产 品 规 格 书

PRODUCT SPECIFICATION

产品规格： GJ-A1003 系列	No.: EN-103(2019-04)	Date Issued: 2022.11.07
Specification: GJ-A1003 Series	Rev. : **A.0**	Date Revised:
Pitch 1.00mm Series Wire to Board Connector		Issued by: Engineering Dept.

Prepared by:	Checked by:	Reviewed by:	Approved by:
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Subject: GJ-A1003TF-PTS GJ-A1003HF GJ-A1003HF 帶扣 GJ-A1003WVS GJ-A1003WRS Pitch 1.00mm SMT (Non-Halogen)Series Wire to Board Connector			Issued By: Engineering Dept.

This specification is referred to 1.00mm SMT(Non-Halogen)series wire to board connector.

本規格書內容係提供 1.00 mm SMT（無鹵素)系列產品相關參考，

其用途為電線端相接於電路板端連接器

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REV. (版次)	Revision Record (改版變更原因)	Date(日期)	ECN No

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1.0 Product Name/Part Number & Drawing Number(產品名稱 / 產品型號及圖面型號):

Product Name(產品名稱)		Part Number(零件型號)	Drawing Number(圖面型號)
Crimp Terminal		GJ-A1003TF-PTS	
Housing		GJ-A1003HF-**-AON & GJ-A1003HF-**-AON 帶扣	
Wafer	Straight(直立式)	GJ-A1003WVS-**-FIN-HK	
	Right Angle(臥式)	GJ-A1003WRS-**-FIN-HK	

Note: (xx) The number of the circuits

2.0 Construction/Dimensions/Material & Surface Finish(材質以及表面鍍層):

Part Name(零件名稱)		Material(材質)	Surface Finish(表面鍍層)
Crimp Terminal (铆壓端子)		Phosphor Bronze	Tin-Plated
			Gold-Plated
Housing(電線端連接器)		Nylon 66	UL 94V-0
Wafer (電路板端連接器)	Contact Pin (導體)	Phosphor Bronze	Gold / Tin / Matte-Tin Plated
	Solder Nail (固定片)	Phosphor Bronze	Gold / Tin / Matte-Tin Plated
	Base (膠體)	LCP	UL 94V-0 Color : Nature
		LCP	UL 94V-0 Color : Nature
		LCP	UL 94V-0 Color : Nature
	Cap (真空吸著上蓋)	LCP	UL 94V-0 Color : Nature

3.0 Characteristic(產品特性):

Item(項目)		Standard(標準規範)		
3.1	額定電流 Rated Current	1.0A AC/DC With AWG #28 is applied (相對適用於美國電線規格 UL1571 AWG #28)		
3.2	額定電壓 Rated Voltage	50 V AC/DC		
3.3	Ambient Temperature Range 環境與操作溫度範圍	(操作使用溫度與濕度範圍) Operating Temp.: -25℃~+85℃ ; 85% R.H. Max Including 30℃ Terminal Temperature Rise at rated Current , (包括定額電流內 , 端子所產生 30℃以下溫昇)		
3.4	Applicable Wire 適用電線	3.4.1	(金屬導體之型號) Conductor Construction Size: AWG #28~#32	
		3.4.2	(電線絕緣材質外徑) Wire Insulation O.D.: 0.65mm~0. mm	
3.5	Storage of Package 包裝未拆封之保存	Temperature and Humidity Condition 溫濕度條件		Temperature 溫度 : -10℃~+40℃ Percentage Humidity 相對濕度 : 70 % Max
		Term 保存期限	Housing	2 Years
			Crimp Terminal & Wafer	1 Year
3.6	Floor Life 拆封後使用期限	Wafer	Refer to 10.0 參照第 10.0 項 (IPC/JEDEC J-STD-020D.1 ; Table 5-1)	
		Crimp Terminal	3 Months	

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4.0 Specimen(樣本圖示) :

Part Name / Part Number / Picture or Photograph 零件名稱 / 零件型號 / 樣本圖示			
Crimp Terminal GJ-A1003TF-PTS		Housing GJ-A1003HF GJ-A1003HF 帶扣	
Wafer Straight GJ-A1003WVS		Wafer Right Angle GJ-A1003WRS	

5.0 Applicable Standards(適用規範):

ANSI/EIA 364 ; EIA/ECA 364 Testing method for electrical connectors.

電子連接器 , 所適用之 ANSI/EIA 364 ; EIA/ECA 364 測試規範

6.0 Mechanical Performance(機械性能):

Item(項目)		Test Condition(測試條件)	Requirement(規格)		
6.1	Insertion & Withdrawal Force 嵌入力與拔出力	Insert and withdrawal with connectors at the speed rate of 25 .4 ± 3 mm /minute. (Excluding Thumb Latch 不包含指壓彈簧卡榫結合力) 連接器兩端堪合 , 以每一分鐘 25.4 ± 3mm 的速率 , 作嵌入與拔出往返測試 (EIA/ECA 364-13D)		插入力（最大值） Insertion（Max)	拔出力（最小值） Withdrawal（Min)
			SINGLE PIN	3. 5N	0. 5N
6.2	Wire Pullout Force(Axial) 電線脫離端子包覆之拔出力(軸向)	Pull out the cable from with contact terminal at the speed rate of 25 .4± 3 mm/minute. 對端子所包覆電線 , 施以每一分鐘 25 .4± 3 mm 速率之軸向拔出力 (EIA 364-08B)	AWG#28 size wire	11N Min	
			AWG#30 size wire	7N Min	
			AWG#32 size wire	5N Min	

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Item(項目)		Test Condition(測試條件)	Requirement(規格)
6.3	Crimp Terminal Retention Force (in Housing) 铆線端子與膠座之間拔出力	Axial pullout force on the terminal in the housing at the speed rate of 25.4 ± 3 mm per minute. (EIA 364-05B) 對於已經存在於膠座當中铆線端子，施以每一分鐘 25.4 ± 3 mm 速率之軸向拔出力	單一接觸點 Per Contact 最小容許值 5N/Min.
6.4	Contact Retention Force(in Base) 金屬導體與膠座之間保持力	Axial pullout force on the contact in the base at the speed rate of 25.4 ± 3 mm per minute. (EIA/ECA 364-29C) 對於已經存在於膠座當中金屬導體，施以每一分鐘25.4 ± 3mm速率之軸向拔出力	單一接觸點 Per Contact 最小容許值 2N/Min.

7.0 Electrical Performance(電氣性能) :

Item(項目)		Test Condition(測試條件)	Requirement(規格)
7.1	(Low –Signal Level) Contact Resistance (低階信號) 接觸阻抗	A maximum voltage of 20mV and a maximum current of 100mA are applied to the mate connector. (EIA/ECA 364-23C) 對組合狀態下連接器，於其兩端施以最大測試電壓 20mV 以及最大測試電流 100mA (Does not include wire resistance 不包含電線阻抗)	Contact Resistance: 20 milliohms Max. 最大容許值. 20 毫歐姆
7.2	Insulation Resistance 絕緣阻抗	Apply 100V D/C for 1 minute between adjacent contacts to measure the insulation resistance. 對相鄰兩接觸導體，於一分鐘時間內施予 100V D/C 電壓，並量測其間絕緣阻抗值 (EIA 364-21C)	Insulation Resistance: Initial 100 megohms Min 最初容許值. 100 兆歐姆
7.3	Withstanding Voltage 耐電壓	Apply 500V A/C (rms) for 1 minute and the leakage current shall not exceed 0.5mA to the adjacent terminal and ground of the mate connectors. 對組合狀態下連接器，於其相鄰兩導體末端各施以電壓 500V A/C (實效值) 時間 1 分鐘，且漏電流必須小於 1mA(毫安培) (EIA 364-20C)	No breakdown or flashover. 無損毀或者產生火花

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8.0 Environmental Performance(環境性能) :

Item(項目)		Test Condition(測試條件)	Requirement(規格)
8.1	Durability 耐久性	Mate Connectors up 50 Cycles at a Maximun rate of 10 cycles Per minute prior to environmental test 以組合狀態下連接器且未經環境測試，依每分鐘內進行10次嵌入與拔出之最大速率，連續50次嵌入與拔出往返測試 (EIA/ECA 364-09C)	(After the test) Contact resistance： 40 mΩ Max 經耐久性試驗後接觸阻抗： 最大容許值 40 毫歐姆
8.2	Temperature Rise (Via Current Cycling) 溫度上昇 (經由電流循環操作)	Mate connector . measure the temperature rise of contact when the maximum rated current is passed 以組合狀態下連接器，通過最大容許電流 量測其導體溫度上昇值 (EIA 364-70B Conditions 1 . Method 1)	Mate connectors Temperature Rise: ＋30℃/Max. 組合狀態下之連接器溫度 上昇最大容許值＋30℃
8.3	Vibration 耐振動	A mated connector shall be mounted on a printed Circuit board and subjected to a vibration test of the following conditions. During the test, test current continuity shall be checked. After the test, contact resistance shall be measured. 以組合狀態下連接器焊接於電路板作為試驗樣品,依照隨附如下規格要求,進行耐振動試驗，試驗過程中確認是否產生不連續電流(斷電)現象，並於試驗過後量測其接觸阻抗。 (EIA/ECA 364-28E-Condition Ⅰ) Frequency(頻率) : 10~55~10 Hz/minute. Amplitude (振幅) : 1.5 mm P-P Direction (方向) :1. Axis of up and down.上下軸向(Y 軸) 2. Axis of right the left. 左右軸向(X 軸) 3. Axis of front and back.前後軸向(Z 軸) Period(週期) : 2 hours for each direction. (每一個軸向持續 2 小時)	Initial Contact Resistance : 20 milliohms Max. 接觸阻抗最初容許值: 20 毫歐姆 (After the test) Contact Resistance: 40 milliohms Max. 經耐振動試驗後接觸阻抗： 最大容許值 40 毫歐姆 No discontinuity current is longer than 1 microsecond. 電流中斷現象， 時間不可多於1微秒

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Item(項目)		Test Condition(測試條件)	Requirement(規格)
8.4	Humidity (Steady State) 恆溫恆濕	A mated connector shall be placed in a humidity chamber of the following conditions. After the test, leave the specimen at room temperature for 1~2 hours before the contact resistance, the insulation resistance and the dielectric withstanding voltage shall be measured. (EIA 364-31B Conditions III . Method A) 以組合狀態下連接器放置於恆定溫度與濕度的空間，依照隨附如下規格要求，進行恆溫恆濕試驗，經試驗過後將樣品置於室溫 1~2 小時,再量測其接觸阻抗、絕緣阻抗、以及耐電壓測試。 Temperature(溫度) : 40±2℃. Relative Humidity(相對濕度) : 90%~95% (RH). Period(週期) : 96 hours continuously. (持續 96 小時)	(After the test) Contact Resistance: 40 milliohms Max. 經恆溫恆濕試驗後接觸阻抗 ： 最大容許值. 40 毫歐姆 (After the test) Insulation Resistance : 100 Megohms Min. 經恆溫恆濕試驗後絕緣阻抗 ： 最小容許值. 100 兆歐姆 經恆溫恆濕試驗後測耐電壓 ： (After the test) Withstanding Voltage: 500V A/C for 1 minute
8.5	Thermal Shock 冷熱衝擊	A mated connector shall be subjected to a thermal shock test of the following conditions. After the test, leave the specimen at room temperature for 1~2 hours before the contact resistance, the insulation resistance and the dielectric withstanding voltage shall be measured. 以組合狀態下連接器作為試驗樣品，依照隨附如下規格要求，進行冷熱衝擊試驗 ，經試驗過後將樣品置於室溫 1~2 小時，再量測其接觸阻抗、絕緣阻抗、以及耐電壓測試。 (EIA/ECA 364-32D Conditions I . Method A) One Cycle Consists Of: -55℃+0/-3℃ for 30 minutes. → Room Temp. 5 minutes 85℃+3/-0℃ for 30 minutes. → Room Temp. 5 minutes Total Cycles: 5 Cycles. 以-55℃+0/-3℃溫度持續 30 分鐘 ，經室溫 5 分鐘 ，而後再以 85℃+3/-0℃溫度持續 30 分鐘 ，再經室溫 5 分鐘 ，構成一次冷熱循環 ，總計循環次數 5 次。	Same as paragraph 8.4 同 8.4 章節

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Item(項目)		Test Condition(測試條件)	Requirement(規格)
8.6	Heat Aging 高溫老化試驗	A mated connector shall be placed in a heat oven of the following conditions. After the test, leave the specimen at room temperature for 1~2 hours before the contact resistance shall be measured. 以組合狀態下連接器放置於加熱烤箱當中，依照隨附如下規格要求，進行高溫老化試驗 ，經試驗過後將樣品置於室溫 1~2 小時,再量測其接觸阻抗。(EIA 364-17B Conditions III . Method A) Temperature(溫度) : 85±2℃. Period(週期): 96 hours continuously . (持續 96 小時)	Initial Contact Resistance : 20 milliohms Max. 接觸阻抗最初容許值:20 毫歐姆 (After the test) Contact Resistance : 40 milliohms Max. . 經高溫老化試驗後接觸阻抗 ： 最大容許值. 40 毫歐姆
8.7	Salt Spray 鹽水噴霧	先沖后鍍端子作為試驗樣品，依照隨附如下規格要求，進行鹽水噴霧試驗 ，試驗過後將樣品用清水沖洗並經過自然風乾 ，而後觀察其外觀 Density(鹽水密度): 5 % in weight. Temperature(溫度): 35±2℃. Period(週期): Terminal or contact (Stamping before tin plated for 16 hours) ; 端子或導體 (先沖壓後電鍍 16 小時) Salt spray test only define the plating area,without plating area (as copper cross section) will not be defined. 鹽水噴霧測試只判定電鍍區域,無電鍍區域(如折斷面裸銅)則不做判定	外观无损伤，应无露出底金属的严重锈蚀；使用预镀的型材，其落料面允许有不影响其性能的轻微腐蚀 Appearance without damage, there should be no exposed bottom metal serious corrosion; Using pre-plated profiles, which The blanking surface is allowed to have slight corrosion without affecting its performance
8.8	Cold 耐寒試驗 (Low Temperature)	A mated connector shall be placed in a cold chamber of the following conditions. After the test, leave the specimen at room temperature for 1~2 hours before the contact resistance shall be measured.以組合狀態下連接器放置於低溫空間內,依照隨附如下規格要求,進行耐寒試驗,經試驗過後將樣品置於室溫 1~2 小時,再量測其接觸阻抗。(EIA 364-59A Procedure 4 , Condition 2 ,Test Duration D) Temperature(溫度) : -25±3℃. Period(週期): 96 hours continuously . (持續 96 小時)	Initial Contact Resistance : 20 milliohms Max. 接觸阻抗最初容許值 20 毫歐姆 (After the test) Contact Resistance : 40 milliohms Max. . 經耐寒試驗後接觸阻抗 最大容許值 40 毫歐姆

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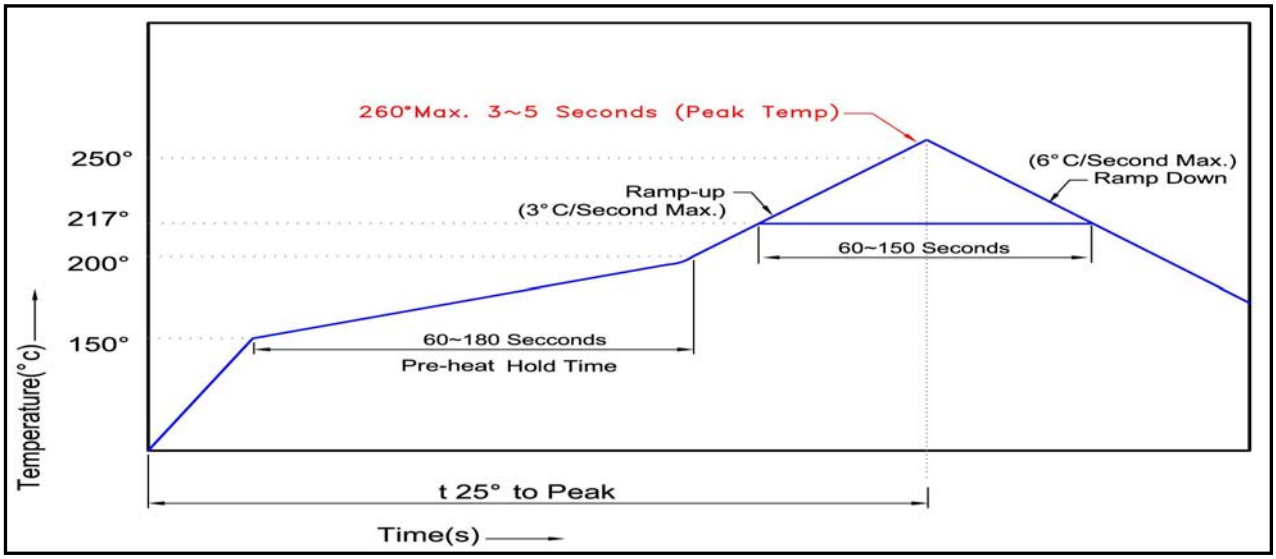
Item(項目)		Test Condition(測試條件)	Requirement(規格)
8.9	Solder Ability 焊錫性	Fluxed soldering section of header shall be dipped in solder of the following conditions. 將連接器 pin 針基板嵌入端，接觸熱溶狀錫料，依照隨附如下規格要求，進行焊錫性試驗 (EIA364-52B) Solder Temperature (焊錫溫度) : 245 ± 5℃. Immersion Period (沉浸週期) : 3±0.5 Seconds (操作方式) : 零件焊錫位置，距離導體以及固定片末端 0.5mm Method : 0.5mm from contact pin and solder tab tip	Solder entirely 90% of immersed area must show no voids or pinholes. 焊料覆蓋面積必須達到 90%，而且不能產生氣孔或空隙
8.10	Resistance To Soldering Heat 焊錫耐熱性	By reflow soldering 迴焊適用溫度範圍 : Refer to Temperature Profile 請參考 8.10.1 溫度曲線圖	No deformation or damage. 不可有變形或損壞
		By soldering iron 手工烙鐵焊錫適用溫度範圍 : 350 ± 5℃ 3±0.5 Seconds. (操作方式) : 零件焊錫位置，距離導體以及固定片末端 0.5mm Method : 0.5mm from contact pin and solder tab tip (EIA/ECA 364-56C Procedure 3. Conditions A)	

Notes : Flowing Mixed Gas (EIA 364-65A) shall be conduct by Customer request 混合流動氣體測試依照客戶需求

8.10.1 Temperature Profile(溫度曲線圖) :

IR Reflow Peak Soldering In- Pb Free Process 迴焊無鉛制程



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9.0 Caution (注意事項) : *1.* **Nylon 6T/66**

Parts are made of hydrophilic Nylon 6T/66 and apt to absorb moisture. Once the vacuum-packing unpacked, please keep parts in the environment of temperature < 30℃/ humidity < 60% RH, and send to re-flowing within 48 hours to prevent parts blistered or deformed during soldering.

6T/66塑料因具親水之特性 ，故採用真空包裝以減少吸濕受潮。真空包裝經拆封應避免曝露於溫度高於30℃ ，濕度高於 60% RH的環境中，並在拆封48小時內全數使用完畢，以防止後續迴焊製程產生起泡變形現象。

2. **Nylon 9T**

Parts are made of hydrophilic Nylon 9T and apt to absorb moisture. Once the vacuum-packing unpacked, please keep parts in the environment of temperature < 30℃/ humidity < 60% RH, and send to re-flowing within 72 hours to prevent parts blistered or deformed during soldering.

9T塑料因具親水之特性 ，故採用真空包裝以減少吸濕受潮。真空包裝經拆封應避免曝露於溫度高於30℃ ，濕度高於 60% RH的環境中，並在拆封72小時內全數使用完畢，以防止後續迴焊製程產生起泡變形現象。

*3.***LCP**

Parts are made of hydrophilic LCP and apt to absorb moisture. Once the vacuum-packing unpacked, please keep parts in the environment of temperature < 30℃/ humidity < 60% RH, and send to re-flowing within 168hours to prevent parts blistered or deformed during soldering.

LCP塑料因具親水之特性 ，故採用真空包裝以減少吸濕受潮。真空包裝經拆封應避免曝露於溫度高於30℃ ，濕度高於 60% RH的環境中，並在拆封168小時內全數使用完畢，以防止後續迴焊製程產生起泡變形現象。

10.0 Remark(備註) : Any change or revision for the product specification will not be announced in advance.

Please contact our sales representative for the latest information.

有關規格書內容經變更或改版 ，如未能夠及時發佈與通知 ，煩請連絡我司業務人員以提供產品最新資

Reviewed: Liangdong.Yi Approved: James.Kang Verified: James.Kang