# Surface Mountable PTC Resettable Fuse

## Specifications:

RoHS Compliant

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.
Maximum voltage : 6V to 15V.
Temperature range : -40°C to 85°C.

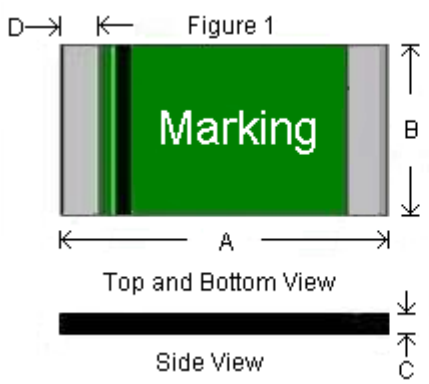
**UL : E-345437**

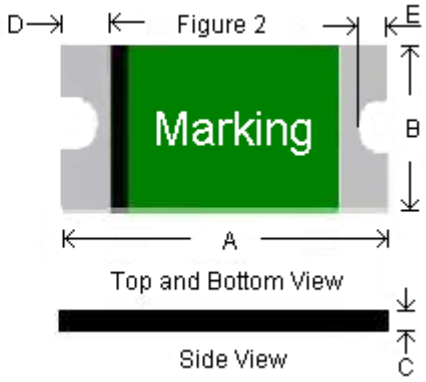
## Electrical Characteristics (23°C)

| Hold Current | Trip Current | Rated Voltage | Maximum Current | Typical Power | Maximum 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 | |
| 0.20 | 0.50 | 9 | 100 | 0.5 | 8.00 | 0.02 | 0.400 | 3.500 | MC36206 |
| 0.35 | 0.75 | 6 | 100 | 0.5 | 8.00 | 0.10 | 0.250 | 1.200 | MC36210 |
| 0.50 | 1.00 | 6 | 100 | 0.5 | 8.00 | 0.10 | 0.150 | 0.850 | MC36213 |
| 0.75 | 1.50 | 6 | 40 | 0.6 | 8.00 | 0.20 | 0.090 | 0.350 | MC36215 |
| 1.00 | 1.95 | 6 | 40 | 0.6 | 8.00 | 0.30 | 0.060 | 0.210 | MC36220 |

$I_H$ = 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.

## Production Dimensions (Millimeter)



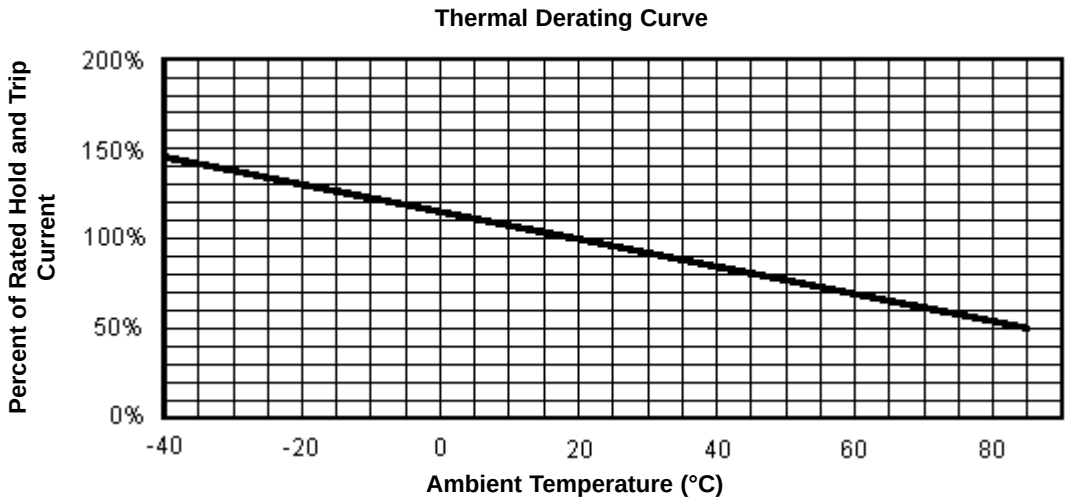



## Dimensions Table

| A | | B | | C | | D | | E | | Figure | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | | |
| 2.00 | 2.30 | 1.20 | 1.50 | 0.55 | 1.00 | 0.20 | 0.60 | — | — | 1 | MC36206 |
| 2.00 | 2.30 | 1.20 | 1.50 | 0.45 | 0.75 | 0.20 | 0.60 | — | — | 1 | MC36210 |
| 2.00 | 2.20 | 1.20 | 1.50 | 0.55 | 1.25 | 0.20 | 0.60 | 0.10 | 0.45 | 2 | MC36213 |
| 2.00 | 2.20 | 1.20 | 1.50 | 0.55 | 1.25 | 0.20 | 0.60 | 0.10 | 0.45 | 2 | MC36215 |
| 2.00 | 2.20 | 1.20 | 1.50 | 0.75 | 1.80 | 0.20 | 0.60 | 0.10 | 0.45 | 2 | MC36220 |

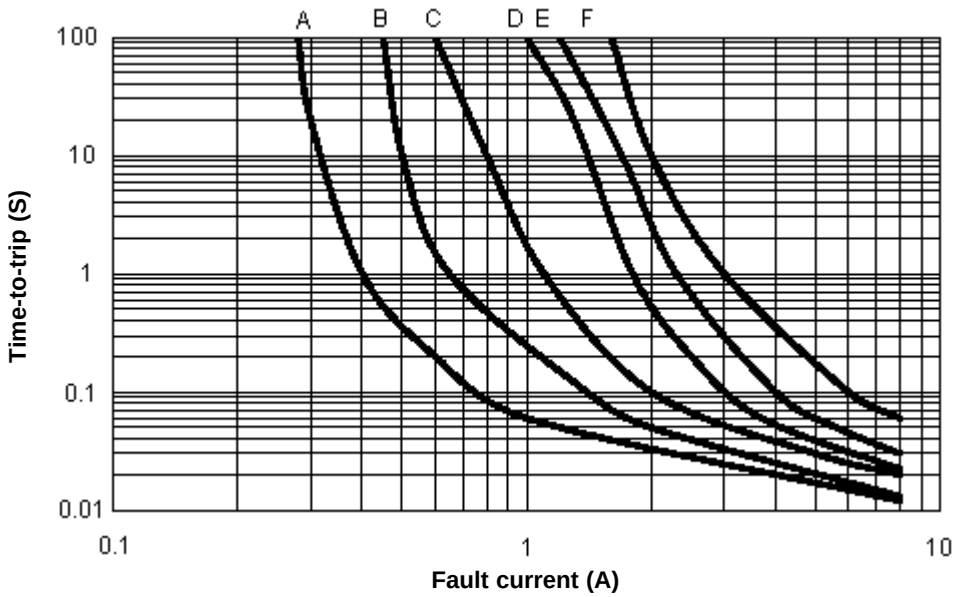
Dimensions : Millimetres

## Thermal Derating Curve




## Typical Time-To-Trip at 23°C

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

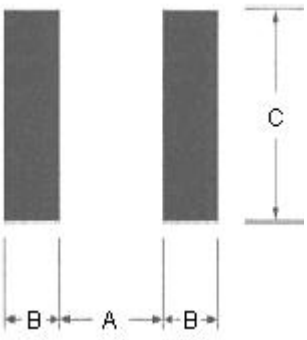


## Material Specification

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 0805 device.




### Pad Dimensions

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

Dimensions : Millimetres

| Profile Feature | Pb-Free Assembly |
|---|---|
| Average Ramp-Up Rate ($T_s$ maximum to $T_p$) | 3°C/second maximum |
| Preheat:<br>Temperature Minimum ($T_s$ minimum)<br>Temperature Maximum ($T_s$ maximum)<br>Time ($t_s$ minimum to $t_s$ maximum) | <br>150°C<br>200°C<br>60-180 seconds |
| Time maintained above:<br>Temperature ($T_L$)<br>Time ($t_L$) | <br>217°C<br>60-150 seconds |
| Peak/Classification Temperature ($T_p$): | 260°C |
| Time within 5°C of actual Peak:<br>Temperature ($t_p$) | <br>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.