SD4V5TC

Single Line Bi-directional Transient Voltage Suppressor

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 ±30kV (Contact and air discharge) according to IEC61000-4-2 ,and withstand peak pulse current up to 160A (8/20μs) according to IEC61000-4-5.

Features

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

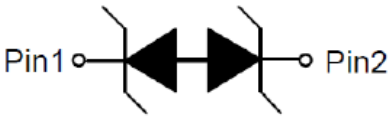
Pin Configuration

RoHS COMPLIANT

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



Mechanical Characteristics

- Device: SD4V5TC
- Package: SOD-323
- Marking: D4
- Material: Halogen free and RoHS compliant
- Flammability Rating: UL 94V-0
- High temperature soldering guaranted: 260℃/ 10s
- Packaging: Tape and Reel
- Reel size: 7 inch
- Quantity per reel: 3,000pcs

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

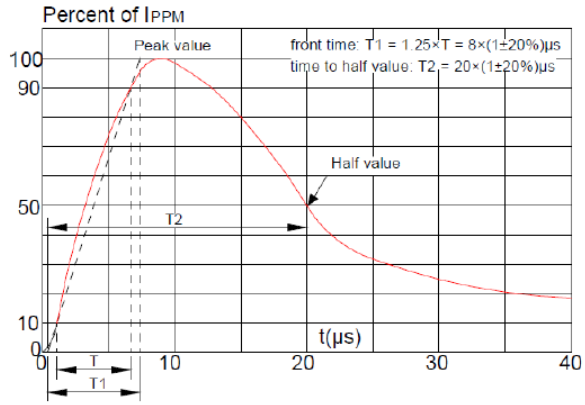
Parameter	Symbol	Value	Unit
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 30 ± 30	KV
Peak Pulse Power(tp=8/20us waveform)	P_{PP}	3200	W
Operating Temperature	T_{OPT}	−55 to +125	°C
Storage Temperature	T_{STG}	−55 to +150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260(10 sec.)	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

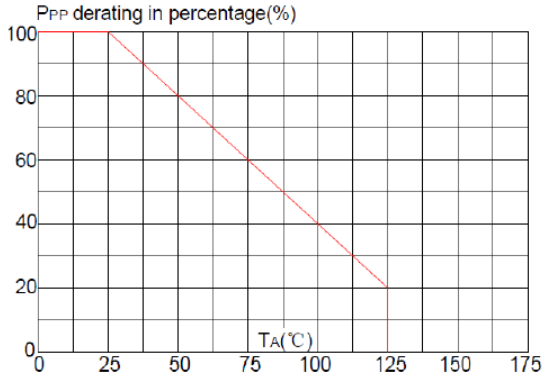
Symbol	Param	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				4.5	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	4.6	5.2	6.4	V
I_R	Reverse Leakage Current	V_{RWM} = 4.5V			1	uA
I_{PP}	Peak Pulse Current	t_p = 8/20μs			160	A
V_C	Clamping Voltage	I_{PP} =50A, t_p = 8/20μs		8.5	11	V
		I_{PP} = 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.

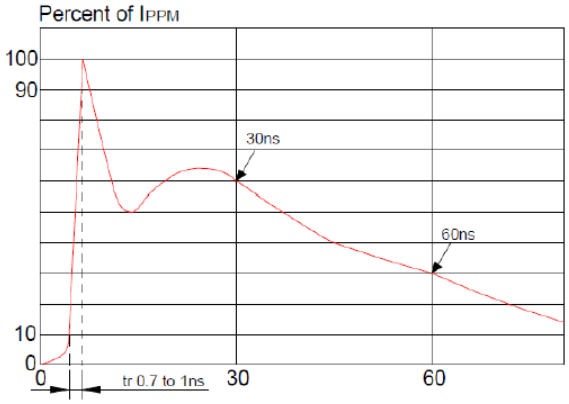
ELECTRICAL CHARACTERISTICS CURVE



Pulse Waveform (8/20us)



Pulse Derating Curve

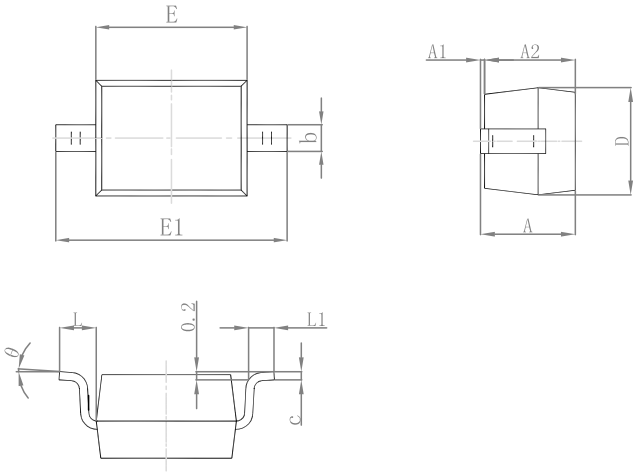


ESD Clamping(8kV Contact Discharge)

The curve above is for reference only.

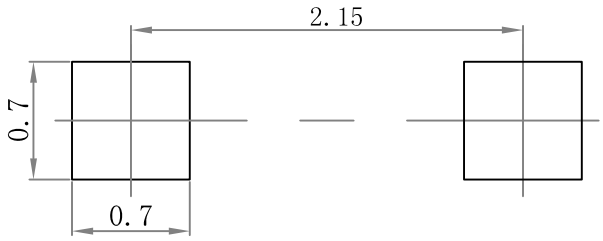
Outlitne Drawing

SOD-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.10	0.032	0.043
A1	0.00	0.20	0.000	0.008
A2	0.70	1.05	0.028	0.042
b	0.20	0.40	0.007	0.016
C	0.05	0.20	0.0019	0.0079
D	1.10	1.45	0.043	0.057
E	1.40	1.80	0.063	0.070
E1	2.50	2.80	0.098	0.110
L	0.35	0.60	0.014	0.024
L1	0.15	0.45	0.006	0.016
θ	0°	9°	0°	9°

Suggested Pad Layout



Note:
1.Controlling dimension:in/millimeters.
2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
SOD-323	7'	178	3000	183×188×80	45,000	386×265×215	180,000