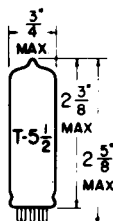


## TUNG-SOL

## PENTODE

## MINIATURE TYPE



GLASS BULB

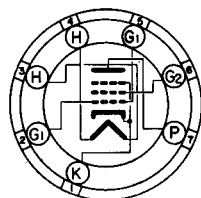
COATED UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 0.45 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

THE 12ED5 IS A BEAM POWER PENTODE IN THE 7-PIN MINIATURE CONSTRUCTION AND IS DESIGNED FOR SERVICE AS AN AUDIO OUTPUT AMPLIFIER. 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.

## DIRECT INTERELECTRODE CAPACITANCES

WITHOUT EXTERNAL SHIELD

|                                 |      |                  |
|---------------------------------|------|------------------|
| GRID #1 TO PLATE                | 0.26 | $\mu\mu\text{f}$ |
| INPUT: $G_1$ TO $(H+K+G_2+G_3)$ | 14   | $\mu\mu\text{f}$ |
| OUTPUT: P TO $(H+K+G_2+G_3)$    | 8.5  | $\mu\mu\text{f}$ |

## RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM<sup>A</sup>

|                                         |      |         |
|-----------------------------------------|------|---------|
| HEATER VOLTAGE                          | 12.6 | VOLTS   |
| MAXIMUM PLATE VOLTAGE                   | 150  | VOLTS   |
| MAXIMUM GRID #2 VOLTAGE                 | 150  | VOLTS   |
| MAXIMUM PLATE DISSIPATION               | 6.25 | WATTS   |
| MAXIMUM GRID #2 DISSIPATION             | 1.5  | WATTS   |
| MAXIMUM GRID #1 CIRCUIT RESISTANCE:     |      |         |
| FIXED BIAS                              | 0.1  | MEGOHM  |
| CATHODE BIAS                            | 0.5  | MEGOHM  |
| MAXIMUM HEATER-CATHODE VOLTAGE:         |      |         |
| HEATER NEGATIVE WITH RESPECT TO CATHODE |      |         |
| DC                                      | 200  | VOLTS   |
| TOTAL DC AND PEAK                       | 300  | VOLTS   |
| HEATER POSITIVE WITH RESPECT TO CATHODE |      |         |
| DC                                      | 100  | VOLTS   |
| TOTAL DC AND PEAK                       | 200  | VOLTS   |
| HEATER WARM-UP TIME (APPROX.)*          | 11.0 | SECONDS |

CONTINUED ON FOLLOWING PAGE

**TUNG-SOL**

CONTINUED FROM PRECEDING PAGE

**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS****CLASS A<sub>1</sub> AMPLIFIER**

|                                     |        |        |         |
|-------------------------------------|--------|--------|---------|
| HEATER VOLTAGE                      | 12.6   | 12.6   | VOLTS   |
| HEATER CURRENT                      | 0.45   | 0.45   | AMP.    |
| PLATE VOLTAGE                       | 110    | 125    | VOLTS   |
| GRID #2 VOLTAGE                     | 110    | 125    | VOLTS   |
| GRID #1 VOLTAGE                     | -4.0   | -4.5   | VOLTS   |
| PEAK AF GRID #1 VOLTAGE             | 4.0    | 4.5    | VOLTS   |
| ZERO-SIGNAL PLATE CURRENT           | 32     | 37     | MA.     |
| MAXIMUM-SIGNAL PLATE CURRENT        | 31     | 36     | MA.     |
| ZERO-SIGNAL GRID #2 CURRENT         | 4.0    | 7.0    | MA.     |
| MAXIMUM-SIGNAL GRID #2 CURRENT      | 8.0    | 11     | MA.     |
| TRANSCONDUCTANCE                    | 8 100  | 8 500  | μMHOS   |
| PLATE RESISTANCE (APPROX.)          | 14 000 | 14 000 | OHMS    |
| LOAD RESISTANCE                     | 4 500  | 4 500  | OHMS    |
| MAXIMUM-SIGNAL POWER OUTPUT         | 1.1    | 1.5    | WATTS   |
| TOTAL HARMONIC DISTORTION (APPROX.) | 5      | 5      | PERCENT |

\* 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.

<sup>A</sup> DESIGN-MAXIMUM RATINGS ARE LIMITING VALUES OF OPERATING AND ENVIRONMENTAL CONDITIONS APPLICABLE TO A BOGEY ELECTRON DEVICE OF A SPECIFIED TYPE AS DEFINED BY ITS PUBLISHED DATA, AND SHOULD NOT BE EXCEEDED UNDER THE WORST PROBABLE CONDITIONS. THE DEVICE MANUFACTURER CHOOSES THESE VALUES TO PROVIDE ACCEPTABLE SERVICEABILITY OF THE DEVICE, TAKING RESPONSIBILITY FOR THE EFFECTS OF CHANGES IN OPERATING CONDITIONS DUE TO VARIATIONS IN DEVICE CHARACTERISTICS. THE EQUIPMENT MANUFACTURER SHOULD DESIGN SO THAT INITIALLY AND THROUGHOUT LIFE NO DESIGN-MAXIMUM VALUE FOR THE INTENDED SERVICE IS EXCEEDED WITH A BOGEY DEVICE UNDER THE WORST PROBABLE OPERATING CONDITIONS WITH RESPECT TO SUPPLY-VOLTAGE VARIATION, EQUIPMENT COMPONENT VARIATION, EQUIPMENT CONTROL ADJUSTMENT, LOAD VARIATION, SIGNAL VARIATION, AND ENVIRONMENTAL CONDITIONS.