

TO

SPECIFICATION FOR APPROVAL

DESCRIPTION: Pitch 0.50mm ZIF FPC Connector, R/A , B/C SMT Type (H=1.20)

CUSTOMER PROD.NO/DWG.NO:

E&T PROD.NO: 6716K-XXXX-XXX

APPROBAL SHEET NO:

E&T DWG. NO./DOCUMENT: 6716K-XXXX-XXX

REV: A4

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FOR APPROVAL"WITH YOUR APPROVED SIGNATURES.**

APPROVED SIGNATURES			



**ENTERY INDUSTRIAL CO., LTD.
E&T ELECTRONICS (DONG GUAN) CO., LTD.
E&T ELECTRONICS (SU ZHOU) CO., LTD.**

ENTERY INDUSTRIAL CO., LTD.

**Title : Pitch 0.50mm ZIF FPC Connector,
SMT Type H1.20 (Front Flip Actuator)**

Release History		Title: Pitch 0.50mm(Front Flip Actuator) ZIF FPC Connector, R/A B/C SMT Type	
A4	2013/7/18	This Document Contains Information That Is Proprietary To E&T And Should Not Be Used Without Written Permission	
Rev	Description		
Document No.		Prepared By: JACKSON, CHEN	Date: 03,31'2011
6716K-XXXX-XXX		Checked By: <i>JL</i>	Date: <i>2013.07.19</i>
		Approved By: <i>JL</i>	Date: <i>2013.07.19</i>

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PRODUCT SPECIFICATION

1. SCOPE :

This specification covers the 0.5 mm Pitch(Front Flip Actuator) ZIF FPC Connector series.

2. PRODUCT NAME AND PART NUMBER :

Product Name	E&T Part Number
0.50mm ZIF FPC Connector, SMT Type (Front Flip Actuator)	6716K-XXXX-xXX

3. RATINGS :

Item	Standard
Rated Voltage (MAX.)	50V rm(AC / DC)
Rated Current (MAX.)	0.5A
Ambient Temperature Range	-40 ⁰ C ~ +85 ⁰ C

*1. Including terminal temperature rise .

4. PERFORMANCE :

4 - 1 Electrical Performance

Item	Test Condition	Requirement
4-1-1	Contact Resistance Mate applicable FPC and measure by dry circuit , 20mV MAX., 10 mA . (JIS C5402 5.4)	40 mΩ (MAX)
4-1-2	Insulation Resistance Mate applicable FPC and apply 500V DC between adjacent terminal or ground. (JIS C5402 5.2 / MIL- STD -202 Method 302)	100MΩ (MIN)
4-1-3	Dielectric Strength Mate applicable FPC and apply 250V AC (rms) for 1 minute between adjacent terminal or ground. (JIS C5402 5.1/MIL- STD -202 Method 301)	No Breakdown

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4-2 Mechanical Performance

Item		Test Condition	Requirement
4-2-1	FPC/ Retention Force	Insert the actuator ,pull the FPC at the speed rate of 25 ± 3 mm / minute.	Unmating Force : 0.030kgf/ per pin Mating Force < 1Kgf(Max)
4-2-2	Terminal/ Housing Retention Force	Apply axial pull out force at the speed rate of 25 ± 3 mm / minute on the terminal assembled in the housing.	0.10kgf per pin MIN.

4-3 Environmental Performance and Others

Item		Test Condition	Requirement	
4-3-1	Repeated Actuator Insertion/ Withdrawal	Insert and withdraw actuator up to 20cycles at the speed rate of less than 10 cycles/ minute.	Contact Resistance	60 mΩ MAX.
4-3-2	Vibration	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 : 1.5 mm P-P Sweep time : 10-55-10 Hz in 1 minute Duration : 2 hours in each X.Y.Z. axes (MIL-STD-202 Method 201)	Appearance	No Damage
			Contact Resistance	60mΩ MAX
			Dis-continuity	1 μ sec. MAX.
4-3-3	Mechanical Shock	Mate applicable FPC and subject to the following shock condition. 3 times of shocks shall be applied for 6 directions along 3 mutually perpendicular axes, passing DC 1Ma current during the test. (Total of 18 shocks) Peak value : 981m/s ² {100G} (JIS C0041 /MIL-STD-202 Method 213)	Appearance	No Damage
			Contact Resistance	60mΩ MAX
			Dis-continuity	1 μ sec. MAX
4-3-4	Temperature Rise	Mate applicable FPC and measure the temperature rise of contact when the maximum AC rated current is passed (UL498)	Temperature Rise	30°C MAX
4-3-5	Heat Resistance	Mate applicable FPC and expose to $85\pm 2^{\circ}\text{C}$ 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)	Appearance	No Damage
			Contact Resistance	60mΩ MAX

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Item		Test Condition	Requirement	
4-3-6	Cold Resistance	Mate applicable FPC and expose to $-40\pm 2^{\circ}\text{C}$ 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)	Appearance	No Damage
			Contact Resistance	60m Ω MAX
4-3-7	Humidity	Mate applicable FPC and expose to Temperature : $60\pm 2^{\circ}\text{C}$ Relative Humidity : 90~95% Duration : 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)	Appearance	No Damage
			Contact Resistance	60m Ω MAX
			Dielectric Strength	No Breakdown
			Insulation Resistance	100M Ω MIN.
4-3-8	Temperature Cycling	Mate applicable FPC and subject to the following condition for 32 cycles of : a) - $55 \pm 3^{\circ}\text{C}$ 30 minutes b) + $25 \pm 3^{\circ}\text{C}$ 30 minutes c) + $85 \pm 2^{\circ}\text{C}$ 30 minutes 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 C0025)	Appearance	No Damage
			Contact Resistance	60m Ω MAX
4-3-9	Salt Spray	Mate applicable FPC and 48 \pm 4 hours exposure to 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 measurements shall be performed. spray from the 5 \pm 1% solution at 35 \pm 2 $^{\circ}\text{C}$. (JIS C0023/MIL-STD-202 Method 101)	Appearance	No Damage
			Contact Resistance	60m Ω MAX
4-3-10	Solderability	Tip of solder tails and fitting nails into the molten solder up to 0.1mm from the bottom of the housing. Soldering Time : 3 \pm 0.5 sec. Solder Temperature : 235 \pm 5 $^{\circ}\text{C}$	Solder Wetting	95% of immersed area must show no voids, pin holes

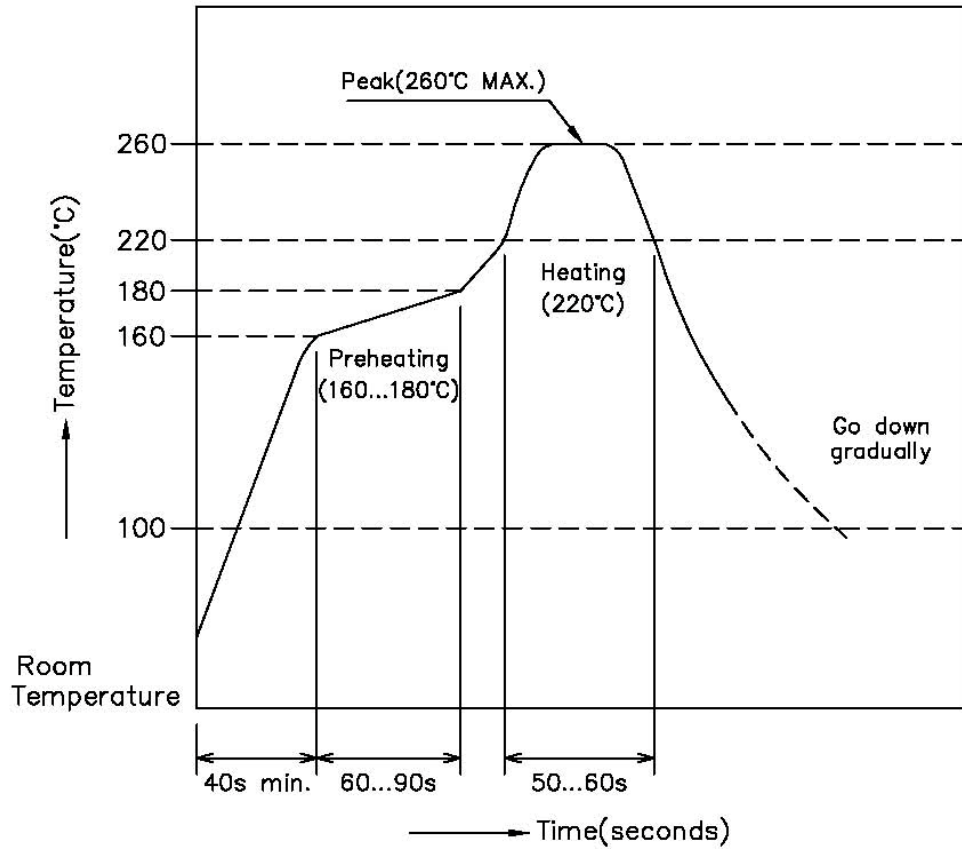
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Item		Test Condition	Requirement	
4-3-11	Soldering heat withstanding	It should be tested in accordance with method 210E test condition K of MIL-STD-202F. Soldering temperature : $260 \pm 5^{\circ}\text{C}$ Duration : 30 ± 5 sec	Appearance	No Damage
4-3-12	SO ₂ Gas	Mate applicable FPC and expose them to the following SO ₂ gas atmosphere. Temperature $40 \pm 2^{\circ}\text{C}$ Gas Density 50 ± 5 ppm Duration 24hours EIA-364-65A	Appearance	No Damage
			Contact Resistance	60mΩ MAX
4-3-13	NH ₃ Gas	40 minutes exposure to NH ₃ gas evaporating from 28% Ammonia solution. EIA-364-65A	Appearance	No Damage
			Contact Resistance	60mΩ MAX

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5. PRODUCT SHAPE, DIMENSIONS AND MATERIALS (Refer to the drawing.) 6. INFRARED REFLOW CONDITION

- 1) Ascending time to preheating temperature 170°C shall be 40 seconds minimum.
- 2) Preheating shall be fixed at 160...180°C for 60...90 seconds.
- 3) Heating shall be fixed at 220°C for 50...60 seconds.
- 4) At 255±5°C peak shall be 10 seconds maximum.



FPC /FFC Connector Front Flip Lock Type Handling Precautions

This manual is to describe basic precautions. When there are doubtful points in use of, please contact E&T.

1. Common Handling Precautions

- Do not expose E&T's ZIF FPC/FFC connector, processing process product and processing product to corrosive substance, corrosive gas, high temperature and high humidity and direct sunshine. It causes corrosion of contact and deterioration of insulation performance of housing, etc., so that it causes motion defect of appliances.
- Do not apply external load to E&T's ZIF FPC/FFC connector, processing process product and processing product . Deformation and breakage, etc. occur, and it causes performance defect of.
- There may be slight differences in the housing coloring, but there will be no influence on the product's performance.
- Please add a stiffener on the flexible printed circuit (FPC/FFC) when you mount the connector onto FPC in order to prevent deformation of the FPC/FFC.
- Please do not conduct any "washing process" on the connector because it may damage the product's function.

2. PC Board Precautions

- Exercise caution when handling boards with the connectors installed. Do not apply any forces affecting soldered joints. (see figure 1).
- The mounting specification for coplanarity does not include the influence of warpage of the printed circuit board. (see figure 1).

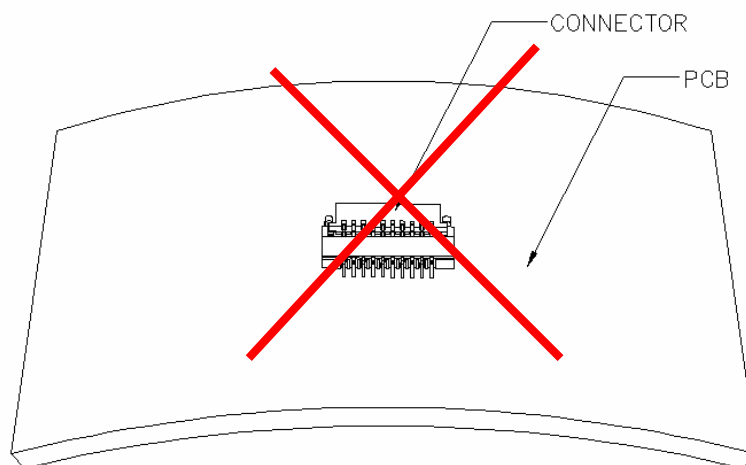


Figure 1.

3. Operation

FPC/FFC Insertion Procedure.

- 1) Connector installed on the board.
Lift up the actuator(Lock). Use thumb or index finger. (see figure 2).

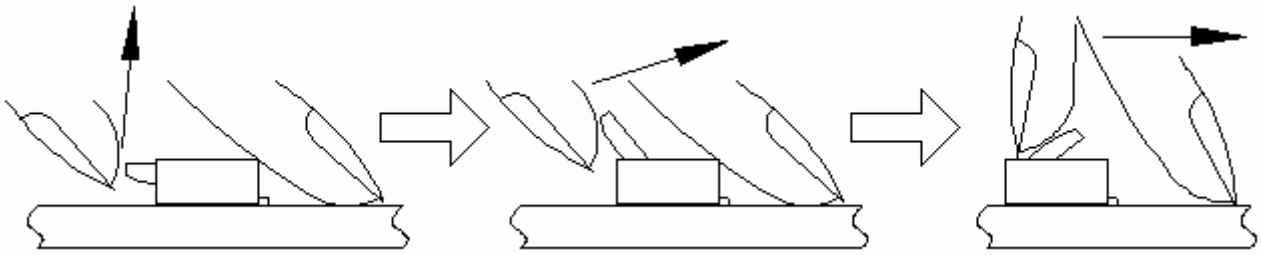


Figure 2.

- 2) Assure that the FPC/FFC is fully inserted parallel to mounting surface, with the exposed conductive traces facing down. (see figure 3).

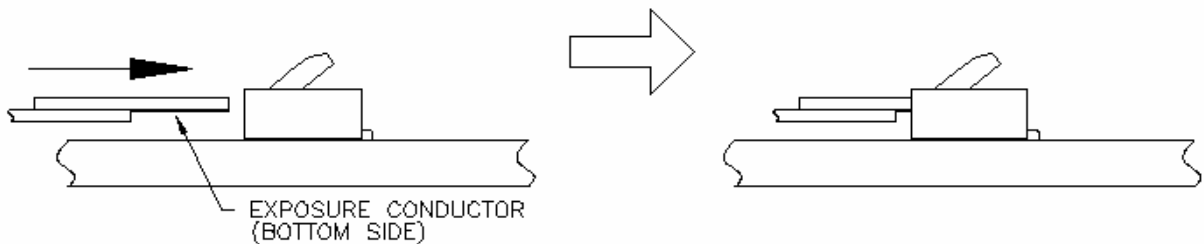


Figure 3.

- 3) Rotate down the actuator(Lock) until firmly closed. It is critical that the inserted FPC is not moved and remains fully inserted. Should the FPC be moved, open the actuator(Lock) and repeat the process, starting with Step 1(see figure 4).

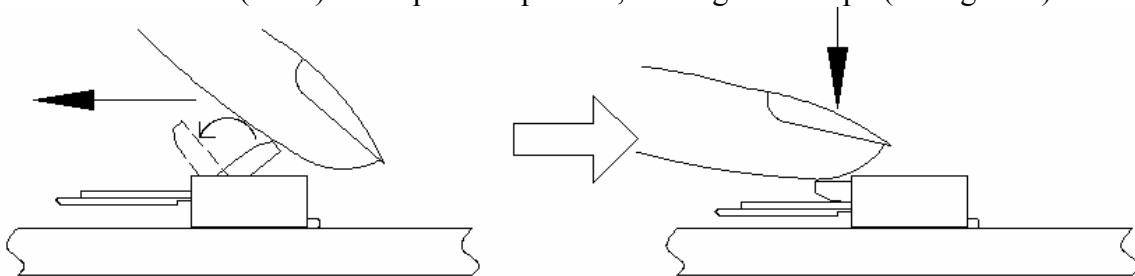


Figure 4.

FPC/FFC Removal.

- 1) Lift up the actuator(Lock). Carefully withdraw the FPC/FFC. (see figure 5).

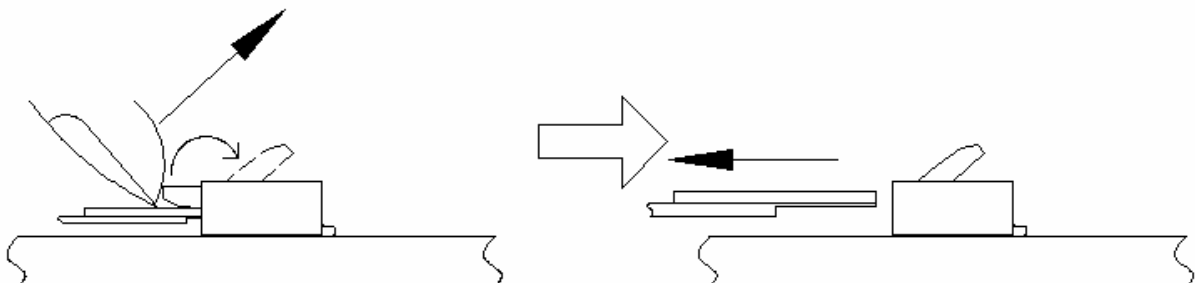


Figure 5.

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4. Precautions When Inserting or Withdrawal FPC/FFC

- FPC/FFC to be insertion and withdrawal at an angle of about 15° , and the FPC/FFC should be inserted firmly all the way to the back. (see figure 6).

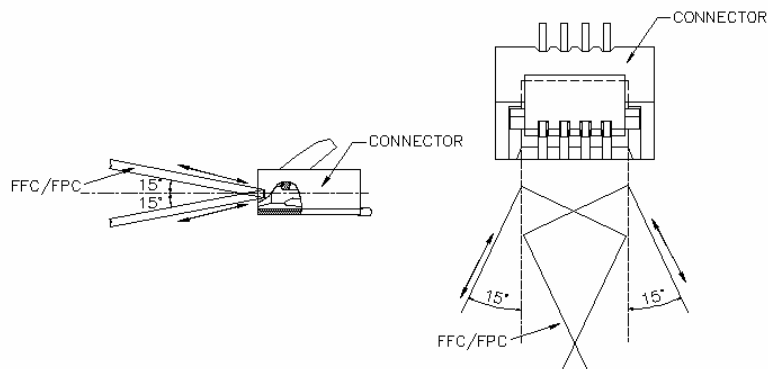


Figure 6.

- Do not apply excessive force or use any type of tool to operate the actuator(Lock).
- When locking the actuator(Lock), please make sure that the actuator is entirely closed by pressing on the entire actuator. Pushing the one specific point of the actuator may cause the actuator to be detached or damaged. When locking the longer actuator(Lock), please use two points to put pressure on locking. (see figure 7).

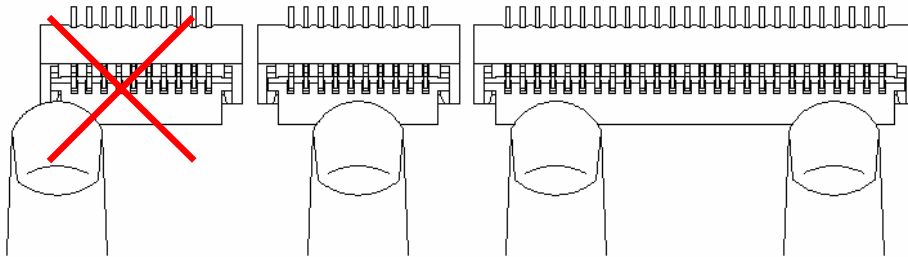


Figure 7.

- The connector will assure reliable performance when the actuator is open to an angle (please refer to drawing) maximum. Do not exceed this angle, as this may cause permanent damage to the connector. (see figure 8)
- Avoid grasping the actuator(Lock) with two fingers or lifting the actuator(Lock) with fingernail. (see figure 8)
- Do not apply force in the direction of arrows. Doing this may cause the actuator to be detached or damaged. (see figure 8).

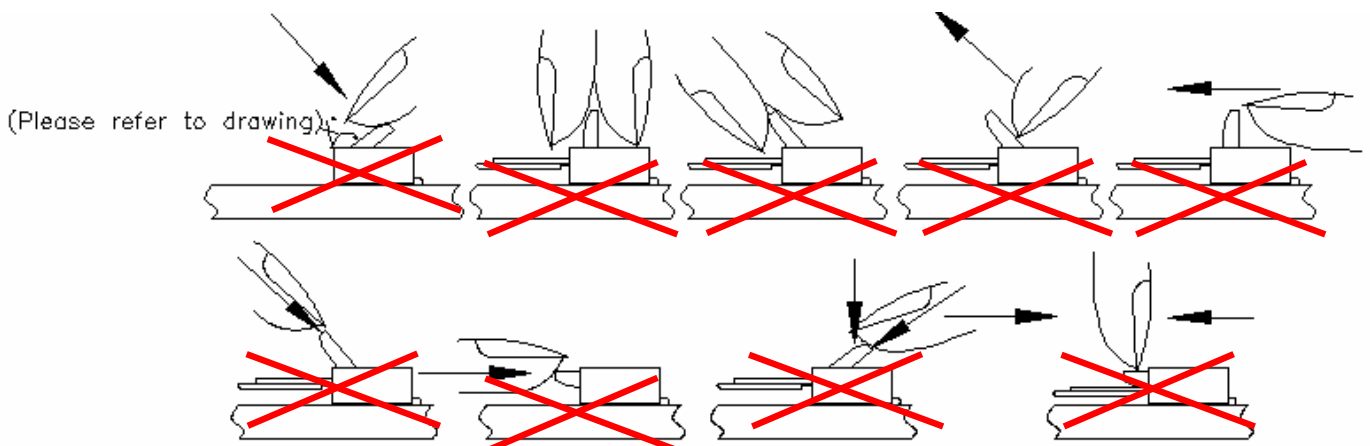


Figure 8.

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- When inserting the FPC/FFC, do not forcefully rub against the surface beneath the connector insertion slot. Doing so will result in the FPC/FFC forcefully striking the contacts and this will cause contact deformation, peeling of the FPC/FFC conductors, and other irregularities. (see figure 9).

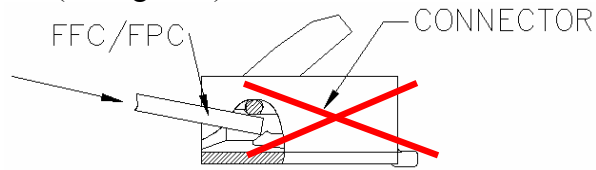


Figure 9.

- Do not apply any forces affecting soldered joints. Do not apply upward pull-force to the FPC/FFC close to the connector. (see figure 10).
- If necessary, please fix the FPC/FFC directly on the chassis. Also, please avoid pulling the FPC/FFC vertically or twisting the FPC back and force horizontally while it is inserted in the connector(see figure 10).
- Forming processing is conducted to FPC so as not to load force to connector. (see figure 10).

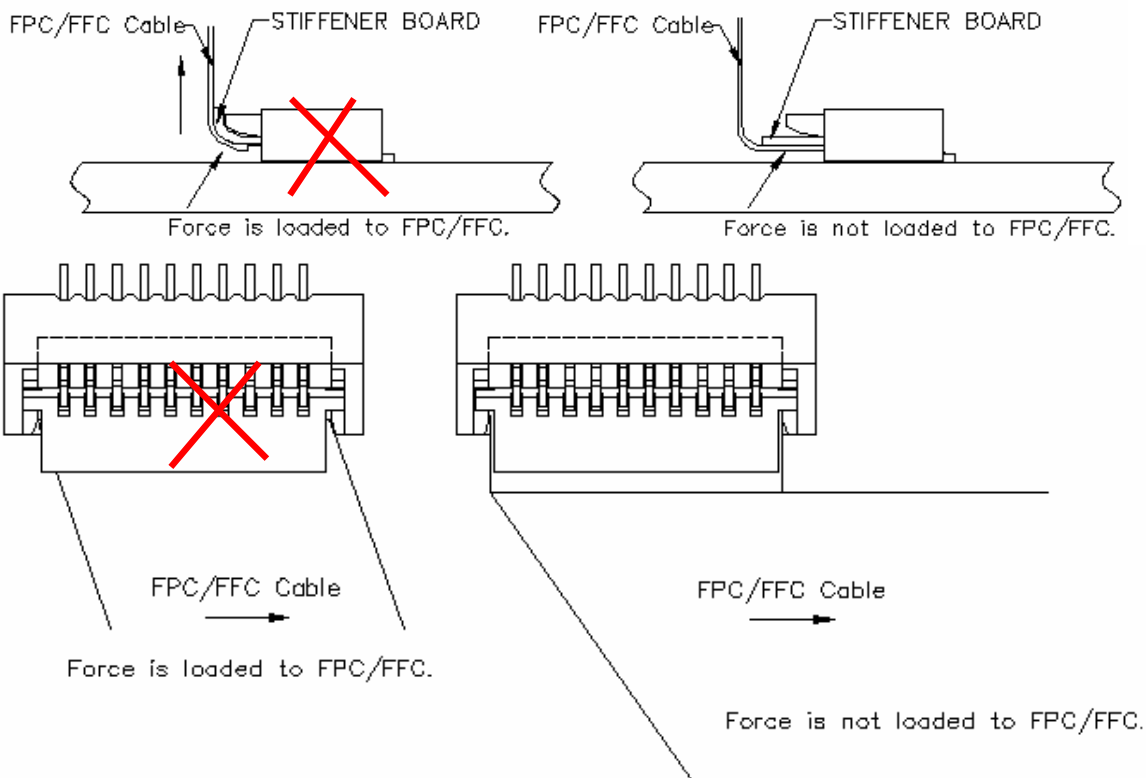


Figure 10.

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RELEASE HISTORY

Rev.	Revisions	Date	Executor	Description
A0	First Release	Mar-31-2011	Jackson	First Release
A1	—	May-12-2011	Jackson	3-2-1 FPC Rentention Force 0.015kgf/ per pin-→0.030kgf/ per pin
A2	—	May-26-2011	Jackson	3-2-3 Fitting Nail/ Housing Retention Force 0.3kgf (Min)→0.1kgf (Min)
A3	—	Jun-29-2011	Jackson	3-2-1 Mating force < 1Kgf(Max)
A4	REN130711	Jul-18-2013	Juno	Modify