

### RoHS **217 Series, 5 x 20 mm, Fast-acting Fuse**



#### Agency Approvals

| Agency                                                                              | Agency File Number                                                                              | Ampere Range                                            |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------|
|    | Cartridge Certificates:<br>NBK120802-E10480 A&C<br>Leaded Certificates:<br>NBK120802-E10480 B&D | 1A – 5A<br>6.3A – 15A<br>1A – 5A<br>6.3A – 15A          |
|    | Certificates:<br>2002010207007600<br>2002010207007599                                           | 32mA – 800mA<br>1A – 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 – 6.3A                                             |
|  | File:<br>029862<br>Acc. Class:<br>LR1422-30                                                     |                                                         |
|  | License:<br>KM41462                                                                             | 400mA – 6.3A                                            |
|  | File:<br>948103, 915516,<br>304518 & 304555                                                     | 32mA – 6.3A                                             |
|  | License:<br>40014645                                                                            | 32mA – 6.3A,<br>8A*, 10A*                               |
|  | License:<br>40016647                                                                            | 15A*                                                    |
|  |                                                                                                 | 32mA – 15A                                              |

\*Approval for cartridge versions only

#### Description

5x20mm 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

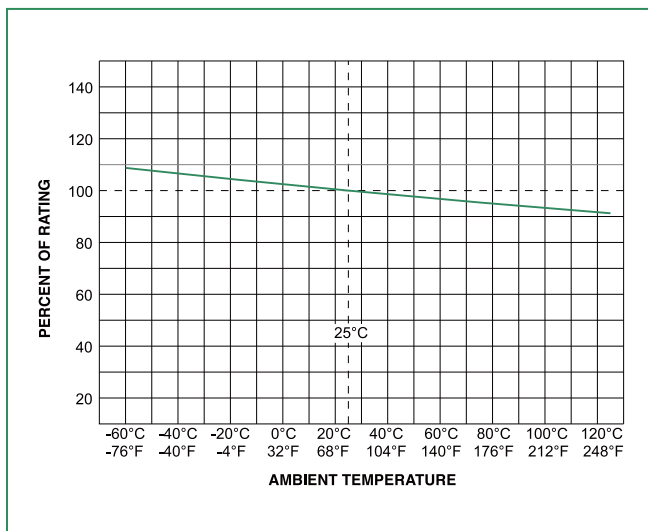
| % of Ampere Rating | Ampere Rating | Opening Time                    |
|--------------------|---------------|---------------------------------|
| 150%               | 32mA–100mA    | 60 minutes, Minimum             |
|                    | 125mA-6.3A    | 60 minutes, Minimum             |
|                    | 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             |

### 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) | Nominal Voltage Drop at Rated Current (mV) | Nominal Power Dissipation At Rated Current (W) | Agency Approvals |     |    |    |    |   |    |     |    |  |
|----------|----------------|--------------------|---------------------|--------------------------------|-------------------------------------------------------|--------------------------------------------|------------------------------------------------|------------------|-----|----|----|----|---|----|-----|----|--|
|          |                |                    |                     |                                |                                                       |                                            |                                                | UL               | CCC | PS | RU | SP | S | CE | D'E | UL |  |
| .032     | 0.032          | 250                | 35A@250Vac          | 262.2000                       | 0.00006                                               | 10000                                      | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .040     | 0.04           | 250                |                     | 183.1500                       | 0.00008                                               | 8000                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .050     | 0.05           | 250                |                     | 15.2000                        | 0.00019                                               | 7000                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .063     | 0.063          | 250                |                     | 10.4500                        | 0.00056                                               | 5000                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .080     | 0.08           | 250                |                     | 7.8900                         | 0.00083                                               | 4000                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .100     | 0.1            | 250                |                     | 5.6965                         | 0.00450                                               | 3500                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .125     | 0.125          | 250                |                     | 3.8200                         | 0.00478                                               | 2000                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .160     | 0.16           | 250                |                     | 2.5250                         | 0.01000                                               | 2000                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .200     | 0.2            | 250                |                     | 1.7000                         | 0.02000                                               | 1700                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .250     | 0.25           | 250                |                     | 1.2325                         | 0.04000                                               | 1400                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .315     | 0.315          | 250                |                     | 0.8800                         | 0.11000                                               | 1300                                       | 1.6                                            | x                | x   |    | x  | x  | x | x  | x   |    |  |
| .400     | 0.4            | 250                |                     | 0.2770                         | 0.12500                                               | 1200                                       | 1.6                                            | x                | 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   | x  |  |
| .630     | 0.63           | 250                |                     | 0.1900                         | 0.41000                                               | 650                                        | 1.6                                            | x                | 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   | x  |  |
| 001.     | 1              | 250                |                     | 0.0964                         | 1.04500                                               | 200                                        | 1.6                                            | x                | 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   | x  |  |
| 016      | 1.6            | 250                |                     | 0.0528                         | 4.61500                                               | 190                                        | 1.6                                            | x                | 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   | x  |  |
| 02.5     | 2.5            | 250                |                     | 0.0334                         | 9.46000                                               | 170                                        | 1.6                                            | x                | 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   | x  |  |
| 004.     | 4              | 250                | 40A@250Vac          | 0.0165                         | 29.16500                                              | 130                                        | 2.5                                            | x                | 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   | x  |  |
| 06.3     | 6.3            | 250                | 63A@250Vac          | 0.0095                         | 62.46500                                              | 130                                        | 2.5                                            | x                | x   | x  | x  | x  | x | x  | x   | x  |  |
| 008.     | 8              | 250                | 80A@250Vac          | 0.0068                         | 198.16000                                             | 130                                        | 4                                              | x                |     | x  |    |    |   | x  | x*  |    |  |
| 010.     | 10             | 250                | 100A@250Vac         | 0.0063                         | 217.63500                                             | 130                                        | 4                                              | x                |     | x  |    |    |   | x  | x*  |    |  |
| 015.     | 15             | 250                | 150A@250Vac         | 0.0040                         | 607.13500                                             | 130                                        | 4                                              |                  |     | x  |    |    |   | x  | x*  |    |  |

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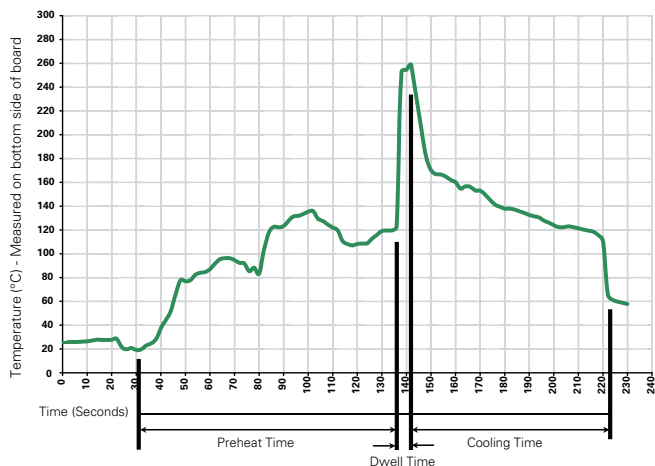
### Temperature Derating Curve



### Average Time Current Curves



## Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter                                                                                | Lead-Free Recommendation |
|-----------------------------------------------------------------------------------------------|--------------------------|
| <b>Preheat:</b><br>(Depends on Flux Activation Temperature) (Typical Industry Recommendation) |                          |
| 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 mm dia lead

Part Numbering System



Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width     |
|------------------|-------------------------|----------|---------------------------|------------------|
| Bulk             | N/A                     | 1000     | MX                        | N/A              |
| Bulk             | N/A                     | 1000     | MXE                       | N/A              |
| Reel and Tape    | EIA 296-E               | 1000     | MRET1                     | T1=52mm (2.062") |