

## Ultra Low Capacitance ESD Protection Diode

### DESCRIPTION

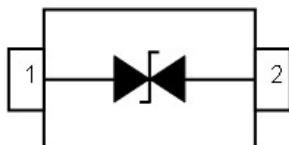
GESD5Z5BL is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.5pF, GESD5Z5BL is designed to protect parasitic-sensitive systems against over-voltage and over-current transient 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.

GESD5Z5BL uses ultra-small SOD-523 package. Each GESD5Z5BL 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 GESD5Z5BL ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

### ORDERING INFORMATION

- ✧ Device: GESD5Z5BL
- ✧ Package: SOD-523
- ✧ Marking: L5
- ✧ Material: Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

### 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)
  - Cable Discharge Event (CDE)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (1.6mm×0.8mm×0.6mm)
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.5pF (Typical)
- ✧ Low leakage current
- ✧ Low clamping voltage

### MACHANICAL DATA

- ✧ SOD-523 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed:
  - 260°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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### ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Contact)	±30	kV
	ESD per IEC 61000-4-2 (Air)	±30	
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	240	W
T <sub>OPT</sub>	Operating Temperature	-55~125	°C
T <sub>STG</sub>	Storage Temperature	-55~150	°C

### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage				5.0	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	6.0			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V			100	nA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs			13	V
		I <sub>PP</sub> = 8A, t <sub>p</sub> = 8/20μs			30	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz		0.5	0.8	pF

### ELECTRICAL CHARACTERISTICS CURVE

Fig 1 8/20 $\mu$ s Waveform per IEC61000-4-5

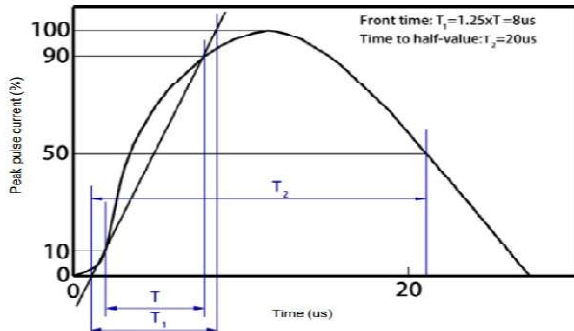


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2

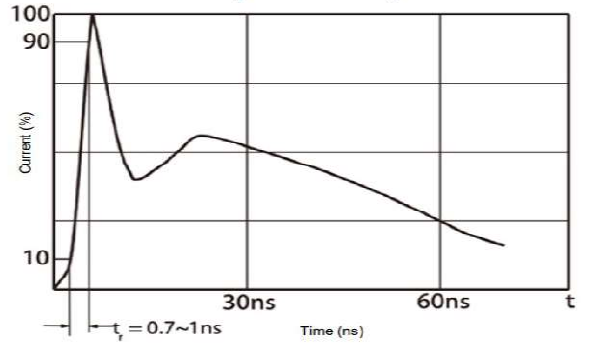


Fig 3 Voltage vs Capacitance

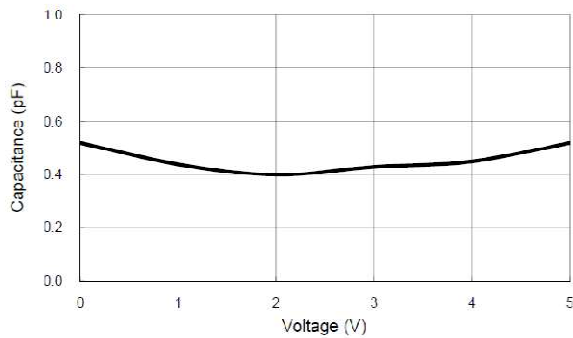
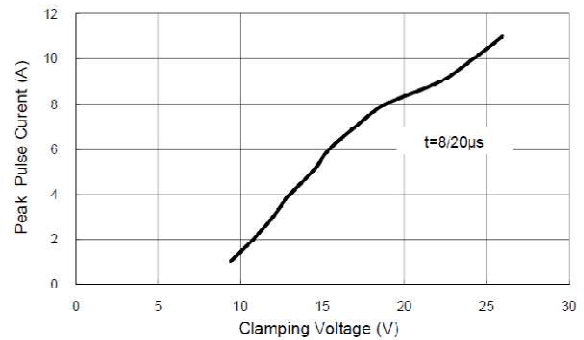
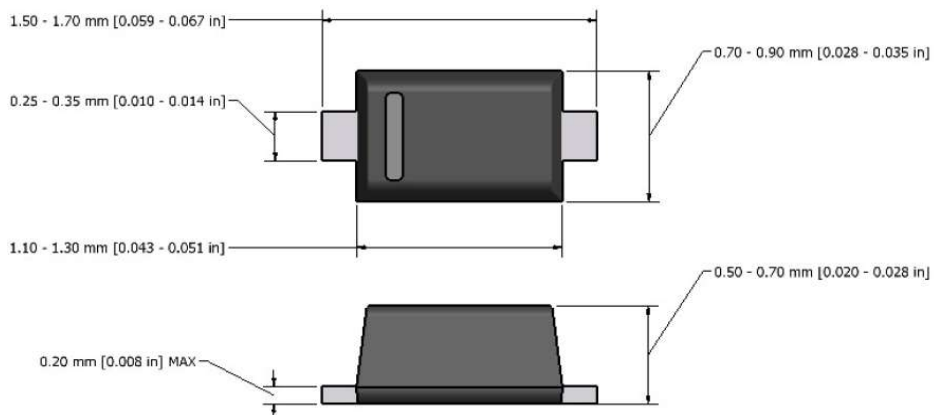


Fig 4 Clamping Voltage vs Peak Pulse Current



### SOD-523 PACKAGE OUTLINE DIMENSIONS



Note: Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.