

### 1-Line Ultra Low Capacitance Bi-directional TVS Diode

#### Features

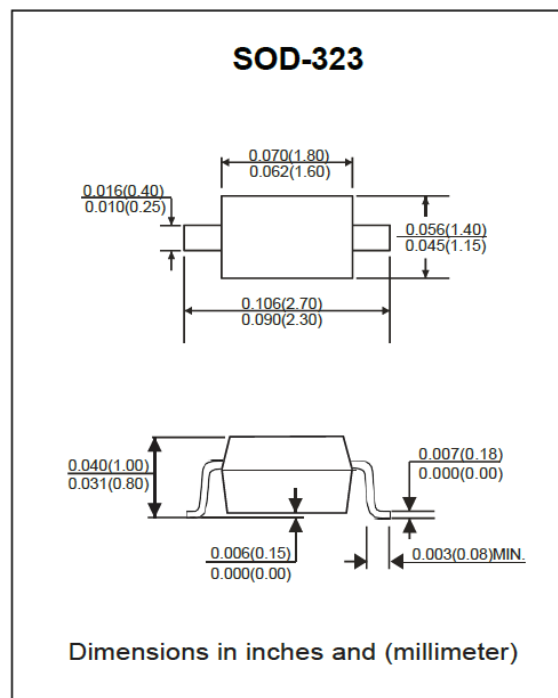
- IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 18A (8/20 $\mu\text{s}$ )
- Protects one I/O line (bidirectional)
- Low clamping voltage
- Low leakage current
- Response Time is  $< 1\text{ ns}$
- Ultra Low Capacitance: 0.8pF (Typical)

#### Applications

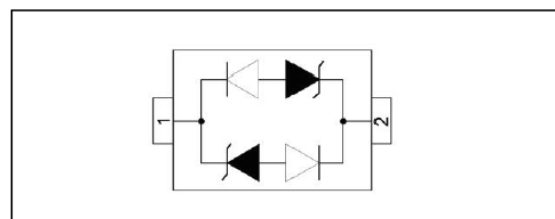
- Cellular Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- USB Interface
- Peripherals

#### Mechanical Characteristics

- Package: SOD-323
- Flammability Rating: UL 94V-0
- High temperature soldering guaranteed:  $260^\circ\text{C}/10\text{s}$
- Material: Halogen free



#### Circuit Diagram



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

Parameter	Symbol	Value	Unit
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	360	W
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm 30$	KV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
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	$V_{RWM}$				5	V
Reverse breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6			V
Reverse leakage current	$I_R$	$V_{RWM} = 5.0\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$			9.8	V
Clamping Voltage	$V_C$	$I_{PP} = 8\text{A}, t_P = 8/20\mu\text{s}$			18.3	V
Clamping Voltage	$V_C$	$I_{PP} = 18\text{A}, t_P = 8/20\mu\text{s}$			20.0	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)

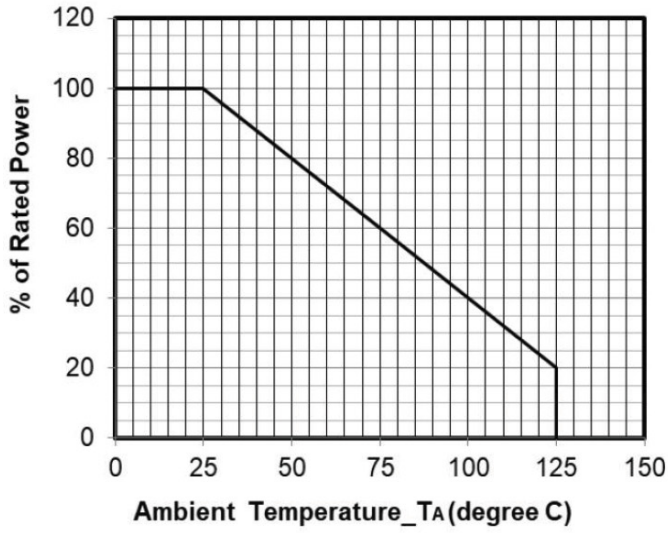


Figure 1: Power Derating Curve

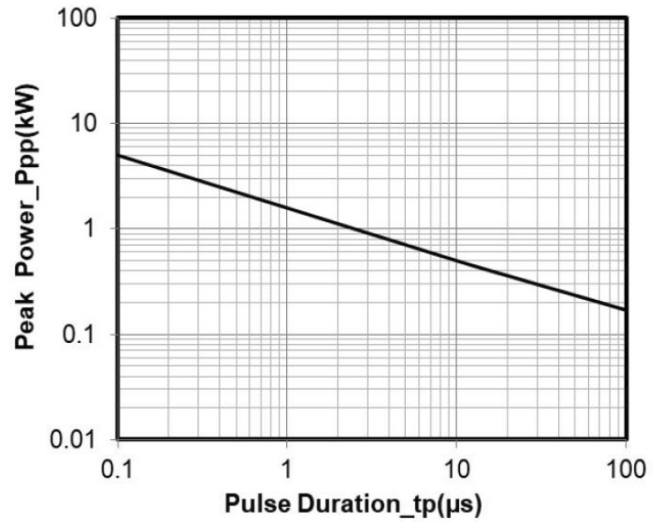


Figure 2: Peak Pulse Power vs. Pulse Time

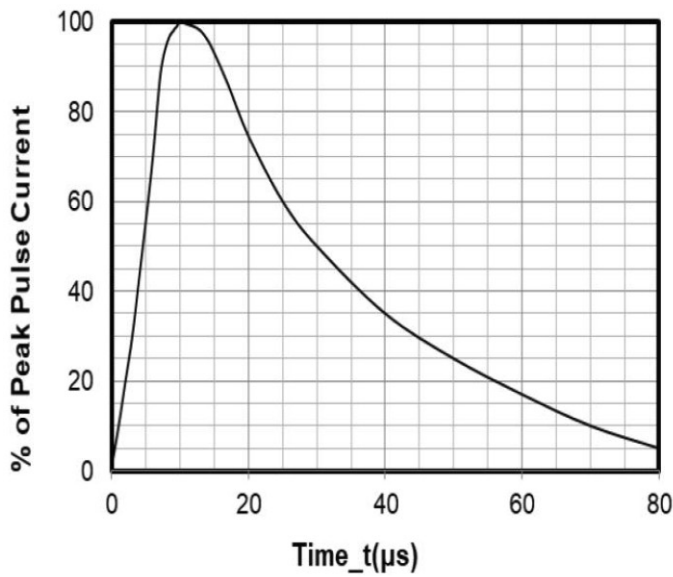
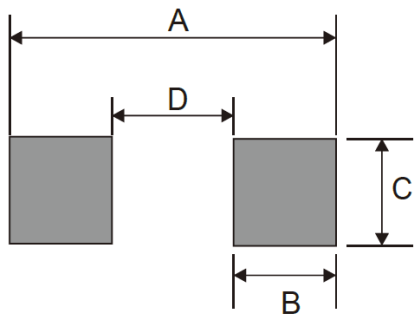


Figure 3: 8 X 20 $\mu\text{s}$  Pulse Waveform

### 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
STCS3050SL	AC



The diagram shows a square package with two leads on opposite sides. The marking code 'AC' is printed in the center of the package.

### Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCS3050SL	SOD-323	3,000	7	Tape and reel