

SILICON CARBIDE MOSFETS FOR EFFICIENT DESIGNS

The call for energy efficiency has never been greater and designers are looking for ways to create the next generation of efficient power conversion products. Whether it's EV Charging, Solar Inverters, Appliance Controls, or any one of numerous applications, Silicon Carbide (SiC) is an enabling technology. Engineers have been applying SiC diodes in their designs for two decades and now Silicon Carbide MOSFETs allow for the next step.

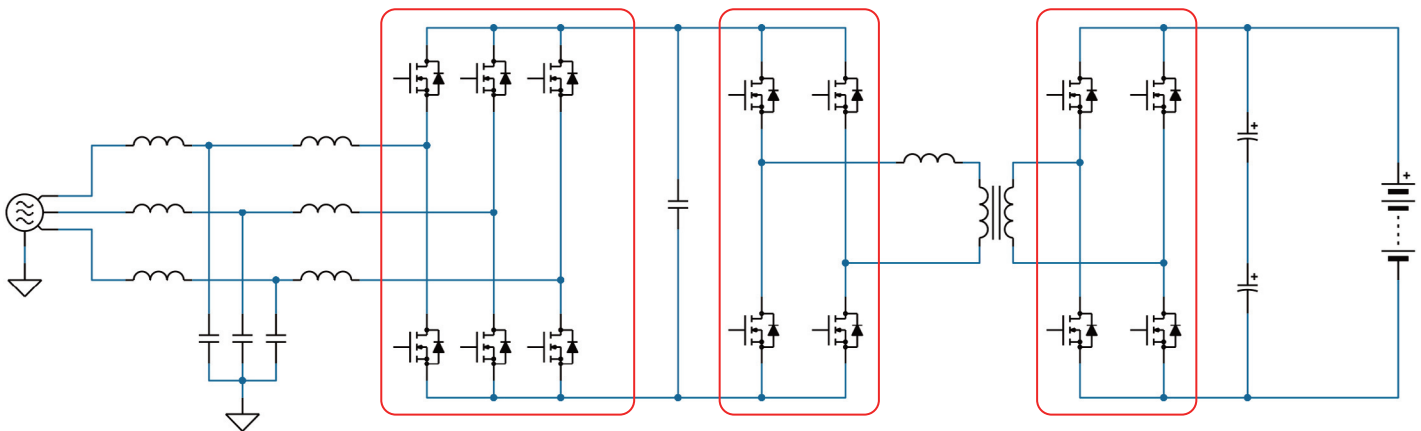
Typical High Voltage Converter Schematic

SiC MOSFETs with or without SiC Schottky Anti-Parallel diodes, increase efficiency and reduce thermals.

Benefits of SemiQ SiC MOSFETs

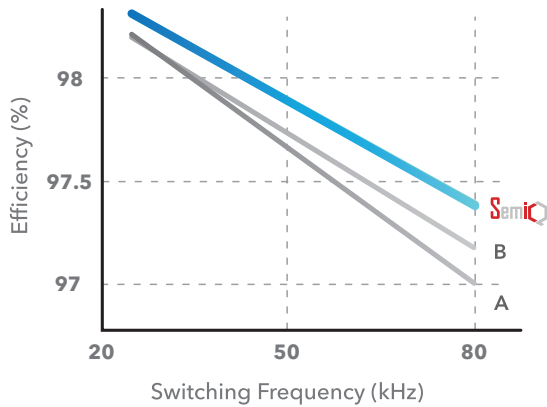
- Increased Efficiency
- Lower Losses = Lower Temperatures
- Lower Noise and EMI
- Higher Frequency Operation and Smaller Size

SemiQ SiC MOSFETs have benefits in many applications including Power Factor Correction, DC-DC Converter Primary Switching and Synchronous rectification. Combined with Silicon Carbide Schottky diodes, optimal performance can be achieved without the trade-offs made with Silicon devices.

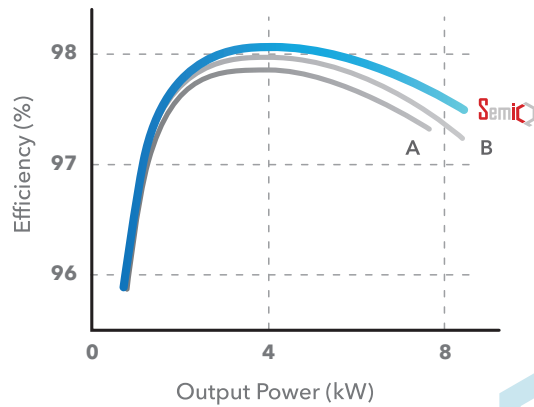


Silicon Carbide MOSFETs and MOSFET modules from **SemiQ**, give the ultimate in efficiency gains for high power, high performance systems. SemiQ has engineered our MOSFETs to provide the best trade off of conduction and switching losses to benefit the widest possible range of applications. Compared to other Silicon Carbide MOSFETs, SemiQ devices will improve performance over a wide range of power levels and switching frequency. **The graphs below show the performance of SemiQ's performance leading MOSFET against two competitors. You can see the improvement in efficiency at up to 8kW and with switching frequencies from 25kHz to 80kHz.**

Efficiency vs Switching Frequency

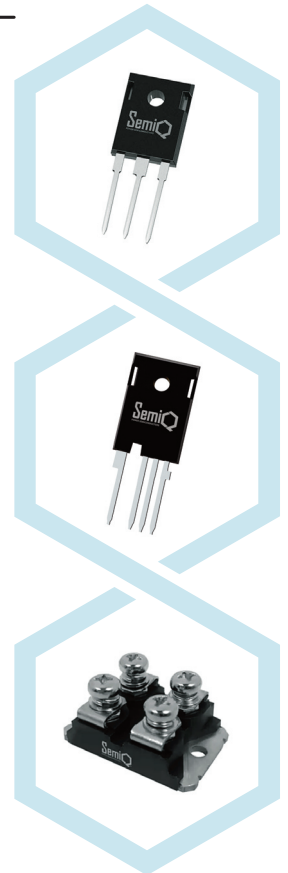


Efficiency vs Output Power



SemiQ SiC 1200V MOSFETs

SemiQ Part Number	Voltage	RDS-On mΩ	Package	Description
GP2T080A120U	1200V	80	TO-247-3L	SiC MOSFET
GP2T080A120H	1200V	80	TO-247-4L	SiC MOSFET
GP2T040A120U	1200V	40	TO-247-3L	SiC MOSFET
GP2T040A120H	1200V	40	TO-247-4L	SiC MOSFET
GP2T020A120U	1200V	20	TO-247-3L	SiC MOSFET
GP2T020A120H	1200V	20	TO-247-4L	SiC MOSFET
GCMX080B120S1-E0	1200V	80	SOT-227	SiC MOSFET
GCMX040B120S1-E0	1200V	40	SOT-227	SiC MOSFET
GCMX020B120S1-E0	1200V	20	SOT-227	SiC MOSFET
GCMS080B120S1-E1	1200V	80	SOT-227	SiC MOSFET w/SiC SBD
GCMS040B120S1-E1	1200V	40	SOT-227	SiC MOSFET w/SiC SBD
GCMS020B120S1-E1	1200V	20	SOT-227	SiC MOSFET w/SiC SBD



SemiQ is a designer and manufacturer of Silicon Carbide power semiconductors, focused on delivering industry-leading performance of the highest quality and reliability with a fully redundant supply chain. We have a broad product offering fitting many end applications and provide global support from design through production.

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