TO

SPECIFICATION FOR APPROVAL

DESCRIPTION: Pitch 1.0mm ZIF FPC Connector, R/A, SMT Type Bottom Contact H2.0

CUSTOMER PROD.NO/DWG.NO:

E&T PROD.NO: 6913K-XXXX-00X

APPROVAL SHEET NO:

E&T DWG. NO./DOCUMENT: 6913K-XXXX-00X

REV: A3

PLEASE RETURN TO US ONE COPY OF"SPECIFICATION FOR APPROVAL"WITH YOUR APPROVED SIGNATURES.

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 1.0mm ZIF FPC Connector H2.0, R/A, SMT Type Bottom Contact

RELEASE HISTORY		**Title: Pitch 1.0mm ZIF FPC Connector, R/A, SMT Type Bottom Contact**
A3	**01,17,2012'**	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: 02,23,2011
6913K-XXXX-00X	Checked By:	Date: 01,17,2012'
	Approved By:	Date:

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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 pitch 1.0 mm ZIF FPC connector series.

2. PRODUCT NAME AND PART NUMBER :

Product Name	E&T Part Number
1.0mm ZIF FPC Connector, R/A, SMT Type Bottom Contact H2.0	6913K-XXXX-00X

3. RATINGS :

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

*Including terminal temperature rise

4.PERFORMANCE :

4- 1 Electrical Performance

Item		Test Condition	Requirement
4-1-1	Contact Resistance	Test Current: 10 mA Max. Test Voltage: 20mV Max Test Method:EIA-364-06B	50 mΩ MAX.
4-1-2	Insulation Resistance	Test Voltage: 500V DC. Test Duration: 1 minutes. Test Method:EIA-364-21C	Initial: 500 MΩ Min Final: 100 MΩ Min.
4-1-3	Dielectric Strength	Test Voltage: 500V AC. Test Time: 60 sec. Test Method:EIA-364-09C	No Breakdown

4-2 Mechanical Performance

Item		Test Condition	Requirement
4-2-1	FPC Retention Force	Test Speed: 25±3 mm/min. Test Method:EIA-364-38B	Refer to paragraph 6
4-2-3	Terminal / Housing Retention Force	Test Speed: 25mm/min.	0.15kgf (Min)

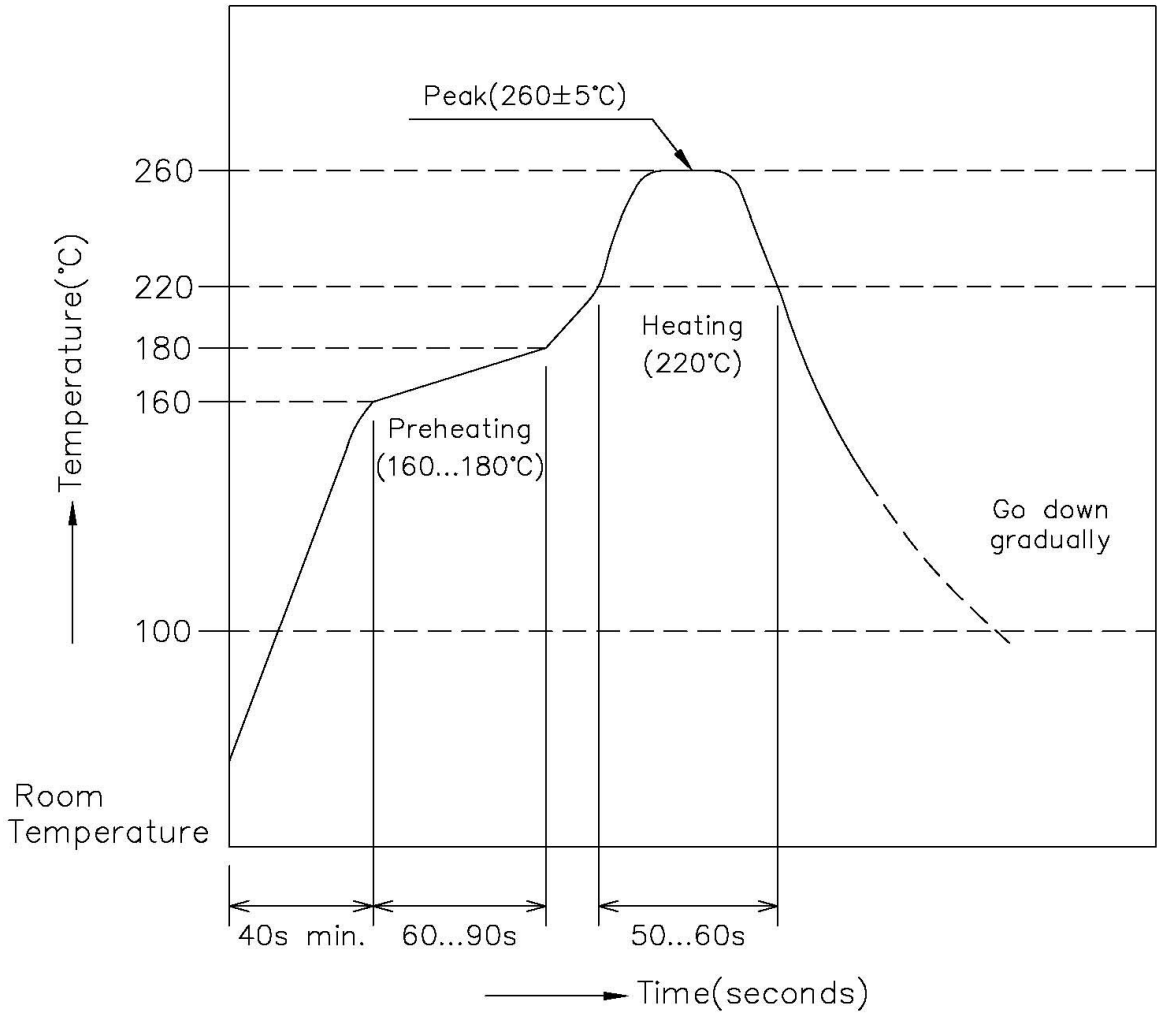
4-3 Environmental Performance and Others

Item		Test Condition	Requirement	
4-3-1	Durability	Insert and withdraw actuator up to 20cycles at the speed rate of less than 10 cycles/ minute. Test Method:EIA-364-09C	Contact Resistance	
			Initial Value	≦ 50 mΩ
			Final Value	≦80 mΩ
4-3-2	Vibration	Amplitude : 1.5 ㎜ Frequency range: 10~55~10 Hz in 1 minute Duration: 2 hours in each X.Y.Z axes Current: 100mA. Test Method:EIA-364-28D	Appearance	No Damage
			Contact Resistance	≦80 mΩ
			Discontinuity	1μsec
4-3-4	Heat Resistance	Temperature: 80±2℃ Duration: 96 hours .	Appearance	No Damage
			Contact Resistance	≦80 mΩ
4-3-5	Cold Resistance	Temperature: -40±2℃ Duration: 96 hours	Appearance	No Damage
			Contact Resistance	≦80 mΩ
4-3-6	Humidity	Temperature: 40±2℃ Relative Humidity: 90~95% Duration: 96 hours Test Method:EIA-364-31B	Appearance	No Damage
			Contact Resistance	≦80 mΩ
			Insulation Resistance	≧100MΩ
			Dielectric Strength	Must meet 4-1-3

Item		Test Condition	Requirement	
4-3-7	Solder Ability	Soldering Time : 3±0.5 sec Solder Temperature : 245±5℃ Test Method:EIA-364-52	Solder Wetting	95% Of Immersed Area Must Show No Voids, Pin Holes
4-3-8	Resistance To Soldering Heat	Soldering Time : 10±0.5 sec Solder Temperature : 260±5℃ Test Method:EIA-364-56C	Appearance	No Damage
4-3-9	Steam Aging	Steam Aging Temperature : 98±2℃ Duration: 8 hours Solder Temperature : 235±5℃ Soldering Time : 3±0.5 sec Test Method:EIA-364-17B	Appearance	No Damage
			Solder Wetting	95% Of Immersed Area Must Show No Voids, Pin Holes
4-3-10	Salt Spray	Chamber Temperature : 35±2℃ Air Tank Temperature : 47±1℃ Salt Solution：5 ± 0.5% Duration : 48 hours Test Method:EIA-364-26B	Appearance	No Damage
			Contact Resistance	≦ 80 mΩ
4-3-11	Temperature Cycling	5 cycles of : a) - 55 ±3℃ 30 minutes b) +25 ±3℃ 30 minutes c)+ 85 ±2℃ 30 minutes Test Method:EIA-364-31B	Appearance	No Damage
			Contact Resistance	≦ 80 mΩ

5.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 260±5℃ peak shall be 10 seconds maximum.



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6. 1.0mm FPC RETENTION FORCE SPEC

No of CKT	UNIT	Retention Forc(MIN) 1 st	Retention Forc(MIN) 10 th	No of CKT	UNIT	Retention Forc(MIN) 1 st	Retention Forc(MIN) 10 th
4	N Kgf	1.960 {0.200}	1.225 {0.125}	21	N Kgf	6.125 {0.625}	5.390 {0.550}
5	N Kgf	2.205 {0.225}	1.470 {0.150}	22	N Kgf	6.370 {0.650}	5.635 {0.575}
6	N Kgf	2.450 {0.250}	1.715 {0.175}	23	N Kgf	6.615 {0.675}	5.880 {0.600}
7	N Kgf	2.695 {0.275}	1.960 {0.200}	24	N Kgf	6.860 {0.700}	6.125 {0.625}
8	N Kgf	2.940 {0.300}	2.205 {0.225}	25	N Kgf	7.105 {0.725}	6.370 {0.650}
9	N Kgf	3.185 {0.325}	2.450 {0.250}	26	N Kgf	7.350 {0.750}	6.615 {0.675}
10	N Kgf	3.430 {0.350}	2.695 {0.275}	27	N Kgf	7.595 {0.775}	6.860 {0.700}
11	N Kgf	3.675 {0.375}	2.940 {0.300}	28	N Kgf	7.840 {0.800}	7.105 {0.725}
12	N Kgf	3.920 {0.400}	3.185 {0.325}	29	N Kgf	8.085 {0.825}	7.350 {0.750}
13	N Kgf	4.165 {0.425}	3.430 {0.350}	30	N Kgf	8.330 {0.850}	7.595 {0.775}
14	N Kgf	4.410 {0.450}	3.675 {0.375}	31	N Kgf	8.575 {0.875}	7.840 {0.800}
15	N Kgf	4.655 {0.475}	3.920 {0.400}	32	N Kgf	8.820 {0.900}	8.085 {0.825}
16	N Kgf	4.900 {0.500}	4.165 {0.425}	33	N Kgf	9.065 {0.925}	8.330 {0.850}
17	N Kgf	5.145 {0.525}	4.410 {0.450}	34	N Kgf	9.310 {0.950}	8.575 {0.875}
18	N Kgf	5.390 {0.550}	4.655 {0.475}	35	N Kgf	9.555 {0.975}	8.820 {0.900}
19	N Kgf	5.635 {0.575}	4.900 {0.500}	36	N Kgf	9.800 {1.000}	9.065 {0.925}
20	N Kgf	5.880 {0.600}	5.145 {0.525}	37	N Kgf	10.045 {1.025}	9.310 {0.950}

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No of CKT	UNIT	Retention Force (MIN) 1 st	Retention Force (MIN) 10 th	No of CKT	UNIT	Retention Force (MIN) 1 st	Retention Force (MIN) 10 th
38	N Kgf	10.290 {1.050}	9.555 {0.975}	50	N Kgf	13.230 {1.350}	12.495 {1.275}
39	N Kgf	10.535 {1.075}	9.800 {1.000}	51	N Kgf	13.475 {1.375}	12.740 {1.300}
40	N Kgf	10.780 {1.100}	10.045 {1.025}	52	N Kgf	13.720 {1.400}	12.985 {1.325}
41	N Kgf	11.025 {1.125}	10.290 {1.050}	53	N Kgf	13.965 {1.425}	13.230 {1.350}
42	N Kgf	11.270 {1.150}	10.535 {1.075}	54	N Kgf	14.210 {1.450}	13.475 {1.375}
43	N Kgf	11.515 {1.175}	10.780 {1.100}	55	N Kgf	14.455 {1.475}	13.720 {1.400}
44	N Kgf	11.760 {1.200}	11.025 {1.125}	56	N Kgf	14.700 {1.500}	13.965 {1.425}
45	N Kgf	12.005 {1.225}	11.270 {1.150}	57	N Kgf	14.945 {1.525}	14.210 {1.450}
46	N Kgf	12.250 {1.250}	11.515 {1.175}	58	N Kgf	15.190 {1.550}	14.455 {1.475}
47	N Kgf	12.495 {1.275}	11.760 {1.200}	59	N Kgf	15.435 {1.575}	14.700 {1.500}
48	N Kgf	12.740 {1.300}	12.005 {1.225}	60	N Kgf	15.680 {1.600}	14.945 {1.525}
49	N Kgf	12.985 {1.325}	12.250 {1.250}	80	N Kgf	20.335 {2.075}	19.60 {2.0}

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).

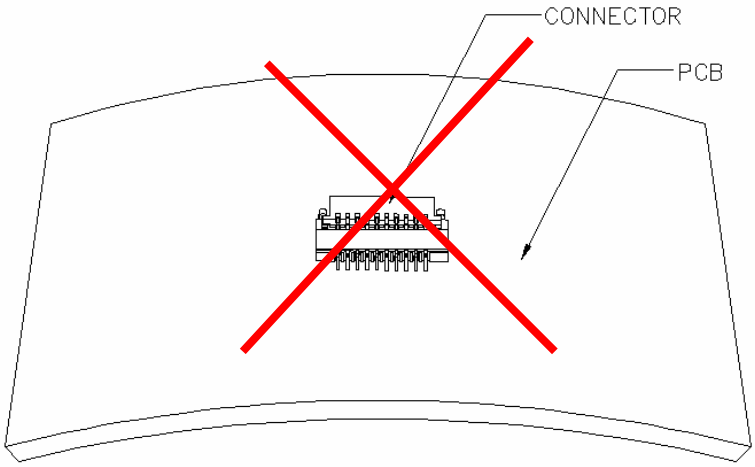

Figure 1.

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).

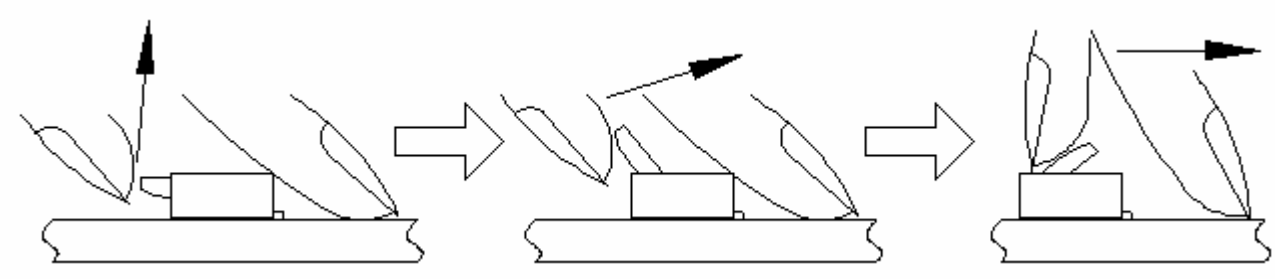

Figure 2.

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

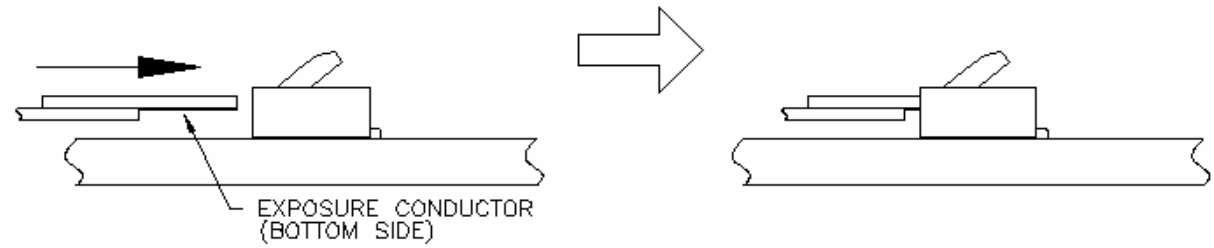

Figure 3.

- 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).

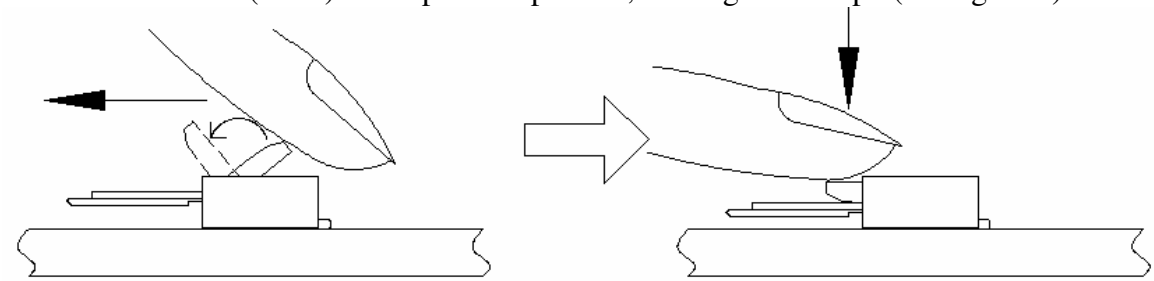

Figure 4.

FPC/FFC Removal.

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

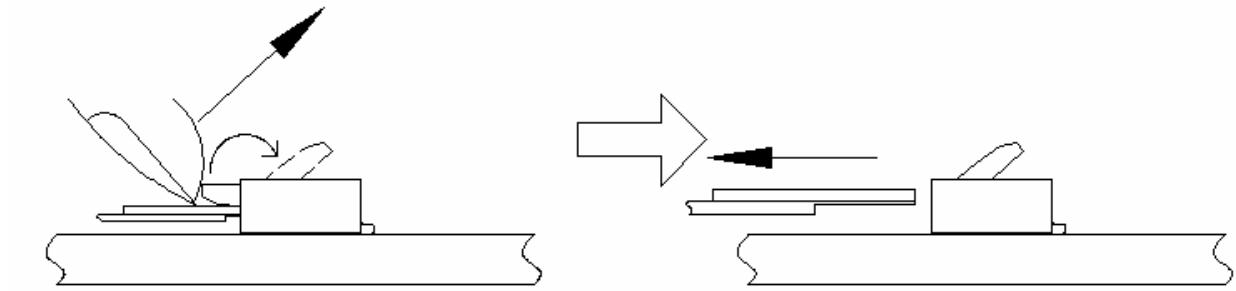

Figure 5.

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).

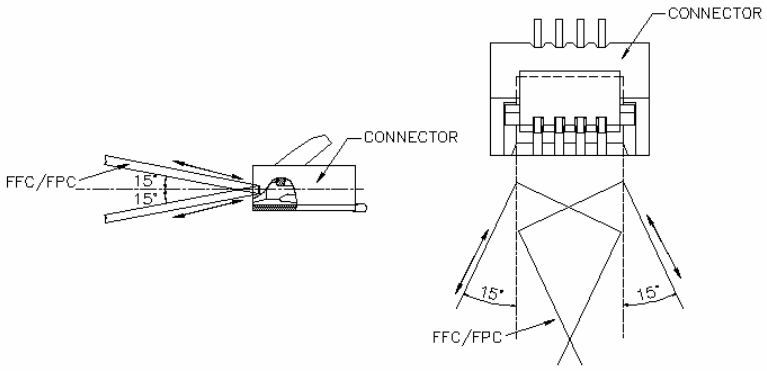

Figure 6.

- 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).

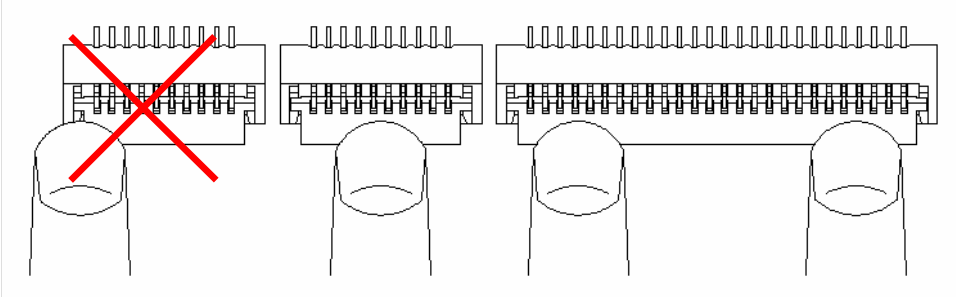

Figure 7.

- 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).

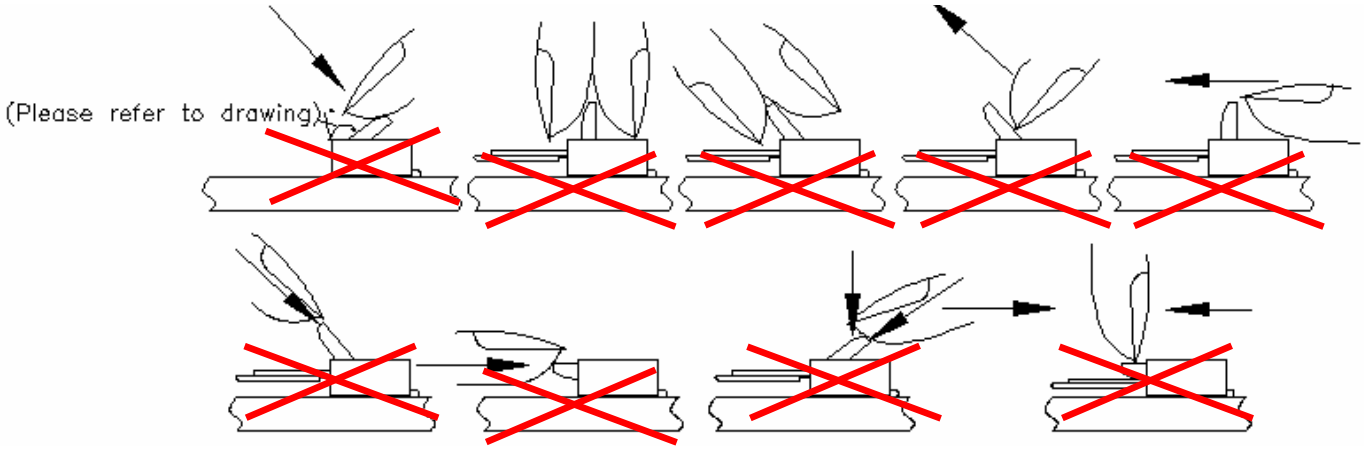

Figure 8.

- 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).

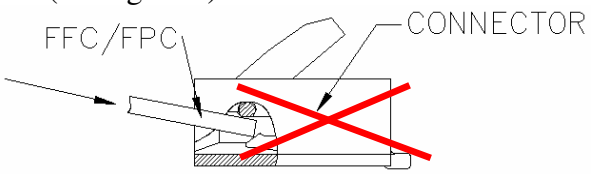

Figure 9.

- 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).

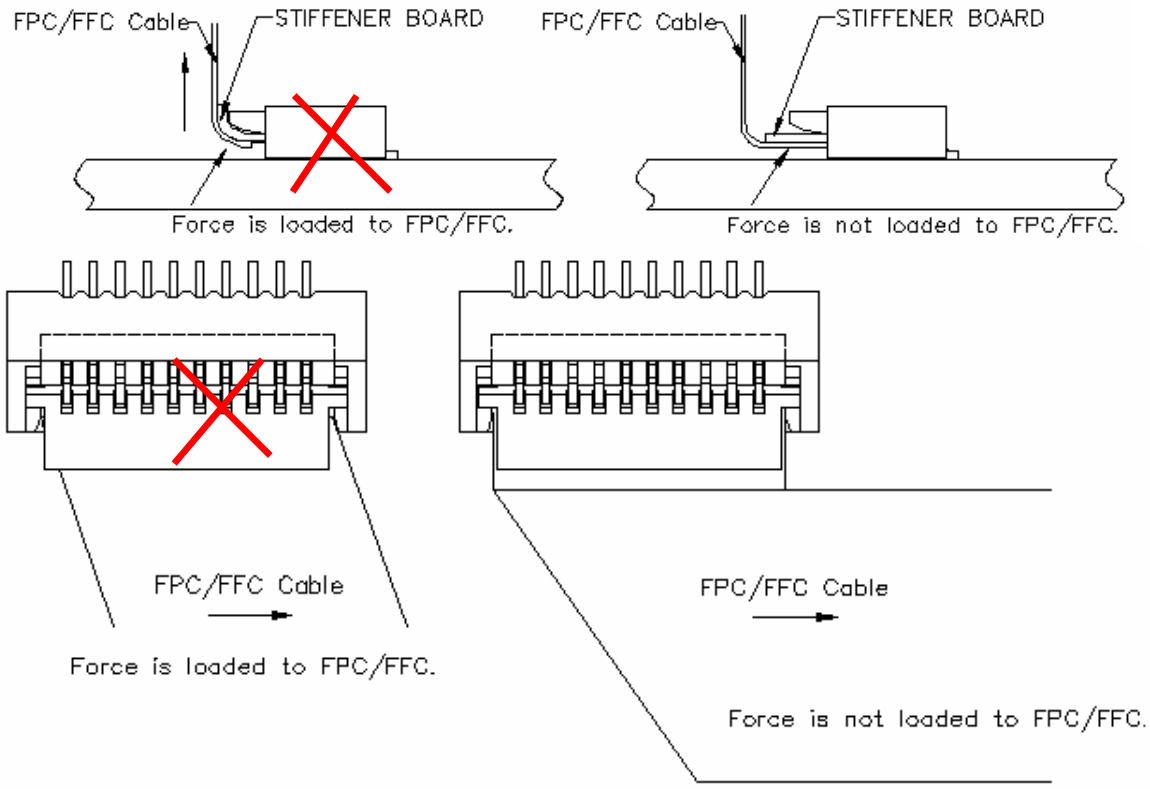

Figure 10.

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RELEASE HISTORY

Rev.	Revisions	Date	Executor	Description
A2	RE201108011	Aug-04-2011	KAZ	ADD Handling Precautions
A3	REN120107	Jan-17-2012	KAZ	UPDATE ULCARD