

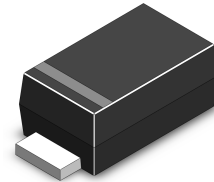
Transient Voltage Suppressors for ESD Protection

ESDXXV92D-A Series

Description

The ESDXXV92D-A is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

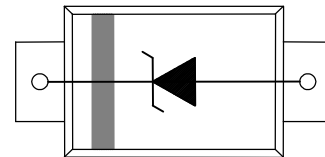
SOD-923



Feature

- u Small body outline dimensions
- u Low body height
- u Peak power up to 150 watts @ 8×20 μs Pulse
- u Low leakage current
- u Response time is typically < 1 ns
- u IEC61000-4-2 Level 4 15 kV (air discharge)
8 kV(contact discharge)
- u MIL STD 883E - Method 3015-7 Class 3
25 kV HBM (Human Body Model)

Functional Diagram



Applications

- u Cellular Phones
- u Portable Devices
- u Digital Cameras
- u Power Supplies

Mechanical Characteristics

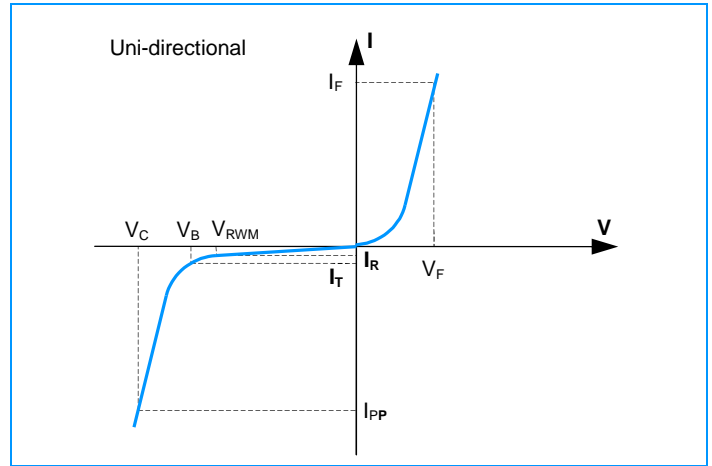
Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (tp=8/20μs waveform)	150	W
T _L	Maximum lead temperature for soldering during 10s	260	°C
T _{STG}	Storage Temperature Range	-55 to +155	°C
T _{OP}	Operating Temperature Range	-40 to +125	°C
T _J	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD)		
	Air Discharge	±15	KV
	Contact Discharge	±8	
	ESD Voltage		
	Per Human Body Model	25	KV
	Per Machine Model	400	V

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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_B	Breakdown Voltage @ I_T
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{PK}	Peak Power Dissipation
C	Max Capacitance @ $V_R=0V$ & $f=1MHz$



Electrical Characteristics (Ratings at 25 °C ambient temperature unless otherwise specified $V_F=0.9v$ at $I_F=10mA$)

Part Number	V_{BR}			I_T	V_{RWM}	I_R	V_F	I_F	C
	Min.	Typ.	Max.				Max.		Typ. (Note 1)
	V	V	V				V		pF
ESD03V92D-A	5	5.7	6.4	2.5	3.0	1	0.9	10	40
ESD05V92D-A	6.2	6.8	7.6	1.0	5.0	1	0.9	10	25
ESD12V92D-A	13.5	14.2	15.0	1.0	12.0	1	0.9	10	15
ESD24V92D-A	22.8	24.0	26.0	5.0	24.0	0.5	0.9	10	8.5

Note:

- Capacitance is measured at $f=1MHz$, $V_R=0V$, $T_A=25^\circ C$

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

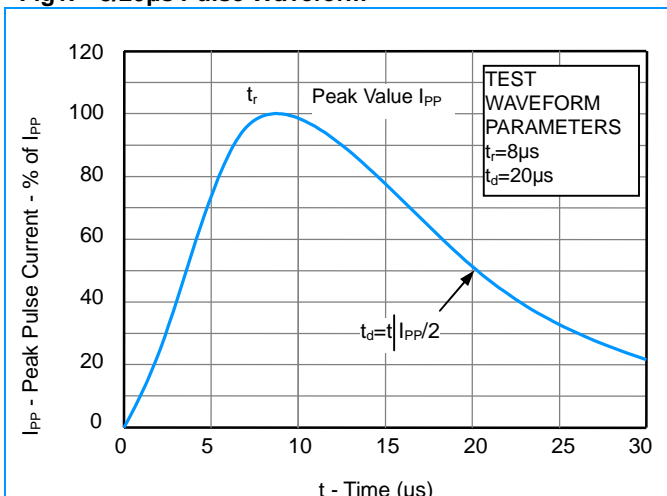
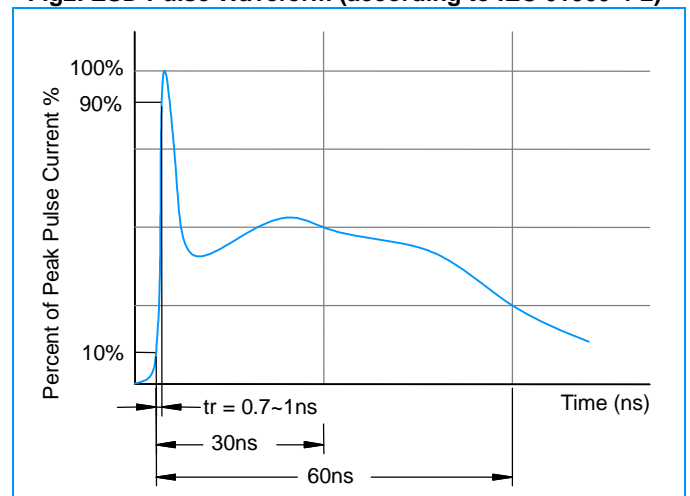


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)



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Characteristic Curves

Fig3. Typical Breakdown Voltage Versus Temperature

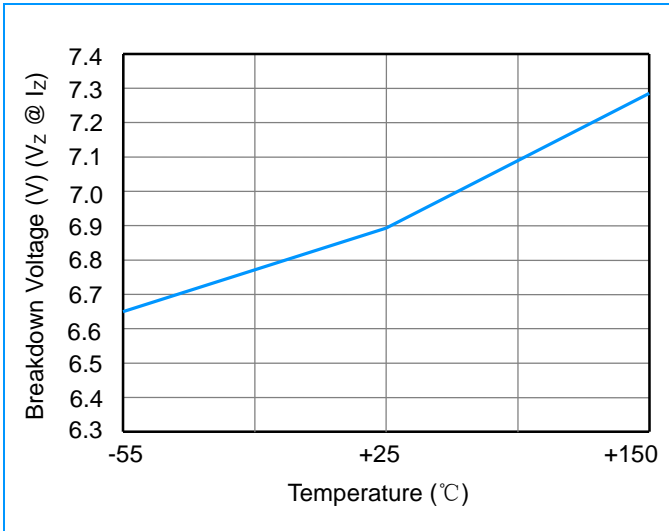


Fig4. Typical Leakage Current Versus Temperature

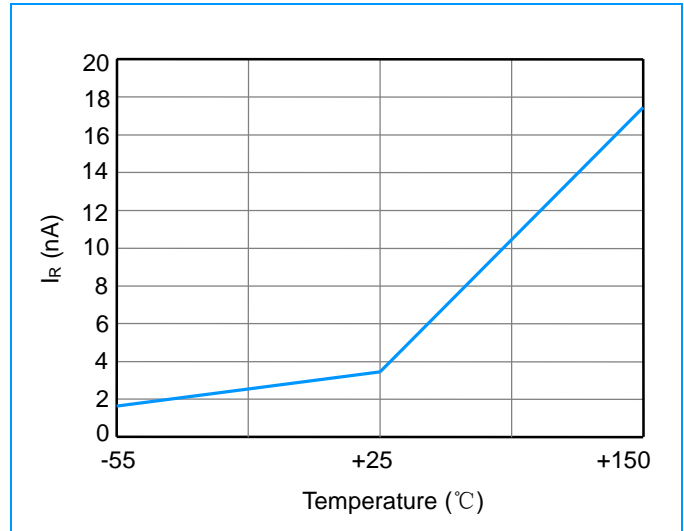


Fig5. ESD Clamping (+8KV Contac per IEC61000-4-2)

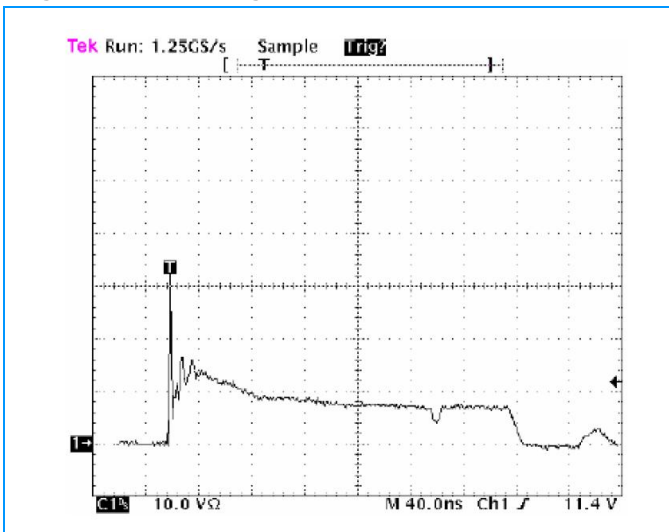
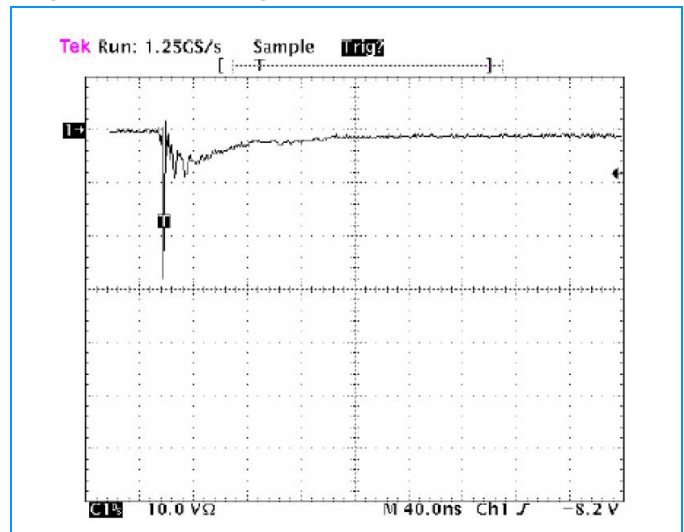


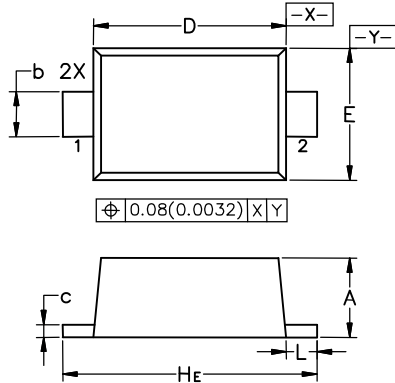
Fig6. ESD Clamping (-8KV Contac per IEC61000-4-2)



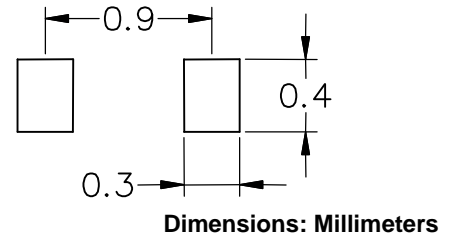
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SOD-923 Mechanical Data



Soldering Footprint



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
HE	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