



AUTOMOTIVE AFTERMARKET CIRCUIT PROTECTION CATALOG



**Genuine OEM Circuit Protection Products** 

# **Circuit Protection Today**

# An overview of today's fuse market . . .

- New vehicles contain 90 to 150 fuses throughout the vehicle in 3 to 4 different fuse blocks. For example, the BMW 750i uses over 150 fuses.
- High amperage products MAXI, MEGA, MIDI, and ZCASE fuses
   — make up 1 out of every 5 fuses in new vehicles.
- The past decade has produced more automotive circuit protection devices than the entire history of the industry.
- Fuse and circuit breaker applications have grown by 400% in the past 10 years.
- Glass fuses have not been used as a primary original equipment circuit protection device since 1981. Unit movement has been steadily declining, although glass fuses are used in many accessory applications.

Littelfuse partners with every major automotive and heavy-duty OEM. That is why more than 95% of domestic and 70% of foreign new vehicles contain Littelfuse fuses. (Your customers and installers will have a Littelfuse fuse in their hand when they need a source to replace a fuse.) Littelfuse has introduced every new fuse in the industry for the past three decades, starting with the ATO blade fuse. Littelfuse holds more than 130 patents on circuit protection devices, more than all the other fuse manufacturers in the world combined. Other fuse manufacturers are licensed by Littelfuse to utilize its product designs and trademarks.

# What is Driving the Circuit Protection Market?

The Circuit Protection market is experiencing accelerated growth caused by a combination of powerful forces driving the market. There has never been a better time to invest in the distribution of the Circuit Protection category.

- One Wire One Fuse Protection Trend: Auto manufacturers are moving towards protecting every wire in the vehicle.
- More Power Consumption: Vehicles are consuming power at higher amperages than ever before, and manufacturers are now protecting high amp applications, such as the alternator, with MEGA, MIDI, MAXI and ZCASE fuses.
- Space & Weight Efficiency: As vehicle designs get more complex, fuses must get smaller so more fuses can fit in the same amount of space.
- Greater Diversity of Fuses: Vehicles contain more fuses than ever before, so Aftermarket Customers and Installers are requiring a greater variety of circuit protection devices in their displays, assortments and merchandisers.
- More On-Board Electronics: Auto manufacturers and Aftermarket suppliers are offering a broader range of on-board components like cellular phones, DVD players, WI-FI, Bluetooth, navigation, alarm systems and remote starters which require circuit protection for installation and replacement.

- New Market Niches: The increased demand in circuit protection is offering current channels of distribution new marketing opportunities in the Fast Lube, Warehouse Club and Electrical Accessories Installer channels or any outlet stocking electrical replacement parts.
- Longer Vehicle Life: The life expectancy of cars is increasing to 20+ years. This results in more miles driven and wiring that is aging, leading to more blown fuses that need to be replaced.
- Easier Access to Fuse Blocks: Auto manufacturers have moved fuse blocks into the passenger compartments, e.g. glove box, dashboard and trunk, making it easier for DIY replacement.
   Fuseblocks are also better marked for easier identification of the proper circuit.
- Infotainment: The increasing use of video and other new electronics in vehicles have challenged designers to protect even more sensitive automotive electronics. New technologies in circuit protection and fuse box design eliminate transient surges that can damage vehicle equipment.

# **The Future of Circuit Protection**

Littelfuse's new product development process is based on practical innovations designed around the needs of the customer. The circuit protection products of the future will offer greater features to protect increasingly complex electrical systems, meet the booming demand for on-board electronics and make the Circuit Protection category a continuously stronger part of the Automotive Aftermarket.

Here is a glimpse of Littelfuse's vision of circuit protection for tomorrow . . .

- Fuse count per vehicle to grow each year.
- Increased need for higher amp protection with MCASE and bolton devices like MEGA and MIDI fuses.
- Greater need for a broader range of fuse blocks and fuseholders, testers and pullers, fuse kits and assortments and creative merchandising systems.

- Greater need for more technical training materials, point of sale education support and more reliable application data.
- More compact fuses such as MINI, Micro and electronic surface mount fuses.
- Smart circuit protection the vehicle will tell you what fuse needs to be replaced and its location.
- Special circuit protection products designed for electric and alternative fuel vehicles.
- Modular electrical systems that require modular fuseblocks in locations throughout the vehicle like the quarter panels, fender wells, door panels, etc.

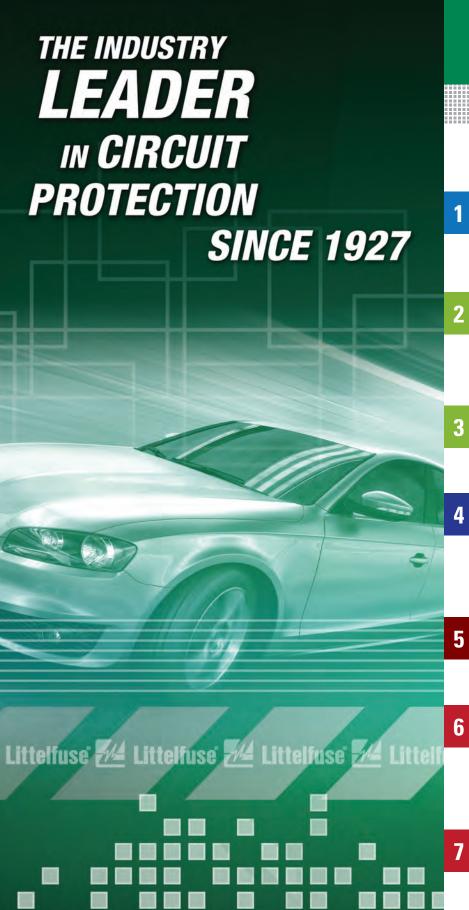


# **A History of Littelfuse Automotive Firsts**

For more than 75 years, Littelfuse has been the Circuit Protection manufacturer to achieve the automotive industry's most significant accomplishments, beginning in 1927 by inventing electronic circuit protection technology with the first small fast-acting protective fuse.

- 1930 Automotive fuse introduced by Littelfuse.
- 1950 Littelfuse develops design of industry's first centralized under dash fuseblock.
- **1976** ATO® blade fuse revolutionizes automotive circuit protection.
- 1978 Introduced Value Pak Emergency Fuse Kits offering 8–10 fuses with fuse puller.
- 1983 Littelfuse begins battle with fuse counterfeiters and helps establish a Federal exclusion order prohibiting the importation of look-alike fuses into the United States.
- 1986 U.S. Auto Industry selects the MAXI fuse to replace the commonly used high amp fusible wire and fusible links in under-the-hood electrical harnesses.
- 1987 Littelfuse expands high amp coverage with reliable new line of PAL Auto Links for complete Japanese coverage.
- 1988 Littelfuse develops the ATO® style diode assembly to control surge voltages caused by electromagnetic components.
- 1991 High amp protection MEGA® fuse introduced as the first OEM and Aftermarket fuse rated up to 250 amps.
- 1993 The MINI® diode is introduced to perform omni-directional blocking of current flow in automotive applications.
- 1993 The ATO® resistor assembly is released to adjust and suppress excess voltage in sensitive automotive circuits.
- 1993 Littelfuse becomes the first circuit protection manufacturer to receive ISO 9000 certification.
- 1994 Littelfuse partners with Chrysler and BMW to design and patent the MIDI® fuse for specific applications.
- 1994 MIDI® compact bolt-down automotive fuse introduced for European high amp applications.
- 1995 The MINI® resistor joins the Littelfuse line of Automotive products.
- 1995 Littelfuse introduced Circuit Alert a blown fuse indicating device for ATO® fuses.
- **1995** Add-A-Circuit fuseholder introduced as new way to add an additional circuit without cutting or splicing.
- 1996 Littelfuse became first circuit protection manufacturer to receive QS 9000 certification.
- **1997** JCASE introduced as compact version of MAXI Fuse for domestic autos beginning in 1998.

- 1997 Littelfuse celebrates 70 years of quality circuit protection innovation.
- 1999 Littelfuse acquires Harris Suppression and its overvoltage technology to compliment it's overcurrent product lines.
- 2001 The patented CablePro® is introduced to replace fuse links in high-current, battery direct applications such as starters or alternators.
- 2002 Littelfuse acquires Semitron Industries, LTD and becomes the only company in the world that can supply all the major circuit protection technologies.
- 2004 Purchases majority ownership of Heinrich Industries AG, including WICKMANN, Pudenz and Efen, to expand European market for automotive and electronic circuit protection
- **2006** Acquires SMARTGLOW® fuse, the first indicated automotive blade type fuse.
- 2010 Opens the High Power Lab, located in Champaign, Illinois, providing customers with product design and specialized testing services.
- **2010** Acquires the Cole Hersee Company, a supplier of switches and control devices to the commercial vehicle market.
- 2012 Acquires ACCEL AB, located in Vänersborg, Sweden, a leading supplier and manufacturer of advanced electromechanical products and components, primarily for the automotive industry.
- 2012 Acquires Terra Power Systems, LLC, a Bellingham, WA based manufacturer of electrical distribution products for heavy-duty vehicle applications.
- 2013 Acquires Hamlin, Inc., of Lake Mills, WI. a leader in sensor technology providing product for teh automotive, electronics, and industrial markets.
- 2015 Acquires Sigmar, an Ozegna, Italy based manufacturer of water-in-fuel and AdBlue®/urea sensors and PTC heaters, solenoid valves and rotating oil filters for automotive and commercial vehicle applications.
- 2016 Acquires TE Connectivity's Circuit Protection Division (CPD) business, headquartered in Menlo Park, CA with manufacturing facilities in Shanghai and Kunshan, China and Tsukuba, Japan. It is a leader in polymer-based resettable circuit protection devices in the automotive, battery, industrial, communications and mobile computing markets.
- 2016 Acquires Menber's Corporation of Legnano, Italy, expanding our commercial vehicle presence and offering in Europe.





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LOW PROFILE MINI® FUSES
MICRO2 <sup>TM</sup> / MICRO3 <sup>TM</sup> FUSES11-12 Its sub-miniature design meets the need for more circuits to be protected while utilizing less space and its ability to cope with high temperatures in adverse environments makes the MICRO2 <sup>TM</sup> and MICRO3 <sup>TM</sup> Fuse the recommended choice for protection.
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The JCASE® is a cartridge style fuse with female terminal design. JCASE® provides both increased time delay and low voltage drop to protect high current circuits. JCASE® has the ability to handle inrush currents. The JCASE® was designed and patented by Littelfuse.
LOW PROFILE JCASE® FUSES

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Littelfuse products are designed for specific applications and should not be used for any purpose (including, without limitation, automotive applications) not expressly set forth in applicable Littelfuse documentation. Warranties granted by Littelfuse shall be deemed void for products used for any purpose not expressly set forth in applicable Littelfuse product documentation. Littelfuse shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Littelfuse as set forth in applicable Littelfuse product documentation.

Littelfuse.

"Diffusion Pill Technology". The MIDI® was designed and patented by

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# FUSEOLOGY

Understanding how circuit protection works is a key to diagnosing automotive electrical problems. When a fuse blows, that means the fuse is doing its job — sending you a message that something needs to be fixed.

### WHAT IS THE PURPOSE OF A FUSE?

A fuse is a safety valve. It is designed to stop current from exceeding the rating of the wires or components. Without fuses, excessive current could cause damage to electrical systems, and even result in

In general, a fuse has a simple construction. The key component is the "element" — a short piece of metal wire or strap.

# WHAT CAUSES A FUSE TO BLOW?

The element is designed to melt at a specific temperature, to protect wires and equipment from overcurrents. An overcurrent is any current that exceeds the amperage rating or wiring capacity of equipment or devices under normal conditions of use.



If an overcurrent causes the current in a circuit to rise above a specific level — often the circuit's rating — the heat produced will melt the fuse's element, causing the fuse to "blow." This opens the circuit and immediately stops the flow of current. Fuses are designed to blow at temperatures far below those that would cause damage or hazards.

Once a fuse is blown, it can be replaced to allow the current to flow again. But simply replacing a fuse may not be the solution to the problem. In fact, there is a chance the fuse will just blow again, because the fuse is signaling a problem in the system. Understanding the factors that cause a fuse to blow will help you diagnose automotive electrical problems.

There are two types of overcurrents that can cause a fuse to blow: overloads and short circuits.

### Overload

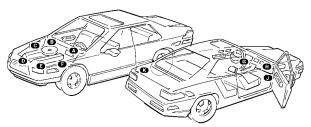
What: The current exceeds the amperage at which the wires or equipment are rated.

Why: Too many devices are connected to one circuit, or a device malfunctions and draws higher than its normal operating current. Sustained overloads cause overheating of circuit components and the fuse blows.

### **Short Circuit**

What: The current is out of its normal path.

Why: A malfunction creates an unintended path for electricity to flow from the battery or alternator to ground. This can be caused by the touching of any positive wire to a ground wire, e.g. due to frayed wire insulation, or tools laid across the positive and ground wires of a circuit. The uncontrolled current to ground then surpasses the normal resistance of the wire contained in the circuit, forcing higher and higher current to the point of the generating heat which blows the fuse.



Bold letter after fuse part number indicates fuse block location.

- Left fire wall
  - Right fire wall
  - Right fender
- Right front
- Left front Left fender
- Behind/under dash left Behind/in glove box
- Behind/under dash right
- Rear compartment
  - In-line with device protected (locations may vary from car to car, see your dealer.)

### **FINDING A FUSE**

To be able to address fuse issues, you first must be able to locate the appropriate fuse within the vehicle. In today's vehicles, each individual wire is protected by a circuit protection device.

Fuses are contained in fuse blocks located at various points throughout the vehicle. The diagram above illustrates typical fuse block locations. For further help finding a fuse, use the Littelfuse Automotive Fuse Guide, which lists a letter corresponding to the fuse location for every fuse application

# **SELECTING THE RIGHT FUSE**

Once you have found the fuse that has blown, and solved the problem in the vehicle, you must replace the blown fuse with an appropriate device.

When selecting the right fuse for replacement, you should consider the following:

### **Physical Type**

The replacement fuse must be of the same physical type as the blown fuse being replaced. It must be of the same style and have the same dimensions so that it can fit properly in the fuse block or fuseholder. Check your owner's manual to determine the appropriate fuse type.

Installation Tip: Littelfuse holds patents for the designs on most automotive fuses. It is important to remember that the physical type of the fuse is important, but it is not the only factor affecting the fuse's function. Although some fuses appear to be the same type and dimension as Littelfuse fuses, they do not necessarily have the same performance characteristics.

### Look for the Littelfuse OEM Label

To guarantee the same level of quality in circuit protection that the major automotive manufacturers of North America require for their original equipment fuses, look for the OEM seal on Littelfuse aftermarket products. Only Littelfuse products can guarantee this level of quality.



### **Beware of Counterfeit Fuses**

At first glance, it's hard to tell the difference between a genuine Littelfuse blade fuse and a counterfeit. The counterfeit may have the same physical dimensions, but using it can be dangerous because it fails to perform to the stringent performance and safety specifications developed by Littelfuse and the OEMs.

In many cases, the elements in counterfeit fuses do not correspond with the amperage specification stamped on the fuse. This will prevent the elements from opening at the rated or correct amperage, which could result in an auto fire causing serious damage to the vehicle, its contents and its passengers.

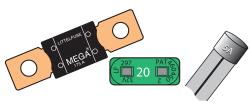
Responding to this growing problem, the United States International Trade Commission and then President Ronald Reagan issued and approved an exclusion order in 1983 prohibiting the importation of the look-alike blade fuses into the United States. This order was initiated because many of these fuses were proven to be totally unsafe. The photos shown here indicate why counterfeit fuses are potentially unsafe and present a fire risk.



To guarantee quality and safety, look for the Littelfuse name on fuses and fuse packaging.

### **Current Rating** — Amperage

The current rating, marked on every fuse, is the maximum current in amperes that the fuse can continuously carry under specified conditions.



**Tip:** When selecting a fuse, make sure the current rating of the fuse is the same amperage as the circuit. You can obtain the current rating of a circuit by looking in the owner's manual of the vehicle; checking to see if it is written on the fuse block; or consulting the Littelfuse Fuse Guide.

### Overfusing and Underfusing

**Overfusing** is when the fuse has a current rating higher than the rating of the circuit. In this case, the fuse will not be able to protect the circuit properly because the circuit could reach overcurrent levels, causing damage and safety hazards, before the fuse would blow.

**Underfusing** is when the fuse is rated at a current too far below the rating of the circuit. In this case the fuse will blow, even though the circuit is functioning normally without an overcurrent. Underfusing almost guarantees that a fuse will blow repeatedly. This is referred to as a nuisance blow.

### **Voltage Rating**

The voltage rating, marked on every fuse, indicates the maximum voltage at which the fuse is designed to operate safely if an overcurrent occurs.

**Tip:** The fuse voltage rating must equal to or exceed this circuit voltage where the fuse is installed. This is not a problem in fuse selection because automotive fuse applications are typically around 12 volts, while the voltage rating of the majority of Littelfuse automotive fuses — including ATO Fuse, MINI Fuse, MAXI Fuse and MEGA Fuse — is 32 volts.

### **ADDING A CIRCUIT**



Always use a circuit protection device with a fuseholder or fuse block whenever adding additional circuits to ensure optimal safety. The fastest, easiest option for installers who need to add a circuit for applications such as electronic components, is Littelfuse's Add-A-Circuit Fuseholder. Add-A-Circuit, available in ATO® and MINI® blade fuse versions, is designed to facilitate installation of fuses for accessories of 10 amps or less. The Add-A-Circuit adapts the fuse block to the installer's needs, quickly turning one slot in the fuse block into two, providing a safe, economical alternative to splicing or fusetaps.

Caution: Fusetaps are not a recommended alternative for adding circuits because they can overstress the terminals in the fuse block. This situation can create a loose fitting fuse, which in turn produces excessive heat, which can cause nuisance blows, even melting of the fuse and fuse block and possibly an expensive repair in the future. When a fusetap is used, in many cases there is no fuse protecting the new circuit, a condition which can also present a hazard.

Another alternative to adding a circuit is the Littelfuse Battery Power Feed. This device attaches directly to the battery terminal, allowing the addition of up to three circuits. Then use an in-line fuseholder to protect the circuit properly.



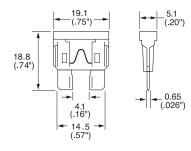


# ATO® (Autofuse®) Blade Fuse

Developed by Littelfuse for the automotive industry, the ATO® fuse has become the original equipment circuit protection standard for foreign and domestic automobiles and trucks. Readily identifiable and easily replaced, this fuse can be specified for a variety of low voltage electronic applications. It is currently found on most cars, trucks, buses and off the road vehicles worldwide. Features Littelfuse designed industry standard color coding to indicate

Voltage Rating Characteristics: 32V AC/DC Fast-Acting Approvals: UL listed, CSA certified 3-30A, SAE J1284.

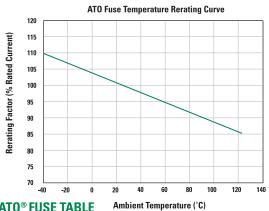
### **DIMENSIONS ATO®**



### **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time	Opening Time Min / Max (s)
100	35-40	360,000 s / -
110	1-30	360,000 s / -
135	1-2 3-40	350ms /600 s 0.750 s / 600 s
200	1-2 3-40	100 ms/5.0 s 0.150 s / 5.0 s
350	1-2 3-40	20 ms / 500 ms 80 ms / 500 ms
600	1-30 35-40	–/ 100 ms –/ 150 ms

# **TEMPERATURE RERATING CURVE**



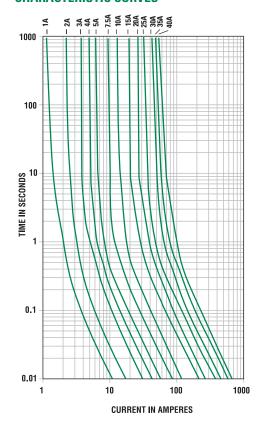
# **ATO® FUSE TABLE**

# **Plus Pack**

COLOR	R FS	BOXED		CARDED		CARDED
CODE	CURRENT RATING (A	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #	MATERIAL #
Black	1A	0AT0001.V	AT01	0AT0001.VP	AT01BP	0AT0001.ZXPR0
Gray	2A	0AT0002.V	AT02	0AT0002.VP	AT02BP	0ATO002.ZXPRO
Violet	3A	0AT0003.V	AT03	0AT0003.VP	AT03BP	0AT0003.ZXPR0
Pink	4A	0AT0004.V	AT04	0AT0004.VP	AT04BP	0AT0004.ZXPR0
Tan	5A	0AT0005.V	AT05	0AT0005.VP	AT05BP	0AT0005.ZXPR0
Brown	7.5A	0AT007.5V	AT07.5	0AT007.5VP	AT07.5BP	0AT007.5ZXPR0
Red	10A	0AT0010.V	AT010	0AT0010.VP	AT010BP	0AT0010.ZXPR0
Blue	15A	0AT0015.V	AT015	0AT0015.VP	AT015BP	0AT0015.ZXPR0
Yellow	20A	0AT0020.V	AT020	0AT0020.VP	AT020BP	0AT0020.ZXPR0
Clear	25A	0AT0025.V	AT025	0AT0025.VP	AT025BP	0AT0025.ZXPR0
Green	30A	0AT0030.V	AT030	0AT0030.VP	AT030BP	0AT0030.ZXPR0
Orange	40A	0AT0040.V	AT040	0AT0040.VP	AT040BP	



# **TIME-CURRENT CHARACTERISTIC CURVES**









# **ATO® Smart Glow Blade Fuse**

Smart Glow fuses are innovative automotive style fuses that feature an indicator light that glows when the fuse is blown, saving time to troubleshoot an open circuit.

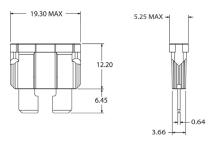
Interrupting Rating: 1000A @32VDC

Voltage Rating: 32 VDC

Operating Temperature Range: -40°C to +125°C

Terminals: Tin plated Zinc alloy

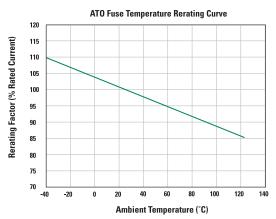
# **DIMENSIONS**



# **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time	Opening Time Min / Max (s)
100	35-40	360,000 s / -
110	1-30	360,000 s / -
135	1-2 3-40	350ms /600 s 0.750 s / 600 s
200	1-2 3-40	100 ms/5.0 s 0.150 s / 5.0 s
350	1-2 3-40	20 ms / 500 ms 80 ms / 500 ms
600	1-30 35-40	-/ 100 ms -/ 150 ms

# **TEMPERATURE RERATING CURVE**

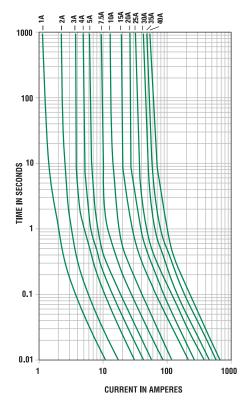


# **ATO® SMART GLOW FUSE TABLE**

COLOR	ΕÊ	CARDED	o	
CODE	CURRENT RATING (A)	WATERIAL #		
Black	1A			
Gray	2A			
Violet	3A	OAT0003.VPGL0	10-0003	
Pink	4A			
Tan	5A	OAT0005.VPGL0	10-1000	
Brown	7.5A	OAT007.5VPGL0	10-0007	
Red	10A	OAT0010.VPGL0	10-1001	
Blue	15A	OAT0015.VPGL0	10-1002	
Yellow	20A	OAT0020.VPGL0	10-1003	
Clear	25A	OAT0025.VPGLO	10-1004	
Green	30A	OAT0030.VPGL0	10-1005	
Orange	40A			



# TIME-CURRENT CHARACTERISTIC CURVES





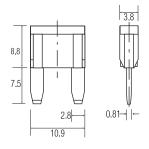


# MINI® Blade Fuse

The MINI® Fuse is quickly becoming the new standard for vehicle circuit protection. Its miniature design meets the need for more circuits to be protected while utilizing less space, and its ability to cope with high temperatures in adverse environments makes the MINI® Fuse the recommended choice for protection.

Voltage Rating Characteristics: 32V AC/DC Fast-Acting Approvals: UL listed, SAE J2077.

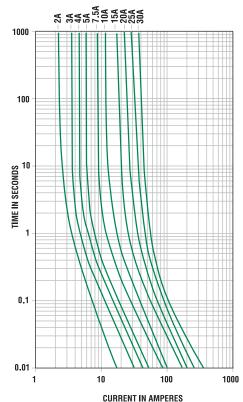
# **DIMENSIONS MINI®**



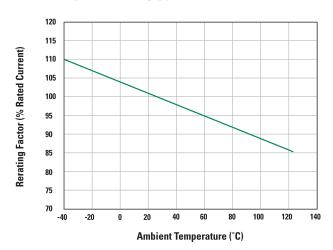
# **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time Min / Max (s)
110	360,000 s / -
135	0.75 s / 600 s
200	0.15 s / 5 s
350	0.080 s / 0.250 s
600	0.030 s / 0.100 s

# TIME-CURRENT CHARACTERISTIC CURVES



### **TEMPERATURE RERATING CURVE**



# **MINI® FUSE TABLE**

### Plus Pack

COLOR	F G	вохе	D	CARDED		CARDED
CODE	CURRENT RATING (A	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #	MATERIAL #
Gray	2A	0MIN002.V	MIN2	0MIN002.VP	MIN2BP	0MIN002.ZXPR0
Violet	3A	0MIN003.V	MIN3	0MIN003.VP	MIN3BP	0MIN003.ZXPR0
Pink	4A	0MIN004.V	MIN4	0MIN004.VP	MIN4BP	0MIN004.ZXPR0
Tan	5A	0MIN005.V	MIN5	0MIN005.VP	MIN5BP	0MIN005.ZXPR0
Brown	7.5A	0MIN07.5V	MIN7.5	0MIN07.5VP	MIN7.5BP	0MIN07.5ZXPR0
Red	10A	0MIN010.V	MIN10	0MIN010.VP	MIN10BP	0MIN010.ZXPR0
Blue	15A	0MIN015.V	MIN15	0MIN015.VP	MIN15BP	0MIN015.ZXPR0
Yellow	20A	0MIN020.V	MIN20	0MIN020.VP	MIN20BP	0MIN020.ZXPR0
Clear	25A	0MIN025.V	MIN25	0MIN025.VP	MIN25BP	0MIN025.ZXPR0
Green	30A	0MIN030.V	MIN30	0MIN030.VP	MIN30BP	0MIN030.ZXPR0











# **MINI®** Smart Glow Blade Fuse

Smart Glow fuses are innovative automotive style fuses that feature an indicator light that glows when the fuse is blown, saving time to troubleshoot an open circuit.

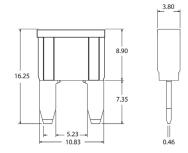
Interrupting Rating: 1000A @32VDC

Voltage Rating: 32 VDC

Operating Temperature Range: -40°C to +125°C

Terminals: Tin plated Zinc alloy

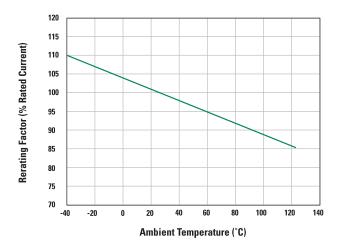
# **DIMENSIONS**



# **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time Min / Max (s)
110	360,000 s / -
135	0.75 s / 600 s
200	0.15 s / 5 s
350	0.080 s / 0.250 s
600	0.030 s / 0.100 s

### **TEMPERATURE RERATING CURVE**

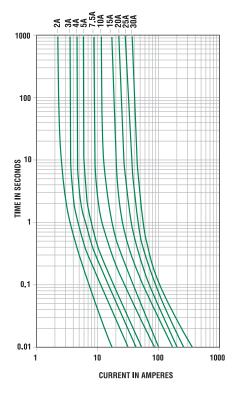


# MINI® FUSE TABLE

COLOR	F (§	CARDED	
CODE	CURREN RATING (	MATERIAL #	CATALOG #
Gray	2A		
Violet	3A	OMIN003.VPGLO	11-0003
Pink	4A		
Tan	5A	OMIN005.VPGLO	11-1000
Brown	7.5A	OMIN07.5VPGLO	11-0007
Red	10A	OMIN010.VPGL0	11-1001
Blue	15A	OMIN015.VPGLO	11-1002
Yellow	20A	OMIN020.VPGL0	11-1003
Clear	25A	OMIN025.VPGL0	11-1004
Green	30A	OMIN030.VPGLO	11-1005



# TIME-CURRENT CHARACTERISTIC CURVES







# **Low Profile MINI® Blade Fuse**

The Low Profile MINI® fuse is designed to mate with tuning-fork terminals, which provides additional weight and material savings in fuse box designs by eliminating the need for female box terminals.

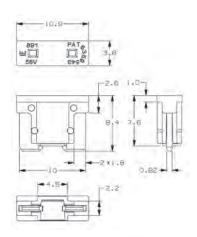
Voltage Rating: 58 VDC

Interrupting Rating: 1000A @ 58 VDC

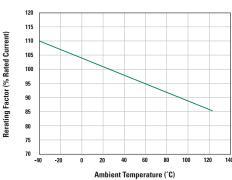
Operating Temperature Range: -40°C to +125°C

Terminals: either Ag or Sn plated zinc Housing Materials: Nylon composite

# **DIMENSIONS**



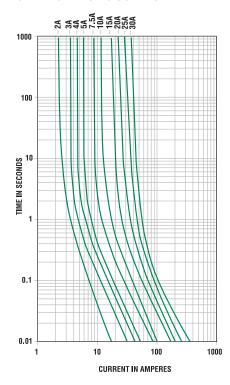
# **TEMPERATURE RERATING CURVE**



# **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time Min / Max (s)
110	360,000 s / –
135	0.750 s / 120 s
200	0.150 s / 5 s
350	0.080 s / 0.250 s
600	0.030 s / 0.100 s

# **TIME-CURRENT CHARACTERISTIC CURVES**







# **LOW PROFILE MINI® FUSE TABLE**

PI	us	Pa	ck
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COLOR	ΡÊ	вохі	D	CAR	DED	CARDED
CODE	CURRENT RATING (A)	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #	MATERIAL #
Gray	2A	LMIN002.V	LMIN2			
Tan	5A	LMIN005.V	LMIN5	LMIN005.VP	LMIN005BP	LMIN005.ZXPR0A
Brown	7.5A	LMIN07.5V	LMIN7.5			
Red	10A	LMIN010.V	LMIN10	LMIN010.VP	LMIN010BP	LMIN010.ZXPR0A
Blue	15A	LMIN015.V	LMIN15	LMIN015.VP	LMIN015BP	LMIN015.ZXPR0A
Yellow	20A	LMIN020.V	LMIN20	LMIN020.VP	LMIN020BP	LMIN020.ZXPR0A
Clear	25A	LMIN025.V	LMIN25	LMIN025.VP	LMIN025BP	LMIN025.ZXPR0A
Green	30A	LMIN030.V	LMIN30	LMIN030.VP	LMIN030BP	LMIN030.ZXPR0A







# MICRO2™ Blade Fuse

The MICRO2™ Fuse is the new standard for vehicle circuit protection. Its sub-miniature design meets the need for more circuits to be protected while utilizing less space and its ability to cope with high temperatures in adverse environments makes the MICRO2<sup>TM</sup> Fuse the recommended choice for protection.

Voltage Rating: 32 VDC

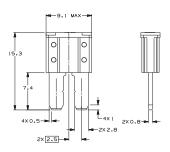
Interrupting Ratings: 1000A @ 32 VDC

Operating Temperature Range: -40°C to +125°C

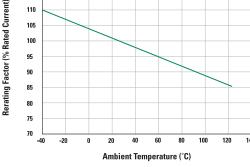
### **TEMPERATURE RERATING CURVE TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time Min / Max (s)
110	100 h / –
135	0.75 s / 120 s
160	0.30 s / 50 s
200	0.150 s / 5 s
350	0.04 s / 0.50 s
600	0.02 s / 0.100 s

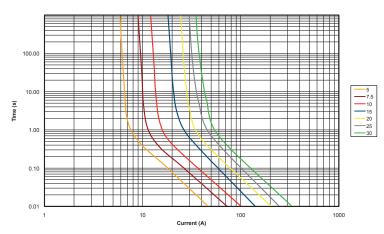
# **DIMENSIONS**



# 115 110 105 100



# **TIME-CURRENT CHARACTERISTIC CURVES**



# MICRO2™ FUSE TABLE

COLOR	F (g	BULK 4000 PC	BULK 500 PC	BULK 50 PC	BOXED 5 PC	CARDED 5 PC
CODE	CURRENT RATING (A)	MATERIAL #	MATERIAL #	MATERIAL #	MATERIAL #	MATERIAL #
Tan	5A	0327005.ZXS	0327005.UXS	0327005.LXS	MIC2005.V	MIC2005.VP
Brown	7.5A	032707.5ZXS	032707.5UXS	032707.5LXS	MIC207.5V	MIC207.5VP
Red	10A	0327010.ZXS	0327010.UXS	0327010.LXS	MIC2010.V	MIC2010.VP
Blue	15A	0327015.ZXS	0327015.UXS	0327015.LXS	MIC2015.V	MIC2015.VP
Yellow	20A	0327020.ZXS	0327020.UXS	0327020.LXS	MIC2020.V	MIC2020.VP
Clear	25A	0327025.ZXS	0327025.UXS	0327025.LXS	MIC2025.V	MIC2025.VP
Green	30A	0327030.ZXS	0327030.UXS	0327030.LXS	MIC2030.V	MIC2030.VP







# **MICRO3™** Blade Fuse

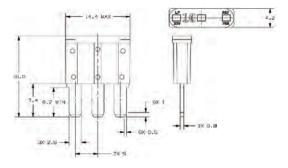
The MICRO3TM Fuse is the new standard for vehicle circuit protection. The MICRO3TM Fuse has 3 terminals and 2 fuse elements with a common center terminal. Its sub-miniature design meets the need for more circuits to be protected while utilizing less space and its ability to cope with high temperatures in adverse environments makes the MICRO3TM Fuse the recommended choice for protection.

Voltage Rating: 32 VDC

Interrupting Ratings: 1000A @ 32 VDC

Operating Temperature Range: -40°C to +125°C

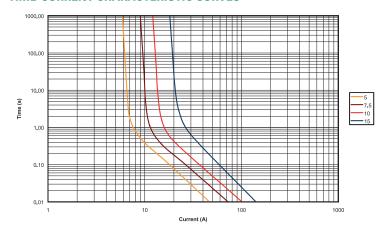
### **DIMENSIONS**



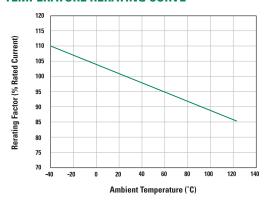
# **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time Min / Max (s)
110	100 h / –
135	0.75 s / 120 s
160	0.30 s / 50 s
200	0.150 s / 5 s
350	0.04 s / 0.50 s
600	0.02 s / 0.100 s

# **TIME-CURRENT CHARACTERISTIC CURVES**



# **TEMPERATURE RERATING CURVE**



# MICRO3™ FUSE TABLE

COLOR CODE	CURRENT RATING (A)	BULK 2000 PC MATERIAL #	BULK 50 PC MATERIAL #	BOXED 5 PC  MATERIAL  #	CARDED 5 PC MATERIAL #
Tan	5A	0337005.PXS	0337005.LXS	MIC3005.V	MIC3005.VP
Brown	7.5A	033707.5PXS	033707.5LXS	MIC307.5V	MIC307.5VP
Red	10A	0337010.PXS	0337010.LXS	MIC3010.V	MIC3010.VP
Blue	15A	0337015.PXS	0337015.LXS	MIC3015.V	MIC3015.VP





















# **MAXI Blade Fuse**

The MAXI fuse uses "Diffusion Pill Technology" to provide predictable time delay characteristic and low heat dissipation. MAXI Fuses are primarily used for under hood applications and are produced with a high temperature polymer and silver plated blades. They replace the commonly used fusible wire or fusible link to protect a high current segment or system of the wiring harness. Features Littelfuse designed industry standard color coding to indicate amp rating.

Voltage Rating: 32 VDC

Interrupting Ratings: 1000A @ 32 VDC

Operating Temperature Range: -40°C to +125°C

Terminals: Ag plated



# **MAXI Smart Glow Blade Fuse**

Smart Glow fuses are innovative automotive style fuses that feature an indicator light that glows when the fuse is blown, saving time to troubleshoot an open circuit.

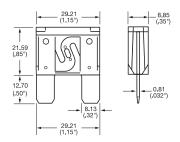
Voltage Rating: 32 VDC

Interrupting Ratings: 1000A @ 32 VDC

Operating Temperature Range: -40°C to +125°C

Terminals: Ag plated

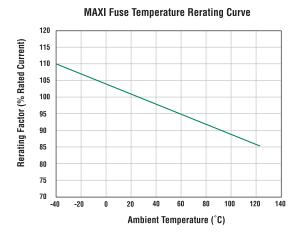
### **DIMENSIONS**



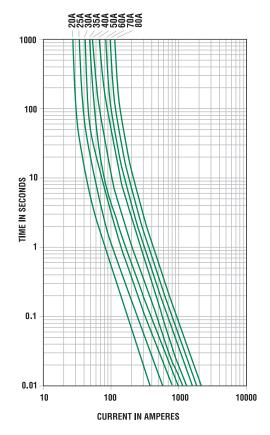
# **TIME-CURRENT CHARACTERISTICS**

% of Rating	Opening Time Min / Max (s)
110	360,000 s / -
135	60 s / 1,800 s
200	2 s / 60 s
350	0.20 s / 7 s
600	0.040 s / 1 s

# **TEMPERATURE RERATING CURVE**



# TIME-CURRENT CHARACTERISTIC CURVES





# **MAXI Blade Fuse**





# **MAXIFUSE TABLE**



COLOR	F G	вохе	D	CAR	DED	CARDED	
CODE	CURRENT RATING (A	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Yellow	20A	0MAX020.X	MAX20	0MAX020.XP	MAX20BP	0MAX020.XPGL0	30-1020
Green	30A	0MAX030.X	MAX30	0MAX030.XP	MAX30BP	0MAX030.XPGL0	30-1030
Orange	40A	0MAX040.X	MAX40	0MAX040.XP	MAX40BP	0MAX040.XPGL0	30-1040
Red	50A	0MAX050.X	MAX50	0MAX050.XP	MAX50BP	0MAX050.XPGL0	30-1050
Blue	60A	0MAX060.X	MAX60	0MAX060.XP	MAX60BP	0MAX060.XPGL0	30-1060
Tan	70A	0MAX070.X	MAX70			0MAX070.XPGL0	30-1070
Clear	80A	0MAX080.X	MAX80	0MAX080.XP	MAX80BP	0MAX080.XPGL0	30-1080
Purple	100A					0MAX100.XPGL0	30-1100



# **JCASE®** High Amp Fuse



The JCASE® is a cartridge style fuse with female terminal design. JCASE® provides both increased time delay and low voltage drop to protect high current circuits. JCASE® has the ability to handle inrush currents. Littlefuse patented high current fuse introduced in 1997 designed to replace the MAXI fuse and cartridge style fuses. Currently OEM on many new domestic and Japanese models. Smaller space saving footprint is being designed in by many OEM's. Patented technology provides both increased time delay and low voltage drop. Features ANSI standard OCR-A font for visual inspection systems, double spring-beam box terminal and unique secondary locking feature holds terminal firmly in place.

Voltage Rating Characteristics: 32V AC/DC Slo-Blo®

Interrupting Ratings: 1000A @ 32 VDC

Operating Temperature Range: -40°C to +125°C

Insertion Force: 53N max. (12lb) Extraction Force: 9N min. (2lb)

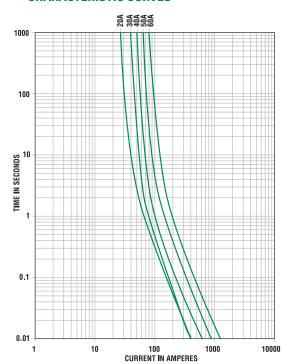
# **DIMENSIONS**

# 27.0 18.7 24.4 -10.0-

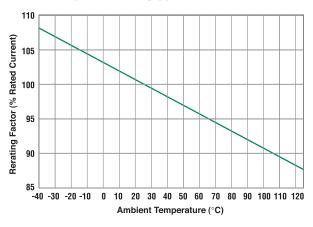
# **TIME-CURRENT CHARACTERISTICS**

	% of Rating	Opening Time Min / Max (s)
	100	360,000 s / -
	135	60 s / 1800 s
	200	4 s / 60 s
	350	0.200 s / 7 s
	600	0.040 s / 1 s

# TIME-CURRENT CHARACTERISTIC CURVES



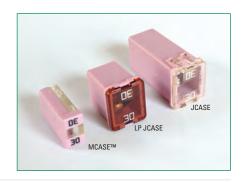
# **TEMPERATURE RERATING CURVE**



### JCASE® FUSE TABLE

COLOR	F (§	вохі	D	CARDED	
CODE	CURREN RATING (	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Blue	20A	JCAS020.X	JCAS20	JCAS020.XP	JCAS20BP
White	25A	JCAS025.X	JCAS25	JCAS025.XPA	JCAS25BP
Pink	30A	JCAS030.X	JCAS30	JCAS030.XP	JCAS30BP
Green	40A	JCAS040.X	JCAS40	JCAS040.XP	JCAS40BP
Red	50A	JCAS050.X	JCAS50	JCAS050.XP	JCAS50BP
Yellow	60A	JCAS060.X	JCAS60	JCAS060.XP	JCAS60BP









# Low Profile JCASE® Fuse

ORIGINAL EQUIPMENT MANUFACTURER



The Low Profile JCASE® fuse has similar performance characteristics as the standard JCASE® fuse. The lower overall height reduction allows for more space and weight savings and also allows for a shorter male blade terminal, saving additional weight and material in fuse box designs. Smaller space saving footprint is being designed in by many OEM's. Patented technology provides both increased time delay and low voltage drop. Features ANSI standard OCR-A font for visual inspection systems, double spring-beam box terminal and unique secondary locking feature holds terminal firmly in place.

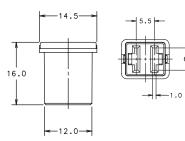
VVoltage Rating: 58 VDC

Interrupting Rating: 1000A @ 58 VDC

Operating Temperature Range: -40°C to + 125°C

Insertion Force: 53N Max. (12 lb.) Extraction Force: 9N Min (2 lb.)

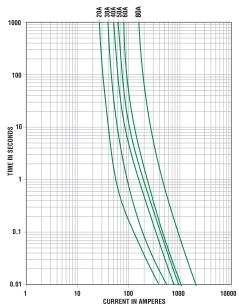
### **DIMENSIONS**



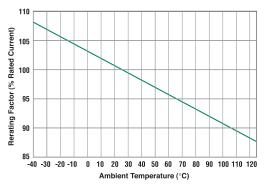
### **TIME-CURRENT CHARACTERISTICS**

	% of Rating	Opening Time Min / Max (s)
	100	360,000 s / -
	135	60 s / 1800 s
	200	4 s / 60 s
	350	0.200 s / 7 s
	600	0.040 s / 1 s

# TIME-CURRENT CHARACTERISTIC CURVES



# **TEMPERATURE RERATING CURVE**



# **LOW PROFILE JCASE® FUSE TABLE**

COLOR	F G	BOXED		CARDED	
CODE	CURRENT RATING (A	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Blue	20A	LJCA020.X	LJCA20	LJCA020.XP	LJCA20BP
White	25A	LJCA025.X	LJCA25	LJCA025.XPA	
Pink	30A	LJCA030.X	LJCA30	LJCA030.XP	LJCA30BP
Green	40A	LJCA040.X	LJCA40	LJCA040.XP	LJCA40BP
Red	50A	LJCA050.X	LJCA50	LJCA050.XP	LJCA50BP
Yellow	60A	LJCA060.X	LJCA60	LJCA060.XP	LJCA60BP









# MCASE+™ Fuse

The Unslotted MCASE+™ Fuse is a cartridge style fuse up to 40A with female terminals for 2.8 mm male terminals. The Slotted MCASE+™ Fuse is available in amperages up to 60A and can mate with larger male terminals (e.g., 6.3mm) or even mount directly to onto a busbar. It has a miniaturized footprint for optimal usage of space. It is a time delayed fuse and can handle inrush currents.

Voltage Rating: 32 VDC

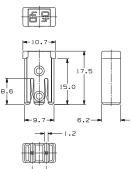
Interrupting Ratings: 1000A @ 32 VDC
Operating Temperature Range: -40°C to +125°C
Fuse Insertion Force: 50N (11.2lbf) Typical

Extraction Force: 4N Min. (0.9 lb). I 24.5N Max. (5.5 lb)



### **DIMENSIONS**

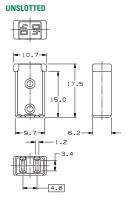
## SLOTTED

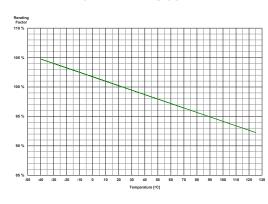


% of Rating	Opening Time Min / Max (s)
110	100 hrs / -
135	60 s / 1800 s
200	2 s / 60 s
350	0.2 s / 7 s
600	0.04 s / 1 s

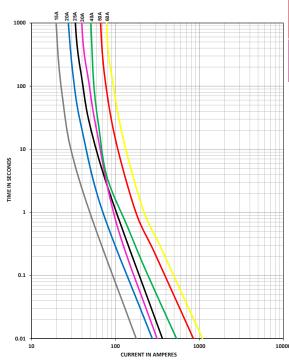
**TIME-CURRENT CHARACTERISTICS** 

# **TEMPERATURE RERATING CURVE**





# **TIME-CURRENT CHARACTERISTIC CURVES**



# MCASE+™ FUSE TABLE

	COLOR	F G	BULK 2000 PC	BULK 500 PC	BOXED 1 PC	CARDED
	CODE	CURRENT RATING (A)	MATERIAL #	MATERIAL #	MATERIAL #	MATERIAL #
	Gray	15A	0695015.PXP	0695015.U	MCAS015.X	MCAS015.XP
	Blue	20A	0695020.PXP	0695020.U	MCAS020.X	MCAS020.XP
,	White	25A	0695025.PXP	0695025.U	MCAS025.X	MCAS025.XP
	Pink	30A	0695030.PXP	0695030.U	MCAS030.X	MCAS030.XP
(	Green	40A	0695040.PXP	0695040.U	MCAS040.X	MCAS040.XP
	Red	50A	0695050.PXPS	0695050.U		
١	Yellow	60A	0695060.PXPS	0695060.U		









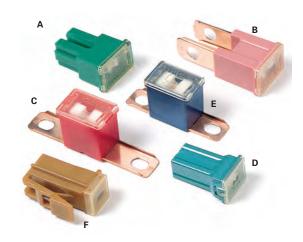






# **PAL Auto Link Fuses**

Commonly found on many Japanese and Domestic built vehicles in current ratings up to 140 amperes. Available with female connector, male connector, bent connector and locking female connector. Color coded to indicate amp rating.



# A. AUTO LINK PAL FEMALE TERMINAL

COLOR	F S	BOXED		CARDED	
CODE	CURRENT RATING (A	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Blue	20A	0PAL020.X	PAL020	0PAL020.XP	PAL020BP
Pink	30A	0PAL030.X	PAL030	0PAL030.XP	PAL030BP
Green	40A	0PAL040.X	PAL040	0PAL040.XP	PAL040BP
Red	50A	0PAL050.X	PAL050	0PAL050.XP	PAL050BP
Yellow	60A	0PAL060.X	PAL060	0PAL060.XP	PAL060BP

# **B. AUTO LINK PAL STRAIGHT MALE TERMINAL**

COLOR	₽€ BOX		ED	CARDED	
CODE	CURRENT RATING (A	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Pink	30A	0PAL130.X	PAL130	0PAL130.XP	PAL130BP
Yellow	60A	0PAL160.X	PAL160	0PAL160.XP	PAL160BP
Black	80A	0PAL180.X	PAL180	0PAL180.XP	PAL180BP
Blue	100A	0PAL1100X	PAL1100	0PAL1100XP	PAL1100BP
Gray	120A	0PAL1120X	PAL1120	0PAL1120XP	PAL1120BP







# C. AUTO LINK PAL 13/16" BENT MALE TERMINAL

COLOR	₽€	BOXED		CARDED	
CODE	CURRENT RATING (A)	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Pink	30A	0PAL230.X	PAL230	0PAL230.XP	PAL230BP
Green	40A	0PAL240.X	PAL240	0PAL240.XP	PAL240BP
Red	50A	0PAL250.X	PAL250	0PAL250.XP	PAL250BP
Yellow	60A	0PAL260.X	PAL260	0PAL260.XP	PAL260BP
Brown	70A	0PAL270.X	PAL270	0PAL270.XP	PAL270BP
Black	80A	0PAL280.X	PAL280	0PAL280.XP	PAL280BP
Blue	100A	0PAL2100X	PAL2100	0PAL2100XP	PAL2100BP
Gray	120A	0PAL2120X	PAL2120	0PAL2120XP	PAL2120BP
Purple	140A			0PAL2140XP	PAL2140BP

# D. AUTO LINK PAL MINI FEMALE TERMINAL

coron 투종		BOXED		CARDED	
COLOR	CURRE	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Pink	30A	0PAL330.X	PAL330	0PAL330.XP	PAL330BP
Green	40A	0PAL340.X	PAL340	0PAL340.XP	PAL340BP

# E. AUTO LINK PAL 9/16" BENT MALE TERMINAL

COLOR	N (A)	BOXED		CARDED	
CODE	CURRENT RATING (A)	MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Pink	30A	0PAL430.X	PAL430	0PAL430.XP	PAL430BP
Green	40A	0PAL440.X	PAL440	0PAL440.XP	PAL440BP
Red	50A	0PAL450.X	PAL450	0PAL450.XP	PAL450BP
Black	80A	0PAL480.X	PAL480	0PAL480.XP	PAL480BP
Blue	100A	0PAL4100X	PAL4100	0PAL4100XP	PAL4100BP
White	120A			0PAL4120XP	PAL4120BP
Purple	140A			0PAL4140XP	PAL4140BP

# F. AUTO LINK PAL LOCKING FEMALE TERMINAL

COLO	₹ ¥ €	вох	ED	CAR	DED
CODE		MATERIAL #	CATALOG #	MATERIAL #	CATALOG #
Browi	25A	0PAL525.X	PAL525	0PAL525.XP	PAL525BP
Green	30A	0PAL530.X	PAL530	0PAL530.XP	PAL530BP





# **GLASS** Fuses

AG and SFE fuses were designed into North American vehicles prior to 1981. Glass fuses are also used for auto accessory applications.

# **AG Fuses**

Originally stood for "all glass." The automotive industry uses the "AG" prefix (AGC, AGW) for most glass fuses. They vary in length, diameter and amperage rating.

Voltage Rating: 32V AC/DC 250V may be substituted



ROXED

# **SFE Fuses**

Glass fuses designed to specifications set by the Society of Fuse Engineers. All are 1/4 inch in diameter, but vary in length according to the ampere rating to ensure accurate fuse replacement.

CARDED

Voltage Rating: 32V AC/DC 250V may be substituted

# **GBC** Fuses

A thermoplastic type, torpedo shaped fuse that can be currently found in many European cars. Consisting of a heat resistant body, the fuse element stretches over the exterior of the body from end to end. The bodies vary in color (by amperage) to ensure proper replacement.

Voltage Rating: 32V AC/DC 250V may be substituted







AGA           1A         0AGA0001.V         AGA1         0AGA0001.VP         AGA1BP           2A         0AGA002.V         AGA2         0AGA002.VP         AGA2BP           3A         0AGA003.V         AGA3         0AGA003.VP         AGA3BP           5A         0AGA005.V         AGA5         0AGA005.VP         AGA5BP           6A         0AGA006.V         AGA6             7.5A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             .5A         0AGC01.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC001.V         AGC2         0AGC002.VP         AGC2B	E 9	BOXED		CARDED		
1A         0AGA001.V         AGA1         0AGA001.VP         AGA1BP           2A         0AGA002.V         AGA2         0AGA002.VP         AGA2BP           3A         0AGA003.V         AGA3         0AGA003.VP         AGA3BP           5A         0AGA005.V         AGA5         0AGA005.VP         AGA5BP           6A         0AGA006.V         AGA6             7.5A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGC30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC050.V         AGC.500             .5A         0AGC050.V         AGC.500             .5A         0AGC001.V         AGC1.5         0AGC001.VP         AGC1BP           1.5A         0AGC001.V         AGC2.5         0AGC002.VP         AGC2BP           2.5A <td< th=""><th>CURREN RATING (A)</th><th>MATERIAL#</th><th>CATALOG#</th><th>MATERIAL#</th><th>CATALOG#</th></td<>	CURREN RATING (A)	MATERIAL#	CATALOG#	MATERIAL#	CATALOG#	
2A         0AGA002.V         AGA2         0AGA002.VP         AGA2BP           3A         0AGA003.V         AGA3         0AGA003.VP         AGA3BP           5A         0AGA005.V         AGA5         0AGA005.VP         AGA5BP           6A         0AGA006.V         AGA6             7.5A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA025.V         AGA25             30A         0AGC500V         AGC25             3A         0AGC05.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           2.5A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC003.V         AGC3         0AGC003.VP </th <th></th> <th></th> <th>AG</th> <th>iA</th> <th></th>			AG	iA		
3A         0AGA003.V         AGA3         0AGA003.VP         AGA3BP           5A         0AGA005.V         AGA5         0AGA005.VP         AGA5BP           6A         0AGA006.V         AGA6             7.5A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             .5A         0AGC05.VV         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC002.V         AGC2         0AGC002.VP         AGC3BP           3A	1A	0AGA001.V	AGA1	0AGA001.VP	AGA1BP	
5A         0AGA005.V         AGA5         0AGA005.VP         AGA5BP           6A         0AGA006.V         AGA6             7.5A         0AGA07.5V         AGA7.5             10A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1BP           1.5A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC002.V         AGC3         0AGC003.VP         AGC3BP           3A         0	2A	0AGA002.V	AGA2	0AGA002.VP	AGA2BP	
6A         0AGA006.V         AGA6             7.5A         0AGA07.5V         AGA7.5             10A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC0500V         AGC.500             .5A         0AGC0501.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1BP           1.5A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC3BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         <	3A	0AGA003.V	AGA3	0AGA003.VP	AGA3BP	
7.5A         0AGA07.5V         AGA7.5             10A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC0500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1BP           1.5A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC3BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC005.V         AGC3         0AGC005.VP         AGC5BP           5A	5A	0AGA005.V	AGA5	0AGA005.VP	AGA5BP	
10A         0AGA010.V         AGA10         0AGA010.VP         AGA10BP           15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC                 1A         0AGC0500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2BP           2.5A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           5A         0AGC006	6A	0AGA006.V	AGA6			
15A         0AGA015.V         AGA15         0AGA015.VP         AGA15BP           20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2BP           2.5A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC005.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A </td <td>7.5A</td> <td>0AGA07.5V</td> <td>AGA7.5</td> <td></td> <td></td>	7.5A	0AGA07.5V	AGA7.5			
20A         0AGA020.V         AGA20         0AGA020.VP         AGA20BP           25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2BP           2.5A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC005.V         AGC4         0AGC005.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A	10A	0AGA010.V	AGA10	0AGA010.VP	AGA10BP	
25A         0AGA025.V         AGA25             30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A	15A	0AGA015.V	AGA15	0AGA015.VP	AGA15BP	
30A         0AGA030.V         AGA30         0AGA030.VP         AGA30BP           AGC           .5A         0AGC.500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC002.V         AGC2.5         0AGC002.VP         AGC2BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC25BP           25A	20A	0AGA020.V	AGA20	0AGA020.VP	AGA20BP	
SAGC   SAGC	25A	0AGA025.V	AGA25			
.5A         0AGC.500V         AGC.500             1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC001.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2.5BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC18BP           15A         0AGC015.V         AGC25         0AGC020.VP         AGC25BP           20A         0AGC025.V         AGC25	30A	0AGA030.V	AGA30	0AGA030.VP	AGA30BP	
1A         0AGC001.V         AGC1         0AGC001.VP         AGC1BP           1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC007.V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC25         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC30BP           35A         0AGC035.V         AGC35			AG	iC		
1.5A         0AGC01.5V         AGC1.5         0AGC01.5VP         AGC1.5BP           2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC002.VP         AGC2.5BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC007.V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC21         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC30BP           35A         0AGC035.V         AGC35	.5A	0AGC.500V	AGC.500			
2A         0AGC002.V         AGC2         0AGC002.VP         AGC2BP           2.5A         0AGC02.5V         AGC2.5         0AGC02.5VP         AGC2.5BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC25BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU         AGU         AGU	1A	0AGC001.V	AGC1	0AGC001.VP	AGC1BP	
2.5A         0AGC02.5V         AGC2.5         0AGC02.5VP         AGC2.5BP           3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	1.5A	0AGC01.5V	AGC1.5	0AGC01.5VP	AGC1.5BP	
3A         0AGC003.V         AGC3         0AGC003.VP         AGC3BP           4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC25BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC35BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU         AGU01.T         AGU1             1A         0AGU001.T         AGU1	2A	0AGC002.V	AGC2	0AGC002.VP	AGC2BP	
4A         0AGC004.V         AGC4         0AGC004.VP         AGC4BP           5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC25BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	2.5A	0AGC02.5V	AGC2.5	0AGC02.5VP	AGC2.5BP	
5A         0AGC005.V         AGC5         0AGC005.VP         AGC5BP           6A         0AGC006.V         AGC6         0AGC006.VP         AGC6BP           7A         0AGC007.V         AGC7             7.5A         0AGC007.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	3A	0AGC003.V	AGC3	0AGC003.VP	AGC3BP	
6A 0AGC006.V AGC6 0AGC006.VP AGC6BP 7A 0AGC007.V AGC7 7.5A 0AGC07.5V AGC7.5 0AGC07.5VP AGC7.5BP 8A 0AGC008.V AGC8 10A 0AGC010.V AGC10 0AGC010.VP AGC10BP 15A 0AGC015.V AGC15 0AGC015.VP AGC15BP 20A 0AGC020.V AGC20 0AGC020.VP AGC20BP 25A 0AGC025.V AGC25 0AGC025.VP AGC25BP 30A 0AGC030.V AGC30 0AGC030.VP AGC30BP 35A 0AGC035.V AGC35 0AGC035.VP AGC35BP  AGU  1A 0AGU001.T AGU1	4A	0AGC004.V	AGC4	0AGC004.VP	AGC4BP	
7A         0AGC007.V         AGC7             7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	5A	0AGC005.V	AGC5	0AGC005.VP	AGC5BP	
7.5A         0AGC07.5V         AGC7.5         0AGC07.5VP         AGC7.5BP           8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC35BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC35BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	6A	0AGC006.V	AGC6	0AGC006.VP	AGC6BP	
8A         0AGC008.V         AGC8             10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	7A	0AGC007.V	AGC7			
10A         0AGC010.V         AGC10         0AGC010.VP         AGC10BP           15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	7.5A	0AGC07.5V	AGC7.5	0AGC07.5VP	AGC7.5BP	
15A         0AGC015.V         AGC15         0AGC015.VP         AGC15BP           20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	8A	0AGC008.V	AGC8			
20A         0AGC020.V         AGC20         0AGC020.VP         AGC20BP           25A         0AGC025.V         AGC25         0AGC025.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	10A	0AGC010.V	AGC10	0AGC010.VP	AGC10BP	
25A         0AGC025.V         AGC25         0AGC025.VP         AGC25BP           30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	15A	0AGC015.V	AGC15	0AGC015.VP	AGC15BP	
30A         0AGC030.V         AGC30         0AGC030.VP         AGC30BP           35A         0AGC035.V         AGC35         0AGC035.VP         AGC35BP           AGU           1A         0AGU001.T         AGU1	20A	0AGC020.V	AGC20	0AGC020.VP	AGC20BP	
35A 0AGC035.V AGC35 0AGC035.VP AGC35BP  AGC35BP  AGC35BP  AGC35BP  AGC35BP	25A	0AGC025.V	AGC25	0AGC025.VP	AGC25BP	
AGU 1A 0AGU001.T AGU1	30A	0AGC030.V	AGC30	0AGC030.VP	AGC30BP	
1A 0AGU001.T AGU1	35A	0AGC035.V	AGC35	0AGC035.VP	AGC35BP	
			AG	U		
	1A	0AGU001.T	AGU1			
2A 0AGU002.T AGU2	2A	0AGU002.T	AGU2			
3A 0AGU003.T AGU3	3A	0AGU003.T	AGU3			
4A 0AGU004.T AGU4	4A	0AGU004.T	AGU4			
5A 0AGU005.T AGU5	5A	0AGU005.T	AGU5			
10A 0AGU010.T AGU10	10A	0AGU010.T	AGU10			
15A 0AGU015.T AGU15	15A	0AGU015.T	AGU15			

## AGU  20A 0AGU020.T AGU20 25A 0AGU025.T AGU25 30A 0AGU035.T AGU30 35A 0AGU035.T AGU35 40A 0AGU040.T AGU40 0AGU040.VPG AGU40BPG 50A 0AGU050.T AGU50 0AGU050.VPG AGU50BPG 60A 0AGU060.T AGU60 0AGU060.VPG AGU60BPG 60A 0AGU060.T AGU60 0AGU060.VPG AGU60BPG 60A 0AGW01.5V AGW1.5	본열	BOXED		CARDED	
20A         0AGU020.T         AGU20             25A         0AGU025.T         AGU25             30A         0AGU030.T         AGU30             35A         0AGU035.T         AGU35             40A         0AGU040.T         AGU40         0AGU050.VPG         AGU40BPG           50A         0AGU050.T         AGU50         0AGU050.VPG         AGU50BPG           60A         0AGU060.T         AGU60         0AGU060.VPG         AGU60BPG           AGW           1A         0AGW001.V         AGW1             1.5A         0AGW01.5V         AGW1.5             2.5A         0AGW005.V         AGW3             3A         0AGW003.V         AGW3             3A         0AGW005.V         AGW3             5A         0AGW005.V         AGW4             5A         0AGW005.V         AGW5         0AGW05.VP         AGW15BP           20A         0AGW020.V         AGW20         0AGW020.VP<	CURRE RATIN (A)	MATERIAL#	CATALOG#	MATERIAL#	CATALOG#
25A         0AGU025.T         AGU25             30A         0AGU030.T         AGU30             35A         0AGU035.T         AGU35             40A         0AGU040.T         AGU40         0AGU050.VPG         AGU40BPG           50A         0AGU050.T         AGU50         0AGU050.VPG         AGU50BPG           60A         0AGU060.T         AGU60         0AGU060.VPG         AGU60BPG           AGW           1A         0AGW001.V         AGW1             1.5A         0AGW01.5V         AGW1.5             2.5A         0AGW02.5V         AGW2.5             3A         0AGW005.V         AGW3             3A         0AGW004.V         AGW4             5A         0AGW005.V         AGW5         0AGW05.VP         AGW5BP           6A         0AGW0015.V         AGW6             15A         0AGW015.V         AGW3         0AGW030.VP         AGW30BP           AGX           2A <t< td=""><td></td><td></td><td>AG</td><td>U</td><td></td></t<>			AG	U	
30A         0AGU030.T         AGU30             35A         0AGU035.T         AGU35             40A         0AGU040.T         AGU40         0AGU050.VPG         AGU40BPG           50A         0AGU050.T         AGU50         0AGU050.VPG         AGU50BPG           60A         0AGU060.T         AGU60         0AGU060.VPG         AGU60BPG           AGW           1A         0AGW001.V         AGW1             1.5A         0AGW01.5V         AGW1.5             2.5A         0AGW005.V         AGW3             3A         0AGW003.V         AGW3             4A         0AGW004.V         AGW4             5A         0AGW005.V         AGW5         0AGW05.VP         AGW5BP           6A         0AGW005.V         AGW6             15A         0AGW015.V         AGW6             15A         0AGW020.V         AGW20         0AGW020.VP         AGW30BP           AGX           2A         0	20A	0AGU020.T	AGU20		
35A         0AGU035.T         AGU35             40A         0AGU040.T         AGU40         0AGU040.VPG         AGU40BPG           50A         0AGU050.T         AGU50         0AGU050.VPG         AGU50BPG           60A         0AGU060.T         AGU60         0AGU060.VPG         AGU60BPG           AGW           1A         0AGW001.V         AGW1             1.5A         0AGW01.5V         AGW1.5             2.5A         0AGW02.5V         AGW3             3A         0AGW003.V         AGW3             3A         0AGW003.V         AGW3             4A         0AGW005.V         AGW4             5A         0AGW005.V         AGW4             5A         0AGW006.V         AGW6             15A         0AGW015.V         AGW15         0AGW015.VP         AGW15BP           20A         0AGW020.V         AGW20         0AGW020.VP         AGW20BP           30A         0AGW030.V         AGW3	25A	0AGU025.T	AGU25		
## AGA  ## OAGU040.T  ## AGU40  OAGU040.VPG  ## AGU40BPG  ## AGU50BPG  ## AGU50S.VP  ## AGU50S.VP  ## AGU50S.VP  ## AGU50S.VP  ## AGU50S.VP  ## AGU50BP  ## AGU50S.VP  ## AGU50S.VP  ## AGU50BP  ## AGU50S.VP  ## AGU50S.VP  ## AGU50BP  ## AGU50S.VP  ## AGU50S.VP	30A	0AGU030.T	AGU30		
50A         0AGU050.T         AGU50         0AGU050.VPG         AGU50BPG           60A         0AGU060.T         AGU60         0AGU060.VPG         AGU60BPG           AGW           1A         0AGW001.V         AGW1             1.5A         0AGW01.5V         AGW1.5             2.5A         0AGW02.5V         AGW2.5             3A         0AGW003.V         AGW3             4A         0AGW005.V         AGW4             5A         0AGW005.V         AGW4             5A         0AGW006.V         AGW5         0AGW05.VP         AGW5BP           6A         0AGW005.V         AGW6             15A         0AGW015.V         AGW15         0AGW015.VP         AGW15BP           20A         0AGW020.V         AGW20         0AGW020.VP         AGW30BP           AGX           2A         0AGX002.V         AGX2             3A         0AGX002.V         AGX2         0AGX025.VP         AGX20BP           25A	35A	0AGU035.T	AGU35		
## AGW  1A	40A	0AGU040.T	AGU40	0AGU040.VPG	AGU40BPG
AGW	50A	0AGU050.T	AGU50	0AGU050.VPG	AGU50BPG
1A 0AGW001.V AGW1	60A	0AGU060.T	AGU60	0AGU060.VPG	AGU60BPG
1.5A 0AGW01.5V AGW1.5 2.5A 0AGW02.5V AGW2.5 3A 0AGW003.V AGW3 4A 0AGW004.V AGW4 5A 0AGW005.V AGW5 0AGW005.VP AGW5BP 6A 0AGW006.V AGW6 15A 0AGW015.V AGW15 0AGW015.VP AGW15BP 20A 0AGW020.V AGW20 0AGW020.VP AGW20BP 30A 0AGW030.V AGW30 0AGW030.VP AGW30BP  ***AGX**  2A 0AGX002.V AGX2 3A 0AGX003.V AGX3 20A 0AGX020.V AGX20 0AGX020.VP AGX20BP 25A 0AGX025.V AGX25 0AGX025.VP AGX25BP 30A 0AGX030.V AGX30 0AGX030.VP AGX30BP  ***GBC** 5A 0GBC005.V GBC5			AG	w	
2.5A	1A	0AGW001.V	AGW1		
3A         0AGW003.V         AGW3             4A         0AGW004.V         AGW4             5A         0AGW005.V         AGW5         0AGW005.VP         AGW5BP           6A         0AGW006.V         AGW6             15A         0AGW015.V         AGW15         0AGW015.VP         AGW15BP           20A         0AGW020.V         AGW20         0AGW020.VP         AGW20BP           30A         0AGW030.V         AGW30         0AGW030.VP         AGW30BP           AGX              3A         0AGX003.V         AGX3             25A         0AGX025.V         AGX25         0AGX025.VP         AGX25BP           30A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           GBC           5A         0GBC005.V         GBC5             8A         0GBC005.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE     <	1.5A	0AGW01.5V	AGW1.5		
4A 0AGW004.V AGW4	2.5A	0AGW02.5V	AGW2.5		
5A         0.AGW005.V         AGW5         0.AGW005.VP         AGW5BP           6A         0.AGW006.V         AGW6             15A         0.AGW015.V         AGW15         0.AGW015.VP         AGW15BP           20A         0.AGW020.V         AGW20         0.AGW020.VP         AGW20BP           30A         0.AGW030.V         AGW30         0.AGW030.VP         AGW30BP           AGX              20A         0.AGX003.V         AGX3             20A         0.AGX020.V         AGX20         0.AGX025.VP         AGX20BP           25A         0.AGX025.V         AGX25         0.AGX025.VP         AGX30BP           GBC           5A         0.GBC005.V         GBC5             8A         0.GBC005.V         GBC8         0.GBC008.VP         GBC3BP           16A         0.GBC016.V         GBC16         0.GBC016.VP         GBC25BP           SFE           4A         0.SFE004.V         SFE4         0.SFE004.VP         SFE4BP           6A         0.SFE006.V         SFE6         0.SFE007.SVP         SFE7.5BP	3A	0AGW003.V	AGW3		
6A 0AGW006.V AGW6	4A	0AGW004.V	AGW4		
15A         0AGW015.V         AGW15         0AGW015.VP         AGW15BP           20A         0AGW020.V         AGW20         0AGW020.VP         AGW20BP           30A         0AGW030.V         AGW30         0AGW030.VP         AGW30BP           AGX           2A         0AGX002.V         AGX2             3A         0AGX020.V         AGX20         0AGX020.VP         AGX20BP           25A         0AGX025.V         AGX25         0AGX025.VP         AGX25BP           30A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC3BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE007.SVP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V	5A	0AGW005.V	AGW5	0AGW005.VP	AGW5BP
20A         0AGW020.V         AGW20         0AGW020.VP         AGW20BP           30A         0AGW030.V         AGW30         0AGW030.VP         AGW30BP           AGX           2A         0AGX002.V         AGX2             3A         0AGX003.V         AGX3             20A         0AGX020.V         AGX20         0AGX025.VP         AGX25BP           25A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC3BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE009.V         SFE9         0SFE009.VP         SFE3BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	6A	0AGW006.V	AGW6		
30A         0AGW030.V         AGW30         0AGW030.VP         AGW30BP           AGX           2A         0AGX002.V         AGX2             3A         0AGX003.V         AGX3             20A         0AGX020.V         AGX20         0AGX020.VP         AGX20BP           25A         0AGX025.V         AGX25         0AGX025.VP         AGX25BP           30A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC3BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9BP         14A         0SFE014.V         SFE14BP	15A	0AGW015.V	AGW15	0AGW015.VP	AGW15BP
AGX  2A 0AGX002.V AGX2 3A 0AGX003.V AGX3 20A 0AGX020.V AGX20 0AGX020.VP AGX20BP  25A 0AGX025.V AGX25 0AGX025.VP AGX25BP  30A 0AGX030.V AGX30 0AGX030.VP AGX30BP   GBC  5A 0GBC005.V GBC5 8A 0GBC008.V GBC8 0GBC008.VP GBC3BP  16A 0GBC016.V GBC16 0GBC016.VP GBC16BP  25A 0GBC025.V GBC25 0GBC025.VP GBC25BP  SFE  4A 0SFE004.V SFE4 0SFE004.VP SFE4BP  6A 0SFE006.V SFE6 0SFE006.VP SFE6BP  7.5A 0SFE07.5V SFE7.5 0SFE07.5VP SFE7.5BP  9A 0SFE009.V SFE9 0SFE009.VP SFE9BP  14A 0SFE014.V SFE14 0SFE014.VP SFE14BP	20A	0AGW020.V	AGW20	0AGW020.VP	AGW20BP
2A         0AGX002.V         AGX2             3A         0AGX003.V         AGX3             20A         0AGX020.V         AGX20         0AGX025.VP         AGX25BP           25A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC3BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9BP         0SFE014.VP         SFE14BP	30A	0AGW030.V	AGW30	0AGW030.VP	AGW30BP
3A 0AGX003.V AGX3			AG	X	
20A         0AGX020.V         AGX20         0AGX020.VP         AGX20BP           25A         0AGX025.V         AGX25         0AGX025.VP         AGX25BP           30A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC8BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	2A	0AGX002.V	AGX2		
25A         0AGX025.V         AGX25         0AGX025.VP         AGX25BP           30A         0AGX030.V         AGX30         0AGX030.VP         AGX30BP           GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC8BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	3A	0AGX003.V	AGX3		
SFE	20A	0AGX020.V	AGX20	0AGX020.VP	AGX20BP
GBC           5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC8BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	25A	0AGX025.V	AGX25	0AGX025.VP	AGX25BP
5A         0GBC005.V         GBC5             8A         0GBC008.V         GBC8         0GBC008.VP         GBC8BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	30A	0AGX030.V	AGX30	0AGX030.VP	AGX30BP
8A         0GBC008.V         GBC8         0GBC008.VP         GBC8BP           16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE3BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP			GE	BC	
16A         0GBC016.V         GBC16         0GBC016.VP         GBC16BP           25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	5A	0GBC005.V	GBC5		
25A         0GBC025.V         GBC25         0GBC025.VP         GBC25BP           SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE3BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	8A	0GBC008.V	GBC8	0GBC008.VP	GBC8BP
SFE           4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	16A	0GBC016.V	GBC16	0GBC016.VP	GBC16BP
4A         0SFE004.V         SFE4         0SFE004.VP         SFE4BP           6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	25A	0GBC025.V	GBC25	0GBC025.VP	GBC25BP
6A         0SFE006.V         SFE6         0SFE006.VP         SFE6BP           7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP			SF	E	
7.5A         0SFE07.5V         SFE7.5         0SFE07.5VP         SFE7.5BP           9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	4A	0SFE004.V	SFE4	0SFE004.VP	SFE4BP
9A         0SFE009.V         SFE9         0SFE009.VP         SFE9BP           14A         0SFE014.V         SFE14         0SFE014.VP         SFE14BP	6A	0SFE006.V	SFE6	0SFE006.VP	SFE6BP
14A 0SFE014.V SFE14 0SFE014.VP SFE14BP	7.5A	0SFE07.5V	SFE7.5	0SFE07.5VP	SFE7.5BP
	9A	0SFE009.V	SFE9	0SFE009.VP	SFE9BP
004 00FF000 V 0FF00 00FF000 VD 0FF000DD	14A	0SFE014.V	SFE14	0SFE014.VP	SFE14BP
ZUA USFEUZU.V SFEZU USFEUZU.VP SFEZUBP	20A	0SFE020.V	SFE20	0SFE020.VP	SFE20BP
30A 0SFE030.V SFE30 0SFE030.VP SFE30BP	30A	0SFE030.V	SFE30	0SFE030.VP	SFE30BP



# **Glass and Ceramic Fuses**

A complete line of 3 AG 1" x 1-1/4" fuses designed for battery chargers, diagnostic equipment, appliances and sophisticated electronic equipment. Available bulk, boxed, and carded. Consult your Littelfuse representative or factory for information on glass and ceramic fuses.

# **3AG SLO-BLO® Indicating Fuse**

Littelfuse patented design Indicating fuse instantly shows whether fuse is blown through discoloration of the glass body. Reduces downtime by eliminating time consuming circuit testing and guesswork. This unique design offers the same characteristics as the standard 3AG Slo-Blo 313 fuse.

Voltage Rating: 250V (1/2 – 8A), 32V (10A). Approvals: UL listed: 1/2 – 8A, Recognized under the Components Program of UL: 10A, CSA Certified: 1/2 – 8A.

BOXED	VOLTAGE RATING	DESCRIPTION
313.500VID	250V	1/2A Indicating 3AG Slo-Blo
313001VID	250V	1A Indicating 3AG Slo-Blo
3131.50VID	250V	1-1/2A Indicating 3AG Slo-Blo
313002VID	250V	2A Indicating 3AG Slo-Blo
313003VID	250V	3A Indicating 3AG Slo-Blo
313004VID	250V	4A Indicating 3AG Slo-Blo
313005VID	250V	5A Indicating 3AG Slo-Blo
3136.25VID	250V	6-1/4A Indicating 3AG Slo-Blo
313007VID	250V	7A Indicating 3AG Slo-Blo
313008VID	250V	8A Indicating 3AG Slo-Blo
313010VID	32V	10A Indicating 3AG Slo-Blo

# 3AG Slo-Blo® Fuse

3AG (313) series Slo-Blo® fuses have a time delay in the overload range, which provides superior protection for inductive loads such as motors, transformers and solenoids.

Voltage Rating: 250V (1/4 - 8A), 32V (10A - 30A). Approvals: UL listed: 1/2 - 8A, Recognized under the Components Program of UL: 10A - 30A, CSA Certified: 1/2 - 8A.

BOXED	VOLTAGE RATING	DESCRIPTION
313.250V	250V	1/4A 3AG Slo-Blo
313.500V	250V	1/2A 3AG Slo-Blo
313.750V	250V	3/4A 3AG Slo-Blo
313001V	250V	1A 3AG Slo-Blo
31201.5V	250V	1-1/2A 3AG Slo-Blo
313002V	250V	2A 3AG Slo-Blo
31302.5V	250V	2-1/2A 3AG Slo-Blo
313003V	250V	3A 3AG Slo-Blo
313004V	250V	4A 3AG Slo-Blo
313005V	250V	5A 3AG Slo-Blo
3136.25V	250V	6-1/4A 3AG Slo-Blo
313008V	250V	8A 3AG Slo-Blo
313010V	32V	10A 3AG Slo-Blo
313015V	32V	15A 3AG Slo-Blo

# **3AG Normal-Blo Fuse**

3AG (311) series Normal-Blo fuses are for use in radios, amplifiers, etc. Features straight type fuse element positioned to center of fuse for easy identification of blown fuse.

Voltage Rating: 32V.

BOXED	VOLTAGE RATING	DESCRIPTION
311005V	32V	5A 3AG Normal-Blo
311010V	32V	10A 3AG Normal-Blo
311015V	32V	15A 3AG Normal-Blo
311025V	32V	20A 3AG Normal-Blo

# **8AG Normal-Blo Fuse**

8AG (362) series Normal-Blo fuses are smaller in size (1/4"  $\times$  1") and are designed to be used where space limitations prevent the use of 3AG fuses.

Voltage Rating: 32V.

Approvals: UL listed: 1/8 – 5A, CSA Certified: 1/4 – 5A.

Certified: 1/4 – 5A

BOXED	VOLTAGE RATING	DESCRIPTION
362002V	32V	2A 8AG Normal-Blo
362005V	32V	5A 8AG Normal-Blo

# 3AB Fast-Acting & Slo-Blo® Ceramic Fuse

Ceramic body construction permits higher interrupting and voltage ratings. Ideal for applications where high current loads are expected.

Voltage Rating: 250V (1/8 – 20A), 125V (25 – 30A).

Approvals: UL listed and CSA Certified: 1/8 – 15A, Recognized under the Components Program of UL: 20 – 30A.

BOXED	VOLTAGE RATING	DESCRIPTION
314010V	250V	10A 3AB Fast-Acting
314015V	250V	15A 3AB Fast-Acting
314020V	250V	20A 3AB Fast-Acting
326015V	250V	15A 3AB Slo-Blo

# **3AG Fast-Acting Fuse**

Fast-acting protection of electronic equipment and appliances. The circuit protection standard for cost effective reliability and performance.

Voltage Rating: 250V (1/4 – 10A), 32V (10A – 35A).

Approvals: UL listed and CSA Certified.

BOXED	VOLTAGE RATING	DESCRIPTION
312.250V	250V	1/4A 3AG Fast-Acting
312.500V	250V	1/2A 3AG Fast-Acting
312.750V	250V	3/4A 3AG Fast-Acting
312001V	250V	1A 3AG Fast-Acting
3121.25V	250V	1-1/4A 3AG Fast-Acting
31201.5V	250V	1 1/2A 3AG Fast-Acting
312002V	250V	2A 3AG Fast-Acting
31202.5V	250V	2-1/2A 3AG Fast-Acting
312003V	250V	3A 3AG Fast-Acting
312004V	250V	4A 3AG Fast-Acting
312005V	250V	5A 3AG Fast-Acting
312006V	250V	6A 3AG Fast-Acting
312007V	250V	7A 3AG Fast-Acting
312008V	250V	8A 3AG Fast-Acting
312010V	250V	10A 3AG Fast-Acting





# **Circuit Breakers**

### Type I – Automatic Reset

Cycles or continuously resets until the fault is corrected. Type I circuit breakers are typically used to protect circuits which occasionally experience momentary overloads such as wiper motor and headlamp circuits where a self resetting device is preferred.

# Type II - Modified Reset

Non-cycling, remains in open position while there is power to the circuit. Resets when ignition is turned off. Type II circuit breakers are typically used in applications where fuse replacement is objectionable, such as power window, seat and sunroof circuits.

### Type III - Manual Reset

Manually resettable circuit breakers remain in the open position until a button, lever or other external reset device is manually depressed. Type III circuit breakers are typically used in applications where a manual reset is desired for safe diagnosis of a circuit fault.



# MINI® Circuit Breakers Standard Mini **Footprint Circuit Breakers**

Designed to fit in a MINI® Blade fuse block or panel. SAE Type II used primarily as a wiring harness protector in 12 volt DC automotive systems. Conforms to SAE J553C standard.

CURRENT	вох	(ED
RATING (A)	MATERIAL#	CATALOG #
5A	0MIB005.X	MIB5
10A	0MIB010.X	MIB10
15A	0MIB015.X	MIB15
20A	0MIB020.X	MIB20
25A	0MIB025.X	MIB25
30A	0MIB030.X	MIB30



# **Wide Mini Footprint Circuit Breakers**

Direct factory replacement for many domestic OEM applications. Designed to fit either in an ATO® or MINI® Blade fuse block or panel. Their blade configuration is of the MINI design and fit in a standard ATO fuse slot or across two MINI slots. Available in either SAE Type I cycling or SAE Type II non-cycling used primarily as a wiring harness protector in 12 volt DC automotive systems. Conforms to SAE J553C standard.

	CURRENT RATING	APPLICATION	вох	ED
	(A)	APPLICATION	MATERIAL#	CATALOG#
NG.	15A	Heavy Truck Headlamp	0MMB015.X	MMB15
CYCLING	20A	Automotive Headlamp	0MMB020.X	MMB20
9	10A	Heavy Duty Truck	0MNB010.X	MNB10
	15A	Heavy Duty Truck	0MNB015.X	MNB15
2	20A	Automotive/Heavy Truck	0MNB020.X	MNB20
NON-CYCLING	25A	Automotive/Heavy Truck	0MNB025.X	MNB25
Z	30A	Automotive/Heavy Truck	0MNB030.X	MNB30



# **Specialty OEM Circuit Breakers**

Direct factory replacement for many domestic OEM vehicles. SAE Type I and Type II modified reset used primarily as a wiring harness protector in 12 volt DC automotive systems. Conforms to SAE J553C standard. Designed to mount in ATO style fuse blocks and panels.

CURRENT RATING	APPLICATION	OEM#	вох	ED	CAR	DED
(A)	AFFLICATION	OEW #	MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
20A	Automotive Headlamp	GM# 12040816			0ACB020.XP	ACB20
30A	Power Windows, & Locks	GM# 01252240			0ACB030.XP	ACB30
20A	Power Windows	Ford# 83507005	0FCB020.X	FCB20	0FCB020.XP	FCB20BP
25A	Windows, Seats & Locks	Ford# D9AB-14526-BA Chrysler# 4527053	0CCB025.X	CCB25	0CCB025.XP	CCB25BP





# **Universal Circuit Breakers**

Universal Circuit Breakers function identically and have same internal components as OEM breakers but offer the versatility of snap off terminals for greater flexibility. SAE Type II modified reset used primarily as a wiring harness protector in 12 volt DC automotive systems. Meets OEM requirements. Conforms to SAE J553C standard. Designed to mount in ATO style fuse blocks and panels.

CURRENT			BOXED BOXED 100		BOXED BULK		CARDED	
RATING (A)	MATERIAL#	CATALOG #	MATERIAL#	CATALOG #	MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
5A	0UCB005.X	UCB5	BUCB005.H	BUCB5H	BUCB005.Z	BUCB5	0UCB005.XP	UCB5BP
6A							0UCB006.XP	UCB6BP
8A							0UCB008.XP	UCB8BP
10A	0UCB010.X	UCB10	BUCB010.H	BUCB10H	BUCB010.Z	BUCB10	0UCB010.XP	UCB10BP
15A	0UCB015.X	UCB15	BUCB015.H	BUCB15H	BUCB015.Z	BUCB15	0UCB015.XP	UCB15BP
20A	0UCB020.X	UCB20	BUCB020.H	BUCB20H	BUCB020.Z	BUCB20	0UCB020.XP	UCB20BP
25A	0UCB025.X	UCB25	BUCB025.H	BUCB25H	BUCB025.Z	BUCB25	0UCB025.XP	UCB25BP
30A	0UCB030.X	UCB30	BUCB030.H	BUCB30H	BUCB030.Z	BUCB30	0UCB030.XP	UCB30BP

# **Circuit Breakers**



# **MAXI Circuit Breakers**

Direct factory replacement for many domestic OEM applications. Designed to fit a MAXI Blade fuse block or panel. Available in either SAE Type I cycling or SAE Type II non-cycling. Used primarily as a wiring harness protector in 12 volt DC automotive systems. Meet OEM requirements. Conforms to SAE J553C standard.

	CURRENT RATING APPLICATION (A)				BOXED		
			OEM#	MATERIAL#	CATALOG #		
9	20A	Automotive Headlamp	GM# 12065132	0MCB020.X	MCB20		
CYCLING	30A	Automotive Headlamp, Seats & Wipers	GM# 12088553	0MCB030.X	MCB30		
CYC	40A			0MCB040.X	MCB40		
- SN	10A	Automotive Power Devices Heavy Truck & Auto Cooling Fan	GM# 12077842 Ford# FGHT-14526-KA	0MXB020.X	MXB20		
NON- CYCLING	15A	Automotive Power Window Heavy Truck & Auto Cooling Fan & Power Window	GM# 12077843 Ford# F6HT-14526-LA	0MXB020.X	MXB30		



# **Fuse Clip Circuit Breakers**

Direct replacement for many OEM applications. Designed for glass fuses without physical alteration in the system. Fits 1-1/4" fuse clips. SAE Type II non-cycling used primarily as a wiring harness protector in 12 volt DC automotive systems. Conforms to SAE J553C standard.

CURRENT	вох	ED	CARDED		
RATING (A)	MATERIAL#	CATALOG #	MATERIAL#	CATALOG #	
10A	0CBF010.Z	CBF10	0CBF010.XP	CBF10BP	
15A	0CBF015.Z	CBF15	0CBF015.XP	CBF15BP	
20A	0CBF020.Z	CBF20	0CBF020.XP	CBF20BP	
25A	0CBF025.Z	CBF25	0CBF025.XP	CBF25BP	
30A	0CBF030.Z	CBF30	0CBF030.XP	CBF30BP	
35A	0CBF035.Z	CBF35	0CBF035.XP	CBF35BP	
40A	0CBF040.Z	CBF40	0CBF040.XP	CBF40BP	





# Stud Type Low Voltage (6–12 Volts) Circuit Breakers

SAE Type I automatic reset provides protection in installations where it is not possible to manually reset a breaker because of location or safety requirements. Used primarily as a wiring harness protector in 12 volt DC automotive systems. Conforms to SAE J553C standard. Available with mounting bracket-change part number from 812 to 813, e.g. 813005 ST.

CURRENT	BOXED W/O B	RACKET	BOXED W/ E	BRACKET	CAR	DED
RATING (A)	MATERIAL#	MATERIAL # CATALOG # MATERIAL # CATALOG #		CATALOG #	MATERIAL#	CATALOG#
5A	0812005.ZXST	812005ST	0813005.ZXST	813005ST		
6A	0812006.ZXST	812006ST	0813006.ZXST	813006ST		
8A	0812008.ZXST	812008ST	0813008.ZXST	813008ST		
10A	0812010.ZXST	812010ST	0813010.ZXST	813010ST		
15A	0812015.ZXST	812015ST	0813015.ZXST	813015ST		
20A	0812020.ZXST	812020ST	0813020.ZXST	813020ST	0813020.XP	813020BP
25A	0812025.ZXST	812025ST	0813025.ZXST	813025ST		
30A	0812030.ZXST	812030ST	0813030.ZXST	813030ST	0813030.XP	813030BP
35A	0812035.ZXST	812035ST	0813035.ZXST	813035ST		
40A	0812040.ZXST	812040ST	0813040.ZXST	813040ST	0813040.XP	813040BP
50A	0812050.ZXST	812050ST	0813050.ZXST	813050ST	0813050.XP	813050BP





# **Circuit Breakers**



# **Hi-Amp Type III Circuit Breakers**

These high amp circuit breakers are typically used in auxiliary and accessory circuits for trucks, buses, RVs and marine applications. All high amp circuit breakers comply with the SAE J1117 standard for ignition protection and have applications in battery charger systems and DC audio systems.

CURRENT	BOXED		CARDED		
RATING (A)	MATERIAL#	CATALOG#	MATERIAL#	CATALOG #	
50A	0185050.X	185050			
60A	0185060.X	185060			
70A	0185070.X	185070			
80A	0185080.X	185080			
100A	0185100.X	185100	0185100.XP	185100BP	
120A	0185120.X	185120	0185120.XP	185120BP	
150A			0185150.XP	185150BP	



# **Mini Type I Circuit Breakers**

Designed to fit in a MINI blade fuse block or panel. Conforms to SAE J553. Cycles or continuously resets until the fault is corrected. Type I circuit breakers are typically used to protect circuits which occasionally experience momentary overloads such as wiper motor and headlamp circuits where a self resetting device is preferred.

CURRENT	BOXED		CARDED		
RATING (A)	MATERIAL#	CATALOG #	MATERIAL #	CATALOG #	
10A			0211010.XP	211010BP	
15A	0211015.X	211015	0211015.XP	211015BP	
20A	0211020.X	211020	0211020.XP	211020BP	
25A	0211025.X	211025	0211025.XP	211025BP	
30A	0211030.X	211030	0211030.XP	211030BP	



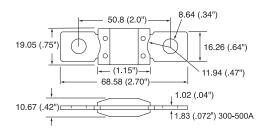


# **MEGA® Bolt-Down Fuse**

ORIGINAL EQUIPMENT MANUFACTURER

The MEGA® Fuse is designed for high current circuit protection up to 500A with "Diffusion Pill Technology." The MEGA® Fuse also provides time delay characteristics. Littelfuse patented device designed for high current protection up to 250 amperes found OEM on Ford, GM and Chrysler vehicles. Slo-Blo® feature eliminates nuisance blowing during temporary, short duration overloads. Commonly used for battery and alternator connections and other heavy gauge cables requiring ultra high current protection.

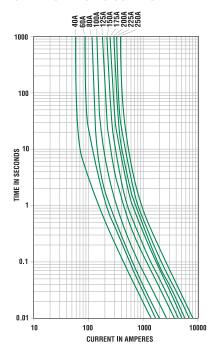
### **DIMENSIONS**



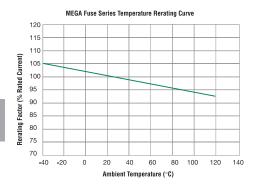
### **TIME-CURRENT CHARACTERISTICS**

% of	Opening Time Min / Max (s)			
Rating	40-250	300-500		
75	-/-	14,400 s/-		
100	14,400 s / -	-/-		
135	120 s / 1800 s	-/-		
200	1 s / 15 s	1 s / 15 s		
350	0.300 s / 5 s	0.500 s / 5 s		
600	0.100 s / 1 s	-/-		

# TIME-CURRENT CHARACTERISTIC CURVES



### **TEMPERATURE RERATING CURVE**



# **MEGA® FUSE TABLE**

CURRENT	BOXE	D 1PC	BOXED	50PC	CARDED	
RATING (A)	MATERIAL #	CATALOG #	MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
80A	0MEG080.X				0MEG080.XPA	MEG80BP
100A	0MEG100.X	MEG100	0MEG100.L	MEG100L	0MEG100.XPA	MEG100BP
125A	0MEG125.X	MEG125	0MEG125.L	MEG125L	0MEG125.XPA	MEG125BP
150A	0MEG150.X	MEG150	0MEG150.L	MEG150L	0MEG150.XPA	MEG150BP
175A	0MEG175.X	MEG175	0MEG175.L	MEG175L	0MEG175.XPA	MEG175BP
200A	0MEG200.X	MEG200	0MEG200.L	MEG200L	0MEG200.XPA	MEG200BP
225A	0MEG225.X	MEG225	0MEG225.L	MEG225L	0MEG225.XPA	MEG225BP
250A	0MEG250.X	MEG250	0MEG250.L	MEG250L	0MEG250.XPA	MEG250BP
300A	0MEG300.X	MEG300	0MEG300.L	MEG300L		
350A	0MEG350.X	MEG350	0MEG350.L	MEG350L		
400A	0MEG400.X	MEG400	0MEG400.L	MEG400L		
450A	0MEG450.X	MEG450	0MEG450.L	MEG450L		
500A	0MEG500.X	MEG500	0MEG500.L	MEG500L		







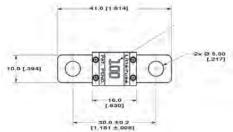
# MIDI® Bolt-Down Fuse

ORIGINAL EQUIPMENT MANUFACTURER

This MIDI® style fuse offers a bolt-down space saving fuse for high current wiring protection and provides time delay characteristics with "Diffusion Pill Technology". The MIDI® was designed and patented by Littelfuse. Littelfuse patented device found OEM on Chrysler and BMW. Slo-Blo® feature elimInates nuisance blowing during temporary, short duration overloads.

Voltage Rating Characteristics: 32V AC/DC Slo-Blo®

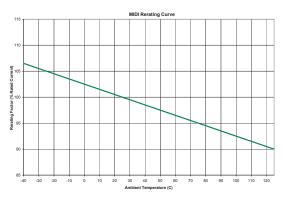
### **DIMENSIONS**



# **MIDI® FUSE TABLE**

₽ŝ	вохе	CARDED	
CURRE	MATERIAL #	CATALOG #	MATERIAL #
50A	0MID050.X	MID50	0MID050.XP
80A	0MID080.X	MID80	0MID080.XP
150A			0MID150.XP

# **TEMPERATURE RERATING CURVE**



ORIGINAL EQUIPMENT

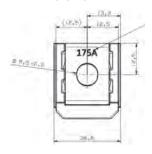
MANUFACTURER



# **ZCASE Single MEGA Fuse**

The Single Zcase is a Minimal Footprint Bolt Down Fuse with a wide rating range up to 250A in the same packaging size. The Time Current characteristic is similar to the well known Mega Design and can used as full wire protection until 250A. Higher ratings mostly used for typically Starter Fuse application as a protector fuse. The fuse design is optimized for a one bolt connection M6 (125 A - 250 A) or M8 (300 A - 600 A) and can used directly on a battery post or busbar connection. Littlefuse is offering a complete solution for the necessary stud and different busbar connections including some battery clamps. See your Littlefuse respresentative for higher amperage (300A-600A) solutions.

### **DIMENSIONS**



### **ZCASE FUSE TABLE**

₽ĝ	BULK	CARDED
CURRE RATING	MATERIAL #	MATERIAL #
125A	3298125.Z	ZCAS125.XP
150A	3298150.Z	ZCAS150.XP
175A	3298175.Z	ZCAS175.XP
200A	3298200.Z	ZCAS200.XP
225A	3298225.Z	ZCAS225.XP
250A	3298250.Z	ZCAS250.XP

# TIME-CURRENT CHARACTERISTICS

% of	Opening Time Min / Max (s)			
Rating	125A - 250A	300A - 600A		
50	-/-	14,400 /-		
100	14,400 /-	-/-		
135	120 / 1800	-/-		
200	1 / 15	1 / 40		
350	0.300 / 5	0.300 / 5		
500	-/-	0.100 / 1 (only for 500A)		
600	0.100 / 1	0.100 / 1 (except 600A)		







# ATO® Fuse Block with 1/4" Quick Connect Terminals

Use with ATO® fuses up to 15 amps. Available in 5 pole unit with removable clear protective cover. Available in side or bottom positioned 1/4" Q.C. terminal configurations. Unit with bottom Q.C. terminals includes detachable side mounting brackets.

TERMINAL STYLE	CARDED		
TERIMINAL STYLE	MATERIAL#	CATALOG #	
1/4" Q.C. side position	03500417XP	350417BP	
1/4" Q.C. bottom position (includes mounting brackets)	03500418XP	350418BP	



# MAXI Fuse Single Pole High Amp Block

Use with MAXI fuses up to 60 amps. Safe/ easy replacement for hard to replace fusible link wire. Perfect for high amp audio applications. Interlocking block feature permits two pole position installation. Contains screw terminals. Optional dust cover available.

BOXED		CARDED	
MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
0MAB0001F	MAB1	0MAB0001XP	MAB1BP



# **MEGA®** Fuse Block

Use with MEGA® fuses up to 250 amps. Ideal for battery and alternator connections and other heavy gauge cables requiring ultra high current protection. Includes protective cover. Features interconnecting pins on side of fuse block for secure multiple block configurations. Includes M8 threaded studs and hex nuts with lock washers. Fuse not included.

BOXED				
70-PC	PACK	20-PC PACK	10-PC PACK	
MATERIAL #	CATALOG #	MATERIAL#	MATERIAL#	
02980900Z	298900	02980900S	02980900TXN	



# MIDI® Fuse Block

Use with MIDI® fuses up to 100 amps. Includes protective cover. Features interconnecting pins on side of fuse block for secure multiple block configurations. Includes M5 threaded studs and hex nuts with lock washers. Fuse not included.

BOXED			
20-PC PACK 330-PC PACK			
MATERIAL#	CATALOG #		
04980900S	04980900ZXT		



# Omni-Blok® Fuseholder

For 1/4" x 1-1/4" glass fuses. Available in one through twelve pole units. Units may be easily broken apart as needed to obtain the desired number of poles. Rated at 20 amps, 300 volts. "354" series is bulk, "OMN" series is carded.

PART NO.	DESC.	PART NO.	DESC.	PART NO.	DESC.
354801-GY	1 Pole	354805-GY	5 Pole	354809-GY	9 Pole
354802-GY	2 Pole	354806-GY	6 Pole	354810-GY	10 Pole
354803-GY	3 Pole	354807-GY	7 Pole	354811-GY	11 Pole
354804-GY	4 Pole	354808-GY	8 Pole	354812-GY	12 Pole

	CARDED		
	MATERIAL # CATALOG #		
2 Pole	00MN0002XP	OMN2	
4 Pole	00MN0004XP	OMN4	



# **Laminated Base Fuse Block with Screw Terminals**

For 1/4" x 1-1/4" glass fuses. Available in one through twelve pole units. Rated at 20 amps, 300 volts.

PART NO.	DESC.	PART NO.	DESC.	PART NO.	DESC.
356001	1 Pole	356005	5 Pole	356009	9 Pole
356002	2 Pole	356006	6 Pole	356010	10 Pole
356003	3 Pole	356007	7 Pole	356011	11 Pole
356004	4 Pole	356008	8 Pole	356012	12 Pole



# ATO® Add-A-Circuit™ Kit

Allows easy installation of additional circuits without cutting or splicing. Turns one fuse slot into two while providing protection for both circuits. Maintains new car warranty. Use with ATO® Fuses up to 10 amps. Includes ATO 3, 5, 7.5 and 10 amp fuses.

BOXED		CARDED	
MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
0FHA0200Z	FHA200	0FHA0200ZP	FHA200BP

**Caution:** Fusetaps are not a recommended alternative for adding circuits because they can overstress the terminals in the fuse block. This situation can create a loose fitting fuse, which in turn produces excessive heat, which can cause nuisance blows, even melting of the fuse and fuse block and possibly an expensive repair in the future. When a fusetap is used, in many cases there is no fuse protecting the new circuit, a condition which can also present a hazard.



# MINI® Add-A-Circuit™ Kit

Same as ATO® Add-A-Circuit except for use with MINI® Fuses up to 10 amps. Includes MINI 3, 5, 7.5 and 10 amp fuses.

BOXED		CARDED	
MATERIAL#	CATALOG#	MATERIAL #	CATALOG #
0FHM0200Z	FHM200	0FHM0200ZP	FHM200BP



# **LPMINI®** Add-A-Circuit™ Kit

Same as ATO® Add-A-Circuit except for use with LPMINI® Fuses up to 10 amps. Includes LPMINI 3, 5, 7.5 and 10 amp fuses.

BOXED	CARDED
MATERIAL#	MATERIAL #
FHLM0200Z	FHLM0200ZPA



# MICRO2® Add-A-Circuit™ Kit

Same as ATO® Add-A-Circuit except for use with MICRO2® Fuses up to 10 amps. Includes MICRO2 3, 5, 7.5 and 10 amp fuses.

BOXED	CARDED
MATERIAL#	MATERIAL #
FHM20200Z	FHM20200ZPA



# **Battery Power Feed Kit**

Attaches directly to battery terminal. Allows the addition of up to 3 circuits. Includes MINI® Fuse In-line Fuseholder with protective cap. Also can be used as a frame ground. Constructed of durable brass for optimal conductivity.

CARDED	
MATERIAL#	CATALOG #
0BPF0001ZP	BPF1BP

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# **Fuseholders**



# MINI® Fuse In-line Fuseholder with Protective Cap

Use with MINI® Fuse 2 to 20 amps. Supplied with two 4" wire leads of 14 gauge black wire. Includes protective cover for harsh environment. FHM1BP

# MINI® Fuse Heavy Duty In-Line Fuseholder with Protective Cap

Use with MINI® Fuse 25 and 30 amp fuses. Supplied with two 4" wire leads of 12 gauge orange wire. Includes protective cover for harsh environment. FHM2BP

CARDED		
MATERIAL#	CATALOG #	
0FHM0001XP	FHM1BP	
0FHM0002XP	FHM2BP	

SMART GLOW CARDED		
MATERIAL#	CATALOG #	
0FHM0001XPGL0	20-1020	



# ATO® Fuse In-line Fuseholder with Protective Cap

Use with ATO® Fuse 1 to 20 amps. Supplied with two 4" wire leads of 16 gauge black wire. Includes protective cover for harsh environment. FHAC1BP

# ATO® Fuse Heavy Duty In-Line Fuseholder with Protective Cap

Use with ATO® 25 and 30 amp fuses for air conditioner or other heavy duty applications. Supplied with two 4" wire leads of 12 gauge orange wire. Includes protective cover for harsh environment. FHAC2BP

CARDED		
MATERIAL#	CATALOG #	
FHAC0001XP	FHAC1BP	
FHAC0002XP	FHAC2BP	



# ATO® Fuse In-line Fuseholder

Use with ATO $^{\odot}$  Fuse 1 to 20 amps. Supplied with two 4" wire leads of 16 gauge black wire. FHA1BP

# **ATO®** Fuse Heavy Duty In-Line Fuseholder

Use with ATO® 25 and 30 amp fuses for air conditioner or other heavy duty applications. Supplied with two 4" wire leads of 12 gauge orange wire.

FHA2BP, FHA30BP includes 30 amp fuse.

BOXED		CARDED	
MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
		0FHA0001XP	FHA1BP
		0FHA0002XP	FHA2BP
0FHA0030Z	FHA30	0FHA0030XP	FHA30BP

SMART GLOW CARDED		
MATERIAL#	CATALOG #	
0FHA0001XPGL0	20-1010	



# ATO® Fuse In-line Panel Mount Fuseholder

Versatile fuseholder for in-line or snap mount panel applications. Interlock body design allows fuseholders to be snapped together. Use with ATO® Fuse 1 to 20 amps. Supplied with 8" loop of 14 gauge black wire. AFH1BP

CARDED		
MATERIAL#	CATALOG #	
0AFH0001XP	AFH1BP	
0AFH0002XP	AFH2BP	

# ATO® Fuse Heavy Duty In-line Panel Mount Fuseholder

Use with ATO® Fuse 25 and 30 amp fuses. Same as AFH 1 except supplied with 8" loop of 10 gauge orange wire. AFH2BP





# **MAXI Fuse In-line Fuseholder with Protective Cap**

Use with MAXI Fuse up to 60 amps. Supplied with two 6" wire leads of 6 gauge black wire. Includes protective cover for harsh environment and mounting hole for easy firewall installation.

BOXED		
MATERIAL # CATALOG #		
MAHC0001ZXJ	MAH1	



# **Universal Glass Bayonet Knob In-line Fuseholder**

Constructed of tough black thermoset (UL94V0). Includes 3 springs for various fuse sizes and spring-locked, bayonet type knob. Supplied with 15" loop of 14 gauge red wire. Use with Glass SFE 71/2, 9, 14, 20, AGA, AGC, AGW and AGX Fuses up to 20 amps when proper spring is installed.

B0	XED
MATERIAL#	CATALOG #
0FHP0001Z	FHP1



# **Universal Glass Twist-Lock In-line Fuseholder**

Constructed of weather resistant nylon. Simple "twist-lock" allows easy fuse removal and replacement. Supplied with 8" loop of 14 gauge black wire and one spring. Use with Glass SFE 4, 6, 71/2, 9, 14, 20, AGA, AGC, AGW and AGX Fuses up to 20 amps.

CARDED		
MATERIAL#	CATALOG #	
0FNY0001XP	FNY1BP	



# Glass Fuse Heavy Duty 30 Amp In-line Fuseholder

Spring loaded heavy duty glass fuseholder includes AGC 30 amp fuse for GM air conditioner, heater blower motors or other heavy duty applications. Supplied with two 4" wire leads of 12 gauge orange wire.

FNY20BP includes 20A AGC Fuse.

CARDED			
MATERIAL#	CATALOG #		
0FNY0020XP	FNY20BP		
0FNY0030XP	FNY30BP		



# **3AG Shock-Safe Panel Fuseholders**

Designed to eliminate the possibility of electrical shock, as defined in IEC standards 65 and 257. Shock-Safe fuseholders feature a low profile body, fingergrip knob and antitease feature that eliminates circuit interruption when knob is accidentally depressed.

Voltage Rating: 250V.

Approvals: UL listed and CSA Certified. Recognized under the Components Program of UL.

CARDED	VOLTAGE RATING	DESCRIPTION
03453LF2XP	20A	with 1/4" straight NEMA/DIN Quick Connect Terminal
03453LF8XP	20A	with 3/16" straight dual purpose solder terminal

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# **Switches • Pullers / Testers**



# **Anti-Theft Battery Master Switch**

- Available in two versions, Fused and Detachable.
- Fused version maintains current to all electrical circuits such as the alarm, on-board computer, central locking system and radio memory presets.
- Detachable version features a special disconnect that allows the battery to easily be removed for anti-theft protection. Perfect for seasonal storage needs or easy off vehicle battery charging for Autos, Motorcycles, RV's, Boats, etc.
- Generate sales with the lowest cost anti-theft devices available on the market today.

- A simple turn of the knob isolates the battery and renders the vehicle unstartable.
- Makes anti-theft protection affordable when compared to expensive alarm systems.
- Eliminates complicated installation no special electrical or mechanical expertise required.
- Fits all standard Top Mount Post batteries. Can be used with Side Mount Post batteries by using a Top Mount Adapter Post (not included).
- Works on 12 to 24 volt systems up to 135 amperes.

CARDED		DESCRIPTION	
MATERIAL#	CATALOG #	DESCRIPTION	
0ATD0200XBP	ATD200BP	Anti-theft Battery Master Swtich – Detachable	
0ATD0300ZBP	ATD300BP	Anti-theft Battery Master Switch – Fused	



# **Fuse Tester and Puller**

Conveniently and easily tests ATO® and MINI® blade fuses either in or out of the fuse block, with or without vehicle battery power. Indicator light on tester glows bright green when fuse is good. Fuse puller end allows for easy fuse removal and replacement. 24V maximum.

# **Fuse Pullers**

Fuse puller allows for easy fuse removal and replacement.





вохі	BOXED		ED	
MATERIAL #	CATALOG #	MATERIAL #	CATALOG #	DESCRIPTION
00970019X	097019	00970019XP	097019BP	For ATO® & MINI® Fuses
00970023Z	097023	00970023XP	097023BP	Tri-Puller <sup>™</sup> – for Glass Fuses, Ceramic Type Fuses, ATO® and MINI® Blade Fuses
00970026N	097026	00970026XP	097026BP	For MAXI Blade Fuses
		00970035XP		
00970038Z	097038	00970038XP		For ATO® and MINI® Fuses
		00970053XP		For JCASE® Fuses
00970025N		00970025XPA		For Micro2 / Micro3 Fuses
00970054N		00970054XPA		For MCase Fuses





# **CNL/CNN Fuses**

CNL fast-acting and CNN very fast-acting fuses are recommended for use on battery operated lift trucks and other low voltage battery operated equipment. Part No. example: CNN 700.

Voltage Rating: CNL: 32V DC CNN: 48V DC, 75V AC Interrupting Rating: 2,500 amperes Ampere Range: 10-800 degrees Maximum Torque: 90 lbs.

MATERIAL#	CATALOG #	MATERIAL#	CATALOG #
0CNL035.V	CNL035	0CNN010.V	CNN010
0CNL040.V	CNL040	0CNN035.V	CNN035
0CNL050.V	CNL050	0CNN040.V	CNN040
0CNL060.V	CNL060	0CNN050.V	CNN050
0CNL080.V	CNL080	0CNN060.V	CNN060
0CNL100.V	CNL100	0CNN080.V	CNN080
0CNL125.V	CNL125	0CNN090.V	CNN090
0CNL150.V	CNL150	0CNN100.V	CNN100
0CNL175.V	CNL175	0CNN125.V	CNN125
0CNL200.V	CNL200	0CNN150.V	CNN150
0CNL250.V	CNL250	0CNN175.V	CNN175
0CNL275.V	CNL275	0CNN200.V	CNN200
0CNL300.V	CNL300	0CNN225.V	CNN225
0CNL325.V	CNL325	0CNN250.V	CNN250
0CNL350.V	CNL350	0CNN275.V	CNN275
0CNL400.V	CNL400	0CNN300.V	CNN300
0CNL500.V	CNL500	0CNN325.V	CNN325
		0CNN350.V	CNN350
		0CNN400.V	CNN400
		0CNN500.V	CNN500
		0CNN600.V	CNN600
		0CNN700.V	CNN700
		0CNN800.V	CNN800



# **Honda Fusible Links**

Original equipment replacement fusible link bar for Honda Civics. Available in 45, 55 and 65 amp fuse bars. Carded merchandise only available in 3 piece assortment 094413.

# **Volkswagen Fusible Links**

Original equipment fusible link bar for Volkswagen cars. 30, 40, 50, 60, 80, 110, 150, 175A fuse bars.

# **Fusible Links**

Original equipment replacement fusible link bar.

Available in 30, 50, 80 and 100 amp fuse bars.

CARDED		
MATERIAL#	CATALOG #	DESCRIPTION
00940413ZP	094413	ASST Honda Fusible Link Assortment
0FLC014.XP	FLC14BP	Fusible Link 14 AWG
0FLW014.XP	FLW14BP	Fusible Link 14 AWG with Terminals
0FLW016.XP	FLW16BP	Fusible Link 16 AWG with Terminals
00940402ZP		ASST Volkswagen Fusible Link Assortment







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# **Commercial Assortments**

Littelfuse Assortments cover all of the professional technician's circuit protection needs. Littelfuse offers the most comprehensive circuit protection kits on the market today addressing the needs of the Professional Service Center and Road Service Operation with genuine Littelfuse OEM fuses. Littelfuse Commercial Assortments are designed for the professional installer who needs a larger quantity and variety of fuses at the point of installation. Assortments are packaged in tough plastic storage containers perfect for the parts drawer, tool box, under counter or road service vehicle.





8	MATERIAL#	CATALOG #	CONTENT		
CARD	00940409Z	094409	(10) ATO 3 (10) ATO 5 (10) ATO 7.5 (10) ATO 10 (10) ATO 15 (10) ATO 20 (10) ATO 25 (10) ATO 30		







ATO® / MINI® Fuse **80 Piece Commercial Assortment** 

	MATERIAL#	CATALOG #	CONTENT
CARDED	00940422Z	094422	(10) ATO 15 (10) ATO 20 (10) ATO 25 (10) ATO 30 (10) MINI 15 (10) MINI 20 (10) MINI 25 (10) MINI 30 (1) Puller





# MINI® Fuse **80 Piece Commercial Assortment**

	MATERIAL#	CATALOG #	CONTENT
CARDED	00940551Z	094551	(10) MINI 3 (10) MINI 5 (10) MINI 7.5 (10) MINI 10 (10) MINI 15 (10) MINI 20 (10) MINI 25 (10) MINI 30



# **Low Profile MINI® Fuse 80 Piece Commercial Assortment**

	MATERIAL#	CATALOG #	CONTENT
CARDED	00940552Z	094552	(10) LPMINI 3 (10) LPMINI 5 (10) LPMINI 7.5 (10) LPMINI 10 (10) LPMINI 15 (10) LPMINI 20 (10) LPMINI 25 (10) LPMINI 30





<b>B</b>	MATERIAL#	CATALOG #	CONTENT
CARD	00940480Z	094480	(4) JCASE 20 (4) JCASE 30 (4) JCASE 40 (1) JCASE 50 (1) JCASE 60 (1) PULLER



# MICRO2™ Fuse **70 Piece Commercial Assortment**

	MATERIAL#	CATALOG#	CONTENT
CARDE	00940560ZXA	00940560	(10) MICRO2 5 (10) MICRO2 20 (10) MICRO2 7.5 (10) MICRO2 25 (10) MICRO2 10 (10) MICRO2 30 (10) LPMINI 15





# MICRO2™, MICRO3™, MCASE® Fuse **135 Piece Commercial Assortment**

	MATERIAL#	CATALOG #	CONTENT
CARDED	00940570ZXA	00940570	(10) MICRO2, MICRO3 5 (10) MICRO 30 (10) MICRO2, MICRO3 7.5 (5) MCASE 15 (10) MICRO2, MICRO3 10 (5) MCASE 20 (10) MICRO2, MICRO3 15 (5) MCASE 25 (10) MICRO 20 (5) MCASE 30 (10) MICRO 25 (5) MCASE 40



# **MCASE®** Fuse **80 Piece Commercial Assortment**

<u>a</u>	MATERIAL#	CATALOG #	CONTENT
CARD	00940565ZXA	00940565	(20) MCASE 20 (20) MCASE 25 (20) MCASE 30 (20) MCASE 40



MATERIAL#

00940553Z

CATALOG #

094553

Lo 16

w Profile JCASE® Fuse Piece Commercial Assortment	
CONTENT	

(4) LPJCASE 20 (4) LPJCASE 30 (4) LPJCASE 40 (1)

LPJCASE 50 (1) LPJCASE 60 (1) PULLER







# It glows when it blows.



# Smart Glow ATO® Blade Fuse 80 Piece Commercial Assortment





Smart Glow MINI® Blade Fuse 80 Piece Commercial Assortment



OED	MATERIAL#	NEW PACKAGING MATERIAL #	CONTENT
CARDED	00940509ZXGL0	00940509ZXGLOA	(10) ATO 3 (10) ATO 5 (10) ATO 7.5 (10) ATO 10 (10) ATO 15 (10) ATO 20 (10) ATO 25 (10) ATO 30

RDED	MATERIAL #	NEW PACKAGING MATERIAL #	CONTENT	
CARDED	00940510ZXGLO	00940510ZXGLOA	(10) ATO 3 (10) ATO 5 (10) ATO 7.5 (10) ATO 10 (10) ATO 15 (10) ATO 20 (10) ATO 25 (10) ATO 30	

# **Caddys**

# **Professional Fuse Caddy**

Provides a complete assortment designed to meet the professional installer's on-the-road fuse needs. Contains 180 of the most popular fuses and installation tools (includes ATO®/MINI® Tester/ Puller) needed to service passenger cars and light trucks, heavy and medium trucks and buses.

Comes in compact handy storage box perfect for the on-the-road vehicle.

	MATERIAL#	CATALOG #	CONTENT
CARDED	00940396Z	094396	(5) ATO 3 (5) ATO 5 (5) ATO7.5 (10) ATO 10 (15) ATO 15 (15) ATO 20 (10) ATO 25 (15) ATO 30 (5) MIN 2 (5) MIN 3 (5) MIN 4 (5) MIN 5 5) MIN 7.5 (5) MIN 10 (5) MIN 15 (5) MIN 20 (5) MIN 25 (5) MIN 30 (5) AGC 5 (5) AGC 10 (5) AGC 15 (5) AGC 20 (5) AGC 25 (5) AGC 30 (5) SFE 14 (5) SFE20 (5) SFE 30 (1) MAX 20 (1) MAX 30 (1) MAX 40 (1) MAX 50 (1) MAX 60 (1) Fuse Tester and Puller (1) Tri-puller <sup>TM</sup> (1) MAXI Fuse Puller







# **Red Box**

Designed by Littelfuse®, it features the exact OEM parts used for the glass, ATO®, MINI®, MAXI, PAL, JCase®, low profile MINI®, MCASE, MICRO2 and MICRO3 fuses installed on over 98% of the cars, vans, light trucks and SUV's on the road today. All come packed inside one compact, portable, organized carrying case. With Red Box<sup>TM,</sup> your days of wasting valuable shelf space on redundant part numbers is over. Over 500 fuses inside Red Box™ meet over 98% of the market's circuit protection needs, giving you more coverage and more profit with a lot less inventory.

MATERIAL#

0RED0B0XZ

# (no Glass with Module 5)

CATALOG #	MATERIAL #	CATALOG#
REDBOX	0RED0B0XZXNG	REDBOXNG

### KIT Professional Installer Case KIT Professional Installer Case KIT Professional Installer Case (no Glass with Module 6)

MATERIAL#	
0RED0B0XZXNGA	

# Low Profile MINI® Module (Module 1)

MATERIAL#	CATALOG #			
0RB0X001Z	RB0X1			
LMIN005.V	5A LOW PROFILE MINI FUSE	5		
LMIN07.5V	7.5A LOW PROFILE MINI FUSE	10		
LMIN010.V	10A LOW PROFILE MINI FUSE	10		
LMIN015.V	15A LOW PROFILE MINI FUSE	10		
LMIN020.V	20A LOW PROFILE MINI FUSE	5		
LMIN025.V	25A LOW PROFILE MINI FUSE	5		
LMIN030.V	30A LOW PROFILE MINI FUSE	10		
00970038Z	ATO/MINI PULLER ( WHITE )	1		

# JCASE® Module (Module 2)

MATERIAL#		CATALOG #		
0RB0X002Z	0RB0X002ZXA	RB0X2		
JCAS020.V	JCASE 32V S/B BOX 20	A 2		
JCAS030.V	JCASE 32V S/B BOX 30	A 2		
JCAS040.V	JCASE 32V S/B BOX 40	A 2		
JCAS050.V	JCASE 32V S/B BOX 50	A 2		
JCAS060.V	JCASE 32V S/B BOX 60	A 2		
00970053Z	JCASE PULLER	1		

# Blade Fuse Module (Module 3)

MATERIAL#	CATALOG #			
0RB0X003Z	RBOX3			
0AT0005.V	ATO BLADE FUSE BOX 5A	10		
0AT007.5V	ATO BLADE FUSE BOX 7.5A	10		
0AT0010.V	ATO BLADE FUSE BOX 10A	25		
0AT0015.V	ATO BLADE FUSE BOX 15A	25		
0AT0020.V	ATO BLADE FUSE BOX 20A	25		
0AT0025.V	ATO BLADE FUSE BOX 25A	25		
0AT0030.V	ATO BLADE FUSE BOX 30A	25		
0AT0040.V	ATO BLADE FUSE BOX 40A	10		
0MIN005.V	MINI BLADE FUSE BOX 5A	10		
0MIN07.5V	MINI BLADE FUSE BOX 7.5A	10		
0MIN010.V	MINI BLADE FUSE BOX 10A	20		
0MIN015.V	MINI BLADE FUSE BOX 15A	20		
0MIN020.V	MINI BLADE FUSE BOX 20A	20		
0MIN025.V	MINI BLADE FUSE BOX 25A	10		
0MIN030.V	MINI BLADE FUSE BOX 30A	10		
0MAX020.V	MAXI BLADE BOX 20A	2		
0MAX030.V	MAXI BLADE BOX 30A	2		
0MAX040.V	MAXI BLADE BOX 40A	2		
0MAX050.V	MAXI BLADE BOX 50A	2		
0MAX060.V	MAXI BLADE BOX 60A	2		
0MAX070.V	MAXI BLADE BOX 70A	1		
0MAX080.V	MAXI BLADE BOX 80A	1		
00970019X	FUSE TESTER AND PULLER BOX	1		
00970038Z	ATO/MINI PULLER ( WHITE )	1		
00970026N	MAXIFUSE PULLER BOX	1		
FHAC0002Z	ATO HD INLINE FUSEHOLDER BOX	1		
0FHM0002Z	MINI HD INLINE FUSEHOLDER BOX	1		

### PAL Module (Module 4)

MATERIAL#	CATALOG #	
0RB0X004Z	RB0X4	
0PAL020.X	FEMALE TERM BOX 20A	1
0PAL030.X	FEMALE TERM BOX 30A	
0PAL040.X	FEMALE TERM BOX 40A	1
0PAL050.X	FEMALE TERM BOX 50A	1
0PAL060.X	FEMALE TERM BOX 60A	1
0PAL130.X	STRAIGHT MALE TERM BOX 30A	1
0PAL160.X	STRAIGHT MALE TERM BOX 60A	1
0PAL180.X	STRAIGHT MALE TERM BOX 80A	1
0PAL1100.X	STRAIGHT MALE TERM BOX 100A	1
0PAL1120.X	STRAIGHT MALE TERM BOX 120A	1
0PAL230.X	13/16" BENT MALE TERM BOX 30A	1
0PAL240.X	13/16" BENT MALE TERM BOX 40A	1
0PAL250.X	13/16" BENT MALE TERM BOX 50A	1
0PAL260.X	13/16" BENT MALE TERM BOX 60A	1
0PAL270.X	13/16" BENT MALE TERM BOX 70A	1
0PAL280.X	13/16" BENT MALE TERM BOX 80A	1
0PAL2100.X	13/16" BENT MALE TERM BOX 100A	1
0PAL2120.X	13/16" BENT MALE TERM BOX 120A	1
0PAL330.X	MINI FEMALE TERM BOX 30A	1
0PAL340.X	MINI FEMALE TERM BOX 40A	1
0PAL430.X	9/16" BENT MALE TERM BOX 30A	1
0PAL440.X	9/16" BENT MALE TERM BOX 40A	1
0PAL450.X	9/16" BENT MALE TERM BOX 50A	1
0PAL480.X	9/16" BENT MALE TERM BOX 80A	1
0PAL4100.X	9/16" BENT MALE TERM BOX 100A	1
0PAL525.X	LOCKING FEMALE TERM BOX 25A	1
0PAL530.X	LOCKING FEMALE TERM BOX 30A	1

### Glass Module (Module 5)

Glass Wodule (Wodule 5)			
MATERIAL #	CATALOG #		
ORBOX005Z	RB0X5		
0AGC001.V	AGC GLASS BOX 1A	10	
0AGC002.V	AGC GLASS BOX 2A	10	
0AGC003.V	AGC GLASS BOX 3A	10	
0AGC004.V	AGC GLASS BOX 4A	10	
0AGC005.V	AGC GLASS BOX 5A	10	
0AGC006.V	AGC GLASS BOX 6A	10	
0AGC007.5V	AGC GLASS BOX 7.5A	10	
0AGC010.V	AGC GLASS BOX 10A	10	
0AGC015.V	AGC GLASS BOX 15A	10	
0AGC020.V	AGC GLASS BOX 20A	10	
0AGC025.V	AGC GLASS BOX 25A	10	
0AGC030.V	AGC GLASS BOX 30A	10	
0AGW030.V	AGW GLASS BOX 30A	10	
0AGX030.V	AGX GLASS BOX 30A	10	
0SFE004.V	SFE GLASS BOX 4A	10	
0SFE009.V	SFE GLASS BOX 9A	10	
0SFE014.V	SFE GLASS BOX 14A	10	
0SFE020.V	SFE GLASS BOX 20A	10	
0SFE030.V	SFE GLASS BOX 30A	10	
	Puller Tester	1	

# MICRO2, MICRO3, MCase®, LPJCASE® Module (Module 6)

MATERIAL #				
0RB0X006Z				
MIC2005.V	MICRO2 Fuse 5A	10		
MIC207.5V	MICRO2 Fuse 7.5A	10		
MIC2010.V	MICRO2 Fuse 10A	10		
MIC2015.V	MICRO2 Fuse 15A	10		
MIC2020.V	MICRO2 Fuse 20A	10		
MIC2025.V	MICRO2 Fuse 25A	10		
MIC3005.V	MICRO3 Fuse 5A	10		
MIC307.5V	MICRO3 Fuse 7.5A	10		
MIC3010.V	MICRO3 Fuse 10A	10		
MCAS020.V	MCASE Fuse 20A	10		
MCAS025.V	MCASE Fuse 25A	10		
MCAS030.V	MCASE Fuse 30A	10		
MCAS040.V	MCASE Fuse 40A	10		
LJCA020.V	LOW PROFILE JCASE 20A	10		
LJCA025.V	LOW PROFILE JCASE 25A	10		
LJCA030.V	LOW PROFILE JCASE 30A	10		
LJCA040.V	LOW PROFILE JCASE 40A	10		
LJCA050.V	LOW PROFILE JCASE 50A	10		
LJCA060.V	LOW PROFILE JCASE 60A	10		



# **Modular Rack Systems**

The new MRS Modular Rack System is a flexible offering of fuses that can ordered based on your needs. Each rack is sold individually and can be locked together to sit on a counter, or wall mounted. They are also available as a complete kit. Size charts, and color identification charts are included to serve as a guide for easy identification and replacement.

# OMRS0001ZXA OMRS0002ZXA ATO: MINI/MAXI:

(2) MAX50 (3) MAX60

(5) ATO1 (5) MIN2 (5) ATO2 (5) MIN3 (5) MIN4 (5) ATO3 (10) MIN5 (5) ATO4 (10) MIN7.5 (10) ATO5 (10) AT07.5 (15) MIN10 (15) ATO10 (20) MIN15 (15) ATO15 (20) MIN20 (20) ATO20 (15) MIN25 (10) ATO25 (15) MIN30 (15) ATO30 (2) MAX20 (5) ATO40 (3) MAX30 (2) MAX40

# OMRS0003ZXA GLASS/CERAMIC:

(5) AGC1	(5) AGW20
(5) AGC2	(10) SFE4
(10) AGC3	(10) SFE7.5
(5) AGC5	(10) SFE9
(5) AGC7.5	(10) SFE14
(10) AGC10	(30) SFE20
(20) AGC15	(10) SFE30
(20) AGC20	(10) GBC8
(10) AGC25	(10) GBC16
(30) AGC30	(10) GBC25
(5) AGW15	

# OMRSO004ZXA PAL/MEGA:

i AL/IIIL GA.
(2) PAL20
(4) PAL30
(3) PAL40
(3) PAL50
(2) PAL60
(1) PAL130
(2) PAL160
(3) PAL180
(2) PAL1100
(2) MEG 175

# OMRS0005ZXA PAL/JCASE:

(1) PAL1120	(1) PAL340
(1) PAL230	(1) PAL430
(1) PAL240	(1) PAL440
(1) PAL250	(1) PAL450
(1) PAL260	(1) PAL480
(1) PAL270	(1) PAL4100
(1) PAL280	(1) PAL525
(1) PAL2100	(1) PAL530
(1) PAL2120	(1) JCAS40
(1) JCAS20	(1) JCAS50
(2) JCAS30	(1) JCAS60

(1) PAL330

# OMRSOO06ZXA ATO/MINI ASST'S:

(12) 094202B (12) 094362B

# OMRS0009ZXA

# MICRO2/MICRO3/MCASE:

IVII GROZ/IVII G	NUJ/WICAJE.
MIC2 5	MIC3 7.5
MIC2 7.5	MIC3 10
MIC2 10	MIC3 15
MIC2 15	MCAS 15
MIC2 20	MCAS 20
MIC2 25	MCAS 25
MIC2 30A	MCAS 30
MIC3 5	MCAS 40

MRS3E

# OMRS0007ZXA



# MODULAR RACK TABLE

BOXED		DESCRIPTION	CONTENTS	
MATERIAL #	CATALOG #	DESGRIFTION	CONTENTS	
0MRS0200Z	MRS200	ATO®-MINI®-Maxi Modular Rack System	MRS Racks 1 & 2 (Assembled)	
0MRS0200ZXE	MRS200E	EMPTY ATO®-MINI®-Maxi Modular Rack System MRS Rack with ATO®-MINI®-Maxi graphics (only		
0MRS0200ZXMA	MRS200MA	Marine Fuse Modular Rack System MRS Rack with ATO®-MINI®-Maxi -Glass graphics (o		
0MRS0300Z	MRS300	ATO®-MINI®-Maxi-Glass Modular Rack System MRS Racks 1, 2 & 3 (Assembled)		
0MRS0300ZXE	MRS300E	EMPTY ATO®-MINI®-Maxi-Glass Modular Rack System Empty MRS Rack with "Glass" header (only)		

DESCRIPTION	CARDED	
DESCRIPTION		MATERIAL #
ATO® Modular Rack System	MRS1	0MRS0001Z
MINI®-Maxi Modular Rack System	MRS2	0MRS0002Z
Glass Modular Rack System	MRS3	0MRS0003Z
Empty Glass Modular Rack System	MRS3E	0MRS0003ZXE
PAL-Mega Modular Rack System	MRS4	0MRS0004Z
PAL-JCASE® Modular Rack System	MRS5	0MRS0005Z
ATO®-MINI® Modular Rack System	MRS6	0MRS0006Z
Modular Rack System Complete (MRS 1, 2, 3, 4, 5 & 6	MRS7	0MRS0007Z
ACS Micro2/Micro3/MCase Modular Rack System	MRS9	0MRS0009ZXA



# **Value Pack Kits**

The Littelfuse Value Packs contain a complete assortment of OEM fuses. Value Packs give you the tools for the protection you need — when and where you need it!

The Ultimate fuse kit for home and shop comes in a clear plastic, reusable package.

MATERIAL#	CATALOG #	DESCRIPTION
00940400Z	094400	ATO® Super Value Pack 40pc
00940462Z	094462	MINI® Super Value Pack 40pc
00940475Z	094475	ATO® , MINI®, MAXI Super Value Pack 21pc
00940550Z	094550	MINI®/JCASE® Super Value Pack 29pc
00940554Z		Low Profile MINI® / Low Profile JCASE® Super Value Pack 30pc
00940557ZXA		AGC Glass Super Value Pack 40pc
00940566ZXA		Micro2/Micro3 Super Value Pack 60pc







# **Fuse Assortment Kits**

Littelfuse assortments contain a variety of a type of fuse for your specific needs.

MATERIAL#	CATALOG #	DESCRIPTION	CONTENTS
00940133ZP	94133	European Fuse Assortment	2 each: GBC 8A, 16A Fuses & 1 each: GBC 25 A
00940134ZP	94134	British Fuse Assortment	1 each: AGC 7.5A, 15A, 20A (SFE 20) 1 each: 03000128M Amp Fuses
00940135ZP	94135	Japanese Fuse Assortment	1 each: AGC 5A, 10A, 15A, 20A (SFE 20), 30A Fuses
00940154ZP	94154	American Fuse Assortment	1 each: AGC 10A, 15A, 30A & 1 each: SFE 9A, 14A, 20A Fuses
00940189ZP	94189	Cellular Fuse Assortment	1 each: AGC 1.5A, 3A Fuses & 3 each: AGC 2A Fuses
00940202ZP	94202	ATO Fuse Assortment 6pc	1 each: ATO 5A, 10A, 15A, 20A, 25A, 30A Fuses
00940301ZP	94301	Japanese ATO Fuse Assortment	1 each: ATO 5A, 7.5A, 10A, 15A, 20A Fuses
00940362ZP	94362	Mini Fuse Assortment	1 each: MINI 3A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A
00940408ZP	94408	Computer Fuse Assortment	1 each: AGC .5A Fuses & 2 each: AGC 1A, 2A Fuses
00940412ZP	94412	Electric Fence Assortment	5 each: AGC 1A Fuses
00940416Z	94416	ATO Fuse Assortment (boxed only)	1 each: ATO 10A, 15A, 20A, 25A, 30A Fuses
00940500Z	94500	Mini Fuse Assortment (boxed only)	1 each: MINI 10A, 15A, 20A, 25A, 30A Fuses
00940506ZP	94506	Low Profile Mini Fuse Assortment	1 each: LMIN 7.5A, 10A, 15A, 20A, 25A, 30A Fuses
00940558ZPA		Micro2 Fuse Assortment	1 each: Micro2 5A, 10A, 15A, 20A, 25A Fuses
00940559ZPA		MCase Fuse Assortment	1 each: 15A, 20A, 25A, 30A, 40A Fuses
0AGA0001ZP	AGA1ZP	AGA Glass Fuse Assortment	1 each: AGA 1A, 2A, 3A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A Fuses
0AGC0001ZP	AGC1ZP	AGC Glass Fuse Assortment	1 each: AGC 1A, 2A, 2.5A, 3A, 4A, 5A, 6A, 7.5A, 8A, 10A, 15A, 20A, 25A, 30A, 35A Fuses
0AGW0001ZP	AGW1ZP	AGW/AGX Glass Fuse Assortment	1 each: AGW 3A, 4A, 5A, 15A, 20A, 30A Fuses 1 each: AGX 3A, 20A, 25A, 30A Fuses
0SFE0001ZP	SFE1ZP	SFE Glass Fuse Assortment	1 each: SFE 4A, 6A, 7.5A, 9A Fuses & 2 each: 14A, 20A, 30A Fuses

# **Smart Glow**

MATERIAL#	CATALOG #	DESCRIPTION	CONTENTS
00940202ZPGL0	10-1008	ATO SmartGlow Assortment 5 PK	1 each: ATO 10A, 15A, 20A, 25A, 30A Fuses
00940362ZPGL0	11-1008	Mini SmartGlow Assortment 5 PK	1 each: MINI 10A, 15A, 20A, 25A, 30A Fuses
00940400ZGLO	14-0000	ATO SmartGlow Assortment 42 PK	7 each: ATO GLO 5A, 10A, 15A, 20A, 25A, 30A Fuses
00940462ZGLO	15-0000	Mini SmartGlow Assortment 36 PK	6 each: MINI GLO 5A, 10A, 15A, 20A, 25A, 30A Fuses
00940555ZPGLO		ATO SmartGlow Assortment 5 PK w/ Flashlight	1 each: ATO GLO 10A, 15A, 20A, 25A, 30A Fuses & (1) MINI Keychain LED Flashlight
00940556ZPDSGL0	094556DSGLO	Mini SmartGlow Assortment 5 PK Display Strip	1 each: Perforated Display Strip, S Hook 1 each: MINI GLO 10A, 15A, 20A, 25A, 30A Fuses & (1) MINI Keychain LED Flashlight
00940556ZPGLO	094556	Mini SmartGlow Assortment 5 PK w/ Flashlight	1 each: MINI GLO 10A, 15A, 20A, 25A, 30A Fuses & (1) MINI Keychain LED Flashlight
0AGC0001ZPGL0	16-1008	AGC Glass Assortment 5 PK	1 each: AGC 5A, 10A, 15A, 20A, 30A Fuses
0SFE0001ZPGL0		SFE Glass SmartGlow Fuse Assortment 5 PK	1 each: SFE 7.5A, 9A, 14A & 2 each: 20A Fuses





# **Emergency Kits**

Available in OEM ATO® and MINI® fuse versions. The Littelfuse Emergency Diagnostic Fuse Kits are ideal for the glove box or trunk offering instant protection in the garage or on the road. Packaging designed to generate impulse sales. Contains the most popular amperages.

Includes roadside tester/puller that tests, removes and installs fuses. Has its own power source that allows it to operate with or without voltage to a maximum of 24 volts.

1

MATERIAL #	CATALOG #	DESCRIPTION	CONTENTS
00940363ZP	094363	MINI® Emergency Fuse Kit	1 each: MINI 3A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A Fuses (1) Puller
00940365ZP	094365	Motorcycle Glass Emergency Kit	1 each: AGX 5A, 10A, 15A, 20A Fuses 2 each: AGX 8A Fuses (1) Puller
00940366ZP	094366	Motorcycle ATO® Emergency Kit	1 each: ATO 5A, 7.5A, 10A, 15A, 20A Fuses (1) Puller
00940367ZP	094367	American Glass Emergency Kit	1 each: SFE 9A, 14A, 20A 1 each: AGC 5A, 15A, 30A Fuses (1) Puller
00940368ZP	094368	European GBC Emergency Kit	1 each: GBC 5A, 16A, 25A Fuses 2 each: GBC 8A Fuses (1) Puller
00940369ZP	094369	Japanese Glass Emergency Kit	1 each: AGC 5A, 10A, 15A, 20A, 30A Fuses (1) Puller
00940370ZP	094370	ATO® Emergency Kit	1 each: ATO 5A, 10A, 15A, 20A, 25A, 30A Fuses (1) Puller
00940418ZP	094418	ATO® Emergency Diagnostic Kit	1 each: ATO 5A, 10A, 15A, 20A, 25A, 30A Fuses (1) ATO Puller
00940419ZP	094419	Glass Emergency Fuse Kit	1 each: AGC 7.5, 15A, 20A, 25A, 30A (1) Glass Puller
00940461ZP	094461	MINI® Emergency Diagnostic Kit	1 each: MINI 3A, 4A, 7.5A, 10A, 15A, 20A, 25A, 30A Fuses (1) ATO/MINI Tester/Puller
00940479ZP	094479	ATO®/MINI® Emergency Diagnostic Kit	1 each: ATO 5A, 10A, 15A, 20A, 25A, 30A 1 each: MINI 3A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A Fuses (1) Puller
00940441ZP		Low Profile MINI Emergency Fuse Kit	1 each: LP Mini 2A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A Fuses, (1) Puller
00940442ZP		MCase, Micro2, Micro3 Emergency Kit	1 each: MCase 15A, 20A, 25A, 30A, 40A Fuses, (1) MCase Puller 1 each: Micro2 5A, 7.5A, 10A, 15A, 20A, 25A, 30A Fuses 1 each: Micro3 5A, 7.5A, 10A, 15A Fuses, (1) Micro2/3 Puller
00940561ZPA		OEM Emergency Kit - GM	1 each: MINI 7.5A, 25A, 30A 1 each: LP MINI 10A, 15A 1 each: JCASE 20A, 30A, 40A, 50A 1 each: LPJCASE 30A, 40A, 2 each: MINI 20A 3 each: MINI 10A, 15A
00940562ZPA		OEM Emergency Kit - Ford	1 each: MINI 7.5A, 25A, 30A 1 each: LP MINI 10A, 15A 1 each: JCASE 20A, 30A, 40A, 50A 1 each: LPJCASE 30A, 40A, 2 each: MINI 20A 3 each: MINI 10A, 15A
00940563ZPA		OEM Emergency Kit - Chrysler/Dodge/Jeep	1 each: MINI 7.5A, 25A, 30A 1 each: JCASE 20A, 30A, 40A, 50A 2 each: MINI 20A 3 each: MINI 10A, 15A





# **Planogram**

We developed the next generation of Retail Circuit Protection.

You now can fit more product in the same planogram space — 36% more.

### **MORE SPACE**

for higher margin kits and assortments.

# **OVER 70% GREATER PROFIT POTENTIAL**

per square foot with additional SKU's

### **DOUBLE PLANOGRAM PERFORMANCE**

100% increase in retail dollar sales per square foot

### **INCREASE MARKET COVERAGE**

with high amp JCASE, MAXI and PAL Auto Link fuses

## ORIGINAL EQUIPMENT MANUFACTURER

# **OEM SYMBOL**

Prominent on package assures consumers of quality and actual OE replacement.

### **COLOR CODED**

for easier stocking and consumer selection.

### **RECLOSABLE**

Keeps key marketing data with package until completely consumed.

# **MULTI-LINGUAL**

One SKU covers US, Canadian, German and Latin American markets.

MATERIAL#	CATALOG #	DESCRIPTION
00940477Z	094477	Our 87 SKU, 510-piece pre-pack Plan-O-Gram includes full blade-fuse coverage, as well as expanded coverage into newer parts such as Low-Profile MINI, Low-Profile JCASE, MICRO2, MICRO3, MCASE and Emergency Kits. Includes blade fuses, glass fuses, circuit breakers, Assortment and Emergency kits, fuse holders and fuse tester/pullers. Measures approximately 36"x36".
00940478Z	094478	Our 103 SKU, 625-piece pre-pack Plan-O-Gram is our largest retail assortment featuring multiple facings of the most popular items. This assortment expands your line coverage to fill the needs of your DIY and professional dealer/installer customers as well. Measures approximately 48"x32".

# **Graphics**

### **Header Cards**

An attractive header card is available for Littelfuse Circuit Protection product displays. Measures 36" wide x 8" high or 48" X 8" high.

MATERIAL#	DESCRIPTION					
AA979	36" X 8" Display Header for 36" Planogram (PART# 00940477Z)					
AA980	48" X 8" Display Header for 48" Planogram (PART# 00940478Z)					







# **Packaging / Part Numbering**



# **Blister Pack**

A retail package containing one or several identical products, such as fuses, or it may contain an assortment of fuses. Blister packs are designed to fit on a peghook. 'Bubble pack' or 'clamshell' packages are blister packs.

# **Inner Pack**

A small chipboard box containing several blister packs or pillboxes.



# **Standard Fuse Packaging**

Boxed Merchandise	Pieces/Box	Stnd. Pack	Order
ATO <sup>®</sup> , MINI <sup>®</sup> Fuses	5 to a box	100 (twenty 5 packs)	by piece
Glass Ceramic Fuses	5 to a box	50 (ten 5 packs)	by piece
AGU Fuses	10 to a box	10 (one 10 pack)	by piece
MAXI, PAL, MEGA <sup>®</sup> , MIDI <sup>®</sup>	1 to a pack	10	by piece
Flashers, Circuit Breakers, Fuseholders	1 to a pack	10	by piece
Retail Packaged Merchandise	Fuses/Card	Stnd. Pack	Order
ATO <sup>®</sup> , MINI <sup>®</sup> Fuses, Glass, Ceramic Fuses	5 to a card	5 cards/shelf pack	by card
MAXI, PAL, MEGA <sup>®</sup> , MIDI <sup>®</sup> Fuses	1 to a card	5 cards/shelf pack	by card
Plus Packs	25	5 cards/shelf pack	by card
Retail Carded Kits and Assortments	Various	5 cards/shelf pack	by card
Assortments, Jobber Boards, Merchandisers, etc.	Various	Single unit	by unit

# **Examples of order numbers**

Order numbers must have between 9 characters and 15 characters. These are for added description, such as ZXPRO. When you place an order, write or type the characters without a break in the string.

# **0ATO 010. VP**

First set of four "ATO Fuses" Second set of four "10 Amps"

"Retail pack of 5"

# OMIN 030. ZXPRO

First set of four "MINI Fuses"

Second set of four "30 Amps"

"Professional Pack"

# **Mandatory characters**

### First set of four:

These identify the product group, like LMIN (Low profile MINI fuse) or 0MAX (MAXI fuses).

### Second set of four:

These identify the product subgroup. In fuses, this usually identifies the amperage. The decimal point counts as one character, eg 010. = 10A, 100. = 100A, 01.5 = 1.5A.

# 9th character:

Inner pack quantity. See list of codes below.

# **Inner Pack Codes**

Quantity Code

I =X	500 = u
5=V	1000 = M
10 = T	1500 = D
20 = s	2500 = E
50 = L	3000 =W
100 = H	4000 = y
200 = F	5000 = N
250 = G	10 000 = K

### **Optional characters**

# 10th Character

Packaging type. P= Retail pack, B=Blister Pack.

### Last set of 5:

May be used to give additional information, like MXGLO for SmartGlow fuses



# **FUSE SELECTION CHART**



														7	
PAL Series 5		Locking Female Terminal						25A				30A			UK 35A, 50A
PAL Series 4		9/16" Bent Male Terminal	80A		140A	30A			50A	100A		40A		120A	<b>AGY SFE</b> 50A 4A,6A, 7.5A, 9A,14A, 20A,30A
PAL Series 3		Mini Female Terminal				30A						40A			AGW AGX 1A, 1.54, 2A, 2.5A, 3A, 4A, 3A, 5A, 6A, 15A, 20A, 20A, 30A 30A
PAL Series 2		13/16" Bent Male Terminal	80A —	120A	140A	30A		70A	50A	100A	60A	40A			A, 3A, 4A, 0A, 15A, 25A, 30A, 40A, 50A,
PAL Series 1		Straight Male Terminal	80A	120A		30A				100A	60A				14, 1.54, 24, 3A, 4A, 5A, 5A, 8A, 10A, 20A, 25A, 35A
PAL Series 0		Female Terminal				30A			50A	20A	60A	40A			AGA 14, 1.54, 24, .54, 1 2.54, 34, 54, 2.54, 6 64, 7.54, 104, 64, 7 154, 204, 154, 254, 304,
MEGA®		0				250A	225A		80A	200A	100A	125A	150A	175A	SFE6 SFE6 AGA, SFE4
MAXI	STATE OF THE PROPERTY OF THE P	bsir Vice S			100A		70A 70A		—50A — 50A —	—60A ——60A		80A 80A 30A 30A			AGW, SFE7.5, SFE9
JCASE®	Low Profile JCASE®					30A			50A	20A	60A	40A		Z5A	
MCASE® JCASE®		2011		15A		30A			50A	Z0A		25A 40A			AGC, SFE20, UK
WINI®	SNART SOW Profile MINI®			ZA	3A 3A	4A	5A 5A	7.5A 7.5A	-10A-10 <mark>A</mark>	15A-15A-15A		25A 25A 30A 30A			
AT0®	SMARK	S.M.A.H. FILES	1A	ZA	3A — 3A	44	5A 5A	7.5A 7.5A	—10A — 10A	—15A — <mark>15A</mark>		25A 25A 30A 30A			AGU AGY, SFE30
MICR02	MICRO3						5A	7.5A	10A	15A	ZOA MICRO 2 ONLY	25A MICRO 2 ONLY 30A	MICRO 2 ONLY		
ΗγΡΕ	ALL SIZE AUTOA		Black	Gray	Violet	Pink	Tan	Brown	Red	Blue	Yellow	Green	Orange	White	GEASS

### **FUSE HOLDER SELECTION CHART**



# **Protective Cap** ATO® Fuse In-Line Fuseholder with

Use with ATO® Fuse 1 to 20 amps

Part Number: FHAC1

duty applications. **Fuseholder with Protective Cap** ATO® Fuse Heavy Duty In-Line for air conditioner or other heavy Use with ATO® 25 and 30 amp fuses

Part Number: FHAC2



Use with ATO® Fuse 1 to 20 amps ATO® Fuse In-Line Fuseholder

Part Number: FHA1

# ATO® Fuse Heavy Duty In-Line

30 amp fuse. duty applications. FHA30 includes for air conditioner or other heavy Use with ATO® 25 and 30 amp fuses

Part Number: FHA2, FHA30

Part Number: 20-1010 (ATO®), 20-1020 (MINI®)

MINI® Fuse 2 to 20 amps.

Use with ATO® Fuse 1 to 20 amps and Clear housing to display SmartGlow fuse In-line Fuseholder with Protective Cap ATO® and MINI® SMARTGLOW Fuse



# ATO® Fuse In-line Panel Mount

applications. Interlock body design allows with ATO® Fuse 1 to 20 amps. fuseholders to be snapped together. Use Versatile for in-line or snap mount panel

Part Number: AFH1

# ATO® Fuse Heavy Duty In-line Panel Mount Fuseholder

Use with ATO® Fuse 25 and 30 amp fuses.

Part Number: AFH2





ATO® & MINI®



Use with MAXI™ Fuse up to 60 with Protective Cap

Part Number: MAH1



MAXI™ Fuse In-line Fuseholder



**GLASS** 

# **Universal Glass Bayonet Knob** In-line Fuseholder

up to 20 amps when proper spring AGA, AGC, AGW and AGX Fuses Use with Glass SFE 71/2, 9, 14, 20, is installed.

Part Number: FHP1

# In-line Fuseholder **Universal Glass Twist-Lock**

Fuses up to 20 amps. Use with Glass SFE 4, 6, 71/2, 9, 14, 20, AGA, AGC, AGW and AGX

Part Number: FNY1

# **Glass Fuse Heavy Duty 30 Amp** In-line Fuseholder

applications. FNY 20 includes 20A AGC Fuse. blower motors or other heavy duty fuse for GM air conditioner, heater fuseholder includes AGC 30 amp Spring loaded heavy duty glass

Part Number: FNY30, FNY20

Additional Fuse Holders are available.



Expertise Applied | Answers Delivered



# **Cross Reference Guide**

Competition	Littelfuse	Competition	Littelfuse	Competition	Littelfuse
15600-06-20	350417	BP/FLF(Amp)	PAL0(Amp)BP	KB-7	094419
15600-06-20	350418	FLM(Amp)	PAL1(Amp)	KE-5	094134
BP/15600-06-20	350417BP	BP/FLM(Amp)	PAL1(Amp)BP	KG-5	094133
BP/15600-06-20	340418BP	FLB(Amp)	PAL2(Amp)	KG-7	094368
BP/A-5	094294	BP/FLB(Amp)	PAL2(Amp)BP	KJ-5	094135
ACB 20	ACB20	FLS(Amp)	PAL3(Amp)	KJ-7	094369
BP/ACB 20	ACB20BP	BP/FLS(Amp)	PAL3(Amp)BP	KJA-6	094301
AGA(Amp)	AGA(Amp)	FLD(Amp)	PAL4(Amp)	KJA-7	094370
BP/AGA(Amp)	AGA(Amp)BP	BP/FLD(Amp)	PAL4(Amp)BP	KM-8	094362
AGC(Amp)	AGC(Amp)	FLN(Amp)	PAL5(Amp)	KM-9	094363
BP/AGC(Amp)	AGC(Amp)BP	BP/FLN(Amp)	PAL5(Amp)BP	MAX(Amp)	MAX(Amp)
AGU(Amp)	AGU(Amp)	FMX(Amp)	JCAS(Amp)	BP/MAX(Amp)	MAX(Amp)BP
AGW(Amp)	AGW(Amp)	BP/FMX(Amp)	JCAS(Amp)BP	MDL(Amp)	313(Amp)
BP/AGW(Amp)	AGW(Amp)BP	BP/FP-A3	097023BP	MKA-5	094366
AGX(Amp)	AGX(Amp)	BP/FT-2	097019BP	MKA-6	094366
BP/AGX(Amp)	AGX(Amp)BP	BP/FT-3	097019BP	MKG-6	094365
AGY 50	AGY 50	GBC(Amp)	GBC(Amp)	MKG-7	094365
AK-6	094202	BP/GBC(Amp)	GBC(Amp)BP	NO. 18	094292
ANL (BY AMPERE)	CNL (BY AMPERE)	BP/HHA	FHA200BP	NO. 26	094263
ANN (BY AMPERE)	CNN (BY AMPERE)	HHC	FHA1	NO. 42	094400
AT-7	094370	HHD	FHA2	NO. 45	094375
ATC(Amp)	ATO(Amp)	HHD-12	094303	NO. 70	094374
BP/ATC(Amp)	ATO(Amp)BP	HHD-30	FHA30	NO. 95BK	094422
VP/ATC(Amp)	ATO(Amp)PRO	HHF	FHAC1	NO. 100BK	094409
ATM(Amp)	MIN(Amp)	HHG	FHAC2	NO. 150(EMPTY)	MRS300E
BP/ATM(Amp)	MIN(Amp)BP	HHK	FNY1	NO. 160BK	094410
VP/ATM(Amp)	MIN(Amp)PRO	HHL	FHM1	NO. 200(EMPTY)	MRS300E
CB1911-(Amp)	MCB(Amp)	HHM	FHM2	NO. 201	097396
CB1921-(Amp) CB212-(Amp)	MXB(Amp) MIB(Amp)	HHN HHX	FNY30 MAH1	NO. 204(EMPTY) NO. 245	MRS300E 094360
CB212-(Amp)	MNB(Amp)	HKP-CC	3453LF2A	NO. 245 NO. 245(EMPTY)	MRS300E
CB2221-(Amp)	094189	HKP-CC HKP-HH	3453LF2A 3453LF8A	NO. 500(EMPTY)	MRS300E
CBC(Amp)	8120(Amp)ST	HMK	FNY30	S-8202-(Amp)	035408(Amp)ZXGY
CBC(Amp)B	8130(Amp)ST	BP/HHC	FHA1BP	BP/S-8202-2	OMN2BP
BP/CBC-(Amp)B	8130(Amp)BP	BP/HHD	FHA2BP	BP/S-8202-4	OMN4BP
CBF(Amp)	CBF(Amp)	BP/HHD 30	FHA30BP	S-8301-(# of poles)	3460(# of poles)
BP/CBF(Amp)	CBF(Amp)BP	BP/HHF	FHAC1BP	UCB(Amp)	UCB(Amp)
CCB 25	CCB25	BP/HHG	FHAC2BP	BP/UCB(Amp)	UCB(Amp)BP
BP/CCB 25	CCB25BP	BP/HHH	FHM200BP	SFE(Amp)	SFE(Amp)
CCB 30	ACB30	BP/HHK	FNY1BP	BPSFE(Amp)	SFE(Amp)BP
BP/CCB 30	ACB30BP	BP/HHL	FHM1BP		
EF-5	094412	BP/HHM	FHM2BP		
EK-7	094367	BP/HHN	FNY30BP		
FCB 20	FCB20	BP/HKP-CC	3453LF2C		
BP/FCB 20	FCB20BP	BP/HKP-HH	3453LF8C		
FP-A3	097023	BP/HL	094413		
FT-2	097019	BP/HMK	FNY30BP		
FT-3	097019	HRK	FHP1		
UK-6	094154	HTB-22M	3453LF2A		
FLF(Amp)	PAL0(Amp)	HTB-261	3453LF8A		

NOTES



Littelfuse, Inc. 8755 West Higgins Road Suite 500 Chicago, IL, 60631 USA 773-628-1000

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# Littelfuse:

OFHA0200ZP 00970035XP 00970038XP 00970053XP 0FLW016.XP 0FLW014.XP 0FLC014.XP 0695900.PX4
00940554Z 00940553Z 00940551Z 00940557ZXA 00940550Z 00940554ZXA 00940552Z 00940555ZPGLO
0185080.X 0211010.XP 0211025.XP 0185150.XP 0211020.XP 0185070.X 0211030.XP 0185120.XP 0185060.X
0211015.XP 0185100.XP 0185050.X 0MIN010.VPA 0ATO030.ZXPROA MIC2020.VP 00940408ZPA 0MIN015.VPA
0PAL250.XPA LMIN030.VPA MIC207.5VP JCAS050.XPA 0AGC035.VPA 0PAL2100XPA 0PAL2120XPA
MIC2015.VP LMIN010.VPA MCAS020.XP 00940202ZPA 0PAL230.XPA 00940479ZPA 0SFE0001ZPGLOA
0PAL2140XPA 0AGC0001ZPA 0MAX070.XPGLOA 0MIN020.VPA 0PAL440.XPA 00940559ZPA 0PAL060.XPA
0PAL530.XPA 0MIN025.ZXPROA 0PAL480.XPA 0MIN025.VPA 0SFE0001ZPA 0PAL430.XPA 0MIN003.VPA
0MAX060.XPA 0MIN030.VPA 0MEG125.XPA 0MEG225.XPA 0MAX060.XPGLOA 0MAX100.XPGLOA
0MAX040.XPGLOA 0MEG100.XPA 0MIN002.VPA 0SFE004.VPA 0SFE006.VPA 0SFE014.VPA 0PAL020.XPA
0PAL050.XPA 00970019XPA 0SFE020.VPA 0MIN030.ZXPROA 00940475ZXA 0AGA030.VPA 0AGW030.VPA
00940362ZPGLOA 0SFE07.5VPA 0PAL030.XPA 0MAX030.XPA 0MIN015.ZXPROA 0PAL270.XPA 00940363ZPA
00940510ZXGLOA 0MEG150.XPA 00940362ZPA 0MIN005.VPA 0PAL340.XPA 0AGA005.VPA 0MIN020.ZXPROA
0PAL1100XPA 0MAX050.XPGLOA 0AGC07.5VPA 0AGA003.VPA 0MAX020.XPGLOA