



PRODUCT SPECIFICATION

產品規格書

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
Right Angle Header w/Guide Pin Signal/Power Press Fit Type Connector	9303-C1P07S25B7SAAXX	9303-DP04S25P03-XXX
	9303-C4P07S25B7SAAXX	9303-DP03S25P04-XXX

PRODUCT NAME 產品名稱	DOCUMENT No.: 文件編號	Rev. 版本	OUPIIN
Right Angle Header w/Guide Pin Signal/Power Press Fit Type Connector	Q9303-PSS-009	A	歐品電子
	Approved 核准	Checked 審核	Prepared 制作
			XS 11/20'24



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1. SCOPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the Right Angle Header w/Guide Pin Signal /Power Press Fit Type 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Right Angle Header w/Guide Pin Signal /Power Press Fit Type Connector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
EN/ISO5961	Determination of total lead & cadmium content 總鉛和總鎘含量測定
EN1122	Determination of total lead & cadmium content 總鉛和總鎘含量測定
EN13346	Determination of heavy metals content 重金屬含量測定
EPA3052	Determination of total lead & cadmium content 總鉛和總鎘含量測定

3. FEATURE & DIMENSIONS 特征及尺寸

3.1. 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。

3.2. 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。

3.3. 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。



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3.4. 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。

3.5. RATING CURRENT, RATING VOLTAGE AND TR 額定電流,額定電壓及溫升

rating current: see Table I.

額定電流: 見附表一。

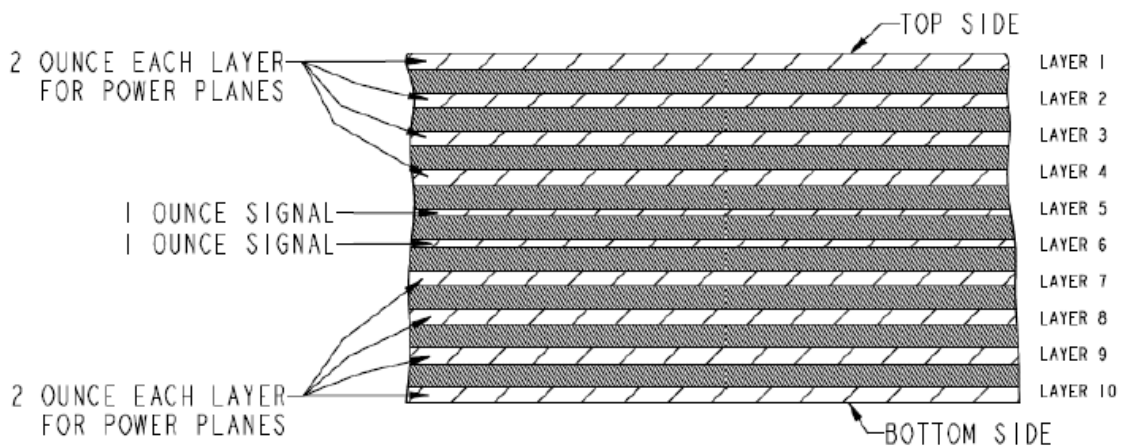
Table I - Current Rating

Types	Pitch (mm)	Single Contact	4 Adjacent Contacts	8 Adjacent Contacts	10 Adjacent Contacts
High Power	7.00	85A	N/A	N/A	N/A
High Power	5.00	85A	75A	63A	58A
Low Power	3.50	51A	45A	38A	35A

Types	Pitch (mm)	Single Contact	25 Adjacent Contacts	35 Adjacent Contacts
Signal Contact	2.00	6.3A	1.8A	1.8A

NOTE: Connectors are applied to test boards with 8 layers X 2 ounces copper for power planes + 2 layers X 1 ounce copper for signal planes.

Schematic of 8+2 layers PCB as below show, Layer 1,2,3,4 are not connected with layer 7,8,9,10





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rating voltage: see **Table 2**

額定電壓: 見附表二。

Table 2- rating voltage:

9303 Series Male/Female Dip/Press Fit Type						
Type	Contact Pitch	Pollution Degree(office Environment)	Material Group of PCB(Base on UL Rating)	MCD of PCB (mm)	Maximum Working Voltage (AC RMS)	Maximum Working Voltage (DC/AC Peak)
Signal	2.00	2	II	0.8	40	56
High Power	5.00			1.82	253	358
	7.00			3.82	531	751
	7.25			4.07	567	802
Low Power	3.50			2.00	285	403
	5.50			4.00	557	788
Signal	2.00			2	IIIa or IIIb	0.8
High Power	5.00	1.82	182			257
	7.00	3.82	382			540
	7.25	4.07	407			575
Low Power	3.50	2.00	200			282
	5.50	4.00	400			565



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3.6 STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

Temperature range: $-40^{\circ}\text{C}\sim+125^{\circ}\text{C}$, including terminal temperature rise for rating current.

Storage Temperature : $0^{\circ}\text{C}\sim+40^{\circ}\text{C}$, Humidity: 80%RH under , Time limit is 12 months the products are stored .

溫度範圍： $-40^{\circ}\text{C}\sim+125^{\circ}\text{C}$,包含接觸端子的額定電流溫升.

儲存溫度： $0^{\circ}\text{C}\sim+40^{\circ}\text{C}$ ，濕度：80%RH以下,產品限存時間為12個月.

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 II**.

本產品設計符合附表二所列的機械，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 III**.

產品品質測試順序見附表三。



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Table II: Test Requirements and Methods

附表二：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	Power pin: 0.7mΩ Max initial. Signal pin: 30.0mΩ Max initial. Power pin 初始狀態 0.7mΩ Max Signal pin 初始狀態 30.0mΩ Max	Subject mated contacts assembled in housing to closed circuit of 20 mA max. Per EIA-364-23 所述固定端子連結到一個封閉回路中測試,電流 20 mA max,電壓 20 mV max。適用：EIA-364-23
3. Insulation Resistance 絕緣阻抗	Signal Pin:500 MΩ Min. Power Pin:1000 MΩ Min. Signal Pin:最小500 MΩ。 Power Pin:最小 1000 MΩ。	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. (500 V DC±10%). Per EIA-364-21 測試產品相鄰端子間以及端子與接地間的電阻 (500 V DC±10%)。適用：EIA-364-21
4. Dielectric Withstanding Voltage 耐電壓	Signal Pin must withstand test potential of 1000 VDC RMS for 1 minute, current leakage must be 1mA Max. Power pin must withstand test potential of 2500VDC for 1 minute, current leakage must be 1.0mA Max. Signal Pin 必須承受測試電壓1000 VDC RMS，時間1 分鐘，漏電流不大於 1 mA。 Power pin 必須承受測試電壓 2500 VDC，時間 1 分鐘，漏電流不大於 1 mA	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. Per EIA-364-20 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。適用：EIA-364-20.
5. Durability (Repeated Mating/Un-mating) 耐久性	after testing. Power Pin Resistance: 1.2mΩ Max. Signal Pin Resistance: 30mΩ Max. 測試後： Power Pin 接觸阻抗最大1.2mΩ。 Signal Pin 接觸阻抗最大30mΩ。	Repeat mate and unmated for connector200 cycles, at a speed of 127mm per minute. Per EIA-364-09 重復進行配合產品200次插拔，速度每分鐘 127mm。適用：EIA-364-09



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<p>6. Contact (lock) Retention Force 端子(耳扣)保持力</p>	<p>Signal Pin: 6N/Pin. Min. Power Pin:10N/Pin. Min Lock:10N/Pin. Min 信号端子：每支最小6N 电源端子：每支最小10N 耳扣：每支最小10N</p>	<p>Apply axial pull out (push) force at a speed of 25.4±3 mm/minute on the contact (Lock) assembled in the housing. Per EIA-364-29 以25.4±3mm/分鐘的速度施加軸向拉(推)力從塑膠本體上拔出(頂退)端子(耳扣)。 適用：EIA-364-29</p>
<p>7.1 Mating /Un-mating Force 插入力/拔出力</p>	<p>Mating force Signal Pin:1N /Pair PIN Max. High Power Pin:7N/Pair PIN Max Low Power Pin:3.5N/Pair PIN Max Un-mating force: Signal Pin:0.15N/Pair PIN Min High Power Pin:2.2N /Pair PIN Min Low Power Pin:1.1N/Pair PIN Min 插入力 Signal Pin:每對PIN最大1N. High Power Pin: 每對PIN最大7N Low Power Pin: 每對PIN最大3.5N 拔出力 Signal Pin: 每對PIN最小0.15N High Power Pin: 每對PIN最小2.2N Low Power Pin: 每對 PIN 最小 1.1N</p>	<p>At a speed of 25.4±3 mm/minute, apply axial insert the mating part into fully or pull out from the subject product. Per EIA-364-13 以 25.4±3 mm/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。適用：EIA-364-13</p>
<p>7.2 Connector Pin Press in/Retention Force 單只端子壓入&拔出 PCB 孔的力量</p>	<p>Press in Force Signal Pin: 30.6N/PIN Max Power Pin: 90N/PIN Max Retention in Force Signal Pin:6.1N/PIN Min. Power Pin:10.55N/PIN Min 壓入力最大 Signal Pin: 30.6N/PIN Max Power Pin: 90N/PIN Max 拉出力最小 Signal Pin:6.1N/PIN Min. Power Pin:10.55N/PIN Min</p>	<p>At a speed of 25.4±3 mm/minute, apply axial Press in PCB to Right Position or Pull out from PCB. 以 25.4±3 mm/分鐘的速度軸向施加壓力將 Press 部分壓入 PCB 孔適當位置或從 PCB 孔中拉出。</p>
<p>7.3 Every Lock Press in/Retention Force 單只耳扣壓入&拔出 PCB 孔的力量</p>	<p>Press in Force per Pin: 15N/PIN Max Retention in Force per Pin: 4.5N/PIN Min 壓入力最大：15N/PIN 拉出力最小：4.5N/PIN</p>	<p>At a speed of 25.4±3 mm/minute, apply axial Press in PCB to Right Position or Pull out from PCB. 以25.4±3 mm/分鐘的速度軸向施加壓力將 Press 部分壓入PCB孔適當位置或從PCB孔中拉出。</p>



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<p>8. Vibration 機械振動</p>	<p>No electrical discontinuity greater than 1μs shall occur, Contact Resistance: Signal Pin:30mΩ Max Power Pin: 1.2mΩ Max. 不允許出現超過1μs 的瞬間斷開， 接觸阻抗: Signal Pin:最大30mΩ。 Power Pin:最大 1.2mΩ。</p>	<p>Subject mated connector to 20-500 Hz traversed in 1 minute at 1.5 mm amplitude, 15 minute each of 3 mutually perpendicular plane, 10 mA potential applied. Per EIA-364-28. 對測試產品，在頻率變化每分鐘從20-500Hz,振幅 1.5 mm 條件下，在互相垂直的三個面上，每個面15分鐘下測量，電流 10 mA。適用：EIA-364-TP-28。</p>
<p>9. Thermal Shock 溫度沖擊</p>	<p>After testing, no damage, Contact Resistance :. Signal Pin:30mΩ Max Power Pin: 1.2mΩ Max. 測試後產品無損壞，接觸阻抗: Signal Pin:最大30mΩ。 Power Pin:最大1.2mΩ。</p>	<p>Temperature range from -40°C to +125°C. Start from -40°C, after 30 minutes, change to +125°C; change time is no more than 5 minutes, total 36 cycles. EIA-364-32. 溫度變化範圍： -40°C~ +125°C。從 -40°C 開始，30 分鐘後換到+125°C，轉換時間不超過5分鐘，共 36 個循環。適用：EIA-364-32</p>
<p>10. Mechanical Shock 機械沖擊</p>	<p>Electrical discontinuity less than 1μs. 電流瞬斷時間小於1μs.</p>	<p>Accelerate Velocity: 50G; Waveform: Half-sine shock plus; Duration:11msec; 3drops each to normal and reversed directions of X,Y and Z axes; Per EIA-364-27 速度 50G; 半正弦波; 持續 11 毫秒; \pmX, \pmY, \pmZ, 方向各 3 次; 適用：EIA-364-TP-27。</p>
<p>11. Humidity- Temperature Cycle 溫濕度循環</p>	<p>After testing, no damage, Maximum Change: Signal Contact: 30mΩ Power Contact: 1.2mΩ. 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 30mΩ; 電源 PIN 最大變化 1.2mΩ; 耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。</p>	<p>Subject product to 25~65°C, 80-100%.R.H 10Cycles, 24 hours/cycle, 240 hours total. Per EIA-364-31 產品置於 25~65°C, 相對濕度：80-100%，循環 10 次， 24 小時/次， 共 240 小時。適用：EIA-364-31</p>
<p>12. Test temperature rise for rating current 溫升測試</p>	<p>The test temperature rise above ambient shall not exceed 30°C. 測試溫度升高值不能超過 30°C. Ambient conditions - Still air 25°C. 周圍環境溫度 25°C。</p>	<p>Subject mated contacts assembled in housing to closed circuit of rating current see Table I. Per EIA-364-70 所述固定在外殼包的端子連結到一個封閉回路中測試，測試電流詳見附表一。適用：EIA-364-70</p>



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<p>13. Salt Spray 鹽霧</p>	<p>After testing, no damage, Maximum Change: Signal Contact: 30mΩ Power Contact: 1.2mΩ. 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 30.0mΩ;電源 PIN 最大變化 1.2mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。</p>	<p>5±1% salt concentration(PH=7.0) ,48 hours 35±2°C.: Per EIA-364-26 鹽水濃度 5±1%(PH=7.0),時間 48 小時，溫度 35±2°C。適用： EIA-364-26</p>
<p>14.High Temperature Life 高溫老化</p>	<p>After testing, no damage, Contact Resistance : Signal Pin:30mΩ Max Power Pin: 1.2mΩ Max. 測試後產品無損壞，接觸阻抗： Signal Pin:最大30mΩ。 Power Pin:最大 1.2mΩ。</p>	<p>Subject product to 125±3°C for 504 hours continuously. Per EIA-364-17 產品置於 125±3°C 連續 504 小時。適用： EIA-364-17</p>
<p>15. Torque Test 扭力測試</p>	<p>After testing, the screws did not slip out, and the plastic did not deform, collapse, or be damaged 測試後螺絲無滑出，塑膠無變形、壓垮、壓傷現象.</p>	<p>Rotate the torque tester at a constant speed until the pointer points to 6Kgf.cm. 勻速旋轉扭力測試儀，直至指針指向 6Kgf.cm。</p>



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Table III: Product Qualification Test Sequence

附表三：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	1,6	1,9	1,9	1,9	1,9	1,9	1,9	1,9
2. Contact Resistance 接觸阻抗		2,5	2,6	2,6	2,6	2,6	2,6	2,6	2,6
3. Insulation Resistance 絕緣阻抗			3,7	3,7	3,7	3,7	3,7	3,7	3,7
4. Dielectric Withstanding Voltage 耐電壓			4,8	4,8	4,8	4,8	4,8	4,8	4,8
5. Durability 耐久性		4							
6. Contact (lock) Retention Force 端子(耳扣)保持力	2								
7.1 Mating/Un-mating Force 插入/拔出力		3							
7.2 Connector Pin Press in/Retention Force 單只端子壓入&拔出PCB孔的力量	3								
7.3 Connector Pin Press in/Retention Force 單只端子壓入&拔出 PCB 孔的力量	4								
8. Vibration Sinusoidal Low Frequency 低頻正弦振動			5						
9. Thermal Shock 溫度衝擊				5					
10. Mechanical Shock 機械沖擊					5				
11. Humidity-Temperature Cycle 溫濕度循環						5			
12. Current rating 溫升測試							5		



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13. Salt Spray 鹽霧								5	
14. High Temperature Life 高溫老化									5
15. Torque Test 扭力測試	5								