

12V 1-Line Uni-directional TVS 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 a small lead-free SOD-523 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.

FEATURES

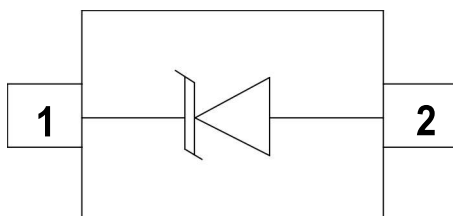
- ◆ Ultra small package: SOD-523
- ◆ Protects one data or power line
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 12V
- ◆ Low clamping voltage
- ◆ 2-Pin leadless package
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC 61000-4-5 (Lightning) 8A (8/20 μs)
- ◆ ROHS Compliant

MECHANICAL CHARACTERISTICS

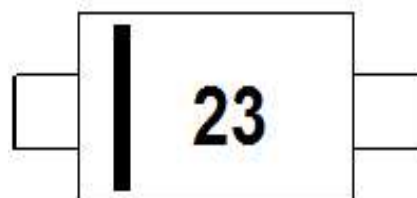
- ◆ Package: SOD-523
- ◆ Case Material: "Green" Molding Compound.
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

APPLICATIONS

- ◆ Cellular Handsets and Accessories
- ◆ Personal Digital Assistants
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Power Supply
- ◆ Keypads, Side Keys, LCD Displays

SCHEMATIC & PIN CONFIGURATION


Circuit and Pin Schematic

MARKING INFORMATION


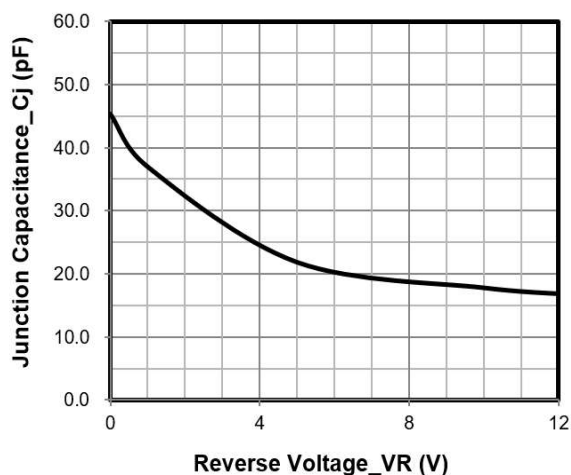
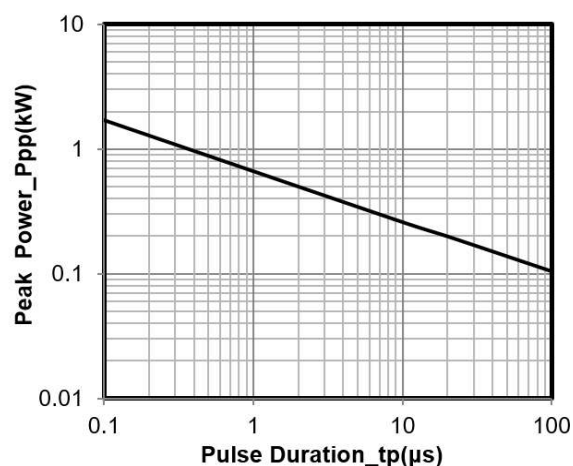
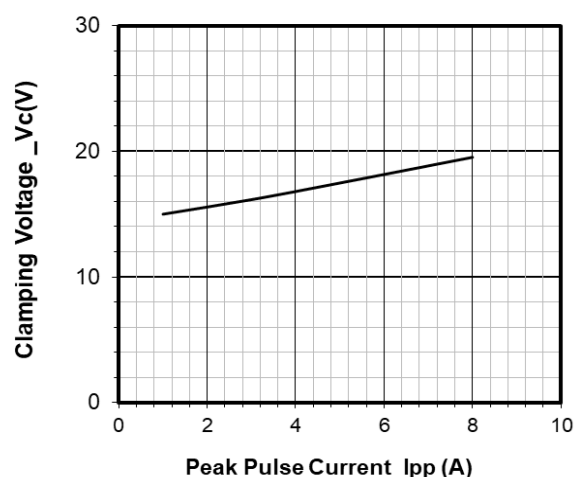
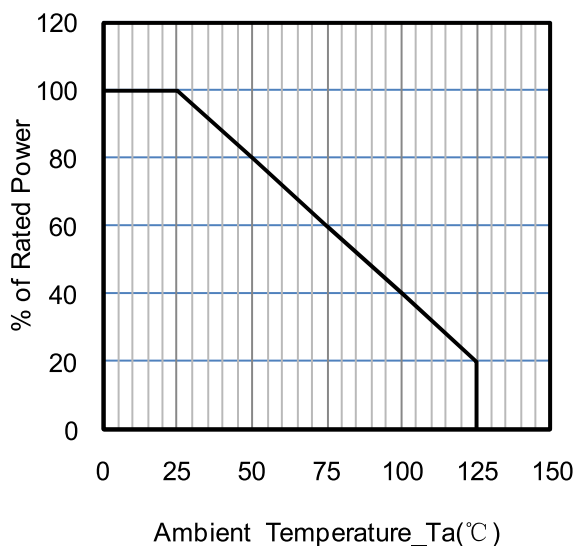
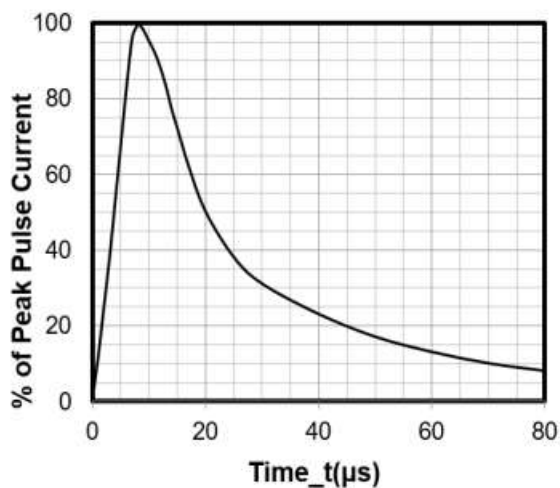
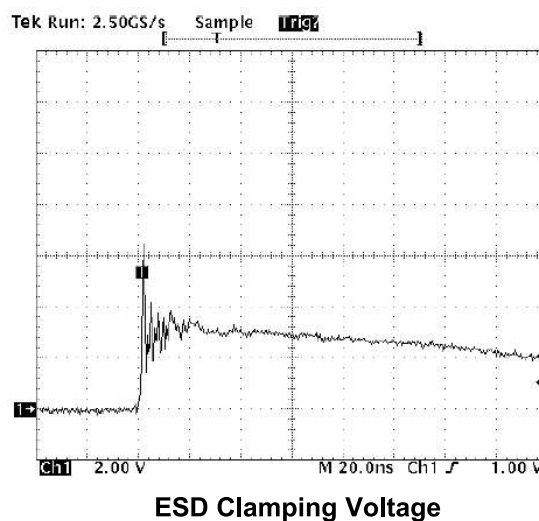
23=Device Marking Code
Bar denotes cathode
Marking (Top View)

12V 1-Line Uni-directional TVS Diode
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	170	W
Peak Pulse Current (8/20 μs)	Ipp	8	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	± 30 ± 30	kV
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)

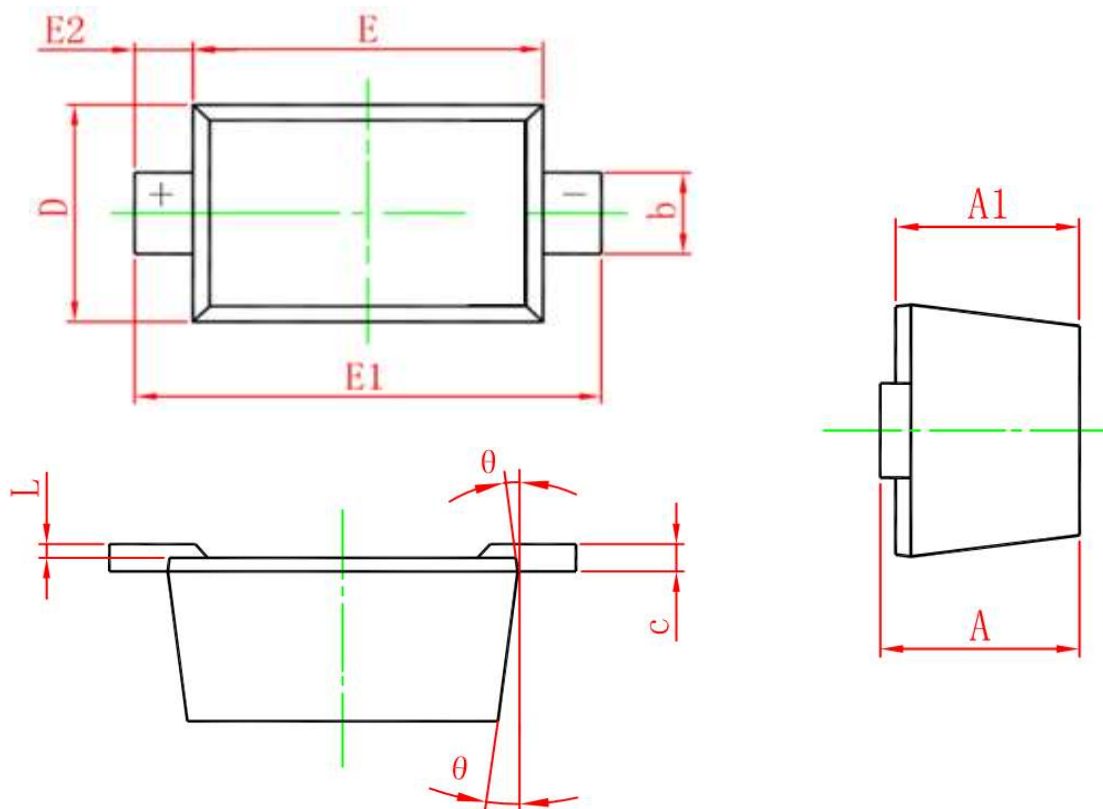
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	Pin 1 to Pin 2
Breakdown Voltage	VBR	13.3			V	Ir = 1mA, Pin 1 to Pin 2
Reverse Leakage Current	IR			0.1	μA	VRWM = 12V, Pin 1 to Pin 2
Forward Voltage	VF		0.8	1.2	V	IF = 10mA, Pin 2 to Pin 1
Clamping Voltage	VC		15	17	V	I _{PP} = 1A (8 x 20 μs pulse), Pin 1 to Pin 2
Clamping Voltage	VC		19	22	V	I _{PP} = 8A (8 x 20 μs pulse), Pin 1 to Pin 2
Junction Capacitance	CJ		45		pF	VR = 0V, f = 1MHz

12V 1-Line Uni-directional TVS Diode
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

Ambient Temperature T_a ($^{\circ}\text{C}$)

8 X 20 μs Pulse Waveform

ESD Clamping Voltage
8 kV Contact per IEC61000-4-2



Outline Drawing

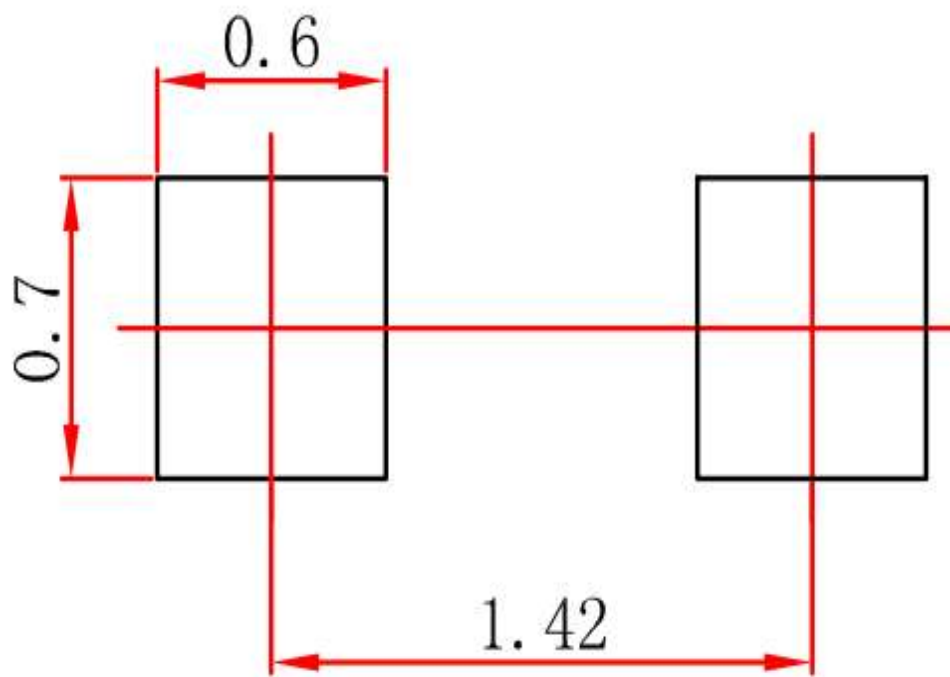
SOD-523(Q)



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		

Rev.A

Outline Drawing

SOD-523(Q)

Unit : mm

Rev.A

12V 1-Line Uni-directional TVS Diode**Ordering Information:**

Device PN	Marking ⁽⁴⁾	Packing
SESD5Z12D-T ⁽¹⁾ H ⁽²⁾ - WS ⁽³⁾	23	Tape&Reel: 3Kpcs/Reel

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

(2) Packing code suffix "G" for RoHS product ; Packing code Suffix "H" for halogen free product.
All materials and products supplied comply with the U.S. Toxic Substances Control Act statement, PBT Chemicals.

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

(4) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device

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