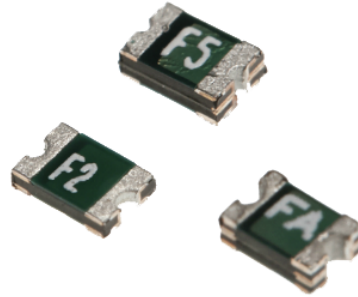


Surface Mount PPTC Resettable Fuse: FSMD0805 Series

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: 0.10A~1.10A
- (e) Maximum Voltage: 6V~24V_{DC}
- (f) Temperature Range: -40°C to 85°C



2. Agency Recognition

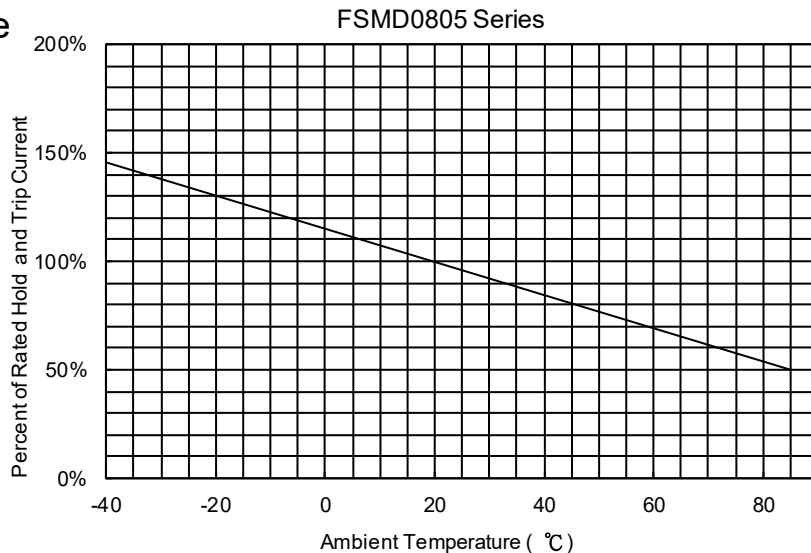
UL: File No. E211981
 C-UL: File No. E211981
 TÜV: File No. R50090556

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} , V _{DC}	I _{MAX} , A	Pd, W	Current	Time	R _{MIN}	R _{1MAX}
						Amp	Sec	Ohm	Ohm
FSMD010-0805-R	0.10	0.30	15	100	0.5	0.50	1.50	0.700	6.000
FSMD010-24-0805-R	0.10	0.30	24	100	0.5	0.50	1.50	0.700	6.000
FSMD020-0805-R	0.20	0.50	9	100	0.5	8.00	0.02	0.400	3.500
FSMD035-0805-R	0.35	0.75	6	100	0.5	8.00	0.10	0.250	1.200
FSMD050-0805R	0.50	1.00	6	100	0.5	8.00	0.10	0.150	0.850
FSMD050-9-0805R	0.50	1.00	9	100	0.5	8.00	0.10	0.150	0.850
FSMD075-0805R	0.75	1.50	6	100	0.6	8.00	0.20	0.090	0.350
FSMD100-0805R	1.00	1.95	6	100	0.6	8.00	0.30	0.060	0.210
FSMD110-0805R	1.10	2.20	6	100	0.6	8.00	0.20	0.050	0.200

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}).
 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.
 R_{1MAX}=Maximum device resistance at 23°C measured 1 hour after tripping or reflow soldering of 260°C for 20 seconds .
 Termination pad characteristics
 Termination pad materials: Pure Tin

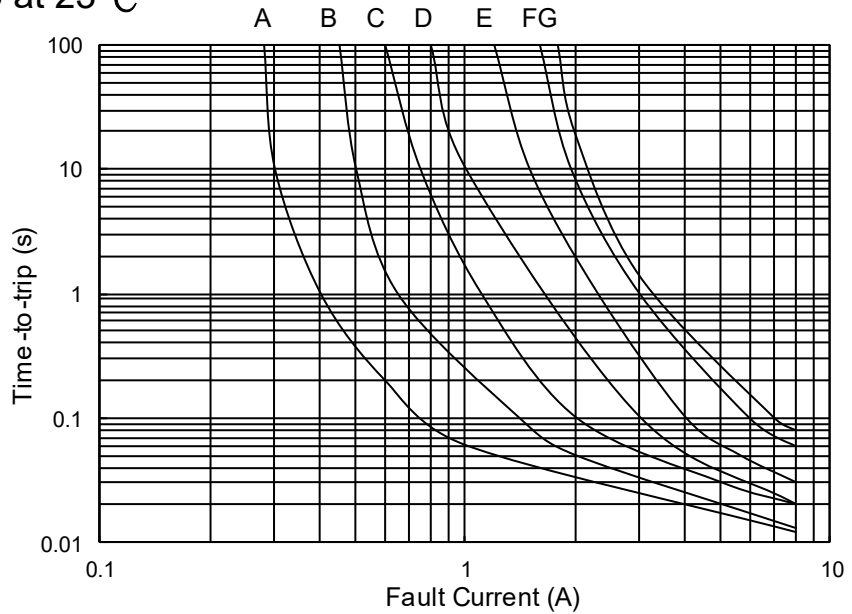
4. Thermal Derating Curve



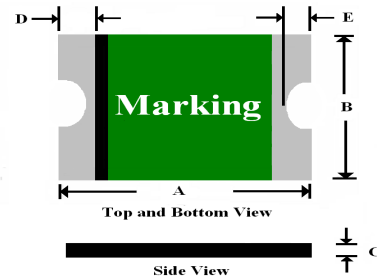
Surface Mount PPTC Resettable Fuse: FSMD0805 Series

5. Typical Time-To-Trip at 23 °C

- A = FSMD010-0805-R / FSMD010-24-0805-R
- B = FSMD020-0805-R
- C = FSMD035-0805-R
- D = FSMD050-0805R / FSMD050-9-0805R
- E = FSMD075-0805R
- F = FSMD100-0805R
- G = FSMD110-0805R



6. FSMD Product Dimensions (Millimeters)



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD010-0805-R	2.00	2.30	1.20	1.50	0.30	1.00	0.20	0.60	0.10	0.45
FSMD010-24-0805-R	2.00	2.30	1.20	1.50	0.30	1.00	0.20	0.60	0.10	0.45
FSMD020-0805-R	2.00	2.30	1.20	1.50	0.30	1.00	0.20	0.60	0.10	0.45
FSMD035-0805-R	2.00	2.30	1.20	1.50	0.25	0.75	0.20	0.60	0.10	0.45
FSMD050-0805R	2.00	2.30	1.20	1.50	0.55	1.25	0.20	0.60	0.10	0.45
FSMD050-9-0805R	2.00	2.30	1.20	1.50	0.55	1.25	0.20	0.60	0.10	0.45
FSMD075-0805R	2.00	2.30	1.20	1.50	0.55	1.25	0.20	0.60	0.10	0.45
FSMD100-0805R	2.00	2.30	1.20	1.50	0.75	1.80	0.20	0.60	0.10	0.45
FSMD110-0805R	2.00	2.30	1.20	1.50	0.75	1.80	0.20	0.60	0.10	0.45

7. Material Specification

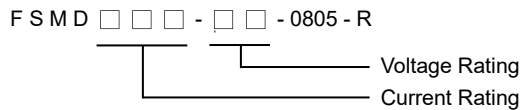
Terminal pad material: Pure Tin

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

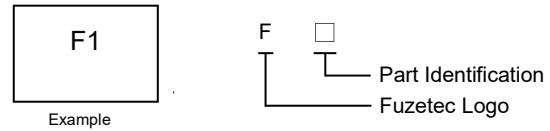
Surface Mount PPTC Resettable Fuse: **FSMD0805 Series**

8. Part Numbering and Marking System

Part Numbering System



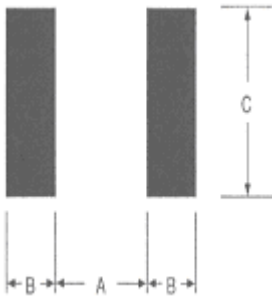
Part Marking System



F1 =FSMD010-0805-R	F5 =FSMD050-0805R
FB =FSMD010-24-0805-R	FA =FSMD050-9-0805R
F2 =FSMD020-0805-R	F7 =FSMD075-0805R
F3 =FSMD035-0805-R	F0 =FSMD100-0805R
	FC =FSMD110-0805R

9. Pad Layouts 、 Solder Reflow and Rework Recommendations

The dimension in the table below provide the recommended pad layout for each FSMD0805 device



Pad dimensions (millimeters)

Device	A Nominal	B Nominal	C Nominal
All 0805 Series	1.20	1.00	1.50

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.

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

Solder Reflow

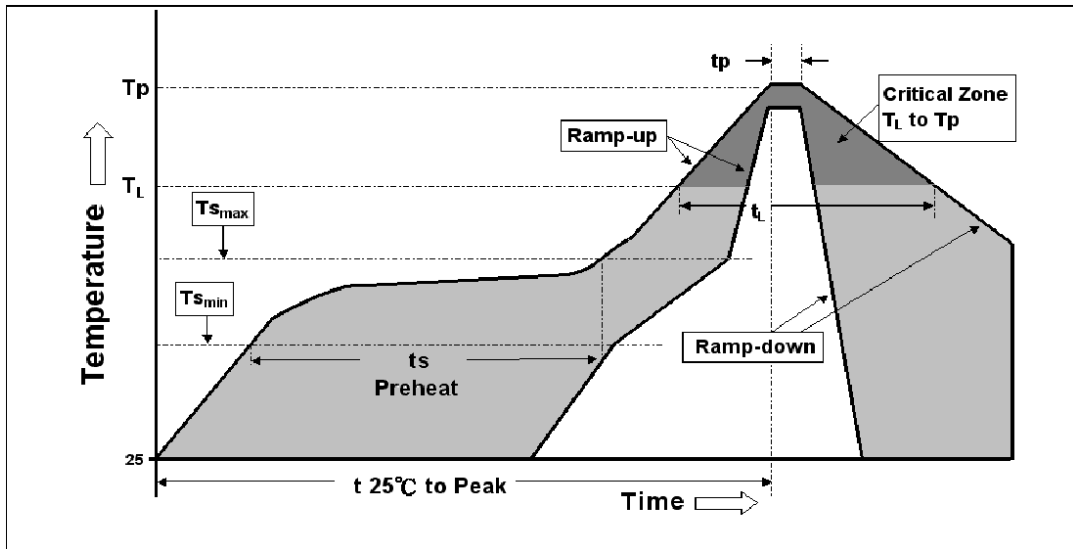
- Recommended reflow method: IR, hot air, nitrogen.
- Recommended maximum paste thickness: 0.25mm (0.010in)
- Devices can be cleaned using standard methods and aqueous solvents.
- The optimum conditions for forming acceptable solder fillets occur when a reasonable amount of solder paste is placed underneath each device's termination. We request that customers comply with our recommended solder pad layouts.
- Customer should validate that the solder paste amount and reflow recommendations meet its application.
- We request that customer board layouts refrain from placing raised features (e.g. vias, nomenclature, traces, etc.) underneath the device. Raised features could negatively impact solderability performance of our device.

Rework

- Standard industry practices. (Please avoid direct contact to the device.)

Surface Mount PPTC Resettable Fuse: FSMD0805 Series

Reflow Profile



10. Packaging - Tape & Reel Specifications

DIMENSION	Size (mm)	Tolerance (mm)
W	8.0	± 0.30
P ₀	4.0	± 0.10
P ₁	4.0	± 0.10
P ₂	2.0	± 0.10
A ₀	1.60	± 0.10
B ₀	2.30	± 0.10
B _{1max}	3.10	
D ₀	1.50	± 0.10
F	3.50	± 0.05
E ₁	1.75	± 0.10
E _{2 min.}	6.25	
T min.	0.15	
T _{1 max.}	0.10	
K ₀ (FSMD010-0805-R~FSMD035-0805-R)	0.80	± 0.10
K ₀ (FSMD050-0805R~FSMD110-0805R)	1.10	± 0.10
Leader min.	390	
Trailer min.	160	
Reel Dimensions		
A max	185	max
N min.	50	
W ₁	9.0	$+2.0/-0.0$
W _{2 max.}	12.10	

FSMD0805 Series Standard Package

P/N	Reel/Tape	P/N	Reel/Tape
FSMD010-0805-R	4000	FSMD050-9-0805R	3000
FSMD010-24-0805-R	4000	FSMD075-0805R	3000
FSMD020-0805-R	4000	FSMD100-0805R	3000
FSMD035-0805-R	3000	FSMD110-0805R	3000
FSMD050-0805R	3000		

Surface Mount PPTC Resettable Fuse: FSMD0805 Series

FIGURE 1: EIA Taped Component Dimensions

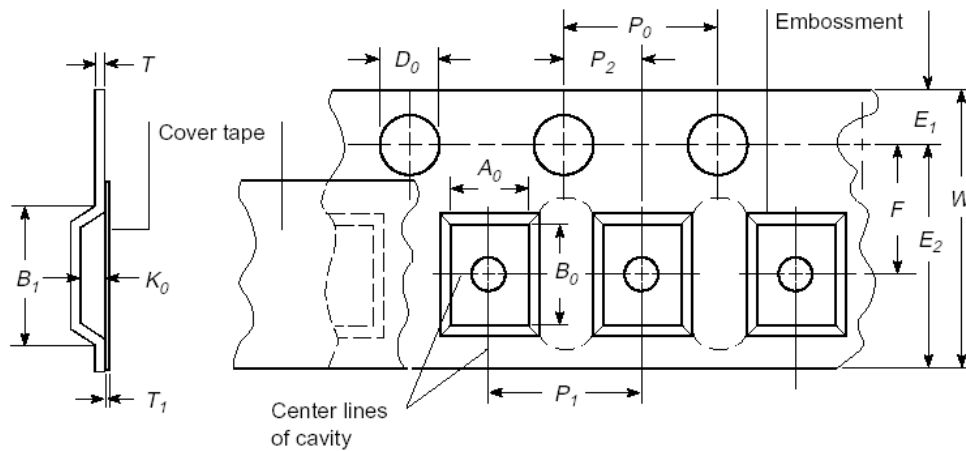
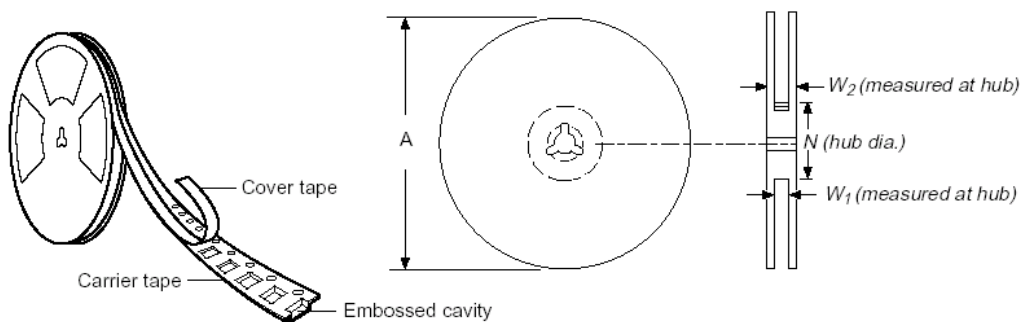


FIGURE 2: EIA Reel Dimensions



Warning:



- Each product should be carefully evaluated and tested for their suitability of application.
- Operation beyond the specified maximum rating 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, including some inert material such as silicone based oil, lubricant and etc. Prolonged contact will damage the device performance.
- Additional protection mechanism are strongly recommended to be used in conjunction with the PPTC device for protection against abnormal or failure conditions.
- Avoid use of PPTC device in a constrained space such as potting material, housing and containers where have limited space to accommodate device thermal expansion and/or contraction.