SESOT24BC

Low capacitance bi-directional double ESD protection diode

revision:A

General Description

Low capacitance bi-directional double ESD protection diode in the small SOT-23 plastic package designed to protect 2 data lines from the damage caused by ESD and other transients

Applications

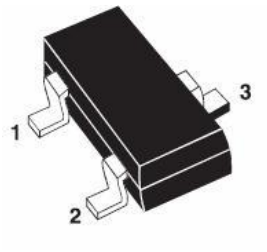
- ⌘ Cellular handsets and accessories
- ⌘ Portable electronics
- ⌘ Computers and peripherals
- ⌘ Communication systems
- ⌘ Audio and video equipment

Features

- ⌘ Bi-directional ESD protection of 2 lines
- ⌘ Low diode capacitance
- ⌘ Max. peak pulse power :P_{PK}=350W at tp=8/20us
- ⌘ Ultra low leakage current: I_{RM}=1uA at V_{RWM}
- ⌘ ESD protection > 30V

IEC61000-4-2;Level 4 (ESD)

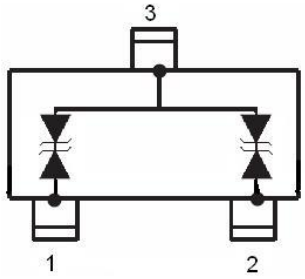
Functional diagram



SOT-23



SOD-323

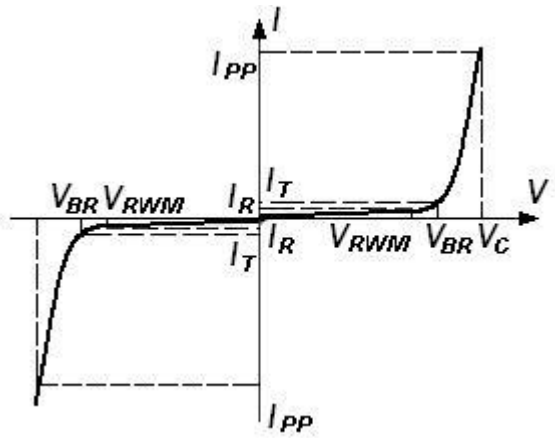


Absolute Ratings (T_{amb}=25°C)

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (t_p = 8/20μs)	350	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
V_{PP}	Electrostatic discharge IEC61000-4-2 (contact) IEC61000-4-2 HMB MIL-Std 883	 30 10	kv

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_{BR}	Breakdown Voltage @ I_T



Electrical Characteristics

Part Numbers	Rated Stand-off Voltage	Maximum Leakage Current	Breakdown Voltage			Maximum Clamping Voltage		Maximum Pulse Peak Current	Maximum Capacitance
	@ V_{RM}		1mA V_{BR}			1A [1)]	5A [1)]	tp=8/20us	0v, 1MHz
	V_{RM}	I_{RM}	V			V_{CL}		I_{PPM}	C
	V	μA	Min	Typ	Max	V	V	A	pF
SESOT04BC	4.0	1.0	4.5	5.7	8.5	7.0	8.0	20	40
SESOT05BC	5.0	1.0	5.5	6.7	9.5	9.8	10	18	30
SESOT12BC	12.0	1.0	12.5	13.7	16.5	16	20.0	15	20
SESOT15BC	15.0	1.0	15.5	16.7	19.5	22	27.0	12	15
SESOT24BC	24.0	1.0	25.5	27.5	30.0	35	40.0	8	12

Typical Characteristics

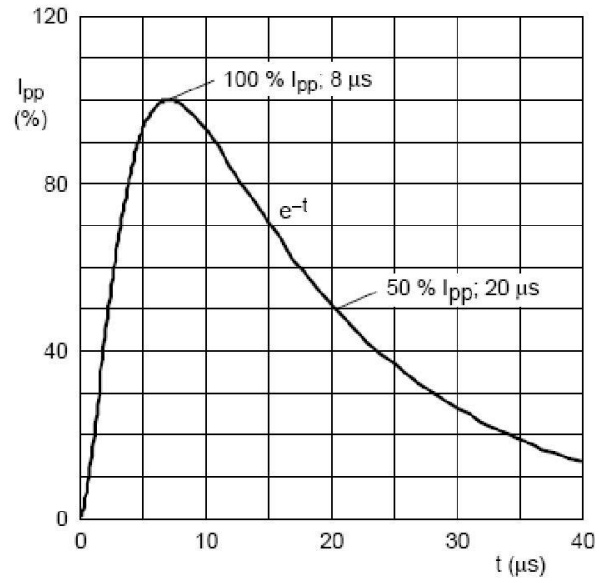


Fig1. 8/20us pulse waveform according to IEC61000-4-5

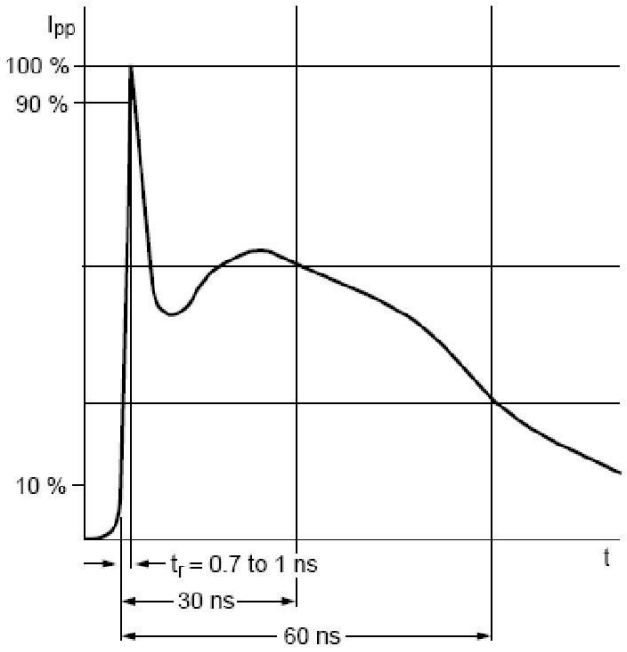
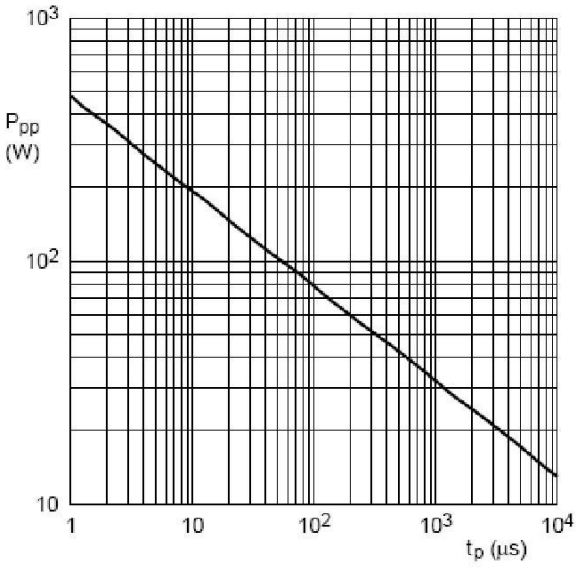


Fig2. ESD pulse waveform according to IEC 61000-4-2



T_{amb} = 25 °C.

t_p = 8/20 µs exponential decay waveform; see Figure 1.

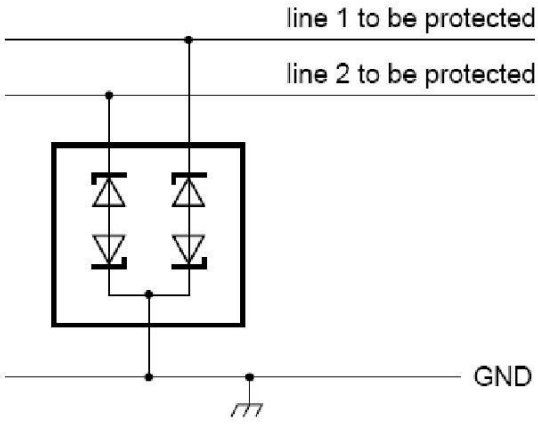
Fig3.Peak pulse power dissipation as a function of pulse time;typical values

Application Note

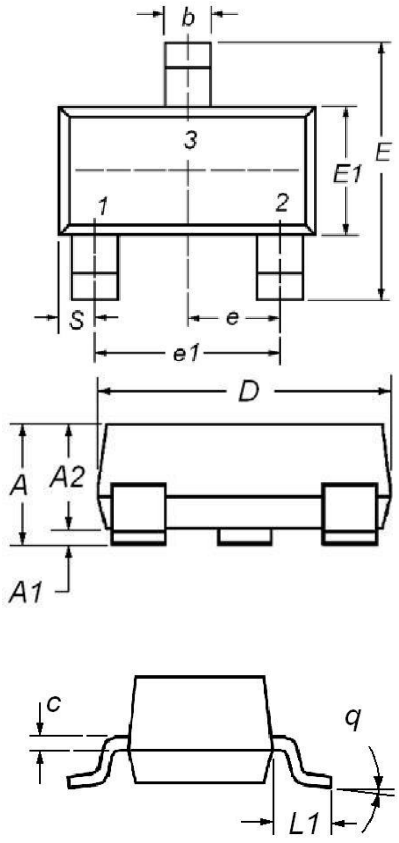
Electrostatic discharge (ESD) is a major cause of failure in electronic systems. Transient Voltage Suppressors (TVS) are an ideal choice for ESD protection. They are capable of clamping the incoming transient to a low enough level such that damage to the protected semiconductor is prevented.

Surface mount TVS arrays offer the best choice for minimal lead inductance. They serve as parallel protection elements, connected between the signal line to ground. As the transient rises above the operating voltage of the device, the TVS array becomes a low impedance path diverting the transient current to ground. The SESOTAxxBC array is the ideal board evel protection of ESD sensitive semiconductor components.

The tiny SOT-23 package allows design flexibility in the design of high density boards where the space saving is at a premium. This enables to shorten the routing and contributes to hardening against ESD.



Package mechanical data



Dim	Millimeters		
	Min	TYP	Max
A	1.00		1.40
A1	0		0.10
A2	1.00		1.30
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	2.40		2.80
E1	1.40		1.60
e	0.85		1.15
e1		1.90	
L1	0.40	.	
q	0°		10°
S	0.45		0.55

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