

## Low Capacitance Bidirectional TVS/ESD Protection Diode

### DESCRIPTION

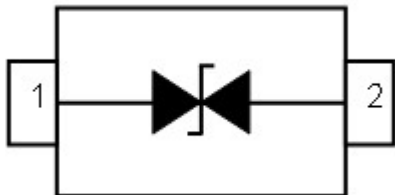
The ESD5B5CU is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for 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: ESD5B5CU
- ✧ Package: SOD-523
- ✧ Marking: LB
- ✧ Material: Halogen free and RoHS compliant
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

### PIN CONFIGURATION



### FEATURES

- ✧ IEC61000-4-2 (ESD)  $\pm 8\text{kV}$  (Contact),  $\pm 15\text{kV}$  (Air)
- ✧ Peak power dissipation: 35W (8/20 $\mu\text{s}$ )
- ✧ Protects one I/O line
- ✧ Low clamping voltage
- ✧ Working voltage: 5V
- ✧ Low leakage current
- ✧ Low capacitance

### MACHANICAL DATA

- ✧ SOD-523 package
- ✧ Terminals: Tin plated, solderable per MIL-STD-750, method 2026
- ✧ Packaging: Tape and Reel
- ✧ Reel size: 7 inch
- ✧ Weight: 0.0018 gram (approx.)

### 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

### PACKAGE OUTLINE



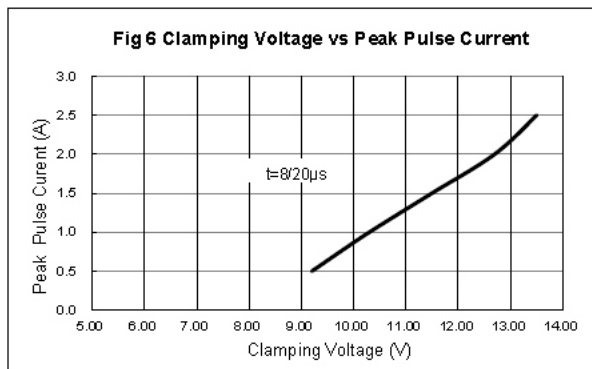
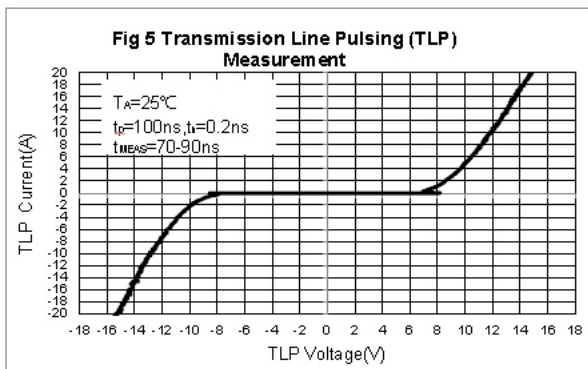
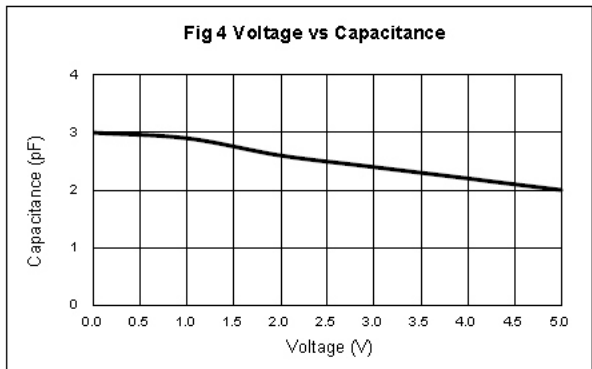
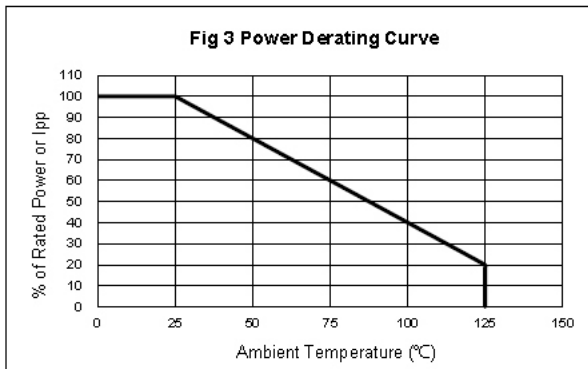
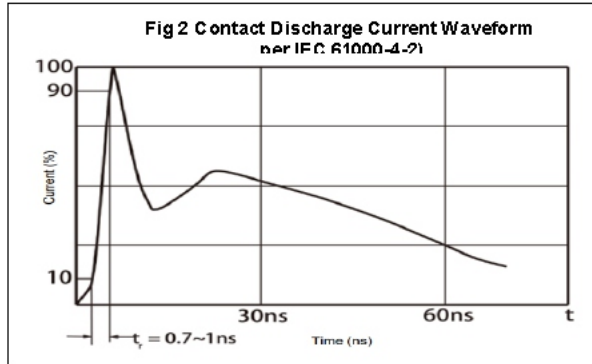
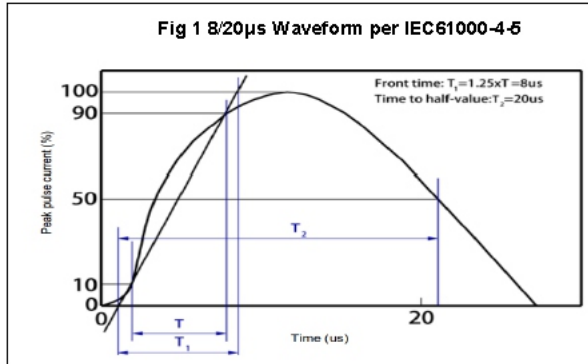
## ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	±8 ±15	kV
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	35	W
T <sub>OPT</sub>	Operating Temperature	-55~150	°C
T <sub>STG</sub>	Storage Temperature	-55~150	°C

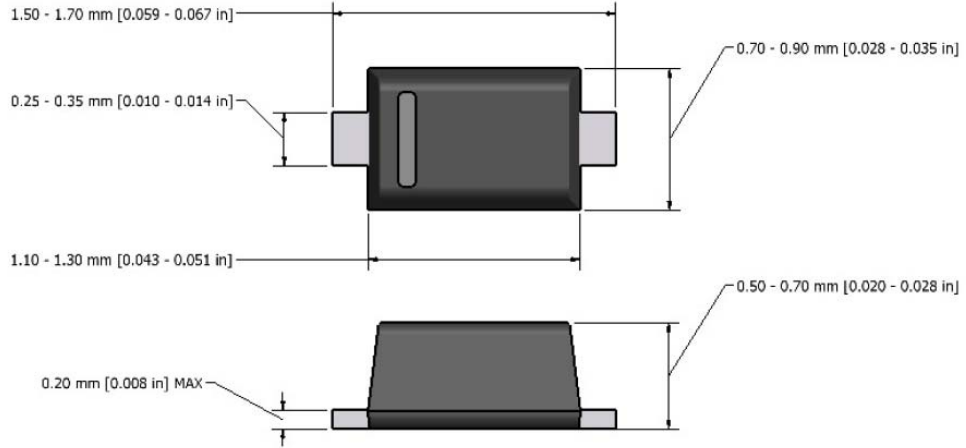
## ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C)

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			2.0	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>CTL</sub>	TLP Clamping Voltage	I <sub>PP</sub> = 16A IEC61000-4-2 Level 4 equivalent (±8kV 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



## SOD-523 PACKAGE OUTLINE DIMENSIONS



**Note:** Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.