





Features

- Small footprint size (0805) and low profile for space-constrained mobile applications
- Ultra-low resistance
- Symmetrical design
- Surface mount packaging for automated assembly
- RoHS compliant* and halogen free**
- Agency recognition:  

Applications

- USB port protection - USB 2.0, 3.0 & OTG
- HDMI 1.4 Source protection
- PC motherboards - Plug & Play protection
- Mobile phones - Battery & port protection
- PDAs / digital cameras
- Bluetooth® earphone power protection
- Game console port protection

MF-PSML Series - Low Ohmic PTC Resettable Fuses

Electrical Characteristics

| Model | V max. Volts | I max. Amps | I _{hold} | I _{trip} | Resistance | | Max. Time To Trip | | Tripped Power Dissipation |
|---------------|--------------|-------------|-------------------|-------------------|-------------------|--------------------|-------------------|------------------|---------------------------|
| | | | Amperes at 23 °C | | Ohms at 23 °C | | Amperes at 23 °C | Seconds at 23 °C | Watts at 23 °C |
| | | | Hold | Trip | R _{Min.} | R _{1Max.} | | | Typ. |
| MF-PSML110 | 6 | 50 | 1.10 | 1.80 | 0.0175 | 0.130 | 8.00 | 0.3 | 0.6 |
| MF-PSML150 | 6 | 50 | 1.50 | 3.00 | 0.015 | 0.065 | 8.00 | 0.5 | 0.6 |
| MF-PSML175 | 6 | 50 | 1.75 | 3.50 | 0.005 | 0.055 | 8.00 | 0.6 | 0.6 |
| MF-PSML200 | 6 | 50 | 2.00 | 4.00 | 0.005 | 0.045 | 8.00 | 1.0 | 0.6 |
| MF-PSML260 | 6 | 50 | 2.60 | 5.00 | 0.003 | 0.035 | 8.00 | 4.0 | 0.6 |
| MF-PSML300 | 6 | 50 | 3.00 | 6.00 | 0.003 | 0.030 | 8.00 | 5.0 | 0.6 |
| MF-PSML350*** | 6 | 50 | 3.50 | 7.00 | 0.003 | 0.025 | 8.00 | 5.0 | 0.6 |

*** TÜV approval pending.

Environmental Characteristics

| | | |
|---------------------------------------|---|---------------------------------|
| Operating Temperature..... | -40 °C to +85 °C | |
| Passive Aging..... | +85 °C, 1000 hours..... | ±10 % typical resistance change |
| Humidity Aging..... | +85 °C, 85 % R.H. 100 hours..... | ±15 % typical resistance change |
| Thermal Shock..... | +85 °C to -40 °C, 20 times..... | ±30 % typical resistance change |
| Solvent Resistance..... | MIL-STD-202, Method 215..... | No change |
| Vibration..... | MIL-STD-883C, Method 2007.1, Condition A..... | No change |
| Moisture Sensitivity Level (MSL)..... | Level 1..... | |
| ESD Classification - HBM..... | Class 6..... | |

Test Procedures And Requirements For Model MF-PSML Series

| Test | Test Conditions | Accept/Reject Criteria |
|-----------------------------|--|---|
| Visual/Mech..... | Verify dimensions and materials..... | Per MF physical description |
| Resistance..... | In still air @ 23 °C..... | $R_{min} \leq R \leq R_{1max}$ |
| Time to Trip..... | At specified current, V _{max} , 23 °C..... | $T \leq \text{max. time to trip (seconds)}$ |
| Hold Current..... | 30 min. at I _{hold} | No trip |
| Trip Cycle Life..... | V _{max} , I _{max} , 100 cycles..... | No arcing or burning |
| Trip Endurance..... | V _{max} , 48 hours..... | No arcing or burning |
| Solderability..... | ANSI/J-STD-002..... | 95 % min. coverage |
| UL File Number..... | E174545 http://www.ul.com/ Follow link to Certifications, then UL File No., enter E174545 | |
| TÜV Certificate Number..... | R 50171531 http://www.tuvdotcom.com/ Follow link to "other certificates", enter File No. 50171531 | |

* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice.

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MF-PSML Series - Low Ohmic PTC Resettable Fuses

BOURNS®

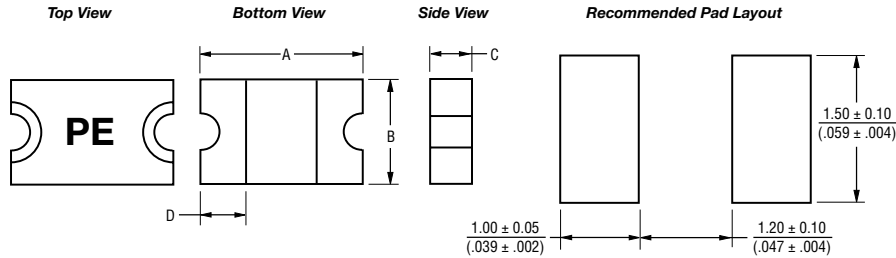
Product Dimensions

| Model | A | | B | | C | | D |
|------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. |
| MF-PSML110 | $\frac{2.00}{(0.079)}$ | $\frac{2.30}{(0.091)}$ | $\frac{1.20}{(0.047)}$ | $\frac{1.50}{(0.059)}$ | $\frac{0.30}{(0.012)}$ | $\frac{0.60}{(0.024)}$ | $\frac{0.20}{(0.008)}$ |
| MF-PSML150 | | | | | | | |
| MF-PSML175 | | | | | | | |
| MF-PSML200 | | | | | | | |
| MF-PSML260 | $\frac{2.00}{(0.079)}$ | $\frac{2.30}{(0.091)}$ | $\frac{1.20}{(0.047)}$ | $\frac{1.50}{(0.059)}$ | $\frac{0.45}{(0.018)}$ | $\frac{0.80}{(0.031)}$ | $\frac{0.20}{(0.008)}$ |
| MF-PSML300 | | | | | | | |
| MF-PSML350 | | | | | | | |

Packaging:

MF-PSML110~MF-PSML200 = 6000 pcs. per reel
 MF-PSML260~MF-PSML350 = 4500 pcs. per reel

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$



Terminal material:
 Nickel/gold plated.

Termination pad solderability:
 Standard Au finish:
 Meets ANSI/J-STD-002 Category 2.

Recommended Storage:
 40 °C max./70 % RH max.

Thermal Derating Chart - I_{hold} (Amps)

| Model | Ambient Operating Temperature | | | | | | | | |
|------------|-------------------------------|--------|------|-------|-------|-------|-------|-------|-------|
| | -40 °C | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
| MF-PSML110 | 1.93 | 1.65 | 1.37 | 1.10 | 0.83 | 0.69 | 0.55 | 0.41 | 0.31 |
| MF-PSML150 | 2.37 | 2.07 | 1.80 | 1.50 | 1.25 | 1.08 | 0.93 | 0.74 | 0.50 |
| MF-PSML175 | 2.57 | 2.33 | 2.07 | 1.75 | 1.49 | 1.36 | 1.24 | 1.00 | 0.91 |
| MF-PSML200 | 2.94 | 2.66 | 2.36 | 2.00 | 1.70 | 1.55 | 1.42 | 1.14 | 1.04 |
| MF-PSML260 | 3.82 | 3.46 | 3.07 | 2.60 | 2.21 | 2.02 | 1.85 | 1.48 | 1.35 |
| MF-PSML300 | 4.41 | 3.99 | 3.54 | 3.00 | 2.55 | 2.33 | 2.13 | 1.71 | 1.56 |
| MF-PSML350 | 5.51 | 4.66 | 4.13 | 3.50 | 2.98 | 2.71 | 2.49 | 2.00 | 1.82 |

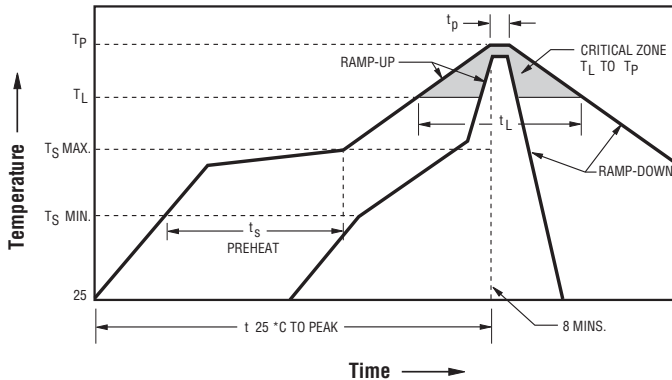
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MF-PSML Series - Low Ohmic PTC Resettable Fuses



Solder Reflow Recommendations



Notes:

- MF-PSML models cannot be wave soldered or hand soldered. Please contact Bourns for soldering recommendations.
- All temperatures refer to topside of the package, measured on the package body surface.
- If reflow temperatures exceed the recommended profile, devices may not meet the published specifications.
- Compatible with Pb and Pb-free solder reflow profiles.
- Excess solder may cause a short circuit, especially during hand soldering. Please refer to the Multifuse® Polymer PTC Soldering Recommendation guidelines.
- Designed for single solder reflow operations.

| Profile Feature | Pb-Free Assembly |
|---|------------------------------------|
| Average Ramp-Up Rate ($T_{S_{max}}$ to T_p) | 3 °C / second max. |
| PREHEAT: Temperature Min. ($T_{S_{min}}$) Temperature Max. ($T_{S_{max}}$) Time ($t_{s_{min}}$ to $t_{s_{max}}$) | 150 °C 200 °C 60~180 seconds |
| TIME MAINTAINED ABOVE: Temperature (T_L) Time (t_L) | 217 °C 60~150 seconds |
| Peak / Classification Temperature (T_p) | 260 °C |
| Time within 5 °C of Actual Peak Temperature (t_p) | 20~40 seconds |
| Ramp-Down Rate | 6 °C / second max. |
| Time within 25 °C to Peak Temperature | 8 minutes max. |

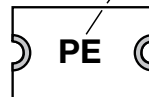
How to Order

MF - PSML 110 - 2

Multifuse® Product Designator _____
 Series _____
 PSML = 0805 Surface Mount Component
 Hold Current, I_{hold} _____
 110 - 350 (1.10 Amps - 3.50 Amps)
 Packaging _____
 Packaged per EIA 481-1
 -2 = Tape and Reel

Typical Part Marking

Represents total content. Layout may vary.



BIWEEKLY DATE CODE WILL APPEAR ON THE PACKAGING LABEL:
 WEEK 1 AND 2 = A
 WEEK 51 AND 52 = Z

PART IDENTIFICATION:
 MF-PSML110 = PE
 MF-PSML150 = PG
 MF-PSML175 = PH
 MF-PSML200 = PJ
 MF-PSML260 = PN
 MF-PSML300 = PP
 MF-PSML350 = PS



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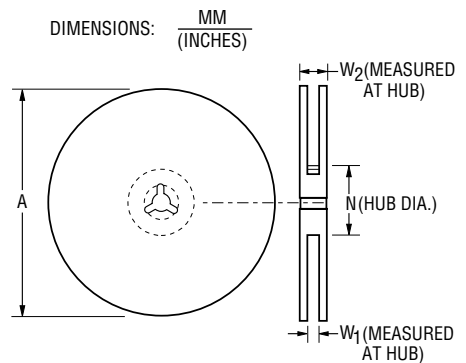
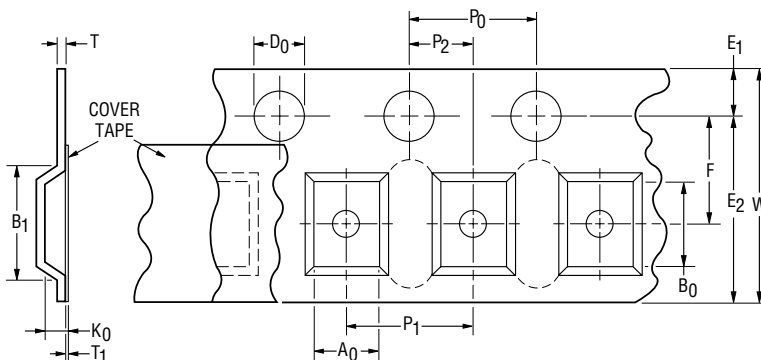
MF-PSML SERIES, REV. A, 05/17

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MF-PSML Series Tape and Reel Specifications

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| Tape Dimensions | MF-PSML Series per EIA 481-1 |
|--|--|
| W | 8.0 ± 0.30 (0.315 ± 0.012) |
| P ₀ | 4.0 ± 0.10 (0.157 ± 0.004) |
| P ₁ | 4.0 ± 0.10 (0.157 ± 0.004) |
| P ₂ | 2.0 ± 0.05 (0.079 ± 0.002) |
| A ₀ | 1.70 ± 0.10 (0.067 ± 0.004) |
| B ₀ | 2.45 ± 0.10 (0.096 ± 0.004) |
| B ₁ max. | 4.35 (0.171) |
| D ₀ | $1.5 + 0.10/-0.0$ (0.059 + 0.004/-0) |
| F | 3.5 ± 0.05 (0.138 ± 0.002) |
| E ₁ | 1.75 ± 0.10 (0.069 ± 0.004) |
| E ₂ min. | 6.25 (0.246) |
| T max. | 0.6 (0.024) |
| T ₁ max. | 0.1 (0.004) |
| K ₀ (MF-PSML110~MF-PSML200) | 0.65 ± 0.10 (0.026 ± 0.004) |
| K ₀ (MF-PSML260~MF-PSML350) | 0.95 ± 0.10 (0.037 ± 0.004) |
| Leader min. | 390 (15.35) |
| Trailer min. | 160 (6.30) |
| Reel Dimensions | |
| A max. | 185 (7.28) |
| N min. | 50 (1.97) |
| W ₁ | $8.4 + 1.5/-0.0$ (0.331 + 0.059/-0.0) |
| W ₂ max. | 14.4 (0.567) |



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