

SOD-523 Plastic-Encapsulate Diodes

Uni-direction ESD Protection Diode

FEATURES

- ✧ Small body outline dimensions:
0.063" x 0.032" (1.6x0.8 mm)
- ✧ Protects one uni-directional I/O line
- ✧ Low clamping voltage
- ✧ Working voltages: 12V
- ✧ Low leakage current
- ✧ RoHS compliant

MAIN APPLICATIONS

- ✧ Cell phone handsets and accessories
- ✧ Microprocessor based equipment
- ✧ Personal digital assistants (PDA's)
- ✧ Notebooks, desktops, and servers
- ✧ Portable instrumentation
- ✧ Peripherals
- ✧ Digital cameras

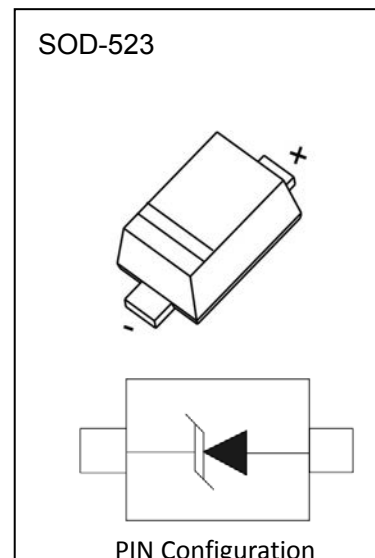
PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 6A (8/20 μs)

MECHANICAL CHARACTERISTICS

- ✧ SOD-523 package
- ✧ Molding compound flammability rating : UL 94V-0
- ✧ Weight 0.5 milligrams (approximate)
- ✧ Quantity per reel : 5,000pcs
- ✧ Lead finish : lead free

MARKING CODE



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 μs waveform	P_{PP}	120	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 15 +/- 8	kV
Lead soldering temperature	T_L	260 (10 sec.)	$^{\circ}\text{C}$
Operating junction temperature range	T_J	-55 to +125	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				12.0	V
Reverse breakdown voltage	V_{BR}	$I_T=1\text{mA}$	13.3			V
Reverse leakage current	I_R	$V_{RWM}=12\text{V}$			1	μA
Clamping voltage	V_C	$I_{PP}=1\text{A}$, $t_P=8/20\mu\text{s}$		16	18	V
		$I_{PP}=6\text{A}$, $t_P=8/20\mu\text{s}$		21	25	V
Junction capacitance	C_J	$V_{RWM}=0\text{V}$, $f=1\text{MHz}$		35	40	pF

FIG.1: V- I curve characteristics (Uni-directional)

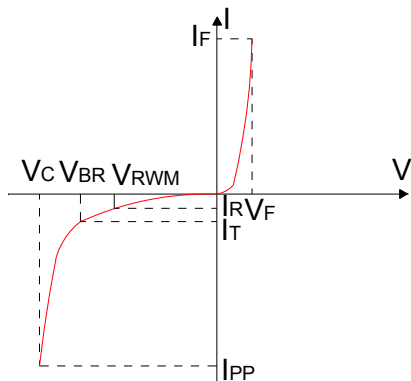


FIG.2: Pulse waveform (8/20 μ s)

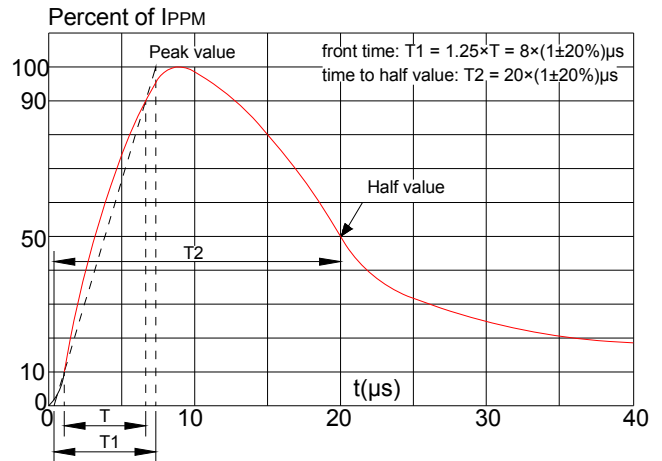


FIG.3: Pulse derating curve

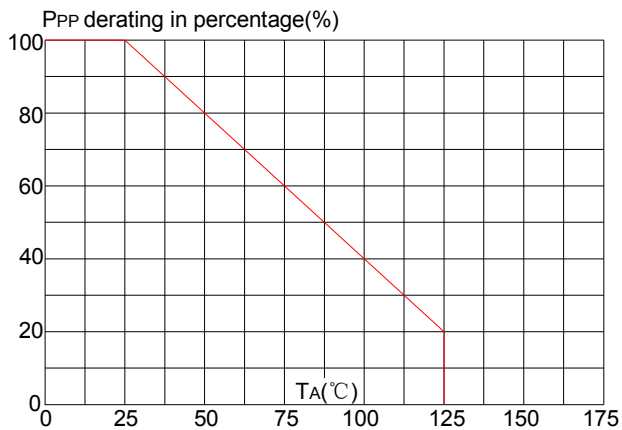
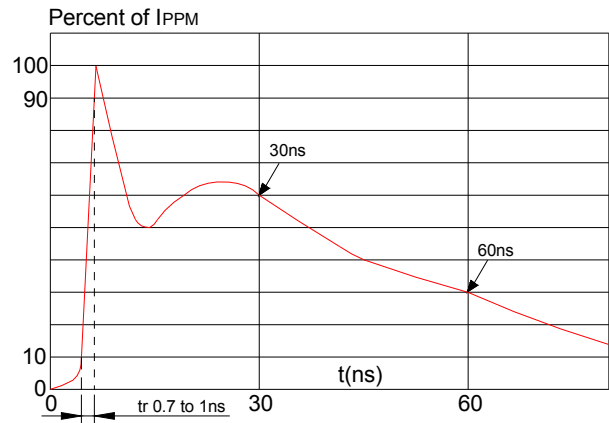
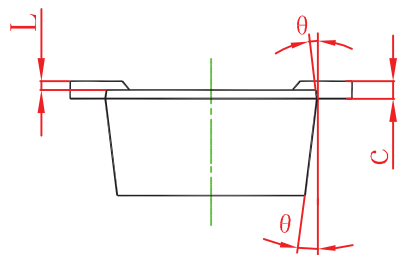
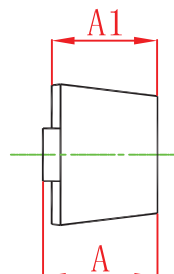
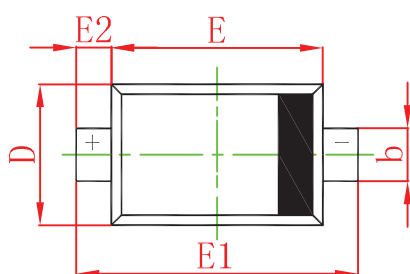


FIG.4: ESD clamping (8KV contact)

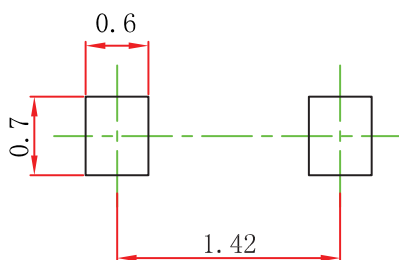


SOD-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.400	0.700	0.015	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
θ	7° REF		7° REF	

SOD-523 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

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