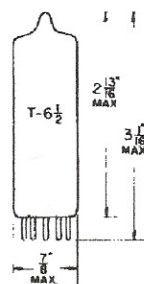


## TUNG-SOL

PENTODE  
MINIATURE TYPE

GLASS BULB

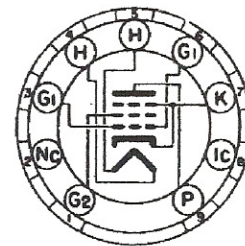
UNIPOTENTIAL CATHODE

HEATER

8.4 VOLTS 0.6 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

SMALL-BUTTON NOVAL  
9 PIN BASE

9HN

THE 8EM5 IS A BEAM POWER PENTODE IN THE 9 PIN MINIATURE CONSTRUCTION AND IS INTENDED FOR USE AS THE VERTICAL DEFLECTION AMPLIFIER IN HIGH-EFFICIENCY DEFLECTION CIRCUITS OF TV RECEIVERS WHICH USE PICTURE TUBES WITH A 110° DIAGONAL DEFLECTION ANGLE. 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 TUBES WHICH ARE SIMILARLY CONTROLLED. WITH THE EXCEPTION OF HEATER RATINGS AND HEATER WARM-UP TIME, THE 8EM5 IS IDENTICAL TO THE 6EM5.

DIRECT INTERELECTRODE CAPACITANCES  
WITHOUT EXTERNAL SHIELD

GRID #1 TO PLATE	0.7	$\mu\mu\text{f}$
GRID #1 TO CATHODE & G3, G2, AND HEATER	10	$\mu\mu\text{f}$
PLATE TO CATHODE & G3, G2, AND HEATER	5.1	$\mu\mu\text{f}$

## RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

## VERTICAL DEFLECTION AMPLIFIER

HEATER VOLTAGE	8.4	VOLTS
MAXIMUM PLATE VOLTAGE:		
DC	315	VOLTS
PEAK POSITIVE PULSE (ABS. MAX.) <sup>B</sup>	2 200 <sup>C</sup>	VOLTS
MAXIMUM GRID #2 VOLTAGE	285	VOLTS
MAXIMUM PEAK NEGATIVE-PULSE GRID #1 VOLTAGE	-250	VOLTS
MAXIMUM CATHODE CURRENT:		
PEAK	210	MA.
AVERAGE	60	MA.
MAXIMUM PLATE DISSIPATION	10	WATTS
MAXIMUM GRID #2 INPUT	1.5	WATTS
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE	200	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	200 <sup>D</sup>	VOLTS
MAXIMUM BULB TEMPERATURE (AT HOTTEST POINT)	250	°C
MAXIMUM CIRCUIT VALUES:		
GRID #1 CIRCUIT RESISTANCE:		
FOR FIXED-BIAS OPERATION	2.2	MEGOHMS
FOR CATHODE-BIAS OPERATION	2.2	MEGOHMS
HEATER WARM-UP TIME (APPROX.) <sup>*</sup>	11.0	SECONDS

CONTINUED ON FOLLOWING PAGE

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS  
CLASS A<sub>1</sub> AMPLIFIER

HEATER VOLTAGE	8.4	8.4	VOLTS
HEATER CURRENT	0.6	0.6	AMP.
PLATE VOLTAGE	60	250	VOLTS
GRID #2 (SCREEN-GRID) VOLTAGE	250	250	VOLTS
GRID #1 (CONTROL-GRID) VOLTAGE	0	-18	VOLTS
MU-FACTOR, GRID #1 TO GRID #2	---	8.7	
TRANSCONDUCTANCE	---	5100	μMHOS
PLATE CURRENT	180 <sup>E</sup>	40	MA.
GRID #2 CURRENT	30 <sup>E</sup>	3	MA.
PLATE RESISTANCE (APPROX.) <sup>●</sup>	---	50 000	OHMS
GRID #1 VOLTAGE FOR PLATE CURRENT 0.2 MA.	---	-37	

●INDICATES AN ADDITION.

\*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.

<sup>B</sup>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.

<sup>C</sup>UNDER NO CIRCUMSTANCES SHOULD THIS ABSOLUTE VALUE BE EXCEEDED.

<sup>D</sup>THE DC COMPONENT MUST NOT EXCEED 100 VOLTS

<sup>E</sup>THESE VALUES CAN BE MEASURED BY A METHOD INVOLVING A RE-CURRENT WAVEFORM SUCH THAT THE PLATE DISSIPATION AND GRID #2 INPUT WILL BE KEPT WITHIN RATINGS IN ORDER TO PREVENT DAMAGE TO THE TUBE.

