AEGIS TECHNOLOGY, INC.

Case Study
Research and Development in Thermal Management Systems

CUSTOMER: U.S. Department of Defense (DoD)
CONTRACT #: W56HZV-08-C-0084
PROJECT NAME: SBIR Project, "Application of Spot Cooling Technologies for the Thermal Management at the Source"
PROJECT DURATION: 2008-2009

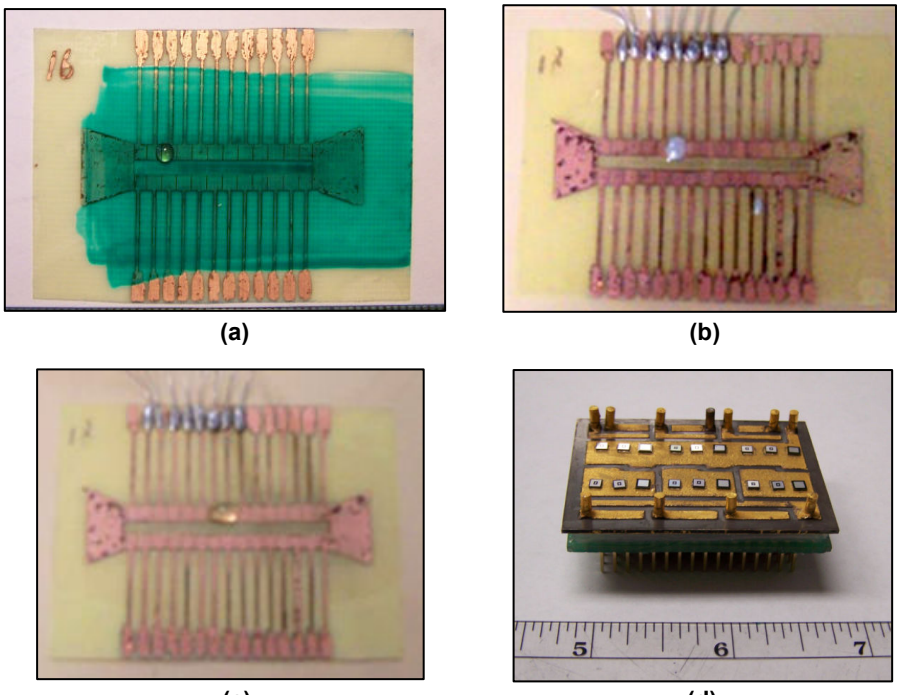
OVERVIEW

The US Department of Defense solicited a SBIR/STTR request for proposal (RFP) for new types of heat exchangers for the thermal management (*i.e.* cooling) of power electronics. In this project, an innovative class of heat exchangers was used that employs electrowetting-based spot cooling (ESBC). ESBC heat exchangers can actively cool localized hot spots in power electronics. This thermal management technology minimizes the use of external components, minimizes the use of moving parts, and results in a much more compact and lighter cooling system for commercial and military applications. Aegis Technology was awarded the project in 2008 and successfully completed the project in 2009.

DELIVERABLES

Aegis Technology designed and delivered several ESBC heat exchangers. In the process, Aegis Technology conducted and/or developed:

- System level design
- Layout
- Processing
- Scanning Electron Microscope (SEM) Characterization
- Testing



(a) ESBC heat exchanger using water droplets,
(b) ESBC heat exchanger using Indalloy 60, (c) ESBC heat exchanger using automotive coolant,
(d) Integrated ESBC heat exchanger and power module

CONTACT

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