Surface Mountable PTC
Resettable Fuse

RoHS Compliant

UL : E-345437

Specifications:

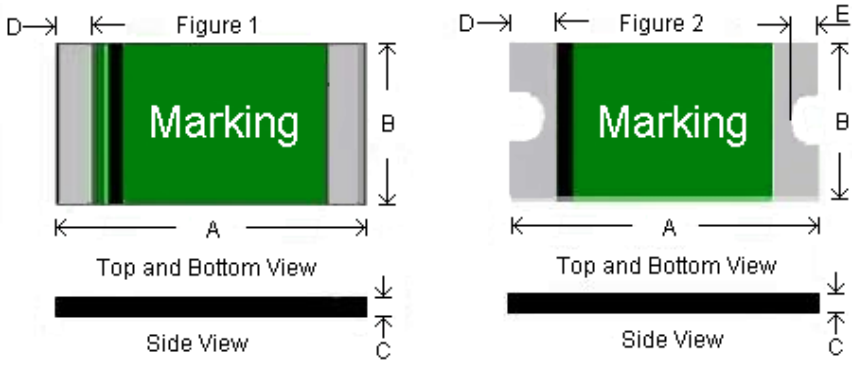
Applications : All high-density boards.
Product features : Small surface mountable, solid state, faster time to trip than standard SMD devices, lower resistance than standard SMD devices.
Max. Voltage : 6V to 60V
Temperature Range : -40°C to 85°C.

Electrical Characteristics (23°C):

Hold Current	Trip Current	Rated Voltage	Max. Current	Typical Power	Max. Time to Trip		Resistance		Part Number
					Current	Time	R_{Min}	$R1_{Max}$	
I_H, A	I_T, A	V_{Max}, V DC	I_{Max}, A	P_d, W	Amperes	Seconds	Ω	Ω	
0.05	0.15	60	10	0.6	0.25	3	3.6	50	MC36203
0.1	0.25	60	10	0.6	0.5	1.5	1.6	15	MC36205
0.2	0.4	30	10	0.6	8	0.02	0.8	5	MC36208
0.35	0.7	16	40	0.6	8	0.2	0.32	1.3	MC36212
0.5	1	16	40	0.6	8	0.1	0.25	0.9	MC36214
0.75	1.5	8	40	0.6	8	0.1	0.13	0.4	MC36217
1.1	2.2	6	100	0.8	8	0.3	0.06	0.21	MC36223
1.5	3	6	100	0.8	8	0.5	0.04	0.11	MC36230
1.75	4	6	100	0.8	8	0.6	0.02	0.08	MC36236
2	4	6	100	0.8	8	1	0.015	0.07	MC36239

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 maximum).
I_{Max} = Maximum fault current device can withstand without damage at rated voltage (V maximum).
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.
$R1_{Max}$ = 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.

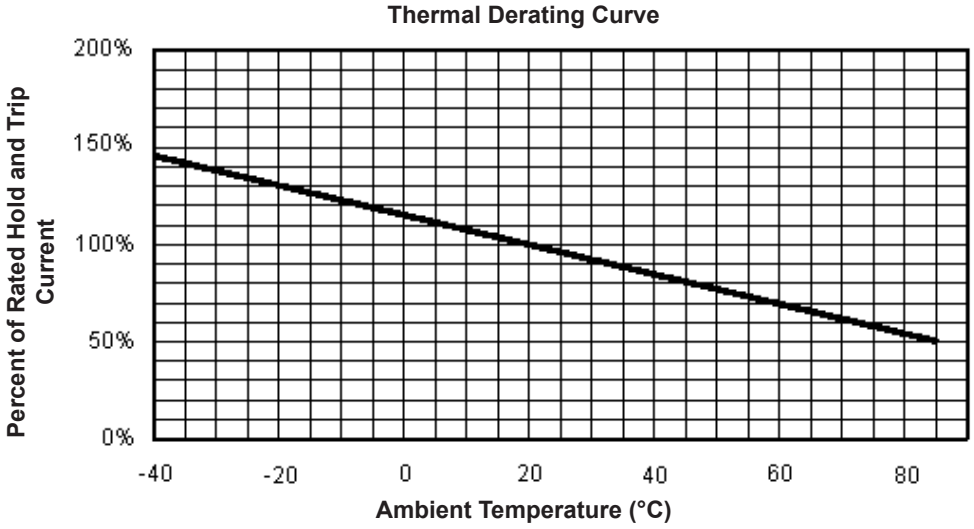
FSMD Production Dimensions (Millimetre)



Dimensions Table

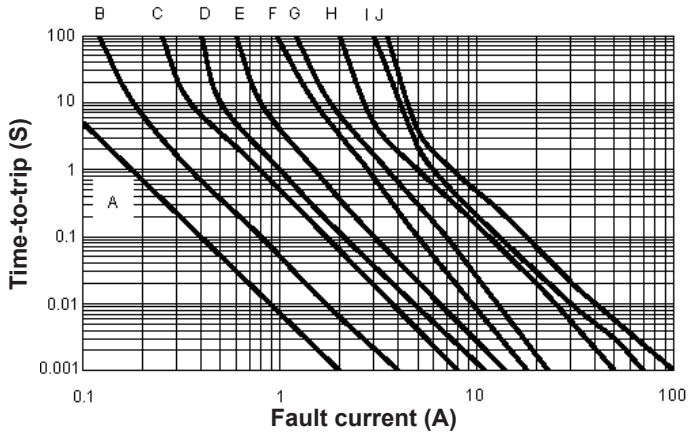
A		B		C		D		E		Figure	Part Number
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
3	3.43	2.35	2.8	0.6	1.15	0.25	0.75	-	-	1	MC36203
3	3.43	2.35	2.8	0.6	1.15	0.25	0.75	-	-	1	MC36205
3	3.43	2.35	2.8	0.4	0.85	0.25	0.75	-	-	1	MC36208
3	3.43	2.35	2.8	0.4	0.8	0.25	0.75	-	-	1	MC36212
3	3.43	2.35	2.8	0.3	0.75	0.25	0.75	-	-	1	MC36214
3	3.43	2.35	2.8	0.3	0.7	0.25	0.75	-	-	1	MC36217
3	3.43	2.35	2.8	0.6	1	0.25	0.75	0.1	0.45	2	MC36223
3	3.43	2.35	2.8	0.5	0.9	0.25	0.75	0.1	0.45	2	MC36230
3	3.43	2.35	2.8	0.8	1.4	0.25	0.75	0.1	0.45	2	MC36236
3	3.43	2.35	2.8	0.8	1.4	0.25	0.75	0.1	0.45	2	MC36239

Thermal Derating Curve



Typical Time-To-Trip at 23°C

A = MC36203
B = MC36205
C = MC36208
D = MC36212
E = MC36214
F = MC36217
G = MC36223
H = MC36230
I = MC36236
J = MC36239

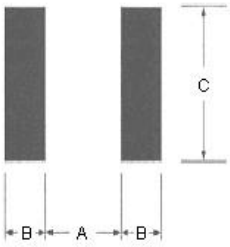


Material Specification

Terminal pad material : Pure tin.
Soldering characteristics : Meets EIA specification RS 186-9E, ANSI/J-std-002 category 3.

Pad Layouts Solder Reflow and Rework Recommendations

The dimension in the table below provide the recommended pad layout for each 1210 device.



Pad Dimensions

Device	A Nominal	B Nominal	C Nominal
All 1210 Series	2mm	1mm	2.8mm

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T_S max. to T_P)	3°C/seconds max.
Preheat: Temperature Min. (T_S min.) Temperature Max. (T_S max.) Time (t_S min. to t_S max.)	 150°C 200°C 60 -180 seconds
Time maintained above: Temperature(T_L) Time (t_L)	 217°C 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/seconds max.
Time 25°C to Peak Temperature:	8 minutes max.

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

Solder reflow

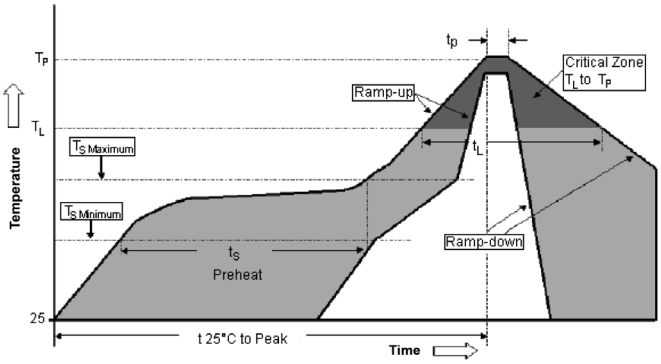
Due to “Lead Free” nature, Temperature and Dwelling time for the soldering zone is higher than those for Regular. This may cause damage to other components.

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.

Reflow Profile



Part Number Table

Description	Part Number
Surface Mountable PTC Resettable Fuse	MC36203
Surface Mountable PTC Resettable Fuse, Full Reel	MC36203
Surface Mountable PTC Resettable Fuse	MC36205
Surface Mountable PTC Resettable Fuse, Full Reel	MC36205
Surface Mountable PTC Resettable Fuse	MC36208
	MC36212
	MC36214
	MC36217
	MC36223
	MC36230
	MC36236
	MC36239

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