

Series T-508

High Precision Spark Gap Switches

For use in:

- **Laser Drivers**
- **Marx Generators**
- **High-voltage Capacitor Banks**
- **Current Injectors**
- **Pulse-forming Networks**
- **High-voltage, High-energy Switching Applications**



General Description

The T-508 series switches are rugged, high-current, pressurized spark gaps for use in systems where high-voltage, high-current, low inductance, and precision triggering are required. The T-508 is rated at 120 kV peak voltage; the T-508A and T-508AX are rated at 200 kV peak. The only dimensional difference between models is the number of tie rods and the location of the gas ports and mountings. Cleaning of the switch and replacement of electrode tips can extend the life of the spark gap almost indefinitely. Disassembly for maintenance is quick and simple. Their rugged construction and reliability make them ideally suited for long-term performance in high-energy, high-voltage systems.

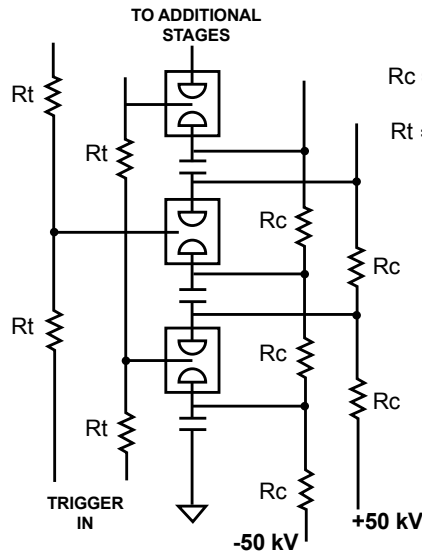
Applications

These switches are particularly well-suited to high-voltage, high-energy systems where high currents and/or high charge transfers will be generated. They are used in laser drivers, Marx generators, high-voltage capacitor banks and current injectors, pulse-forming networks, and many other high-voltage switching applications.

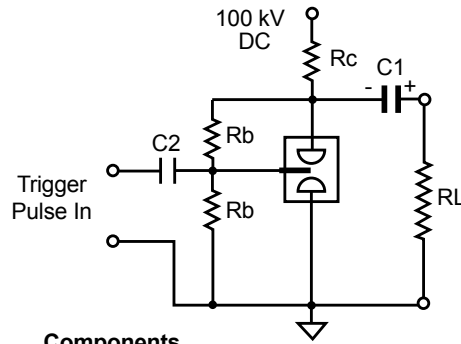
Specifications

| | | | |
|--------------------------|--|---------------------------------------|----------------------------|
| Voltage Range: | 30 - 120 kV (T-508) 60 - 200 kV (T-508A/AX) | Maintenance Interval at Full Ratings: | > 2000 Shots |
| Maximum Peak Current: | 150 kA | Dielectric Gas: | Dry Air or SF ₆ |
| Maximum Charge Transfer: | 2 Coulombs | Minimum Trigger Voltage: | > 50% Charge Voltage |
| Jitter: | 1 ns RMS | Weight: | 9.75 lbs. |
| Inductance: | ~ 150 nH | | |

Typical Installations



Rc = Charging Resistor,
2 kΩ - 20kΩ Typ.
Rt = Trigger Coupling
Resistor 2 kΩ Typ.



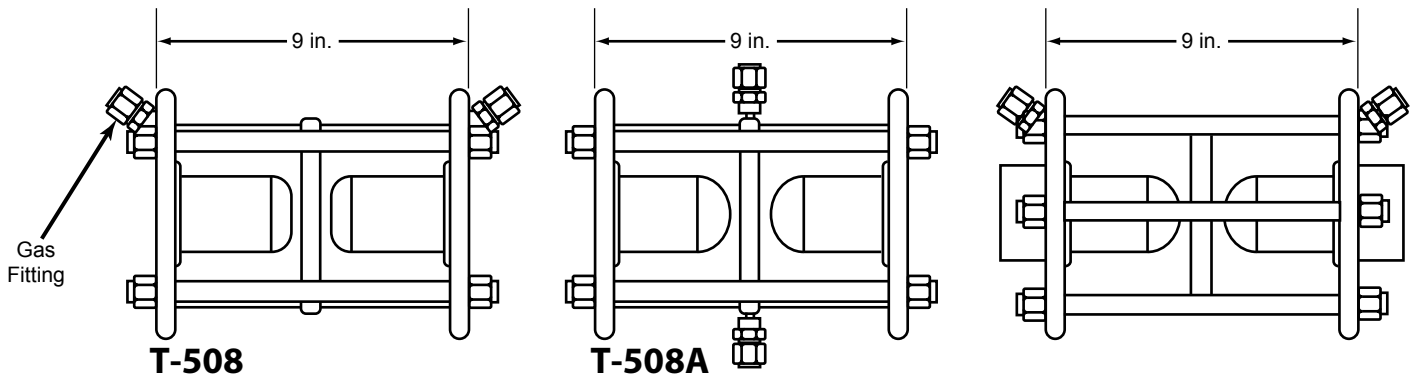
Components

- C1 Energy Discharge Capacitor
- C2 Trigger Isolation Capacitor
- Rb Trigger Bias Resistor
- Rc Charge Current Limiting Resistor
- RL Load Resistance

Note:

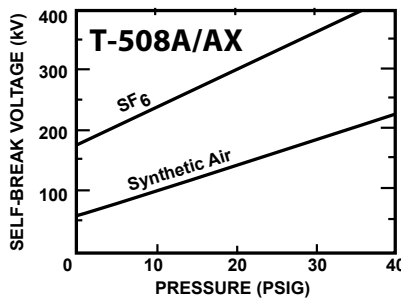
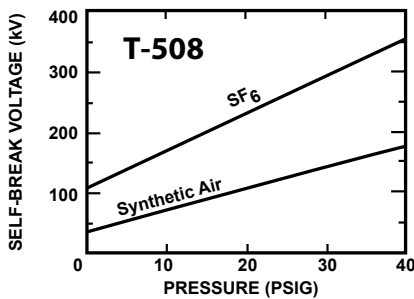
Negative charging voltage produces positive pulse output. Reverse charging polarity for negative output.

Dimensions and Mounting



All 508 series switches are 8 inches in diameter. The different 508 series switches have different electrode configurations, mounting methods, and gas connection ports. Please contact L-3 Communications Pulse Sciences or your representative to establish which model will best meet your requirements.

Self-breakdown Voltage Versus Pressure



These curves depict the self-breakdown parameters of the T-508 switches. The operating voltage should be approximately 75% of the self-breakdown levels. Triggering is accomplished by applying a voltage to the mid-plane electrode. The trigger pulse should be a minimum of 50% of the gap operating voltage – 100% is recommended.

