

**6BA7****6BA7****PENTAGRID CONVERTER**

9-PIN MINIATURE TYPE

GENERAL DATA**Electrical:**

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts

Current. 0.3 amp

Direct Interelectrode Capacitances:^oGrid No.3 to All Other Electrodes
(RF Input) 9.5 μf Plate to All Other Electrodes
(Mixer Output) 8.3 μf Grid No.1 to All Other Electrodes
(Osc. Input) 6.7 μf Grid No.3 to Plate 0.19 max. μf Grid No.3 to Grid No.1 0.1 max. μf Grid No.1 to Plate 0.05 max. μf Grid No.1 to All Other Electrodes
Except Cathode 3.4 μf Grid No.1 to Cathode 3.3 μf Cathode to All Other Electrodes
Except Grid No.1 4.0 μf ^o With no external shield.**Mechanical:**

Mounting Position. Any

Maximum Overall Length 2-5/8"

Maximum Seated Length. 2-3/8"

Length, Base Seat to Bulb Top (excluding tip). 2" $\pm$ 3/32"

Maximum Diameter 7/8"

Bulb T-6-1/2

Base Small-Button Noval 9-Pin

Basing Designation for BOTTOM VIEW 8CT

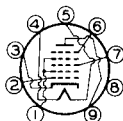
Pin 1-Grids No.2
& No.4

Pin 2-Grid No.1

Pin 3-Cathode

Pin 4-Heater

Pin 5-Heater

Pin 6-Grid No.5,
Internal

Shield

Pin 7-Grid No.3

Pin 8-Internal

Shield

Pin 9-Plate

CONVERTER SERVICE**Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE. 300 max. volts

GRID-No.5 & INTERNAL-SHIELD VOLTAGE [▲] 0 max. volts

GRIDS-No.2 & No.4 VOLTAGE. 100 max. volts

GRIDS-No.2 & No.4 SUPPLY VOLTAGE 300 max. volts

PLATE DISSIPATION. 2.0 max. watts

GRIDS-No.2 & No.4 DISSIPATION. 1.5 max. watts

TOTAL CATHODE CURRENT. 22 max. ma

[▲] See next page.

SEPT. 30, 1948

TUBE DEPARTMENT

TENTATIVE DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

6BA7



6BA7 PENTAGRID CONVERTER

GRID-NO.3 VOLTAGE:

Negative bias value.	100 max.	volts
Positive bias value.	0 max.	volts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode.	90 max.	volts
Heater positive with respect to cathode.	90 max.	volts

Characteristics - Separate Excitation:*

Plate Voltage.	100	250	volts
Grid-No.5 & Internal Shield.	Connected directly to ground		
Grids-No.2 & No.4 (Screen) Voltage	100	100	volts
Grid-No.3 (Control Grid) Voltage	-1	-1	volt
Grid-No.1 (Oscillator Grid) Resistor	20000	20000	ohms
Plate Resistance (Approx.)	0.5	1	megohm
Conversion Transconductance	900	950	μ mhos
Conversion Transconductance (Approx.)#	3.5	3.5	μ mhos
Plate Current.	3.6	3.8	ma
Grids-No.2 & No.4 Current.	10.2	10	ma
Grid-No.1 Current.	0.35	0.35	ma
Total Cathode Current.	14.2	14.2	ma

NOTE: The transconductance between grid No.1 and grids No.2 & No.4 connected to plate (not oscillating) is approximately 8000 micromhos under the following conditions: signal applied to grid No.1 at zero bias; grids-No.2 and No.4 and plate at 100 volts; grid No.3 grounded. Under the same conditions, the plate current is 32 milliamperes and the amplification factor is 16.5.

* Internal shield (Pins No.6 and No.8) connected directly to ground.

* The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

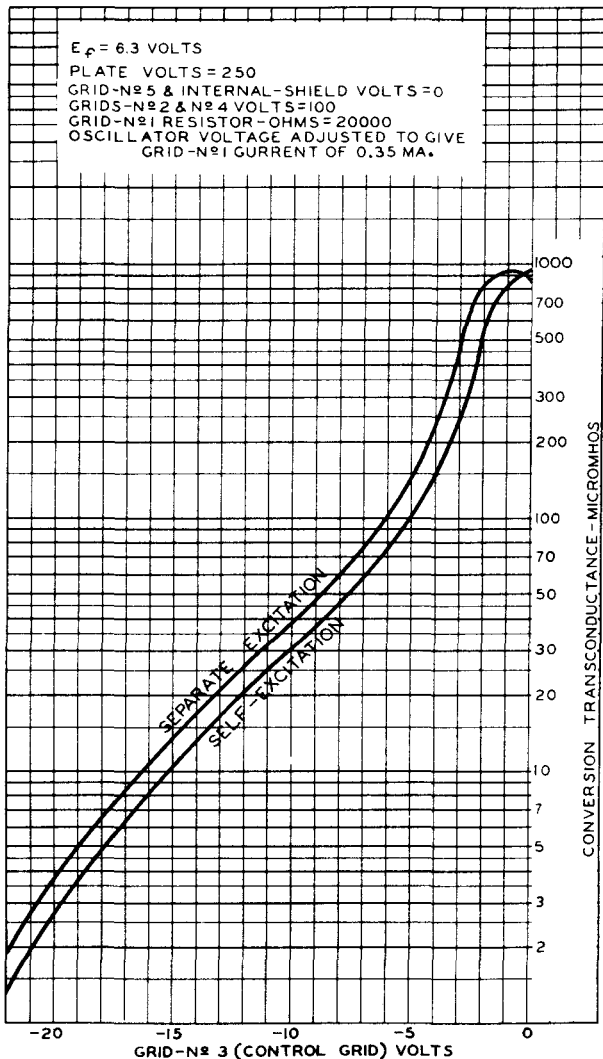
With grid-No.3 bias of -20 volts.



6BA7

6BA7

OPERATION CHARACTERISTICS



6BA7



6BA7

OPERATION CHARACTERISTICS WITH SELF-EXCITATION

 $E_f = 6.3$ VOLTS

PLATE VOLTS = 250

GRID-Nº 5 & INTERNAL-SHIELD VOLTS = 0

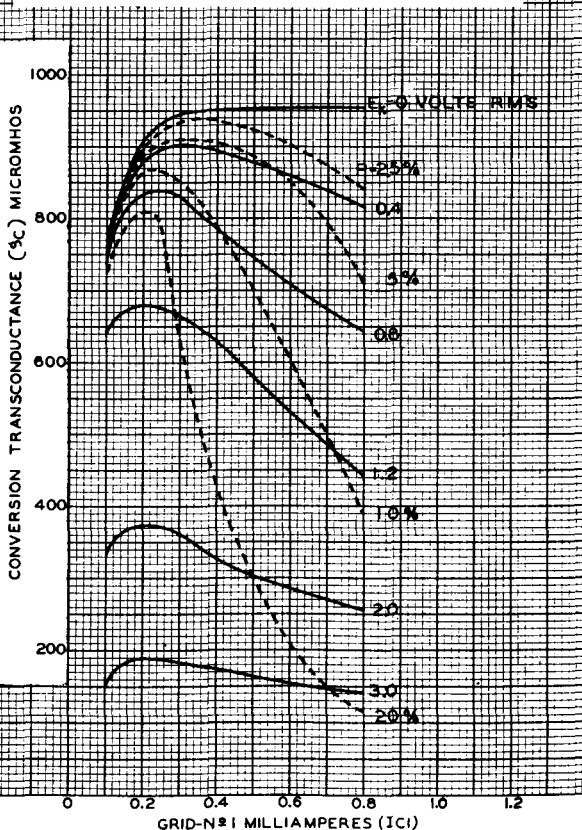
GRIDS-Nº 2 & Nº 4 VOLTS = 100

GRID-Nº 3 (CONTROL GRID) VOLTS = -1

GRID-Nº 1 RESISTOR-OHMS = 20000

 P - PERCENTAGE RATIO OF E_K TO $E_K + E_q$, WHERE

 E_K = VOLTAGE ACROSS OSCILLATOR-COIL SECTION
BETWEEN GROUND AND CATHODE AND

 E_q = OSCILLATOR VOLTAGE BETWEEN CATHODE
AND GRID




6BA7

6BA7

OPERATION CHARACTERISTICS
WITH SEPARATE OSCILLATOR EXCITATION