

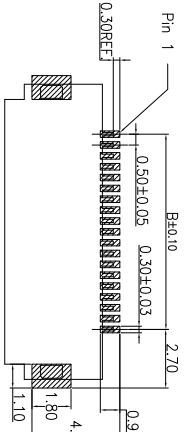
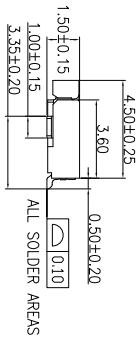
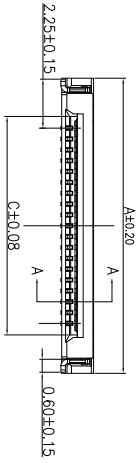
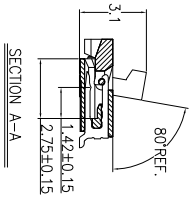
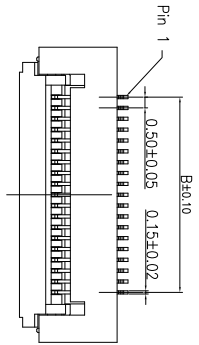
* 所有原材料, 生产制程, 电镀必须符合ROHS要求

PN NO.	DM. A	DM. B	DM. C	PN NO.	DM. A	DM. B	DM. C
04	6.10	1.50	2.60	32	20.10	15.50	16.60
05	6.60	2.00	3.10	33	20.60	16.00	17.10
06	7.10	2.50	3.60	34	21.10	16.50	17.60
07	7.60	3.00	4.10	35	21.60	17.00	18.10
08	8.10	3.50	4.60	36	22.10	17.50	18.60
09	8.60	4.00	5.10	37	22.60	18.00	19.10
10	9.10	4.50	5.60	38	23.10	18.50	19.60
11	9.60	5.00	6.10	39	23.60	19.00	20.10
12	10.10	5.50	6.60	40	24.10	19.50	20.60
13	10.60	6.00	7.10	41	24.60	20.00	21.10
14	11.10	6.50	7.60	42	25.10	20.50	21.60
15	11.60	7.00	8.10	43	25.60	21.00	22.10
16	12.10	7.50	8.60	44	26.10	21.50	22.60
17	12.60	8.00	9.10	45	26.60	22.00	23.10
18	13.10	8.50	9.60	46	27.10	22.50	23.60
19	13.60	9.00	10.10	47	27.60	23.00	24.10
20	14.10	9.50	10.60	48	28.10	23.50	24.60
21	14.60	10.00	11.10	49	28.60	24.00	25.10
22	15.10	10.50	11.60	50	29.10	24.50	25.60
23	15.60	11.00	12.10	51	29.60	25.00	26.10
24	16.10	11.50	12.60	52	30.10	25.50	26.60
25	16.60	12.00	13.10	53	30.60	26.00	27.10
26	17.10	12.50	13.60	54	31.10	26.50	27.60
27	17.60	13.00	14.10	55	31.60	27.00	28.10
28	18.10	13.50	14.60	56	32.10	27.50	28.60
29	18.60	14.00	15.10	57	32.60	28.00	29.10
30	19.10	14.50	15.60	58	33.10	28.50	29.60
31	19.60	15.00	16.10	59	33.60	29.00	30.10
				60	34.10	29.50	30.60

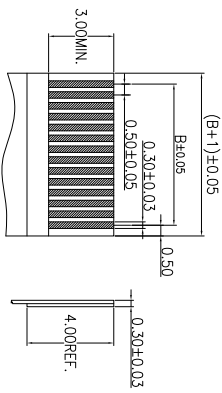
Note:

1. Material
 - 1.1: Housing: LCP UL94-V0 Color:Natural
 - 1.2: Actuator: LCP UL94-V0 Color:Black.
 - 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: 50V AC/DC.
 - 3.2: Current Rating: 0.4A AC/DC.
 - 3.3: Operating Temperature: -55C~+85C.
4. Pater Number:
 - 4.1: Pater Number: COTEX-FPC 0515-XXB2-XXR

Packing: R=棘
 Plating: S3= Tin G1=1u Au
 Contact form: 2=Lower
 Leg form: B=half package
 Number of contacts
 Series of the product height
 Pitch between: 05=0.5mm
 Series name: FPC=推杆柄盖系列



RECOMMEND PCB LAYOUT
TOLERANCE: ±0.05



APPLICABLE FPC
TOLERANCE: ±0.05



智勇达实业有限公司
COTEX INDUSTRIAL CO., LTD

PRODUCT NAME: 0.5mm Pitch FPC柄盖 H1.5

PRODUCT NO.: COTEX-FPC0515-XXB2-XXR

DRAWING NO.: D-FPC0515-XXB2-XXR

CHECK: Jack

DATE: 2012/09/01

APPROVED: Jack

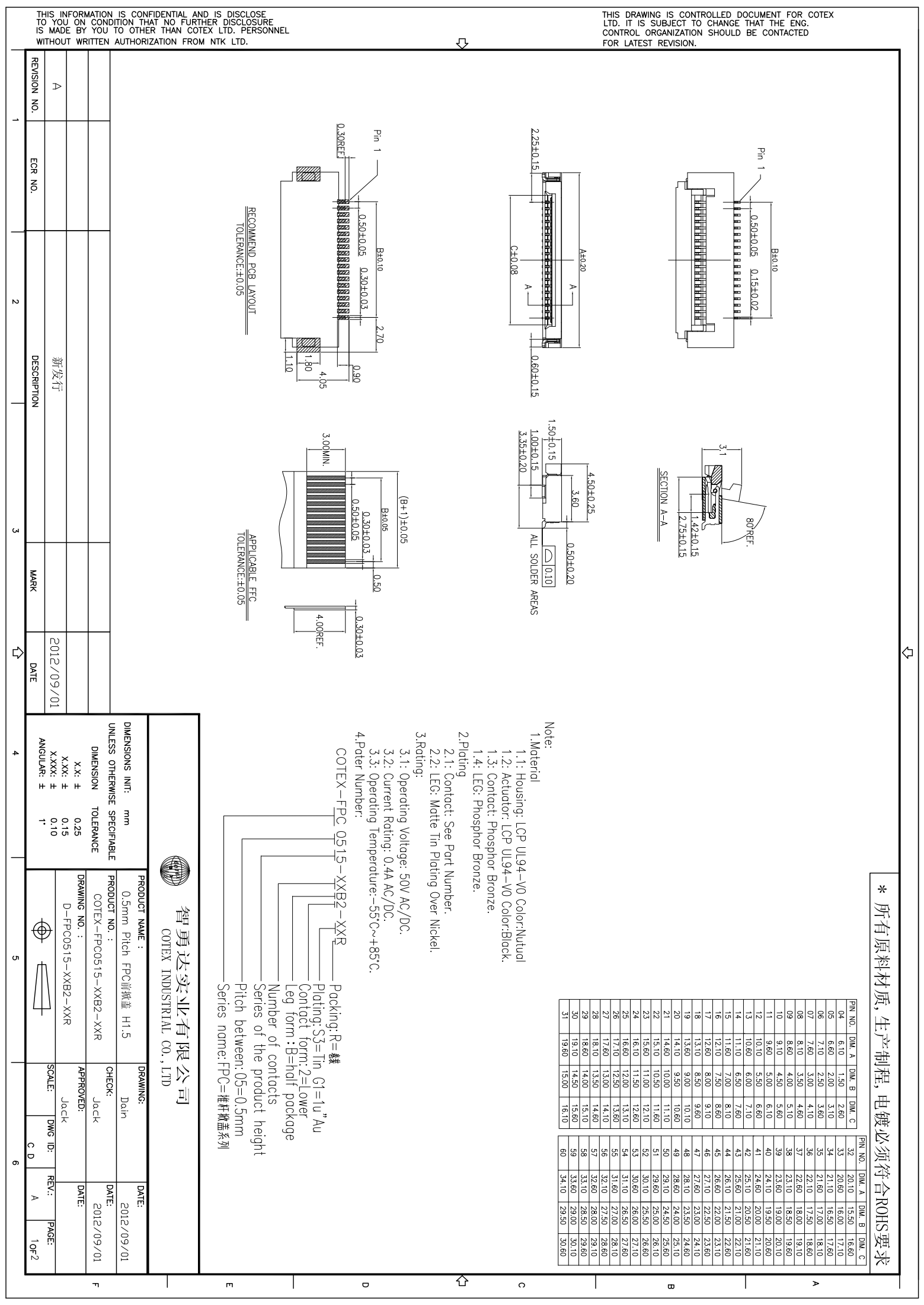
SCALE: 1:1

DWG ID: C D

REV.: A

PAGE: 1 of 2

REVISION NO.	EGR NO.	DESCRIPTION	MARK	DATE
A		新发行		2012/09/01
1				



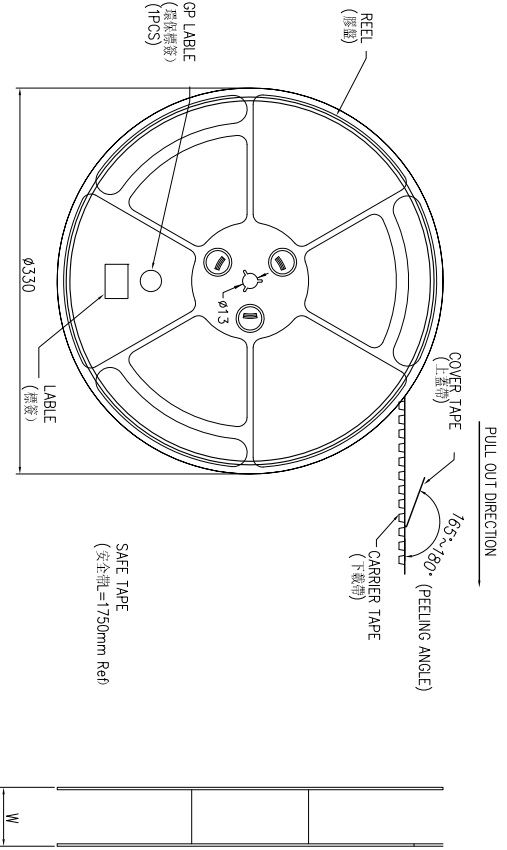
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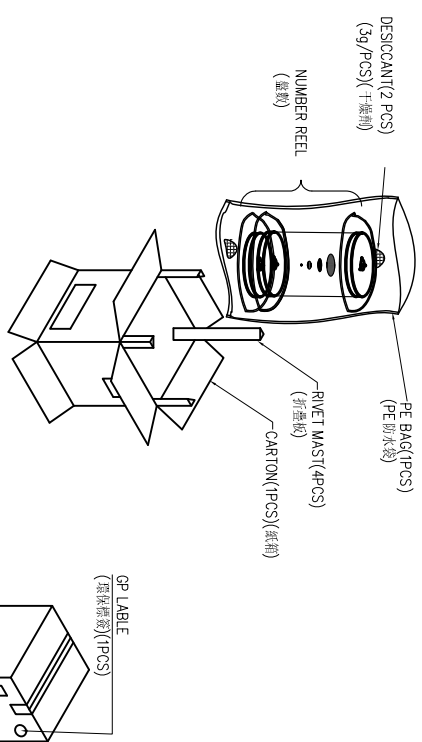
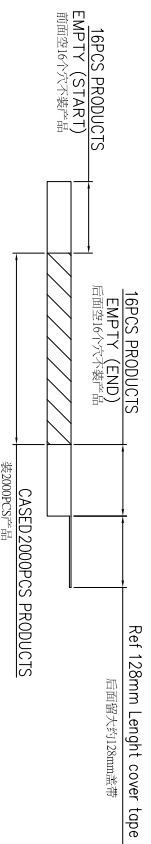
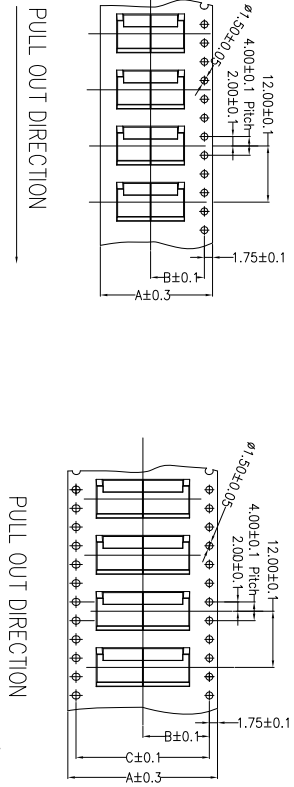
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NOTE:

- 1.10 Sprocket hole pitch cumulative tolerance ± 0.20 .
2. Carrier camber is within 1mm in 100mm.
3. Material: black conductive polystyrene alloy.
4. Material Thickness: 0.3 ± 0.05 mm.
5. All dimensions meet EIA-481-B requirements.
6. 2000pcs Per Reel.
7. For tape width(dim W)12.16 and 24mm pilot holes are provided on one sides. For tape width(dim W)32, 44mm pilot holes are provided on both sides.



SCALE 1:4



PIN NO.	W	C	PCS /REEL	REEL /CARTON	SUM(PCS)
04PIN~06PIN	16	-	2000	15	30000
07PIN~24PIN	24	-	2000	10	20000
25PIN~30PIN	24	28.4	2000	8	16000
31PIN~35PIN	44	40.4	2000	6	12000
36PIN~50PIN	56	52.4	2000	5	10000

智勇达实业有限公司
COTEX INDUSTRIAL CO., LTD

DIMENSIONS UNIT: mm		DRAWING: DATE:	
UNLESS OTHERWISE SPECIFIABLE		CHECK: DATE:	
DIMENSION	TOLERANCE	DATE:	
X.X: ±	0.25	SCALE: 1:1	DWG ID: C D
X.XX: ±	0.15	REV.: A	PAGE: 2 OF 2
X.XXX: ±	0.10		
ANGULAR: ±	1°		

REVISION NO.	EOR NO.	DESCRIPTION	MARK	DATE
1				
2				
3				
4				
5				

COTEX 0.5mm Pitch cover type FPC Connector

1. SCOPE

This specification covers the 0.5mm Pitch cover type FPC connector.

2. ORDERING INFORMATION

PART NO.: **COETEX---FPC** **05** **15---XX** **B** **2---XX** **R**

①
②
③
④
⑤
⑥
⑦
⑧

①Series name	FPC==推杆掀盖系列	FPCL=推杆拉拔系列	
②Pitch between	03=0.3mm Pitch	05=0.5mm Pitch	10=1.0mm Pitch
③Product height	09/10=1.0mm Height 19/20=2.0mm Height	12=1.2mm Height 25=2.5mm Height	14/15=1.5mm Height 30=3.0mm Height
④Number of contacts	0.3-Pitch系列=13~71	0.5-Pitch系列=04~60	1.0-Pitch系列=04~30
⑤Shell form	A=全包Full package	B=半包Half package	
⑥Contact form	1=Upper contact type	2=Lower contact type	3=Double contact type
⑦Plating	S3=Tin over Nickel	G1=1u"gold flash Nickel	G3=3u"gold flash Nickel
⑧Packaging	T=TUBE管装	R=CARRY TAPE卷装	

3. CONNECTOR DIMENSIONS

See product drawings.

4. ACCOMMODATED P.C.B LAYOUT

See product drawings.

5. MATERIAL

Parts	Materials
Housing	High Temperature plastic, Color:Natural,UL94V-0
Actuator	High Temperature plastic, Color:Black,UL94V-0
Contacts	Copper Alloy
Contacts Plating	Tin or Au plated over Nickel
Shell	Copper Alloy
Shell Plating :	Tin plated over Nickel

COTEX 0.5mm Pitch cover type FPC Connector

6. RATING

ITEM	STANDARD
Voltage Rating (Max.)	50 V AC/DC
Current Rating (Max.)	0.4 A AC/DC Max
Operating Temperature	-55°C ~ +85°C
Storage Temperature	-10°C ~ +50°C
Recommended FPC	Thickness:=0.30±0.03mm gold plated

7.PERFORMANCE

ITEM	TEST CONDITION	REQUIRMENT
ELECTRICAL PERFORMANCE		
Contact Resistance	Mate applicable FPC and measure by dry circuit, 20mV Max, 10mA.	100 mΩ Max.
Insulation Resistance	Mate applicable FPC and apply 500V DC between adjacent terminal or ground.	50 MΩ Min
Dielectric Strength	Mate applicable FPC, apply 250V AC(rms) for 1 minute between adjacent terminal or ground.	No Breakdown
MECHANICAL PERFORMANCE		
Contact retention force	Apply axial pull out force at the rate of 25±3 mm/minute on the terminal assembled in the housing.	0.1kgf(1.0N) Min
FPC retention force	Insert the actuator, pull the FPC at a rate of 25±3mm per minute.	0.03kgf(0.3N)/pin Min
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 : 1.5mm P-P Frequency : 10~55~10 Hz in 1 minute.	1) Appearance: No Breakdown
		2) Contact Resistance: 100 mΩ Max.
Repeated Actuator Insertion/Withdrawal	Insert and withdraw actuator up to 20 cycles at the speed rate of less than 10 cycles/minute	1) Appearance: No Breakdown
		2) Contact Resistance: 100 mΩ Max.
ENVIRONMENTAL PERFORMANCE AND OTHERS		

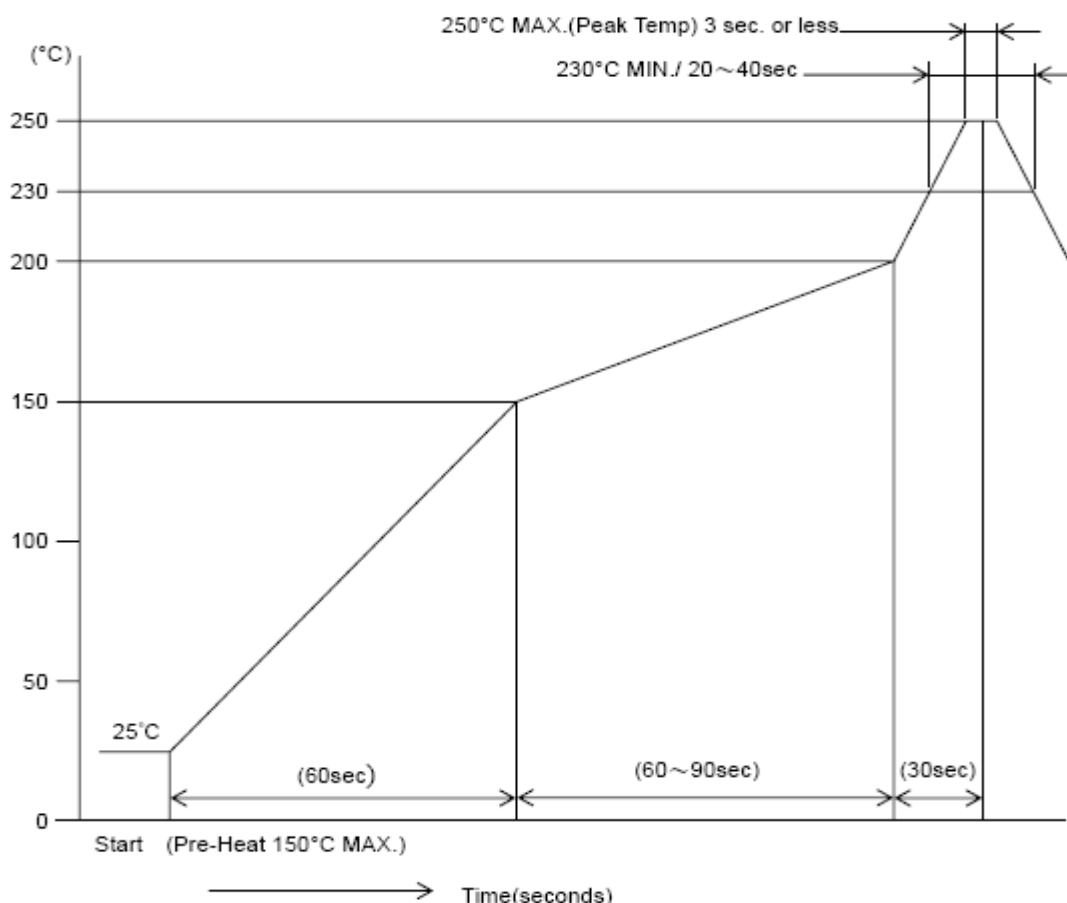
COTEX 0.5mm Pitch cover type FPC Connector

Temperature Cycling	<p>Mate applicable FPC and subject to the following conditions for 5 cycles.</p> <p>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.</p> <p>1 cycle</p> <p>a) -55±3°C 30minutes</p> <p>b) +85±3°C 30minutes</p> <p>(Transit time shall be with in 3 minutes)</p>	1) Appearance: No Breakdown
		2) Contact Resistance: 100 mΩ Max.
Heat Resistance	<p>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</p>	1) Appearance: No Breakdown
		2) Contact Resistance: 100 mΩ Max.
Cold Resistance	<p>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</p>	1) Appearance: No Breakdown
		2) Contact Resistance: 100 mΩ Max.
humidity	<p>Mate applicable FPC and expose to 40 ± 2°C, relative humidity 90 to 95% for 96 hours.</p> <p>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</p>	1) Appearance: No Breakdown
		2) Contact Resistance: 100 mΩ Max.
Salt Spray	<p>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 measurements shall be performend.</p>	<p>1)Appearance: No detrimental corrosion allowed in contact area and base metal exposed</p> <p>2) Contact Resistance: 100 mΩ Max.</p>

COTEX 0.5mm Pitch cover type FPC Connector

	NaCl solution Concentration : $5 \pm 1\%$ Spray time : 12 hours Ambient temperature : $35 \pm 2^\circ\text{C}$	
Solder ability	Tip of solder tails and fitting nails into the molten solder (held at $245 \pm 5^\circ\text{C}$) up to 0.1mm from the bottom of the housing for 3 ± 0.5 seconds	Solder coverage 95% min.
Resistance to Soldering Heat	When reflowing...Refer to paragraph 8. Soldering iron method Solder time : 5 seconds Max. Solder temperature : $350 \pm 10^\circ\text{C}$.	Appearance: No deformation and no bubble

8.TEMPERATURE CONDITION GRAPH

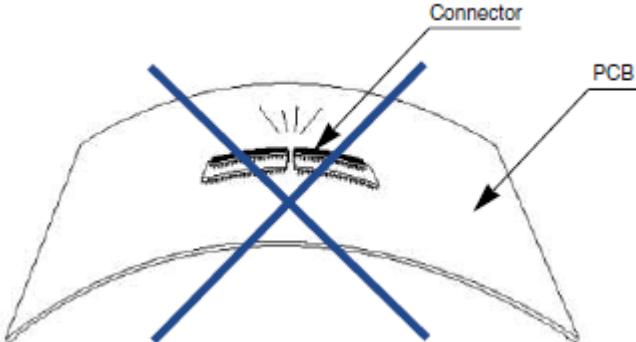
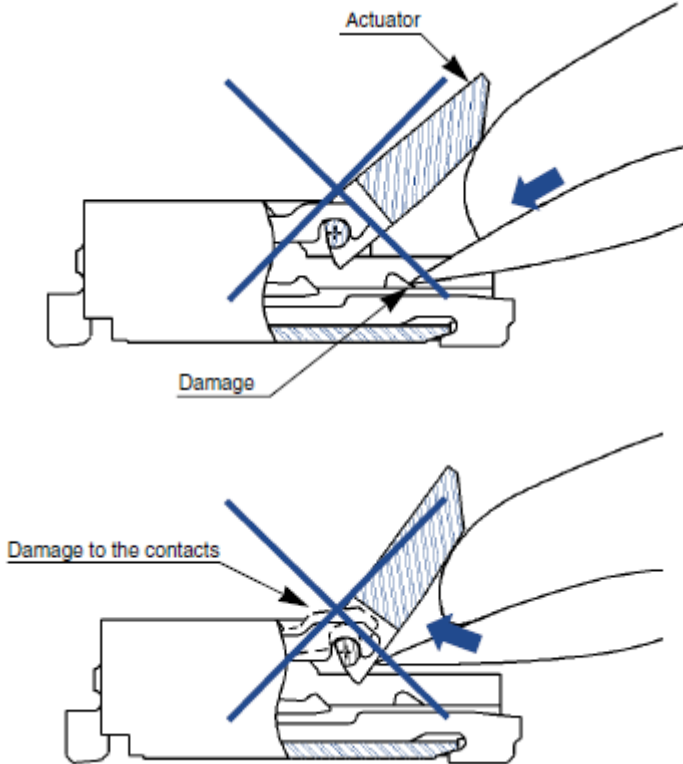
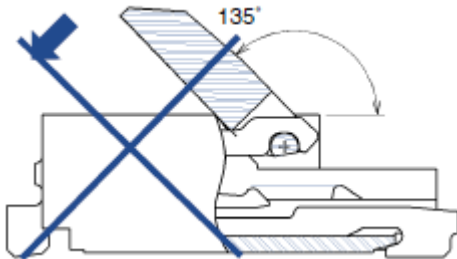



TEMPERATURE CONDITION GRAPH
(TEMPERATURE ON BOARD PATTERN SIDE)

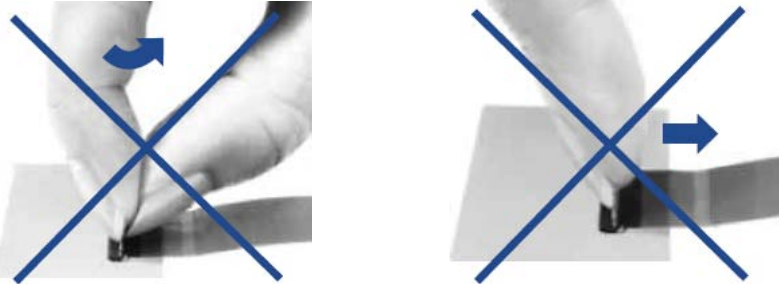
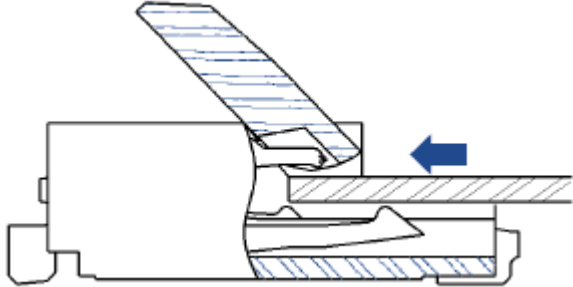
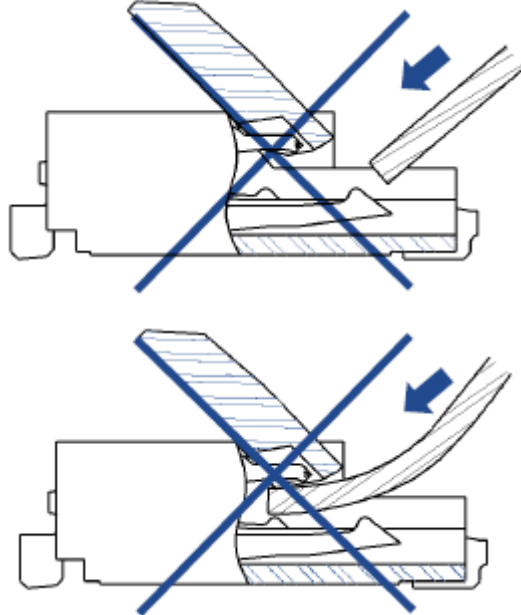
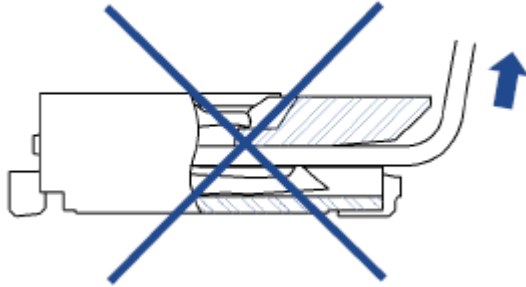
9.OPERATION AND PRECAUTION

OPERATION	
<p>① Lift up the actuator. Use thumb or index finger.</p>	
<p>② Fully insert the FPC in the connector parallel to mounting surface, with the exposed conductive traces facing down.</p>	
<p>③ Rotate down the actuator until firmly closed. It is critical that the inserted FPC is not moved and remains fully inserted.</p>	
<p>④ Lift up the actuator. Carefully withdraw the FPC.</p>	
PRECAUTION	

COTEX 0.5mm Pitch cover type FPC Connector

<p>① The roughness of PCB board must be within 0.1mm max.</p>	 <p>Connector PCB</p>
<p>② Do not apply excessive force when opening the actuator prior to FPC insertion. When opening make sure that the force is applied only to the actuator itself, avoiding touching of the contacts.</p>	 <p>Actuator Damage Damage to the contacts</p>
<p>③ The actuator will rotate 135 degrees maximum. Do not apply force to rotate further.</p>	 <p>135°</p>
<p>④ When operating the actuator, do so at the center portion.</p>	

COTEX 0.5mm Pitch cover type FPC Connector

<p>⑤ As illustrated,do not attempt removal or re-positioning of the actuator.</p>	
<p>⑥ To assure correct electrical and mechanical connection do not insert FPC at angle.It must be fully inserted. Make sure that the FPC is NOT MOVED during the closing of the actuator.</p>	
<p>⑦ Do not insert the FPC at any angle from above. As illustrated,angle insertion may cause electrical discontinuity when the FPC is deflected in use.</p>	
<p>⑧ Do not apply force in excess of 0.005kgf/pin max.in the upward direction(as illustrated). Do not bend the FPC too close to the actuator.</p>	

COTEX 0.5mm Pitch cover type FPC Connector

1. SCOPE

This test report covers the 0.5mm Pitch cover type FPC connector.

2. TEST SAMPLES

This test samples were randomly selected from normal current production lots and the following part numbers were used for test.

3. TEST SEQUENCE

TEST ITEM	TEST GROUP								
	A	B	C	D	E	F	G	H	I
Examination appearance	*	*	*	*	*	*	*	*	
Contact Resistance			*	*	*				
Insulation Resistance			*	*	*				
Dielectric Withstand Voltage			*	*	*				
Contact retention force	*								
FPC retention force	*								
Vibration		*							
Repeated Actuator Insertion/Withdrawal			*						
Temperature Cycling				*					
Heat Resistance					*				
Cold Resistance					*				
humidity						*			
Salt Spray							*		
Solder ability								*	
Resistance to Soldering Heat									*

Revision resume record				
REV	DATA	Change content	Approved By	Written By
A0	2009.09.10	New formulation	Alan	Cheney

COTEX 0.5mm Pitch cover type FPC Connector

4.TEST TABLE

GROUP	TEST ITEM	REQUIRMENT	DATA(MEAN)	RESULT
A	Examination appearance	No Breakdown	OK	Pass
	Contact retention force	0.1kgf Min	0.2kgf	Pass
	FPC retention force	0.03kgf/pin Min	0.04 kgf	Pass
	Examination appearance	No Breakdown	OK	Pass
B	Examination appearance	No Breakdown	OK	Pass
	Vibration	Contact Resistance: 100 mΩ Max.	22mΩ	Pass
	Examination appearance	No Breakdown	OK	Pass
C	Examination appearance	No Breakdown	OK	Pass
	Contact Resistance	100 mΩ Max.	12 mΩ	Pass
	Insulation Resistance	50 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
	Repeated Actuator Insertion/Withdrawal	20 cycles.	OK	Pass
	Examination appearance	No Breakdown.	OK	Pass
	Contact Resistance	100 mΩ Max.	17 mΩ	Pass
	Insulation Resistance	100 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
D	Examination appearance	No Breakdown	OK	Pass
	Contact Resistance	100 mΩ Max.	22 mΩ	Pass
	Insulation Resistance	50 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
	Temperature Cycling	Contact Resistance: 100 mΩ Max.	OK	Pass
	Examination appearance	No Breakdown	OK	Pass
	Contact Resistance	100 mΩ Max.	21mΩ	Pass
	Insulation Resistance	100 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
E	Examination appearance	No Breakdown	OK	Pass
	Contact Resistance	100 mΩ Max.	12 mΩ	Pass

TEST REPORT

Document No.: APP-COTEX-FPC0515

COTEX 0.5mm Pitch cover type FPC Connector

	Insulation Resistance	50 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
	a)Heat Resistance b)Cold Resistance	Contact Resistance: 100 mΩ Max.	OK	Pass
	Examination appearance	No Breakdown	a)OK b)OK	Pass
	Contact Resistance	100 mΩ Max.	a)16 mΩ b)18 mΩ	Pass
	Insulation Resistance	100 MΩ Min.	a) 9999 MΩ b) 9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
F	Examination appearance	No Breakdown	OK	Pass
	Contact Resistance	100 mΩ Max.	12 mΩ	Pass
	Insulation Resistance	50 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
	humidity	Contact Resistance: 100 mΩ Max.	OK	Pass
	Examination appearance	No Breakdown	OK	Pass
	Contact Resistance	100 mΩ Max.	18 mΩ	Pass
	Insulation Resistance	100 MΩ Min.	9999 MΩ	Pass
	Dielectric Withstand Voltage	No Breakdown	OK	Pass
F	Examination appearance	No Breakdown	OK	Pass
	Salt Spray	No detrimental corrosion	OK	Pass
	Examination appearance	No Breakdown	OK	Pass
G	Examination appearance	No Breakdown	OK	Pass
	Solder ability	Solder coverage 95% Min.	99%	Pass
	Examination appearance	No Breakdown	OK	Pass
H	Examination appearance	No Breakdown	OK	Pass
	Resistance to Soldering Heat	No deformation and no bubble	OK	Pass
	Examination appearance	No Breakdown	OK	Pass