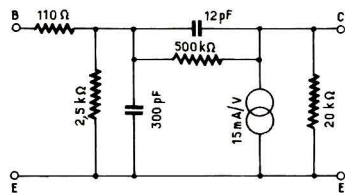
Conv. < 2MHz

$\beta = 110$



OC 410

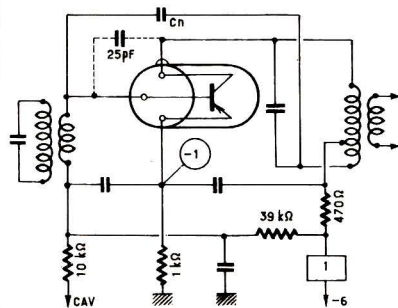
Conv.

 $V_c = 5V$
 $I_c = 0,5 mA$


OC 463

MF470kHz

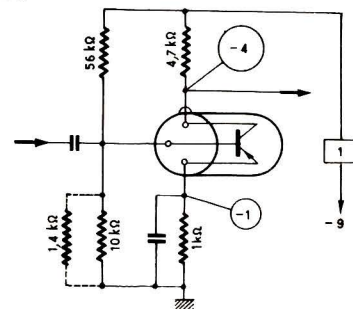
Si

 $\beta = 30$ 

OC 466

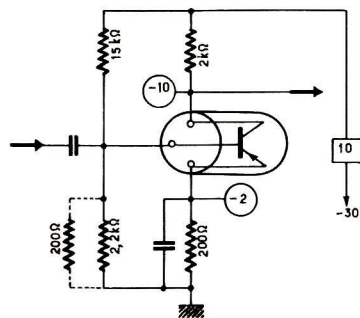
BF

Si

 $\beta = 30$
 $F_b = 8 dB$


OC469

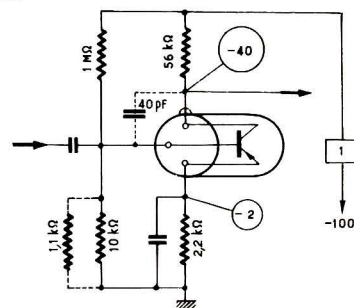
Si

 $\beta > 20$ 

OC 480

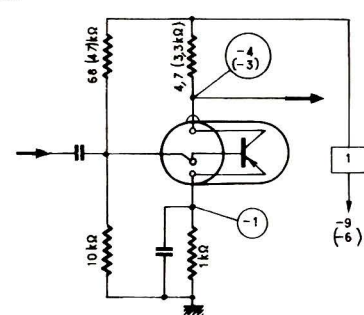
BF

Si

 $\beta > 10$ 

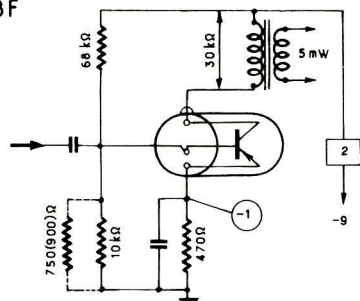
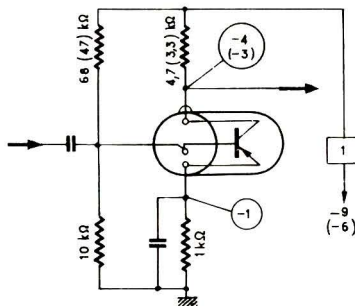
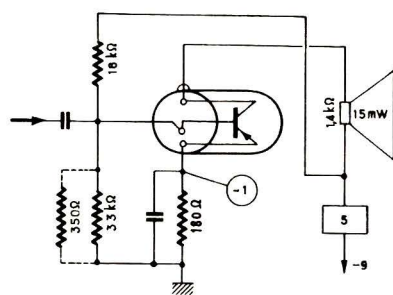
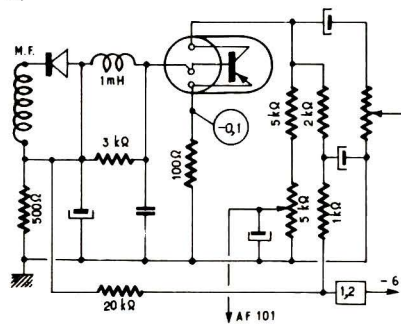
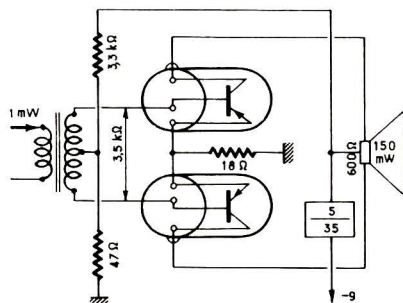
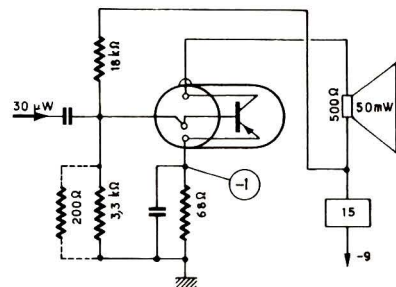
OC 602

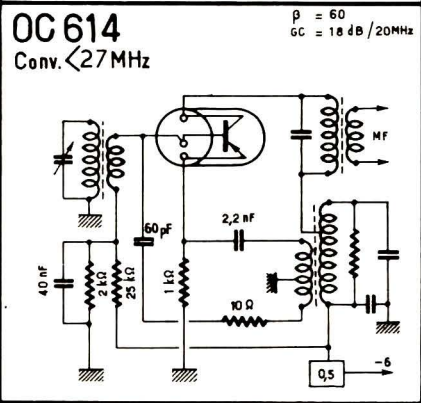
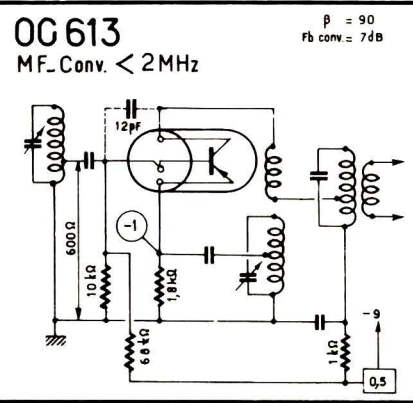
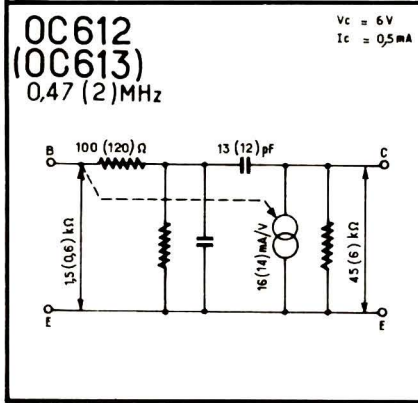
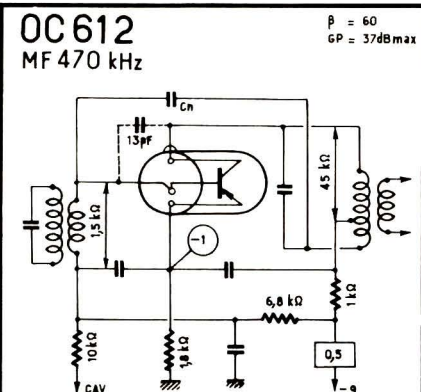
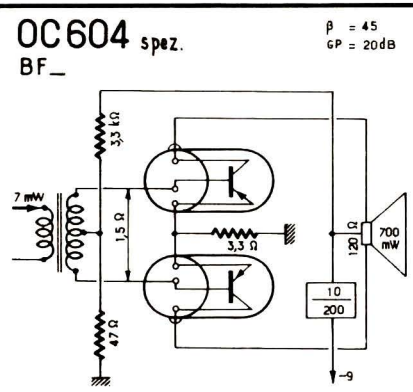
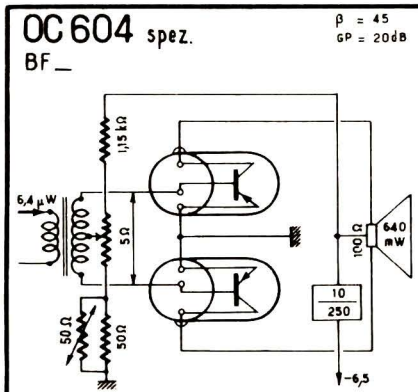
BF

 $\beta = 40$
 $F_b = 5 dB$


OC 602
(OC 603)

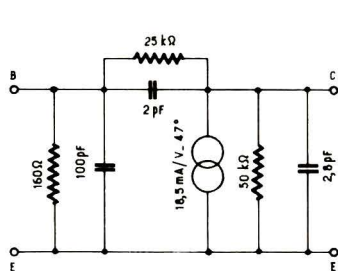
BF

 $\beta = 40 (50)$
 $F_b = 5 (3 \text{ dB})$
 $GP = 40 \text{ dB}$ OC 603
BF $\beta = 50$
 $GP = 3 \text{ dB}$ OC 604
BF $\beta = 65$
 $GP = 40 \text{ dB}$ OC 604
BF $\beta = 65$ OC 604
BF $\beta = 65$
 $GP = 22 \text{ dB}$ OC 604 spez.
BF $\beta = 45$
 $GP = 32 \text{ dB}$ 

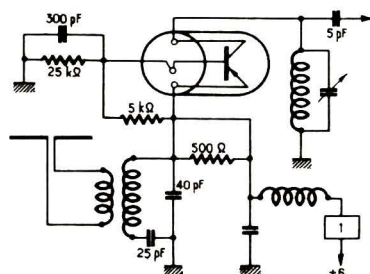


OC614

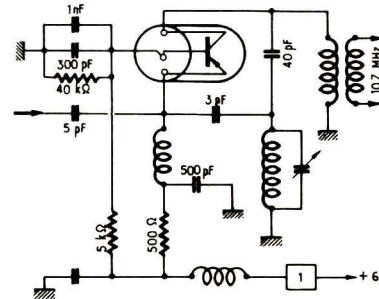
$V_c = 6\text{ V}$
 $I_c = 0,5\text{ mA}$
 $f = 25\text{ MHz}$

OC615
HF_100MHz

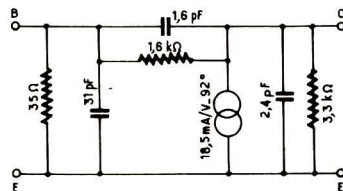
$\beta = 120$
 $GP = 7,7\text{ dB}$

OC 615
Conv. 80..100MHz

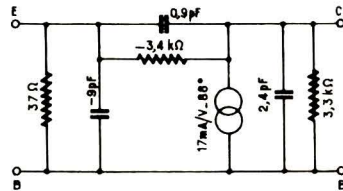
$\beta = 120$
 $GC = 12,3\text{ dB}$

OC615
95 MHz

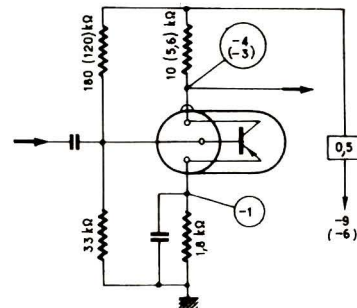
$V_c = -6\text{ V}$
 $I_c = 1\text{ mA}$

OC615
95 MHz

$V_c = 6\text{ V}$
 $I_c = 1\text{ mA}$

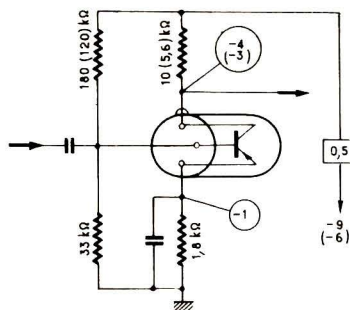
OC622
BF_Submin.

$\beta = 40$
 $Fb = 5\text{ dB}$



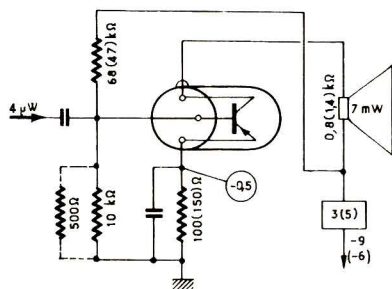
OC 623

BF—Submin.

 $\beta = 50$
 $F_b = 5 \text{ dB}$ 

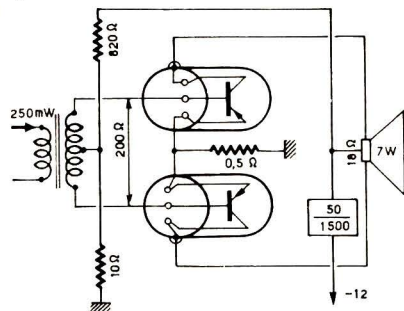
OC 624

BF—Submin.

 $\beta = 65$
 $F_b = 5 \text{ dB}$
 $GP < 33 \text{ dB}$ 

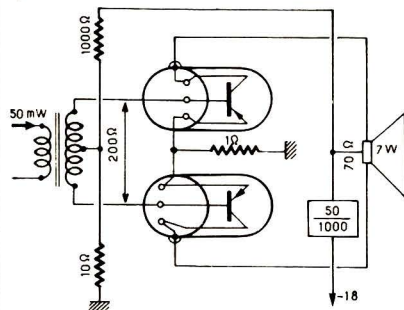
OD 603

P

 $\beta = 30$
 $GP = 15 \text{ dB}$ 

OD 603/50

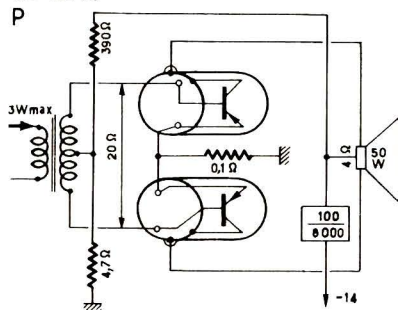
P

 $\beta = 30$
 $GP = 21 \text{ dB}$ 

OD 650

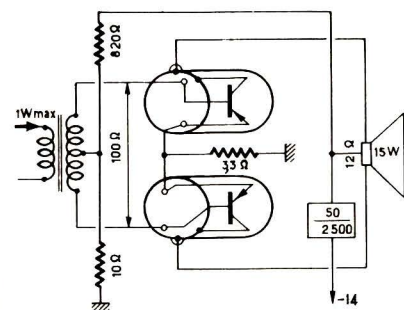
OD 651
OD 651a

P

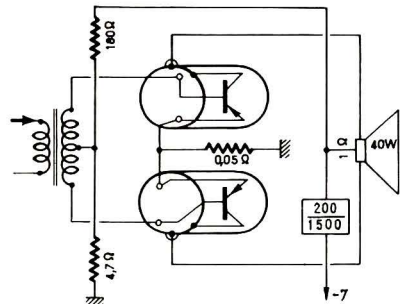
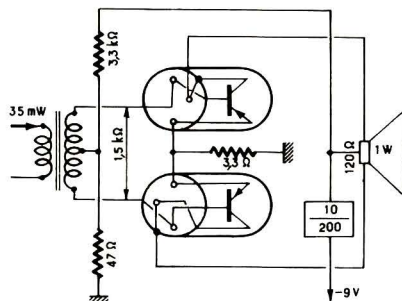
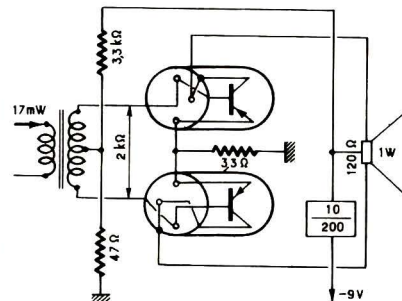
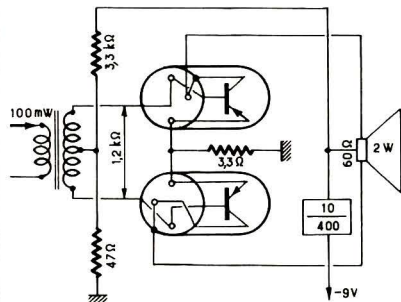
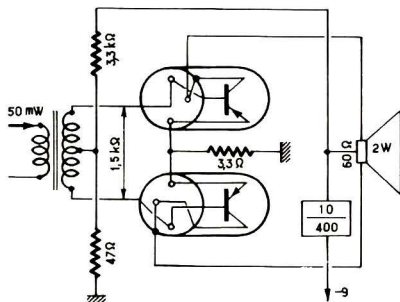
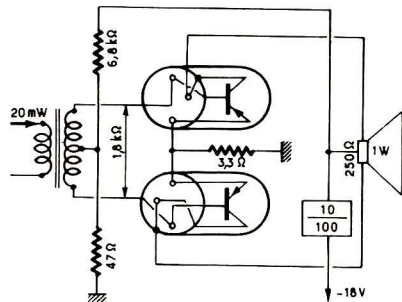
 $\beta > 10$
 $GP > 12 \text{ dB}$ 

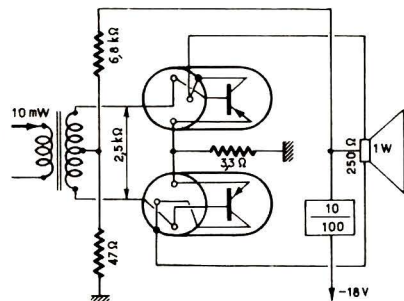
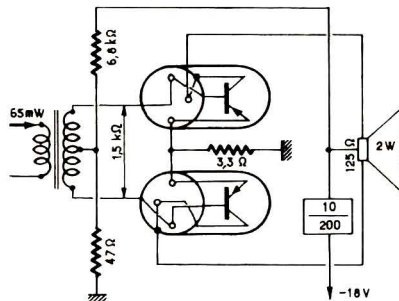
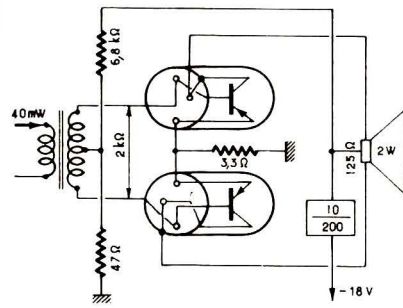
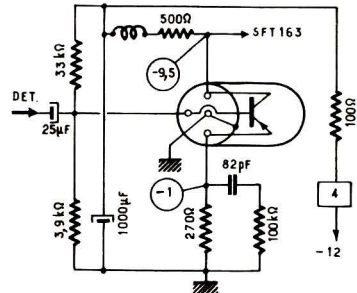
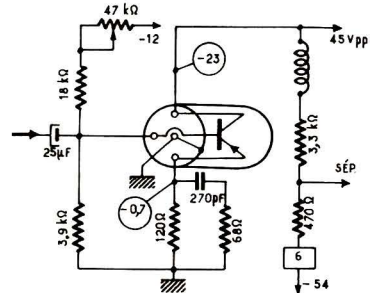
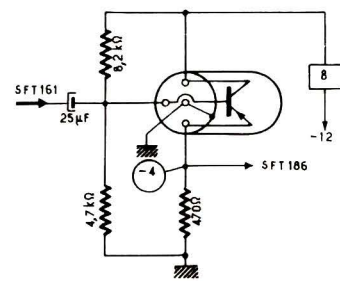
OD 650 b

P

 $\beta > 15$
 $GP > 12 \text{ dB}$ 

OD 652

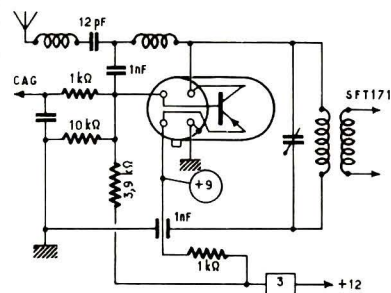
 $\beta > 10$ SFT 124
BF $\beta = 30$
GP = 15 dBSFT 125,P
BF $\beta = 70$
GP = 18 dBSFT 130
P $\beta = 30$
GP = 13 dBSFT 131,P
P $\beta = 70$
GP = 16 dBSFT 143
BF $\beta = 30$
GP = 17 dB

SFT 144
BF $\beta = 50$
GP = 20dBSFT 145
P $\beta = 30$
GP = 15dBSFT 146
P $\beta = 50$
GP = 17dBSFT 161
Vidéo $\beta > 50$ SFT 162
Vidéo $\beta > 50$ SFT 163
Vidéo $\beta = 120$ 

SFT170

200 MHz

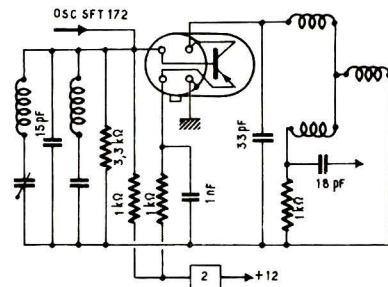
GP = 12 dB
F_b = 6 dB



SFT171

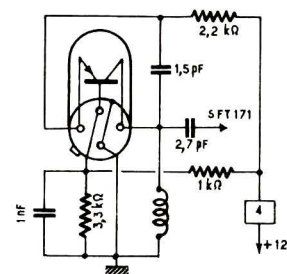
Conv. 200 MHz

GC = 12 dB



SFT172

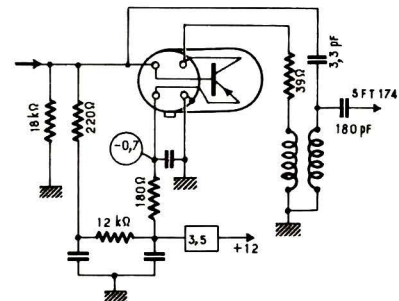
Osc. 200 MHz



SFT173

FI Image

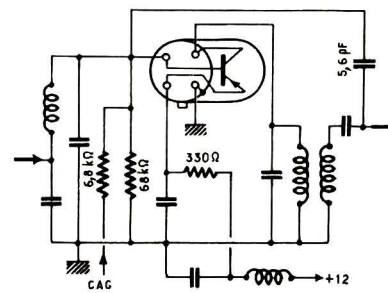
GP = 20 dB



SFT173

FI Son

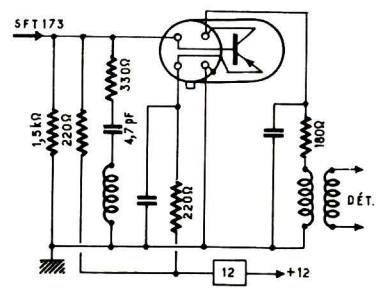
GP = 26 dB

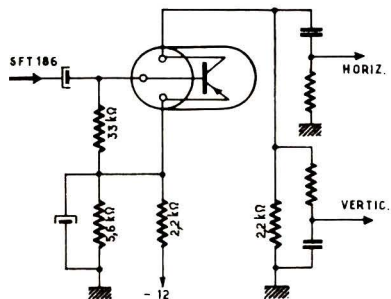
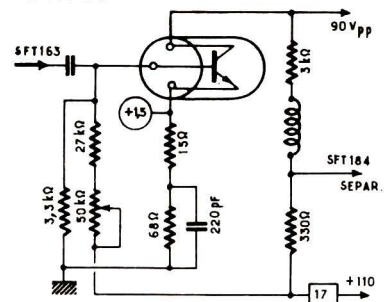
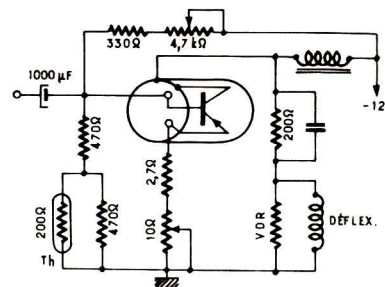
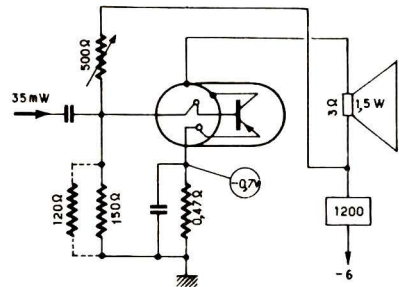
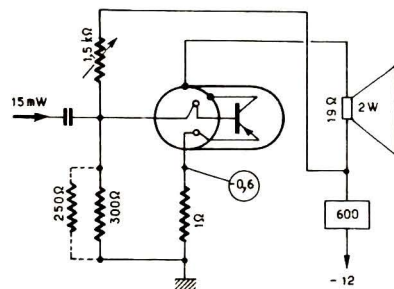
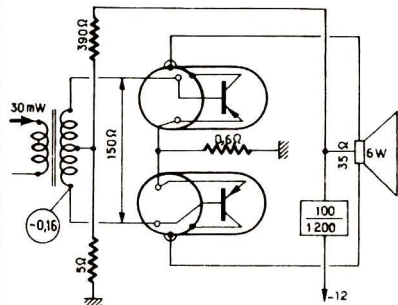


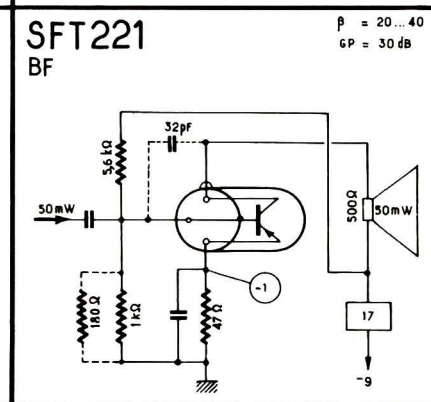
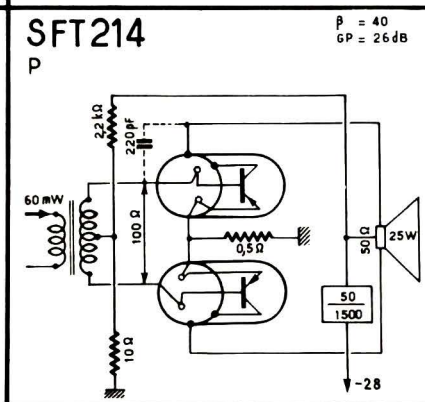
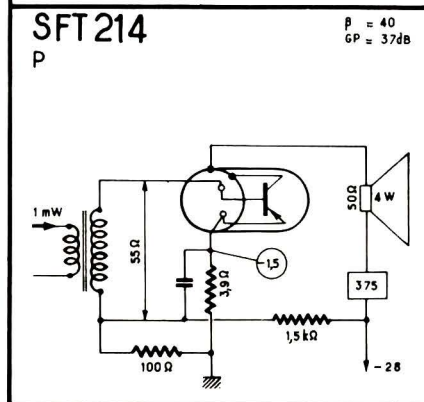
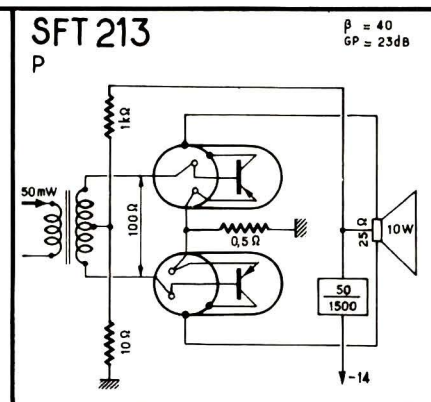
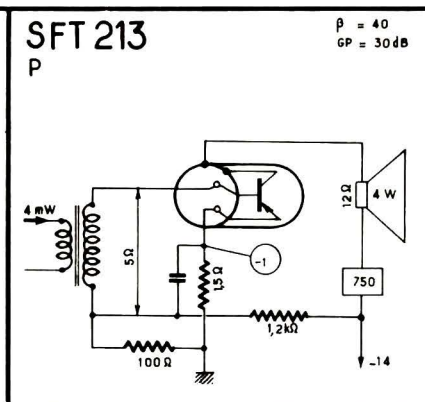
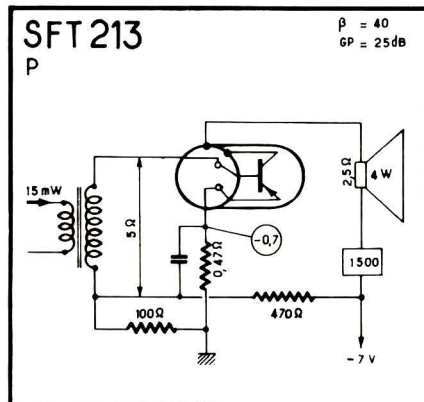
SFT174

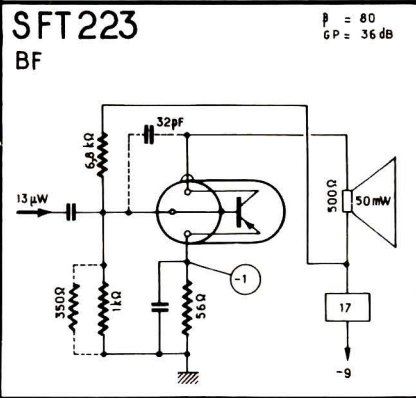
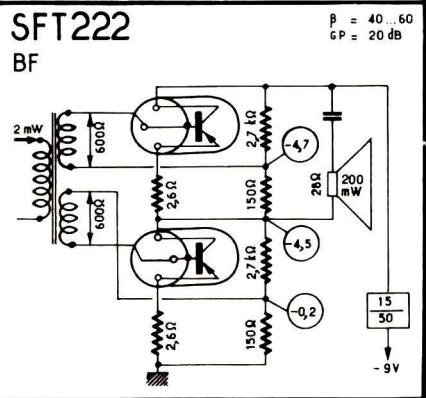
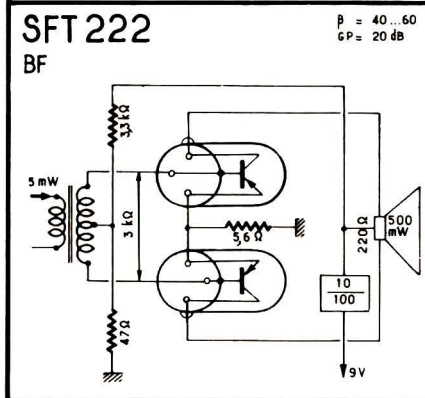
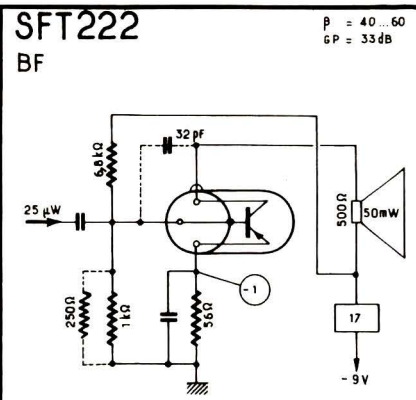
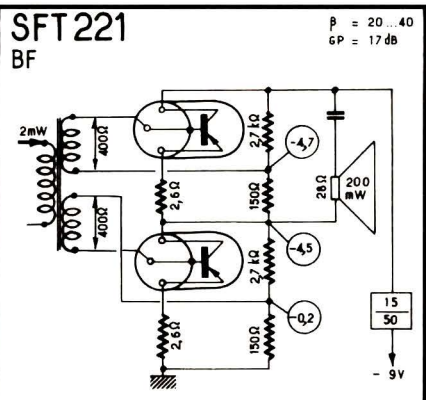
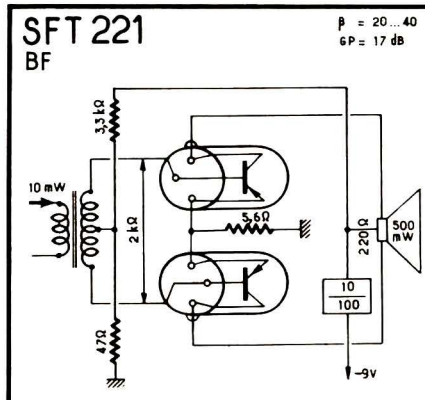
FI Image

GP = 27 dB



SFT 184
 S p.Synchr.
 $\beta = 60$ 
SFT 186
 Vid o Sortie
Si
n-p-n $\beta = 30$
 $6V = 20$ 
SFT 191
 D fl. vert. TV
 $\beta = 70$ 
SFT 212
 P
 $\beta = 20 \dots 150$
 $6P = 16 \text{ dB}$ 
SFT 212
 P
 $\beta = 20 \dots 150$
 $6P = 21 \text{ dB}$ 
SFT 212
 P
 $\beta = 20 \dots 150$
 $6P = 23 \text{ dB}$ 

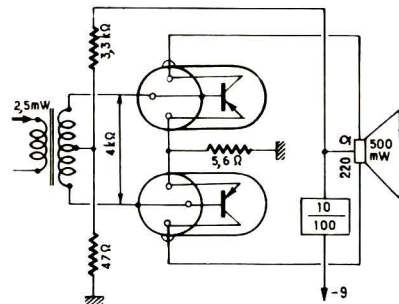




SFT 223

 $\beta = 80$
GP = 23 dB

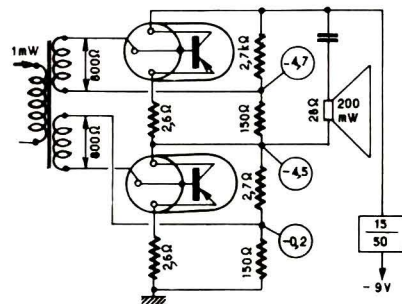
BF



SFT 223

 $\beta = 80$
GP = 23 dB

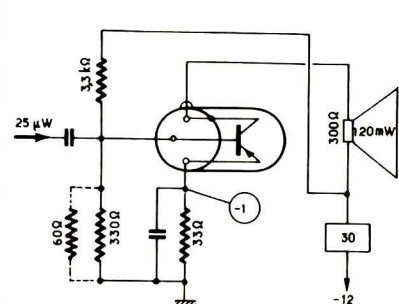
BF



SFT 232

 $\beta = 40$
GP = 36 dB

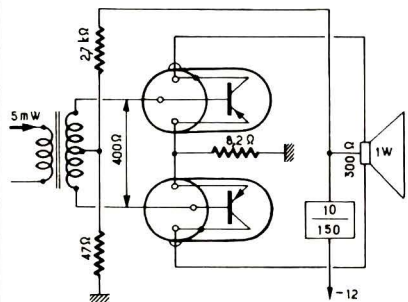
BF



SFT 232

 $\beta = 40$
GP = 23 dB

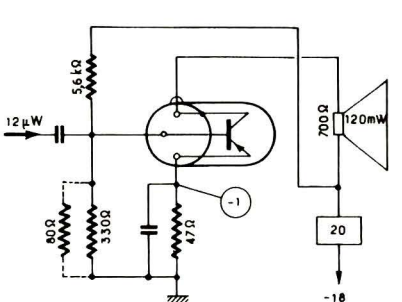
BF



SFT 233

 $\beta = 40$
GP = 40 dB

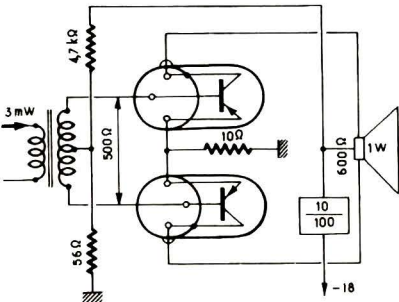
BF



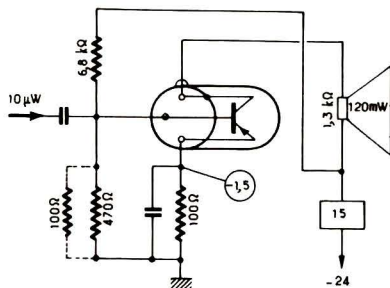
SFT 233

 $\beta = 40$
GP = 25 dB

BF

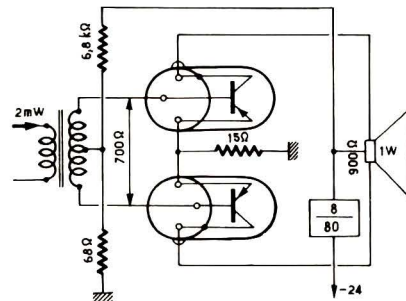


SFT 234

 $\beta = 40$
 $GP = 41 \text{ dB}$


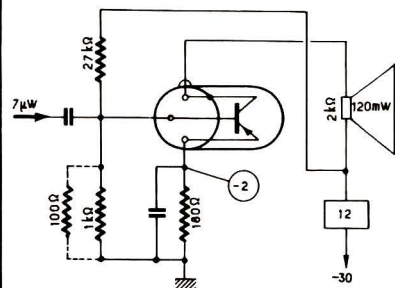
SFT 234

BF

 $\beta = 40$
 $GP = 27 \text{ dB}$


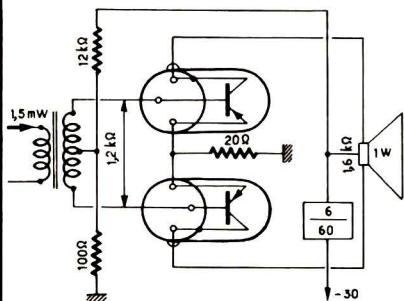
SFT 235

BF

 $\beta = 40$
 $GP = 42 \text{ dB}$


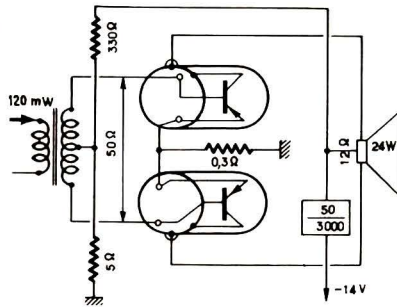
SFT 235

BF

 $\beta = 40$
 $GP = 28 \text{ dB}$


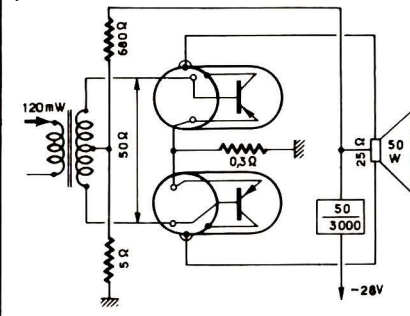
SFT 238

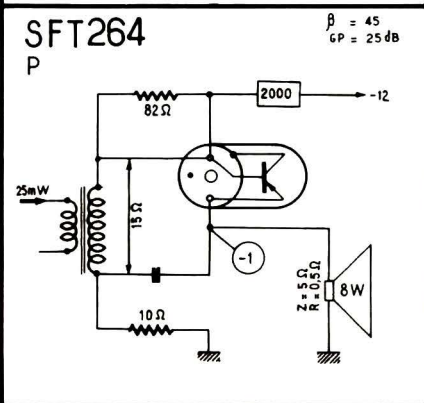
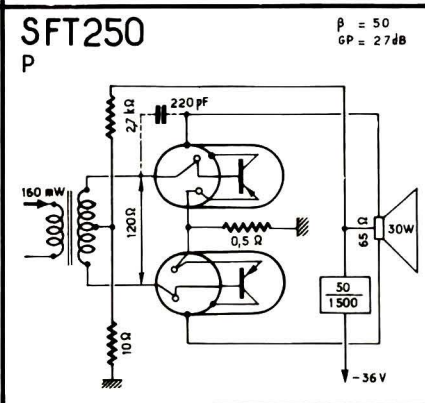
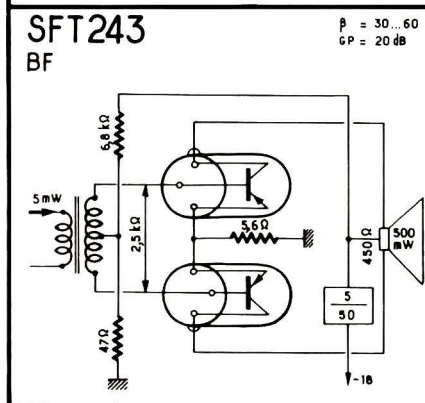
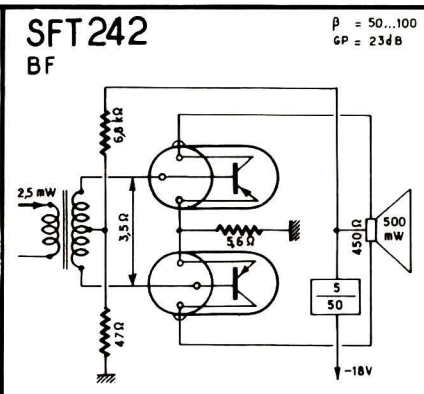
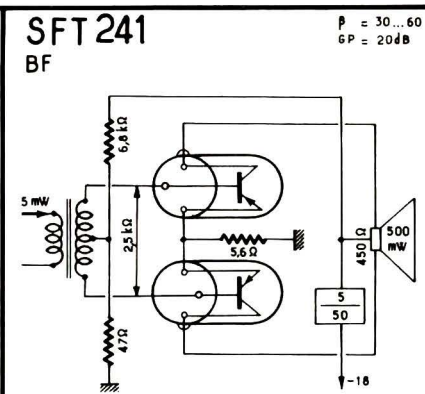
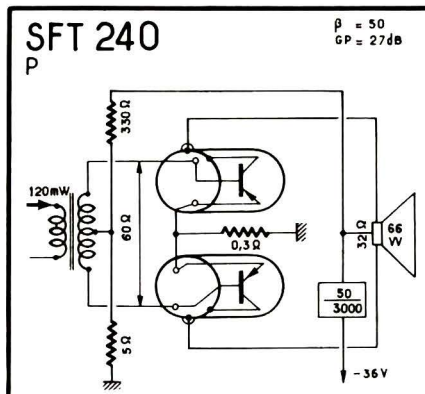
P

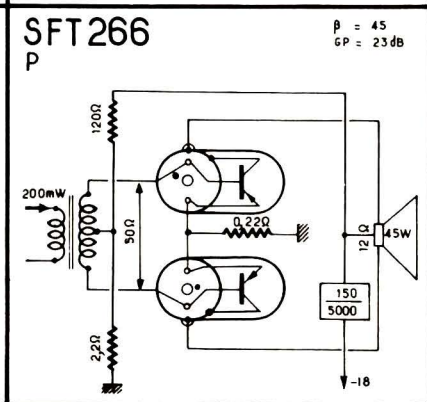
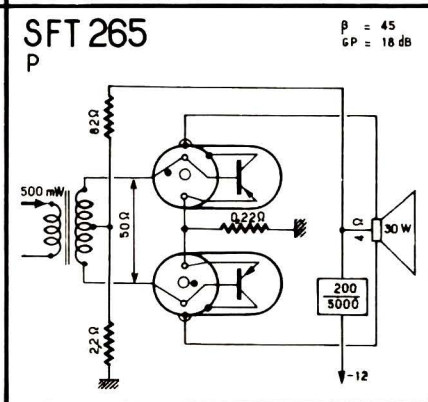
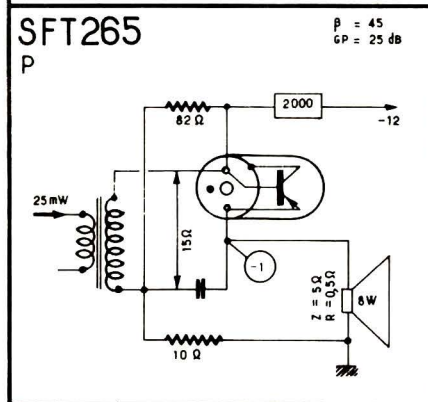
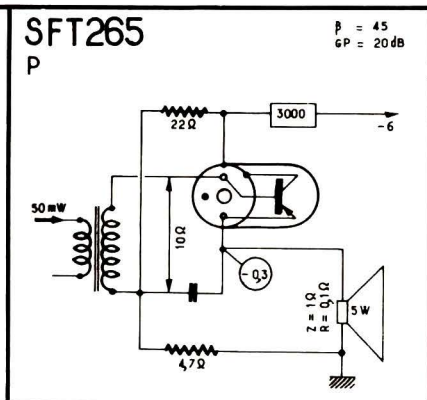
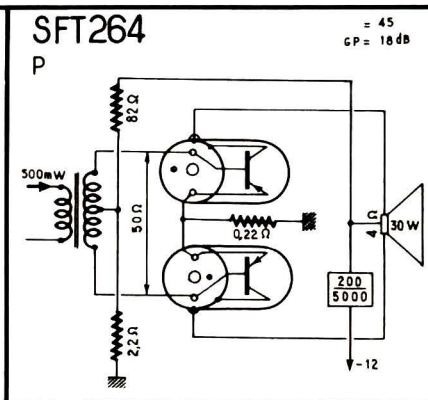
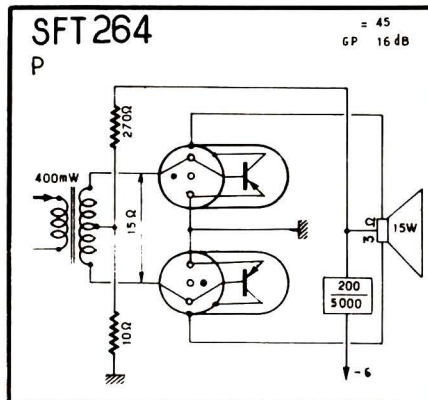
 $\beta = 40$
 $GP = 23 \text{ dB}$


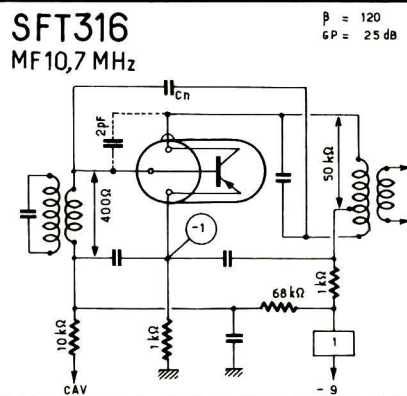
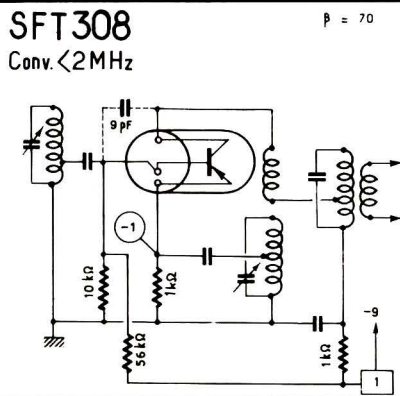
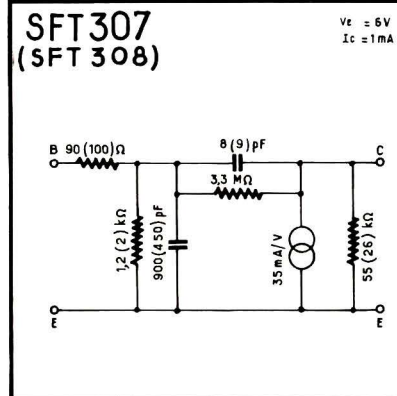
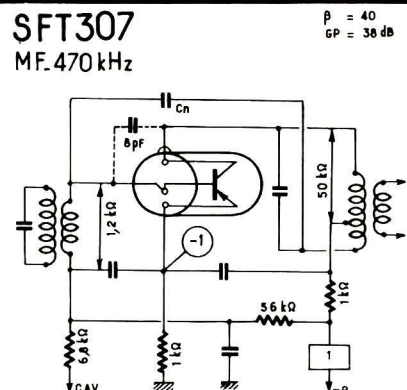
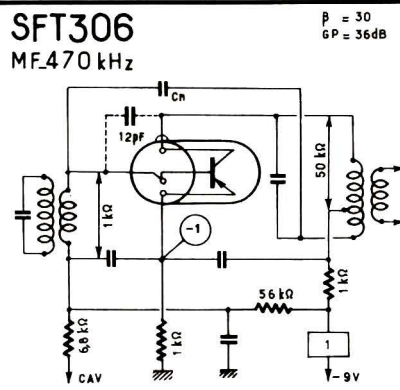
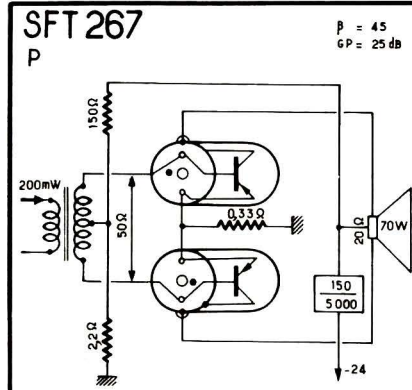
SFT 239

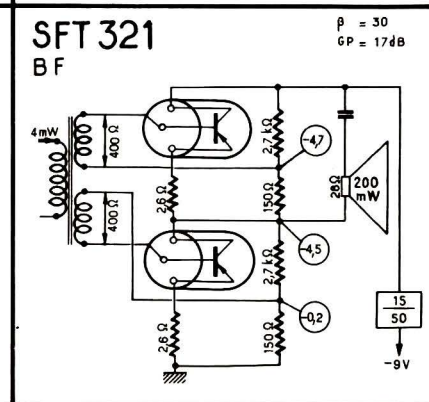
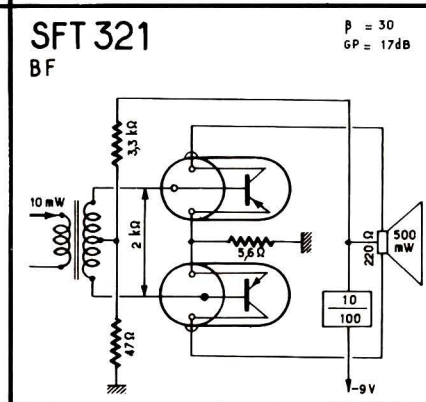
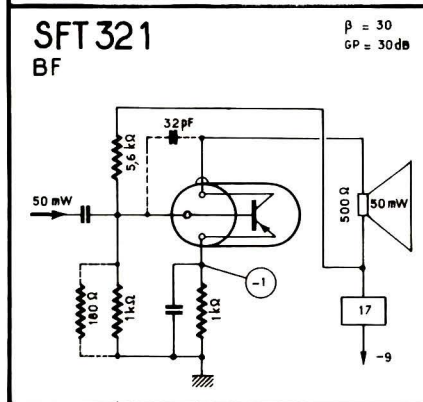
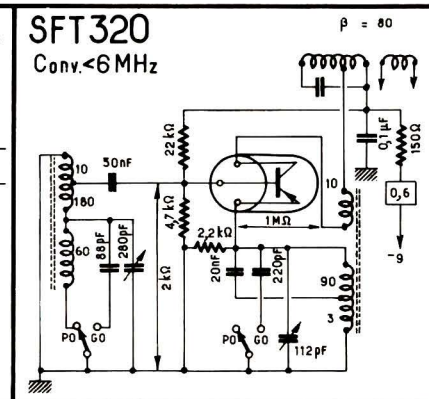
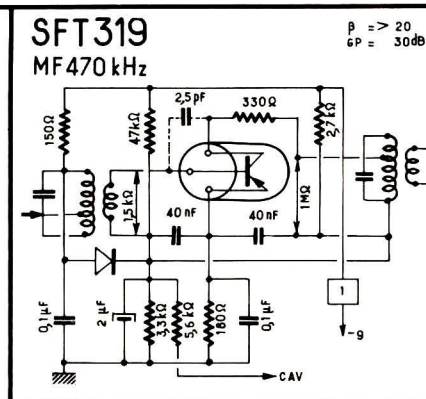
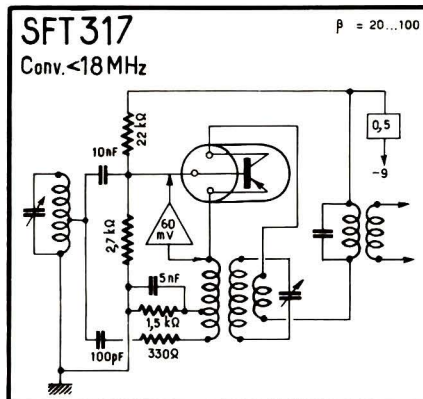
P

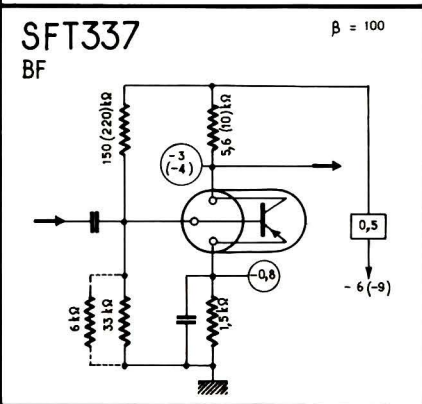
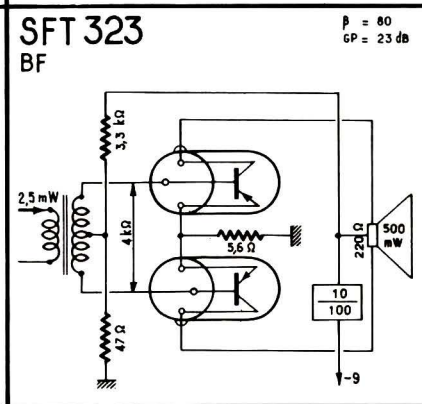
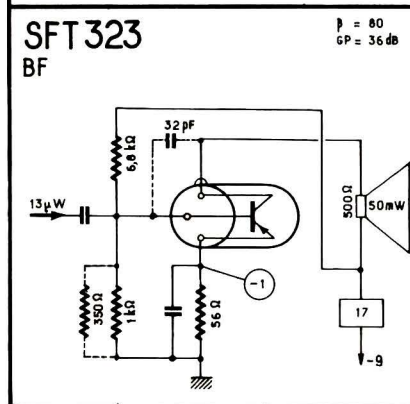
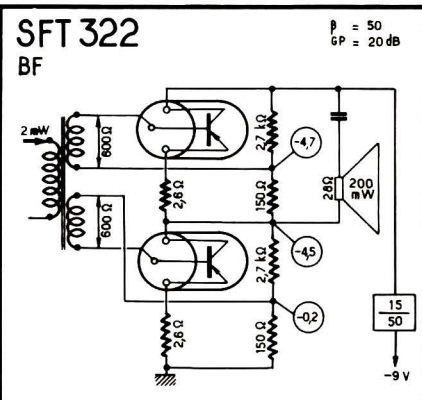
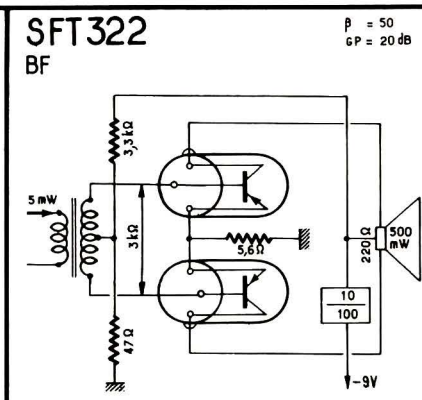
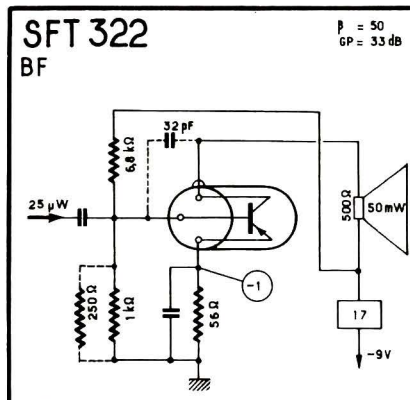
 $\beta = 40$
 $GP = 26 \text{ dB}$


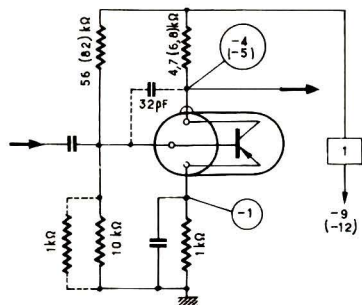
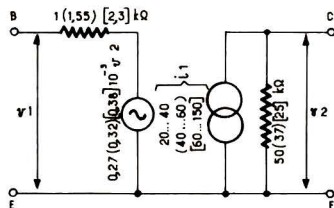
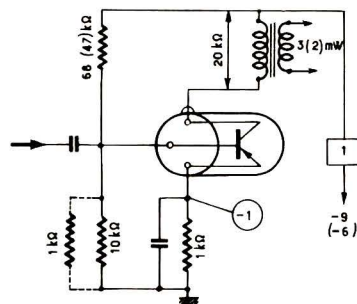
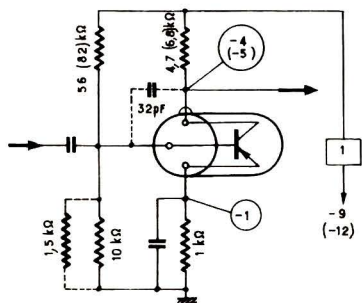
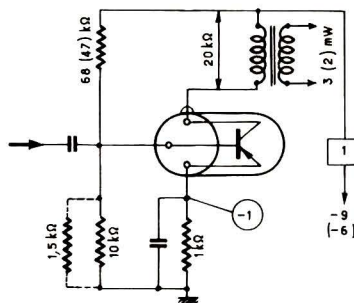
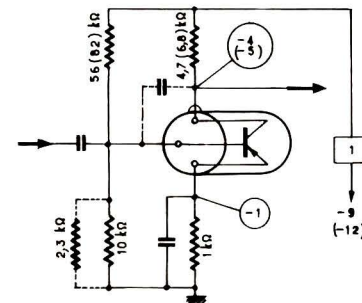


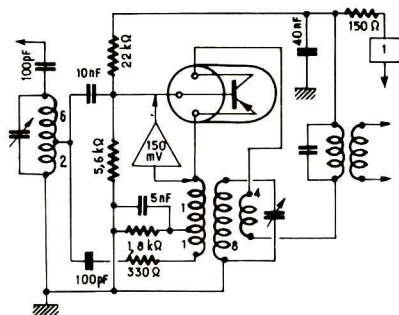
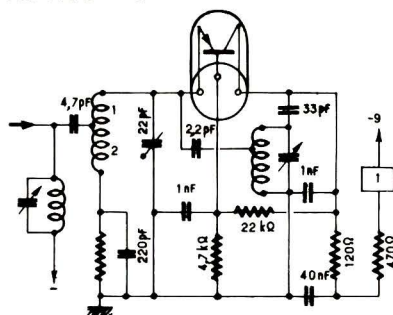


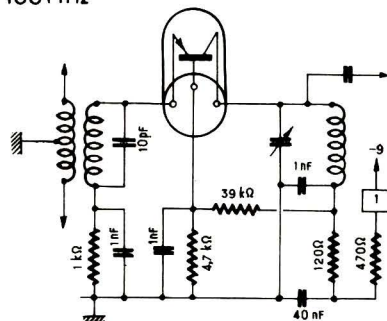
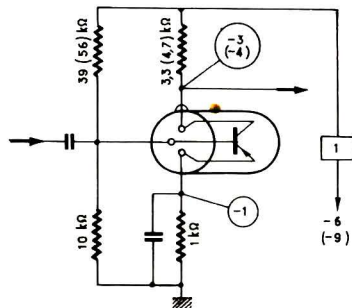
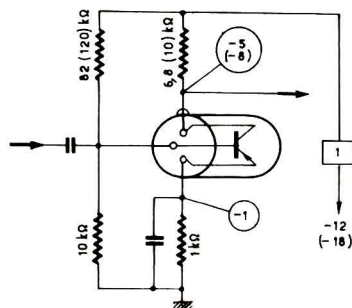


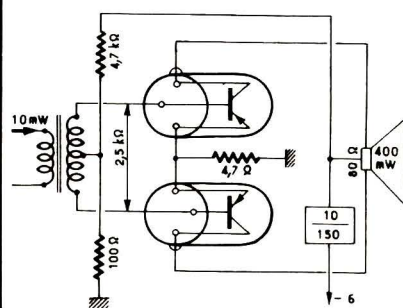


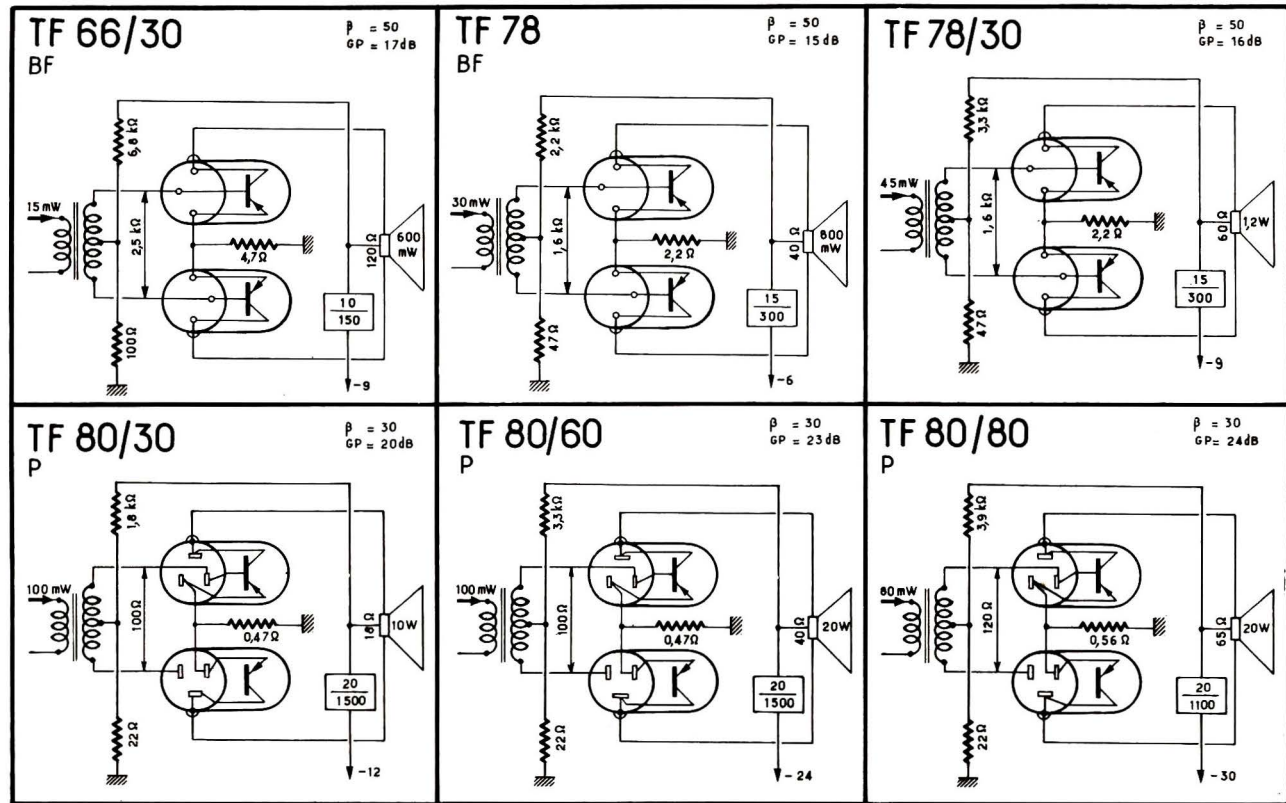


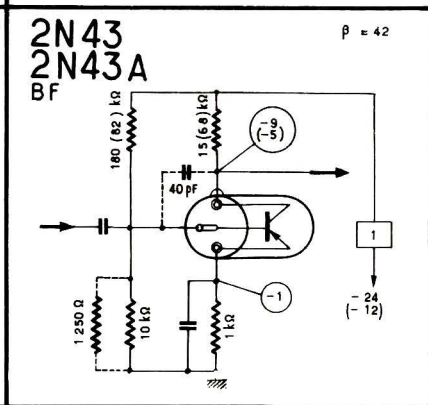
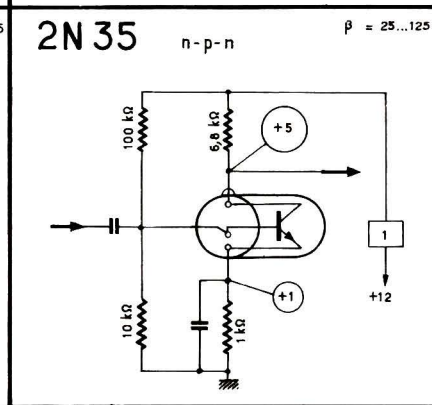
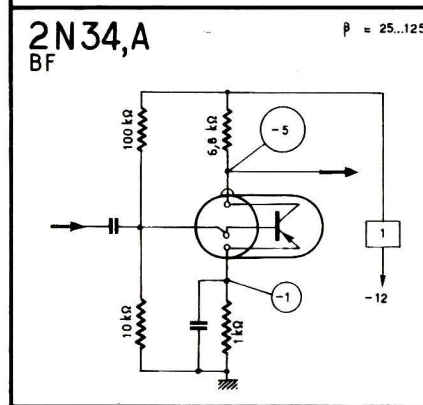
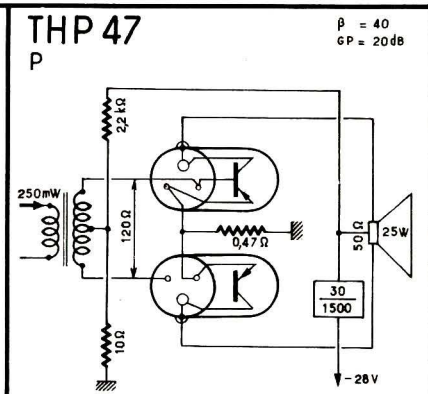
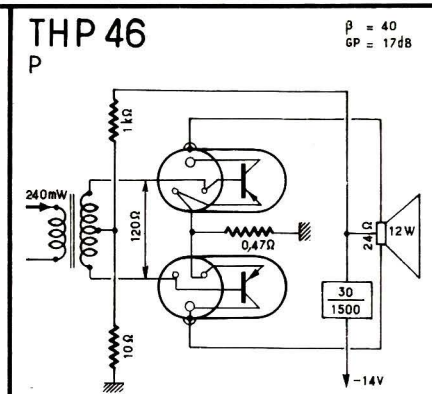
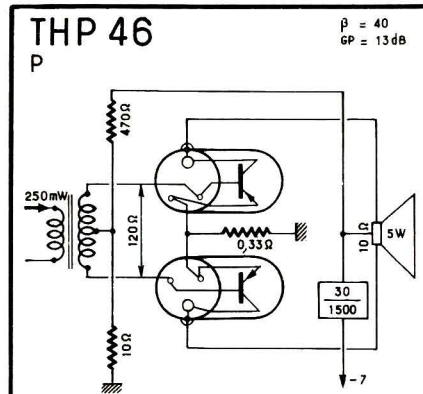
SFT 351
BF $\beta = 30$
 $F_b = 8 \text{ dB}$ SFT 351
(SFT 352)
(SFT 353) $V_c = -6 \text{ V}$
 $I_c = 1 \text{ mA}$
 $f = 1 \text{ kHz}$
 $F_b = 8 \text{ dB}$ SFT 352
BF $\beta = 50$
 $GP < 40 \text{ dB}$ SFT 352
BF $\beta = 50$
 $F_b = 8 \text{ dB}$ SFT 353
BF $\beta = 80$
 $GP < 42 \text{ dB}$ SFT 353
BF $\beta = 80$
 $F_b = 8 \text{ dB}$ 

SFT 354
 Conv. < 23 MHz
 $\beta = 100$ 
SFT 357
 Conv. 100 MHz
 $\beta = 100$ 
SFT 358
 100 MHz

 $\beta = 150$
 $GP = 14 \text{ dB}$
 $Fb = 7 \text{ dB}$

TF 65
 BF
 $\beta = 50$ 
TF 65/30
 BF
 $\beta = 50$ 
TF 66
 BF

 $\beta = 50$
 $GP = 16 \text{ dB}$






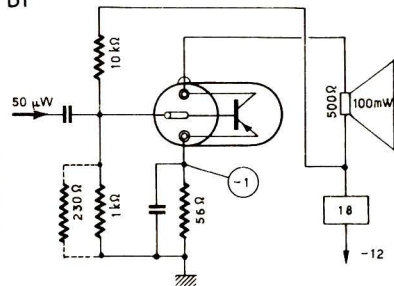
2N43

66

2N61A,B,C

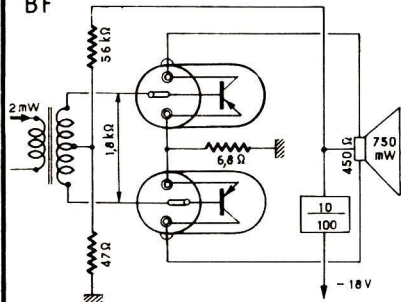
2N43
2N43A
BF

$\beta = 42$
GP = 33dB



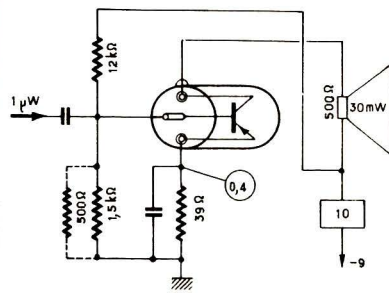
2N43
2N43A
BF

$\beta = 42$
GP = 26dB



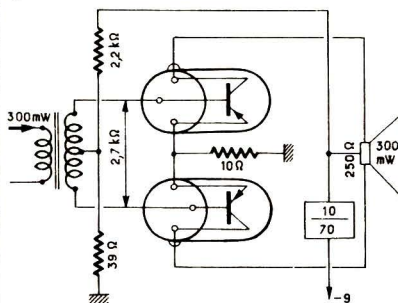
2N59,A,B,C
BF

$\beta = 90$
GP = 35dB



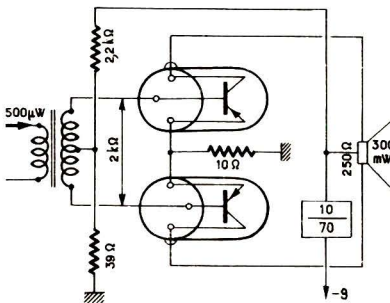
2N59,A,B,C
BF

$\beta = 90$
GP = 30dB



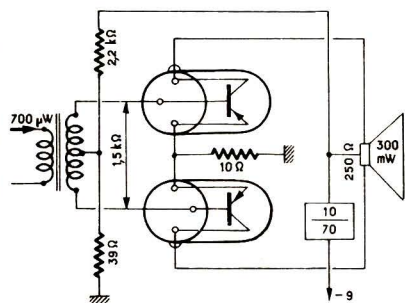
2N60,A,B,C

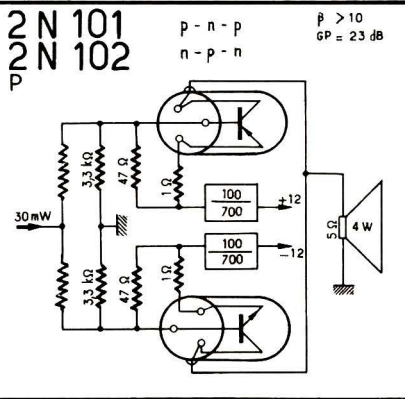
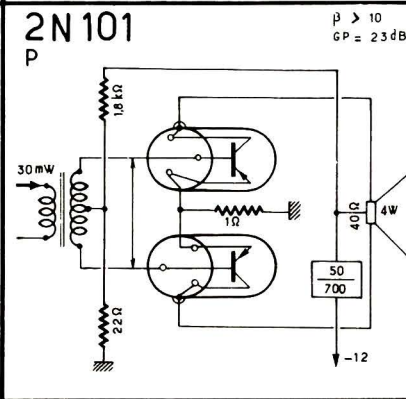
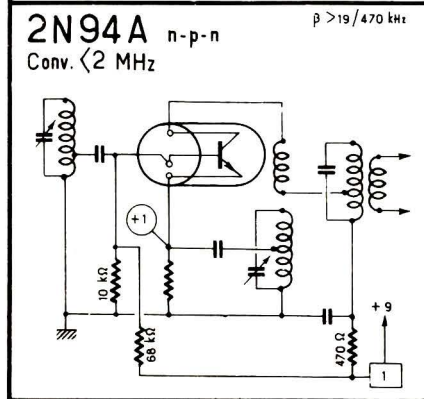
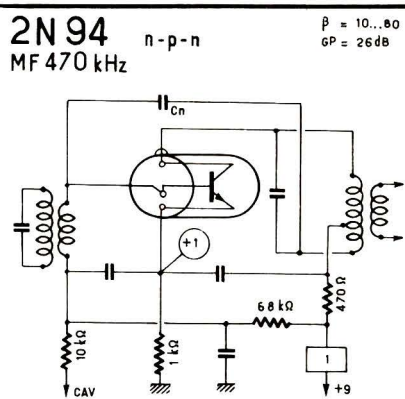
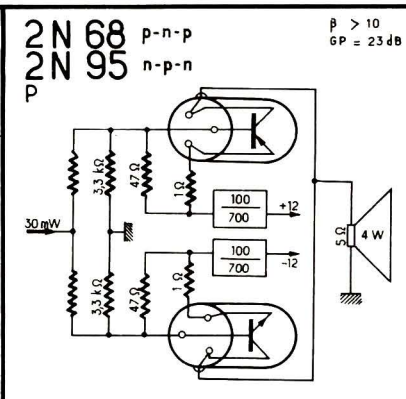
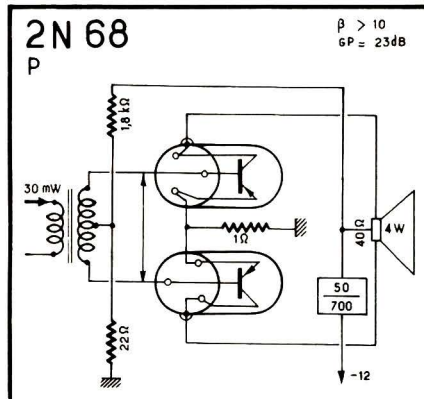
$\beta = 65$
GP = 28 dB



2N61A,B,C
BF

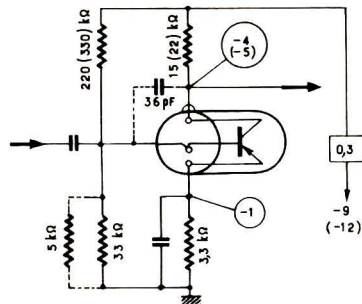
$\beta = 45$
GP = 26 dB





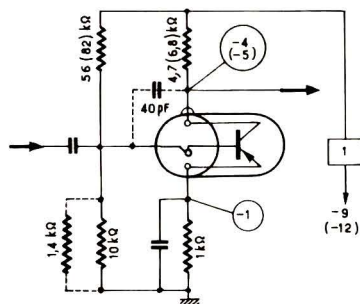
2N 104

BF

 $\beta = 44$
 $F_b = 12\text{ dB max}$ 

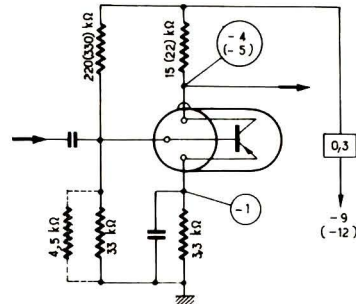
2N 104

BF

 $\beta = 44$
 $F_b = 12\text{ dB max}$ 

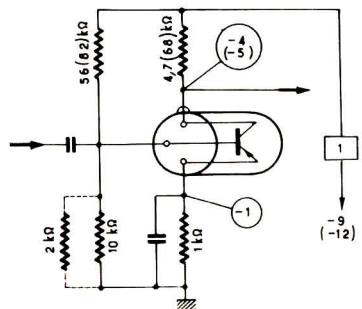
2N 105

BF

 $\beta = 55$
 $F_b = 16\text{ dB max}$ 

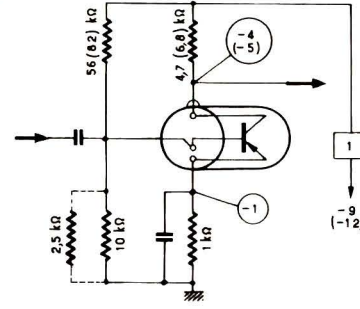
2N 105

BF

 $\beta = 55$
 $F_b = 16,5\text{ dB max}$ 

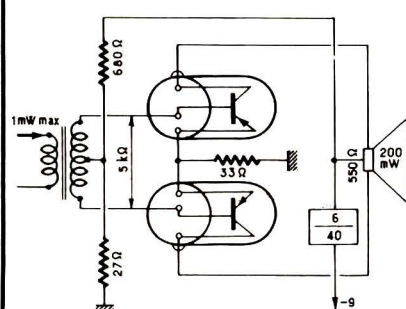
2N 109

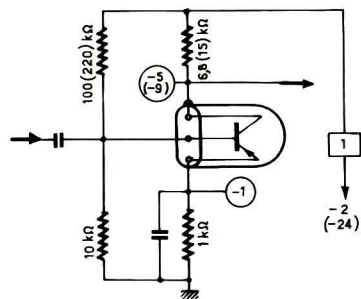
BF

 $\beta = 75$ 

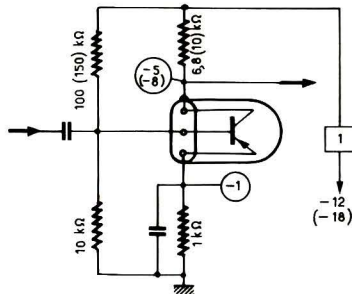
2N 109

BF

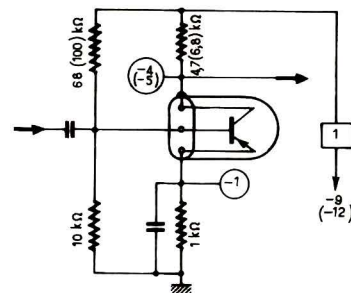
 $\beta = 75$
 $GP = 30\text{ dB max}$ 

2N130A
BF $\beta = 22$
 $F_b = 12 \text{ dB}$ 

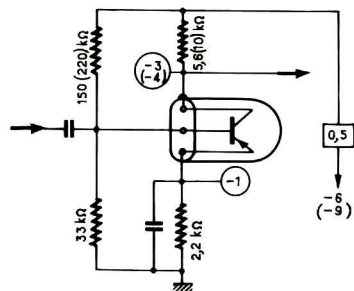
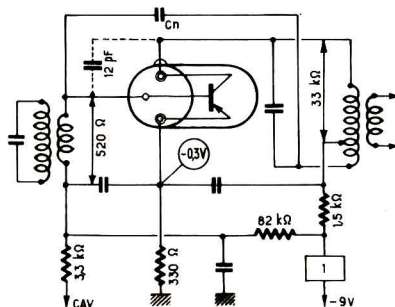
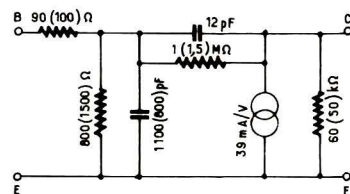
2N131A

 $\beta = 45$
 $F_b = 12 \text{ dB}$ 

2N132A

 $\beta = 90$
 $F_b = 12 \text{ dB}$ 

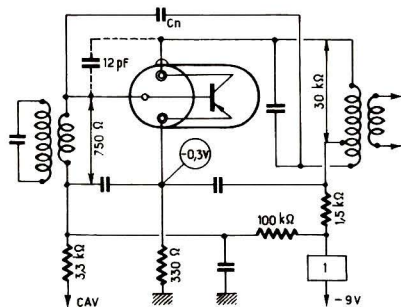
2N133A

 $\beta = 50$
 $F_b < 6 \text{ dB}$ 2N135
MF470 kHz $\beta = 30$
 $6P = 30 \text{ dB}$ 2N135
2N136 $V_c = 6 \text{ V}$
 $I_c = 1 \text{ mA}$ 

2 N 136

MF 470 kHz

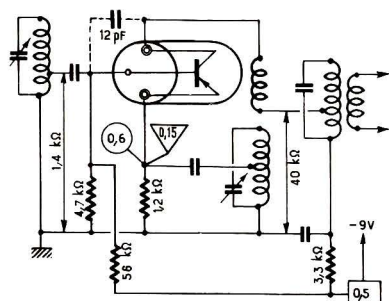
$\beta = 60$
GP = 30 dB



2 N 137

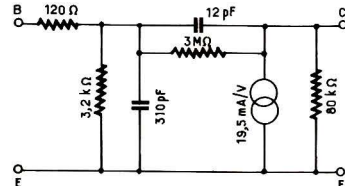
Conv. < 2 MHz

$\beta > 25$
GC = 30 dB



2 N 137

$V_c = 6V$
 $I_c = 0,5 mA$

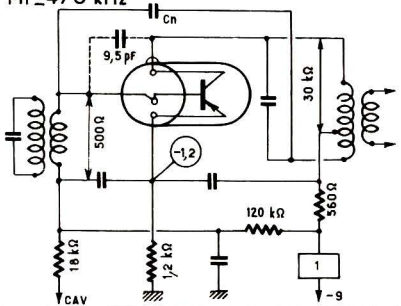


2 N 139

2 N 409

MF 470 kHz

$\beta = 48$
GP = 31 dB max



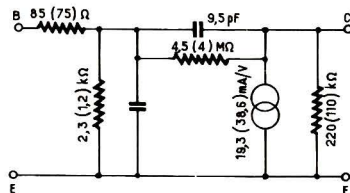
2 N 139

2 N 218

2 N 409

2 N 410

$V_c = 9V$
 $I_c = 0,5(1) mA$

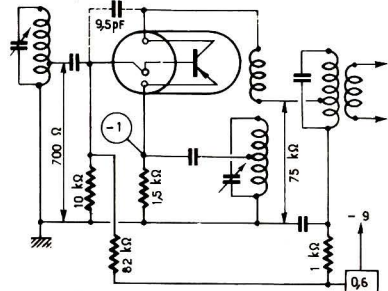


2 N 140

2 N 411

Conv. < 2 MHz

$\beta = 75$
GC = 32 dB



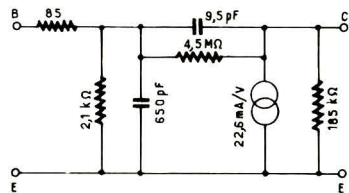
2N140

71

2N158A

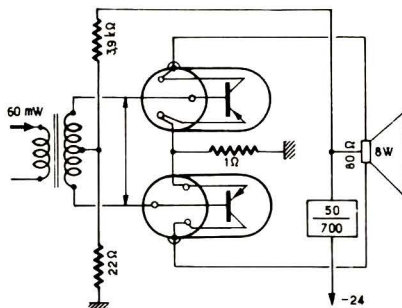
2N 140
2N 411
2N 412

$V_c = 9V$
 $I_c = 0,6mA$



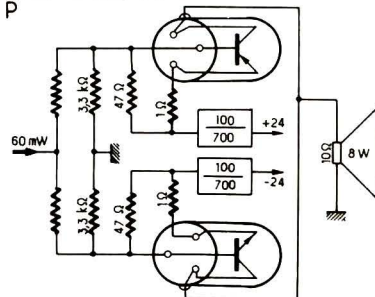
2N 141
2N 143

$\beta > 10$
 $GP = 23dB$



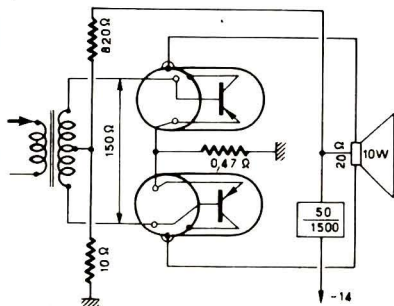
2N 141, 143 p-n-p
2N 142, 144 n-p-n
P

$\beta > 10$
 $GP = 23dB$



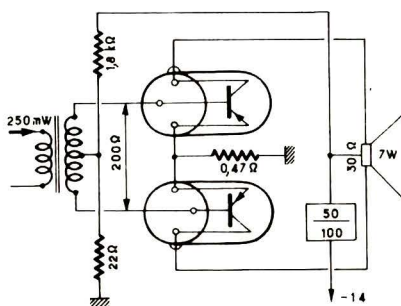
2N 155
P

$\beta > 24$
 $GP = 17dB$



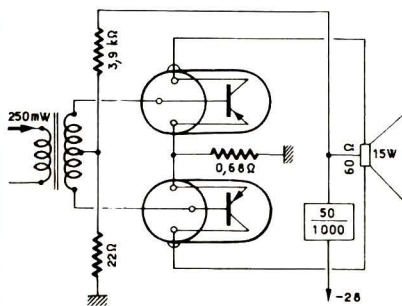
2N 156
P

$\beta > 25$
 $GP > 15dB$



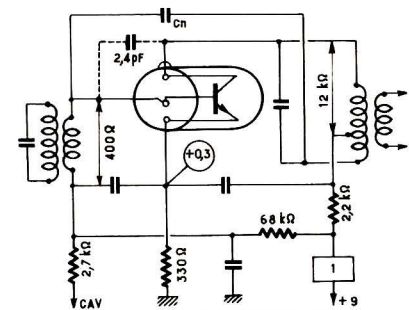
2N 158A
P

$\beta > 20$
 $GP > 18dB$



2N 168 A

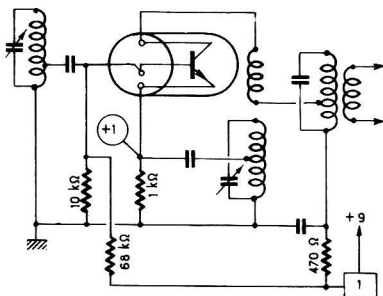
n-p-n

 $\beta = 40$
GP = 26 dBMF₄₇₀ kHz**2N 168 A**

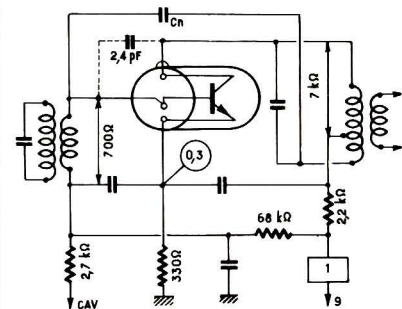
n-p-n

 $\beta = 23...135$
GC = 25 dB

Conv. < 2 MHz

**2N 169**

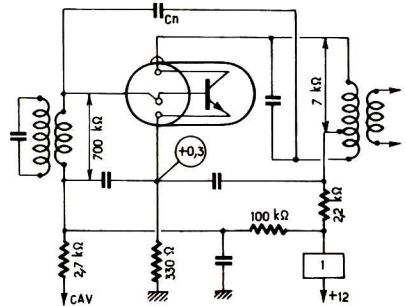
n-p-n

 $\beta = 72$
GP = 24 dBMF₄₇₀ kHz**2N 169 A**

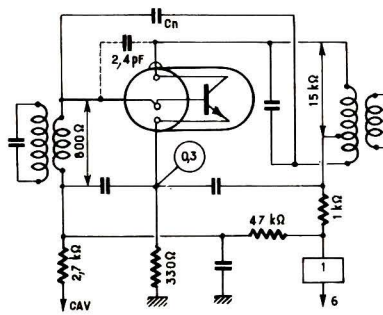
n-p-n

 $\beta = 72$
GP = 24 dB

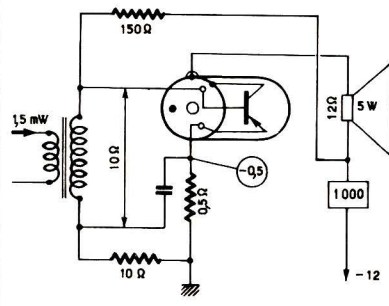
MF 470 kHz

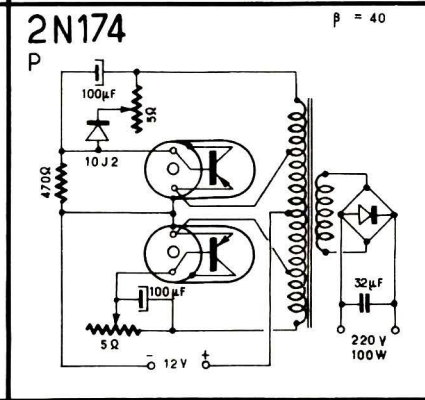
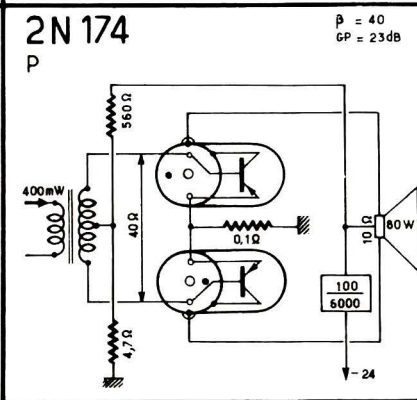
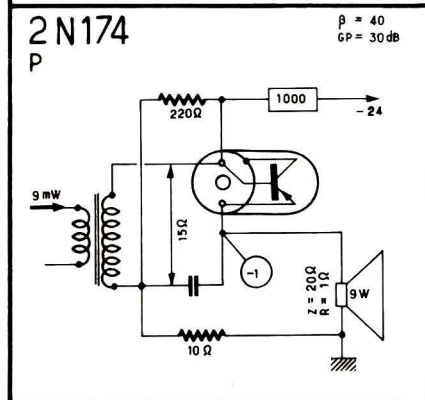
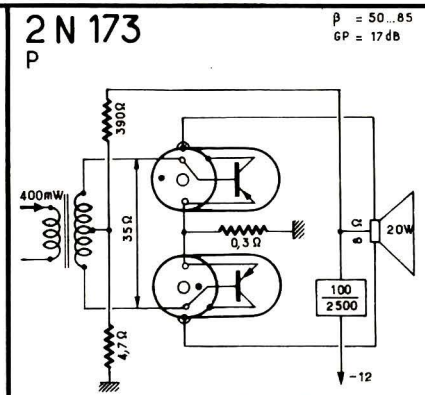
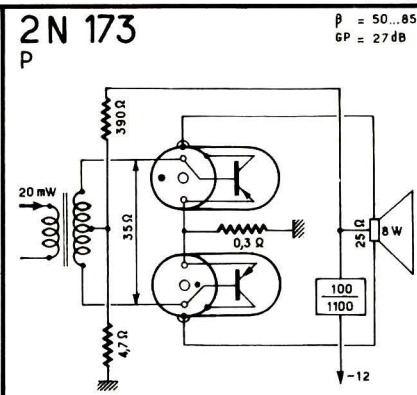
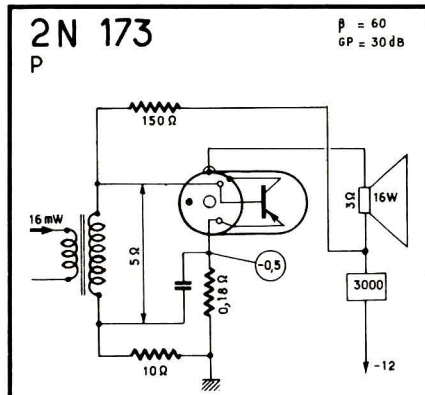
**2N 170**

n-p-n

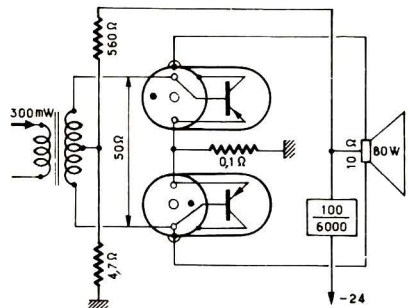
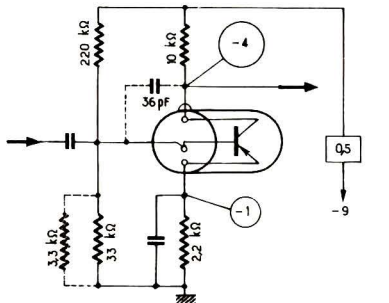
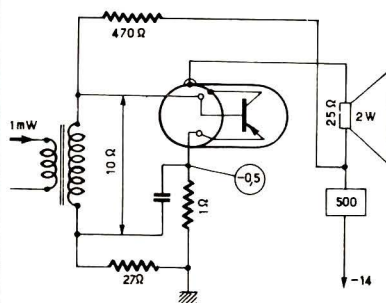
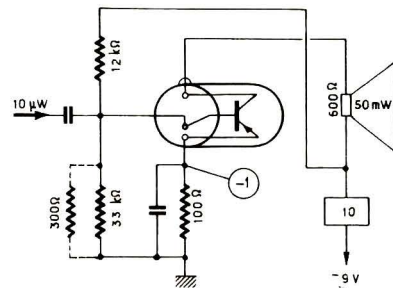
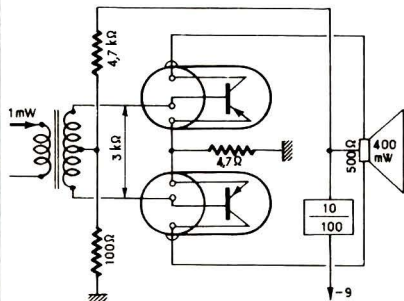
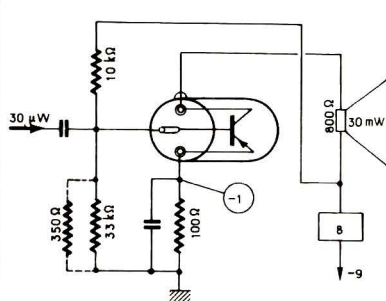
 $\beta = 20$
GP = 22 dB**2N 173**

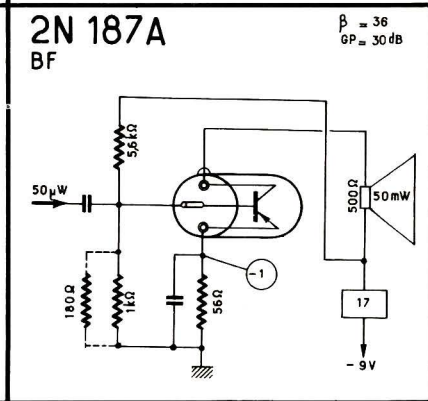
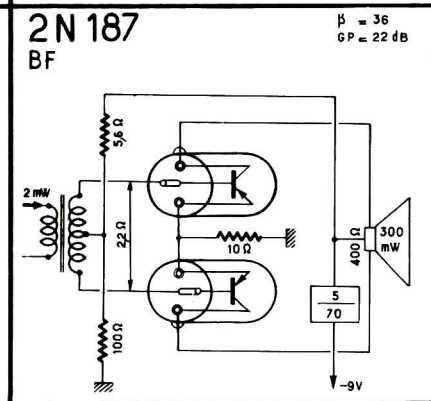
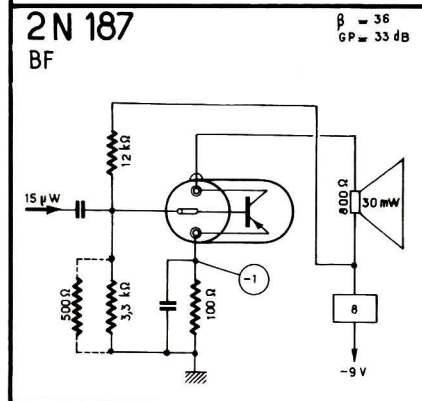
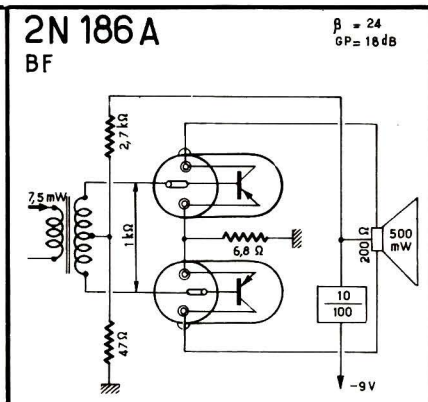
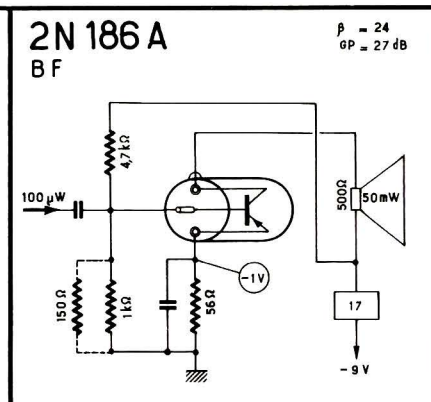
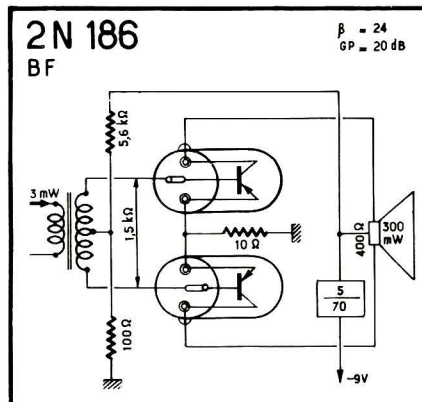
p

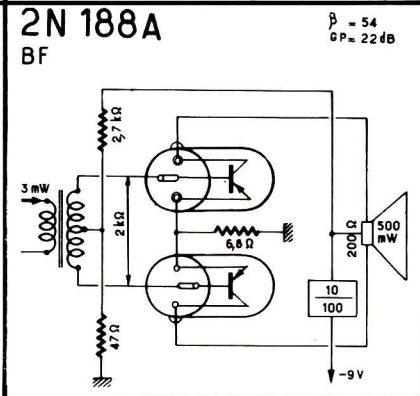
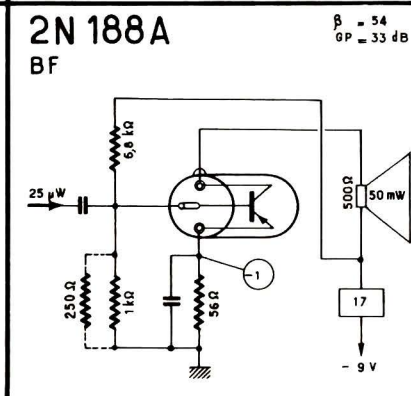
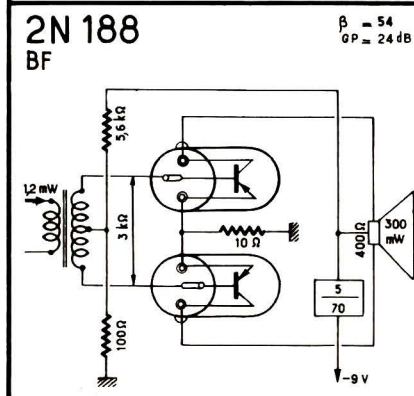
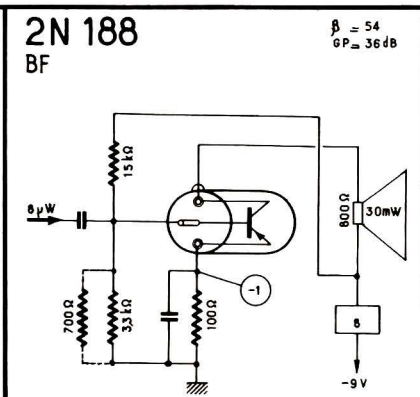
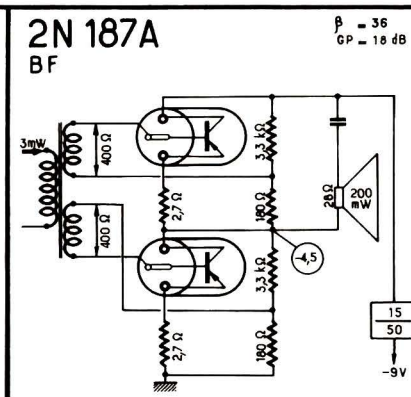
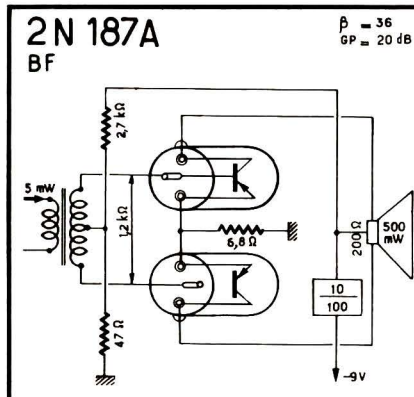
 $\beta = 85$
GP = 36 dB



2 N 174 A

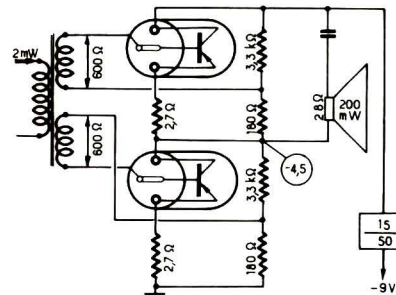
 $\beta = 50$
GP = 24 dB2N 175
BF $\beta = 65$
Fb = 6 dB max2N 176
P $\beta = 63$
GP = 35 dB2N 185
BF $\beta = 70$
GP = 37 dB2N 185
BF $\beta = 70$
GP = 26 dB2N 186
BF $\beta = 24$
GP = 30 dB





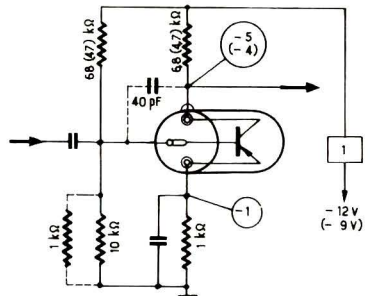
2N 188A

BF

 $\beta = 54$
GP = 20 dB

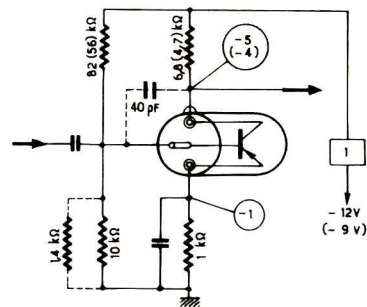
2N 189

BF

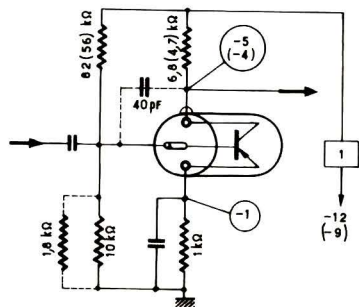
 $\beta = 24$
GP = 15 dB

2N 190

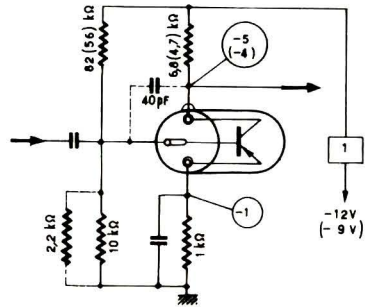
BF

 $\beta = 36$
Fb = 15 dB

2N 191

 $\beta = 54$
Fb = 15 dB

2N 192

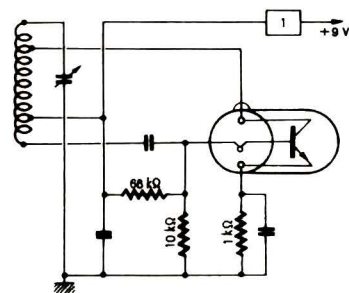
 $\beta = 75$
Fb = 15 dB

2N 193

n - p - n

 $\beta = 10 / 470 \text{ kHz}$

Osc. < 2 MHz

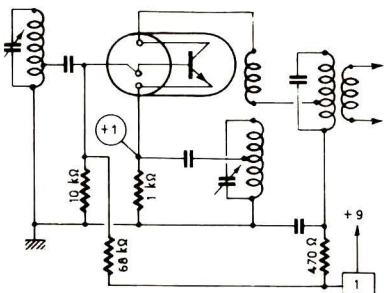


2N 194

n-p-n

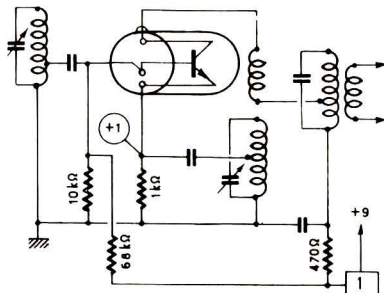
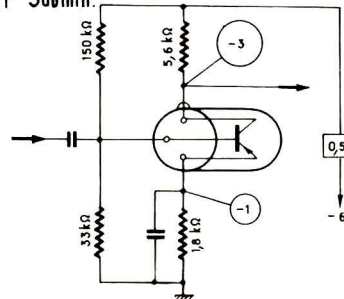
 $\beta = 10/470\text{kHz}$
 $GC = 15\text{ dB}$

Conv. < 2 MHz



2N 194A

Conv. < 2 MHz

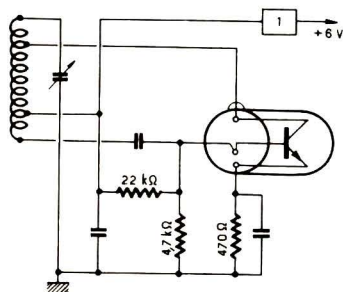
 $\beta = 10/470\text{kHz}$
 $GC = 23\text{ dB}$ 2N 207
(2N 207A)
(2N 207B)
BF Submin. $\beta = 100$
 $Fb = 5(3)[2]\text{ dB}$ 

2N 211

n-p-n

 $\beta = 10/470\text{kHz}$

Osc. < 2 MHz

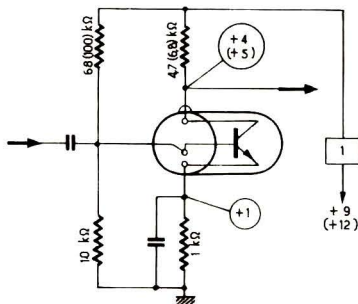


2N 213

n-p-n

 $\beta = 100...500$

BF

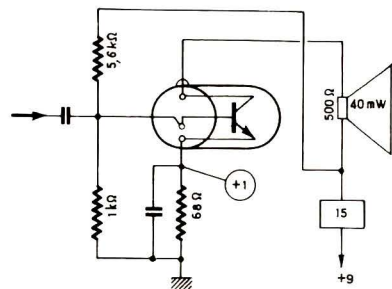


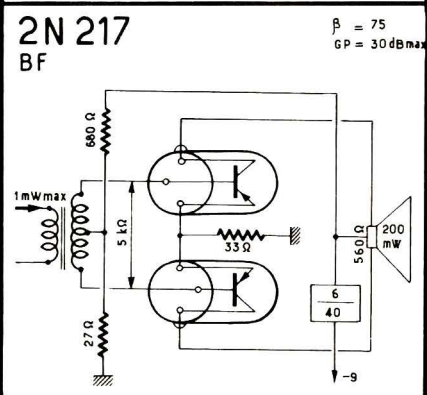
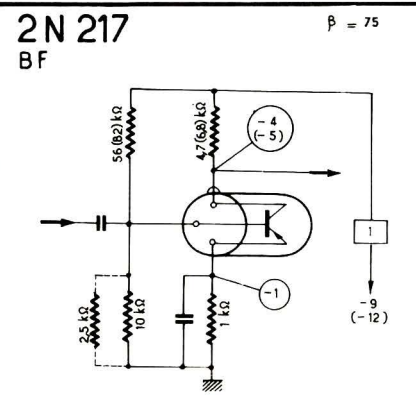
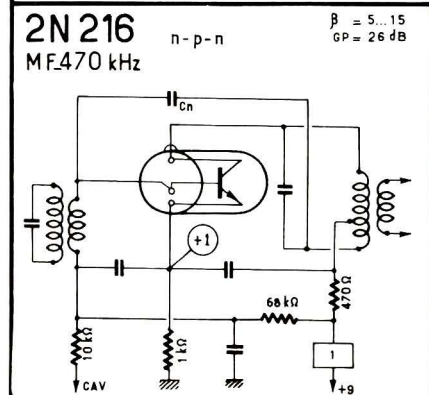
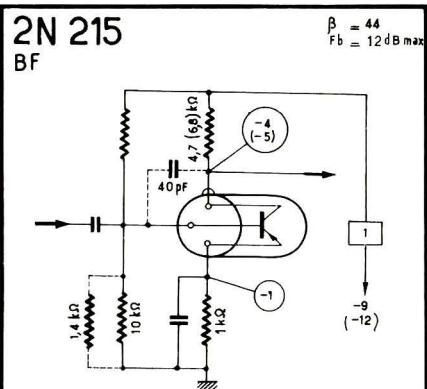
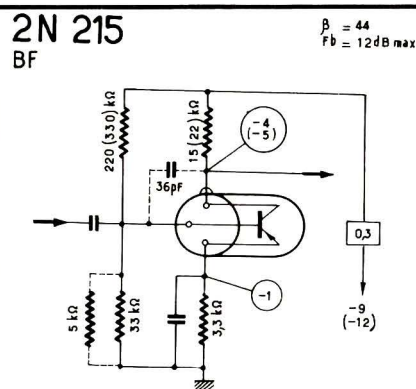
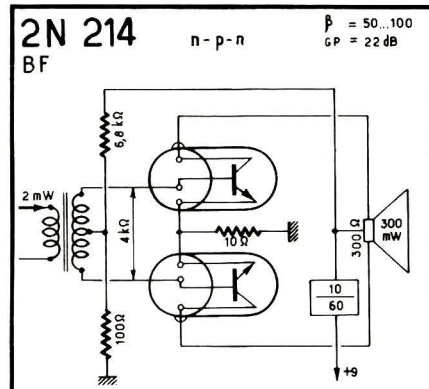
2N 214

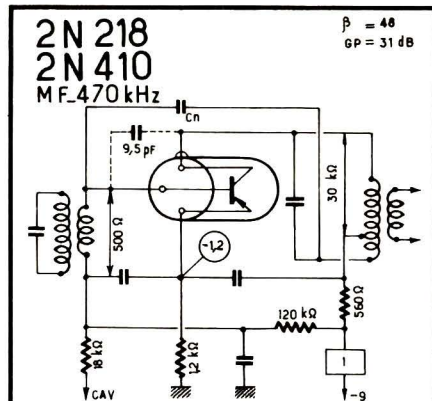
n-p-n

 $\beta = 50...100$

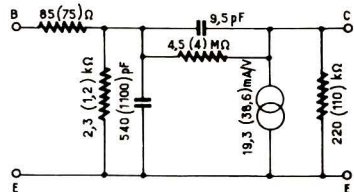
BF



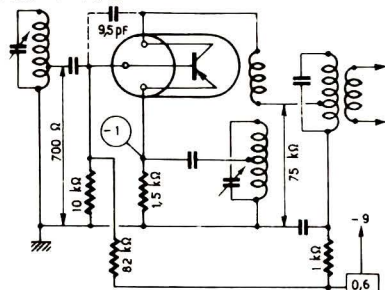




2N 218
2N 410
MF

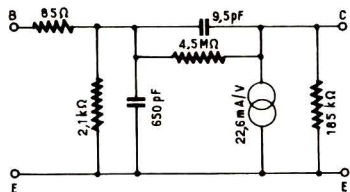


2N 219
2N 412
Conv. < 2 MHz



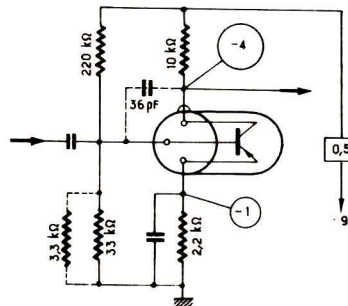
2N 219
2N 412
Conv.

$V_c = 9V$
 $I_c = 0,6 mA$



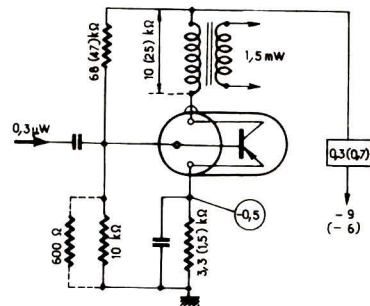
2N 220
BF

$\beta = 63$
 $F_b = 648 max$



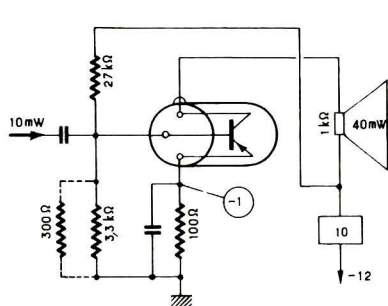
2N 223
BF

$\beta = 95$
GP = 37 dB



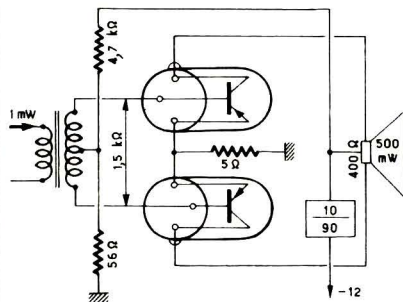
2N 224
BF

$\beta = 75$
GP = 37 dB



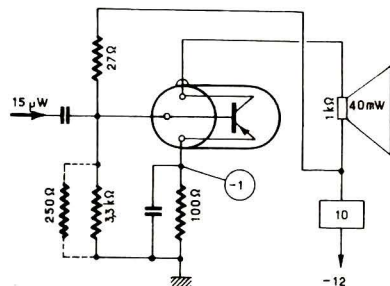
2N 225

$\beta = 75$
GP = 27 dB



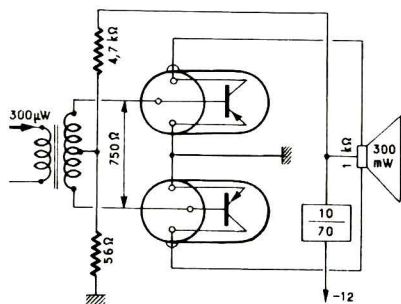
2N 226
BF

$\beta = 55$
GP = 36 dB



2N 227
BF

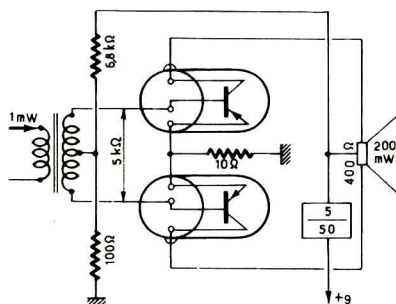
$\beta = 55$
GP = 30 dB



2N 228
BF

n - p - n

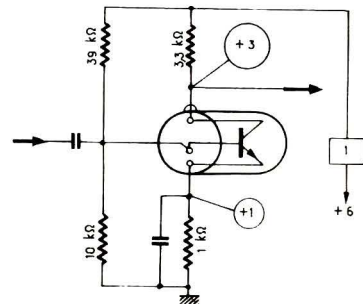
$\beta = 50 \dots 100$
GP = 23 dB

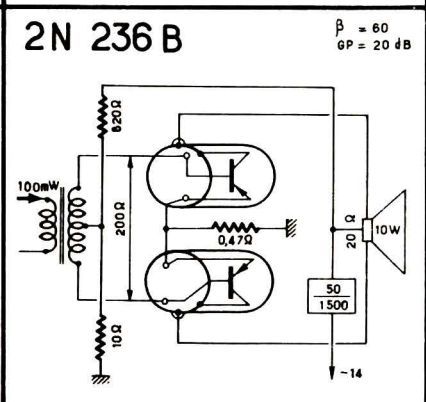
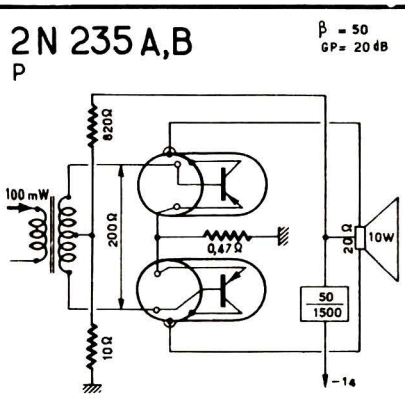
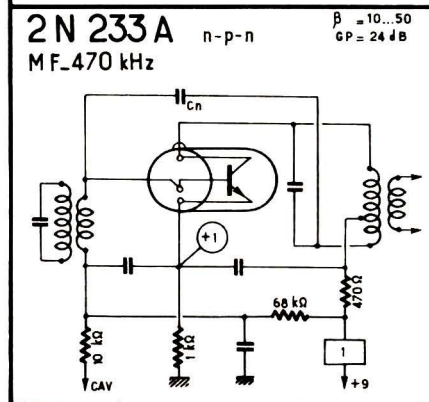
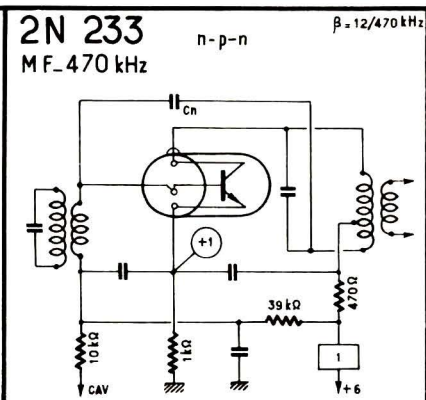
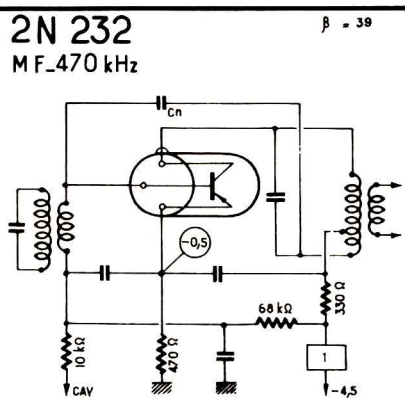
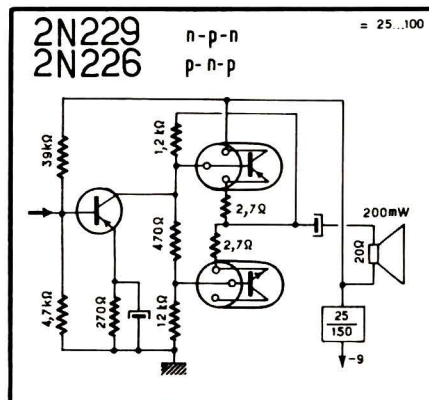


2N 229
BF

n - p - n

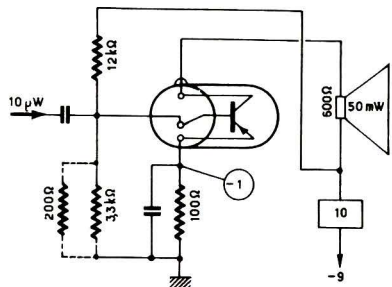
$\beta = 25 \dots 100$





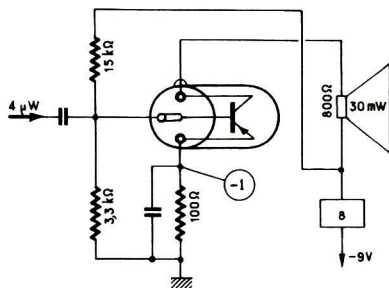
2N 238
BF

$\beta = 50$
GP = 33 dB



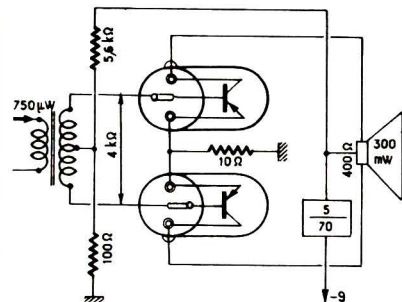
2N 241
BF

$\beta = 73$
GP = 39 dB



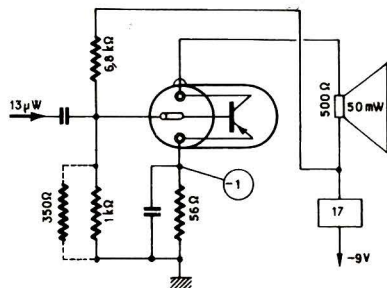
2N 241
BF

$\beta = 73$
GP = 26 dB



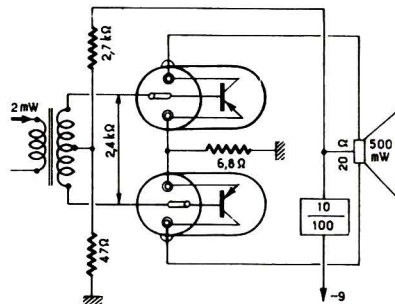
2N 241A
BF

$\beta = 73$
GP = 36 dB



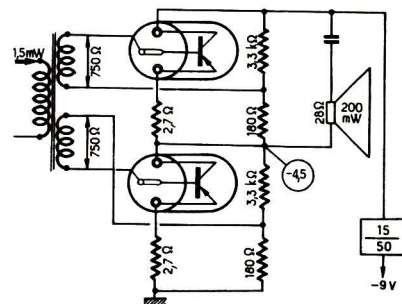
2N 241A
BF

$\beta = 73$
GP = 24 dB

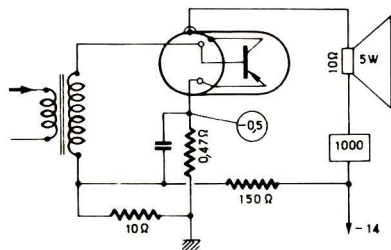


2N 241A

$\beta = 73$
GP = 22 dB

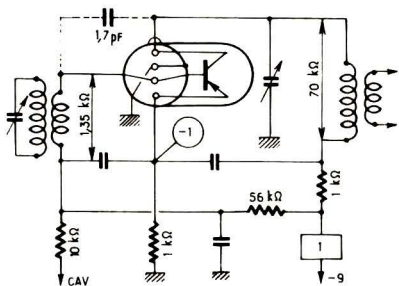


2 N 242
P



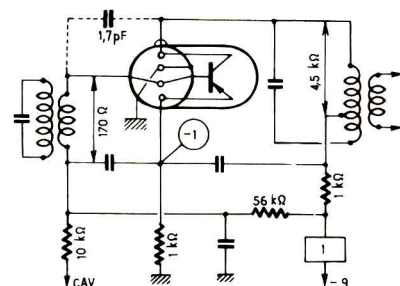
2 N 247
HF 0,5... 1,6 MHz

$\beta = 60$
 $GP = 37 \text{ dB}$



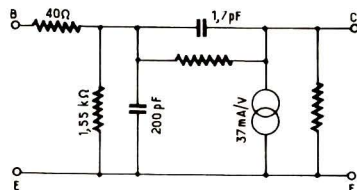
2 N 247
MF_10 MHz

$\beta = 80$



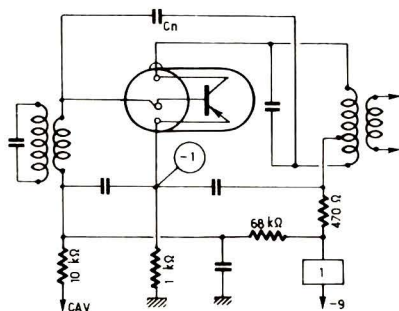
2 N 247
2 N 274

$V_c = 9 \text{ V}$
 $I_c = 1 \text{ mA}$



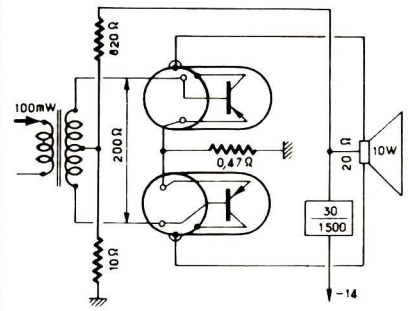
2 N 248
MF_470 kHz

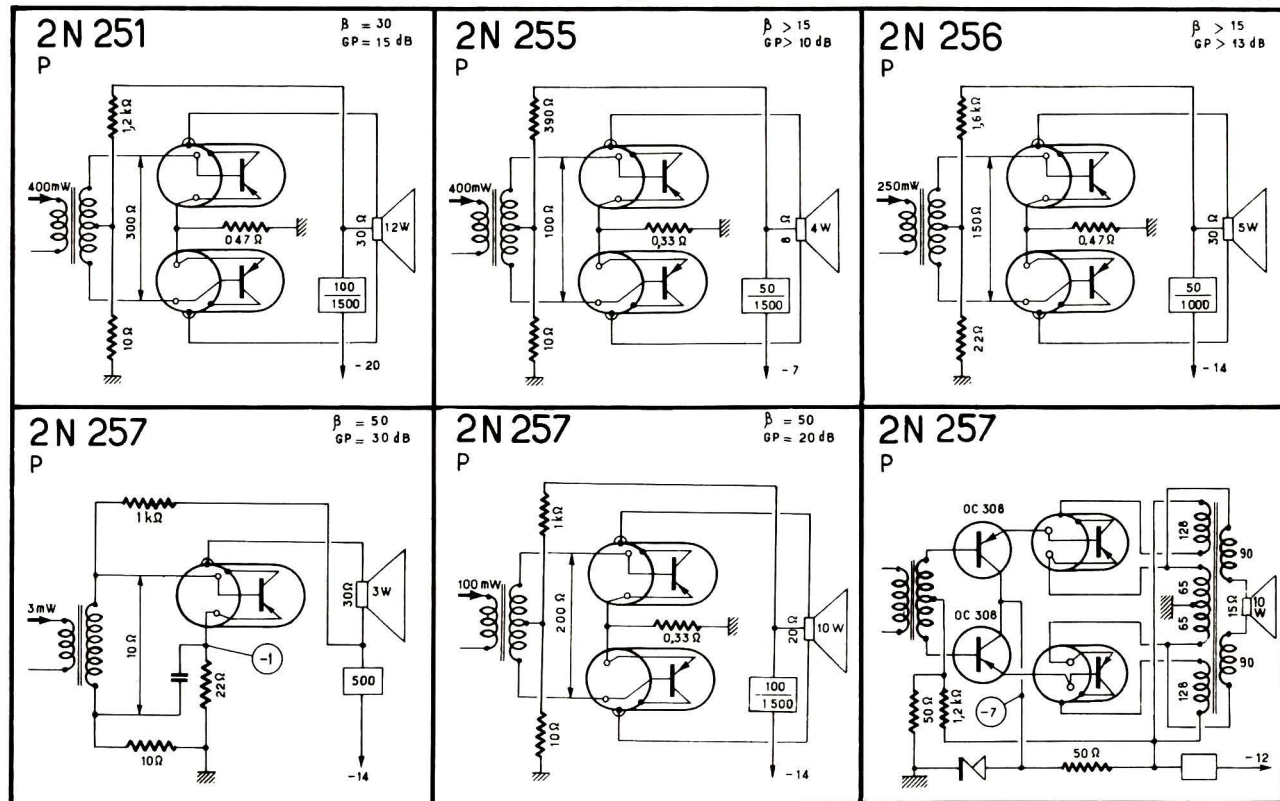
$\beta = 20$

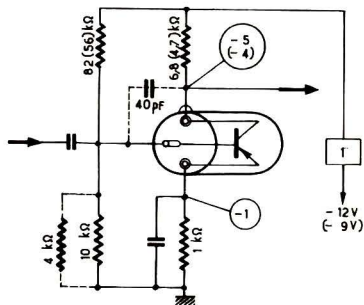
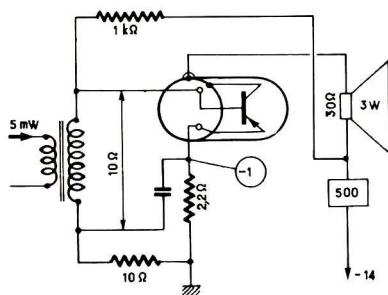
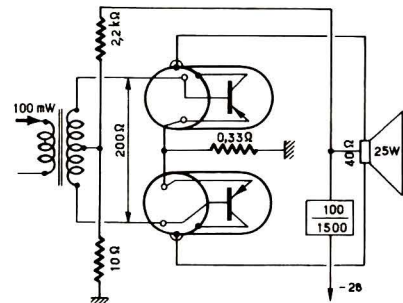
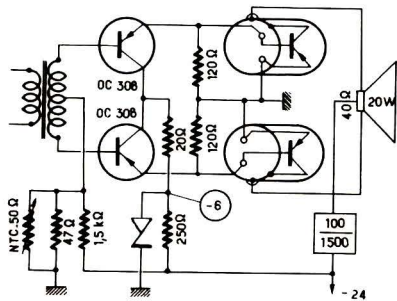
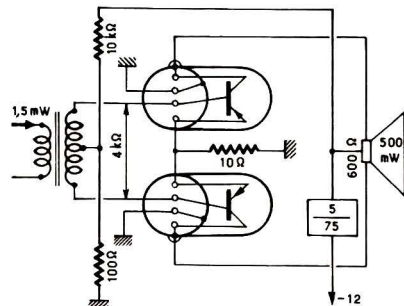
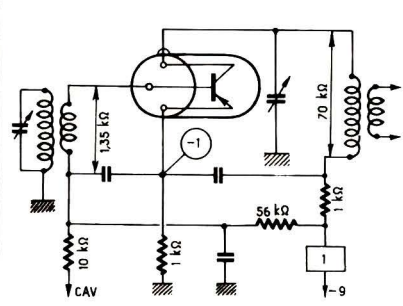


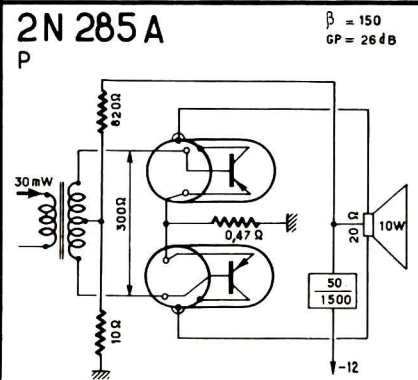
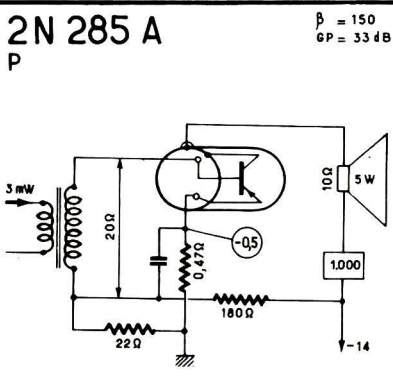
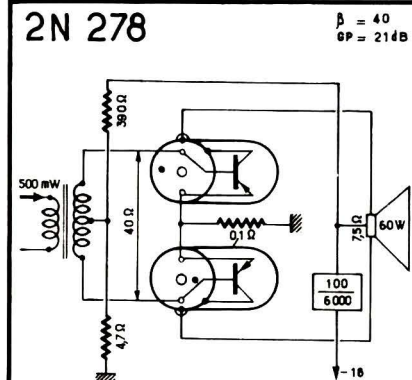
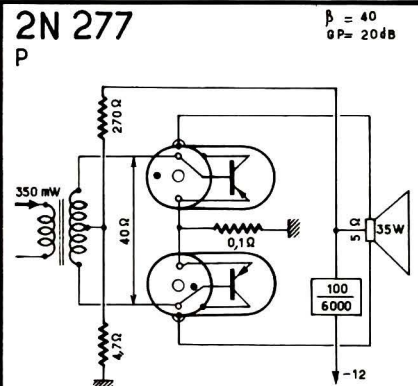
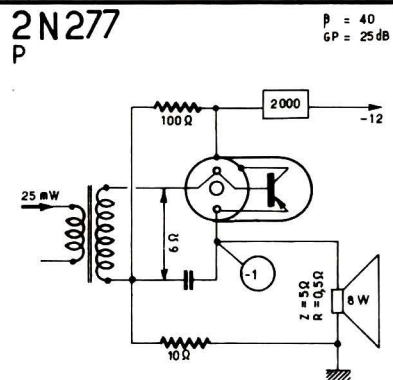
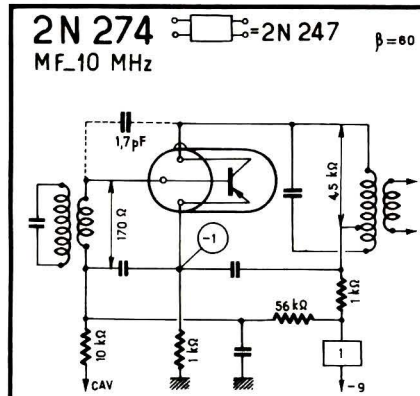
2 N 250
P

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



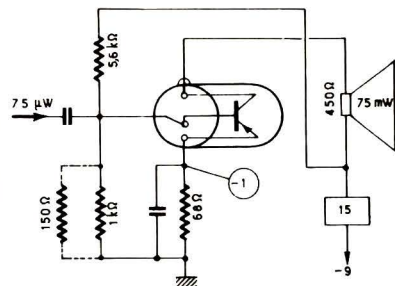


2N 265
BF $\beta = 110$
F = 15 dB2N 268
P $\beta = 50$
GP = 28 dB2N 268
P $\beta = 50$
GP = 25 dB2N 268
P2N 270
BF $\beta = 70$
GP = 25 dB2N 274 $\beta = 2N 247$
H.F. 0,5... 1,6 MHz $\beta = 80$
GP = 37 dB



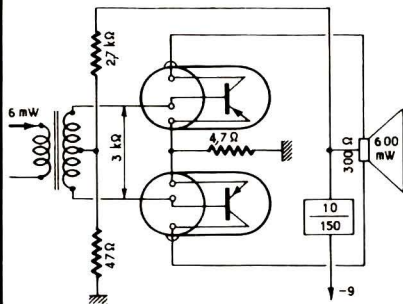
2N 291
BF

$\beta = 45$
GP = 30 dB



2N 291
BF

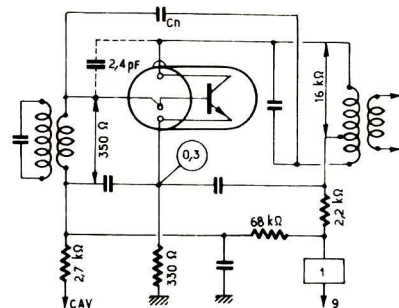
$\beta = 45$
GP = 20 dB



2N 292
MF. 470 kHz

n-p-n

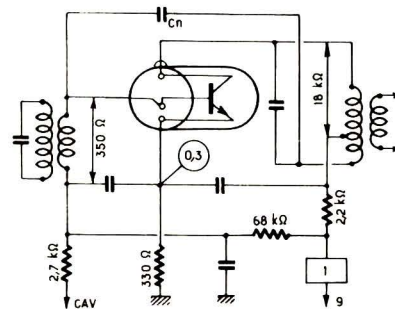
$\beta = 25$
GP = 24 dB



2N 293
MF. 470 kHz

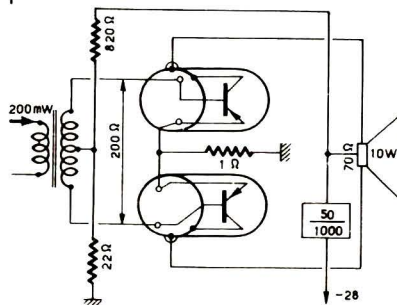
n-p-n

$\beta = 25$
GP = 28 dB



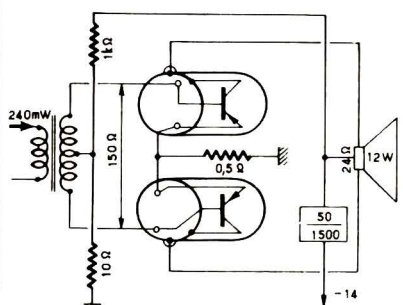
2N 296
P

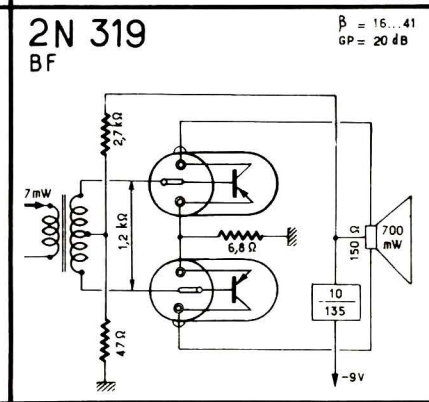
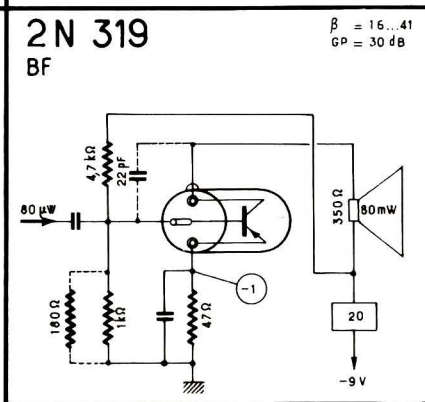
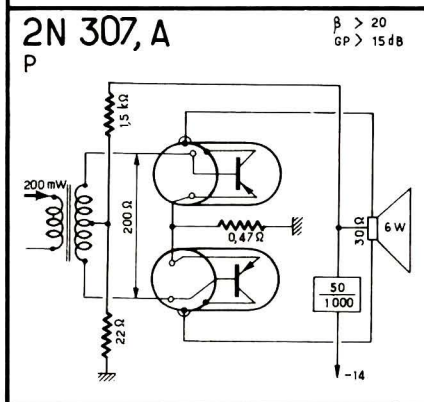
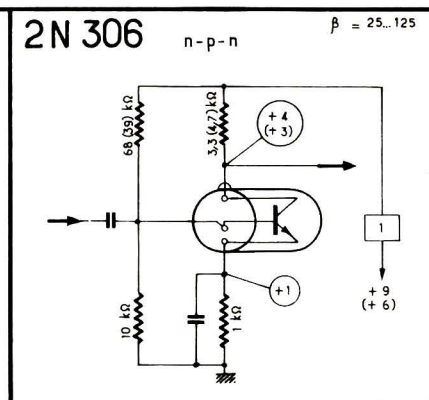
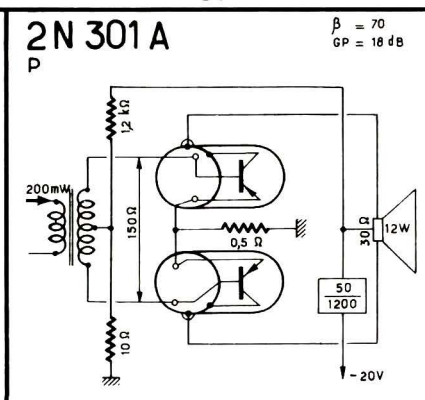
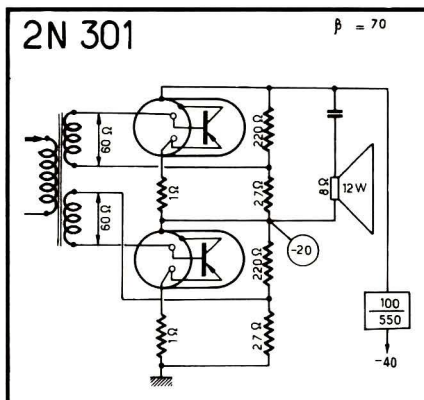
$\beta > 20$
GP > 17 dB



2N 301
P

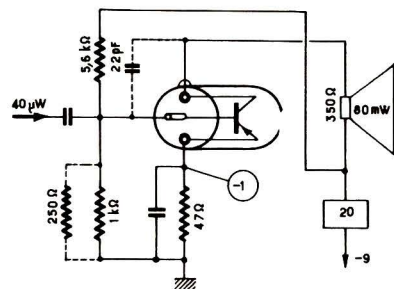
$\beta = 70$
GP = 17 dB





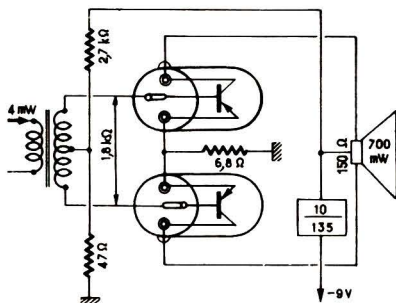
2N 320
BF

$\beta = 30 \dots 64$
GP = 33 dB



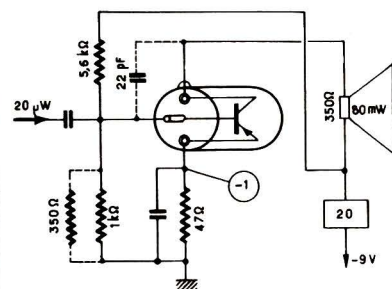
2N 320
BF

$\beta = 30 \dots 64$
GP = 22 dB



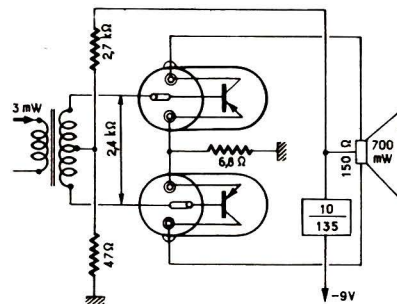
2N 321
BF

$\beta = 44 \dots 88$
GP = 36 dB



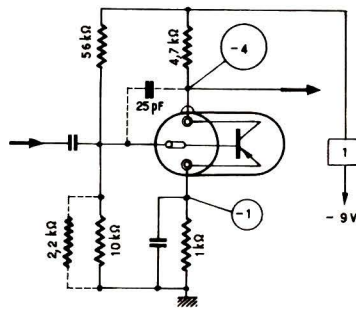
2N 321
BF

$\beta = 44 \dots 88$
GP = 24 dB



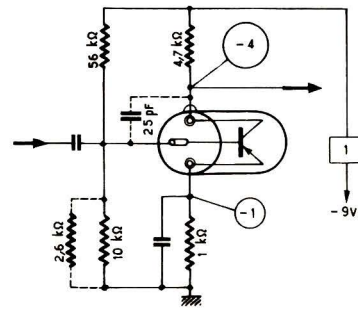
2N 322
BF

$\beta = 48$
Fb = 6 dB



2N 323
BF

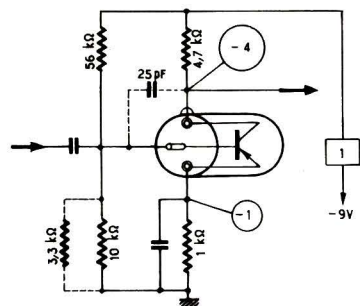
$\beta = 70$
Fb = 6 dB



2N 324

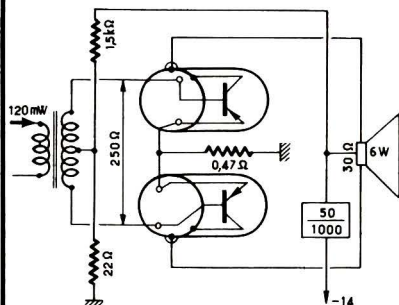
BF

$\beta = 90$
Fb = 6 dB



2N 325

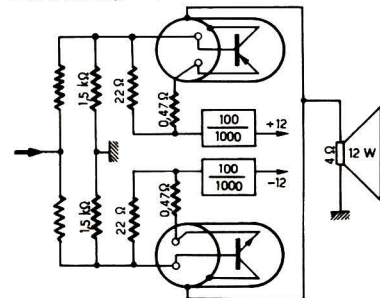
$\beta = 30...80$
GP = 17 dB



2N 325 2N 326

p-n-p
n-p-n

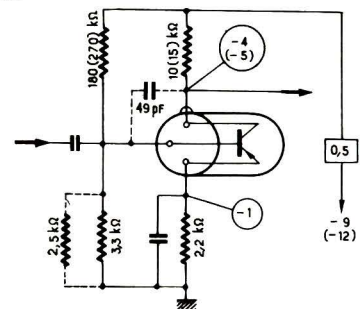
$\beta = 30...80$



2N 331

BF

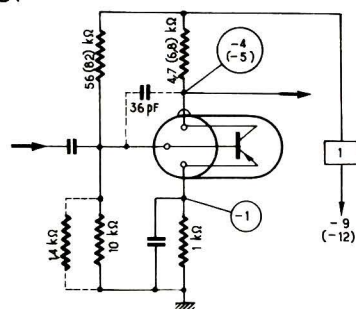
$\beta = 50$
Fb = 9 dB



2N 331

BF

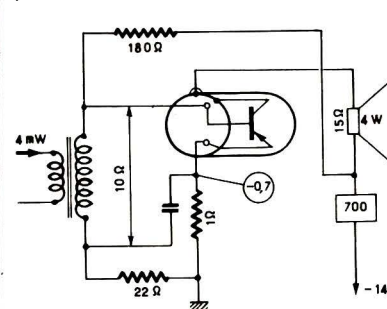
$\beta = 50$
Fb = 9 dB

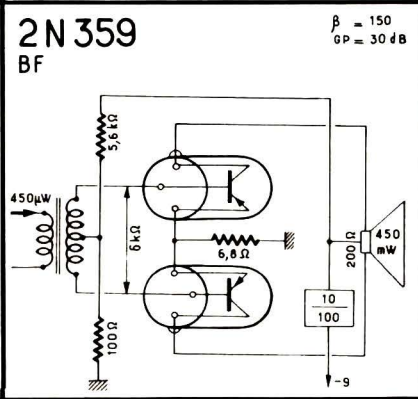
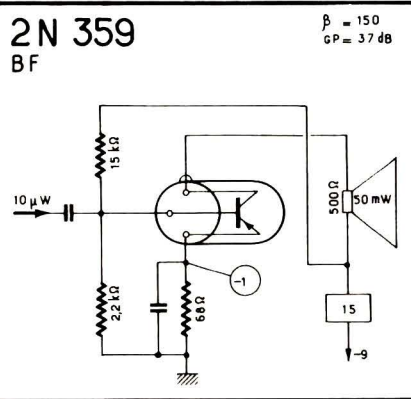
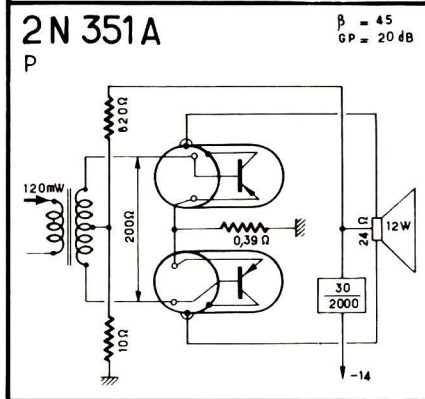
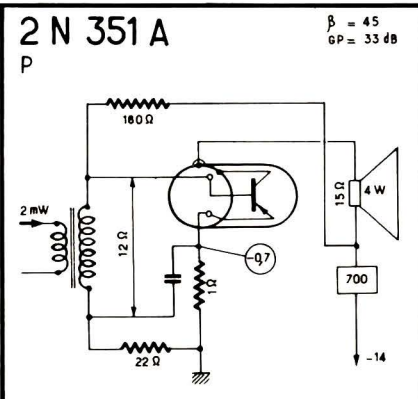
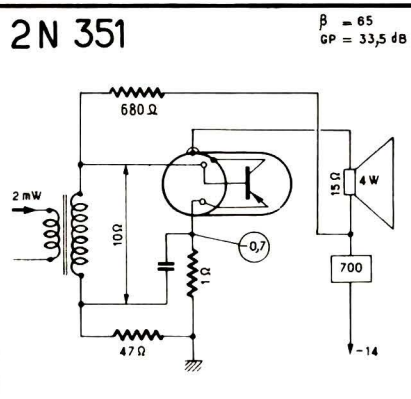
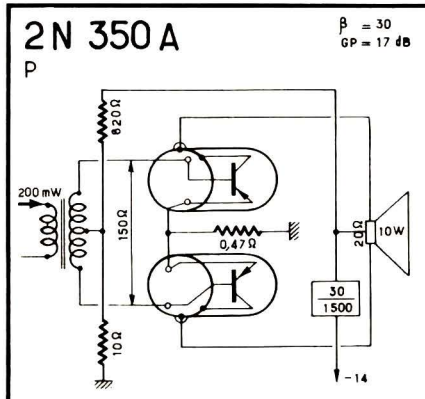


2N 350A

P

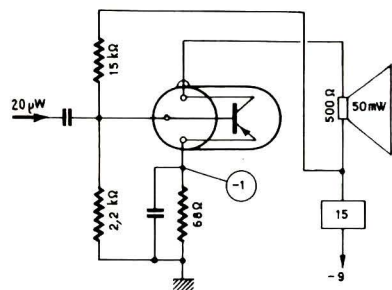
$\beta = 30$
GP = 31 dB





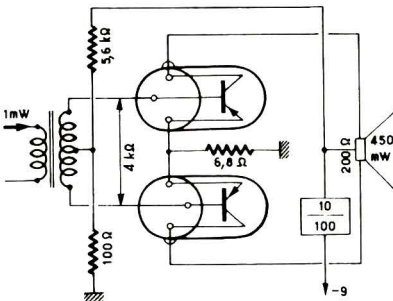
2N 360
BF

$\beta = 100$
GP = 34 dB



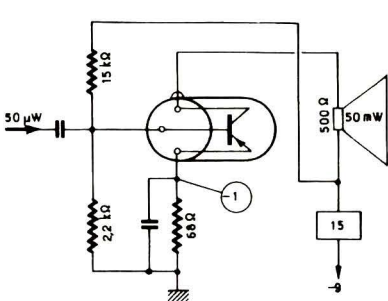
2N 360
BF

$\beta = 100$
GP = 27 dB



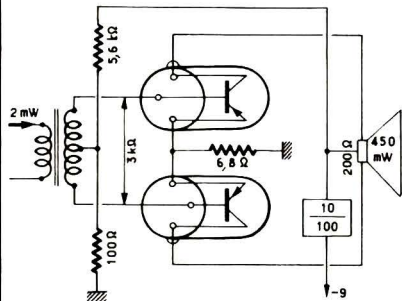
2N 361
BF

$\beta = 70$
GP = 30 dB



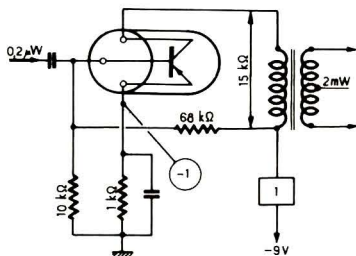
2N 361
BF

$\beta = 70$
GP = 24 dB



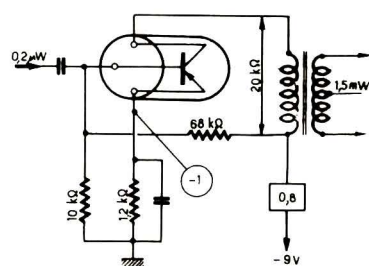
2N 362
BF

$\beta = 100$
GP = 4.2 dB

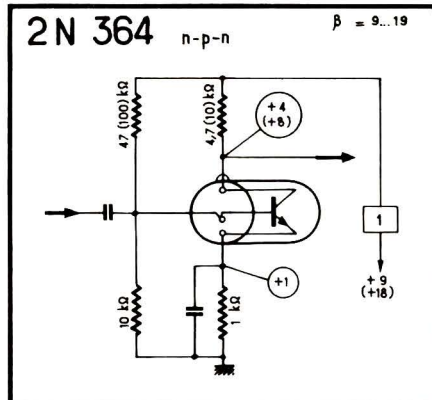


2N 363
BF

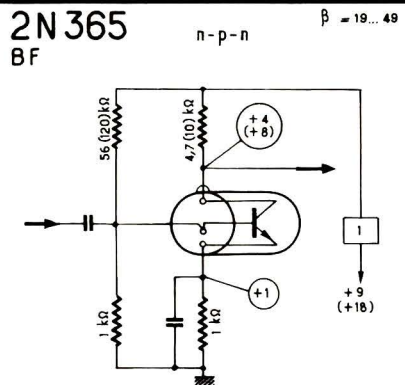
$\beta = 50$
GP = 40 dB



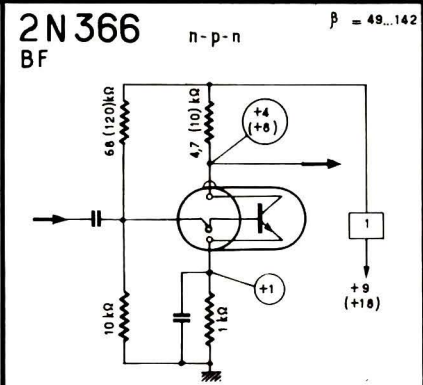
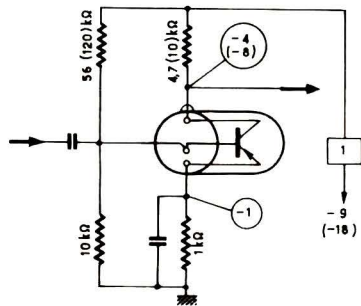
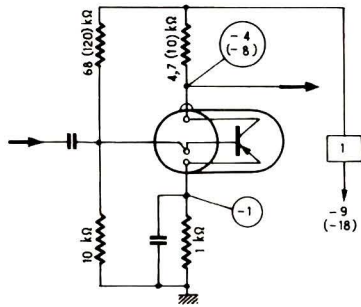
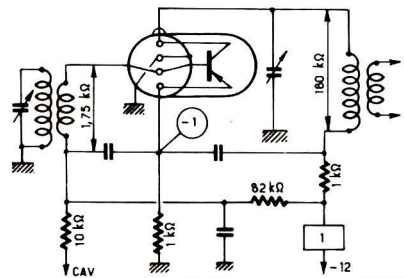
2N364

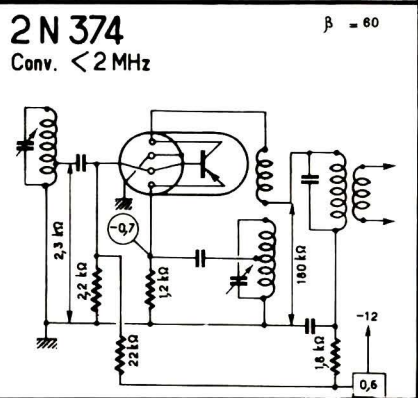
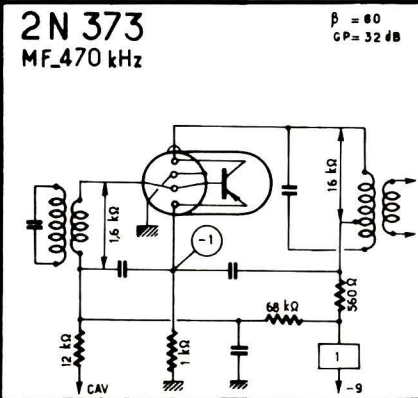
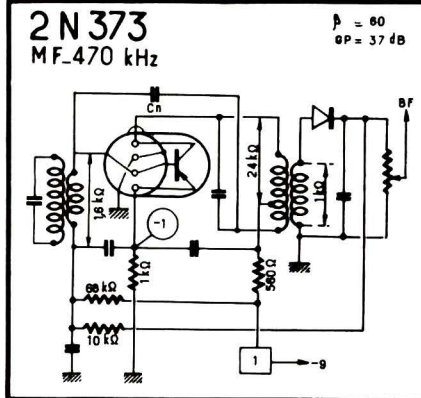
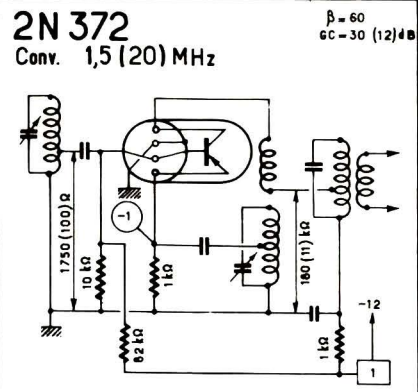
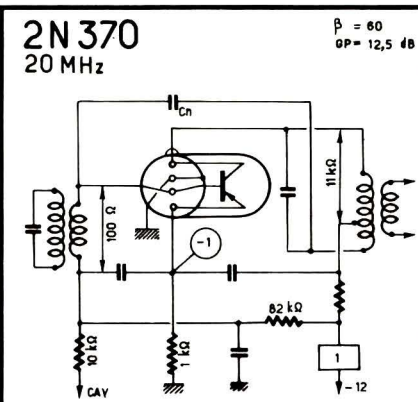
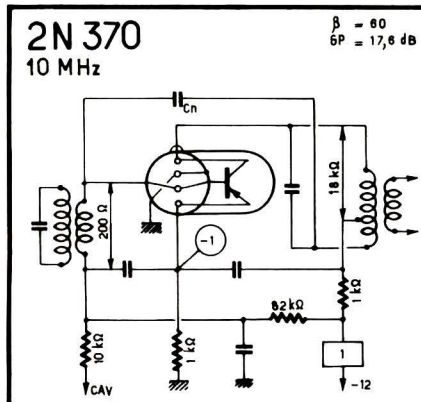


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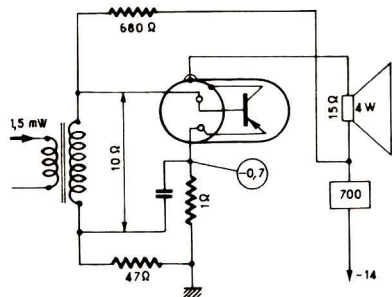


2N370

**2N 368**
BF $\beta = 19...49$ **2N 369**
BF $\beta = 49...142$ **2N 370**
HF_0,5...1,6 MHz $\beta = 60$
 $g_p = 31 \text{ dB}$ 

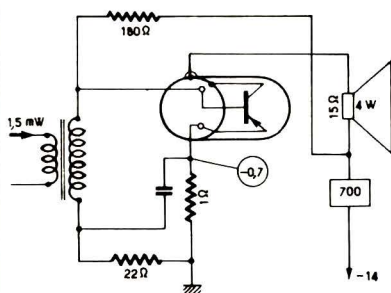


2N376

 $\beta = 78$
GP = 35 dB

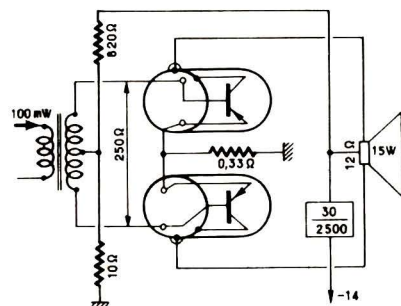
2N376 A

P

 $\beta = 80$
GP = 35 dB

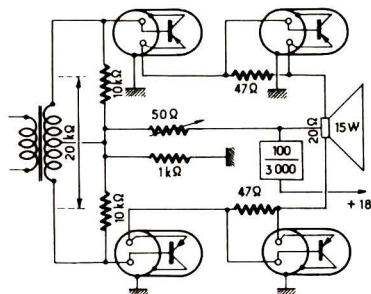
2N376 A

P

 $\beta = 80$
GP = 22 dB

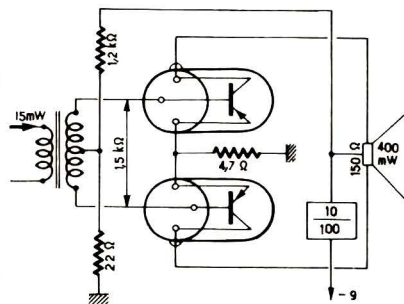
2N376 A

P

 $\beta = 65$
GP let = 26 dB

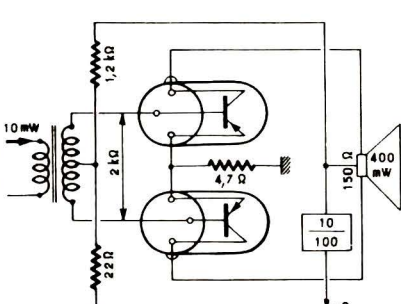
2N381

BF

 $\beta = 24...45$
GP > 15 dB

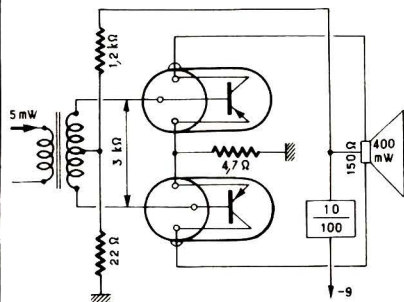
2N382

BF

 $\beta = 40...76$
GP > 17 dB

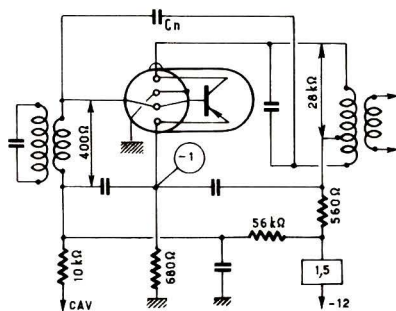
2N383
BF

$\beta = 55 \dots 110$
GP > 20 dB



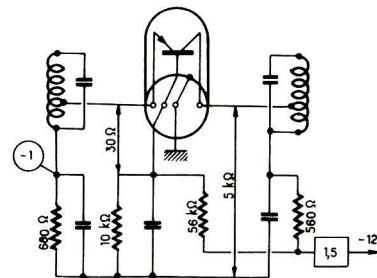
2N384
10 MHz

$\beta = 60$
GP = 34



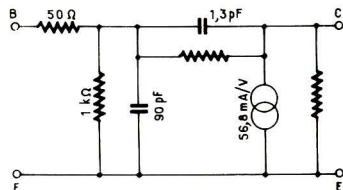
2N384
VHF_50 MHz

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



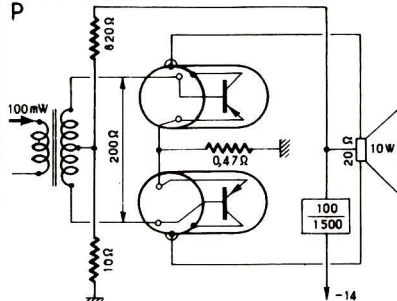
2N384
VHF

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



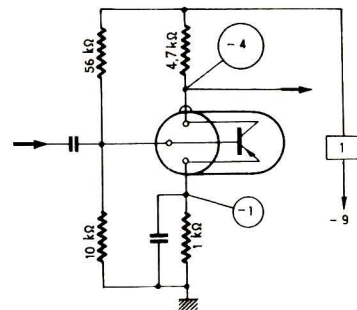
2N399
2N401
P

$\beta = 40$
GP = 20 dB



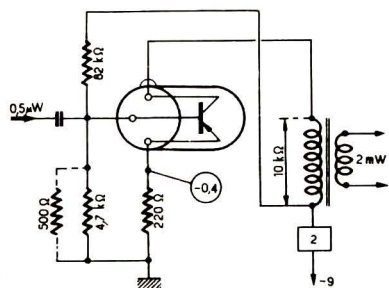
2N402
BF

$\beta = 25$



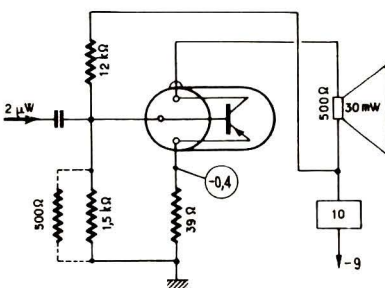
2N402
BF

$\beta = 25$
GP = 37dB



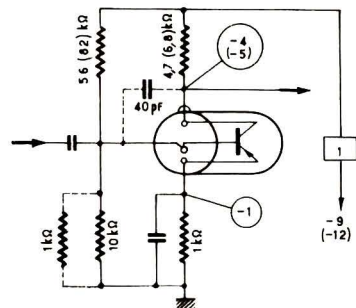
2N403
BF

$\beta = 30$
GP = 32dB



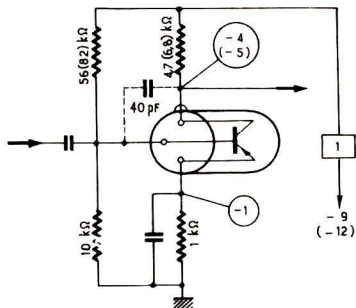
2N405
BF

$\beta = 35$



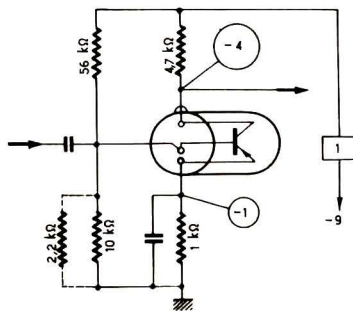
2N406
BF

$\beta = 35$



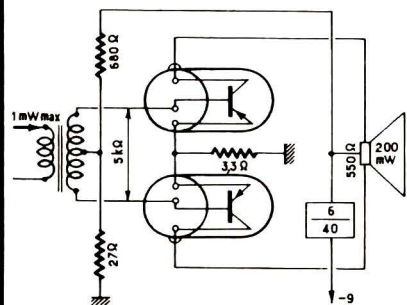
2N407

$\beta = 65$

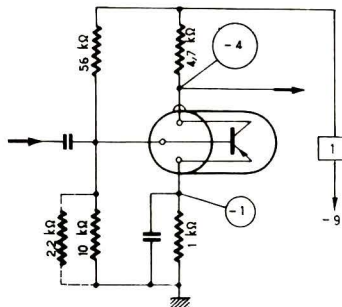


2N407

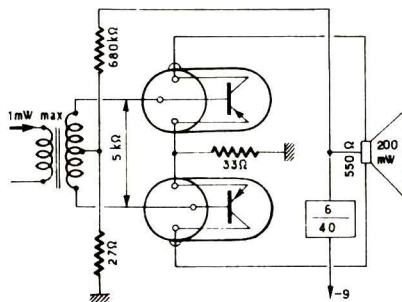
$\beta = 65$
GP = 30dB max



2 N 408

 $\beta = 85$ 

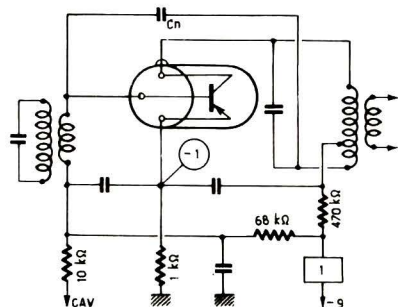
2 N 408

 $\beta = 65$
GP = 30 dB max

2 N 409 = 2 N 139
 2 N 410 = 2 N 218
 2 N 411 = 2 N 140
 2 N 412 = 2 N 219

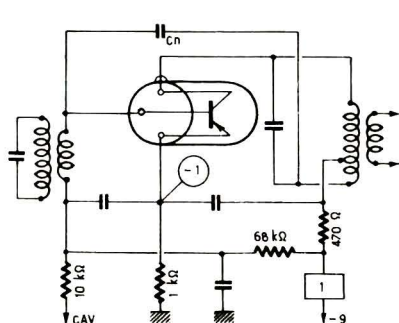
2 N 413 A

MF 470 kHz

 $\beta = 30$
GP = 30 dB

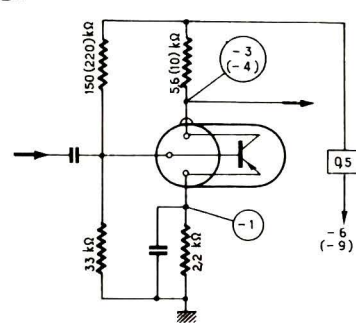
2 N 414 A

MF 470 kHz

 $\beta = 60$
GP = 32 dB

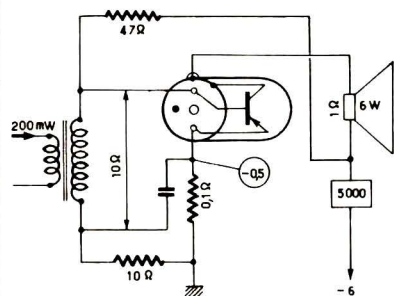
2 N 422

BF

 $\beta = 90$
F_b < 6 dB

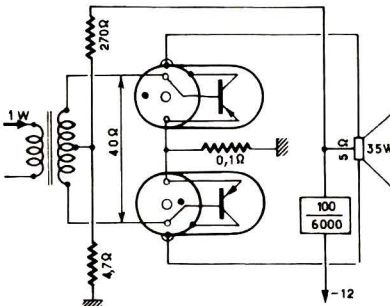
2N441

P

 $\beta = 30$
GP = 16 dB

2N441

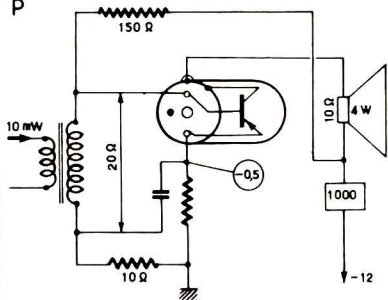
P

 $\beta = 30$
GP = 16 dB

2N442

2N443

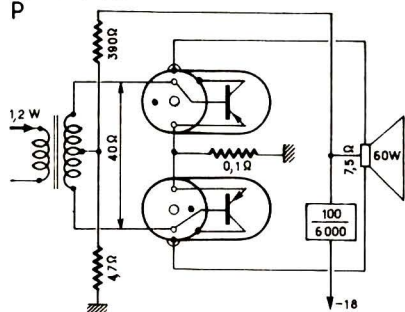
P

 $\beta = 35$
GP = 27 dB

2N442

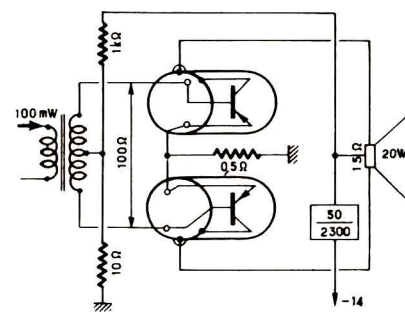
2N443

P

 $\beta = 30$
GP = 17 dB

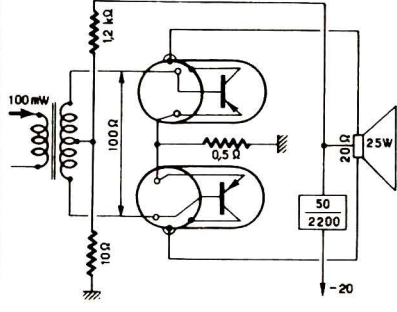
2N456

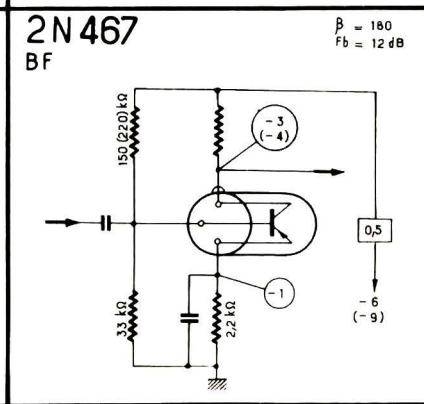
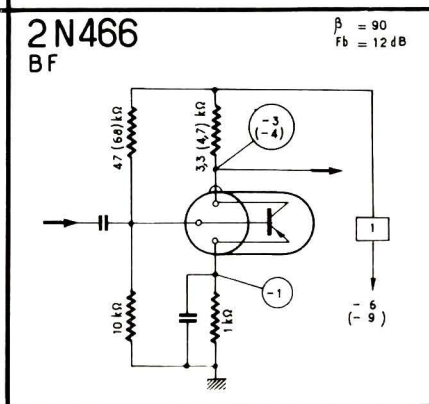
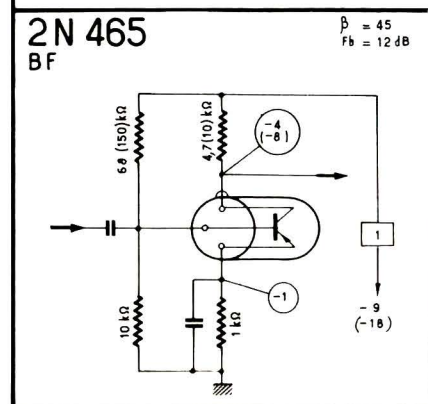
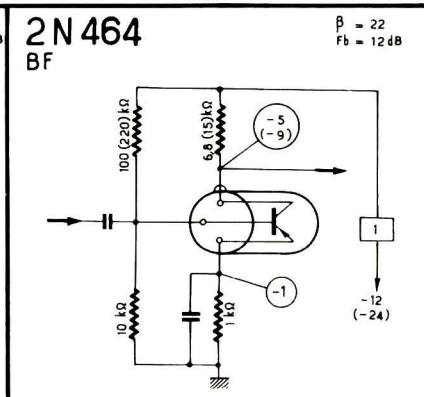
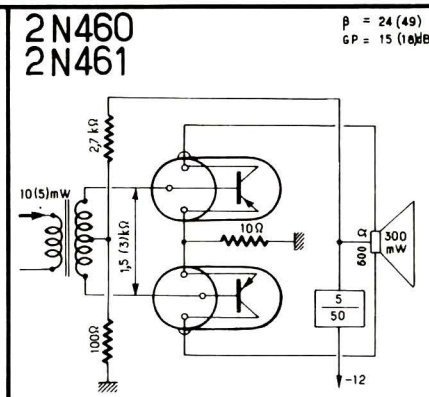
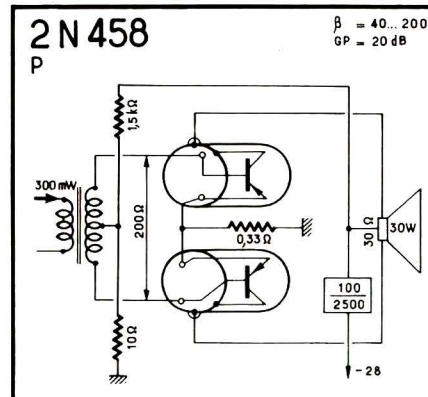
P

 $\beta = 52$
GP = 23 dB

2N457

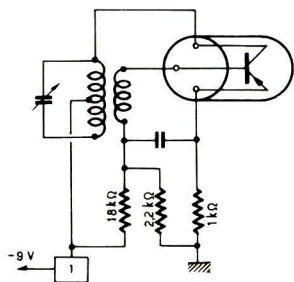
P

 $\beta = 52$
GP = 24 dB

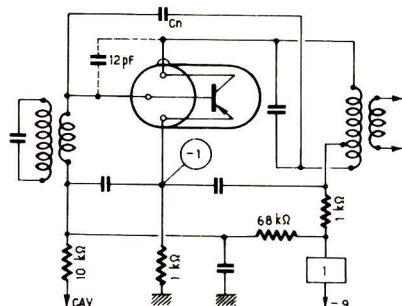


2N481

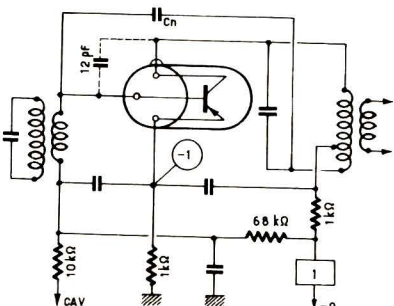
Osc. < 2 MHz

 $\beta = 25$ **2N482**

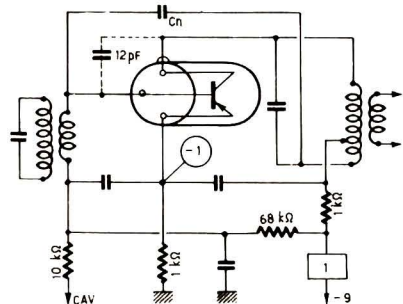
MF.470 kHz

 $\beta = 25$
GP = 31 dB**2N483**

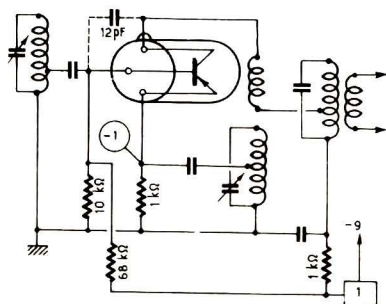
MF.470 kHz

 $\beta = 40$
GP = 35 dB**2N484**

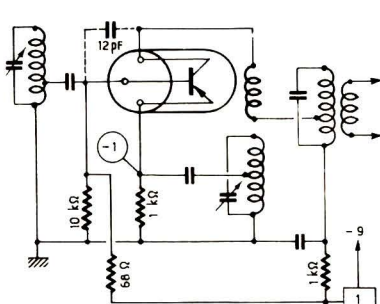
MF.470 kHz

 $\beta = 90$
GP = 39 dB**2N485**

Conv. < 2 MHz

 $\beta = 40$
GC = 26 dB**2N486**

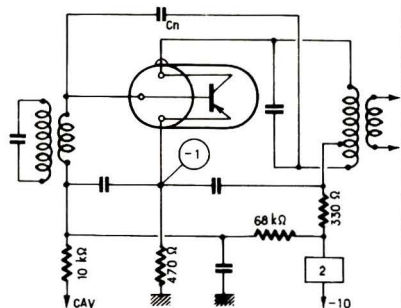
Conv. < 2 MHz

 $\beta = 100$
GC = 30 dB

2N 499

VHF

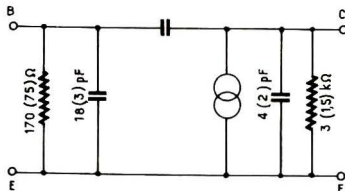
$\beta = 8,5 / 20 \text{ MHz}$
 $GP = 10 \text{ dB} / 100 \text{ MHz}$



2N 499

30 (100) MHz

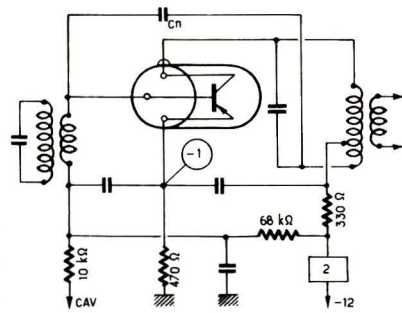
$V_c = 10 \text{ V}$
 $I_c = 3 \text{ mA}$
 $GP = 20 (10) \text{ dB}$



2N 502,A

VHF

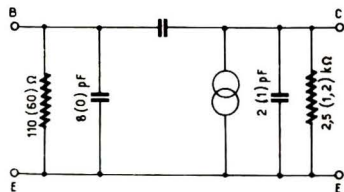
$\beta = 5,5 / 40 \text{ MHz}$
 $GP = 10 \text{ dB} / 200 \text{ MHz}$
 $F_b = 5 \text{ dB} / 10 \text{ MHz}$



2N 502 A

70 (200) MHz

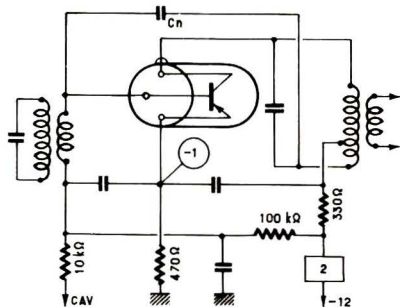
$V_c = 12 \text{ V}$
 $I_c = 3 \text{ mA}$



2N 503

VHF_100 MHz

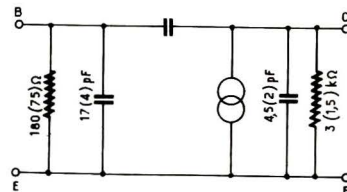
$\beta = 4,2 / 40 \text{ MHz}$
 $GP = 12,5 \text{ dB} / 100 \text{ MHz}$

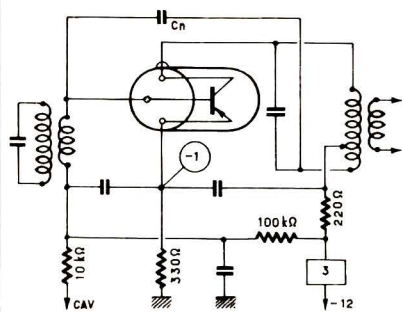
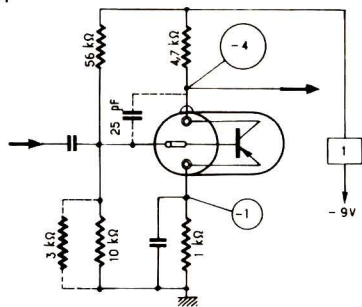
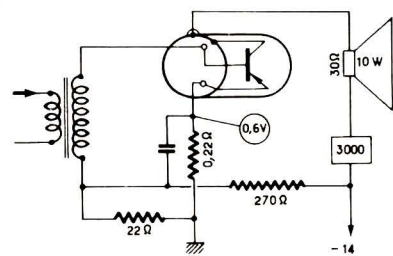
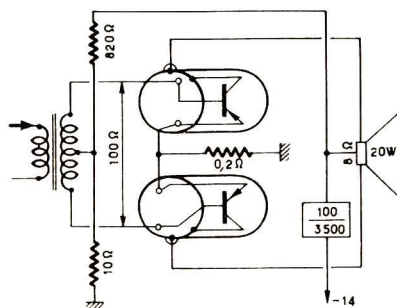


2N 503

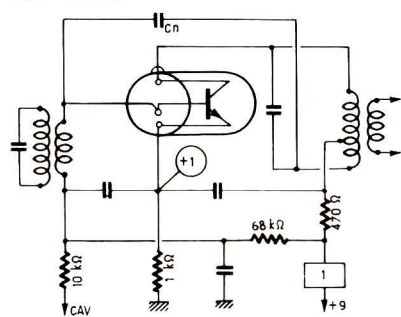
30 (100) MHz

$V_c = 10 \text{ V}$
 $I_c = 2 \text{ mA}$
 $GP = 23 (12,5) \text{ dB}$

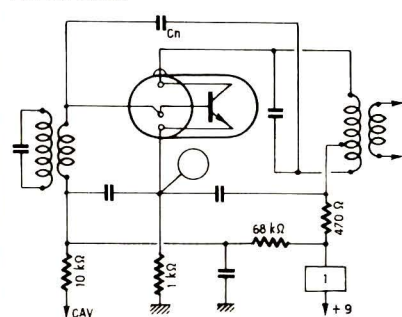


2N 504
MF_470kHz $\beta > 16$
GP = 43dB2N 508
BF $\beta = 112$
F_b = 6 dB2N 511
P $\beta > 10$ 2N 511
P $\beta > 10$
GP > 10dB2N 515
MF_470 kHz

n-p-n

 $\beta = 10/470 \text{ kHz}$
GP = 25 dB2N 516
MF_470 kHz

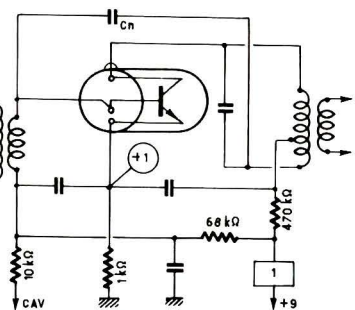
n-p-n

 $\beta = 10/470 \text{ kHz}$
GP = 27dB

2N517
MF_470 kHz

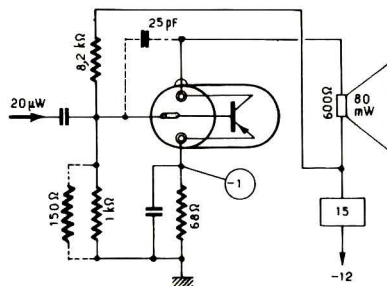
n-p-n

$\beta = 10/470 \text{ kHz}$
GP=28,5 dB



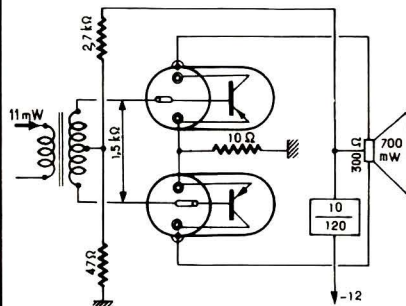
2N524
BF

$\beta = 16...41$
GP = 36 dB



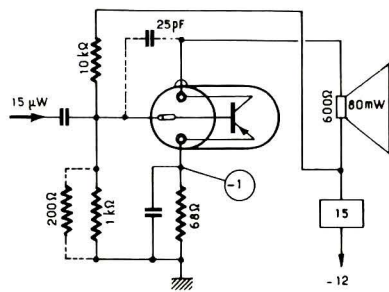
2N524
BF

$\beta = 16...41$
GP = 16 dB



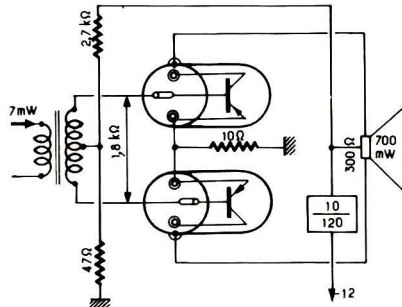
2N525
BF

$\beta = 30...64$
GP = 38 dB



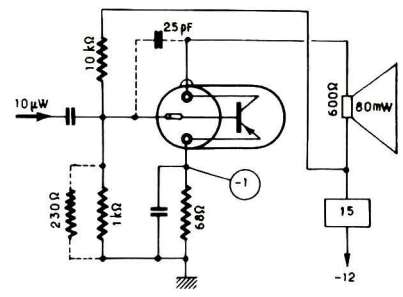
2N525
BF

$\beta = 30...64$
GP = 20 dB



2N526
BF

$\beta = 44...88$
GP = 39 dB

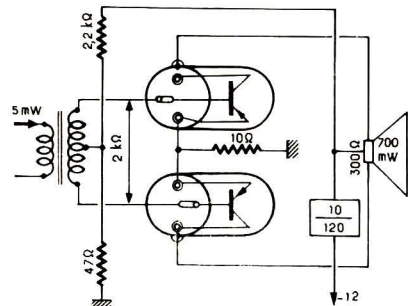


2 N 526

BF

 $\beta = 44 \dots 88$

GP = 21 dB

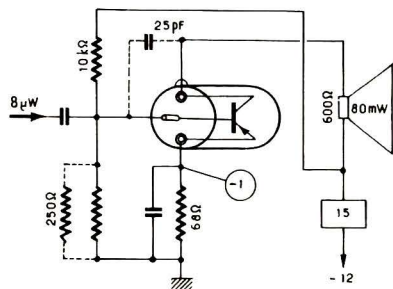


2 N 527

BF

 $\beta = 60 \dots 120$

GP = 40 dB

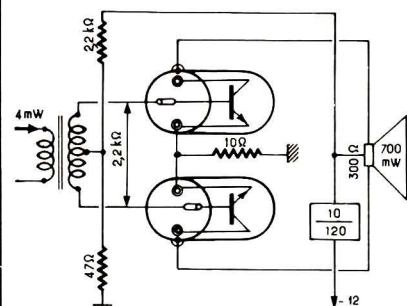


2 N 527

BF

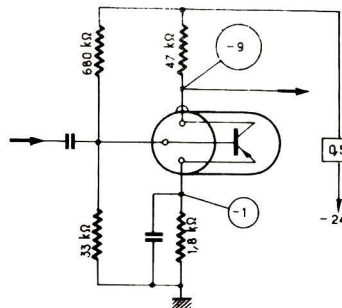
 $\beta = 60 \dots 120$

GP = 22 dB



2 N 534

BF Submin.

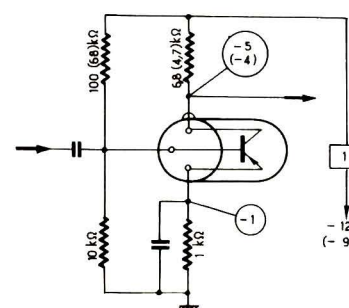
 $\beta = 150$ 

2 N 535

BF Submin.

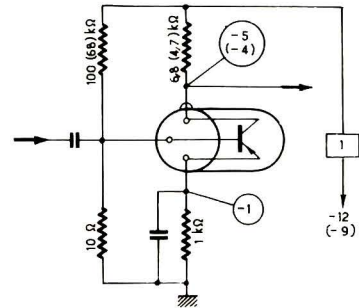
 $\beta = 100$

Fb = 5 dB



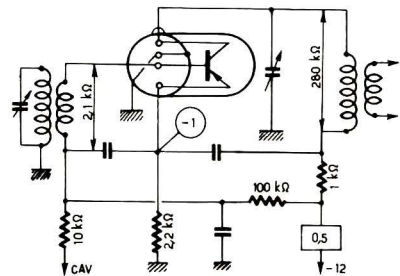
2 N 536

BF Submin.

 $\beta = 150$ 

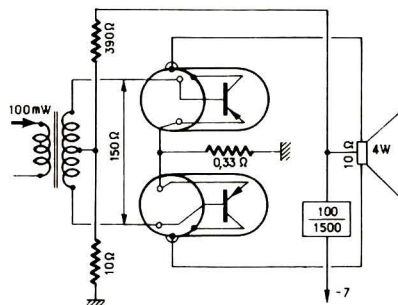
2N544
HF <2MHz

$\beta = 60$
GP = 30 dB



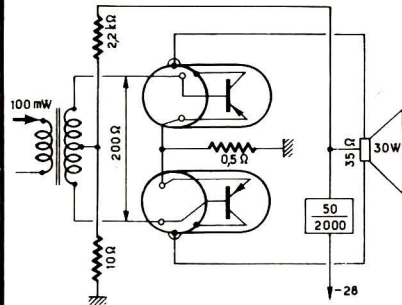
2N554
P

$\beta = 30$
GP = 16 dB



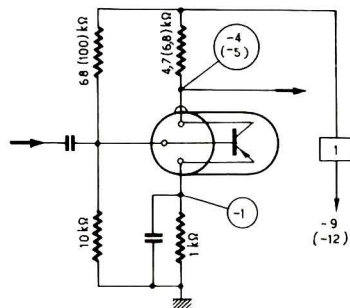
2N561
P

$\beta = 75$
GP = 25 dB



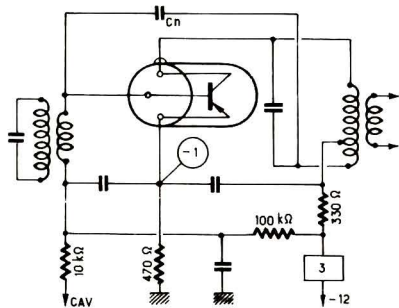
2N565,65
BF

$\beta = 35$
Fb = 16 dB



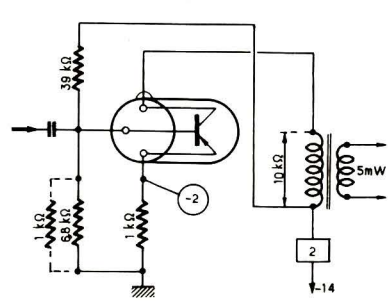
2N588
VHF 30 MHz

GP = 18 dB
Fb = 5 dB/10 MHz



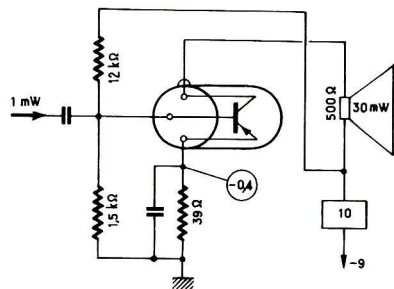
2N591
BF

$\beta = 70$
GP = 40 dB



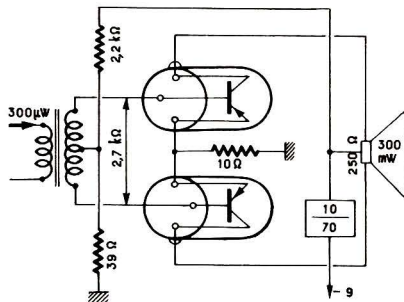
2N 609

BF

 $\beta = 90$
GP = 35 dB

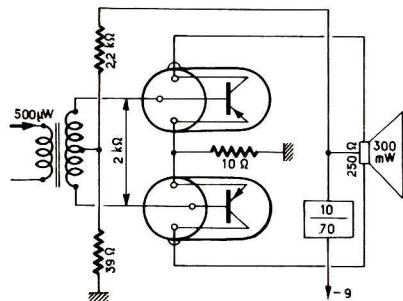
2N 609

BF

 $\beta = 90$
GP = 30 dB

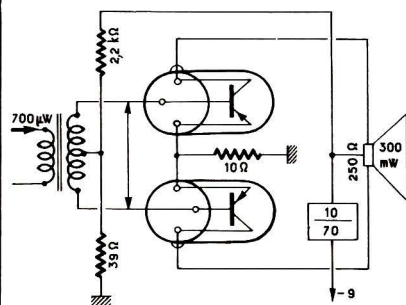
2N 610

BF

 $\beta = 65$
GP = 28 dB

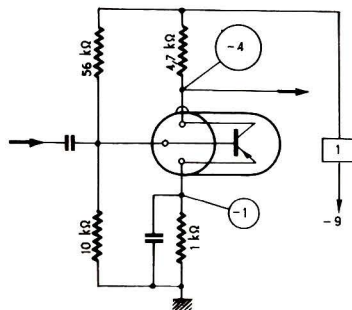
2N 611

BF

 $\beta = 45$
GP = 26 dB

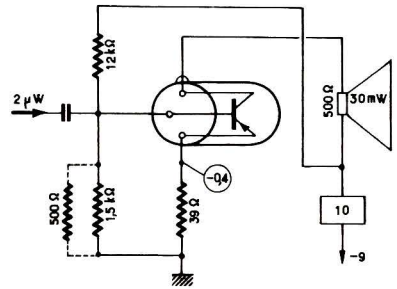
2N 612

BF

 $\beta = 25$ 

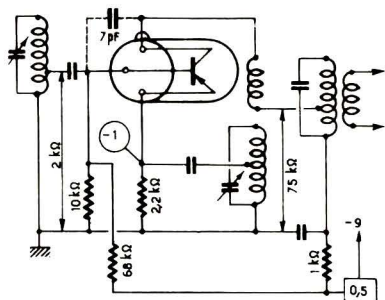
2N 613

BF

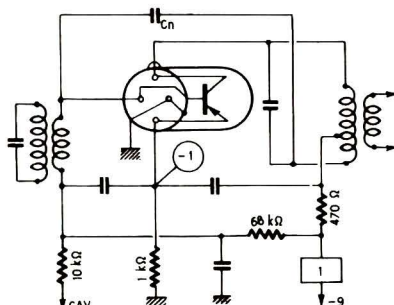
 $\beta = 30$
GP = 32 dB

2N617

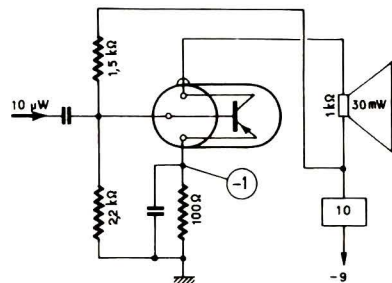
Conv. < 2 MHz

 $\beta = 15/470 \text{ kHz}$
GC = 30 dB**2N624**

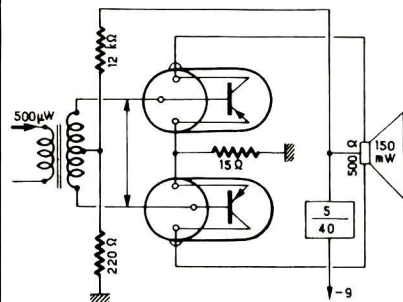
12,5 MHz

 $\beta > 20$
GP = 22 dB**2N631**

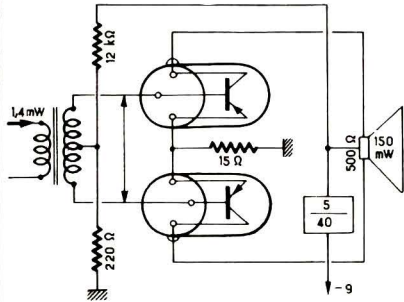
BF

 $\beta = 150$
GP = 35 dB**2N632**

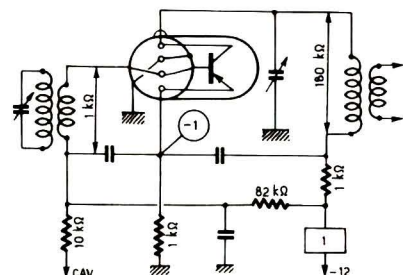
BF

 $\beta = 100$
GP = 25 dB**2N633**

BF

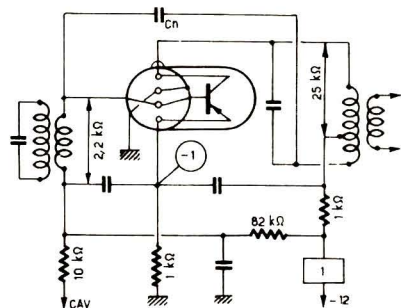
 $\beta = 60$
GP = 21 dB**2N640**

HF < 2 MHz

 $\beta = 60$
GP = 26 dB

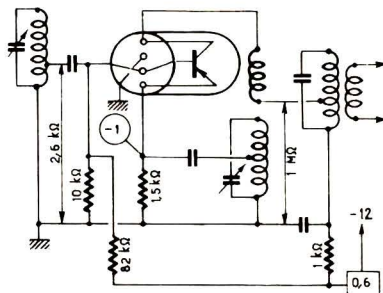
2N 641
MF.470kHz

$\beta = 60$
GP = 40 dB



2N 642
Conv. < 2 MHz

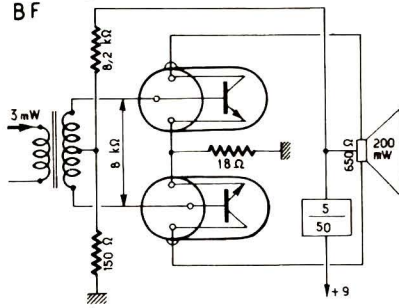
$\beta = 60$
GC = 40 dB



2N 647
2N 649
BF

n-p-n

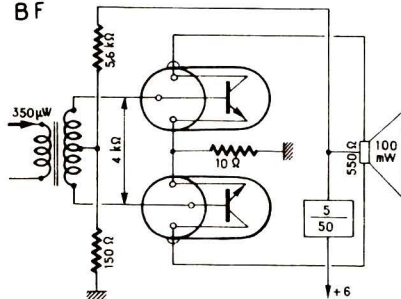
$\beta = 70$
GP = 17 dB



2N 647
2N 649
BF

n-p-n

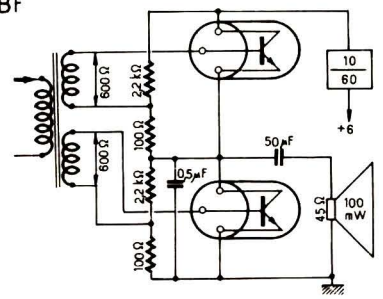
$\beta = 70$
GP = 25 dB



2N 647
2N 649
BF

n-p-n

$\beta = 70$

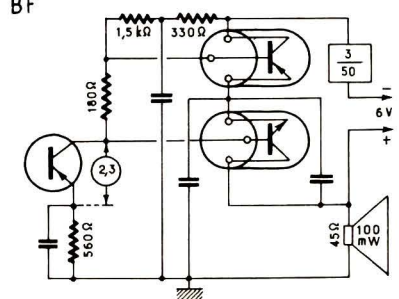


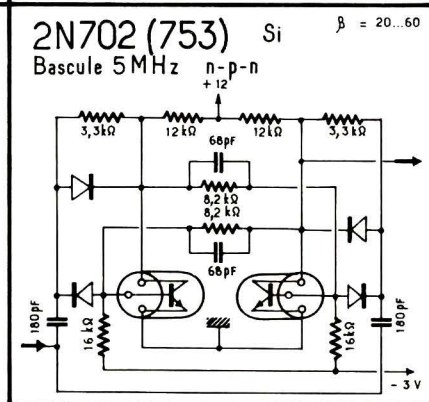
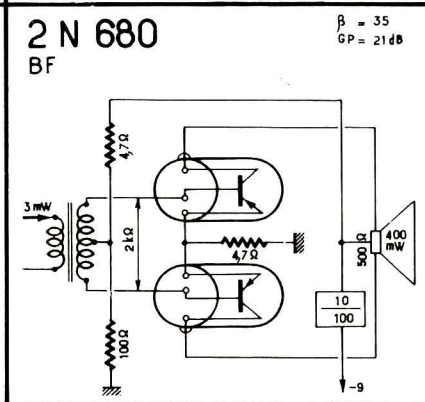
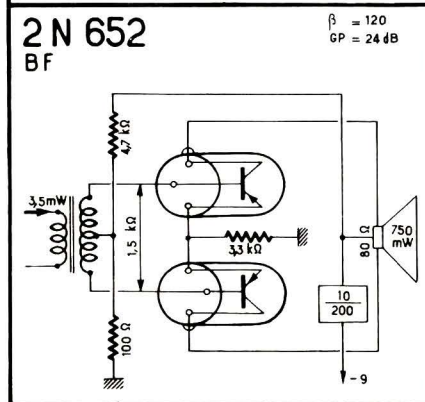
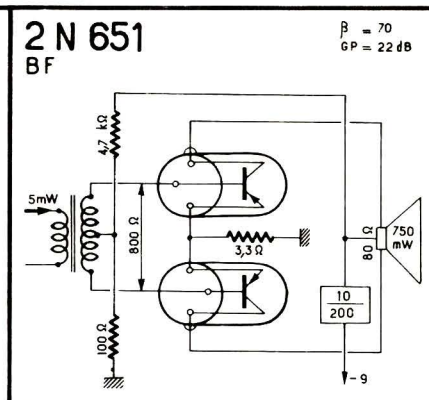
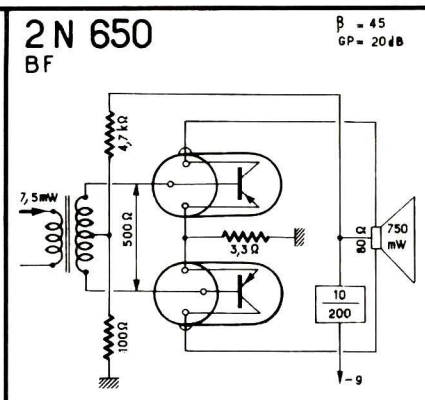
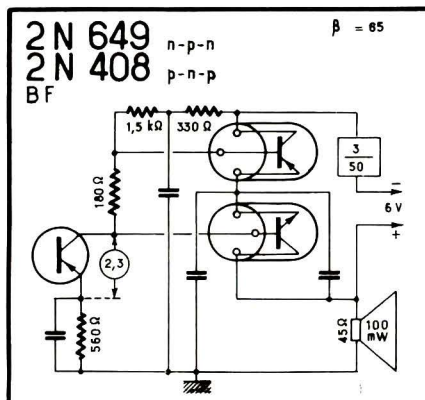
2N 647
2N 217
BF

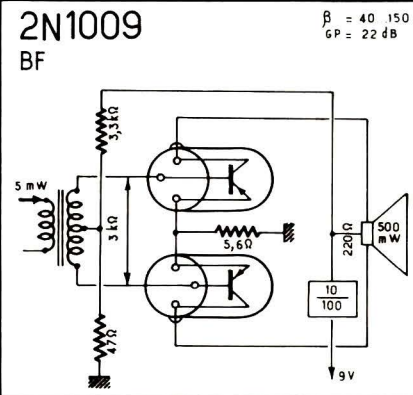
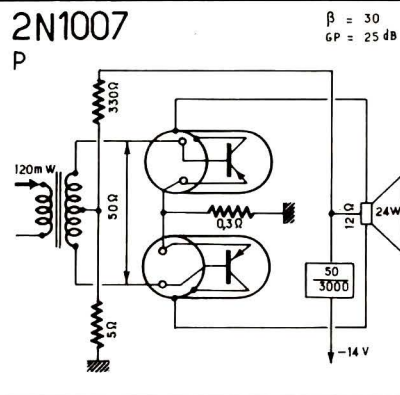
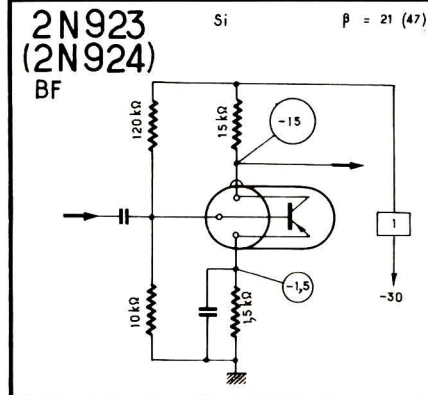
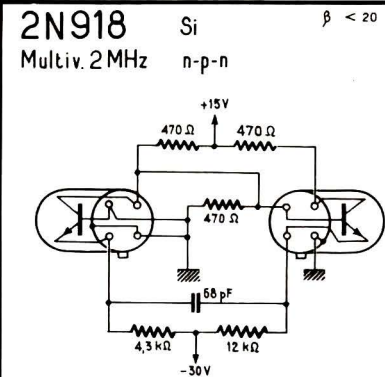
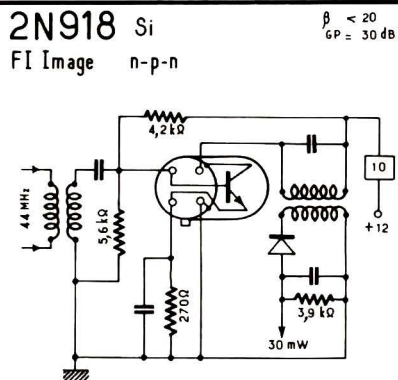
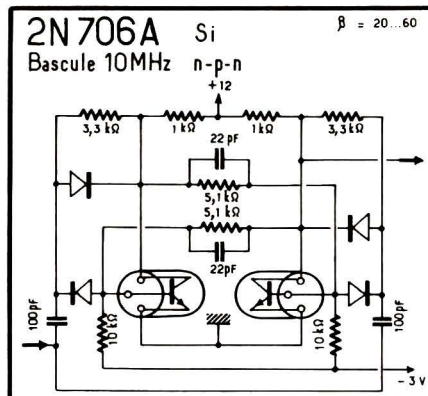
n-p-n

p-n-p

$\beta = 70$



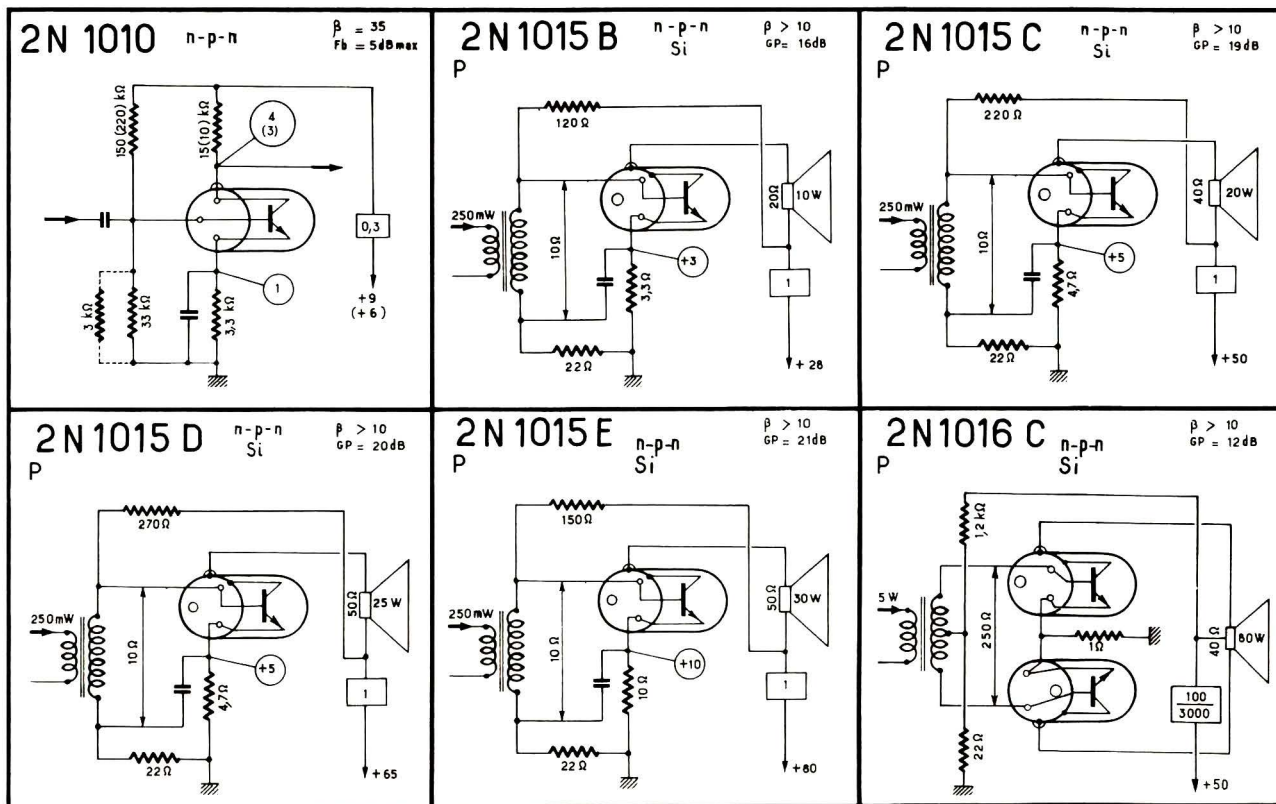




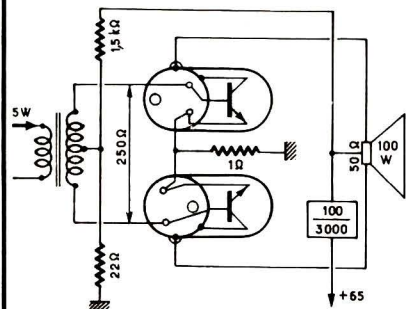
2N1010

113

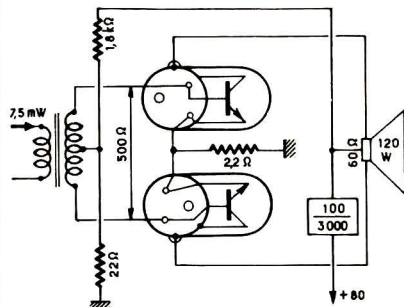
2N 1016 C



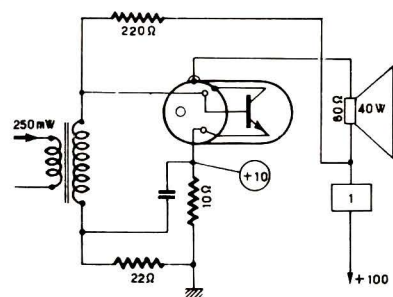
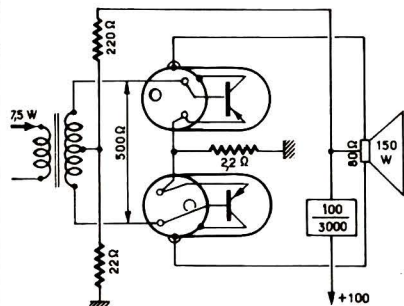
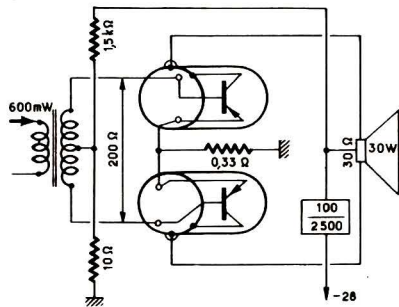
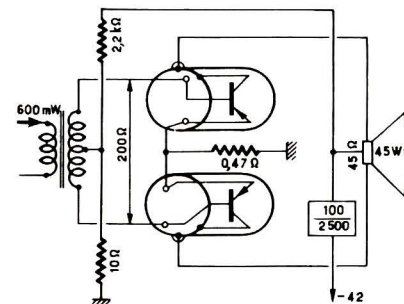
2N1016D

2N1016 D
n-p-n
S_i $\beta > 10$
GP = 13 dB

114

2N1016 E
n-p-n
S_i $\beta > 10$
GP = 12 dB

2N1022

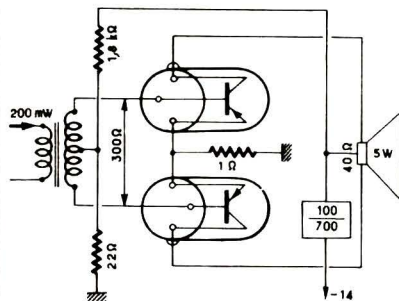
2N1016 F
n-p-n
S_i $\beta > 10$
GP = 22 dB2N1016 F
n-p-n
S_i $\beta > 10$
GP = 13 dB2N1021
P $\beta = 23$
GP = 17 dB2N1022
P $\beta = 23$
GP = 19 dB

2 N 1038

P

 $\beta = 20 \dots 60$

GP = 15 dB

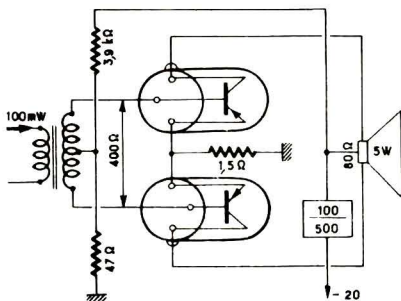


2 N 1039

P

 $\beta = 20 \dots 60$

GP = 17 dB



2 N 1040

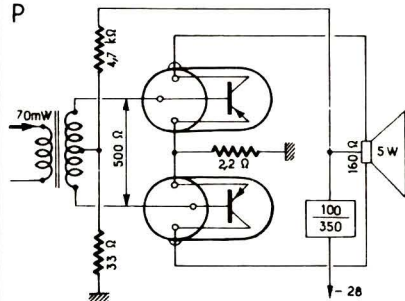
P

 $\beta = 20 \dots 60$

GP = 19 dB

2 N 1041

P



2 N 1042

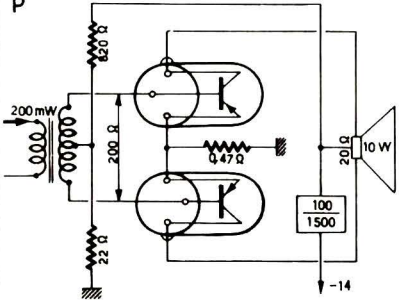
P

 $\beta = 20 \dots 60$

GP = 17 dB

2 N 1043

P



2 N 1044

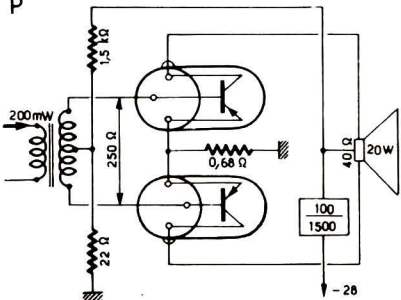
P

 $\beta = 20 \dots 60$

GP = 20 dB

2 N 1045

P



2 N 1058

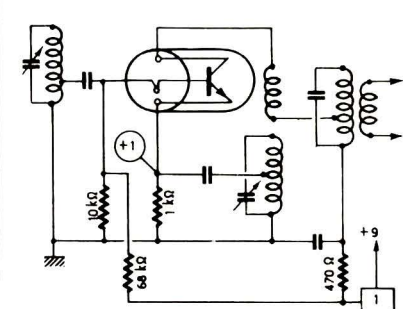
P

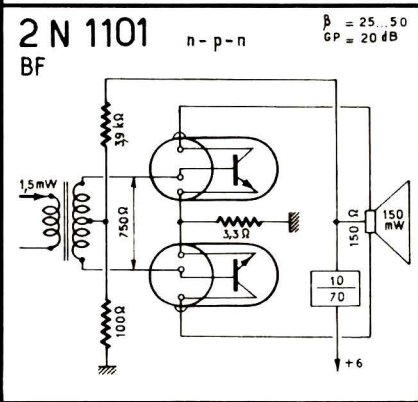
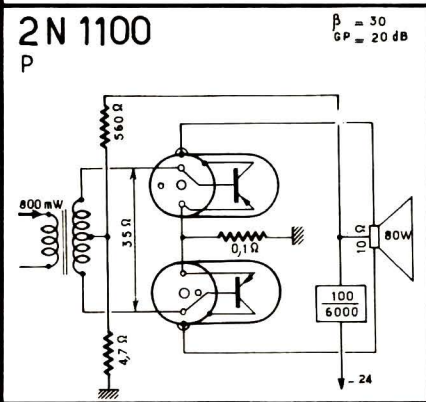
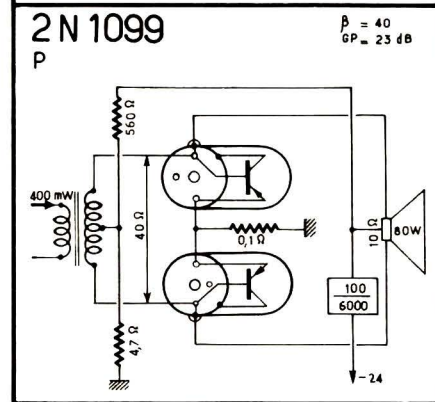
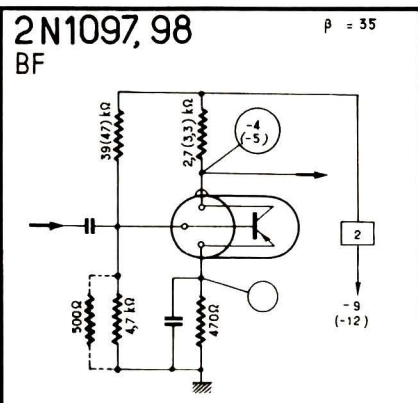
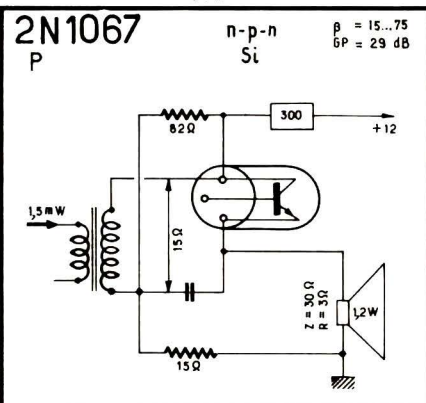
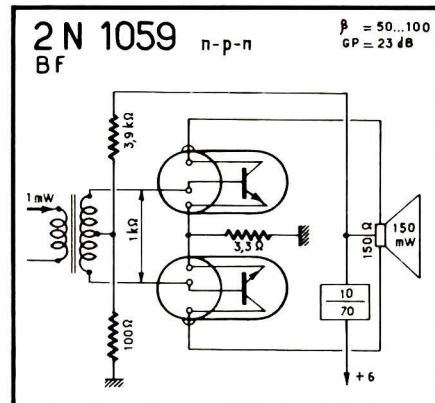
n-p-n

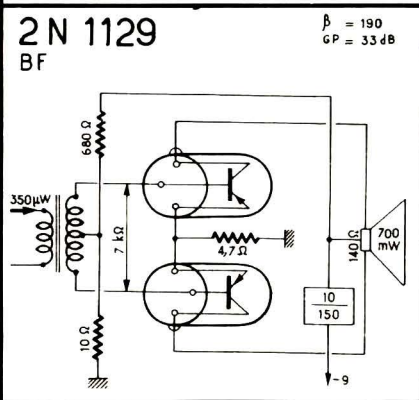
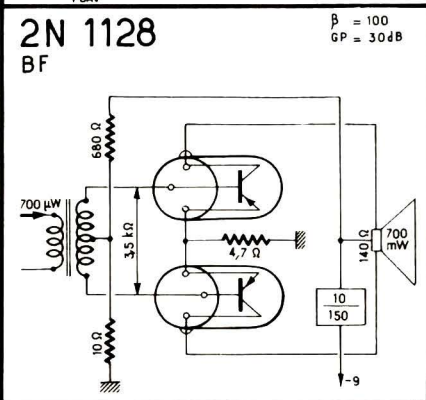
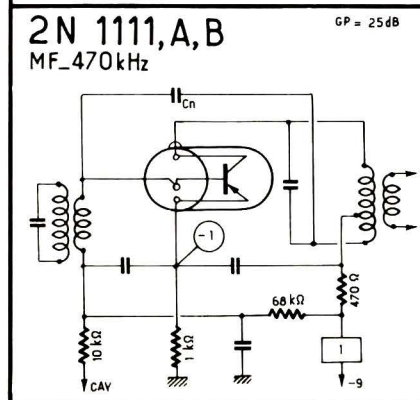
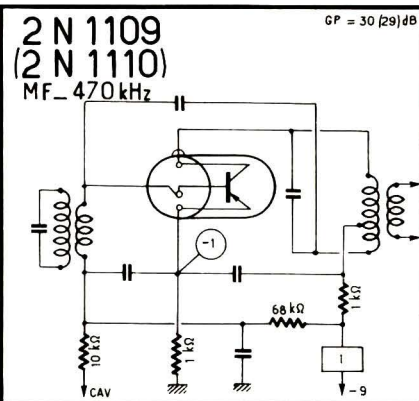
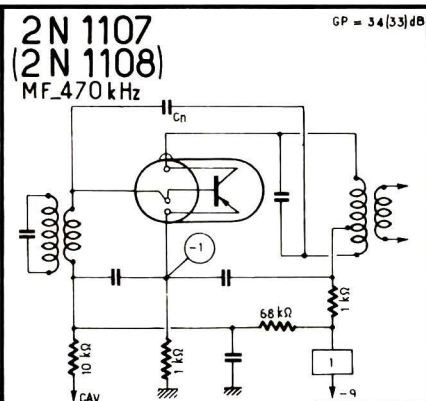
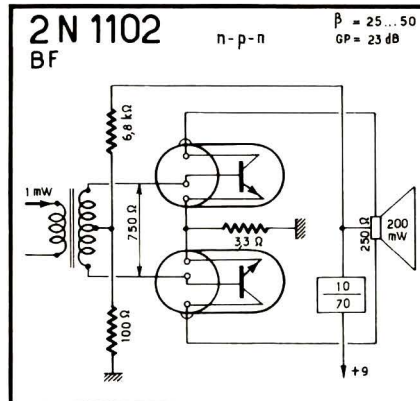
 $\beta = 10 \dots 23$

GC = 24 dB

Conv. < 2 MHz

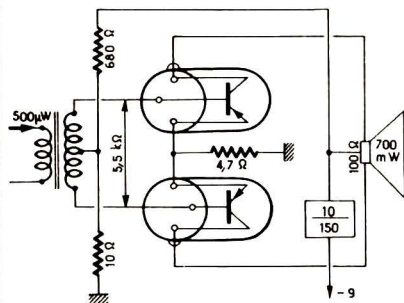






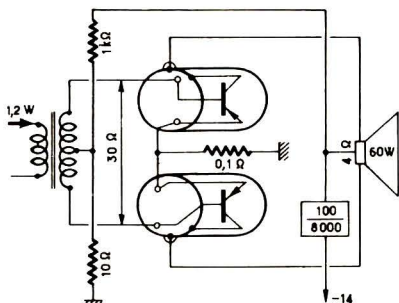
2N 1130
BF

$\beta = 160$
GP = 32 dB



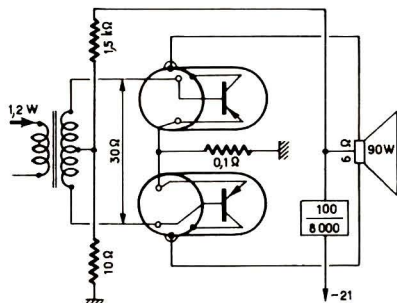
2N 1146
P

$\beta = 30 \dots 200$
GP = 17 dB



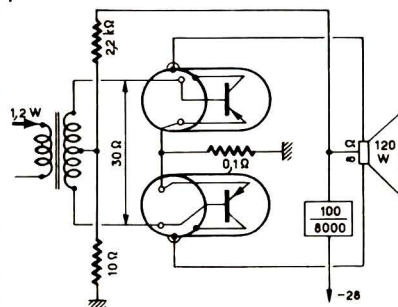
2N 1146 A
P

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



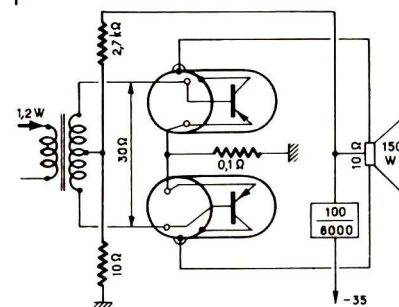
2N 1146 B
P

$\beta = 30 \dots 300$
GP = 20 dB



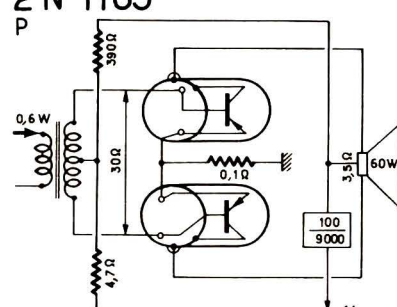
2N 1146 C
P

$\beta = 30 \dots 200$
GP = 21 dB



2N 1162
2N 1163
P

$\beta = 65$
GP = 20 dB



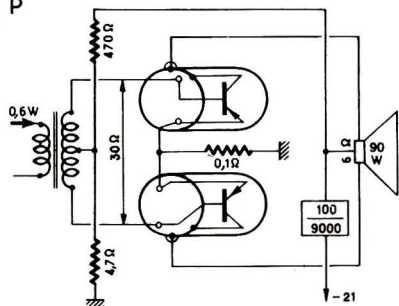
2N1164

119

2N 1183

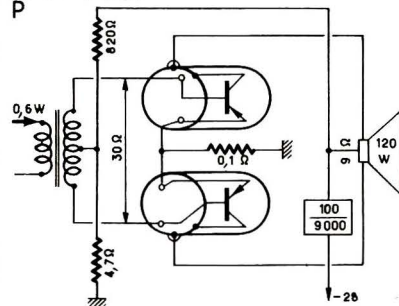
2N 1164
2N 1165
P

$\beta = 65$
GP = 22 dB



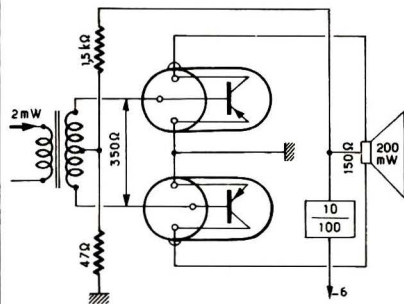
2N 1166
2N 1167
P

$\beta = 65$
GP = 23 dB



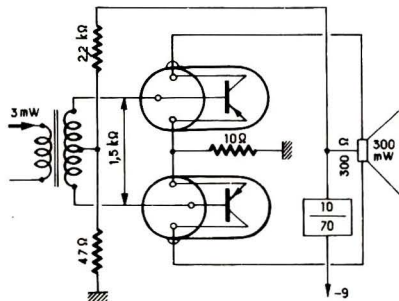
2N1176
BF

$\beta > 20$
GP = 20 dB



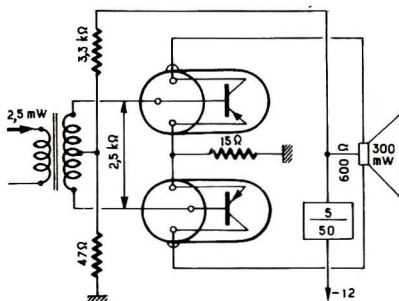
2N1176A
BF

$\beta > 20$
GP = 20 dB



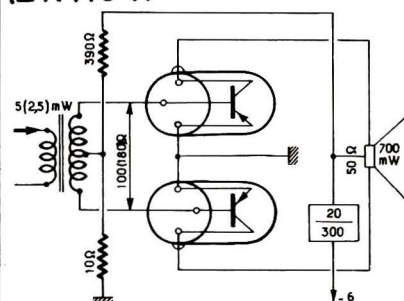
2N1176 B

$\beta > 20$
GP = 21 dB



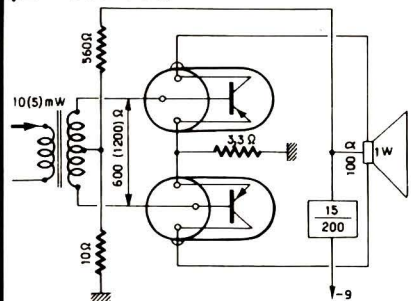
2N1183
(2N1184)

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



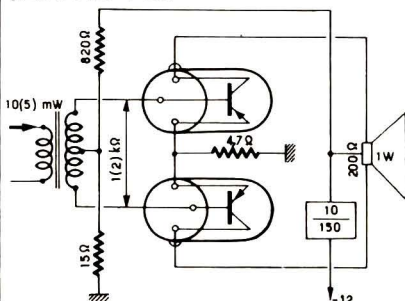
2N1183 A
(2N1184 A)

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



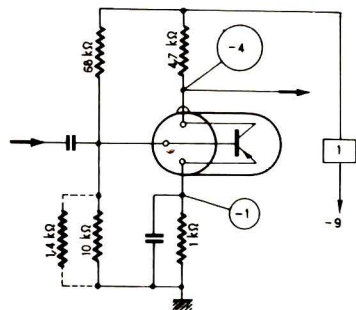
2N1183 B
(2N1184 B)

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



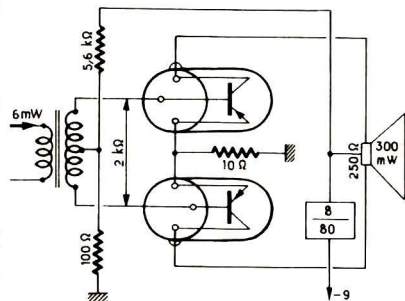
2N1191
BF

$\beta = 40$
F_b = 10 dB



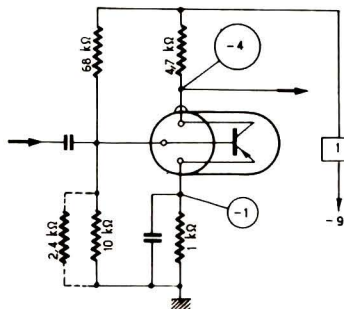
2N1191
BF

$\beta = 40$
GP = 17 dB



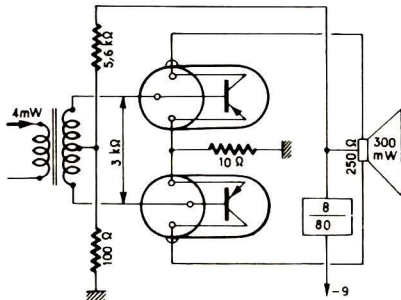
2N1192
BF

$\beta = 75$
F_b = 10 dB



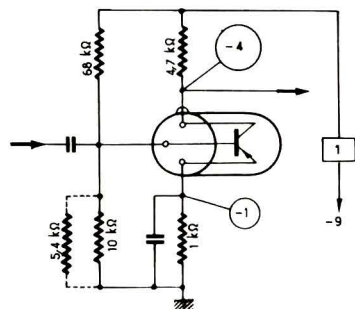
2N1192
BF

$\beta = 75$
GP = 19 dB



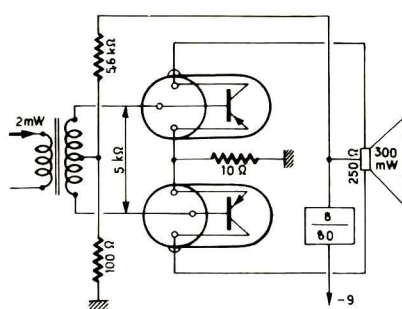
2N 1193
BF

$\beta = 160$
 $F_b = 10 \text{ dB}$



2N 1193
BF

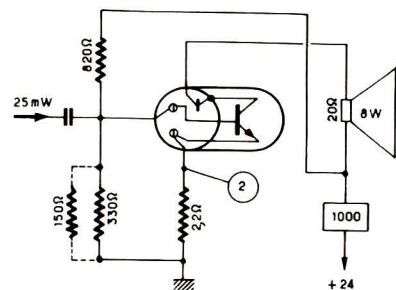
$\beta = 160$
 $GP = 22 \text{ dB}$



2N1208

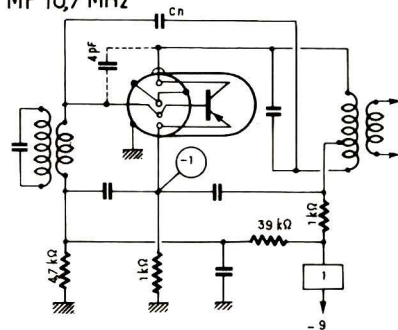
n-p-n
Si

$\beta = 40$
 $GP = 25 \text{ dB}$



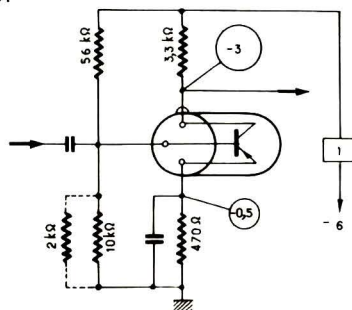
2N1264
MF 10.7 MHz

$\beta > 15$



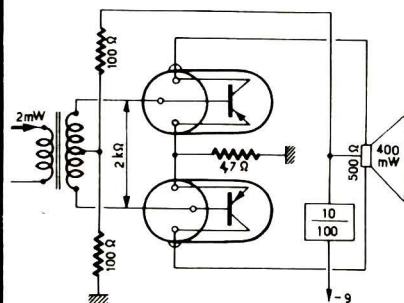
2N1265
BF

$\beta = 75$



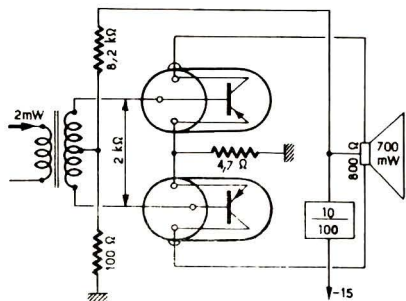
2N 1273
BF

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



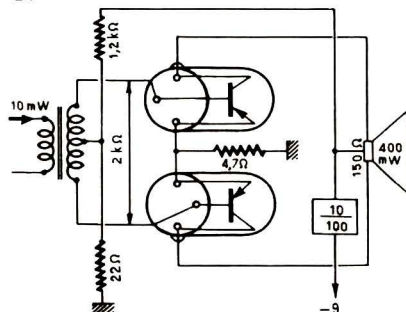
2N1274
BF

$\beta = 50$
GP = 26 dB



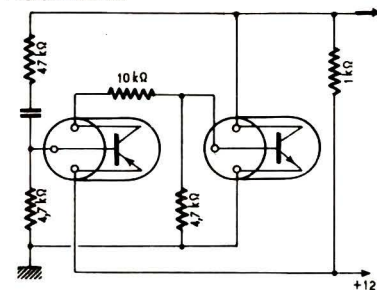
2N1287
BF

$\beta > 40$
GP > 18 dB



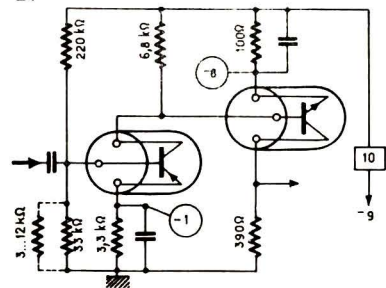
2N1302 n-p-n
2N1303 p-n-p
Multivibrateur

$\beta > 20$



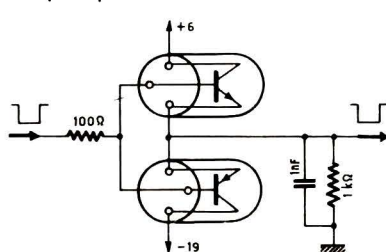
2N1304 n-p-n
2N1305 p-n-p
BF

$\beta = 40 \dots 200$



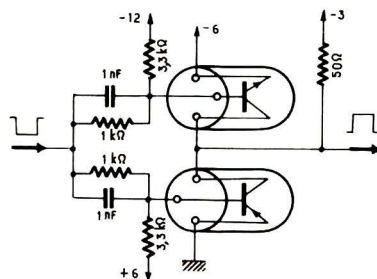
2N1306 n-p-n
2N1307 p-n-p
Adapt. impéd.

$\beta = 60 \dots 300$



2N1308 n-p-n
2N1309 p-n-p
Inverseur

$\beta > 80$

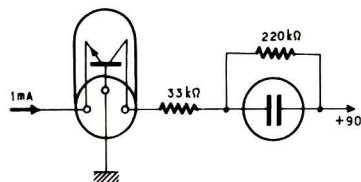


2N1310

n-p-n

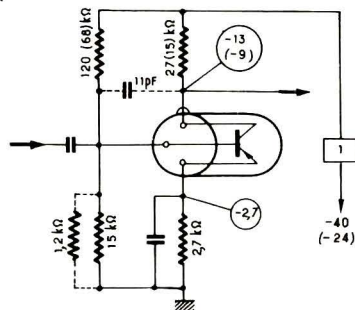
 $\beta = 35$
 $F_b = 10 \text{ dB}$

Commande néon



2N1312

BF

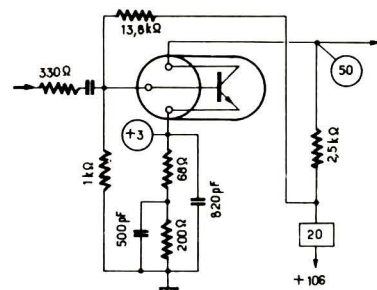
 $\beta = 40$ 

2N 1335,36,37,

Vidéo <6,5 MHz

n-p-n

Si

 $\beta = 15$
 $6V = 18 \text{ dB}$ 

2 N 1339

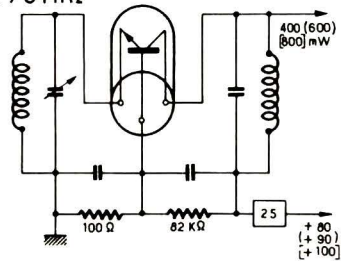
(2 N 1340)

[2 N 1341]

Osc. 70 MHz

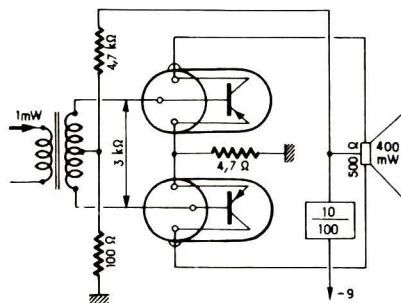
n-p-n

Si

 $\beta = 15$ 

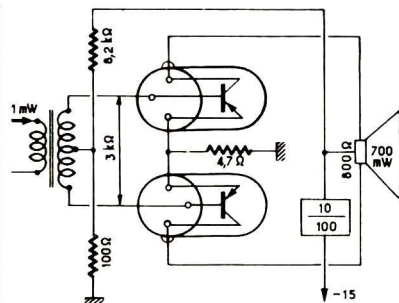
2N 1370

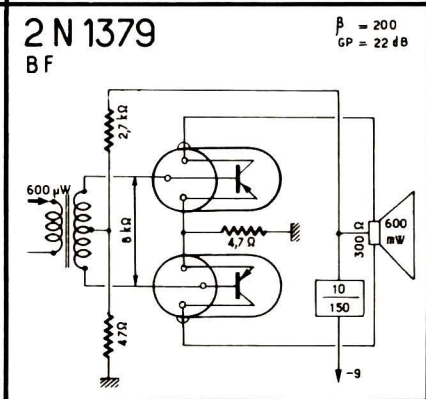
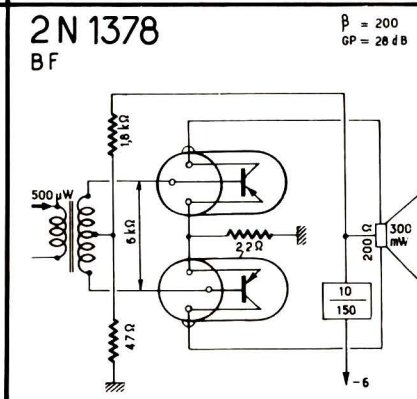
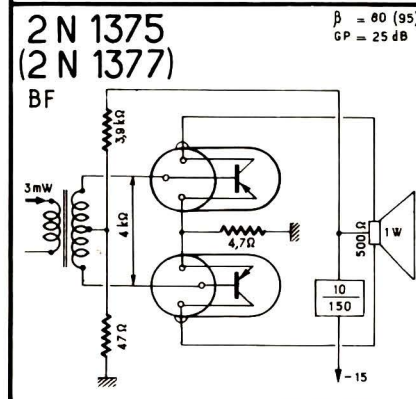
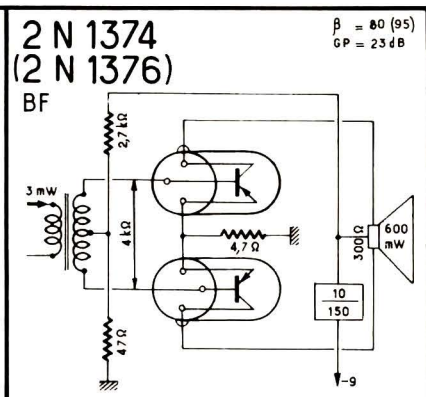
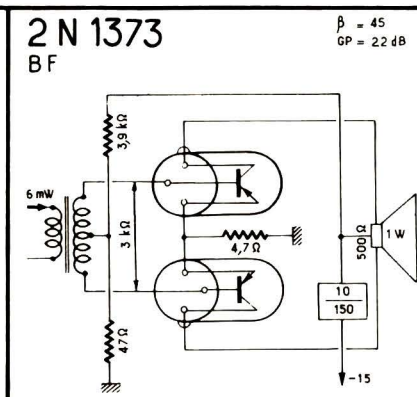
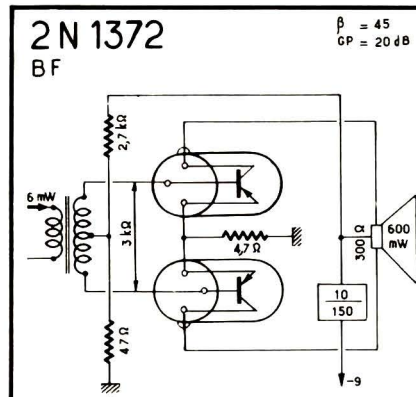
BF

 $\beta = 80$
 $GP = 28 \text{ dB}$ 

2 N 1371

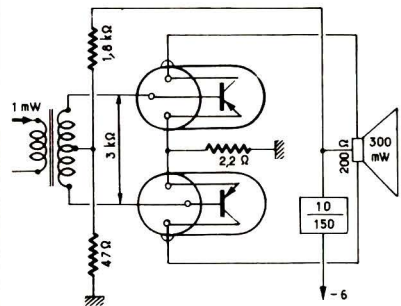
BF

 $\beta = 80$
 $GP = 28 \text{ dB}$ 



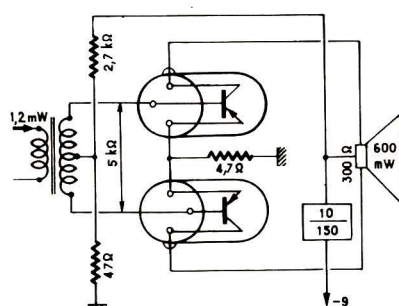
2N1380
BF

$\beta = 100$
GP = 25 dB



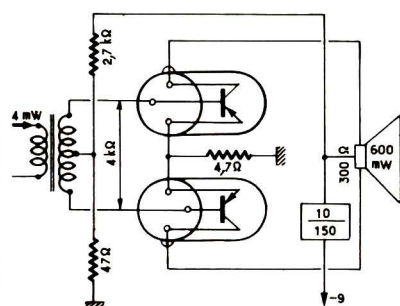
2N1381
BF

$\beta = 100$
GP = 27 dB



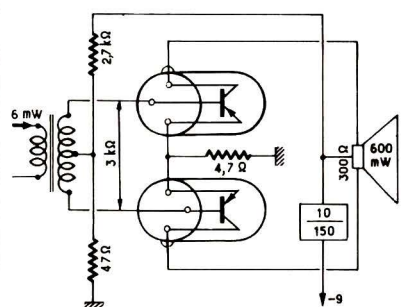
2N1382
BF

$\beta = 80$
GP = 22 dB



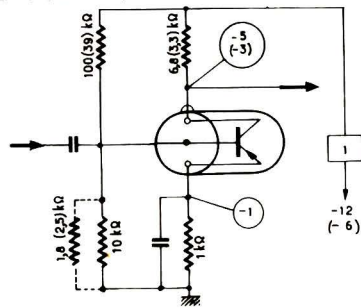
2N1383
BF

$\beta = 50$
GP = 20 dB



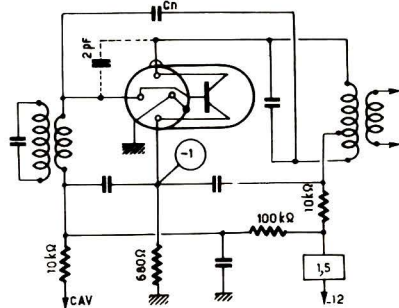
2N1392
(2N1394)

$\beta = 40 (50)$
 $F_b < 16 \text{ dB}$

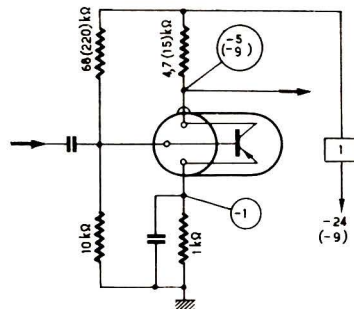


2N1395
MF470 kHz

$\beta = 90$
GP = 45 dB

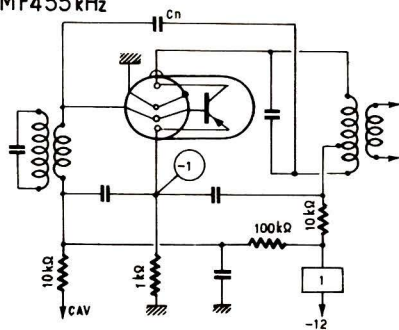


2N1413, 14,15

 $\beta = 30, 44, 64$ 

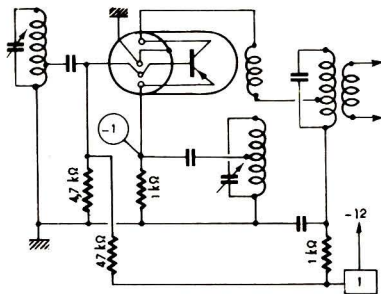
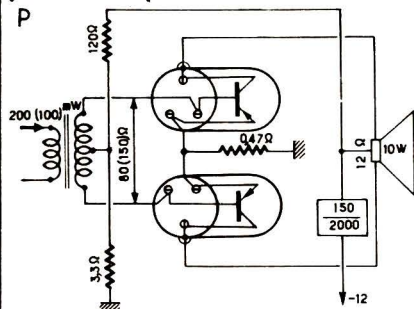
2N1425

MF455kHz

 $\beta = 49$ 

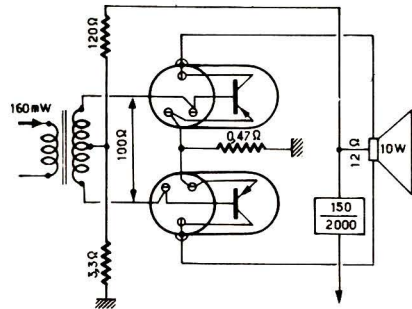
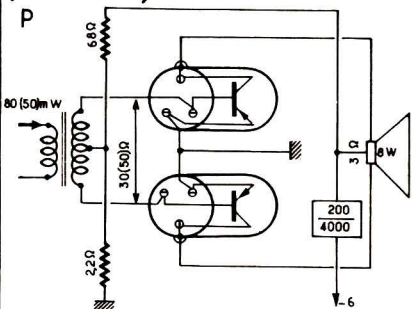
2N1426

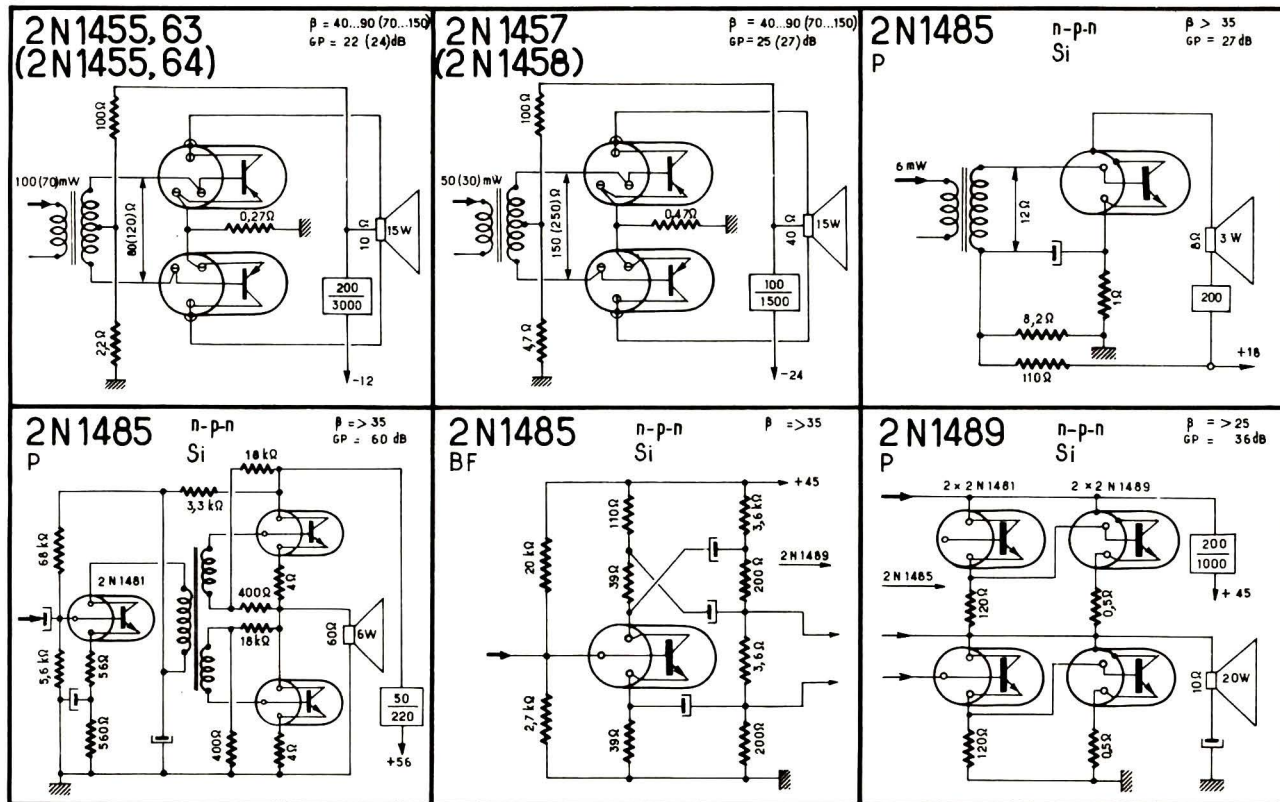
Conv. < 6 MHz

 $\beta = 120$ 2N1433
(2N1434) $\beta = 20 \dots 50 (45 \dots 115)$
GP = 17 (20) dB

2N1435

P

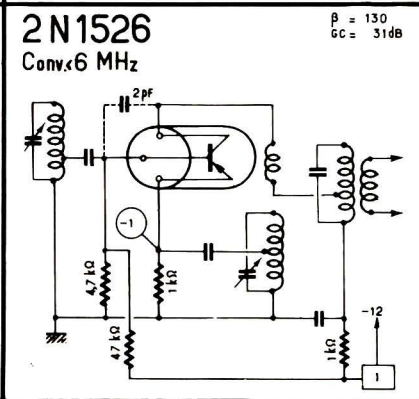
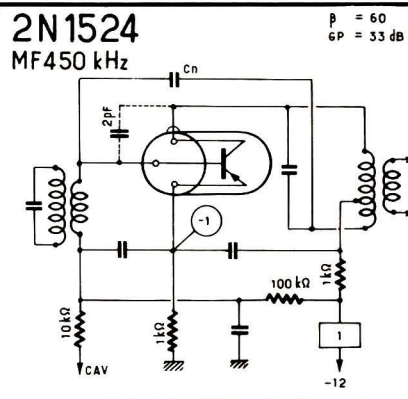
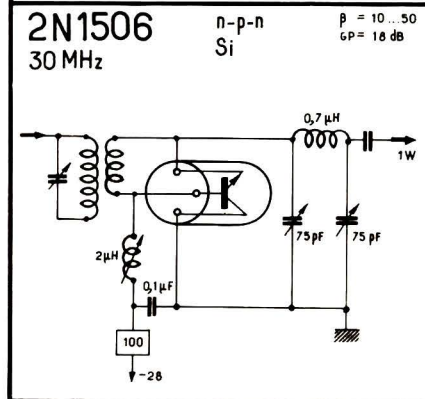
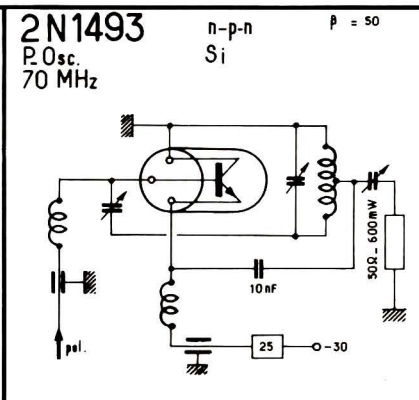
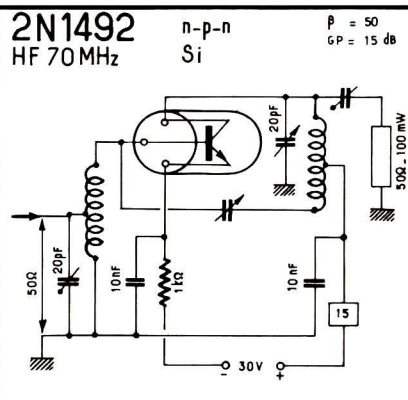
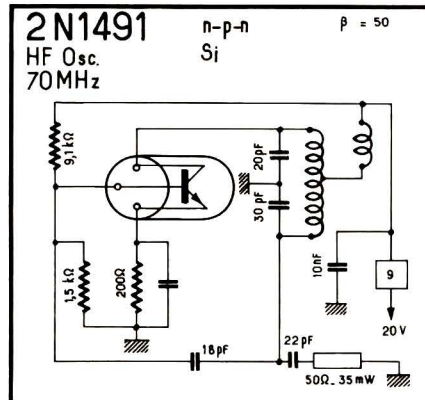
 $\beta = 30 \dots 75$
GP = 18 dB2N1453, 61
(2N1454, 62) $\beta = 40 \dots 90 (70 \dots 150)$
GP = 20 (22) dB

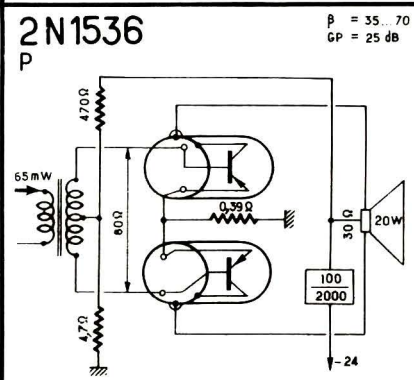
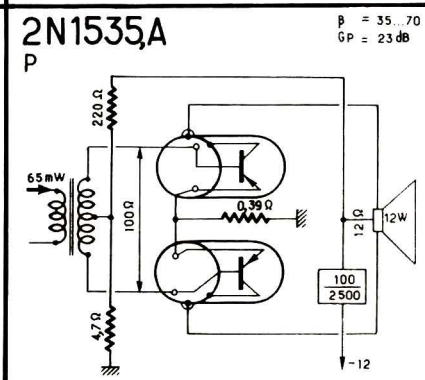
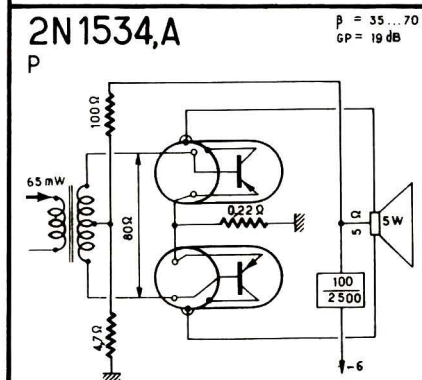
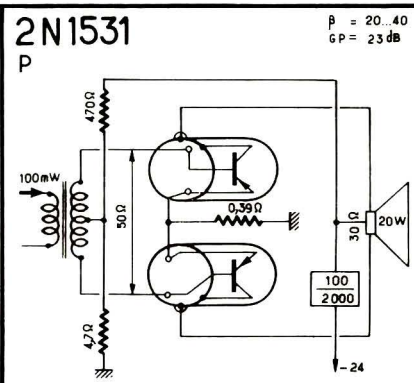
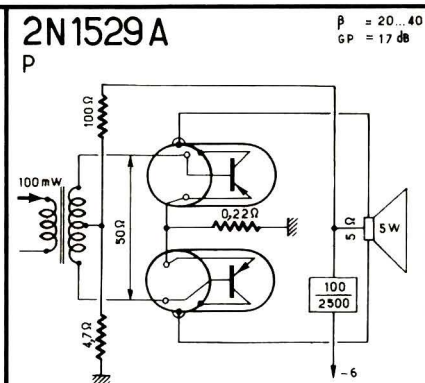
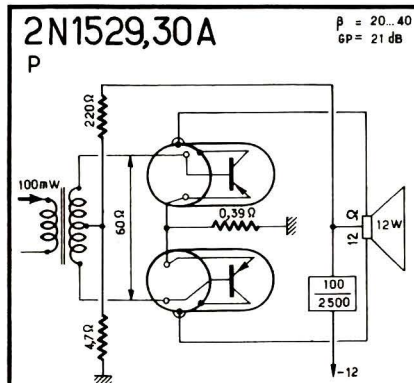


2N1491

128

2N1526



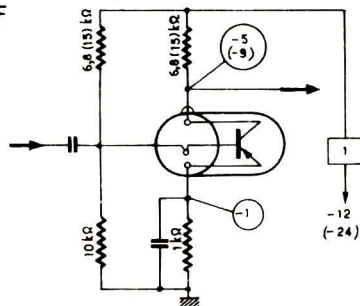


2 N1592
(2 N1593)

Si

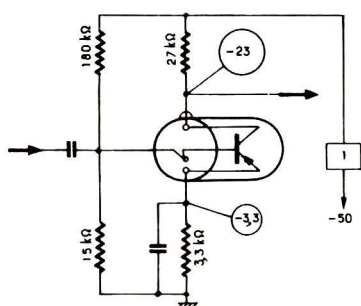
 $\beta = 140$

BF



2N1594
BF

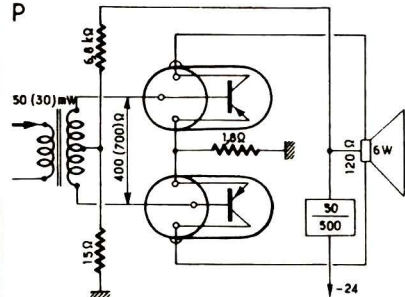
Si

 $\beta = 140$ 

2N1609
(2N1610)

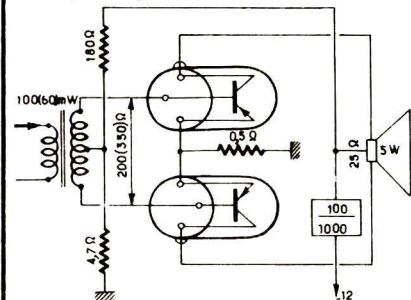
P

$\beta = 30 \dots 75$ (50...125)
GP = 17 (19) dB



2N1611
(2N1612)

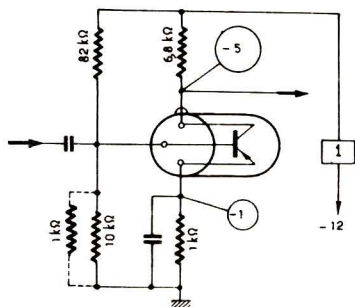
$\beta = 30 \dots 75$ (50...125)
GP = 17 (19) dB



2N1623

Si

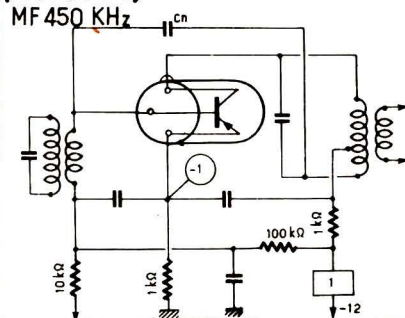
$\beta = 25$
F_b < 18 dB



2 N1631
(2 N1633)

MF 450 KHz

$\beta = 80$ (75)
GP = 48 (38) dB



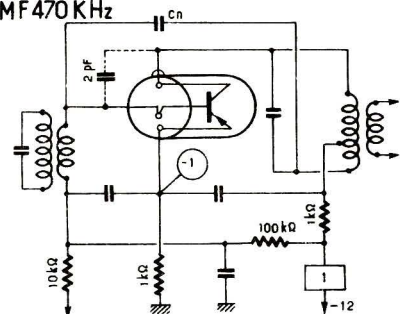
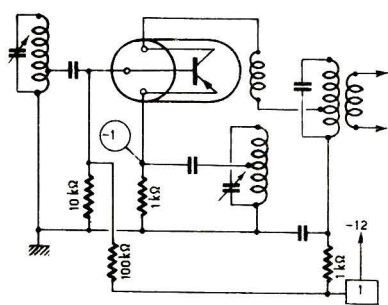
2N1632

131

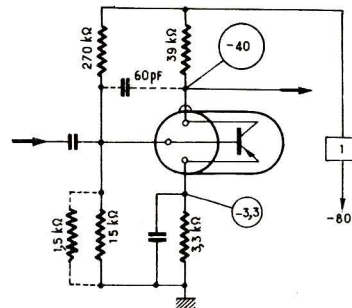
2N1750

2N1632
(2N1634) $\beta = 80(75)$
 $G_P = 48(30) \text{ dB}$

MF 470 KHz

2N1636
Conv. $\approx 6 \text{ MHz}$ $\beta = 75$
 $G_C = 35 \text{ dB}$ 2N1654
BF

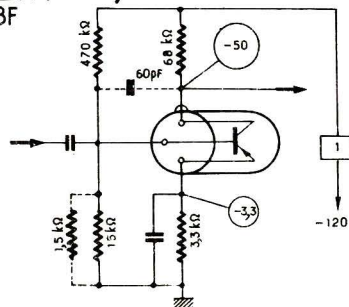
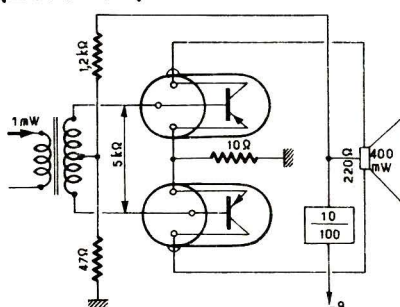
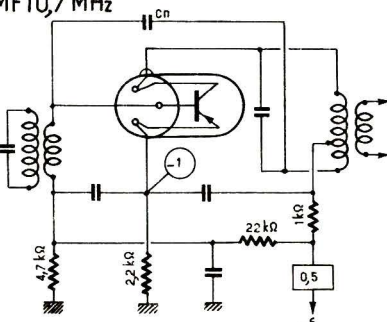
Si

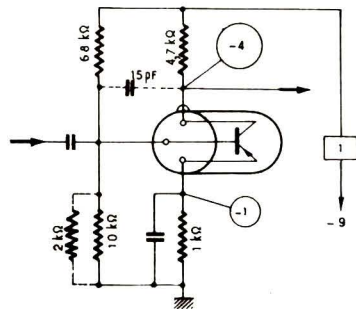
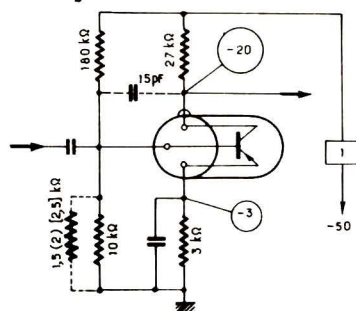
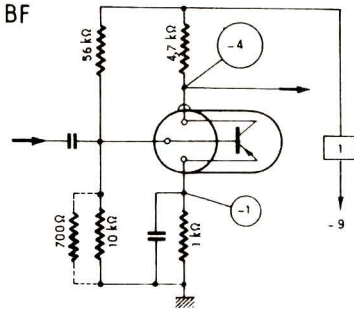
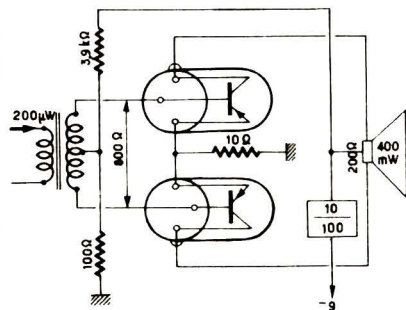
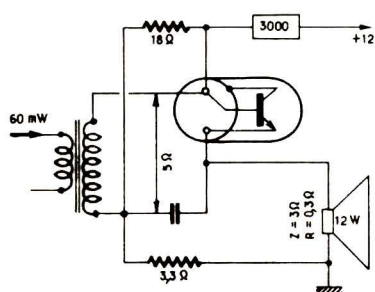
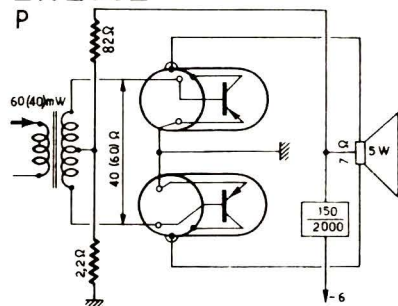
 $\beta = 30$ 2N1655
(2N1656)

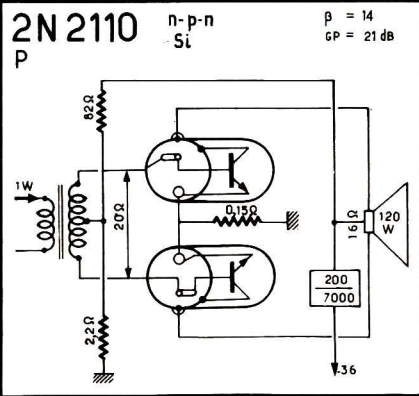
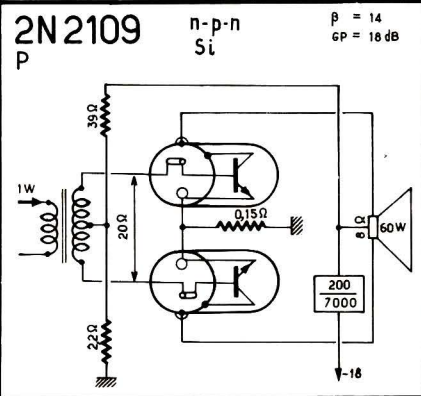
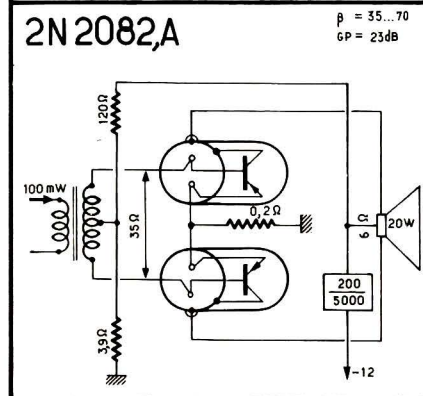
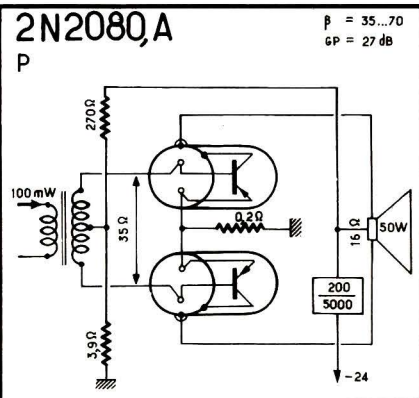
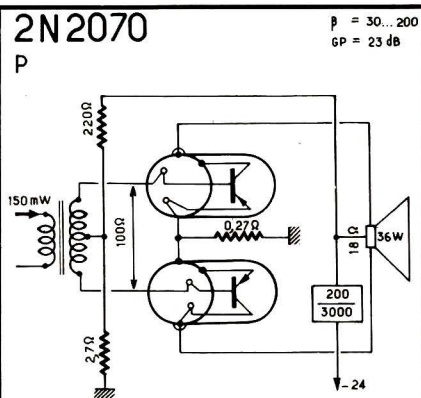
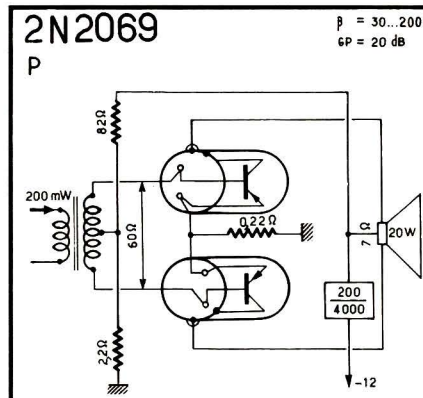
Si

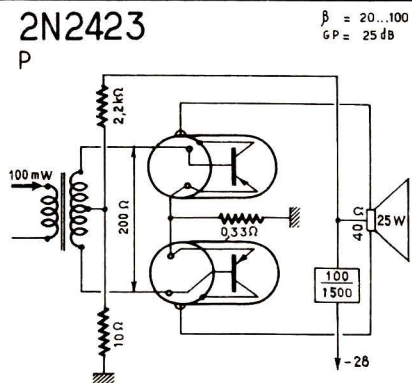
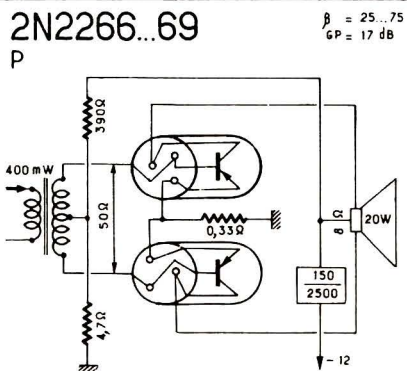
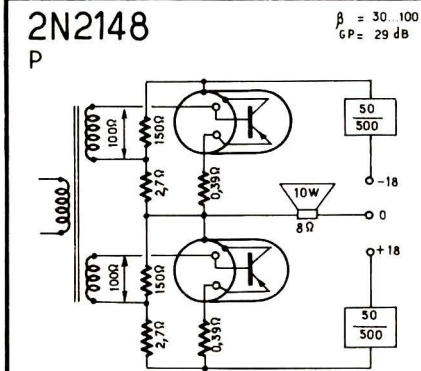
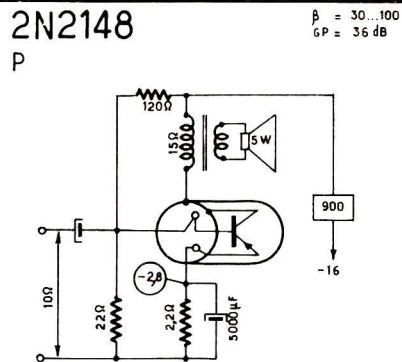
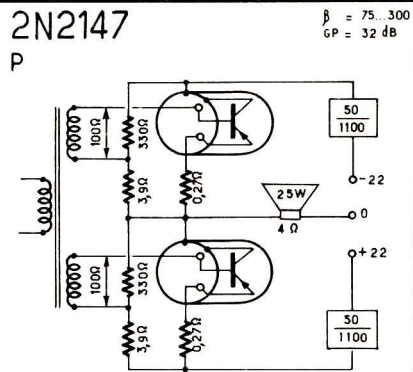
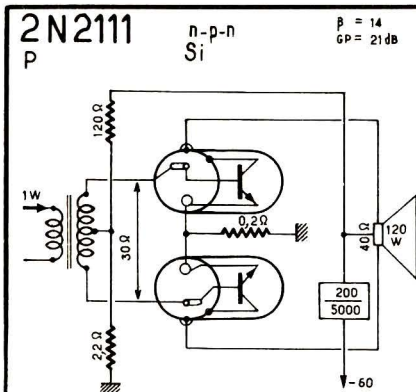
 $\beta = 15(30)$

BF

2N1706
(2N1707) $\beta = 90(95)$
 $G_P = 26 \text{ dB}$ 2N1750
MF 10,7 MHz $\beta = 30$ 

2N1808
BF $\beta = 60$ 2N1924
(2N1925)
(2N1926) $\beta = 45(65)[90]$ 2N1960
(2N1961)
BF $\beta = 25(20)$ 2N2000
BF $\beta = 150$
GP = 33 dB2N2015
Pn-p-n
Si $\beta = 15-50$
GP = 23 dB2N2061
2N2062
P $\beta = 30(50)$
GP = 19(21) dB





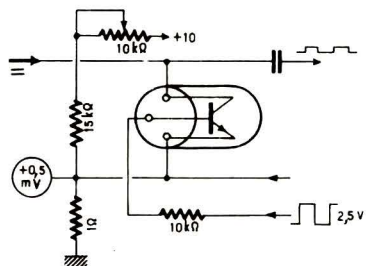
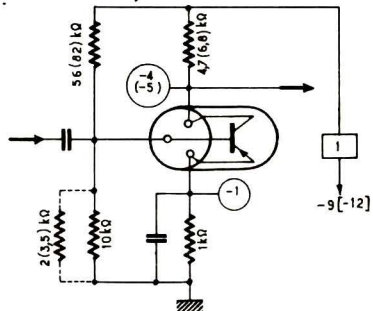
2N2432

Si

 $\beta > 2$

Chopper

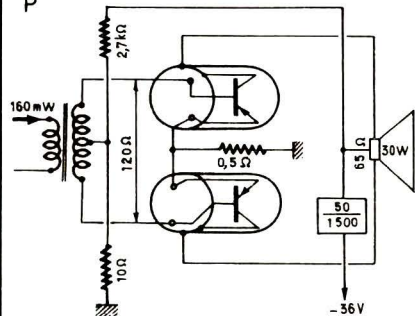
n-p-n

2N2447, 48
2N2449, 50 $\beta = 65$ (125)

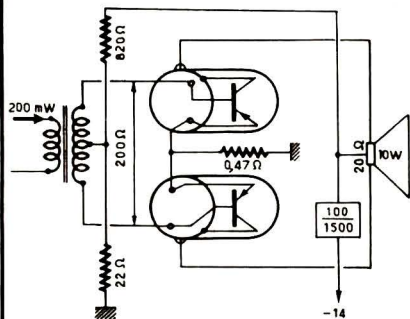
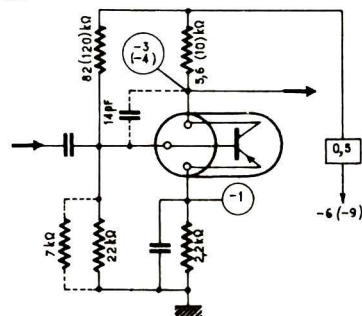
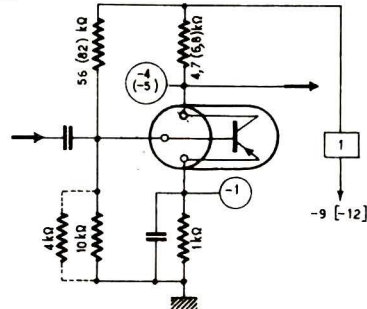
2N2526, 27

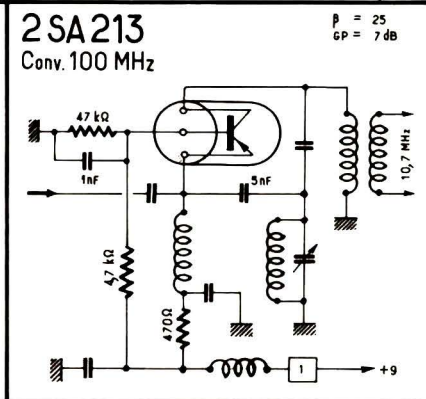
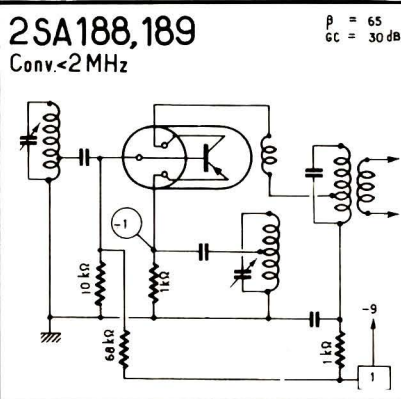
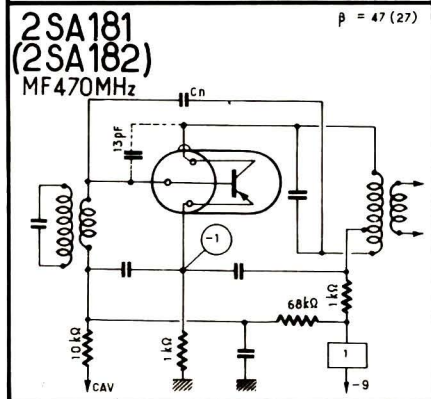
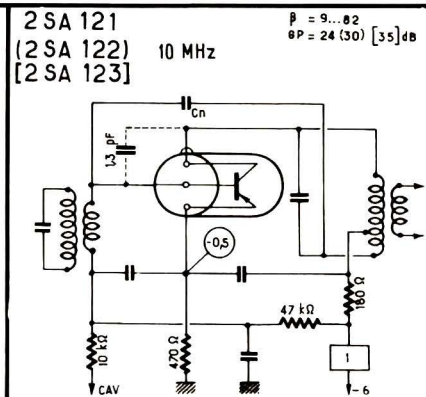
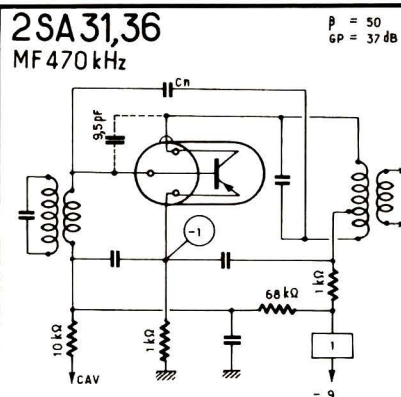
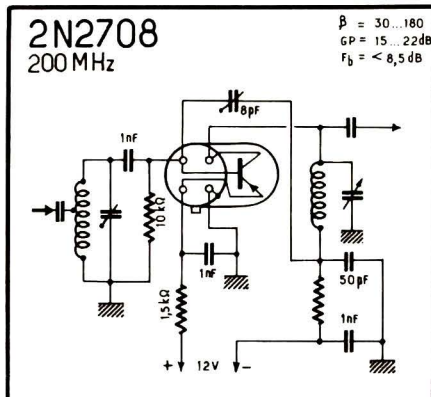
 $\beta = 20 \dots 50$

P



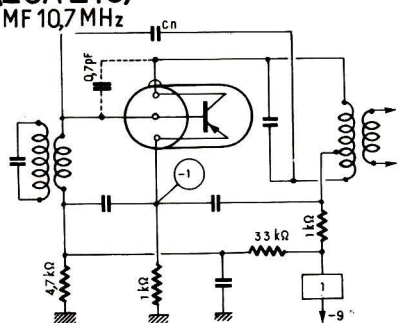
2N2552, 53

 $\beta = 20 \dots 60$
GP = 17 dB2N2613
BF $\beta = 125$
 $F_b < 5$ dB2N2614
BF $\beta = 160$ 



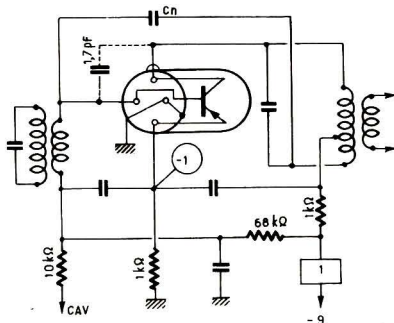
2SA 215
(2SA 216)
MF 10,7 MHz

$\beta = 40$
GP = 24(27) dB



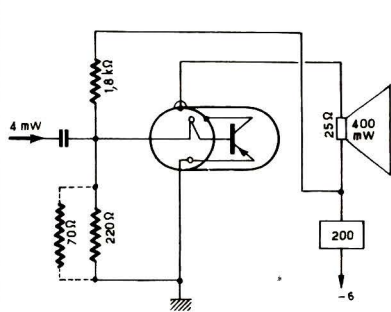
2SA 236, 37
MF 470 kHz

$\beta = 50$
GP = 45 dB



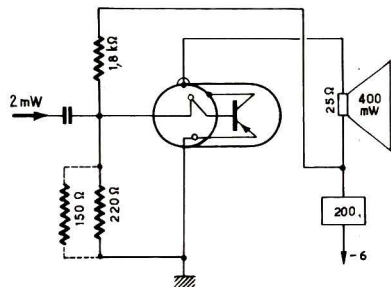
2SB 27
P

$\beta = 29$
GP = 20 dB



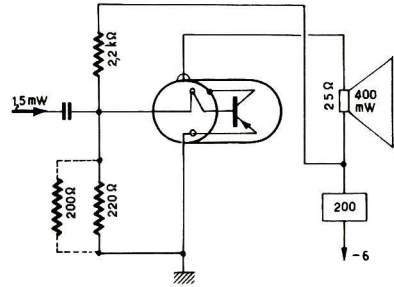
2SB 28
P

$\beta = 68$
GP = 23 dB



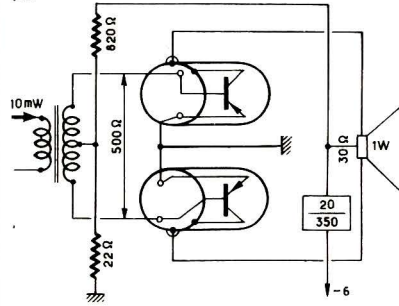
2SB 29
P

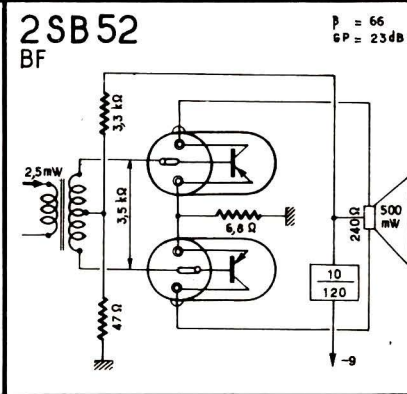
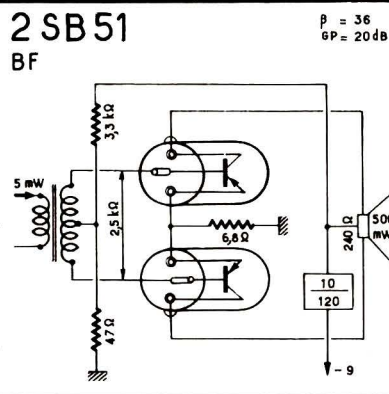
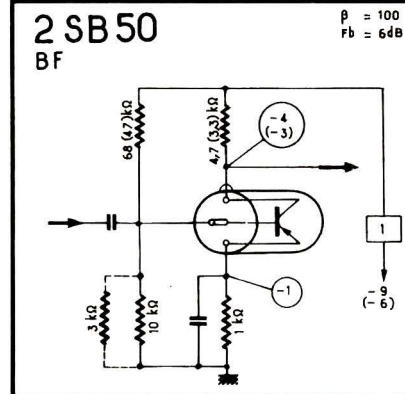
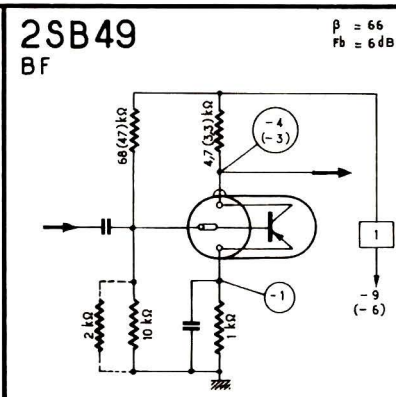
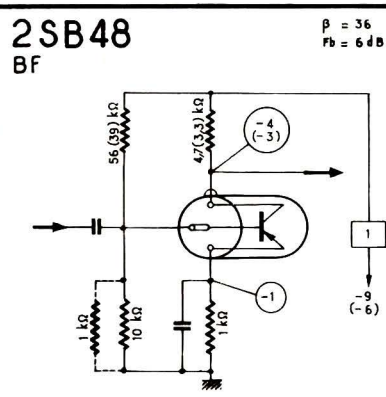
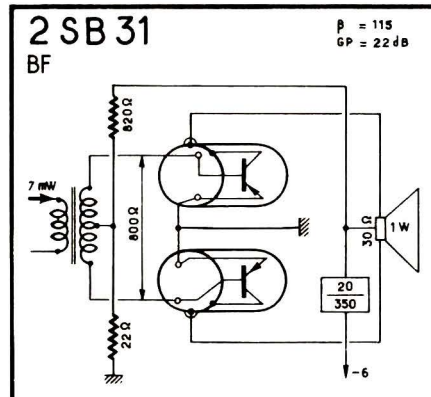
$\beta = 115$
GP = 25 dB

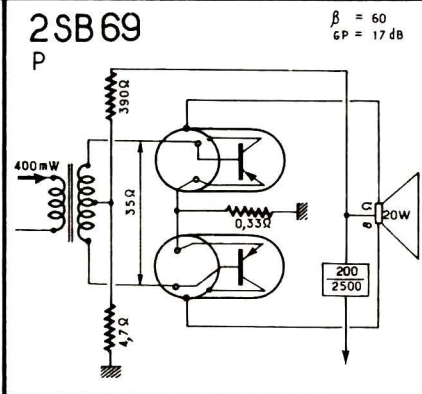
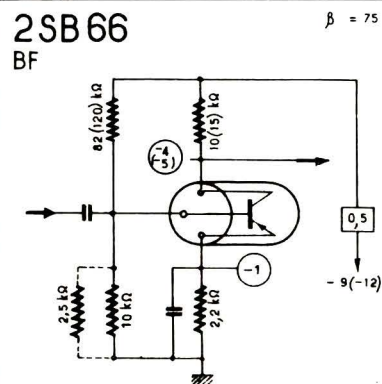
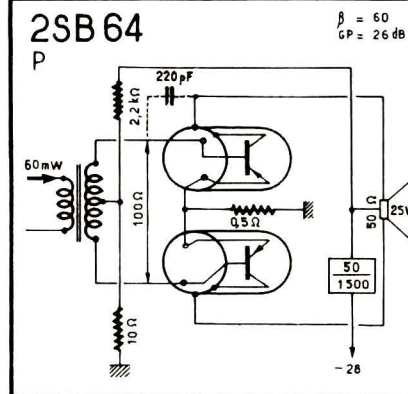
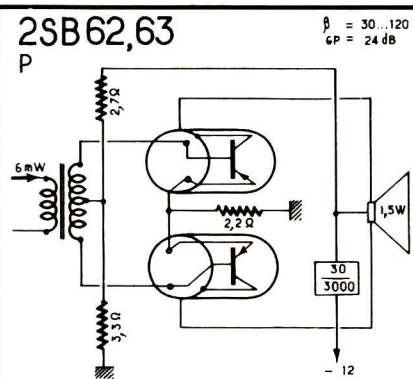
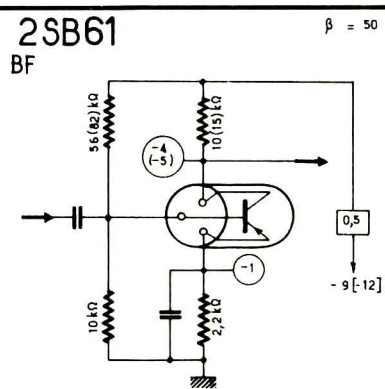
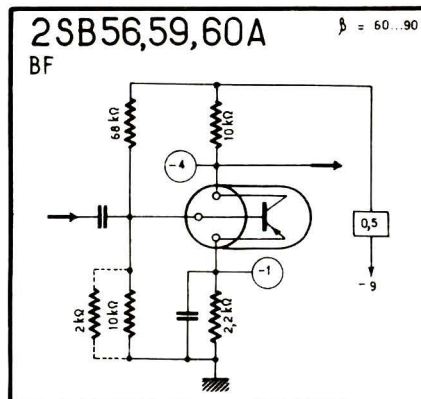


2SB 30
BF

$\beta = 68$
GP = 20 dB



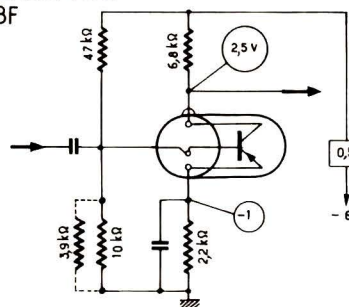




2SB73
2SB183

BF

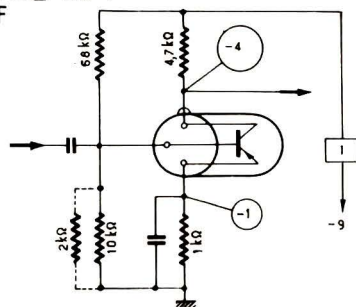
$\beta = 65$
 $F_b = 4 \text{ dB}$



2SB90
(2SB97)

BF

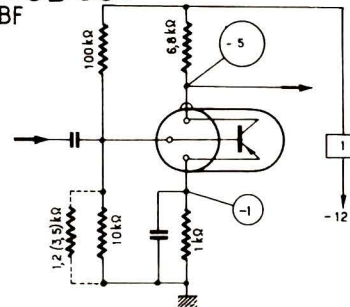
$\beta = 70$
 $(F_b = 7 \text{ dB})$



2SB98
(2SB99)

BF

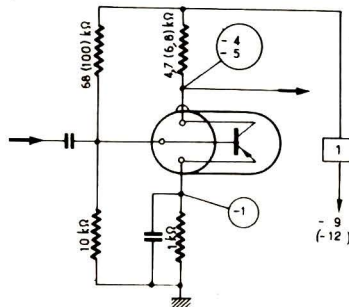
$\beta = 40$ (120)



2SB110, 11, 12, 13

BF

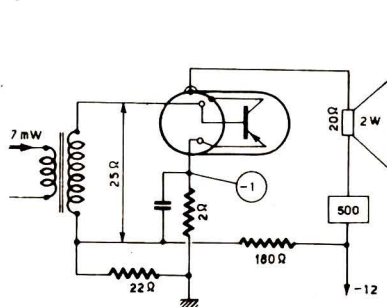
$\beta = 30, 45, 60, 80$



2SB142

P

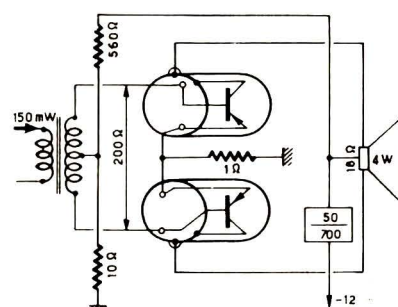
$\beta = 24$
 $GP = 25 \text{ dB}$



2SB142

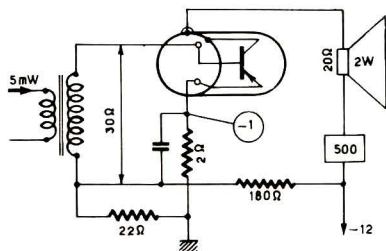
P

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



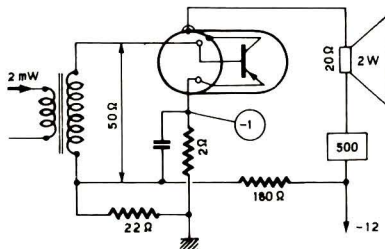
2SB143
P

$\beta = 37$
 $6P = 27dB$



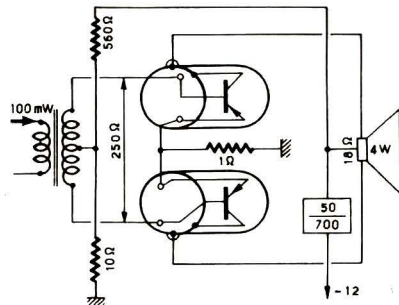
2SB144
P

$\beta = 75$
 $6P = 30dB$



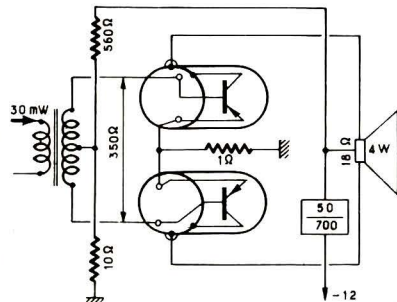
2SB145
P

$\beta = 37$
 $6P = 16dB$



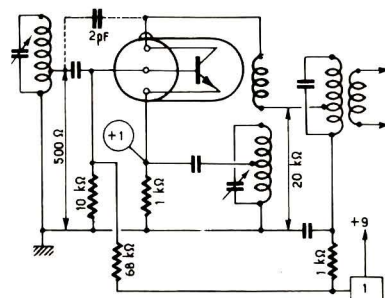
2SB146
P

$\beta = 75$
 $6P = 21dB$



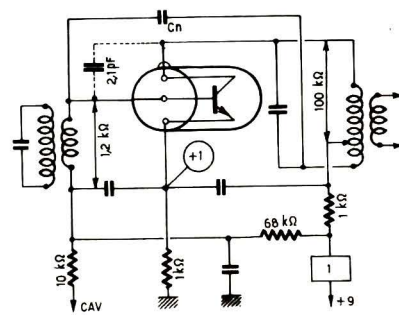
2SC73 n-p-n
Conv. <2 MHz

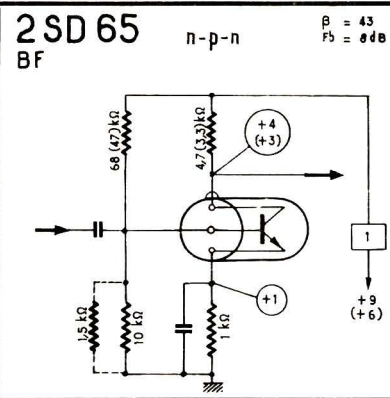
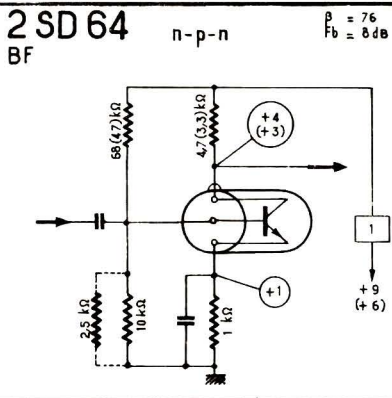
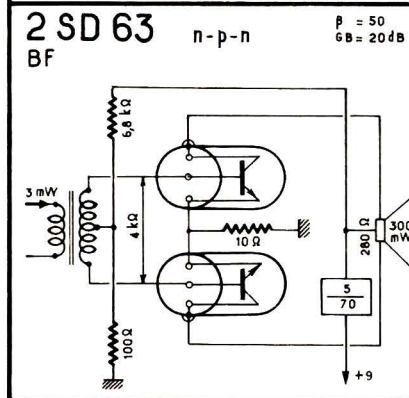
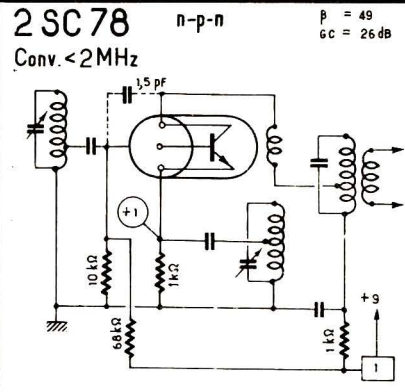
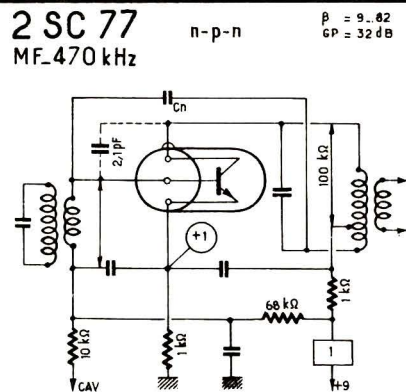
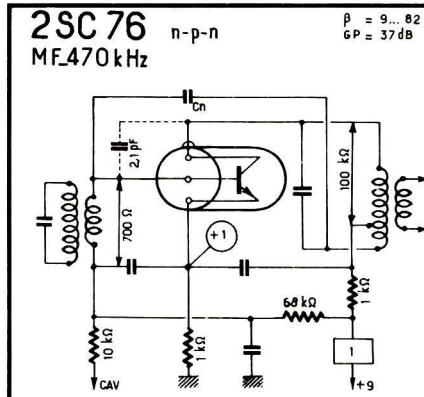
$\beta = 41$
 $6C = 27dB$

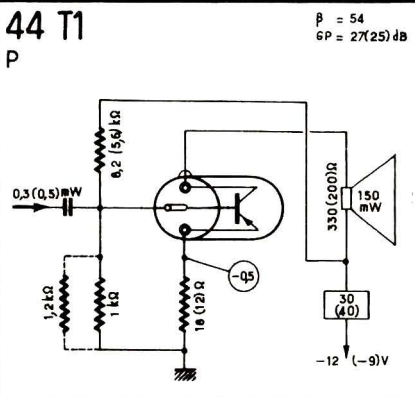
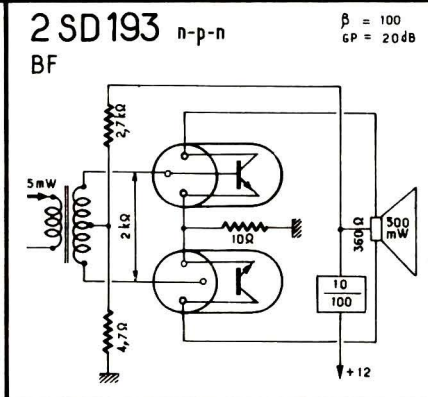
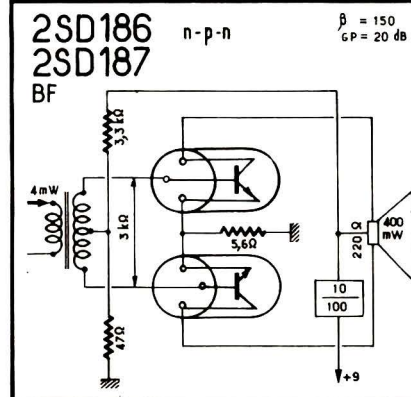
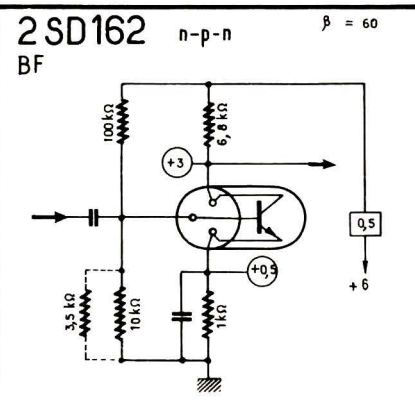
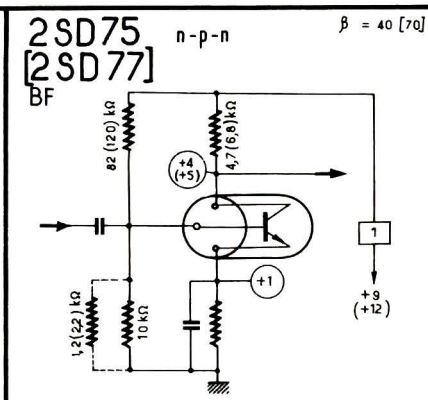
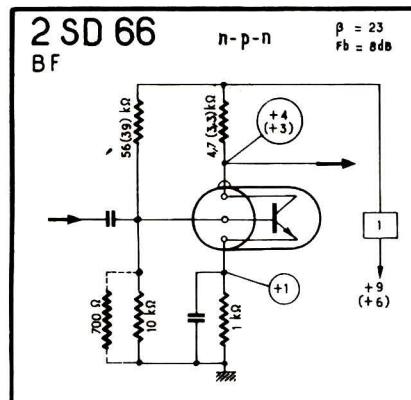


2SC75 n-p-n
MF.470 kHz

$\beta = 9...62$
 $6P = 41dB$



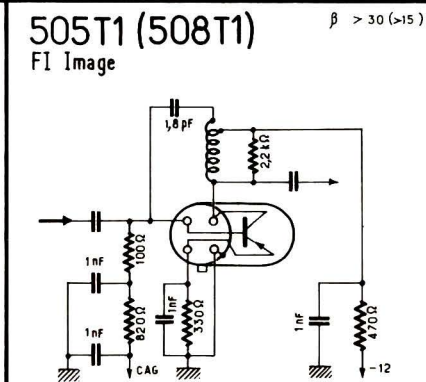
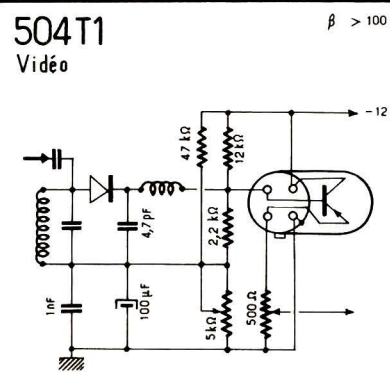
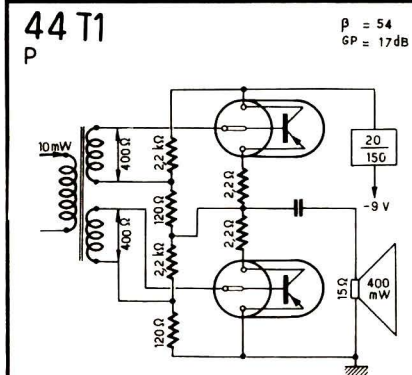
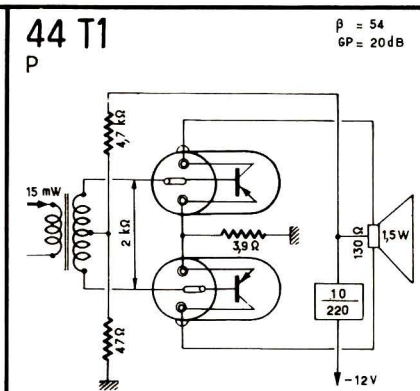
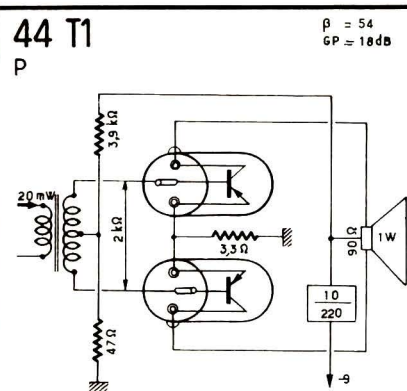
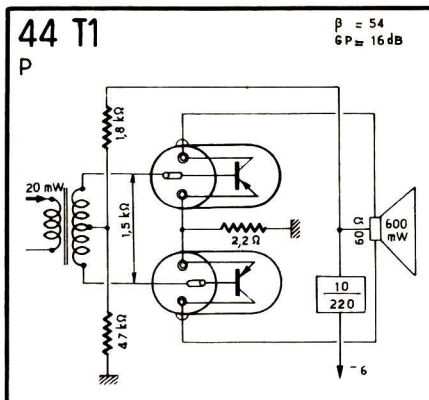




44T1

144

505T1



*Dans la
même série
que*

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TRANSISTORS**

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