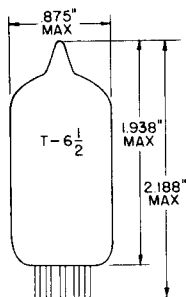


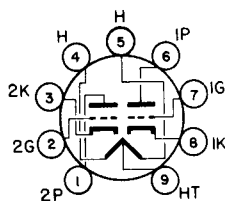
## TUNG-SOL

TWIN TRIODE  
MINIATURE TYPE

GLASS BULB  
SMALL BUTTON NOVAL  
9 PIN BASE E9-1  
OUTLINE DRAWING  
JEDEC 6-2

UNIPOTENTIAL CATHODE  
  
FOR  
AUDIO FREQUENCY AMPLIFIER  
OR COMBINED OSCILLATOR AND  
MIXER APPLICATIONS IN  
T.V. RECEIVERS

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM

JEDEC 9A

THE 9AU7 COMBINES TWO INDEPENDENT MEDIUM-MU INDIRECTLY HEATED CATHODE TYPE TRIODES IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS ADAPTABLE TO APPLICATION EITHER AS AN AUDIO FREQUENCY AMPLIFIER OR AS A COMBINED OSCILLATOR AND MIXER IN 450 MA. SERIES HEATER OPERATED TELEVISION RECEIVERS. 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. WITH THE EXCEPTION OF HEATER RATINGS AND HEATER WARM-UP TIME IT IS IDENTICAL TO THE 12AU7A.

→ DIRECT INTERELECTRODE CAPACITANCES

|                  | TRIODE<br>UNIT T <sub>1</sub> | TRIODE<br>UNIT T <sub>2</sub> |    |
|------------------|-------------------------------|-------------------------------|----|
| GRID TO PLATE    | 1.5                           | 1.5                           | pf |
| GRID TO CATHODE  | 1.6                           | 1.6                           | pf |
| PLATE TO CATHODE | 0.50                          | 0.35                          | pf |

HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

|                                          |           |         |         |
|------------------------------------------|-----------|---------|---------|
| AVERAGE CHARACTERISTICS                  |           |         |         |
| HEATER IN SERIES                         | 9.4 VOLTS | 225     | MA.     |
| HEATER IN PARALLEL                       | 4.7 VOLTS | 450     | MA.     |
| HEATER WARM-UP TIME (AVG.) (IN PARALLEL) |           | 11      | SECONDS |
| HEATER SUPPLY LIMITS:                    |           |         |         |
| VOLTAGE OPERATION (IN SERIES)            |           | 9.4±0.9 | VOLTS   |
| CURRENT OPERATION (IN PARALLEL)          |           | 450±30  | 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   |

CONTINUED ON FOLLOWING PAGE

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## → MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

VALUES ARE FOR EACH UNIT

|                                                                  | CLASS A1<br>AMPLIFIER | VERTICAL<br>DEFLECTION<br>OSCILLATOR |         |
|------------------------------------------------------------------|-----------------------|--------------------------------------|---------|
| PLATE VOLTAGE                                                    | 330                   | 330                                  | VOLTS   |
| PLATE DISSIPATION:                                               |                       |                                      |         |
| EACH PLATE                                                       | 2.75                  | 2.75                                 | WATTS   |
| BOTH PLATES                                                      | 5.5                   | 5.5                                  | WATTS   |
| CATHODE CURRENT                                                  | 22                    |                                      | MA.     |
| PEAK NEGATIVE PULSE GRID VOLTAGE                                 |                       | 440                                  | VOLTS   |
| AVERAGE CATHODE CURRENT                                          |                       | 22                                   | MA.     |
| PEAK CATHODE CURRENT                                             |                       | 66                                   | MA.     |
| <b>MAXIMUM CIRCUIT VALUES:</b>                                   |                       |                                      |         |
| GRID CIRCUIT RESISTANCE:                                         |                       |                                      |         |
| FOR FIXED BIAS, GRID-RESISTOR BIAS,<br>OR CATHODE-BIAS OPERATION | 2.2                   | 2.2                                  | MEGOHMS |

|                                                                  | HORIZONTAL<br>DEFLECTION<br>OSCILLATOR | VERTICAL<br>DEFLECTION<br>AMPLIFIER |         |
|------------------------------------------------------------------|----------------------------------------|-------------------------------------|---------|
| DC PLATE VOLTAGE                                                 | 330                                    | 330                                 | VOLTS   |
| PLATE DISSIPATION:                                               |                                        |                                     |         |
| EACH PLATE                                                       | 2.75                                   | 2.75                                | WATTS   |
| BOTH PLATES                                                      | 5.5                                    | 5.5                                 | WATTS   |
| PEAK POSITIVE-PULSE PLATE VOLTAGE                                |                                        | 1200                                | VOLTS   |
| PEAK NEGATIVE-PULSE GRID VOLTAGE                                 | 660                                    | 275                                 | VOLTS   |
| AVERAGE CATHODE CURRENT                                          | 22                                     | 22                                  | MA.     |
| PEAK CATHODE CURRENT                                             | 330                                    | 66                                  | MEGOHMS |
| <b>MAXIMUM CIRCUIT VALUES:</b>                                   |                                        |                                     |         |
| GRID CIRCUIT RESISTANCE:                                         |                                        |                                     |         |
| FOR FIXED BIAS, GRID-RESISTOR BIAS,<br>OR CATHODE-BIAS OPERATION | 2.2                                    | 2.2                                 | MEGOHMS |

## TYPICAL OPERATING CHARACTERISTICS

CLASS A1 AMPLIFIER - EACH UNIT

|                                                         |        |      |       |
|---------------------------------------------------------|--------|------|-------|
| PLATE VOLTAGE                                           | 100    | 250  | VOLTS |
| GRID VOLTAGE                                            | 0      | -8.5 | VOLTS |
| AMPLIFICATION FACTOR                                    | → 19.5 | 17   |       |
| PLATE RESISTANCE                                        | → 6250 | 7700 | OHMS  |
| TRANSCONDUCTANCE                                        | 3100   | 2200 | μMHOS |
| PLATE CURRENT                                           | 11.8   | 10.5 | MA.   |
| GRID VOLTAGE (APPROX.) FOR<br>PLATE CURRENT OF 10 μAMP. |        | -24  | VOLTS |

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.

→ INDICATES A CHANGE.