6BR8 — 5BR8
TRIODE-PENTODE
FOR VHF CONVERTER APPLICATIONS

DESCRIPTION AND RATING

The 6BR8 is a miniature tube which contains a sharp-cutoff pentode and a medium-mu triode in one envelope. It is intended primarily for service as a combined triode oscillator and pentode mixer in VHF television tuners although the tube is also suitable for a wide variety of general-purpose applications in both monochrome and color television receivers. Except for basing arrangement and direct interelectrode capacitances, the 6BR8 is identical to the 6U8.

The 5BR8 is a 600-milliampere version of the 6BR8 which differs only in heater ratings. The 5BR8 exhibits a controlled heater warm-up characteristic which makes it particularly suited for use in television receivers which employ 600-milliampere series-connected heaters.

GENERAL

ELECTRICAL
Cathode—Coated Unipotential
Heater Voltage, AC or DC .................. 4.7  6.3  Volts
Heater Current ................................ 0.6  0.45  Amperes
Heater Warm-up Time* .................... 11  0.1  Seconds

With† Without
Direct Interelectrode Capacitances
Shield Shield
Pentode Section
  Grid-Number 1 to Plate, maximum ....... 0.008  0.015  µµf
  Input .......................................... 5.0  5.0  µµf
  Output ......................................... 3.5  2.6  µµf
Triode Section
  Grid to Plate ................................ 1.8  1.8  µµf
  Input .......................................... 2.5  2.5  µµf
  Output ......................................... 1.0  0.4  µµf
  Heater to Cathode, Each Section ...... 3.0‡  3.0  µµf

MECHANICAL
Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES
Plate Voltage ............................ 300  300  Volts
Screen-Supply Voltage ................ 300  300  Volts
Screen Voltage—See Screen Rating Chart
Positive DC Grid-Number 1 Voltage ........... 0  0  Volts
Plate Dissipation ......................... 2.8  2.7  Watts
Screen Dissipation ...................... 0.5  0.5  Watts
Heater-Cathode Voltage
  Heater Positive with Respect to Cathode .. 200  200  Volts
  Heater Negative with Respect to Cathode .. 200  200  Volts
CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pentode Section</th>
<th>Triode Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>250</td>
<td>150 Volts</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>110</td>
<td>... Volts</td>
</tr>
<tr>
<td>Cathode-Bias Resistor</td>
<td>68</td>
<td>56 Ohms</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>400000</td>
<td>5000 Ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>5200</td>
<td>8500 Micromhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>10</td>
<td>18 Milliamperes</td>
</tr>
<tr>
<td>Screen Current</td>
<td>3.5</td>
<td>... Milliamperes</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
<td>$I_b = 10$ Microamperes</td>
<td>-10 -12 Volts</td>
</tr>
</tbody>
</table>

* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals (V) to increase from zero to the heater test voltage (V1). For this type, E1 = 18.7 volts (RMS or DC), V1 = 3.73 volts (RMS or DC), and R = 23.5 ohms.

† With external shield (RETMA 315) connected to cathode of section under test unless otherwise indicated.

‡ With external shield (RETMA 315) connected to ground.

AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

$E_1 = RATED VALUE$
AVERAGE TRANSFER CHARACTERISTICS
PENTODE SECTION

$E_f = \text{RATED VALUE}$
$E_b = 250 \text{ VOLTS}$

GRID NUMBER 1 VOLTAGE IN VOLTS

SCREEN CURRENT IN MILLIAMPERES

AVERAGE TRANSFER CHARACTERISTICS
PENTODE SECTION

$E_f = \text{RATED VALUE}$
$E_b = 250 \text{ VOLTS}$

GRID NUMBER 1 VOLTAGE IN VOLTS

TRANSCONDUCTANCE IN MICROHMS