

Case Study

Research and Development in Silicon Carbide (SiC) Power Electronics

CUSTOMER: U.S. Department of Defense, Missile Defense Agency (MDA)
CONTRACT #: HQ0147-09-C-7143
PROJECT NAME: SBIR Project, "Wide Band-gap Semiconductor Power Inverters and Converters for Next Generation Transmit Receive (T/R) Module Power Supplies"
PROJECT DURATION: 2009

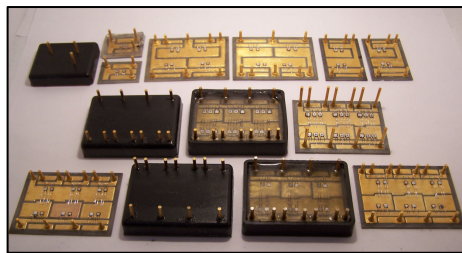
OVERVIEW

US DoD MDA solicited a SBIR/STTR request for proposal (RFP) for the design and development of new and enabling technologies for the use in electrical power systems, including power converters and inverters. These power converters and inverters are used for various applications in radar systems. Aegis Technology was awarded and successfully completed the project in 2009.

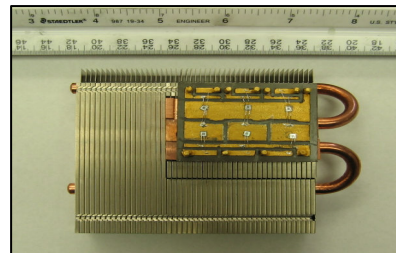
DELIVERABLES

Aegis Technology designed and delivered a prototype 5 kVA SiC based DC-AC inverter and a prototype 1 kW SiC based DC-DC converter. In the process, Aegis Technology developed and/or conducted:

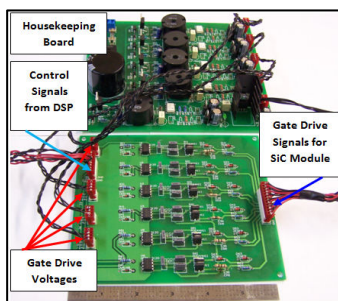
- System level design
- Circuit level design
- Computer modeling and simulation
- Power modules
- Thermal packaging including heatsinks
- Ancillary circuits and systems including gate drivers
- Complete integration of inverter and converter prototypes
- Testing



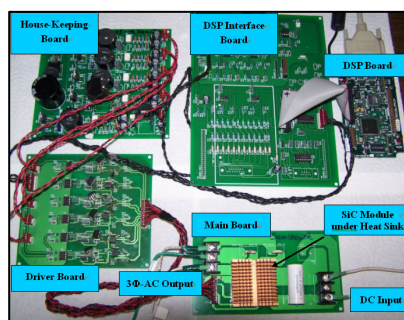
(a)



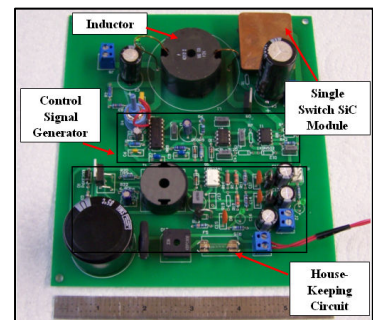
(b)



(c)



(d)



(e)

(a) Prototype SiC power modules, (b) Heatsink, (c) Gate Driver, (d) SiC DC-AC inverter, (e) SiC DC-DC converter

CONTACT

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