

Ferrule fuses



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Ferrule Fuse Ranges

| Volts | Amps | AC | DC |
|-----------------|---------|----|-------------|
| 150 | 5-60 | X | X |
| 250 | 1-50 | X | X |
| 500 | 0.25-30 | X | X |
| 600 | 6-32 | X | X |
| 700 (22 x 58mm) | 20-100 | X | — |
| 700 (14 x 51mm) | 1-50 | X | X |
| 750 | 5-60 | X | X |
| 1000 | 20-30 | X | X (800Vdc) |
| 1250 | 20-30 | X | X (1000Vdc) |
| 1500 | 8-15 | X | X (1000Vdc) |
| 2000 | 2-6 | X | X (1000Vdc) |

General Information

Cooper Bussmann offers a full line of ferrule style (cylindrical clip-mounted) fuses, designed and tested to meet standards and requirements in various locations around the world.

Their unique design and construction provide:

- Superior cycling capability
- Low energy let-through (I²t)

Ferrule fuses provide an excellent solution for small UPS, small ac drives and other low power applications where space is at a premium.

Voltage Rating

All Cooper Bussmann ferrule fuses — except 690V — have been tested at their rated voltage. The 690V ferrule fuse has been tested to the IEC 60269 standard, which requires clearing at the rated voltage +5%.

Accessories

Ferrule fuses may be mounted in fuseclips, fuse holders, fuse blocks or fused switches. A variety of products are available. Please consult Cooper Bussmann Application Engineering to discuss your requirement.

Ferrule — FWA 150V: 5-60A

**FWA 5-30A (10 x 38mm)
35-60A (21 X 51mm)**

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 150Vac/dc

Amps: — 5-60A

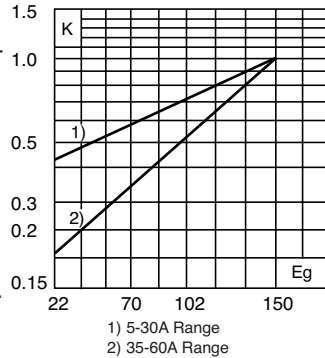
IR: — 100kA Sym.

Agency Information: CE, UL Recognition

Electrical Characteristics

Total Clearing I²t

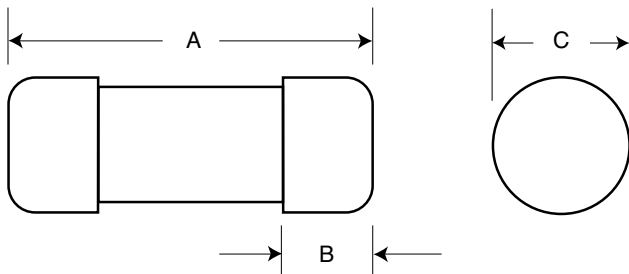
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) 5-30A Range
2) 35-60A Range

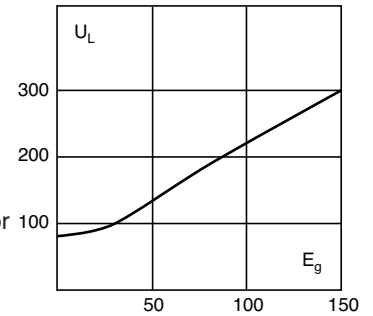
Dimensions - in (mm)

| Amp Range | Dimensions | | |
|-----------|------------|--------------|--------------|
| | A | B | C |
| 5-30 | 1.5 (38.1) | 0.375 (9.5) | 0.406 (10.3) |
| 35-60 | 2.0 (50.8) | 0.625 (15.9) | 0.811 (20.6) |



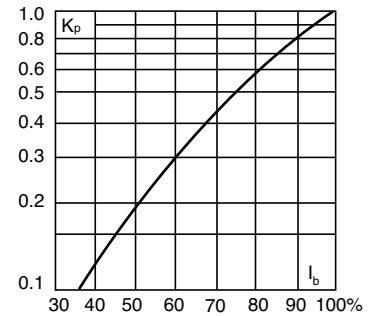
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | | |
|-----------------|--|----------------------------|---------------------------------------|------------------|------------|
| | | Rated Current RMS-Amps | I ² t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 150V | |
| FWA-5A10F | 10 x 38mm (³ / ₁₆ " x 1 ¹ / ₂ ") | 5 | 1.6 | 8 | 1 |
| FWA-10A10F | | 10 | 3.6 | 16 | 2.7 |
| FWA-15A10F | | 15 | 14 | 55 | 3.3 |
| FWA-20A10F | | 20 | 33 | 130 | 3.8 |
| FWA-25A10F | | 25 | 58 | 220 | 4.9 |
| FWA-30A10F | 30 | 100 | 400 | 4.9 | |
| FWA-35A21F | 21 x 51mm (¹³ / ₁₆ " x 2") | 35 | 75 | 800 | 4.5 |
| FWA-40A21F | | 40 | 100 | 1000 | 5.1 |
| FWA-45A21F | | 45 | 130 | 1300 | 6 |
| FWA-50A21F | | 50 | 170 | 1600 | 7.3 |
| FWA-50A21F | | 50 | 170 | 1600 | 7.3 |
| FWA-60A21F | | 60 | 250 | 2400 | 8.0 |

• Watts loss provided at rated current.
• See accessories on page 216.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

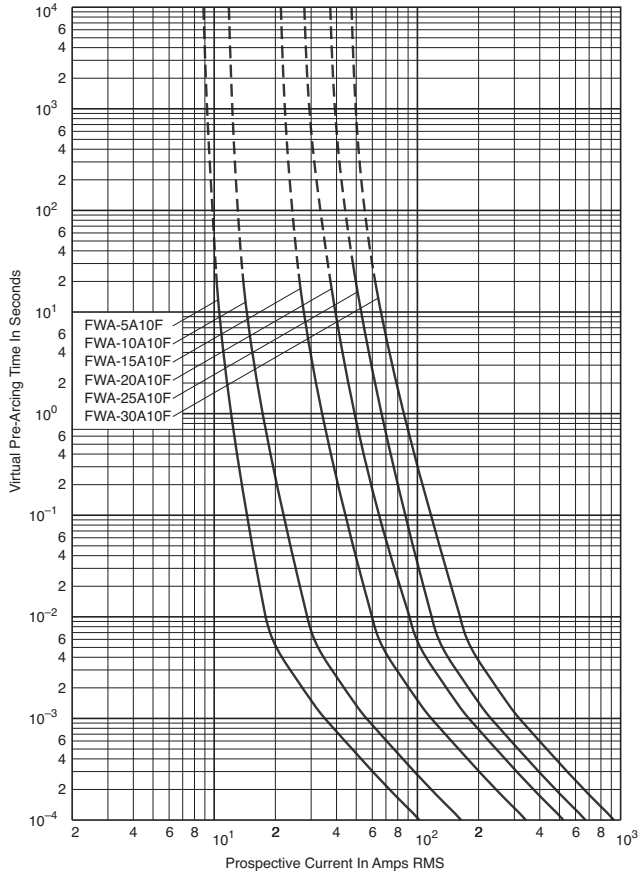
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Ferrule — FWA 150V: 5-60A

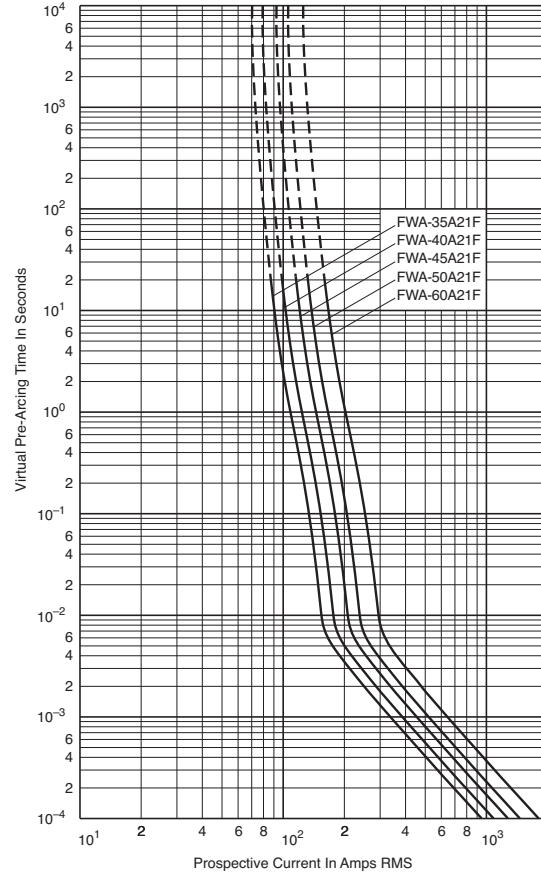
FWA 5-30A: 150V (10 x 38mm)

Time-Current Curve

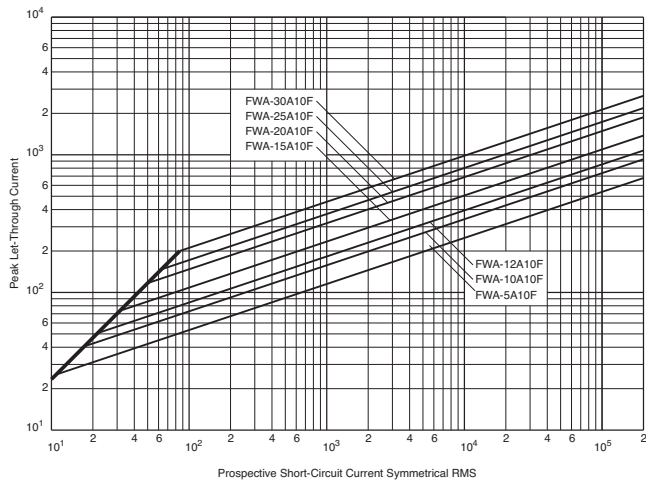


FWA 35-60A: 150V (21 x 51mm)

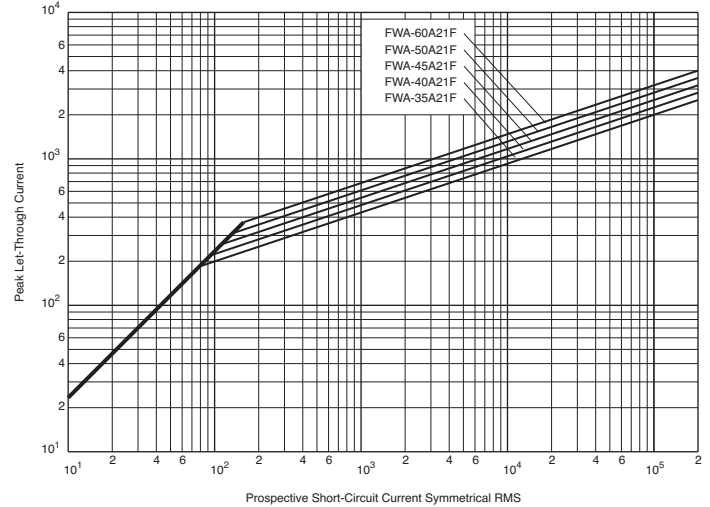
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785317

Data Sheet: 35785305

Ferrule — FWX 250V (UL): 1-50A

FWX (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 250Vac/dc

Amps: — 1-50A

IR: — 200kA RMS Sym.

— 50kA @ 250Vdc

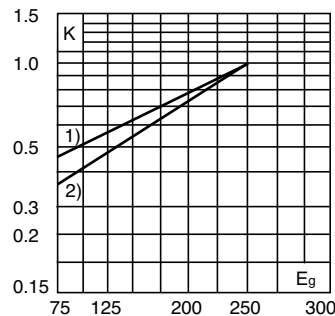
Agency Information: CE, UL Recognition 1-50A & CSA
Component Acceptance: 5-30A

Electrical

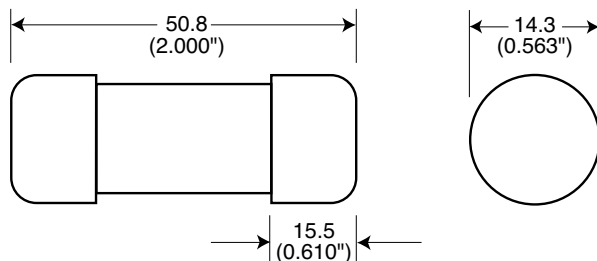
Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).

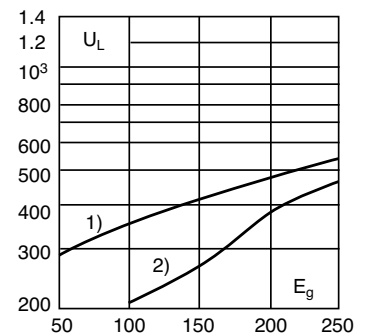


Dimensions - mm (inches)



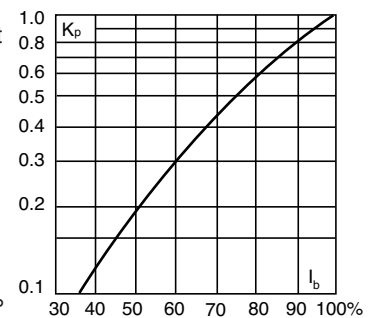
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Catalog Numbers

| Catalog Number | Size | Electrical Characteristics | | | |
|----------------|--------------------------------------|----------------------------|-----------------------------|------------------|------------|
| | | Rated Current RMS-Amps | I^2t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 250V | |
| FWX-1A14F | 14 x 51mm ($\frac{1}{2}$ " x 2") | 1 | — | — | — |
| FWX-2A14F | | 2 | — | — | — |
| FWX-3A14F | | 3 | — | — | — |
| FWX-4A14F | | 4 | — | — | — |
| FWX-5A14F | | 5 | 1.6 | 13 | 1.3 |
| FWX-10A14F | | 10 | 3.6 | 24 | 3.4 |
| FWX-15A14F | | 15 | 14 | 83 | 3.8 |
| FWX-20A14F | | 20 | 33 | 200 | 4.6 |
| FWX-25A14F | | 25 | 58 | 300 | 5.3 |
| FWX-30A14F | | 30 | 100 | 500 | 5.9 |
| FWX-50A14F | 50 | 200 | 1800 | 5.7 | |

• Watts loss provided at rated current.
• (250Vdc/Interrupting rating 50kA) UL Recognition & CSA Component Acceptance on 5 through 30A only. Consult Cooper Bussmann for additional ratings.
• See accessories on page 216.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

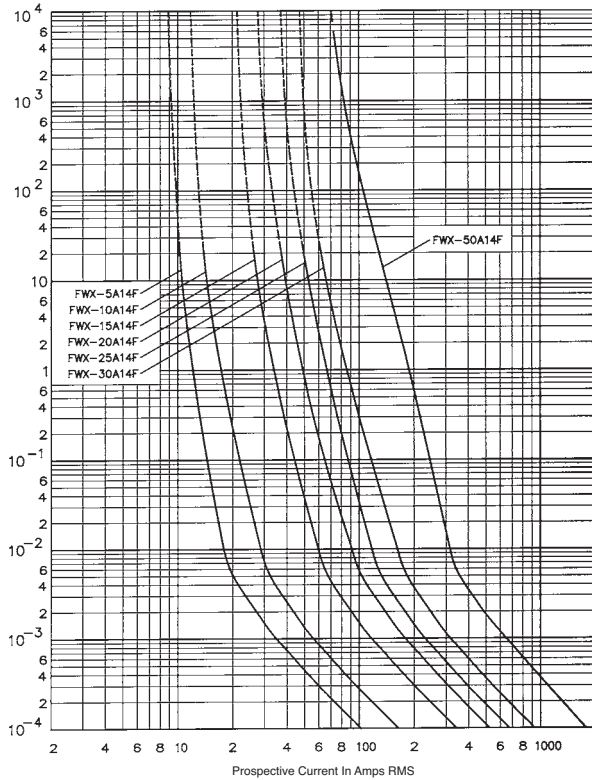
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

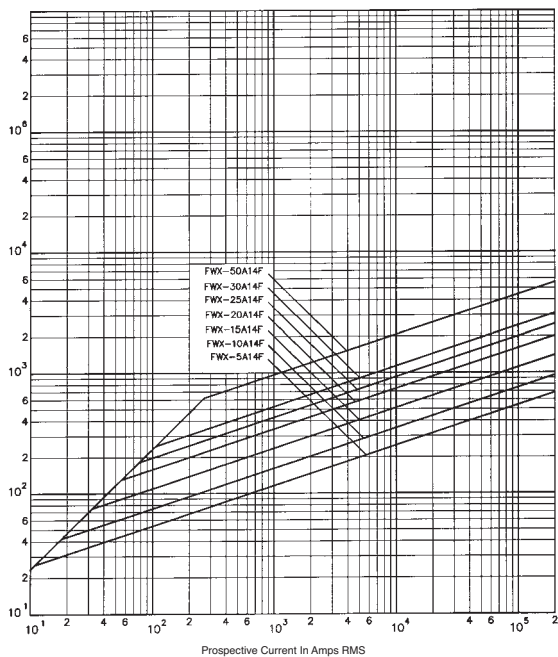
Ferrule — FWX 250V (UL): 1-50A

FWX 1-30A: 250V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Ferrule — FWH 500V: 0.25-30A

FWH (6 x 32mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 500Vac

Amps: — 0.25-30A

IR: — 50kA at $\geq 20\%$ pf (0.25-20A)

— 20kA at $\geq 20\%$ pf (25-30A)

Agency Information: CE, UL Recognition 0.25-30A, CSA

Component Acceptance: 0.25-7A

Opening Times

| Amp Ratings | 150% | 200% | 300% |
|-------------|----------|----------|---------------|
| 0.25-7 | > 30 min | < 30 min | ≤ 10 sec |
| 10-30 | < 30 min | < 30 min | ≤ 10 sec |



Catalog Numbers

| Catalog Numbers | Size | Rated Current RMS-Amps | Electrical Characteristics | | |
|-----------------|--|------------------------|-----------------------------|------------------|------------|
| | | | I^2t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 500V | |
| FWH-.250A6F | | 0.25* | 0.01 | 0.05 | 2.7 |
| FWH-.500A6F | | 0.5* | 0.05 | 0.25 | 1.2 |
| FWH-001A6F | | 1* | 0.4 | 2 | 1.7 |
| FWH-002A6F | | 2* | 1.3 | 3.5 | 3.2 |
| FWH-3.15A6F | | 3.15* | 3.1 | 7.7 | 2.9 |
| FWH-005A6F | | 5* | 15 | 40 | 2.1 |
| FWH-6.30A6F | 6 x 32mm | 6.3* | 36 | 90 | 2.3 |
| FWH-007A6F | ($\frac{1}{4}$ " x $1\frac{1}{4}$ ") | 7* | 50 | 125 | 2.5 |
| FWH-010A6F | | 10** | 9.9 | 139 | 2.86 |
| FWH-12.5A6F | | 12.5** | 20 | 60 | 3.53 |
| FWH-015A6F | | 15** | 44 | 146 | 3.08 |
| FWH-016A6F | | 16** | 48 | 177 | 4.48 |
| FWH-020A6F | | 20** | 75 | 259 | 4.26 |
| FWH-025A6F | | 25** | 126 | 345 | — |
| FWH-030A6F | | 30** | 145 | 430 | — |

*300% minimum opening current at rated voltage.

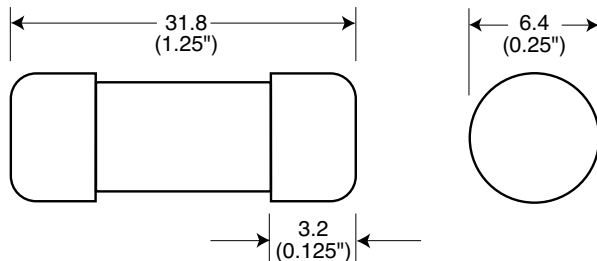
**200% minimum opening current at rated voltage.

• Consult Cooper Bussmann for DC ratings.

• See accessories on page 216.

High Speed Fuses

Dimensions - mm (inches)



Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

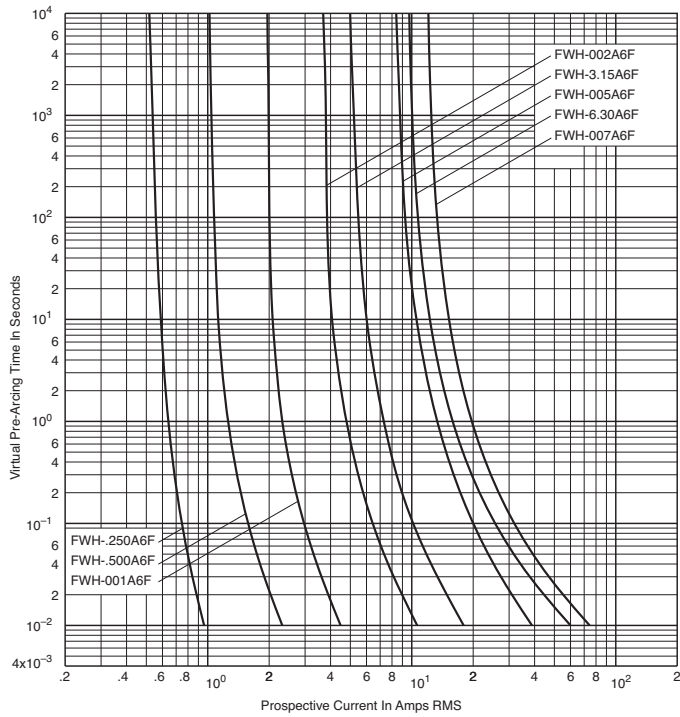
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Ferrule — FWH 500V: 0.25-30A

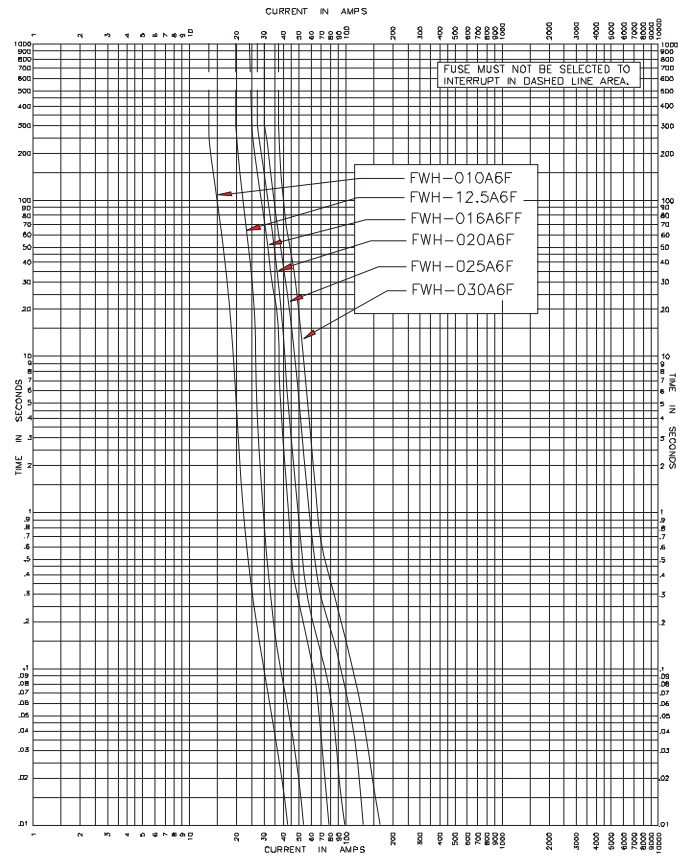
FWH 0.25-7A: 500V (6 x 32mm)

Time-Current Curve



FWH 10-30A: 500V (6 x 32mm)

Time-Current Curve



Ferrule — FWH 500V: 1-30A

FWH (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 500Vac/dc

Amps: — 1-30A

IR: — 200kA RMS Sym.

— 50kA @500Vdc

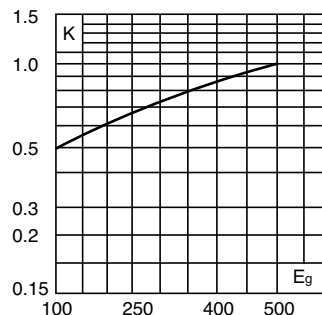
Agency Information: CE, UL Recognition 1- 30A & CSA Component Acceptance: 5 - 30A.



Electrical Characteristics

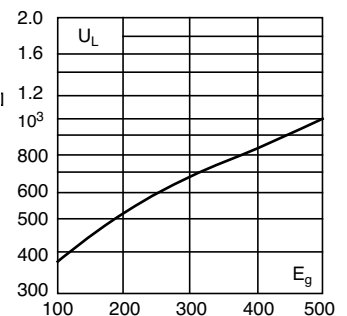
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



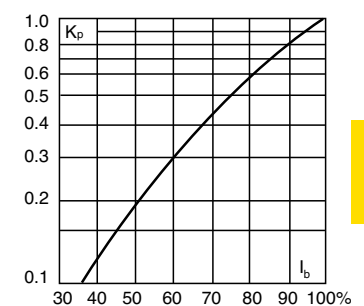
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



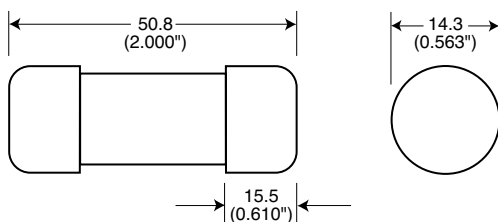
High Speed Fuses

Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | | |
|-----------------|-------------------------------------|----------------------------|---------------------------------------|------------------|------------|
| | | Rated Current RMS-Amps | I ² t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 500V | |
| FWH-1A14F | 14 x 51mm (% ¹⁶ x 2") | 1 | — | — | — |
| FWH-2A14F | | 2 | — | — | — |
| FWH-3A14F | | 3 | — | — | 2.3 |
| FWH-4A14F | | 4 | — | — | — |
| FWH-5A14F | | 5 | 1.6 | 6.4 | 1.5 |
| FWH-6A14F | | 6 | 1.6 | 6.4 | 1.5 |
| FWH-10A14F | | 10 | 3.6 | 13 | 4 |
| FWH-12A14F | | 12 | — | — | — |
| FWH-15A14F | | 15 | 10 | 40 | 5.5 |
| FWH-20A14F | | 20 | 26 | 96 | 6 |
| FWH-25A14F | | 25 | 49 | 191 | 7 |
| FWH-30A14F | | 30 | 58 | 232 | 9 |

• Watts loss provided at rated current.
• See accessories on page 216.

Dimensions - mm (inches)



Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

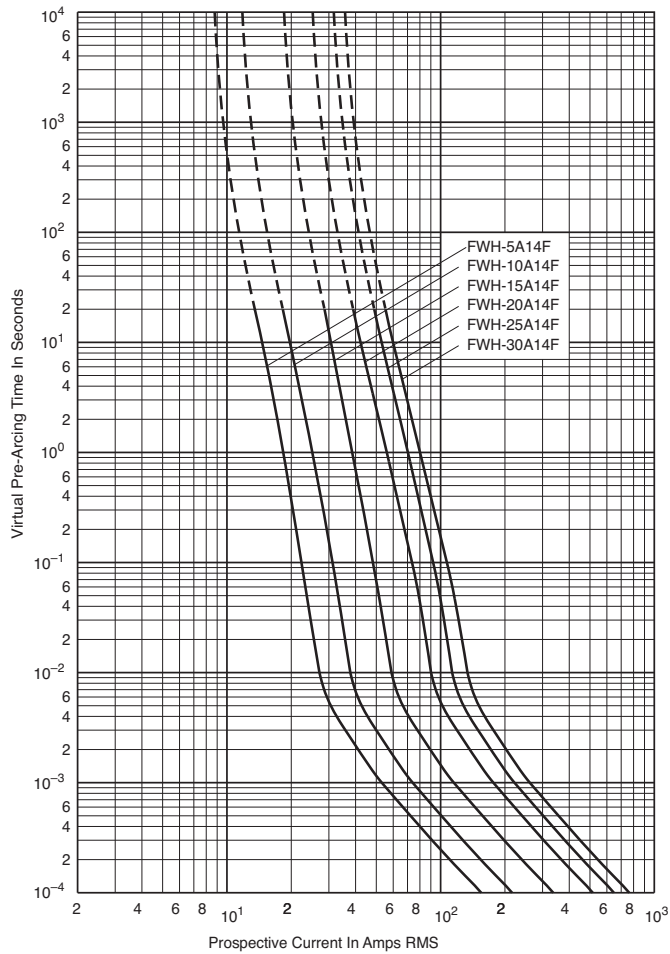
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

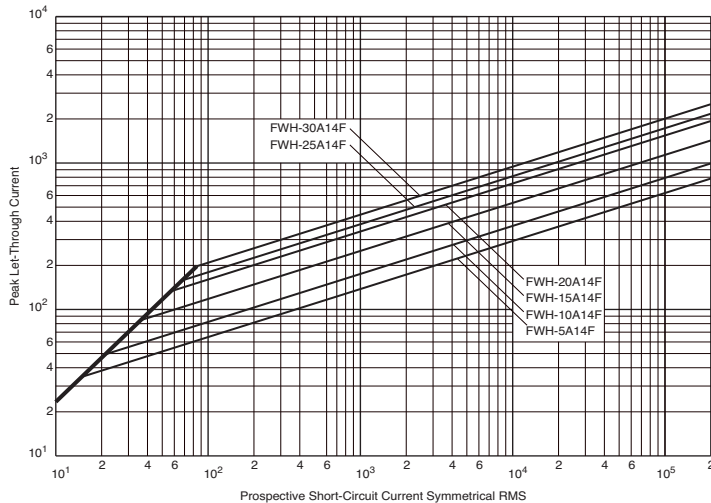
Ferrule — FWH 500V: 1-30A

FWH 1-30A: 500V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785298

Ferrule — FWC 600V: 6-32A

FWC (10 x 38mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 600Vac/dc

Amps: — 6-32A

IR: — 200kA RMS Sym.

— 50kA @ 700Vdc (6-25A)

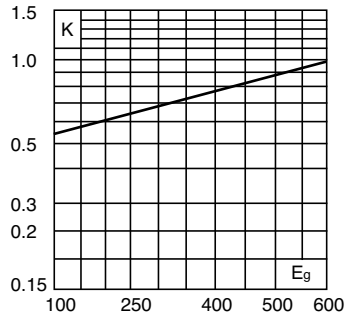
Agency Information: CE, UL Recognition: 6-32A.

UL Recognition: 6-25A

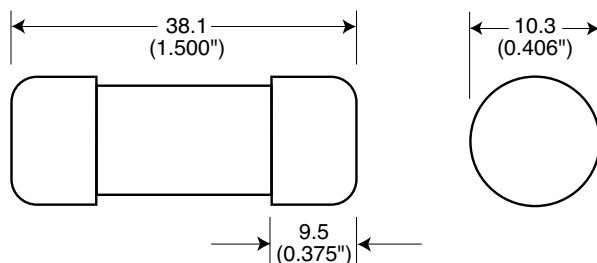
Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).

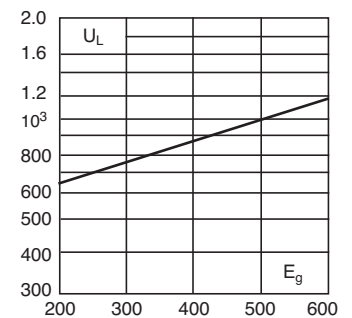


Dimensions - mm (inches)



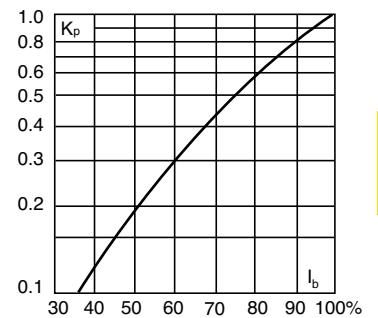
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | | |
|-----------------|---|----------------------------|-----------------------------|------------------|------------|
| | | Rated Current RMS-Amps | I^2t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 600V | |
| FWC-6A10F | 10 x 38mm (^{13/32} " x 1 1/2") | 6 | 4 | 30 | 1.5 |
| FWC-8A10F | | 8 | 6 | 50 | 2.0 |
| FWC-10A10F | | 10 | 9 | 70 | 2.5 |
| FWC-12A10F | | 12 | 15 | 120 | 3.0 |
| FWC-16A10F | | 16 | 25 | 150 | 3.5 |
| FWC-20A10F | | 20 | 34 | 260 | 4.8 |
| FWC-25A10F | | 25 | 60 | 390 | 6.0 |
| FWC-30A10F | | 30 | 95 | 600 | 7.5 |
| FWC-32A10F | 32 | 95 | 600 | 7.5 | |

• Watts loss provided at rated current.
• See accessories on page 216.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

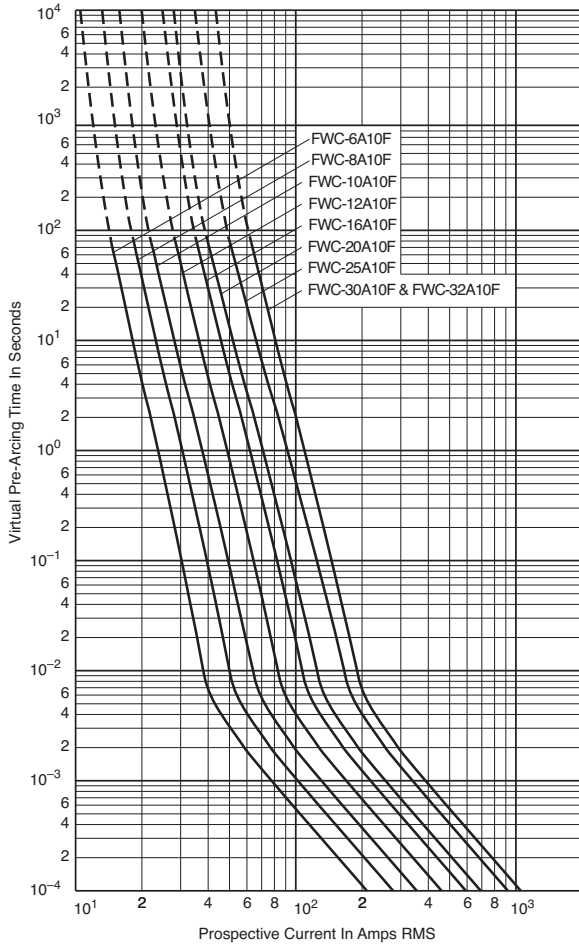
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

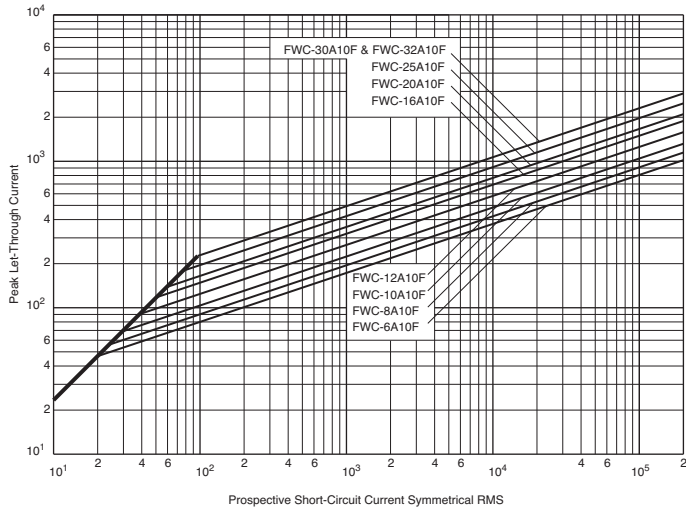
Ferrule — FWC 600V: 6-32A

FWC 6-32A: 600V (10 x 38mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785306

Ferrule — FWP 690V/700V (IEC/UL): 1-50A, Striker Optional

FWP (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses with and without indicating striker.

Dimensions: See dimensions illustrations.

Ratings:

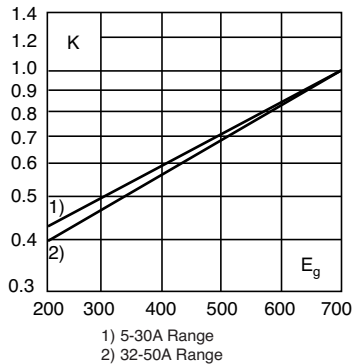
- Volts: — 690Vac (IEC)
- 700Vac (UL)
- 800Vdc (5-50A)
- Amps: — 1-50A
- IR: — 200kA RMS Sym.
- 50kA @800Vdc

Agency Information: CE, UL Recognition, CSA Component Acceptance for versions without indicator only.

Electrical Characteristics

Total Clearing I²t

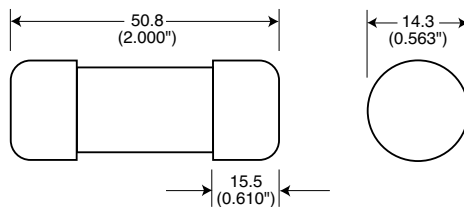
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



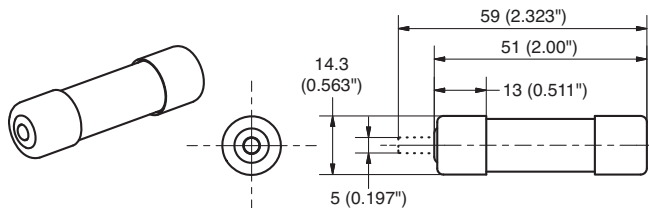
1) 5-30A Range
2) 32-50A Range

Dimensions - mm (inches)

Without Striker



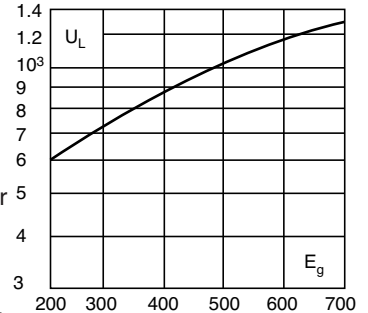
With Striker



FWP with striker option.

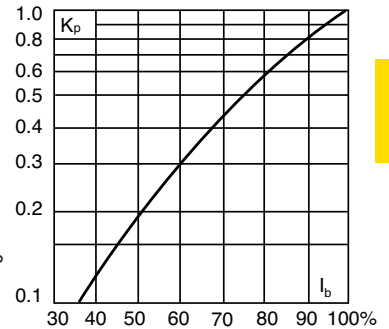
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | | |
|-----------------|--|----------------------------|-----------------------|---|------------|
| | | Current RMS-Amps | Rated Minimum Melting | I ² t (A ² Sec) Clearing At Rated Voltage | Watts Loss |
| Without Striker | | | | | |
| FWP-1A14Fa | 14 x 51mm (¹¹ / ₁₆ " x 2") | 1 | — | — | — |
| FWP-2A14Fa | | 2 | — | — | — |
| FWP-2.5A14Fa | | 2.5 | — | — | — |
| FWP-3A14Fa | | 3 | — | — | — |
| FWP-4A14Fa | | 4 | — | — | — |
| FWP-5A14Fa | | 5 | 1.6 | 11.0 | 1.5 |
| FWP-10A14Fa | | 10 | 3.6 | 38.5 | 4 |
| FWP-15A14Fa | | 15 | 8.6 | 70 | 5.5 |
| FWP-20A14Fa | | 20 | 26.0 | 230 | 6 |
| FWP-25A14Fa | | 25 | 46.5 | 375 | 7 |
| FWP-30A14Fa | 30 | 58 | 485 | 9 | |
| FWP-32A14Fa | 32 | 68 | 600 | 7.6 | |
| FWP-40A14Fa | 40 | 84 | 750 | 8 | |
| FWP-50A14Fa | 50 | 200 | 1800 | 9 | |
| With Striker | | | | | |
| FWP-10A14FI | 14 x 51mm (¹¹ / ₁₆ " x 2") | 10 | 3.6 | 38.5 | 4 |
| FWP-15A14FI | | 15 | 8.6 | 70 | 5.5 |
| FWP-20A14FI | | 20 | 26.0 | 230 | 6 |
| FWP-25A14FI | | 25 | 46.5 | 375 | 7 |
| FWP-30A14FI | | 30 | 58 | 485 | 9 |
| FWP-32A14FI | | 32 | 68 | 600 | 7.6 |
| FWP-40A14FI | | 40 | 84 | 750 | 8 |
| FWP-50A14FI | | 50 | 200 | 1800 | 9 |

* Watts loss provided at rated current.
* See accessories on page 216.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

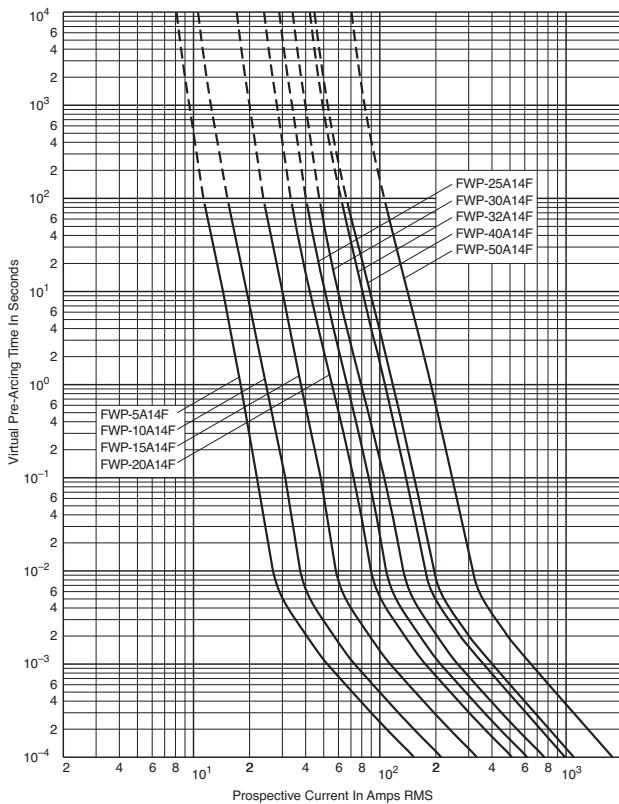
Data Sheet: 720025

Ferrule — FWP 690V/700V (IEC/UL): 1-50A, Striker Optional

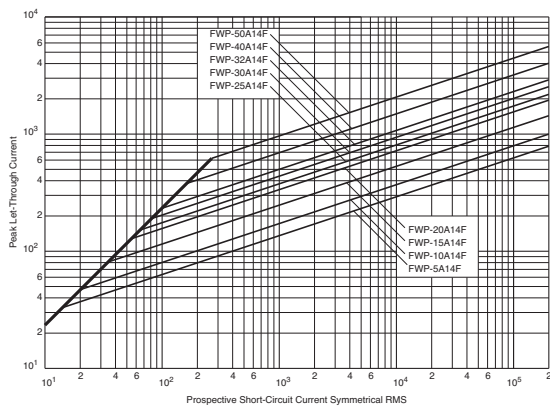
Without Striker

FWP 5-50A: 660V/700V (14x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785307

Ferrule — FWP 690V/700V (IEC/UL): 20-100A, Striker Optional

FWP (22 x 58mm)

Specifications

Description: Ferrule style high speed fuses with and without indicating striker.

Dimensions: See dimensions illustration.

Ratings:

- Volts: — 690Vac (IEC)
- 700Vac (UL)

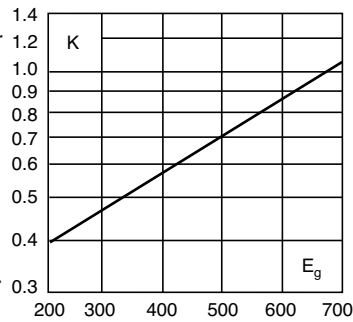
- Amps: — 20-100A
- IR: — 200kA RMS Sym.
- 50kA @ 500Vdc

Agency Information: CE, UL Recognition

Electrical Characteristics

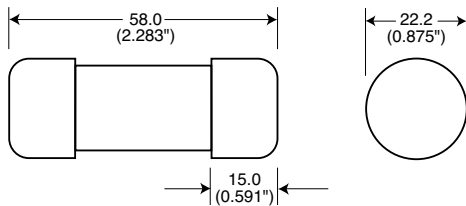
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

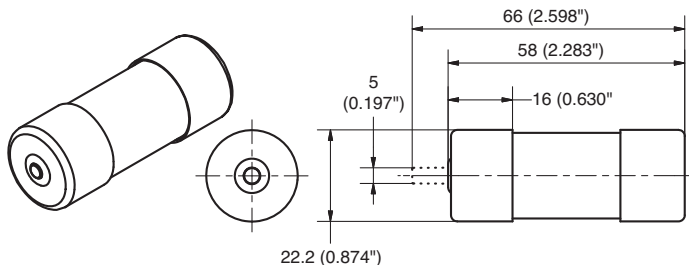


Dimensions - mm (inches)

Without Striker



With Striker



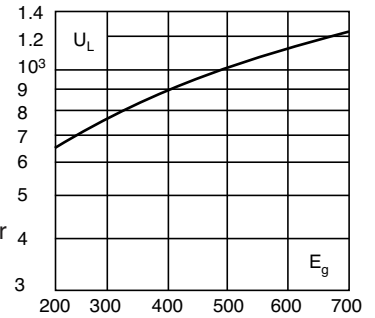
Data Sheet: 720026



FWP with striker option.

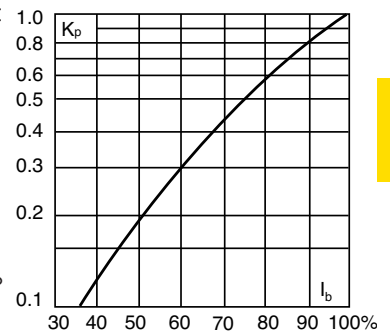
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | | |
|------------------------|------------------------------|----------------------------|---------------------------------------|---------------------------|------------|
| | | Rated Current RMS-Amps | I ² t (A ² Sec) | | Watts Loss |
| | | | Minimum Melting | Clearing At Rated Voltage | |
| Without Striker | | | | | |
| FWP-20A22Fa | 22 x 58mm (7/8" x 2 1/2") | 20 | 19.0 | 260 | 5 |
| FWP-25A22Fa | | 25 | 34.0 | 410 | 6 |
| FWP-32A22Fa | | 32 | 53.5 | 605 | 8 |
| FWP-40A22Fa | | 40 | 68 | 750 | 9 |
| FWP-50A22Fa | | 50 | 135 | 1600 | 9.5 |
| FWP-63A22Fa | | 63 | 280 | 3080 | 11 |
| FWP-80A22Fa | | 80 | 600 | 6600 | 13.5 |
| FWP-100A22Fa | 100* | 1100 | 12500 | 16 | |
| With Striker | | | | | |
| FWP-20A22FI | 22 x 58mm (7/8" x 2 1/2") | 20 | 19.0 | 260 | 5 |
| FWP-25A22FI | | 25 | 34.0 | 410 | 6 |
| FWP-32A22FI | | 32 | 53.5 | 605 | 8 |
| FWP-40A22FI | | 40 | 68 | 750 | 9 |
| FWP-50A22FI | | 50 | 135 | 1600 | 9.5 |
| FWP-63A22FI | | 63 | 280 | 3080 | 11 |
| FWP-80A22FI | | 80 | 600 | 6600 | 13.5 |
| FWP-100A22FI | 100* | 1100 | 12500 | 16 | |

*IEC/UL Voltage rating 690/700

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

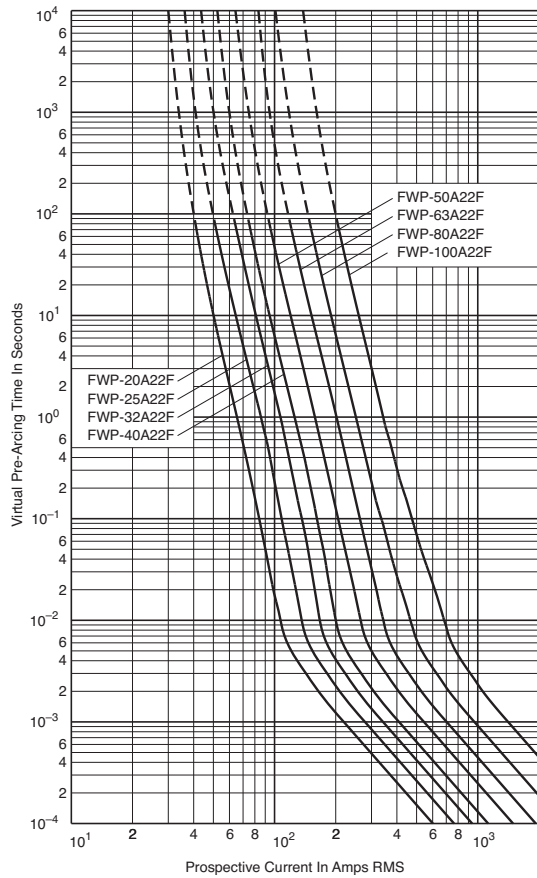
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Ferrule — FWP 690V/700V (IEC/UL): 20-100A, Striker Optional

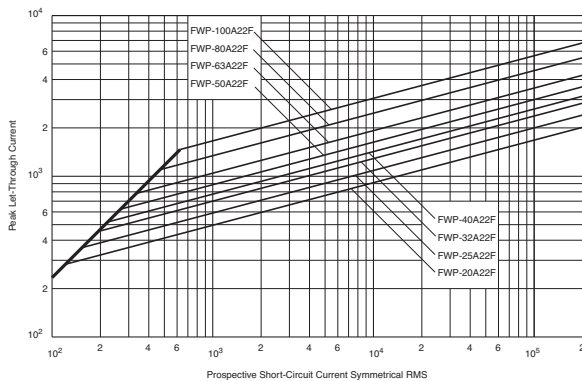
Without Striker

FWP 20-100A: 660V/700V (22 x 58mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785291

Ferrule — FWK 750V: 5-60A

FWK 5-30A (20 x 127mm) 35-60A (25 x 146mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 750Vac

— 750Vdc (Time constant = 10-15mS)

Amps: — 5-60A

IR: — 45kA RMS Sym.

Agency Information: CE



Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | |
|-----------------|---|----------------------------|-----------------------------|--------------------|
| | | Rated Current RMS-Amps | I^2t (A ² Sec) | |
| | | | Pre-arc | Clearing at 750Vdc |
| FWK-5A20F | 20 x 127mm ($1\frac{1}{8}'' \times 5''$) | 5 | 8.5 | 16 |
| FWK-8A20F | | 8 | 50 | 100 |
| FWK-10A20F | | 10 | 95 | 200 |
| FWK-15A20F | | 15 | 100 | 240 |
| FWK-20A20F | | 20 | 125 | 315 |
| FWK-30A20F | | 30 | 400 | 1100 |
| FWK-35A25F | 25 x 146mm ($1'' \times 5\frac{3}{4}''$) | 35 | 1300 | 4300 |
| FWK-40A25F | | 40 | 1600 | 5300 |
| FWK-50A25F | | 50 | 3100 | 12000 |
| FWK-60A25F | | 60 | 5900 | 24000 |

Recommended fuseholders for 20x127, CH127-1, -2, -3

Recommended fuseclips for 20x127, 1A1837

Recommended fuseclips for 25x146, A3354705

Dimensions - mm (inches)

Fig. 1: 5-30A

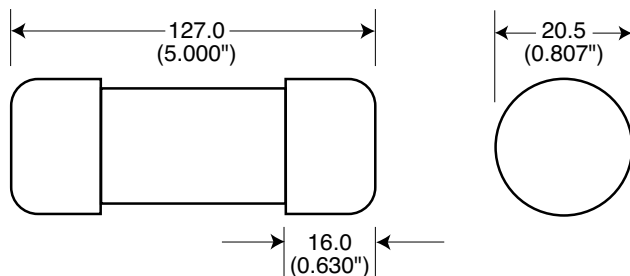
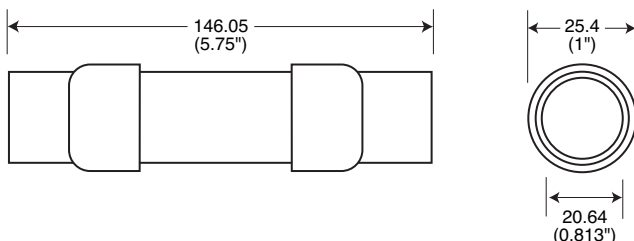


Fig. 2: 35-60A

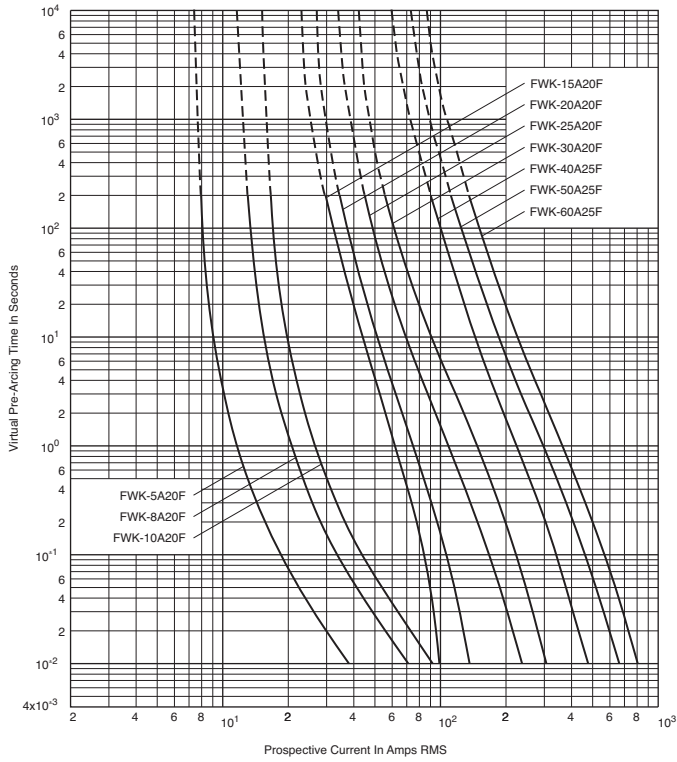


Data Sheet: 720039

Ferrule — FWK 750V: 5-60A

FWK 750V: 5-30A (20 x 127mm)
 35-60A (25 x 146mm)

Time-Current Curve



Ferrule — FWJ 1000V: 20-30A

FWJ (14 x 67mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac/800Vdc

Amps: — 20-30A

IR: — 25kA RMS Sym.

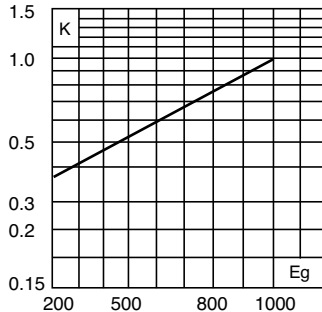
— 20kA @ 800Vdc

Agency Information: CE, UL Recognized

Electrical Characteristics

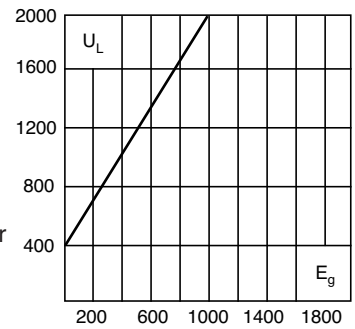
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



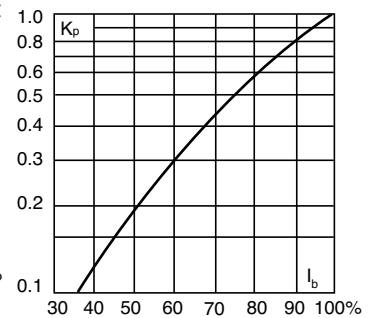
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

| Catalog Numbers | Size | Electrical Characteristics | | | |
|-----------------|---------------------------------------|----------------------------|---------------------------------------|-------------------|------------|
| | | Rated Current RMS-Amps | I ² t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 1000V | |
| FWJ-20A14F | 14 x 67mm | 20 | 25 | 220 | 9 |
| FWJ-25A14F | (% ¹⁶ x 2 ^{1/2} " | 25 | 33 | 350 | 11 |
| FWJ-30A14F | | 30 | 52 | 450 | 14 |

• Watts loss provided at rated current.
• See accessories on page 216.

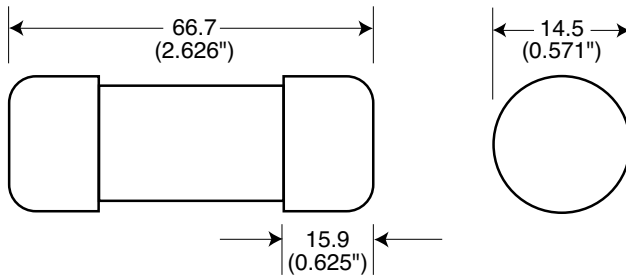
Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm (inches)



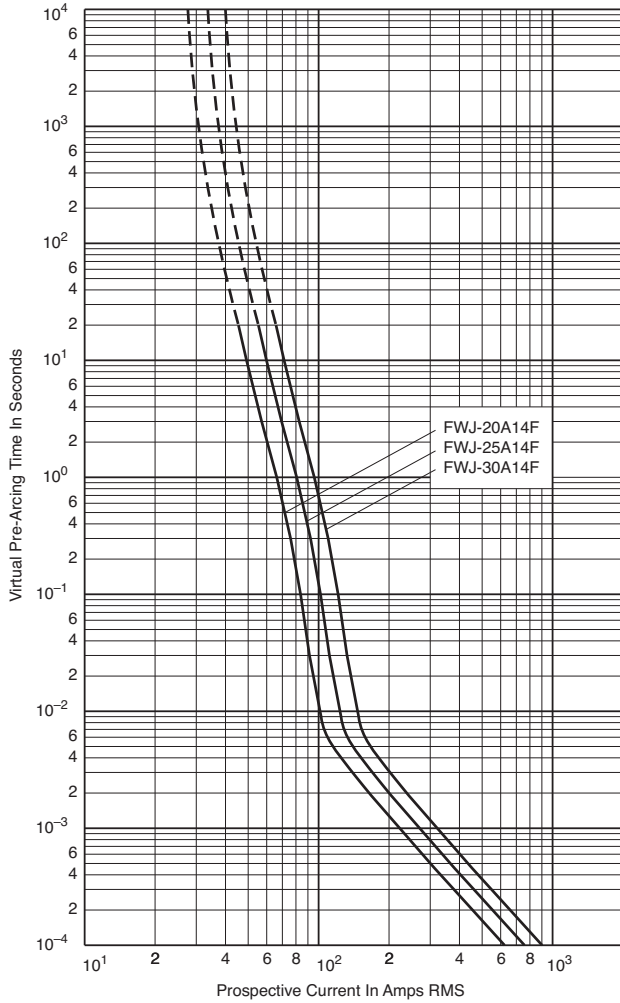
Fuseclips:

- Catalog Number: 5591 (see data sheet 2132)

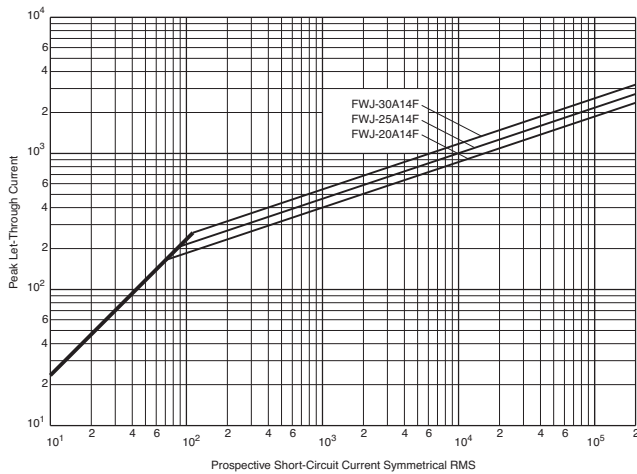
Ferrule — FWJ 1000V: 20-30A

FWJ 20-30A: 1000V (14 x 67mm)

Time-Current Curve



Peak Let-Through Curve



Ferrule — FWS/FWL 1000Vdc: 2-30A

FWS 2-15A (20 x 127mm)
FWL 20-30A (20 x 127mm)

Specifications

Description: Ferrule style full range fuses.

Dimensions: See dimensions illustrations.

Ratings:

- Volts: — 1200Vac (FWL 20-30A)
- 1400Vac (FWS 8-15A)
- 2100Vac (FWS 2-6A)
- 1000Vdc (FWL/FWS 2-30)

Amps: — 2-30A

- IR: — 45kA RMS Sym.
- 30kA @ 1000Vdc

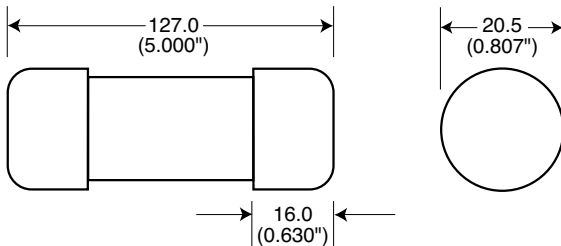
Agency Information: CE, IEC 60077

Catalog Numbers

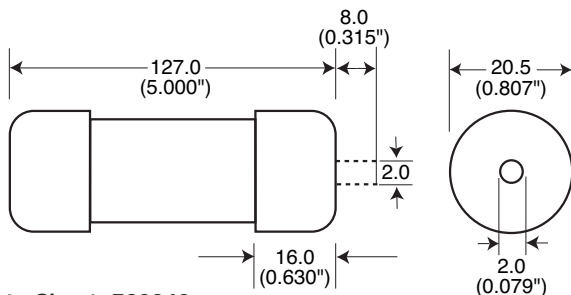
| Catalog Numbers | Size | Electrical Characteristics | | | |
|-----------------|---|----------------------------|---------------------------------------|---------------------|------------|
| | | Rated Current RMS-Amps | I ² t (A ² Sec) | | Watts Loss |
| | | | Pre-arc | Clearing at 1000Vdc | |
| FWS-2A20F | 20 x 127mm (¹³ / ₁₆ " x 5") | 2 | 0.8 | 2.4 | 4.4 |
| FWS-6A20F | | 6 | 27 | 81 | 6.7 |
| FWS-8A20F | | 8 | 64 | 192 | 7.6 |
| FWS-10A20F | | 10 | 118 | 277 | 3.0 |
| FWS-12A20F | | 12 | 170 | 380 | 3.4 |
| FWS-15A20F | | 15 | 209 | 500 | 5.0 |
| FWL-20A20F | 20 x 127mm (¹³ / ₁₆ " x 5") | 20 | 675 | 1550 | 5.9 |
| FWL-25A20F | | 25 | 1200 | 2760 | 6.5 |
| FWL-30A20F | | 30 | 1850 | 4300 | 7.5 |

- ADD "I" to catalog number for indicating version.
- Enclosed finger-safe fuse holder – CH127
- Open style fuse block – 4530-OP
- See accessories on page 216.
- Watts loss provided at rated current.

Dimensions - mm (inches)



Indicating Version - Dimensions - mm (inches)



Data Sheet: 720040



Features and Benefits

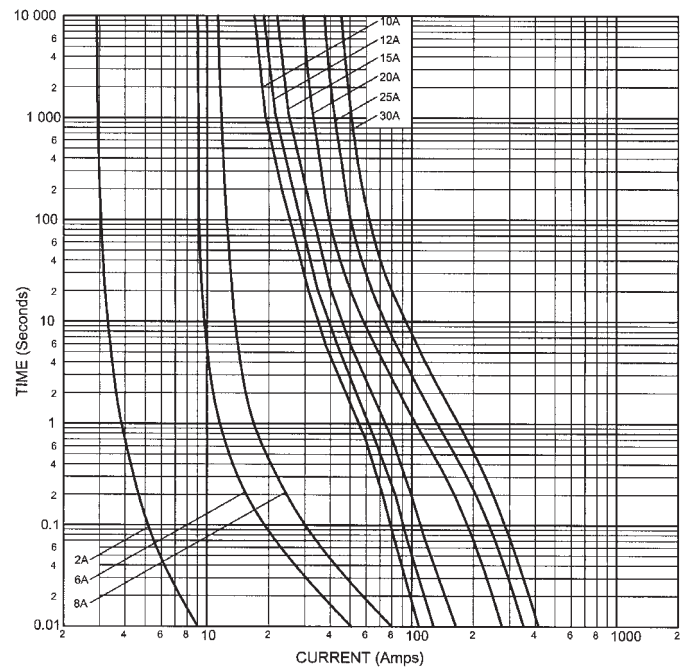
- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters
- Traction aux circuits
- Capacitor protection

FWL/FWS 2-30A: 1000Vdc 2-30A (20 x 127mm)

Time-Current Curve



Ferrule Fuse Accessories

Fuse Holders

Specifications

Catalog Symbol: CH Series

Description: DIN rail mount fuse holders

Agency Information:
cULus/cURus/CE

North American 10 x 38

Class CC: Listed UL 4248, Guide IZLT, File E14853, Certified CSA Std. C22.2 No. 39, Class 6225 01, File 47235

North American 10 x 38 Midget: Recognized UL 4248, Guide IZLT2, File E14853, Certified CSA Std. C22.2 No. 39, Class 6225 01, File 47235

European: 10 x 38 IEC 269-2-1, 14 x 51 IEC 269-2-1, 22 x 58 IEC 269-2-1

Features and Benefits

- Finger-safe design - No exposed contacts
- DIN rail mount (35mm) - Fits standard mounting rails
- Optional open fuse indication lights tells fuse status at a glance
- Handle/fusepuller easily installs and removes fuses
- Available in single and multi-pole configurations
- Wire ready lugs and spade terminal connections save installation time
- CE marking
- Available up to 1000Vdc
- PLC device available for remote monitoring

Typical Applications

- Switchboard panel, control consoles, small motors, transformers, and similar applications

Recommended Cooper Bussmann Fuse Types

Class CC North American Class CC Fuses - LP-CC, FNQ-R, KTK-R

10 x 38 North American Midget Fuses - FNQ, KTK, AGU, BAF, BAN, FNM, FWA, FWC, PV & DCM

14 x 51 Fuses - FWX, FWH, FWP & NON

22 x 58 Fuses - FWP



Fuse Blocks

Specifications

Catalog Symbol: J70100, J70032

Description: Fuse blocks for 22 x 58mm & 14 x 51mm fuses.

Ratings:

Volts: — 700Vac

Amps: — 32-100A

Withstand: — 200kA RMS Sym.

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853

Flammability Rating: UL 94V0



Catalog Numbers

| Catalog Numbers | Fuse Size | Amps | Poles | Max Wire Size | Terminations |
|-----------------|-----------|------|-------|---------------|------------------------------|
| J70032-2CR | 14x51 | 32 | 2 | #2 | Box Lug w/ Retaining Clip |
| J70032-3CR | | 32 | 3 | #2 | |
| J70100-1CR | 22x58 | 100 | 1 | #2 | |
| J70100-2CR | | 100 | 2 | #2 | |
| J70100-3CR | | 100 | 3 | #2 | |

See pages 257 and 258 for CH Series fuse holder information.



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