********** 目 錄 Content **********

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1. 概述 Scope:

1.1 说明 Content

此份产品规格书是针对由昆山嘉华电子有限公司设计和制和造的 0.3Pitch 1.0H 前翻盖 FPC 产品所定义的产品性能和测试方法。

This product specification defines the product performance and the test methods to ensure the performance of the 0.3Pitch 1.0H Front-flip FPC, which is designed and manufactured by Kunshan Jiahua Electronics Co., Ltd.

1.2 限制 Qualification

所有的测试和检验必须依照本文件中所要求的规格、方法进行。一旦产品的重要制程发生变更，必须立即进行品质验证和测试。

Tests and inspection shall be performed in accordance with the requirements, tests and methods contained herein. A re-qualification test shall be conducted immediately following all major process changes.

2. 参考文件 Referenced Documents:

EIA-364
MIL-STD-202F
MIL-P-81728A
MIL-T-10727B
JIS C 0040
JIS C 0041

若某些项目被发现本规格书中的内容与以上参考文件要求不一致时，一律依本规格书中的内容为测试依据。

In case of any contradiction between this document and referenced documents, this document will take precedence.

3. 规格要求 Requirements:

3.1 应用条件 Application Condition:

3.1.1 使用环境 Operating Environment:

温度: -55°C to +85°C,相对湿度:90% Max,此条件下功能不可失效。

Temperature:-55°C to +85°C, Relative Humidity:90% Max, Without loss of function.

3.1.2 储存环境 Storage Environment:

温度: -10°C to +50°C,相对湿度:90%或更低,此条件下功能不可失效。

Temperature:-10°C to +50°C, Relative Humidity: 90% or Less, Without loss of function.

3.2 绿色环保要求 Health, Safety and Environment

此产品中所有涉及环保有关的有害物质管控标准请参考嘉华系统文件:JH-GP-213

Hazardous substances (Environment related to be controlled substances) contained in this product should comply with the regulations specified by FAF's JH-GP-213.

3.3 测试说明 Test Description

此产品性能须满足本文件 3.4 节中的各项规格要求。除非有特别申明，所有的测试和量测必须在以下条件中进行:

The product is designed to meet the requirements specified in section 3.4. Unless otherwise specified, all tests and measurements are to be performed under the following conditions:

额定电流 Current rating: 0.2A/PIN DC

额定电压 Voltage rating: 30V AC

温度 Temperature: 20℃±5℃

相对湿度 Relative Humidity: 40% to 70%

大气压 Atmospheric Pressure: 650 to 800 millimeters (25.6 to 31.5 inches) of Mercury.

测试规范和方法 Test Requirements and Methods

Table I: 性能要求 Performance Requirements

项目 Items	规格要求 Requirements	测试方法 Test Methods
3.4.1 产品外观 Visual Examination	所有零件必须组装完好,不能出现毛边,变形,刮伤,以及任何外观破坏等异常; All components shall be properly assembled and free of burrs, warps, scratches, broken chips, and other abnormalities	参考测试标准：EIA 364-18 依照相应的文件和规格书进行外观,功能等确认 Comply with method EIA 364-18 Visual, functionalcomplies with applicable specification and document.
3.4.2 耐电压 Dielectric Withstanding Voltage	加电压期间漏电流不超过 2mA. 同时不能产生电弧以及而产生的短路和破坏产品的绝缘性能. No evidence of breakdown or flash burn. No burn caused by short circuit. No insulation destruction. Current leakage: 2 mA Max.	参考测试标准：EIA-364-20,方法 B; 不插入排线状态下，相邻端子间施加 90V 交流电压保持 1 分种,监控漏电流. Comply with method EIA-364-20, Test Method B. Under unmated, apply 90V AC 1 minute at sea level on tested between the adjacent contacts
3.4.3 绝缘阻抗 Insulation Resistance	绝缘阻抗：50 MΩ Min. Insulation Resistance: 50MΩ Min.	参考测试标准：EIA-364-21. 不插入排线状态下，在相邻两支端子之间加 100V 直流电压并保持 1 分种，测出阻抗值. Comply with method EIA-364-21. Unmated connector, applying 100V DC for 1 minute between adjacent contacts.
3.4.4 低功率接触阻抗 Low Level Contact Resistance	初始接触阻抗：80 mΩ Max; 测试后接触阻抗：100 mΩ Max; Initial: 80mΩ Max; After test: 100 mΩ Max	参考测试标准：EIA-364-23 必须保证量测结果为产品以及与之对应配对产品的焊接部位之间的阻抗值; Comply with method EIA–364-23, with the exception of the resistance readings, which shall be measured between the termination points of tested plug and connector

项目 Items	规格要求 Requirements	测试方法 Test Methods
3.4.5 FPC 排线保持力 FPC Cable Retention Force	见表格 2 See Figure 2	参考测试标准：EIA-364-13. 盖板闭合状态，以每分钟 25±3mm 的速度将 FPC 排线从连接器中平行于 PCB 方向拔出。 Comply with method EIA 364-13. Pull out the FPC cable in a direction of paralleled PCB. Test speed: 25±3mm/minute
3.4.6 耐久插拔 Durability	完成 10 次插拔以后, 须满足此规格中 3. 4. 4, 3. 4. 5 规格要求. Mating and Unmating 10 cycles , the sample shall pass the test specified in 3.4.4,3.4.5	参考测试标准：EIA-364-09; 盖板打开状态，插入 FPC 后闭合盖板，再打开盖板，拔出排线。如此 10 个循环；速度保持在每分钟 10 次以下。 Comply with method EIA 364-09 Insert FPC and close actuator, then reverse the installation sequence to unmating at the speed rate of less than 10 cycles/minute. Perform 10 cycles
3.4.7 振动 Vibration	不产生超过 1 微秒的瞬断, 产品没有物理破坏以及零件脱落,端子接触阻抗满足规格要求. No electrical discontinuity longer than 1 microsecond. No mechanical damage or looseness. Contact resistance specifications remain satisfied.	参考测试标准：EIA-364-28, 全振幅：1.50mm 扫频时间：1 分钟内 10～55～10Hz 持续时间：X, Y 和 Z 轴向各 2 小时(共计 6 小时) 。通电电流：100mA Comply with method EIA-364-28. Double amplitude: 1.50 mm. Sweep time: 10~55~10Hz in one minute. Duration: 2 hours in each X, Y, Z axes（Total 6hours）. Applied current: 100mA

项目 Items	规格要求 Requirements	测试方法 Test Methods
3.4.8 机械冲击 Physical Shock	不产生超过 1 微秒的瞬断, 产品没有物理破坏以及零件脱落,端子接触阻抗满足规格要求. No electrical discontinuity longer than 1 microsecond. No mechanical damage or looseness. contact resistance specifications remain satisfied.	参考测试标准：EIA-364-27. 波形:半正弦波; 加速度: 50G, 沿 X,Y,Z 三个方向进行, 每个方向完成 3 次冲击(总计 18 次冲击) Comply with method EIA-364-27, Shock Waveform: Half sine-wave, Acceleration: 50G, Total impacts delivered 3. each along X. Y. and Z axes.(Total:18 impacts)
3.4.9 盐雾实验 Salt Spray	测试后产品须满足此规格中 3.4.4 规格要求. After the test, the sample shall pass the test specified in 3.4.4	参考测试标准： EIA-364-26 中，条件 B; 盐水温度: 35±2℃, 条件:48±4 小时; Comply with method EIA-364-26. condition B. Salt mist 35±2℃, 48±4 hours.
3.4.10 热冲击 Thermal Shock	测试后产品须满足此规格中 3.4.4 规格要求. After the test, the sample shall pass the test specified in 3.4.4	参考测试标准：EIA-364-32 5 cycles 阶段 Step / 温度（°C） Temperature / 时间(分) Time 1 / -55+/-3 / 30(min) 2 / 25+/-10 / 2~3 3 / 85+/-2 / 30(min) 4 / 25+/-10 / 2~3
3.4.11 耐湿性 Humidity Verification	测试后产品须满足此规格中 3.4.2, 3.4.3,3.4.4 规格要求. After the test, the sample shall pass the test specified in 3.4.2, 3.4.3, 3.4.4	参考测试标准： EIA-364-31 中方法 II,条件 A; 产品互配在以下条件中放置 96 小时： 温度；40°C±2℃ 相对湿度：90~95% Comply with method II. Test condition A of EIA-364-31. Subject mated connectors to 96 hours at 40°C±2℃ with 90~95% relative humidity.

项目 Items	规格要求 Requirements	测试方法 Test Methods
3.4.12 耐低温 Cold Resistance	测试后产品须满足此规格中 3.4.4 规格要求. After the test, the sample shall pass the test specified in 3.4.4	配对的连接器，在温度为-40±3℃的条件下测试 96 小时。然后在标准气压条件下恢复 2 小时。 The mated connectors are exposed to the temperature of -40℃±3℃ for 96 hours. After test, recondition under standard atmospheric condition for 2 hours.
3.4.13 温度寿命 Temperature life	测试后产品须满足此规格中 3.4.4 规格要求. After the test, the sample shall pass the test specified in 3.4.4	参考测试标准：EIA-364-17; 产品互配后放置在 85°C±2℃条件下总计 96 小时。 Comply with EIA-364-17. Subject mated connectors to temperature life at 85°C±2℃ for 96 hours.
3.4.14 可焊性 Solder ability	焊锡部位表面粘锡面积至少占总面积的 95%。 Wet solder coverage: 95%Min	参考测试标准：MIL-STD-202 Method 208H,将焊锡部位浸入温度为 245℃±3℃的锡炉中保持 3 秒。 Comply with method MIL-STD-202 Method 208H,Immerse the solder part of the connectors in the solder bath at 245℃±3℃ for 3 seconds,
3.4.15 耐焊接热 Resistance to Reflow Solder Heat	测试后产品无空焊 The solder able of Connector is ok	对无铅制程条件：预热 150℃～180℃，时间 90±30 秒；230℃以上 30±10 秒；最高温度 250℃。 For the lead free process, the connectors are exposed to the following test conditions: preheat from 150℃ to 180℃ for 90±30 seconds min., over 230℃ for 30±10 seconds., and the peak temperature is 250℃.

3.5 产品测试顺序 Test Sequence

Test, Measurement or Examination	Group / Sample size	A 5PCS	B 5PCS	C 5PCS	D 5PCS	E 5PCS	F 5PCS	G 5PCS	H 5PCS	I 5PCS
1. Visual examination		1,9	1,7	1,3	1,6	1,5	1,3	1,5	1,5	1,5
2. Dielectric Withstanding Voltage		4,8								
3. Insulation Resistance		3,7								
4. Low Level Contact Resistance		2,6	2,6		2,5	2,4		2,4	2,4	2,4
5. FPC Cable Retention Force			3,5							
6. Durability			4							
7. Vibration					3					
8. Physical Shock					4					
9. Salt Spray								3		
10. Thermal Shock						3				
11. Humidity Verification		5								
12. Cold Resistance									3	
13. Temperature life										3
14. Solder ability				2						
15. Resistance to Reflow Solder Heat							2			

Figure1-Contact resistance (LLCR):

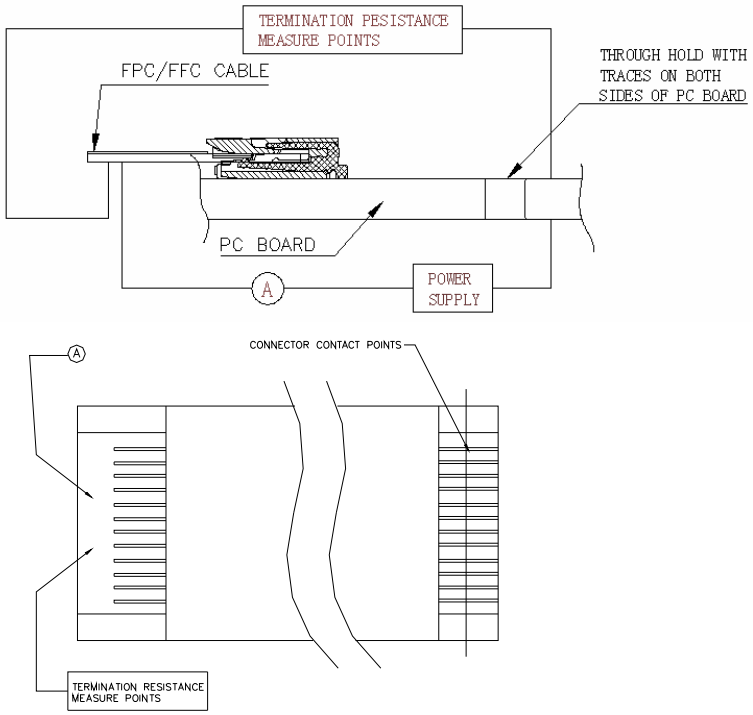

Figure2- FPC(FFC) Retention Force:

Pin No.	FPC Cable retention Force (N Min)	
	First	After 10 Cycles Durability
13	1.4	0.8
15	1.7	0.9
17	2.0	1.0
19	2.2	1.2
21	2.5	1.5
23	2.6	1.8
25	2.9	2.0
27	3.2	2.2
29	3.5	2.5
39	5.0	4.0
45	5.5	4.5
51	6.0	5.0
61	6.5	5.5

Figure3- 高温曲线 Infrared reflow condition: