

**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 |
| Operation Current | : 0.2A to 1A                                                                                                                      |
| Max. Voltage      | : 6V to 15V                                                                                                                       |
| Temperature Range | : -40°C to +85°C                                                                                                                  |

## Electrical Characteristics (23°C)

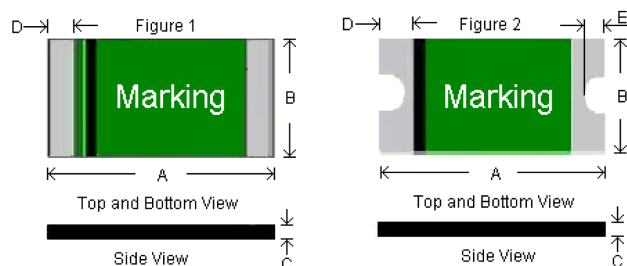
| Hold Current       | Trip Current       | Rated Voltage | Max. Current | Typical Power      | Max. Time to Trip |      | Resistance |         | Part Number |
|--------------------|--------------------|---------------|--------------|--------------------|-------------------|------|------------|---------|-------------|
|                    |                    |               |              |                    | Current           | Time | R Min.     | R1 Max. |             |
| I <sub>H</sub> , A | I <sub>T</sub> , A | V Max., V DC  | I Max., A    | P <sub>d</sub> , W | Amp               | Sec  | ohms       | ohms    |             |
| 0.2                | 0.5                | 9             | 100          | 5                  | 8                 | 0.02 | 0.4        | 3.5     | MC36206     |
| 0.35               | 0.75               | 6             |              |                    |                   | 0.1  | 0.25       | 1.2     | MC36210     |
| 0.5                | 1                  |               |              |                    |                   |      | 0.15       | 0.85    | MC36213     |
| 0.75               | 1.5                |               | 40           | 0.6                |                   | 0.2  | 0.09       | 0.35    | MC36215     |
| 1                  | 1.95               |               |              |                    |                   | 0.3  | 0.06       | 0.21    | MC36220     |

|                   |                                                                                                                                  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------|
| I <sub>H</sub>    | = Hold current-maximum current at which the device will not trip at 23°C still air                                               |
| I <sub>T</sub>    | = 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 <sub>MIN</sub>  | = 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

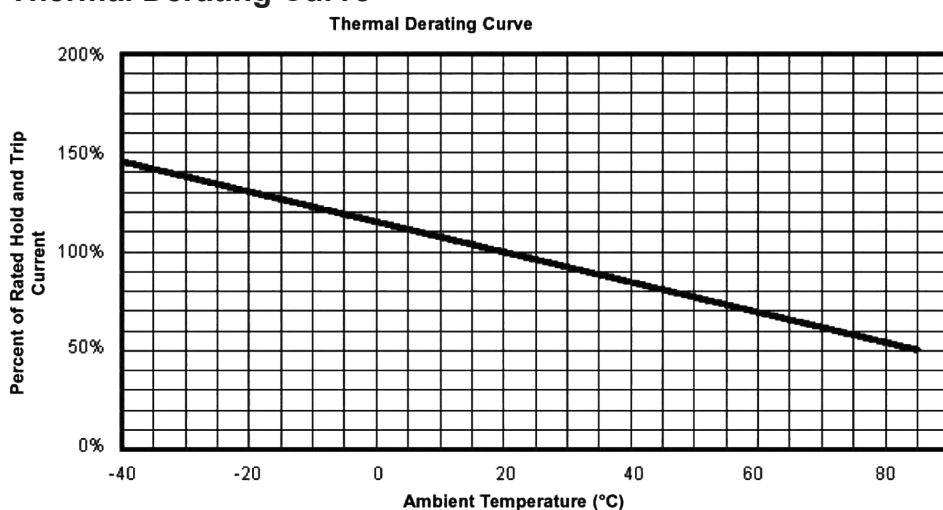
## Electrical Characteristics (23°C)



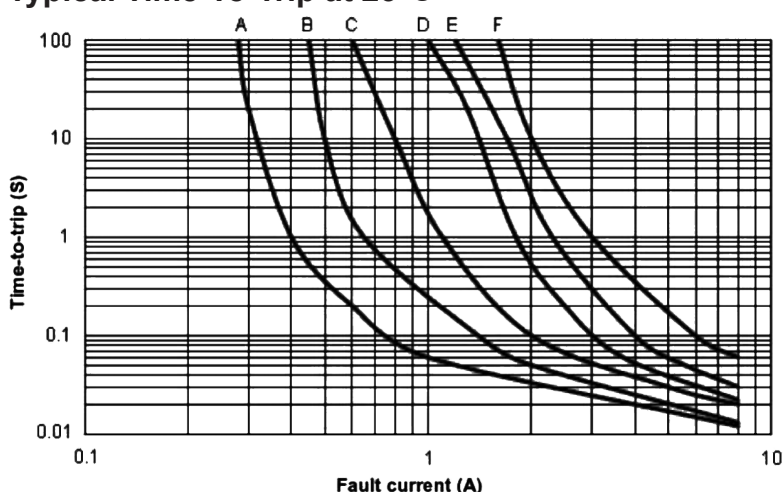
| Figure | A    |      | B    |      | C    |      | D    |      | E    |      | Part Number |  |  |  |
|--------|------|------|------|------|------|------|------|------|------|------|-------------|--|--|--|
|        | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |             |  |  |  |
| 1      | 2    | 2.3  | 1.2  | 1.5  | 0.55 | 1    | 0.2  | 0.6  | -    | -    | MC36206     |  |  |  |
|        |      |      |      |      | 0.45 | 0.75 |      |      |      |      | MC36210     |  |  |  |
| 2      |      | 2.2  |      |      | 0.55 | 1.25 |      |      | 0.1  | 0.45 | MC36213     |  |  |  |
|        |      |      |      |      |      |      |      |      |      |      | MC36215     |  |  |  |
|        |      |      |      |      |      |      |      |      |      |      | MC36220     |  |  |  |

Dimensions : Millimetres

## Thermal Derating Curve



## Typical Time-To-Trip at 23°C



B=MC36206  
 C=MC36210  
 D=MC36213  
 E=MC36215  
 F=MC36220

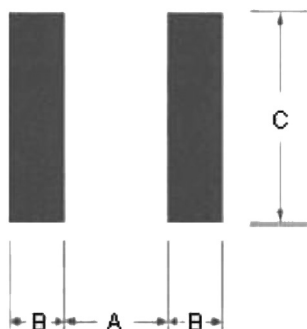
## Material Specification

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 FSMD1812 device



| Device          | A<br>Nominal | B<br>Nominal | C<br>Nominal |
|-----------------|--------------|--------------|--------------|
| All 0805 Series | 1.2          | 1            | 1.5          |

|                                                                                                                                                 |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Profile Feature                                                                                                                                 | Pb-Free Assembly                    |
| Average Ramp-Up Rate (T <sub>max</sub> to T <sub>p</sub> )                                                                                      | 3°C/second maximum                  |
| Preheat :<br>Temperature Minimum (T <sub>min</sub> )<br>Temperature Maximum (T <sub>max</sub> )<br>Time (t <sub>min</sub> to t <sub>max</sub> ) | 150°C<br>200°C<br>60 to 180 seconds |
| Time maintained above:<br>Temperature(T <sub>L</sub> )<br>Time (t <sub>L</sub> )                                                                | 217°C<br>60 to 150 seconds          |
| Peak/Classification Temperature(T <sub>p</sub> )                                                                                                | 260°C                               |
| Time within 5°C of actual Peak<br>Temperature (t <sub>p</sub> )                                                                                 | 20 to 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

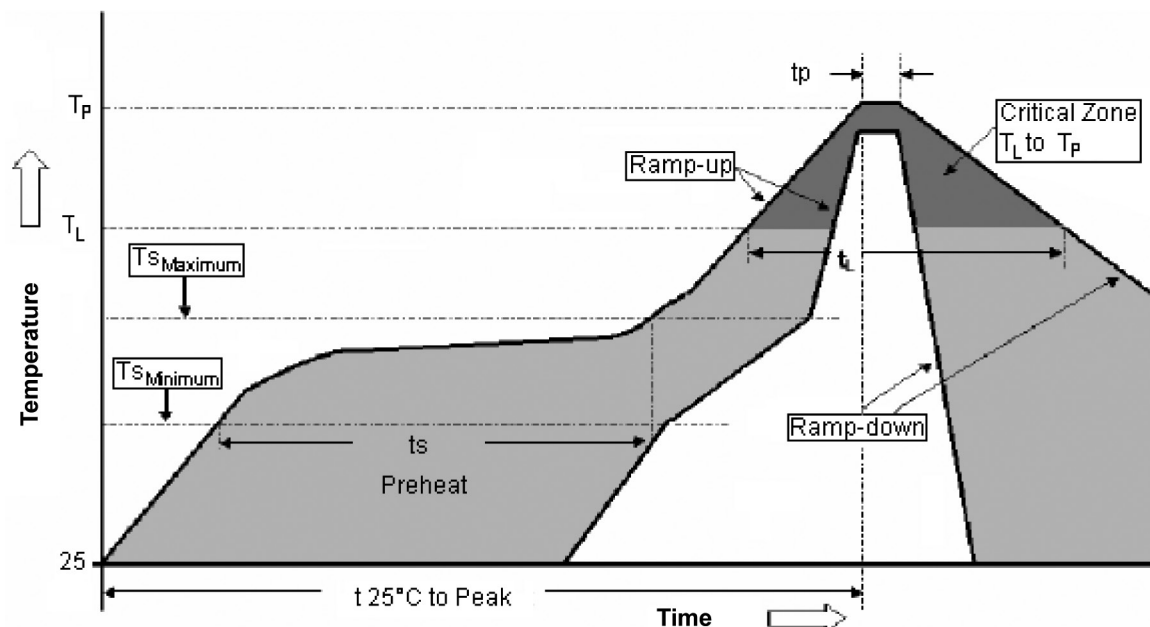
## Solder Reflow:

Due to "Lead Free" nature, Temperature and Dwelling time for the soldering 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.



**Part Number Table**

| Description                           | Part Number |
|---------------------------------------|-------------|
| Surface Mountable PTC Resettable Fuse | MC36206     |
|                                       | MC36210     |
|                                       | MC36213     |
|                                       | MC36215     |
|                                       | MC36220     |

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