

RCA-211

R-F Power Amplifier, Oscillator, Class B Modulator

For illustration, refer to 838 on page 62

RCA-211 is a three-electrode transmitting tube of the thoriated-tungsten filament type with a maximum plate dissipation of 100 watts for class C telegraph and class B services. As a radio-frequency amplifier or oscillator the 211 may be operated at maximum rated conditions at frequencies as high as 15 megacycles. It may also be used as a class B audio-frequency amplifier and modulator.

CHARACTERISTICS

Filament Volts (a-c or d-c).....	10.0	Grid-Plate Capacitance	14.5 μ f
Filament Amperes	3.25	Grid-Filament Capacitance	6 μ f
Amplification Factor	12	Plate-Filament Capacitance	5.5 μ f

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*	175 max.	Milliamperes
MAX.-SIGNAL PLATE INPUT*	220 max.	Watts
PLATE DISSIPATION*	100 max.	Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	1000	1250	Volts
D-C Grid Voltage [§]	-77	-100	Volts
Peak A-F Grid-to-Grid Voltage	380	410	Volts
Zero-Sig. D-C Plate Current	20	20	Milliamperes
Max.-Sig. D-C Plate Current	320	320	Milliamperes
Load Resistance (Per tube)	1725	2250	Ohms
Effective Load Res. (Plate-to-plate)	6900	9000	Ohms
Max.-Sig. Driving Power (Approx.)	7.5	8	Watts
Max.-Sig. Power Output (Approx.)	200	260	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	150 max.	Milliamperes
PLATE INPUT	150 max.	Watts
PLATE DISSIPATION	100 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1000	1250	Volts
D-C Grid Voltage [§]	-77	-100	Volts
Peak R-F Grid Voltage	125	125	Volts
D-C Plate Current	130	106	Milliamperes
D-C Grid Current (Approx.)	5	1	Milliamperes
Driving Power (Approx.) [†]	10	7.5	Watts
Power Output (Approx.)	40	42.5	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	175 max.	Milliamperes
D-C GRID CURRENT	50 max.	Milliamperes
PLATE INPUT	175 max.	Watts
PLATE DISSIPATION	67 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	Volts
D-C Grid Voltage [§]	-200	-260	Volts
Peak R-F Grid Voltage	350	410	Volts
D-C Plate Current	150	150	Milliamperes
D-C Grid Current (Approx.)	35	35	Milliamperes
Grid Resistor	5710	7430	Ohms
Driving Power (Approx.)	12	14	Watts
Power Output (Approx.)	65	100	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	175 max.	Milliamperes
D-C GRID CURRENT	50 max.	Milliamperes
PLATE INPUT	220 max.	Watts
PLATE DISSIPATION	100 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	1250	Volts
D-C Grid Voltage [§]	-135	-175	-225	Volts
Peak R-F Grid Voltage	275	315	375	Volts
D-C Plate Current	150	150	150	Milliamperes
D-C Grid Current (Approx.)	18	18	18	Milliamperes
Grid Resistor	7500	9725	12500	Ohms
Driving Power (Approx.)	5	6	7	Watts
Power Output (Approx.)	65	100	130	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 7 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

For socket type and outline drawing, refer to type 203-A.

The plate of the 211 shows only a barely perceptible red color at the maximum plate dissipation rating for each class of service.

For high-frequency operation above 15 megacycles, see page 144.

For additional information, see chapters on INSTALLATION and APPLICATION.

A plate family of curves is shown at the bottom of page 34.

Top View of
Socket Connection