DESCRIPTION:

The 3C45 is a unipotential cathode, three element hydrogen filled thyratron designed for network discharge service. In such service it is suitable for producing pulse outputs of 55 KW at an average power level of more than 65 watts. The special features of the 3C45 include the high peak voltage and current ratings.

**ELECTRICAL DATA, GENERAL:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Nom.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>6.3</td>
<td>5.7</td>
<td>6.6</td>
</tr>
<tr>
<td>Heater Current (at 6.3 Volts)</td>
<td>2.0</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Minimum Heating Time</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

**MECHANICAL DATA, GENERAL:**

- Mounting Position: Any
- Base: Medium 4 Pin
- Anode Cap: Phenolic A4-9
- Cooling (Note 1): Small Metal C1-1
- Net Weight: 2.5 Ounces
- Dimensions: See Outline

**RATINGS:**

- Max. Peak Anode Voltage, Forward: 3.0 Kilovolts
- Max. Peak Anode Voltage, Inverse (Note 2): 3.0 Kilovolts
- Min. Anode Supply Voltage: 800 Volts d.c.
- Max. Peak Anode Current: 35 Amperes
- Max. Average Anode Current: 45 Milliamperes
- Max. RMS Anode Current (Note 3): 1.25 Amperes a.c.
- Max. Epy X 1b X PRR: $0.3 \times 10^9$
- Max. Anode Current Rate of Rise: 750 Amperes/usecond
- Peak Trigger Voltage (Note 4): 200 Volts
- Max. Anode Delay Time (Note 5): 0.6 Microsecond
- Max. Anode Delay Time Drift: 0.15 Microsecond
- Max. Time Jitter (Note 6): 0.02 Microsecond (initial)
- Ambient Temperature: -50° to +90° Cent.

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TYPICAL OPERATION AS PULSE MODULATOR, DC RESONANT CHARGING:

Peak Network Voltage 3.0 Kilovolts
Pulse Repetition Rate 2500 Pulses/Second
Pulse Length 0.5 Microsecond
Pulse Forming Network Impedance 45.2 Ohms
Trigger Voltage 200 Volts
Peak Power Output (Resistive Load 92% Zn) 47.2 Kilowatts
Peak Anode Current 35 Amperes
Average Anode Current .044 Amperes D.C.

Note 1:

Cooling of the anode lead is permissible, but there shall be no air blast directly on the bulb.

Note 2:

The peak inverse voltage should not exceed 1.5 KV during the first 25 microseconds after conduction.

Note 3:

The root mean square anode current shall be computed as the square root of the product of the peak current and the average current.

Note 4:

The voltage between grid and cathode terminals of the socket with the tube removed should have the following characteristics:

A. Voltage 175-250 Volts
B. Duration 2 Microseconds (at 70% Points)
C. Source Impedance 1500 Ohms (max.)
D. Rate of Rise 200 Volts/microsecond (min.)

The limits of anode time delay and anode time jitter are based on the minimum trigger. Using the highest permissible trigger voltage and lowest trigger source impedance materially reduces these values below the limits specified.

Note 5:

The time of anode delay is measured between the 26 percent point on the rising portion of the unloaded grid voltage pulse and the point at which evidence of anode conduction first appears on the loaded grid pulse.
Note 6:

Time jitter is measured at the 50 percent point on the anode current pulse.

Additional information for specific applications can be obtained from the

Electron Tube Applications Section
ITT Components Division
Post Office Box 412
Clifton, New Jersey