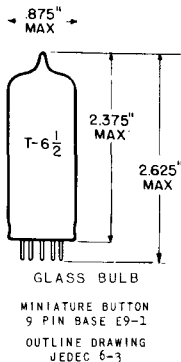


# TUNG-SOL

## DOUBLE TRIODE

### MINIATURE TYPE



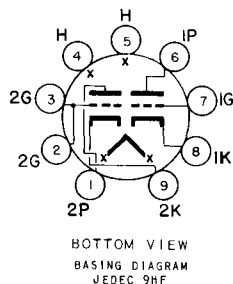
COATED UNIPOTENTIAL CATHODE

HEATER

9.7 VOLTS 600 MA.

AC OR DC

ANY MOUNTING POSITION



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<sup>A</sup>

|                                                       | TRIODE #1<br>OSCILLATOR | TRIODE #2<br>AMPLIFIER |          |
|-------------------------------------------------------|-------------------------|------------------------|----------|
| MAXIMUM HEATER-CATHODE VOLTAGE <sup>B</sup>           |                         |                        |          |
| 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 <sup>C</sup>                | 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                    | MEG OHMS |
| HEATER WARM-UP TIME (APPROX.) <sup>D</sup>            |                         | 11.0                   | SECONDS  |

CONTINUED ON FOLLOWING PAGE

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## 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      | $\mu$ MHOS |
| AMPLIFICATION FACTOR                           | 64 ←      | 6.0       |            |
| PLATE RESISTANCE (APPROX.)                     | 40 000    | 925       |            |
| GRID VOLTAGE FOR $I_b = 10 \mu A$              | 5.5       | ---       | VOLTS      |
| GRID VOLTAGE FOR $I_b = 50 \mu A$              | ---       | -44       | VOLTS      |
| PLATE CURRENT AT $E_c = -24 V_{dc}$            | ---       | 10        | MA.        |
| ZERO BIAS PLATE CURRENT                        |           |           |            |
| $E_b = 60V$ ; $E_c = 0$ (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 BOTTLE 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 BOTTLE 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 6AR7.