


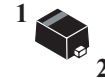
### Transient Voltage Suppressors for ESD Protection

 Lead(Pb)-Free

**TRANSIENT VOLTAGE  
SUPPRESSORS  
240 WATTS  
12 VOLTS**

#### Description:

\* The ESD5Z12 is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in - cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.



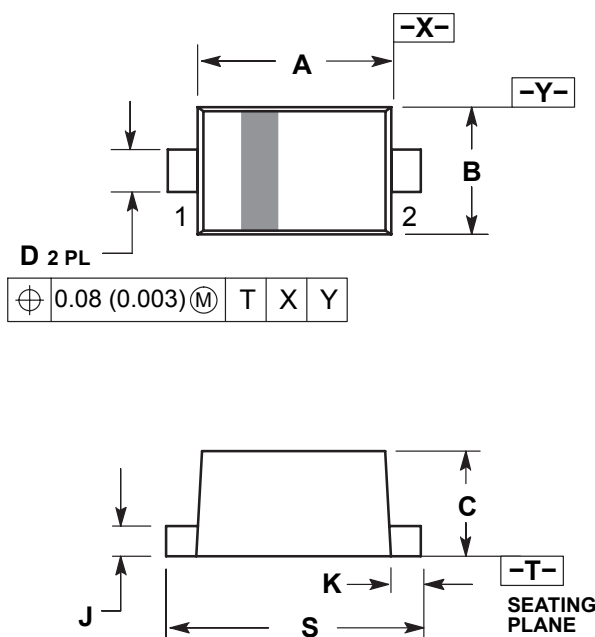
**SOD-523/SC-79**

#### Features:

- \* Stand-off Voltage: 12 V
- \* Low Leakage
- \* Response Time is Typically < 1 ns
- \* ESD Rating of Class 3 (> 16 kV) per Human Body Model
- \* IEC61000-4-2 Level 4 ESD Protection

### SOD-523 Outline Dimensions

Unit:mm



MILLIMETERS			
DIM	MIN	NOM	MAX
A	1.10	1.20	1.30
B	0.70	0.80	0.90
C	0.50	0.60	0.70
D	0.25	0.30	0.35
J	0.07	0.14	0.20
K	0.15	0.20	0.25
S	1.50	1.60	1.70

### Maximum Ratings( $T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Characteristic	Symbol	Value	Unit
ESD Voltage Per Human Body Model Per Machine Model		16	kV
		400	V
Electrostatic discharge IEC61000-4-2 Air discharge IEC61000-4-2 ContactAir discharge		30	kV
		30	
Total Power Dissipation on FR-5 Board <sup>1</sup> , @ $T_A = 25^{\circ}\text{C}$	$P_D$	150	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Lead Solder Temperature -Maximum	$T_L$	260(10s)	$^{\circ}\text{C}$
Junction Temperature Range	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended. Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

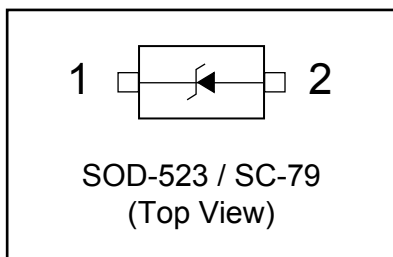
### Electrical Characteristics ( $T_A = 25^{\circ}\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max.}$ @ $I_F = 10\text{ mA}$ for all types)

Device	Marking	$V_{RWM}$ (V)	$I_R$ ( $\mu\text{A}$ ) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 2)		$I_T$	$V_C$ (V)(Note 1) @ $I_{PP} = 5.0\text{ A}$	$V_C$ (V)(Note 1) @ Max $I_{PP}$	$I_{PP}$ (A) (Note 1)	$P_{pk}$ (W) (Note 1)	C (pF)
		Max	Max	Min	Max	mA	Typ	Max	Max	Max	Typ
ESD5Z12	ZM	12	0.02	14.1	15.7	1.0	23	29	9.6	240	55

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  $25^{\circ}\text{C}$ .

### Equivalent Circuit Diagram



## Typical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
V <sub>RWM</sub>	Working Peak Reverse Voltage
I <sub>R</sub>	Maximum Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @ I <sub>F</sub>
P <sub>pk</sub>	Peak Power Dissipation
C	Max. Capacitance @V <sub>R</sub> = 0 and f = 1 MHz

