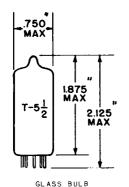
TUNG-SOL -

HEPTODE

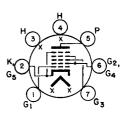
MINIATURE TYPE



COATED UNIPOTENTIAL CATHODE

FOR AUTOMATIVE RADIO RECEIVER SERVICE

ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 7CH

MINIATURE BUTTON 7 PIN BASE E7-1

OUTLINE DRAWING JEDEC 5-2

THE 12ADÓ IS A PENTAGRID CONVERTER WITH A UNIPOTENTIAL CATHODE IN THE 7-PIN MINIATURE CONSTRUCTION. IT IS INTENDED AS A COMBINED OSCILLATOR AND MIXER IN SUPERHETERODYNE RECEIVERS WHERE THE HEATER, PLATE AND SCREEN GRID POTENTIALS ARE OBTAINED DIRECTLY FROM AN AUTOMOTIVE BATTERY.

→ DIRECT INTERELECTRODE CAPACITANCES

	WITH ^A Shield	WITHOUT SHIELD				
MIXER GRID TO PLATE: G3 TO P MAXIMUM	0.26	0.30	рf			
MIXER GRID TO OSCILLATOR GRID: G3 TO G1 MAX.	0.15	0.15	рf			
RF INPUT: G3 TO (H+K+G1+G2 &4+G5+P)	7.0	7.0	рf			
OSCILLATOR INPUT: G1 TO (H+K+P+G3+G5)	3.2	3.2	рf			
MIXER OUTPUT: P TO(H+K+G1 + G2 & 4 + G3+G5)	12	7.0	рf			
OSCILLATOR OUTPUT: G2 & 4 TO (H+K+G3+P+G5)	11	11	рf			
OSCILLATOR GRID TO OSCILLATOR PLATE:						
G1 TO G2 AND 4	2.2	2.2	рf			

HEATER CHARACTERISTICS AND RATINGS DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS 12.6 VOLTS 150 MA. HEATER SUPPLY LIMITS: 10.0 - 15.9 VOLTAGE OPERATION VOLTS MAXIMUM HEATER CATHODE VOLTAGE: HEATER NEGATIVE WITH RESPECT TO CATHODE 16 TOTAL DC AND PEAK VOLTS HEATER POSITIVE WITH RESPECT TO CATHODE 16 TOTAL DC AND PEAK VOLTS

A_{EXTERNAL} SHIELD *316 CONNECTED TO CATHODE.

CONTINUED ON FOLLOWING PAGE

-- TUMB-80L ---

CONTINUED FROM PRECEDING PAGE

MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

PLATE VOLTAGE	→ 16	VOLTS
GRID #2 & #4 VOLTAGE	→ 16	VOLTS
GRID #2 & #4 SUPPLY VOLTAGE	→ 16	VOLTS
NEGATIVE DC GRID #3 VOLTAGE	→ 16	VOLTS
POSITIVE DC GRID #3 VOLTAGE	0	VOLTS
CATHODE CURRENT	20	MA.
GRID #3 CIRCUIT RESISTANCE	10	MEGOHMS

→ TYPICAL OPERATING CHARACTERISTICS

CONVERTER - SEPARATE EXCITATION

PLATE VOLTAGE	10.6	12.6	14.6	VOLTS
GRID #3 VOLTAGE	0	0	0	VOLTS
GRID #2 & #4 VOLTAGE	10.6	12.6	14.6	VOLTS
GRID #1 VOLTAGE PEAK TO PEAK	4.5	4.5	4.5	VOLTS
GRID #1 RESISTANCE	33000	33000	33000	OHMS
GRID #3 RESISTANCE	2.2	2.2	2.2	MEGOHMS
PLATE RESISTANCE (APPROX.)	0.50	0.40	0.20	MEGOHMS
GRID #1 CURRENT (APPROX.)		60		μ A.
CONVERSION TRANSCONDUCTANCE		320		μ M HOS
PLATE CURRENT		350		μΑ
CATHODE CURRENT		1600		μΑ
GRID #3 VOLTAGE FOR GC =5µMHOS	(APPROX.)	-3.0		VOLTS
GRID #3 VOLTAGE				
FOR GC $= 0.5 \mu \text{MHOS}$ (APPROX.)		-4.0		VOLTS

→ OSCILLATOR CHARACTERISTICS - NOT OSCILLATING

GRID #3 VOLTAGE	0	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID)	0	VOLTS
GRID #2 & #4 CONNECTED TO PLATE	12.6	VOLTS
TRANSCONDUCTANCE BETWEEN GRID #1, #2 & #4		
CONNECTED TO PLATE	3600	μ MHOS
AMPLIFICATION FACTOR BETWEEN GRID #1, #2		
AND 4 CONNECTED TO PLATE	9.4	
CATHODE CURRENT	4.5	MA.
GRID #1 VOLTAGE (APPROX.) FOR Ib = 10 HA.	-3.7	VOLTS

A EXTERNAL SHIELD #314 CONNECTED TO CATHODE.

THE EQUIPMENT DESIGNER SHALL SO DESIGN THE EQUIPMENT THAT THE FILAMENT VOLTAGE IS CENTERED AT THE SPECIFIED BOGEY VALUE. FILAMENT SUPPLY VARIATIONS SHALL BE RESTRICTED TO MAINTAIN FILAMENT VOLTAGE WITHIN THE SPECIFIED TOLERANCE. FOR LONGEST LIFE IT IS RECOMMENDED THAT THE HEATER BE OPERATED WITHIN THE RANGE OF 11 TO 14 VOLTS.

[→] INDICATES A CHANGE.

