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ESD5Z3.3T1G

1-Line Uni-directional TVS Diode

Features

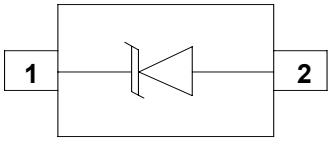
- Ultra small package: SOD-523
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- 2-Pin leadless package
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - – IEC61000-4-5 (Lightning) 15A (8/20μs)
- RoHS Compliant



SOD-523

Mechanical Characteristics

- Package: SOD-523
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below



Circuit diagram

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays



ZE 8=Device Marking Code

Bar denotes cathode

Marking (Top View)

Ordering Information

Part Number	Packaging	Reel Size
ESD5Z3.3T1G	3000/Tape & Reel	7 inch

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	150	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	15	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40~85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	V_{RWM}				3.3	V
Reverse leakage current	I_R	V_{RWM} = 3.3V		<5	200	nA
Reverse breakdown voltage	V_{BR}	I_T = 1mA	3.5			V
Clamping voltage *1)*	V_{CL}	I_{PP} = 16A, t_p = 100ns		8.5		V
Dynamic resistance *1)*	R_{DYN}			0.23		Ω
Clamping voltage *2)*	V_{CL}	V_{ESD} = 8kV		9		V
Clamping voltage *3)*	V_{CL}	I_{PP} = 1A, t_p = 8/20μs		5	7	V
		I_{PP} = 15A, t_p = 8/20μs		9	10	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		20		pF

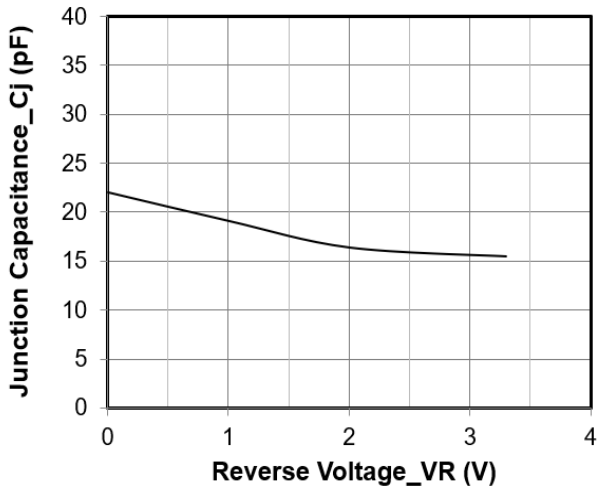
Notes:

1) TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 0.2ns, averaging window from 70ns to 90ns. R_{DYN} is calculated from 4A to 16A.

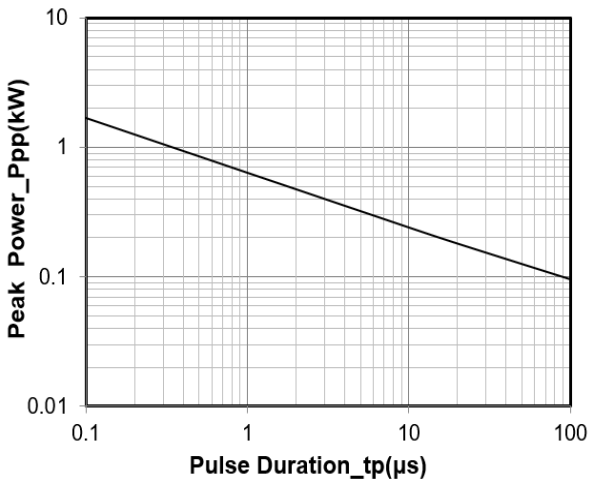
2) Contact discharge mode, according to IEC61000-4-2.

3) Non-repetitive current pulse, according to IEC61000-4-5.

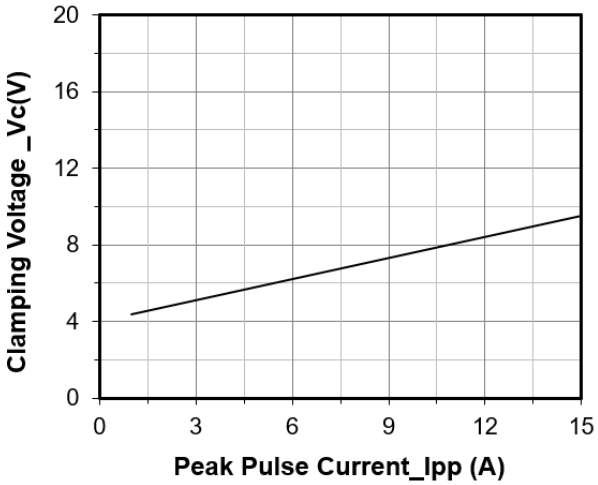
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



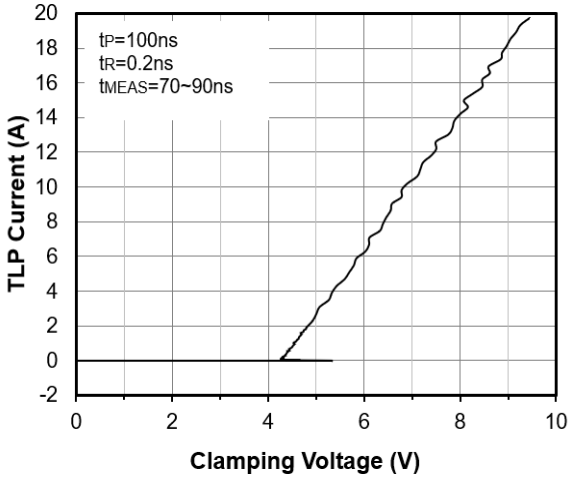
Junction Capacitance vs. Reverse Voltage



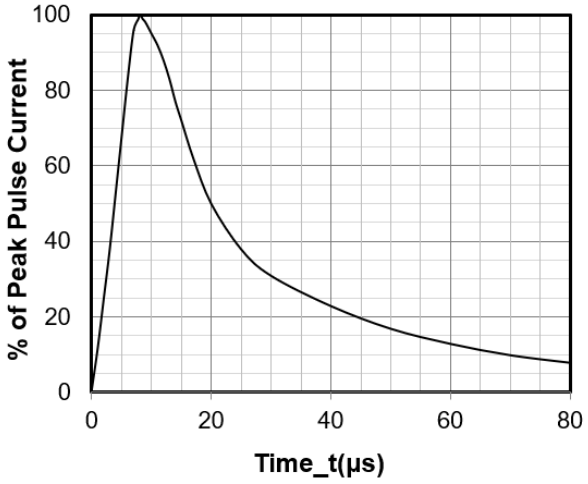
Peak Pulse Power vs. Pulse Time



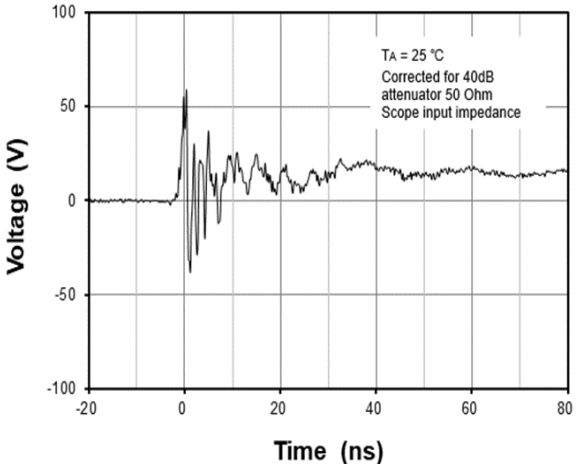
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



TLP Measurement



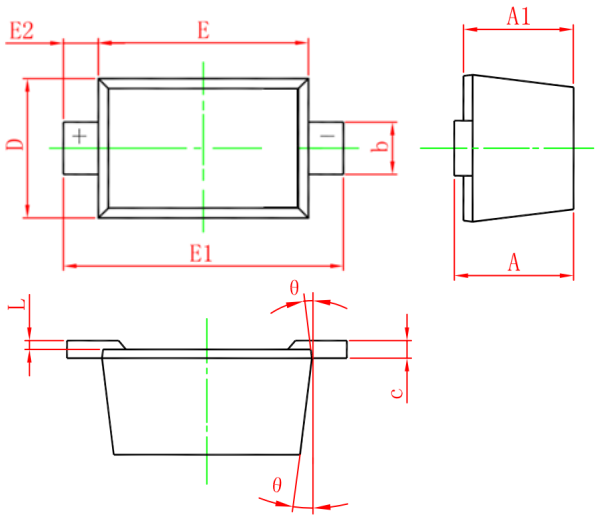
8 X 20μs Pulse Waveform



ESD Clamping Voltage

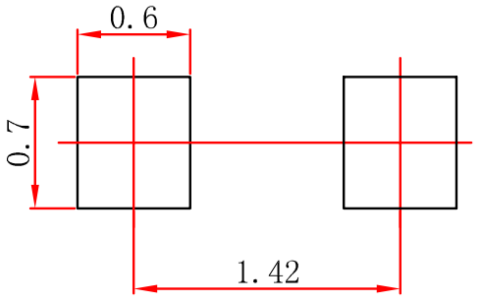
8 kV Contact per IEC61000−4−2

SOD-523 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	- -	0.77	0.020	- -	0.031
A1	0.50	- -	0.70	0.020	- -	0.028
b	0.25	- -	0.35	0.010	- -	0.014
c	0.08	- -	0.15	0.003	- -	0.006
D	0.75	- -	0.85	0.030	- -	0.033
E	1.10	- -	1.30	0.043	- -	0.051
E1	1.50	- -	1.70	0.059		0.067
E2	0.20REF			0.008REF		
L	0.01	- -	0.07	0.001	- -	0.003
Θ	7° REF			7° REF		

Suggested Land Pattern



Unit：mm