

### 881 Series High-Current SMD Fuse



#### Description

This high-current SMD fuse is a small, square, surface mount fuse that is designed as supplemental overcurrent protection for high-current circuits in various applications.

#### Features

- Surface mount package: 12.5mm x 10.0mm
- Suitable for reflow soldering
- 60A to 100A ratings
- Lead-free and RoHS compliant

#### Applications

- Blade Servers
- Routers
- High-power Battery Systems
- Power Factor Correction (PFC) in high wattage power supplies
- Power Distribution Units (PDUs)

#### Agency Approvals

| AGENCY | AGENCY FILE NUMBER | AMPERE RANGE |
|--------|--------------------|--------------|
| cULus  | E71611             | 60A – 100A   |

#### Electrical Characteristics for Series

| % of Ampere Rating | Opening Time     |
|--------------------|------------------|
| 100%               | 1 Hour, Min.     |
| 200%               | 60 Seconds, Max. |

#### Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Max Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (mOhms) | Nominal Voltage Drop * (mV) | Nominal Melting ** I <sup>2</sup> t (A <sup>2</sup> sec) | Agency Approvals |
|-------------------|----------|------------------------|---------------------|---------------------------------|-----------------------------|--|------------------|
|                   |          |                        |                     |                                 |                             |  | cULus            |
| 60                | 060.     | 75Vdc                  | 1500A @75Vdc        | 0.81                            | 75                          | 1050   | X                |
| 70                | 070.     |                        |                     | 0.74                            | 85                          | 1250   | X                |
| 80                | 080.     |                        |                     | 0.56                            | 80                          | 3300   | X                |
| 90                | 090.     |                        |                     | 0.54                            | 85                          | 4300   | X                |
| 100               | 100.     |                        |                     | 0.45                            | 80                          | 6900   | X                |

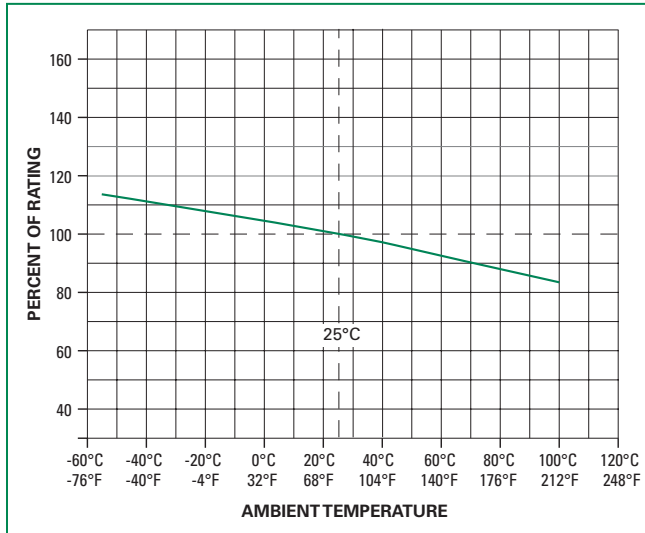
\* Nominal Voltage Drop measured at 100% rated Current. \*\* Nominal Melting I<sup>2</sup>t measured at 1500A.

#### Thermal Characteristics

| Ampere Rating I <sub>n</sub> (A) | Typical Case Temperature Rise (°C) * |                     |                      |
|----------------------------------|--------------------------------------|---------------------|----------------------|
|                                  | @ 50%I <sub>n</sub>                  | @ 75%I <sub>n</sub> | @ 100%I <sub>n</sub> |
| 60                               | 14                                   | 35                  | 60                   |
| 70                               | 15                                   | 37                  | 70                   |
| 80                               | 16                                   | 39                  | 85                   |
| 90                               | 19                                   | 49                  | 105                  |
| 100                              | 23                                   | 53                  | 120                  |

\* Typical values based on tests conducted with fuse mounted on FR-4 circuit board of 0.062" (1.6 mm) thickness with 6 oz. (210 μm) Cu.

### Temperature Re-rating Curve



Note:

1. Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

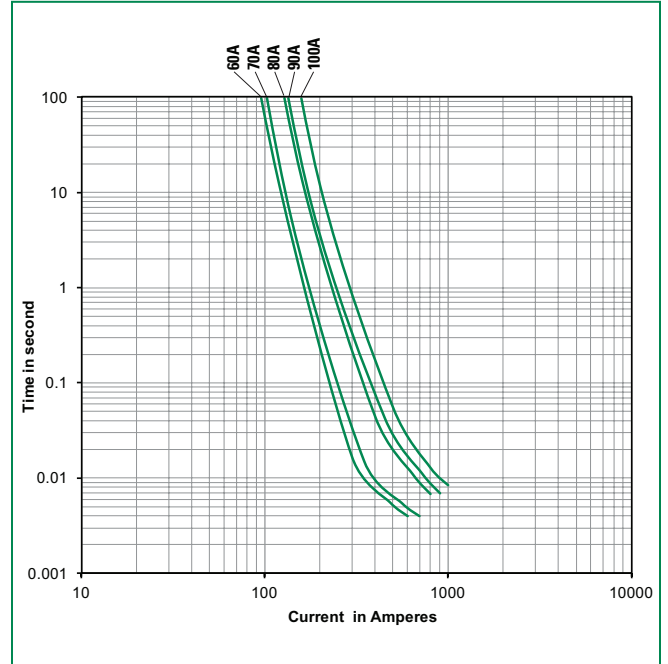
Example:

For continuous operation at 70°C, the fuse should be re-rated as follows:

$$I = (0.75)(0.90)I_{RAT} = (0.675)I_{RAT}$$

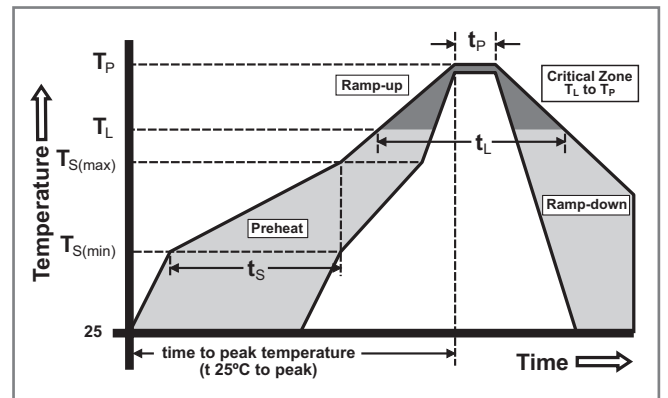
2. The temperature re-rating curve represents nominal conditions. For questions about the temperature re-rating curve, please consult Littelfuse technical support assistance.

### Average Time Current Curves

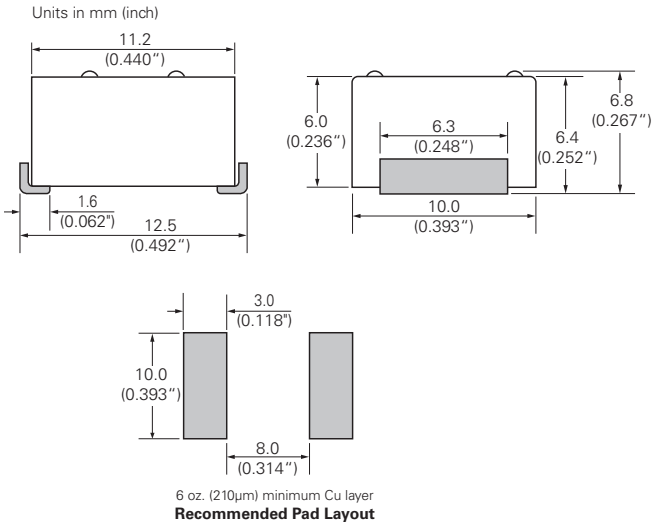


### Soldering Parameters

|  |                                    |                  |
|--|------------------------------------|------------------|
| Reflow Condition                                       | Pb – Free assembly                 |                  |
| Number of allowed reflow cycles                        | 3                                  |                  |
| Pre Heat   | - Temperature Min ( $T_{s(min)}$ ) | 150°C            |
|  | - Temperature Max ( $T_{s(max)}$ ) | 200°C            |
|  | - Time (Min to Max) ( $t_s$ )      | 60 – 180 secs    |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) | 5°C/second max.                    |                  |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   | 5°C/second max.                    |                  |
| Reflow   | - Temperature ( $T_L$ ) (Liquidus) | 217°C            |
|  | - Temperature ( $t_L$ )            | 60 – 150 seconds |
| Peak Temperature ( $T_p$ )                             | 260 <sup>+0/-5</sup> °C            |                  |
| Time within 5°C of actual peak Temperature ( $t_p$ )   | 20 – 40 seconds                    |                  |
| Ramp-down Rate   | 5°C/second max.                    |                  |
| Time 25°C to peak Temperature ( $T_p$ )                | 8 minutes max.                     |                  |
| Do not exceed  | 260°C                              |                  |



### Dimensions



### Product Characteristics

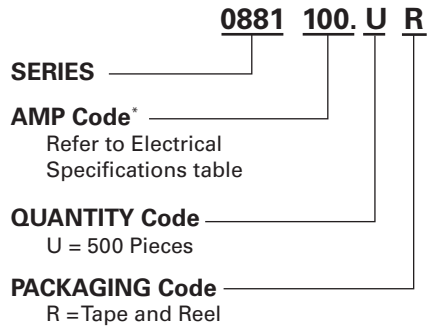
|   |   |
|---|---|
| <b>Materials</b>                            | Body: Thermoplastic, RTI 150°C<br>Terminations: Tin-plated Copper |
| <b>Product Marking</b>                      | Brand logo, Voltage Rating, and Ampere Rating                     |
| <b>Operating Temperature</b> <sup>1 2</sup> | -55° to +100°C with proper derating                               |

**Notes:**

- Based on loading at 75% of ampere rating when mounted using recommended pad layout.
- Usage outside of stated operating temperature range requires testing in application. Maintain case temperature below 150°C in application.

|                                  |   |
|----------------------------------|---|
| <b>Thermal Shock</b>             | MIL-Std 202 Method 107<br>Test Condition B (-65°C to 125°C, 5 cycles).            |
| <b>Moisture Resistance</b>       | MIL-Std 202 method 106<br>High Humidity (90-98%RH), Heat (65°C)                   |
| <b>Vibration</b>                 | MIL-STD-202, Method 201 (10-55 Hz)  |
| <b>Mechanical Shock</b>          | MIL-STD-202, Method 213,<br>Test Condition I<br>(100 G's peak for 6 milliseconds) |
| <b>Resistance to Solder Heat</b> | MIL-Std 202 Method 210<br>Test Condition B (10sec at 260°C)                       |
| <b>Solderability</b>             | MIL-STD-202 Method 208  |
| <b>MSL Test</b>                  | Level 1 J-STD-020   |
| <b>Salt Fog</b>                  | MIL-Std 202 Method 101<br>Test Condition B (5% NaCL solution, 48 hours exposure)  |

### Part Numbering System



**\*Example:**  
60 amp product is 0881060\_UR  
(100 amp product shown above).

### Packaging

| Packaging Option   | Packaging Specification            | Quantity | Quantity & Packaging Code |
|--------------------|------------------------------------|----------|---------------------------|
| 24mm Tape and Reel | EIA-481 Rev. D (IEC 60286, part 3) | 500      | UR                        |

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