



22kW BI-DIRECTIONAL DC/DC CONVERTER

CRD-22DD12N

HIGH-EFFICIENCY, HIGH-POWER-DENSITY

The 22kW bi-directional CLLC resonant converter targets wide output voltage range, high-efficiency and high-power-density bi-directional applications such as electric vehicle on-board chargers and energy storage systems. A novel flexible gain control scheme of the CLLC bi-directional resonant converter is examined to achieve high efficiency and wide voltage gain range in both charging and discharging mode.

Thanks to the high performance of Wolfspeed C3M™ 1200V Silicon Carbide MOSFETs, >98.5% efficiency is achieved with the proposed flexible control scheme for CLLC bi-directional resonant converter in both charging and discharging mode.

This design uses Wolfspeed C3M Silicon Carbide MOSFETs in both primary-side and secondary-side switch positions: primary-side switches and Secondary-side switches: C3M0032120K - 32mΩ, 1200V Silicon Carbide MOSFET in TO-247-4 package.



FEATURES

Flexible DC Bus Voltage

Low $R_{DS(on)}$

TO-247-4 Package Kelvin Pin



BENEFITS

High-Frequency Switching Capability

Low Power Loss, High Efficiency

Enabling High Power Density and Lighter Weight



APPLICATIONS

Vehicle On-board Chargers

DC Fast Chargers

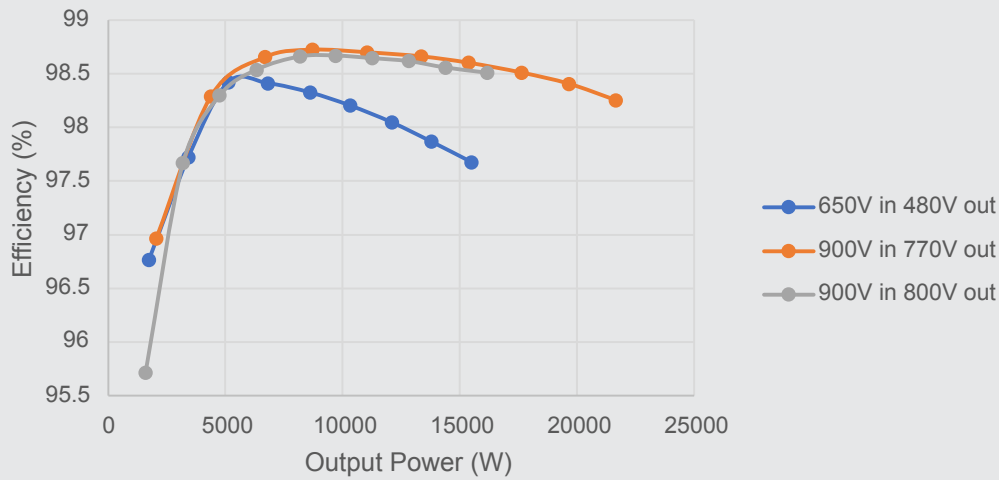
Energy Storage System

Battery Testing System

Parameter	Value	Notes
INPUT VOLTAGE	380 - 900 VDC 300 - 800 VDC	Charging Mode Discharging Mode
OUTPUT VOLTAGE	200 - 800 VDC 365 - 755 VDC	Charging Mode Discharging Mode
OUTPUT POWER	22 kW Max 6.6 kW Max 6.6 kW Max	650 -900 V input, Charging Mode 380 -650 V input, Charging Mode Discharging Mode
SWITCHING FREQUENCY	135 kHz - 250 kHz	Resonant frequency 200kHz
COOLING PLATE TEMPERATURE	-40°C - +65°C	

22kW BI-DIRECTIONAL DC/DC CONVERTER CRD-22DD12N

22KW DCDC EFFICIENCY UNDER CHARGING MODE



22KW DCDC EFFICIENCY UNDER DISCHARGING MODE

