

GL-7703
IGNITRON

CAPACITOR-DISCHARGE SERVICE
DC SHORT-CIRCUITING-SWITCH SERVICE

20,000 VOLTS PEAK
100,000 AMPERES PEAK

The GL-7703 is a sealed, stainless-steel-jacketed ignitron for use as a switch in capacitor-discharge circuits operating up to 20,000 volts. In this service the tube will carry peak currents up to 100,000 amperes. The anode seal is enclosed in an insulating compound to prevent external voltage flashover.

Electrical

Cathode Excitation - Cyclic
Cathode Spot Starting - Ignitor
Number of Electrodes

Main Anodes.....	1
Main Cathodes.....	1
Ignitors.....	1

Mechanical

Envelope - Stainless Steel
Mounting Position - Axis Vertical, Anode Terminal Up
Net Weight..... 2 Pounds

Thermal

Type of Cooling - Air or Liquid, by clamp around lower portion of tube
Clamp Temperature..... 10 to 30 C
Cathode Temperature, maximum..... 35 C
Anode Insulating-Compound Temperature*, maximum.... 70 C

MAXIMUM RATINGS

Capacitor-Discharge Service, Intermittent Pulse Duty, Sinusoidal Current †

Peak Anode Voltage ‡

Forward..... 20,000 Volts

Inverse..... 20,000 Volts

Critical Anode Starting Voltage, minimum..... 100 Volts

Anode Current ¶

Peak, for 1/2 cycle of 120 microseconds..... 60,000 Amperes

Peak, for 1/2 cycle of 20 microseconds..... 100,000 Amperes

Maximum Discharge Rate..... 2 Per Minute

Rate of Rise of Current§, tube inductance 0.04 microhenrys, approx.

Ionization Time..... 0.5 Microseconds

GENERAL ELECTRIC COMPANY
Power Tube Department
Schenectady 5, New York

DC Short-Circuiting-Switch Service

Peak Anode Voltage †

Forward.....	20,000 Volts
Inverse.....	20,000 Volts
Critical Anode Starting Voltage, minimum.....	100 Volts
Anode Current	
Peak.....	35,000 Amperes
Average.....	0.25 Amperes
Maximum Averaging Time.....	1 Cycle
Rate of Rise of Current §, tube inductance 0.04 microhenrys, approx.	
Ionization Time.....	0.5 Microseconds

Ignitor Ratings

Separate Excitation

Ignitor Voltage

	Minimum	Maximum
Forward Open Circuit.....	1500	3000 Volts
Inverse, maximum.....	—	5 Volts
Ignitor Short-Circuit Current.....	200	250 Amperes
Length of Firing Pulse, sine wave.....	5	10 Microseconds

Anode Firing

Ignitor Voltage

Forward, maximum.....	—	3000 Volts
Inverse, maximum.....	—	5 Volts
Peak Ignitor Current.....	200	250 Amperes

*Anode-seal, insulating-compound temperature must always be higher than the cathode temperature to prevent mercury condensation on the anode and anode seal. Before tube operation, the anode seals must be heated long enough to vaporize all mercury from the seal area.

†The tube may become a closed switch (does not open) carrying current in both directions until the current dampens out.

‡The tube cannot hold off this voltage immediately after conduction. A 1-to-10-second delay may be required before reapplication of voltage.

¶Dampened oscillations are permissible provided the oscillating cycles do not exceed 20. The peak current value for one-half cycle must not be exceeded.

§Rate of rise depends on circuit.

