

Transient Voltage Suppressor

Features

- ◆ Bidirectional ESD protection of one I/O line
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ Solid-state silicon-avalanche technology
- ◆ IEC 61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC 61000-4-5 (Lightning) 4.5A (8/20μs)

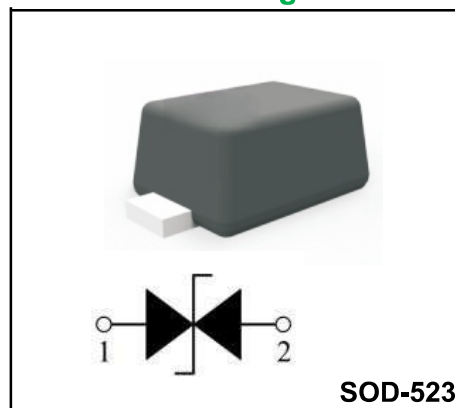
APPLICATIONS

- ◆ Smart Phone
- ◆ Laptop
- ◆ Wearable
- ◆ LCD TV
- ◆ USB 3.0/3.1
- ◆ PCI Express
- ◆ HDMI 1.3/1.4/2.0
- ◆ DVI

Mechanical Characteristics

- ◆ JEDEC SOD-523 package
- ◆ Molding compound flammability rating:
◆ UL 94V-0
- ◆ Marking : Marking Code
- ◆ Packaging : Tape and Reel per EIA 481
- ◆ RoHS Compliant

Pinning



Marking Code

ESD5VUBD523	L*
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ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Rating	Unit
ESD per IEC61000-4-2(Air) ESD per IEC61000-4-2(Contact)	V_{ESD}	± 20 ± 20	Kv
Peak Pulse Power($t_p=8/20\mu s$)	P_{PP}	100	W
Peak Pulse Current ($t_p=8/20\mu s$)(note1)	I_{PP}	4.5	A
Junction Temperature	T_j	-55 ~ +125	°C
Storage temperature range	T_{stg}	-55 ~ +125	°C
Lead Soldering temperature-Maximum (10 second Duration)	I_L	260	°C

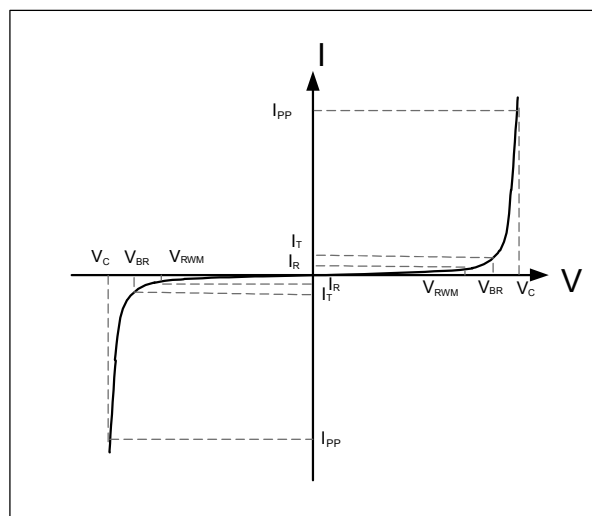
Note: 8/20μs pulse waveform.

Electrical Characteristics

Parameter	Symbol	Test Conditions	Criterion			Unit
			Min	Typ	Max	
Reverse stand off voltage	V_{RWM}		-	-	5	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6	-	-	V
Reverse leakage current	I_R	$V_{RWM} = 5\text{V}; T_A = 25^\circ\text{C}$	-	-	0.1	μA
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$		4.5	-	A
Clamping voltage	V_C	$I_{PP} = 4.5\text{A}, t_p = 8/20\mu\text{s}$	-	22	-	V
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$	-	0.35	-	pF

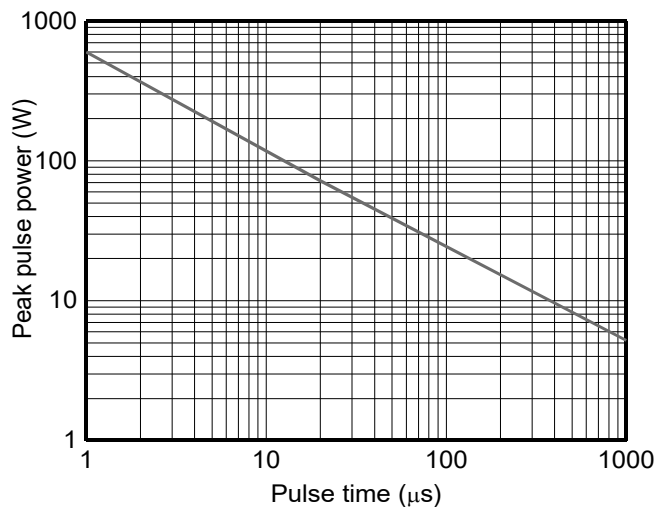
Electrical Parameters (TA = 25°C unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current

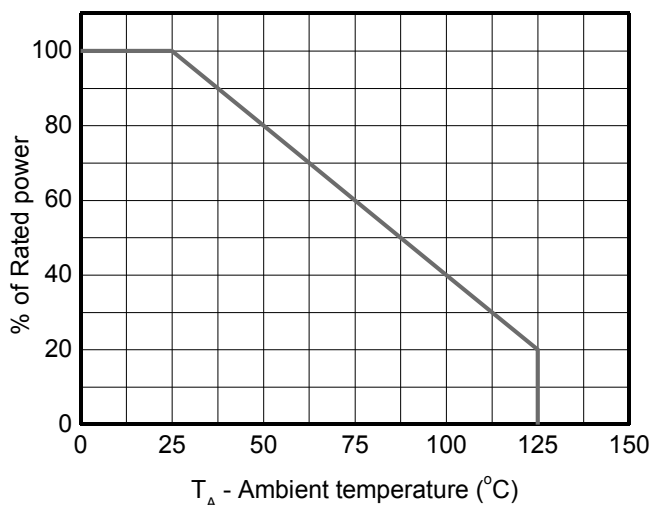


Note: 8/20 μs pulse waveform.

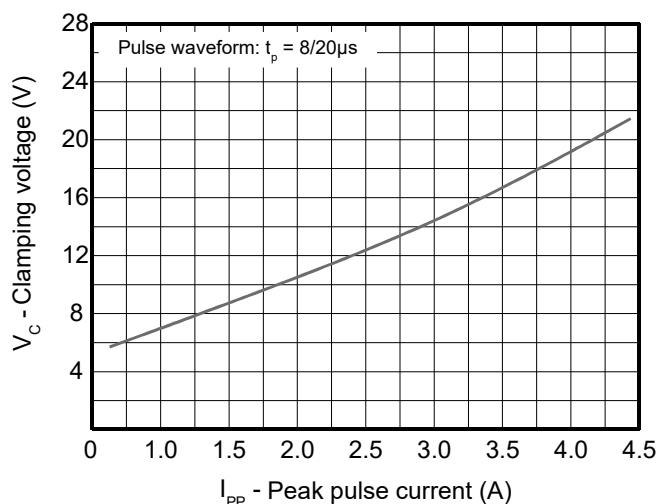
Typical Characteristics



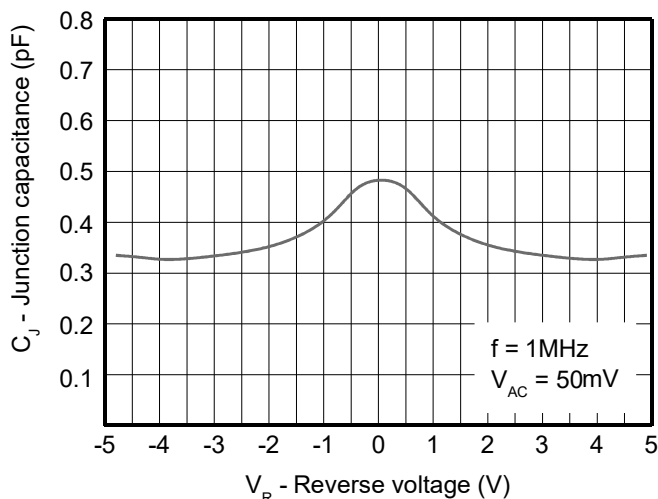
Non-repetitive peak pulse power vs. Pulse time



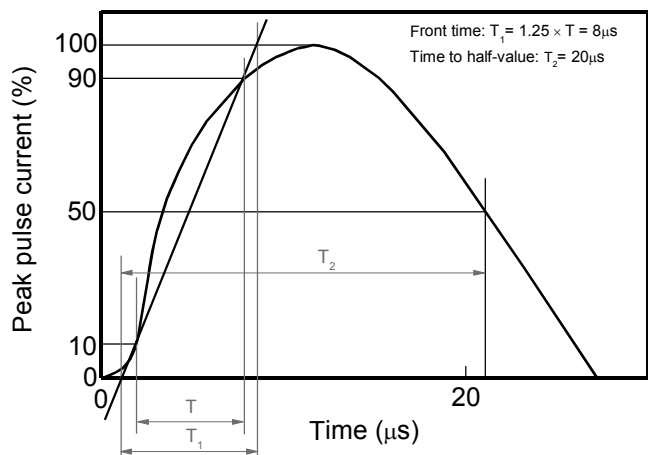
Power derating vs. Ambient temperature



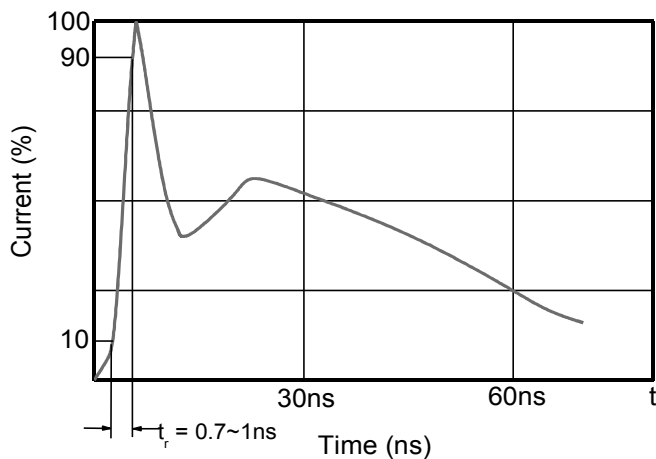
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage



8/20 μs waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

Ordering information

Package	Packing Description	Packing Quantity
SOD-523	Tape/Reel, 7" reel	3000PCS/Reel 120000PCS/Carton

Package Dimensions

SOD-523

Top view of the component. Dimension A is the height. HE is the total width. C is the thickness of the base. A note indicates 'ALL ROUND' for the corners.

Side view of the component. Dimension A is the height. E is the width of the base. P is the radius of the top edge.

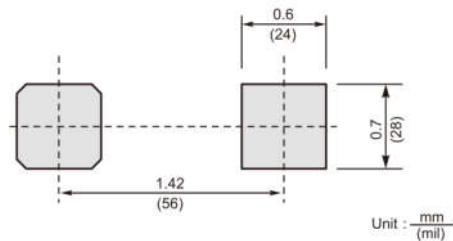
Bottom view of the component. Dimension D is the width. E is the height. e is the thickness of the base. L is the distance from the center to the edge of the base.

Bottom view of the component. Dimension N is the distance from the center to the edge of the base. L is the distance from the center to the edge of the base.

底视图
bottom view

Dim.	Millimeter(mm)		mil	
	Min.	Max.	Min.	Max.
A	0.51	0.77	20	30
e	0.25	0.35	10	14
C	0.08	0.15	3	6
D	1.10	1.30	43	51
E	0.75	0.99	30	39
HE	1.50	1.70	59	67
N	0.35ref		14ref	
L	0.2ref		8ref	
P	R0.1 ALL ROUND		R4.0 ALL ROUND	
∠	10°			

The recommended mounting pad size



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