

## Ultra Low Capacitance ESD Protection Diode

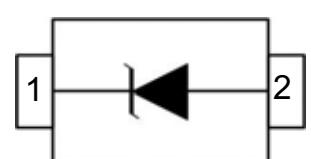
### DESCRIPTION

ESD5Z3.3D is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.4pF, ESD5Z3.3D is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

ESD5Z3.3D uses ultra-small SOD-523 package. Each ESD5Z3.3D device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make ESD5Z3.3D ideal for high-speed data port and high-frequency line (e.g., USB 2.0 & antenna line) applications, such as cellular phones and HD visual devices.

### ORDERING INFORMATION

- ◊ Device: ESD5Z3.3D
- ◊ Package: SOD-523
- ◊ Marking: 3L
- ◊ Material: Halogen free
- ◊ Packing: Tape & Reel
- ◊ Quantity per reel: 3,000pcs



### PIN CONFIGURATION

### FEATURES

- ◊ Transient protection for high-speed data lines  
IEC 61000-4-2 (ESD)  $\pm 15\text{kV}$  (Air)  
 $\pm 8\text{kV}$  (Contact)
- IEC 61000-4-4 (EFT) 40A (5/50 ns)  
Cable Discharge Event (CDE)
- ◊ Package optimized for high-speed lines
- ◊ Ultra-small package (1.6mm×0.8mm×0.6mm)
- ◊ Protects one data, control line
- ◊ Low capacitance: 0.4pF (Typical)
- ◊ Low leakage current
- ◊ Low clamping voltage

### MACHANICAL DATA

- ◊ SOD-523 package
- ◊ Flammability Rating: UL 94V-0
- ◊ Packaging: Tape and Reel
- ◊ High temperature soldering guaranteed: 260°C/10s
- ◊ Reel size: 7 inch

### APPLICATIONS

- ◊ Serial ATA
- ◊ Desktops, Servers and Notebooks
- ◊ Cellular Phones
- ◊ MDDI Ports
- ◊ USB2.0 Power and Data Line Protection
- ◊ Display Ports
- ◊ Digital Visual Interfaces (DVI)

### PACKAGE OUTLINE



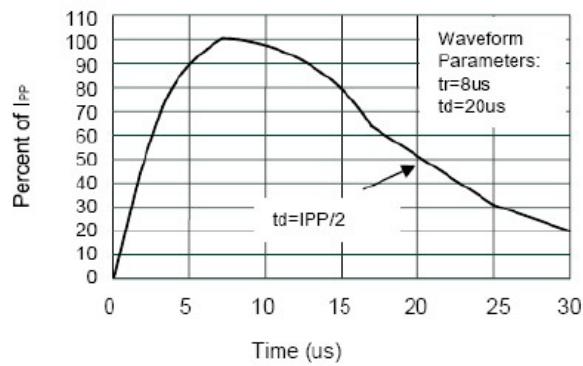
**ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)**

Symbol	Parameter	Value	Units
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±20 ±20	kV
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	56	W
T <sub>OPT</sub>	Operating Temperature	-55~125	°C
T <sub>STG</sub>	Storage Temperature	-55~150	°C

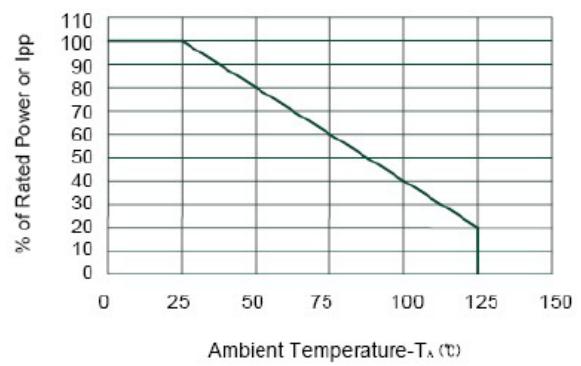
**ELECTRICAL CHARACTERISTICS (Tamb=25°C,unless otherwise specified)**

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage				3.3	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	4.2			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 3.3V			100	nA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs			10	V
		I <sub>PP</sub> = 4A, t <sub>p</sub> = 8/20μs			14	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz		0.4	0.5	pF

## RATING AND CHARACTERISTICS CURVES (ESD5Z3.3D)

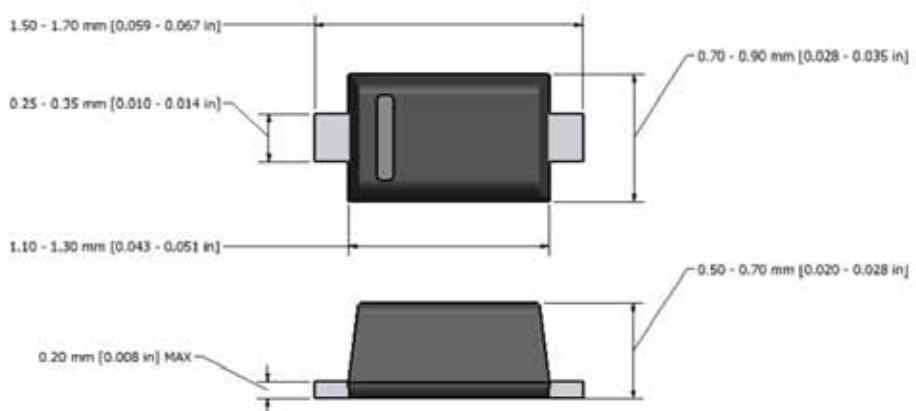


Pulse Waveform



Power Derating Curve

## SOD-523 PACKAGE OUTLINE DIMENSIONS



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

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