1-Line Uni-directional TVS Diode

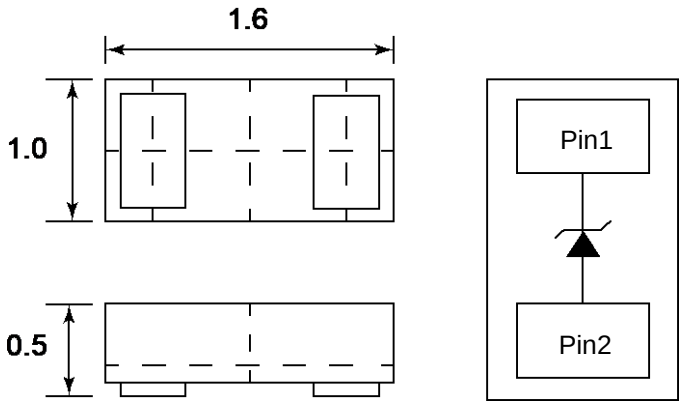
Description

The PESDU4831P6 is an uni-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 PESDU4831P6 complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. It is assembled into an ultra-small 1.6x1.0x0.5mm lead-free DFN package. The small size and high ESD surge protection make PESDU4831P6 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: ±30kV
    Contact discharge: ±30kV
  - IEC 61000-4-5 (Lightning) 170A (8/20μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions Circuit and Pin Schematic

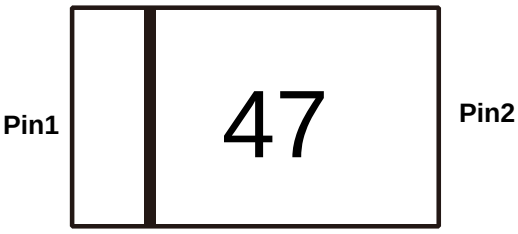
Mechanical Characteristics

- 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



47 = Device Marking Code
Bar denotes cathode

Ordering Information

Part Number	Shipping	Reel Size
PESDU4831P6	3000/Tape & Reel	7 inch

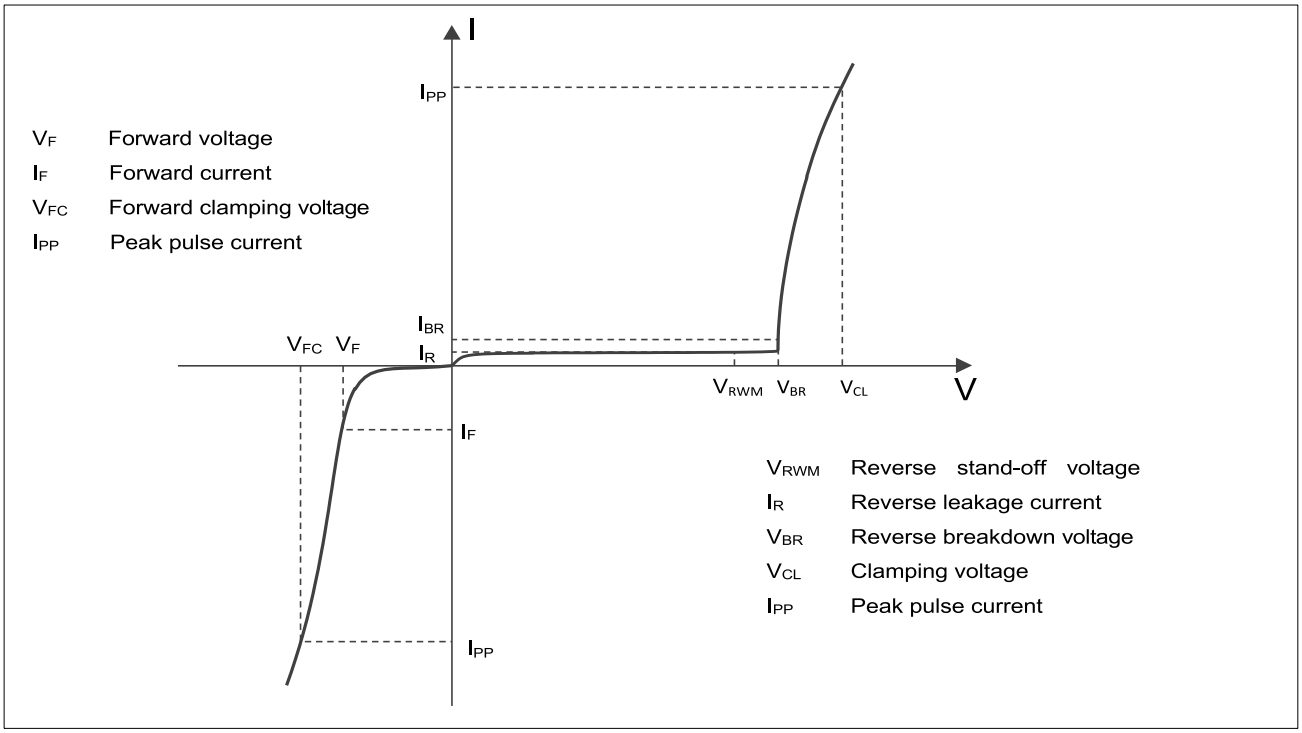
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PK}	2210	W
Peak Pulse Current (8/20μs)	I_{PP}	170	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	℃
Junction Temperature	T_J	125	℃
Operating Temperature Range	T_{OP}	−40 ~ +125	℃
Storage Temperature Range	T_{STG}	−55 ~ +150	℃

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

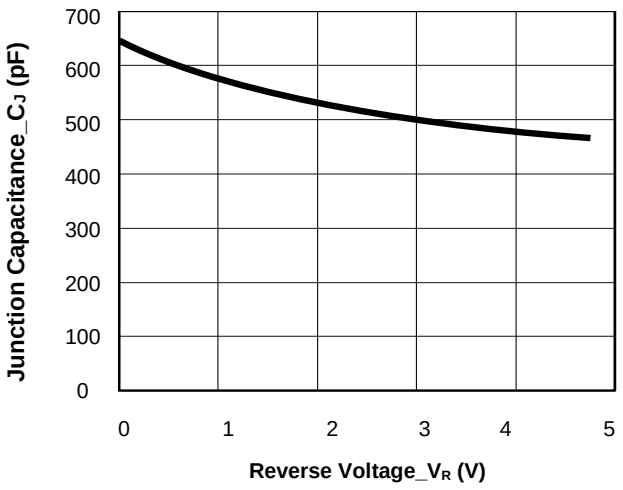
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			4.8	V	
Breakdown Voltage	V_{BR}	5.0	5.6	6.4	V	I_T = 1mA
Reverse Leakage Current	I_R			1	μA	V_{RWM} = 4.8V
Clamping Voltage	V_C		7	8	V	I_{PP} = 50A (8/20μs pulse)
Clamping Voltage	V_C		11	13	V	I_{PP} = 170A (8/20μs pulse)
Junction Capacitance	C_J		650		pF	V_R = 0V, f = 1MHz

Electrical characteristics (T_A = 25℃, unless otherwise noted)

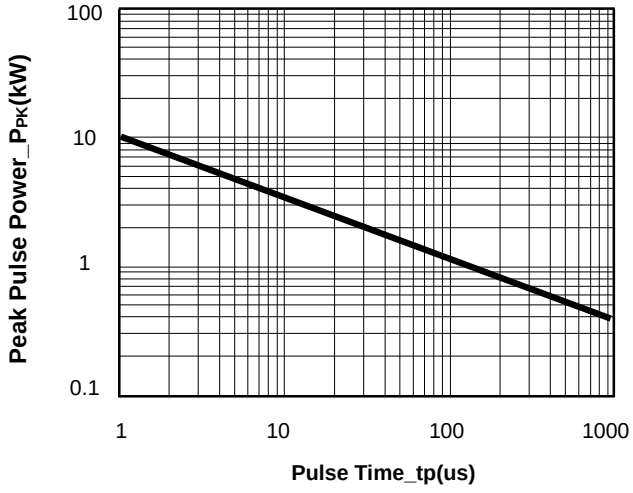


Definitions of electrical characteristics

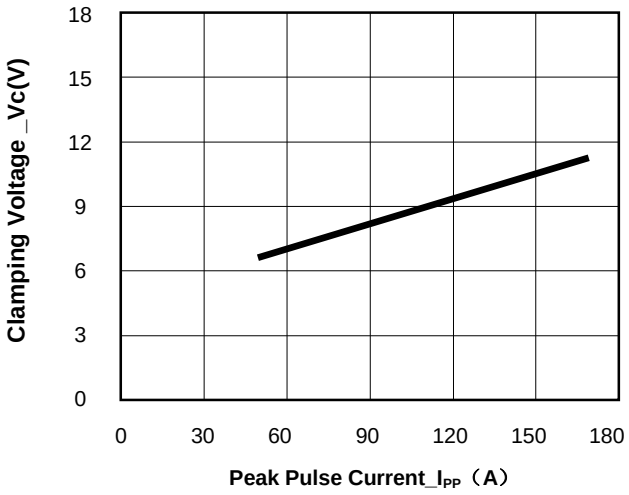
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



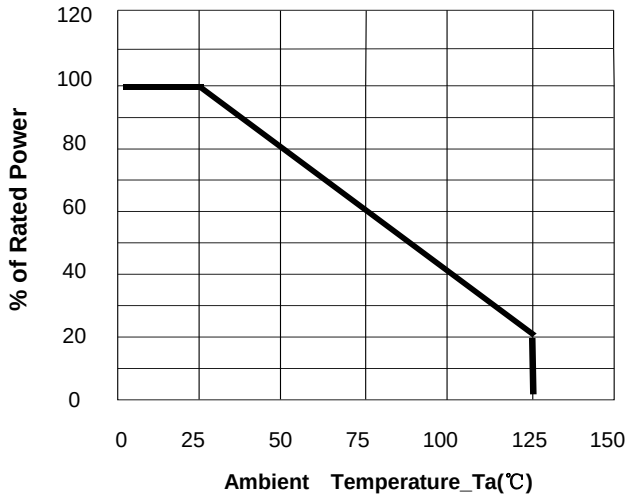
Junction Capacitance vs. Reverse Voltage



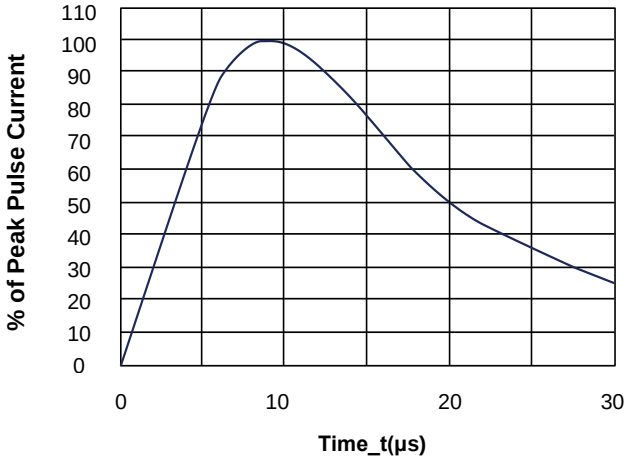
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

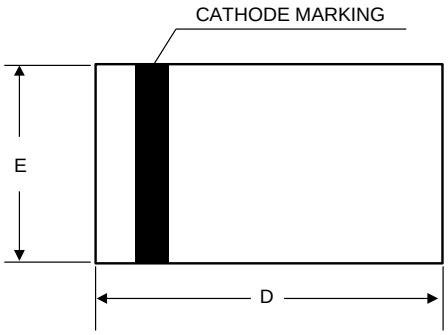


Power Derating Curve

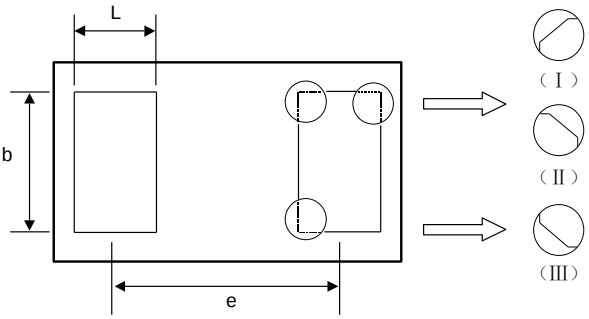


8/20μs Pulse Waveform

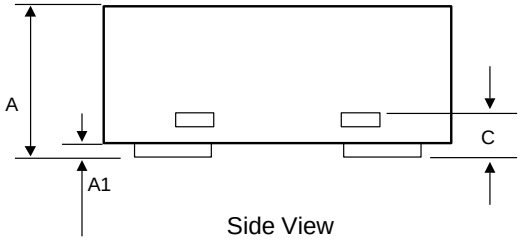
DFN1610-2 Package Outline Drawing



Top View



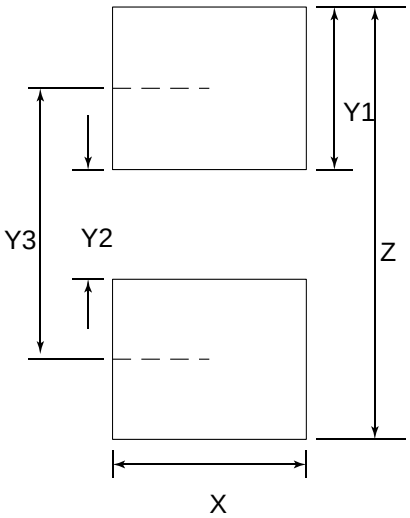
Bottom View



Side View

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

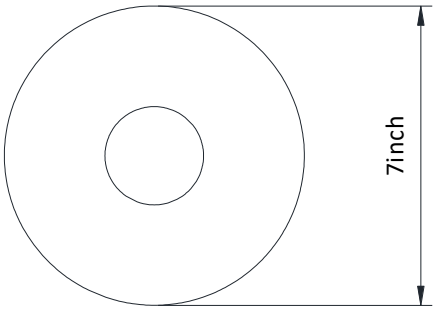
Suggested Land Pattern



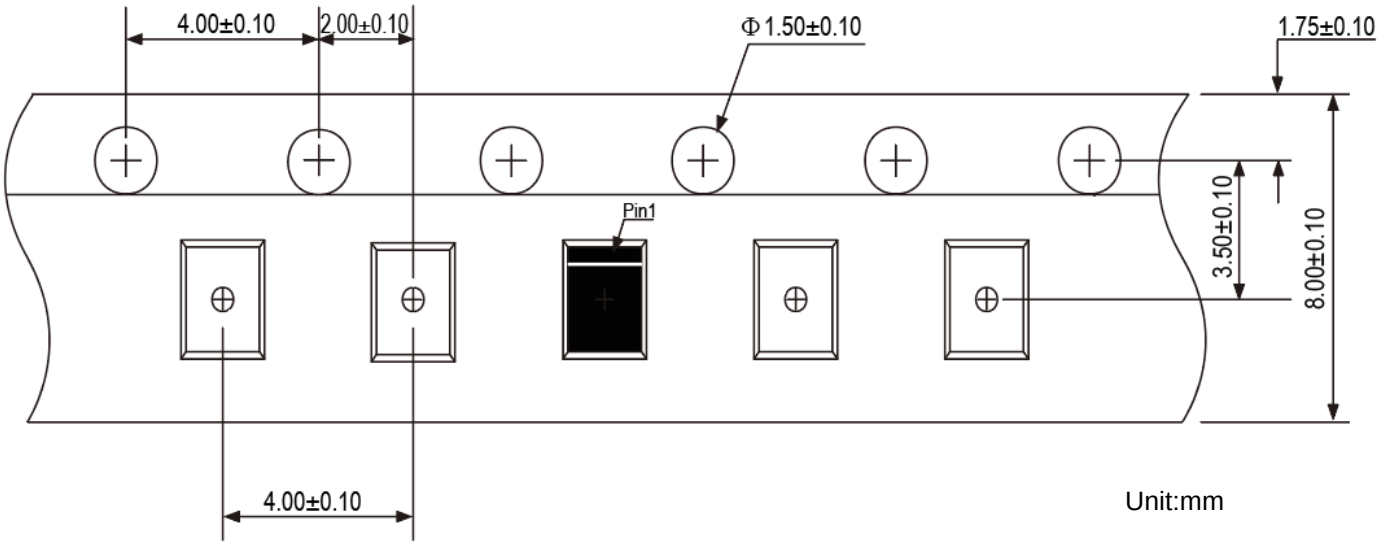
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	1.00	0.040
Y1	0.62	0.025
Y2	0.60	0.024
Y3	1.22	0.049
Z	1.85	0.074

TAPE AND REEL INFORMATION

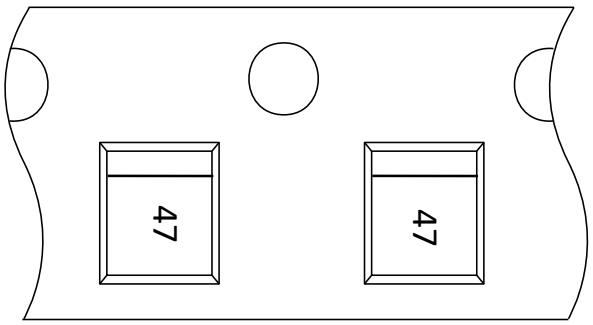
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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