

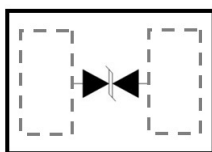
**DESCRIPTION**

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 0.5pF, ESD0501BU 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.

ESD0501BU 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**

- ✧ Package: DFN1006
- ✧ 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)  $\pm 15\text{kV}$  (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 (1.0mm $\times$ 0.6mm $\times$ 0.5mm)
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.5pF (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**

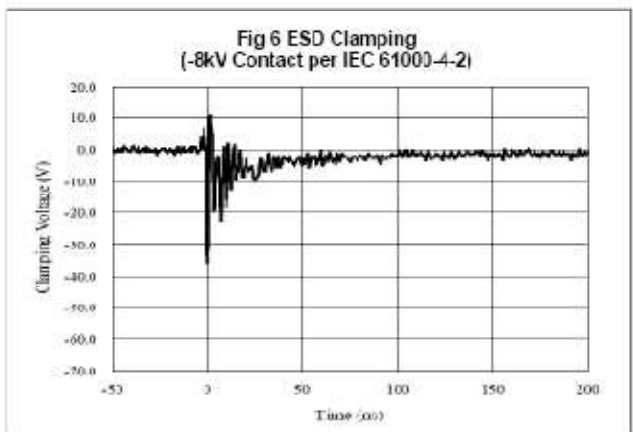
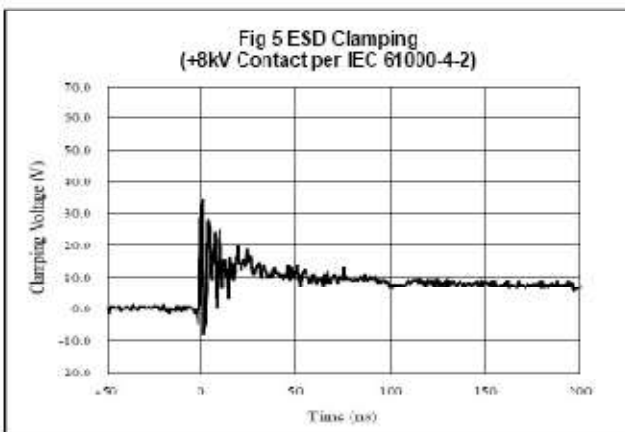
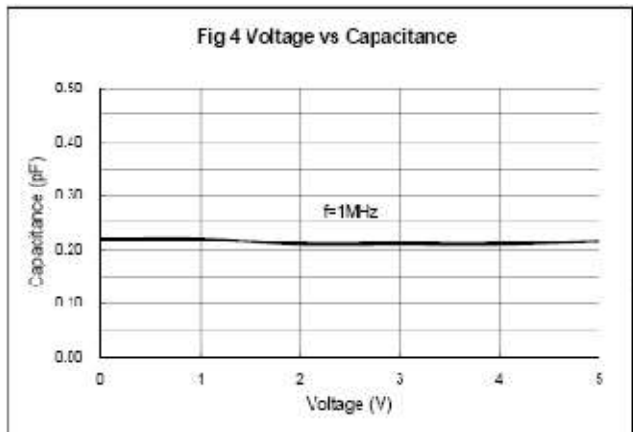
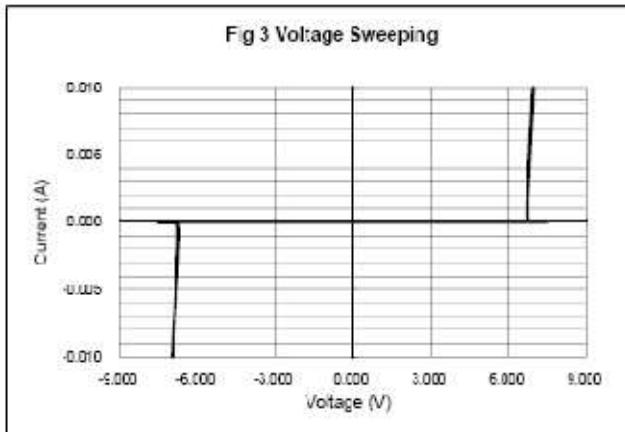
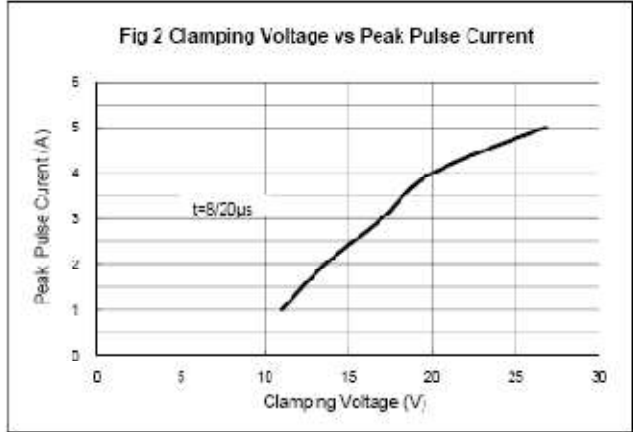
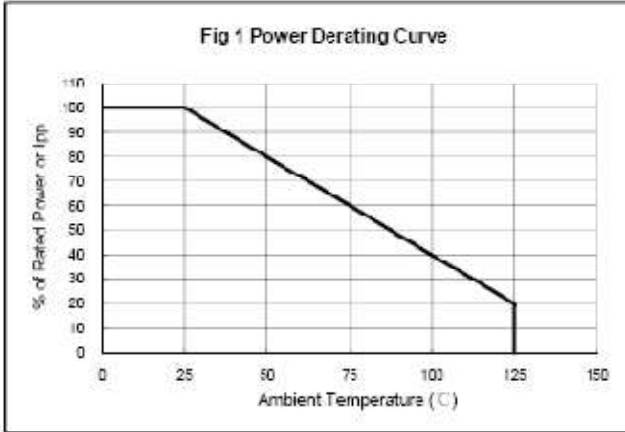
**ABSOLUTE MAXIMUM RATING**

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

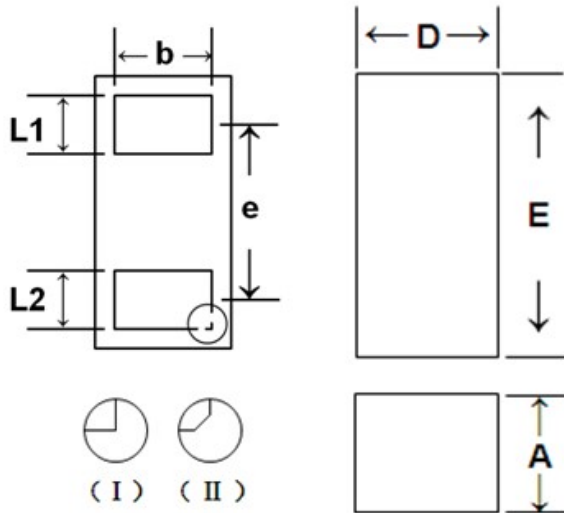
**ELECTRICAL CHARACTERISTICS (Tamb=25 $^{\circ}$ C)**

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{RWM}$	Reverse Working Voltage				5.0	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	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	$V_R = 0\text{V}, f = 1\text{MHz}$		0.5		pF

**ELECTRICAL CHARACTERISTICS CURVE**

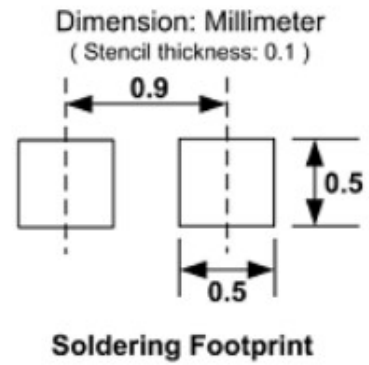


**DFN1006 PACKAGE OUTLINE DIMENSIONS**



**NOTE: ALL DIMENSIONS IN MM**

	MIN	NOM	MAX
<b>D</b>	<b>0.55</b>	<b>0.60</b>	<b>0.65</b>
<b>E</b>	<b>0.95</b>	<b>1.00</b>	<b>1.05</b>
<b>L1</b>	<b>0.20</b>	<b>0.25</b>	<b>0.30</b>
<b>L2</b>	<b>0.20</b>	<b>0.25</b>	<b>0.30</b>
<b>A</b>	<b>0.45</b>	<b>0.50</b>	<b>0.55</b>
<b>b</b>	<b>0.45</b>	<b>0.50</b>	<b>0.55</b>
<b>e</b>		<b>0.64BSC</b>	



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