

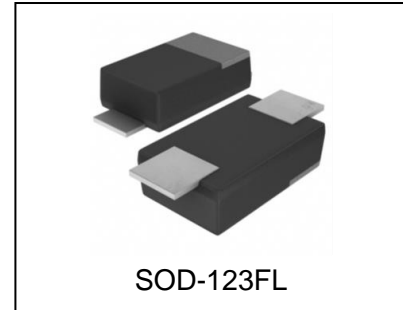


# WS7.0P4S1-B

## Power Transient Voltage Suppressor

### Features

- Bidirectional Protection
- Fast Response Time: Typically < 1ns
- Excellent Clamping Capability
- Low clamping voltage
- Built-in Strain relief
- Low inductance
- Low profile package
- IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$ (air),  $\pm 30\text{kV}$ (contact)
- MSL: Level 1



### Mechanical Characteristics

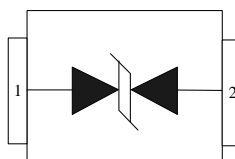
- SOD-123FL package
- Matte tin lead – free plated
- Marking: marking code
- RoHS Compliant

### Applications

- I/O Interfaces
- Power lines
- Telecommunication
- Consumer Electronics

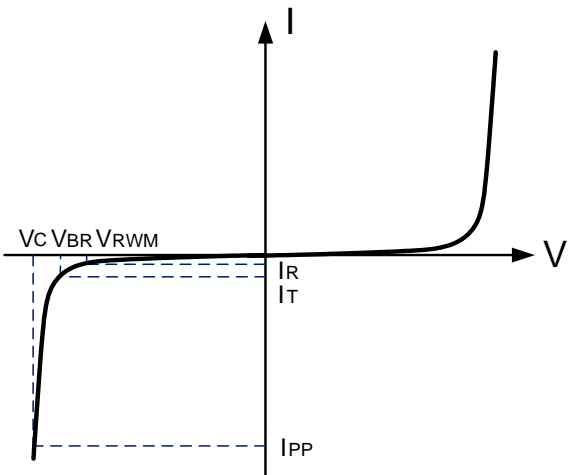
Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak pulse power (8/20 $\mu$ s)	P <sub>PP</sub>	3500	W
Peak pulse current (8/20 $\mu$ s)	I <sub>PP</sub>	220	A
Operating Junction Temperature range	T <sub>J</sub>	-40 to +125	°C
Storage Temperature range	T <sub>STG</sub>	-55 to +150	°C

### Pin Configuration



Electrical Characteristics

Symbol	Parameter
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
V <sub>RWM</sub>	Working Peak Reverse Voltage
I <sub>R</sub>	Maximum Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current



Electrical Characteristics

WS7.0P4S1-B						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V <sub>RWM</sub>				7.0	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> =10mA	7.7		8.6	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> =7V, T=25°C			50	μA
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> =220A, t <sub>P</sub> =8/20μs			16	V
Junction Capacitance	C <sub>j</sub>	V <sub>BIAS</sub> =0V, f=1MHz		870		pF

## Typical Characteristics

Figure 1: Pulse Derating Curve

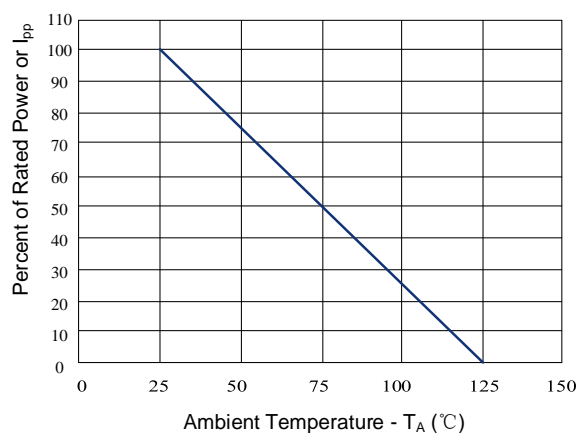


Figure 2: 8/20μs Pulse Waveform

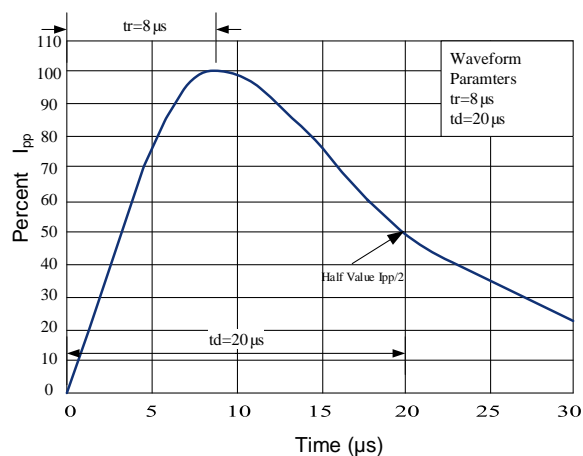


Figure 3: Peak Pulse Power Rating Curve

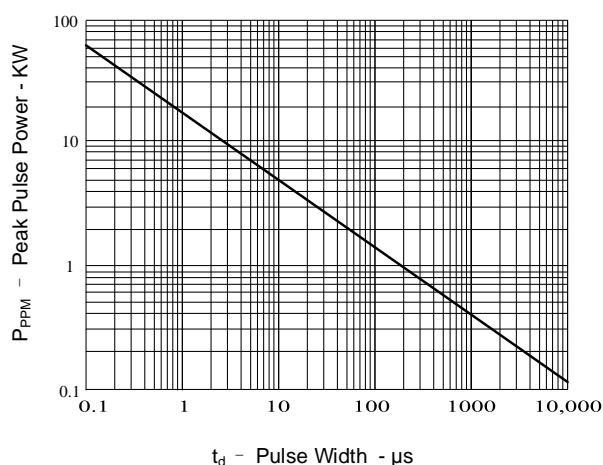
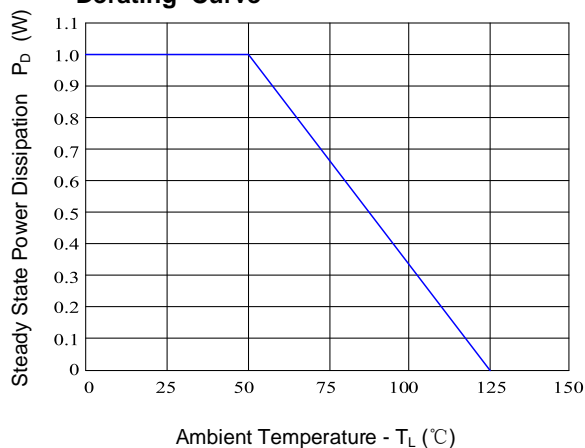


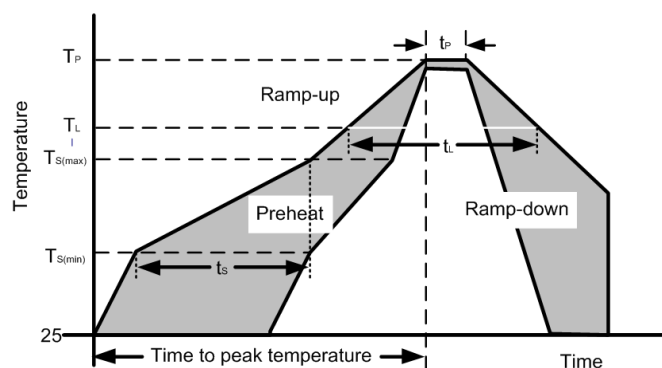
Figure 4: Steady State Power Dissipation Derating Curve



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

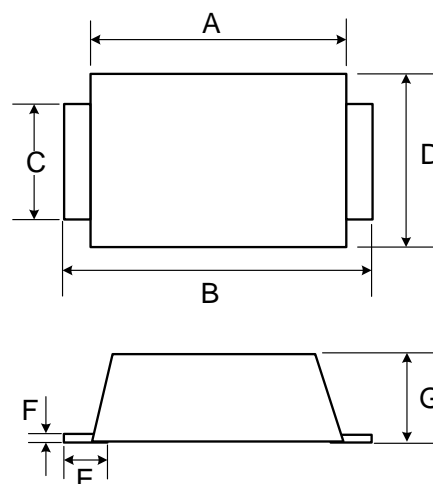
## Recommended Soldering Parameters

Reflow Condition		
Pre Heat	Temp. Min ( $T_{s(min)}$ )	150°C
	Temp. Max ( $T_{s(max)}$ )	200°C
	Time (Min to Max) ( $t_s$ )	60-150 s
Average ramp up rate (Liquidus Temp.) ( $T_L$ ) to peak		3°C/s max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/s max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Temperature ( $t_L$ )	60-150 s
Peak Temperature ( $T_P$ )		260±0/5 °C
Time within actual peak Temperature ( $t_p$ )		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature ( $T_P$ )		8 minutes max
Do not exceed		260°C

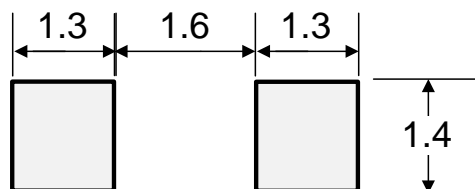


## Outline Drawing – SOD-123FL

Ref. (mm)	Millimeters	
	Min.	Max.
A	2.50	2.95
B	3.40	3.95
C	0.70	1.10
D	1.50	1.90
E	0.45	0.95
F	0.05	0.26
G	0.90	1.05

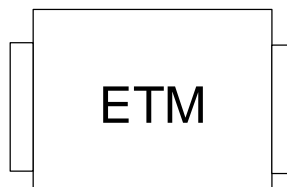


## Recommended Solder Pad Layout



Dimensions in mm

## Marking Code

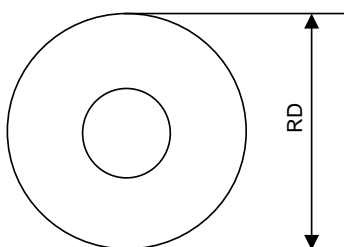


## Package Information

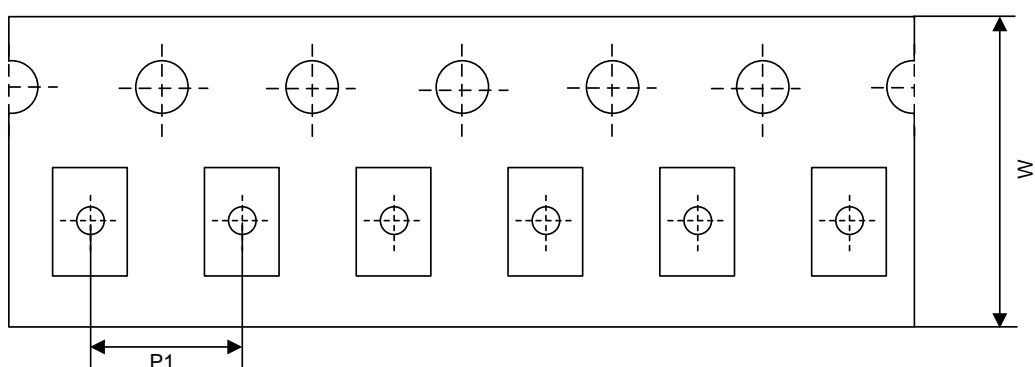
3000 Pcs/Reel

## Tape and Reel Information

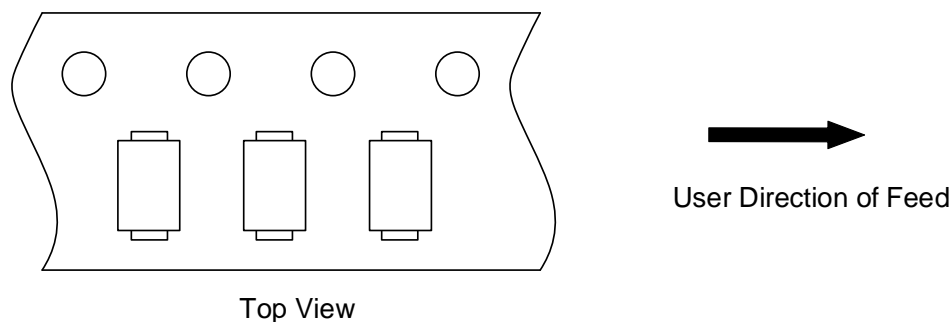
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



Top View

RD	Reel Dimensions	7 inch
W	Overall width of the carrier tape	8 mm
P1	Pitch between successive cavity centers	4 mm

## Contact Information

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For additional information, please contact your local Sales Representative.

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## Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

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The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

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