

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

ESD5Z5CL 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, ESD5Z5CL 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.

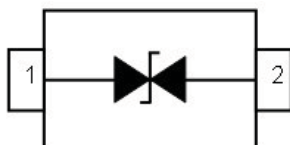
ESD5Z5CL uses ultra-small SOD-523 package.

Each ESD5Z5CL 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 ESD5Z5CL ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

ORDERING INFORMATION

- ✧ Device: ESD5Z5CL
- ✧ Package: SOD-523
- ✧ Marking: 5G
- ✧ Material: Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000 pcs

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 (1.6mm \times 0.8mm \times 0.6mm)
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.25pF (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 $^{\circ}\text{C}$ /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



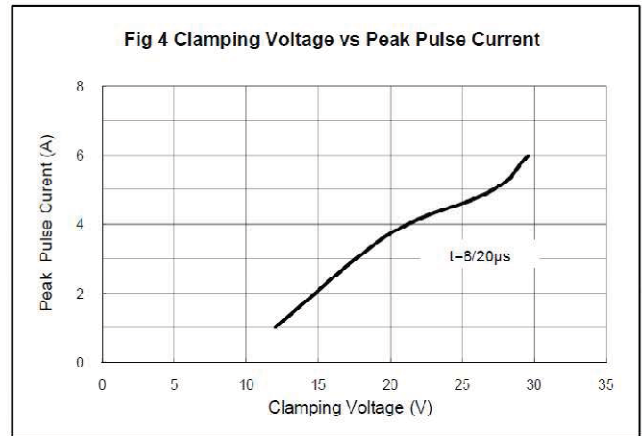
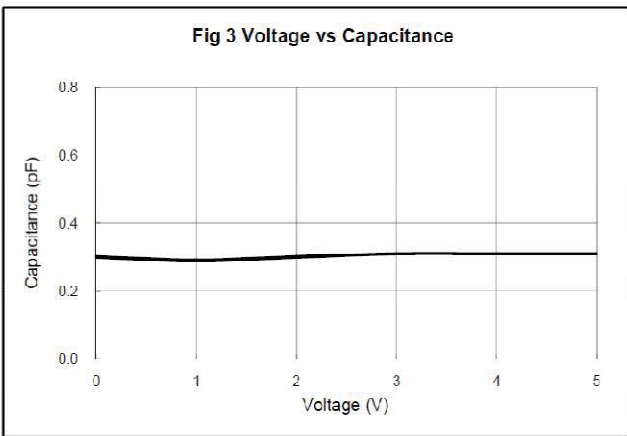
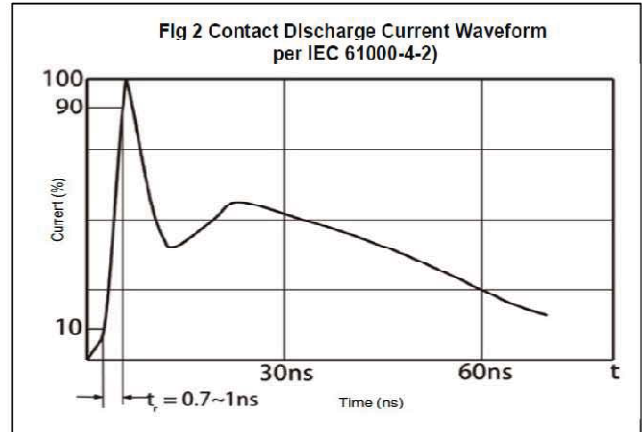
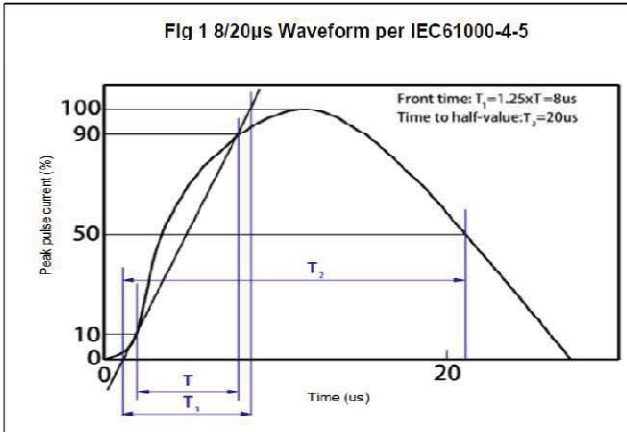
ABSOLUTE MAXIMUM RATING

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

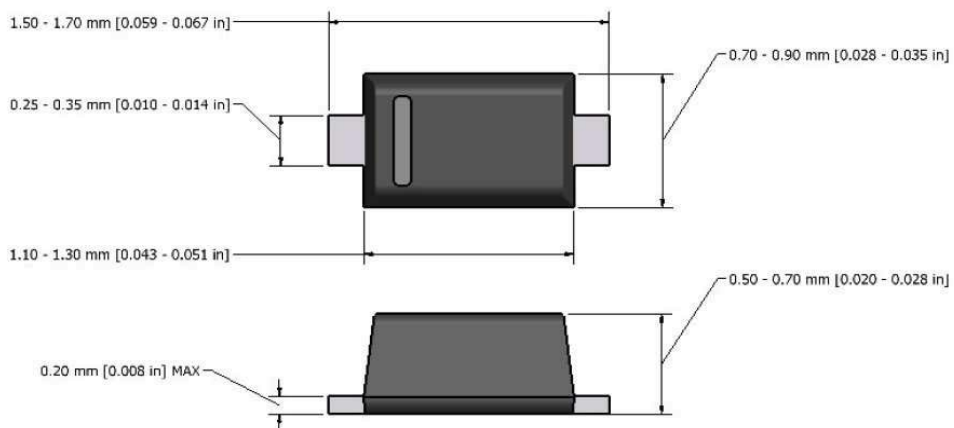
ELECTRICAL CHARACTERISTICS (Tamb=25 $^{\circ}$ C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	6.0			V
I_R	Reverse Leakage Current	$V_{RWM} = 5\text{V}$			100	nA
V_C	Clamping Voltage	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$			13	V
		$I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$			25	V
C_J	Junction Capacitance	$V_R = 0\text{V}, f = 1\text{MHz}$		0.25	0.40	pF

RATING AND CHARACTERISTICS CURVES (ESD5Z5CL)



SOD-523 PACKAGE OUTLINE DIMENSIONS



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

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