



浙江华正新材料股份有限公司

铝基覆铜板检测报告及品质保证书

Zhejiang Huazheng New Material Co., Ltd.

ALUMINUM SUBSTRATE COPPER CLAD LAMINATE QUALITY TEST REPORT AND COC

HZ/FMD3338-01 Rev:A1



订单号 (P/O No):

出货日期 (Delivery Date): 2018.9.28

客户 (Customer): LLCElectroconnect 数量 (Quantity): 50

型号 (Type): HA80 1.0 1/0 1000X1220mm(胶膜) 铝型 (Aluminum type): 5052

绝缘层厚度 (Dielectric Thickness): 100 箱号 (P/N): Z18096810

批号 (Lot No.): 18920BE04A (CPCA4105-2010 P/N): 类型 (Type3)

序号 No	检测项目 Item	单位 Unit	检测条件 Test Condition	规范值 Specification Value	样品 Actual Value
1	外观 Visuals	—	A	CLASS A	PASS
			IPC-TM-650 2.1.5.2.1.9	IPC-4101 3.8.3.1	
2	热导率* (见备注) Thermal Conductivity	W/m·K	ASTM D5470	2	2.01
3	剥离强度 Peel Strength	N/mm	288°C, 10s	≥1.20	1.54
			IPC-TM-650 2.4.8	IPC-4101 3.9.1.1	
4	板材厚度 Thickness	mm	A	1.00± 0.10	1.01
6	耐电压 Dielectric Breakdown	KV	A	≥3	4
			IPC-TM-650 2.5.6.2	IPC-4101 3.11.1.7	
7	热应力 Thermal stress	—	288°C*10S, solder dip	>6cycles No delamination	PASS
			IPC-TM-650 2.4.13.1	IPC-4101 3.10.1.2	
8	玻璃化转变温度(Tg) Glass transition temperature	°C	DSC	≥100	110
			IPC-TM-650 2.4.25	IPC-4101 3.10.1.6	
9	燃烧性 Flammability	—	E 24/125	UL94V-0	V-0
			IPC-TM-650 2.3.10		
10	表面电阻率 Surface Resistivity	MΩ	After moisture	≥1.0×10 ⁴	6.03×10 ⁶
			IPC-TM-650 2.5.17.1	IPC-4101 3.11.1.4	
11	体积电阻率 Volume Resistivity	MΩ·cm	After moisture	≥1.0×10 ⁶	5.52×10 ⁷
			IPC-TM-650 2.5.17.1	IPC-4101 3.11.1.3	
12	吸水率 Water Absorption	%	D 24/23	≤1.5	0.55
			IPC-TM-650 2.6.2.1	IPC-4101 3.12.1.1	
13	相比漏电起痕指数 CTI	V	IEC-60112	≥600	500

Note
 备注: 绝缘层热导率采用金属板厚度1.00mm、铜箔厚度35 μm、绝缘层厚度为75 μm的金属基覆铜板, 采用ASTM D5470测试计算所得。
 Remark: The thermal conductivity of the insulating layer is a metal-based copper clad laminate having a metal plate thickness of 1.00 mm, a copper foil thickness of 35 μm, and an insulating layer thickness of 75 μm, which is calculated by ASTM D5470.

- 1、请不要带包装烘板。Please do not bake the Laminate with packing.
- 2、保护膜的使用方法见我司随货或随单的说明书。The usage of protecting film please see the instruction of our company with goods or order.
- 3、符合欧盟RoHS指令。The above laminate(s) is accord with RoHS directive.

证明 CERTIFICATE OF CONFORMANCE

结论 (Result)

兹证明: 上述特性均经测试并合格。
 Hereby certify: above characteristic is tested and qualified.

PASS

检测 (Test): 牛小娟 检01

审核 (Check): 郭太勤



浙江华正新材料股份有限公司



铝基覆铜板检测报告及品质保证书
Zhejiang Wazam New Materials Co., Ltd.

ALUMINUM SUBSTRATE COPPER CLAD LAMINATE QUALITY TEST REPORT AND COC

订单号 (P/O No):

出货日期 (Delivery Date): 2023. 8. 16

客户 (Customer): LLCElectroconnect			数量 (Quantity): 100		
型号 (Type): HA80 1.5 1/0 1000X1220mm(胶膜)			铝型 (Aluminum type): 5052		
绝缘层厚度 (Dielectric Thickness): 100			箱号 (P/N): 1358227		
批号 (Lot No.): 23807PCF2004A			(CPCA4105-2010 P/N):		类型
序号 No	检测项目 Item	单位 Unit	检测条件 Test Condition	规范值 Specification Value	样品 Actual Value
1	外观 Visuals	—	A	CLASS A	PASS
			IPC-TM-650 2.1.5.2.1.9	IPC-4101 3.8.3.1	
2	热导率* (备注) Thermal Conductivity	W/m·K	ASTMD5470	≥2	2.01
3	剥离强度 Peel Strength	N/mm	288℃, 10s	≥1.20	1.35
			IPC-TM-650 2.4.8	IPC-4101 3.9.1.1	
4	板材厚度 Thickness	mm	A	1.5± 0.10	1.48
5	绝缘层厚度 Dielectric Thickness	μm	A	100±15	110
6	耐电压 Dielectric Breakdown	KV	A	≥4	4
			IPC-TM-650 2.5.6.2	IPC-4101 3.11.1.7	
7	热应力 Thermal stress	—	288℃*10S, solder dip	>6cycles No delamination	PASS
			IPC-TM-650 2.4.13.1	IPC-4101 3.10.1.2	
8	玻璃化转变温度(Tg) Glass transition temperature	℃	DSC	≥100	110
			IPC-TM-650 2.4.25	IPC-4101 3.10.1.6	
9	燃烧性 Flammability	—	E 24/125	UL94V-0	V-0
			IPC-TM-650 2.3.10		
10	表面电阻率 Surface Resistivity	MΩ	After moisture	≥1.0×10 ⁴	6.03×10 ⁶
			IPC-TM-650 2.5.17.1	IPC-4101 3.11.1.4	
11	体积电阻率 Volume Resistivity	MΩ-cm	After moisture	≥1.0×10 ⁶	5.52×10 ⁷
			IPC-TM-650 2.5.17.1	IPC-4101 3.11.1.3	
12	吸水率 Water Absorption	%	D 24/23	≤0.8	0.55
			IPC-TM-650 2.6.2.1	IPC-4101 3.12.1.1	
13	相比漏电起痕指数 CTI	V	IEC-60112	≥600	600
<p>备注: 绝缘层热导率采用金属板厚度1.00mm、铜箔厚度35 μm、绝缘层厚度为75 μm的金属基覆铜板, 采用ASTM D5470测试计算所得。 Remark: The thermal conductivity of the insulating layer is a metal-based copper clad laminate having a metal plate thickness of 1.00 mm, a copper foil thickness of 35 μm, and an insulating layer thickness of 75 μm, which is calculated by ASTM D5470.</p>					
<p>Note</p> <p>1、请不要带包装烘板。Please do not bake the Laminate with packing. 2、保护膜的使用方法见我司随货或随单的说明书。The usage of protecting film please see the instruction of our company with goods or order. 3、符合欧盟RoHS指令。The above laminate(s) is accord with RoHS directive.</p>					
证明 CERTIFICATE OF CONFORMANCE					
<p>兹证明: 上述特性均已测试并合格。 Hereby certify: above characteristic is tested and qualified.</p>					
检测 (Test) 华正新材					
<p>审核 (Check): 谢观松</p>					

浙江华正新材料股份有限公司



铝基覆铜板检测报告及品质保证书

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ALUMINUM SUBSTRATE COPPER CLAD LAMINATE QUALITY TEST REPORT AND COC

订单号 (P/O No):

出货日期 (Delivery Date): 2023.8.16

客户 (Customer): LLCRI electroconnect			数量 (Quantity): 100		
型号 (Type): HA80 2.0 1/0 1000X1220mm (胶膜)			铝型 (Aluminum type): 5052		
绝缘层厚度 (Dielectric Thickness): 100			箱号 (P/N): 1358228		
批号 (Lot No.): 23808PBE2005A			(CPCA4105-2010 P/N):		类型
序号	检测项目	单位	检测条件	规范值	样品
No	Item	Unit	Test Condition	Specification Value	Actual Value
1	外观	—	A	CLASS A	PASS
	Visuals		IPC-TM-650 2.1.5.2.1.9	IPC-4101 3.8.3.1	
2	热导率* (备注注) Thermal Conductivity	W/m·K	ASTM D5470	≥2	2.01
3	剥离强度 Peel Strength	N/mm	288°C, 10s	≥1.20	1.36
			IPC-TM-650 2.4.8	IPC-4101 3.9.1.1	
4	板材厚度	mm	A	2.0± 0.10	1.96
	Thickness				
5	绝缘层厚度 Dielectric Thickness	μm	A	100±15	109
6	耐电压	KV	A	≥4	4
	Dielectric Breakdown		IPC-TM-650 2.5.6.2	IPC-4101 3.11.1.7	
7	热应力	—	288°C*10S, solder dip	>6cycles No delamination	PASS
	Thermal stress		IPC-TM-650 2.4.13.1	IPC-4101 3.10.1.2	
8	玻璃化转变温度(Tg)	°C	DSC	≥100	110
	Glass transition temperature		IPC-TM-650 2.4.25	IPC-4101 3.10.1.6	
9	燃烧性	—	E 24/125	UL94V-0	V-0
	Flammability		IPC-TM-650 2.3.10		
10	表面电阻率	MΩ	After moisture	≥1.0×10 ⁴	6.03×10 ⁶
	Surface Resistivity		IPC-TM-650 2.5.17.1	IPC-4101 3.11.1.4	
11	体积电阻率	MΩ·cm	After moisture	≥1.0×10 ⁶	5.52×10 ⁷
	Volume Resistivity		IPC-TM-650 2.5.17.1	IPC-4101 3.11.1.3	
12	吸水率	%	D 24/23	≤0.8	0.55
	Water Absorption		IPC-TM-650 2.6.2.1	IPC-4101 3.12.1.1	
13	相比漏电起痕指数 CTI	V	IEC-60112	≥600	600
<p>备注: 绝缘层热导率采用金属板厚度1.06mm、铜箔厚度35 μm、绝缘层厚度为75 μm的金属基覆铜板, 采用ASTM D5470测试计算所得。 Remark: The thermal conductivity of the insulating layer is a metal-based copper clad laminate having a metal plate thickness of 1.00 mm, a copper foil thickness of 35 μm, and an insulating layer thickness of 75 μm, which is calculated by ASTM D5470.</p>					
<p>Note</p> <p>1、请不要带包装烘板。Please do not bake the Laminate with packing. 2、保护膜的使用方法见我可随货或随单的说明书。The usage of protecting film please see the instruction of our company with goods or order. 3、符合欧盟RoHS指令。The above laminate(s) is accord with RoHS directive.</p>					
证明 CERTIFICATE OF CONFORMANCE					
<p>兹证明: 上述特性的经测试并合格。 Hereby certify: above characteristic is tested and qualified.</p>					
检测 (Test)		Inspector		 	
<p>检测 (Test) 特金娟? 审核 (Check): 谢观松</p>					