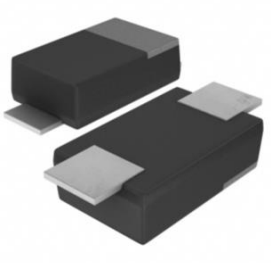
SM4Fxx(C)AL

Power Transient Voltage Suppressor

Features

- 400 watts Peak Pulse Power (10/1000μs)
- 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



SOD-123FL

Mechanical Characteristics

- SOD-123FL package
- Matte tin lead – free plated
- Marking: Marking Code
- RoHS & HF Compliant

Applications

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

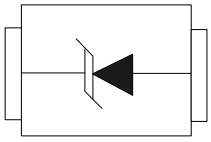
Absolute Maximum Rating			
Rating	**Symbol**	**Value**	**Units**
Peak Pulse Power (tp =10/1000μs) (see Note1&2)	P_{PPM}	400	Watts
Peak pulse current (10/1000μs) (see Note2)	I_{PPM}	See Electrical Characteristics	A
Peak Forward surge current (see Note3)	I_{FSM}	20	A
Power Dissipation on infinite heat sink T_L = 50 °C (Fig4)	P_D	1.0	W
Operating Junction Temperature range	T_J	-55 to + 150	℃

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

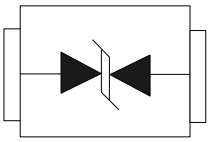
Note2: Peak Pulse Power or Current Derated above T_A=25℃ Per Fig. 2 and Non-Repetitive Current Pulse,Per Fig.3.

Note3: 8.3ms Single Half Sine Wave or Equivalent Square Wave unidirectional device only.

Pin Configuration



Unidirectional



Bidirectional

Electrical Characteristics

Part Number		Marking Code		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage $V_{BR}@I_T$ (Volts)		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	UNI-POLAR	BI-POLAR		MIN	MAX				
SM4F5.0AL	SM4F5.0CAL	4HE	4TE	5.0	6.4	7.0	10	9.2	43.5	400
SM4F6.0AL	SM4F6.0CAL	4HG	4TG	6.0	6.67	7.37	10	10.3	38.8	400
SM4F6.5AL	SM4F6.5CAL	4HK	4TK	6.5	7.22	7.98	10	11.2	35.7	250
SM4F7.0AL	SM4F7.0CAL	4HM	4TM	7.0	7.78	8.6	10	12	33.3	100
SM4F7.5AL	SM4F7.5CAL	4HP	4TP	7.5	8.33	9.21	1	12.9	31.0	50
SM4F8.0AL	SM4F8.0CAL	4HR	4TR	8.0	8.89	9.83	1	13.6	29.4	25
SM4F8.5AL	SM4F8.5CAL	4HT	4TT	8.5	9.44	10.4	1	14.4	27.8	10
SM4F9.0AL	SM4F9.0CAL	4HV	4TV	9.0	10.0	11.1	1	15.4	26.0	5
SM4F10AL	SM4F10CAL	4HX	4TX	10	11.1	12.3	1	17	23.5	2.5
SM4F11AL	SM4F11CAL	4HZ	4TZ	11	12.2	13.5	1	18.2	22.0	2.5
SM4F12AL	SM4F12CAL	4IE	4UE	12	13.3	14.7	1	19.9	20.1	2.5
SM4F13AL	SM4F13CAL	4IG	4UG	13	14.4	15.9	1	21.5	18.6	1
SM4F14AL	SM4F14CAL	4IK	4UK	14	15.6	17.2	1	23.2	17.2	1
SM4F15AL	SM4F15CAL	4IM	4UM	15	16.7	18.5	1	24.4	16.4	1
SM4F16AL	SM4F16CAL	4IP	4UP	16	17.8	19.7	1	26	15.4	1
SM4F17AL	SM4F17CAL	4IR	4UR	17	18.9	20.9	1	27.6	14.5	1
SM4F18AL	SM4F18CAL	4IT	4UT	18	20.0	22.1	1	29.2	13.7	1
SM4F20AL	SM4F20CAL	4IV	4UV	20	22.2	24.5	1	32.4	12.3	1
SM4F22AL	SM4F22CAL	4IX	4UX	22	24.4	26.9	1	35.5	11.3	1
SM4F24AL	SM4F24CAL	4IZ	4UZ	24	26.7	29.5	1	38.9	10.3	1
SM4F26AL	SM4F26CAL	4JE	4VE	26	28.9	31.9	1	42.1	9.5	1
SM4F28AL	SM4F28CAL	4JG	4VG	28	31.1	34.4	1	45.4	8.8	1
SM4F30AL	SM4F30CAL	4JK	4VK	30	33.3	36.8	1	48.4	8.3	1
SM4F33AL	SM4F33CAL	4JM	4VM	33	36.7	40.6	1	53.3	7.5	1
SM4F36AL	SM4F36CAL	4JP	4VP	36	40.0	44.2	1	58.1	6.9	1
SM4F40AL	SM4F40CAL	4JR	4VR	40	44.4	49.1	1	64.5	6.2	1
SM4F43AL	SM4F43CAL	4JT	4VT	43	47.8	52.8	1	69.4	5.8	1
SM4F45AL	SM4F45CAL	4JV	4VV	45	50.0	55.3	1	72.7	5.5	1
SM4F48AL	SM4F48CAL	4JX	4VX	48	53.3	58.9	1	77.4	5.2	1
SM4F51AL	SM4F51CAL	4JZ	4VZ	51	56.7	62.7	1	82.4	4.9	1
SM4F54AL	SM4F54CAL	4RE	4WE	54	60.0	66.3	1	87.1	4.6	1
SM4F58AL	SM4F58CAL	4RG	EWG	58	64.4	71.2	1	93.6	4.3	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

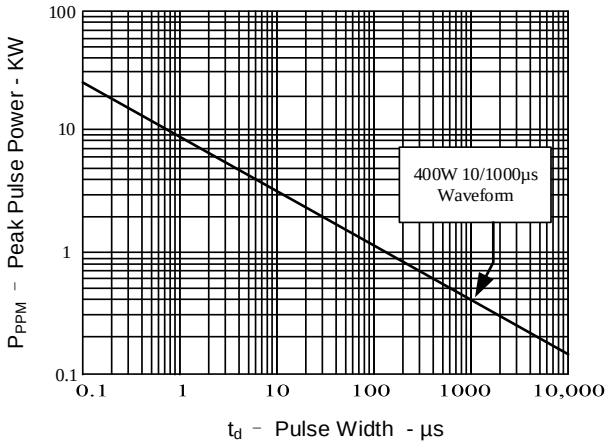


Figure 2: Pulse Derating Curve

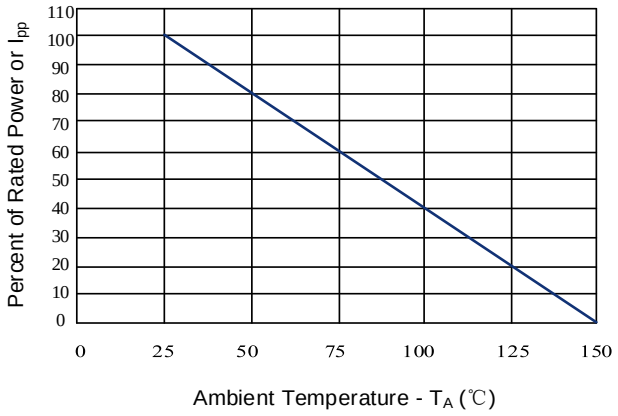


Figure 3: Pulse Waveform

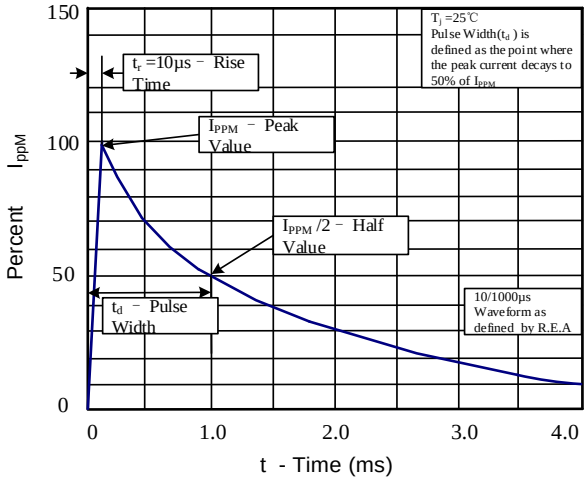


Figure 4: Steady State Power Dissipation Derating Curve

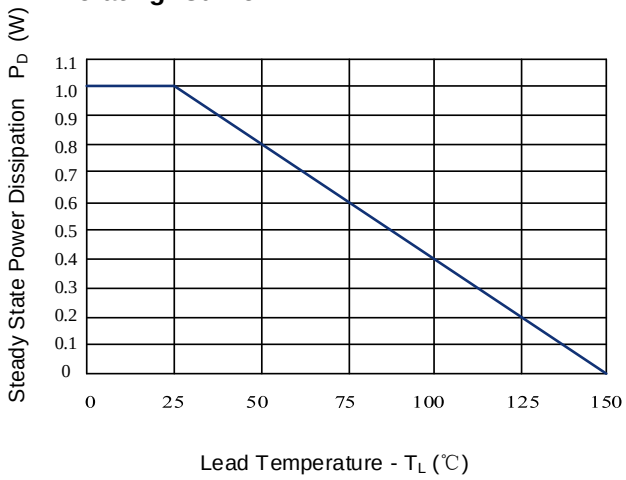
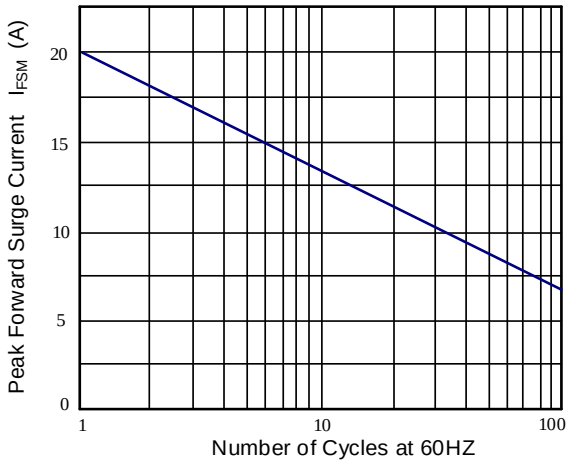


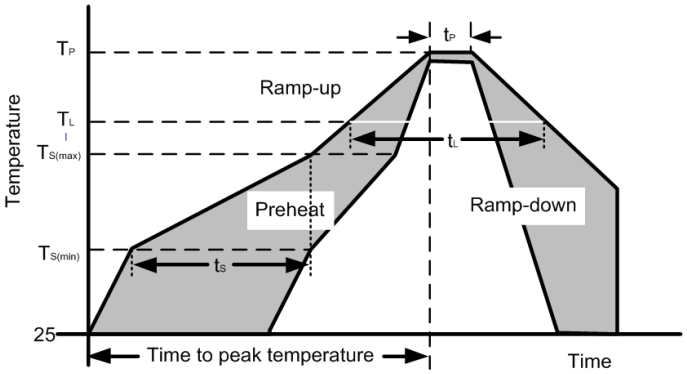
Figure 5: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



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.

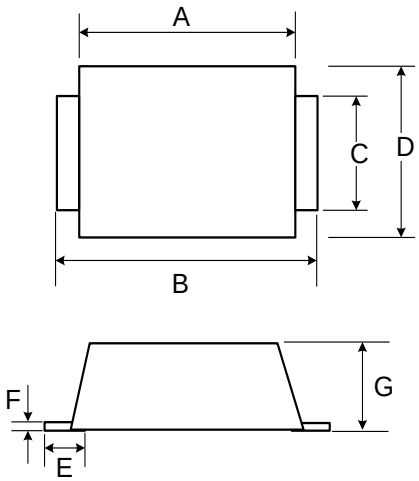
Soldering Parameters

Reflow Condition		
Pre-Heat	Temperature min ($T_{s(min)}$)	150°C
	Temperature 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
Ts(max) to TL - 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

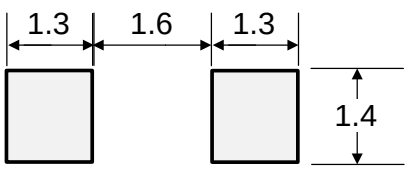


Outline Drawing – SOD-123FL

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	1.35

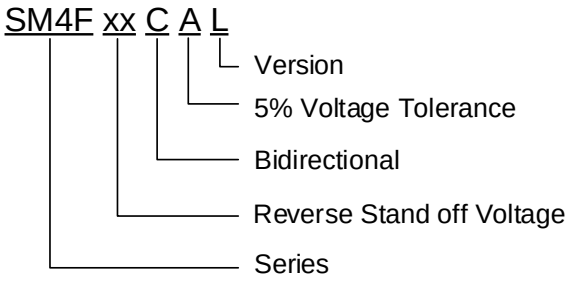


Recommended Solder Pad Layout

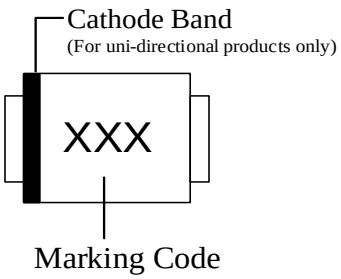


Dimensions in mm

Part Numbering System



Part Marking System

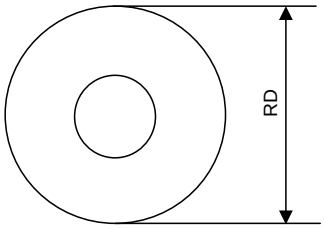


Package Information

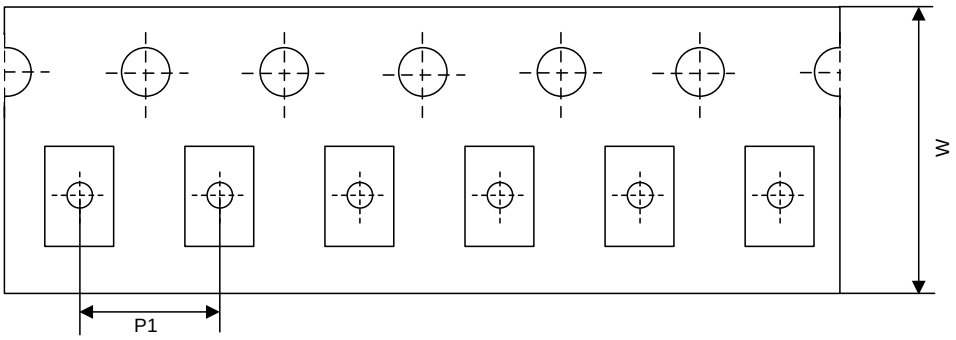
3000 Pcs/Reel

Tape and Reel Information

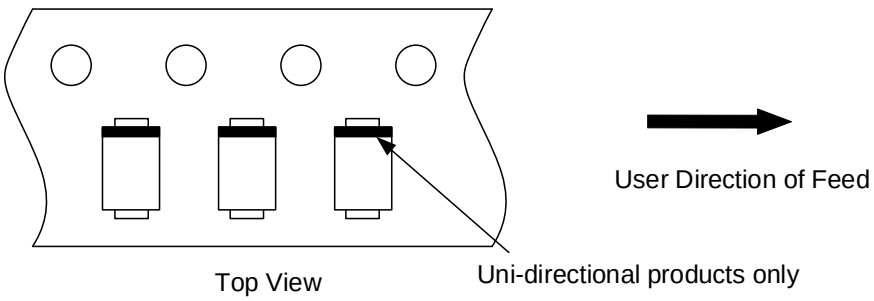
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



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

Contact Information

No.1001, Shiwan(7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-50310888 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**
For additional information, please contact your local Sales Representative.

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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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