TWIN PENTODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE
HEATER
6.3±0.6 VOLTS  300 MA.
AC OR DC
ANY MOUNTING POSITION

THE 6BU8 IS A MINIATURE MULTISECTION TUBE WHICH INCORPORATES SEPARATE PLATES AND NUMBER 3 GRIDS FOR THE TWO SECTIONS TOGETHER WITH A COMMON SCREEN, NUMBER 1 GRID, AND CATHODE. THE TUBE IS INTENDED FOR USE AS A COMBINED SYNC-AGC TUBE IN TELEVISION RECEIVERS. IN THIS SERVICE, WHEN USED IN CONJUNCTION WITH SUITABLE CIRCUITY, ONE SECTION OF THE 6BU8 FUNCTIONS AS SYNC SEPARATOR AND SYNC CLIPPER, WHILE THE OTHER SECTION IS USED TO GENERATE THE AUTOMATIC-GAIN-CONTROL VOLTAGE. IN ADDITION, BY UTILIZING THE COMMON, #1 GRID, NOISE PULSES CAN BE SUPPRESSED FROM BOTH SYNCHRONIZING AND AUTOMATIC-GAIN-CONTROL CIRCUITS. EXCEPT FOR HEATER RATINGS, THE 6BU8 IS IDENTICAL TO THE 3BU8.

DIRECT INTERELECTRODE CAPACITANCES — APPROX.

WITHOUT EXTERNAL SHIELD

GRID #3 TO PLATE, (EACH SECTION) 1.9 pf
GRID #1 TO ALL 6.0 pf
GRID #3 TO ALL (EACH SECTION) 3.6 pf
PLATE TO ALL (EACH SECTION) 3.0 pf
GRID #3 (SECTION 1) TO GRID #3 (SECTION 2) MAX. 0.015 pf

RATINGS

—> DESIGN MAXIMUM VALUES — SEE EIA STANDARD RS-239

MAXIMUM PLATE VOLTAGE (EACH SECTION) 300 VOLTS
MAXIMUM SCREEN VOLTAGE 150 VOLTS
MAXIMUM POSITIVE DC GRID #3 VOLTAGE (EACH SECTION) 3.0 VOLTS
MAXIMUM NEGATIVE DC GRID #3 VOLTAGE (EACH SECTION) 50 VOLTS
MAXIMUM PEAK POSITIVE GRID #3 VOLTAGE (EACH SECTION) 50 VOLTS
MAXIMUM NEGATIVE DC GRID #1 VOLTAGE 50 VOLTS
MAXIMUM PLATE DISSIPATION (EACH SECTION) 1.1 WATTS
MAXIMUM SCREEN DISSIPATION 0.75 WATTS
MAXIMUM DC CATHODE CURRENT 12 MA.

CONTINUED ON FOLLOWING PAGE

—> INDICATES A CHANGE.
### TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

**Both Sections Operating**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage (Each Section)</td>
<td>100</td>
<td>100</td>
<td>Volts</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>67.5</td>
<td>67.5</td>
<td>Volts</td>
</tr>
<tr>
<td>Grid #3 Voltage (Each Section)</td>
<td>-10</td>
<td>0</td>
<td>Volts</td>
</tr>
<tr>
<td>Grid #1 Voltage</td>
<td>**</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Plate Current (Each Section)</td>
<td>2.2</td>
<td></td>
<td>MA</td>
</tr>
<tr>
<td>Screen Current</td>
<td>6.5</td>
<td>3.3</td>
<td>MA</td>
</tr>
<tr>
<td>Cathode Current</td>
<td>6.6</td>
<td>7.8</td>
<td>MA</td>
</tr>
</tbody>
</table>

Each section separately

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<tr>
<th>Description</th>
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<th>Unit</th>
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<td>0</td>
<td>0</td>
<td>Volts</td>
</tr>
<tr>
<td>Grid #1 Voltage</td>
<td>**</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Grid #3 Transconductance</td>
<td>---</td>
<td>180</td>
<td>μMhos</td>
</tr>
<tr>
<td>Grid #1 Transconductance</td>
<td>1500</td>
<td>---</td>
<td>μMhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>---</td>
<td>2.2</td>
<td>MA</td>
</tr>
<tr>
<td>Grid #3 Voltage (Approx.) Ib=100mAmps</td>
<td>---</td>
<td>-4.5</td>
<td>Volts</td>
</tr>
<tr>
<td>Grid #1 Voltage (Approx.) Ib=100mAmps</td>
<td>---</td>
<td>2.3</td>
<td>Volts</td>
</tr>
</tbody>
</table>

*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.

**With grid current adjusted for 200 μAmps D-C.

A With plate and grid #3 of opposite section grounded.

### Notes
- Design: Maximum ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur. To obtain satisfactory circuit performance, therefore, the equipment designer must establish the circuit design so that 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.

### Similar Type Reference
Except for heater ratings and heater warm-up time the 6B84 is identical to the 3B84.
68U8

Each section separately with plate and grid #3 of opposite section grounded.

- $E_f = 6.3$ Volts
- $E_{C_2} = 67.5$ Volts
- $E_{C_4} = 0.1$ Ma.

![Graph 1](image)

68U8

Each section separately with plate and grid #5 of opposite section grounded.

- $E_f = 6.3$ Volts
- $E_{C_3} = 0$ Volts
- $E_{C_2} = 67.5$ Volts
- $E_{C_4} = +1.0$ Volts

![Graph 2](image)
6BU8

EACH SECTION SEPARATELY WITH PLATE AND GRID #3 OF OPPOSITE SECTION GROUNDED

E_f = 6.3 Volts
E_c3 = 0 Volts
E_c2 = 67.5 Volts

I_c4 = 0.5 mA.
0.25
0.10
0.06
0.05
0.01

PLATE (b) CURRENT - MILLIAMPERES

PLATE VOLTS

6BU8

BOTH SECTIONS OPERATING

E_f = 6.3 Volts
E_b = 100 Volts (Ea. Sec.)
E_c2 = 67.5 Volts
I_c4 = 0.1 Milliamperes

NOTE:
CURVES ALSO APPLY WHEN SECTIONS ARE REVERSED.

I_c2 @ E_c3 (Section 2) = -5.0 Volts
-4.0
-3.0
-2.0
-1.0
0

I_b (Section 2) @ E_c3 (Section 2) = 0
-1.0
-2.0
-3.0
-4.0

I_b (Section 1) @ E_c3
-1.0
-2.0
-3.0

PLATE (b) OR SCREEN (I_c2) CURRENT - MILLIAMPERES

GRID #3 VOLTS (SECTION 1)
6BU8

EACH SECTION SEPARATELY WITH PLATE AND GRID #3 OF OPPOSITE SECTION GROUNDED

- $E_f = 6.3$ Volts
- $E_{C2} = 67.5$ Volts
- $I_{C4} = 0.1$ Ma.

GRID #2 MILLIAMPERES

GRID #3 MILLIAMPERES

PLATE VOLTS

6BU8

EACH SECTION SEPARATELY WITH PLATE AND GRID #3 OF OPPOSITE SECTION GROUNDED

- $E_f = 6.3$ Volts
- $E_{C3} = 0$ Volts
- $E_{C2} = 67.5$ Volts

$E_{C4} = +1.0$ Volts

SCREEN CURRENT - MILLIAMPERES

PLATE VOLTS
6BU8

BOTH SECTIONS OPERATING

$E_f = 6.3$ Volts
$E_b = 150$ Volts (Each Section)
$E_c_3 = 0$ Volts (Each Section)

TENTATIVE DATA
6BU8

Each section separately with plate and grid #3 of opposite section grounded:

- $E_f = 6.3\text{ Volts}$
- $E_b = 150\text{ Volts}$
- $E_{c3} = 0\text{ Volts}$

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TUNG-SOL ELECTRIC INC. ELECTRON TUBE DIVISION BLOOMFIELD, NEW JERSEY, U.S.A. APRIL 1, 1956 PLATE #610
6BU8

**EACH SECTION SEPARATELY WITH PLATE AND GRID #3 OF OPPOSITE SECTION GROUNDED**

\[ E_p = 6.3 \text{ Volts} \]
\[ E_b = 150 \text{ Volts} \]
\[ E_{C3} = 0 \text{ Volts} \]

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**6BU8**

**BOTH SECTIONS OPERATING**

\[ E_p = 6.3 \text{ Volts} \]
\[ E_b = 150 \text{ Volts (Each Section)} \]
\[ E_{C3} = 0 \text{ Volts (Each Section)} \]