



Expertise Applied | Answers Delivered

Littelfuse Data Center Power Distribution Solutions



Solutions for traditional AC,
 ± 400 VDC, and 800 VDC systems

Users must independently evaluate the suitability of, and test each product selected for their own specific applications. It is the user's sole responsibility to determine fitness or use of a particular system based on their own performance criteria, conditions, specific application, compatibility with other parts, and environmental conditions. Users must independently provide appropriate design and operating safeguards to minimize any risks associated with their applications and products. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [littelfuse.com/disclaimer-electronics](https://www.littelfuse.com/disclaimer-electronics).

Littelfuse powering safer Data Center power distribution

From grid to plug; where reliability matters most

A Backup Power/Generator

Engine system
Fuel and exhaust system
Control and monitoring
Cooling and lubrication
Load banks



B Onsite Power

Battery Energy Storage System
Renewable energy



C Medium Voltage Switchgear

Main power distribution
Feeder/branch
MV/LV transformer



D Low Voltage Switchgear

Automatic Transfer Switch (ATS)
Motor Control Center (MCC)
Power-factor correction
Harmonic filtering



I Power Busway/Cable

Feeder/riser busway
Busways
Tap-off boxes
Monitoring and sensing



E UPS

High-power battery systems
Power Factor Correction (PFC)
High wattage power supplies
Power Distribution Units (PDUs)



F Server/Storage/Networking

Power Distribution Unit (PDU)
Remote Power Panel (RPP)
Rack PDU
IT load/IT gear power-only



G Sidecar (1 MW+)

PSU shelf
HVDC bus ($\pm 400/800$ VDC)
DC PDU



H Thermal Management

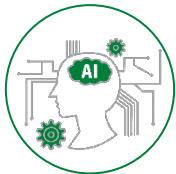
HVAC systems
Liquid cooling
Immersion cooling



Data Center power evolution driven by future trends

High Power • High Voltage • Higher Protection Demand → More Littelfuse Solutions

Future trends shaping Data Center



AI and HPC growth

Increase compute density and rack power demand



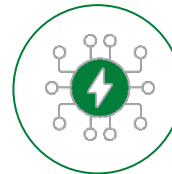
Advance cooling and power integration

Liquid cooling, efficient heating system, and optimized power distribution



High-efficiency power distribution

AC-DC transition begins
(400 VAC → ±400 VDC → 800 VDC)



Energy storage and power conditioning

Li-ion and supercapacitors are becoming crucial



Rising power needs and innovation

Push for efficiency, renewables, and grid-aware operation

Increasing voltage and power density



**2020-'22
Embedded Power**
(PSU 3.2–5.5 kW
from 12 V to 50 V)



**2023-'25
Power Shelf**
(Power shelf 33–108 kW
Up to 50 V)



2026-'30

**Power Rack
(Power Sidecar)**
(Power Rack 1 MW+
HVDC: ± 400 V or 800 V)



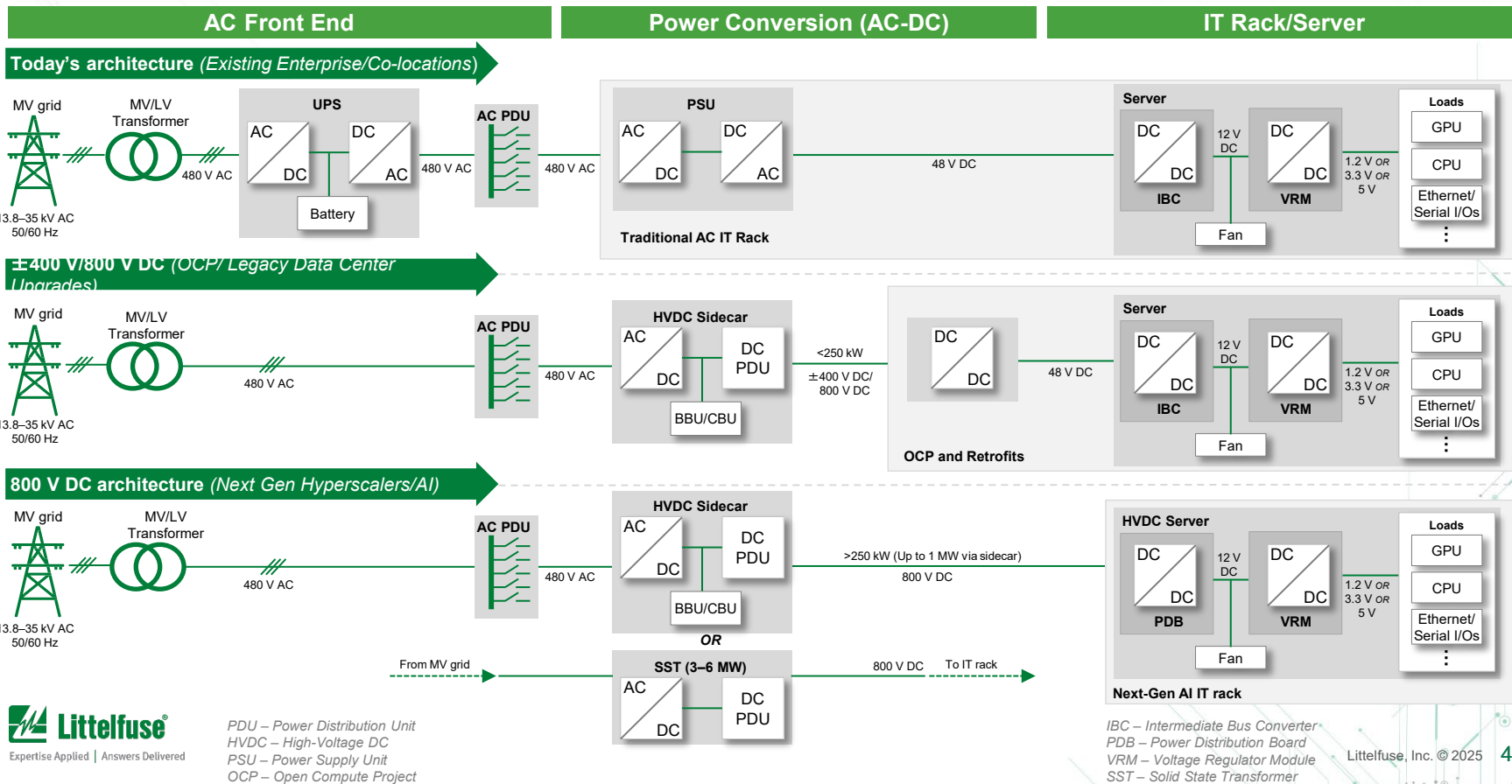
HVDC



IT Rack

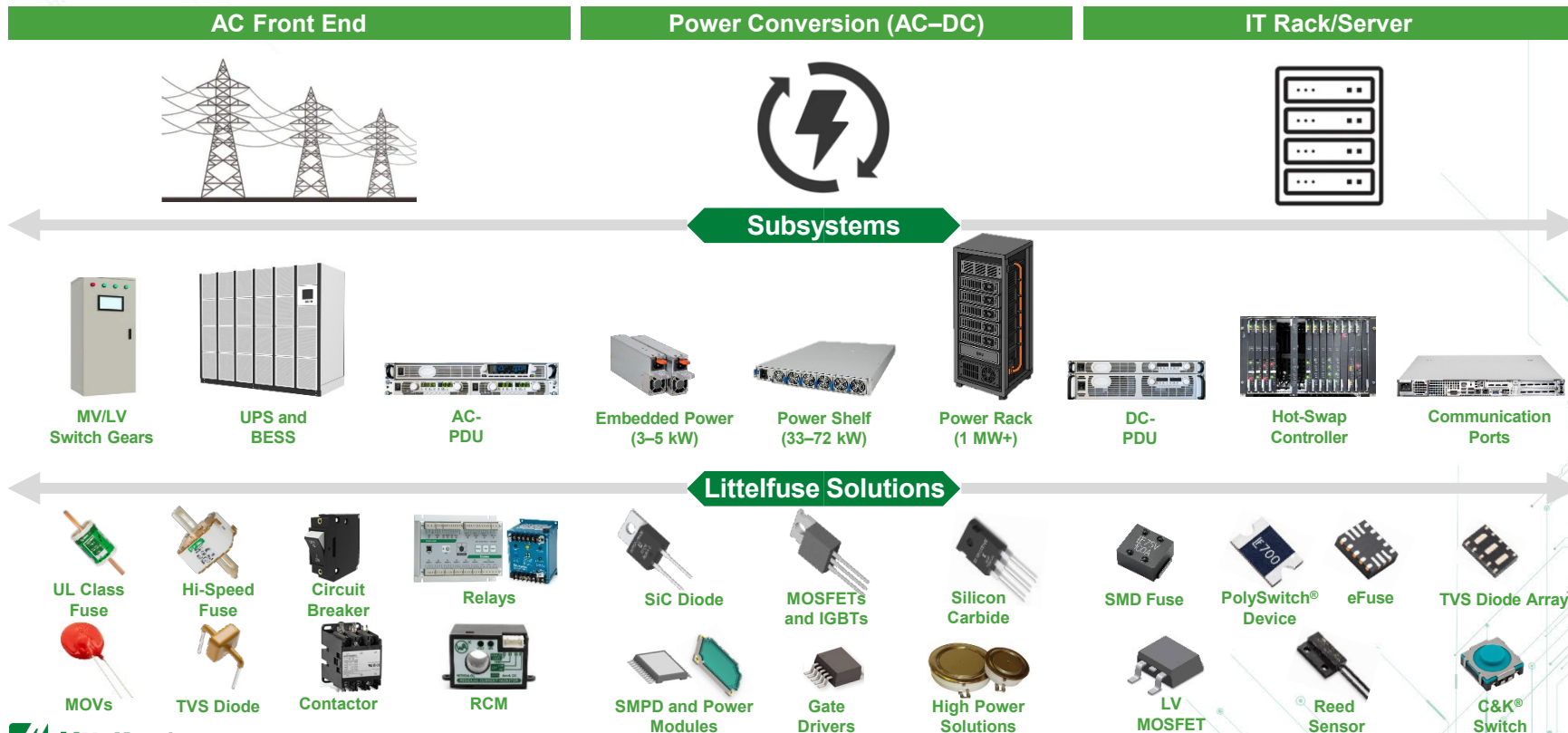
Evolution of power delivery architectures

From 400 V AC to ± 400 / 800 V HVDC—powering enterprise, OCP, and AI Data Centers



Littelfuse solutions for Data Center power delivery

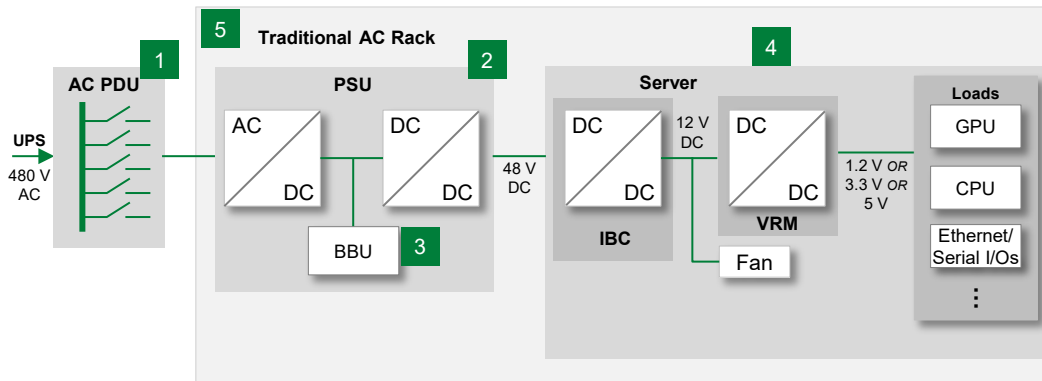
Comprehensive portfolio of protection, power semiconductor, and switching solutions



Existing enterprise & colocation Data Centers

400 V AC / 48 V DC architecture used by existing players such as DELL, HPE, etc.

 Click the product series for more info

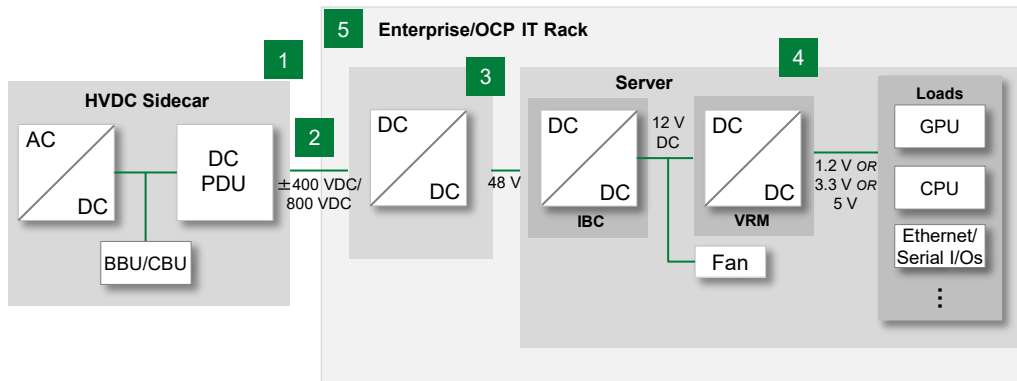


	Technology	Function	Product series
1	Fuse	Overcurrent protection	CCMR, 606, 505, 607, JLLS, 538*
	Circuit Breaker		J61, J22, N-Series
	MOV, Surge Protection Device, GDT	Surge and transient suppression	TMOV, Xtreme, SM10, SPDx, CG3
	Residual Current Monitoring	Detects leakage current to ground	RCM
2	SiC MOSFETs (650V, 1200V)	Switch for PFC/DC/DC	IXSH, IXSA, IXSG, IXSJ
	Si/SiC Schottky Diodes (650V, 1200V)	Rectifier/Boost/Free-wheel	DCK
	Fast Recovery FRED	Snubber/Secondary DC/DC isolation stage	DSEI, DSEP
	Gate Driver	Control Si/SiC MOSFET	Gate Driver ICs
	TVS Diode	Gate Driver protection	SME, SMFA Asymmetric
	Solid State Relay	PSU start-up and control	CPC3981/CPC3982
3	Fuse	Overcurrent protection	871, TLS, CNN
	TVS Diode	Transient suppression	SMAJ, SMBJ, SMCJ
4	Fuse	Intermediate Bus converter protection	871, TLS, 456SD, 456SDE, 881F
	Solid State Relay	48 V DC load switching	CPC3708ZTR
	TVS Diode	Suppress inductive spike in hot-swap	SMDJ58CA
	MOSFET	Controls in-rush current and enables safe hot-swap	IXFT320N10T2, IXFA180N10T2, IXTA180N10T
	PolySwitch® Resettable Device	Fan overcurrent/thermal protection	Low Rho
		Ethernet/Serial I/O Port Protection	
5	Reed Sensor OR C&K® Switches	Enclosure open/close status	59150, 59020 K5V, EITS, ITS, KT

OCP and retrofit Data Centers

Moving toward $\pm 400\text{-}800\text{ V DC}$ architectures while maintaining legacy 48 V systems

 Click the product series for more info



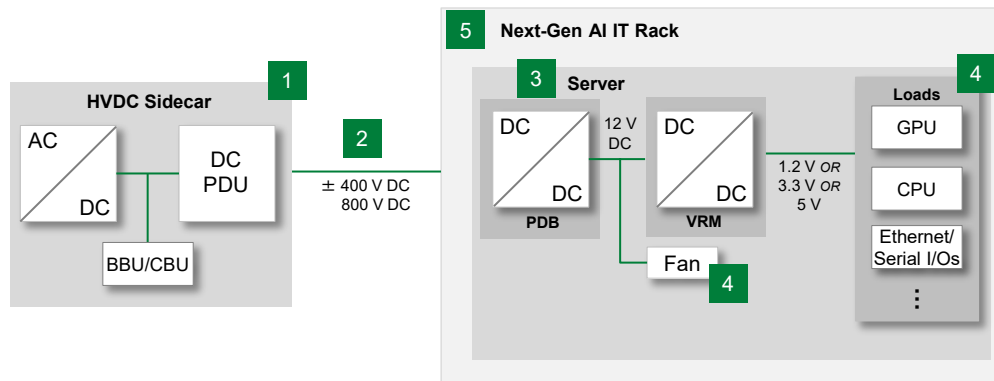
	Technology	Function	Product series
1	Sidecar solutions		
2	Fuse	Isolate faults on the $\pm 400/800\text{ VDC}$ bus or in the downstream harness/DC-DC modules	DCD* (800 VDC 1-630 A) DCM* (1000 VDC 80-200 A)
3	Fuse	HVDC input protection	DCFM* (1000VDC, 30A)
	SiC MOSFETs (650V, 1200V)	HV switches	IXSH , IXSA , IXSG , IXSJ
	Gate Driver	Control SiC MOSFET	IX4352NEU
	TVS Diode	Gate Driver protection	SME , SMFA Asymmetric
4	Fuse	Intermediate Bus converter protection	871 , TLS , 456SD , 456SDE , 881F
	Solid State Relay	48 V DC load switching	CPC3708ZTR
	TVS Diode	Suppress inductive spike in hot-swap	SMDJ58CA
	MOSFET	Controls in-rush current and enables safe hot-swap	IXFT320N10T2 , IXFA180N10T2 , IXTA180N10T
	PolySwitch® Resettable Device	Fan overcurrent/thermal protection	Low Rho
	Ethernet/Serial I/O Port Protection		
5	Reed Sensor OR C&K® Switches	Enclosure open/close status	59150 , 59020
			K5V , EITS , ITS , KT

* New product. Contact Littelfuse Sales for more information.

Hyperscale and AI Data Centers

Next-Gen 800 V HVDC power architecture under development by hyperscale leaders

 Click the product series for more info

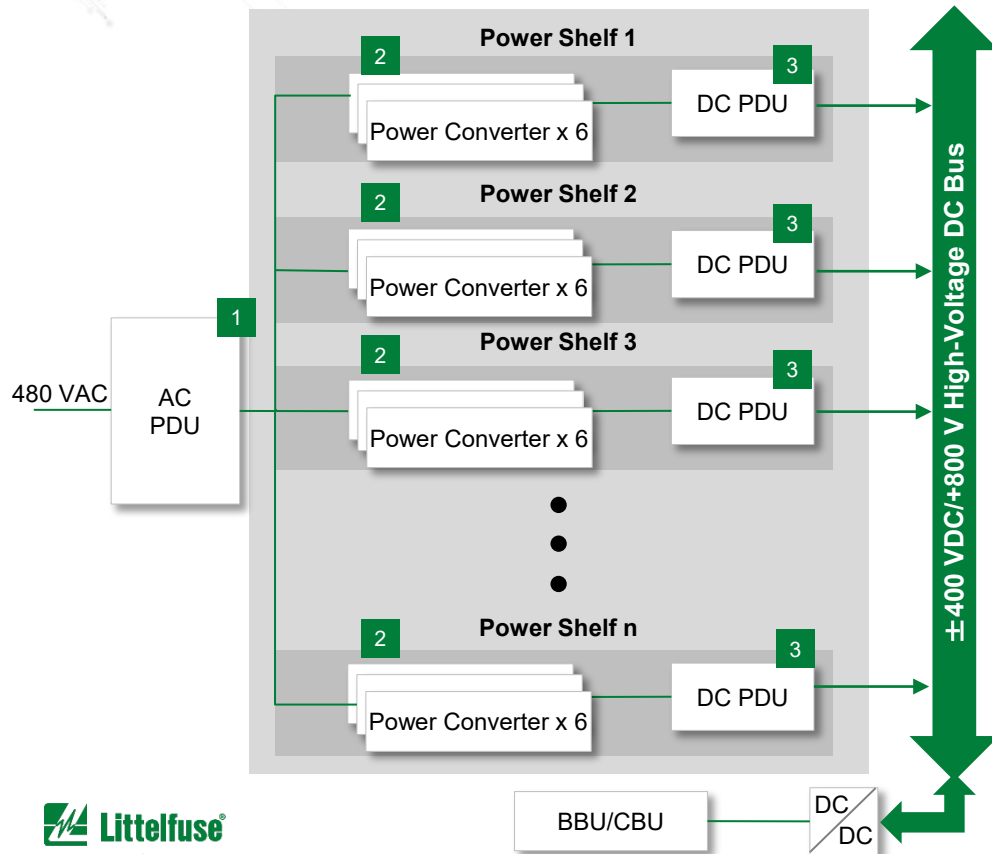


	Technology	Function	Product series
1	Sidecar solutions		
2	Fuse	Isolate faults on 800 V bus or DC/DC harnesses	DCD* (800 VDC 1-630 A) DCM* (1000 VDC 80-200 A),
3	Fuse	HVDC input protection	DCFM* (1000VDC, 30A)
	SiC MOSFETs (650V, 1200V)	High-efficiency switching in HV DC/DC converter	IXSH , IXSA , IXSG , IXSJ
	Gate Driver	Control SiC MOSFET	IX4352NEU
	TVS Diode	Gate Driver protection	SME , SMFA Asymmetric
	MOSFET	Controls in-rush current and enables safe hot-swap	IXFB150N65X2 (400V hot-swap), IXTK22N100L (800V hot-swap)
	TVS Diode	Suppress inductive spike in hot-swap	DFNAK04*
4	PolySwitch® Resettable Device	Fan overcurrent/thermal protection	Low Rho
5	Ethernet/Serial I/O Port Protection		
	Reed Sensor OR C&K® Switches	Enclosure open/close status	59150 , 59020 K5V , EITS , ITS , KT

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AC-DC power supply architecture within sidecar

Supporting ± 400 V and 800 V DC bus systems for enterprise and AI-ready Data Centers

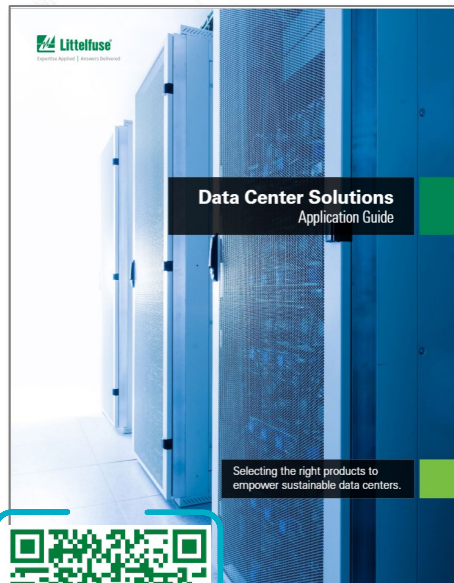


	Technology	Function	Product series
1	Fuse	Interrupts overcurrent/short-circuit faults feeding power converter shelves	JLLS , JTD
	Fuse	Isolation and converter AC protection	CCMR
	Silicon/SiC MOSFET (650V, 1200V)	Used in front-end power stages for high-efficiency AC-DC and DC-DC conversion	N-Channel Ultra Junction , IXSH , IXSA , IXSG , IXSJ
2	Gate Drivers	Drives high power MOSFETs/SiC devices	Gate Driver ICs
	TVS Diode	Protects MOSFET gates from surge and overvoltage during switching events	SME , SMFA Asymmetric
	Fast Recovery Diodes	Used in PFC / rectification and free-wheeling paths	DSEI , DSEP
	SiC Schottky Diode (650V, 1200V)	Used in PFC, AC-DC, and $\pm 400/800$ V DC-DC converters	DCK
	TVS Diode	Surge protection for HVDC bus, converter modules and communication/control electronics	SMAJ , SMBJ , SMCJ
3	Fuses	Isolate faults on 800 V or ± 400 V bus or DC/DC harnesses	DCD* (800 VDC 1-630 A) DCM* (1000 VDC 80-200 A)
	Circuit Breaker	Protection against overload and short circuit	CX Series (Up to 600 VDC)
	Contactor Relays	High-voltage disconnect and pre-charge control.	DCNHE20PF60-P*

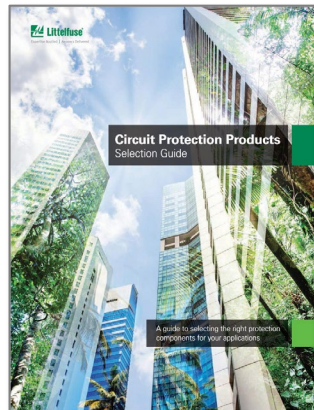
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Additional information can be found on Littelfuse.com

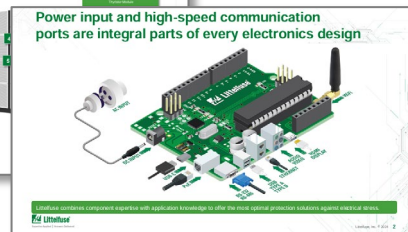
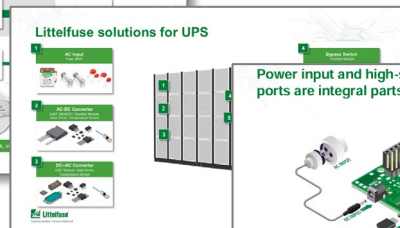
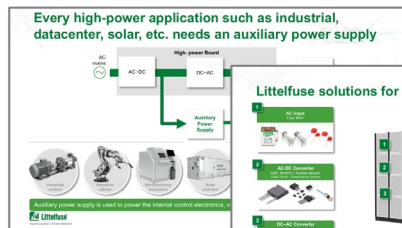
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Data Centre
Guide



eCatalogs



Application
Spotlights



Local resources supporting our global customers



Partner for tomorrow's electronic systems

Broad Product Portfolio

We are an industrial technology manufacturing company empowering a sustainable, connected, and safer world.

Testing Capabilities

We help customers get products to market faster, and we offer certification testing to global regulatory standards.

Application Expertise

Our engineers partner directly with customers to help speed up product design and meet their unique needs.

Compliance & Regulatory

We help customers in the design process to account for requirements set by global regulatory authorities.

Global Customer Service

Our global customer service team is with you to anticipate your needs and ensure a seamless experience.

Global Manufacturing

We support high volume manufacturing that is committed to the highest quality standards.



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