

1-Line Bi-directional TVS Diode

Features

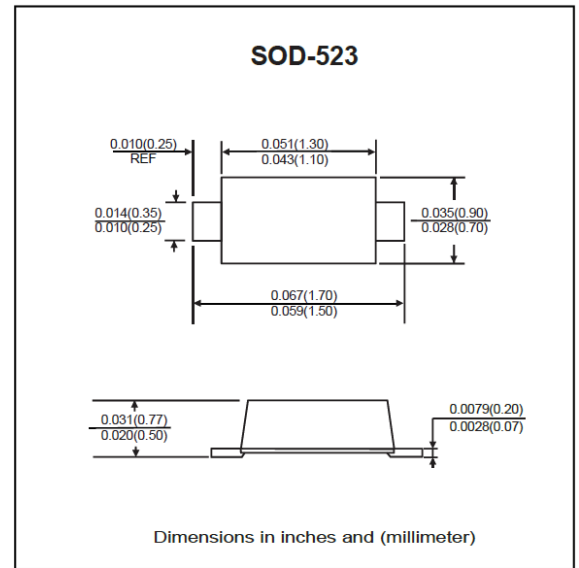
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC 61000-4-5 (Lightning) 5A (8/20 μs)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- Protects one directional I/O line
- Low clamping voltage
- Operating voltage: 5V
- Low leakage current

Applications

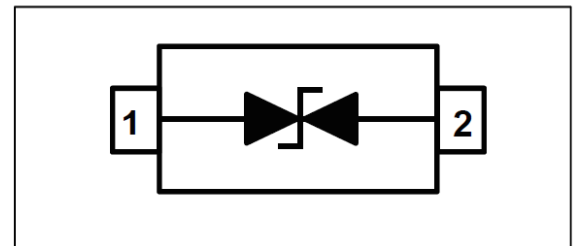
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Personal Digital Assistants
- Portable Instrumentation
- Digital Cameras
- Peripherals

Mechanical Characteristics

- Package: SOD-523
- Case Material : “Green” Molding Compound.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Moisture Sensitivity : Level 3 per J-STD-020
- RoHS Compliant



Circuit Diagram

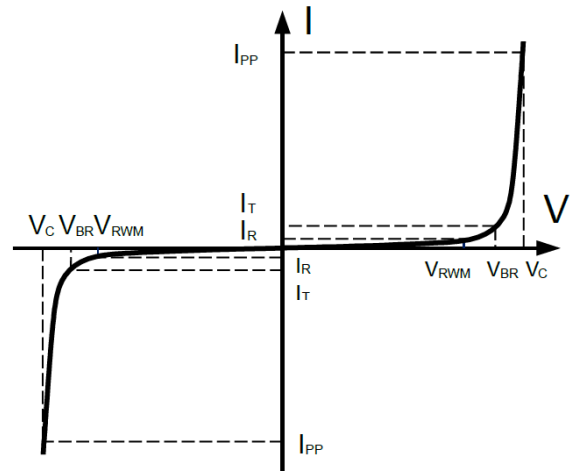


Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	100	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	5	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 Standoff Voltage	V_{RWM}				5.0	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	5.6		9.0	V
Reverse leakage current	I_R	$V_{RWM} = 5\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$			9.5	V
Clamping Voltage	V_C	$I_{PP} = 5\text{A}, t_p = 8/20\mu\text{s}$			15	V
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$			15	pF

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

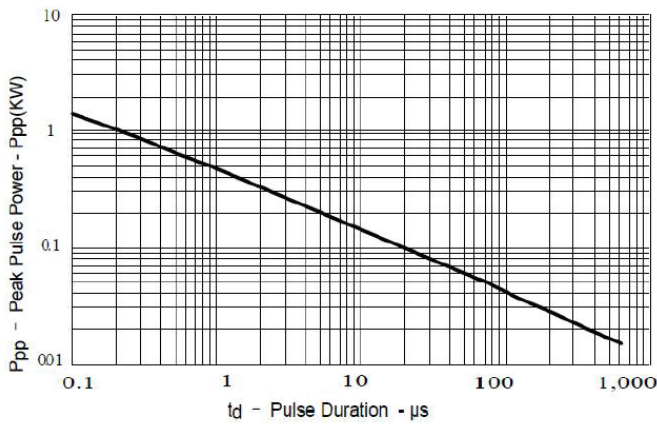


Fig 1. Peak Pulse Power vs. Pulse Time

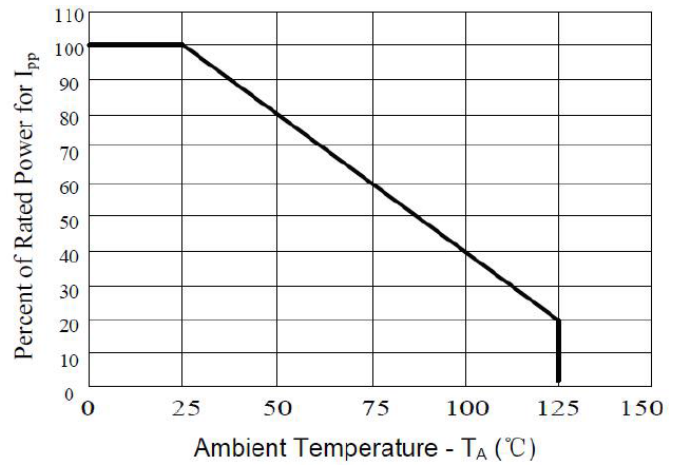


Fig 2. Power Derating Curve

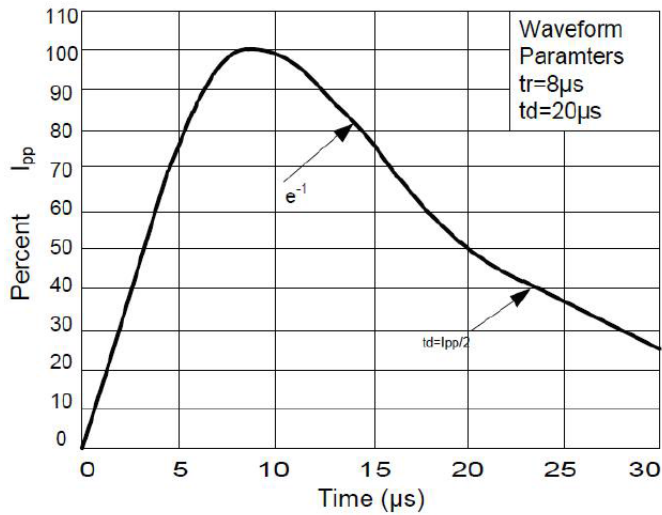


Fig 3. 8/20 μs Pulse Waveform

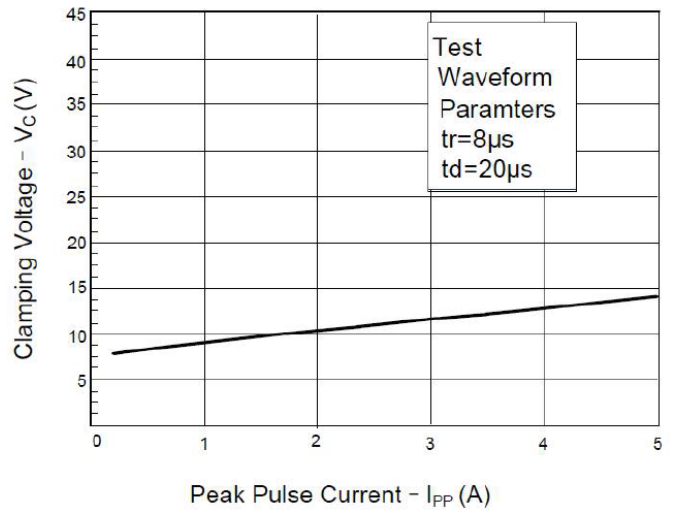
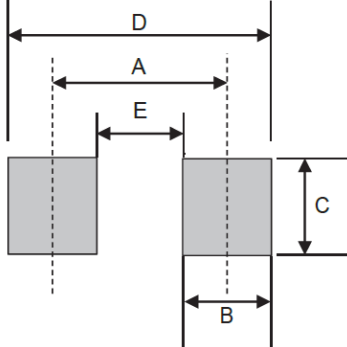


Fig 4. Clamping Voltage vs. Peak Pulse Current

Suggested PAD Layout

Symbol	SOD-523	
	(mm)	(inch)
A	1.40	0.055
B	0.60	0.024
C	0.70	0.028
D	2.00	0.079
E	0.80	0.031



The diagram illustrates the suggested pad layout for the SOD-523 package. It shows two rectangular pads with dimensions A, B, C, D, and E. Dimension A is the width of the pads, B is the width of the lead, C is the height of the lead, D is the total width including the lead, and E is the distance between the pads.

Marking Code

Part Number	Marking Code	
STCS5050BS	5C	

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCS5050BS	SOD-523	3,000	7	Tape and reel