6HA5
TRIODE
FOR VHF RF AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6HA5 is a miniature triode designed particularly for service in VHF television tuners as a grounded-cathode rf amplifier.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential
Heater Characteristics and Ratings
Heater Voltage, AC or DC* ... 6.3±0.6 Volts
Heater Current* ... 0.18 Amperes
Direct Interelectrode Capacitances§
Grid to Plate: (g to p). ... 0.36 pf
Input: g to (h + k + i.s.) ... 4.3 pf
Output: p to (h + k + i.s.) ... 2.9 pf
Plate to Cathode: (p to k). ... 0.08 pf
Grid to Cathode: (g to k) ... 3.1 pf
Grid to Heater: (g to h), maximum 0.07 pf
Cathode to Heater: (k to h) ... 2.3 pf

MECHANICAL

Operating Position - Any
Envelope - T-5 1/2, Glass
Base - E7-1, Miniature Button 7-Pin
Outline Drawing - EIA 5-1
Maximum Diameter ... 0.750 Inches
Maximum Over-all Length ... 1.750 Inches
Maximum Seated Height ... 1.500 Inches

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES
Plate Voltage ... 220 Volts
Negative DC Grid Voltage ... 50 Volts
Plate Dissipation ... 2.6 Watts
DC Cathode Current ... 22 Milliamperes
Heater-Cathode Voltage
Heater Positive with Respect to Cathode ... 110 Volts
Heater Negative with Respect to Cathode ... 110 Volts
Grid Circuit Resistance ... 1.0 Megohms

PHYSICAL DIMENSIONS

TERMINAL CONNECTIONS

Pin 1 - Grid
Pin 2 - Cathode
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Internal Shield
Pin 7 - Cathode

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MAXIMUM RATINGS (Cont’d)

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

**AVERAGE CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Plate Voltage</th>
<th>Grid Voltage</th>
<th>Plate Current</th>
<th>Transconductance</th>
<th>Amplification Factor</th>
<th>Input Conductance at 200 Mc</th>
<th>Output Conductance at 200 Mc</th>
<th>Grid Voltage, approximate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>135</td>
<td>-1.0</td>
<td>11.5</td>
<td>14500</td>
<td>72</td>
<td>1500</td>
<td>200</td>
<td>Ic = 0.3 Microamperes</td>
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<td>1500</td>
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<td></td>
<td>Volts</td>
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<td>Milliamperes</td>
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**AVERAGE CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Plate Supply Voltage</th>
<th>Plate Load Resistance</th>
<th>Cathode-Bias Resistor</th>
<th>DC Grid Current</th>
<th>Plate Current</th>
<th>Transconductance</th>
<th>Amplification Factor</th>
<th>Grid Voltage, approximate</th>
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<td>1000</td>
<td>0</td>
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<td>19</td>
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<td>80</td>
<td>Gm = 1450 Micromhos</td>
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<td>87</td>
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<td>19</td>
<td>20000</td>
<td>80</td>
<td>Gm = 2000 Micromhos</td>
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<td>5600</td>
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<td>11.5</td>
<td>14500</td>
<td>72</td>
<td>Gm = 145 Micromhos</td>
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<td>Ohms</td>
<td>Ohms</td>
<td>---</td>
<td>Milliamperes</td>
<td>Micromhos</td>
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<td>Gm = 200 Micromhos</td>
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NOTES

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

† Heater current of a bogey tube at Ef = 6.3 volts.

§ With external shield.