

1-Line Ultra Low Capacitance Bi-directional TVS Diode

Features

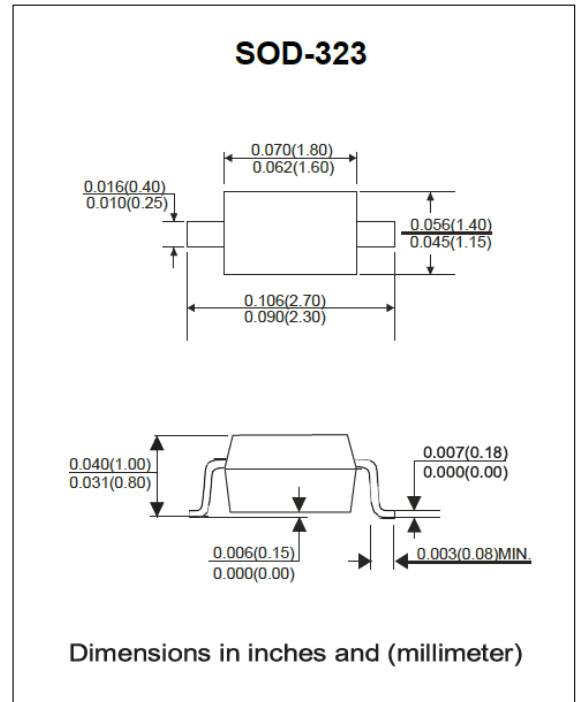
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 12A (8/20 μs)
- Low clamping voltage
- Low leakage current
- Operating voltage: 12V
- Low leakage current

Applications

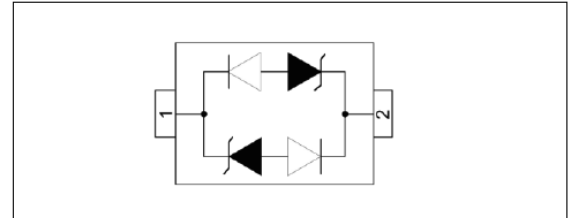
- Cellular Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- USB Interface
- Peripherals

Mechanical Characteristics

- Package: SOD-323
- Flammability Rating: UL 94V-0
- High temperature soldering guaranteed: 260°C/10s
- Material: Halogen free



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}	350	W
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 + 150	$^\circ\text{C}$
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}				12	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.3			V
Reverse leakage current	I_R	$V_{RWM} = 12\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$			19	V
Clamping Voltage	V_C	$I_{PP} = 6\text{A}, t_P = 8/20\mu\text{s}$			24	V
Clamping Voltage	V_C	$I_{PP} = 12\text{A}, t_P = 8/20\mu\text{s}$			28.6	V
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		0.8		pF

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

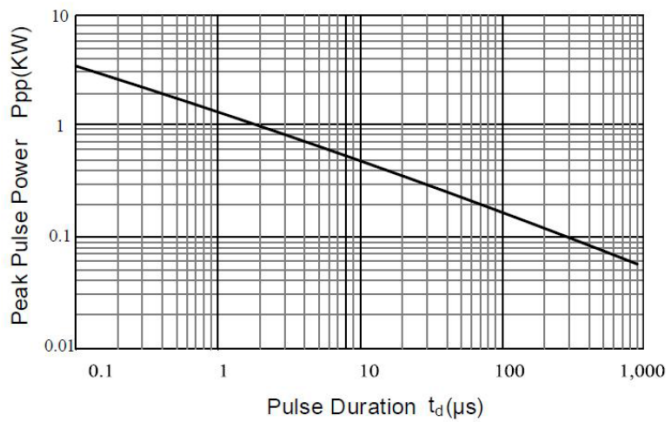


Fig 1. Peak Pulse Power vs. Pulse Time

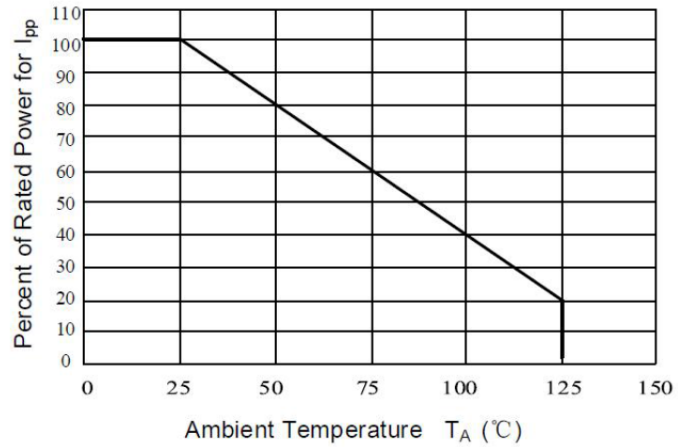


Fig 2. Power Derating Curve

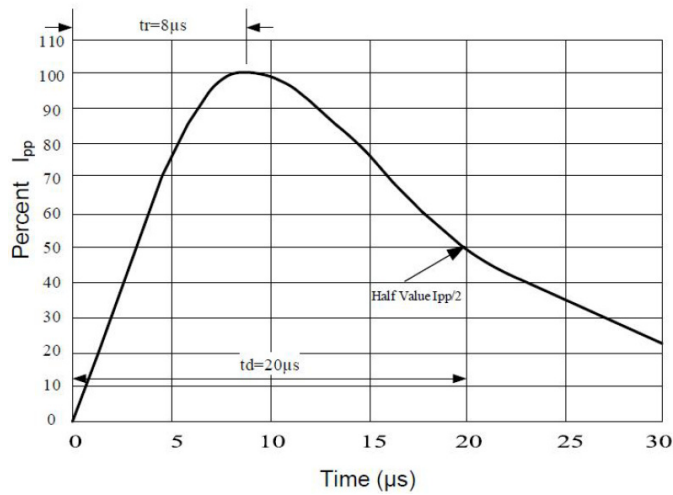


Fig 3. 8/20 μs Pulse Waveform

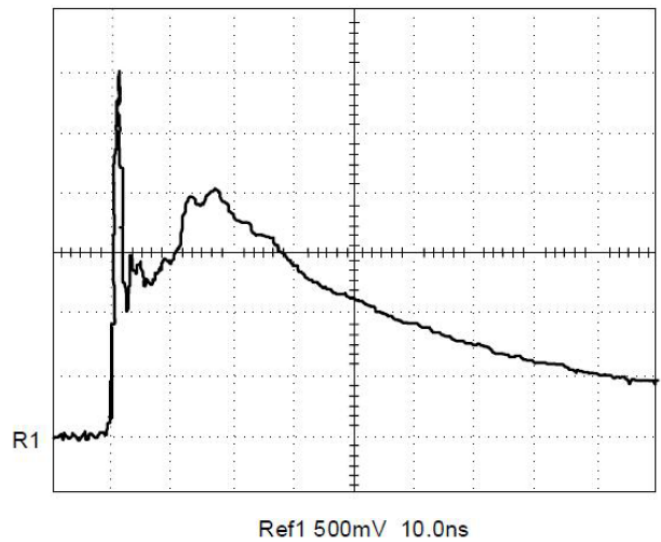


Fig 4. ESD Clamping Voltage per IEC61000-4-2

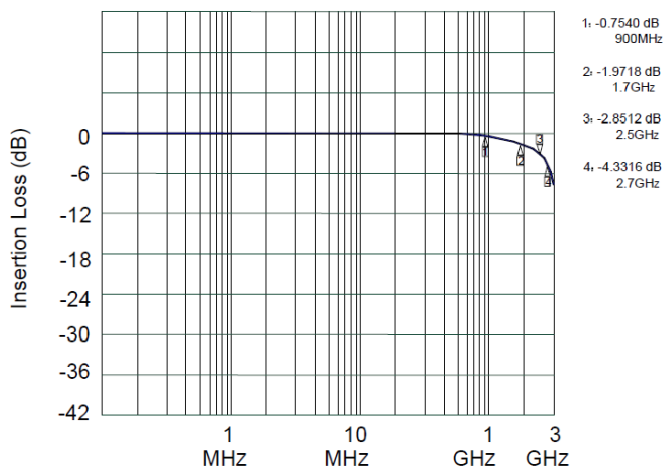
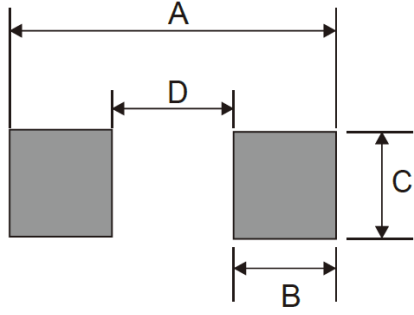


Fig 5. Insertion Loss 21

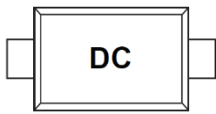
Suggested PAD Layout

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



Polarity Indicator: Cathode Band

(Note: Bi-directional devices have no polarity indicator.)

DC : Marking Code

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCS3012BL	SOD-323	3,000	7	Tape and reel