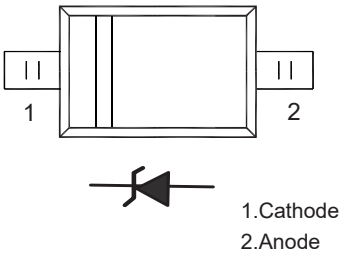
SOD-323 Plastic-Encapsulate ESD Protection Diodes

SD05 Uni-directional TVS Diodes

SOD-323

RoHS COMPLIANT



Marking: ZA

Description

These surge protection diodes are designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers,business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

Features

- Unidirectional ESD protection of one line
- Reverse stand-off voltage: 5.0V Max
- Low leakage current: nA Level
- Response time is typically < 1 ns
- Low clamping voltage: VC < 15 V @ IPP = 28 A
- ESD Protection: 30kV(air)/30kV(contact) (IEC61000-4-2)

Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers

Mechanical Characteristics

- Flammability Rating: UL 94V-0
- Terminal: Matte tin plated.
- High temperature soldering guaranted: 260℃/ 10s

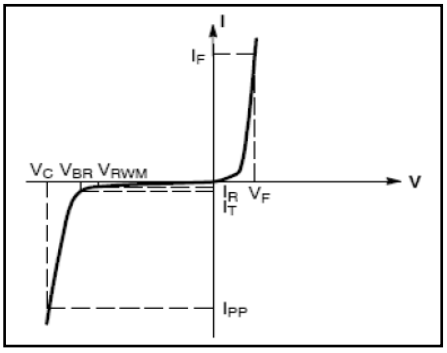
Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 30 ± 30	KV
Peak Pulse Power(tp=8/20us waveform)	P_{PPM}	420	W
Peak Pulse Current(tp=8/20us waveform)	I_{PP}	28	A
Operating Temperature	T_{OP}	−40 to +125	°C
Storage Temperature	T_{STG}	−55 to +150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260(10 sec.)	°C

The above data are for reference only.

Electrical Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage
V_F	Forward Voltage@ I_F
I_F	Forward Current



V-I characteristics for a uni-directional TVS

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse Working Voltage (1)	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	I_T=1mA	6.5		8.0	V
Reverse Leakage Current	I_R	V_{RWM}=5V			500	nA
Clamping Voltage (2)	V_C	I_{PP}=1A,Tp=8/20μs			9	V
		I_{PP}=28A,Tp=8/20μs			15	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		170	200	pF
Dynamic Resistance	R_{DYN}	TLP=0.2/100ns		0.2		Ω

(1).Other voltages available upon request.

(2).Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

Typical Characteristics

Fig1.Peak Pulseower Derating Curve

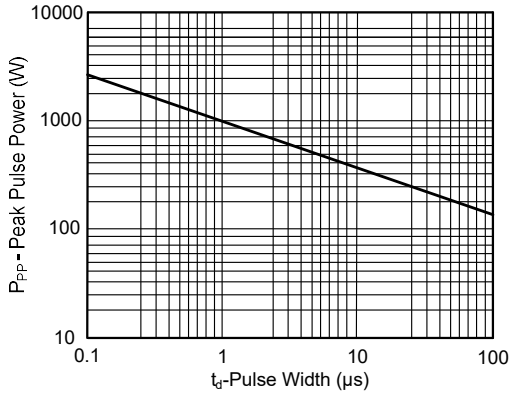


Fig2.Power Derating Curve

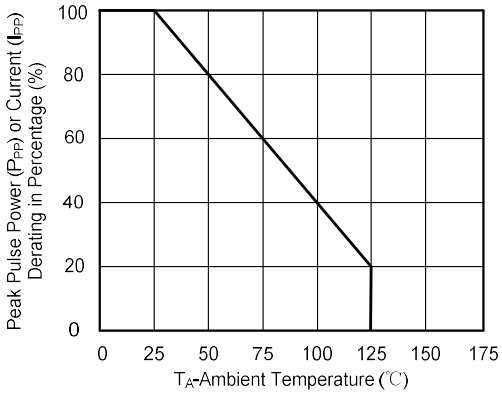


Fig3. 8/20μs Pulse Waveform

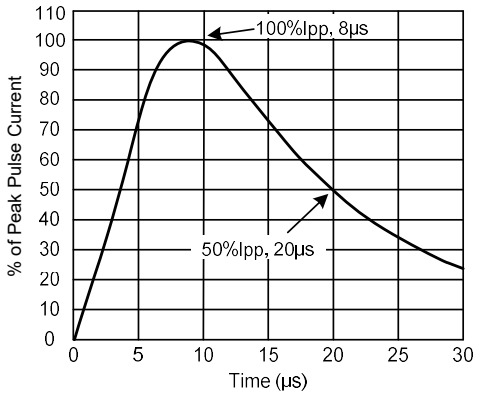
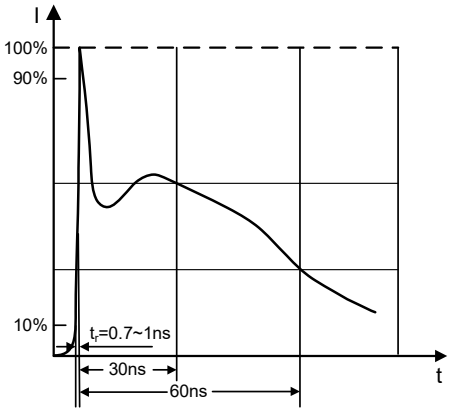
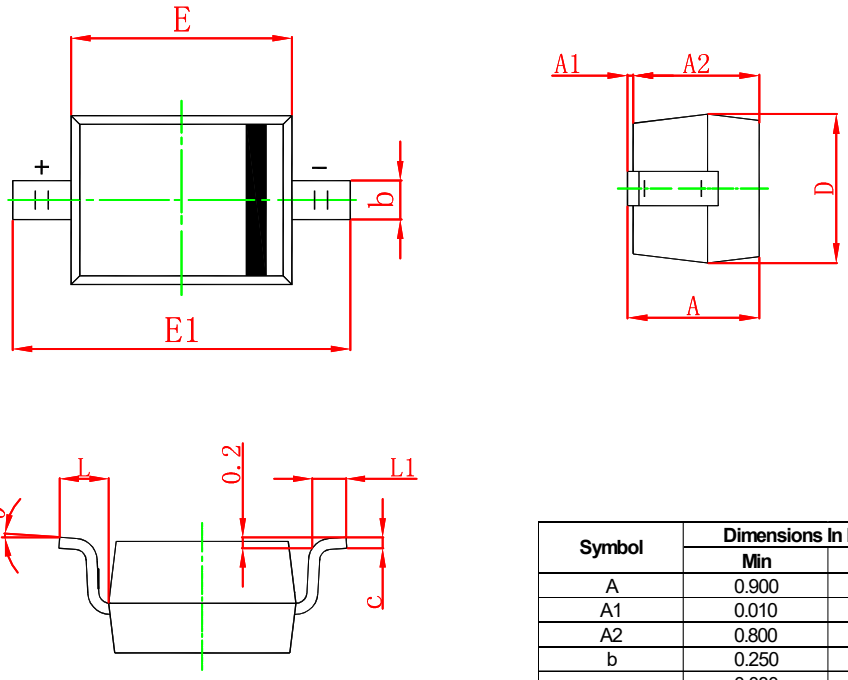


Fig4. Pulse Waveform (IEC 61000-4-2)

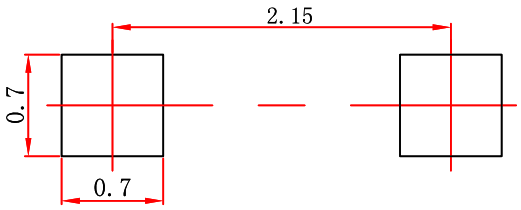


SOD-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.010	0.150	0.000	0.006
A2	0.800	1.000	0.031	0.039
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.500	2.750	0.098	0.108
L	0.475 REF		0.019 REF	
L1	0.250	0.040	0.010	0.016
θ	0°	8°	0°	8°

SOD-323 Suggested Pad Layout



Note:
1. Controlling dimension:in/millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

Package and Ordering Information

Package	Outline	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)
SOD-323	TAPING	7"	330	3000