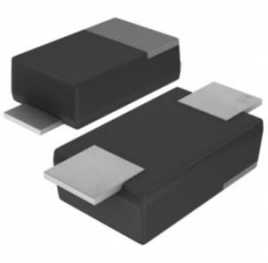
SM4Fxx(C)A

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 Compliant

Applications

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

Absolute Maximum Rating

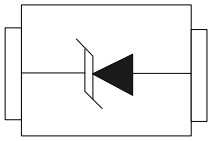
Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000μs) (see Note1&2)	P_{PPM}	400	Watts
Peak pulse current (10/1000μs) (see Note2)	I_{PPM}	See Electrical Characteristics	A
Peak Forward surge current (see Note3)	I_{FSM}	20	A
Power Dissipation on infinite heat sink T_L = 50 °C (Fig4)	P_D	1.0	W
Operating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

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

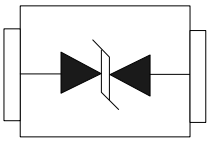
Note2: Peak Pulse Power or Current Derated above T_A=25℃ Per Fig. 2 and Non-Repetitive Current Pulse,Per Fig.3.

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				
SM4F5.0A	SM4F5.0CA	4HE	4TE	5.0	6.4	7.0	10	9.2	43.5	400
SM4F6.0A	SM4F6.0CA	4HG	4TG	6.0	6.67	7.37	10	10.3	38.8	400
SM4F6.5A	SM4F6.5CA	4HK	4TK	6.5	7.22	7.98	10	11.2	35.7	250
SM4F7.0A	SM4F7.0CA	4HM	4TM	7.0	7.78	8.6	10	12	33.3	100
SM4F7.5A	SM4F7.5CA	4HP	4TP	7.5	8.33	9.21	1	12.9	31.0	50
SM4F8.0A	SM4F8.0CA	4HR	4TR	8.0	8.89	9.83	1	13.6	29.4	25
SM4F8.5A	SM4F8.5CA	4HT	4TT	8.5	9.44	10.4	1	14.4	27.8	10
SM4F9.0A	SM4F9.0CA	4HV	4TV	9.0	10.0	11.1	1	15.4	26.0	5
SM4F10A	SM4F10CA	4HX	4TX	10	11.1	12.3	1	17	23.5	2.5
SM4F11A	SM4F11CA	4HZ	4TZ	11	12.2	13.5	1	18.2	22.0	2.5
SM4F12A	SM4F12CA	4IE	4UE	12	13.3	14.7	1	19.9	20.1	2.5
SM4F13A	SM4F13CA	4IG	4UG	13	14.4	15.9	1	21.5	18.6	1
SM4F14A	SM4F14CA	4IK	4UK	14	15.6	17.2	1	23.2	17.2	1
SM4F15A	SM4F15CA	4IM	4UM	15	16.7	18.5	1	24.4	16.4	1
SM4F16A	SM4F16CA	4IP	4UP	16	17.8	19.7	1	26	15.4	1
SM4F17A	SM4F17CA	4IR	4UR	17	18.9	20.9	1	27.6	14.5	1
SM4F18A	SM4F18CA	4IT	4UT	18	20.0	22.1	1	29.2	13.7	1
SM4F20A	SM4F20CA	4IV	4UV	20	22.2	24.5	1	32.4	12.3	1
SM4F22A	SM4F22CA	4IX	4UX	22	24.4	26.9	1	35.5	11.3	1
SM4F24A	SM4F24CA	4IZ	4UZ	24	26.7	29.5	1	38.9	10.3	1
SM4F26A	SM4F26CA	4JE	4VE	26	28.9	31.9	1	42.1	9.5	1
SM4F28A	SM4F28CA	4JG	4VG	28	31.1	34.4	1	45.4	8.8	1
SM4F30A	SM4F30CA	4JK	4VK	30	33.3	36.8	1	48.4	8.3	1
SM4F33A	SM4F33CA	4JM	4VM	33	36.7	40.6	1	53.3	7.5	1
SM4F36A	SM4F36CA	4JP	4VP	36	40.0	44.2	1	58.1	6.9	1
SM4F40A	SM4F40CA	4JR	4VR	40	44.4	49.1	1	64.5	6.2	1
SM4F43A	SM4F43CA	4JT	4VT	43	47.8	52.8	1	69.4	5.8	1
SM4F45A	SM4F45CA	4JV	4VV	45	50.0	55.3	1	72.7	5.5	1
SM4F48A	SM4F48CA	4JX	4VX	48	53.3	58.9	1	77.4	5.2	1
SM4F51A	SM4F51CA	4JZ	4VZ	51	56.7	62.7	1	82.4	4.9	1
SM4F54A	SM4F54CA	4RE	4WE	54	60.0	66.3	1	87.1	4.6	1
SM4F58A	SM4F58CA	4RG	EWG	58	64.4	71.2	1	93.6	4.3	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

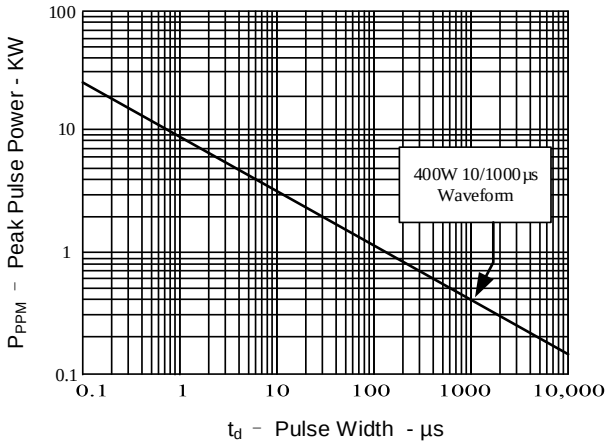


Figure 2: Pulse Derating Curve

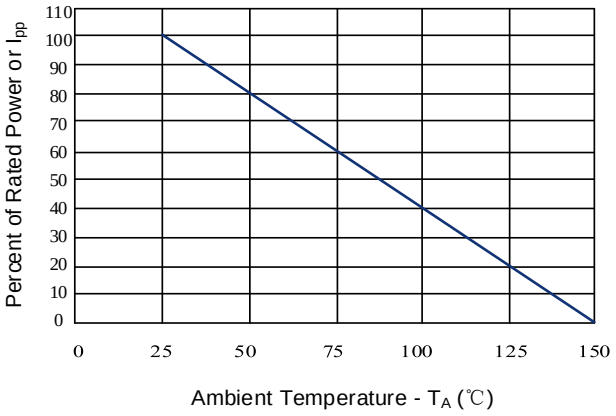


Figure 3: Pulse Waveform

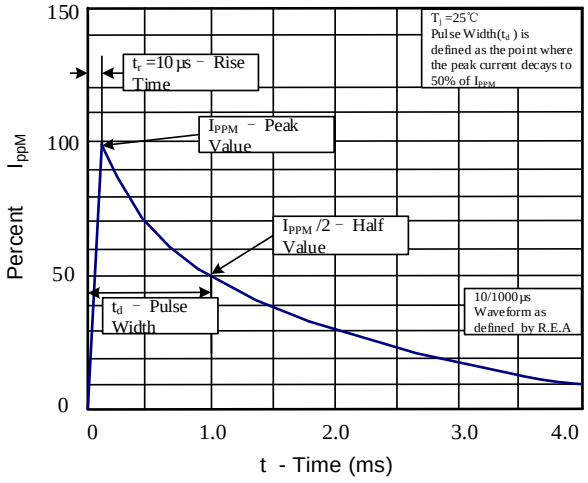


Figure 4: Steady State Power Dissipation Derating Curve

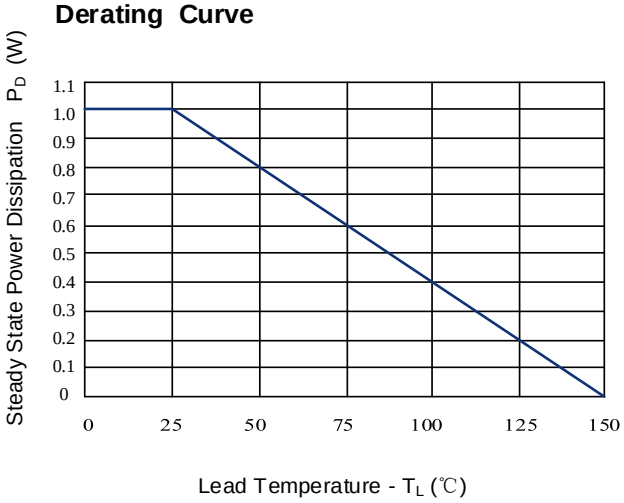
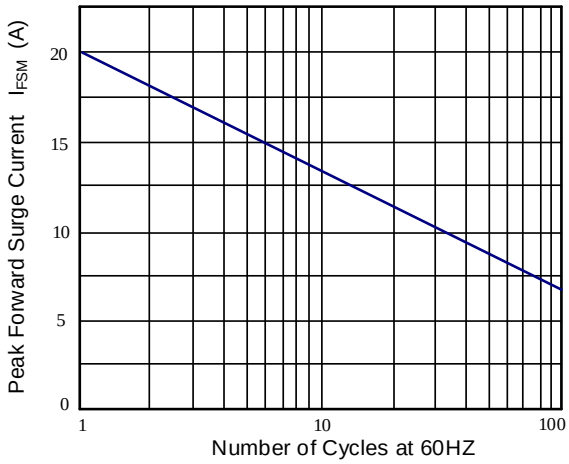


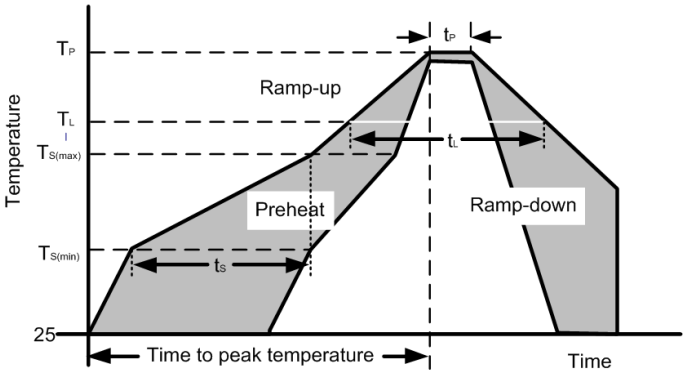
Figure 5: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



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.

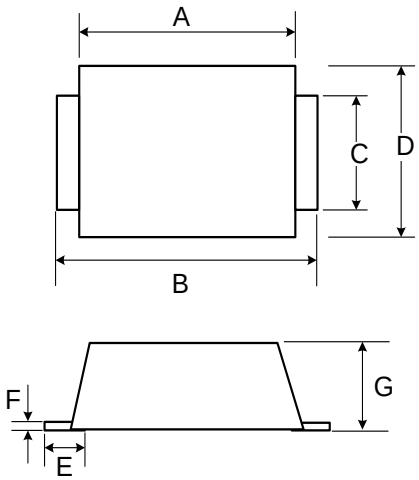
Soldering Parameters

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

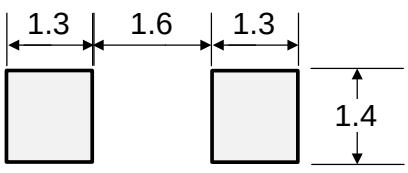


Outline Drawing – SOD-123FL

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

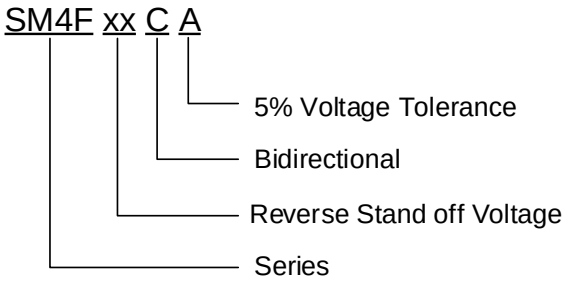


Recommended Solder Pad Layout

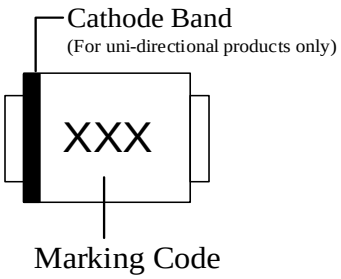


Dimensions in mm

Part Numbering System



Part Marking System

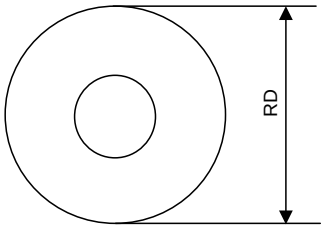


Package Information

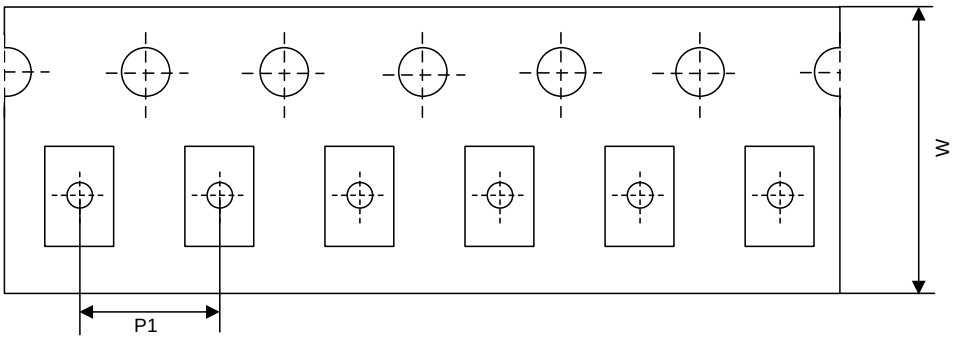
3000 Pcs/Reel

Tape and Reel Information

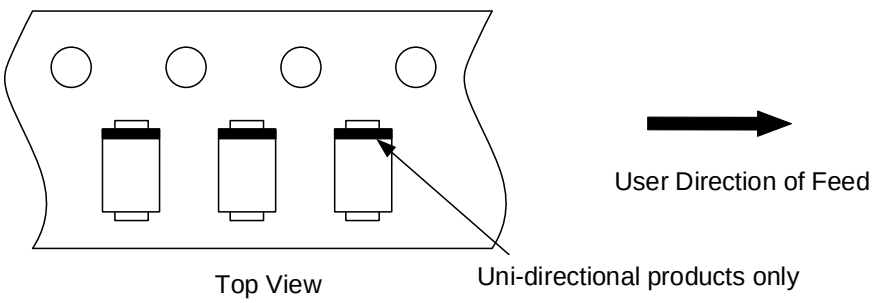
Reel Dimensions



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

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For additional information, please contact your local Sales Representative.

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