

TUNG-SOL

TRIODE

MINIATURE TYPE

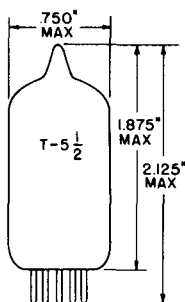
COATED UNIPOTENTIAL CATHODE

HEATFP

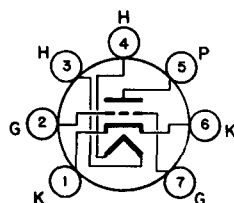
3.0 VOLTS 450 ± 30 MA.^A

AC OR DC

ANY MOUNTING POSITION

^A DESIG. MAXIMUM RATING SYSTEM.

GLASS BULB
MINIATURE BUTTON
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-9



BOTTOM VIEW
BASING DIAGRAM
JEDEC 7EG

THE 3BN4A IS A MINIATURE MEDIUM-MU TRIODE DESIGNED FOR USE AS A RADIO-FREQUENCY AMPLIFIER IN VHF TELEVISION TUNERS. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED.

DIRECT INTERELECTRODE CAPACITANCES

WITH EXTERNAL SHIELD #316

GRID TO PLATE	1.2	pf
INPUT	3.2	pf
OUTPUT	1.4	pf
HEATER TO CATHODE	2.8	pf

RATINGS

DESIGN CENTER VALUES - SEE EIA STANDARD RS-239

MAXIMUM PLATE VOLTAGE	275	VOLTS
MAXIMUM DC GRID VOLTAGE	0	VOLTS
MAXIMUM PLATE DISSIPATION	2.2	WATTS
MAXIMUM DC CATHODE CURRENT	22	MA.
MAXIMUM HEATER-CATHODE VOLTAGE		
HEATER POSITIVE WITH RESPECT TO CATHODE	100	VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE	100	VOLTS
MAXIMUM GRID CIRCUIT RESISTANCE	0.5	MEG OHMS
HEATER WARM-UP TIME*	11	SECONDS

* HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

DESIGN-MAXIMUM RATINGS ARE THE LIMITING VALUES EXPRESSED WITH RESPECT TO BOGIE TUBES AT WHICH SATISFACTORY TUBE LIFE CAN BE EXPECTED TO OCCUR. TO OBTAIN SATISFACTORY CIRCUIT PERFORMANCE, THEREFORE, THE EQUIPMENT DESIGNER MUST ESTABLISH THE CIRCUIT DESIGN SO THAT NO DESIGN-MAXIMUM VALUE IS EXCEEDED WITH A BOGIE TUBE UNDER THE WORST PROBABLE OPERATING CONDITIONS WITH RESPECT TO SUPPLY-VOLTAGE VARIATION, EQUIPMENT COMPONENT VARIATION, EQUIPMENT CONTROL ADJUSTMENT, LOAD VARIATION, AND ENVIRONMENTAL CONDITIONS.

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A₁ AMPLIFIER

PLATE VOLTAGE	150	VOLTS
CATHODE-BIAS RESISTOR	220	OHMS
AMPLIFICATION FACTOR	45	
PLATE RESISTANCE (APPROX.)	5 400	OHMS
TRANSCONDUCTANCE	5 000	μMHOS
PLATE CURRENT	9.0	MA.
GRID VOLTAGE (APPROX.)		
$I_b = 100 \mu\text{AMPS.}$	-6	VOLTS