

**WPExxxD3ULA** Bidirectional Ultralow Capacitance TVS ARRAY

**WPE3V3D3ULA, WPE5V0D3ULA, WPE8V0D3ULA, WPE12VD3ULA,  
WPE15VD3ULA, WPE18VD3ULA, WPE24VD3ULA**

**Bidirectional Ultralow Capacitance TVS ARRAY**

The WPExxxD3ULA is ultra low capacitance transient voltage suppressor arrays, designed to protect applications such as portable electronics and SMART phones. This series is available in both unidirectional and bidirectional configurations and is rated at 350 Watts for an 8/20µs waveform.

The WPExxxD3ULA meets IEC 61000-4-2 (ESD) and IEC 61000-4-4 (EFT) requirements. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This series offers an ultra low capacitance and low leakage current in a miniature SOD-323 package.

**Features**

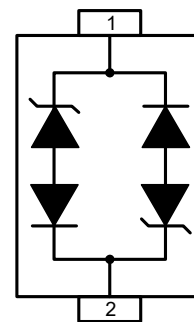
- 350 Watts Peak Pulse Power per Line (8 x 20 us Waveform)
- Replacement for MLV (0805)
- Protects One Power or I/O Port
- Low Clamping Voltage
- Available in Multiple Voltages:3.3V,5.0V,8.0V,12V,15V,24V
- Ultra Low Capacitance: 0.8pF (Typical)
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant
- WeiPan technology



**SOD-323**

**Main applications**

- Hand-Held Portable Applications
- Networking and Telecom(Ethernet 10/100/1000 Base T)
- USB Interface
- Automotive Electronics
- Serial and Parallel Ports
- Notebooks, Desktops, Servers



Circuit and Pin Schematic

**Protection solution to meet**

- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Surge) 25A (8/20us)

**Ordering Information**

Device	Qty per Reel	Reel Size
WPExxxD3ULA	3000	7 Inch

“xxx” =Working Peak Reverse Voltage

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**Maximum ratings (Tamb=25°C Unless Otherwise Specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	P <sub>PPP</sub>	350	Watts
ESD Rating per IEC61000-4-2:	Contact	30	KV
	Air	30	
Lead Soldering Temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating Temperature Range	T <sub>J</sub>	-55 ~ 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T <sub>L</sub>	260	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

\*Other voltages may be available upon request.

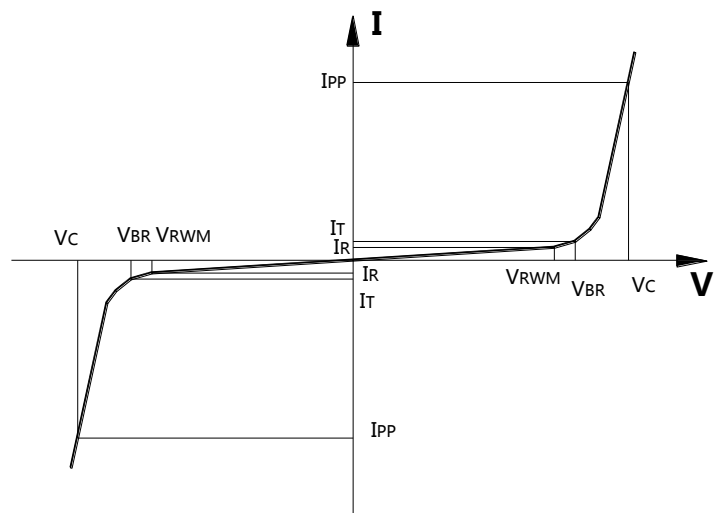
1. Non-repetitive current pulse, per Figure 1.

**Electrical characteristics (Tamb=25°C Unless Otherwise Specified)**

Device	V <sub>RWM</sub> (V)	I <sub>R</sub> @ V <sub>RWM</sub> (µA)	V <sub>BR</sub> @ 1 mA (Volts)	V <sub>C1</sub> @ 1 A (V)	V <sub>C2</sub> @ I <sub>pp</sub> (Max) (V)	I <sub>pp</sub> @8/20us (Amps) Max.	Capacitance @ V <sub>R</sub> = 0 V, 1 MHz (pF)		PPK (W)
			Min	(V)	(V)	(Amps)	Typ	Max.	
			(Volts)	(V)	(V)	(Amps)	(pF)	(pF)	
WPE3V3D3ULA	3.3	0.2	4	7	16	21	0.8	1.5	340
WPE5V0D3ULA	5	0.2	6	10	20	18	0.8	1.5	360
WPE8V0D3ULA	8	0.2	8.5	9	19.5	18	0.8	1.5	350
WPE12VD3ULA	12	0.2	13.3	18	25	14	0.8	1.5	350
WPE15VD3ULA	15	0.2	16.7	21	30	10	0.8	1.5	300
WPE18VD3ULA	18	0.2	19.8	29	45	8	1.0	3.0	350
WPE24VD3ULA	24	0.2	27	36	55	6	0.8	1.5	360

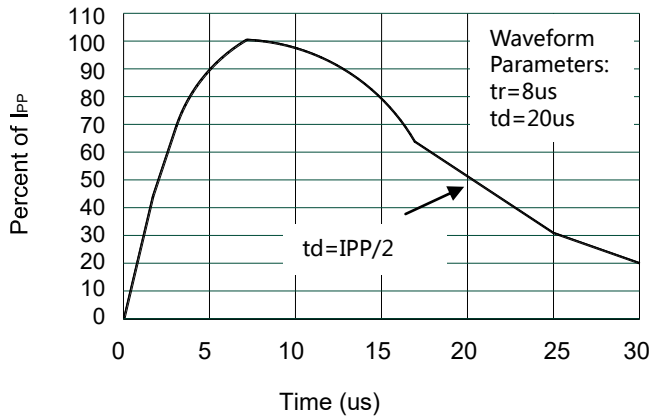
Junction capacitance is measured in VR=0V, F=1MHz

Symbol	Parameter
V <sub>RWM</sub>	Working Peak Reverse Voltage
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>T</sub>	Test Current
I <sub>RM</sub>	Leakage current at V <sub>RWM</sub>
I <sub>PP</sub>	Peak pulse current
C <sub>O</sub>	Off-state Capacitance
C <sub>J</sub>	Junction Capacitance

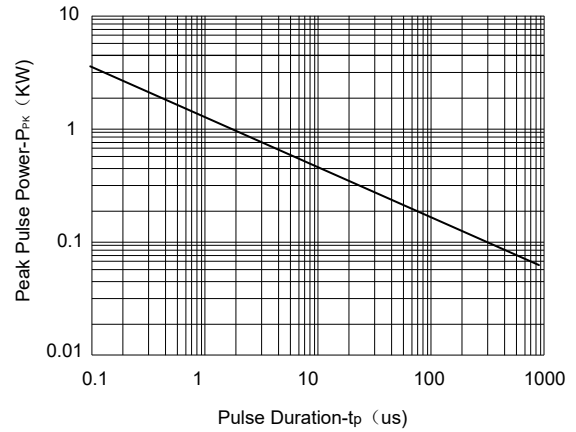


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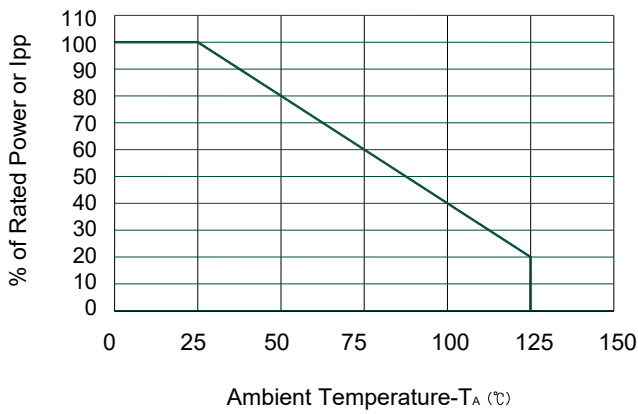
**Typical electrical characterist applications**



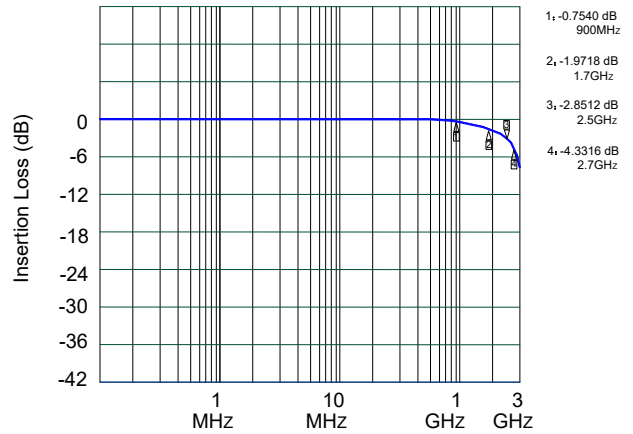
**Pulse Waveform**



**Non-Repetitive Peak Pulse Power vs. Pulse Time**



**Power Derating Curve**

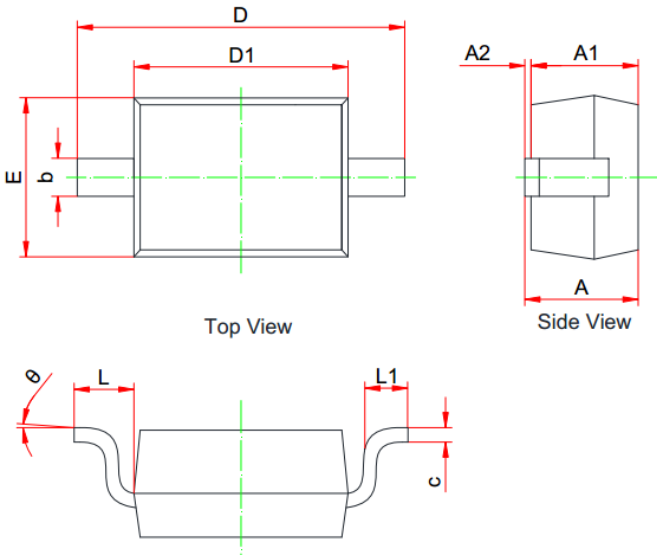


**Insertion Loss S21**

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**Package Information**

**SOD-323 Package Outline Drawing**



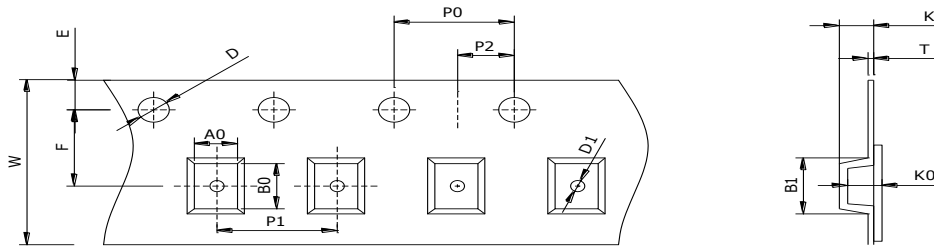
SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.800	--	1.100
A1	0.800	--	0.900
A2	0.000	--	0.100
b	0.250	--	0.400
c	0.080	--	0.177
D1	1.600	1.700	1.800
D	2.300	--	2.800
E	1.150	--	1.400
L	0.475REF		
L1	0.100	--	0.500
Θ	0°	--	8°

**Suggested Land Pattern**



Unit: mm

**SOD-323 Reel Dim**



Package	Chip Size	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SOD-323	2.60×1.40×1.05	3.30×1.50×1.25	8mm	178mm(7")	3000	4mm	4mm
D0	D1	E	F	K	T	W	
1.5mm	0.5mm	1.75mm	3.5mm	0.95mm	0.2mm	8mm	