

GL-8138

TRIGGERED SPARK GAP

MINIATURE SWITCHING DEVICE

3 KILOVOLTS

18 JOULES

The GL-8138 is a small, cold cathode, gaseous, triggered spark gap capable of switching 18 joules at high voltages. Since the device does not require such external sources of energy as "keep-alive" circuits to initiate the discharge, its use permits both equipment cost reduction and savings in space through component elimination.

Mechanical features include rugged metal-ceramic construction, gold-plated terminals to resist corrosion, ability to withstand high shock and vibration conditions, and reliable operation over temperatures ranging from as low as -80 to as high as +300 F.

The GL-8138 is especially designed

to deliver short rapid pulses of current with minimum delay and jitter in applications where high hold-off voltages and low leakage currents exist.

Applications include switching single-stored electrical-energy systems into low-impedance loads, or energy-storage capacitors into resistive or inductive loads.

Electrical		Thermal	
Heater Voltage	None Required	Ambient Temperature Range	-80 to +300 F
Mechanical			
Mounting Position—Any			
Net Weight	0.4 Ounces		

MAXIMUM RATINGS

Interelectrode Leakage Resistance	10,000 Megohms
Main Gap	
Operating Voltage	2.0 to 2.6 Kilovolts
Hold-off Voltage, minimum—Terminal No. 1	
Positive, Terminal No. 2 Negative	
1.0 Minute	4.0 Kilovolts
10 Minutes	3.6 Kilovolts
30 Minutes	3.0 Kilovolts
Static Breakdown Voltage	
Minimum	4.25 Kilovolts
Maximum	5.2 Kilovolts
Peak Current	
Unidirectional Pulse, maximum	4000 Amperes
Pulse Duration, maximum	10 Microseconds
Ringing*, maximum	1500 Amperes
Arc Drop, approximate	60 Volts
Delay Time†, Vapp 2400 DC	2.5 Microseconds
Jitter‡	0.5 Microseconds

Trigger Gap	
Hold-off Voltage, minimum—Terminal No. 2	
Positive, Terminal No. 3 Negative	
1.0 Minute	1.2 Kilovolts
Static Breakdown Voltage	
Minimum	1.5 Kilovolts
Maximum	2.8 Kilovolts
Trigger Firing Voltage§, minimum	3.0 Kilovolts
Trigger Firing Current	5.0 Amperes
Duration of Trigger Firing Pulse—Sinusoidal Pulse,	
5.0 Kilovolts Peak Voltage, 18 Microseconds to Peak	

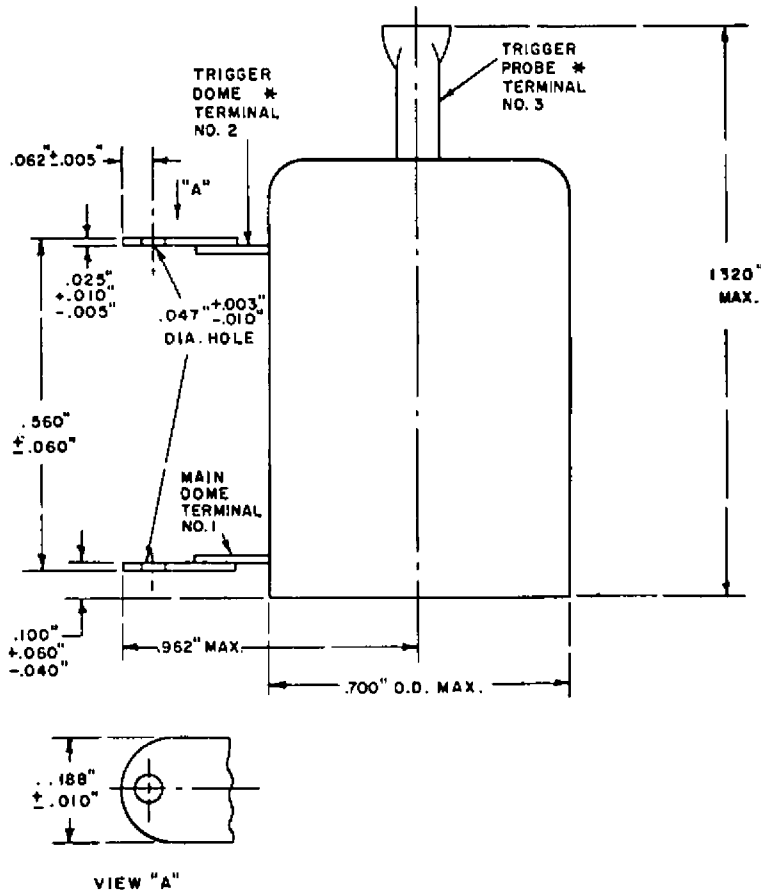
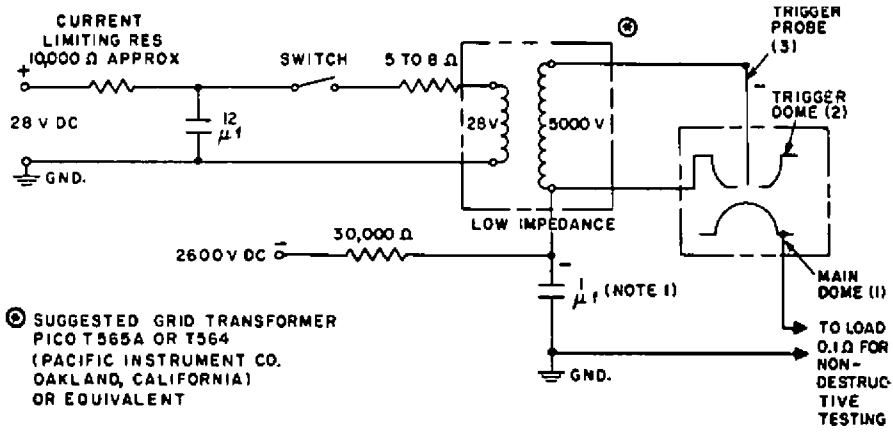
* 1500 amperes for the first half-cycle of a 10 to 12-kilocycle ringing frequency. Circuit should be damped sufficiently to pass only 5 to 6 cycles.

† From trigger-gap breakdown to main-gap breakdown.

‡ Main-gap jitter is defined as the variation in main-gap delay time.

§ Breakdown to occur on leading edge of pulse having a rise time of 8 microseconds where rise time is defined as the interval of time between 10 percent and 90 percent of the trigger voltage pulse.





* APPLY TRIGGER VOLTAGE BETWEEN THESE
TWO TERMINALS.

TERMINALS GOLD-PLATED ON GL-8138