

2-Line Uni-directional TVS Diode

Features

- Ultra low leakage: nA level
- Operating voltage: 5V
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 25\text{kV}$
 - Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Lightning) 4 A (8/20 μs)
- RoHS Compliant
- AEC-Q101 qualified

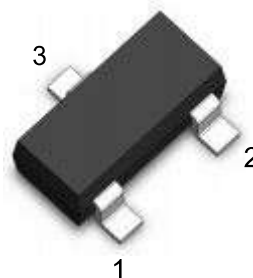
Applications

- Power Management
- Industrial Application
- Power Supply Protection
- Many other portable devices
- USB 2.0, USB3.0 power and data line
- Set-top box and digital TV
- Digital video interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet

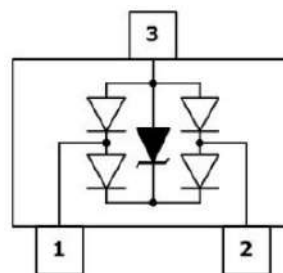
Mechanical Characteristics

- Package: SOT-23
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000 pcs
- Reel Size: 7 inch
- Device Marking: 5ML

Dimensions SOT-23



Pin Configuration



Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pp}	80	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STJ}	-55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}				5	V
Breakdown Voltage	V _{BR}	I _T = 1mA, Pin1/Pin2-Pin3	6.5		9	V
Breakdown Voltage	V _{BR}	I _T = 1mA, Pin1-Pin2	6.5		9.5	V
Reverse Leakage Current	I _R	V _{RWM} = 5V			0.1	μA
Clamping Voltage	V _C	I _{PP} = 1A (8 / 20μs pulse), Pin1/Pin2-3			9	V
Clamping Voltage	V _C	I _{PP} = 4A (8 / 20μs pulse), Pin1/Pin2-3			15	V
Clamping Voltage	V _C	I _{PP} = 1A (8 / 20μs pulse), Pin1-Pin2			12	V
Clamping Voltage	V _C	I _{PP} = 4A (8 / 20μs pulse), Pin1-Pin2			20	V
Junction Capacitance	C _J	V _R = 0V, f = 1MHz, Pin1/Pin2-Pin3		0.6	0.8	pF
Junction Capacitance	C _J	V _R = 0V, f = 1MHz, Pin1-Pin2		0.3	0.5	pF

Typical Performance Characteristics (TA=25°C unless otherwise specified)

Fig1. 8/20 μ s Pulse Waveform

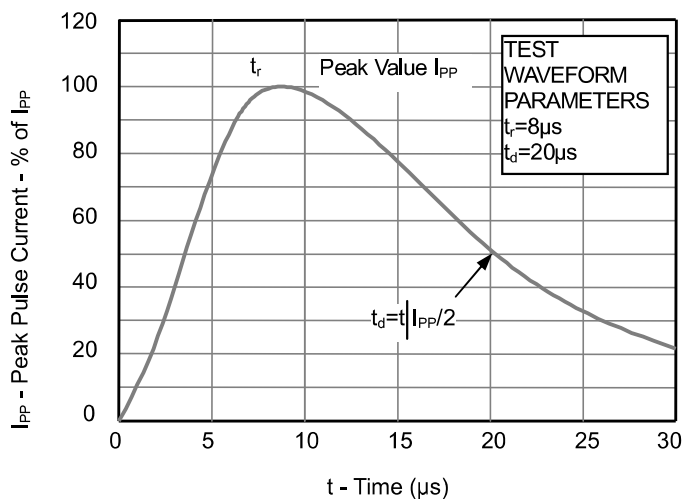


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

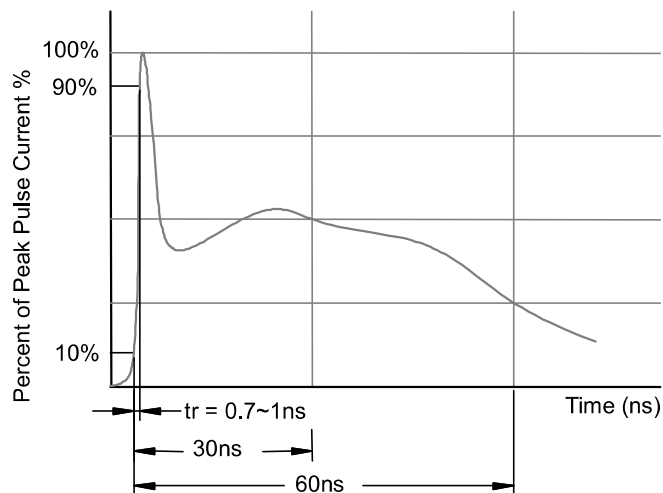
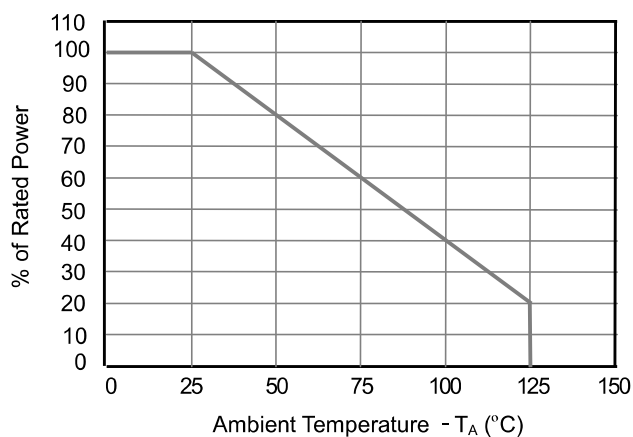
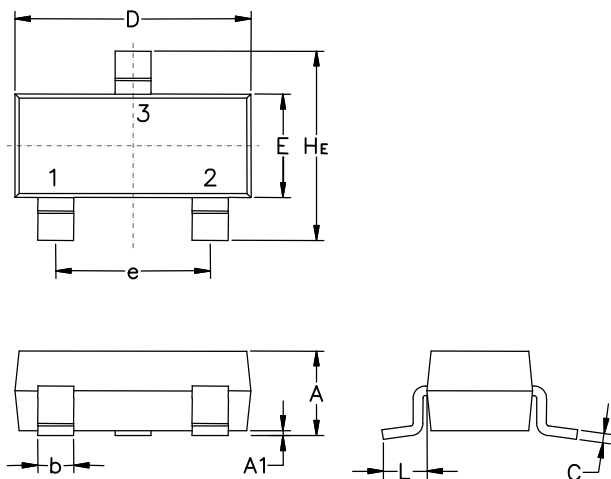


Fig3. Power Derating Curve

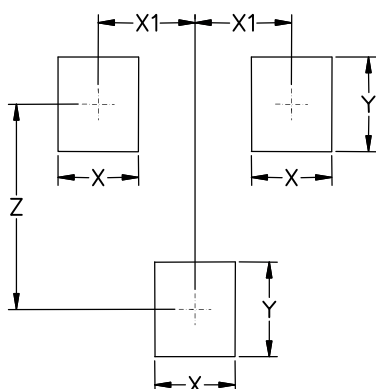


SOT-23 Package Outline & Dimensions



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
H _E	2.10	2.40	2.64	0.083	0.094	0.104

Soldering Footprint



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