

Low Capacitance TVS/ESD Protection Diode

DESCRIPTION

GESD0301PB 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 15pF, GESD0301PB 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.

GESD0301PB uses ultra-small DFN1006 package. Each GESD0301PB device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

ORDERING INFORMATION

- ✧ Device: GESD0301PB
- ✧ Package: DFN1006
- ✧ Marking: 3PB
- ✧ Material: Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 10,000pcs

CIRCUIT DIAGRAM



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×0.6mm×0.4mm)
- ✧ Protects one data, control or power line
- ✧ Low capacitance: 15pF (Maximum)
- ✧ Low leakage current
- ✧ Low clamping voltage
- ✧ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

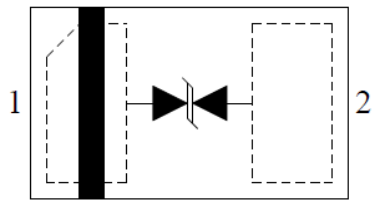
MACHANICAL DATA

- ✧ DFN1006 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$
- ✧ Reel size: 7 inch
- ✧ MSL 1

APPLICATIONS

- ✧ Portable Electronics
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ MP3 Ports
- ✧ Digital Ports
- ✧ Subscriber Identity Module (SIM) card

PIN CONFIGURATION



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ABSOLUTE MAXIMUM RATING

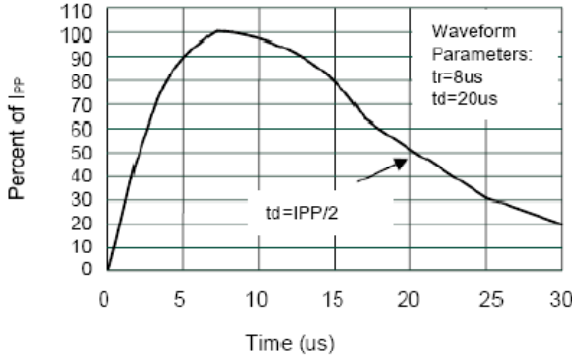
Symbol	Parameter	Value	Units
V _{ESD}	ESD per IEC 61000-4-2 (Air)	±25	kV
	ESD per IEC 61000-4-2 (Contact)	±20	
P _{PP}	Peak Pulse Power (8/20μs)	84	W
T _{OPT}	Operating Temperature	-55/+125	°C
T _{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)

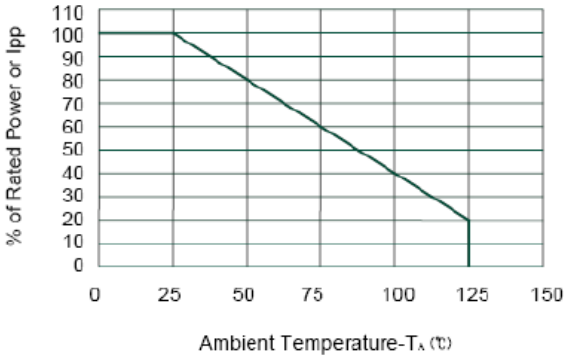
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage				3.3	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA	3.6			V
I _R	Reverse Leakage Current	V _{RWM} = 3.3V			1.0	μA
V _C	Clamping Voltage	I _{PP} = 1A, t _p = 8/20μs			8.0	V
V _C	Clamping Voltage	I _{PPmax} = 7A, t _p = 8/20μs			12.0	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz			15	pF

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ELECTRICAL CHARACTERISTICS CURVE

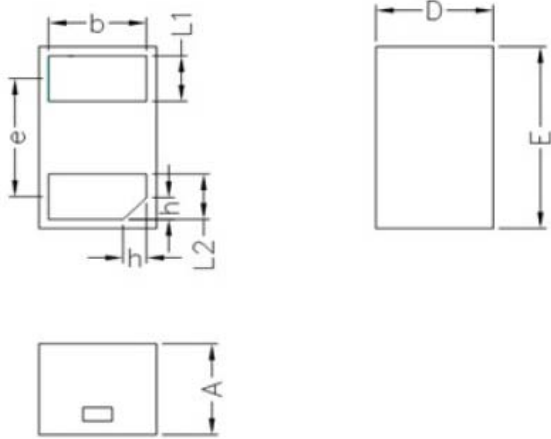


Pulse Waveform



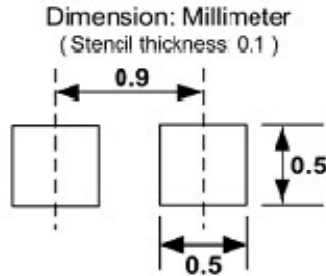
Power Derating Curve

DFN1006 PACKAGE OUTLINE DIMENSIONS



Unit: 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
b	0.45	0.50	0.55
e	0.65BSC		
A	0.45	0.50	0.55
h	0.07	0.12	0.17



Soldering Footprint