

# Axial Lead & Cartridge Fuses

5×20 mm > Fast-Acting > 217 Series

## 217 Series, 5 × 20 mm, Fast-acting Fuse



### Agency Approvals

| Agency | Agency File Number                                                                                                                  | Ampere Range                                            |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
|        | Cartridge Certificates:<br>NBK090205-E10480A<br>NBK120802-E10480C<br>Leaded Certificates:<br>NBK090205-E10480B<br>NBK120802-E10480D | 1A – 5A<br>6.3A – 15A                                   |
|        | Certificates:<br>2002010207007600                                                                                                   | 32mA – 6.3A                                             |
|        | Certificates:<br>SU05001-3004<br>SU05001-2005<br>SU05001-2006<br>SU05001-2007                                                       | 32mA – 40mA<br>50mA – 315mA<br>400mA – 6.3A<br>8A & 10A |
|        | E10480<br>JDYX2                                                                                                                     | 32mA – 10A                                              |
|        | File:<br>029862<br>Acc. Class:<br>LR1422-30                                                                                         | 32mA – 6.3A                                             |
|        | File:<br>1402480                                                                                                                    | 32mA – 6.3A                                             |
|        | License:<br>40014645                                                                                                                | 32mA – 6.3A,<br>8A*, 10A*                               |
|        | License:<br>40016647                                                                                                                | 15A*                                                    |
|        | License:<br>KM41462                                                                                                                 | 400mA – 6.3A                                            |
|        |                                                                                                                                     | 32mA – 15A                                              |

\*Approval for cartridge versions only

### Description

5×20mm fast-acting glass body cartridge fuse designed to IEC specification.

### Features

- Designed to International (IEC) Standards for use globally
- Meets the IEC 60127-2, Sheet 2 specification for fast-acting fuses
- Available in cartridge and axial lead form
- 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                    |
|--------------------|---------------|---------------------------------|
| 150%               | 32mA–100mA    | 60 minutes, Minimum             |
|                    | 125mA-6.3A    | 60 minutes, Minimum             |
|                    | 8A-15A        | 30 minutes, Minimum             |
| 210%               | 32mA-100mA    | 30 minutes, Maximum             |
|                    | 125mA-6.3A    | 30 minutes, Maximum             |
|                    | 8A-15A        | 30 minutes, Maximum             |
| 275%               | 32mA-100mA    | 0.01 sec., Min.; .5 sec. Max.   |
|                    | 125mA-6.3A    | 0.05 sec., Min.; 2 sec. Max.    |
|                    | 8A-15A        | 0.05 sec., Min.; 2 sec. Max.    |
| 400%               | 32mA-100mA    | .003 sec., Min.; 0.1 sec.. Max. |
|                    | 125mA-6.3A    | .01 sec., Min.; 0.3 sec. Max.   |
|                    | 8A-15A        | .01 sec., Min.; 0.4 sec. Max.   |
| 1000%              | 32mA-100mA    | .02 second, Maximum             |
|                    | 125mA-6.3A    | .02 second, Maximum             |
|                    | 8A-15A        | .04 second, Maximum             |

### Additional Information



Datasheet



Resources



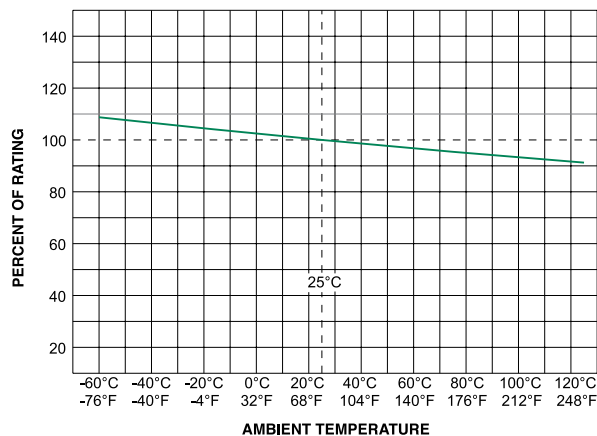
Samples

## Electrical Characteristic Specifications by Item

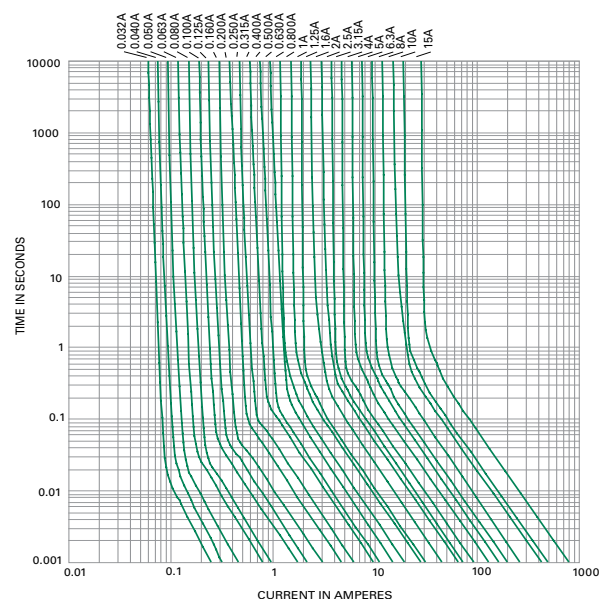
| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation At 1.5I <sub>n</sub> (W) | Agency Approvals                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|----------|----------------|--------------------|---------------------|--------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|          |                |                    |                     |                                |                                                       |                                            |                                                    |  |  |  |  |  |  |  |  |
| .032     | 0.032          | 250                | 35A@250Vac          | 262.2000                       | 0.00006                                               | 10000                                      | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .040     | 0.04           | 250                |                     | 183.1500                       | 0.00008                                               | 8000                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .050     | 0.05           | 250                |                     | 15.2000                        | 0.00019                                               | 7000                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .063     | 0.063          | 250                |                     | 10.4500                        | 0.00056                                               | 5000                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .080     | 0.08           | 250                |                     | 7.8900                         | 0.00083                                               | 4000                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .100     | 0.1            | 250                |                     | 5.6965                         | 0.00450                                               | 3500                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .125     | 0.125          | 250                |                     | 3.8200                         | 0.00478                                               | 2000                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .160     | 0.16           | 250                |                     | 2.5250                         | 0.01000                                               | 2000                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .200     | 0.2            | 250                |                     | 1.7000                         | 0.02000                                               | 1700                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .250     | 0.25           | 250                |                     | 1.2325                         | 0.04000                                               | 1400                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .315     | 0.315          | 250                |                     | 0.8800                         | 0.11000                                               | 1300                                       | 1.6                                                |                                                                                    | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .400     | 0.4            | 250                |                     | 0.2770                         | 0.12500                                               | 1200                                       | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .500     | 0.5            | 250                |                     | 0.2065                         | 0.21500                                               | 1000                                       | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .630     | 0.63           | 250                |                     | 0.1900                         | 0.41000                                               | 650                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .800     | 0.8            | 250                |                     | 0.1203                         | 0.85000                                               | 240                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 001.     | 1              | 250                |                     | 0.0964                         | 1.04500                                               | 200                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 1.25     | 1.25           | 250                |                     | 0.0701                         | 2.23000                                               | 200                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 01.6     | 1.6            | 250                |                     | 0.0528                         | 4.61500                                               | 190                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 002.     | 2              | 250                |                     | 0.0416                         | 5.73000                                               | 170                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 02.5     | 2.5            | 250                |                     | 0.0334                         | 9.46000                                               | 170                                        | 1.6                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 3.15     | 3.15           | 250                |                     | 0.0224                         | 17.72000                                              | 150                                        | 2.5                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 004.     | 4              | 250                | 40A@250Vac          | 0.0165                         | 29.16500                                              | 130                                        | 2.5                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 005.     | 5              | 250                | 50A@250Vac          | 0.0137                         | 42.79500                                              | 130                                        | 2.5                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 06.3     | 6.3            | 250                | 63A@250Vac          | 0.0095                         | 62.46500                                              | 130                                        | 2.5                                                | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 008.     | 8              | 250                | 80A@250Vac          | 0.0068                         | 198.16000                                             | 130                                        | 4                                                  |                                                                                    | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x*                                                                                  |
| 010.     | 10             | 250                | 100A@250Vac         | 0.0063                         | 217.63500                                             | 130                                        | 4                                                  |                                                                                    | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x*                                                                                  |
| 015.     | 15             | 250                | 150A@250Vac         | 0.0040                         | 607.13500                                             | 130                                        | 4                                                  |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |                                                                                     |                                                                                     | x                                                                                   | x*                                                                                  |

\* Approval for cartridge versions only.

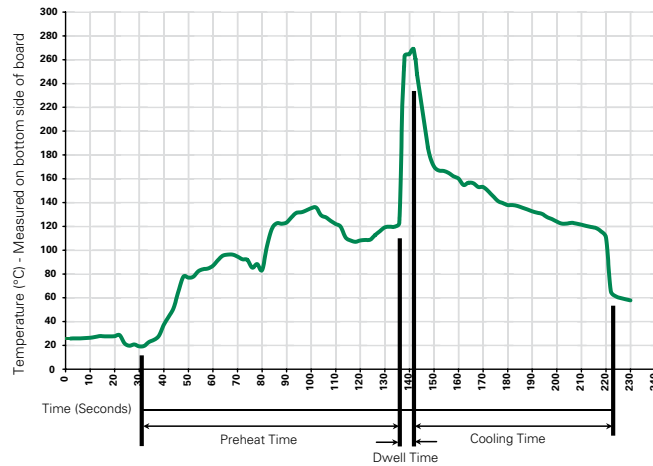
## Temperature Re-rating Curve



## Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter                           | Lead-Free Recommendation          |
|------------------------------------------|-----------------------------------|
| <b>Preheat:</b>                          |                                   |
| (Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum:                     | 100° C                            |
| Temperature Maximum:                     | 150° C                            |
| Preheat Time:                            | 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.

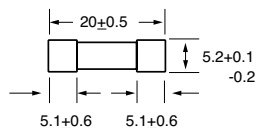
### Product Characteristics

|                          |                                                                              |
|--------------------------|------------------------------------------------------------------------------|
| <b>Material</b>          | Body: Glass<br>Cap: Nickel-plated brass<br>Leads: Tin-plated Copper          |
| <b>Terminal Strength</b> | MIL-STD-202G, Method 211A, Test Condition A                                  |
| <b>Solderability</b>     | Reference IEC 60127 Second Edition 2003-01 Annex A                           |
| <b>Product Marking</b>   | Cap1: Brand logo, current and voltage ratings<br>Cap2: Agency approval marks |
| <b>Packaging</b>         | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)     |

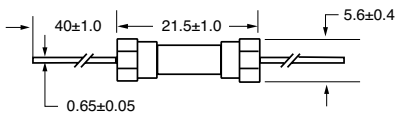
|                              |                                                                                                           |
|------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature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

## Dimensions

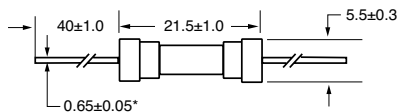
0217 000P



0217.032 XEP  
to  
0217.315 XEP



0217.400 XEP  
to  
0217015 XEP

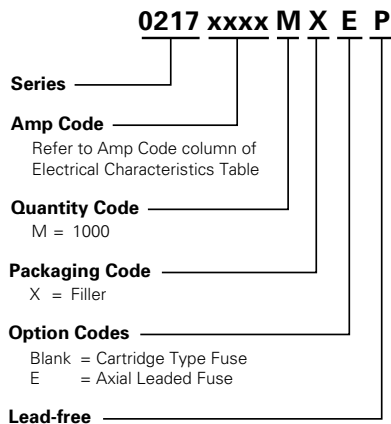


All dimensions in mm

Notes:

\* Ratings above 6.3A have 0.8±0.05 diameter lead.

## Part Numbering System



## Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width     |
|-------------------|-------------------------|----------|---------------------------|------------------|
| <b>217 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              |

# Mouser Electronics

Authorized Distributor

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## Littelfuse:

[021702.5MRET1P](#) [0217.050MXEP](#) [0217.630MXEP](#) [0217.100HXP](#) [0217.500MXP](#) [0217.100MXEP](#) [0217.125MXP](#)  
[0217.250HXP](#) [0217.063HXP](#) [0217.800MXP](#) [0217.250MXEP](#) [0217002.MXEP](#) [0217.400MXP](#) [0217004.MXEP](#)  
[021701.6MXP](#) [0217.200HXP](#) [0217.032MXP](#) [0217.315MXP](#) [0217.160HXP](#) [021701.6MXEP](#) [0217.400HXP](#)  
[0217.500HXP](#) [021706.3MXP](#) [0217.125HXP](#) [0217.630HXP](#) [0217004.HXP](#) [021702.5HXP](#) [0217.080MXEP](#)  
[0217.125MXEP](#) [02173.15MXEP](#) [0217.315HXP](#) [0217.315MXEP](#) [0217.630MXP](#) [0217002.MXP](#) [0217.200MXEP](#)  
[021702.5MXEP](#) [0217005.MXEP](#) [02171.25MXP](#) [0217.050HXP](#) [0217.100MXP](#) [0217.500MXEP](#) [0217.100MRET1P](#)  
[0217.080MXP](#) [0217.800HXP](#) [0217.063MXP](#) [0217004.MXP](#) [02173.15HXP](#) [0217.800MXEP](#) [02171.25HXP](#)  
[0217001.MXP](#) [0217.160MXP](#) [0217.032HXP](#) [0217005.MXP](#) [0217005.HXP](#) [021702.5MXP](#) [021701.6HXP](#)  
[0217.050MXP](#) [021706.3MXEP](#) [02173.15MXP](#) [0217002.HXP](#) [0217001.HXP](#) [0217001.MXEP](#) [021706.3HXP](#)  
[0217.250MXP](#) [0217.063MXEP](#) [0217.160MXEP](#) [02171.25MXEP](#) [0217.400MXEP](#) [0217.080HXP](#) [0217.200MXP](#)  
[0217.032MXEP](#) [0217.630MRET1P](#) [0217002.MRET1P](#) [0217004.MRET1P](#) [0217.500MRET1P](#) [0217.315MRET1P](#)  
[02171.25MRET1P](#) [02173.15MRET1P](#) [0217.050MRET1P](#) [0217.080MRET1P](#) [0217.160MRET1P](#) [0217.400MRET1P](#)  
[0217.800MRET1P](#) [0217.125MRET1P](#) [0217.200MRET1P](#) [0217.250MRET1P](#) [021706.3MRET1P](#) [0217005.MRET1P](#)  
[021701.6MXBP](#) [021701.6MRET1P](#) [0217.063MRET1P](#) [0217.032MRET1P](#) [0217001.MRET1P](#) [0217.500TXP](#)  
[0217.200TXP](#) [021706.3TXP](#) [0217.250TXP](#) [0217002.XBP](#) [0217.080MXBP](#) [0217002.TXP](#)