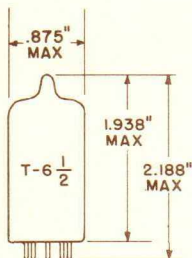


## TUNG-SOL

## TRIODE PENTODE

## MINIATURE TYPE



GLASS BULB

MINIATURE BUTTON

9 PIN BASE E9-1

OUTLINE DRAWING

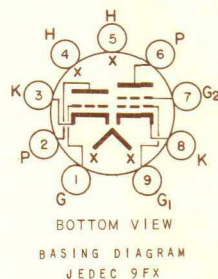
JEDEC 6-2

COATED UNIPOTENTIAL CATHODE

FOR

VHF TELEVISION TUNER  
APPLICATIONS

ANY MOUNTING POSITION



THE 6CL8A IS A SHARP CUTOFF TETRODE AND MEDIUM-MU TRIODE IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS INTENDED FOR USE, PRIMARILY AS A COMBINED TRIODE OSCILLATOR AND TETRODE MIXER IN VHF TELEVISION TUNERS. 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. IT IS UNILATERALLY INTER-CHANGEABLE, BOTH ELECTRICALLY AND MECHANICALLY, WITH THE 6CL8 AND DIFFERS PRIMARILY FROM THE 6CL8 IN HAVING A TETRODE SECTION WITH LOWER GRID-PLATE CAPACITANCE AND HIGHER TRANSCONDUCTANCE. EXCEPT FOR HEATER RATINGS, THE 6CL8A IS IDENTICAL TO THE 5CL8A.

## → DIRECT INTERELECTRODE CAPACITANCES

|                                                                        | WITH SHIELD <sup>A</sup> | WITHOUT SHIELD |        |
|------------------------------------------------------------------------|--------------------------|----------------|--------|
| <b>TETRODE:</b>                                                        |                          |                |        |
| GRID #1 TO PLATE: (G <sub>1</sub> TO P) (MAX.)                         | 0.01                     | 0.02           | pf     |
| INPUT: G <sub>1</sub> TO (K+G <sub>2</sub> +H+I.S.)                    | 5.0                      | 5.0            | pf     |
| OUTPUT: P TO (K+G <sub>2</sub> +H+I.S.)                                | 3.0                      | 2.0            | pf     |
| CATHODE TO HEATER: (K TO H)                                            | 3.0 <sup>B</sup>         | 3.0            | pf     |
| <b>TRIODE:</b>                                                         |                          |                |        |
| GRID TO PLATE: (G TO P)                                                | 1.8                      | 1.8            | pf     |
| INPUT: G TO (TK+TEK+H+I.S.)                                            | 2.8                      | 2.8            | pf     |
| OUTPUT: G TO (TK+TEK+H+I.S.)                                           | 2.0                      | 1.5            | pf     |
| CATHODE TO HEATER: (TK TO H)                                           | 3.0 <sup>B</sup>         | 3.0            | pf     |
| <br>TETRODE GRID #1 TO TRIODE PLATE<br>(TEG <sub>1</sub> TO TP) (MAX.) | <br>0.01                 | <br>0.015      | <br>pf |
| TETRODE PLATE TO TRIODE PLATE<br>(TEP TO TP) (MAX.)                    | 0.03                     | 0.15           | pf     |

<sup>A</sup> EXTERNAL SHIELD #315 CONNECTED TO PIN #4.<sup>B</sup> EXTERNAL SHIELD #315 CONNECTED TO PIN #6.

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

|                                         |           |        |         |
|-----------------------------------------|-----------|--------|---------|
| AVERAGE CHARACTERISTICS                 | 6.3 VOLTS | 450    | MA.     |
| HEATER SUPPLY LIMITS:                   |           |        |         |
| CURRENT OPERATION                       |           | 450±27 | MA.     |
| 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   |
| HEATER WARM-UP TIME <sup>A</sup>        |           | 11     | SECONDS |

## → MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

|                                     |                  |        |
|-------------------------------------|------------------|--------|
| TETRODE PLATE VOLTAGE               | 330              | VOLTS  |
| TRIODE PLATE VOLTAGE                | 330              | VOLTS  |
| GRID #2 SUPPLY VOLTAGE              | 330              | VOLTS  |
| GRID #2 VOLTAGE                     | SEE RATING CHART |        |
| TETRODE PLATE DISSIPATION           | 3.0              | WATTS  |
| GRID #2 DISSIPATION                 | 0.55             | WATT   |
| POSITIVE DC TETRODE GRID #1 VOLTAGE | 0                | VOLTS  |
| POSITIVE DC TRIODE GRID VOLTAGE     | 0                | VOLTS  |
| TRIODE PLATE DISSIPATION            | 2.5              | WATTS  |
| TETRODE GRID #1 CIRCUIT RESISTANCE: |                  |        |
| FIXED BIAS                          | 0.25             | MEGOHM |
| CATHODE BIAS                        | 1.0              | MEGOHM |
| TRIODE GRID CIRCUIT RESISTANCE:     |                  |        |
| FIXED BIAS                          | 0.5              | MEGOHM |
| CATHODE BIAS                        | 1.0              | MEGOHM |

## → TYPICAL OPERATING CHARACTERISTICS

CLASS A<sub>1</sub> AMPLIFIER

|                                                      | TRIODE | TETRODE |        |
|------------------------------------------------------|--------|---------|--------|
| PLATE VOLTAGE                                        | 125    | 125     | VOLTS  |
| GRID #2 VOLTAGE                                      | ---    | 125     | VOLTS  |
| GRID #1 VOLTAGE                                      | -1.0   | -1.0    | VOLTS  |
| TRANSCONDUCTANCE                                     | 8000   | 6500    | μMHOS  |
| PLATE CURRENT                                        | 14.0   | 12.0    | MA.    |
| GRID #2 CURRENT                                      | ---    | 4.0     | MA.    |
| PLATE RESISTANCE (APPROX.)                           | 5000Ω  | 0.2     | MEGOHM |
| AMPLIFICATION FACTOR                                 | 40     | ---     |        |
| GRID #1 VOLTAGE (APPROX.) FOR I <sub>b</sub> =20 μA  | -9     | -9      | VOLTS  |
| ZERO BIAS TRANSCONDUCTANCE                           | ---    | 7000    | μMHOS  |
| (WITH E <sub>b</sub> =100 V, E <sub>c2</sub> =70 V.) | ---    |         |        |

<sup>A</sup> 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 THE 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.

→ INDICATES A CHANGE.

