

1-Line Standard Capacitance Bi-directional TVS Diode

Features

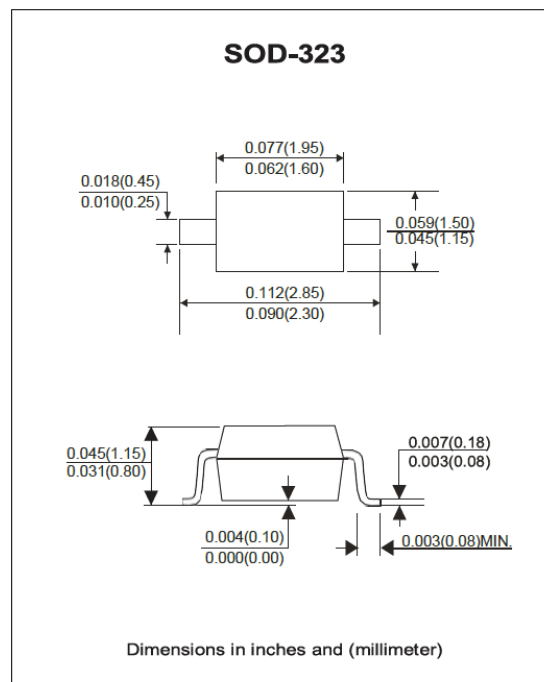
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact).
- IEC 61000-4-5 (Lightning) 20A (8/20 μs).
- 450W peak pulse power (8/20 μs).
- Replacement for MLV (0805).
- Protects one power or I/O port.
- Low Clamping Voltage.
- Operating voltage: 12V.

Applications

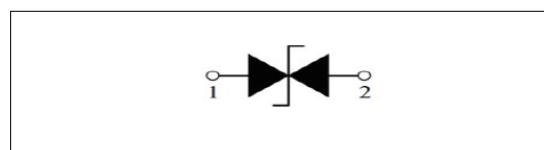
- Laptop Computers.
- Cellular Phones.
- Digital Cameras.
- Personal Digital Assistant.

Mechanical Characteristics

- Package: Molded JEDEC SOD-323.
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- RoHS Compliant



Circuit Diagram

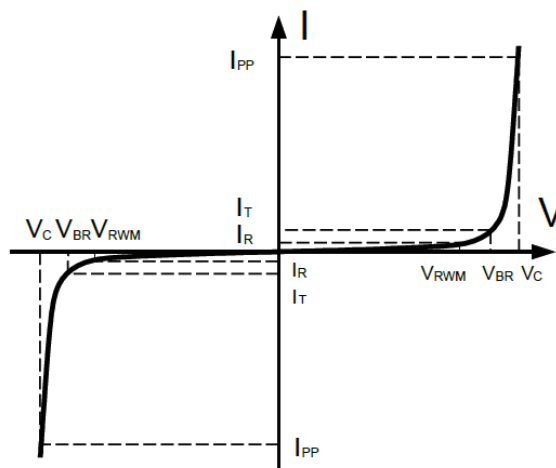


Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	450	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	20	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	KV
Operating Temperature Range	T_J	-55 to + 125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to + 150	$^\circ\text{C}$

Electrical Parameters ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				12	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.3			V
Reverse leakage current	I_R	$V_{RWM} = 12\text{V}$			0.1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$		15.6		V
Clamping Voltage	V_C	$I_{PP} = 20\text{A}, t_p = 8/20\mu\text{s}$			22.9	V
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		80		pF

Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

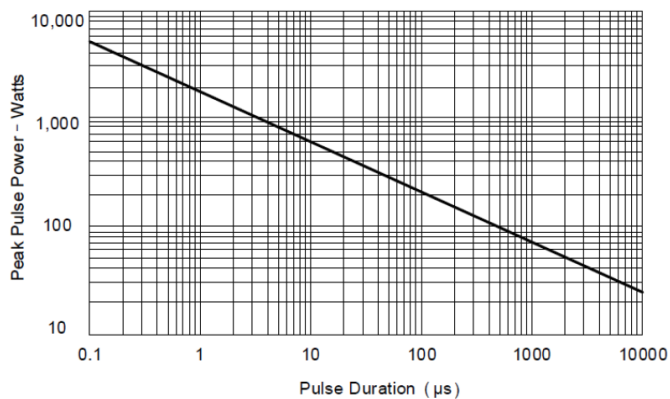


Fig 1. Peak Pulse Power vs. Pulse Time

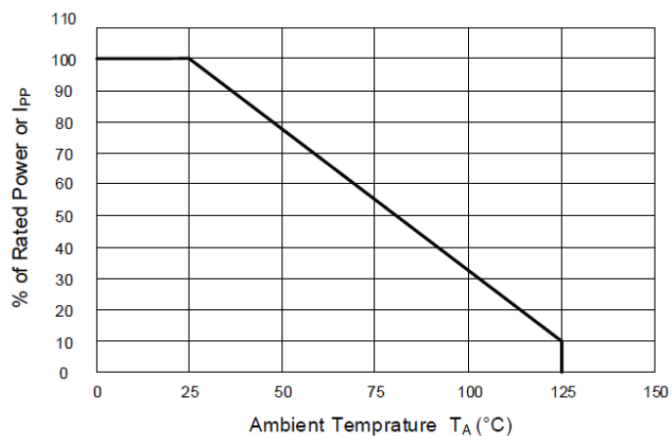


Fig 2. Power Derating Curve

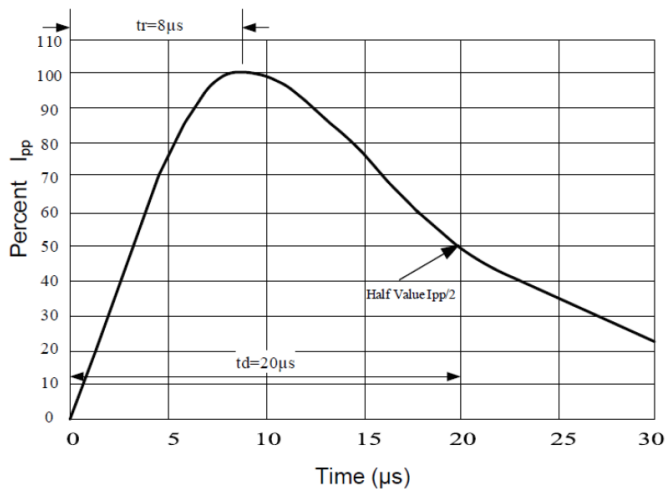


Fig 3. 8x20µs Pulse Waveform

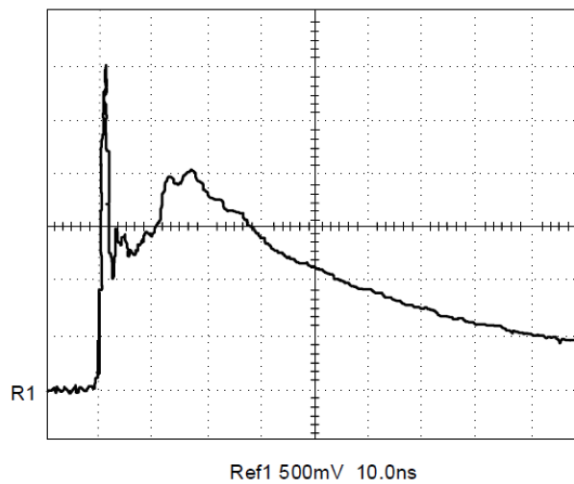
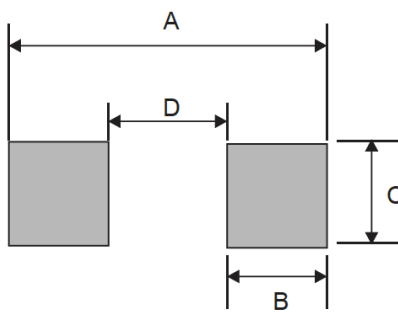


Fig 4. ESD Clamping Voltage Per IEC 61000-4-2

Suggested PAD Layout

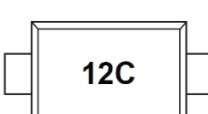
Symbol	SOD-323	
	(mm)	(inch)
A	2.85	0.112
B	0.63	0.025
C	0.83	0.033
D	1.60	0.063



The diagram illustrates the suggested pad layout for the SOD-323 package. It shows two rectangular pads. Dimension A is the total width between the inner edges of the pads. Dimension B is the width of the right pad. Dimension C is the height of the pads. Dimension D is the distance between the inner edges of the pads.

Marking Code

Part Number	Marking Code
SC12F1BST	12C



The diagram shows a top-down view of the package with the marking code '12C' printed in the center.

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SC12F1BST	SOD-323	3,000	7	Tape and reel