

产品规格书

PRODUCT SPECIFICATION

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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.

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Type Document	Product Specification	Revised /Edition	A
Date Issued	2022/11/07	Data Revised	
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 (鉗壓端子)		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°C~+85°C ; 85% R.H. Max Including 30°C Terminal Temperature Rise at rated Current , (包括定額電流內，端子所產生 30°C 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	
		Temperature 溫度 : -10°C~+40°C	
		Percentage Humidity 相對濕度 : 70 % Max	
3.6	Floor Life 拆封後使用期限	Term	Housing
		保存期限	Crimp Terminal & Wafer
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 插入力與拔出力	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) 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)	拔出力 (最小值)
			SINGLE PIN	Insertion (Max) 3. 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) 柳線端子與膠座之間 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柳線端子，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 持久性	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°C/Max. 組合狀態下之連接器溫度 上昇最大容許值+30°C
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	<p>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.</p> <p>(EIA 364-31B Conditions III. Method A)</p> <p>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。</p> <p>Temperature(溫度) : 40±2°C.</p> <p>Relative Humidity(相對濕度) : 90%~95% (RH).</p> <p>Period(週期) : 96 hours continuously. (持續 96 小時)</p>	<p>(After the test)</p> <p>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</p> <hr/> <p>(After the test)</p> <p>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</p> <hr/> <p>經恆溫恆濕試驗後耐電壓：</p> <p>(After the test)</p> <p>Withstanding Voltage: 500V A/C for 1 minute</p>
8.5 Thermal Shock 冷熱衝擊	<p>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.</p> <p>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。</p> <p>(EIA/ECA 364-32D Conditions I. Method A)</p> <p>One Cycle Consists Of:</p> <p>-55°C+0/-3°C for 30 minutes. → Room Temp. 5 minutes 85°C+3/-0°C for 30 minutes. → Room Temp. 5 minutes</p> <p>Total Cycles: 5 Cycles.</p> <p>以-55°C+0/-3°C溫度持續 30 分鐘，經室溫 5 分鐘，而後再以 85°C+3/-0°C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。</p>	<p>Same as paragraph 8.4 同 8.4 章節</p>

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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	<p>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.</p> <p>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)</p> <p>Temperature(溫度) : 85±2°C.</p> <p>Period(週期): 96 hours continuously . (持續 96 小時)</p>	<p>Initial Contact Resistance : 20 milliohms Max.</p> <p>接觸阻抗最初容許值:20 毫歐姆</p> <p>(After the test)</p> <p>Contact Resistance : 40 milliohms Max. .</p> <p>經高溫老化試驗後接觸阻抗 : 最大容許值. 40 毫歐姆</p>
8.7 Salt Spray 鹽水噴霧	<p>先沖後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</p> <p>Density(鹽水密度): 5 % in weight. Temperature(溫度): 35±2°C.</p> <p>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)</p> <p>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</p>	<p>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</p> <p>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</p>
8.8 Cold 耐寒試驗 (Low Temperature)	<p>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)</p> <p>Temperature(溫度) : -25±3°C.</p> <p>Period(週期): 96 hours continuously . (持續 96 小時)</p>	<p>Initial Contact Resistance : 20 milliohms Max.</p> <p>接觸阻抗最初容許值 20 毫歐姆</p> <p>(After the test)</p> <p>Contact Resistance : 40 milliohms Max. .</p> <p>經耐寒試驗後接觸阻抗 最大容許值 40 毫歐姆</p>

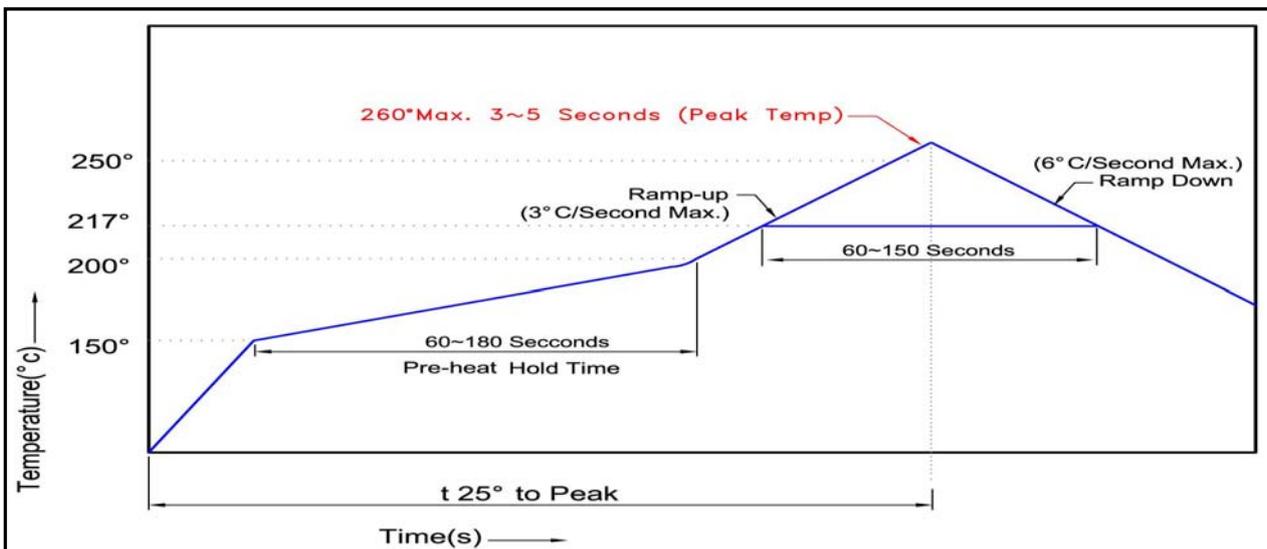
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Item(項目)	Test Condition(測試條件)	Requirement(規格)
8.9 Solder Ability 焊錫性	Fluxed soldering section of header shall be dipped in solder of the following conditions. 將連接器 pin 針基板嵌入端，接觸熱溶狀錫料，依照隨附如下規格要求，進行焊錫性試驗 (EIA364-52B) Solder Temperature (焊錫溫度) : 245 ± 5°C. 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 By soldering iron 手工烙鐵焊錫適用溫度範圍 : 350 ± 5°C 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)	No deformation or damage. 不可有變形或損壞

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°C/ 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°C，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°C/ 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°C，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°C/ 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°C，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.Hang **Verified:** James.Hang