

SESD9D Series
ESD Protection Diode

Revision:B

General Description

The SESD9D 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)

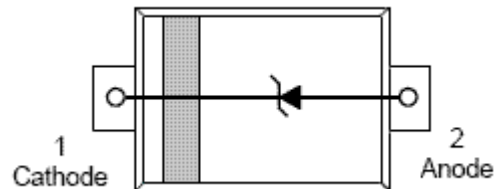
MIL STD 883E - Method 3015-7 Class 3

25 kV HBM (Human Body Model)

Functional diagram



SOD-923



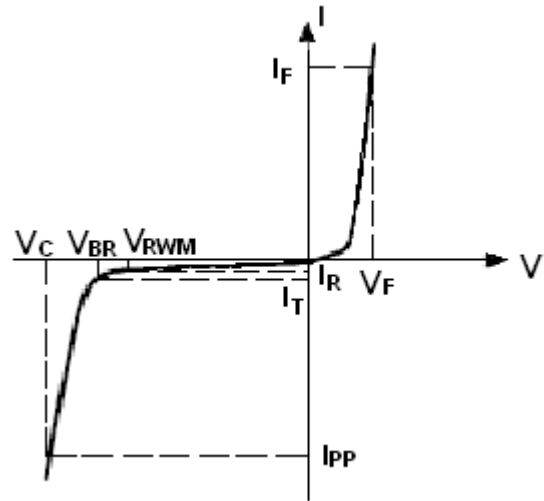
Maximum Ratings

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	$^\circ C$

SESD9D Series

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				V		pF
SESD9D3V3	5.0	5.7	6.4	2.5	3.0	1	1.25	10	40
SESD9D5V	6.2	6.8	7.6	1.0	5.0	1	1.25	10	25
SESD9D7V	7.5	8.1	8.6	1.0	7.0	1	1.25	10	25
SESD9D12V	13.5	14.2	15.0	1.0	12.0	1	1.25	10	15
SESD9D24V	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

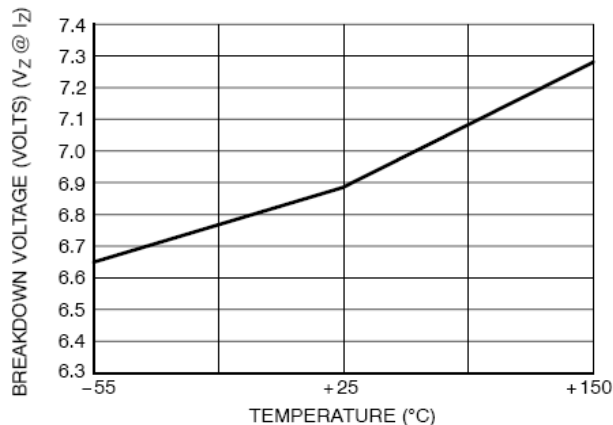


Fig 1. Typical Breakdown Voltage versus Temperature

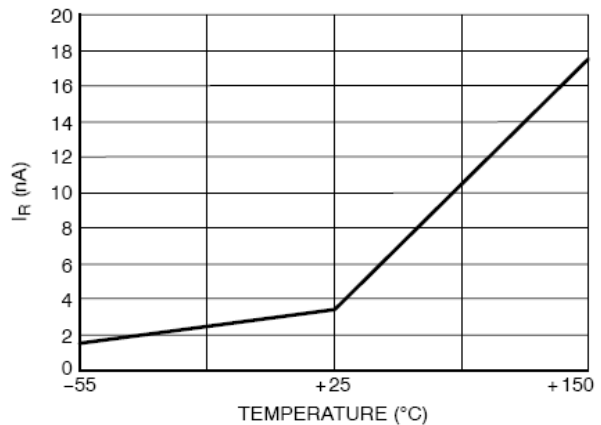


Fig 2. Typical Leakage Current versus Temperature

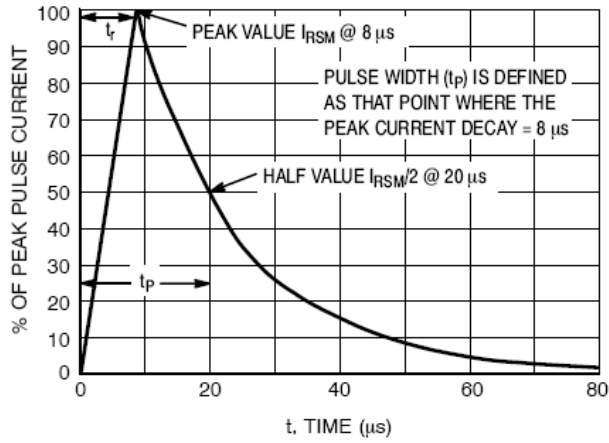


Fig 3. 8/20 μs Pulse Waveform

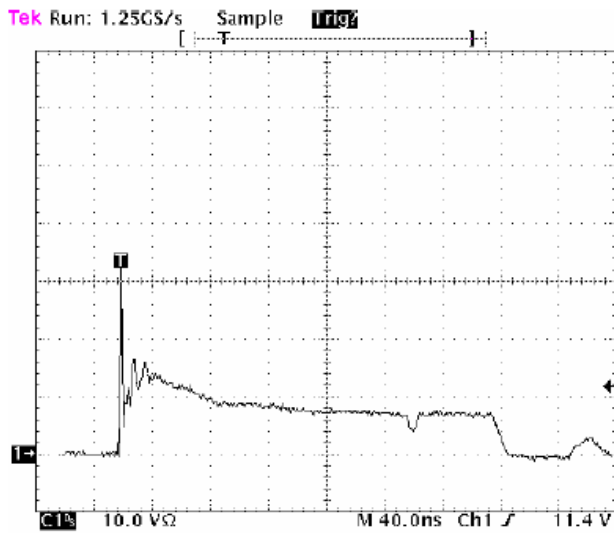


Fig 4. Positive 8kV contact per IEC
61000-4-2-SESD9D5V

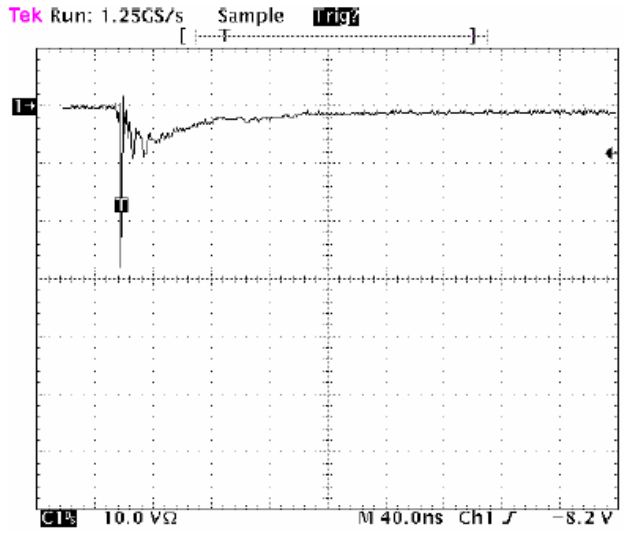
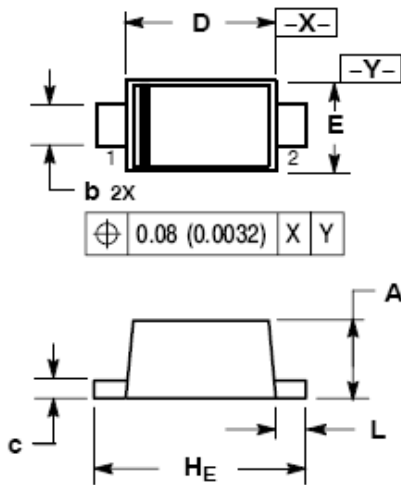
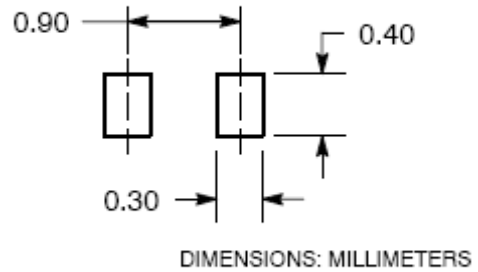


Fig 5. Negative 8kV contact per IEC
61000-4-2-SESD9D5V

SOD-923 Mechanical Data



SOLDERING FOOTPRINT*



SOD-923

SESD9D 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

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