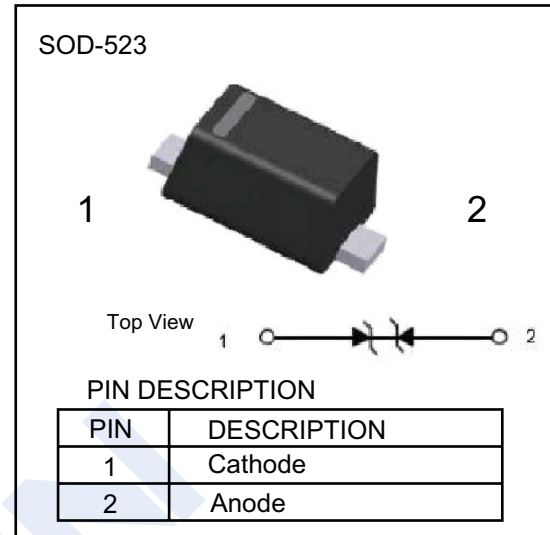


## TVS Diodes

### ESD5Z3.3C

#### ■ Features

- Low Clamping Voltage.
- Small Body Outline Dimensions..
- Low Leakage
- ESD Rating of Class 3(>16kV) per Human Body
- IEC61000-4-2 Level 4 ESD Protection IEC61000-4-4 Level 4 EFT Protection



#### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Value	Unit
IEC 61000-4-2(ESD) Contact Air		±30	KV
		±30	
IEC 61000-4-4(EFT)		40	A
ESD Voltage Per Human Body Model		16	KV
Total Power Dissipation on FR-4 Board *1	P <sub>D</sub>	500	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature range	T <sub>stg</sub>	-55 to +150	
Lead Solder Temperature - Maximum (10 Second Duration)	TL	260	

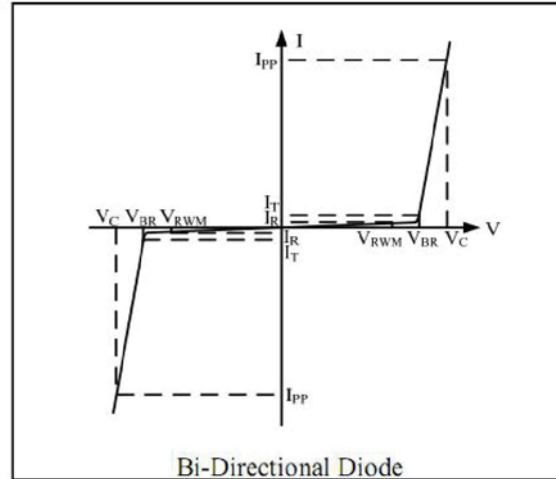
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

\*1. FR-4 printed circuit board, single-sided copper, mounting pad 1 cm<sup>2</sup>

## TVS Diodes ESD5Z3.3C

■ Electrical Characteristics Ta = 25°C unless otherwise noted

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$
$P_{pk}$	Peak Power Dissipation
C	Max. Capacitance @ $V_R = 0$ and $f = 1$ MHz



Device	Marking	VRWM (V)	IR (uA)@ VRWM	VBR (V)@ IT	IT	VC (V)@ IPP = 5.0 A	VC (V) @ Max IPP	IPP(A)	Ppp(W)	C(pF)	VC
		Max	Max	Min	mA	Typ	Max	Max	Max	Typ	
ESD5Z3.3C	ZE	3.3	0.05	5.0	1.0	8.4	14.1	11.2	158	105	IEC6100-4-2

(TA=25°C unless otherwise noted. VF=1.1V Max.@IF=10mA for all types)

- 1.Surge current waveform per Figure5.
- 2.VBR is measured with a pulse test current IT at an ambient temperature of 25°C
- 3.For test procedure see Figures 3 and 4.

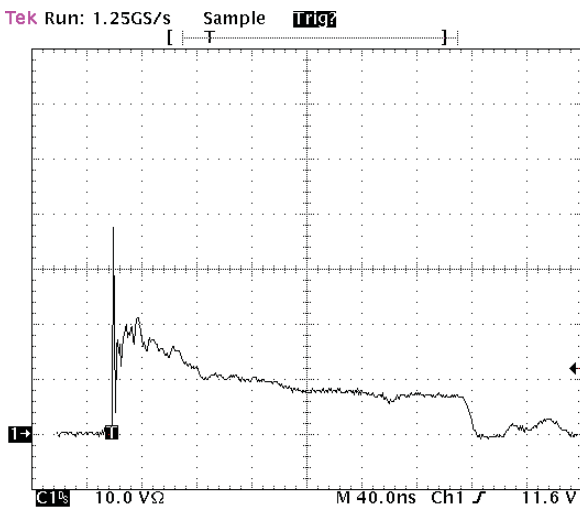


Figure 1. ESD Clamping Voltage Screenshot Positive 8 kV contact per IEC 61000-4-2

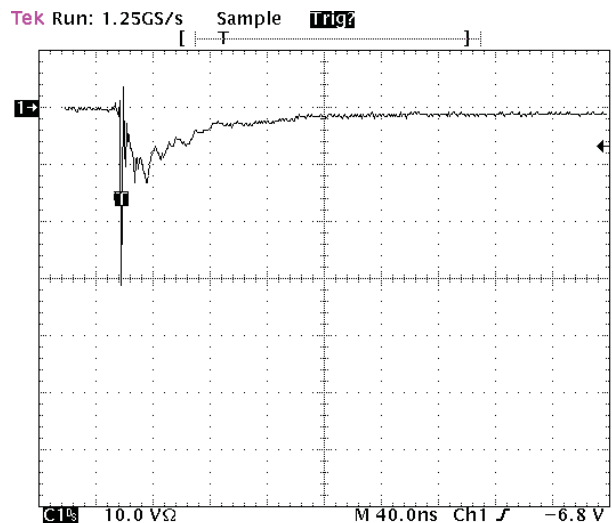


Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV contact per IEC 61000-4-2

## TVS Diodes ESD5Z3.3C

IEC 61000-4-2 Spec.

Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

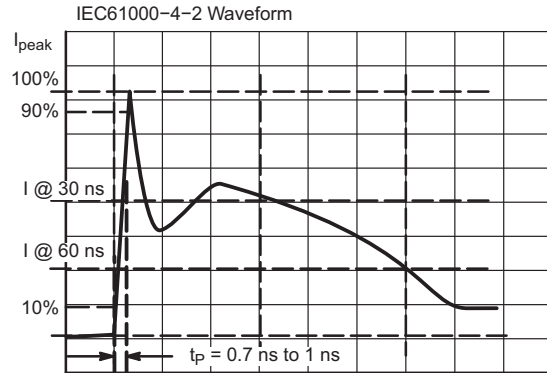


Figure 3. IEC61000-4-2 Spec

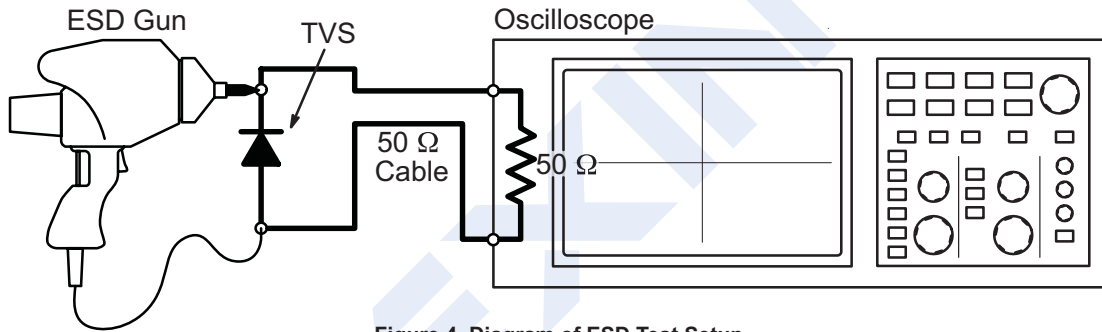


Figure 4. Diagram of ESD Test Setup

### ESD Voltage Clamping

For sensitive circuit elements, it is important to limit the voltage that an IC will be exposed to during an ESD event to as low a voltage as possible. The ESD clamping voltage is the voltage drop across the ESD protection diode during an ESD event per the IEC61000-4-2 waveform. Since the IEC61000-4-2 was written as a pass/fail spec for larger systems such as cell phones or laptop computers it is not clearly defined in the spec how to specify a clamping voltage at the device level.

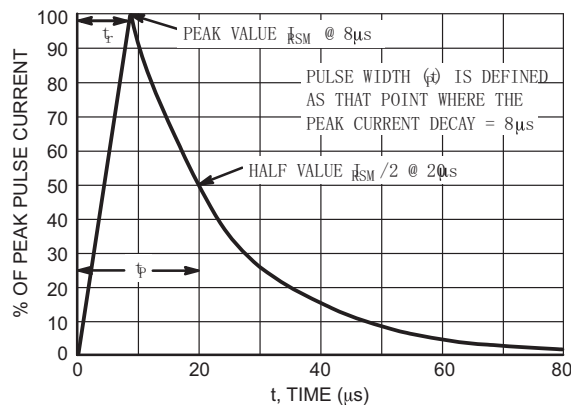
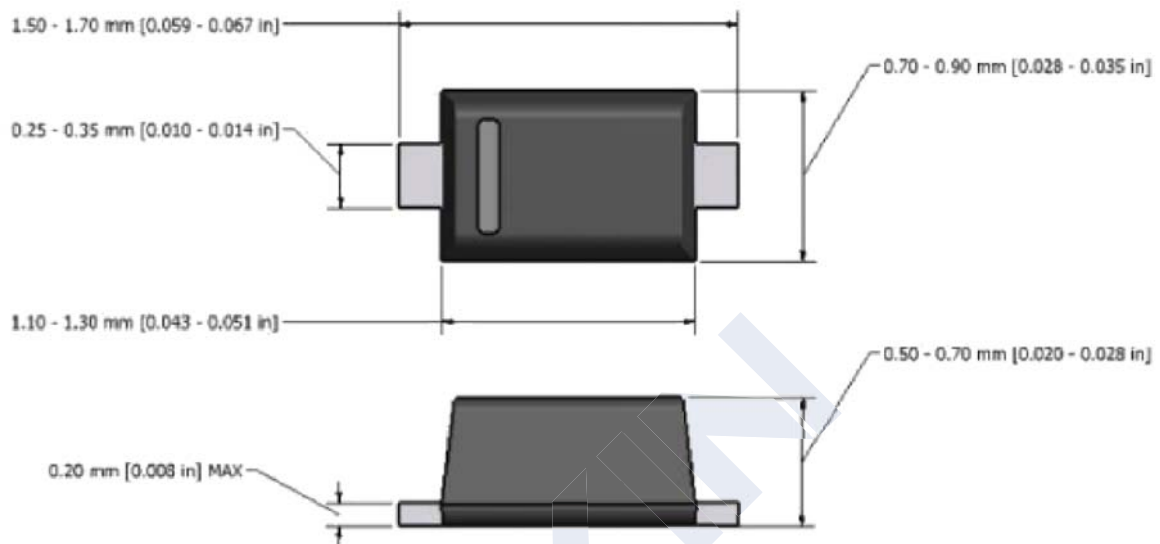


Figure 5. 8 X 20 μs Pulse Waveform

## TVS Diodes ESD5Z3.3C

### ■ Package Outline Dimensions (SOD-523)



**Note:** Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

### ■ The Recommended Mounting Pad Size

