

SPF SERIES SOLAR FUSES

1000 VDC • 1-30 A



Description

The SPF Solar Protection Fuse series has been specifically designed for the protection of photovoltaic (PV) systems. This family of Midget style fuses (10 x 38 mm) can safely protect PV modules and conductors from reverse-overcurrent conditions.

As PV systems have grown in size, so have the corresponding voltage requirements. This increase in system voltage has typically been intended to minimize power loss associated with long conductor runs. Standard circuit protection devices are not designed to completely protect photovoltaic panels. However, the SPF series is UL Listed to safely interrupt faulted circuits up to this demanding voltage level.

Littelfuse offers 14 ampere ratings to match specific requirements in a variety of applications.

Features/Benefits

- Meets UL, IEC and VDE photovoltaic standards
- UL 2579 Listed 1000 VDC maximum
- 1-30 A ratings available
- 20,000 A Interrupting Rating
- Both PCB mount and dead-front holder options available

Applications

- Inverters
- Combiner boxes
- Battery charge controllers

Recommended Fuse Holders

LPHV 1000 VDC POWR-Safe Series

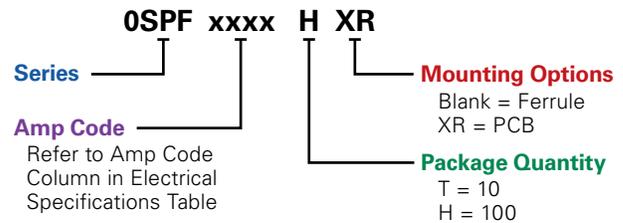
Web Resources

Downloadable CAD drawings and other technical information: Littelfuse.com/spf

Specifications

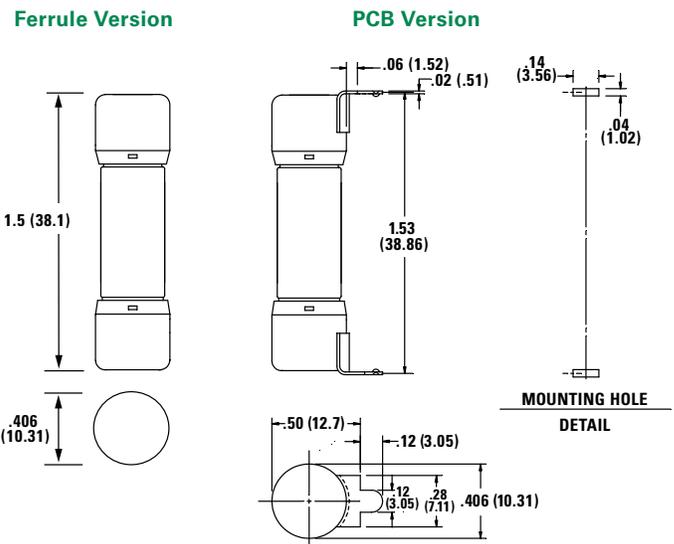
| | |
|---------------------------------|--|
| Voltage Rating | 1000 VDC |
| Amperage Rating | 1, 2, 3, 3.5, 4, 5, 6, 8, 10, 12, 15, 20, 25, 30 |
| Max. Interrupting Rating | 20 kA |
| Time Constant | ≤ 2ms |
| Material | Body: Melamine Caps: Copper Alloy |
| Approvals | UL 2579 Listed (File: E339112) IEC 60269-6 (1-25 A) VDE Certified (No. 40033098)* see specifications on pg. 2 CSA Certified (File: 029862_0_000) RoHS Compliant |
| Environmental | |
| Country of Origin | Mexico |

Part Numbering System



| SERIES | AMP | PACKAGE QUANTITY | MOUNTING METHOD | CATALOG NUMBER | ORDERING NUMBER |
|--------|-----|------------------|-----------------|----------------|-----------------|
| SPF | 2 | 10 | FERRULE | SPF002 | OSPF002.T |
| SPF | 3.5 | 10 | FERRULE | SPF03.5 | OSPF03.5T |
| SPF | 30 | 100 | PCB TABS | SPF030R | OSPF030.HXR |

Dimensions Inches (mm)



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.

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Electrical Specifications Ferrule Version

| AMPERAGE | AMP CODE | ORDERING NUMBER | UPC | VOLTAGE | INTERRUPTING RATING | | NOM COLD RESISTANCE (ohm) | WATTS LOSS AT 100% RATED CURRENT (W) | WATTS LOSS AT 80% RATED CURRENT (W) | TOTAL CLEARING I ² t (A ² s) 10 kA | TOTAL CLEARING I ² t (A ² s) 20 kA | AGENCY APPROVALS | | |
|----------|----------|-----------------|-------------|---------|---------------------|-------|---------------------------|--------------------------------------|-------------------------------------|--|--|------------------|----|-----|
| | | | | | DC | AC | | | | | | DC | UL | VDE |
| 1 | 001. | OSPF001.T | 07945816907 | 1000 | - | 20 kA | 0.394 | 0.602 | 0.410 | 0.554 | 0.554 | • | | • |
| 2 | 002. | OSPF002.T | 07945816910 | 1000 | - | 20 kA | 0.237 | 1.586 | 0.851 | 1.175 | 4.755 | • | • | • |
| 3 | 003. | OSPF003.T | 07945816913 | 1000 | - | 20 kA | 0.11 | 1.504 | 0.824 | 5.007 | 7.882 | • | • | • |
| 3.5 | 03.5 | OSPF03.5T | 07945880087 | 1000 | - | 20 kA | 0.07787 | 1.365 | 0.778 | 11.297 | 11.297 | • | | • |
| 4 | 004. | OSPF004.T | 07945816916 | 1000 | - | 20 kA | 0.06127 | 1.491 | 0.839 | 23.031 | 23.031 | • | • | • |
| 5 | 005. | OSPF005.T | 07945816919 | 1000 | - | 20 kA | 0.04086 | 1.465 | 0.859 | 42.600 | 42.600 | • | • | • |
| 6 | 006. | OSPF006.T | 07945816922 | 1000 | - | 20 kA | 0.0281 | 1.348 | 0.769 | 76.270 | 80.254 | • | • | • |
| 8 | 008. | OSPF008.T | 07945816925 | 1000 | - | 20 kA | 0.0178 | 1.610 | 0.914 | 193.323 | 198.960 | • | • | • |
| 10 | 010. | OSPF010.T | 07945816928 | 1000 | - | 20 kA | 0.0125 | 1.760 | 1.000 | 395.556 | 401.208 | • | • | • |
| 12 | 012. | OSPF012.T | 07945816931 | 1000 | - | 20 kA | 0.00993 | 1.965 | 1.109 | 599.198 | 641.940 | • | • | • |
| 15 | 015. | OSPF015.T | 07945816934 | 1000 | - | 20 kA | 0.00799 | 2.282 | 1.382 | 457.740 | 504.770 | • | • | • |
| 20 | 020. | OSPF020.T | 07945816937 | 1000 | - | 20 kA | 0.0045 | 2.810 | 1.574 | 1173.990 | 1312.850 | • | • | • |
| 25 | 025. | OSPF025.T | 07945817595 | 1000 | - | 20 kA | 0.00353 | 2.981 | 1.745 | 1937.430 | 2371.140 | • | • | • |
| 30 | 030. | OSPF030.T | 07945817598 | 1000 | - | 20 kA | 0.00284 | 3.923 | 2.125 | 2209.480 | 2678.750 | • | | • |

Electrical Specifications PCB Version

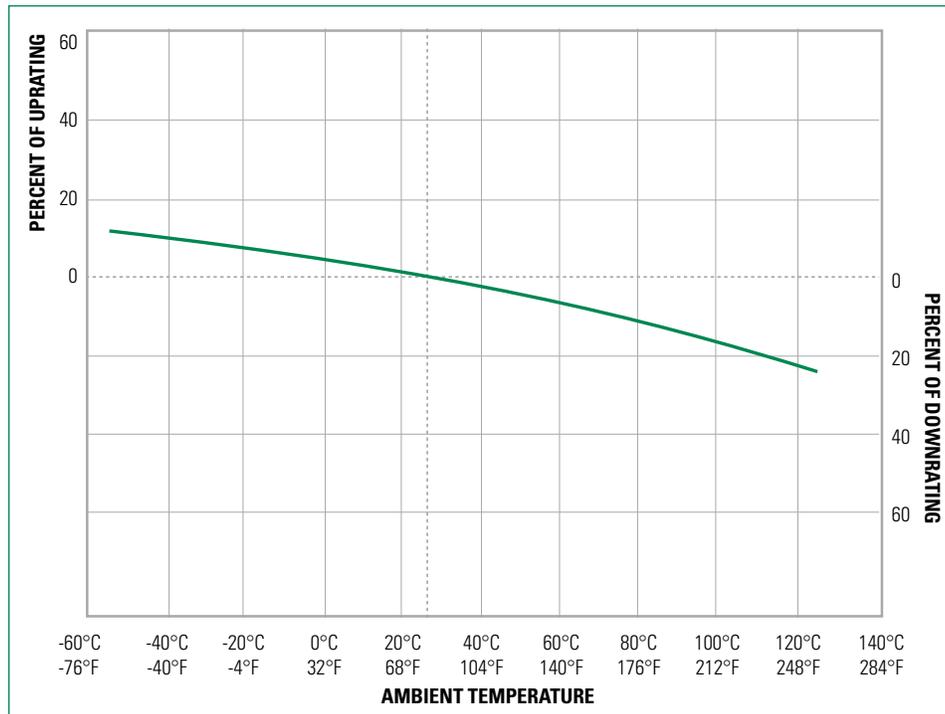
| AMPERAGE | AMP CODE | ORDERING NUMBER | UPC | VOLTAGE | INTERRUPTING RATING | | NOM COLD RESISTANCE (ohm) | WATTS LOSS AT 100% RATED CURRENT (W) | WATTS LOSS AT 80% RATED CURRENT (W) | TOTAL CLEARING I ² t (A ² s) 10 kA | TOTAL CLEARING I ² t (A ² s) 20 kA | AGENCY APPROVALS | |
|----------|----------|-----------------|-------------|---------|---------------------|-------|---------------------------|--------------------------------------|-------------------------------------|--|--|------------------|----|
| | | | | | DC | AC | | | | | | DC | UL |
| 1 | 001. | OSPF001.HXR | 07945816909 | 1000 | - | 20 kA | 0.394 | 0.602 | 0.410 | 0.554 | 0.554 | • | • |
| 2 | 002. | OSPF002.HXR | 07945816912 | 1000 | - | 20 kA | 0.237 | 1.586 | 0.851 | 1.175 | 4.755 | • | • |
| 3 | 003. | OSPF003.HXR | 07945816915 | 1000 | - | 20 kA | 0.11 | 1.504 | 0.824 | 5.007 | 7.882 | • | • |
| 3.5 | 03.5 | OSPF03.5HXR | 07945880089 | 1000 | - | 20kA | 0.07787 | 1.365 | 0.778 | 11.297 | 11.297 | • | • |
| 4 | 004. | OSPF004.HXR | 07945816918 | 1000 | - | 20 kA | 0.06127 | 1.491 | 0.839 | 23.031 | 23.031 | • | • |
| 5 | 005. | OSPF005.HXR | 07945816921 | 1000 | - | 20 kA | 0.04086 | 1.465 | 0.859 | 42.600 | 42.600 | • | • |
| 6 | 006. | OSPF006.HXR | 07945816924 | 1000 | - | 20 kA | 0.0281 | 1.348 | 0.769 | 76.270 | 80.254 | • | • |
| 8 | 008. | OSPF008.HXR | 07945816927 | 1000 | - | 20 kA | 0.0178 | 1.610 | 0.914 | 193.323 | 198.960 | • | • |
| 10 | 010. | OSPF010.HXR | 07945816930 | 1000 | - | 20 kA | 0.0125 | 1.760 | 1.000 | 395.556 | 401.208 | • | • |
| 12 | 012. | OSPF012.HXR | 07945816933 | 1000 | - | 20 kA | 0.00993 | 1.965 | 1.109 | 599.198 | 641.940 | • | • |
| 15 | 015. | OSPF015.HXR | 07945816936 | 1000 | - | 20 kA | 0.00799 | 2.282 | 1.382 | 457.740 | 504.770 | • | • |
| 20 | 020. | OSPF020.HXR | 07945817594 | 1000 | - | 20 kA | 0.0045 | 2.810 | 1.574 | 1173.990 | 1312.850 | • | • |
| 25 | 025. | OSPF025.HXR | 07945817597 | 1000 | - | 20 kA | 0.00353 | 2.981 | 1.745 | 1937.430 | 2371.140 | • | • |
| 30 | 030. | OSPF030.HXR | 07945817600 | 1000 | - | 20 kA | 0.00284 | 3.923 | 2.125 | 2209.480 | 2678.750 | • | • |

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Electrical Specification – Agency Requirements

| AMPERAGE RATING | OPENING TIME (MINUTES) | | | | |
|-----------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|
| | 100% of Amp Rating per UL | 113% of Amp Rating per IEC | 135% of Amp Rating per UL | 145% of Amp Rating per IEC | 200% of Amp Rating per UL |
| 1-30 | Temperature Stabilization | 60 Min | 60 Max | 60 Max | 4 Max |

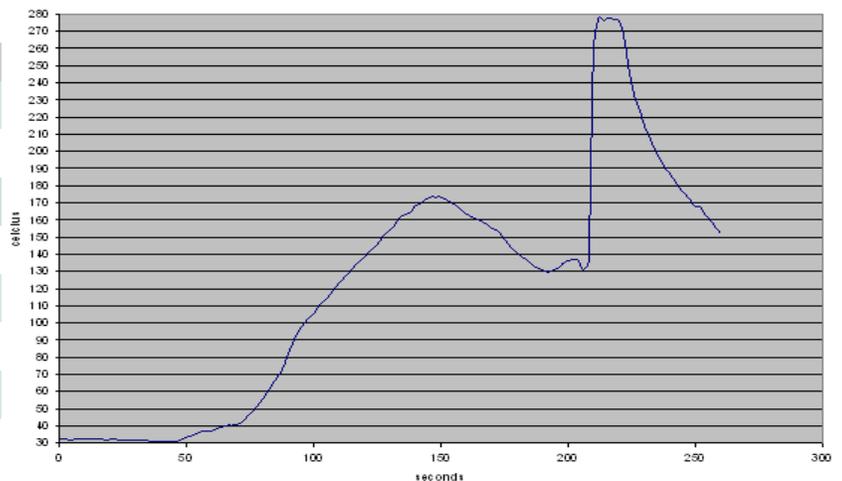
Temperature Derating Curve (Temperature of Air Immediately Surrounding Fuse)



Recommended Process Parameters

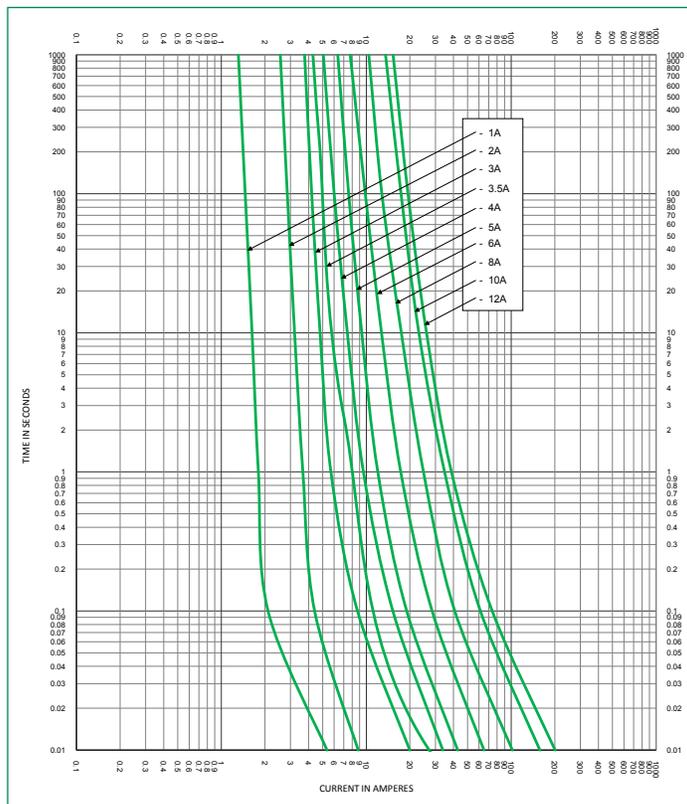
| WAVE PARAMETER | LEAD FREE RECOMMENDATION |
|------------------------|-----------------------------------|
| PREHEAT: | (Typical Industry Recommendation) |
| TEMPERATURE MINIMUM: | 130° C |
| TEMPERATURE MAXIMUM: | — |
| PRE-HEAT TIME | 75 Seconds Maximum |
| SOLDER POT TEMPERATURE | 280° C Maximum |
| SOLDER DWELL TIME | 270° C for 8 Seconds Maximum |
| COMPLETE CYCLE TIME | 250 Seconds Maximum |

Soldering Parameters

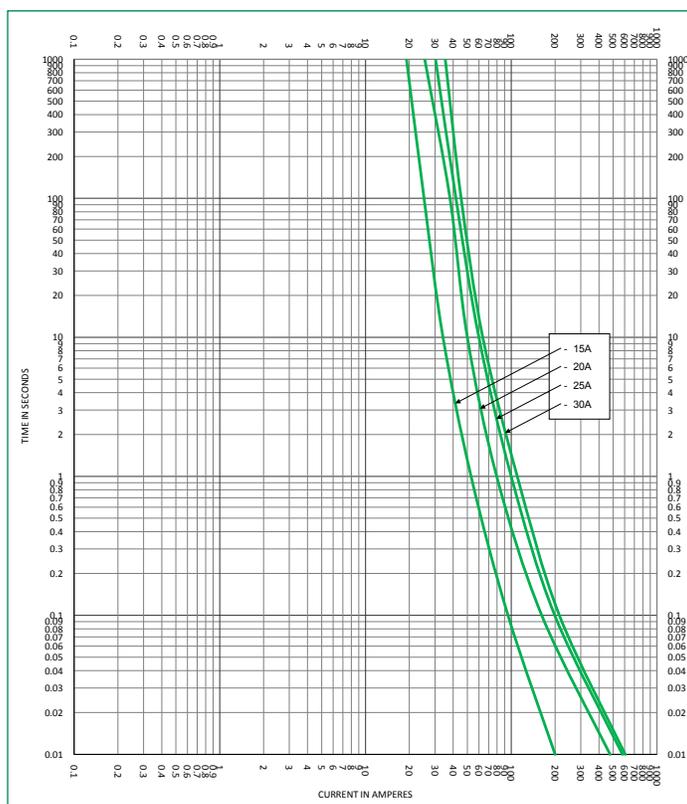


SPF SERIES SOLAR FUSES

Time Current Curve (1-12 A)



Time Current Curve (15-30 A)



Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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