

PFRA



16.0 - 60.0 VDC · 0.05 - 11 A



Approvals

- UL File Number: E172175

Applications

- Computer & peripherals
- General electronics
- Automotive applications

References

[General Product Information](#)

[Time-Current Curves](#) see last page

[Packaging Details](#)

Weblinks

Approvals: <http://www.schurter.com/approvals>

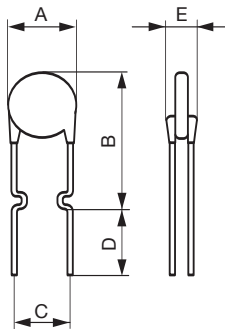
RoHS: <http://www.schurter.com/rohs>

Technical Data

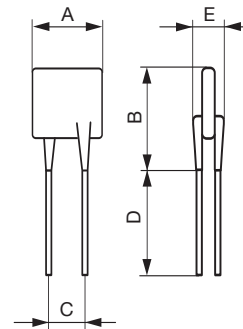
| | |
|---------------------------|------------------------------|
| V max [VDC] | 16.0 - 60.0 VDC |
| I max [A] | 40 - 100 A |
| I hold [A] | 0.05 - 11 A |
| Fastening | PCB,THT |
| Allowable operation temp. | -40 °C to 85 °C |
| Material: Terminals | see variants |
| Weight | 60 g |
| Stock Conditions | 0 °C to 40 °C, max. 70% r.h. |
| Product Marking | Type, Current Rating |

| | |
|------------------------------|---|
| Soldering Methods | Wave |
| Solderability | 235 °C / 2 sec |
| Resistance to Soldering Heat | 260 °C / 10 sec |
| Passing Aging | +85 °C, 1000 Hours -> +/- 5% Typical Resistance Change |
| Humidity Aging | +85 °C, 85% r.h., 1000 Hours -> +/- 5% Typical Resistance Change |
| Thermal Shock | MIL-STD-202F, Method 107G (+125 °C to -55 °C, 10 Cycles) -> +/- 15% Typical Resistance Change |
| Vibration | MIL-STD-883C, Method 2007.1, Test Condition A |
| Resistance to Solvents | MIL-STD-202, Methode 215 |
| Flammability | UL 94V-0 |

Dimensions

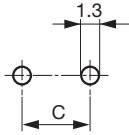


PFRA.010 - PFRA.185



PRFA.250 - PFRA.1100

PFRA



Drilling holes

Dimensions

| Order Number | A max [mm] | B max [mm] | C min [mm] | C max [mm] | D min [mm] | E max [mm] | Ø Lead [mm] | Terminals |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|-----------------|
| PFRA.010 | 7.4 | 12.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | Tin-Pated NiCu |
| PFRA.017 | 7.4 | 12.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | Tin-Plated CuFe |
| PFRA.020 | 7.4 | 12.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | Tin-Plated CuFe |
| PFRA.025 | 7.4 | 12.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | Tin-Plated CuFe |
| PFRA.030 | 7.4 | 13.4 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | Tin-Plated CuFe |
| PFRA.040 | 7.4 | 13.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | Tin-Plated CuFe |
| PFRA.050 | 7.9 | 13.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | see variants |
| PFRA.065 | 9.7 | 15.2 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | see variants |
| PFRA.075 | 10.4 | 16 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | see variants |
| PFRA.090 | 11.7 | 16.7 | 4.4 | 5.8 | 7.6 | 3.1 | 0.51 | see variants |
| PFRA.110 | 8.9 | 14 | 4.4 | 5.8 | 7.6 | 3 | 0.51 | see variants |
| PFRA.135 | 8.9 | 18.9 | 4.4 | 5.8 | 7.6 | 3 | 0.51 | see variants |
| PFRA.160 | 10.2 | 16.8 | 4.4 | 5.8 | 7.6 | 3 | 0.51 | see variants |
| PFRA.185 | 12 | 18.4 | 4.4 | 5.8 | 7.6 | 3 | 0.51 | see variants |
| PFRA.250 | 12 | 18.3 | 4.4 | 5.8 | 7.6 | 3 | 0.81 | see variants |
| PFRA.300 | 12 | 18.3 | 4.4 | 5.8 | 7.6 | 3 | 0.81 | see variants |
| PFRA.400 | 14.4 | 24.8 | 4.4 | 5.8 | 7.6 | 3 | 0.81 | see variants |
| PFRA.500 | 17.4 | 24.9 | 9.5 | 10.9 | 7.6 | 3 | 0.81 | see variants |
| PFRA.600 | 19.3 | 31.9 | 9.5 | 10.9 | 7.6 | 3 | 0.81 | see variants |
| PFRA.700 | 22.1 | 29.8 | 9.5 | 10.9 | 7.6 | 3 | 0.81 | see variants |
| PFRA.800 | 24.2 | 32.9 | 9.5 | 10.9 | 7.6 | 3 | 0.81 | see variants |
| PFRA.900 | 24.2 | 32.9 | 9.5 | 10.9 | 7.6 | 3 | 0.81 | see variants |
| PFRA.1100 | 24.2 | 32.9 | 9.5 | 10.9 | 7.6 | 3 | 0.81 | see variants |

PFRA

Thermal Derating Chart Ihold / Itrip [A]

| Order Number | -40 °C | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| PFRA.010 | 0.16 / 0.32 | 0.14 / 0.28 | 0.12 / 0.24 | 0.1 / 0.2 | 0.08 / 0.16 | 0.07 / 0.14 | 0.06 / 0.12 | 0.05 / 0.1 | 0.04 / 0.08 |
| PFRA.017 | 0.26 / 0.52 | 0.23 / 0.46 | 0.2 / 0.4 | 0.17 / 0.34 | 0.14 / 0.28 | 0.12 / 0.24 | 0.11 / 0.22 | 0.09 / 0.18 | 0.07 / 0.14 |
| PFRA.020 | 0.31 / 0.62 | 0.27 / 0.54 | 0.24 / 0.48 | 0.2 / 0.4 | 0.16 / 0.32 | 0.14 / 0.28 | 0.13 / 0.26 | 0.11 / 0.22 | 0.08 / 0.16 |
| PFRA.025 | 0.39 / 0.78 | 0.34 / 0.68 | 0.3 / 0.6 | 0.25 / 0.5 | 0.2 / 0.4 | 0.18 / 0.36 | 0.16 / 0.32 | 0.14 / 0.28 | 0.1 / 0.2 |
| PFRA.030 | 0.47 / 0.94 | 0.41 / 0.82 | 0.36 / 0.72 | 0.3 / 0.6 | 0.24 / 0.48 | 0.22 / 0.44 | 0.19 / 0.38 | 0.16 / 0.32 | 0.12 / 0.24 |
| PFRA.040 | 0.62 / 1.24 | 0.54 / 1.08 | 0.48 / 0.96 | 0.4 / 0.8 | 0.32 / 0.64 | 0.29 / 0.58 | 0.25 / 0.5 | 0.22 / 0.44 | 0.16 / 0.32 |
| PFRA.050 | 0.78 / 1.56 | 0.68 / 1.36 | 0.6 / 1.2 | 0.5 / 1 | 0.41 / 0.82 | 0.36 / 0.72 | 0.32 / 0.64 | 0.27 / 0.54 | 0.2 / 0.4 |
| PFRA.065 | 1.01 / 2.02 | 0.88 / 1.76 | 0.77 / 1.54 | 0.65 / 1.3 | 0.53 / 1.06 | 0.47 / 0.94 | 0.41 / 0.82 | 0.35 / 0.7 | 0.26 / 0.52 |
| PFRA.075 | 1.16 / 2.32 | 1.02 / 2.04 | 0.89 / 1.78 | 0.75 / 1.5 | 0.61 / 1.22 | 0.54 / 1.08 | 0.47 / 0.94 | 0.41 / 0.82 | 0.3 / 0.6 |
| PFRA.090 | 1.4 / 2.8 | 1.22 / 2.44 | 1.07 / 2.14 | 0.9 / 1.8 | 0.73 / 1.46 | 0.65 / 1.3 | 0.57 / 1.14 | 0.49 / 0.98 | 0.36 / 0.72 |
| PFRA.110 | 1.6 / 3.2 | 1.43 / 2.86 | 1.27 / 2.54 | 1.2 / 2.2 | 0.91 / 1.82 | 0.85 / 1.7 | 0.75 / 1.5 | 0.67 / 1.34 | 0.57 / 1.14 |
| PFRA.135 | 1.96 / 3.92 | 1.76 / 3.52 | 1.55 / 3.1 | 1.35 / 2.7 | 1.12 / 2.24 | 1.04 / 2.08 | 0.92 / 1.84 | 0.82 / 1.64 | 0.7 / 1.4 |
| PFRA.160 | 2.32 / 4.64 | 2.08 / 4.16 | 1.84 / 3.68 | 1.6 / 3.2 | 1.33 / 2.66 | 1.32 / 2.46 | 1.09 / 2.18 | 0.98 / 1.96 | 0.83 / 1.66 |
| PFRA.185 | 2.68 / 5.36 | 2.41 / 4.82 | 2.13 / 4.26 | 1.85 / 3.7 | 1.54 / 3.08 | 1.42 / 2.84 | 1.26 / 2.52 | 1.13 / 2.26 | 0.96 / 1.92 |
| PFRA.250 | 3.63 / 7.26 | 3.25 / 6.5 | 2.88 / 5.76 | 2.5 / 5 | 2.08 / 4.16 | 1.93 / 3.86 | 1.7 / 3.4 | 1.53 / 3.06 | 1.3 / 2.6 |
| PFRA.300 | 4.35 / 8.7 | 3.9 / 7.8 | 3.45 / 6.9 | 3 / 6 | 2.49 / 4.98 | 2.31 / 4.62 | 2.04 / 4.08 | 1.83 / 3.66 | 1.56 / 3.12 |
| PFRA.400 | 5.8 / 11.6 | 5.2 / 10.4 | 4.6 / 9.2 | 4 / 8 | 3.32 / 6.64 | 3.08 / 6.16 | 2.72 / 5.44 | 2.44 / 4.88 | 2.08 / 4.16 |
| PFRA.500 | 7.25 / 14.5 | 6.5 / 13 | 5.75 / 11.5 | 5 / 10 | 4.15 / 8.3 | 3.85 / 7.7 | 3.4 / 6.8 | 3.05 / 6.1 | 2.6 / 5.2 |
| PFRA.600 | 8.7 / 17.4 | 7.8 / 15.6 | 6.9 / 13.8 | 6 / 12 | 4.98 / 9.96 | 4.62 / 9.24 | 4.08 / 8.16 | 3.66 / 7.32 | 3.12 / 6.24 |
| PFRA.700 | 10.1 / 20.3 | 9.1 / 18.2 | 8.05 / 16.1 | 7 / 14 | 5.81 / 11.6 | 5.39 / 10.7 | 4.76 / 9.52 | 4.27 / 9.44 | 3.64 / 7.28 |
| PFRA.800 | 11.6 / 23.2 | 10.4 / 20.8 | 9.2 / 18.4 | 8 / 16 | 6.64 / 13.2 | 6.16 / 12.3 | 5.44 / 10.8 | 4.88 / 9.76 | 4.16 / 8.32 |
| PFRA.900 | 13 / 26.1 | 11.7 / 23.4 | 10.3 / 20.7 | 9 / 18 | 7.47 / 14.9 | 6.93 / 12.7 | 6.12 / 12.2 | 5.49 / 10.9 | 4.68 / 9.36 |
| PFRA.1100 | 16.1 / 32 | 14.6 / 29.2 | 13.1 / 26.2 | 11 / 22 | 9.4 / 18.4 | 8.8 / 17.6 | 7.8 / 15.6 | 6.9 / 13.8 | 5.2 / 10.4 |

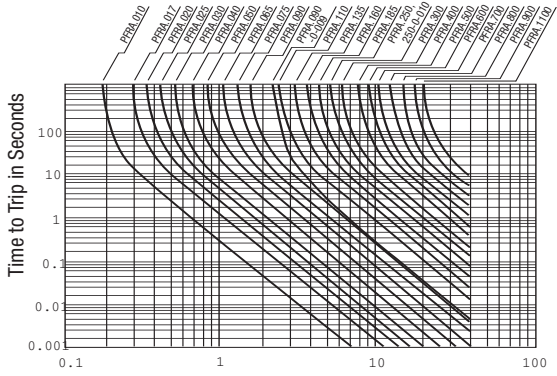
Electrical Characteristics

| Order Number | V max [VDC] | I max [A] | I hold [A] | I trip [A] | R initial min [mΩ] | R initial max [mΩ] | R 1hour max [Ω] | Max Time to trip [A] | Max Time to Trip [s] | Tripped Power Dissipation [W] |
|--------------|-------------|-----------|------------|------------|--------------------|--------------------|-----------------|----------------------|----------------------|-------------------------------|
| PFRA.010 | 60.0 | 40 | 0.1 | 0.2 | 2.5 | 4.5 | 7.5 | 0.5 | 4 | 0.38 |
| PFRA.017 | 60.0 | 40 | 0.17 | 0.34 | 2 | 3.2 | 8 | 0.85 | 3 | 0.48 |
| PFRA.020 | 60.0 | 40 | 0.2 | 0.4 | 1.5 | 2.84 | 4.4 | 1 | 2.2 | 0.40 |
| PFRA.025 | 60.0 | 40 | 0.25 | 0.5 | 1 | 1.95 | 3 | 1.25 | 2.5 | 0.45 |
| PFRA.030 | 60.0 | 40 | 0.3 | 0.6 | 0.76 | 1.36 | 2.1 | 1.5 | 3 | 0.50 |
| PFRA.040 | 60.0 | 40 | 0.4 | 0.8 | 0.52 | 0.86 | 1.29 | 2 | 3.8 | 0.55 |
| PFRA.050 | 60.0 | 40 | 0.5 | 1 | 0.41 | 0.77 | 1.17 | 2.5 | 4 | 0.75 |
| PFRA.065 | 60.0 | 40 | 0.65 | 1.3 | 0.27 | 0.48 | 0.72 | 3.25 | 5.3 | 0.90 |
| PFRA.075 | 60.0 | 40 | 0.75 | 1.5 | 0.18 | 0.4 | 0.6 | 3.75 | 6.3 | 0.90 |
| PFRA.090 | 60.0 | 40 | 0.9 | 1.8 | 0.14 | 0.31 | 0.47 | 4.5 | 7.2 | 1.00 |
| PFRA.110 | 30.0 | 40 | | 2.2 | 0.1 | 0.18 | 0.27 | 5.5 | 6.6 | 0.70 |
| PFRA.135 | 30.0 | 40 | 1.35 | 2.7 | 0.065 | 0.115 | 0.17 | 6.75 | 7.3 | 0.80 |
| PFRA.160 | 30.0 | 40 | 1.6 | 3.2 | 0.055 | 0.105 | 0.15 | 8 | 8 | 0.90 |
| PFRA.185 | 30.0 | 40 | 1.85 | 3.7 | 0.04 | 0.07 | 0.11 | 9.25 | 8.7 | 1.00 |
| PFRA.250 | 30.0 | 40 | 2.5 | 5 | 0.025 | 0.048 | 0.07 | 12.5 | 10.3 | 1.20 |
| PFRA.300 | 30.0 | 40 | 3 | 6 | 0.02 | 0.05 | 0.08 | 15 | 10.8 | 2.00 |
| PFRA.400 | 30.0 | 40 | 4 | 8 | 0.01 | 0.03 | 0.05 | 20 | 12.7 | 2.50 |
| PFRA.500 | 30.0 | 40 | 5 | 10 | 0.01 | 0.03 | 0.05 | 25 | 14.5 | 3.00 |
| PFRA.600 | 30.0 | 40 | 6 | 12 | 0.005 | 0.02 | 0.04 | 30 | 16 | 3.50 |
| PFRA.700 | 30.0 | 40 | 7 | 14 | 0.005 | 0.02 | 0.03 | 35 | 17.5 | 3.80 |
| PFRA.800 | 30.0 | 40 | 8 | 16 | 0.005 | 0.02 | 0.03 | 40 | 18.8 | 4.00 |
| PFRA.900 | 30.0 | 40 | 9 | 18 | 0.005 | 0.01 | 0.02 | 45 | 20 | 4.20 |
| PFRA.1100 | 16.0 | 100 | 11 | 22 | 0.003 | 0.01 | 0.01 | 40 | 20 | 4.50 |

PFRA

| | |
|-----------------------|--|
| Packaging Unit | PFRA.xxxx Bulk (500 pcs.) |
| | PFRA.010.2 - PFRA.160.2 Taped 34 cm Reel (3000 pcs.) |
| | PFRA.185.2 - PFRA.400.2 Taped 34 cm Reel (1500 pcs.) |

PFRA



Fault Current in Amperes