

1-Line Bi-directional TVS Diode

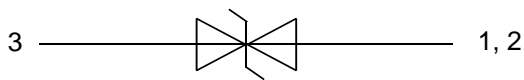
Description

The PESDU4521P4-3 is a high power TVS, utilizing to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. The PESDU4521P4-3 complies with the IEC 61000-4-2 (ESD) 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 cellular phones, digital cameras, and many other portable applications.

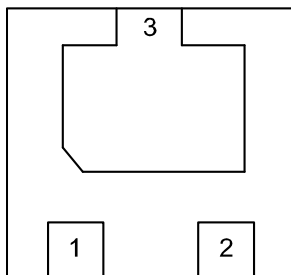
Features

- 4700W peak pulse power (8/20 μs)
- Operating voltage: 4.5V
- 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) 260A (8/20 μs)
- RoHS Compliant

Dimensions and Pinonfiguration



Circuit Diagram 1, 2



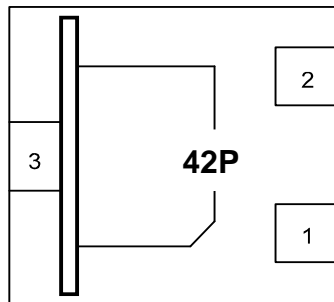
Mechanical Characteristics

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

Applications

- Power Management
- Industrial Application
- Power Supply Protection

Marking Information



42P = Device Making Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU4521P4-3	3000/Tape & Reel	7 inch

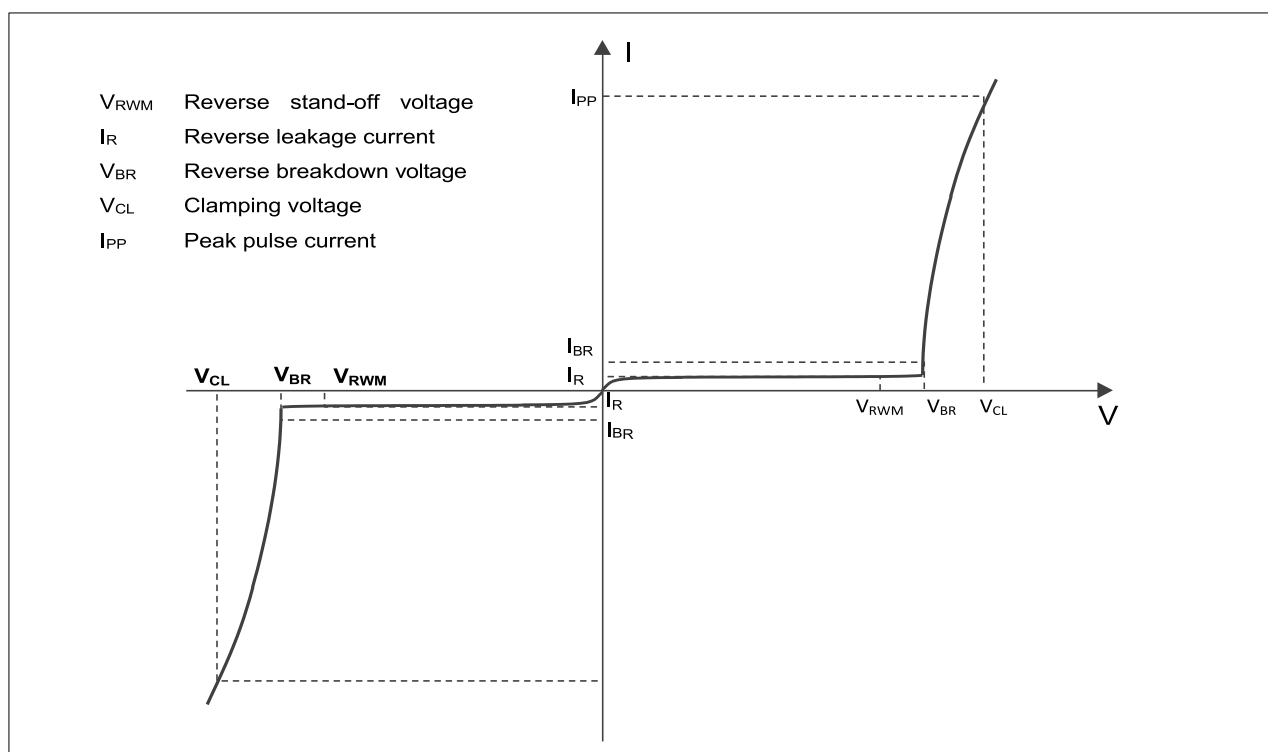
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	4700	W
Peak Pulse Current (8/20μs)	I _{PP}	260	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	kV
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)

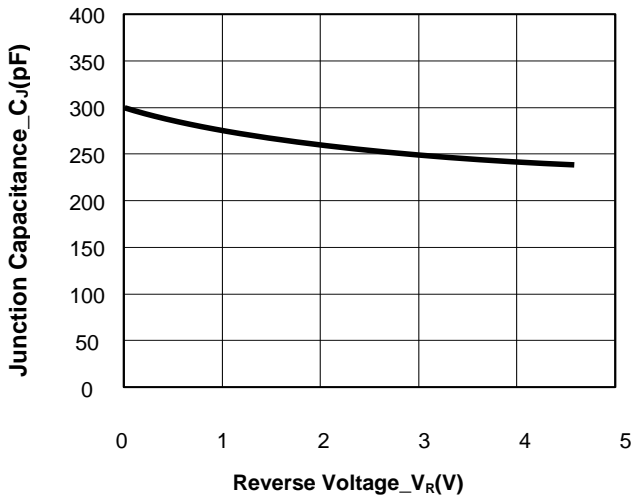
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			4.5	V	
Breakdown Voltage	V _{BR}	4.6			V	I _T = 1mA
Reverse Leakage Current	I _R			1	μA	V _{RWM} = 4.5V
Clamping Voltage	V _C			8.5	V	I _{PP} = 50A (8/20μs pulse)
Clamping Voltage	V _C			18	V	I _{PP} = 260A (8/20μs pulse)
Junction Capacitance	C _J		300		pF	V _R = 0V, f = 1MHz

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

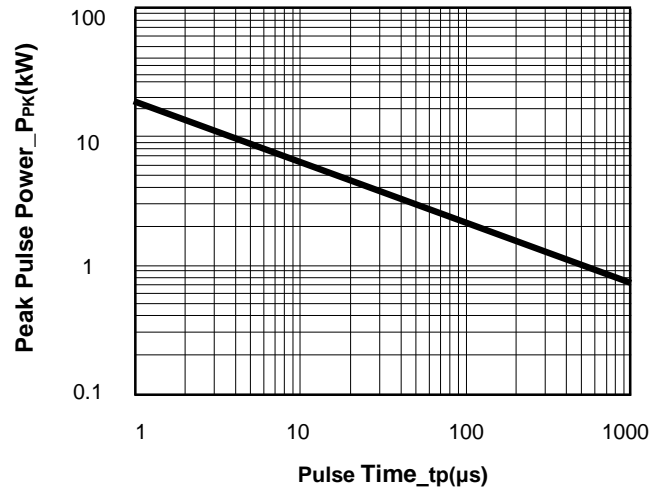


Definitions of electrical characteristics

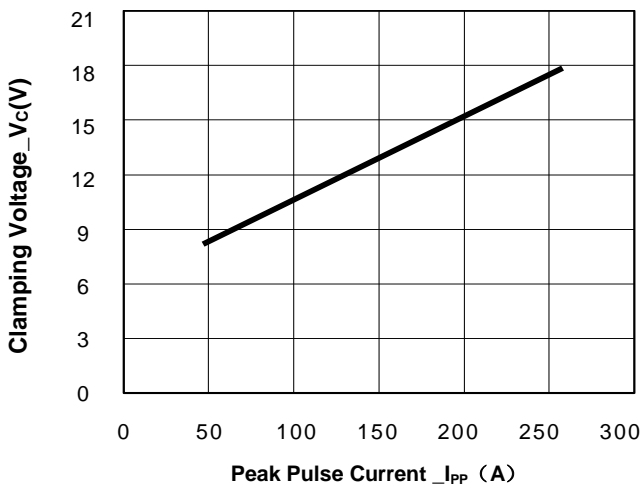
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



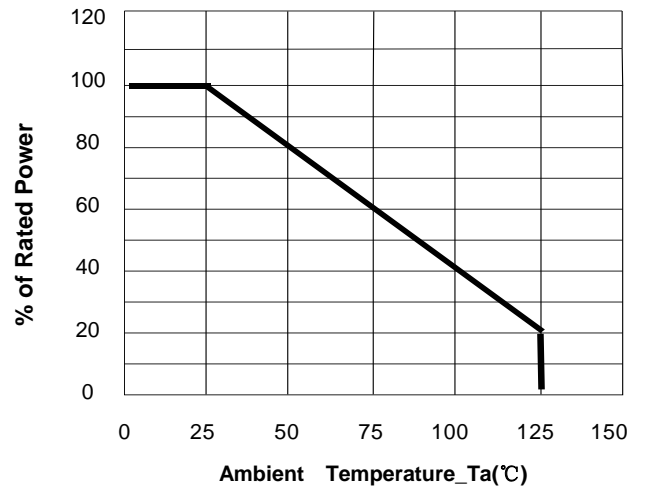
Junction Capacitance vs. Reverse Voltage



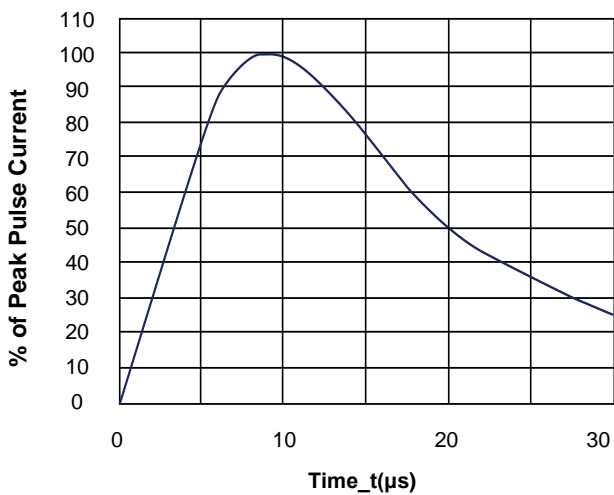
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

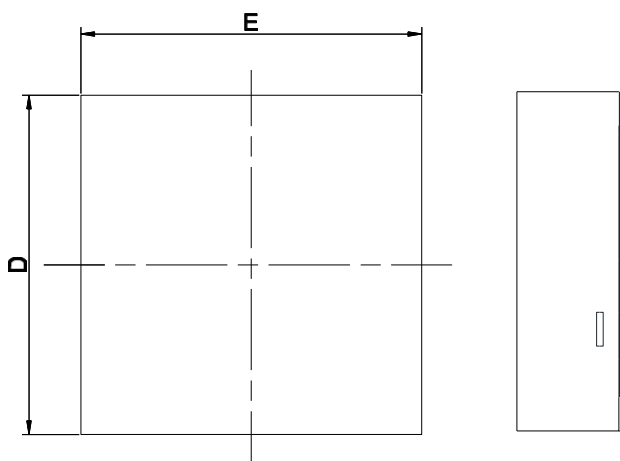


Power Derating Curve

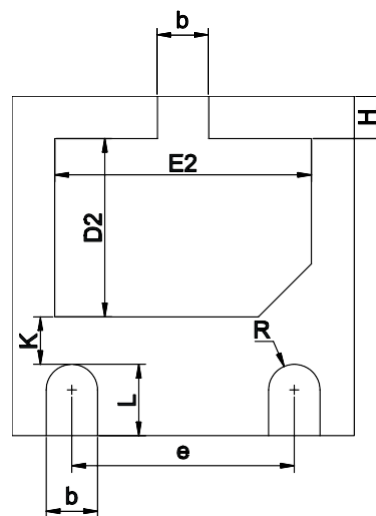


8/20 μs Pulse Waveform

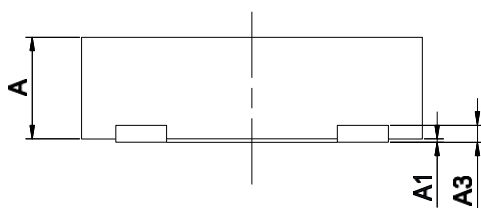
DFN2020-3 Package Outline Drawing



Top View



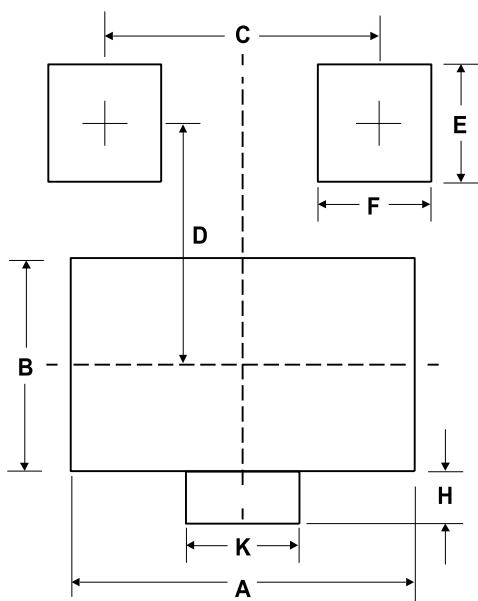
Bottom View



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	-	-

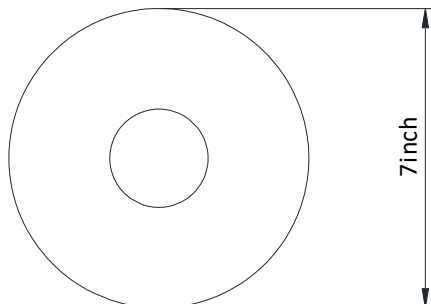
Suggested Land Pattern



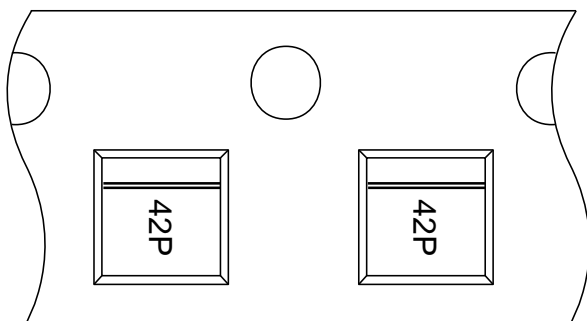
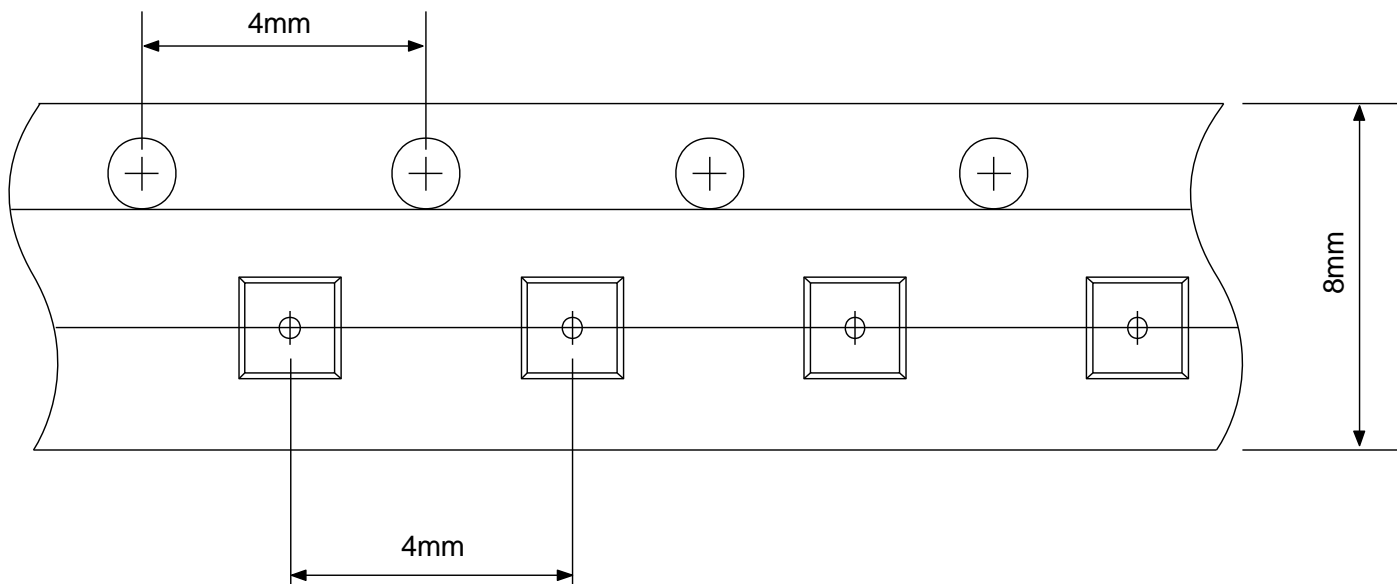
SYM	MILLIMETERS
A	1.60
B	1.10
C	1.30
D	1.05
E	0.50
F	0.40
K	0.40
H	0.25

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



User Direction of Feed

IMPORTANT NOTICE

The information given in this document is believed to be accurate and reliable but shall in no event be regarded as a guarantee of conditions or characteristics. PN-Silicon assumes no responsibility for any errors in this document, or for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of PN-Silicon.

The product listed in this document are designed to be used with ordinary electronic equipment or devices and are not authorized to used with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, automotive and other safety device.)

The **PN SILICON** logo is a registered trademark of PN-Silicon co., ltd which reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. PN-Silicon makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. All rights reserved.