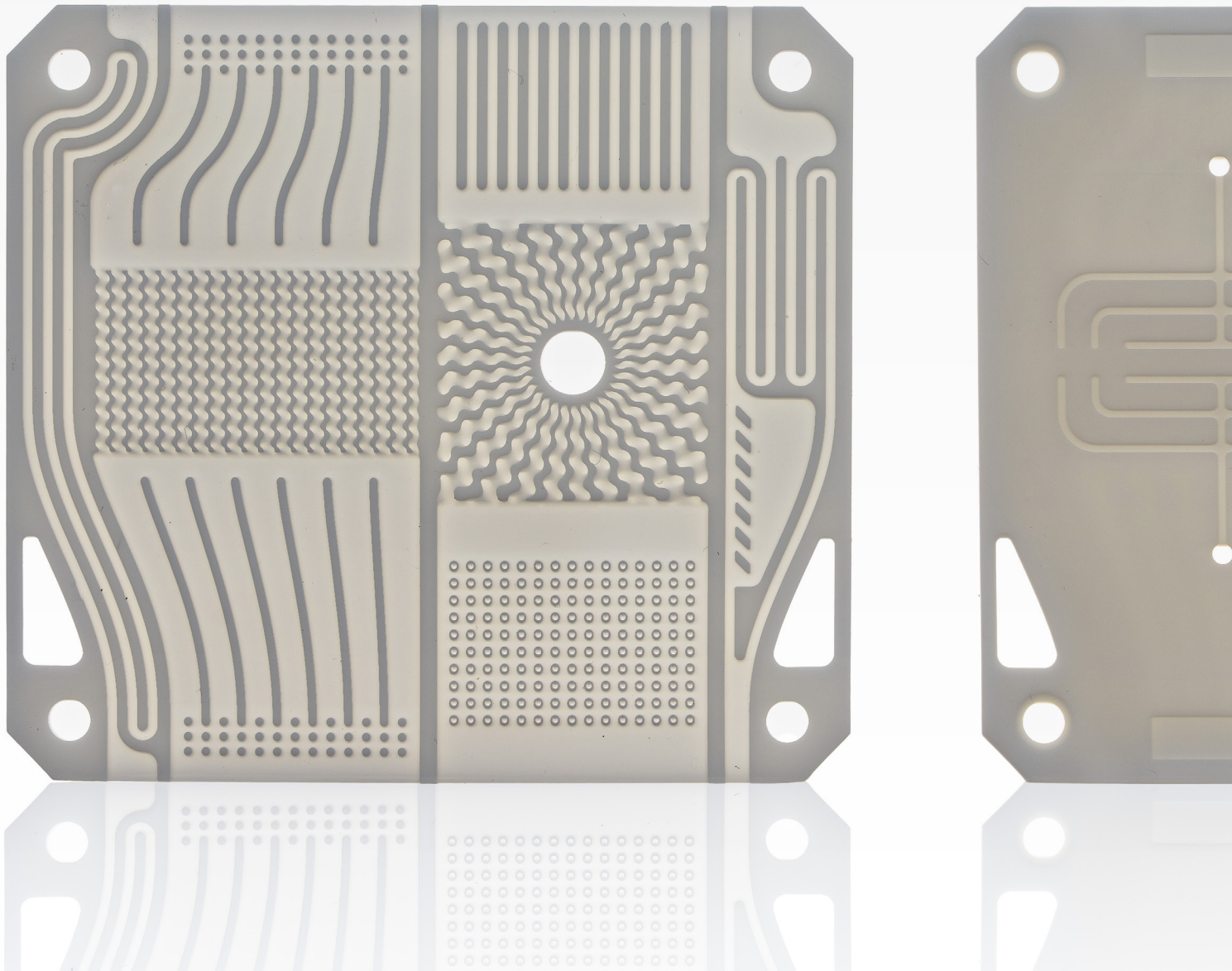
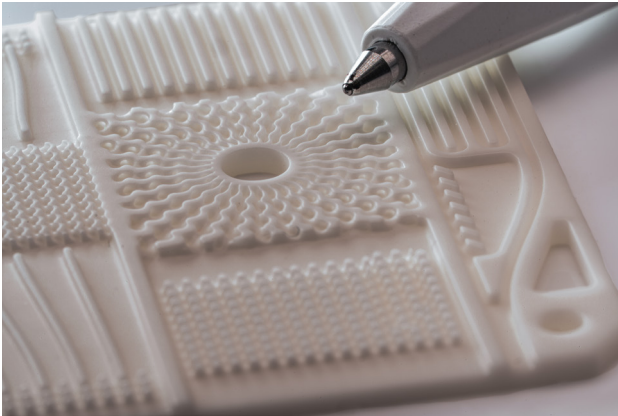


Aluminium Nitride Cooling Plates for Superior Thermal Management



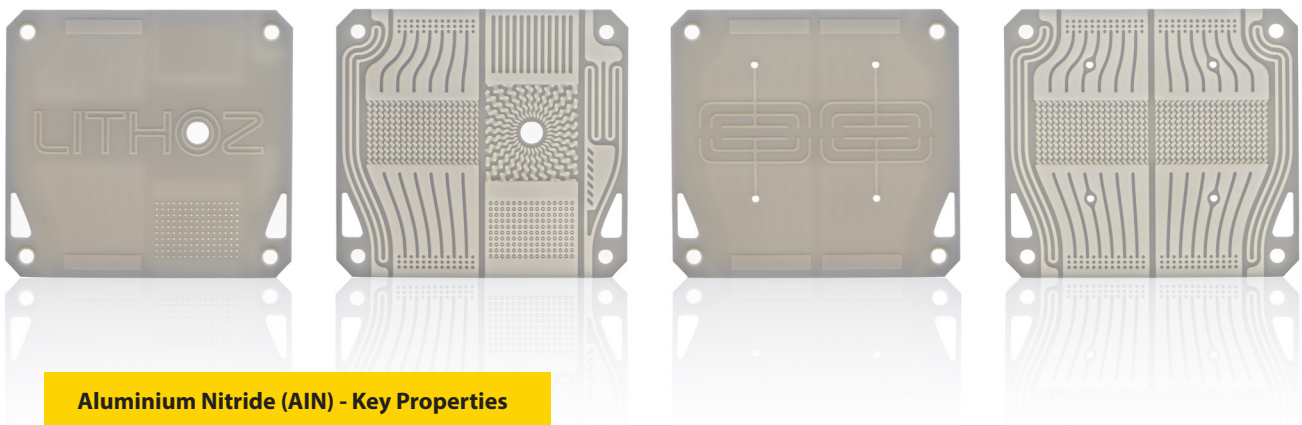


Close-up of various inner channel networks on opened AlN cooling plate

High-Efficiency Cooling with Ultra-Precise Geometries empowered by LCM Technology

Thanks to the design of miniaturized complex inner geometries, **Lithography-based Ceramic Manufacturing (LCM)** by Lithoz opens up a new dimension of thermal management for both semicon manufacturers and producers of advanced liquid cooling systems.

The intricate **aluminium nitride (AlN)** components shown here measure up to **100 x 100 mm**, feature **finely integrated channel networks** with gyroids and lattices, demonstrating how ceramics can bring efficient thermal management in various industrial ecosystems to the next level.



Aluminium Nitride (AlN) - Key Properties

- Superior thermal conductivity (211W/mK)
- Electrical insulation and chemical resistance
- High mechanical stability
- Low thermal expansion (suited with silicon)
- Features both a wide and direct band gap
- High thermal stability

Common Application Areas for AlN Cooling Plates:

- **Semiconductor Manufacturing, Testing & Burn-in:** Cooling plates and thermally stable interfaces for lithography, etch and deposition tools
- **Advanced Packaging & Power Modules:** Electrically insulating heat spreaders and cooling cores for high-power Si, SiC and GaN packages and power modules
- **HPCs & Data Centers:** Cold plates and thermal cores for CPUs, GPUs and accelerators in data centers and enterprise servers
- **Photonics & Laser Systems:** Cooling plates and submounts for photonics and laser systems

Key Benefits of AlN Cooling Plates:

- **Superior Thermal Management** to efficiently dissipate heat to maintain stable and optimal temperatures across devices and processes.
- **Excellent Electrical Insulation** to enable effective heat transfer.
- **Enhanced Reliability and Performance** to reduce thermomechanical stress, prevent thermal damage and support consistent, high-quality operation.
- **Precision and Process Stability** to ensure uniform temperature control critical for sensitive manufacturing and testing environments.
- **Durability and Versatility** to deliver robust, long-lasting cooling solutions adaptable to diverse high-tech applications.



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