

# Bi-direction ESD Protection Diode

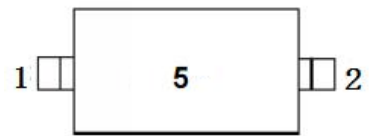
## DESCRIPTION

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

The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multilayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



5 = Device code



## FEATURES

- Bi-directional ESD protection of one line
- Low capacitance: 15pF(Max.)
- Reverse stand-off voltage: 3.3V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

## APPLICATIONS

- Computers and peripherals
- High speed data lines
- Audio and video equipment
- Cellular handsets and accessories
- Subscriber identity module(SIM) card protection
- Portable electronics
- FireWire
- Other electronics equipments communication systems

**MAXIMUM RATINGS (  $T_a=25^{\circ}\text{C}$  unless otherwise noted )**

Parameter	Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	Air Model	$\pm 25$	kV
	Contact Model	$\pm 25$	
	Per Human Body Model	$\pm 16$	
	Machine Model	$\pm 0.4$	
JESD22-A114-B ESD Voltage	$V_{\text{ESD}}^{(1)}$		
ESD Voltage	$P_{\text{PP}}^{(2)}$	70	W
Peak Pulse Power	$I_{\text{PP}}^{(2)}$	7	A
Peak Pulse Current	$T_L$	260	$^{\circ}\text{C}$
Lead Solder Temperature – Maximum (10 Second Duration)	$T_j$	150	$^{\circ}\text{C}$
Junction Temperature	$T_{\text{stg}}$	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature Range			

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

(2).Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

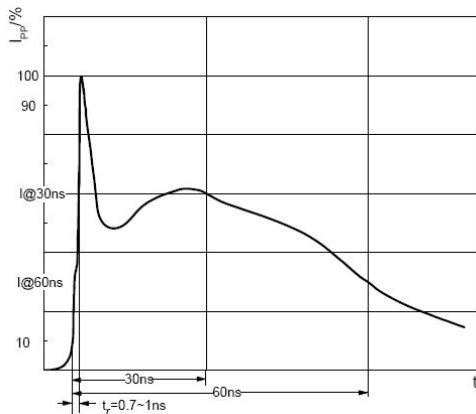
**ESD standards compliance**

**IEC61000-4-2 Standard**

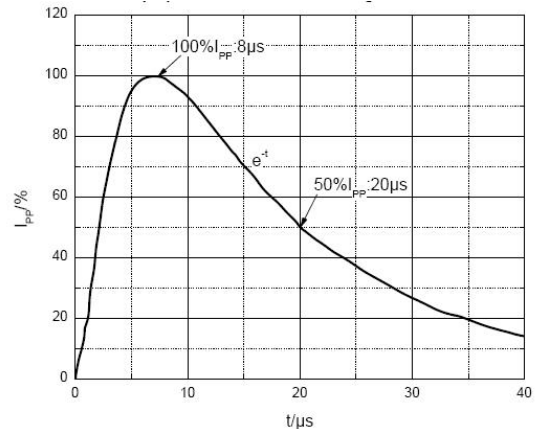
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

**JESD22-A114-B Standard**

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



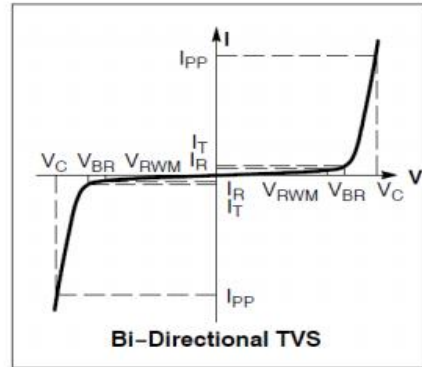
ESD pulse waveform according to IEC61000-4-2



8/20 $\mu\text{s}$  pulse waveform according to IEC 61000-4-5

**ELECTRICAL CHARACTERISTICS(Ta=25°C unless otherwise specified)**

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 @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$P_{pk}$	Peak Power Dissipation
C	Capacitance @ $V_R = 0$ and $f = 1.0$ MHz

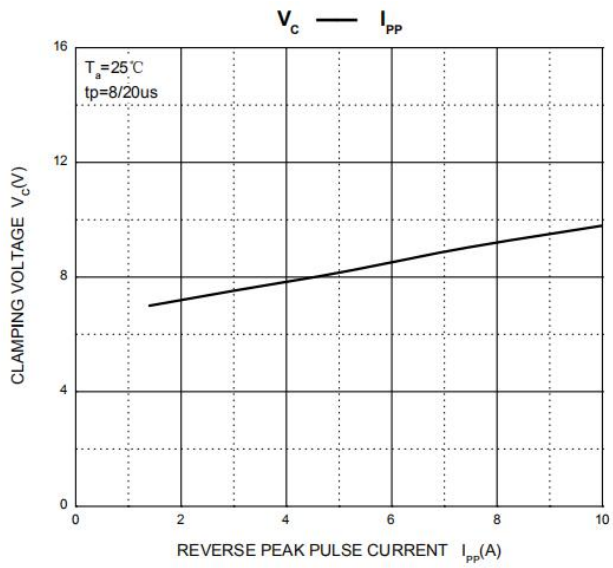
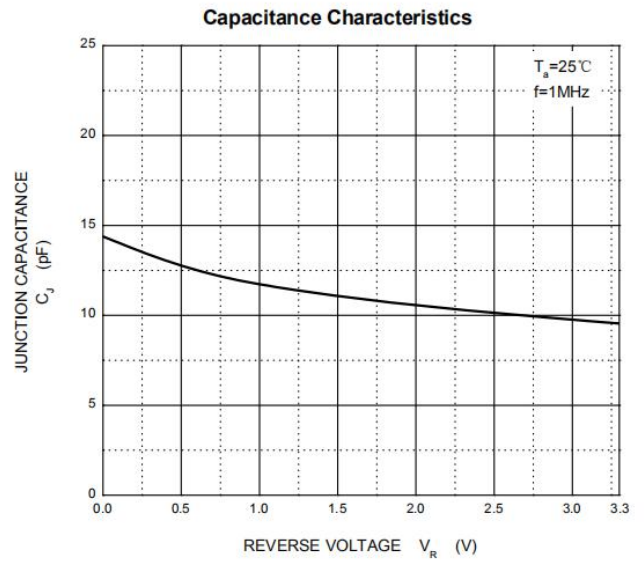
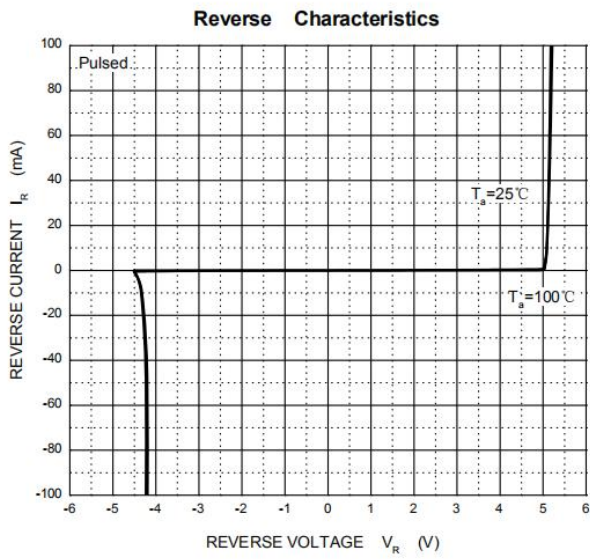


Item	Symbol	Test Conditions	Criterion			Unit
			Min	Typ	Max	
最大峰值功率	$P_{PK}$	$I_{pp}=8A, t_p=8/20\mu s$			100	W
维持电压	$V_{RWM}$				3.3	V
击穿电压	$V_{BR}$	$I_t=1mA$	3.5	4.1	5	V
漏电流	$I_R$	$V_{RWM}=\pm 3.3V$			0.1	$\mu A$
钳位电压	$V_C$	$I_{pp}=1A, t_p=8/20\mu s$			6.5	V
钳位电压	$V_C$	$I_{pp}=10A, t_p=8/20\mu s$		8	10	V
电容	$C_j$	$V_R=0V, f=1Mz$		15	20	pF

(1).Other voltages available upon request.

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

## TYPICAL CHARACTERISTICS



## **PACKAGE OUTLINE**

**Plastic surface mounted package; 2 leads**

**SOD-323**

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