

Case Study

Research and Development in Silicon Carbide (SiC) Power Electronics

CUSTOMER: U.S. Department of Energy (DoE)
CONTRACT #: DE-FG02-05ER86234
PROJECT NAME: SBIR/STTR Phase I & II Project, "An Advanced Power Converter System Using High Temperature, High Power Density SiC Devices"
PROJECT DURATION: 2005-2008

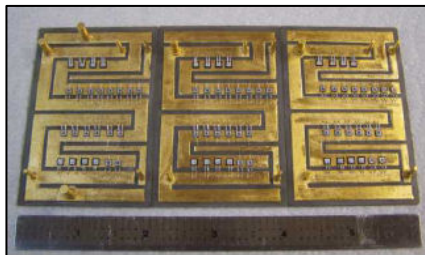
OVERVIEW

The US Department of Energy solicited a SBIR/STTR request for proposal (RFP) for the design and development of SiC based DC-AC inverters. These SiC power inverters can be used in electrical power conditioning, power distribution, and power management systems for energy storage and electric drive applications. The resultant SiC based inverters allowed for operation at high power densities, increased energy efficiency, and reliability. Aegis Technology was awarded the project in 2005 and successfully completed the project in 2008.

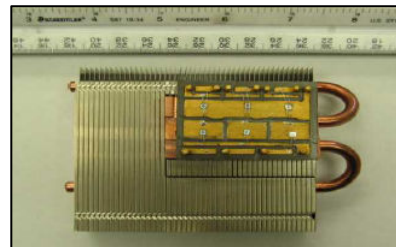
DELIVERABLES

Aegis Technology delivered prototype power modules and 5 kVA and 25 kVA SiC DC-to-AC prototype inverters. In the process, Aegis Technology conducted and/or developed:

- Circuit level design
- System level design
- Computer modeling and simulation
- Heatsinks
- Ancillary circuits and systems
- Gate Driver
- Layout & Processing
- Measurements & Testing
- Complete integration of the SiC inverter



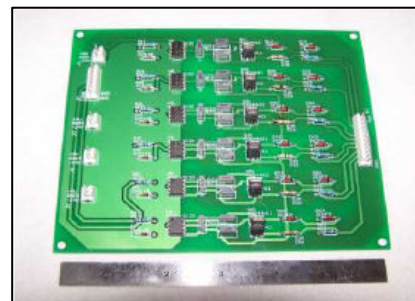
(a)



(b)



(c)



(d)

(a) Prototype SiC Power Modules, (b) Heatsink, (c) 5 kVA SiC inverter, (d) Gate Driver Board

CONTACT

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