Shanghai SVA - NEC Liquid Crystal Display Co., Ltd.

TFT COLOR LCD CELL

（ COMMON ）

SVA190WX04TP

48cm (19.0W Type)

WXGA+

DATA SHEET

(Version 2.0)

Published by

Product Management Department

SVA - NEC Liquid Crystal Display Co., Ltd.

Approved by	***Date***
Checked by	***Date***
Prepared by	***Date***

Signature of customer

Confirmed by	***Date***

INTRODUCTION

• WARRANTY

Shanghai **SVA NEC** Liquid Crystal Display Co., Ltd. (hereinafter called "SVA-NEC") warrants that this product meets the product specifications set forth in this document. If this product under normal operation is found to be non-conforming to the product specifications, and such non-conformance is promptly notified to SVA-NEC within one (1) year after the delivery date, and further such non-conformance is solely attributable to SVA-NEC, SVA-NEC shall repair the non-conforming product or replace it with a conforming one, free of charge. However, this warranty does not apply to any non-conformance that can be found easily by incoming inspections or those resulting from any one of the following:

1) Unauthorized or improper repair, maintenance or modification
2) Operation or use against specifications, instructions or warnings given by SVA-NEC
3) Any other causes attributable to customer

In case SVA-NEC repairs or replaces a product after the one (l)-year warranty period, SVA-NEC shall be entitled to charge for such repair or replacement. Those replaced parts shall be covered with six (6)-month warranty period from the replacement day. Non-conforming products may be replaced with substitutes instead of repair when the manufacture of this product has been terminated.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, SVA-NEC DISCLAIMS ANY WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND DISCLAIMS ANY REMEDIES.

• MAINTENANCE

The specifications of maintenance parts may be partially changed within equivalent quality or better. In this product, SVA-NEC will not accept to maintain for only mounting parts on circuit board (e.g. connector, fuse, capacitor, resistor, etc.)

If SVA-NEC is planning discontinuation for this product, SVA-NEC shall inform it to customers in six (6)-months advance from the issued date of official agreements. In addition, after product discontinuation, SVA-NEC may replace substitutes instead of maintenance parts with whole product.

• CHANGE CONTROL

For the purpose of product improvement, this product design may be changed for specifications, appearance, parts, circuits and so on. In case a design change is affected on the product specifications, SVA-NEC shall inform it to customers in advance.

• HANDLING OF DOUBTFUL POINTS

Any question arising out of, or in connection with, this SPECIFICATION or any matter not stipulated herein will be settled each time upon consultation between both parties.

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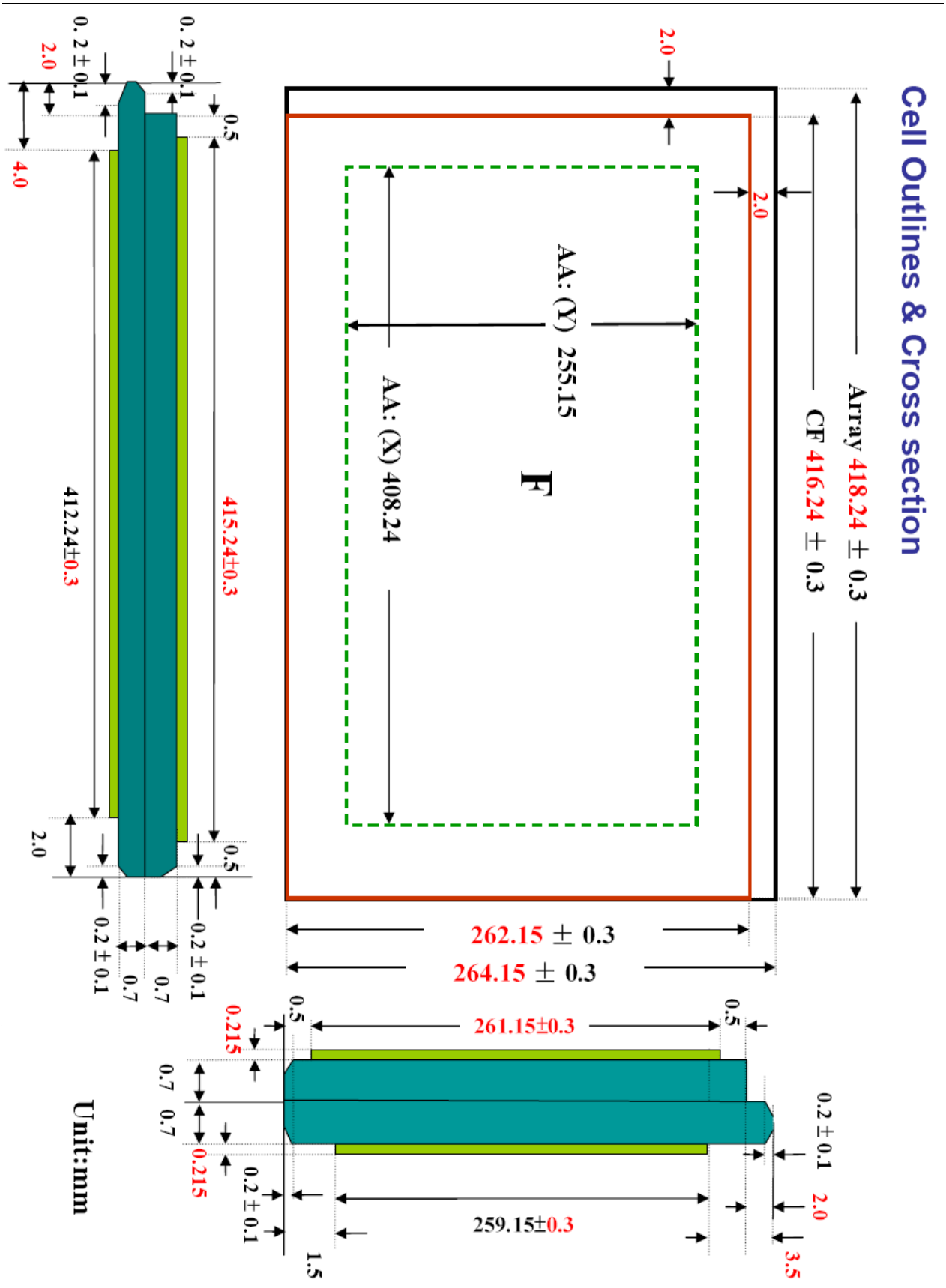
1. General Characteristics

Display area	408.24 (H) x 255.15 (V)mm (typ.), [48.0 cm (19.0 inches)]
Drive system	a-Si TFT active matrix
Display mode	TN(normary white)
Display color	16.77M colors (capable)
Pixel	1,440 (H) x 900(V) pixels
Pixel arrangement	RGB (Red dot、Green dot、 Blue dot) vertical stripe
Pixel pitch	0.2835 (W) x 0.2835 (H) mm
Power supply voltage	LCD panel signal processing board：5.0V
Storage temperature	-20°C ~ +60°C
Operating temperature	Front surface:0°C ~ +50°C
	Rear surface:0 °C ~TBD°C
Response time	Ton (white 90% black 10%) + Toff (black 10% white 90%) 5 ms (typ.)
Contrast ratio	800:1(typ.)
Transmissibility	5%
Viewing angle (At the contrast ratio 10：1)	• Horizontal:80°/80°(L/R); • Vertical: 80°/80° (U/D)
Color gamut	At LCD panel center 72 % (typ.) [against NTSC color space]
Chromaticity White coordinate	Wx:0.313; Wy:0.329
Polarizer surface treating	AG
Cell life	50000h（ based on LCM module B/L） 25℃(Ambient temperature of the product) Continuous operation and IBL=6.5mArms/lamp
Driver IC conditon	Maker: HIMAX

2Outline size of Cell



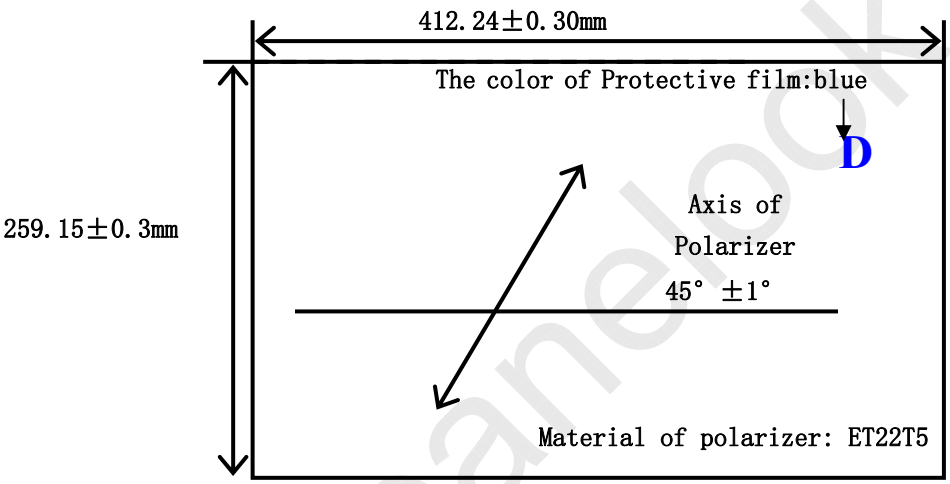
3. Polarizer Attachment Direction ,Polarizer

3.1 genaral introduction of Polarizer

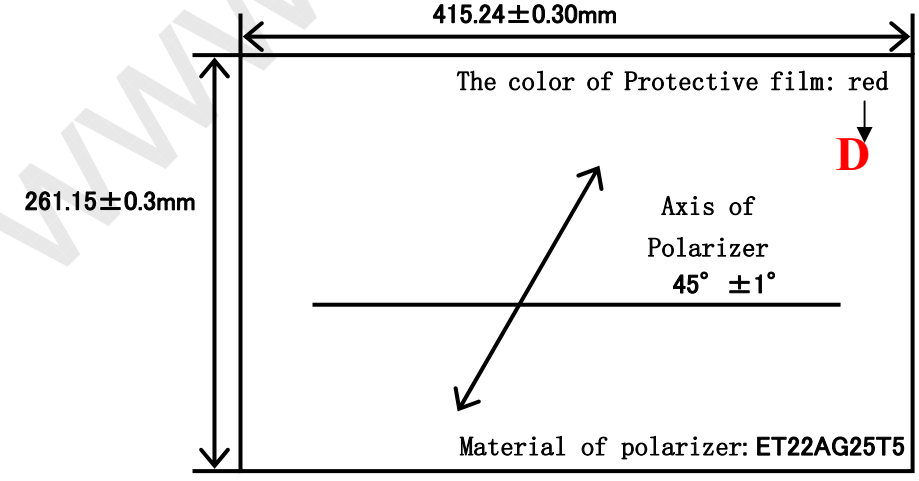
Polarizer maker: Daxon
Polarizer product name: 190POT03A-D-NW (side of array)
190POT03C-D-GW (side of color filter)

3.2 Figure of the two sides of the polarizer.

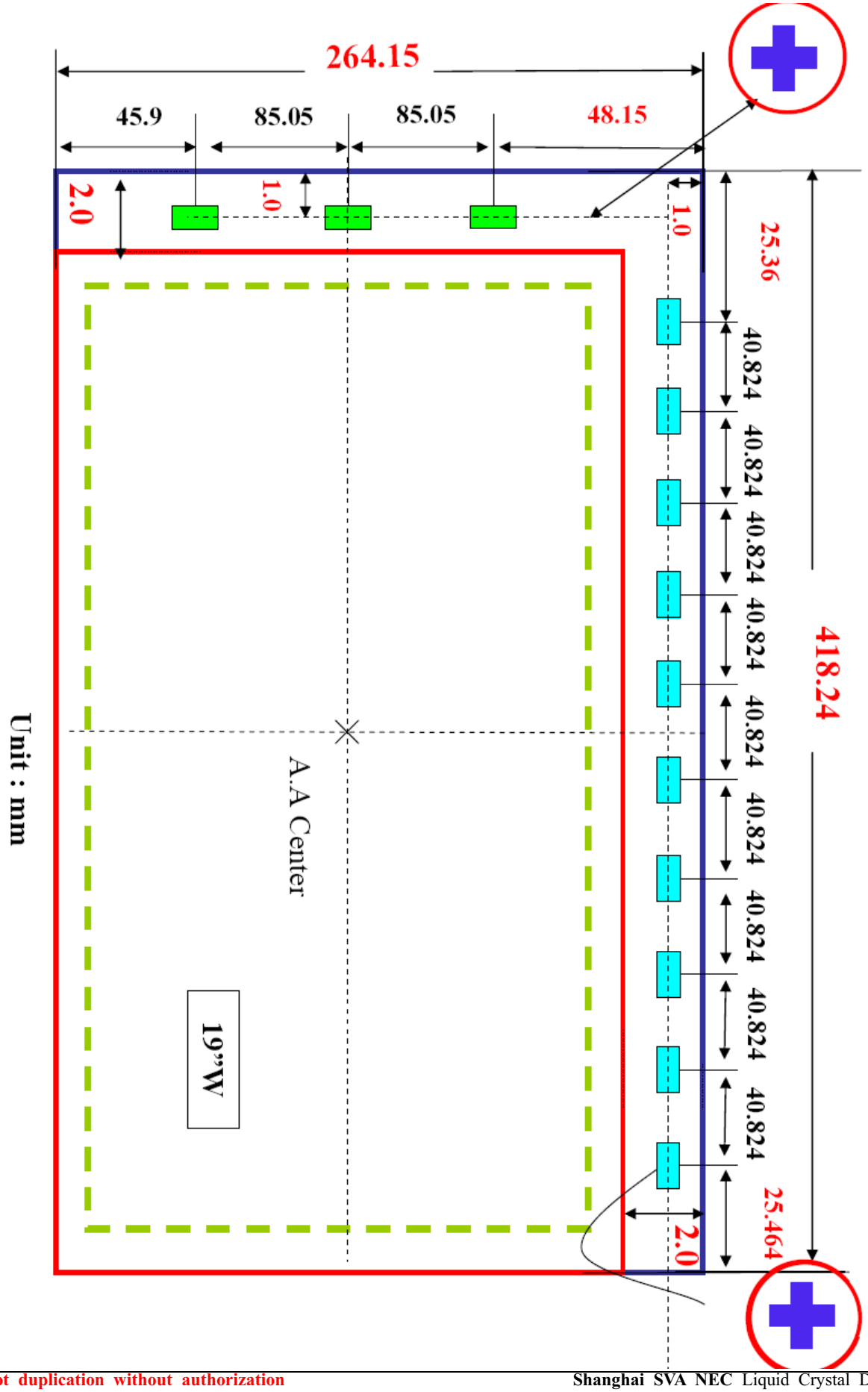
190POT03A-D-NW



190POT03C-D-GW

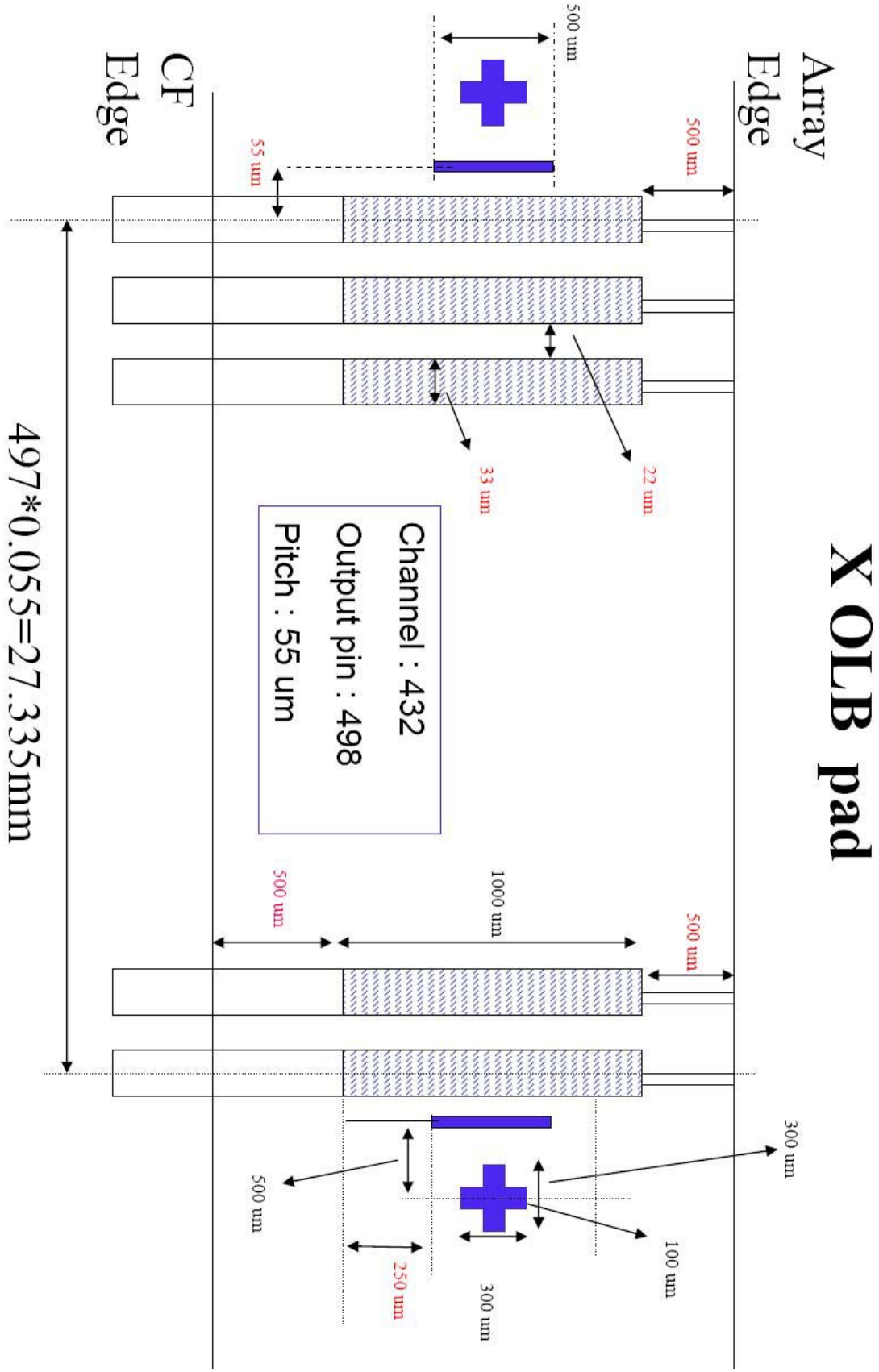


4. OLB Pad Position

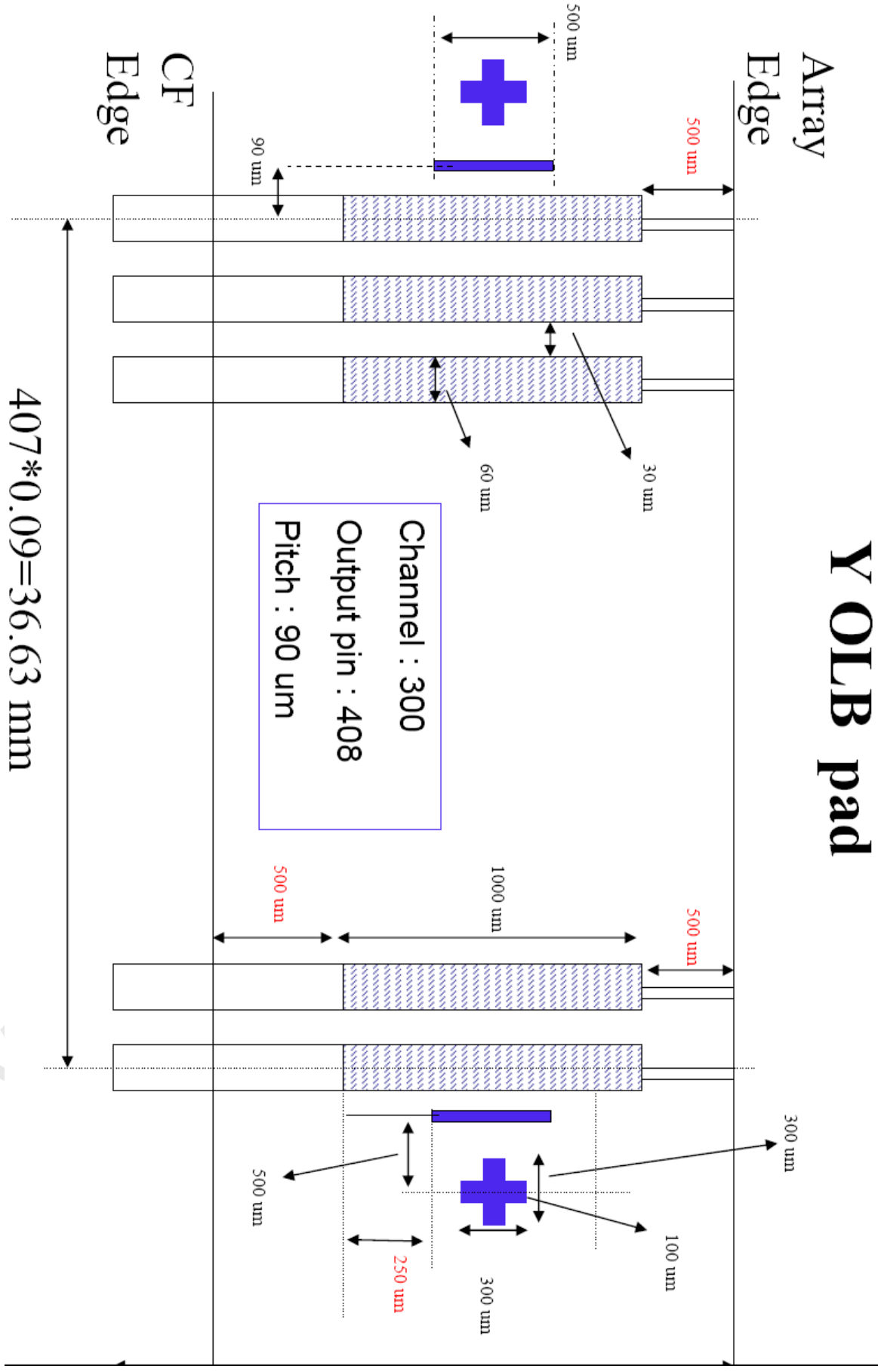


5. OLB PAD Dimension

5.1 Source side OLB PAD



5.2 Gate side OLB PAD



6. Cell Pin Assignment

19"W WXGA+ TN
X Pin Assignment(498PIN)

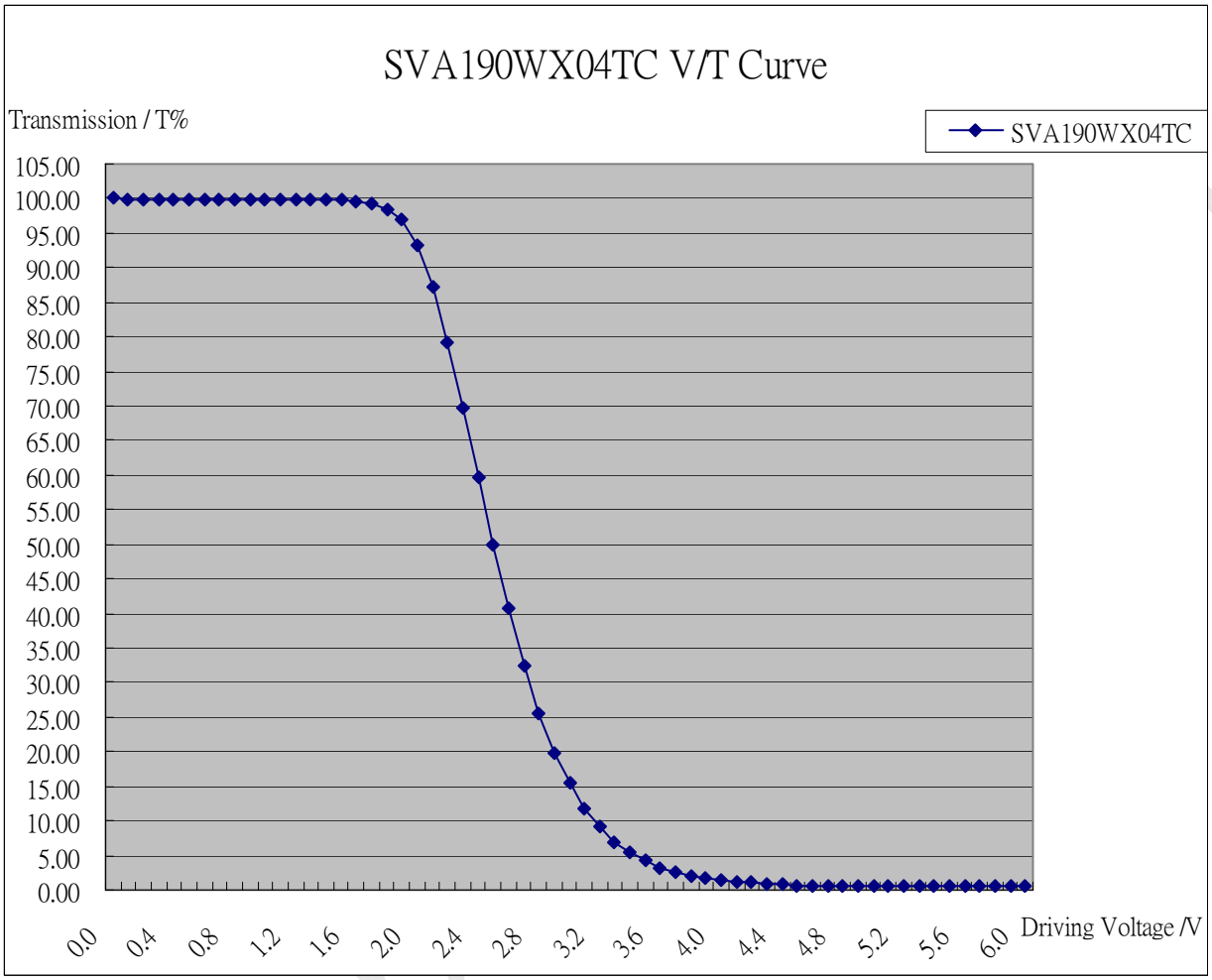
X1 ~ X10	Pin Count.	Numbers.
COM	4	1~4
NC	1	5
OE	2	6~7
XAO	1	8
CPV	2	9~10
STV1	2	11~12
GND	6	13~18
VCC	6	19~24
NC	1	25
COM	2	26~27
NC	1	28
VGL	10	29~38
NC	1	39
COM	2	40~41
NC	1	42
VGH	6	43~48
NC	1	49
COM	3	50~52
NC	1	53
Sig-001 Sig-002 ⋮ Sig-431 Sig-432	432	54~485
NC	1	486
RPI_1	1	487
TP	1	488
NC	1	489
RPO_1	2	490~491
RPO_2	2	492~493
NC	1	494
VCOM	4	495~498
=>	498	

19"W WXGA+ TN
Y Pin Assignment(408PIN)

Y1 ~ Y3	Pin Count.	Numbers	
COM	4	1~4	
NC	1	5	
OE	2	6~7	
XAO	1	8	
CPV	2	9~10	
STV1	2	11~12	
GND	6	13~18	
VCC	6	19~24	
NC	1	25	
COM	2	26~27	
NC	1	28	
VGL	10	29~38	
NC	1	39	
COM	2	40~41	Connected on Array
NC	1	42	
VGH	6	43~48	
NC	1	49	
COM	3	50~52	
NC	1	53	
VGL	302	54~355	
Gate-001			
Gate-002			
⋮			
Gate-299			
Gate-300			
VGL			
NC	1	356	
COM	3	357~359	
NC	1	360	
VGH	6	361~366	
NC	1	367	
COM	2	368~369	Connected on Array
NC	1	370	
VGL	10	371~380	
NC	1	381	
COM	2	382~383	
NC	1	384	
VCC	6	385~390	
GND	6	391~396	
STV2	2	397~398	
CPV	2	399~400	
XAO	1	401	
OE	2	402~403	
NC	1	404	
COM	4	405~408	
	408		

7. V-T curve

1902WX04TC C/T Curve



8. Requirement driving condition

8.1 general characteristics

Parameter	symbol	unit	min	Typ	Max
Voltage gate ON	Vgon	V	-	23	-
Voltage gate OFF	Vgoff	V	-	-6	-
Vcom (min~typ~max)	Vcom	V	4	5	6
Voltage(black patten)	Vb	V	TBD	TBD	TBD
Voltage(white patten)	Vw	V	TBD	TBD	TBD

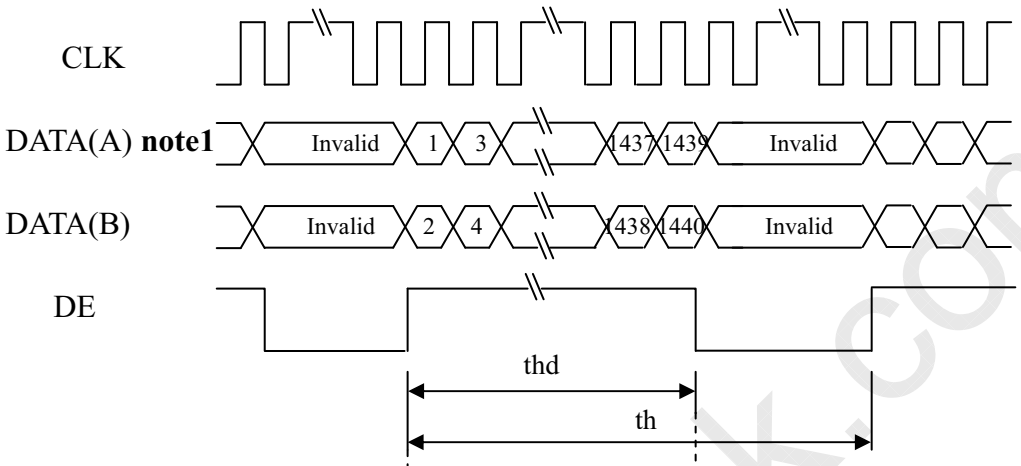
8.2. Driver Timing Schematic

8.2.1 Timing specification

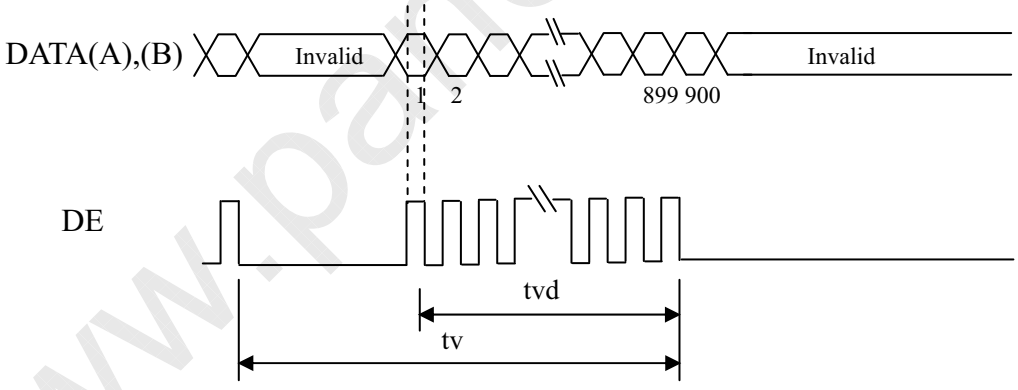
Parameter		Symbol	min.	typ.	max.	Unit	Remarks
Clock	Frequency	1/tc	34.4	44.45	74.25	MHz	LVDS transmitter input
		tc	29.07	22.50	13.47	ns	
	Rise time, Fall time	-	Refer to the timing characteristics of LVDS transmitter			ns	-
	Duty	-				-	-
Horizontal signals	Cycle	th	14.8	18.0	26.5	µs	55.5kHz(typ.)
			754	800	900	CLK	
	Display period	thd	720			CLK	-
Vertical signals	Cycle	tv	13.3	16.67	20	ms	60.0Hz(typ.)
			912	926	1100	H	
	Display period	tvd	900			H	-
DE/Data	Setup time	-	Refer to the timing characteristics of LVDS transmitter			ns	-
	Hold time	-				ns	-
	Rise time, Fall time	-				ns	-

8.2.2 Input signal timing chart

Horizontal timing



Vertical timing



Note 1: DATA(A)=RA0-RA7,GA0-GA7,BA0-BA7

DATA(B)=RB0-RB7,GB0-GB7,BB0-BB7

8.3. OLB Outline

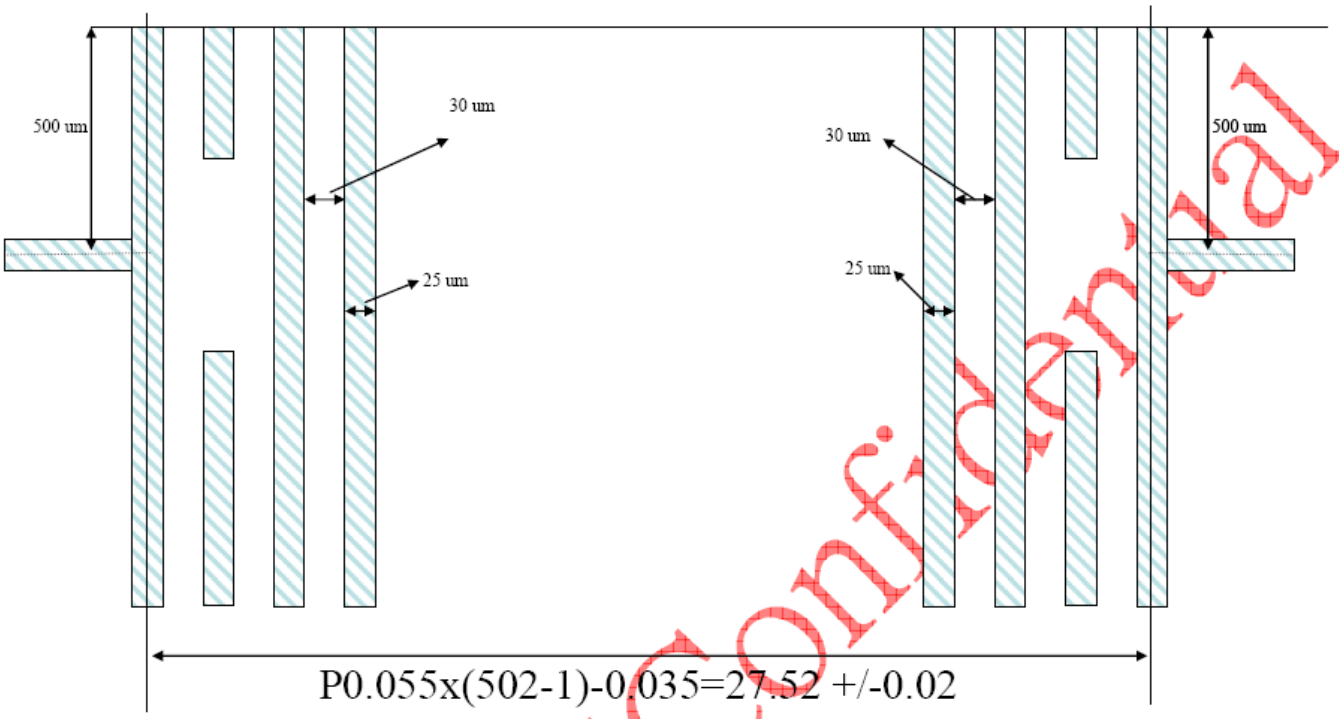
8.3.1 General parameter

Project	Content
Number of driver	H:10 Pcs;V:3 Pcs
The Output pin of driver	H:498 H:408
Driver	Use COF

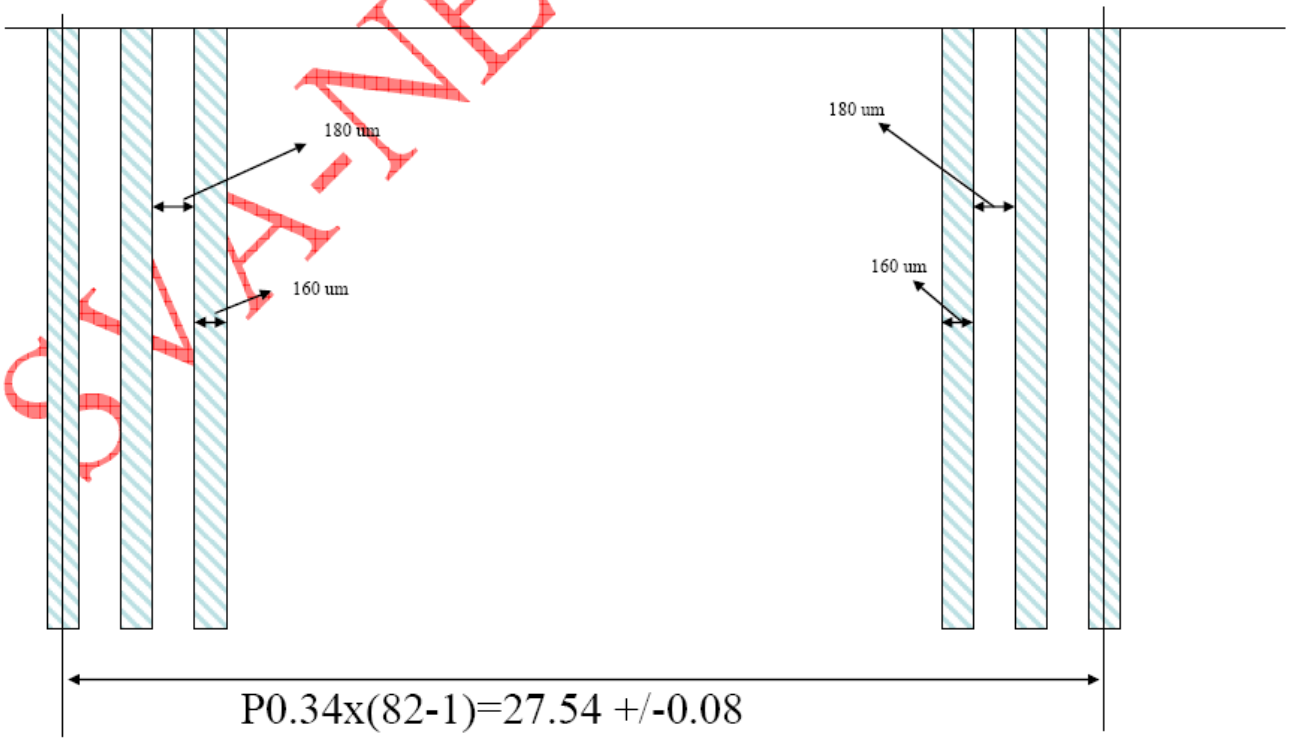
8.3.2 pitch outline

X-COF:

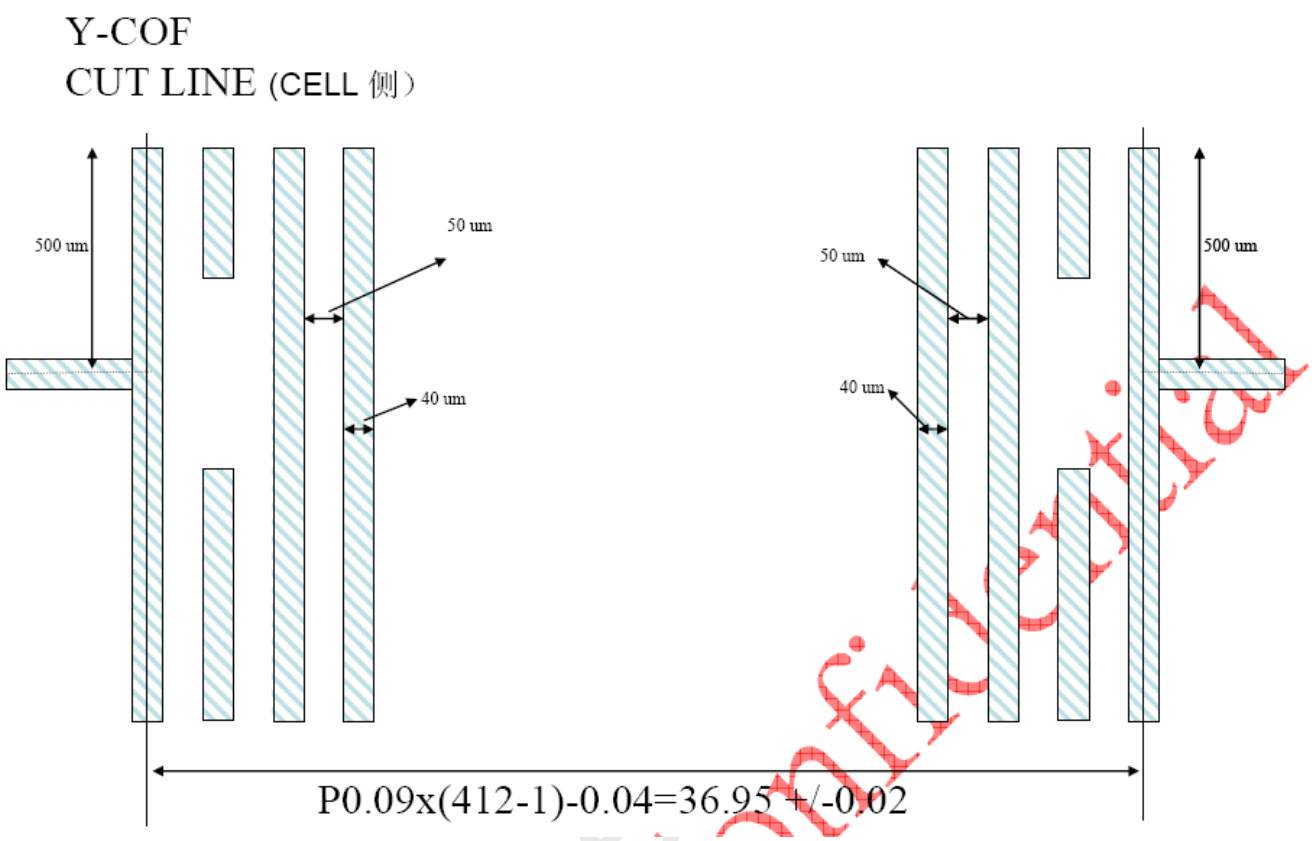
X-COF
CUT LINE (CELL 侧)



X-COF
CUT LINE (PCB 侧)



Y-COF:



8.4. Driver Recommendation

Driver chip product name:
Driver maker: HIMAX

9. Back light Spectrum (Reference)

Parameter		Symbol	Condition	Min.	Typ.	Max.	unit	Remarks
Luminance (center)		L	I FL=6.5mA, 50kHz /25±3℃	5900	6200	—	cd / m2	Upright the B/L , then test at light-emitting area after 30min.
Luminance uniformity	Five point	ΔL1	↑	68%	_	—	%	Figure 1
	Nine point	ΔL2	↑	80%	83%	—	%	
	Visual	—	—	To manage according to the lowest accepted spec.			—	-
Color gamut		X	I FL=6.5mA, 50kHz /25±3℃	0.283	0.298	0.313	—	-
		Y	↑	0.288	0.303	0.318	—	-
Color uniformity		ΔCUX	↑	_	_	1.05	_	Note1
		ΔCUY	↑	_	_	1.06	_	-

Note1

Luminance uniformity 1	(the min. luminance of 1~13point) / the max. luminance of 1~13point) *100%
Luminance uniformity 2	(the min. luminance of 1~9point) / (the max. luminance of 1~9point) *100%
Color uniformity	(the max. luminance of 1~13point) / (the min. luminance of 1~13point)

10. Cell Packaging

SVA-NEC will pack products to deliver to customer in accordance with SVA-NEC packing specifications, and will deliver products to customer in such a state that products will not suffer from a damage during transportation .The delivery conditions are as follows.

10.1 PACKING

(1) Packing box
TBD

10.2INSPECTION RECORD SHEET

Inspection record sheets are included in the packing box with delivery products to customer. It is summarized to a number of products for pass/fail assessment.

10.3 TRANSPORTATION

The product is transported by vehicle, aircraft or shipment in the state of pallet packing.

10.4 SIZE AND WEIGHT FOR PACKING BOX

Parameter	Packing box	Unit
Size	TBD	mm
Weight	TBD	kg
Total weight	TBD	kg

10.5 OUTLINE FIGURE FOR PACKING

TBD

Revision History

Rev	Revised date	Main Revision item and sign	Approved by	Checked by	Prepared by	Published date
1.0		sign: 品管 / 营业 / 产品验证 / 产品技术			Shu Bingxian 2007-6-5	