6SJ7, 6SJ7-GT
SHARP-CUTOFF PENTODE

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:
Voltage: 6.3 ac or dc volts
Current: 0.3 amp

Direct Interelectrode Capacitances:

<table>
<thead>
<tr>
<th>Pentode Connection</th>
<th>6SJ7</th>
<th>6SJ7-GT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid No.1 to Plate</td>
<td>0.005 max.</td>
<td>0.005 max.</td>
</tr>
<tr>
<td>Input</td>
<td>6 (\mu F)</td>
<td>7 (\mu F)</td>
</tr>
<tr>
<td>Output</td>
<td>7 (\mu F)</td>
<td>7 (\mu F)</td>
</tr>
<tr>
<td>Triode Connection:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid No.1 to Plate</td>
<td>2.8 (\mu F)</td>
<td>2.8 (\mu F)</td>
</tr>
<tr>
<td>Grid No.1 to Cathode</td>
<td>3.4 (\mu F)</td>
<td>3.4 (\mu F)</td>
</tr>
<tr>
<td>Plate to Cathode</td>
<td>11 (\mu F)</td>
<td>11 (\mu F)</td>
</tr>
</tbody>
</table>

* With grid No.2 and grid No.3 connected to plate.

Mechanical:
Mounting Position: Any
Maximum Overall Length: 2-5/8" 3-5/16"
Maximum Seated Length: 2-1/16" 2-3/4"
Maximum Diameter: 1-5/16" 1-5/16"
Bulb: Metal Shell, MTBG T-9
Base: Octal 8-Pin | 8-Pin, Sleeve
Basing Designation: 8N | GT-8N

BOTTOM VIEW

Pin 1: 6SJ7, Shell 6SJ7-GT, Base Sleeve
Pin 2: Heater
Pin 3: Grid No.3
Pin 4: Grid No.1
Pin 5: Cathode
Pin 6: Grid No.2
Pin 7: Heater
Pin 8: Plate

AMPLIFIER—Class A

Pentode Connection

Maximum Ratings, Design-Center Values:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>300 max. volts</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN) VOLTAGE</td>
<td>125 max. volts</td>
</tr>
<tr>
<td>GRID-No.2 SUPPLY VOLTAGE</td>
<td>300 max. volts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>2.5 max. watts</td>
</tr>
<tr>
<td>GRID-No.2 DISSIPATION</td>
<td>0.7 max. watt</td>
</tr>
<tr>
<td>GRID-No.1 (CONTROL-GRID) VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Positive bias value</td>
<td>0 max. volts</td>
</tr>
<tr>
<td>PEAK HEATER-CATHODE VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>90 max. volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>90 max. volts</td>
</tr>
</tbody>
</table>

Indicates a change.

JUNE 15, 1948
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
6SJ7, 6SJ7-GT
SHARP-CUTOFF PENTODE

Typical Operation and Characteristics:
Plate voltage ........................................... 100 250 volts
Grid No.3 (Suppressor) : Connected to cathode at socket
Grid-No.2 Voltage ..................................... 100 100 volts
Grid-No.1 Voltage ..................................... -3 -3 volts
Plate Resistance (Approx.) ......................... 0.7 # megohm
Transconductance .................................... 1575 1650 mmhos
Grid-No.1 Bias (Approx.) for plate current of 10 µamp ........... -8 -8 volts
Plate Current .......................................... 2.9 3.0 ma
Grid-No.2 Current .................................... 0.9 0.8 ma

Maximum Circuit Values:
Grid-No.1-Circuit Resistance ....................... 1 max. megohm

AMPLIFIER - Class A

Triode Connection - Grids No.2 and No.3 Connected to Plate

Maximum Ratings, Design-Center Values:
PLATE VOLTAGE ........................................ 250 max. volts
PLATE DISSIPATION (Total) ......................... 2.5 max. watts
GRID-No.1 VOLTAGE:
Positive bias value ................................... 0 max. volts

PEAK HEATER-CATHODE VOLTAGE:
Heater negative with respect to cathode. 90 max. volts
Heater positive with respect to cathode. 90 max. volts

Typical Operation and Characteristics:
Plate Voltage .......................................... 180 250 volts
Grid-No.1 Voltage .................................... -6 -8.5 volts
Amplification Factor .................................. 19 19
Plate Resistance (Approx.) ......................... 8250 7600 ohms
Transconductance ................................... 2300 2500 mmhos
Plate Current ......................................... 6.0 9.2 ma

Maximum Circuit Values:
Grid-No.1-Circuit Resistance ....................... 1 max. megohm

# Greater than 1 megohm.

For additional data, see RESISTANCE-COUPLED AMPLIFIER CHART at the front of this Section

JUNE 15, 1948
6SJ7

AVERAGE PLATE CHARACTERISTICS
PENTODE CONNECTION

\[ E_C = 6.3 \text{ VOLTS} \]
\[ \text{GRID-N°2 VOLTS} = 100 \]
\[ \text{GRID-N°3 VOLTS} = 0 \]

PLATE (I_b) OR GRID-N°2 (I_C2) MILLIAMPERES

OCT. 16, 1947 TUBE DEPARTMENT 92CM-4939RI
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
### Average Characteristics

**Pentode Connection**

- $E_f = 6.3$ Volts
- Plate Volts = 300
- Grid-N°3 Volts = 0

<table>
<thead>
<tr>
<th>CURVE</th>
<th>GRID-N°2 SUPPLY VOLTS</th>
<th>SERIES GRID-N°2 RESISTOR-OHMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>300</td>
<td>250000</td>
</tr>
</tbody>
</table>

### Graphs

- **Graph 1:** Grid-N°1 Volts ($E_{C1}$) vs. Grid-N°2 Milliamperes
- **Graph 2:** Grid-N°2 Milliamperes vs. Plate Milliamperes

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**MARCH 5, 1948**

**Tube Department**

**Radio Corporation of America, Harrison, New Jersey**

**92CM-6443R1**
AVG CHARACTHERISTICS
PENTODE CONNECTION

E_f = 6.3 VOLTS
GRID-N#3 VOLTS = 0
GRID-N#2 VOLTS = 100
PLATE VOLTS = 250

TRANSCONDUCTANCE (g_m) MICROMOHMS
500 2
1000 4
1500 6
2000 8
2500 10

PLATE (I_b) OR GRID-N#2 (I_c2) MILLIAMPERES

GRID-N#1 VOLTS
-10 -8 -6 -4 -2 0

MARCH 5, 1948
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
92CM-4937RI
6SJ7
AVERAGE PLATE CHARACTERISTICS
TRIODE CONNECTION

Eₚ = 6.3 VOLTS
GRIDS #2 & #3 CONNECTED TO PLATE