Wolfspeed | A CREE COMPANY

Powering More, Consuming Less™

XM3 Module Platform

Platform Benefits:

- High Power Density Footprint
- High Temperature (175 °C) Operation
- Low Inductance (6.7 nH) Design
- Implements Third Generation MOSFET Technology
- Initial Product Releases: Optimized for Low Conduction-Loss & High-Frequency Operation
- Future Derivative Configurations: Up to 1.7 kV, Spanning Multiple Topologies

Targeted Applications:

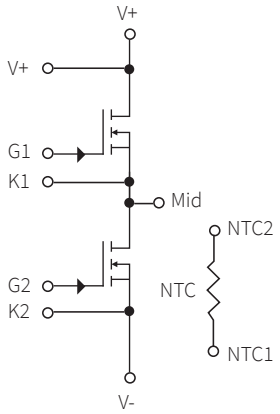
- Motor & Traction Drives
- UPS
- EV Chargers

High-Level Data:

Module Size:
80 x 53 x 19 mm

Topology:
Half-Bridge

Maximum Junction Temperature:
175 °C



Technical Features:

- Terminal Layout Simplifies Bus Bar Design
- Integrated Temperature Sensing
- Dedicated Drain-Kelvin Pin
- Silicon Nitride Insulator and Copper Baseplate

Initial Part Numbers in the XM3 Module Family:

Part Number	Status	Blocking Voltage (V)	Current (A)	Rds (on) (MOhm)	Footprint	Features
CAB450M12XM3	Available	1200	450	2.6	Optimized XM3	Conduction-Optimized, Third Generation MOSFETs
CAB400M12XM3	Fall 2019	1200	400	3.2	Optimized XM3	Frequency-Optimized, Third Generation MOSFETs

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XM3 Evaluation Tools:

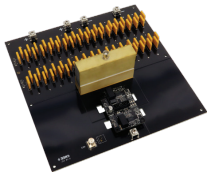
Support Rapid SiC System Evaluation
Optimized for Wolfspeed's XM3 Half Bridge SiC Modules

CGD12HBXMP XM3 Gate Driver:

- Up to 80 kHz Switching Frequency
- Replaceable, Easy-Access Turn-On and Turn-Off Gate Resistors for Switching Behavior Optimization
- Overcurrent, Shoot-Through and Reverse Polarity Protection
- 100 kV/µs Common-Mode Transient Immunity (CMTI)
- 1000 V_{rms} Isolation (Working Voltage) and 5 kV Peak Isolation for 1 Minute
- Differential Inputs for Increased Noise Immunity
- Fault and Power LED Indicator

CGD12HB00D Differential Transceiver:

- Converts Single-Ended I/O to High Noise Immunity Differential I/O
- Supports Single-Ended 3.3 V or 5.0 V Logic-Level Inputs
- Integrated Reverse Polarity and Overvoltage Protections
- Fault Indicator LEDs for Instant Visual Feedback
- Single-Ended and Differential Filter Networks for Additional EMC/EMI Immunity



XM3 Dynamic Evaluation Board:

- Evaluate and Optimize the Switching Performance of the XM3 Module
- Compatible with 350 MHz Current Shunt
- Includes Bulk and High-Frequency Film Capacitors with Low Stray Inductance
- Configurable Connections to Evaluate Both Low- and High-Side Switching
- Documentation Included: Schematic, Bill of Materials, Board Layout and Application Note

XM3 Evaluation Gate Driver Tools:

Part Number	Output Channels	Isolation Voltage (V)	Output Peak Current (A)	Designed for	Status
CGD12HBXMP	2	1200	10	XM3 Platform	Available
CGD12HB00D	2	N/A	N/A	Differential Transceiver for CGD15HB62LP and CGD12HBXMP	Available

XM3 Reference & Evaluation Designs:

Part Number	Description	Voltage Class	Optimized for	Avail for Purchase
CRD300DA12E-XM3	300 kW Inverter Kit for Conduction-Optimized XM3	1200	CAB450M12XM3	Upon Request
CRD250DA12E-XM3	250 kW Inverter Kit for Frequency-Optimized XM3	1200	CAB400M12XM3	Fall 2019
KIT-CRD-CIL12N-XM3	Dynamic Performance Evaluation Board for the XM3 Module	1200	XM3 Platform	Upon Request