

Low Capacitance Transient Voltage Suppressors for ESD protection

DESCRIPTION

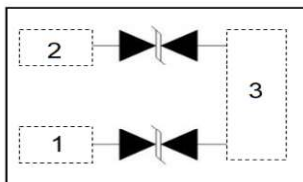
GESD0302BN is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With maximum capacitance of 18pF, GESD0302BN is designed to protect parasitic-sensitive systems against over-voltage and over-current transient 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.

GESD0302BN uses ultra-small DFN1006-3L package. Each GESD0302BN 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: GESD0302BN
- ✧ Package: DFN1006-3L
- ✧ Marking: 32BN
- ✧ 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: 60W (8/20 μs)
- ✧ Working voltages :3.3V
- ✧ Ultra-small package (1.0mm \times 0.6mm \times 0.5mm)
- ✧ Protects two I/O lines
- ✧ Low clamping voltage
- ✧ Low leakage current

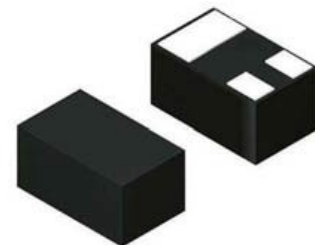
MACHANICAL DATA

- ✧ 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



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ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Contact)	± 30	kV
	ESD per IEC 61000-4-2 (Air)	± 30	
P_{PP}	Peak Pulse Power (8/20 μ s)	60	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	Pin 1 or 2 to Pin3			3.3	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$ Pin 1 or 2 to Pin3	3.6			V
I_R	Reverse Leakage Current	$V_{RWM} = 3.3V$ Pin 1 or 2 to Pin3			1.0	μ A
V_C	Clamping Voltage	$I_{PP} = 1A, t_p = 8/20\mu s$ Pin 1 or 2 to Pin3			6.5	V
		$I_{PP} = 5A, t_p = 8/20\mu s$ Pin 1 or 2 to Pin3			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		V
C_J	Junction Capacitance	$V_R = 0V, f = 1MHz$ Pin 1 or 2 to Pin3			16.5	pF

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 8/20 μ s Waveform per IEC61000-4-5

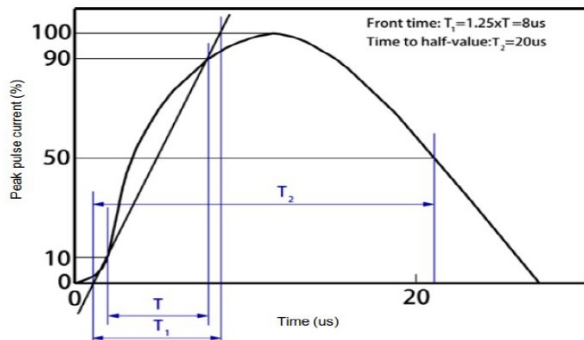


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2

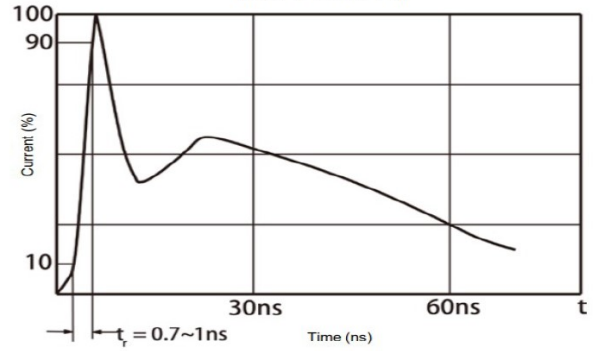


Fig 3 Power Derating Curve

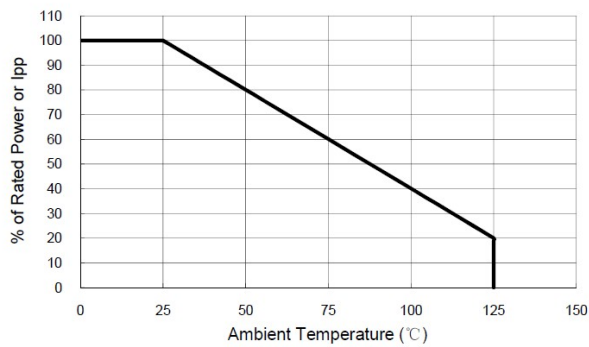


Fig 4 Voltage vs Capacitance

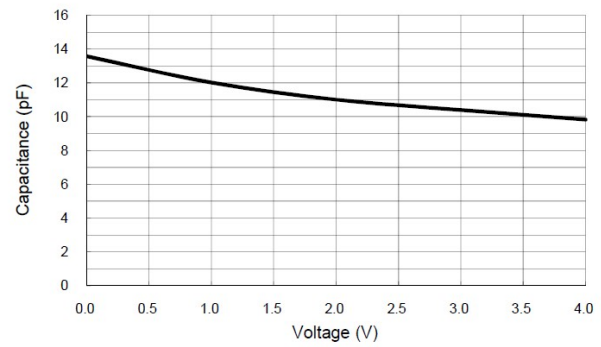


Fig 5 Transmission Line Pulsing (TLP) Measurement

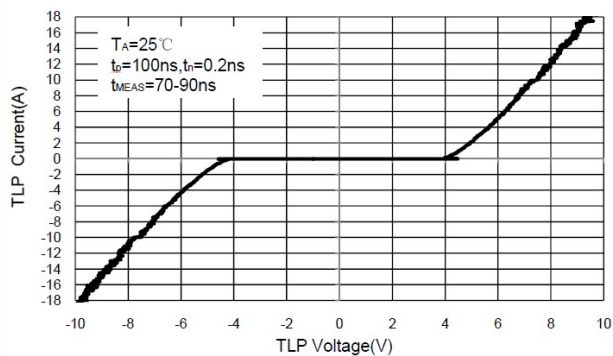
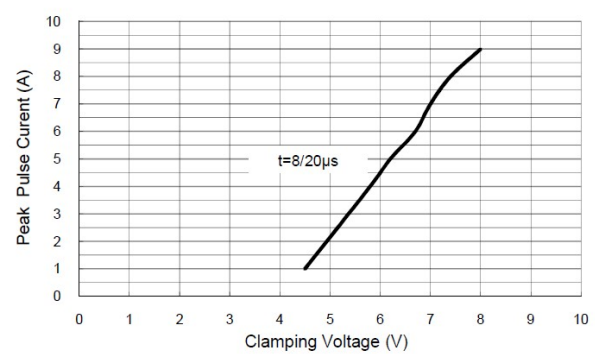
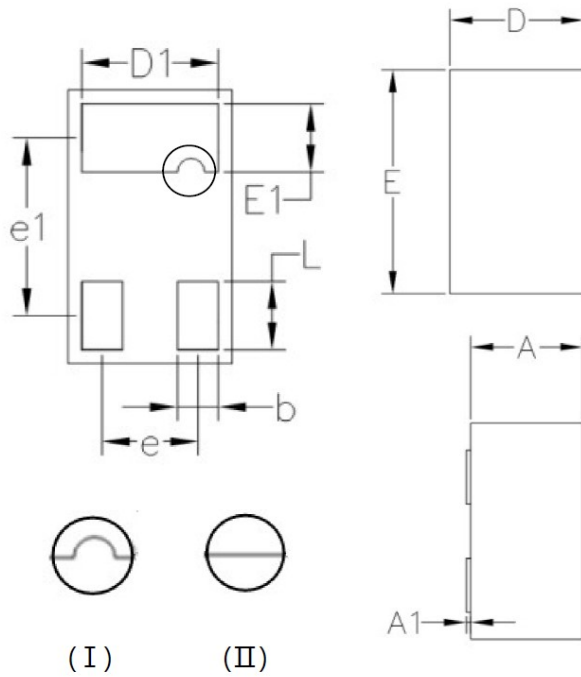


Fig 6 Clamping Voltage vs Peak Pulse Current



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		