



PRODUCT SPECIFICATION

(產品規格書)

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
9192 Series Busbar Clip Power Connector	9192-A02xSxA	9192 -D0000-xxx

PRODUCT NAME (產品名稱)	DOCUMENT No.: (文件編號)	Rev. (版本)	OUPIIN
9192 Series Busbar Clip Power Connector (RoHS)	Q9192-PSS-K005	A (I800)	(歐品)
	Approved (核准)	Checked (審核)	Prepared (製作)
	Q.A. Section Chief	Ruru Chen	2022.11.16



PRODUCT SPECIFICATION OF OUPIIN

1. SCOPE 範圍

This product specification defines the product performance and the test methods to ascertain the performance of the Busbar Clip Power 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Busbar Clip Power Connector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。



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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 : Power Pin 200A. Rating Voltage : 48 V AC RMS.

額定電流：Power Pin 200A，額定電壓：48 V AC RMS

3.7. STORAGE AND OPERATING TEMPERATURE 貯存與使用溫度

Temperature range : $-40^{\circ}\text{C}\sim+105^{\circ}\text{C}$, 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 18 months the products are stored.

溫度範圍： $-40^{\circ}\text{C}\sim+105^{\circ}\text{C}$ ，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18個月

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

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

4.2.1 WAVE SOLDER 波峰焊接

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述的機械，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. Samples are pre-conditioned with 10 cycles 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

5.4. TEST SEQUENCE 測試順序

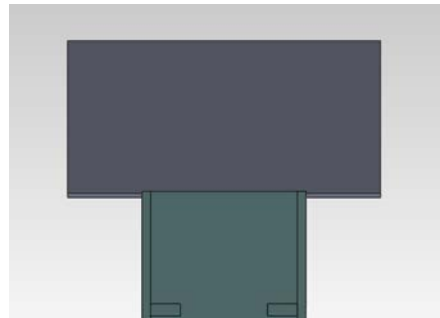
Product qualification test sequence as shown in Table II.

產品品質測試順序見附表二

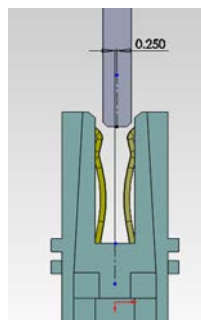
6. MATING DEMAND 對配要求

6.1. 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 no specified in transverse and 0.25mm 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不指定偏差和縱向可接受0.25mm的偏差



in transverse axes 在橫向方向

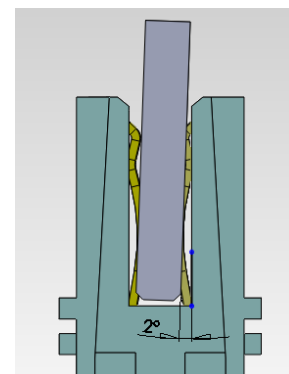
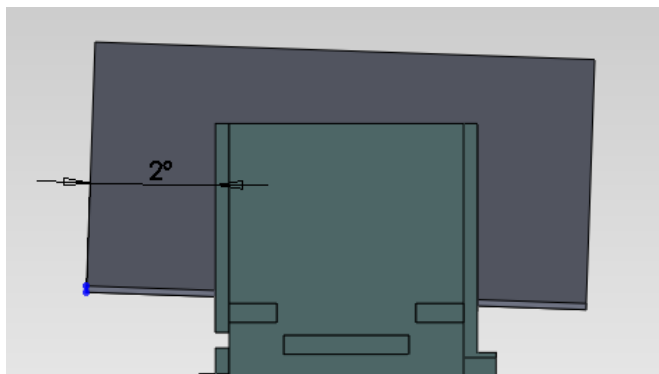


in longitudinal axes 在縱向方向

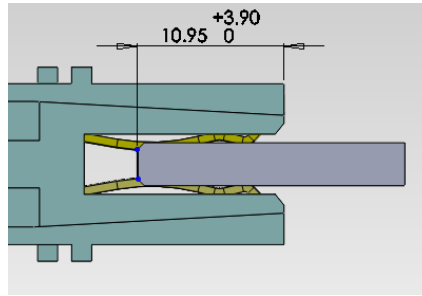
6.2. Inclination 傾向

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縱向2°的最大傾斜對插角度



6.3. Products insertion depth dimension 產品插入深度尺寸



6.4. Products recommendation insertion force 產品推薦插入力量

Contact	Force (MAX)
Power Pin	500N



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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	Power pin : 0.2mΩ Max. initial. Power pin 初始狀態最大 0.2mΩ	Subject specimens to 100 mA max and 20 mV max open circuit voltage. Per EIA-364-06. 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 適用：EIA-364-06
3. Insulation Resistance 絕緣阻抗	Power pin : 15000 MΩ Min. Power pin: 1500MΩ Min. after moisture Power pin 最小 15000 MΩ. Power pin 最小 1500 MΩ.潮濕環境下	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. Per EIA-364-21. (500 V DC±10%). 測試產品相鄰端子間以及端子與接地間的電阻 適用：EIA-364-21. (500 V DC±10%)
4. Dielectric Withstanding Voltage 耐電壓	Power pin must withstand test potential of 1500VAC RMS for 1 min ,Due to exceed leakage current 0.2mA Max. One minute hold with no breakdown or flash. Power pin 必須承受測試電 1500VAC RMS 時間 1 分鐘，漏電流不超過 0.2mA. 一分鐘不得有損傷或閃電	Test between 2 connectors when mountend on a PCB with a pitch of 25±1mm over. Per EIA-364-20. 兩個測試連接器之間的 pitch 為 25±1mm. 適用：EIA-364-20
5. Durability (Repeated Mating/Un-mating) 耐久性	After test, Contact resistance 0.2 mΩ Max 測試後，接觸阻抗 0.2 mΩ Max	Repeat mate and unmated for connector 50 cycles, at a speed of 127 mm per minute. Per EIA-364-09. 重復進行配合產品 50 次插拔，速度 127mm/分鐘 適用：EIA-364-09



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<p>6. Hot insertion/ extraction 熱插拔</p>	<p>After test, Contact resistance 0.2 mΩ Max 測試後，接觸阻抗 0.2 mΩ Max</p>	<p>Mating/unmating cycles : 50 Min. Mating/unmating speed : less than 10 cycles/minute, current : 150A 以不少於 10 cycles/minute 的速度，做最少 50 次 的插拔，電流 150A</p>
<p>7. Mating /Un-mating Force 插入力/拔出力</p>	<p>Mating Force : 60N Max (misaligned pitch) 40N Max (nominal pitch) Un-mating Force : 12.5N Min (Plated Tin) 8N Min (Plated Ag) 插入力： 60N Max (misaligned pitch) 40N Max (nominal pitch) 拔出力： 12.5N Min (鍍錫端子) 8N Min (鍍銀端子)</p>	<p>At a speed of 25.4mm/minute, apply axial insert the mating part into fully or pull out from the subject product. Per EIA-364-13 以 25.4mm/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</p>
<p>8. Vibration Sinusoidal Low Frequency 低頻正弦振動</p>	<p>After testing, No electrical discontinuity less than 1ms shall occur, Contact Resistance 0.2 mΩ max. 測試後，不允許出現超過 1 ms(毫秒)的 瞬間斷開，接觸阻抗 0.2 mΩ Max</p>	<p>Subject mated connector to 50-2000 Hz traversed in 1 minute at 9.26g rms, 2 hours each of 3 mutually perpendicular planes, potential applied. Per EIA-364-2, Test Condition V. 50-2000Hz, 9.26g RMS 條件下，在互相垂直的三 個面上，每個面 2 小時下測量電流 適用：EIA-364-28，測試條件五</p>
<p>9. Thermal Shock 溫度沖擊</p>	<p>After testing, no damage, Contact Resistance 0.2 mΩ max. 測試後，產品無損壞，接觸阻抗 0.2 mΩ Max</p>	<p>Temperature range from -40°C to +105°C. Start from -40°C, after 30 minutes, change to +105°C; change time is no more than 5 minutes, total 25 cycles. Per EIA-364-32. 溫度變化範圍：-40°C~ +105°C。從 -40°C 開始， 30 分鐘後換到+105°C，轉換時間不超過 5 分鐘， 共 25 個循環 適用：EIA-364-32</p>
<p>10. Humidity- Temperature Cycle 恆溫恆濕</p>	<p>After testing, no damage, Contact Resistance 0.2 mΩ max. 測試後，產品無損壞，接觸阻抗 0.2 mΩ Max。</p>	<p>Subject product : temperature between 25°C ~65°C at 80% to 98 %RH, 10 Cycles. Each cycle lasted 24 hours. Per EIA-364-31, method III, condition B. 產品置於 25°C ~65°C，相對濕度：80%到 98%， 循環 10 次，24 小時循環一次 適用：EIA-364-31，方法三，條件 B</p>



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<p>11. Test temperature rise for rating current 溫升測試</p>	<p>The temperature rise above ambient shall not exceed 30°C. Ambient conditions - Still air 25°C. 溫度不能超過 30°C 周圍環境溫度 25°C</p>	<p>Subject mated contacts assembled in housing to closed circuit of Power Pin 200A max, Test Specification for 8 hours continuously. Per EIA-364-70 所述固定在外殼包的端子連結到一個封閉迴路中測試，Power Pin 200A max，連續 8 小時 適用：EIA-364-70</p>
<p>12. Salt Spray 鹽霧</p>	<p>After testing, no damage, Contact Resistance 0.2 mΩ max. 測試後，產品無損壞，接觸阻抗 0.2 mΩ Max</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>13. High Temperature Life 高溫老化</p>	<p>After testing, no damage, Contact Resistance 0.2 mΩ max. 測試後產品無損壞，測試後接觸阻抗 0.2 mΩ Max</p>	<p>Subject product to 105°C for 1000 hours continuously, Two hours recovery time. Per EIA-364-17,method A 產品置於 105°C 連續 1000 小時。恢復時間 2 小時 適用：EIA-364-17，方法 A</p>
<p>14. Solderability 沾錫性</p>	<p>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%</p>	<p>Solder-bath temperature 245±5°C, duration 5 sec. Per EIA-364-52. 錫爐溫度為 245±5°C，沾錫時間 5 秒 適用：EIA-364-52</p>



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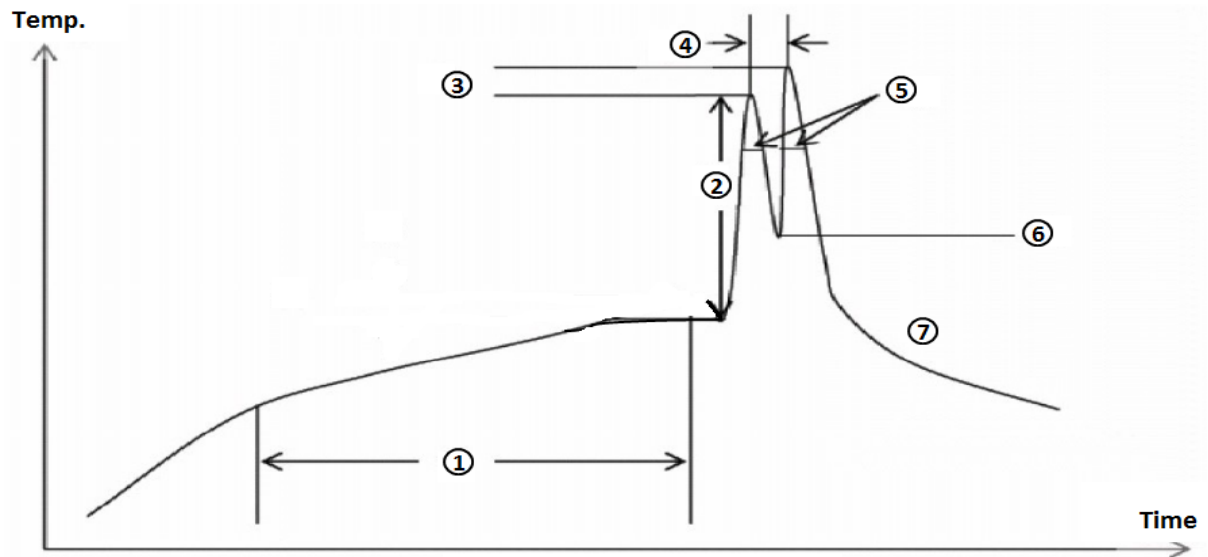
Table II : Product Qualification Test Sequence

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	J
1. Conformation of Product 產品確認	1,7	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,3
2. Contact Resistance 接觸阻抗	2,6	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	3,7	
4. Dielectric Withstanding Voltage 耐電壓	4	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	
5. Durability 耐久性	5									
6. Hot insertion/extraction 熱插拔		5								
7. Mating/Un-mating Force 插入/拔出力			5							
8. Vibration Sinusoidal Low Frequency 低頻正弦振動				5						
9. Thermal Shock 溫度沖擊					5					
10. Humidity-Temperature Cycle 溫濕度循環						5				
11. Current rating 溫升測試							5			
12. Salt Spray 鹽霧								5		
13. High Temperature Life 高溫老化									5	
14. Solderability 沾錫性										2

Table III : Weld the curve graph in crest

附表三：波峰焊曲線圖



- | | |
|----------------------------------|-------------------------|
| ① Preheat 80sec (1~2°C/s) | ⑤ Dip Time 3~6sec |
| ② $\Delta T < 150^\circ\text{C}$ | ⑥ $> 200^\circ\text{C}$ |
| ③ 235~265°C | ⑦ Cooling -5°C/s |
| ④ 1~3sec | |