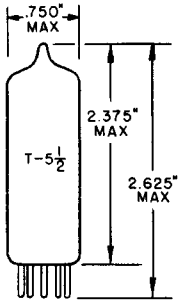
TUNG-SOL

PENTODE

MINIATURE TYPE

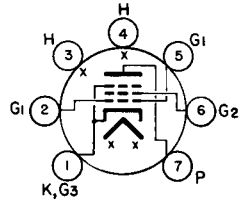


GLASS BULB
SMALL-BUTTON MINIATURE
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-3

FOR USE IN
AUDIO OUTPUT STAGES OF
RADIO AND TV RECEIVERS
AND PHONOGRAPHS

UNIPOTENTIAL CATHODE

ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 7CV

THE 12EH5 IS A POWER PENTODE IN THE 7 PIN MINIATURE CONSTRUCTION. IT HAS BEEN SPECIFICALLY DESIGNED FOR USE IN THE AUDIO OUTPUT STAGE OF RADIO AND TELEVISION RECEIVERS AND PHONOGRAPHS. 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. EXCEPT FOR HEATER RATINGS, HEATER WARM-UP TIME AND HIGHER HEATER-CATHODE VOLTAGE RATINGS, IT IS IDENTICAL TO THE 6EH5, 25EH5 AND 50EH5.

DIRECT INTERELECTRODE CAPACITANCES - APPROX.

WITHOUT EXTERNAL SHIELD

GRID 1 TO PLATE	0.65	pf
GRID 1 TO CATHODE & GRID 3, HEATER & GRID 2	17	pf
PLATE TO CATHODE & GRID 3, HEATER & GRID 2	9	pf

HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	12.6	VOLTS	600	MA.
HEATER WARM-UP TIME [A]			11	SECONDS
HEATER SUPPLY LIMITS:				
CURRENT OPERATION			600 ± 40	MA.
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:				
HEATER NEGATIVE WITH RESPECT TO CATHODE			300	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			200 [B]	VOLTS

[B] THE DC COMPONENT MUST NOT EXCEED 100 VOLTS.

TUNG-SOL

MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AMPLIFIER

PLATE VOLTAGE	→ 150	VOLTS
GRID 2 (SCREEN-GRID) VOLTAGE	→ 130	VOLTS
PLATE DISSIPATION	→ 5.5	WATTS
GRID 2 INPUT	→ 2	WATTS
BULB TEMPERATURE (AT HOTTEST POINT ON BULB SURFACE)	220	°C
GRID 1 CIRCUIT RESISTANCE:		
FOR FIXED-BIAS OPERATION	0.1	MEGOHM
FOR CATHODE-BIAS OPERATION	0.5	MEGOHM

TYPICAL OPERATING CHARACTERISTICS

CLASS A1 AMPLIFIER

PLATE SUPPLY VOLTAGE	110	VOLTS
GRID 2 SUPPLY VOLTAGE	115	VOLTS
CATHODE RESISTOR	62	OHMS
PEAK AF GRID 1 VOLTAGE	3	VOLTS
ZERO-SIGNAL PLATE CURRENT	42	MA.
SIGNAL PLATE CURRENT (MAX.)	42	MA.
ZERO-SIGNAL GRID 2 CURRENT	11.5	MA.
SIGNAL GRID 2 CURRENT (MAX.)	14.5	MA.
TRANSCONDUCTANCE	14,600	μMHOS
PLATE RESISTANCE (APPROX.)	11,000	OHMS
LOAD RESISTANCE	3,000	OHMS
TOTAL HARMONIC DISTORTION	7	PERCENT
SIGNAL POWER OUTPUT (MAX.)	1.4	WATTS

PUSH-PULL AF POWER AMPLIFIER - CLASS AB1

VALUES ARE FOR TWO TUBES

PLATE SUPPLY VOLTAGE	140	VOLTS
GRID 2 SUPPLY VOLTAGE	120	VOLTS
CATHODE RESISTOR	68	OHMS
PEAK AF GRID 1 TO GRID 1 VOLTAGE	9.4	VOLTS
ZERO-SIGNAL PLATE CURRENT	47	MA.
MAX. SIGNAL PLATE CURRENT	51	MA.
ZERO-SIGNAL GRID 2 CURRENT	11	MA.
MAX.-SIGNAL GRID 2 CURRENT	17.7	MA.
EFFECTIVE LOAD RESISTANCE (PLATE TO PLATE)	6000	OHMS
TOTAL HARMONIC DISTORTION	5	PERCENT
MAX.-SIGNAL POWER OUTPUT	3.8	WATTS.

→ INDICATES A CHANGE.

A

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 THREE TIMES THE NOMINAL HEATER OPERATING RESISTANCE.