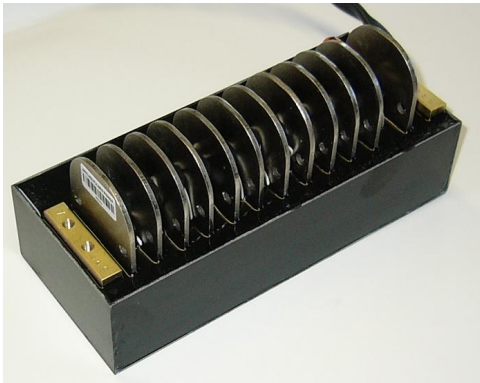




Applied Pulsed Power, Inc.™

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Model S33A Compact High Voltage Solid State Switch

The Model S33A is a compact high voltage switch for low repetition rate pulsed power systems. It can be used to replace Thyatron as well as gas and vacuum triggered spark gap switches in high voltage applications such as Marx generators and pulsed magnet drivers. The model S33A can handle 40kA/ μ s, 14kA peak, damped-oscillating currents.

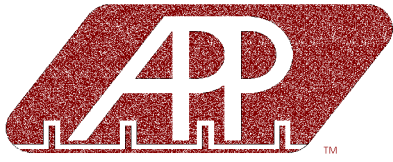
This solid state switch consists of multiple series connected thyristors specifically designed for high di/dt, high voltage, pulsed power applications. The trigger can be either a single low voltage electrical or a standard fiber-optic trigger, making triggering much easier than for Thyatron or triggered spark gap switches.

Operational Ratings (T_j=80°C, unless otherwise specified)

Peak Non-Repetitive Forward Current	14000 Amps
Peak Repetitive Forward Current (5 μ sec pulse, 10pps)	9000 Amps
Peak di/dt	40 kA/ μ Sec
Maximum RMS On-State Current (T _j =120°C)	100 Amps
Operating Temperature Range	0 to 60 °C
Peak Rate of Reapplication of Off-State Voltage	1000 V/ μ Sec
Peak Pulse Repetition Rate	10 Hz

Operational Characteristics

Typical Leakage Current	(T _j =25°C)	200 μ Amp
	(T _j =80°C)	200 μ Amp
	(T _j =120°C)	800 μ Amp
Turn-On Delay (from external trigger)		120 nSec
Turn-On Delay Jitter		<2 nSec
Turn-Off Time	(T _j =25°C)	1 mSec
	(T _j =60°C)	2 mSec
	(T _j =120°C)	5 mSec



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Model S33A Compact High Voltage Solid State Switch Data Sheet Page 2 of 2

Part Number Selection Guide

Part Number	Peak Off-State Voltage Rating	Maximum DC Voltage Rating	Switch Length
S33A-2	10kV	8kV	2"
S33A-3	15kV	12kV	2.5"
S33A-4	20kV	16kV	3"
S33A-5	25kV	20kV	3.5"
S33A-6	30kV	24kV	4"
S33A-7	35kV	28kV	4.5"
S33A-8	40kV	32kV	5"
S33A-9	45kV	36kV	5.5"
S33A-10	50kV	40kV	6"
S33A-11	55kV	44kV	6.5"
S33A-12	60kV	48kV	7"

Switch Footprint

Width 4"
Height 3"

Higher current switches are available by using parallel thyristors on each stage. Contact Howard D. Sanders, hds@appliedpulsedpower.com, for more information.

APP also provides complete pulsed power systems. Contact Steven C. Glidden, scg@appliedpulsedpower.com, for more information.

Switch size is dependent upon pulse width, peak current, and repetition rate. Higher power switches may require a larger footprint for proper cooling while lower power switches can have a smaller footprint. Switches can be made to fit customer specifications for dimensions and location of electrical connections.