



## CUSTOMER APPROVAL SHEET

<b>Company Name</b>	
<b>MODEL</b>	C080VW05 V1
<b>CUSTOMER APPROVED</b>	Title : Name :

- APPROVAL FOR SPECIFICATIONS ONLY (Spec. Ver. 0.1 )
- APPROVAL FOR SPECIFICATIONS AND ES SAMPLE (Spec. Ver. 0.1 )
- APPROVAL FOR SPECIFICATIONS AND CS SAMPLE (Spec. Ver. 0.1 )
- CUSTOMER REMARK :

AUO PM :

P/N : 97.08C06.100

Comment :

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## Product Specification

### 8.0" COLOR TFT-LCD MODULE (EWV)

<b>Model Name:</b>	<b>C080VW05 V1</b>
<b>Planned Lifetime:</b>	From 2011 To 2013
<b>Phase-out Control:</b>	From 2013/Jul To 2013/Dec
<b>EOL Schedule:</b>	2013/Dec

- < □ > Preliminary Specification
- < > Final Specification

Note: The content of this specification is subject to change.

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## Record of Revision

Version	Revise Date	Page	Content
0.0	2010/12/8	All	First draft.
0.1	2011/03/07	3~4	Update module outline
		5	Add Connector type
		8	Update Recommended connector and Power voltage
		16	Update Recommended Gamma Voltage
		17	Add Brightness typical specification

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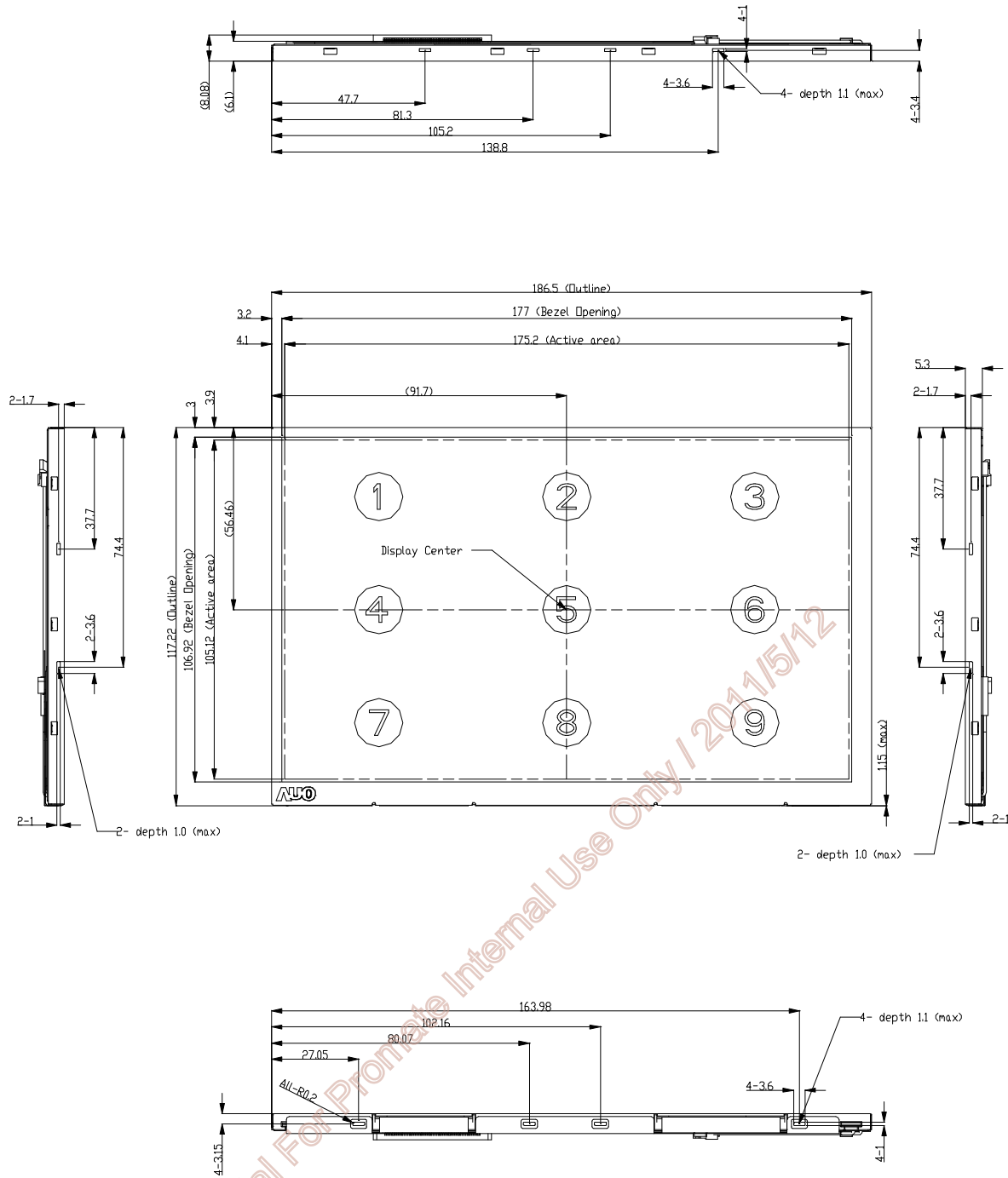
**A. Physical specifications**

NO	Item	Specification	Remark
1	Display resolution (dot)	800RGB(W)×480(H)	
2	Active area (mm)	175.20(W)×105.12(H)	
3	Screen size (inch)	8.0(Diagonal)	
4	Pixel pitch (mm)	0.073(W)×3x0.219(H)	
5	Color configuration	R. G. B. stripe	
6	Overall dimension (mm)	186.5(W)×117.22(H)×5.3(D)	Note 1
7	Weight (g)	180 +/- 10%	
8	Surface treatment	AG with EWV film	
9	Backlight unit	LED	

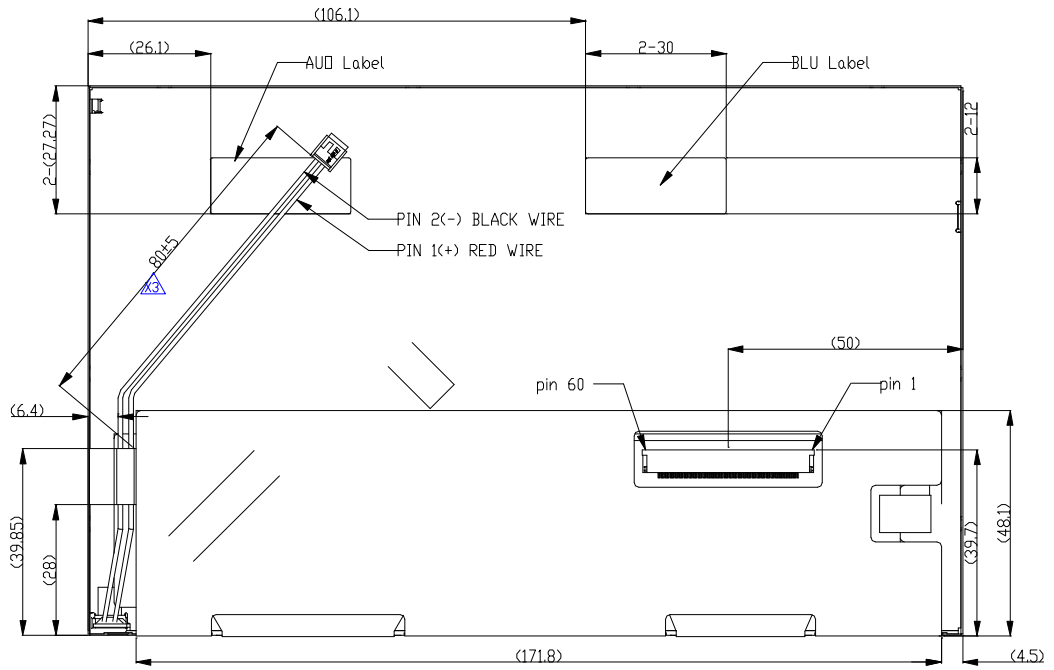
Note 1: Refer to outline dimension drawing

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**B. Outline Dimension**  
**Front View:**



**Rear View:**



- 1.General tolerance: ±0.3mm.
- 2.Light source connector: JST PHR-2
- 3.FPC socket: STARCDNN 6700L60-000000-M1

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## C. Electrical specifications

### 1. Pin assignment

a.) TFT-LCD panel driving section

Connector type: STARCONN 6700L60-000000-M1

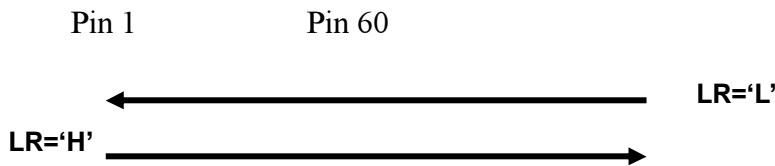
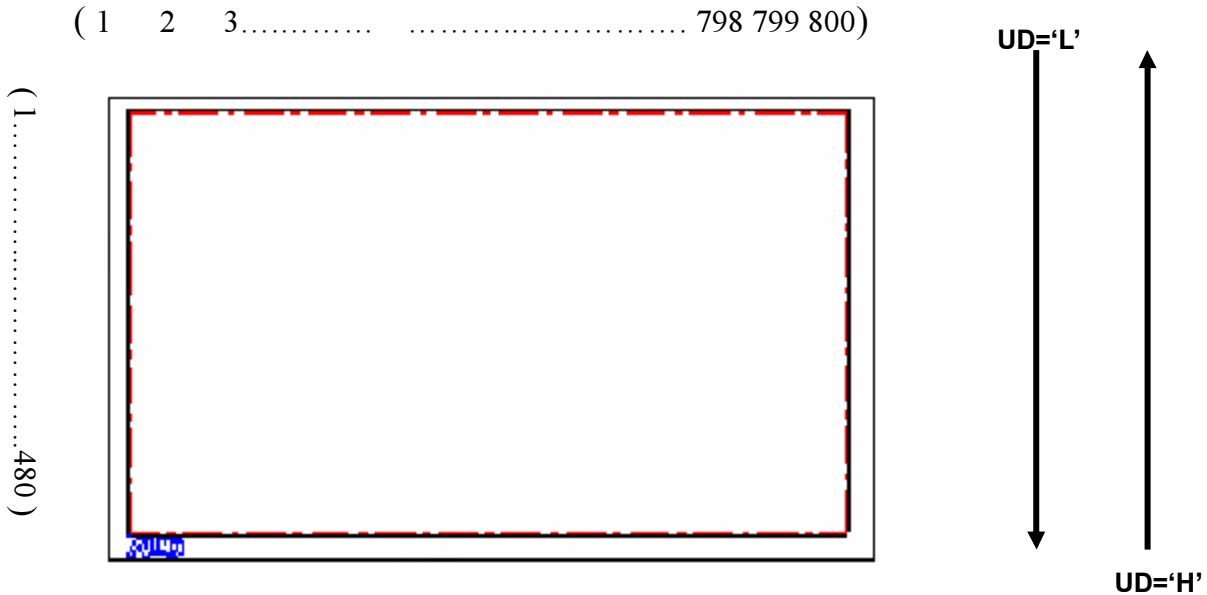
Pin no	Symbol	I/O	Description	Remark
1	GND	P	Power ground	
2	VCOM	I	Common voltage	
3	DIO1	I/O	Horizontal start pulse signal input or output	Note 1
4	GND	P	Power ground	
5	VCC(DVDD)	P	Voltage for digital circuit	
6	EDGSL	I	Select raising edge or raising/falling edge When EDGSL = "0", Latching source data onto the line latches at the rising edge. When EDGSL = "1", Latching source data onto the line latches at the rising edge and falling edge.	
7	DCLK	I	Pixel clock	
8	LR	I	Right or Left display control	
9	R0 (LSB)	I	Red data	
10	R1	I	Red data	
11	R2	I	Red data	
12	R3	I	Red data	
13	R4	I	Red data	
14	R5 (MSB)	I	Red data	
15	G0 (LSB)	I	Green Data	
16	G1	I	Green Data	
17	G2	I	Green Data	
18	G3	I	Green Data	
19	G4	I	Green Data	
20	G5 (MSB)	I	Green Data	
21	AVDD	P	Analog voltage for source driver	
22	V1	I	Gamma correction reference voltage	
23	V2	I	Gamma correction reference voltage	
24	V3	I	Gamma correction reference voltage	
25	V4	I	Gamma correction reference voltage	
26	V5	I	Gamma correction reference voltage	
27	V6	I	Gamma correction reference voltage	
28	V7	I	Gamma correction reference voltage	
29	V8	I	Gamma correction reference voltage	
30	V9	I	Gamma correction reference voltage	
31	V10	I	Gamma correction reference voltage	
32	V11	I	Gamma correction reference voltage	
33	V12	I	Gamma correction reference voltage	
34	V13	I	Gamma correction reference voltage	
35	V14	I	Gamma correction reference voltage	
36	AVSS	P	Analog ground for source driver	
37	B0 (LSB)	I	Blue Data	
38	B1	I	Blue Data	



39	B2	I	Blue Data	
40	B3	I	Blue Data	
41	B4	I	Blue Data	
42	B5 (MSB)	I	Blue Data	Note 1
43	LD	I	Latch and switch data to output	Note 2
44	REV	I	Control Whether RGB data are inverted or not, normally pulled low. When "REV" = 1 these data will be inverted. Ex. "00" → "3F", "07" → "38", and so on.	
45	POL	I	Polarity selection	Note 3
46	VCC(DVDD)	P	Voltage for digital circuit	
47	GND	P	Power ground	
48	CHNSL	I	Don't care	
49	AVDD	P	Analog voltage for source driver	
50	DIO2	I/O	Horizontal start pulse signal input or output	Note 1
51	VCOM	I	Common voltage	
52	OEV	I	Output enable, active low. The gate driver outputs are disable when OEV = "H".	
53	UD	I	Up or Down display control	
54	CKV	I	CLK (Vertical)	
55	STVU	I/O	Start pulse signal input/output (Vertical)	Note 1
56	STVD	I/O	Start pulse signal input/output (Vertical)	Note 1
57	VGH	P	TFT high voltage	
58	VGL	P	TFT low voltage	
59	VCC(DVDD)	P	Voltage for digital circuit	
60	GND	P	Power ground	

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**Note 1:**



UD	STVU	STVD	Direction
L	Input	Output	U→D
H	Output	Input	D→U

LR	DIO1	DIO2	Direction
H	Input	Output	L→R
L	Output	Input	R→L

**Note 2: LD**

Latches the polarity of outputs and switches the new data to outputs.

1. At the rising edge, latches the "POL" signal to control the polarity of the outputs.
2. The pin also controls the switch of the line registers that switches the new incoming data to outputs.

**Note 3: POL**

"POL" value is latched at the rising edge of "LD" to control the polarity of the even or odd outputs.

POL=1: Even outputs range from V1 ~ V7, and Odd outputs range from V8 ~ V14

POL=0: Even outputs range from V8 ~ V14, and Odd outputs range from V1 ~ V7

## b.) Backlight Pin Assignment

 Recommended connector : **JST PHR-2**

No.	Symbol	I/O	Description	Remark
1	HI	I	Power supply for backlight unit (High voltage)	Red wire
2	GND	-	Ground for backlight unit	Black wire

## 2. Absolute Maximum Ratings

Items	Symbol	Product Specification			Unit
		Min.	Typ.	Max.	
Power Voltage	Vcc	-0.3		5	V
	AVDD	-0.5		14	V
	VGH	-0.3		18	V
	VGL	-15		0.3	V
	VGH-VGL			33	V
Input Signal Voltage	Vi	-0.3		Vcc+0.3	V
	Vref(V1~V7)	0.4AVDD		AVDD+0.3	V
	Vref(V8~V14)	-0.3		0.6AVDD	V
	VCOM	4		5	V
Operating Temperature	Topa	-30		80	°C
Storage Temperature	Tstg	-40		90	°C
LED	VL			9.6	V
	IL			240	mA

## 3. Typical operating conditions (GND=AVSS=0V)

Items	Symbol	Product Specification			Unit
		Min.	Typ.	Max.	
Power Voltage	VCC	3.0	3.3	3.6	V
	AVDD	9.8	10.0	10.2	V
	VGH	14	15	16	V
	VCOM	3.6	4.0	4.4	V
	VGL	-11	-10	-9	V
Input Reference Voltage	V1~V7	0.4AVDD	—	AVDD-0.1	V
	V8~V14	0.1	—	0.6AVDD	V
Input H/L level Voltage	VIH	0.8VCC	—	VCC	V
	VIL	0	—	0.2VCC	V

#### 4. Current consumption conditions (GND=AVSS=0V)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Current For Driver	IGH	VGH = 15V	—	150	200	uA
	IGL	VGL = -10V	—	-150	-200	uA
	ICC	VCC = 3.3V	—	3.0	5	mA
	IDD	AVDD = 9.8V	—	20	30	mA

#### 5. Backlight driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED Lightbar current	IL	-	240	-	mA	Note 1
LED voltage	VL	8.4	9.6	10.8	V	each string
Power consumption	P	-		2.6	W	Note 2
LED Lightbar life time	LL	10,000	-	-	Hr	Note 3, 4, 5

Note 1: LED backlight is 36 LEDs (12 strings, 3pcs for each string.)

Note 2: The LED Supply power is for 12 string of LED.

Note 3: Definition of "LED Lifetime": brightness is decreased to 50% of the initial value.  
LED Lifetime is restricted under normal condition, ambient temperature = 25°C  
and LED lightbar current = 240mA

Note 4: The value is only for reference.

Note 5: If it operates with LED lightbar current more than 240mA, it maybe decreases LED lifetime.

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## 6. Timing conditions

AC Electrical Characteristics (VCC=3.3V, AVDD=9.8V, AVSS=GND=0V, TA=25□)

Parameter	Symbol	Min.	Typ.	Max.	Unit
DCLK frequency (EDGSL = '0')	Fclk		33	40	MHz
DCLK frequency (EDGSL = '1')	Fclk		16.5	20	MHz
DCLK cycle time	Tcph	25	30		ns
DCLK pulse width	Tcw	40%		60%	Tcph
Data set-up time	Tsu	4			ns
Data hold time	Thd	2			ns
Propagation delay of DIO2/1	Tphl	6	10	15	ns
Time that the last data to LD	Tld	1			Tcph
Pulse width of LD	Twld	2			Tcph
Time that LD to DIO1/2	Tlds	5			Tcph
POL set-up time	Tpsu	6			ns
POL hold time	Tphd	6			ns
STV setup time	T <sub>SUV</sub>	300			ns
STV hold time	T <sub>HDV</sub>	400			ns
CKV pulse width	T <sub>CKV</sub>	500			ns
Output stable time	Tst			12	us
STV(R/L) width (Note.2)	Tstv	-	1	-	Tpckv
Charging time1 (Note.3)	Tch1	20			us
Charging time2 (Note.3)	Tch2	20			us

Note 1: Due to panel is a passive component and no leakage current allowed for better performance, it may need extra circuit to make sure the TFT LCD panel storage capacitor's shorter discharge time when system power off. Customers should study the discharge circuit according to system design.

Note.2: Pulse width of STV(R/L) should be set 1 Tpckv (Time period of CKV).

Note.3: If OEV is used, charging time must be followed to Tch1 setting, at least 20 us. Otherwise, if OEV is unused, charging time must be followed to Tch2 setting, at least 20 us.

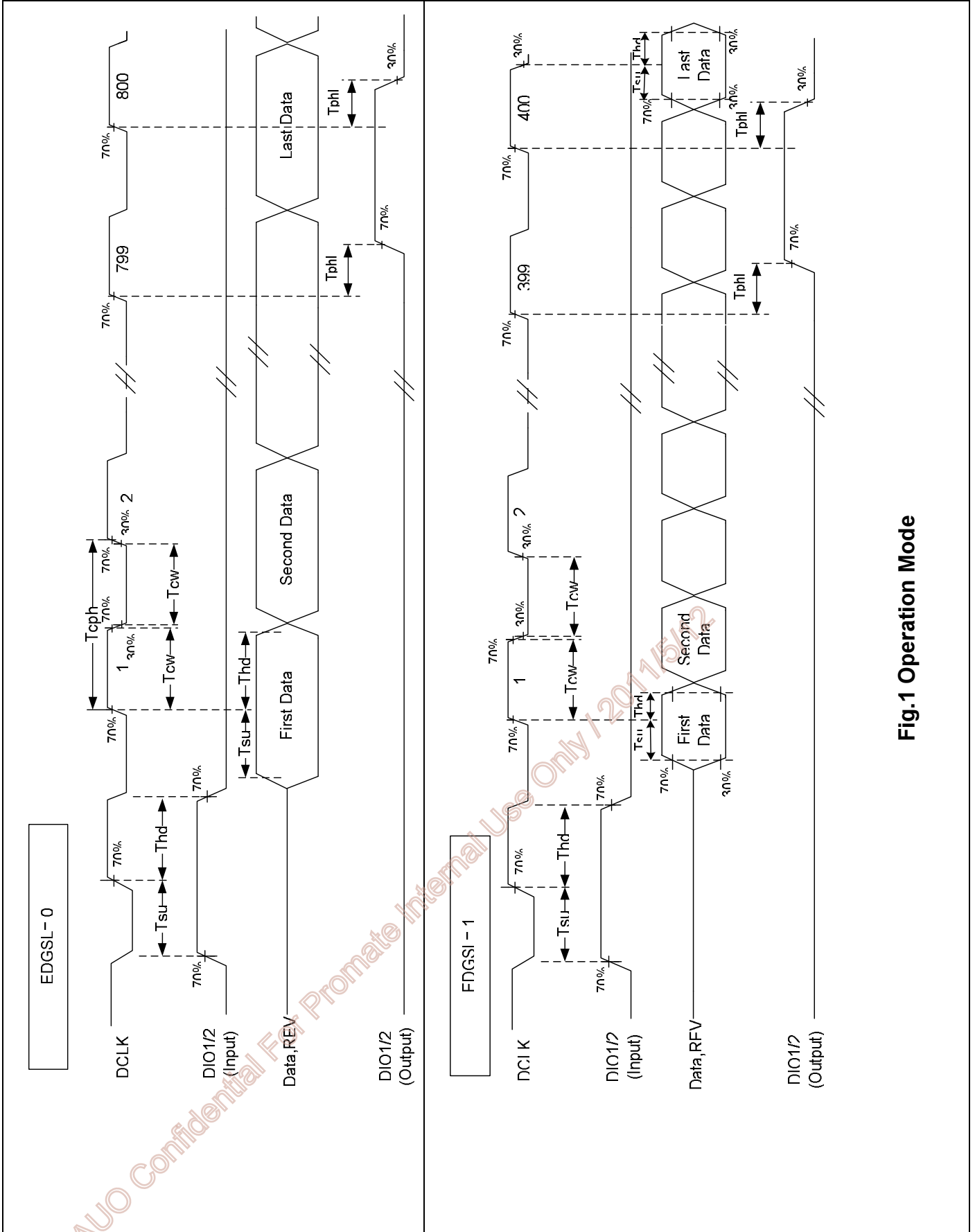


Fig.1 Operation Mode

■ Timing Diagram 2

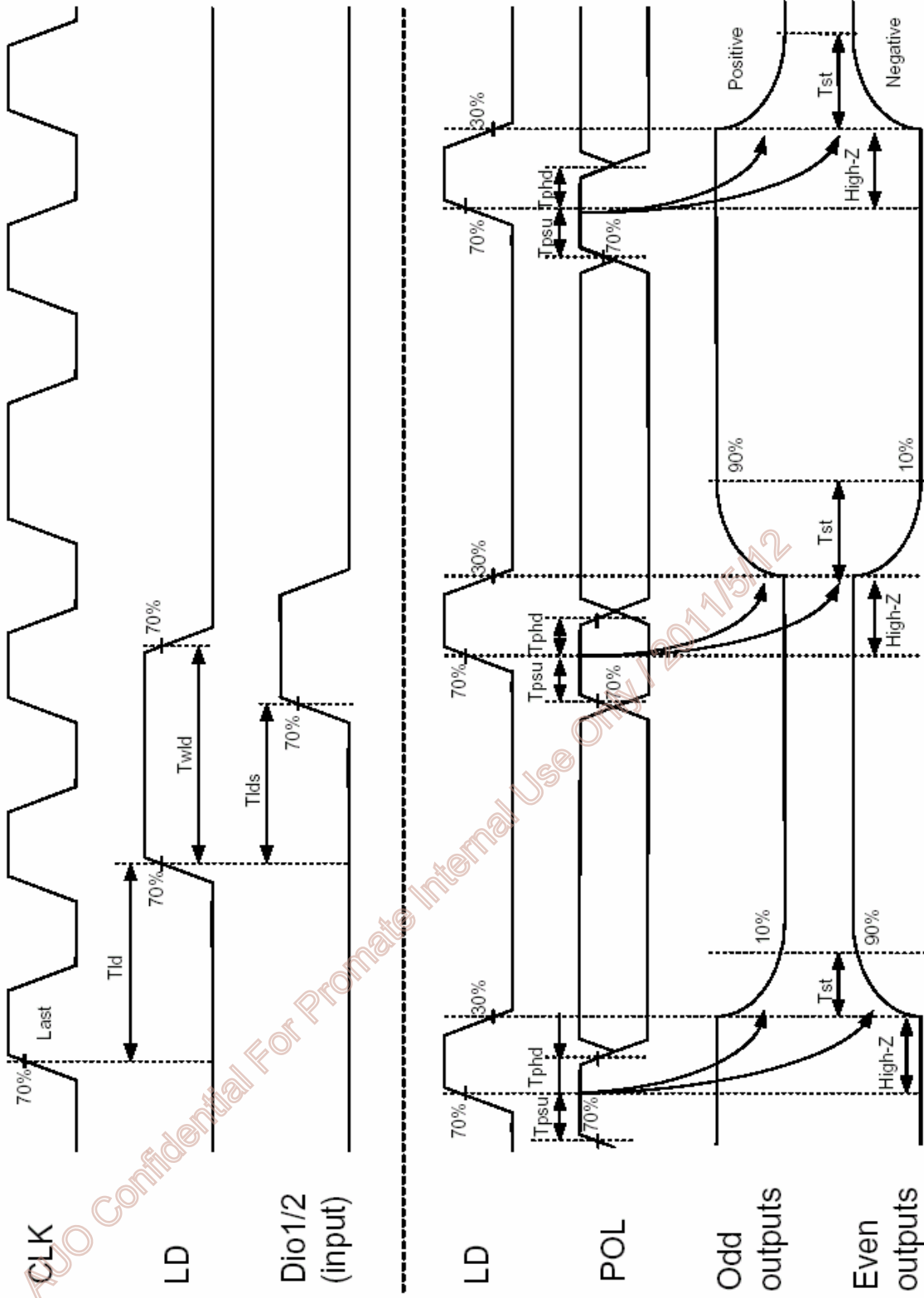
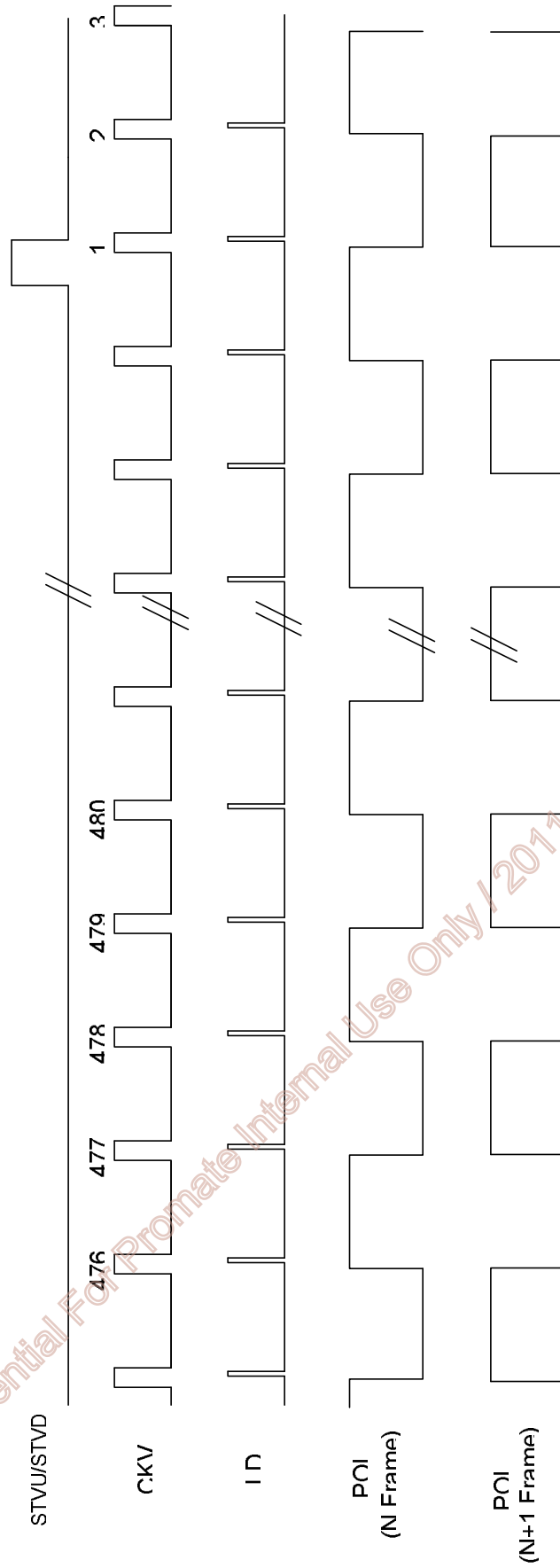


Fig.2 Horizontal timing



**Fig.3 Vertical timing (from up to down)**



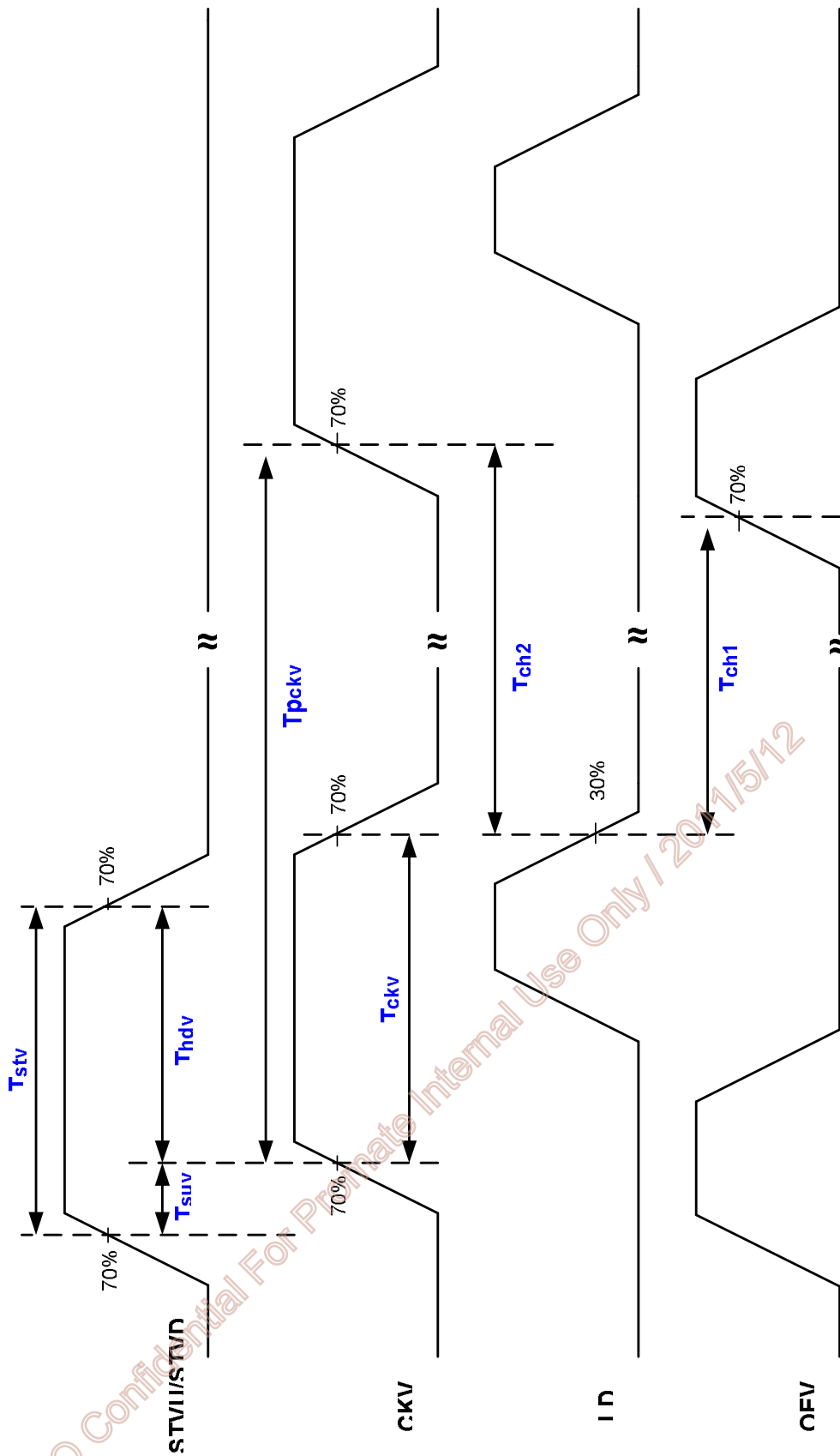
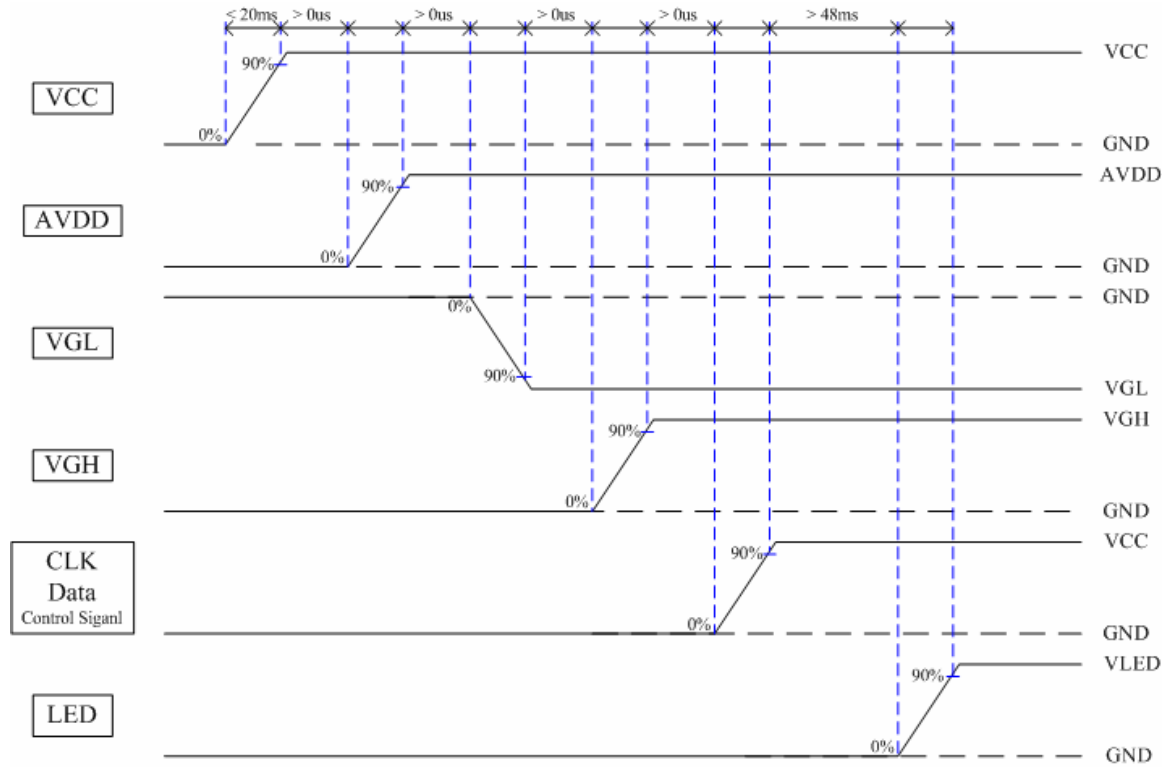


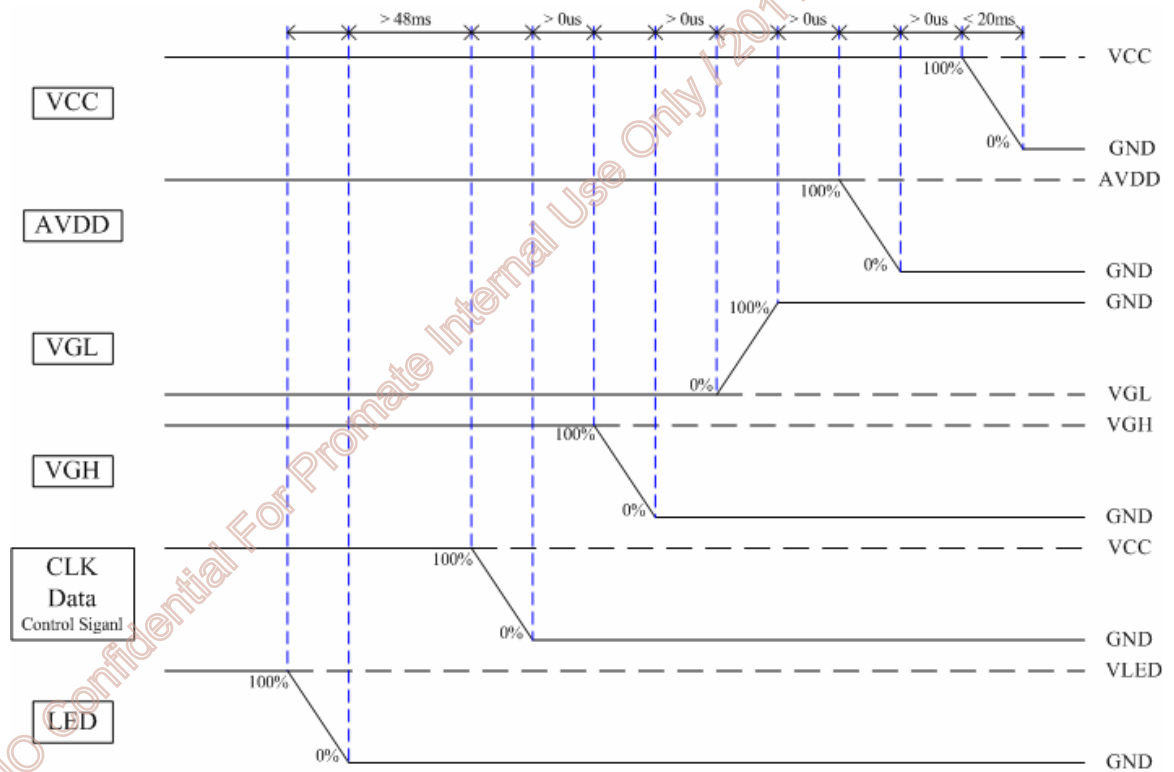
Fig.4 Vertical shift clock timing

## 7. Power On/Off Sequence

### Power On

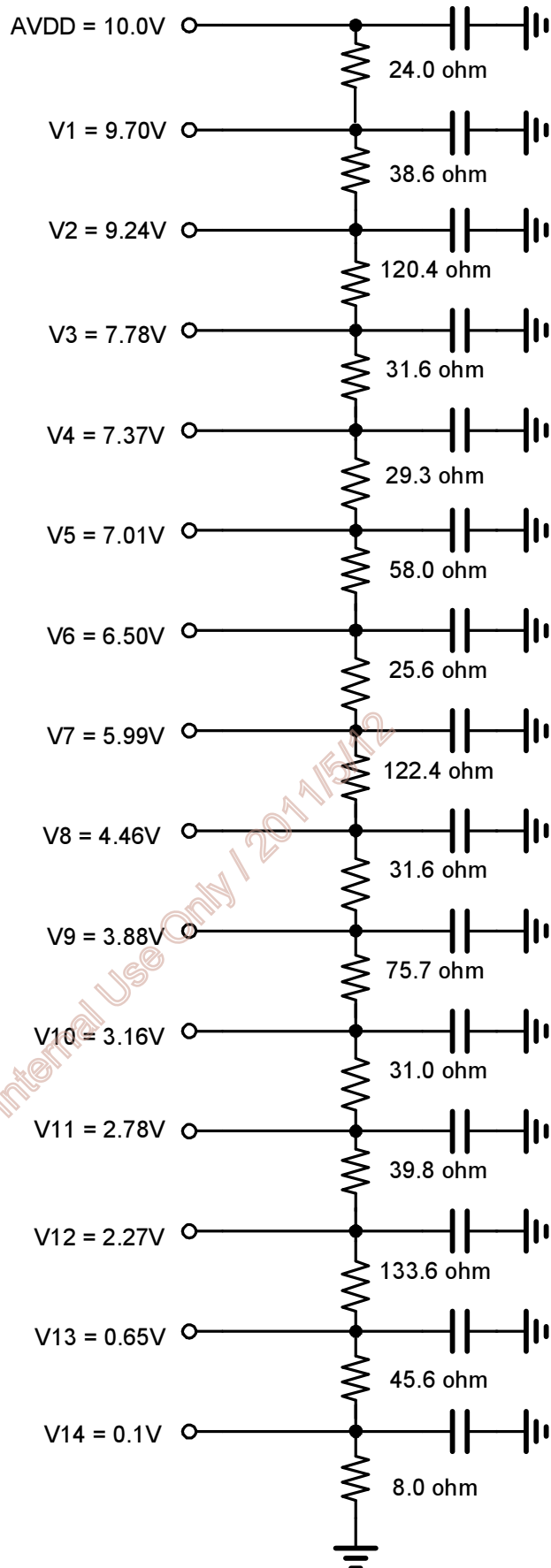


### Power Off



### 8. Recommended Gamma Voltage

Gamma 2.2		
	AVDD	10.0
00H	V1	9.70
01H	V2	9.24
10H	V3	7.76
20H	V4	7.37
30H	V5	7.01
3EH	V6	6.30
3FH	V7	5.99
3FH	V8	4.46
3EH	V9	4.08
30H	V10	3.16
20H	V11	2.78
10H	V12	2.29
01H	V13	0.65
00H	V14	0.1



### D. Optical specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Response time	Rise	Tr	$\theta=0^\circ$	-	15	50	ms	Note 3
	Fall	Tf		-	20	60		
Contrast ratio		CR	At optimized Viewing angle	200	300	-		Note 4
Viewing angle	Top		CR $\square$ 10	30	40	-	deg.	Note 4
	Bottom			50	60	-		
	Left			50	60	-		
	Right			50	60	-		
Brightness		$Y_L$	$I_L=240mA, 25^\circ C$	400	450	-	nit	Note 5
White chromaticity		x	$\theta=0^\circ$	0.26	0.31	0.36		Note 5
		y	$\theta=0^\circ$	0.28	0.33	0.38		

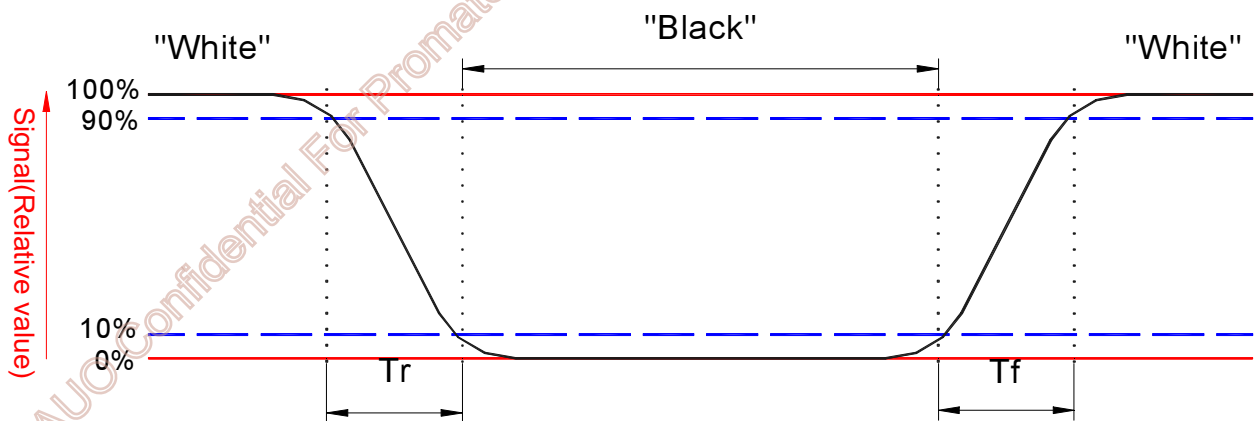
Note 1 : Ambient temperature =25°C, and LED current I = 240 mA. To be measured in the dark room.

Note 2 :To be measured on the center area of panel with a viewing cone of 1°by Topcon luminance meter BM-7, after 10 minutes operation.

Note 3. Definition of response time:

The output signals of photo detector are measured when the input signals are changed from “black” to “white”(falling time) and from “white” to “black”(rising time), respectively.

The response time is defined as the time interval between the 10% and 90% of amplitudes. Refer to figure as below.

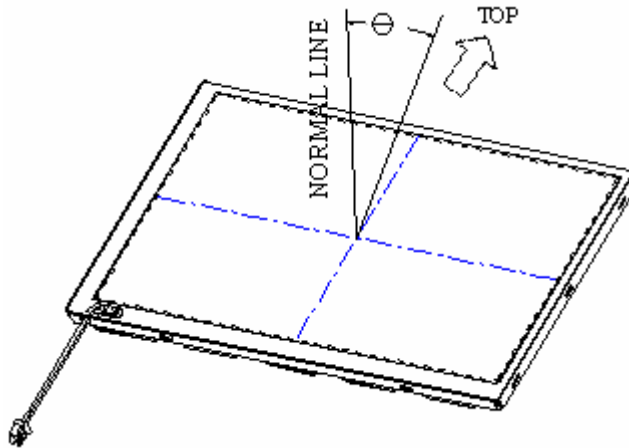


Note 4. Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when LCD is at "White" state}}{\text{Photo detector output when LCD is at "Black" state}}$$

Note 5. Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.



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### E. Reliability test items

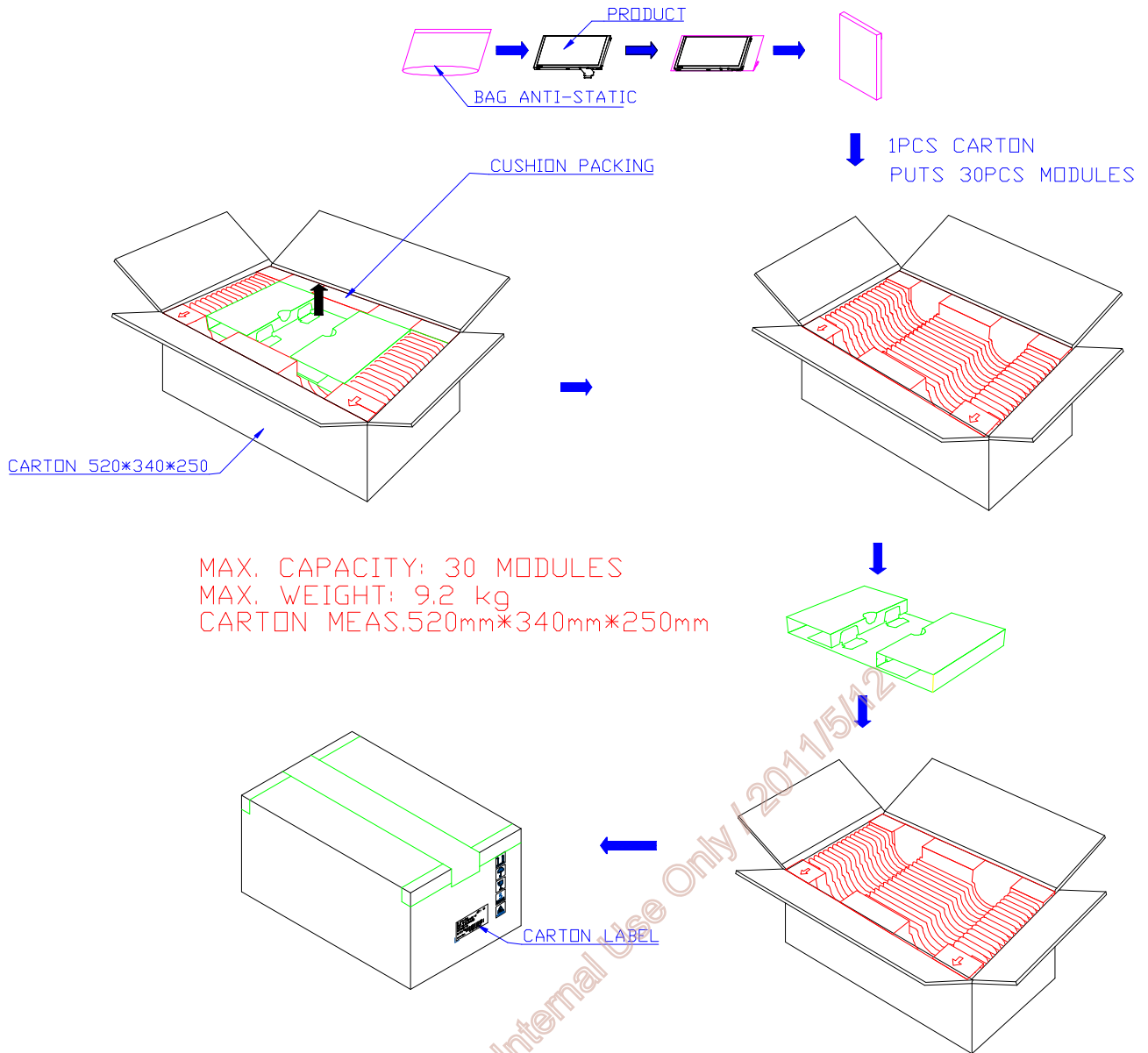
No.	Test items	Conditions	Remark
1	High temperature storage	Ta= 90□ 240Hrs	
2	Low temperature storage	Ta= -40□ 240Hrs	
3	High temperature operation	Tp= 80□ 240Hrs	
4	Low temperature operation	Ta= -30□ 240Hrs	
5	High temperature and high humidity	Tp= 60□, 90% RH 240Hrs	Operation
6	Heat shock	-30□~80□/200 cycles 1Hrs/cycle	Non-operation
7	Electrostatic discharge	±200V,200pF(0Ω), once for each terminal	Non-operation
8	Vibration	Frequency range : 10~55Hz Stoke : 1.5mm Sweep : 10 ~ 55 ~ 10Hz 2 hours for each direction of X, Y, Z (6 hours for total)	JIS C7021, A-10 Condition A
9	Mechanical shock	100G, 6ms, ±X,±Y,±Z 3 times for each direction	JIS C7021, A-7 Condition C
10	Vibration (with carton)	Random vibration: 0.015G <sup>2</sup> /Hz from 5~200Hz -6dB/octave from 200~500Hz	IEC 68-34
11	Drop (with carton)	Height: 60cm 1 corner, 3 edges, 6 surfaces	JIS Z0202

Note1: Ta: Ambient Temperature.

Note2: Tp: Panel Surface Temperature

Note3: In the standard conditions, there is not display function NG issue occurred. All the cosmetic specification is judged before the reliability stress.

## F. Packing form



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## G. Label Format

Example:

### Label Format



**1<sup>st</sup> to 2<sup>nd</sup>: production week code:**

**50 => WK50**

**3<sup>rd</sup>: Model version**

**1 => V1**

**4<sup>th</sup> to 6<sup>th</sup> : Production side**

**L3A: Taiwan**

**S16: China Xiamen**

**8<sup>th</sup> to 18<sup>th</sup> : AUO Lot number**

**流水號 : from 19<sup>th</sup> to 20<sup>th</sup> character**

**21<sup>st</sup> to 22<sup>nd</sup> : AUO 流水號**

The actual label picture will be updated after 1<sup>st</sup> sample output.

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## H. Precautions

1. Do not twist or bend the module and prevent the unsuitable external force for display module during assembly.
2. Adopt measures for good heat radiation. Be sure to use the module with in the specified temperature.
3. Avoid dust or oil mist during assembly.
4. Follow the correct power sequence while operating. Do not apply the invalid signal, otherwise, it will cause improper shut down and damage the module.
5. Less EMI: it will be more safety and less noise.
6. Please operate module in suitable temperature. The response time & brightness will drift by different temperature.
7. Avoid to display the fixed pattern (exclude the white pattern) in a long period, otherwise, it will cause image sticking.
8. Be sure to turn off the power when connecting or disconnecting the circuit.
9. Polarizer scratches easily, please handle it carefully.
10. Display surface never likes dirt or stains.
11. A dewdrop may lead to destruction. Please wipe off any moisture before using module.
12. Sudden temperature changes cause condensation, and it will cause polarizer damaged.
13. High temperature and humidity may degrade performance. Please do not expose the module to the direct sunlight and so on.
14. Acetic acid or chlorine compounds are not friends with TFT display module.
15. Static electricity will damage the module, please do not touch the module without any grounded device.
16. Do not disassemble and reassemble the module by self.
17. Be careful do not touch the rear side directly.
18. No strong vibration or shock. It will cause module broken.
19. Storage the modules in suitable environment with regular packing.
20. Be careful of injury from a broken display module.
21. Please avoid the pressure adding to the surface (front or rear side) of modules, because it will cause the display non-uniformity or other function issue.
22. It was forbidden to bend the FPC upward to the panel surface.”