TUNG-SOL

DOUBLE TRIODE
MINIATURE TYPE

CAOED UNIPOTENTIAL CATHODE

HEATER

SERIES
12.6 V OLS
500 MA.

PARALLEL
6.5 V OLS
600 MA.

ALL OR 9

FOR 5.0 VOLT OPERATION APPLY HEATER VOLTAGE BETWEEN PIN 8 AND 9. FOR
4.5 VOLT OPERATION APPLY HEATER VOLTAGE BETWEEN PIN 8 AND 9 CONNECTED TOGETHER.

ANY MOUNTING POSITION

THE 12BH7 COMBINES TWO INDEPENDENT SEMI-HIGH PERVEANCE, MEDIUM-MU TRIDGES IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS SUITABLE FOR USE AS A
COMBINED VERTICAL DEFLECTION CRT TN GENERATOR AND DEFLECTION AMPLIFIER IN
TELEVISION RECEIVERS USING PICTU RE TUBES WITH WIDE DEFLECTION ANGLES.

DIRECT INTERELECTRODE CAPACITANCES

WITH SHIELD

WITHOUT SHIELD

TRIODE UNIT #1
GRID TO PLATE: (G TO P) 2.4 2.4 μF
INPUT: G TO (H+K) 2 2 μF
OUTPUT: P TO (H+K) 2 0.8 μF

TRIODE UNIT #2
GRID TO PLATE: (G TO P) 2.4 2.4 μF
INPUT: G TO (H+K) 2 2 μF
OUTPUT: P TO (H+K) 2 0.8 μF
COUPLING: (SP TO 2P) 0.6 0.9 μF

* WITH SHIELD #35 CONNECTED TO CATHODE OF UNIT UNDER TEST.

RATINGS

INTERPRETED ACCORDING TO NMA STANDARD NR-410

HEATER VOLTAGE

CLASS A1 VERTICAL DEFLECTION
AMPLIFIER AMPLIFIER

12.6 6.5 12.6 6.5 VOLTS

MAXIMUM PEAK HEATER-CATHODE VOLTAGE 110 180 VOLTS

MAXIMUM DC PLATE VOLTAGE 300 500 VOLTS

MAXIMUM PEAK POSITIVE PULSE PLATE VOLTAGE --- 1 500B VOLTS

MAXIMUM NEGATIVE DC GRID VOLTAGE --- -50 VOLTS

MAXIMUM PEAK NEGATIVE PULSE GRID VOLTAGE --- -220B VOLTS

MAXIMUM PLATE DISSIPATION (EACH UNIT) 3.5 5 VOLTS

MAXIMUM DC CATHODE CURRENT (SELF BIAS) 20 20 MA.

MAXIMUM GRID CIRCUIT RESISTANCE (FUSED BIAS) 2.5 2.5 MEGOHMS

MEGOHMS

THESE RATINGS ARE THE ABSOLUTE MAXIMUM MUNI; ABSOLUTE MAXIMUM RATINGS ARE THE LIMITING
VALUES ABOVE WHICH THE SERVICABILITY OF THE TUBE MAY BE IMPAIRED FROM THE VIEWPOINT OF LIFE
AND SATISFACTORY PERFORMANCE. THEREFORE, IN ORDER NOT TO EXCEED THESE ABSOLUTE RATINGS, THE
DEVICE DESIGNER HAS THE RESPONSIBILITY OF DETERMINING AN AVERAGE DESIGN VALUE FOR EACH
RATING BELOW THE ABSOLUTE VALUE OF THAT RATING BY AN AMOUNT SUCH THAT THE ABSOLUTE VALUES WILL
NEVER BE EXCEEDED UNDER ANY USUAL CONDITION OF LINE VOLTAGE VARIATION, MANUFACTURING VARIATIONS
INCLUDING COMPONENTS IN THE EQUIPMENT ITSELF, OR ADJUSTMENTS OF CONTROLS.

CONTINUED ON FOLLOWING PAGE
## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

**CLASS A1 AMPLIFIER**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>12.6</th>
<th>6.3</th>
<th>12.6</th>
<th>6.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>12.6</td>
<td>6.3</td>
<td>12.6</td>
<td>6.3</td>
</tr>
<tr>
<td>Heater Current</td>
<td>500</td>
<td>600</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Plate Voltage</td>
<td>85</td>
<td>250</td>
<td>10.5</td>
<td>11.5</td>
</tr>
<tr>
<td>Grid Voltage</td>
<td>0</td>
<td>10.5</td>
<td>10.5</td>
<td>11.5</td>
</tr>
<tr>
<td>Plate Current (Each Unit)</td>
<td>20</td>
<td>11.5</td>
<td>20</td>
<td>11.5</td>
</tr>
<tr>
<td>Transconductance (Each Unit)</td>
<td>6200</td>
<td>3100</td>
<td>6200</td>
<td>3100</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>21</td>
<td>17</td>
<td>21</td>
<td>17</td>
</tr>
</tbody>
</table>

For $I_b = 10 mA$ at $E_b = 500$:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid Voltage (Approx.)</td>
<td>-45</td>
</tr>
</tbody>
</table>

### VERTICAL DEFLECTION CIRCUIT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>12.6</td>
</tr>
<tr>
<td>Heater Current</td>
<td>300</td>
</tr>
<tr>
<td>DC Plate Voltage</td>
<td>350</td>
</tr>
<tr>
<td>Cathode Bias Resistor (Variable)</td>
<td>560</td>
</tr>
<tr>
<td>Grid Input Voltage:</td>
<td></td>
</tr>
<tr>
<td>Peak to Peak Sawtooth Component</td>
<td>25</td>
</tr>
<tr>
<td>Negative Peaking Component (Approx.)</td>
<td>32</td>
</tr>
<tr>
<td>DC Plate Current</td>
<td>16</td>
</tr>
</tbody>
</table>

### PLATE OUTPUT VOLTAGE:

- Peak Positive Component: 670 Volts
- Peak to Peak Sawtooth Component: 230 Volts

### SWEEP HEIGHT (16RP4 OR 16TP4 TUBE WITH 14KV ON ANODE):

10½ INCHES

C See Circuit on Following Page.