

Low Voltage Supplementary Fuses

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RED indicates NEW information



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Holders & Blocks for Low Voltage Supplementary Fuses

Limiters

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Limiter Blocks - ANN & ANL

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1 3/32" X 1 1/2" Fuses

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Holders & Blocks for Low Voltage Supplementary Fuses

1 3/32" X 1 3/8" Fuses

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Holder

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HPS-L



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Holders

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- 1 3/32" X 2": 1-Pole signal block cat. # 2778 (not shown in catalog)*
- 1 3/32" X 2": 2-Pole signal block cat. # 2837 (not shown in catalog)*
- 1 3/32" X 2": 3-Pole signal block cat. # 2838 (not shown in catalog)*

*Call our customer satisfaction team at 636-527-3877 for more information.



Series 8000

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easyID™
Illuminating Holders

HHC, HHD, HHF
& HHG

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HHX

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|------------------------|-------|------|
| GLQ rejecting fuse | 300V | 80 |
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Holders

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HLQ³ Fuse Holders



HLR Fuse Holder

Low Voltage
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Cable Limiters & Welder Limiters

K Series

Specifications

Description: Cable limiters.

Ratings:

- Volts — 600Vac
- IR — 200kA RMS Sym. @ 600Vac

Agency Information: UL

Listing: KDM, KDR, KDP and KFM, KCM, KCM-B and KCR.

Features and Benefits

- Sizes and ratings available to meet many applications.

Typical Applications

- Protecting low voltage distribution and service entrance cables against short-circuit currents.



64000 & 68000 Series

Specifications

Description: Welder limiters.

Ratings:

- Volts — 600Vac (or less)
- IR — 200kA RMS Sym.

Features and Benefits

- Current-limiting devices designed specially for use on welder circuits only
- Time-current characteristics are designed to hold on the intermittent overloading encountered in welder operation, while providing short-circuit protection to the circuit and equipment
- Welder limiters have excess current capacity in the operating range as needed for this type of service

Typical Applications

- Welder circuits
- Because welder limiters have special characteristics, they are not intended for application on general-use circuits



Catalog Numbers

Copper Cable Limiter — 600 Volts

| Catalog Number | Cable Size | Catalog Number | Cable Size |
|----------------|------------|----------------|------------|
|----------------|------------|----------------|------------|

Tubular Terminals

| | | | |
|--------------------|-----|---|----------|
| KCY | #4 | KCF | 4/0 |
| KCZ | #3 | KCH | 250 MCM |
| KCA | #2 | KCJ ^{1,2} | 350 MCM |
| KCB | #1 | KCM ^{1,2,3} , KCM-B ¹ | 500 MCM |
| KCC | 1/0 | KCV | 600 MCM |
| KCD ^{1,2} | 2/0 | KCR ^{1,2} | 750 MCM |
| KCE | 3/0 | KCS | 1000 MCM |

Tubular Terminal and Offset Bolt-Type Terminal

| | | | |
|-----|-----|----------------------|---------|
| KQV | #12 | KDD ¹ | 2/0 |
| KQT | #10 | KDE | 3/0 |
| KFZ | #8 | KDF | 4/0 |
| KIG | #6 | KDH | 250 MCM |
| KDY | #4 | KDJ ^{1,2} | 350 MCM |
| KDA | #2 | KDM ^{1,2,3} | 500 MCM |
| KDB | #1 | KDU | 600 MCM |
| KDC | 1/0 | KDR ^{1,2} | 750 MCM |

Compression Connector Rod and Tubular Terminals

| | | | |
|-------|---------|------------------|---------|
| KEX | 4/0 | KQO | 350 MCM |
| KFH-A | 250 MCM | KDT ¹ | 500 MCM |

*Center Bolt-Type Terminal and Off-Set Bolt-Type Terminal

| | | | |
|------------------|---------|------------------|---------|
| KPF | 4/0 | KDP ¹ | 500 MCM |
| KFT ¹ | 250 MCM | KFM ¹ | 750 MCM |
| KEW ¹ | 350 MCM | | |

¹Copper or aluminum cable; sizes of all other limiters pertain to copper only. KFM copper only. ¹UL Listed (File E90818).

²Available with shrink tube “_V” suffix.

³Available with molded rubber boots. Add “-B” to end of part number.

Accessories

Boots can be purchased separately.

For KCM BOOT-KCM

For KDM BOOT-KDM

Installation tools can be purchased separately from Thomas and Betts

• Crimp Tool: TBM-14M

• Die: 15506 KDM/15515 KDR

Catalog Numbers

| Catalog Numbers | Fuse Holder Type | Nominal Amp Rating |
|-----------------|------------------|--------------------|
| 68300 | Class H | 300 |
| 68600 | Class H | 600 |
| 64200 | Class J | 200 |
| 64300 | Class J | 300 |

Recommended Fuse Blocks For 68000 & 64000 Series limiters

- See page 72

Data Sheet: 1045

Data Sheet: 1042

1 3/32" x 1 1/2" Fast-acting Fuses

BAF

Specifications

Class: Supplemental

Description: Fast-acting supplementary fuse.

Dimensions: 1 3/32" x 1 1/2" (10.3 x 38.1mm).

Ratings:

Volts — 250Vac (or less)

Amps — 3/10-30A

IR — 10kA @ 125Vac (3/10-30A)

— 35A (3/10-1A @ 250Vac)

— 100A (1 1/2-3A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 750A (12A- 15A @ 250Vac)

— 200A (20-30A @ 250Vac)

Agency Information: CE, Std. 248-14, UL 0-15/250V, Guide JDYX, File E19180 CSA Certified, 0-15/250V, Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of 125V and 250V non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards. (and minimize potential for misapplying fuse.)

Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

| | | |
|------------|-----------|--------|
| BAF-3/4 | BAF-2-3/4 | BAF-9 |
| BAF-1/2 | BAF-3 | BAF-10 |
| BAF-3/10 | BAF-4 | BAF-12 |
| BAF-3/10 | BAF-5 | BAF-15 |
| BAF-1 | BAF-6 | BAF-20 |
| BAF-1-1/2 | BAF-6-3/4 | BAF-25 |
| BAF-1-3/10 | BAF-7 | BAF-30 |
| BAF-2 | BAF-8 | |

*All have interrupting rating of 10,000A at 125V.

For superior electrical protection, Bussmann recommends upgrading BAF and fuse applications to Low-Peak LP-CC fuses See page 23.

Data Sheet: 2011 (0-30)



KTK

Specifications

Class: Supplemental

Description: Fast-acting supplementary fuse.

Dimensions: 1 3/32" x 1 1/2" (10.3 x 38.1mm).

Ratings:

Volts — 600Vac (or less)

Amps — 3/10-30A

IR — 100kA RMS Sym. (UL)

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180.

Features and Benefits

- Low cost supplemental protection of 600V or less non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc flash hazards.

Typical Applications

- Control Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

| | | | | |
|----------------------------|-----------|-----------|---------|---------|
| 600Vac - UL Listed and CSA | | | | |
| KTK-3/10 | KTK-3/4 | KTK-4 | KTK-12 | KTK-50* |
| KTK-3/10 | KTK-1 | KTK-5 | KTK-15 | |
| KTK-3/10 | KTK-1-1/4 | KTK-6 | KTK-20 | |
| KTK-3/4 | KTK-1-1/2 | KTK-7 | KTK-25 | |
| KTK-3/10 | KTK-2 | KTK-7-1/2 | KTK-30 | |
| KTK-3/10 | KTK-2-1/2 | KTK-8 | KTK-35* | |
| KTK-1/2 | KTK-3 | KTK-9 | KTK-40* | |
| KTK-3/10 | KTK-3-1/2 | KTK-10 | KTK-45* | |

*Rated for no more than 24A continuous.

For superior electrical protection, Bussmann recommends upgrading KTK fuse applications to Low-Peak LP-CC fuses See page 23.

Data Sheet: 1011



KLM

Specifications

Class: Supplemental

Description: Full range, fast-acting, DC midget fuse.

Dimensions: 1 3/32" x 1 1/2" (10.3 X 38.1mm).

Ratings:

Volts — 600Vac/dc

Amps — 3/10-30A

IR — 100kA AC

— 50kA DC

Agency Information: CE, UL Listed: STD. 248-14, (FILE #E19180), CSA Certified, C22.2 NO. 248. 14 (CLASS #1422-01, FILE #53787).

Features and Benefits

- Full range, fast-acting, 600Vac/dc midget fuse.
- Minimum interrupting rating or 200% rated current at 600Vdc.

Typical Applications

- DC Control Circuits Requiring Fast-Acting Fuses.
- Solar power energy sources - use the Bussmann PVM fuse for DC ratings up to 600Vdc.

Catalog Numbers (Amps) - KLM

| | | | |
|----------|-----------|--------|--------|
| KLM-3/10 | KLM-3/4 | KLM-5 | KLM-20 |
| KLM-3/10 | KLM-1 | KLM-6 | KLM-25 |
| KLM-3/10 | KLM-1-1/2 | KLM-8 | KLM-30 |
| KLM-3/4 | KLM-2 | KLM-10 | |
| KLM-3/10 | KLM-3 | KLM-12 | |
| KLM-1/2 | KLM-4 | KLM-15 | |



Recommended fuse blocks/fuse holders for 1 3/32" x 1 1/2" fuses

- See page 72

1 3/32" x 1 1/2" Time-delay Fuses

FNM

Specifications

Class: Supplemental

Description: Time-delay supplementary fuse.

Dimensions: 1 3/32" x 1 1/2"
(10.3 x 38.1mm).

Ratings:

Volts — 250Vac (or less)

Amps — 1/10-30A

IR — 35A (1/10-1A @ 250Vac)

— 100A (1 1/8-3 1/2A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 10kA (1/10-10A @ 125Vac)

— 10kA (12-30A @ 250Vac)

Agency Information: CE, Std. 248-14, UL Listed, 0-30/250Vac; File E19180, Guide JDYX, CSA Certified, 1-30/250Vac; Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of 125V and 250V inductive circuits.

Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits
- Upgrading to LP-CC product will reduce SKU investment and minimize potential for misapplying fuse

Catalog Numbers (Amps)

| | | | | | |
|------------|------------|------------|------------|-----------|--------|
| FNM-1/10 | FNM-1/2 | FNM-1-1/2 | FNM-3 | FNM-6 | FNM-15 |
| FNM-1/8 | FNM-9/10 | FNM-1-9/10 | FNM-3-3/10 | FNM-6-1/4 | FNM-20 |
| FNM-15/100 | FNM-3/4 | FNM-1-3/10 | FNM-3-1/2 | FNM-7 | FNM-25 |
| FNM-3/10 | FNM-1 | FNM-2 | FNM-4 | FNM-8 | FNM-30 |
| FNM-1/4 | FNM-1-1/2 | FNM-2-1/4 | FNM-4-1/2 | FNM-9 | |
| FNM-3/10 | FNM-1-1/4 | FNM-2-1/2 | FNM-5 | FNM-10 | |
| FNM-1/10 | FNM-1-3/10 | FNM-2-9/10 | FNM-5-9/10 | FNM-12 | |



FNQ

Specifications

Class: Supplemental

Description: Time-delay supplementary fuse.

Dimensions: 1 3/32" x 1 1/2" (10.3 x 38.1mm).

Ratings:

Volts — 500Vac (or less)

Amps — 1/10-30A

IR — 10kA RMS Sym.

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180 CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of transformers and relays at 500V or less.

Typical Applications

- Control Transformer 480V Primary Protection
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

| | | | | | |
|------------|-----------|------------|------------|--------|--------|
| FNQ-1/10 | FNQ-1/8 | FNQ-1-1/2 | FNQ-3-1/2 | FNQ-7 | FNQ-20 |
| FNQ-1/8 | FNQ-1/2 | FNQ-1-9/10 | FNQ-4 | FNQ-8 | FNQ-25 |
| FNQ-15/100 | FNQ-9/10 | FNQ-2 | FNQ-4-1/2 | FNQ-9 | FNQ-30 |
| FNQ-3/10 | FNQ-3/10 | FNQ-2-1/4 | FNQ-5 | FNQ-10 | |
| FNQ-1/4 | FNQ-1 | FNQ-2-1/2 | FNQ-5-9/10 | FNQ-12 | |
| FNQ-1/4 | FNQ-1-1/2 | FNQ-3 | FNQ-6 | FNQ-14 | |
| FNQ-3/10 | FNQ-1-1/4 | FNQ-3-3/10 | FNQ-6-1/4 | FNQ-15 | |



For superior electrical protection, Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 23.

Recommended fuse blocks and fuse holders for

1 3/32" x 1 1/2" fuses

- See page 72

Data Sheet: 2028

For superior electrical protection, Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 23.

Recommended fuse blocks and fuse holders for

1 3/32" x 1 1/2" fuses

- See page 72

Data Sheet: 1012

1 $\frac{3}{32}$ " x 1 $\frac{3}{8}$ " Fast-acting Fuses

BBS

Specifications

Class: Supplemental

Description: Fast-acting supplementary fuse.

Dimensions: 1 $\frac{3}{32}$ " x 1 $\frac{3}{8}$ "
(10.3 x 34.9mm).

Construction: Fiber cartridge.

Ratings:

- Volts — 600Vac ($\frac{1}{10}$ -5A)
- 250Vac (6 - 10A)
- 48Vac (12-30A)

Amps — $\frac{1}{10}$ -30A

IR — 10kA RMS Sym.

Agency Information: CE, Std. 248-14, UL Listed, 0-5A/600V, Guide JDYX, File E19180, CSA Certified, 0-5A/600V, Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of non-inductive circuits
- Reduced interchangeability with other supplemental fuses minimizes misapplication

Typical Applications

- Control Circuits
- Lighting Ballasts
- Meter Circuits

Catalog Numbers (Amps)

| | | | |
|---------------------|-----------------------|--------|--------|
| BBS- $\frac{1}{10}$ | BBS- $\frac{3}{10}$ | BBS-4 | BBS-15 |
| BBS- $\frac{2}{10}$ | BBS-1 | BBS-5 | BBS-20 |
| BBS- $\frac{1}{4}$ | BBS-1- $\frac{1}{2}$ | BBS-6 | BBS-25 |
| BBS- $\frac{3}{10}$ | BBS-1- $\frac{3}{10}$ | BBS-7 | BBS-30 |
| BBS- $\frac{1}{2}$ | BBS-1- $\frac{1}{10}$ | BBS-8 | |
| BBS- $\frac{6}{10}$ | BBS-2 | BBS-10 | |
| BBS- $\frac{3}{4}$ | BBS-3 | BBS-12 | |



Recommended fuse blocks/fuse holders for 1 $\frac{3}{32}$ " x 1 $\frac{3}{8}$ " fuses

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Data Sheet: 2010 (0-30A)

Pin Indication Fuses

GBA

GLD

Specifications

Class: Supplemental

Description: Fast-acting, pin indication fuse.

Dimensions: ¼" x 1 ¼"
(6.6 x 31.7mm) 3AG.

Ratings:

Volts — See Agency Info below

Amps — ½-15A

IR — See Agency Info below

Agency Information: CE, Std. 248-14, UL Listed, 0-5A/125Vac, 10,000 AIC, Guide JDYX, File E19180, UL Recognized, 6A/125Vac, 1000AIC 8-15A/50Vac/dc, 300 AIC Guide JDYX2, File E19180, CSA Certified: 0-5A/125Vac, 10,000 AIC Class 1422-01, File 53787.

Features and Benefits

- Type GBA has a "red" pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type GLD has a plated pin to activate transmitting a electrical signal to indicate the location of opened circuits, resulting in reduced downtime.

Typical Applications

- Control Circuits
- Electronic Circuits

GLD Catalog Numbers (Amps)

| | | |
|---------|-------|--------|
| GLD-½ | GLD-2 | GLD-6 |
| GLD-¾ | GLD-3 | GLD-10 |
| GLD-1 | GLD-4 | GLD-12 |
| GLD-1-½ | GLD-5 | GLD-15 |

GBA Catalog Numbers (Amps)

| | | |
|---------|-------|--------|
| GBA-½ | GBA-2 | GBA-8 |
| GBA-¾ | GBA-3 | GBA-10 |
| GBA-1 | GBA-4 | GBA-15 |
| GBA-1-½ | GBA-5 | |

Recommended fuse blocks/fuse holders for ¼" x 1 ¼" indicating fuses

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Data Sheet: 2012

MIC & MIN

Specifications

Class: Supplemental

Description: Fast-acting, pin indication fuse.

Dimensions: 1 ½" x 1 ½"
(10.3 x 38.1mm) 5AG.

Ratings:

Volts — 250Vac
(1-15A)
— 32Vac (20-30A)

Amps — 1-30A
IR — 35A (1A @250Vac)
— 100A (2-3A @250Vac)
— 200A (5-10A @250Vac)
— 750A (15A @250Vac)
— 10kA (20-30A @32V)
— 35A (1A @250Vac)

Agency Information: CE, Std. 248-14, MIC—0-15A UL Listed, 125Vac/10kA IR Guide JDYX, File E19180, MIN—1-5A CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Type MIN has a "red" pin indicator providing visual identification of failed circuits, resulting in faster trouble shooting (reduced circuit downtime).
- Type MIC has silver-plated pin transmitting an electrical signal indicating location of a failed circuit, resulting in faster troubleshooting (reduced circuit downtime).

Typical Applications

- Control Circuits
- PLC Circuits
- Electronic Circuits

MIC Catalog Numbers (Amps)

| | | |
|-------|--------|--------|
| MIC-1 | MIC-5 | MIC-20 |
| MIC-2 | MIC-10 | MIC-25 |
| MIC-3 | MIC-15 | MIC-30 |

MIN Catalog Numbers (Amps)

| | | |
|-------|--------|--------|
| MIN-1 | MIN-5 | MIN-20 |
| MIN-2 | MIN-10 | MIN-25 |
| MIN-3 | MIN-15 | MIN-30 |

Recommended signal block for 1 ½" x 1 ½" indicating fuses

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Data Sheet: 2047

FNA

Specifications

Class: Supplemental

Description: Time-delay, pin indication fuse.

Dimensions: 1 ½" x 1 ½"
(10.3 x 38.1mm).

Ratings:

Volts — 250Vac (½-¾A)
— 125Vac (1-15A)
— 32Vac (20-30A)

Amps — ½-30A

IR — 35A (½-¾A @ 250Vac)
— 10kA (½-15A @ 125Vac)
— 1kA (20-30A @ 32V)

Agency Information: CE, Std. 248-14, UL Listed ½-¾A, IR 35A@ 250V, IR 10kA@ 125V , 1-15A, IR 10kA@ 125V, Guide JDYX, File 19180, CSA Certified, 0-¾A/250V, 1-10A/125V, Class 1422-01, File 53787.

Features and Benefits

- FNA has a pin indicator providing visual identification of failed circuits, resulting in reduced circuit downtime.
- Time-delay response allows close sizing on control transformers and relays

Typical Applications

- Control Circuits
- Electronic Circuits

Catalog Numbers (Amps)

| | | | |
|---------|---------|---------|---------|
| FNA-½ | FNA-¾ | FNA-2-½ | FNA-6-¼ |
| FNA-½ | FNA-1 | FNA-2-¾ | FNA-7 |
| FNA-1-¼ | FNA-1-½ | FNA-3 | FNA-8 |
| FNA-¾ | FNA-1-¼ | FNA-3-¾ | FNA-9 |
| FNA-¾ | FNA-1-¾ | FNA-3-½ | FNA-10 |
| FNA-¾ | FNA-1-½ | FNA-4 | FNA-12* |
| FNA-¾ | FNA-1-¾ | FNA-4-½ | FNA-15* |
| FNA-¾ | FNA-1-¾ | FNA-5 | FNA-20* |
| FNA-¾ | FNA-2 | FNA-5-¾ | FNA-25* |
| FNA-¾ | FNA-2-¼ | FNA-6 | FNA-30 |

*12-30A versions are dual-tube construction

Recommended signal block for 1 ½" x 1 ½" indicating fuses

- Page 73

Data Sheet: 2029

Pin Indication Fuse and Actuator, and Limiters

ANN & ANL Limiters

Specifications

Description: Circuit limiters.

ANN: Very fast-acting limiter.

ANL: Non-time delay limiter.

Dimensions: 1/2" x 3 3/16"
(22.2 x 81.0mm).

Ratings:

ANN:

Volts — 125Vac
— 80Vdc

Amps — 10-800A

IR — 2500A @ 125Vac
— 2700A @ 80Vdc

ANL:

Volts — 80Vdc

Amps — 35-750A

IR — 2700A @ 80Vdc

Agency Information:

ANN: 35-400A @ 125Vac, IR=2500A and 500A @ 80Vdc, IR=2700A: UL Recognized Guide JFHR2, File E56412; CSA Certified Class 1422-30, File 53787, CE for 35-400A.

ANL: UL Recognized, CSA Certified, 35-750A @ 80Vdc, IR = 2700A, Guide JFHR2, File E56412, Class 1422-30, File 53787, SAE J1171.

Features and Benefits

- Fast-acting circuit protection (ANN).
- Time-delay sizing for inductive circuits (ANL).
- Window shows limiter status.

Typical Applications

- Fork lifts, Marine, Aviation

ANN Catalog Numbers (Amps)

| | | | |
|--------|---------|---------|---------|
| ANN-10 | ANN-90 | ANN-225 | ANN-400 |
| ANN-35 | ANN-100 | ANN-250 | ANN-500 |
| ANN-40 | ANN-125 | ANN-275 | ANN-600 |
| ANN-50 | ANN-150 | ANN-300 | ANN-700 |
| ANN-60 | ANN-175 | ANN-325 | ANN-800 |
| ANN-80 | ANN-200 | ANN-350 | |

ANL Catalog Numbers (Amps)

| | | | |
|---------|---------|---------|---------|
| ANL-35 | ANL-125 | ANL-250 | ANL-500 |
| ANL-40 | ANL-130 | ANL-275 | ANL-600 |
| ANL-50 | ANL-150 | ANL-300 | ANL-675 |
| ANL-60 | ANL-175 | ANL-325 | ANL-750 |
| ANL-80 | ANL-200 | ANL-350 | |
| ANL-100 | ANL-225 | ANL-400 | |



MIS

Specifications

Class: Supplemental

Description: Non time-delay pin indication fuse.

Dimensions: 1/2" x 2"
(10.3 x 50.8mm).

Ratings:

Volts — 600Vac
Amps — 1-12A
IR — 200kA

Features and Benefits

- Type MIS has a pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type MIS can be used in circuits rated 600V or less.
- Type MIS has an interrupting rating of 200kA.

Typical Applications

- 480V Control Circuits
- PLC Circuits

Catalog Numbers (Amps)

| | | |
|-------|-------|--------|
| MIS-1 | MIS-4 | MIS-10 |
| MIS-2 | MIS-5 | MIS-12 |
| MIS-3 | MIS-8 | |

Test Specifications

| Fuse | Load | Opening Time |
|-------|------|-----------------|
| All | 110% | 0 4 hrs. (min.) |
| 1-5A | 150% | 0 6 min. (max.) |
| 6-12A | 150% | 12 min. (max.) |

Recommended signal block for

1/2" x 2" indicating fuses

- Page 73



KAZ

Specifications

Description: Non-fuse actuator.

Dimensions: 1/2" x 2"
(10.3 x 50.8mm).

Ratings:

Volts — 600Vac
Amps — N/A
IR — 200kA

Agency Information:

CE, UL Listed, Guide JDVS, File E58836.

Features and Benefits

- Bussmann signal blocks 2778, 2837 or 2838 with KAZ actuators mounted in parallel with fuses having a rating of 50A or larger to provide blown fuse dropout of shunt-trip fused switches.
- Type KAZ can be used in circuits rated 600V or less.
- Type KAZ has an interrupting rating of 200kA.

Typical Applications

- Large, Shunt-Trip Fused Switches
- Fuse Protected Circuits Rated 50A or Larger With Shunt-Trip Devices.

Catalog Number: KAZ

Recommended signal block for

1/2" x 2" indicating fuses

- Page 73

Data Sheet: 2021



Low Voltage
Supplementary
Fuses

4164 & 4164-FR Limiter Blocks

Specifications

Description: Limiter fuse blocks for ANL & ANN.

- 4164 furnished with nylon inserted locknuts
- 4164-FR furnished with standard hex nuts

Dimensions: Length: 3.38"
Width: 0.95"
Height: 1.62"
Studs center to center: 2.43"



Ratings:

Volts — 125Vac
— 80Vdc
— 32Vdc (Self Certified)
Amps — 10-800A

Poles: 1 - stud terminal

Data Sheets: 2023 (ANN), 2024 (ANL)

Data Sheet: 2133

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

In-line Size Rejecting Fuses and Fuse Holders

GLQ

Specifications

Class: Supplemental

Description: Fast-acting, size-rejecting in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — 1-10A

IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits

- In-Line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

Typical Applications

- In-line Lighting Ballast Protection



GMQ

Specifications

Class: Supplemental

Description: Time-delay, size-rejecting in-line fuse.

Construction: Ceramic tube.

Ratings:

Volts — 300Vac (or less)

Amps — ½-6¼A

IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787)

Features and Benefits

- In-line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

Typical Applications

- In-Line Lighting Ballast Protection



Catalog Numbers (Amps) and Rejection Holders

| Fuse | Holder ^{1, 2} | Fuse | Holder ^{1, 2} |
|----------------------|------------------------|--------|------------------------|
| GLQ-1 | HLQ-1- $\frac{5}{16}$ | GLQ-3 | HLQ-3- $\frac{3}{16}$ |
| GLQ-1- $\frac{1}{2}$ | HLQ-1- $\frac{9}{16}$ | GLQ-4 | HLQ-5 |
| GLQ-1- $\frac{5}{8}$ | HLQ-1- $\frac{5}{8}$ | GLQ-5 | HLQ-5 |
| GLQ-2 | HLQ-3- $\frac{3}{16}$ | GLQ-9 | HLQ-10 |
| GLQ-2- $\frac{1}{2}$ | HLQ-3- $\frac{3}{16}$ | GLQ-10 | HLQ-10 |

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2033

Catalog Numbers (Amps) and Rejection Holders

| Fuse | Holders ^{1, 2} | Fuse | Holders ^{3, 4} |
|----------------------|-------------------------|-----------------------|-------------------------|
| GMQ- $\frac{1}{2}$ | HLQ- $\frac{1}{2}$ | GMQ-2- $\frac{1}{2}$ | HLQ-3- $\frac{3}{16}$ |
| GMQ- $\frac{5}{8}$ | HLQ-1- $\frac{5}{8}$ | GMQ-3 | HLQ-3- $\frac{3}{16}$ |
| GMQ- $\frac{3}{4}$ | HLQ-1- $\frac{5}{8}$ | GMQ-3- $\frac{3}{16}$ | HLQ-3- $\frac{3}{16}$ |
| GMQ-1 | HLQ-1- $\frac{5}{8}$ | GMQ-4 | HLQ-5 |
| GMQ-1- $\frac{1}{4}$ | HLQ-1- $\frac{5}{8}$ | GMQ-6 | HLQ-8 |
| GMQ-1- $\frac{5}{8}$ | HLQ-1- $\frac{5}{8}$ | GMQ-6- $\frac{1}{4}$ | |
| GMQ-2 | HLQ-3- $\frac{3}{16}$ | | |

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2030



HLQ³ Fuse Holders
for both GLQ & GMQ fuses.

In-line Non-rejecting Fuses and Fuse Holders

GLR

Specifications

Class: Supplemental

Description: Fast-acting, non-rejection, in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — $\frac{3}{16}$ -15A

IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed, 0-15A/300Vac (Guide JDYX, File E19180), CSA Certified, 0-10A/300V (Class 1422-01, File 53787).

Features and Benefits

- In-line, fast-acting circuit protection.

Typical Applications

- In-Line Lighting Ballast Protection



GMF

GRF

Specifications

Class: Supplemental

Description: Time-delay, non-rejection, in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — $\frac{3}{10}$ -10A

IR — 10kA

Agency Information: CE, Std. 248-14 0-10A, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits

- In-line, time-delay circuits protection.

Typical Applications

- In-Line Lighting Ballast Protection



Catalog Numbers (Amps) and Non-Rejection Holders

| Fuse | Holder ^{1, 2*} | Fuse | Holder ^{1, 2*} |
|-----------------------|-------------------------|--------|-------------------------|
| GLR- $\frac{1}{2}$ | HLR | GLR-6 | HLR |
| GLR-1 | HLR | GLR-7 | HLR |
| GLR-1- $\frac{1}{2}$ | HLR | GLR-8 | HLR |
| GLR-1- $\frac{3}{10}$ | HLR | GLR-9 | HLR |
| GLR-2 | HLR | GLR-10 | HLR |
| GLR-3 | HLR | GLR-12 | HLR |
| GLR-4 | HLR | GLR-15 | HLR-2A |
| GLR-5 | HLR | | |

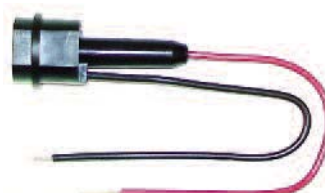
1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

* **For two leads (one each for line and loadside) order HLR-2A, 15A, 300V**

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2032



HLR-2A Fuse Holder

Catalog Numbers (-Amps) and Non-Rejection Holders

| Fuse | Holder ^{1, 2*} | Fuse | Holder ^{1, 2*} |
|-----------------------|-------------------------|-----------------------|-------------------------|
| GMF- $\frac{3}{10}$ | HLR | GMF-3 | HLR |
| GMF- $\frac{1}{2}$ | HLR | GMF-3- $\frac{3}{10}$ | HLR |
| GMF- $\frac{3}{10}$ | HLR | GMF-4 | HLR |
| GMF- $\frac{3}{10}$ | HLR | GMF-5 | HLR |
| GMF-1 | HLR | GMF-6- $\frac{1}{4}$ | HLR |
| GMF-1- $\frac{1}{4}$ | HLR | GMF-10 | HLR |
| GMF-1- $\frac{3}{10}$ | HLR | GRF-7 | HLR |
| GMF-2 | HLR | GRF-8 | HLR |
| GMF-2- $\frac{1}{2}$ | HLR | GRF-10 | HLR |
| GMF-2- $\frac{3}{10}$ | HLR | | |

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

* **For two leads order HLR-2A, 15A, 300V**

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2031



HLR Fuse Holder

Automotive Blade-type Fuses & Holders

ATC Fuse



Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

- Volts — 32Vdc
- Amps — 1-40A
- IR — 1000A

Agency Information: UL Recognized, (3-40A) (Guide JFHR2, File E56412), SAE Standard J1284.

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

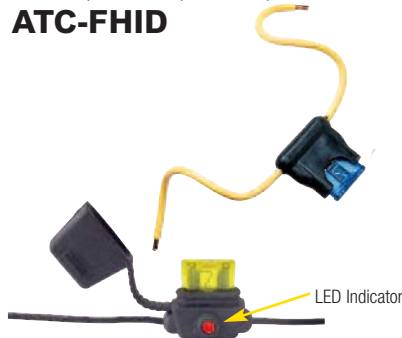
- Automotive

Catalog Numbers (Amps)

| Non-Indicating | *Indicating | Color |
|----------------|-------------|------------|
| ATC-1 | | Black |
| ATC-2 | | Gray |
| ATC-3 | ATC-3ID | Violet |
| ATC-4 | | Pink |
| ATC-5 | ATC-5ID | Tan |
| ATC-7-1/2 | ATC-7-1/2ID | Brown |
| ATC-10 | ATC-10ID | Red |
| ATC-15 | ATC-15ID | Blue |
| ATC-20 | ATC-20ID | Yellow |
| ATC-25 | ATC-25ID | Clear |
| ATC-30 | ATC-30ID | Green |
| ATC-35 | ATC-35ID | Blue-Green |
| ATC-40 | ATC-40ID | Orange |

*Call Bussmann Customer Satisfaction for ordering information.

HHC, HHD, HHF, HHG & ATC-FHID



easyID™ LED Indicating Holder

Specifications

Description: In-line fuse holders for ATC™ Blade-Type fuses.

Dimensions: See Dimensions illustration.

Ratings:

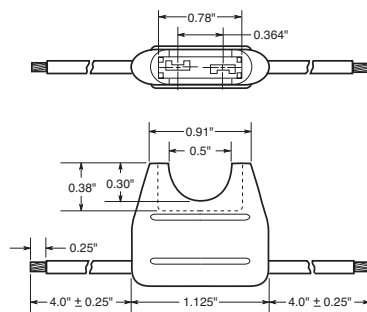
- Volts: — 32Vdc
- Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

| Catalog Numbers | Fuse Holder Description | Fuse Amps | Electrical Connection |
|-----------------|-------------------------------------|-----------|-----------------------|
| HHC | Yellow | 1-20 | #16 black leadwire |
| HHD | Black | 1-30 | #12 yellow leadwire |
| HHF | Black w/ cover | 1-20 | #16 yellow leadwire |
| HHG | Black w/ cover | 1-30 | #12 yellow leadwire |
| ATC-FHID | Indicating Holder Black w/ cover | 1-20 | #16 black leadwire |

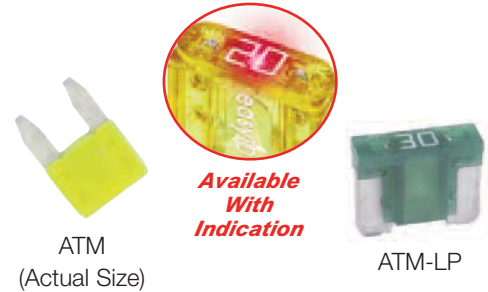
A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

HHC & HHD Dimensions - in



Data Sheet: 2107

ATM Fuse



Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

- Volts — 32Vdc
- Amps — 2-30A
- IR — 1000A

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

| Non-Indicating | *Indicating | Low-Profile | Color |
|----------------|-------------|-------------|--------|
| ATM-2 | | | Gray |
| ATM-3 | ATM-3ID | | Violet |
| ATM-4 | | | Pink |
| ATM-5 | ATM-5ID | ATM-5LP | Tan |
| ATM-7-1/2 | ATM-7-1/2ID | ATM-7-1/2LP | Brown |
| ATM-10 | ATM-10ID | ATM-10LP | Red |
| ATM-15 | ATM-15ID | ATM-15LP | Blue |
| ATM-20 | ATM-20ID | ATM-20LP | Yellow |
| ATM-25 | ATM-25ID | ATM-25LP | Clear |
| ATM-30 | ATM-30ID | ATM-30LP | Green |

*Call Bussmann Customer Satisfaction for ordering information.

Data Sheet: 2048

Data Sheet: 2009

Automotive Blade-type Fuses & Holders

HHL, HHM & ATM-FHID



Specifications

Description: In-line fuse holders for ATM Fuses.

Ratings:

Volts: — 32Vdc

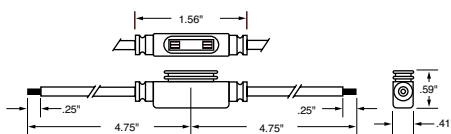
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

| Catalog Numbers | Fuse Holder Description | Fuse Amps | Electrical Connection |
|-----------------|-------------------------------------|-----------|--|
| HHL | Black w/ cover | 2-20 | #16 black leadwire, 4" length stripped to 1/4" |
| HHM | Black w/ cover | 2-30 | #12 red leadwire, 4" length stripped to 1/4" |
| ATM-FHID | Indicating Holder Black w/ cover | 2-20 | #16 black leadwire |

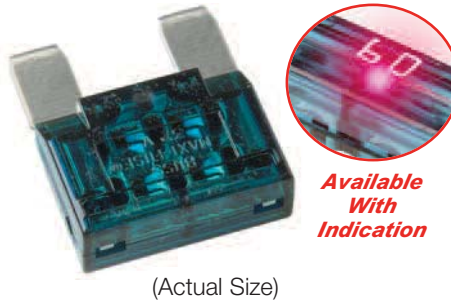
A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

HHL & HHM Dimensions - in



Data Sheet: 2128

MAX Maxi-Fuse



Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc

Amps — 20-80A (non-indicating)
20-100A (indicating)

IR — 1000A

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

| Non-Indicating | *Indicating | Color |
|----------------|-------------|--------|
| MAX-20 | MAX-20ID | Yellow |
| MAX-25 | | Gray |
| MAX-30 | MAX-30ID | Green |
| MAX-35 | | Brown |
| MAX-40 | MAX-40ID | Orange |
| MAX-50 | MAX-50ID | Red |
| MAX-60 | MAX-60ID | Blue |
| MAX-70 | MAX-70ID | Tan |
| MAX-80 | MAX-80ID | Clear |
| | MAX-100ID | Purple |

*Call Bussmann Customer Satisfaction for ordering information.

Recommended in-line fuse holder for blade type fuses

- Page 83

Data Sheet: 2049

HHX



Specifications

Description: In-line fuse holders for MAXI Fuses.

Ratings:

Volts: — 32Vdc

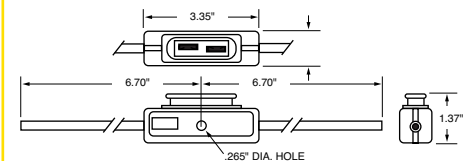
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

| Catalog Numbers | Fuse Holder Description | Fuse Amps | Electrical Connection |
|-----------------|-------------------------|-----------|-------------------------------------|
| HHX | Black w/ cover | 20-60 | #6 red leadwire, 5" with blunt ends |

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

Dimensions - in



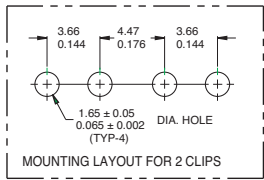
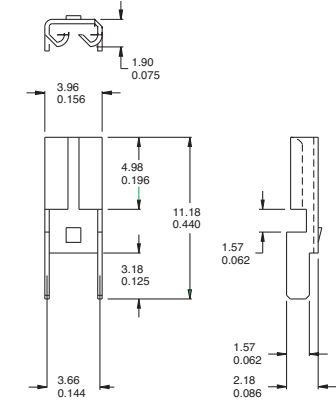
Data Sheet: 2129

Low Voltage Supplementary Fuses

Automotive Blade-type PCB Fuseclips

ATM Fuses 1A5778 Series

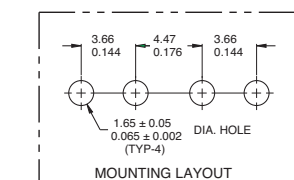
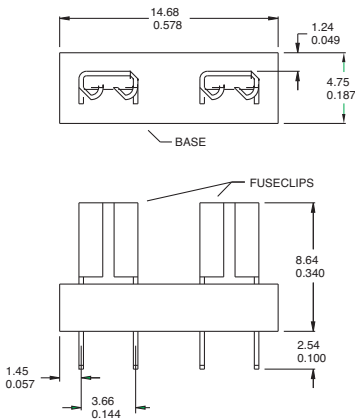
Dimensional Data



MATERIAL: BRASS, NICKEL PLATED, 0.30, 0.012 THICK

Data Sheet: 2131

1A5779 Series



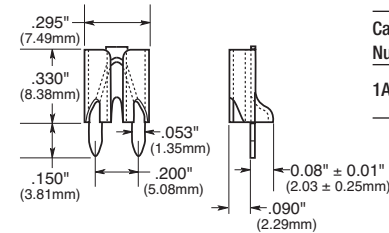
SPECIFICATIONS

| | |
|--------------------|------------------------------------|
| FUSECLIPS | BRASS, NICKEL PLATED |
| BASE MATERIAL | GLASS FILLED NYLON, UL RATED 94V-0 |
| CURRENT RATING | 15 AMPS |
| VOLTAGE RATING | 500V AC |
| TEMPERATURE RATING | -50°C TO 145°C -58°F TO 292°F |

Data Sheet: 2131

ATC Fuses (0 to 20 Amps) 1A5600 Series

Dimensional Data



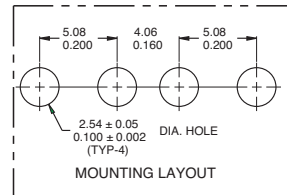
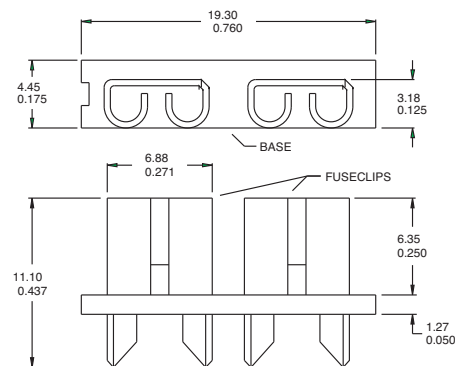
| Catalog Number | Clip Mat.* | Finish |
|----------------|-------------|------------------|
| 1A5600 | Cart. Brass | Satin Finish Tin |



Data Sheet: 2131

1A5780 Series

Dimensional Data



SPECIFICATIONS

| | |
|--------------------|------------------------------------|
| FUSECLIPS | BRASS, NICKEL PLATED |
| BASE MATERIAL | GLASS FILLED NYLON, UL RATED 94V-0 |
| CURRENT RATING | 15 AMPS |
| VOLTAGE RATING | 500V AC |
| TEMPERATURE RATING | -50°C TO 145°C -58°F TO 292°F |

*Spg. Br. - Spring Bronze; BeCu - Beryllium Copper; Cart. Brass - Cartridge Brass

***For RoHS compliant version add "-R" option code suffix to part number.

Data Sheet: 2131