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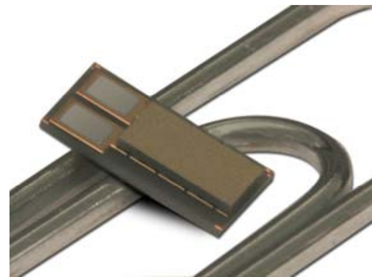
***For more information, contact:***
***Karl von Gunten***
***Nextreme Thermal Solutions, Inc.***
***(919) 597-7348***
***kvongunten@nextreme.com***

***Garth Miller***
***BtB Marketing Communications***
***(919) 872-8172***
***gmiller@btbmarketing.com***

*New thermoelectric cooler (TEC) module addresses applications with high heat-flux requirements in small optoelectronic packages...*

## NEXTREME ANNOUNCES NEW OPTOCOOLER UPF40 MODULE

**DURHAM, N.C. (May 7, 2008)** — Nextreme Thermal Solutions, the leader in microscale thermal and power management products for the electronics industry, announces a new thin-film thermoelectric cooler module - the OptoCooler UPF40 - that is designed for optoelectronic applications with high heat-flux requirements. The module is ideally suited for the cooling and temperature control of optoelectronic devices such as semiconductor optical amplifiers (SOA) and laser diodes. The OptoCooler UPF40 is the latest module in Nextreme's OptoCooler™ family of thermoelectric coolers designed for the photonics industry.



*New OptoCooler UPF40 on a paper clip*

The OptoCooler UPF40 module can pump a heat density of up to 72 $W/cm^2$ at 25°C, and as a result, it can move a maximum of 3.7 W of heat with an active footprint of only 5.1 $mm^2$. More information on the OptoCooler UPF40 can be found at www.nextreme.com/optocooler.

With Nextreme's thin-film thermal bump technology at its core, the OptoCooler UPF40 module can be integrated directly into electronic packaging to deliver cooling for a wide variety of thermal management applications. For example, the module can be embedded in a SOA package to maintain proper operating conditions. SOAs are used in telecommunications systems to restore degraded optical signals to their original quality without converting them into electronic signals. SOAs are key components for the future success of high-speed photonic networks.

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The module can be used for a number of optoelectronic applications including high-bright LEDs, laser diodes, VCSELs, and detectors.

“The new OptoCooler UPF40 module operates with heat fluxes 4 to 5 times greater than conventional thermoelectric coolers,” said Dave Koester, Vice President of Engineering at Nextreme. “In addition, the module's extremely small footprint opens up new thermal management capabilities in electronics that were previously unavailable.”

Nextreme's thin-film thermoelectric products are manufactured in volume with the Thermal Copper Pillar Bump process, an established electronic packaging approach that scales well into large arrays. The Thermal Copper Pillar Bump process integrates thin-film thermoelectric material into the solder bumped interconnects that provide mechanical and electrical connections for today's high performance/high density integrated circuits. Unlike conventional solder bumps, thermal bumps function as solid-state heat pumps on a microscale. The stack-up of a thermal bump, including the thin-film material, solder and electrical traces, is only 100µm (microns) high and has a diameter of 238µm. The thermal bumping process can be implemented at the, package or wafer-level, and is used today to fabricate Nextreme’s discrete modules.

OptoCooler UPF40 modules are available for order now. Pricing is available upon request.

For more information, contact Nextreme at 3908 Patriot Dr., Suite 140, Durham, NC 27703-8031; call (919)-597-7300; e-mail info@nextreme.com; or go to www.nextreme.com.

**About Nextreme Thermal Solutions™, Inc.**

Nextreme Thermal Solutions designs and manufactures microscale thermal and power management products for the semiconductor, photonics, consumer, automotive and defense/aerospace industries. The company has embedded cooling, temperature control and power generation capabilities into the widely accepted copper pillar bumping process used in high-volume electronic packaging. Nextreme’s breakthrough addresses the most challenging thermal and power management constraints in electronics today, and delivers the only fully-scalable technology solution by leveraging the existing, high-volume flip chip manufacturing infrastructure. By minimizing the need for manufacturing changes and focusing on developing a seamless design-in solution, Nextreme will change the future of thermal and power management for the entire electronics industry.

Nextreme is managed by an experienced start-up team and world-renowned experts in electronic packaging, thermal management and pillar bump technology. The company has 38 employees and is based near Research Triangle Park, North Carolina.

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