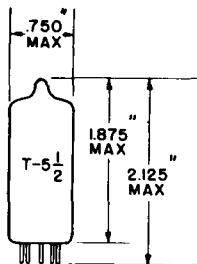


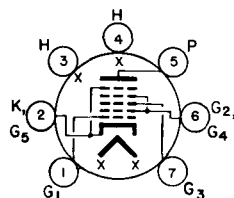
TUNG-SOL**HEPTODE**
MINIATURE TYPE

GLASS BULB
SMALL-BUTTON MINIATURE
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-2

COATED UNIPOTENTIAL CATHODE

FOR USE
AS A GATED AMPLIFIER IN
TELEVISION RECEIVERS

ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 7CH

THE 3BY6 IS A PENTAGRIDS AMPLIFIER USING THE 7 PIN MINIATURE CONSTRUCTION. IT IS DESIGNED ESPECIALLY FOR USE AS A GATED AMPLIFIER IN 600 MA. SERIES HEATER OPERATED TV RECEIVERS. IN SUCH SERVICE, IT MAY BE USED AS A COMBINED SYNC SEPARATOR AND SYNC CLIPPER. 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. WITH THE EXCEPTION OF HEATER RATINGS, ITS CHARACTERISTICS ARE IDENTICAL TO THE 6BY6.

DIRECT INTERELECTRODE CAPACITANCES
WITH NO EXTERNAL SHIELD

GRID #1 TO PLATE (MAX.)	0.08	pf
GRID #3 TO PLATE (MAX.)	0.35	pf
GRID #1 TO GRID #3 (MAX.)	0.22	pf
GRID #1 TO ALL OTHER ELECTRODES AND HEATER	5.4	pf
GRID #3 TO ALL OTHER ELECTRODES AND HEATER	6.9	pf
PLATE TO ALL OTHER ELECTRODES AND HEATER	7.6	pf

HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	3.15 VOLTS	600	MA.
HEATER SUPPLY LIMITS: CURRENT OPERATION		600±40	MA.
MAXIMUM HEATER-CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE		200	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE		200 ^B	VOLTS
HEATER WARM-UP TIME ^A		11	SECONDS

MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

GATED AMPLIFIER SERVICE

PLATE VOLTAGE	→ 330	VOLTS
GRID #2 & #4 VOLTAGE	SEE RATING CHART	
GRID #2 & #4 SUPPLY VOLTAGE	→ 330	VOLTS
GRID #3 VOLTAGE:		
NEGATIVE BIAS VALUE	→ 55	VOLTS
POSITIVE BIAS VALUE	0	VOLTS
POSITIVE PEAK VALUE	→ 27	VOLTS

CONTINUED ON FOLLOWING PAGE

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

MAXIMUM RATINGS - CONT'D.

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

GATED AMPLIFIER SERVICE

GRID #1 VOLTAGE:		
NEGATIVE BIAS VALUE	→ 110	VOLTS
PLATE DISSIPATION	→ 2.3	WATTS
GRID #3 INPUT	0.1	WATT
GRIDS #2 & #4 INPUT:*		
FOR GRIDS #2 & #4 VOLTAGES UP TO 165 VOLTS	1.1	WATTS
FOR GRIDS #2 & #4 VOLTAGES BETWEEN 165 VOLTS AND 330 VOLTS	SEE RATING CHART	
GRID #1 INPUT	0.1	WATT
GRID #1 OR GRID #3 CIRCUIT RESISTANCE:		
FIXED BIAS OPERATION	0.5	MEGOHM
CATHODE BIAS OPERATION	1.0	MEGOHM

TYPICAL OPERATING CHARACTERISTICS

CLASS A₁ AMPLIFIER

PLATE VOLTAGE	250	VOLTS
GRIDS #2 & #4 VOLTAGE	100	VOLTS
GRID #3 VOLTAGE	-2.5	VOLTS
GRID #1 VOLTAGE	-2.5	VOLTS
GRID #3 TO PLATE TRANSCONDUCTANCE	500	μMHOS
GRID #1 TO PLATE TRANSCONDUCTANCE	1 900	μMHOS
PLATE CURRENT	6.5	MA.
GRID #2 & #4 CURRENT	9	MA.
GRID #3 VOLTS (APPROX.) FOR I _b = 35 μAMP. AND GRID #1 VOLTS = -4	-15	VOLTS
GRID #1 VOLTS (APPROX.) FOR I _b = 35 μAMP. AND GRID #3 VOLTS = 0	-12	VOLTS

SYNC SEPARATOR AND SYNC CLIPPER

PLATE VOLTAGE	10	VOLTS
GRID #3 VOLTAGE	0	VOLTS
GRID #2 & #4 VOLTAGE	25	VOLTS
GRID #1 VOLTAGE	0	VOLTS
PLATE CURRENT	1.4	MA.
GRIDS #2 & #4 CURRENT	3.5	MA.
GRID #3 BIAS VOLTS (APPROX.) FOR PLATE VOLTAGE OF 25 VOLTS, GRIDS #2 & #4 VOLTAGE OF 25 VOLTS, GRID #1 VOLTAGE OF 0 VOLTS AND PLATE CURRENT OF 50 μAMP.	-2.5	VOLTS
GRID #1 BIAS VOLTAGE (APPROX.) FOR PLATE VOLTAGE OF 25 VOLTS, GRIDS #2 & #4 VOLTAGE OF 25 VOLTS, GRID #3 VOLTAGE OF 0 VOLTS AND PLATE CURRENT OF 50 μAMP.	-2.3	VOLTS

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.

^B THE DC COMPONENT MUST NOT EXCEED 100 VOLTS.

→ INDICATES A CHANGE.

* INDICATES AN ADDITION.

