

2-Line Ultra Low Capacitance Uni-directional TVS Diode

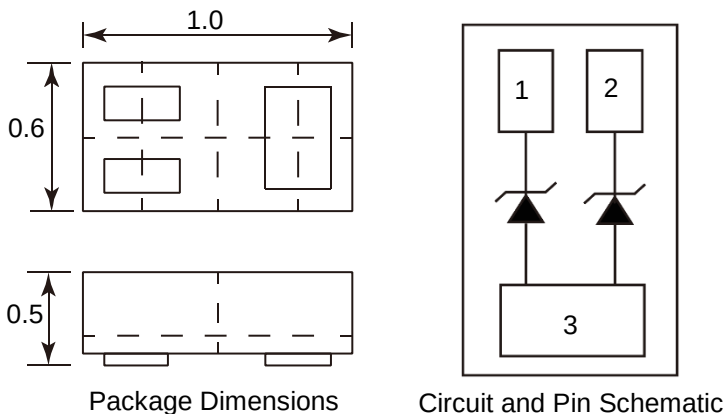
Description

The PESDR0532P1 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 high-speed data lines. The PESDR0532P1 has an ultra-low capacitance with a typical value at 0.6pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size, ultra-low capacitance and high ESD surge protection make PESDR0532P1 an ideal choice to protect cell phone, digital visual interfaces and other high speed ports.

Features

- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.6pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- 3-pin leadless package
- Up to 2-line protects
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 20\text{kV}$
Contact discharge: $\pm 20\text{kV}$
 - IEC 61000-4-5 (Lightning) 3.5A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



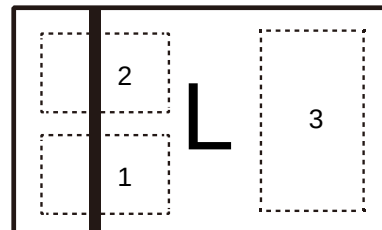
Mechanical Characteristics

- Package: DFN1006-3 (1.0x0.6x0.5mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB 2.0 and 3.0 Ports
- HDMI 1.3 and 1.4
- Digital Video Interface (DVI)
- PCI Express and Serial SATA Ports
- Notebook Computer
- IEEE 1394

Marking Information



L = Device Marking Code
Bar denotes cathode

Ordering Information

Part Number	Packaging	Reel Size
PESDR0532P1	10000/Tape & Reel	7 inch

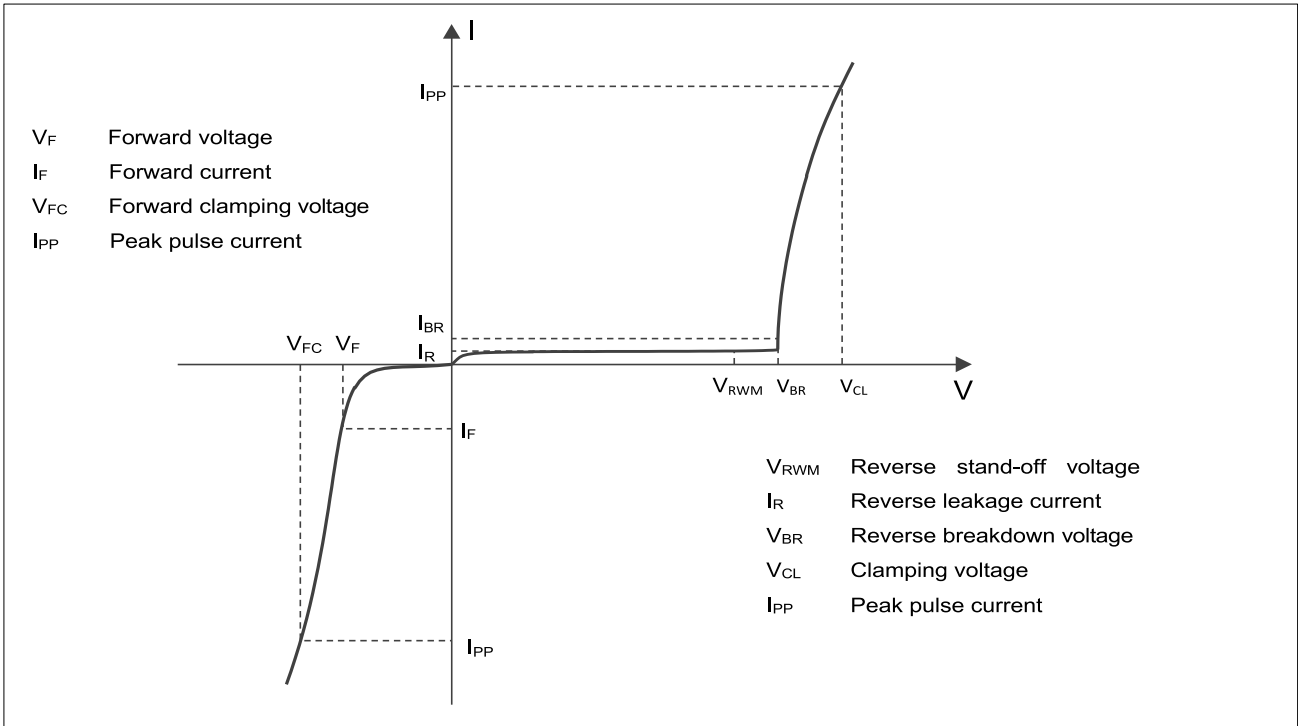
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	53	W
Peak Pulse Current (8/20 μs)	I_{PP}	3.5	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 20	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
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)

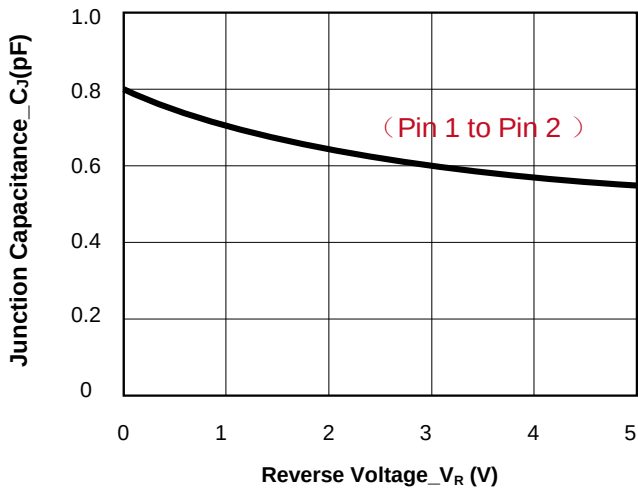
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5.0	V	Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Breakdown Voltage	V_{BR}	6.0	8.5		V	$I_T=1\text{mA}$, Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Reverse Leakage Current	I_R		0.1	0.5	μA	$V_{RWM}=5\text{V}$, Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Clamping Voltage	V_C			10	V	$I_{PP}=1\text{A}$ (8/20 μs pulse), Pin 1 or Pin 2 to Pin 3
Clamping Voltage	V_C			15	V	$I_{PP}=3.5\text{A}$ (8/20 μs pulse), Pin 1 or Pin 2 to Pin 3
Junction Capacitance	C_J		0.25	0.4	pF	$V_R=0\text{V}$, $f=1\text{MHz}$, Pin 1 to Pin 2
Junction Capacitance	C_J		0.5	0.8	pF	$V_R=0\text{V}$, $f=1\text{MHz}$, Pin 1 or Pin 2 to Pin 3

Electrical characteristics (T_A = 25°C, unless otherwise noted)

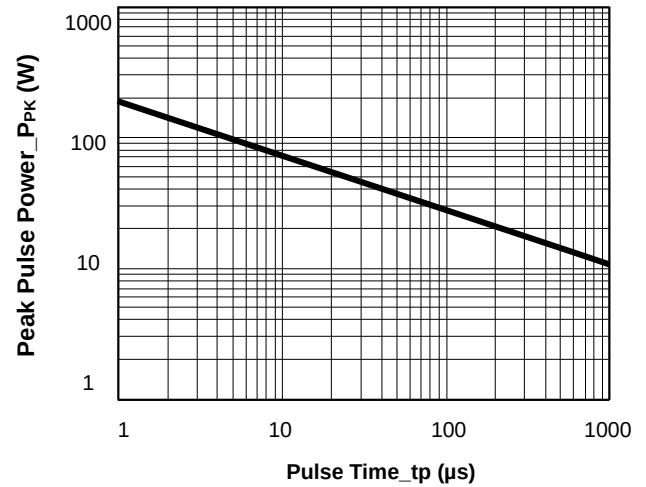


Definitions of electrical characteristics

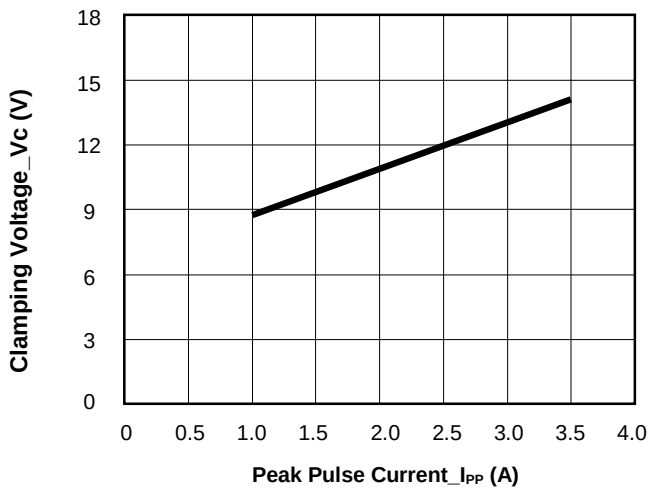
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



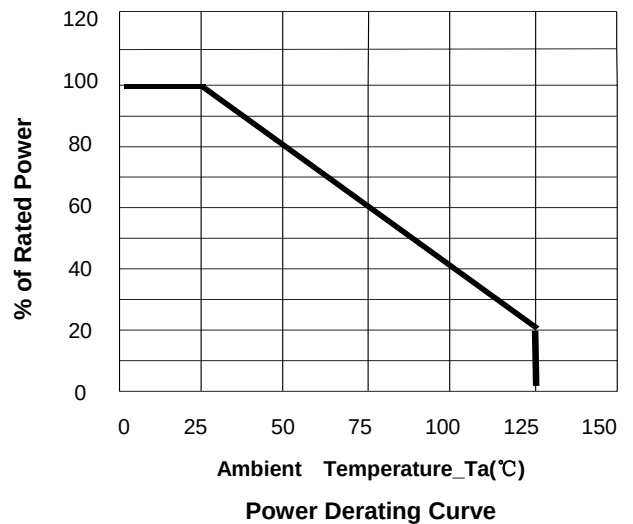
Junction Capacitance vs. Reverse Voltage



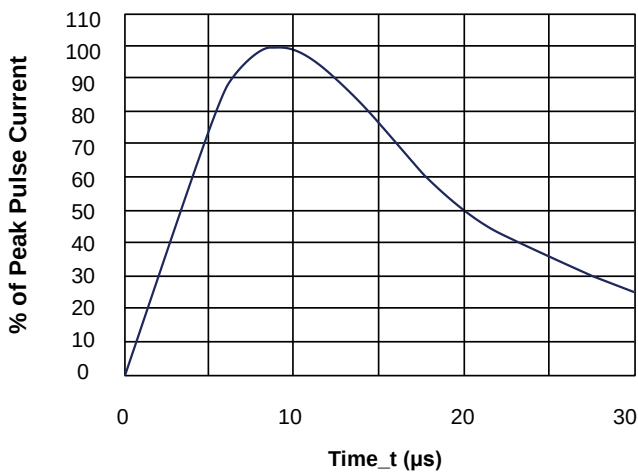
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

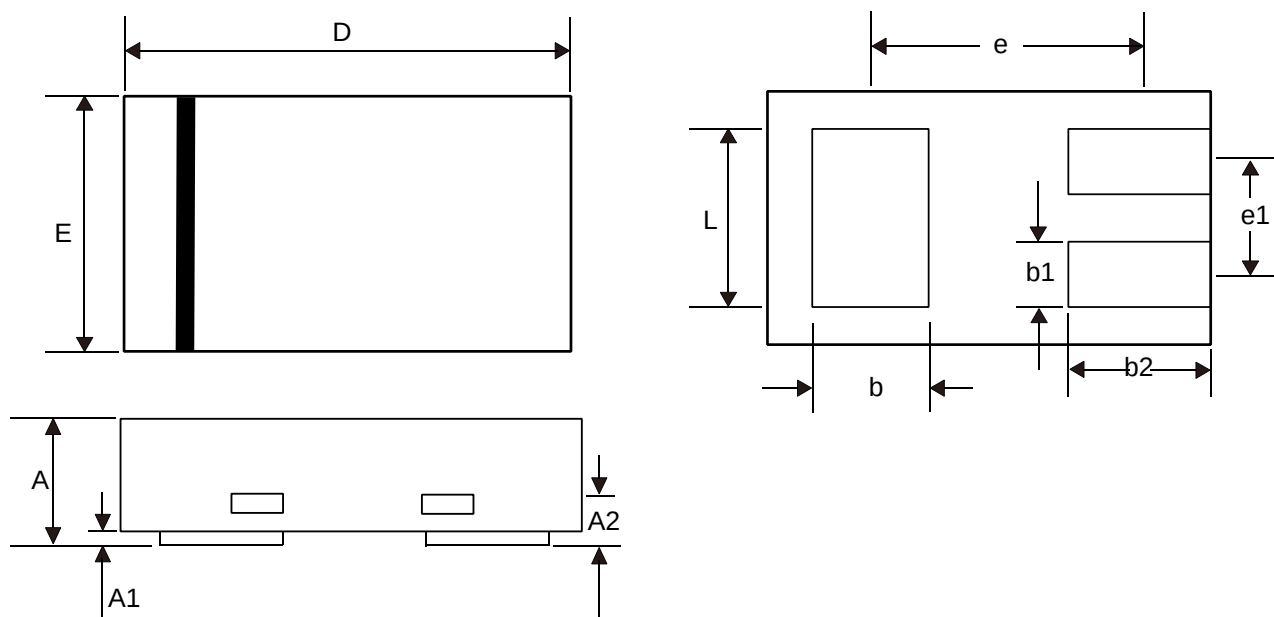


Power Derating Curve



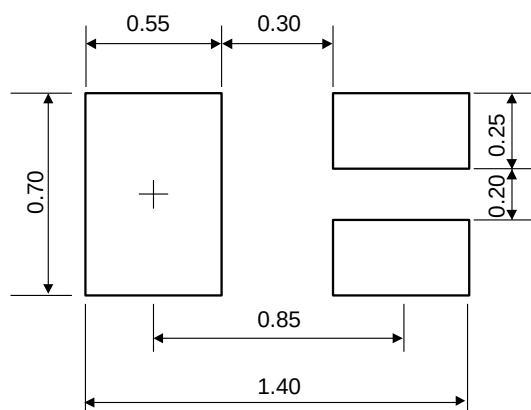
8/20μs Pulse Waveform

DFN1006-3 Package Outline Drawing



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.450	0.500	0.550
A1	0.000	0.020	0.050
A2	0.125 Ref.		
D	0.950	1.000	1.075
E	0.490	0.600	0.675
b	0.200	0.250	0.300
b1	0.100	0.150	0.200
b2	0.25	0.30	0.35
L	0.450	0.500	0.550
e1	0.350 BSC		
e	0.675 BSC		

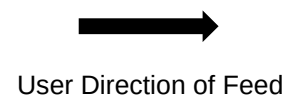
Recommended PCB Layout (Unit: mm)



Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

Reel Dimensions



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