SOD-123FL Plastic-Encapsulate Diodes

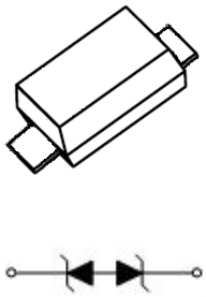
ESDBE24VD1 Bi-direction Transient Voltage Suppressor

DESCRIPTION

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, high level of ESD protection makes them a flexible solution for applications such as Digital cameras,cellular phones, and MP3 Players. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

SOD-123FL



FEATURES

- Bi-directional ESD protection of one line
- Reverse stand−off voltage: 24V
- Low reverse clamping voltage
- Low leakage current
- Excellent package:2.80mm×1.90mm×1.10mm
- Peak pulse power:5000W (IEC61000-4-5 8/20μs)
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection
- Surge protection according to IEC61000-4-5 8/20μs waveform: I_{PPM} 150A

APPLICATIONS

- Computers and peripherals
- Digital Cameras
- Audio and video equipment
- Cellular handsets and accessories
- Portable electronics
- Other electronics equipments communi-cation systems

MARKING



Front side

BD = Device Code
** = Date Code

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	Air Model	V_{ESD}(1)	±30	kV
	Contact Model		±30	
JESD22-A114-B ESD Voltage	Per Human Body Model		±20	
ESD Voltage	Machine Model		±0.4	
Peak Pulse Power		P_{PP}(2)	5000	W
Peak Pulse Current		I_{PP}(2)	150	A
Lead Solder Temperature − Maximum (10 Second Duration)		T_L	260	℃
Operation Junction and Storage Temperature Range		T_J,T_{stg}	-55 ~ +150	℃

(1).Device stressed with ten non-repetitive ESD pulses.

(2).Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

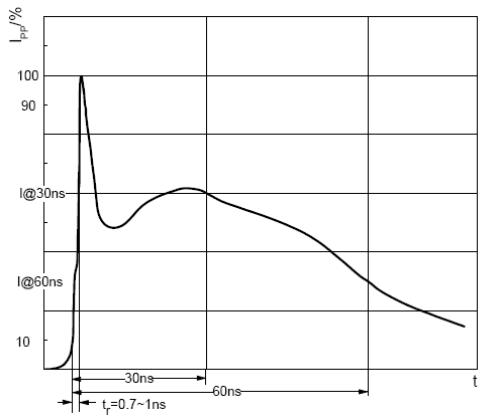
ESD standards compliance

IEC61000-4-2 Standard

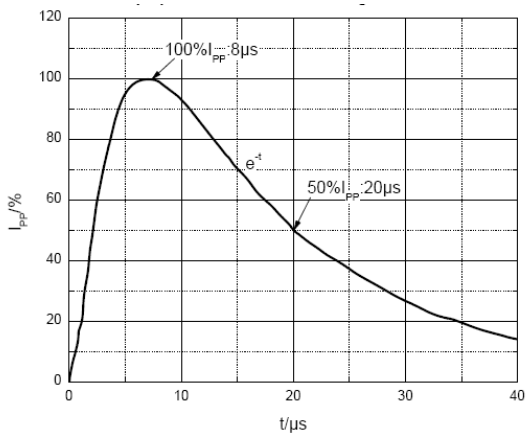
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0～249
1A 1B 1C	250～499 500～999 1000～1999
2	2000～3999
3A 3B	4000～7999 8000～15999



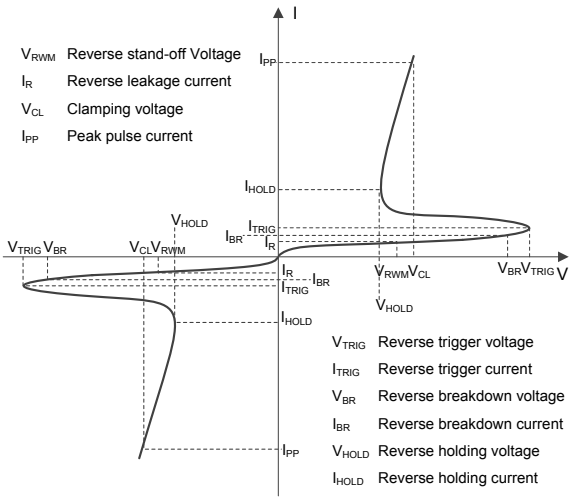
ESD pulse waveform according to IEC61000-4-2



8/20μs pulse waveform according to IEC 61000-4-5

ELECTRICAL PARAMETER

Symbol	Parameter
V_{CL}	Clamping Voltage @ IPP
I_{PP}	Peak Pulse Current
V_{TRIG}	Reverse trigger voltage
I_{TRIG}	Reverse trigger current
V_{BR}	Reverse breakdown Voltage
I_{BR}	Reverse breakdown current
V_{RWM}	Reverse Standoff Voltage
I_R	Reverse Leakage Current @ VRWM
V_{HOLD}	Reverse Holding Voltage
I_{HOLD}	Reverse Holding Current



V-I characteristics for a Bi-direction TVS

ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise specified)

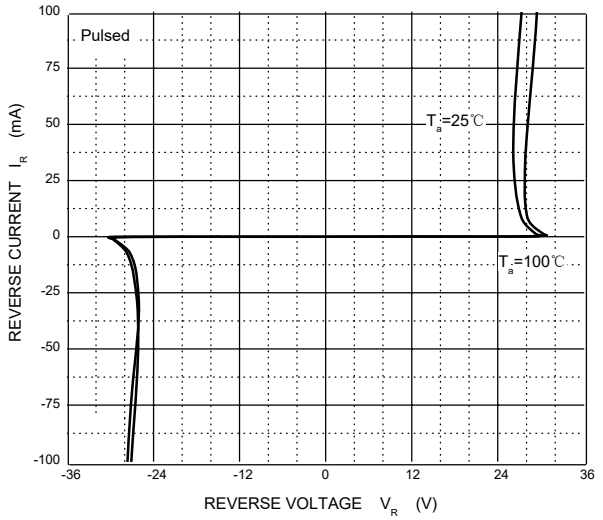
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand off voltage	V_{RWM} (1)				24	V
Reverse leakage current	I_R	V_{RWM}=24V			1	μA
Breakdown voltage	$V_{(BR)}$	I_T=1mA	26.7		32	V
Clamping voltage	V_C (1)	I_{PP}=100A			33	V
Clamping voltage	V_C (2)	I_{PP}=150A			35	V
Junction capacitance	C_J	V_R=0V,f=1MHz			350	pF

(1).Other voltages available upon request.

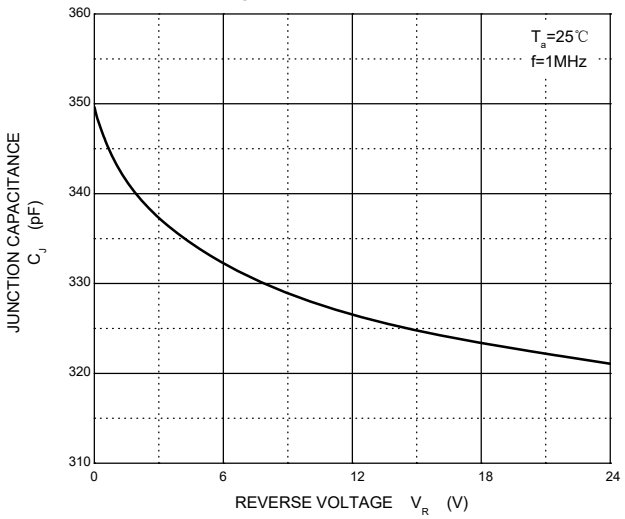
(2).Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

TYPICAL CHARACTERISTICS

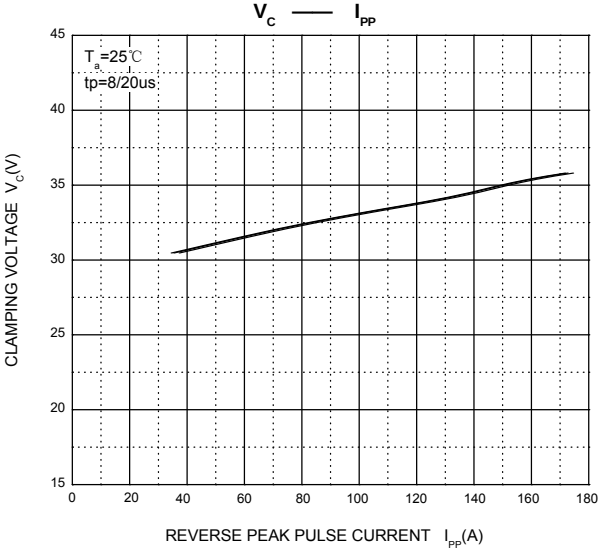
Reverse Characteristics



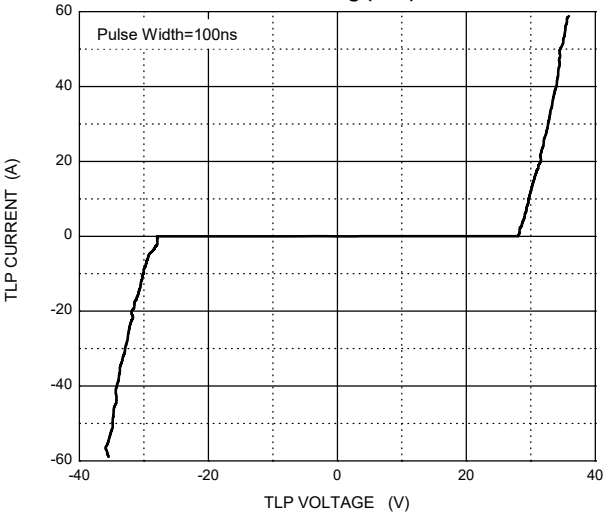
Capacitance Characteristics



V_C —— I_{PP}

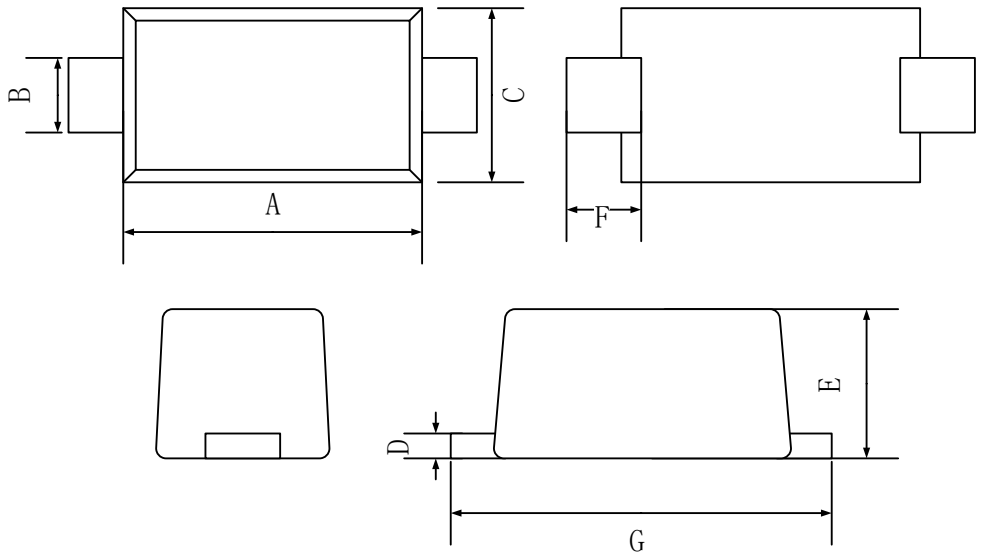


Transmission Line Pulsing (TLP) Measurement



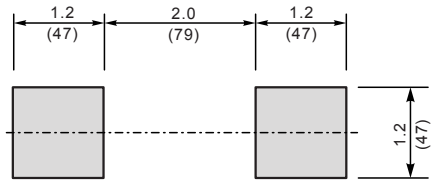
PACKAGE OUTLINE AND PAD LAYOUT INFORMATION

SOD-123FL Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	2.60	3.00
B	0.80	1.20
C	1.70	2.10
D	0.10	0.30
E	0.90	1.20
F	0.30	0.90
G	3.45	3.95

SOD-123FL Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE
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