



Application Brief

Infineon's System Solution for Light Electric Vehicles

Infineon's solutions for Light Electric Vehicles provide leading-edge innovation, outstanding reliability and excellent quality. We offer the full range of power semiconductors – from Low Voltage Power MOSFETs to Microcontrollers.

Key requirements for those applications are increasing battery operating range, lifetime and reduced charging time. Infineon offers the right set of devices for battery management and voltage regulation with highest possible efficiency. Besides power management, power consumption is driven highly efficiently by XMC Microcontrollers, EiceDRIVER™ Gate Drivers, OptiMOS™ Low Voltage MOSFETs.

Key enabling products for Light Electric Vehicles are:

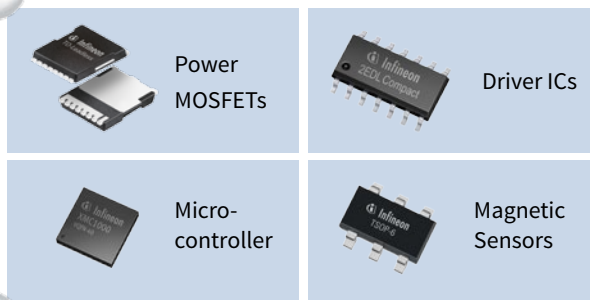
- Low Voltage Power MOSFETs – OptiMOS™
- High Voltage Power MOSFETs – CoolMOS™
- Gate Drivers – EiceDRIVER™ Compact
- Microcontrollers – XMC
- Silicon Power Diodes – Rapid 1 and Rapid 2 Diode
- Magnetic Sensors

Application Requirements

- Efficiency: Reduction of overall system energy consumption, increasing battery operation range and lifetime
- Reliability: Reliable operation and avoiding system down time
- Maintenance: Low maintenance and long lifetime of components
- Size & Cost: Reduction of overall system size and cost
- Time to market: Reduction of development time and cost

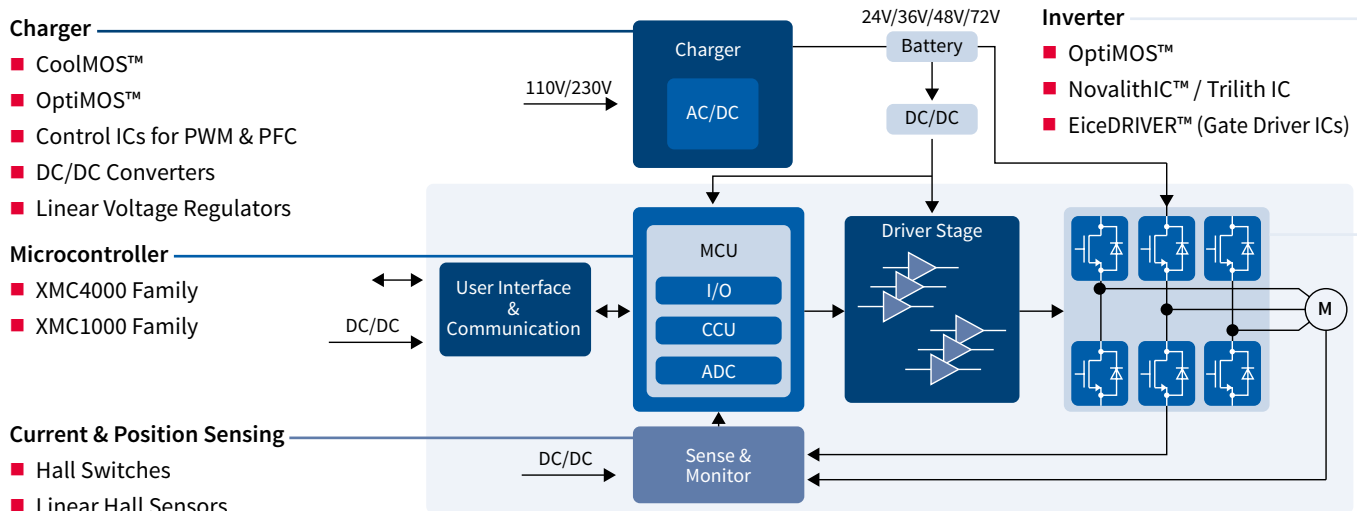
Benefits of Infineon Components

- Complete portfolio from one source
- Increased lifetime due to IFX reliability and quality
- Smallest area for highest power density
- BOM cost reduction due to lowest $R_{DS(on)}$
- Complete support infrastructure: Simulations, documentation and demoboard



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Application Diagram of Infineon Solution for Inverter and Charger



Recommended Infineon Products for Inverter

	Battery Voltage	Standard Solution	Optimized Solution
Low Voltage MOSFETs	24V	IPD034N06N3 G	BSC028N06NS
	36V	IPD053N08N3 G	BSC047N08NS3 G
	48V	IPP045N10N3 G	IPT020N10N3
		IPB042N10N3 G	
Gatedriver - EiceDRIVER™		2EDL05N06PF	
Microcontroller - XMC		XMC1302	XMC4400-F100K

Recommended Infineon Products for LEV Charger

	Battery Voltage	AC/DC (PFC)	DC/DC (PWM)	Synchronous Rectification
High Voltage MOSFETs	600V	IPP60R125P6	IPP60R099C6	OptiMOS™ in TO-220, SuperSO8 or D ² PAK
		IPP60R160P6	IPP60R125C6	
		IPP60R190P6	IPP60R160C6	
		IPL60R180P6	IPP60R190C6	
	650V		IPP65R110CFD	
			IPP65R150CFD	
			IPL65R165CFD	
			IPP65R190CFD	
	IPL65R210CFD			
Low Voltage MOSFETs	40V - 100V			
Diodes	650V	Rapid Diodes in TO-220		

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