

### 215SP Series, 5×20 mm, Time-Lag Fuse



#### Agency Approvals

| Agency | Agency File Number                                               | Ampere Range                           |
|--------|------------------------------------------------------------------|----------------------------------------|
|        | NBK080205-E10480B<br>NBK250702-E10480F                           | 1A – 5A<br>6.3A – 10A                  |
|        | CCC self-declaration No.:<br>2020970207000048                    | 1A - 10A                               |
|        | SU05001-2011B<br>SU05001-10001<br>SU05001-10002<br>SU05001-2012B | 1A – 2.5A<br>3.15A – 6.3A<br>8A<br>10A |
|        | E10480                                                           | 1A – 10A                               |
|        | 29862                                                            | 1A – 10A                               |
|        | 40013521                                                         | 1A – 8A                                |
|        | J50248091                                                        | 10A                                    |
|        | N/A                                                              | 1A – 10A                               |

#### Additional Information



Datasheet



Resources



Samples

#### Description

The 215SP Series is a 5×20mm Time-lag, surge withstanding ceramic body, axial-leaded cartridge fuse designed to IEC specifications.

#### Features

- High breaking capacity
- RoHS compliant and lead-free
- Meets Standard Sheet 5 of IEC 60127-2 as a Time-Lag fuse

#### Applications

Used as supplementary protection in appliance or utilization equipment to provide individual protection for components or internal circuits.

#### Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time                     |
|--------------------|---------------|----------------------------------|
| 210%               | 1A - 3.15A    | 30 minutes, Maximum              |
|                    | 4A - 6.3A     | 30 minutes, Maximum              |
|                    | 8A - 10A      | 30 minutes, Maximum              |
| 275%               | 1A - 3.15A    | 0.75 sec. Min.; 80 secs. Max.    |
|                    | 4A - 6.3A     | 0.75 sec. Min.; 80 secs. Max.    |
|                    | 8A - 10A      | 0.75 sec. Min.; 80 secs. Max.    |
| 400%               | 1A - 3.15A    | 0.095 sec. Min.; 5 secs. Max.    |
|                    | 4A - 6.3A     | 0.150 sec. Min.; 5 secs. Max.    |
|                    | 8A - 10A      | 0.150 sec. Min.; 5 secs. Max.    |
| 1000%              | 1A - 3.15A    | 0.010 sec. Min.; .150 secs. Max. |
|                    | 4A - 6.3A     | 0.010 sec. Min.; .150 secs. Max. |
|                    | 8A - 10A      | 0.010 sec. Min.; .150 secs. Max. |

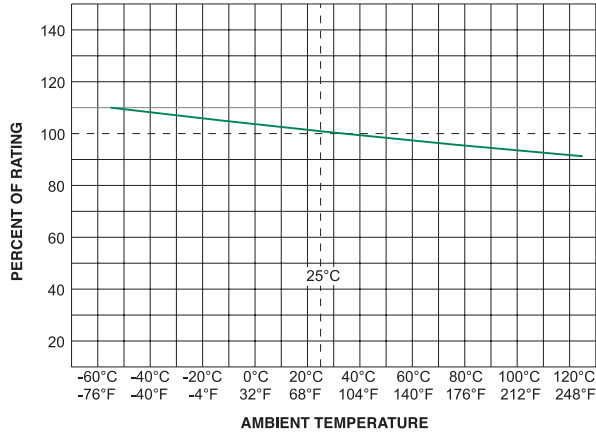
#### Electrical Characteristic Specifications by Item

| Amp Code | Amp Rating | Voltage Rating | Interrupting Rating** | Nominal Resistance Cold Ohms (Ohms) | Nominal Melting I <sup>2</sup> t* (A <sup>2</sup> sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation at 1.5In (W) | Agency Approvals |   |   |   |   |   |   |   |
|----------|------------|----------------|-----------------------|-------------------------------------|--------------------------------------------------------|--------------------------------------------|----------------------------------------|------------------|---|---|---|---|---|---|---|
|          |            |                |                       |                                     |                                                        |                                            |                                        |                  |   |   |   |   |   |   |   |
| 001.     | 1          | 250            | 1500 A @ 250 VAC      | 0.1515                              | 1.52000                                                | 350                                        | 2.5                                    | x                | x | x | x | x | x | - | x |
| 1.25     | 1.25       | 250            |                       | 0.1074                              | 3.20000                                                | 300                                        | 2.5                                    | x                | x | x | x | x | x | - | x |
| 01.6     | 1.6        | 250            |                       | 0.0707                              | 6.83000                                                | 200                                        | 2.5                                    | x                | x | x | x | x | x | - | x |
| 002.     | 2          | 250            |                       | 0.0566                              | 11.68000                                               | 190                                        | 2.5                                    | x                | x | x | x | x | x | - | x |
| 02.5     | 2.5        | 250            |                       | 0.0386                              | 22.29000                                               | 180                                        | 2.5                                    | x                | x | x | x | x | x | - | x |
| 3.15     | 3.15       | 250            |                       | 0.0283                              | 43.25500                                               | 140                                        | 4                                      | x                | x | x | x | x | x | - | x |
| 004.     | 4          | 250            |                       | 0.0185                              | 46.96000                                               | 100                                        | 4                                      | x                | x | x | x | x | x | - | x |
| 005.     | 5          | 250            |                       | 0.0153                              | 66.09500                                               | 100                                        | 4                                      | x                | x | x | x | x | x | - | x |
| 06.3     | 6.3        | 250            |                       | 0.0108                              | 128.75000                                              | 100                                        | 4                                      | x                | x | x | x | x | x | - | x |
| 008.     | 8          | 250            |                       | 0.0092                              | 209.88000                                              | 100                                        | 4                                      | x                | x | x | x | x | x | - | x |
| 010.     | 10         | 250            |                       | 0.0066                              | 333.56500                                              | 100                                        | 4                                      | x                | x | x | x | x | - | x | x |

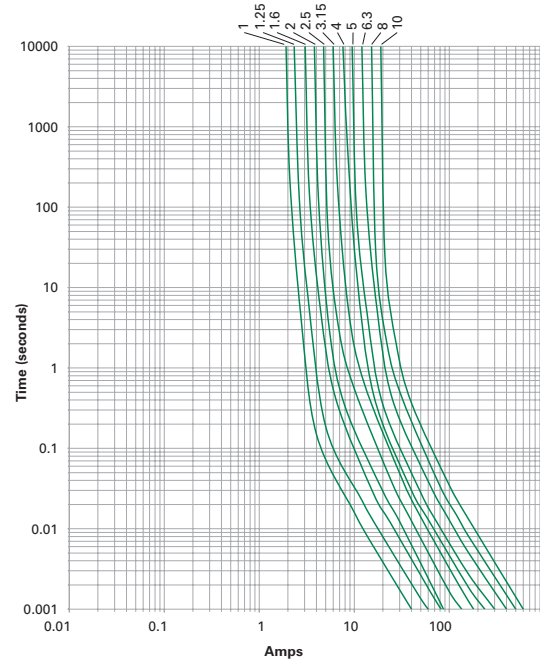
\*I<sup>2</sup>t test at 10x rated current

\*\* Interrupting Rating may differ based on Agency Approval. See Agency Approval certificate for more details.

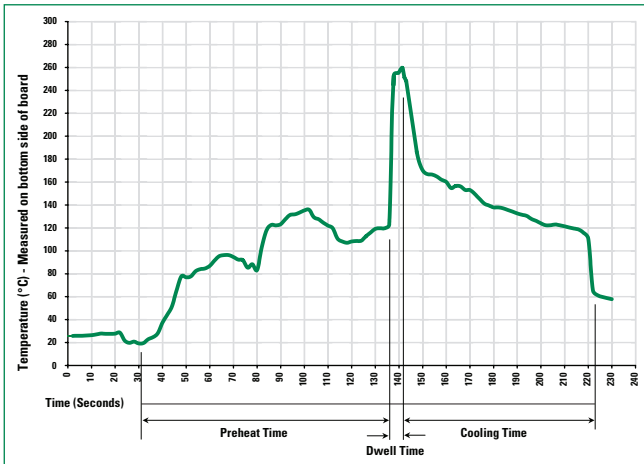
### Temperature Re-rating Curve



### Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

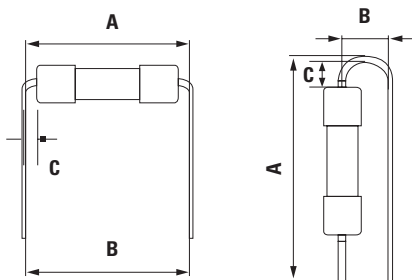
| Wave Parameter                                       | Lead-Free Recommendation          |
|------------------------------------------------------|-----------------------------------|
| Preheat:<br>(Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum:                                 | 100°C                             |
| Temperature Maximum:                                 | 150°C                             |
| Preheat Time:                                        | 60-180 seconds                    |
| Solder Pot Temperature:                              | 260°C Maximum                     |
| Solder Dwell Time:                                   | 2-5 seconds                       |

### Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350°C +/- 5°C  
Heating Time: 5 seconds max.

**Note:** These devices are not recommended for IR or Convection Reflow process.

Different values of A and B available, please contact the Littelfuse sales representative in your region:



For the pigtailed fuse, please follow the recommendations below for axial lead forming and mounting into PCB:

### Lead forming:

The distance C between cap flat surface and axial lead shall be greater than 1.0 mm.

### PCB mounting:

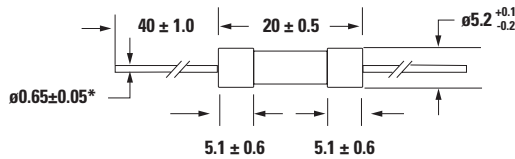
The distance between PCB and fuse cap is recommended to be a minimum of 1.5 mm.

### Product Characteristics

|                              |                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Materials</b>             | <b>Body:</b> Ceramic<br><b>Cap:</b> Nickel-plated Brass<br><b>Leads:</b> Tin-plated Copper       |
| <b>Terminal Strength</b>     | MIL-STD-202, Method 211, Test Condition A                                                        |
| <b>Solderability</b>         | MIL-STD-202 Method 208                                                                           |
| <b>Product Marking</b>       | <b>Cap 1:</b> Brand logo, current and voltage ratings<br><b>Cap 2:</b> Agency approval marks     |
| <b>Operating Temperature</b> | -55°C to +125°C                                                                                  |
| <b>Thermal Shock</b>         | MIL-STD-202, Method 107, Test Condition B (5 cycles, -65°C to +125°C)                            |
| <b>Vibration</b>             | MIL-STD-202, Method 201                                                                          |
| <b>Humidity</b>              | MIL-STD-202, Method 103, Test Condition A (High RH (95%) and elevated temp (40°C) for 240 hours) |
| <b>Salt Spray</b>            | MIL-STD-202, Method 101, Test Condition B                                                        |

### Dimensions

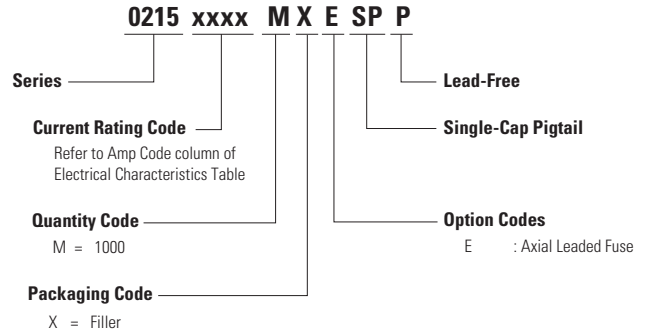
All dimensions in mm



#### Notes:

\* Ratings 8A and 10A have 0.8 ± 0.05 diameter lead.

### Part Numbering System



### Packaging

| Packaging Option | Packaging Specification | Quantity | Packaging Code | Reel Size |
|------------------|-------------------------|----------|----------------|-----------|
| 215SP Series     |                         |          |                |           |
| Bulk             | N/A                     | 1000     | MXE            | N/A       |

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