

RoHS  **215 Series, 5 x 20 mm, Time-Lag (Slo-Blo®) Fuse**



Description

5x20mm Time-Lag surge withstand ceramic body cartridge fuse designed to IEC specification











Features

- Designed to International (IEC) Standards for use globally
- High breaking capacity
- Meet the IEC 60127-2, Sheet 5 specification for Time-Lag fuses
- 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 |
|---|---|---|
|  | Cartridge Certificates: NBK080205-E10480A NBK250702-E10480E NBK100408-JP1021A Leaded Certificates: NBK080205-E10480B NBK250702-E10480F NBK100408-JP1021B | 1A – 5A 6.3A – 15A 16A – 20A 1A – 5A 6.3A – 15A 16A – 20A |
|  | Certificates: 2005010207145714 | 1A – 6.3A |
|  | Certificates: SU05001– 2011 SU05001– 2012 | 1A – 3.15A 4A – 10A |
|  | Recognised File: E10480 | 125mA – 20A |
|  | File: 029862 Acc. Class: LR1422 – 30 | 500mA – 12A |
|  | License: KM41462 | 200mA – 10A |
|  | License: 606726 902193 915511 0147100 709071 709302 | 125mA, 160mA 200mA – 800mA, 8A, 10A 1A – 3.15A 4A – 6.3A 12A *15A – *20A |
|  | License: 40013521 | 200mA – 8A *10A |
|  | License: 40016610 | *12A |
|  | | 125mA – 20A |

* Approved for cartridge versions only

Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time |
|--------------------|---------------|---------------------------------|
| 150% | 125mA – 800mA | 60 minutes, Minimum |
| | 1A – 3.15A | 60 minutes, Minimum |
| | 4A – 6.3A | 60 minutes, Minimum |
| | 8A – 20A | 30 minutes, Minimum |
| 210% | 125mA – 800mA | 30 minutes, Maximum |
| | 1A – 3.15A | 30 minutes, Maximum |
| | 4A – 6.3A | 30 minutes, Maximum |
| | 8A – 12A | 30 minutes, Maximum |
| 275% | 125mA – 800mA | .25 sec. Min.; 80 secs. Max. |
| | 1A – 3.15A | .75 sec. Min.; 80 secs. Max. |
| | 4A – 6.3A | .75 sec. Min.; 80 secs. Max. |
| | 8A – 20A | .75 sec. Min.; 80 secs. Max. |
| 400% | 125mA – 800mA | .05 sec., Min.; 5 secs. Max. |
| | 1A – 3.15A | .095 sec., Min.; 5 secs. Max. |
| | 4A – 6.3A | .150 sec., Min.; 5 secs. Max. |
| | 8A – 20A | .150 sec., Min.; 5 secs. Max. |
| 1000% | 125mA – 800mA | .005 sec., Min.; .150 sec. Max. |
| | 1A – 3.15A | .010 sec., Min.; .150 sec. Max. |
| | 4A – 6.3A | .010 sec., Min.; .150 sec. Max. |
| | 8A – 20A | .010 sec., Min.; .150 sec. Max. |

215 Series

Electrical Characteristic Specifications by Item

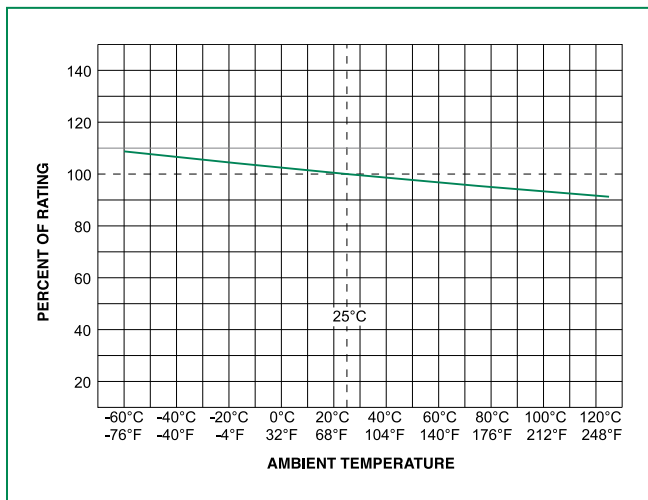
| Amp Code | Amp Rating | Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting I ² t (A ² sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation at Rated Current (W) | Agency Approvals | | | | | | | | | | | | |
|----------|------------|--------------------|---------------------|--------------------------------|---|--|--|------------------|-----|-----|----|----|-----|----|-----|-----|----|--|---|---|
| | | | | | | | | PS E | CCC | CEC | UL | SP | VDE | UL | DVE | VDE | CE | | | |
| .125 | 0.125 | 250 | 1500 A @ 250 VAC | 11.4455 | 0.0330 | 2600 | 1.6 | | | | | x | | | x | | | | x | |
| .160 | 0.16 | 250 | | 7.1000 | 0.0465 | 2400 | 1.6 | | | | | x | | | | x | | | | x |
| .200 | 0.2 | 250 | | 1.8400 | 0.340 | 2100 | 1.6 | | | | | x | | | x | x | x | | | x |
| .250 | 0.25 | 250 | | 1.2400 | 0.545 | 1500 | 1.6 | | | | | x | | | x | x | x | | | x |
| .315 | 0.315 | 250 | | 0.8800 | 0.975 | 1100 | 1.6 | | | | | x | | | x | x | x | | | x |
| .400 | 0.4 | 250 | | 0.5825 | 1.325 | 1000 | 1.6 | | | | | x | | | x | x | x | | | x |
| .500 | 0.5 | 250 | | 1.1675 | 0.420 | 850 | 1.6 | | | | | x | x | | x | x | x | | | x |
| .630 | 0.63 | 250 | | 0.7200 | 0.635 | 650 | 1.6 | | | | | x | x | | x | x | x | | | x |
| .800 | 0.8 | 250 | | 0.4675 | 0.975 | 500 | 1.6 | | | | | x | x | | x | x | x | | | x |
| 001. | 1 | 250 | | 0.1515 | 1.520 | 350 | 2.5 | | x | x | x | x | x | x | x | x | x | | | x |
| 1.25 | 1.25 | 250 | | 0.1074 | 3.200 | 300 | 2.5 | | x | x | x | x | x | x | x | x | x | | | x |
| 01.6 | 1.6 | 250 | | 0.0707 | 6.830 | 200 | 2.5 | | x | x | x | x | x | x | x | x | x | | | x |
| 002. | 2 | 250 | | 0.0566 | 11.680 | 190 | 2.5 | | x | x | x | x | x | x | x | x | x | | | x |
| 02.5 | 2.5 | 250 | | 0.0386 | 22.290 | 180 | 2.5 | | x | x | x | x | x | x | x | x | x | | | x |
| 3.15 | 3.15 | 250 | | 0.0283 | 43.255 | 140 | 4 | | x | x | x | x | x | x | x | x | x | | | x |
| 004. | 4 | 250 | | 0.0185 | 46.960 | 100 | 4 | | x | x | x | x | x | x | x | x | x | | | x |
| 005. | 5 | 250 | | 0.0153 | 66.095 | 100 | 4 | | x | x | x | x | x | x | x | x | x | | | x |
| 06.3 | 6.3 | 250 | | 0.0108 | 128.750 | 100 | 4 | | x | x | x | x | x | x | x | x | x | | | x |
| 008. | 8 | 250 | | 0.0092 | 209.880 | 100 | 4 | | x | | x | x | x | x | x | x | x | | | x |
| 010. | 10 | 250 | | 0.0066 | 333.565 | 100 | 4 | | x | | x | x | x | x | x | x | x* | | | x |
| 012. | 12 | 250 | 0.0061 | 515.500 | 100 | 4 | | x | | | x | x | | x | | | x* | | x | |
| 015. | 15 | 250 | 500 A | 0.0033 | 1237.0 | TBA** | TBA** | x | | | x | | | x* | | | | | | |
| 016. | 16 | 250 | | 0.0031 | 1408.0 | TBA** | TBA** | TBA** | x | | | x | | | x* | | | | | |
| 020. | 20 | 250 | 400 A | 0.0023 | 2600.0 | TBA** | TBA** | x | | | x | | | x* | | | | | | |

X* Approval for cartridge versions only

TBA** - Please contact Littelfuse for details on these parameters

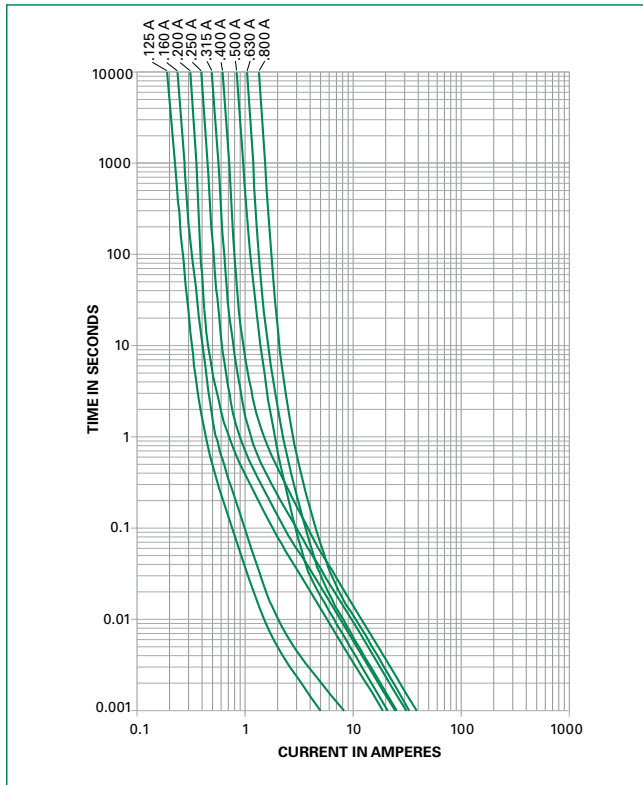
1A to 2A have an IR : 100A@500VAC, 4A to 6-3A have the IR : 100A@305 VAC and 1000A@72VDC

Temperature Derating Curve

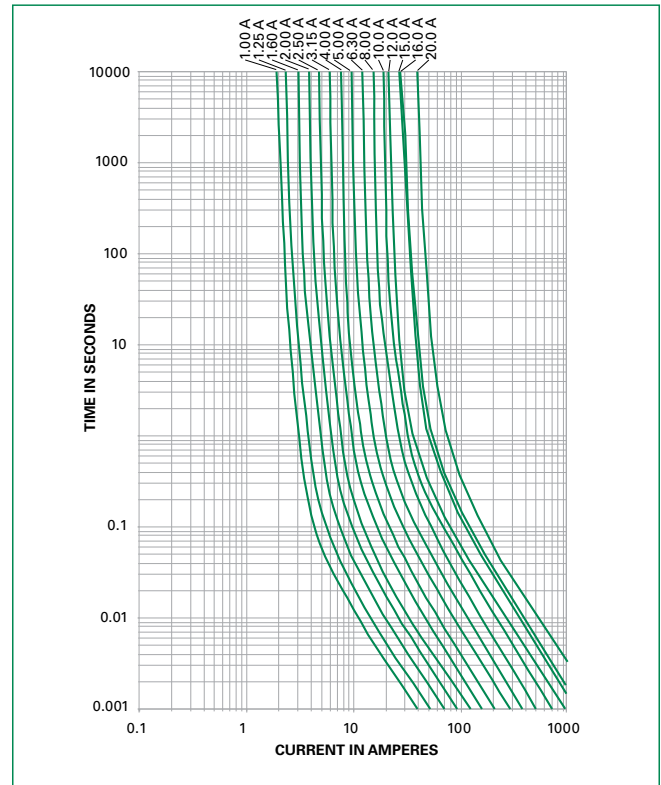


Average Time Current Curves

T-C Curves for 125mA to 800mA only



T-C Curves for 1A to 20A only

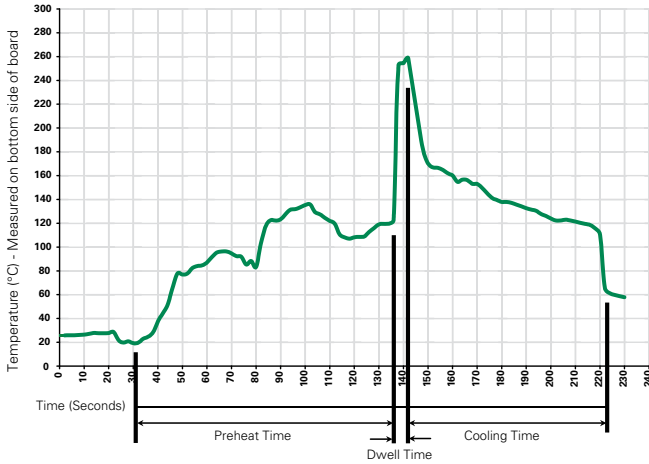


Product Characteristics

| | |
|--------------------------|---|
| Materials | Body: Ceramic Cap: Nickel-plated Brass Leads: Tin-plated Copper |
| Terminal Strength | MIL-STD-202G, Method 211A, Test Condition A |
| Solderability | Reference IEC 60127 Second Edition 2003-01 Annex A |
| Product Marking | Cap 1: Brand logo, current and voltage ratings Cap 2: Agency approval markings |

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

Soldering Parameters - Wave Soldering



Recommended Process Parameters:

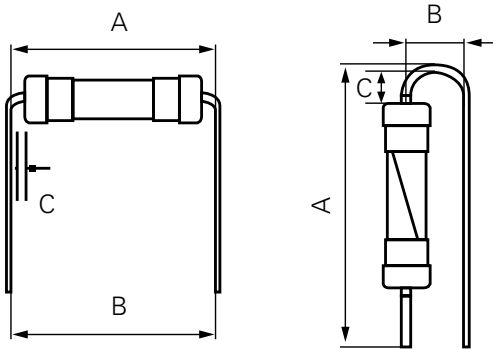
| Wave Parameter | Lead-Free Recommendation |
|---|-----------------------------------|
| Preheat: (Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum: | 100° C |
| Temperature Maximum: | 150° C |
| Preheat Time: | 60-180 seconds |
| Solder Pot Temperature: | 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.

Different values of A and B available, please contact the Littelfuse sales representative in your region:



For the pigtailed fuse, please follow the recommendations below for axial lead forming and mounting into PCB:

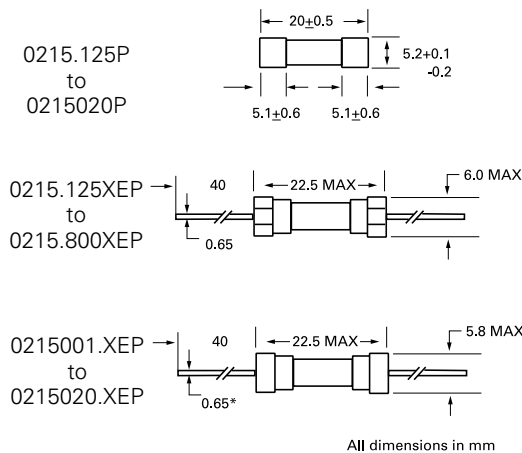
Lead forming:

The distance C between cap flat surface and axial lead shall be greater than 0.5 mm.

PCB mounting:

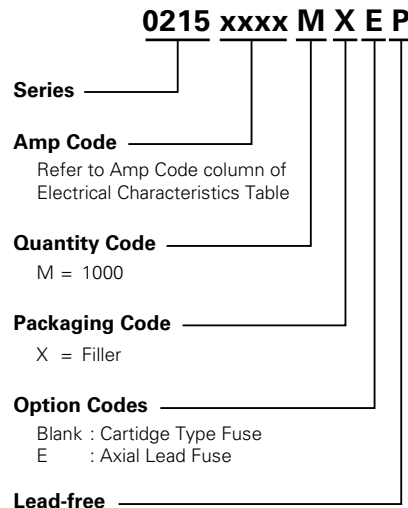
The distance between PCB and fuse cap is recommended to be a minimum of 1.5 mm.

Dimensions



* Ratings above 6.3 A have 0.8 mm diameter lead;
 ratings above 12 A have 1.2 mm diameter lead

Part Numbering System



Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|-------------------|-------------------------|----------|---------------------------|------------------|
| 215 Series | | | | |
| Bulk | N/A | 1000 | MX | N/A |
| Bulk | N/A | 1000 | MXE | N/A |
| Reel and Tape | N/A | 1000 | MRET1 | T1=52mm (2.062") |
| Bulk | N/A | 1000 | MXG | N/A |
| Bulk | N/A | 1000 | MXB | N/A |
| Bulk | N/A | 100 | HX | N/A |