

1-Line High Power TVS Diode

Description

The PESDU4831P4-3 is a high power TVS, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. The PESDU4831P4-3 complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into a 3-pin DFN2020-3 lead-free package. The leads are finished with NiPdAu. 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, LCD displays, USB, and multi media card interfaces.

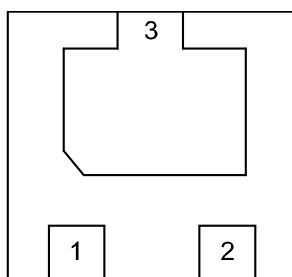
Features

- 6000W peak pulse power (8/20 μs)
- Low leakage: nA level
- Low operating voltage: 4.85V
- 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: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 80A (5/50ns)
- RoHS Compliant

Dimensions and Pinonfiguration



Circuit Diagram



Transparent top view

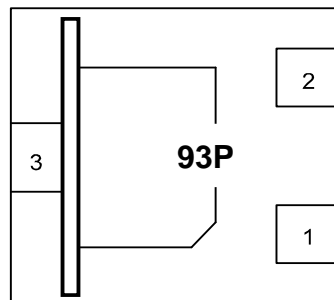
Mechanical Characteristics

- Package: DFN2020-3
- Lead Finish: NiPdAu
- Case Material: “Green” Molding Compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Power Management
- Industrial Application
- Power Supply Protection

Marking Information



93P = Device Making Code Bar denotes Cathode

Ordering Information

Part Number	Packaging	Reel Size
PESDU4831P4-3	3000/Tape & Reel	7 inch

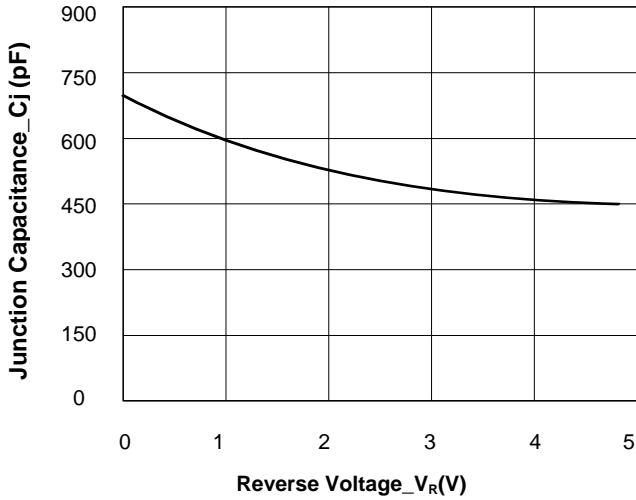
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pk}	6000	W
Peak Pulse Current (8/20 μs)	I _{PP}	300	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

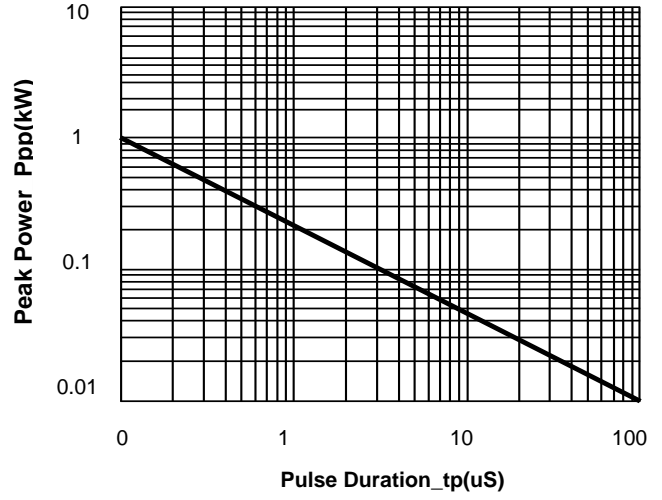
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			4.85	V	
Breakdown Voltage	V _{BR}	6.1		6.5	V	I _T = 1mA
Reverse Leakage Current	I _R			10	μA	V _{RWM} = 4.85V
Clamping Voltage	V _C			10	V	I _{PP} = 50A (8 x 20 μs pulse)
Clamping Voltage	V _C			20	V	I _{PP} = 300A (8 x 20 μs pulse)
Junction Capacitance	C _J		700		pF	V _R = 0V, f = 1MHz

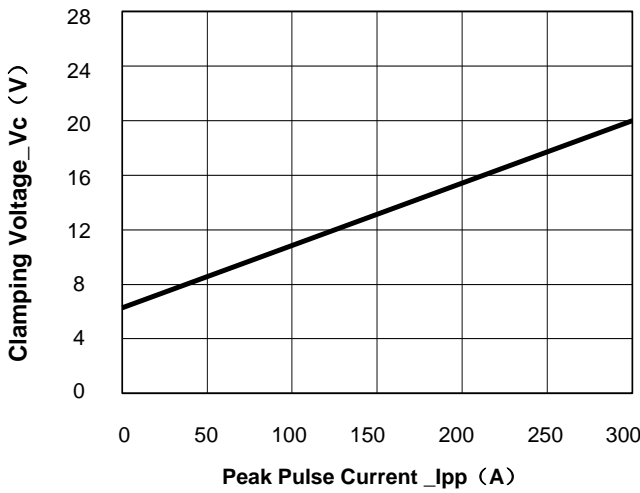
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



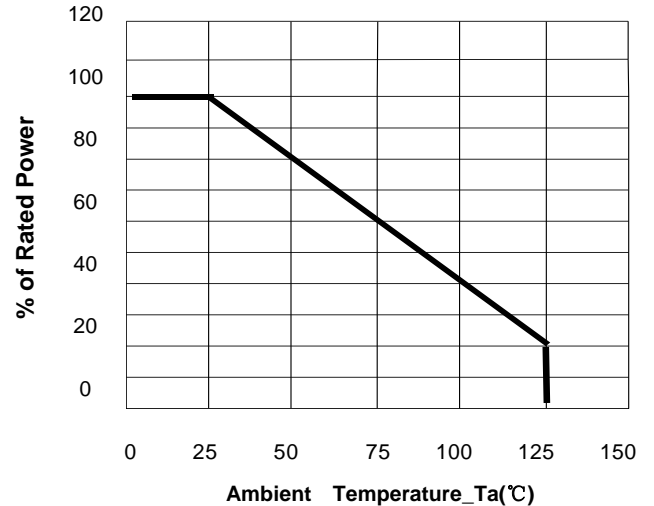
Junction Capacitance vs. Reverse Voltage



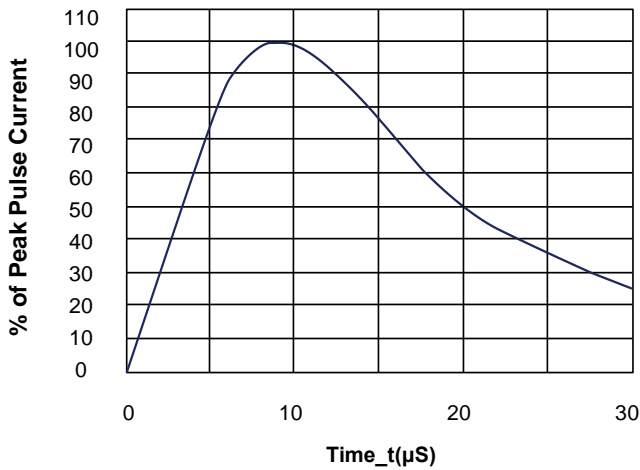
Peak Pulse Power vs. Pulse Time



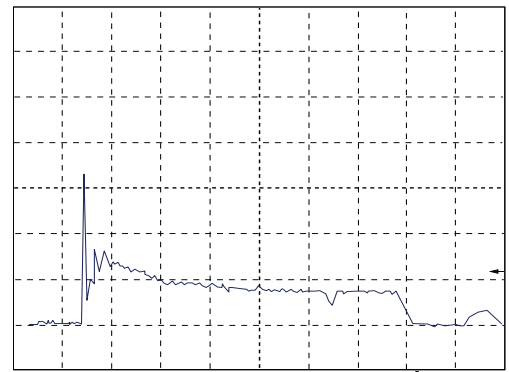
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

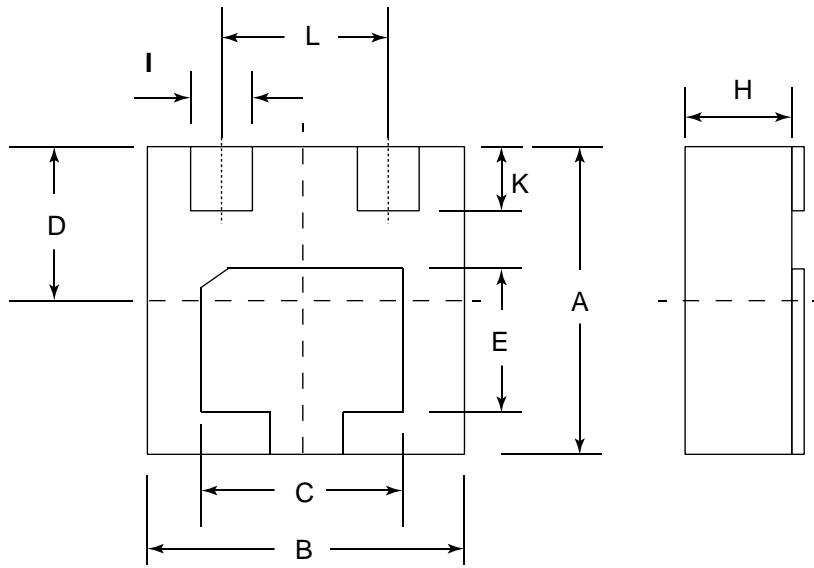


8 X 20uS Pulse Waveform



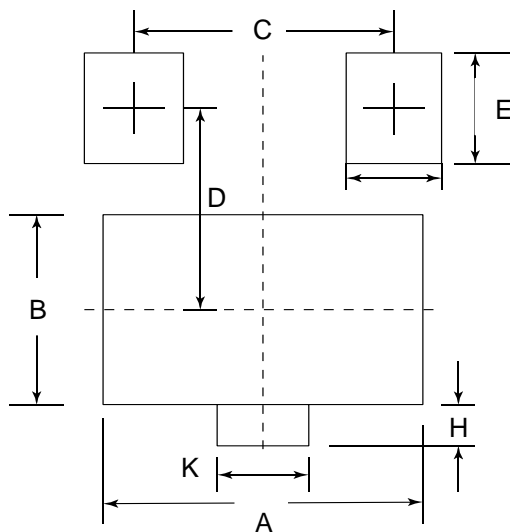
**ESD Clamping Voltage
8 kV Contact per IEC61000-4-2**

DFN2020-3 Package Outline Drawing



DIM	Millimeters		
	Min	Nom	Max
A	1.90	2.00	2.10
B	1.90	2.00	2.10
C	1.40	1.50	1.60
D	0.95	1.0	1.05
E	0.90	1.00	1.10
H			0.65
L		1.3	
I	0.25	0.30	0.35
K	0.35	0.40	0.45

Suggested Land Pattern



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