MECHANICAL DATA

Envelope: Metal Capsule
Power Connectors: Birnbach # 404½
RF Connectors: Type TNC Plug½
Focusing: Electromagnetic
Cooling: Forced Air
Mounting Position: Any
Tube Weight (Approx.): 2 lbs
Solenoid Weight (Approx.):
  Military (Aluminum foil-wound): 29 lbs
  Non-Military (Copper wire-wound): 46 lbs

ELECTRICAL DATA²

HEATER CHARACTERISTICS

Voltage: 6.3 ± 10% V
Current (at 6.3 V): 1.7 - 2.7 A
Minimum Preheat Time: 2 Minutes

RATINGS (Absolute Maximum)

Peak Positive Grid 1 Voltage: 500 V
Grid 1 Bias Voltage (Absolute Minimum): -40 Vdc
Collector, Helix, and Grid 2 Voltage: 10,000 Vdc
Peak Cathode Current: 2.2 A
Peak Helix Current: 250 mA
Peak Grid 1 Current: 300 mA
Peak Grid 2 Current: 150 mA
Collector Dissipation: 225 W
Duty Factor: 0.016
Pulse Width: 12 μs
CW RF Input: 10 W
Collector Seal Temperature: 250 °C

TYPICAL OPERATION⁵

Conditions

Frequency: 2.0 to 4.0 Gc
Magnetic Focusing Field Density: 1160 Gausses
Minimum Uniform Length: 6 Inches
Peak Grid 1 Voltage (Approx.): 300 V
Grid 1 Bias Voltage: -60 Vdc
Collector, Helix, and Grid 2 Voltage (Approx.): 8000 Vdc
Duty Factor: 0.01
Pulse Width: 10 μs

Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Cathode Current</td>
<td></td>
<td>2 A</td>
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<tr>
<td>Peak Helix Current</td>
<td></td>
<td>200 mA</td>
</tr>
<tr>
<td>Peak Grid 1 Current</td>
<td></td>
<td>250 mA</td>
</tr>
<tr>
<td>Peak Grid 2 Current</td>
<td></td>
<td>100 mA</td>
</tr>
<tr>
<td>Saturation Power Output</td>
<td>1000</td>
<td>w</td>
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</tbody>
</table>

QUICK REFERENCE DATA

Traveling-wave Amplifier
Full Octave Coverage
2.0 to 4.0 Gc
Over 1 kw Peak Power
Output
Suitable for Airborne Applications

POWER CONNECTIONS

Heater: Brown
Heater, Cathode: Yellow
Grid 1: Green
Grid 2: Blue
Collector: Red
Helix: Center
Conductor of RF Cables

SYLVANIA ELECTRIC PRODUCTS INC.

MICROWAVE DEVICE OPERATIONS
Mountain View, California

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from JEDEC release #3221, April 10, 1961
ELECTRICAL DATA (Cont'd)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Signal Gain (+13 dbm Input)</td>
<td>35</td>
<td>db</td>
</tr>
<tr>
<td>Saturation Gain</td>
<td>25</td>
<td>db</td>
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<tr>
<td>Insertion Loss (Grid 1 at -60 Vdc)</td>
<td>45</td>
<td>db</td>
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</table>

CIRCUIT DESIGN INFORMATION

Peak Grid 1 Voltage Range\(^9\) 240 to 420 v
Collector, Helix, and Grid 2 Voltage Range 6500 to 9000 Vdc

When this tube is operated with grid pulsing, the effective impedance of the grid 1 circuit between pulses must be less than 1000 ohms.

NOTES:

1. Alternative connectors supplied on request.

2. In addition to the cooling air requirements for the solenoid used with this tube it is recommended that at least 0.6 lbs/min of less than 100\(^\circ\) cooling air be directed along this tube.

3. All voltages are with respect to cathode. For personnel safety, the collector, helix, center conductor of RF cables, and grid 2 should be operated at ground potential and the solenoid case and other equipment associated with the operation of the tube should be heavily bonded to ground. Good grounding to the outer conductors of the tube RF cables should be provided by the associated equipment. The tube RF connectors should NOT be disconnected while lethal potentials are present. In addition, all conventional high voltage safety precautions in circuit design and use should be exercised to safeguard personnel, circuitry, and the tube.

4. When RF is applied to the input of this tube the output should be connected to a load.

5. The quoted tube performance is for operation in a Sylvania-approved solenoid. Additional information will be supplied on request.

6. Specific recommended operating voltage values supplied with each tube.

7. Ranges include values required as a result of initial spread of tube characteristics as well as those to accommodate changes throughout life.

8. For initial setup only, these voltages should be adjustable from zero upward. Suggested turn-on sequence is as follows:
   1. Solenoid current.
   2. Heater voltage. Wait 2 minutes before proceeding.
   3. Grid 1 bias voltage.
   4. Collector, helix, and grid 2 voltage.
   5. Grid 1 pulse voltage.

9. Peak grid 1 voltage range specified is with respect to cathode. Total output voltage from pulser should be greater by the amount of bias (60 Vdc).