TO

SPECIFICATION FOR APPROVAL

DESCRIPTION: Pitch 0.50mm ZIF FPC Connector, R/A, SMT Type Bottom Contact

CUSTOMER PROD.NO/DWG.NO:

E&T PROD.NO: 6705K-XXXX-00,20,30,40X

APPROVAL SHEET NO:

E&T DWG. NO./DOCUMENT: 6705K-XXXX-00,20,30,40X

REV: A4

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 0.50mm ZIF FPC Connector, R/A, SMT Type Bottom Contact

REN20140501		**Title: Pitch 0.50mm ZIF FPC Connector, R/A, SMT Type Bottom Contact**
A4	**05.15,2012'**	This Document Contains Information That Is Proprietary To E&T And Should Not Be Used Without Written Permission
Rev	**Description**	

Document No. **6705K-XXXX-00,20,20,40X**	Prepared By: Hill Chang	Date:03,31,2009'
	Checked By:	Date: 05,08,2014'
	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 0.50 mm ZIF FPC connector series.

2. PRODUCT NAME AND PART NUMBER :

Product Name	E&T Part Number
0.50mm ZIF FPC Connector, R/A, SMT Type Bottom Contact	6705K-XXXX-00,20,30,40X

3. RATINGS :

Item	Standard	
Rated Voltage (MAX.)	50 V	(AC(rms/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	20 mΩ MAX.
4-1-2	Insulation Resistance	Test Voltage: 500V DC. Test Duration: 1 minutes. Test Method: EIA-364-21C	100 MΩ Min.
4-1-3	Dielectric Strength	Test Voltage:500V AC. Test Time: 60 sec. Test Method: EIA-364-20B	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-364-29B	Refer to paragraph 6	
4-2-2	Terminal / Housing Retention Force	Test Speed: 25mm/min.	0.1kgf (Min)	
4-2-3	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	≦ 20 mΩ
			Final Value	≦40 mΩ

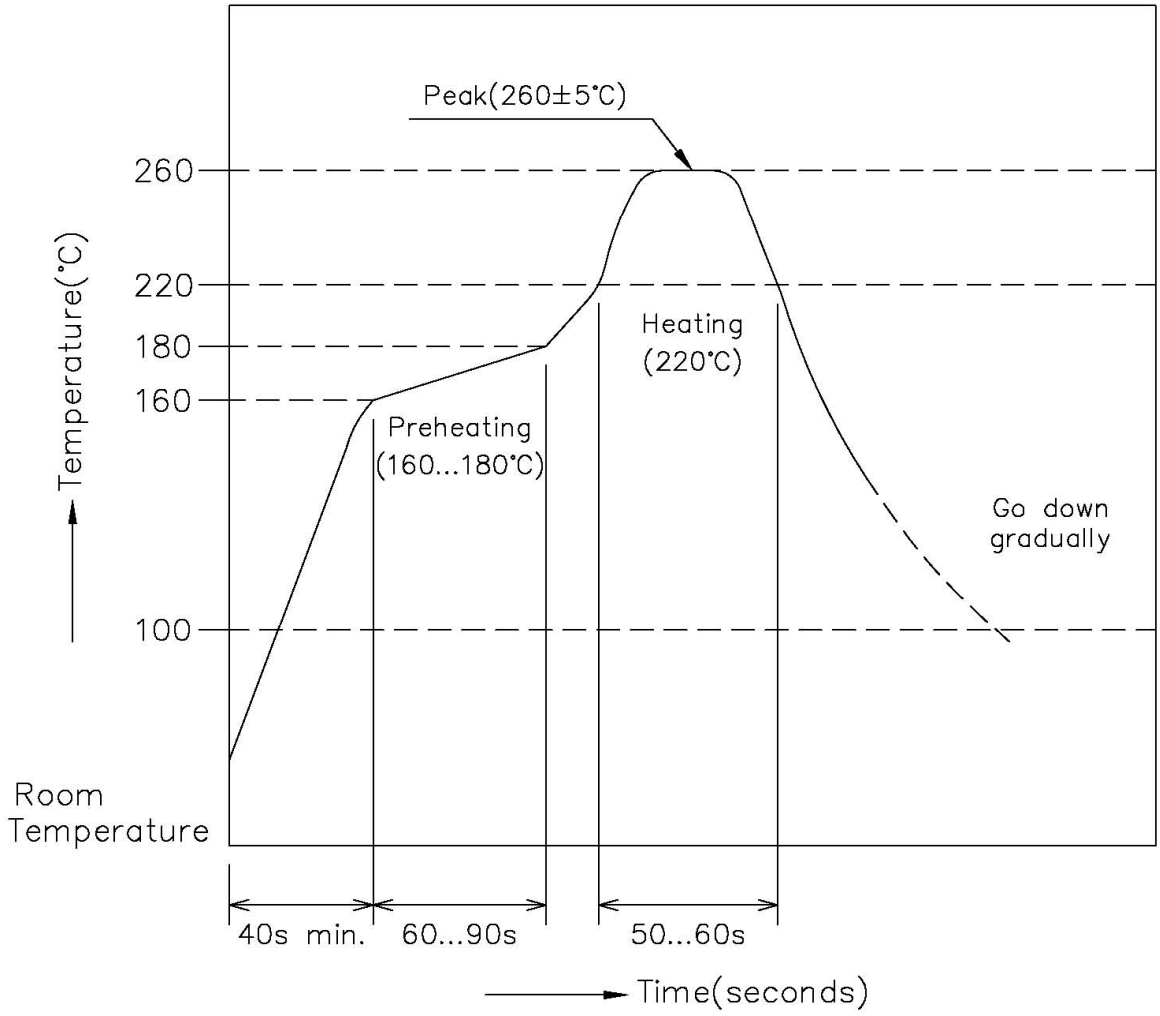
4-3 Environmental Performance and Others

Item		Test Condition	Requirement	
4-3-1	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	≦40 mΩ
			Discontinuity	1μsec
4-3-2	Heat Resistance	Temperature: 85±2℃ Duration: 96 hours	Appearance	No Damage
			Contact Resistance	≦40 mΩ
4-3-3	Cold Resistance	Temperature: -40±2℃ Duration: 96 hours	Appearance	No Damage
			Contact Resistance	≦40 mΩ
4-3-4	Humidity	Temperature: 40±2℃ Relative Humidity: 90~95% Duration: 96 hours Test Method: EIA-364-31B	Appearance	No Damage
			Contact Resistance	≦40 mΩ
			Insulation Resistance	≧100MΩ
			Dielectric Strength	Must meet 4-1-3

Item		Test Condition	Requirement	
4-3-5	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
4-3-6	Resistance To Soldering Heat	Soldering Time : 10±0.5 sec Solder Temperature : 260±5℃ Test Method: EIA-364-56C	Appearance	No Damage
4-3-7	Steam Aging	Steam Aging Temperature : 98±2℃ Duration: 8 hours Solder Temperature : 245±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
4-3-8	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	≦ 40 mΩ
4-3-9	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	≦ 40 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. 0.5mm FPC RETENTION FORCE SPEC

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

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No of CKT	UNIT	Retention Force (MIN) 1 st	10 th	No of CKT	UNIT	Retention Force (MIN) 1 st	10 th
38	N	10.290	9.555	48	N	12.740	12.005
	Kgf	1.050	0.975		Kgf	1.300	1.225
39	N	10.535	9.800	50	N	13.230	12.495
	Kgf	1.075	1.000		Kgf	1.350	1.275
40	N	10.780	10.045	60	N	15.680	14.945
	Kgf	1.100	1.025		Kgf	1.600	1.525

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).

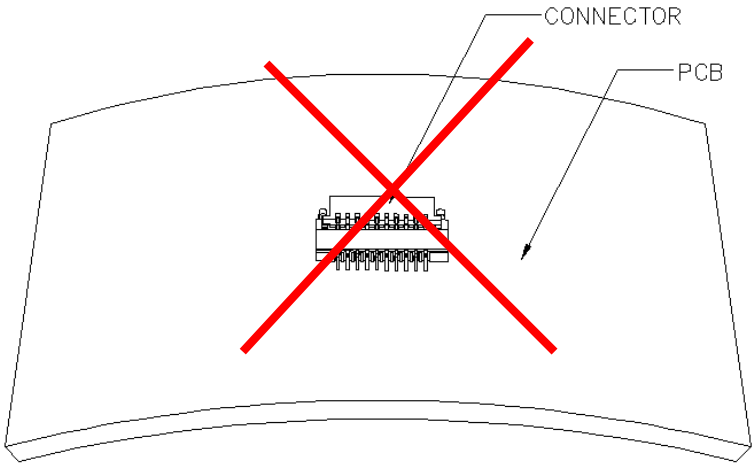

Figure 1.

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).

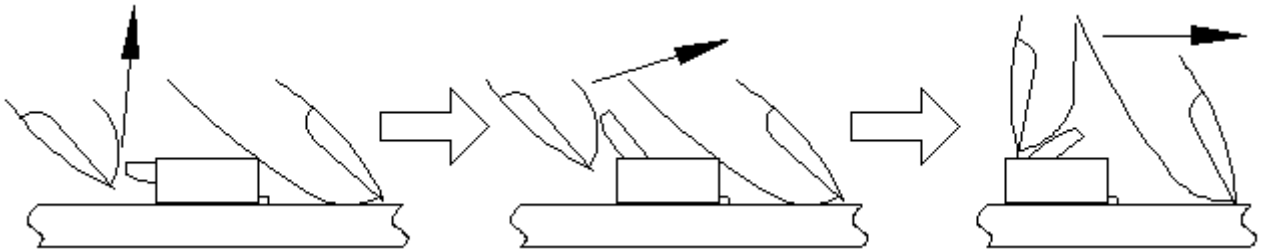

Figure 2.

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

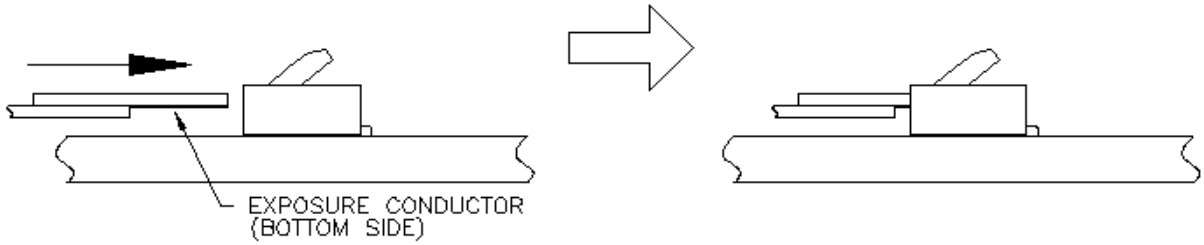

Figure 3.

- 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).

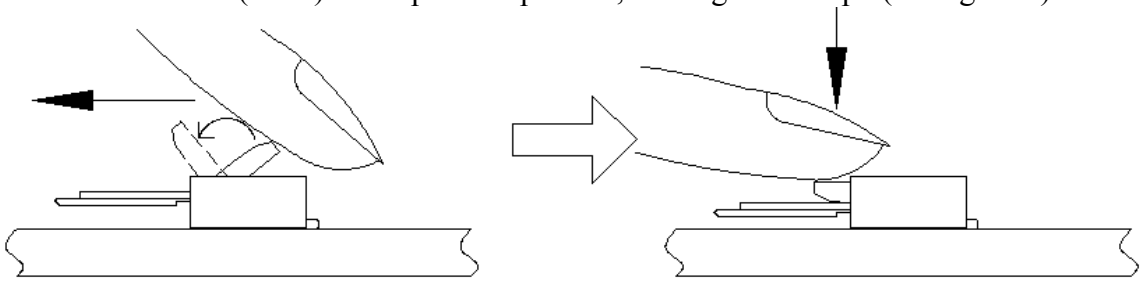

Figure 4.

FPC/FFC Removal.

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

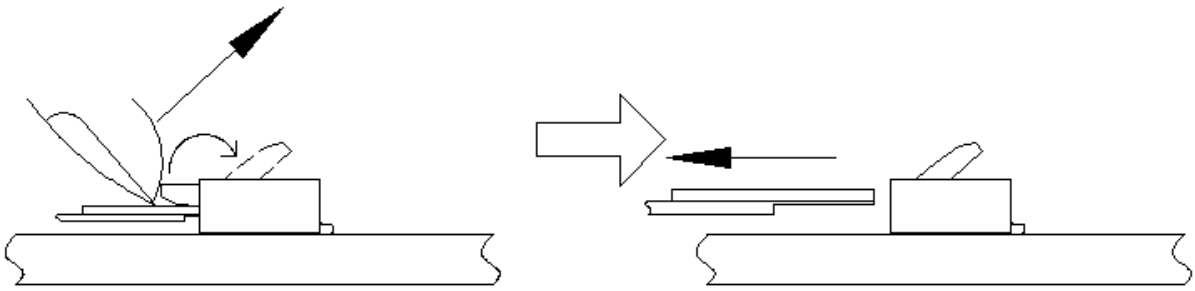

Figure 5.

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).

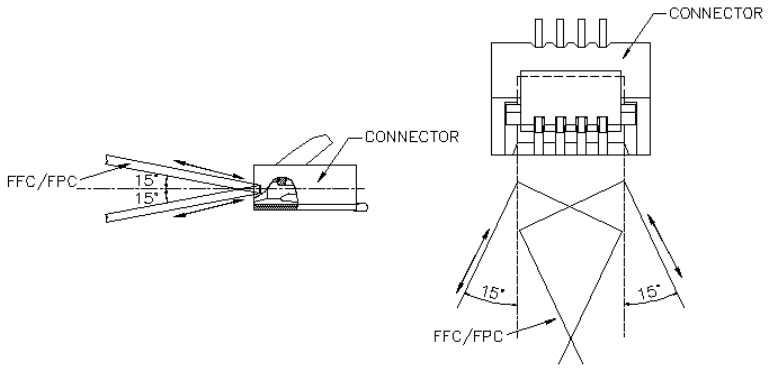

Figure 6.

- 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).

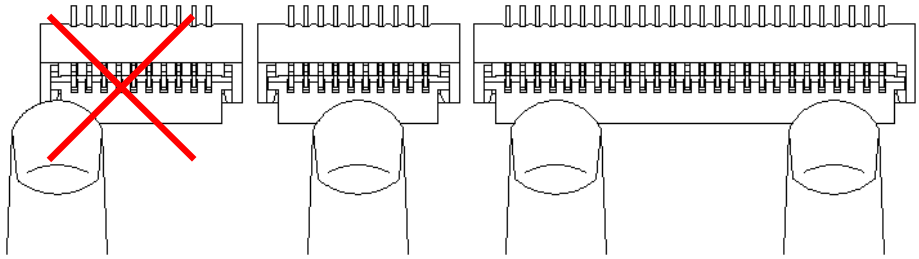

Figure 7.

- 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).

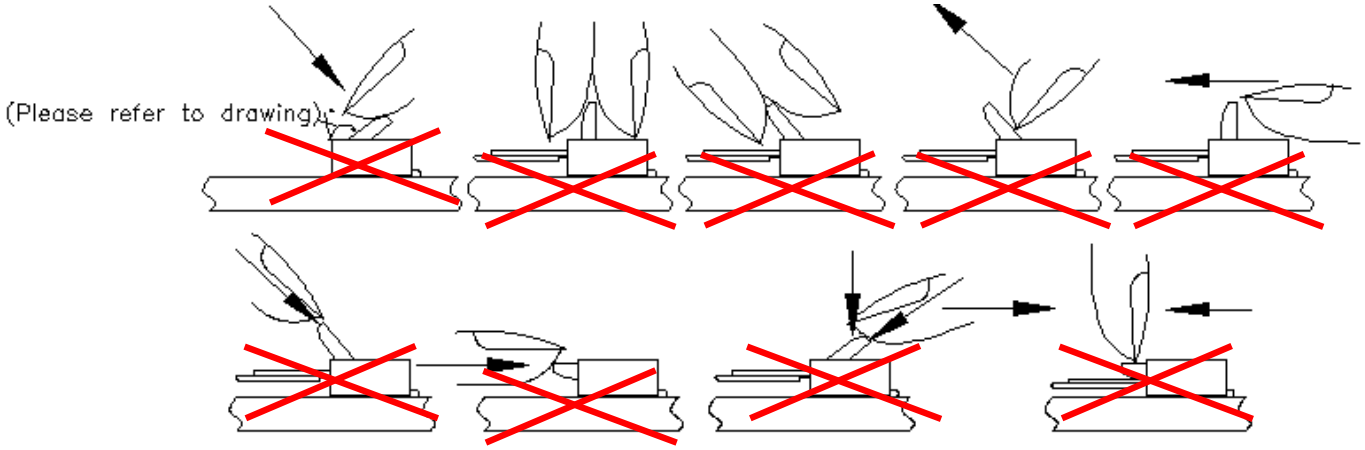

Figure 8.

- 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).

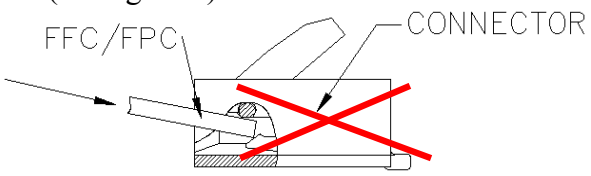

Figure 9.

- 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).

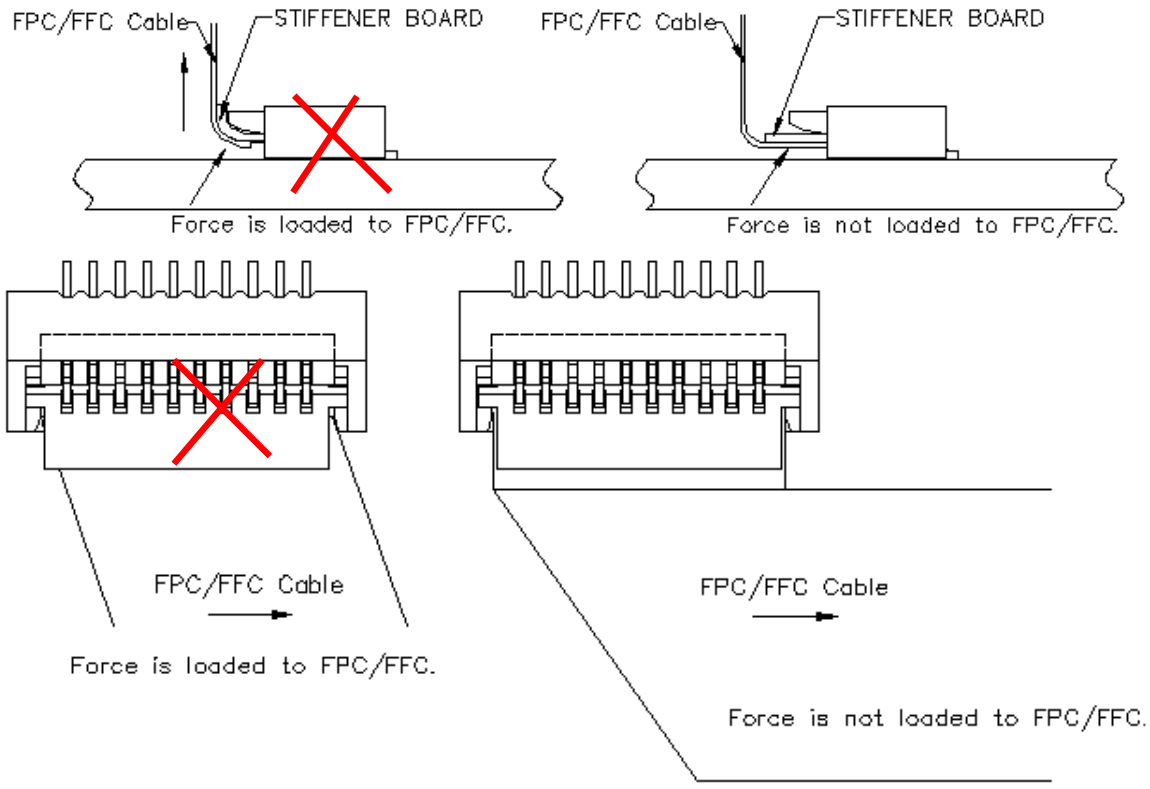

Figure 10.

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RELEASE HISTORY

Rev.	Revisions	Date	Executor	Description
A1	RE201108011	AUG-19-2011	Max	ADD Handing Precautions
A2	REN120509	MAY-15-2012	JIMMY	ADD 40 TYPE
A3	RE201305023	OCT-08-2013	Juno	Modify.
A4	REN140501	MAY-08-2014	Juno	Modify. P/N