The Eimac 3CX10,000A7 is a ceramic and metal power triode intended to be used as a zero-bias Class-B amplifier in audio or radio-frequency applications. Operation with zero grid bias offers circuit simplicity by eliminating the bias supply. In addition, grounded-grid operation is attractive since a power gain as high as twenty times can be obtained with the 3CX10,000A7.

GENERAL CHARACTERISTICS

ELECTRICAL
Filament: Thoriated-Tungsten
Voltage - - - 7.5 volts
Current - - - 100 amperes
Amplification Factor - - - 200
Interelectrode Capacitances:
  Grid-Filament - - - - - 63 uuf
  Grid-Plate - - - - - 41 uuf
  Plate-Filament - - - - .05 uuf
Frequency for Maximum Ratings - - - - 110 Mc

MECHANICAL
Base - - - - - - - Coaxial
Recommended Socket - - - - - - Eimac SK-1300
Operating Position - - - - - Vertical, base up or down
Cooling - - - - - - Forced air
Maximum Operating Temperatures:
  Anode Core - - - - - 250°C
  Ceramic-to-Metal Seals - - - - 250°C
Maximum Dimensions:
  Height - - - - - 8.5 inches
  Diameter - - - - - 7.0 inches
Net Weight - - - - - 12 pounds

R-F LINEAR AMPLIFIER
GROUNDED-GRID, CLASS B

MAXIMUM RATINGS
D-C Plate Voltage 7000 MAX. VOLTS
D-C Plate Current 5.0 MAX. AMPs
Plate Dissipation 12 MAX. KW
Grid Dissipation 500 MAX WATTS

D-C Plate Voltage 7000 7000 volts
Zero-Sig D-C Plate Current* 0.60 0.60 amp
Max-Sig D-C Plate Current 3.72 5.00 amps
Max-Sig D-C Grid Current 0.71 1.00 amp
Driving Impedance 35 32 ohms
Resonant Load Impedance 1020 745 ohms
Max-Sig Driving Power 885 1540 watts
Peak Envelope Plate
  Output Power 17,700 24,200 watts
  Power Gain 20.0 15.7 times

*Approximate Values

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AUDIO-FREQUENCY AMPLIFIER
OR MODULATOR - CLASS B

MAXIMUM RATINGS (Per Tube)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Maximum Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>7000</td>
<td>Volts</td>
</tr>
<tr>
<td>D-C Grid Voltage</td>
<td>0</td>
<td>Volts</td>
</tr>
<tr>
<td>D-C Plate Current</td>
<td>5.0</td>
<td>Max. Amps</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>12</td>
<td>Max. Kw</td>
</tr>
<tr>
<td>Grid Dissipation</td>
<td>500</td>
<td>Max. Watts</td>
</tr>
</tbody>
</table>

TYPICAL OPERATION, Two Tubes, Sinusoidal Wave

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>7000 Volts</td>
</tr>
<tr>
<td>D-C Grid Voltage</td>
<td>0 Volts</td>
</tr>
<tr>
<td>Zero-Sig D-C Plate Current*</td>
<td>1.20 Amps</td>
</tr>
<tr>
<td>Max-Sig D-C Plate Current</td>
<td>7.50 Amps</td>
</tr>
<tr>
<td>Max-Sig D-C Grid Current</td>
<td>1.50 Amps</td>
</tr>
<tr>
<td>Driving Power</td>
<td>315 Watts</td>
</tr>
<tr>
<td>Peak A-F Driving Voltage (Per Tube)</td>
<td>250 Volts</td>
</tr>
<tr>
<td>Load Resistance, Plate-to-Plate</td>
<td>2000 Ohms</td>
</tr>
<tr>
<td>Max-Sig Plate Output Power</td>
<td>35,600 Watts</td>
</tr>
</tbody>
</table>

R-F LINEAR AMPLIFIER
CARRIER CONDITIONS, GROUNDED-GRID

MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Maximum Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>7000</td>
<td>Volts</td>
</tr>
<tr>
<td>D-C Grid Voltage</td>
<td>0</td>
<td>Volts</td>
</tr>
<tr>
<td>D-C Plate Current</td>
<td>5.0</td>
<td>Max. Amps</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>12</td>
<td>Max. Kw</td>
</tr>
<tr>
<td>Grid Dissipation</td>
<td>500</td>
<td>Max. Watts</td>
</tr>
</tbody>
</table>

TYPICAL OPERATION

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>7000 Volts</td>
</tr>
<tr>
<td>D-C Grid Voltage</td>
<td>0 Volts</td>
</tr>
<tr>
<td>Zero-Sig D-C Plate Current*</td>
<td>0.60 Amps</td>
</tr>
<tr>
<td>D-C Plate Current</td>
<td>2.40 Amps</td>
</tr>
<tr>
<td>D-C Grid Current</td>
<td>0.25 Amps</td>
</tr>
<tr>
<td>Driving Impedance †</td>
<td>32 Ohms</td>
</tr>
<tr>
<td>Peak Driving Voltage †</td>
<td>310 Volts</td>
</tr>
<tr>
<td>Driving Power</td>
<td>330 Watts</td>
</tr>
<tr>
<td>Plate Output Power</td>
<td>5650 Watts</td>
</tr>
</tbody>
</table>

Note: "TYPICAL OPERATION" data are obtained by calculation from published characteristic curves and confirmed by direct tests. No allowance for circuit losses, either input or output, has been made.

<table>
<thead>
<tr>
<th>Plate** Dissipation (Watts)</th>
<th>Sea Level</th>
<th>10,000 Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Air Flow (CFM)</td>
<td>Pressure Drop (Inches of Water)</td>
</tr>
<tr>
<td>4000</td>
<td>85</td>
<td>0.18</td>
</tr>
<tr>
<td>6000</td>
<td>145</td>
<td>0.38</td>
</tr>
<tr>
<td>8000</td>
<td>215</td>
<td>0.68</td>
</tr>
<tr>
<td>10,000</td>
<td>295</td>
<td>1.08</td>
</tr>
<tr>
<td>12,000</td>
<td>390</td>
<td>1.62</td>
</tr>
</tbody>
</table>

**Since the power dissipated by the filament is about 750 watts and since grid dissipation can, under some circumstances, represent another 500 watts, allowance has been made in preparing this tabulation for an additional 1250 watts dissipation.
APPLICATION

Input Circuit -- When the 3CX10,000A7 is operated as a grounded-grid r-f amplifier, the use of a resonant tank in the cathode circuit is recommended in order to obtain greatest linearity and power output. For best results with a single-ended amplifier it is suggested that the cathode tank circuit operate at a "Q" of five or more.

Cooling -- The maximum temperature rating for the external surfaces of the 3CX10,000A7 is 250°C. Sufficient forced-air cooling must be provided to keep the temperature of the anode core and the temperature of the ceramic-metal seals below 250°C. Tube life is usually prolonged if these areas are maintained at temperatures below this maximum rating. Minimum air-flow requirements to maintain anode-core and seal temperatures below 225°C with an inlet-air temperature of 50°C are tabulated.

Filament Operation -- The rated filament voltage for the 3CX10,000A7 is 7.5 volts. Filament voltage, as measured at the socket, should be maintained at this value to obtain maximum tube life. In no case should it be allowed to deviate from the rated value by more than five percent.

Special Applications -- If it is desired to operate this tube under conditions widely different from those given here, write to Power Grid Tube Marketing, Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, California, for information and recommendations.
EIMAC 3CX10.000A7

TYPICAL
CONSTANT CURRENT
CHARACTERISTICS

GRID CURRENT — AMPERES
PLATE CURRENT — AMPERES

GRID VOLTAGE — VOLTS
PLATE VOLTAGE — VOLTS