arCuDia / SbS-Dia.

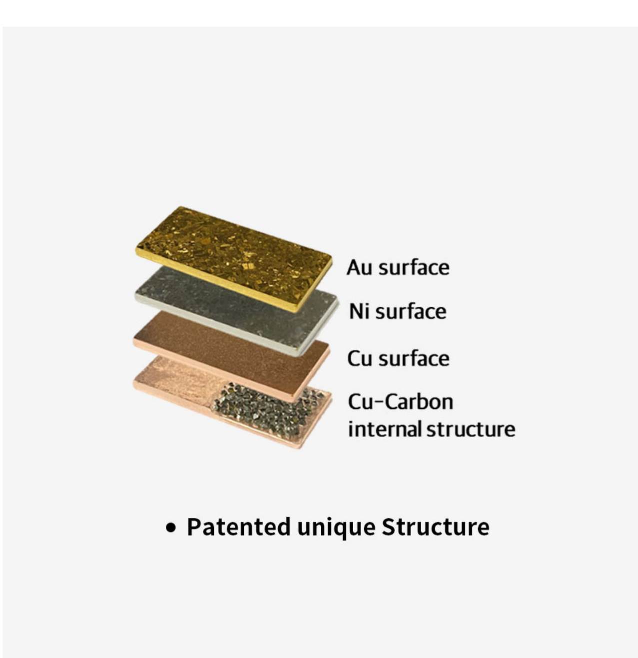
Heat spreader for extreme applications

Dimension

- Width : ~ 108mm
- Length : ~ 108mm
- Thickness : ≥0.7 mm

Features

- Patented unique Structure
- Hole, Ear, Rectangular type
- Surface finishing : Cu, Ni, Au
- Ag-Brazing (800℃) is available
- Copper-Carbon New Composite Materials
- Heat spreader with strain balanced structure
- high performance heat dissipation substrates with higher TC and lower CTE
- The world's highest performance heat dissipating substrate for semiconductor packages



• Patented unique Structure

• Hole, Ear, Rectangular type

• Surface finishing : Cu, Ni, Au

Product Inquiry | List

> Applications

- 5G / 6G wireless communications
- Aircraft & Aero space communications
- Power modules for EV & Self-driving
- CPUs, Servers, Internet switches, ASICs, Wearables
- Lasers, Optical communications

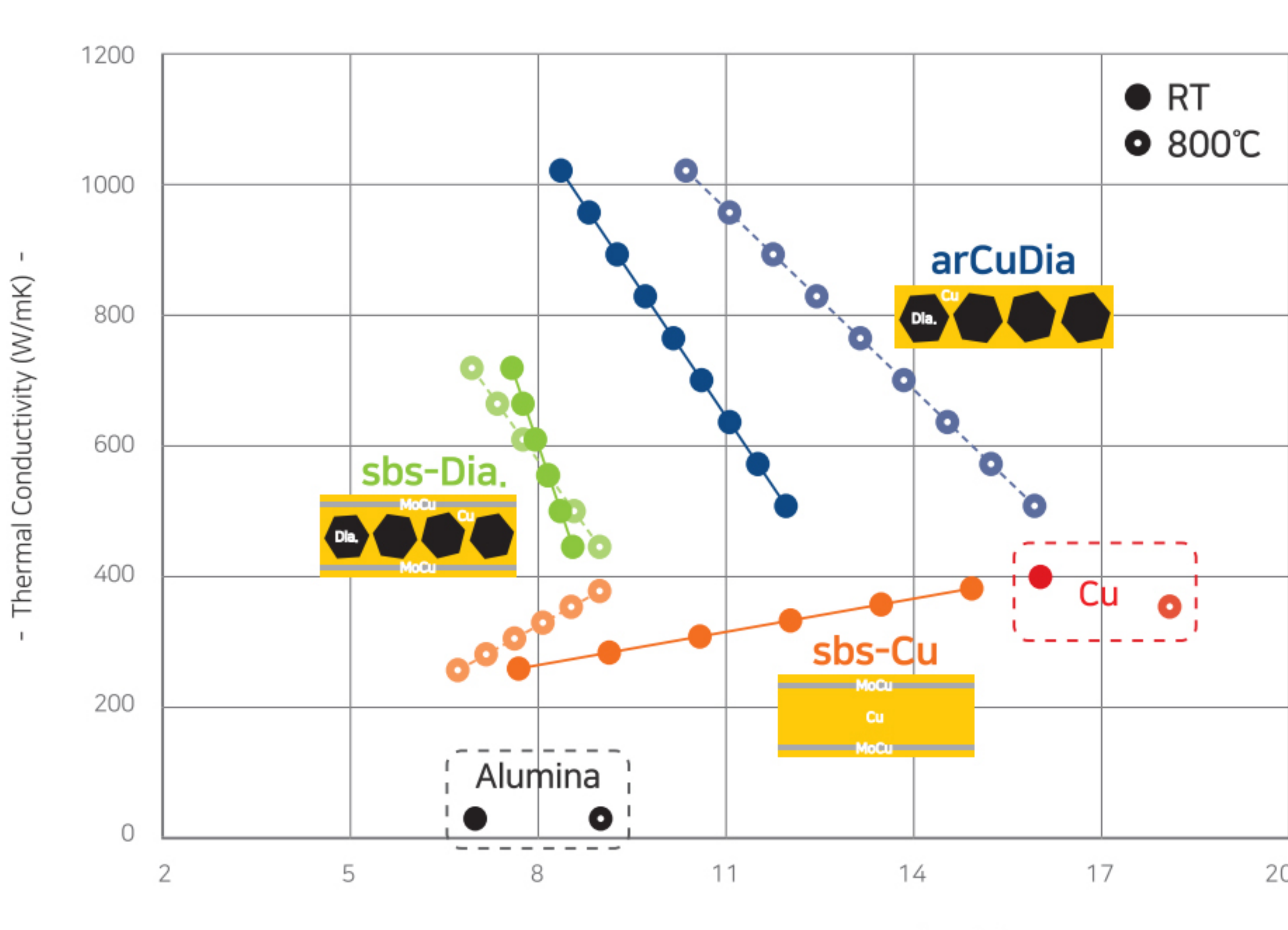
Typical product features		
TC (Thermal conductivity)		600~1,000 W/mK
CTE (Coefficient of Thermal Expansion)		7~9ppm/K @RT
High reliability under thermal cycling test, -65~150℃		
Design	thickness	0.2 ~ 5.0mm
	size	~100mmx100mm
	shape	Hole, Ear, Step
	surface materials	Optionable with Cu, Ni, Au
Applicable to 800℃ ceramic brazing with < 30um bowing		

> Typical Properties

- arCuDia = ar (aero space) Cu-Diamond structure
- SbS = Strain balanced Structure

Model		*arCuDia		*SbS-Dia.	SbS-Cu
Structure		Copper-Diamond		Cu/CuMo/CuDia /CuMo/Cu	Cu/CuMo/Cu /CuMo/Cu
Dia. Volume ratio		45±5%	35%±5%	30%±5%	-
CTE (ppm/K)	RT	7.2	8.5	8.4	12.5
	RT~200℃	8.4	9.7	9.1	11.8
	RT~400℃	9.3	10.5	9.2	9.5
	RT~800℃	10.5	11.7	9.1	8.1
Thermal conductivity (W/m K)		1000	800	600	360
Thickness (mm)		2.0 ≤ t	0.35 ≤ t	0.7 ≤ t	0.25 ≤ t

> TC vs. CTE



Thermal cycling test based on MIL-STD-883K-C

GaN on SiC on Cu-Diamond : -65 ~ +150°C, 1,000 cycling

> GaN / SiC Die bonded at 300℃ with AuSn

- Solid bonding interface
- No cracks / No bowing / No voids
- No delamination in bonding interface