



CHENMKO ENTERPRISE CO.,LTD

Bi-directional ESD Protection Device

Halogens free devices

TVSN65VCESGP

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 multiplayer 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: 10pF(Typ.)
- Low reverse stand-off voltage: 5V
- Low reverse clamping voltage
- Low leakage current
- Excellent package: 0.6mm×0.3mm×0.31mm
- 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
- PAD
- Digital camera
- Cellular handsets and accessories
- Portable electronics
- LCD TV
- Other electronics equipments communication systems

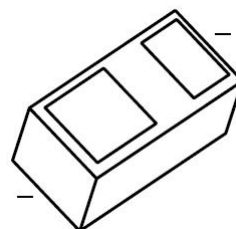
MARKING



H = Device code

Front side

DFN-0603A



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

Parameter	Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	$V_{\text{ESD}}^{(1)}$	± 25	kV
Air Model			
Contact Model		± 25	
JESD22-A114-B ESD Voltage		± 16	
ESD Voltage	Machine Model	± 0.4	
Peak Pulse Power	$P_{\text{PP}}^{(2)}$	50	W
Peak Pulse Current	$I_{\text{PP}}^{(2)}$	5	A
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^{\circ}\text{C}$
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ +150	$^{\circ}\text{C}$

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

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

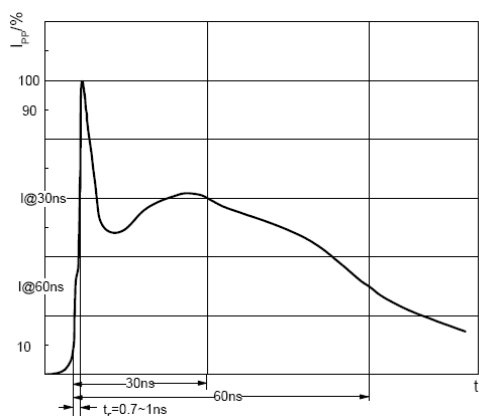
ESD standards compliance

IEC61000-4-2 Standard

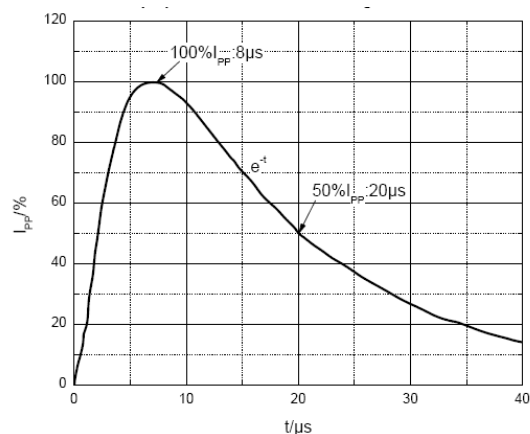
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

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



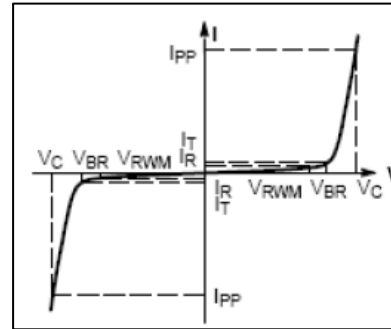
ESD pulse waveform according to IEC61000-4-2



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

ELECTRICAL 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($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand off voltage	$V_{RWM}^{(1)}$				5	V
Reverse leakage current	I_R	$V_{RWM}=5V$			0.1	μA
Breakdown voltage	$V_{(BR)}$	$I_T=1mA$	5.8		8	V
Clamping voltage	$V_C^{(2)}$	$I_{PP}=5A$			10	V
Junction capacitance	C_J	$V_R=0V, f=1MHz$		10		pF

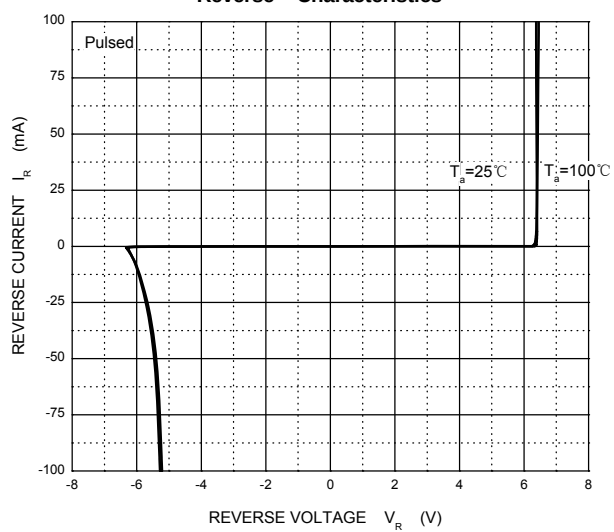
(1).Other voltages available upon request.

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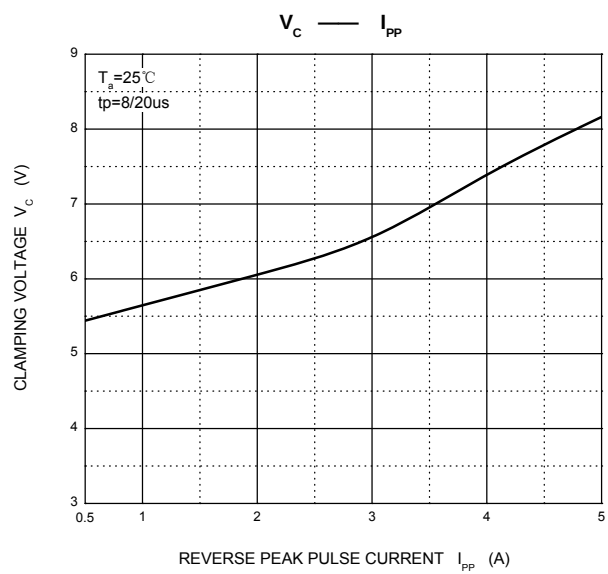
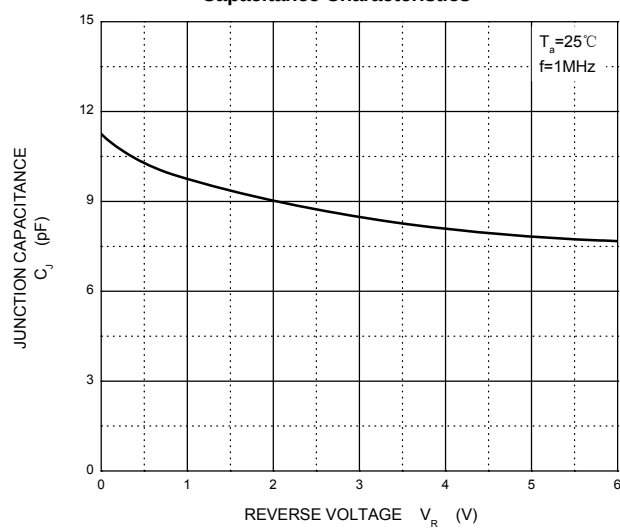
(2).Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5

TYPICAL CHARACTERISTICS

Reverse Characteristics

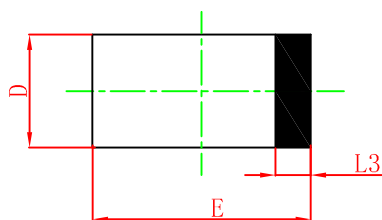


Capacitance Characteristics

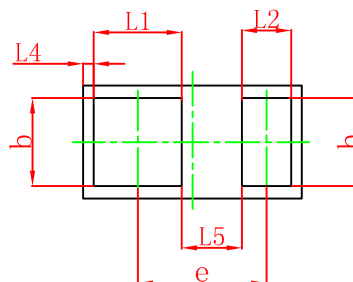


PACKAGE OUTLINE AND PAD LAYOUT INFORMATION

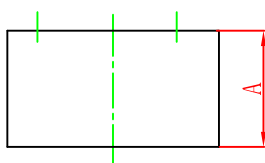
DFN-0603A Package Outline Dimensions(Unit:mm)



TOP VIEW

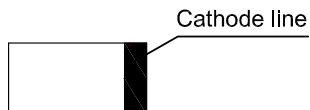


BOTTOM VIEW



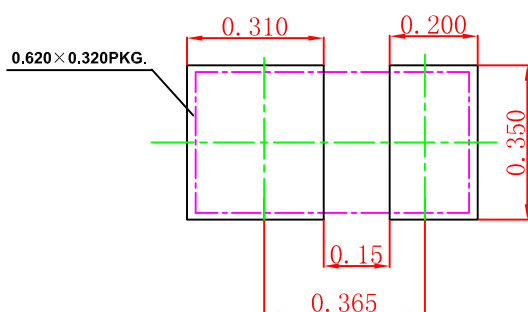
SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.275	0.340	0.011	0.013
D	0.270	0.370	0.011	0.015
E	0.570	0.670	0.022	0.026
b	0.200	0.300	0.008	0.012
e	0.330	0.400	0.013	0.016
L1	0.200	0.300	0.008	0.012
L2	0.100	0.190	0.004	0.007
L3	0.100 REF.		0.004 REF.	
L4	0.030 REF.		0.001 REF.	
L5	0.150 REF.		0.006 REF.	



Note:If it is the product of the same polarity,the cathode line should be removed.

DFN-0603A Suggested Pad Layout



Note:

- 1.Controlling dimension:in millimeters.
- 2.General tolerance:± 0.050mm.
- 3.The pad layout is for reference purposes only.