

### 239 Series, 5×20 mm, Slo-Blo® Fuse



#### Description

5×20mm Slo-Blo® glass body cartridge fuse designed to UL specification.

#### Features

- Designed to UL/CSA/ANCE 248-1 and 248-14 Standards
- RoHS compliant and lead-free
- Available in cartridge and axial lead format

#### 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:<br>NBK030609-JP1021A<br>NBK190609-JP1021A<br>NBK030609-JP1021B | 1A – 3.5A<br>4A – 5A<br>7A |
|        | Leaded:<br>NBK030609-JP1021C<br>NBK190609-JP1021B<br>NBK030609-JP1021D    | 1A – 3.5A<br>4A – 5A<br>7A |
|        | SU05001 – 2004A<br>SU05001 – 2014A                                        | 0.200A – 3.15A<br>4A – 7A  |
|        | E10480                                                                    | 0.080A – 7A                |
|        |                                                                           |                            |
|        | 29862                                                                     | 0.200A – 3.15A<br>4A – 7A  |
|        | N/A                                                                       | 0.080A – 7A                |

#### Electrical Characteristics for Series

| % of Ampere Rating | Ampere Ratings | Opening Time       |
|--------------------|----------------|--------------------|
| 100%               | All Ratings    | 4 hours, Minimum   |
| 135%               |                | 1 hour, Maximum    |
| 200%               |                | 2 minutes, Maximum |

#### Additional Information



**Datasheet**



**Samples**



**Resources**



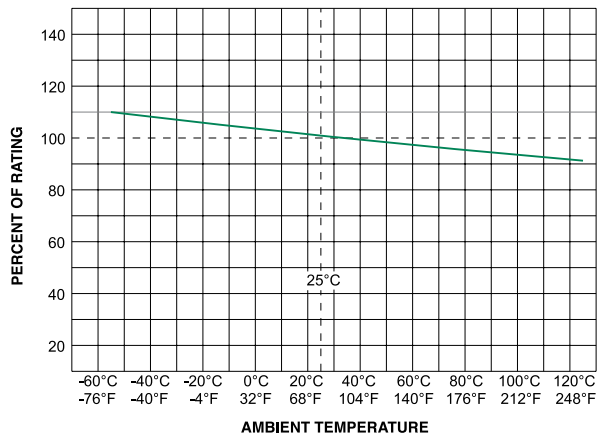
**Accessories**

For recommended fuse accessories for this product series, see '[Recommended Accessories](#)' section.

### Electrical Characteristic Specification by Item

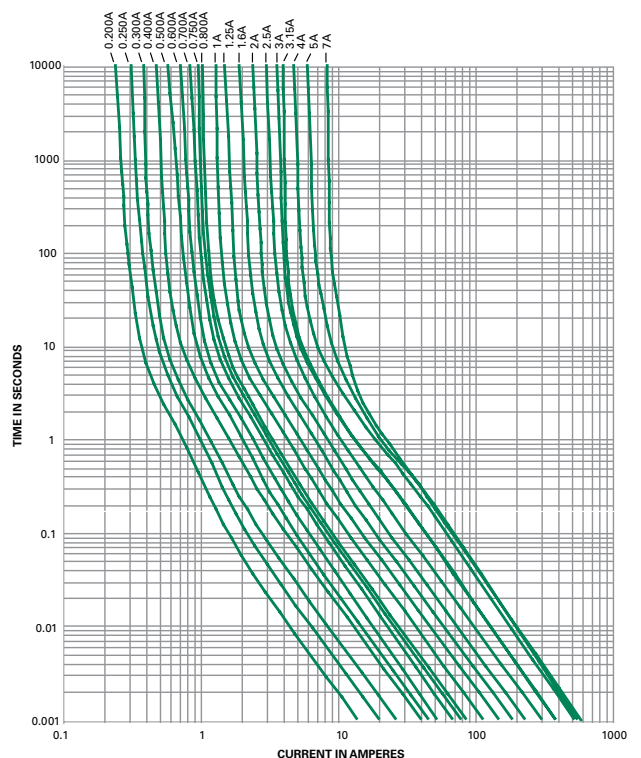
| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating              | Nominal Cold Resistance (Ohms) | Nominal Melting I²t (A² sec) | Agency Approvals |    |    |    |    |
|----------|----------------|--------------------|----------------------------------|--------------------------------|------------------------------|------------------|----|----|----|----|
|          |                |                    |                                  |                                |                              | UL               | SA | PS | CE | CE |
| .080     | 0.08           | 250                | 35A @ 250 VAC<br>10kA @ 125 VAC  | 28.1750                        | 0.02500                      | x                |    |    |    | x  |
| .100     | 0.1            | 250                |                                  | 17.3425                        | 0.05500                      | x                |    |    |    | x  |
| .125     | 0.125          | 250                |                                  | 11.6000                        | 0.08500                      | x                |    |    |    | x  |
| .150     | 0.15           | 250                |                                  | 8.1000                         | 0.13000                      | x                |    |    |    | x  |
| .200     | 0.2            | 250                |                                  | 3.8725                         | 0.16500                      | x                | x  |    | x  | x  |
| .250     | 0.25           | 250                |                                  | 3.0700                         | 0.34000                      | x                | x  |    | x  | x  |
| .300     | 0.3            | 250                |                                  | 2.3000                         | 0.61500                      | x                | x  |    | x  | x  |
| .400     | 0.4            | 250                |                                  | 1.4750                         | 2.02000                      | x                | x  |    | x  | x  |
| .500     | 0.5            | 250                |                                  | 0.9090                         | 1.98500                      | x                | x  |    | x  | x  |
| .600     | 0.6            | 250                |                                  | 0.6990                         | 2.41500                      | x                | x  |    | x  | x  |
| .700     | 0.7            | 250                |                                  | 0.5375                         | 4.12000                      | x                | x  |    | x  | x  |
| .750     | 0.75           | 250                |                                  | 0.4710                         | 5.42500                      | x                | x  |    | x  | x  |
| .800     | 0.8            | 250                |                                  | 0.4155                         | 7.56500                      | x                | x  |    | x  | x  |
| 001.     | 1              | 250                |                                  | 0.2965                         | 11.29500                     | x                | x  | x  | x  | x  |
| 1.25     | 1.25           | 250                |                                  | 0.1980                         | 19.52500                     | x                | x  | x  | x  | x  |
| 016      | 1.6            | 250                | 10kA @ 125 VAC<br>100A @ 250 VAC | 0.1205                         | 30.43000                     | x                | x  | x  | x  | x  |
| 002.     | 2              | 250                |                                  | 0.0943                         | 50.58500                     | x                | x  | x  | x  | x  |
| 02.5     | 2.5            | 250                |                                  | 0.0583                         | 79.70500                     | x                | x  | x  | x  | x  |
| 003.     | 3              | 250                |                                  | 0.04877                        | 129.51000                    | x                | x  | x  | x  | x  |
| 3.15     | 3.15           | 250                |                                  | 0.0414                         | 128.05000                    | x                | x  | x  | x  | x  |
| 03.2     | 3.2            | 250                |                                  | 0.0385                         | 128.05000                    | x                |    | x  |    | x  |
| 03.5     | 3.5            | 250                |                                  | 0.0370                         | 128.05000                    | x                |    | x  |    | x  |
| 004.     | 4              | 125                | 10kA @ 125 VAC                   | 0.0312                         | 270.703                      | x                | x  | x  | x  | x  |
| 005.     | 5              | 125                |                                  | 0.0199                         | 302.836                      | x                | x  | x  | x  | x  |
| 007.     | 7              | 125                |                                  | 0.0114                         | 305.758                      | x                | x  | x  | x  | x  |

### Temperature Re-rating Curve

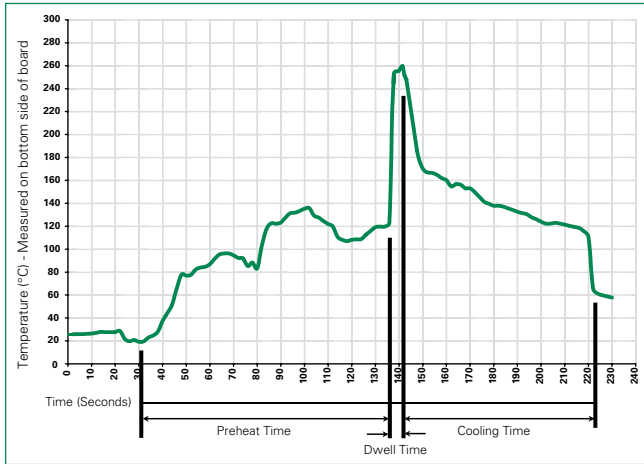


**Note:**  
Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

### Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter                                    | Lead-Free Recommendation          |
|---------------------------------------------------|-----------------------------------|
| Preheat: (Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum:                              | 100°C                             |
| Temperature Maximum:                              | 150°C                             |
| Preheat Time:                                     | 60-180 seconds                    |
| Solder Pot Temperature:                           | 260°C Maximum                     |
| Solder Dwell Time:                                | 2-5 seconds                       |

### Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350°C +/- 5°C

Heating Time: 5 seconds max.

**Note: These devices are not recommended for IR or Convection Reflow process.**

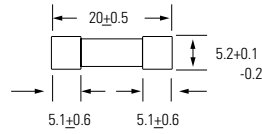
### Product Characteristics

|                          |                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------|
| <b>Materials</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>   | Cap 1: Brand logo, current and voltage rating<br>Cap 2: Series and agency approval markings |

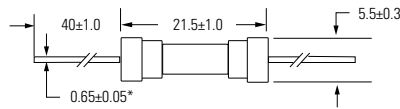
|                              |                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b> | -55°C 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 temp (40°C) for 240 hours |
| <b>Salt Spray</b>            | MIL-STD-202, Method 101, Test Condition B                                                       |

### Dimensions

0239 000P



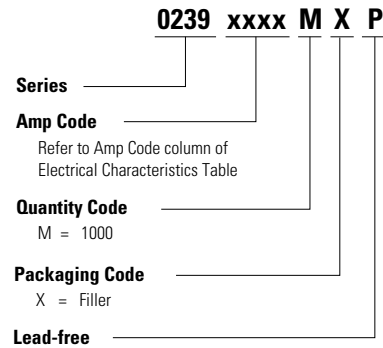
0239 000XEP



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

All dimensions in mm

### Part Numbering System



### Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width     |
|-------------------|-------------------------|----------|---------------------------|------------------|
| <b>239 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=52mm (2.062") |
| Bulk              | N/A                     | 1000     | MXB                       | N/A              |
| Bulk              | N/A                     | 100      | HX                        | N/A              |
| Bulk              | N/A                     | 100      | HXE                       | N/A              |

### Recommended Accessories

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

**Notes:**  
1. Do not use in applications above rating.  
2. Please refer to fuseholder data sheet for specific re-rating information.  
3. Please contact factory for applications greater than the max voltage and amperage shown.