

## APPROVAL SHEET

CUSTOMER: \_\_\_\_\_

CUSTOMER P/N: \_\_\_\_\_

AFE09-S\*\*FMA-SR

PART NAME: \_\_\_\_\_

FPC 0.3 NP 0.9H后压式

PART NO. : \_\_\_\_\_

MANUFACTURE SIGNATURE			CUSTOMER SIGNATURE
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**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

**1.適用範圍 SCOPE**

**RoHS COMPLIANT PRODUCT**

本規格書適用於 FPC CONNECTOR BL AFE09 系列。  
This specification covers the FPC CONNECTOR BL AFE09 series.

**2.產品編碼 ORDERING INFORMATION**

編碼原則：  
Coding Principles

<u>AF</u>	<u>E</u>	<u>09</u>	<u>S</u>	-	<u>xx</u>	<u>F</u>	<u>M</u>	<u>A</u>	-	<u>RS</u>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>		<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>		<b>9</b>

<b>1</b>	系列名稱 Series name	AFE
<b>2</b>	端子間距 Pitch between contacts	3 – Pitch=0.3mm
<b>3</b>	高度 Height	09 – Height=0.9mm
<b>4</b>	其它規格 Other spec	E
<b>5</b>	接點數量 Number of contacts	7 , 9 , 11
<b>6</b>	電鍍方式 Plating	S – 鍍底選鍍金 1μ”~3μ” / 1μ”~3μ” Gold Flash (Nickel Barrier)
<b>7</b>	對插方式 Mating	3 – 後壓式 / Back-Flip Type
<b>8</b>	組合樣式 Assembly style	1 – 臥式/雙接觸規格 / Right Angle/Dual Contact Type
<b>9</b>	包裝方式 Packaging	TA – 帶狀捲式包裝 / Embossed Tape
<b>10</b>	無鹵 Halogen Free	H – 無鹵 / Halogen Free
<b>11</b>	延伸性版本 Extended version	0 – 標準品 / Standard

**3.外觀尺寸 CONNECTOR DIMENSIONS**

請參照圖面。  
See attached drawings.

**4.材質 MATERIAL**

絕緣膠體	Housing :	L.C.P 顏色 Color : 米色 Beige 耐燃等級(UL94V-0) / Flammability Rating (UL94V-0)
蓋子	Actuator :	L.C.P 顏色 Color : 黑色 Black 耐燃等級(UL94V-0) / Flammability Rating (UL94V-0)
導電端子	Contacts :	磷青銅 / Phosphor Bronze
電鍍方式	Plating :	鍍底選鍍金 1μ”~3μ” / 1μ”~3μ” Gold Flash (Nickel Barrier)

**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

**5. 建議 P.C.B LAYOUT 圖 ACCOMMODATED P.C.B LAYOUT**

請參照圖面.

See attached drawings.

**6. 等級 RATING**

項 目 ITEM	規 格 STANDARD
最大容許電壓 Operating Voltage(Max.)	50V AC(rms)
最大容許電流 Current Rating(Max.)	0.2A DC
使用溫度範圍 Operating Temperature Range	-55°C ~ +85°C (包含電流通過所產生的上昇溫度) -55°C ~ +85°C (Including terminal temperature rise)
使用溼度範圍 Operating Humidity Range	相對濕度 85%以下 Relative humidity 85% max. (No condensation)
保存溫度範圍 Storage Temperature Range	-40°C ~ +50°C
保存濕度範圍 Storage Humidity Range	相對濕度 85%以下 Relative humidity 85% max.

**7. 性能 PERFORMANCE**

項目 ITEM	測試條件 TEST CONDITION	規格 REQUIRMENT
<b>電氣特性 ELECTRICAL PERFORMANCE</b>		
接觸阻抗 Contact Resistance	將樣品與適合之 FPC 連接，測試電壓 20mV，限電流 10mA 下進行阻抗測試。 Mate applicable FPC and measure by dry circuit, 20mV Max, 10mA.	100 mΩ 以下 100 mΩ Max.
絕緣阻抗 Insulation Resistance	將樣品與適合之 FPC 連接，提供相鄰端子間測試電壓 250V DC 進行絕緣阻抗測試。 (MIL-STD-202 Method 302) Mate applicable FPC and apply 250V DC between adjacent terminal or ground. (MIL-STD-202 Method 302)	1000 MΩ 以上 1000 MΩ Min.
耐電壓 Dielectric Strength	將樣品與適合之 FPC 連接，相鄰端子間需可承受 150V AC(rms) 1 分鐘。 (MIL-STD-202 Method 301) Mate applicable FPC, apply 150V AC(rms) for 1 minute between adjacent terminal or ground. (MIL-STD-202 Method 301)	目視外觀無任何損壞異狀 No Breakdown

**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

項目 ITEM	測試條件 TEST CONDITION	規格 REQUIRMENT	
<b>機械特性 MECHANICAL PERFORMANCE</b>			
FPC 保持力 FPC Retention Force	插入 0.2mm 標準 FPC，將蓋子蓋上，以操作速度每分鐘位移 25±3mm 進行 FPC 保持力測試。 Insert the actuator, pull 0.2mm of the FPC at a rate of 25±3mm per minute.	See Retention Force table (Page 6)	
<b>環境特性及其他性能 ENVIRONMENTAL PERFORMANCE AND OTHERS</b>			
蓋子往返操作測試 Repeated Actuator Insertion / Withdrawal	將蓋子與 FPC 反覆連接，以每分鐘小於 10 cycles 的速度，連續操作 20 cycles。 Insert and withdraw actuator up to 20 cycles at the speed rate of less than 10 cycles/minute.	接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
溫昇 Temperature Rise	量測通過 FPC 最大容許電流時，樣品接觸點之溫昇。 (UL498) Mate applicable FPC and measure the temperature rise of contact when the maximum AC rated current is passed. (UL498)	溫昇 Temperature Rise	30°C 以下 30°C Max.
耐振性 Vibration	通過 DC 電流 1mA，位移相對距離 1.5mm，振動週期 10~55~10 Hz 在 1 分鐘內，持續 2 小時，方向在 X,Y,Z 軸做測試。 (MIL-STD-202 Method 201)  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. Duration : 2 hours in each of X,Y,Z axes. (MIL-STD-202 Method 201)	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
		瞬間斷電 Discontinuity	1μ sec 以下 1μ sec Max.
耐衝擊性 Shock	將樣品與適合之 FPC 連接，通過 DC 1 mA 測試條件，連續測試 3 次。 在 X、Y、Z 3 軸 6 個垂直方向施予重力加速度 490m/s <sup>2</sup> {50G} 衝擊。 (MIL-STD-202 Method 213)  Mate applicable FPC and subject to the following shock conditions. 3 times of shocks shall be applied for each 6 directions along 3 mutually perpendicular axes, passing DC 1 mA current during the test. (Total of 18 shocks)  Peak value : 490m/s <sup>2</sup> {50G} (MIL-STD-202 Method 213)	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
		瞬間斷電 Discontinuity	1μ sec 以下 1μ sec Max.

**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

項目 ITEM	測試條件 TEST CONDITION	規格 REQUIREMENT	
耐熱性 Heat Resistance	將樣品與適合之 FPC 連接，置於環境溫度 85±2°C 測試時間 96 小時，再置放於室溫下 1~2 小時。 (MIL-STD-202 Method 108)  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. (MIL-STD-202 Method 108)	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
耐寒性 Cold Resistance	將樣品與適合之 FPC 連接，置於環境溫度-40±2°C，測試時間 96 小時，再置放於室溫下 1~2 小時。  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.	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
耐濕性 Humidity	將樣品與適合之 FPC 連接，置於環境溫度 40±2°C，相對溼度 90~95%，測試時間 120 小時，再置放於室溫下 1~2 小時。 (MIL-STD-202 Method 103)  Mate applicable FPC and expose to 40 ± 2°C, relative humidity 90 to 95% for 120 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. (MIL-STD-202 Method 103)	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
		耐電壓 Dielectric Strength	需能符合 耐電壓測試 No Breakdown
		絕緣阻抗 Insulation Resistance	100 MΩ 以上 100 MΩ Min.
冷熱衝擊 Temperature Cycling	將樣品與適合之 FPC 連接，承受 5 cycles 冷熱衝擊後，置放於室溫下 1~2 小時。  Mate applicable FPC and subject to the following conditions for 5 cycles. 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.  1 cycle time : a) -55±3°C            30minutes b) +85±3°C            30minutes (Transit time shall be with in 3 minutes)	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.

**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

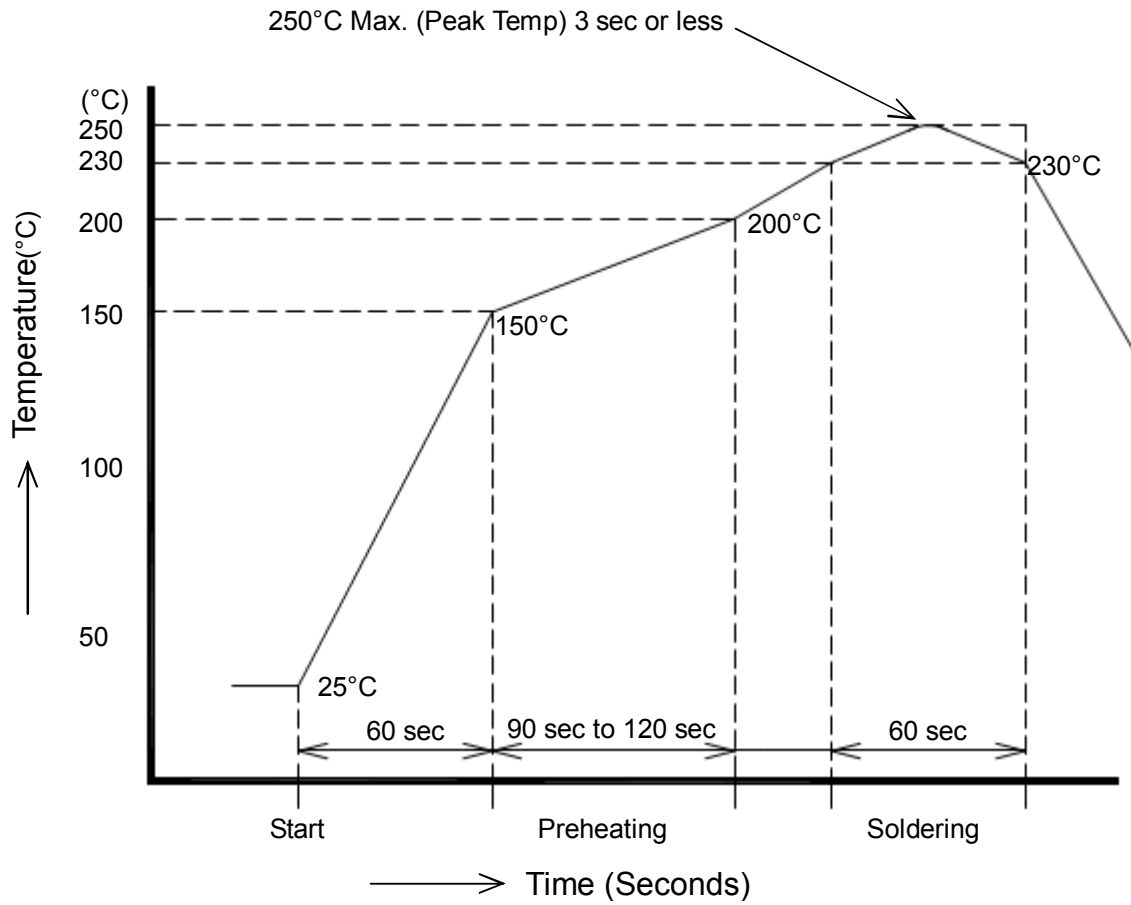
項目 ITEM	測試條件 TEST CONDITION	規格 REQUIRMENT	
鹽水噴霧 Salt Spray	將樣品與適合之 FPC 連接，使用 5±1%濃度鹽水，測試溫度 35±2°C，測試時間 48 小時，後於室溫下使用清水沖洗後再乾燥。 (MIL-STD-202 Method 101) Mate applicable FPC and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water, after which the specified measurements shall be performed. NaCl solution Concentration : 5 ± 1% Spray time : 48 hours Ambient temperature : 35 ± 2°C (MIL-STD-202 Method 101)	外觀 Appearance	目視外觀無任何損壞異狀 No Damage
		接觸阻抗 Contact Resistance	100 mΩ 以下 100 mΩ Max.
焊錫性 Solderability	錫溫 245±5°C，將導電端子浸入錫爐液面至 Housing 距離錫面 0.2mm 位置，焊錫時間 3±0.5 秒。  Tip of solder tails and fitting nails into the molten solder (held at 245±5°C) up to 0.2mm from the bottom of the housing for 3±0.5 seconds.	潤濕性 Solder Wetting	潤濕面積 95%以上，並不得有漏焊針孔現象 95% of immersed area must show no voids, pin holes.
焊錫耐熱性 Resistance to Soldering Heat	使用紅外線迴焊時請參考第 8 點 When reflowing...Refer to paragraph 8. <u>使用烙鐵手焊時須可符合下述錫錫條件</u> <u>Soldering iron method</u> 0.2mm from terminal tip and fitting nail tip. Soldering time : 5 seconds Max. Solder temperature : 370~400°C	外觀 Appearance	目視外觀無任何損壞異狀 No Damage

**FPC Retention Force**

No. of Contacts	Unit	Retention Force (Min.) FPC=0.20mm			
		1st	5th	10th	20th
07	Kgf	0.126	0.119	0.112	0.105
09	Kgf	0.162	0.153	0.144	0.135
11	Kgf	0.198	0.187	0.176	0.165

**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

**8. 紅外線迴焊溫度曲線 INFRARED REFLOW CONDITION**



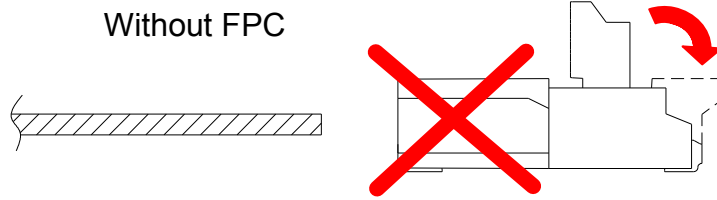
溫度條件 TEMPERATURE CONDITION GRAPH

(基板表面溫度) (TEMPERATURE ON BOARD PATTERN SIDE)

**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

**9. 操作指示 INSTRUCTION UPON USAGE**

- Do not lock the actuator without an FPC inserted.  
Locking the actuator without an FPC inserted may cause the terminal deformation.

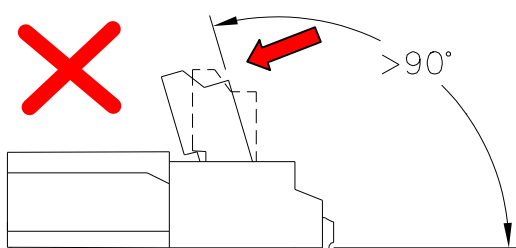
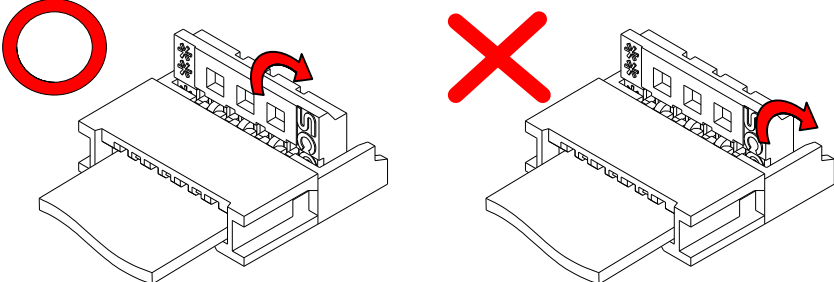
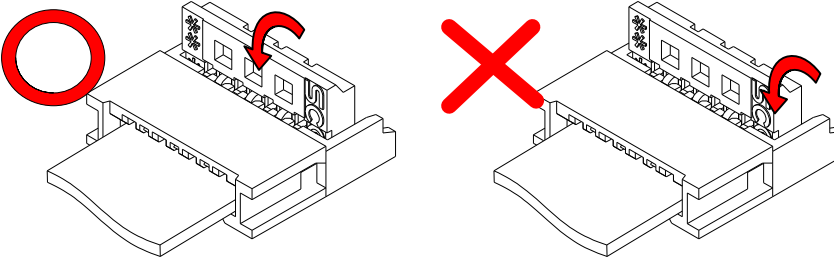
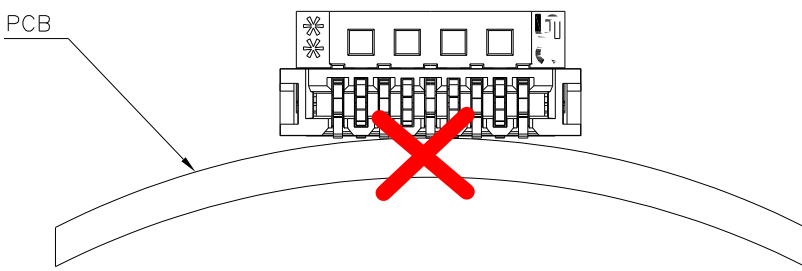
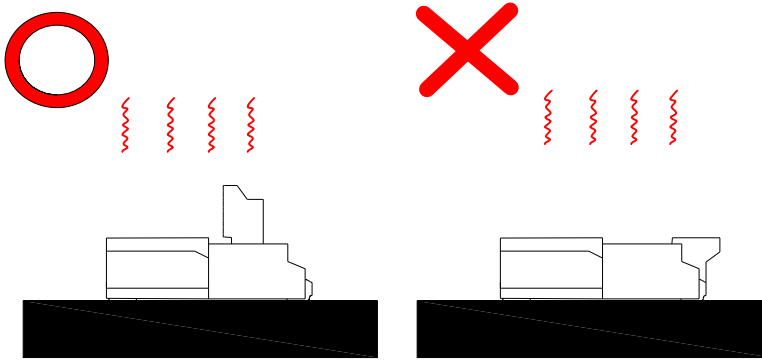


- Do not close the actuator before inserting FPC.

<p><b>步驟 1:</b> 當上蓋呈打開狀態時，將 FPC 插入連接器中。</p> <p>Joining step 1: Insert the FPC with the actuator opened.</p>	
<p><b>步驟 2:</b> FPC 完全插入且沒有移動，壓上蓋往下旋轉至定位。</p> <p>Joining step 2: FPC is totally inserted and not moved, press the actuator and rotate down to make a reservation.</p>	
<p><b>步驟 3:</b> FPC 退出時，掀起上蓋，將 FPC 退出。</p> <p>Joining step 3: Lift the actuator, withdraw FPC.</p>	



**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

<p><b>警告!!</b> 旋轉的角度不可大於 90 度。</p> <p><b>Warning!!</b> The whirling angle can't be greater than 90 degrees.</p>	
<p><b>警告!!</b> 施壓的力量應該要平均且要壓蓋的中心部位。</p> <p><b>Warning!!</b> The strength of exerting pressure should be average and pushing actuator at the center.</p>	
<p><b>警告!!</b> 掀蓋要掀蓋的中心部位。</p> <p><b>Warning!!</b> To lift actuator at the center.</p>	
<p><b>警告!!</b> PCB 板平整度必須在 0.1mm max。</p> <p><b>Warning!!</b> The roughness of PCB board must be in 0.1mm max.</p>	
<p><b>警告!!</b> 在 PCB 上板(過迴焊爐)之前，禁止將蓋子蓋下。</p> <p><b>Warning!!</b> Operation of the actuator before mounting on the PCB is not recommended.</p>	

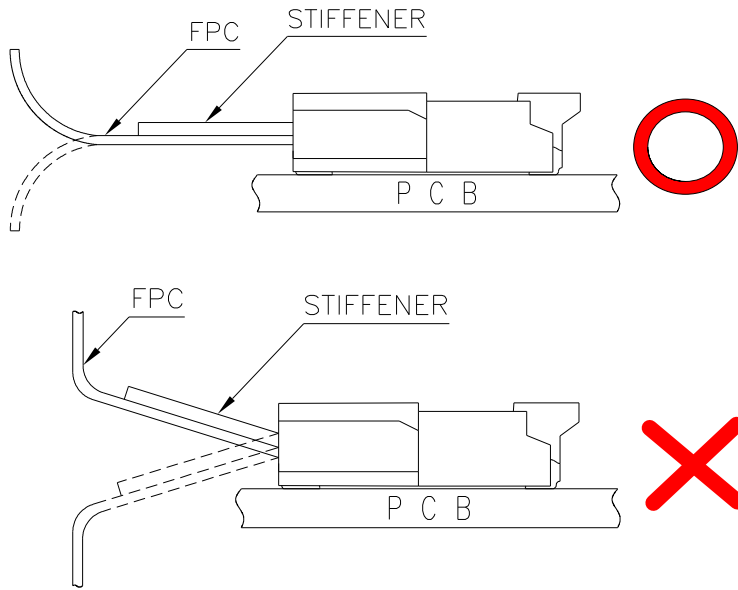
**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

**警告!!**

請確定 FPC 補強板是平行的保持在 PCB 板上，並保持適當的彎曲角度。

**Warning!!**

When routing the FPC, make sure that the routing provides a stress free path for the FPC and keep the stiffener parallel to the PCB. Observe proper bend radiuses.

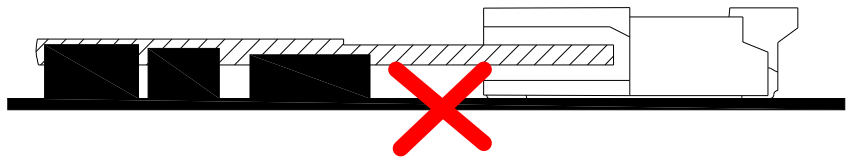


**警告!!**

零件不可高於排線插入位置。

**Warning!!**

Component not too high impact FPC insertion position.

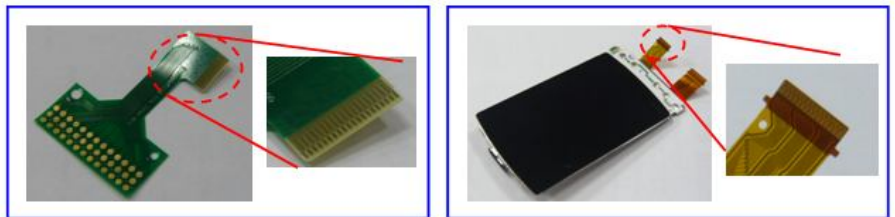


**警告!!**

測試治具使用之排線厚度應 $\leq$  產品實際使用之排線。

**Warning!!**

The thickness of testing FPC should  $\leq$  Real FPC used on product.



(測試治具)

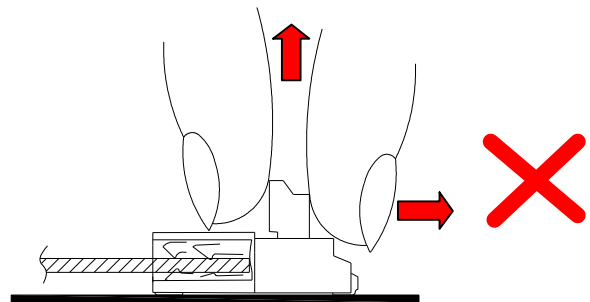
(實際使用)

**警告!!**

不要對上蓋施加過多的外力。

**Warning!!**

Do not apply excess force to the housing during the operation.



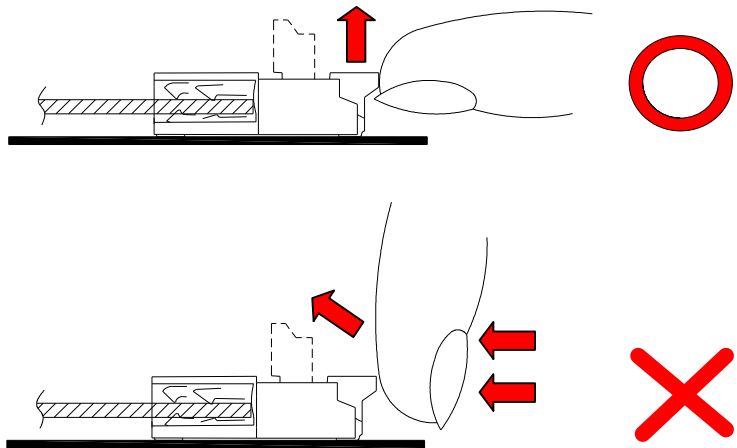
**0.3mm Pitch FPC CONNECTOR , ZIF , SMT type**

**警告!!**

開蓋時不要將蓋子向左推擠。

**Warning!!**

Do not pinch or pick the actuator to left.



**10. TAPE AND REEL PACKAGE SPECIFICATION**

10-1. 帶狀捲式包裝尺寸：請參照圖面

Tape and Reel Dimensions: See attached drawings.

10-2. 規格

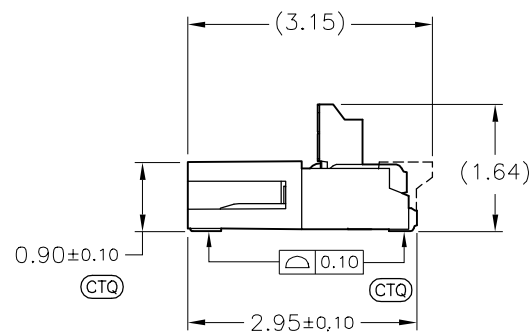
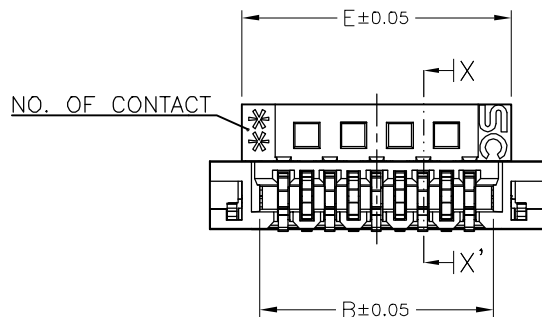
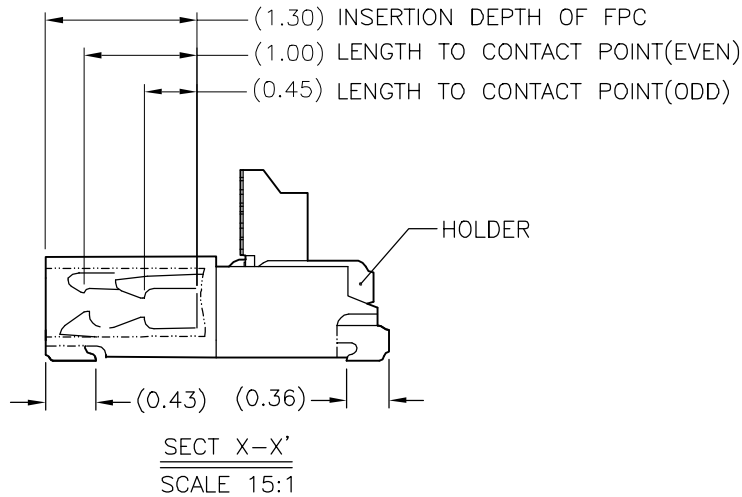
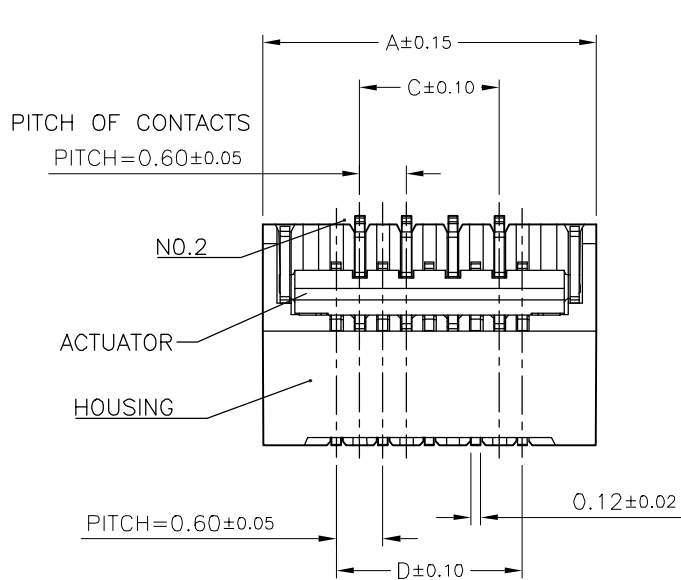
Specification

No. of Contacts	Width	Pcs / Reel	Reels / Carton	Cuft
7	16	4K / 1	9 / 1	1.5
9	16	4K / 1	9 / 1	1.5
11	16	4K / 1	9 / 1	1.5

Export Carton Layer : 5      Carton Size : 35 × 35 × 30cm

HF

REV.	ECO NO.	DATE	SIGN	DESCRIPTION
A	-	20181101	Elven	Release



- Material:
  - Housing: thermoplastic high temp.UL94V-0; Color: natural.
  - Latch: thermoplastic high temp.UL94V-0; Color: black.
  - Terminal: copper alloy.
  - Fitting Nail: copper alloy.
- Finish:
  - Terminal: Underplating: Gold flash overall.
  - Fitting Nail: Underplating: matt Tin overall.
- Product must comply HF RoHS specification.
- Product No:
 

AFC09-S	**	F	*	A	-	00	REMARKS
CKTS							RS:Halogen free
CONTACTS TYPE							
E:Upper							
F:Lower							
PLATING							
1:Gold flash 1u"							
2:Gold flash 2u"							
3:Gold flash 3u"							
B:Bright-Tin 90-120u"							
C:Matt-Tin 90-120u"							

NO.OF CONTACTS	PART NUMBER	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E
07	AFC09-S07FMA-RS	3.70	2.43	1.20	1.80	2.88
09	AFC09-S09FMA-RS	4.30	3.03	1.80	2.40	3.48
11	AFC09-S11FMA-RS	4.90	3.63	2.40	3.00	4.07

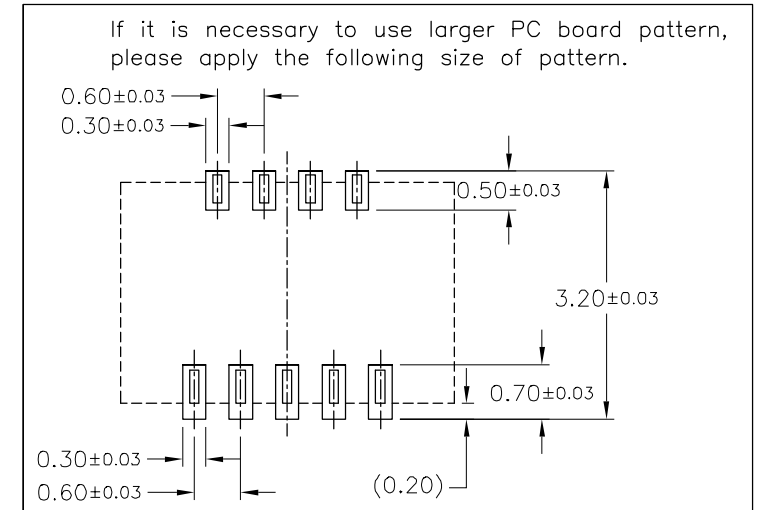
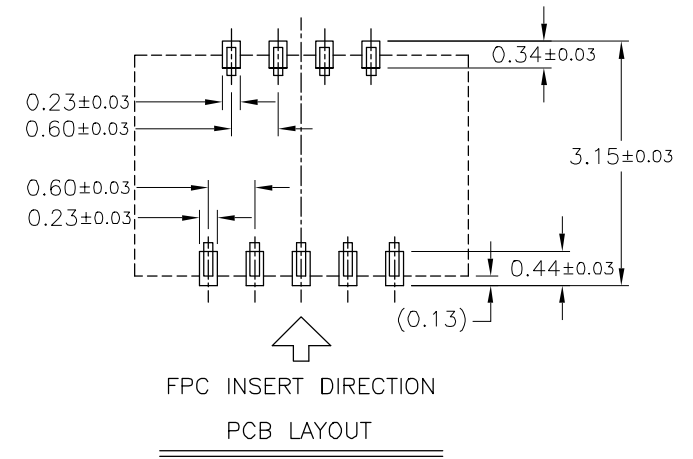
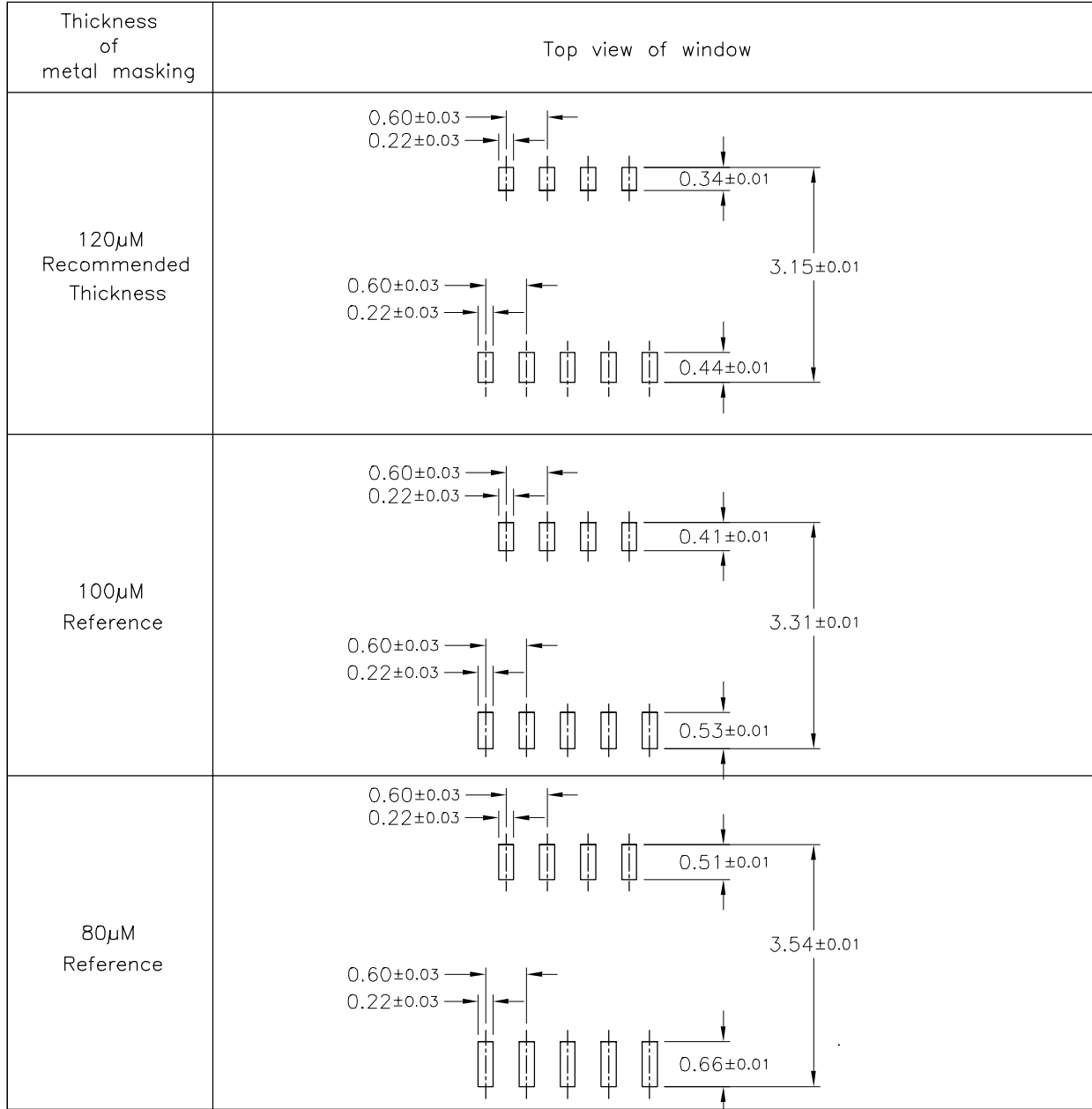
CUSTOMER DRAWING		深圳扬讯电子有限公司		
Tolerance Unspecified (未注公差)	Size(图幅): A4	Product Name(产品名称): 0.3Pi tch H=0.9 FPC Easy-on R/A Type1 SMT CONN		
0.0 ±0.15 0° ±5°	Unit(单位): MM	Product No(产品料号): AFC09-S**F**-**		
0.00 ±0.10 0° 0 ±3°	Scale(比例): 1:1	Designer(设计): Allan 12/08'10	Checked(审核):	Approved(核准):
0.000 ±0.05 0° 00 ±1°	Project View (投影视角): 1 OR 1	Rev(版本): A		

Rev	Change Description	Date	Revisor
A	初版发行	2010/12/08	Allan
版本	变更内容	日期	制/修订人

HF

RECOMMENDED METAL MASK PATTERN

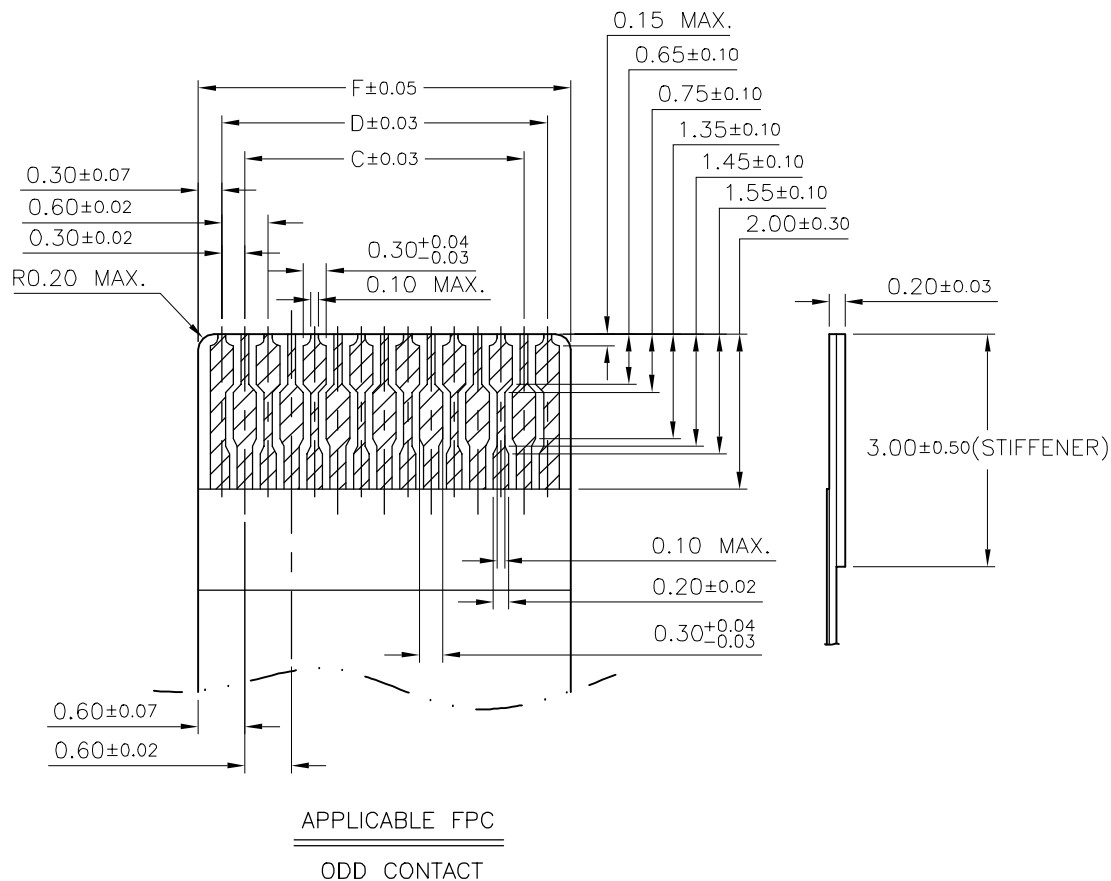
NO.OF CONTACTS	PART NUMBER	DIM. C	DIM. D
07	AFE09-S07	1.20	1.80
09	AFE09-S09	1.80	2.40
11	AFE09-S11	2.40	3.00



CUSTOMER DRAWING		深圳扬讯电子有限公司	
Tolerance Unspecified (未注公差)	Size(图幅): A4	Product Name(产品名称):	
0.0 ±0.15 0° ±5°	Unit(单位): MM	0.3PI tch H=0.9 FPC Easy-on R/A Type1 SMT CONN	
0.00 ±0.10 0°0 ±3°	Scale(比例): 1:1	Product No(产品料号):	
0.000 ±0.05 0°00 ±1°	Project View(投影视角): 1 OP 1	AFC09-S**F***-***	
Rev 版本	Change Description 变更内容	Designer(设计): Allan 12/08'10	Checked(审核):
A	初版发行	Approved(核准):	
	2010/12/08		
	Allan		
	Rev 版本		
	日期		
	制/修订人		

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REV.	ECO NO.	DATE	SIGN	DESCRIPTION
A	-	20181101	Elven	Release



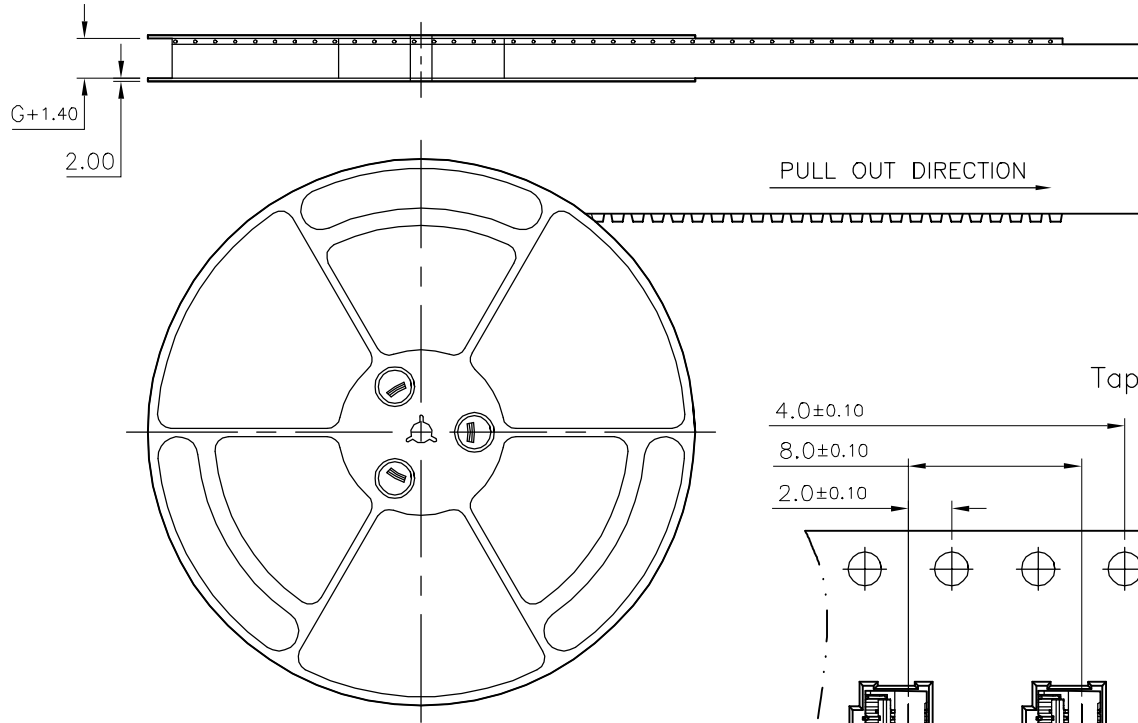
NO.OF CONTACTS	PART NUMBER	DIM. C	DIM. D	DIM. F
07	AFE09-S07	1.20	1.80	2.40
09	AFE09-S09	1.80	2.40	3.00
11	AFE09-S11	2.40	3.00	3.60

CUSTOMER DRAWING		深圳扬讯电子有限公司		
Tolerance Unspecified (未注公差)	Size(图幅): A4	Product Name(产品名称): 0.3Pi tch H=0.9 FPC Easy-on R/A Type1 SMT CONN		
0.0 ±0.15 0° ±5°	Unit(单位): MM	Product No(产品料号): AFC09-S**F***-***		
0.00 ±0.10 0° 0 ±3°	Scale(比例): 1:1	Designer(设计): Allan 12/08'10		
0.000 ±0.05 0° 00 ±1°	Project View (投影视角): 1 OR 1	Checked(审核):		
Rev A	初版发行	2010/12/08	Allan	Approved(核准):
Rev 版本	Change Description 变更内容	Date 日期	Revisor 制/修订人	

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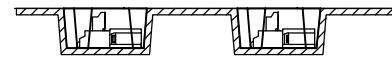
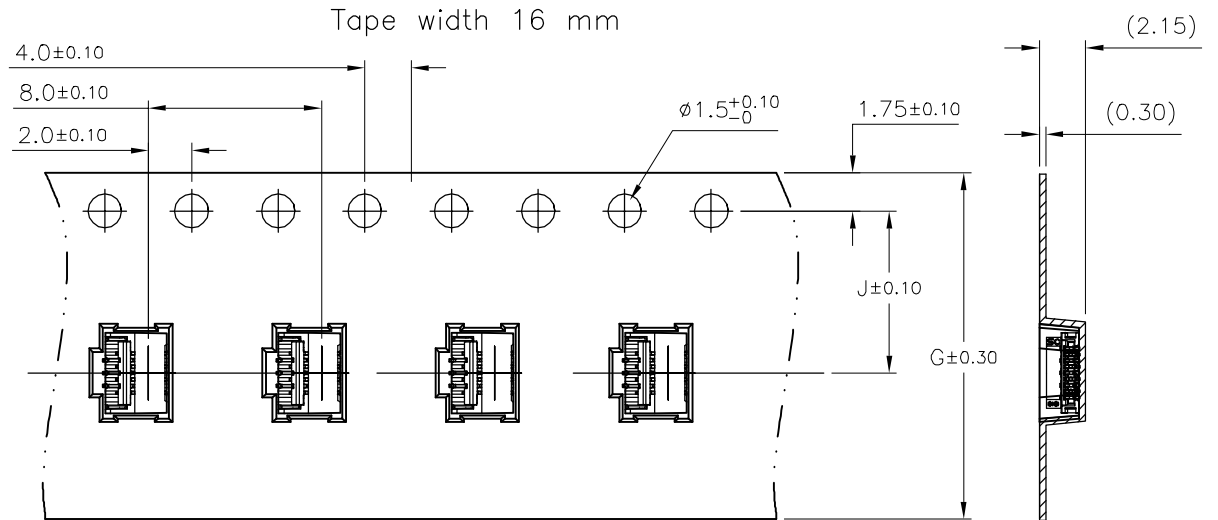
EMBOSSED TAPE PACKAGING BL309KL SERIES

REV.	ECO NO.	DATE	SIGN	DESCRIPTION
A	-	20181101	Elven	Release



NOTE:

1. SPROCKET HOLE PITCH CUMULATIVE TOLERANCE  $\pm 0.2\text{mm}$
2. CARRIER CAMBER IS WITHIN 1 mm IN 250mm.
3. MATERIAL : BLACK CONDUCTIVE POLYSTYRENE ALLOY.
4. THICKNESS :  $0.3 \pm 0.05\text{mm}$ .
5. COMPONENT LOAD PER 13" REEL : 4000 PCS



PULL OUT DIRECTION

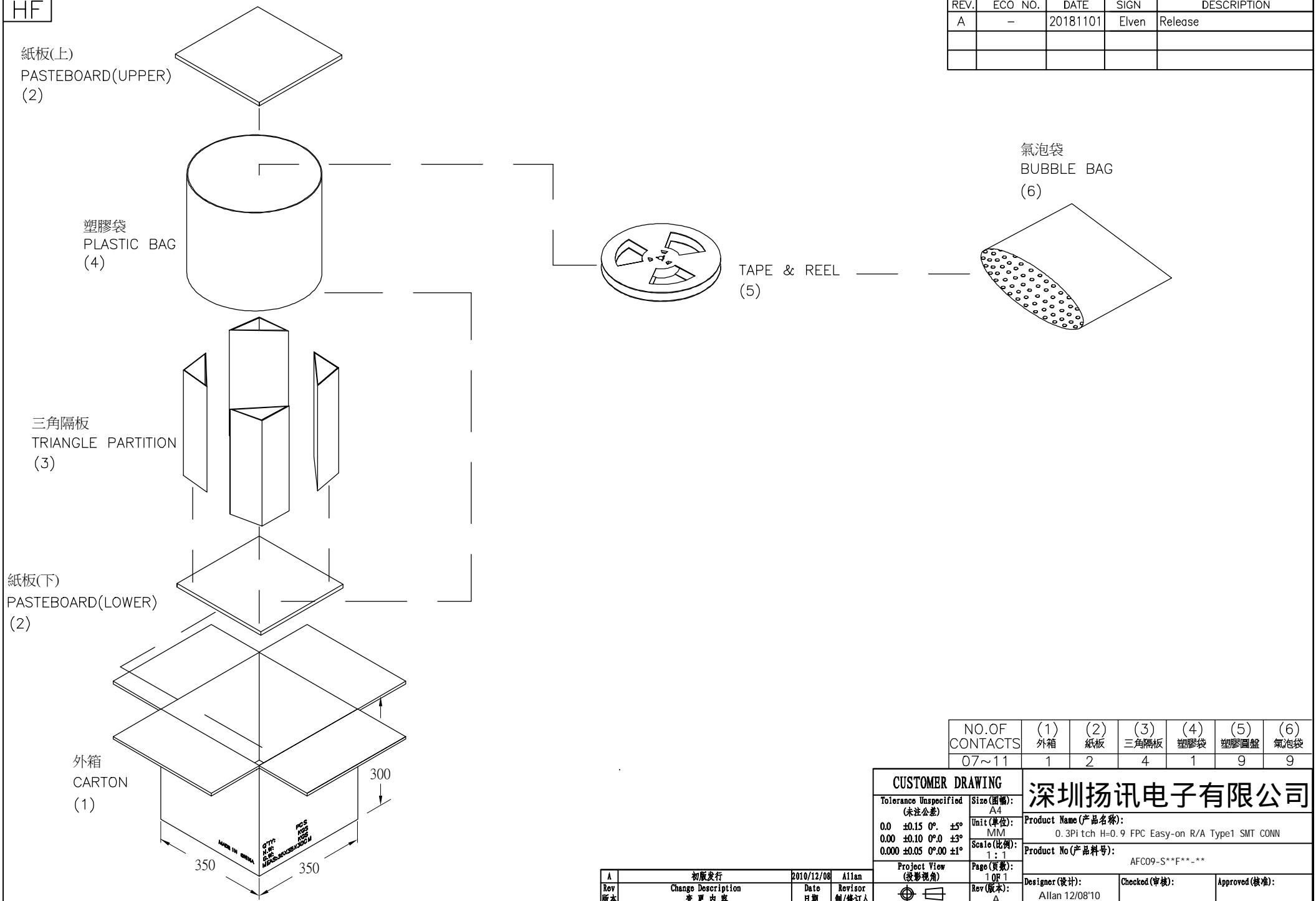
NO.OF CONTACTS	PART NUMBER	DIM. G	DIM. H	DIM. J
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11	AFE09-S11			

CUSTOMER DRAWING		深圳扬讯电子有限公司		
Tolerance Unspecified (未注公差)	Size (图幅): A4	Product Name (产品名称):		
0.0 ±0.15 0° ±5°	Unit (单位): MM	0.3Pitch H=0.9 FPC Easy-on R/A Type1 SMT CONN		
0.00 ±0.10 0° 0 ±3°	Scale (比例): 1:1	Product No (产品料号):		
0.000 ±0.05 0° 00 ±1°	Project View (投影视角): 1 OF 1	AFC09-S**F*****		
Rev (版本): A	Rev (版本): A	Designer (设计): Allan 12/08'10	Checked (审核):	Approved (核准):

Rev (版本)	Change Description (变更内容)	Date (日期)	Revisor (制/修订人)
A	初版发行	2010/12/08	Allan

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REV.	ECO NO.	DATE	SIGN	DESCRIPTION
A	-	20181101	Elven	Release



NO.OF CONTACTS	(1) 外箱	(2) 紙板	(3) 三角隔板	(4) 塑膠袋	(5) 塑膠圓盤	(6) 氣泡袋
07~11	1	2	4	1	9	9

CUSTOMER DRAWING				深圳扬讯电子有限公司		
Tolerance Unspecified (未注公差)	Size(图幅): A4	Product Name(产品名称): 0.3Pitch H=0.9 FPC Easy-on R/A Type1 SMT CONN				
0.0 ±0.15 0° ±5°	Unit(单位): MM	Product No(产品料号): AFC09-S**F***				
0.00 ±0.10 0°0 ±3°	Scale(比例): 1:1	Designer(设计): Allan 12/08'10				
0.000 ±0.05 0°00 ±1°	Page(页数): 1 OF 1	Checked(审核):		Approved(核准):		
Rev 版本	Change Description 变更内容	Date 日期	Revisor 制/修订人	Rev(版本): A		

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