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Laird Thermal Systems Develops Micro Thermoelectric Cooler for Next Generation Optoelectronic Packages

The micro OptoTEC™ MBX Series offers superior heat pumping capacity in a smaller footprint for space-constrained optoelectronic applications...



April 4, 2023 – Laird Thermal Systems has expanded its capabilities by offering micro thermoelectric coolers to support high-temperature applications with compact geometric space constraints. Utilizing next generation thermoelectric materials and advanced ceramic substrates, the [OptoTEC™ MBX Series](#) offers micro footprints as small as 1.6 x 1.6mm with thicknesses down to 0.9mm. The packing fraction for thermoelectric materials enables high heat pumping densities up to 27 W/cm² at lower operating currents than traditional thermoelectric coolers.

Delivering precise temperature stabilization under changing environmental conditions, the compact OptoTEC™ MBX Series is designed for use in next generation LiDAR systems for autonomous vehicles, pluggable optical transceivers for telecom and Indium Phosphide VCSELs used in various high-performance applications.

The applications for this product series tend to be highly customized requiring unique ceramic substrate materials and thicknesses. Two solder constructions are available to accommodate reflow temperatures up to 230°C or 280°C. Lead attachments are typically wire bondable, LTS offers Au plated pads or wire bondable posts. Special finishing options are available to incorporate Au plated patterns on ceramic substrates, pre-tinning of metallized surfaces and attachment of thermistors.

“The new cooling applications in the optoelectronic market are pushing the process technology boundaries of thermoelectric coolers,” said Andrew Dereka, Thermoelectrics Product Director at Laird Thermal Systems. “Laird Thermal Systems has built a completely new line from the ground up dedicated to the OptoTEC™ MBX product series that has high volume capacity with precision process control and repeatability and is sold at a competitive price.”

The OptoTEC™ MBX Series is undergoing Telcordia GR-468 CORE qualification testing for unique thermoelectric coolers developed for customer specific applications to ensure high

repeatability and long-life operation in harsh environments. Contact a Laird Thermal Systems representative to discuss your application requirements.

For more information, go to: www.lairdthermal.com/products/thermoelectric-cooler-modules/micro-MBX-series

About Laird Thermal Systems

Laird Thermal Systems designs, develops and manufactures thermal management solutions for demanding applications across medical, industrial and telecommunications markets. We manufacture one of the most diverse product portfolios in the industry, ranging from active thermoelectric coolers and assemblies to temperature controllers and liquid cooling systems. With unmatched thermal management expertise, our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems. By offering a broad range of design, prototyping and in-house testing capabilities, we partner closely with our customers across the entire product development lifecycle to reduce risk and accelerate time-to-market. Our global design, manufacturing and support resources help customers shorten their product design cycle, maximize productivity, uptime, performance and product quality. Laird Thermal Systems is the optimum choice for standard or custom thermal solutions.

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