

# TFT-DISPLAY DATASHEET

ONation  
Model:OT080ZADDLN-00

## BRIEF SPEC.:

Main Feature	LandscapeType Transmissive
Active Screen Area	176.64 x 99.36 (mm)
Diagonal   Format	8 "   16:9
Resolution	1024 X 600
Colors	(6 und 8 Bit)
Backlight	LED White
Brightness	500 cd/m <sup>2</sup>
LED Life Time	20K (h)
Interface	LVDS
Viewing Angle	75/75 L/R 70/75 up/down
Touchscreen	no
Power Supply	3.3 V (Typ.)
Module Outline	192.8 x 116.9 x 6.4(mm)
Operation Temperature	-20... +80 °C
Storage Temperature	-30... +80 °C
Surface Treatment	Plain



# ONation Corporation

## TFT COLOR LCD MODULE

MODEL: OT080ZADDLN-00

WSVGA  
LVDS interface (1port)

Version: P0.1

Customer : _____
Approved By : _____
Date: _____

ONATION		
APPROVAL	CHECKER	PREPARE
<i>Ian</i>	<i>Ian</i>	<i>Josh</i>

[All information is subject to change without notice.](#)  
[Please confirm the sales representative before starting to design your system](#)

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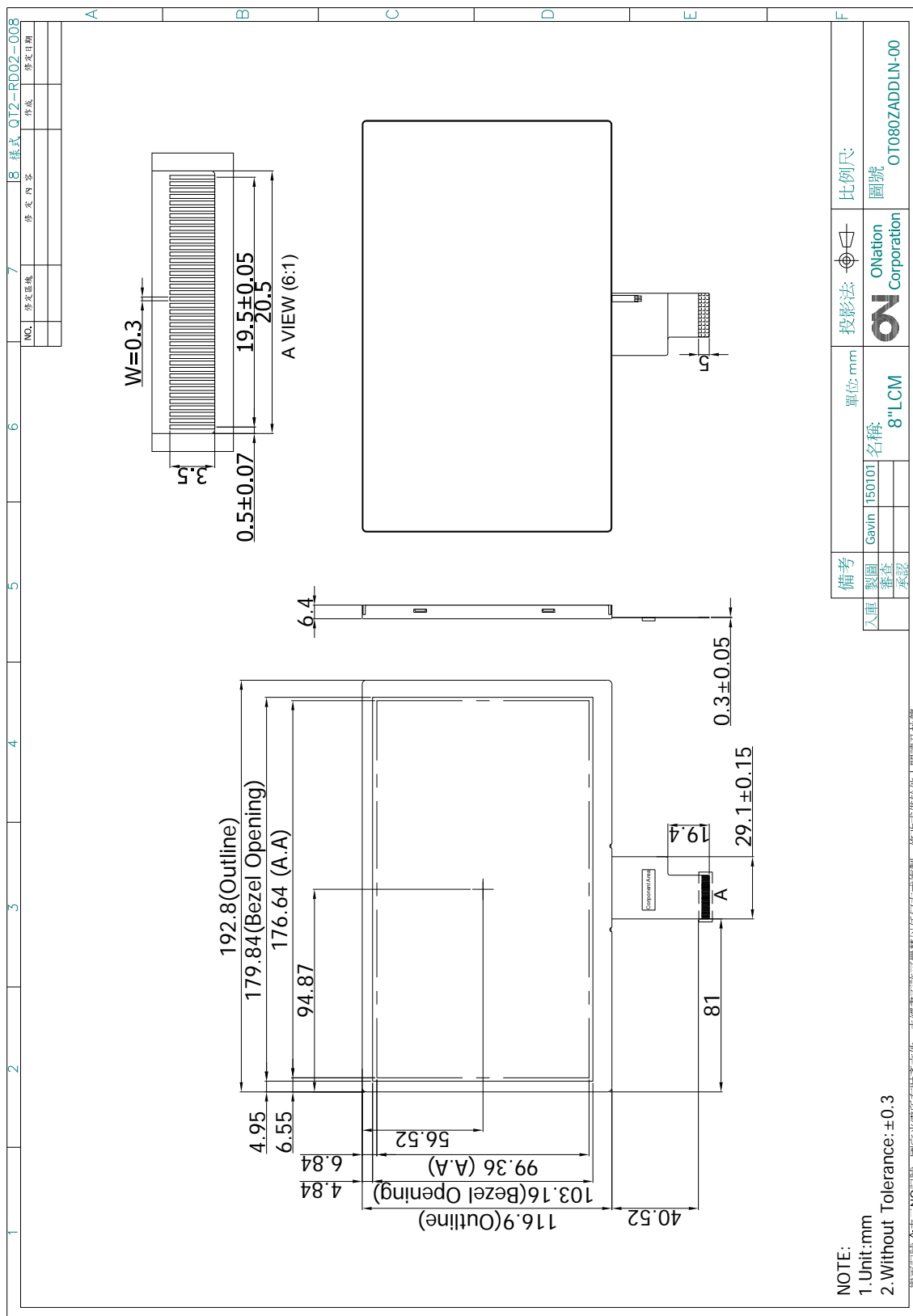
**1.RECORD OF REVISION**

REV	DATE	PAGE	SUMMARY
0.1	2015.02.27	ALL	Preliminary specification was first issued.

## 2.MECHANICAL SPECIFICATIONS

(1)	Number Of Dots (Dots)	1024(R.G.B) X 600
(2)	Module Size(mm)	192.8(H) X 116.9(V) X64(D)
(3)	Active Area(mm)	176.64(H) X 99.36(V)
(4)	Pixel Pitch(mm)	0.1725(H) X 0.1656(V)
(5)	LCD / Polarizer Model	TFT , Transmissive, Normally/White, Plain,
(6)	Backlight Color	White, LED
(7)	Viewing Direction	12 O'Clock Horizontal : Right side 75°(typ.), Left side 75°(typ.) Vertical : Up side 70°(typ.), Down side 75°(typ.)
(8)	Gray Scale Inversion Direction	6 O'Clock
(9)	Electrical Interface	LVDS Interface
(10)	Color Configuration	R.G.B Stripe
(11)	Module Weight(g)	TBD ± 5%

### 3. OUTLINE DIMENSIONS



## 4. INTERFACE PIN CONNECTION

### 4.1 LCM PANEL DRIVING SECTION

Mating Connector : FH12A-40S-0.5SH by Hirse or Equivalen

P IN NO	SIGNAL	FUNCTION	REMARK
1	VCOM	Common Voltage	
2	VDD	Power Voltage for digital circuit	
3	VDD	Power Voltage for digital circuit	
4	NC	No connection	
5	RESET	Global reset pin	
6	STBYB	Standby mode, Normally pulled high STBYB='1', mornal operation STBYB='0', timing controller, source driver will turn off, All output are High-Z.	
7	GND	Ground	
8	RXIN0-	Differential data Input, CH0(G0,R0~R5)	
9	RXIN0+	Differential data Input, CH0(G0,R0~R5)	
10	GND	Ground	
11	RXIN1-	Differential data Input, CH1(B0,B1,G1~G5)	
12	RXIN1+	Differential data Input, CH1(B0,B1,G1~G5)	
13	GND	Ground	
14	RXIN2-	Differential data Input, CH2(DE,B2~B5)	
15	RXIN2+	Differential data Input, CH2(DE,B2~B5)	
16	GND	Ground	
17	RXCLKIN-	Differential Clock Input	
18	RXCLKIN+	Differential Clock Input	
19	GND	Ground	
20	RXIN3-	Differential data Input, CH3(B6,B7,G6,G7,R6,R7)	
21	RXIN3+	Differential data Input, CH3(B6,B7,G6,G7,R6,R7)	
22	GND	Ground	
23	NC	No connection	
24	NC	No connection	
25	GND	Ground	
26	NC	No connection	
27	DIMO	Backlight CABC controller signal output	
28	SET6/8	6/8bits LVDS data input selection [H:6bits L:8bits]	Note 1
29	AVDD	Power for Analog Circuit	
30	GND	Ground	

31	VLED-	LED Cathode	
32	VLED-	LED Cathode	
33	L/R	Horizontal inversion	Note 3
34	U/D	Vertical inversion	Note 3
35	VGL	Gate OFF Voltage	
36	CABCEN1	CBAC H/W enable	Note 2
37	CABCEN0	CBAC H/W enable	Note 2
38	VGH	Gate ON Voltage	
39	VLED+	LED Anode	
40	VLED+	LED Anode	

Note1: If LVDS input data is 6bit, SELB must be set High.

If LVDS input data is 8bit, SELB must be set Low.

Note2: When CABC\_EN="00", CABC OFF

When CABC\_EN="01", use interface image.

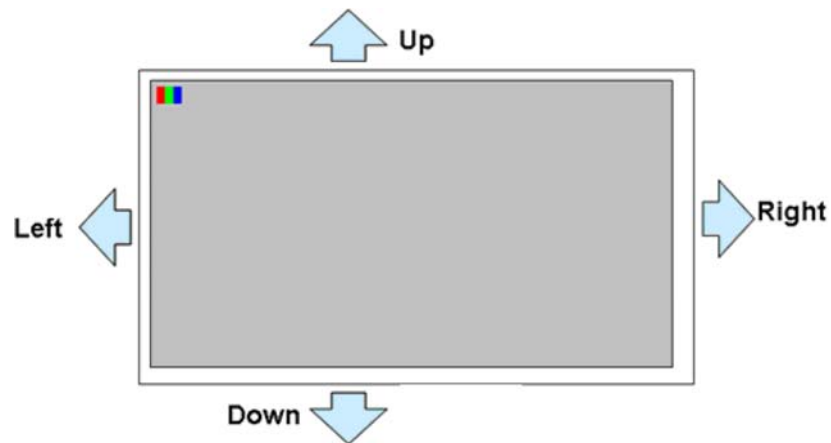
When CABC\_EN="10", still picture.

When CABC\_EN="11", moving image.

When CABC off, don't connect DIMO , else connect it to backlight.

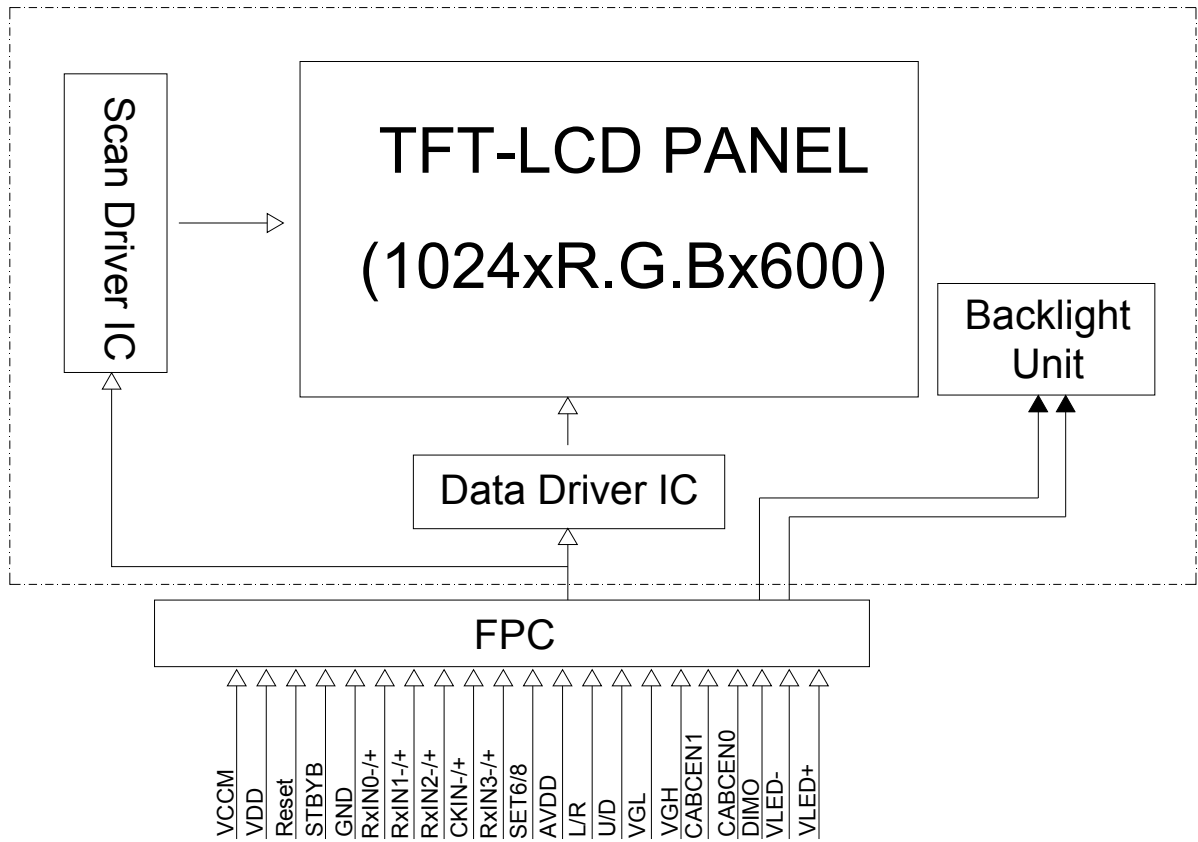
Note3:

U/D	L/R	FUNCTION
0	1	Normal display
0	0	Inverse Left and Right
1	1	Inverse Up and Down
1	0	Inverse Left and Right Inverse Up and Down





### 5. BLOCK DIAGRAM



## 6. ABSOLUTE MAXIMUM RATINGS

### 6.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT	REMARK
Power Voltage For LCD	VDD	-0.3	5.0	V	
	AVDD	6.5	13.5	V	
	VGH	-0.3	42.0	V	
	VHL	-20	0.3	V	
	VGH-VGL	-	40	V	
Logic Output Voltage	VI	-0.5	5.0	V	

Note: The absolute maximum rating values of this product not allowed to be exceeded at any times. Should be module be used with any of absolute maximum ratings exceeded. The characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

### 6.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature(°C)	-20	80	-30	80	Note 1,2
Humidity(% RH)	5~90		5~90		Note 3

Note 1 : The response time will become lower when operated at low temperature.

Note 2 : Background color changes slightly depending on ambient temperature.

Note 3 : Storage Ta=60°C & RH=90% ≤ 240Hrs.

## 7. ELECTRICAL CHARACTERISTICS

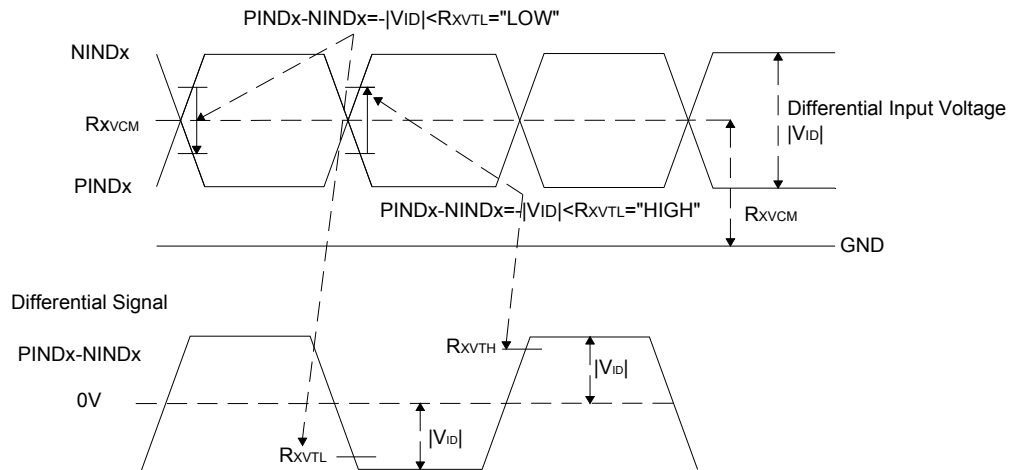
### 7.1 LCM ELECTRICAL CHARACTERISTICS

Ta=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Power Voltage For LCD	VDD	3.0	3.3	3.6	V	
	IDD*	-	38	60	mA	Note1
	AVDD	10.8	11	11.2	V	
	I <sub>AVDD</sub> *	-	20	30	mA	AVDD=11V
	VGH	19.7	20	20.3	V	
	I <sub>VGH</sub> *	-	0.25	1	mA	VGH=20V
	VGL	-6.5	-6.8	-7.1	V	
	I <sub>VGL</sub> *	-	0.25	1.0	mA	VGL=6.8V
	VCOM	2.7	(3.7)	4.7	V	
Input High Voltage	VIH	0.7 x VDD	-	VDD	mA	
Input Low Voltage	VIL	GND	-	0.3 x VDD	V	
Logic Input Voltage (LVDS:IN+,IN-)	VCM	VID /2	-	2.4- VID /2	V	Note1
	VID	200	-	600	mV	Note1
	VTH	-	-	+100	mV	VCM=1.2V
	VTL	-100	-	-	mV	

Note 1 : Test Condition: VDD=3.3V ; Test Pattern: Black.

Note 2 : Single-end Signals



## 7.2 BACKLIGHT UNITS

Ta=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
LED Driving Voltage	(VLED+)-(VLED-)	-	9.9	10.5	V	
LED Driving Current	(VLED+)-(VLED-)	-	360	420	mA	
LED Life Time	-	-	20000	-	Hr	

Note 1: The LED Supply Voltage is defined by the number of LED at Ta=25°C and  $I_L=360\text{mA}$ .

Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25°C and  $I_L=360\text{mA}$ . The LED lifetime could be decreased if operation  $I_L$  is larger than 360mA.

## 8. OPTICAL CHARACTERISTICS

Ta=25°C

ITEM	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	REMARK
Contrast Ratio	CR	Viewing Normal Angle $\Theta_x=\Theta_y=0^\circ$	600	700	-	-	Note 1
Response Time	TR		-	10	20	ms	Note 2
	TF		-	20	30	ms	
Chromaticity	White	x	(0.26)	(0.31)	(0.36)	-	Note 4
		y	(0.28)	(0.33)	(0.38)	-	
Viewing Angle	Hor.	$\theta_{x+}$	65	75	-	Deg.	Note 3
		$\theta_{x-}$	65	75	-		
	Ver.	$\theta_{y+}$	60	70	-		
		$\theta_{y-}$	65	75	-		
Luminance	L	$I_{VLED}=(360)mA$	(400)	(500)	-	cd/m <sup>2</sup>	
Luminance Uniformity	YU		70	75	-	%	Note 5

Note 1 : Definition of Contrast Ratio (CR) :

The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = L_{63}/L_0$$

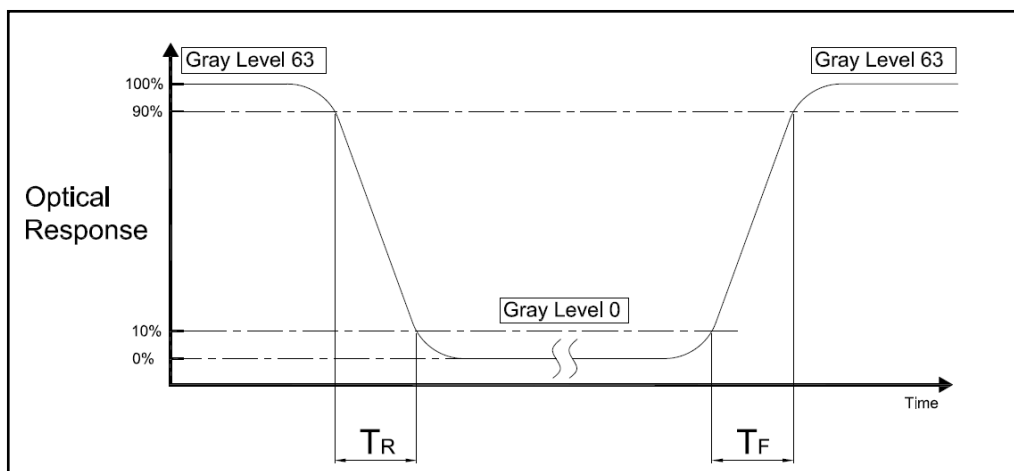
L63 : Luminance of gray level 63

L0 : Luminance of gray level 0

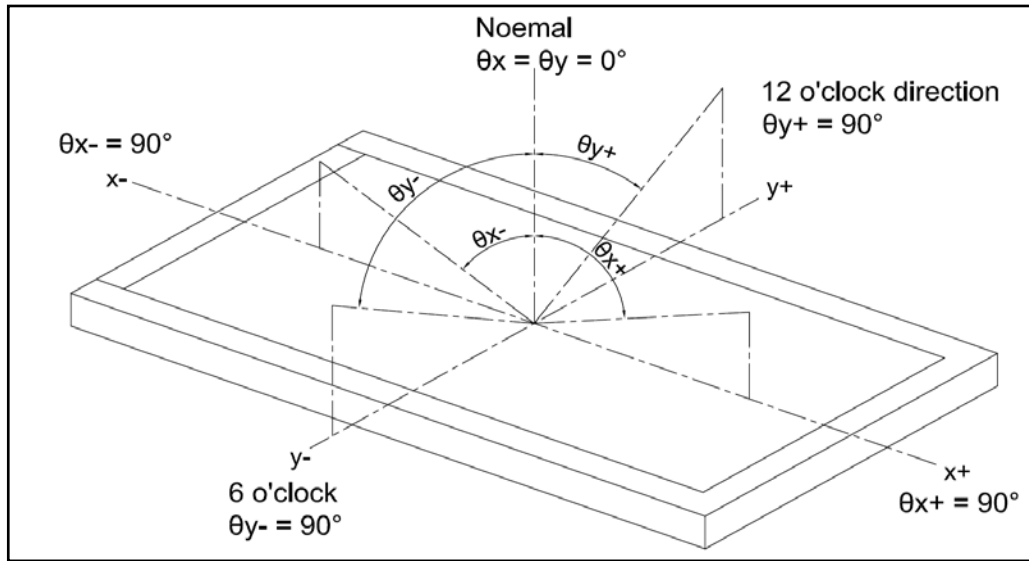
$$CR = CR(5)$$

CR(X) is corresponding to the Contrast Ratio of the point X at Figure in Note 5

Note 2 : Definition of Response Time (TR,TF)

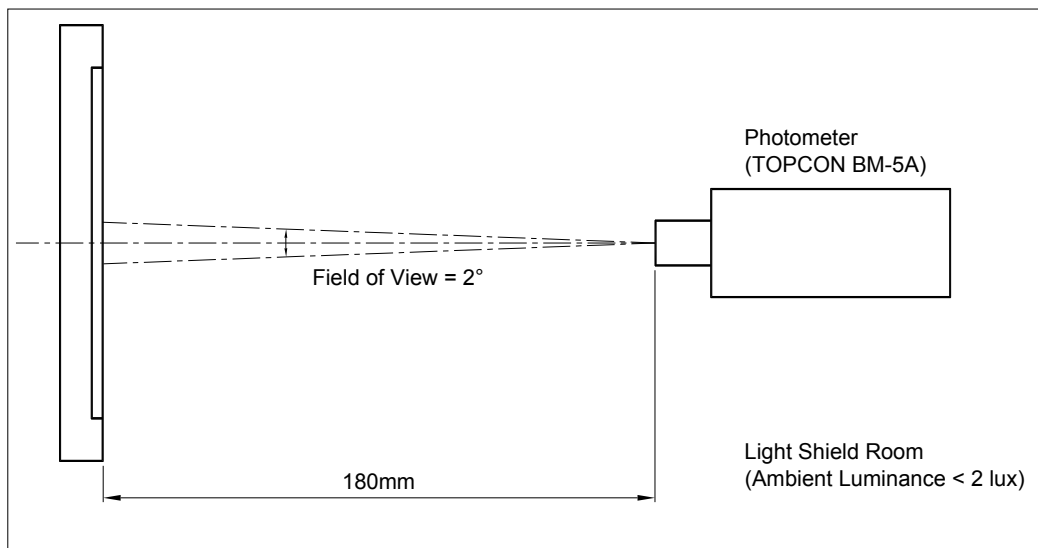


Note 3 : Definition of Viewing Angle

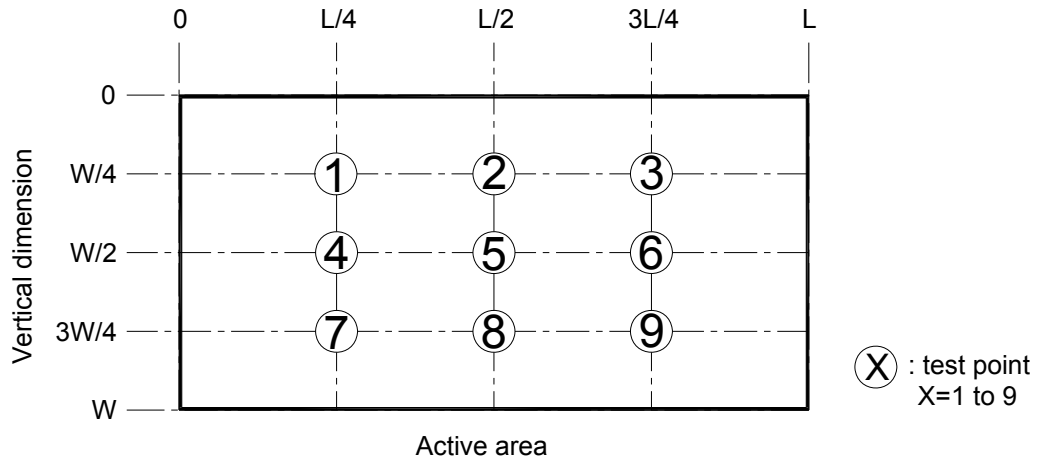


Note 4 : Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



Note 5 :

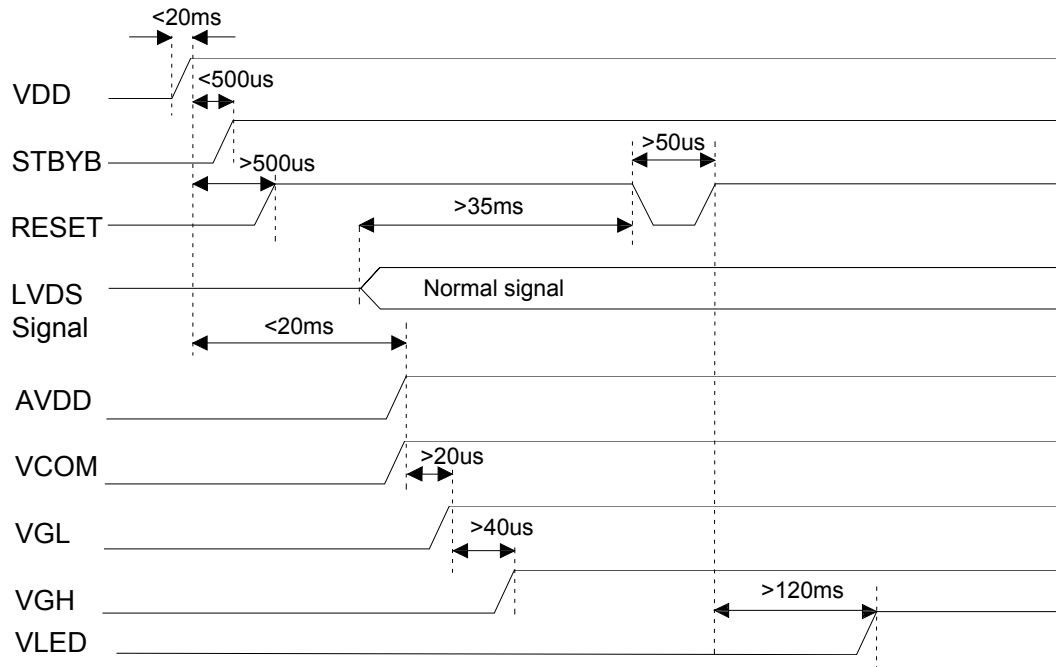


$$\left[ 1 - \frac{\text{MAX Luminance} - \text{Average Luminance}}{\text{Average Luminance}} \right] \times 100\% \geq 70\%$$

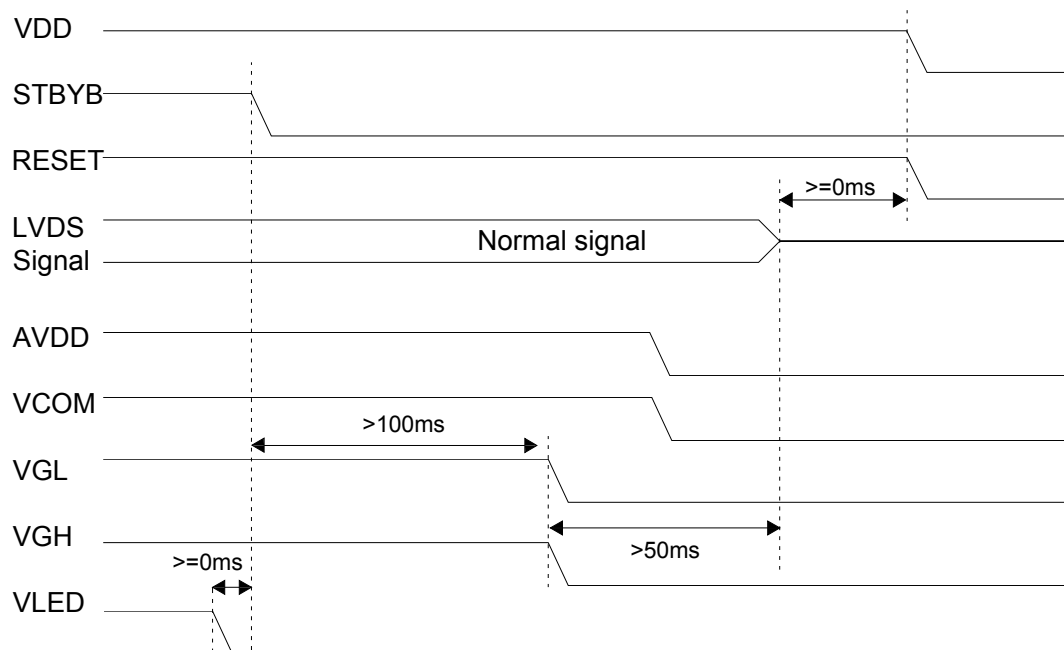
## 9. TIMING SPECIFICATIONS

### 9.1 POWER SIGNAL SEQUENCE

#### 9.1.1 Power on:



#### 9.1.2 Power off:





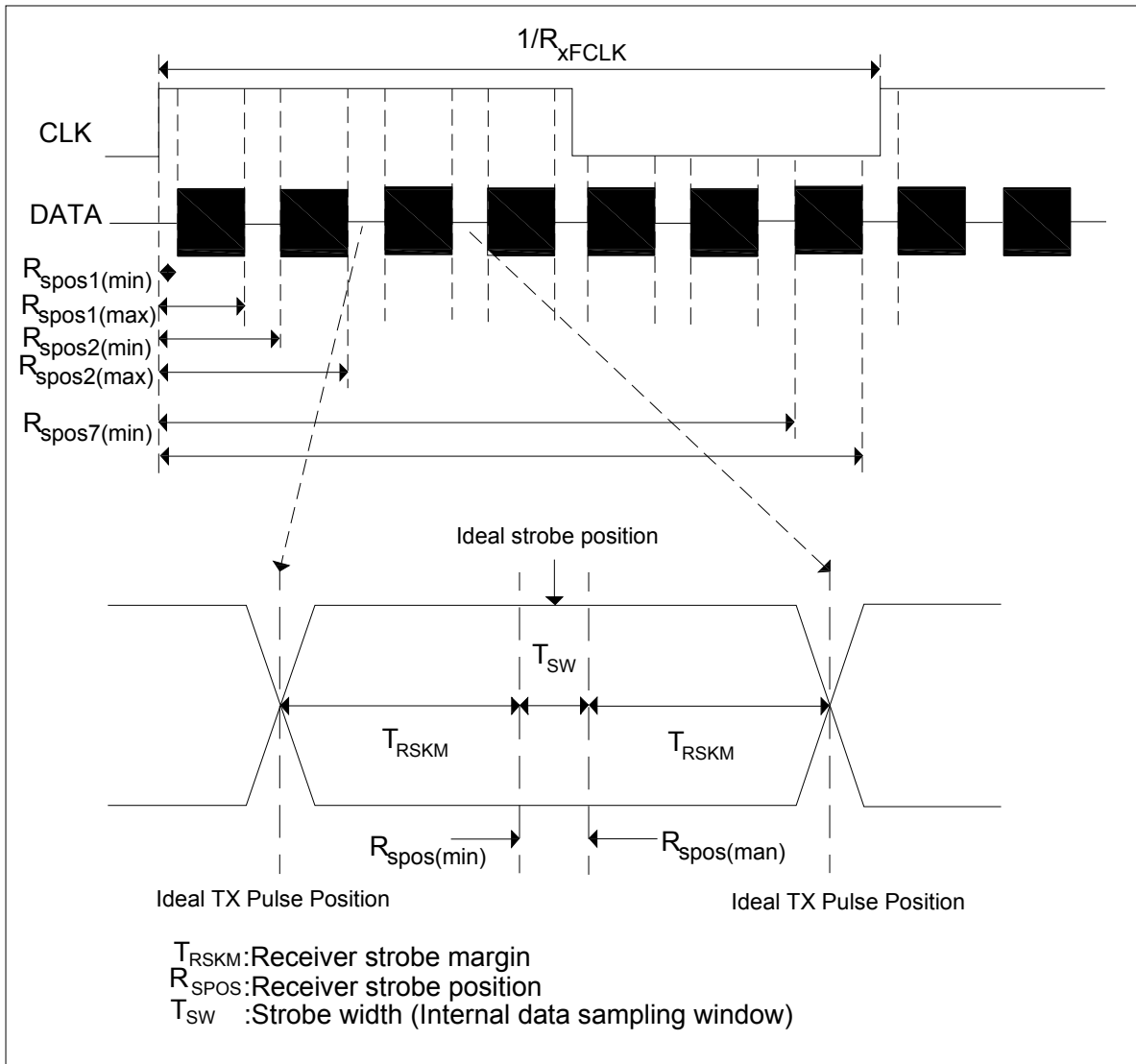
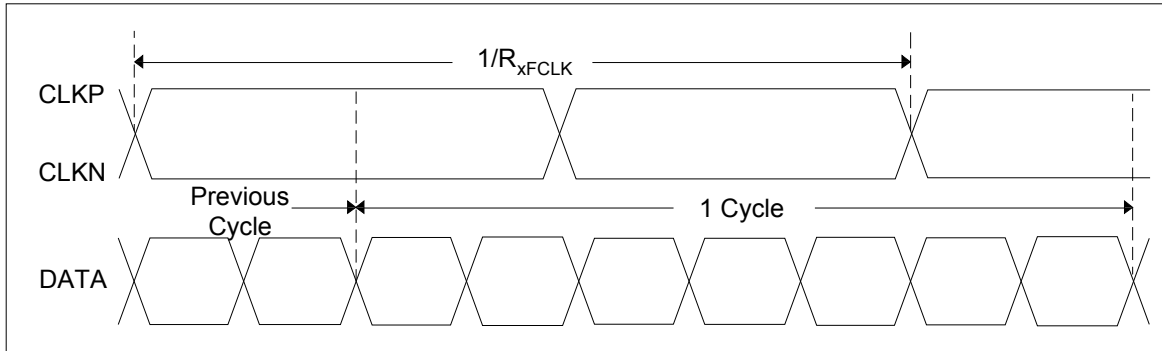
## 9.2 TIMING CHARACTERISTICS

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Clock Frequency**	fclk	40.8	51.2	67.2	MHz
HS period time	th	1114	1344	1400	DCLK
Horizontal display area	tha	1024			DCLK
HS Blanking	thb	90	320	376	DCLK
VS period time	tv	610	635	800	H
Vertical display area	Thb+thfp	600			H
VS Blanking	tvb	10	35	200	H

\*\*Frame rate = 60Hz

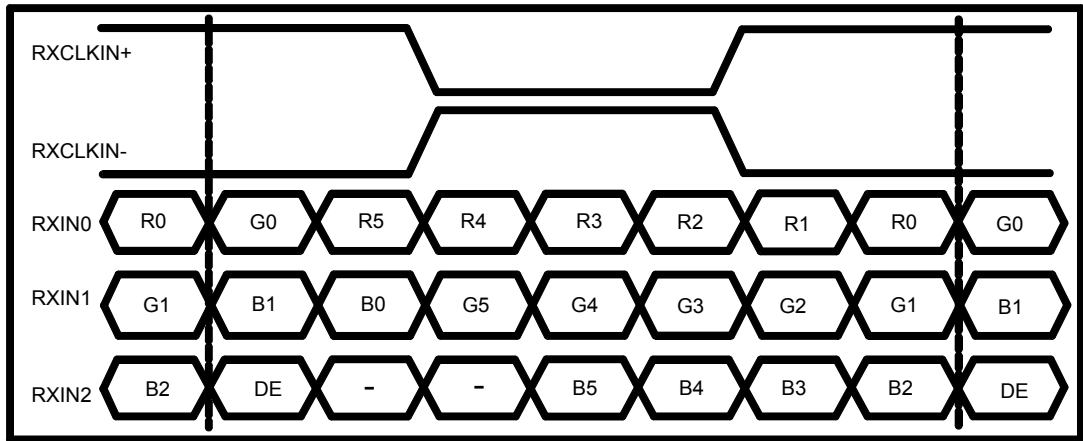
### 9.3 TIMING SEQUENCE(TIMING CHART)

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Clock frequency	$R_{XFCLK}$	20	-	71	MHZ	
Input data skew margin	$T_{RSKM}$	500	-	-	ps	
Clock high time	$T_{LVCH}$	-	$4/(7 * R_{XFCLK})$	-	ps	
Clock low time	$T_{LVCL}$	-	$3/(7 * R_{XFCLK})$	-	ps	

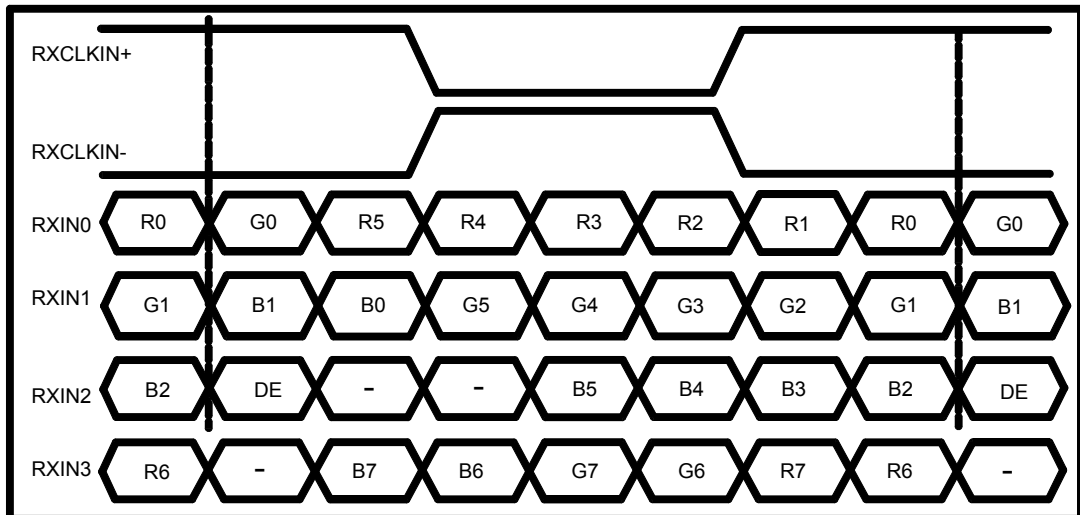


### 9.4 LVDS INPUT DATA MAPPING

#### 6bit LVDS input



#### 8bit LVDS input



Note:Support DE timing mode only.SYNC mode not supported

## 10 RELIABILITY TEST

ENVIRONMENTAL TEST				
NO.	ITEM	CONDITIONS	TIME PERIOD	REMARK
1	High Temperature Storage	80°C	240HRS	
2	Low Temperature Storage	-30°C	240HRS	
3	High Temperature Operation	80°C	240HRS	
4	Low Temperature Operation	-20°C	240HRS	
5	Temperature Cycle	-20°C~80°C	1HRS/ 100CYCLE	
6	High Temperature Humidity Storage	60°C 90%RH	240HRS	

NOTE 1 : a. The module should work properly.  
 b. Before and after function test, The difference of consumptive current. Should be within 10%.

NOTE 2 : a. The module should work properly.  
 b. The module won't be deformative, Color changeable or broken.  
 c. The modules can't be apart.

NOTE 3 : a. Before cosmetic and function test, The product must have enough recovery time, At least 2 hours at room temperature.

## 11. LCM INSPECTION STANDARD

Inspection specifications refer ONation Corporation LCM INSPECTION STANDARD Document.  
Document Number : TBD

## 12 PACKAGE INFORMATION

LCM Model	LCM Qty. in the box	Inner Box Size (mm)	Weight	REMARK
OT080ZADDLN-00	TBD	TBD	TBD	

## 13.PRECAUTIONS FOR USE

### 13.1 SAFETY

- (1) Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
- (2) If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
- (3) If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

### 13.2 STORAGE CONDITIONS

- (1) Store the panel or module in a dark place where the temperature is  $23\pm 5^{\circ}\text{C}$  and the humidity is below  $50\pm 20\%\text{RH}$ .
- (2) Store in anti-static electricity container.
- (3) Store in clean environment, free from dust, active gas, and solvent.
- (4) Do not place the module near organics solvents or corrosive gases.
- (5) Do not crush, shake, or jolt the module.

### 13.3 HANDLING PRECAUTIONS

- (1) Avoid static electricity which can damage the CMOS LSI.
- (2) The polarizing plate of the display is very fragile. So, please handle it very carefully.
- (3) Do not give external shock.
- (4) Do not apply excessive force on the surface.
- (5) Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the Surface of plate.
- (6) Do not use ketonics solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
- (7) Do not operate it above the absolute maximum rating.
- (8) Do not remove the panel or frame from the module.
- (9) When the module is assembled, it should be attached to the system firmly, Be careful not to twist and bend the module.
- (10) Wipe off water droplets or oil immediately . If you leave the droplets for a long time, staining and discoloration may occur.
- (11) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs or clothes, it must be washed away thoroughly with soap.

### 13.4 WARRANTY

- (1) Acceptance inspection period  
The period is within one month after the arrival of contracted commodity at the buyer's factory site.
- (2) Applicable warrant period  
The period is within 12 months since the date of shipping out under normal using and storage conditions.