



PPTC 高分子正溫度系數可覆式保險絲
Voltage Range: 6V - 60V

FSMD1812 Series
PPTC SMD Resettable Fuse

Application:
All high-density boards

Feature:
Small surface mount, Solid state
Faster time to trip than standard SMD devices
Lower resistance than standard SMD devices

Rated:
Operation Current: 140mA ~ 2.0A
Maximum Voltage: 6V ~ 60V
Temperature Range: -40°C to 85°C

Ordering Information
Example: FSMD014-60V-1812

Part No. 1812	Current	Voltage	Reel Tape	Quantity	
FSMD014	0.14A	60V	Φ185mm	2K/Reel	120K/Cts
FSMD020	0.2A	30V	Φ185mm	2K/Reel	120K/Cts
FSMD035	0.35A	16V	Φ185mm	2K/Reel	120K/Cts
FSMD050	0.5A	16V	Φ185mm	2K/Reel	120K/Cts
FSMD075	0.75A	16V	Φ185mm	2K/Reel	120K/Cts
FSMD110	1.1A	6V	Φ185mm	2K/Reel	120K/Cts
FSMD110-16	1.1A	16V	Φ185mm	2K/Reel	120K/Cts
FSMD125	1.25A	6V	Φ185mm	2K/Reel	120K/Cts
FSMD150	1.5A	6V	Φ185mm	2K/Reel	120K/Cts
FSMD160	1.6A	6V	Φ185mm	2K/Reel	120K/Cts
FSMD200	2.0A	8V	Φ185mm	2K/Reel	120K/Cts

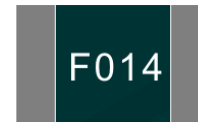
Approval



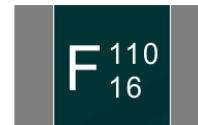
Figure:



Part Marking System
Example: FSMD014



Example: FSMD110-16V



Dimension

Unit: mm

Part Number	A		B		C		D
	Min	Max.	Min	Max.	Min	Max.	Min
1812							
FSMD014	4.37	4.73	3.07	3.41	0.6	0.9	0.3
FSMD020	4.37	4.73	3.07	3.41	0.6	0.9	0.3
FSMD035	4.37	4.73	3.07	3.41	0.4	0.7	0.3
FSMD050	4.37	4.73	3.07	3.41	0.35	0.65	0.3
FSMD075	4.37	4.73	3.07	3.41	0.35	0.65	0.3
FSMD110	4.37	4.73	3.07	3.41	0.25	0.55	0.3
FSMD110-16	4.37	4.73	3.07	3.41	0.25	0.55	0.3
FSMD125	4.37	4.73	3.07	3.41	0.25	0.55	0.3
FSMD150	4.37	4.73	3.07	3.41	0.25	0.55	0.3
FSMD160	4.37	4.73	3.07	3.41	0.25	0.9	0.3
FSMD200	4.37	4.73	3.07	3.41	0.5	0.9	0.3

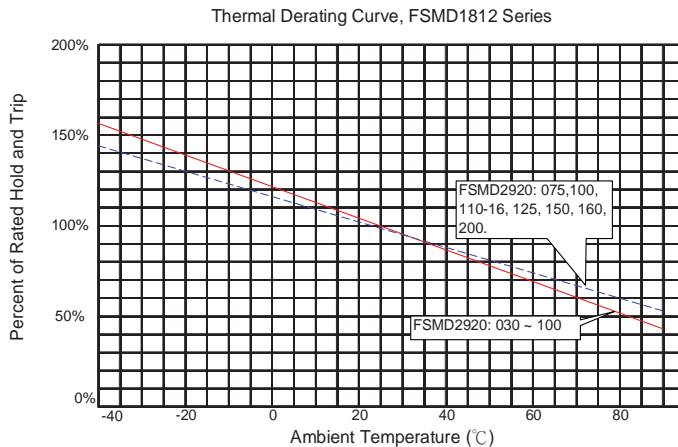


□ Electrical Characteristics (23°C)

Part Number	Hold	Trip	Rated Voltage	Max Current	Typical Power	Max. Time to Trip		Resistance Tolerance	
	Current	Current				Current	Time	R _{MIN}	R _{1Max}
1812	HI	IT	V _{MAX} , V _{AC}	I _{MAX}	Pd.	Amp	Sec	Ω	Ω
FSMD014	0.14A	0.30A	60V	10A	0.8W	8.0	<0.02	1.2	6.50
FSMD020	0.20A	0.40A	30V	10A	0.8W	8.0	0.02	0.8	5.00
FSMD035	0.35A	0.70A	16V	40A	0.8W	8.0	0.10	0.32	1.50
FSMD050	0.50A	1.00A	16V	40A	0.8W	8.0	0.15	0.15	1.00
FSMD075	0.75A	1.50A	16V	40A	0.8W	8.0	0.20	0.11	0.45
FSMD110	1.10A	2.20A	6V	40A	0.8W	8.0	0.30	0.04	0.21
FSMD110-16	1.10A	1.95A	16V	40A	0.8W	8.0	0.50	0.04	0.18
FSMD125	1.25A	2.50A	6V	40A	0.8W	8.0	0.40	0.05	0.14
FSMD150	1.50A	3.00A	6V	40A	0.8W	8.0	0.50	0.04	0.11
FSMD160	1.60A	3.20A	6V	40A	0.8W	8.0	<0.5	0.03	0.10
FSMD200	2.00A	3.50A	8V	40A	0.8W	8.0	2.00	0.02	0.07

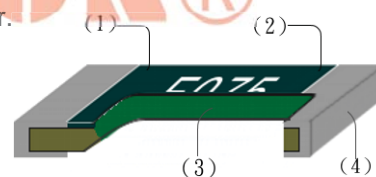
- ◆ I_H: Hold current maximum current at which the device will not trip at 23 °C still air.
- ◆ I_T: Trip current minimum current at which the device will always trip at 23 °C still air.
- ◆ V max : Maximum voltage device can withstand without damage at is rated current.(I max)
- ◆ I max: Maximum fault current device can withstand without damage at rated voltage (V max)
- ◆ Pd: 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.
- ◆ R1 Max. : Maximum device resistance at 23 °C measured 1 hour post trip.
- ◆ Termination pad characteristics
- ◆ Termination pad materials: 100% Tin.

□ Thermal Derating Curve



□ Construction & Materials

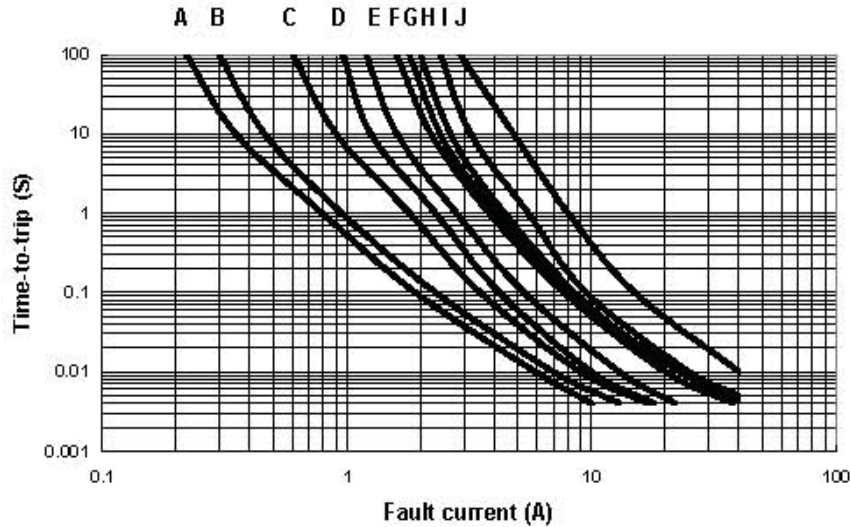
- (1) Insulation gaps were etched on both sides of the foils of PPTC chips & were covered by solder mask.
- (2) Solder mask with white texts printed on it.
- (3) PPTC chips made of special formulated conductive polymer.
- (4) Outer termination pure SN plated Cu



Typical Time to Trip at 23 °C

FSMD-1812 Series

- A: FSMD014
- B: FSMD020
- C: FSMD035
- D: FSMD050
- E: FSMD075
- F: FSMD110
- F: FSMD110-16
- G: FSMD125
- H: FSMD150
- J: FSMD160

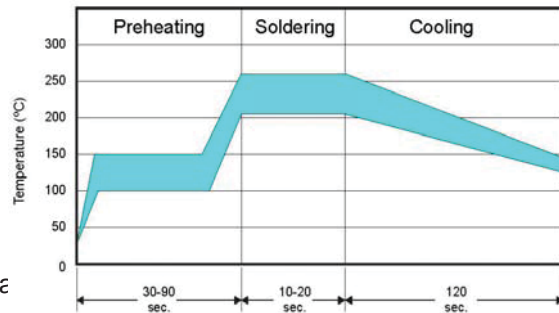
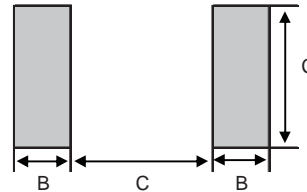


Pad Layouts, Solder Reflow and Rework Recommendations

The dimension in the table below provide the recommended pad layouts for each FSMD-1812 device.

Pad nominal dimensions (mm)

Part No. 1812	A	B	C
FSMD014	3.45	1.78	3.50
FSMD020	3.45	1.78	3.50
FSMD035	3.45	1.78	3.50
FSMD050	3.45	1.78	3.50
FSMD075	3.45	1.78	3.50
FSMD110	3.45	1.78	3.50
FSMD110-16	3.45	1.78	3.50
FSMD125	3.45	1.78	3.50
FSMD150	3.45	1.78	3.50
FSMD160	3.45	1.78	3.50
FSMD200	3.45	1.78	3.50



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 reflow methods; IR , vapor phase oven, hot air oven.
2. The FSMD1812 Series are suitable for use with wave-solder application methods.
3. Recommended maximum paste thickness is 0.25mm.
4. Devices can be cleaned using standard industry methods and solvents.

CAUTION:

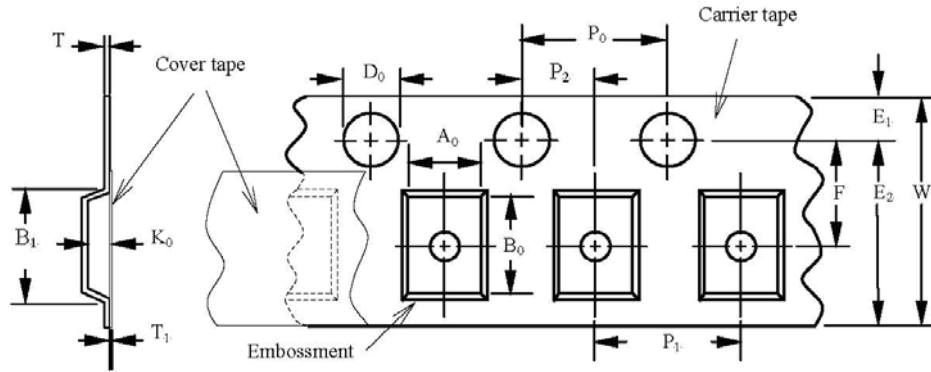
If reflow temperatures exceed the recommended Profile, devices may not meet the performance requirements. Rework: Use standard industry practices.



□ Tape & Reel Packaging Specification per EIA481-1

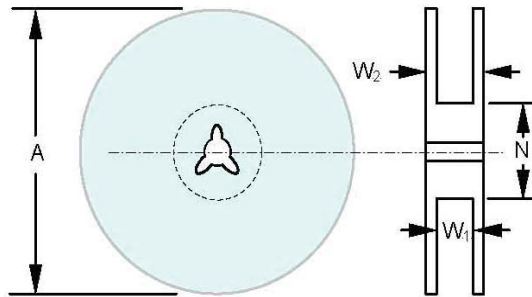
Tape Reel	Diminision
W	12±0.3
P ₀	4.0±0.1
P ₁	8.0±0.1
P ₂	2.0±0.05
A ₀	3.5±0.23
B ₀	5.1±0.15
B ₁ Max	8.2
D ₀	1.5±0.1
F	5.5±0.05
E ₁	1.75±0.1
E ₂ Min.	10.25
T _{Max}	0.6
T ₁ Max	0.1
K ₀	0.9±0.15

Unit mm



Parameter as EIA481-1 (mm)

A _{Max}	185
N _{Min}	50
W ₁	12.4+2/-0
W ₂ Max.	18.4



WARNING:

- ◆ Devices may not meet specifications if reflow temperatures exceed the recommended profile.
- ◆ Operation beyond maximum ratings or improper use may result in device damage and possible electrical arcing, flaming or explosion.
- ◆ The devices may not meet specified ratings if storage conditions exceeded 40°C and 70% relative humidity.
- ◆ The devices are intended to protect against occasional over-current or over-temperature fault conditions and should not be used when there are repeated fault conditions or prolonged trip events.
- ◆ The devices should not be placed under pressure or installed in spaces that would prevent thermal expansion, due to any prohibition of thermal expansion of the devices might result improper protection of fault conditions.
- ◆ MAYLOON reserves the right to change any information or specification within this data book without notice.