

## 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.

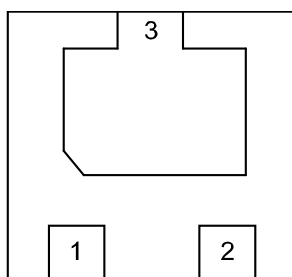
### Features

- 6000W peak pulse power (8/20 $\mu\text{s}$ )
- 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

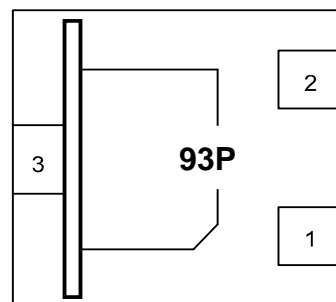
### Mechanical Characteristics

- 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

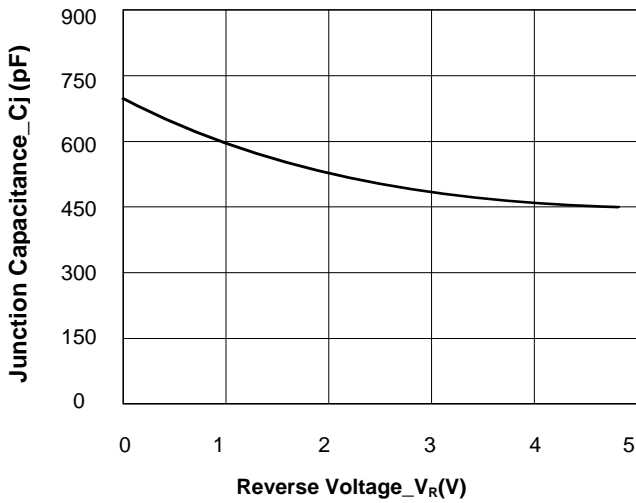
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	$P_{pk}$	6000	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	$I_{PP}$	300	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{ESD}$	$\pm 30$ $\pm 30$	kV
Operating Temperature Range	$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$

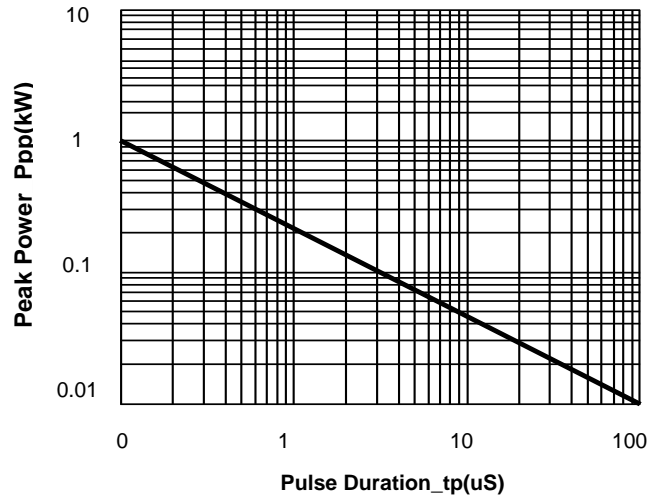
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

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	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			10	$\mu\text{A}$	$V_{RWM} = 4.85\text{V}$
Clamping Voltage	$V_C$			10	V	$I_{PP} = 50\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_C$			20	V	$I_{PP} = 300\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$		700		pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

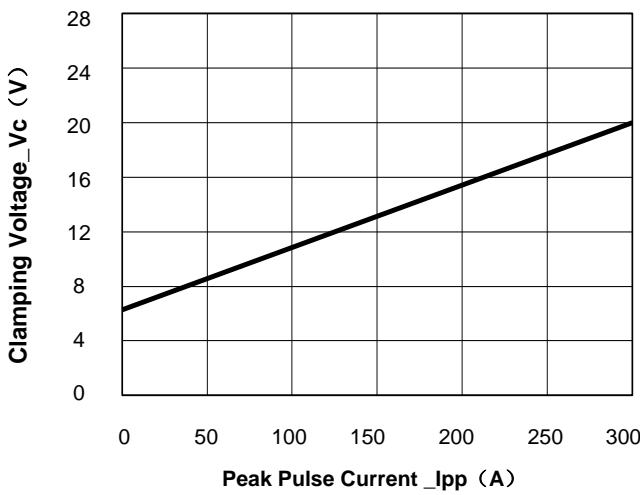
**Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)**



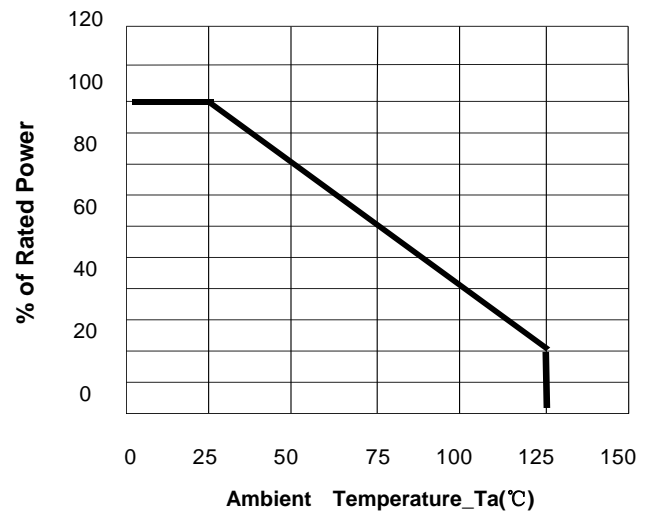
**Junction Capacitance vs. Reverse Voltage**



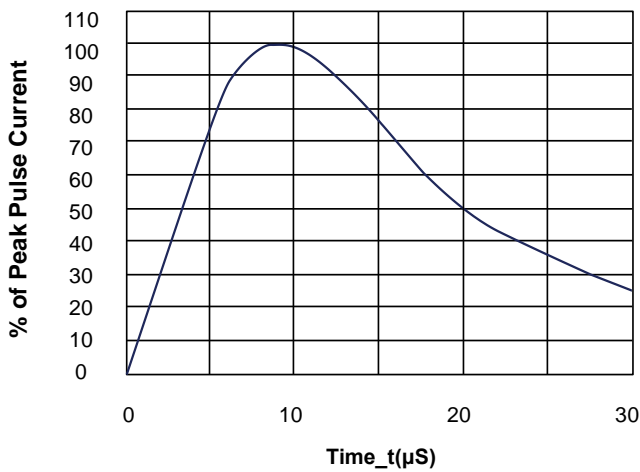
**Peak Pulse Power vs. Pulse Time**



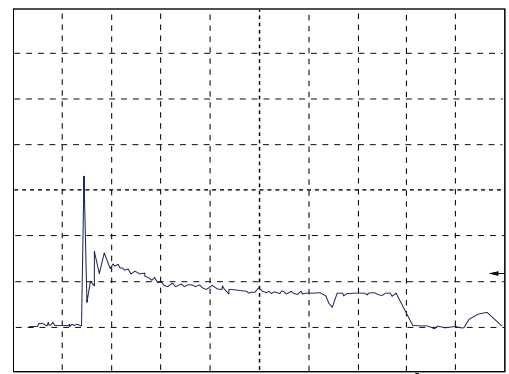
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**

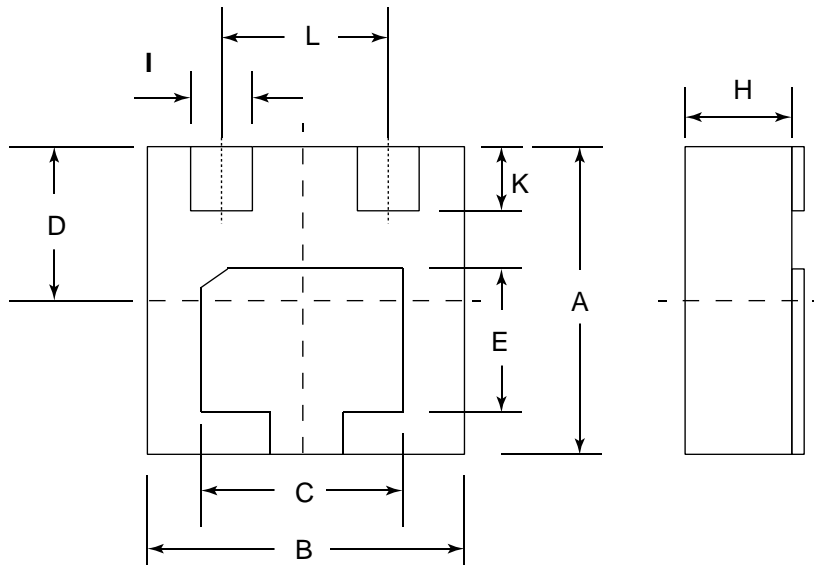


**8 X 20 $\mu\text{s}$  Pulse Waveform**



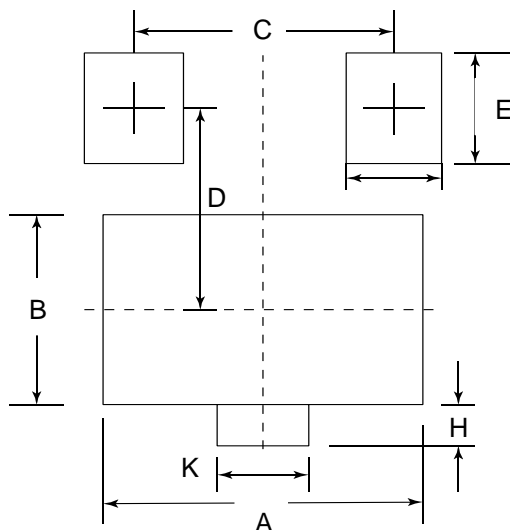
CH1 5.0V M 10.0ns  
**ESD Clamping Voltage**  
**8 kV Contact per IEC61000-4-2**

**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

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