

1-Line Bi-directional TVS Diode

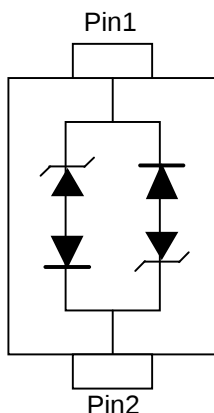
Description

The PESDR1241D3 is a 12V bi-direction 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 high-speed data lines. The PESDR1241D3 has a low capacitance with a typical value at 0.6pF, and complies with the IEC 61000-4-2(ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make PESDR1241D3 an ideal choice to protect cellphone, wireless systems, and communication equipment.

Features

- 400W peak pulse power (8/20 μs)
- Ultra low capacitance: 0.6pF typical
- Ultra low leakage: nA level
- Low operating voltage: 12 V
- 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) 15A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Circuit and Pin Schematic

Mechanical Characteristics

- Package: SOD-323
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- High-speed data lines
- Smart phones
- USB Ports
- Wireless Systems
- Ethernet10/100/1000 Base T

Marking Information



DC = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDR1241D3	3000/Tape & Reel	7 inch

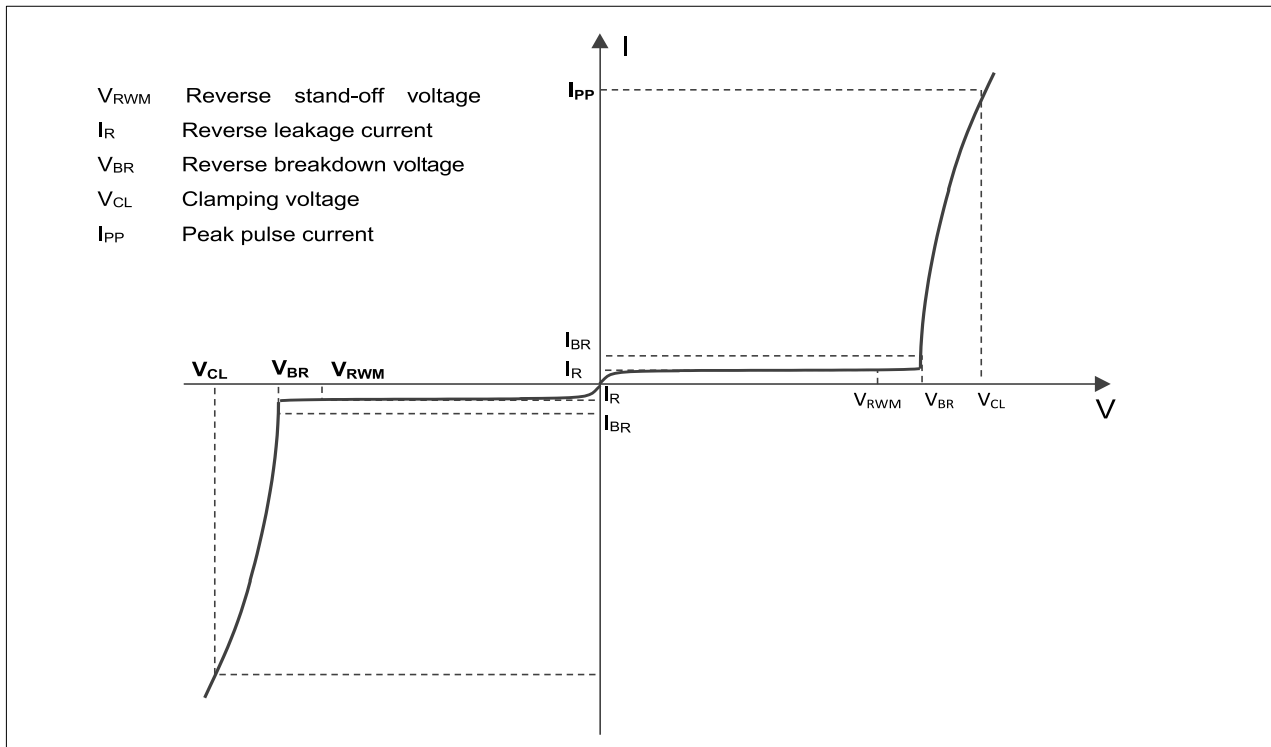
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	400	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)

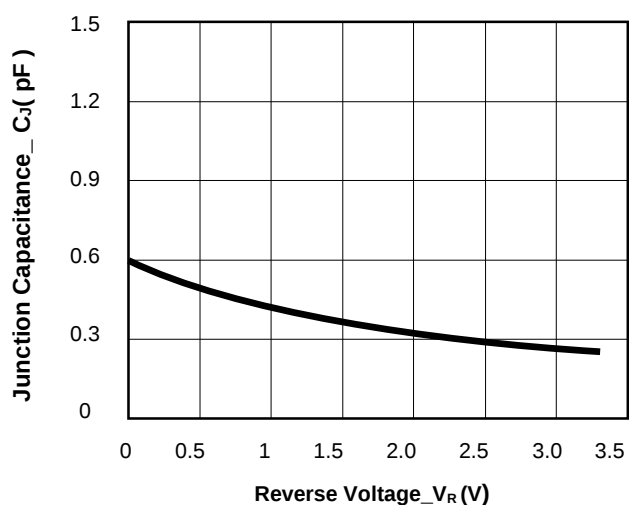
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			12	V	
Reverse Breakdown Voltage	V_{BR}	14	15	16.5	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.2	μA	$V_{RWM} = 12\text{ V}$
Clamping Voltage	V_C		16.5	19	V	$I_{PP} = 1\text{A}$ (8/20 μs pulse)
Clamping Voltage	V_C		26	30	V	$I_{PP} = 15\text{A}$ (8/20 μs pulse)
Junction Capacitance	C_J		0.6	1.0	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

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

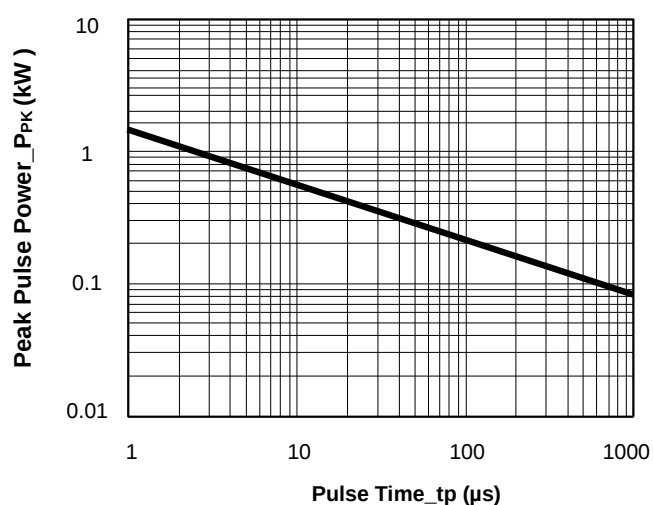


Definitions of electrical characteristics

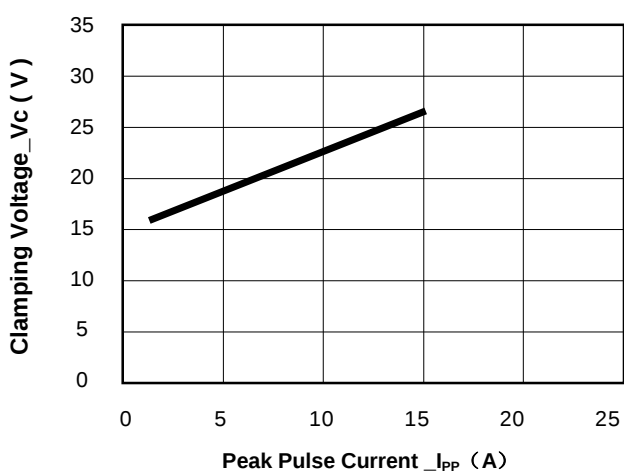
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



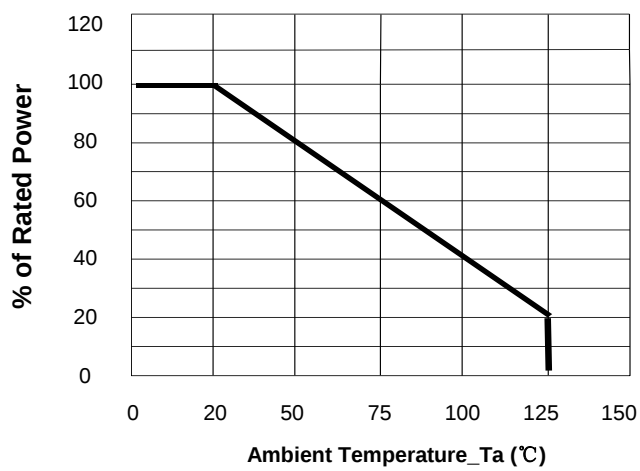
Junction Capacitance vs. Reverse Voltage



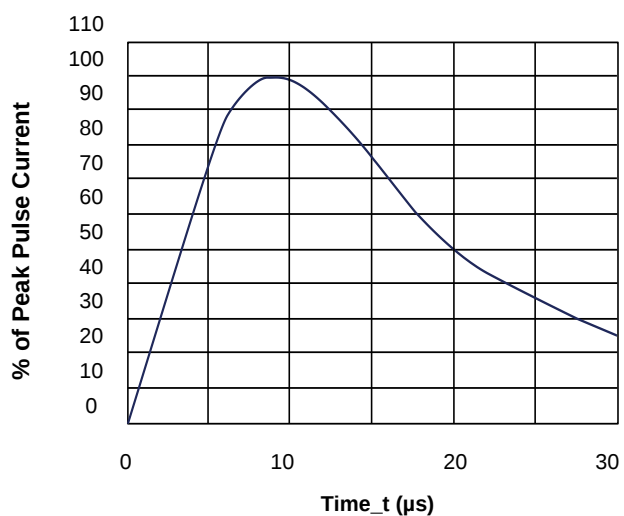
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

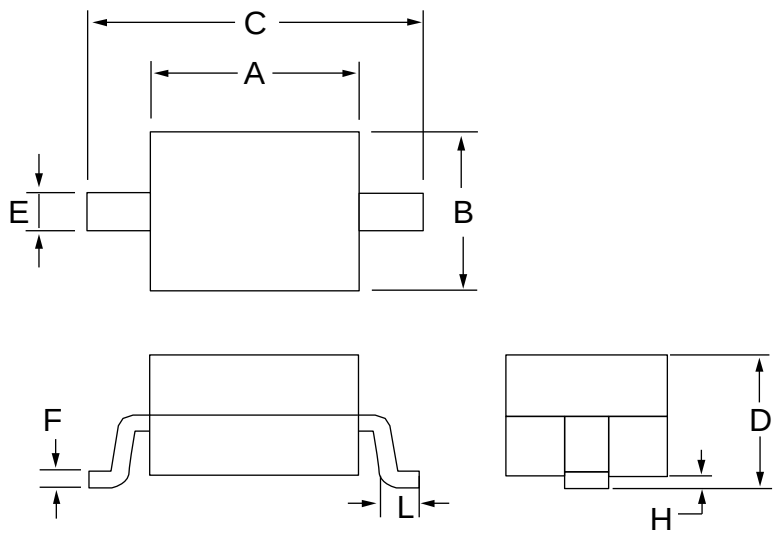


Power Derating Curve



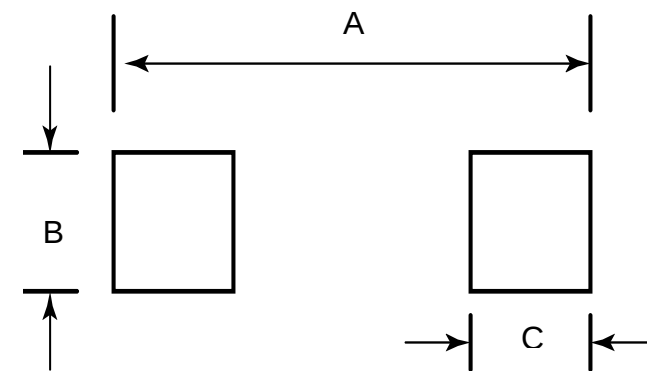
8/20 μs Pulse Waveform

SOD-323 Package Outline Drawing



SYM	DIMENSIONS				
	MILLIMETERS			INCHES	
	MIN	NOM	MAX	MIN	MAX
A	1.50	1.65	1.80	0.060	0.071
B	1.20	1.30	1.40	0.045	0.054
C	2.30	2.50	2.70	0.090	0.107
D	-		1.10	-	0.043
E	0.30		0.40	0.012	0.016
F	0.10		0.25	0.004	0.010
L	0.20		0.40	0.008	0.016
H	-		0.10	-	0.004

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031

Reel Dimensions



User Direction of Feed

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