

RoHS  **239 Series, 5 x 20 mm, Slo-Blo® Fuse**



## Description

5x20mm time-Lag glass body cartridge fuse designed to UL specification.

## Features

- Designed to UL/CSA/ANCE 248 Standard
- Available in cartridge and axial lead format
- 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 Ratings | Opening Time                 |
|--------------------|----------------|------------------------------|
| 100%               | All Ratings    | 4 hours, Minimum             |
| 135%               |                | 1 hour, Maximum              |
| 200%               |                | 5 seconds., Min; 2 min., Max |

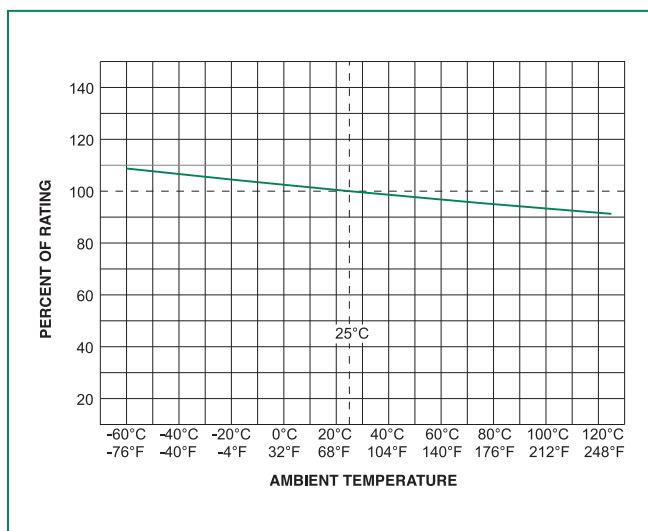
## Agency Approvals

| Agency                                                                              | Agency File Number                                                                     | Ampere Range               |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------|
|    | Cartridge Certificates:<br>NBK030609-JP1021A<br>NBK190609-JP1021A<br>NBK030609-JP1021B | 1A – 3.5A<br>4A – 5A<br>7A |
|                                                                                     | Leaded Certificates:<br>NBK030609-JP1021C<br>NBK190609-JP1021B<br>NBK030609-JP1021D    | 1A – 3.5A<br>4A – 5A<br>7A |
|   | Certificates:<br>SU05001 – 2004A<br>SU05001 – 2014A                                    | 200mA – 3.15A<br>4A – 7A   |
|  | Listed File:<br>E10480<br>Guide:<br>JDYX                                               | 80mA – 7A                  |
|  | File:<br>029862<br>Certificates Class:<br>LR1422-01                                    | 200mA – 3.15A<br>4A – 7A   |
|  |                                                                                        | 80mA – 7A                  |

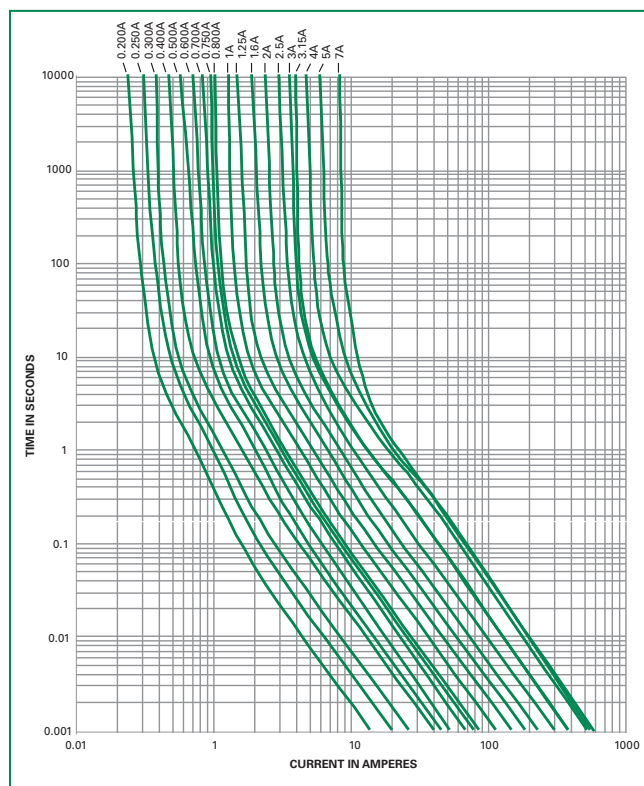
## Electrical Characteristic Specification by Item

| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating                | Nominal Cold Resistance (Ohms) | Nominal Melting $I^2t$ (A <sup>2</sup> sec) | Agency Approvals                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|----------|----------------|--------------------|------------------------------------|--------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|          |                |                    |                                    |                                |                                             |  |  |  |  |  |
| .080     | 0.08           | 250                | 35A @ 250 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                | 35A @ 250 VAC<br>10000A @ 125 VAC  | 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                         | 1.49000                                     | 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                                                                                   |
| 01.6     | 1.6            | 250                |                                    | 0.1205                         | 30.43000                                    | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 002.     | 2              | 250                | 10000A @ 125 VAC<br>100A @ 250 VAC | 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                |                                    | 0.0312                         | 270.703                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 005.     | 5              | 125                | 10000A @ 125 VAC                   | 0.0199                         | 302.836                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 007.     | 7              | 125                |                                    | 0.0114                         | 305.758                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |

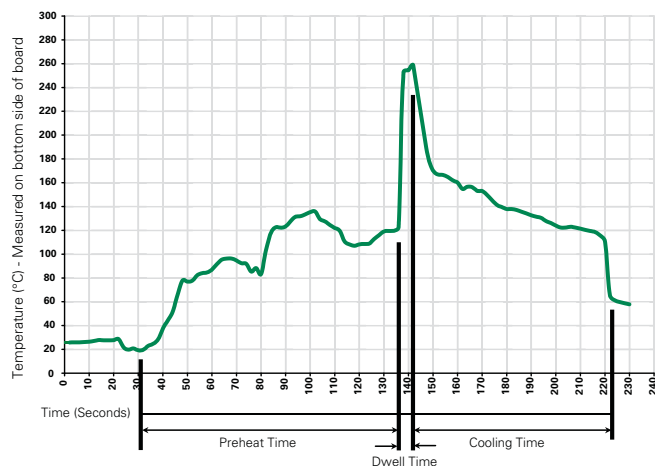
## Temperature Derating Curve



## 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           |
| 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.

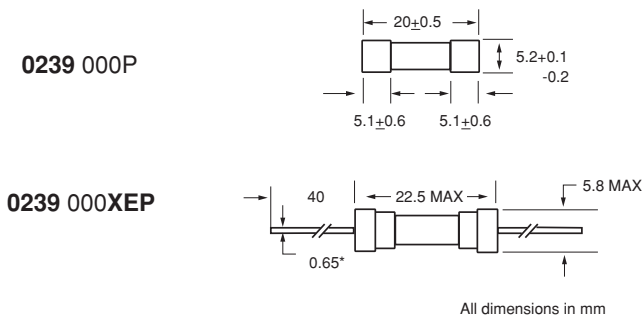
**Note:** These devices are not recommended for IR or Convection Reflow process.

### Product Characteristics

|                          |                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------|
| <b>Materials</b>         | Body: Glass<br>Cap: Nickel-plated brass<br>Leads: Tin-plated Copper                         |
| <b>Terminal Strength</b> | MIL-STD-202G, Method 211A, Test Condition A                                                 |
| <b>Solderability</b>     | Reference IEC 60127 Second Edition 2003-01 Annex A                                          |
| <b>Product Marking</b>   | Cap 1: Brand logo, current and voltage rating<br>Cap 2: Series and agency approval markings |

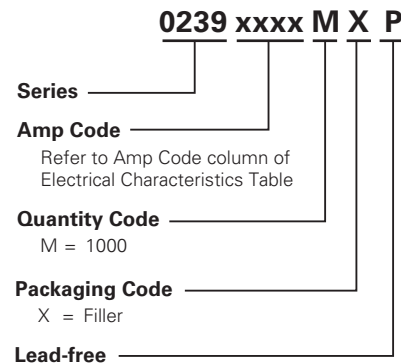
|                              |                                                                                                   |
|------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b> | –55°C to +125°C                                                                                   |
| <b>Thermal Shock</b>         | MIL-STD-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 temp (40°C) for 240 hours |
| <b>Salt Spray</b>            | MIL-STD-202G, Method 101D, Test Condition B                                                       |

### Dimensions



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     |
|-------------------|-------------------------|----------|---------------------------|------------------|
| <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              |

## Данный компонент на территории Российской Федерации

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Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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