1.适用范围 Scope

此作业规范适用于： 1.0mm Pitch SH4.0 浮动板对板系列

This product specifications is applied for: 1.0mm pitch SH4.0 Floating board to board connector series

2. 关联规格 Related Specifications

EIA-364:电子连接器及接插件测试程序 Electrical Connector/Socket Test Procedures Including Environmental Classifications.

IEC 60068:汽车电子试验规范 Connectors For Electronic Equipment Tests And Measurements.

UL STD-94:关于塑材设备零配件及器材阻燃性测试规范 Specification for fire resistance test of plastic material equipment, spare parts and equipment.

SAE/USCAR-2 REVISION6: 汽车电连接器系统性能规范 Performance Specification for Automotive Electrical Connector Systems

EN 60721: 电子设备连接器测试和测量 Connectors for electronic equipment Tests and measurements

IEC 60721-3-1: 环境条件分类 Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities-Section 1: Storage

3.构造，尺寸，材料 Structure, Dimensions and Materials

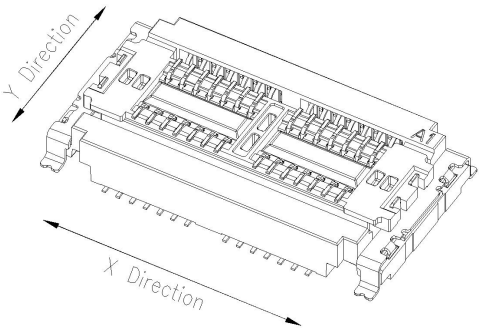
详见成品图 Refer to the drawing.

4. 移动量 Floating Range

本系列产品插拔时允许以下的浮动范围

Following are the floating range:

1) X 方向可移动量/ X Direction: ±0.60mm
2) Y 方向可移动量/ Y Direction: ±0.60mm
3) Z 方向可移动量/ Z Direction: ±0.45mm



5.标准状态 Standard State

5.1 额定电压 Rating voltage: AC/DC 32V Max.[As Pollution Degree Ⅱ]

5.2.1 信号额定电流 Signal Rating current: 0.5A

5.2 温湿度范围 Temperature and humidity range

5.2.1 使用温度 operating temperature: -40℃~+125℃(Including T-rise);

5.2.2 使用湿度 operating humidity:25%~75%RH;

5.2.3 储存温度 storage temperature: -10℃~+40℃;

5.2.4 储存湿度 storage humidity range: 5~85%RH.

6.性能 Performance

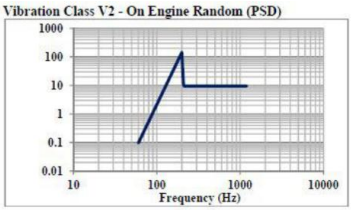
6.1 构造 Structure

序号 NO.	项 目 Item	测试方法 Test Method	规格要求 Specifications
1	外观 Appearance	依照 USCAR-2 5.1.8 确认 Confirm in accordance with USCAR-2 5.1.8.	无损坏 No physical damage

6.2 电气性能 Electrical Performance

序号 NO.	项 目 Item	测试方法 Test Method	规格要求 Specifications
1	干电路阻抗 Dry Circuit Resistance	依照 USCAR-2 5.3.1 测试。 最大直流电压：20mV 以下,最大测试电流：100mA. Comply with method USCAR-2 5.3.1. Test Voltage: 20mV DC Max., Test current:100mA Max.	Initial：50mΩ Max. After test :50mΩ Max.
2	电压降 Voltage Drop	依照 USCAR-2 5.3.2 测试。 TUT 的总连接电阻最大 50mΩ。 Comply with method USCAR-2 5.3.2 Total connection resistance for TUT 50m ohms max.	Voltage drop 50mV max.
3	绝缘阻抗 Insulation Resistance	依照 USCAR-2 5.5.1 测试。 相邻端子间 DC 500V，60±5 秒 Comply with method USCAR-2 5.5.1. Apply DC 500V between adjacent terminals for 60±5 seconds.	Initial：100MΩ Min. After test :100 MΩ Min.
4	耐电压 Dielectric withstanding voltage	依照 EIA 364-20 测试。 相邻信号端子间 AC 500V，60±5 秒。 Comply with method EIA 364-20. AC 500V between adjacent terminals, 60±5 seconds.	No evidence of arc-over, insulation breakdown, or excessive leakage current(1mA max).
5	温升测试 Temperature rise	依照 USCAR-2 5.3.3 测试。 测试电流 0.5A，测试温度 23±5℃，测试时间 1 小时。 Comply with method USCAR-2 5.3.3. Test current 0.5A, Test temperature 23±5℃, Test duration 1 hour.	T-rise not exceed 30℃

6.3 机械性能 Mechanical performance

序号 NO.	项 目 Item	测试方法 Test Method	规格要求 Specifications
1	插入力及拔出力 Mating/Unmating force	依 USCAR-2 5.4.2 测试。将焊板连接器以 50mm/分匀速垂直插拔。 Comply with method USCAR-2 5.4.2. Mating and Unmating the connector on board vertically at a constant speed of 50mm/ min	Mating force:40 N Max. Unmating force:1N Min.
2	振动试验 Vibration test	依照 USCAR-2 5.4.6 测试。 测试等级 Class V2 根据 USCAR-2 5.1.4.3。 每轴测试 8 小时，共 24 小时。 测试条件如下表： Comply with method USCAR-2 5.4.6. Test Class V2 with USCAR-2 5.1.4.3. Each axis test 8 hours, a total of 24 hours. Test table: **V2 - Random** F (Hz) / PSD[1] / PSD g^2/Hz 60.0 / 0.096 / 0.00100 200.0 / 144 / 1.50000 210.0 / 9.60 / 0.10000 1200.0 / 9.60 / 0.10000 g_{rms} / **119** / **12.1 g** 	试验中无 1μs 以上瞬断； Discontinuity: 1μs or less.
3	冲击试验 Shock test	依照 USCAR-2 5.4.6 测试。 测试等级 Class V2 根据 USCAR-2 5.1.4.3。 测试条件如下表： Comply with method USCAR-2 5.4.6. Test Class V2 with USCAR-2 5.1.4.3. Test table: ***TABLE 5.4.6.3A: SCHEDULE FOR SHOCK TESTING*** Vibration Class / Shocks per Axis / Wave Shape / Direction (±) / Duration (ms) / Acceleration (g) V1 / 10 / Half Sine Wave / Positive / 5 to 10 / 35 V2 / 10 / Half Sine Wave / Positive / 5 to 10 / 35 For V3, V4, V5 only: Perform Tests 1 and 2 / 1 / 132 x 6 = 792 / Half Sine Wave / Positive/Negative / 15 / 25 For V3, V4, V5 only: Perform Tests 1 and 2 / 2 / 3 x 6 = 18 / Half Sine Wave / Positive/Negative / 11 / 100	试验中无 1μs 以上瞬断； Discontinuity: 1μs or less.
4	耐久性 Durability	依照 EIA 364-09 测试。 连接器焊板后以 300 次/小时的速度进行插拔 50 次。 Comply with method EIA 364-09. The connector on board shall be mating and unmating 50 times at the speed of 300 times/hour.	无明显外观不良 电气性能满足要求 No evidence of damage. The electrical performances should meet the spec. specified.

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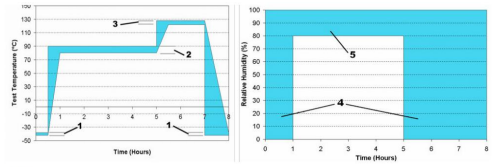
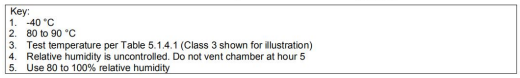
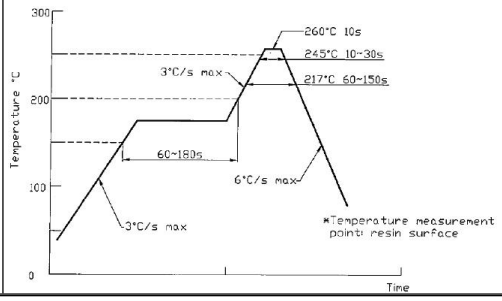
6.4 环境性能和其它 Environmental Performance and Others

序号 NO.	项 目 Item	测试方法 Test conditions	规格要求 Specifications
1	冷热冲击试验 Thermal shock test	依照 USCAR-2 5.6.1 测试。测试等级 Class T3 根据 USCAR-2 5.1.4.1 连接器焊板嵌合,测试温度-40℃ ~ +125℃，30s 内完成温度转换，最低和最高温保持 30 分钟作为一次循环，共 100 次循环。 Comply with method USCAR-2 5.6.1. Class T3 with USCAR-2 5.1.4.1. Connector mating on board. The test temperature is -40℃ ~ +125℃, the temperature conversion is completed within 30 seconds, the lowest and the highest temperature is kept for 30 minutes as a cycle, total of 100 cycles.	无明显外观不良 电气性能满足要求 No evidence of damage. The electrical performances should meet the spec. specified.
2	温湿循环试验 Temperature cycling	依照USCAR-2 5.6.2测试。 测试等级Class T3 根据USCAR-2 5.1.4.1 连接器焊板嵌合,测试温度-40℃ ~ +125℃，依下图测试为一个循环，测40个循环。 Comply with method USCAR-2 5.6.2. Class T3 with USCAR-2 5.1.4.1. Connector mating on board. The test temperature is -40℃ ~ +125℃, The test as shown in the figure below is a cycle, and 40 cycles are tested.   Key: 1. -40 °C 2. 80 to 90 °C 3. Test temperature per Table 5.1.4.1 (Class 3 shown for illustration) 4. Relative humidity is uncontrolled. Do not vent chamber at hour 5 5. Use 80 to 100% relative humidity	无明显外观不良 电气性能满足要求 No evidence of damage. The electrical performances should meet the spec. specified.
3	高温暴露 High Temperature Exposure	依照USCAR-2 5.6.3测试。 测试等级Class T3 根据USCAR-2 5.1.4.1 连接器焊板嵌合,测试温度125℃，测试时间1008小时。 Comply with method USCAR-2 5.6.3. Class T3 with USCAR-2 5.1.4.1. Connector mating on board. The test temperature is -40℃ ~ +125℃, test time is 1008 hours.	无明显外观不良 电气性能满足要求 No evidence of damage. The electrical performances should meet the spec. specified.
4	耐焊接性 Resistance To Soldering Heat	依照 EIA 364-56 测试。在以下条件下，将连接器焊接在测试 PCB 上。回流焊进行 3 次。 Comply with method EIA 364-56. The connector shall be mounted on the test PCB on the following condition. Reflow soldering is carried out 3 times. 条件/condition Peak Temperature: 260±5° C, 10±1 sec Reflow Temperature: 150~220° C, 60~180 sec. Solder paste: Cookson Electronics Co.,Ltd ALPHA OM-338-PT 96.5Sn / 3.0Ag / 0.5Cu  	没有明显的物理或机械损伤。 There shall be no evidence of physical or mechanical damage.

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序号 NO.	项 目 Item	测试方法 Test conditions	规格要求 Specifications
5	焊接性测试 Solderability test	依照 EIA 364-52 测试。按以下条件进行焊接性测试： Comply with method EIA 364-52. Solderability test according to the following condition. a. Soldering Temperature: 245±3° C b. Test Duration: 5±0.5sec c. Solder: SAC305 96.5Sn / 3.0Ag / 0.5Cu d. Flux: ALPHA ROL1 IPC TEST FLUX.	实际粘锡面积大于 95% Actual soldered area must be more than 95% of the dipped area intended to be soldered.
6	低温测试 Low temperature	依照EIA 364-59测试。 连接器焊板嵌合,测试温度-55℃，测试时间 96 小时。 Comply with method EIA 364-59. Connector mating on board. The test temperature is -55℃, test time is 96 hours.	没有明显的物理或机械损伤。 There shall be no evidence of physical or mechanical damage.
7	盐雾测试 Salt Spray	依照 EIA 364-26 测试。 连接器焊板嵌合，按照以下条件进行盐雾测试： Comply with method EIA 364-26。 Connector mating on board. Salt Spray test according to the following condition. a. Salt Solution: 5±1% by weight b. Test temperature: 35±2° C c. Test duration: 48hours. d. Special Treatment ：The measurement shall be conducted after the mated connector is mildly rinsed in running water to remove deposition of salt, followed by natural drying by placing it for 24 hours at room temperature.	没有明显的物理或机械损伤。 There shall be no evidence of physical or mechanical damage.

7.测试顺序表 Test Sequence

Test Item	Test Group							
	A	B	C	D	E	F	G	H
1. Appearance	1,3,7	1,3	1,3	1,3	1,3	1,3	1,3	1,3
2. Dry Circuit Resistance	4,9	5,8, 10,13		4,6	4,6		5,8	
3. Voltage Drop	8	12	8				7	
4. Insulation Resistance			5,9					
5. Dielectric Withstanding Voltage			4,10					
6. Temperature rise								4
7. Mating and Unmating Force		4,7					4	
8.Vibration test	6							
9. Shock test	5							
10. Durability		6						
11. Thermal shock		9	6					
12.Temperature cycling		11	7					
13. High Temperature Exposure							6	
14. Resistance to soldering heat	2	2	2	2	2		2	2
15. Solderability						2		
16. Low temperature					5			
17. Salt Spray				5				
Sample Size	5	5	5	5	5	5	5	5

8.包装 Packing

详见包装图。See the packaging drawing

9.产品保质期 Term of a guarantee

从交货日起 1 年（1 year from delivery day）

10.修改内容 Change content

版本 Rev.	改正日期 Modify date	改正内容 Modifications	Written by	Checked by
A	2022/09/05	New	SH Chen	May

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操作方法 Handling method

1.使用注意事项/Attention of using connector

a.产品插入时，须慢慢垂直插入，不可倾斜、扭转。
When the connector is mating, connector shall not be twisted, and then mated it slowly.
b.严禁使用未焊板产品进行测试，会导致产品被破坏。
It is strictly forbidden to use unsoldered products for testing, which will cause the product to be damaged.
c.带有一定角度插入有卡顿现象时，请拔出后再重新插入。若直接插入会有胶屑产生。
Please do not be locked at an angle. When locked, please extraction and re-mated. The angle mating, occurs shavings.
d.产品两端嵌合的松紧度,确认两端嵌合轻松后水平插入。
After locate , Please mate connector where the molds fit loosely,after check the molds fit loosely , Push it straight.
e.拔出时，产品须垂直拔起。仅一端拔出，会损坏主体。
Please be pulled out straight. Pulling on one side, the mold is broken
f.装配连接器和 PCB 板时，不能只固定连接器;实际应用时，PCB 需在连接器附近用铆钉固定;
It shall not be held the connector only, when you are assembled for the connector and P.C.B.; When it shall be used the connector ,the P.C.B are held by the rivet certainty near mounting of the connector;
g.图 1 及图 2 所示指导角度，插入前不可大于此角度（未锁定）;
Guide Angle as shown in figure 1 and figure 2 ,not greater than this Angle before insertion (not locked)
h.指导角度是初始位置角度,不是装配角度
Guiding angle is initial location angle. It is not the angle to mate.
i.请在图 3,4 的角度下进行装配.
Please mate below the angle of the figure 3,4

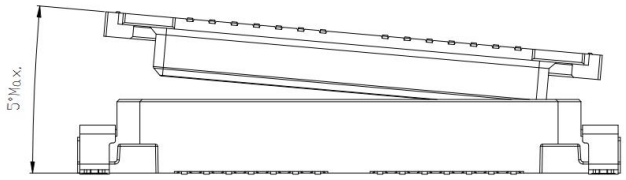

图 1/Fig1

初始角度
Guiding angle

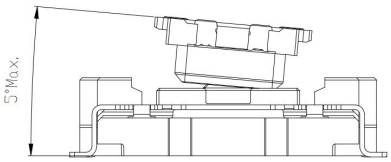

图 2/Fig2

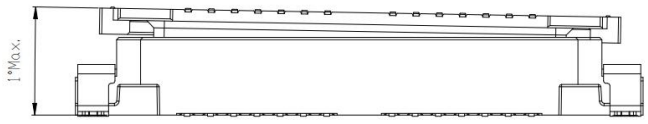

图 3/Fig.3

装配角度
Mating angle

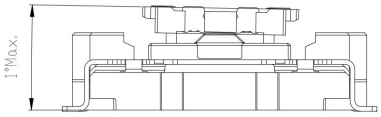

图 4/Fig.4

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