

# 216 Series

## 5×20 mm, Fast-Acting Fuse



### Description

The 216 Series is a 5x20mm, Fast-Acting, ceramic body, cartridge fuse designed to IEC specifications

### Features and Benefits

- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- Meets Standard Sheet 1 of IEC 60127-2 as a Fast-Acting fuse
- Available in cartridge and axial lead form
- RoHS compliant and lead-free
- Conforms to GB 9364.1 and GB 9364.2
- CE Mark indicates compliance with Low-Voltage and RoHS Directives.

### Additional Information



Resources



Accessories



Samples

### Applications

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

### Agency Approvals

| Agency | Agency File Number          | Ampere Range              |
|--------|-----------------------------|---------------------------|
|        | <b>Cartridge 216 Series</b> | 1A-5A                     |
|        | NBK 080205-E10480A          | 6.3A-10A                  |
|        | NBK 250702-E10480E          | 12.5A                     |
|        | NBK 240108-JP1021C          | 16A                       |
|        | NBK 240108-JP1021E          |                           |
|        | <b>Leaded 216E Series</b>   | 1A-5A                     |
|        | NBK 080205-E10480B          | 6.3A-10A                  |
|        | NBK 250702-E10480F          | 12.5A                     |
|        | NBK 240108-JP1021D          | 16A                       |
|        | NBK 240108-JP1021F          |                           |
|        | 2020970207000066            | 0.05A-10A                 |
|        | SU05001-2013                | 1A – 10A                  |
|        | E10480                      | 0.05A – 16A               |
|        | 29862                       |                           |
|        | SE-S-2101461                | 0.05A - 10A, 16A          |
|        | 40013834                    | 0.05A – 6.3A<br>*8A, *10A |
|        | 40016442                    | *12.5A                    |
|        | KM41462                     | 1A – 6.3A                 |
|        | J50248090                   | 8A – 16A                  |
|        | N/A                         | 0.05A – 16A               |

\*Approval for Cartridge versions only

### Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time                    |
|--------------------|---------------|---------------------------------|
| 150%               | 0.05A – 4A    | 60 minutes, Minimum             |
|                    | 5A – 6.3A     | 60 minutes, Minimum             |
|                    | 8A – 16A      | 30 minutes, Minimum             |
| 210%               | 0.05A – 4A    | 30 minutes, Maximum             |
|                    | 5A – 6.3A     | 30 minutes, Maximum             |
|                    | 8A – 16A      | 30 minutes, Maximum             |
| 275%               | 0.05A – 4A    | 0.01 sec., Min.; 2 sec. Max.    |
|                    | 5A – 6.3A     | 0.01 sec., Min.; 3 sec. Max.    |
|                    | 8A – 16A      | 0.04 sec., Min.; 20 sec. Max.   |
| 400%               | 0.05A – 4A    | 0.003 sec., Min.; 0.3 sec. Max. |
|                    | 5A – 6.3A     | 0.003 sec., Min.; 0.3 sec. Max. |
|                    | 8A – 16A      | 0.01 sec., Min.; 1.0 sec. Max.  |
| 1000%              | 0.05A – 4A    | 0.02 seconds, Maximum           |
|                    | 5A – 6.3A     | 0.02 seconds, Maximum           |
|                    | 8A – 16A      | 0.03 seconds, Maximum           |

# 216 Series

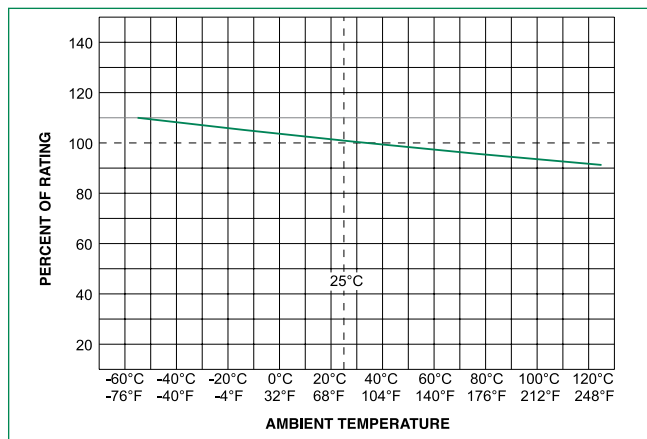
## 5x20 mm, Fast-Acting Fuse

### Electrical Characteristics Specifications by Item

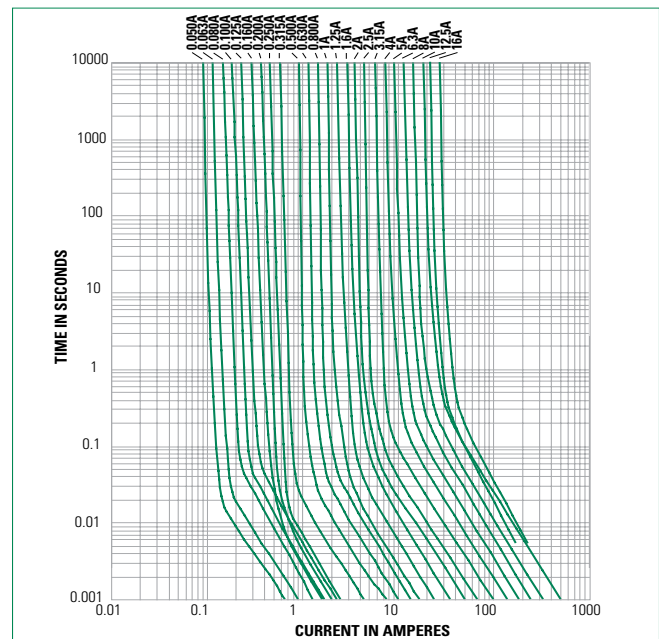
| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating* | Nominal Cold Resistance (Ohms) | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation at 1.5I <sub>n</sub> (W) | Agency Approvals |     |   |      |    |    |    |    |      |     |    |
|----------|----------------|--------------------|----------------------|--------------------------------|---|--|--|------------------|-----|---|------|----|----|----|----|------|-----|----|
|          |                |                    |                      |                                |   |  |  | UL               | CCC | C | RU   | US | SP | S  | CE | OVE  | VDE | UL |
| .050     | 0.05           | 250                | 1500A@250Vac         | 15.9000                        | 0.00019   | 10000                                      | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .063     | 0.063          | 250                |                      | 10.4500                        | 0.00079   | 8800                                       | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .080     | 0.08           | 250                |                      | 7.8850                         | 0.00084   | 7600                                       | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .100     | 0.1            | 250                |                      | 5.7925                         | 0.00450   | 7000                                       | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .125     | 0.125          | 250                |                      | 3.6750                         | 0.00546   | 5000                                       | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .160     | 0.16           | 250                |                      | 5.3490                         | 0.00326   | 4300                                       | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .200     | 0.2            | 250                |                      | 3.3500                         | 0.00439   | 3500                                       | 1.6  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .250     | 0.25           | 250                |                      | 2.3500                         | 0.01350   | 2800                                       | 2.5  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .315     | 0.315          | 250                |                      | 1.8500                         | 0.02320   | 2500                                       | 2.5  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .500     | 0.5            | 250                |                      | 0.8660                         | 0.16500   | 1800                                       | 2.5  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .630     | 0.63           | 250                |                      | 0.4650                         | 0.05940   | 1500                                       | 2.5  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| .800     | 0.8            | 250                |                      | 0.2950                         | 0.14600   | 1200                                       | 2.5  | -                | -   | x | x    | x  | x  | x  | -  | -    | -   |    |
| 001.     | 1              | 250                |                      | 0.2370                         | 0.18000   | 1000                                       | 2.5  | x                | x   | x | x    | x  | x  | x  | -  | -    | x   |    |
| 1.25     | 1.25           | 250                |                      | 0.1530                         | 0.48000   | 800  | 4  | x                | x   | x | x    | x  | x  | x  | -  | -    | x   |    |
| 016.     | 1.6            | 250                |                      | 0.1112                         | 1.00500   | 600  | 4  | x                | x   | x | x    | x  | x  | x  | -  | -    | x   |    |
| 002.     | 2              | 250                |                      | 0.0764                         | 1.87000   | 500  | 4  | x                | 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  | -  | -    | x   |    |
| 3.15     | 3.15           | 250                |                      | 0.0368                         | 6.70000   | 350  | 4  | x                | x   | x | x    | x  | x  | x  | -  | -    | x   |    |
| 004.     | 4              | 250                |                      | 0.0247                         | 14.99500  | 300  | 4  | x                | x   | x | x    | x  | x  | x  | -  | -    | x   |    |
| 005.     | 5              | 250                |                      | 0.0183                         | 27.46000  | 250  | 4  | x                | 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  | -  | -  | x    |     |    |
| 008.     | 8              | 250                | 0.0123               | 64.31500                       | 200   | 4  | -  | x                | x   | x | x    | x  | x  | x* | -  | x    |     |    |
| 010.     | 10             | 250                | 0.0079               | 154.34000                      | 200   | 4  | -  | x                | x   | x | x    | x  | x  | x* | -  | x    |     |    |
| 12.5     | 12.5           | 250                | 0.0057               | 175.00000                      | 200   | N/A**                                      | -  | -                | -   | x | x    | -  | x  | -  | x* | x    |     |    |
| 016.     | 16             | 250                | 750A@250Vac          | 0.0040                         | 462.50000   | 200  | N/A**  | -                | -   | - | x*** | x  | x  | -  | -  | x*** | x   |    |

\* Approval for cartridge versions only.  
 \*\* Please contact Littelfuse for details on these parameters I<sup>2</sup>t test at 10x rated current  
 \*\*\* 1500A@250Vac for 16A  
 \* Interrupting Rating may differ based on Agency Approval. See Agency Approval certificate for more details.

Temperature Re-rating Curve



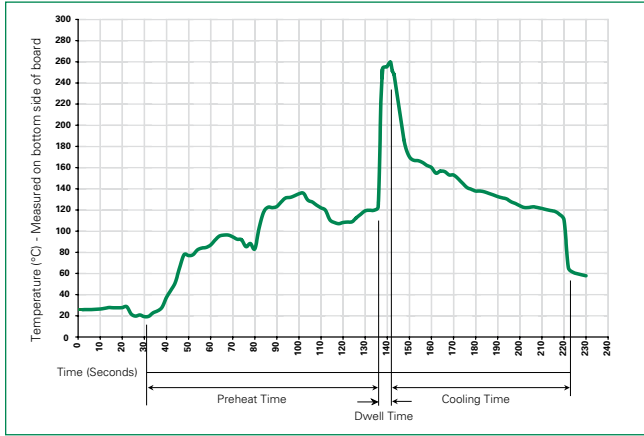
Average Time Current Curves



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## 5×20 mm, Fast-Acting Fuse

### 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.

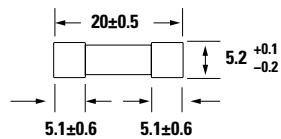
### Product Characteristics

|                          |   |
|--------------------------|---|
| <b>Material</b>          | Body: Ceramic<br>Cap: Nickel-plated brass<br>Leads: Tin-plated Copper<br>Filler (160mA-16A): Sand |
| <b>Terminal Strength</b> | MIL-STD-202, Method 211, Test Condition A   |
| <b>Solderability</b>     | MIL-STD-202 Method 208  |
| <b>Product Marking</b>   | Cap 1: Brand logo, current and voltage rating<br>Cap 2: Agency approval markings                  |
| <b>Packaging</b>         | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)                          |

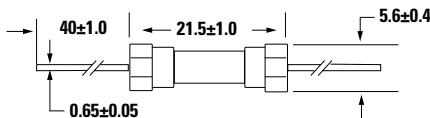
|                              |   |
|------------------------------|---|
| <b>Operating Temperature</b> | -55°C to +125°C   |
| <b>Thermal Shock</b>         | MIL-STD-202, Method 107, Test Condition B: (5 cycles -65°C to +125°C)                                   |
| <b>Vibration</b>             | MIL-STD-202, Method 201   |
| <b>Humidity</b>              | MIL-STD-202, Method 103, Test Condition A. high RH (95%) and elevated temperature (40°C) for 240 hours. |
| <b>Salt Spray</b>            | MIL-STD-202, Method 101, Test Condition B   |

### Dimensions

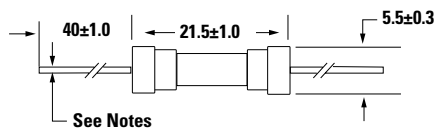
0216 000XP



0216.050XEP  
to  
0216.800XEP



0216001.XEP  
to  
0216016.XEP



All dimensions in mm

### Part Numbering System

0216 xxxx M X E P

Series

Amp Code

Refer to Amp Code column of Electrical Characteristics Table

Quantity Code

M = 1000

Packaging Code

X = Filler

Option Codes

Blank : Cartridge Type Fuse  
E : Axial Leaded Fuse

Lead-free

### Notes:

- 0.05A-6.3A have 0.65±0.05 diameter lead.
- 8A-16A have 0.8±0.05 diameter lead.

# 216 Series

## 5×20 mm, Fast-Acting Fuse

### Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width     |
|-------------------|-------------------------|----------|---------------------------|------------------|
| <b>216 Series</b> |                         |          |                           |                  |
| Bulk              | N/A                     | 1000     | MX                        | N/A              |
| Bulk              | N/A                     | 1000     | MXE                       | N/A              |
| Reel and Tape     | EIA 296-E               | 1000     | MRET1                     | T1=53mm (2.087") |
| Bulk              | N/A                     | 1000     | MXG                       | N/A              |
| Bulk              | N/A                     | 1000     | MXB                       | N/A              |
| Bulk              | N/A                     | 100      | HX                        | N/A              |

### Recommended Accessories

| Accessory Type | Series                  | Description   | Max Application Voltage | Max Application Amperage |
|----------------|-------------------------|---|-------------------------|--------------------------|
| Holder         | <a href="#">345_IFE</a> | Panel Mount Shock-Safe Fuseholder   | 250                     | 10                       |
|                | <a href="#">345</a>     | Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options |                         | 20                       |
|                | <a href="#">830</a>     | PC Mount Shock-Safe Miniature Fuseholder                                  |                         | 16                       |
| Block          | <a href="#">520</a>     | Metric OMNI-BLOK® Fuse Block  |                         | 10                       |
|                | <a href="#">646</a>     | PC Mount Miniature Fuse Block   |                         | 6.3                      |
|                | <a href="#">658</a>     | Surface Mount Miniature Fuse Block  |                         | 10                       |
| Clip           | <a href="#">520_W</a>   | PC Mount Miniature Fuse Clip  |                         | 6.3                      |
|                | <a href="#">111</a>     | PC Board Mount Fuse Clip  |                         | 10                       |
|                | <a href="#">445</a>     | PC Board Mount Fuse Clip  |                         | 10                       |

**Notes:**

- Do not use in applications above rating.
- Please refer to fuseholder data sheet for specific re-rating information.
- Please contact Littelfuse for applications greater than the max voltage and amperage shown.

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