



PRODUCT SPECIFICATION

(產品規格書)

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
5100 Series FAKRA Connector Plug Right Angle Type	5100-MxC06R01T	S2120220531-01

PRODUCT NAME (產品名稱)	DOCUMENT No.: (文件編號)	Rev. (版本)	OUPIIN
5100 Series FAKRA Connector Plug Right Angle Type (RoHS)	Q5100-PSS-I002	A (I619)	(歐品)
	Approved (核准)	Checked (審核)	Prepared (製作)
	Q.A. Section Chief	Ruru Chen	2022.12.21



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1. SCOPE 範圍

This product specification defines the product performance and the test methods to ascertain the performance of the 5100 Series FAKRA Connector Plug Right Angle Type, which is designed and manufactured by Oupiin Electronic Co.,Ltd. This product specification is applicable but not only for those part numbers which be shown in the cover page.

本產品規格書規定了由歐品電子有限公司生產的 5100 Series FAKRA Connector Plug Right Angle 型連接器，產品的特性及測試方法。本產品規格書適用於但不局限於封面所顯示的產品料號

2. REFERENCE DOCUMENTS 參考文件

ISO 20860

USCAR-2

3. FEATURE & DIMENSIONS 特徵及尺寸

3.1. PRODUCT DIMENSION 產品尺寸

These connectors shall have the dimensions as shown in drawing.

本產品的相關尺寸參考圖面。

3.2. PCB/PANEL LAYOUT 印刷電路板佈局

The recommended PCB layout is shown in drawing.

本產品適用的 PCB layout 參考圖面。

3.3. BILL OF MATERIAL 材料清單

Harmful material control follow the requirement of RoHS. The bill of material and product number is described in drawing.

有害物質控制符合RoHS指令要求。本產品使用的材料參見圖面。

3.4. MECHANICAL & ELECTRICAL CHARACTERISTIC 機械及電氣特性

The connector shall have the mechanical and electrical performance as described in drawing.

本產品的機械及電氣特性見圖面

3.5. PACKAGING 包裝

Products shall be packaged according to requirements specified in purchase order for safe delivery, connector container and the packaging method are shown in package specification.

產品可依客戶指定要求包裝，包裝材料與包裝方式參見產品包裝規範



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3.7. CURRENT AND VOLTAGE 電流與電壓

Test voltage is 500V RMS, work voltage is 48V RMS.

測試電壓500V RMS、工作電壓48V RMS

3.8. OPERATING TEMPERATURE 使用溫度

Temperature range : -40°C ~+105°C.

溫度範圍：-40°C ~+105°C

4. PERFORMANCE AND TEST DESCRIPTION 性能及測試

4.1. REQUIREMENT 要求

Product is designed to meet electrical, mechanical, and environmental performance requirements specified in Table I.

本產品設計符合附表一所述的機械，電氣及環境要求。

4.2. TEST CONDITION 測試條件

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

除非特別註明，所有測試在室溫條件下完成。

4.3. SAMPLE SELECTION 樣品選擇

Test samples shall be selected at random from current production. No test samples shall be reused.

Samples are pre-conditioned with 10 cycles of durability. Each group shall be containing 5 test samples.

測試樣品從現生產的產品中隨機抽取，所有測試過的樣品不得重複使用。樣品已預先插拔10次，每組測試有5個樣品。



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Table I : Test Requirements and Procedures

附表一：測試要求與方法

Items (項目)	Requirements (要求)	Test Methods (檢測方法)
1. Confirmation of Product 產品確認	Product shall be conforming to the requirements of applicable product drawing. 產品必須滿足相關檔的規定	Visually, dimensions and functionally inspected per applicable product drawing. 依相關產品圖面，檢查產品的外觀、尺寸及功能
2. Contact Resistance 接觸阻抗	Terminal $\leq 24 \text{ m}\Omega$ Outer Conductor $\leq 6 \text{ m}\Omega$	USCAR-17, 4.3.1 Subject mated contacts assembled in housing to closed circuit. 所述固定在外殼裡的端子連結到一個封閉回路中測試
3. Insulation Resistance 絕緣阻抗	100 M Ω Min. 最小 100 M Ω	USCAR-17, 4.4.1 Subject mated connectors should be tested Voltage 500V DC. 施加電壓 500V DC 測試產品
4. Dielectric Withstanding Voltage 耐電壓	There must be no dielectric breakdowns. 不得有介電擊穿	USCAR-17, 4.3.2 Connector must withstand test potential of 500V AC for 1 minute. 產品必須承受測試電壓 500V AC，時間 1 分鐘
5. Mating/Un-mating Force 插入力/拔出力	Mating force : 25 N Max. Un-mating force : 2 N Max. 插入力最大 25 N 拔出力最大 2 N	USCAR-2.6 , 5.4.2 At a speed of 50 mm/minute, apply axial insert the mating part into fully or pull out from the subject product. 以 50 mm/分鐘的速度，軸向完全插入對配外掛程式到被測產品中或從被測產品中拔出
6. Center Contact Retention Force 中心端子保持力	15N Min. 最小 15N	USCAR-2.6 , 5.7.1 Measure the maximum force required to completely extract the center contact from the dielectric material, at a speed of 50 mm/ minute. 測量從介電材料中拔出中心端子所需的最大力，速度 50 mm/分鐘



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<p>7. Durability (Repeated Mating/Unmated) 耐久性</p>	<p>After testing, no physical damage. 測試後，產品外觀無損壞</p>	<p>USCAR-2.6 , 5.1.7 Repeat mate and unmated for connector 25 cycles, at a speed of 50 mm/minute. 重復進行配合產品 25 次插拔，速度每分鐘 50 mm</p>																		
<p>8. Vibration 機械振動</p>	<p>After testing, no physical damage. No electrical discontinuity greater than 1 μs shall occur. 測試後，產品外觀無損壞，不允許出現超過 1 μs 的瞬間斷開</p>	<p>ISO20860-2 9.1 Subject mated connectors should be tested according to the condition listed below : (a) Vibration Type : Random vibration. (b) Frequency Range : 5 ~ 1000Hz. (c) Duration : 8 hours in each of X, Y, Z axis.</p> <table border="1" data-bbox="922 790 1465 1048"> <thead> <tr> <th>Frequency (hz)</th> <th>Power Spectral Density (g²/hz)</th> </tr> </thead> <tbody> <tr><td>5.0</td><td>0.00200</td></tr> <tr><td>12.5</td><td>0.24800</td></tr> <tr><td>77.5</td><td>0.00320</td></tr> <tr><td>145.0</td><td>0.00200</td></tr> <tr><td>200.0</td><td>0.01180</td></tr> <tr><td>230.0</td><td>0.00032</td></tr> <tr><td>1000.0</td><td>0.00002</td></tr> <tr><td colspan="2">Grms = 1.81</td></tr> </tbody> </table>	Frequency (hz)	Power Spectral Density (g ² /hz)	5.0	0.00200	12.5	0.24800	77.5	0.00320	145.0	0.00200	200.0	0.01180	230.0	0.00032	1000.0	0.00002	Grms = 1.81	
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<p>9. Mechanical Shock 機械衝擊</p>	<p>After testing, no physical damage. No electrical discontinuity greater than 1 μs shall occur. 測試後，產品外觀無損壞，不允許出現超過 1 μs 的瞬間斷開</p>	<p>ISO20860-2 9.1 Mated connectors, test according to the condition listed below : (a) Pulse shape : Half sine (b) Peak acceleration : 35 G (c) Duration : 10 ms (d) Times : 3 shocks in each direction applied along three mutually perpendicular planes, total 18 shocks.</p>																		
<p>10. High Temperature Life 高溫老化</p>	<p>After testing, no physical damage. Contact Resistance & Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 M Ω min. 測試後，產品外觀無損壞，接觸阻抗&耐電壓測試 OK, 絕緣阻抗 100MΩ 最小</p>	<p>USCAR-2, 5.6.3 Subject product to 105$^{\circ}$C for 1008 hours continuously. EIA-364-17 產品置於 105$^{\circ}$C，連續 1008 小時。</p>																		



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<p>11. Thermal Shock 溫度沖擊</p>	<p>After testing, no physical damage. Contact Resistance & Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ min. 測試後，產品外觀無損壞，接觸阻抗&耐電壓測試 OK，絕緣阻抗 100MΩ 最小</p>	<p>USCAR-2, 5.6.1 Temperature range from -40°C to +105°C. Start from -40°C, after 30 minutes, change to +105°C, total 100 cycles. 溫度變化範圍：-40°C ~ +105°C。從 -40°C 開始，30 分鐘後換到+105°C，共 100 個循環</p>
<p>12. Humidity Temperature Cycle 溫濕度循環</p>	<p>After testing, no physical damage. Contact Resistance & Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ min. 測試後，產品外觀無損壞，接觸阻抗&耐電壓測試 OK，絕緣阻抗 100MΩ 最小</p>	<p>USCAR-2, 5.6.2 Temperature : -40 ~ +100°C Relative Humidity : 80-100% Duration : 40 cycles (total 320 hours) 溫度：-40 ~ +100°C 相對濕度：80-100% 持續時間：40 cycles (total 320 hours)</p>
<p>13. Salt Spray 鹽霧</p>	<p>After testing, no detrimental corrosion allowed in contact area. Contact Resistance & Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ min. 測試後，接觸區域不允許有害腐蝕，接觸阻抗&耐電壓測試 OK，絕緣阻抗 100MΩ 最小</p>	<p>LV214 5±1% salt concentration, PH6.5~7.2, 15~35°C, spray for 2 hours, then place in 40±2°C, humidity 90~95%, 20~22 hours, for 4 cycle, then place it in an atmospheric environment with 23±2°C and humidity 45~55% for 3 days. 鹽水濃度 5±1%，PH6.5~7.2，溫度 15~35°C，噴霧 2 小時，然後放置在溫度 40±2°C，濕度 90~95% 環境裡 20~22 小時，循環 4 次，然後放置在溫度 23±2°C，濕度 45~55% 的大氣環境裡 3 天</p>
<p>14. Solder ability 可焊性</p>	<p>There shall have a solder coverage of 95% minimum. 產品在測試完成後，焊接部位粘錫面積大於 95%</p>	<p>Soldering time : 3 seconds. Temperature : 245°C 焊接時間：3 秒 溫度：245°C</p>