DESCRIPTION:

The 8424 is a unipotential cathode, 3 element hydrogen filled thyratron designed for network discharge service. In such service, it is suitable for producing pulse outputs of more than 1.5 megawatts at an average power level of more than 1.2 kW.

The 8424 is equipped with reservoir for long stable life and is especially adapted to operation at high pulse repetition rates.

ELECTRICAL DATA, GENERAL:

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<tbody>
<tr>
<td>Heater Voltage</td>
<td>6.3</td>
<td>5.9</td>
<td>6.7</td>
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<tr>
<td>Heater Current (At 6.3 Volts)</td>
<td>9.6</td>
<td>11.6</td>
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<tr>
<td>Minimum Heating Time</td>
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<td>5</td>
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</tbody>
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MECHANICAL DATA, GENERAL:

- Mounting Position
- Base
- Any
  - Super Jumbo 4-Pin with Bayonet
  - A4-18 with Ceramic Insert
  - C1-43, Medium, with Corona Shield
- Any
- Net Weight: 12 Ounces
- Dimensions: See Outline

* Formerly our KU-25

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RATINGS:

Max. Peak Anode Voltage, Forward 12.0 Kilovolts
Max. Peak Anode Voltage, Inverse (Note 2) 12.0 Kilovolts
Min. Anode Supply Voltage 3.5 Kilovolts d.c.
Max. Peak Anode Current 300 Amperes
Max. Average Anode Current 200 Milliamperes
Max. RMS Anode Current (Note 3) 7.75 Amperes a.c.
Max. Epy x 1B x Prr 3.8 x 10² Amperes/μSecond
Max. Anode Current Rate of Rise 1250 Volts
Peak Trigger Voltage (Note 4) 200 Microseconds
Max. Peak Inverse Trigger Voltage 200 Volts
Max. Anode Delay Time (Note 5) 0.65 Microseconds
Max. Anode Delay Time Drift 0.10 Microseconds
Max. Time Jitter (Note 6) 0.005 Microseconds
Ambient Temperature -50.0 to +90.0 Cent.
Shock Rating 130 Navy (Flyweight) Shock Machine

TYPICAL OPERATION AS PULSE MODULATOR, DC RESONANT CHARGING:

Peak Network Voltage 12.0 Kilovolts
Pulse Repetition Rate 2500 Pulses/Second
Pulse Length 0.4 Microsecond
Pulse Forming Network Impedance 48 Ohms
Trigger Voltage 200 Volts
Peak Power Output (Resistive Load 92% Zn) 736 Kilowatts
Peak Anode Current 130 Amperes
Average Anode Current 0.13 Amperes d.c.
Grid Bias -50 Volts d.c.

Note 1:
Cooling permitted. However, there shall be no air blast directly on the bulb.

Note 2:
During the first 25 microseconds after conduction, the peak inverse anode voltage shall not exceed 5.0 KV.

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 pulse produced by the driver circuit shall have the following characteristics when viewed at the 8424 socket with the grid of the tube disconnected:

A. Voltage 200-300 Volts  
B. Duration 2 Microseconds (at 70% points min.)  
C. Rate of Rise 200 Volt/microsecond (min.)  
D. Impedance 50-500 Ohms (max.)

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 Electron Tube Division  
Post Office Box 104  
Clifton, New Jersey  

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