ESD5Z3.3C

Transient Voltage Suppressors for ESD protection

SOD-523 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

The ESD5Z3.3C is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.This device has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events),and EFT (electrical fast transients).

Features

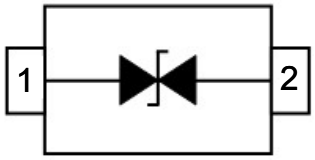
- IEC61000-4-2 (ESD) ± 30KV (Air)
  ± 30KV(contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Peak power dissipation: 60W (8/20us)
- Protects one directional I/O line
- Low clamping voltage
- Working voltages : 3.3V
- Low leakage current

Marking: 3C

Pin Configuration

RoHS COMPLIANT

Circuit Diagram



Applications

- High Speed Line :USB1.0/2.0, VGA, DVI, SDI,
- Serial and Parallel Ports
- Notebooks, Desktops, and Servers Cellular
- handsets and accessories
- Portable Instrumentation
- Projection TV
- Peripherals

Mechanical Characteristics

- Package: SOD-523
- Flammability Rating: UL 94V-0
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026
- Packaging: Tape and Reel

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 30 ± 30	KV
Peak Pulse Power (8/20μs)	P_{PP}	60	W
Operating Temperature	T_{OPT}	−40 to +150	°C
Storage Temperature	T_{STG}	−40 to +150	°C

The above data above is for reference only.

Electrical Characteristics (T_A=25°C unless otherwise specified)

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			6.5	V
V_C	Clamping Voltage	I_{PPmax} = 5A , t_p = 8/20μs			12.0	V
V_{CTLP}	TLP Clamping Voltage	I_{PP} = 16A IEC61000-4-2 Level 4 equivalent (±8kV Contact, ±15kV Air)		9		V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz			16.5	pF

The above data are for reference only.

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 8/20μs Waveform per IEC61000-4-5

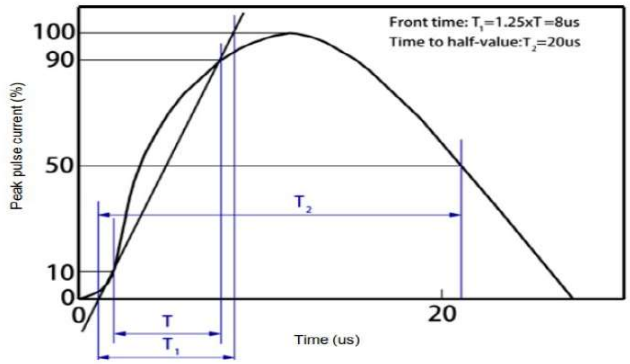


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2)

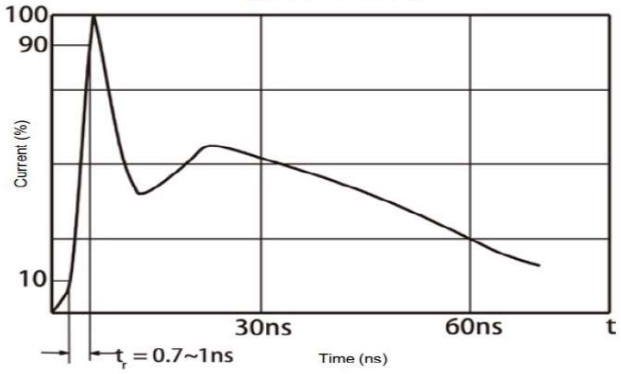


Fig 3 Power Derating Curve

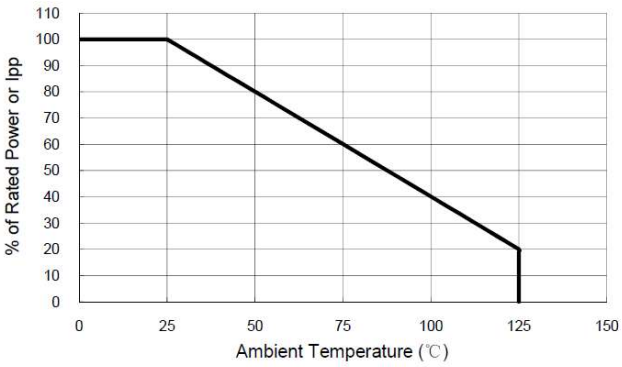


Fig 4 Voltage vs Capacitance

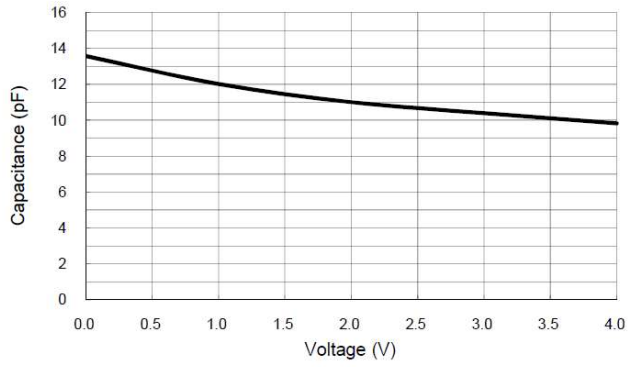


Fig 5 Transmission Line Pulsing (TLP) Measurement

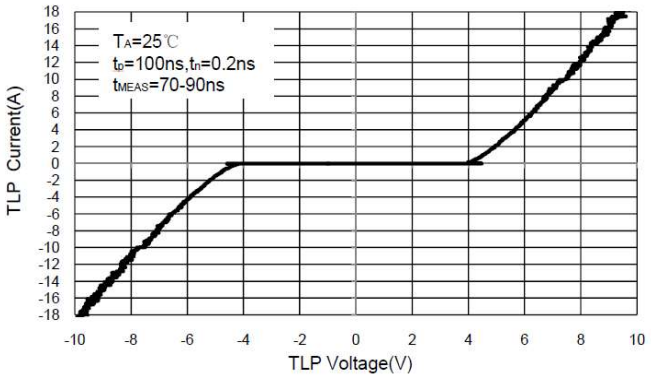
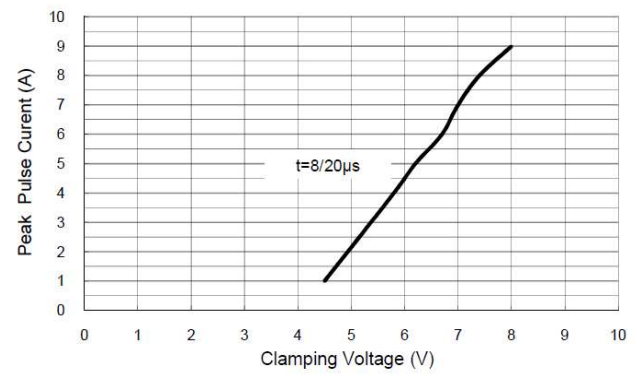


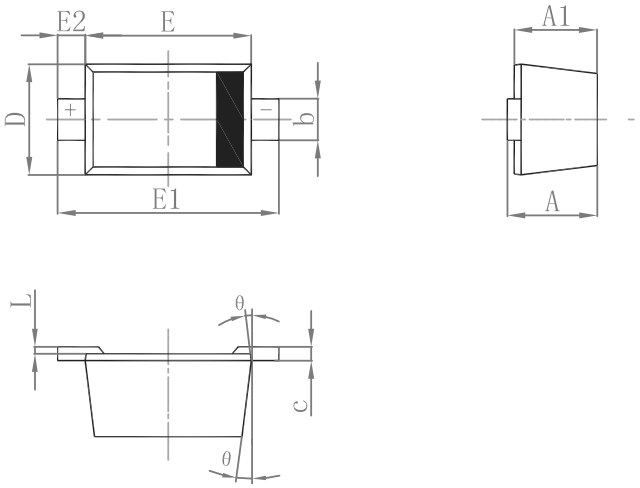
Fig 6 Clamping Voltage vs Peak Pulse Current



The above data are for reference only.

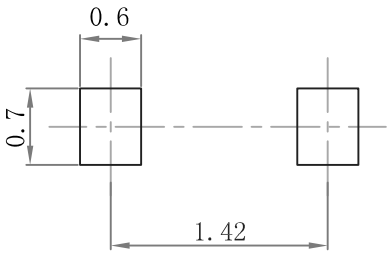
Outlitne Drawing

SOD-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.500	0.700	0.020	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
K	7° REF		7° REF	

Suggested Pad Layout



Note:
1.Controlling dimension:in/millimeters.
2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
SOD-523	7'	178	3000	183×188×80	18,000	386×265×215	108,000