

1-Line Uni-directional TVS Diode

Description

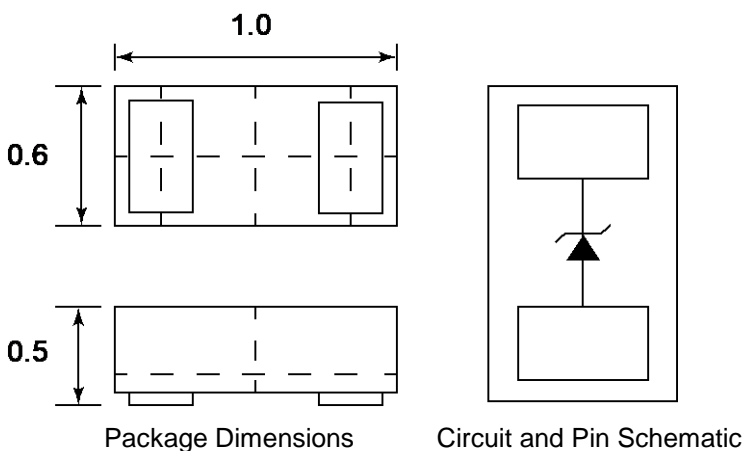
The PESDU1271P1 is an uni-directional TVS diode, to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The PESDU1271P1 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge.

It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and high ESD protection make PESDU1271P1 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Ultra small package: 1.0x0.6x0.5mm
- Protects one data or power line
- Working voltage: 12 V
- 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) 26A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Mechanical Characteristics

- Package: DFN1006-2 (1.0x0.6x0.5mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

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

Marking Information



12S = Device Marking Code
Bar denotes cathode

Ordering Information

| Part Number | Shipping | Reel Size |
|-------------|-------------------|-----------|
| PESDU1271P1 | 10000/Tape & Reel | 7 inch |

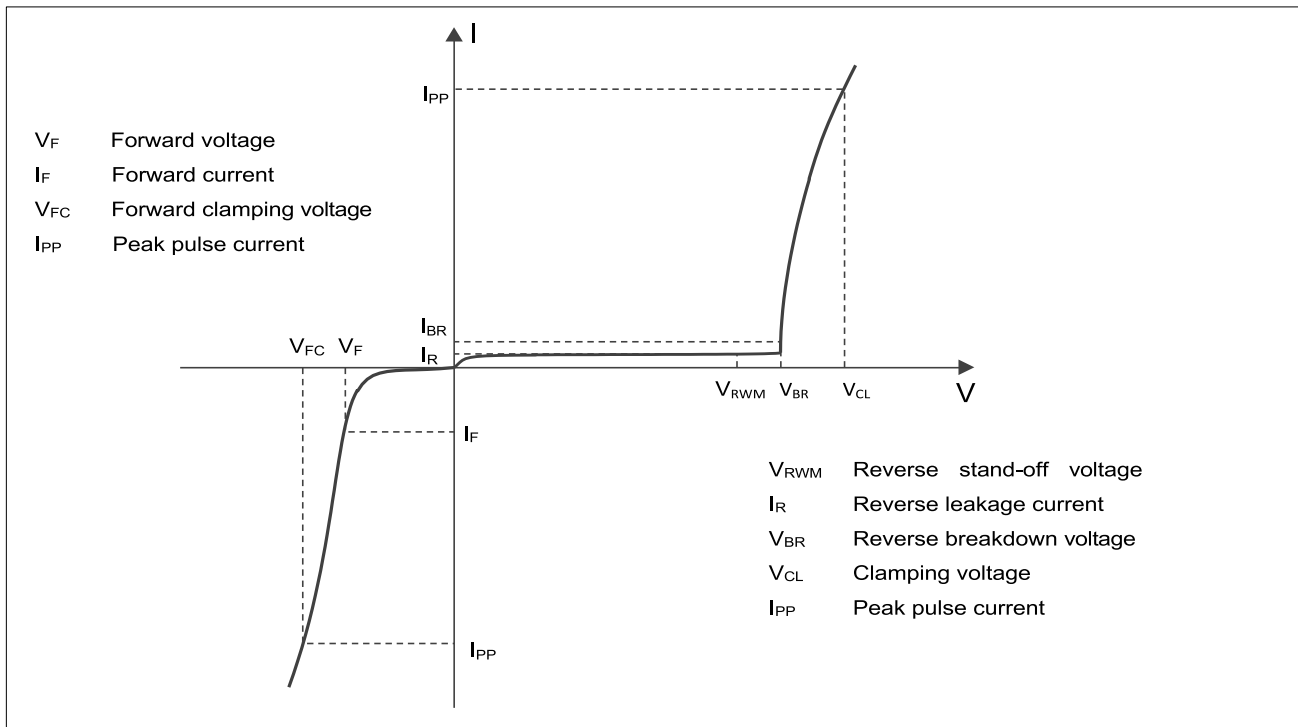
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---------------------------------|------------------|------------|------|
| Peak Pulse Power (8/20μs) | P _{pk} | 730 | W |
| Peak Pulse Current (8/20μs) | I _{PP} | 26 | 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 |
| Operating Temperature Range | T _{OP} | -40 ~ +85 | °C |
| Storage Temperature Range | T _{STG} | -55 ~ +150 | °C |

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

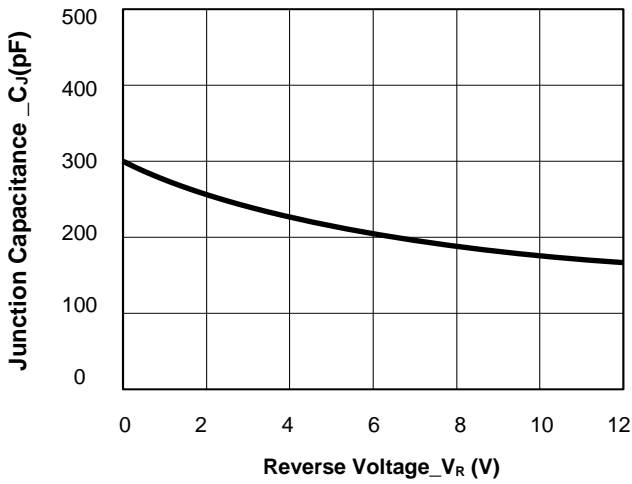
| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|------------------|------|-----|------|------|---------------------------------------|
| Reverse Working Voltage | V _{RWM} | | | 12.0 | V | Pin 1 to Pin 2 |
| Breakdown Voltage | V _{BR} | 13.0 | | | V | I _T = 1mA |
| Reverse Leakage Current | I _R | | | 1 | μA | V _{RWM} = 12V |
| Clamping Voltage | V _C | | | 28 | V | I _{PP} = 26A (8/20μs pulse), |
| Junction Capacitance | C _J | | 300 | | pF | V _R = 0V, f = 1MHz |

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

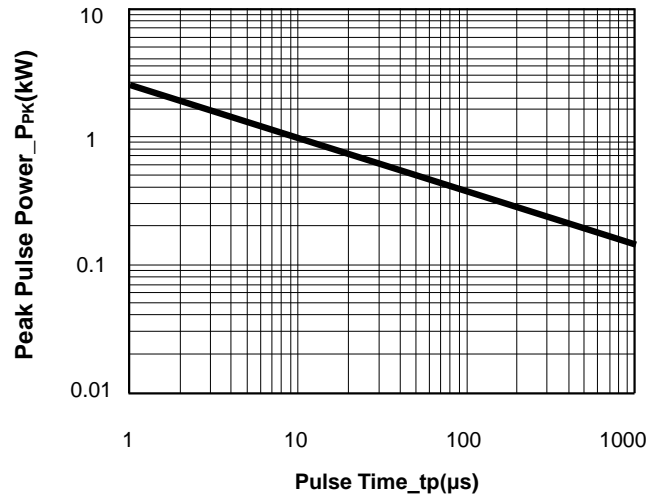


Definitions of electrical characteristics

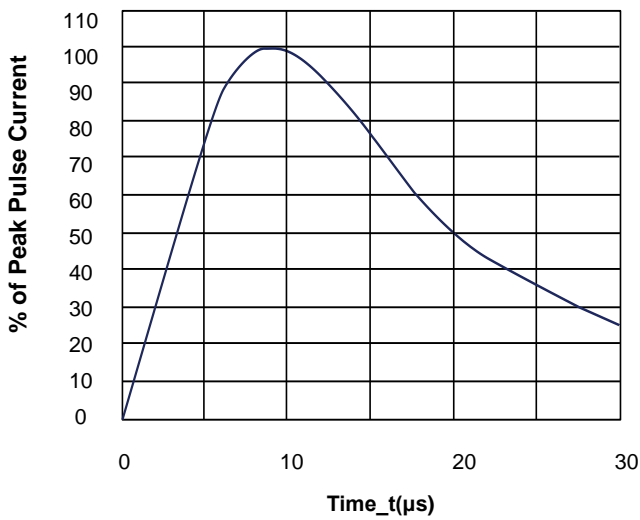
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



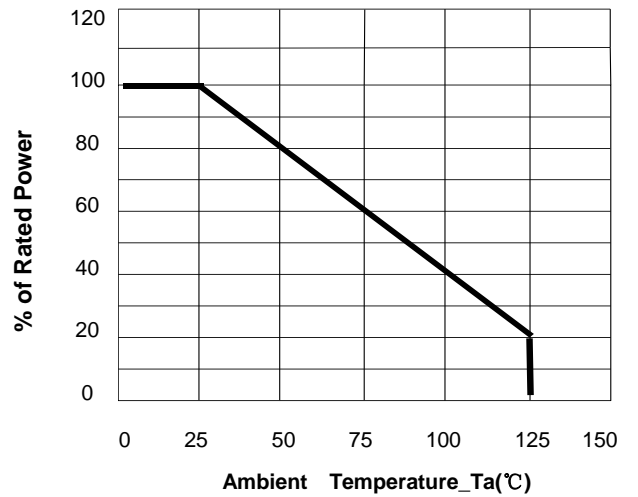
Junction Capacitance vs. Reverse Voltage



Peak Pulse Power vs. Pulse Time

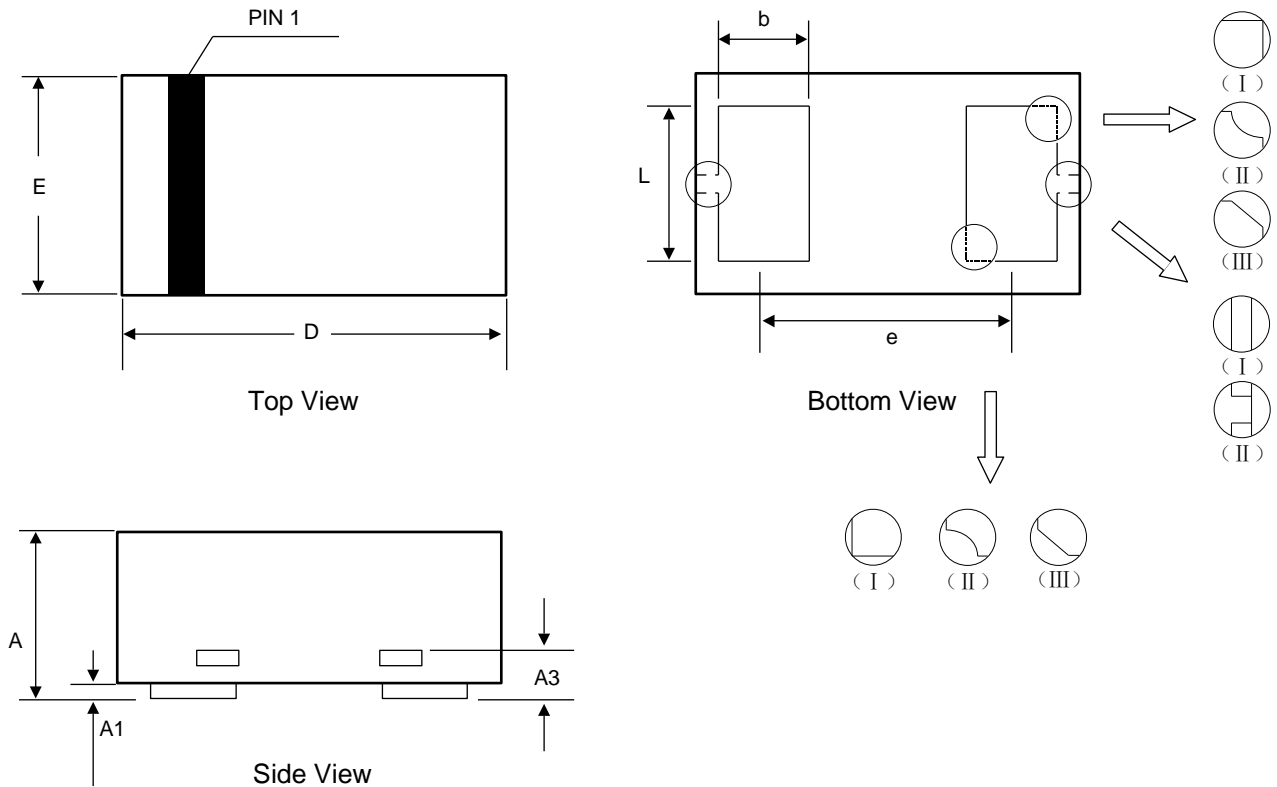


8/20 μs Pulse Waveform



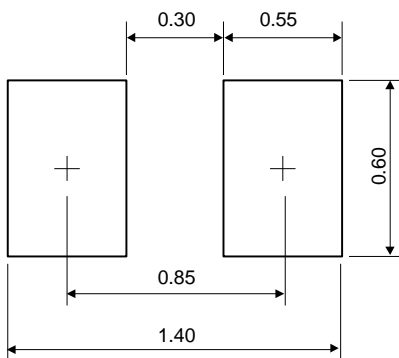
Power Derating Curve

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)

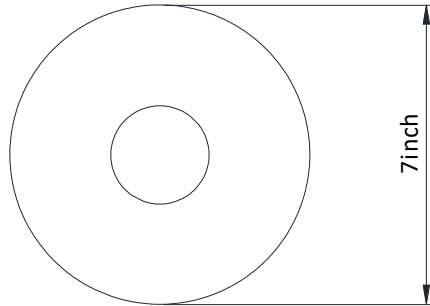


Notes:

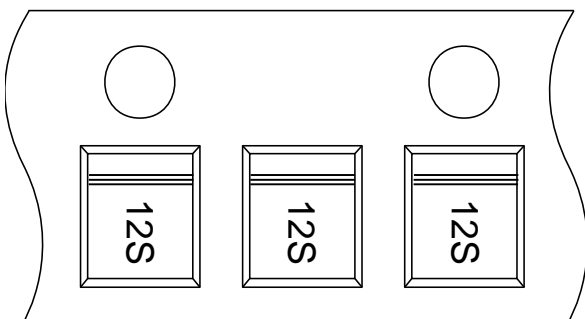
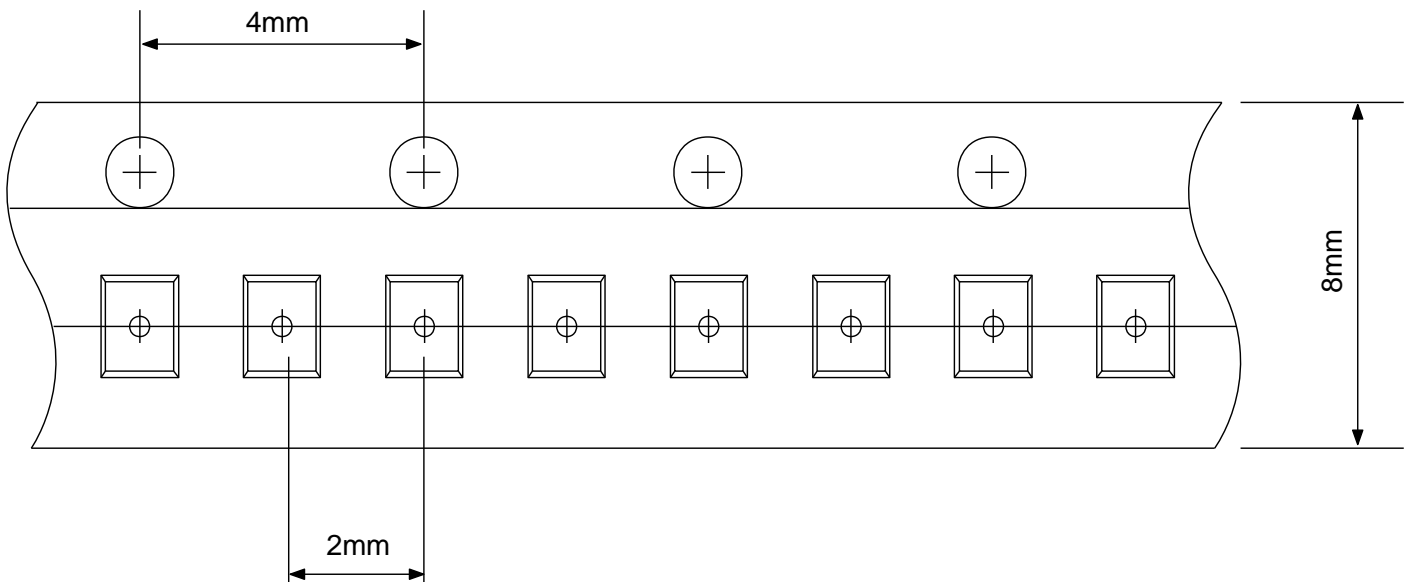
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions




User Direction of Feed

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