



# GESD0501BU

Low Capacitance Bidirectional TVS ESD Protection Diode

## DESCRIPTION

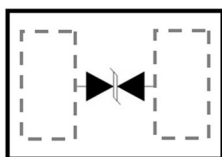
GESD0501BU is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, GESD0501BU is designed to protect parasitic-sensitive systems against over-voltage and over-current transient 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.

GESD0501BU uses ultra-small DFN1006 package. Each GESD0501BU 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 GESD0501BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

## ORDERING INFORMATION

- ✧ Device: GESD0501BU
- ✧ 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





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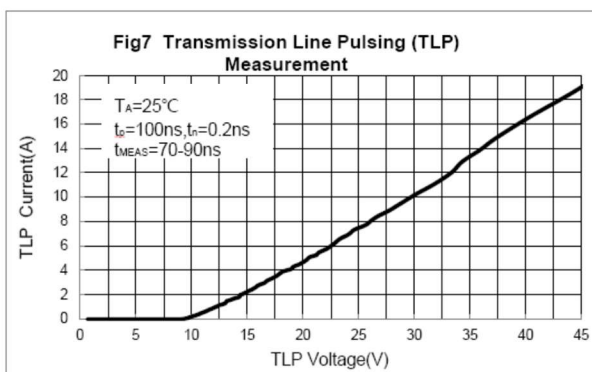
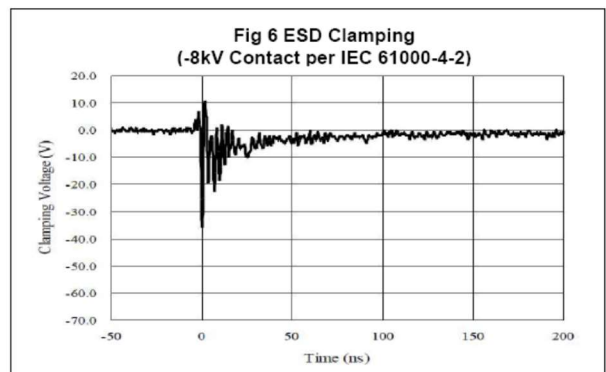
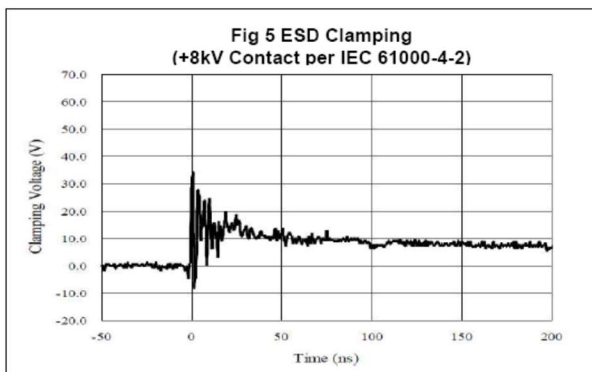
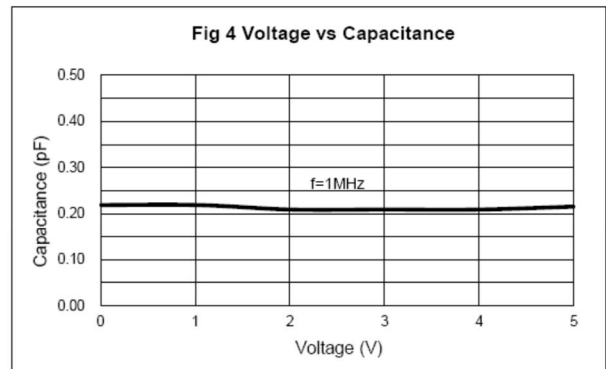
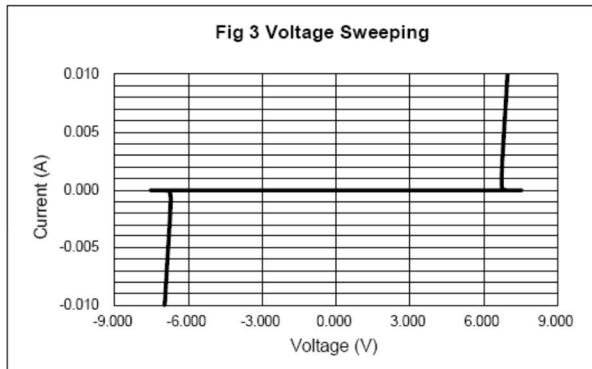
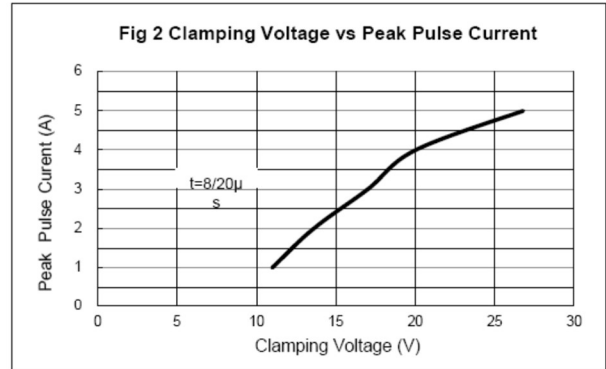
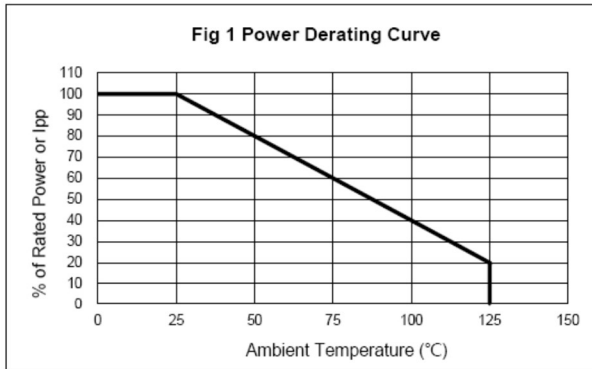
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ABSOLUTE MAXIMUM RATING			
Symbol	Parameter	Value	Units
$V_{ESD}$	ESD per IEC 61000-4-2 (Contact)	$\pm 20$	kV
	ESD per IEC 61000-4-2 (Air)	$\pm 20$	
$P_{PP}$	Peak Pulse Power (8/20 $\mu$ s)	100	W
$T_{OPT}$	Operating Temperature	-55~125	$^{\circ}$ C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

ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}$ 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
$V_{CTLTP}$	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

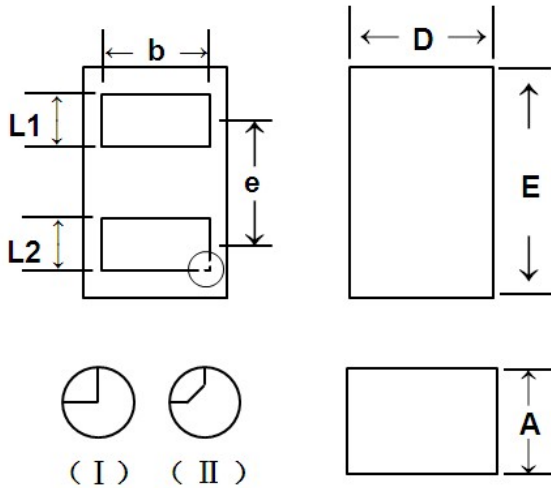




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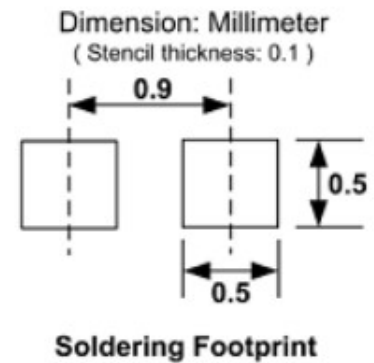
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## DFN1006 PACKAGE OUTLINE DIMENSIONS



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	



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