Beam Power Tube

**DUODECAR TYPE**

**Electrical:**
Heater Characteristics and Ratings:
- Voltage (AC or DC) .......... 6.3 ± 0.6 volts
- Current at heater volts = 6.3 .... 1.200 amp
- Peak heater-cathode voltage:
  - Heater negative with respect to cathode. 200 max. volts
  - Heater positive with respect to cathode. 200 max. volts

Direct Interelectrode Capacitances (Approx): b
- G1 to P .... 0.6 pf
- Input: G1 to (K+G3,G2,H) .... 16 pf
- Output: P to (K+G3,G2,H) .... 7.0 pf

**Mechanical:**
- Operating Position .......... Any
- Type of Cathode ..... Coated Unipotential
- Maximum Overall Length .......... 3.625" **
- Seated Length ........ 2.000" to 2.250"**
- Diameter ........ 1.437" to 1.563"
- Dimensional Outline ........ See General Section
- Bulb .......... T12
- Cap. .......... Skirted Miniature (JEDEC No.C1-3)
Base .......... Large-Button Duodecar 12-Pin (JEDEC No.E12-74)
- Basing Designation for BOTTOM VIEW .......... 12DR

![Diagram of Beam Power Tube]

**Characteristics, Class A1 Amplifier:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>5000</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>150</td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>-</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>-</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>18000</td>
</tr>
<tr>
<td>Transconductance</td>
<td>7300</td>
</tr>
<tr>
<td>Plate Current</td>
<td>345</td>
</tr>
<tr>
<td>Grid-No.2 Current</td>
<td>27</td>
</tr>
<tr>
<td>Grid-No.1 Voltage (Approx.) for plate ma. = 1</td>
<td>-100</td>
</tr>
</tbody>
</table>

**Triode Connection**

<table>
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<tr>
<th>Source</th>
<th>Plate Voltage Connection</th>
</tr>
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<tbody>
<tr>
<td>Plate</td>
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<tr>
<td>Grid-No.2</td>
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</tr>
<tr>
<td>Grid-No.1</td>
<td>150 volts</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>- 4.4</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>18000 ohms</td>
</tr>
<tr>
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<td>7300 μmhos</td>
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</table>
HORIZONTAL-DEFLECTION AMPLIFIER

Maximum Ratings, Design-Maximum Values:

For operation in a 525-line, 30-frame system:

- DC Plate-Supply Voltage: 770 max. volts
- Peak Positive-Pulse Plate Voltage: 6500 max. volts
- Peak Negative-Pulse Plate Voltage: 1500 max. volts
- DC Grid-No.2 (Screen-Grid) Voltage: 220 max. volts
- DC Grid-No.1 (Control-Grid) Voltage: -55 max. volts
- Peak Negative-Pulse Grid-No.1 Voltage: 330 max. volts

Cathode Current:
- Peak: 550 max. ma
- Average: 175 max. ma

- Grid-No.2 Input: 3.5 max. watts
- Plate Dissipation: 17.5 max. watts

- Bulb Temperature (At hottest point on bulb surface): 220 max. °C

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:
- For grid-resistor-bias operation: 1 max. megohm

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\[a\] The dc component must not exceed 100 volts.
\[b\] Without external shield.
\[c\] With grid No.2 connected to plate.
\[d\] This value can be measured by a method involving a recurrent wave form such that the maximum ratings of the tube will not be exceeded.
\[e\] As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
\[f\] This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.
\[g\] An adequate bias resistor or other means is required to protect the tube in the absence of excitation.