

产品规格书

PRODUCT SPECIFICATION

产品规格： GJ-A4201 DIP 單排系列	No.: EN-003(2017-08)	Date Issued: 2017/08/01
Specification: GJ-A4201 DIP Series	Rev. : A.0	Date Revised:
4.20mm DIP series wire to board connector		Issued by: Engineering Dept.

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Type Document	Product Specification	Revised /Edition	C
Date Issued	2017/03/21	Data Revised	2020/12/22
Subject :GJ-A4201TF-BTS GJ-A4201HF-XX GJ-A4201WRD GJ-A4201WVD GJ-A4201WVD			Issued By: Engineering Dept.
Pitch : 4.20mm Dip Single-Row Wire to Board Power Connector Series.			

This specification is referred to 4.20mm DIP Single-Row series wire to board Power connector.

本規格書內容係提供 4.20 mm DIP (迷你型插座組合 ; 單排)系列產品相關參考，其用途為電線端相接於電路板端動力電源連接器

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REV. (版本)	Revision Record (改版變更原因)	Date(日期)	ECN No
B	1增訂8.8項Salt Spray鹽水噴霧	2017/06/13	EC2017-06-013
C	Delete 8.10.1 265度C溫度曲線	2020/12/22	EC2020-12-022

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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): Note: (xx) The number of the circuits.

Product Name(產品名稱)	Part Number(產品型號)	Drawing Number(圖面型號)
Crimp Terminal (With AWG #16~24 is applied)	GJ-A4201TF-BTS	
Housing	GJ-A4201HF-XX	
Wafer (Straight ; Without Pegs)直立式 ; 衝壓 PIN	GJ-A4201WVD- hollow	
Wafer (Straight ; Contacts : Square Pin)使用方型導體	GJ-A4201WVD	
Wafer (Right Angle ; Without Pegs)臥式	GJ-A4201WRD	

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)	Brass Phosphor Bronze	(Stamping before tin plated 先冲壓後電鍍)
Housing (電線端連接器)	Nylon 66	UL 94V-2
Wafer (電路板端連接器)	Contacts (導體)	Tin-Plated
	Base (膠座)	UL 94V-2

3.0 Characteristic(產品特性):

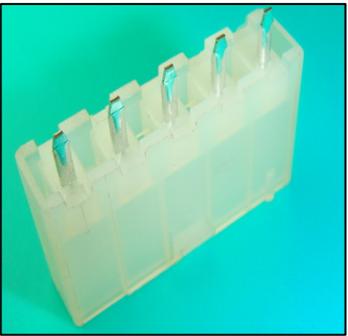
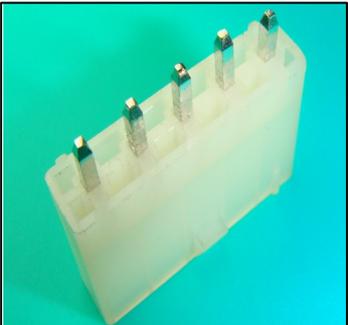
Item(項目)	Standard(標準規範)							
3. 額定電流 Rated Current	Conductor Size	AWG	16#	18#	20#	22#	24#	
		Area(mm ²)	1.31 mm ²	0.865 mm ²	0.534 mm ²	0.342 mm ²	0.220 mm ²	
	Amp AC/DC	7A			5A	3A	2A	
3.2 額定電壓 Rated Voltage	250 V AC/DC							
3.3 Ambient Temperature Range 環境與操作溫度範圍	(操作使用溫度與濕度範圍) Operating Temp .: -40℃~+105℃; 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	(金屬導體型號) Conductor Construction Size: AWG #16~#24						
	3.4.2	(電線絕緣材質外徑) Wire Insulation O.D.: 1.45mm~2.10 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				

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3.6	Floor Life 拆封後使用期限	Crimp Terminal & Wafer	3 Months
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Note: 適用電路板厚度 Applicable Printed Circuit Board Thickness: 0.8~1.6 mm

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-A4201TF-BTS		Housing GJ-A4201TF-BTS	
Wafer Straight Without Pegs GJ-A4201WVD- hollow		Wafer Right Angle Without Pegs GJ-A4201WRD	
Wafer Straight Contacts : Square Pin GJ-A4201WVD			

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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 不包含指壓活動卡榫結合) 連接器兩端配合，以每一分鐘 25.4 ± 3mm 的速率，作插入與拔出往返測試 (EIA/ECA 364-13D)	Refer to 9.0 Table1. 參照第 9.1 項 表格 1
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#16 size wire 9.0kgf/Min.(88.0N 牛頓)
			AWG#18 size wire 8.0kgf/Min.(78.4N 牛頓)
			AWG#20 size wire 6.0kgf/Min.(59.0N 牛頓)
			AWG#22 size wire 4.0kgf/Min.(39.0N 牛頓)
			AWG#24 size wire 3.0kgf/Min.(29.0N 牛頓)
6.3	Crimp Terminal Retention Force (in Housing) 鍍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. 對於已經存在於膠座當中鍍線端子，施以每一分鐘 25.4 ± 3 mm 速率之軸向拔出力 (EIA 364-05)	單一接觸點 Per Contact 最小容許值 3.0kgf/Min.
6.4	Square Pin Retention Force(in Base) 方型導體與膠座之間保持力	Axial pullout force on the square pin in the base at the speed rate of 25.4 ± 3 mm per minute. 對於已經存在於膠座當中方型導體，施以每一分鐘 25.4 ± 3mm 速率之軸向拔出力 (EIA/ECA 364-29C)	單一接觸點 Per Pin 最小容許值 1.0kgf/Min.

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7.0 Electrical Performance(電氣性能) :

Item(項目)	Test Condition(測試條件)	Requirement(規格)
7.1 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. 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 (EIA/ECA 364-23C) (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 500V 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 500V D/C 電壓，並量測其間絕緣阻抗值 (EIA 364-21C)	Insulation Resistance: Initial 1000megohms Min 最初容許值. 1000 兆歐姆
7.3 Withstanding Voltage 耐電壓	Apply 1500V 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 1500V A/C(實效值) 時間 1 分鐘，且漏電流必須小於 0.5mA(毫安培) (EIA 364-20C)	No breakdown or flashover. 無損毀或者產生火花

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 (EIA/ECA 364-09C) 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	(After the test) Contact resistance : 40 mΩ Max 經耐久性試驗後接觸阻抗 最大容許值 40m 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

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Item(項目)	Test Condition(測試條件)	Requirement(規格)
8.3 Vibration 耐振動	<p>A mated connector shall be mounted on a printed Circuit board and subjected to a vibration test of the following conditions.</p> <p>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。</p> <p>(EIA/ECA 364-28E-Condition I)</p> <p>Frequency(頻率): 10~55~10 Hz/minute.</p> <p>Amplitude(振幅): 1.5 mm P-P</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)</p> <p>Period(週期): 2 hours for each direction. (每一個軸向持續 2 小時)</p>	<p>Initial Contact Resistance :</p> <p>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:</p> <p>40 milliohms Max.</p> <p>經耐振動試驗後接觸阻抗最大容許值 40 毫歐姆</p>
8.4 Humidity 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:</p> <p>40milliohms Max.</p> <p>經恆溫恆濕試驗後接觸阻抗最大容許值. 40 毫歐姆</p> <p>(After the test)</p> <p>Insulation Resistance :</p> <p>100Megohms Min.</p> <p>經恆溫恆濕試驗後絕緣阻抗最小容許值. 100 兆歐姆</p> <p>經恆溫恆濕試驗後耐電壓</p> <p>(After the test)</p> <p>Withstanding Voltage:</p> <p>1500V A/C for 1 minute</p>

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Item(項目)	Test Condition(測試條件)	Requirement(規格)
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. 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</p> <p>85°C+3/-0°C for 30 minutes. → Room Temp. 5 minutes</p> <p>Total Cycles: 5 Cycles. 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</p> <p>同 8.4 章節</p>
8.6 Thermal 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. 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 4 . Method A)</p> <p>Temperature(溫度) : 105±2°C</p> <p>Period(週期): 96 hours continuously . (持續 96 小時)</p>	<p>Initial Contact Resistance : 20 milliohms Max. 接觸阻抗最初容許值 20 毫歐姆</p> <p>(After the test)</p> <p>Contact Resistance : 40milliohms Max. . 經高溫老化試驗後接觸阻抗: 最大容許值.40 毫歐姆</p>
8.7 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. (EIA 364-59A Condition D ; Condition 3)</p> <p>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。</p> <p>Temperature(溫度) : -40±3°C.</p> <p>Period(週期): 96 hours continuously . (持續 96 小時)</p>	<p>Initial Contact Resistance : 20 milliohms Max. 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. . 經耐寒試驗後接觸阻抗 : 最大容許值. 40 毫歐姆</p>

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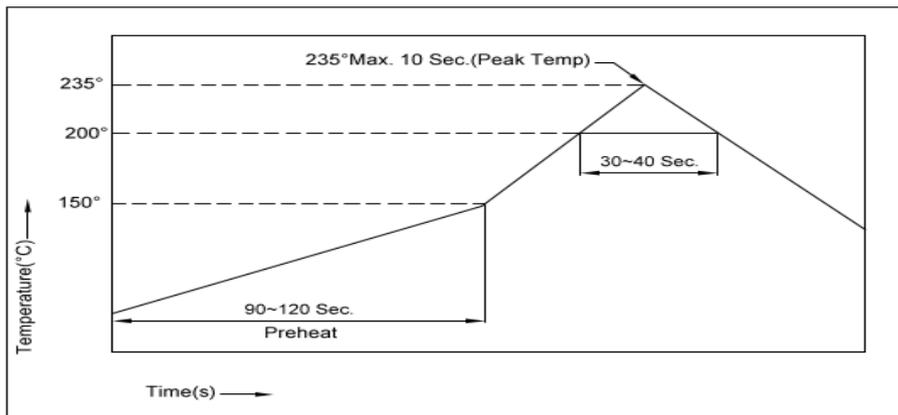
Item(項目)	Test Condition(測試條件)	Requirement(規格)
8.8 Salt Spray 鹽水噴霧	<p>A mated connector shall be subjected to a Salt Spray test of the following conditions. After the test , the specimen shall be washed with running water and dried naturally before the measurement of contact resistance. 以組合狀態下連接器作為試驗樣品，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，而後量測其接觸阻抗。</p> <p>Density(鹽水密度): 5 % in weight. Temperature(溫度): 35±2°C. Period(週期): Terminal or contact (Stamping after tin plated for 8 hours) ; Terminal or contact (Stamping before tin plated for 24 hours) 端子或導體 (先電鍍後沖壓 8 小時) ; 端子或導體 沖壓後電鍍 24 小時 (EIA 364-26B Conditions B)</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>Initial Contact Resistance: 20 milliohms Max. 接觸阻抗最初容許值 20 毫歐姆</p> <p>(After the test) Contact Resistance: 40 milliohms Max. 經鹽水噴霧試驗後接觸阻抗: 最大容許值. 40 毫歐姆</p>
8.9 Solder Ability 焊錫性	<p>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 (EIA 364-52B)</p> <p>Solder Temperature (焊錫溫度) : 245 ± 5°C.</p> <p>Immersion Period (沉浸週期) : 3 ±0.5 Seconds (操作方式) : 料件焊錫位置，距離導體末端 1.5mm</p> <p>Method : 1.5mm from square pin tip</p>	<p>Solder entirely 95% of immersed area must show no voids or pinholes. 焊料覆蓋面積必須達到 95%，而且不能產生氣孔或空隙</p>
8.10 Resistance To Soldering Heat 焊錫耐熱性	<p>Resistance to soldering heat 能夠承受焊錫耐熱範圍 :</p> <p>Refer to Temperature Profile 請參考 8.10.1.1 溫度曲線圖 (EIA-364-71B)</p> <p>by soldering iron 手工烙鐵焊錫適用溫度範圍 : 350 ± 5°C 3±0.5 Sec (操作方式) : 料件焊錫位置，距離導體末端 1.5mm</p> <p>Method : 1.5mm from square pin tip (EIA/ECA 364-56C Procedure 3. Conditions A)</p>	<p>No deformation or damage. 不可有變形或損壞</p>

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

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8.10.1 Temperature Profile(溫度曲線圖) :

8.10.1.1 Wave Peak Soldering In-Lead Free Process 波峰焊無鉛制程



9.0 Tables & Attachments

9.1 Table 1. Insertion Force (I.F.) & Withdrawal Force (W.F.) for user reference:

Unit : kg/f

No. Of Circuits 極數	AT INITIAL 首次嵌入與拔出(初始值)		AT 50 TH 50 次嵌入與拔出之後	No. Of Circuits 極數	AT INITIAL 首次嵌入與拔出(初始值)		AT 50 TH 50 次嵌入與拔出之後
	I.F. (MAX) 嵌入力	W.F. (MIN) 拔出力	W.F. (MIN) 拔出力		I.F. (MAX) 嵌入力	W.F. (MIN) 拔出力	W.F. (MIN) 拔出力
	02	3.00	0.20		0.15	05	7.50
03	4.50	0.30	0.23	06	9.00	0.60	0.45
04	6.00	0.40	0.30				

10.0Remark(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訊

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