

*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)**

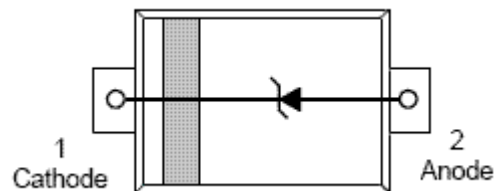
**MIL STD 883E - Method 3015-7 Class 3**

**25 kV HBM (Human Body Model)**

**Functional diagram**



**SOD-923**



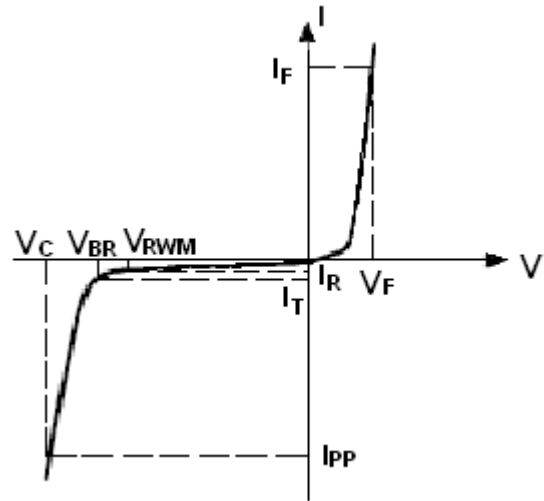
**Maximum Ratings**

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 @ $I_F$

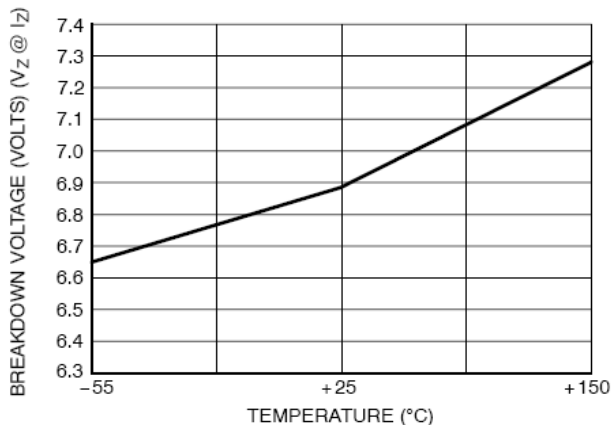


## Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted, $V_F=0.9\text{V Max.}$ @ $I_F=10\text{mA}$ for all types)

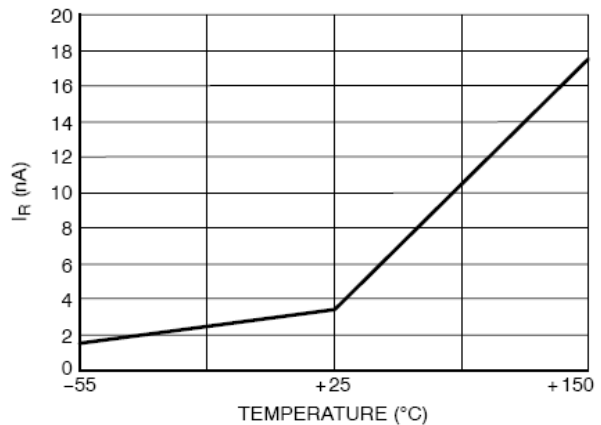
Part Numbers	$V_{BR}$			$I_T$	$V_{RWM}$	$I_R$	$V_F$	$I_F$	$C$
	Min.	Typ.	Max.				Max.		Typ. (Note1)
	V	V	V				V		pF
SESD9D3V3	5.0	5.7	6.4	2.5	3.0	1	1.25	10	40
SESD9D5V	6.2	6.8	7.6	1.0	5.0	1	1.25	10	25
SESD9D7V	7.5	8.1	8.6	1.0	7.0	1	1.25	10	25
SESD9D12V	13.5	14.2	15.0	1.0	12.0	1	1.25	10	15
SESD9D24V	22.8	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**

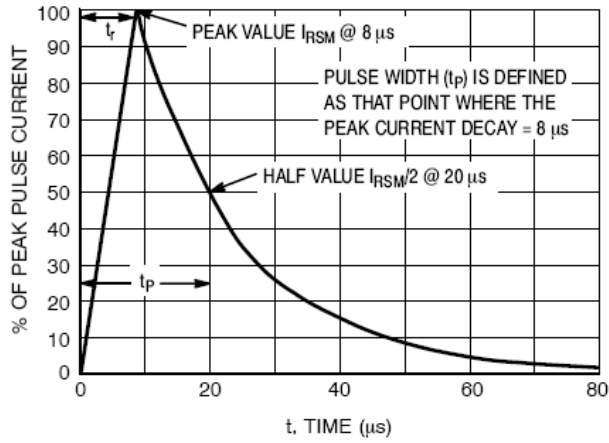


Fig 3. 8/20 μs Pulse Waveform

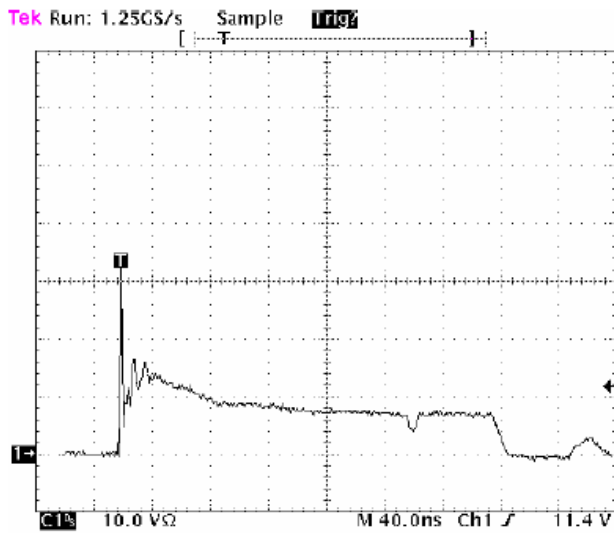


Fig 4. Positive 8kV contact per IEC  
61000-4-2-SESD9D5V

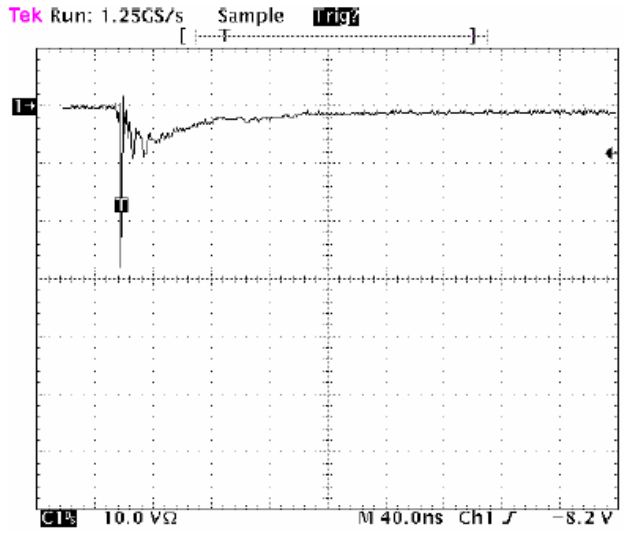
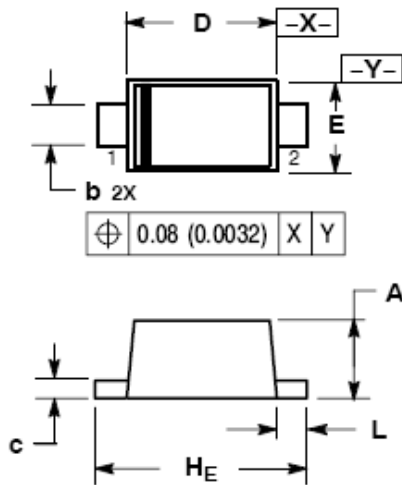
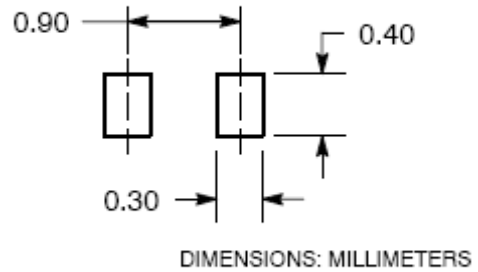


Fig 5. Negative 8kV contact per IEC  
61000-4-2-SESD9D5V

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 <sub>E</sub>	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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