

2-Line Ultra Low Capacitance Uni-directional TVS Diode

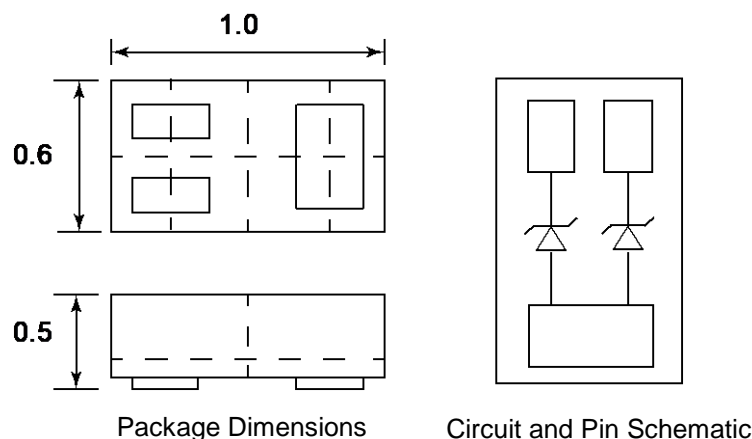
Description

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: $\pm 15\text{kV}$
Contact discharge: $\pm 8\text{kV}$
 - IEC 61000-4-5 (Lightning) 3.5A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



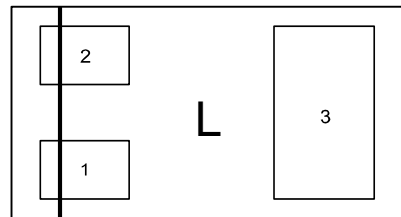
Mechanical Characteristics

- 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

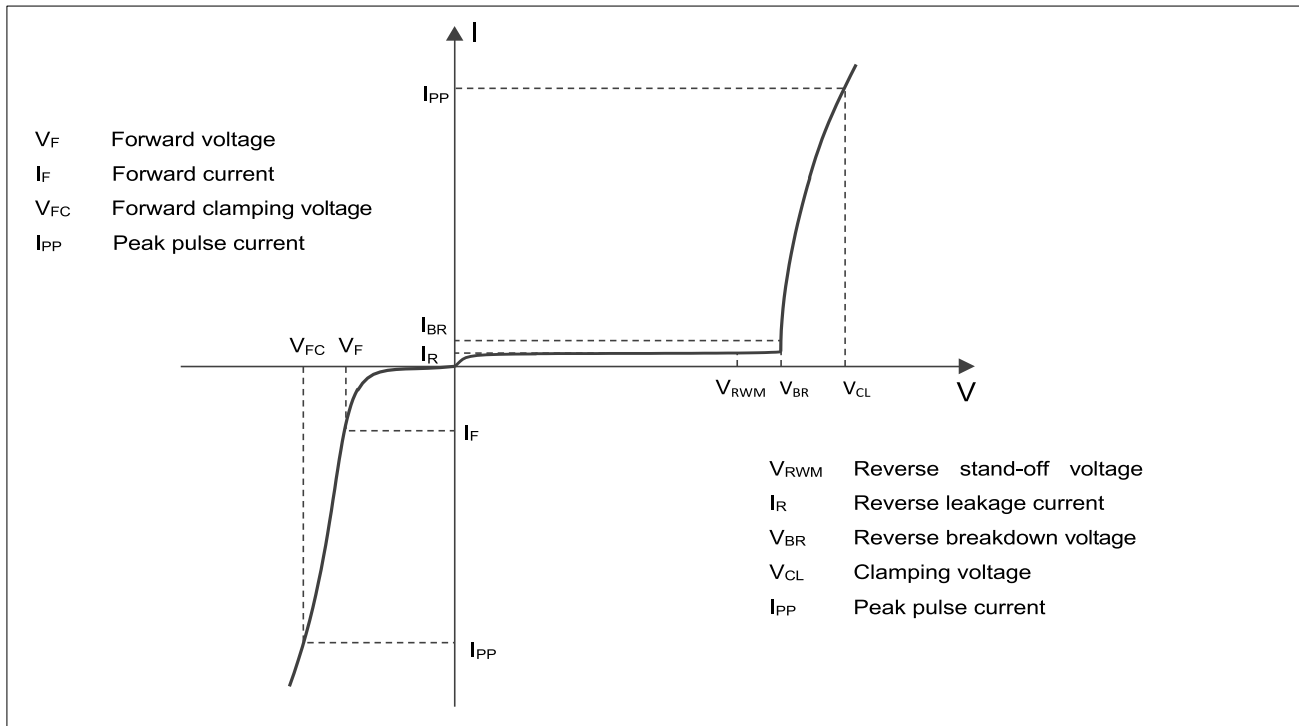
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	53	W
Peak Pulse Current (8/20μs)	I _{PP}	3.5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±15	kV
ESD per IEC 61000-4-2 (Contact)		±8	
Lead temperature	T _L	260	°C
Operating Temperature Range	T _{OP}	-40 ~ +85	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

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

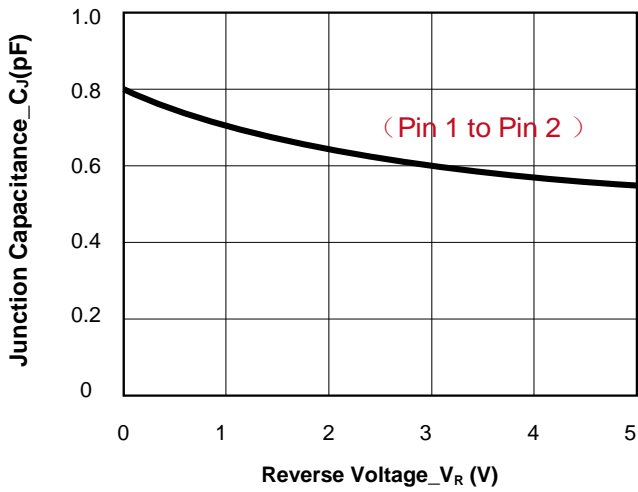
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5.0	V	Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Breakdown Voltage	V _{BR}	6.0	8.5		V	I _T = 1mA, Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Reverse Leakage Current	I _R		0.1	0.5	μA	V _{RWM} = 5V, Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Clamping Voltage	V _C			10	V	I _{PP} = 1A (8/20μs pulse), Pin 1 or Pin 2 to Pin 3
Clamping Voltage	V _C			15	V	I _{PP} = 3.5A (8/20μs pulse), Pin 1 or Pin 2 to Pin 3
Junction Capacitance	C _J		0.25	0.4	pF	V _R = 0V, f = 1MHz, Pin 1 to Pin 2
Junction Capacitance	C _J		0.5	0.8	pF	V _R = 0V, f = 1MHz, Pin 1 or Pin 2 to Pin 3

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

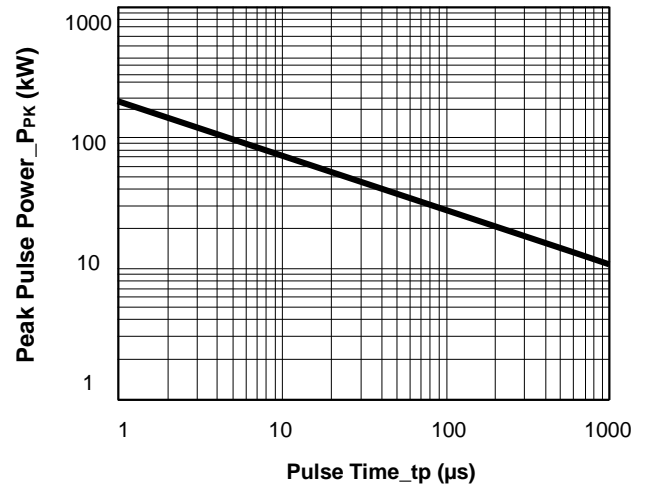


Definitions of electrical characteristics

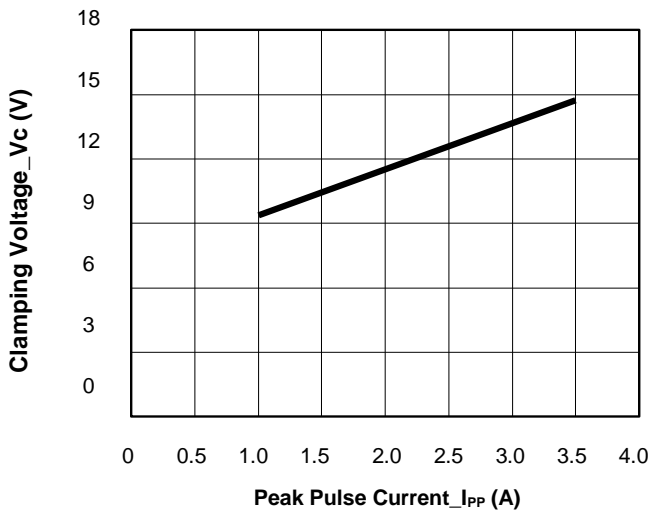
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



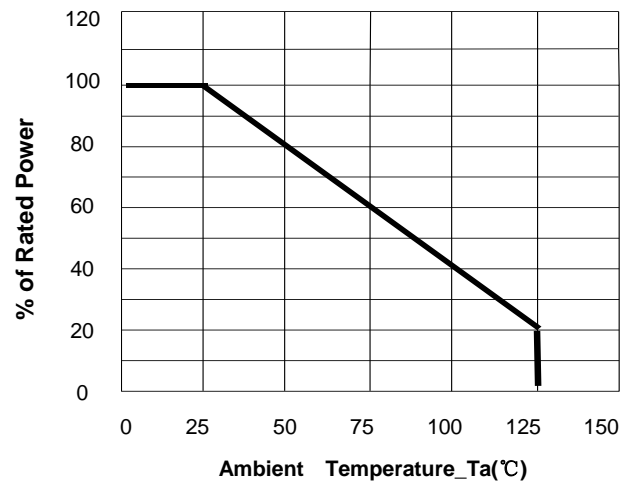
Junction Capacitance vs. Reverse Voltage



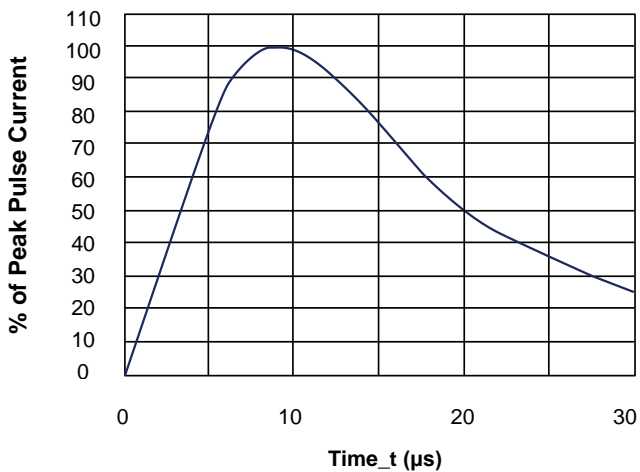
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

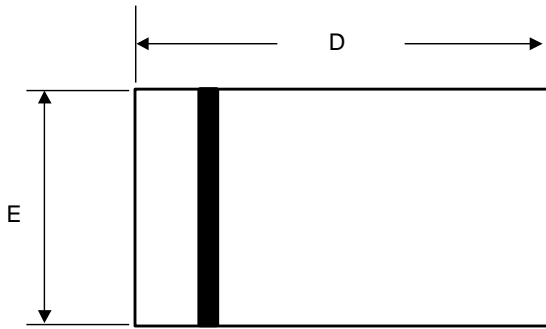


Power Derating Curve

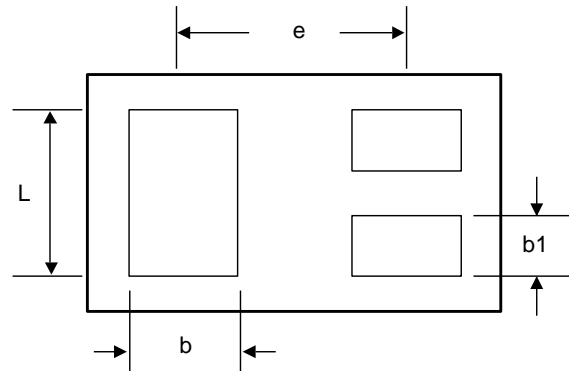


8/20μs Pulse Waveform

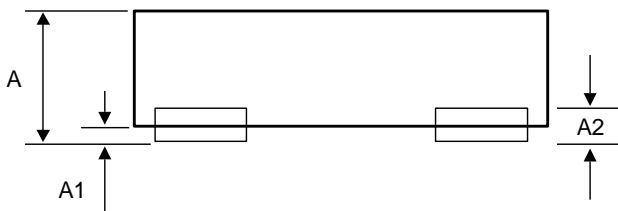
DFN1006-3 Package Outline Drawing



Top View



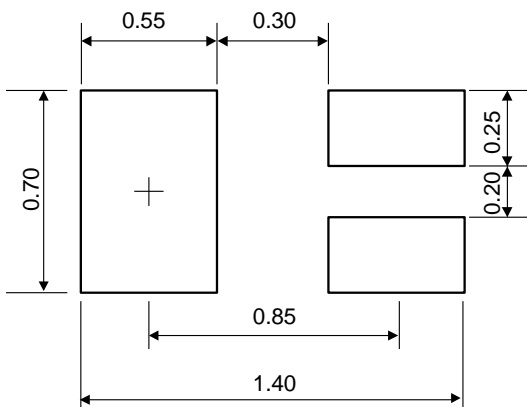
Bottom View



Side View

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.340	0.450	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
L	0.450	0.500	0.550
e	0.650 BSC		

Recommended PCB Layout (Unit: mm)

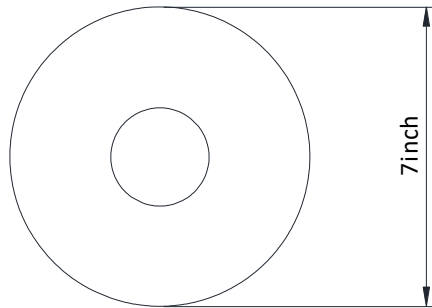


Notes:

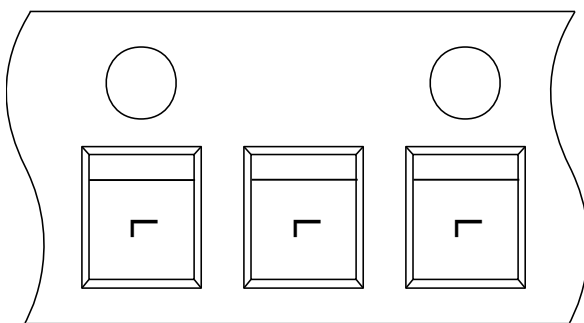
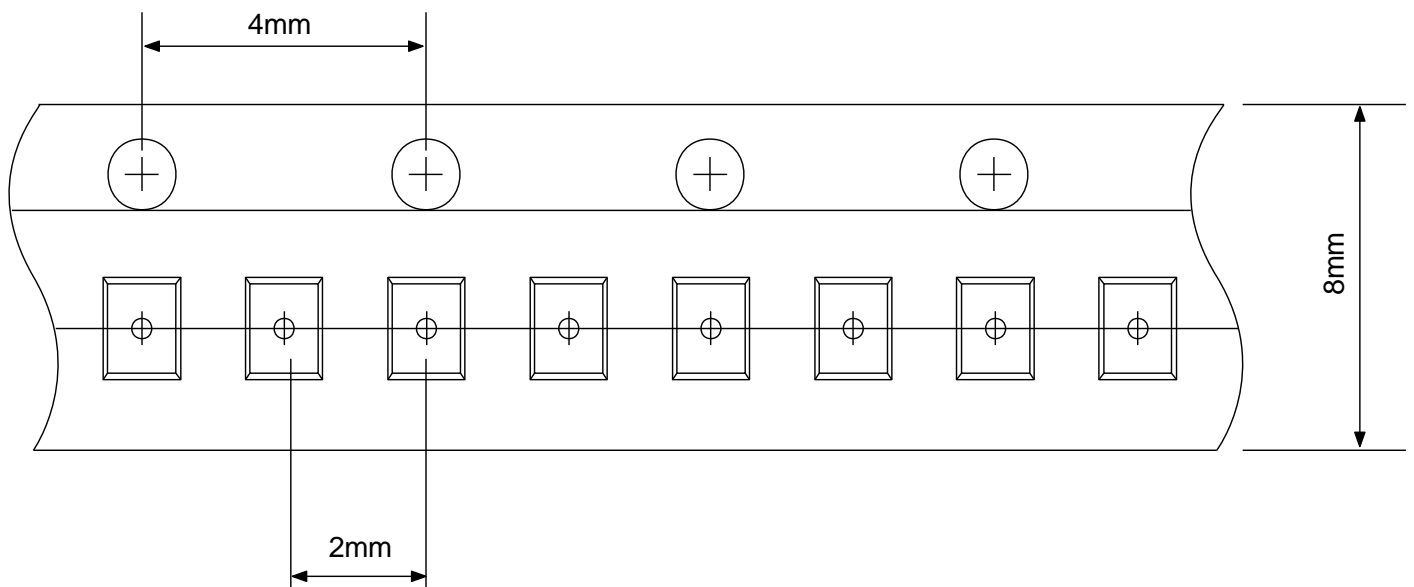
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



User Direction of Feed

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