Thermal Management Systems

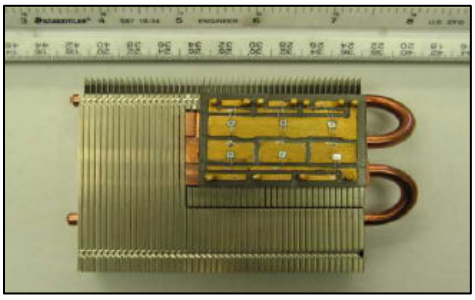
Aegis Technology specializes in the development of thermal management systems for SiC power electronics. By integrating novel materials with novel engineering design, these thermal management systems allow for high power density and high temperature operation of SiC power electronics.

These systems include:

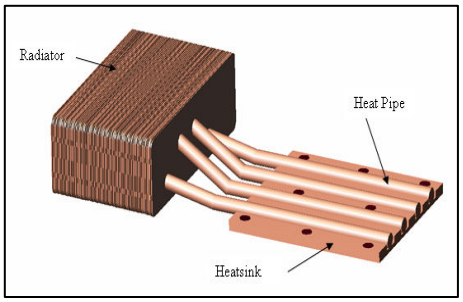
- **Heatsinks:** High-efficiency heatsink systems based on microchannels, microjet cooling, porous mediacooling (*e.g.* Al and graphite foam), heat pipes, phase change materials, and their combinations
- **Graphite Foam and Carbon-Carbon Heat Exchangers (radiators):** High-efficiency heat exchangers (radiators) based on strength-enhanced graphite foam and carbon-carbon composites
- **AlN packaging**: High-temperature AlN packaging for use with SiC devices, capable of withstanding temperatures up to 600°C
- **Ceramic Substrates:** High thermal conductivity substrates including metalized ceramic substrates (*e.g.* AlN and Si_3N_4), with Cu, Au, or Mo metallization
- **Metal Matrix Composites:** High thermal conductivity materials including Cu- and Al-based metal matrix composites.

Other applications for thermal management systems include use in:

- Armored vehicle propulsion systems
- Army vehicles
- High-efficiency and high power laser systems
- High power microwave amplifiers and radars



a)



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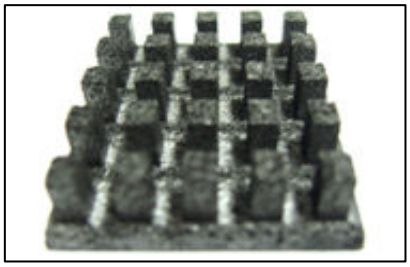

c)

a) Heatsink, b) Radiator, heat pipe, and heatsink, c) Carbon foam

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