

POWR-GARD® Fuse Datasheet

SPNH SERIES SOLAR FUSE

1500 V dc • 50–400 A • NH Style



Description

The SPNH series has been designed to meet the emerging circuit protection needs for 1500 volt photovoltaic systems. These fuses provide full range protection for all potential overcurrent conditions that exist in PV applications. Suitable for PV inverter protection and array combiner applications.

Features/Benefits

- Compact NH XL sizes
- Low watt loss design
- 1500 V dc rating for high efficiency designs
- Designed to protect against a full range of overcurrents

Applications

- Inverters
- Re-combiner boxes
- Array/re-combiner application
- PV inverter dc input protection

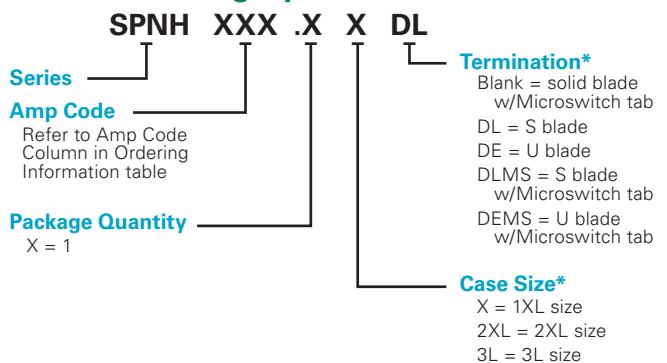
Web Resources

- Download technical documents: Littelfuse.com/SPNH

Specifications

| | |
|-----------------------------|--|
| Voltage Rating | 1500 V dc |
| Amperage Rating | 50, 63, 80, 100, 125, 160, 200, 250, 315, 350, 400 A |
| Interrupting Rating | 30 kA, 50 kA |
| Time Constant | ≤ 2 ms |
| Material | Body: ceramic End Bells: copper alloy |
| Approvals | UL 248-19 Listed (File: E339112) |
| Applicable Standards | UL 248-1, 248-19 IEC 60269-6 |
| Environmental | RoHS Compliant |

Part Numbering System



| SERIES | AMP | PACKAGE QUANTITY | CATALOG NUMBER | ORDERING NUMBER |
|--------|-----|------------------|----------------|-----------------|
| SPNH | 50 | 1 | SPNH050 | SPNH050.X |
| SPNH | 200 | 1 | SPNH200 | SPNH200.X |
| SPNH | 400 | 1 | SPNH400 | SPNH400.XXDLMS |

*Solid blade option for 1XL case size does not require a case or termination designator for the part number.

Recommended Accessories

1XL Case Size

Fuse Holder: LFNH152001CST

Fuse Terminal Covers: LFNH15200FBC

2XL Case Size

Fuse Holder: LFNH154001CST

Fuse Terminal Covers: LFNH15400FBC

3L Case Size

Fuse Holder: LFNH156301CST

Fuse Terminal Covers: LFNH15630FBC

Microswitch

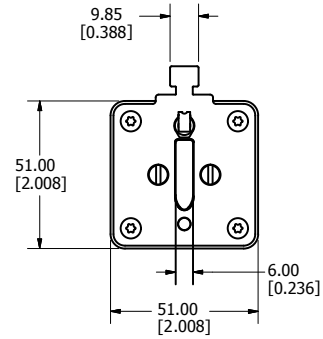
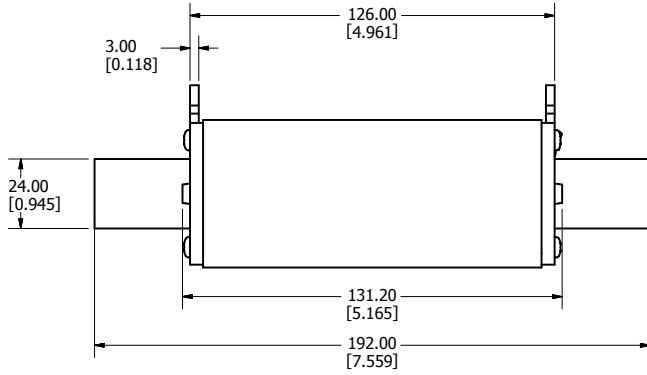
MSSPNH1500X



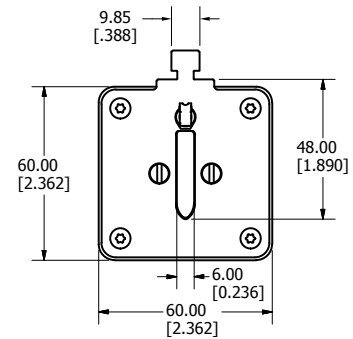
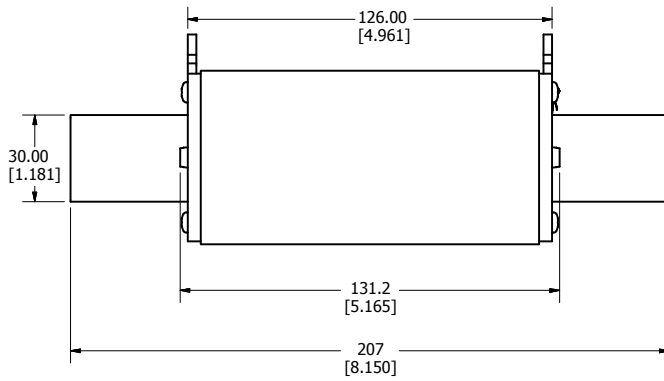
Look for this logo to indicate products that are used in solar applications. Visit our website Littelfuse.com/solar for the latest updates on approvals, certifications, and new products.

Dimensions Millimeters (in)

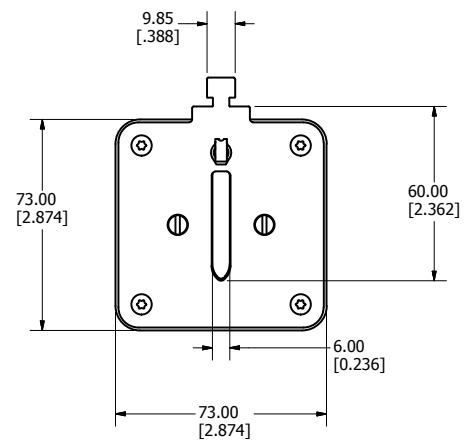
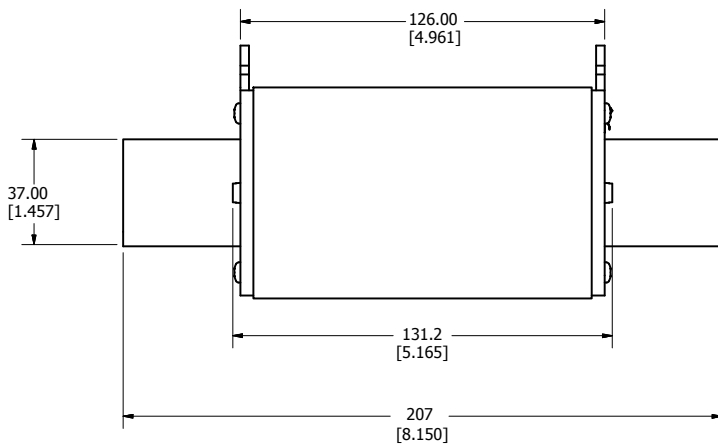
Size: 1 XL w/ Microswitch Tab



Size: 2 XL w/ Microswitch Tab



Size: 3 L w/ Microswitch Tab



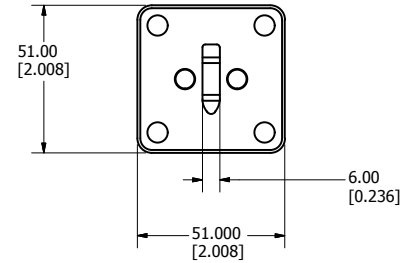
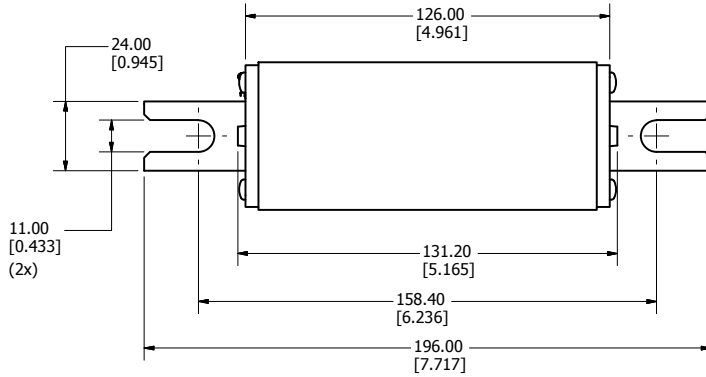
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Dimensions Millimeters (in)

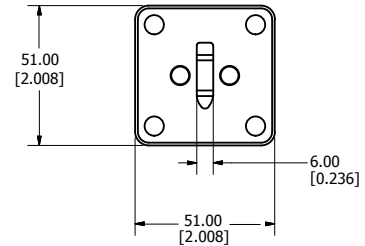
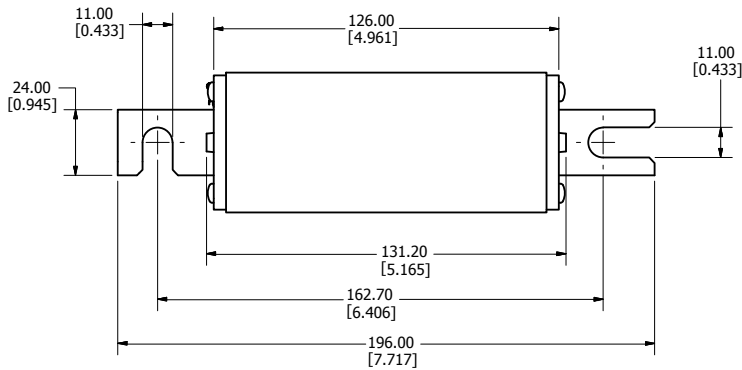
Size: 1XL DE Blade

Recommended Torque: 44 Nm*



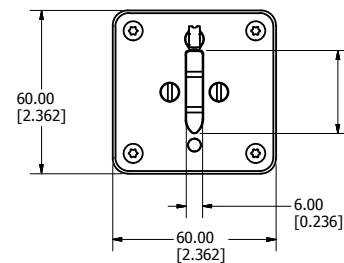
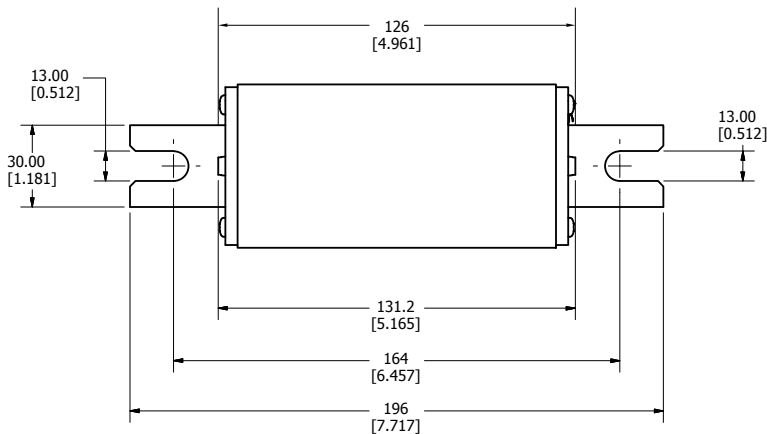
Size: 1XL DL Blade

Recommended Torque: 44 Nm*



Size: 2 XL DE Blade

Recommended Torque: 77 Nm*

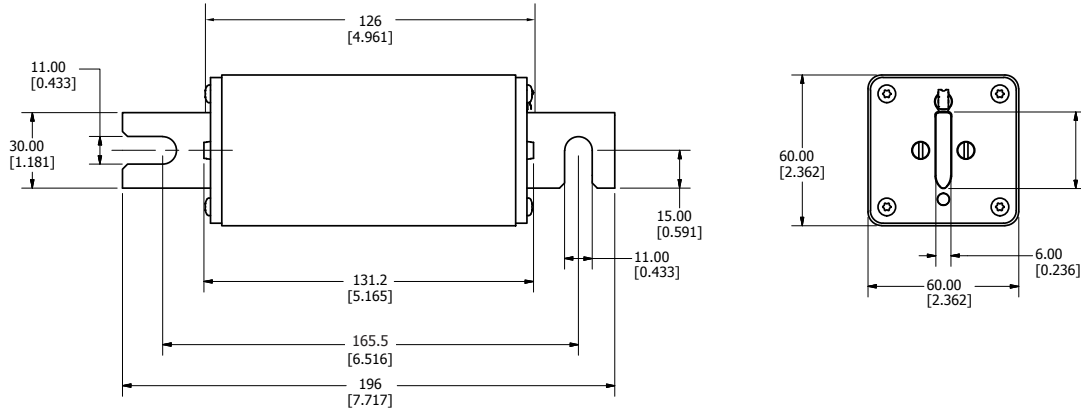


*recommended torque values are for grade 8 steel hardware

Dimensions Millimeters (in)

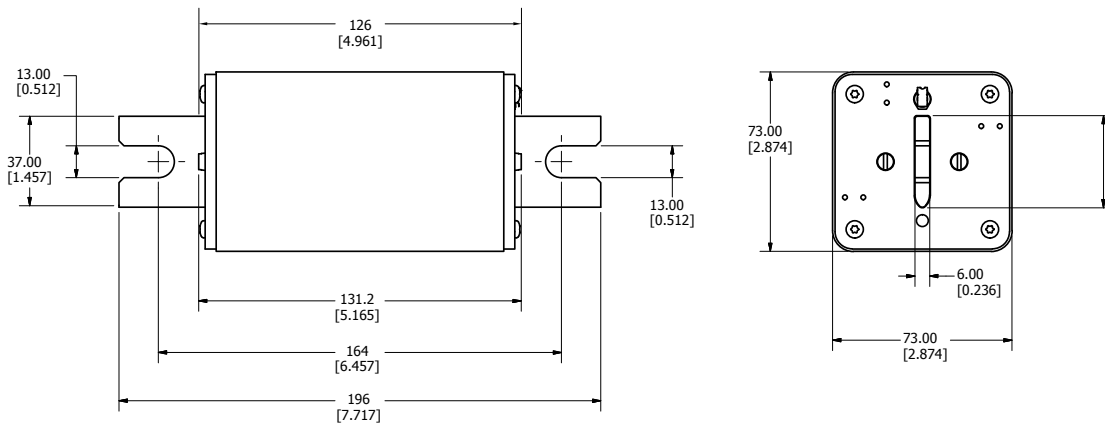
Size: 2 XL DL Blade

Recommended Torque: 44 Nm*



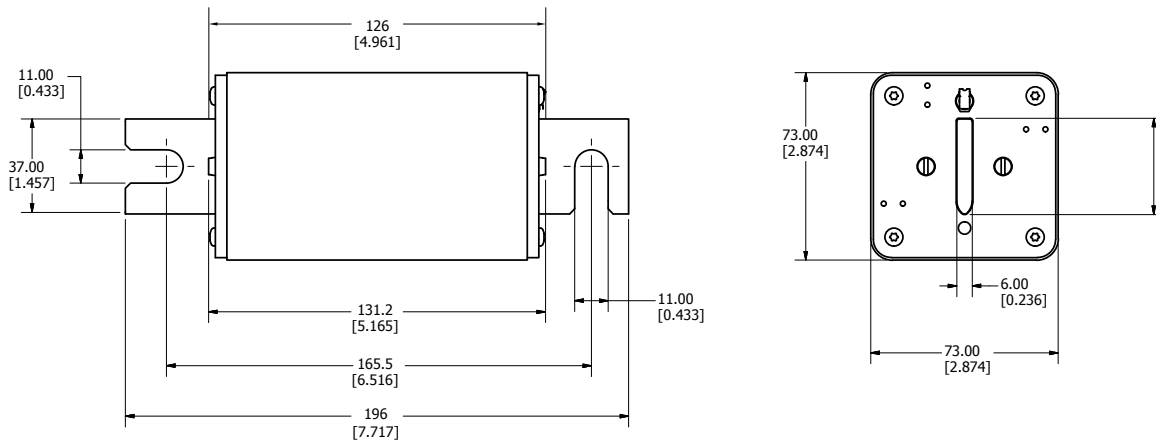
Size: 3 L DE Blade

Recommended Torque: 77 Nm*



Size: 3 L DL Blade

Recommended Torque: 44 Nm*

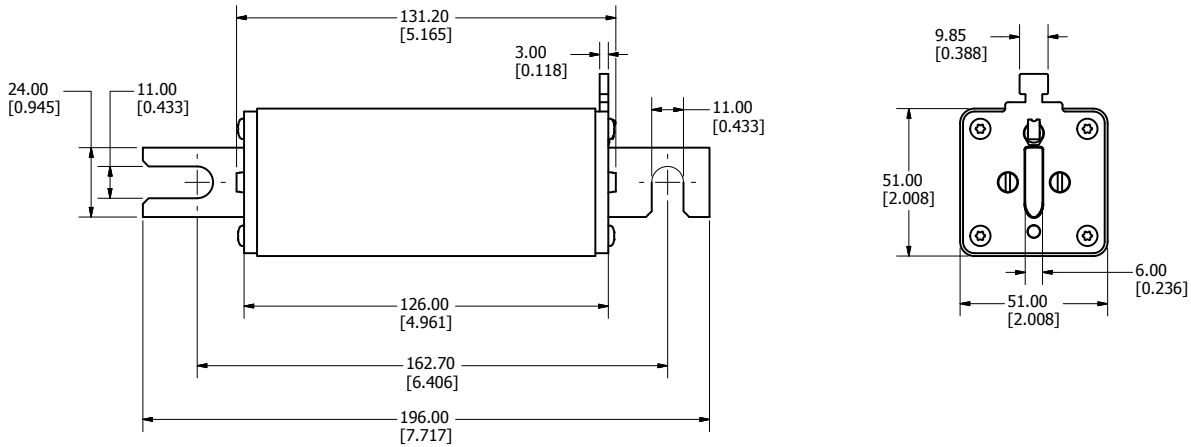


*recommended torque values are for grade 8 steel hardware

Dimensions Millimeters (in)

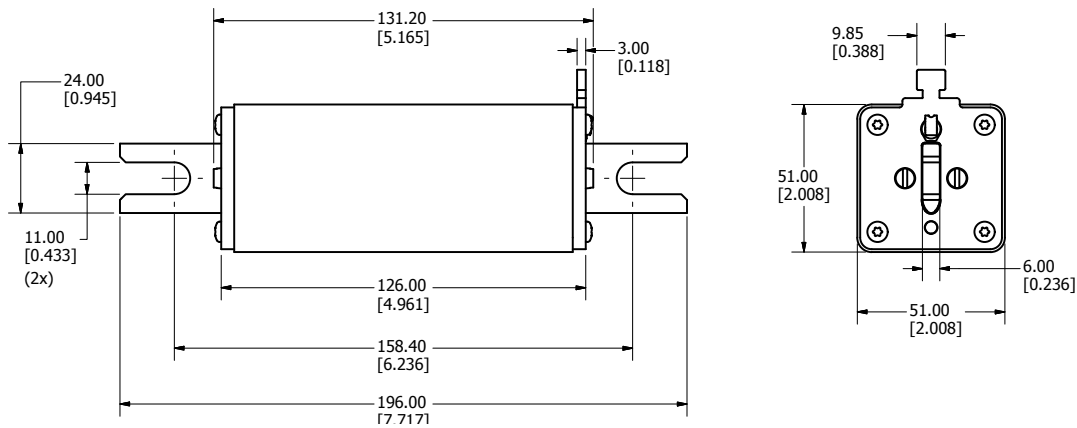
Size: 1 XL DL Blade w/ Microswitch Tab

Recommended Torque: 44 Nm*



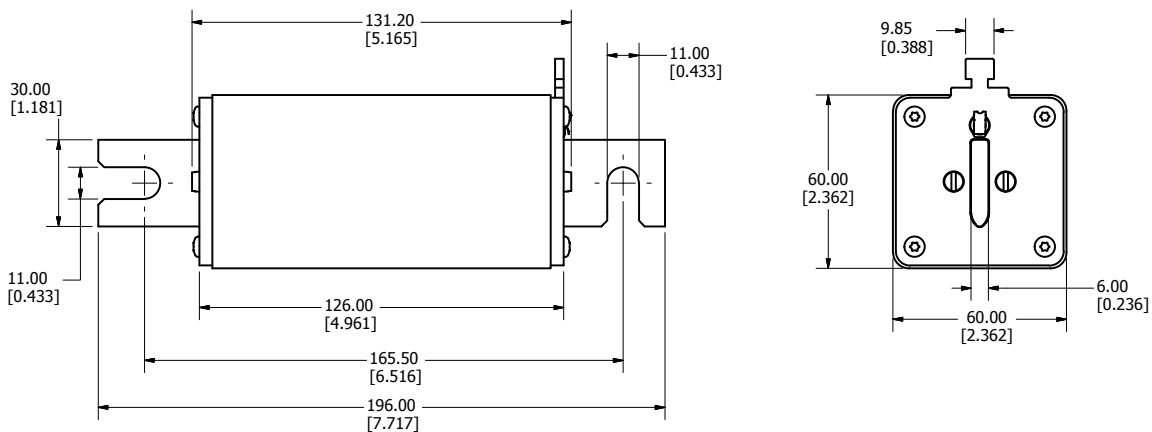
Size: 1 XL DE Blade w/ Microswitch Tab

Recommended Torque: 44 Nm*



Size: 2 XL DL Blade w/ Microswitch Tab

Recommended Torque: 44 Nm*

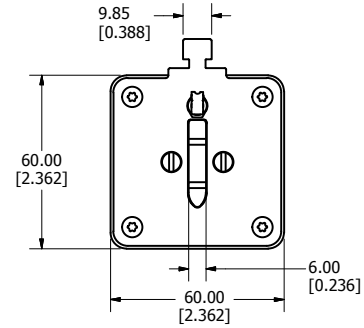
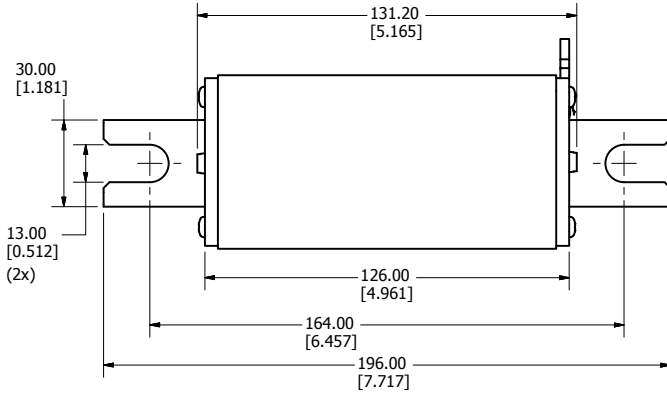


*recommended torque values are for grade 8 steel hardware

Dimensions Millimeters (in)

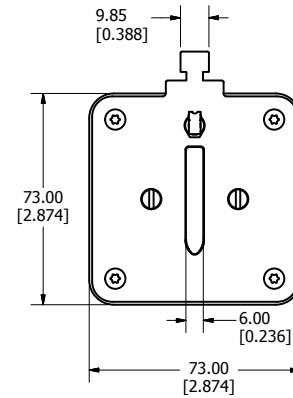
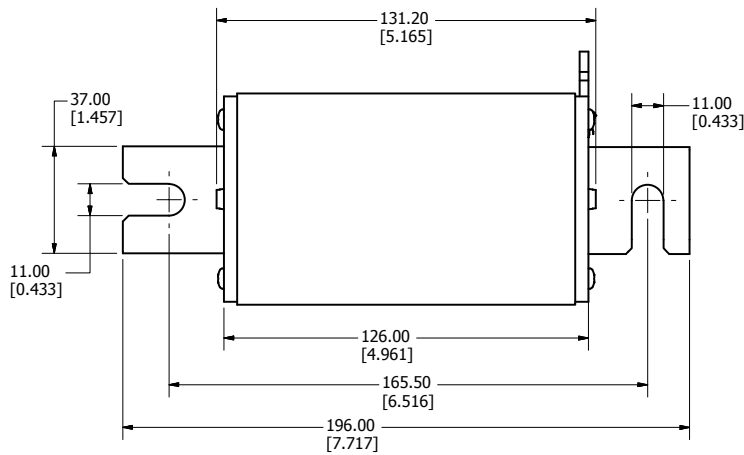
Size: 2 XL DE Blade w/ Microswitch Tab

Recommended Torque: 77 Nm*



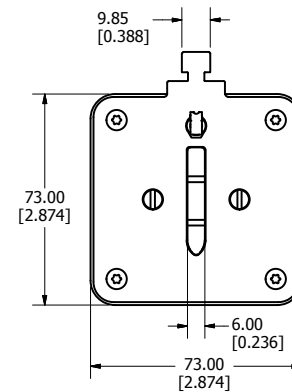
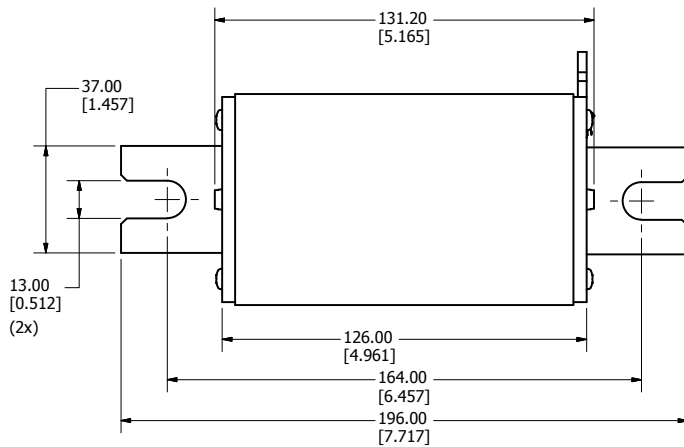
Size: 3 L DL Blade w/ Microswitch Tab

Recommended Torque: 44 Nm*



Size: 3 L DE Blade w/ Microswitch Tab

Recommended Torque: 77 Nm*



*recommended torque values are for grade 8 steel hardware

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Electrical Specifications

| AMPERAGE RATING | VOLTAGE RATING | INTERRUPTING RATING | NOM COLD RESISTANCE (mΩ) | MELTING (PRE-ARC) I ² T (A ² s) | TOTAL CLEARING I ² T (A ² s) AT RATED VOLTAGE | WATTS LOSS AT 100% RATED CURRENT (W) | WATTS LOSS AT 70% RATED CURRENT (W) | SIZE |
|-----------------|----------------|---------------------|--------------------------|---|---|--------------------------------------|-------------------------------------|------|
| | DC | DC | | | | | | |
| 50 | 1500 | 30 kA | 3.95 | 800 | 3,500 | 14 | 6 | 1 XL |
| 63 | 1500 | 30 kA | 2.96 | 1,500 | 6,000 | 14 | 6.2 | |
| 80 | 1500 | 30 kA | 2.36 | 5,000 | 15,000 | 16 | 7 | |
| 100 | 1500 | 30 kA | 1.47 | 10,000 | 26,000 | 19 | 8.3 | |
| 125 | 1500 | 30 kA | 1.07 | 15,000 | 37,000 | 22 | 9.7 | |
| 160 | 1500 | 30 kA | 0.85 | 19,000 | 48,000 | 30 | 13.2 | |
| 200 | 1500 | 30 kA | 0.63 | 22,000 | 75,000 | 32.5 | 13.7 | 2 XL |
| 200 | 1500 | 30 kA | 0.66 | 42,000 | 75,000 | 36 | 15.9 | |
| 250 | 1500 | 30 kA | 0.51 | 73,000 | 132,000 | 44 | 19.3 | |
| 315 | 1500 | 50 kA | 0.37 | 65,000 | 300,000 | 57 | 22.2 | 3 L |
| 350 | 1500 | 50 kA | 0.33 | 75,000 | 350,000 | 61 | 23.7 | |
| 400 | 1500 | 50 kA | 0.28 | 85,000 | 450,000 | 67 | 26.8 | |

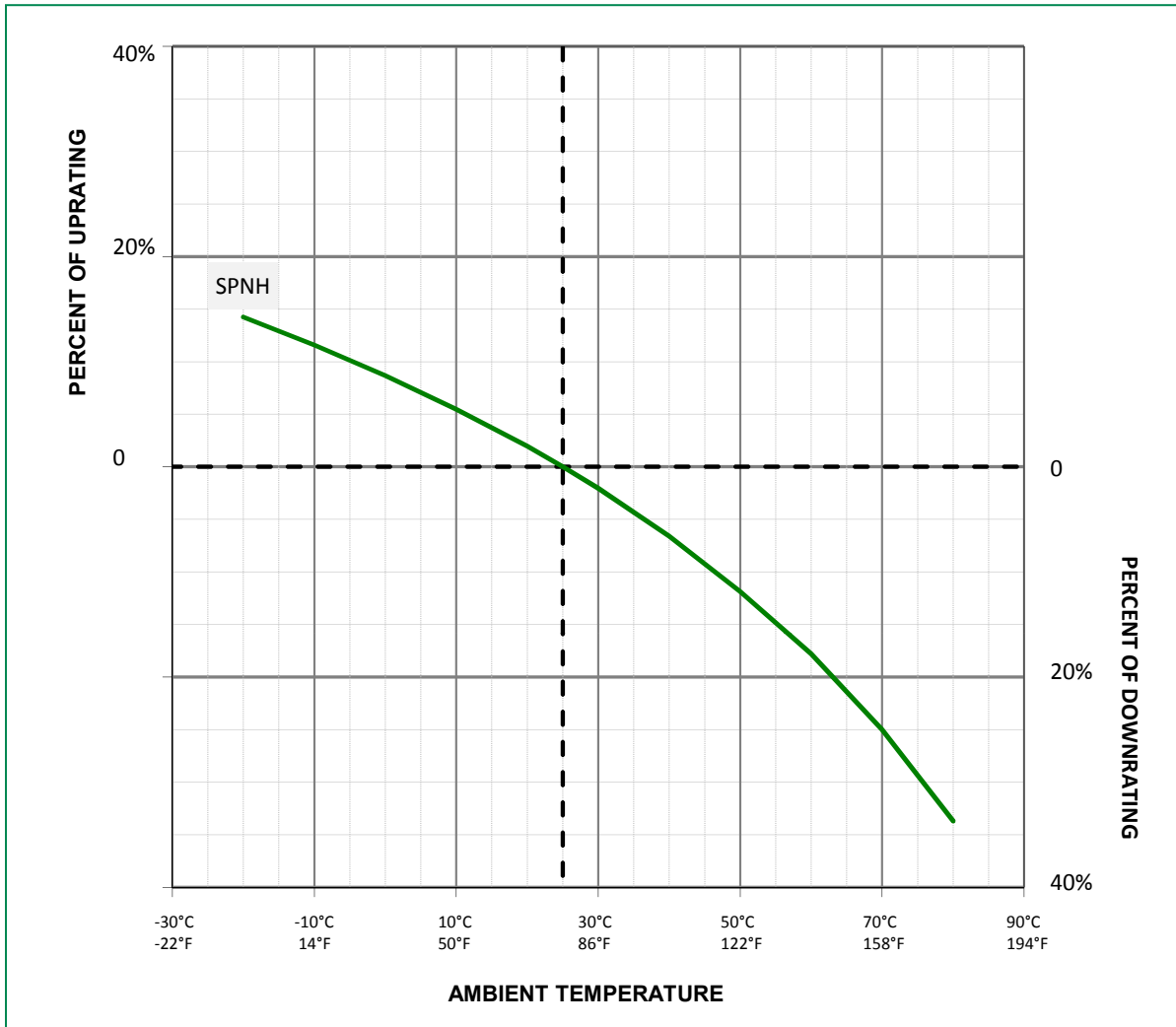
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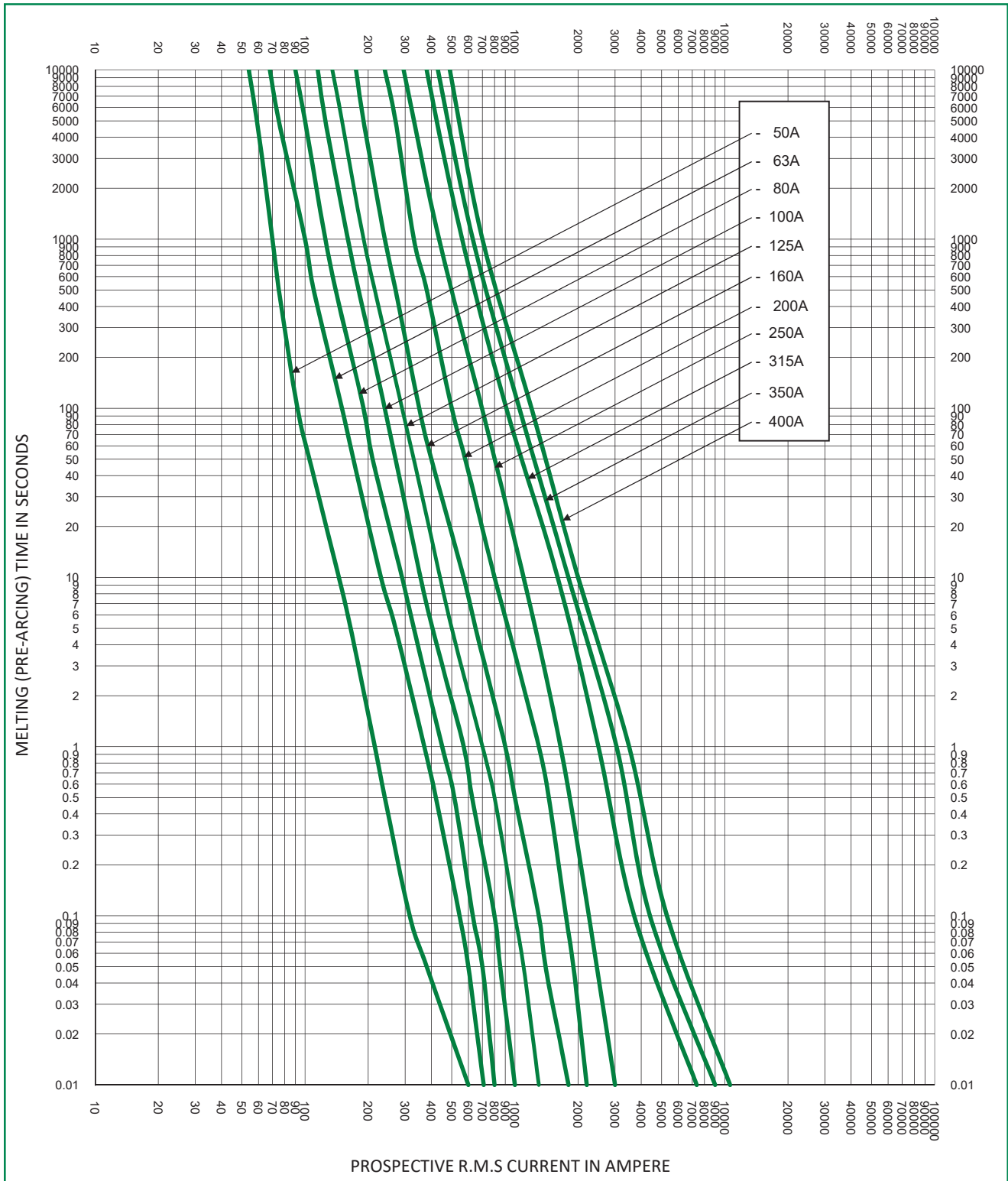
Ordering Information

| CONTACT | CASE SIZE | AMPERAGE RATING | AMP CODE | CATALOG NUMBER | PRODUCT MARKING | ORDERING NUMBER | UPC | MICROSWITCH COMPATIBLE CATALOG NUMBER | MICROSWITCH COMPATIBLE PRODUCT MARKING | MICROSWITCH COMPATIBLE ORDERING NUMBER | MICROSWITCH COMPATIBLE UPC | AGENCY APPROVALS | |
|--------------|-----------|-----------------|----------|----------------|-----------------|-----------------|---------------|---------------------------------------|--|--|----------------------------|------------------|---|
| | | | | | | | | | | | | UL | |
| SOLID BLADE | 1XL | 50 A | 050 | SPNH050 | SPNH 50A | SPNH050.X | 07945804294 | SPNH050 | SPNH 50A | SPNH050.X | 07945804294 | • | |
| | | 63 A | 063 | SPNH063 | SPNH 63A | SPNH063.X | 07945804295 | SPNH063 | SPNH 63A | SPNH063.X | 07945804295 | • | |
| | | 80 A | 080 | SPNH080 | SPNH 80A | SPNH080.X | 07945804319 | SPNH080 | SPNH 80A | SPNH080.X | 07945804319 | • | |
| | | 100 A | 100 | SPNH100 | SPNH 100A | SPNH100.X | 07945804359 | SPNH100 | SPNH 100A | SPNH100.X | 07945804359 | • | |
| | | 125 A | 125 | SPNH125 | SPNH 125A | SPNH125.X | 07945804433 | SPNH125 | SPNH 125A | SPNH125.X | 07945804433 | • | |
| | | 160 A | 160 | SPNH160 | SPNH 160A | SPNH160.X | 07945804443 | SPNH160 | SPNH 160A | SPNH160.X | 07945804443 | • | |
| | 2XL | 200 A | 200 | SPNH200 | SPNH 200A | SPNH200.X | 07945804552 | SPNH200 | SPNH 200A | SPNH200.X | 07945804552 | • | |
| | | 200 A | 200 | SPNH200-2XL | SPNH 200A-2XL | SPNH200.X2XL | 07945819771 | SPNH200-2XL | SPNH 200A-2XL | SPNH200.X2XL | 07945819771 | • | |
| | | 250 A | 250 | SPNH250-2XL | SPNH 250A-2XL | SPNH250.X2XL | 07945819772 | SPNH250-2XL | SPNH 250A-2XL | SPNH250.X2XL | 07945819772 | • | |
| | | 3L | 315 A | 315 | SPNH315-3L | SPNH 315A-3L | SPNH315.X3L | 07945821115 | SPNH315-3L | SPNH 315A-3L | SPNH315.X3L | 07945821115 | • |
| | | | 350 A | 350 | SPNH350-3L | SPNH 350A-3L | SPNH350.X3L | 07945821116 | SPNH350-3L | SPNH 350A-3L | SPNH350.X3L | 07945821116 | • |
| | | | 400 A | 400 | SPNH400-3L | SPNH 400A-3L | SPNH400.X3L | 07945821117 | SPNH400-3L | SPNH 400A-3L | SPNH400.X3L | 07945821117 | • |
| DL BLADE (S) | 1XL | 50 A | 050 | SPNH050-DL | SPNH 50A-DL | SPNH050.XXDL | 07945819843 | SPNH050-DLMS | SPNH 50A-DLMS | SPNH050.XXDLMS | 07945823539 | • | |
| | | 63 A | 063 | SPNH063-DL | SPNH 63A-DL | SPNH063.XXDL | 07945819844 | SPNH063-DLMS | SPNH 63A-DLMS | SPNH063.XXDLMS | 07945823541 | • | |
| | | 80 A | 080 | SPNH080-DL | SPNH 80A-DL | SPNH080.XXDL | 07945819845 | SPNH080-DLMS | SPNH 80A-DLMS | SPNH080.XXDLMS | 07945823543 | • | |
| | | 100 A | 100 | SPNH100-DL | SPNH 100A-DL | SPNH100.XXDL | 07945819846 | SPNH0100-DLMS | SPNH 100A-DLMS | SPNH0100.XXDLMS | 07945823545 | • | |
| | | 125 A | 125 | SPNH125-DL | SPNH 125A-DL | SPNH125.XXDL | 07945819847 | SPNH0125-DLMS | SPNH 125A-DLMS | SPNH0125.XXDLMS | 07945823547 | • | |
| | | 160 A | 160 | SPNH160-DL | SPNH 160A-DL | SPNH160.XXDL | 07945819848 | SPNH0160-DLMS | SPNH 160A-DLMS | SPNH0160.XXDLMS | 07945823549 | • | |
| | 2XL | 200 A | 200 | SPNH200-DL | SPNH 200A-DL | SPNH200.XXDL | 07945819849 | SPNH0200-DLMS | SPNH 200A-DLMS | SPNH0200.XXDLMS | 07945823553 | • | |
| | | 200 A | 200 | SPNH200-2XLDL | SPNH 200A-2XLDL | SPNH200.X2XLDL | 07945819850 | SPNH0200-2XLDLMS | SPNH 200A-2XLDLMS | SPNH0200.X2XLDLMS | 07945823551 | • | |
| | | 250 A | 250 | SPNH250-2XLDL | SPNH 250A-2XLDL | SPNH250.X2XLDL | 07945819851 | SPNH0250-2XLDLMS | SPNH 250A-2XLDLMS | SPNH0250.X2XLDLMS | 07945823555 | • | |
| | | 3L | 315 A | 315 | SPNH315-3LDL | SPNH 315A-3LDL | SPNH315.X3LDL | 07945821118 | SPNH0315-3LDLMS | SPNH 315A-3LDLMS | SPNH0315.X3LDLMS | 07945823557 | • |
| | | | 350 A | 350 | SPNH350-3LDL | SPNH 350A-3LDL | SPNH350.X3LDL | 07945821119 | SPNH0350-3LDLMS | SPNH 350A-3LDLMS | SPNH0350.X3LDLMS | 07945823559 | • |
| | | | 400 A | 400 | SPNH400-3LDL | SPNH 400A-3LDL | SPNH400.X3LDL | 07945821120 | SPNH0400-3LDLMS | SPNH 400A-3LDLMS | SPNH0400.X3LDLMS | 07945823561 | • |
| DE BLADE (U) | 1XL | 50 A | 050 | SPNH050-DE | SPNH 50A-DE | SPNH050.XXDE | 07945819852 | SPNH050-DEMS | SPNH 50A-DEMS | SPNH050.XXDEMS | 07945823538 | • | |
| | | 63 A | 063 | SPNH063-DE | SPNH 63A-DE | SPNH063.XXDE | 07945819853 | SPNH063-DEMS | SPNH 63A-DEMS | SPNH063.XXDEMS | 07945823540 | • | |
| | | 80 A | 080 | SPNH080-DE | SPNH 80A-DE | SPNH080.XXDE | 07945819854 | SPNH080-DEMS | SPNH 80A-DEMS | SPNH080.XXDEMS | 07945823542 | • | |
| | | 100 A | 100 | SPNH100-DE | SPNH 100A-DE | SPNH100.XXDE | 07945819855 | SPNH0100-DEMS | SPNH 100A-DEMS | SPNH0100.XXDEMS | 07945823544 | • | |
| | | 125 A | 125 | SPNH125-DE | SPNH 125A-DE | SPNH125.XXDE | 07945819856 | SPNH0125-DEMS | SPNH 125A-DEMS | SPNH0125.XXDEMS | 07945823546 | • | |
| | | 160 A | 160 | SPNH160-DE | SPNH 160A-DE | SPNH160.XXDE | 07945819857 | SPNH0160-DEMS | SPNH 160A-DEMS | SPNH0160.XXDEMS | 07945823548 | • | |
| | 2XL | 200 A | 200 | SPNH200-DE | SPNH 200A-DE | SPNH200.XXDE | 07945819858 | SPNH0200-DEMS | SPNH 200A-DEMS | SPNH0200.XXDEMS | 07945823552 | • | |
| | | 200 A | 200 | SPNH200-2XLDE | SPNH 200A-2XLDE | SPNH200.X2XLDE | 07945819859 | SPNH0200-2XLDEMS | SPNH 200A-2XLDEMS | SPNH0200.X2XLDEMS | 07945823550 | • | |
| | | 250 A | 250 | SPNH250-2XLDE | SPNH 250A-2XLDE | SPNH250.X2XLDE | 07945819860 | SPNH0250-2XLDEMS | SPNH 250A-2XLDEMS | SPNH0250.X2XLDEMS | 07945823554 | • | |
| | | 3L | 315 A | 315 | SPNH315-3LDE | SPNH 315A-3LDE | SPNH315.X3LDE | 07945821121 | SPNH0315-3LDEMS | SPNH 315A-3LDEMS | SPNH0315.X3LDEMS | 07945823556 | • |
| | | | 350 A | 350 | SPNH350-3LDE | SPNH 350A-3LDE | SPNH350.X3LDE | 07945821122 | SPNH0350-3LDEMS | SPNH 350A-3LDEMS | SPNH0350.X3LDEMS | 07945823558 | • |
| | | | 400 A | 400 | SPNH400-3LDE | SPNH 400A-3LDE | SPNH400.X3LDE | 07945821123 | SPNH0400-3LDEMS | SPNH 400A-3LDEMS | SPNH0400.X3LDEMS | 07945823560 | • |

Temperature Derating Curve (Temperature of Air Immediately Surrounding Fuse)



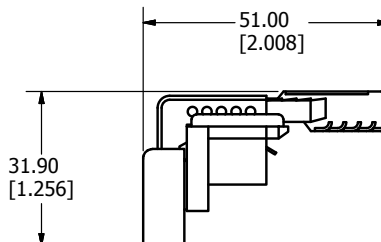
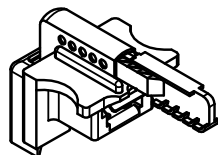
Time Current Curve



Microswitch

MSSPNH1500X

Dimensions Millimeters (in)



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