





**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	Trip Rated Max. Typical Max. Time to trip		ne to trip	Resis	tance				
Current	Current	Voltage	Current	Power	Current	Time	R <sub>Min</sub>	R1 <sub>Max</sub>	Part Number
Ін, А	Iτ, Α	VMAX, V DC	IMAX, A	PD, 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

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

1τ = Trip current-minimum current at which the device will always trip at 23°C still air.

V<sub>MAX</sub> = Maximum voltage device can withstand without damage at its rated current (I maximum).

I<sub>MAX</sub> = Maximum fault current device can withstand without damage at rated voltage (V maximum).

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<sub>Max</sub> = Maximum device resistance at 23°C measured 1 hour after tripping or reflow soldering of 260°C for 20 seconds.

Termination pad characteristics

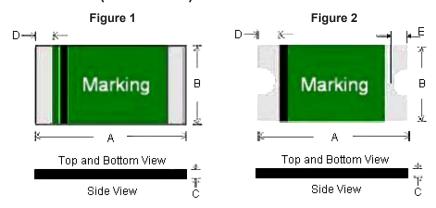
Termination pad materials: Pure tin.

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## **FSMD Product Dimensions (Millimetres)**



### **Dimensions Table**

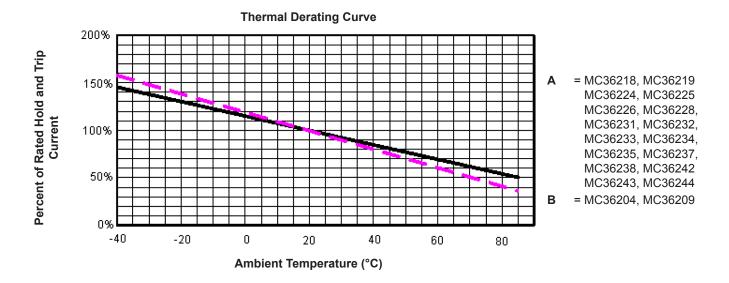
A B		3	С		D		E		Figure .	D. (N)	
Min.	Max.	Figure	Part Number								
4.37	4.73	3.07	3.41	0.6	0.9	0.3	0.95	-	-	1	MC36204
4.37	4.73	3.07	3.41	0.4	0.7	0.3	0.95	-	-	1	MC36209
4.37	4.73	3.07	3.41	0.8	1.55	0.25	0.95	0.25	0.65	2	MC36218
4.37	4.73	3.07	3.41	0.8	1.55	0.25	0.95	0.25	0.65	2	MC36219
4.37	4.73	3.07	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**



## Typical Time-To-Trip at 23°C

A = MC36204D = MC36209

**F** = MC36218, MC36219 **G** = MC36224, MC36225

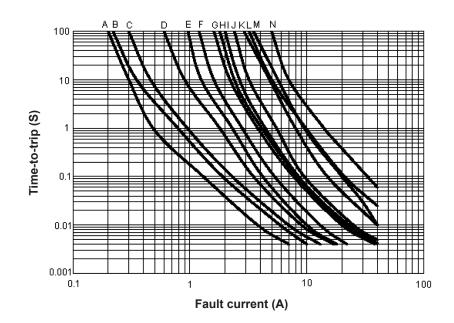
**H** = MC36226

I = MC36228, MC36231, MC36232

J = MC36233, MC36234, MC36235

M = MC36237K = 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.

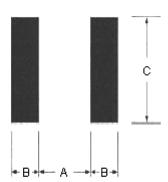
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### Pad Layouts Solder Reflow and Rework Recommendations

The dimension in the table below provide the recommended pad layout for each 1812 device.



#### **Pad Dimensions**

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

Dimensions: Millimetres

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts maximum to Tp)	3°C/second maximum
Preheat: Temperature Minimum (Ts minimum) Temperature Maximum (Ts maximum) Time (ts minimum to ts maximum)	150°C 200°C 60-180 seconds
Time maintained above: Temperature (TL) Time (tL)	217°C 60-150 seconds
Peak/Classification Temperature (T <sub>P</sub> ):	260°C
Time within 5°C of actual Peak: Temperature (t <sub>p</sub> )	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.

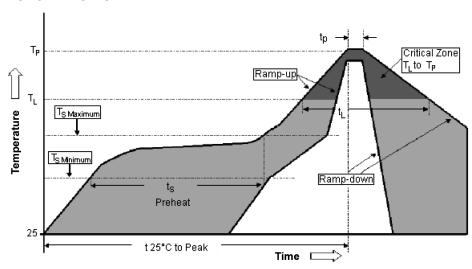
#### Caution:

- 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
	MC36204
	MC36209
	MC36218
	MC36219
	MC36224
	MC36225
	MC36226
	MC36227
	MC36228
Surface Mountable PTC Resettable Fuse	MC36231
	MC36232
	MC36233
	MC36234
	MC36235
	MC36237
	MC36238
	MC36242
	MC36243
	MC36244

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