



Surface Mountable PTC Resettable Fuse: Low Rho FSMD1206 Series

1. Summary

- (a) **RoHS Compliant & Halogen Free**
- (b) **Applications: All high-density boards**
- (c) **Product Features: Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices**
- (d) **Operation Current: 0.50~6.00A**
- (e) **Maximum Voltage: 6V_{DC}**
- (f) **Temperature Range : -40°C to 85°C**

2. Agency Recognition

UL: *File No. E211981

C-UL: *File No. E211981

TÜV: File No. R50090556

*Note: FSMD600-1206RZ UL and C-UL In Process.

3. Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max Current	Typical Power	Max Time to Trip		Resistance	
	I _H , A	I _T , A	V _{MAX} , VDC	I _{MAX} , A	P _d , W	Current	Time	R _{MIN}	R _{1MAX}
	I _H , A	I _T , A	V _{MAX} , VDC	I _{MAX} , A	P _d , W	A	Sec	Ohms	Ohms
FSMD050-1206RZ	0.50	1.50	6	100	0.8	8.0	0.20	0.025	0.200
FSMD075-1206RZ	0.75	1.80	6	100	0.8	8.0	0.30	0.018	0.180
FSMD110-1206RZ	1.10	2.20	6	100	0.8	8.0	0.30	0.015	0.100
FSMD150-1206RZ	1.50	3.00	6	100	0.8	8.0	0.30	0.010	0.065
FSMD175-1206RZ	1.75	3.50	6	100	0.8	8.0	0.40	0.005	0.030
FSMD200-1206RZ	2.00	4.00	6	100	0.8	8.0	0.50	0.005	0.025
FSMD260-1206RZ	2.60	5.20	6	100	0.8	8.0	4.00	0.003	0.025
FSMD300-1206RZ	3.00	6.00	6	100	0.8	8.0	4.00	0.003	0.020
FSMD350-1206RZ	3.50	7.00	6	100	0.8	8.0	5.00	0.003	0.018
FSMD380-1206RZ	3.80	8.00	6	100	0.8	8.0	5.00	0.002	0.014
FSMD450-1206RZ	4.50	9.00	6	100	0.8	22.5	2.00	0.001	0.014
FSMD500-1206RZ	5.00	10.00	6	100	0.8	25.0	5.00	0.002	0.010
FSMD600-1206RZ	6.00	12.00	6	100	1.0	30.0	2.00	0.001	0.008

I_H=Hold current-maximum current at which the device will not trip at 23°C still air.

I_T=Trip current-minimum current at which the device will always trip at 23°C still air.

V_{MAX}=Maximum voltage device can withstand without damage at it rated current.(I_{MAX})

I_{MAX}= Maximum fault current device can withstand without damage at rated voltage (V_{MAX}).

P_d=Typical power dissipated-type amount of power dissipated by the device when in the tripped state in 23°C still air environment.

R_{MIN}=Minimum device resistance at 23°C prior to tripping.

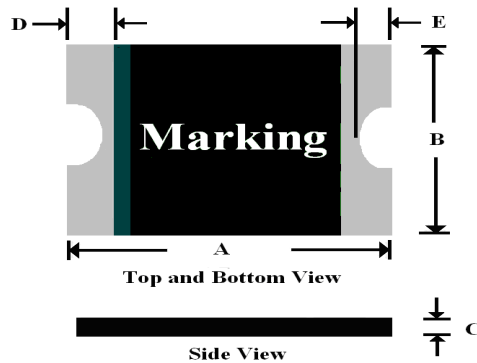
R_{1MAX}=Maximum device resistance at 23°C measured 1 hour post trip.

Termination pad characteristics

Termination pad materials: Pure Tin



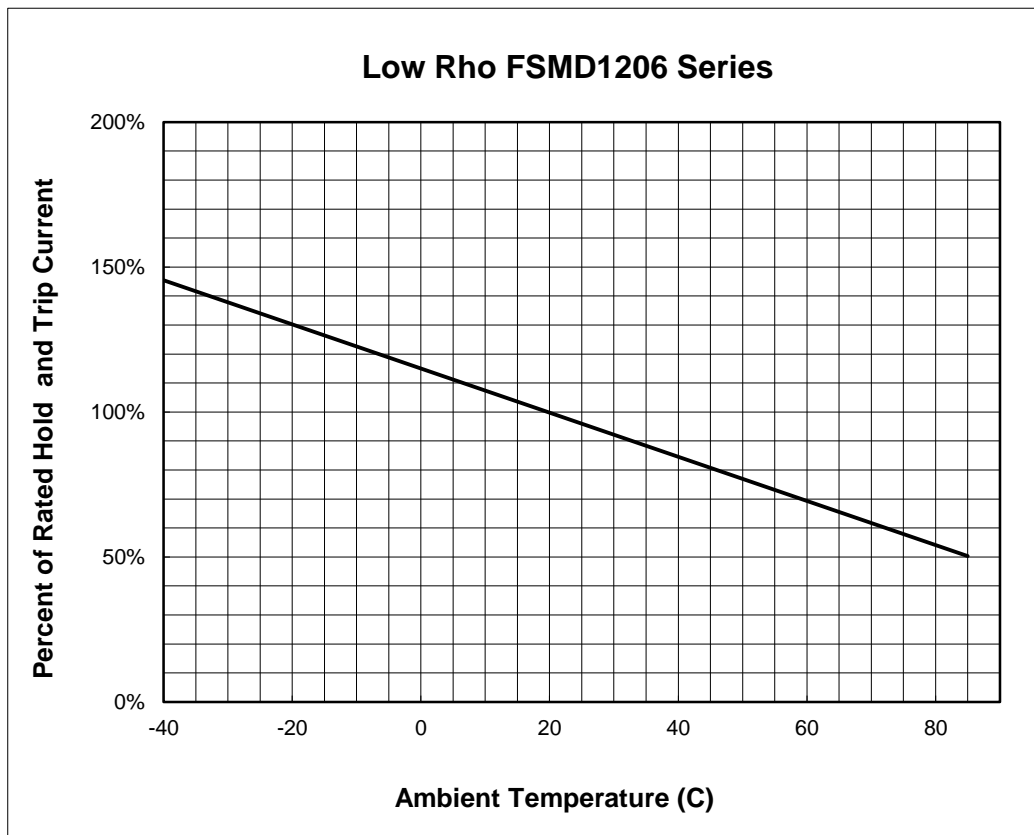
4. FSMD Product Dimensions (Millimeters)



Part Number	A		B		C		D		E	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
FSMD050-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD075-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD110-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD150-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD175-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD200-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD260-1206RZ	3.00	3.50	1.50	1.80	0.30	1.00	0.25	0.75	0.10	0.45
FSMD300-1206RZ	3.00	3.50	1.50	1.80	0.30	1.00	0.25	0.75	0.10	0.45
FSMD350-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD380-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD450-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD500-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD600-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45

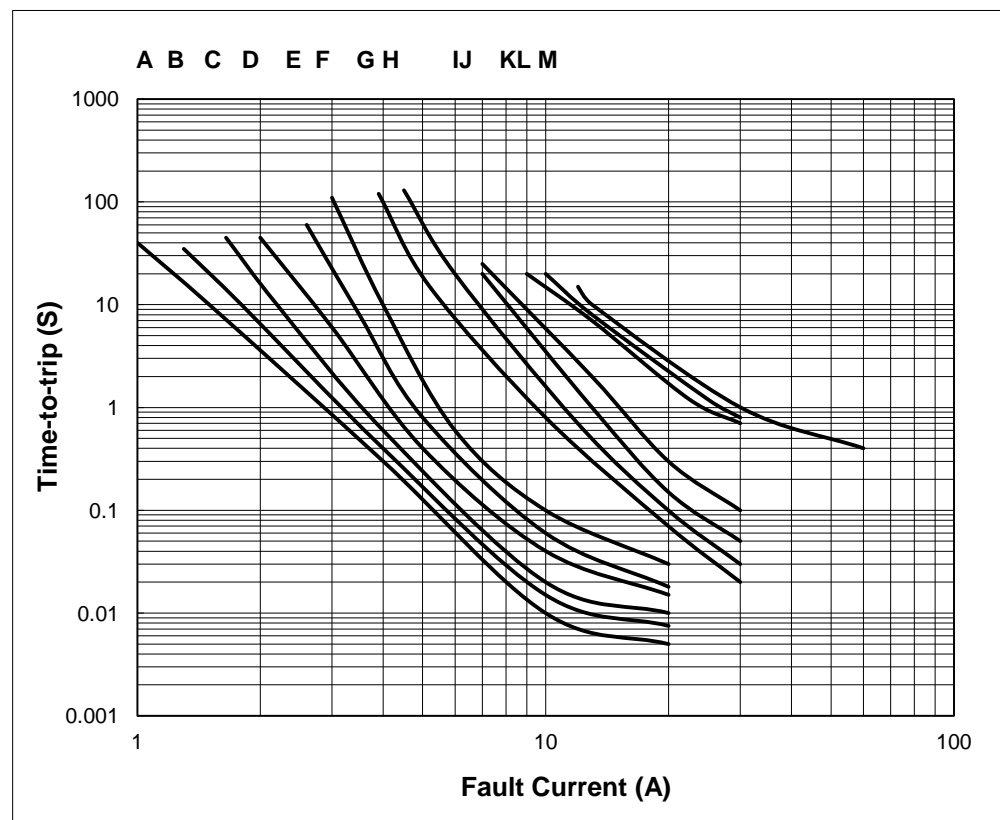


5. Thermal Derating Curve



6. Typical Time-To-Trip at 23°C

- A = FSMD050-1206RZ
- B = FSMD075-1206RZ
- C = FSMD110-1206RZ
- D = FSMD150-1206RZ
- E = FSMD175-1206RZ
- F = FSMD200-1206RZ
- G = FSMD260-1206RZ
- H = FSMD300-1206RZ
- I = FSMD350-1206RZ
- J = FSMD380-1206RZ
- K = FSMD450-1206RZ
- L = FSMD500-1206RZ
- M = FSMD600-1206RZ



NOTE : Specification subject to change without notice.



7. Material Specification

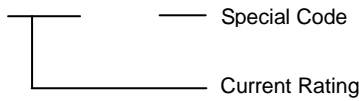
Terminal pad material: Pure Tin

Soldering characteristics: Meets EIA specification RS 186-9E, ANSI/J-std-002 Category 3

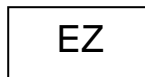
8. Part Numbering and Marking System

Part Numbering System

F S M D □ □ □ - 1206 RZ



Part Marking System



Example

□ □

Part Identification

- EZ = FSMD050-1206RZ
- FZ = FSMD075-1206RZ
- HZ = FSMD110-1206RZ
- JZ = FSMD150-1206RZ
- KZ = FSMD175-1206RZ
- MZ = FSMD200-1206RZ
- QZ = FSMD260-1206RZ
- SZ = FSMD300-1206RZ
- VZ = FSMD350-1206RZ
- WZ = FSMD380-1206RZ
- YZ = FSMD450-1206RZ
- ZZ = FSMD500-1206RZ
- BZ = FSMD600-1206RZ

Warning: -Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.



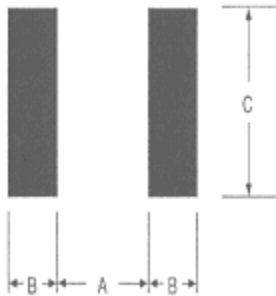
-PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.

-Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



9. Pad Layouts 、 Solder Reflow and Rework Recommendations

The dimension in the table below provide the recommended pad layout for each Low Rho FSMD1206 device



Pad dimensions (millimeters)			
Device	A Nominal	B Nominal	C Nominal
All FSMD1206 Series	2.00	1.00	1.90

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T _{smax} to T _p)	3 °C/second max.
Preheat :	
Temperature Min (T _{smin})	150 °C
Temperature Max (T _{smax})	200 °C
Time (t _{smin} to t _{smax})	60-180 seconds
Time maintained above:	
Temperature(T _L)	217 °C
Time (t _L)	60-150 seconds
Peak/Classification Temperature(T _p) :	260 °C
Time within 5°C of actual Peak :	
Temperature (t _p)	20-40 seconds
Ramp-Down Rate :	6 °C/second max.
Time 25 °C to Peak Temperature :	8 minutes max.

Solder reflow

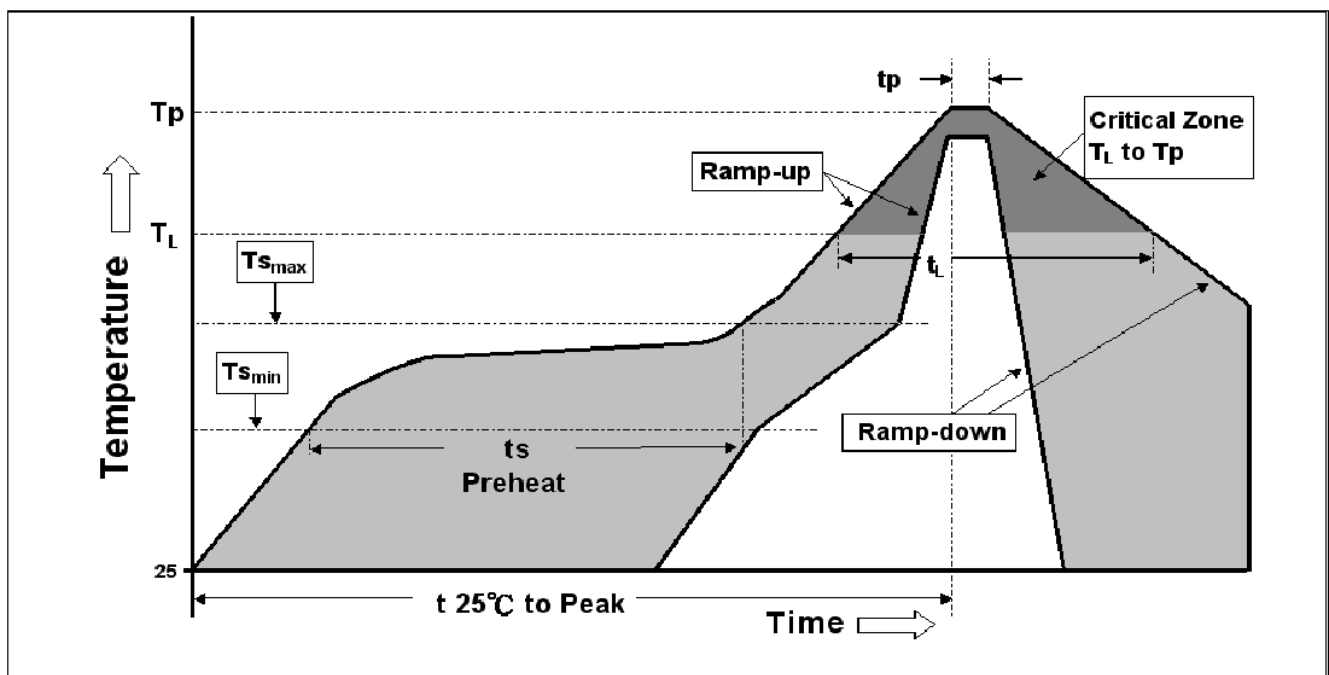
- ※ Due to "Lead Free" nature, Temperature and Dwelling time for the soldering zone is higher than those for Regular. This may cause damage to other components.
- 1. Recommended max past thickness > 0.25mm.
- 2. Devices can be cleaned using standard methods and aqueous solvent.
- 3. Rework use standard industry practices.
- 4. Storage Environment : < 30°C / 60%RH

Caution:

- 1. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
- 2. Devices are not designed to be wave soldered to the bottom side of the board.

Note 1: All temperatures refer to of the package, measured on the package body surface.

Reflow Profile



NOTE : Specification subject to change without notice.