

Transient Voltage Suppressors for ESD Protection

ESDXXV23T-1A

Description

The ESDXXV23T-1A 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.

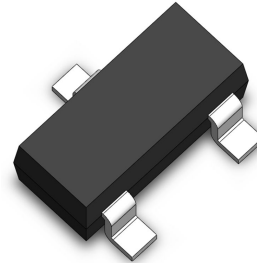
Feature

- ◆ 300 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects one I/O line
- ◆ Low clamping voltage
- ◆ Working voltages: 3.3, 5, 8, 12, 15, 24, 36V
- ◆ Low leakage current
- ◆ IEC61000-4-2(ESD): ±15kV (air discharge)
±8kV (contact discharge);
- ◆ IEC61000-4-4 (EFT) 40A (5/50 ns)

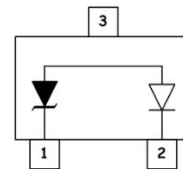
Applications

- ◆ High-Speed data lines
- ◆ Cellular handsets AND accessories
- ◆ Universal Serial Bus (USB) port protection
- ◆ Portable instrumentation
- ◆ LAN / WAN equipment
- ◆ Peripherals

SOT-23



Functional Diagram



Mechanical Data

- ◆ JEDEC SOT-23 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Weight 8 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free

Mechanical Characteristics

Symbol	Parameter	Value	Units
Ppp	Peak Pulse Power (tp=8/20μs waveform)	300	Watts
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _L	Soldering Temperature, T max = 10s	260	°C

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number	Device Marking Code	Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR}	Test Current I_T (mA)	V_C @1A (Max.)	V_C		Maximum Reverse Leakage I_R @ V_{RWM} (uA)	Maximum Junction Capacitance @0 V (pF)
						(Max.)	(@A)		
ESD03V23T-1A	TL3	3.3	4	1.0	7.0	22	14	40	5
ESD05V23T-1A	TL5	5.0	6	1.0	9.8	24	13	5	5
ESD08V23T-1A	TL8	8.0	8.5	1.0	13.4	28	11	5	5
ESD12V23T-1A	TLA	12	13.3	1.0	19.0	36	7	1	5
ESD15V23T-1A	TLB	15	16.7	1.0	24.0	42	6	1	5
ESD24V23T-1A	TLD	24	26.7	1.0	43.0	52	3	1	5
ESD36V23T-1A	TLH	36	40	1.0	60.0	75	2	1	5

Fig1. 8/20µs Pulse Waveform

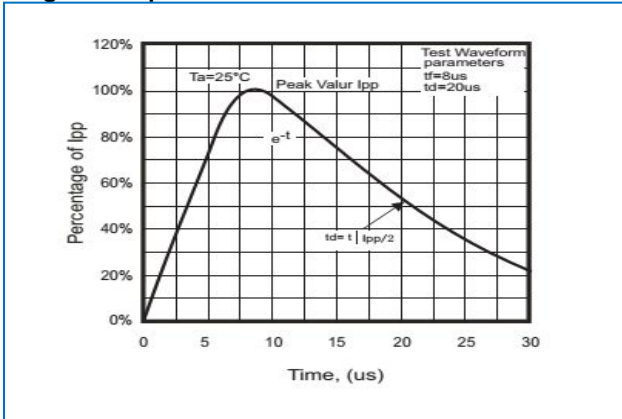


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

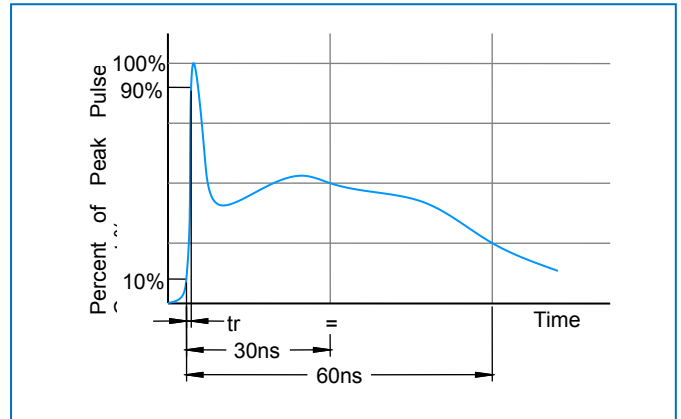


Fig3. ESD Clamping Voltage Screenshot Positive 8 KV contact per IEC 61000-4-2

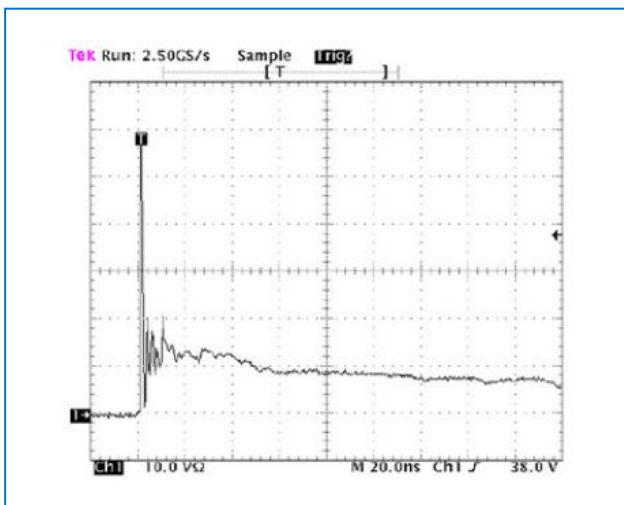
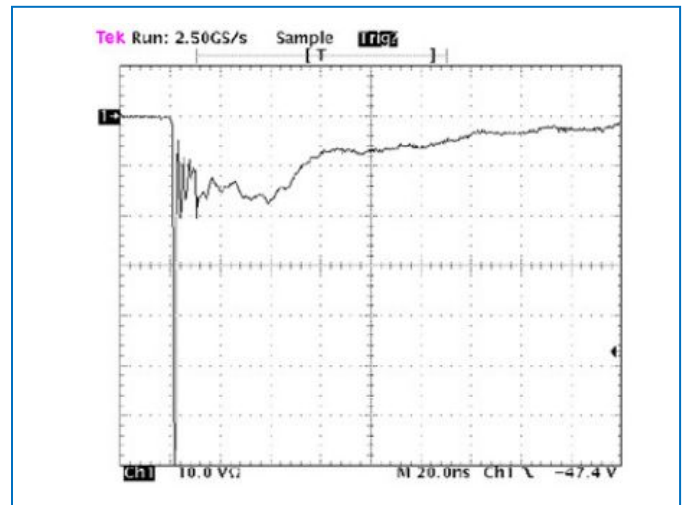


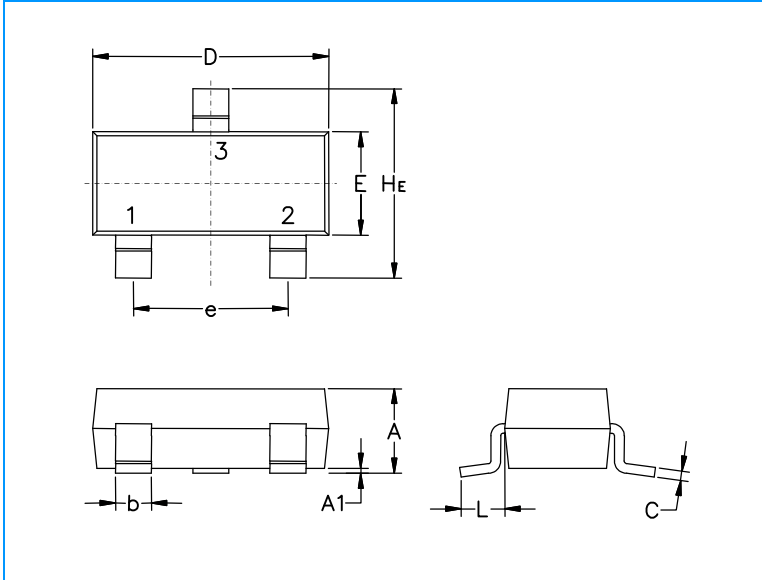
Fig4. ESD Clamping Voltage Screenshot Negative 8 KV contact per IEC 61000-4-2



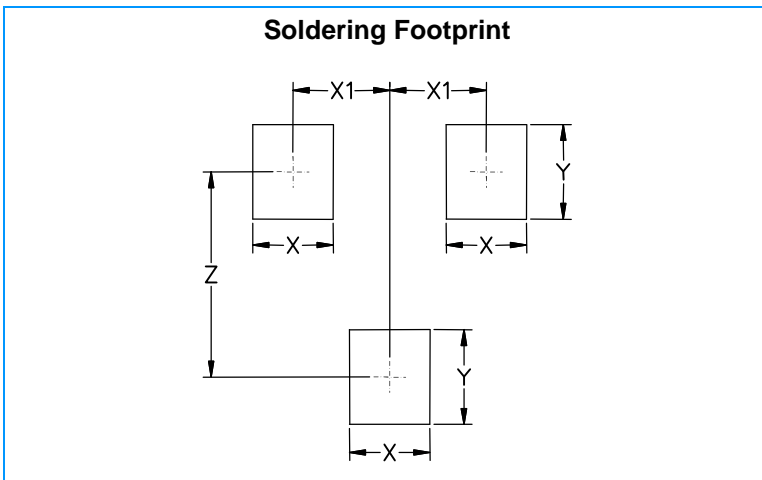
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SOT-23 Package Outline & Dimensions



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.15	0.18	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104



Symbol	Millimeters	Inches
X	0.80	0.031
X1	0.95	0.037
Y	0.90	0.035
Z	2.00	0.079