



## **CPS Offers AlSiC Pin Fin Coolers for Hybrid Electric Vehicle IGBT Applications**

*AlSiC pin fin coolers offer higher reliability for Hybrid Electric Vehicle (HEV) Power Module IGBTs*



Liquid cooling is the most effective way to dissipate heat (1 – 2KW) in HEV power module applications. AlSiC coolers cost effectively offer the pin fin geometries that are required for liquid cooling. In addition, AlSiC coolers provide an isotropic thermal expansion that is compatible with device/electronic substrate to reduce mechanically induced stresses during power thermal cycling for improved electronics and module reliability. The AlSiC device compatible thermal expansion (8 ppm/°C) simplifies IGBT assembly compared to Cu (17 ppm/°C thermal expansion) pin fin coolers, eliminating the need for stress compensation layers that increase thermal resistance, assembly complexity and cost.

AlSiC is a lightweight material (1/3 that of Cu), which makes it an ideal cooler material for the weight-sensitive HEV application. AlSiC also has higher strength and stiffness than Cu, which, combined with its lightweight nature, makes AlSiC coolers more tolerant to shock and vibration.

The CPS AlSiC fabrication process efficiently produces both the composite material and fabricates the product geometry in one process step. CPS can work with customers to provide designs that are fabricated to shape requiring no finished machining for very cost effective cooler production.

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### **About CPS Technologies Corporation**

CPS Technologies Corporation is the worldwide leader in the design and high-volume production of metal matrix composites. CPS uses a net-shape fabrication process, including patented QuickSet™ injection molding and QuickCast™ infiltration. AlSiC components are used in applications in the wireless communications infrastructure, high-performance microprocessor, motor controller, and other microelectronic markets. CPS is a publicly traded company (symbol "CPSH"). CPS' customers include TI, Motorola, HP, Infineon, Agilent and Amkor. For more information on CPS' AlSiC components, contact Mark Occhionero at 1 (508) 222-0614 x 242; e-mail marko@alsic.com, or visit [www.alsic.com](http://www.alsic.com).

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