



Multech Group Microcircuits Limited

www.multech-group.com multech@multech-pcb.com

CERTIFICATION OF COMPLIANCE

Dear Customer:

All PCBs are manufactured in comply with original Gerber and Specifications of customer requirement, After 100% inspection,the raw materials, fabrications,testing,appearance and functions of PCB are all conforming to customer SPEC and IPC standards,All data listed on this report hereby-certification are truly to meet customer's request.

ITEM/项目	DESCRIPTION/说明	ACTUAL/结果
1	Customer code/客户代码	D0007
2	Customer P/N/客户型号	gb-low-noise-power-probe PCB
3	Customer P/O/客户订单号	PO20230907-1
4	Shipment quantity/交货数量	10Pcs
5	PCB type/PCB类型	Rigid PCB
6	Inspection standard/检查标准	IPC-A-600H Class2
7	UL plame class/UL number 耐燃与编号	94V-0
8	Laminate type/板材类型	FR4 KB6167F TG \geq 170
9	Surface Finish/表面处理	HAL(LEAD-FREE)
10	Date code /生产周期	3723
11	Ship date / 出货日期	2023/9/19
12	Production area/生产地	China
13	Meet with RoHS/符合RoHS	Yes
14	Customer DWG/客户图纸	Yes

Thanks for your attention !!

Certified by : Angel

Quality Assurance Manager

Vic OuYang

Date : 2023/9/19

Signature



RoHS Certificate of Compliance

RoHS 符合性证明

尊敬的客户：

兹证明我们生产的印制电路板符合RoHS 欧盟指令 2011/65 及其修订指令2015/863 法规规定。

Dear Customer,

This document declare that the above part number comply with the RoHS Directive 2002/95/EC, RoHS2 directive 2011/65/EU and RoHS3 directive 2015/863

Customer/客户代码： D0007 Customer Part No. 客户型号： gb-low-noise-power-probe PCB

序号 NO.	测试项目 Test Item	限量 % Limit	结果 Result
1	铅 Lead (pb)	0.1(1000ppm)	Not detected
2	镉 Cadmium(Cd)	0.01(100ppm)	Not detected
3	汞 Mercury(Hg).	0.1(1000ppm)	Not detected
4	六价铬 Chromium VI(Cr+6 or CrVI)	0.1(1000ppm)	Not detected
5	多溴联苯 PBBs	0.1(1000ppm)	Not detected
6	多溴二苯醚 PBDEs	0.1(1000ppm)	Not detected
7	邻苯二甲酸二异丁酯 DIBP	0.1(1000ppm)	Not detected
8	邻苯二甲酸 (2-乙基己基酯) DEHP	0.1(1000ppm)	Not detected
9	邻苯二甲酸丁苄酯 BBP	0.1(1000ppm)	Not detected
10	邻苯二甲酸二丁酯DBP	0.1(1000ppm)	Not detected

Prepared by/制作人： Jenny

Approved by/审核人： Lee

Date/日期： 2023/9/19

Date/日期： 2023/9/19



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Inspection Report (检验报告)

Customer code/客户代码:	D0007	Report Rev:	M-QA-018B
Customer Part No. 客户型号:	gb-low-noise-power-probe PCB	Date/日期:	2023/9/19
PO 订单号:	PO20230907-1	Date Code 生产周期:	3723
Shipment Qty 出货数量:	10 Pcs	Sample Qty 抽样数量:	10 Pcs

Item项目	Description / 描述	Specification / 规格	Actual / 实际	Acc/Rej
1.0 Visual Appearance/ 外观检查				
2.0 Material 材料	PCB Type /板类型	Rigid PCB	Rigid PCB	ACC
	Material Type/ 基材类型	FR4 KB6167F TG \geq 170	FR4 KB6167F TG \geq 170	ACC
	Finished Board Thk(mm)/完成板厚	1.6(+0.16/-0.16)	1.58	ACC
	Flammability Class : 防火等级	94V-0	94V-0	ACC
3.0 Plating Thickness 镀层厚度	Hole Wall Cu THK (Min) / 最小孔壁铜厚	20um	25.3um	ACC
	Surface Cu THK / 完成铜厚	1OZ	44.4um	ACC
	Plated Nickel (Min)/ 镀镍	/	/	/
	Plated gold (Min)/ 镀金	/	/	/
	Plated Tin/Lead /镀锡	/	/	/
4.0 Line Inspection 导线检查	Line Width (mm) / 线宽	0.183(+/-20%)	0.190	ACC
	Line Spacing (mm) / 线距	0.145(+/-20%)	0.160	ACC
5.0 Solder Mask 阻焊 / Legend 字符 /Peelable soldermask /可剥离兰胶	Solder Mask model / 阻焊型号	KSM-S6189	KSM-S6189	ACC
	Solder Mask Color / 阻焊颜色	蓝色 Blue	蓝色 Blue	ACC
	Legend Ink model / 字符类型	M-211 (W)	M-211 (W)	ACC
	Legend Ink color / 字符颜色	白色 White	白色 White	ACC
	Tape Test/3M / 胶带测试	Not Peel off	Not Peel off	ACC
	Solvent test / 溶剂测试	Not Peel off	Not Peel off	ACC
	Cover layer color / 覆盖膜颜色	/	/	/
	Peelable soldermask /可剥离兰胶	/	/	/
6.0 Mechanical Dimension / 外形	Dimension size (mm) / 外形尺寸	124.78*79.78	124.73*79.79	ACC
	V-Cut Thickness(mm) / V-cut余厚	0.4+/-0.10mm	0.43	ACC
	Angle(degree): / 角度	30+/-5°	30	ACC
	Bevelling(mm) / 斜边	/	/	/
	Angle(degree) / 角度	/	/	/
	Warp & Twist / 板翘曲	\leq 0.75%	0.22%	ACC
7.0 Surface Finish/ 表面处理	Surface Finish/表面处理	HAL(LEAD-FREE)	HAL(LEAD-FREE)	ACC
	Request/要求	Unit: um 1-40	19.64	ACC
8.0 Function / Reliabilty test/ 功能/可靠性测试	Electrical Test / 电气测试	100% Test	Pass (See the test report)	ACC
	Solderability Test / 焊锡试验	IPC SPEC	Pass (See the test report)	ACC
	Thermal Stress Test / 热应力试验	IPC SPEC	Pass (See the test report)	ACC
	Ioniccontamination test/离子污染试验	IPC SPEC	Pass (See the test report)	ACC



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Customer P/O/客户订单号:	PO20230907-1	Date Code 生产周期:	3723

9.0 Hole Size Measurement 孔径测量

Unit (单位) : mm

Code 编号	Require 要求	Plate d P/N	Tolerance 公差		Actual 实际	Result 结果	Code 编号	Require 要求	Plate d P/N	Tolerance 公差		Actual 实际	Result 结果
			+	-						+	-		
1	0.30	PTH	0.075	0.075	0.320	Acc	16	2.45	NPTH	0.05	0.05	2.460	Acc
2	0.70X1.00	PTH	0.075	0.075	0.72X1.00	Acc	17						
3	0.70X1.50	PTH	0.075	0.075	0.74X1.50	Acc	18						
4	0.60X1.00	PTH	0.075	0.075	0.58X1.00	Acc	19						
5	0.60X1.50	PTH	0.075	0.075	0.58X1.52	Acc	20						
6	0.80X1.05	PTH	0.075	0.075	0.82X1.06	Acc	21						
7	0.80X1.30	PTH	0.075	0.075	0.82X1.30	Acc	22						
8	0.89	PTH	0.075	0.075	0.920	Acc	23						
9	1.00	PTH	0.075	0.075	1.000	Acc	24						
10	1.40	NPTH	0.05	0.05	1.380	Acc	25						
11	1.50	NPTH	0.05	0.05	1.520	Acc	26						
12	1.70	NPTH	0.05	0.05	1.720	Acc	27						
13	1.85	PTH	0.075	0.075	1.880	Acc	28						
14	2.01	PTH	0.075	0.075	2.040	Acc	29						
15	2.39	NPTH	0.05	0.05	2.380	Acc	30						

10. Outline Dimensional Measurement 外形尺寸测量

Unit (单位) : mm

Code 编号	Require 要求	Tolerance 公差		Actual 实际	Result 结果	Code 编号	Require 要求	Tolerance 公差		Actual 实际	Result 结果
		+	-					+	-		
1	124.780	0.13	0.13	124.73	Acc	21					
2	79.780	0.13	0.13	79.79	Acc	22					
3						23					
4						24					
5						25					
6						26					
7						27					
8						28					
9						29					
10						30					
11						31					
12						32					
13						33					
14						34					
15						35					
16						36					
17						37					
18						38					
19						39					
20						40					

Remarks/备注:

Checked By/检查员: Angel

Approved by/审核: Vic



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E-TEST Report

测试报告

Customer code/客户代码	D0007		Date Code 生产周期:	3723
Customer Part No. 客户型号:	gb-low-noise-power-probe PCB		测试时间 Testing time:	2023/9/19
测试参数 Testing Parameter	测试机别 Testing Instrument	飞针		
	测试电压 Testing Tension	300 V	导通电阻 Permeable Resistance	30 Ω
	测试电流 Testing Current	30 mA	绝缘电阻 Insulation Resistance	30 M Ω
结果 Result	数量 Quantity	10Pcs□	合格数量 Qualified Quantity	10Pcs□
	开路 Open Circuit	/ PCS	线路缺陷 Circuit Matter	/ PCS
	短路 Short Circuit	/ PCS	绝缘缺陷 Insulation Matter	/ PCS
	重测 Retest	/ PCS	其它 Other	/ PCS

Note1: Please baking the products 2-3 hours under 120 degrees before assembly.to eliminate moisture and perform better solderability.

Note2: we are willing to supply PCB to our customer,after get our shipment,please confirm the quality feedback within 3 months.more than 3 month's complaint from customer side,we have the right to refuse it and reject compensation. For PCBA complaint we can only accept Max.3 times of bare PCB value to afford everything consequential cost in customer side if we supplied defective PCBs to customer.

Tested By (检查员) : Sam

Approved By (审核) Vic



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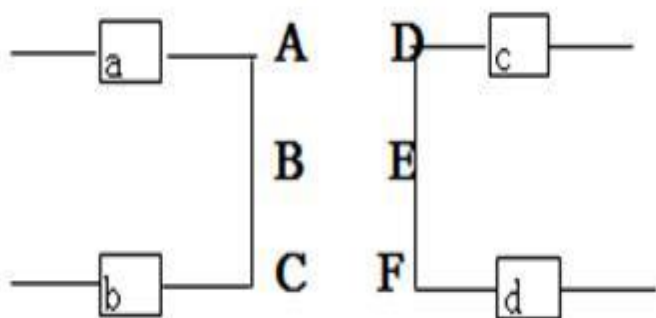
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Microsection Test Report

Customer Part No. 客户型号: gb-low-noise-power-probe PCB	Date 日期: 2023/9/19
Sample Qty 样本数量: 1PCS	Date Code 生产周期: 3723

1.0 Thickness of copper/孔铜厚测试(unit:um)

Speciment location/采样位置



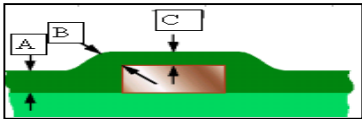
Thickness copper/铜厚 unit/单位 : um

Test point/ 测试点	Request/要求	Actual/实际	surface copper thickness /表铜		
			Point/测试点	Request /要求	Actual/实际
A	20	25.30	a	10Z	44.40
B		27.80	b		41.50
C		27.40	c		46.90
D		25.30	d		43.20
E		25.00			
F		27.60			
Max		27.80			46.90
Min		25.00			41.50
Aver		26.40			44.00

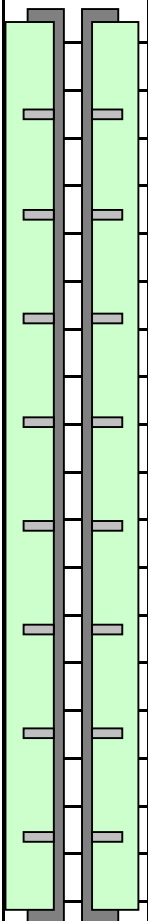
2.0 Roughness/孔壁粗糙度 unit/单位 : um

Request/要求	Actual/实测	ACC	Rej
≤ 25.4	12.63	ACC	

3.0 阻焊厚度(单位: um) Soldermask thickness (Unit:um)

采样位置 Speciment Location				
测试点	要求 Request	实测 Actual	ACC	Rej
A	≥ 10	36.20	ACC	
B	≥ 10	16.50	ACC	
C	≥ 10	19.73	ACC	

4.0 Copper and dielectric Thickness for multilayer board /压合叠构 unit/单位: um

Lay-up	Layer 层	Requires 要求	Actual 实际	Acc/Rej	Layer 层	Requires 要求	Actual 实际	Acc/Rej
	L1 copper	1OZ	44.40	Acc				
	L1-L2	120.00	118.47	Acc				
	L2 copper	1OZ	33.40	Acc				
	L2-L3	1130.00	1112.58	Acc				
	L3 copper	1OZ	33.48	Acc				
	L3-L4	120.00	118.16	Acc				
	L4 copper	1OZ	43.20	Acc				

5.0.Defects Inspection/缺陷检测

Item/项目	Request要求	Actual/实际	Acc	Rej
镀层裂纹 plating crack	Not found	Not found	Acc	
树脂内缩resin recession	Not found	Not found	Acc	
镀层空洞 plating void	Not found	Not found	Acc	
分层 delarmination	Not found	Not found	Acc	
钻污 smear	Not found	Not found	Acc	
铜裂缝 copper crack	Not found	Not found	Acc	
起泡 blistering	Not found	Not found	Acc	
连接面分离 interconnection separaf	Not found	Not found	Acc	
基材空洞 laminate void	Not found	Not found	Acc	
灯芯 wicking	< 0.1mm	< 0.02mm	Acc	
钉头 nail heading	Not found	Not found	Acc	

Finial result : ☒ 合格Pass ☐ 不合格NG

Prepared by/制作人: sam Approved by/审核人: Vic



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Solderability Test Report

可焊性试验报告

Customer Part No. 客户型号:	gb-low-noise-power-probe PCB	Test Date 试验日期:	2023/9/19
Date Code 生产周期:	3723	Sample Qty 样本数量:	1PCS

可焊性试验的条件: a、有铅锡可焊性试验温度为: $235\pm 5^{\circ}\text{C}$; b、无铅锡可焊性试验温度为: $255\pm 5^{\circ}\text{C}$; c、其它:

Solderability Test Condition:

- a、Tin/Lead Solderability testing shall be done at a solder temperature of $235\pm 5^{\circ}\text{C}$;
b、Lead-Free Solderability testing shall be done at solder temperature of $255\pm 5^{\circ}\text{C}$; c、Others:

Surface Evaluation-Accept/Reject Criteria

An area of 3.0mm width from the trailing edge of each test specimen shall not be evaluated. Areas contacted by fixtures shall not be evaluated. A minimum of 95% of each of the surface (i.e., each pad) being tested shall exhibit good wetting. The balance of the surface may contain only small pin holes, dewetted areas, and rough spots provided such defects are not concentrated in one area. For less critical applications, a smaller percent coverage may be determined between vendor and user. There shall be no nonwetting or exposed base metal within the evaluated area.

表面评估-接受/不接受标准

离样板边缘3.0mm以内的区域和样品夹持部位不做评估。测试样板上每个焊盘至少有95%面积上锡良好, 可允许有5%面积出现轻微针孔、锡面粗糙、上锡不良等, 但是这些缺陷不能集中在同一区域; 若经客户同意, 可适当放宽条件, 但是不能有不上锡或金属裸露等缺陷。

Plated-Through Hole Evaluation

For finished board thickness $< 3.0\text{mm}$, Class 1 and Class 2 Product-Solder shall fully wet the wall area of the plated-through holes, and plug holes less than 1.5mm diameter (complete filling is not necessary). Class 3 Product-The test specimen has soldered successfully if solder has rise in all plate-through holes. The solder shall have fully wetted the walls of the hole. There shall be no nonwetting or exposed base metal on any plated-through hole.

镀通孔评估

对于板厚 $< 3.0\text{mm}$ 的样板, 1、2级标准要求其孔壁须完全润湿, 直径 $< 1.5\text{mm}$ 的塞孔允许不完全填满锡; 3级标准要求所有金属通孔中的焊料已完全攀升, 焊料完全润湿了孔壁, 没有不润湿或暴露金属基材的迹象。

试验依据: 《IPC-J-STD-003 印制板可焊性试验》

Test Method According to 《IPC-J-STD-003 Solderability Test for Printed Boards》

样品编号 Sample NO.	试验温度 Test temperature	试验时间 Test time	试验次数 Test times	检查结果 Check result	判定结果 Final result
1	255 $^{\circ}\text{C}$	3S	1次	<input checked="" type="checkbox"/> 符合测试标准 Conformance <input type="checkbox"/> 不符合测试标准 Non-conformance	<input checked="" type="checkbox"/> 合格Pass <input type="checkbox"/> 不合格NG
				<input type="checkbox"/> 符合测试标准 Conformance <input type="checkbox"/> 不符合测试标准 Non-conformance	<input type="checkbox"/> 合格Pass <input type="checkbox"/> 不合格NG

Result(结论): ☒ 合格Pass ☐ 不合格NG

Remark(备注):

Tested By (检查员): Sam Approved By (审核): Vic



Thermal Stress Test Report
热应力冲击试验报告

Customer Part No. 客户型号 :	gb-low-noise-power-probe PCB	Test Date 试验日期:	2023/9/19
Date Code 生产周期 :	3723	Sample Qty 样板数量:	1PCS

Test Method (试验依据) : Accordance With IPC-TM-650 Or Customer Specification
(IPC-TM-650标准或是客户要求)

Apparatus (设备) : Solder Pot Thermometer Flux (锡炉 温度计 助焊剂)

Specimens Pre-baking Condition (烤板条件) : Temperature 121°C - 149°C Time: _____ Hours
(温度121°C - 149°C 小时)

Test Condition (实验条件) ☒ Soldering Temperature : 288±5°C, Soldering Time : 10-0/+1Sec, 3 Cycles
(288±5°C 浸锡,时间: 10-0/+1秒,3次)

Or Others 或其它要求 ☐

Test Result (测试结果)			
Visual Inspection (外观检查) :			
1. Color Change(变色):	_____ NO	2. Wrinkles(起皱):	_____ NO
3. Delamination(爆板) :	_____ NO	4. Blisters (起泡):	_____ NO
5. Measling(白斑):	_____ NO	6. Blow-Hole(吹孔):	_____ NO
7. Solder Mask Peel Off (甩S/M):	_____ NO		
Microsectioning (微切片) :			
1. Corner Crack(角裂):	_____ NO	2. Hole Wall Crack(孔壁断裂):	_____ NO
3. Hole-Wall Separation (孔壁分离) :	_____ NO	4. Lifted Lands(焊盘浮起):	_____ NO
5. Delamination (爆板):	_____ NO	6. Resin Recession(树脂收缩):	_____ NO
Remark (备注) :			
Disposition (判定) : <input checked="" type="checkbox"/> 合格Pass <input type="checkbox"/> 不合格REJ			
Tested By (检查员) : _____ Sam		Approved By (审核) : _____ Vic	



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Characteristic Impedance Test Report

阻抗测试报告

Customer code /客户代码:	D0007		Customer Part No. 客户型号:		low-noise-power-probe	
Date Code 生产周期:	3723		测试时间 Testing time		2023/9/19	
项目 Item	要求 Design	实测 Actual			层数 Layer	其他 Other
		最大 Max	最小 Min	平均 Average		
单端阻抗 Unitline Impedance (ohm)	50+/-5	51.54	49.21	50.38	L1	
	50+/-5	51.74	48.25	50.00	L2	
	50+/-5	51.94	48.24	50.09	L4	
差分阻抗 Differential impedance						
检查仪器 Inspection Method	Cits500 by TDR					
结论 Conclusion	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Others					

Tested By (检查员) Sam

Approved By (审核): Vic



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Ionic contamination test report 离子污染测试报告

Customer Part No. 客户型号	gb-low-noise-power-probe PCB	Test Date 试验日期	2023/9/19
Date Code 周期	3723	Sample Qty 样板数量	1PCS

TEST METHOD : In accordance with QAI033

APPARATUS : Ionic contamination tester omegamenter 600SMD

REQUIREMENT : Ionic contaminaton leve \leq 1.56 ug,Nacl/sq.cm.

Test time (测试时间) : 14:50 ■ Automatic (自动)

Starting resistivity reading(起始电阻率) : 49.60 negohms

Solution type(溶液类型) : / % is opropy 1 alcohol

Total speciment surface area (样板总j 154.3 sq . In.

Volume of solution used (溶液体积) : / mls

Ending resistivity reading (终点电阻率 27.94 megohms

Equivalent to (相当于) : 0.198 ug.Nacl/cm²

Test Record as follow(记录) :

Dispositon : ■ 合格ACC □ 不合格REJ

TEST BY : Angel Date: 2023/9/19

Approved by : Vic Date: 2023/9/19