

218 Series

5x20 mm, Time-Lag Fuse



Description

The 218 series fuse is a 5x20mm time-lag glass body cartridge fuse designed to IEC specification.

Features & Benefits

- Designed to International IEC Standards for use globally
- Meets the IEC 60127-2, Sheet 3 specification for Time-Lag fuses
- Available in cartridge and axial lead form
- RoHS compliant and lead-free

Web Resources



Download ECAD models, order samples, and find technical resources at www.littelfuse.com

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 | |
|--------------|--|-----------------------|-----------------|
| PS E | Cartridge: NBK090205-E10480A NBK120802-E10480C | 1A – 5A 6.3A – 15A | |
| | Leaded: NBK090205-E10480B NBK120802-E10480D | 1A – 5A 6.3A – 15A | |
| | CCC | 2020970207000065 | 0.032A – 6.3A |
| | UL | SU05001-3005 | 0.032A – 0.040A |
| SU05001-2008 | | 0.050A – 0.800A | |
| SU05001-2009 | | 1A – 10A | |
| UL | E10480 | 0.032A – 16A | |
| SP | 29862 | 0.032A - 10A; 15A | |
| S | 2300869 | 0.032A – 6.3A | |
| D'E | 40013496 | 0.032A – 10A | |
| VDE | 40016604 | 15A* | |
| VDE | KM41462 | 0.080A – 6.3A | |
| CE | N/A | 0.032A – 16A | |

* - Approval for Cartridge versions only

Electrical Characteristics

| % of Ampere Rating | Ampere Rating | Opening Time |
|--------------------|-----------------|-----------------------------|
| 150% | 0.032A - 0.100A | 60 minutes, Minimum |
| | 0.125A - 6.3A | 60 minutes, Minimum |
| | 8A - 16A | 30 minutes, Minimum |
| 210% | 0.032A - 0.100A | 120 sec., Maximum |
| | 0.125A - 6.3A | 120 sec., Maximum |
| | 8A - 16A | 120 sec., Maximum |
| 275% | 0.032A - 0.100A | 200 ms., Min.; 10 sec. Max. |
| | 0.125A - 6.3A | 600 ms., Min.; 10 sec. Max. |
| | 8A - 16A | 600 ms., Min.; 10 sec. Max. |
| 400% | 0.032A - 0.100A | 40 ms., Min.; 3 sec. Max. |
| | 0.125A - 6.3A | 150 ms., Min.; 3 sec. Max. |
| | 8A - 16A | 150 ms., Min.; 3 sec. Max. |
| 1000% | 0.032A - 0.100A | 10 ms., Min.; 300 ms. Max. |
| | 0.125A - 6.3A | 20 ms., Min.; 300 ms. Max. |
| | 8A - 16A | 20 ms., Min.; 300 ms. Max. |

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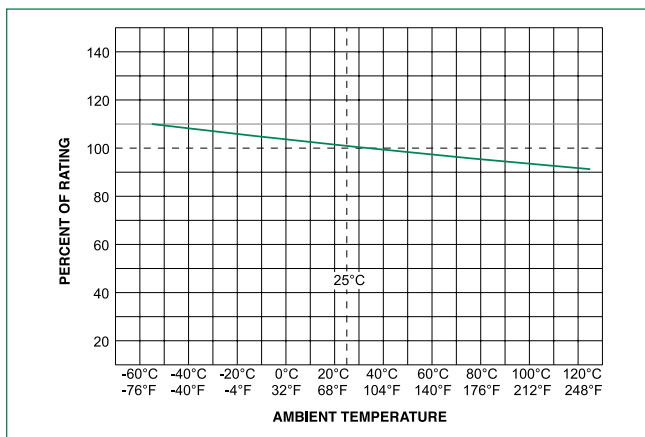
5x20 mm, Time-Lag Fuse

Electrical Characteristics

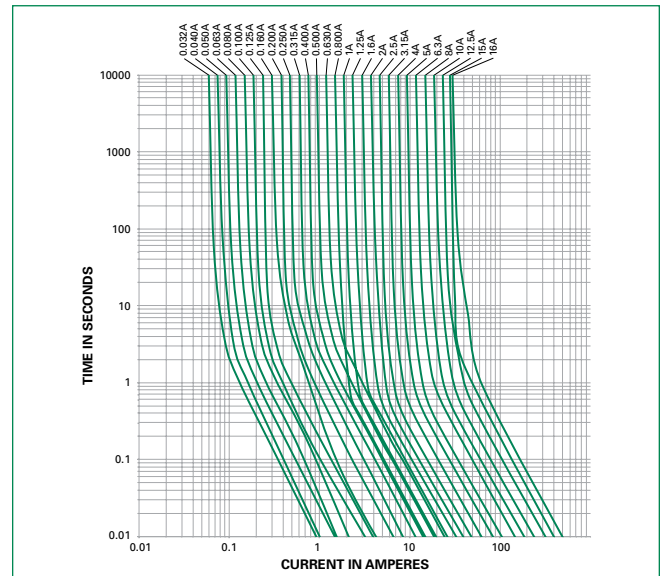
| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting I ² t (A ² sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation At 1.5In(W) | Agency Approvals | | | | | | | | |
|----------|----------------|--------------------|---------------------|--------------------------------|---|--|---------------------------------------|------------------|---|---|---|---|---|---|---|----|
| | | | | | | | | | | | | | | | | |
| .032 | 0.032 | 250 | 35 A @ 250 VAC | 48.258 | 0.011 | 5000 | 1.6 | - | x | x | - | x | x | x | x | x |
| .040 | 0.04 | 250 | | 31.862 | 0.011 | 4000 | 1.6 | - | x | x | - | x | x | x | x | x |
| .050 | 0.05 | 250 | | 21.292 | 0.027 | 3500 | 1.6 | - | x | x | - | x | x | x | x | x |
| .063 | 0.063 | 250 | | 14.268 | 0.046 | 3000 | 1.6 | - | x | x | - | x | x | x | x | x |
| .080 | 0.08 | 250 | | 9.07 | 0.075 | 2500 | 1.6 | x | x | x | - | x | x | x | x | x |
| .100 | 0.1 | 250 | | 6.018 | 0.079 | 2000 | 1.6 | x | x | x | - | x | x | x | x | x |
| .125 | 0.125 | 250 | | 4.2 | 0.1465 | 1900 | 1.6 | x | x | x | - | x | x | x | x | x |
| .160 | 0.16 | 250 | | 3.7 | 0.144 | 1500 | 1.6 | x | x | x | - | x | x | x | x | x |
| .200 | 0.2 | 250 | | 1.6 | 0.341 | 1300 | 1.6 | x | x | x | - | x | x | x | x | x |
| .250 | 0.25 | 250 | | 1.0495 | 0.5405 | 1100 | 1.6 | x | x | x | - | x | x | x | x | x |
| .315 | 0.315 | 250 | | 0.8475 | 1.11 | 1000 | 1.6 | x | x | x | - | x | x | x | x | x |
| .400 | 0.4 | 250 | | 0.535 | 1.325 | 900 | 1.6 | x | x | x | - | x | x | x | x | x |
| .500 | 0.5 | 250 | | 0.37 | 2.825 | 300 | 1.6 | x | x | x | - | x | x | x | x | x |
| .630 | 0.63 | 250 | | 0.275 | 4.675 | 250 | 1.6 | x | x | x | - | x | x | x | x | x |
| .800 | 0.8 | 250 | | 0.0813 | 3.37 | 150 | 1.6 | x | x | x | - | x | x | x | x | x |
| 001. | 1 | 250 | | 0.0613 | 6.73 | 150 | 1.6 | x | x | x | x | x | x | x | x | x |
| 1.25 | 1.25 | 250 | | 0.0446 | 12.65 | 150 | 1.6 | x | x | x | x | x | x | x | x | x |
| 01.6 | 1.6 | 250 | | 0.0336 | 23.35 | 150 | 1.6 | x | x | x | x | x | x | x | x | x |
| 002. | 2 | 250 | | 0.0293 | 14.45 | 150 | 1.6 | x | x | x | x | x | x | x | x | x |
| 02.5 | 2.5 | 250 | | 0.0219 | 23.25 | 120 | 1.6 | x | x | x | x | x | x | x | x | x |
| 3.15 | 3.15 | 250 | 0.0173 | 38.15 | 100 | 1.6 | x | x | x | x | x | x | x | x | x | |
| 004. | 4 | 250 | 40 A @ 250 VAC | 0.0129 | 69.1 | 100 | 1.6 | x | x | x | x | x | x | x | x | |
| 005. | 5 | 250 | 50 A @ 250 VAC | 0.0104 | 111.0 | 100 | 1.6 | x | x | x | x | x | x | x | x | |
| 06.3 | 6.3 | 250 | 63 A @ 250 VAC | 0.0076 | 198.5 | 100 | 1.6 | x | x | x | x | x | x | x | x | |
| 008. | 8 | 250 | 80 A @ 250 VAC | 0.0059 | 341.5 | 100 | 4 | - | x | - | x | x | x | - | x | x |
| 010. | 10 | 250 | 100 A @ 250 VAC | 0.0045 | 568.0 | 100 | 4 | - | x | - | x | x | x | - | x | x |
| 12.5 | 12.5 | 250 | 63 A @ 250 VAC | 0.0034 | 889.0 | 100 | 4 | - | - | - | x | x | - | - | x | - |
| 015. | 15 | 250 | 100 A @ 250 VAC | 0.0028 | 1405.00 | 100 | 4 | - | - | - | x | x | x | - | x | x* |
| 016. | 16 | 250 | 63 A @ 250 VAC | 0.0021 | 1955.00 | 100 | 4 | - | - | - | - | x | - | - | x | - |

* - Approval for cartridge versions only

Temperature Re-rating Curve



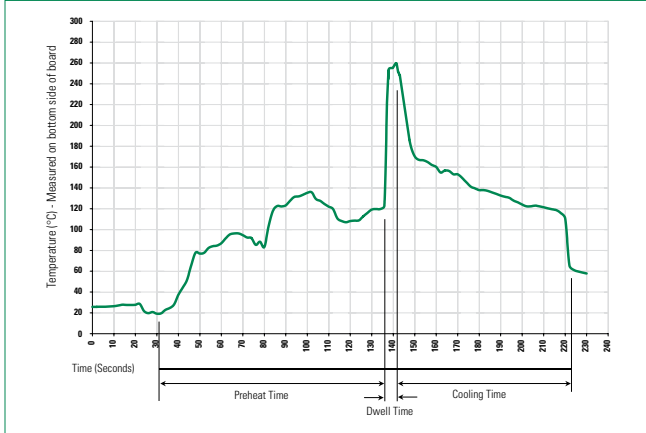
Average Time Current Curves



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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 Dwell Time: | 2-5 seconds |

Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350°C +/- 5°C Heating Time: 5 seconds max.

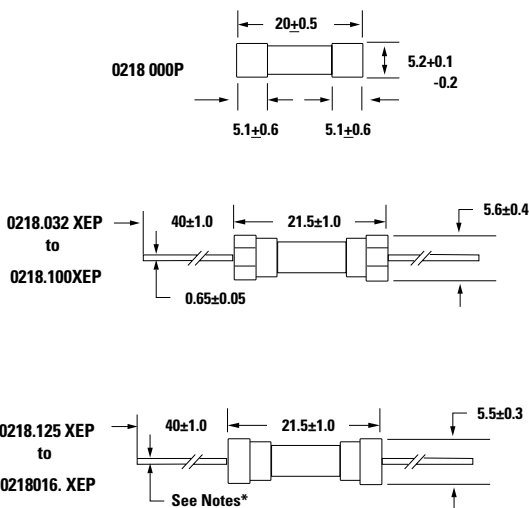
Note: These devices are not recommended for IR or Convection Reflow process.

Product Characteristics

| | |
|--------------------------|--|
| Material | Body: Glass Cap: Nickel-plated Brass Leads: Tin-plated Copper |
| Terminal Strength | MIL-STD-202, Method 211, Test Condition A |
| Solderability | MIL-STD-202, Method 208 |
| Product Marking | Cap1: Brand logo, current and voltage ratings Cap2: Agency approval marks |
| Packaging | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel) |

| | |
|------------------------------|---|
| Operating 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 Condition A (High RH (95%) and elevated temperature (40°C) for 240 hours) |
| Salt Spray | MIL-STD-202, Method 101, Test Condition B |

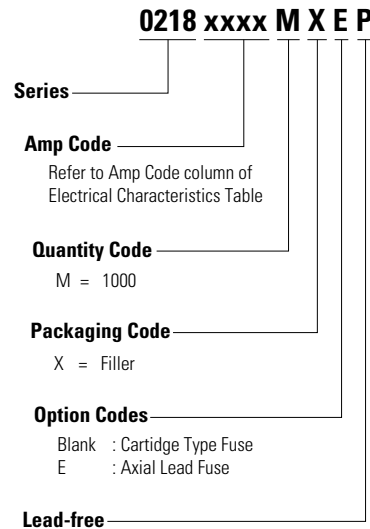
Dimensions



Notes:
* 0.032A-6.3A have 0.65±0.05 diameter lead.
8A-16A have 0.8±0.05 diameter lead.

All dimensions in mm

Part Numbering System



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Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|-------------------|-------------------------|----------|---------------------------|------------------|
| 218 Series | | | | |
| Bulk | N/A | 1000 | MX | N/A |
| Bulk | N/A | 1000 | MXE | N/A |
| Reel and Tape | EIA 296-E | 1000 | MRET1 | T1=53mm (2.087") |
| Bulk | N/A | 1000 | MXG | N/A |
| Bulk | N/A | 1000 | MXB | N/A |
| Bulk | N/A | 100 | HX | N/A |

Recommended Accessories

| Accessory Type | Series | Description | Max Application Voltage | Max Application Amperage |
|----------------|-------------------------|---|-------------------------|--------------------------|
| Holder | 345_ISF | Panel Mount Shock-Safe Fuseholder | 250 | 20 |
| | 345 | Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options | | 20 |
| | 830 | PC Mount Shock-Safe Miniature Fuseholder | | 16 |
| Block | 520 | Metric OMNI-BLOK® Fuse Block | | 10 |
| | 646 | PC Mount Miniature Fuse Block | | 6.3 |
| | 658 | Surface Mount Miniature Fuse Block | | 10 |
| Clip | 520_W | PC Mount Miniature Fuse Clip | | 6.3 |
| | 111 | PC Board Mount Fuse Clip | | 10 |
| | 445 | PC Board Mount Fuse Clip | | 10 |

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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