How to utilize natural cooling in micro-modules

The aim of the present investigation was to test the microchannel heat sink with Z-type flow configuration, using nanofluid as a promising solution to chip cooling technology.

In this study, an advanced cooling method for microelectronic modules in a magnetic field is examined through a numerical and artificial intelligence approach. The research utilized a ...

xMEMS" micro cooling fan-on-a-chip, a 1mm-thin, solid-state active thermal management solution for next-gen edge AI hardware and AI data center systems.

Microfluidic cooling allows efficient heat dissipation in electronic devices. By circulating coolant through microscale channels embedded in the device, heat is absorbed and the heated coolant is then ...

In this Article, we report an embedded microfluidic cooling strategy that is capable of dissipating heat fluxes up to 3,000 W cm -2 at a pumping power of only 0.9 W cm -2 using single ...

In this work, we present silicon-based microfluidics chips with integrated microstructural and surface modification strategies to reveal the coupling mechanism and enable energy-efficient ...

This manuscript presents and implements an embedded microchannel cooling solution for such devices. By directly integrating micropillar arrays within the near-junction region of the ...

In this Article, we report an embedded microfluidic cooling strategy that is capable of dissipating heat fluxes up to 3,000 W cm -2 at a pumping power of ...

To address this, an embedded microfluidic-cooled SiC power module is developed, combining embedded microchannels and nano-silver sintering to enable efficient and uniform cooling.

This paper discusses cooling technologies that have evolved to remove increasing levels of heat dissipation and manage junction temperatures to achieve goals for efficiency, cost, and ...

But a team of Swiss researchers believes they have a new solution by integrating cooling liquid directly into the chip itself. This approach could yield orders of magnitude improvements in...

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