

1-Line Uni-directional TVS Diode

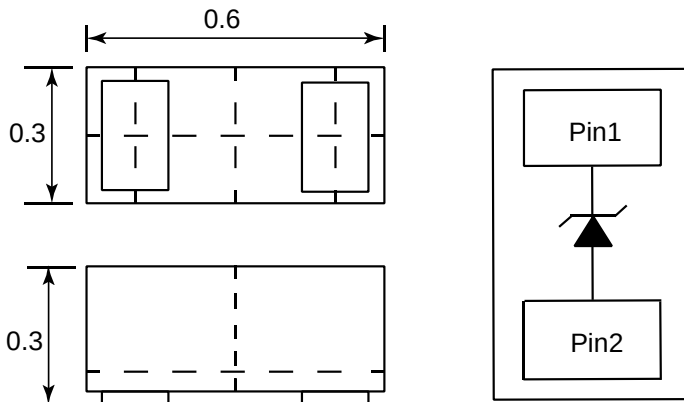
Description

The PESDU0501P0 is an uni-directional TVS diode, to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The PESDU0501P0 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 an ultra-small $0.6 \times 0.3 \times 0.3\text{mm}$ lead-free DFN package. The small size and high ESD protection make PESDU0501P0 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Ultra small package: $0.6 \times 0.3 \times 0.3\text{mm}$
- Protects one data or power line
- Ultra low leakage: nA level
- Low operating voltage: 5 V
- Low clamping voltage
- 2-pin leadless package
- 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) 8A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions

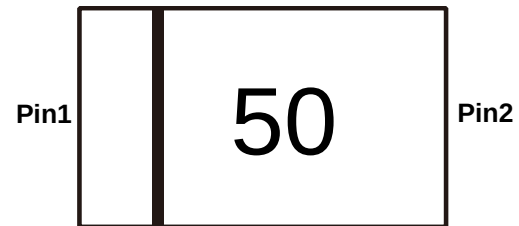
Mechanical Characteristics

- Package: DFN0603-2 ($0.6 \times 0.3 \times 0.3\text{mm}$)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Marking Information



50 = Device Marking Code

Bar denotes cathode

Ordering Information

Part Number	Shipping	Reel Size
PESDU0501P0	10000/Tape & Reel	7 inch

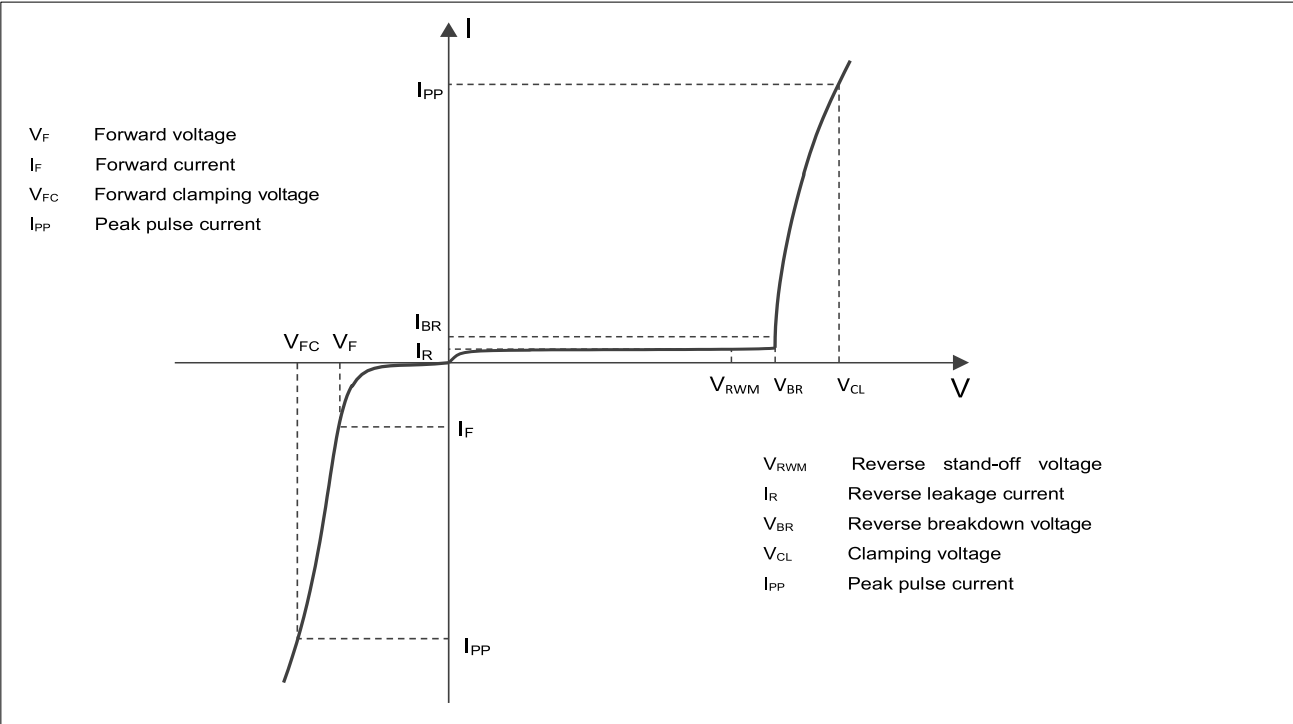
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pk}	96	W
Peak Pulse Current (8/20 μs)	I _{PP}	8	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Lead temperature	T _L	260	$^{\circ}\text{C}$
Junction Temperature	T _J	125	$^{\circ}\text{C}$
Operating Temperature Range	T _{OP}	-40 ~ +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{STG}	-55 ~ +150	$^{\circ}\text{C}$

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

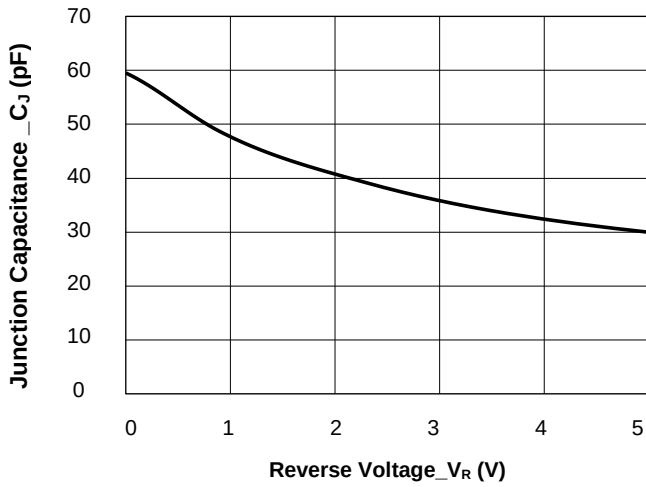
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Breakdown Voltage	V _{BR}	5.6		8.5	V	I _T = 1mA
Reverse Leakage Current	I _R			1	μA	V _{RWM} = 5V
Forward Voltage	V _F			1.2	V	I _F = 10mA
Clamping Voltage	V _C			8.5	V	I _{PP} = 1A (8/20 μs pulse),
Clamping Voltage	V _C			12	V	I _{PP} = 8A (8/20 μs pulse),
Junction Capacitance	C _J		60		pF	V _R = 0V, f = 1MHz

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

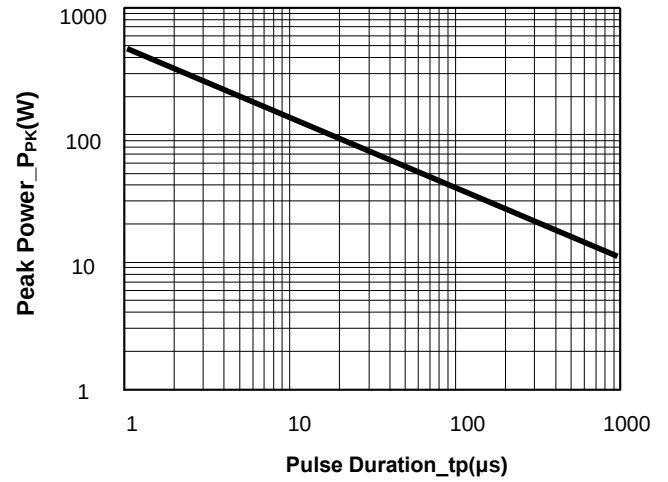


Definitions of electrical characteristics

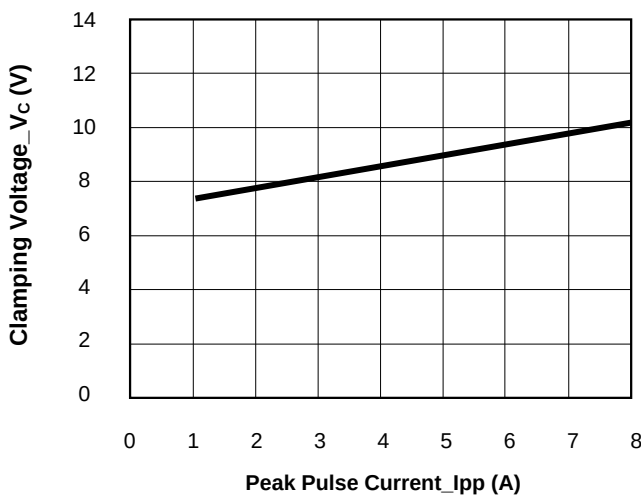
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



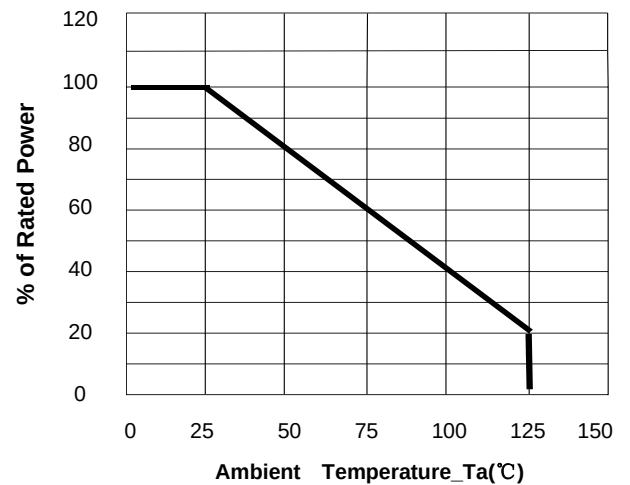
Junction Capacitance vs. Reverse Voltage



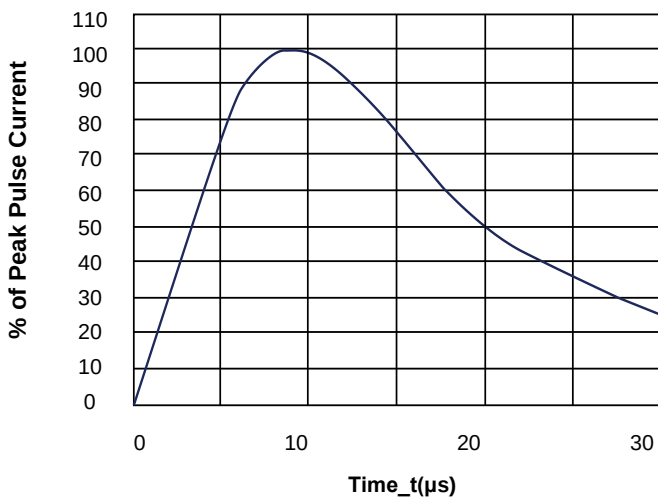
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

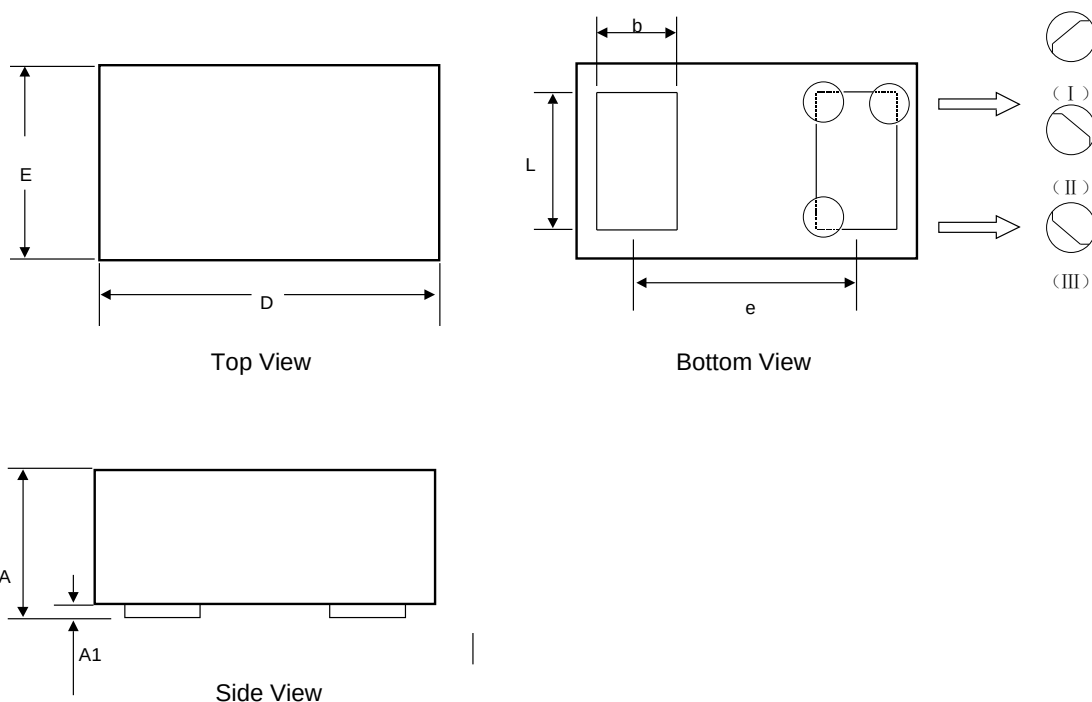


Power Derating Curve



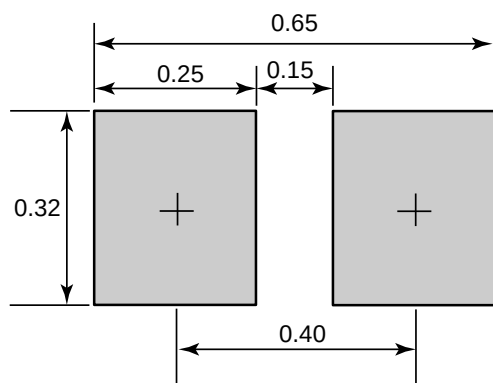
8/20 μs Pulse Waveform

DFN0603-2 Package Outline Drawing



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.230	0.300	0.350
A1	0.000	-	0.050
D	0.550	0.600	0.670
E	0.250	0.300	0.370
b	0.160	0.190	0.230
L	0.215	0.245	0.275
e	0.360 BSC		

Recommended PCB Layout (Unit: mm)

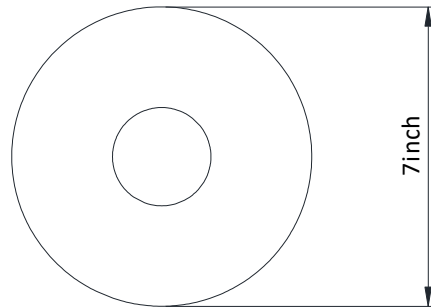


Notes:

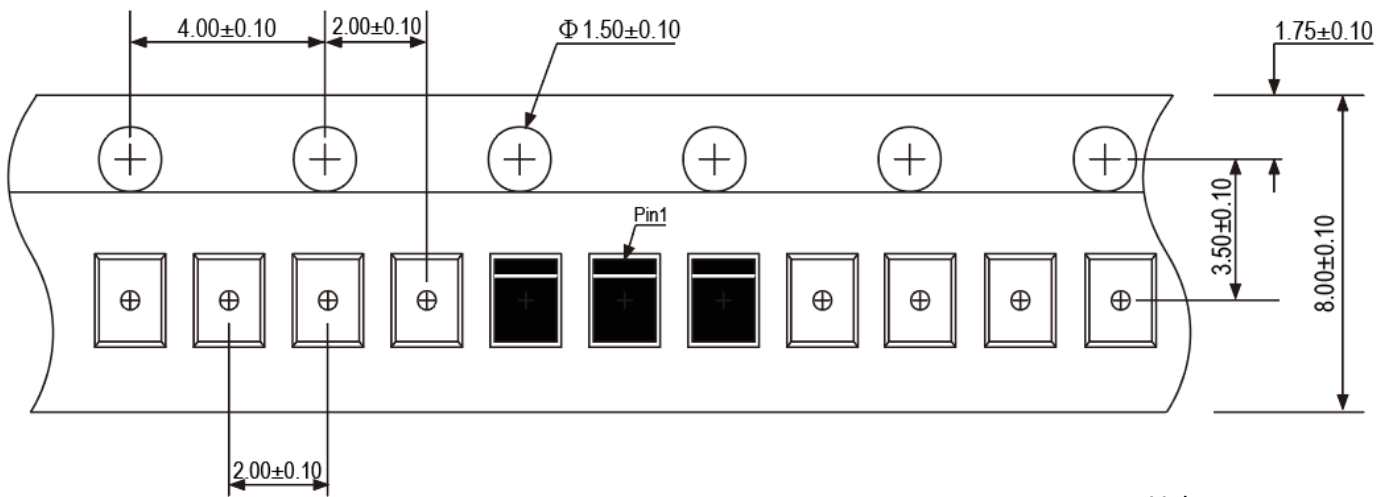
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

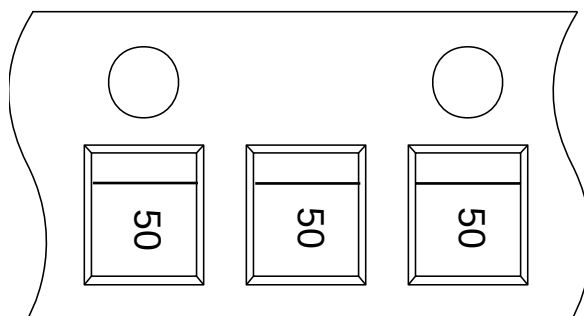
Reel Dimensions



Tape Dimensions



Unit:mm




User Direction of Feed

IMPORTANT NOTICE

The information given in this document is believed to be accurate and reliable but shall in no event be regarded as a guarantee of conditions or characteristics. PN-Silicon assumes no responsibility for any errors in this document, or for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of PN-Silicon.

The product listed in this document are designed to be used with ordinary electronic equipment or devices and are not authorized to used with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, automotive and other safety device.)

The **PN SILICON** logo is a registered trademark of PN-Silicon co., ltd which reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. PN-Silicon makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. All rights reserved.