

1-Line Bi-directional 2.5V ESD Protection Diode

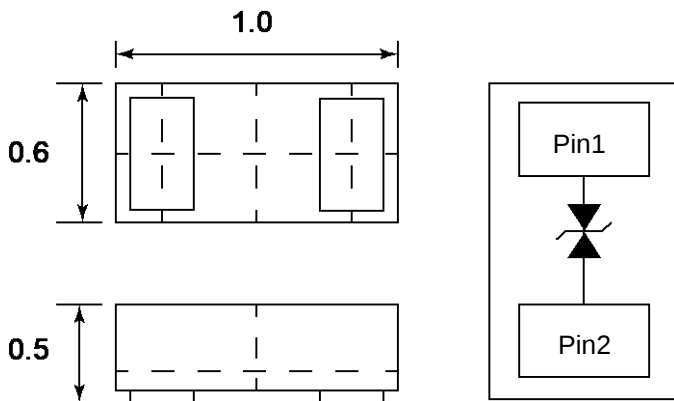
Description

The PESDU2581P1 is a 2.5V bi-directional ESD protection diode, to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data line. The PESDU2581P1 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 $1.0 \times 0.6 \times 0.5\text{mm}$ DFN lead-free package. The small size and high ESD surge protection make PESDU2581P1 an ideal choice to protect cellphone, digital cameras, audio players and many other portable applications.

Features

- Protects one data line
- Ultra low leakage: nA level
- Ultra low operating voltage: 2.5V
- Ultra low clamping voltage
- 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) 28A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions Circuit and Pin Schematic

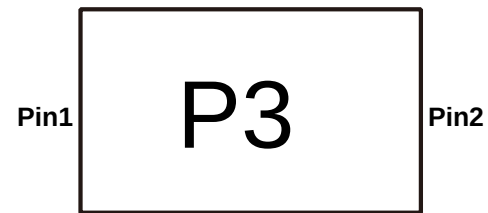
Mechanical Characteristics

- Package: DFN1006-2 ($1.0 \times 0.6 \times 0.5\text{mm}$)
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras

Marking Information



P3 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU2581P1	10000/Tape & Reel	7 inch

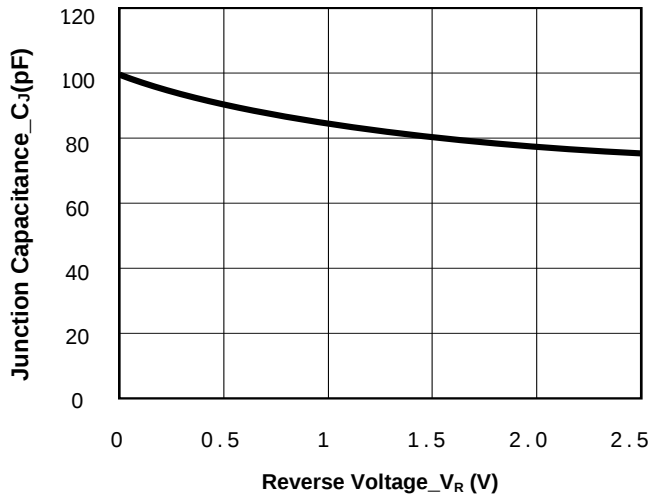
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	308	W
Peak Pulse Current (8/20μs)	I _{PP}	28	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

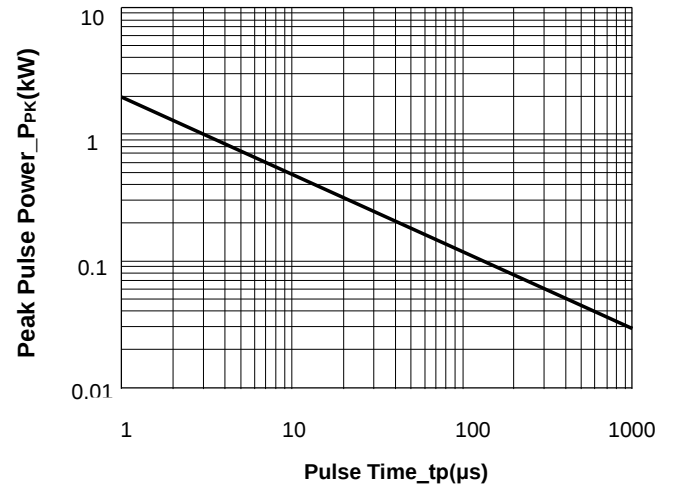
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			2.5	V	
Reverse Breakdown Voltage	V _{BR}	3.3				I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 2.5V
Clamping Voltage	V _C			5	V	I _{PP} = 1A (8/20μs pulse)
Clamping Voltage	V _C			11	V	I _{PP} = 28A (8/20μs pulse)
Junction Capacitance	C _J			100	pF	V _R = 0V, f = 1MHz

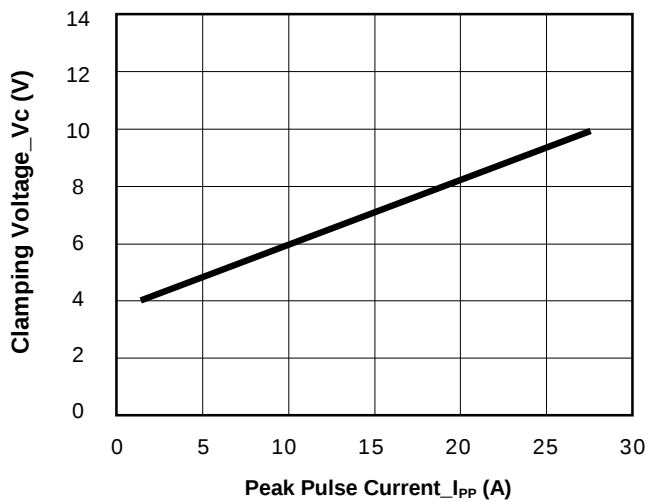
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



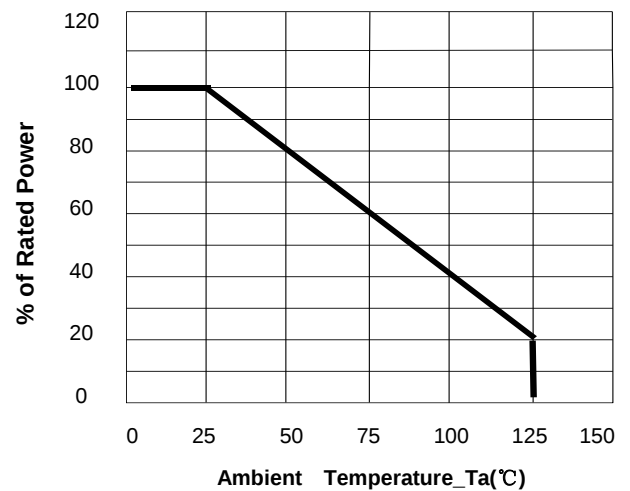
Junction Capacitance vs. Reverse Voltage



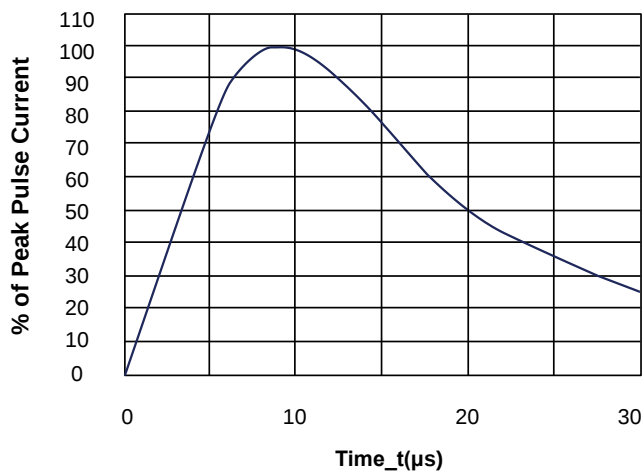
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

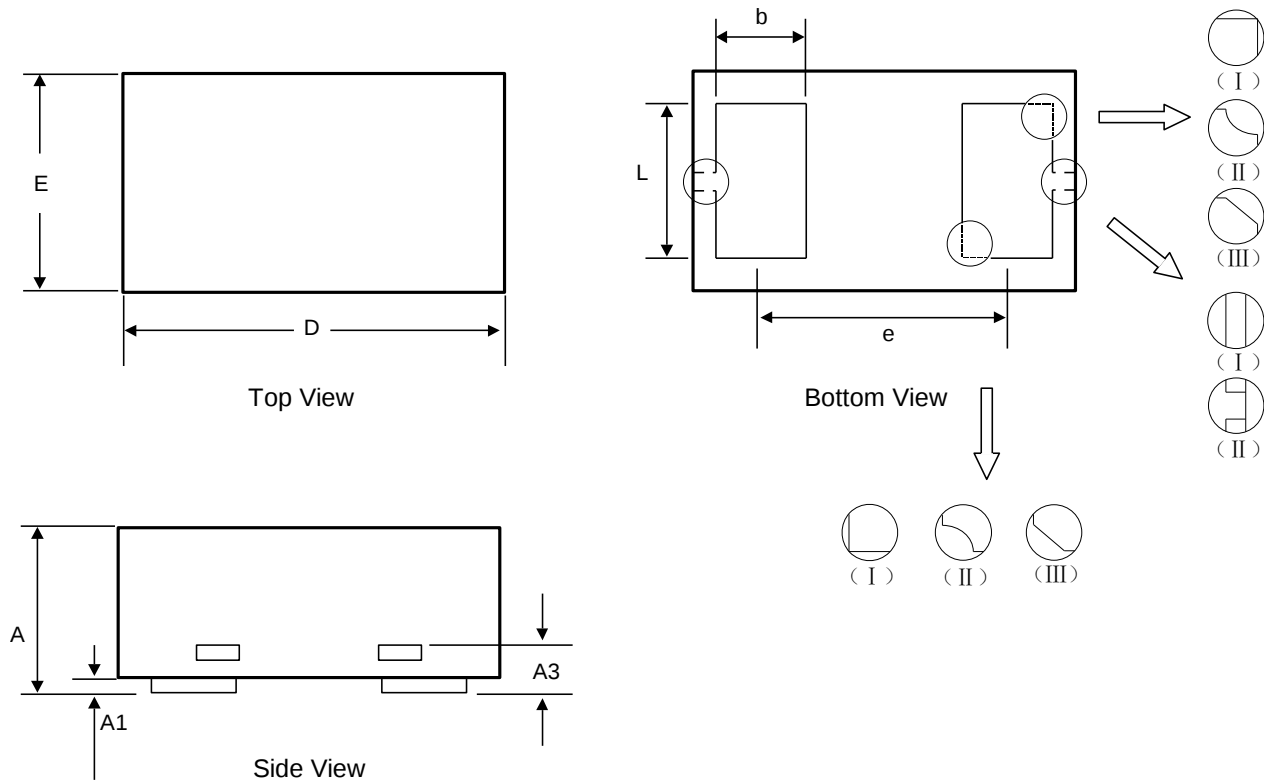


Power Derating Curve



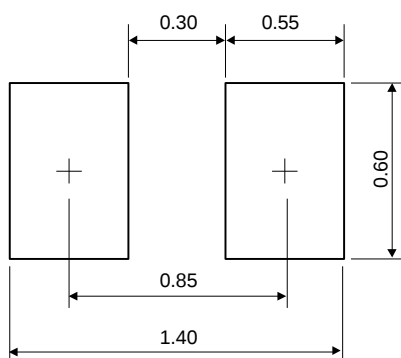
8/20 μs Pulse Waveform

DFN1006-2 Package Outline Drawing



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.340	0.450	0.550
A1	0.000	0.020	0.050
A3	0.125 Ref.		
D	0.950	1.000	1.075
E	0.490	0.600	0.675
b	0.200	0.250	0.300
L	0.450	0.500	0.550
e	0.650 BSC		

Recommended PCB Layout (Unit: mm)

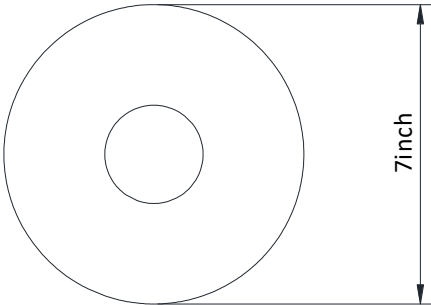


Notes:

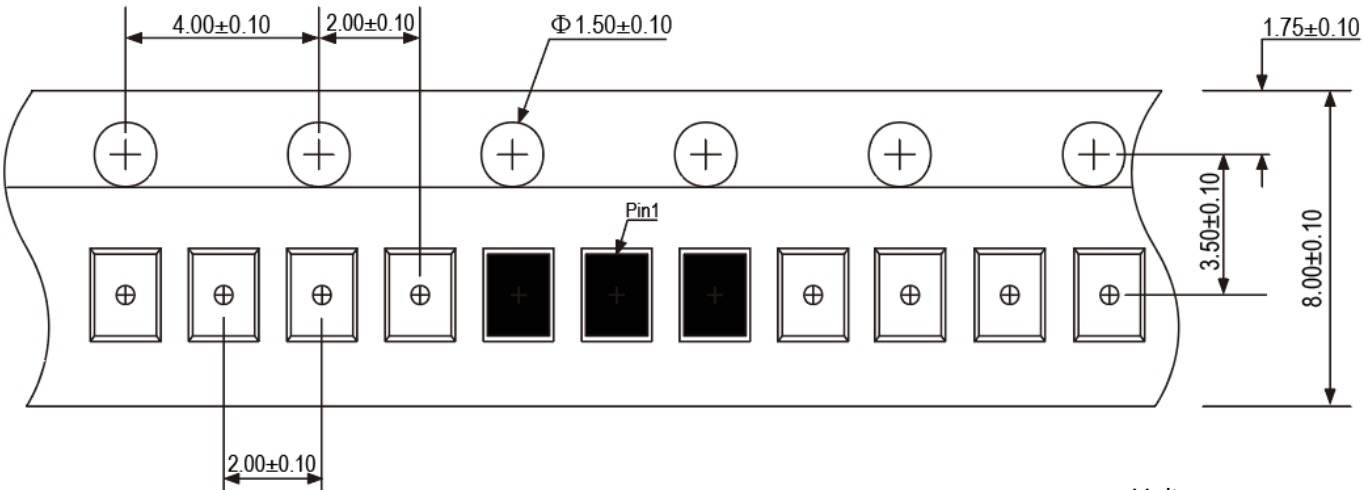
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

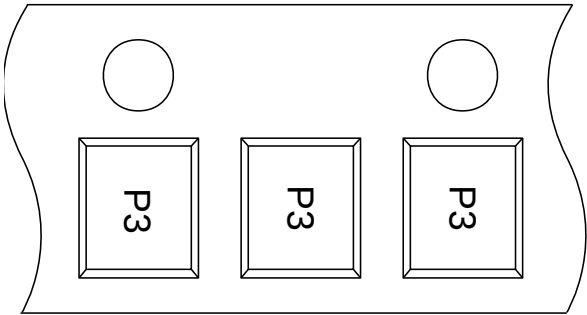
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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