

**1-Line Uni-directional TVS Diode**

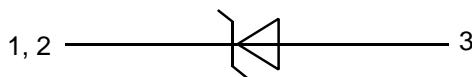
**Description**

The PESDU1271P4-3 is a high power TVS, to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. The PESDU1271P4-3 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 a 3-pin DFN2020- 3 lead-free package. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cell phones, LCD displays, USB, and multi media card interfaces.

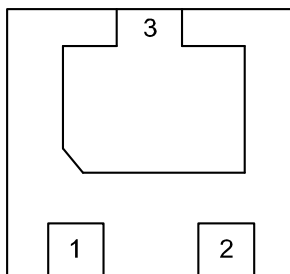
**Features**

- 7680W peak pulse power (8/20 $\mu\text{s}$ )
- operating voltage: 12V
- Ultra low clamping voltage
- One power line protects
- 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) 240A (8/20 $\mu\text{s}$ )
- RoHS Compliant

**Dimensions and Pin Configuration**



Circuit Diagram



Transparent top view

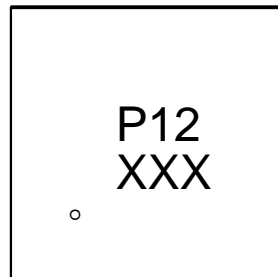
**Mechanical Characteristics**

- Package: DFN2020-3
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

**Applications**

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computer & Consumer Electronics
- Industrial Electronics
- Microcontroller Input Protection

**Marking Information**



P12 XXX= Device Making Code

**Ordering Information**

Part Number	Shipping	Reel Size
PESDU1271P4-3	3000/Tape & Reel	7 inch

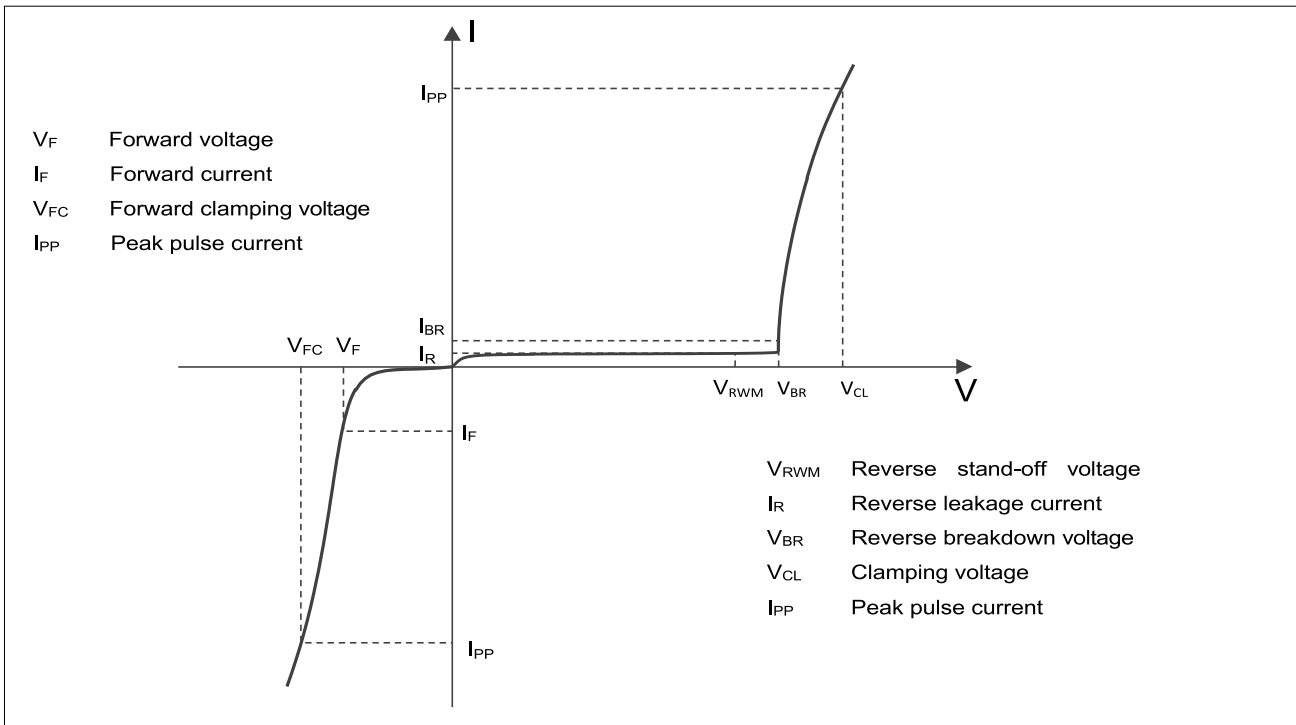
**Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P <sub>PK</sub>	7680	W
Peak Pulse Current (8/20μs)	I <sub>PP</sub>	240	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Lead temperature	T <sub>L</sub>	260	°C
Operating Temperature Range	T <sub>OP</sub>	-40 ~ +85	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)**

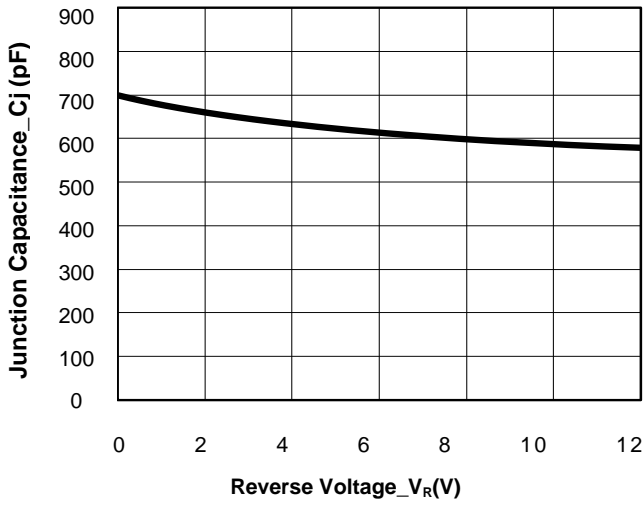
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			12	V	
Breakdown Voltage	V <sub>BR</sub>	13			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>			1	μA	V <sub>RWM</sub> = 12V
Clamping Voltage	V <sub>C</sub>			20	V	I <sub>PP</sub> = 20A (8/20μs pulse)
Clamping Voltage	V <sub>C</sub>			32	V	I <sub>PP</sub> = 240A (8/20μs pulse)
Junction Capacitance	C <sub>J</sub>		700		pF	V <sub>R</sub> = 0V, f = 1MHz

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

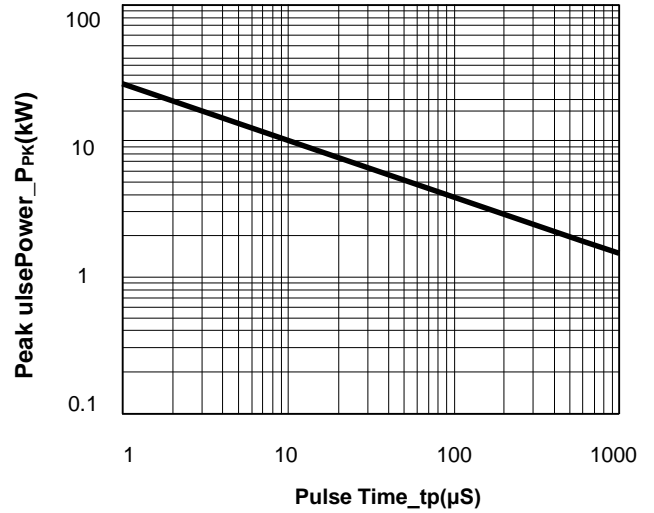


Definitions of electrical characteristics

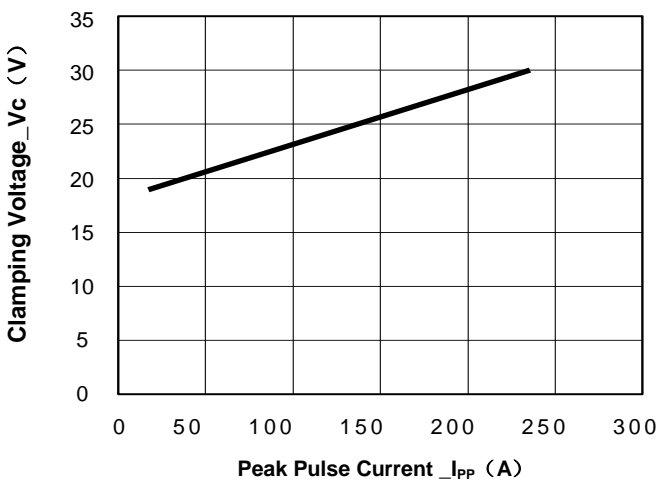
**Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)**



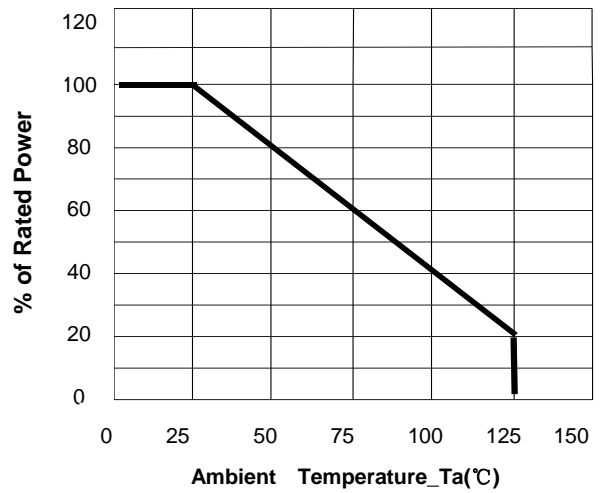
**Junction Capacitance vs. Reverse Voltage**



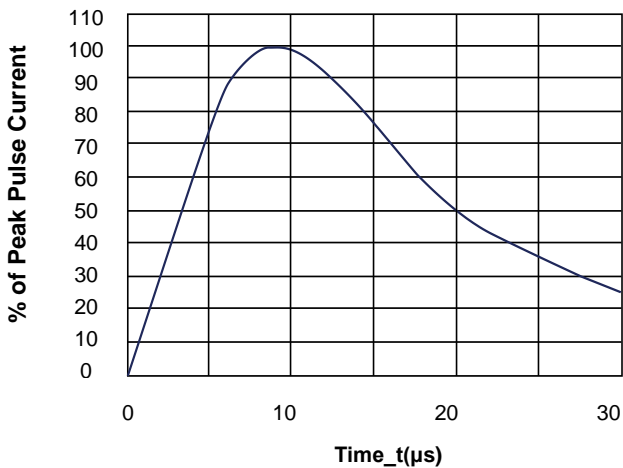
**Peak Pulse Power vs. Pulse Time**



**Clamping Voltage vs. Peak Pulse Current**

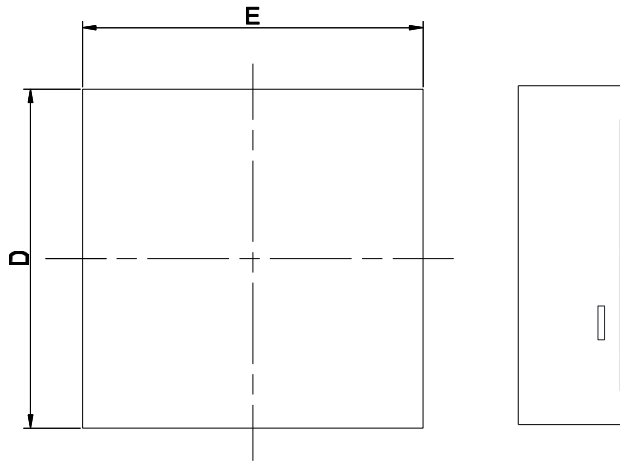


**Power Derating Curve**

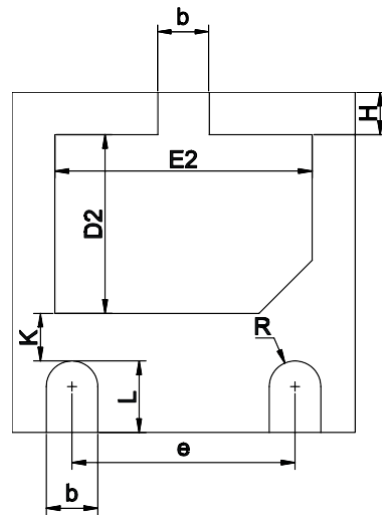


**8/20 $\mu\text{s}$  Pulse Waveform**

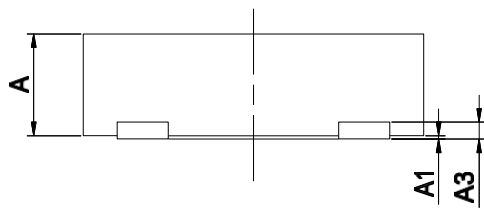
**DFN2020-3 Package Outline Drawing**



**Top View**



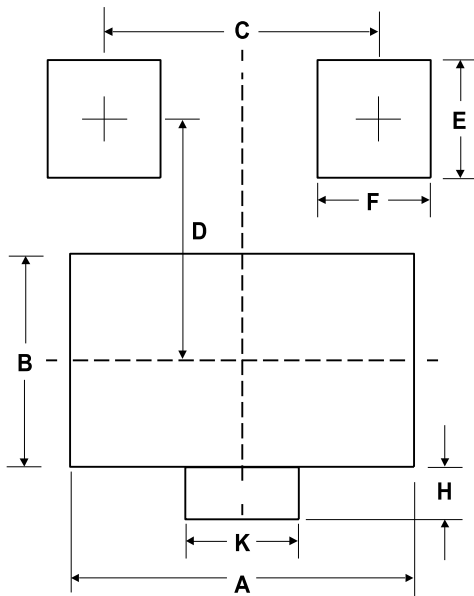
**Bottom View**



**Side View**

Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10 REF.		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.95	1.05	1.15
E2	1.40	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.35	0.40	0.45
R	0.13	-	-

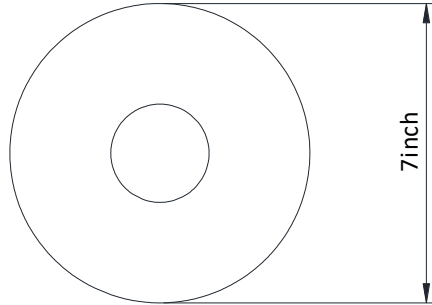
**Suggested Land Pattern**



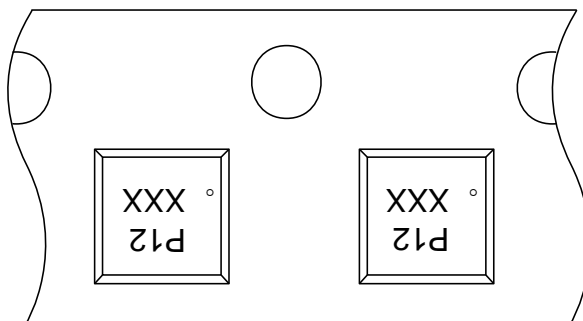
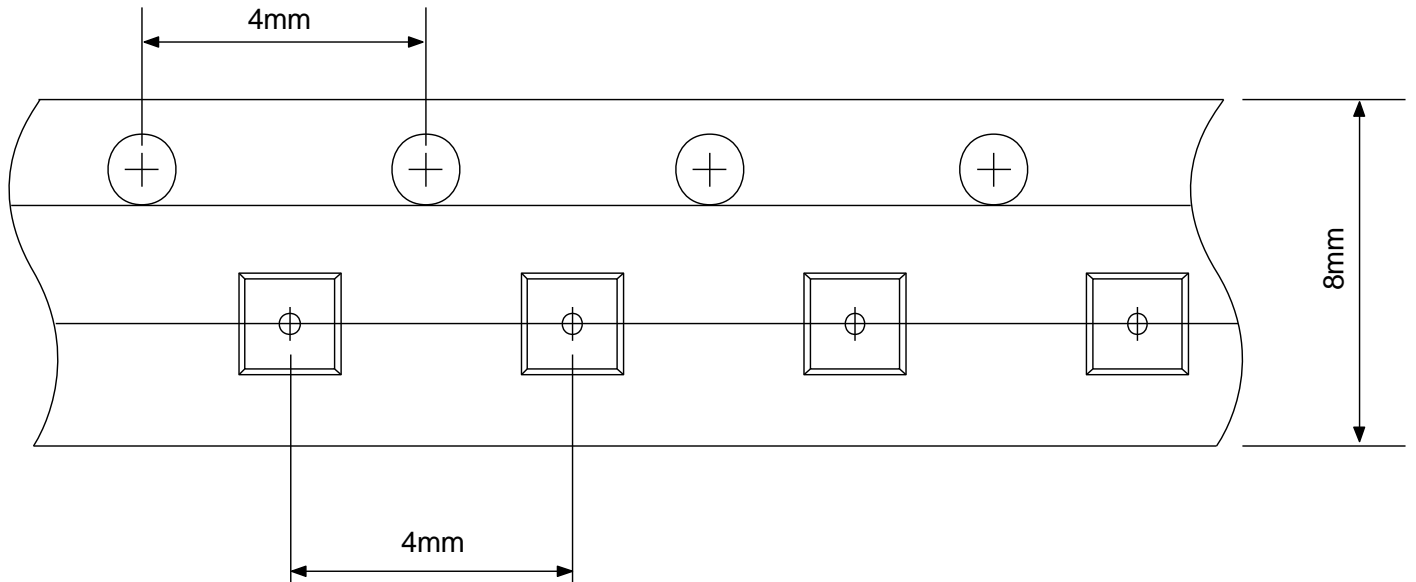
SYM	MILLIMETERS
A	1.60
B	1.10
C	1.30
D	1.05
E	0.50
F	0.40
K	0.40
H	0.25

**TAPE AND REEL INFORMATION**

Reel Dimensions



Tape Dimensions



User Direction of Feed

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