

ELECTRON TUBE DIVISION  
P.O. Box 100  
Easton, Pennsylvania 18042  
Telephone 215 252-7331

8354

# CERAMIC HYDROGEN THYRATRON

## DESCRIPTION

The 8354 is a ceramic thyatron capable of 12.5 megawatts peak power output and 27.5 kilowatts average power output. The high average power capability is produced through a combination of the unique external anode design, the indirectly heated cathode, and the internal reservoir. The metal-ceramic design of the 8354 offers increased reliability when operated under extreme environmental conditions.

## GENERAL CHARACTERISTICS

| ELECTRICAL DATA                      | Nom. | Min. | Max. |          |
|--------------------------------------|------|------|------|----------|
| Heater Voltage .....                 | 6.3  | 5.8  | 6.8  | Volts AC |
| Heater Current (at 6.3 volts) .....  |      | 11.0 | 18.0 | Amperes  |
| Heater (Note 1) .....                |      |      |      |          |
| Reservoir Voltage (Note 2) .....     | 6.3  | 5.8  | 6.8  | Volts    |
| Reservoir Current at 6.3 Volts ..... |      | 3.0  | 8.0  | Amperes  |
| Minimum Heating Time .....           |      | 5    |      | Minutes  |

## MECHANICAL DATA

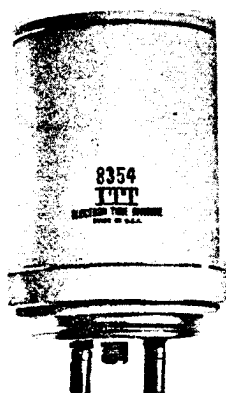
|                                        |      |
|----------------------------------------|------|
| Mounting Position .....                | Any  |
| Mounting .....                         | MT-4 |
| Cooling (Note 3) .....                 |      |
| Dimensions (See Outline Drawing) ..... |      |

## MAXIMUM RATINGS

|                                                 |                    |                  |
|-------------------------------------------------|--------------------|------------------|
| Max. Peak Anode Voltage, Forward .....          | 25                 | Kilovolts        |
| Max. Peak Anode Voltage, Inverse (Note 5) ..... | 25                 | Kilovolts        |
| Min. Anode Supply Voltage .....                 | 1500               | Volts DC         |
| Max. Peak Anode Current .....                   | 1000               | Amperes          |
| Max. Average Anode Current .....                | 2.2                | Amperes          |
| Max. RMS Anode Current (Note 6) .....           | 40.0               | Amperes AC       |
| Max. $e_{py} \times i_b \times p_{rr}$ .....    | $25.0 \times 10^9$ |                  |
| Max. Anode Current Rate of Rise .....           | 5000               | Amps./ $\mu$ sec |
| Peak Trigger Voltage (Note 7) .....             |                    |                  |
| Max. Peak Inverse Trigger Voltage .....         | 400                | Volts            |
| Max. Anode Delay Time (Note 8) .....            | 0.5                | Microsecond      |
| Max. Anode Delay Time Drift .....               | 0.15               | Microsecond      |
| Max. Time Jitter (Note 9) .....                 | 0.005              | Microsecond      |
| Ambient Temperature .....                       | -55° to +85°       | C                |

NOTE 1 See Outline drawing.

NOTE 2 The optimum reservoir voltage for operation in accordance with operation (1) conditions is 6.3 Vac and must be held to within +7.5%. Applications involving other operating conditions may necessitate the redetermination of the optimum reservoir voltage. Operation (1) conditions (24 KV-580 A-2.4  $\mu$ s-2.2 Adc).



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NOTE 3 There shall be no artificial anode or envelope cooling directed onto the tube. Blowers or anode radiators shall not be used.

NOTE 4 Absolute values should not normally be allowed to occur simultaneously.

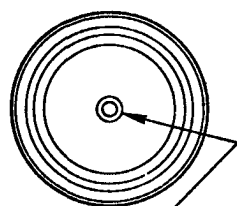
NOTE 5 In pulsed operation, the peak inverse voltage, exclusive of a spike of .05 us maximum duration, shall not exceed 5.0 KV during the first 25 us following the anode pulse.

NOTE 6 The root mean square anode current shall be computed as the square root of the product of peak current and the average current.

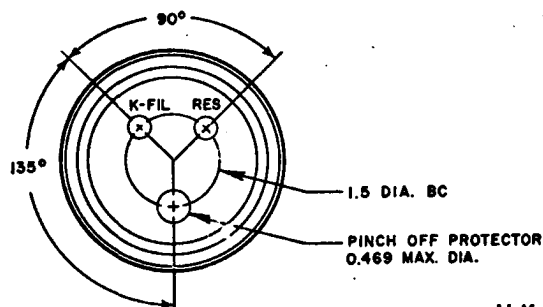
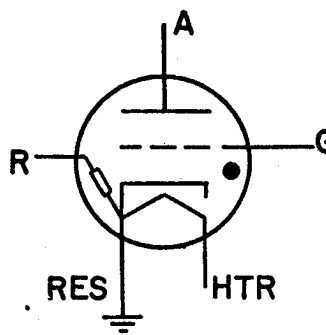
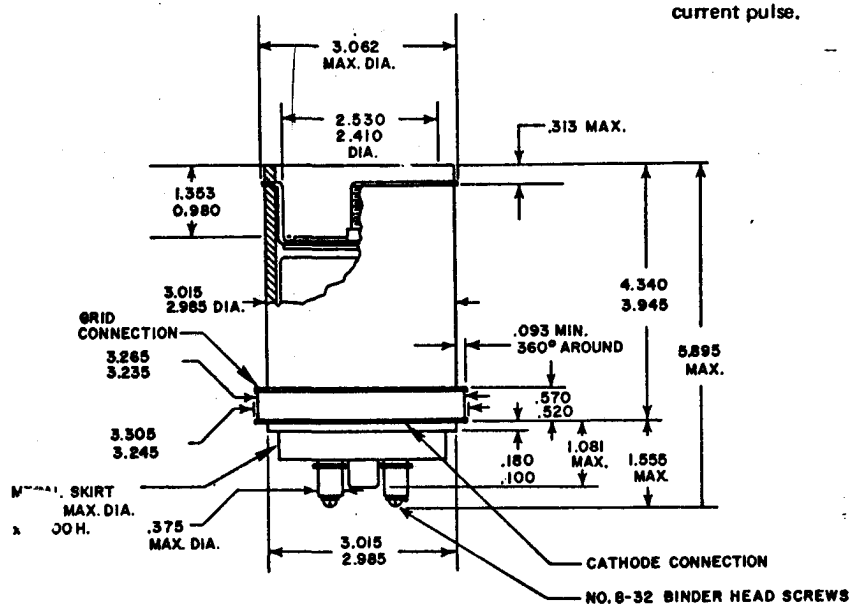
NOTE 7 The driver pulse, measured at the tube socket with thyratron grid disconnected: 500 volts minimum, 1500 volts maximum; tr = 0.35 us maximum; grid pulse duration 2.0 us minimum. Impedance of drive circuit 50 to 200 ohms.

NOTE 8 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 anode conduction first evidences itself on the loaded grid pulse.

NOTE 9 Time jitter is measured at the 50 percent point on the anode current pulse.



1/4 x 20 UNC-2A x 5/8 MIN.  
THREAD LENGTH  
ANODE CONNECTOR



U.K. technical and sales enquiries should be directed to :

ITT Components Group Europe

Valve Product Division

Standard Telephone and Cables Ltd

Brixham Road, Paignton Devon

Telephone : Paignton 50762 (STD 0803-). Telex 42830

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P.O. Box 100 Easton, Pennsylvania 18042