

## TUNG-SOL

## TRIODE-PENTODE

## MINIATURE TYPE

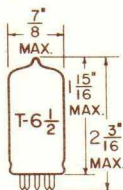
COATED UNIPOTENTIAL CATHODE

HEATER

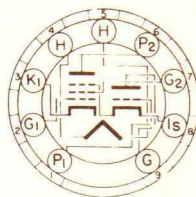
4.7 VOLTS 0.6 AMP.

AC OR DC

ANY MOUNTING POSITION



GLASS BULB


 BOTTOM VIEW  
 MINIATURE BUTT  
 9 PIN BASE

9GJ

THE 5CR8 IS A MINIATURE TRIODE PENTODE USING THE 9-PIN MINIATURE CONSTRUCTION. THE PENTODE IS DESIGNED FOR TELEVISION IF AND CONTAINS A SUPPRESSOR INTERNALLY CONNECTED TO THE TRIODE CATHODE PERMITTING DEGENERATION IN THE PENTODE CATHODE. 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. EXCEPT FOR HEATER VOLTAGE AND CURRENT, THE 5CR8 IS IDENTICAL TO THE 6CR8.

 DIRECT INTERELECTRODE CAPACITANCES - APPROX.  
 WITHOUT EXTERNAL SHIELD

|                                                                     |       |            |
|---------------------------------------------------------------------|-------|------------|
| <b>TRIODE:</b>                                                      |       |            |
| GRID TO PLATE: G TO P                                               | 1.6   | $\mu\mu f$ |
| INPUT: G TO (H + K)                                                 | 2.0   | $\mu\mu f$ |
| OUTPUT: P TO (H + K)                                                | 1.4   | $\mu\mu f$ |
| <b>PENTODE:</b>                                                     |       |            |
| GRID #1 TO PLATE: G <sub>1</sub> TO P (MAX.)                        | 0.018 | $\mu\mu f$ |
| INPUT: G <sub>1</sub> TO (H+K+G <sub>2</sub> +G <sub>3</sub> +I.S.) | 6.0   | $\mu\mu f$ |
| OUTPUT: P TO (H+K+G <sub>2</sub> +G <sub>3</sub> +I.S.)             | 2.8   | $\mu\mu f$ |
| <b>COUPLING:</b>                                                    |       |            |
| PENTODE PLATE TO TRIODE PLATE (MAX.)                                | 0.10  | $\mu\mu f$ |
| PENTODE GRID #1 TO TRIODE PLATE (MAX.)                              | 0.14  | $\mu\mu f$ |
| PENTODE PLATE TO TRIODE GRID (MAX.)                                 | 0.011 | $\mu\mu f$ |

RATINGS<sup>A</sup>

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

|                                         | TRIODE           | PENTODE |       |
|-----------------------------------------|------------------|---------|-------|
| HEATER VOLTAGE                          | 4.7              | 4.7     | VOLTS |
| MAXIMUM HEATER-CATHODE VOLTAGE          |                  |         |       |
| HEATER NEGATIVE WITH RESPECT TO CATHODE |                  |         |       |
| DC AND PEAK                             | 200              | 200     | VOLTS |
| HEATER POSITIVE WITH RESPECT TO CATHODE |                  |         |       |
| DC                                      | 100              | 100     | VOLTS |
| DC AND PEAK                             | 200              | 200     | VOLTS |
| MAXIMUM PLATE VOLTAGE                   | 330              | 330     | VOLTS |
| MAXIMUM GRID #2 SUPPLY VOLTAGE          |                  | 330     | VOLTS |
| MAXIMUM GRID #2 VOLTAGE                 | SEE RATING CHART |         |       |

CONTINUED ON FOLLOWING PAGE

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

RATINGS - CONT'D<sup>A</sup>

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

|                                    | TRIODE | PENTODE |         |
|------------------------------------|--------|---------|---------|
| HEATER VOLTAGE                     | 4.7    | 4.7     | VOLTS   |
| MAXIMUM POSITIVE GRID #1 VOLTAGE   | 0      | 0       | VOLTS   |
| MAXIMUM PLATE DISSIPATION          | 2.75   | 2.3     | WATTS   |
| MAXIMUM GRID #2 DISSIPATION        |        | 0.55    | WATT    |
| MAXIMUM GRID #1 CIRCUIT RESISTANCE |        |         |         |
| FIXED BIAS                         | 0.5    |         | MEGOHM  |
| SELF BIAS                          | 1.0    |         | MEGOHM  |
| HEATER WARM-UP TIME*               |        | 11.0    | SECONDS |

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A<sub>1</sub> AMPLIFIER

|                                                  | TRIODE | PENTODE |       |
|--------------------------------------------------|--------|---------|-------|
| HEATER VOLTAGE                                   | 4.7    | 4.7     | VOLTS |
| HEATER CURRENT                                   | 0.6    | 0.6     | AMP.  |
| PLATE VOLTAGE                                    | 125    | 125     | VOLTS |
| GRID #2 VOLTAGE                                  |        | 125     | VOLTS |
| GRID #1 VOLTAGE                                  | -2     | 0       | VOLTS |
| CATHODE BIAS RESISTOR                            |        | 56      | OHMS  |
| PLATE CURRENT                                    | 12     | 13      | MA.   |
| GRID #2 CURRENT                                  |        | 3       | MA.   |
| AMPLIFICATION FACTOR                             | 22     |         |       |
| TRANSCONDUCTANCE                                 | 4 000  | 7 700   | μMHOS |
| PLATE RESISTANCE (APPROX.)                       | 5 500  | 300 000 | OHMS  |
| GRID #1 VOLTAGE (APPROX.) FOR $I_b = 10 \mu A$   | -13    |         | VOLTS |
| GRID #1 VOLTAGE (APPROX.) FOR $I_b = 20 \mu A$   |        | -6.5    | VOLTS |
| PLATE CURRENT WITH $E_{c1} = -3 V_{dc}$ , $RK=0$ |        | 2.8     | MA.   |

<sup>A</sup> 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.

\* 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.

