

12V Uni-direction ESD Protection Diode

Description

The SESD5Z12D is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The SESD5Z12D complies with the IEC 61000-4-2(ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small SOD-523 lead-free package. The small size and high ESD surge protection make SESD5Z12D an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Mechanical Characteristics

- ◆ Package: SOD-523
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

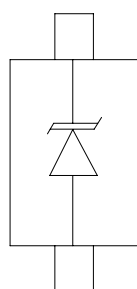
Features

- ◆ Ultra small package: SOD-523
- ◆ Protects one data or power line
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 12V
- ◆ Low clamping voltage
- ◆ 2-Pin leadless package
- ◆ 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) 8A (8/20 μs)
- ◆ ROHS Compliant

Applications

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

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



23 = Device Marking Code
Bar denotes Cathode

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

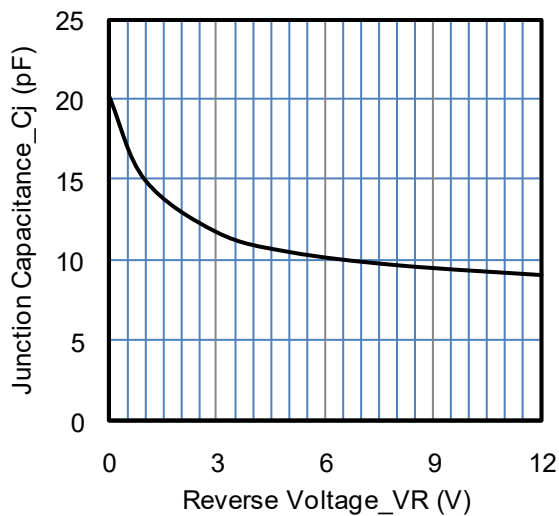
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	200	W
Peak Pulse Current (8/20 μs)	Ipp	8	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

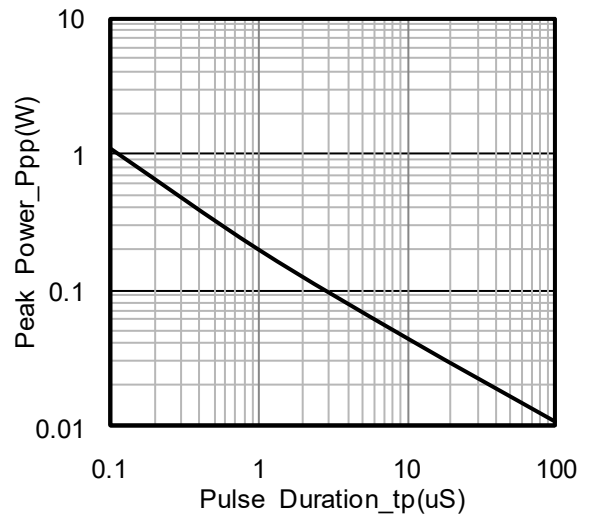
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3		17.8	V	IT = 1mA
Reverse Leakage Current	IR			0.2	μA	VRWM = 12V
Forward Voltage	VF		1.0	1.2	V	IF = 10mA
Clamping Voltage	VC			19	V	Ipp = 1A (8 x 20 μs pulse)
Clamping Voltage	VC			25	V	Ipp = 8A (8 x 20 μs pulse)
Junction Capacitance	CJ			60	pF	VR = 0V, f = 1MHz



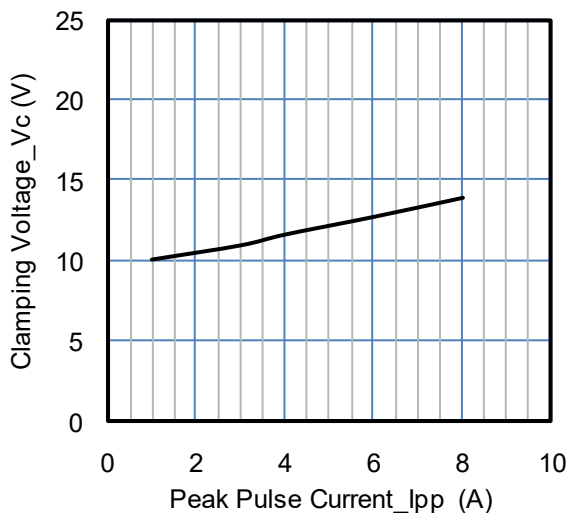
12V Uni-direction ESD Protection Diode



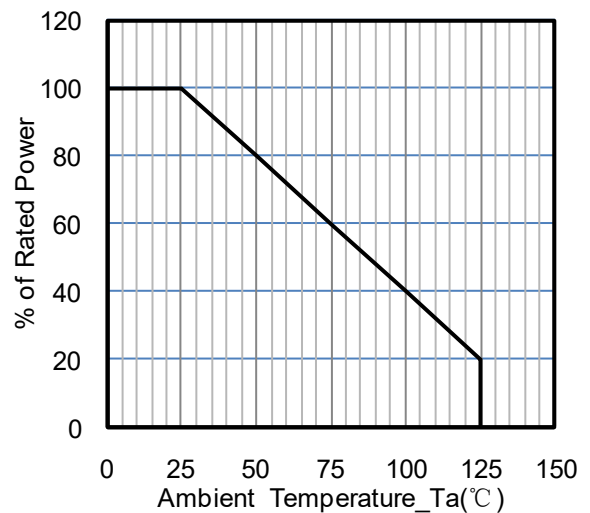
Junction Capacitance vs. Reverse Voltage



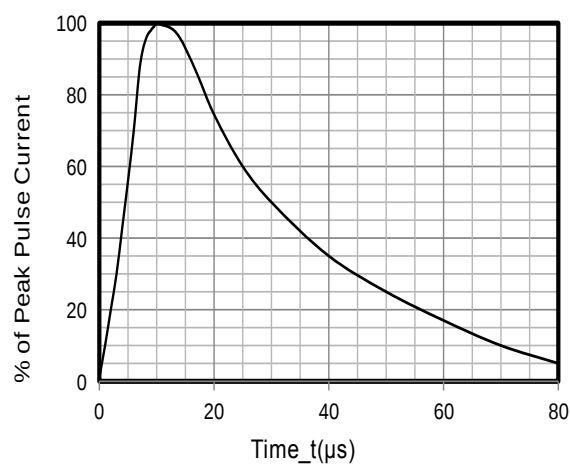
Peak Pulse Power vs. Pulse Time



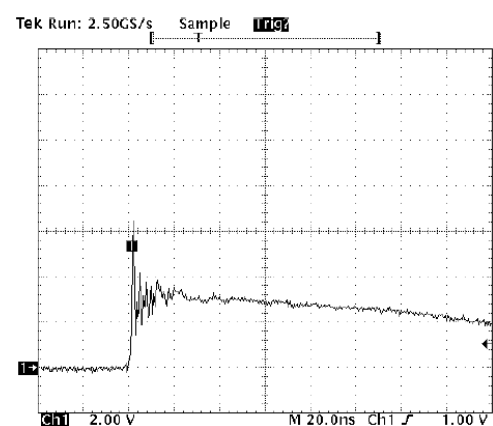
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



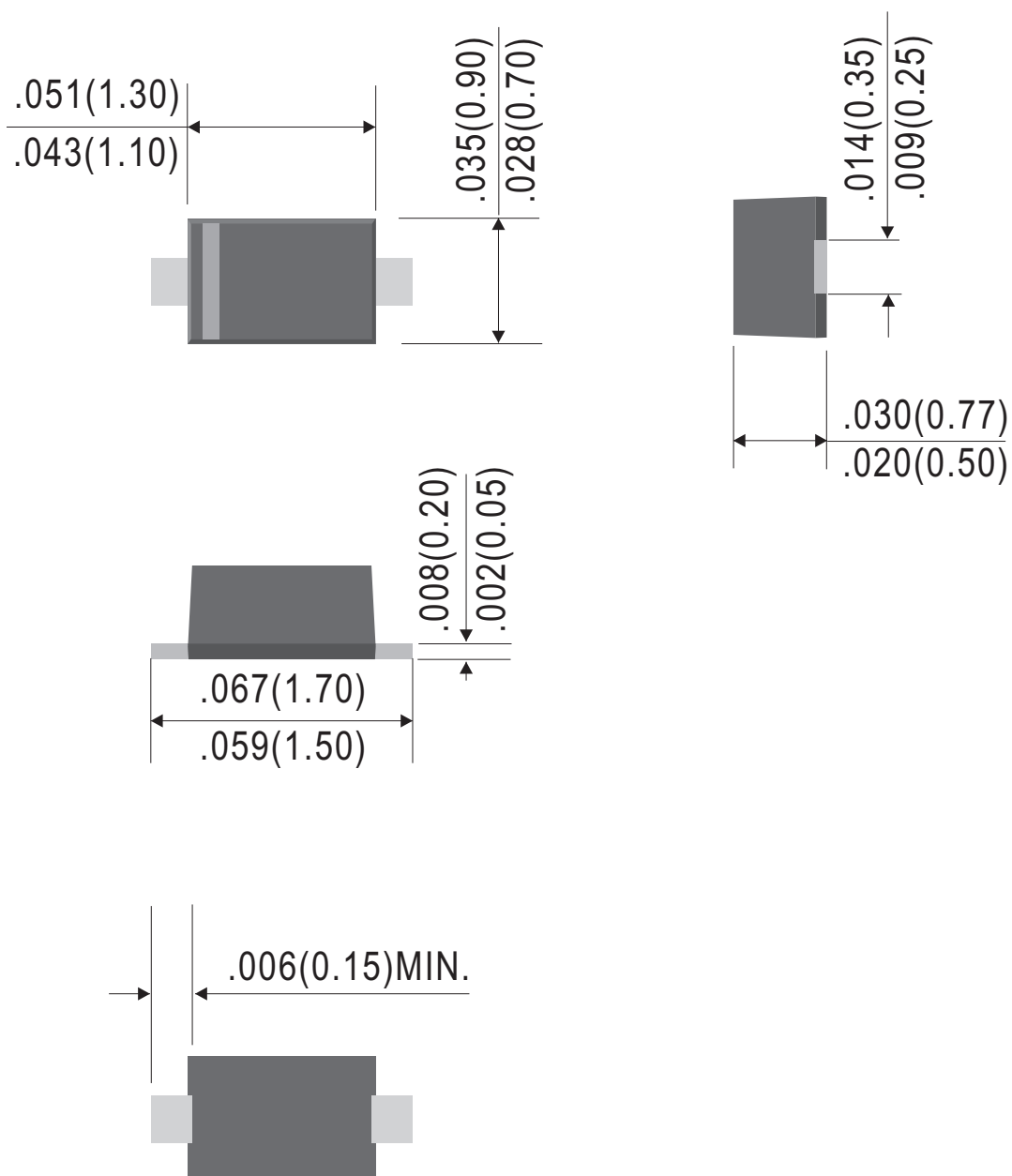
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2



Outline Drawing

SOD-523



Dimensions in inches and (millimeters)

Rev.D

Ordering Information:

Device PN	Packing
SESD5Z12D-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) RoHS product for packing code suffix "G" ; Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

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