TUNG-SOL

PENTODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE
HEATER
3.15 VOLTS 0.6 AMP.
AC OR DC
ANY MOUNTING POSITION

BOTTOM VIEW
MINIATURE BUTTON
7 PIN BASE
TAD

THE 3CB6 IS A SHARP CUT-OFF PENTODE USING THE SMALL BUTTON SEVEN PIN MINIATURE CONSTRUCTION. IT IS DESIGNED FOR USE IN 600 MA. SERIES HEATER OPERATED RECEIVERS AS AN IF AMPLIFIER OPERATING AT FREQUENCIES ABOVE 20 MC. IT IS ALSO WELL SUITED FOR USE AS AN RF AMPLIFIER IN VHF TELEVISION RECEIVERS. IT IS CHARACTERIZED BY HIGH TRANSCONDUCTANCE AND LOW CAPACITANCE VALUES. 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 EXCEPTION OF HEATER RATINGS ITS CHARACTERISTICS ARE IDENTICAL TO THE 6CB6.

DIRECT INTERELECTRODE CAPACITANCES

<table>
<thead>
<tr>
<th>Capacitance Description</th>
<th>Without Shield</th>
<th>With Shield</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRID TO PLATE: (G4 TO P) MAX.</td>
<td>0.025</td>
<td>0.015</td>
</tr>
<tr>
<td>INPUT: G4 TO (H+G2+G3&amp;IS)</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>OUTPUT: P TO (H+G2+G3&amp;IS)</td>
<td>2.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

*EXTERNAL SHIELD #316 CONNECTED TO PIN #2.

RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEATER VOLTAGE</td>
<td>3.15 VOLTS</td>
</tr>
<tr>
<td>MAXIMUM PLATE VOLTAGE</td>
<td>330 VOLTS</td>
</tr>
<tr>
<td>MAXIMUM GRID #2 VOLTAGE</td>
<td>SEE JS-C4-2</td>
</tr>
<tr>
<td>MAXIMUM GRID #2 SUPPLY VOLTAGE</td>
<td>330 VOLTS</td>
</tr>
<tr>
<td>MAXIMUM PLATE DISSIPATION</td>
<td>2.3 WATTS</td>
</tr>
<tr>
<td>MAXIMUM GRID #2 DISSIPATION</td>
<td>0.56 WATT</td>
</tr>
<tr>
<td>MAXIMUM POSITIVE DC GRID #4 VOLTAGE</td>
<td>0 VOLTS</td>
</tr>
<tr>
<td>MAXIMUM HEATER—CATHODE VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>HEATER NEGATIVE WITH RESPECT TO CATHODE</td>
<td></td>
</tr>
<tr>
<td>TOTAL DC AND PEAK</td>
<td>200 VOLTS</td>
</tr>
<tr>
<td>HEATER POSITIVE WITH RESPECT TO CATHODE</td>
<td></td>
</tr>
<tr>
<td>DC</td>
<td>100 VOLTS</td>
</tr>
<tr>
<td>TOTAL DC AND PEAK</td>
<td>200 VOLTS</td>
</tr>
<tr>
<td>HEATER WARM-UP TIME (APPROX.)</td>
<td>11.0 SECONDS</td>
</tr>
</tbody>
</table>

†INDICATES A CHANGE.

CONTINUED ON FOLLOWING PAGE
**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS**

- HEATER VOLTAGE: 5.15 VOLTS
- HEATER CURRENT: 0.6 AMP.
- PLATE VOLTAGE: 125 VOLTS
- GRID #2 VOLTAGE: 125 VOLTS
- GRID #3 VOLTAGE: 56 OHMS
- CATHODE BIAS RESISTOR: 0.28 MEGOHM
- PLATE RESISTANCE (APPROX.): 8,000 OHMS
- TRANSCONDUCTANCE: 13.0 MA.
- PLATE CURRENT: 3.7 MA.
- GRID #2 CURRENT: 6.5 VOLTS
- GRID #1 VOLTAGE (APPROX.) FOR Ip=20 MA.: 2.8 MA.
- PLATE CURRENT AT Ec1=-3V., He=0

**Design Maximum Ratings** are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur in the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life 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.

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**3686 Pentode Connection**

- \( E_f = 3.15 \text{ Volts} \)
- \( E_{c2} = 150 \text{ Volts} \)
TENTATIVE DATA

3CB6
PENTODE CONNECTION
E_f = 3.15 Volts
E_b = 200 Volts
E_c2 = 150 Volts

- - - - I_b
- - - - I_c2
- - - - g_m

PLATE (I_b) OR GRID #2 (I_c2) MILLIAMPERES

GRID #1 VOLTS

10000
7500
5000
2500
0
TRANSCIENTANCE (g_m) - MICROMOS