Product brief

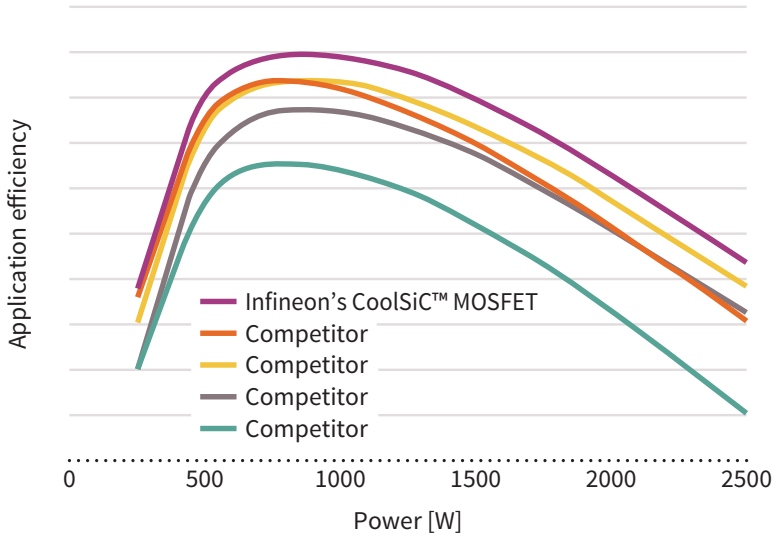
Automotive CoolSiC™ MOSFETs

Pushing the boundaries for quality and efficiency in e-Mobility

The Automotive CoolSiC™ MOSFETs have been developed for current and future On-Board Charger and DC-DC applications in hybrid and electric vehicles. It is specifically designed to meet the high requirements demanded by the automotive industry with regards to reliability, quality and performance.

The increase of switching frequency for a converter using CoolSiC™ MOSFETs can result in dramatically reduced volume and weight of the magnetic components by up to 25 percent, which yields significant cost decrease of the application itself. The gain in performance fulfills new regulation standards in terms of higher efficiency requirements for electric vehicles. The superior gate oxide reliability as well as the best-in-class Infineon SiC quality extension guarantees very long and safe lifetime and can even fulfill very tough mission profile requirements. Further features such as lowest gate charge and device capacitances levels, no reverse recovery losses of the internal commutation proof body diode, temperature independent low switching losses and threshold-free on-state characteristics guarantee a simple design-in and easy-to-control application design.

Performance comparison of Infineon's CoolSiC™ MOSFETs technology in an On-Board Charger application



Key features

- Industry-leading SiC MOSFET in trench technology at 1200 V in TO247 package
- Operating temperature up to $T_{J, max}$ = 175°C
- Easy to control through best-in-class V_{GS} threshold behavior
- Short-circuit & avalanche robustness
- Qualified according AEC-Q101 + best-in-class Infineon SiC quality extension

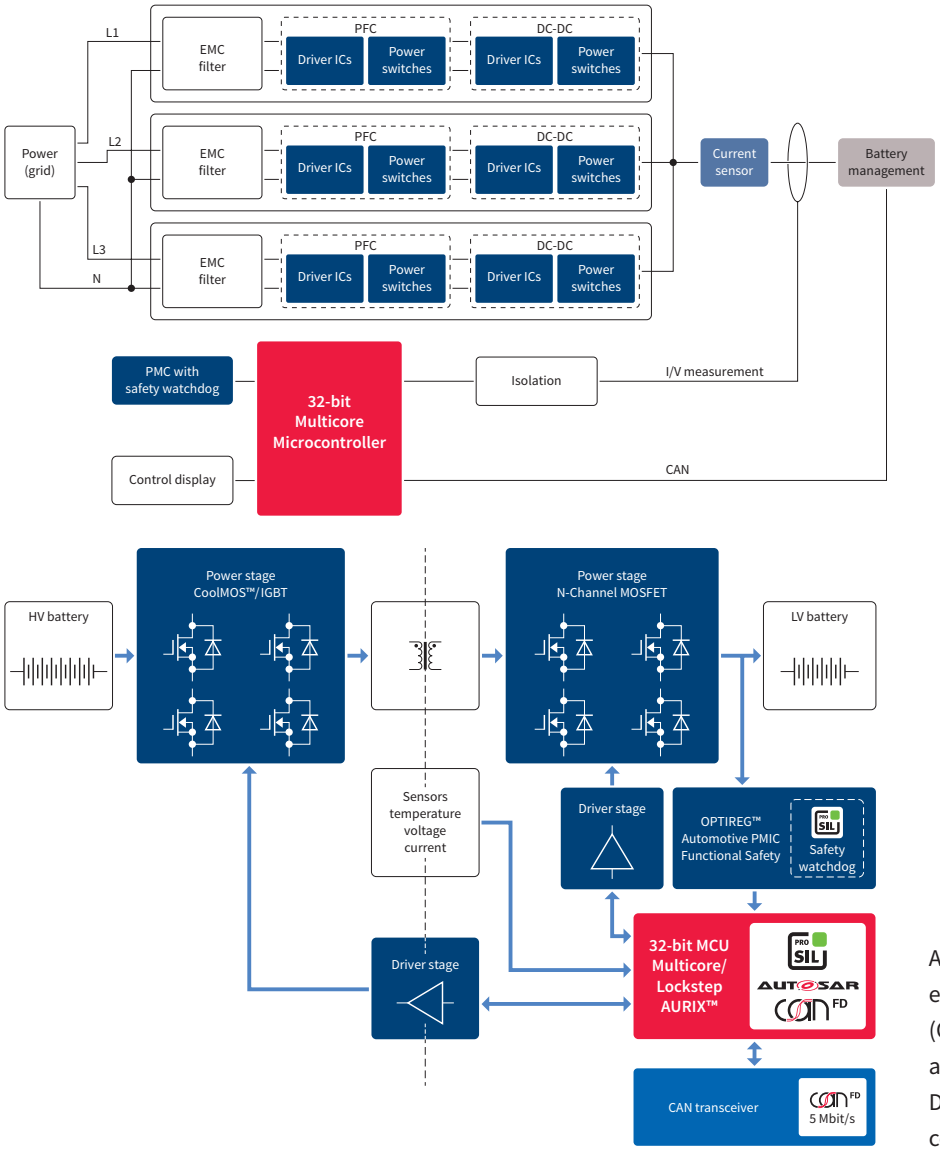
Key benefits

- Best match with IGBT, CoolMOS™ and CoolSiC™ schottky diode products
- Very high efficiency over all load conditions to fulfill tough application efficiency standards
- Extremely robust design to fulfill our customer's mission profiles
- High reliability for best-in-class lifetime based on more than a decade field experience

Key applications

- On-Board Chargers (PFC stage & DC-DC stage)
- DC-DC converters
- Auxiliary inverters

Application Diagram



Automotive CoolSiC™ MOSFETs can either be used in the On-Board Charger (OBC, top picture showing example) application in the PFC as well as in the DC-DC stage, or in a dedicated DC-DC converter (bottom picture)

Product table

Sales code	V_{BR}	$R_{DS(on)}$	Package
AIMW120R035M1H	1200 V	35 mΩ	TO-247 (3pin)
AIMW120R045M1	1200 V	45 mΩ	TO-247 (3pin)
AIMW120R060M1H	1200 V	60 mΩ	TO-247 (3pin)
AIMW120R080M1	1200 V	80 mΩ	TO-247 (3pin)

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