

 GREENCONN TECHNOLOGY CO.,LTD.		文件編號	PS-N07-0126
類別	GBAC229&CBAC229-SERIES PRODUCT SPECIFICATION	版次	A/2
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版次	制 / 修 / 廢原因			頁次	制 / 修 / 廢日期
A/0	初次發行			全部	2020/01/07
A/1	1、耐久度測試方法中文註解 25 次循環改 30 次。冷熱衝擊測試方法循環 100 次改成 10 次。 2、耐久度、冷熱衝擊、溫度壽命、恆溫恆濕、鹽霧、溫濕度循環測試要求刪除目視無損壞內容。 3、新增“手工焊接”測試項以及重新編排產品認證和測試系列			全部	2020/04/28
A/2	新增第 9.2 項：推荐的配合/拔出方法詳細說明內容			9、10	2020/06/18
核 準		審 查		制 定	曹 亮
日 期		日 期		日 期	2020/06/18

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1.0 SCOPE（范围）：

This specification covers the requirements for product performance and test methods of the GBAC229&CBAC229-SERIES connector. Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.（本規格書涵蓋了GBAC229&CBAC229-系列連接器的產品性能要求和測試方法。產品應符合適用產品圖面中規定的設計、結構、尺寸等。）

2.0 APPLICABLE DOCUMENTS（適用文件）：

The following document, of the latest issue in effect at the time of performance of the qualification tests, shall form a part of this specification to the extent specified herewith.（本版本中以下文件，在性能鑒定試驗時生效，將構成本規範的一部分。）

EIA-364 Test methods for electrical connectors.（EIA-364 電器連接器的測試方法）

3.0 PRODUCT DESCRIPTION AND PART NUMBER（產品描述和型號）：

Product description（產品描述）	Part No.（型號）
PITCH 0.50mm FLOATING BTB CONNECTOR	GBAC229&CBAC229-SERIES

4.0 PROPERTY（特性）：

4.1 Ratings（額定值）：

4.1.1 Current Rating（額定電流）：0.4A (AC / DC) Per contact.

4.1.2 Voltage Rating（額定電壓）：50V AC/DC.

4.1.3 Operating Temperature Range（工作溫度）：-40℃~105℃.

4.1.4 Operating Humidity（工作濕度）：85% Max.

4.2 Materials（材料）：

4.2.1 Housing（塑殼）：LCP UL 94-V0.

4.2.2 Contact（端子）：Phosphor Bronze.

Finish（表面處理）：See plating drawing.

4.2.3 Harmful Material Should Be Compliant to GREENCONN Standards (Per QPNQ0817).

有害物質應符合格菱公司的標準(參考文件QPNQ0817)。

5.0 TEST CONDITION（測試條件）：

5.1 Temperature range（溫度範圍）：15℃ to 35℃.

5.2 Humidity range（濕度範圍）：25% RH to 85%RH.

6.0 STORAGE CONDITION（儲藏條件）：

6.1 Temperature range（溫度範圍）：5℃~30℃.

6.2 Humidity range（濕度條件）：≤65%RH.

6.3 Shelf life（存儲期限）：1 Year.

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7.0 TEST METHODS AND REQUIREMENTS (測試方法和要求)：

7.1 GENERAL EXAM (一般測試)：

Test item (測試項目)	Test procedure (測試流程)	Condition of test specimens (測試 狀態)	Requirement (要求)
1 Examination of Product (產品檢查)	Per EIA-364-18 Visual and functional inspection. (依照 EIA-364-18 外觀和功能性檢查)		Meet requirements of product drawing. No evidence of physical damage (符合圖面要求,無物理損傷)

7.2 ELECTRICAL PERFORMANCE (電氣性能)：

Test item (測試項目)	Test procedure (測試流程)	Condition of test specimens (測試 狀態)	Requirement (要求)
1 Low level contact resistance 低階接觸阻抗	Per EIA-364-23 Subject mated connector with a max. voltage of 20mV and current of 100mA. (依照EIA-364-23 在配對連接器上施加最大20mV電壓和100mA電流。)	Mating (配對)	Initial=100m Ω Max Finish=120m Ω Max (測試前最大 100 毫歐；测试后最大 120 毫歐)
2 Dielectric Withstanding Voltage (耐电压)	Per EIA-364-20 Subject mated connector with a. voltage of 250V AC for 1 minute between adjacent terminals. (依照EIA-364-20 在配對好的連接器的相鄰兩個端子上接通250V的交流電，持續1分鐘。)	Mating (配對)	No Breakdown. Leakage Current: 5mA Max. (無擊穿，漏電電流：5mA 最大)
3 Insulation Resistance (絕緣阻抗)	Per EIA-364-21 Subject mated connector with a. voltage of 250V DC between adjacent terminals. (依照 EIA-364-21，在配對好的連接器的相鄰兩個端子上接通 250V 的直流電。)		500M Ω Min. (最小 500 兆歐)
4 Current Rating/ Temperature life(電流溫升)	Per EIA-364-70 Measure the temperature rise at the rated current. Ambient conditions: still air at lab ambient,0.4A Per contact with 2 adjacent contacts. (依照 EIA-364-70，在額定電流下溫升測試。環境要求：實驗室環境下，每个触点 0.4A，2 个相邻触点。)		Temperatur rise: Δ T30°C Max

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7.3 MECHANICAL PERFORMANCE (機械性能測試) :

Test item (測試項目)		Test procedure (測試流程)	Condition of test specimens (測試 狀態)	Requirement (要求)
1	Mating Force (插入力)	Per EIA-364-13 Insert a card at a rate of 25.4mm/ minute. (依照 EIA-364-13 以 25.4mm/ minute 的速度插入插頭。)	Mating (配對)	0.8N Max. per pin. (最大 0.8N 每 PIN)
2	Unmating Force (拔出力)	Per EIA-364-13 Withdrawal a card at a rate of 25.4mm/ minute. (依照EIA-364-13以25.4mm/ minute的 度拔出插頭。)	Mating (配對)	0.10N Min. per pin. (最小 0.1N 每 PIN)
3	Retention Force (保持力)	Per EIA-364-37 The end of a post shall be pulled in a perpendicular to base housing at a constant speed of 25.4mm/ minute. (依照EIA-364-37, 垂直與基殼方向上以25.4mm/ minute恒定的測試速度拉端子末端。)		Before high Temperature: $\geq$ 1.00N per pin. (高溫前: $\geq$ 1N/PIN)
4	Durability (耐久度)	Per EIA-364-09 Perform 30 cycle Mating/ unmating at a rate of 25.4mm/ minute.and measure the contact resistance after the test(依照 EIA-364-09以25.4mm/ minute勻速速度循環插拔30次, 試驗后測試其接觸阻抗。)		After the test :120 m Ω Max (測試后阻抗最大 120毫歐)
5	Vibration Test (振動測試)	Per EIA-364-28 The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (依照EIA-364-28在互配狀態下輸入不間斷電流 (<1毫秒) Max100mA, 振幅0.76mm (1.52mmMax行程) 一分鐘完成頻率10-55-10Hz.這一運動在X.Y.Z三個互相垂直方向上	Mating (配對)	Discontinuity:1 μ s Max. After the test : 120m Ω Max 瞬斷: 1 μ s Max. 接觸阻抗: 120 m Ω Max

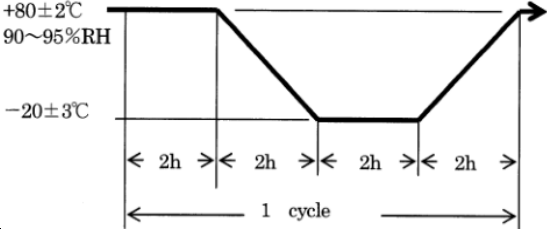
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		各施加2小時，實驗後測試其接觸阻抗)		
6	Shock Test (衝擊測試)	Per EIA-364-27 Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (依照 EIA-364-27 在互配狀態下輸入不間斷電流 (<1 毫秒) Max100mA,应用脉冲 3 乘以每 6 个面中 3 边垂直方向(X.Y.Z)。在指定条件下的加速度 490m/s ² (50G)和冲击脉冲的持续时间 11ms，实验后测试其接触阻抗)	Mating (配對)	Discontinuity:1 μ s Max. After the test :120 m Ω Max 瞬斷: 1 μ s Max. 接觸阻抗: 120 m Ω Max

7.4 ENVIRONMENTAL PERFORMANCE (環境性能)：

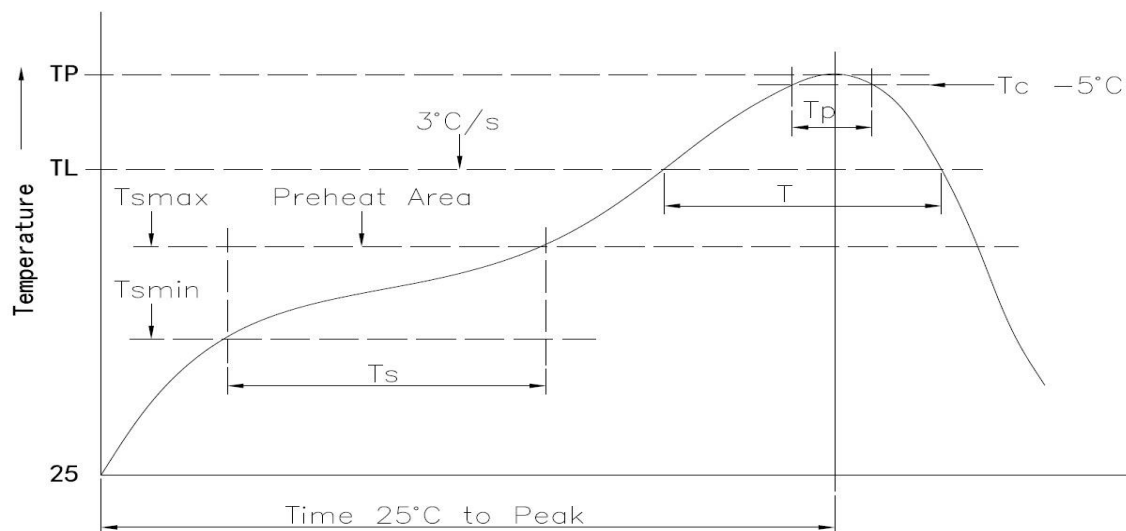
Test item (測試項目)		Test procedure (測試流程)	Condition of test specimens (測試狀態)	Requirement (要求)
1	Thermal Shock (冷熱衝擊)	Per EIA-364-32, Mated connectors: expose to 10 cycles of: (依照EIA-364-32,執行如下條件的10次循環) Temperature°C 溫度 Duration(Minutes) 持續時間(分) -55°C +0/-5 30 Min. +25°C +10/-5 5 Max. +85°C +3/-0 30 Min. +25°C +10/-5 5 Max.		After the test :120 m Ω Max (測試后阻抗最大120毫歐)
2	Temperature life(溫度壽命)	Test Condition: 105 $\pm$ 2°C, 96hours. test and measured the contact resistance after the test (: 105 $\pm$ 2°C, 96小時.实验后测试其接触阻抗)		After the test :120 m Ω Max (測試后阻抗最大120毫歐)
3	Humidity Test(恆溫恆濕)	Per EIA-364-31 Test Condition: 60 $\pm$ 2°C, 90-95% RH, 96 hrs. test and measured the contact resistance after the test (依照EIA-364-31，測試條件：60 $\pm$ 2°C, 90-95% RH,96小時. 实验后测试其接触阻抗)	Mating (配對)	After the test :120 m Ω Max (測試后阻抗最大120毫歐)
4	Salt Spray	Per EIA-364-26 Test Condition: Temperature: 35 $\pm$ 2°C; Atmosphere: 5 $\pm$ 1% salt-solution. Duration: After 8 hours of Tin plating and 48 hours of gold exposure the test and		After the test :120 m Ω Max (測試后阻抗最大120毫歐)

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	(鹽霧)	measured the contact resistance after the test (依照EIA-364-26 測試條件：35±2℃,: 鍍金區域48 小時，鍍錫區域8小時, 5±1% 鹽溶液,实验后测试其接触阻抗.)		
5	Humidity Resistance(cycling) 溫濕度循環	Per EIA-364-32E The connector mated is exposed 10 Cycles in the following conditions.It shall be measured the contact resistance after the test 在下列條件下，互配連接器暴露10个周期，试验后测量接触电阻 		After the test :120 m Ω Max (測試后阻抗最大 120毫歐)
6	Solder ability Test (可焊性測試)	Per EIA-364-71 Test Temperature: 245±3℃, 3~5sec. (依照EIA-364-71 測試溫度：245±3℃, 3~5秒)		solder coverage: 95% minimum (吃錫覆蓋須達 到95%以上)
7	Resistance to Soldering Heat (焊接耐熱性)	Per EIA-364-56, Reflow(Apply to High Temperature Thermoplastic): Please see recommended profile. Pre Heat: 150℃~200℃/60 to 120 seconds Heat: 217 °C;60-150 seconds Peak Temp.: 260±5℃/5~15 seconds. (依照EIA-364-56，回流焊(適用於高溫熱塑性塑膠)：預加熱：150℃~200℃ /60-120秒;加熱：217 °C;60-150 秒；最高溫度：260±5℃/5~15 秒)		Visual: No damage to insulator material (目視:絕緣體材料無損壞)
8	manual welding (手工焊接)	Per EIA-364-56, Soldering iron method Solder Temp: 380±10℃/3~5 seconds. (依照EIA-364-56，手工焊接溫度：380±10℃/3~5秒)		Visual: No damage to insulator material (目視:絕緣體材料無損壞)

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8.0 INFRARED REFLOW CONDITION (LEAD-FREE)(紅外回流焊條件 無鉛)



Profile Feature (特性)	Pb-Free Assembly (無鉛組裝)
Preheat & Soak (預熱&浸泡) Temperature min (最低溫度) Temperature max (最高溫度) Time (時間)	150°C~200°C /60 to 120 seconds
Average ramp-up rate (平均溫升率)	3 °C/second max.
Liquidous temperature (液化溫度) Time at liquidous (液化時間)	217 °C 60-150 seconds
Peak package body temperature (封裝最高溫度)	260±5°C /5~15 seconds
Time within 5 °C of the specified classification temperature (在指定等級溫度5°C內的時間)	20~40seconds
Average ramp-down rate (Tp to Tsmmax) (平均溫度下降速率)	6 °C/second max.
Time 25 °C to peak temperature (25 °C至峰值溫度的時間)	8 minutes max.

(a) Per IPC/JEDECJ-SID-020 Clause 5.6. (依照 IPC/JEDECJ-SID-020 中 5.6 小節.)

(b) Test Condition: Test connector shall be placed on the p.c. board.

(測試條件：須在 PCB 板上測試連接器。)

(c) Temperature condition graph: Temperature on board pattern side.

(溫度條件曲線圖：在板子圖案面的溫度。)

(d) Thickness of steel mesh: 0.12mm Min. (鋼網厚度：最小 0.12mm.)

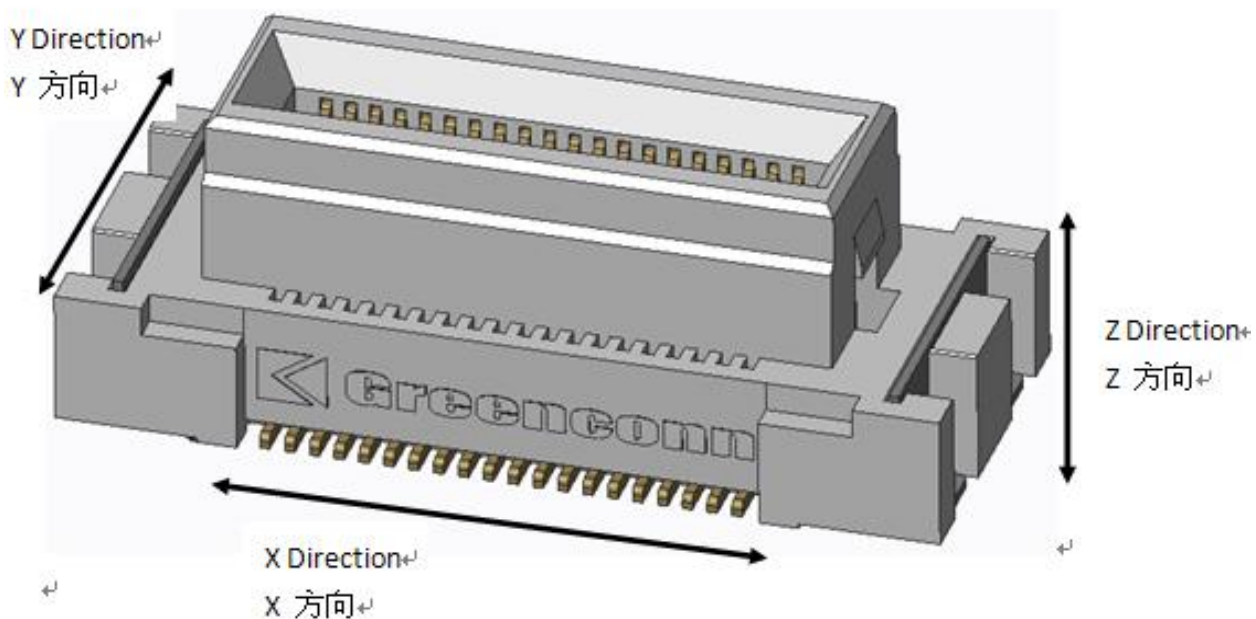
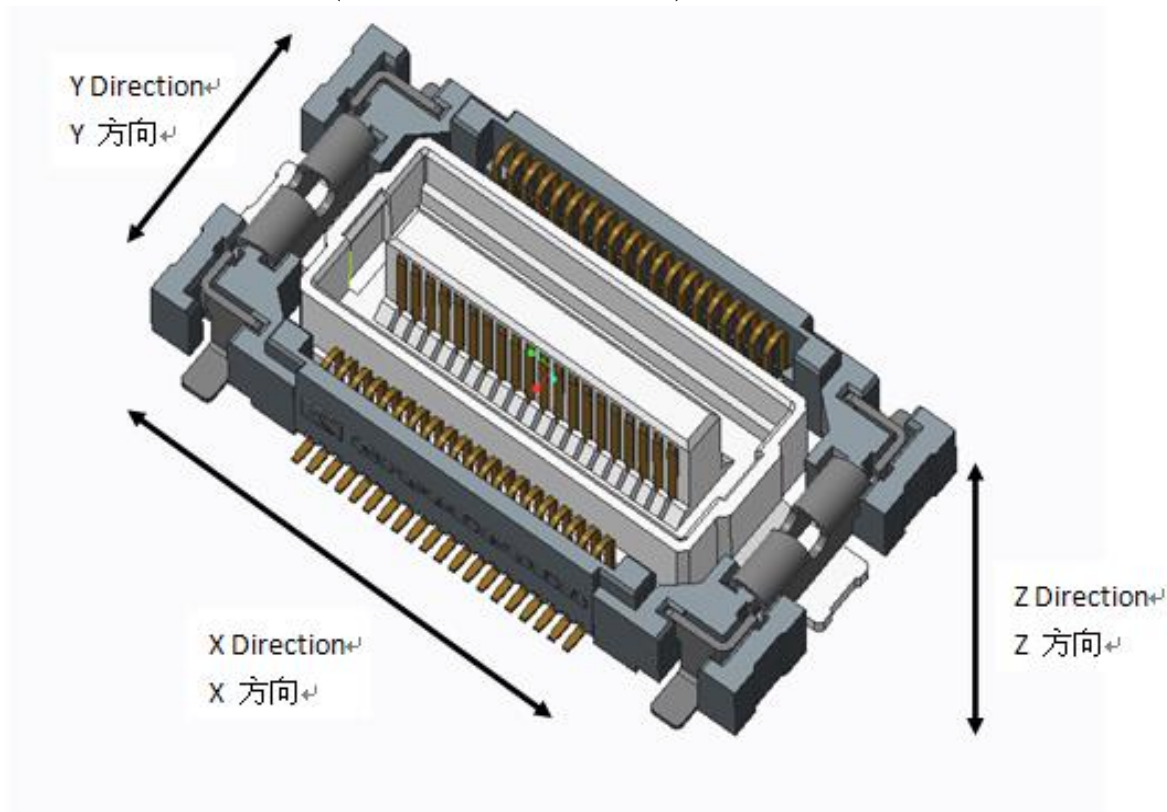
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(e) Lead-free Process : DURATION = 2 TIMES. (無鉛製程：持續=2 回。)

9.0 Floating range and mating/Withdrawing method (可動量和配合/拔出方法)

9.1 The floating range of the following:

- (1) X Direction: $\pm 0.50\text{mm}$ (X 方向可動量： $\pm 0.50\text{mm}$)
- (2) Y Direction: $\pm 0.50\text{mm}$ (Y 方向可動量： $\pm 0.50\text{mm}$)
- (3) Z Direction: $\pm 0.50\text{mm}$ (Z 方向可動量： $\pm 0.50\text{mm}$)



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9.2 Recommended mating/Withdrawing(推荐的配合/拔出方法)

[Mating] [配合]

Please mate the connector with parallel manner within floating range. (Figure-1)

请在浮动范围内以平行方式连接连接器。(图1)

Mating in a tilted state is not recommended. (Figure-2). 不建议在倾斜状态下对插。(图2)

[Withdrawing] [拔出]

Please withdraw the connector with parallel manner (Figure-3) 请平行拔出连接器(图3)

Withdrawing with shaking slightly from side to side is not recommended. (Figure-4)

不建议在左右轻轻摇晃的情况下拔出。(图4)

Also, withdrawing with an angle is not recommended. (Figure-5)

此外，不建议有角度拔出。(图5)

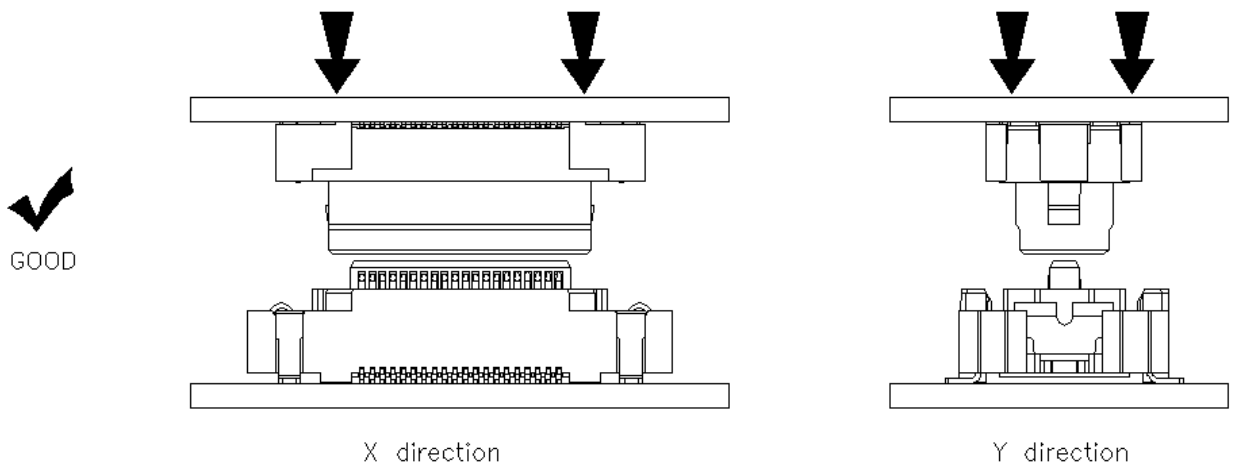


Figure-1 Mating in parallel
圖1 平行配合

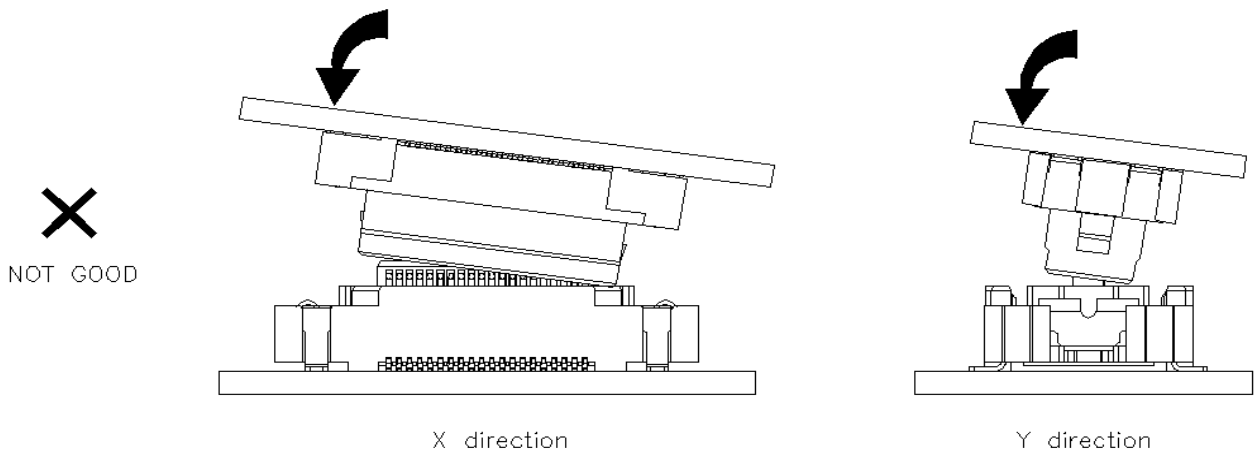


Figure-2 Mating in a tilted state
圖2 傾斜狀態下配合

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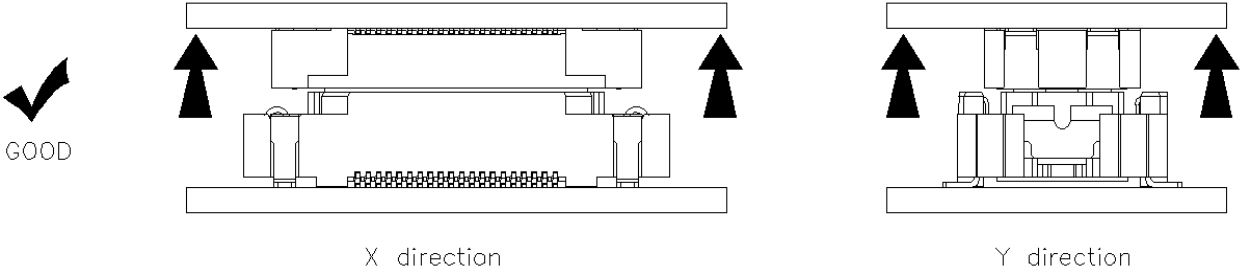


Figure-3 Pull out in parallel
圖3 平行拔出

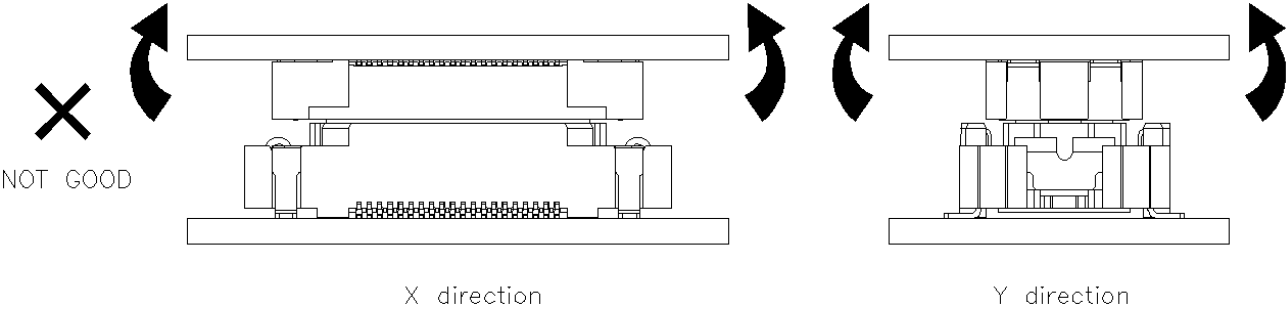


Figure-4 Withdrawal with shaking slightly from side to side
图4 从一侧到另一侧轻微摇晃的拔出

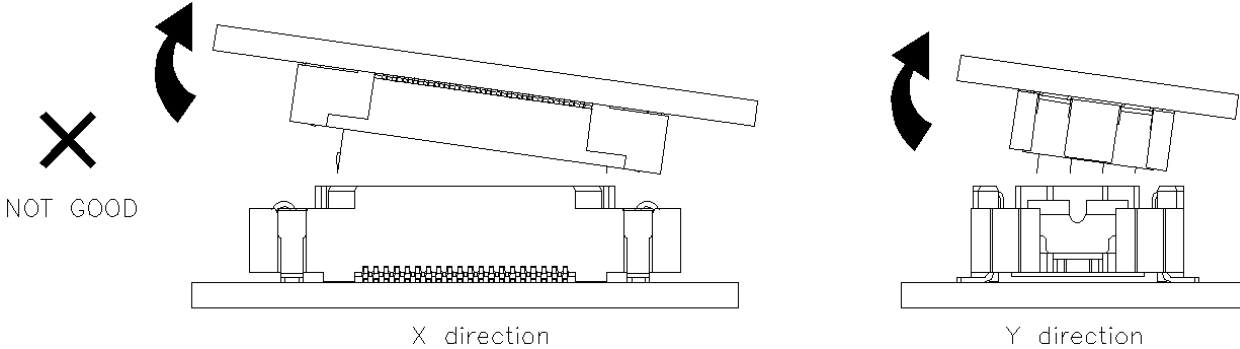


Figure-5 Withdrawal with an angle
图5 带角度的拔出

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10.0 PRODUCT QUALIFICATION AND TEST SEQUENCE（產品認證和測試序列）：

Test Item	A	B	C	D	E	F	G	H	I	J
Sample Size	5	5	5	5	5	5	5	5	5	5
Examination of Product（產品檢查）							1	1,7	1,3	1, 4
Low level contact resistance（低階接觸阻抗）	1,3	1,3	1,7	1,7	1,7	1,5		2,4,6		
Insulation Resistance（絕緣阻抗）			2,6	2,6	2,6					
Dielectric Withstanding Voltage（耐電壓）			3,5	3,5	3,5					
Temperature life(溫度壽命)		2								
Mating Force/ Unmating Force（插入拔出力）						2,4				
Durability（耐久）						3				
Retention Force（保持力）							2			
Vibration Test（振動測試）								3		
Shock Test（衝擊測試）								5		
Thermal shock（冷熱衝擊）	2									
Humidity Test（恒溫恒濕測試）				4						
Humidity Resistance cycling（溫濕度循環）					4					
Salt Spray（鹽霧）			4							
Solder ability（可焊性）									2	
Current Rating/ Temperature life(電流溫升)										3
Resistance to Soldering Heat（焊接耐熱性）										2

Note: the thermoplastic has no need for test group G.

備注：熱塑性塑膠無需做 G 群組測試