



## Features

- Small size of 1812
- Fast tripping resettable circuit protection
- Surface mount packaging for automated assembly
- Agency recognition: UL, CSA, TUV

**SEL-USE**

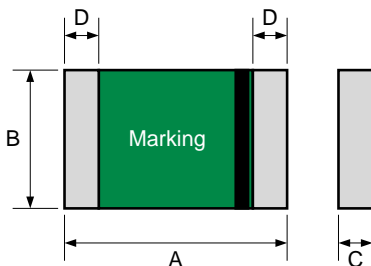


## LP-MSM series

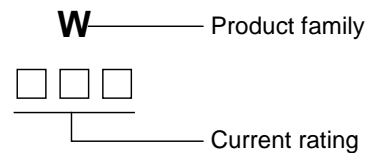
Surface-mount devices

## Product Dimensions

| Part number | A     | B    | C    | D    |
|-------------|-------|------|------|------|
|             | Max.  | Max. | Max. | Max. |
| LP-MSM010   | 4.73  | 3.41 | 0.81 | 0.60 |
| LP-MSM014   | 4.73  | 3.41 | 0.81 | 0.60 |
| LP-MSM020   | 4.73  | 3.41 | 0.81 | 0.60 |
| LP-MSM050   | 4.73  | 3.41 | 0.61 | 0.60 |
| LP-MSM075   | 4.73  | 3.41 | 0.61 | 0.60 |
| LP-MSM110   | 4.73  | 3.41 | 0.61 | 0.60 |
| LP-MSM125   | 4.73  | 3.41 | 1.25 | 0.60 |
| LP-MSM150   | 4.73  | 3.41 | 1.25 | 0.60 |
| LP-MSM160   | 4.73  | 3.41 | 1.25 | 0.60 |
| LP-MSM190   | 11.51 | 5.33 | 0.55 | 0.60 |
| LP-MSM200   | 4.73  | 3.41 | 1.25 | 0.60 |
| LP-MSM260   | 4.73  | 3.41 | 2.25 | 0.60 |



## Marking System



## Electrical Characteristics

| Part number | $I_H$ | $I_T$ | $V_{max}$ | $I_{max}$ | $T_{trip}$ |         | $Pd_{typ}$ | $R_{min}$ | $R_{1max}$ |
|-------------|-------|-------|-----------|-----------|------------|---------|------------|-----------|------------|
|             | (A)   | (A)   | (V)       | (A)       | Current(A) | Time(S) | (W)        | ( )       | ( )        |
| LP-MSM010   | 0.10  | 0.20  | 60        | 10        | 1.5        | 0.15    | 1.0        | 0.70      | 6.00       |
| LP-MSM014   | 0.14  | 0.34  | 60        | 10        | 1.5        | 0.15    | 1.0        | 0.70      | 6.00       |
| LP-MSM020   | 0.20  | 0.40  | 30        | 10        | 6.0        | 0.06    | 1.0        | 0.60      | 5.00       |
| LP-MSM050   | 0.50  | 1.00  | 15        | 40        | 8.0        | 0.15    | 1.0        | 0.15      | 1.00       |
| LP-MSM075   | 0.75  | 1.50  | 13.2      | 40        | 8.0        | 0.20    | 1.0        | 0.10      | 0.48       |
| LP-MSM110   | 1.10  | 2.20  | 6         | 40        | 8.0        | 0.30    | 1.0        | 0.04      | 0.26       |
| LP-MSM125   | 1.25  | 2.50  | 6         | 40        | 8.0        | 0.40    | 1.0        | 0.07      | 0.25       |
| LP-MSM150   | 1.50  | 3.00  | 6         | 40        | 8.0        | 0.50    | 1.0        | 0.04      | 0.11       |
| LP-MSM160   | 1.60  | 2.80  | 6         | 40        | 8.0        | 1.00    | 1.0        | 0.03      | 0.10       |
| LP-MSM190   | 1.90  | 3.80  | 16        | 100       | 10.0       | 2.00    | 1.5        | 0.024     | 0.08       |
| LP-MSM200   | 2.00  | 3.50  | 6         | 40        | 8.0        | 2.00    | 1.0        | 0.02      | 0.06       |
| LP-MSM260   | 2.60  | 5.20  | 6         | 40        | 8.0        | 2.50    | 1.0        | 0.015     | 0.047      |

## Test Procedures And Requirements

| Test            | Test Conditions                   | Accept/Reject Criteria |
|-----------------|-----------------------------------|------------------------|
| Resistance      | In still air @ 25                 | $R_{min}$ R $R_{max}$  |
| Time to Trip    | Specified current, $V_{max}$ , 25 | T maximum Time to Trip |
| Hold Current    | 30min, at $I_H$                   | No trip                |
| Trip Cycle Life | $V_{max}$ , $I_{max}$ , 100cycles | No arcing or burning   |
| Trip Endurance  | $V_{max}$ , 24hours               | No arcing or burning   |

$I_H$ =Hold current: maximum current at which the device will not trip at 25 still air.

$I_T$ =Trip current: minimum current at which the device will always trip at 25 still air.

$V_{max}$ =Maximum voltage device can withstand without damage at rated current.

$I_{max}$ =Maximum fault current device can withstand without damage at rated voltage.

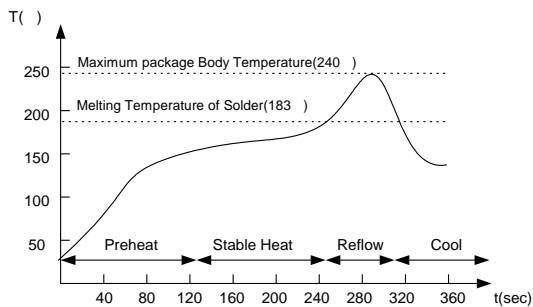
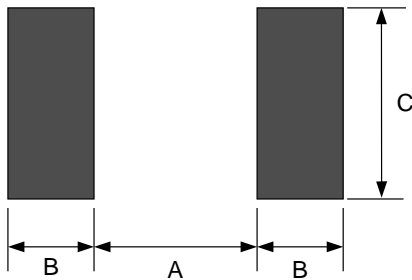
$T_{trip}$ =Maximum time to trip at assigned current.

$P_{d,typ}$ =Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

$R_{min}$ =Minimum device resistance at 25 prior to tripping.

$R_{1max}$ =Maximum device resistance measured in the nontripped state 1 hour post reflow.

## Solder Reflow Recommendations



### Solder Pad Layouts

| Part number | A<br>(mm) | B<br>(mm) | C<br>(mm) |
|-------------|-----------|-----------|-----------|
| LP-MSM010   | 3.45      | 1.78      | 3.15      |
| LP-MSM014   | 3.45      | 1.78      | 3.15      |
| LP-MSM020   | 3.45      | 1.78      | 3.15      |
| LP-MSM050   | 3.45      | 1.78      | 3.15      |
| LP-MSM075   | 3.45      | 1.78      | 3.15      |
| LP-MSM110   | 3.45      | 1.78      | 3.15      |
| LP-MSM125   | 3.45      | 1.78      | 3.15      |
| LP-MSM150   | 3.45      | 1.78      | 3.15      |
| LP-MSM160   | 3.45      | 1.78      | 3.15      |
| LP-MSM190   | 9.57      | 1.45      | 4.75      |
| LP-MSM200   | 3.45      | 1.78      | 3.15      |
| LP-MSM260   | 3.45      | 1.78      | 3.15      |

\* Recommended reflow methods: IR, Vapor phase oven, hot air oven, wave solder.

\* Devices can be cleaned using standard industry methods and solvents.

#### Notes:

If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

## Package Information

Bulk:  
LP-MSM190.....1000pcs per bag

Tape and Reel:  
LP-MSM010~ LP-MSM260.....2000pcs per reel