

## Ultra Low Capacitance ESD Protection Diode

### DESCRIPTION

SLESD03D6BU is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, SLESD03D6BU 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.

SLESD03D6BU uses ultra-small DFN0603 package. Each SLESD03D6BU 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 SLESD03D6BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

### ORDERING INFORMATION

- ✧ Device: SLESD03D6BU
- ✧ Package: DFN0603
- ✧ Marking:
- ✧ Material: Halogen free
- ✧ Packing: Tape & Reel ✧
- Quantity per reel: 10000pcs

### 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)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (0.6mm $\times$ 0.3mm $\times$ 0.3mm)
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.25pF (Typical)
- ✧ Low leakage current
- ✧ Low clamping voltage

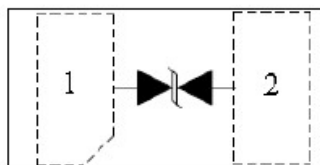
### MACHANICAL DATA

- ✧ DFN0603 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

- ✧ Serial ATA
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ MDDI Ports
- ✧ USB Data Line Protection
- ✧ Display Ports
- ✧ Digital Visual Interfaces (DVI)

### CIRCUIT DIAGRAM



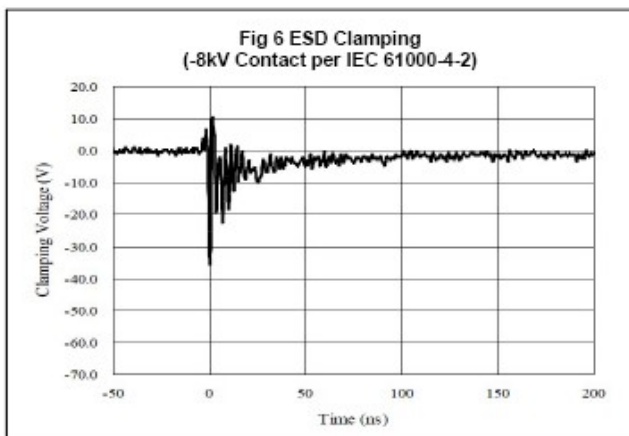
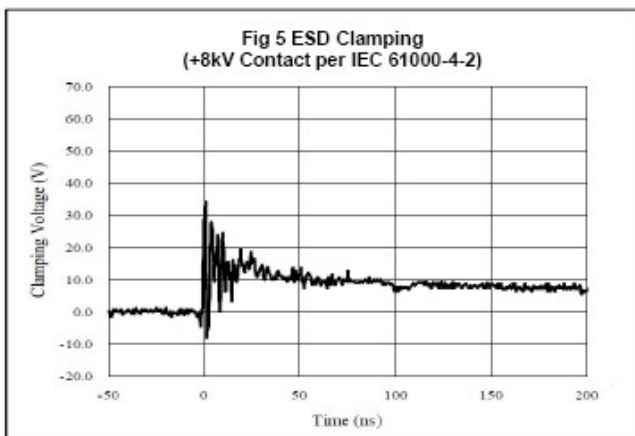
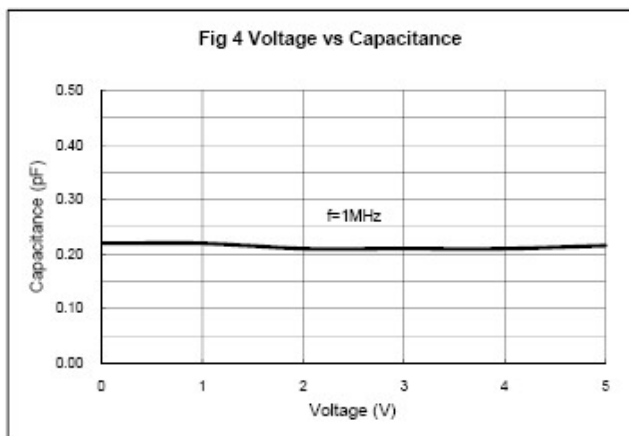
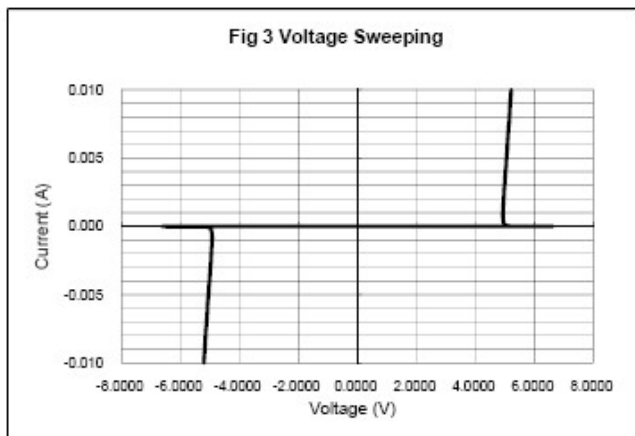
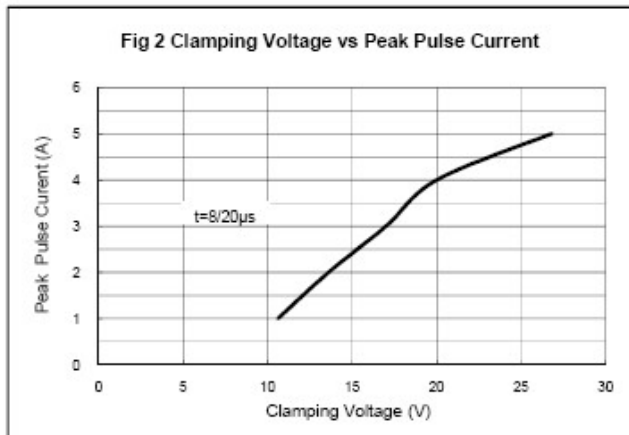
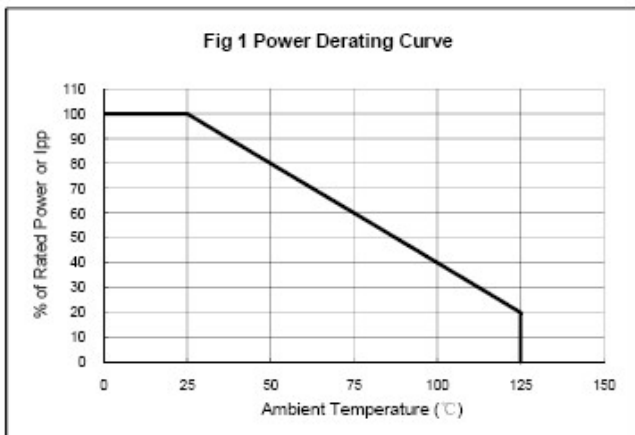
**ABSOLUTE MAXIMUM RATING**

| Symbol    | Parameter                       | Value   | Units |
|-----------|---------------------------------|---------|-------|
| $V_{ESD}$ | ESD per IEC 61000-4-2 (Air)     | ±20     | kV    |
|           | ESD per IEC 61000-4-2 (Contact) | ±20     |       |
| $P_{PP}$  | Peak Pulse Power (8/20µs)       | 96      | W     |
| $T_{OPT}$ | Operating Temperature           | -55~125 | °C    |
| $T_{STG}$ | Storage Temperature             | -55~150 | °C    |

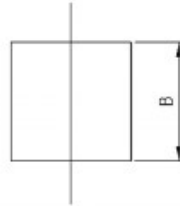
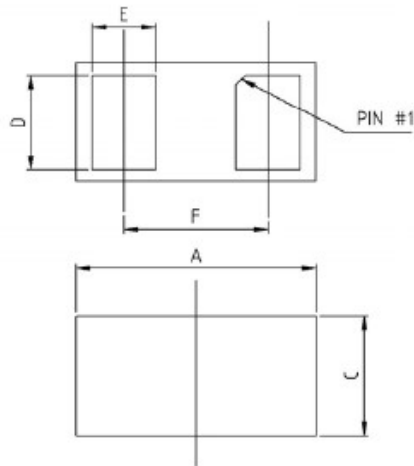
**ELECTRICAL CHARACTERISTICS (Tamb=25°C)**

| Symbol    | Parameter                 | Test Condition                              | Min | Typ  | Max | Units |
|-----------|---------------------------|---|-----|------|-----|-------|
| $V_{RWM}$ | Reverse Working Voltage   |   |     |      | 3.3 | V     |
| $V_{BR}$  | Reverse Breakdown Voltage | $I_T = 1\text{mA}$                          | 4.2 |      |     | V     |
| $I_R$     | Reverse Leakage Current   | $V_{RWM} = 3.3\text{V}$                     |     |      | 100 | nA    |
| $V_C$     | Clamping Voltage          | $I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$ |     |      | 12  | V     |
|           |                           | $I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$ |     |      | 24  | V     |
| $C_J$     | Junction Capacitance      | $V_R = 0\text{V}, f = 1\text{MHz}$          |     | 0.25 |     | pF    |

**ELECTRICAL CHARACTERISTICS CURVE**



DFN0603 PACKAGE OUTLINE DIMENSIONS



| Dimensions In Millimeterer |      |      |      |
|----------------------------|------|------|------|
| Symbol                     | MIN  | TYP  | MAX  |
| A                          | 0.58 | 0.60 | 0.65 |
| B                          | 0.28 | 0.30 | 0.35 |
| C                          | 0.28 | 0.30 | 0.34 |
| D                          | 0.20 | 0.24 | 0.26 |
| E                          | 0.13 | 0.16 | 0.19 |
| F                          | -    | 0.36 | -    |

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