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### Description

The 3AG Fast-Acting Fuse solves a broad range of application requirements while offering reliable performance and cost-effective circuit protection.

### 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 (except 10mA and 31mA rated items)

### 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   |
|--------|---------------------------------|--|
|        | E10480<br>AU1410                | 312 Series 10mA - 10A<br>318 Series 31mA - 10A<br>312 Series 12A - 30A |
|        | LR 29862                        | 312 Series 10mA - 30A<br>318 Series 31mA - 10A                         |
|        | NBK040205-<br>E10480B/F         | 312/318 Series 1A - 10A  |
|        | E10480                          | 318 Series 12A - 30A   |
|        | SU05001-<br>5005/5006/6005/6008 | 312/318 Series<br>1A/ 1.25A / 1.6A/<br>2A - 10A                        |
|        |                                 | 312 Series 10mA - 10A<br>318 Series 31mA - 35A                         |

### Electrical Characteristics for Series

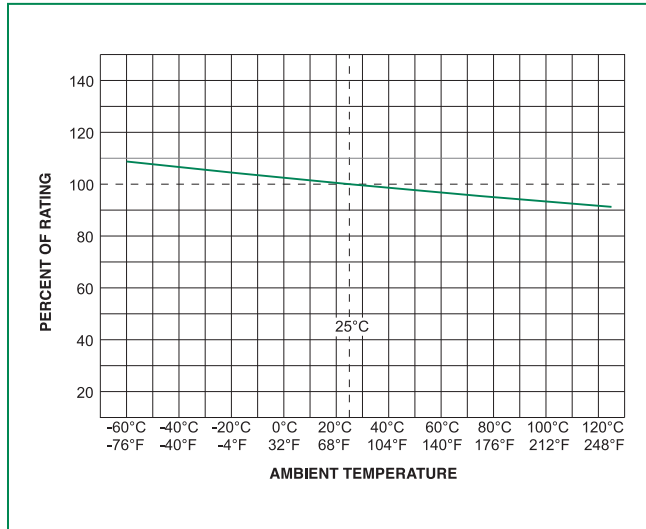
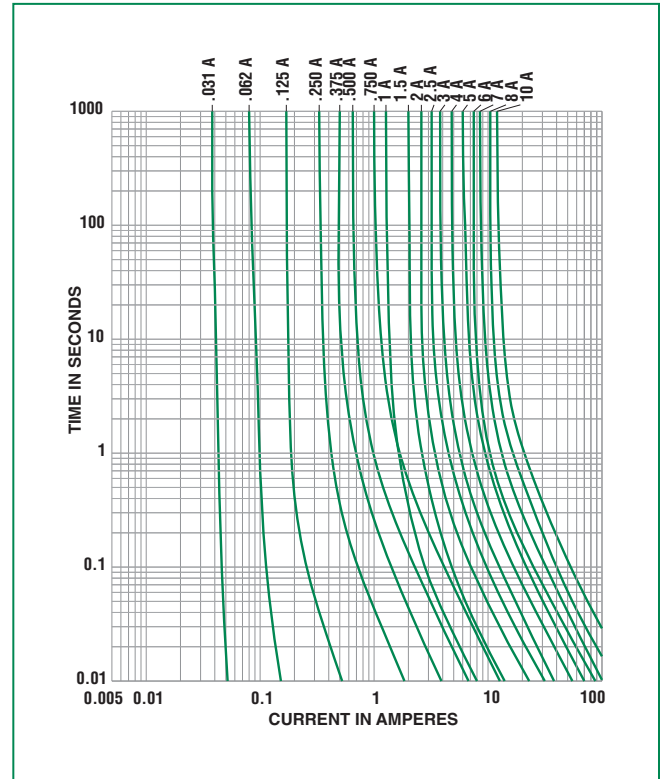
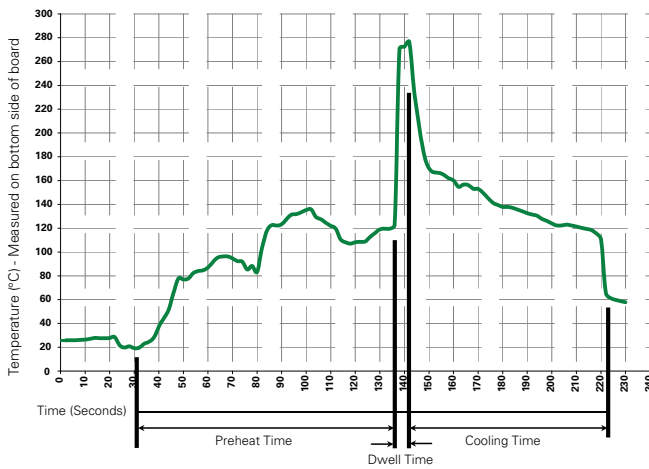
| % of Ampere Rating | Ampere Rating | Opening Time     |
|--------------------|---------------|------------------|
| 100%               | .01 – 35      | 4 hours, Minimum |
| 135%               | .01 – 35      | 1 hour, Maximum  |
| 200%               | .01 – 10      | 5 sec., Maximum  |
|                    | 12 – 30       | 10 sec., Maximum |
|                    | 35            | 20 sec., Maximum |

## Electrical Characteristic Specifications by Item

| Amp Code | Ampere Rating (A) | Max Voltage Rating (V) | Interrupting Rating                    | Nominal Cold Resistance (Ohms) | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) | Agency Approvals |       |   |      |     |     |
|----------|-------------------|------------------------|--|--------------------------------|---|------------------|-------|---|------|-----|-----|
|          |                   |                        |  |                                |   | UL               | UL US | K | PS E | SE  | CE  |
| .10*     | 0.01              | 250                    | 10mA ~ 1A<br>35A@250Vac<br>10KA@125Vac | 177.4000                       | NA  | x**              |       |   |      | x** | x** |
| .031*    | 0.031             | 250                    |  | 23.6500                        | 0.0000300   | x                |       |   |      | x   | x   |
| .062     | 0.062             | 250                    |  | 24.7000                        | 0.000249  | x                |       |   |      | x   | x   |
| .100     | 0.1               | 250                    |  | 11.2800                        | 0.00102   | x                |       |   |      | x   | x   |
| .125     | 0.125             | 250                    |  | 7.1450                         | 0.00289   | x                |       |   |      | x   | x   |
| .150     | 0.15              | 250                    |  | 5.1300                         | 0.00550   | x                |       |   |      | x   | x   |
| .175     | 0.175             | 250                    |  | 3.8750                         | 0.00960   | x                |       |   |      | x   | x   |
| .187     | 0.187             | 250                    |  | 3.4200                         | 0.0128  | x                |       |   |      | x   | x   |
| .200     | 0.2               | 250                    |  | 3.0200                         | 0.0165  | x                |       |   |      | x   | x   |
| .250     | 0.25              | 250                    |  | 2.0100                         | 0.0355  | x                |       |   |      | x   | x   |
| .300     | 0.3               | 250                    |  | 1.4050                         | 0.0689  | x                |       |   |      | x   | x   |
| .375     | 0.375             | 250                    |  | 0.8250                         | 0.185   | x                |       |   |      | x   | x   |
| .500     | 0.5               | 250                    |  | 0.4980                         | 0.483   | x                |       |   |      | x   | x   |
| .600     | .6                | 250                    |  | 0.3620                         | 0.880   | x                |       |   |      | x   | x   |
| .750     | 0.75              | 250                    |  | 0.2445                         | 1.84  | x                |       |   |      | x   | x   |
| 001      | 1                 | 250                    |  | 0.1900                         | 0.760   | x                |       | x | x    | x   | x   |
| 1.25     | 1.25              | 250                    |  | 0.1385                         | 1.45  | x                |       | x | x    | x   | x   |
| 01.5     | 1.5               | 250                    |  | 0.1036                         | 2.35  | x                |       |   | x    | x   | x   |
| 01.6     | 1.6               | 250                    |  | 0.0934                         | 2.80  | x                |       | x | x    | x   | x   |
| 1.75     | 1.75              | 250                    |  | 0.0856                         | 3.60  | x                |       |   | x    | x   | x   |
| 01.8     | 1.8               | 250                    | 0.0825                                 | 3.85                           | x   |                  |       | x | x    | x   |     |
| 002      | 2                 | 250                    | 0.0704                                 | 5.20                           | x   |                  | x     | x | x    | x   |     |
| 2.25     | 2.25              | 250                    | 0.0594                                 | 7.20                           | x   |                  | x     | x | x    | x   |     |
| 02.5     | 2.5               | 250                    | 0.0513                                 | 9.54                           | x   |                  | x     | x | x    | x   |     |
| 003      | 3                 | 250                    | 0.0427                                 | 14.0                           | x   |                  | x     | x | x    | x   |     |
| 004      | 4                 | 250                    | 0.0293                                 | 28.5                           | x   |                  | x     | x | x    | x   |     |
| 005      | 5                 | 250                    | 0.0224                                 | 50.0                           | x   |                  | x     | x | x    | x   |     |
| 006      | 6                 | 250                    | 0.0178                                 | 118.0                          | x   |                  | x     | x | x    | x   |     |
| 007      | 7                 | 250                    | 0.0146                                 | 118.0                          | x   |                  | x     | x | x    | x   |     |
| 008      | 8                 | 250                    | 0.0122                                 | 166.0                          | x   |                  | x     | x | x    | x   |     |
| 010      | 10                | 250                    | 0.0093                                 | 298.0                          | x   |                  | x     | x | x    | x   |     |
| 012      | 12                | 32                     | 12A ~ 35A<br>300A@32 Vac               | 0.0072                         | 234.6   | x**              | x***  |   |      | x** |     |
| 015      | 15                | 32                     |  | 0.0052                         | 490.5   | x**              | x***  |   |      | x** |     |
| 020      | 20                | 32                     |  | 0.0035                         | 1029  | x**              | x***  |   |      | x** |     |
| 025      | 25                | 32                     |  | 0.0024                         | 2041  | x**              | x***  |   |      | x** |     |
| 030      | 30                | 32                     |  | 0.0019                         | 3717  | x**              | x***  |   |      | x** |     |
| 035      | 35                | 32                     |  | 0.0013                         | 7531  |                  |       |   |      |     |     |

NOTES:

- \* 10mA and 31mA are not RoHS complaint as the glass bead contains Pb.
- \*\* 312 Series only. Refer to Agency Approvals section of this document.
- \*\*\* 318 Series only. Refer to Agency Approvals section of this document.

**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           |
| <b>Solder Pot Temperature:</b>  | 280° 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.

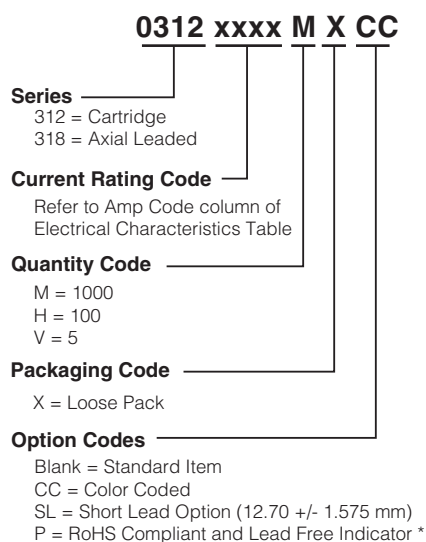
**Note: These devices are not recommended for IR or Convection Reflow process.**

## Product Characteristics

|                          |   |
|--------------------------|---|
| <b>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>   | Cap1: Brand logo, current and voltage ratings<br>Cap2: Series and agency approval marks |

|                              |   |
|------------------------------|---|
| <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 201 A  |
| <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   |

## Part Numbering System

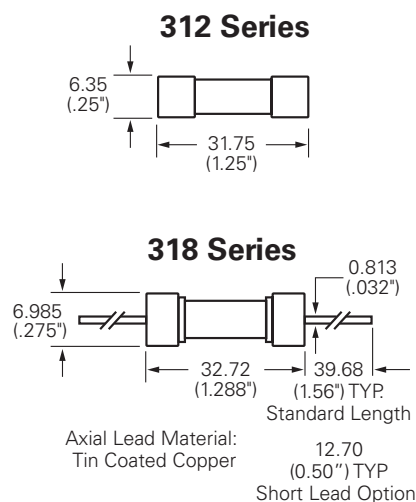


For additional information or information about other available options, please contact Littelfuse.

\*Note: All 312 / 318 series fuses are now sold as RoHS compliant and Lead Free by default, with or without the "P" indicator.

## Dimensions

Measurements displayed in millimeters (inches)



## Packaging

| Packaging Option                   | Quantity | Quantity & Packaging Code |
|------------------------------------|----------|---------------------------|
| <b>312 Series (Cartridge Type)</b> |          |                           |
| Bulk                               | 5        | VX                        |
| Bulk                               | 100      | HX                        |
| Bulk                               | 1000     | MX                        |
| Bulk                               | 1000     | MXCC                      |
| Bulk                               | 100      | HXCC                      |
| <b>318 Series (Axial Leaded)</b>   |          |                           |
| Bulk                               | 5        | VX                        |
| Bulk                               | 100      | HX                        |
| Bulk                               | 1000     | MX                        |
| Bulk                               | 1000     | MXSL                      |