Electronic TUBES

12A4

TRIODE

FOR TV VERTICAL-DEFLECTION AMPLIFIER APPLICATIONS

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

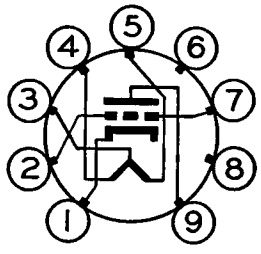
	Series	Parallel	
Cathode—Coated Unipotential			
Heater Voltage, AC or DC	12.6	6.3	Volts
Heater Current	0.3	0.6	Amperes
Direct Interelectrode Capacitances*			
Grid to Plate	5.6		μμf
Input	4.9		μμf
Output	0.9		μμf

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin
* Without external shield.

GENERAL ELECTRIC

BASING DIAGRAM

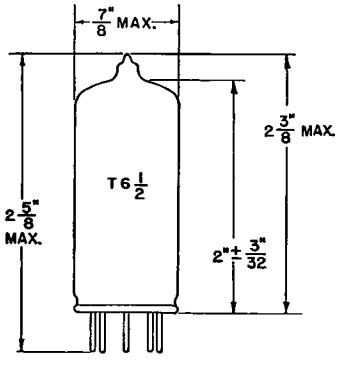


RETMA 9AG

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	Milliamperes
Peak Cathode Current		105	Milliamperes
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 A_1 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	Milliamperes
Grid Voltage, approximate			
Ib = 50 Microamperes		−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.

PRINTED IN U.S.A.