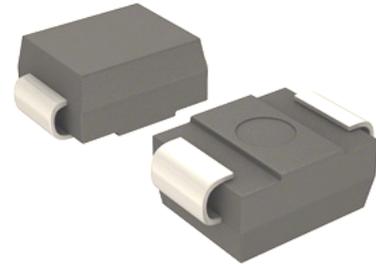


SPD9231B
1-Line, Bi-directional, Thyristor Surge Suppressors
<http://www.sh-willsemi.com>
Descriptions

The SPD9231B is a bi-directional TSS (Thyristor Surge Suppressors) which can provide ESD protection for IC. It is specifically designed to protect telecom equipments from damaging overvoltage transients.

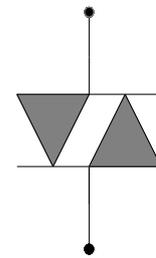
The SPD9231B is used to enable equipments to meet various regulatory requirements including, ITU-T K.20, K.21 and IEC 61000-4-5


SMB (DO-214AA)

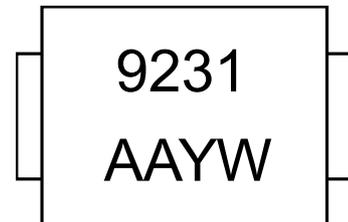
The SPD9231B is available in SMB package. Standard products are Pb-free and Halogen-free.

Features

- Peak off-state voltage: $\pm 6.0V$ Max
- Excellent capability of absorbing transient surge
- Quick response to surge voltage
- Eliminate voltage overshoot caused by fast-rising transients
- Low leakage current:
- Solid-state silicon technology, non degenerative


Schematic Diagram
Applications

- Audio/Video line
- Network and telecom
- Data lines and security systems
- Serial ports
- BNC interface
- DVR



AA = Device code
 Y = Year code
 W = Week code

Marking (Top View)
Order information

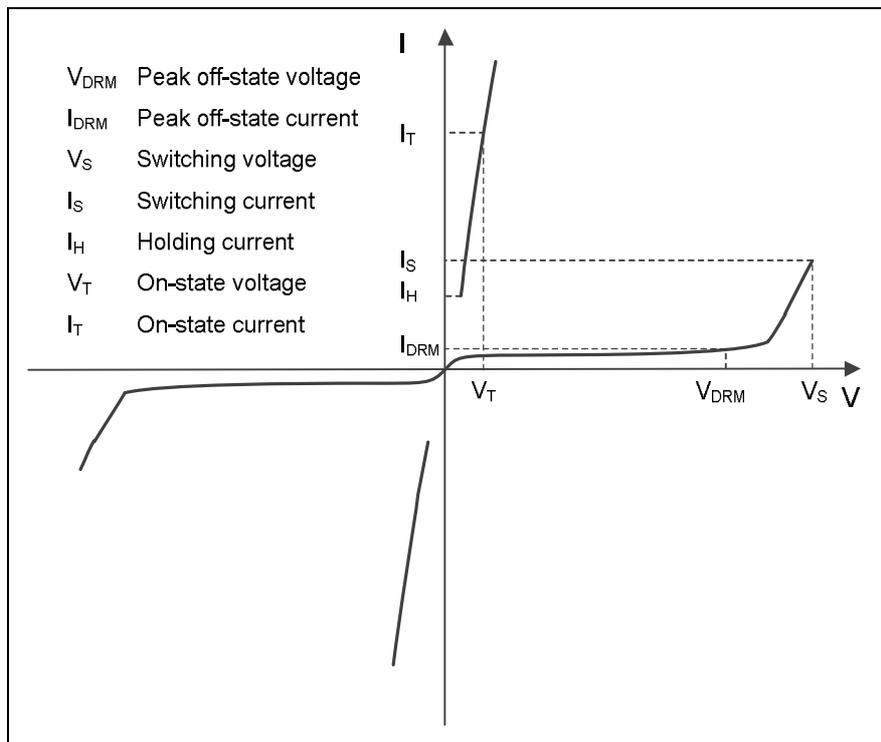
Device	Package	Shipping
SPD9231B-2/TR	SMB	3000/Tape&Reel

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Part Number	V _{DRM}	I _{DRM}	V _S	V _{BR} ¹	I _S	I _H	V _T	I _T	C _O ²
	V	μA	V	V	mA	mA	V	A	pF
		Max.	Max.	Min.		Max.	Max.		Typ.
SPD9231B	6.0	1	25	6.2	800	150	4	2.2	150

Notes:

- 1) V_{BR} is measured at I_{BR}=1mA.
- 2) Off-state capacitance is measured at f = 1MHz, V_{DC} = 2V.



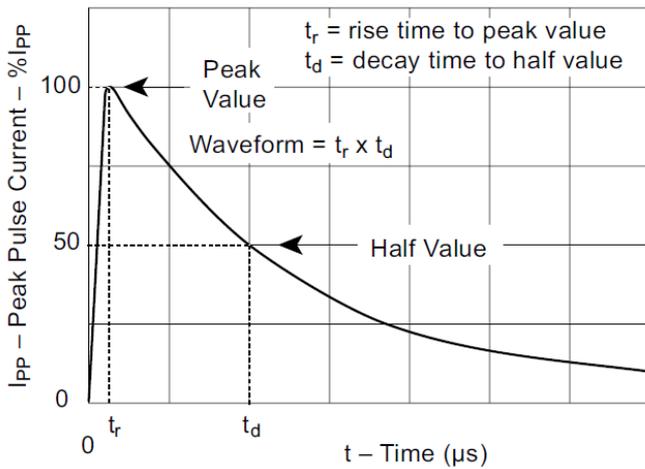
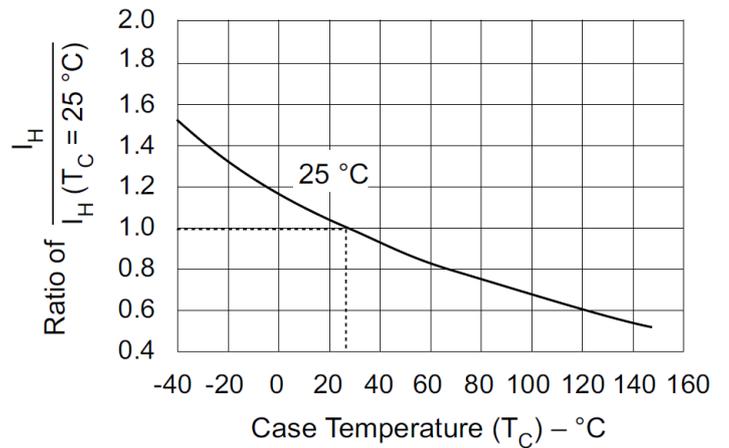
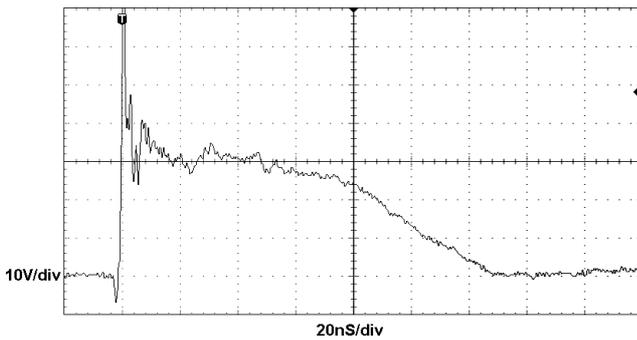
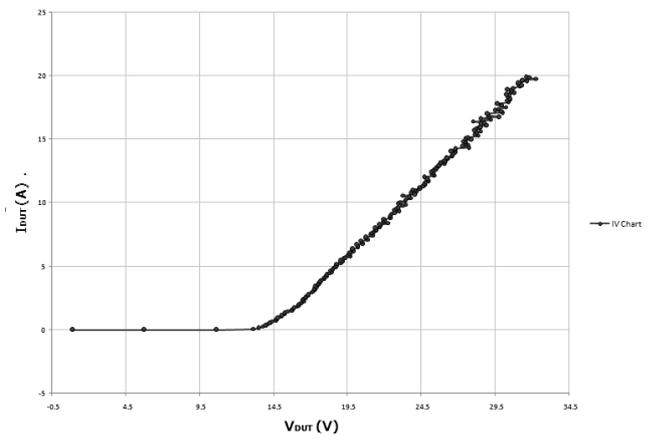
Definitions of electrical characteristics

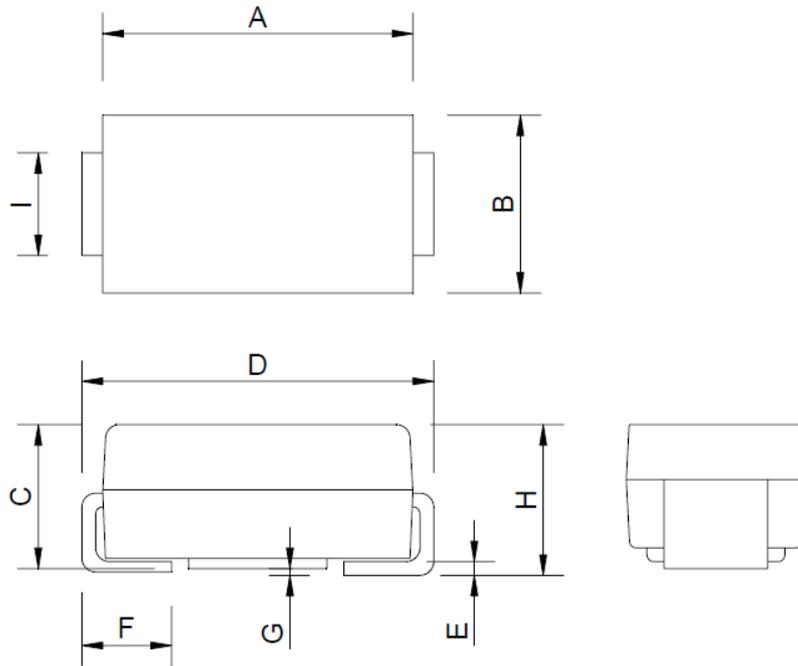
Surge & ESD Ratings

Part Number	ESD Level		Surge Level	
	Contact	Air	Voltage waveform:10/700us Current waveform:5/320us	Voltage waveform:1.2/50us Current waveform:8/20us
			V	V
SPD9231B	8kV	15kV	6000	1000

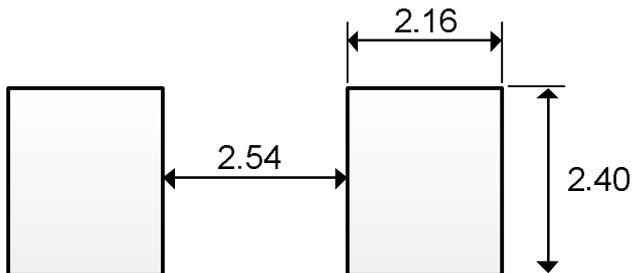
Thermal considerations

Parameter	Symbol	Rating	Unit
Operation junction temperature	T_J	-40~150	$^{\circ}\text{C}$
Storage temperature	T_{STG}	-55~150	$^{\circ}\text{C}$
Lead temperature	T_L	260	$^{\circ}\text{C}$
Junction to ambient thermal resistance	$R_{\theta\text{JA}}$	90	$^{\circ}\text{C}/\text{W}$

Typical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Peak pulse current waveform

Normalized holding current vs. Case temperature

**ESD Clamping Voltage
(IEC61000-4-2 +8kV contact)**

TLP test

Package outline dimensions
SMB


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	4.30	4.50	4.70
B	3.30	3.50	3.70
C	2.00	2.15	2.30
D	5.05	5.30	5.55
E	0.10	0.20	0.30
F	0.95	1.25	1.55
G	0.20 Max.		
H	2.10	2.30	2.50
I	1.85	2.00	2.15

Recommend land pattern (Unit: mm)

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.