



# PRODUCT SPECIFICATION

## 產品規格書

產品名稱 Description	產品料號 Part No.	圖號 Dwg. No.
Product Specification For Low Profile Hybrid Power Receptacle	9392-2P04Sxx1C(B)xxPA	9392-D0000-001
	9392-2P02SxxN11C(B)xxPA	9392-D0000-027

PRODUCT NAME 產品名稱	DOCUMENT No.: 文件編號	Rev. 版本	OUPIIN
Product Specification For Low Profile Hybrid Power Receptacle	Q9392-PSS-003	D	歐品電子
	<b>Approved</b> 核准	<b>Checked</b> 審核	<b>Prepared</b> 制作



# PRODUCT SPECIFICATION OF Oupiin

## 1. SCOPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the Product Specification For Lowprofile Hybrid (LPH) Receptacle Connector, 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設計生產的 Product Specification For Lowprofile Hybrid (LPH) Receptacle 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

MIL-STD-1344	Test method for electrical connector 電子連接器測試方法
MIL-STD-202	Test method for electrical components 電子零件測試方法
EIA364	Test method for electrical components 電子零件測試方法
JIS C 0051	Test method for electrical components 電子零件測試方法
MIL-G-45204C	Specification for gold plating 鍍金規格
IEC-512-3	IEC standard for current carrying capacity tests IEC電流測試標準
QQ-N-290A	Specification for nickel plating 鍍鎳規格
MIL-P-81728A	Specification for tin/lead plating 鍍錫鉛規格
MIL-T-10727B	Specification for tin plating 鍍錫規格
UL1977	UL standard for safety of attachment plug and receptacle UL安規要求標準

## 3. FEATURE & DIMENSIONS 特征及尺寸

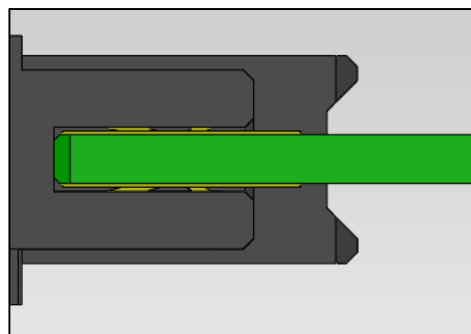
### 3.1. PRODUCT DIMENSION 產品尺寸

These connectors shall have the dimensions as shown in drawing.

本產品的相關尺寸參見圖面。

### 3.2. MALE AND FEMALE PRODUCT 公母產品裝配

#### 3.2.1. Male Female assembly dimension 公母產品裝配尺寸



If female Type is Edge Card , While distance between male's PCB and female's PCB is not accurate requisition 如是插卡類型，公母PCB板之間的尺寸不做準確要求

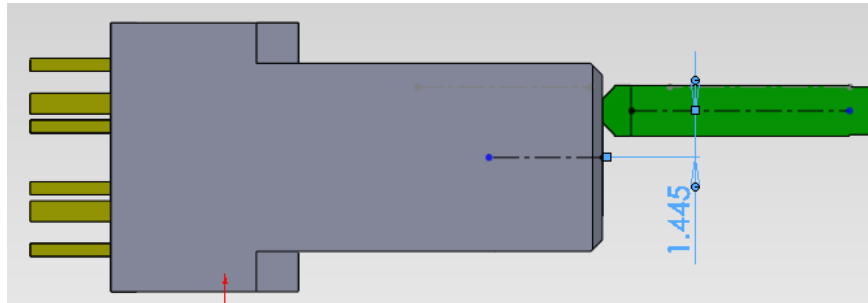


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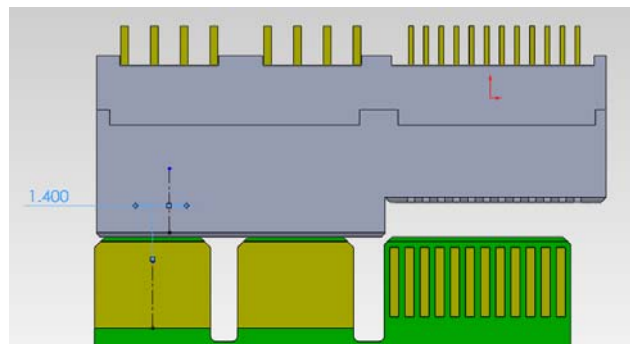
### 3.2.2. Perpendicular to engaging direction 垂直插入方向

the design of the centering and guiding in the Mpc of the free and fixed board connector modules shall accept a misalignment of 1.445mm in transverse and 1.40mm in longitudinal axes of the connector.

固定板連接器模件的Mpc裡，連接器設計中心線橫向可接受1.445mm和縱向可接受1.40mm的偏差。



allowed misalignment in transverse axes 在橫向方向允許對插偏差量

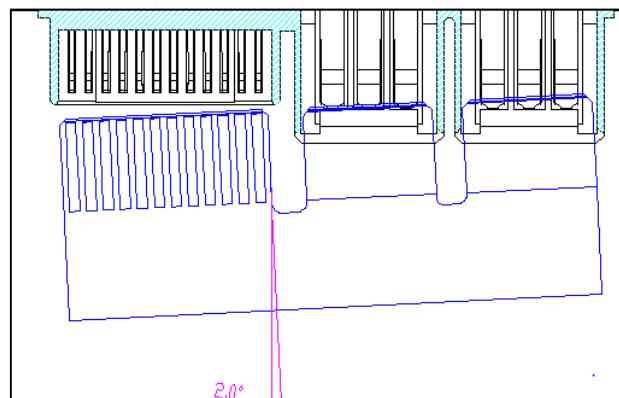
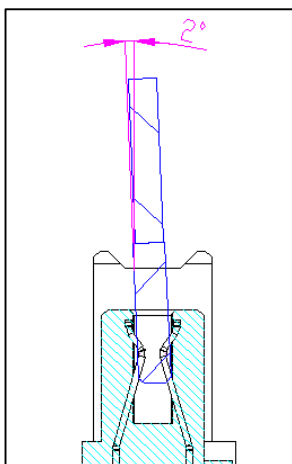


allowed misalignment in longitudinal axes 在縱向方向允許對插偏差量

### 3.2.3. inclination 傾向

The center and guiding in the Mpc of the free and the fixed board connector modules shall allow an initial angular misalignment of 2° from both the transverse and longitudinal axes.

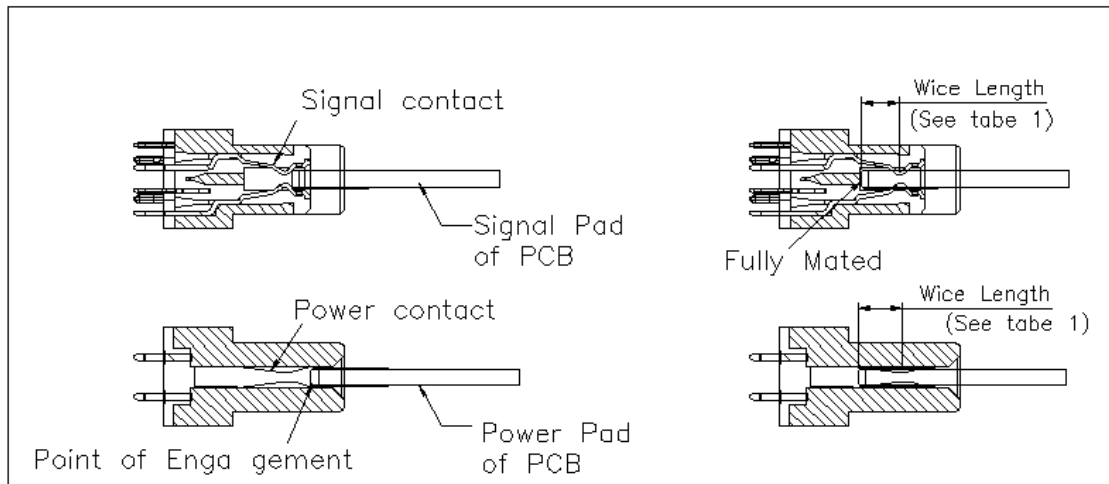
固定板連接器模件的在Mpc裡，連接器可接受橫向和衝向2° 的最大傾斜對插角度。





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## 3.2.4. Capability for products wipe length 產品接觸長度等級



CONTACT	MATING LEVEL	WIPE LENGTH(MIN)
Power Pin	1	3.17mm
Signal Pin	1	3.00mm

## 3.3.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 參見圖面。

## 3.4.BILL OF MATERIAL 材料清單

Harmful material controlling follows the requirements of RoHS. The bill of material 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。

## 3.5.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參見圖面。

## 3.6.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.RATING CURRENT AND RATING VOLTAGE 額定電流與額定電壓

Rating current Power PIN is 30 Amps @ 60 Vdc, Signal PIN is 1.0 Amps @ 30 Vdc, rating voltage is 250V DC/AC (Power )RMS 30 V DC/AC (Signal) .

額定電流電源 PIN 是 30A 直流 信號 PIN 是 1.0A 直流，額定電壓電源 PIN250V DC/AC 信號 PIN 30V DC/AC RMS。

## 3.8 TEMPERATURE RISE 溫升

1.Chart of Temperature rise vs current( series connection with all contact of SPEC)

加載電流對應溫升曲線圖(相同規格的所有PIN串联起来)

## 3.9.STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

Temperature range: -40°C~+105°C, including terminal temperature rise for rating current.

溫度範圍：-40°C~+105°C，包含接觸端子的額定電流溫升。

## 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列的機械，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.

除非特別注明，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 10cycles of durability. Each group shall be containing 5 test samples at least.

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，每組測試至少有5個樣品。

### 4.4.TEST SEQUENCE 測試順序

Product qualification test sequence as shown in **Table II**.

產品品質測試順序見附表二。



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**Table I: Test Requirements and Methods**

附表一：測試要求與方法

Items 項目	Requirements 要求	Test Methods 測試方法
1. Confirmation of Product 產品確認	Product shall be conforming to the requirements of applicable product drawing. 產品必須符合相關產品圖面的要求。	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	Signal Contact: 20 milliohm Power Contact: 20 milliohm Max 初始狀態 電源 PIN 最大 20 mΩ, 信號 PIN 20 mΩ。 Per EIA-364-06 適用：EIA-364-06	Subject mated contacts assembled in housing to closed circuit of 100 mA max. 20 mV max. 所述固定在外殼裏的端子連結到一個封閉回路中測試，電流 100 mA max，電壓 20 mV max。
3. Insulation Resistance 絕緣阻抗	5000 MΩ Min. 最小 5000 MΩ。 Per EIA-364-21 適用：EIA-364-21	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. Condition B (500 V DC±10%). 測試產品相鄰端子間以及端子與接地間的電阻 (500 V DC±10%)。
4. Dielectric Withstanding Voltage 耐電壓	Connector must withstand test potential of 1500 VDC RMS for 1 minute, current leakage must be 0.3mA Max. 產品必須承受測試電壓 1500 VDC RMS，時間 1 分鐘，漏電流不大於 0.3 mA。 Per EIA-364-20 適用：EIA-364-20.	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. 對產品相鄰端子間以及端子與接地間加載電壓，並測試其漏電流。
5. Durability (Repeated Mating /Un-mating) 耐久性	Signal Contact: 20 milliohm Power Contact: 20 milliohm Max. Initial.After testing: Maximum Change: Signal Contact: 15 milliohm Power Contact: 0.75 milliohm 初始狀態最大 20 mΩ。測試後：信號 PIN 最大變化 15 mΩ; 電源 PIN 最大變化 0.75mΩ Per EIA-364-09 適用：EIA-364-09	Repeat mate and unmated for connector 250 cycles, at a speed of 10 cycles per minute. 重復進行配合產品 250 次插拔，速度每分鐘 10 次。



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<p>6.1 Connector Pin Mating /Un-mating Force 單 PIN 插入力/拔出力</p>	<p>Mating force: Power PIN 7N Max, Signal PIN 1.1N Max, Un-mating force: Power PIN 1.5N Min, Signal PIN 0.15N Min. 插入力電源 PIN 7 N 最大,信號 PIN 1.1N 最大, 拔出力電源 PIN 1.5N 最小, 信號 PIN 0.15N 最小</p> <p>Per EIA-364-37 適用：EIA-364-37</p>	<p>At a speed of 25.4±6mm/minute, apply axial insert the mating part into fully or pull out from the subject product. 以 25.4±6mm/分鐘的速度，軸向完全插入對配插件到被測產品中或從被測產品中拔出。</p>
<p>6.2 Connector Pin Press in /Retention Force 單支端子壓入/拉出 PCB 孔的力量。</p>	<p>Press in force Power pin 83.2 N Max Signal pin 24N Max. Retention force Power pin 32.9 N Min Signal pin 6.7 N Min. 壓入力電源 PIN 最大 83.2 N 信號 PIN 最大 24N; 拉出力電源 PIN 最小 32.9N 信號 PIN 最小 6.7N。</p>	<p>At a speed of 25.4±6 mm/minute, apply axial press in PCB to right position (detail as drawing) or pull out from PCB. 以 25.4±6 mm/分鐘的速度施加軸向壓力將 Press 部分壓入 PCB 孔至適當位置（詳見產品圖面）或從 PCB 孔中拉出。</p>
<p>7. Contact Retention Force 端子保持力</p>	<p>Power connector: 10.0 N/Pin Min. Signal connector: 3.0 N/Pin Min. 電源 PIN: 最小 10.0 N/Pin。信號 PIN: 最小 3.0 N/Pin。</p> <p>Per EIA-364-29 適用：EIA-364-29</p>	<p>Apply axial pull out force at a speed of 25.4±6 mm/minute on the contact assembled in the housing. 以 25.4±6mm/分鐘的速度施加軸向拉力從塑膠本體上拔出端子。</p>
<p>8. Vibration Sinusoidal Low Frequency 低頻正弦振動</p>	<p>No electrical discontinuity greater than 1 μs shall occur, Contact Resistance: Maximum Change: Signal Contact: 15 milliohm Power Contact: 0.75. 不允許出現超過 1 μs 的瞬間斷開，接觸阻抗信號 PIN 最大變化 15 mΩ; 電源 PIN 最大變化 0.75mΩ。</p> <p>Per EIA-364-28 適用：EIA-364-28</p>	<p>Subject mated connector to 10-55-10 Hz traversed in 1 minute at 1.5 mm amplitude, 2 hours each of 3 mutually perpendicular planes, 10 mA potential applied. 對測試產品，在頻率變化每分鐘從 10-55-10 Hz, 振幅 1.5 mm 條件下，在互相垂直的三個面上，每個面 2 小時下測量，電流 10 mA。</p>



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<p>9. Thermal Shock 熱衝擊</p>	<p>After testing, no damage, Maximum Change: Signal Contact: 15 milliohm Power Contact: 0.75. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗: 接觸阻抗信號PIN最大變化 15 mΩ;電源PIN最大變化 0.75mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。</p> <p>Per EIA-364-32 適用：EIA-364-32</p>	<p>Temperature range from -55°C to +85°C. Start from -55°C, after 30 minutes, change to +85°C; change time is no more than 30 seconds, total 5 cycles. 溫度變化範圍：-55°C~ +85°C。從 -55°C 開始，30 分鐘後換到+85°C，轉換時間不超過 30 秒，共 5 個循環。</p>
<p>10. Humidity (Steady State) 恆溫恆濕</p>	<p>After testing, no damage, Contact Resistance: Maximum Change: Signal Contact: 15 milliohm Power Contact: 0.75; Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗: 信號PIN最大變化 15 mΩ;電源PIN最大變化 0.75mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。</p> <p>Per EIA-364-31 適用：EIA-364-31</p>	<p>Temperature: 40±2°C. Relative Humidity: 90-95%. Duration: 96 Hours. 溫度：40±2°C。相對濕度：90-95%。 持續時間：96 小時。</p>
<p>11. Test temperature rise for rating current 溫升測試</p>	<p>The temperature rise above ambient shall not exceed 30 °C。 溫度不能超過30 °C。 Ambient conditions - Still air 25°C。 周圍環境溫度25°C。</p> <p>Per EIA-364-70 參考規範：EIA-364-70</p>	<p>Subject mated contacts assembled in housing to closed circuit of Power Pin: 30A max, 250V max, Signal Pin: 1A max, 30V max 所述固定在外殼包的端子連結到一個封閉回路中測試，Power Pin:30A max, 250Vmax ,Signal Pin: 1A max, 30V max。</p>
<p>12. Salt Spray 鹽霧</p>	<p>After testing, no damage, Contact Resistance: Maximum Change: Signal Contact: 15 milliohm Power Contact: 0.75. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗: 信號PIN最大變化 15 mΩ;電源PIN最大變化 0.75mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ</p> <p>Per EIA-364-26 適用：EIA-364-26</p>	<p>5±1% salt concentration 48 hours 35±2°C 鹽水濃度 5±1%，時間 48 小時，溫度 35±2°C。</p>





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<p>13.High Temperature Life 高溫老化</p>	<p>After testing, no damage, Contact Resistance: Maximum Change: Signal Contact: 15 milliohm Power Contact: 0.75. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗: 信號 PIN 最大變化 15 mΩ; 電源 PIN 最大變化 0.75mΩ; 耐電壓測試 OK，絕緣阻抗最小 1000 MΩ</p>	<p>Subject product to 105°C for 180 hours continuously. 產品置於105°C連續180小時。</p>
	<p>Per EIA-364-17 適用：EIA-364-17</p>	



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**Table II: Product Qualification Test Sequence**

附表二：產品測試順序

Test Description 測試描述	Test Group 測試分組								
	A	B	C	D	E	F	G	H	I
1. Conformation of Product 產品確認	1,7	1,4	1,9	1,9	1,9	1,3	1,9	1,9	1,9
2. Contact Resistance 接觸阻抗	2,6		2,6	2,6	2,6		2,6	2,6	2,6
3. Insulation Resistance 絕緣阻抗	3		3,7	3,7	3,7		3,7	3,7	3,7
4. Dielectric Withstanding Voltage 耐電壓	4		4,8	4,8	4,8		4,8	4,8	4,8
5. Durability (Repeated Mating/Un-mating) 耐久性	5								
6.1 Connector Pin Mating/Un-mating Force 單支端子插入/拔出力						2			
6.2 Connector Pin Press in/Retention Force 單支端子壓入/拉出 PCB 孔的力量		2							
7. Contact Retention Force 端子保持力		3							
8. Vibration Sinusoidal Low Frequency 低頻 正弦振動			5						
9. Thermal Shock 熱衝擊				5					
10. Humidity (Steady State) 恆溫恆濕					5				
11. Temperature Rise Test 溫升測試							5		
12. Salt Spray 鹽霧								5	
13. High Temperature Life 高溫老化									5



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