Surface Mountable PTC
Resettable Fuse

RoHS Compliant

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	
0.1	0.3	60	10	0.8	8	0.02	1.6	15	MC36204
0.35	0.7	16	40	0.8	8	0.1	0.32	1.5	MC36209
0.75	1.5	24	40	1	8	0.2	0.11	0.29	MC36218
0.75	1.5	33	40	1	8	0.2	0.11	0.4	MC36219
1.1	1.95	16	100	0.8	8	0.5	0.04	0.18	MC36224
1.1	2.2	24	100	1	8	0.5	0.06	0.2	MC36225
1.25	2.5	6	100	0.8	8	0.4	0.05	0.14	MC36226
1.25	2.5	6	100	0.8	8	0.4	0.05	0.14	MC36227
1.5	3	8	100	0.8	8	0.5	0.04	0.11	MC36228
1.5	3	12	100	1	8	0.5	0.04	0.11	MC36231
1.5	3	24	100	1	8	1.5	0.04	0.12	MC36232
1.6	3.2	8	100	0.8	8	0.5	0.03	0.1	MC36233
1.6	3.2	12	100	1	8	1	0.03	0.1	MC36234
1.6	3.2	16	100	1	8	1	0.03	0.1	MC36235
1.9	4.9	6	100	1	8	5	0.003	0.025	MC36237
2	3.5	8	100	1	8	2	0.02	0.07	MC36238
2.6	5	13.2	100	1.3	8	5	0.015	0.05	MC36242
2.6	5	16	100	1.3	8	5	0.015	0.05	MC36243
2.6	5	6	100	1	8	2.5	0.015	0.047	MC36244

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 its 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 Product Dimensions (Millimetres)

Figure 1

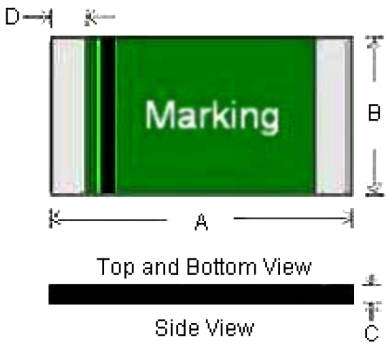
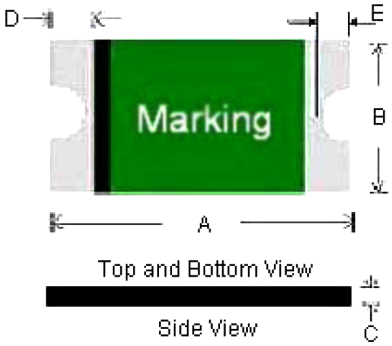


Figure 2

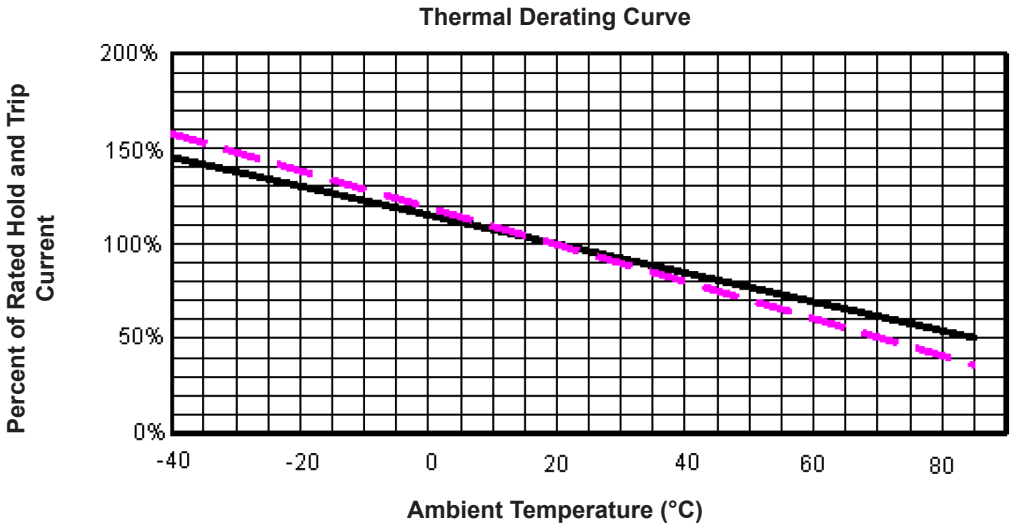


Dimensions Table

A		B		C		D		E		Figure	Part Number
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4.37	4.73	3.07	3.41	0.6	0.9	0.3	0.95	-	-	1	MC36204
4.37	4.73	3.07	3.41	0.4	0.7	0.3	0.95	-	-	1	MC36209
4.37	4.73	3.07	3.41	0.8	1.55	0.25	0.95	0.25	0.65	2	MC36218
4.37	4.73	3.07	3.41	0.8	1.55	0.25	0.95	0.25	0.65	2	MC36219
4.37	4.73	3.07	3.41	0.25	0.9	0.3	0.95	-	-	1	MC36224
4.37	4.73	3.07	3.41	0.8	1.3	0.25	0.95	0.25	0.65	2	MC36225
4.37	4.73	3.07	3.41	0.25	0.55	0.3	0.95	-	-	1	MC36226
4.37	4.73	3.07	3.41	0.25	0.55	0.3	0.95	-	-	1	MC36227
4.37	4.73	3.07	3.41	0.25	0.55	0.3	0.95	-	-	1	MC36228
4.37	4.73	3.07	3.41	0.6	1.1	0.25	0.95	0.25	0.65	2	MC36231
4.37	4.73	3.07	3.41	0.6	1.55	0.25	0.95	0.25	0.65	2	MC36232
4.37	4.73	3.07	3.41	0.25	0.9	0.3	0.95	-	-	1	MC36233
4.37	4.73	3.07	3.41	0.6	1.35	0.25	0.95	0.25	0.65	2	MC36234
4.37	4.73	3.07	3.41	0.6	1.35	0.25	0.95	0.25	0.65	2	MC36235
4.37	4.73	3.07	3.41	0.3	0.7	0.25	0.95	0.25	0.65	2	MC36237
4.37	4.73	3.07	3.41	0.55	1.2	0.25	0.95	0.25	0.65	2	MC36238
4.37	4.73	3.07	3.41	0.8	1.55	0.25	0.95	0.25	0.65	2	MC36242
4.37	4.73	3.07	3.41	0.8	1.55	0.25	0.95	0.25	0.65	2	MC36243
4.37	4.73	3.07	3.41	0.55	1.2	0.25	0.95	0.25	0.65	2	MC36244

Dimensions : Millimetres

Thermal Derating Curve

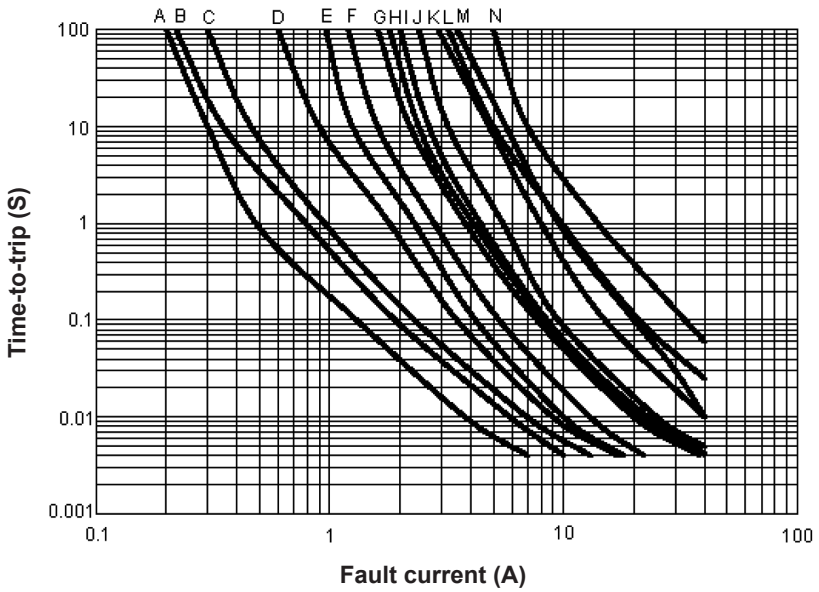


A = MC36218, MC36219
MC36224, MC36225
MC36226, MC36228,
MC36231, MC36232,
MC36233, MC36234,
MC36235, MC36237,
MC36238, MC36242
MC36243, MC36244

B = MC36204, MC36209

Typical Time-To-Trip at 23°C

A = MC36204
D = MC36209
F = MC36218, MC36219
G = MC36224, MC36225
H = MC36226
I = MC36228, MC36231, MC36232
J = MC36233, MC36234, MC36235
M = MC36237
K = MC36238
L = MC36242, MC36243, MC36244

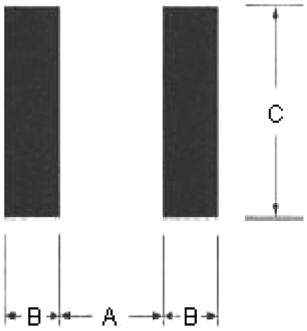


Material Specification

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 1812 device.



Pad Dimensions

Device	A Nominal	B Nominal	C Nominal
All 1812 Series	3.45	1.78	3.5

Dimensions : Millimetres

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T_S maximum to T_P)	3°C/second maximum
Preheat: Temperature Minimum (T_S minimum) Temperature Maximum (T_S maximum) Time (ts minimum to ts maximum)	 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/second maximum
Time 25°C to Peak Temperature:	8 minutes maximum

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

Solder reflow

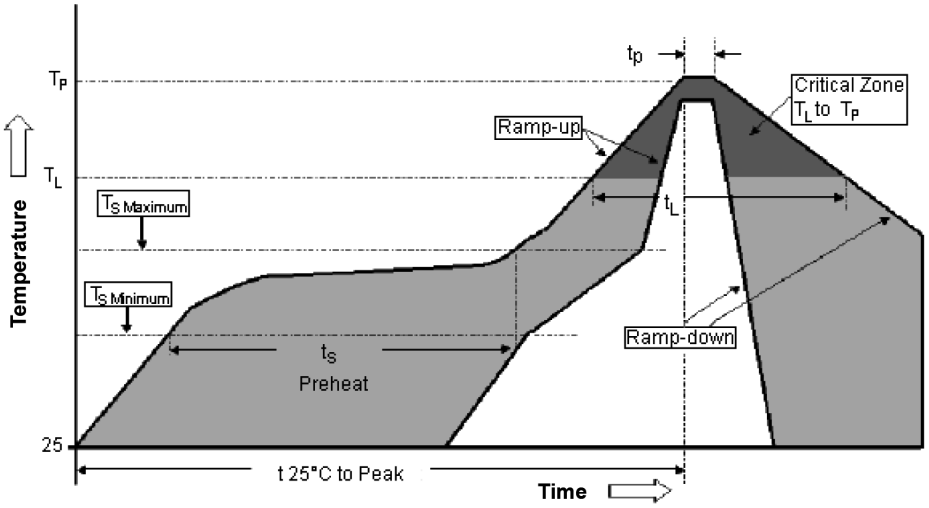
Due to “Lead Free” nature, Temperature and Dwelling time for the soldering zone is higher than those for Regular. This may cause damage to other components.

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	MC36204
	MC36209
	MC36218
	MC36219
	MC36224
	MC36225
	MC36226
	MC36227
	MC36228
	MC36231
	MC36232
	MC36233
	MC36234
	MC36235
	MC36237
	MC36238
	MC36242
	MC36243
	MC36244