



## PRODUCT SPECIFICATION OF OUPIIN

# PRODUCT SPECIFICATION

## 產品規格書

| 產品名稱 Description                                        | 產品料號 Part No.    | 圖號 Drawing No. |
|---------------------------------------------------------|------------------|----------------|
| 9311 Series<br>PwrFULL™ Male / Female<br>Press Fit Type | 9311-1P02B7PAA01 | 9311-DP02-001  |
|                                                         | 9311-2P02B7PAA01 | 9311-DP02-002  |

| PRODUCT NAME<br>產品名稱                                    | DOCUMENT No.:<br>文件編號 | Rev.<br>版本    | OUPIIN<br>歐品   |
|---------------------------------------------------------|-----------------------|---------------|----------------|
| 9311 Series<br>PwrFULL™ Male / Female<br>Press Fit Type | Q9311-PSS-001         | A             |                |
|                                                         | Approved<br>核准        | Checked<br>審核 | Prepared<br>製作 |
|                                                         | Q.A. Section Chief    | Ruru Chen     | 20205/4/8      |



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## 1. SCOPE 範圍

This product specification defines the product performance and the test methods to ascertain the performance of the 9311 Series Power 100AMP 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 9311 Series Power 100AMP 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  |

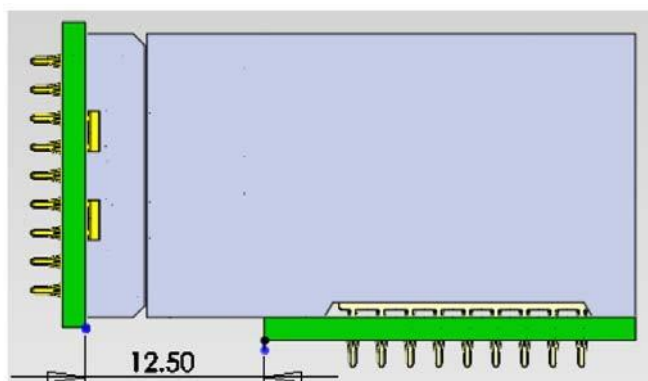
## 3. FEATURE & DIMENSIONS 特徵及尺寸

### 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. 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



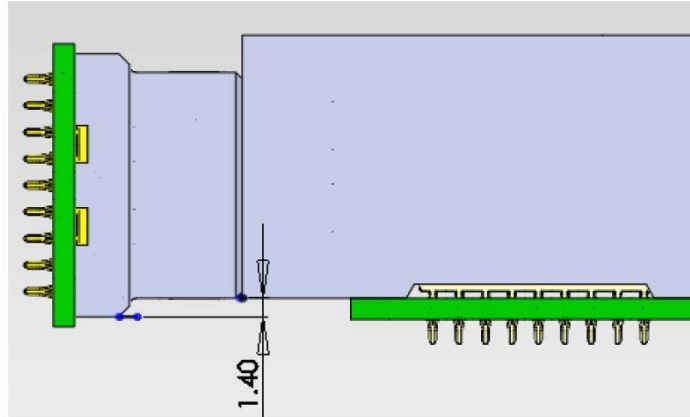


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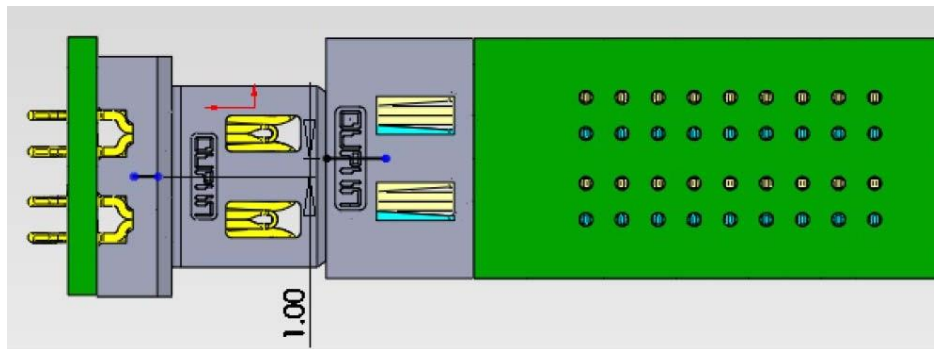
## 3.2.2. Product oriented capability 產品導向能力

The design of the centering and guiding in the Mpc of the free and fixed board connector modules shall accept a misalignment of 1.40mm in transverse and 1.00mm 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1.40mm和縱向可接受1.00mm的偏差。



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

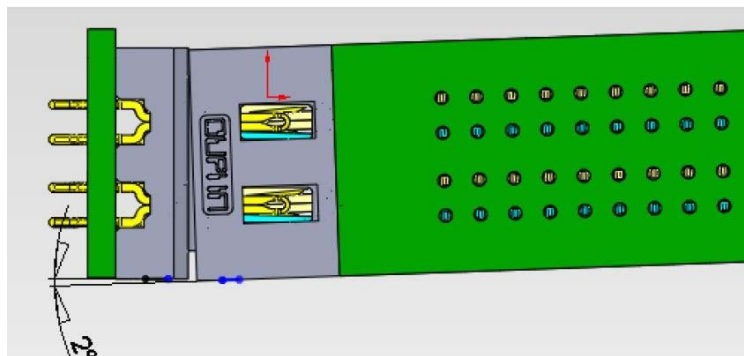


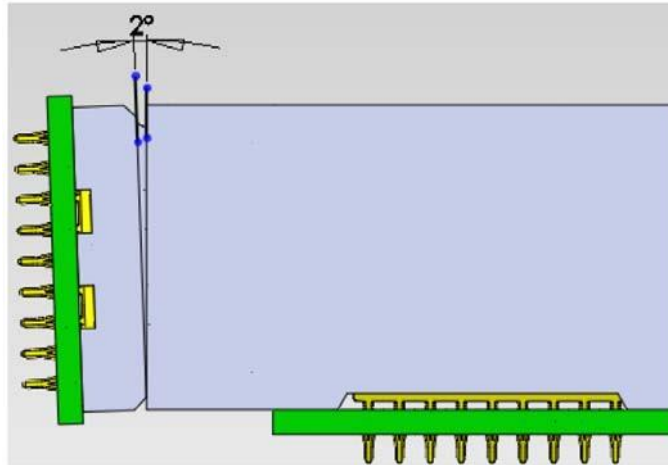
allowed misalignment in longitudinal axes在縱向方向允許對插偏差量

## 3.2.3. Inclination 傾向

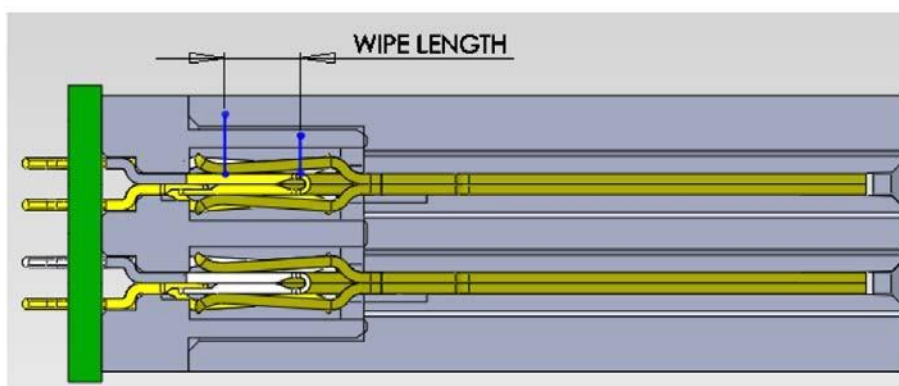
The center and guiding in the Mpc of the free and the fixed board connector modules shall allow an Initial angular misalignment of 2 from in the transverse and 2 from in longitudinal axes.

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





## 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            | 3.67mm           |

## 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 參考圖面。

## 3.4. 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。

## 3.5. 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見圖面。



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### 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。

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

Rating current : Power pin 100A.

Rating voltage : 600V.

額定電流：Power pin 100A，

額定電壓：600 V。

### 3.8. STORAGE AND OPERATING TEMPERATURE 儲存與使用溫度

Temperature range :  $-55^{\circ}\text{C}\sim+125^{\circ}\text{C}$ , 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： $-55^{\circ}\text{C}\sim+125^{\circ}\text{C}$ ，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 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.

除非特別註明，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 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。

### 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 Procedures**

**附表一：測試要求與方法**

| Items<br>項目                                    | Requirements<br>要求                                                                                                                              | Test Methods<br>檢測方法                                                                                                                                                                                                     |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Confirmation of Product<br>產品確認             | Product shall be conforming to the requirements of applicable product drawing.<br>產品必須符合相關產品圖面的要求。                                              | Visually, dimensions and functionally inspected per applicable product drawing.<br>依相關產品圖面，檢查產品的外觀、尺寸及功能。                                                                                                                |
| 2. Contact Resistance<br>接觸阻抗                  | Power Pin: 0.3mΩ Max. initial.<br>Power Pin 初始狀態最大 0.3mΩ。                                                                                       | Subject mated contacts assembled in housing to closed circuit.<br>Per EIA 364-06<br>所述固定在外殼裡的端子連結到一個封閉回路中測試。<br>適用：EIA 364-06                                                                                            |
| 3. Insulation Resistance<br>絕緣阻抗               | Power pin : 1000 MΩ Min.<br>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.<br>Per EIA 364-21. (500V DC±10%).<br>測試產品相鄰端子間以及端子與接地間的電阻。<br>適用：EIA 364-21，(500V DC±10%)。 |
| 4. Dielectric Withstanding Voltage<br>耐電壓      | Contact must withstand test potential of 2500V DC for 1 minute, current leakage must be 1.0mA Max.<br>產品必須承受測試電壓 2500V DC，時間 1 分鐘，漏電流不大於 1.0mA。 | Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector.<br>Per EIA-364-20.<br>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。<br>適用：EIA-364-20                       |
| 5. Durability (Repeated Mating/Unmated)<br>耐久性 | After testing, Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin).<br>測試後，Power pin 接觸阻抗比初始值增大不超過 0.25mΩ。            | Repeat mate and unmated for connector 50 cycles, at a speed of 25.4 mm per minute.<br>Per EIA-364-09<br>重複進行配合產品 50 次插拔，速度 25.4mm/分鐘。<br>適用：EIA-364-09                                                                   |



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|                                                                                   |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Contact Retention Force<br>端子保持力                                               | Power pin : 35N/Pin Min.<br>Power pin 每 Pin 最小 35N。                                                                                                                                                              | Apply axial pull out force at a speed of 25.4±3 mm/minute on the contact assembled in the housing.<br>Per EIA-364-29.<br>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。<br>適用：EIA-364-29。                                                                           |
| 7. Compliant Pin Insertion Force<br>壓接力<br>Compliant Pin Retention Force<br>壓接保持力 | Press in force per pin : 67N Max.<br>Per Power Pin Retention Force in PCB : 6.7N Min.<br>單 Pin 端子魚眼插入力最大 67N。<br>單 Pin 端子魚眼退板力最小 6.7N。                                                                           | At a speed of 25.4 mm/minute. Apply axial press in PCB to right position.<br>Per EIA-364-37。<br>以 25.4mm/分鐘的速度施加軸向拉力從 PCB 板上拔出端子。<br>適用：EIA-364-37。                                                                                                    |
| 8. Mating/Un-mating Force<br>插入力/拔出力                                              | 25N/Pair maximum engaging force.<br>6.5N/Pair minimum separating force.<br>插入力最大 25N/Pair Max，<br>拔出力最小 6.5N/Pair Min。                                                                                           | At a speed of 25.4mm/minute, apply axial insert the mating part into fully or pull out from the subject product.<br>以 25.4mm/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。                                                                                          |
| 9. Vibration Sinusoidal Low Frequency<br>低頻正弦振動                                   | After testing, no electrical discontinuity greater than 1μs shall occur. Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin).<br>測試後，不允許出現超過 1μs 的瞬間斷開；Power pin 接觸阻抗比初始值增大不超過 0.25mΩ。 | Subject mated connector to 20-500-20 Hz traversed in 1 minute at 1.52mm amplitude, 15 minutes each of 3 mutually perpendicular planes, potential applied.<br>Per EIA-364-28.<br>20-500-20Hz，振幅 1.52 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。<br>適用：EIA-364-28 |
| 10. Mechanical Shock<br>機械沖擊                                                      | After testing, no electrical discontinuity greater than 1μs shall occur. Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin).<br>測試後，不允許出現超過 1μs 的瞬間斷開；Power pin 接觸阻抗比初始值增大不超過 0.25mΩ。 | Subject mated connector and shock at 50g with 1/2 sine wave (11 millisecond) shocks in the 3 axes. (18 shocks total)<br>Per EIA-364-27<br>加載 50g，半正弦波，持續 11 毫秒，三個方向共 18 次。<br>適用：EIA-364-27。                                                           |



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|                                                                      |                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>11. Thermal Shock<br/>溫度沖擊</p>                                    | <p>After testing, no damage. Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin). Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min.</p> <p>測試後，產品無損壞，Power pin 接觸阻抗比初始值增大不超過 0.25mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。</p> | <p>Temperature range from -55°C to +125°C. Start from -55°C, after 30 minutes, change to +125°C; change time is no more than 1 minutes, total 5 cycles.</p> <p>Per EIA-364-32.</p> <p>溫度變化範圍：-55°C~ +125°C。從 -55°C開始，30 分鐘後換到+125°C，轉換時間不超過 1 分鐘，共 5 個循環。</p> <p>適用：EIA-364-32</p> |
| <p>12. Humidity<br/>Temperature<br/>Cycle<br/>溫濕度循環</p>              | <p>After testing, no damage. Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin). Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min.</p> <p>測試後，產品無損壞，Power pin 接觸阻抗比初始值增大不超過 0.25mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。</p> | <p>Mate connectors :<br/>Expose to 10 cycles, 24H/cycle.<br/>From 25°C / 80% RH to 65°C / 98% RH.<br/>Per EIA-364-31.</p> <p>互配連接器：<br/>循環 10 次，24 小時一次，從 25°C / 80%濕度到 65°C / 98%。</p> <p>適用：EIA-364-31</p>                                                                       |
| <p>13. Test temperature<br/>rise for rating<br/>current<br/>溫升測試</p> | <p>he temperature rise above ambient shall not exceed 30°C.<br/>Ambient conditions - Still air 25°C.<br/>溫度不能超過 30°C。<br/>周圍環境溫度 25°C。</p>                                                                                                                              | <p>Subject mated contacts assembled in housing to closed circuit of Power Pin 100A max.<br/>Per EIA-364-70<br/>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 最大 100A。</p> <p>適用：EIA-364-70</p>                                                                                                 |
| <p>14. Salt Spray<br/>鹽霧</p>                                         | <p>After testing, no damage. Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin). Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min.</p> <p>測試後，產品無損壞，Power pin 接觸阻抗比初始值增大不超過 0.25mΩ；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.<br/>Per EIA-364-26.<br/>鹽水濃度 5±1% (PH=7.0)，時間 48 小時，溫度 35±2°C。</p> <p>適用 EIA-364-26。</p>                                                                                                                                    |



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|                                   |                                                                                                                                                                                                                                                              |                                                                                                                     |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 15. High Temperature Life<br>高溫老化 | After testing, no damage. Contact Resistance rise in relation to initial values 0.25mΩ max. (power pin). Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min.<br>測試後，產品無損壞，Power pin 接觸阻抗比初始值增大不超過 0.25mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。 | Subject product to 125°C for 1000 hours continuously.<br>Per EIA-364-17.<br>產品置於 125°C 連續 1000 小時。<br>適用：EIA-364-17 |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|



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**Table II : Product Qualification Test Sequence**

附表二：產品測試順序

| Test Description<br>測 試 描 述                          | Test Group 測試分組 |     |     |     |     |     |     |     |     |     |
|------------------------------------------------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                                      | A               | B   | C   | D   | E   | F   | G   | H   | I   | J   |
| 1. Conformation of Product<br>產品確認                   | 1,7             | 1,4 | 1,9 | 1,9 | 1,9 | 1,9 | 1,9 | 1,9 | 1,9 | 1,9 |
| 2. Contact Resistance<br>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<br>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<br>耐電壓            | 4               |     | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 |
| 5. Durability<br>耐久性                                 | 5               |     |     |     |     |     |     |     |     |     |
| 6. Contact Retention Force<br>端子保持力                  |                 | 2   |     |     |     |     |     |     |     |     |
| 7. Insertion/ Retention Force<br>壓接力/壓接保持力           |                 | 3   |     |     |     |     |     |     |     |     |
| 8. Mating/Un-mating Force<br>插入/拔出力                  |                 |     | 5   |     |     |     |     |     |     |     |
| 9. Vibration Sinusoidal Low<br>Frequency<br>低頻正弦振動   |                 |     |     | 5   |     |     |     |     |     |     |
| 10. Mechanical Shock<br>機械沖擊                         |                 |     |     |     | 5   |     |     |     |     |     |
| 11. Thermal Shock<br>溫度沖擊                            |                 |     |     |     |     | 5   |     |     |     |     |
| 12. Humidity-Temperature Cycle<br>溫溼度循環              |                 |     |     |     |     |     | 5   |     |     |     |
| 13. Test temperature rise for rating current<br>溫升測試 |                 |     |     |     |     |     |     | 5   |     |     |
| 14. Salt Spray<br>鹽霧                                 |                 |     |     |     |     |     |     |     | 5   |     |
| 15. High Temperature Life<br>高溫老化                    |                 |     |     |     |     |     |     |     |     | 5   |