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

Electrical Characteristics

Part Number	V_{DRM} (V)	V_S (V)	V_T (V)	I_{DRM} (μA)	I_S (mA)	I_T (A)	I_H (mA)	C_O (pF)	I_{PP} 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℃. I_{PP} applies to -40℃ through +85℃ temperature range.
• Off-state capacitance(C_O) 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_J	Operating Junction Temperature	-40 to +150	℃
	T_S	Storage Temperature Range	-40 to +150	℃
	$R_{\theta JA}$	Junction to Ambient on printed circuit	90	℃/W

Characteristics Curve

Figure 1. Power Derating Curve

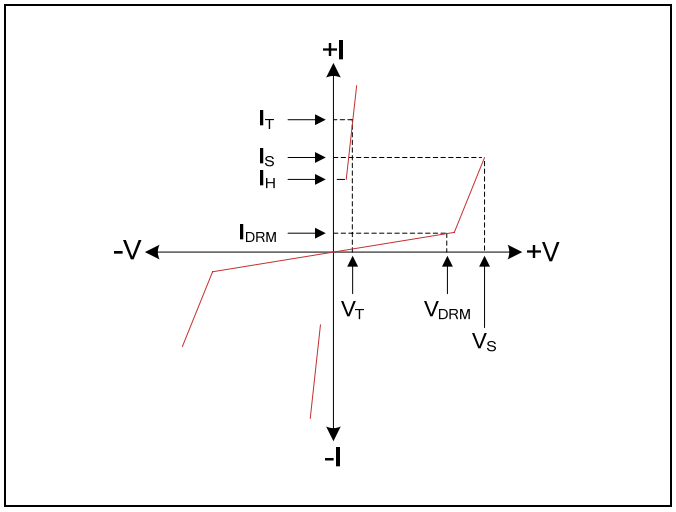


Figure 2. tr × td Pulse Wave-form

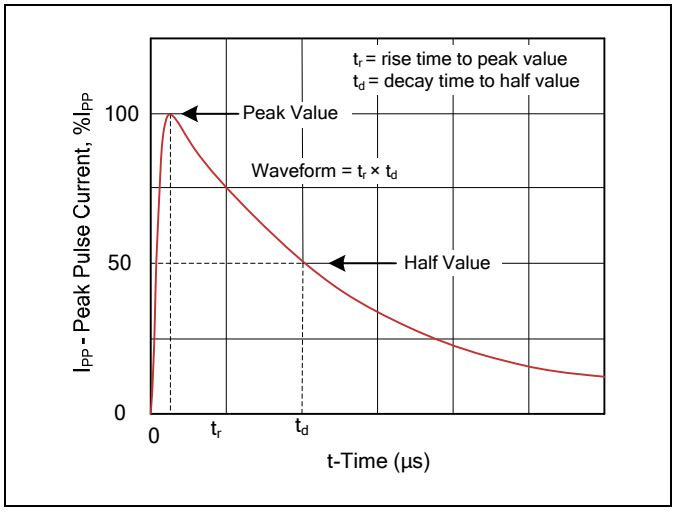


Figure 3. Normalized Vs Change versus Junction1 Temperature

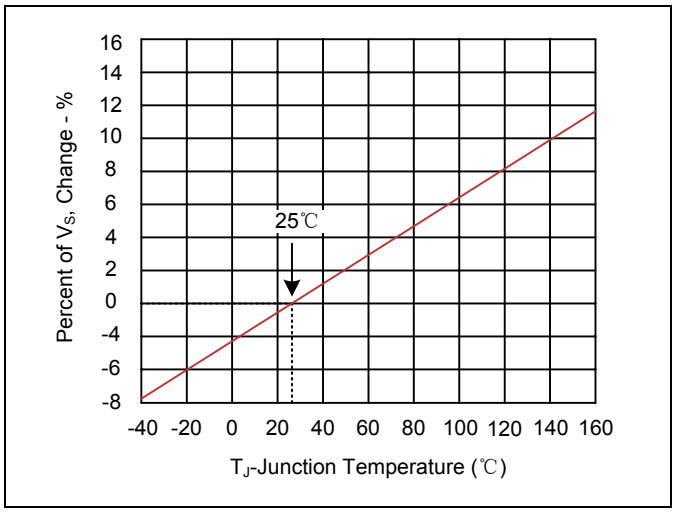
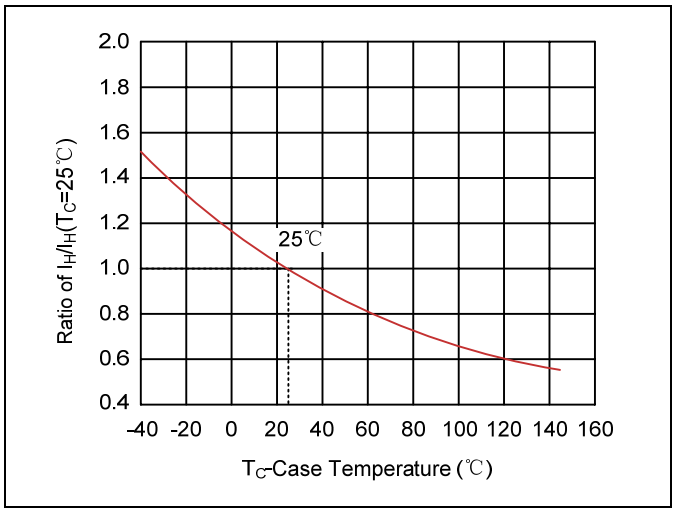
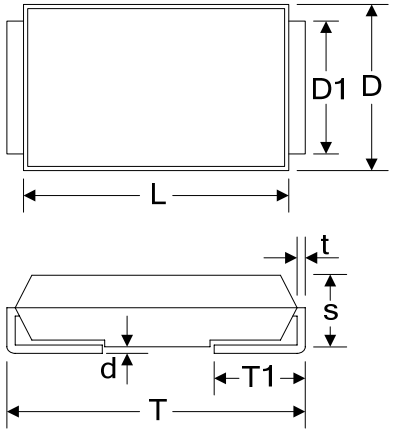


Figure 4. Normalized DC Holding Current versus Case Temperature



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