

## Ultra Low Capacitance ESD Protection Diode

### DESCRIPTION

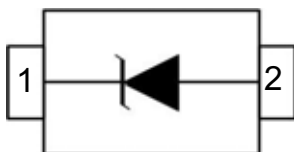
ESD3Z3.3D is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.4pF, ESD3Z3.3D is designed to protect parasitic-sensitive systems against over-voltage and over-current transient 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. ESD3Z3.3D uses ultra-small SOD-323 package.

Each ESD3Z3.3D 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 ESD3Z3.3D 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: ESD3Z3.3D
- ✧ Package: SOD-323
- ✧ 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
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.4pF (Typical)
- ✧ Low leakage current
- ✧ Low clamping voltage

### MACHANICAL DATA

- ✧ SOD-323 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed:  $260^{\circ}\text{C}/10\text{s}$
- ✧ Reel size: 7 inch

### APPLICATIONS

- ✧ Serial ATA
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ HDMI Data Line Protection
- ✧ USB3.0/3.1 Data Line Protection
- ✧ Display Ports
- ✧ Digital Visual Interfaces (DVI)

### PACKAGE OUTLINE



2020-12/01  
REV:A

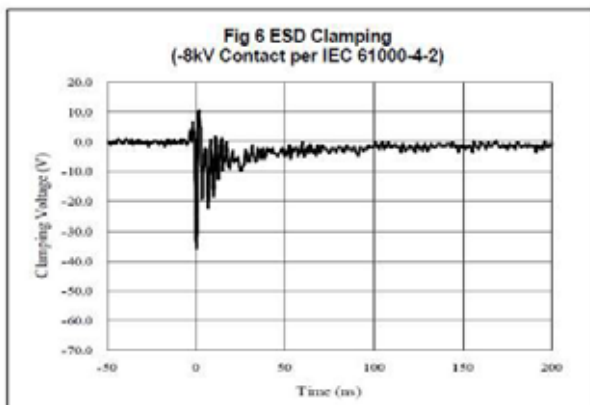
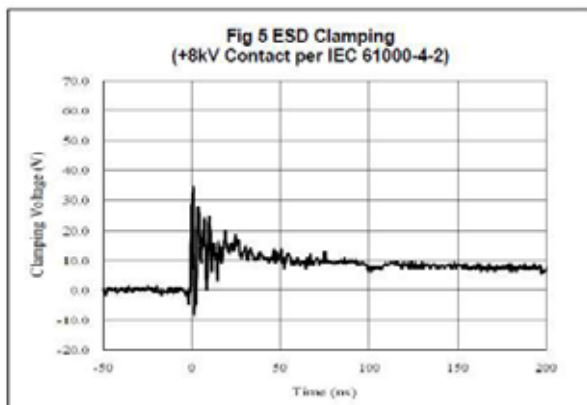
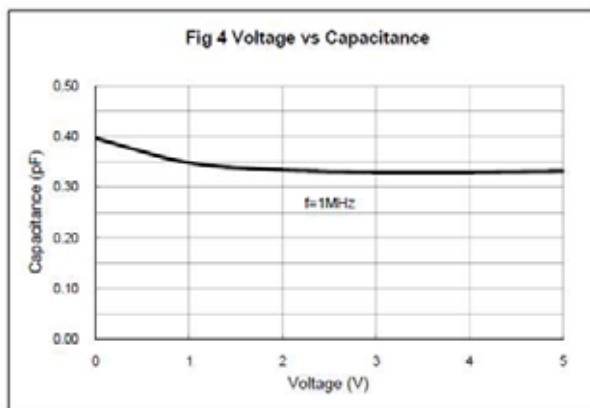
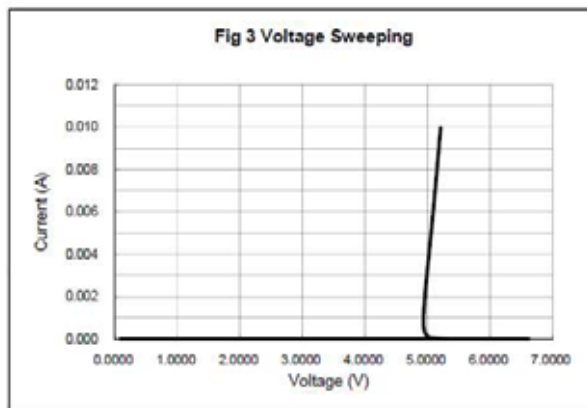
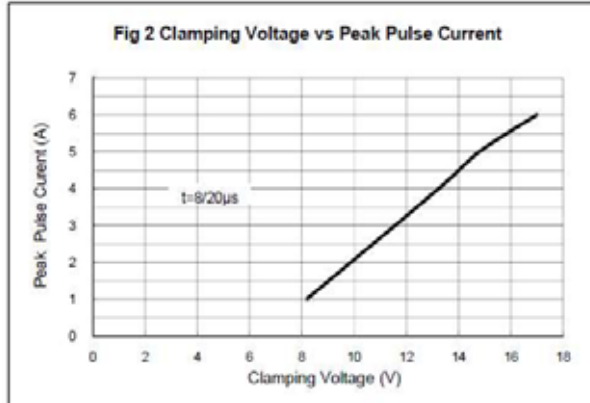
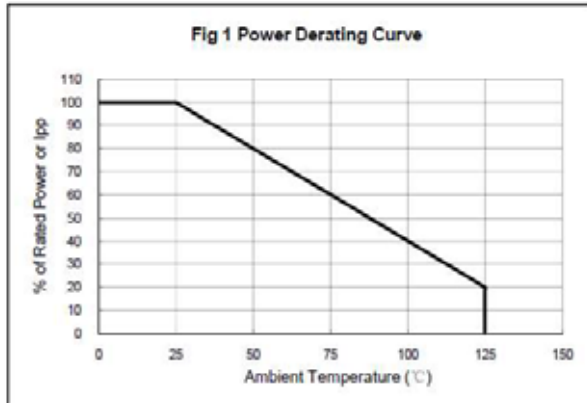
**ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)**

Symbol	Parameter	Value	Units
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Air)	±20	kV
	ESD per IEC 61000-4-2 (Contact)	±20	
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	60	W
T <sub>OPT</sub>	Operating Temperature	-55~125	°C
T <sub>STG</sub>	Storage Temperature	-55~150	°C

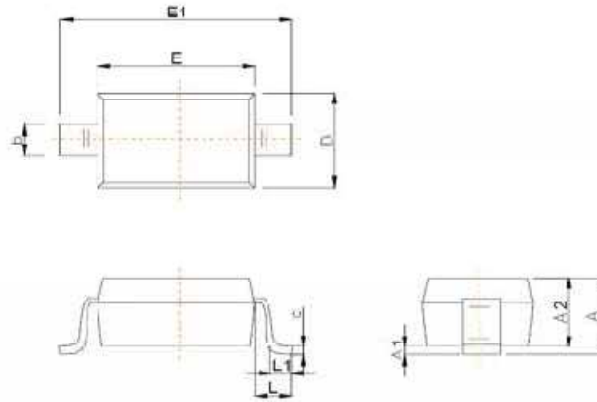
**ELECTRICAL CHARACTERISTICS (Tamb=25°C, unless otherwise specified)**

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			15	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz		0.4	0.7	pF

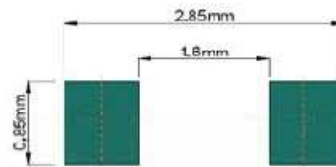
## RATING AND CHARACTERISTICS CURVES (ESD3Z3.3D)



# SOD-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions in Millimeters	
	Min	Max
A		1.00
A1	0.000	0.100
A2	0.800	0.900
b	0.250	0.350
c	0.080	0.150
D	1.200	1.400
E	1.600	1.800
E1	2.500	2.700
e	1.600	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	3°



**Recommended Pad outline**

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