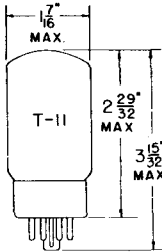


TUNG-SOL

PENTODE



GLASS BULB

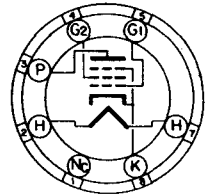
COATED UNIPOTENTIAL CATHODE

HEATER

6.3 VOLTS 0.9 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

SHORT INTERMEDIATE  
SHELL 7 P IN  
LOW LOSS PHENOLIC

75

THE 6L6WGB IS A RUGGEDIZED BEAM PENTODE OF THE SINGLE ENDED CONSTRUCTION USED PRIMARILY IN AUDIO POWER OUTPUT STAGES. IT IS ELECTRICALLY EQUIVALENT TO TYPES 6L6 AND 6L6G, EXCEPT THAT PLATE AND SCREEN DISSIPATIONS HAVE BEEN INCREASED APPROXIMATELY 20%. THE USE OF SPECIALLY COATED GRIDS AND ANODES GREATLY INCREASES ITS ABILITY TO WITHSTAND OVERLOAD CONDITIONS FOR SHORT PERIODS OF TIME AND PROVIDES IMPROVEMENT IN CONTINUITY OF SERVICE. THE 6L6WGB EMPLOYS A MICANOL BARRIER BASE WHICH ABSORBS LESS MOISTURE AND REDUCES THE CHANCE OF VOLTAGE BREAKDOWN BETWEEN ADJACENT PINS. SINCE THIS TUBE MUST BE ABLE TO WITHSTAND SEVERE MECHANICAL TESTS TO MEET TEST SPECIFICATIONS, THE 6L6WGB IS ESPECIALLY SUITED FOR USE IN INDUSTRIAL AND MILITARY EQUIPMENT WHICH MAY BE SUBJECTED TO SEVERE SHOCK AND VIBRATION, SUCH AS AIRBORNE EQUIPMENT.

DIRECT INTERELECTRODE CAPACITANCES

|                       | WITHOUT<br>SHIELD |                |
|-----------------------|-------------------|----------------|
| GRID TO PLATE (RATED) | 0.9               | $\mu\text{mf}$ |
| INPUT (RATED)         | 11.5              | $\mu\text{mf}$ |
| OUTPUT (RATED)        | 9.5               | $\mu\text{mf}$ |

RATINGS

ABSOLUTE MAXIMUM VALUES

|                                |                |       |
|--------------------------------|----------------|-------|
| HEATER VOLTAGE                 | $6.3 \pm 10\%$ | VOLTS |
| MAXIMUM DC PLATE VOLTAGE       | 400            | VOLTS |
| MAXIMUM DC GRID #2 VOLTAGE     | 300            | VOLTS |
| MAXIMUM PLATE DISSIPATION      | 26             | WATTS |
| MAXIMUM GRID #2 DISSIPATION    | 3.5            | WATTS |
| MAXIMUM HEATER CATHODE VOLTAGE | $\pm 200$      | VOLTS |
| MAXIMUM ALTITUDE               | 10 000         | FEET  |
| MAXIMUM SHOCK                  | 450            | G     |

CONTINUED ON FOLLOWING PAGE

**TUNG-SOL**

CONTINUED FROM PRECEDING PAGE

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

**SINGLE TUBE**

|                                    | TRIODE* | PENTODE |        |        |  |         |
|------------------------------------|---------|---------|--------|--------|--|---------|
| HEATER VOLTAGE                     | 6.3     | 6.3     | 6.3    | 6.3    |  | VOLTS   |
| HEATER CURRENT                     | 0.9     | 0.9     | 0.9    | 0.9    |  | AMP.    |
| PLATE VOLTAGE                      | 250     | 250     | 300    | 350    |  | VOLTS   |
| GRID #2 VOLTAGE                    | ---     | 250     | 200    | 250    |  | VOLTS   |
| GRID #1 VOLTAGE                    | -20     | -14     | -12.5  | -18    |  | VOLTS   |
| PEAK AF GRID #1 VOLTAGE            | 20      | 14      | 12.5   | 18     |  | VOLTS   |
| ZERO SIGNAL PLATE CURRENT          | 40      | 72      | 48     | 54     |  | mA      |
| ZERO SIGNAL GRID #2 CURRENT        | ---     | 5       | 2.5    | 2.5    |  | mA      |
| MAXIMUM SIGNAL GRID #2 CURRENT     | ---     | 7.3     | 4.7    | 7.0    |  | mA      |
| TRANSCONDUCTANCE                   | 4700    | 6000    | 5300   | 5200   |  | μMHOS   |
| PLATE RESISTANCE                   | 1700    | 22 500  | 35 500 | 33 000 |  | OHMS    |
| AMPLIFICATION FACTOR               | 8       | ---     | ---    | ---    |  | OHMS    |
| LOAD RESISTANCE                    | 5000    | 2500    | 4500   | 4200   |  | OHMS    |
| MAXIMUM SIGNAL POWER OUTPUT        | 1.4     | 6.5     | 6.5    | 10.8   |  | WATTS   |
| TOTAL HARMONIC DISTORTION (APPROX) | 5       | 10      | 11     | 15     |  | PERCENT |
| MAXIMUM SIGNAL PLATE CURRENT       | 44      | 73      | 55     | 66     |  | mA      |

**PUSH-PULL AMPLIFIER**

**VALUES FOR TWO TUBES**

|                              | CLASS A1 |       | CLASS AB1 |       | CLASS AB2 |       |         |
|------------------------------|----------|-------|-----------|-------|-----------|-------|---------|
| HEATER VOLTAGE               | 6.3      | 6.3   | 6.3       | 6.3   | 6.3       | 6.3   | VOLTS   |
| HEATER CURRENT               | 0.9      | 0.9   | 0.9       | 0.9   | 0.9       | 0.9   | AMP.    |
| PLATE VOLTAGE                | 250      | 270   | 360       | 360   | 360       | 360   | VOLTS   |
| GRID #2 VOLTAGE              | 250      | 270   | 270       | 270   | 225       | 270   | VOLTS   |
| GRID #1 VOLTAGE              | -16      | -17.5 | -22.5     | -22.5 | -18       | -22.5 | VOLTS   |
| PEAK AF GRID TO GRID VOLTAGE | 32       | 35    | 45        | 45    | 52        | 72    | VOLTS   |
| ZERO SIGNAL PLATE CURRENT    | 120      | 134   | 88        | 88    | 78        | 88    | mA      |
| MAX. SIGNAL PLATE CURRENT    | 140      | 155   | 132       | 140   | 142       | 205   | mA      |
| ZERO SIGNAL GRID #2 CURRENT  | 10       | 11    | 5         | 5     | 3.5       | 5     | mA      |
| MAX. SIGNAL GRID #2 CURRENT  | 16       | 17    | 15        | 11    | 11        | 16    | mA      |
| TRANSCONDUCTANCE (EA. TUBE)  | 5500     | 5700  | ---       | ---   | ---       | ---   | μMHOS   |
| PLATE RESISTANCE (EA. TUBE)  | 24500    | 23500 | ---       | ---   | ---       | ---   | OHMS    |
| LOAD RESISTANCE              | 5000     | 5000  | 6600      | 3800  | 6000      | 3800  | OHMS    |
| POWER OUTPUT                 | 14.5     | 17.5  | 26.5      | 18    | 31        | 47    | WATTS   |
| TOTAL HARMONIC DISTORTION    | 2        | 2     | 2         | 2     | 2         | 2     | PERCENT |

**CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN**

$E_f = 6.3V$ ,  $E_b = 250Vdc$ ,  $E_{c2} = 250Vdc$ ,  $E_{c1} = -14Vdc$

EXCEPT AS MODIFIED BELOW

|                                                                                    | INITIAL         |      | 500 HOUR LIFE TEST |           |                 |      |      |
|------------------------------------------------------------------------------------|-----------------|------|--------------------|-----------|-----------------|------|------|
|                                                                                    | INDIVIDUAL MIN. | MAX. | PROD. MIN.         | AVG. MAX. | INDIVIDUAL MIN. | MAX. |      |
| HEATER CURRENT                                                                     | 840             | 960  | ---                | ---       | ---             | ---  | mA   |
| HEATER CATHODE LEAKAGE                                                             | 0.              | 75   | ---                | ---       | ---             | ---  | μAdc |
| GRID #1 CURRENT<br>( $E_b = 400Vdc$ , $E_{c2} = 300Vdc$<br>$E_{c1} = -19Vdc$ )     | 0               | -3.0 | ---                | ---       | ---             | ---  | μAdc |
| PLATE CURRENT<br>( $E_b = 400Vdc$ , $E_{c2} = 300Vdc$ ,<br>$E_{c1} = -22Vdc$ )     | 50              | 80   | ---                | ---       | ---             | ---  | mA   |
| SCREEN GRID CURRENT<br>( $E_b = 400Vdc$ , $E_{c2} = 300Vdc$<br>$E_{c1} = -22Vdc$ ) | 0               | 5.0  | ---                | ---       | ---             | ---  | mA   |

CONTINUED ON FOLLOWING PAGE

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN -- CONT'D.

 $E_f = 6.3V$ ,  $E_b = 250Vdc$ ,  $E_{c2} = 250Vdc$ ,  $E_{c1} = -14Vdc$ 

EXCEPT AS MODIFIED BELOW

|                                                                   |      |      |     |     |     |     |            |
|-------------------------------------------------------------------|------|------|-----|-----|-----|-----|------------|
| TRANSCONDUCTANCE                                                  | 5200 | 6800 | --- | --- | --- | --- | $\mu MHOS$ |
| POWER OUTPUT<br>( $E_{sig} = 9.8 V_{ac}$ ,<br>$R_p = 2500 OHMS$ ) | 5.4  | ---  | --- | --- | --- | --- | WATTS      |
| GRID EMISSION<br>( $E_b = E_{c1} = E_{c2} = 50Vdc$ )              | 275  | ---  | --- | --- | --- | --- | $mA_{dc}$  |

## SPECIAL REQUIREMENTS

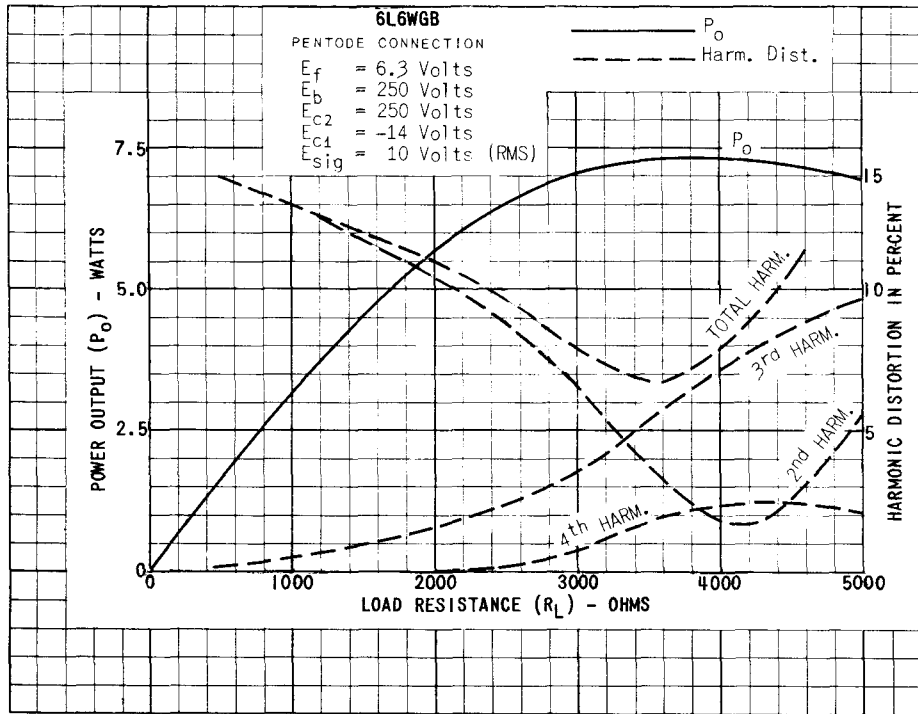
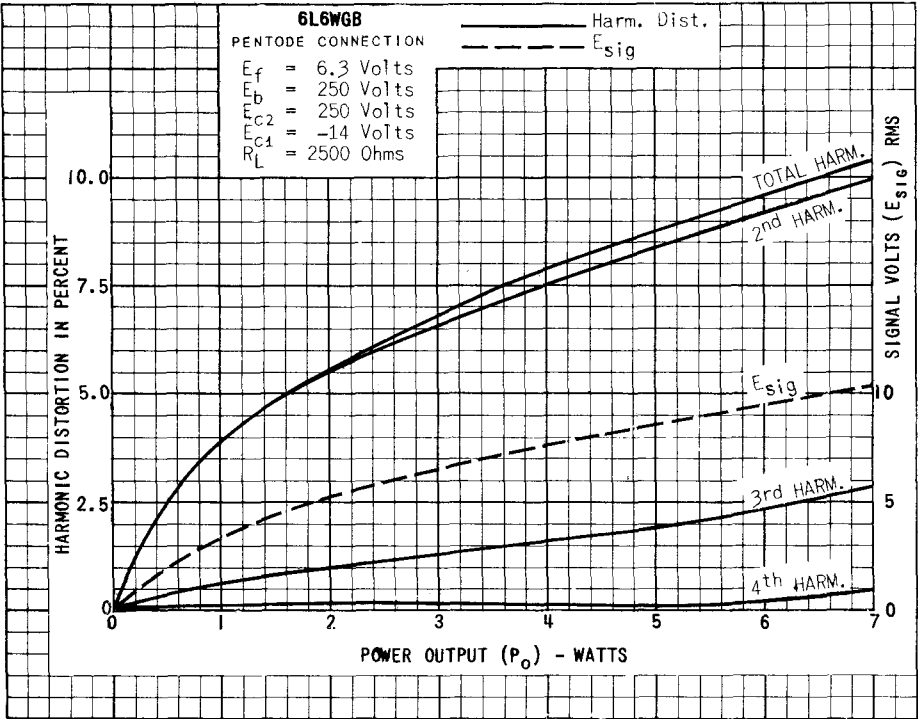
|                                                                                        |      |      |              |
|----------------------------------------------------------------------------------------|------|------|--------------|
| VARIABLE FREQUENCY VIBRATION <sup>A</sup><br>( $R_p = 2000 OHMS$ , $E_{c1} = -27Vdc$ ) | ---  | 1000 | $mV_{ac}$    |
| LOW FREQUENCY VIBRATION <sup>B</sup><br>( $R_p = 2000 OHMS$ , $E_{c1} = -27Vdc$ )      | ---  | 1000 | $mV_{ac}$    |
| SHOCK <sup>C</sup><br>(HAMMER ANGLE = $30^\circ$ , $E_f = -6.3V$ )                     | ---  | ---  | ---          |
| VIBRATIONAL FATIGUE <sup>D</sup>                                                       | ---  | ---  | ---          |
| POST SHOCK AND VIBRATIONAL FATIGUE TEST END POINTS                                     | ---  | 1000 | $V_{ac}$     |
| LOW FREQUENCY VIBRATION                                                                | ---  | 100  | $\mu A_{dc}$ |
| HEATER CATHODE LEAKAGE                                                                 | 0    | ---  | $\mu MHOS$   |
| TRANSCONDUCTANCE                                                                       | 4500 | ---  | ---          |
| MECHANICAL RESONANCE <sup>E</sup>                                                      | ---  | ---  | ---          |
| AF NOISE <sup>F</sup><br>( $E_{sig} = 280mV_{ac}$ , $R_p = 2000 OHMS$ )                | ---  | 17   | $VU$         |
| LIFE TEST END POINT                                                                    | ---  | ---  | ---          |
| POWER OUTPUT                                                                           | 4.0  | ---  | WATTS        |
| TRANSCONDUCTANCE                                                                       | 4500 | ---  | $\mu MHOS$   |

## NOTES

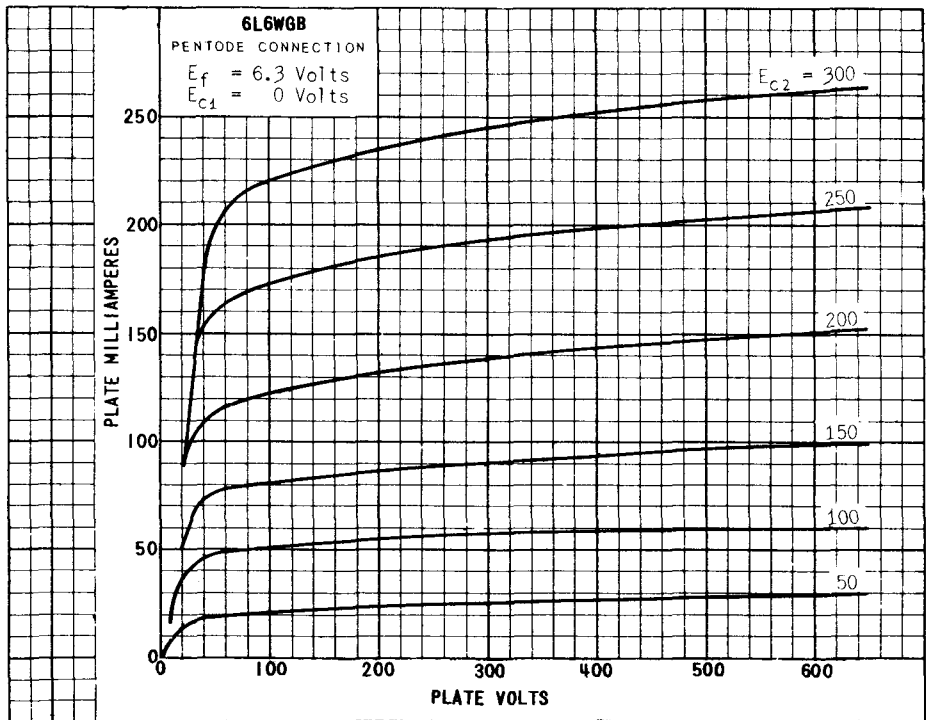
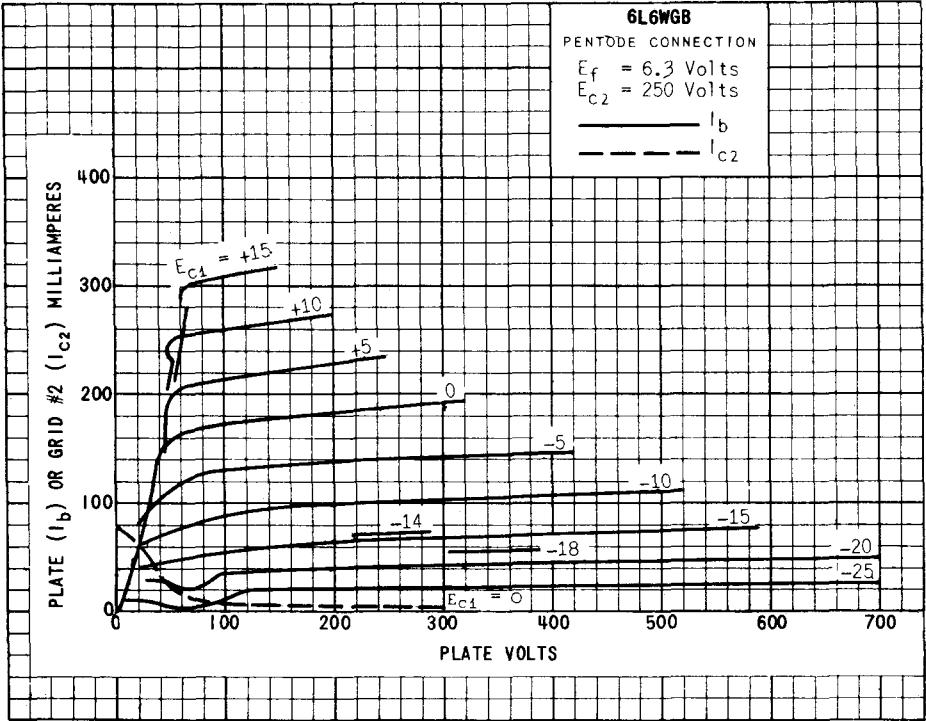
\* GRID #2 CONNECTED TO PLATE

<sup>A</sup> SEE MIL-E-1C 4.9.20.3<sup>B</sup> SEE MIL-E-1C 4.9.20.4<sup>C</sup> SEE MIL-E-1C 4.9.20.5<sup>D</sup> SEE MIL-E-1C 4.9.20.6<sup>E</sup> THE MOUNT SHALL SHOW NO PRONOUNCED MECHANICAL RESONANCE BELOW 100 CPS.<sup>F</sup> SEE MIL-E-1C 4.10.3.2

6L6WGB  
PREMIUM TUBE



# 6L6WGB PREMIUM TUBE



6L6WGB  
PREMIUM TUBE

