ISO9001: 2015

ISO14001: 2015

APPROVAL SPECIFICATIONS

Title. FPC Connector

Product Model. GYFB0520-XXRD-G

Customer's Part NO.

Customer's Model:

Customer's Approval Requested.

Please return this copy as a certification of your approval.

Checked by: Date:

Approved by: Date:

Swiclick

Address:Rm. D1/25F,No 2070,Electronical Technology Building-C,Shennan Mid-road,Futian Dist.,Shenzhen,China.

Website:https://www.swiclick.com

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APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		2/13

变更履历表：

版本	变更记录	变更人	变 更 日 期

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APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		3/13

1、 概述

GENERAL

1.1 适用范围

This specification covers the requirements for product performance and test methods of the FPC Connector.， Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

此份规格书包含了对 FPC 连接器产品测试方法及产品特性的要求 ，产品设计开发及图面上的尺寸均应参照此规格书。

1.2 工作温度范围

Operating Temperature Range

-25℃～85℃(在标准大气压、标准湿度条件下)

-25℃～85℃(Normal humidity, normal air pressure)

1.3 相对湿度： ≤85%

Operating Relative Humidity: ≤85%

1.4 实验条件：若没有特别说明，则试验大气条件如下：

Test Conditions: Unless otherwise specified, the atmospheric conditions for making measurements and tests are as follows:

环境温度： 20~35℃

Ambient Temperature: 20~35℃

相对湿度： 25~85%

Relative Humidity: 25~85%

大气压力： 86~106Kpa (860~106mbar)

Air Pressure: 86~106Kpa (860~106mbar)

1.5 保质期

Quality guarantee

产品出货后在温度-5℃～35℃ 、湿度 25%～85%条件下，确保未开封状态保质期为 3 个月；

保管时尤其应注意避开高湿高温和有腐蚀性气体的环境

Stored at a condition of temperature -5℃～35℃,humidity 25%～85% and ensure that it be unsealed after delivery, it can be stored for 3 months.

Should especially avoid the environment of high humidity and corrosive gases

1.6、命名规则

Naming rules

PART NO.： **GYFB 05 20 - XX RD - G**

1 2 3 4 5 6

1	Series name	FPC Connector
2	Pitch between	0.5 mm Pitch
3	Height	2.0mm
4	Number of contacts	4~60
5	Assembly style	Right Angle /Low Contact SMT Type
6	Plating	Gold flash over Nickel

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APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		4/13

2、 详细说明

Detailed specification

2.1 外观：应无影响、降低产品性能的缺陷；

Appearance: There should be no defects that affect the serviceability of product.

2.2 结构尺寸和安装尺寸：应符合装配图要求；

Style and dimension: shall conform to the assemble drawings.

2.3 标识： 参见产品图纸

Markings: Refer to individual product drawing.

2.4 操作形式：有触觉反应的操作

Type of actuating: Tactile feedback.

2.5 开关工作额定值： 50V AC/DC 0.4A

Ratings：50V AC/DC 0.4A

3．电气性能：

ELECTRICAL SPECIFICATION

项 目 ITEM		试 验 条 件 TEST CONDITIONS	要求 REQUIREMENTS
3.1	接触电阻 Contact Resistance	将样品与适合之 FPC 连接，测试电压 20mV，限电流 10mA 下进行阻抗测试。 (JIS C5402 5.4) Mate applicable FPC and measure by dry circuit, 20mV Max, 10mA. (JIS C5402 5.4)	≤40mΩ
3.2	绝缘电阻 Insulation Resistance	将样品与适合之 FPC 连接，提供相邻端子间测试电压 500V DC 进行绝缘阻抗测试。 (JIS C5402 5.2 / MIL-STD-202 Method 302) Mate applicable FPC and apply 500V DC between adjacent terminal or ground. (JIS C5402 5.2 / MIL-STD-202 Method 302)	≥50MΩ
3.3	介质耐压 Dielectric voltage proof	将样品与适合之 FPC 连接，相邻端子间需可承受 250V AC 1 分钟。 Mate applicable FPC, apply 250V AC(rms) for 1 minute between adjacent terminal or ground. (JIS C5402 5.1 / MIL-STD-202 Method 301)	无击穿 There should be no breakdown

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APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		5/13

	项目 ITEM	试 验 条 件 TEST CONDITIONS	要求 REQUIREMENTS
4．机械性能： MECHANICAL SPECIFICATION			
4.1	FPC 保持力 FPC Retention Force	将盖子盖上，与 FPC 连接，以操作速度每分钟位移 25±3mm 进行 FPC 保持力测试。 Insert the actuator, pull the FPC at a rate of 25±3mm per minute.	Pos. x 0.3N Min.
4.2	端子保持力 Terminal Retention Force	端子与 Housing 组装后，以操作速度每分钟位移 25±3mm 将端子拔出 Housing，进行端子保持力测试。 Apply axial pull out force at the rate of 25±3 mm/minute on the terminal assembled in the housing.	Pos. x 0.2N Min.
4.3	耐久性 Durability	运行速度：10 个循环 最大/分钟 耐久性周期：50 周期 Operation Speed :10 cycle max/min Durability cycle :50 cycle	Contact Resistabce. 60m Ω Max(Final)
4.4	耐冲击性 Shock	测试速度 490m/s² 持续时间 11msX、Y、Z、3 个轴 6 各方向各 3 次 FPC 嵌合状态下测试。 Mate applicable FPC and subject to the following shock conditions. With acceleration 490m/s² lasting 11ms, 3times of shocks shall be applied for each 6 directions along 3 mutually perpendicular axes	外观：目视外观无任何 损坏异状； 瞬间断电：1 μsec 以下 Appearance：No Damage Discontinuity：1 μsec Max
4.5	耐振性 Vibration	频率 10-55-10Hz，震幅 1.52mm，转换时间 1 分钟传递。X/Y/Z 方向各 2 小时，共计 6 小时 FPC 嵌合状态下测试 Mate connectors and subject to the following vibration conditions, for period of 2 hours in each of 3 mutually perpendicular axes. Amplitude: 1.52mm Frequency: 10~55~10Hz in 1 minutes	外观：目视外观无任何 损坏异状； 瞬间断电：1 μsec 以下 Appearance：No Damage Discontinuity：1 μsec Max

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APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		6/13

5、环境耐久性：
ENVIRONMENTAL SPECIFICATION

项目 ITEM		试 验 条 件 TEST CONDITIONS	要求 REQUIREMENTS
5.1	耐热性 Heat Resistance	85±2℃条件下 放置 96 小时，然后在常温常湿下放置 1 小时后测试 FPC 嵌合状态下测试 Mate applicable FPC and expose to 85 ± 2 ℃ for 96H, Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1H, after which the specified measurements shall be performed.	外观：目视外观无任何 损坏异状； 接触电阻：60mΩ 以下 Appearance：No Damage Contact Resistance：60 mΩ Max
5.2	耐寒性 Cold Resistance	将样品与适合之 FPC 连接，置于环境温度 -25±2° C， 测试时间 96 小时，再置放于室温下 1~2 小时。(JIS C0020) Mate applicable FPC and expose to -2±2°C for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.(JIS C0020)	外观：目视外观无任何 损坏异状； 接触电阻：60mΩ 以下 Appearance：No Damage Contact Resistance：60 mΩ Max
5.3	耐湿性 Humidity	将样品与适合之 FPC 连接，置于环境温度 60±2° C， 相对湿度 90~95%，测试时间 96 小时，再置放于室温 下 1~2 小时。 (JIS C0022 / MIL-STD-202 Method 103) Mate applicable FPC and expose to 60 ± 2°C, relative humidity 90 to 95% for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0022 / MIL-STD-202 Method 103)	外观：目视外观无任何 损坏异状； 接触电阻：60mΩ 以下 Appearance：No Damage Contact Resistance：60 mΩ Max

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APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		7/13

项目 ITEM		试 验 条 件 TEST CONDITIONS	要求 REQUIREMENTS
5.4	冷热冲击 Temperature Cycling	将样品与适合之 FPC 连接，承受 5 cycles 冷热冲击后， 置放于室温下 1~2 小时。 1 cycle time 如下 a) -55±3° C 30 分钟 b) +85±3° C 30 分钟 (JIS C0025) Mate applicable FPC and subject to the following conditions for 5 cycles. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 1 cycle a) -55±3°C 30minutes b) +85±3°C 30minutes (Transit time shall be with in 3 minutes) (JIS C0025)	外观：目视外观无任何 损坏异状； 接触电阻：60mΩ 以下 Appearance：No Damage Contact Resistance：60 mΩ Max
5.5	盐水喷雾 Salt Spray	将样品与适合之 FPC 连接，使用 5±1%浓度盐水，测试温度 35±2° C，测试时间 24±1 小时,后于室温下使用清水 冲洗后再干燥。 (JIS C0023 / MIL-STD-202 Method 101) Mate applicable FPC and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water, after which the specified NaCl solution Concentration : 5 ± 1% Spray time : 24 ± 1 hours Ambient temperature : 35 ± 2°C (JIS C0023 / MIL-STD-202 Method 101)	外观：目视外观无任何 损坏异状； 接触电阻：60mΩ 以下 Appearance：No Damage Contact Resistance：60 mΩ Max
6．耐焊接热： SOLDERING CONDITIONS:			
6.1	可焊接性 Solderability	将焊锡部分浸入温度为 245℃±5℃的锡炉中 保持 3 秒 Dip soldering tail into Tin oven, temperature of Tin oven is 245℃±5℃. the test specimens shall be lasted 3sec.	焊接端应容易被熔融焊料润湿,粘锡面积应占浸入面积的 70%以上 Soldering tail shall be easy wetting by melted tin, Tin shall cover over 70% of dipping area of soldering leg

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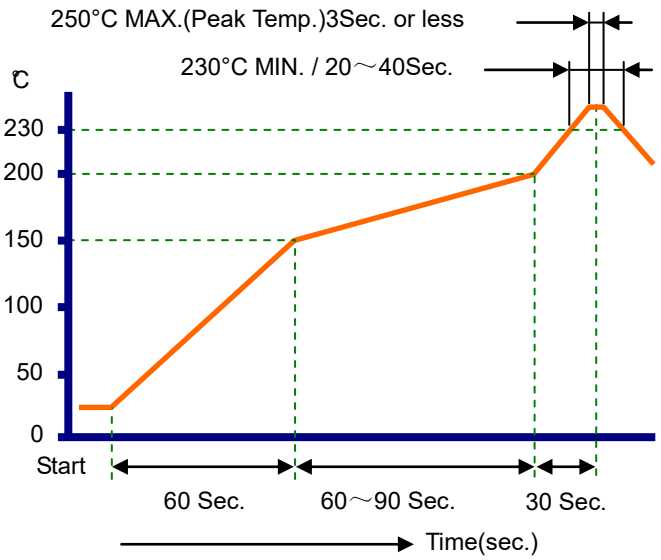
APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		8/13

项目 ITEM		试 验 条 件 TEST CONDITIONS	要求 REQUIREMENTS
6.2	回流焊时 Conditions for reflow	 NOTE: Please check the re-flow soldering condition by your own devices beforehand . Because the condition changes by the soldering devices, p.c. boards, and so on.	

注意事项(Notes):

a、印刷基板的焊盘尺寸参见产品图。

The pad size of the printed substrate is shown in the product diagram.

b、在使用烙铁的情况下，焊锡温度应在 350℃以下、3 秒以内。

In the case of using soldering iron, soldering conditions shall be 350℃ max and 3 sec.max.

c、防止助焊剂从开关的顶端渗入

Prevent flux penetration from the top of the switch

d、开关浸焊后，注意不要用溶剂或类似品清洗开关。

After switches were soldered,please be careful not to clean switches with solvent or other similar products.

e、浸焊后，注意不要在顶部施加负荷。

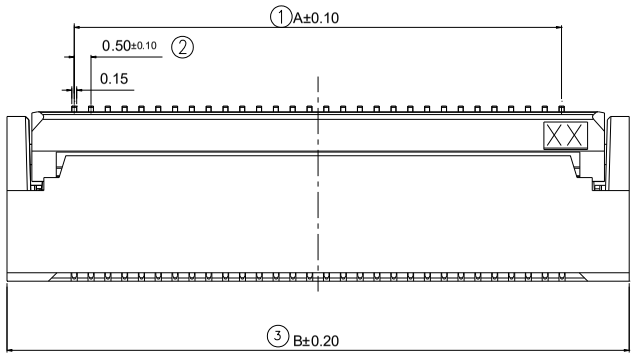
Right after switches were soldered;please be careful not to load to on the knobs of switches.

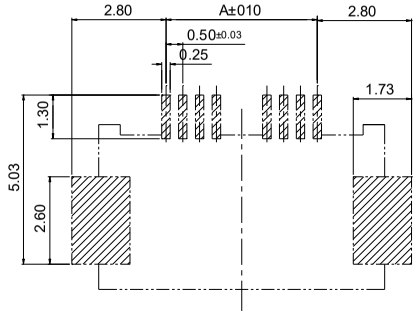
f、注意不要施加超负荷的压力或晃动开关。

Please be cautions not to give excessive static load or shock to switches.

g、开关浸焊后，印刷基板注意不要叠放。

Please be careful not to pile up P.W.B.after switches were soldered

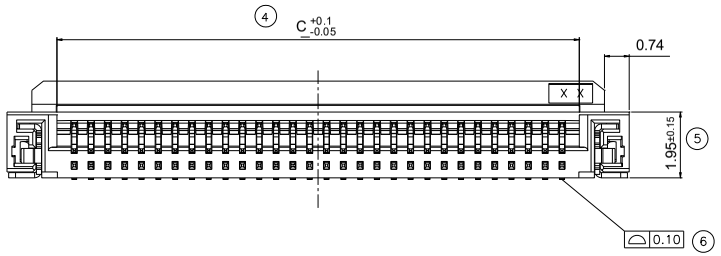


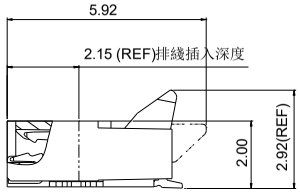


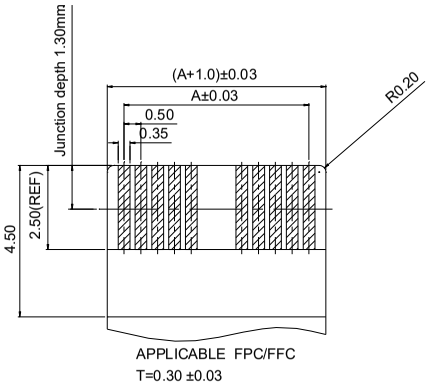
RECOMMENDED PCB LAYOUT

NOTES:
1. MATERIAL:
HOUSING: LCP,UL 94-V0,COLOR:NATURAL
COVER: PA9T,UL 94-V0,COLOR:BLACK;
CONTACT: PHOSPHOR BRONZE
LEG: PHOSPHOR BRONZE
2. PLATING:
CONTACT: GOLD FLASH
LEG: TIN OVER NICKEL

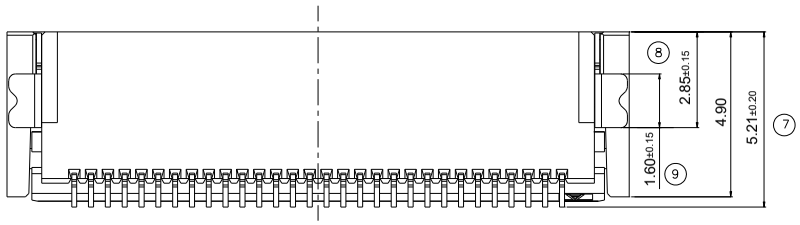
DIM / NO POSITIONS	A	B	C
4	1.50	5.50	2.55
5	2.00	6.00	3.05
6	2.50	6.50	3.55
8	3.50	7.50	4.55
9	4.00	8.00	5.05
10	4.50	8.50	5.55
12	5.50	9.50	6.55
13	6.00	10.00	7.05
14	6.50	10.50	7.55
15	7.00	11.00	8.05
16	7.50	11.50	8.55
17	8.00	12.00	9.05
18	8.50	12.50	9.55
20	9.50	13.50	10.55
22	10.50	14.50	11.55
24	11.50	15.50	12.55
25	12.00	16.00	13.05
26	12.50	16.50	13.55
28	13.50	17.50	14.55
30	14.50	18.50	15.55
32	15.50	19.50	16.55
34	16.50	20.50	17.55
36	17.50	21.50	18.55
40	19.50	23.50	20.55
45	22.00	26.00	23.05
50	24.50	28.50	25.55
54	26.50	30.50	27.55
55	27.00	31.00	28.05
60	29.50	33.50	30.55







APPLICABLE FPC/FFC
T=0.30 ±0.03



NO	COMPONENTS	MATERIALS	COLOR/SPECIFICATION	QUANTITY
1	HOUSING	LCP	NATURAL UL94V-0	1 PCS
2	COVER	PA9T	BLACK UL94V-0	1 PCS
3	CONTACT	PHOSPHOR BRONZE	T=0.15mm PLATING	POSITIONS
4	STATOR	BRASS	T=0.15mm PLATING	2 PCS

UNLESS OTHERWISE SPECIFIED TOLERANCE			
ANG	TOL	DIM	TOL
.X	±2.0°	.X	±0.20
.XX	±1.0°	.XX	±0.10
.XXX	±0.5°	.XXX	±0.05

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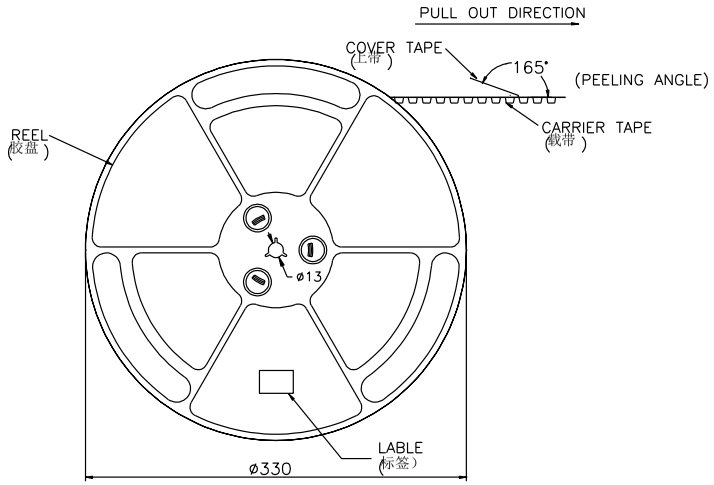
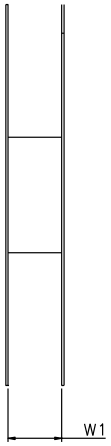
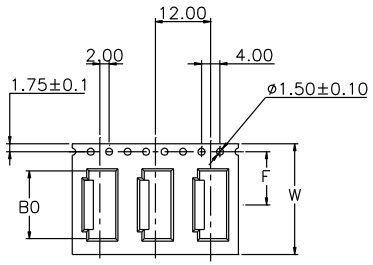
DRAWING NO		PART NAME:	FPC 0.5 pitch H2.0 Back Flip Type Connector			
		PART NO.	GYFB0520-XXRD-G			
APPROVED	VERIFIED	DESIGN	DATE	UNITS	SCALE	PAGE	REV
				mm	1: 1	1/1	B



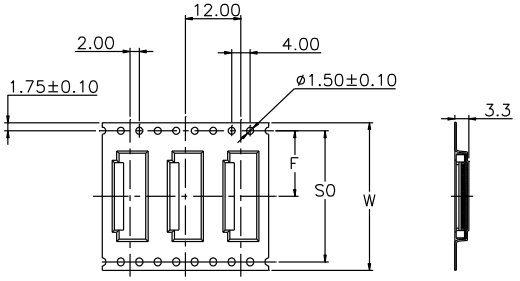
Scale 1:4



NOTE:
1.10 Sprocket hole pitch cumulative tolerance ±0.20 mm.
2.Carrier camber is within 1mm in 250 mm.
3.Material: black conductive polystyrene alloy.
4.Material Thickness: 0.3±0.05mm.
5.All dimensions meet EIA-481-C requirements.
6.1,500 pcs Pef Reel.
7.For tape width(dim W)16 and 24mm
pilot holes are provided on one sides.
For tape width(dim W)32, 44 and 56mm
pilot holes are provided on both sides.

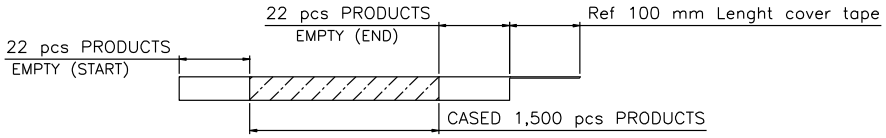


Pull Out Direction



Pull Out Direction

DIM / NO. POSITIONS	B0±0.10	W	W1	F	S0±0.10
4	5.80	16	16.4	7.5±0.1	---
5	6.30				
6	6.80				
8	7.80	24	24.4	11.5±0.1	
9	8.30				
10	8.80				
12	9.80				
13	10.30				
14	11.30				
15	12.30				
16	12.80				
18	12.80				
20	13.80				
24	15.80				
26	16.80	32	32.4	14.2±0.1	28.4
28	17.80				
30	18.80				
32	19.80				
34	20.80				
36	21.80	44	44.4	20.2±0.15	40.4
40	23.80				
45	26.30				
50	28.80				
54	30.80				
60	33.80	56	56.4	26.2±0.15	52.4
80	43.80				



-TOLERANCES- UNLESS OTHERWISE SPECIFIED		Swiclick	
			TITLE: FPC 0.5Pitch 2.0H ZIF 后掀 Packing
X.X :±0.30	X.X° :±5°	APPD:	DWG NO: GYFB0520-XXRD-G
X.XX :±0.20	X.XX° :±2°	CHECK:	DATE / SCALE / UNIT / PAGE
X.XXX:±0.10	X.XXX° :±1°	DRAW:	1:1 / mm / 1/1

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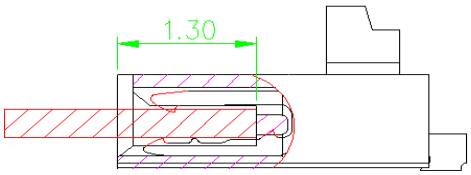
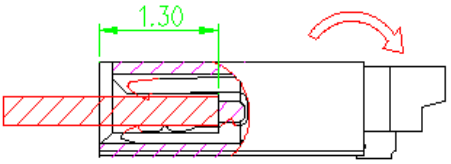
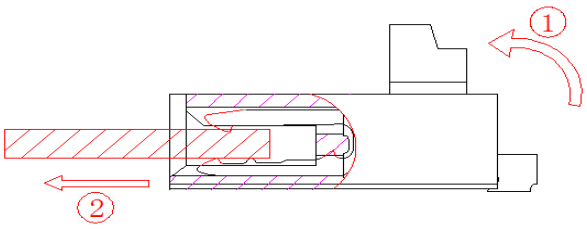
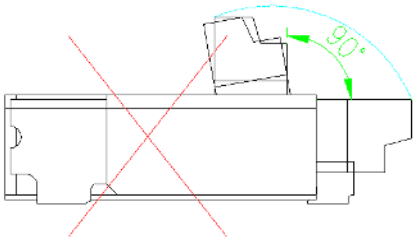
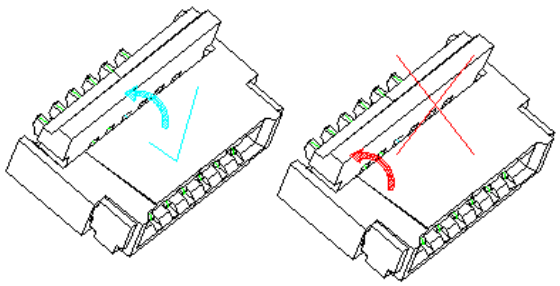
APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		12/13

7、操作指示 Instruction upon usage

步骤 1: Joining step 1： 当上盖呈打开状态时，将 FPC 插入连接器中。 Insert the FPC with the actuator opened.	
步骤 2: Joining step 2： FPC 完全插入且没有移动，压上盖往下 旋转至定位。 FPC is totally inserted and not moved. press the actuator and rotate down to make a reservation .	
步骤 3: Joining step 3： FPC removal FPC 退出。 掀起上盖，将 PFC 退出 Lift the actuator, withdraw FPC .	
警告 Warning!! 旋转的角度不可大于 90 度。 The whirling angle can't be greater than 90 degrees.	
警告 Warning!! 施压的力量应该要平均且要压盖的中心部位 The strength of exerting pressure should be average and pushing actuator at the center .	

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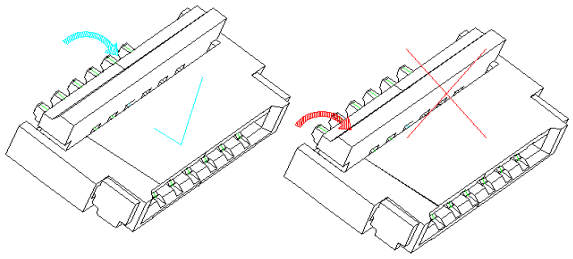
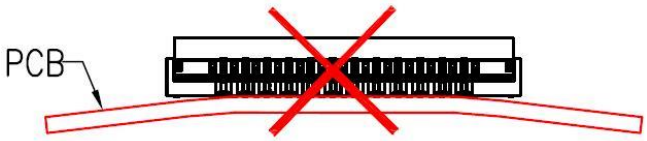
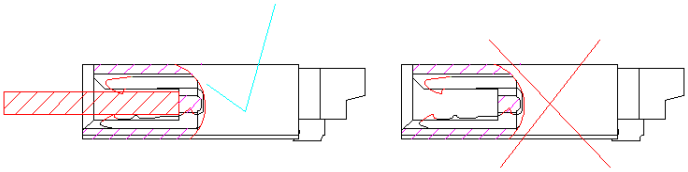
APPROVAL SPECIFICATIONS

Product name	P/N	Version	Document No.	Page
FPC Connector	GYFB0520-XXRD-G	A/00		13/13

警告 Warning!! 掀盖要掀盖的中心部位。 To lift actruator at the center.	
警告 Warning!! PCB 板平整度必须在 0.1mm max 。 The roughness of PCB board must be in 0.1mm max.	
警告 Warning!! 产品不能不插 PFC 时翻转盖子。 Products not inserted flip lid.