

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 multi-layer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

FEATURES

- Bi-directional ESD protection of one line
- Low capacitance: 0.6 pF
- Low reverse stand-off voltage: 3.3 V
- Low reverse clamping voltage
- Low leakage current

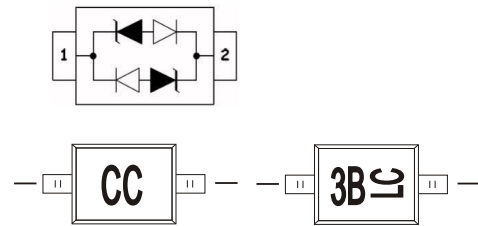
APPLICATIONS

- Cellular phones
- Audio and video equipment
- Handheld-Wireless Systems
- PDAs
- Ethernet – 10/100/1000 Base

PACKAGE OUTLINE



PIN CONFIGURATION



Front side

- Excellent package: 1.7mm×1.3mm×1.0mm
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection
- Portable electronics
- USB Interface
- Other electronics equipments communication systems



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Units
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Peak Pulse Power (8/20µs)	P _{PP}	350	W
Operating Temperature	T _{OPT}	-55/+150	°C
Storage Temperature	T _{STG}	-55/+150	°C
Lead Soldering Temperature	T _L	260	°C

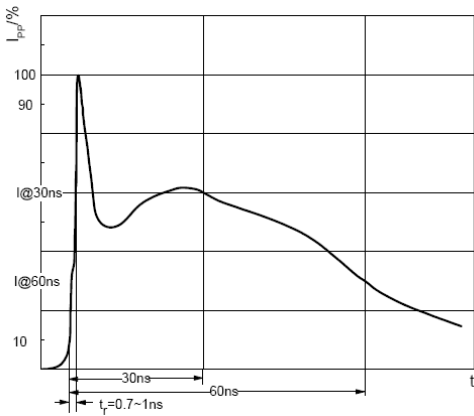
ESD standards compliance

IEC61000-4-2 Standard

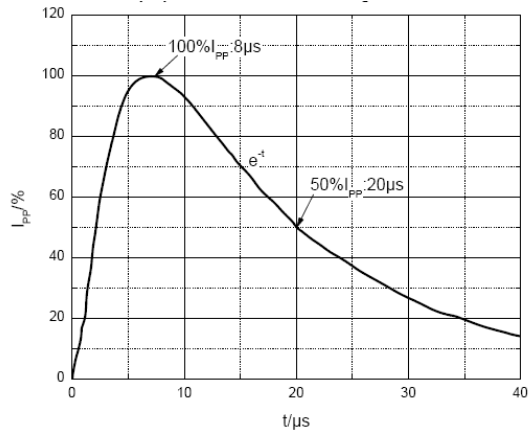
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

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



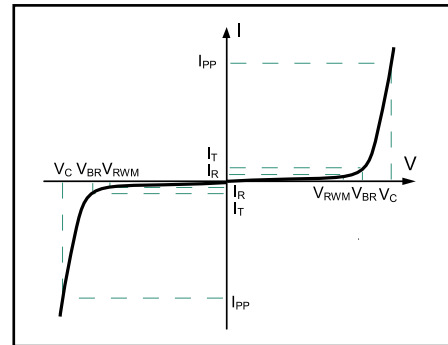
ESD pulse waveform according to IEC61000-4-2



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

ELECTRICAL PARAMETER

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage



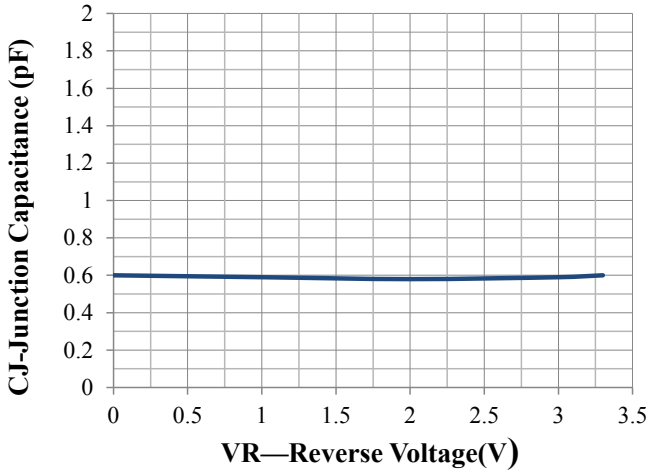
V-I characteristics for a Bi-directional TVS

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

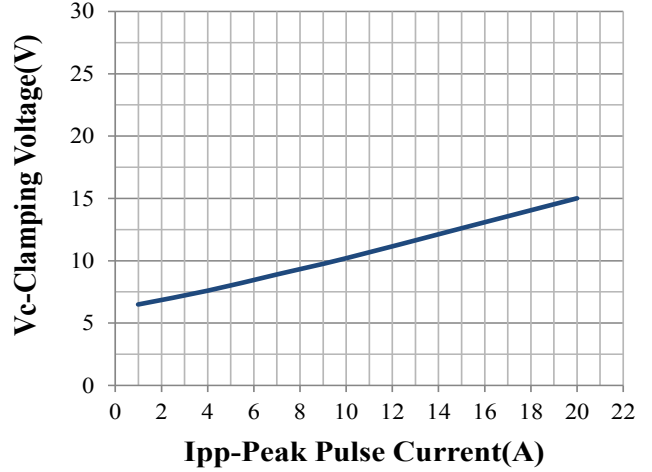
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	4.0	5.0	6.0	V
Reverse Leakage Current	I_R	$V_{RWM} = 3.3\text{ V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)		7	9	V
Clamping Voltage	V_C	$I_{PP} = 20\text{A}$ (8 x 20 μs pulse)		16	20	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		0.6	0.9	pF



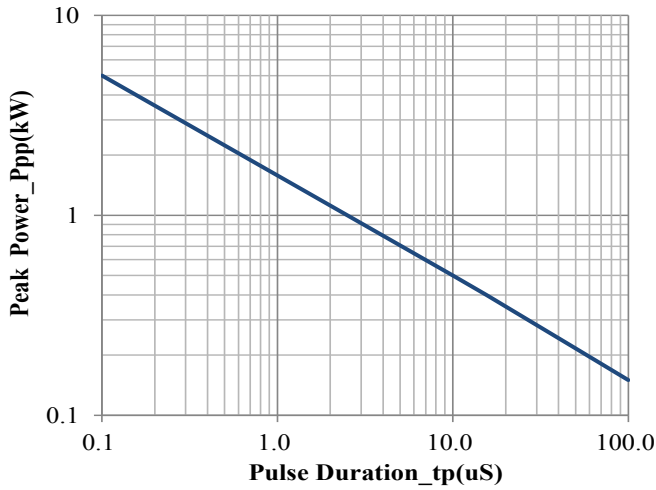
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



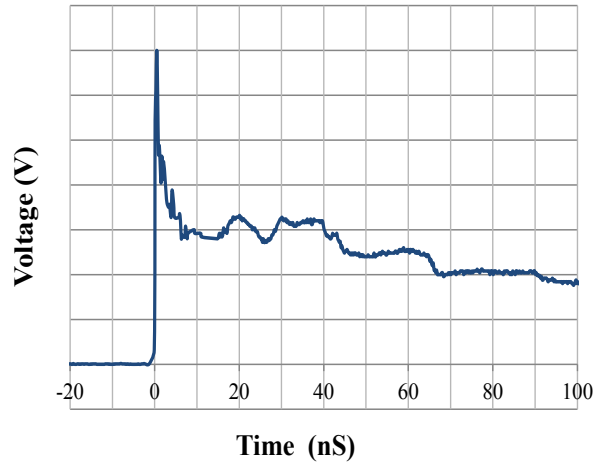
Junction Capacitance vs. Reverse Voltage



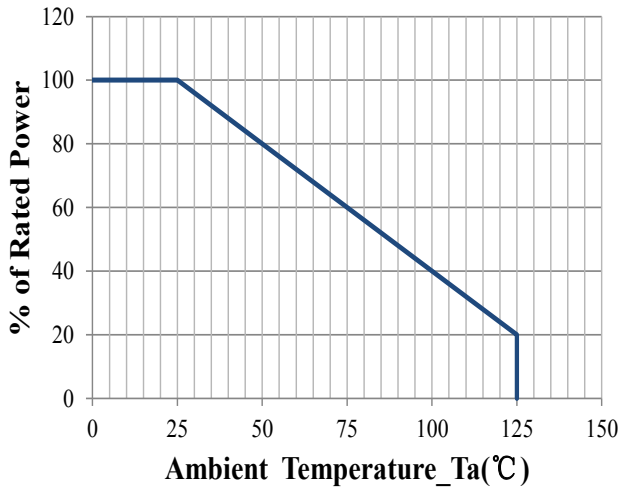
Clamping Voltage vs. Peak Pulse Current



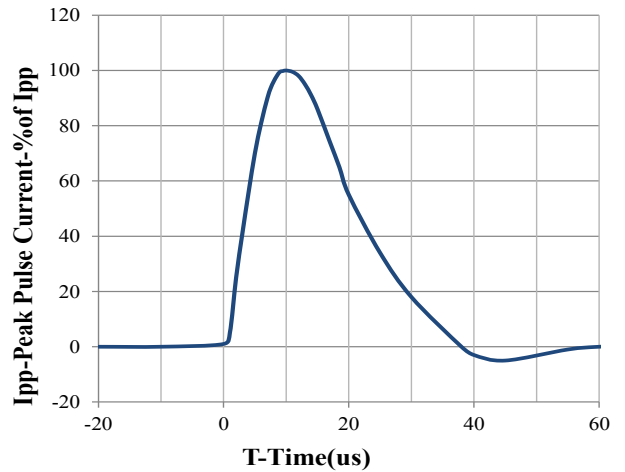
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



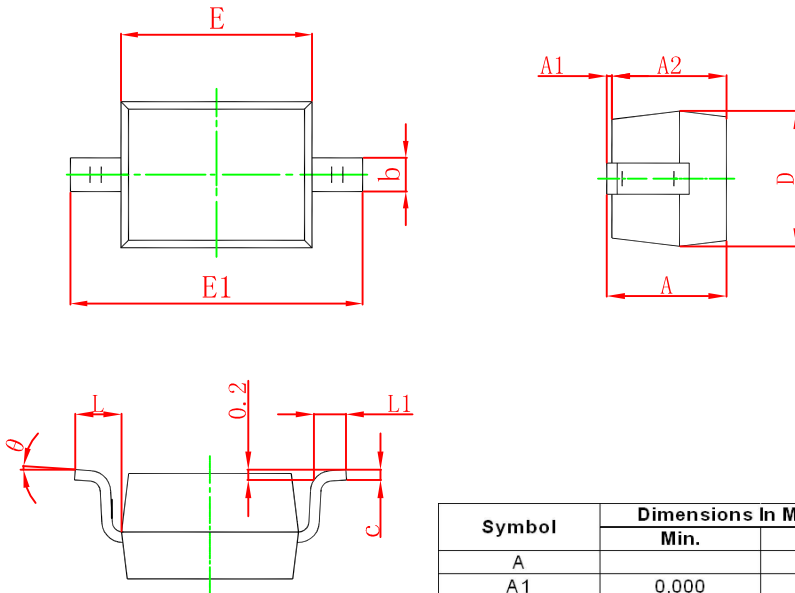
Power Derating Curve



8 X 20us Pulse Waveform

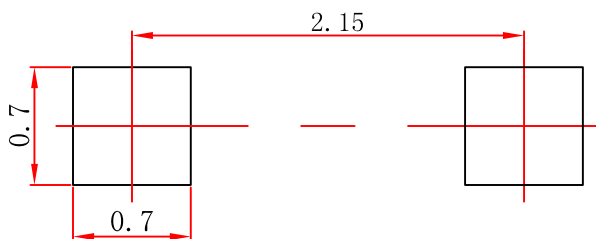
PACKAGE OUTLINE AND PAD LAYOUT INFORMATION

SOD-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.550	2.750	0.100	0.108
L	0.475 REF.		0.019 REF.	
L1	0.250	0.400	0.010	0.016
θ	0°		8°	

SOD-323 Suggested Pad Layout



- Note:**
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.