THE 12DQ7 IS A BEAM POWER PENTODE IN THE 9 PIN MINIATURE CONSTRUCTION AND IS DESIGNED FOR USE AS THE VIDEO OUTPUT AMPLIFIER IN TELEVISION RECEIVERS. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED.

DIRECT INTERELECTRODE CAPACITANCES

GRID #1 TO PLATE (MAX.)
INPUT
OUTPUT

0.1 µµf
10.0 µµf
3.8 µµf

RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

HEATER VOLTAGE: 12.6±10% VOLTS
MAXIMUM PLATE VOLTAGE: 6.3 VOLTS
MAXIMUM SCREEN-SUPPLY VOLTAGE: 330 VOLTS
MAXIMUM SCREEN VOLTAGE: 330 VOLTS
MAXIMUM POSITIVE DC GRID #1 VOLTAGE: SEE SCREEN RATING CHART
MAXIMUM PLATE DISSIPATION: 0 VOLTS
MAXIMUM SCREEN DISSIPATION: 6.5 WATTS
MAXIMUM HEATER-CATHODE VOLTAGE:
HEATER POSITIVE WITH RESPECT TO CATHODE: 1.1 WATTS
DC COMPONENT: 100 VOLTS
TOTAL DC AND PEAK: 200 VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE: 200 VOLTS
TOTAL DC AND PEAK: 200 VOLTS
MAXIMUM GRID #1 CIRCUIT RESISTANCE:
WITH FIXED BIAS: 0.25 MEGOHMS
WITH CATHODE BIAS: 1.0 MEGOHMS
HEATER WARM-UP TIME (APPROX.)*: 11.0 SECONDS

CONTINUED ON FOLLOWING PAGE
### Typical Operating Conditions and Characteristics

**Class A\_1 Amplifier**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>12.6(\pm10%)</td>
</tr>
<tr>
<td>Heater Current</td>
<td>0.3</td>
</tr>
<tr>
<td>Plate Voltage</td>
<td>40</td>
</tr>
<tr>
<td>Suppressor</td>
<td>CONNECTED TO CATHODE AT SOCKET</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>125</td>
</tr>
<tr>
<td>Grid #1 Voltage</td>
<td>0</td>
</tr>
<tr>
<td>Cathode Bias Resistor</td>
<td>---</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>---</td>
</tr>
<tr>
<td>Transconductance</td>
<td>---</td>
</tr>
<tr>
<td>Plate Current</td>
<td>45</td>
</tr>
<tr>
<td>Screen Current</td>
<td>16</td>
</tr>
<tr>
<td>Grid #1 Voltage (Approx.)</td>
<td>---</td>
</tr>
<tr>
<td>(I_b) = 100 (\mu)Amps</td>
<td></td>
</tr>
</tbody>
</table>

\*Applied for short interval (two seconds maximum) so as not to damage tube.

\*Heater warm-up time is defined as the time required for the voltage across the heater to reach 90\% of its rated voltage after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance of value 3 times the nominal heater operating resistance.

**Design-Maximum Ratings** are limiting values of operating and environmental conditions applicable to a bovey electron device of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions. The device manufacturer chooses these values to provide acceptable serviceability of the device, taking responsibility for the effects of changes in operating conditions due to variations in device characteristics. The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bovey device under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.
AVERAGE PLATE CHARACTERISTICS

$E_f = 12.6$ Volts
$E_{C3} = 0$ Volts
$E_{C4} = 125$ Volts

GRID #1 ($I_{G1}$) MILLIAMPERES

GRID #2 ($I_{G2}$) MILLIAMPERES

PLATE VOLTS

PLATE ($I_b$) MILLIAMPERES

GRID #2 ($I_{G2}$) MILLIAMPERES

PLATE ($I_b$) VOLTS
12DQ7
AVERAGE TRANSFER CHARACTERISTICS

\[ E_f = 12.6 \text{ Volts} \]
\[ E_b = 200 \text{ Volts} \]
\[ E_{c3} = 0 \text{ Volts} \]
AVERAGE TRANSFER CHARACTERISTICS

\[ E_f = 12.6 \text{ Volts} \]
\[ E_b = 200 \text{ Volts} \]
\[ E_{CS} = 0 \text{ Volts} \]