



8012-A

# 8012-A

## U-H-F TRANSMITTING TRIODE

The 8012-A supersedes the Type 8012.

### GENERAL DATA

#### Electrical:

Filament, Thoriated Tungsten:\*\*

Voltage. . . . . 6.3 . . . . . ac or dc volts

Current. . . . . 1.92 . . . . . amp.

Amplification Factor . . . . . 18

Direct Interelectrode Capacitances:

Grid to Plate. . . . . 2.5 . . . . .  $\mu\text{f}$

Grid to Filament . . . . . 2.7 . . . . .  $\mu\text{f}$

Plate to Filament . . . . . 0.4 . . . . .  $\mu\text{f}$

#### Mechanical:

Mounting Position. . . . . Vertical Only

Cooling - *Forced-Air Cooling* is required when plate dissipation exceeds 75% of the rated value.

Maximum Overall Length (Excluding Flexible Leads). . . . . 3-15/16"

Greatest Radius. . . . . 1-1/8"  $\pm$  1/16"

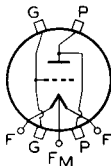
Bulb . . . . . T-8

Terminal Connections . . . . . See Outline Drawing

F - Filament

F<sub>M</sub> - Filament

Mid-Tap



G - Grid

P - Plate

G TERMINALS NEARER FILAMENT LEADS  
P TERMINALS NEARER BULB TIP

### GRID-MODULATED R-F POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

#### Maximum Ratings, Absolute Values:

CCS\*

D-C PLATE VOLTAGE. . . . . 1000 max. . . . . volts

D-C GRID VOLTAGE. . . . . -200 max. . . . . volts

D-C PLATE CURRENT. . . . . 65 max. . . . . ma.

PLATE INPUT. . . . . 50 max. . . . . watts

PLATE DISSIPATION. . . . . 40 max. . . . . watts

#### Typical Operation:

D-C Plate Voltage. . . . . 1000 . . . . . volts

D-C Grid Voltage  $\square$  . . . . .  $\left\{ \begin{array}{l} -135 \text{ . . . . . volts} \\ 2500 \text{ . . . . . ohms} \end{array} \right.$

Peak R-F Grid Voltage. . . . . 155 . . . . . volts

Peak A-F Grid Voltage. . . . . 65 . . . . . volts

D-C Plate Current. . . . . 50 . . . . . ma.

D-C Grid Current \* . . . . . 4 approx. . . . . ma.

Driving Power \*\* . . . . . 3.5 approx. . . . . watts

Power Output . . . . . 20 approx. . . . . watts

$\square$ ,  $\Delta$ : See next page.  $\blacksquare$ , \*, \*\*: See end of tabulation.



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## U-H-F TRANSMITTING TRIODE

(continued from preceding page)

- Obtained from fixed supply or by cathode resistor of value shown.  
 ▲ At crest of audio-frequency cycle with modulation factor of 1.0.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony*Carrier conditions per tube for use with a max. modulation factor of 1.0*

Maximum Ratings, Absolute Values:	CCS <sup>■</sup>	
D-C PLATE VOLTAGE. . . . .	800 max.	. . . . volts
D-C GRID VOLTAGE. . . . .	-200 max.	. . . . volts
D-C PLATE CURRENT. . . . .	65 max.	. . . . ma.
D-C GRID CURRENT. . . . .	20 max.	. . . . ma.
PLATE INPUT. . . . .	33 max.	. . . . watts
PLATE DISSIPATION. . . . .	27 max.	. . . . watts

**Typical Operation:**

D-C Plate Voltage. . . . .	800	. . . . volts
D-C Grid Voltage † . . . . .	{ -105 . . . . volts 10000 . . . . ohms	
Peak R-F Grid Voltage. . . . .		145
D-C Plate Current. . . . .	40	. . . . ma.
D-C Grid Current*. . . . .	10.5	approx. . ma.
Driving Power*. . . . .	1.4	approx. watts
Power Output . . . . .	22	approx. watts

- † Obtained preferably from grid resistor of value shown, or combination of grid resistor with either fixed supply or suitably by-passed cathode resistor.

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy*Key-down conditions per tube without modulation<sup>#</sup>*

Maximum Ratings, Absolute Values:	CCS <sup>■</sup>	
D-C PLATE VOLTAGE. . . . .	1000 max.	. . . . volts
D-C GRID VOLTAGE. . . . .	-200 max.	. . . . volts
D-C PLATE CURRENT. . . . .	80 max.	. . . . ma.
D-C GRID CURRENT. . . . .	20 max.	. . . . ma.
PLATE INPUT. . . . .	50 max.	. . . . watts
PLATE DISSIPATION. . . . .	40 max.	. . . . watts

**Typical Operation:**

D-C Plate Voltage. . . . .	1000	. . . . volts
D-C Grid Voltage <sup>o</sup> . . . . .	{ -90 . . . . volts 6400 . . . . ohms 1400 . . . . ohms	
Peak R-F Grid Voltage. . . . .		130
D-C Plate Current. . . . .	50	. . . . ma.
D-C Grid Current* . . . . .	14	approx. . ma.
Driving Power* . . . . .	1.6	approx. watts
Power Output . . . . .	35	approx. watts

<sup>#</sup>, <sup>o</sup>, \* : See next page.

<sup>■</sup> CCS = Continuous Commercial Service.



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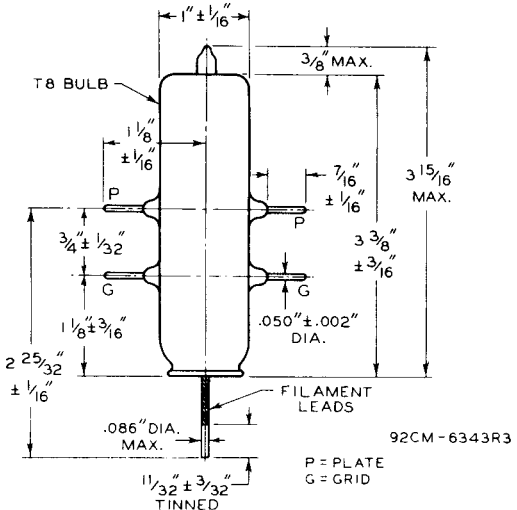
# U-H-F TRANSMITTING TRIODE

(continued from preceding page)

- O Obtained from fixed supply, or grid resistor (6400), or by cathode resistor (1400). When the 8012-A is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With plate voltage of 1000 volts a fixed bias of at least -40 volts should be used.
- \*\* The filament is center-tapped and the center lead is brought out of the tube. With this design, it is possible to minimize the effect of filament lead inductance by connecting all three filament leads in parallel through r-f by-pass capacitors. The center-lead of this parallel connection should not be returned directly to the center-tap of the filament-transformer winding or to ground, although it may be by-passed to either of these points if desired.
- \* Subject to wide variations as explained on sheet TUBE RATINGS in General Section.
- # Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

The 8012-A may be operated with maximum ratings at frequencies up to 500 megacycles but as the frequency is raised, the efficiency and power output fall off. At 600 megacycles an efficiency of about 35% can be expected. Since the efficiency at 600 megacycles is relatively low, the plate of the 8012-A has been designed to have an unusually high dissipation rating.

Data on operating frequencies for the 8012-A are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.



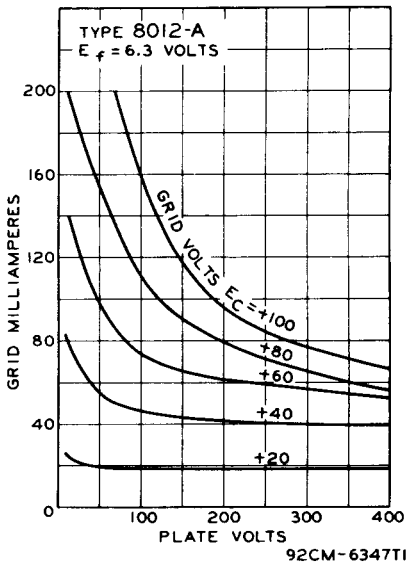
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TYPICAL CHARACTERISTICS

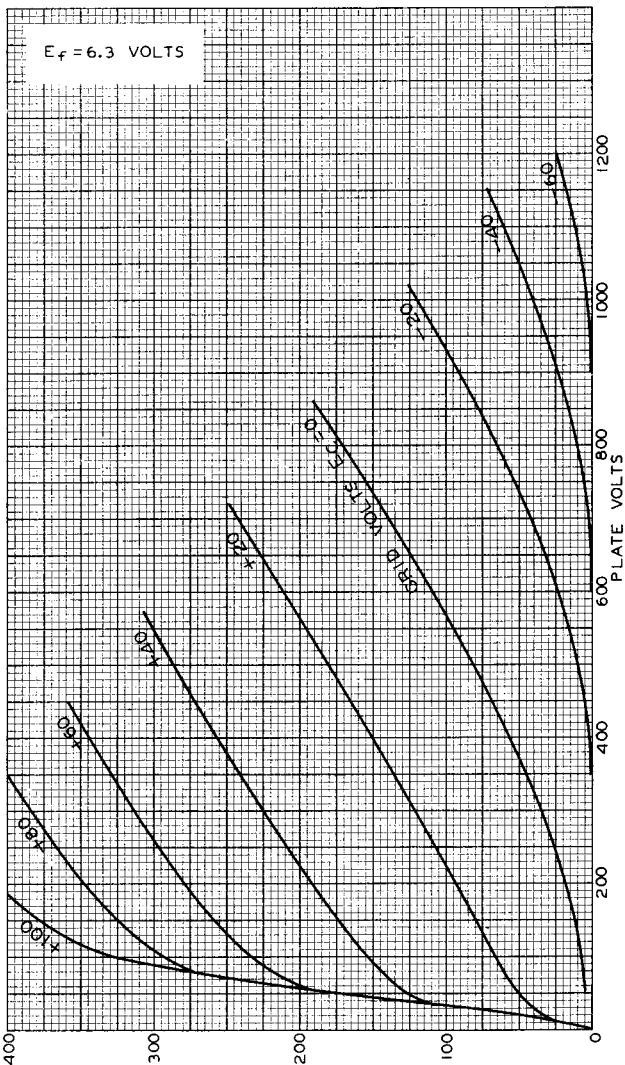




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### AVERAGE PLATE CHARACTERISTICS



DEC. 1, 1943

PLATE MILLIAMPERES  
RCA VICTOR DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6346