

### 232 Series, 5x20 mm, Medium-Acting Fuse



#### Description

The 232 Series Fuse is a 5x20mm, medium-acting, glass body cartridge fuse. It is specifically designed to meet the requirements of Appendix 3 of DENAN Technical Requirements & Enforcement Regulations (METI).

#### Features

- Available in cartridge and axial lead format
- Approved to DENAN's Appendix 3
- 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:<br>NBK180509-JP1021 A/C<br>NBK020609-JP1021 A/C | 1A – 5A<br>6.3A – 10A |
|        | Leaded:<br>NBK180509-JP1021 B/D<br>NBK020609-JP1021 B/D    | 1A – 5A<br>6.3A – 10A |
|        | SU05001-2015   | 1A – 10A              |
|        | N/A  | 1A – 10A              |

#### Additional Information



Datashheet



Resources



Samples



Accessories

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

#### Electrical Characteristics for Series

| % of Ampere Rating | Opening Time       |
|--------------------|--------------------|
| 130%               | 1 hour, Minimum    |
| 160%               | 1 hour, Maximum    |
| 200%               | 2 minutes, 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) | Agency Approvals |   |   |
|----------|----------------|--------------------|---------------------|--------------------------------|---|------------------|---|---|
|          |                |                    |                     |                                |   |                  |   |   |
| 001.     | 1              | 125/250            | 10 kA @ 125VAC      | 0.0923                         | 1.37300   | x                | x | x |
| 1.25     | 1.25           | 125/250            |                     | 0.0685                         | 4.11000   | x                | x | x |
| 01.6     | 1.6            | 125/250            |                     | 0.0537                         | 6.96000   | x                | x | x |
| 002.     | 2              | 125/250            |                     | 0.0370                         | 8.25000   | x                | x | x |
| 02.5     | 2.5            | 125/250            |                     | 0.0291                         | 13.87500  | x                | x | x |
| 003.     | 3              | 125/250            |                     | 0.0226                         | 17.19000  | x                | x | x |
| 3.15     | 3.15           | 125/250            |                     | 0.0215                         | 21.9500   | x                | x | x |
| 004.     | 4              | 125/250            |                     | 0.0174                         | 37.73000  | x                | x | x |
| 005.     | 5              | 125/250            |                     | 0.0134                         | 56.72000  | x                | x | x |
| 06.3     | 6.3            | 125/250            |                     | 0.0102                         | 151.54000   | x                | x | x |
| 008.*    | 8              | 125/250            | 300A @ 125VAC       | 0.0076                         | 182.58000   | x                | x | x |
| 010.*    | 10             | 125/250            |                     | 0.0059                         | 290.66500   | x                | x | x |

To order 125Vac rated, please add part no. suffix  
 \* Interrupting Rating for 8A & 10A is 100A@250Vac

### 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          |
|---|-----------------------------------|
| 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.**

### Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|------------------|-------------------------|----------|---------------------------|--------------|
| 232 Series       |                         |          |                           |              |
| Bulk             | N/A                     | 1000     | MX                        | N/A          |
| Bulk             | N/A                     | 1000     | MXE                       | N/A          |

### 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 log, current and voltage ratings, and agency approval<br>Cap 2: Blank |
| <b>Packaging</b>         | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)           |

|                              |  |
|------------------------------|--|
| <b>Operating Temperature</b> | -60°C to +125°C  |
| <b>Thermal Shock</b>         | MIL-STD-202, Method 107, Test Condition B: (5 cycles -65°C + 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



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

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