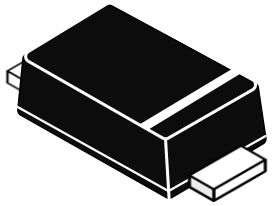
WSxxP6SMAF(-B)

Power Transient Voltage Suppressor

Features



- 600 watts Peak Pulse Power (10/1000 μs)
- Unidirectional and Bidirectional Protection
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- MSL: Level 1

Mechanical Characteristics

- SMAF package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS & HF Compliant

Applications

- I/O Interfaces
- Power lines
- Telecommunication
- Computers &Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp=10/1000μs) (see Note1,2& 3)	P_{PPM}	600	Watts
Peak pulse current (tp=10/1000μs) (see Note2&3)	I_{PPM}	See Electrical Characteristics	A
Peak Forward surge current (see Note4&5)	I_{FSM}	100	A
Operating Junction Temperature range	T_J	-55 to + 150	℃
Storage Temperature range	T_{STG}	-55 to + 150	℃

Note1: Peak Pulse Power Rating as Pulse Width per Fig1.

Note2: Peak Pulse Power or Current Derated above TA=25℃ Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Note3: Mounted on 5.0x5.0mm^2 copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Note5: Maximum Forward Surge Current only for Unidirectional Device per Fig4.

Electrical Characteristics

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_c@I_{PP} (Volts)	Maximum Peak Pulse Current I_{pp} (Amps)	Maximum Reverse Leakage I_R@V_{RWM} (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
WS5.0P6SMAF	WS5.0P6SMAF-B	5.0	6.40	7.07	10	9.2	65.2	800
WS6.0P6SMAF	WS6.0P6SMAF-B	6.0	6.67	7.37	10	10.3	58.3	800
WS6.5P6SMAF	WS6.5P6SMAF-B	6.5	7.22	7.98	10	11.2	53.6	500
WS7.0P6SMAF	WS7.0P6SMAF-B	7.0	7.78	8.60	10	12.0	50.0	200
WS8.0P6SMAF	WS8.0P6SMAF-B	8.0	8.89	9.83	1	13.6	44.1	50
WS9.0P6SMAF	WS9.0P6SMAF-B	9.0	10.00	11.10	1	15.4	39.0	10
WS10P6SMAF	WS10P6SMAF-B	10	11.10	12.30	1	17.0	35.3	5
WS12P6SMAF	WS12P6SMAF-B	12	13.30	14.7	1	19.9	30.2	5
WS13P6SMAF	WS13P6SMAF-B	13	14.40	15.90	1	21.5	27.9	1
WS14P6SMAF	WS14P6SMAF-B	14	15.60	17.20	1	23.2	25.9	1
WS15P6SMAF	WS15P6SMAF-B	15	16.70	18.50	1	24.4	24.6	1
WS16P6SMAF	WS16P6SMAF-B	16	17.80	19.70	1	26.0	23.1	1
WS18P6SMAF	WS18P6SMAF-B	18	20.00	22.10	1	29.2	20.5	1
WS20P6SMAF	WS20P6SMAF-B	20	22.20	24.50	1	32.4	18.5	1
WS22P6SMAF	WS22P6SMAF-B	22	24.40	26.90	1	35.5	16.9	1
WS24P6SMAF	WS24P6SMAF-B	24	26.70	29.50	1	38.9	15.4	1
WS26P6SMAF	WS26P6SMAF-B	26	28.90	31.90	1	42.1	14.3	1
WS28P6SMAF	WS28P6SMAF-B	28	31.10	34.40	1	45.4	13.2	1
WS30P6SMAF	WS30P6SMAF-B	30	33.30	36.80	1	48.4	12.4	1
WS33P6SMAF	WS33P6SMAF-B	33	36.70	40.60	1	53.3	11.3	1
WS36P6SMAF	WS36P6SMAF-B	36	40.00	44.20	1	58.1	10.3	1
WS40P6SMAF	WS40P6SMAF-B	40	44.40	49.10	1	64.5	9.3	1
WS43P6SMAF	WS43P6SMAF-B	43	47.80	52.80	1	69.4	8.6	1
WS45P6SMAF	WS45P6SMAF-B	45	50.00	55.30	1	72.7	8.3	1
WS48P6SMAF	WS48P6SMAF-B	48	53.30	58.90	1	77.4	7.8	1
WS51P6SMAF	WS51P6SMAF-B	51	56.70	62.70	1	82.4	7.3	1
WS54P6SMAF	WS54P6SMAF-B	54	60.00	66.30	1	87.1	6.9	1
WS58P6SMAF	WS58P6SMAF-B	58	64.40	71.20	1	93.6	6.4	1
WS60P6SMAF	WS60P6SMAF-B	60	66.70	73.70	1	96.8	6.2	1
WS64P6SMAF	WS64P6SMAF-B	64	71.10	78.60	1	103	5.8	1
WS70P6SMAF	WS70P6SMAF-B	70	77.80	86.00	1	113	5.3	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

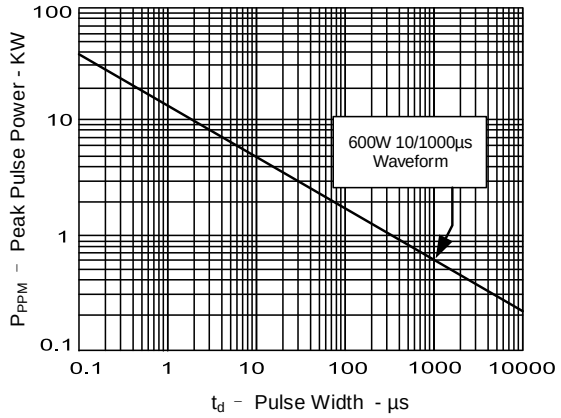


Figure 2: Pulse Derating Curve

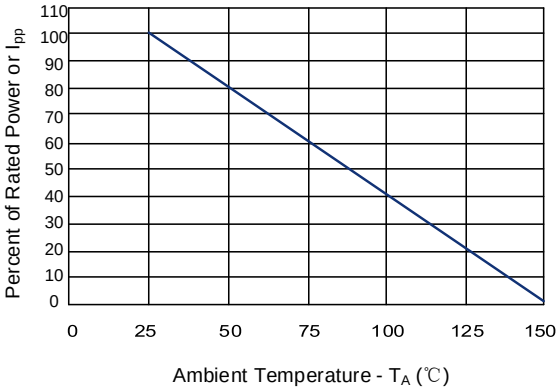


Figure 3: Pulse Waveform

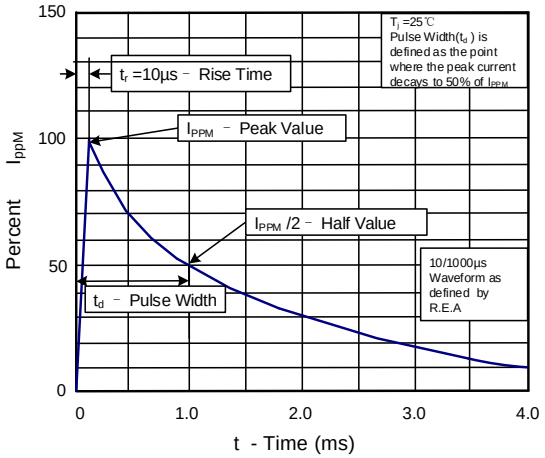
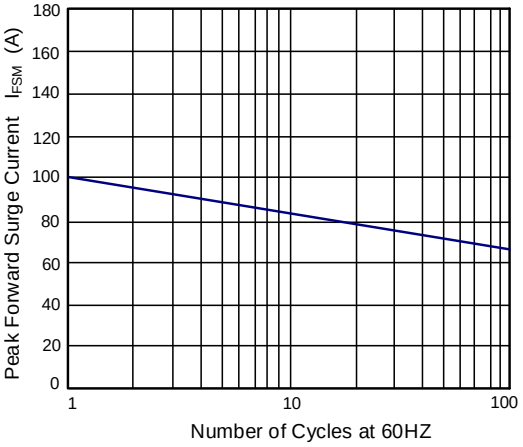


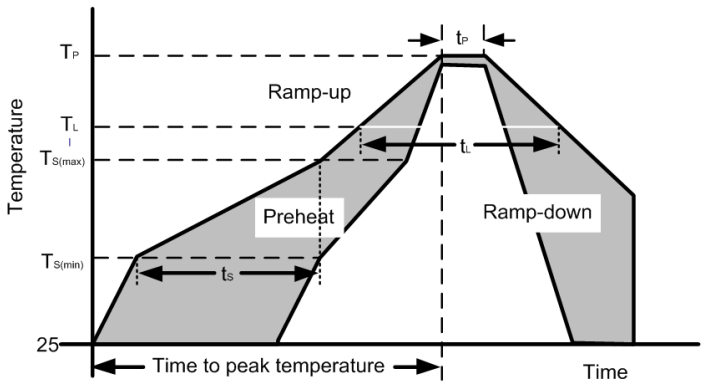
Figure 4: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



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.

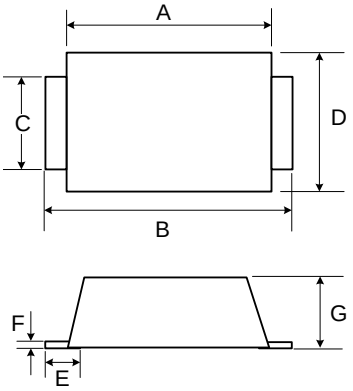
Recommended Soldering Parameters

Reflow Condition		
Pre Heat	Temp. min ($T_{s(min)}$)	150°C
	Temp. max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60-190 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

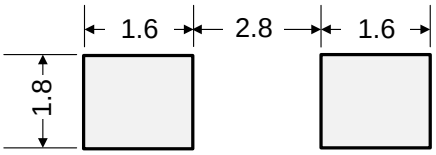


Outline Drawing – SMAF

Ref.（mm）	Millimeters	
	Min.	Max.
A	3.30	3.70
B	4.40	4.90
C	1.30	1.60
D	2.40	2.80
E	0.50	1.30
F	0.10	0.30
G	0.90	1.30

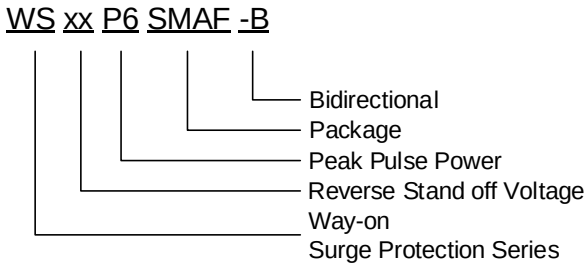


Recommended Solder Pad Layout

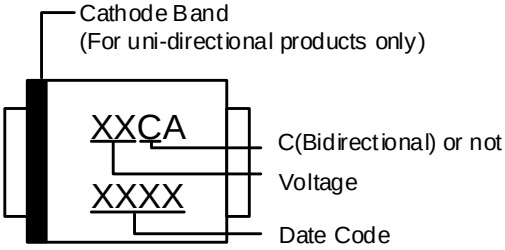


Dimensions in mm

Part Numbering System



Part Marking System

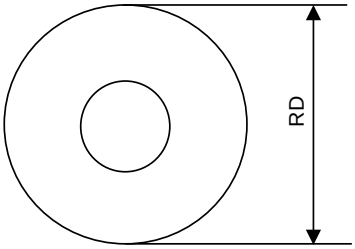


Package Information

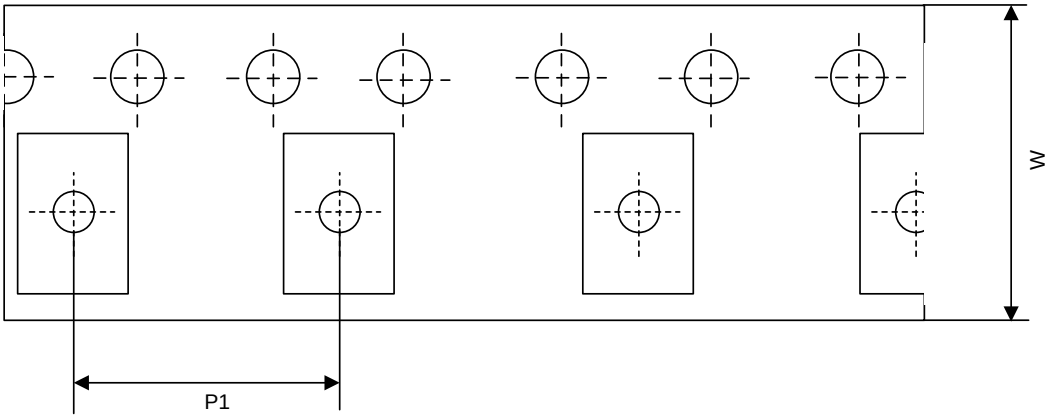
10000 Pcs/Reel

Tape and Reel Information

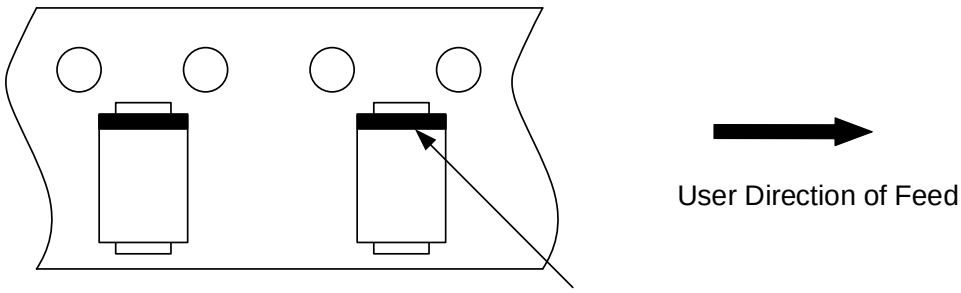
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



User Direction of Feed

Top View

Uni-directional products only

RD	Reel Dimensions	13 inch
W	Overall width of the carrier tape	12 mm
P1	Pitch between successive cavity centers	4 mm

Contact Information

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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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