❑ MHP Series

Superior Thermal Conductivity Solutions

- **MHP (Micro Heat Pipe)**

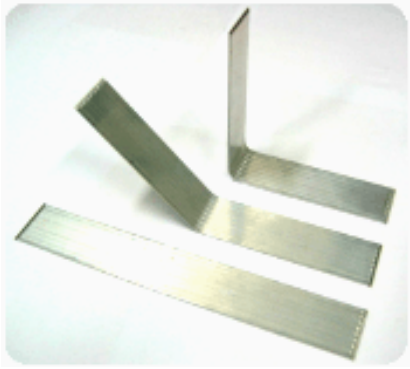
MHP with micro technology is a flat and slim shaped heat pipe. It has many usages for every type of electronic devices also LED application especially for slim, small and flat type of devices such as CPU Cooler, Memory Cooler, LED LCD TV, LED Projector, and UMPC even more application.

It has high performance, excellent heat transmitter and also heat dissipation through its flat area.

MHPs will make your product slim, lighter, fancy and distinguishable from others.

MHPs are the ultimate cooling solution for your fascinating products.. MHPs also meets all environmental requirement including RoHS.

- **Features**



- Micro Technology Applied
- Working Fluid : Acetone
- Thermal Performance up to 310W
- Ultra Slim & Flat Heat Pipe (1.2mm to 2.5mm)
- Light Weight & Great Uniformity
- Custom Size Available

- **Application Fields**

- CPU Cooler, GPU Cooler
- FBDIMM, UDIMM (Momory Module)
- LED Lighting System.
- Optical Communication Module
- Telecommunications Network Test Equipment
- Hi-power Module

MHP

Superior Thermal Conductivity Solutions

• General Information

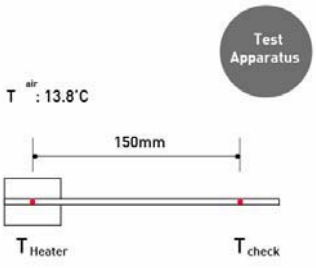
ITEM	Description
Material of Container	Aluminum 1050
Wick Structure	Groove
Working Fluid	Acetone
Operating Inclination, Θ	0 ~ 90°
Leak Temperature Criterion	-40 ~ 100 ℃

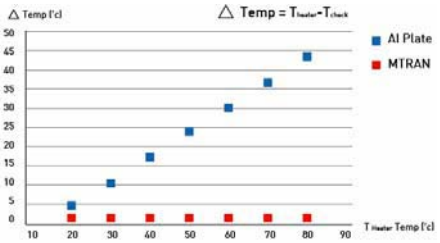
• General Specification

Part Name	Thickness	Width	Length	Heat Transfer Rate	Material
MHP-1220B Series	1.2 mm	20 mm	60 ~ 200 mm	5 ~ 18 W	Aluminum
MHP-1223A Series	1.2 mm	23 mm	60 ~ 200 mm	5 ~ 18 W	
MHP-1630C Series	1.6 mm	30 mm	60 ~ 500 mm	11 ~ 50 W	
MHP-2040A Series	2.0 mm	40 mm	60 ~ 500 mm	40 ~ 170 W	
MHP-2550A Series	2.5 mm	50 mm	60 ~ 500 mm	75 ~ 270 W	

• Thermal Characteristic

Horizontal Mode Test Result
Superior Thermal Conductivity
Superior Thermal Uniformity





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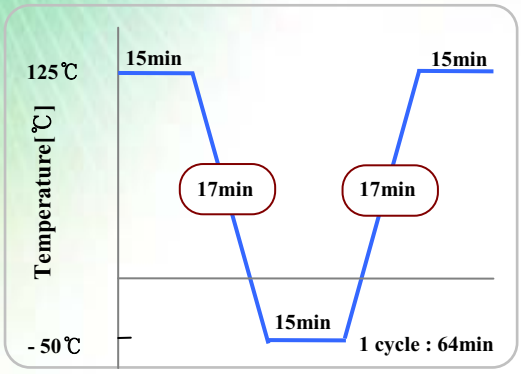
- **Reliability Certification**

▪ **Thermal Cycle (1,500 Cycle – Min(-50℃) ~ Max(125℃))**

▷ **Test Condition & Samples**



▷ Sample Used

MHP-1220B Series

MHP-1223A Series

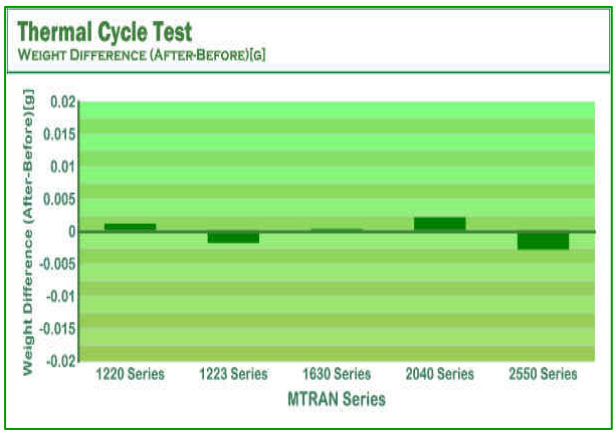
MHP-1630C Series

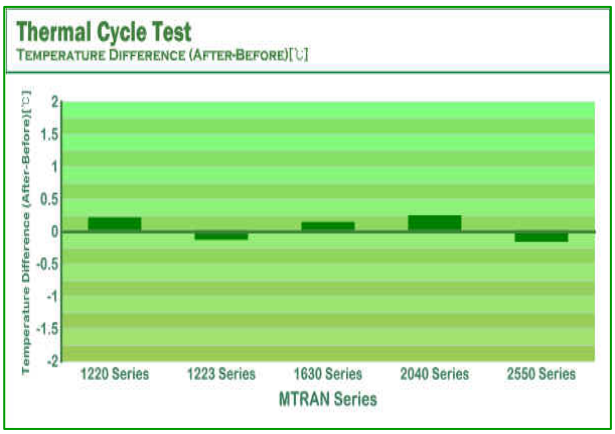
MHP-2040A Series

MHP-2550A Series

▷ **Test Results**

Check Item	MHP Thermal Cycle Test (-50℃~125℃) 1500 Cycle
Weight	No Weight Loss
Thermal Performance	No Performance Drop
Surface Flatness	No Bulging Plane





<Weight Difference (AFTER-BEFORE) [g]> **< Temperature Difference (AFTER-BEFORE) [℃] >**

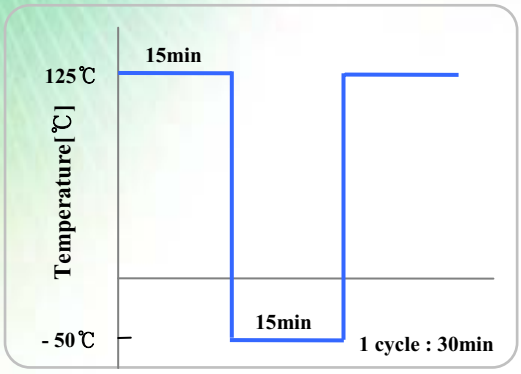
MHP

Superior Thermal Conductivity Solutions

- **Reliability Certification**

▪ **Thermal Shock (1,500 Cycle – Min(-50℃) ~ Max(125℃))**

▷ **Test Condition & Samples**



▷ Sample Used

MHP-1220B Series

MHP-1223A Series

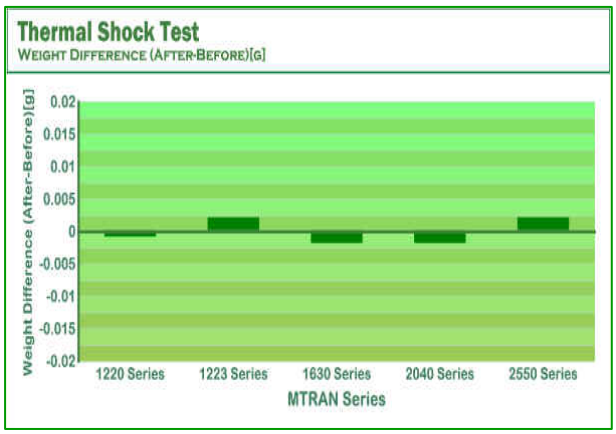
MHP-1630C Series

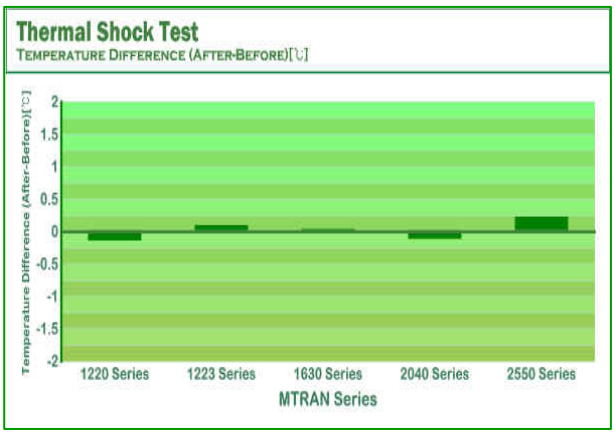
MHP-2040A Series

MHP-2550A Series

▷ **Test Results**

Check Item	MHP Thermal Shock Test (-50℃~125℃) 1500 Cycle
Weight	No Weight Loss
Thermal Performance	No Performance Drop
Surface Flatness	No Bulging Plane





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• Reliability Certification

▪ High Temperature Test

▷ **Test Process**

- Measuring weight & ΔT of the samples before the test.
- Exposing the samples to the dry oven & oil bath. (@ 150℃, 1hr)
- Measuring weight & ΔT of the samples after the test. And checking the surface state.

▷ **Test Condition & Samples**

▷ Sample Used

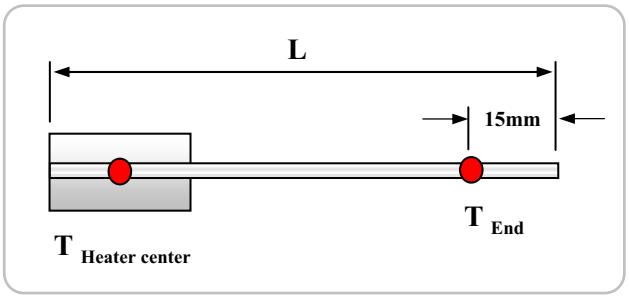
MHP-1220B125A (L:125mm)

MHP-1223A125A (L:125mm)

MHP-1630C200A (L:150mm)

MHP-2040A150A (L:150mm)

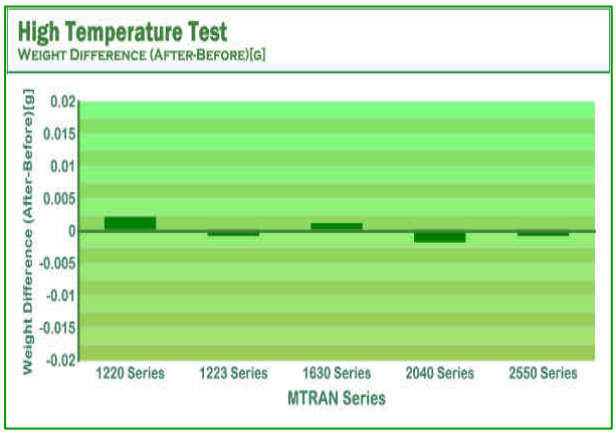
MHP-2550A150A (L:150mm)



< △T Measurement Apparatus >

▷ **Test Results**

Check Item	High Temperature Reliability Test (@ 150℃)	
	Dry Oven	Oil Bath
Weight	No Weight Loss	No Weight Loss
Thermal Performance	No Performance Drop	No Performance Drop
Surface Flatness	No Bulging Plane	No Bulging Plane



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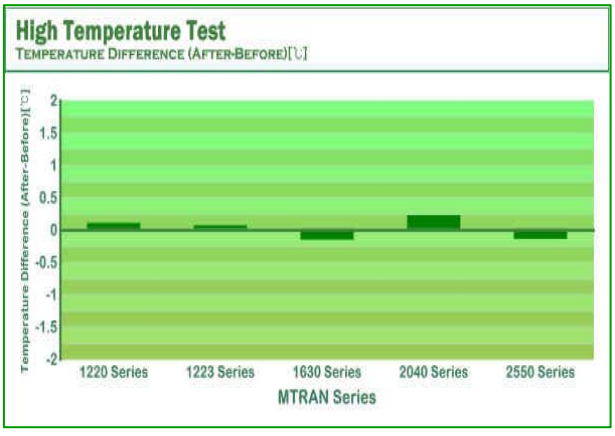

< Temperature Difference (AFTER-BEFORE) [℃] >

MHP

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• Reliability Certification

▪ Vibration Test

▷ **Test Process**

- Measuring thermal resistance of the samples before the vibration test.
- Exposing the samples to the vibration chamber. (20℃, 60m/s2, 20~2,000Hz, 3-Axis., 5min.)
- Measuring thermal resistance of the samples after vibration test.

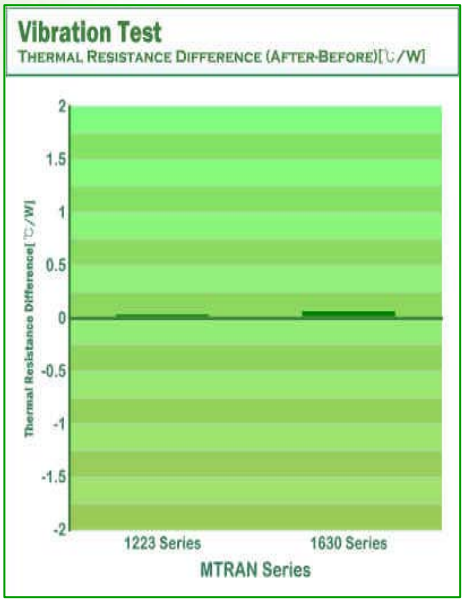
※ 3-Axis. : Horizontal Mode (Left/Right, Front/Rear), Vertical Mode (Up/Down).

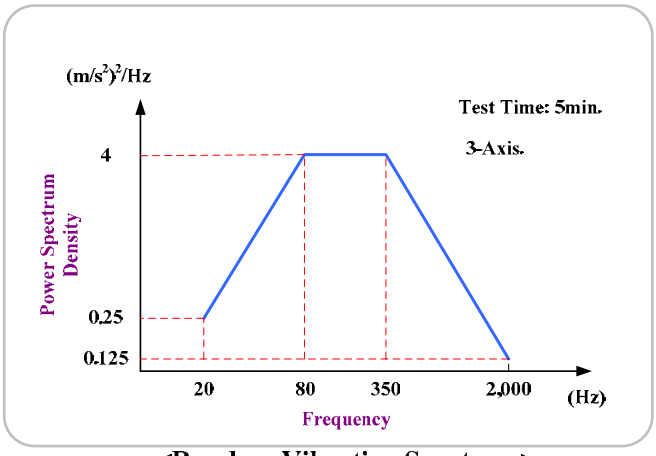
▷ **Test Condition & Results**

▷ Sample Used

MHP-1223A125A (L:125mm)

MHP-1630C200A (L:150mm)





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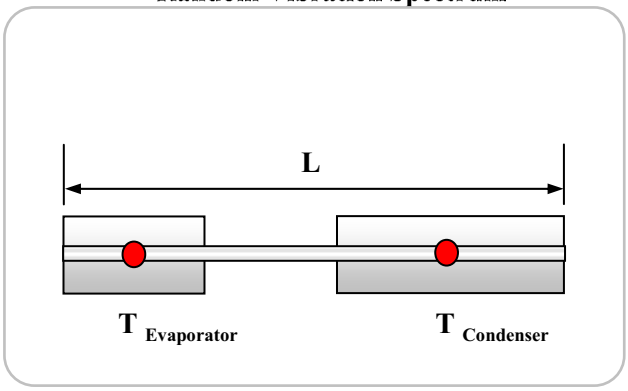

< Test Section Schematic >

Check Item	MHP Vibration TEST
Apearance	No Change
Thermal Performance	No Performance Drop
Surface Flatness	No Bulging Plane

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