1-Line Unidirectional ESD Protection Diode

Description

Unidirectional ElectroStatic Discharge (ESD) protection diode in a SOD523 plastic package designed to protect one transmission or data line from the damage caused by ESD and other transients.

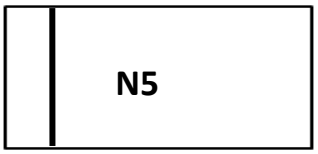
Applications

- Computers and peripherals
- Communication systems
- Audio equipment
- CAN bus protection
- Power supplies

Features

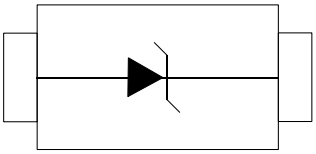
- Unidirectional ESD protection of one line
- Reverse stand-off voltage: 24V Max
- Low leakage current: nA Level
- Response time is typically < 1 ns
- Low clamping voltage: VC < 55V @ IPP = 6 A
- ESD Protection: 20kV(air)/ 15kV(contact) (IEC61000-4-2)
- Surge Protection: 6 A (IEC 61000-4-5 8/20 μs)

Marking Information



N5= Device Marking Code

Schematic and Pin Configuration



Graphic symbol

Ordering nformation

Part Number	Packaging	Package
PESDU2401D5N	3000/Tape & Reel	SOD523

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PK}	330	W
Peak Pulse Current (8/20μs)	I_{PP}	6	A
ESD per IEC 61000−4−2 (Air)	V_{ESD}	± 20	kV
ESD per IEC 61000−4−2 (Contact)		± 15	
Operating Temperature Range	T_{OP}	−55 to +125	℃
Storage Temperature Range	T_{STG}	−55 to +150	℃

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			24	V	Any I/O pin to ground
Breakdown Voltage	V_{BR}	26			V	I_T = 1mA, any I/O pin to ground
Reverse Leakage Current	I_R			100	nA	V_{RWM} = 24V, any I/O pin to ground
Clamping Voltage	V_C			55	V	I_{PP} = 6A (8/20μs pulse)
Junction Capacitance	C_J		25	30	pF	V_R = 0V, f = 1MHz

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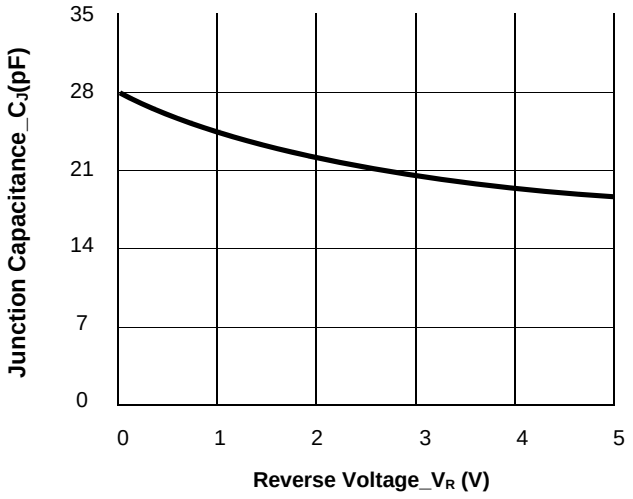
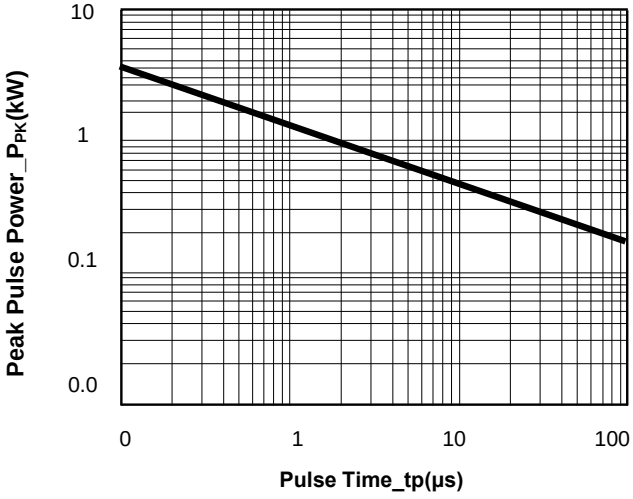
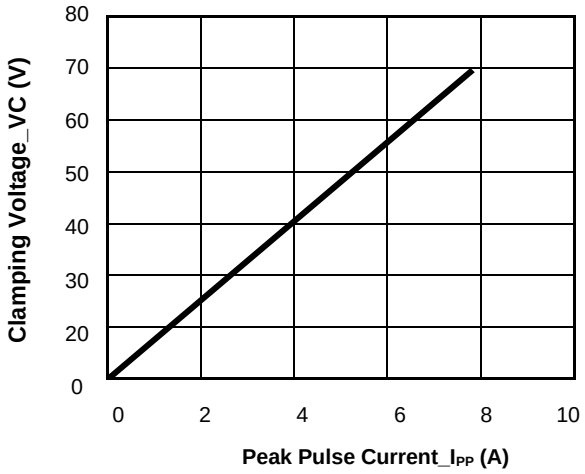
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



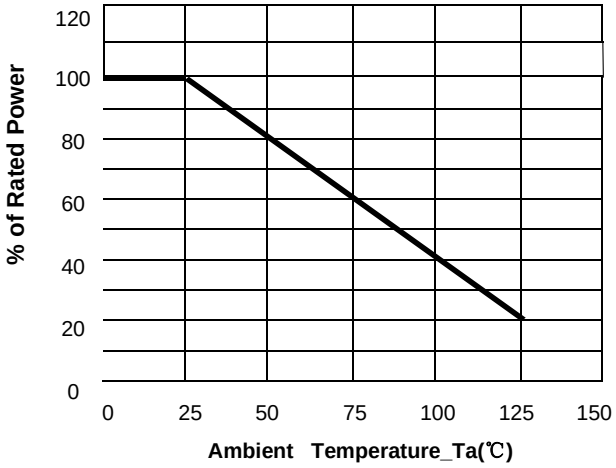
Junction Capacitance vs. Reverse Voltage



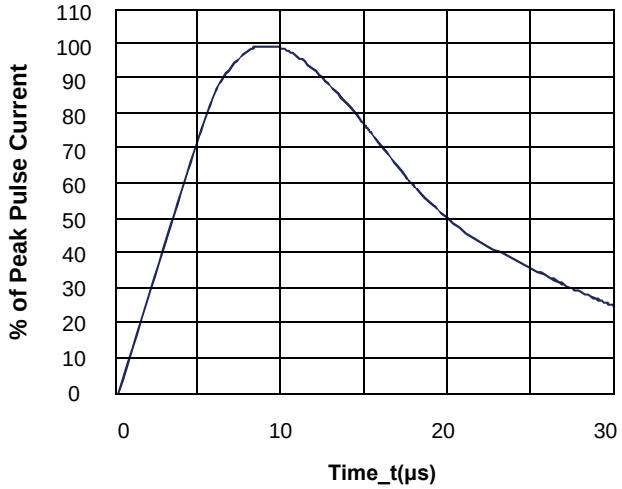
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8/20μs Pulse Waveform

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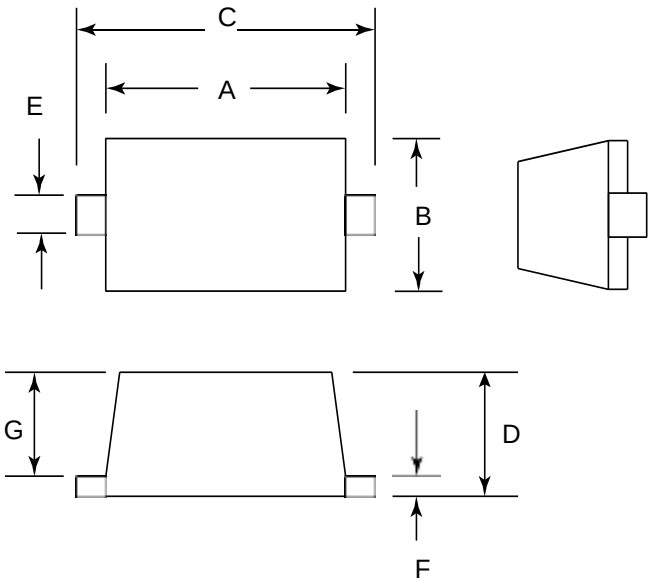
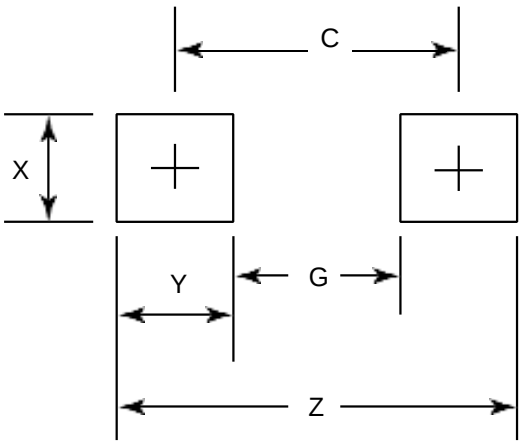
SOD523 Package Outline Drawing



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	0.50	0.70	0.020	0.028

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.70	0.067
G	1.10	0.043
X	0.80	0.031
Y	0.60	0.024
Z	2.30	0.091

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