**6K6-GT**

**POWER PENTODE**

### GENERAL DATA

**Electrical:**
- Heater, for Unipotential Cathode:
  - Voltage: 6.3 ac or dc volts
  - Current: 0.4 amp

*Direct Interelectrode Capacitances (Approx.):*
- Grid No.1 to plate: 0.5 μf
- Grid No.1 to cathode & grid No.3, grid No.2, and heater: 5.5 μf
- Plate to cathode & grid No.3, grid No.2, and heater: 6 μf

**Mechanical:**
- Mounting Position: Any
- Maximum Overall Length: 3-5/16”
- Maximum Seated Length: 2-3/4”
- Maximum Diameter: 1-9/32”
- Dimensional Outline: See General Section
- Bulb: Intermediate-Shell Octal 7-Pin (JETEC No. B7-7), Short Intermediate-Shell Octal 7-Pin with External Barriers (JETEC No. B7-59), Intermediate-Shell Octal 6-Pin (JETEC No. B6-81), Short Intermediate-Shell Octal 6-Pin with External Barriers (JETEC No. B6-64)
- Basing Designation for BOTTOM VIEW: 7S

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Connection</td>
<td>5</td>
<td>Grid No.1</td>
</tr>
<tr>
<td>2</td>
<td>Heater</td>
<td>6</td>
<td>Grid No.3</td>
</tr>
<tr>
<td>3</td>
<td>Plate</td>
<td>7</td>
<td>Heater</td>
</tr>
<tr>
<td>4</td>
<td>Grid No.2</td>
<td>8</td>
<td>Cathode</td>
</tr>
</tbody>
</table>

**AF POWER AMPLIFIER - Class A**

**Maximum Ratings, Design-Center Values:**
- Plate Voltage: 315 max. volts
- Grid-No.2 (Screen-Grid) Voltage: 285 max. volts
- Grid-No.1 (Control-Grid) Voltage:
  - Positive bias value: 0 max. volts
- Grid-No.2 Input: 2.8 max. watts
- Plate Dissipation: 8.5 max. watts
- Peak Heater-Cathode Voltage:
  - Heater negative with respect to cathode: 200 max. volts
  - Heater positive with respect to cathode: 200 max. volts

*Indicates a change.*

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6-56
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
# POWER PENTODE

## Typical Operation and Characteristics:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>100</td>
<td>250</td>
<td>315</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>100</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>-7</td>
<td>-18</td>
<td>-21</td>
</tr>
<tr>
<td>Peak AF Grid-No.1 Voltage</td>
<td>7</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>9.5</td>
<td>33</td>
<td>28</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>1.6</td>
<td>5.5</td>
<td>4</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current</td>
<td>9</td>
<td>32</td>
<td>25.5</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current</td>
<td>9.5</td>
<td>33</td>
<td>28</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>3</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Transconductance</td>
<td>1500</td>
<td>2300</td>
<td>2100</td>
</tr>
<tr>
<td>Load Resistance</td>
<td>12000</td>
<td>7600</td>
<td>9000</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>11</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>0.35</td>
<td>3.4</td>
<td>4.5</td>
</tr>
</tbody>
</table>

## Maximum Circuit Values:

- Grid-No.1-Circuit Resistance:
  - For fixed-bias operation: 0.1 max. megohm
  - For cathode-bias operation: 0.5 max. megohm

## PUSH-PULL AF POWER AMPLIFIER - Class A1

### Maximum Ratings, Design-Center Values:

- **PLATE VOLTAGE**: 315 max. volts
- **GRID-No.2 (SCREEN-GRID) VOLTAGE**: 285 max. volts
- **GRID-No.1 (CONTROL-GRID) VOLTAGE**:
  - Positive bias value: 0 max. volts
  - GRID-No.2 INPUT: 2.6 max. watts
  - PLATE DISSIPATION: 8.5 max. watts
- **PEAK HEATER-CATHODE VOLTAGE**:
  - Heater negative with respect to cathode: 200 max. volts
  - Heater positive with respect to cathode: 200 max. volts

### Typical Operation:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Fixed Bias</th>
<th>Cathode Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>285</td>
<td>285</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>285</td>
<td>285</td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>-25.5</td>
<td>-</td>
</tr>
<tr>
<td>Cathode Resistor</td>
<td>-</td>
<td>400</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>72</td>
<td>61</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

*See next page.*

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POWER PENTODE

\[ \text{Effective Load Resistance (Plate to plate):} \quad 12000 \quad 12000 \quad \text{ohms} \]
\[ \text{Total Harmonic Distortion:} \quad 6 \quad 4 \quad \% \]
\[ \text{Max.-Signal Power Output:} \quad 10.5 \quad 9.8 \quad \text{watts} \]

\textbf{Maximum Circuit Values:}

\begin{itemize}
  \item Grid-No.1-Circuit Resistance:
    \begin{itemize}
      \item For fixed-bias operation: \quad 0.1 max. meghohm
      \item For cathode-bias operation: \quad 0.5 max. meghohm
    \end{itemize}
\end{itemize}

\textbf{AF POWER AMPLIFIER - Class A₁}

\textit{Triode Connection - Grid No. 2 Connected to Plate}

\textbf{Characteristics:}

\begin{itemize}
  \item Plate Voltage: \quad 250 \quad \text{volts}
  \item Grid-No.1 Voltage: \quad -18 \quad \text{volts}
  \item Amplification Factor: \quad 6.8
  \item Plate Resistance (Approx.): \quad 2500 \quad \text{ohms}
  \item Transconductance: \quad 2700 \quad \mu\text{hos}
  \item Plate Current: \quad 37.5 \quad \text{ma}
  \item Grid-No.1 Voltage (Approx.) for plate current of 0.5 ma: \quad -48 \quad \text{volts}
\end{itemize}

\textbf{VERTICAL DEFLECTION AMPLIFIER}

\textit{Triode Connection - Grid No. 2 Connected to Plate}

\textbf{Maximum Ratings, Design-Center Values Except as Noted:}

\textit{For operation in a 525-line, 30-frame system:}

\begin{itemize}
  \item DC PLATE VOLTAGE: \quad 315 \quad \text{max. volts}
  \item PEAK POSITIVE-PULSE PLATE VOLTAGE (Absolute maximum): \quad 1200*max. volts
  \item PEAK NEGATIVE-PULSE GRID-No.1 VOLTAGE: \quad -250 \quad \text{max. volts}
  \item CATHODE CURRENT:
    \begin{itemize}
      \item Peak: \quad 75 \quad \text{max. ma}
      \item Average: \quad 25 \quad \text{max. ma}
    \end{itemize}
  \item PLATE DISSIPATION: \quad 7 \quad \text{max. watts}
  \item PEAK HEATER-CATHODE VOLTAGE:
    \begin{itemize}
      \item Heater negative with respect to cathode: \quad 200 \quad \text{max. volts}
      \item Heater positive with respect to cathode: \quad 200*max. volts
    \end{itemize}
\end{itemize}

\textbf{Maximum Circuit Values:}

\begin{itemize}
  \item Grid-No.1-Circuit Resistance:
    \begin{itemize}
      \item For cathode-bias operation: \quad 2.2 \quad \text{max. meghohms}
    \end{itemize}
\end{itemize}

\textit{The dc component must not exceed 100 volts.}
\textit{As described in 'Standards of Good Engineering Practice Concerning Television Broadcast Stations', Federal Communications Commission.}
\textit{This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one vertical scanning cycle. In a 525-line, 30-frame system, 15 percent of one vertical scanning cycle is 2.5 milliseconds.}
\textit{Under no circumstances should this absolute value be exceeded.}

6-56
6K6-GT
AVERAGE PLATE CHARACTERISTICS
TRIODE CONNECTION

$E_F = 6.3$ VOLTS
GRID N° 2 CONNECTED TO PLATE

PLATE (1b) OR GRID (IC) MILLIAMPERES

AUG. 18, 1941
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
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