



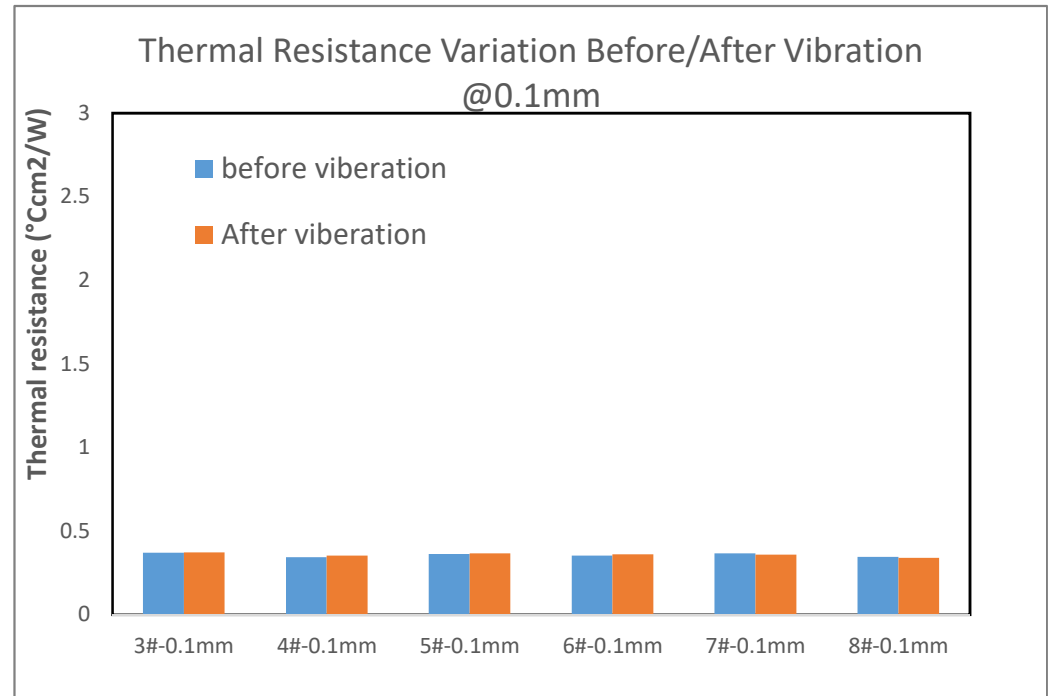
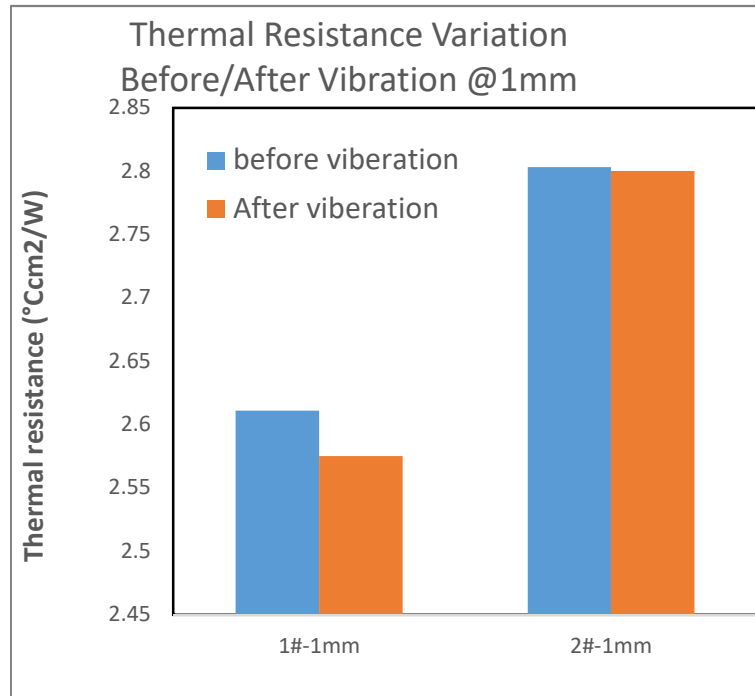
Honeywell Thermal Interface Materials Evaluation Report

HLT3000

Honeywell



Vibration result – Thermal Performance



* Test Method: ASTM-E1461

Result: HLT3000 thermal performance keep stable after vibration test under varies of thickness

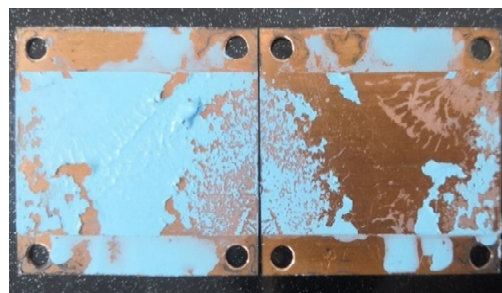
Vibration result – Oil Bleeding

试验结果:

项目序号	测试项目	标准/程序/方法	测试时间 (h)	试验结果描述
1	X 向扫频振动	GB 18488.1 5.6.4 (技术条件)	8	无渗油
2	Y 向扫频振动	GB 18488.1 5.6.4 (技术条件)	8	无渗油
3	Z 向扫频振动	GB 18488.1 5.6.4 (技术条件)	8	无渗油
4	X 向随机振动	GB 28046.3-2011 4.1.2.4 试验 IV——乘用车弹性体 (车身)	8	无渗油
5	Y 向随机振动	GB 28046.3-2011 4.1.2.4 试验 IV——乘用车弹性体 (车身)	8	无渗油
6	Z 向随机振动	GB 28046.3-2011 4.1.2.4 试验 IV——乘用车弹性体 (车身)	8	无渗油



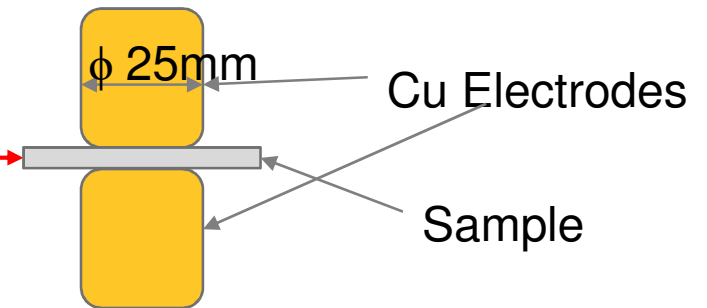
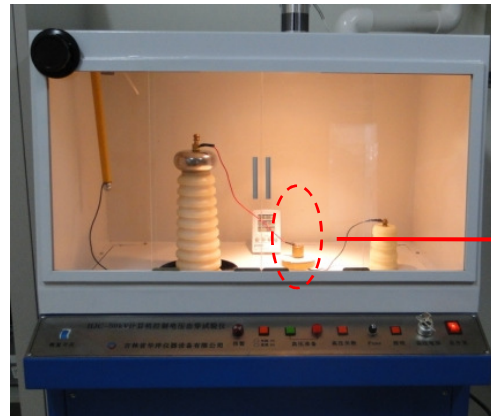
1mm Thickness Sample



0.1mm Thickness Sample

Result: HLT3000 has no oil bleeding after vibration test

Dielectric strength post Temperature Cycle



TC chamber

Test condition:

Thermal cycle:

Standard: JESD22-A104C

Testing Condition: -55°C to 125°C (TCB), 1000cycles

Dielectric strength:

Electrode size: $\phi 25\text{mm} \times 25\text{mm}$

Rate of AC voltage raise: 0.1kV/s

Ambient temperature: 21 °C

Ambient relative humidity: 65%

Dielectric strength tester HJC-10KV

		Initial thickness (mm)	Dielectric strength (kV/mm) before thermal cycle	Dielectric strength (kV/mm) after 1000 cycles thermal cycle
TLT3000	1#	1.03	8.8	9.1
	2#	1.02	9.0	8.9
	3#	1.06	8.7	9.0

Result: HLT3000 has no di-electrical strength change after temperature cycle test

Moisture absorption test



HAST chamber

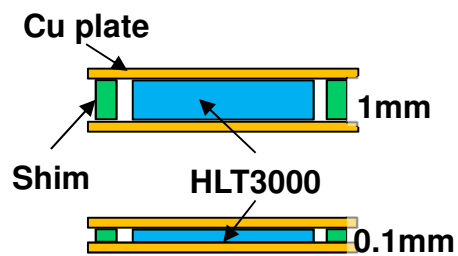
		Initial thickness (mm)	Initial weight	Weight after 96 hours
HLT3000	1#	1	3.342	3.335
	2#	1	3.410	3.399
	3#	1	3.373	3.372

- Testing Condition: 85°C, 85%RH, **96 hours**
- Put test sample in D85 chamber and compare the weight before/after test to evaluate if moisture absorbed in sample

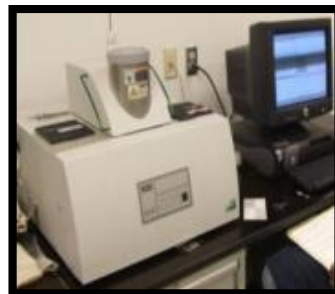
Result: HLT3000 has no moisture absorption post D85 test

Appendix

Vibration test procedure

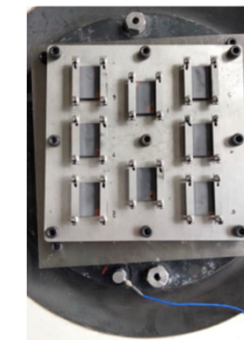


Sample preparation



Netzsch Laser Flash™

Thermal resistance test



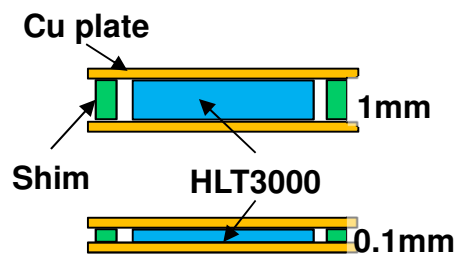
X, Y, Z vibration



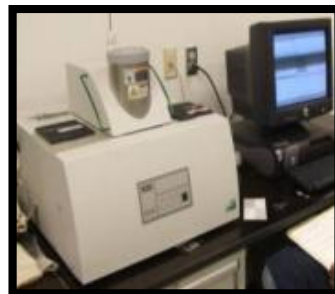
Netzsch Laser Flash™

Thermal resistance test

Vibration test procedure

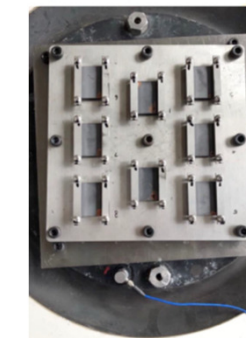


Sample preparation



Netzsch Laser Flash™

Thermal resistance test



X, Y, Z vibration



Netzsch Laser Flash™

Thermal resistance test

THANK YOU

Honeywell

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