

circuit protection

SOLUTIONS

Volume 2, No. 1, 1998

A publication for the automotive OEM industry

Solutions For Every Circuit Protection Need Littelfuse introduces comprehensive new automotive catalog

Littelfuse has published the most comprehensive Automotive OEM product catalog in the circuit protection industry – a guide to help OEMs find solutions for every automotive circuit protection need. The new catalog outlines Littelfuse's entire line of automotive products and provides all the part numbers and information you need to select, specify and order Littelfuse products.

The catalog has been expanded and redesigned to exhibit Littelfuse's growing line of circuit protection solutions, and it reflects Littelfuse's commitment to the automotive industry's future, highlighting new technologies such as EV fuses and PTCs.

New products featured include:

- JCASE™ cartridge fuse with female terminal design, providing high amp protection and time delay.
- A family of EV fuses to protect high voltage applications on electric vehicles.
- PTC resettable devices to protect electronics applications on vehicles, including the 30R series resettable radial-leaded devices, and the 1812 series and 2029/3425 surface mount PTC devices.
- Additional surface mount products for electronics applications.
- A selection of updated fuseholders featuring Quick Fixes such as the new

Splashproof MAXI™ Fuseholder for harsh environments under the hood.

- MINT™ Resistor for surge suppression in a compact package.

The catalog contains information on Littelfuse's broad line of products including MINI®, MAXI and ATO® Blade Fuses, MEGA® Fuse and MIDI® Fuse. A new chart with the temperature derating curve has been added to the specifications, time-current characteristics and time-current curve, photos and diagrams that accompany each product listing.

The catalog also features an expanded Fuseology section with new information on Littelfuse's unique Skiving and Diffusion Pill Technology manufacturing processes. This popular Fuseology reference on circuit protection also outlines types of overcurrents and fuse selection guidelines.

Everything you need to know about finding the right circuit protection solution for your automotive application is at your fingertips in the new Littelfuse Automotive OEM catalog.

To reserve your copy of the new Automotive OEM catalog, check box 1 on the Fax-Back Reply Form.

Also answer our special SOLUTIONS QUIZ on the Fax-Back Reply Form and win a prize!



SOLUTIONS For Today and Tomorrow

Littelfuse is known as the circuit protection provider OEMs turn to today. But Littelfuse is also deeply involved in the technological developments that will guide the automotive markets of tomorrow. This emphasis on both current and future circuit protection is the embodiment of Littelfuse's commitment to customers like you.

Today, Littelfuse offers the most comprehensive selection of circuit protection solutions in the history of the auto industry. From high current MEGA® Fuses, to space-saving MINI® Fuses and alternate termination JCASE™ Fuses, Littelfuse has the solution to meet your circuit protection needs. And with an updated catalog and a new user-friendly, interactive website, it's easier to find the products and information you are looking for.

But our commitment does not end with today's accomplishments. Littelfuse continues to lead the circuit protection market into the 21st century by exploring tomorrow's automotive technologies with the automakers. Working with auto industry groups and OEM design engineers, we developed the new high current EVAX fuse for electric vehicles, and we continue to investigate the circuit protection aspects of other industry issues.

Please take some time to read about Littelfuse's circuit protection solutions for today and tomorrow in this issue of SOLUTIONS. Then fill out the enclosed reply form with your comments and requests, and fax it back to us – and don't forget to answer the SOLUTIONS QUIZ on the reply form for your chance to win a special prize.

Mike Sammons
Marketing and Sales Manager
Automotive OEM

Beating the Elements

New Splashproof MAXI™ Fuseholder protects fuses from the environment

A unique new solution for automotive manufacturers, Littelfuse's Splashproof MAXI™ Fuseholder protects the high current MAXI Blade Fuse from harmful environmental conditions, enabling more mounting options in remote areas on a vehicle. The new fuseholder provides three seals that cover all areas of possible contamination to protect the terminations from corroding.

"Littelfuse designed the Splashproof MAXI Fuseholder to meet the needs of automotive designers specifying MAXI

be used for any application on marine craft or for special vehicles that do not have fuse blocks such as golf carts, electric wheel-chairs, motor bikes and go-carts.

In cases where additional circuit protection requirements are presented by unforeseen situations and the design is frozen or fuse block space is limited, the Splashproof MAXI Fuseholder can facilitate a creative quick fix solution, by allowing a fuse to be added externally without major design changes.



...protects MAXI Fuses rated up to 80 amps from rain, snow, moisture, automobile fluids, salt and other corrosive substances.

Fuses in locations that expose the devices to harsh environments or weather conditions," said Mike Sammons, Marketing and Sales Manager, Automotive OEM. "The specially designed fuseholder protects MAXI Fuses rated up to 80 amps from rain, snow, moisture, automobile fluids, salt and other corrosive substances."

The Splashproof MAXI Fuseholder is ideal for special equipment options such as trailers, power take-off units, light accessories, and special application packages for police, snow plows and towing. One Littelfuse OEM customer uses the fuseholder to add a second cooling fan for vehicles in extremely hot climates. The Splashproof MAXI Fuseholder can also

The Splashproof MAXI Fuseholder is available in two mounting styles, with and without mounting tabs. The weather-resistant characteristics of the fuseholder provide almost limitless mounting options in remote locations throughout the vehicle including the engine bulkhead, passenger compartment or trunk.

The fuseholder is completely customizable for your particular application – you can order the specific seals, terminals and body styles that meet your needs.

For more information on the Splashproof MAXI Fuseholder, check box 2 on the Fax-Back Reply Form – and test your knowledge with our SOLUTIONS QUIZ.



WORLDWIDE NEWS

Littelfuse European operations achieved QS-9000 quality systems compliance. QS-9000 is the automotive industry's quality system standard developed by Ford, Chrysler, General Motors and heavy-duty truck manufacturers, and is required for their suppliers. The standard is also widely used by European OEMs. QS-9000 certification was gained by Littelfuse B.V., the company's European headquarters based in the Netherlands, and Littelfuse's automotive manufacturing plant in Switzerland, which also gained the prestigious VDA standard certification.

The Littelfuse plant in Suzhou, China, received ISO 9002 quality systems certification, completing Littelfuse ISO certification for all of its worldwide manufacturing facilities. The approving agency was Hong Kong BSI, a part of the British Standards Institute. The ISO assessment was coordinated through the Littelfuse Hong Kong office, and the achievement of ISO certification is recognized as a major milestone by the Chinese authorities and international entities within the People's Republic of China.

MAXI vs. JCASE

Littelfuse introduces new SOLUTIONS Tech Brief with selection guidelines for high current fuses

The new technical brief entitled *Selection Guidelines for Littelfuse MAXI blade fuses and JCASE cartridge fuses* – now available to Littelfuse customers – is the first in a series of Littelfuse SOLUTIONS Tech Briefs developed to help designers learn more about applications for Littelfuse products.

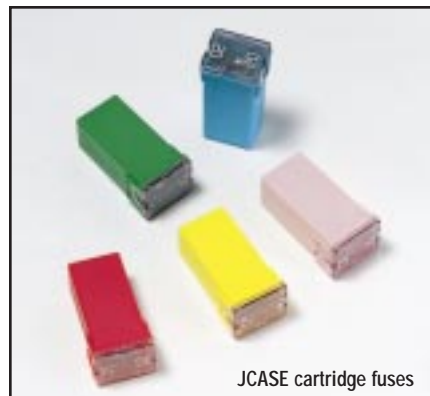


MAXI blade fuses

Littelfuse is the only circuit protection supplier to offer both cartridge and blade fuses for high current automotive applications, and the new one-page Tech Brief provides technical information to help designers decide whether it is appropriate

to use MAXI Fuses or JCASE Fuses in certain applications. The brief discusses fuse block design, element melting temperature, current ratings, time delay and other issues to be considered when selecting a high current fuse.

Look for more SOLUTIONS Tech Briefs to be introduced this year, and if you have faced a technical issue that could be addressed in a Tech Brief, please fax it to us on the enclosed reply form.



JCASE cartridge fuses

For a copy of the SOLUTIONS Tech Brief, check box 3 on the Fax-Back Reply Form.

Littelfuse Updates Website at www.littelfuse.com

As the Internet continues to evolve, it is becoming an important commercial channel for the automotive industry, and Littelfuse has updated its website at www.littelfuse.com to meet its customers' growing needs. The latest changes to the website enable easier navigation and provide more ways for customers to access information on Littelfuse products.

One major advantage for Littelfuse customers is the new on-line catalog. All Littelfuse product information from the catalog is now accessible at the website – just click the "Products" button on the Littelfuse home page. The upgraded

website offers a variety of search engines to allow you to retrieve information, allowing customized searches according to application, part number and electrical characteristics.

"Our customers who utilize the website have been asking for more accessible product information that can be easily downloaded," said Mike Sammons, Marketing and Sales Manager, Automotive OEM. "So we have concentrated our efforts on providing as much information as possible to our customers, in an easy-to-use format. This website is a work in progress, and it will continue to be updated to give customers more access to the information they need."

The Littelfuse website also enables you to download catalog pages and other information onto your own PC, request literature and product samples, and search for Littelfuse office locations worldwide. The site has been redesigned visually to reflect the advancing technology of circuit protection, and it provides more navigation buttons to help you find your way around. If you haven't been to our website lately, stop by and check it out next time you are surfing the Net.

If you have suggestions for the Littelfuse website, send your email to msammons@littelfuse.com.

Safety First

Littelfuse reinforces EV safety with new EVAX fuse

Littelfuse has introduced its next generation high current EV fuse, the Electrical Vehicle Auxiliary Fuse (EVAX), replacing the CCEV fuse which was introduced last year. The EVAX fuse provides the same electrical function as the CCEV, and its package offers significant safety improvements.



Littelfuse's family of EV Fuses

The new EVAX fuse features CCEV's unique keying feature, but it takes safety considerations one step further with a bladed design and a recessed terminal that provide a touch-proof package. The new design eliminates the chance of accidental shock caused during vehicle maintenance. It also makes repairs easier, enabling simple installation and removal without the need for special tools.

The EVAX fuse is rated at 600 volts DC, designed to protect lower current applications with high voltages on EVs such as air conditioning compressors, electric heaters, coolant pumps and power steering. Currently available in a 30 amp prototype, the EVAX will soon be available in two package sizes rated from 5 to 30 amps and 40 to 80 amps. As an added safety highlight, the fuses will include a current rating key feature to prohibit the fuse from being placed in a circuit with a lower current than the fuse rating.

The EVAX fuse was designed for the specific needs of the three major US automakers as outlined by the High Voltage Electrical Distributions Systems Task Force, an SAE committee devoted to finding solutions for high voltage power distribution systems in electric vehicles. Members of the committee include representatives from Ford, GM, Chrysler, wiring harness manufacturers such as UTA and Delphi-Packard, and connector providers such as AMP, as well as Littelfuse engineers and salespeople.

"The EVAX fuse directly addresses the safety concerns brought to our attention by our customers," explained Scott Hawkinson, Resident Engineer, Detroit Sales Office. "This fuse was completely designed in conjunction with the automotive OEMs." With the SAE committee's approval, the EVAX will become the industry standard EV fuse. Ford, GM and Chrysler are all planning to use the EVAX fuse in EV models to be introduced after the year 2000.

"I am very excited about this new family of EVAX fuses," commented Ralph Erskin, Release Engineer for EV products, Ford Motor Company. "They are the first high voltage fuses to be designed specifically for automotive use with our end customer in mind. They provide additional features that industrial fuses do not have, including 'fingerproof' packaging and mechanical keying by ampacity. The leadership that Littelfuse has shown in developing these fuses demonstrates their commitment to meeting our customers' needs."

"Littelfuse's extensive involvement in electric vehicle development continues to strengthen our position in the arena of EV circuit protection," added Mike Sammons, Marketing and Sales Manager, Automotive OEM. "As we work side by side with our OEM customers on EVs and other special projects, Littelfuse helps pave the road for future automotive technologies."



a publication of



Littelfuse, Inc.
800 E. Northwest Highway
Des Plaines, IL 60016
Phone: 847-824-1188
Fax: 847-803-5364
Website: www.littelfuse.com

Editor:
Mike Sammons
Marketing and Sales Manager
Automotive OEM

E-Mail: msammons@littelfuse.com

Worldwide Locations

Detroit
Littelfuse, Inc.
31275 Northwestern Highway #210
Farmington Hills, MI 48334
Phone: 248-851-8890
Fax: 248-851-5305

Netherlands
Littelfuse, B.V.
P.O. Box 2023
3500 GA Utrecht
The Netherlands
Phone: (31) 30-2999900
Fax: (31) 30-2999800
E-Mail: littelfuse@littelfuse.nl

England
Littelfuse UK, Ltd.
3 Rutherford Road
Stephenson Industrial Estate
Washington, Tyne & Wear
England NE37 3HX
Phone: (44) 191-415-8181
Fax: (44) 191-415-8189

Singapore
Littelfuse Far East Pte. Ltd.
140 Paya Lebar Road
#08-01/04 A-Z Building
Singapore 409015
Phone: (65) 746-9666
Fax: (65) 742-8178

Hong Kong
Littelfuse HK Ltd.
Suite 26, 16th Floor
Metro Center II
21 Lam Hing Street
Kowloon Bay, Kowloon
Phone: (852) 28105099
Fax: (852) 28105500

Korea
Littelfuse Triad, Inc.
277-105 2KA
Sung Soo-Dong
Seoul, 133-123, Korea
Phone: (82) 2463-6073
Fax: (82) 2463-1777

Japan
Littelfuse, KK
KC Building 6 F
3-16-1 Shinyokohama Kouhoko-Ku
Postal Code 222
Yokohama City
Phone: (81) 45-478-1088
Fax: (81) 45-478-1089

Brazil
Littelfuse do Brasil
Rua Irapuru N 54-A
Moinho Velho
Freguesia Do O
Sao Paulo Cep 02960070
Phone: (55) 11877-0909
Fax: (55) 11876-6690