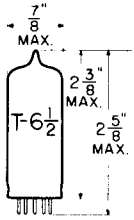
TUNG-SOL

TRIODE

MINIATURE TYPE



GLASS BULB

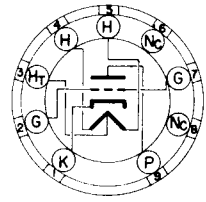
COATED UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 6.3 VOLTS
300 MA. 600 MA.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

MINIATURE BUTTON
9 PIN BASE

9AG

THE 12A4 IS A HIGH PERVEANCE, MEDIUM-MU TRIODE USING THE 9 PIN MINIATURE CONSTRUCTION. IT IS DESIGNED FOR USE IN TELEVISION RECEIVERS AND OTHER APPLICATIONS WHERE HIGH PEAK CURRENT MUST BE DEVELOPED WITH A LOW VOLTAGE POWER SUPPLY. THE HIGH PERVEANCE IS SUCH AS TO MAKE IT SUITABLE FOR USE AS A VERTICAL DEFLECTION AMPLIFIER IN TELEVISION RECEIVERS USING LARGE DEFLECTION ANGLES AND HAVING LOW PLATE SUPPLY POTENTIALS.

DIRECT INTERELECTRODE CAPACITANCES

WITH SHIELD #315

GRID TO PLATE: (G TO P)	4.9	μμf
INPUT: G TO (H+K)	6.7	μμf
OUTPUT: P TO (H+K)	3.8	μμf

RATINGS

INTERPRETED ACCORDING TO RMA STANDARD M8-210

	CLASS A AMPLIFIER	VERTICAL[A] DEFLECTION AMPLIFIER	
HEATER VOLTAGE	12.6 6.3	12.6 6.3	VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE	180	180	VOLTS
MAXIMUM DC PLATE VOLTAGE	450	450	VOLTS
MAXIMUM PEAK POSITIVE PULSE PLATE VOLTAGE[BC]	----	1000	VOLTS
MAXIMUM NEGATIVE DC GRID VOLTAGE	-50	-50	VOLTS
MAXIMUM PEAK NEGATIVE PULSE GRID VOLTAGE[A]	----	-100	VOLTS
MAXIMUM PLATE DISSIPATION[B]	6.5	6.5	WATTS
MAXIMUM CATHODE CURRENT	40	30	MA.
MAXIMUM GRID CIRCUIT RESISTANCE (CATHODE BIAS)[B]	2.5	2.5	MEGOHMS
MAXIMUM GRID CIRCUIT RESISTANCE (FIXED BIAS)[B]	1.2	1.2	MEGOHMS

[A] FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCAST STATIONS" FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE MUST NOT EXCEED 16% OF ONE SCANNING CYCLE OR APPROXIMATELY 2.5 MILLISECONDS.

[B] THESE RATINGS ARE ON THE ABSOLUTE MAXIMUM SYSTEM! ABSOLUTE MAXIMUM RATINGS ARE THE LIMITING VALUES ABOVE WHICH THE SERVICEABILITY OF THE TUBE MAY BE IMPAIRED FROM THE VIEWPOINT OF LIFE AND SATISFACTORY PERFORMANCE. THEREFORE, IN ORDER NOT TO EXCEED THESE ABSOLUTE RATINGS, THE EQUIPMENT DESIGNER HAS THE RESPONSIBILITY OF DETERMINING AN AVERAGE DESIGN VALUE FOR EACH RATING BELOW THE ABSOLUTE VALUE OF THAT RATING BY AN AMOUNT SUCH THAT THE ABSOLUTE VALUES WILL NEVER BE EXCEEDED UNDER ANY USUAL CONDITION OF LINE VOLTAGE VARIATION, MANUFACTURING VARIATIONS (INCLUDING COMPONENTS) IN THE EQUIPMENT ITSELF, OR ADJUSTMENTS OF CONTROLS.

[C] THE PEAKING RESISTOR INCORPORATED IN THE OSCILLATOR DISCHARGE CIRCUIT SHOULD BE CHOSEN SO THAT THIS RATING IS NOT EXCEEDED UNDER ANY CONDITION.

CONTINUED ON FOLLOWING PAGE

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TUNG-SOL

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A_1 AMPLIFIER

HEATER VOLTAGE	12.6	6.3	VOLTS
HEATER CURRENT	300	600	MA.
PLATE VOLTAGE	250		VOLTS
GRID VOLTAGE	−9		VOLTS
PLATE CURRENT	21		MA.
TRANSCONDUCTANCE	7800		µMHOS
AMPLIFICATION FACTOR	20		
GRID VOLTAGE (APPROX.) FOR I_b = 50 µA. AT E_b = 500	−33		VOLTS

VERTICAL DEFLECTION AMPLIFIER[A]

HEATER VOLTAGE	12.6	6.3	VOLTS
HEATER CURRENT	300	600	MA.
DC PLATE VOLTAGE	250		VOLTS
GRID INPUT VOLTAGE (APPROX.)			
PEAK-TO-PEAK SAWTOOTH COMPONENT	25		VOLTS
NEGATIVE PEAKING COMPONENT	30		VOLTS
DC PLATE CURRENT	15		MA.
PLATE OUTPUT VOLTAGE:			
PEAK POSITIVE PULSE COMPONENT	450		VOLTS
PEAK-TO-PEAK SAWTOOTH COMPONENT	220		VOLTS
PEAK-TO PEAK SAWTOOTH CURRENT IN YOKE (50 MILLIHENRY INDUCTANCE)	360		MA.
CATHODE BIAS RESISTOR (VARIABLE)	560		OHMS

[A] FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCAST STATIONS" FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE MUST NOT EXCEED 15% OF ONE SCANNING CYCLE OR APPROXIMATELY 2.5 MILLISECONDS.

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