

1-Line Bi-directional TVS Diode

Features

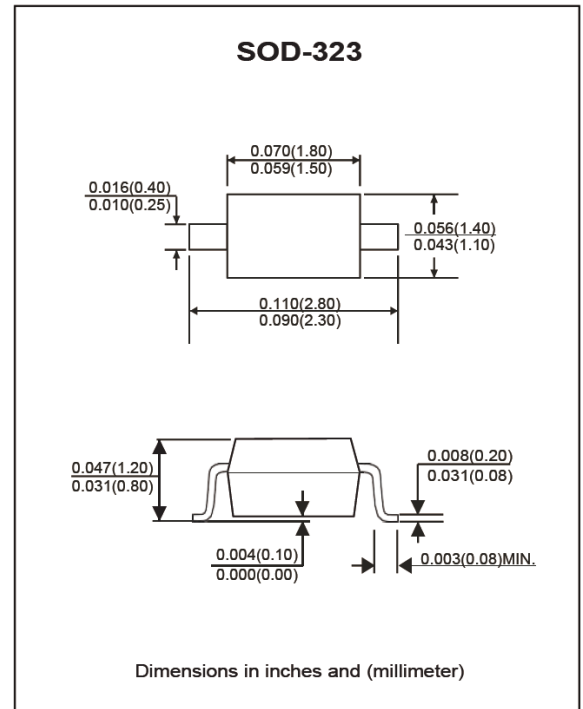
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 26A (8/20 μs)
- Protects One Power or I/O Port.
- Low Clamping Voltage.
- Operating voltage: 5V.
- Low Leakage Current.

Applications

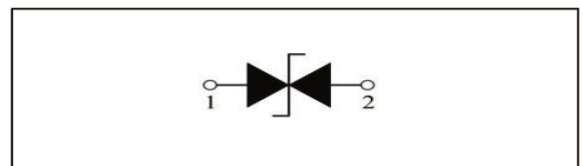
- Cellular Handsets and Accessories.
- Notebooks and Handhelds.
- Desktop and Servers.
- Personal Digital Assistant (PDA).

Mechanical Characteristics

- Package: Molded JEDEC SOD-323.
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Material: 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}	380	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	26	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}	$I_T = 1\text{mA}$	6.0			V
Reverse leakage current	I_R	$V_{RWM} = 5.0\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$		7.5	8.0	V
Clamping Voltage	V_C	$I_{PP} = 26\text{A}, t_P = 8/20\mu\text{s}$		10	15	V
Clamping Voltage	V_C	$I_{PP} = 4\text{A} (t_P = 0.2/100\text{ns})$		7		V
Clamping Voltage	V_C	$I_{PP} = 16\text{A} (t_P = 0.2/100\text{ns})$		7.7		V
Dynamic Resistance	R_{DYN}	TLP=0.2/100ns		0.06		Ω
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		80	100	pF

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

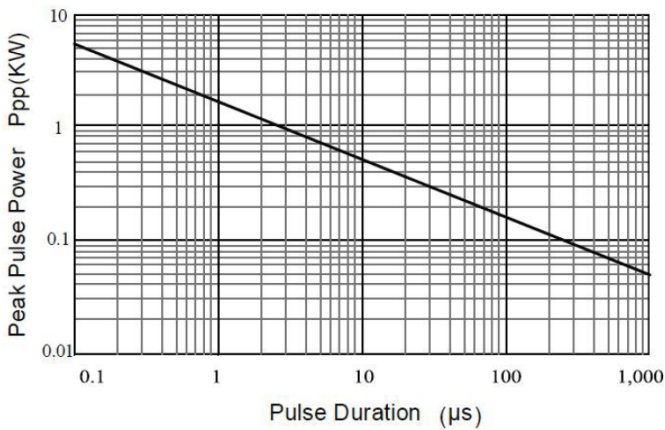


Fig.1 Peak Pulse Power vs. Pulse Time

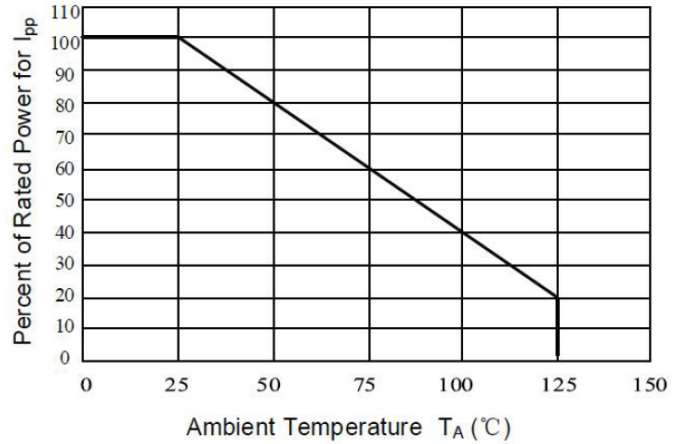


Fig.2 Power Derating Curve

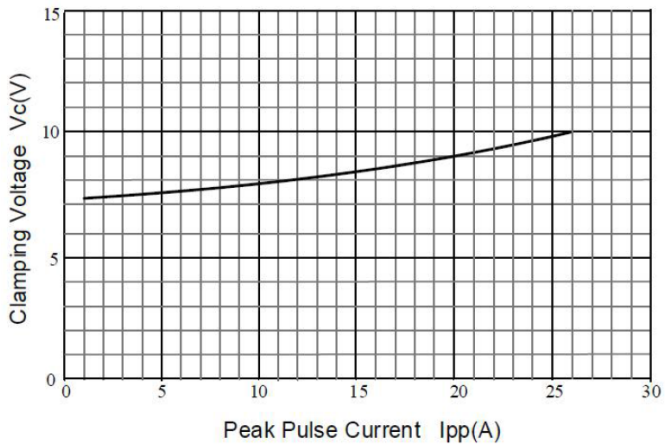


Fig.3 Clamping Voltage vs. Peak Pulse Current

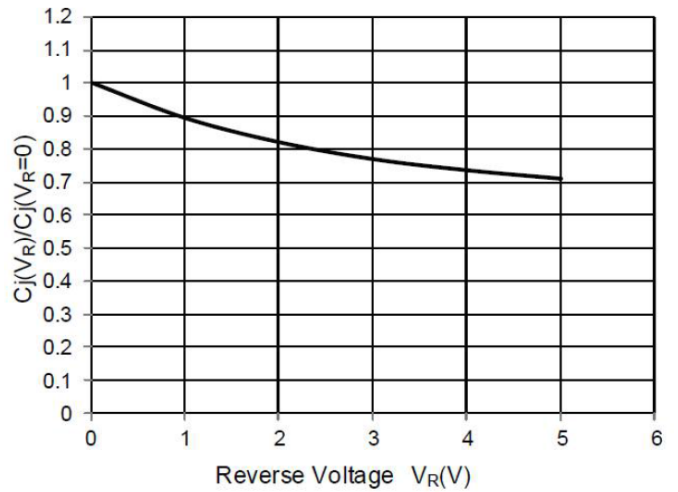


Fig.4 Junction Capacitance vs. Reverse Voltage

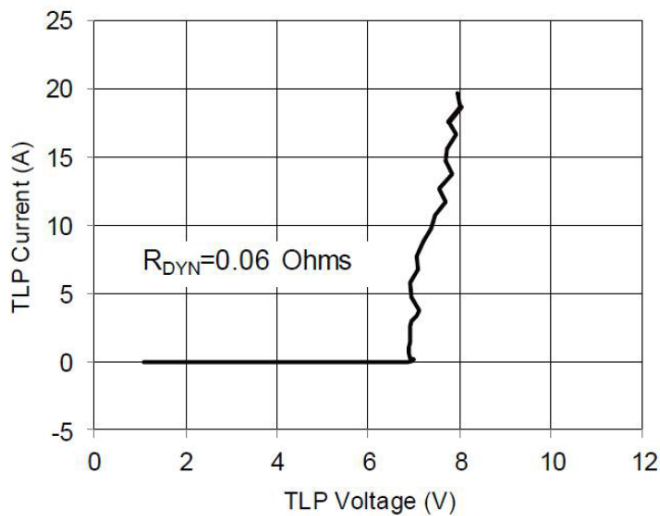


Fig.5 TLP Positive I-V Curve

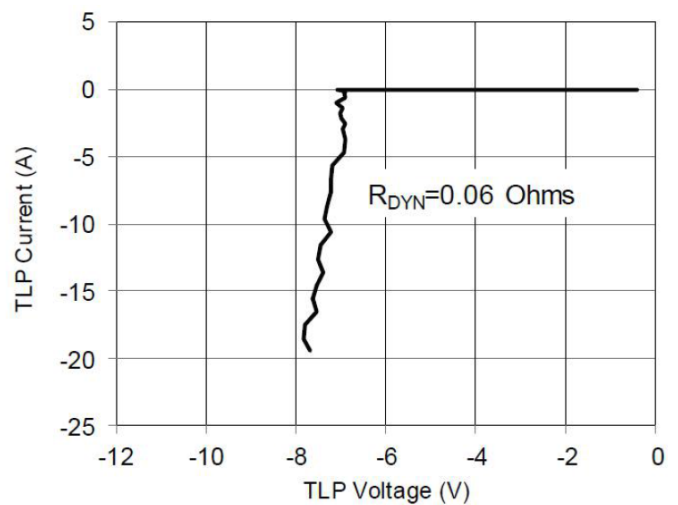
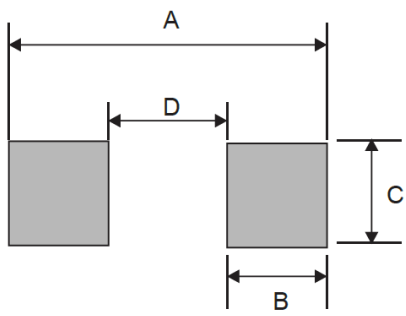


Fig.6 TLP Negative I-V Curve

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	

Marking Code

Part Number	Marking Code	
STCS3050BH	05B	

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCS3050BH	SOD-323	3,000	7	Tape and reel