Littelfuse®

Expertise Applied | Answers Delivered

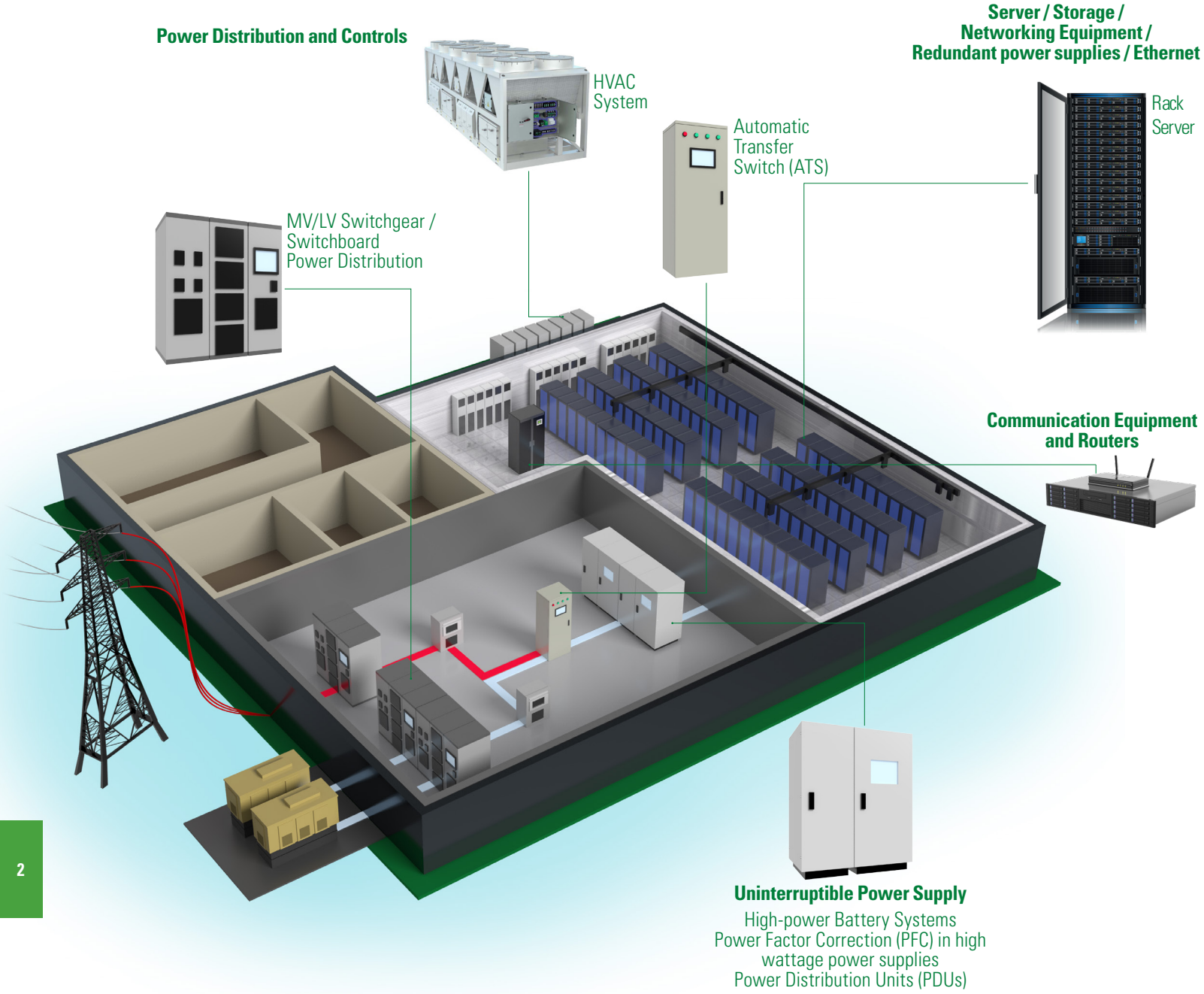
Enabling Green Data Center

Product Selection Guide

Empowering a sustainable Data Center

Today's data centers must handle the rapid rise in data volume from millions of devices that make up the Internet of Things (IoT), 5G / 6G, High Performance Computing (HPC) which is used to develop a myriad of artificial intelligence applications.

With increasing data traffic power demand is escalating, driven by increased thermal design of CPUs or GPUs. We help you empower a sustainable and reliable Data Center.



*The devices illustrated here address only a few of the data center areas for which Littelfuse can deliver industry-leading solutions. For a more complete view of Littelfuse solutions by application, consult the selection matrix included in this document.

Empowering a safer world

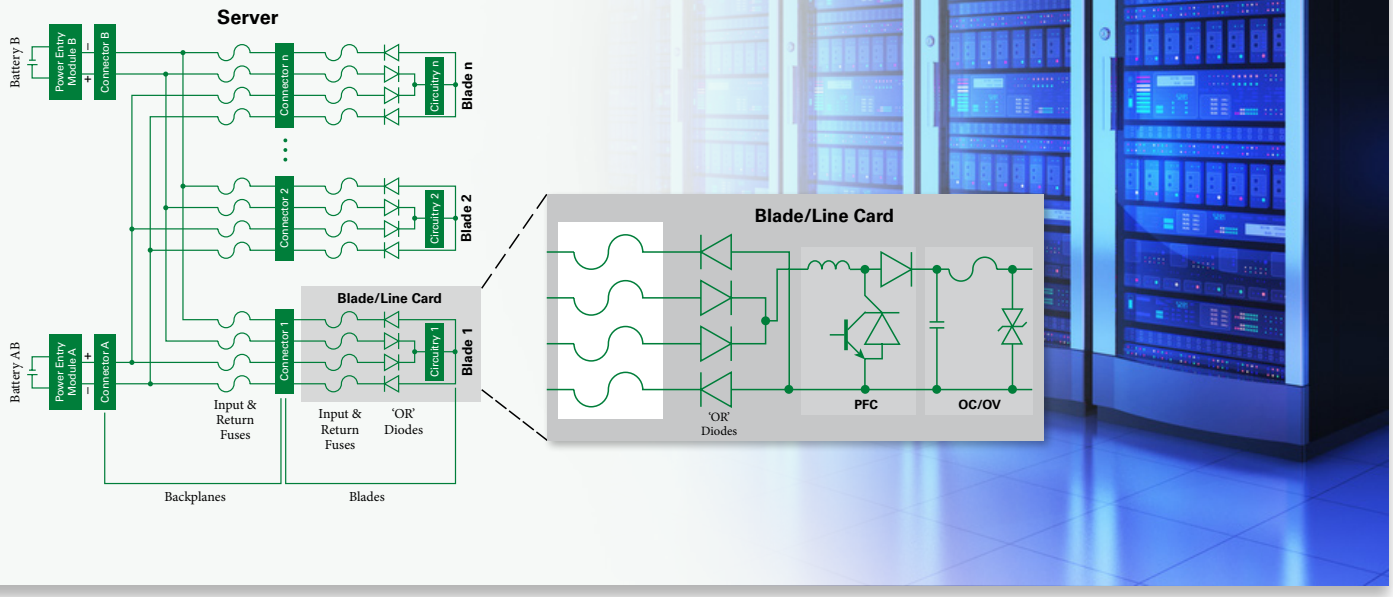
Types of Faults	Possible Effects of Unprotected Faults	Protection Solutions
Electrostatic Discharge (ESD)	Faulty circuit operation, latent defects, and even catastrophic failure of sensitive data center equipment.	Polymer ESD, Multilayer Varistors, TVS Diode Arrays
Load-switching transients in power electronics circuits	Equipment failure or faulty operation, leading to downtime or corrupt data	Metal Oxide Varistors, Gas Discharge Tubes, TVS Diodes
Induced surges (Lightning)	Equipment failure, leading to downtime	Metal Oxide Varistors, Gas Discharge Tubes, Protection Thyristors, TVS Diodes, Surge Protective Devices (SPD2)
Overload/short circuit current	Excessive current can result in complete circuit destruction and possible fire, electrocution, or explosion. Short circuits can cause arcs, shock, and fire hazards.	Fuses, Resettable PTCs
Ground fault	Premature equipment failure and possible arc flash	NGR, NGR Monitor, Ground-Fault Relay

How is the Surface Mount Fuse Used Here?

881 Series–Nano²® High Current Subminiature Surface Mount Fuse

Provides Single-fuse solution for high current application requirements. the convenience of parallel fusing eliminate the need for industrial type fuses.

Ideal for over current protection for high operating current 60 A to 100 A applications in a limited space such as high density servers.



Circuit Protection

Product and Application Matrix

Littelfuse Product Series	Computer and Networking Equipment						Uninterruptible Power Supply			Communication Equipment				Power Distribution & Controls						
	USB	Ethernet	RS-232 / RS-485	eSATA / SATA	Power Supply	Fans	AC Power Supply	Converter & Inverter	Battery Btank	Modem	ADSL splitters, Channel / Data Service Unit	Repeaters, Mux, WAN	VoIP, LAN	Switchgear Panel	Automatic Transfer Switch	Power Distribution Unit	Busway	Panelboard	Backup Generator	HVAC
Resettable PPTCs																				
Low Resistance	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-
Surface Mount	•	•	-	-	•	•	-	•	•	•	•	•	•	-	-	-	-	-	-	•
Radial Leaded	-	-	-	-	•	•	•	•	-	•	•	•	•	-	-	-	-	-	-	•
Telecom	-	•	•	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Fuses																				
Surface Mount	-	•	-	-	•	•	•	•	•	-	-	-	-	•	•	-	-	-	•	•
Cartridge	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Holders, Blocks, and Clips	-	-	-	-	•	•	•	-	•	-	-	-	-	•	•	•	•	•	•	•
Semiconductor	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-
Industrial Power & UL Class Fuses	-	-	-	-	-	-	•	•	•	-	-	-	-	•	•	•	•	•	•	•
Medium Voltage (E-Rated, R-Rated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-
Protection IC																				
eFuse	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polymer ESD Suppressors																				
PESD Discrete and Array	•	•	•	•	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
XTREME-GUARD™	•	•	•	•	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
TVS Diodes																				
Surface Mount	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-
Leaded	•	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
High Power	-	-	-	-	•	-	-	•	-	-	-	-	-	-	•	•	•	•	-	-
TVS Diode Array																				
General Purpose	-	-	-	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Low Capacitance	•	•	•	•	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Lightning Surge	•	•	-	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Varistors (MOV / MLV)																				
Radial Leaded	-	-	-	-	•	•	•	•	-	-	-	-	-	•	•	•	•	•	•	-
Surface Mount	-	-	-	-	•	•	•	•	•	-	-	-	-		-	-	-	-	-	-
Thermally Protected	-	-	-	-	•	•	•	•	-	-	-	-	-	•	•	•	•	•	•	•
Industrial High Energy	-	-	-	-	•	-	•	•	-	-	-	-	-	•	•	•	•	•	•	•
Multilayer Varistors	•	•	•	•	-	-	-	-	•	•	•	•	•	-	-	-	-	-	-	-
Gas Discharge Tube (GDT)																				
High Voltage	-	-	-	-	•	-	•	-	-	•	•	-	-	•	•	•	•	•	•	-
Squared	-	-	-	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Medium Surge	-	•	•	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Protection Thyristor																				
SIDACtor®	-	•	•	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Surge Protection Device																				
SPD2	-	-	-	-	-	-	•	•	•	-	-	-	-	•	•	•	•	•	•	•

Switching and Control

Product and Application Matrix

Littelfuse Product Series	Computer and Networking Equipment						Uninterruptible Power Supply			Communication Equipment				Power Distribution & Controls						
	USB	Ethernet	RS-232 / RS-485	eSATA / SATA	Power Supply	Fans	AC Power Supply	Converter & Inverter	Battery bank	Modem	ADSL Splitters, Channel /Data Service Uni	Repeaters, Mux, WAN	VoIP, LAN	Switchgear Panel	Automatic Transfer Switch	Power Distribution Unit	Busway	Panelboard	Backup Generator	HVAC
Solid State Relays																				
Normally Open and Normally Closed Relays	-	-	-	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Power Relays	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-	•	•
Isolated High-Voltage Analog Switches	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-
AC Power Switches	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-	-	•	•
Line Card Access Switches	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-
Current-Limited Solid State Relays	-	-	-	-	•	-	-	-	-	•	-	-	•	•	•	-	-	-	-	-
Octocouplers																				
High-Speed Optocouplers	•	•	•	•	•	-	•	•	•	•	•	•	•	-	-	-	-	-	-	-
Linear Optocouplers	-	-	-	-	•	-	•	•	•	-	-	-	-	-	-	-	-	-	-	-
Isolation Amplifiers	-	-	-	-	•	-	•	•	•	-	-	-	-	-	-	-	-	-	-	-
Single & Dual Optocouplers	-	-	-	-	-	-	-	-	-	•	•	•	•	-	-	-	-	-	-	-
Protection Relays																				
NGR and NGR Monitor	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	-	•	-
Ground-Fault Relay	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	-	•	-
Arc-Flash Relay	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•
(Hartland) Controls																				
Contactors [HCD]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
Transformers [HCT]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
Capacitors [HCK]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
Mechanical Relays [HCR]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
Circuit Breakers [HCB]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•
C&K Switches																				
Tact	-	-	-	-	•	-	•	•	-	-	-	-	-	-	-	•	-	-	-	-
Slide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Detect	-	-	-	-	•	-	•	•	-	-	-	-	-	-	-	•	-	-	-	-
Linear DIP	-	-	-	-	•	-	•	•	-	-	-	-	-	-	-	•	-	-	-	-
Pushbutton	-	-	-	-	•	-	•	•	-	-	-	-	-	•	-	•	-	-	-	-
Rocker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-
Toggle	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-	-	-
Snap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-
Rotary	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	•	-	-

How is the Fuse Used Here?

TLS Series Compact Current Limiting Telecommunications Fuse

In today's Data Centers, the amount of power supplied by the data center rack power supply had increased, but the space allowed for the power supply remained the same.

TSL Series fuse is an ideal fuse for overcurrent protection for rack power supplies as it comes in a small, compact form factor that could be mounted to a circuit board.

Power Semiconductor

Product and Application Matrix

Littelfuse Product Series	Computer and Networking Equipment						Uninterruptible Power Supply			Communication Equipment				Power Distribution & Controls						
	USB	Ethernet	RS-232 / RS-485	eSATA / SATA	Power Supply	Fans	AC Power Supply	Converter & Inverter	Battery Bank	Modem	ADSL Splitters, Channel / Data Service Unit	Repeaters, Mux, WAN	VoIP, LAN	Switchgear Panel	Automatic Transfer Switch	Power Distribution Unit	Busway	Panelboard	Backup Generator	HVAC
Diodes																				
Rectifier Diode	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
Fast Recovery Diode	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
Schottky Diode	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
Phase Control Thyristor	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	•	-	-	•	•
Thyrstor/Diode Module	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
Rectifier Module	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
IGBT																				
Discrete IGBT	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
IGBT Module	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
SMPD IGBT	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
Power MOSFET																				
Discrete MOSFET	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
MOSFET Module	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
SMPD MOSFET	-	-	-	-	•	-	•	•	•	-	-	-	-	•	•	•	•	-	•	•
Drivers																				
MOSFET & IGBT Gate Drivers	-	-	-	-	•	-	•	•	-	-	-	-	-	-	-	-	-	-	•	•
High Voltage Gate Drivers	-	-	-	-	•	-	•	•	-	-	-	-	-	-	-	-	-	-	•	•
Optically Isolated Gate Drivers	-	-	-	-	•	-	•	•	-	-	-	-	-	-	-	-	-	-	•	•
Magnetic Sensors & Reed Switches																				
Reed Sensors	-	-	-	-	•	-	•	-	-	-	-	-	-	•	•	•	-	•	-	-
Reed Switches	-	-	-	-	•	-	•	-	-	-	-	-	-	•	•	•	-	•	-	-
Temperature Sensors																				
Thermistor Probes & Assemblies	-	-	-	-		•	-	-	-	-	-	-	-	-	-	•	-	-	-	•
Surface Mount Thermistor	-	-	-	-	•	•	•	•	-	•	-	•	-	-	-	-	-	-	•	•
Glass-Encapsulated Thermistor	-	-	-	-	•	•	•	•	-	•	-	•	-	-	-	-	-	-	•	•

How are the High Power TVS Diodes Used Here?

AK10 Series TVS Diodes

AK10 series TVS Diodes are designed on power distribution boards, power input, and GPU input to protect against any surge damage risk in outdoor servers. They have outdoor specifications up to 20 kV.

Sensing
Product and Application Matrix

Littelfuse Product Series	Computer and Networking Equipment						Uninterruptible Power Supply			Communication Equipment				Power Distribution & Controls						
	USB	Ethernet	RS-232 / RS-485	eSATA / SATA	Power Supply	Fans	AC Power Supply	Converter & Inverter	Battery bank	Modem	ADSL splitters, Channel / Data Service Uni	Repeaters, Mux, WAN	VoIP, LAN	Switchgear Panel	Automatic Transfer Switch	Power Distribution Unit	Busway	Panelboard	Backup Generator	HVAC
Magnetic Sensors & Reed Switches																				
Reed Sensors	-	-	-	-	•	-	•	-	-	-	-	-	-	•	•	•	-	•	-	-
Reed Switches	-	-	-	-	•	-	•	-	-	-	-	-	-	•	•	•	-	•	-	-
Temperature Sensors																				
Thermistor Probes & Assemblies	-	-	-	-		•	-	-	-	-	-	-	-	-	-	•	-	-	-	•
Surface Mount Thermistor	-	-	-	-	•	•	•	•	-	•	-	•	-	-	-	-	-	-	•	•
Glass-Encapsulated Thermistor	-	-	-	-	•	•	•	•	-	•	-	•	-	-	-	-	-	-	•	•

How are the High Performance Fast Recovery Diodes and Ultra-Junction MOSFETs Used Here?

Protection and Control Products for Power Distribution and Control

	Technology	Series
1	UL Class Fuse	CMMR, JLLN, JLLS, KLDR, FLNR
	Fuseholder	LF, LFJ, LFT
2	Power Distribution Box	LD
3	Arc Flash Relay	AF0100, PGR-8800
4	Time Delay Relay	TMV, TRU
5	Voltage Monitoring Relay	455, 460
6	Surge Protection Device	SPD2
7	Grount Fault Relay & NGR Monitor	SE-704, SE-701, SE-330
8	Temperature Control	TCR9C
9	Alternating Relay	ALT
10	Load Sensor	LSRX, LSRX-C
11*	Capacitor	HCK
	Transformer	HCT
	Contactor	HCD
	Circuit Breaker	HCB
	Mechanical Relay	HCR
12	Switch	EITS, KT, K5V

* Hartland Control products for HVAC applications only.

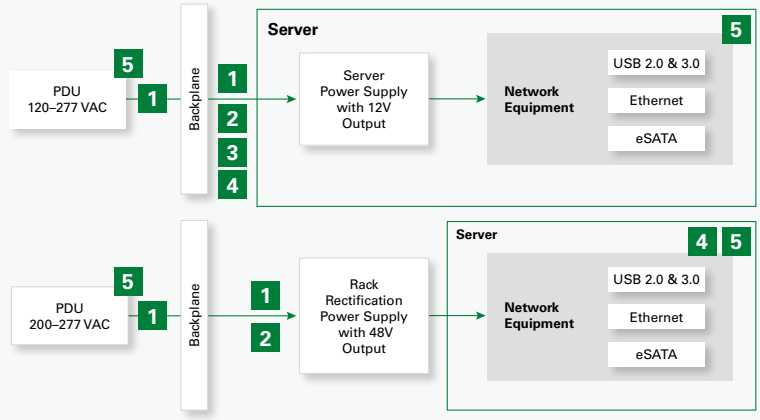
How is the Fast-Acting Fuse used here?

Very Fast Acting Sub-miniature Fuses

456 / 463 / 458 Nano$^{2®}$ Series are used for high-end server's voltage regulator module and cooling fan systems and other high-current applications like storage devices.

B Computing Equipment Solutions

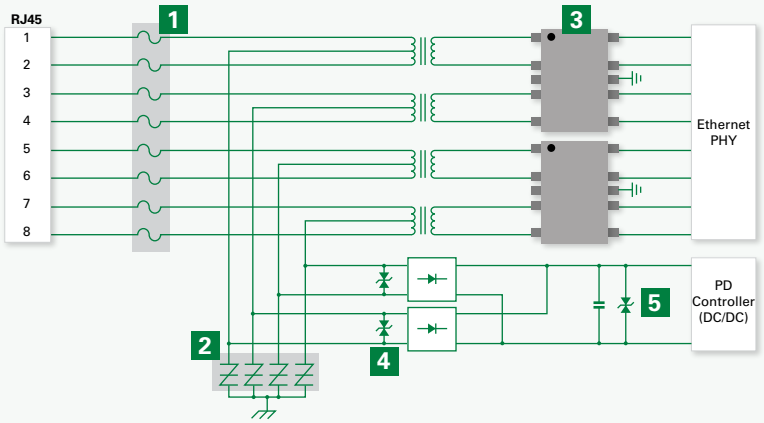
Power Supply (12 V / 48 V)



	Technology	Series
1	Fuse	881F, TLS, 456SD, 456SDE
2	Varistor	UltraMOV®
3	TVS Diode	SMDJ
4	Reed Sensor	59150, 59020
5	Switch	EITS, KT, K5V

C Networking and Data Port Solutions

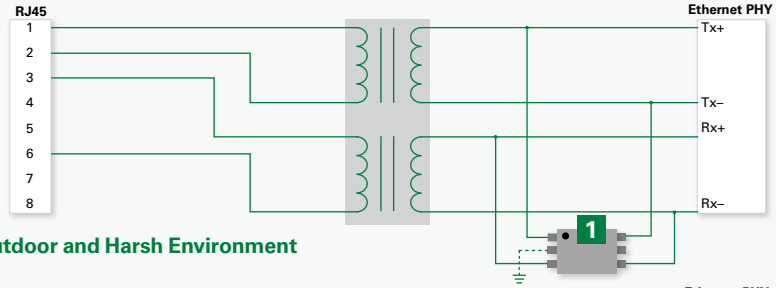
Lightning, ESD, and Power Fault Protection: PoE++



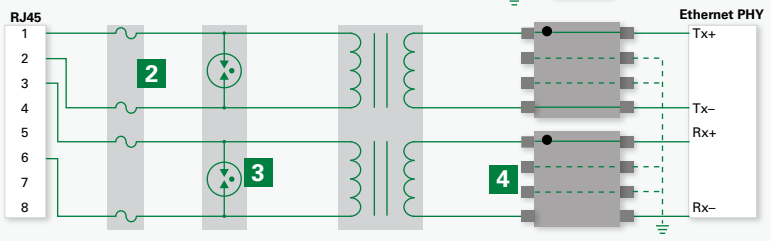
	Technology	Series
1	Fuse (x8)	461xxx
2	SIDACtor® (x4)	P4500SCLRP
3	Diode Array (x2)	SP2555NUTG, SP2525NUTG, SP3025-04HTG
4	TVS Diode (x2)	SMCJ58CA
5	TVS Diode (x1)	SMCJ58CA

Circuit Protection Solutions for Ethernet Port

Intra-building



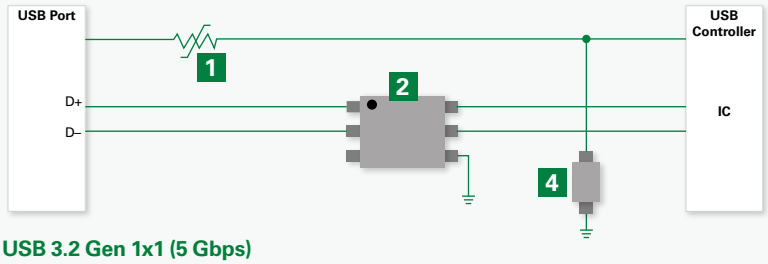
Outdoor and Harsh Environment



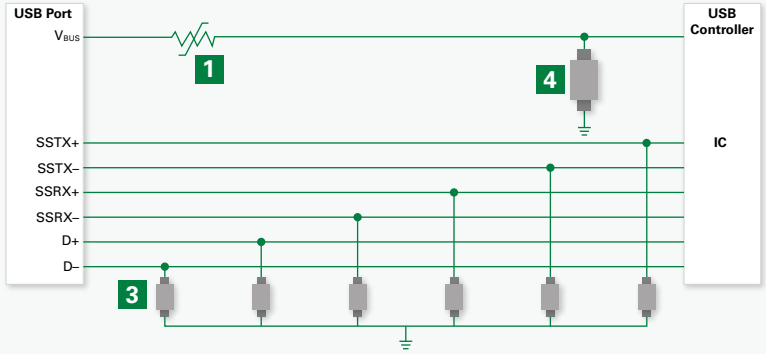
	Technology	Series
1	Diode Array	SRV05-04HTG-D
2	Fuse	0461xxx
3	GDT	SG, CG6, CG5
4	Diode Array	LC03xx, SP40xx

Circuit Protection Solutions for USB Type A and Type B

USB 2.0 (480 Mbps)



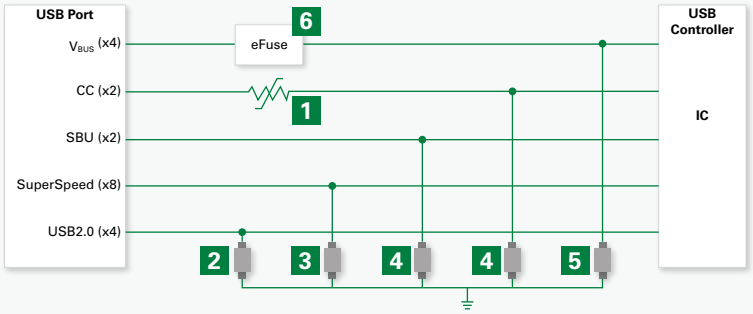
USB 3.2 Gen 1x1 (5 Gbps)



	Technology	Series
1	PPTC	Low Rho
2	Diode Array	SP3019-04HTG; SP3400-02UTG
3	Diode Array (x6)	SP3213-01UTG
4	Diode Array	SP1006-01UTG

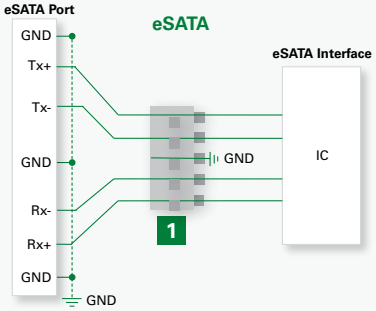
Circuit protection solutions for USB Type C

USB 3.2 Gen 2x1 (10 Gbps), USB 3.2 Gen 2x2 (20 Gbps), and USB 4.0 (40 Gbps)



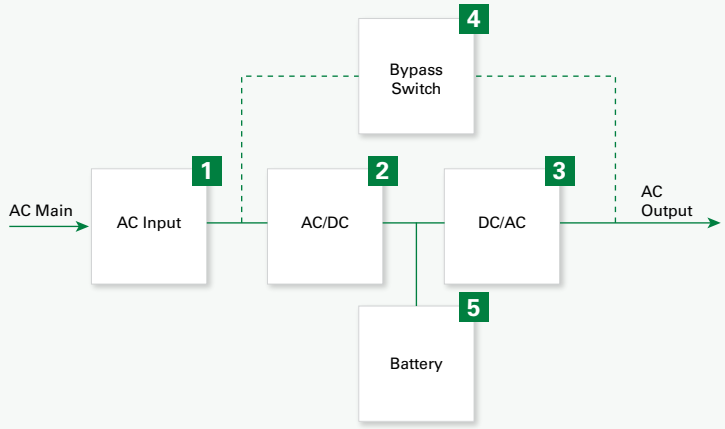
	Technology	Series
1	Digital Temperature Indicator	setP™
2	Diode Array	SP3530-01UTG
3	Diode Array	SP3213-01UTG
4	Diode Array	SP1006-UTG
5	Diode Array	SPHV24-01ETG
6	Protection IC (eFuse)	LS2406ERQ23

Circuit Protection Solutions for eSATA Port



	Technology	Series
1	Diode Array	SP1004U-ULC-04UTG

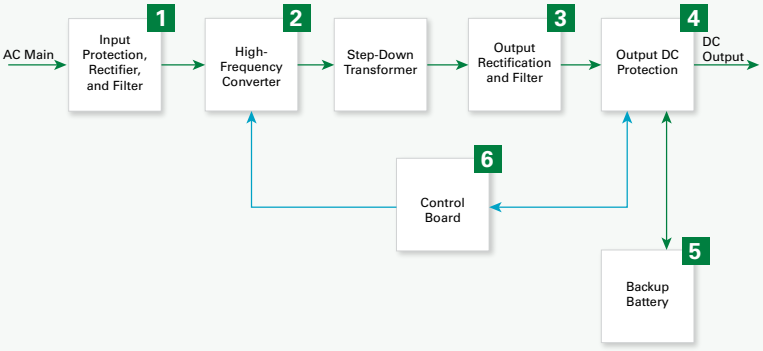
D Uninterruptible Power Supply (UPS) [1]



	Technology	Series
1	**Fuse** [2]	PSR, JLLS, 505, 607
	MOV [3]	TMOV, Xtreme
	SIDACtor® & MOV	Pxxx0FNL & LA
2	**Rectifier Module** [4]	MDD, VUO, MDMA
	IGBT & MOSFET	XPT & Ultra-Junction X-Class
	Gate Driver [5]	IXD_6xx
	Temp Sensor	USP10976
3	**IGBT Module**	MIXA, MIXG
	Gate Driver [5]	IXD_6xx
	Temp Sensor	USP10976
4	**Thyristor Module**	MCC, MCMA
5	**Switch**	EITS, KT, K5V

Notes:
1. A double conversion online UPS diagram is used as representative model. Other topologies will have similar solution needs at common power levels.
2. Many other fuse options are available, based on system attributes such as current, voltage, available fault current, surge withstand, and sensitivity of semiconductors.
3. For faster response, consider P6KE or a combination of a SIDACtor® and an MOV (P3500SCLRP and LA series).
4. Rectifier diodes can potentially be substituted with active rectification through IGBT for improved functionality.
5. Gate drivers may require an isolator. Contact factory for recommendations.

D Power Supply Unit and Battery Backup



	Technology	Series
1	**Fuse**	JLLN, PSR, 607
	MOV	TMOV34S, Xtreme
	GDT	CG3
	TVS Diode	LTKAK10
	Magnetic Sensor	MDCG
2	**TVS Diode**	P6KE, 1.5SMB, SMF4L
	MOSFET	X2-class
3	**Schottky Diode**	MBR, DST
4	**Fuse**	463, 881, TLS, PSR, 456SD, 456SDE
5	**Fuse**	463, 881, TLS, PSR, 456SD, 456SDE
	Temp Sensor	RB
	Diode Array	AQ05C
	PPTC	zeptoSMDC
	Battery Protector	ITV
	Battery Mini-Breaker	MHP-TAM
	Switch	EITS, KT, K5V
6	**Switch**	EITS, KT, K5V

About Littelfuse

Littelfuse (NASDAQ: LFUS) is an industrial technology manufacturing company empowering a sustainable, connected, and safer world. Across more than 15 countries, and with 12,000 global associates, we partner with customers to design and deliver innovative, reliable solutions. Serving over 100,000 end customers, our products are found in a variety of industrial, transportation, and electronics end markets—everywhere, every day. Learn more at Littelfuse.com.

Why Choose Littelfuse?

Littelfuse introduced the first of what would become a long line of automotive circuit protection technologies in the 1930s, with the design and development of the original automotive fuses. That commitment to the automotive industry continues today as vehicles have become increasingly dependent on high-powered electronics.

Littelfuse supports automotive designers with a global network of test labs and design and manufacturing facilities across four continents, including China's second-largest semiconductor fabrication facility. Our Silicon Valley Technology Center supports the complete innovation life cycle, from new materials and product concepts to product design, prototyping, testing, and validation.

Customer Focus

A customer-first approach is at the heart of our company-wide culture, driving us to build long-lasting relationships and exceed expectations. Every day, it is our employees who make the difference for your business. They listen to your needs and understand your challenges. They use their knowledge and expertise to develop the best solutions and solve your problems.

Application Expertise

At Littelfuse, we partner with customers to design, manufacture, and deliver innovative solutions for a wide range of markets, including automotive and commercial vehicles, industrial applications, data and telecommunications, medical devices, consumer electronics, appliances, and transportation. Our expertise involves applying reliable and efficient product solutions, innovative technologies, and global resources to technical challenges in a variety of applications. Our worldwide network of research teams focuses on product development and support, design-in programs, and application testing in our global labs.

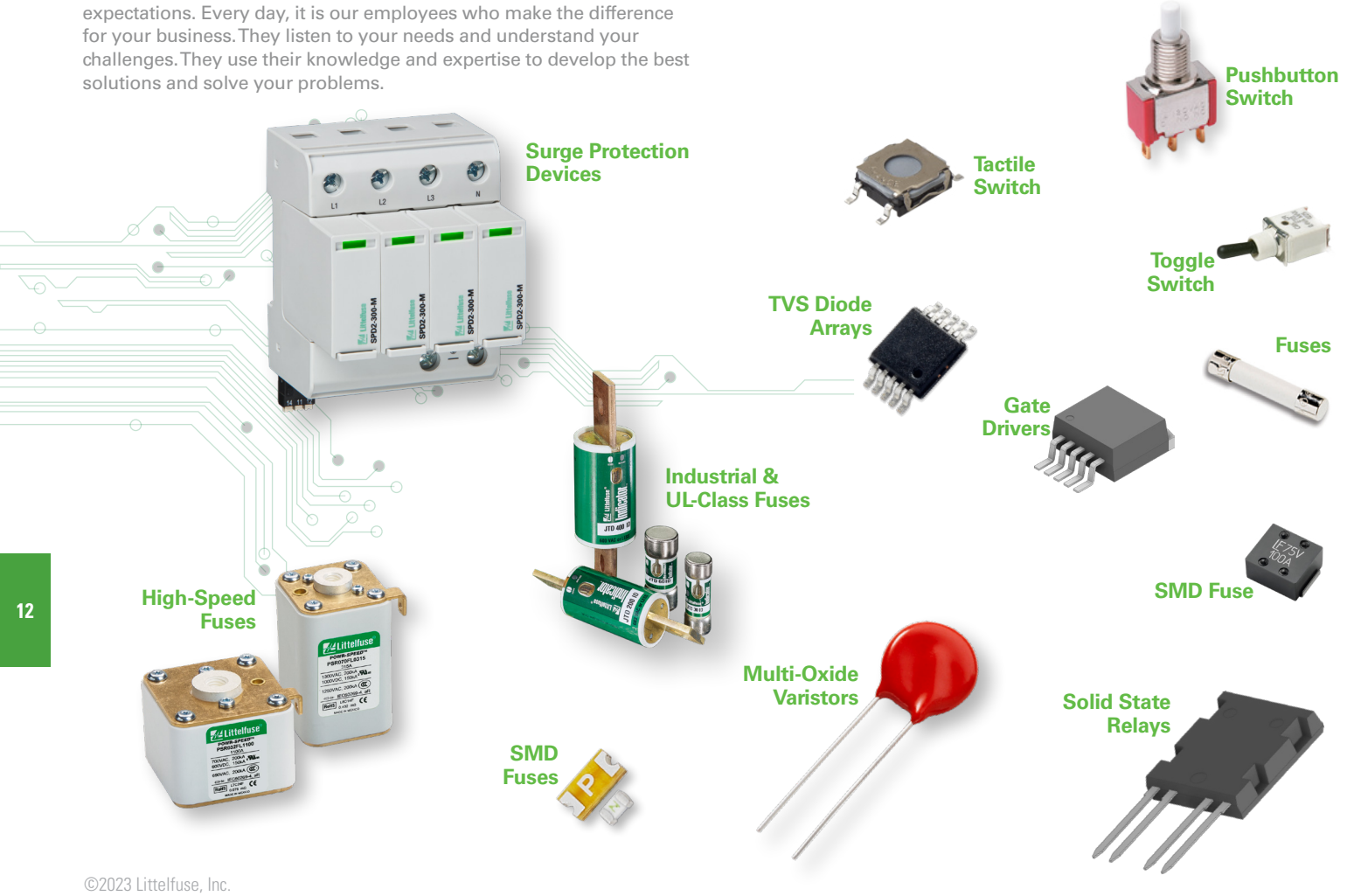
Operational Excellence

With our global manufacturing footprint, Littelfuse is firmly committed to manufacturing quality products at a competitive price. We build quality into our products and services, striving for zero defects in everything we do, thereby reducing cost and increasing your total satisfaction. We strive to exceed your expectations every day.

Quality Assurance

Our global manufacturing facilities abide by strict quality assurance requirements and hold the following quality management system registrations:

- ISO 9001
- ISO14001
- IATF 16949



Additional Resources

Circuit Protection Products Selection Guide
This guide provides a summary of key circuit protection consideration factors, descriptions of the technologies Littelfuse offers, and product selection tables. It is designed to help you quickly find a protection solution appropriate for your application.

Scan or click to download

Telecom and Data Centers Application Note
C&K high-performance electromechanical solutions are durable, reliable, customizable and cost-effective. C&K has a legacy of success in the telecom and data center industry, with a broad product portfolio that meet design needs including standard and miniature This guide provides an overview of C&K Switches used in Telecom and Data Center.

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Power Semiconductor Catalog
This catalog represents the powerful combination of IXYS: A Littelfuse Technology. It offers a comprehensive portfolio of advanced power semiconductor technologies, including silicon and wide bandgap solutions in discrete and module packages.

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Protection Relays and Controls Catalog
This catalog includes a comprehensive line of motor and pump protection relays, arc-flash relays, ground-fault relays, feeder protection, pump controllers, time delay relays, flashers and tower lighting, and more to minimize electrical safety hazards, limit equipment damage, improve productivity, and safeguard personnel from injury due to electrical faults.

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General Port Protection Solution
Protect your ports – featuring the latest innovative solutions from Littelfuse. Learn how these solutions address the following industries: Automotive, Building Automation, Consumer Electronics, Data Center & Cloud, Industrial, and Mobile & Wearables, etc.

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Visit Technical Resources at Littelfuse.com

Technical information is only a click away. The Littelfuse Technical Resources page contains datasheets, product manuals, white papers, application guides, demos, online design tools, and more.

An Extension of Your Team

Littelfuse engineers are a phone call away to help identify potential issues and provide product recommendations to solve problems.

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+1 773 628 1000
Littelfuse.com

For product purchase and support: Littelfuse.com/ContactUs

For lab services: Littelfuse.com/Services

For product information: Littelfuse.com/Products

Application and Field Support
Our experienced product and application engineers work step by step with customers from design to installation to determine the best solution. Contact us today:
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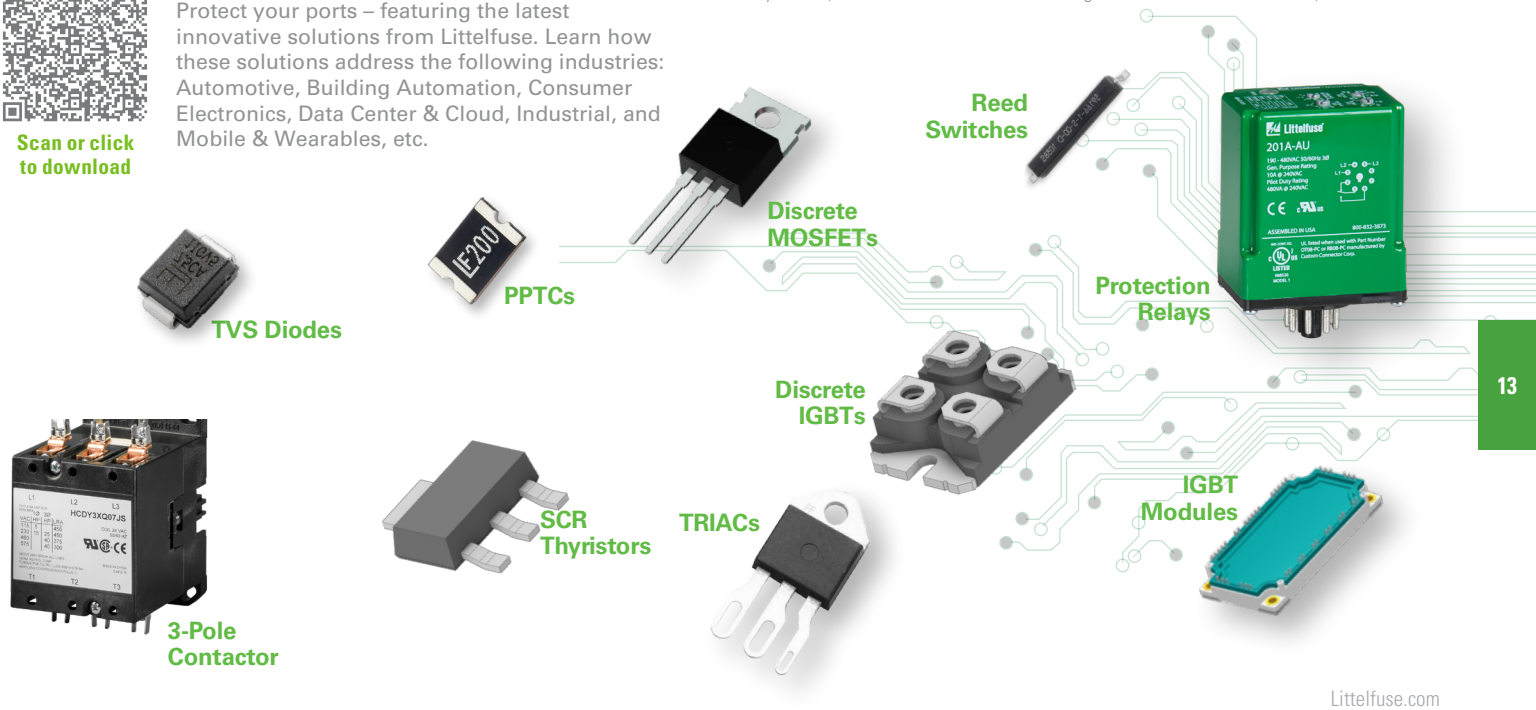

Global Lab Capabilities

You need to be certain that your products live up to the highest standards for performance, reliability, safety, and regulatory compliance. Working with Littelfuse, you have access to dedicated application engineers who partner with you to provide expert design consultation, perform comprehensive tests simulating the harshest environments, and confidentially evaluate the results in consultation with you.

TESTING CAPABILITIES

Environmental

- Autoclave
- Dust
- H3TRB
- HAST
- High & Low Temperature Storage
- High Temperature Loading
- Ingress Protection (IP)
- HTGB
- HTRB
- Temperature & Humidity
- Temperature Cycling
- Thermal Shock
- Salt Fog

Physical-Mechanical Characteristics

- Acceleration
- Die Shear
- Leak Detection
- Mechanical Shock
- Resistance to Soldering Heat (Dip, Reflow, Wave)
- Resistance to Solvents
- Solderability
- Terminal Strength (Push, Pull, Bend)
- Vibration
- Wetting Balance
- Wire Pull

Electrical

- BCI
- Capacitance
- EFT
- ESD
- Impedance
- Insulation Resistance
- I-V
- Life
- Lightning Surge
- Overload
- Parametric Tests
- Power-Cross
- Power Cycling
- Ring Wave
- R-T
- S-Parameter Measurements (Insertion Loss, Isolation, Reflection)
- Short Circuit
- Step Current
- Surface Resistivity
- Surge
- TDR (Eye Diagram)
- Telecom
- Thermal Cut-Off
- Time-to-Trip
- TLP
- Transient
- Trip Cycle
- Trip Endurance
- Voltage Drop

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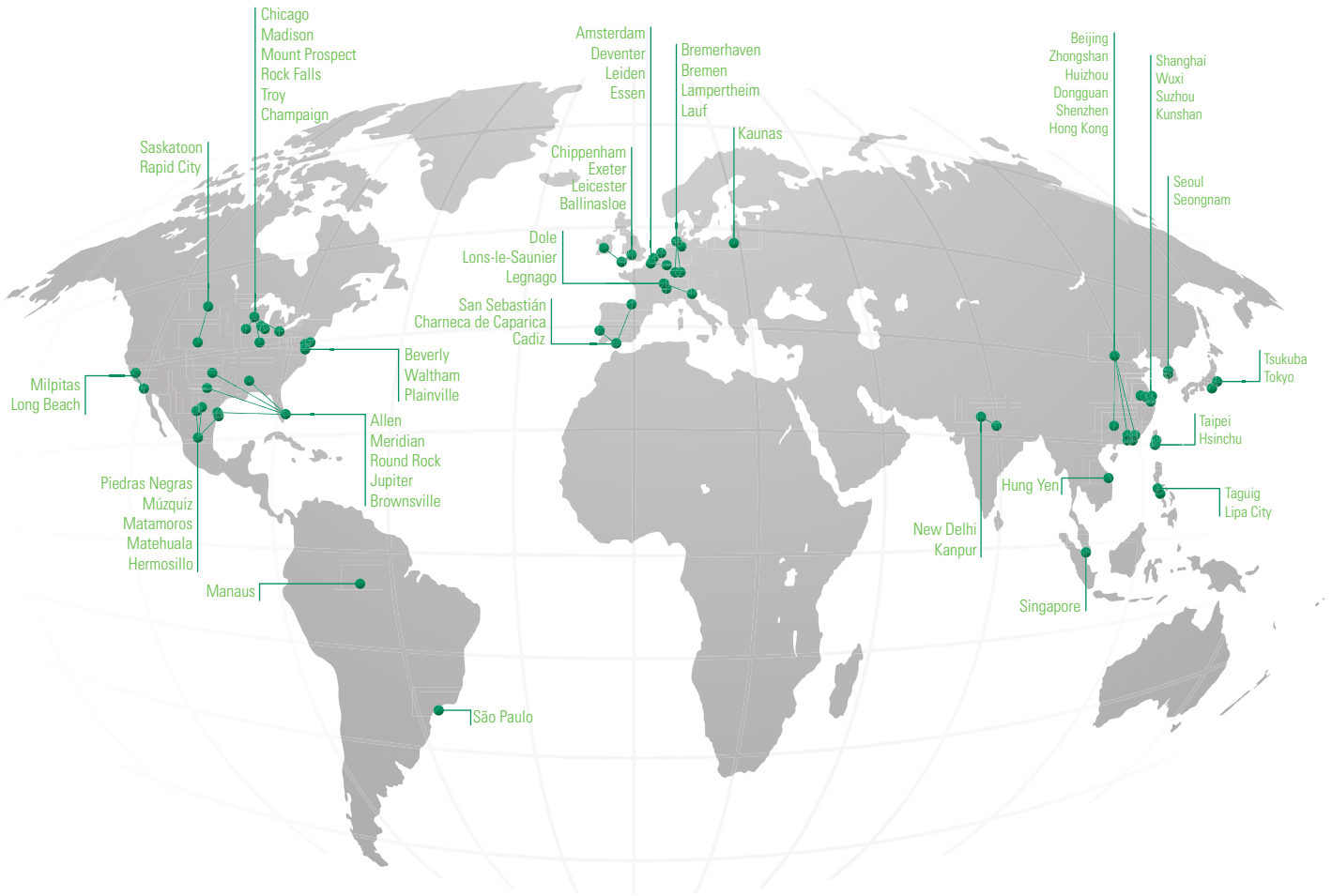
LOCAL RESOURCES FOR A **GLOBAL** MARKET



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Littelfuse products are certified to many standards around the world. To check certifications on specific products, please refer to the product datasheet on Littelfuse.com.

Littelfuse®

Expertise Applied | Answers Delivered

