

## Low Capacitance Transient Voltage Suppressors for ESD protection

### DESCRIPTION

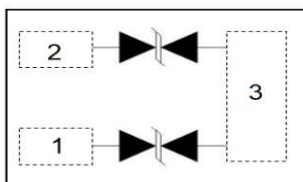
GESD0502BN is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With maximum capacitance of 18pF, GESD0502BN is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 15\text{kV}$  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.

GESD0502BN uses ultra-small DFN1006-3L package. Each GESD0502BN device can protect two data lines. It offers system designers flexibility to protect single data line where space is a premium concern.

### ORDERING INFORMATION

- ✧ Device: GESD0502BN
- ✧ Package: DFN1006-3L
- ✧ Marking: 52BN
- ✧ 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)  $\pm 30\text{kV}$  (Contact)  
 $\pm 30\text{kV}$  (Air)  
IEC 61000-4-4 (EFT) 40A (5/50 ns)
- ✧ Peak power dissipation: 72W (8/20 $\mu\text{s}$ )
- ✧ Working voltages :5V
- ✧ Ultra-small package (1.0mm $\times$ 0.6mm $\times$ 0.5mm)
- ✧ Protects two I/O lines
- ✧ Low clamping voltage
- ✧ Low leakage current

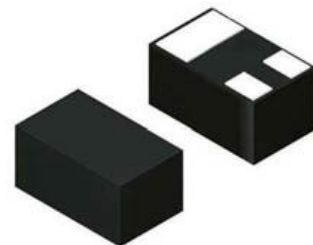
### MACHANICAL DATA

- ✧ DFN1006-3L package
- ✧ Flammability Rating: UL 94V-0
- ✧ High temperature soldering guaranteed:  
260 $^{\circ}\text{C}$ /10s
- ✧ Packaging: Tape and Reel
- ✧ Reel size: 7 inch

### APPLICATIONS

- ✧ Personal digital assistants (PDA's)
- ✧ Notebooks, Desktops, and Servers
- ✧ Cell phone Handsets and Accessories
- ✧ Portable Electronics
- ✧ IoT Terminal Equipment/Device
- ✧ Smart Wearable Device

### CIRCUIT DIAGRAM



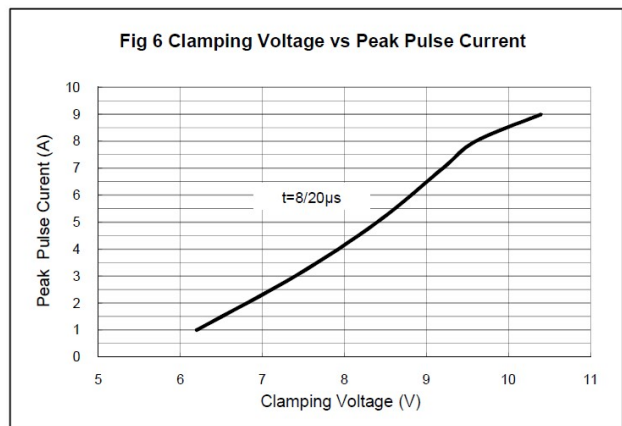
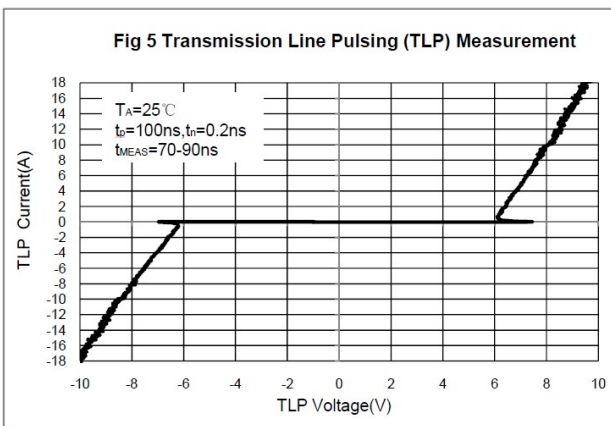
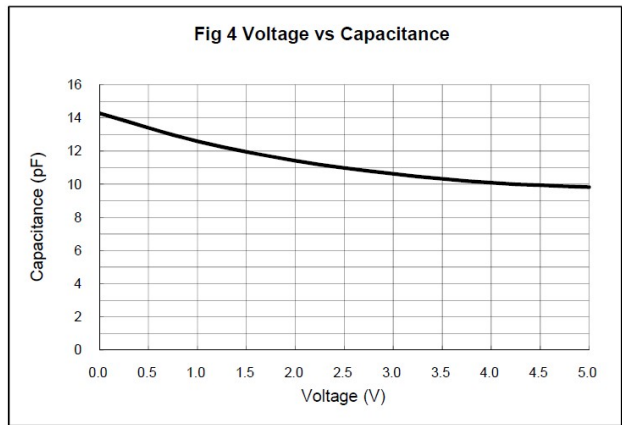
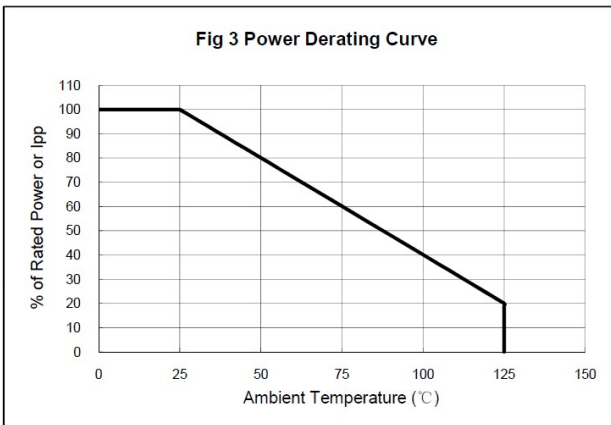
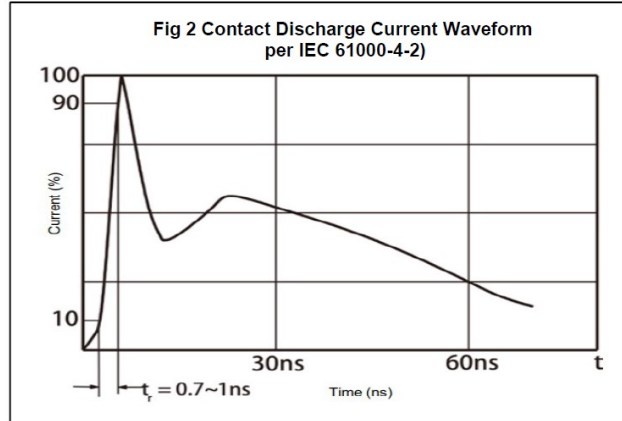
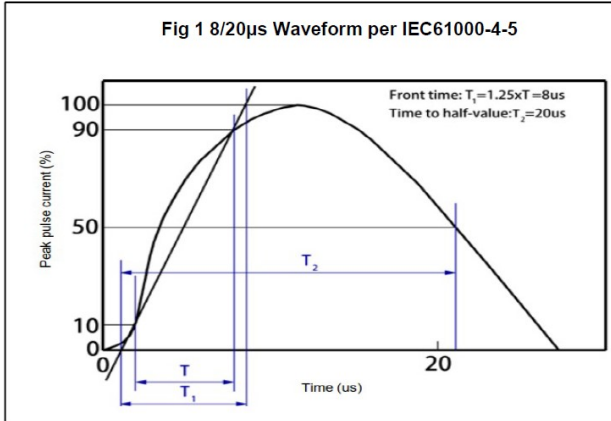
## ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
$V_{ESD}$	ESD per IEC 61000-4-2 (Contact)	$\pm 30$	kV
	ESD per IEC 61000-4-2 (Air)	$\pm 30$	
$P_{PP}$	Peak Pulse Power (8/20 $\mu$ s)	72	W
$T_{OPT}$	Operating Temperature	-55~125	$^{\circ}$ C
$T_{STG}$	Storage Temperature	-55~150	$^{\circ}$ C

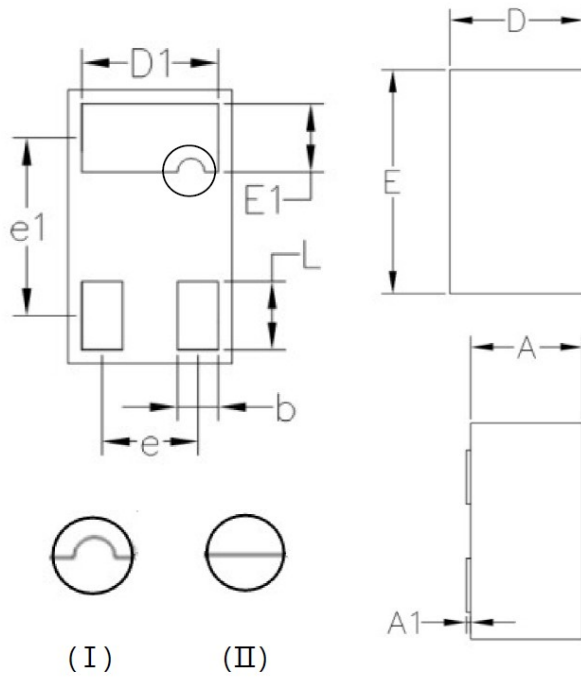
## ELECTRICAL CHARACTERISTICS (Tamb=25 $^{\circ}$ C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{RWM}$	Reverse Working Voltage	Pin 1 or 2 to Pin3			5.0	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1mA$ Pin 1 or 2 to Pin3	5.6			V
$I_R$	Reverse Leakage Current	$V_{RWM} = 5V$ Pin 1 or 2 to Pin3			1.0	$\mu$ A
$V_C$	Clamping Voltage	$I_{PP} = 1A, t_p = 8/20\mu s$ Pin 1 or 2 to Pin3		6.5	8.0	V
		$I_{PP} = 6A, t_p = 8/20\mu s$ Pin 1 or 2 to Pin3		9.0	12.0	V
$V_{CTLTP}$	TLP Clamping Voltage	$I_{PP} = 16A$ IEC61000-4-2 Level 4 equivalent ( $\pm 8kV$ Contact, $\pm 15kV$ Air) Pin 1 or 2 to Pin3		9.5		V
$C_J$	Junction Capacitance	$V_R = 0V, f = 1MHz$ Pin 1 or 2 to Pin3		14.0	18.0	pF

## ELECTRICAL CHARACTERISTICS CURVE



## DFN1006-3L PACKAGE OUTLINE DIMENSIONS



SYMBOL	DIMENSIONS IN MM		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0.00	--	0.05
D	0.55	0.60	0.65
E	0.95	1.00	1.05
D1	0.45	0.50	0.55
E1	0.20	0.25	0.30
L	0.20	0.25	0.30
b	0.10	0.15	0.20
e	0.35BSC		
e1	0.65BSC		