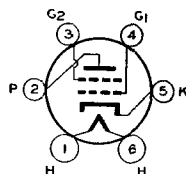


RCA-48

POWER-AMPLIFIER TETRODE



The 48 is a power-amplifier tetrode which has pentode characteristics when operated at the recommended screen and plate voltage. It is for use in the audio-output stage of receivers designed to operate from 115-volt d-c power lines. The 48 is exceptional in its ability to deliver power at the low plate and screen voltage obtainable in such service.

The large power-delivering ability of the 48 is made practical by the unique features of its electrical and structural design. Among these are the big cathode with its large emitting surface, the control-grid structure with its heat radiator, and the plate with a rib structure fastened to its inner surface. The rib structure serves to suppress the effects of secondary emission which limit the power output of four-electrode screen grid types.

CHARACTERISTICS

HEATER VOLTAGE (D. C.).....	30	Volts
HEATER CURRENT	0.4	Ampere
BULB		ST-16
BASE		Medium 6-Pin

As Single-Tube Class A Amplifier

	Tetrode Connection		Triode Connection Screen tied to plate		
PLATE VOLTAGE	96	125 max.	80	125 max.	Volts
SCREEN VOLTAGE (Grid No. 2)	96	100 max.	—	—	Volts
GRID VOLTAGE (Grid No. 1) ..	-19	-20	-20	-32.5	Volts
PLATE CURRENT	52	56	31	52	Milliamperes
SCREEN CURRENT	9	9.5	—	—	Milliamperes
PLATE RESISTANCE	Subject to considerable variation.		760	675	Ohms
AMPLIFICATION FACTOR			2.5	2.5	
TRANSCONDUCTANCE	3800	3900	3300	3700	Micromhos
LOAD RESISTANCE	1500	1500	—	—	Ohms
SELF-BIAS RESISTOR	310	310	—	—	Ohms
POWER OUTPUT*	2	2.5	—	—	Watts

* 9% total harmonic distortion.

As Push-Pull Class A Amplifier

Values are for two tubes

	Tetrode Connection		Triode Connection Screen tied to plate		
PLATE VOLTAGE	125 max.	125 max.	125 max.	125 max.	Volts
SCREEN VOLTAGE (Grid No. 2)	100 max.	—	—	—	Volts
GRID VOLTAGE (Grid No. 1)	-20	-32.5	-20	-32.5	Volts
ZERO-SIGNAL PLATE CURRENT	100	100	100	100	Milliamperes
LOAD RESISTANCE (Plate-to-Plate)	3000	1250	1250	1250	Ohms
TOTAL HARMONIC DISTORTION	9	2	2	2	Per cent
POWER OUTPUT	5	3	3	3	Watts

INSTALLATION AND APPLICATION

The base pins of the 48 fit the standard six-contact socket which may be installed to hold the tube either in a vertical or in a horizontal position. For horizontal operation, the socket should be positioned with the plate-pin opening at the top and the cathode-pin opening at the bottom, or vice versa. Sufficient ventilation should be provided around the tube to prevent overheating.

The heater of the 48 is designed to operate at approximately 30 volts d. c. Due to the heater-cathode design, the heater voltage may range between 26 and 34 volts during line-voltage fluctuations without greatly affecting the performance or serviceability of the tube.

In a series-heater circuit employing several 6.3-volt types and one or more 48's, the heaters of the 48's should be placed on the positive side of the line. Furthermore, since the 6.3-volt types have 0.3-ampere heaters, a bleeder circuit across these heaters is required to take care of the additional 0.1-ampere heater current of the 48. Each 6.3-volt tube in the series circuit should, therefore, be shunted by a bleeder resistance of 63 ohms.

The cathode circuit in d-c receivers is tied in either directly or through biasing resistors to the negative side of the heater circuit. The potential difference thus introduced between heater and cathode of the 48 should not exceed 90 volts, as measured between the negative heater terminal and the cathode.

As a Single Class A power-amplifier tetrode the 48 should be operated as shown under CHARACTERISTICS.

Any conventional type of input coupling may be used, provided the resistance added to the grid circuit by this device is not too high. Transformer or impedance-coupling devices are preferable. In any case, the d-c resistance in the grid circuit should not exceed 10000 ohms.

