

1- Line Uni-directional TVS Diode

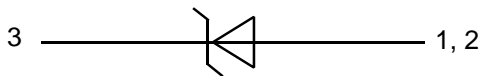
Description

The PESDU4501P4-3M is a high power TVS, provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. The PESDU4501P4-3M complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV 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, LCD displays, USB, and multi-media card interfaces.

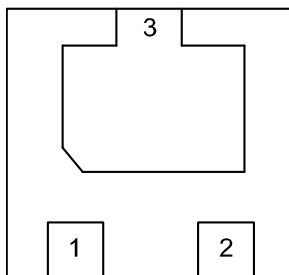
Features

- 5600W peak pulse power (8/20µs)
- Low 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: ±30kV
 - Contact discharge: ±30Kv
 - IEC 61000-4-5 (Lightning) 280A (8/20µs)
- RoHS Compliant

Dimensions and Pinonfiguration



Circuit Diagram



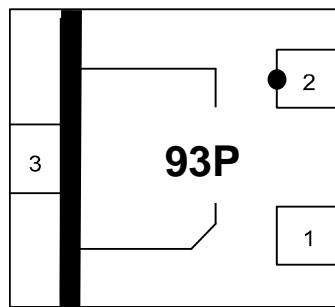
Mechanical Characteristics

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

Applications

- Power Management
- Industrial Application
- Power Supply Protection

Marking Information



93P = Device Making Code
Bar denotes Cathode

NOTE:

- 1、 The point on the Pin 2 of marking 93P is not a positioning point, it is an internal control point.

Ordering Information

Part Number	Packaging	Reel Size
PESDU4501P4-3M	3000/Tape & Reel	7 inch

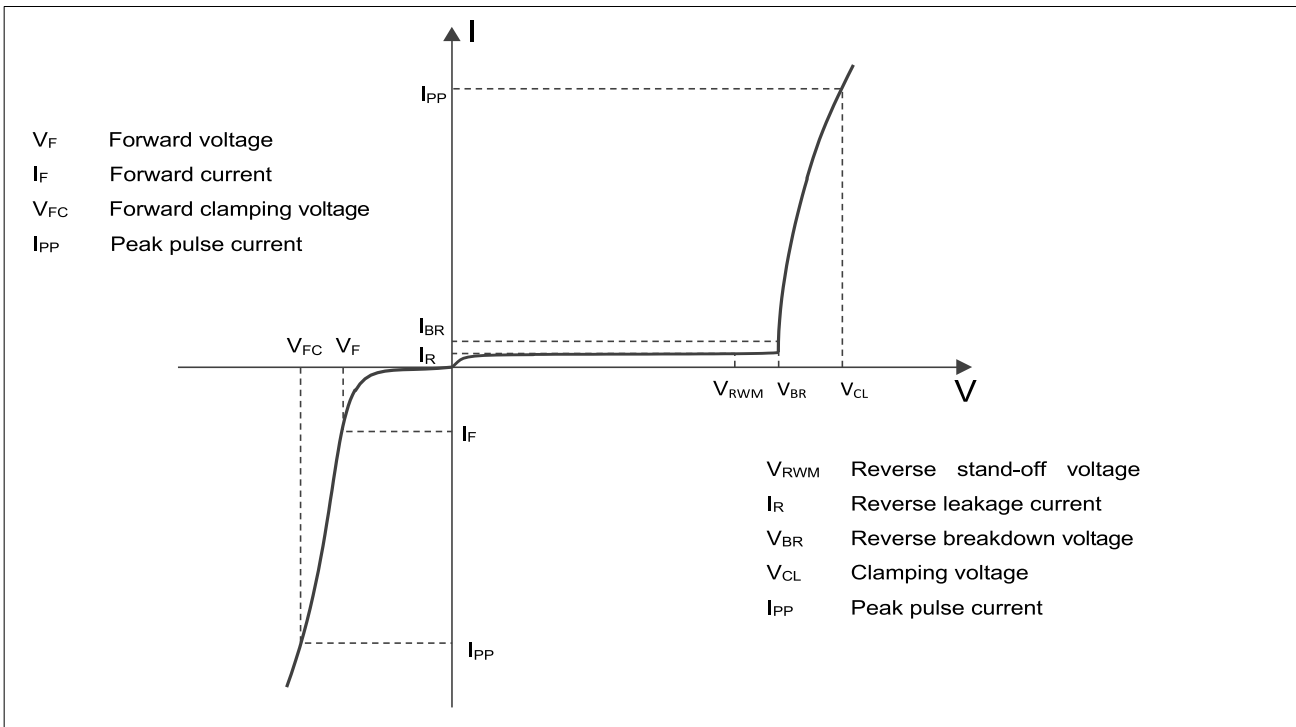
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	5600	W
Peak Pulse Current (8/20 μs)	I_{PP}	280	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	$^{\circ}\text{C}$
Operating Temperature Range	T_{OP}	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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

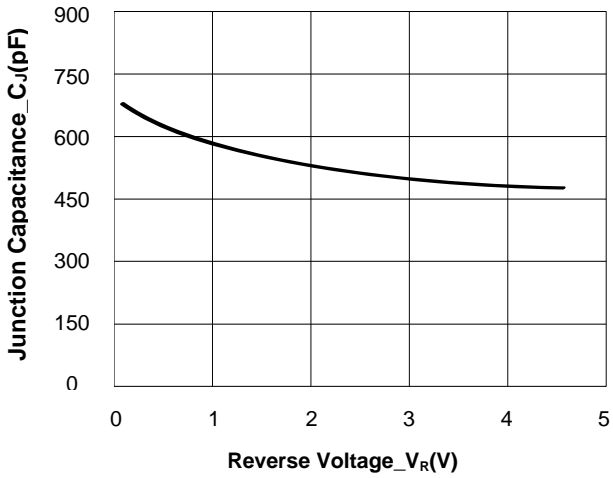
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			4.5	V	
Breakdown Voltage	V_{BR}	4.8		6.5	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.2	μA	$V_{RWM} = 4.5\text{V}$
Clamping Voltage	V_C			10	V	$I_{PP} = 50\text{A}$ (8/20 μs pulse)
Clamping Voltage	V_C			20	V	$I_{PP} = 280\text{A}$ (8/20 μs pulse)
Junction Capacitance	C_J		680		pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

Electrical characteristics (T_A = 25°C, unless otherwise noted)

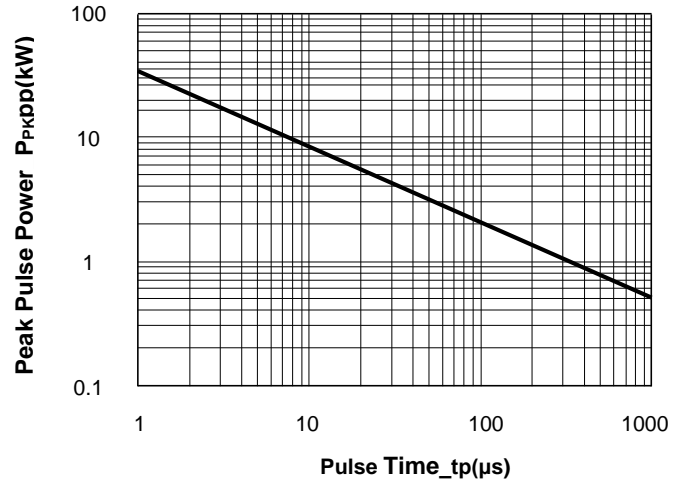


Definitions of electrical characteristics

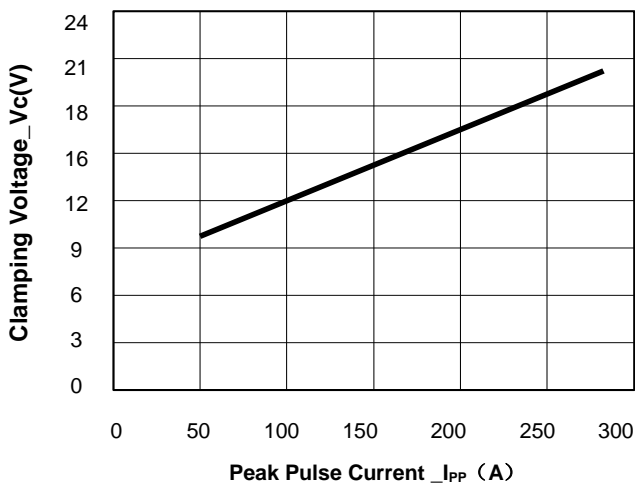
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



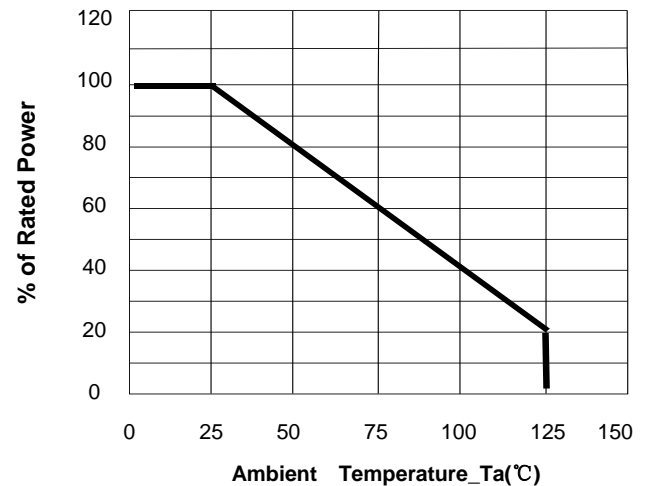
Junction Capacitance vs. Reverse Voltage



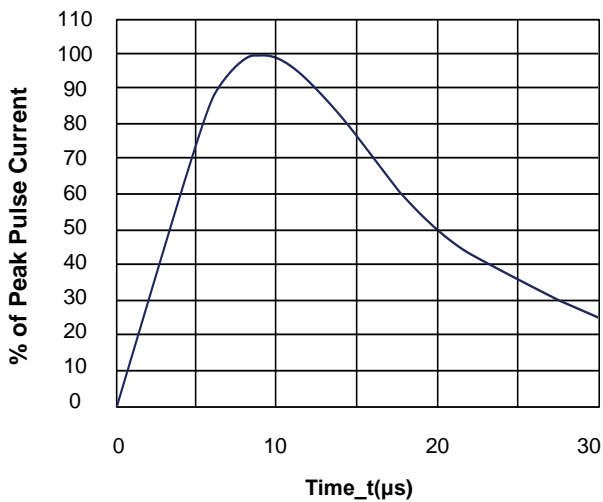
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

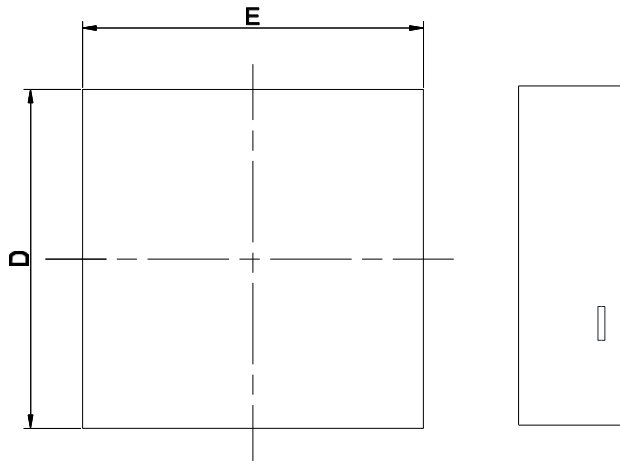


Power Derating Curve

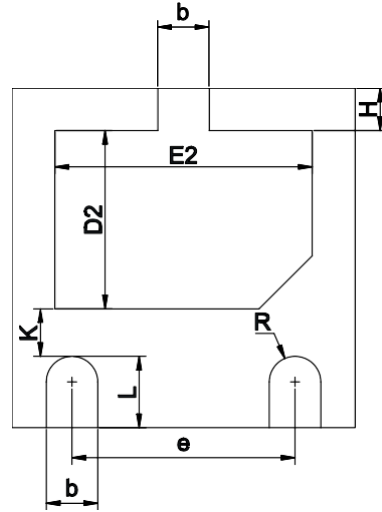


8/20μs Pulse Waveform

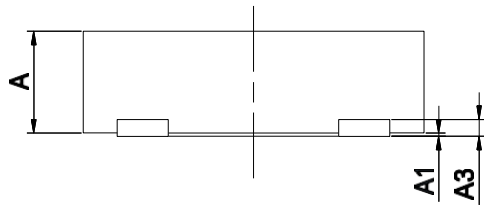
DFN2020-3 Package Outline Drawing



Top View



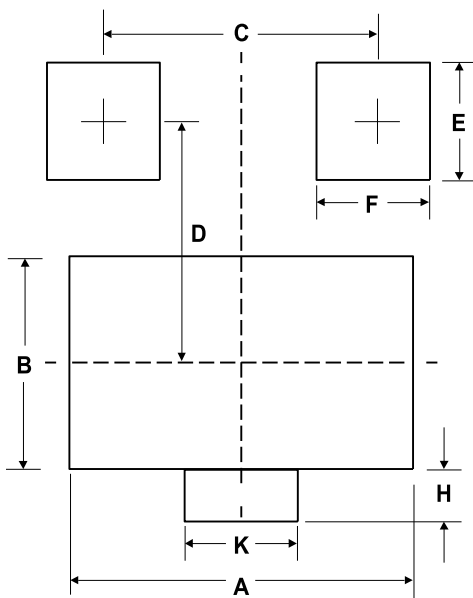
Bottom View



Side View

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	-	-

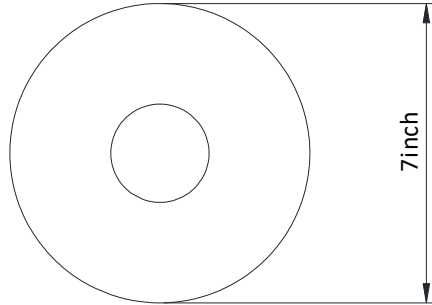
Suggested Land Pattern



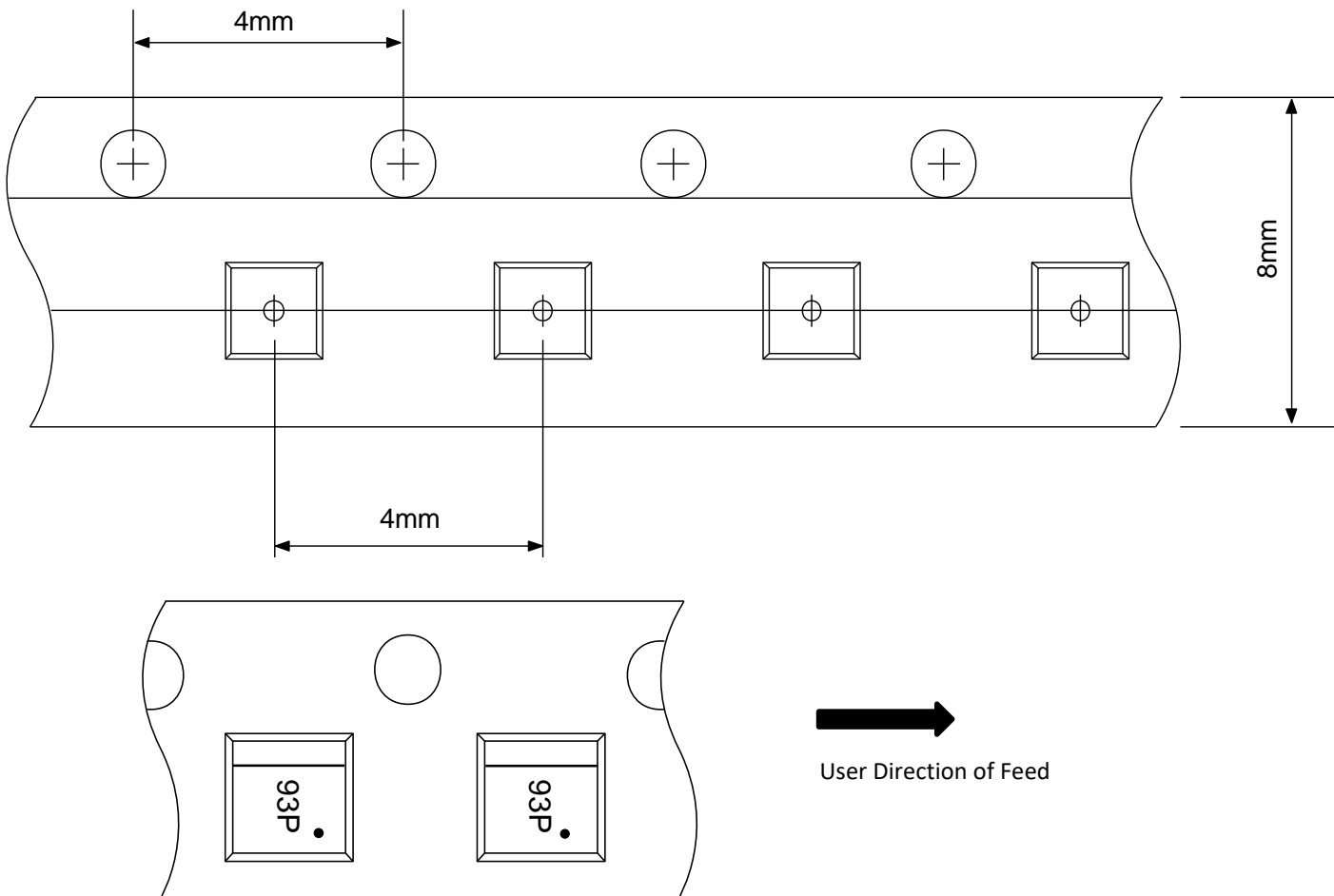
SYM	MILLIMETERS
A	1.60
B	1.10
C	1.30
D	1.05
E	0.50
F	0.40
K	0.40
H	0.25

TAPE AND REEL INFORMATION

Reel Dimensions




Tape Dimensions



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