



ESD3Z5.0L

Description

ESD3Z5.0L is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.4pF, ESD3Z5.0L 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.

ESD3Z5.0L uses ultra-small SOD-323 package. Each ESD3Z5.0L 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 ESD3Z5.0L ideal for high-speed data port and high-frequency line (e.g., USB 2.0 & antenna line) applications, such as cellular phones and HD visual devices.

Ordering Information

- Device:ESD3Z5.0L
- Package:SOD-323
- Marking:5L
- Material:Halogen free
- Packing:Tape & Reel
- Quantity per reel:3000pcs

Features

- Transient protection for high-speed data lines
- IEC61000-4-2(ESD) $\pm 15\text{kV}$ (Air)
 $\pm 8\text{kV}$ (Contact)
- IEC61000-4-4(EFT) 40A(5/50ns)
- Cable Discharge Event(CDE)
- Ultra-small package
- Protects one data, control line
- Low capacitance:0.4pF(Typical)
- Low leakage current

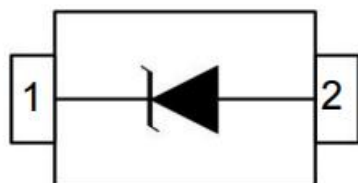
Mechanical Data

- SOD-323 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
- HDMI Data line Protection
- USB3.0/3.1 Data Line Protection
- Display Ports
- Digital Visual Interfaces(DVI)

PIN CONFIGURATION



PACKAGE OUTLINE





ESD3Z5.0L

Absolute Maximum Rating

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2(Air)	V_{ESD}	± 30	kV
ESD per IEC 61000-4-2(Contact)		± 25	kV
Peak Pulse Power(8/20 μ s)	P_{PP}	60	W
Operating Temperature	T_{OPT}	-55~+125	°C
Storage Temperature	T_{STG}	-55~+150	°C

Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6.0			V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$			100	nA
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			10	V
		$I_{PP}=4\text{A}, t_p=8/20\mu\text{s}$			15	V
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$		0.4	0.7	pF



Typical Characteristics

Fig 1 Power Derating Curve

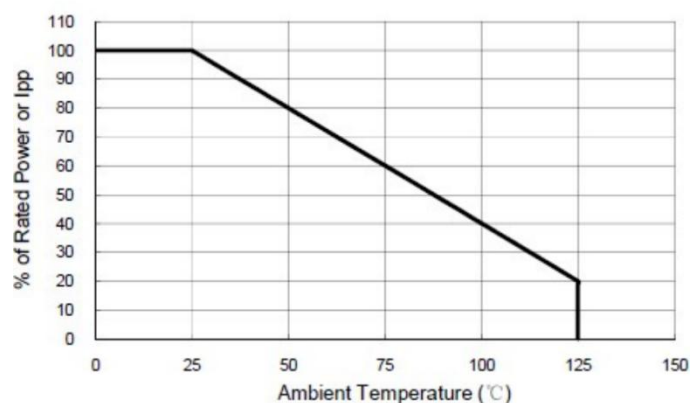


Fig 2 Clamping Voltage vs Peak Pulse Current

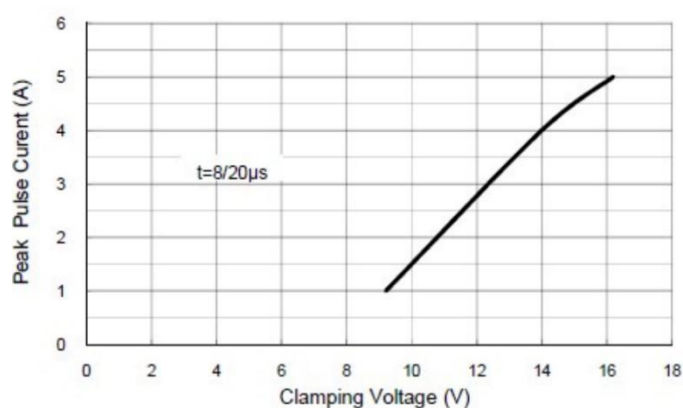


Fig 3 Voltage Sweeping

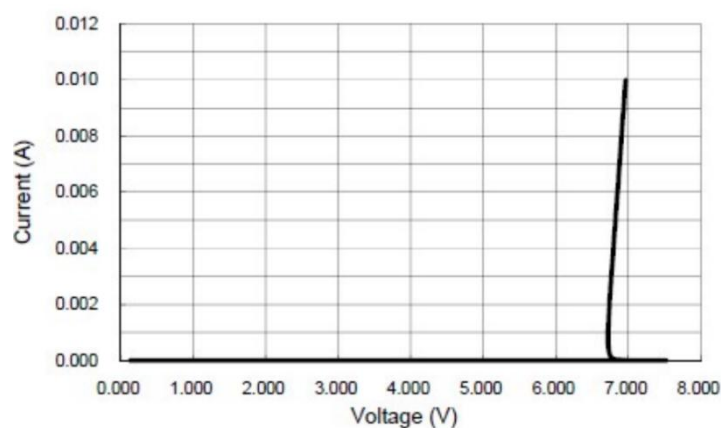


Fig 4 Voltage vs Capacitance

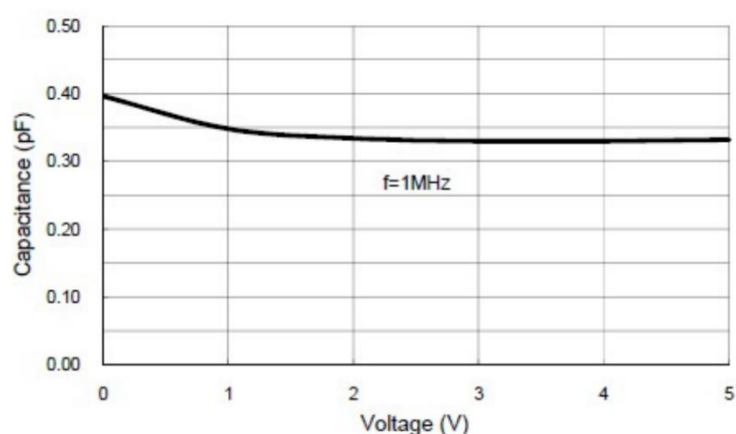


Fig 5 ESD Clamping
(+8kV Contact per IEC 61000-4-2)

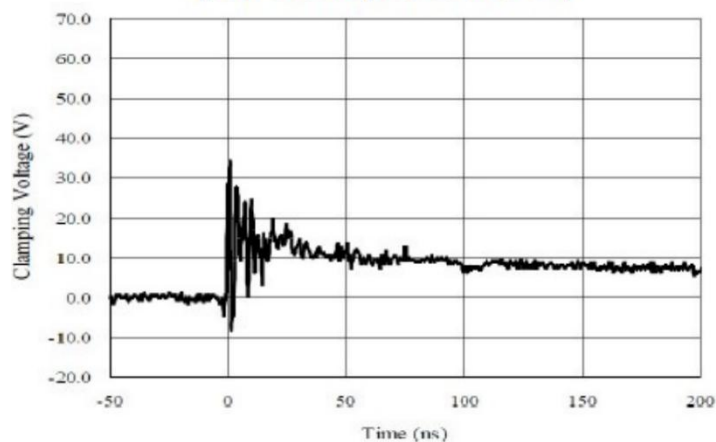
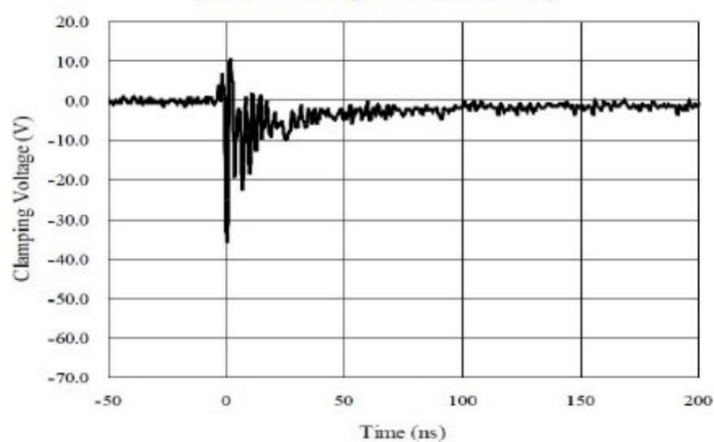


Fig 6 ESD Clamping
(-8kV Contact per IEC 61000-4-2)



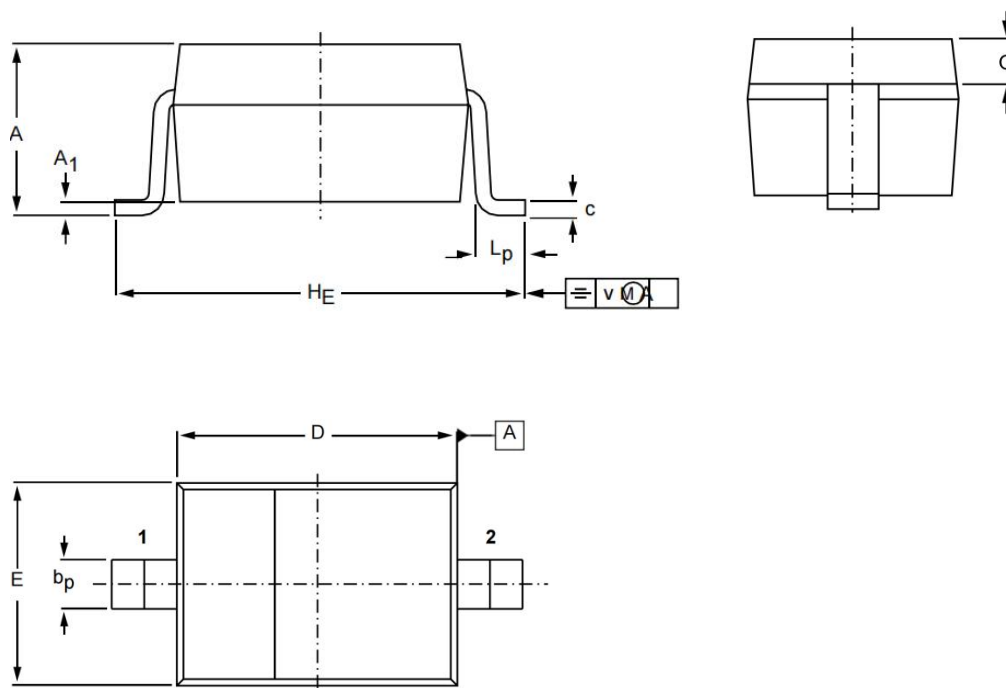


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Package Information

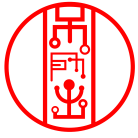
SOD-323

Dimensions in mm



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	H _E	L _p	Q	v
mm	1.1 0.8	+ 0.05 - 0.05	0.40 0.25	0.25 0.10	1.8 1.6	1.35 1.15	2.7 2.3	0.45 0.15	0.25 0.15	0.2



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