

SOD-323 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

The SD4V5TC TVS diode is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebooks, and PDA's. It offers superior electrical characteristics such as low clamping voltage, low leakage current and high surge capability. It is designed to protect sensitive electronic components which are connected to power lines, from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lighting.

The SD4V5TC is in a SOD-323 package and will protect one unidirectional line. It may be used to provide ESD protection up to $\pm 30\text{kV}$ (Contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 160A (8/20 μs) according to IEC61000-4-5.

Features

- ◆ Peak power dissipation: 3200W (8/20 μs)
- ◆ Transient protection for high-speed data lines
- ◆ IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ Working voltages : 4.5V
- ◆ Solid-state silicon-avalanche technology

Pin Configuration



Applications

- ◆ Power lines
- ◆ Personal digital assistants (PDA's)
- ◆ Microprocessors based equipment
- ◆ Notebooks, Desktops, and Servers
- ◆ Cell phone Handsets and Accessories
- ◆ Portable Electronics
- ◆ Peripherals

Circuit Diagram



260°C/ 10s

- ◆ Packaging: Tape and Reel
- ◆ Reel size: 7 inch
- ◆ Quantity per reel: 3,000pcs

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

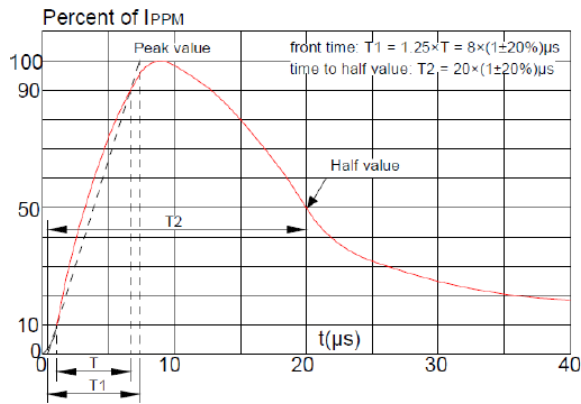
Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air)	VESD	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	
Peak Pulse Power($t_p=8/20\mu\text{s}$ waveform)	P _{PP}	3200	W
Operating Temperature	T _{OPT}	-55 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T _L	260(10 sec.)	°C

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

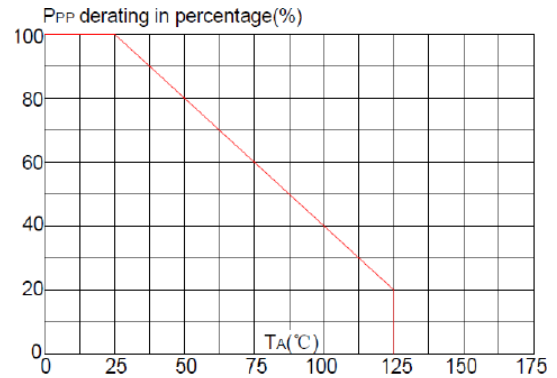
Symbol	Param	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage				4.5	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA	4.6	5.2	6.4	V
I _R	Reverse Leakage Current	V _{RWM} = 4.5V			1	uA
I _{PP}	Peak Pulse Current	t _p = 8/20μs			160	A
V _C	Clamping Voltage	I _{PP} = 50A, t _p = 8/20μs		8.5	11	V
		I _{PP} = 100A, t _p = 8/20μs		12	14	V
		I _{PP} = 160A, t _p = 8/20μs		17	20	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz		300	500	pF

The above data are for reference only.

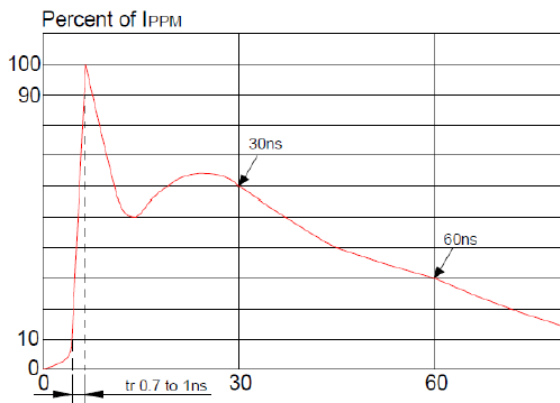
ELECTRICAL CHARACTERISTICS CURVE



Pulse Waveform (8/20us)



Pulse Derating Curve



ESD Clamping(8kV Contact Discharge)

The curve above is for reference only.