

## Low Capacitance Bi-directional ESD Protection Diode

### DESCRIPTION

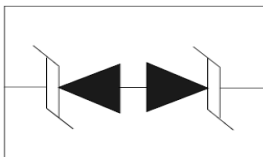
The SLESD0501CU is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

This device has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

### ORDERING INFORMATION

- ✧ Device: SLESD0501CU
- ✧ Package: DFN1006
- ✧ Marking: 5CU
- ✧ Material: RoHS compliant, Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 10,000pcs

### CIRCUIT DIAGRAM



### FEATURES

- ✧ Transient protection for high-speed data lines  
IEC 61000-4-2 (ESD)    ±8kV (Contact)  
                                         ±15kV (Air)  
Cable Discharge Event (CDE)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (1.0mm×0.6mm×0.4mm)
- ✧ Protects one data line
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Low clamping voltage
- ✧ Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge

### MACHANICAL DATA

- ✧ DFN1006 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed: 260°C/10s
- ✧ Reel size: 7 inch
- ✧ MSL3

### APPLICATIONS

- ✧ High Speed Line: USB1.0/2.0, VGA, DVI, SDI
- ✧ Serial and Parallel Ports
- ✧ Notebooks, Desktops, Servers
- ✧ Projection TV
- ✧ Cellular handsets and accessories
- ✧ Portable instrumentation
- ✧ Peripherals

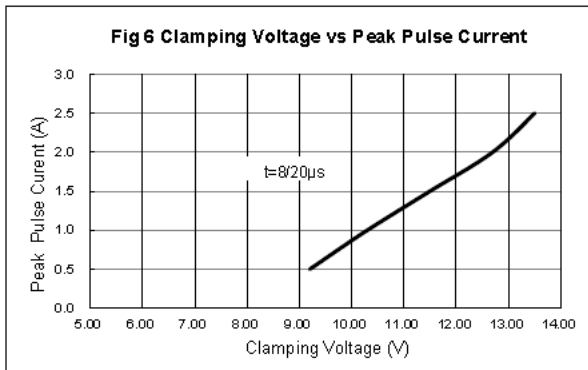
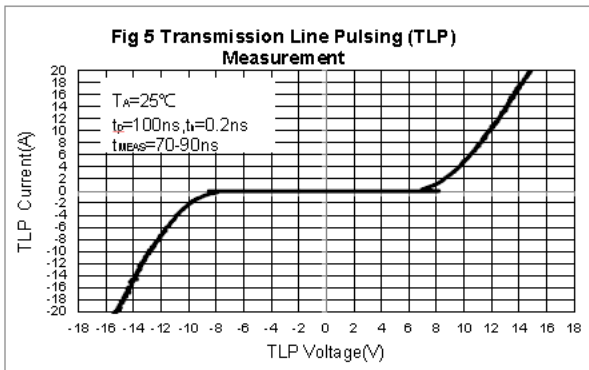
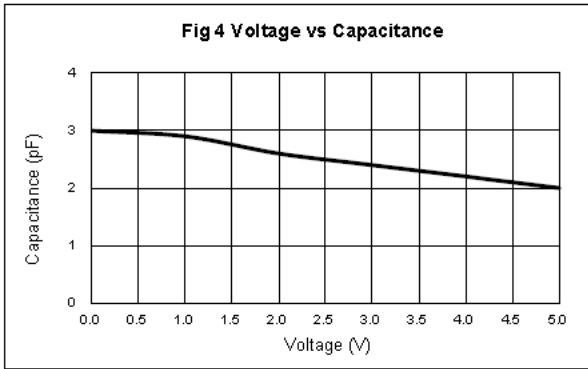
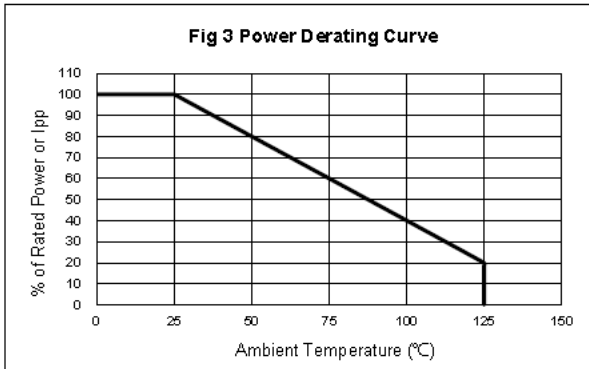
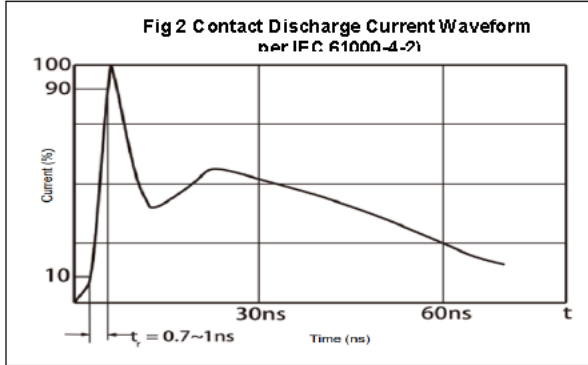
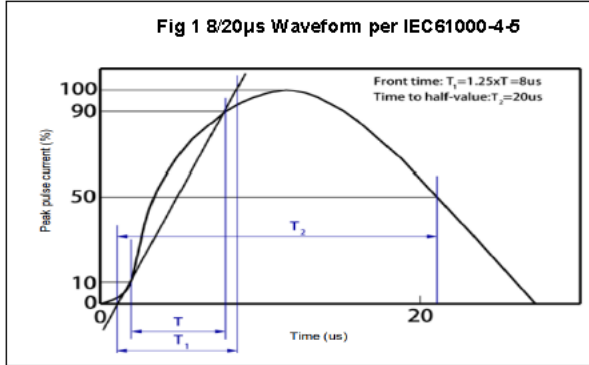
### PIN CONFIGURATION



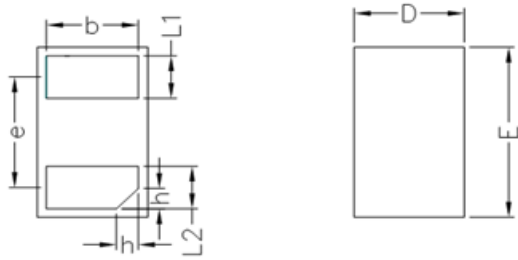
| ABSOLUTE MAXIMUM RATING |                                                                |           |       |
|-------------------------|----------------------------------------------------------------|-----------|-------|
| Symbol                  | Parameter                                                      | Value     | Units |
| V <sub>ESD</sub>        | ESD per IEC 61000-4-2 (Contact)<br>ESD per IEC 61000-4-2 (Air) | ±8<br>±15 | kV    |
| P <sub>PP</sub>         | Peak Pulse Power (8/20µs)                                      | 28        | W     |
| T <sub>OPT</sub>        | Operating Temperature                                          | -55~150   | °C    |
| T <sub>STG</sub>        | Storage Temperature                                            | -55~150   | °C    |

| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> =25°C) |                           |                                                                                          |     |      |      |       |
|-----------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------|-----|------|------|-------|
| Symbol                                              | Parameter                 | Test Condition                                                                           | Min | Typ  | Max  | Units |
| V <sub>RWM</sub>                                    | Reverse Working Voltage   |                                                                                          |     |      | 5.0  | V     |
| V <sub>BR</sub>                                     | Reverse Breakdown Voltage | I <sub>T</sub> = 1mA                                                                     | 5.6 |      | 9.4  | V     |
| I <sub>R</sub>                                      | Reverse Leakage Current   | V <sub>RWM</sub> = 5V                                                                    |     |      | 1.0  | µA    |
| V <sub>C</sub>                                      | Clamping Voltage          | I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20µs                                            |     |      | 10.5 | V     |
|                                                     |                           | I <sub>PP</sub> = 2A, t <sub>p</sub> = 8/20µs                                            |     |      | 14.0 | V     |
| V <sub>CTLP</sub>                                   | TLP Clamping Voltage      | I <sub>PP</sub> = 16A<br>IEC61000-4-2 Level 4<br>equivalent (±8kV<br>Contact, ±15kV Air) |     | 14.5 |      | V     |
| R <sub>DYN</sub>                                    | Dynamic Resistance        | t <sub>p</sub> = 100ns                                                                   |     | 0.3  |      | Ω     |
| C <sub>J</sub>                                      | Junction Capacitance      | V <sub>R</sub> = 0V, f = 1MHz                                                            |     | 3.0  | 3.5  | pF    |

**ELECTRICAL CHARACTERISTICS CURVE**

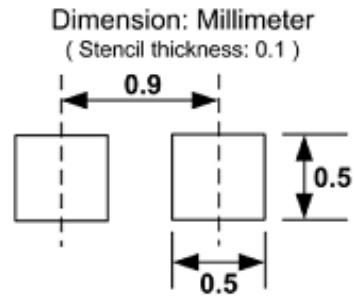


**DFN1006 PACKAGE OUTLINE DIMENSIONS**



Unit: mm

|    | MIN     | NOM  | MAX  |
|----|---------|------|------|
| D  | 0.55    | 0.60 | 0.65 |
| E  | 0.95    | 1.00 | 1.05 |
| L1 | 0.20    | 0.25 | 0.30 |
| L2 | 0.20    | 0.25 | 0.30 |
| b  | 0.45    | 0.50 | 0.55 |
| e  | 0.65BSC |      |      |
| A  | 0.45    | 0.50 | 0.55 |
| h  | 0.07    | 0.12 | 0.17 |



**Soldering Footprint**