# 4 Electronic Fuses

This section presents complete electrical specifications for Littelfuse's board-level electronic fuses.

# 461 Series *TeleLink*® Fuse

RoHS

Littelfuse

The *TeleLink* Surface Mount (SM) surge resistant fuse offers circuit protection without requiring a series resistor. When used in conjunction with the *SIDACtor*® Transient Voltage Suppressor (TVS), the *TeleLink* SM fuse and the *SIDACtor* TVS provide a complete regulatory-compliant solution for standards such as GR 1089, TIA-968-A (formerly known as FCC Part 68), UL 60950, and ITU K.20 and K.21. No series resistor is required for the 04611.25 and 0461002. to comply with these standards.

Contact factory for enhanced K.20 and K.21 details.

## Surge Ratings

| *TeleLink* SM Fuse | $I_{PP}$ 2x10 µs Amps | $I_{PP}$ 10x160 µs Amps | $I_{PP}$ 10x560 µs Amps | $I_{PP}$ 10x1000 µs Amps |
|---|---|---|---|---|
| **0461.500** | 100 | 65 | 45 | 35 |
| **04611.25** | 500 | 160 | 115 | 100 |
| **0461002.** | 500 | 160 | 115 | 100 |

## Interrupting Values

| *TeleLink* SM Fuse * | Voltage Rating | Current Rating | $I^2t$ Measured at DC Rated Voltage | Interrupting Rating | | | |
|---|---|---|---|---|---|---|---|
| | | | | Voltage, Current | MIN | TYP | MAX |
| **0461.500** | 600 V | .500 A | 1.3 $A^2Sec$ | 600 V, 40 A | 1 ms | 2 ms | 60 ms |
| **04611.25** | 600 V | 1.25 A | 22.2 $A^2Sec$ | 600 V, 60 A | 1 ms | 2 ms | 60 ms |
| **0461002.** | 600 V | 2 A | 30 $A^2Sec$ | 600 V, 60 A | 1 ms | 2 ms | 60 ms |

* For non-RoHS tin/lead device, add “T” suffix.

Notes:
- The *TeleLink* SM fuse is designed to carry 100% of its rated current for four hours and 250% of its rated current for one second minimum and 120 seconds maximum. Typical time is four to 10 seconds. For optimal performance, an operating current of 75% or less is recommended.
- $I^2t$ is a non-repetitive RMS surge current rating for a period of 16.7 ms.

## Resistance Ratings

| *TeleLink* SM Fuse | Typical Voltage Drop @ Rated Current | DC Cold Resistance | |
|---|---|---|---|
| | | MIN | MAX |
| **0461.500** | 0.471 V | 0.420 Ω | 0.640 Ω |
| **04611.25** | 0.205 V | 0.107 Ω | 0.150 Ω |
| **0461002.** | 0.110 V | 0.050 Ω | 0.100 Ω |

Notes:
- Typical inductance < 40 nH up to 500 MHz.
- Resistance changes 0.5% for every °C.
- Resistance is measured at 10% rated current.

## Qualification Data

The 04611.25 and 0461002. meet the following test conditions per GR 1089 **without** additional series resistance. However, in-circuit test verification is required. Note that considerable heating may occur during Test 4 of the Second Level AC Power Fault Test.

### First Level Lightning Surge Test

| Test | Surge Voltage Volts | Wave-form µs | Surge Current Amps | Repetitions Each Polarity |
|---|---|---|---|---|
| 1 | ±600 | 10x1000 | 100 | 25 |
| 2 | ±1000 | 10x360 | 100 | 25 |
| 3 | ±1000 | 10x1000 | 100 | 25 |
| 4 | ±2500 | 2x10 | 500 | 10 |
| 5 | ±1000 | 10x360 | 25 | 5 |

### Second Level Lightning Surge Test

| Test | Surge Voltage Volts | Wave-form µs | Surge Current Amps | Repetitions Each Polarity |
|---|---|---|---|---|
| 1 | ±5000 | 2x10 | 500 | 1 |

### First Level AC Power Fault Test

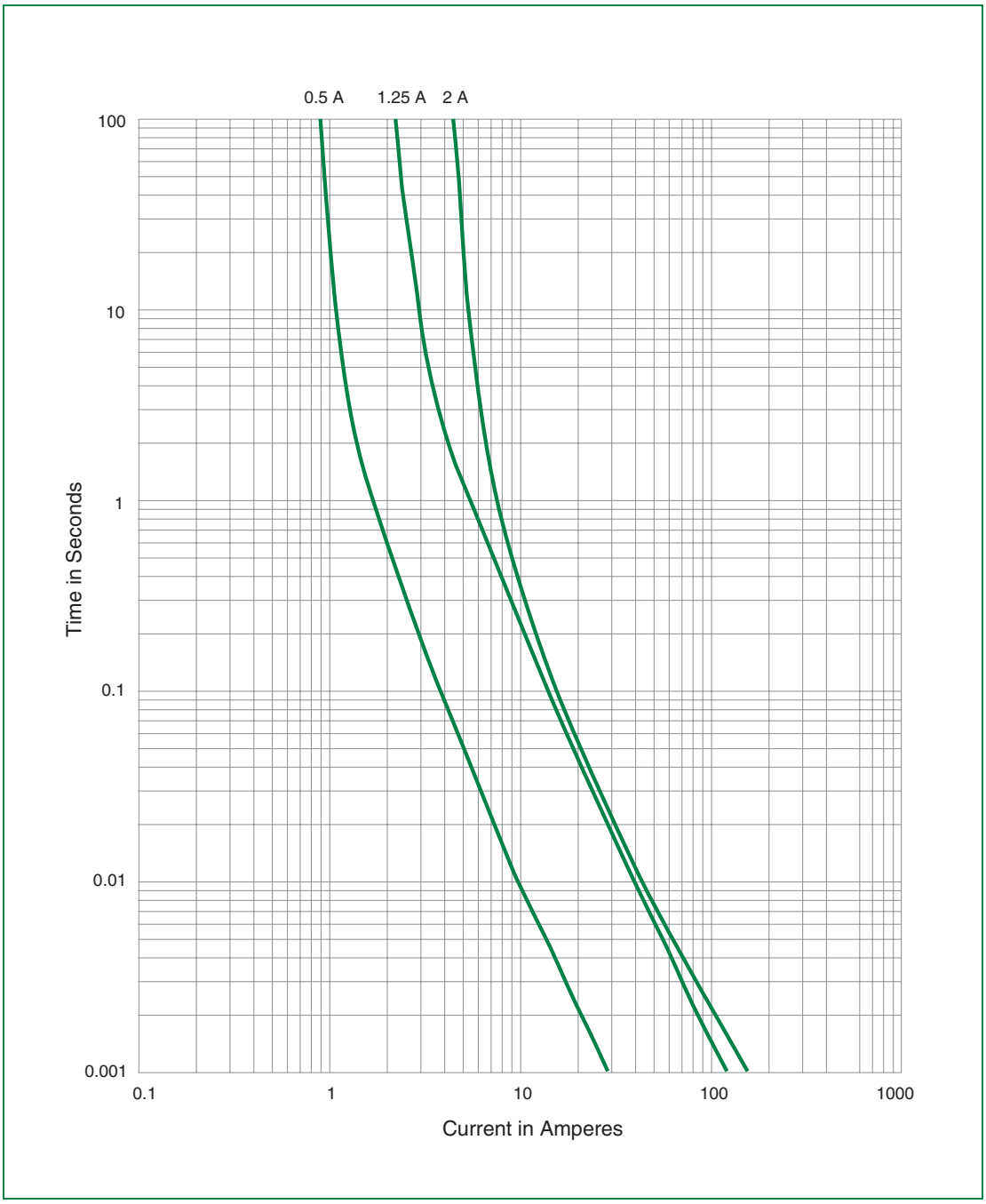
| Test | Applied Voltage, 60 Hz $V_{RMS}$ | Short Circuit Current Amps | Duration |
|---|---|---|---|
| 1 | 50 | 0.33 | 15 min |
| 2 | 100 | 0.17 | 15 min |
| 3 | 200, 400, 600 | 1 at 600 V | 60 applications, 1 s each |
| 4 | 1000 | 1 | 60 applications, 1 s each |
| 5 | * | * | 60 applications, 5 s each |
| 6 | 600 | 0.5 | 30 s each |
| 7 | 600 | 2.2 | 2 s each |
| 8 | 600 | 3 | 1 s each |
| 9 | 1000 | 5 | 0.5 s each |

* Test 5 simulates a high impedance induction fault. For specific information, contact Littelfuse, Inc.

### Second Level AC Power Fault Test for Non-customer Premises Equipment

| Test | Applied Voltage, 60 Hz $V_{RMS}$ | Short Circuit Current Amps | Duration |
|---|---|---|---|
| 1 | 120, 277 | 30 | 30 min |
| 2 | 600 | 60 | 5 s |
| 3 | 600 | 7 | 5 s |
| 4 | 100-600 | 2.2 at 600 V | 30 min |

Notes:
- Power fault tests equal or exceed the requirements of UL 60950 3rd edition.
- Test 4 is intended to produce a maximum heating effect. Temperature readings can exceed 150 °C.
- Use caution when routing internal traces adjacent to the 04611.25 and 0461002.




Time Current Curve

## Temperature Derating Curve

Operating temperature is -55 °C to +125 °C with proper correction factor applied.

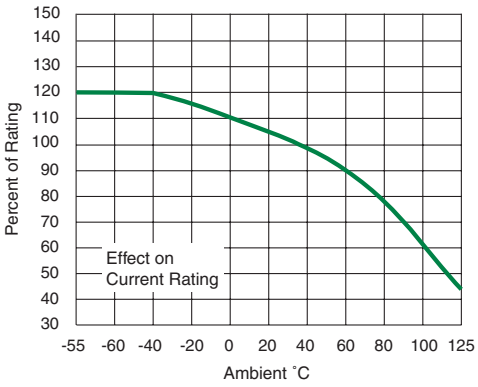



Chart of Correction Factor



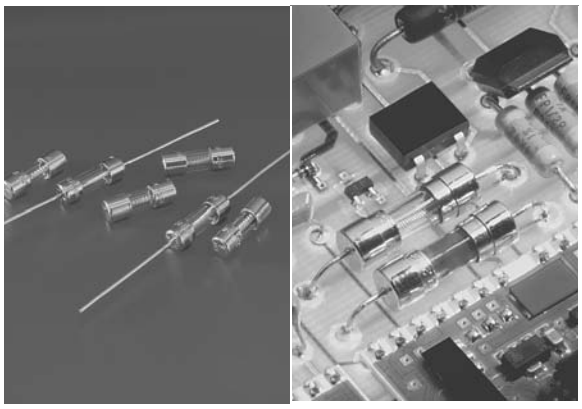
### Maximum Temperature Rise

| *TeleLink* Fuse | Temperature Reading |
|---|---|
| **0461.500** | ≤ 75 °C (167 °F) * |
| **04611.25** | ≤ 82 °C (180 °F) * |
| **0461002.** | ≤ 50 °C (122 °F) * |

* Higher currents and PCB layout designs can affect this parameter.

Notes:
- Readings are measured at rated current after temperature stabilizes
- The 04611.25 meets the requirements of UL 248-14. However, board layout, board trace widths, and ambient temperature values can cause higher than expected rises in temperature.

# 229P / 230P Series 2AG *Slo-Blo*® Fuse



The 2AG *Slo-Blo* fuses are available in cartridge form or with axial leads (board washable). The "P" suffix indicates that the fuse is a lead-free, RoHS-compliant device. These fuses provide the same performance characteristics as the 3AG counterpart while occupying one-third the space.

The fuses combine conventional overcurrent protection with the ability to withstand high-current, short-duration pulses. They meet demanding telecom requirements and comply with the short circuit requirements of UL 1459. An insulating sleeve option is available.

For environmental and physical specifications and soldering parameters, see www.littelfuse.com.

The 2AG Indicating *Slo-Blo* fuse instantly identifies itself upon opening by showing a discoloration of its glass body, eliminating guesswork and time-consuming circuit testing.

## Electrical Characteristics

| % of Ampere Rating | Opening Time | |
|---|---|---|
| | MIN | MAX |
| 100 | 4 hours | — |
| 135 | — | 1 hour |
| 200 | 3 s | 20 s |

Note: Short circuit capabilities for 60 A, 40 A, 7 A, and 2.2 A are 600 V ac.

## Interrupting Values

| Current Rating Amps | Interrupting Values V ac |
|---|---|
| 0.25–3.5 | 10,000 A at 125 |
| 4–7 | 400 A at 125 |
| 0.25–1 | 35 A at 250 |
| 1.25–3.5 | 100 A at 250 |

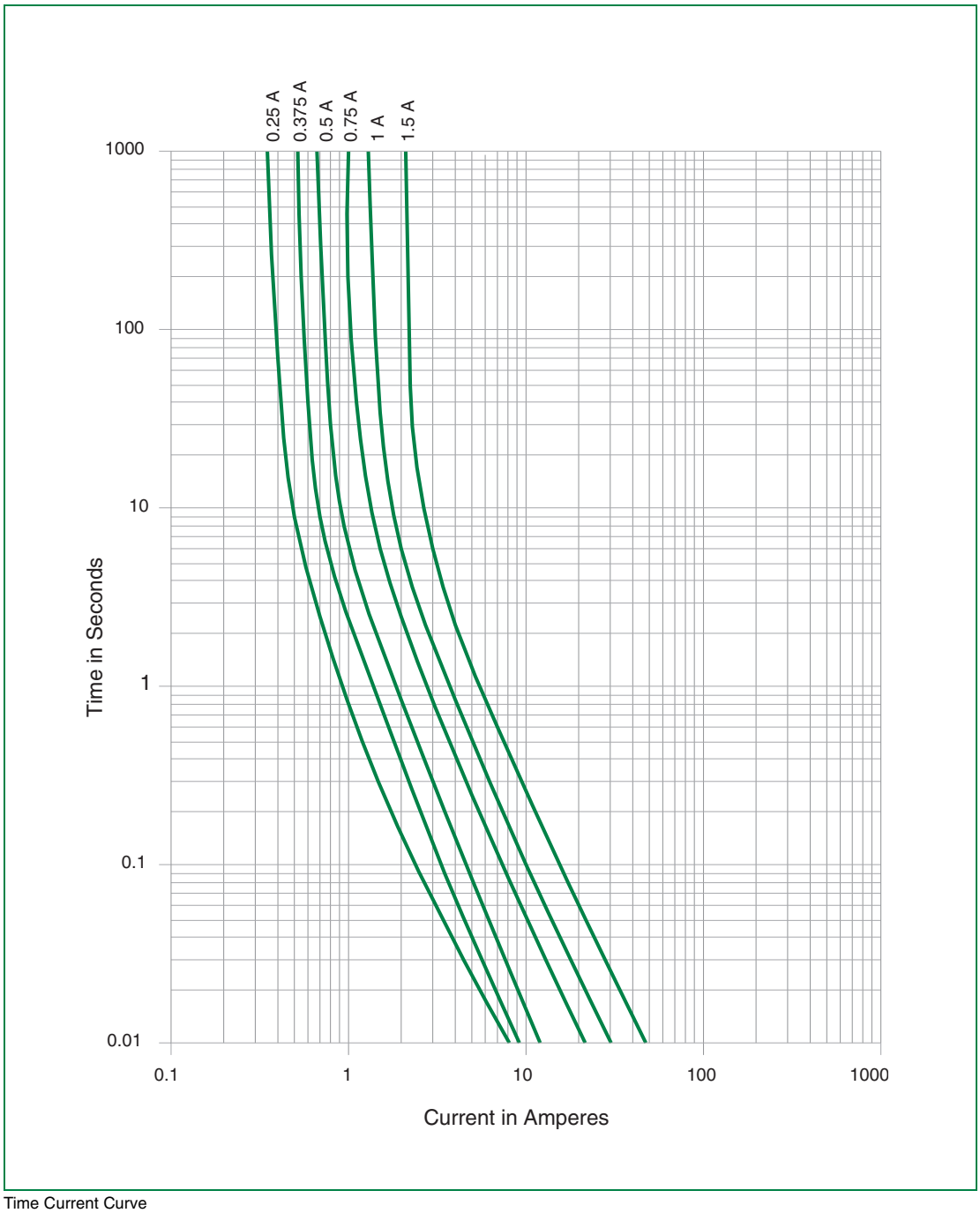
## Surge Ratings

| Cartridge Part Number | Axial Lead Part Number | $I_{PP}$ 2x10 µs @ 2500 V Amps | $I_{PP}$ 10x160 µs @ 1500 V Amps | $I_{PP}$ 10x560 µs @ 800 V Amps | $I_{PP}$ 10x1000 µs @ 1000 V Amps |
|---|---|---|---|---|---|
| **0229.250P** | **0230.250P** | not rated | 23 | 16.6 | 12.4 |
| **0229.350P** | **0230.350P** | not rated | 34 | 25.8 | 19.3 |
| **0229.375P** | **0230.375P** | not rated | 40 | 25.4 | 19 |
| **0229.500P** | **0230.500P** | not rated | 60 | 37.7 | 28.2 |
| **0229.600P** | **0230.600P** | not rated | 71 | 47.2 | 35.3 |
| **0229.750P** | **0230.750P** | not rated | 91 | 65.5 | 49 |
| **0229.800P** | **0230.800P** | not rated | 104 | 68.9 | 51.6 |
| **0229001.P** | **0230001.P** | not rated | 130 | 88.6 | 66.3 |
| **02291.25P** | **02301.25P** | 500 | 162 | 118.1 | 100 |

Notes:
- Fuses withstand 50 repetitions of a double exponential impulse wave at listed currents and voltages, except that the 02291.25P / 02301.25P fuse withstands 20 repetitions at 2x10 µs @ 2500 V.
- To order an indicating 2AG *Slo-Blo* fuse, add an "S" at the end of the part number (for example, 0230001S.P).

## Electrical Parameters

| Cartridge Part Number | Axial Lead Part Number | Voltage Rating | Current Rating Amps | $I^2t$ Measured at DC Rated Voltage $A^2Sec$ | Typical DC Cold Resistance Ohms |
|---|---|---|---|---|---|
| **0229.250P** | **0230.250P** | 250 | 0.25 | 0.216 | 2.41 |
| **0229.350P** | **0230.350P** | 250 | 0.35 | 0.49 | 1.3 |
| **0229.375P** | **0230.375P** | 250 | 0.375 | 0.58 | 1.17 |
| **0229.500P** | **0230.500P** | 250 | 0.5 | 1.16 | 0.688 |
| **0229.600P** | **0230.600P** | 250 | 0.6 | 1.75 | 0.477 |
| **0229.750P** | **0230.750P** | 250 | 0.75 | 2.95 | 0.340 |
| **0229.800P** | **0230.800P** | 250 | 0.8 | 3.45 | 0.304 |
| **0229001.P** | **0230001.P** | 250 | 1 | 5.64 | 0.212 |
| **02291.25P** | **02301.25P** | 250 | 1.25 | 9.8 | 0.145 |



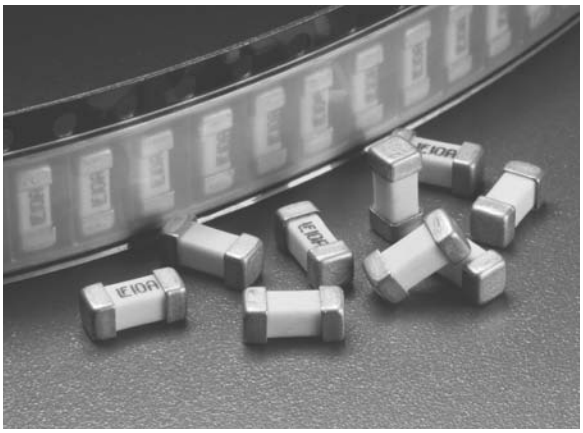

Time Current Curve

# 451 / 453 Series *NANO*$^2$® Very Fast-Acting Fuse

RoHS

Littelfuse



The *NANO*$^2$ SMF fuse is a very small, square surface mount fuse also available in a surface mount holder.

For environmental and physical specifications and soldering parameters, see www.littelfuse.com.

The recommended fuse block for the 451 / 453 Series fuse is the SMF *OMNI-BLOK*® Holder, Series 154000.



## Electrical Characteristics

| % of Ampere Rating | Ampere Rating | Opening Time | |
|---|---|---|---|
| | | MIN | MAX |
| 100 | 0.625–15 A | 4 hours | — |
| 200 | 0.625–10 A | — | 5 s |
| | 12–15 A | — | 20 s |

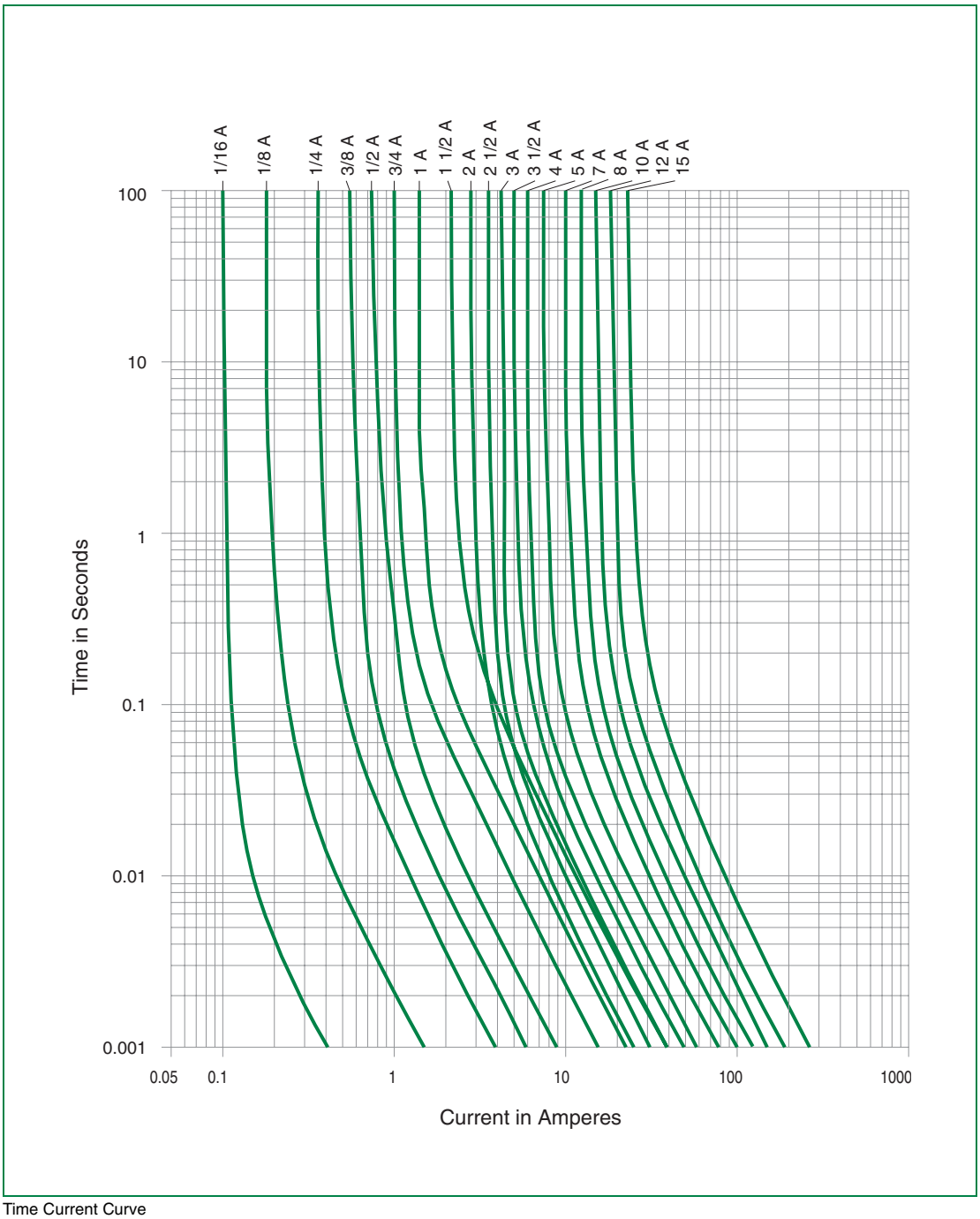
## Interrupting Values

| Current Rating Amps | Interrupting Values |
|---|---|
| 0.625–8 | 50 A at 125 V ac / V dc |
| | 300 A at 32 V dc |
| 10 | 35 A at 125 V ac / 50 A at 125 V dc |
| | 300 A at 32 V dc |
| 12–15 | 50 A at 65 V ac / V dc |
| | 300 A at 24 V dc |

## Electrical Parameters

| Tin-lead Plated Part Number * | Silver Plated Part Number * | Voltage Rating | Current Rating Amps | $I^2t$ Measured at DC Rated Voltage $A^2Sec$ | Typical DC Cold Resistance Ohms |
|---|---|---|---|---|---|
| — | **0451.062** | 125 | 0.062 | 0.00019 | 5.5 |
| — | **0451.080** | 125 | 0.080 | 0.00033 | 4.05 |
| — | **0451.100** | 125 | 0.100 | 0.00138 | 3.10 |
| — | **0451.125** | 125 | 0.125 | 0.00286 | 1.70 |
| **0451.160** | **0453.160** | 125 | 0.160 | 0.00306 | 1.80 |
| **0451.200** | **0453.200** | 125 | 0.200 | 0.00652 | 1.40 |
| **0451.250** | **0453.250** | 125 | 0.250 | 0.01126 | 1.05 |
| **0451.315** | **0453.315** | 125 | 0.315 | 0.0231 | 0.78 |
| **0451.375** | **0453.375** | 125 | 0.375 | 0.0425 | 0.61 |
| **0451.400** | **0453.400** | 125 | 0.400 | 0.0484 | 0.56 |
| **0451.500** | **0453.500** | 125 | 0.500 | 0.0795 | 0.42 |
| **0451.630** | **0453.630** | 125 | 0.630 | 0.143 | 0.305 |
| **0451.750** | **0453.750** | 125 | 0.750 | 0.185 | 0.245 |
| **0451.800** | **0453.800** | 125 | 0.800 | 0.271 | 0.212 |
| **0451001.** | **0453001.** | 125 | 1 | 0.459 | 0.153 |
| **04511.25** | **04531.25** | 125 | 1.25 | 0.664 | 0.078 |
| **045101.5** | **045301.5** | 125 | 1.5 | 0.853 | 0.063 |
| **045101.6** | **045301.6** | 125 | 1.6 | 1.06 | 0.058 |
| **0451002.** | **0453002.** | 125 | 2 | 0.53 | 0.0367 |
| **045102.5** | **045302.5** | 125 | 2.5 | 1.029 | 0.0286 |
| **0451003.** | **0453003.** | 125 | 3 | 1.65 | 0.0227 |
| **04513.15** | **04533.15** | 125 | 3.15 | 1.92 | 0.0215 |
| **045103.5** | **045303.5** | 125 | 3.5 | 2.469 | 0.0200 |
| **0451004.** | **0453004.** | 125 | 4 | 3.152 | 0.0160 |
| **0451005.** | **0453005.** | 125 | 5 | 5.566 | 0.0125 |
| **045106.3** | **045306.3** | 125 | 6.3 | 9.17 | 0.0096 |
| **0451007.** | **0453007.** | 125 | 7 | 10.32 | 0.009 |
| **0451008.** | **0453008.** | 125 | 8 | 20.23 | 0.0077 |
| **0451010.** | **0453010.** | 125 | 10 | 26.46 | 0.0056 |
| **0451012.** | **0453012.** | 65 | 12 | 47.97 | 0.0049 |
| **0451015.** | **0453015.** | 65 | 15 | 97.82 | 0.0037 |

* For RoHS compliant 451 series parts, add the letter “L” to the end of the packaging suffix. For example, 0451001.MRL indicates RoHS compliant 1 A, 1,000 pieces per reel.

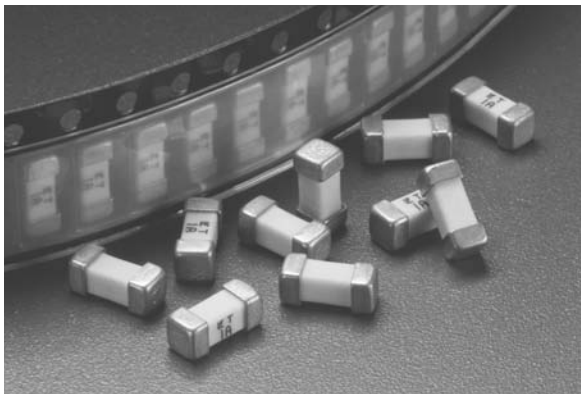



Time Current Curve

# 452 / 454 Series *NANO²*® *Slo-Blo*® Fuse

RoHS

Littelfuse



The *NANO²* *Slo-Blo* fuse has enhanced inrush withstand characteristics over the *NANO²* fast-acting fuse. The unique time delay feature of this fuse design helps solve the problem of nuisance "opening" by accommodating inrush currents that normally cause a fast acting fuse to open.

The recommended fuse block for the 452 / 454 Series *Slo-Blo* fuse is the SMF *OMNI-BLOK*® Holder, Series 154000T.

## Electrical Characteristics

| % of Ampere Rating | Opening Time | |
|---|---|---|
| | MIN | MAX |
| 100 | 4 hours | — |
| 200 | 1 s | 60 s |
| 300 | 0.2 s | 3 s |
| 800 | 0.02 s | 0.1 s |

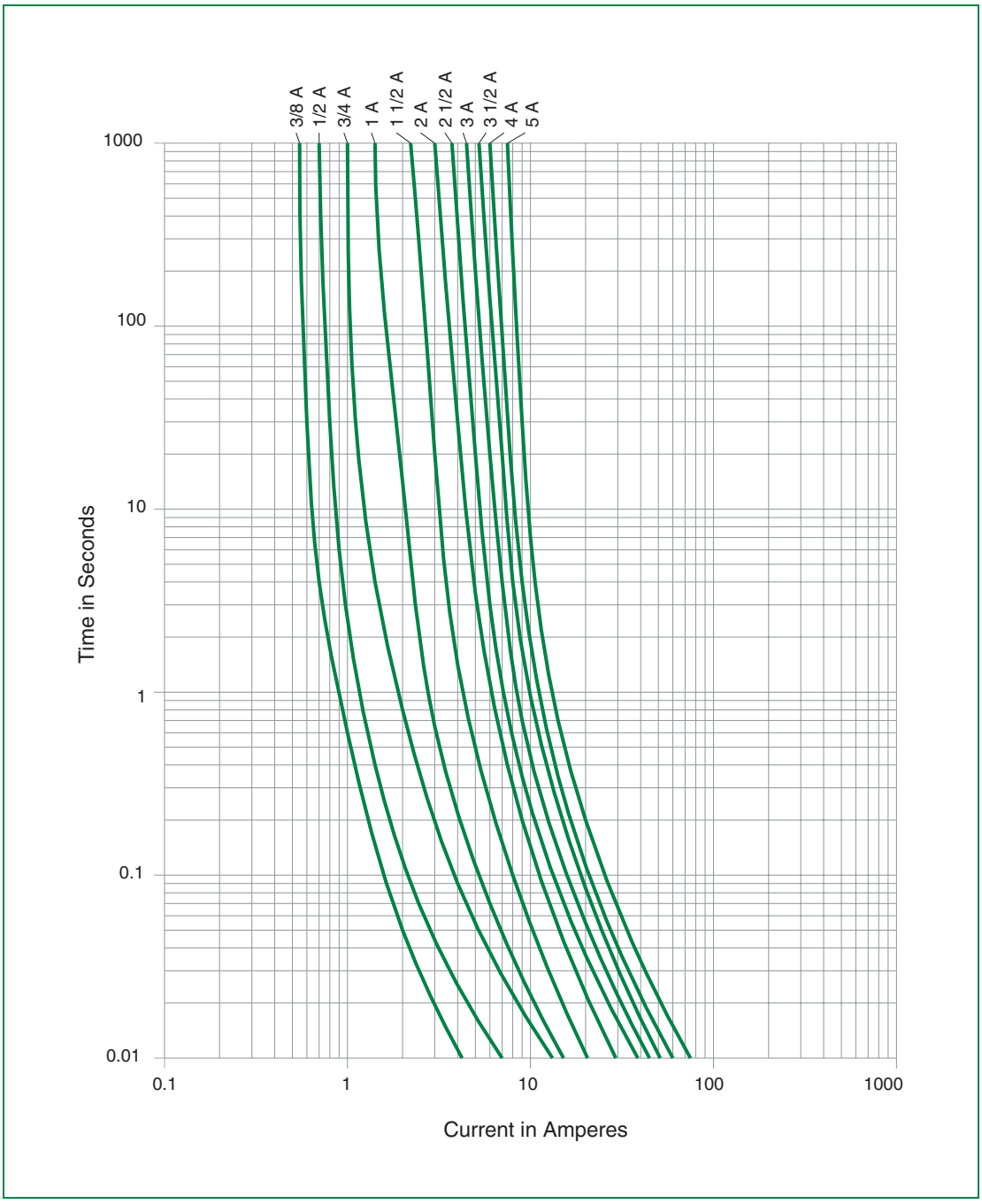
## Interrupting Values

| Current Rating Amps | Interrupting Values V ac / V dc |
|---|---|
| 0.375–5 | 50 A at 125 |

## Electrical Parameters

| Tin-lead Plated Part Number * | Silver Plated Part Number * | Voltage Rating | Current Rating Amps | $I^2t$ Measured at DC Rated Voltage $A^2Sec$ | Typical DC Cold Resistance Ohms |
|---|---|---|---|---|---|
| **0452.375** | **0454.375** | 125 | 0.375 | 0.101 | 1.2 |
| **0452.500** | **0454.500** | 125 | 0.5 | 0.240 | 0.7 |
| **0452.750** | **0454.750** | 125 | 0.75 | 0.904 | 0.36 |
| **0452001.** | **0454001.** | 125 | 1 | 1.98 | 0.225 |
| **045201.5** | **045401.5** | 125 | 1.5 | 3.65 | 0.093 |
| **0452002.** | **0454002.** | 125 | 2 | 8.2 | 0.0625 |
| **045202.5** | **045402.5** | 125 | 2.5 | 15 | 0.045 |
| **0452003.** | **0454003.** | 125 | 3 | 20.16 | 0.034 |
| **045203.5** | **045403.5** | 125 | 3.5 | 26.53 | 0.0224 |
| **0452004.** | **0454004.** | 125 | 4 | 34.4 | 0.0186 |
| **0452005.** | **0454005.** | 125 | 5 | 53.72 | 0.0136 |

* For RoHS compliant 452 series parts, add the letter "L" to the end of the packaging suffix. For example, 0452001.MRL indicates RoHS compliant 1 A, 1,000 pieces per reel.

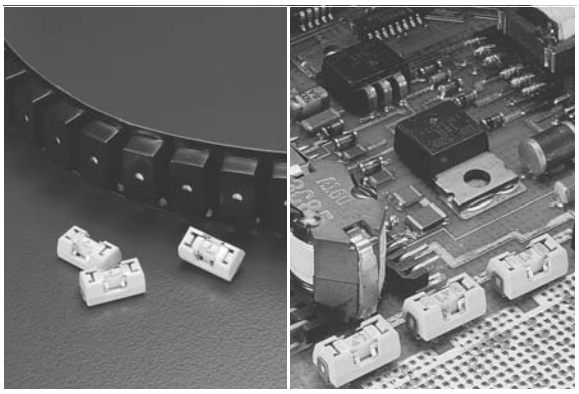



Time Current Curve

# 154 Series SMF *OMNI-BLOK*® Fuse Block

RoHS

Littelfuse



The SMF *OMNI-BLOK* fuseholder permits quick and easy replacement of *NANO*$^{2}$® SMF surface mount fuses. The fuse block and pre-installed fuse combination can be placed on the PC board in one efficient manufacturing operation. Fuses can be replaced without exposing the PC board to the detrimental effects of solder heat.

## Electrical Parameters

| Fuseholder with Very Fast-Acting Fuse | | Fuseholder with *Slo-Blo* Fuse | | Current Rating Amps |
|---|---|---|---|---|
| Fuseholder Part Number | Very Fast-Acting Fuse Furnished * | Fuseholder Part Number | *Slo-Blo* Fuse Furnished ** | |
| **154.062** | **0453.062** | — | — | 0.0625 |
| **154.125** | **0453.125** | — | — | 0.125 |
| **154.250** | **0453.250** | — | — | 0.25 |
| **154.375** | **0453.375** | **154.375T** | **0454.375** | 0.375 |
| **154.500** | **0453.500** | **154.500T** | **0454.500** | 0.5 |
| **154.750** | **0453.750** | **154.750T** | **0454.750** | 0.75 |
| **154001.** | **0453001.** | **154001T** | **0454001.** | 1 |
| **15401.5** | **045301.5** | **15401.5T** | **045401.5** | 1.5 |
| **154002.** | **0453002.** | **154002T** | **0454002.** | 2 |
| **15402.5** | **045302.5** | **15402.5T** | **045402.5** | 2.5 |
| **154003.** | **0453003.** | **154003T** | **0454003.** | 3 |
| **15403.5** | **045303.5** | **15403.5T** | **045403.5** | 3.5 |
| **154004.** | **0453004.** | **154004T** | **0454004.** | 4 |
| **154005.** | **0453005.** | **154005T** | **0454005.** | 5 |
| **154007.** | **0453007.** | — | — | 7 |
| **154008.** | **0453008.** | — | — | 8 |
| **154010.** | **0453010.** | — | — | 10 |

* 453 Series fuse has silver-plated end caps, installed to accommodate solder reflow process.

** 454 Series fuse has silver-plated end caps, installed to accommodate solder reflow process.

# 464 Series *NANO²*® 250 V UMF Fast-Acting Fuse

RoHS

Littelfuse

The Surface Mount *NANO²* 250 V UMF product family is based on the proven *NANO²* fuse product technology.

It complies with IEC Publication IEC 60127-4-Universal Modular Fuse-Links (UMF). This IEC standard is accepted by UL/CSA, making it the first global fuse standard.

This fuse family is RoHS compliant and compatible with lead-free solders and higher temperature profiles.

For environmental and physical specifications and soldering parameters, see www.littelfuse.com.



## Electrical Characteristics

| % of Ampere Rating | Opening Time | |
|---|---|---|
| | MIN | MAX |
| 125 | 1 hour | — |
| 200 | — | 2 min |
| 1000 | 0.001 s | 0.01 s |

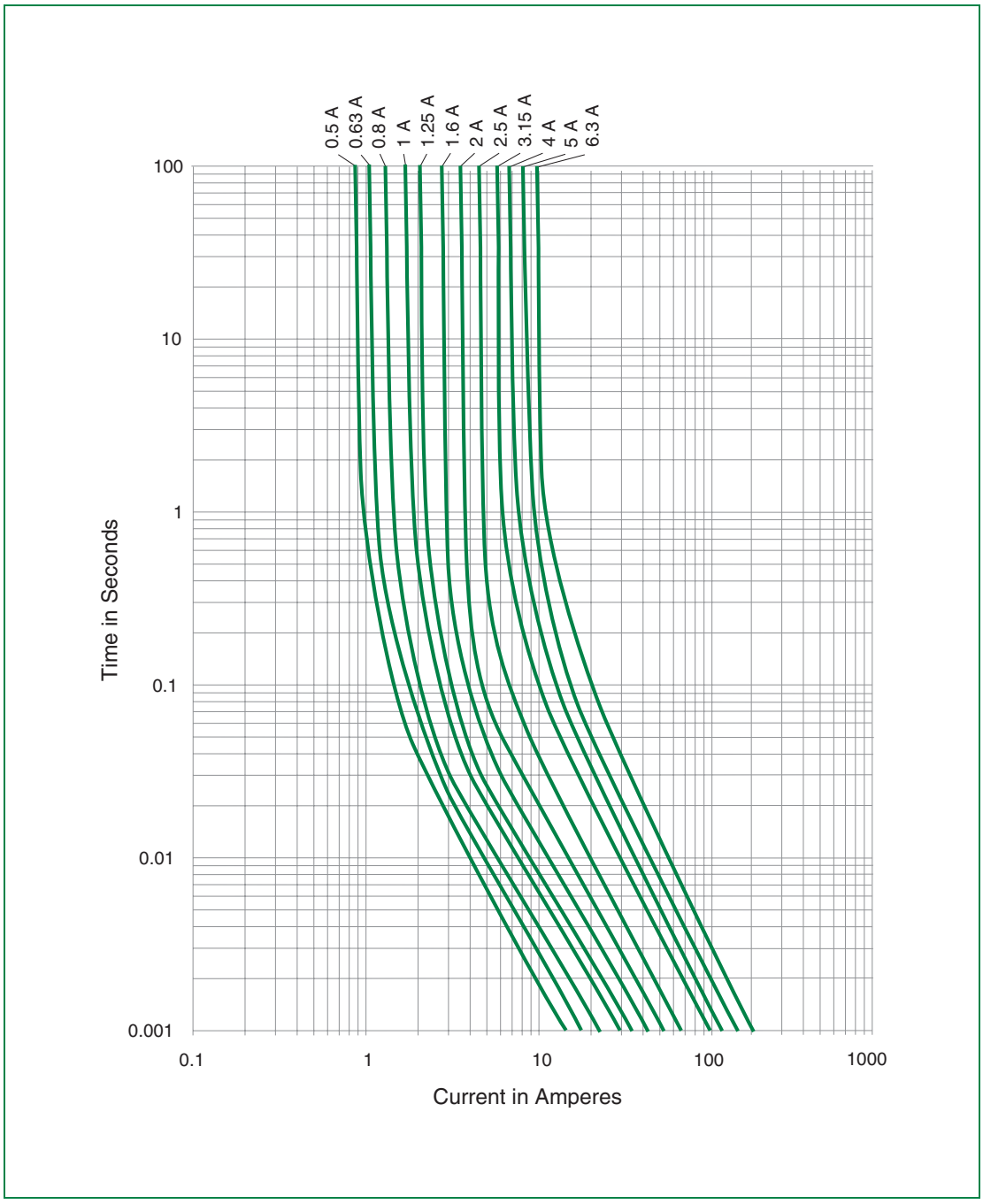
## Interrupting Values

| Current Rating Amps | Interrupting Values V ac |
|---|---|
| 0.5–6.3 | 100 A at 250 |

## Electrical Parameters

| Part Number | Voltage Rating | Current Rating Amps | $I^2t$ Measured at DC Rated Voltage $A^2Sec$ | Typical DC Cold Resistance Ohms |
|---|---|---|---|---|
| **0464.500** | 250 | 0.5 | 0.3 | 0.283 |
| **0464001.** | 250 | 1 | 0.8 | 0.1 |
| **04641.25** | 250 | 1.25 | 1.2 | 0.059 |
| **046401.6** | 250 | 1.6 | 1.9 | 0.048 |
| **0464002.** | 250 | 2 | 2.8 | 0.038 |
| **046402.5** | 250 | 2.5 | 4.5 | 0.032 |
| **04643.15** | 250 | 3.15 | 9.4 | 0.024 |
| **0464004.** | 250 | 4 | 15.1 | 0.018 |
| **0464005.** | 250 | 5 | 23.1 | 0.014 |
| **046406.3** | 250 | 6.3 | 40 | 0.011 |

Note: For information and availability of additional ratings, contact Littelfuse.



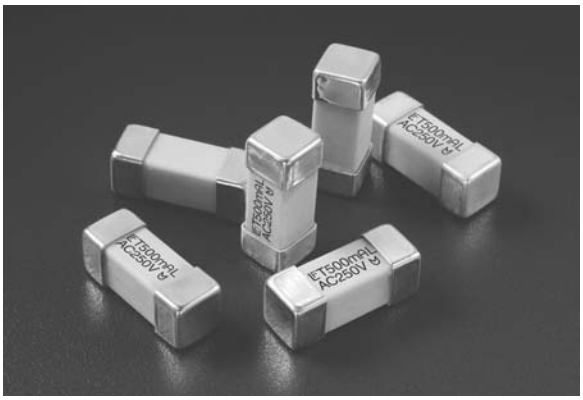

Time Current Curve

# 465 Series *NANO²*® 250 V UMF Time Lag Fuse

RoHS

Littelfuse




The Surface Mount *NANO²* 250 V UMF product family is based on the proven *NANO²* fuse product technology.

It complies with IEC Publication IEC 60127-4-Universal Modular Fuse-Links (UMF). This IEC standard is accepted by UL/CSA, making it the first global fuse standard.

This fuse family is RoHS compliant and compatible with lead-free solders and higher temperature profiles.

For environmental and physical specifications and soldering parameters, see www.littelfuse.com.



## Electrical Characteristics

| % of Ampere Rating | Opening Time | |
|---|---|---|
| | MIN | MAX |
| 125 | 1 hour | — |
| 200 | — | 2 min |
| 1000 | 0.01 s | 0.1 s |

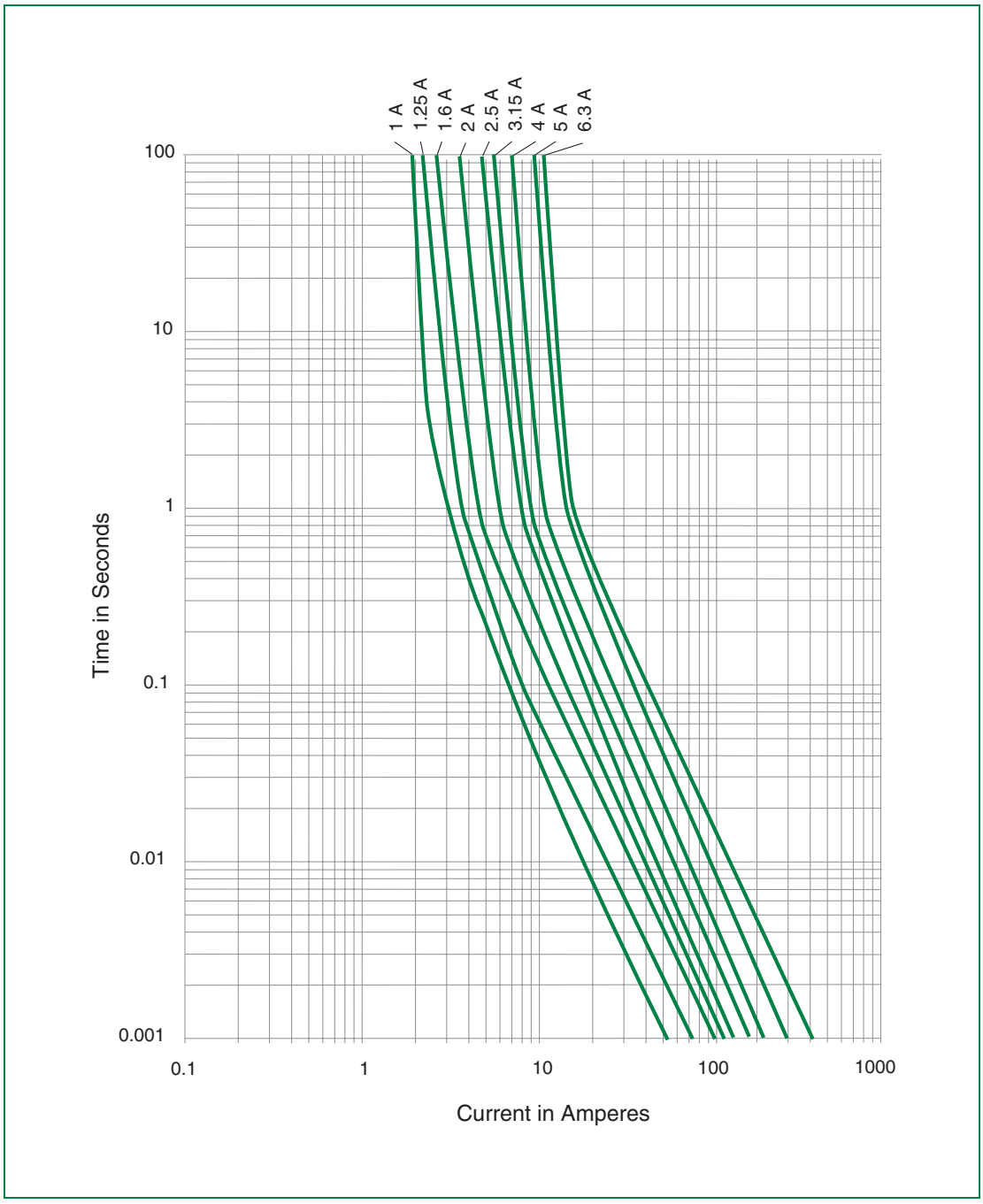
## Interrupting Values

| Current Rating Amps | Interrupting Values V ac |
|---|---|
| 1–6.3 | 100 A at 250 |

## Electrical Parameters

| Part Number | Voltage Rating | Current Rating Amps | $I^2t$ Measured at DC Rated Voltage $A^2Sec$ | Typical DC Cold Resistance Ohms |
|---|---|---|---|---|
| **0465001.** | 250 | 1 | 2.8 | 0.107 |
| **04651.25** | 250 | 1.25 | 5.6 | 0.083 |
| **046501.6** | 250 | 1.6 | 9.2 | 0.056 |
| **0465002.** | 250 | 2 | 14.9 | 0.039 |
| **046502.5** | 250 | 2.5 | 21 | 0.026 |
| **04653.15** | 250 | 3.15 | 31.7 | 0.021 |
| **0465004.** | 250 | 4 | 48.4 | 0.016 |
| **0465005.** | 250 | 5 | 87 | 0.013 |
| **046506.3** | 250 | 6.3 | 144.4 | 0.0088 |

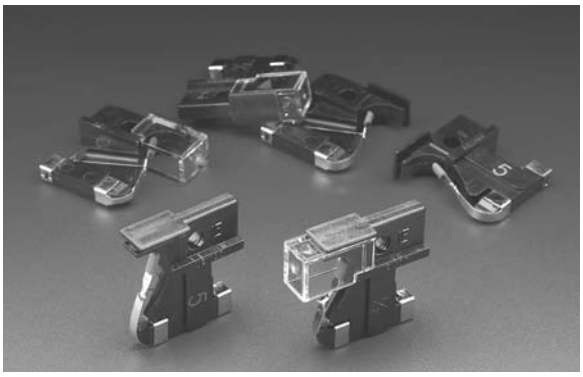
Note: For information and availability of additional ratings, contact Littelfuse.




Time Current Curve

# 481 Series Alarm Indicating Fuse



The 481 Series Alarm Indicating Fuse is ideal for telecommunications and control panel circuits. It eliminates down time by immediately pinpointing the blown (open) circuit, triggering LED or audio alarm while placed in mating holder (482 Series).

A clear plastic lens option is available for additional safety.

For environmental and physical specifications, see www.littelfuse.com.



## Electrical Characteristics

| % of Ampere Rating | Opening Time | |
|---|---|---|
| | MIN | MAX |
| 100 | 10 min | — |
| 150 | — | 5 min |

## Interrupting Values

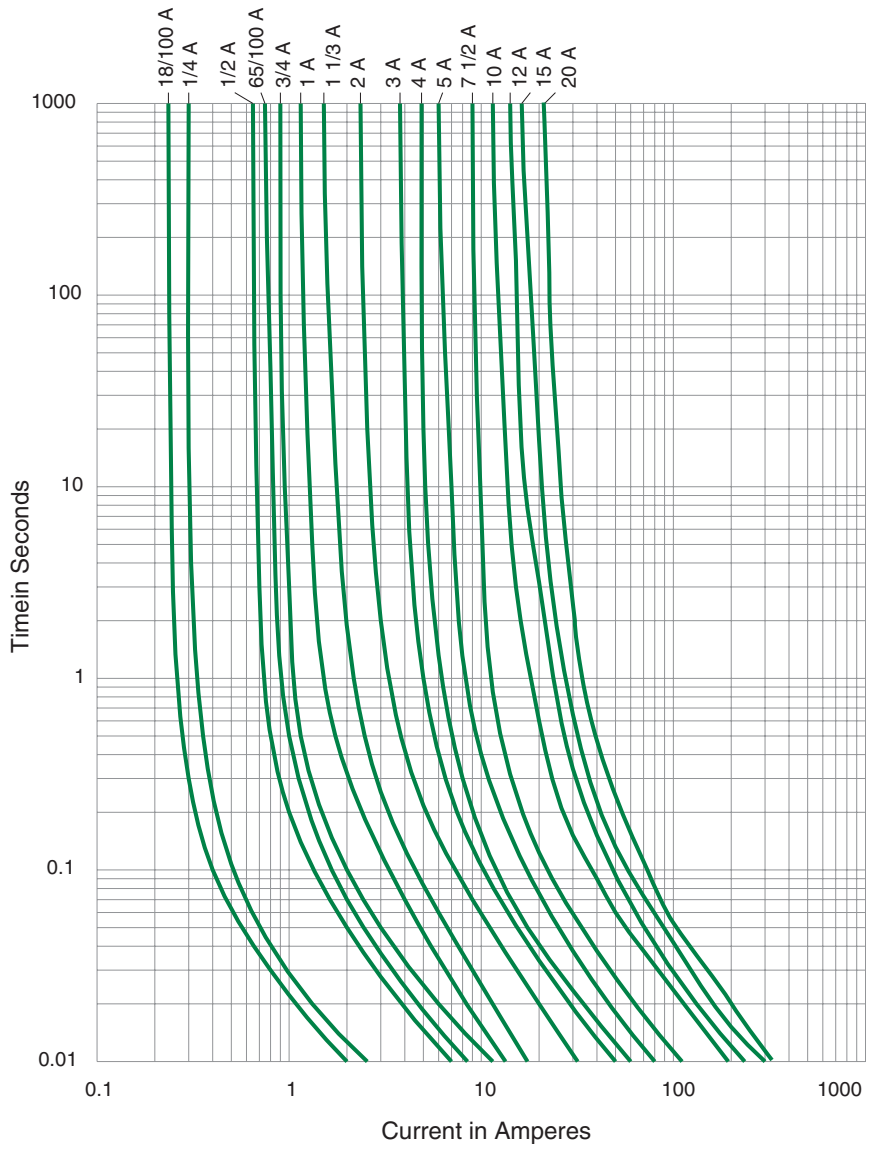
| Current Rating Amps | Interrupting Values |
|---|---|
| — | 450 A at 60 V dc |
| Up to 20 | 300 A at 125 V ac |
| Up to 15 | 300 A at 125 V dc |
| Up to 20 | 200 A at 125 V dc |

## Electrical Parameters

| Part Number | Voltage Rating V AC & V DC | Current Rating Amps | Body Color Code | $I^2t$ Measured at DC Rated Voltage $A^2Sec$ | Typical DC Cold Resistance Ohms |
|---|---|---|---|---|---|
| **0481.180** | 125 | 0.18 | Yellow | 0.00808 | 6.25 |
| **0481.200** | 125 | 0.2 | Red / Black | 0.0140 | 5.7 |
| **0481.250** | 125 | 0.25 | Violet | 0.0356 | 4.2 |
| **0481.375** | 125 | 0.375 | Gray / White | 0.028 | 2 |
| **0481.500** | 125 | 0.5 | Red | 0.139 | 1.52 |
| **0481.650** | 125 | 0.65 | Black | 0.278 | 1.25 |
| **0481.750** | 125 | 0.75 | Brown | 0.363 | 0.98 |
| **0481001.** | 125 | 1 | Gray | 0.733 | 0.665 |
| **04811.33** | 125 | 1.33 | White | 1.58 | 0.48 |
| **048101.5** | 125 | 1.5 | Yellow / White | 2.55 | 0.385 |
| **0481002.** | 125 | 2 | Orange | 5.29 | 0.12 |
| **048102.5** | 125 | 2.5 | Orange / White | 9.46 | 0.0904 |
| **0481003.** | 125 | 3 | Blue | 11.2 | 0.067 |
| **048103.5** | 125 | 3.5 | Blue / White | 10.5 | 0.0415 |
| **0481004.** | 125 | 4 | Brown / White | 15.4 | 0.035 |
| **0481005.** | 125 | 5 | Green | 26.2 | 0.0285 |
| **048107.5** | 125 | 7.5 | Black / White | 42.8 | 0.0113 |
| **0481010.** | 125 | 10 | Red / White | 115.3 | 0.0084 |
| **0481012.** | 125 | 12 | Green / Yellow | 222.5 | 0.0066 |
| **0481015.** | 125 | 15 | Red / Blue | 294.22 | 0.0058 |
| **0481020.** | 125 | 20 * | Green / White | 570 | 0.00394 |
| **0481000.** | 125 | Dummy | Ø | — | — |

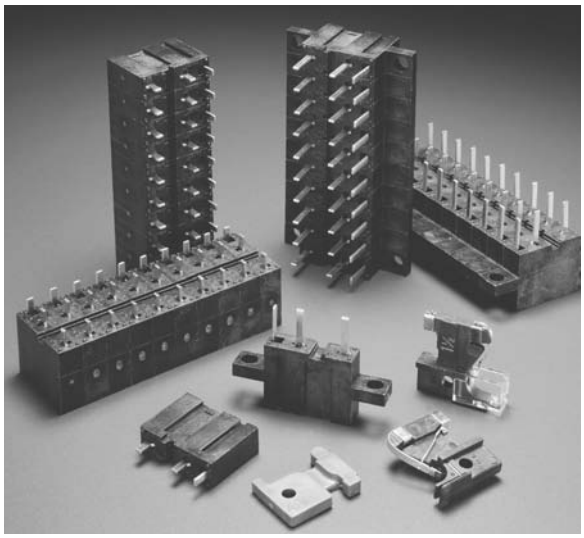
* For information and availability of additional ratings, contact Littelfuse.

** Use 20 A fuseholder. Fuse is keyed to prevent insertion in lower-rated holders. (The 20 A fuseholder is designed to accept all ratings up to 20 A).




Time Current Curve

# 482 Series Alarm Indicating Fuseholder



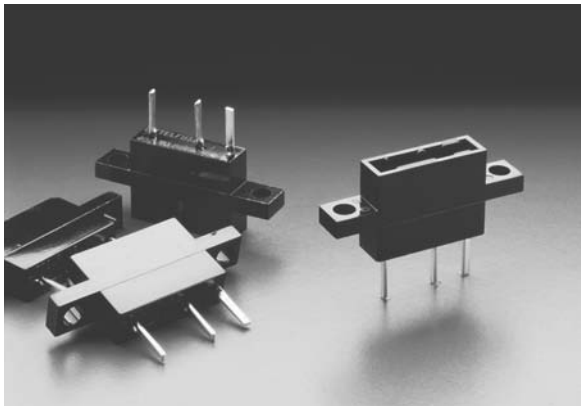
The 482 Series Alarm Indicating fuseholder is designed for use with the Littelfuse 481 Alarm fuse as well as with other manufacturers' replacement fuses.

Ideal for telecommunications and control panel circuits, this fuseholder is available in three types of mounts.

The **PCB mount** can be soldered directly to a printed circuit board. Rated up to 15 A, it is available in single pole or gangable up to 20 poles. It is keyed to prevent insertion of a 20 A fuse.

The **20 A panel mount** is available in a single pole version rated up to 20 A. Large leads allow wire attachment.

The **15 A panel mount** is a 15 A gangable version of the 482 Series fuseholder. It is keyed to prevent insertion of a 20 A fuse.



20 A Panel Mount

*Note:* To ensure proper heat dissipation under normal operation, space the 20 A fuseholders 0.5" (12.7 mm) apart, center to center, when loaded to maximum capacity. Heatsinking may be required for operation in higher ambient temperatures or alternate configurations.

For specifications, see www.littelfuse.com. For additional ordering information, contact Littelfuse.

## Electrical Parameters

| PCB Mount Part Number | PCB Mount Flush Part Number | 15 A Panel Mount Part Number | 15 A * Panel Mount Flush Part Number | Number of Poles | Length Inches (Millimeters) |
|---|---|---|---|---|---|
| **04820001ZXB** | **04820001ZXBF** | **04820001ZXP** | **04820001ZXPF** | 1 | 0.25 (6.4) |
| **04820002ZXB** | **04820002ZXBF** | **04820002ZXP** | **04820002ZXPF** | 2 | 0.5 (12.8) |
| **04820003ZXB** | **04820003ZXBF** | **04820003ZXP** | **04820003ZXPF** | 3 | 0.75 (19.05) |
| **04820004ZXB** | **04820004ZXBF** | **04820004ZXP** | **04820004ZXPF** | 4 | 1 (25.4) |
| **04820005ZXB** | **04820005ZXBF** | **04820005ZXP** | **04820005ZXPF** | 5 | 1.25 (31.75) |
| **04820006ZXB** | **04820006ZXBF** | **04820006ZXP** | **04820006ZXPF** | 6 | 1.5 (38.1) |
| **04820007ZXB** | **04820007ZXBF** | **04820007ZXP** | **04820007ZXPF** | 7 | 1.75 (44.45) |
| **04820008ZXB** | **04820008ZXBF** | **04820008ZXP** | **04820008ZXPF** | 8 | 2 (50.8) |
| **04820009ZXB** | **04820009ZXBF** | **04820009ZXP** | **04820009ZXPF** | 9 | 2.25 (57.15) |
| **04820010ZXB** | **04820010ZXBF** | **04820010ZXP** | **04820010ZXPF** | 10 | 2.5 (63.5) |
| **04820011ZXB** | **04820011ZXBF** | **04820011ZXP** | **04820011ZXPF** | 11 | 2.75 (69.85) |
| **04820012ZXB** | **04820012ZXBF** | **04820012ZXP** | **04820012ZXPF** | 12 | 3 (76.2) |
| **04820013ZXB** | **04820013ZXBF** | **04820013ZXP** | **04820013ZXPF** | 13 | 3.25 (82.55) |
| **04820014ZXB** | **04820014ZXBF** | **04820014ZXP** | **04820014ZXPF** | 14 | 3.5 (88.9) |
| **04820015ZXB** | **04820015ZXBF** | **04820015ZXP** | **04820015ZXPF** | 15 | 3.75 (95.25) |
| **04820016ZXB** | **04820016ZXBF** | **04820016ZXP** | **04820016ZXPF** | 16 | 4 (101.6) |
| **04820017ZXB** | **04820017ZXBF** | **04820017ZXP** | **04820017ZXPF** | 17 | 4.25 (107.95) |
| **04820018ZXB** | **04820018ZXBF** | **04820018ZXP** | **04820018ZXPF** | 18 | 4.5 (114.3) |
| **04820019ZXB** | **04820019ZXBF** | **04820019ZXP** | **04820019ZXPF** | 19 | 4.75 (120.65) |
| **04820020ZXB** | **04820020ZXBF** | **04820020ZXP** | **04820020ZXPF** | 20 | 5 (127) |

* To order the 20 A panel mount, use part number 04822001ZXPF.