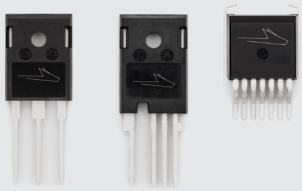
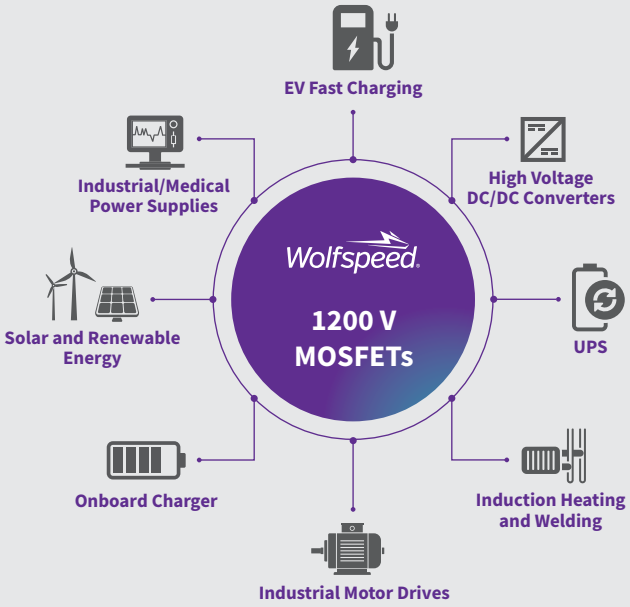
WOLFSPEED® SILICON CARBIDE 1200 V MOSFETS

INDUSTRY'S BROADEST PORTFOLIO OF 1200 V SILICON CARBIDE MOSFETs FOR UNMATCHED EFFICIENCY AND POWER DENSITY

Wolfspeed's latest generation of Silicon Carbide MOSFETs set the standard for performance, ruggedness and ease of design-in. Extremely fast switching, ultra-low switching losses, and stable conduction losses over temperature assure significant improvement of system efficiency, power density and overall BOM cost versus silicon MOSFET and IGBT incumbents.

Leverage Wolfspeed's extensive Silicon Carbide device portfolio, manufacturing experience, and systems expertise to accelerate your power supply design.





PRODUCT PORTFOLIO

$R_{DS(ON)}$	I_D at 25°C	TO-247-3	TO-247-4	TO-263-7 (XL)
16 mΩ	115 A	C3M0016120D	C3M0016120K	
21 mΩ	100 A	C3M0021120D	C3M0021120K	
32 mΩ	63 A	C3M0032120D	C3M0032120K	
32 mΩ	68 A			C3M0032120J1 (XL)
40 mΩ	55 A	C3M0040120D	C3M0040120K	C3M0040120J1
75 mΩ	30 A	C3M0075120D	C3M0075120K	C3M0075120J
160 mΩ	17 A	C3M0160120D		C3M0160120J
350 mΩ	7.2 A	C3M0350120D		C3M0350120J

FEATURES

- Low $R_{DS(ON)}$ Over Temperature
- Fast, Rugged Intrinsic Body Diode
- High Temperature Operation (T_J=175°C)
- Very High Speed Switching Capability
- Wide Range of $R_{DS(ON)}$, I_D Product Options
- Through Hole and Surface Mount Package Options with Kelvin Source Pin

BENEFITS

- Lowest Possible Switching and Conduction Losses
- Minimizes System Heat-Sink Requirement
- Enables High Power Density Designs
- Easier to Drive (+15 V gate drive)
- Lowers Overall System BOM

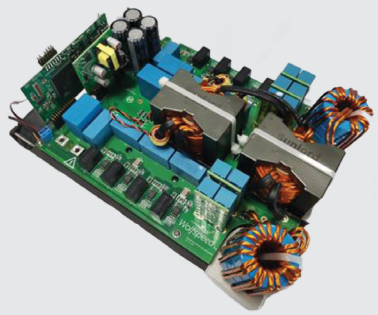
APPLICATIONS

- EV Fast Charger
- High Voltage DC/DC Converters
- UPS
- Induction Heating and Welding
- Industrial Motor Drives
- Onboard Charger
- Solar & Renewable Energy
- Industrial/Medical Power Supplies

INDUSTRY'S BROADEST PORTFOLIO OF 1200 V SILICON CARBIDE MOSFETs FOR UNMATCHED EFFICIENCY AND POWER DENSITY

REFERENCE DESIGN: 22 kW HIGH EFFICIENCY BI-DIRECTIONAL DC/DC CONVERTER

Ideal for wide output range applications such as EV chargers or energy storage systems



Wolfspeed's high performance 1200 V Silicon Carbide MOSFETs achieve nearly 99% efficiency in both charge and discharge modes with a flexible CLLC control scheme.

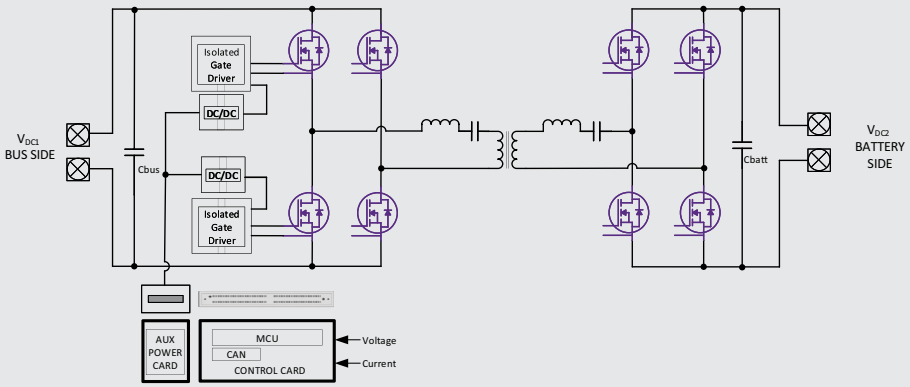
Charging Mode:

- Input Voltage: 380 V-900 V DC
- Output Voltage: 480 V-800 V DC Nominal. System capable of 200 V-800 V DC
- At Vin = 650 V-900 V DC, Output Power: 22 kW, Output current: 36 A
- At Vin = 380 V-900 V DC, Output Power: 6.6 kW, Output current: 26.4 A

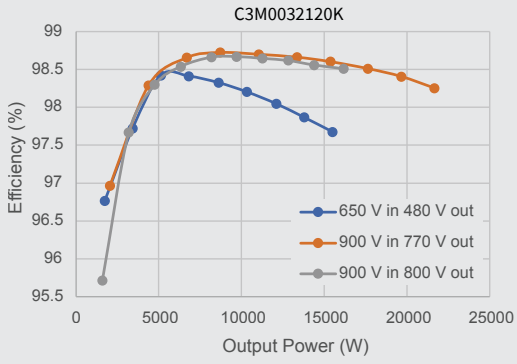
Discharging Mode:

- Input Voltage: 300 V-800 V DC
- Output Voltage: 360 V-750 V DC Nominal
- At Vin = 300 V-800 V DC, Output Power: 6.6 W, Output current: 19 A

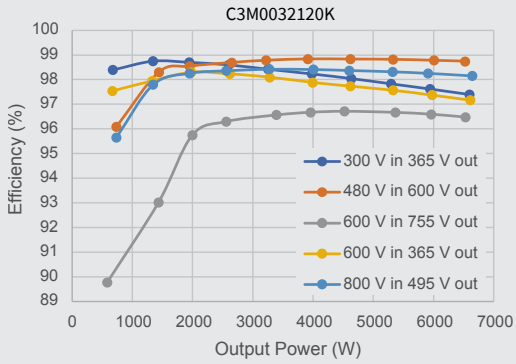
SYSTEM BLOCK DIAGRAM



22 kW DCDC EFFICIENCY UNDER CHARGING MODE



22 kW DCDC EFFICIENCY UNDER DISCHARGING MODE



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