

### 216SP Series, 5×20 mm, Fast-Acting 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>2020970207000049 | 1A – 10A                  |
|        | SU05001-11001A<br>SU05001-11002A              | 1A – 2.5A<br>3.15A – 6.3A |
|        | E10480                                        | 1A – 10A                  |
|        | 29862                                         | 1A – 10A                  |
|        | 40013834                                      | 1 – 6.3A                  |
|        | J50248090                                     | 8A, 10A                   |
|        | N/A                                           | 1A – 10A                  |

#### Additional Information



Datasheet



Resources



Samples

#### Description

The 216SP Series is a 5×20mm fast-acting ceramic body cartridge fuse designed to IEC specification.

#### Features

- Conforms with the international IEC 60127-2 for use globally
- High breaking capacity
- Meets Standard Sheet 1 of IEC 60127-2 as a Fast-Acting fuse
- RoHS compliant and lead-free

#### 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 – 4A       | 30 minutes, Maximum             |
|                    | 5A – 6.3A     | 30 minutes, Maximum             |
|                    | 8A – 10A      | 30 minutes, Maximum             |
| 275%               | 1A – 4A       | 0.01 sec., Min.; 2 sec. Max.    |
|                    | 5A – 6.3A     | 0.01 sec., Min.; 3 sec. Max.    |
|                    | 8A – 10A      | 0.04 sec., Min.; 20 sec. Max.   |
| 400%               | 1A – 4A       | 0.003 sec., Min.; 0.3 sec. Max. |
|                    | 5A – 6.3A     | 0.003 sec., Min.; 0.3 sec. Max. |
|                    | 8A – 10A      | 0.01 sec., Min.; 1.0 sec. Max.  |
| 1000%              | 1A – 4A       | 0.02 seconds, Maximum           |
|                    | 5A – 6.3A     | 0.02 seconds, Maximum           |
|                    | 8A – 10A      | 0.03 seconds, Maximum           |

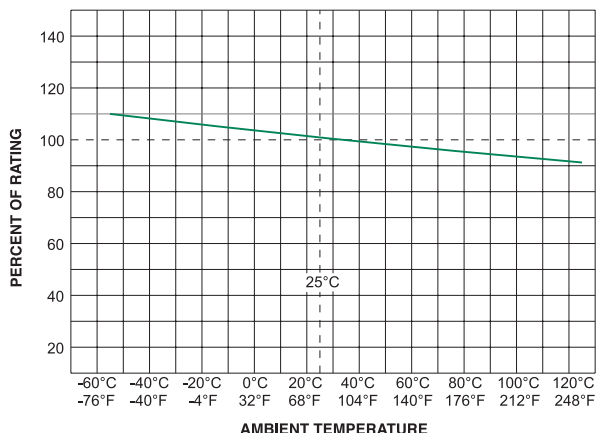
#### Electrical Characteristic Specifications by Item

| 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 1.5I <sub>n</sub> (W) | Agency Approvals |   |   |   |   |   |   |   |
|----------|------------|----------------|----------------------|-------------------------------------|--------------------------------------------------------|--------------------------------------------|----------------------------------------------------|------------------|---|---|---|---|---|---|---|
|          |            |                |                      |                                     |                                                        |                                            |                                                    |                  |   |   |   |   |   |   |   |
| 001.     | 1          | 250            | 1500 A @ 250 VAC     | 0.2370                              | 0.18000                                                | 1000                                       | 2.5                                                | x                | x | x | x | x | x | - | x |
| 016      | 1.6        | 250            |                      | 0.1112                              | 1.00500                                                | 600                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 002.     | 2          | 250            |                      | 0.0764                              | 1.87000                                                | 500                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 02.5     | 2.5        | 250            |                      | 0.0584                              | 3.67200                                                | 400                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 3.15     | 3.15       | 250            |                      | 0.0368                              | 6.70000                                                | 350                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 004.     | 4          | 250            |                      | 0.0247                              | 14.99500                                               | 300                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 005.     | 5          | 250            |                      | 0.0183                              | 27.46000                                               | 250                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 06.3     | 6.3        | 250            |                      | 0.0137                              | 56.43000                                               | 200                                        | 4                                                  | x                | x | x | x | x | x | - | x |
| 008.     | 8          | 250            |                      | 0.0123                              | 64.31500                                               | 200                                        | 4                                                  | x                | x | - | x | x | - | x | x |
| 010.     | 10         | 250            |                      | 0.0079                              | 154.34000                                              | 200                                        | 4                                                  | x                | x | - | x | x | - | x | x |

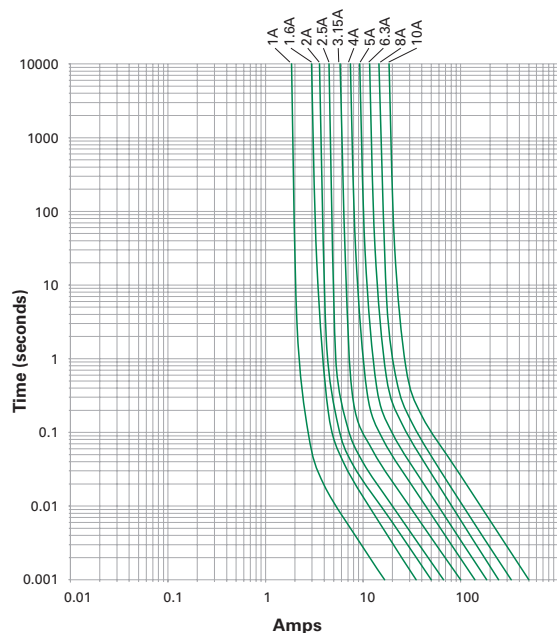
\* - I<sup>2</sup>t test at 10x rated current

+ - Interrupting Rating may differ based on Agency Approval. See Agency Approval certificate for more details.

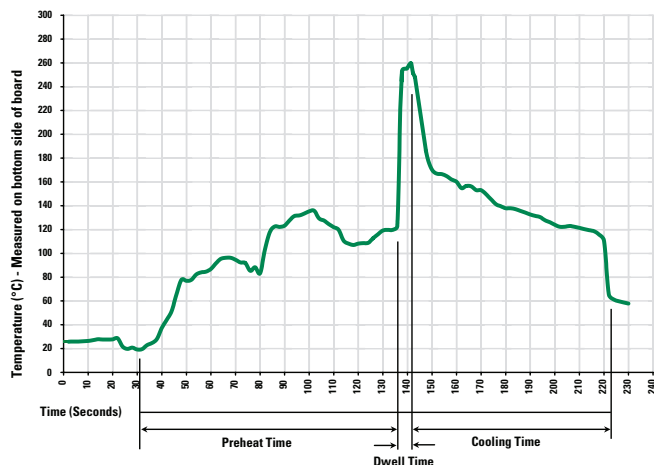
## Temperature Re-rating Curve



## Average Time Current Curves



## Soldering Parameters - Wave Soldering



## Recommended Process Parameters:

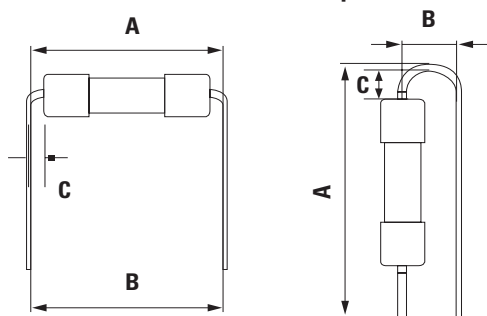
| Wave Parameter                                              | Lead-Free Recommendation          |
|-------------------------------------------------------------|-----------------------------------|
| <b>Preheat:</b><br>(Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
|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

According to the standard of IPC-A-610, the distance between PCB and fuse cap is recommended to be a minimum of 1.5 mm.

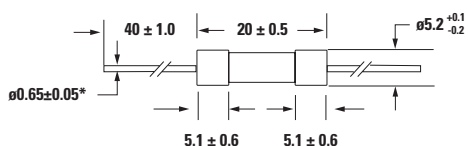
### Product Characteristics

|                          |                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------|
| <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

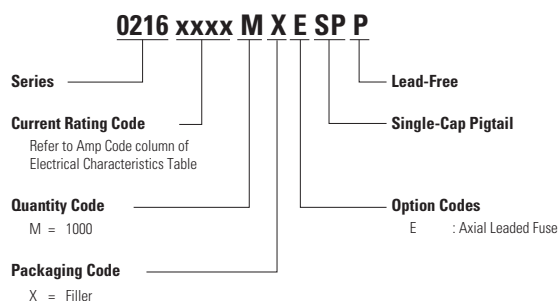
All dimensions in mm



**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 |
|---------------------|-------------------------|----------|----------------|-----------|
| <b>216SP Series</b> |                         |          |                |           |
| Bulk                | N/A                     | 1000     | MXE            | N/A       |