

2-Line Uni-directional ESD Protection Diode

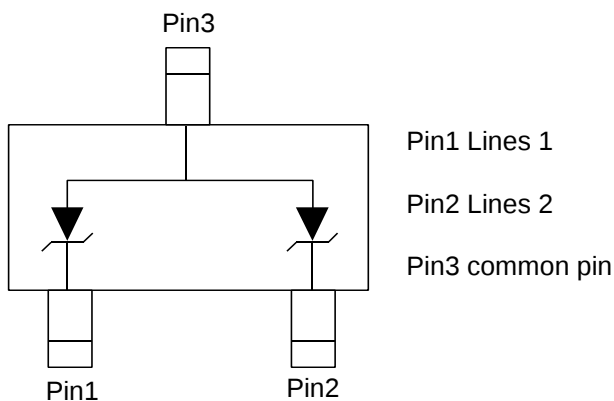
Description

These dual monolithic silicon surge protection diodes are designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment. as computers, printers, business machines, communication systems, medical equipment and other applications. Their Uni-directional double ESD design protects two separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Features

- Uni-directional ESD protection of two line
- Reverse stand-off voltage: 12.0V Max
- Low clamping voltage
- Low leakage current:nA level
- Response time is typically < 1ns
- 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) 15A (8/20 μs)
- RoHS Compliant

Schematic and Pin Configuration



Circuit and Pin Schematic

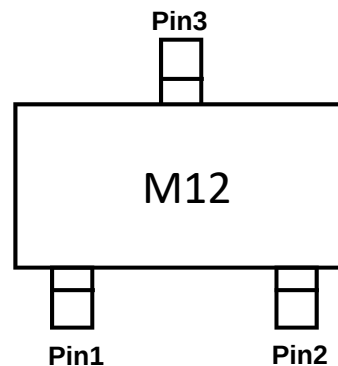
Mechanical Characteristics

- Package: SOT-23
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- We declare that the material of product compliance with RoHS requirements and Halogen Free

Applications

- Computers
- Printers
- Communication systems
- Cellular Handsets and Accessories
- Portable Electronics
- Industrial Controls

Marking Information



M12 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PSM12	3000/Tape & Reel	7 inch

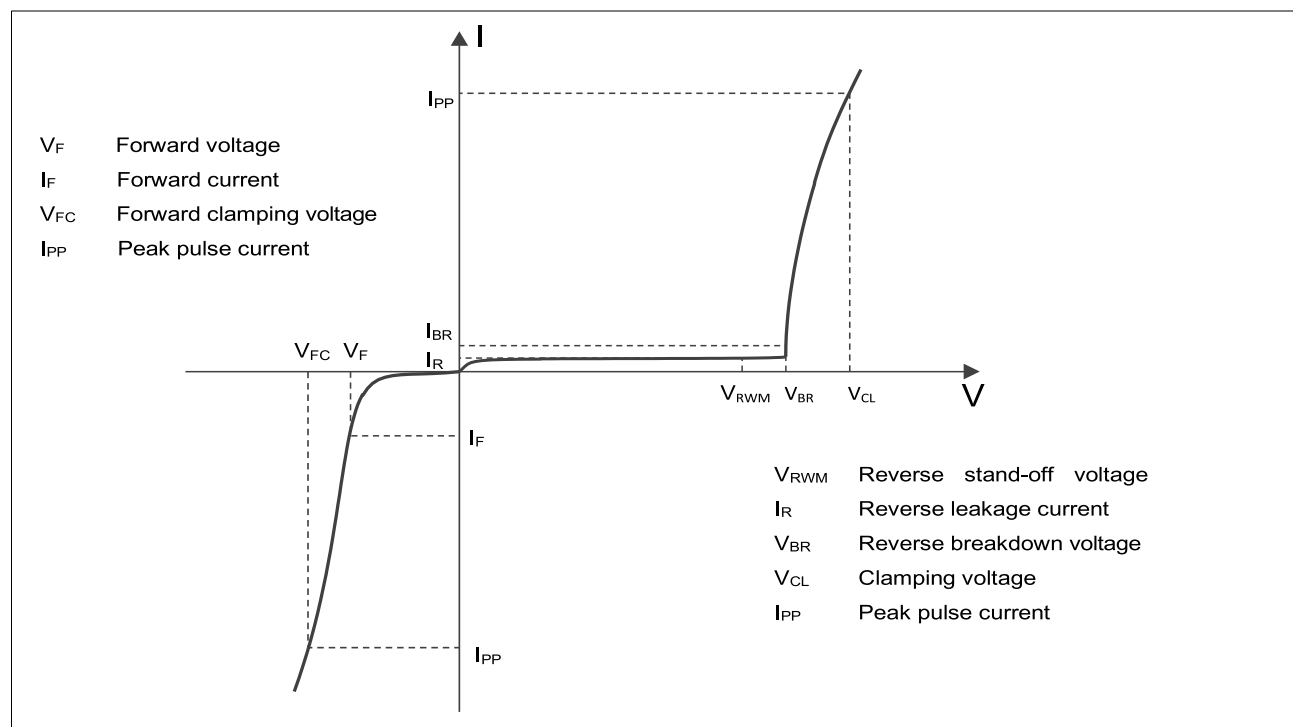
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	300	W
Peak Pulse Current (8/20 μs)	I_{PP}	15	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	kV
Lead temperature	T_L	260	$^{\circ}\text{C}$
Junction Temperature	T_J	125	$^{\circ}\text{C}$
Operating Temperature Range	T_{OP}	$-40 \sim +125$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

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

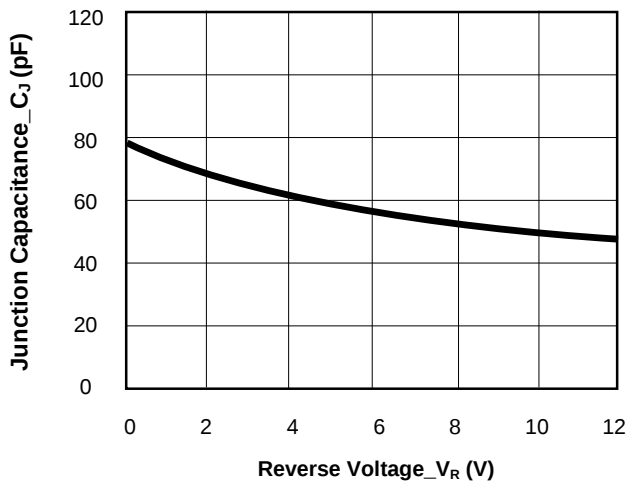
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			12	V	
Reverse Breakdown Voltage	V_{BR}	13.5		16.5	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.1	μA	$V_{RWM} = 12\text{V}$
Clamping Voltage	V_C			19	V	$I_{PP} = 1\text{A}$ (8/20 μs pulse)
Clamping Voltage	V_C			24	V	$I_{PP} = 15\text{A}$ (8/20 μs pulse)
Junction Capacitance	C_J		80	100	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$ (Pin1 or Pin2 to Pin3)
			40	50		$V_R = 0\text{V}$, $f = 1\text{MHz}$ (Pin1 to Pin2 or Pin2 to Pin1)

Electrical characteristics ($T_A = 25^\circ\text{C}$, unless otherwise noted)

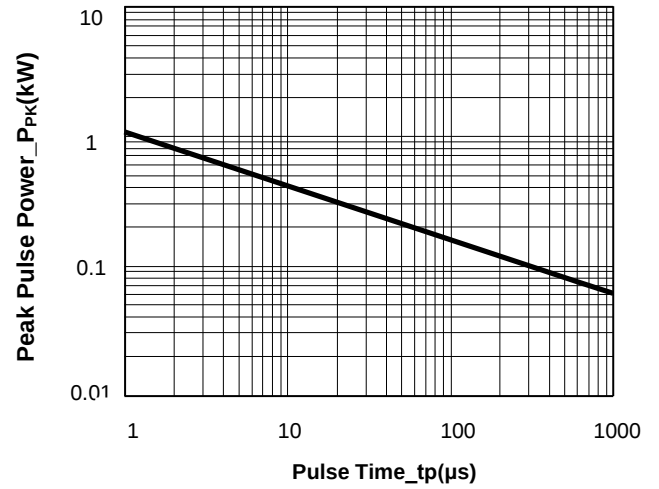


Definitions of electrical characteristics

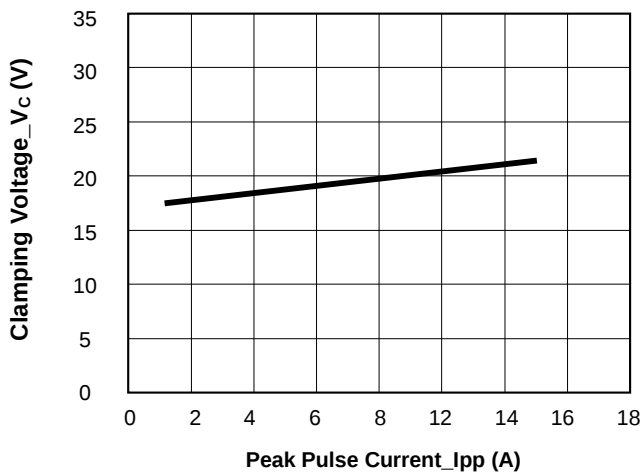
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



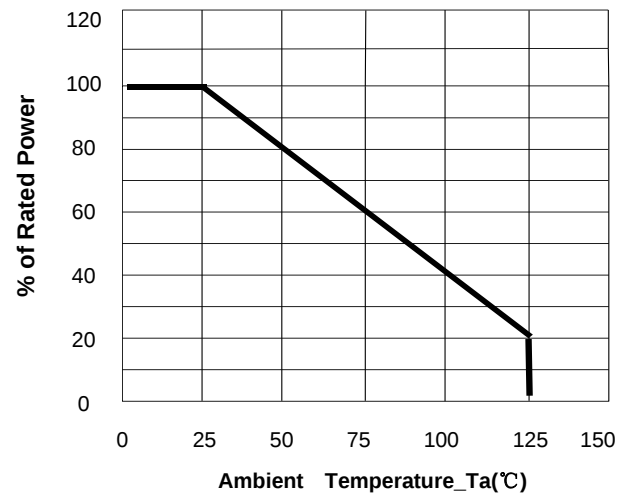
Junction Capacitance vs. Reverse Voltage



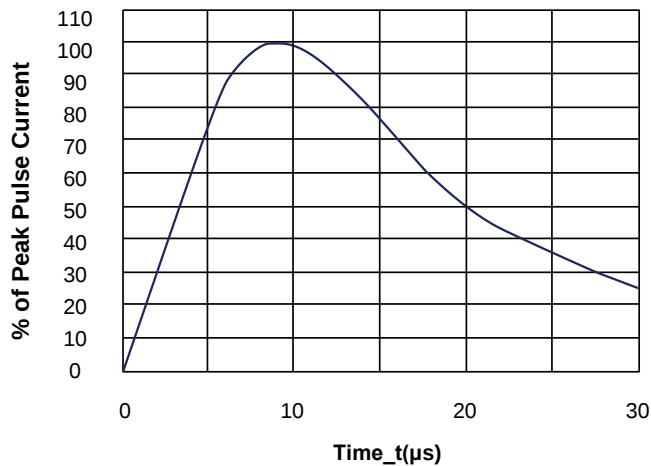
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

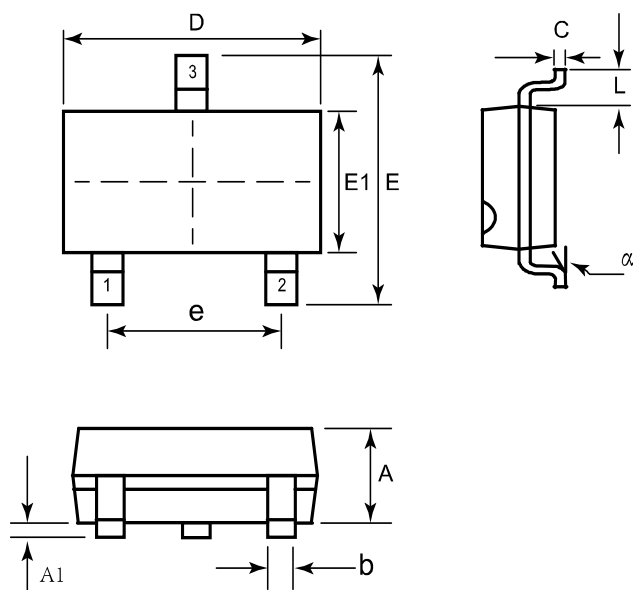


Power Derating Curve



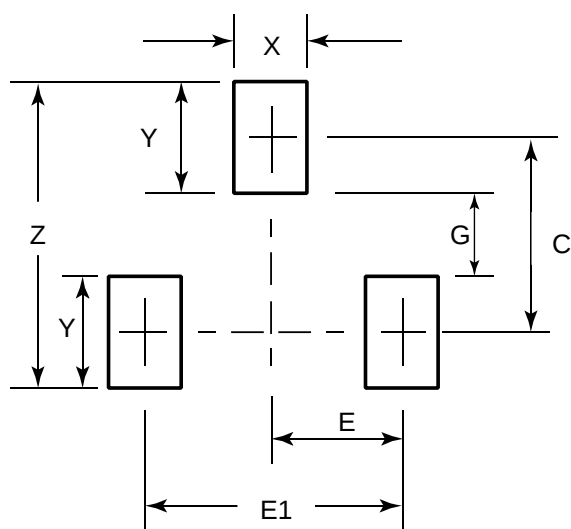
8/20 μs Pulse Waveform

SOT-23 Package Outline Drawing



SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	0.037	0.040	0.88	0.95	1.02
A1	0.000	-	0.004	0.01	-	0.10
b	0.012	-	0.020	0.30	-	0.51
C	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075 BSC			1.90 BSC		
L	0.022 BSC			0.55 BSC		
α	0°		8°	0°		8°

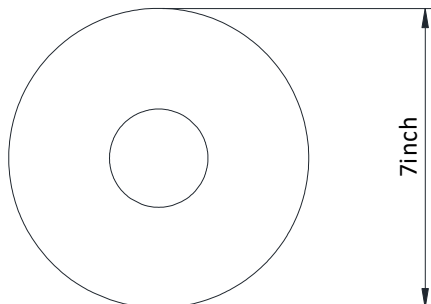
Suggested Land Pattern



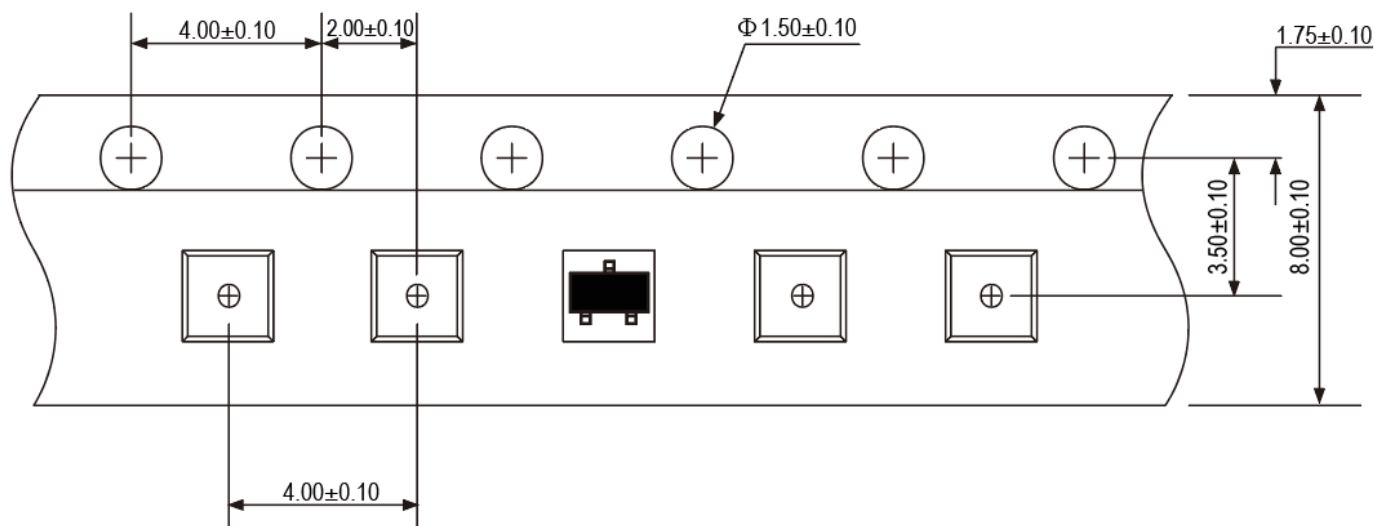
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E	0.95	0.037
E1	1.90	0.075
G	0.80	0.031
X	1.00	0.039
Y	1.40	0.055
Z	3.60	0.141

TAPE AND REEL INFORMATION

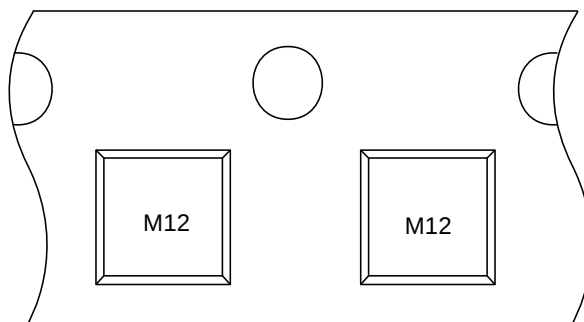
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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