GENERAL DESCRIPTION

Application: The Hytron 6K7-GT is a cathode type super-control pentode primarily designed for amplifier service in radio or intermediate frequency circuits. It may also be used as a mixer tube in superheterodyne circuits. An internal shield is connected to cathode within the tube.

The Hytron 6K7-GT is a glass tube equipped with a small octal base and may be used interchangeably with the Hytron 6K7 glass tube.

Physical Characteristics: Bulb T-9C

RATING AND CHARACTERISTICS

Heater:
Voltage Current 6.3 Volts AC or DC 0.3 Ampere

Note: Voltage between heater and cathode should be kept at a minimum if direct connection is not possible.

AMPLIFIER OPERATION (CLASS A)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>90</td>
<td>180</td>
<td>250</td>
<td>250 Max. Volts</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>90</td>
<td>75</td>
<td>100</td>
<td>125 Max. Volts</td>
</tr>
<tr>
<td>Grid Voltage</td>
<td>-3</td>
<td>-3</td>
<td>-3</td>
<td>- Min. Volts</td>
</tr>
<tr>
<td>Suppressor Screen</td>
<td>Connected to Cathode at Socket</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plate Current</td>
<td>5.4</td>
<td>4.9</td>
<td>7.0</td>
<td>10.5 Milliamperes</td>
</tr>
<tr>
<td>Screen Current</td>
<td>1.5</td>
<td>1.0</td>
<td>1.7</td>
<td>2.6 Milliamperes</td>
</tr>
<tr>
<td>Plate Resistance</td>
<td>0.315</td>
<td>1.0</td>
<td>0.8</td>
<td>0.6 Megohm</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>400</td>
<td>1100</td>
<td>1160</td>
<td>980 Micromhos</td>
</tr>
<tr>
<td>Mutual Conductance</td>
<td>1575</td>
<td>1100</td>
<td>1450</td>
<td>1650</td>
</tr>
<tr>
<td>Grid Voltage</td>
<td>-38.5</td>
<td>-32.5</td>
<td>-42.5</td>
<td>-52.5 Volts</td>
</tr>
</tbody>
</table>

* Mutual Conductance = 2 Micromhos.

MIXER OPERATION (VARIABLE BIAS)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>250 Max. Volts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>100</td>
<td>Approx. Volts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid Voltage</td>
<td>-10</td>
<td>Connected to Cathode at Socket.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppressor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Values shown are optimum. Grid voltage is minimum for 7 volts peak oscillator voltage.

Direct Interelectrode Capacitances:

<table>
<thead>
<tr>
<th>Capacitance</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid No. 1 to Plate</td>
<td>0.007</td>
<td>μuf. Max.</td>
</tr>
<tr>
<td>Grid No. 1 to all other electrodes</td>
<td>4.5</td>
<td>μuf.</td>
</tr>
<tr>
<td>Plate to all other electrodes</td>
<td>11.0</td>
<td>μuf.</td>
</tr>
</tbody>
</table>

*With shield can.

from RMA release #134, April 11, 1938

Note: For characteristic curves refer to the type 6K7G
MECHANICAL DATA

Coated unipotential cathode

Outline drawing: 9-18

Bulb: T-9

Base: B7-27 small wafer octal 7-pin, metal sleeve

Cap.: Cl-3 skirted miniature

Maximum diameter: 1-5/16"

Maximum overall length: 3-5/16"

Maximum seated height: 2-3/4"

Pin connections:

Pin 1 - Base sleeve
Pin 2 - Heater
Pin 3 - Plate
Pin 4 - Grid #2
Pin 5 - Grid #3
Pin 7 - Heater
Pin 8 - Cathode, shield
Cap - Grid #1

Mounting position: any

ELECTRICAL DATA

Direct Interelectrode Capacitances*

Grid to plate: g1 to p (max.) 0.005 μf

Input: g1 to (h+k+g2+g3+b.s.+i.s.) 4.6 μf

Output: p to (h+k+g2+g3+b.s.+i.s.) 12 μf

*Pin 1 and external shield #308 connected to pin 8

Ratings

Heater voltage (ac or dc) 6.3 volts
Maximum plate voltage 300 volts
Maximum grid #2 supply voltage 300 volts
Maximum grid #2 voltage See J5-C4
Maximum heater-cathode voltage 90 volts
Maximum plate dissipation 2.75 watts
Maximum grid #2 dissipation 0.35 watts
Maximum positive d-c grid #1 voltage 0 volts

Typical Operating Conditions and Characteristics

Heater voltage (ac or dc) 6.3 6.3 6.3 volts
Heater current 300 300 300 ma
Plate voltage 100 250 250 volts
Grid #3 voltage Pin #5 connected to pin #8 at socket
Grid #2 voltage 100 100 125 volts
Grid #1 voltage -1 -3 -3 volts
Plate resistance (approx.) 0.15 0.8 0.6 megohm
Transconductance 1650 1650 1650 μhos
Plate current .95 7.0 10.5 ma
Grid #2 current 2.7 1.7 2.6 ma
Grid #1 voltage for gm = 2 μhos (approx.) -38.5 -42.5 -52.5 volts

Refer to "Interpretation of Receiving Tube Ratings"