



ESD9D Series ESD Protection Diode

Revision:B

General Description

The ESD9D Series 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.

Applications

- Cellular phones audio
- MP3 players
- Digital cameras
- Portable applications
- mobile telephone

Features

- Small Body Outline Dimensions: 0.039" x 0.024" (1.0 mm x 0.60 mm)
- Low Body Height: 0.017" (0.43 mm) Max
- Stand-off Voltage: 3.3 V – 24 V
- Low Leakage
- Response Time is Typically < 1 ns

Complies with the following standards IEC61000-4-2

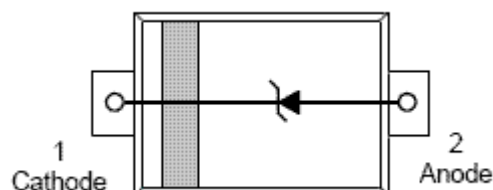
Level 4 15 kV (air discharge)
8 kV (contact discharge)

MIL STD 883E - Method 3015-7 Class 3
25 kV HBM (Human Body Model)

Functional diagram



SOD-923

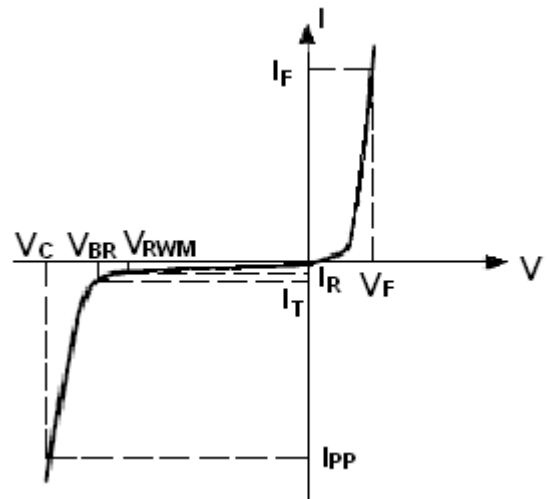


Maximum Ratings

Parameter	Symbol	Value	Unit
IEC 61000-4-2 (ESD) Contact		8	kV
ESD Voltage Per Human Body Model		25	kV
Per Machine Model		400	V
Peak Pulse Power ($t_p = 8/20\mu s$) @ $T_A = 25^\circ C$	P_D	60	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^\circ C$

Electrical Parameter

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}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T
I_F	Forward Current
V_F	Forward Voltage @ I_F



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)

Part Numbers	V _{BR}			I _T	V _{RWM}	I _R	V _F	I _F	C
	Min.	Typ.	Max.				Max.		Typ. (Note1)
	V	V	V				mA		V
ESD9D3V3	5.0	5.7	6.4	2.5	3.0	1	1.25	10	40
ESD9D5V	6.2	6.8	7.6	1.0	5.0	1	1.25	10	25
ESD9D7V	7.5	8.1	8.6	1.0	7.0	1	1.25	10	25
ESD9D12V	13.5	14.2	15.0	1.0	12.0	1	1.25	10	15
ESD9D24V	22.8	24.0	26	5.0	24.0	0.5	1.25	10	8.5

1.Capacitance is measured at $f=1\text{MHz}$, $V_R=0\text{V}$, $T_A=25^\circ\text{C}$.

Typical Characteristics

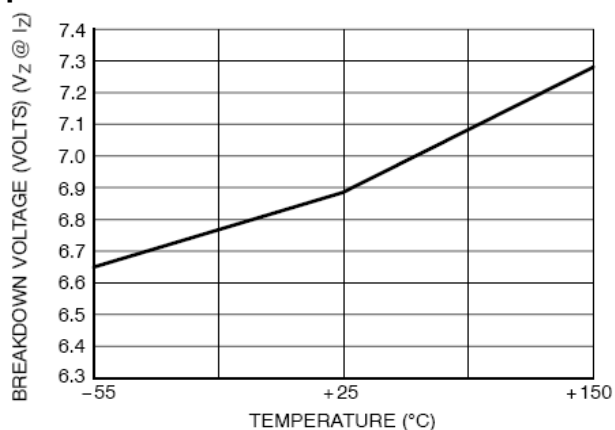


Fig 1. Typical Breakdown Voltage versus Temperature

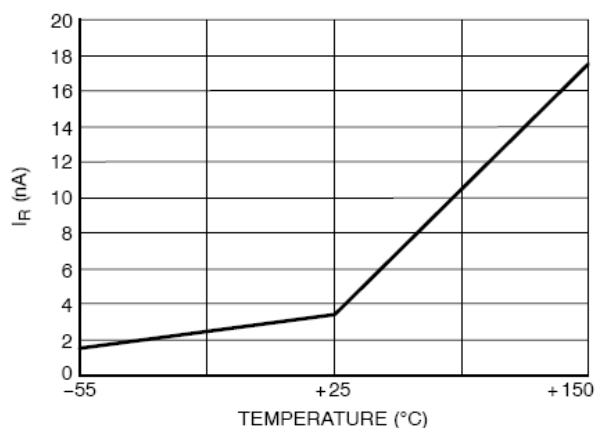


Fig 2. Typical Leakage Current versus Temperature

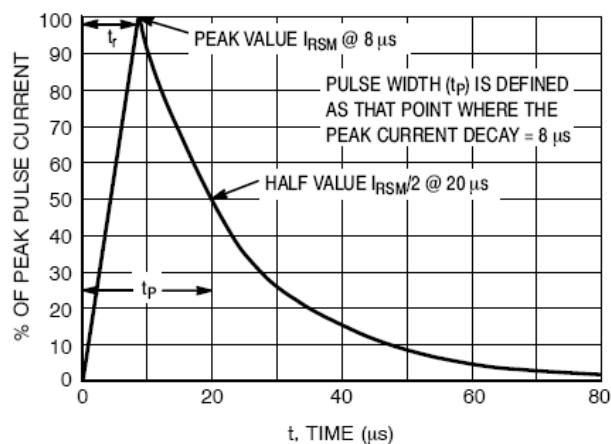


Fig 3. 8/20 μ s Pulse Waveform

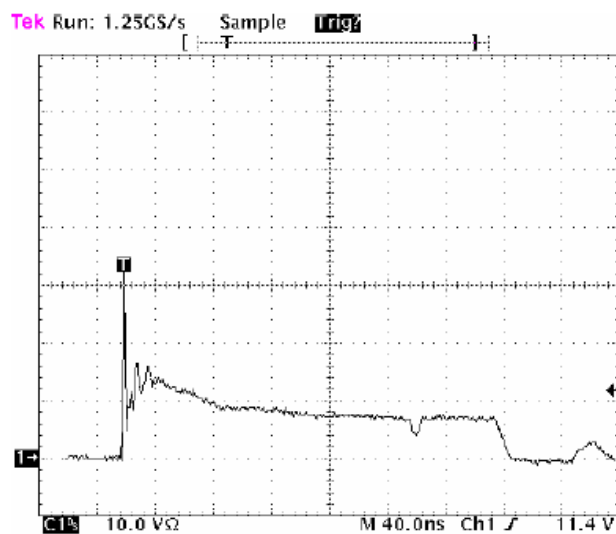


Fig 4. Positive 8kV contact per IEC
61000-4-2-SESD9D5V

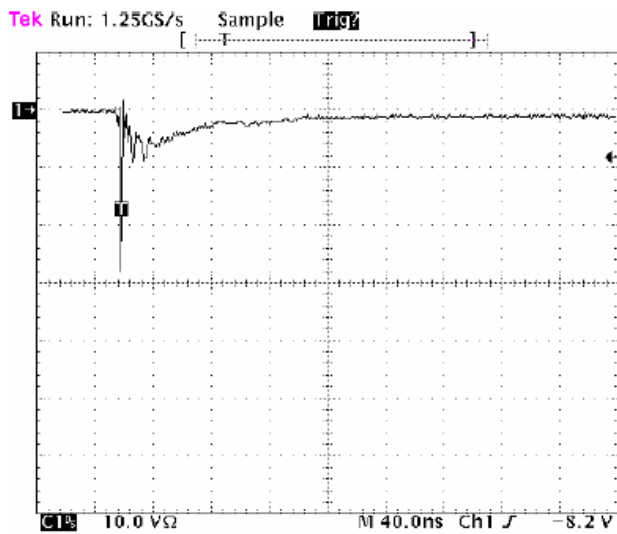
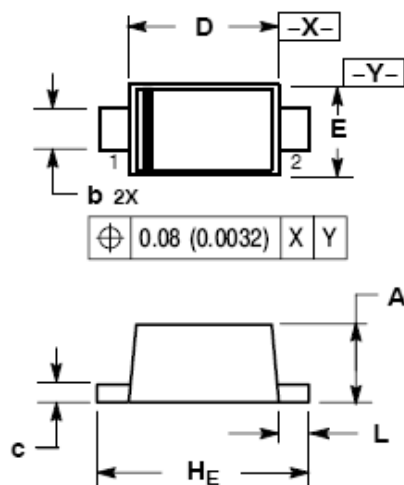
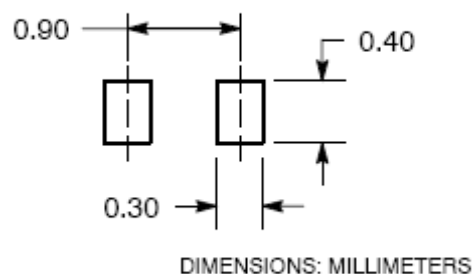


Fig 5. Negative 8kV contact per IEC
61000-4-2-SESD9D5V

SOD-923 Mechanical Data



SOLDERING FOOTPRINT*



SOD-923

ESD9D Series

Dim	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.36	0.40	0.43	0.014	0.016	0.017
b	0.15	0.20	0.25	0.006	0.008	0.010
c	0.07	0.12	0.17	0.003	0.005	0.007
D	0.75	0.80	0.85	0.030	0.031	0.033
E	0.55	0.60	0.65	0.022	0.024	0.026
H _E	0.95	1.00	1.05	0.037	0.039	0.041
L	0.05	0.10	0.15	0.002	0.004	0.006

SHANGHAI LEIDITECH ELECTRONICS TECHNOLOGY CO., LTD
Phone: +86- 021-50827201
Email:sale1@leiditech.com
<http://www.leiditech.com>