

DESCRIPTION AND RATING

The 12A4 is a miniature, medium-mu triode intended primarily for use as a vertical-deflection amplifier in television receivers. The tube features high plate current at low plate voltages and is designed to withstand relatively high peak positive plate voltages. The heater is center-tapped to permit operation from either a 6.3-volt or a 12.6-volt heater supply.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

	Series	Parallel
Heater Voltage, AC or DC	12.6	6.3 Volts
Heater Current	0.3	0.6 Amperes

Direct Interelectrode Capacitances*

Grid to Plate	5.6	$\mu\mu\text{f}$
Input	4.9	$\mu\mu\text{f}$
Output	0.9	$\mu\mu\text{f}$

MECHANICAL

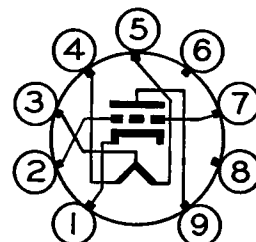
Mounting Position—Any

Envelope—T-6 $\frac{1}{2}$, Glass

Base—E9-1, Small Button 9-Pin

* Without external shield.

BASING DIAGRAM

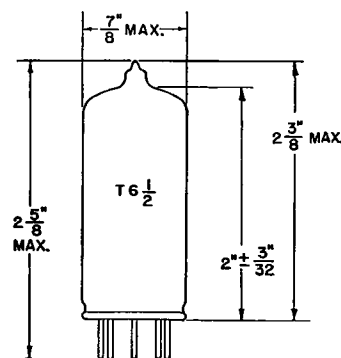


RETMA 9AG

TERMINAL CONNECTIONS

- Pin 1—Cathode
- Pin 2—Grid
- Pin 3—Heater Center-Tap
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—No Connection
- Pin 7—Grid
- Pin 8—No Connection
- Pin 9—Plate

PHYSICAL DIMENSIONS



RETMA 6-3

MAXIMUM RATINGS

DESIGN-CENTER VALUES UNLESS OTHERWISE INDICATED

	Class A ₁ Amplifier	Vertical Deflection Amplifier†
DC Plate Voltage	450	450 Volts
Peak Positive Pulse Plate Voltage		1000‡ Volts
Peak Negative Grid Voltage		250 Volts
Plate Dissipation	6.0	5.9§ Watts
DC Cathode Current	40	30 Milliampères
Peak Cathode Current		105 Milliampères
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	100 Volts
Total DC and Peak	200	200 Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	200 Volts
Grid Circuit Resistance		
With Fixed Bias	1.1	. . . Megohms
With Cathode Bias	2.2	2.2 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

Plate Voltage	250	250 Volts
Grid Voltage	-12.5	-9 Volts
Amplification Factor		20
Plate Resistance, approximate		2500 Ohms
Transconductance		8000 Micromhos
Plate Current	4.4	23 Milliampères
Grid Voltage, approximate		
I _b = 50 Microampères		-19 Volts

† For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

‡ Value given is to be considered as an Absolute Maximum Rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

§ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

TUBE DEPARTMENT
GENERAL  ELECTRIC
 Schenectady 5, N. Y.