

RCA-800

R-F Power Amplifier, Oscillator, Class B Modulator

RCA-800 is a three-electrode transmitting tube of the thoriated-tungsten filament type designed for use as a radio-frequency amplifier or oscillator, particularly at the higher radio frequencies. It may be operated at maximum ratings at frequencies as high as 60 megacycles. The maximum plate dissipation for class B and class C telegraph services is 35 watts. The grid and plate leads of the 800 are brought out through separate seals at the top of the bulb to insure high insulation and low interelectrode capacitances.

CHARACTERISTICS

Filament Volts (a-c or d-c).....	7.5	Grid-Plate Capacitance	2.5 μf
Filament Amperes	3.25	Grid-Filament Capacitance	2.75 μf
Amplification Factor	15	Plate-Filament Capacitance	2.75 μf

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

As A-F Power Amplifier and Modulator—Class B

D-C PLATE VOLTAGE	1250 max.	Volts
MAX.-SIGNAL D-C PLATE CURRENT*	115 max.	Milliamperes
MAX.-SIGNAL PLATE INPUT*	85 max.	Watts
PLATE DISSIPATION*	35 max.	Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	750	1000	1250	Volts
D-C Grid Voltage [‡]	-40	-55	-70	Volts
Peak A-F Grid-to-Grid Voltage	320	300	300	Volts
Zero Sig. D-C Plate Current	26	28	30	Milliamperes
Max.-Sig. D-C Plate Current	210	160	130	Milliamperes
Load Resistance (Per tube)	1600	3125	5250	Ohms
Effective Load Res. (Plate-to-plate) ..	6400	12500	21000	Ohms
Max.-Sig. Driving Power (Approx.) ..	6	4.4	3.4	Watts
Max.-Sig. Power Output (Approx.) ..	90	100	106	Watts

As R-F Power Amplifier—Class B Telephony

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

D-C PLATE VOLTAGE	1250 max.	Volts
D-C PLATE CURRENT	45 max.	Milliamperes
PLATE INPUT	50 max.	Watts
PLATE DISSIPATION	35 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	Volts
D-C Grid Voltage [‡]	-40	-55	Volts
Peak R-F Grid Voltage	160	170	Volts
D-C Plate Current	45	42	Milliamperes
D-C Grid Current (Approx.)	2	2	Milliamperes
Driving Power (Approx.) [†]	3.6	3.3	Watts
Power Output (Approx.)	10	14	Watts

* , ‡ , †: see next page.

As Plate-Modulated R-F Power Amplifier—Class C Telephony

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

D-C PLATE VOLTAGE	1000	max.	Volts
D-C GRID VOLTAGE	-400	max.	Volts
D-C PLATE CURRENT	80	max.	Milliamperes
D-C GRID CURRENT	25	max.	Milliamperes
PLATE INPUT	80	max.	Watts
PLATE DISSIPATION	23	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	Volts
D-C Grid Voltage§	-150	-200	Volts
Peak R-F Grid Voltage	275	325	Volts
D-C Plate Current	70	70	Milliamperes
D-C Grid Current (Approx.)	15	15	Milliamperes
Grid Resistor	10000	13300	Ohms
Driving Power (Approx.)	3	4	Watts
Power Output (Approx.)	35	50	Watts

As R-F Power Amplifier and Oscillator—Class C Telegraphy

Key-down conditions per tube without modulation††

D-C PLATE VOLTAGE	1250	max.	Volts
D-C GRID VOLTAGE	-400	max.	Volts
D-C PLATE CURRENT	80	max.	Milliamperes
D-C GRID CURRENT	25	max.	Milliamperes
PLATE INPUT	100	max.	Watts
PLATE DISSIPATION	35	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	1250	Volts
D-C Grid Voltage§	-100	-135	-175	Volts
Peak R-F Grid Voltage	225	260	300	Volts
D-C Plate Current	70	70	70	Milliamperes
D-C Grid Current (Approx.)	15	15	15	Milliamperes
Grid Resistor	6700	9000	11700	Ohms
Driving Power (Approx.)	2	3	4	Watts
Power Output (Approx.)	35	50	65	Watts

* Averaged over any audio-frequency cycle of sine-wave form.

§ Grid voltages are given with respect to the mid-point of filament operated on a.c. If d.c. is used, each stated value of grid voltage should be decreased by 5 volts and the circuit returns made to the negative end of the filament.

† At crest of audio-frequency cycle with modulation factor of 1.0.

†† Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

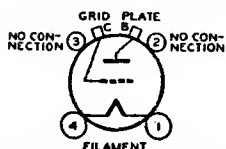
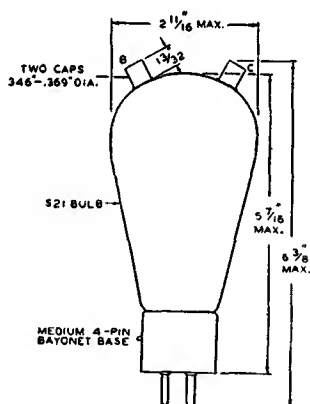
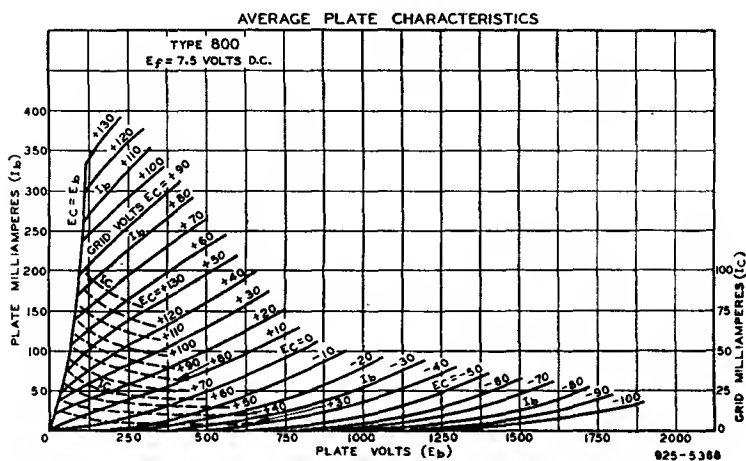
INSTALLATION AND APPLICATION

The base pins of the 800 fit the standard four-contact socket such as the RCA type UR-542A. The socket should be installed to hold the tube in a vertical position. The filament terminals are connected to the two large base pins; the grid and plate leads are brought out to separate metal caps at the top of the bulb.

The plate of the 800 shows no color at the maximum plate-dissipation rating for each class of service.

For high-frequency operation above 60 megacycles, see page 144.

For additional information, see chapters on INSTALLATION and APPLICATION.



Top View of Socket Connections