

216 Series

5×20 mm, Fast-Acting Fuse



Description

The 216 Series is a 5x20mm, Fast-Acting, ceramic body, cartridge fuse designed to IEC specifications

Features and Benefits

- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- Meets Standard Sheet 1 of IEC 60127-2 as a Fast-Acting fuse
- Available in cartridge and axial lead form
- RoHS compliant and lead-free
- Conforms to GB 9364.1 and GB 9364.2
- CE Mark indicates compliance with Low-Voltage and RoHS Directives.

Additional Information



Resources



Accessories



Samples

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 |
|--------|-----------------------------|---------------------------|
| | Cartridge 216 Series | 1A-5A |
| | NBK 080205-E10480A | 6.3A-10A |
| | NBK 250702-E10480E | 12.5A |
| | NBK 240108-JP1021C | 16A |
| | NBK 240108-JP1021E | |
| | Leaded 216E Series | 1A-5A |
| | NBK 080205-E10480B | 6.3A-10A |
| | NBK 250702-E10480F | 12.5A |
| | NBK 240108-JP1021D | 16A |
| | NBK 240108-JP1021F | |
| | 2020970207000066 | 0.05A-10A |
| | SU05001-2013 | 1A – 10A |
| | E10480 | 0.05A – 16A |
| | 29862 | |
| | SE-S-2101461 | 0.05A - 10A, 16A |
| | 40013834 | 0.05A – 6.3A *8A, *10A |
| | 40016442 | *12.5A |
| | KM41462 | 1A – 6.3A |
| | J50248090 | 8A – 16A |
| | N/A | 0.05A – 16A |

*Approval for Cartridge versions only

Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time |
|--------------------|---------------|---------------------------------|
| 150% | 0.05A – 4A | 60 minutes, Minimum |
| | 5A – 6.3A | 60 minutes, Minimum |
| | 8A – 16A | 30 minutes, Minimum |
| 210% | 0.05A – 4A | 30 minutes, Maximum |
| | 5A – 6.3A | 30 minutes, Maximum |
| | 8A – 16A | 30 minutes, Maximum |
| 275% | 0.05A – 4A | 0.01 sec., Min.; 2 sec. Max. |
| | 5A – 6.3A | 0.01 sec., Min.; 3 sec. Max. |
| | 8A – 16A | 0.04 sec., Min.; 20 sec. Max. |
| 400% | 0.05A – 4A | 0.003 sec., Min.; 0.3 sec. Max. |
| | 5A – 6.3A | 0.003 sec., Min.; 0.3 sec. Max. |
| | 8A – 16A | 0.01 sec., Min.; 1.0 sec. Max. |
| 1000% | 0.05A – 4A | 0.02 seconds, Maximum |
| | 5A – 6.3A | 0.02 seconds, Maximum |
| | 8A – 16A | 0.03 seconds, Maximum |

216 Series

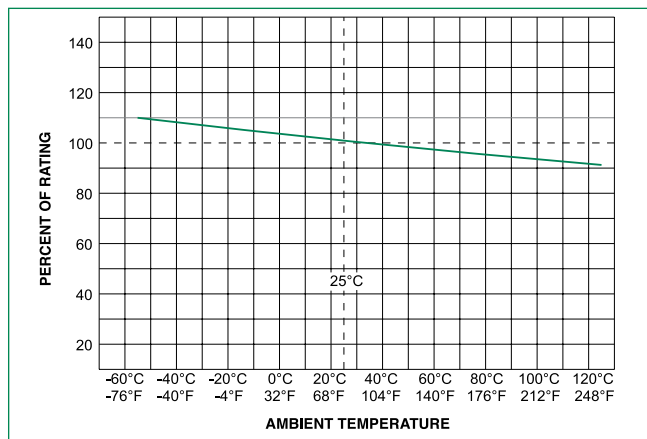
5x20 mm, Fast-Acting Fuse

Electrical Characteristics Specifications by Item

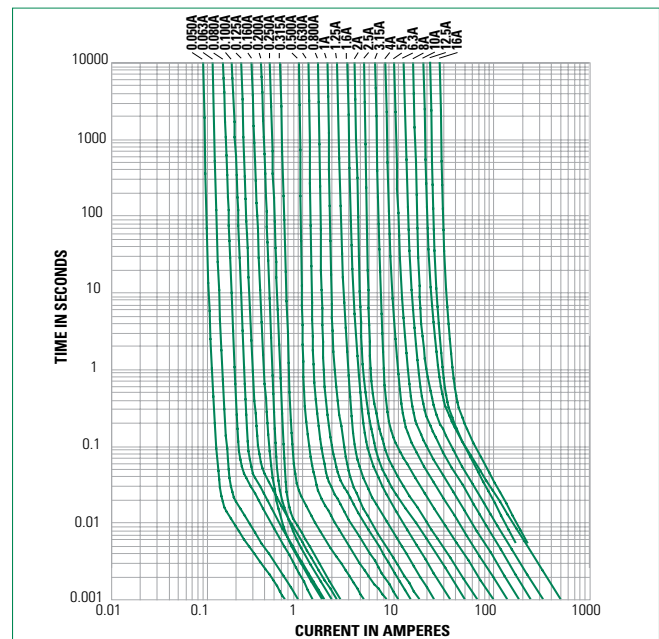
| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating* | Nominal Cold Resistance (Ohms) | Nominal Melting I ² t (A ² sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation at 1.5I _n (W) | Agency Approvals | | | | | | | | | | | |
|----------|----------------|--------------------|----------------------|--------------------------------|---|--|--|------------------|-----|---|------|----|----|----|----|------|-----|----|------|
| | | | | | | | | UL | CCC | C | RU | US | SP | S | CE | OVE | VDE | UL | PS E |
| .050 | 0.05 | 250 | 1500A@250Vac | 15.9000 | 0.00019 | 10000 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .063 | 0.063 | 250 | | 10.4500 | 0.00079 | 8800 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .080 | 0.08 | 250 | | 7.8850 | 0.00084 | 7600 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .100 | 0.1 | 250 | | 5.7925 | 0.00450 | 7000 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .125 | 0.125 | 250 | | 3.6750 | 0.00546 | 5000 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .160 | 0.16 | 250 | | 5.3490 | 0.00326 | 4300 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .200 | 0.2 | 250 | | 3.3500 | 0.00439 | 3500 | 1.6 | - | - | x | x | x | x | x | - | - | - | | |
| .250 | 0.25 | 250 | | 2.3500 | 0.01350 | 2800 | 2.5 | - | - | x | x | x | x | x | - | - | - | | |
| .315 | 0.315 | 250 | | 1.8500 | 0.02320 | 2500 | 2.5 | - | - | x | x | x | x | x | - | - | - | | |
| .500 | 0.5 | 250 | | 0.8660 | 0.16500 | 1800 | 2.5 | - | - | x | x | x | x | x | - | - | - | | |
| .630 | 0.63 | 250 | | 0.4650 | 0.05940 | 1500 | 2.5 | - | - | x | x | x | x | x | - | - | - | | |
| .800 | 0.8 | 250 | | 0.2950 | 0.14600 | 1200 | 2.5 | - | - | x | x | x | x | x | - | - | - | | |
| 001. | 1 | 250 | | 0.2370 | 0.18000 | 1000 | 2.5 | x | x | x | x | x | x | x | - | - | x | | |
| 1.25 | 1.25 | 250 | | 0.1530 | 0.48000 | 800 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 016. | 1.6 | 250 | | 0.1112 | 1.00500 | 600 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 002. | 2 | 250 | | 0.0764 | 1.87000 | 500 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 02.5 | 2.5 | 250 | | 0.0584 | 3.67200 | 400 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 3.15 | 3.15 | 250 | | 0.0368 | 6.70000 | 350 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 004. | 4 | 250 | | 0.0247 | 14.99500 | 300 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 005. | 5 | 250 | | 0.0183 | 27.46000 | 250 | 4 | x | x | x | x | x | x | x | - | - | x | | |
| 06.3 | 6.3 | 250 | 0.0137 | 56.43000 | 200 | 4 | x | x | x | x | x | x | x | - | - | x | | | |
| 008. | 8 | 250 | 0.0123 | 64.31500 | 200 | 4 | - | x | x | x | x | x | x | x* | - | x | | | |
| 010. | 10 | 250 | 0.0079 | 154.34000 | 200 | 4 | - | x | x | x | x | x | x | x* | - | x | | | |
| 12.5 | 12.5 | 250 | 0.0057 | 175.00000 | 200 | N/A** | - | - | - | x | x | - | x | - | x* | x | | | |
| 016. | 16 | 250 | 750A@250Vac | 0.0040 | 462.50000 | 200 | N/A** | - | - | - | x*** | x | x | - | - | x*** | x | | |

* Approval for cartridge versions only.
 ** Please contact Littelfuse for details on these parameters I²t test at 10x rated current
 *** 1500A@250Vac for 16A
 * Interrupting Rating may differ based on Agency Approval. See Agency Approval certificate for more details.

Temperature Re-rating Curve



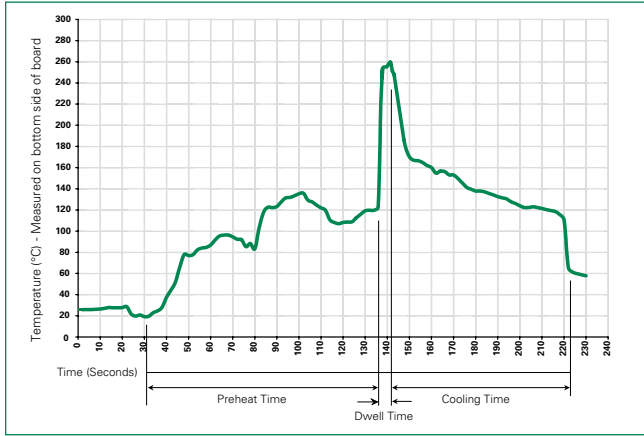
Average Time Current Curves



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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.

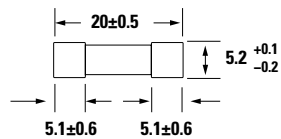
Product Characteristics

| | |
|--------------------------|---|
| Material | Body: Ceramic Cap: Nickel-plated brass Leads: Tin-plated Copper Filler (160mA-16A): Sand |
| Terminal Strength | MIL-STD-202, Method 211, Test Condition A |
| Solderability | MIL-STD-202 Method 208 |
| Product Marking | Cap 1: Brand logo, current and voltage rating Cap 2: Agency approval markings |
| Packaging | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel) |

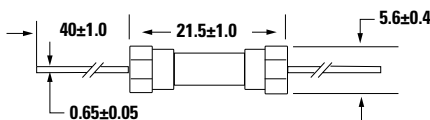
| | |
|------------------------------|---|
| Operating Temperature | -55°C to +125°C |
| Thermal Shock | MIL-STD-202, Method 107, Test Condition B: (5 cycles -65°C to +125°C) |
| Vibration | MIL-STD-202, Method 201 |
| Humidity | MIL-STD-202, Method 103, Test Condition A. high RH (95%) and elevated temperature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

Dimensions

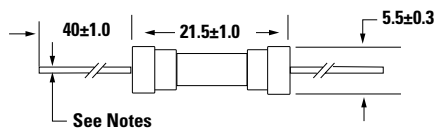
0216 000XP



0216.050XEP
to
0216.800XEP



0216001.XEP
to
0216016.XEP



All dimensions in mm

Part Numbering System

0216 xxxx M X E P

Series

Amp Code

Refer to Amp Code column of Electrical Characteristics Table

Quantity Code

M = 1000

Packaging Code

X = Filler

Option Codes

Blank : Cartridge Type Fuse
E : Axial Leaded Fuse

Lead-free

Notes:

- 0.05A-6.3A have 0.65±0.05 diameter lead.
- 8A-16A have 0.8±0.05 diameter lead.

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Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|-------------------|-------------------------|----------|---------------------------|------------------|
| 216 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 | 10 |
| | 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 Littelfuse for applications greater than the max voltage and amperage shown.

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