

Transient Voltage Suppressors for ESD Protection

Pb Lead(Pb)-Free

Description:

* The ESD5Z Series is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications.

Features:

- * Stand-off Voltage: 2.5 V – 7.0 V
- * Peak Power up to 200 Watts @ 8 x 20 μ s Pulse
- * 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
- * IEC61000-4-4 Level 4 EFT Protection

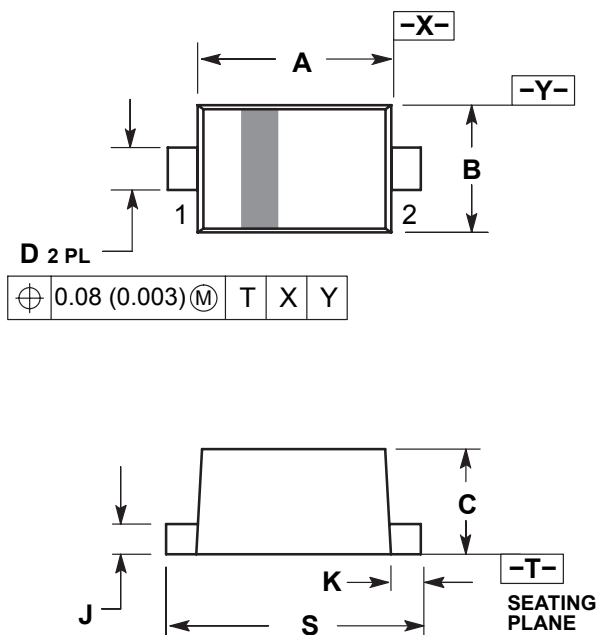
**TRANSIENT VOLTAGE
SUPPRESSORS
200 WATTS
2.5-7.0 VOLTS**



SOD-523/SC-79

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		16	kV
Per Machine Model		400	V
Electrostatic discharge			
IEC61000-4-2 Air discharge		30	kV
IEC61000-4-2 Contact Air discharge		30	
Electrostatic discharge			
IEC61000-4-4		40	A
Total Power Dissipation on FR-5 Board ¹ , @ $T_A = 25^{\circ}\text{C}$	P_D	100	mW
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	$^{\circ}\text{C}$

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.

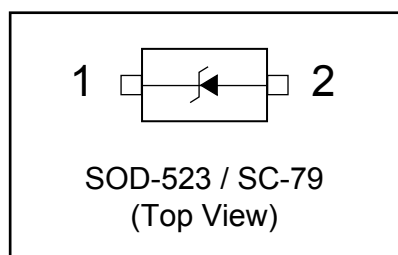
Note.1 FR-5 = 1.0 x 0.75 x 0.62 in.

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 (μA) @ 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	mA	Typ	Max	Max	Max	Typ
ESD5Z2.5	ZD	2.5	6.0	4.0	1.0	6.5	10.9	11.0	120	145
ESD5Z3.3	ZE	3.3	0.05	5.0	1.0	8.4	14.1	11.2	158	105
ESD5Z5.0	ZF	5.0	0.05	6.2	1.0	11.6	18.6	9.4	174	80
ESD5Z6.0	ZG	6.0	0.01	6.8	1.0	12.4	20.5	8.8	181	70
ESD5Z7.0	ZH	7.0	0.01	7.5	1.0	13.5	22.7	8.8	200	65

Note 1. Surge current waveform per Fig.1

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

Equivalent Circuit Diagram

Typical Characteristics ($T_A = 25^\circ\text{C}$ 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
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{pk}	Peak Power Dissipation
C	Max. Capacitance @ $V_R = 0$ and $f = 1\text{ MHz}$

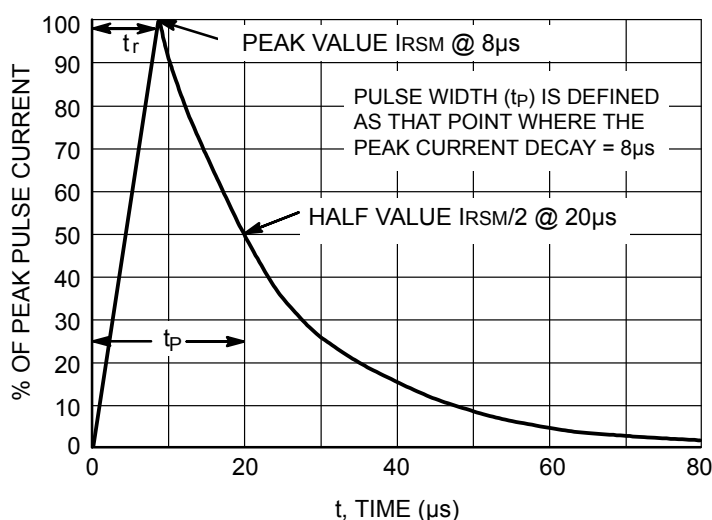
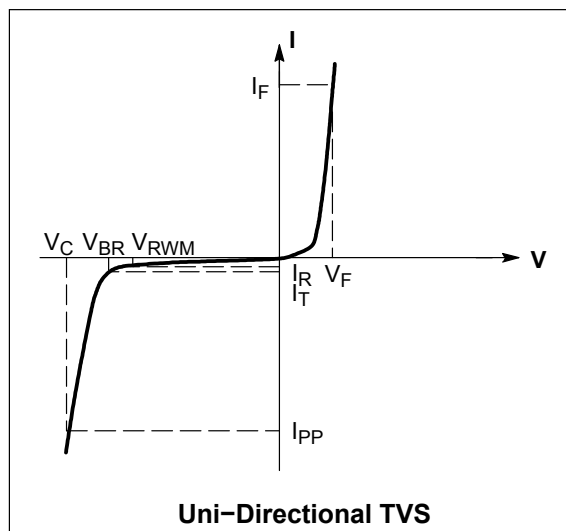


Fig.1 8 x 20 μs Pulse Waveform