

SOD-323 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

ESD3Z3V3BU 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 0.25pF, ESD3Z3V3BU 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.

ESD3Z3V3BU uses ultra-small SOD-323 package. Each ESD3Z3V3BU 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 ESD3Z3V3BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

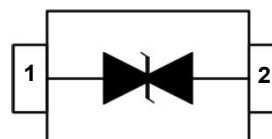
Features

- ◆ Peak power dissipation: 100W (8/20 μs)
- ◆ Transient protection for high-speed data lines
- ◆ IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
Cable Discharge Event (CDE)
- ◆ Protects one data, control line
- ◆ Low capacitance: 0.25pF (Typical)
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ Meets MSL 1 Requirements

Pin Configuration



Circuit Diagram



Applications

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air)	VESD	± 20	KV
ESD per IEC 61000-4-2 (Contact)		± 20	
Peak Pulse Power(8/20 μs)	PPP	100	W
Operating Temperature	T _{OPT}	-55 to +125	$^\circ\text{C}$
Storage Temperature	T _{STG}	-55 to +150	$^\circ\text{C}$
Lead Solder Temperature – Maximum (10 Second Duration)	T _L	260(10 sec.)	$^\circ\text{C}$

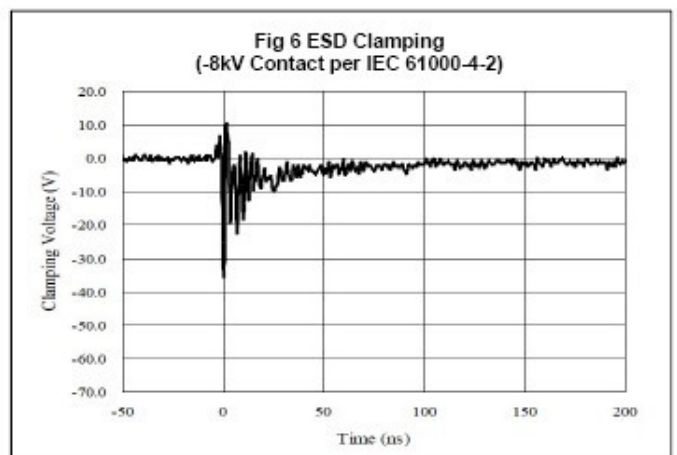
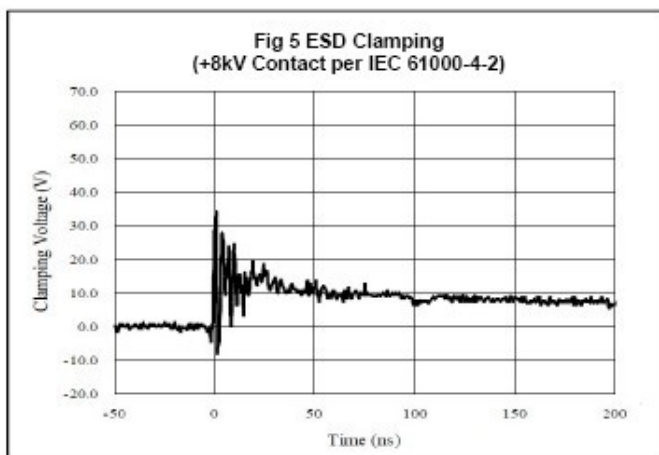
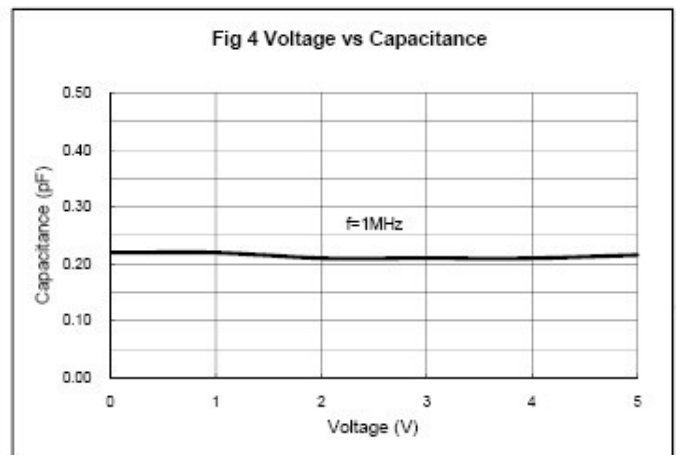
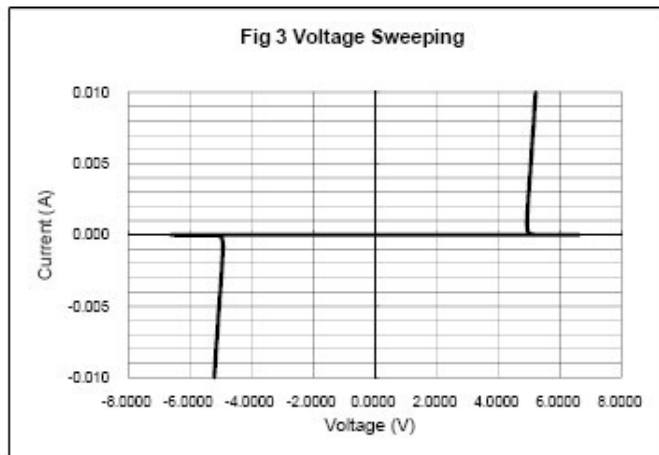
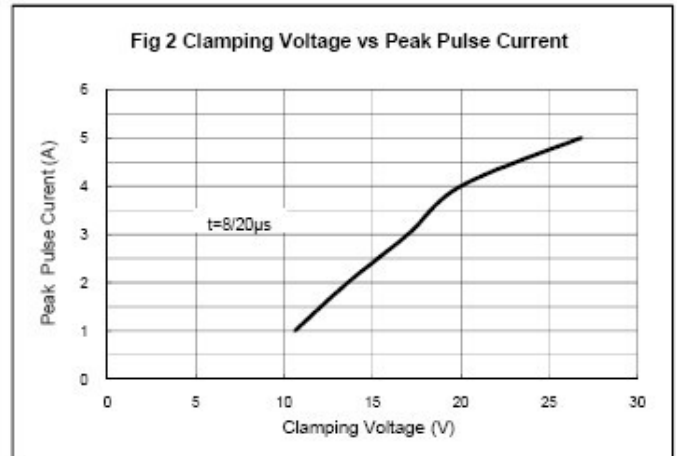
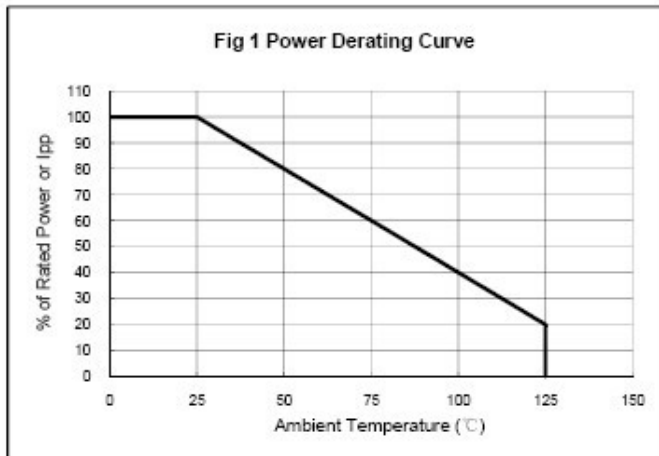
The above data are for reference only.

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				3.3	V
V_{BR}	Reverse Breakdown Voltage	$I_{\text{T}} = 1\text{mA}$	4.2			V
I_{R}	Reverse Leakage Current	$V_{\text{RWM}} = 3.3\text{V}$			100	nA
V_{C}	Clamping Voltage	$I_{\text{PP}} = 1\text{A}$, $t_{\text{p}} = 8/20\mu\text{s}$			12	V
V_{C}	Clamping Voltage	$I_{\text{PP}} = 4\text{A}$, $t_{\text{p}} = 8/20\mu\text{s}$			25	V
C_{J}	Junction Capacitance	$V_{\text{R}} = 0\text{V}$, $f = 1\text{MHz}$		0.25	0.40	pF

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ELECTRICAL CHARACTERISTICS CURVE



The curve above is for reference only.