PRODUCT SPECIFICATION

產品規格書

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
9312 Series	9312-2P02B7STA01	9312-DP01-002
	9312 -3P02B7WBA01	9312-DP01-001

PRODUCT NAME 產品名稱	**DOCUMENT No.:** 文件編號	**Rev.** 版本	**OUPIIN** 歐品電子
9312 Series	Q9312-PSS-001	A	
	Approved 核准	**Checked** 審核	**Prepared** 制作
			XS 11/24'25

1. SCOPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the 9312 Series，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9312 Series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 connecto 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. 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. 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。

3.3. 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。

3.4. 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參見圖面。

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。

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

Rating current：40A.
額定電流：40A
Rating voltage：54V DC RMS
額定電壓：54V DC RMS

3.7. STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

Temperature range: -40°C~+85°C, including terminal temperature rise for rating current.
Time limt is 18 months the prodoucts are stored.
溫度範圍：-40°C~+85°C，包含接觸端子的額定電流溫升,產品限存時間為 18 個月。

4. ENVIRONMENTAL（環境要求）

4.1. SOLDERABILITY （可焊性）

Connectors meet solder ability to EIA-364-52. Finish shall be free of contaminants.
(產品可焊性符合 EIA-364-52 標準規定的相關要求，表面不得有污染物.)

4.2. RESISTANCE TO SOLDER HEAT （耐焊接熱）

4.2.1. INFRARED REFLOW 紅外線回流焊接

Each cycle consists of three consecutive phases, as shown in **Table III.**
每個焊接週期包括三個連續的階段，見附表三。

4.3. WAVE SOLDER 波峰焊接

Each cycle consists of three consecutive phases. as shown in **Table Ⅳ.**

每個焊接週期包括三個連續的階段,見附表四。

Note: 說明

Device temperature measurements are referenced from the top-center of the package outer surface.

設備溫度量測時以從頂部中間位置測量為准。

5. PERFORMANCE AND TEST DESCRIPTION 性能及測試

5.1. 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。

5.2. 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。

5.3. SAMPLE SELECTION 樣品選擇

Test samples shall be selected at random from current production. No test samples shall be reused. 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。每組測試至少有5個樣品。

5.4. 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**。

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	Male : 5.0mΩ Max initial. Female : 0.5mΩ Max initial. 公端：初始狀態 5.0mΩ Max。 母端：初始狀態 0.5mΩ Max。	Subject mated contacts assembled in housing to closed circuit of 100 mA max. At open circuit voltage of 20 mV max. 所述固定端子連結到一個封閉回路中測試,電流 100 mA max,電壓 20 mV max。
	Per EIA-364-06 適用：EIA-364-06	

3. Insulation Resistance 絕緣阻抗	1500 MΩ Min 最小 1500 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. (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	Must withstand test potential of 1000 VAC RMS for 1 minute, current leakage must be 5.0mA Max. 必須承受測試電壓 1000 VAC RMS,時間 1 分鐘，漏電流不大于 5.0 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 耐久性	After testing ， Male Contact Resistance：5 mΩ max, Female Contact Resistance：0.5 mΩ max. 測試後,公端接觸阻抗最大為 5mΩ，母端接觸阻抗最大為 0.5mΩ。 Per EIA-364-09 適用：EIA-364-09	Repeat mate and unmated for connector 100 cycles, at a speed of 25.4±3 mm per minute. 重復進行配合產品 100 次插拔，速度 25.4±3 mm/分鐘。
6. Conn. Mating /Un-mating Force 連接器插入力/拔出力	Mating force: 20N / pair Max. Un-mating force: 3N / pair Min. 插入力: 最大 20N / pair。 拔出力: 最小 3N / pair。 Per EIA-364-13 適用：EIA-364-13	At a speed of 25.4±3 mm/minute, apply axial insert the mating part into fully or pull out from the subject product. 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。
7. Terminal Retention Force 端子保持力	retention force: 13.6N/Pin Min 保持力：每支最小 13.6N Per EIA-364-29 適用：EIA-364-29	Apply axial pull out force at a speed of 25.4±3 mm/minute on the contact assembled in the housing. Per EIA-364-29. 以 25.4±3mm/分鐘的速度施加軸向拉力從塑膠本體上拔出端子。
8. Lock Retention Force Lock 保持力	Lock:13.6N/Pin Min Lock：每支最小 13.6N Per EIA-364-29 適用：EIA-364-29	Apply axial pull out (push) force at a speed of 25.4±3 mm/minute on the Lock assembled in the housing. 以 25.4±3mm/分鐘的速度施加軸向拉力從塑膠本體上拔出耳扣。

9.Crimp Terminal Retention Force 線端端子保持力	retention force: 50N min 保持力：最小 50N Per EIA-364-29C 適用：EIA-364-29C	Apply axial force to the terminal at a speed of 25.4 ± 3 mm/minute to detach the terminal from the cable. 以 25.4±3 mm/分鐘的速度，對端子施加軸向力，使端子从线缆脱离。
10. Vibration 機械振動	No electrical discontinuity greater than 1μs shall occur, After testing，Male Contact resistance 5.0 mΩ max，Female Contact resistance 0.5 mΩ max. 不允許出現超過 1 μs 的瞬間斷開,測試後,公端接觸阻抗最大 5.0mΩ,母端接觸阻抗最大 0.5mΩ。	Subject mated connector to 10-500 Hz traversed in 1 minute at 1.5mm amplitude, 2 hours each of 3 mutually perpendicular planes, 10 mA potential applied. Per EIA-364-28. 對測試產品，在頻率變化每分鐘從10-500 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。適用：EIA-364-28。
11. Mechanical Shock 機械衝擊	No electrical discontinuity greater than 1us. 电流瞬断时间小于 1us。	Accelerate Velocity:490m/s²; 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 490m/s²; 半正弦波；持续 11 毫秒；±X, ±Y,±Z, 方向各 3 次; 適用：EIA-364-27。
12.Thermal Shock 溫度沖擊	After testing, no damage, Dielectric Withstanding Voltage should be OK, Male Contact resistance 5.0 mΩ max, Female Contact resistance 0.5mΩ max. 測試後產品 無損壞，耐電壓測試OK, 公端接觸阻抗最大5.0mΩ，母端接觸阻抗最大0.5mΩ。	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 5 minutes, total 5 cycles. Per EIA-364-32. 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 5 分鐘， 共 5 個循環。適用：EIA-364-32。
13.High Temperature Life 高溫老化	After testing, no damage, Dielectric Withstanding Voltage should be OK, Male Contact resistance 5.0 mΩ max, Female Contact resistance 0.5mΩ max. 測試後產品 無損壞，耐電壓測試OK, 公端接觸阻抗最大5.0mΩ，母端接觸阻抗最大0.5mΩ。 Per EIA-364-17 適用：EIA-364-17	Subject product to 105°C for 240 hours continuously. 產品置於 105˚C 連續 240 小時。

14. Humidity/ Temperature Cycles 溫濕度循環	After testing, no damage, Dielectric Withstanding Voltage should be OK, Male Contact resistance 5.0 mΩ max, Female Contact resistance 0.5mΩ max. 測試後產品 無損壞，耐電壓測試OK, 公端接觸阻抗最大5.0mΩ，母端接觸阻抗最大0.5mΩ。 Per EIA-364-31 適用：EIA-364-31	Subject product to 25~65°C, 90-95%.R.H10Cycles. Each cycle lasted 24 hours. 產品置於 25~65℃,相對濕度：90-95%,循環 10 次, 24 小時循環一次。
15. Salt Spray 鹽霧	After testing, no damage, Dielectric Withstanding Voltage should be OK, Male Contact resistance 5.0 mΩ max, Female Contact resistance 0.5mΩ max. 測試後產品 無損壞，耐電壓測試OK, 公端接觸阻抗最大5.0mΩ，母端接觸阻抗最大0.5mΩ。 Per EIA-364-26 適用：EIA-364-26	5±1% salt concentration(PH=7.0) ,48 hours 35±2°C. 鹽水濃度 5±1%(PH=7.0),時間 48 小時，溫度 35±2℃。
16. Solder-ability 可焊性	Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10 X for any damage such as pinholes, void or rough surface.5% maximum dewetting. 產品在測試完成後，在放大倍數為 10 倍的顯微鏡下，檢查外觀損壞如：小孔，空焊，外觀粗糙度。未沾錫區不大於5%。 Per EIA-364-52 適用：EIA-364-52	Solder-bath temperature 245±5°C,duration 5 sec. 錫爐溫度爲 245±5 度，沾錫時間 5 秒。
17. Temperature rise (rating current) 溫升測試	Temperature rise: 30℃ Max. 溫升：最大30℃。 Per EIA‐364‐70 適用：EIA-364-70	Mate connectors, measure the temperature rise at rated current until temperature stable. Ambient conditions - Still air 25℃. 配對連接器，測量額定電流下的溫升，直至溫度穩定，周圍環境溫度 25℃。

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	J	K	L
1. Confirmation of Product 產品確認	1,7	1	1,3	1	1	1	1	1	1	1	1	1
2.Contact Resistance 接觸阻抗	2,6				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		3,7
4.Dielectric Withstanding Voltage 耐電壓	4				4,8	4,8	4,8	4,8	4,8	4,8		4,8
5.Durability 耐久性	5											
6. Conn. Mating /Un-mating Force 連接器插入力/拔出力		2										
7. Terminal Retention Force 端子保持力		3										
8. Lock Retention Force Lock 保持力			2									
9.Crimp Terminal Retention Force 線端端子保持力				2								
10. Vibration 機械振動					5							
11. Mechanical Shock 機械衝擊						5						
12.Thermal Shock 溫度沖擊							5					
13.High Temperature Life 高温老化								5				
14. Humidity/Temperature Cycles 溫濕度循環									5			
15. Salt Spray 鹽霧										5		
16. Solder-ability 可焊性											2	

17. Temperature rise (rating current) 溫升測試												5

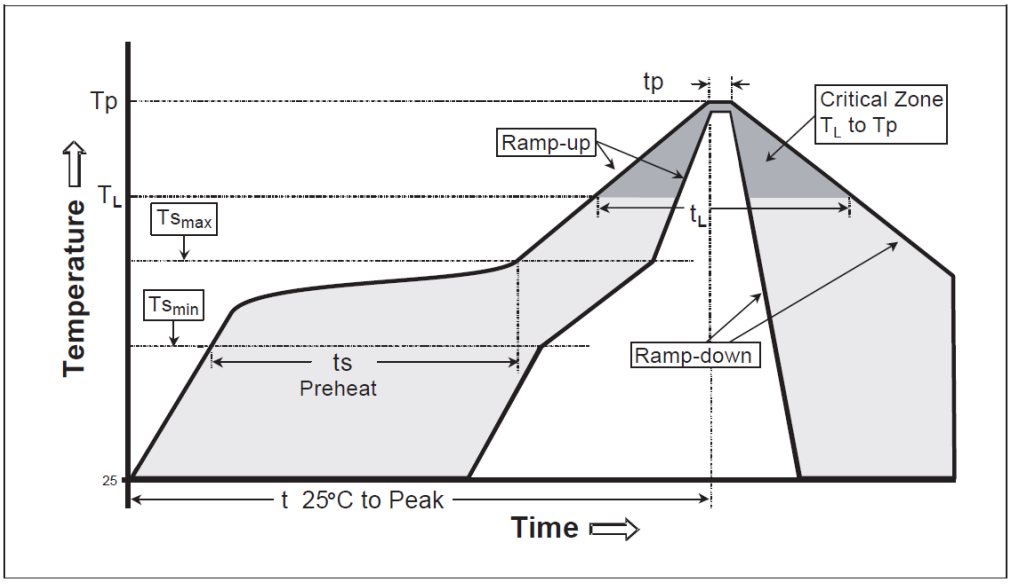
Table III: Reflow Soldering Profile

附表三：回流焊接曲線圖

Lead-free reflow profile requirements:

無鉛回流焊接曲線

Parameter 参数	Reference 参考	Specification 规格
升溫區 Ramp-up	25℃ ~150℃	3°C /S Max
預熱區(Pre-heatimg) Temperature Min(Ts_{min}) Temperature Max(Ts_{max}) Time(Ts_{min} to ts_{max})	150℃ ~200℃	60~180sec
Time maintained above(保持时间) Temperature(T_L) Time(t_L)	217℃	60~150sec
Time within 5°C of actual peak Temperature(tp)	260-/+5℃	20~40sec
冷卻區 Cooling	Ramp-Down Rate	6°C /S(Max)
Time 25°C to Peak Temperature	25°C ~ Peak Temp.	8 minutes maximum

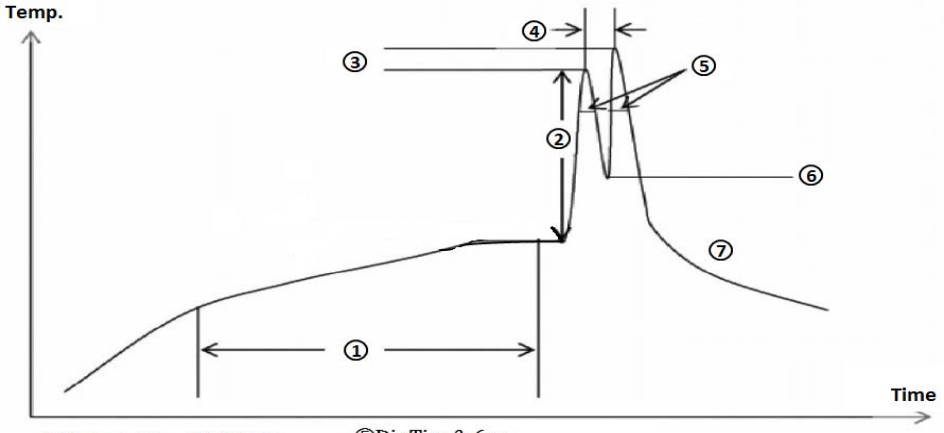


This profile is the minimum requirement for evaluating soldering heat resistance of components .Heat transfer method used for reflow soldering is hot air convection .The actual air temperatures used to achieve the specified profile largely dependent on the reflow equipment.

這個曲線圖是評估元件器件焊接抗熱的基本要求。應用在對焊接中的熱傳遞方式是熱氣對流。達到特定曲線圖地實際溫度主要依賴與回流焊接設備。

Table IV : Weld the curve graph in crest

附表四：波峰焊曲線圖



① Preheat 80sec（1~2℃/s）
② ΔT<150℃
③235~265℃
④1~3sec
⑤Dip Time 3~6sec
⑥>200℃
⑦Cooling -5℃/s