

RoHS  **477 Series, 5 x 20 mm, Time-Lag (Slo-Blo®) Fuse**



### Agency Approvals

| Agency                                                                              | Agency File Number                                                                                                                                                                  | Ampere Range                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
|    | Cartridge Certificates:<br>NBK040609-JP1021 A<br>NBK040609-JP1021 C<br>NBK100408-JP1021 A<br>Leaded Certificates:<br>NBK040609-JP1021 B<br>NBK040609-JP1021 D<br>NBK100408-JP1021 B | 1A – 5A<br>6.3A – 12A<br>16A<br><br>1A – 5A<br>6.3A – 12A<br>16A |
|  | Cartridge File:<br>No.806815<br>Leaded File:<br>No.811247                                                                                                                           | 500mA – 8A<br>500mA – 8A                                         |
|  | Recognised File:<br>E10480                                                                                                                                                          | 500mA – 16A(500VAC)<br>500mA – 16A(400VDC)                       |
|  | Certificate No.:<br>40025413                                                                                                                                                        | 1A & 3.15A(500VAC)<br>1A & 3.15A(400VDC)                         |
|  |                                                                                                                                                                                     | 500mA – 16A                                                      |

### Description

400Vdc/500Vac rated, 5x20mm, time-lag, surge withstand ceramic body cartridge fuse.

### Features

- Designed to International (IEC) Standards for use globally
- Follow the IEC 60127-2, Sheet 5 specification for time-lag fuses
- Available in cartridge and axial lead form
- RoHS compliant and lead-free

### Applications

High energy and power efficient applications.

### Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time                    |
|--------------------|---------------|---------------------------------|
| 150%               | .5 – .8       | 60 minutes, Minimum             |
|                    | 1 – 3.15      | 60 minutes, Minimum             |
|                    | 4 – 6.3       | 60 minutes, Minimum             |
|                    | 8 – 16        | 30 minutes, Minimum             |
| 210%               | .5 – .8       | 30 minutes, Maximum             |
|                    | 1 – 3.15      | 30 minutes, Maximum             |
|                    | 4 – 6.3       | 30 minutes, Maximum             |
|                    | 8 – 16        | 30 minutes, Maximum             |
| 275%               | .5 – .8       | .25 sec., Min.; 80 sec., Max.   |
|                    | 1 – 3.15      | .75 sec., Min.; 80 sec., Max.   |
|                    | 4 – 6.3       | .75 sec., Min.; 80 sec., Max.   |
|                    | 8 – 16        | .75 sec., Min.; 80 sec., Max.   |
| 400%               | .5 – .8       | .05 sec., Min.; 5 sec., Max.    |
|                    | 1 – 3.15      | .095 sec., Min.; 5 sec., Max.   |
|                    | 4 – 6.3       | .15 sec., Min.; 5 sec., Max.    |
|                    | 8 – 16        | .15 sec., Min.; 5 sec., Max.    |
| 1000%              | .5 – .8       | .005 sec., Min.; .15 sec., Max. |
|                    | 1 – 3.15      | .01 sec., Min.; .15 sec., Max.  |
|                    | 4 – 6.3       | .01 sec., Min.; .15 sec., Max.  |
|                    | 8 – 16        | .01 sec., Min.; .15 sec., Max.  |

### Electrical Characteristics Specifications by Item

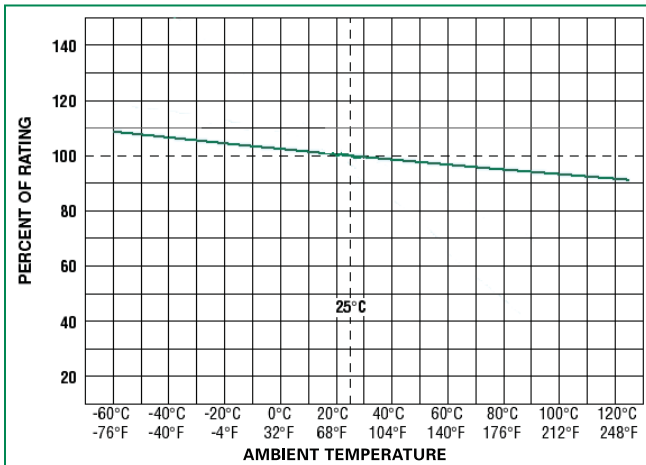
| Amp Code | Amp Rating | Max Voltage Rating (V) |     | Interrupting Rating |     |             |      | Nominal Cold Resistance (Milli-Ohm) | Nominal Melting I²T (A²Sec.) | Agency Approvals                                                                    |   |     |   |
|----------|------------|------------------------|-----|---------------------|-----|-------------|------|-------------------------------------|------------------------------|-------------------------------------------------------------------------------------|---|-----|---|
|          |            |                        |     | Voltage (V)         |     | Current (A) |      |                                     |                              |                                                                                     |   |     |   |
|          |            | AC                     | DC  | AC                  | DC  | AC          | DC   |                                     |                              |                                                                                     |   |     |   |
| .500*    | 0.5*       | 500                    | 400 | 500                 | 400 | 100         | 1500 | 1055.900                            | 0.300                        |  | X | X** |   |
| .800*    | 0.8*       | 500                    | 400 | 500                 | 400 | 100         | 1500 | 430.000                             | 0.909                        |                                                                                     | X | X** |   |
| 001.*    | 1*         | 500                    | 400 | 500                 | 400 | 100         | 1500 | 139.400                             | 1.800                        | X                                                                                   | X | X** | X |
| 002.*    | 2*         | 500                    | 400 | 500                 | 400 | 100         | 1500 | 55.200                              | 9.120                        | X                                                                                   | X | X** |   |
| 3.15*    | 3.15*      | 500                    | 400 | 500                 | 400 | 100         | 1500 | 27.700                              | 50.109                       | X                                                                                   | X | X** | X |
| 004.*    | 4*         | 500                    | 400 | 500                 | 400 | 100         | 500  | 17.200                              | 52.480                       | X                                                                                   | X | X** |   |
| 005.*    | 5*         | 500                    | 400 | 500                 | 400 | 100         | 500  | 13.700                              | 76.500                       | X                                                                                   | X | X** |   |
| 06.3     | 6.3        | 500                    | 400 | 500                 | 400 | 100         | 500  | 10.970                              | 121.451                      | X                                                                                   | X | X   |   |
| 008.     | 8          | 500                    | 400 | 500                 | 400 | 100         | 500  | 8.305                               | 203.520                      | X                                                                                   | X | X   |   |
| 010.     | 10         | 500                    | 400 | 500                 | 400 | 100         | 500  | 4.950                               | 509.000                      | X                                                                                   | X |     |   |
| 012.     | 12         | 500                    | 400 | 500                 | 400 | 100         | 500  | 4.730                               | 576.000                      | X                                                                                   | X |     |   |
| 016.     | 16         | 500                    | 400 | 500                 | 400 | 100         | 400  | 3.100                               | 1331.200                     | X                                                                                   | X |     |   |

\*100A@600Vac interrupting rating witnessed by UL available for 0.5A to 5A with 600Vac markings. Add suffix "MXE6P", Example: 0477004.MXE6P.

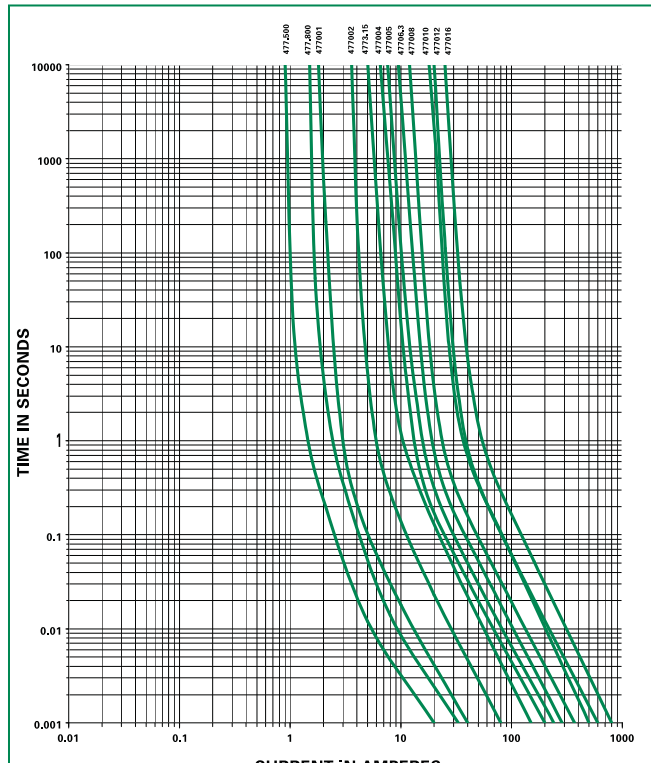
\*\*Semko approval for 500Vac type only.

I<sup>2</sup>t test at 10x rated current.

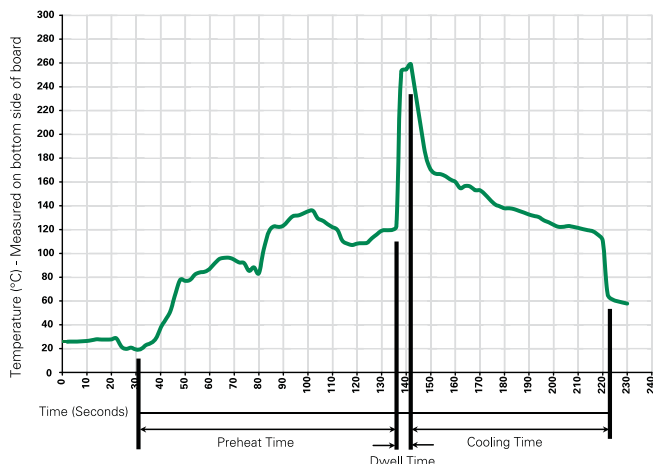
### Temperature Derating Curve



### 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) |                          |
| 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.

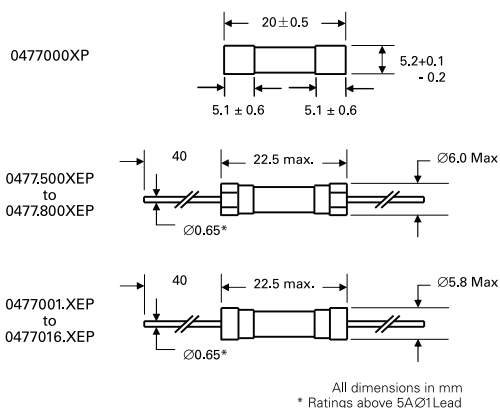
**Note: These devices are not recommended for IR or Convection Reflow process.**

## Product Characteristics

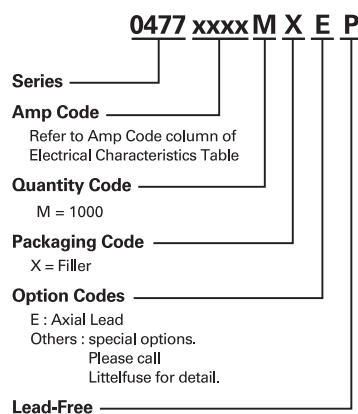
|                          |                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------|
| <b>Material</b>          | Body: Ceramic<br>Cap: Nickel-plated 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>Packaging</b>         | Available in Bulk (M=1000 pcs/pkg)                                                          |

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



## Part Numbering System



## Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Reel Size |
|-------------------|-------------------------|----------|---------------------------|-----------|
| <b>477 Series</b> |                         |          |                           |           |
| Bulk              | N/A                     | 1000     | MX                        | N/A       |
| Bulk              | N/A                     | 1000     | MXE                       | 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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