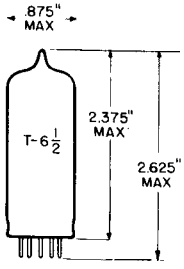
TUNG-SOL

DOUBLE TRIODE

MINIATURE TYPE



MINIATURE BUTTON 9 PIN BASE E9-1

OUTLINE DRAWING JEDEC 6-3

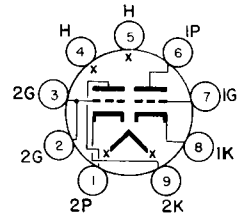
COATED UNIPOTENTIAL CATHODE

HEATER

9.7 VOLTS 600 MA.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM JEDEC 9HF

THE 10DR7 IS A DOUBLE TRIODE WITH DISSIMILAR SECTION IN THE 9 PIN MINIATURE CONSTRUCTION. SECTION #1 HAS A HIGH MU AND IS INTENDED FOR USE AS A VERTICAL DEFLECTION OSCILLATOR. SECTION #2 HAS A LOW MU AND IS DESIGNED FOR USE AS A VERTICAL DEFLECTION AMPLIFIER. SECTION #2 OF THE 10DR7 IS IDENTICAL TO SECTION #2 OF THE 6DE7. 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.

DIRECT INTERELECTRODE CAPACITANCES – APPROX.

GRID TO PLATE: (G TO P)	4.5	8.5	pf
INPUT: G TO (H+K)	2.2	5.5	pf
OUTPUT: P TO (H+K)	0.34	1.0	pf

RATINGS

DESIGN CENTER VALUES – SEE EIA STANDARD RS-239

VERTICAL DEFLECTION OSCILLATOR AND AMPLIFIER[A]

	TRIODE #1 OSCILLATOR	TRIODE #2 AMPLIFIER	
MAXIMUM HEATER–CATHODE VOLTAGE[B]			
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 DC PLATE VOLTAGE	330	275	
MAXIMUM PEAK POSITIVE PULSE PLATE VOLTAGE (ABS. MAX.)	---	1500	VOLTS
MAXIMUM PEAK NEGATIVE PULSE GRID VOLTAGE	400	250	VOLTS
MAXIMUM PLATE DISSIPATION[C]	1.0	7.0	WATTS
MAXIMUM AVERAGE CATHODE CURRENT	20	50	MA.
MAXIMUM PEAK CATHODE CURRENT	70	175	MA.
MAXIMUM GRID CIRCUIT RESISTANCE			
SELF BIAS	2.2	2.2	MEGOHMS
HEATER WARM-UP TIME (APPROX.)[D]	11.0		SECONDS

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

	TRIODE #1	TRIODE #2	
PLATE VOLTAGE	250	150	VOLTS
GRID #1 VOLTAGE	-3	-17.5	VOLTS
PLATE CURRENT	1.4	35	MA.
TRANSCONDUCTANCE	1600	6500	μMHOS
AMPLIFICATION FACTOR	~~84~~ ←	6.0	
PLATE RESISTANCE (APPROX.)	40 000	925	
GRID VOLTAGE FOR Ib = 10 μA	5.5	---	VOLTS
GRID VOLTAGE FOR Ib = 50 μA	---	-44	VOLTS
PLATE CURRENT AT Ec =-24 Vdc	---	10	MA.
ZERO BIAS PLATE CURRENT			
Eb = 60V; Ec = 0 (INSTANTANEOUS VALUES)	---	80	MA.

→ INDICATES A CHANGE.

[A] 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.

[B] DESIGN-MAXIMUM RATINGS ARE THE LIMITING VALUES EXPRESSED WITH RESPECT TO BOGIE TUBES AT WHICH SATISFACTORY TUBE LIFE CAN BE EXPECTED TO OCCUR. TO OBTAIN SATISFACTORY CIRCUIT PERFORMANCE, THEREFORE, THE EQUIPMENT DESIGNER MUST ESTABLISH THE CIRCUIT DESIGN SO THAT NO DESIGN-MAXIMUM VALUE IS EXCEEDED WITH A BOGIE TUBE UNDER THE WORST PROBABLE OPERATING CONDITIONS WITH RESPECT TO SUPPLY-VOLTAGE VARIATION, EQUIPMENT COMPONENT VARIATION, EQUIPMENT CONTROL ADJUSTMENT, LOAD VARIATION, AND ENVIRONMENTAL CONDITIONS.

[C] IN STAGES OPERATING WITH GRID LEAK BIAS, AN ADEQUATE CATHODE BIAS RESISTOR OR OTHER SUITABLE MEANS IS REQUIRED TO PROTECT THE TUBE IN THE ABSENCE OF EXCITATION.

[D] 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.

SIMILAR TYPE REFERENCE: *Except for heater ratings, and heater warm-up time, the 10DR7 is identical to the 6DR7.*