

Series T-670

High Precision Spark Gap Switches

For use in:

- **Laser Drivers**
- **Marx Generators**
- **Capacitor Banks**
- **Current Injectors**
- **Pulse-forming Networks**



General Description

The T-670 switch is an extremely versatile and compact pressurized spark gap. Designed for operation in the 20 to 100 kV range, the switch can reliably handle a peak current of 100 kA and a charge transfer of 0.15 Coulomb. Its unique "pancake design allows maximum use of available space for high density packaging and low inductance. The T-670 can be operated "maintenance-free" for more than 10,000 shots at full ratings, making it ideally suited for systems requiring a high rate of use with minimum down-time. This switch has proven to be the standard of the industry because of its high reliability, versatility, long life, low maintenance, and easy disassembly for periodic cleaning.

Applications

These switches are used in laser drivers, Marx generators, capacitor banks, current injectors, pulse-forming networks, and other applications requiring high-voltage switching. Their "pancake" configuration makes them particularly well-suited to fairly high-energy applications requiring small size and/or low inductance.

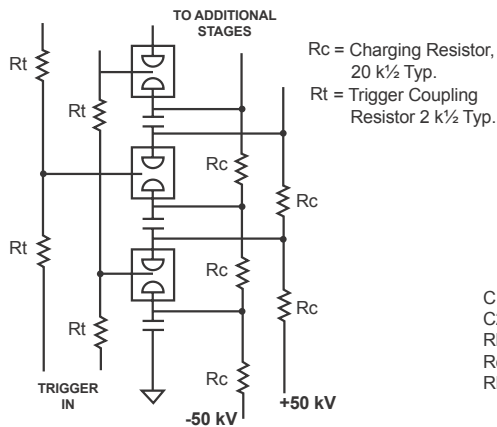
Specifications

Maximum Peak Current:	100 kA	Dimensions:	4.25" square
Voltage Range:	18-100kV	Weight:	1.75 lb.
Timing Jitter (RMS):	<1 ns	Minimum Trigger Voltage:	>50% (CV)*
Max Rep Rate:	10 Hz	Maximum Charge Transfer:	0.15 Coulomb
Inductance:	~ 60 nH	Maintenance Interval at Full Ratings:	>10,000 Shots
Dielectric Gas:	Dry Air or SF ₆		

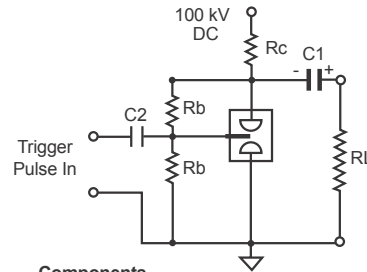
*(CV) Charge Voltage

Typical Installations

Marx Generator Circuit



Current Injection Pulser



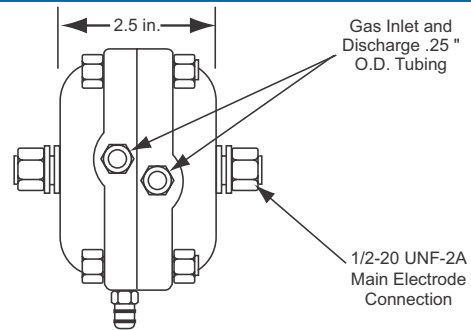
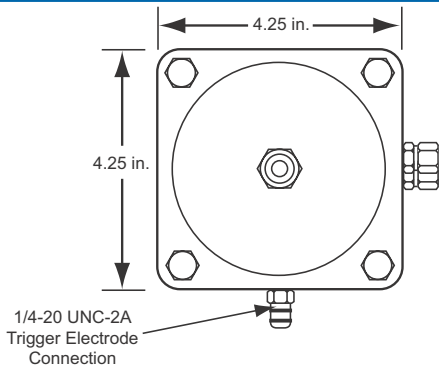
Components

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

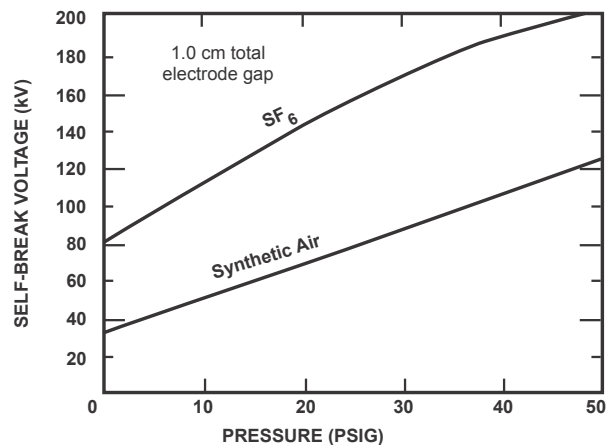
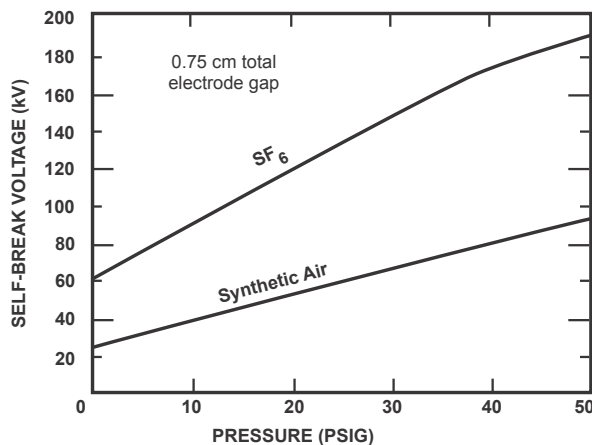
Note:

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

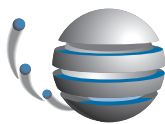
Dimensions and Mounting



Self-Breakdown Voltage Versus Pressure



These curves depict the self-breakdown parameters of the T-670 switches in the two available gap options. 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.



TITAN SYSTEMS CORPORATION

PULSE SCIENCES DIVISION

2700 Merced St. • San Leandro, CA 94577-0599 • Phone (510) 577-7150 • Fax (510) 577-7129 • www.titanpsd.com

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