



Type Document	Product Specification	Revised /Edition	G
Date Issued	2010/02/22	Data Revised	2015/02/24
Subject : JS-1160 JS-1160R Pitch 2.54mm DIP Series NON-ZIF FPC Connector			Issued By: Engineering Dept.

*This specification is referred to 2.54mm DIP series (NON-ZIF) FPC connector.*

本規格書內容係提供 2.54 mm DIP 系列產品相關參考，  
其用途為軟性排線相接於電路板端(具有插入力)連接器

## -INDEX-

- 1.0 Product Name/Part Number & Drawing Number.(產品名稱 / 產品型號及圖面型號)
- 2.0 Construction/Dimensions/Material & Surface Finish.(材質以及表面鍍層)
- 3.0 Characteristic.(產品特性)
- 4.0 Specimen.(樣本圖示)
- 5.0 Applicable Standards.(適用規範)
- 6.0 Mechanical Performance.(機械性能)
- 7.0 Electrical Performance.(電氣性能)
- 8.0 Environmental Performance. (環境性能)
- 9.0 FPC Cable Insertion Force (I.F.) & Withdrawal Force (W.F.)(軟排線與連接器之間插拔力規格值)
- 10.0 Remark (備註).

REV. (版本)	Revision Record (改版變更原因)	Date(日期)	ECN No
B	增加中文敘述 以及增加版本變更註記欄	2010/02/22	ECN2010-02-013
C	增加漏電流小於0.5mA之偵測值	2011/05/23	ECN2011-05-046
D	1.增列額定電壓 2.增加溫升及耐久性測試規格 3.刪除硫化氫 4.修正(EIA-364) 參考規範	2012/07/02	ECN2012-07-001
E	1.增訂3.5項Storage of Package以及 3.6 項Floor Life 2.增訂8.10.1 項Wave Peak Soldering In- Process Temperature Profile 3.修訂8.9 項Solder Ability 附註Tin Plated : 95% / Gold Plated : 75% 4.參照Operating Temp. -55°C~+85°C, 增訂8.4項Cold(Low Temperature)耐寒試驗	2014/06/05	ECN2014-06-005
F	1.第3.3 項Operating Temp. : -55°C~+85°C 修訂為25°C~+85°C 2.第3.1 額定電流1A修訂為3A 3.第3.1 額定電壓150V修訂為250V 4.第6.2 Contact Pin Retention Force0.4kgf/Min 修訂為0.3kgf/Min 5.第7.1 (Low -Signal Level)Contact Resistance 20 milliohms Max. 修訂為30 milliohms Max. 6.第8.10 By Wave Soldering Temp 260+/-5C ;3~5s修訂為245 +/-5C ; 10s Max	2014/06/10	ECN2014-06-010
G	修訂8.10.1 項 Temperature Profile	2015/02/24	EC2015-02-024



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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)
NON-ZIF FPC	Straight (直立式)	JS-1160-XX
	Right Angle (臥式)	JS-1160R-XX

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)
NON-ZIF FPC (具有插入力)軟排線連接器	Contact Pin(金屬導體)	Phosphor Bronze
	Base (膠座)	PBT
		Tin Plated
		UL 94V-0

**3.0 Characteristic(產品特性):**

Item(項目)	Standard(標準規範)
3.1 額定電流 Rated Current	<b>3A AC/DC</b>
3.2 額定電壓 Rated Voltage	<b>250V AC/DC</b>
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. : <b>-25°C~+85°C ; 85 % R.H. Max</b> 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 FPC Cable 適用軟性排線	3.4.1 FPC Thickness : 0.30mm±0.05 mm 軟性排線厚度
	3.4.2 Circuit Poles : 2~27 電路極數
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 : <b>-10°C~+40°C</b> Percentage Humidity 相對濕度 : <b>70 % Max</b>
3.6 Floor Life 拆封後使用期限	Term 保存期限 <b>1 Year</b>
3.6 Floor Life 拆封後使用期限	<b>3 Months</b>

Note : 適用電路板厚度 Applicable Printed Circuit Board Thickness: 0.8 mm ~ 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
Straight JS-1160	
Right Angle JS-1160R	



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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 FPC Cable Insertion & Withdrawal Force 軟排線與連接器之間, 嵌入力與拔出力	Mate Applicable FFC/FPC and Insert and withdraw at the Speed rate of 25.4±3 mm per minute. 將合適的軟排線與連接器組合，以每一分鐘 25.4±3 mm 速率，作嵌入與拔出往返測試	Refer to 9.1 Table1. 參照第 9.1 項 表格 1
6.2 Contact Pin Retention Force (in Base) 金屬導體與膠座之間保持力	Axial pullout force on the contact 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金屬導體，施以每一分鐘 25.4 ± 3 mm 速率之軸向拔出力 (EIA/ECA 364-29C)	單一接觸點 Per Contact 最小容許值 0.3kgf/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 10mA are applied to the mate FPC/FFC connector. 將軟排線與連接器組合，於其兩端施以最大電壓20mV 以及最大電流10mA (EIA/ECA 364-23C)	Contact Resistance: <b>30 milliohms Max.</b> 最大容許值. 30 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: <b>Initial 1000 megohms Min</b> 最初容許值. 1000 兆歐姆
7.3 Withstanding Voltage 耐電壓	Apply <b>500V A/C (rms)</b> for 1 minute and the leakage current shall not exceed <b>0.5mA</b> 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 <b>500V A/C(實效值)</b> 時間 1 分鐘，且漏電流必須小於 <b>0.5mA(毫安培)</b> (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	Applicable FPC/FFC insertion and withdrawal at the speed rate of 25.4 ± 3 mm/minute for <b>20</b> cycles 將合適的軟排線與連接器組合，然後以每一分鐘25.4 ± 3 mm速率，連續 <b>20</b> 次嵌入與拔出往返測試 (EIA/ECA 364-09C)	(After the test) Contact Resistance : <b>50 milliohms Max. .</b> 經耐久性測試後接觸阻抗: 最大容許值. 50 毫歐姆



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Item(項目)	Test Condition(測試條件)	Requirement(規格)
8.2 Temperature Rise (Via Current Cycling) 溫昇 (經由電流循環操作)	Mated FPC/FFC connector. measure the temperature rise of contact when the maximum rated current is passed 將軟排線嵌入連接器, 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 <b>Temperature Rise:</b> <b>+30°C/Max.</b> 組合狀態下之連接器溫度 最大容許值+30°C
8.3 Vibration 耐振動	A mated FPC/FFC 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. 將軟排線嵌入連接器而後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 1) 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. (每個軸向持續 2 小時)	Initial Contact Resistance : 30 milliohms Max. 接觸阻抗最初容許值 30 毫歐姆 (After the test) Contact Resistance: <b>50 milliohms Max.</b> 經耐振動試驗後接觸阻抗 最大容許值 50 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
8.4 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°C. Period(週期): 96 hours continuously . (持續 96 小時)	Initial Contact Resistance : 30 milliohms Max. 接觸阻抗最初容許值 30 毫歐姆 (After the test) Contact Resistance : <b>50 milliohms Max. .</b> 經耐寒試驗後接觸阻抗 最大容許值 50 毫歐姆



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Item(項目)	Test Condition(測試條件)	Requirement(規格)
8.5 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 II. 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℃.</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: <b>50 milliohms Max.</b> 經恆溫恆濕試驗後接觸阻抗 最大容許值. 50 毫歐姆</p> <p>(After the test)</p> <p>Insulation Resistance : <b>100 Megohms Min.</b> 經恆溫恆濕試驗後絕緣阻抗 最小容許值. 100 兆歐姆</p> <p>經恆溫恆濕試驗後測耐電壓</p> <p>(After the test)</p> <p>Withstanding Voltage: <b>500V A/C for 1 minute</b></p>
8.6 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>One Cycle Consists Of:</p> <p>(EIA/ECA 364-32D Conditions I. Method A)</p> <p><b>-55 +0/-3℃ for 30 minutes. → Room Temp.5 minutes</b></p> <p><b>85+3/-0℃ for 30 minutes. → Room Temp.5 minutes</b></p> <p>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。</p>	<p>Same as paragraph 8.5 同 8.5 章節</p>





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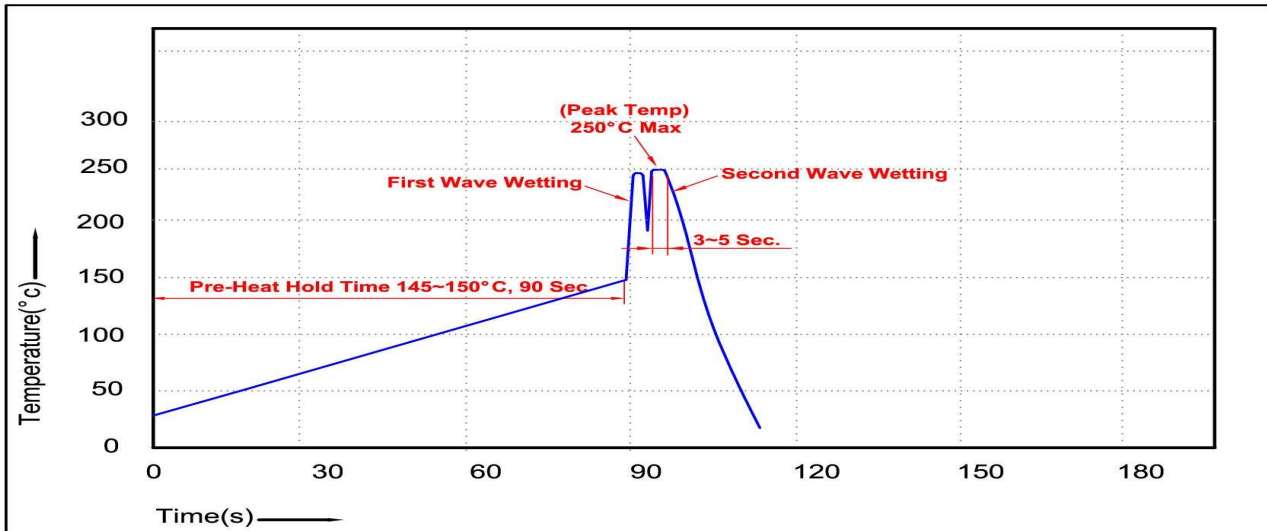
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Item(項目)	Test Condition(測試條件)		Requirement(規格)	
8.7	Heat Aging 高溫老化試驗	A mated connector shall be placed in a heat oven of the following conditions. After the test, leave the specimen at room temperature for 1~2 hours before the contact resistance shall 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 3. Test Duration A) Temperature(溫度): 85±2°C. Period(週期): 96 hours continuously . (持續 96 小時)	Initial Contact Resistance : 30 milliohms Max. 接觸阻抗最初容許值 30 毫歐姆 (After the test) Contact Resistance : 50 milliohms Max. . 經高溫老化試驗後接觸阻抗 最大容許值. 50 毫歐姆	
8.8	Salt Spray 鹽水噴霧	A mated FPC 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. 將軟排線嵌入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。(EIA 364-26B Conditions B) Density(鹽水密度): 5 % in weight. Temperature(溫度): 35±2°C. Period(週期): 8 hours	Initial Contact Resistance : 30 milliohms Max. 接觸阻抗最初容許值 30 毫歐姆 (After the test) Contact Resistance: 50 milliohms Max. 經鹽水噴霧試驗後接觸阻抗 最大容許值. 50 毫歐姆	
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 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，距離導體末端 1.5mm Method : 1.5mm from contact pin tip . (EIA 364-52B)	Solder entirely (Tin Plated : 95% / Gold Plated : 75%) of immersed area must show no voids or pinholes. 焊料覆蓋面積必須達到 (鍍錫 95% / 鍍金 75%)， 而且不能產生氣孔或空隙	
8.10	Resistance to Soldering Heat 焊錫耐熱性	By Wave Soldering(波焊適用溫度範圍) : (EIA-364-71B) 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，距離導體末端 1.5mm Method : 1.5mm from contact pin tip. (EIA/ECA 364-56C Procedure 3. Conditions A)	No deformation or damage. 不可有變形或損壞	



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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) / Wave Peak Soldering In- Lead-Free Process 波焊無鉛制程 :



9.0 Tables & Attachments

9.1 Table 1. FPC Cable 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)		No. of Circuits 極數	AT INITIAL 首次嵌入與拔出(初始值)		No. of Circuits 極數	AT INITIAL 首次嵌入與拔出(初始值)	
	I.F. (MAX) 嵌入力	W.F. (MIN) 拔出力		I.F. (MAX) 嵌入力	W.F. (MIN) 拔出力		I.F. (MAX) 嵌入力	W.F. (MIN) 拔出力
	02	0.40		0.08	11		2.20	0.44
03	0.60	0.12	12	2.40	0.48	21	4.20	0.84
04	0.80	0.16	13	2.60	0.52	22	4.40	0.88
05	1.00	0.20	14	2.80	0.56	23	4.60	0.92
06	1.20	0.24	15	3.00	0.60	24	4.80	0.96
07	1.40	0.28	16	3.20	0.64	25	5.00	1.00
08	1.60	0.32	17	3.40	0.68	26	5.20	1.04
09	1.80	0.36	18	3.60	0.72	27	5.40	1.08
10	2.00	0.40	19	3.80	0.76			

10Remark(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: J.M.Chang Approved: Peter Chang Verified: Indiana Huang