ESD03V32D

Bi-direction ESD Protection Diode

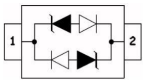
DESCRIPTION

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 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: 0 . 6 pF
Low reverse stand−off voltage: 3 . 3 V
Low reverse clamping voltage
Low leakage current
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



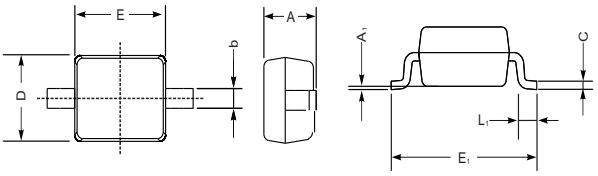
APPLICATIONS

Cellular phones
Audio and video equipment
Handheld-Wireless Systems
PDAs
Ethernet – 10/100/1000 Base
Portable electronics
USB Interface
Other electronics equipments communi-cation systems

Ordering information

Order code	Package	Making
ESD03V32D	SOD-323	CC

SOD323



UNIT		A	C	D	E	E_1	b	L_1	A_1
mm	max	1.1	0.15	1.4	1.8	2.75	0.4	0.45	0.2
	min	0.8	0.08	1.2	1.4	2.55	0.25	0.2	—
mil	max	43	5.9	55	70	108	16	16	8
	min	32	3.1	47	63	100	9.8	7.9	—

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

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

ESD03V32D

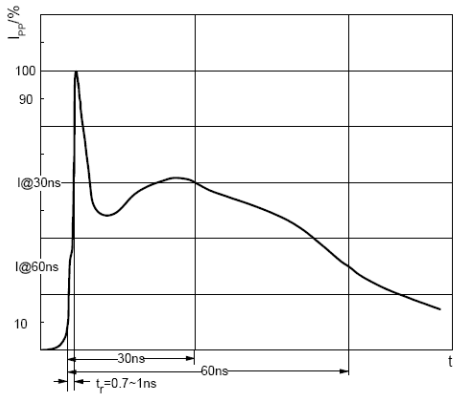
ESD standards compliance

IEC61000-4-2 Standard

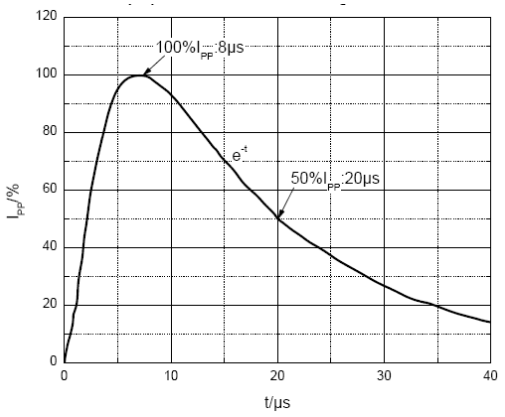
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

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

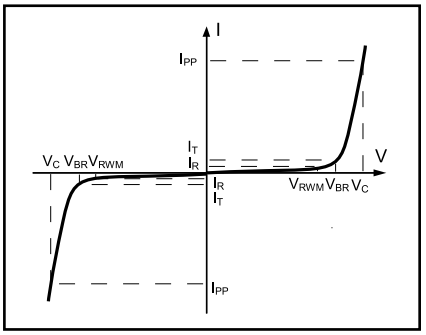


8/20μs pulse waveform according to IEC 61000-4-5

ESD03V32D

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

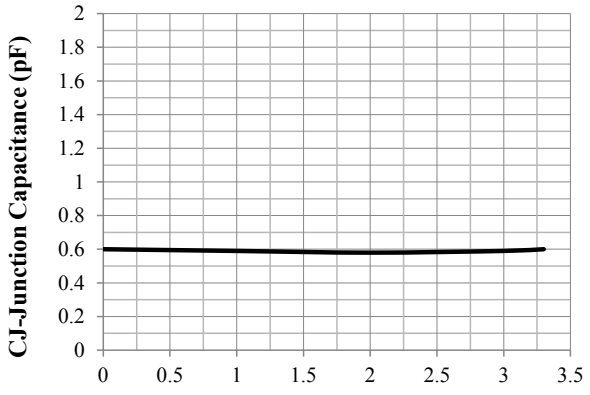


V-I characteristics for a Bi-directional TVS

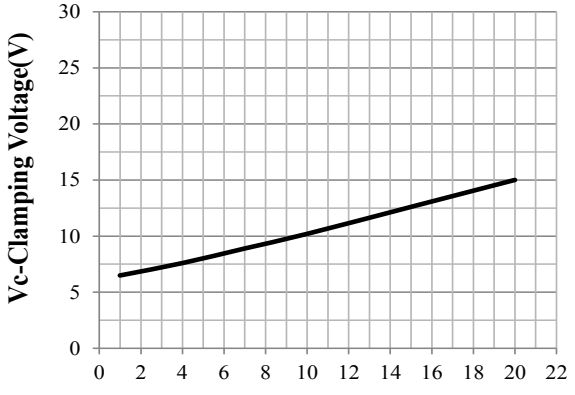
ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise specified)

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

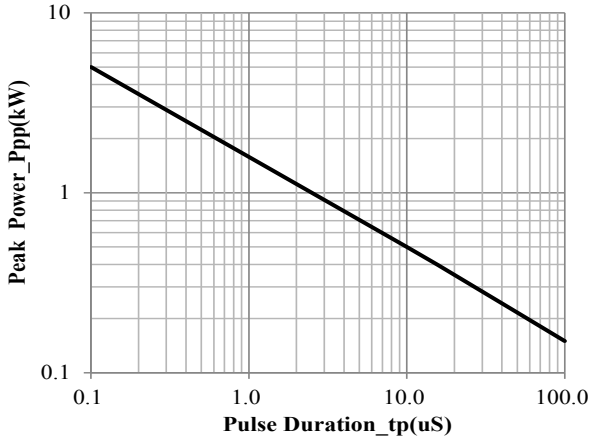
RATING AND CHARACTERISTIC CURVES (ESD03V32D)



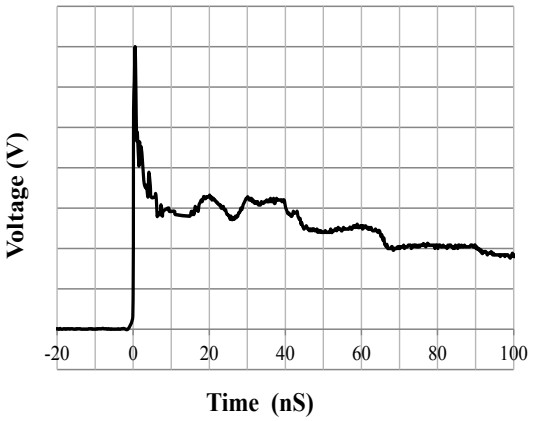
Junction Capacitance vs. Reverse Voltage



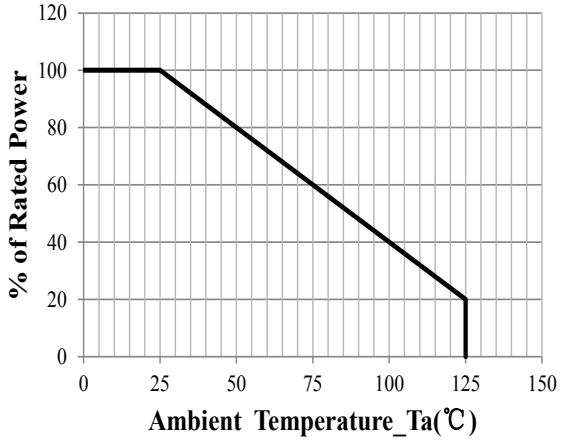
Clamping Voltage vs. Peak Pulse Current



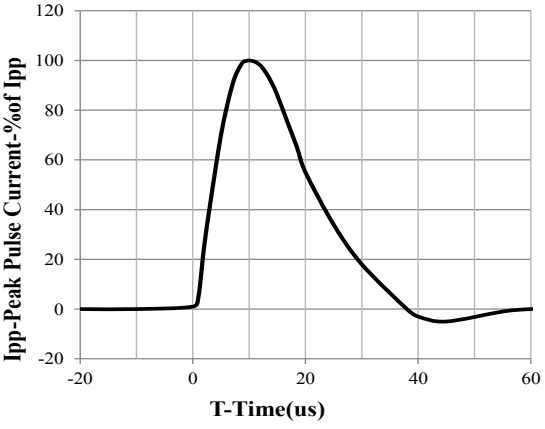
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform



Power Derating Curve



8 X 20us Pulse Waveform