

1-Line Bi-directional TVS Diode

Features:

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 25A (8/20 μs)
- RoHS Compliant

SOD-323



Applications:

- USB 2.0 power and data line
- Set-top box and digital TV
- Digital video interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet

Pin Configuration



Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000pcs
- Reel Size: 7 inch
- Device Marking: 3M

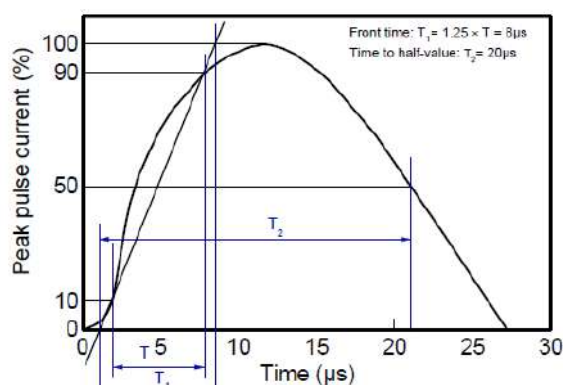
Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pp}	315	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	Kv
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STJ}	-55 to +150	°C

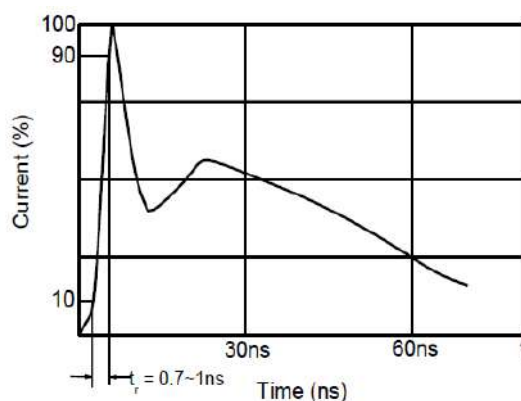
Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}			5	6	V
Breakdown Voltage	V_{BR}	$I_T = 1mA$	6.5		8	V
Reverse Leakage Current	I_R	$V_{RWM} = 5V$			0.1	μA
Clamping Voltage	V_C	$I_{PP} = 5A$ (8 x 20 μs pulse)			9.5	V
Clamping Voltage	V_C	$I_{PP} = 25A$ (8 x 20 μs pulse)			13	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$			110	pF

Characteristic Curves



8/20 μs waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

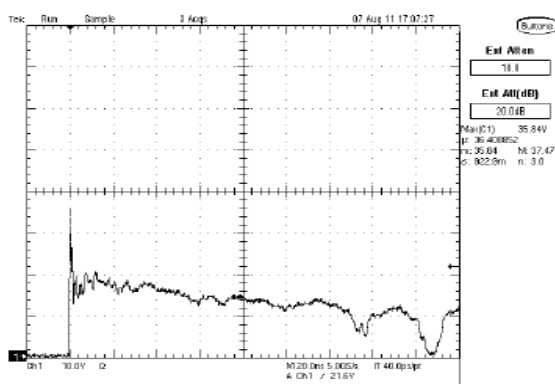


Fig1. ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

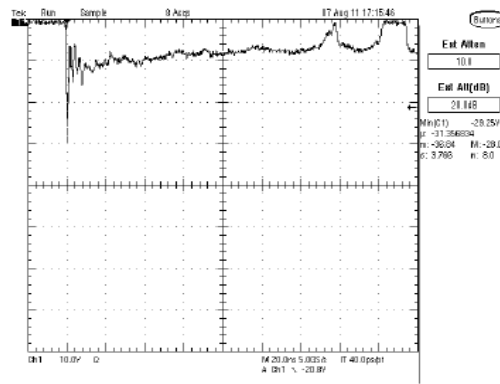
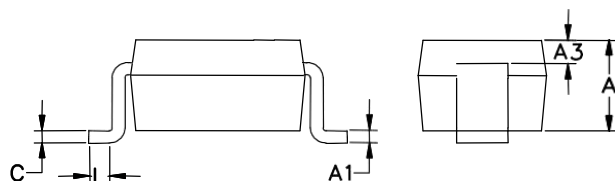
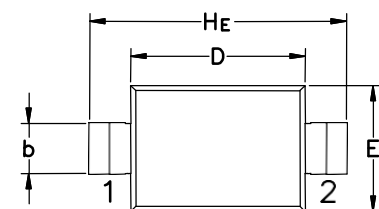


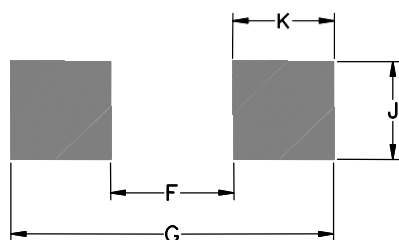
Fig2. ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000-4-2

SOD-323 Package Outline & Dimensions



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.80	0.90	1.15	0.031	0.035	0.045
A1	0.001	0.05	0.15	0.004	0.002	0.006
A3	0.15 REF			0.006 REF		
b	0.25	0.32	0.45	0.010	0.012	0.018
C	0.100	0.12	0.150	0.004	0.005	0.006
D	1.60	1.70	1.95	0.063	0.066	0.077
E	1.10	1.25	1.50	0.043	0.049	0.059
L	0.08			0.003		
HE	2.65	2.85	3.10	0.104	0.112	0.122

Soldering Footprint



Symbol	Millimeters	Inches
F	1.60	0.063
G	3.20	0.125
J	0.60	0.024
K	0.80	0.031