

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

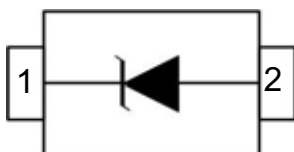
ESD3Z5.0D is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.4pF, ESD3Z5.0D is designed to protect parasitic-sensitive systems against over-voltage and over-current transient 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.

ESD3Z5.0D uses ultra-small SOD-323 package. Each ESD3Z5.0D 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 ESD3Z5.0D 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: ESD3Z5.0D
- ✧ Package: SOD-323
- ✧ Marking: 5L
- ✧ 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

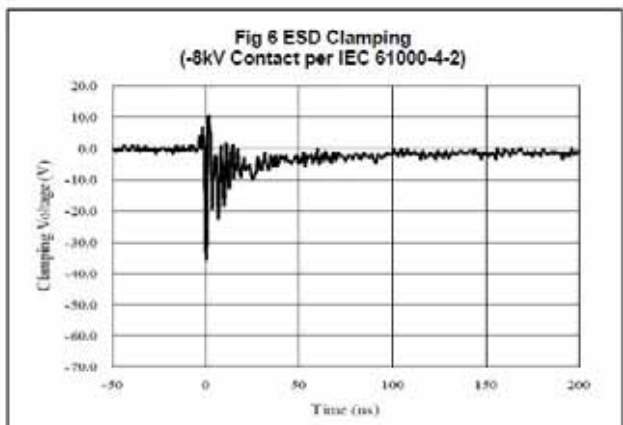
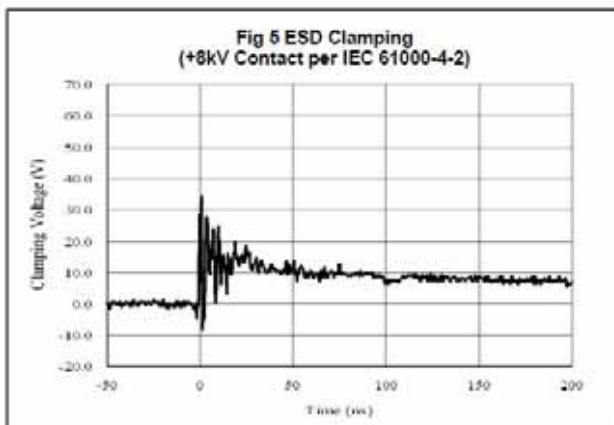
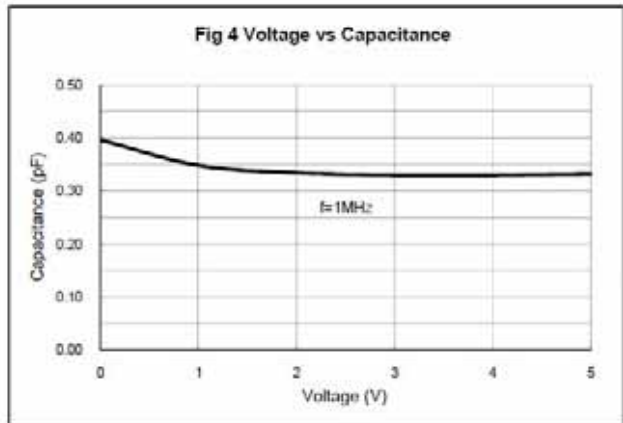
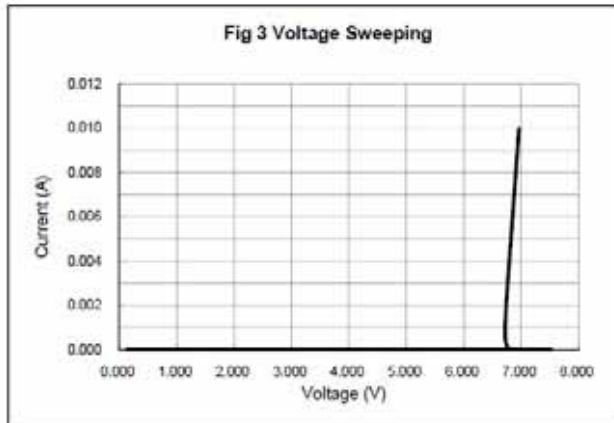
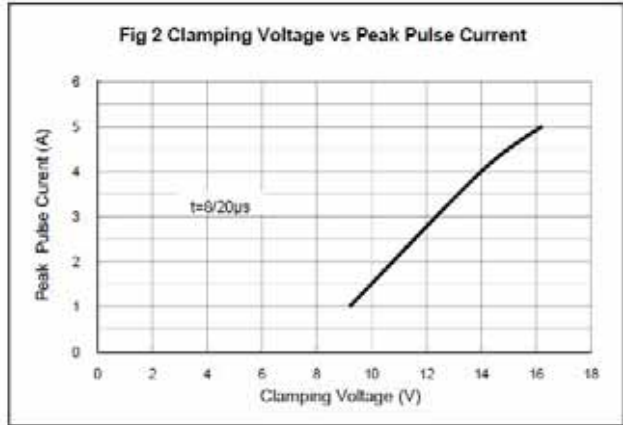
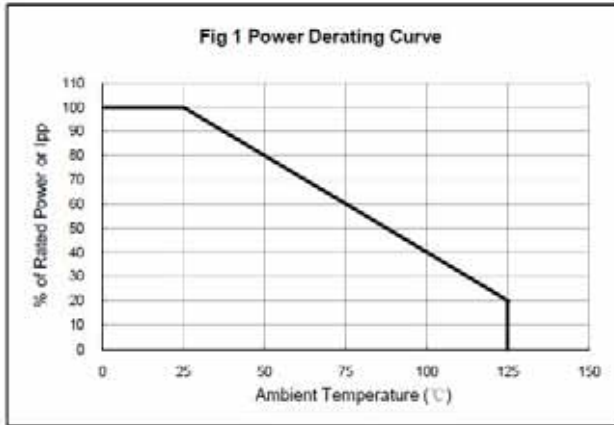
ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)

Symbol	Parameter	Value	Units
V _{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)	60	W
T _{OPT}	Operating Temperature	-55~125	°C
T _{STG}	Storage Temperature	-55~150	°C

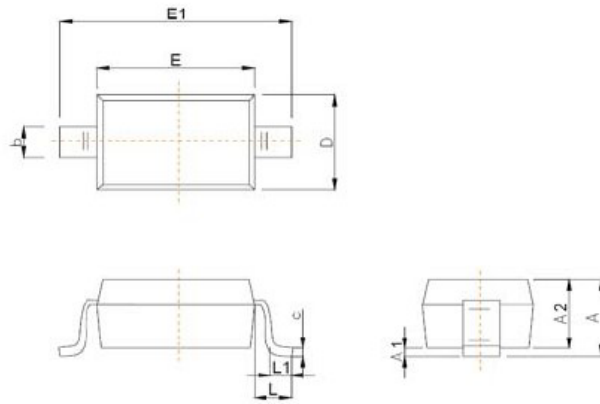
ELECTRICAL CHARACTERISTICS (Tamb=25°C, unless otherwise specified)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage				5.0	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA	6.0			V
I _R	Reverse Leakage Current	V _{RWM} = 5V			100	nA
V _C	Clamping Voltage	I _{PP} = 1A, t _p = 8/20μs			10	V
		I _{PP} = 4A, t _p = 8/20μs			15	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz		0.4	0.7	pF

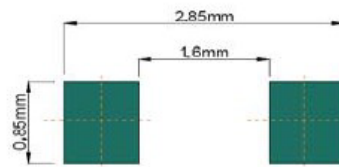
RATING AND CHARACTERISTICS CURVES (ESD3Z5.0D)



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	1.800	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	8°



Recommended Pad outline

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