

Silver paste with high thermal conductivity

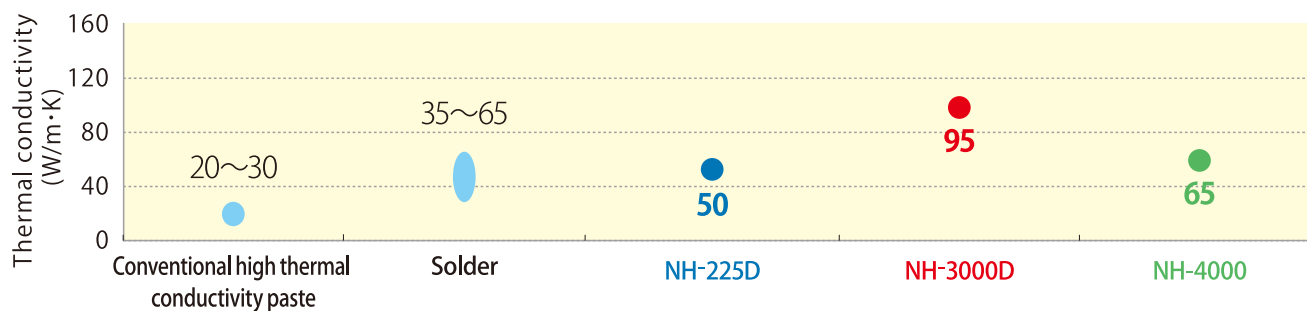
Excellent thermal conductivity

NH Series, NPS-HB

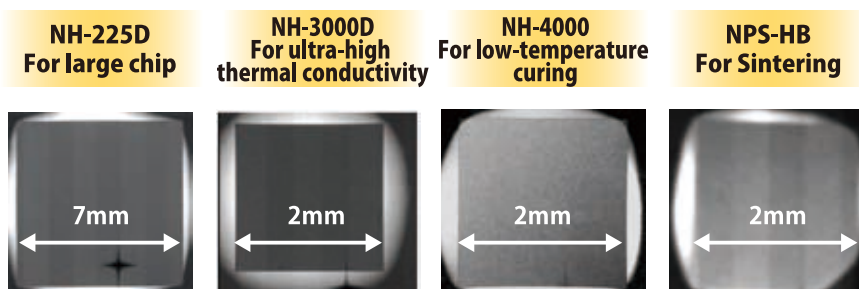
High Thermal Conductivity Silver Paste

Silver paste with the same or higher thermal conductive performance as solder. It can be applied for heat release of high brightness LED, power transistors etc.

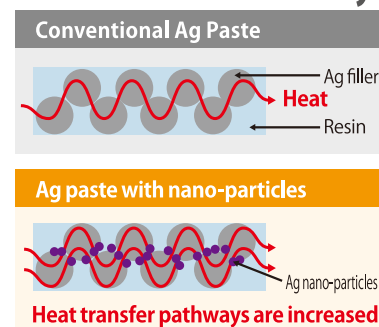
Comparison of thermal conductivity



● Void-less connection is achieved. (X-ray transmission images)



● Mechanism of high thermal conductivity



● Specification of NH series, NPS-HB (typical data)

Items	NH-225D	NH-3000D	NH-4000	NPS-HB	Remarks
Characteristics	High thermal conductivity, compatible with large chip	High thermal conductivity	Low temperature curing	Sintering type, high thermal conductivity	
Viscosity	9 Pa·s	17 Pa·s	20 Pa·s	40 Pa·s	E-type viscometer, 25 °C, 5rpm
Binder	Epoxy resin	Epoxy resin	Epoxy resin	-	
Curing conditions	190°C × 90min	190°C × 90min	150°C × 90min	250°C × 60min	Air Circulation oven *1)
Volume resistivity	$2.5 \times 10^{-5} \Omega \cdot \text{cm}$	$1.2 \times 10^{-5} \Omega \cdot \text{cm}$	$1.4 \times 10^{-5} \Omega \cdot \text{cm}$	$2.5 \times 10^{-6} \Omega \cdot \text{cm}$	
Adhesion strength	Room temp.	5 N/mm ²	21 N/mm ²	20 N/mm ²	Chip of 2mm□ Die shear test The base material: gold, silver
	High temp.	3 N/mm ²	13 N/mm ²	8 N/mm ²	
Thermal conductivity	50 W/m·K	95 W/m·K	65W/m·K	249W/m·K*2) (Reference value)	Laser flash method *2) cycle heating method
Glass-transition temperature	17 °C	15 °C	15 °C	Not applicable	DSC
Chip size	≤ 7mm × 7mm	≤ 2mm × 2mm	≤ 2mm × 2mm	≤ 2mm × 2mm	
Printing method	Pin transfer, dispenser	Pin transfer, dispenser	Pin transfer, dispenser	Pin transfer, dispenser	

*1) Air circulation oven: Raise temp up to curing temp and maintain for a predetermined dwell time

*2) cycle heating method: Compliant with ISO 22007-3