

# Axial Lead & Cartridge Fuses

5×20 mm > Time-Lag > 218 Series

## 218 Series, 5×20 mm, Time-Lag Fuse



### Agency Approvals

| Agency | Agency File Number                                                                                        | Ampere Range                                   |
|--------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------|
|        | Cartridge:<br>NBK090205-E10480A<br>NBK120802-E10480C<br>Leaded:<br>NBK090205-E10480B<br>NBK120802-E10480D | 1A – 5A<br>6.3A – 15A                          |
|        | 2005010207145715                                                                                          | 0.032A – 6.3A                                  |
|        | SU05001-3005<br>SU05001-2008<br>SU05001-2009                                                              | 0.032A – 0.040A<br>0.050A – 0.800A<br>1A – 10A |
|        | E10480                                                                                                    | 0.032A – 16A                                   |
|        | 29862                                                                                                     | 0.032A-10A;15A                                 |
|        | 1402476                                                                                                   | 0.032A – 6.3A                                  |
|        | 40013496                                                                                                  | 0.032A – 10A                                   |
|        | 40016604                                                                                                  | 15A*                                           |
|        | KM41462                                                                                                   | 0.080A – 6.3A                                  |
|        | N/A                                                                                                       | 0.032A – 16A                                   |

\* Approval for Cartridge versions only

### Description

5×20mm Time-Lag glass body cartridge fuse designed to IEC specification.

### Features

- Designed to International (IEC) Standards for use globally
- Meets the IEC 60127-2, Sheet 3 specification for Time-Lag 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.

### Additional Information



Datasheet



Resources



Samples

### Electrical Characteristics

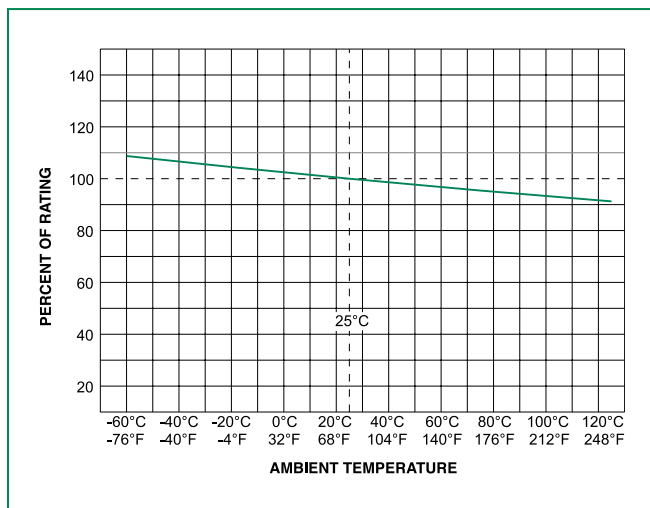
| % of Ampere Rating | Ampere Rating | Opening Time                |
|--------------------|---------------|-----------------------------|
| 150%               | 0.032A–0.100A | 60 minutes, Minimum         |
|                    | 0.125A-6.3A   | 60 minutes, Minimum         |
|                    | 8A-15A        | 30 minutes, Minimum         |
| 210%               | 0.032A-0.100A | 120 sec., Maximum           |
|                    | 0.125A-6.3A   | 120 sec., Maximum           |
|                    | 8A-16A        | 120 sec., Maximum           |
| 275%               | 0.032A-0.100A | 200 ms., Min.; 10 sec. Max. |
|                    | 0.125A-6.3A   | 600 ms., Min.; 10 sec. Max. |
|                    | 8A-16A        | 600 ms., Min.; 10 sec. Max. |
| 400%               | 0.032A-0.100A | 40 ms., Min.; 3 sec. Max.   |
|                    | 0.125A-6.3A   | 150 ms., Min.; 3 sec. Max.  |
|                    | 8A-15A        | 150 ms., Min.; 3 sec. Max.  |
| 1000%              | 0.032A-0.100A | 10 ms., Min.; 300 ms. Max.  |
|                    | 0.125A-6.3A   | 20 ms., Min.; 300 ms. Max.  |
|                    | 8A-15A        | 20 ms., Min.; 300 ms. Max.  |

## Electrical Characteristics

| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting I²t (A² sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation At 1.5In(W) | Agency Approvals                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|----------|----------------|--------------------|---------------------|--------------------------------|------------------------------|--------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|          |                |                    |                     |                                |                              |                                            |                                       |  |  |  |  |  |  |  |  |  |
| .032     | 0.032          | 250                | 35 A @ 250 VAC      | 48.2580                        | 0.01100                      | 5000                                       | 1.6                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .040     | 0.04           | 250                |                     | 31.8620                        | 0.01100                      | 4000                                       | 1.6                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .050     | 0.05           | 250                |                     | 21.2920                        | 0.02700                      | 3500                                       | 1.6                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .063     | 0.063          | 250                |                     | 14.2680                        | 0.04600                      | 3000                                       | 1.6                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .080     | 0.08           | 250                |                     | 9.0700                         | 0.07500                      | 2500                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .100     | 0.1            | 250                |                     | 6.0180                         | 0.07900                      | 2000                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .125     | 0.125          | 250                |                     | 4.2000                         | 0.1465                       | 1900                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .160     | 0.16           | 250                |                     | 3.7000                         | 0.14400                      | 1500                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .200     | 0.2            | 250                |                     | 1.6000                         | 0.3410                       | 1300                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .250     | 0.25           | 250                |                     | 1.0495                         | 0.5405                       | 1100                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .315     | 0.315          | 250                |                     | 0.8475                         | 1.1100                       | 1000                                       | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .400     | 0.4            | 250                |                     | 0.5350                         | 1.3250                       | 900                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .500     | 0.5            | 250                |                     | 0.3700                         | 2.8250                       | 300                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .630     | 0.63           | 250                |                     | 0.2750                         | 4.6750                       | 250                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .800     | 0.8            | 250                |                     | 0.0813                         | 3.370                        | 150                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 001.     | 1              | 250                |                     | 0.0613                         | 6.730                        | 150                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 1.25     | 1.25           | 250                |                     | 0.0446                         | 12.650                       | 150                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 01.6     | 1.6            | 250                |                     | 0.0336                         | 23.350                       | 150                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 002.     | 2              | 250                |                     | 0.0293                         | 14.450                       | 150                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 02.5     | 2.5            | 250                |                     | 0.0219                         | 23.250                       | 120                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 3.15     | 3.15           | 250                |                     | 0.0173                         | 38.150                       | 100                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 004.     | 4              | 250                | 40 A @ 250 VAC      | 0.0129                         | 69.10                        | 100                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 005.     | 5              | 250                | 50 A @ 250 VAC      | 0.0104                         | 111.00                       | 100                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 06.3     | 6.3            | 250                | 63 A @ 250 VAC      | 0.0076                         | 198.50                       | 100                                        | 1.6                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 008.     | 8              | 250                | 80 A @ 250 VAC      | 0.0059                         | 341.50                       | 100                                        | 4                                     |                                                                                     | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   |
| 010.     | 10             | 250                | 100 A @ 250 VAC     | 0.0045                         | 568.00                       | 100                                        | 4                                     |                                                                                     | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x                                                                                   |
| 12.5     | 12.5           | 250                | 63 A @ 250 VAC      | 0.0034                         | 889.00                       | 100                                        | 4                                     |                                                                                     |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     |                                                                                     | x                                                                                   |                                                                                     |
| 015.     | 15             | 250                | 100 A @ 250 VAC     | 0.0028                         | 1405.00                      | 100                                        | 4                                     |                                                                                     |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   | x*                                                                                  |
| 016.     | 16             | 250                | 63 A @ 250 VAC      | 0.0021                         | 1955.00                      | 100                                        | 4                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | x                                                                                   |                                                                                     |                                                                                     | x                                                                                   |                                                                                     |

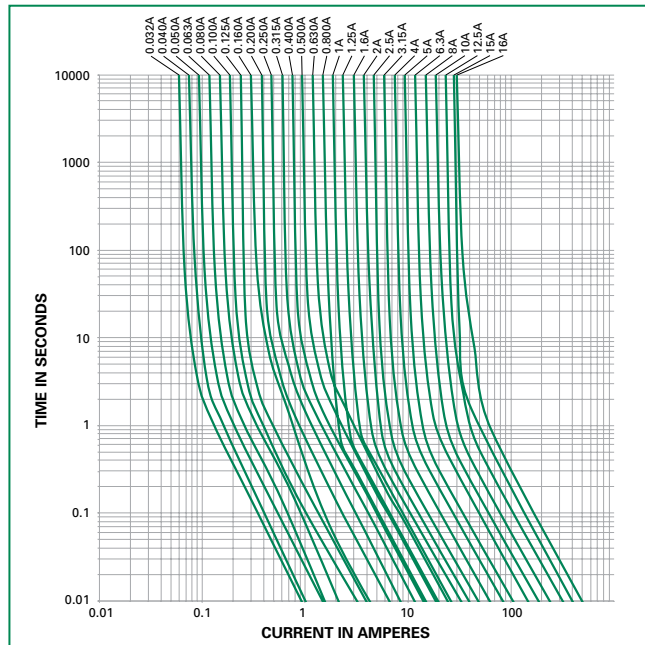
\* Approval for cartridge versions only

## Temperature Re-rating Curve

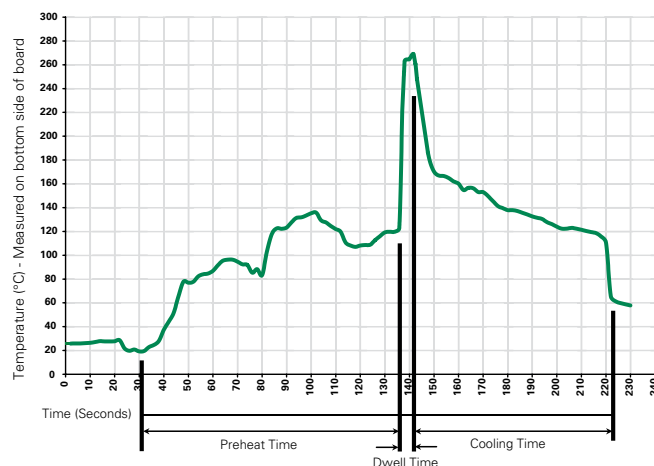


Note:  
Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

## 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) |
| 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.

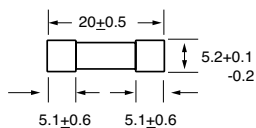
### Product Characteristics

|                          |                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------|
| <b>Material</b>          | <b>Body:</b> Glass<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>Cap1:</b> Brand logo, current and voltage ratings<br><b>Cap2:</b> Agency approval marks |
| <b>Packaging</b>         | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)                   |

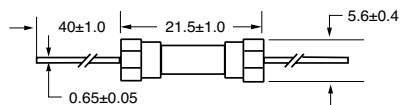
|                              |                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b> | -55°C to +125°C                                                                                         |
| <b>Thermal Shock</b>         | MIL-STD-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

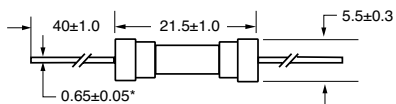
**0218 000P**



**0218.032 XEP  
to  
0218.100XEP**



**0218.125 XEP  
to  
0218016. XEP**

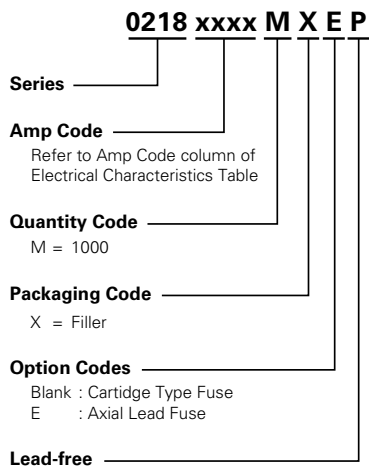


All dimensions in mm

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>218 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              |