7027
BEAM POWER TUBE
For high-fidelity audio-amplifier applications

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:
  Voltage .................. 6.3 ................ ac or dc volts
  Current .................. 0.9 ................ amp
Direct Interelectrode Capacitances:
  Grid No.1 to plate. ........ 1.5 μf
  Grid No.1 to cathode & grid No.3, grid No.2, and heater ........ 10 μf
  Plate to cathode & grid No.3, grid No.2, and heater ........ 7.5 μf

Characteristics, Class A1 Amplifier:
Plate Voltage .................. 250 volts
Grid-No.2 (Screen-Grid) Voltage ........ 250 volts
Grid-No.1 (Control-Grid) Voltage .......... –14 volts
Plate Resistance (Approx.) .......... 22500 ohms
Transconductance ................. 6000 μhos
Plate Current .................. 72 ma
Grid-No.2 Current ................ 5 ma

Mechanical:
Operating Position: .............. Any
Maximum Overall Length ........ 4.62”
Maximum Seated Length .......... 4.06”
Maximum Diameter ................ 1.63”
Bulb: ................................ Small-Wafer Octal 8-Pin
Base: ................................ with Sleeve (JETEC No.88-191)
Basing Designation for BOTTOM VIEW .......... 8HY

Pin 1—Grid No.2
Pin 2—Heater
Pin 3—Plate
Pin 4—Grid No.2
Pin 5—Grid No.1
Pin 6—Grid No.1
Pin 7—Heater
Pin 8—Cathode

PUSH-PULL AF POWER AMPLIFIER — Class AB1

Maximum Ratings, Design-Center Values:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>450 max. volts</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN-GRID) VOLTAGE</td>
<td>400 max. volts</td>
</tr>
<tr>
<td>CATHODE CURRENT:</td>
<td></td>
</tr>
<tr>
<td>Peak.</td>
<td>400 max. ma</td>
</tr>
<tr>
<td>DC.</td>
<td>110 max. ma</td>
</tr>
<tr>
<td>GRID-No.2 INPUT</td>
<td>3.5 max. watts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>25 max. watts</td>
</tr>
</tbody>
</table>

0: See next page.
PEAK HEATER-CATHODE VOLTAGE:
Heater negative with respect to cathode. 200 max. volts
Heater positive with respect to cathode. 200 max. volts

Typical Operation with Fixed Bias:
Values are for 2 tubes

<table>
<thead>
<tr>
<th>Plate Voltage</th>
<th>330</th>
<th>400</th>
<th>450</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid-No.2 Voltage</td>
<td>330</td>
<td>300</td>
<td>350</td>
<td>volts</td>
</tr>
<tr>
<td>Grid-No.1 (Control-Grid) Voltage</td>
<td>-24</td>
<td>-25</td>
<td>-30</td>
<td>volts</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1 Voltage</td>
<td>48</td>
<td>50</td>
<td>60</td>
<td>volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>122</td>
<td>102</td>
<td>95</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>184</td>
<td>152</td>
<td>194</td>
<td>ma</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current</td>
<td>5.6</td>
<td>6</td>
<td>3.4</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current</td>
<td>18.5</td>
<td>17</td>
<td>19.2</td>
<td>ma</td>
</tr>
<tr>
<td>Effective Load Resistance</td>
<td>(Plate to plate)</td>
<td>4500</td>
<td>6600</td>
<td>6000</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>1</td>
<td>2</td>
<td>1.5</td>
<td>%</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>31.5</td>
<td>34</td>
<td>50</td>
<td>watts</td>
</tr>
</tbody>
</table>

Typical Operation with Cathode Bias:
Values are for 2 tubes

<table>
<thead>
<tr>
<th>Plate-Supply Voltage</th>
<th>400</th>
<th>380</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid-No.2 Supply Voltage</td>
<td>300</td>
<td>380</td>
<td>volts</td>
</tr>
<tr>
<td>Cathode Resistor</td>
<td>200</td>
<td>180</td>
<td>ohms</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1 Voltage</td>
<td>57</td>
<td>68.5</td>
<td>volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>112</td>
<td>138</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>128</td>
<td>170</td>
<td>ma</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current</td>
<td>7</td>
<td>5.6</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current</td>
<td>16</td>
<td>20</td>
<td>ma</td>
</tr>
<tr>
<td>Effective Load Resistance</td>
<td>(Plate to plate)</td>
<td>6600</td>
<td>4500</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>2</td>
<td>3.5</td>
<td>%</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>32</td>
<td>36</td>
<td>watts</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 AB1

Grid No. 2 of each tube connected to tap on plate winding of output transformer

Maximum Ratings, Design-Center Values:

PLATE AND GRID-No.2 (SCREEN-GRID)
SUPPLY VOLTAGE. 450 max. volts

0,▲,●: See next page.
# Beam Power Tube

**Cathode Current:**
- Peak: 400 max. ma
- DC: 110 max. ma

**Grid-No.2 Input:** 3 max. watts

**Plate Dissipation:** 25 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:

Values are for 2 tubes

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate-Supply Voltage</td>
<td>410 volts</td>
</tr>
<tr>
<td>Grid-No.2 Supply Voltage</td>
<td>* volts</td>
</tr>
<tr>
<td>Cathode Resistor</td>
<td>220 ohms</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1 Voltage</td>
<td>68 volts</td>
</tr>
<tr>
<td>Zero-Signal Cathode Current</td>
<td>134 ma</td>
</tr>
<tr>
<td>Max.-Signal Cathode Current</td>
<td>155 ma</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>8000 ohms</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>1.6 %</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>24 watts</td>
</tr>
</tbody>
</table>

## Maximum Circuit Values:

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

○ Without external shield.

▲ The dc component must not exceed 100 volts.

● The type of input coupling network used should not introduce too much resistance in the grid-No.1 circuit. Transformer- or impedance-coupling devices are recommended.

* Obtained from taps on the primary winding of the output transformer. The taps are located on each side of the center tap (B+) so as to apply 43 percent of the plate signal voltage to grid No.2 of each output tube.
AVERAGE PLATE CHARACTERISTICS

$E_X = 6.3$ VOLTS
GRID-N & I VOLTS = 0

PLATE MILLIAMPERES

PLATE VOLTS

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
AVERAGE CHARACTERISTICS

$E_f = 6.3$ VOLTS
GRID-N°2 VOLTS = 250

PHONE (Ib) OR GRID-N°2 (IC2) MILLIAMPERES

ELECTRON TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
92CM-9570
OPERATION CHARACTERISTICS
PUSH-PULL CLASS AB

$E_p = 6.3$ VOLTS
PLATE VOLTS = 450
GRID-$N_2$ VOLTS = 350
GRID-$N_1$ VOLTS = -30
AF GRID-$N_1$ TO GRID-$N_1$ VOLTS (RMS) = 42.5

POWER OUTPUT—WATTS
TOTAL HARMONIC DISTORTION—PER CENT

EFFECTIVE LOAD RESISTANCE (PLATE TO PLATE)—OHMS
AVERAGE PLATE CHARACTERISTICS
TRIODE CONNECTION

E_p = 6.3 VOLTS
GRID N=2 CONNECTED TO PLATE.

PLATE MILLIAMPERES

GRID-NEG. VOLS. G-E=0

ELECTRON TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY