

RCA-204-A

R-F Power Amplifier, Oscillator, Class B Modulator

Illustrated on page 35

RCA-204-A is a three-electrode transmitting tube of the thoriated-tungsten filament type for use as a radio-frequency amplifier, oscillator, and class B audio-frequency amplifier. The grid and plate leads are brought out at opposite ends of the tube to insure good insulation. As a radio-frequency amplifier, the 204-A may be operated under maximum rated conditions at frequencies as high as 3 megacycles. The maximum plate dissipation is 250 watts for class C telegraph and class B services.

CHARACTERISTICS

Filament Volts (a-c or d-c).....	11.0	Grid-Plate Capacitance	15 μ f
Filament Amperes	3.85	Grid-Filament Capacitance	12.5 μ f
Amplification Factor	23	Plate-Filament Capacitance	2.3 μ f

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

As A-F Power Amplifier and Modulator—Class B

D-C PLATE VOLTAGE.....	3000 max. Volts
MAX.-SIGNAL D-C PLATE CURRENT*	275 max. Milliamperes
MAX.-SIGNAL PLATE INPUT*	600 max. Watts
PLATE DISSIPATION*	250 max. Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	2000	2500	3000	Volts
D-C Grid Voltage [§]	-60	-80	-100	Volts
Peak A-F Grid-to-Grid Voltage	500	500	500	Volts
Zero-Signal D-C Plate Current	80	80	80	Milliamperes
Max.-Signal D-C Plate Current	500	420	372	Milliamperes
Load Resistance (Per tube)	2200	3400	5000	Ohms
Effective Load Res. (Plate-to-plate) ..	8800	13600	20000	Ohms
Max.-Sig. Driving Power (Approx.) ..	20	18	18	Watts
Max.-Sig. Power Output (Approx.) ..	600	650	700	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	2500 max. Volts
D-C PLATE CURRENT	225 max. Milliamperes
PLATE INPUT	400 max. Watts
PLATE DISSIPATION	250 max. Watts

TYPICAL OPERATION:

D-C Plate Voltage	1500	2000	Volts
D-C Grid Voltage [§]	-50	-70	Volts
Peak R-F Grid Voltage	170	165	Volts
D-C Plate Current	200	160	Milliamperes
D-C Grid Current (Approx.)	7.5	5	Milliamperes
Driving Power (Approx.) [†]	18	15	Watts
Power Output (Approx.)	80	100	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	2000	max.	Volts
D-C GRID VOLTAGE	-500	max.	Volts
D-C PLATE CURRENT	275	max.	Milliamperes
D-C GRID CURRENT	80	max.	Milliamperes
PLATE INPUT	550	max.	Watts
PLATE DISSIPATION	167	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1500	2000	Volts
D-C Grid Voltage [§]	-200	-250	Volts
Peak R-F Grid Voltage	450	500	Volts
D-C Plate Current	250	250	Milliamperes
D-C Grid Current (Approx.)	35	35	Milliamperes
Grid Resistor	5710	7140	Ohms
Driving Power (Approx.)	20	20	Watts
Power Output (Approx.)	225	350	Watts

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

Key-down conditions per tube without modulation††

D-C PLATE VOLTAGE	2500	max.	Volts
D-C GRID VOLTAGE	-500	max.	Volts
D-C PLATE CURRENT	275	max.	Milliamperes
D-C GRID CURRENT	80	max.	Milliamperes
PLATE INPUT	690	max.	Watts
PLATE DISSIPATION	250	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1500	2000	2500	Volts
D-C Grid Voltage [§]	-150	-175	-200	Volts
Peak R-F Grid Voltage	400	425	440	Volts
D-C Plate Current	250	250	250	Milliamperes
D-C Grid Current (Approx.)	30	30	30	Milliamperes
Grid Resistor	5000	5835	6670	Ohms
Driving Power (Approx.)	15	15	15	Watts
Power Output (Approx.)	240	350	450	Watts

[§] 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 8 volts and the circuit returns made to the negative end of the filament.

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

† 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.

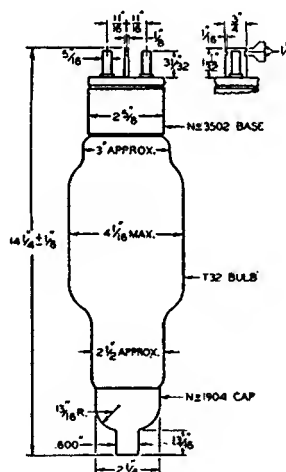
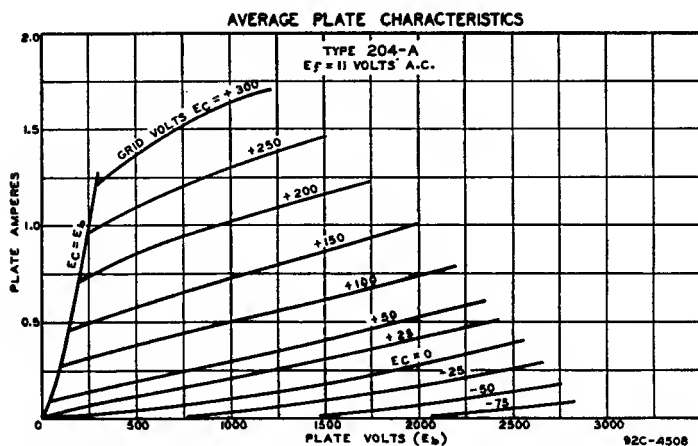
INSTALLATION AND APPLICATION

The **base** and **cap** of the RCA-204-A fit the standard RCA end-mountings, UT-1085 and UT-1086, respectively. The end-mountings should be installed to hold the tube in a vertical position with the filament base (large end) up. If it is necessary to place the tube in a horizontal position, the tube should be mounted with the plate in a vertical plane (on edge). The metal filament base must not be grounded or connected to any part of the circuit.

The **plate** of the 204-A shows only a barely perceptible red color at the maximum plate-dissipation rating for each class of service.

For high-frequency operation above 3 megacycles, see page 144.

For additional information, see chapters on INSTALLATION and APPLICATION.



Connections to End-Mountings

