

ELECTRON TUBE DIVISION  
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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. epy x ib x prr .....	25.0 x 10 <sup>9</sup>	
Max. Anode Current Rate of Rise .....	5000	Amps./u 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 us-2.2 Adc).

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.

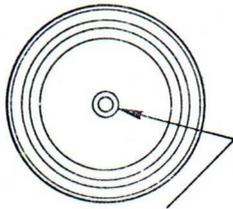
NOTE 5 In pulsed operation, the peak inverse voltage, exclusive of a spike of .05 us maximum duration, shall not exceed 5.0 KV during the first 25 us following the anode pulse.

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.

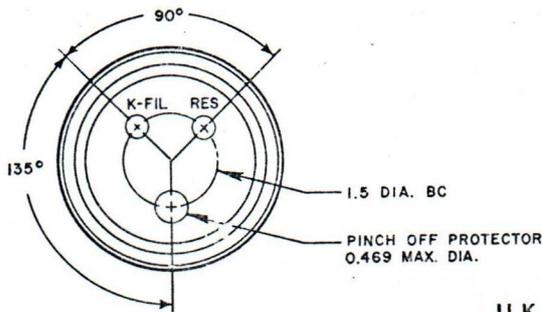
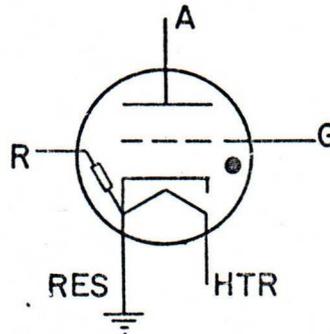
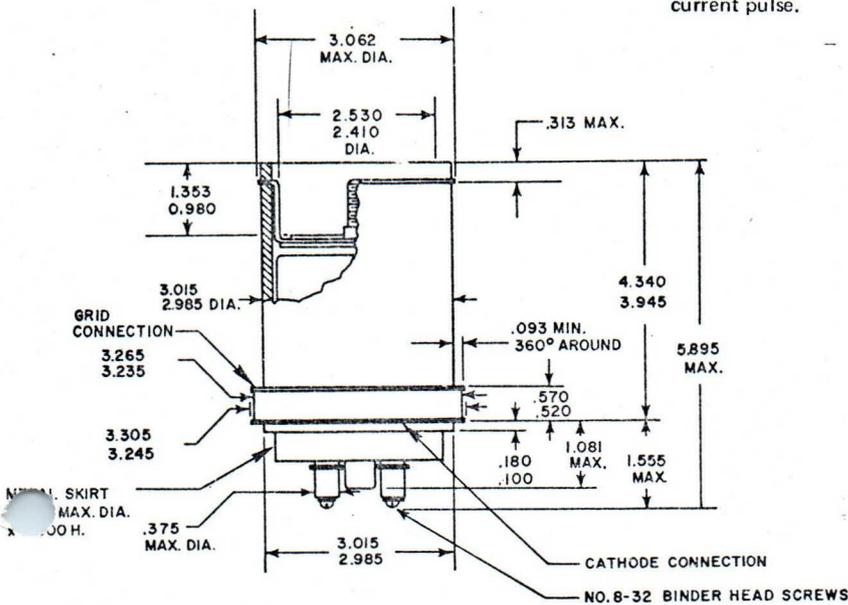
NOTE 7 The driver pulse, measured at the tube socket with thratron grid disconnected: 500 volts minimum, 1500 volts maximum;  $\tau_r = 0.35$  us maximum; grid pulse duration 2.0 us minimum. Impedance of drive circuit 50 to 200 ohms.

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



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