







### 314/324 Series Lead-free 3AB, Fast-Acting Fuse



#### Agency Approvals

| Agency  | Agency File Number   | Ampere Range   |
|---|--|--|
|    | E10480   | 0.375A - 15A   |
|    | 29862  | 0.375A - 20A   |
|    | E10480   | 20A - 40A  |
|  | 314 Series:<br>NBK030805-E10480A<br>NBK030805-E10480C<br>NBK030805-E10480E<br>NBK260106-JP1021A<br>324 Series:<br>NBK030805-E10480B<br>NBK030805-E10480D<br>NBK030805-E10480F<br>NBK260106-JP1021B | 1A - 3.5A<br>4A - 5A<br>6A - 15A<br>20A - 30A<br><br>1A - 3.5A<br>4A - 5A<br>6A - 15A<br>20A - 30A |
|  | SU05001-6003<br>SU05001-6001<br>SU05001-7006<br>SU05001-8002<br>SU05001-8003<br>SU05001-6002   | 3A<br>4-6A<br>7-10A<br>12-15A<br>20A<br>25-30A   |
|  | N/A  | 0.375A - 30A   |

#### Description

The 3AB Fast-Acting Fuse with ceramic body construction permits higher interrupting ratings and voltage ratings. Ideal for applications where high current loads are expected.

#### 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 for Series

| % of Ampere Rating | Ampere Rating | Opening Time      |
|--------------------|---------------|-------------------|
| 100%               | 0.375 - 40    | 4 hours, Minimum  |
| 135%               | 0.375 - 30    | 1 hour, Maximum   |
| 200%               | 0.375 - 12    | 15 secs., Maximum |
|                    | 15 - 30       | 30 secs., Maximum |
| 250%               | 40            | 30 secs., Maximum |

#### Additional Information



**Datasheet  
314 Series**



**Resources  
314 Series**



**Samples  
314 Series**



**Accessories  
314 & 324 Series**



**Datasheet  
324 Series**



**Resources  
324 Series**



**Samples  
324 Series**

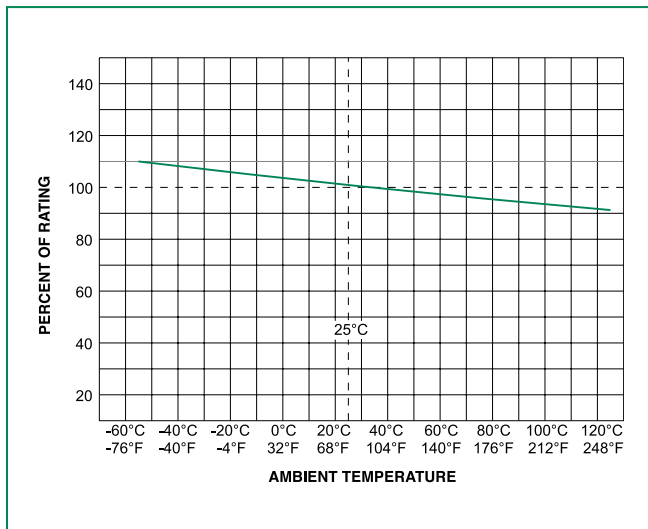
For recommended fuse accessories for this product series, see '[Recommended Accessories](#)' section.

### Electrical Specification 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               | SP | CCC | CULUS | PS E | CE |   |
| .375     | 0.375             | 250                | 35 A @ 250 VAC<br>10 kA @ 125 VAC<br>10 kA @ 125 VDC                     | 0.820   | 0.210  | x                | x  |     |       |      | x  |   |
| .500     | 0.5               | 250                |  | 0.500   | 0.639  | x                | x  |     |       |      | x  |   |
| .750     | 0.75              | 250                |  | 0.250   | 2.061  | x                | x  |     |       |      | x  |   |
| 001.     | 1                 | 250                | 100 A @ 250 VAC<br>10 kA @ 125 VAC<br>10 kA @ 125 VDC                    | 0.189   | 0.690  | x                | x  |     |       |      | x  | x |
| 002.     | 2                 | 250                |  | 0.0700  | 5.700  | x                | x  |     |       |      | x  | x |
| 003.     | 3                 | 250                |  | 0.0432  | 14.6   | x                | x  | x   |       |      | x  | x |
| 004.     | 4                 | 250                |  | 0.0470  | 10.4   | x                | x  | x   |       |      | x  | x |
| 005.     | 5                 | 250                |  | 0.0300  | 26.0   | x                | x  | x   |       |      | x  | x |
| 006.     | 6                 | 250                |  | 0.0240  | 45.0   | x                | x  | x   |       |      | x  | x |
| 007.     | 7                 | 250                |  | 0.0187  | 71.0   | x                | x  | x   |       |      | x  | x |
| 008.     | 8                 | 250                |  | 0.0153  | 105  | x                | x  | x   |       |      | x  | x |
| 010.     | 10                | 250                |  | 0.0105  | 206  | x                | x  | x   |       |      | x  | x |
| 010.*    | 10                | 280                |  | 0.0105  | 206  |                  |    |     | x     |      |    | x |
| 012.     | 12                | 250                |  | 0.00760   | 570  | x                | x  | x   |       |      | x  | x |
| 015.     | 15                | 250                |  | 0.00505   | 292  | x                | x  | x   |       |      | x  | x |
| 015.*    | 15                | 280                |  | 0.00505   | 292  |                  |    |     | x     |      |    | x |
| 020.     | 20                | 250                |  | 1000 A @ 250 VAC<br>200 A @ 300 VAC<br>10 kA @ 125 VAC<br>10 kA @ 125 VDC | 0.00355  | 631              |    | x   | x     | x    | x  | x |
| 020.*    | 20                | 280                |  |   | 0.00355  | 631              |    |     |       | x    |    |   |
| 025.     | 25                | 250                | 100 A @ 250 VAC<br>1000 A @ 75 VDC<br>400 A @ 125 VAC<br>400 A @ 125 VDC | 0.00235   | 1450   |                  |    | x   | x     | x    | x  |   |
| 025.**   | 25                | 280                |  | 0.00235   | 1450   |                  |    |     | x     |      |    | x |
| 030.     | 30                | 250                |  | 0.00182   | 2490   |                  |    | x   | x     | x    | x  |   |
| 040.     | 40                | 250                | 1000 A @ 250 VAC<br>400 A @ 150 VDC                                      | 0.0014  | 22925  |                  |    |     | x     |      | x  |   |

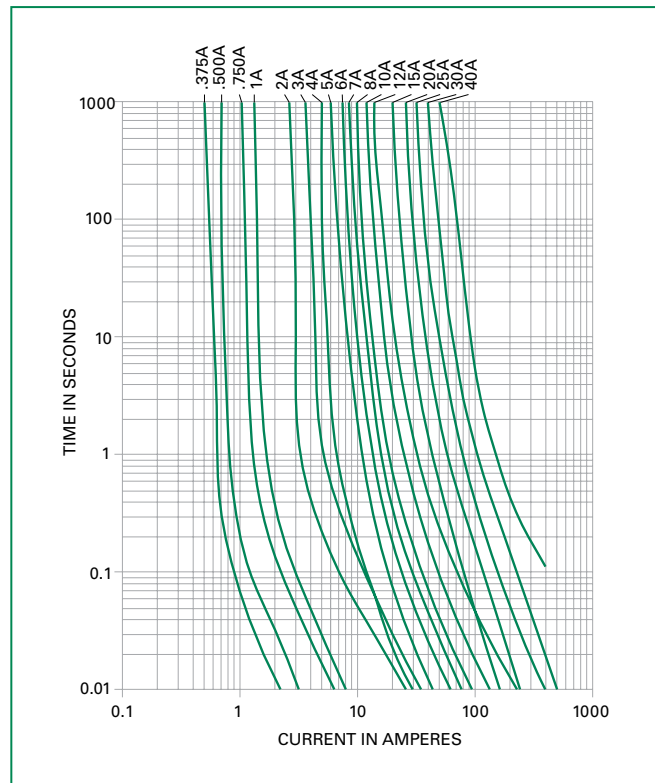
\* 350A@280VAC interrupting rating available for 10A, 15A and 20A.  
 \*\* 50A@280VAC for 25A. Add suffix '280'. Example: 0324020.MX280P.  
 \*\*\* I<sup>2</sup>t test at 10x rated current

### Temperature Re-rating Curve

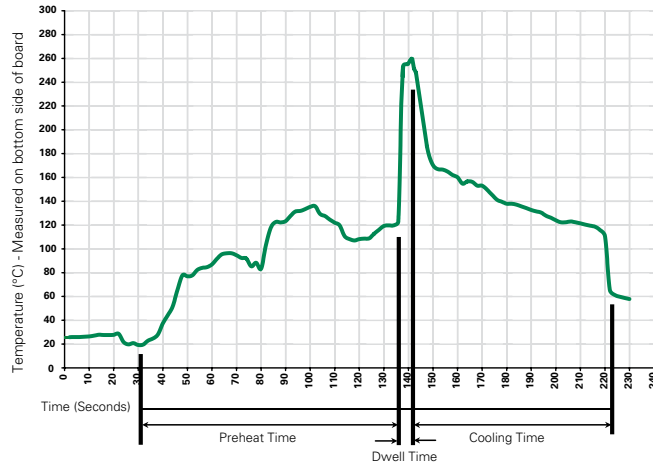


Note:  
 Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

### Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter  | Lead-Free Recommendation |
|---|--------------------------|
| <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>  | 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.**

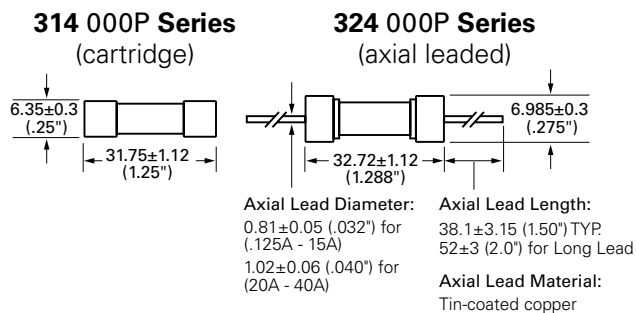
### Product Characteristics

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

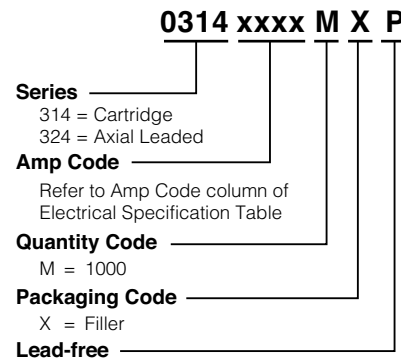
|                              |   |
|------------------------------|---|
| <b>Operating Temperature</b> | -55°C to +125°C   |
| <b>Thermal Shock</b>         | MIL-STD-202, Method 107, Test Condition B (5 cycles, -65°C to +125°C)                                   |
| <b>Vibration</b>             | MIL-STD-202,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

### Dimensions

Measurements displayed in millimeters (inches)



### Part Numbering System



### Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|-------------------|-------------------------|----------|---------------------------|--------------|
| <b>314 Series</b> |                         |          |                           |              |
| Bulk              | N/A                     | 5        | VX                        | N/A          |
| Bulk              | N/A                     | 100      | HX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX52L<br>(long lead)      | N/A          |
| Bulk              | N/A                     | 1000     | MXCC                      | N/A          |
| Bulk              | N/A                     | 1000     | MX52LE<br>(long lead)     | N/A          |
| <b>324 Series</b> |                         |          |                           |              |
| Bulk              | N/A                     | 5        | VX                        | N/A          |
| Bulk              | N/A                     | 100      | HX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX280                     | N/A          |
| Bulk              | N/A                     | 1000     | MX52<br>(long lead)       | N/A          |
| Bulk              | N/A                     | 1000     | MXF24                     | N/A          |

### Recommended Accessories

| Accessory Type | Series                 | Description   | Max Application Voltage | Max Application Amperage |
|----------------|------------------------|---|-------------------------|--------------------------|
| Holder         | <a href="#">155100</a> | Twist-Lock In-Line Fuseholder   | 32                      | 20                       |
|                | <a href="#">342</a>    | Traditional Panel Mount Fuseholder  | 250                     | 20                       |
|                | <a href="#">346</a>    | Panel Mount Flip-Top Shock-Safe Fuseholder                                | 250                     | 15                       |
|                | <a href="#">345</a>    | Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options | 250                     | 20                       |
| Block          | <a href="#">354</a>    | Low Profile OMNI-BLOK® Fuse Block   | 600                     | 30                       |
|                | <a href="#">359</a>    | High Current Screw Terminal Fuse Block                                    |                         | 30                       |
| Clip           | <a href="#">122</a>    | High Current Traditional PC Board Fuse Clip                               | 1000                    | 30                       |
|                | <a href="#">101</a>    | Rivet/Eyelet Type Fuse Clip   | 1000                    | 15                       |







- Notes:
- Do not use in applications above rating.
  - Please refer to fuseholder data sheet for specific re-rating information.
  - Please contact factory for applications greater than the max voltage and amperage shown.

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|    | 29862  | 0.375A - 20A   |
|    | E10480   | 20A - 40A  |
|  | 314 Series:<br>NBK030805-E10480A<br>NBK030805-E10480C<br>NBK030805-E10480E<br>NBK260106-JP1021A<br>324 Series:<br>NBK030805-E10480B<br>NBK030805-E10480D<br>NBK030805-E10480F<br>NBK260106-JP1021B | 1A - 3.5A<br>4A - 5A<br>6A - 15A<br>20A - 30A<br><br>1A - 3.5A<br>4A - 5A<br>6A - 15A<br>20A - 30A |
|  | SU05001-6003<br>SU05001-6001<br>SU05001-7006<br>SU05001-8002<br>SU05001-8003<br>SU05001-6002   | 3A<br>4-6A<br>7-10A<br>12-15A<br>20A<br>25-30A   |
|  | N/A  | 0.375A - 30A   |

#### Description

The 3AB Fast-Acting Fuse with ceramic body construction permits higher interrupting ratings and voltage ratings. Ideal for applications where high current loads are expected.

#### 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 for Series

| % of Ampere Rating | Ampere Rating | Opening Time      |
|--------------------|---------------|-------------------|
| 100%               | 0.375 - 40    | 4 hours, Minimum  |
| 135%               | 0.375 - 30    | 1 hour, Maximum   |
| 200%               | 0.375 - 12    | 15 secs., Maximum |
|                    | 15 - 30       | 30 secs., Maximum |
| 250%               | 40            | 30 secs., Maximum |

#### Additional Information



**Datasheet  
314 Series**



**Resources  
314 Series**



**Samples  
314 Series**



**Accessories  
314 & 324 Series**



**Datasheet  
324 Series**



**Resources  
324 Series**



**Samples  
324 Series**

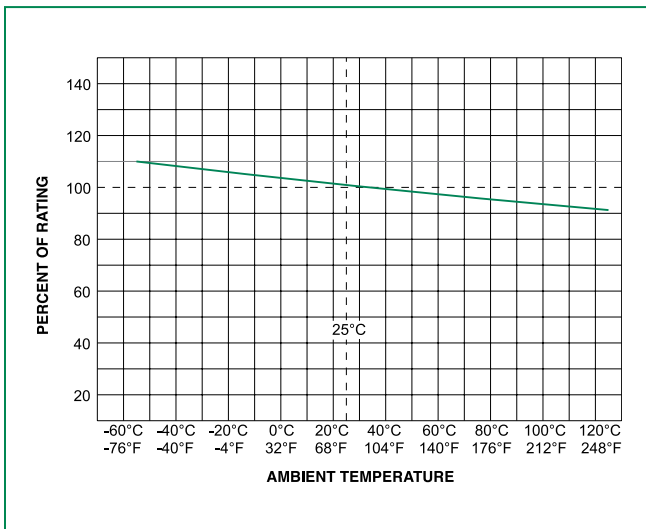
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### Electrical Specification by Item

| 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               | SP | CCC | CULUS | PS E | CE |   |
| .375     | 0.375             | 250                | 35 A @ 250 VAC<br>10 kA @ 125 VAC<br>10 kA @ 125 VDC                     | 0.820   | 0.210  | x                | x  |     |       |      | x  |   |
| .500     | 0.5               | 250                |  | 0.500   | 0.639  | x                | x  |     |       |      | x  |   |
| .750     | 0.75              | 250                |  | 0.250   | 2.061  | x                | x  |     |       |      | x  |   |
| 001.     | 1                 | 250                | 100 A @ 250 VAC<br>10 kA @ 125 VAC<br>10 kA @ 125 VDC                    | 0.189   | 0.690  | x                | x  |     |       |      | x  | x |
| 002.     | 2                 | 250                |  | 0.0700  | 5.700  | x                | x  |     |       |      | x  | x |
| 003.     | 3                 | 250                |  | 0.0432  | 14.6   | x                | x  | x   |       |      | x  | x |
| 004.     | 4                 | 250                |  | 0.0470  | 10.4   | x                | x  | x   |       |      | x  | x |
| 005.     | 5                 | 250                |  | 0.0300  | 26.0   | x                | x  | x   |       |      | x  | x |
| 006.     | 6                 | 250                |  | 0.0240  | 45.0   | x                | x  | x   |       |      | x  | x |
| 007.     | 7                 | 250                |  | 0.0187  | 71.0   | x                | x  | x   |       |      | x  | x |
| 008.     | 8                 | 250                |  | 0.0153  | 105  | x                | x  | x   |       |      | x  | x |
| 010.     | 10                | 250                |  | 0.0105  | 206  | x                | x  | x   |       |      | x  | x |
| 010.*    | 10                | 280                |  | 0.0105  | 206  |                  |    |     | x     |      |    | x |
| 012.     | 12                | 250                |  | 0.00760   | 570  | x                | x  | x   |       |      | x  | x |
| 015.     | 15                | 250                |  | 0.00505   | 292  | x                | x  | x   |       |      | x  | x |
| 015.*    | 15                | 280                |  | 0.00505   | 292  |                  |    |     | x     |      |    | x |
| 020.     | 20                | 250                |  | 1000 A @ 250 VAC<br>200 A @ 300 VAC<br>10 kA @ 125 VAC<br>10 kA @ 125 VDC | 0.00355  | 631              |    | x   | x     | x    | x  | x |
| 020.*    | 20                | 280                |  |   | 0.00355  | 631              |    |     |       | x    |    |   |
| 025.     | 25                | 250                | 100 A @ 250 VAC<br>1000 A @ 75 VDC<br>400 A @ 125 VAC<br>400 A @ 125 VDC | 0.00235   | 1450   |                  |    | x   | x     | x    | x  |   |
| 025.**   | 25                | 280                |  | 0.00235   | 1450   |                  |    |     | x     |      |    | x |
| 030.     | 30                | 250                |  | 0.00182   | 2490   |                  |    | x   | x     | x    | x  |   |
| 040.     | 40                | 250                | 1000 A @ 250 VAC<br>400 A @ 150 VDC                                      | 0.0014  | 22925  |                  |    |     | x     |      | x  |   |

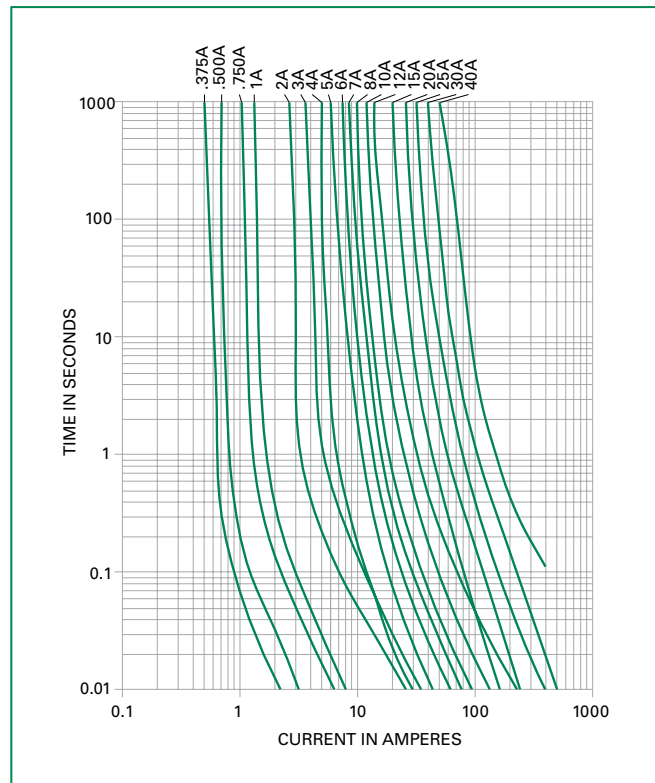
\* 350A@280VAC interrupting rating available for 10A, 15A and 20A.  
 \*\* 50A@280VAC for 25A. Add suffix '280'. Example: 0324020.MX280P.  
 \*\*\* I<sup>2</sup>t test at 10x rated current

### Temperature Re-rating Curve

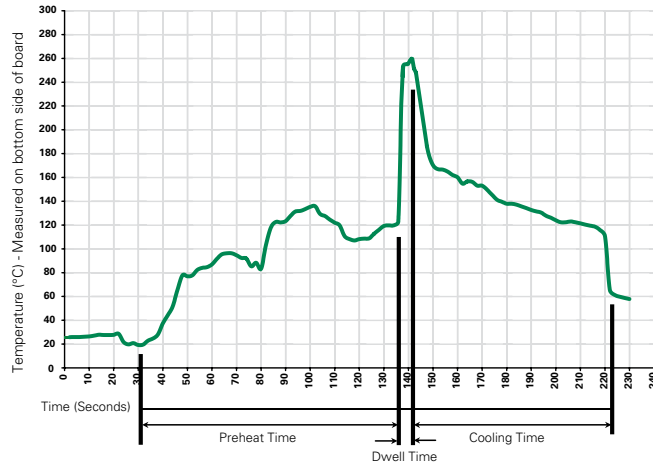


Note:  
 Re-rating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

### Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter  | Lead-Free Recommendation |
|---|--------------------------|
| <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>  | 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.**

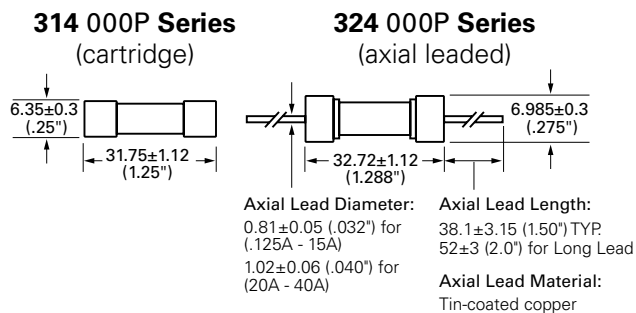
### Product Characteristics

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

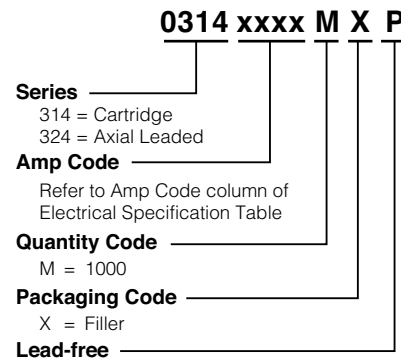
|                              |   |
|------------------------------|---|
| <b>Operating Temperature</b> | -55°C to +125°C   |
| <b>Thermal Shock</b>         | MIL-STD-202, Method 107, Test Condition B (5 cycles, -65°C to +125°C)                                   |
| <b>Vibration</b>             | MIL-STD-202,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

### Dimensions

Measurements displayed in millimeters (inches)



### Part Numbering System



### Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|-------------------|-------------------------|----------|---------------------------|--------------|
| <b>314 Series</b> |                         |          |                           |              |
| Bulk              | N/A                     | 5        | VX                        | N/A          |
| Bulk              | N/A                     | 100      | HX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX52L<br>(long lead)      | N/A          |
| Bulk              | N/A                     | 1000     | MXCC                      | N/A          |
| Bulk              | N/A                     | 1000     | MX52LE<br>(long lead)     | N/A          |
| <b>324 Series</b> |                         |          |                           |              |
| Bulk              | N/A                     | 5        | VX                        | N/A          |
| Bulk              | N/A                     | 100      | HX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX                        | N/A          |
| Bulk              | N/A                     | 1000     | MX280                     | N/A          |
| Bulk              | N/A                     | 1000     | MX52<br>(long lead)       | N/A          |
| Bulk              | N/A                     | 1000     | MXF24                     | N/A          |

### Recommended Accessories

| Accessory Type | Series                 | Description   | Max Application Voltage | Max Application Amperage |
|----------------|------------------------|---|-------------------------|--------------------------|
| Holder         | <a href="#">155100</a> | Twist-Lock In-Line Fuseholder   | 32                      | 20                       |
|                | <a href="#">342</a>    | Traditional Panel Mount Fuseholder  | 250                     | 20                       |
|                | <a href="#">346</a>    | Panel Mount Flip-Top Shock-Safe Fuseholder                                | 250                     | 15                       |
|                | <a href="#">345</a>    | Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options | 250                     | 20                       |
| Block          | <a href="#">354</a>    | Low Profile OMNI-BLOK® Fuse Block   | 600                     | 30                       |
|                | <a href="#">359</a>    | High Current Screw Terminal Fuse Block                                    |                         | 30                       |
| Clip           | <a href="#">122</a>    | High Current Traditional PC Board Fuse Clip                               | 1000                    | 30                       |
|                | <a href="#">101</a>    | Rivet/Eyelet Type Fuse Clip   | 1000                    | 15                       |

- Notes:
- Do not use in applications above rating.
  - Please refer to fuseholder data sheet for specific re-rating information.
  - Please contact factory for applications greater than the max voltage and amperage shown.

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