

# 313/315 Series Lead-Free 3AG, Slo-Blo® Fuse

















#### **Agency Approvals**

| Agency      | Agency File Number   | Ampere Range                                   |
|-------------|--|--|
| (UL)        | E10480   | 0.010A - 10A**                                 |
| <b>(</b>    | 29862  | 0.010A - 10A**/15A**                           |
| <b>71</b> ° | E10480   | 10A - 30A                                      |
| PS E        | 313 Series (Cartridge):<br>NBK040205-E10480B<br>NBK040205-E10480D                  | 1-5A<br>6.25- 10A**                            |
|             | 315 Series (Leaded):<br>NBK040205-E10480F<br>NBK040205-E01480H<br>NBK280906-JP1021 | 1-5A<br>6.25-10A**<br>15**                     |
|             | SU05001-6004<br>SU05001-5007<br>SU05001-5008<br>SU05001-5009                       | 2.25-2.5A<br>2.8A - 3.2A<br>4A - 6.3A<br>7A-8A |
| Œ           | N/A  | 0.010A - 10A**/15A**                           |

<sup>\*\*</sup> See note under Electrical Characteristics by item

#### **Additional Information**



**Datasheet** 313 Series



Datasheet 315 Series



Resources 313 Series



Resources 315 Series



Samples 313 Series



Samples 315 Series



For recommended fuse accessories for this product series, see 'Recommended Accessories' section.

### **Description**

The 3AG Slo-Blo® fuse solves a broad range of application requirements while offering reliable performance and costeffective circuit protection.

The fuse catalog number with the suffix "ID" instantly identifies itself upon opening by showing a discoloration of its glass body. Guesswork and time consuming circuit testing are eliminated. This unique design offers the same quality performance characteristics as the standard 3AG Slo-Blo® Fuse design.

#### **Features**

- In accordance with UL Standard 248-14
- Available in cartridge and axial lead format and with various forming dimensions
- 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 by Series**

| % of Ampere<br>Rating | Ampere Rating | OpeningTime                   |  |  |
|-----------------------|---------------|-------------------------------|--|--|
| 100%                  | 10mA – 30A    | 4 hours, Minimum              |  |  |
| 135%                  | 10mA – 30A    | 1 hour, Maximum               |  |  |
| 200%                  | 10mA – 15A    | 5 sec., Min.,<br>30 sec., Max |  |  |
| 200%                  | 20A – 30A     | 5 sec., Min.,<br>60 sec Max   |  |  |



# **Axial Lead & Cartridge Fuses** 3AG > Slo-Blo® Fuse > 313/315 Series

## **Electrical Characteristic Specifications by Item**

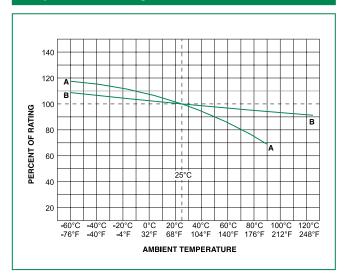
| Ampere Voltage |               |               | Nominal                | Nominal Nominal              |  | Agency Approvals |          |   |           |     |   |
|----------------|---------------|---------------|------------------------|------------------------------|--|------------------|----------|---|-----------|-----|---|
| Amp<br>Code    | Rating<br>(A) | Rating<br>(V) | Interrupting<br>Rating | Cold<br>Resistance<br>(Ohms) | Melting<br>I <sup>2</sup> t (A <sup>2</sup> sec) | (UL)             | <b>(</b> |   | <b>71</b> | PSE | Œ |
| .010           | 0.01          | 250           |                        | 4300.0000                    | 0.000121   | ×                | ×        |   |           |     | Х |
| .031           | 0.031         | 250           | -                      | 430.0000                     | 0.00303  | X                | ×        |   |           |     | Х |
| .040           | 0.04          | 250           | -                      | 300.0000                     | 0.00630  | Х                | Х        |   |           |     | Х |
| .062           | 0.062         | 250           |                        | 120.0000                     | 0.0210   | X                | Х        |   |           |     | X |
| .100           | 0.1           | 250           | -                      | 43.0000                      | 0.0850   | X                | Х        |   |           |     | Х |
| .125           | 0.125         | 250           |                        | 30.0000                      | 0.152  | X                | Х        |   |           |     | X |
| .150           | 0.15          | 250           | -                      | 20.0000                      | 0.270  | X                | х        |   |           |     | X |
| .175           | 0.175         | 250           |                        | 8.6700                       | 0.177  | X                | ×        |   |           |     | X |
| .187           | 0.187         | 250           |                        | 8.0100                       | 0.230  | X                | х        |   |           |     | Х |
| .200           | 0.2           | 250           | -<br>35A@250Vac        | 6.5900                       | 0.270  | ×                | ×        |   |           |     | X |
| .250           | 0.25          | 250           | 10KA@125Vac            | 4.2700                       | 0.385  | ×                | X        |   |           |     | X |
| .300           | 0.3           | 250           |                        | 3.1350                       | 0.730  | ×                | X        |   |           |     | × |
| .375           | 0.375         | 250           |                        | 2.0950                       | 1.23   | ×                | X        |   |           |     | X |
| .400           | 0.4           | 250           |                        | 1.8750                       | 1.35   | ×                | X        |   |           |     | × |
| .500*          | 0.5           | 250           | -                      | 1.2600                       | 2.55   | ×                | X        |   |           |     | X |
| .600           | 0.6           | 250           |                        | 0.9120                       | 4.00   | ×                | X        |   |           |     | × |
| .700           | 0.7           | 250           |                        | 0.7000                       | 5.90   | ×                | X        |   |           |     | X |
| .750           | 0.75          | 250           |                        | 0.6215                       | 7.16   | X                | X        |   |           |     | X |
| .800           | 0.73          | 250           |                        | 0.5540                       | 8.00   |                  | X        |   |           |     |   |
| 001.*          | 1             | 250           |                        | 0.3340                       | 14.0   | X                | 1        |   |           | V   | X |
| 01.2           | 1.2           | 250           |                        | 0.3730                       | 21.5   | X                | X        |   |           | X   | X |
| 1.25           | 1.25          | 250           |                        | 0.2600                       | 24.0   | X                | X        |   |           | X   | X |
| 01.5*          | 1.25          | 250           | -                      |                              | 38.0   | X                | X        |   |           | X   | X |
| 01.6           | 1.6           | 250           |                        | 0.1910                       | 49.6   | X                | X        |   |           | X   | X |
|                |               |               | -                      |                              |  | X                | X        |   |           | X   | X |
| 01.8           | 1.8           | 250           | 100A@250Vac            | 0.1410                       | 92.0   | X                | X        |   |           | X   | X |
| 002.*          | 2             | 250           | 10KA@125Vac            | 0.1169                       | 77.0   | X                | X        |   |           | X   | Х |
| 2.25           | 2.25          | 250           |                        | 0.0968                       | 121  | X                | X        | X |           | X   | Х |
| 02.5           | 2.5           | 250           |                        | 0.0811                       | 199  | X                | X        | X |           | X   | Х |
| 02.8           | 2.8           | 250           | _                      | 0.0675                       | 269  | Х                | X        | X |           | X   | Х |
| 003.*          | 3             | 250           |                        | 0.0593                       | 200  | X                | X        | X |           | X   | Х |
| 03.2           | 3.2           | 250           |                        | 0.0529                       | 209  | Х                | X        | X |           | X   | Х |
| 004.*          | 4             | 250           |                        | 0.0311                       | 76.1   | X                | X        | X |           | X   | X |
| 005.*          | 5             | 250           |                        | 0.0214                       | 276  | X                | X        | X |           | X   | X |
| 6.25*          | 6.25          | 250           | 200A@250Vac            | 0.0154                       | 388  | X                | X        | X |           | X   | X |
| 06.3           | 6.3           | 250           | 10KA@125Vac            | 0.0154                       | 388  | X                | X        | X |           | X   | X |
| 007.*          | 7             | 250           |                        | 0.0128                       | 547  | X                | X        | X |           | X   | Х |
| 008.*          | 8             | 250           |                        | 0.0111                       | 701  | Х                | X        | X |           | X   | X |
| 010.**         | 10            | 250           |                        | 0.0083                       | 1285   | X                | Х        |   |           | X   | X |
| 010.*          | 10            | 32            |                        | 0.0083                       | 1285   |                  |          |   | X         |     |   |
| 012.           | 12            | 32            | _                      | 0.0065                       | 1200   |                  |          |   | X         |     |   |
| 015.**         | 15            | 125           | ]                      | 0.0050                       | 2650   |                  | X        |   | X         | x   | Х |
| 015.           | 15            | 32            | 300A@32Vac             | 0.0050                       | 2650   |                  |          |   | X         |     |   |
| 020.           | 20            | 32            | ]                      | 0.0022                       | 9560   |                  |          |   | x         |     |   |
| 025.           | 25            | 32            |                        | 0.0017                       | 16500  |                  |          |   | х         |     |   |
| 030.           | 30            | 32            |                        | 0.0012                       | 26900  |                  |          |   | Х         |     |   |

<sup>\*</sup> For 313series, these ratings available with an indicating option. Add the "ID" designation to the series number. i.e. 313.500ID.

\*\*These 2 ratings are designed for special voltage requirement. For 10A, it is available as 250Vac rated and the part number is 0313010.MX250P; For 15A, it is available as 125Vac rated and the part number is 0315015.MX125P.



#### **Temperature Re-rating Curve**



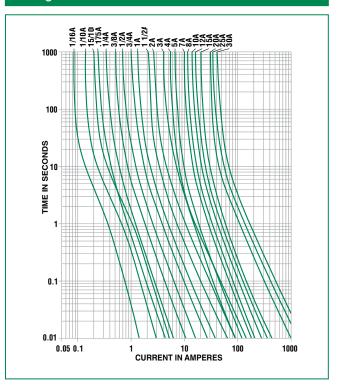
#### A - For 313/315 Series, from 10mA to 150mA

#### B - For all other ampere ratings of 313/315 series

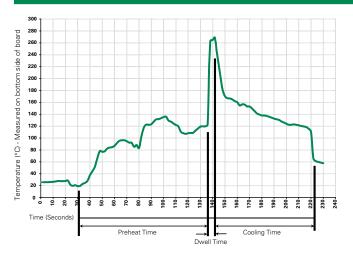
Note:

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 DwellTime:                        | 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 &<br>Packaging Code | Taping Width |  |  |
|------------------|-------------------------|----------|------------------------------|--------------|--|--|
| 313 Series       |                         |          |                              |              |  |  |
| Bulk             | N/A                     | 1000     | MX                           | N/A          |  |  |
| Bulk             | N/A                     | 100      | HX                           | N/A          |  |  |
| 315 Series       | 315 Series              |          |                              |              |  |  |
| Bulk             | N/A                     | 1000     | MX                           | N/A          |  |  |
| Bulk             | N/A                     | 100      | HX                           | N/A          |  |  |
| Bulk             | N/A                     | 1000     | MXB                          | N/A          |  |  |

# **Axial Lead & Cartridge Fuses** 3AG > Slo-Blo® Fuse > 313/315 Series

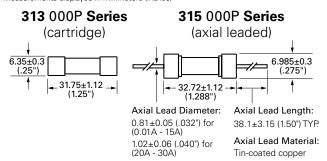
#### **Product Characteristics**

| Materials         | Body: Glass<br>Cap: Nickel-plated brass<br>Leads: Tin-plated Copper                        |
|-------------------|--|
| Terminal Strength | MIL-STD-202, Method 211, Test<br>Condition A   |
| Solderability     | MIL-STD-202 method 208   |
| Product Marking   | Cap1: Brand logo, current and voltage<br>ratings<br>Cap2: Series and agency approval marks |

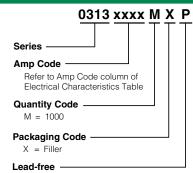
| Operating<br>Temperature | -55°C to +125°C  |  |
|--------------------------|--|--|
| Thermal Shock            | MIL-STD-202, Method 107, Test Condition B: (5 cycles -65°C to +125°C)  |  |
| Vibration                | MIL-STD-202, Method 201  |  |
| Humidity                 | MIL-STD-202, Method 103, Test<br>Condition A: High RH (95%) and Elevated<br>temperature (40°C) for 240 hours |  |
| Salt Spray               | MIL- STD-202, Method 101, Test<br>Condition B  |  |

#### **Dimensions**

Measurements displayed in millimeters (inches)



## Part Numbering System



#### **Recommended Accessories**

| Accessory<br>Type | Series                            | Description   | Max<br>Application<br>Voltage | Max<br>Application<br>Amperage |
|-------------------|-----------------------------------|---|-------------------------------|--------------------------------|
|                   | <u>155100</u>                     | Twist-Lock In-Line Fuseholder   | 32                            | 20                             |
| Holder            | <u>342</u>                        | Traditional Panel Mount Fuseholder  | 250                           | 20                             |
| Holder            | <u>346</u>                        | Panel Mount Flip-Top Shock-Safe Fuseholder                                | 250                           | 15                             |
|                   | <u>345</u>                        | Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options | 250                           | 16                             |
| Block             | Low Profile OMNI-BLOK® Fuse Block |   | 600                           | 30                             |
| DIOCK             | <u>359</u>                        | High Current Screw Terminal Fuse Block                                    | 000                           | 30                             |
| Clip              | <u>122</u>                        | High Current Traditional PC Board Fuse Clip                               | 1000                          | 30                             |
| Clip              | <u>101</u>                        | Rivet/Eyelet Type Fuse Clip   | 1000                          | 15                             |

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.

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