1-Line Uni-directional TVS Diode

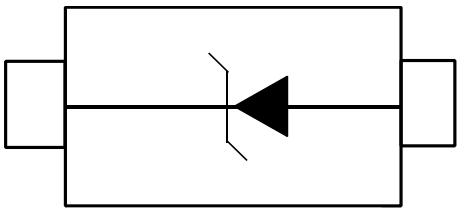
Description

The PESDU1551D1FT is an uni-directional TVS diode, to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power lines. The PESDU1551D1FT complies with the IEC 61000- 4-2 (ESD) standard with ±30kV and air ±30kV contact discharge. It is assembled into a SOD -123FL lead-free package. The small size and high ESD protection make PESDU1551D1FT an ideal choice to protect cellphone, digital cameras, audio players and many other portable applications.

Features

- Protects one data or power line
- operating voltage: 15V
- Ultra low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD)immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 180A (8/20μs)
- RoHS Compliant

Pin Configuration



Circuit and Pin Schematic

Mechanical Characteristics

- Package: SOD-123FL
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Fast-charge battery chargers
- Power management system
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals

Marking Information

EIM = Device Marking Code
Bar denotes Cathode

Ordering Information

Part Number	Packaging	Real Size
PESDU1551D1FT	3000/Tape & Reel	7 inch

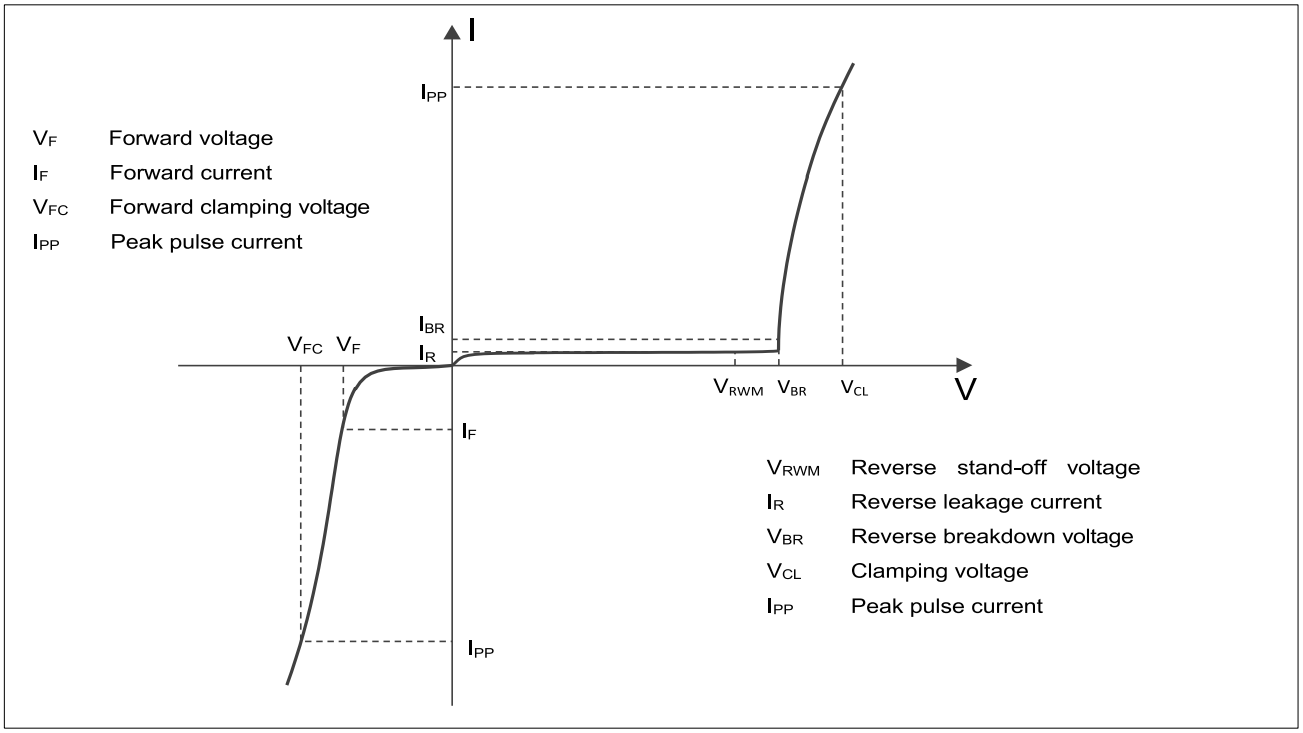
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PK}	5400	W
Peak Pulse Current (8/20μs)	I_{PP}	180	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Lead temperature	T_L	260	℃
Operating Temperature Range	T_{OP}	−40 ~ +85	℃
Storage Temperature Range	T_{STG}	−55 ~ +150	℃

Electrical Characteristics (T_A=25°C unless otherwise specified)

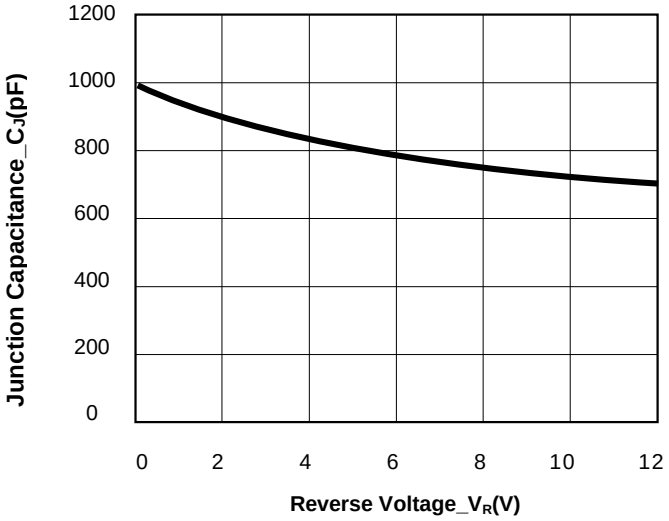
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			15	V	
Breakdown Voltage	V_{BR}	16.7		18.5	V	I_T = 1mA
Reverse Leakage Current	I_R			1	μA	V_{RWM} = 18V
Clamping Voltage	V_C			23	V	I_{PP} = 20A (8/20μs pulse)
Clamping Voltage	V_C			30	V	I_{PP} = 180A (8/20μs pulse)
Junction Capacitance	C_J		1000		pF	V_R = 0V, f = 1MHz

Electrical characteristics (T_A = 25℃, unless otherwise noted)

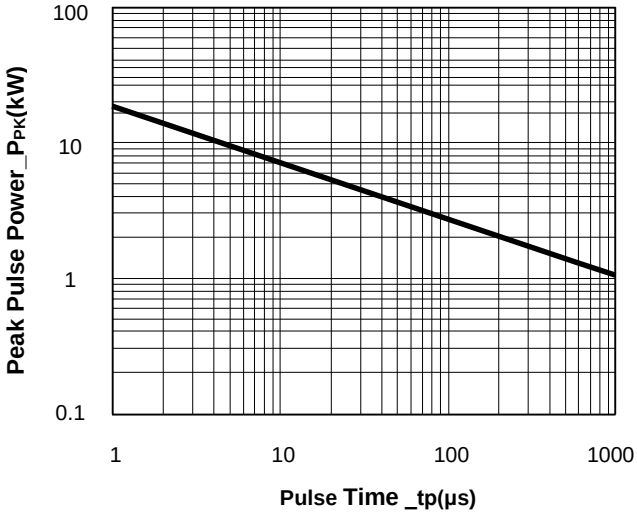


Definitions of electrical characteristics

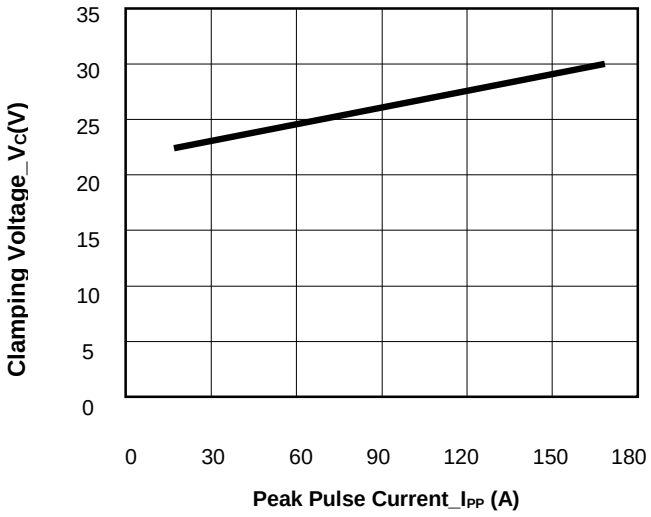
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



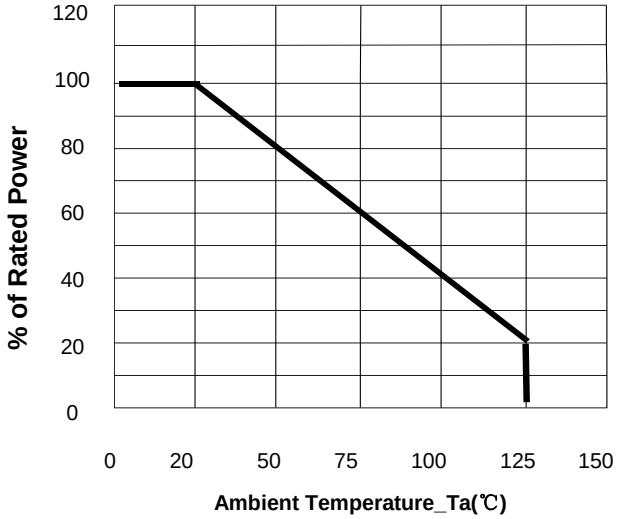
Junction Capacitance vs. Reverse Voltage



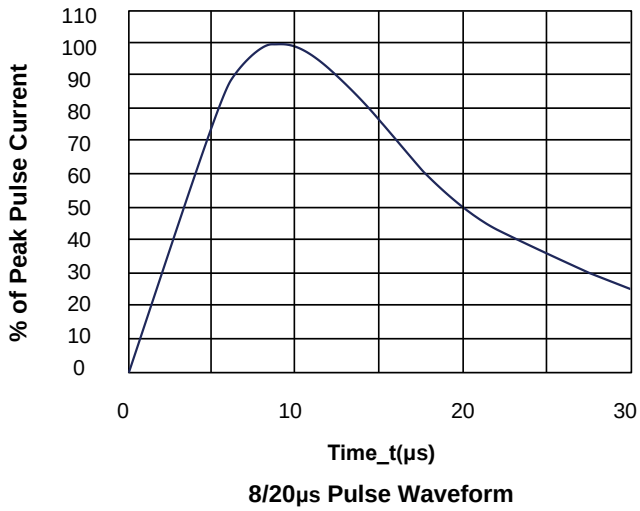
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

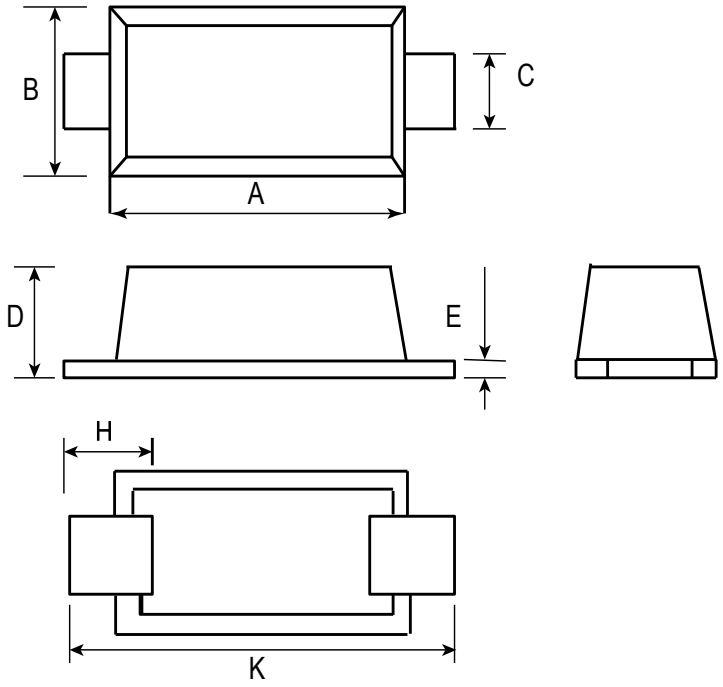


Power Derating Curve



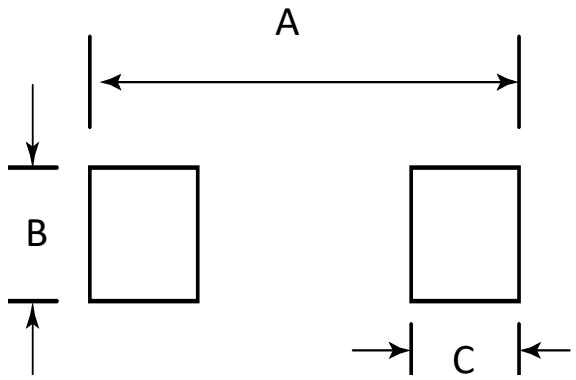
8/20μs Pulse Waveform

SOD-123FL Package Outline Drawing



DIM	Millimeters		
	Min	Nom	Max
A	2.70	2.80	2.90
B	1.80	1.90	2.00
C	0.80	1.00	1.20
D			1.03
E	0.10	0.20	0.30
H	0.35		0.85
K	3.50		3.90

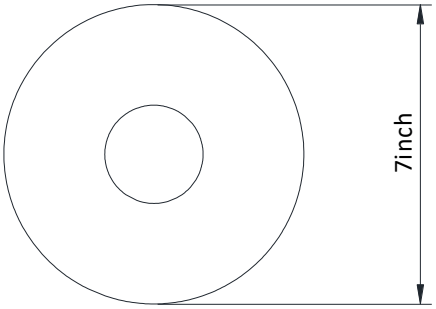
Suggested Land Pattern



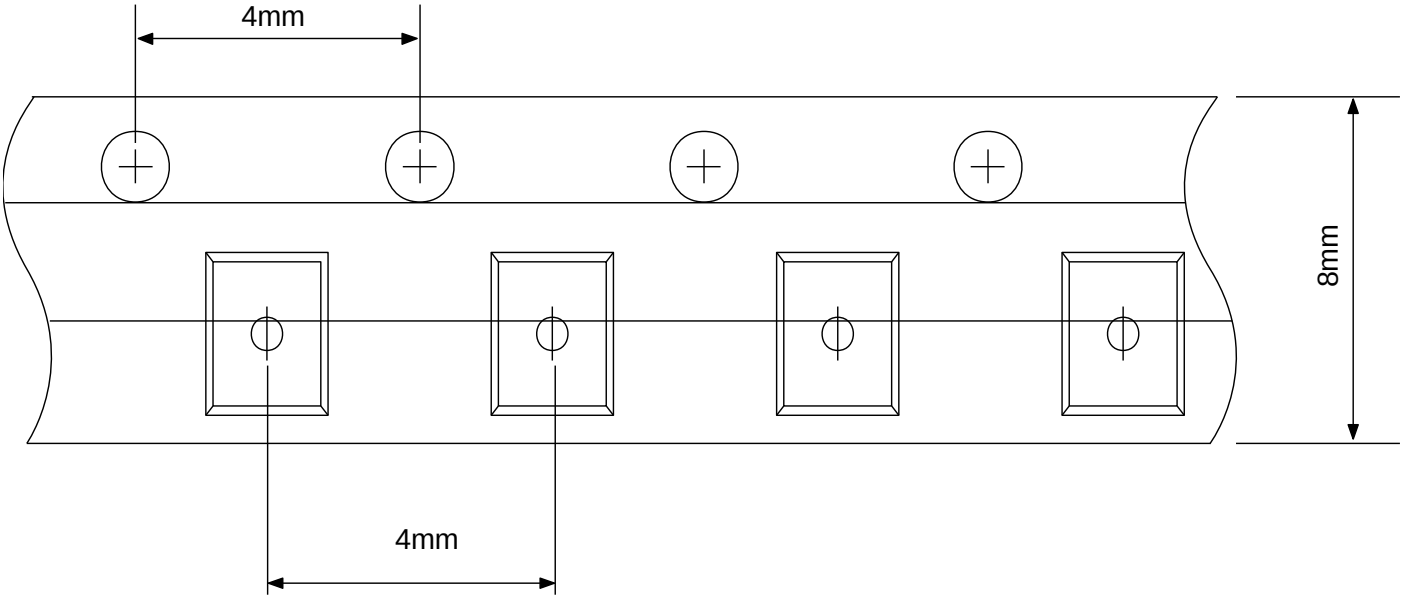
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	4.19	0.165
B	1.20	0.048
C	0.90	0.036

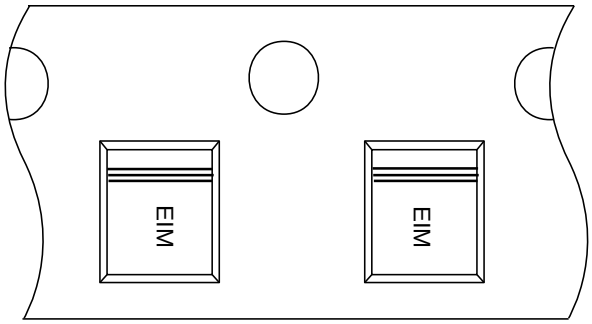
TAPE AND REEL INFORMATION

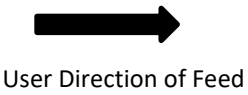
Reel Dimensions



Tape Dimensions







IMPORTANT NOTICE

The information given in this document is believed to be accurate and reliable but shall in no event be regarded as a guarantee of conditions or characteristics.PN-Silicon assumes no responsibility for any errors in this document, or for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of PN-Silicon.

The product listed in this document are designed to be used with ordinary electronic equipment or devices and are not authorized to used with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, automotive and other safety device.)

The PN SILICON logo is a registered trademark of PN-Silicon co., ltd which reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. PN-Silicon makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. All rights reserved.