



Features

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

RELAYS

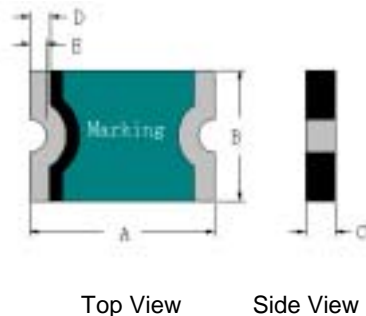


LP-MSM series

Surface-mount devices

Product Dimensions(mm)

| Part number | A | B | C | D | E |
|-------------|-------|------|------|------|------|
| | Max. | Max. | Max. | Max. | Min. |
| LP-MSM010 | 4.73 | 3.41 | 0.81 | 0.60 | 0.30 |
| LP-MSM014 | 4.73 | 3.41 | 0.81 | 0.60 | 0.30 |
| LP-MSM020 | 4.73 | 3.41 | 0.81 | 0.60 | 0.30 |
| LP-MSM050 | 4.73 | 3.41 | 0.61 | 0.60 | 0.30 |
| LP-MSM075 | 4.73 | 3.41 | 0.61 | 0.60 | 0.30 |
| LP-MSM110 | 4.73 | 3.41 | 0.61 | 0.60 | 0.30 |
| LP-MSM125 | 4.73 | 3.41 | 1.25 | 0.60 | 0.30 |
| LP-MSM150 | 4.73 | 3.41 | 1.25 | 0.60 | 0.30 |
| LP-MSM160 | 4.73 | 3.41 | 1.25 | 0.60 | 0.30 |
| LP-MSM190 | 11.51 | 5.33 | 0.55 | 0.60 | 0.30 |
| LP-MSM200 | 4.73 | 3.41 | 1.25 | 0.60 | 0.30 |
| LP-MSM260 | 4.73 | 3.41 | 2.25 | 0.60 | 0.30 |



Marking System

W — Product family

□ □ □ — Current rating

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.

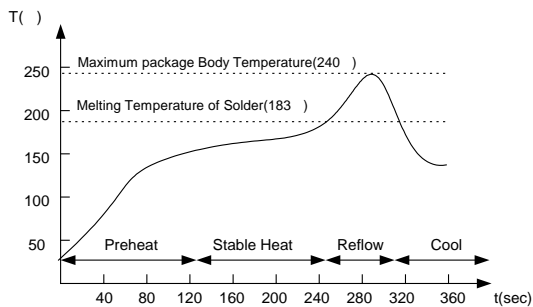
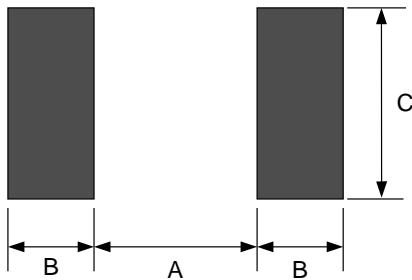
T_{trip} =Maximum time to trip at assigned current.

$P_{d,typ}$ =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 (mm) | B (mm) | C (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-MSM160.....2000pcs per reel
LP-MSM200~ LP-MSM260.....1000pcs per reel