RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

ESD3Z3V3D

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

ESD3Z3V3D is an ultra low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25 pF, ESD3Z3V3D 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 (±15kV air, ±8kV 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.

ESD3Z3V3D uses ultra-small SOD-323 package. Each ESD3Z3V3D 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 ESD3Z3V3D ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

FEATURES

- ✧Transient protection for high-speed data lines
  - IEC 61000-4-2 (ESD) ±15kV (Air)
  - ±8kV (Contact)
  - IEC 61000-4-4 (EFT) 40A (5/50 ns)
  - Cable Discharge Event (CDE)
- ✧Ultra-small package
- ✧Protects one data, control line
- ✧Low capacitance: 0.25pF (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℃/10s
- ✧Reel size: 7 inch

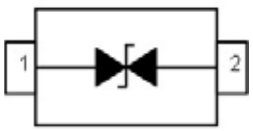
ORDERING INFORMATION

- ✧ Device: ESD3Z3V3D
- ✧Package: SOD-323
- ✧Marking: 3BU
- ✧Material: Halogen free
- ✧Packing: Tape & Reel
- ✧Quantity per reel: 3,000pcs

APPLICATIONS

- ✧10/100M Ethernet Ports
- ✧WAN/LAN Equipment
- ✧Desktops, Servers and Notebooks
- ✧Cellular Phones
- ✧Switching Systems
- ✧Audio/Video Inputs

PIN CONFIGURATION



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)	100	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				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			12	V
		I_{PP} = 4A, t_p = 8/20μs			25	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		0.25	0.40	pF

RATING AND CHARACTERISTICS CURVES (ESD3Z3V3D)

Fig 1 Power Derating Curve

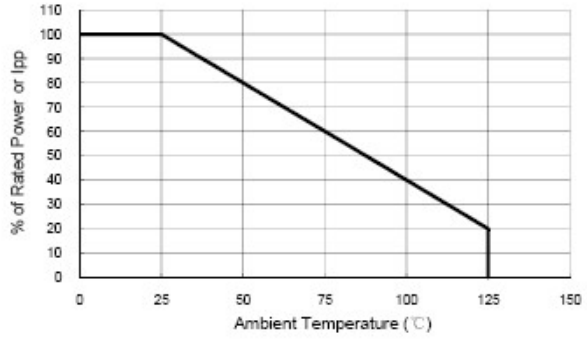


Fig 2 Clamping Voltage vs Peak Pulse Current

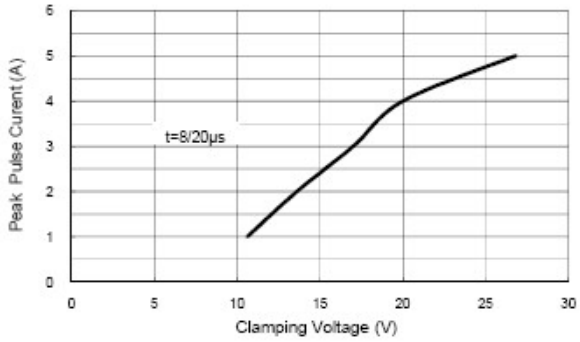


Fig 3 Voltage Sweeping

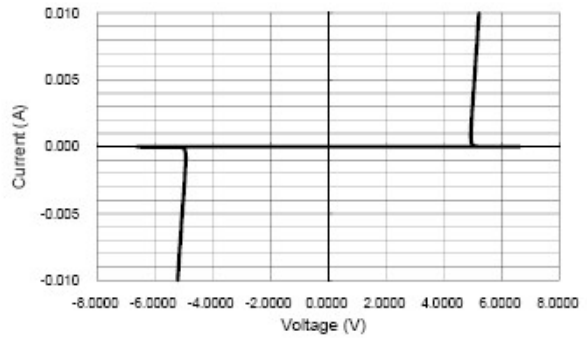


Fig 4 Voltage vs Capacitance

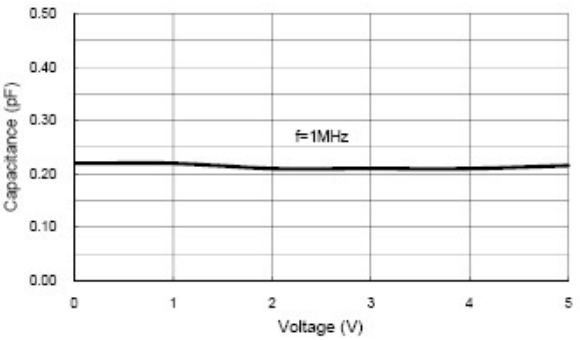


Fig 5 ESD Clamping
(+8kV Contact per IEC 61000-4-2)

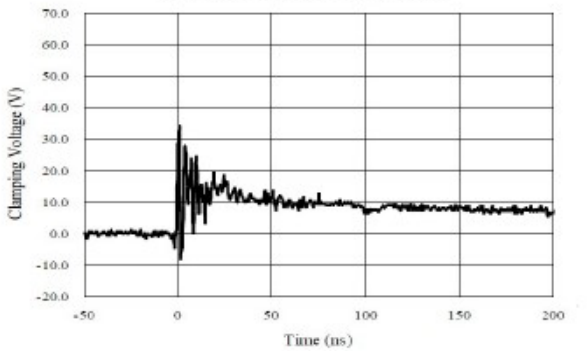
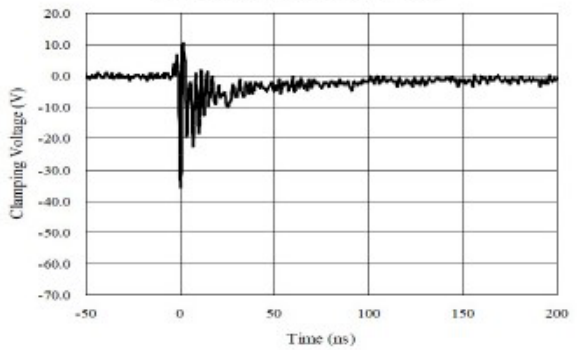
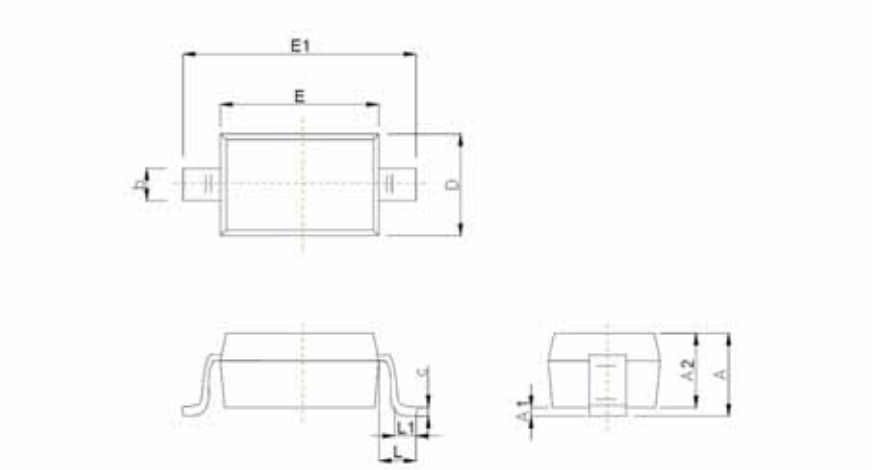


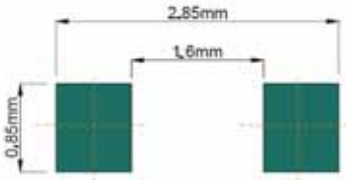
Fig 6 ESD Clamping
(-8kV Contact per IEC 61000-4-2)



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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