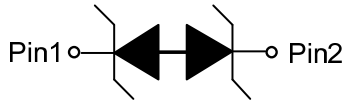


1-Line, Bi-directional, Transient Voltage Suppressor



SOD-323

Features

- Stand-off voltage: $\pm 3.3\text{V}$ Max
- Transient protection for each line according to IEC61000-4-2(ESD): $\pm 30\text{kV}$ (contact)
IEC61000-4-5(surge): 8A (8/20 μs)
- Ultra-low capacitance: $C_J = 15\text{pF}$ typ
- Low leakage current
- Low clamping voltage:
 $V_{CL} = 11\text{V}$ typ. @ $I_{PP} = 16\text{A}$ (TLP)

Applications

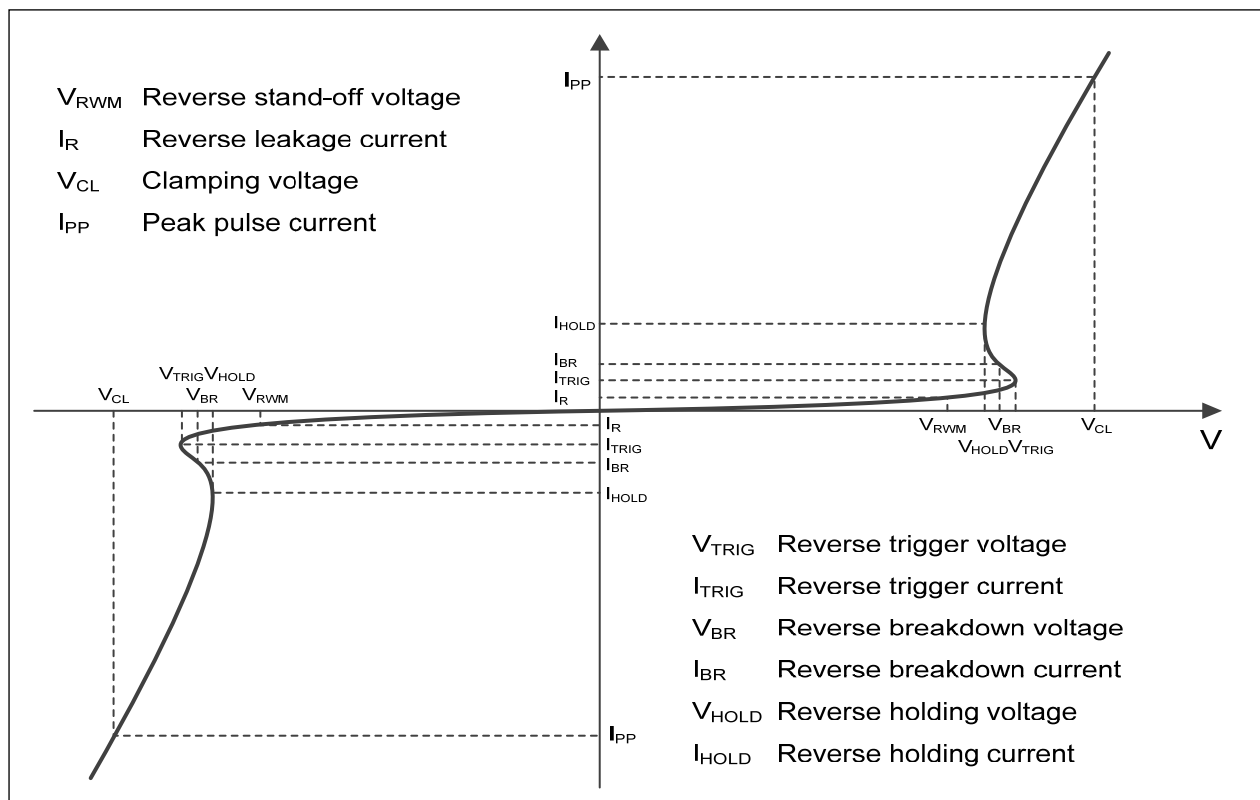
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Mechanical Data

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



■ Definitions of electrical characteristics



■Maximum Ratings

PARAMETER	SYMBOL	Rating	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	88	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	8	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	KV
ESD according to IEC61000-4-2 contact discharge		± 30	KV
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40~85	°C
Storage temperature	T_{STG}	-55~150	°C

■Electrical Characteristics ($T_a=25^\circ C$ Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				± 3.3
Reverse leakage current	I_R	nA	$V_{RWM} = 3.3V$			100
Reverse breakdown voltage	V_{BR}	V	$I_T = 1mA$	3.6		5.0
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 16A, t_p = 100ns$		11	
Dynamic resistance ¹⁾	R_{DYN}	Ω			0.36	
Clamping voltage ²⁾	V_{CL}	V	$V_{ESD} = 8kV$		10	
Clamping voltage ³⁾	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$			8
		V	$I_{PP} = 8A, t_p = 8/20\mu s$			11
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$		15	
		pF	$V_R = 2.5V, f = 1MHz$		12	

(1). TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

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

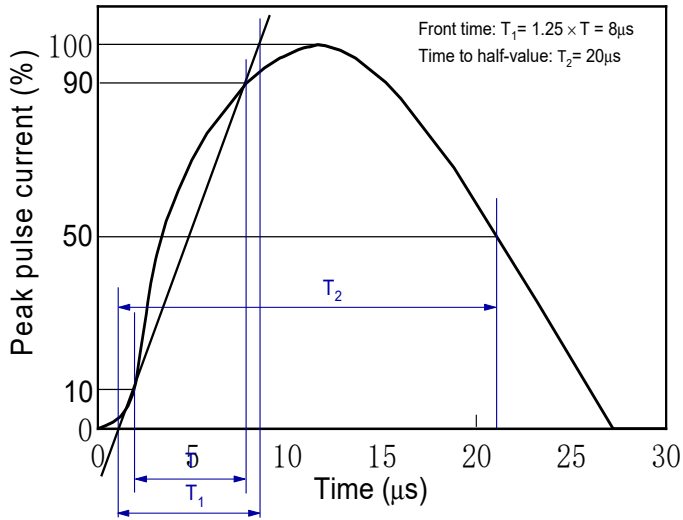
(3). Non-repetitive current pulse, according to IEC61000-4-5.

■Ordering Information (Example)

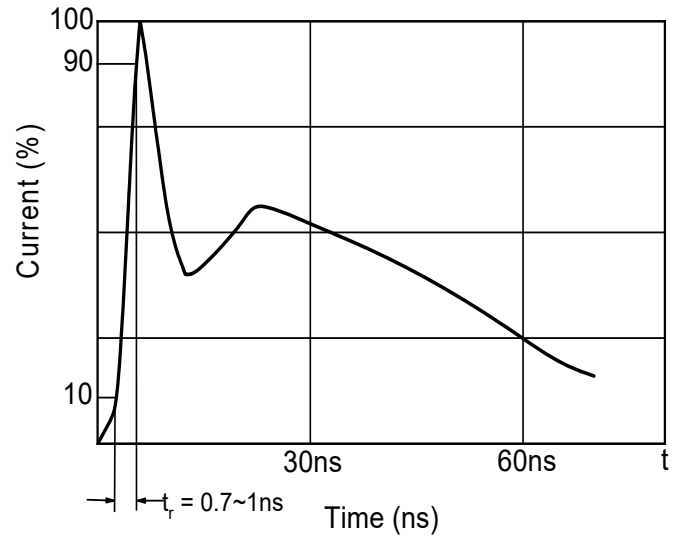
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD3V3D3B	F2	Approximate 4	3000	30000	120000	7" reel

■ Characteristics (Typical)

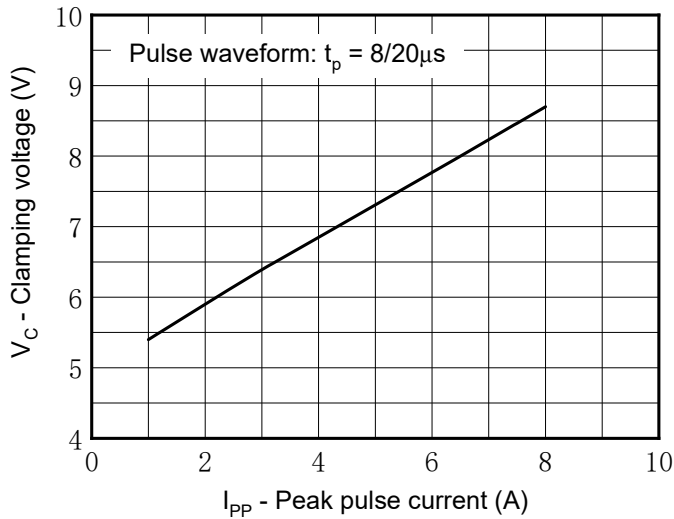
8/20μs waveform per IEC61000-4-5



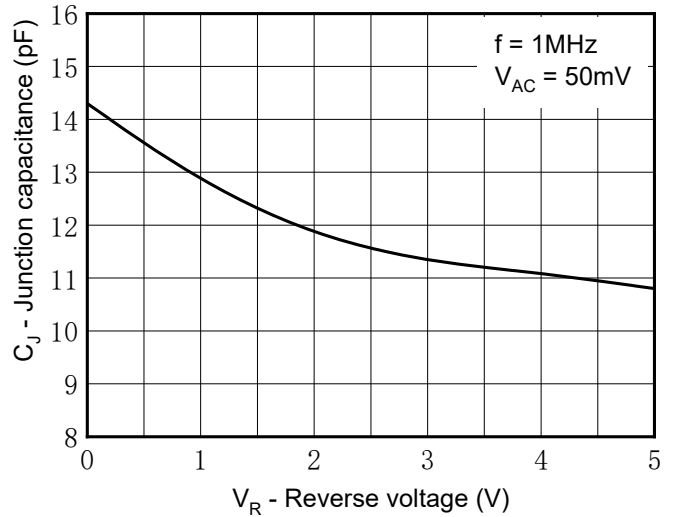
Contact discharge current waveform per IEC61000-4-2



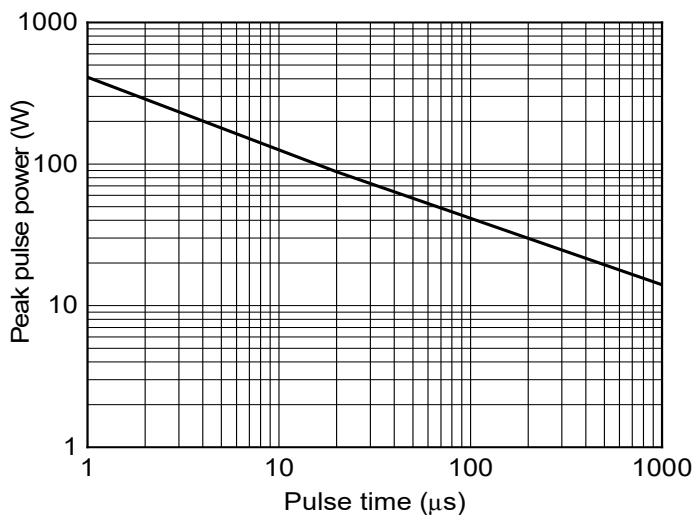
Clamping voltage vs. Peak pulse current



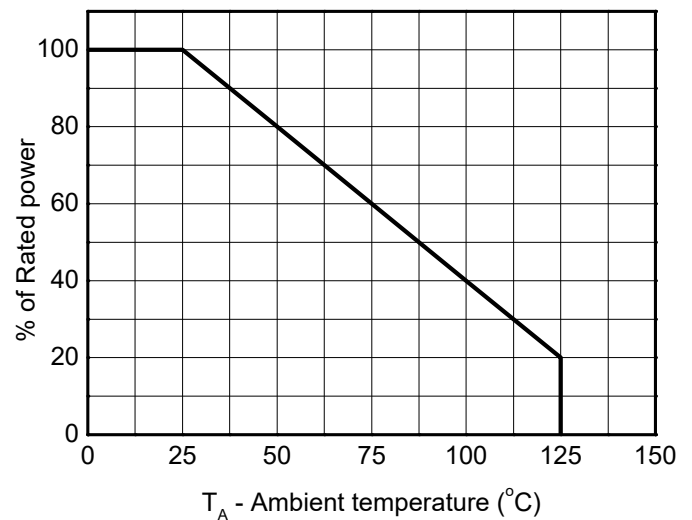
Capacitance vs. Reverse voltage



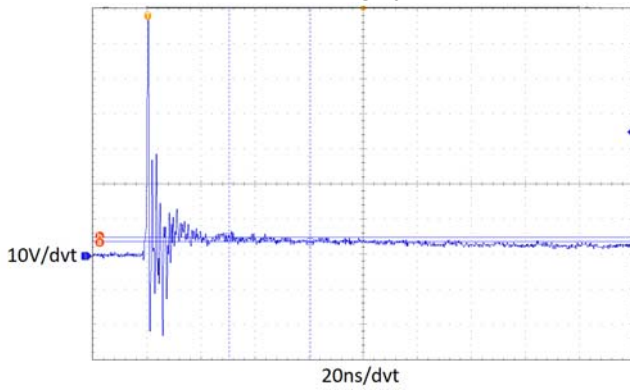
Non-repetitive peak pulse power vs. Pulse time



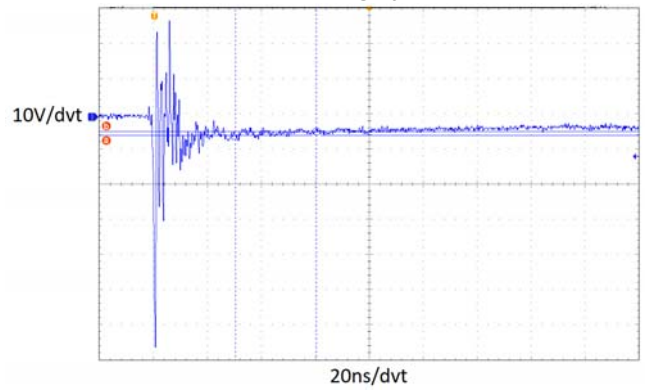
Power derating vs. Ambient temperature



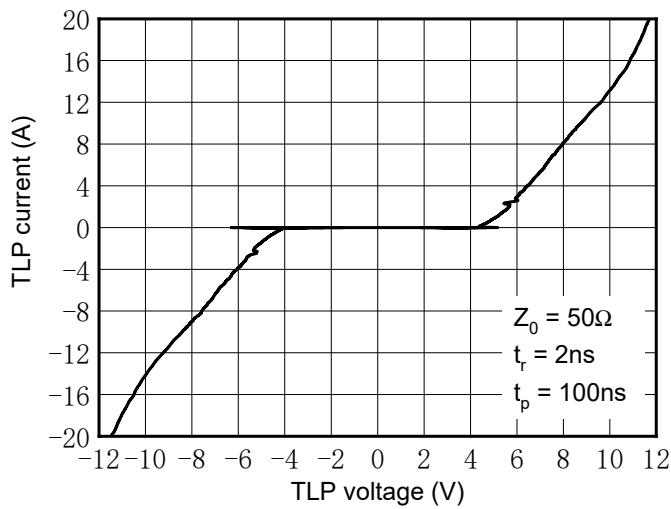
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



ESD clamping
(-8kV contact discharge per IEC61000-4-2)

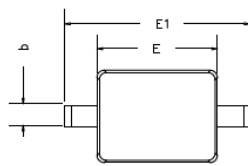


TLP Measurement

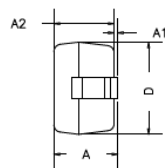


■ Outline Dimensions

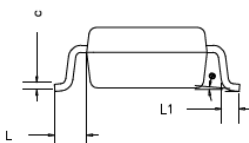
SOD-323



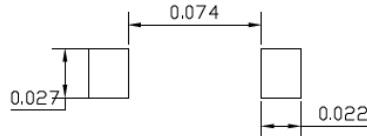
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: inch

SUGGESTED SOLDER PAD LAYOUT

DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	---	0.0390	---	1.0000
A1	0.0000	0.0039	0.0000	0.1000
A2	0.0310	0.0354	0.8000	0.9000
b	0.0100	0.0157	0.2500	0.4000
c	0.0003	0.0059	0.0800	0.1500
D	0.0470	0.0551	1.2000	1.4000
E	0.0630	0.0709	1.6000	1.8000
E1	0.0984	0.1063	2.5000	2.7000
L	0.0187 TYP		0.475 TYP	
L1	0.0098	0.0157	0.250	0.400
⌀	0°	8°	0°	8°

Notes:

This suggested land pad layout is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met

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