

1-Line 3.0V Bi-directional TVS Diode

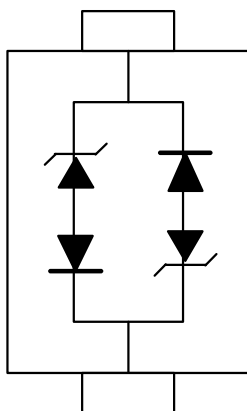
Description

The PESDR0361D3A is a 3.0V bi-direction TVS diode, 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 PESDR0361D3A has a low capacitance with a typical value at 1.5pF, and complies with the IEC 61000-4-2(ESD) standard with ±30kV air and ±30kV contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD protection make PESDR0361D3A an ideal choice to protect cellphone, wireless systems, and communication equipment.

Features

- 260W peak pulse power (8/20µs)
- Ultra low capacitance: 1.5pF typical
- Ultra low leakage: nA level
- Low operating voltage: 3.0 V
- Low clamping voltage
- Protects one power line or data line
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ±30kV
 - Contact discharge: ±30kV
 - IEC 61000-4-4 (EFT) 40A (5/50ns)
 - IEC 61000-4-5 (Lightning) 13A (8/20µs)
- RoHS Compliant

Dimensions and Pin Configuration



Circuit and Pin Schematic

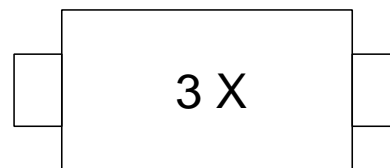
Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Marking Information: See Below

Applications

- Ethernet - 10/100/1000 Base T
- Cellular Phones
- Handheld - Wireless Systems
- Personal Digital Assistant (PDA)
- USB Interface

Marking Information



3X = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDR0361D3A	3000/Tape &Reel	7 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	325	W
Peak Pulse Current (8/20μs)	I _{PP}	13	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	kV
Operating Temperature Range	T _{OP}	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

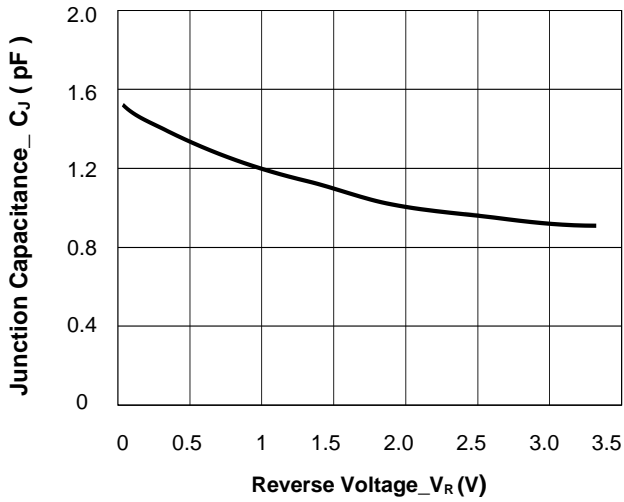
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			3.0	V	
Punch-through Voltage	V _{PT}	4.0			V	I _{PT} =1μA
Snap-Back Voltage	V _{SB}	3.0			V	I _T = 50mA
Reverse Leakage Current	I _R			200	nA	V _{RWM} =3.3 V
Clamping Voltage	V _C		20	25	V	I _{PP} = 13A (8/20μs pulse)
Dynamic Resistance ^{1,2}	R _{DYN}		0.7		Ω	TLP=0.2/100ns
ESD Clamping Voltage ¹	V _C		9.7		V	I _{PP} = 4A (tp = 0.2/100ns)
ESD Clamping Voltage ¹	V _C		18.0		V	I _{PP} =16A (tp = 0.2/100ns)
Junction Capacitance	C _J		1.5	2.0	pF	V _R = 0V, f = 1MHz

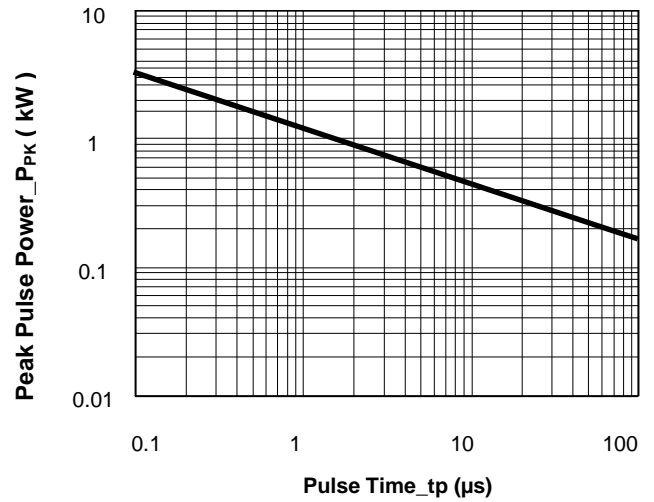
Notes: 1、 TLP Setting: tp=100ns, tr=0.2ns, I_{TLP} and V_{TLP} sample window: t1=70ns to t2=90ns.

2、 Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

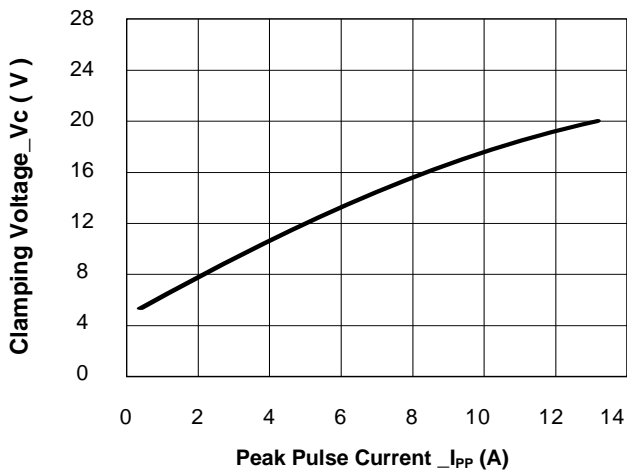
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



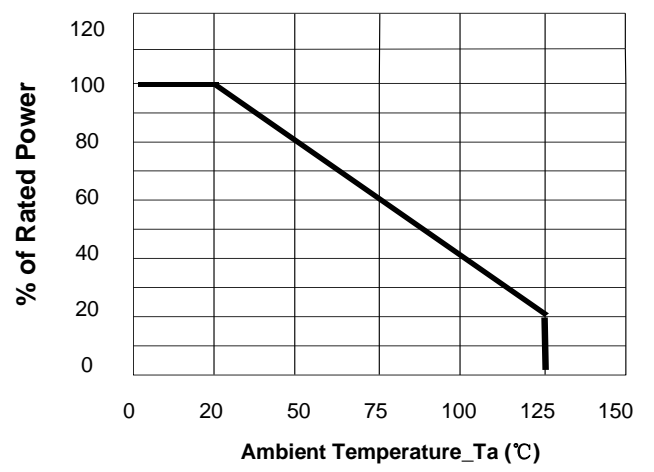
Junction Capacitance vs. Reverse Voltage



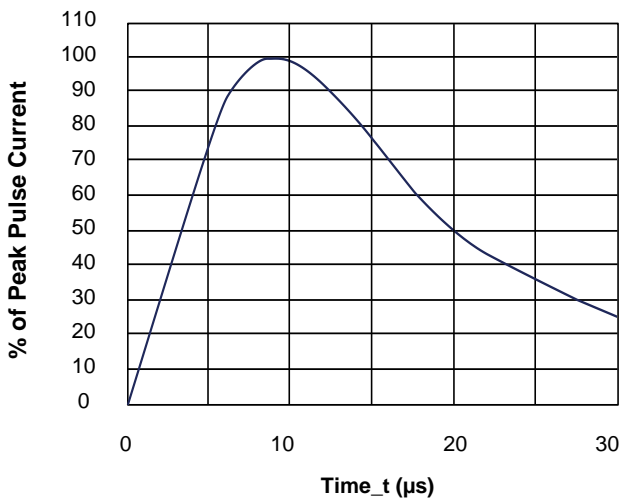
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

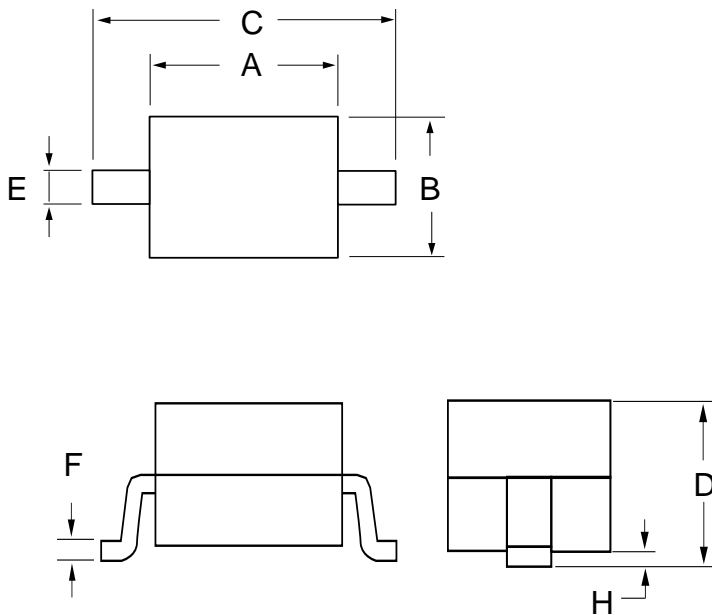


Power Derating Curve



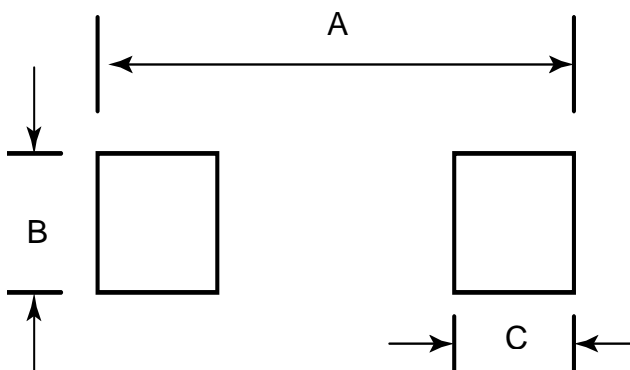
8/20μs Pulse Waveform

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
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