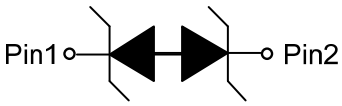
1-Line, Bi-directional, Transient Voltage Suppressor





SOD-523

Features

- Stand-off voltage: 5V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-4 (EFT): 40A (5/50ns)
  IEC61000-4-5(surge): 6A (8/20μs)
- Low leakage current
- Low clamping voltage
- Low clamping voltage:
  V_{CL} = 10V typ. @ IPP = 16A (TLP)
- RoHS Compliant

Applications

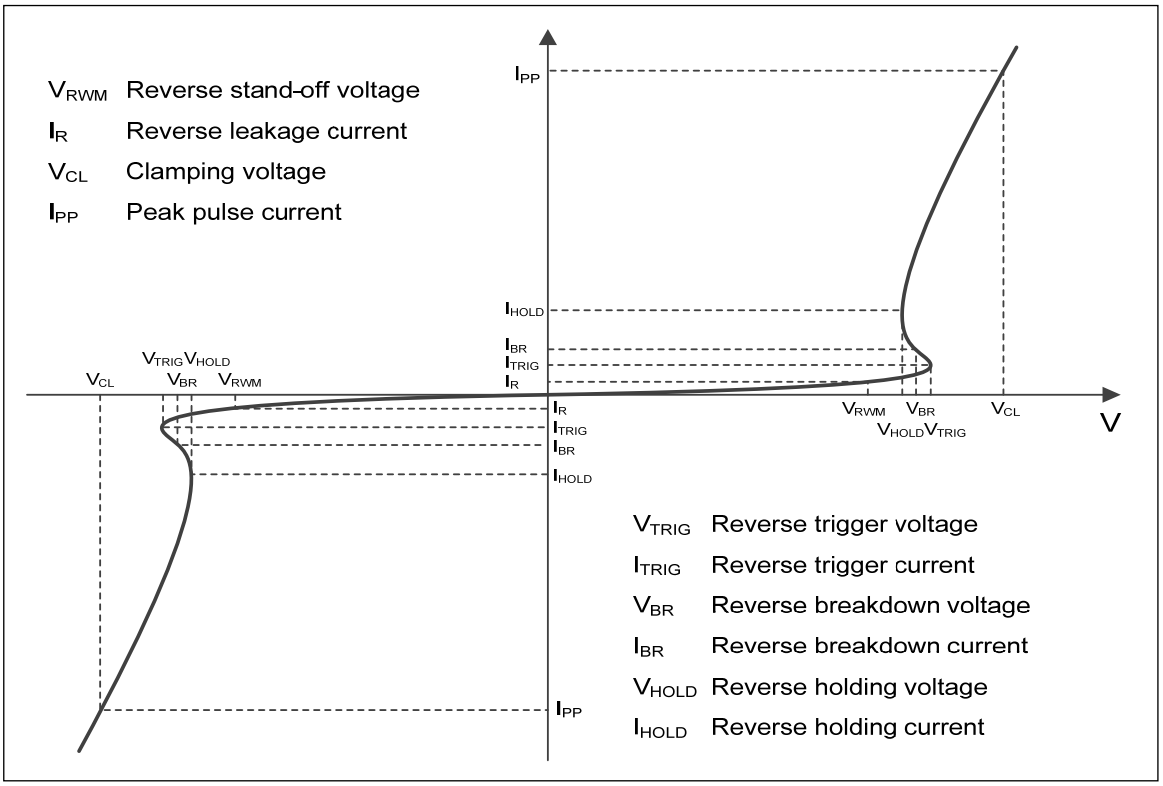
- Cellular handsets
- Tablets
- Laptops
- Network communication devices
- Other portable devices

Mechanical Data

- Package: SOD-523
- 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	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	72	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	6	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	ºC
Storage temperature	T_{STG}	-55~150	ºC

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

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				5.0
Reverse leakage current	I_R	nA	V_{RWM} = 5V			100
Reverse breakdown voltage	V_{BR}	V	I_{BR} = 1mA	5.7		
Reverse holding voltage	V_{HOLD}		I_{HOLD} = 50mA	5.7		
Clamping voltage 1)	V_{CL}	V	I_{PP} = 16A, t_p = 100ns		10	
Dynamic resistance 1)	R_{DYN}	Ω			0.2	
Clamping voltage 2)	V_{CL}	V	V_{ESD} = 8kV		10	
Clamping voltage 3)	V_{CL}	V	I_{PP} = 1A, t_p = 8/20μs			8
		V	I_{PP} = 6A, t_p = 8/20μs			12
Junction capacitance	C_J	pF	V_R = 0V, f = 1MHz		12	15

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	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD5VD05BS1	F2	Approximate 2	8000	80000	320000	7” reel

■ Characteristics (Typical)

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

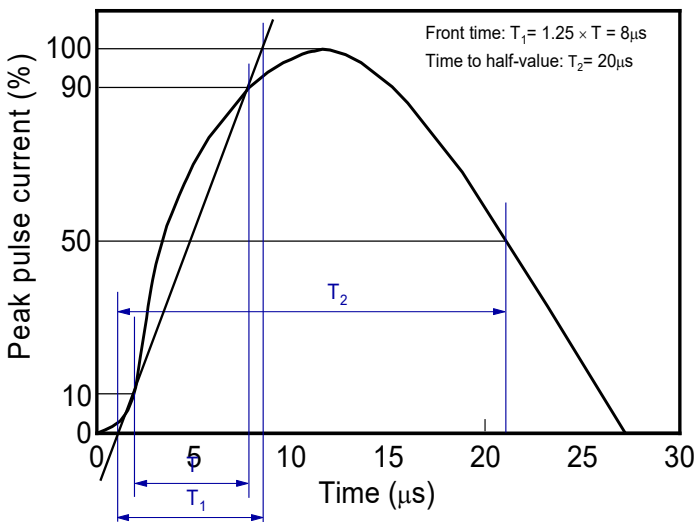


Fig.2 Contact discharge current waveform per IEC61000-4-2

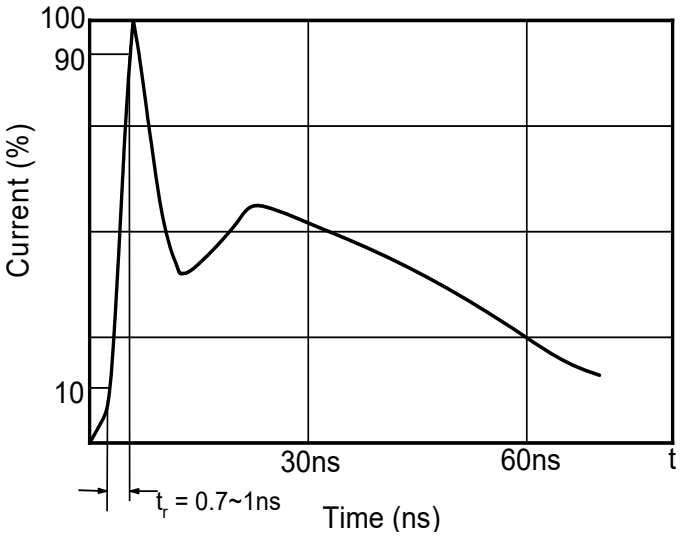


Fig.3 Clamping voltage vs. Peak pulse current

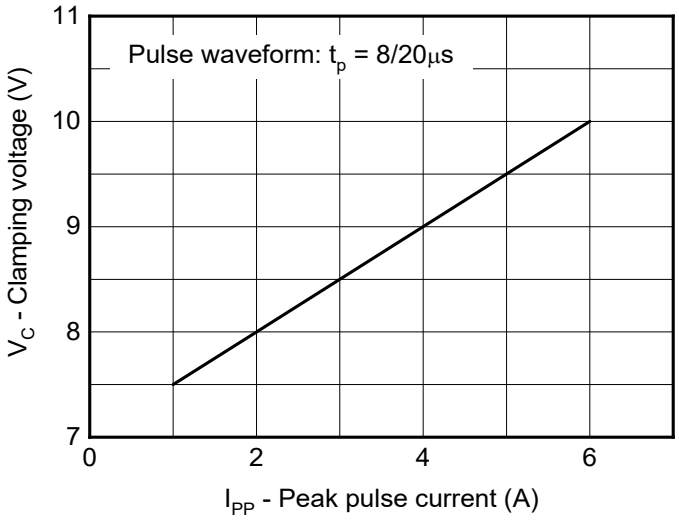


Fig.4 Capacitance vs. Reverse voltage

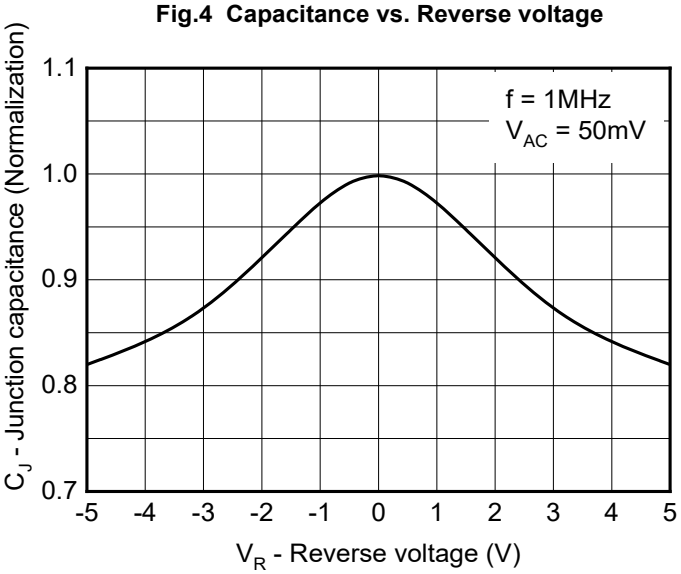


Fig.5 Non-repetitive peak pulse power vs. Pulse time

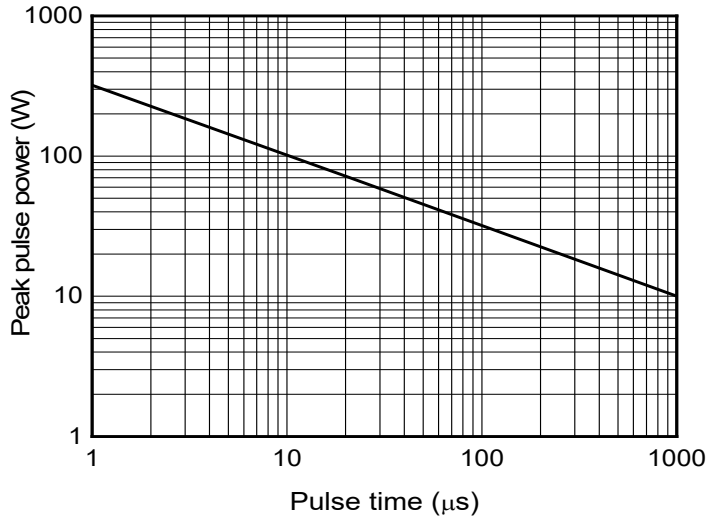


Fig.6 Power derating vs. Ambient temperature

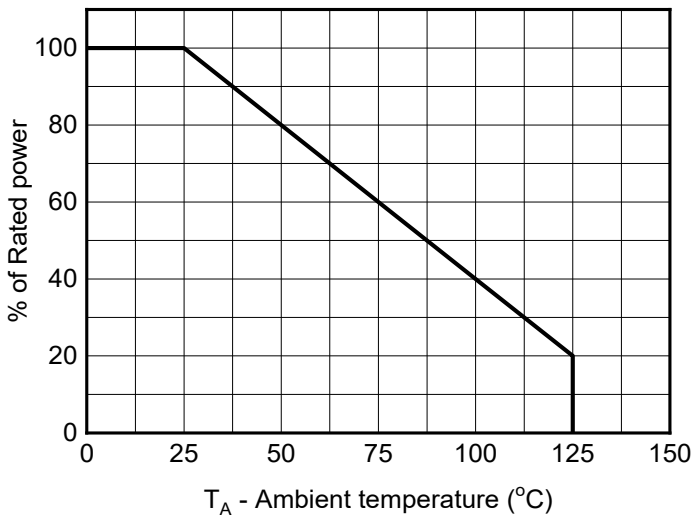


Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)

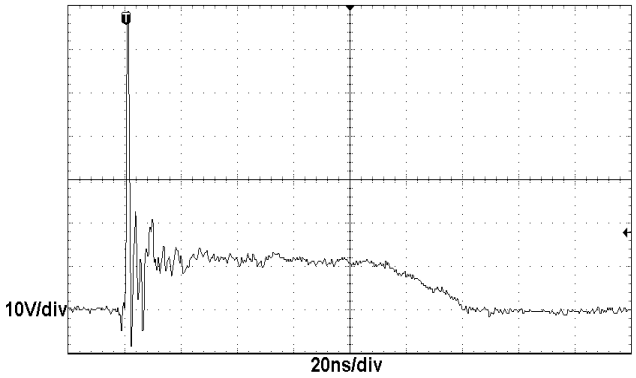


Fig.8 ESD clamping
(-8kV contact discharge per IEC61000-4-2)

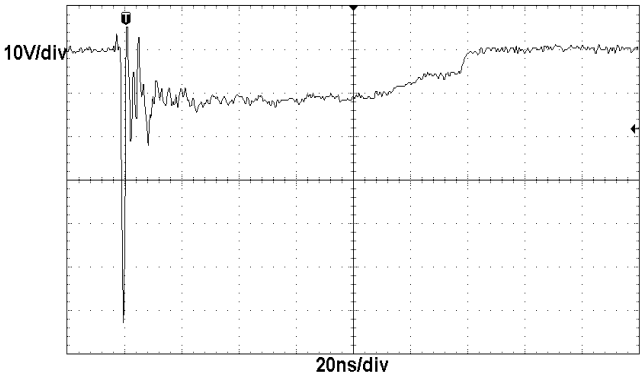
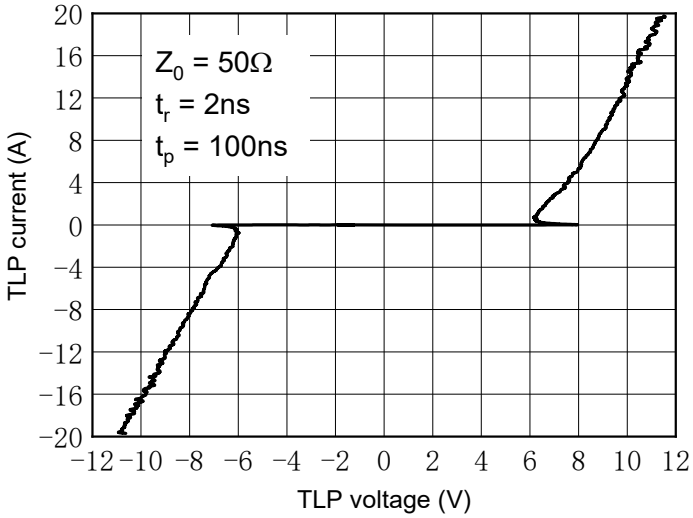
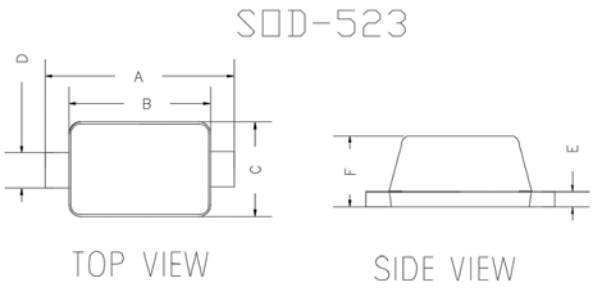


Fig.9 TLP Measurement

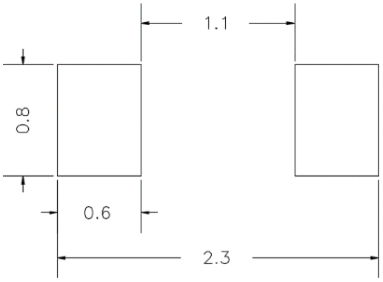


■ Outline Dimensions



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	MAX
A	0.059	0.067	1.500	1.700
B	0.043	0.051	1.100	1.300
C	0.028	0.035	0.700	0.900
D	0.010	0.014	0.250	0.350
E	0.002	0.008	0.050	0.200
F	0.020	0.028	0.500	0.700

■ Recommended PCB Layout



Unit:mm

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