2-Line Bi-directional TVS Diode

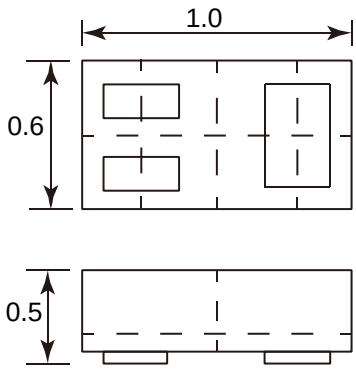
Description

The PESDU0522P1 is a 2-line bi-directional TVS diode, to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensi- tive high-speed data lines. The PESDU0522P1 complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ±30kV contact discharge. It is assembled into an ultra- small 1.0x0.6x0.5mm lead-free DFN package. The small size, and high ESD surge protection make PESDU0522P1 an ideal choice to protect cell phone, digital video interfaces, high speed data ports, and many other portable applica- tions.

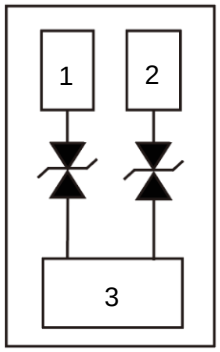
Features

- Ultra small package: 1.0x0.6x0.5mm
- Low capacitance: 12pF 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: ±30kV
    - Contact discharge: ±30kV
  - IEC 61000-4-5 (Lightning) 6.5A (8/20μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions



Circuit and Pin Schematic

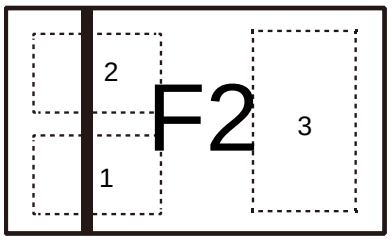
Mechanical Characteristics

- Package: DFN1006-3 (1.0×0.6×0.5mm)
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

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

Marking Information



F2 = Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
PESDU0522P1	10000/Tape & Reel	7 inch

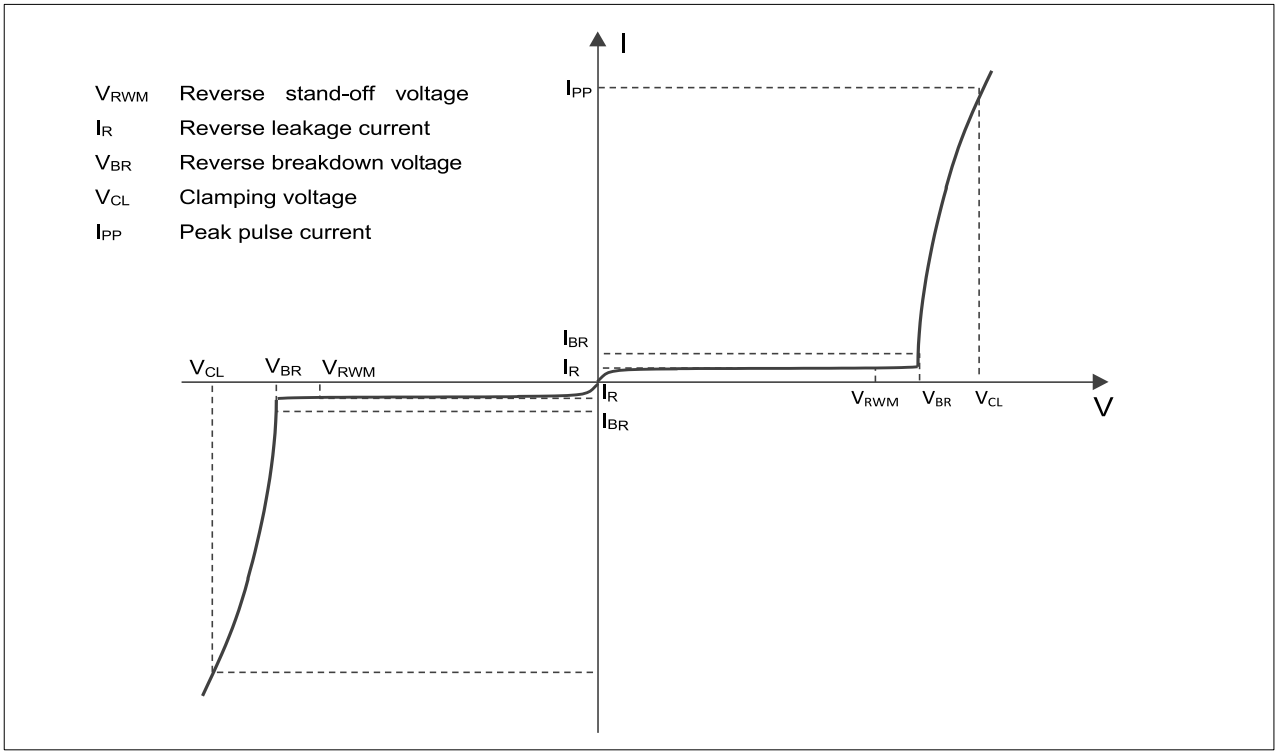
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PK}	71.5	W
Peak Pulse Current (8/20μs)	I_{PP}	6.5	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)

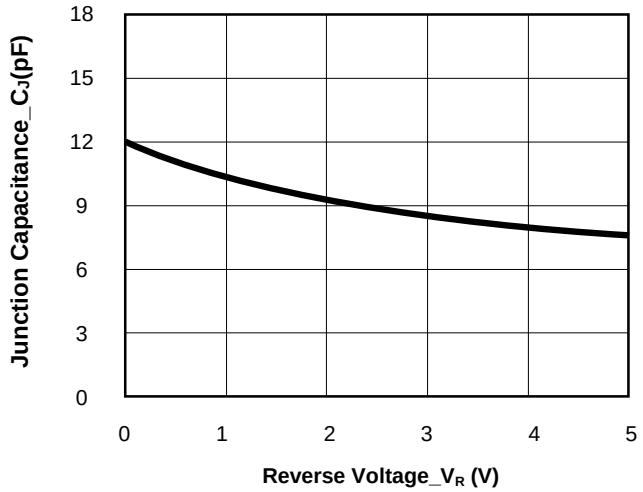
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5.0	V	Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Breakdown Voltage	V_{BR}	5.3			V	I_T =1mA, Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} =5V, Pin 1 or Pin 2 to Pin 3 and between Pin 1 and Pin 2
Clamping Voltage	V_C			8	V	I_{PP} = 1A (8/20μs pulse), Pin 1 or Pin 2 to Pin 3
Clamping Voltage	V_C			11	V	I_{PP} = 6.5A (8/20μs pulse), Pin 1 or Pin 2 to Pin 3
Junction Capacitance	C_J		6	10.5	pF	V_R = 0V, f = 1MHz, Pin 1 to Pin 2
Junction Capacitance	C_J		12	21	pF	V_R = 0V, f = 1MHz, Pin 1 or Pin 2 to Pin 3

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

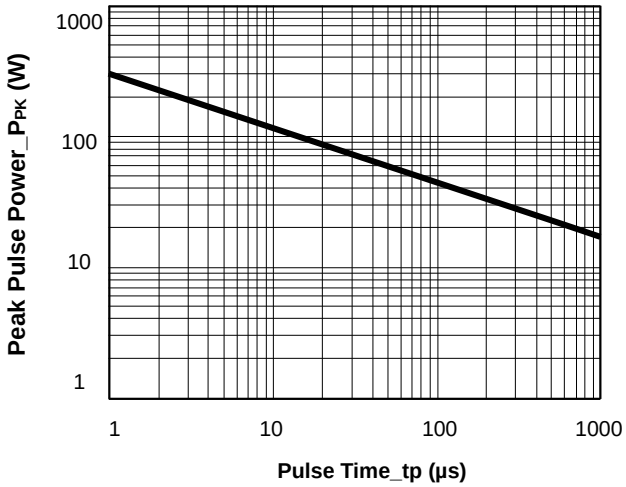


Definitions of electrical characteristics

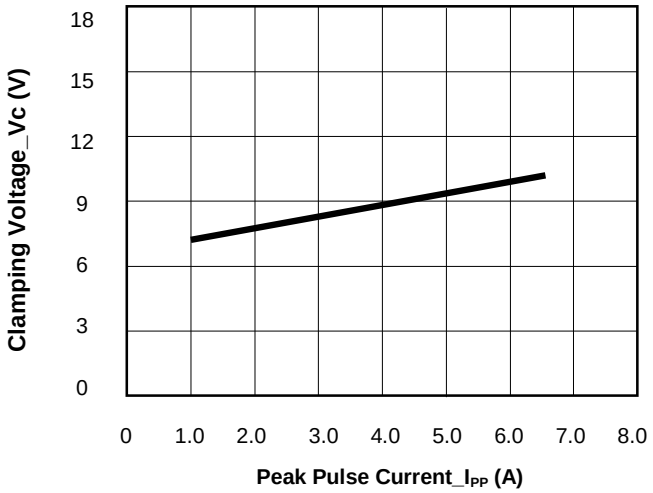
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



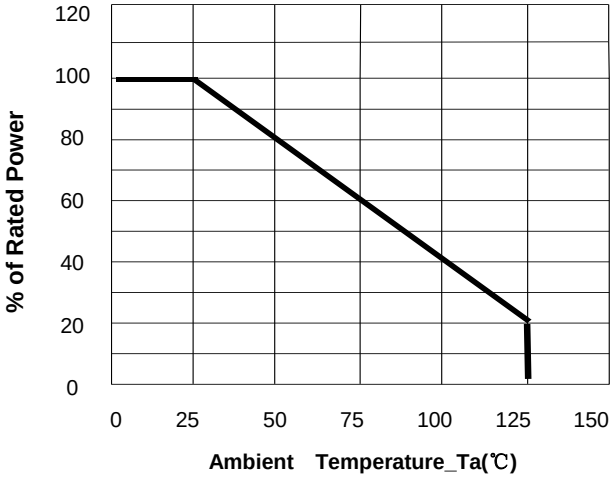
Junction Capacitance vs. Reverse Voltage



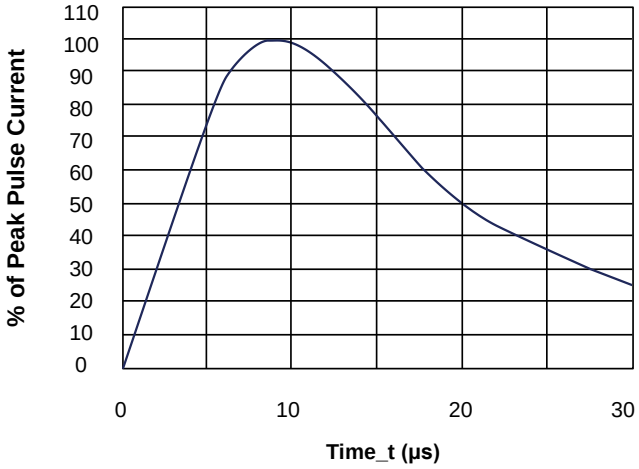
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

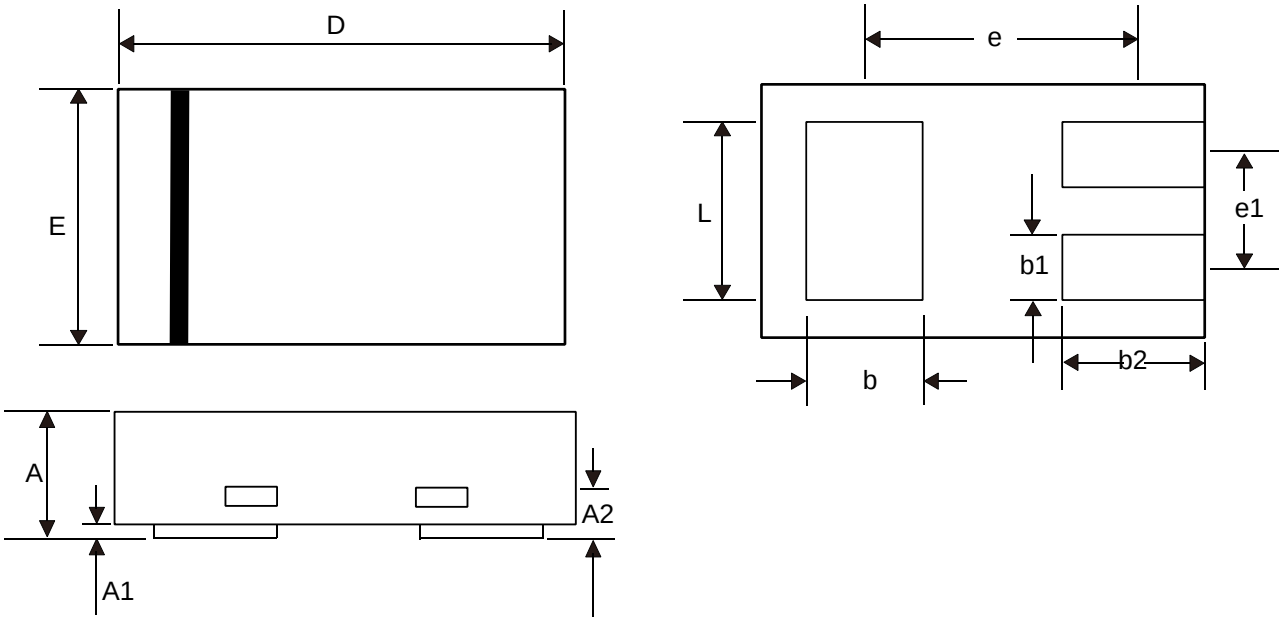


Power Derating Curve



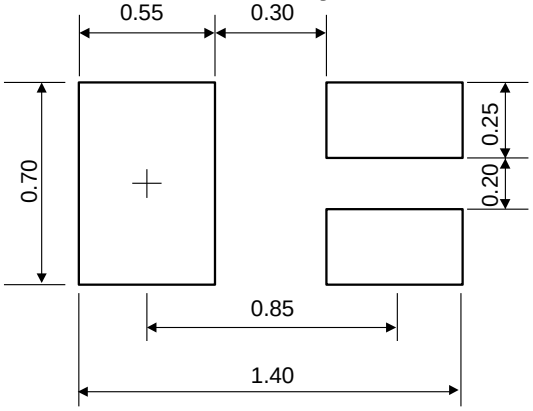
8/20μs Pulse Waveform

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)

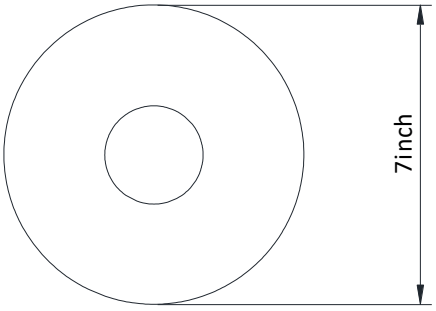


Notes:

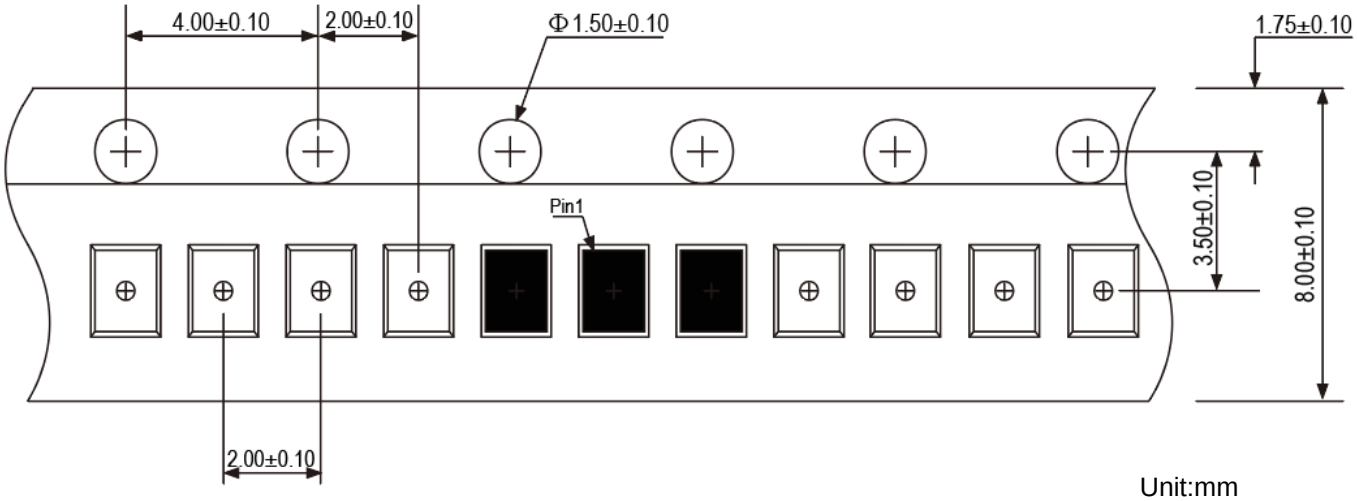
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

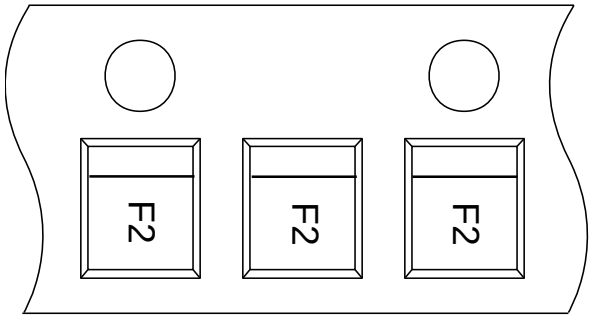
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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