



Application brief

Energy storage systems

Make energy storage systems the backbone of the new energy era with our semiconductor system solutions

Facing diminishing fossil reserves, the world nonetheless needs to manage the rising demand for electrical energy while meeting the growing call for urgent climate-saving actions. The transition to renewable energies has become inevitable.

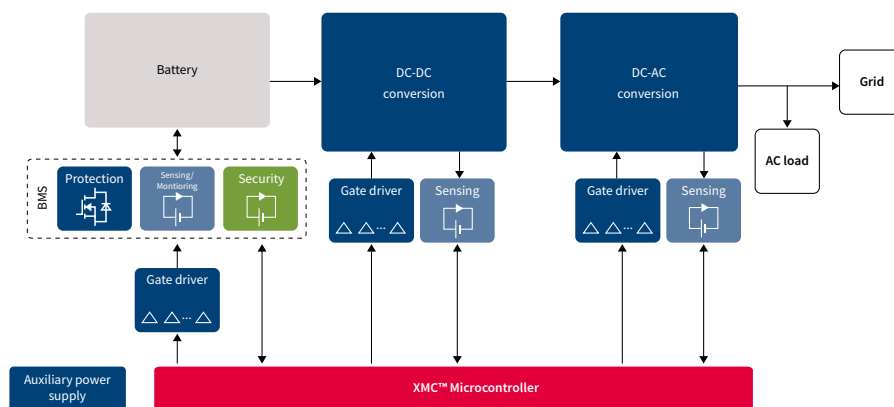
Energy storage systems are a vital part to successfully manage this transition. Our system solutions help to make energy storage the backbone of the new energy era. Infineon's unique application expertise and comprehensive offering makes us the natural choice to advance energy storage solutions in terms of efficiency, performance, optimal cost, and innovation.

System features

- > Efficient power conversion in DC-DC and AC-DC stages
- > Power-dense design
- > Bidirectional power flow
- > Safe operation of Lithium-ion battery
- > Long battery life time

System benefits

- > Improvement of system performance with industry leading semiconductor offering such as OptiMOS™, CoolMOS™, CoolSiC™ MOSFETs but also best-in-class modules
- > Reduction of design efforts and faster time to market
- > Trust in a true partnership during the whole system lifetime
- > Full system provider from a power conversion stage (PCS) to the battery management system (BMS)



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Highlight product portfolio

Functional block	Power/battery voltage	Voltage class [V _{DS} max]	Product family	Package	Benefits
Power conversion systems (PCS)	< 10 kW	150 V	OptiMOS™	Super S08, TOLL	› High power density and system cost reduction
		600 V	CoolMOS™ CFD7 / S7	TO-220/247, ThinPAK 8x8, TOLL	› Highest efficiency, enabling increased power density / more compact and easier design
		600 V	CoolSiC™ Schottky diode C6	TO-220	› Improved system efficiency and extremely fast switching
		650 V	CoolSiC™ MOSFET	TO-247	› Combination of high performance, high reliability and ease of use
	10-100 kW	150 V	OptiMOS™	TO-263	› High power density and system cost reduction
		600 V	CoolMOS™ C7/P7	TO-247	› Ease of use and fast design-in
		650 V	CoolSiC™ MOSFET	TO-247	› Combination of high performance, high reliability and ease of use
		650 V	TRENCHSTOP™ 5 H5	TO-247	› Benefit increase at high current conditions
		650 V	CoolSiC™ Schottky diode C6	TO-220	› Higher frequency and increased power density
		1200 V	CoolSiC™ MOSFET	TO-247	› Highest efficiency and increased power density
		1200 V	TRENCHSTOP™ 5/6 or S6	TO-247	› High device reliability and lifetime expectancy
	101-250 kW	150 V	OptiMOS™	D ² PAK	› Enables and simplifies the setup of 2 nd life batteries › Lower switching voltage enables higher inverter efficiency
		200 V	OptiMOS™	D ² PAK	› Enables and simplifies the setup of 2 nd life batteries › Lower switching voltage enables higher inverter efficiency
		1200 V	EasyPACK™ 2B	Modules	› Highest efficiency for reduced cooling effort
		1700 V	PrimePACK™ / EconoDUAL™	Modules	› High power density › Easy and most reliable assembly
	> 0.25 MW	1200 V	PrimePACK™ / EconoDUAL™	Modules	
		1700 V	PrimePACK™ / EconoDUAL™	Modules	
Gate driver			EiceDRIVER™ 2EDS	PG-DSO-16-NB	› Dual-channel functional isolated
			EiceDRIVER™ 2EDF	PG-DSO-16-NB	› Dual-channel reinforced (safe) isolated
			EiceDRIVER™ 1EDN	PG-SOT23-6	› Single-channel non-isolated
BMS – battery protection	40-60 V	100 V	OptiMOS™/OptiMOS™ LinearFET	TOLL, D ² PAK	› Highest system efficiency
	60-100 V	150 V	OptiMOS™/OptiMOS™ LinearFET	TOLL, D ² PAK	› Minimize parallelization of MOSFETs
	100-150 V	200-300 V	OptiMOS™/OptiMOS™ LinearFET	D ² PAK	› Market leading MOSFETs with lowest R _{DSon} enabling low conduction losses › Widest SOA area with OptiMOS™ LinearFET
	150-400 V	600 V	CoolMOS™ S7	TO-247	› Lowest R _{DS(on)} MOSFET

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