

1-Line Uni-directional TVS Diode

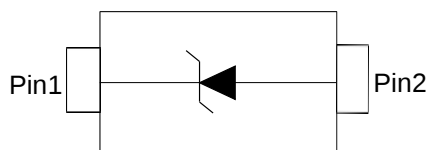
Description

PESDU0501D5N is a Uni-directional Electro-Static Discharge (ESD) protection diode in a SOD523 plastic package. The PESDU0501D5N complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is designed to protect one transmission or data line from the damage caused by ESD and other transients.

Features

- Uni-directional ESD protection of one line
- Reverse stand-off voltage: 5.0V Max
- Low leakage current: nA level
- Response time is typically $< 1\text{ ns}$
- 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) 9.4A ($8/20\mu\text{s}$)
- RoHS Compliant

Schematic and Pin Configuration



Graphic symbol

Mechanical Characteristics

- Package: SOD-523
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Cellular phones
- Portable devices
- Digital Cameras
- Power supplies

Marking Information



ZF x = Device Marking Code

Bar denotes cathode

Ordering Information

Part Number	Shipping	Reel Size
PESDU0501D5N	3000/Tape & Reel	7 inch

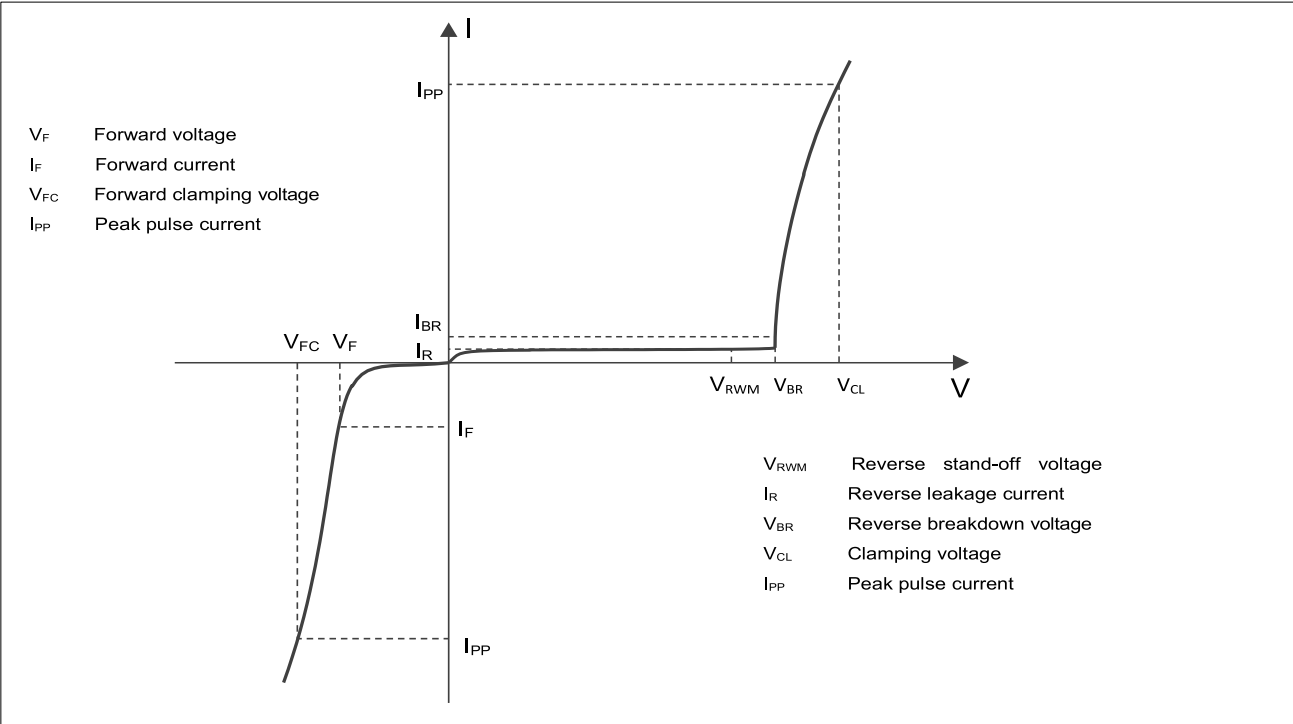
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{pk}	174	W
Peak Pulse Current (8/20 μs)	I_{PP}	9.4	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)

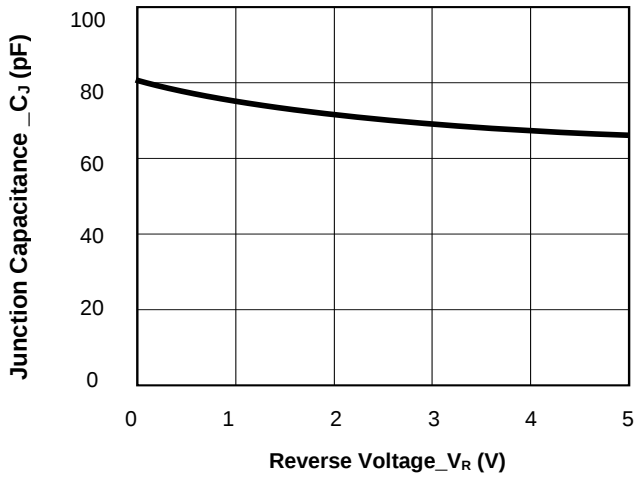
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5.0	V	
Breakdown Voltage	V_{BR}	6.2		8.2	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			100	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_C			9	V	$I_{PP} = 1\text{A}$ (8/20 μs pulse)
Clamping Voltage	V_C			18.6	V	$I_{PP} = 9.4\text{A}$ (8/20 μs pulse)
Junction Capacitance	C_J		80		pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

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

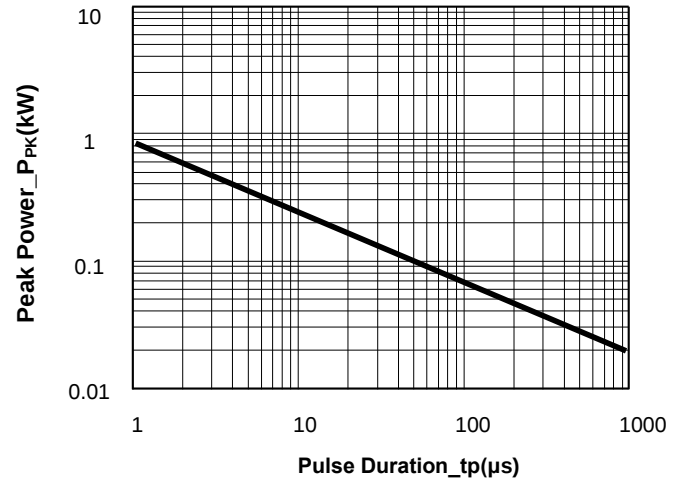


Definitions of electrical characteristics

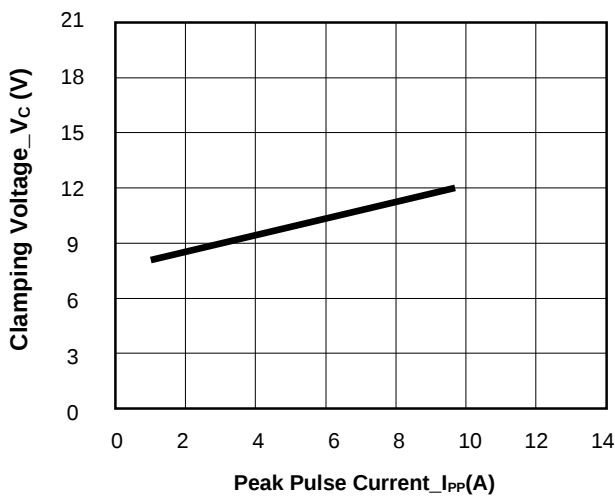
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



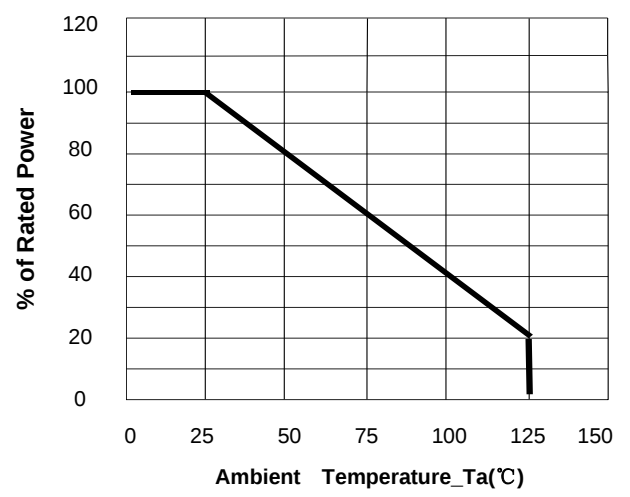
Junction Capacitance vs. Reverse Voltage



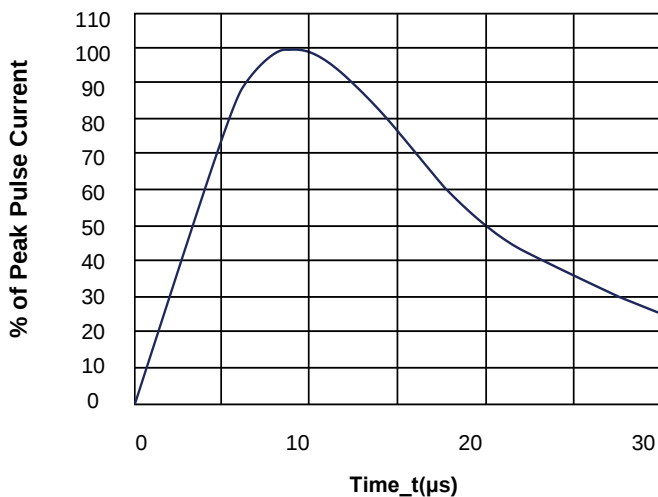
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

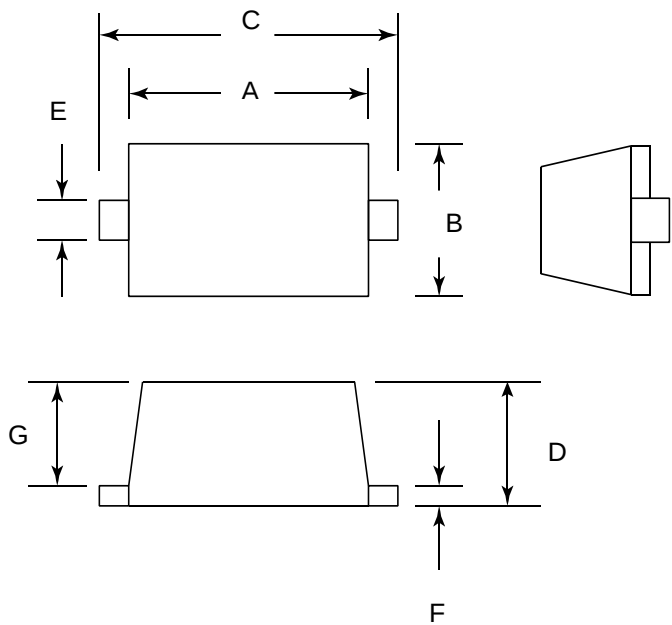


Power Derating Curve



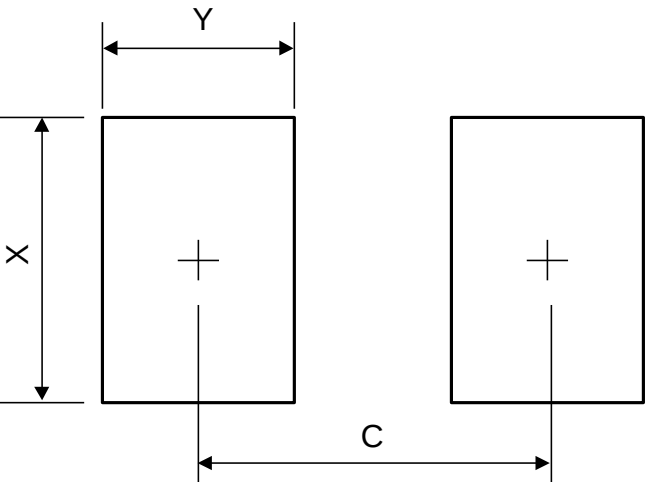
8/20 μs Pulse Waveform

SOD523 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.10	1.30	0.043	0.051
B	0.70	0.90.	0.028	0.035
C	1.50	1.70	0.059	0.067
D	0.50	0.70	0.020	0.028
E	0.25	0.35	0.010	0.014
F	0.10	0.20	0.004	0.008
G	0.40	0.50	0.016	0.020

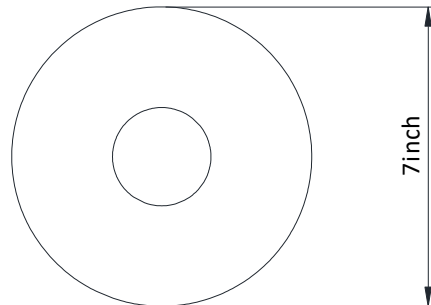
Suggested Land Pattern



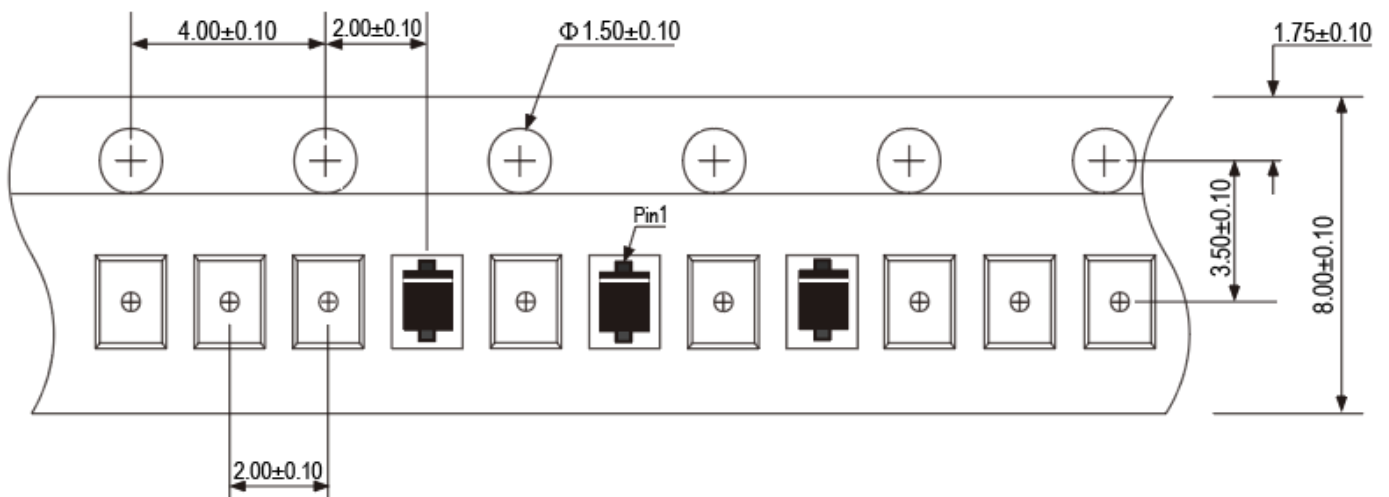
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.42	0.056
X	0.70	0.028
Y	0.60	0.024

TAPE AND REEL INFORMATION

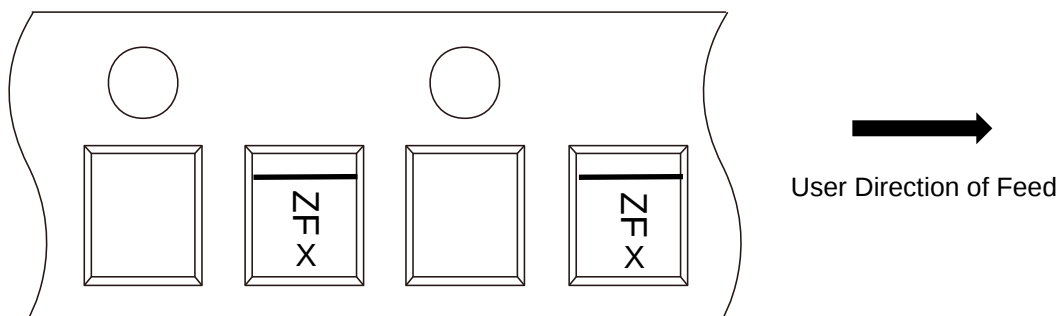
Reel Dimensions



Tape Dimensions



Unit:mm



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