

1-Line Bi-directional TVS Diode

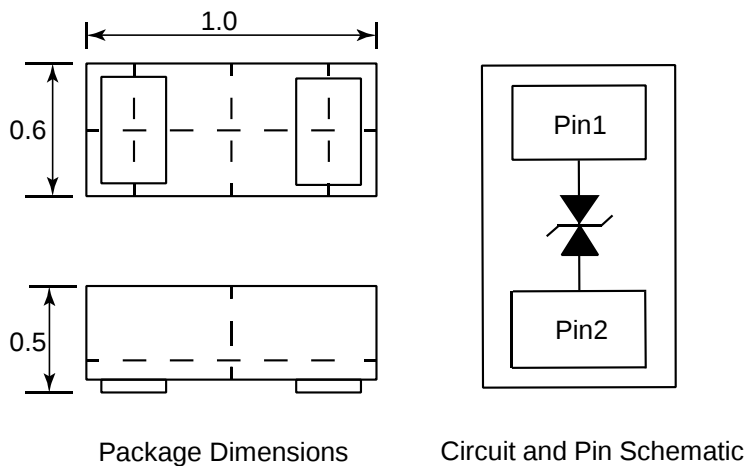
Description

PESDU0541P1A is a bi-directional TVS (Transient Voltage Suppressor). It has been specifically designed to protect sensitive electronic components which are connected to low speed data lines and control lines from over-stress caused by ESD (Electrostatic Discharge) and Lightning. PESDU0541P1A may be used to provide ESD protection up to $\pm 30\text{kV}$ (air and contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to $35\text{A}(8/20\mu\text{s})$ according to IEC61000-4-5. PESDU0541P1A is available in DFN1006-2 package. Standard products are Pb-free and Halogen-free.

Features

- Ultra small package: $1.0 \times 0.6 \times 0.5\text{mm}$
- Protects one data or power line
- Low operating voltage: 5V
- 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) $45\text{A}(8/20\mu\text{s})$
- RoHS Compliant

Dimensions and Pin Configuration



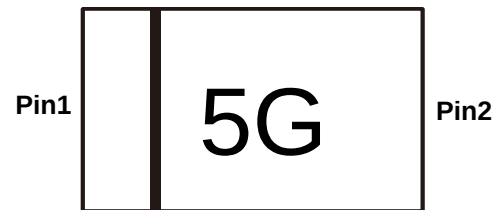
Mechanical Characteristics

- Package: DFN1006-2 ($1.0 \times 0.6 \times 0.5\text{mm}$)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Tablets
- Laptops
- Other portable devices
- Network communication devices

Marking Information



5G = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU0541P1A	10000/Tape & Reel	7 inch

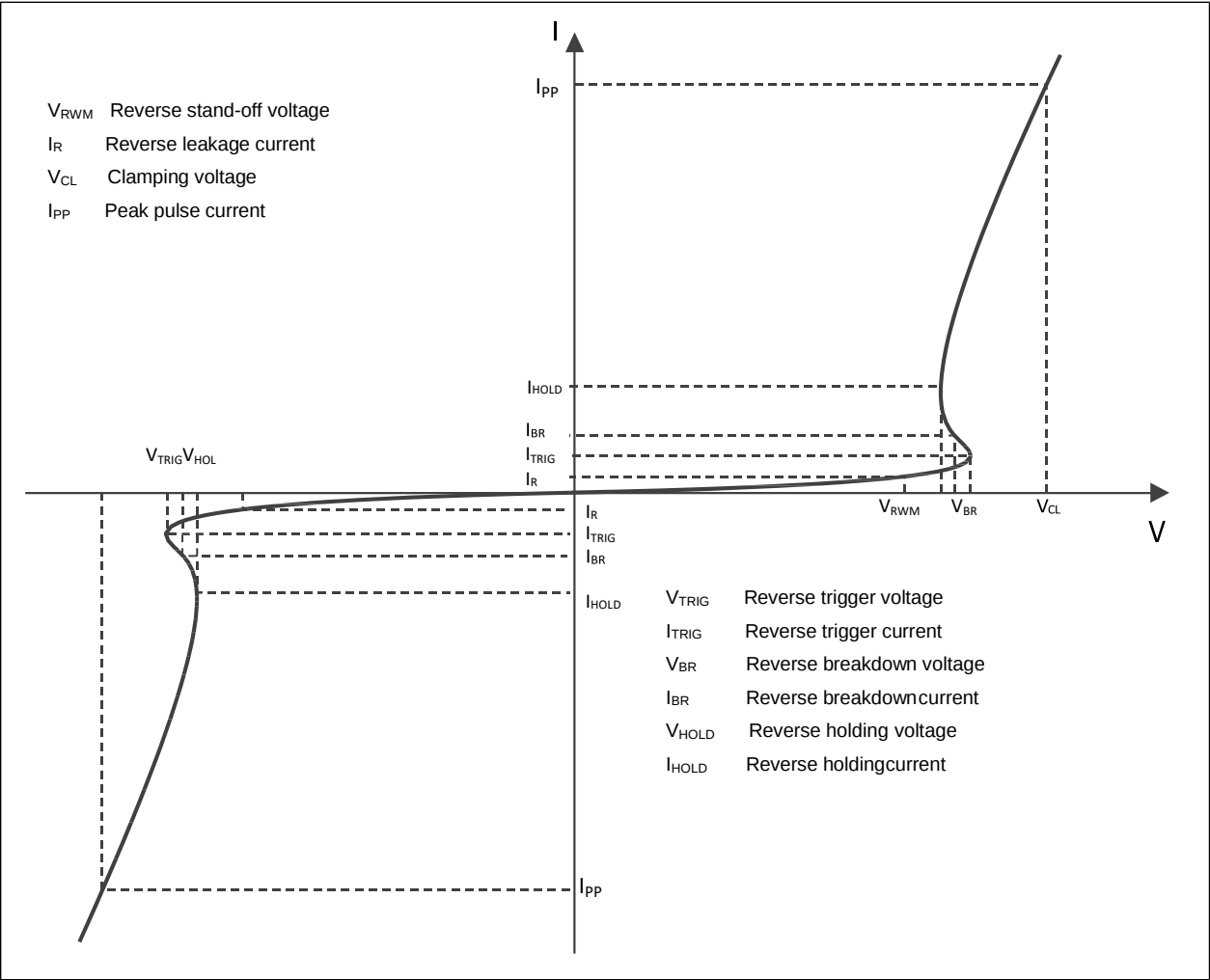
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	495	W
Peak Pulse Current (8/20μs)	I _{PP}	45	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)

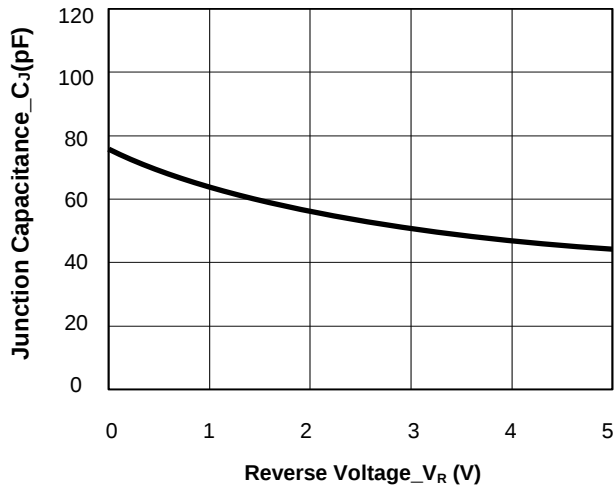
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Breakdown Voltage	V _{BR}	5.3	5.8		V	I _T = 1mA
Reverse Leakage Current	I _R			1	μA	V _{RWM} = 5V
Clamping Voltage	V _C			7.5	V	I _{PP} = 1A (8/20μs pulse)
Clamping Voltage	V _C			11	V	I _{PP} = 45A (8/20μs pulse)
Junction Capacitance	C _J		75		pF	V _R = 0V, f = 1MHz

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

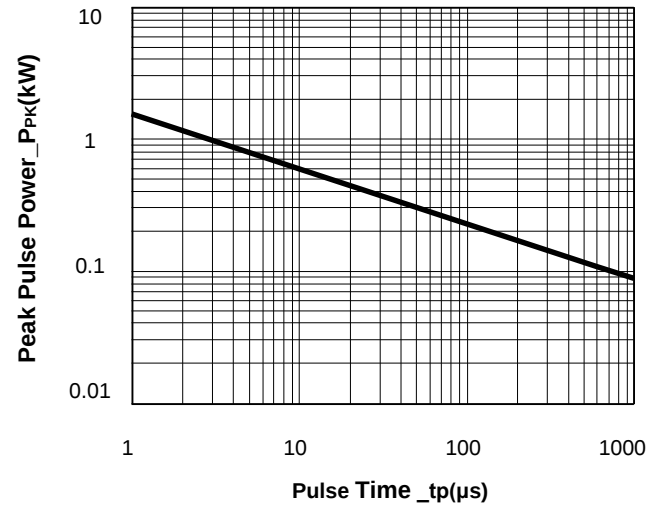


Definitions of electrical characteristics

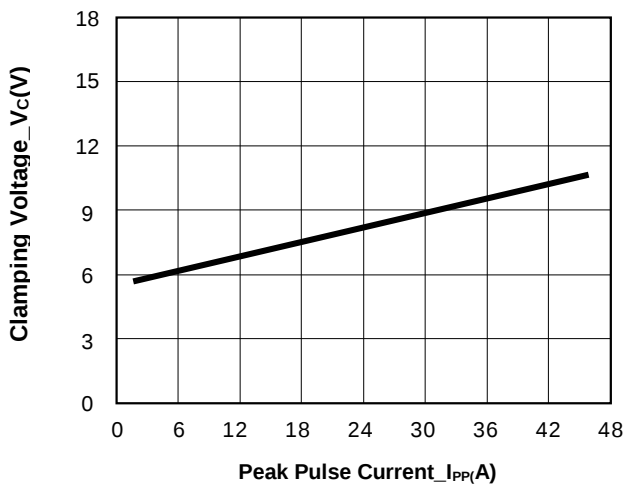
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



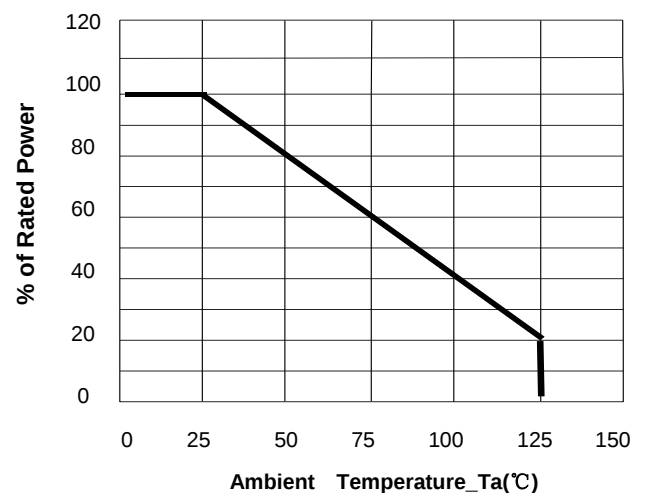
Junction Capacitance vs. Reverse Voltage



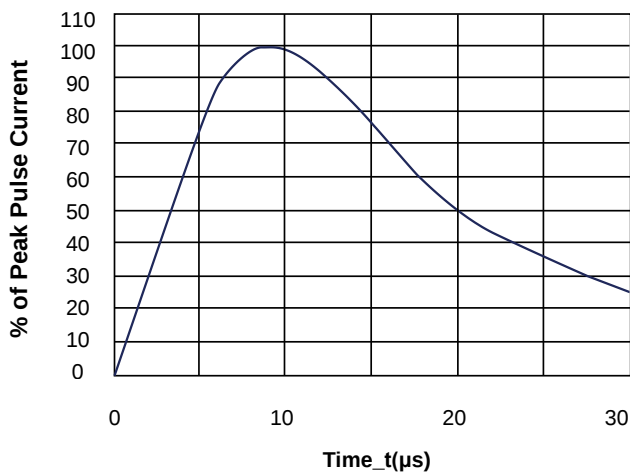
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

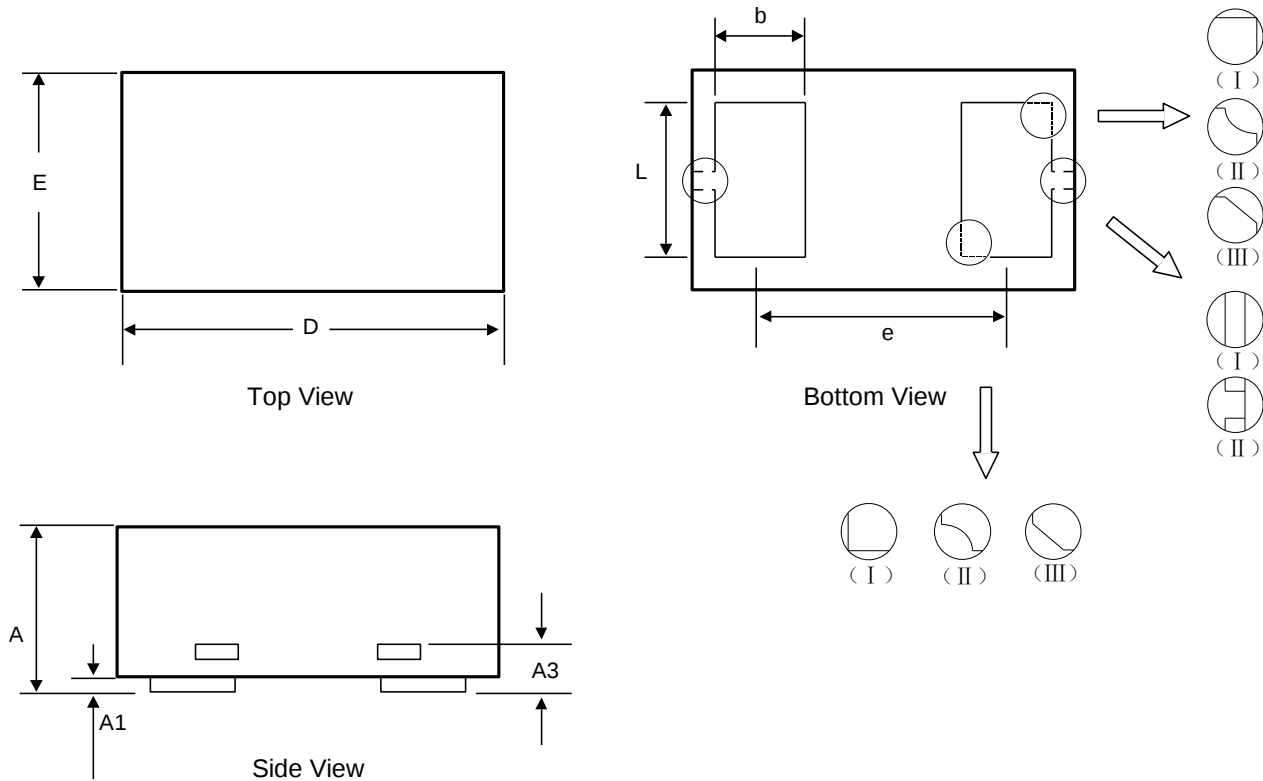


Power Derating Curve



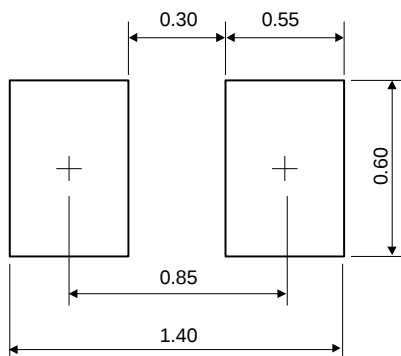
8/20 μs Pulse Waveform

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)

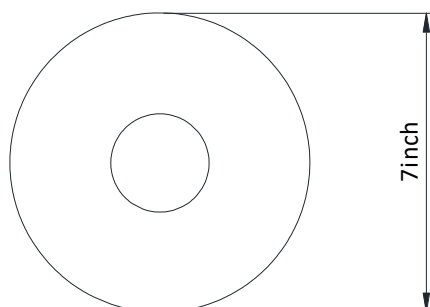


Notes:

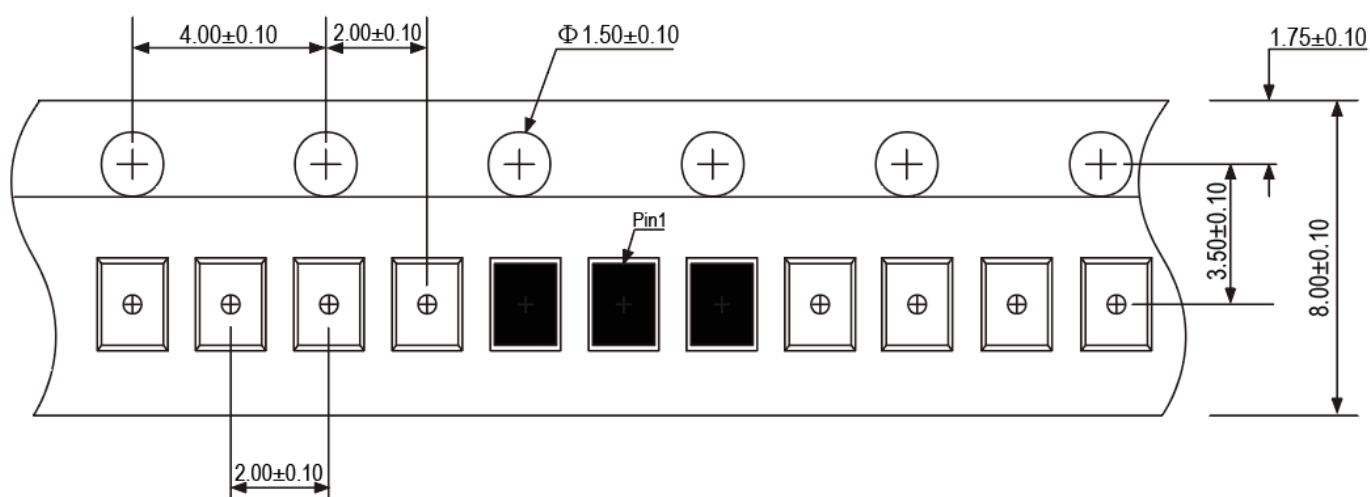
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

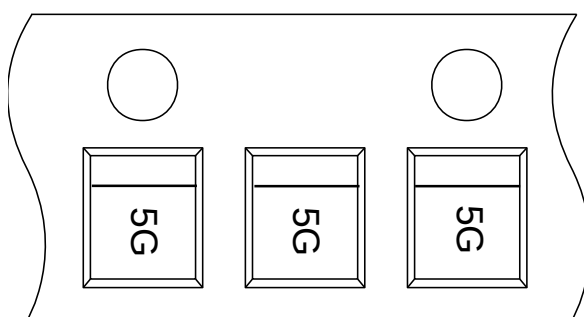
Reel Dimensions



Tape Dimensions



Unit:mm



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User Direction of Feed

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