

1-Line Bi-directional TVS Diode

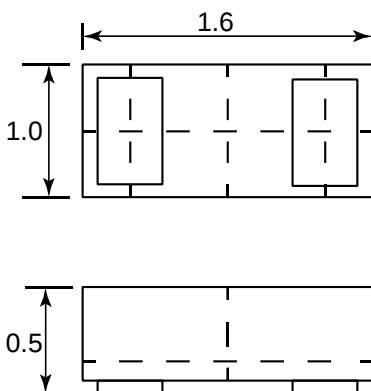
Description

The PESDU4581P6 is a bi-directional TVS diode, to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The PESDU4581P6 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 1.6x1.0x0.5mm lead-free DFN package. The small size and high ESD protection make PESDU4581P6 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

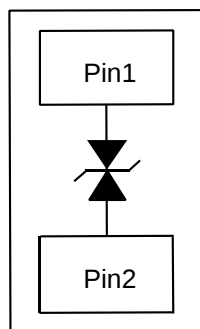
Features

- Ultra small package: 1.6x1.0x0.5mm
- Protects one data or power line
- 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) 130A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions



Circuit and Pin Schematic

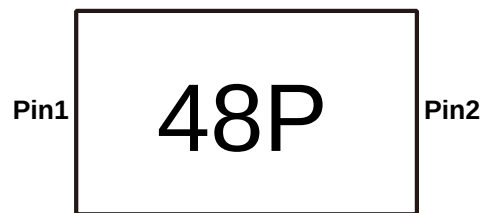
Mechanical Characteristics

- Package: DFN1610-2
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Mobile Phones
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications

Marking Information



48P = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU4581P6	3000/Tape & Reel	7 inch

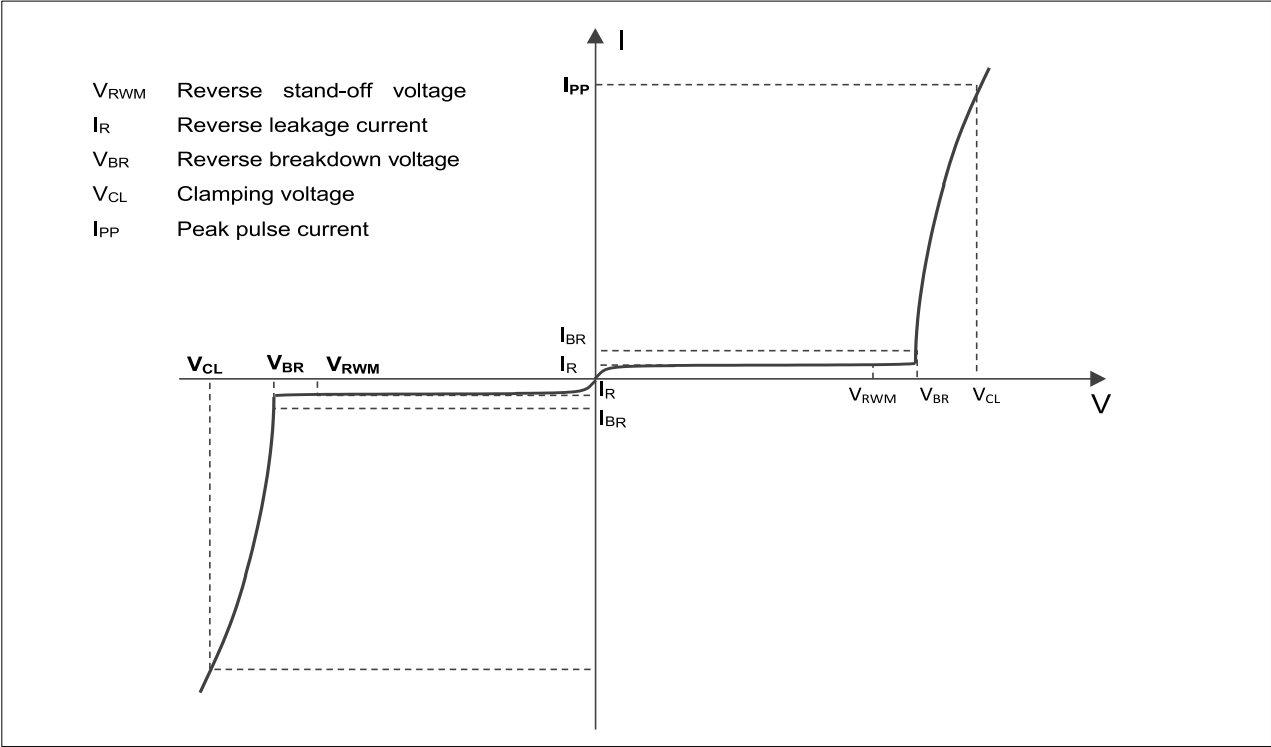
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	2210	W
Peak Pulse Current (8/20μs)	I _{PP}	130	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	°C
Junction Temperature	T _J	125	°C
Operating Temperature Range	T _{OP}	-40 ~ +125	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

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

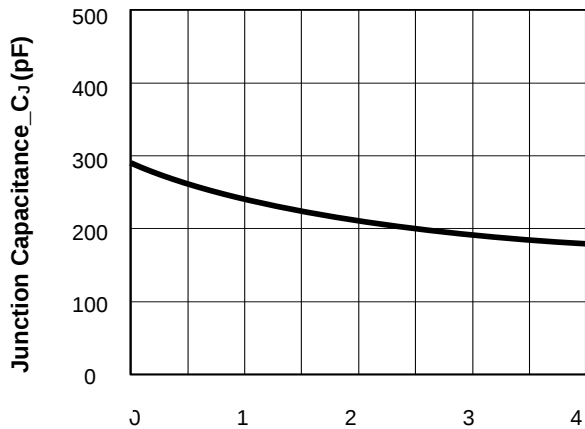
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			4.5	V	
Breakdown Voltage	V _{BR}	4.8			V	I _T = 1mA
Reverse Leakage Current	I _R			1	uA	V _{RWM} = 4.5V
Clamping Voltage	V _C			7.5	V	I _{PP} = 20A (8/20μs pulse)
Clamping Voltage	V _C			17	V	I _{PP} = 130A (8/20μs pulse)
Junction Capacitance	C _J		300		pF	V _R = 0V, f = 1MHz

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

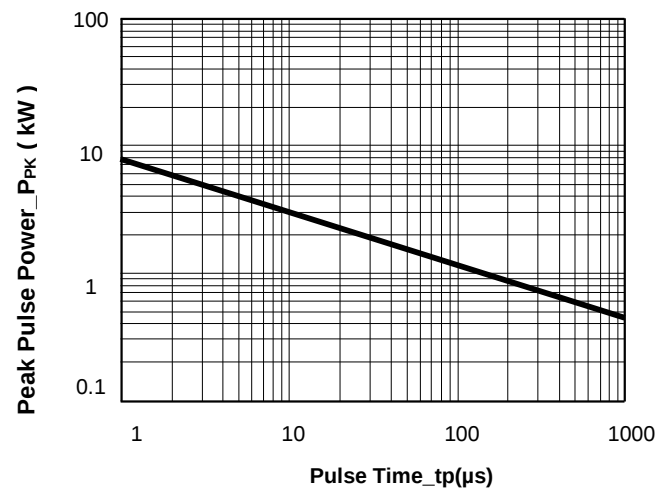


Definitions of electrical characteristics

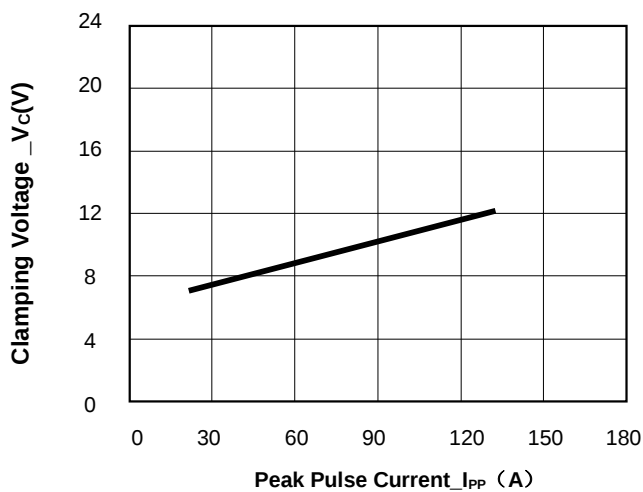
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



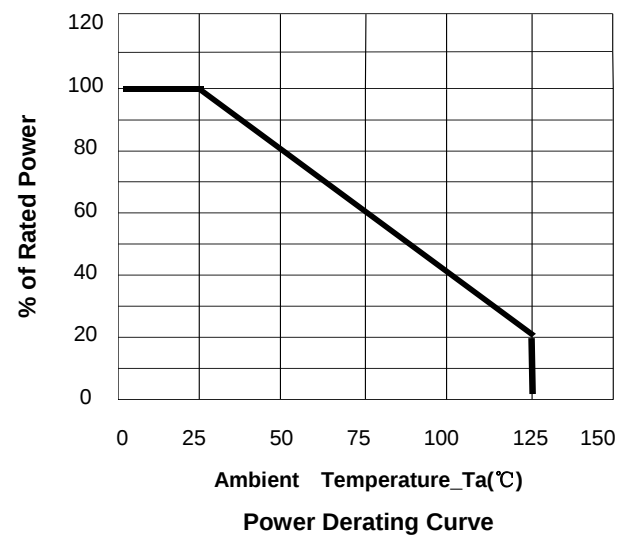
Junction Capacitance vs. Reverse Voltage



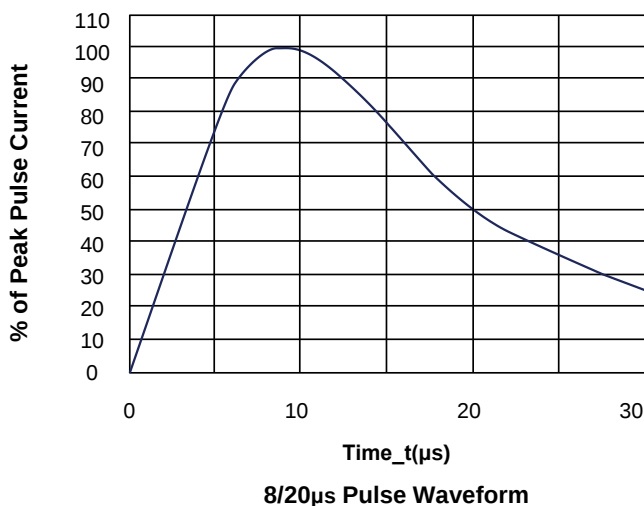
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

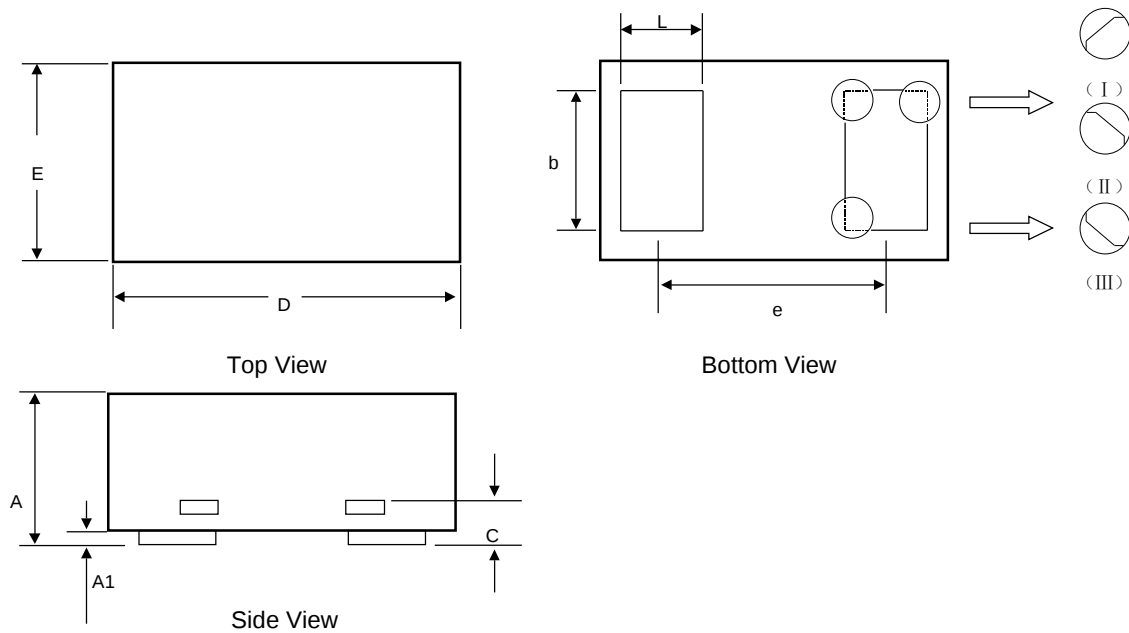


Power Derating Curve



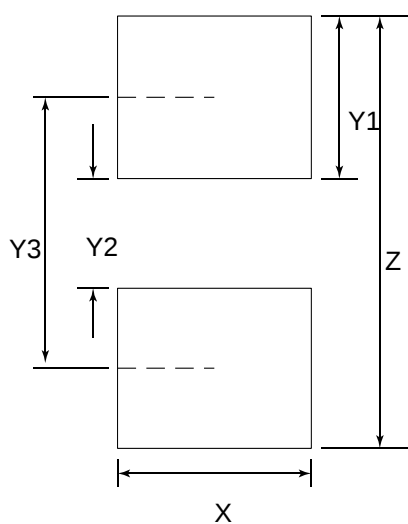
8/20 μs Pulse Waveform

DFN1610-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1		0.02	0.05		0.001	0.002
b	0.75	0.80	0.85	0.030	0.032	0.034
c	0.10	0.15	0.20	0.004	0.006	0.008
D	1.55	1.60	1.65	0.062	0.064	0.066
e	1.10 BSC			0.044 BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018

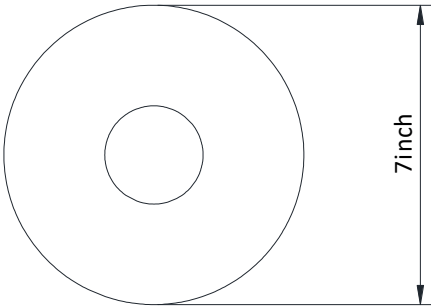
Suggested Land Pattern



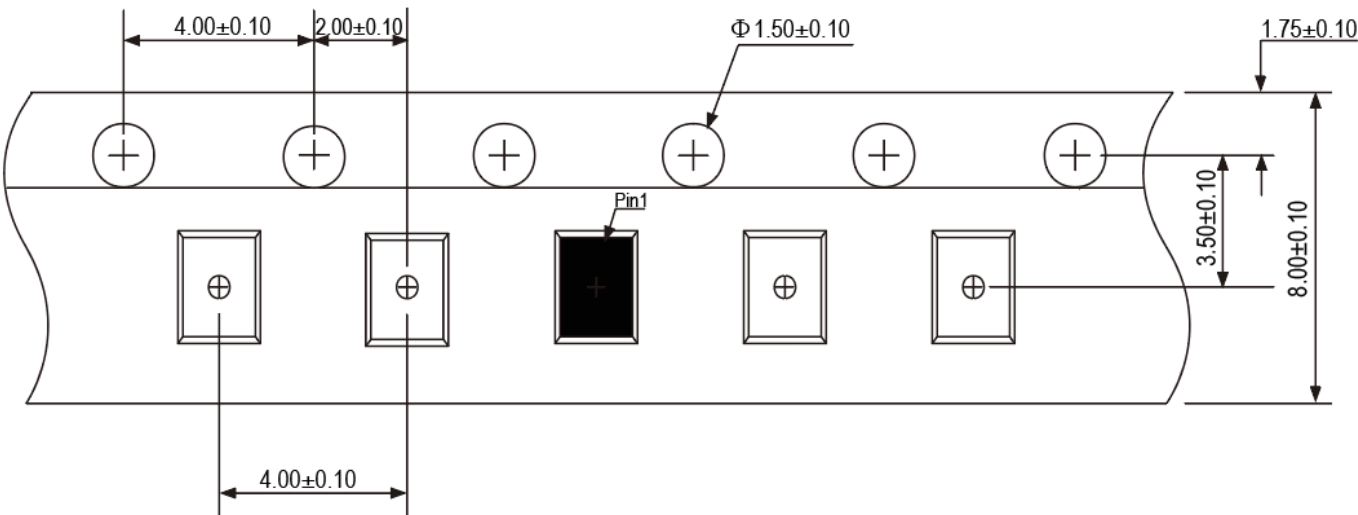
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	1.00	0.040
Y1	0.62	0.025
Y2	0.60	0.024
Y3	1.22	0.049
Z	1.85	0.074

TAPE AND REEL INFORMATION

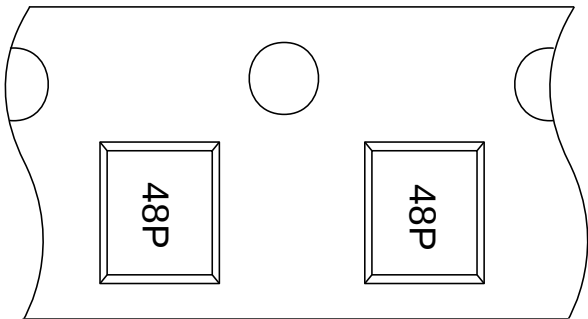
Reel Dimensions



Tape Dimensions



Unit:mm




User Direction of Feed

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