



60 kW Silicon Carbide Interleaved Boost Converter CRD-60DD12N

HIGH VOLTAGE, HIGH POWER DENSITY

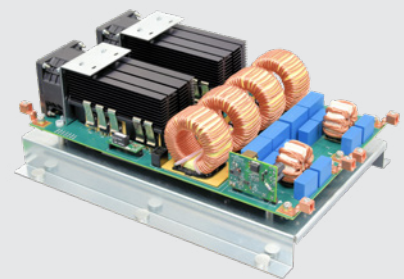
This reference design demonstrates the application of Wolfspeed®'s 1200 V C3M™ Silicon Carbide MOSFETs and the Wolfspeed Silicon Carbide discrete gate driver (CGD15SG00D2) to create a 60kW four channel interleaved boost converter for solar power generation, energy storage solutions, and other industrial and UPS applications.

This design utilizes four 15kW interleaved boost converters and can accept 470 VDC – 800 VDC as an input and provide 850 VDC at the output. The use of 1200 V C3M 75mOhm Silicon Carbide MOSFETs in a TO-247-4 package provides the best figure of merit (FOM) and reduces switching loss and cross talk.

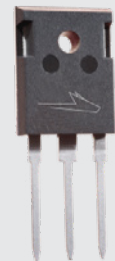
The design accomplishes

- Peak efficiencies of 99.5%
- Power density of 127W/in³
- 78kHz switching frequency

This reference design is offered as a comprehensive design package which can be used as a starting point for new Silicon Carbide designs.



SiC MOSFET
C3M0075120K



SiC Schottky Diode
C4D10120D



FEATURES

Four Interleaved Channels

Isolated Gate Driver

CRD015DD17P 15W Flyback Auxiliary Power Supply Board with Wide Input Voltage Range

Peak System Efficiency > 99.5%

TO-247-4L Package with Kelvin Source



BENEFITS

High Efficiency, High Power Density

Fast Switching and Low Switching Losses

Lower Size, Weight and Overall System Cost



APPLICATIONS

Solar Power Generation

Universal Power Supplies (UPS)

Energy Storage Systems

Parameter	Value
INPUT VOLTAGE	470-800 VDC
PEAK EFFICIENCY	99.5%
OUTPUT VOLTAGE	850 VDC
OUTPUT POWER	60 kW
SWITCHING FREQUENCY	78 kHz
SYSTEM SIZE	15in × 9.8in × 3.2in
POWER DENSITY	127 W/in ³

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C3M™ BOOST EFFICIENCY

