



# ESD3Z5V0BU

## Ultra Low Capacitance ESD Protection Diode

### DESCRIPTION

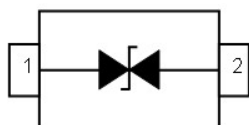
ESD3Z5V0BU is an ultra low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, ESD3Z5V0BU is designed to protect parasitic-sensitive systems against over-voltage and over-current 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.

ESD3Z5V0BU uses ultra-small SOD-323 package. Each ESD3Z5V0BU 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 ESD3Z5V0BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

### ORDERING INFORMATION

- ✧ Device: ESD3Z5V0BU
- ✧ Package: SOD-323
- ✧ Marking: 5BU
- ✧ 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°C/10s
- ✧ 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





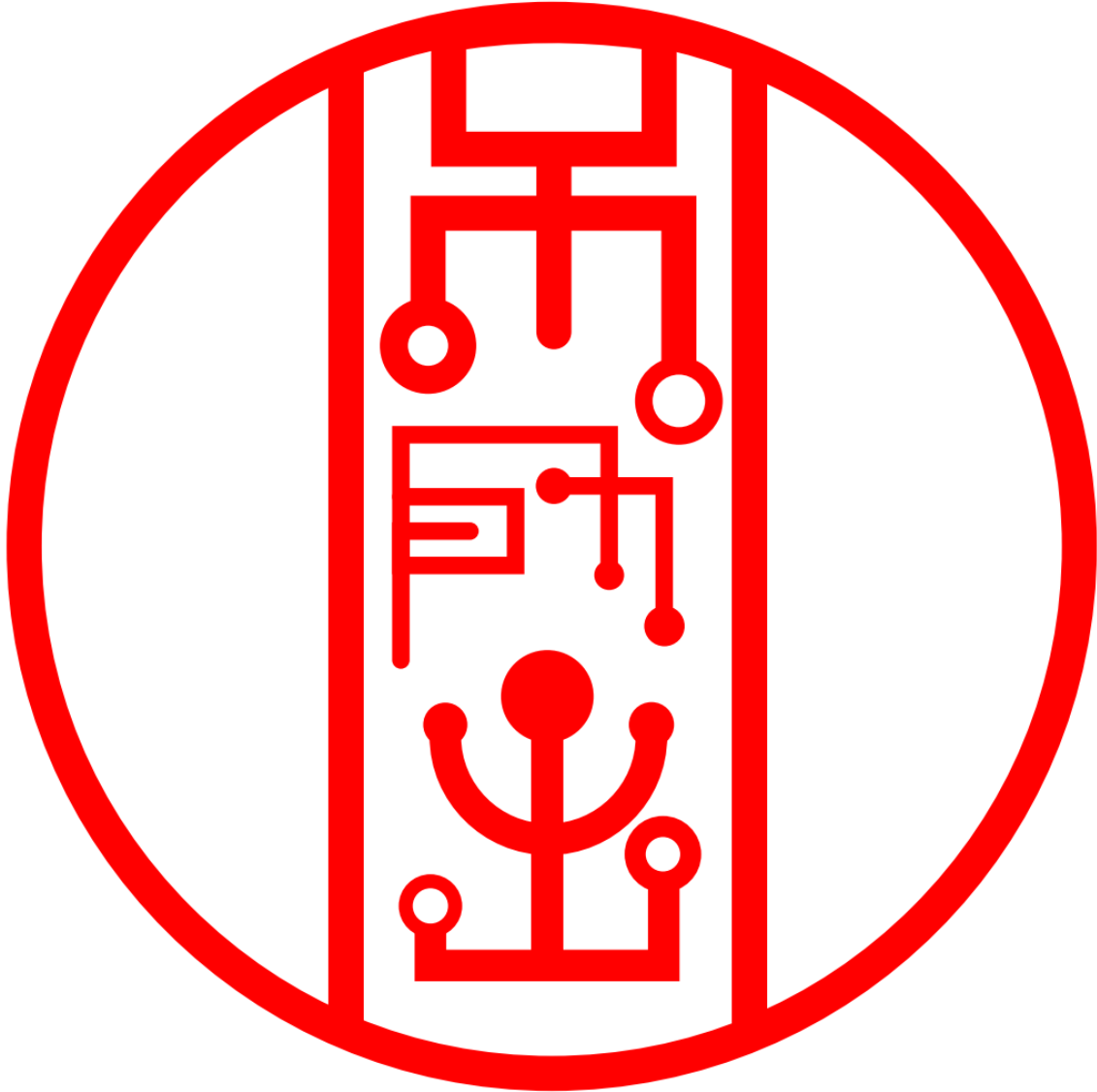
# ESD3Z5V0BU

## ABSOLUTE MAXIMUM RATING

| Symbol    | Parameter                                                      | Value                | Units |
|-----------|----------------------------------------------------------------|----------------------|-------|
| $V_{ESD}$ | ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $\pm 20$<br>$\pm 20$ | kV    |
| $P_{PP}$  | Peak Pulse Power (8/20 $\mu$ s)                                | 100                  | W     |
| $T_{OPT}$ | Operating Temperature                                          | -55~125              | °C    |
| $T_{STG}$ | Storage Temperature                                            | -55~150              | °C    |

| Symbol    | Parameter                 | Test Condition                                 | Min | Typ  | Max  | Units |
|-----------|---------------------------|------------------------------------------------|-----|------|------|-------|
| $V_{RWM}$ | Reverse Working Voltage   |                                                |     |      | 5.0  | V     |
| $V_{BR}$  | Reverse Breakdown Voltage | $I_T = 1\text{mA}$                             | 6.0 |      |      | V     |
| $I_R$     | Reverse Leakage Current   | $V_{RWM} = 5\text{V}$                          |     |      | 100  | nA    |
| $V_C$     | Clamping Voltage          | $I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ |     |      | 13   | V     |
|           |                           | $I_{PP} = 4\text{A}$ , $t_p = 8/20\mu\text{s}$ |     |      | 25   | V     |
| $C_J$     | Junction Capacitance      | $V_R = 0\text{V}$ , $f = 1\text{MHz}$          |     | 0.25 | 0.40 | pF    |

## ELECTRICAL CHARACTERISTICS CURVE



## SOD-323 PACKAGE OUTLINE DIMENSIONS

