

RoHS  **312/318 Series** Lead-Free 3AG, Fast-Acting Fuse



### 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

### 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                      | 312 Series: 62mA - 10A<br>318 Series: 62mA - 10A |
|                                                                                     | AU1410                      | 312 Series: 12A - 30A                            |
|    | LR 29862                    | 312 Series: 62mA - 30A<br>318 Series: 62mA - 10A |
|    | NBK040205-E10480B/F         | 312/318 Series: 1A - 10A                         |
|  | E10480                      | 318 Series: 12A - 30A                            |
|  | SU05001-5005/5006/6005/6008 | 312/318 Series:<br>1A/ 1.25A / 1.6A/<br>2A - 10A |
|  |                             | 312 Series: 62mA - 10A<br>318 Series: 62mA - 10A |

### Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time     |
|--------------------|---------------|------------------|
| 100%               | 62mA – 35A    | 4 hours, Minimum |
| 135%               | 62mA – 35A    | 1 hour, Maximum  |
| 200%               | 10mA – 10A    | 5 sec., Maximum  |
|                    | 12A – 30A     | 10 sec., Maximum |
|                    | 35A           | 20 sec., Maximum |

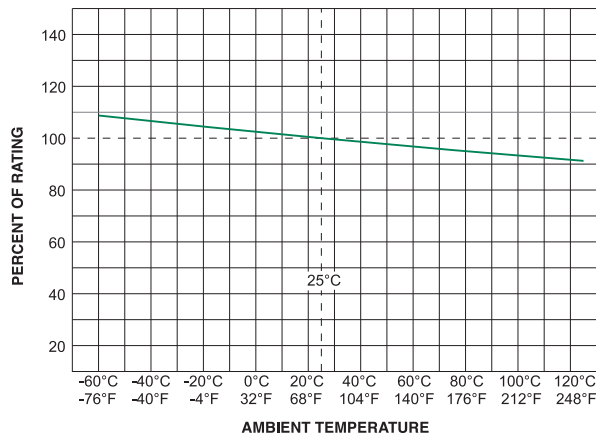
### Electrical Characteristic Specifications by Item

| Amp Code | Ampere 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 |       |   |      |    |    |
|----------|-------------------|--------------------|----------------------------|--------------------------------|-------------------------------------------------------|------------------|-------|---|------|----|----|
|          |                   |                    |                            |                                |                                                       | UL               | cULus | K | PS E | SA | CE |
| .062     | 0.062             | 250                | 35A@250Vac<br>10KA@125Vac  | 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                | 100A@250Vac<br>10KA@125Vac | 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                | 200A@250Vac<br>10KA@125Vac | 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                 | 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                                                  |                  |       |   |      |    |    |

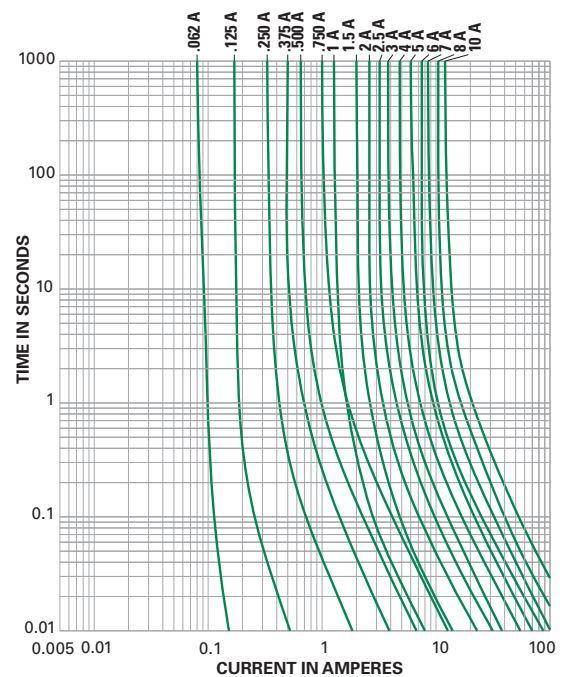
#### NOTES:

\*\* For 318 Series 12A to 30A, the agency approval is only cULus.

### Temperature Derating Curve

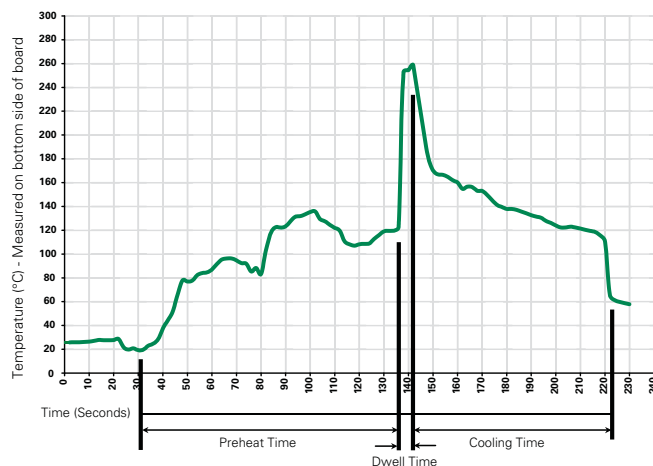


### Average Time Current Curves



Please contact Littelfuse for more details on those T-C Curves of other ampere ratings which are not published.

### 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.**

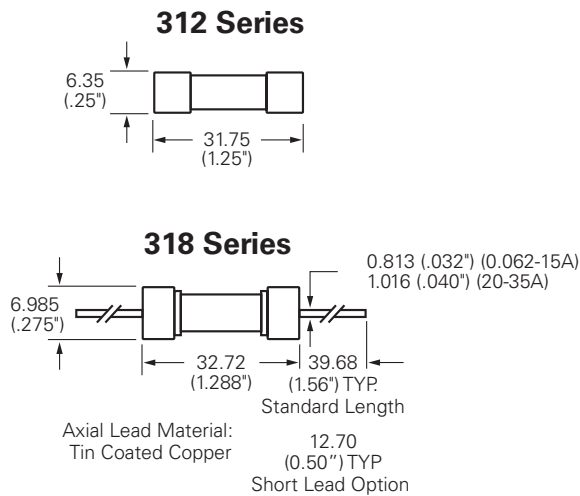
### Product Characteristics

|                          |                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------|
| <b>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 |

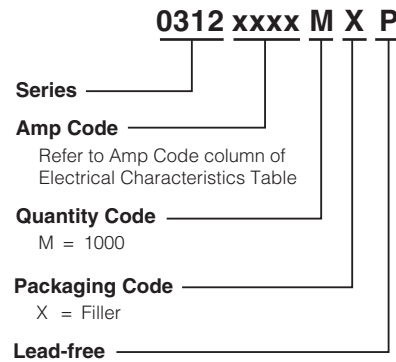
|                              |                                                                                                           |
|------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</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                                                               |

### Dimensions

Measurements displayed in millimeters (inches)



### Part Numbering System



### Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|-------------------|-------------------------|----------|---------------------------|--------------|
| <b>312 Series</b> |                         |          |                           |              |
| Bulk              | N/A                     | 1000     | MX                        | N/A          |
| Bulk              | N/A                     | 100      | HX                        | N/A          |
| <b>318 Series</b> |                         |          |                           |              |
| Bulk              | N/A                     | 1000     | MX                        | N/A          |
| Bulk              | N/A                     | 100      | HX                        | N/A          |
| Bulk              | N/A                     | 1000     | MXB                       | N/A          |

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