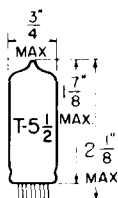


TUNG-SOL

HEPTODE

MINIATURE TYPE



GLASS BULB

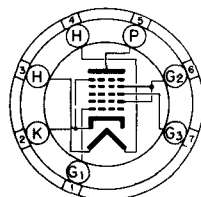
COATED UNIPOTENTIAL CATHODE

HEATER

3.15 VOLTS 0.6 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

MINIATURE BUTTON
7 PIN BASE

7CM

THE 3BE6, A PENTAGRID CONVERTER USING THE 7 PIN MINIATURE CONSTRUCTION, IS DESIGNED FOR USE IN 600 MA. SERIES HEATER OPERATED SUPERHETERODYNE RECEIVERS. IT IS INTENDED FOR SERVICE AS A COMBINED OSCILLATOR AND MIXER. 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 TYPE 6BE6.

DIRECT INTERELECTRODE CAPACITANCES

	WITH SHIELD ^A	WITHOUT SHIELD	
MIXER GRID TO PLATE: (G ₃ TO P) MAX.	0.25	0.30	μuf
MIXER GRID TO OSCILLATOR GRID: (G ₃ TO G ₄) MAX.	0.15	0.15	μuf
RF INPUT: G ₃ TO (H+K+G ₁ +G ₂ +G ₄ +G ₅ +P)	7.0	7.0	μuf
OSCILLATOR INPUT: G ₄ TO (H+K+G ₂ +G ₄ +G ₃ +G ₅ +P)	5.5	5.5	μuf
MIXER OUTPUT: P TO (H+K+G ₁ +G ₂ +G ₄ +G ₃ +G ₅)	13	8.0	μuf
OSCILLATOR GRID TO CATHODE: (G ₄ TO K+G ₅)	3.0	3.0	μuf
OSCILLATOR OUTPUT: K TO (H+G ₂ +G ₄ +G ₃ +P)	20	15	μuf
OSCILLATOR GRID TO PLATE: (G ₄ TO P) MAX.	0.05	0.1	μuf

^A EXTERNAL SHIELD #316 CONNECTED TO PIN #2.

RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

HEATER VOLTAGE	3.15	VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE		
TOTAL DC AND PEAK	200	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE		
DC	100	VOLTS
TOTAL DC AND PEAK	200	VOLTS
MAXIMUM PLATE VOLTAGE	300	VOLTS
MAXIMUM GRIDS #2 AND #4 VOLTAGE	100	VOLTS
MAXIMUM GRIDS #2 AND #4 SUPPLY VOLTAGE	300	VOLTS
MAXIMUM NEGATIVE DC GRID #3 VOLTAGE	-50	VOLTS
MAXIMUM POSITIVE DC GRID #3 VOLTAGE	0	VOLTS
MAXIMUM PLATE DISSIPATION	1.0	WATT
MAXIMUM GRIDS #2 AND #4 DISSIPATION	1.0	WATT
MAXIMUM CATHODE CURRENT	14	MA.
HEATER WARM-UP TIME (APPROX.)*	11.0	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.

CONTINUED ON FOLLOWING PAGE

→ INDICATES A CHANGE.

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CONVERTER SERVICE - SEPARATE EXCITATION^B

HEATER VOLTAGE	3.15	3.15	VOLTS
HEATER CURRENT	0.6	0.6	AMP.
PLATE VOLTAGE	100	250	VOLTS
GRID #3 VOLTAGE	-1.5	-1.5	VOLTS
GRIDS #2 AND #4 VOLTAGE	100	100	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID) RMS	10	10	VOLTS
GRID #1 RESISTANCE (OSCILLATOR GRID)	20 000	20 000	OHMS
PLATE RESISTANCE (APPROX.)	0.4	1.0	MEG OHMS
GRID #1 CURRENT (OSCILLATOR GRID)	0.5	0.5	MA.
CONVERSION TRANSCONDUCTANCE	455	475	μMHOS
PLATE CURRENT	2.6	2.9	MA.
GRIDS #2 AND #4 CURRENT	7.0	6.8	MA.
CATHODE CURRENT	10.1	10.2	MA.
GRID #3 VOLTAGE FOR $G_C = 10 \mu\text{MHOS}$ (APPROX.)	-30	-30	VOLTS
GRID #3 VOLTAGE FOR $G_C = 100 \mu\text{MHOS}$ (APPROX.)	-6	-6	VOLTS

^B CHARACTERISTICS SHOWN ARE OBTAINED IN THE STANDARD RMA CONVERSION CONDUCTANCE TEST SET WHICH USES SEPARATE EXCITATION. THE CHARACTERISTICS UNDER THESE CONDITIONS CORRESPOND VERY CLOSELY WITH THOSE OBTAINED IN A SELF-EXCITED OSCILLATORY CIRCUIT OPERATING WITH ZERO BIAS.

OSCILLATOR CHARACTERISTICS
NOT OSCILLATING

GRID #3 VOLTAGE	0	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID)	0	VOLTS
GRIDS #2 AND #4 CONNECTED TO PLATE	100	VOLTS
TRANSCONDUCTANCE BETWEEN GRID #1 AND GRIDS #2 AND #4 CONNECTED TO PLATE	7 250	μMHOS
AMPLIFICATION FACTOR BETWEEN GRID #1 AND GRIDS #2 AND #4 CONNECTED TO PLATE	20	
CATHODE CURRENT	25	MA.
GRID #1 VOLTAGE (APPROX.) FOR $I_b = 10 \mu\text{A}$	-11	VOLTS

