

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	Trigger Gap	
Main Gap		Hold-off Voltage, minimum—Terminal No. 2	
Operating Voltage	2.0 to 2.6 Kilovolts	Positive, Terminal No. 3 Negative	
Hold-off Voltage, minimum—Terminal No. 1		1.0 Minute	1.2 Kilovolts
Positive, Terminal No. 2 Negative		Static Breakdown Voltage	
1.0 Minute	4.0 Kilovolts	Minimum	1.5 Kilovolts
10 Minutes	3.6 Kilovolts	Maximum	2.8 Kilovolts
30 Minutes	3.0 Kilovolts	Trigger Firing Voltage [§] , minimum	3.0 Kilovolts
Static Breakdown Voltage		Trigger Firing Current	5.0 Amperes
Minimum	4.25 Kilovolts	Duration of Trigger Firing Pulse—Sinusoidal Pulse,	
Maximum	5.2 Kilovolts	5.0 Kilovolts Peak Voltage, 18 Microseconds to Peak	
Peak Current			
Unidirectional Pulse, maximum	4000 Amperes		
Pulse Duration, maximum	10 Microseconds		
Ring [*] , maximum	1500 Amperes		
Arc Drop, approximate	60 Volts		
Delay Time [†] , Vapp 2400 DC	2.5 Microseconds		
Jitter [‡]	0.5 Microseconds		

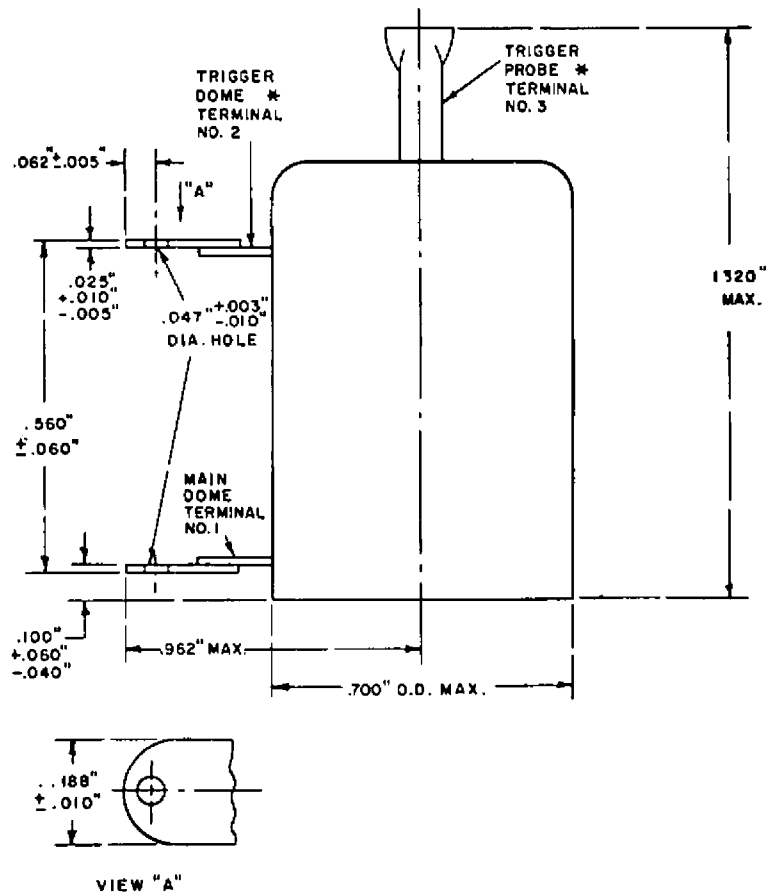
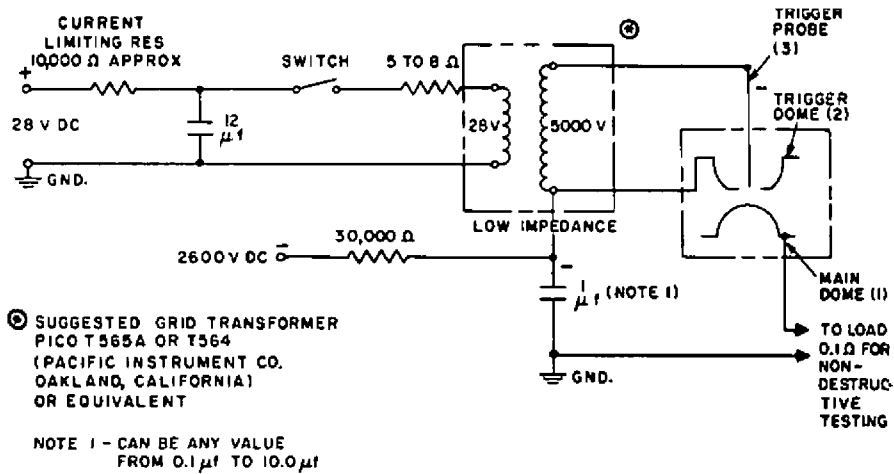
* 1500 amperes for the first half-cycle of a 10 to 12-kilocycle ringing frequency. Circuit should be damped sufficiently to pass only 5 to 6 cycles.

† 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.

GENERAL  ELECTRIC



* APPLY TRIGGER VOLTAGE BETWEEN THESE
TWO TERMINALS.

TERMINALS GOLD-PLATED ON GL-8138