PRODUCT SPECIFICATION

(產品規格書)

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
Board to Board 1.00mm Pitch Female (Male) SMD Type Connector	2348-xxG(C)xxDxNxT-x	2348-D0000-002
	2349-xxG(C)xxDxNxT-x	2349-D0000-002

PRODUCT NAME (產品名稱)	DOCUMENT No.: (文件編號)	Rev. (版本)	OUPIIN (歐品)
Board to Board 1.00mm Pitch Female (Male) SMD Type Connector (RoHS)	Q2348-PSS-K001	C (I800)	
	Approved (核准)	Checked (審核)	Prepared (製作)
	Q.A. Section Chief	Ruru Chen	2022.12.21

1. SCOPE 範圍

This product specification defines the product performance and the test methods to ascertain the performance of the Board to Board 1.00mm Pitch Female (Male) SMD 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生產的 Board to Board 1.00mm Pitch Female (Male) SMD 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

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

Rating current is 0.5 A, rating voltage is 150 V DC/AC RMS.

額定電流 0.5A，額定電壓150 V DC/AC RMS.

3.7. OPERATING TEMPERATURE　使用溫度

Temperature range: -40℃~+85℃, including terminal temperature rise for rating current.

溫度範圍：-40℃~+85℃，包含接觸端子的額定電流溫升

4. ENVIRONMENTAL　環境要求

4.1. SOLDERABILITY　可焊性

Connectors meet solder-ability to EIA-364-52.and 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

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準.

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.
除非特別註明，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. 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.

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 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	40 mΩ Max. initial. 初始狀態最大 40 mΩ	Subject mated contacts assembled in housing to closed circuit of 100 mA max. 20 mV max. Per EIA-364-06 所述固定在外殼裡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 適用：EIA-364-06
3. Insulation Resistance 絕緣阻抗	100 MΩ Min. 最小 100 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, Condition B 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，條件 B
4. Dielectric Withstanding Voltage 耐電壓	Connector must withstand test potential of 500 VAC RMS for 1 minute, current leakage must be 0.2mA Max. 產品必須承受測試電壓 500 VAC RMS，時間 1 分鐘，漏電流不大於 0.2mA.	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/Unmated) 耐久性	After testing, Contact Resistance 50 mΩ Max. 測試後，接觸阻抗最大 50 mΩ	Repeat mate and unmated for connector 100 cycles, at a speed of 10 cycles per minute. Per EIA-364-09 重復進行配合產品 100 次插拔，速度每分鐘 10 次 適用：EIA-364-09

6. Mating/Un-mating Force 插入力/拔出力	Mating force：0.7 X Pin N Max Un-mating force：0.15 X Pin N Min. 每對插入力最大 0.7 X Pin N 每對拔出力最小 0.15 X Pin N	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，軸向完全插入對配外掛程式到被測產品中或從被測產品中拔出。 適用：EIA-364-13
7. Contact Retention Force 端子保持力	2.0 N/Pin. Min. 最小 2.0 N/Pin	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±3 mm/分鐘的速度施加軸向拉力從塑膠本體上拔出端子 適用：EIA-364-29
8. Vibration Sinusoidal Low Frequency 低頻正弦振動	No electrical discontinuity greater than 1μs shall occur, Contact Resistance 50 mΩ Max. 不允許出現超過 1μs 的瞬間斷開，接觸阻抗最大 50 mΩ	Subject mated connector to 10-55-10 Hz traversed in 1 minute at 1.5 mm amplitude, 2 hours 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 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 適用：EIA-364-28
9. Thermal Shock 溫度沖擊	After testing, no damage, Contact Resistance 50 mΩ Max. Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ Min. 測試後，產品無損壞，接觸阻抗最大 50 mΩ；耐電壓測試 OK，絕緣阻抗最小 100 MΩ	Temperature range from -55℃ to+85℃. Start from -55℃, after 30 minutes, change to +85℃ change time is no more than 30 seconds, total 5 cycles. Per EIA-364-32 溫度變化範圍：-55℃~ +85℃。從 -55℃開始，30 分鐘後換到+85℃，轉換時間不超過 30 秒，共 5 個循環 適用：EIA-364-32
10. Humidity (Steady State) 恆溫恆濕	After testing, no damage, Contact Resistance 50 mΩ Max. Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ Min. 測試後，產品無損壞，接觸阻抗最大 50 mΩ；耐電壓測試 OK，絕緣阻抗最小 100 MΩ	Temperature：40±2℃ Relative Humidity：90-95%. Duration：96 Hours. Per EIA-364-31 溫度：40±2℃ 相對濕度：90-95% 持續時間：96 小時 適用：EIA-364-31

11. 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%	Soldering time: 5 seconds. Temperature: 245±5℃. Per EIA-364-52 焊接時間：5秒 溫度：245±5℃ 適用：EIA-364-52
12. Salt Spray 鹽霧	After testing, no damage, Contact Resistance 50 mΩ Max. Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ Min. 測試後，產品無損壞，接觸阻抗最大50 mΩ；耐電壓測試OK，絕緣阻抗最小100 MΩ	5±1% salt concentration, 48 hours, 35±2℃. Per EIA-364-26. 鹽水濃度5±1%，時間48小時，溫度35±2℃ 適用：EIA-364-26
13. High Temperature Life 高溫老化	After testing, no damage, Contact Resistance 50 mΩ Max. Dielectric Withstanding Voltage should be OK, Insulation Resistance should be 100 MΩ Min. 測試後，產品無損壞，接觸阻抗最大50 mΩ；耐電壓測試OK，絕緣阻抗最小100 MΩ	Subject product to 125±3℃ for 96 hours continuously. EIA-364-17 產品置於125±3℃，連續96小時 適用：EIA-364-17

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**
1. Conformation of Product 產品確認	**1,7**	**1,4**	**1,9**	**1,9**	**1,9**	**1,3**	**1,9**	**1,9**
2. Contact Resistance 接觸阻抗	**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**
4.Dielectric Withstanding Voltage	**4**		**4,8**	**4,8**	**4,8**		**4,8**	**4,8**
5.Durability(Repeated Mating/Un-mating)	**5**							
6. Mating/Un-mating Force 插入/拔出力		**2**						
7. Contact Retention Force 端子保持力		**3**						
8. Vibration Sinusoidal Low Frequency			**5**					
9. Thermal Shock 溫度沖擊				**5**				
10. Humidity (Steady State) 恆溫恆濕					**5**			
11. Solder-ability 可焊性						**2**		
12. Salt Spray 鹽霧							**5**	
13. High Temperature Life 高溫老化								**5**

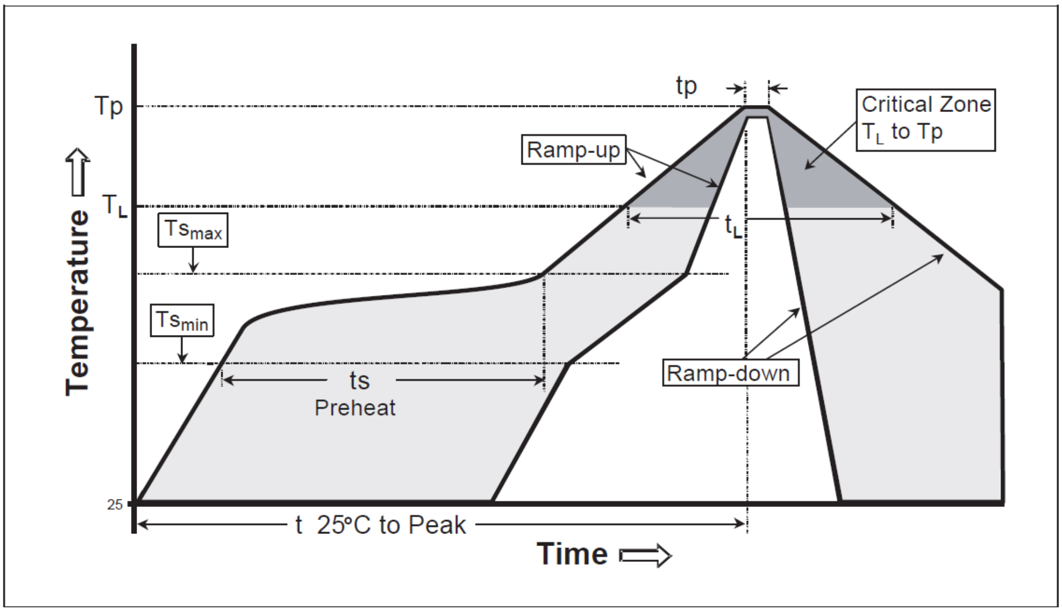
Table III : Reflow Soldering Profile

附表三：回流焊接曲線圖

Lead-free reflow profile requirements:

無鉛回流焊接曲線

Parameter 參數	Reference 參考	Specification 規格
升溫區 Ramp-up	25℃ ~150℃	3℃ /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(保持時間) 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℃ /S(Max)
Time 25°C to Peak Temperature	25℃ ~ 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。