

TUNG-SOL

PRODUCT BULLETIN

INDUSTRIAL ELECTRON TUBE TYPE 8036

SEPTEMBER, 1963

CERAMIC HYDROGEN THYRATRON TYPE 8036

DESCRIPTION—The 8036 is a three element, zero-bias, hydrogen thyatron designed for high-power switching applications. The primary application of this tube is in high-voltage radar modulators.

The 8036 utilizes a ceramic, ring-disk type of construction to minimize the tube envelope size and to maximize heat transfer from the internal elements. It has been designed to withstand high environmental conditions, particularly high temperature. An internal hydrogen reservoir promotes long life and permits optimum pressure adjustment for various conditions of operation. The tube is flange mounted for maximum support, with standard-size lugs on the ends of flexible leads used for heater and reservoir terminations. The grid connection is made to a grid ring to keep inductance to a minimum.

The 8036 will supply 6.5 megawatts of peak pulse power making it the electrical equivalent of the 5949/1907, with a tube volume of one-quarter and a weight of one-half of the latter.



ELECTRICAL DATA

	Min	Bogey	Max	
Heater Voltage	5.8	6.3	6.6	Volts
Heater Current — $E_h = 6.3$ volts	8	—	12	Amperes
Reservoir Voltage	3.0	Marked	5.5	Volts
Reservoir Current (Respectively)	1.5	on Flange	3.0	Amperes
Cathode Heating Time	3	—	—	Minutes
Anode Delay Time	—	—	1.0	Microsecond
Time Jitter — Note 1	—	—	4	Nanoseconds
Anode Voltage Drop	75	—	250	Volts

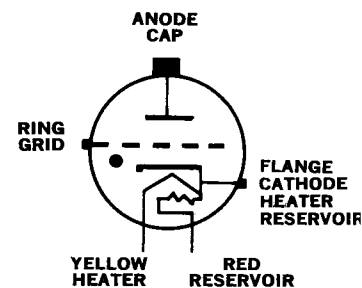
See Page 2
For Outline
Drawing

MECHANICAL DATA

Envelope Temperature — Maximum	400 Degrees C
Type of Cooling	Convection
Mounting Position	Any
Dimensions, Mounting and Terminations	See page 2

RATINGS — ABSOLUTE VALUES

	Min	Max	
Anode Voltage — Peak			
Forward	—	25,000	Volts
Inverse — Note 2	—	25,000	Volts
Cathode Current			
Peak	—	500	Amperes
Average	—	500	Milliamperes
RMS	—	15	Amperes
D-C Anode Voltage	5,000	—	Volts
Grid Voltage — Peak — Note 3	550	1000	Volts
Heating Factor — $ep_y \times ib \times p_{rr}$	—	6.25×10^9	
Current Rate of Rise	—	2,500	Amperes per microsecond



ENVIRONMENTAL TEST

Shock (Navy High Impact Shock Machine) 500 G

RESULTS

1. The time jitter limit as stated is the maximum allowable variation in firing time measured at 50 percent of pulse amplitude after the tube has been operating for at least 60 seconds. The maximum jitter as stated is only valid at anode voltages of 5 kilovolts and above.
2. In pulsed operation, the peak inverse voltage, exclusive of a 0.05 microsecond maximum duration, shall not exceed 5 kilovolts during the 25 microseconds after the pulse.
3. The driver pulse is measured at the tube socket with the thyatron grid disconnected. Time of rise equals 0.5 microsecond maximum, grid pulse duration equals 2 microsecond minimum, and impedance of driver circuit is between 50 ohms and 200 ohms.

