

# Transient Voltage Suppressors Array for ESD Protection

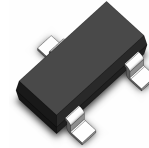
Low Capacitance

## ESDXXV23T-1A Series

### 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.

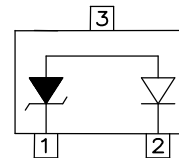
### SOT-23



### Feature

- u 500 Watts Peak Pulse Power per Line (tp=8/20µs)
- u Protects one I/O line
- u Low clamping voltage
- u Working voltages: 3.3, 5, 8, 12, 15, 24, 36V
- u Low leakage current
- u IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)
- u IEC61000-4-5 (Lightning) 12A (8/20µs)

### Functional Diagram



### Applications

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

### Mechanical Characteristics

- u JEDEC SOT-23 Package
- u Molding Compound Flammability Rating : UL 94V-0
- u Weight 8.0 Milligrams (Approximate)
- u Quantity Per Reel : 3,000pcs
- u Reel Size : 7 inch
- u Lead Finish : Lead Free

### Mechanical Characteristics

Symbol	Parameter	Value	Units
P <sub>PP</sub>	Peak Pulse Power (tp=8/20µs waveform)	500	W
T <sub>L</sub>	Lead Soldering Temperature	260 (10sec)	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>J</sub>	Operating Temperature Range	-55 to +150	°C
	IEC61000-4-2 (ESD)	Air Discharge ±15 Contact Discharge ±8	KV
	IEC61000-4-4 (EFT)	40	A
	IEC61000-4-5 ( Lightning )	12	A

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## ESDXXV23T-1A Series

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number	Device Marking	V <sub>RWM</sub> (V) (Max.)	V <sub>B</sub> (V) (Min.)	I <sub>T</sub> (mA)	V <sub>C</sub> @1A (Max.)	V <sub>C</sub>		I <sub>R</sub> (μA) (Max.)	C (pF) (Typ.)
						(Max.)	(@A)		
ESD03V23T-1A	TL3	3.3	4.0	1	7.0	9.0	5	40	5
ESD05V23T-1A	TL5	5.0	6.0	1	9.8	11.0	5	5	5
ESD08V23T-1A	TL8	8.0	8.5	1	13.4	15.0	5	5	5
ESD12V23T-1A	TLA	12.0	13.3	1	19.0	23.0	5	1	5
ESD15V23T-1A	TLB	15.0	16.7	1	24.0	28.0	5	1	5
ESD24V23T-1A	TLC	24.0	26.7	1	43.0	46.0	5	1	5
ESD36V23T-1A	TLD	36.0	40.0	1	51.0	68.0	5	1	5

### Characteristic Curves

Fig1. 8/20μs Pulse Waveform

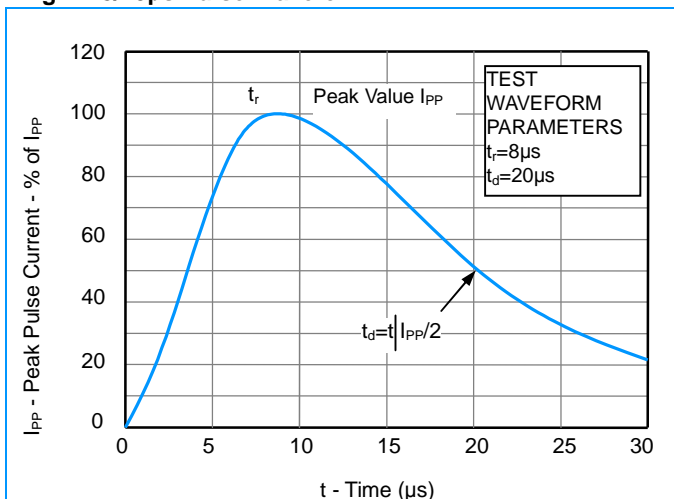


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

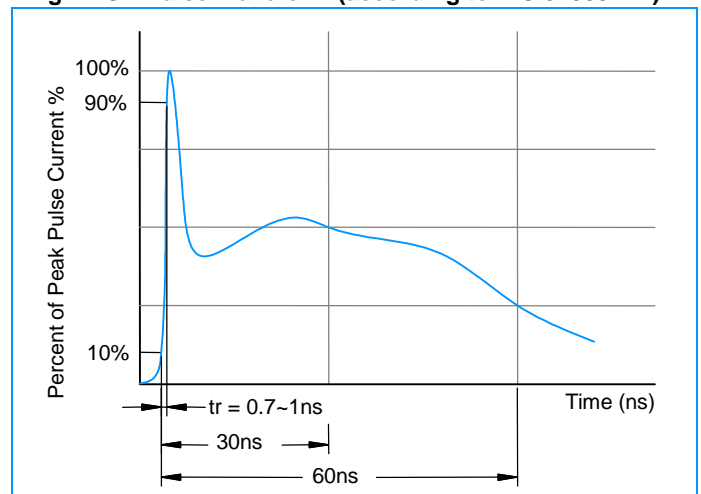
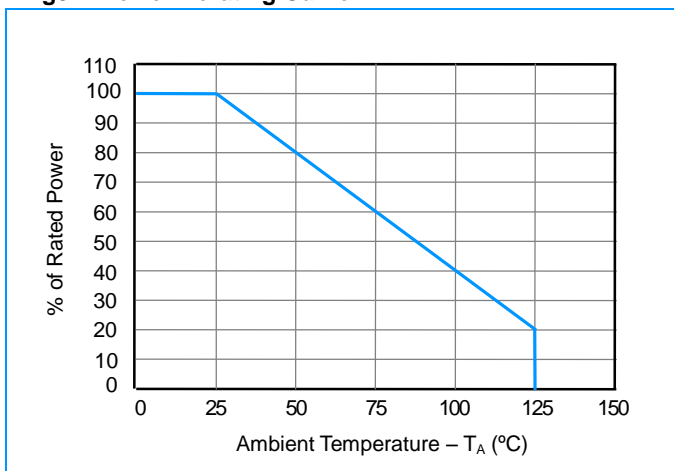


Fig3. Power Derating Curve

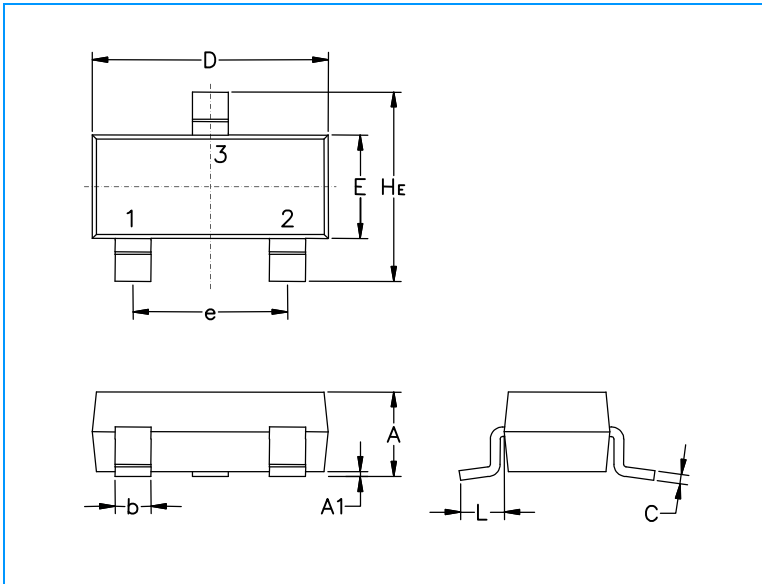


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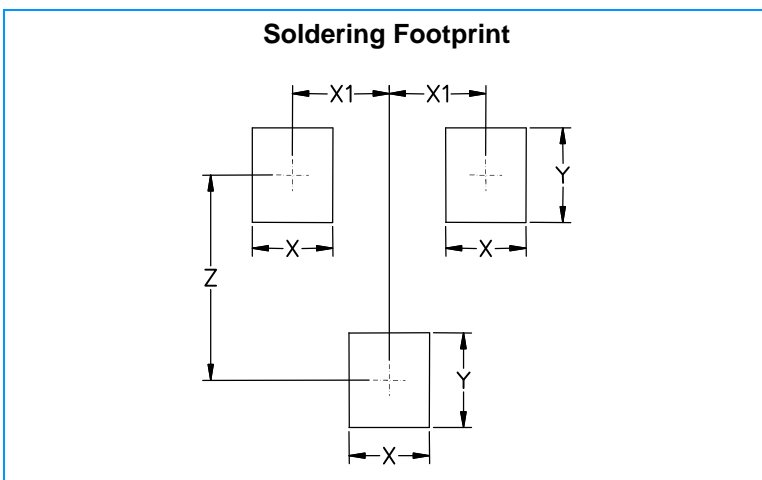
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## ESDXXV23T-1A Series

### 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