

## Thyristor Surge Suppressors (TSS) Data Sheet

### Description

**SMA Thyristor** solid state protection thyristor protect telecommunications equipment such as modems, line cards, fax machines, and other CPE. B6SA is used to enable equipment to meet various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, UL 60950, and TIA-968 (formerly known as FCC Part 68).



### Features

Compared to surge suppression using other technologies, B6SA devices offer absolute surge protection regardless of the surge current available and the rate of applied voltage (dv/dt). B6SA devices:

- Cannot be damaged by voltage
- Eliminate hysteresis and heat dissipation typically found with clamping devices
- Eliminate voltage overshoot caused by fast-rising transients
- Are non-degenerative
- Will not fatigue
- Have low capacitance, making them ideal for high-speed transmission equipment

### Electrical Parameters


Parameter	Definition
$V_{DRM}$	<b>Peak Off-state Voltage</b> – maximum voltage that can be applied while maintaining off state
$V_S$	<b>Switching Voltage</b> – maximum voltage prior to switching to on state
$V_T$	<b>On-state Voltage</b> – maximum voltage measured at rated on-state current
$I_{DRM}$	<b>Leakage Current</b> – maximum peak off-state current measured at $V_{DRM}$
$I_S$	<b>Switching Current</b> – maximum current required to switch to on state
$I_T$	<b>On-state Current</b> – maximum rated continuous on-state current
$I_H$	<b>Holding Current</b> – typical current required to maintain on state
$C_O$	<b>Off-state Capacitance</b> – typical capacitance measured in off state
$I_{PP}$	<b>Peak Pulse Current</b> – maximum rated peak impulse current

**Electrical Characteristics**

Part Number	V <sub>DRM</sub> (V)	V <sub>S</sub> (V)	V <sub>T</sub> (V)	I <sub>DRM</sub> (μA)	I <sub>S</sub> (mA)	I <sub>T</sub> (A)	I <sub>H</sub> (mA)	C <sub>O</sub> (pF)	I <sub>PP</sub> 10/1000μs (A)	Marking Code
B6SA	6	25	4	5	800	2.2	50	80	45	6A

Notes: • All measurements are made at an ambient temperature of 25°C. I<sub>PP</sub> applies to -40°C through +85°C temperature range.  
 • Off-state capacitance(C<sub>O</sub>) is measured at 1 MHz with a 2V bias and is typical value.  
 • Rating Surge Voltage: 4KV (10/700μs)

**Thermal Considerations**

Package SMA	Symbol	Parameter	Value	Unit
	T <sub>J</sub>	Operating Junction Temperature	-40 to +150	°C
	T <sub>S</sub>	Storage Temperature Range	-40 to +150	°C
	R <sub>θJA</sub>	Junction to Ambient on printed circuit	90	°C/W

**Characteristics Curve**

Figure 1. Power Derating Curve

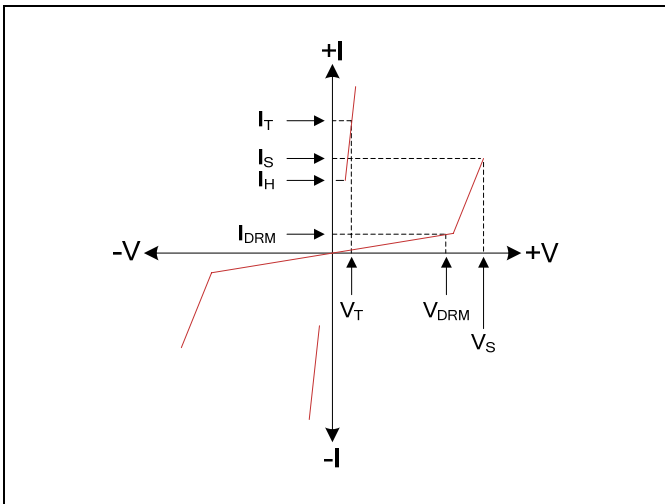


Figure 2. tr × td Pulse Wave-form

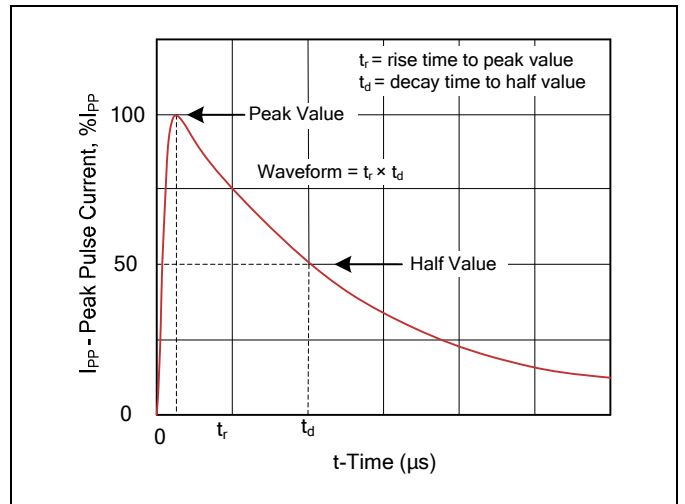


Figure 3. Normalized V<sub>s</sub> Change versus Junction1 Temperature

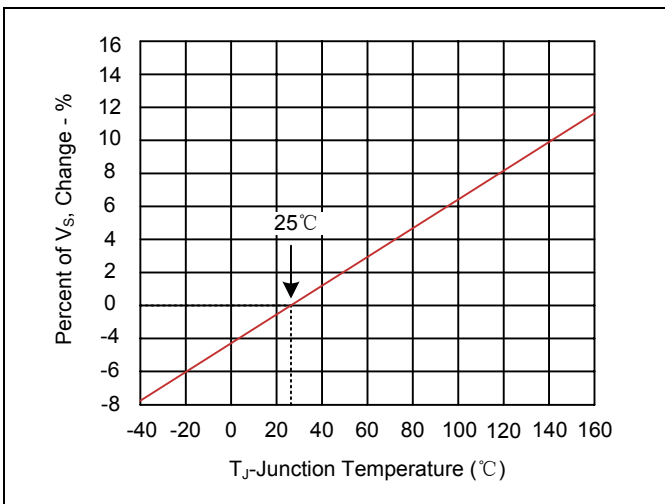
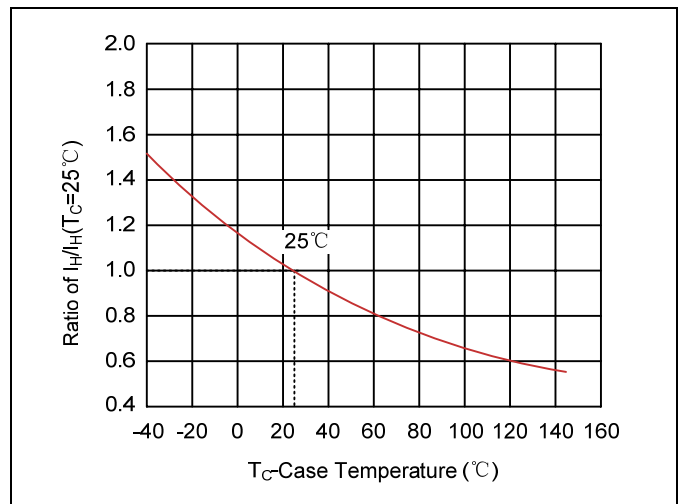
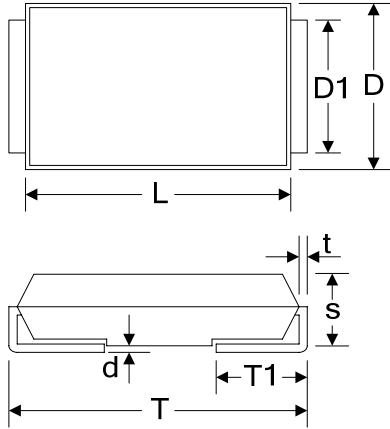


Figure 4. Normalized DC Holding Current versus Case Temperature



**Dimensions**

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	3.99	4.50	0.157	0.177
D	2.54	2.79	0.100	0.110
D1	1.25	1.65	0.049	0.065
T	4.93	5.28	0.194	0.208
T1	0.76	1.52	0.030	0.060
d	-	0.203	-	0.008
S	1.98	2.29	0.078	0.090
t	0.152	0.305	0.006	0.012



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