

POWR-GARD® Fuse

L50S SERIES HIGH-SPEED ROUND BODY

500 V ac • 450 V dc • Very Fast Acting • 10–800 A



Description

Littelfuse L50S series high-speed fuses are designed to protect today's equipment and systems, and are manufactured with Littelfuse-developed technology that sets tomorrow's standards for accuracy, consistent quality, reliability, and predictable performance.

Littelfuse engineers have redefined high-speed fuse technology by using advanced metallurgical, polymer, and materials research, mathematical modeling, and computerized statistical analysis.

Features/Benefits

- Extremely current limiting
- Low watt losses
- Controlled transient over-voltages
- UL Recognized

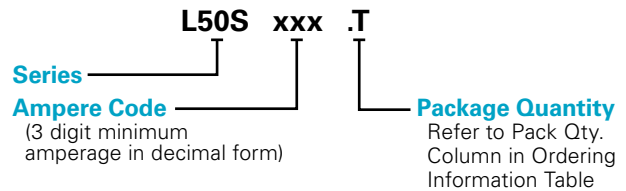
Applications

- Ac and dc drives
- Dc common bus protection
- Power converters
- UPS
- Soft-starters

Specifications

| | |
|------------------------------|---|
| Voltage Rating | 500 V ac 450 V dc |
| Amperage Rating | 10, 12, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 125, 150, 175, 200, 225, 250, 275, 300, 350, 400, 450, 500, 550, 600, 700, 800 |
| Interrupting Rating | Ac: 200 kAIC Dc: 20 kAIC |
| Material | Body: melamine Terminals: copper (silver plated) |
| Mounting Type | Cylindrical (10–30 A) Bolted tags (35–800 A) |
| Operating Temperature | -55 °C to +125 °C |
| Storage Temperature | Up to 35 °C with relative humidity less than 65% |
| Approvals | UL Recognized (File: E71611) CSA Recognized (File: LR29862) |
| Environmental | RoHS Compliant |
| Country of Origin | Mexico |

Part Numbering System



| SERIES | AMP | CATALOG NUMBER | ORDERING NUMBER |
|--------|-----|----------------|-----------------|
| L50S | 10 | L50S010 | L50S010.T |
| L50S | 500 | L50S500 | L50S500.X |

Recommended Fuse Holder

LSCR001 (35–200 A)
LSCR002 (225–800 A)
107/127 Series (10–30A)

Web Resources

Download technical documents: Littelfuse.com/L50S

Note: high-speed fuses are designed for fixed installations. They are not intended for use in moving vehicle applications.

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Electrical Specifications

| CATALOG NUMBER | AMPERAGE RATING | VOLTAGE RATING | | INTERRUPT RATING | | MELTING (PRE-ARC) I ² T (A ² s) | TOTAL CLEARING I ² T (A ² s) | TOTAL CLEARING I ² T (A ² s) | TOTAL CLEARING I ² T (A ² s) | WATTS LOSS AT 100 % RATED CURRENT | WATTS LOSS AT 80 % RATED CURRENT |
|----------------|-----------------|----------------|-----|------------------|-------|---|--|--|--|-----------------------------------|----------------------------------|
| | | AC | DC | AC | DC | | 100 kA @ 500 V AC | 200 kA @ 500 V AC | 20 kA @ 450 V DC | (W) | (W) |
| L50S010 | 10 | 500 | 450 | 200 kA | 20 kA | 21 | 112 | 128 | 85 | 2 | 1 |
| L50S012 | 12 | 500 | 450 | 200 kA | 20 kA | 26 | 149 | 170 | 97 | 2 | 1 |
| L50S015 | 15 | 500 | 450 | 200 kA | 20 kA | 34 | 222 | 250 | 116 | 2 | 2 |
| L50S020 | 20 | 500 | 450 | 200 kA | 20 kA | 48 | 363 | 400 | 143 | 5 | 3 |
| L50S025 | 25 | 500 | 450 | 200 kA | 20 kA | 62 | 528 | 600 | 170 | 7 | 4 |
| L50S030 | 30 | 500 | 450 | 200 kA | 20 kA | 77 | 707 | 820 | 193 | 10 | 5 |
| L50S035 | 35 | 500 | 450 | 200 kA | 20 kA | 130 | 1,120 | 1,210 | 400 | 6 | 3 |
| L50S040 | 40 | 500 | 450 | 200 kA | 20 kA | 161 | 1,420 | 1,550 | 525 | 7 | 4 |
| L50S050 | 50 | 500 | 450 | 200 kA | 20 kA | 222 | 2,150 | 2,360 | 867 | 11 | 6 |
| L50S060 | 60 | 500 | 450 | 200 kA | 20 kA | 259 | 3,016 | 3,300 | 1,287 | 13 | 7 |
| L50S070 | 70 | 500 | 450 | 200 kA | 20 kA | 420 | 4,100 | 4,930 | 1,670 | 17 | 10 |
| L50S080 | 80 | 500 | 450 | 200 kA | 20 kA | 554 | 5,300 | 6,950 | 2,240 | 19 | 10 |
| L50S090 | 90 | 500 | 450 | 200 kA | 20 kA | 677 | 6,750 | 9,500 | 2,900 | 24 | 13 |
| L50S100 | 100 | 500 | 450 | 200 kA | 20 kA | 807 | 8,273 | 12,600 | 3,626 | 30 | 16 |
| L50S125 | 125 | 500 | 450 | 200 kA | 20 kA | 1,290 | 13,100 | 19,000 | 5,150 | 22 | 12 |
| L50S150 | 150 | 500 | 450 | 200 kA | 20 kA | 2,504 | 19,100 | 26,500 | 6,700 | 27 | 15 |
| L50S175 | 175 | 500 | 450 | 200 kA | 20 kA | 3,224 | 26,300 | 35,000 | 8,700 | 33 | 17 |
| L50S200 | 200 | 500 | 450 | 200 kA | 20 kA | 3,938 | 34,233 | 44,583 | 11,297 | 35 | 19 |
| L50S225 | 225 | 500 | 450 | 200 kA | 20 kA | 6,034 | 43,500 | 56,000 | 14,750 | 31 | 17 |
| L50S250 | 250 | 500 | 450 | 200 kA | 20 kA | 7,510 | 54,000 | 69,000 | 19,600 | 36 | 19 |
| L50S275 | 275 | 500 | 450 | 200 kA | 20 kA | 9,000 | 65,500 | 82,000 | 25,500 | 41 | 22 |
| L50S300 | 300 | 500 | 450 | 200 kA | 20 kA | 10,808 | 78,500 | 97,500 | 32,200 | 42 | 23 |
| L50S350 | 350 | 500 | 450 | 200 kA | 20 kA | 16,500 | 107,000 | 132,000 | 50,100 | 50 | 28 |
| L50S400 | 400 | 500 | 450 | 200 kA | 20 kA | 22,941 | 142,333 | 169,667 | 72,270 | 58 | 30 |
| L50S450 | 450 | 500 | 450 | 200 kA | 20 kA | 29,300 | 178,500 | 208,000 | 95,000 | 58 | 32 |
| L50S500 | 500 | 500 | 450 | 200 kA | 20 kA | 37,000 | 220,000 | 250,000 | 118,000 | 64 | 35 |
| L50S550 | 550 | 500 | 450 | 200 kA | 20 kA | 45,851 | 311,667 | 347,333 | 176,766 | 75 | 41 |
| L50S600 | 600 | 500 | 450 | 200 kA | 20 kA | 45,851 | 311,667 | 347,333 | 176,766 | 98 | 50 |
| L50S700 | 700 | 500 | 450 | 200 kA | 20 kA | 82,396 | 460,000 | 622,333 | 289,000 | 96 | 51 |
| L50S800 | 800 | 500 | 450 | 200 kA | 20 kA | 115,656 | 647,667 | 687,500 | 465,590 | 118 | 60 |

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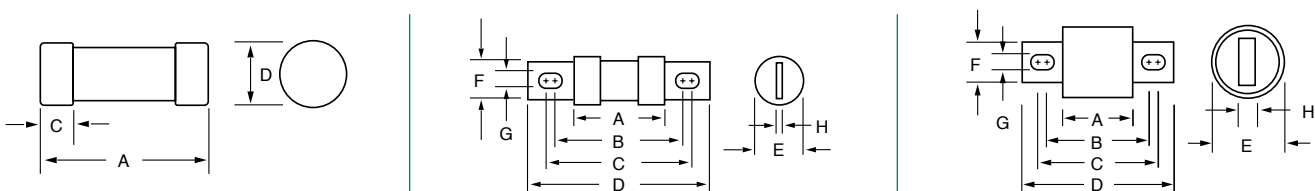
L50S SERIES HIGH-SPEED ROUND BODY

Ordering Information

| SERIES | AMPERAGE RATING | AMP CODE | CATALOG NUMBER | ORDERING NUMBER | PACK QUANTITY | UPC |
|--------|-----------------|----------|----------------|-----------------|---------------|-------------|
| L50S | 10 | 010 | L50S010 | L50S010.T | 10 pcs/box | 07945885010 |
| L50S | 12 | 012 | L50S012 | L50S012.T | 10 pcs/box | 07945885012 |
| L50S | 15 | 015 | L50S015 | L50S015.T | 10 pcs/box | 07945885015 |
| L50S | 20 | 020 | L50S020 | L50S020.T | 10 pcs/box | 07945885020 |
| L50S | 25 | 025 | L50S025 | L50S025.T | 10 pcs/box | 07945885025 |
| L50S | 30 | 030 | L50S030 | L50S030.T | 10 pcs/box | 07945885030 |
| L50S | 35 | 035 | L50S035 | L50S035.T | 10 pcs/box | 07945885035 |
| L50S | 40 | 040 | L50S040 | L50S040.T | 10 pcs/box | 07945885040 |
| L50S | 50 | 050 | L50S050 | L50S050.T | 10 pcs/box | 07945885050 |
| L50S | 60 | 060 | L50S060 | L50S060.T | 10 pcs/box | 07945885060 |
| L50S | 70 | 070 | L50S070 | L50S070.T | 10 pcs/box | 07945885070 |
| L50S | 80 | 080 | L50S080 | L50S080.T | 10 pcs/box | 07945885080 |
| L50S | 90 | 090 | L50S090 | L50S090.T | 10 pcs/box | 07945885090 |
| L50S | 100 | 100 | L50S100 | L50S100.T | 10 pcs/box | 07945885100 |
| L50S | 125 | 125 | L50S125 | L50S125.V | 5 pcs/box | 07945885125 |
| L50S | 150 | 150 | L50S150 | L50S150.V | 5 pcs/box | 07945885150 |
| L50S | 175 | 175 | L50S175 | L50S175.V | 5 pcs/box | 07945885175 |
| L50S | 200 | 200 | L50S200 | L50S200.V | 5 pcs/box | 07945885200 |
| L50S | 225 | 225 | L50S225 | L50S225.V | 5 pcs/box | 07945885225 |
| L50S | 250 | 250 | L50S250 | L50S250.V | 5 pcs/box | 07945885250 |
| L50S | 275 | 275 | L50S275 | L50S275.V | 5 pcs/box | 07945885275 |
| L50S | 300 | 300 | L50S300 | L50S300.V | 5 pcs/box | 07945885300 |
| L50S | 350 | 350 | L50S350 | L50S350.V | 5 pcs/box | 07945885350 |
| L50S | 400 | 400 | L50S400 | L50S400.V | 5 pcs/box | 07945885400 |
| L50S | 450 | 450 | L50S450 | L50S450.X | 1 pc/box | 07945885450 |
| L50S | 500 | 500 | L50S500 | L50S500.X | 1 pc/box | 07945885500 |
| L50S | 550 | 550 | L50S550 | L50S550.X | 1 pc/box | 07945885550 |
| L50S | 600 | 600 | L50S600 | L50S600.X | 1 pc/box | 07945885600 |
| L50S | 700 | 700 | L50S700 | L50S700.X | 1 pc/box | 07945885700 |
| L50S | 800 | 800 | L50S800 | L50S800.X | 1 pc/box | 07945885800 |

Dimensions

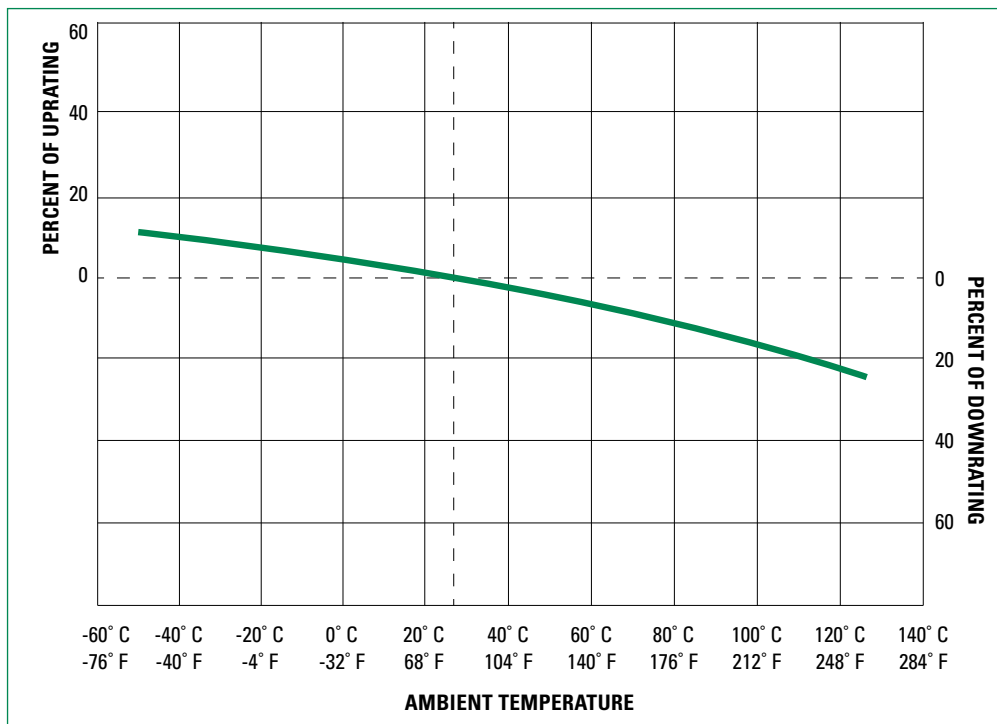
| AMPERE RATING | FIGURE NO. | DIMENSIONS INCHES (mm) | | | | | | | |
|---------------|------------|------------------------|----------------|----------------|-----------------|---------------|--------------|--------------|-------------|
| | | A | B | C | D | E | F | G | H |
| 10–30 | 1 | 2 (50.8) | — | ½ (12.7) | ¾ (14.3) | — | — | — | — |
| 31–60 | 2 | 1 5/8 (41.3) | 2 ¼ (57.2) | 2 ½ (63.5) | 3 3/16 (81.0) | 1 3/16 (20.6) | 23/32 (18.3) | 1 1/32 (8.7) | 1/8 (3.2) |
| 61–100 | 3 | 2 1/8 (54.0) | 2 11/16 (68.3) | 3 (76.2) | 3 5/8 (92.1) | 1 (25.4) | .670 (17.0) | 1 1/32 (8.7) | 1/8 (3.2) |
| 101–200 | 3 | 2 1/8 (54.0) | 2 13/16 (71.4) | 2 15/16 (74.6) | 3 5/8 (92.1) | 1 7/32 (31.0) | .895 (22.7) | 5/16 (7.9) | 3/16 (4.75) |
| 201–400 | 3 | 2 3/32 (53.2) | 2 25/32 (70.6) | 3 13/32 (86.5) | 4 11/32 (110.3) | 1 ½ (38.1) | 1 (25.4) | 13/32 (10.3) | ¼ (6.4) |
| 401–600 | 3 | 2 7/32 (56.4) | 2 29/32 (73.8) | 3 17/32 (89.7) | 4 15/32 (113.5) | 2 (50.8) | 1 ½ (38.1) | 13/32 (10.3) | ¼ (6.4) |
| 601–800 | 3 | 2 7/32 (56.4) | 4 3/32 (108.7) | 4 5/8 (117.5) | 6 15/32 (164.3) | 2 ½ (63.5) | 2 (50.8) | 17/32 (13.5) | 3/8 (9.5) |



Recommended Torque Values For Bus Bar Mounting

| RECOMMENDED TORQUE VALUES FOR BUS BAR MOUNTING FUSE | | |
|---|-------------------------------|---------------------------------|
| CATALOG NUMBER | FUSE TORQUE—METRIC (STANDARD) | HARDWARE SIZE—METRIC (STANDARD) |
| L50S035 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S040 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S050 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S060 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S070 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S080 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S090 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S100 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S125 | 8 N m (70.81 in-lb) | M6 (¼") |
| L50S150 | 8 N m (70.81 in-lb) | M6 (¼") |
| L50S175 | 8 N m (70.81 in-lb) | M6 (¼") |
| L50S200 | 8 N m (70.81 in-lb) | M6 (¼") |
| L50S225 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S250 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S275 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S300 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S350 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S400 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S450 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S500 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S550 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S600 | 15 N m (132.76 in-lb) | M8 (5/16") |
| L50S700 | 54 N m (477.94 in-lb) | M12 (½") |
| L50S800 | 54 N m (477.94 in-lb) | M12 (½") |

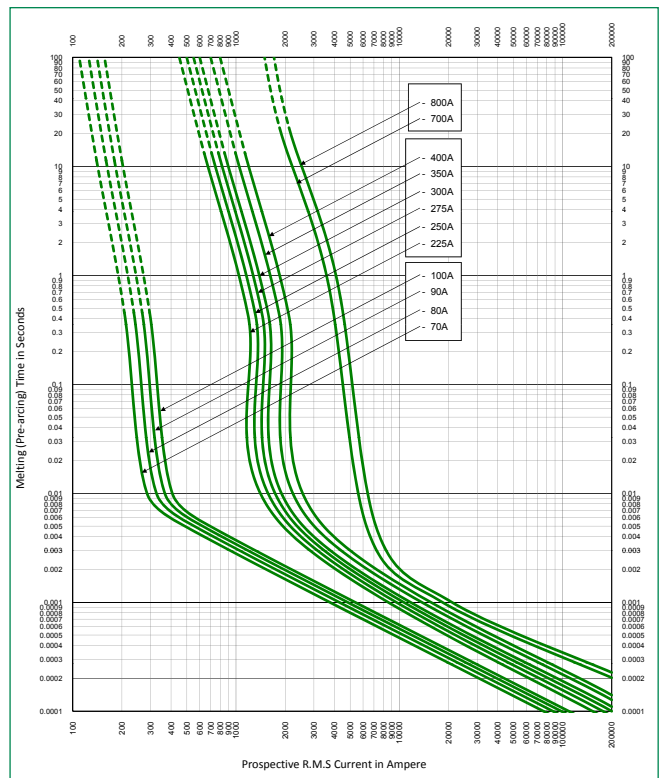
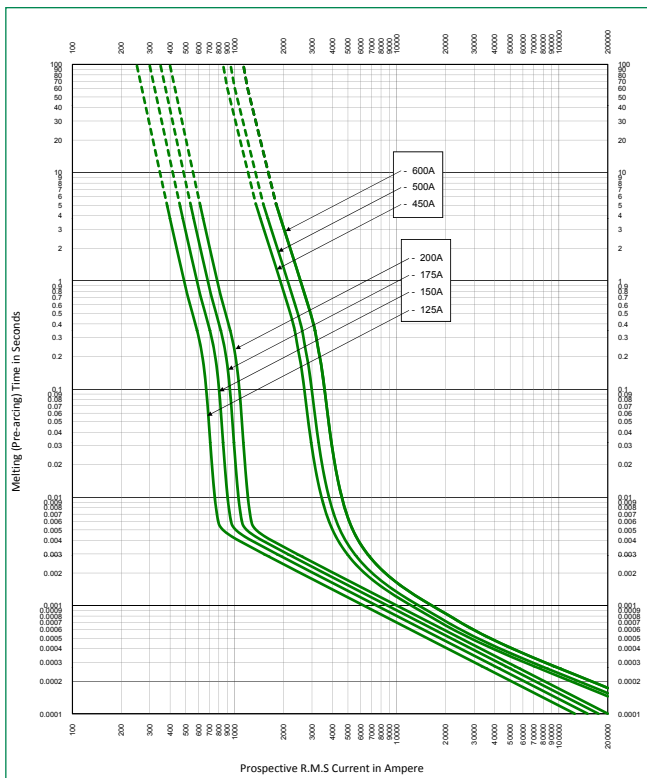
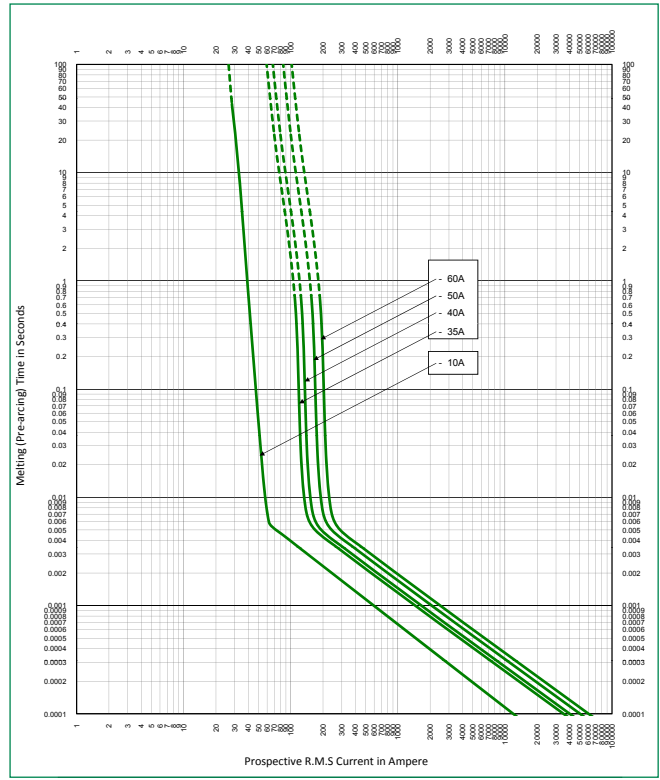
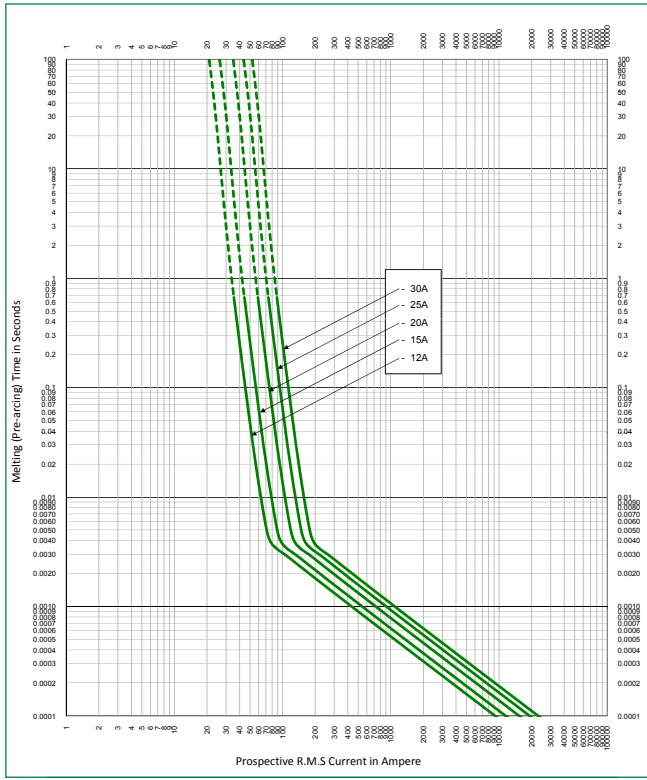
Temperature De-rating Curve (temperature of air immediately surrounding fuse)



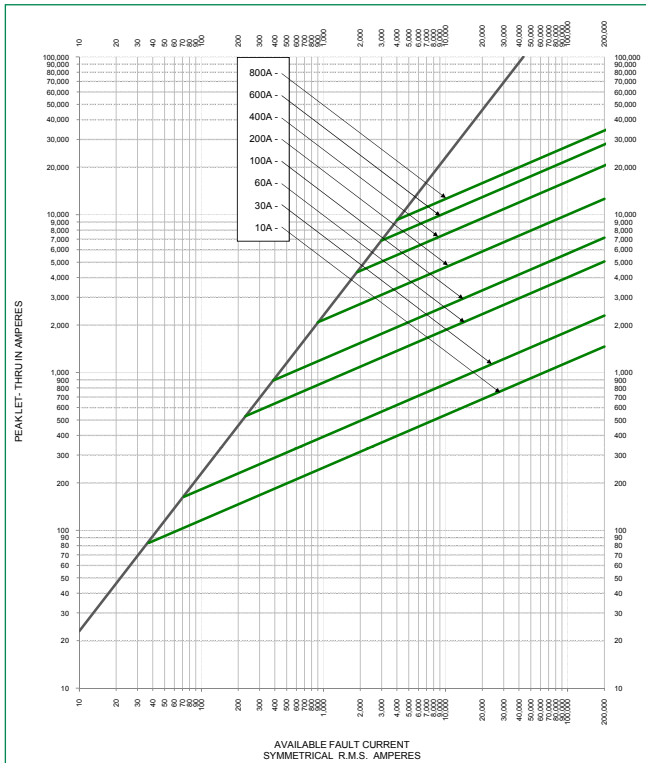
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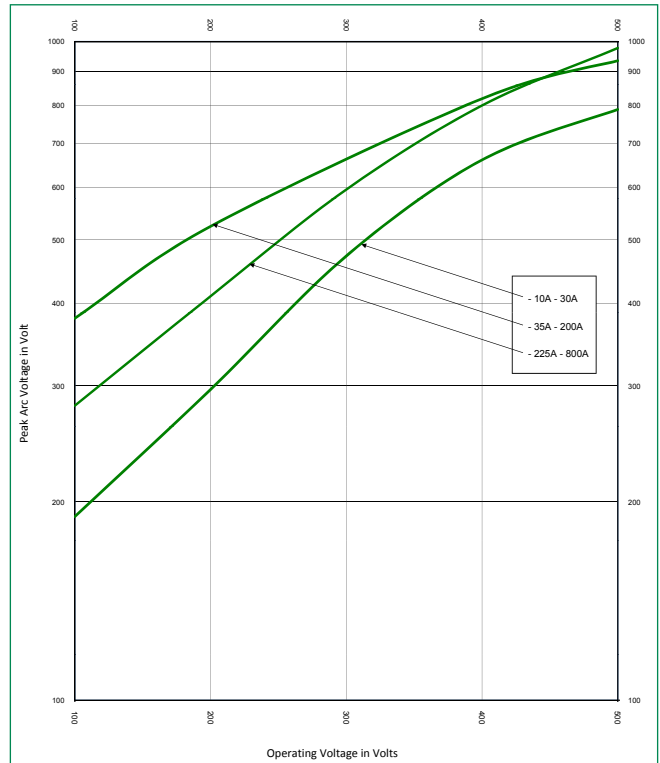
Time Current Curves



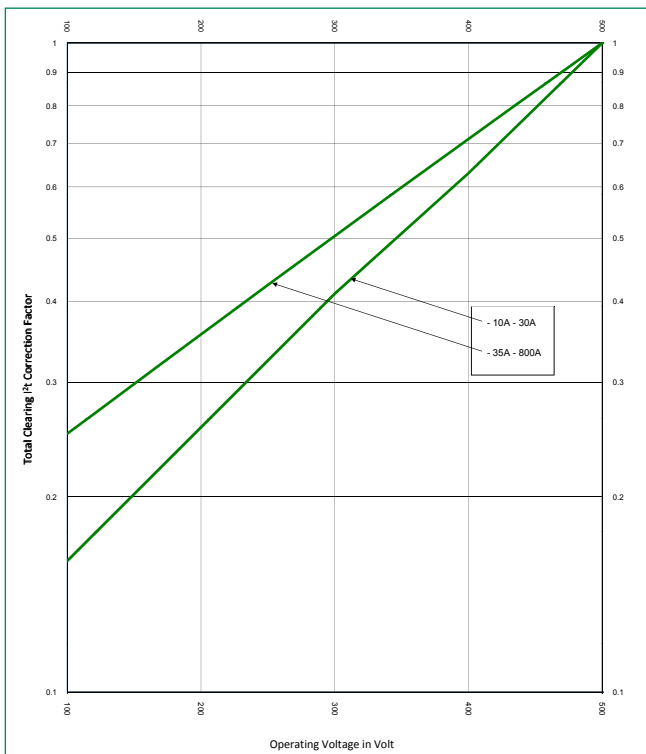
Peak Let-Thru Curve



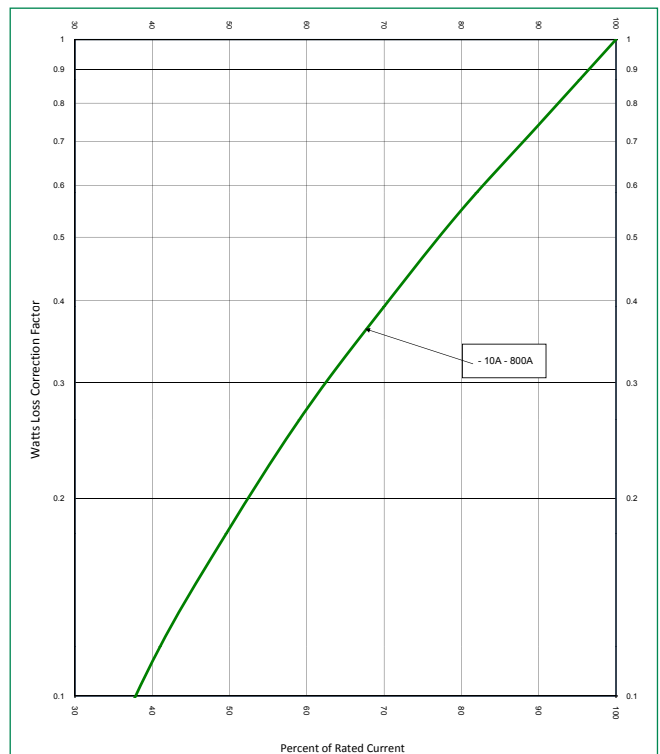
Peak Arc Voltage Curve



Total Clearing I²t Correction Factor Curve



Watts Loss Correction Factor Curve



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