

Transient Voltage Suppressors

FEATURES

- ◆Protects one data or power line
- ◆Ultra low leakage: nA level
- ◆Operating voltage: 24V
- ◆Low clamping voltage
- ◆Complies with following standards:
 - IEC61000-4-2(ESD) immunity test Air discharge: $\pm 30\text{KV}$; Contact discharge: $\pm 30\text{KV}$
 - IEC61000-4-5(Lightning) 8A(8/20us)

Mechanical Data

- ◆SOD-523 Package
- ◆Flammability Rating: UL 94V-0
- ◆High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$

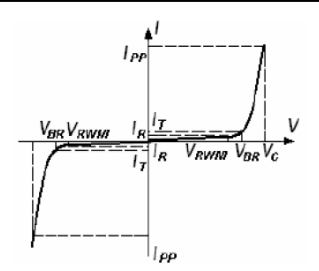
ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Rating	Unit
ESD per IEC61000-4-2(Air)	V_{ESD}	± 30	KV
ESD per IEC61000-4-2(Contact)		± 30	
Total Power Dissipation on FR-5 Board (note 1)@ $T_a=25^{\circ}\text{C}$	P_{PP}	100	W
Peak Pulse current (8/20us)	I_{PP}	2.1	A
Maximum Junction temperature	T_j	125	$^{\circ}\text{C}$
Operating Temperature	T_{OPT}	$-55 \sim +150$	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	$-55 \sim +150$	$^{\circ}\text{C}$
Lead Soldering temperature-Maximum (10 second Duration)	I_L	260	$^{\circ}\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. FR-5=1.0 x 0.75 x 0.62 in.

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

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	

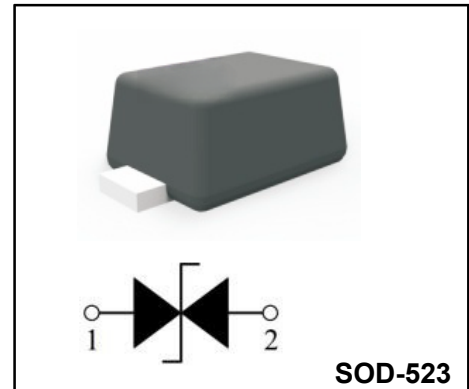
Electrical Characteristics ($T_a = 25^{\circ}\text{C}$ unless otherwise noted, $V_F=0.9\text{V}$ Max.@ $I_F=10\text{mA}$ for all types).

Parameter	Test Condition	Symbols	Min	Typ	Max	Units
Reverse Working Voltage		V_{RWM}	-	-	24	V
Breakdown Voltage	$I_T=1\text{mA}$	V_{BR}	26.3	-	30.0	V
Reverse Leakage Current	$V_{\text{RWM}}=24\text{V}$	I_R	-	-	0.1	μA
Clamping Voltage	$I_{\text{PP}}=2.1\text{A}$	V_C	-	-	43	V
Junction Capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$	C_J	-	-	10	pF

Note: 1. Surge current waveform per Figure 1.

2. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C

Pinning

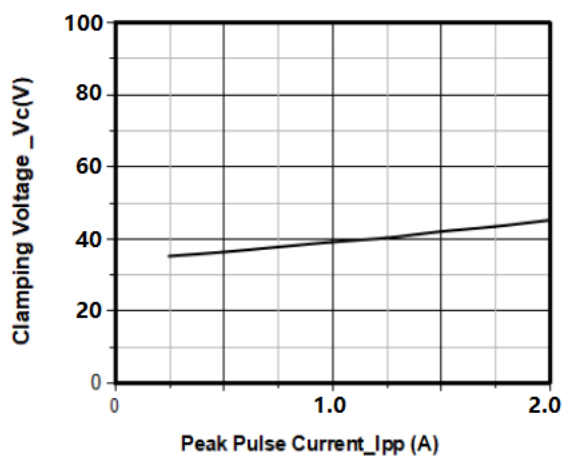


SOD-523

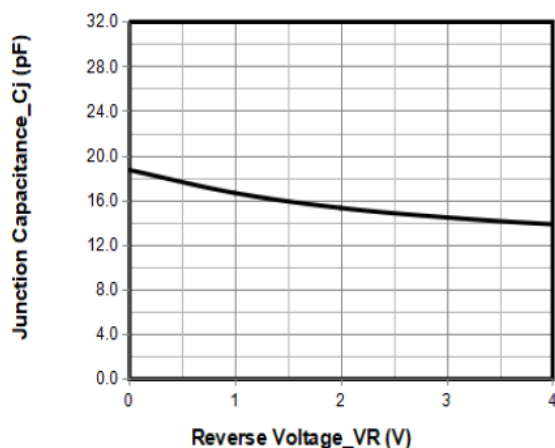
Marking Code

ESD5Z24C	24C
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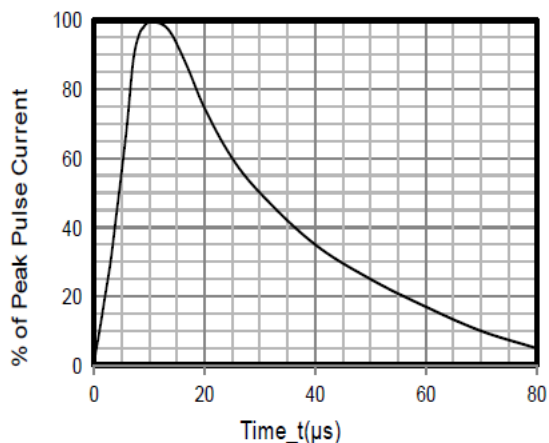
ELECTRICAL CHARACTERISTICS CURVES



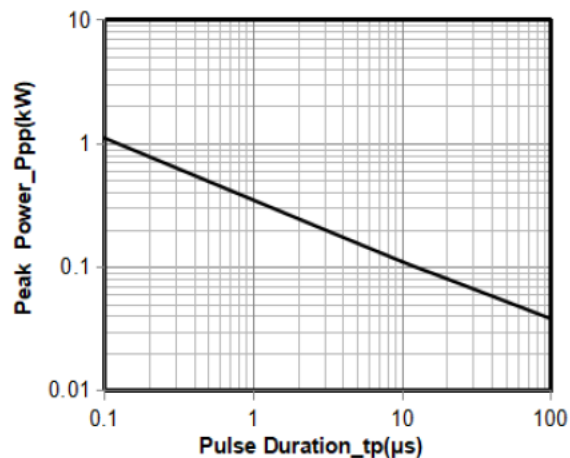
Junction Capacitance vs. Reverse Voltage



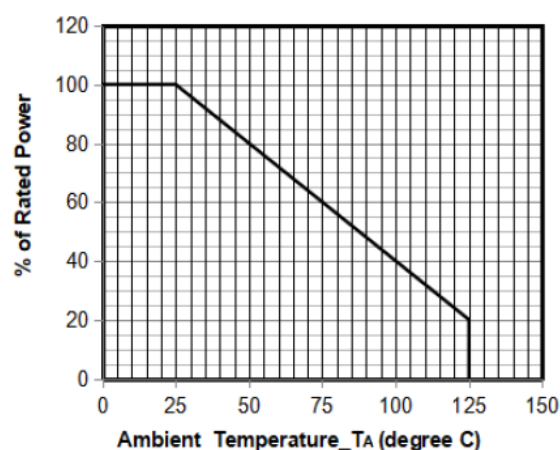
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20\mu s$)



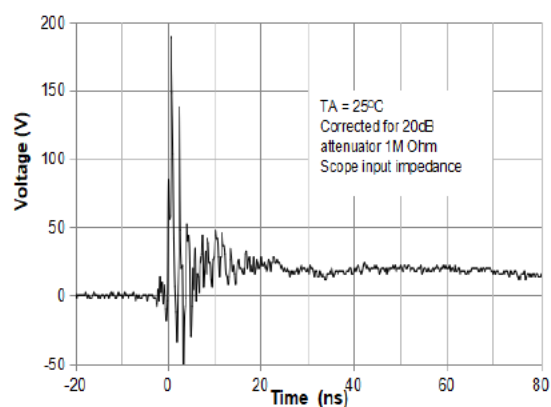
8 X 20 μs Pulse Waveform



Peak Pulse Power vs. Pulse Time



Power Derating Curve



**ESD Clamping Voltage
8 kV Contact 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 overall width. C is the thickness of the base. A note indicates 'ALL ROUND' for the corners.

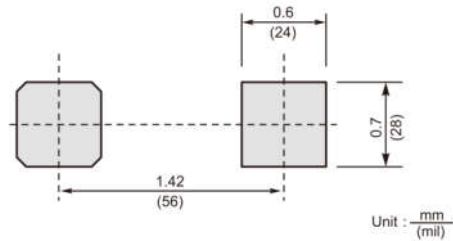
Side view of the component. Dimension A is the height. E is the width of the main body. P is the radius of the top corner.

Bottom view of the component. D is the width of the main body. E is the height of the main body. L is the width of the base. e is the thickness of the base.

Bottom view of the component. N is the width of the base. The label '底视图 bottom view' is present.

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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