

1-Line Uni-directional TVS Diode

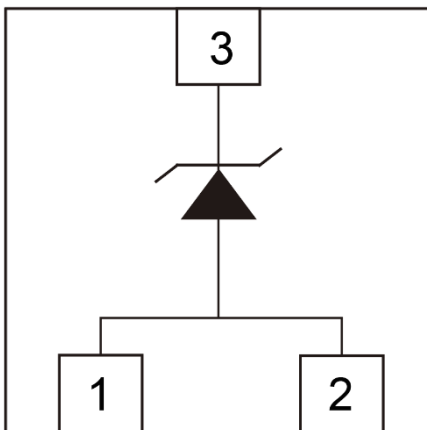
Description

The PESDU0501P4-3 is an uni-directional TVS diode, designed to protect power interfaces. It is suitable to replace multiple discrete components in portable electronics. The PESDU0501P4-3 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 cellular phones, LCD displays, USB, and multi media card interfaces.

Features

- 5800W peak pulse power (8/20 μs)
- Low leakage: nA level
- Low operating voltage: 5 V
- 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) 280A (8/20 μs)
- RoHS Compliant

Dimensions and Pinonfiguration



Circuit Diagram

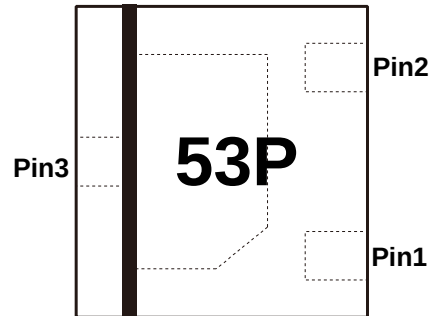
Mechanical Characteristics

- 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



53P= Device Making Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU0501P4-3	3000/Tape & Reel	7 inch

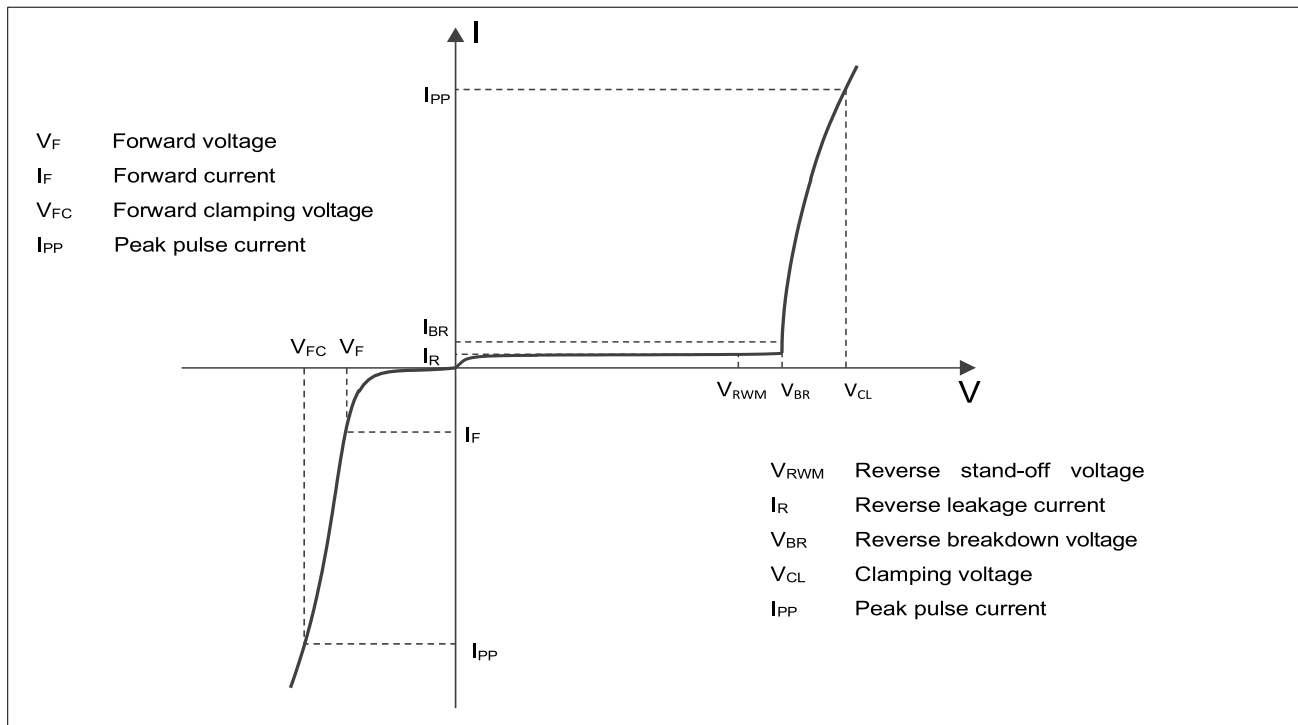
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	4500	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	
Lead temperature	T_L	260	$^{\circ}\text{C}$
Junction Temperature	T_J	125	$^{\circ}\text{C}$
Operating Temperature Range	T_{OP}	$-40 \sim +125$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

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

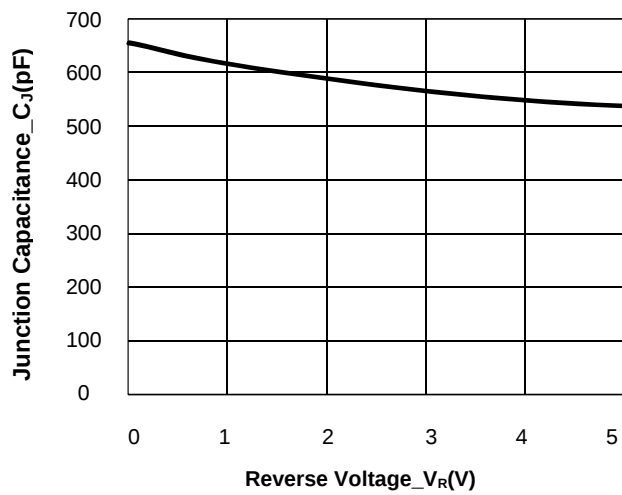
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	5.4			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			1	μA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_C			10	V	$I_{PP} = 100\text{A}$ (8/20 μs pulse),
Clamping Voltage	V_C			12	V	$I_{PP} = 200\text{A}$ (8/20 μs pulse),
Clamping Voltage	V_C			15	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 ($T_A = 25^\circ\text{C}$, unless otherwise noted)

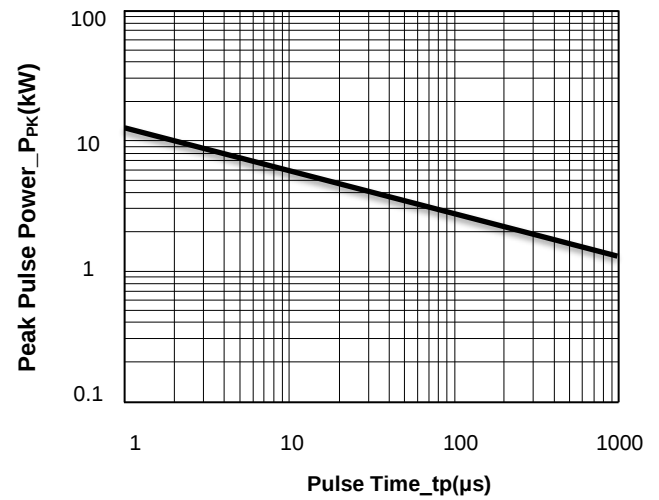


Definitions of electrical characteristics

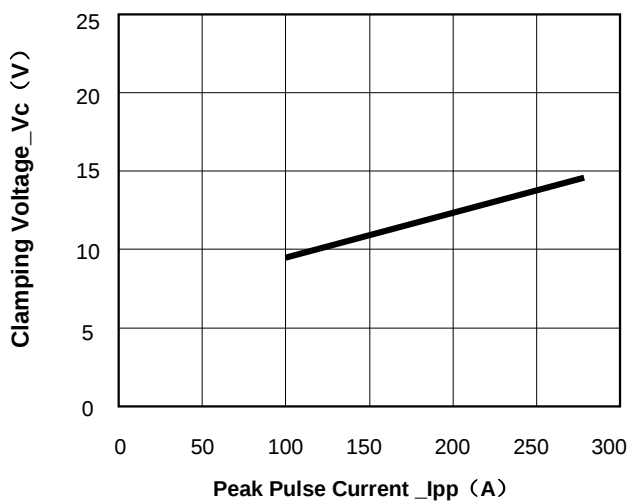
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



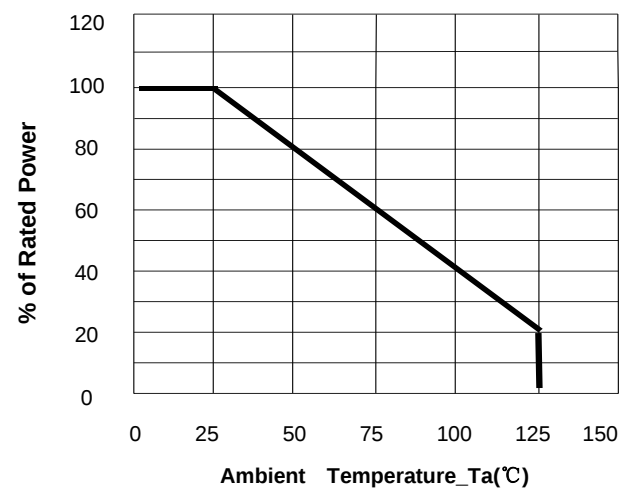
Junction Capacitance vs. Reverse Voltage



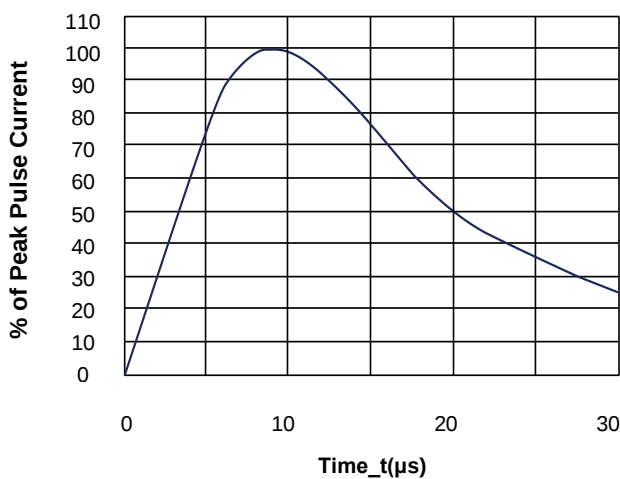
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

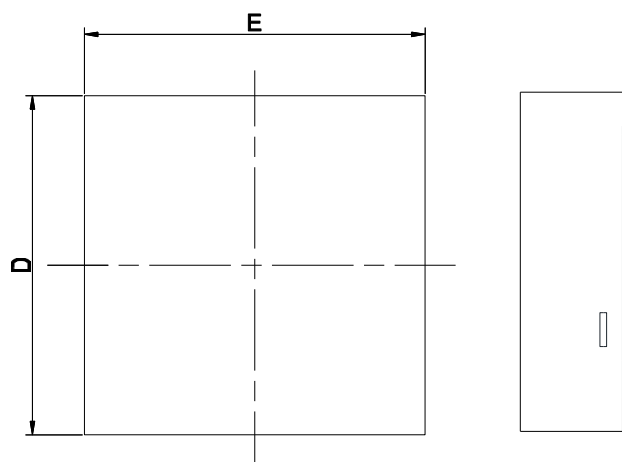


Power Derating Curve

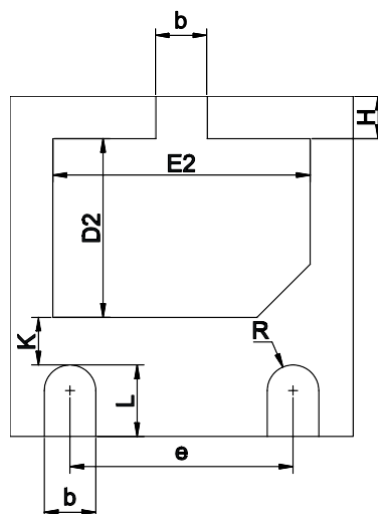


8/20 μs Pulse Waveform

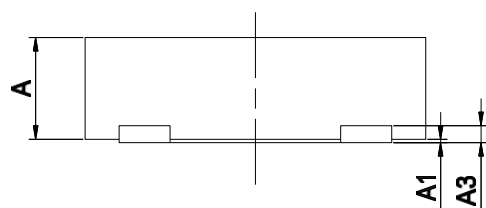
DFN2020-3 Package Outline Drawing



Top View

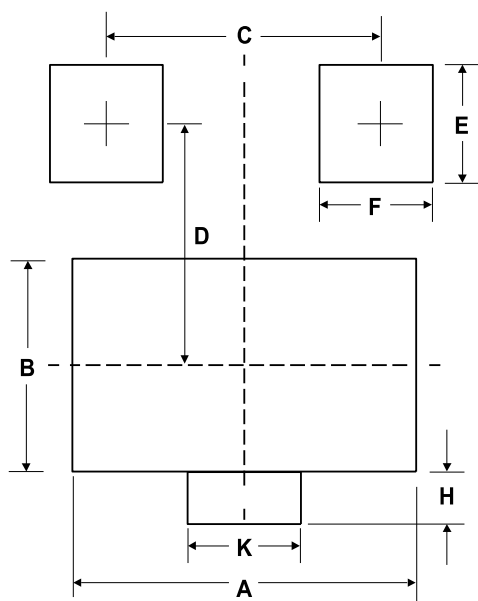


Bottom View



Side View

Suggested Land Pattern

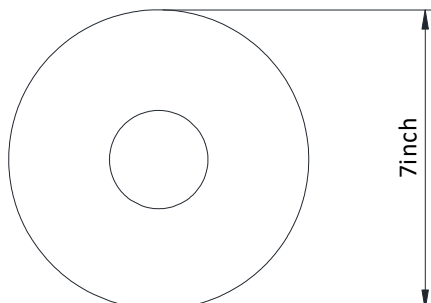


Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
A3	0.10 REF.		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.95	1.05	1.15
E2	1.40	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.35	0.40	0.45
R	0.13	-	-

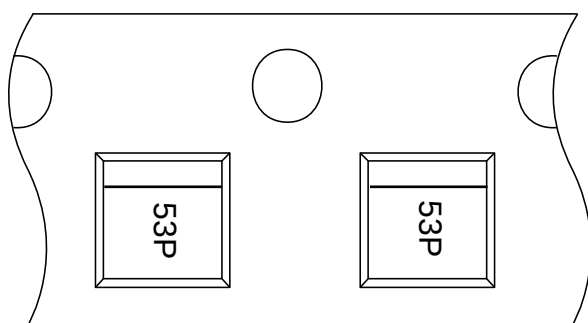
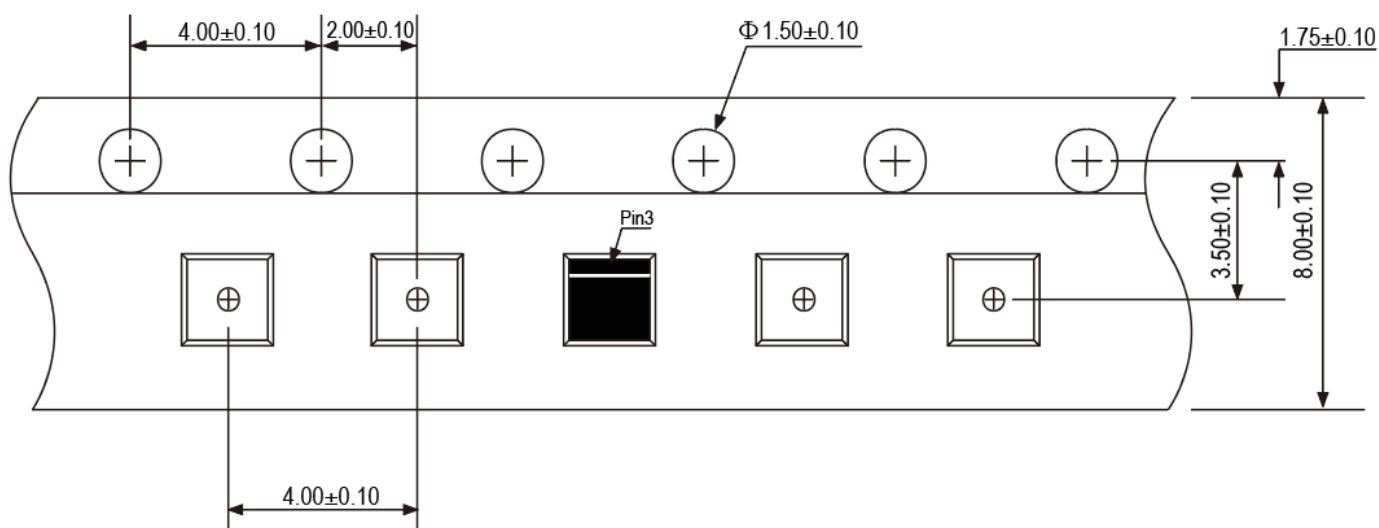
SYM	MILLIMETERS
A	1.60
B	1.10
C	1.30
D	1.05
E	0.50
F	0.40
K	0.40
H	0.25

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



➔
User Direction of Feed

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