TO

SPECIFICATION FOR APPROVAL

DESCRIPTION: Pitch 0.30mm ZIF FPC Connector, Double Contact SMT Type (Back Flip Actuator)

CUSTOMER PROD.NO/DWG.NO:

E&T PROD.NO: 6604K-XXXX-XXX

APPROBAL SHEET NO:

E&T DWG. NO./DOCUMENT: 6604K-XXXX-XXX

REV: B0

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APPROVED SIGNATURES			

The Quality Connection

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

ENTERY INDUSTRIAL CO., LTD.

Title : Pitch 0.30mm ZIF FPC Connector,
Double Contact SMT Type (Back Flip Actuator)

RE201310021		**Title: Pitch 0.30mm(Back Flip Actuator) ZIF FPC Connector, R/A SMT Type**
B0	**2013-11-14**	This Document Contains Information That Is Proprietary To E&T And Should Not Be Used Without Written Permission
Rev	**Description**	

Document No. 6604K-XXXX-XXX	Prepared By: JACKSON CHEN	Date: 07,27'2010
	Checked By:	Date:
	Approved By:	Date: 13,11,2013

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GROUP AND TEST SEQUENCE

Test of Examination		Test Group										
		A	B	C	D	E	F	G	H	I	J	K
1	Examination of Product	1,9	1,6	1,5	1,5	1,5	1,4	1,5	1,3	1,3	1,5	
2	Contact Resistance	2,6	2,5	2,4	2,4	2,4		2,4			2,4	
3	Insulation Resistance	3,7										
4	Dielectric Strength	4,8										
5	FPC Retention Force		3									
6	Terminal / Housing Retention Force											1
7	Durability		4									
8	Vibration			3								
9	Heat Resistance				3							
10	Cold Resistance					3						
11	Humidity	5										
12	Solder Ability						3		2			
13	Resistance To Soldering Heat									2		
14	Steam Aging						2					
15	Salt Spray							3				
16	Temperature Cycling										3	

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PRODUCT SPECIFICATION

1. SCOPE :
This specification covers the 0.3 mm Pitch(Back Flip Actuator) ZIF FPC Connector series.

2. PRODUCT NAME AND PART NUMBER :

Product Name	E&T Part Number
0.30mm ZIF FPC Connector, SMT Type (Back Flip Actuator)	6604K-XXXX-XXX

3. RATINGS :

Item	Standard
Rated Voltage (MAX.)	30V rm(AC / DC)
Rated Current (MAX.)	0.2 A
Ambient Temperature Range	-55^0C ~ $+85^0$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 . (EIA-364-06C)	60 mΩMAX.
4-1-2	Insulation Resistance	Mate applicable FPC and apply 500V DC between adjacent terminal or ground. (EIA-364-21D)	50MΩMIN.
4-1-3	Dielectric Strength	Mate applicable FPC and apply 250V AC (rms) for 1 minute between adjacent terminal or ground. (EIA-364-20D)	No Breakdown

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 ㎜ / minute. (EIA-364-13D)	0.015kgf per pin /1th 0.015kgf per pin /20th
4-2-2	Terminal/ Housing Retention Force	Apply axial pull out force at the speed rate of 25±3 ㎜ / minute on the terminal assembled in the housing. (EIA-364-29C)	{0.08kgf} per pin MIN. (Front Insert Trminal) {0.06kgf} per pin MIN. (Back Insert Trminal)

4-3 Environmental Performance and Others

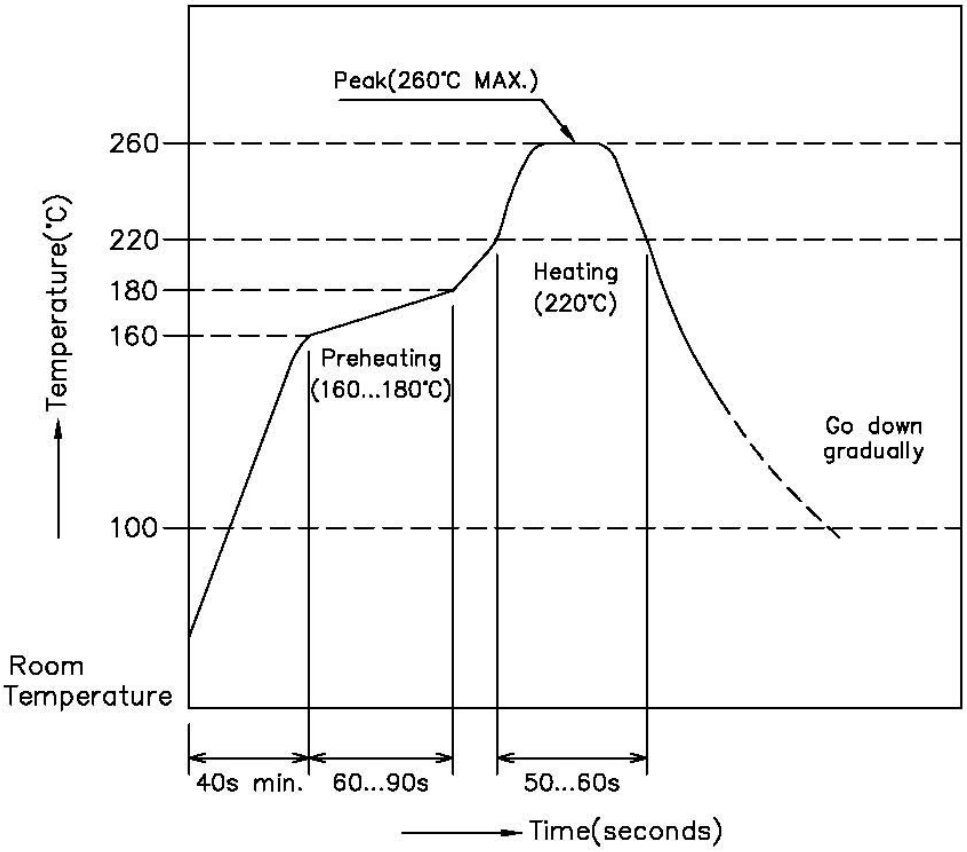
Item		Test Condition	Requirement	
4-3-1	Repeated Actuator Insertion/ Withdrawal	Insert and withdraw actuator up to 20cycles at the speed rate of less than 10 cycles/ minute.(EIA-364-09C)	Contact Resistance	80 mΩMAX.
4-3-2	Vibration	Mate connectors and subject to the following vibration conditions, for period of 2 hours in each of 3 mutually perpendicular axes, passing DC 1mA during the test. Amplitude : 1.5 ㎜ P-P Sweep time : 10-55-10 Hz in 1 minute Duration : 2 hours in each X.Y.Z. axes (EIA-364-28E)	Appearance	No Damage
			Contact Resistance	80mΩMAX
			Dis-continuity	1μsec.MAX.
4-3-3	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/s2 {100G} (EIA-364-27B)	Appearance	No Damage
			Contact Resistance	80mΩMAX
			Dis-continuity	1μsec.MAX
4-3-4	Temperature Rise	Mate applicable FPC and measure the temperature rise of contact when the maximum AC rated current is passed (EIA-364-70B)	Temperature Rise	30℃ MAX
4-3-5	Heat Resistance	Mate applicable FPC and expose to 85±2℃ for 96 hours, Upon completion of the exposure period, the test speciments shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shell be performed. (EIA-364-17B)	Appearance	No Damage
			Contact Resistance	80mΩMAX

Item		Test Condition	Requirement	
4-3-6	Cold Resistance	Mate applicable FPC and expose to -40±2℃ for 96 hours, Upon completion of the exposure period, the test speciments shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shell be performed. (EIA-364-59A)	Appearance	No Damage
			Contact Resistance	80mΩMAX
4-3-7	Humidity	Mate applicable FPC and expose to Temperature : 60±2℃ Relative Humidity : 90~95% Duration : 96 hours Upon completion of the exposure period, the test speciments shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shell be performed. (EIA-364-31B)	Appearance	No Damage
			Contact Resistance	80mΩMAX
			Dielectric Strength	No Breakdown
			Insulation Resistance	50MΩMIN.
4-3-8	Temperature Cycling	Mate applicable FPC and subject to the following condition for 32 cycles of : a) - 55 ±3℃ 30 minutes b)+25 ±3℃ 30 minutes c)+ 85 ±2℃ 30 minutes Upon completion of the exposure period, the test speciments shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shell be performed. (EIA-364-32E)	Appearance	No Damage
			Contact Resistance	80mΩMAX
4-3-9	Salt Spray	Mate applicable FPC and 48±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±1% solution at 35±2℃. (EIA-364-26B)	Appearance	No Damage
			Contact Resistance	80mΩMAX
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±0.5 sec. Solder Temperature : 235±5℃ (EIA-364-52A)	Solder Wetting	95% of immersed area must show no voids,pin holes

Item		Test Condition	Requirement	
4-3-11	Soldering heat wishstanding	It should be tested in accordance with method 210E test condition K of MIL-STD-202F. Soldering temperature : 260 ± 5℃ Duration : 30 ± 5 sec	Appearance	No Damage
4-3-12	SO_2Gas	Mate applicable FPC and expose them to the following SO_2 gas atmosphere. Temperature 40±2℃ Gas Density 50±5 ppm Duration 24hours (EIA-364-65A)	Appearance	No Damage
			Contact Resistance	80mΩMAX
4-3-13	NH_3Gas	40 minutes exposure to NH3 gas evaporating from 28% Ammonia solution. (EIA-364-65A)	Appearance	No Damage
			Contact Resistance	80mΩMAX

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

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



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FPC /FFC Connector Back 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).

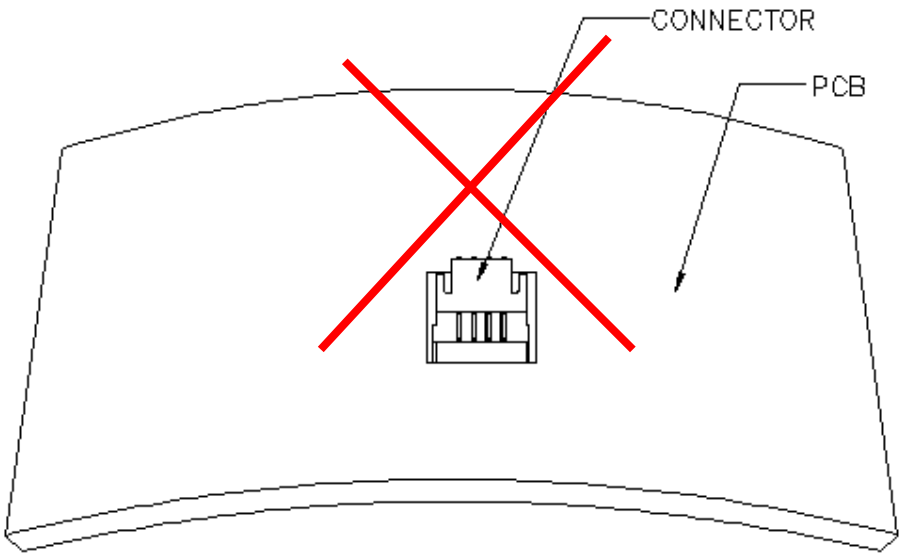

Figure 1.

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).

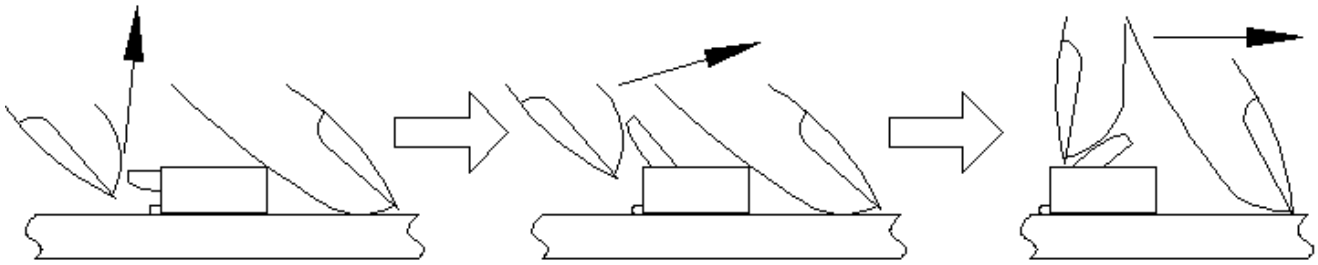

Figure 2.

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

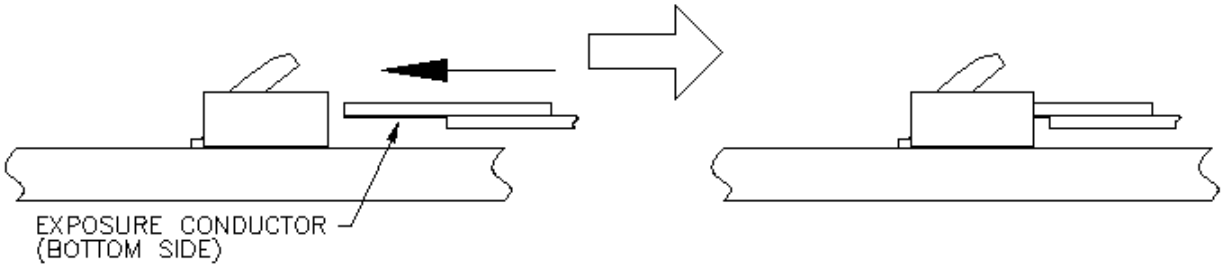

Figure 3.

- 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).

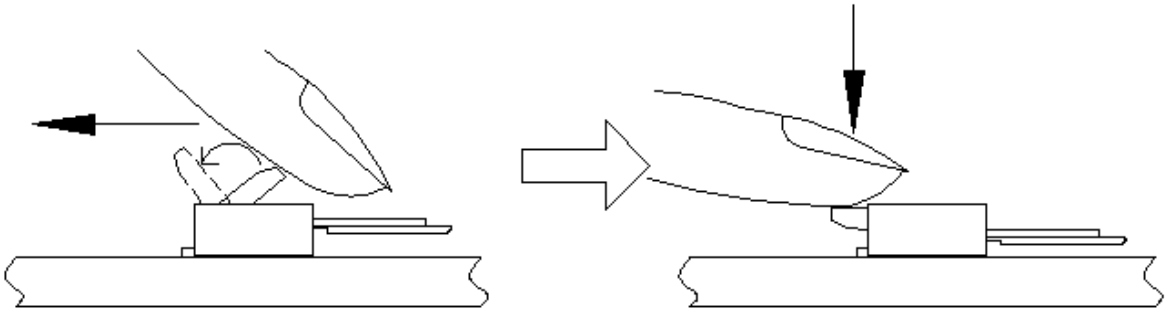

Figure 4.

FPC/FFC Removal.

2013- -┐ Lift up the actuator(Lock). Carefully withdraw the FPC/FFC. (see figure 5).

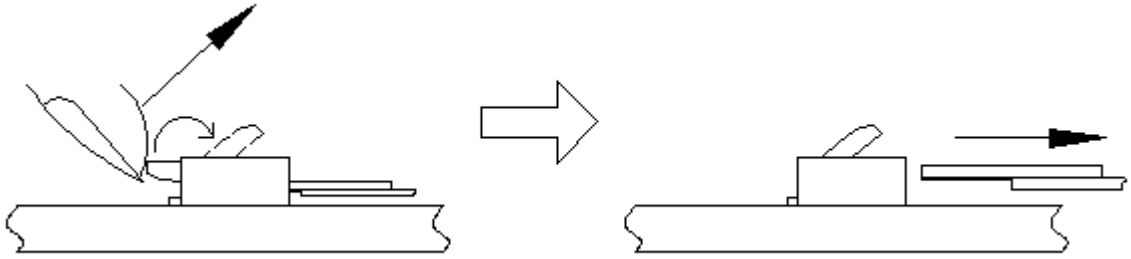

Figure 5.

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).

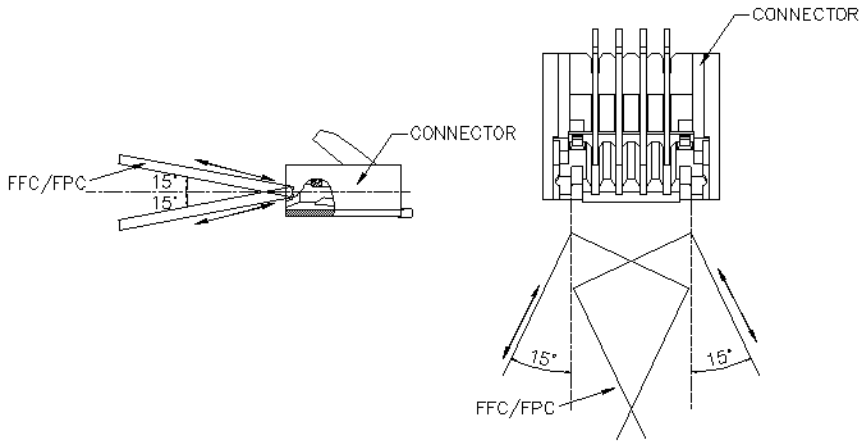

Figure 6.

- 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).

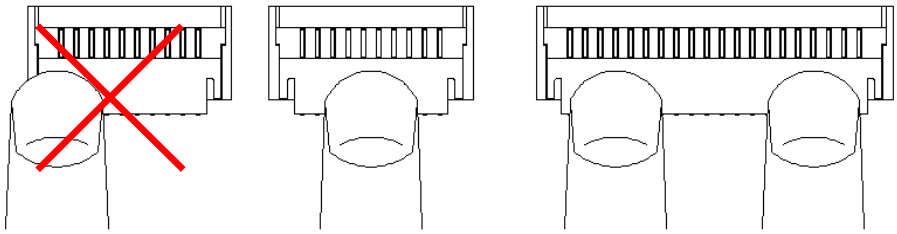

Figure 7.

- 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).
- Do not close the actuator without the FPC/FPC inserted. (see figure 8)

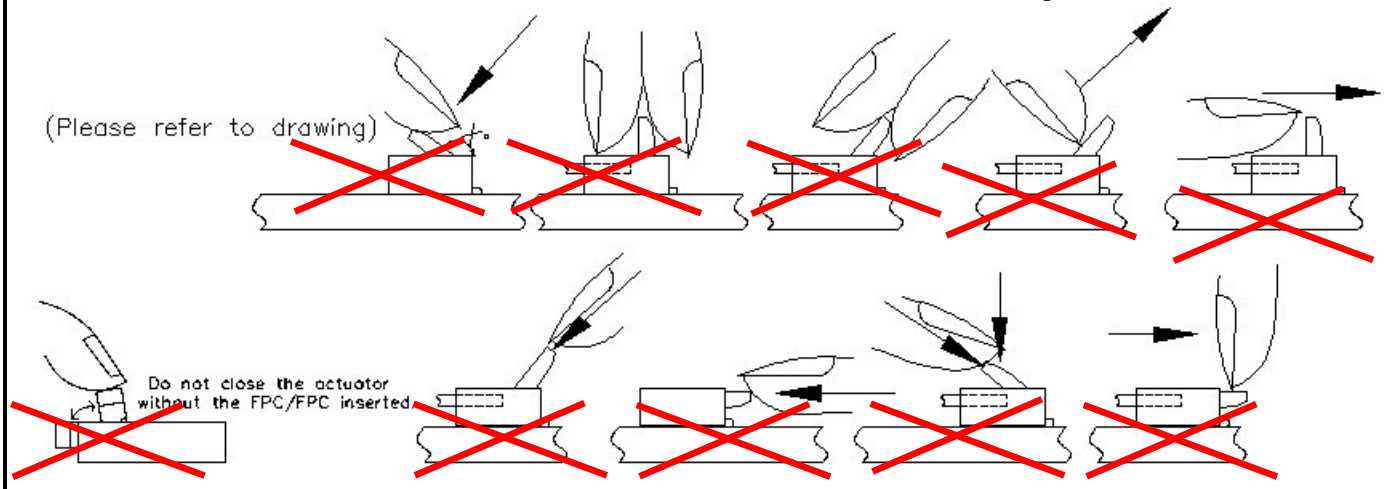

Figure 8.

- 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).

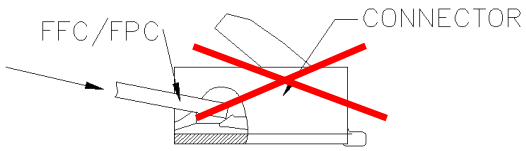

Figure 9.

- 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).

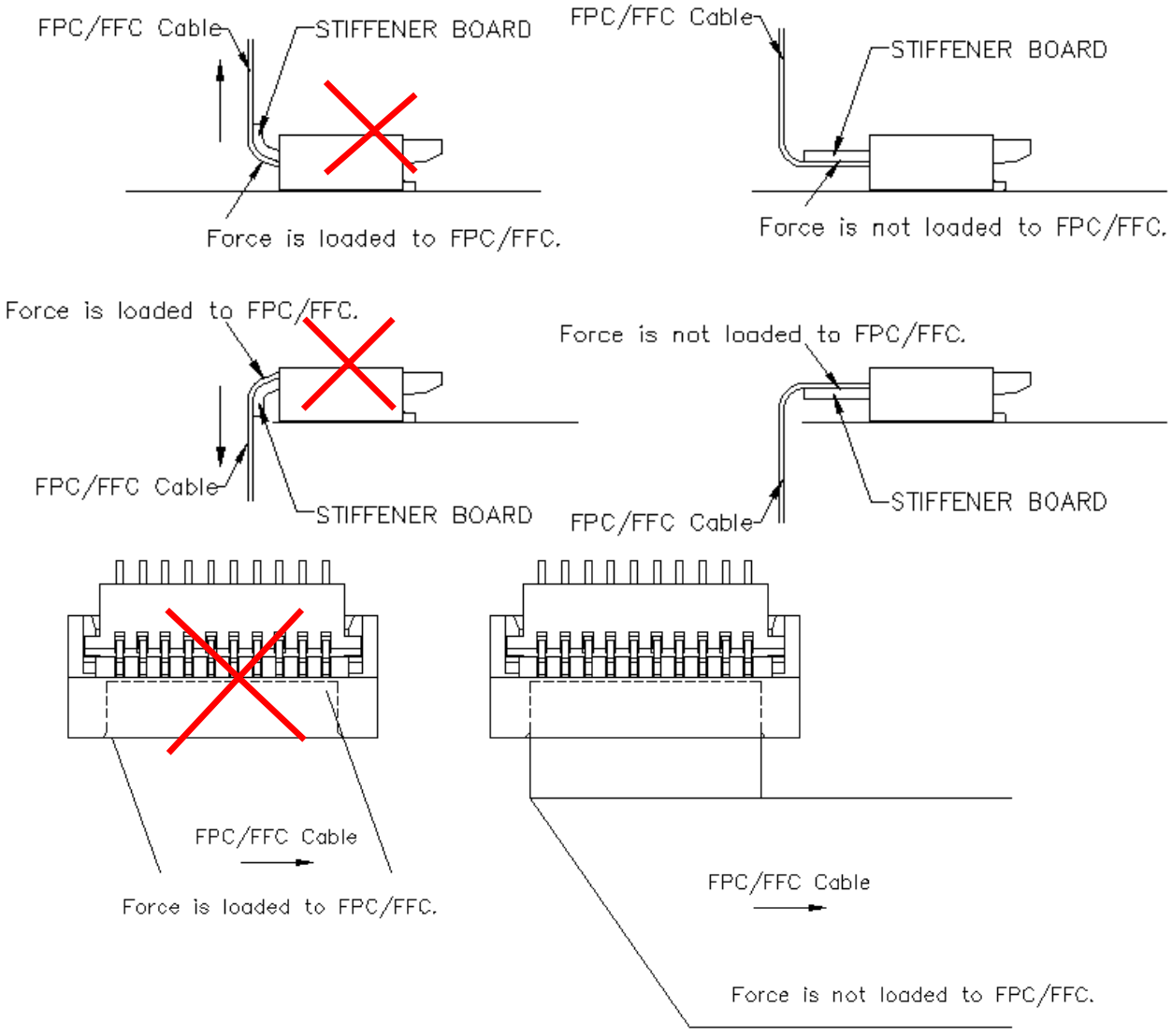

Figure 10.

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RELEASE HISTORY

Rev.	Revisions	Date	Executor	Description
A0	First Release	2010/08/16	JACKSON	First Release
A1	NA	2010/12/03	JACKSON	4-1-1 CONTACT RESISTANCE 100MΩ → 40 MΩ 4-3-1 ; 4-3-2 ; 4-3-3 ; 4-3-5 ; 4-3-6 ; 4-3-7 ; 4-3-8 ; 4-3-9 CONTACT RESISTANCE 100MΩ → 60 MΩ
A2	NA	2011/04/14	JACKSON	1. MODIFY E&T PROD.NO: 6604K-XXXX-0XX 2. 4-2-1 0.010kgf per pin /10th MODIFY 0.015kgf per pin /20th
A3	NA	2011/06/14	JACKSON	4-1-1 CONTACT RESISTANCE 40MΩ → 60 MΩ 4-3-1 ; 4-3-2 ; 4-3-3 ; 4-3-5 ; 4-3-6 ; 4-3-7 ; 4-3-8 ; 4-3-9 ;4-3-12;4-3-13 CONTACT RESISTANCE 60MΩ → 80 MΩ
A4	NA	2011/07/25	JACKSON	4-2-2 Terminal/ Housing Retention Force { 0.08kgf } per pin MIN. (Front Insert Terminal) { 0.06kgf } per pin MIN. (Back Insert Terminal)
A5	RE20110811	2011/09/20	JACKSON	ADD Handing Precautions
A6	REN120715	2012/07/27	JIMMY	ADD Do not close the actuator without the FPC/FPC inserted.
A7	RE201211001	2013-03-07	Juno	Modify
A8	RE201310001	2013/10/4	Juno	Housing Material E471i->2140GM
A9	RE201310021	2013/11/14	JOSH	Lock Material E471i->9T GP2450
B0	REN131204	2013/12/11	Juno	Add Test Method :EIA