

## Description

The ESD5Z15V is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensi-tive data and power line. The ESD5Z15V complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  con-tact discharge. It is assembled into an ultra-small SOD-523 lead-free package. The small size and high ESD surge protection make ESD5Z15V an ideal choice to pro-tect cell phone, digital cameras, audio players and many other portable applications.

## Features

- Protects one line
- Ultra low leakage: nA level
- Operating voltage: 15V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 11A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Mechanical Characteristics

- Package: SOD-523
- Case Material: “Green” Molding Compound.
- Lead Finish: Matte Tin
- 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, Desktops, Servers
- Portable Instrumentation
- Printers
- Analog Inputs
- Video equipment
- Communication systems
- Laser Diode Protection

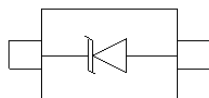
## Marking Information



Bar denotes cathode

Details marking code reference customer approval list

## Dimensions and Pin Configuration



SOD-523 (Top View)

Circuit and Pin Schematic

## Ordering Information

Part Number	Packaging	Reel Size
ESD5V15V	3000/Tape & Reel	7 inch

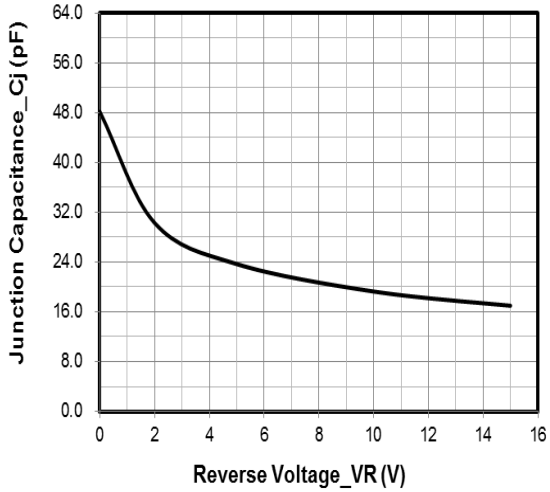
**Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	350	W
Peak Pulse Current (8/20μs)	Ipp	11	A
ESD per IEC 61000-4-2 (Air)	VESD	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

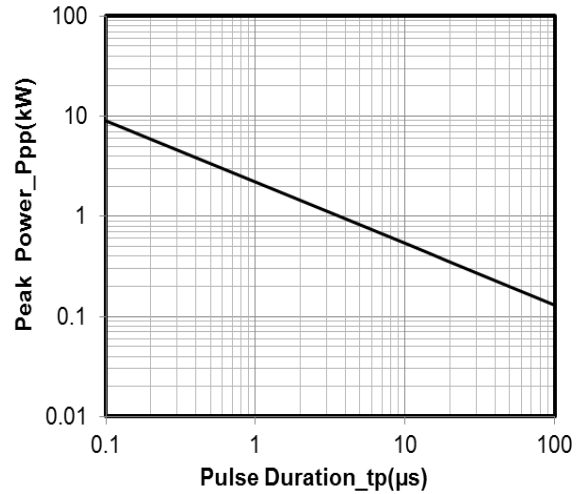
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			15	V	
Breakdown Voltage	VBR	18			V	IT = 1mA
Reverse Leakage Current	IR			0.2	μA	VRWM = 15V
Clamping Voltage	VC			23	V	I <sub>PP</sub> = 1A (8 x 20μs pulse)
Clamping Voltage	VC			32	V	I <sub>PP</sub> = 11A (8 x 20μs pulse)
Junction Capacitance	CJ			80	pF	VR = 0V, f = 1MHz

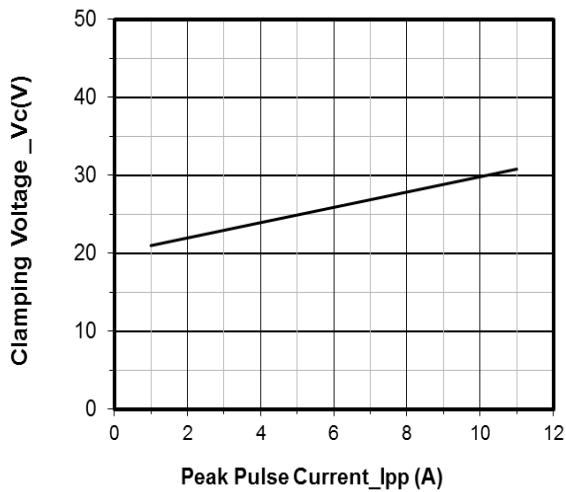
**Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)**



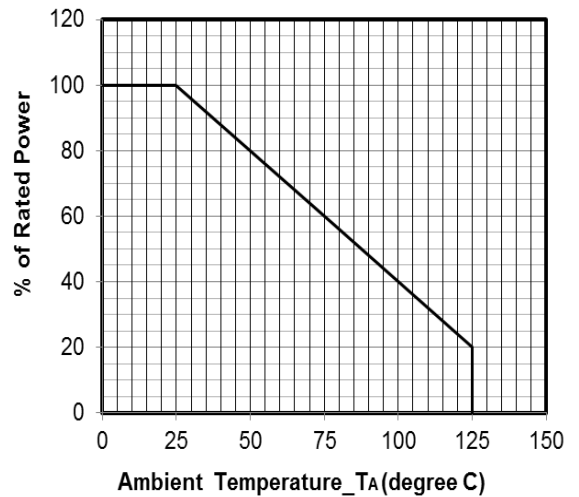
**Junction Capacitance vs. Reverse Voltage**



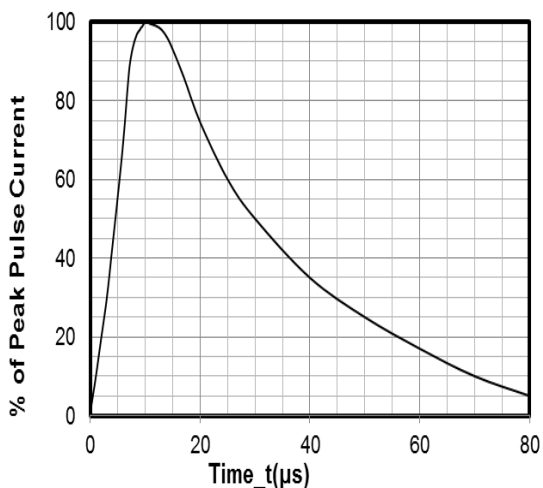
**Peak Pulse Power vs. Pulse Time**



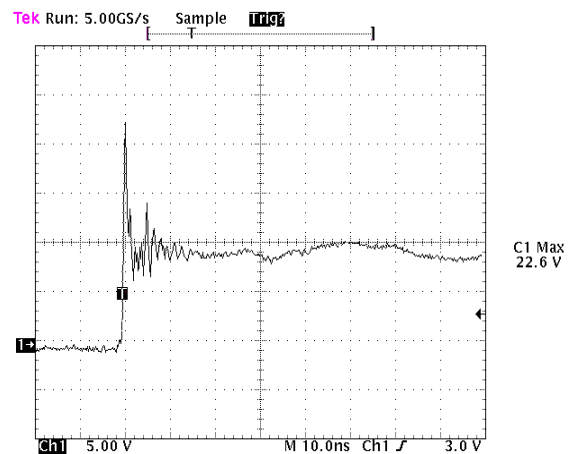
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**

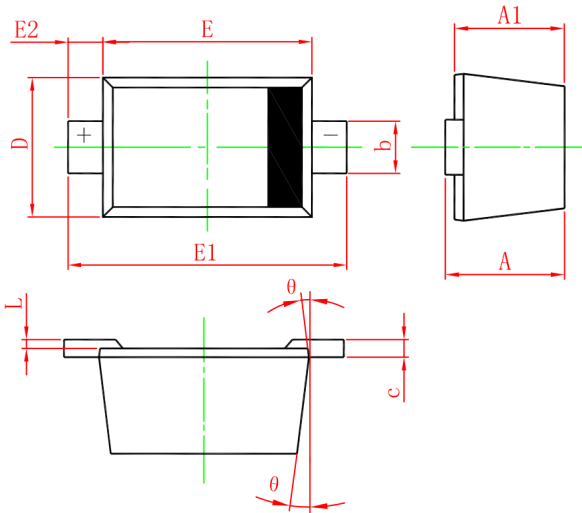


**8 X 20 $\mu\text{s}$  Pulse Waveform**



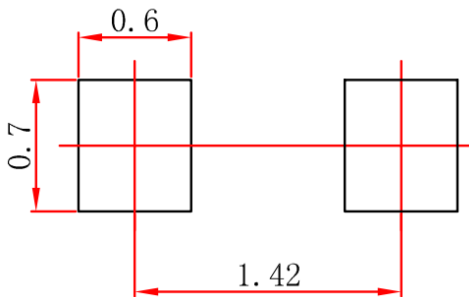
**Note: Data is taken with a 10x attenuator**  
**ESD Clamping Voltage**  
**+8 kV Contact per IEC61000-4-2**

### SOD-523 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	--	0.77	0.020	--	0.031
A1	0.50	--	0.70	0.020	--	0.028
b	0.25	--	0.35	0.010	--	0.014
c	0.08	--	0.15	0.003	--	0.006
D	0.75	--	0.85	0.030	--	0.033
E	1.10	--	1.30	0.043	--	0.051
E1	1.50	--	1.70	0.059		0.067
E2	0.20REF			0.008REF		
L	0.01	--	0.07	0.001	--	0.003
Θ	7° REF			7° REF		

### Suggested Land Pattern



Unit: mm

### Contact Information

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