

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

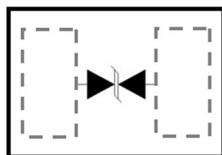
ESD0501BU is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, ESD0501BU is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 8\text{kV}$ contact, $\pm 15\text{kV}$ air 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.

ESD0501BU uses ultra-small DFN1006 package. Each ESD0501BU 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 ESD0501BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

ORDERING INFORMATION

- ◇ Device: ESD0501BU
- ◇ Package: DFN1006
- ◇ Marking: 5B+code(U or L)
- ◇ Material: Halogen free
- ◇ Packing: Tape & Reel
- ◇ Quantity per reel: 10,000pcs

PIN CONFIGURATION



FEATURES

- ◇ Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) $\pm 20\text{kV}$ (Contact)
 $\pm 20\text{kV}$ (Air)
IEC 61000-4-4 (EFT) 40A (5/50 ns)
Cable Discharge Event (CDE)
- ◇ Package optimized for high-speed lines
- ◇ Ultra-small package (1.0mm \times 0.6mm \times 0.5mm)
- ◇ Protects one data, control line
- ◇ Low capacitance: 0.25pF (Typical)
- ◇ Low leakage current
- ◇ Low clamping voltage

MACHANICAL DATA

- ◇ DFN1006 package
- ◇ Flammability Rating: UL 94V-0
- ◇ Packaging: Tape and Reel
- ◇ High temperature soldering guaranteed:
260 $^{\circ}\text{C}$ /10s
- ◇ 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)

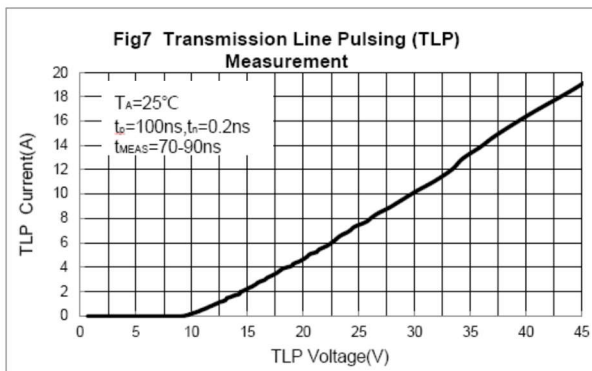
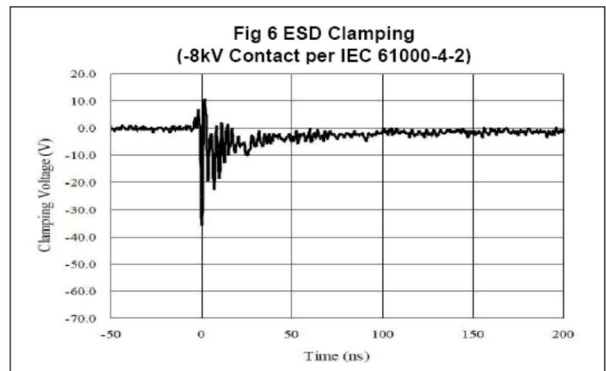
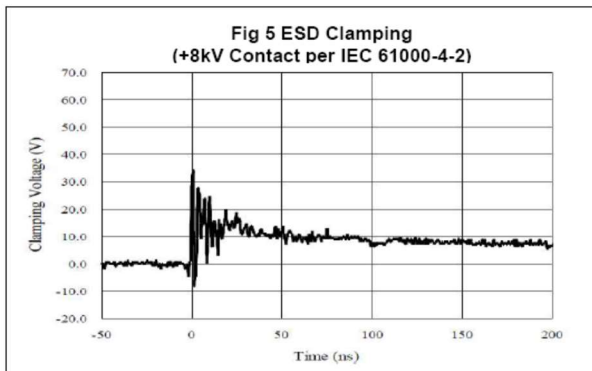
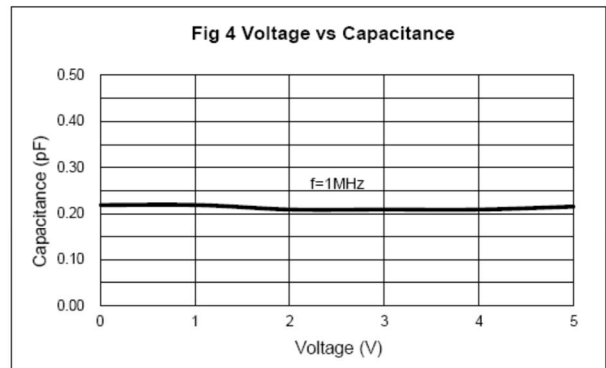
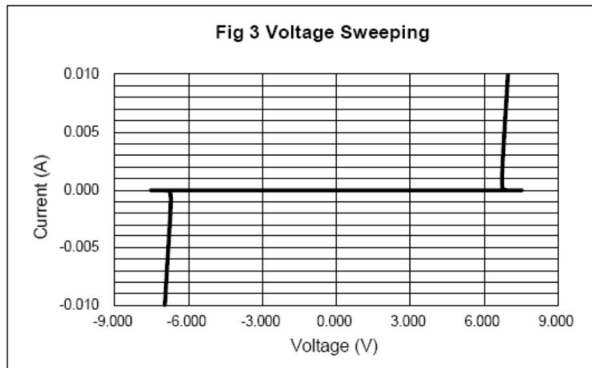
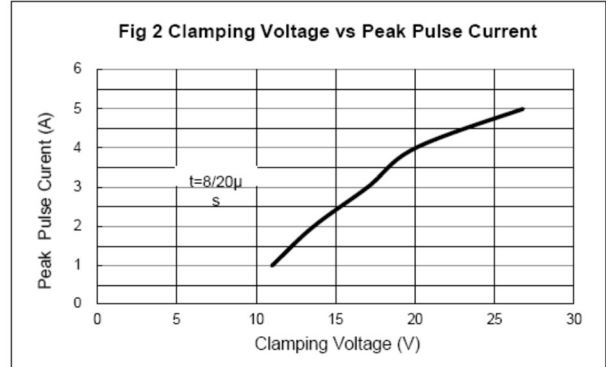
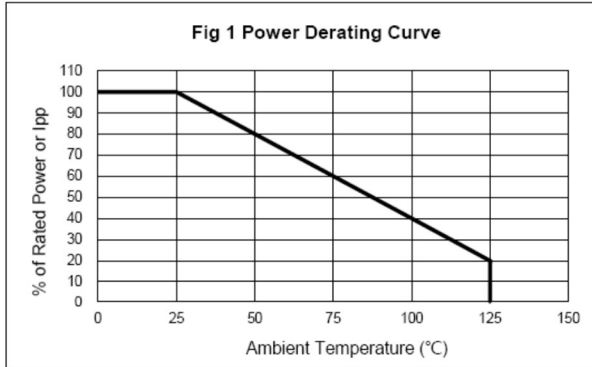
PACKAGE OUTLINE



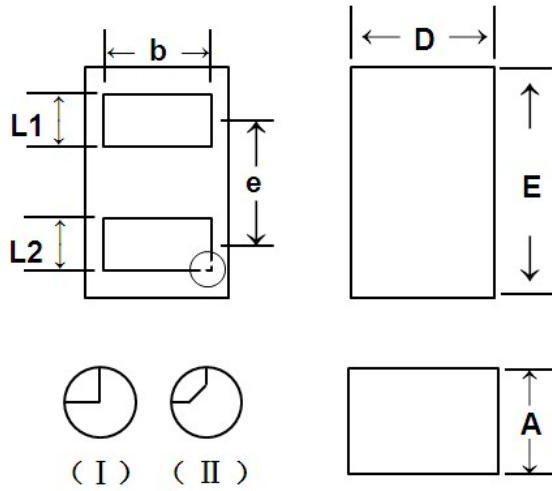
ABSOLUTE MAXIMUM RATING			
Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	± 20 ± 20	kV
P_{PP}	Peak Pulse Power (8/20 μ s)	100	W
T_{OPT}	Operating Temperature	-55~125	$^{\circ}$ C
T_{STG}	Storage Temperature	-55~150	$^{\circ}$ C

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}$C)						
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$	6.0			V
I_R	Reverse Leakage Current	$V_{RWM} = 5V$			100	nA
V_C	Clamping Voltage	$I_{PP} = 1A, t_p = 8/20\mu s$			13	V
		$I_{PP} = 4A, t_p = 8/20\mu s$		18	25	V
V_{CTLP}	TLP Clamping Voltage	$I_{PP} = 8A$ IEC61000-4-2 Level 2 equivalent ($\pm 4kV$ Contact, $\pm 8kV$ Air)		26		V
		$I_{PP} = 16A$ IEC61000-4-2 Level 4 equivalent ($\pm 8kV$ Contact, $\pm 16kV$ Air)		38		V
C_J	Junction Capacitance	$V_R = 0V, f = 1MHz$		0.25	0.40	pF

ELECTRICAL CHARACTERISTICS CURVE



DFN1006 PACKAGE OUTLINE DIMENSIONS



NOTE: ALL DIMENSIONS IN 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
A	0.45	0.50	0.55
b	0.45	0.50	0.55
e		0.64BSC	

