



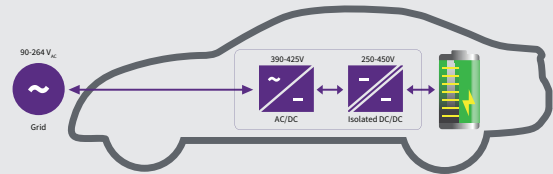
6.6 kW HIGH POWER DENSITY BI-DIRECTIONAL ON-BOARD CHARGER CRD-06600FF065N-K

HIGH POWER DENSITY, HIGH EFFICIENCY

The 6.6 kW Bi-Directional On-Board Charger (OBC) targets high-power-density, high-efficiency on-board charger applications and features Wolfspeed’s new 650 V E-Series Silicon Carbide MOSFETs. The E3M0060065D/K are automotive qualified and PAPP capable and come in a 60mΩ, TO-247 package with the availability of a kelvin source pin.

In this high density OBC, all Silicon Carbide MOSFETs are mounted on a tooled AL heat sink, with all magnetics potted internally.

MOSFETs and magnetics meet thermal requirements on a 65°C cooling plate. The system delivers 54W/in³ power density and exceeding 96.5% in peak efficiency with 67kHz switching frequency for CCM totem pole PFC and 150kHz-300kHz for a CLLC resonant converter.



BENEFITS

- High Efficiency and Power Density
- Bi-Directional Power Flow Capability
- Cost Effective



APPLICATIONS

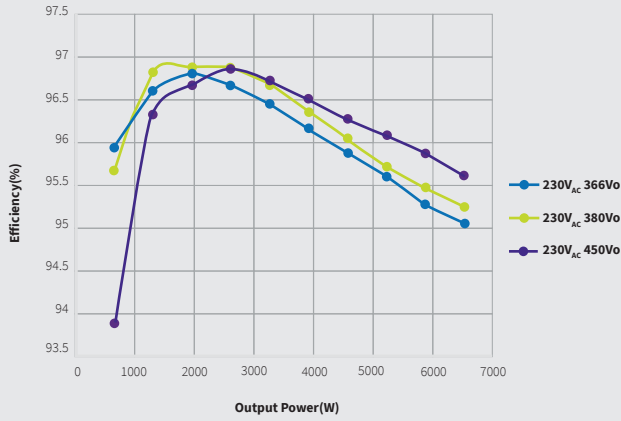
- Bi-directional Vehicle Battery Chargers
- Grid-Tied Distributed Generation
- Energy Storage System

SYSTEM SPECS

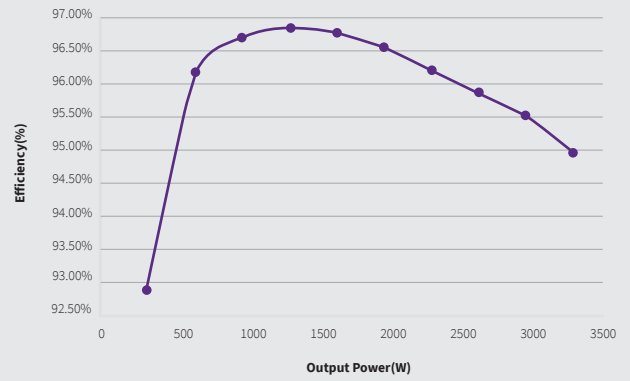
Parameter	Value	Notes
AC Input Voltage	90-265V _{AC}	
DC Input/Output Voltage	250 – 450V _{DC} nominal	Output current will be limited to 18A when the battery voltage is <366V in charging mode; Discharging stops when battery voltage is lower than 320V _{DC} .
AC Output Voltage	250V _{AC}	
Max Output Power	6.6kW	Power will be limited when input voltage is below 215V _{AC}
F _{SW} of PFC	67kHz	
F _{SW} of DC/DC	150kHz–300kHz	
Dimensions	220mm x 180mm x 50mm	The max height includes PCB + components
Peak Efficiency at charging and discharging mode	>96.5%	

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Unit Efficiency Charging Mode @230V_{AC}



Efficiency in Discharging Mode 380V_{DC}
Input 220V_{AC} Output



SYSTEM BLOCK DIAGRAM

