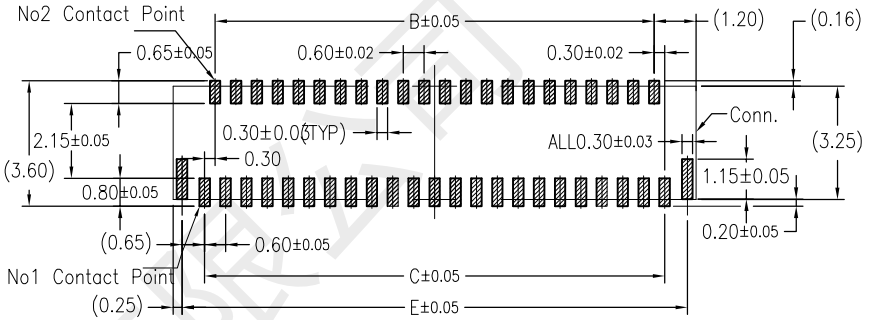
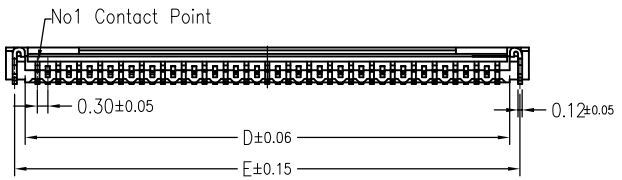


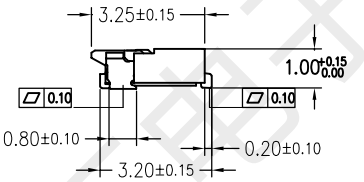
When Actuator Is Opened
Scale 2:1



FPC/FFC Insert Direction

Recommended P.C.B Layout △C



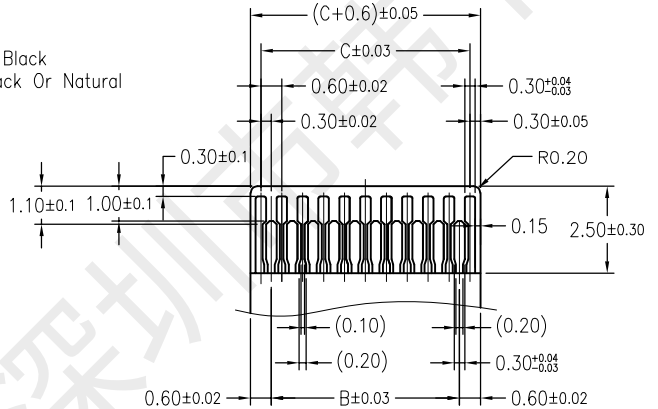


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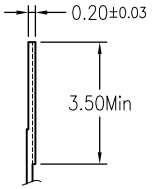
1.Material
- 1.1: Housing: LCP UL94-V0 Color:Natural.Or Black
- 1.2: Actuator: LCP OR PA UL94-V0 Color:Black Or Natural
- 1.3: Contact: Phosphor Bronze.
- 1.4: LEG: Phosphor Bronze.

2.Plating
- 2.1: Contact: See Part Number.
- 2.2: LEG: Matte Tin Plating Over Nickel.

3.Rating:
- 3.1: Operating Voltage: 30V AC/DC.
- 3.2: Current Rating: 0.2A AC/DC.
- 3.3: Operating Temperature:-55°C~+85°C.



Applicable FPC



Number of Contacts	Dimension				
	A	B	C	D	E
13	5.40	3.00	3.60	4.25	4.90
15	6.00	3.60	4.20	4.85	5.50
17	6.60	4.20	4.80	5.45	6.10
19	7.20	4.80	5.40	6.05	6.70
21	7.80	5.40	6.00	6.65	7.30
23	8.40	6.00	6.60	7.25	7.90
25	9.00	6.60	7.20	7.85	8.50
27	9.60	7.20	7.80	8.45	9.10
29	10.20	7.80	8.40	9.05	9.70
31	10.80	8.40	9.00	9.65	10.30
33	11.40	9.00	9.60	10.25	10.90
35	12.00	9.60	10.20	10.85	11.50
37	12.60	10.20	10.80	11.45	12.10
39	13.20	10.80	11.40	12.05	12.70
41	13.80	11.40	12.00	12.65	13.30
45	15.00	12.60	13.20	13.85	14.50
49	16.20	13.80	14.40	15.05	15.70
51	16.80	14.40	15.00	15.65	16.30
57	18.60	16.20	16.80	17.45	18.10
61	19.80	17.40	18.00	18.65	19.30
67	21.60	19.20	19.80	20.45	21.10
71	22.80	20.40	21.00	21.65	22.30
73	23.40	21.00	21.60	22.25	22.90

REV	DESCRIPTION	ECN.NO	BY	DATE
D	主体和盖子外观变更	20141204001	liu	12/04'14
C	添加11PIN规格	20140331001	liu	03/31'14
B	0.70改为0.80	20130520001	liu	05/20'13
A	--------	--------	liu	02/18'13

-TOLERANCES- UNLESS OTHERWISE SPECIFIED 公差參考表			
X.X	:±0.30	X.X°	:±5°
X.XX	:±0.20	X.XX°	:±2°
X.XXX	:±0.10	X.XXX°	:±1°

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APPD: 核准:	罗小春	TITLE: 產品名稱:	HX FPC 0.3-21P XGXJ H1.0-BK
CHECK: 校對:	张伟	DWG NO: 產品料號:	
DRAW: 繪圖:	黄彬	DATE: 20111004	SCALE: 1:1 / UNIT: mm / PAGE: 1/1

深圳市韩下电子有限公司

深圳市韩下电子有限公司
Shenzhen Hanxia Electronic Co.,Ltd
Tel:0755-23086569

承　认　书

SPECIFICATION FOR APPROVAL

产 品 编 码
Material code: _____

产品名称 Project：FPC

规格型号 Part No：HX FPC 0.3-21P XGXJ H1.0-BK

贵公司承认印 Approval signatures

料 号/Part No.	签　章/Signatures

日期 Date:

拟制/Drawn	黄彬	深圳市韩下电子有限公司 工程专用章
审核/Check	张伟	
批准/Approved	罗小春	

深圳市韩下电子有限公司

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FPC Connector 0.5mmPitch A	**Product Specification**	Issued Date 2018-10-18

1. SCOPE

This specification covers the CFPC0310 Series Connector.

2. ORDERING INFORMATION

PART NO.: **FPC 03 10 - xx RL - TA G**

1 2 3 4 5 6 7

1	Series name	FPC Connector
2	Pitch between contacts	0.3 mm Pitch
3	Series Number	10
4	Number of terminals	13~73
5	Assembly style	Right Angle /Low Contact SMT Type
6	Packaging	TA :Tape Reel
7	Plating	Gold flash over Nickel

3. CONNECTOR DIMENSIONS

See attached drawings.

4. MATERIAL

Housing :	LCP Color : Black.or White
	Flammability Rating (UL94V-0) HF
Actuator	LCP Color : Black.
	Flammability Rating (UL94V-0)
Contact :	Phosphor Bronze C5210
Leg :	Phosphor Bronze C5210
Contact Plating	Gold Flash
	50u"-100u" Nickel Underplating
Leg Plating:	120u" Tin over Nickel 50u"-100u"

5. ACCOMMODATED P.C.B. LAYOUT

See attached drawings.

6. RATING.

ITEM	STANDARD
Operating Voltage (Max.)	30V AC
Current Rating (Max.)	0.2A DC
Operating Temperature	-55°C ~ +85°C (Including terminal temperature rise)
Operating Humidity range	Relative humidity 90%Max
Storage temperature range	-10°C ~ +50°C
Storage Humidity range	Relative humidity 90%Max.

7. PERFORMANCE

项目 **ITEM**	测试条件 **TEST CONDITION**	规格 **REQUIRMENT**
电气特性（**ELECTRICAL PERFORMANCE)**		
接触阻抗 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)	40 mΩ 以下. 40 mΩ Max.
绝缘阻抗 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)	50 MΩ 以上. 50 MΩ Min.
耐电压 Dielectric Strength	将样品与适合之 FPC 连接，相邻端子间需可承受 250V AC(rms) 1 分钟。 (JIS C5402 5.1 / MIL-STD-202 Method 301) Mate applicable FPC, apply 250V AC(rms) for 1 minute between adjacent terminal or ground. (JIS C5402 5.1 / MIL-STD-202 Method 301)	目视外观无任何损坏异状 No Breakdown
机械特性（**MECHANICAL PERFORMANCE)**		
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 0.15N 以上 Pos. x 0.15N Min.
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 0.08Kgf {0.8N} 以上 Pos. x 0.08Kgf {0.8N} Min.

项目 **ITEM**	测试条件 **TEST CONDITION**	规格 **REQUIRMENT**	
盖子往返操作测试 Repeated Actuator	将盖子与 FPC 反复连接 以每分钟小于 10 cycles 连续操作 20 次。	接触阻抗	60 mΩ 以下.

Insertion/ Withdrawal	Insert and withdraw actuator up to 20 cycles at the speed rate of less than 10 cycles/minute.	Contact Resistance	60 mΩ Max.
温升 Temperature Rise	量测通过 FPC 最大容许电流时，样品接触点之温升。 (UL498) Mate applicable FPC and measure the temperature rise of contact when the maximum AC rated current is passed. (UL498)	温升 Temperature rise	30°C 以下. 30°C Max.
耐振性 Vibration	通过 DC 电流 1mA，位移相对距离 1.5mm，振动周期10~ 55~ 10 Hz 在 1 分钟内，持续 2 小时，方向在 X,Y,Z轴做测试。 (MIL-STD-202 Method 201) Mate connectors and subject to the following vibration conditions, for period of 2 hours in each of 3 mutually perpendicular axes, passing DC 1mA during the test. Amplitude : 1.5mm P-P Frequency : 10～ 55～ 10 Hz in 1 minute.	外观 Appearance	目视外观无任何损坏异状 No Damage
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
		瞬间断电 Discontinuity	1 μsec 以下. 1 μsec Max.
耐冲击性 Shock	Duration : 2 hours in each of X,Y,Z axes. (MIL-STD-202 Method 201) 将样品与适合之 FPC 连接，通过 DC 1 mA 测试条件， 连续测试 3 次。在 X、Y、Z 3 轴 6 个垂直方向施予重力加速度.490m/s^2 {50G} 冲击。 (JIS C0041/MIL-STD-202 Method 213) Mate applicable FPC and subject to the following shock conditions. 3 times of shocks shall be applied for each 6 directions along 3 mutually perpendicular axes, passing DC 1 mA current during the test. (JIS C0021 / MIL-STD-202 Method 108)	外观 Appearance	目视外观无任何损坏异状 No Damage
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
		瞬间断电 Discontinuity	1 μsec 以下. 1 μsec Max.
耐热性 Heat Resistance	将样品与适合之 FPC 连接置于环境温度 85±2°C 测试时间 96 小时，再置放于室温下 1～ 2 小时。 Mate applicable FPC and expose to 85±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 C0021 / MIL-STD-202 Method 108)	外观 Appearance	目视外观无任何损坏异状 No Damage
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
耐寒性 Cold Resistance	将样品与适合之 FPC 连接，置于环境温度-40±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 -40±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 Appearance	目视外观无任何损坏异状 No Damage
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.

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 Appearance	目视外观无任何损坏异状 No Damage
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
		耐电压 Dielectric Strength	需能符合耐电压 测试 No Breakdown
		绝缘阻抗 Insulation Resistance	20 MΩ 以上. 20 MΩ Min.
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 Appearance	目视外观无任何损坏异状 No Damage
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
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 48±4 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 : 48 ± 4 hours Ambient temperature : 35 ± 2°C (JIS C0023 / MIL-STD-202 Method 101)	外观 Appearance	目视外观无任何 损坏异状
		接触阻抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.

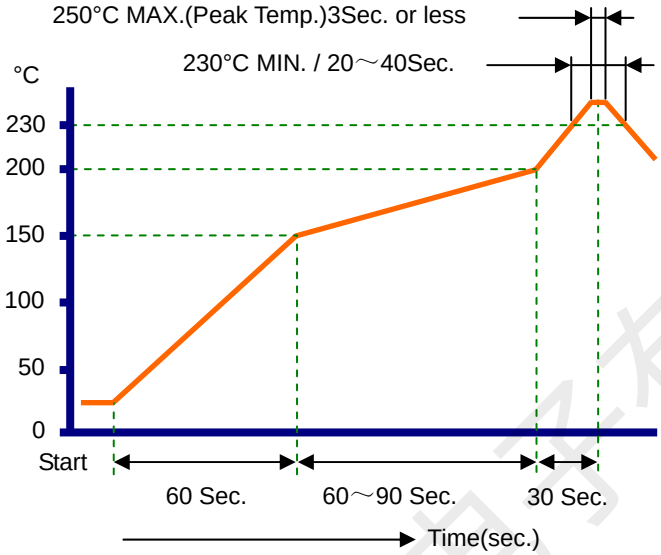
项目 **ITEM**	测试条件 **TEST CONDITION**	规格 **REQUIRMENT**

二氧化硫(气体) SO_2 Gas	将样品与适合之 FPC 连接，将其置放于 50±5 ppm 浓度二氧化硫气体中，测试温度 40±2°C，测试时间 24 小 时。 Mate applicable FPC and expose them to the following SO_2 gas atmosphere. Temperature 40 ± 2°C Gas Density 50 ± 5 ppm Duration 24 hours	外观 Appearance	目 视 外 观 无 任 何 损坏异状 No Damage
		接 触 阻 抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
氨(气体) NH_3 Gas	暴露来自浓度 28%阿摩尼亚之蒸发气体 NH_3 中，测试时间 40 分钟。 40 minutes exposure to NH_3 gas evaporating from 28% Ammonia solution.	外观 Appearance	目 视 外 观 无 任 何 损坏异状 No Damage
		接 触 阻 抗 Contact Resistance	60 mΩ 以下. 60 mΩ Max.
焊锡性 Solderability	锡温 245±5°C，将导电端子浸入锡炉液面至 Housing距离锡面 0.1mm 位置，焊锡时间 3±0.5 秒。 Tip of solder tails and fitting nails into the molten solder (held at 245±5°C) up to 0.1mm from the bottom of the housing for 3±0.5 seconds.	润湿性 Solder Wetting	润湿面积 75%以上，并不得有漏焊 针孔现象 75% of immersed area must show no voids, pin holes.
焊锡耐热性 Resistance to Soldering Heat	使用红外线回焊时请参考第 8 点 When reflowing…Refer to paragraph 8.	外观 Appearance	目 视 外 观 无 任 何 损坏异状 No Damage
	使用烙铁手焊时须可符合下述焊锡条件 *Soldering iron method* 0.2mm from terminal tip and fitting nail tip. Soldering time: 5 seconds Max. Solder temperature : 370～400°C		

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8. INFRARED REFLOW CONDITION

8. INFRARED REFLOW CONDITION



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.

9. TAPE AND REEL PACKAGE SPECIFICATION

9-1.Tape and Reel Dimensions：See attached drawings.

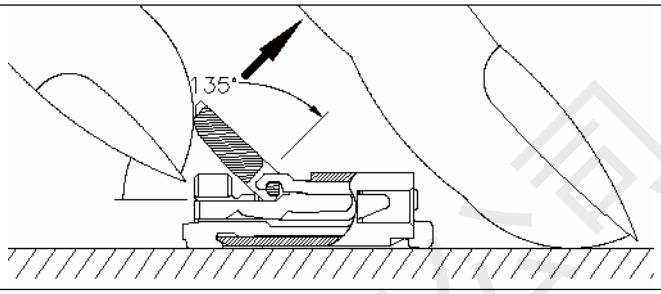
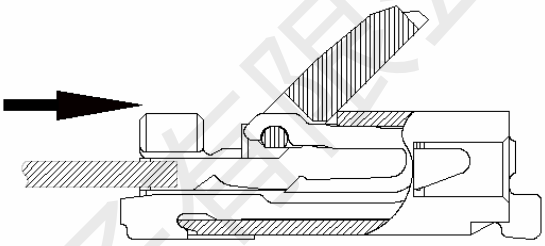
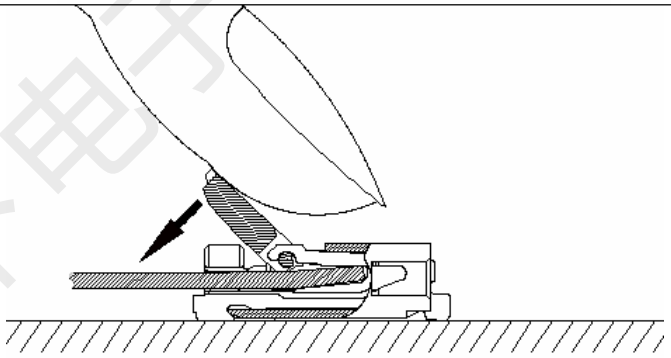
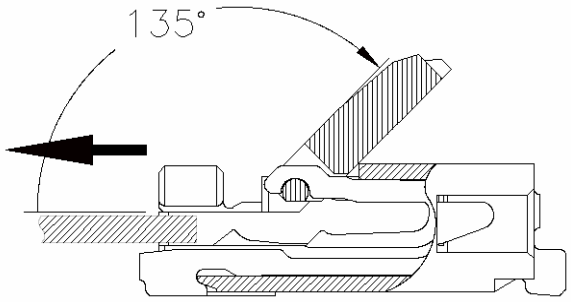
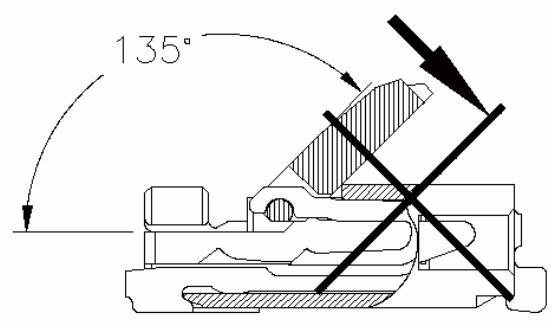
9-2. Specification.

No. of Contacts	Width	? Pcs / Reel	? Reels / Carton
13~25	16	5K/1	13
27~51	24	5K/1	10
53~61	32	5K/1	8
67~73	44	5K/1	6

Export Carton Layer：3 Layers　　Carton Size：350x350x290mm

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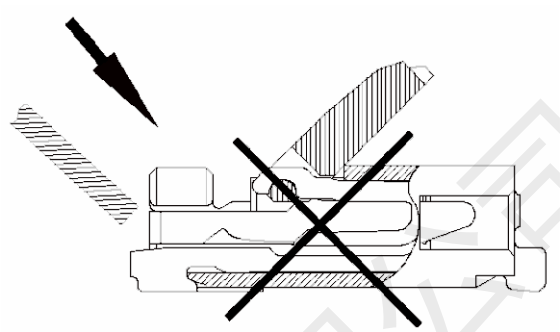
10.操作指示Instruction upon usage

步骤 1: Joining step 1： 使用拇指或食指，将上盖往上掀开。 Use the thumb or the forefinger, raise the top cover up.	
步骤 2: Joining step 2： FPC 导电处朝下，平行的插入连接器中。 FPC gets along with conductivly down. The parallel one inserts it in the connector .	
步骤 3: Joining step 3： 轻压上盖中间往下旋转至定位，直到 FPC 完全插入且没有移动。 Press the top cover lightly and rotate down to make a reservation , until FPC is totally inserted and not moved .	
步骤 4: Joining step 4： FPC removal FPC 退出 小心 掀起上盖，将 FPC 退出. Lift the top cover carefully, withdraw FPC from .	
警告 Warning!! 旋转的角度不可大于 135 度。 The whirling angle can't be greater than 135 degrees.	

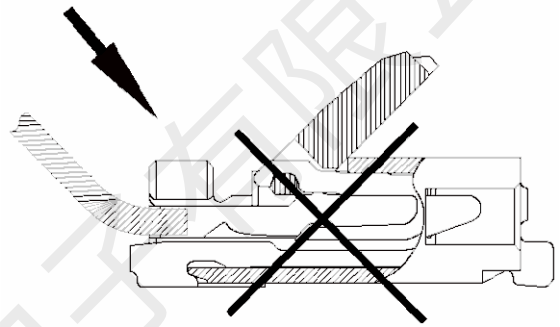
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FPC Connector 0.3mmPitch A	Product Specification	Issued Date 2012-10-18

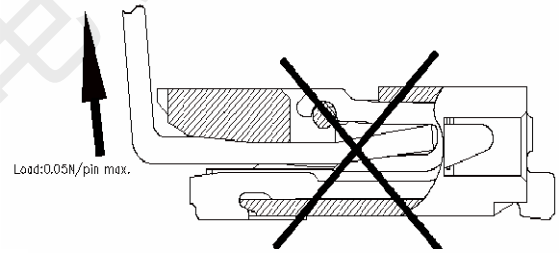
警告
Warning!!
当 FPC 插入的角度偏斜时可能会引起导通不良
When the angle that FPC inserts in is askew, may cause and lead openly and badly .



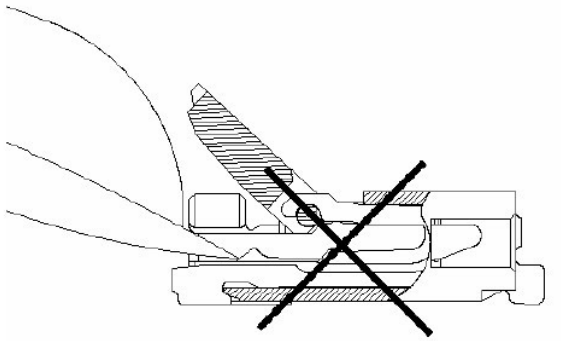
警告
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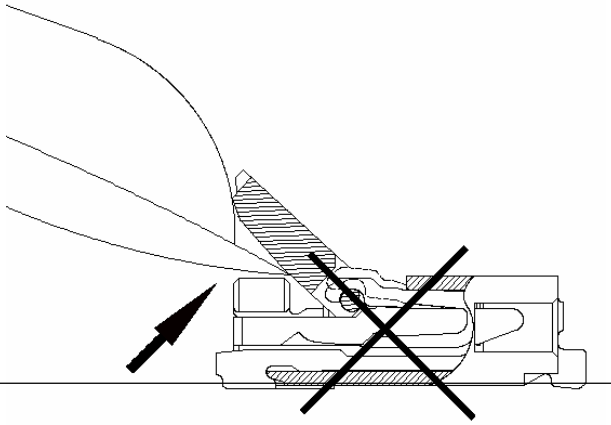
警告
Warning!!
向上拉扯的力量不要超过 0.05N/pin max.
The strength of dragging upwards don't exceed 0.05N/pin max .



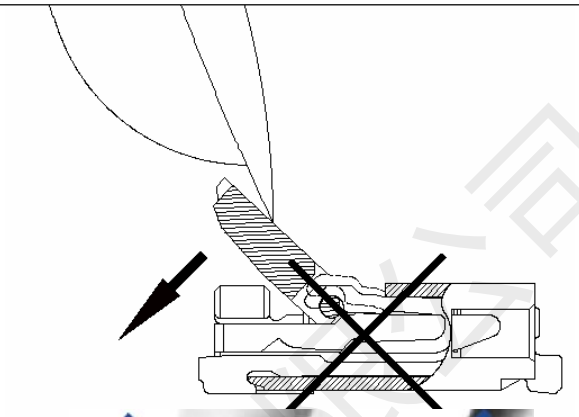
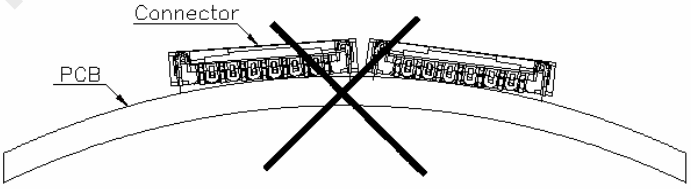
警告
Warning!! 开启连接器掀盖时，不要使用过度的力量及避免接触到端子。
covering , don't use excessive strength and avoid touching the end son .



警告
Warning!!
当在开启 FPC 时，不要使用过度的力量及避免接触到端子。
Don't use excessive strength and avoid touching the end son when open FPC.



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警告 Warning!! 施压的力量，应该要平均. The strength of exerting pressure should be average. 如图所示，不要试着做移动或重新确定盖子位置。 As illustrated, do not attempt removal or re-positioning of the actuator.	
警告 Warning!! 掀盖的面积，应该要平均. Lift the area overlayed, should be average. 如图所示， 不要试着做移动或重新确定盖子的位置。 As illustrated, do not attempt removal or re-positioning of the actuator.	
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.	

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