

1-Line Uni-directional TVS Diode

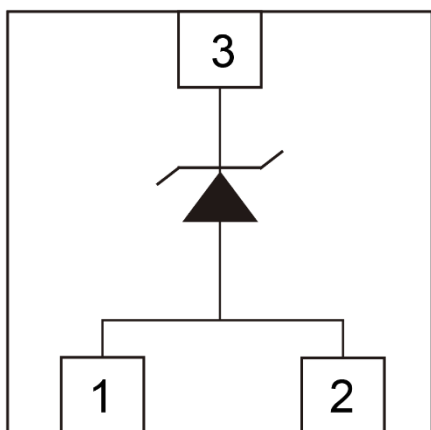
Description

The PESDU1831P4-3 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 PESDU1831P4-3 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

- 5850W peak pulse power (8/20 μs)
- operating voltage: 18V
- 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) 150A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Circuit Diagram

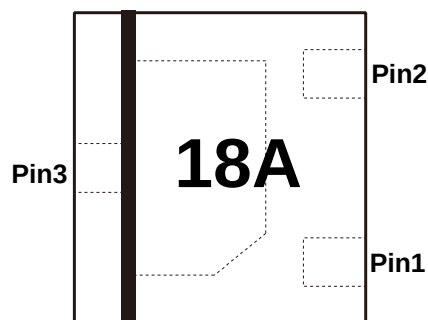
Mechanical Characteristics

- 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



18A = Device Making Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU1831P4-3	3000/Tape & Reel	7 inch

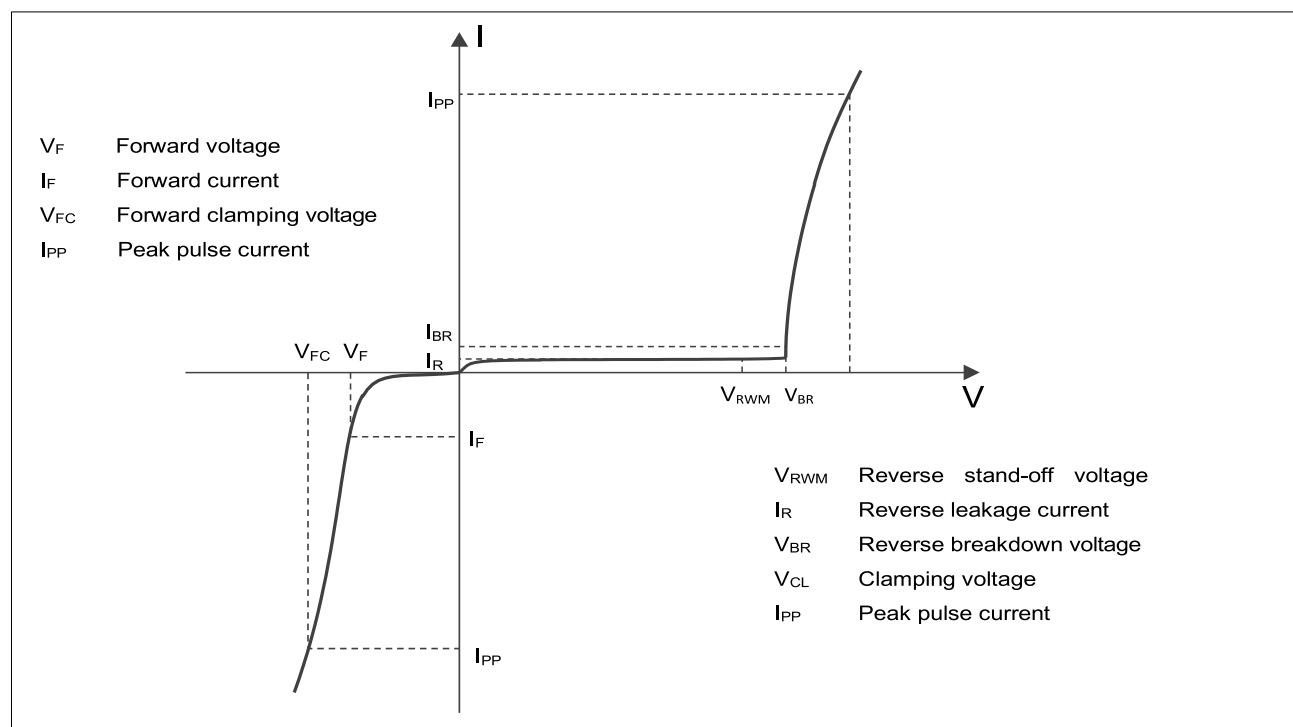
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	5400	W
Peak Pulse Current (8/20μs)	I _{PP}	150	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
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)

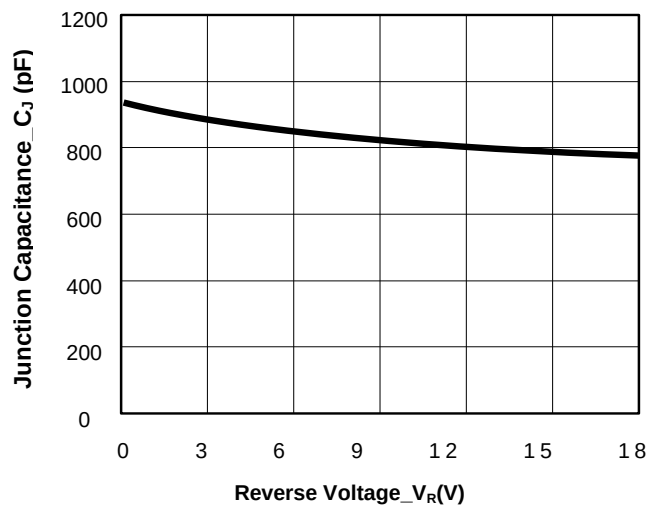
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			18	V	
Breakdown Voltage	V _{BR}	19			V	I _T = 1mA
Reverse Leakage Current	I _R			0.3	μA	V _{RWM} = 18V
Clamping Voltage	V _C		24	25	V	I _{PP} = 35A (8/20μs pulse)
Clamping Voltage	V _C		34	36	V	I _{PP} = 150A (8/20μs pulse)
Junction Capacitance	C _J		950		pF	V _R = 0V, f = 1MHz

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

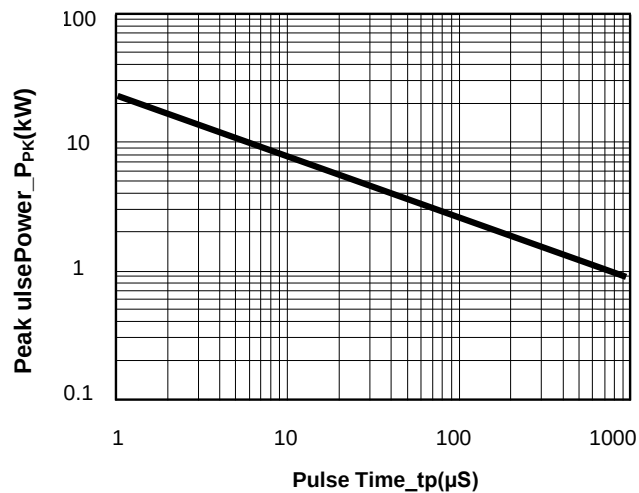


Definitions of electrical characteristics

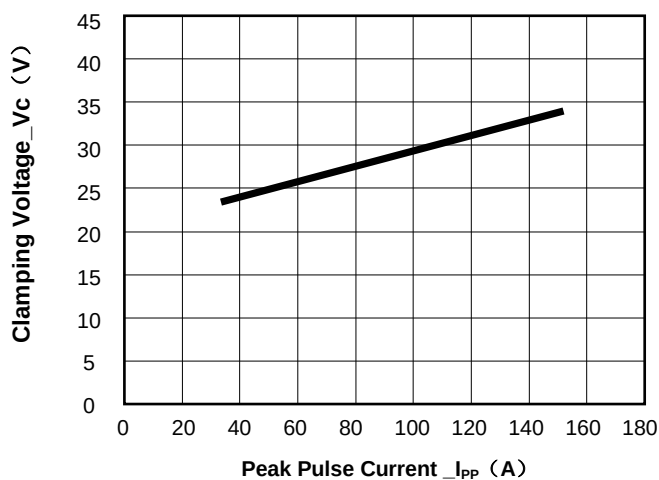
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



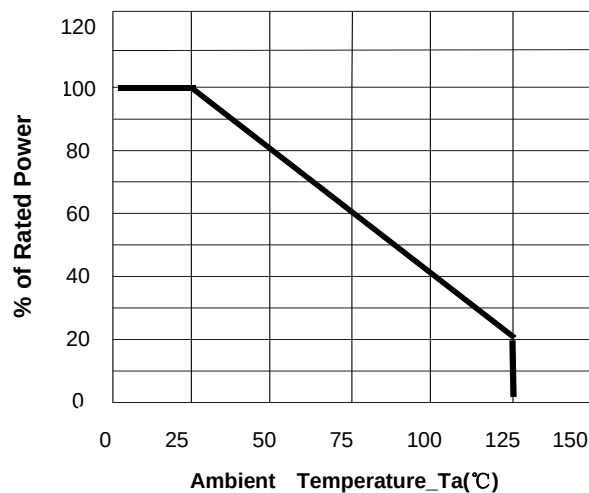
Junction Capacitance vs. Reverse Voltage



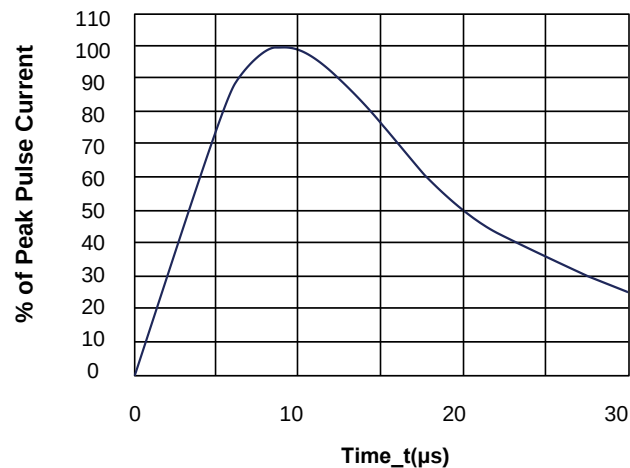
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

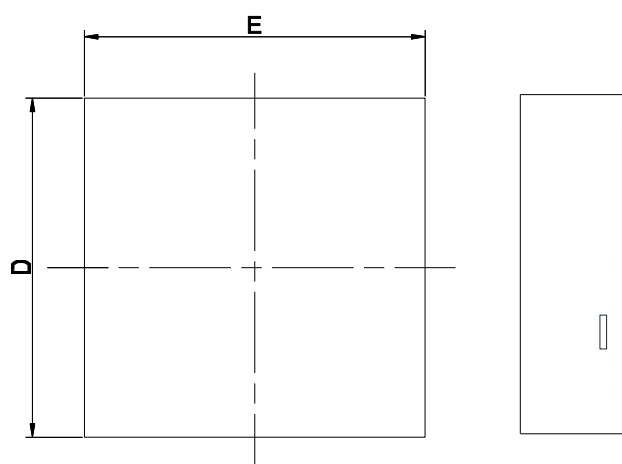


Power Derating Curve

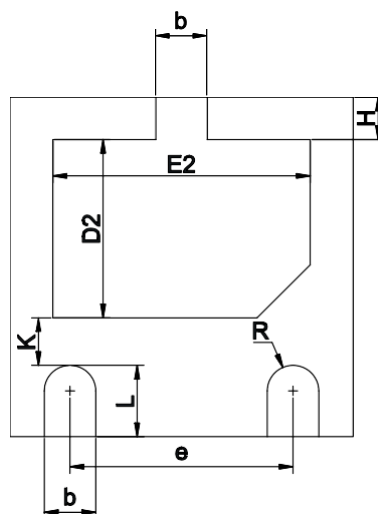


8/20μs Pulse Waveform

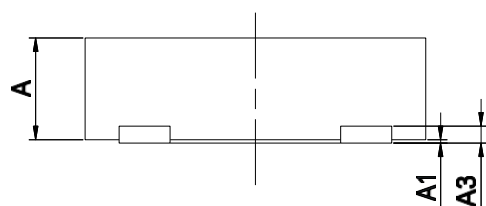
DFN2020-3 Package Outline Drawing



Top View

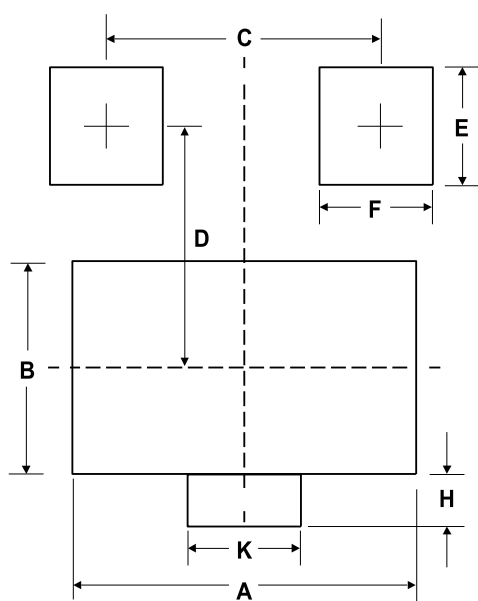


Bottom View



Side View

Suggested Land Pattern

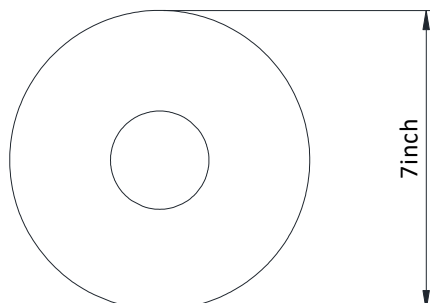


Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
A3	0.10 REF.		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.95	1.05	1.15
E2	1.40	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.35	0.40	0.45
R	0.13	-	-

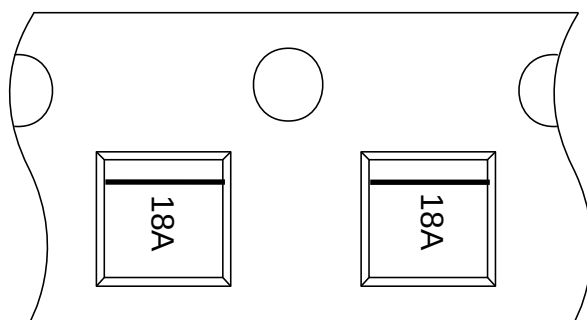
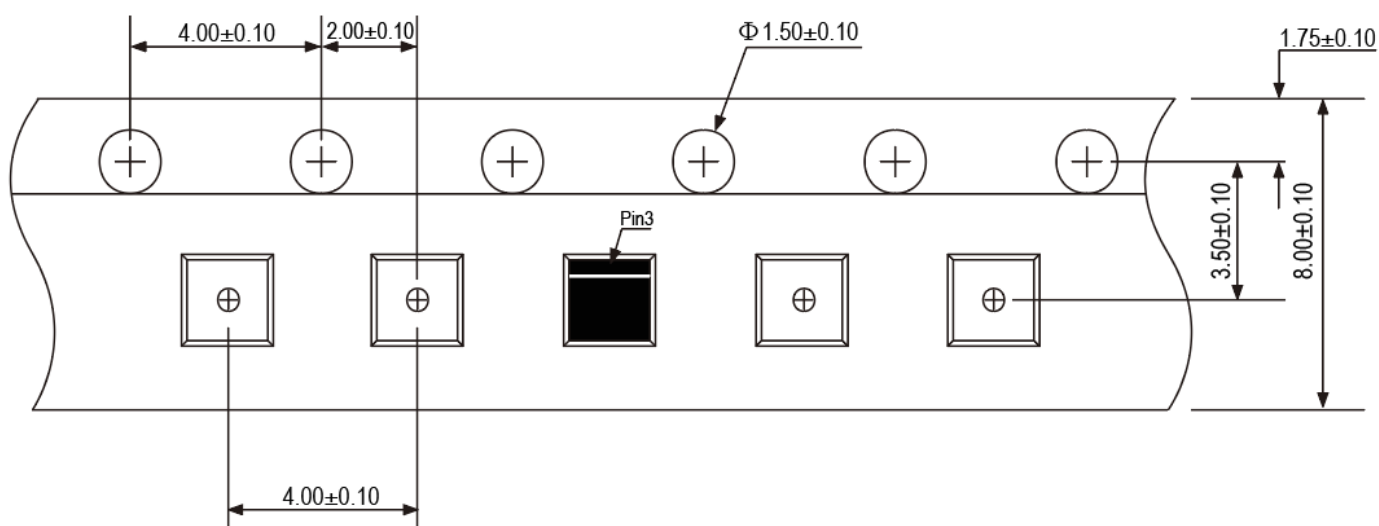
SYM	MILLIMETERS
A	1.60
B	1.10
C	1.30
D	1.05
E	0.50
F	0.40
K	0.40
H	0.25

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



User Direction of Feed

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