

江苏星源航天材料股份有限公司

Jiangsu Sunyuan Aerospace Material Co., LTD

FR-4覆铜板检测报告

FR-4 COPPER CLAD LAMINATE CERTIFICATE OF QUALITY

客户名称Customer	波兰		出货日期Date	2010-12-4		
品名Commodity	FR-4		数量Quantity	500 Sheets		
规格Style	1.5mm H/HOZ 43" x49" Yellow		等级Grade	A		
序号 No.	试验项目 (Test item)	试验条件 (Test condition)	单位 (Units)	指标 (Index)	测试结果 Typical Value	
1	板材厚度 Thickness	A	mm	1.5 ± 0.075	1.43-1.57	
2	剥离强度 Peel Strength	接收态 As Received	A	kg/cm	≥ 1.07	1.32
		热应力后 After Thermal Stress			≥ 1.07	1.32
3	表面电阻 Surface Resistivity	潮湿后 After Moisture	F	M Ω	$\geq 10^4$	$\geq 10^6$
		高温下 At Elevated Temperature	E-24/125		$\geq 10^3$	$\geq 10^5$
4	体积电阻 Volume Resistivity	潮湿后 After Moisture	F	M Ω .cm	$\geq 10^6$	$\geq 10^8$
		高温下 At Elevated Temperature	E-24/125		$\geq 10^3$	$\geq 10^5$
5	弯曲强度 Flexural Strength	纵向 Length direction	A	N/mm ²	≥ 415	550
		横向 Cross direction			≥ 345	435
6	击穿电压Dielectric Breakdown	D-48/50+D-0.5/23	KV	≥ 40	42	
7	Dielectric constant (DK) At measuring frequency of 10ghz	IPC-TM-650	-	< 3.9	3.8	
8	Loss factor (DF) At measuring frequency of 10ghz	IPC-TM-650	-	≤ 0.015	0.013	
9	耐电弧性Arc Resistance, minimum	A	S	≥ 60	120	
10	吸水性Moisture Absorption, maximum	E-1/105+des	%	≤ 0.35	0.23	
11	阻燃性Flammability	A	S	UL94 V-0	UL94 V-0	
12	尺寸稳定性Dimensional Stability	A	ppm	≤ 300	≤ 150	
13	弓曲和扭曲Bow And Twist	A	%	≤ 1.0	0.35-0.45	
14	热应力 Thermal Stress (288°C、20s)	未蚀刻样品 Unetched	A	-	NO DEFECT	NO DEFECT
		蚀刻后的样品 Etched			NO DEFECT	NO DEFECT
15	压力容器试验 (260°C、10s/3次) Pressure Vessel	A	-	-	NO DEFECT	
16	相比漏电起痕指数(CTI)	A	V	≥ 175	200	
17	玻璃化转变温度Tg(DSC)	A	°C	≥ 130	136	
18	固化函数(ΔT_g)	A	°C	≤ 3	1	

兹证明板料符合IPC-4101B/21及欧盟RoHS规范要求，UL档案号为：E214321



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客户名称 Customer		波兰		出货日期 Date	2010-12-4	
品名 Commodity		FR-4		数量 Quantity	2500 Sheets	
规格 Style		1.5mm 1/0 OZ 43" x49" Yellow		等级 Grade	A	
序号 No.	试验项目 (Test item)		试验条件 (Test condition)	单位 (Units)	指标 (Index)	测试结果 Typical Value
1	板材厚度 Thickness		A	mm	1.5±0.075	1.43-1.57
2	剥离强度 Peel Strength	接收态 As Received	A	kg/cm	≥1.43	1.62
		热应力后 After Thermal Stress			≥1.43	1.62
3	表面电阻 Surface Resistivity	潮湿后 After Moisture	F	MΩ	≥10 ⁴	≥10 ⁶
		高温下 At Elevated Temperature	E-24/125		≥10 ³	≥10 ⁵
4	体积电阻 Volume Resistivity	潮湿后 After Moisture	F	MΩ.cm	≥10 ⁶	≥10 ⁸
		高温下 At Elevated Temperature	E-24/125		≥10 ³	≥10 ⁵
5	弯曲强度 Flexural Strength	纵向 Length direction	A	N/mm ²	≥415	550
		横向 Cross direction			≥345	435
6	击穿电压 Dielectric Breakdown		D-48/50+D-0.5/23	KV	≥40	42
7	介电常数 (DK) At measuring frequency of 10ghz		IPC-TM-650	-	<3.9	3.8
8	损耗因子 (DF) At measuring frequency of 10ghz		IPC-TM-650	-	≤0.015	0.013
9	耐电弧性 Arc Resistance, minimum		A	S	≥60	120
10	吸水性 Moisture Absorption, maximum		E-1/105+des	%	≤0.35	0.23
11	阻燃性 Flammability		A	S	UL94 V-0	UL94 V-0
12	尺寸稳定性 Dimensional Stability		A	ppm	±300	±150
13	弓曲和扭曲 Bow And Twist		A	%	≤1.5	0.45-0.55
14	热应力 Thermal Stress (288°C、20s)	未蚀刻样品 Unetched	A	-	NO DEFECT	NO DEFECT
		蚀刻后的样品 Etched			NO DEFECT	NO DEFECT
15	压力容器试验 (260°C、10s/3次) Pressure Vessel		A	-	NO DEFECT	NO DEFECT
16	相比漏电起痕指数 (CTI)		A	V	≥175	200
17	玻璃化转变温度 Tg (DSC)		A	°C	≥130	136
18	固化因数 (ΔTg)		A	°C	≤3	1

兹证明板料符合IPC-4101B/21及欧盟RoHS规范要求, UL档案号为: E214321

