

1-Line Bi-directional TVS Diode

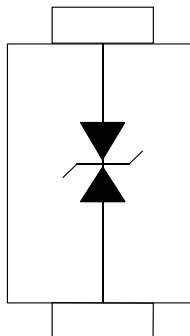
Description

The PESDU1281D1FT is a bi-directional TVS diode, 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 data and power lines. The PESDU1281D1FT 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/surge protection make PESDU1281D1FT 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
- Low 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: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 230A (8/20 μs)
- RoHS Compliant

Pin Configuration



Circuit and Pin Schematic

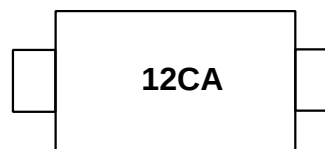
Mechanical Characteristics

- Package: SOD-123FL
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 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	Packaging	Real Size
PESDU1281D1FT	3000/Tape & Reel	7 inch

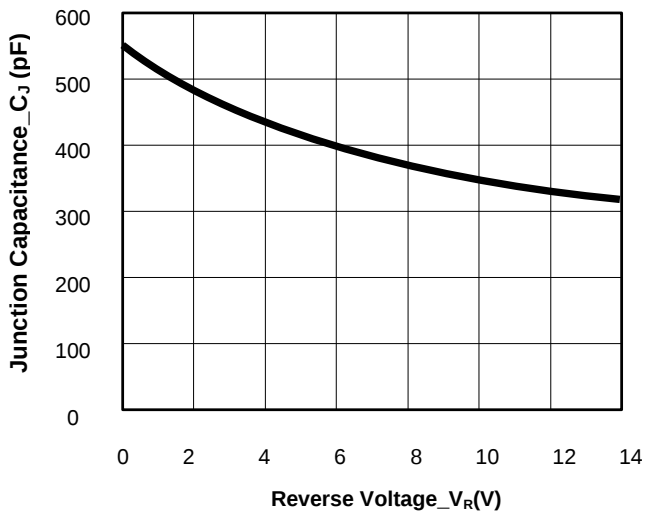
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	5750	W
Peak Pulse Current (8/20μs)	I _{PP}	230	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	T _{OP}	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

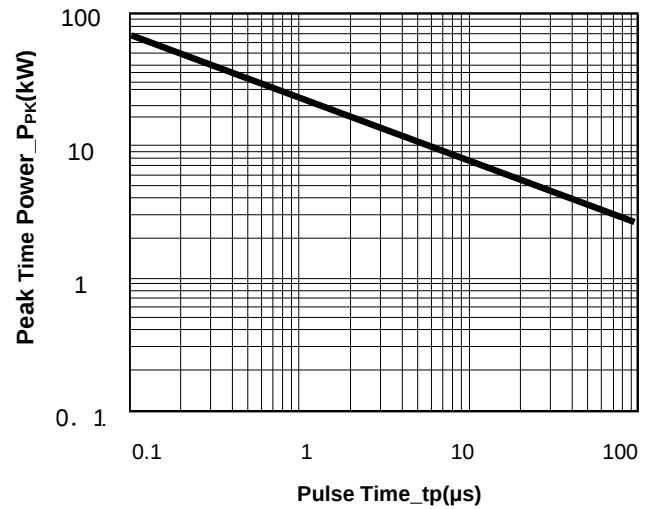
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			12	V	
Breakdown Voltage	V _{BR}		13.5		V	I _T = 1mA
Reverse Leakage Current	I _R			1.0	μA	V _{RWM} = 12 V
Clamping Voltage	V _C			15	V	I _{PP} = 5A (8/20μs pulse)
Clamping Voltage	V _C			25	V	I _{PP} = 230A (8/20μs pulse)
Junction Capacitance	C _J			550	pF	V _R = 0V, f = 1MHz

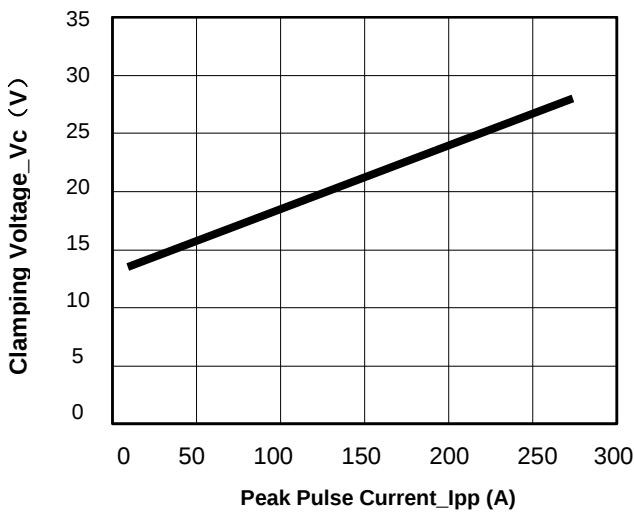
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



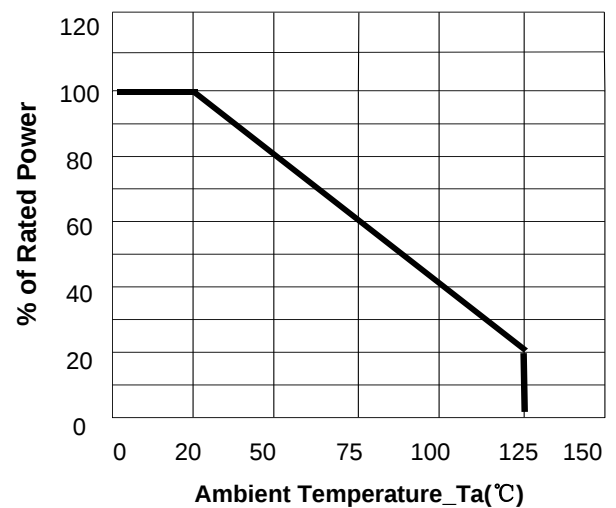
Junction Capacitance vs. Reverse Voltage



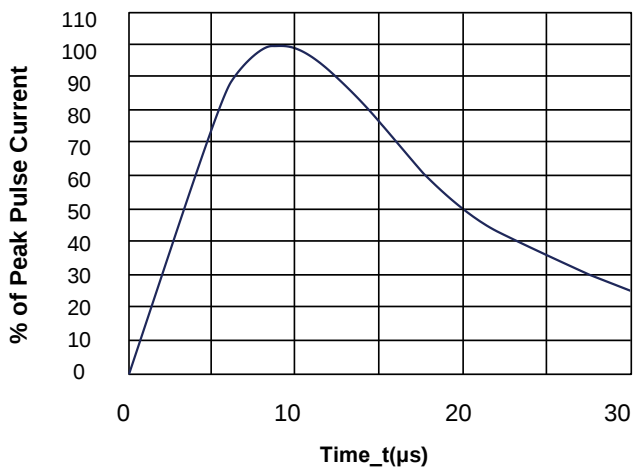
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

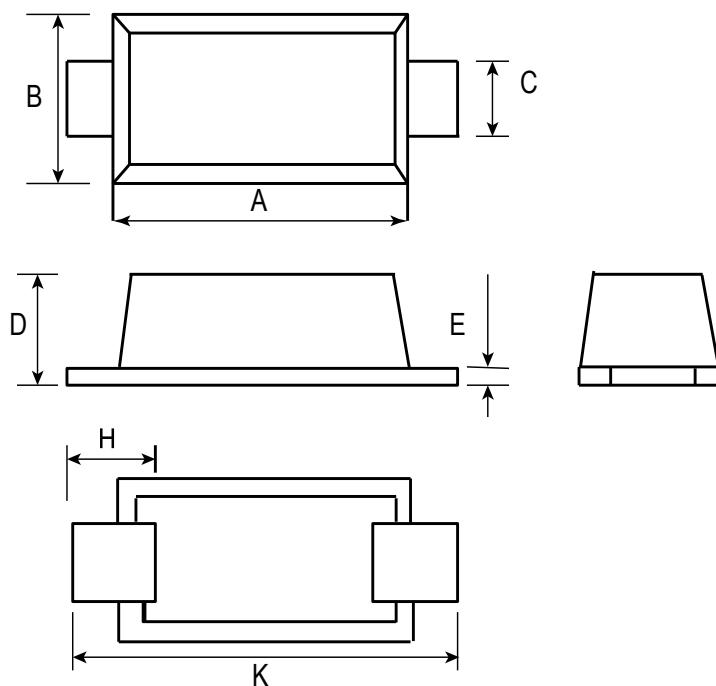


Power Derating Curve



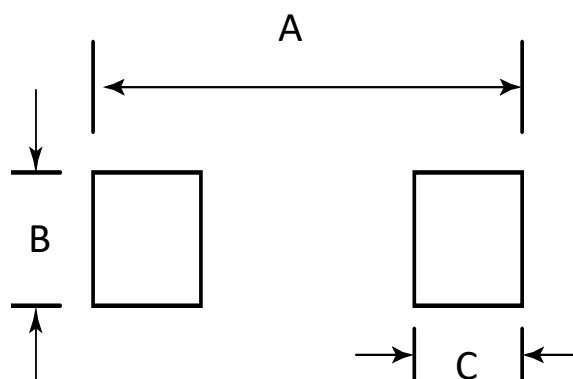
8/20 μs Pulse Waveform

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			0.90
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