






## Bill Cheung

**Subject:** Pin Introduction

<b>CLIP TYPE</b>					
	1	2	3	4	5

<b>MODEL NO.</b>	<b>PITCH</b>	<b>SUBSTARTE THICKNESS</b>		<b>PIN LENGTH</b>	<b>CLIP TYPE</b>
	mm	0.7	1.1	mm	
<u>LC-001-0.7</u>	2.54	+		15.9	1
<u>LC-001-1.0</u>	2.54		+	15.9	1
<u>LC-002-1.0</u>	2.54		+	15.3	1
<u>LC-003-1.0</u>	2.54		+	15.9	1
<u>LC-004-0.7</u>	2.54	+		15.3	OTHERS
<u>LC-004-1.0</u>	2.54		+	15.3	OTHERS
<u>LC-005-1.0</u>	2.54		+	15.3	1
<u>LC-021-0.7</u>	2.54	+		20.5	1
<u>LC-021-1.0</u>	2.54		+	20.5	1
<u>LC-022-1.0</u>	2.54		+	19.3	1
<u>LC-101-1.0</u>	2.54		+	10.0	2
<u>LC-103-1.0</u>	2.54		+	10.0	2
<u>LC-111-1.0</u>	2.54		+	10.0	2
<u>LC-121-1.0</u>	2.54		+	15.0	2
<u>LC-122-1.0</u>	2.54		+	15.0	2
<u>LC-151-0.7</u>	1.50	+		21.0	1
<u>LC-151-1.0</u>	1.50		+	21.0	1
<u>LC-152-1.0</u>	1.50		+	30.0	1
<u>LC-153-1.0</u>	1.50		+	29.5	3
<u>LC-161-0.7</u>	1.50	+		20.6	3
<u>LC-161-1.0</u>	1.50		+	20.6	3
<u>LC-162-1.0</u>	1.50		+	10.0	3
<u>LC-171-1.0</u>	1.27		+	14.0	1
<u>LC-181-1.0</u>	1.27		+	13.5	3
<u>LC-201-1.0</u>	2.54		+	30.7	2
<u>LC-202-1.0</u>	2.54		+	30.0	2
<u>LC-211-1.0</u>	2.54		+	30.0	1
<u>LC-221-0.7</u>	2.00	+		17.5	1
<u>LC-221-1.0</u>	2.00		+	17.5	1
<u>LC-223-0.7</u>	2.00	+		16.0	1
<u>LC-223-1.0</u>	2.00		+	16.0	1
<u>LC-231-1.0</u>	2.00		+	45.5	1
<u>LC-241-1.0</u>	2.00		+	10.5	1
<u>LC-271-0.7</u>	2.00	+		29.0	1
<u>LC-271-1.0</u>	2.00		+	29.0	1
<u>LC-272-1.0</u>	2.00		+	29.0	OTHERS
<u>LC-273-1.0</u>	2.00		+	29.0	OTHERS
<u>LC-274-1.0</u>	2.00		+	29.0	2
<u>LC-281-1.0</u>	2.00		+	30.0	3

LC-301-1.0	2.54		+	20.0	2
LC-321-1.0	2.54		+	20.4	1
LC-351-1.0	2.54		+	19.7	2
LC-371-1.0	2.54		+	29.0	1
LC-381-1.0	2.54		+	28.2	3
LC-521-1.0	2.00		+	36.5	1
LC-801-0.7	1.80	+		30.0	3
LC-801-1.0	1.80		+	30.0	3
LC-811-1.0	1.80		+	45.5	1
LC-812-1.0	1.80		+	45.0	3
LC-821-0.7	1.80	+		20.0	1
LC-821-1.0	1.80		+	20.0	1
LC-823-1.0	1.80		+	20.0	1
LC-831-0.7	1.80	+		19.6	3
LC-831-1.0	1.80		+	19.6	3
LC-841-1.0	1.80		+	18.5	OTHERS
LC-861-0.7	1.80	+		8.0	1
LC-861-1.0	1.80		+	10.0	1
LC-862-1.0	1.80		+	9.0	OTHERS
LC-881-0.7	1.80	+		30.0	1
LC-881-1.0	1.80		+	30.0	1
LC-882-1.0	1.80		+	30.0	OTHERS
LC-901-1.0	2.54		+	36.5	OTHERS

<b>BASE MATERIAL</b>	PSR---Phosphor Bronze Skinpass [C5210R-1/2H]
	PSR---Phosphor Bronze Strips [C5191R-1/2H]
	<u>Material Property Comparison</u>

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## Product Specification

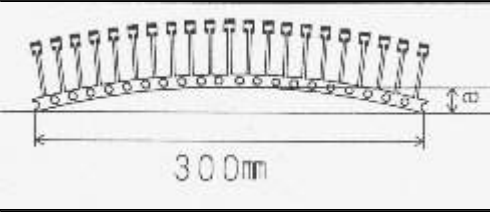
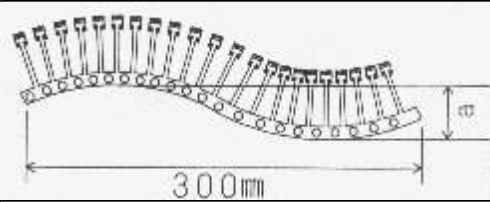
### I. Application

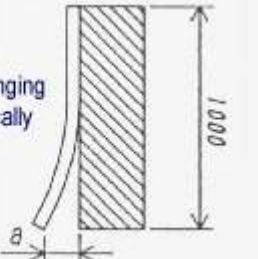
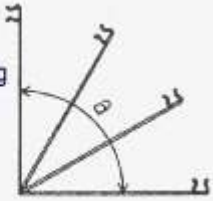
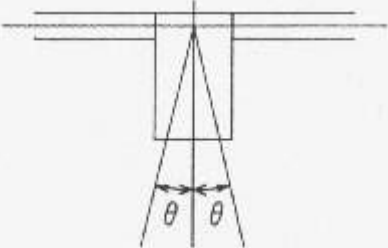
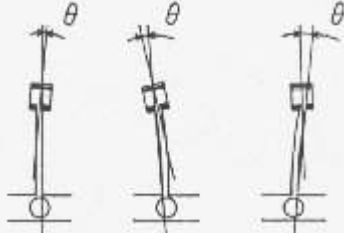
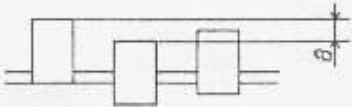

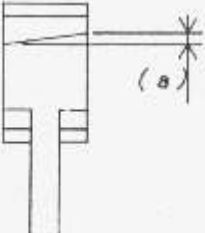
This specification set is applicable to lead frame (clip terminal) for Liquid Crystal Displays

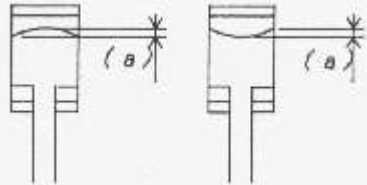
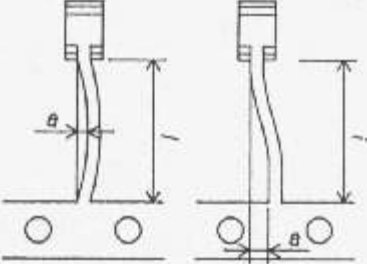
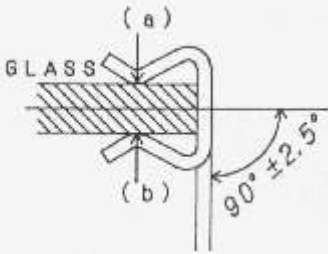
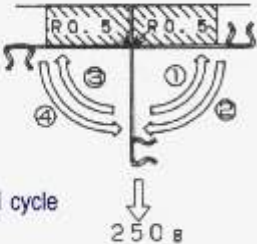
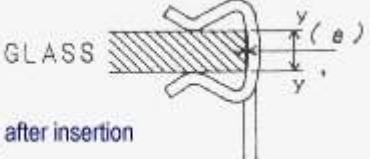
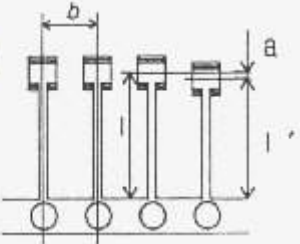
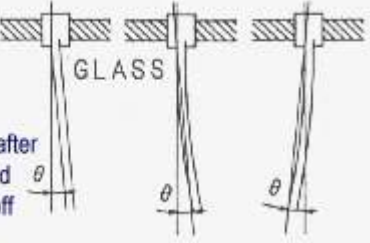
### II. Products Drawing

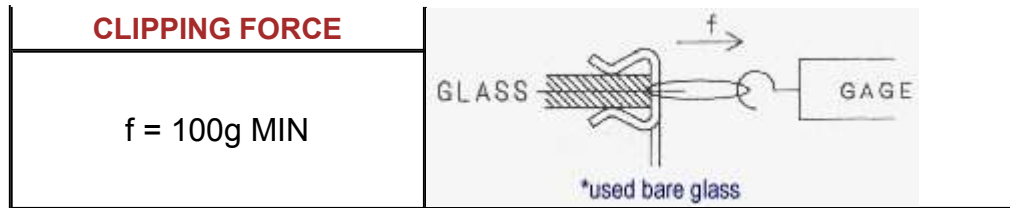
As per attached

### III. Products Standard

<b>BASE MATERIALS</b>	PBR-1/2H(C5191R-1/2H) PSR-1/2H(C5210R-1/2H) Other per customers' requirement
<b>DIMENSION &amp; TOLERANCE</b>	Specified per attached drawings. Non specified tolerance should be 0.1mm
<b>STAMPING BURR</b>	0.05mm MAX.
<b>WINDED</b>	3/1000 MAX.
<b>RADIUS</b>	Specified per attached drawings. Non specified should be R=0.2
<b>PLATING PROCESS</b>	It's processed after stamping/bending process unless otherwise specified
<b>LEAD ANGLE</b>	It's should be $90^{\circ} \pm 2.5^{\circ}$ when observing the lead angle against substrate after inserting lead frame to the substrate.
<b>PRODUCTS DRAWING</b>	Products drawing indicates completed diagrams and dimensions.
<b>WARP</b>	
a=1.0 MAX/300mm	
<b>UNDULATION</b>	
a=1.0 MAX/1000	

<p><b>CURL</b></p>	<p>Fixed one end and hanging down lead frame vertically</p> 
<p><math>a=100 \text{ MAX}/1000</math></p>	
<p><b>TWIST</b></p>	<p>Fixed one end and hanging down lead frame vertically</p>  <p>(TOP UP VIEW)</p>
<p><math>a=90^\circ \text{MAX}/1000</math></p>	
<p><b>TWIST OF CLIP</b></p>	
<p><math>\theta=4^\circ \text{MAX}</math></p>	
<p><b>INCLINATION OF CLIP</b></p>	
<p><math>\theta=1^\circ \text{MAX}</math></p>	
<p><b>CENTER OF CLIP HEAD</b></p>	
<p><math>a=0.3 \text{ MAX}</math></p>	
<p><b>PARALLEL OF LEAD</b></p>	 <p>*DO NOT CONTACT OTHER LEADS</p>
<p><math>a=0.2 \text{ MAX}</math></p>	
<p><b>PARALLEL OF CLIP (1)</b></p>	
<p><math>a=0.1 \text{ MAX}</math></p>	

<p><b>PARALLEL OF CLIP(2)</b></p>	
<p>a=0.015 MAX</p>	
<p><b>WARP OF LEAD</b></p>	
<p>a=1/100 MAX</p>	
<p><b>ANGLE AFTER INSERTION</b></p>	
<p>a=90° +/- 2.5°</p>	<p>Draw a center line vertically against the node between (a) and (b)</p>
<p><b>INTENSITY OF BENDING</b></p>	
<p>Lead should not be cut after 2 cycle bending</p>	<p>Loading Weight: 250g Bending Cycle: (1)-(4) 1 cycle Bending Angle: 90°</p>
<p><b>FLATNESS OF CLIP-END</b></p>	
<p>a=0.05</p>	<p>Measuring after insertion</p>
<p><b>CENTER OF HEAD POSITION</b></p>	<p><math>l - l' = X \pm 0.2 \text{ mm}</math></p> 
<p>a= 0.05 b= 0.1 MAX</p>	<p>X : STANDARD DIMENSION OF LEAD a = ± 0.05 mm</p>
<p><b>RIGHT-ANGLE OF LEAD AFTER INSERTION</b></p>	
<p>θ=2°MAX</p>	<p>Measuring after insertion and tie-bar cut off</p>



#### IV. PLATING STANDARD

	<b>KINDS</b>	<b>COMPOSITION</b>	<b>THICKNESS</b>
<b>UNDER</b>	COPPER	COPPER BLUE FLASH + COPPER SULFATE	1.5-3
<b>SURFACE</b>	LUSTROUS SOLDER (FULLFACE)	sn = 90 +/- 5% pb = 10 +/- 5%	3-8

#### V. INSPECTION OF PLATING

<b>APPEARANCE</b>	<p>Visual inspection by microscope of 10 magnifications, there would be free from stain, discoloration, rust, dendritic marks, lead twisted, burr etc.</p> <p>In accordance with customer's request, bounds samples are prepared for judgement of stain, discoloration and dendritic marks when it's necessary.</p>
<b>HEAT RESISTANCE</b>	Starting sample of every 1 real is heating under the condition of 150°C +/- 5°C x 16HRS +/- 0.5HRS and natural bulging, discoloration, stain etc.
<b>ADHERENCE</b>	Inspected by microscope of 20 magnification under the condition of 150°C x 16HRS heating, R=0.5, there would be free from peel-off, cracking etc.
<b>SOLDER STICKING</b>	<p>Dip lead frame into a solder bath under following condition. The solder should be coated by 95% or more, others be 5% or less and it should not be localized.</p> <p>**Solder (Sn: Pb =6:4) Temperature: 230°C +/- 5°C Time: 3 sec. +/- 1 sec.</p>
<b>THICKNESS</b>	<p>Measured by Fluorescence X-ray membrane measurement. (indicate n=5 to the inspection report of plating)</p> <p>**Indicate that Sn contents should be 90% +/- 5%</p>

#### (JUDGEMENT)

It must be satisfied the standard of article III, IV and V.

#### VI. INSPECTION REPORT

Dimensions ---- every production lots

Plating ---- every production dates

According to customer's request, these reports are accompanied to the goods when delivery.

All reports are filed.

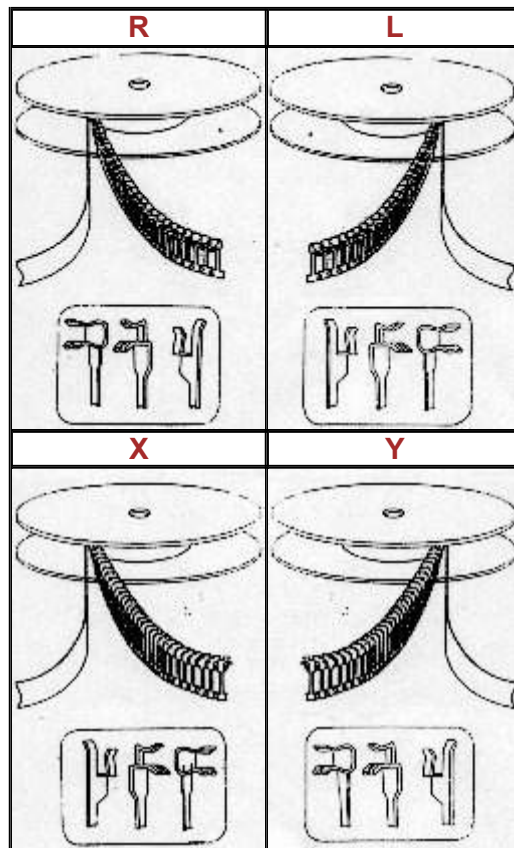
## VII. LINK OF LEAD FRAME

It is allowed to link the lead frame according to base material length.

Two(2) linking positions within one(1) reel is allowed, each linking position does not exceed 10mm.

Indicate on the label (attached on reel) when the reel has linking positions.

## VIII. REEL DIRECTION



## IX. PACKING & LABELING

1. Lead frames with protective paper(brown paper) are rolled up to the reel (outer dia. 620, inner dia. 270)
2. The reels are protected by taping in order to enfeeble transportaton damage.
3. Each reels are packed in cartoon box.
4. Labels (delivery card) are put on the carton box and reels.

DELIVERY CARD	
PT. NO.	
NAME	
Q.T.Y.	

REEL DIRECTION	
MATERIALS	
(P) LOT NO.	
(M) LOT NO.	

**X. STAMPING LOT NUMBER INDICATION**

SAMPLE  
U 4 12 06 - 01  
**PLANT YEAR MONTH DATE NUMBER**

**XI. PLATING LOT NUMBER INDICATION**

SAMPLE  
M 4 12 06 - 01 C  
**PLANT YEAR MONTH DATE NUMBER PLANT'S LINE**

**XII. IT IS AVAILABLE TO MODIFY THIS SPECIFICATION SUBJECT TO DISCUSSION BY MUTUAL AGREEMENT.**