

1-Line Bi-directional TVS Diode

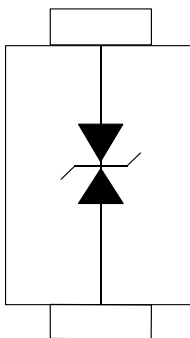
Description

The PESDU1281D1F is a bi-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 PESDU1281D1F complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ and air $\pm 30\text{kV}$ contact discharge. It is assembled into a SOD -123FL lead-free package. The small size and high ESD protection make PESDU1281D1F an ideal choice to protect cellphone, digital cameras, audio players and many other portable applications.

Features

- Protects one data or power line
- Ultra low leakage: nA level
- operating voltage: 12V
- Ultra low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
 - IEC 61000-4-5 (Lightning) 200A (8/20 μs)
- RoHS Compliant

Pin Configuration



Circuit and Pin Schematic

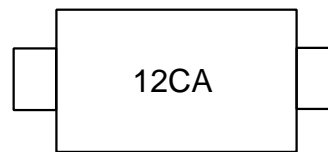
Mechanical Characteristics

- 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



12CA = Device Marking Code

Ordering Information

Part Number	Shipping	Real Size
PESDU1281D1F	3000/Tape & Reel	7 inch

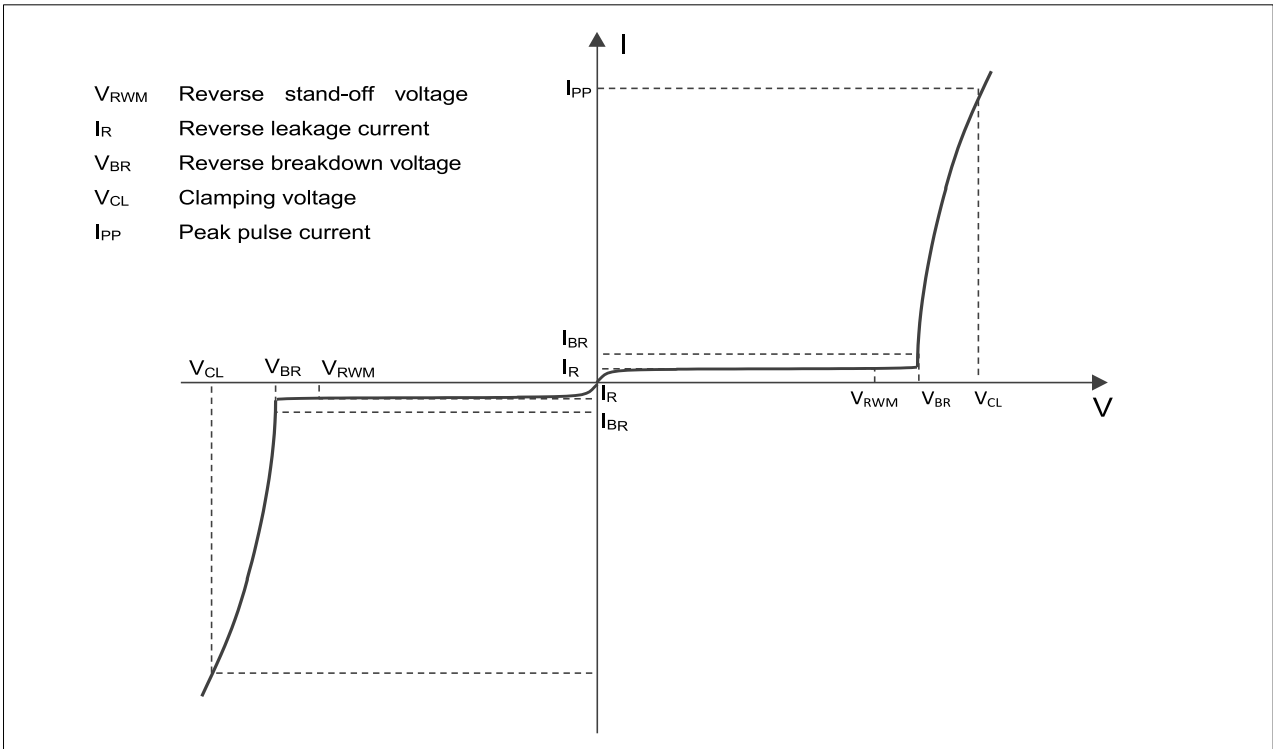
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	5200	W
Peak Pulse Current (8/20μs)	I _{PP}	200	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	°C
Operating Temperature Range	T _J	-40 ~ +85	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

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

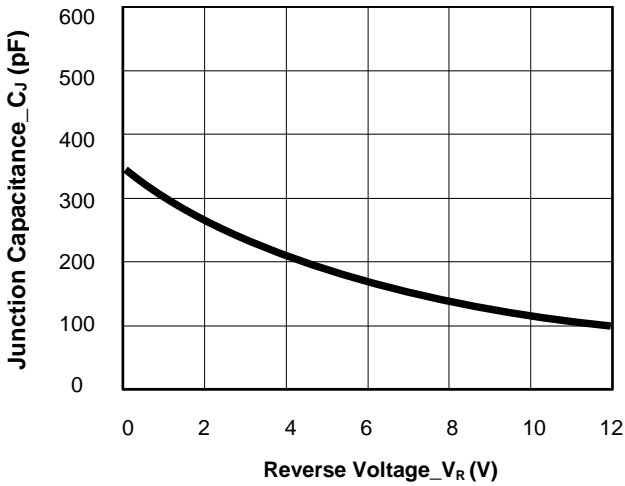
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			12	V	
Breakdown Voltage	V _{BR}	13			V	I _T = 1mA
Reverse Leakage Current	I _R			1	μA	V _{RWM} = 12V
Clamping Voltage	V _C			15	V	I _{PP} = 5A (8/20μs pulse)
Clamping Voltage	V _C			26	V	I _{PP} = 200A (8/20μs pulse)
Junction Capacitance	C _J		320		pF	V _R = 0V, f = 1MHz

Electrical characteristics ($T_A = 25^\circ\text{C}$, unless otherwise noted)

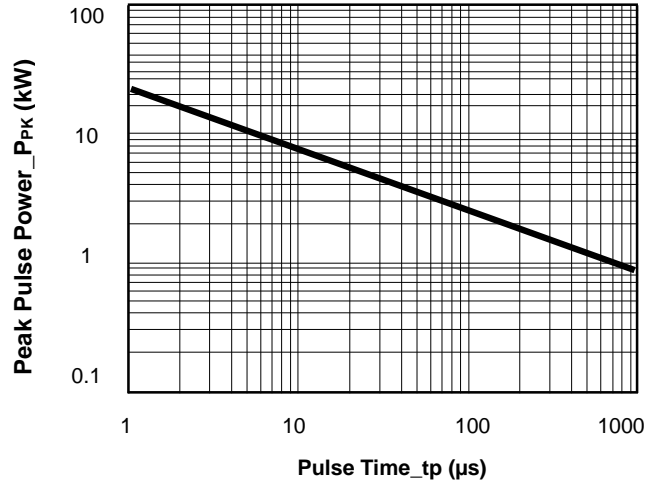


Definitions of electrical characteristics

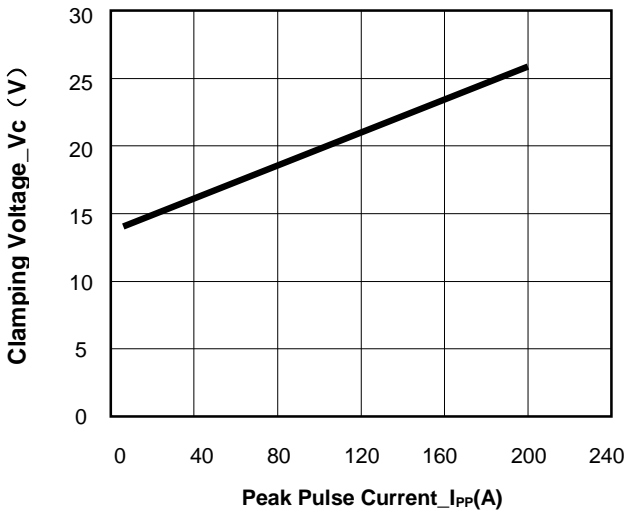
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



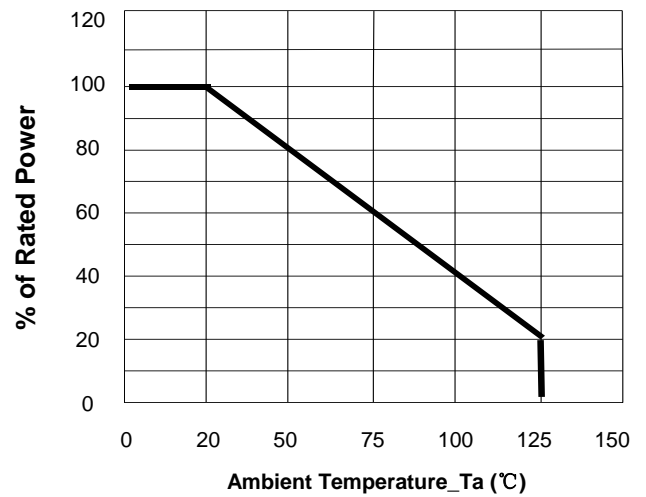
Junction Capacitance vs. Reverse Voltage



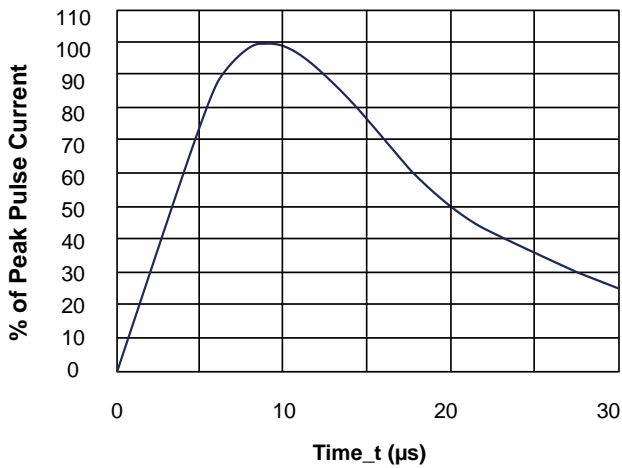
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

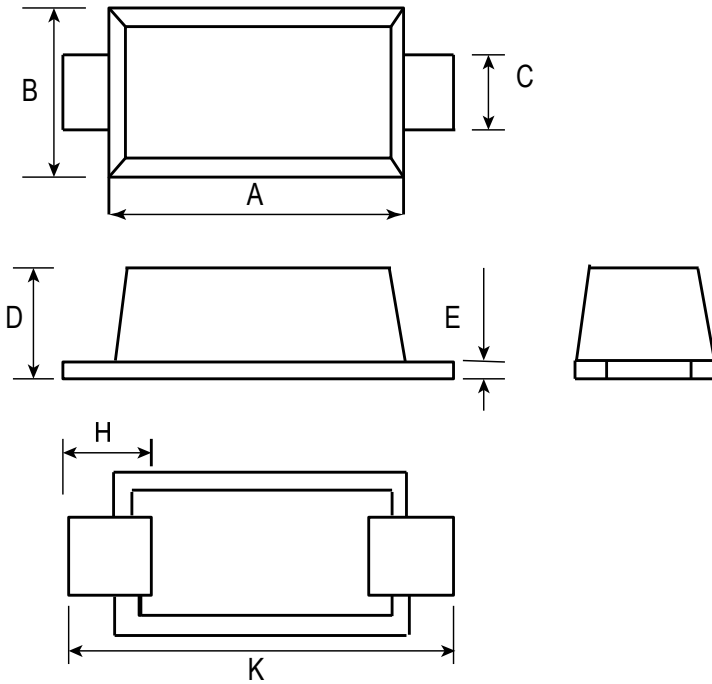


Power Derating Curve



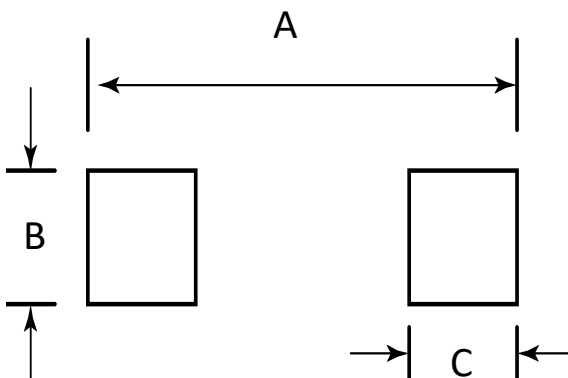
8/20 μs Pulse Waveform

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

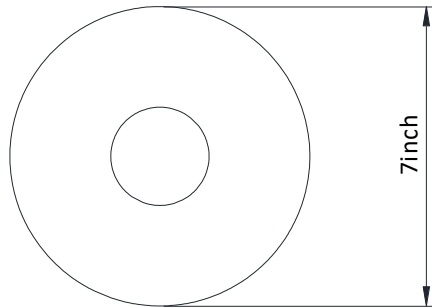
Suggested Land Pattern



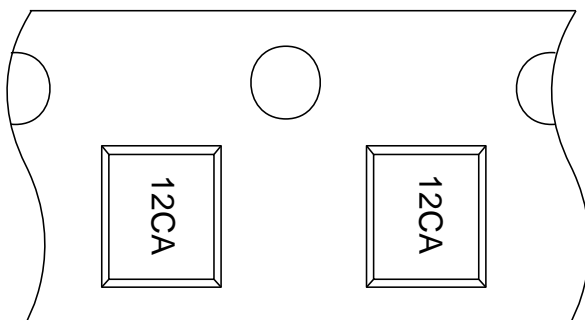
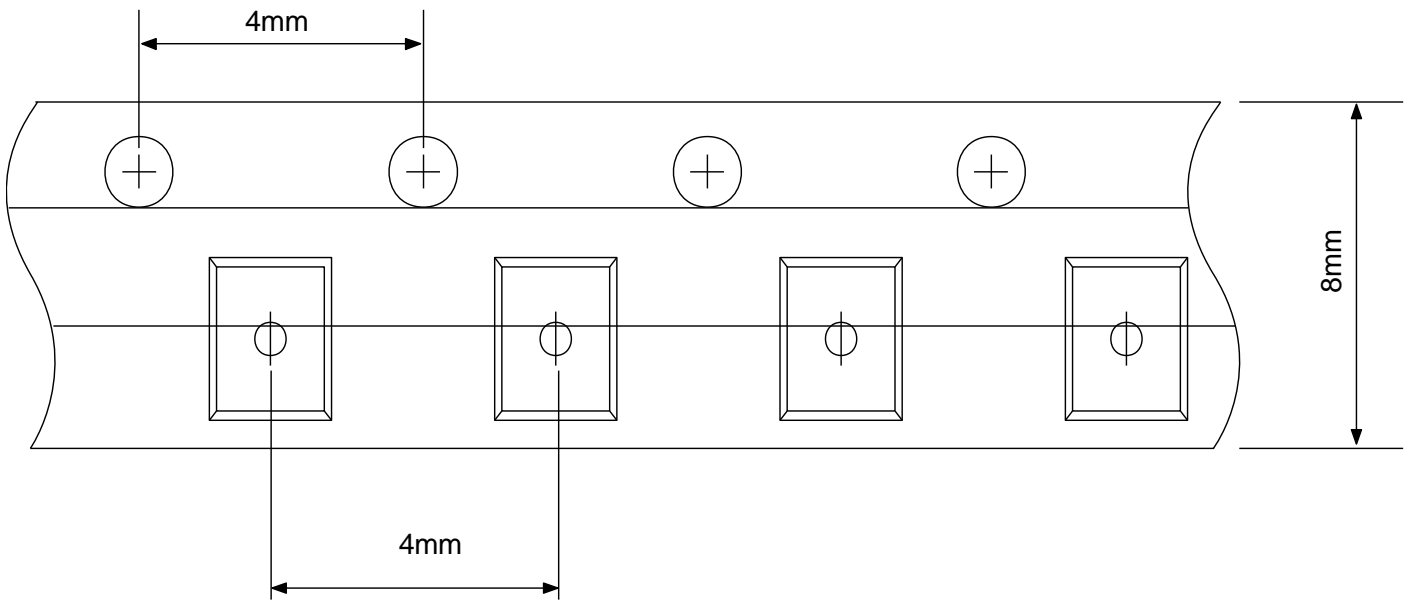
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	4.19	0.165
B	1.20	0.048
C	0.90	0.036

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions




User Direction of Feed

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