



JB
DIANET

Diamond-Enhanced Heat Sinks & Heat Spreaders

**Unleashing the Power of Diamond for
Next-Generation Electronics**

Performance that Redefines Thermal Management

Harness the exceptional properties of diamond to unlock new levels of reliability and efficiency in high-power electronics. Our advanced heat sinks and spreaders are engineered to deliver **industry-leading thermal performance**, ensuring your devices stay cooler, run faster, and last longer.

Products Offered :

Cu-Diamond Composite, Al-Diamond Composite, PCD Wafers ($\leq 4"$) with Au Metallization, SCD Tiles (≤ 20 mm) with Au Metallization.

Why Choose Diamond-Enhanced Materials ?

Unmatched Thermal Conductivity : Rapid heat dissipation to eliminate hotspots and boost performance.

Perfect CTE Matching : Minimized thermal stress for Si, GaN, SiC, GaAs, InP, and ceramic packages.

Lightweight Strength : Optimize performance without adding mass—ideal for aerospace and mobile systems

Ready-to-Integrate Surfaces : Standard gold metallization ensures easy soldering, wire bonding, and seamless assembly.

Applications :

RF amplifiers & T/R modules, high-power lasers, LED arrays, advanced photonics, EV power modules, aerospace & defense electronics.



Our Product Range

Cu-Diamond Composite Heat Spreaders

Delivering superior in-plane conductivity in a copper matrix with engineered diamond reinforcement

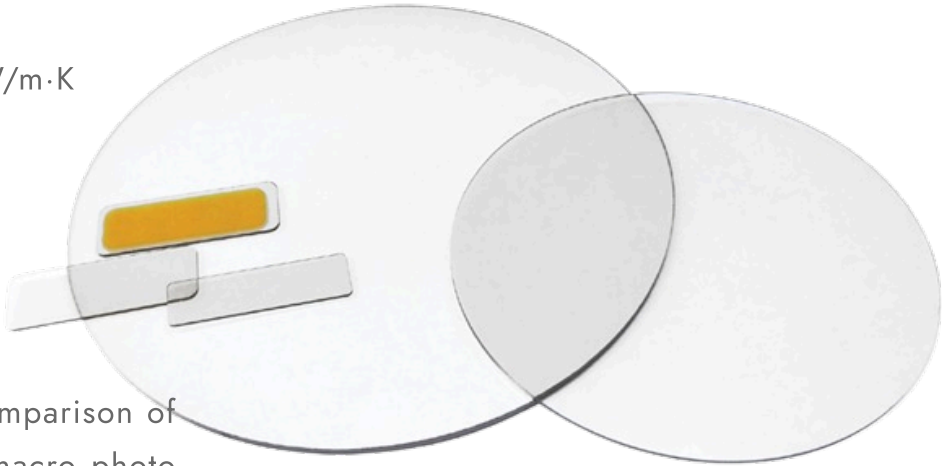
Thermal Conductivity : Up to 650 W/m·K

Size : Up to 100 × 100 mm

Thickness : 0.5–5.0 mm.

Metallization : Ti / Ni / Au.

Suggested Visuals : Side-by-side comparison of thermal maps (Cu vs. Cu-Diamond), macro photo of metallized spreader.



Alu-Diamond Composite Heat Spreaders

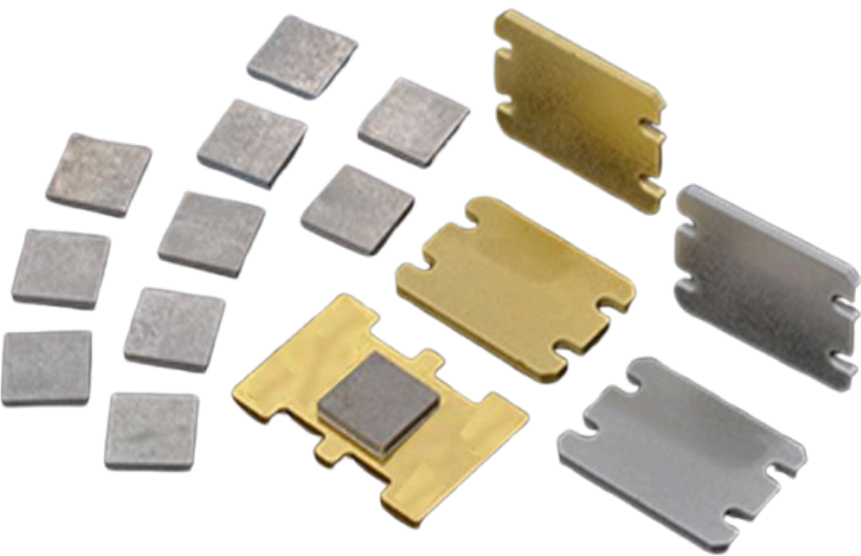
Lightweight aluminum combined with diamond for exceptional thermal performance at half the weight of copper.

Thermal Conductivity : Up to 450 W/m·K

Size : Up to 450 W/m·K

Thickness : 0.5–6.0 mm.

Metallization : Ti / Ni / Au.



Suggested Visuals : Exploded view of Al-Diamond composite layers, weight comparison chart.

Our Product Range

Polycrystalline CVD Diamond (PCD) Wafers — up to 4"

High-purity polycrystalline diamond for ultimate heat spreading and optical/RF applications.

Thermal Conductivity : $\leq 1800 \text{ W/m}\cdot\text{K}$ —

Flatness : $\leq 5 \text{ }\mu\text{m} / 25 \text{ mm}$ —

Surface : SSP or DSP (optical polish available) —

Metallization : Ti / Ni / Au.

Suggested Visuals : Close-up of polished PCD wafer, diagram of integration into a laser diode package.



Single-Crystal CVD Diamond (SCD) Tiles — up to 20 mm

For the most demanding applications—flawless crystal structure for unrivaled heat conduction.—



Thermal Conductivity : $\leq 2200 \text{ W/m}\cdot\text{K}$

Size : 4–20 mm (square/round) —

Ra : $\leq 3\text{--}10 \text{ nm}$ —

Metallization : Ti / Ni / Au

Suggested Visuals : High-resolution optical polish image, thermal profile of SCD vs. sapphire.

Built for Integration

Every product is available with **application-ready Au metallization** : - **Adhesion Layer** : Ti/Cr (0.5–10 μm) - **Barrier/Wettable**: Ni (10–20 μm) - **Top Layer**: Au (0.1–0.5 μm)