

ESD Protection Diode

Features

- Ultra low leakage: nA level
- Operating voltage: 7V or 12V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC 61000-4-4 (EFT) 40A (5/50ns)
 - IEC 61000-4-5 (Lightning)
 - 36A for 12V & 7V (8/20 μs)
- RoHS Compliant

Applications

- Protection of RS-485 transceivers with extended common-mode range
- Security systems
- Automatic Teller Machines
- HFC systems
- Networks

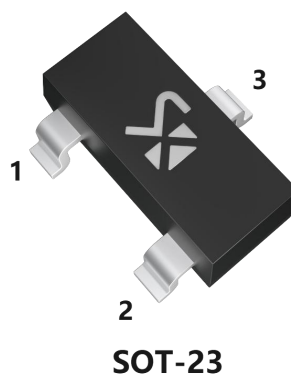
Mechanical Characteristics

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

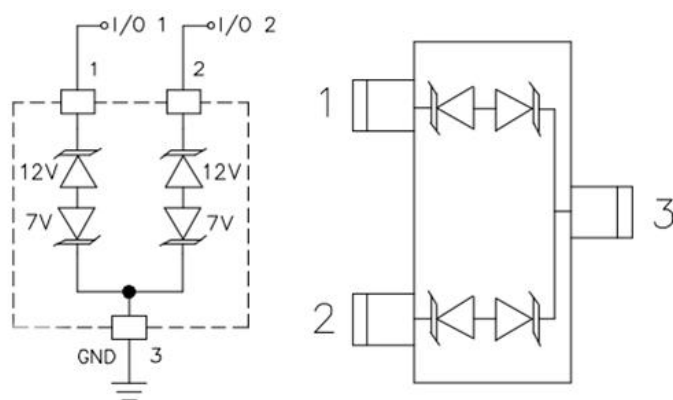
Absolute Maximum Ratings ($T_{\text{amb}}=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	600~1000	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	KV
Operating Junction Temperature	T_{J}	-55~125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55~150	$^{\circ}\text{C}$

Package



Pin Configuration



Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Condition		Min	Typ	Max	Unit
Reverse Standoff Voltage	V _{RWM}	Pin 3 to Pin 1/Pin 2				7	V
		Pin 1/Pin 2 to Pin 3				12	V
Breakdown Voltage	V _{BR}	Pin 3 to Pin 1/Pin 2	I _T = 1mA	7.5			V
		Pin 1/Pin 2 to Pin 3	I _T = 1mA	13.3			V
Clamping Voltage	V _C	Pin 3 to Pin 1/Pin 2	I _{PP} = 5A			10	V
		Pin 1/Pin 2 to Pin 3	I _{PP} = 5A			19	V
		Pin 3 to Pin 1/Pin 2	I _{PP} = 17A			12	V
		Pin 1/Pin 2 to Pin 3	I _{PP} = 17A			26	V
Reverse Leakage Current	I _R	Pin 3 to Pin 1/Pin 2	V _R = V _{RWM}			0.1	μA
		Pin 1/Pin 2 to Pin 3	V _R = V _{RWM}			0.1	μA
Junction Capacitance	C _J	Pin 3 to Pin 1/Pin 2	V _R = 0V, f=1MHz		75		pF
		Pin 1/Pin 2 to Pin 3	V _R = 0V, f=1MHz		75		pF

Typical Characteristics

Fig1. 8/20 μ s Pulse Waveform

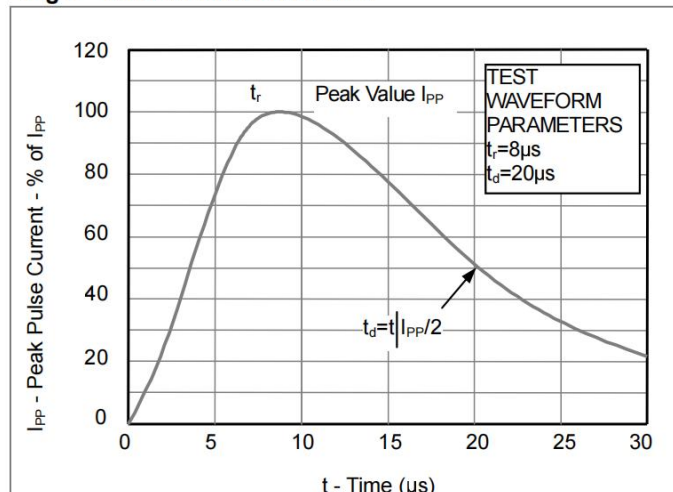


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

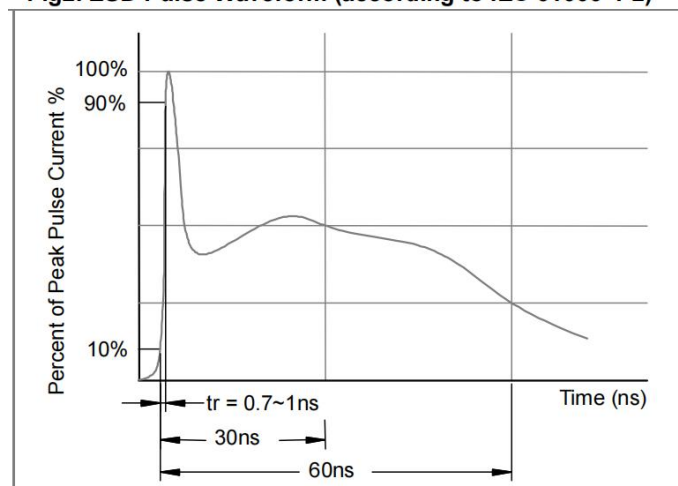
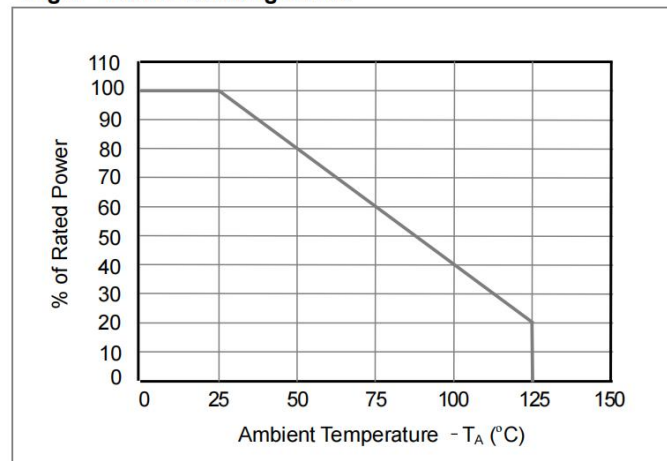


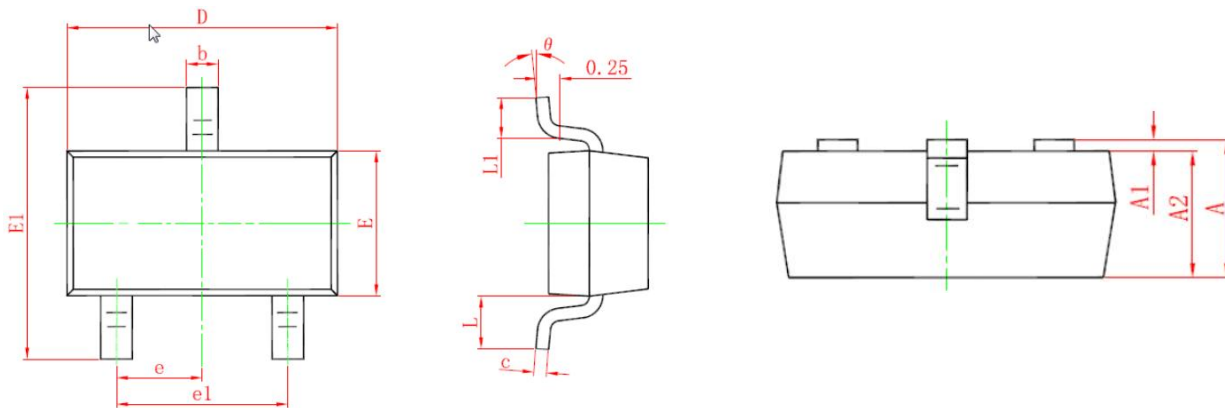
Fig3. Power Derating Curve



Package Information

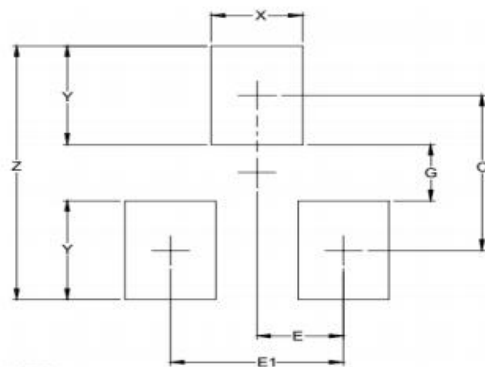
SOT-23

Dimensions in mm



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.15	0.035	--	0.045
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.05	0.035	--	0.041
b	0.30	--	0.50	0.012	--	0.020
c	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E1	2.25	--	2.55	0.089		0.100
e	0.95TYP			0.037TYP		
e1	1.80	--	2.00	0.071	--	0.079
L	0.55REF			0.022REF		
L1	0.30	--	0.50	0.012	--	0.020
Θ	0°	--	8°	0°	--	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	INCHES	MILLIMETERS
C	0.087	(2.20)
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60