

RCA-849

R-F and A-F Power Amplifier, Oscillator, Modulator

Illustrated on page 35

RCA-849 is a three-electrode transmitting tube of the thoriated tungsten filament type for use as a class A and class B audio-frequency power amplifier, modulator, radio-frequency amplifier and oscillator. Two tubes operated as a class B modulator or a-f amplifier are capable of delivering an audio-frequency power output of 1100 watts. As an r-f power amplifier and oscillator, the 849 can be operated under maximum rated conditions at frequencies as high as 3 megacycles.

CHARACTERISTICS

Filament Volts (a-c or d-c)	11.0	Grid-Plate Capacitance	33.5 μ f
Filament Amperes	5	Grid-Filament Capacitance	17 μ f
Amplification Factor	19	Plate-Filament Capacitance	3 μ f

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

As A-F Power Amplifier and Modulator—Class A

D-C PLATE VOLTAGE	3000 max. Volts
PLATE DISSIPATION	300 max. Watts

TYPICAL OPERATION:

D-C Plate Voltage	2000	2500	3000	Volts
D-C Grid Voltage§	-74	-104	-132	Volts
Peak A-F Grid Voltage	68	98	126	Volts
D-C Plate Current	135	110	100	Milliamperes
Plate Resistance	2950	3150	3250	Ohms
Load Resistance	6000	12000	18000	Ohms
Cathode-Bias Resistor	550	950	1320	Ohms
Undistorted Power Output	58	81	100	Watts

As A-F Power Amplifier and Modulator—Class B

D-C PLATE VOLTAGE	3000 max. Volts
MAX.-SIGNAL D-C PLATE CURRENT*	350 max. Milliamperes
MAX.-SIGNAL PLATE INPUT*	825 max. Watts
PLATE DISSIPATION*	300 max. Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	2000	2500	3000	Volts
D-C Grid Voltage§	-105	-130	-155	Volts
Peak A-F Grid-to-Grid Voltage	450	480	500	Volts
Zero-Sig. D-C Plate Current	14	20	24	Milliamperes
Max.-Sig. D-C Plate Current	650	560	520	Milliamperes
Load Resistance (Per tube)	1600	2600	3200	Ohms
Effective Load Res. (Plate-to-plate)	6400	10400	12800	Ohms
Max.-Sig. Driving Power (Approx.)	16	14	12	Watts
Max.-Sig. Power Output (Approx.)	900	1000	1100	Watts

§, *: see next page.

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	350	max.	Milliamperes
PLATE INPUT	600	max.	Watts
PLATE DISSIPATION	400	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1500	2000	2500	Volts
D-C Grid Voltage§	-70	-95	-125	Volts
Peak R-F Grid Voltage	140	140	140	Volts
D-C Plate Current	320	265	216	Milliamperes
D-C Grid Current	5	3	1	Milliamperes
Driving Power (Approx.)†	18	15	12	Watts
Power Output (Approx.)	150	170	180	Watts

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	350	max.	Milliamperes
D-C GRID CURRENT	125	max.	Milliamperes
PLATE INPUT	700	max.	Watts
PLATE DISSIPATION	270	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1500	2000	Volts
D-C Grid Voltage	-250	-300	Volts
Peak R-F Grid Voltage	400	450	Volts
D-C Plate Current	300	300	Milliamperes
D-C Grid Current (Approx.)	35	30	Milliamperes
Grid Resistor	7140	10000	Ohms
Driving Power (Approx.)	14	14	Watts
Power Output (Approx.)	300	425	Watts

As R-F Power Amplifier and Oscillator—Class C Telephony*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	350	max.	Milliamperes
D-C GRID CURRENT	125	max.	Milliamperes
PLATE INPUT	875	max.	Watts
PLATE DISSIPATION	400	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1500	2000	2500	Volts
D-C Grid Voltage	-175	-200	-250	Volts
Peak R-F Grid Voltage	310	325	360	Volts
D-C Plate Current	300	300	300	Milliamperes
D-C Grid Current (Approx.)	35	25	20	Milliamperes
Grid Resistor	5000	8000	12500	Ohms
Driving Power (Approx.)	11	9	8	Watts
Power Output (Approx.)	300	425	560	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 11½% of the carrier conditions.

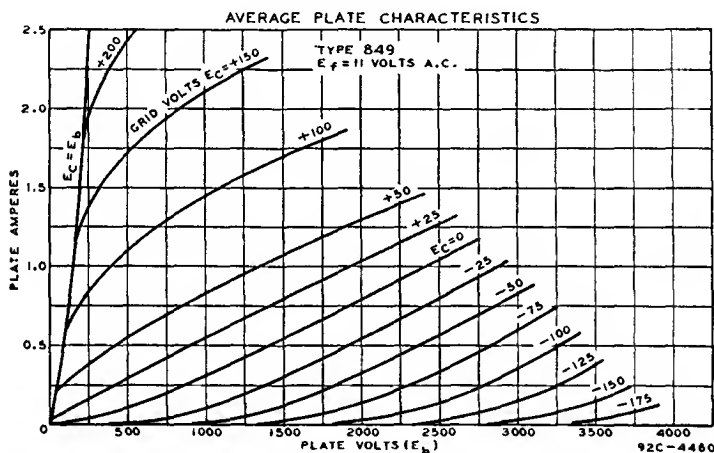
INSTALLATION AND APPLICATION

For information on end-mounting numbers and for plate dissipation considerations, see INSTALLATION and APPLICATION for the 204-A.

When the 849 is used as a class A amplifier with the grid circuit either resistance- or impedance-coupled, the d-c resistance in the grid circuit should not be made too high. A resistance value of 0.25 megohm for one 849 is the recommended maximum when cathode bias is used; without cathode bias, the grid resistance should not exceed 25000 ohms.

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

For additional information, see chapters on INSTALLATION and APPLICATION.



Connections to End-Mountings

