

# Low Voltage Supplementary Fuses

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RED indicates NEW information



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Low Voltage  
Supplementary  
Fuses

# Holders & Blocks for Low Voltage Supplementary Fuses

## Limiters

Catalog Number	Volts	Page
K Series	600V	74
68000 Series	600V	74
64000 Series	600V	74
ANN Fast acting limiter	125Vac/80Vdc	79
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## Holders

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## Blocks

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- Blocks for 4164 & 4164-FR . . . . .79



## 1 1/2" X 1 1/2" Fuses

Catalog Number	Volts	Page
BAF	250V	75
KTK	600V	75
KLM	600Vac/dc	75
FNM	250V	76
FNQ	500V	76

## Holders

- OPM-NG-SC3 3-pole, panel/DIN-Rail mount . . . . .286
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- NDNF1-WH Fuse holding rail mount terminal block . . . . .327

## Blocks

- BM Series, panel/DIN-Rail with adapters . . . . .310
- 3723, 3742 and 3743 multi-pole add-on fuse blocks . . . . .326



## Holders & Blocks for Low Voltage Supplementary Fuses

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

Catalog Numbers	Volts	Page
BBS	600V	77

#### Holder

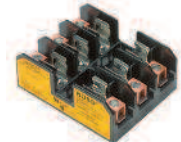
- HPS-L Panel mount holder . . . . .322

#### Blocks

- BM Series, panel/DIN rail with adapters . . . . .310
- 3723, 3742 and 3743 multi-pole add-on fuse blocks . . . . .326



HPS-L



BM Series

### Pin Indicating Fuses

1/4" X 1 1/4" Fuse Catalog Numbers	Volts	Page
GBA 1/4" X 1 1/4"	125V	78
GLD 1/4" X 1 1/4"	125V	78
MIC 1 3/32" X 1 1/2"	250V	78
MIN 1 3/32" X 1 1/2"	250V	78
FNA 1 3/32" X 1 1/2"	250V	78
MIS 1 3/32" X 2"	600V	79
KAZ 1 3/32" X 2"	600V	79



HLD



HK Series

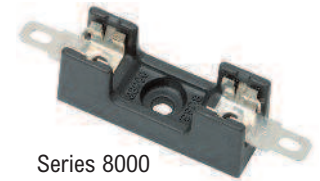
#### Holders

- 1/4" X 1 1/4": HLD Panel mount visual indication . . . . .321
- 1/4" X 1 1/4": HK Series Panel mount lamp indicating . . . . .321

#### Blocks

- 1/4" X 1 1/4": Series 8000 for visual indication . . . . .324
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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

### Automotive Blade-type Fuses

Catalog Numbers	Volts	Page
ATC	32Vdc	82
ATM	32Vdc	82
MAX	32Vdc	83

#### Holders

- ATC: HHC, HHD, HHF, HHG & ATC-FHID In-line holders . . . . .82
- ATM: HHL, HHM & ATM-FHID In-line holders . . . . .83
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easyID™  
Illuminating Holders

HHC, HHD, HHF  
& HHG

HHL & HHM

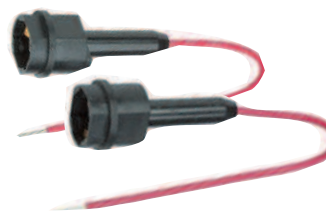
HHX

### In-Line Rejecting and Non-Rejecting Fuses

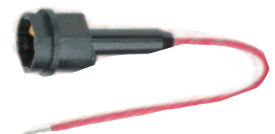
Catalog Number	Volts	Page
GLQ rejecting fuse	300V	80
GMQ rejecting fuse	300V	80
GLR non-rejecting fuse	300V	81
GMF non-rejecting fuse	300V	81
GRF non-rejecting fuse	300V	81

#### Holders

- GLQ & GMQ: HLQ Rejection holder . . . . .80
- GLR, GMF & GRF: HLR & HLR-2A non-rejection holders . . . . .81



HLQ³ Fuse Holders



HLR Fuse Holder

Low Voltage  
Supplementary  
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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.

### 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 <sup>1,2</sup>	350 MCM
KCB	#1	KCM <sup>1,2,3</sup> , KCM-B <sup>1</sup>	500 MCM
KCC	1/0	KCV	600 MCM
KCD <sup>1,2</sup>	2/0	KCR <sup>1,2</sup>	750 MCM
KCE	3/0	KCS	1000 MCM

#### Tubular Terminal and Offset Bolt-Type Terminal

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

#### Compression Connector Rod and Tubular Terminals

KEX	4/0	KQO	350 MCM
KFH-A	250 MCM	KDT <sup>1</sup>	500 MCM

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

KPF	4/0	KDP <sup>1</sup>	500 MCM
KFT <sup>1</sup>	250 MCM	KFM <sup>1</sup>	750 MCM
KEW <sup>1</sup>	350 MCM		

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

<sup>2</sup>Available with shrink tube “\_V” suffix.

<sup>3</sup>Available 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

## 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

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<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" Time-delay Fuses

### FNM

#### Specifications

**Class:** Supplemental

**Description:** Time-delay supplementary fuse.

**Dimensions:** 1<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" (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-1-1/10	FNM-3-1/2	FNM-7	FNM-25
FNM-1/10	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<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" (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-1/10	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-9/10	FNQ-2-1/4	FNQ-5	FNQ-10	
FNQ-1/10	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-1/10	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<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" 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<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" 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- $\frac{3}{10}$	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:** 1/4" x 1 1/4"  
(6.6 x 31.7mm) 3AG.

**Ratings:**

Volts — See Agency Info below

Amps — 1/2-15A

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-1/2	GLD-2	GLD-6
GLD-3/4	GLD-3	GLD-10
GLD-1	GLD-4	GLD-12
GLD-1-1/2	GLD-5	GLD-15

**GBA Catalog Numbers (Amps)**

GBA-1/2	GBA-2	GBA-8
GBA-3/4	GBA-3	GBA-10
GBA-1	GBA-4	GBA-15
GBA-1-1/2	GBA-5	

**Recommended fuse blocks/fuse holders for 1/4" x 1 1/4" indicating fuses**

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**Data Sheet: 2012**

## MIC & MIN

**Specifications**

**Class:** Supplemental

**Description:** Fast-acting, pin indication fuse.

**Dimensions:** 1 3/32" x 1 1/2"  
(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 3/32" x 1 1/2" indicating fuses**

- Page 73

**Data Sheet: 2047**

## FNA

**Specifications**

**Class:** Supplemental

**Description:** Time-delay, pin indication fuse.

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

**Ratings:**

Volts — 250Vac (1/10-3/10A)  
— 125Vac (1-15A)  
— 32Vac (20-30A)

Amps — 1/10-30A

IR — 35A (1/10-3/10A @ 250Vac)  
— 10kA (1/10-15A @ 125Vac)  
— 1kA (20-30A @ 32V)

**Agency Information:** CE, Std. 248-14, UL Listed 1/10-3/10A, IR 35A@ 250V, IR 10kA@ 125V, 1-15A, IR 10kA@ 125V, Guide JDYX, File 19180, CSA Certified, 0-3/10A/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-1/10	FNA-3/10	FNA-2-1/2	FNA-6-1/4
FNA-1/8	FNA-1	FNA-2-3/10	FNA-7
FNA-1-1/100	FNA-1-1/8	FNA-3	FNA-8
FNA-2/10	FNA-1-1/4	FNA-3-2/10	FNA-9
FNA-1/4	FNA-1-1/10	FNA-3-1/2	FNA-10
FNA-3/10	FNA-1-1/2	FNA-4	FNA-12*
FNA-2/10	FNA-1-3/10	FNA-4-1/2	FNA-15*
FNA-1/2	FNA-1-3/10	FNA-5	FNA-20*
FNA-3/10	FNA-2	FNA-5-3/10	FNA-25*
FNA-3/4	FNA-2-1/4	FNA-6	FNA-30

\*12-30A versions are dual-tube construction

**Recommended signal block for**

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

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**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:** 7/8" 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**

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## 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

## 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



**Catalog Numbers (Amps) and Rejection Holders**

Fuse	Holder <sup>1, 2</sup>	Fuse	Holder <sup>1, 2</sup>
GLQ-1	HLQ-1- $\frac{3}{10}$	GLQ-3	HLQ-3- $\frac{3}{10}$
GLQ-1- $\frac{1}{2}$	HLQ-1- $\frac{9}{10}$	GLQ-4	HLQ-5
GLQ-1- $\frac{9}{10}$	HLQ-1- $\frac{9}{10}$	GLQ-5	HLQ-5
GLQ-2	HLQ-3- $\frac{3}{10}$	GLQ-9	HLQ-10
GLQ-2- $\frac{1}{2}$	HLQ-3- $\frac{3}{10}$	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

### GMQ

**Specifications**

**Class:** Supplemental

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

**Construction:** Ceramic tube.

**Ratings:**

Volts — 300Vac (or less)

Amps —  $\frac{1}{2}$ -6 $\frac{3}{4}$ A

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	Holders <sup>1, 2</sup>	Fuse	Holders <sup>3, 4</sup>
GMQ- $\frac{1}{2}$	HLQ- $\frac{1}{2}$	GMQ-2- $\frac{1}{2}$	HLQ-3- $\frac{3}{10}$
GMQ- $\frac{9}{10}$	HLQ-1- $\frac{9}{10}$	GMQ-3	HLQ-3- $\frac{3}{10}$
GMQ- $\frac{3}{10}$	HLQ-1- $\frac{9}{10}$	GMQ-3- $\frac{3}{10}$	HLQ-3- $\frac{3}{10}$
GMQ-1	HLQ-1- $\frac{9}{10}$	GMQ-4	HLQ-5
GMQ-1- $\frac{1}{4}$	HLQ-1- $\frac{9}{10}$	GMQ-6	HLQ-8
GMQ-1- $\frac{9}{10}$	HLQ-1- $\frac{9}{10}$	GMQ-6- $\frac{1}{4}$	
GMQ-2	HLQ-3- $\frac{3}{10}$		

- 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: 2030



**HLQ<sup>3</sup> 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 <sup>1, 2*</sup>	Fuse	Holder <sup>1, 2*</sup>
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		

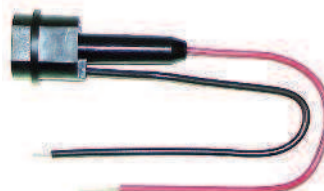
1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

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 <sup>1, 2*</sup>	Fuse	Holder <sup>1, 2*</sup>
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

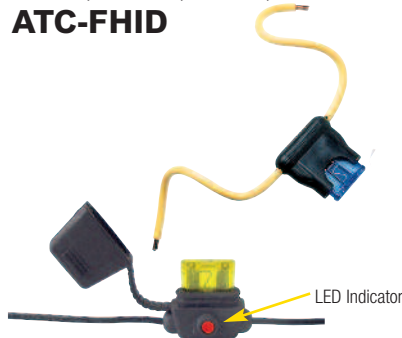
- Automotive

### 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:

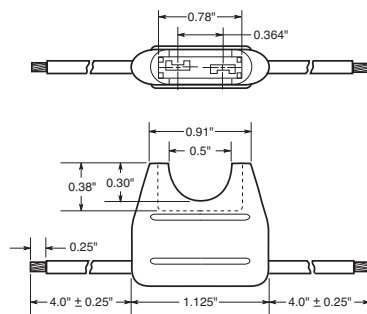
- Volts: — 32Vdc
- Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

### 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

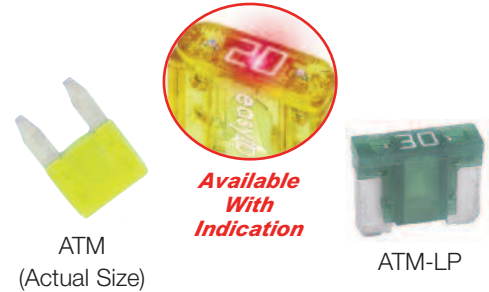
A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

### 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

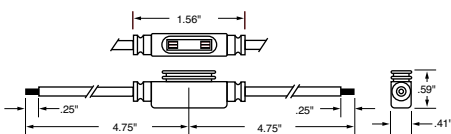
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

### Catalog Numbers

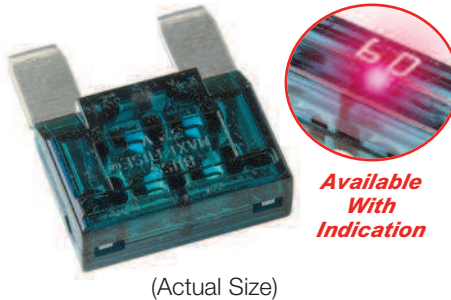
Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHL	Black w/ cover	2-20	#16 black leadwire, 4" length stripped to 1/4"
HHM	Black w/ cover	2-30	#12 red leadwire, 4" length stripped to 1/4"
ATM-FHID	Indicating Holder Black w/ cover	2-20	#16 black leadwire

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



## 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

## HHX



### Specifications

**Description:** In-line fuse holders for MAXI Fuses.

### Ratings:

Volts: — 32Vdc

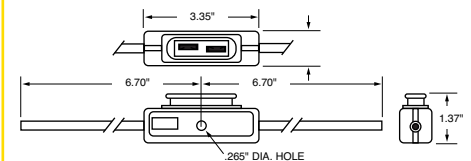
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

### 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

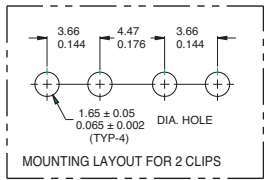
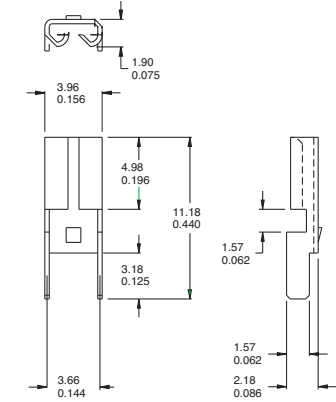


Low Voltage  
Supplementary  
Fuses

# Automotive Blade-type PCB Fuseclips

## ATM Fuses 1A5778 Series

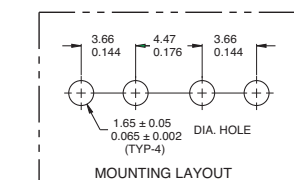
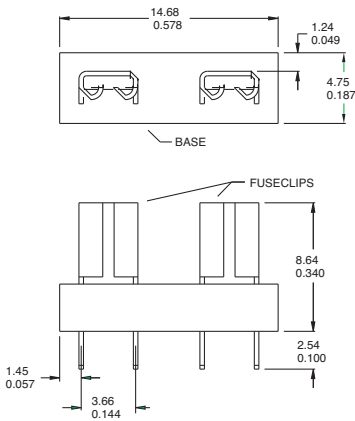
### Dimensional Data



MATERIAL: BRASS, NICKEL PLATED, 0.30/0.012 THICK

### Data Sheet: 2131

## 1A5779 Series



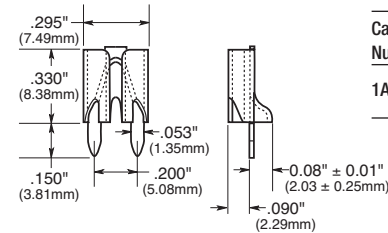
### SPECIFICATIONS

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

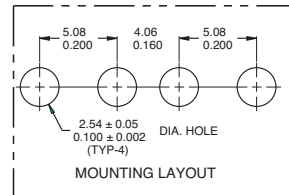
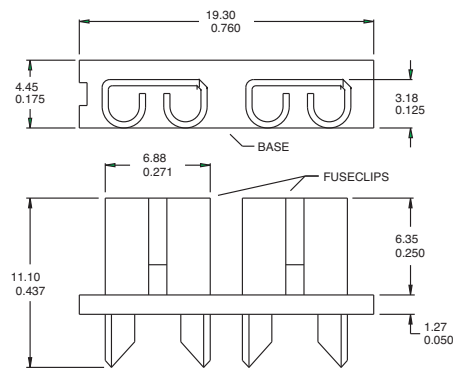


Catalog Number	Clip Mat.*	Finish
1A5600	Cart. Brass	Satin Finish Tin

### 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