

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

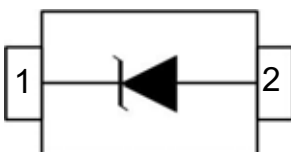
ESD5Z3.3D is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.4pF, ESD5Z3.3D is designed to protect parasitic-sensitive systems against over-voltage and over-current transient 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 \times 0.8mm \times 0.6mm)
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.4pF (Typical)
- ✧ Low leakage current
- ✧ Low clamping voltage

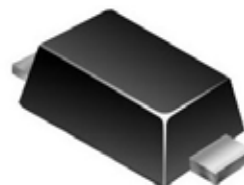
MACHANICAL DATA

- ✧ SOD-523 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$
- ✧ 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



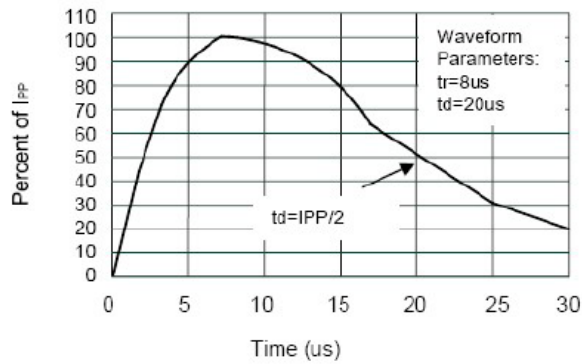
ABSOLUTE MAXIMUM RATING (T_{amb}=25°C, unless otherwise specified)

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

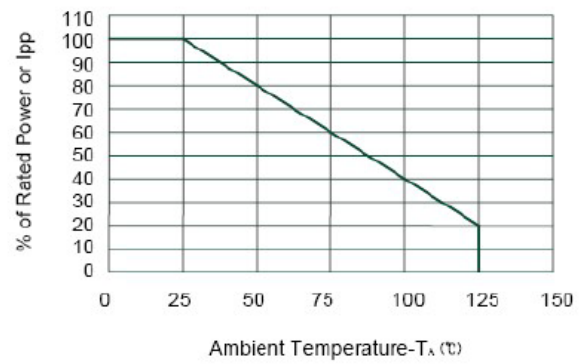
ELECTRICAL CHARACTERISTICS (T_{amb}=25°C, unless otherwise specified)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage				3.3	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA	4.2			V
I _R	Reverse Leakage Current	V _{RWM} = 3.3V			100	nA
V _C	Clamping Voltage	I _{PP} = 1A, t _p = 8/20μs			10	V
		I _{PP} = 4A, t _p = 8/20μs			14	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz		0.4	0.5	pF

RATING AND CHARACTERISTICS CURVES (ESD5Z3.3D)

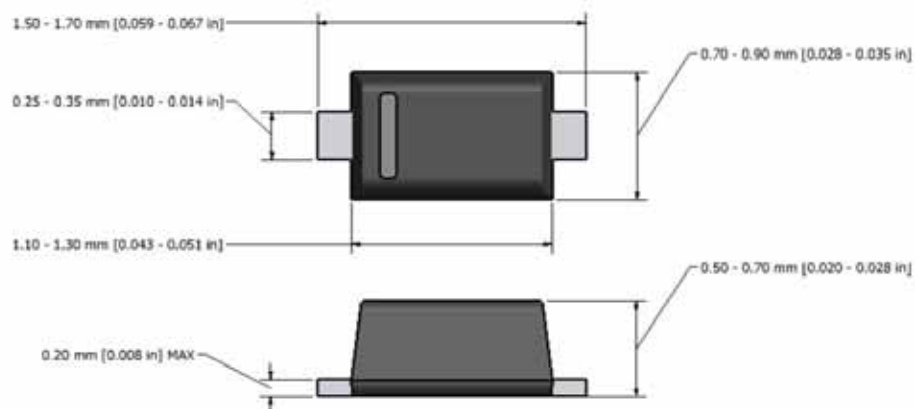


Pulse Waveform



Power Derating Curve

SOD-523 PACKAGE OUTLINE DIMENSIONS



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

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