Next-Gen Flexible High-Thermal-Conductivity

Based on active fusion-bonded metal skeleton reinforcement; breaking physical performance limits of traditional thermal pads.

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01. Industry Status & Technical Pain Points

Thermal Conductivity "Glass Ceiling"

Traditional thermal pads rely on physical filling of conductive powders (e.g., alumina, boron nitride) in polymers. Point contact between fillers creates large contact thermal resistance; overall thermal conductivity stays below 15 W/m·K, insufficient for 5G and HPC cooling.

"Soft" vs "Rigid" Physical Paradox

Metal or carbon composites with high thermal conductivity are typically rigid and cannot conform to rough or uneven surfaces; flexible materials have low intrinsic conductivity, and high filler loading reduces mechanical flexibility and reliability.

Core Solution: Structured Composite Thermal Skeleton

Our proprietary process combines "active fusion bonding" with "structured flexible engineering" to build a composite system with a 3D continuous thermal network.

MECHANISM A

Atomic-Level Metallurgical Bonding

Active elements react with thermal reinforcement surface; eliminate interface thermal resistance; build high-speed phonon/electron transport channels.

MECHANISM B

3D Continuous Skeleton

Special mesh or fiber mat as reinforcement base; "physical filling" becomes "structured layout"; coordinated temperature uniformity in both in-plane and through-thickness directions.

MECHANISM C

Stress Release

Precision geometry forms stress-release array; imparts fabric-like macroscopic flexibility and high compression resilience.

02. Core Technical Advantages

01 **High Thermal Conductivity**

Through-thickness effective thermal conductivity significantly higher than traditional products; rapid heat export from energy center.

02 **Excellent 2D Temperature Uniformity**

High in-plane thermal diffusivity; effectively eliminates hotspots; achieves highly uniform chip surface temperature.

03 **Fabric-Like Conformability**

Compression up to 30%+; well conforms to installation tolerances; significantly reduces interface contact thermal resistance.

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04 **Long-Life Reliability**

Metallurgical locking prevents filler shedding, powdering, or pump-out; withstands extreme temperature cycling.

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03. Application Window & Commercial Potential

5G/6G Communications

High-frequency PA, RF modules, high heat flux components.

AI Compute Core

HBM, edge server global thermal management.

New Energy Vehicles

SiC/GaN power modules; battery thermal control.

Precision Optoelectronics

High-power lasers; high-brightness LED arrays.

Collaborative Innovation · Solving Limit Thermal Challenges

Solution has passed process feasibility and prototype testing; we welcome global strategic partners for industrialization.

Nanjing CuFeng Mechanical & Electrical Technology Co., Ltd.

sp^3–sp^2 Carbon Interface Platform R&D Center

wangbo@tospike.com

WWW.TOSPIKE.COM