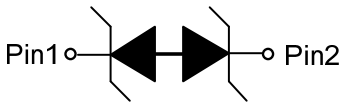
1- Line, Bi-directional, Transient Voltage Suppressor





SOD-323

Features

- Stand-off voltage: ±4.5V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-4 (EFT): 80A (5/50ns)
  IEC61000-4-5(surge): 160A (8/20μs)
- capacitance: CJ = 300pF typ.
- Low leakage current
- Low clamping voltage:
  VCL = 7V typ. @ IPP = 16A(TLP)
- Solid-state silicon technology

Applications

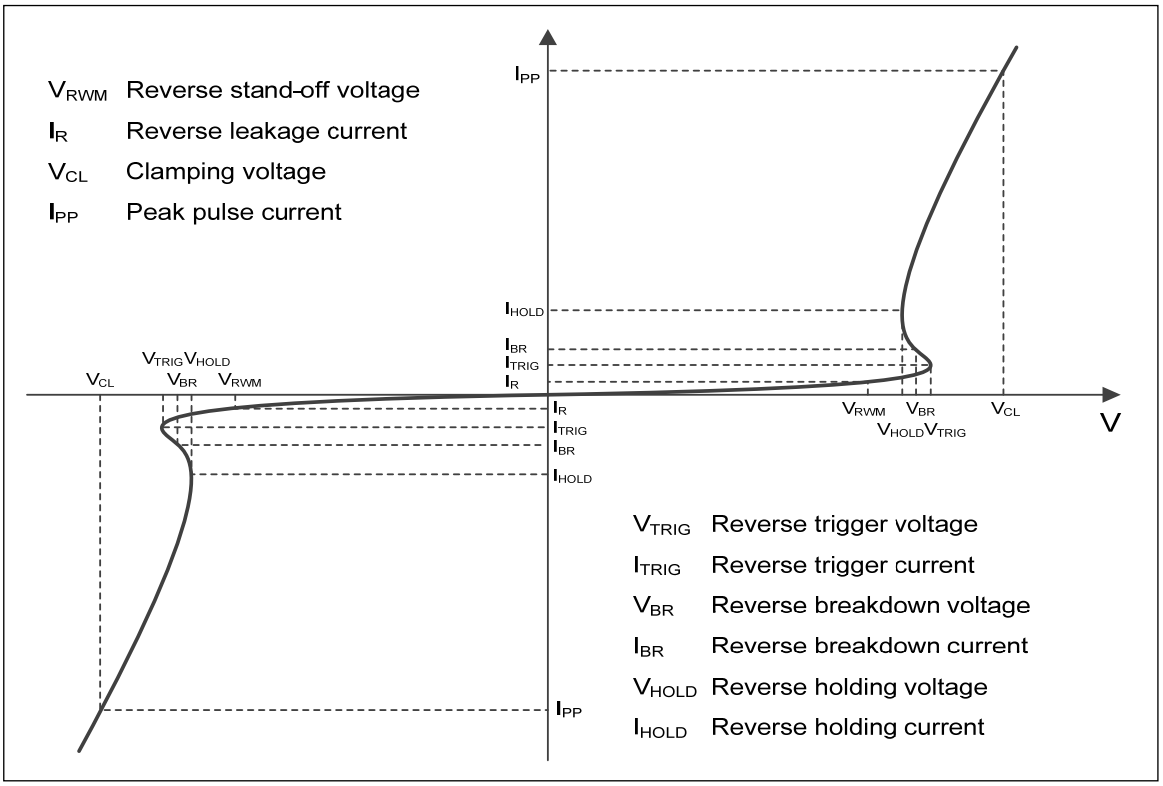
- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

Mechanical Data

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below



■Definitions of electrical characteristics



■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	1920	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	160	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	℃
Storage temperature	T_{STG}	-55~150	℃

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				±4.5
Reverse leakage current	I_R	μA	V_{RWM} = 4.5V			1
Reverse breakdown voltage	$V_{(BR)}$	V	I_T = 1mA	4.6		
Clamping voltage [1]	V_{CL}	V	I_{PP} = 16A, t_p = 100ns		7	
Dynamic resistance [1]	R_{DYN}	Ω			0.04	
Clamping voltage [2]	V_{CL}	V	V_{ESD} = 8kV		9	
Clamping voltage [3]	V_{CL}	V	I_{PP} = 1A, t_p = 8/20μs		5	7
		V	I_{PP} = 20A, t_p = 8/20μs		5.5	7.5
		V	I_{PP} = 160A, t_p = 8/20μs		10	12
Junction capacitance	C_J	pF	V_R = 0V, f = 1MHz		280	300

Notes:

1) TLP parameter: Z_0 = 50Ω, 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)

PREFERED P/N	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD4V5D3BA	Approximate 0.004	3000	30000	120000	7 reel

■ Characteristics (Typical)

Fig.1 8/20μs waveform per IEC61000-4-5

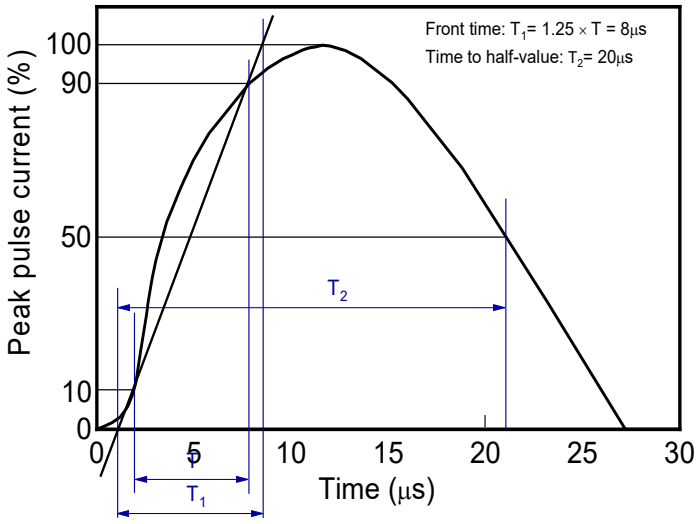


Fig.2 Contact discharge current waveform per IEC61000-4-2

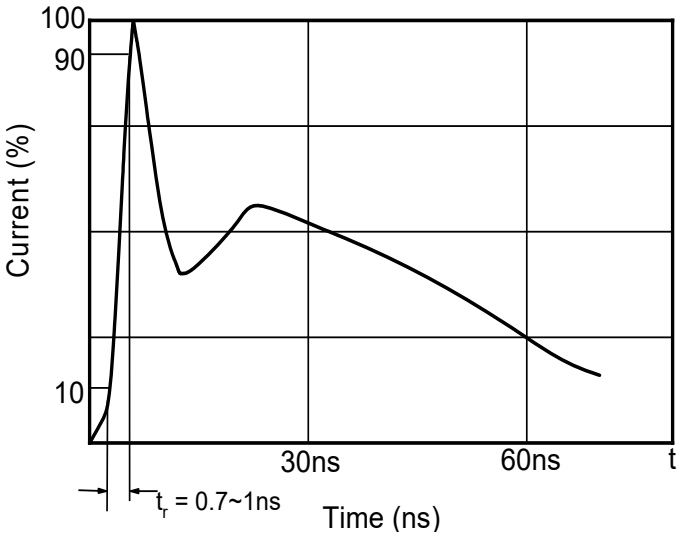


Fig.3 Clamping voltage vs. Peak pulse current

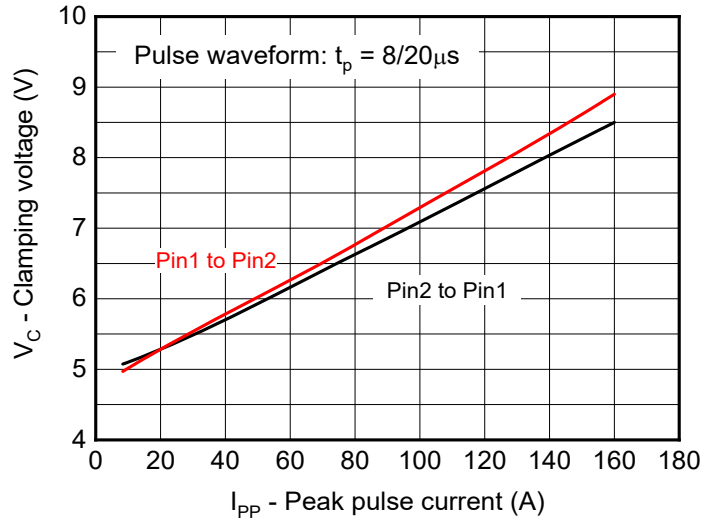


Fig.4 Capacitance vs. Reverse voltage

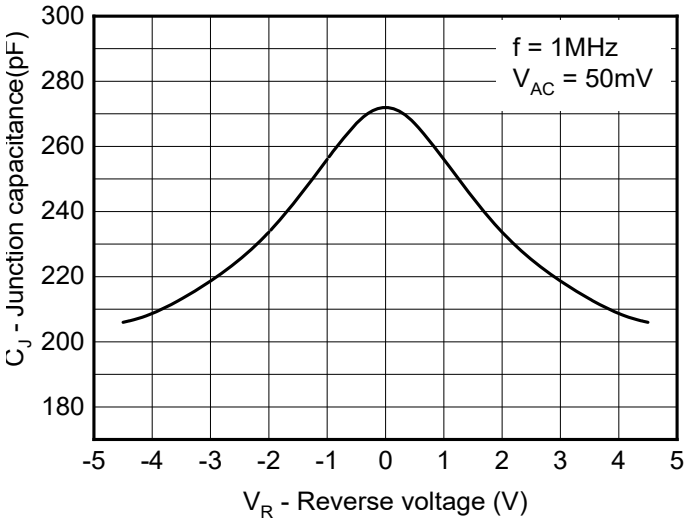


Fig.5 Non-repetitive peak pulse power vs. Pulse time

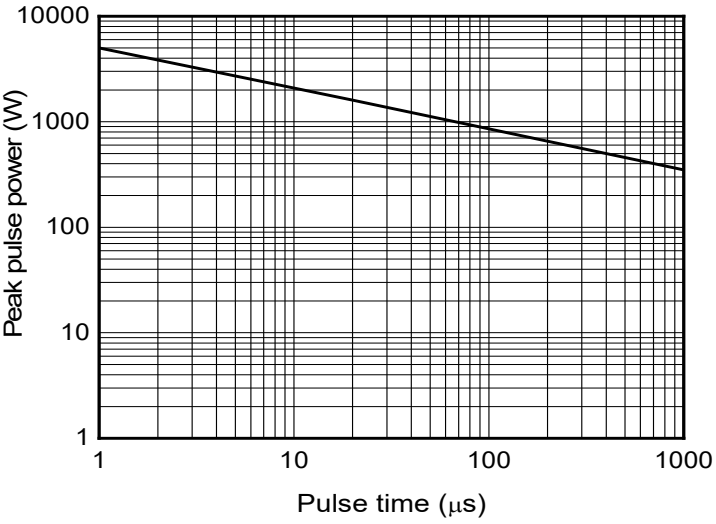


Fig.6 Power derating vs. Ambient temperature

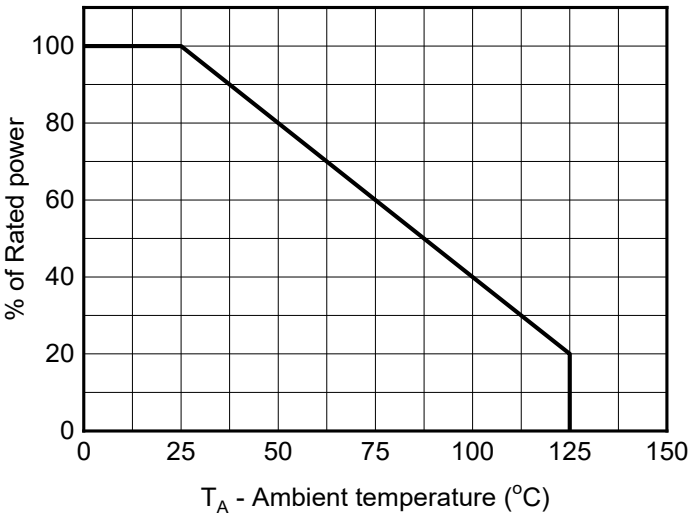


Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)

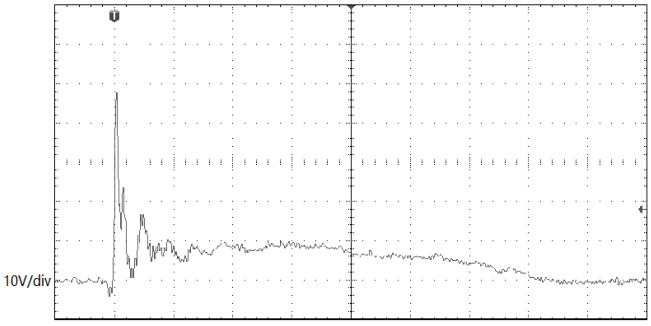
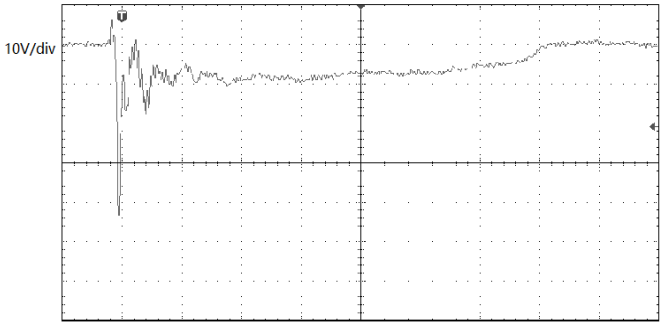
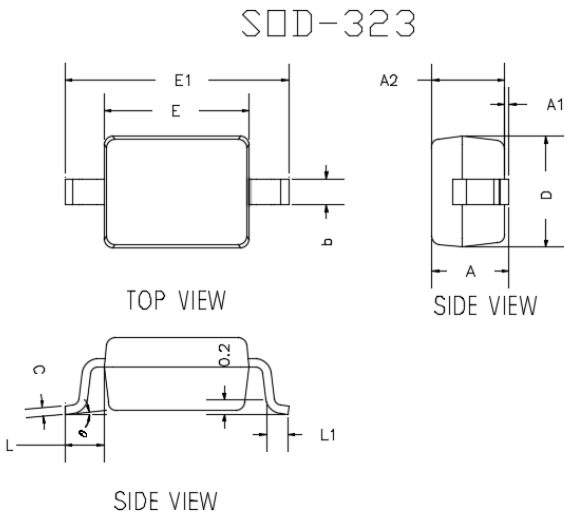


Fig.8 ESD clamping
(-8kV contact discharge per IEC61000-4-2)

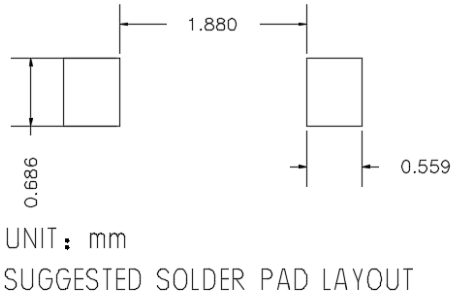


■ Outline Dimensions



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	MAX
A	---	0.0393	---	1.0000
A1	0.0000	0.0039	0.0000	0.1000
A2	0.0314	0.0354	0.8000	0.9000
b	0.0098	0.0157	0.2500	0.4000
c	0.0031	0.0059	0.0800	0.1500
D	0.0472	0.0551	1.2000	1.4000
E	0.0629	0.0709	1.6000	1.8000
E1	0.0984	0.1063	2.5000	2.7000
L	0.0187TYP		0.475TYP	
L1	0.0098	0.0157	0.250	0.400
θ	0°	8°	0°	8°

■ Soldering Footprint



Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.