

Class A₁ Amplifier (Each Unit)**MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage	330	volts
Grid Voltage:		
Negative-bias value	55	volts
Positive-bias value	0	volts
Plate Dissipation	1.2	watts

EQUIVALENT-NOISE AND HUM VOLTAGE (References To Grid, Each Unit)*

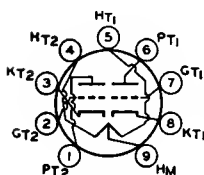
Average Value	1.8	μ V rms
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* Measured in "true rms" units under the following conditions: Heater voltage (parallel connection), 6.3 volts ac; center tap of heater transformer grounded; plate supply voltage, 250 volts dc; plate load resistor, 100000 ohms; cathode resistor, 2700 ohms bypassed by 100- μ F capacitor; grid resistor, 0 ohms; and amplifier covering frequency range between 25 and 10000 Hz.

Refer to chart at end of section.

12AY3

Refer to type 6AY3B.

12AY3A**MEDIUM-MU TWIN TRIODE****12AY7****9A**

Miniature type used in the first stages of high-gain audio-frequency amplifiers. Outlines section, 6B; requires miniature 9-contact socket. Each triode unit is independent of the other except for the common heater. Use of the 12.6-volt connection with an ac heater supply is not recommended for applications involving low hum. For typical operation as a resistance-coupled amplifier, refer to Resistance-Coupled Amplifier section.

Heater Arrangement:	Series	Parallel	
Heater Voltage (ac/dc)	12.6	6.3	volts
Heater Current	0.15	0.3	ampere
Peak Heater-Cathode Voltage		± 90 max	volts
Direct Interelectrode Capacitances (Approx., Each Unit)			
Grid to Plate		1.3	pF
Grid to Cathode and Heater		1.3	pF
Plate to Cathode and Heater		0.6	pF

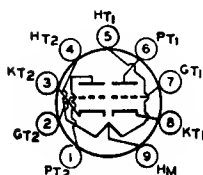
Class A₁ Amplifier (Each Unit)**MAXIMUM RATINGS (Design-Center Values)**

Plate Voltage	300	volts
Grid Voltage:		
Negative-bias value	50	volts
Positive-bias value	0	volts
Cathode Current	10	mA
Plate Dissipation	1.5	watts

CHARACTERISTICS

Plate Voltage	250	volts
Grid Voltage	-4	volts
Amplification Factor	40	
Plate Resistance	22800	ohms
Transconductance	1750	μ mhos
Plate Current	3	mA
Grid Voltage (Approx.) for plate current of 10 mA	-11	volts

Refer to chart at end of section.

12AZ7**HIGH-MU TWIN TRIODE****12AZ7A****9A**

Miniature type used in direct-coupled cathode-drive rf amplifier circuits of vhf color and black-and-white television tuners. Outlines section, 6B; requires miniature 9-contact socket. For characteristics as class A₁ amplifier, refer to miniature type 12AT7.

Heater Voltage (ac/dc):			
Series	12.6	volts	
Parallel	6.3	volts	
Heater Current:			
Series	0.225	ampere	
Parallel	0.45	ampere	
Heater Warm-up Time (Average)	11	seconds	
Heater-Cathode Voltage:			
Peak value	±200 max	volts	
Average value	100 max	volts	
Direct Interelectrode Capacitance (Approx.):			
	Unshielded	Shielded ^a	
Grid to Plate (Each unit)	2	1.9	pF
Grid to Cathode and Heater (Each unit)	2.6	2.8	pF
Plate to Cathode and Heater:			
Unit No.1	0.44	1.4	pF
Unit No.2	0.36	1.6	pF

^a With external shield connected to cathode of unit under test.

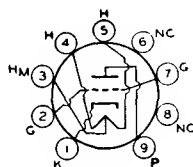
Class A₁ Amplifier (Each Unit)

MAXIMUM RATINGS (Design-Maximum Values)			
Plate Voltage	330	volts	
Grid Voltage, Negative-bias value	55	volts	
Plate Dissipation	2.5	watts	
MAXIMUM CIRCUIT VALUES (Each Unit)			
Grid-Circuit Resistance:			
For fixed-bias operation	0.25	megohm	
For cathode-bias operation	1	megohm	

12B4A

LOW-MU TRIODE

Miniature type used as vertical-deflection amplifier in television receivers. Outlines section, 6E; requires miniature 9-contact socket.



9AG

	Series	Parallel	
Heater Voltage	12.6	6.3	volts
Heater Current	0.3	0.6	ampere
Heater Warm-up Time	—	11	seconds
Heater-Cathode Voltage:			
Peak value		±200 max	volts
Average value		100 max	volts
Direct Interelectrode Capacitances:			
Grid to Plate		4.8	pF
Grid to Cathode and Heater		5	pF
Plate to Cathode and Heater		1.5	pF

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Center Values)			
Plate Voltage	550	volts	
Grid Voltage, Negative-bias value	50	volts	
Plate Dissipation	5.5	watts	
CHARACTERISTICS			
Plate Voltage	150	volts	
Grid Voltage	—17.5	volts	
Amplification Factor	6.5		
Plate Resistance (Approx.)	1030	ohms	
Transconductance	6300	μmhos	
Plate Current	34	mA	
Plate Current for grid voltage of —23 volts	9.6	mA	
Grid Voltage (Approx.) for plate current of 200 μA	—32	volts	
MAXIMUM CIRCUIT VALUES			
Grid-Circuit Resistance:			
For fixed-bias operation	0.47	megohm	
For cathode-bias operation	2.2	megohms	

Vertical-Deflection Amplifier

For operation in a 525-line, 30-frame system

MAXIMUM RATINGS (Design-Center Values)			
DC Plate Voltage	550	volts	
Peak Positive-Pulse Plate Voltage* (Absolute Maximum)	1000†	volts	