

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

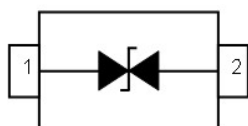
SMD3Z3V3BU is an ultra low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, SMD3Z3V3BU is designed to protect parasitic-sensitive systems against over-voltage and over-current 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.

SMD3Z3V3BU uses ultra-small SOD-323 package. Each SMD3Z3V3BU 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 SMD3Z3V3BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

ORDERING INFORMATION

- ✧ Device: SMD3Z3V3BU
- ✧ Package: SOD-323
- ✧ Marking: 3BU
- ✧ 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)
- ✧ Ultra-small package
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.25pF (Typical)
- ✧ Low leakage current
- ✧ Low clamping voltage

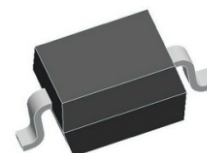
MACHANICAL DATA

- ✧ SOD-323 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed:
 - $260^{\circ}\text{C}/10\text{s}$
- ✧ Reel size: 7 inch

APPLICATIONS

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

PACKAGE OUTLINE



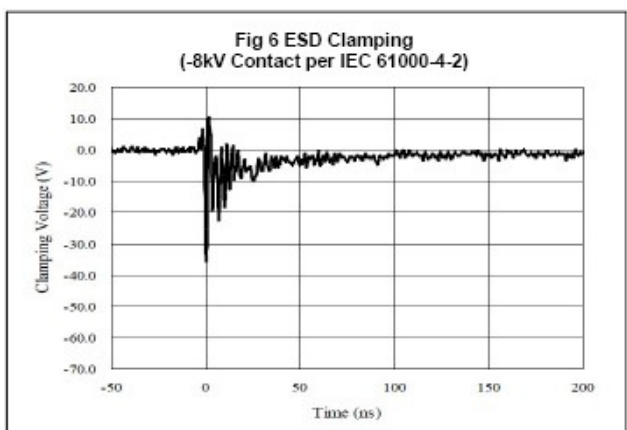
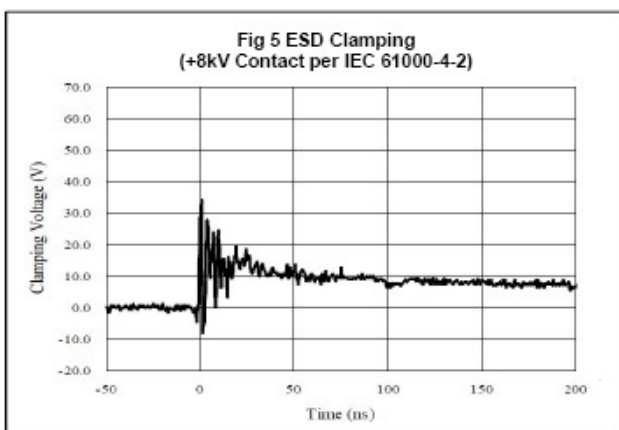
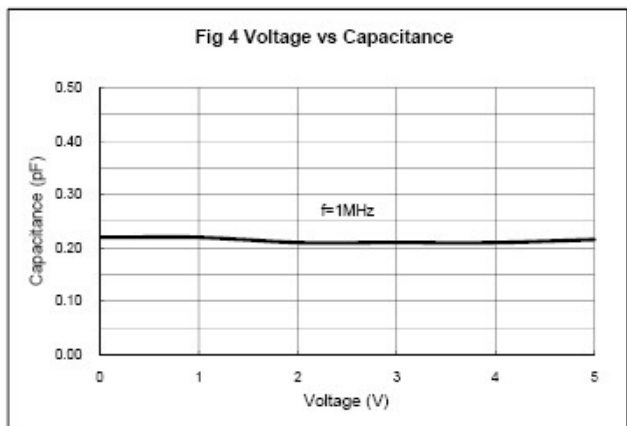
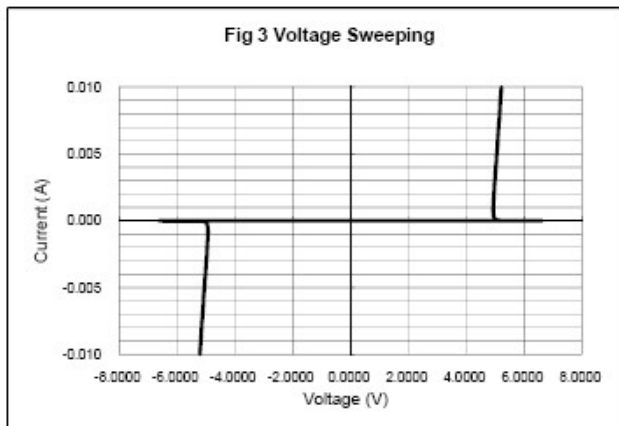
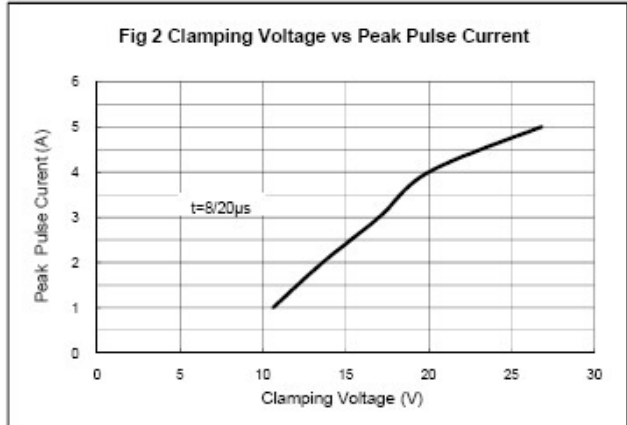
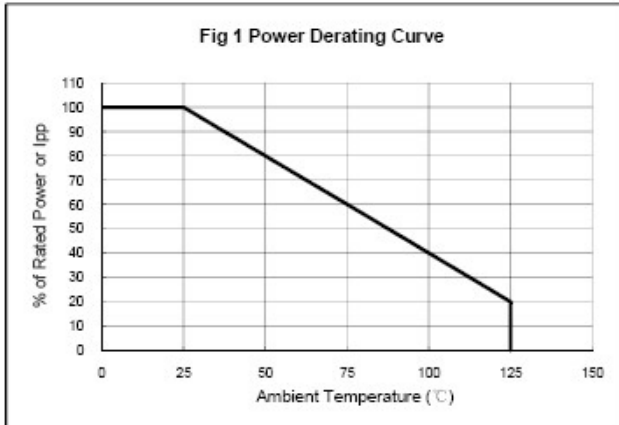
ABSOLUTE MAXIMUM RATING

| 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 (8/20 μ s) | 100 | W |
| T_{OPT} | Operating Temperature | -55~125 | $^{\circ}$ C |
| T_{STG} | Storage Temperature | -55~150 | $^{\circ}$ C |

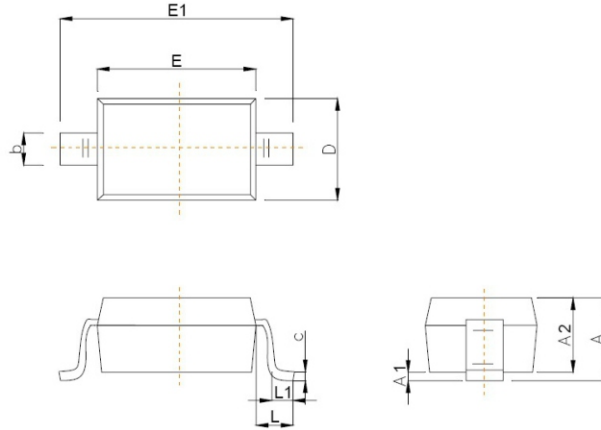
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}$ C)

| 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 | $I_{PP} = 1A, t_p = 8/20\mu s$ | | | 12 | V |
| | | $I_{PP} = 4A, t_p = 8/20\mu s$ | | | 25 | V |
| C_J | Junction Capacitance | $V_R = 0V, f = 1MHz$ | | 0.25 | 0.40 | pF |

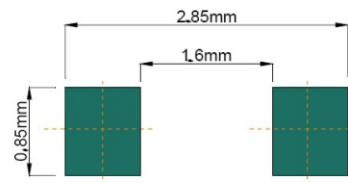
ELECTRICAL CHARACTERISTICS CURVE



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