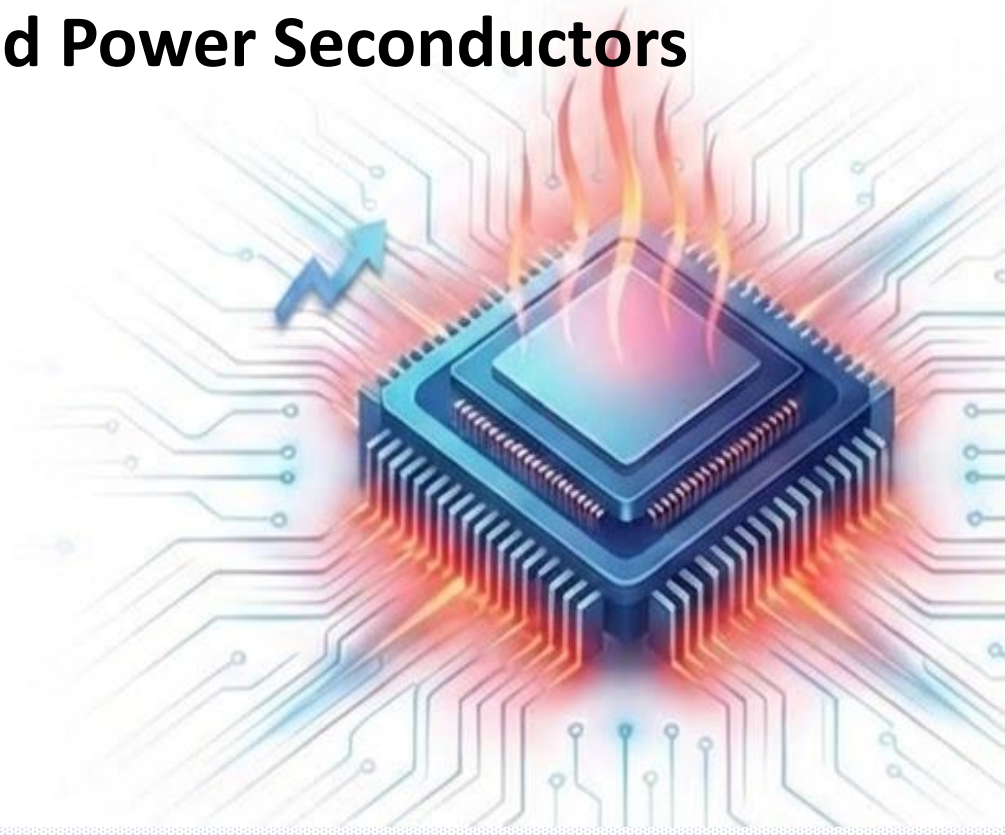
AI Infrastructure | Power Semiconductors | RF & Defense

KOSTEC
(주)코스텍시스

Thermal Packaging Platforms

for AI Power Infrastructure and Power Seconductors



Investor Presentation

June 2026

KOSTECSYS Co., Ltd.

Disclaimer

This material has been prepared by KOSTECSYS Co., Ltd. (hereinafter the 'Company') in accordance with Korean GAAP and K-IFRS, and contains information relating to the Company's management results and financial performance. It also includes forward-looking information related to the future, such as planned future sales, which is based not on past facts but on future projections. This material may use expressions such as "anticipate", "forecast", "plan", "expect," and actual results may differ from these, depending on changes in the business environment.

In particular, due to abrupt shifts in the market environment, changes in the investment environment, and the Company's strategic decisions, the contents of this material may differ from actual management performance. Therefore, rather than making judgments based solely on this material, investors must also refer to the Company's public disclosures and prospectus, and no part of this material assumes any legal responsibility for investors' investment outcomes.

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Thermal Packaging Platforms

1. Company Profile

Proprietary KCMC® low-CTE thermal materials and Block Bonding technologies enable superior thermal management for high-power semiconductor systems.

Company Overview

Company	KOSTECSYS Co., Ltd.	Capital	KRW 3.85 billion
Founded	January 8, 1997	Employees	80+ employees
CEO	Han Kyu-jin	Revenue	KRW 15.2 billion (FY2025)
Business	Provider of advanced thermal packaging platforms serving AI infrastructure, power semiconductors, RF communications and defense markets.		
Customers	Global customers include NXP, Microchip Technology, STMicroelectronics, Amkor Technology, Hyundai Motor and other leading semiconductor and industrial companies.		
Other	KOSDAQ (2023.04)	Location	Incheon Namdong National Industrial Complex

Key Management

Han Kyu-jin CEO	Overall Management	Mechanical Engineering, Kookmin University Former Engineer, Kia Motors R&D Center
Park Chan-ho Managing Director	Sales Management	Executive Director, Global Sales & Business Development
Lee Seung-ju Managing Director	Finance Management	Former Finance Manager, BYC
Han Tae-sung R&D Center Director	Technology Development	Electronic Engineering, Inha University Former Engineer, LG Display R&D Center
Heo Man-in Executive Director	Production Management	Former Engineer, Mando R&D Center

Nonhyeon-dong, Namdong-gu, Incheon 428-4
Land(3,294㎡), Building(4,526㎡)

Nonhyeon-dong, Namdong-gu, Incheon 429-12
Land(3,308㎡), Building(3,361㎡)

2. Financial Summary

Summary Balance Sheet

(Unit: KRW million)

Account	FY2023	FY2024	FY2025	FY26 1Q
Current Assets	15,006	16,319	16,821	16,392
Non-current Assets	22,783	23,636	39,183	39,751
Total Assets	**37,789**	**39,956**	**56,005**	**56,143**
Current Liabilities	1,352	7,520	16,733	10,372
Non-current Liabilities	10,578	9,866	16,968	17,172
Total Liabilities	**11,931**	**17,387**	**33,701**	**27,545**
Share Capital	3,760	3,898	3,898	3,898
Capital Surplus	12,777	14,224	14,897	16,966
Retained Earnings	5,000	3,108	2,523	3,471
Total Equity	**25,858**	**22,568**	**22,303**	**28,597**

Summary Income Statement

(Unit: KRW million)

Account	FY2023	FY2024	FY2025	FY26 1Q
Revenue	**11,549**	**14,213**	**15,220**	5,448
Cost of Sales	10,614	13,955	12,952	3,845
Gross Profit	934	258	2,267	1,602
SG&A Expenses	2,254	2,152	2,083	471
Operating Profit	**(1,319)**	**(1,894)**	**184**	**1,131**
Non-op. Income	1,135	553	269	225
Non-op. Expenses	10,854	473	1,087	362
Profit Before Tax	(11,038)	(1,814)	(633)	993
Income Tax	340	(20)	(70)	46
Net Income	**(11,379)**	**(1,794)**	**(562)**	**947**

Chapter 02 **Market Trend**

3. Industry Megatrends & Market Opportunities

4. Thermal Bottleneck: A Critical Challenge for Next-Generation Semiconductor Systems

3. Industry Megatrends & Market Opportunities

➢ Key Growth Drivers: Rising Power Density and Growing Demand for Thermal Management

AI Data Center

Next-generation GPUs exceed 1kW power consumption, making advanced thermal management essential.

EV (Electric Vehicle)

Growing adoption of SiC and GaN devices increases power density and localized thermal stress.

RF & Optical Comms

Higher data transmission speeds increase both signal integrity challenges and thermal management requirements.

➢ Market Growth Rate(CAGR)

~32%

AI/HBM Thermal Management Solutions

(Driven by accelerating AI compute demand)

~12%

Power Semiconductors

(Driven by increasing SiC/GaN adoption)

~18%

RF & Optical Communications

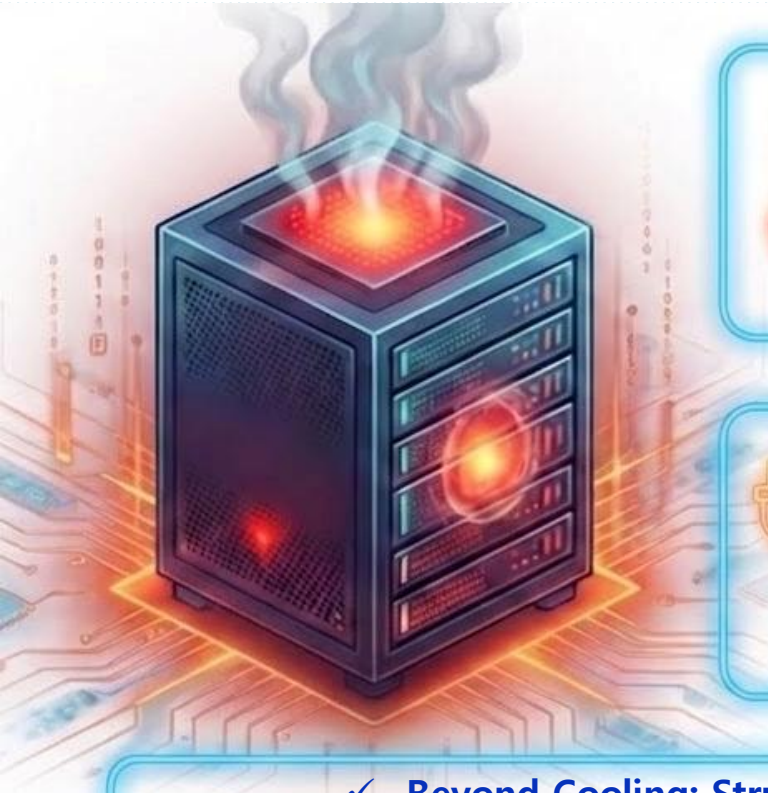
(Driven by 6G and AI infrastructure expansion)

Industry Paradigm Shift

- **Industry paradigm shifting from performance-centric design to power- and thermal-centric system architecture.**
- **3D power packaging emerging as a key enabler of next-generation semiconductor systems.**
- **Advanced thermal architecture becoming mission-critical for system reliability and efficiency.**
  → Thermal matching and high-conductivity materials becoming increasingly important.

Thermal packaging is becoming a critical enabler of next-generation AI and power semiconductor systems.

4. Thermal Bottleneck: A Critical Challenge for Next-Generation Semiconductor Systems



❖ Performance Limits

Excessive heat triggers performance throttling, limiting system throughput and computational efficiency.

❖ Reliability Decline

CTE mismatch can lead to material fatigue, component cracking and long-term reliability degradation.

❖ Efficiency Loss

Higher cooling requirements increase operating costs and reduce overall energy efficiency.

❖ Localized Hotspot

Localized heat accumulation within the chip creates thermal bottlenecks and performance constraints.

✓ Beyond Cooling: Structural Thermal Management

- **Conventional air and liquid cooling alone are no longer sufficient. Material and packaging innovation are becoming essential.**

→ Key enablers include advanced materials, 3D packaging architectures and thermal-matching technologies.

- **Thermal management is emerging as one of the most critical challenges in next-generation semiconductor systems.**

→ Addressing this challenge requires innovation at the semiconductor packaging level, rather than relying solely on cooling technologies.

This shift is increasing demand for advanced thermal packaging platforms, creating a significant growth opportunity for KOSTECSYS.

Chapter 03 **Portfolio**

5. KOSTECSYS Thermal Packaging Portfolio
6. Low-CTE, High-Dissipation Materials
7. Block Bonding: Enabling High-Power-Density Semiconductor Systems
8 . Advanced Thermal Management Platforms: Cold Plates
9. Thermal Packaging Solutions for RF and Optical Communications
10. Laser & Optical Semiconductor Modules

5. KOSTECSYS Thermal Packaging Portfolio

KOSTECSYS Integrated Packaging Platform

Material–Structure–Packaging Integration
Thermal Platform

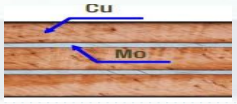
Low CTE Material (KCMC®)

3D Structure Based on Block Bonding

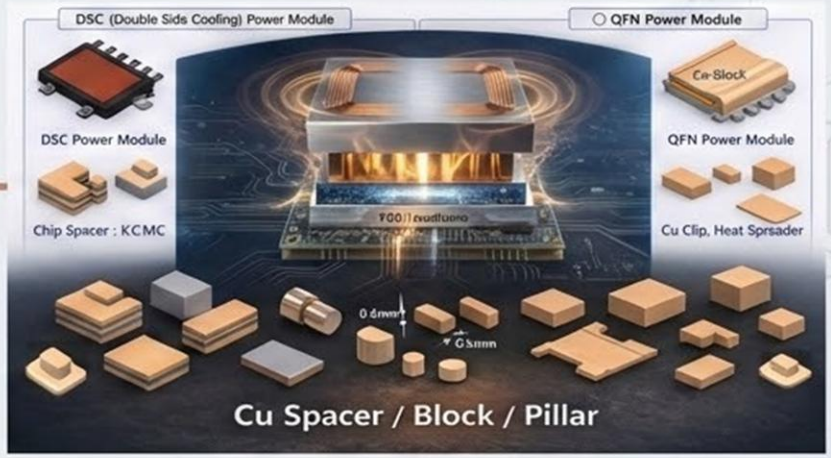
Embedded Copper Coin

Thermal + Electrical + Mechanical
Integrated Platform

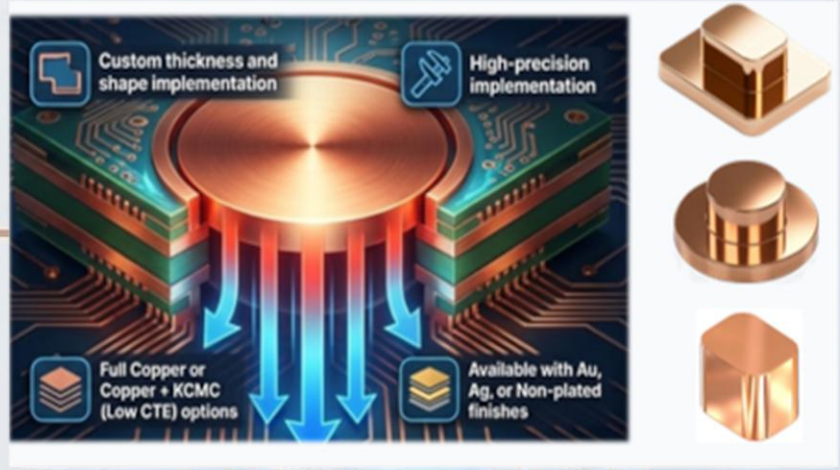
• **Low-CTE Material (KCMC®)**



QFN 3D-Stack Power Module with DSC & Block Bonding



• Block Bonding

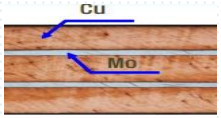


• Embedded Copper Coin

6. Low-CTE, High-Dissipation Materials

KCMC®: Structural Control of Electrical Loss and Thermo-Mechanical Stress

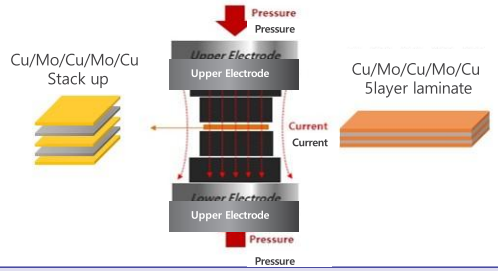
Thermal Matching Material Platform



KCMC® (Kostec Copper–Molybdenum Composite)
Proprietary SPS diffusion-bonded, void free multilayer composite platform

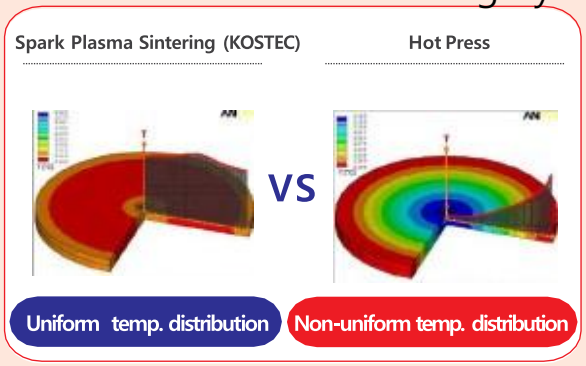
KOSTEC Brand (Trademark Reg.: 4020240019848)
(Patent Reg.: 1014925220000,1024923060000)

SPS diffusion bonding eliminates interfacial voids and maximizes thermal and structural performance.



Void-Free Multilayer Structure

✓ Uniform heat-flow distribution
✓ Optimized thermal conductivity
✓ Enhanced mechanical integrity



KCMC® Engineered Thermal Matching Platform

✓ Low CTE (7–11 ppm/°C)
✓ Thermal Conductivity up to 320 W/mK
✓ SPS diffusion-bonded, void-free multilayer architecture
✓ Up to 60% Lower Thermal Stressr

Target Applications

✓ AI Accelerators (1kW+)
✓ HBM Systems
✓ SiC/GaN Power Modules
✓ Hyperscale Data Centers

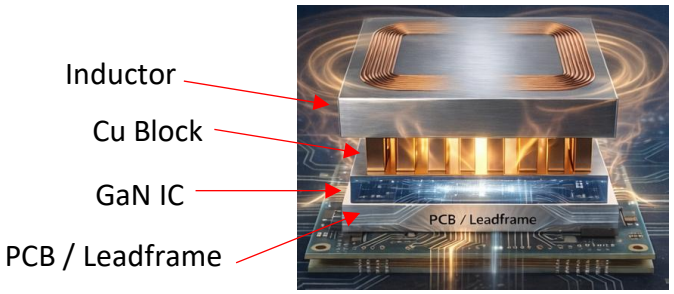
Material	Compositions (vol %)		Layers	CTE [ppm/°C]		Thermal Conductivity [W/(m.K)] 25°C (Z-direction)
	Molybdenum	Copper		150°C	300°C	
KCMC®12	12	88	5	11.05	9.01	320
KCMC®20	20	80	7	9.12	7.69	291
KCMC®28	28	72	5	8.83	7.57	263
KCMC®33	33	67	3	7.83	6.96	241
KCMC®40	40	60	5	7.34	6.59	222

-. Optimized for High Power Density, Thermal Reliability and Long-Term Performance

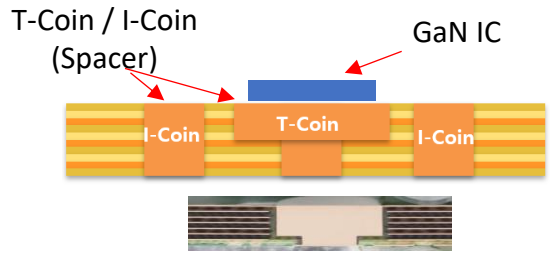
7 . Block Bonding: Enabling High-Power-Density Semiconductor Systems

1) QFN 3D-Stack Power Module

① 3D-Stack Power Module Architecture

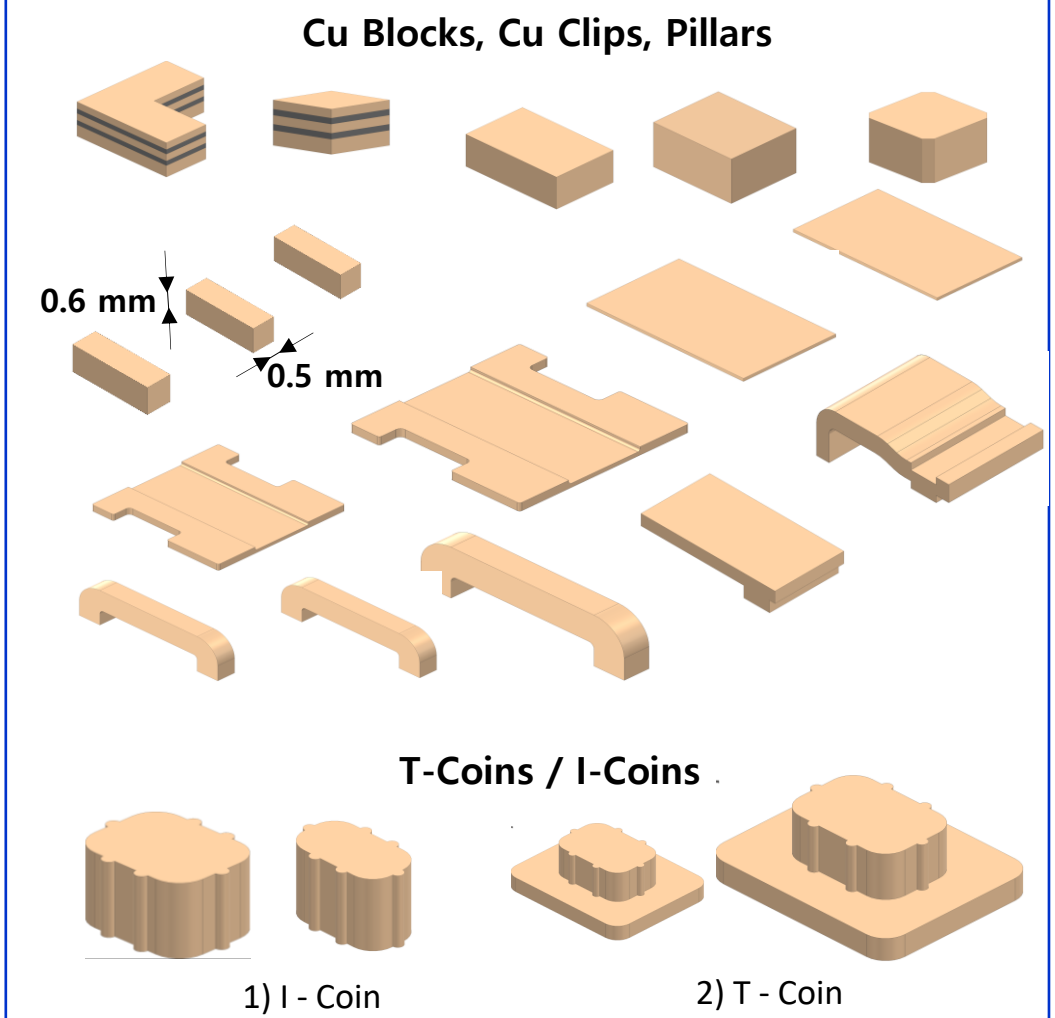


② Embedded Copper Coin Structure



- ✓ Block Bonding enables vertical integration of multiple power devices within a compact package.
- ✓ Key Benefits
  - Higher power density
  - Improved thermal performance
  - Enhanced electrical efficiency
- ✓ Target Applications
  - AI Servers / Hyperscale Data Centers
  - Power Supply Units / SiC/GaN Power Modules

Spacer Portfolio

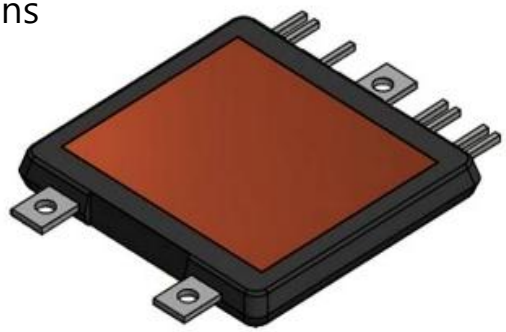


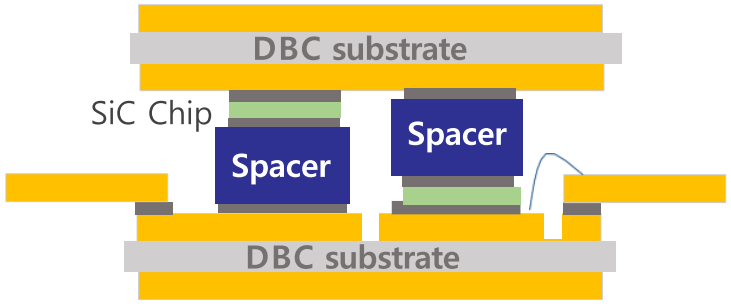
7 . Block Bonding: Enabling High-Power-Density Semiconductor Systems

Double-Sided Cooling (DSC) Power Modules

2) DSC (Double-Sided Cooling) Power Modules

High-Efficiency Architecture for High-Power-Density Applications



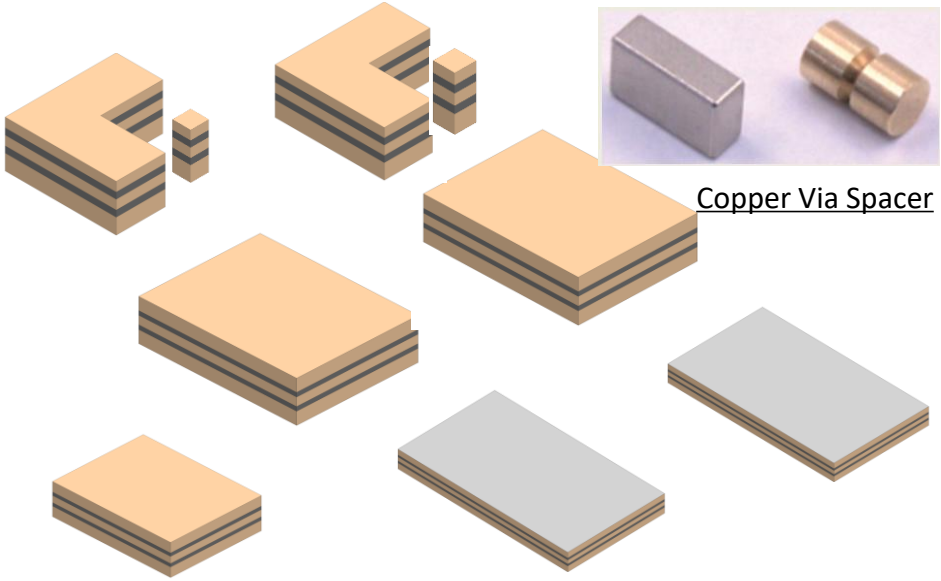


- **Key Features:** Efficient double-sided cooling for high-power SiC/GaN modules.
- **Result:** Optimizes both electrical efficiency and thermal performance.

Chip Spacer / Via Spacer

Chip Spacer – KCMC® Composite

- CTE matching
- Enhanced Thermal Performance
- Reduced Thermo-Mechanical Stress
- Improved Reliability



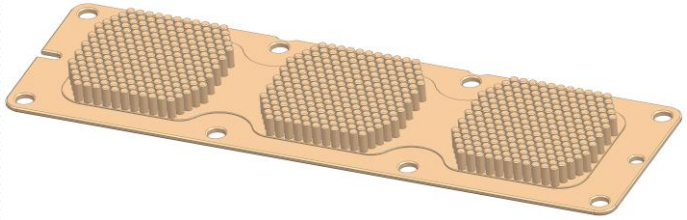
Copper Via Spacer

- **Structural Integration Design**: Controls electrical and thermal pathways at the packaging structure level.
- **Electrical + Thermal Co-optimization**: Integrated optimization of electrical efficiency and thermal performance.

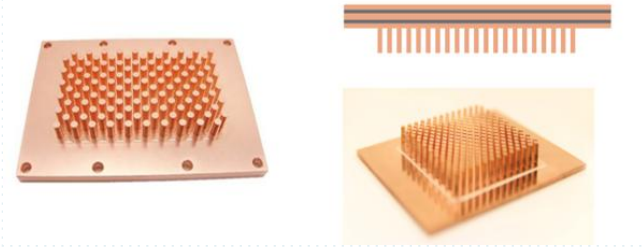
8. Advanced Thermal Management Platforms: Cold Plates

3) Power Module Baseplates

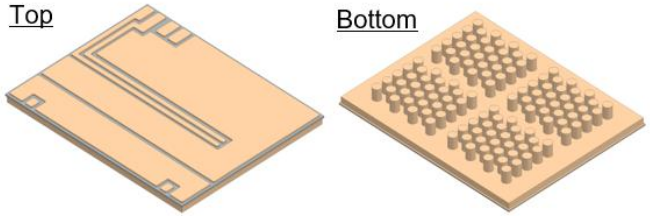
① All-Copper



② KCMC® Baseplate



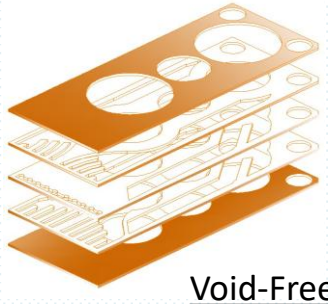
③ AMB Integration Baseplate



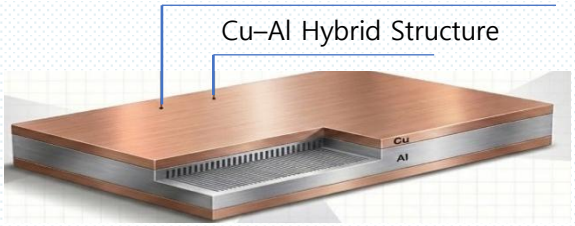
4) Cold Plate Technologies

① **Microchannel Cooling**

High-efficiency liquid cooling architecture for high-power-density systems



Microchannel Cooling Structure (MCCP)



Void-Free Multi-Layer Diffusion Bonding

② **Brazed Cold Plate**

Proven cooling solution for industrial and power electronics applications

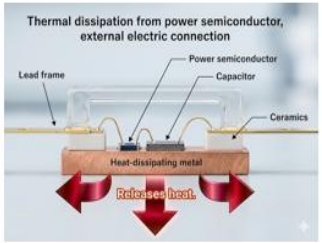
Key Benefits

- Higher Power Density, Superior Thermal Performance, Scalable Cooling Solutions
- AI Infrastructure / EV / Industrial Power Systems

9. Thermal Packaging Solutions for RF and Optical Communications

✓ 1.6T Optical Transceivers-Thermal Bottlenecks

- 25–30W power consumption in DSP / EML regions
- 220 W/m·K materials are no longer sufficient
- 10°C temperature rise → ~50% reduction in device lifetime
- >300 W/m·K Thermal conductivity required to overcome the thermal wall



✓ GaN-on-SiC RF Power Amplifiers

Provides an efficient thermal path for high-power GaN devices used in 5G/6G base stations, defense systems, and satellite communications.

REQUIREMENT

The industry requires >300 W/m·K packaging solutions.

✓ Our Solutions

High Thermal Metal-Ceramic Package Platform

The package integrates a high thermal conductivity substrate (320 W/m·K) with a precision metal housing to deliver:

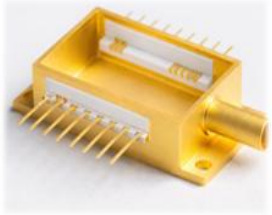
- Efficient heat dissipation
- Mechanical stability
- EMI shielding.

✓ Key Technical Specifications

Feature	STD	KOSTEC
Thermal Conductivity	220 W/m·K	**320 W/m·K**
Junction Temperature	-	**Up to 20°C Reduction**

✓ Applications

- Optical transceivers
- Optical modulators
- Pump lasers
- Military Electronics
- RF power amplifiers
- CPO Substrates



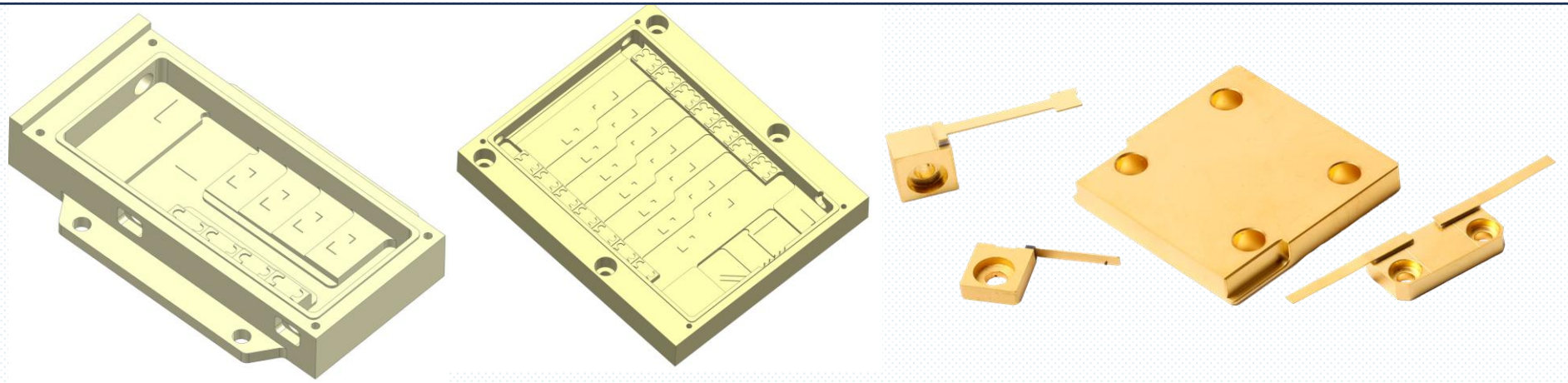
Optical transceivers & modulators

RF power amplifiers

10. Laser & Optical Semiconductor Modules

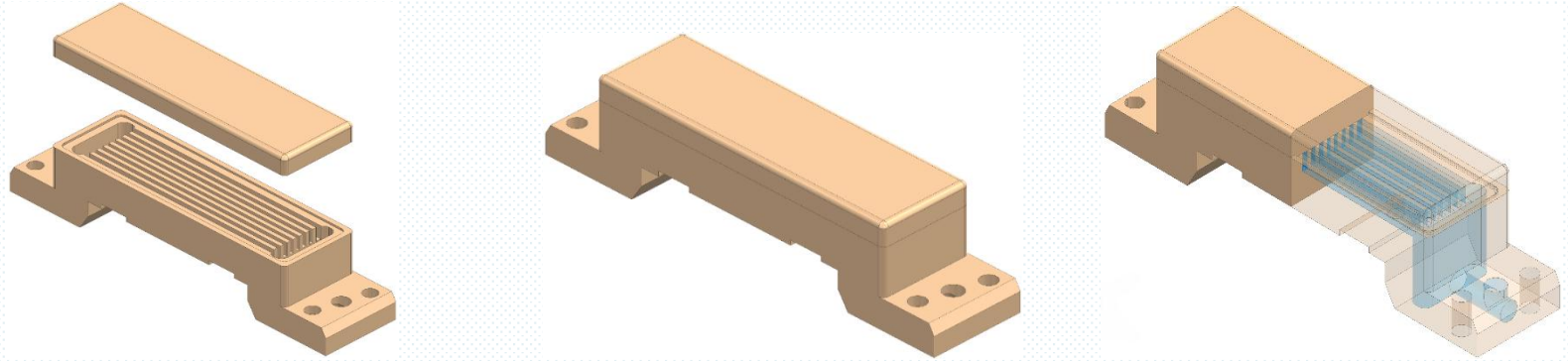
Thermal Management Solutions for High-Power Laser Systems

1) High-Power Laser Module Packages



※ High-precision thermal packaging solutions designed for demanding **industrial and optical laser** applications

2) Advanced Liquid Cooling Platforms (Cold Plates & Cooling Blocks)

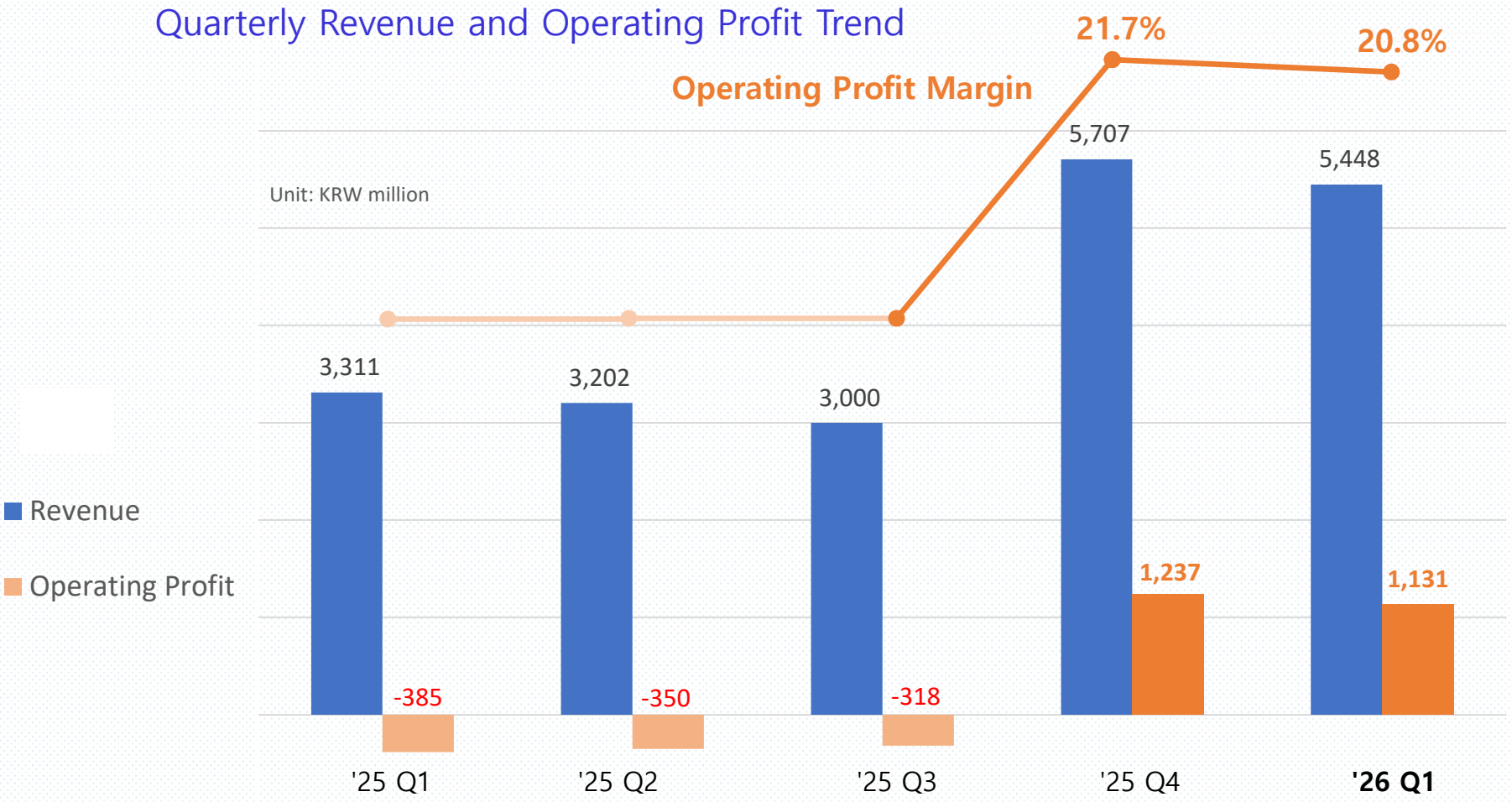


※ Engineered copper-based cooling platforms optimized for high-density, high-power laser applications.

Chapter 04 **Growth Acceleration**

11. Revenue Growth and Profitability Improvement
12. Key End Markets & Global Customers

11. Revenue Growth and Profitability Improvement



- Full-scale ramp-up of new products in 4Q25 drove a return to profitability.
- Operating margins exceeded 20% in both 4Q25 and 1Q26.
- Product and customer diversification established a foundation for sustainable growth.

12. Key End Markets & Global Customers

AI Infrastructure	Power Semiconductors	RF & Optical Communications	Aerospace & Defense
• AI Data Centers • HBM & Advanced Packaging • Advanced Thermal Platforms	• SiC/GaN Power Modules • EV Powertrains • Industrial Power Systems	• 5G/6G Infrastructure • Optical Transceivers & CPO • Advanced Thermal Packaging	• Thermal Packaging Solutions • Cold Plates • Thermal Management Systems

KOSTECSYS is positioned to benefit from long-term growth across AI infrastructure, Power semiconductors, RF communications, and Defense markets.

Thank You

Thermal Packaging Platforms

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