

Description

The WPE8V0D3ULA is a 8V bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The WPE8V0D3ULA has a low capaci-tance with a typical value at 1pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make WPE8V0D3ULA an ideal choice to pro-tect cell phone, wireless systems, and communication equipment.

Features

- 350W peak pulse power (8/20 μs)
- Ultra low capacitance: 1pF typical
- Ultra low leakage: nA level
- Operating voltage: 8V
- Low clamping voltage
- Protects one power line or data line
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 18A (8/20 μs)
- RoHS Compliant

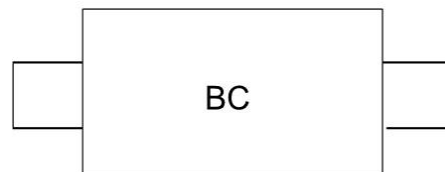
Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- USB Ports
- Smart Phones
- Handheld - Wireless Systems
- Ethernet 10/100/1000 Base T
- xDSL

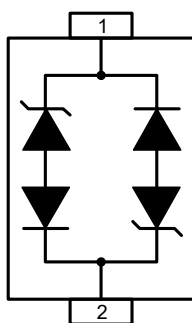
Marking Information



Ordering Information

Part Number	Packaging	Reel Size
WPE8V0D3ULA	3000/Tape & Reel	7 inch

Dimensions and Pin Configuration



Circuit and Pin Schematic

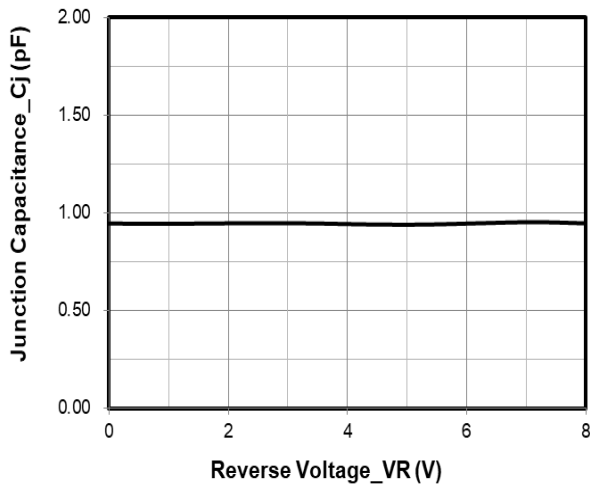
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	350	W
Peak Pulse Current (8/20 μs)	I _{PP}	18	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

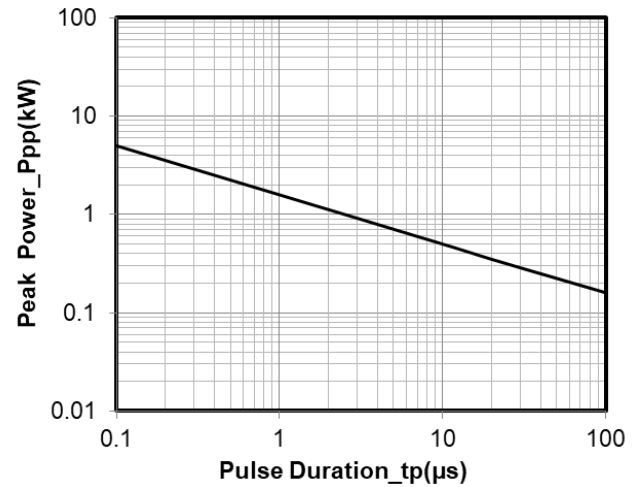
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			8	V	
Breakdown Voltage	V _{BR}	8.5			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 8V
Clamping Voltage	V _C			11	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C			19.5	V	I _{PP} = 18A (8 x 20 μs pulse)
Junction Capacitance	C _J		1		pF	V _R = 0V, f = 1MHz

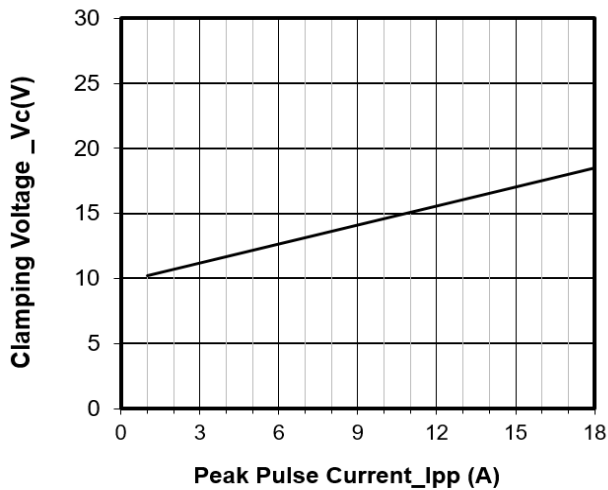
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



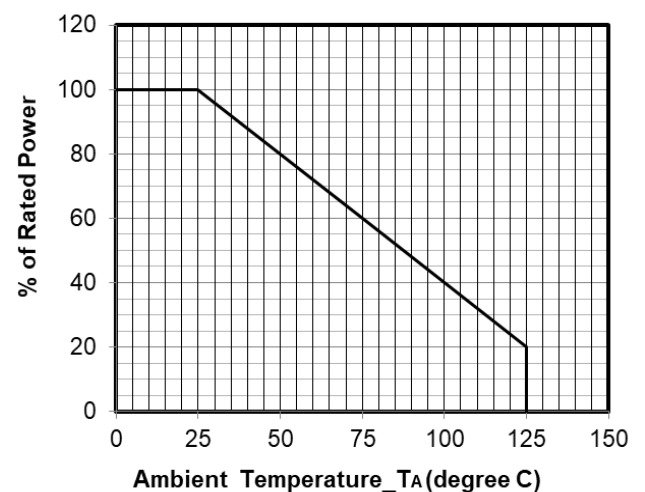
Junction Capacitance vs. Reverse Voltage



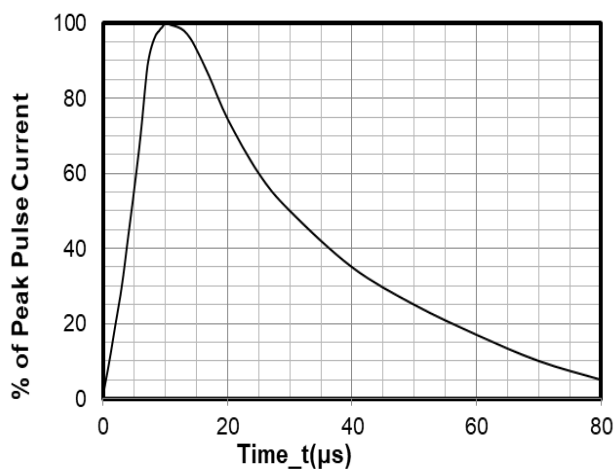
Peak Pulse Power vs. Pulse Time



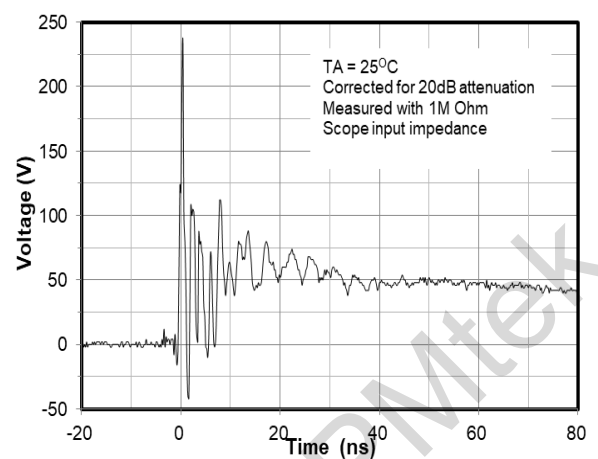
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



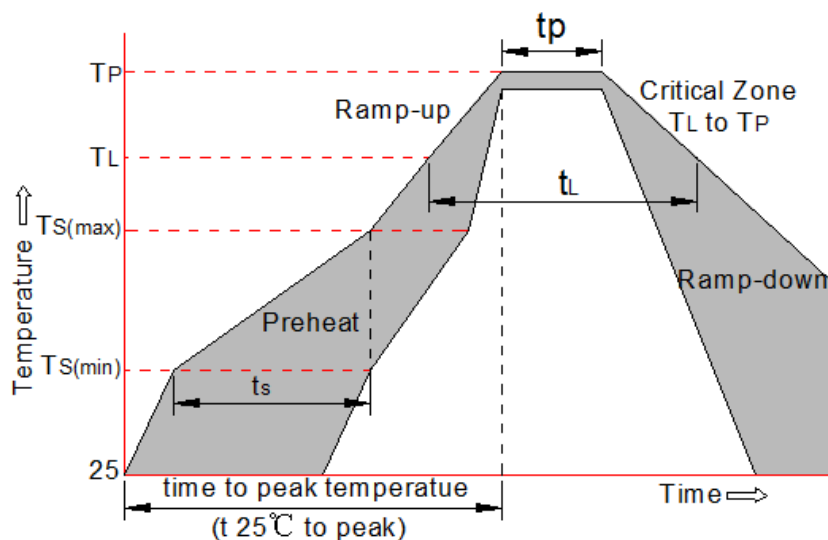
8 X 20 μS Pulse Waveform



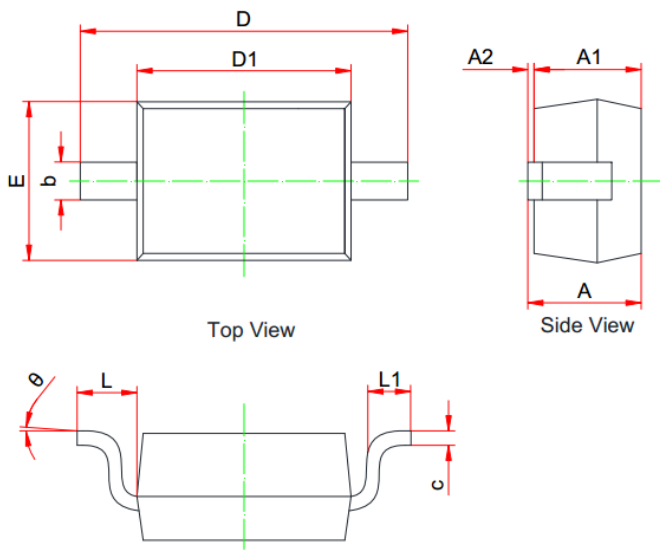
ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

Soldering Parameters

Reflow Condition		Pb-Free assembly (see FIG.2)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



SOD-323 Package Outline Drawing



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.800	--	1.100
A1	0.800	--	0.900
A2	0.000	--	0.100
b	0.250	--	0.400
c	0.080	--	0.177
D1	1.600	1.700	1.800
D	2.300	--	2.800
E	1.150	--	1.400
L	0.475REF		
L1	0.100	--	0.500
θ	0°	--	8°

Suggested Land Pattern



Unit: mm

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