

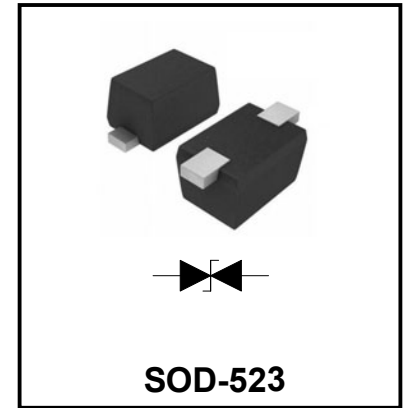
**Transient Voltage Suppressor**

**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**

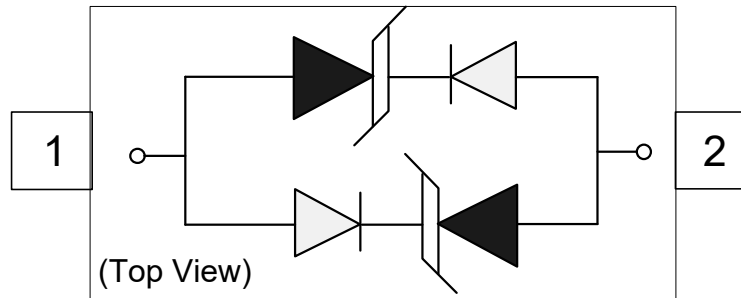
- ◆ Smart Phone
- ◆ Laptop
- ◆ Wearable
- ◆ LCD TV
- ◆ USB 3.0/3.1
- ◆ PCI Express
- ◆ HDMI 1.3/1.4/2.0
- ◆ DVI



**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

**Schematic & PIN Configuration**



**Product Specification Classification**

Part Number	Package	Marking	Pack
ESD5VUBD523	SOD-523	L*	3000PCS/Tape

**ABSOLUTE MAXIMUM RATING**

Parameter	Symbol	Rating	Unit
ESD per IEC61000-4-2(Air) ESD per IEC61000-4-2(Contact)	<b>V<sub>ESD</sub></b>	±20 ±20	<b>Kv</b>
Peak Pulse Power( t <sub>p</sub> =8/20μs)	<b>P<sub>PP</sub></b>	100	<b>W</b>
Peak Pulse Current ( t <sub>p</sub> =8/20μs )(note1)	<b>I<sub>PP</sub></b>	4.5	<b>A</b>
Junction Temperature	<b>T<sub>j</sub></b>	-55 ~ +125	<b>°C</b>
Storage temperature range	<b>T<sub>stg</sub></b>	-55 ~ +125	<b>°C</b>
Lead Soldering temperature-Maximum (10 second Duration)	<b>I<sub>L</sub></b>	260	<b>°C</b>

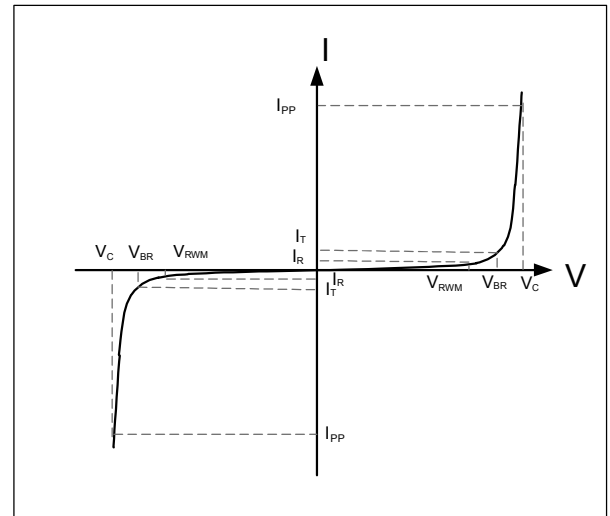
Note: 8/20μs pulse waveform.

**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	$I_R$	$V_{RWM} = 5\text{V}; T_A = 25\text{ }^\circ\text{C}$	-	-	0.1	$\mu\text{A}$
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

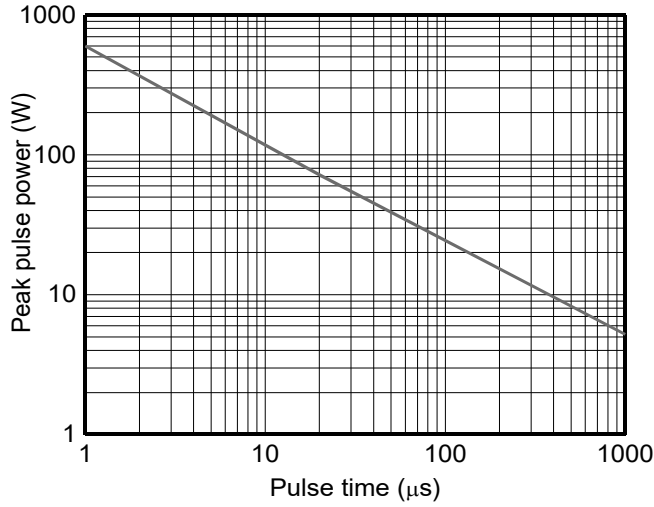
**Electrical Parameters (TA = 25°C unless otherwise noted)**

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

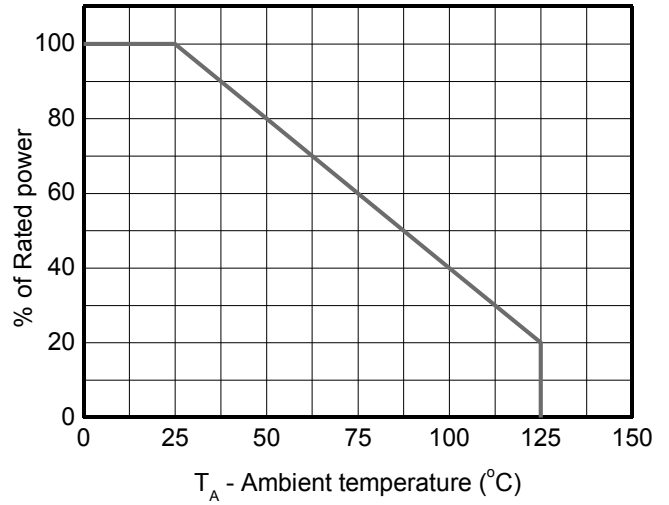


Note: 8/20 $\mu\text{s}$  pulse waveform.

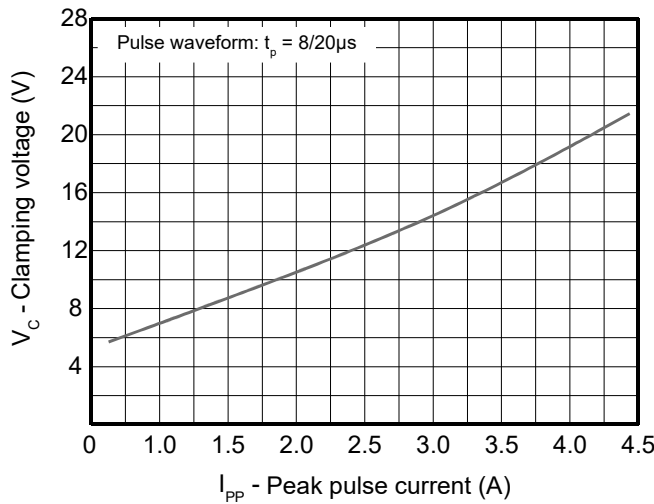
**Typical Characteristics**



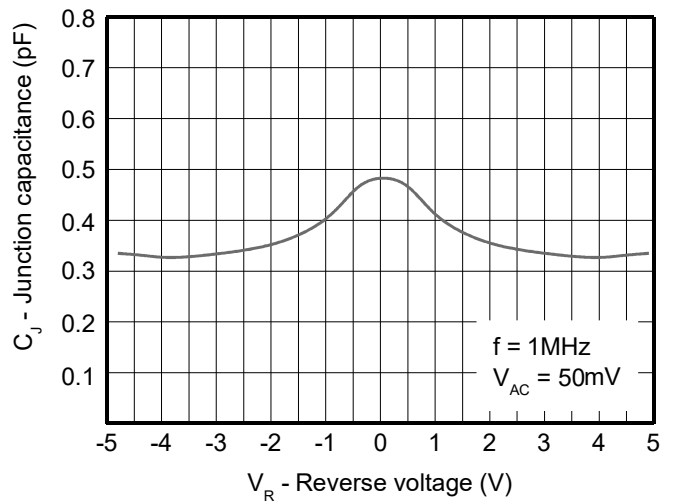
**Non-repetitive peak pulse power vs. Pulse time**



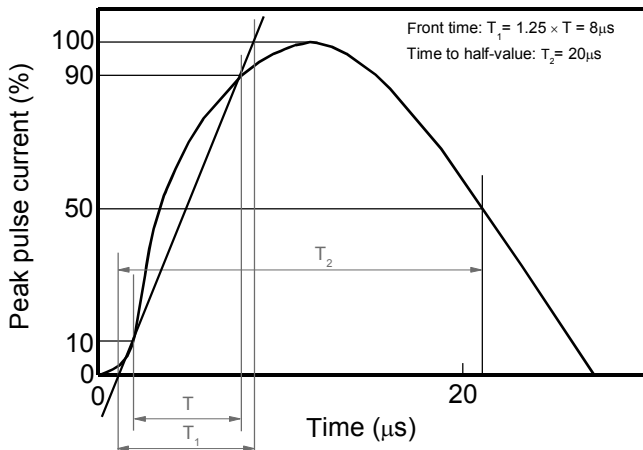
**Power derating vs. Ambient temperature**



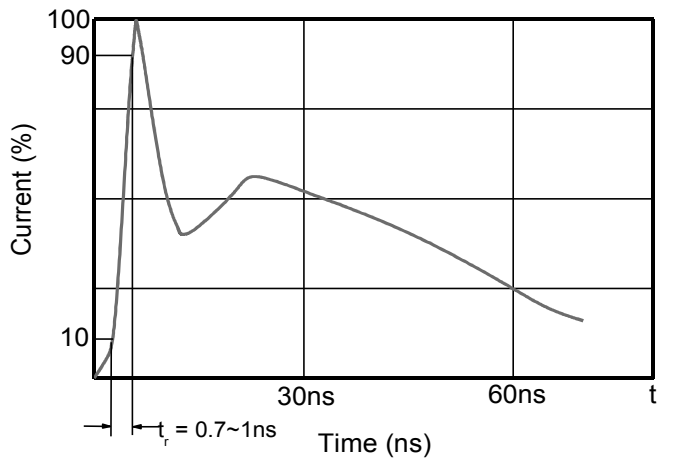
**Clamping voltage vs. Peak pulse current**



**Capacitance vs. Reverse voltage**



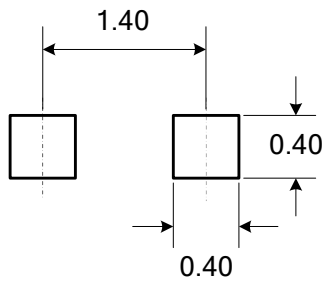
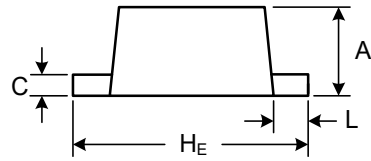
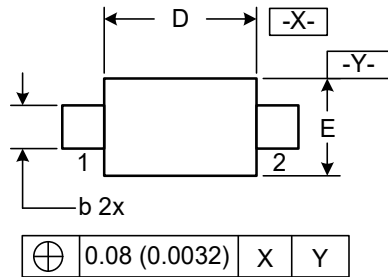
**8/20μs waveform per IEC61000-4-5**



**Contact discharge current waveform per IEC61000-4-2**

Package Outline

SOD-523



DIMENSIONS: MILLIMETERS

DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.50	0.70	0.020	0.028
b	0.25	0.35	0.010	0.014
C	0.07	0.20	0.0028	0.0079
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
H <sub>E</sub>	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010