7027-A
BEAM POWER TUBE
For high-fidelity audio-amplifier applications
Supersedes Type 7027

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:

Voltage (AC or DC) ................. 6.3 volts
Current .................. 0.9 amp

Direct Intelectrode 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 Voltage ................. 250 volts
Grid-No.1 Voltage ................. −14 volts
Plate Resistance (Approx.) .......... 22500 ohms
Transconductance ................ 6000 µmhos
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 ................................ T12
Base .................. Small-Wafer Octal 8-Pin with "950" Sleeve (JEDEC Group 1, No. BB-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, Grid No.3

PUSH-PULL AF POWER AMPLIFIER — Class AB1

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE .................. 600 max. volts
GRID-No.2 (SCREEN-GRID) VOLTAGE .... 500 max. volts
GRID-No.2 INPUT .................. 5 max. watts
PLATE DISSIPATION ................ 35 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 with Fixed Bias:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>400 450 540 volts</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>300 350 400 volts</td>
</tr>
<tr>
<td>Grid-No.1 (Control-Grid) Voltage</td>
<td>-25 -30 -38 volts</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1 Voltage</td>
<td>50 60 76 volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>102 95 100 ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>152 194 220 ma</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current</td>
<td>6 3.4 5 ma</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current</td>
<td>17 19.2 21.4 ma</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>6600 6000 6500 ohms</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>2 1.5 2 %</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>34 50 76 watts</td>
</tr>
</tbody>
</table>

## Typical Operation with Cathode Bias:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Supply Voltage</td>
<td>400 380 425 volts</td>
</tr>
<tr>
<td>Grid-No.2 Supply Voltage</td>
<td>300 380 425 volts</td>
</tr>
<tr>
<td>Cathode Resistor</td>
<td>200 180 200 ohms</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1 Voltage</td>
<td>57 68.5 86 volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>112 138 150 ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>128 170 196 ma</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current</td>
<td>7 5.6 8 ma</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current</td>
<td>16 20 20 ma</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>6600 4500 3800 ohms</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>2 3.5 4 %</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>32 36 44 watts</td>
</tr>
</tbody>
</table>

## Maximum Circuit Values:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid-No.1-Circuit Resistance</td>
<td>0.1 max. megohm</td>
</tr>
<tr>
<td>For fixed-bias operation</td>
<td>0.5 max. megohm</td>
</tr>
</tbody>
</table>

### 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-Maximum Values:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE AND GRID-No.2 (SCREEN-GRID) Supply Voltage</td>
<td>600 max. volts</td>
</tr>
<tr>
<td>GRID-No.2 Input</td>
<td>4.5 max. watts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>35 max. watts</td>
</tr>
</tbody>
</table>
| 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

Plate Supply Voltage. ................. 410 volts
Grid-No.2 Supply Voltage. ............. * volts
Cathode Resistor. ..................... 220 ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage. .. 68 volts
Zero-Signal Cathode Current ............. 134 ma
Max.-Signal Cathode Current ............ 155 ma
Effective Load Resistance
(Plate to plate) ...................... 8000 ohms
Total Harmonic Distortion .............. 1.6 %
Max.-Signal Power Output .............. 24 watts

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 re-
  sistance 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
  per cent of the plate signal voltage to grid No.2 of each output tube.

OPERATING CONSIDERATIONS

The bulb becomes hot during operation. To insure adequate
cooling, therefore, it is essential that free circulation of air
be provided around the 7027-A.
AVERAGE PLATE CHARACTERISTICS

$E_P = 6.3$ VOLTS
GRID No. 1 VOLTS = 0

PLATE ELECTRONS, MILLIAMPERES
ELECTRON TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-10132
### Average Characteristics

- $E_p = 6.3$ Volts
- Plate Volts = 300
- Grid-Nº2 Volts = 300

<table>
<thead>
<tr>
<th>Grid-Nº1 Volts</th>
<th>Plate Milliamperes ($I_b$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40</td>
<td></td>
</tr>
<tr>
<td>-30</td>
<td></td>
</tr>
<tr>
<td>-20</td>
<td></td>
</tr>
<tr>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Grid-Nº 2 Milliamperes ($I_{C2}$)**

- 0
- 5
- 10
- 20
- 50

**Electron Tube Division**

Radio Corporation of America, Harrison, New Jersey

92CM-10126
$E_f = 6.3$ Volts
Grid N&2 Connected to Plate.