ESD5ZXXV
2.5V~15V 1-Line Uni-directionalTVS Diode

Description

The ESD5ZXXV is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The ESD5ZXXV complies with the IEC 61000-4-2 (ESD) standard with ± 30kV air and ± 30kV contact discharge. It is assembled into an ultra-small SOD-523 lead-free package. The small size and high ESD surge protection make ESD5ZXXV an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Protects one data line
- Ultra low leakage: nA level
- Stand−off Voltage: 2.5 V ~15V
- Ultra low clamping voltage
- Response Time is Typically < 1ns
- Complies with followingstandards:

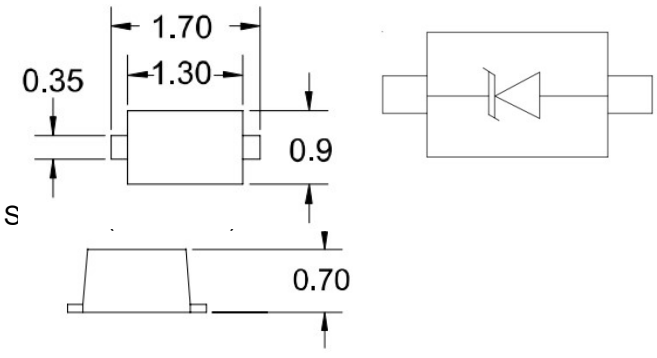
– IEC 61000-4-2 (ESD) immunitytest

Air discharge: ±30kV

Contact discharge: ±30kV

- RoHS Compliant

Dimensions& Symbol（Unit: mm Max）



S

Package DimensionsCircuit and Pin Schematic

MechanicalCharacteristics

- Package: SOD-523
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Markinginformation



Bar denotes cathode

Details marking code reference customer approval list

OrderingInformation

PartNumber	Packaging	ReelSize
ESD5Z2V5	3000/Tape&Reel	7inch
ESD5Z3V3	3000/Tape&Reel	7inch
ESD5Z5V	3000/Tape&Reel	7inch
ESD5Z6V	3000/Tape&Reel	7inch
ESD5Z7V	3000/Tape&Reel	7inch
ESD5Z12V	3000/Tape&Reel	7inch
ESD5Z15V	3000/Tape&Reel	7inch

ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±22	kV
ESD	ESD Voltage per human body model ESD Voltage per machine model	16 400	kV V
P_D	Total Power Dissipation on FR-5 Board (Note 1) @ Ta=25°C	150	mW
T_J, T_{STG}	Junction and Storage Temperature	-55/+150	°C
T_L	Lead Solder Temperature – Maximum (10 Second Duration)	260	°C

These ratings are limiting values above which the serviceability of the diode may be impaired

Note 1. FR-5=1.0x0.75x0.62 in.

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

PART NUMBER	V_{RWM}	I_R	V_B	I_T	V_C		V_C		P_{PK}	C_J
	(V)	(μA)	(V)	(mA)	(V)		(V)		(W)	(pF)
	Max	Max	Min		Max	@A	Max	@A	Max	Max
ESD5Z2V5	2.5	6.0	4.0	1	9.0	5.0	11.5	9.0	104	145
ESD5Z3V3	3.3	0.90	5.0	1	10.0	5.0	14.0	7.5	105	105
ESD5Z5V	5.0	0.08	6.2	1	11.6	5.0	15.0	7.0	105	80
ESD5Z6V	6.0	0.05	6.8	1	13.5	5.0	17.5	6.0	105	70
ESD5Z7V	7.0	0.03	7.5	1	14.0	5.0	18.0	6.0	108	65
ESD5Z12V	12.0	0.03	14.1	1	20.0	1.0	26.0	4.0	104	45
ESD5Z15V	15.0	0.50	16.0	1	23.0	1.0	30.0	4.0	120	28

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 8/20μs Waveform per IEC61000-4-5

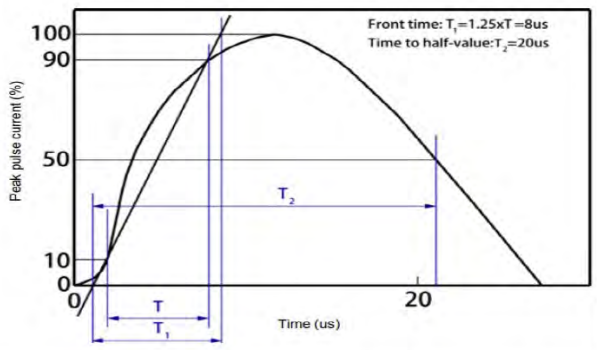


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2)

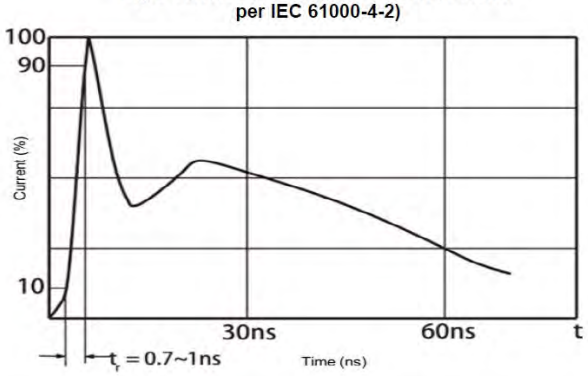


Fig 3 Voltage vs Capacitance

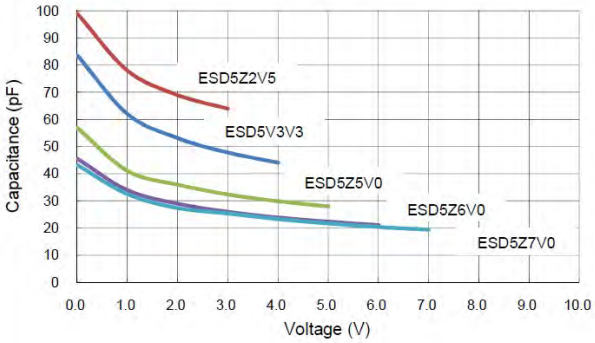


Fig 4 Voltage vs Capacitance

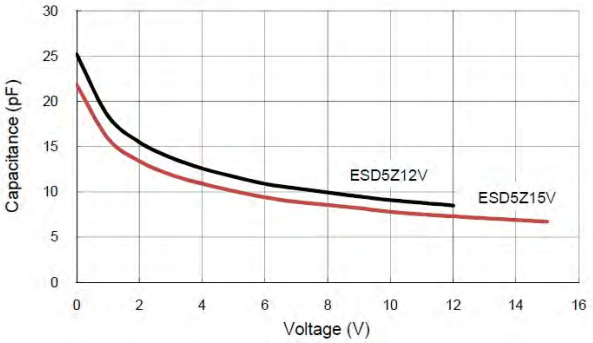


Fig 5 Clamping Voltage vs Peak Pulse Current

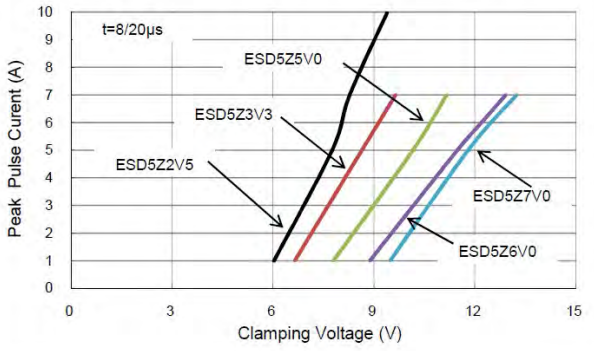
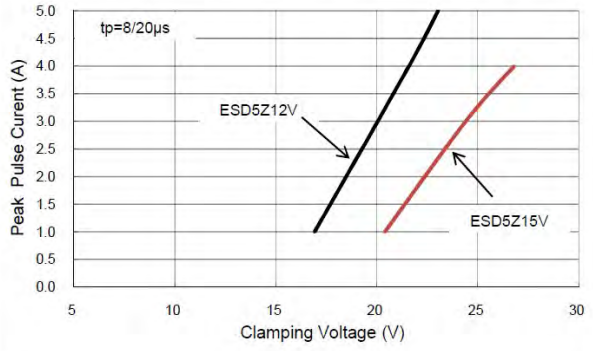
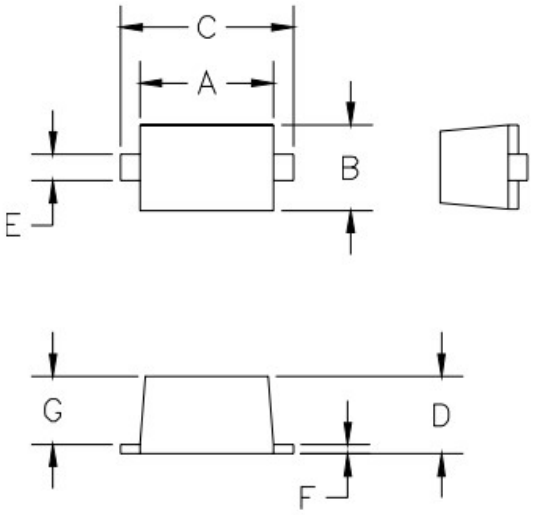


Fig 6 Clamping Voltage vs Peak Pulse Current



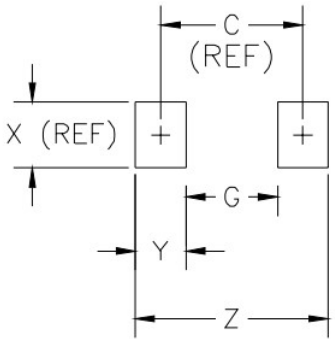
Package mechanical data



DIMENSIONS					
DIMN	INCHES		MM [1]		NOTE
	MIN	MAX	MIN	MAX	
A	.043	.051	1.10	1.30	–
B	.028	.035	0.70	0.90	–
C	.059	.067	1.50	1.70	–
D	.020	.028	0.50	0.70	–
E	.010	.014	0.25	0.35	–
F	.004	.008	0.10	0.20	–
G	.020	.028	0.50	0.70	–

[1] CONTROLLING DIMENSION: MILLIMETERS

Suggested LandPattern



DIMENSIONS					
DIMN	INCHES		MM [1]		NOTE
	MIN	MAX	MIN	MAX	
C	–	.067	–	1.70	REF
G	–	.043	–	1.10	–
X	–	.031	–	0.80	REF
Y	–	.024	–	0.60	–
Z	–	.091	–	2.30	–

[1] CONTROLLING DIMENSION: MILLIMETERS

WPMtek reserves the right to make changes to the product specification and data in this document without notice. WPMtek makes no warranty, representation or guarantee regarding the suitability of its products for any particu lar purpose, nor does WPMtek assume any liability arising from the application or use of any products or circuits, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Any enquiry ,please write to sales@wpmtek.com for futher information.