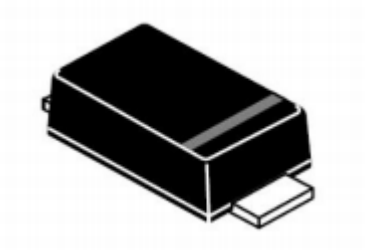
WSxxP6SMAF(-B)

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
- High temperature solder:260℃/10 seconds at terminal

Mechanical Characteristics

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

Applications

- I/O Interfaces
- Power lines
- Automotive and 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

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

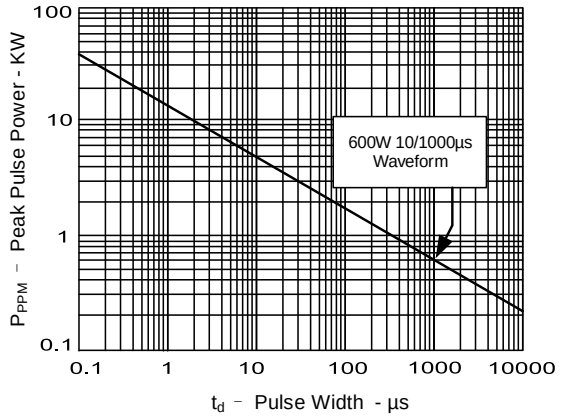


Figure 2: Pulse Derating Curve

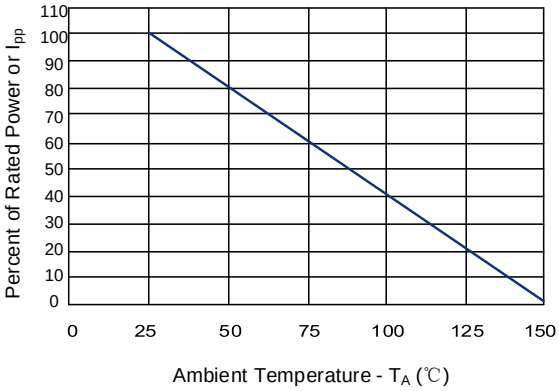


Figure 3: Pulse Waveform

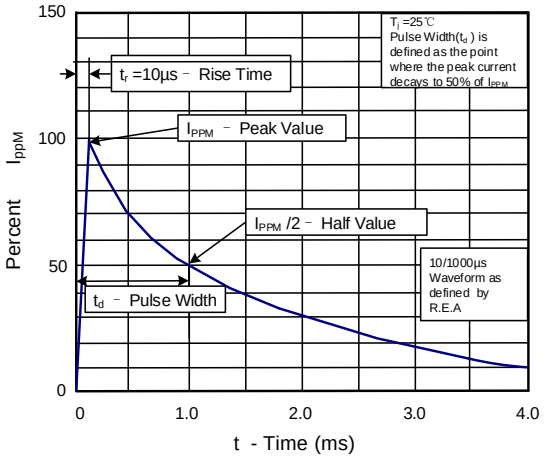
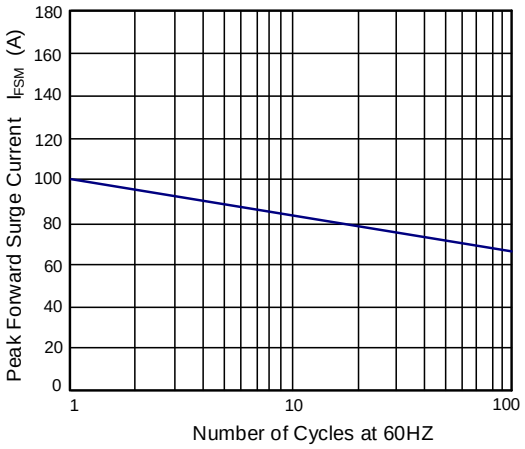
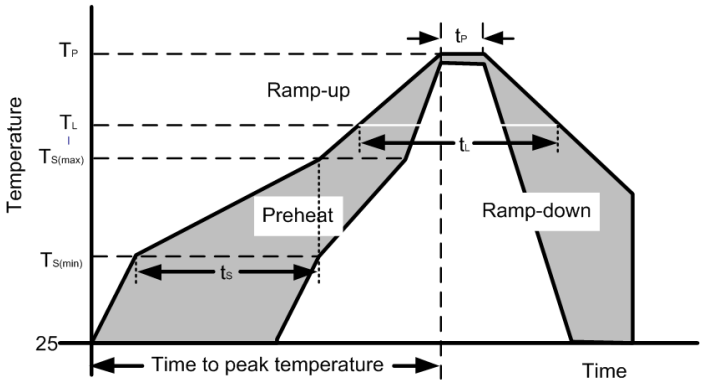


Figure 4: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



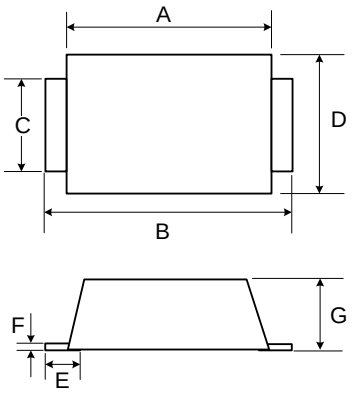
Recommended Soldering Parameters

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

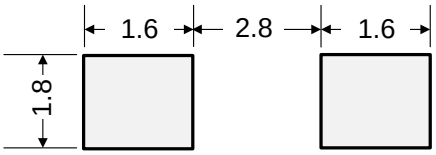


Outline Drawing – SMAF

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

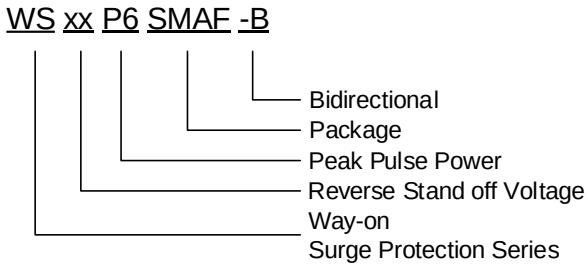


Recommended Solder Pad Layout

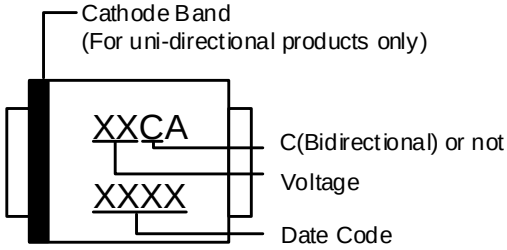


Dimensions in mm

Part Numbering System



Part Marking System



Package Information

10000 Pcs/Reel

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