

# L50S SERIES HIGH-SPEED FUSE

500 Vac • 450 Vdc • 10-800 A • Traditional Round Body Style



## 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

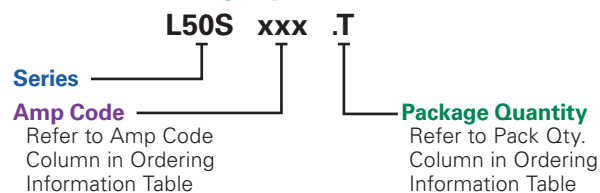
## Applications

- AC & DC Drives
- DC Common Bus Protection
- Power Converters
- UPS
- Soft-Starters

## Specifications

|                              |                                                                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Voltage Rating</b>        | 500 Vac<br>450 Vdc                                                                                                                               |
| <b>Amperage Rating</b>       | 10, 12, 15, 20, 25, 30, 35, 40, 50, 60,<br>70, 80, 90, 100, 125, 150, 175, 200, 225,<br>250, 275, 300, 350, 400, 450, 500, 550,<br>600, 700, 800 |
| <b>Interrupting Rating</b>   | AC: 200 kAIC<br>DC: 20 kAIC                                                                                                                      |
| <b>Material</b>              | Body: Melamine<br>Terminals: Copper (silver plated)                                                                                              |
| <b>Mounting Type</b>         | Cylindrical (10 - 30 A)<br>Bolted Tags (35 - 800 A)                                                                                              |
| <b>Operating Temperature</b> | -55° C to +125° C                                                                                                                                |
| <b>Storage Temperature</b>   | Up to 35° C with relative humidity less than 65%                                                                                                 |
| <b>Approvals</b>             | UL Recognized (File: E71611)<br>CSA Recognized (File: LR29862)                                                                                   |
| <b>Environmental</b>         | RoHS Compliant                                                                                                                                   |
| <b>Country of Origin</b>     | 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)

## Web Resources

Download technical documents: [littelfuse.com/L50S](http://littelfuse.com/L50S)

# L50S SERIES HIGH-SPEED FUSE

## 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)   | ⅜ (14.3)   | —         | —           | —         | —        |
| 31 – 60       | 2          | 1⅝ (41.3)              | 2¼ (57.2)  | 2½ (63.5)  | 3⅜ (81.0)  | 1⅜ (20.6) | 2⅜ (18.3)   | 1⅜ (8.7)  | ⅜ (3.2)  |
| 61 – 100      | 3          | 2⅛ (54.0)              | 2⅜ (68.3)  | 3 (76.2)   | 3⅝ (92.1)  | 1 (25.4)  | .670 (17.0) | 1⅜ (8.7)  | ⅜ (3.2)  |
| 101 – 200     | 3          | 2⅛ (54.0)              | 2⅜ (71.4)  | 2⅝ (74.6)  | 3⅝ (92.1)  | 1⅜ (31.0) | .895 (22.7) | ⅝ (7.9)   | ⅜ (4.75) |
| 201 – 400     | 3          | 2⅜ (53.2)              | 2⅝ (70.6)  | 3⅜ (86.5)  | 4⅜ (110.3) | 1½ (38.1) | 1 (25.4)    | 1⅜ (10.3) | ¼ (6.4)  |
| 401 – 600     | 3          | 2⅜ (56.4)              | 2⅝ (73.8)  | 3⅜ (89.7)  | 4⅜ (113.5) | 2 (50.8)  | 1½ (38.1)   | 1⅜ (10.3) | ¼ (6.4)  |
| 601 – 800     | 3          | 2⅜ (56.4)              | 4⅜ (108.7) | 4⅝ (117.5) | 6⅜ (164.3) | 2½ (63.5) | 2 (50.8)    | 1⅜ (13.5) | ⅜ (9.5)  |

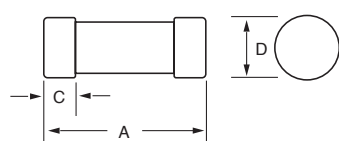


Figure 1

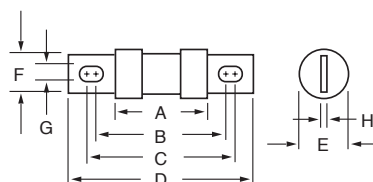


Figure 2

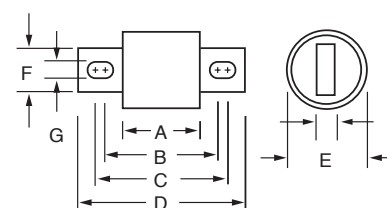


Figure 3

## 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 |

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## Electrical Specifications

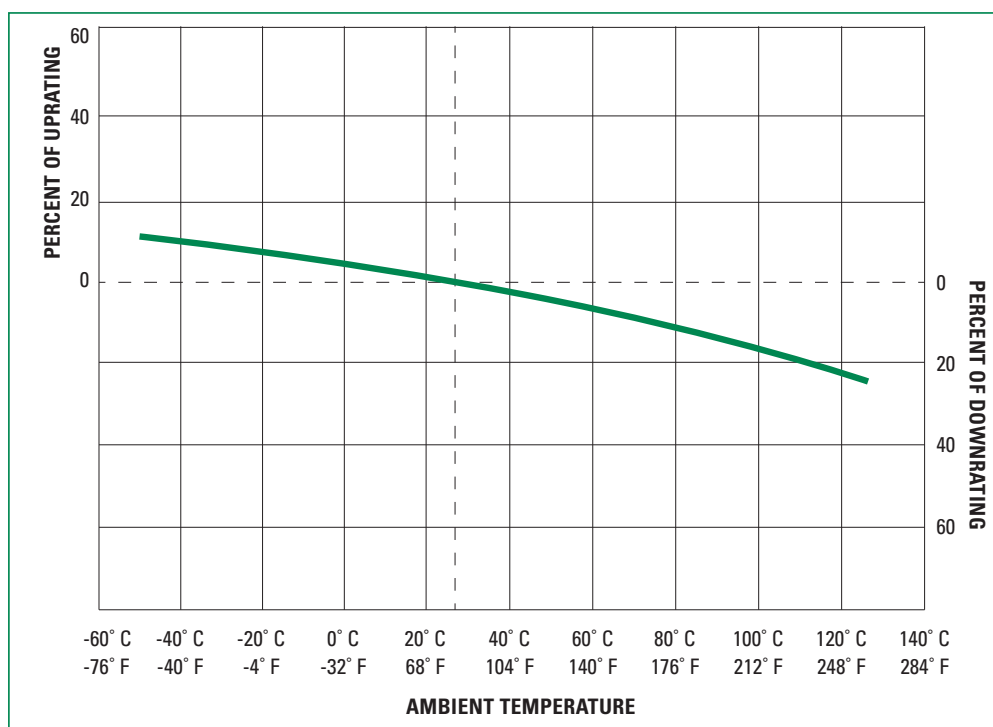
| CATALOG NUMBER | AMPERE RATING | VOLTAGE RATING |     | INTERRUPT RATING |      | MELTING (PRE-ARC) I <sup>2</sup> T (A <sup>2</sup> s) | TOTAL CLEARING I <sup>2</sup> T (A <sup>2</sup> s) | TOTAL CLEARING I <sup>2</sup> T (A <sup>2</sup> s) | TOTAL CLEARING I <sup>2</sup> T (A <sup>2</sup> s) | WATTS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

# L50S SERIES HIGH-SPEED FUSE

## Recommended Torque Values For Bus Bar Mounting

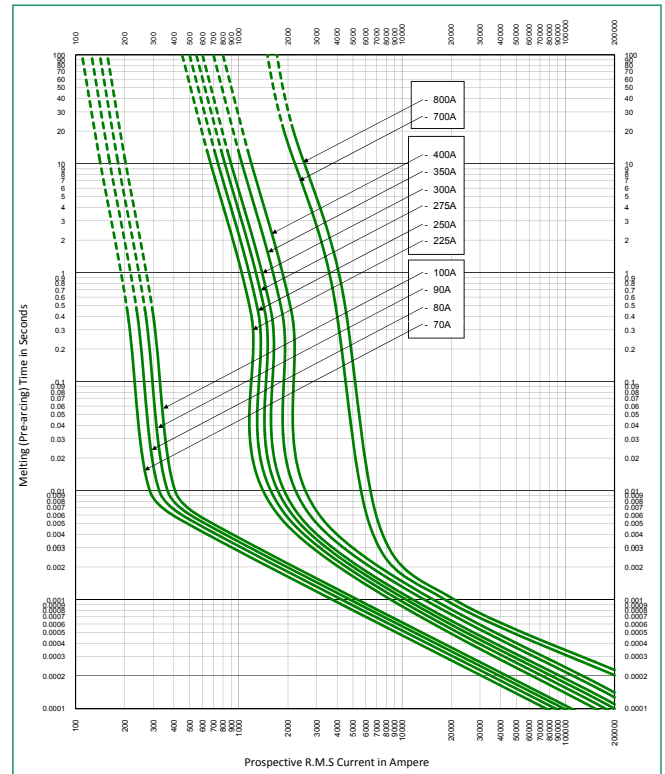
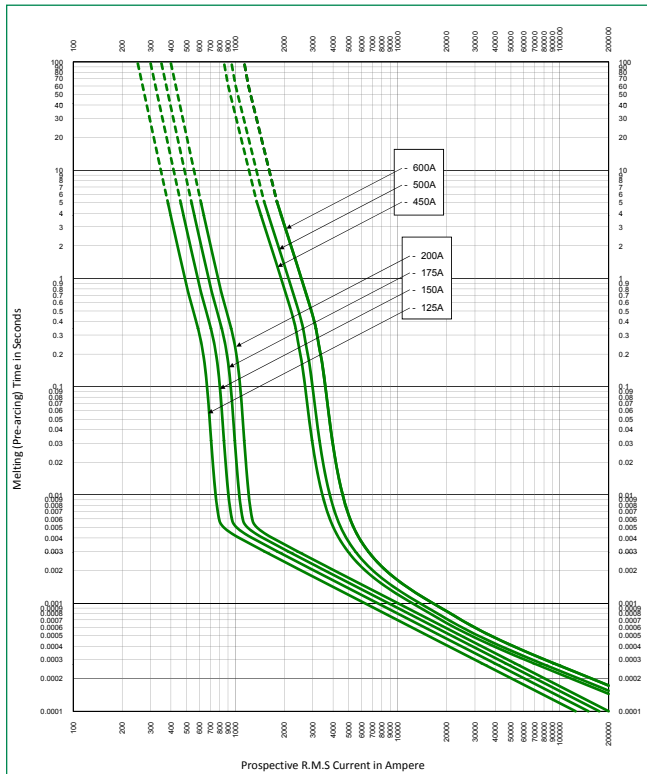
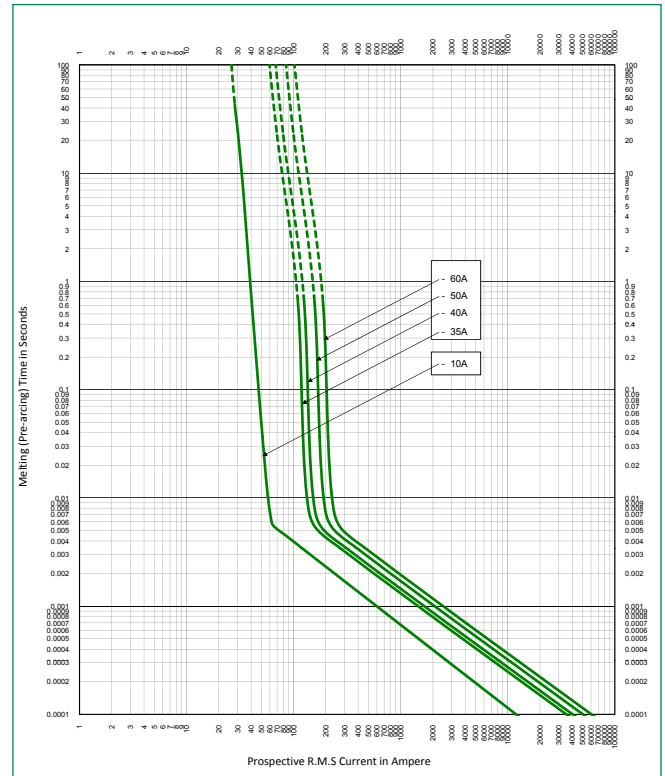
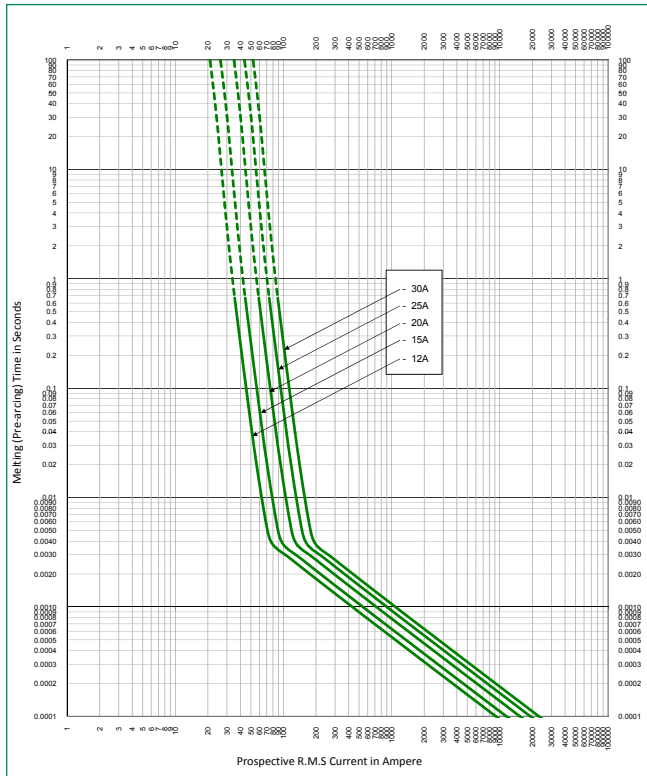
| RECOMMENDED TORQUE VALUES FOR BUS BAR MOUNTING FUSE |                               |                                 |
|-----------------------------------------------------|-------------------------------|---------------------------------|
| CATALOG NUMBER                                      | FUSE 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)



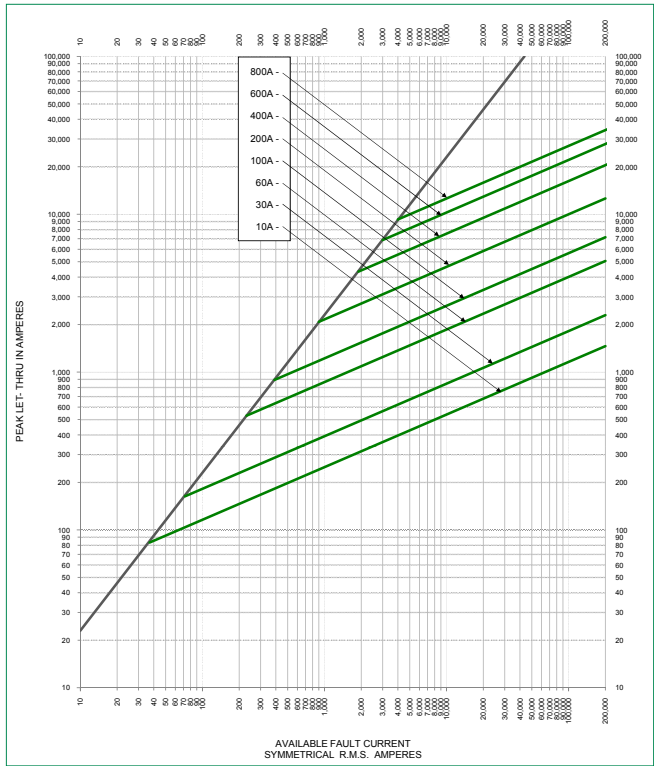
## L50S SERIES HIGH-SPEED FUSE

### Time Current Curves

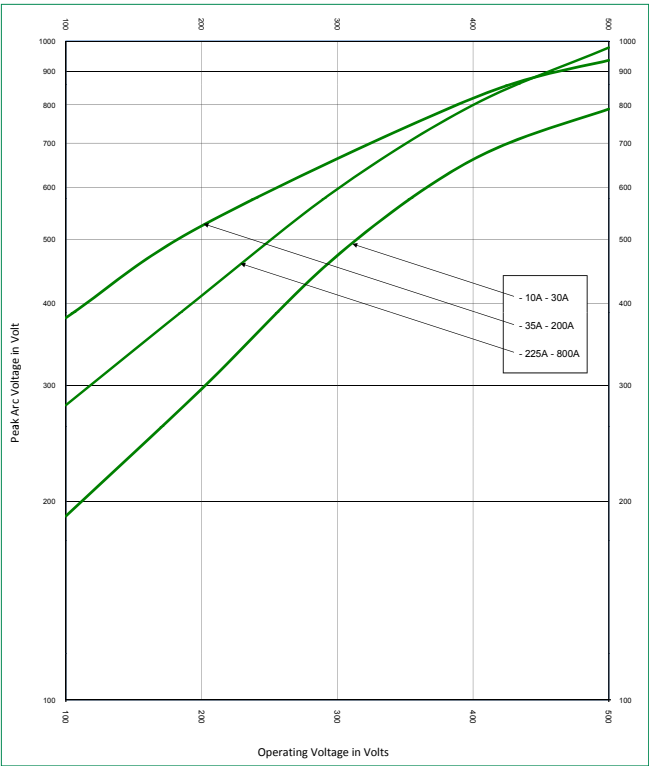


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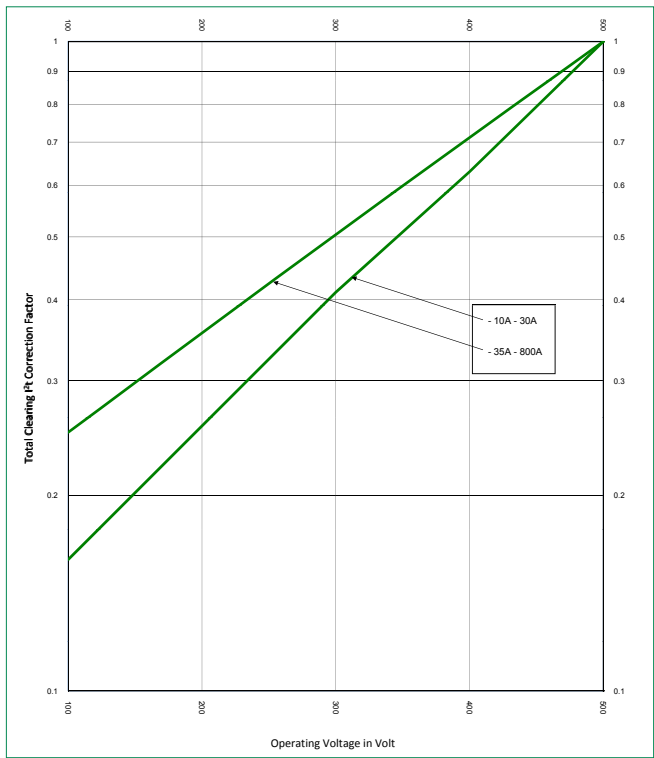
Peak Let-Thru Curve



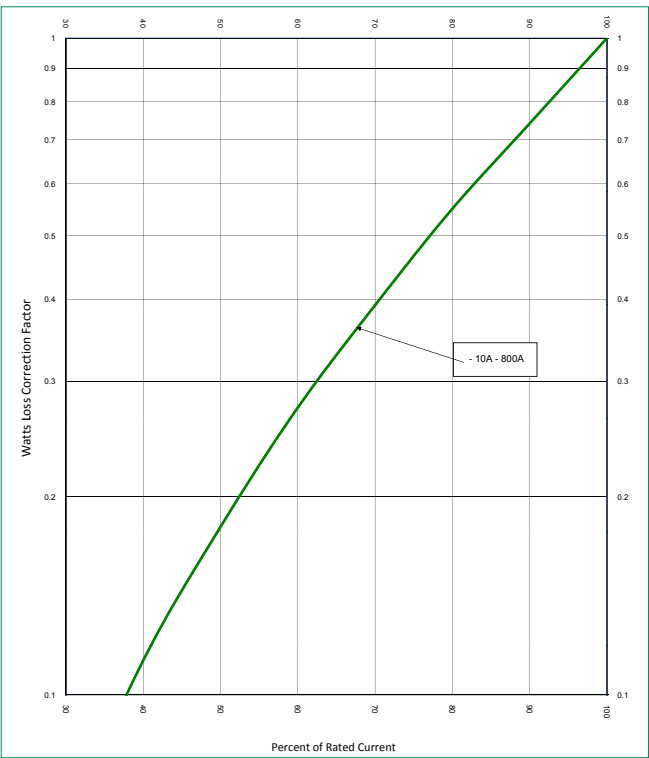
Peak Arc Voltage Curve



Total Clearing I<sup>2</sup>t Correction Factor Curve



Watts Loss Correction Factor Curve



## L50S SERIES HIGH-SPEED FUSE

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