

# Axial Lead & Cartridge Fuses

5×20 mm > Time-Lag > 213 Series

## 213 Series, 5×20 mm, Time-Lag Fuse



### Description

5×20mm time-Lag surge withstand glass body cartridge fuse designed to IEC specification.

### Features

- Designed to International (IEC) Standards for use globally
- Available in cartridge and axial lead form
- Meets the IEC 60127-2, Sheet 3 specification for time-Lag fuses
- RoHS compliant and lead-free.

### Applications

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

### Agency Approvals

| Agency | Agency File Number                                                                                  | Ampere Range                   |
|--------|-----------------------------------------------------------------------------------------------------|--------------------------------|
|        | Cartridge: NBK090205-E10480A<br>NBK120802-E10480C<br>Leaded: NBK090205-E10480B<br>NBK120802-E10480D | 1A-5A<br>6.3A<br>1A-5A<br>6.3A |
|        | 2003010207045592                                                                                    | 0.200A – 6.3A                  |
|        | E10480                                                                                              | 0.200A – 6.3A                  |
|        | 029862                                                                                              |                                |
|        | 1403414                                                                                             |                                |
|        | 40015638                                                                                            |                                |
|        | KM41462                                                                                             | 0.200A – 6.3A                  |
|        | SU05001-12002<br>SU05001-12001                                                                      | 3.15A-5A<br>6.3A               |
|        | N/A                                                                                                 | 0.200A – 6.3A                  |

### Electrical Characteristic for Series

| % of Ampere Rating | Ampere Rating | Opening Time                   |
|--------------------|---------------|--------------------------------|
| 150%               | All Ratings   | 60 minutes, Minimum            |
| 210%               |               | 2 minutes, Maximum             |
| 275%               |               | 0.6 sec., Min.; 10 sec. Max.   |
| 400%               |               | .15 sec., Min.; 3 sec. Max.    |
| 1000%              |               | 0.02 sec., Min.; 0.3 sec. Max. |

### Additional Information



Datasheet



Resources

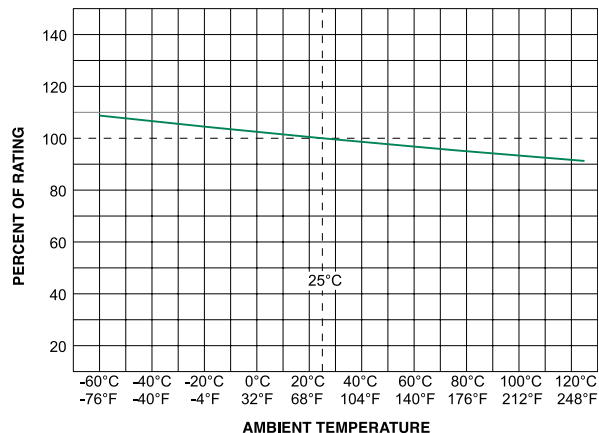


Samples

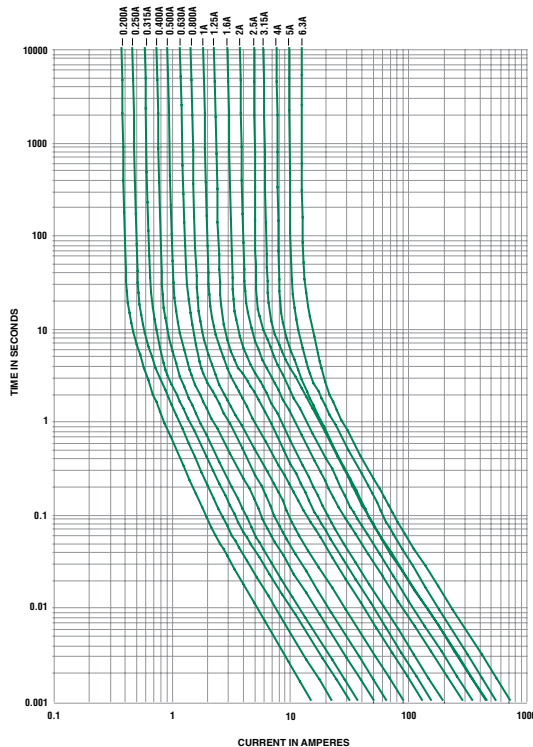
### Electrical Characteristic Specifications by Item

| Amp Code | Ampere Rating | 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                                                                      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|----------|---------------|--------------------|---------------------|--------------------------------|------------------------------|--------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|          |               |                    |                     |                                |                              |                                            |                                        |  |  |  |  |  |  |  |  |  |
| .200     | 0.2           | 250                | 35A@250Vac          | 1.6000                         | 0.22500                      | 1500                                       | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     |
| .250     | 0.25          | 250                |                     | 1.0495                         | 0.55500                      | 1300                                       | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     |
| .315     | 0.315         | 250                |                     | 0.8475                         | 1.14000                      | 1100                                       | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| .400     | 0.4           | 250                |                     | 0.5350                         | 1.36000                      | 1000                                       | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| .500     | 0.5           | 250                |                     | 0.3700                         | 2.90500                      | 900                                        | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| .630     | 0.63          | 250                |                     | 0.2750                         | 4.80000                      | 300                                        | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| .800     | 0.8           | 250                |                     | 0.1635                         | 9.42000                      | 250                                        | 1.6                                    | x                                                                                     | x                                                                                     |                                                                                       | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 001.     | 1             | 250                |                     | 0.1165                         | 19.20000                     | 150                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 1.25     | 1.25          | 250                |                     | 0.0817                         | 27.15000                     | 150                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 01.6     | 1.6           | 250                |                     | 0.0551                         | 44.20000                     | 150                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 002.     | 2             | 250                |                     | 0.0452                         | 92.70500                     | 150                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 02.5     | 2.5           | 250                |                     | 0.0305                         | 138.00000                    | 120                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 3.15     | 3.15          | 250                |                     | 0.0231                         | 202.00000                    | 100                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |
| 004.     | 4             | 250                | 40A@250Vac          | 0.0170                         | 226.50500                    | 100                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |                                                                                       |
| 005.     | 5             | 250                | 50A@250Vac          | 0.0116                         | 314.00000                    | 100                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |                                                                                       |
| 06.3     | 6.3           | 250                | 63A@250Vac          | 0.0095                         | 600.00000                    | 100                                        | 1.6                                    | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     | x                                                                                     |                                                                                       |

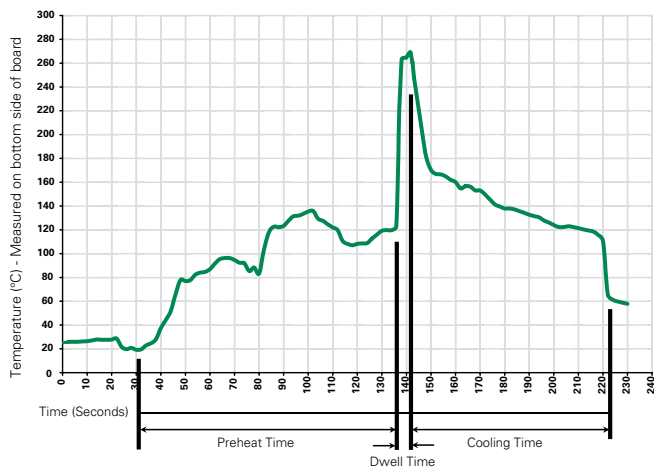
## Temperature Re-rating Curve



## Average Time Current Curves



## Soldering Parameters - Wave Soldering



## Recommended Process Parameters:

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

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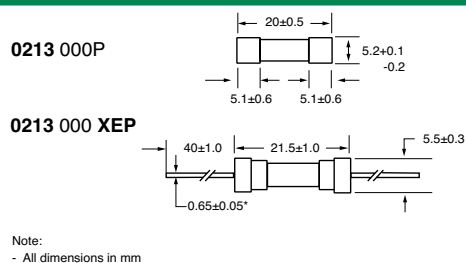
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## Product Characteristics

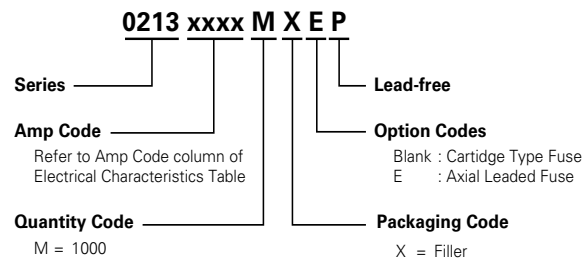
|                          |                                                                             |
|--------------------------|-----------------------------------------------------------------------------|
| <b>Material</b>          | Body: Glass<br>Cap: Nickel-plated brass<br>Leads: Tin-plated 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>   | Cap1: Brand logo, current and voltage<br>Cap2: Agency approval marks Series |
| <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



## Part Numbering System



## Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width     |
|-------------------|-------------------------|----------|---------------------------|------------------|
| <b>213 Series</b> |                         |          |                           |                  |
| Bulk              | N/A                     | 1000     | MX                        | N/A              |
| Bulk              | N/A                     | 1000     | MXE                       | N/A              |
| Reel and Tape     | N/A                     | 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              |

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