RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

ESD5Z3.3DV

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 (±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.

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.

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)
✧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
✧ P/N suffix V means AEC-Q101 qualified, e.g:ESD5Z3.3DV

MACHANICAL DATA

✧SOD-523 package
✧Flammability Rating: UL 94V-0
✧Packaging: Tape and Reel
✧High temperature soldering guaranted:260℃/10s
✧Reel size: 7 inch

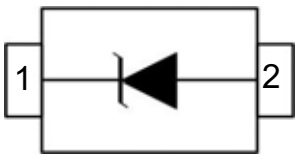
ORDERING INFORMATION

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

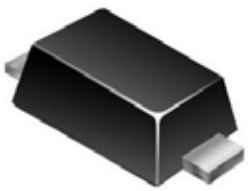
APPLICATIONS

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

PIN CONFIGURATION



PACKAGE OUTLINE



2020-11/01
REV:O

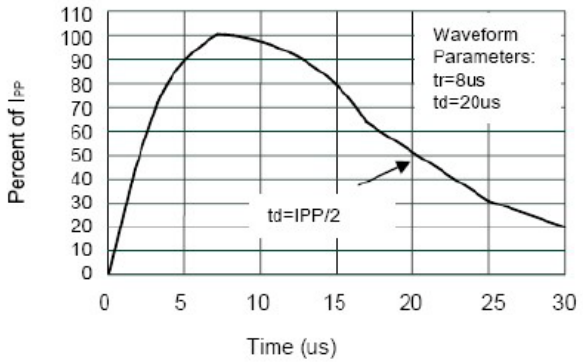
ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)

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)	56	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C

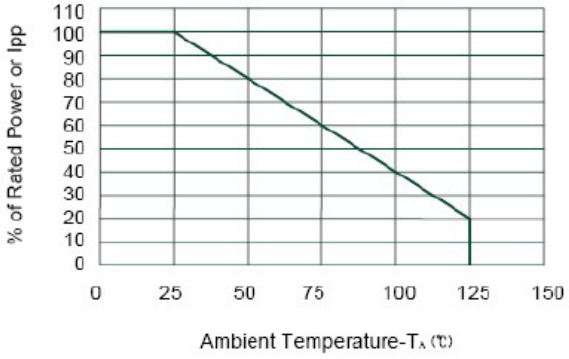
ELECTRICAL CHARACTERISTICS (Tamb=25°C,unless otherwise specified)

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			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 (ESD5Z3.3DV)

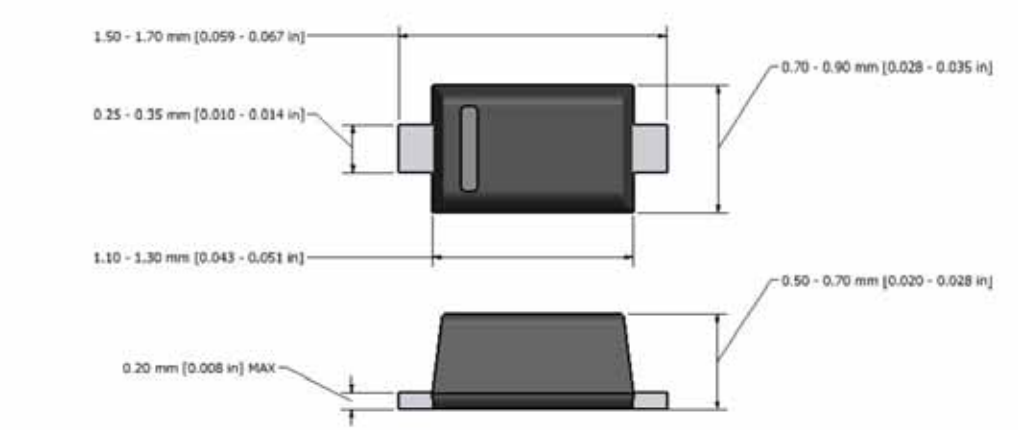


Pulse Waveform



Power Derating Curve

SOD-523 PACKAGE OUTLINE DIMENSIONS



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

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