

# TFT-DISPLAY DATASHEET

ONation  
Model:OT080FSDDDV-00

## BRIEF SPEC.:

Main Feature	LandscapeType Transmissive
Active Screen Area	162 x 121.5 (mm)
Diagonal   Format	8 "   4:3
Resolution	800 X 600
Colors	(6 Bit)
Backlight	LED White
Brightness	250 cd/m <sup>2</sup>
LED Life Time	
Interface	TTL
Viewing Angle	70/70 L/R 50/70 up/down
Touchscreen	no
Power Supply	3.3 V (Typ.)
Module Outline	183.0 x 141.0x 10.3(mm)
Operation Temperature	-20... +70 °C
Storage Temperature	-30... +80 °C
Surface Treatment	Anti-glare



# ONation Corporation

## CUSTOMER' S APPROVAL SPECIFICATIONS

**MODEL: OT080FSDDDV-00**  
**(Complied with RoHS)**

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

Version:P0.1

### CONTENTS

ISSUE:DEC.15.2011

Spec Condition:preliminary

NO.	ITEM	PAGE
1	COVER	--
2	RECORD OF REVISION	0-1
3	MECHANICAL SPECIFICATIONS	1
4	OUTLINE DIMENSIONS	2
5	INTERFACE PIN CONNECTION	3
6	BLOCK DIAGRAM	4
7	ABSOLUTE MAXIMUM RATINGS	4
8	ELECTRICAL CHARACTERISTICS	5
9	OPTICAL CHARACTERISTICS	6-8
10	TIMING SPECIFICATIONS	9-10
11	RELIABILITY TEST	11
12	PRECAUTIONS FOR USE	12

CUSTOMER	ONATION		
APPROVAL	APPROVAL	CHECKER	PREPARE
	<i>ch lee</i>	<i>ch lee</i>	<i>lan</i>

## 2.RECORD OF REVISION

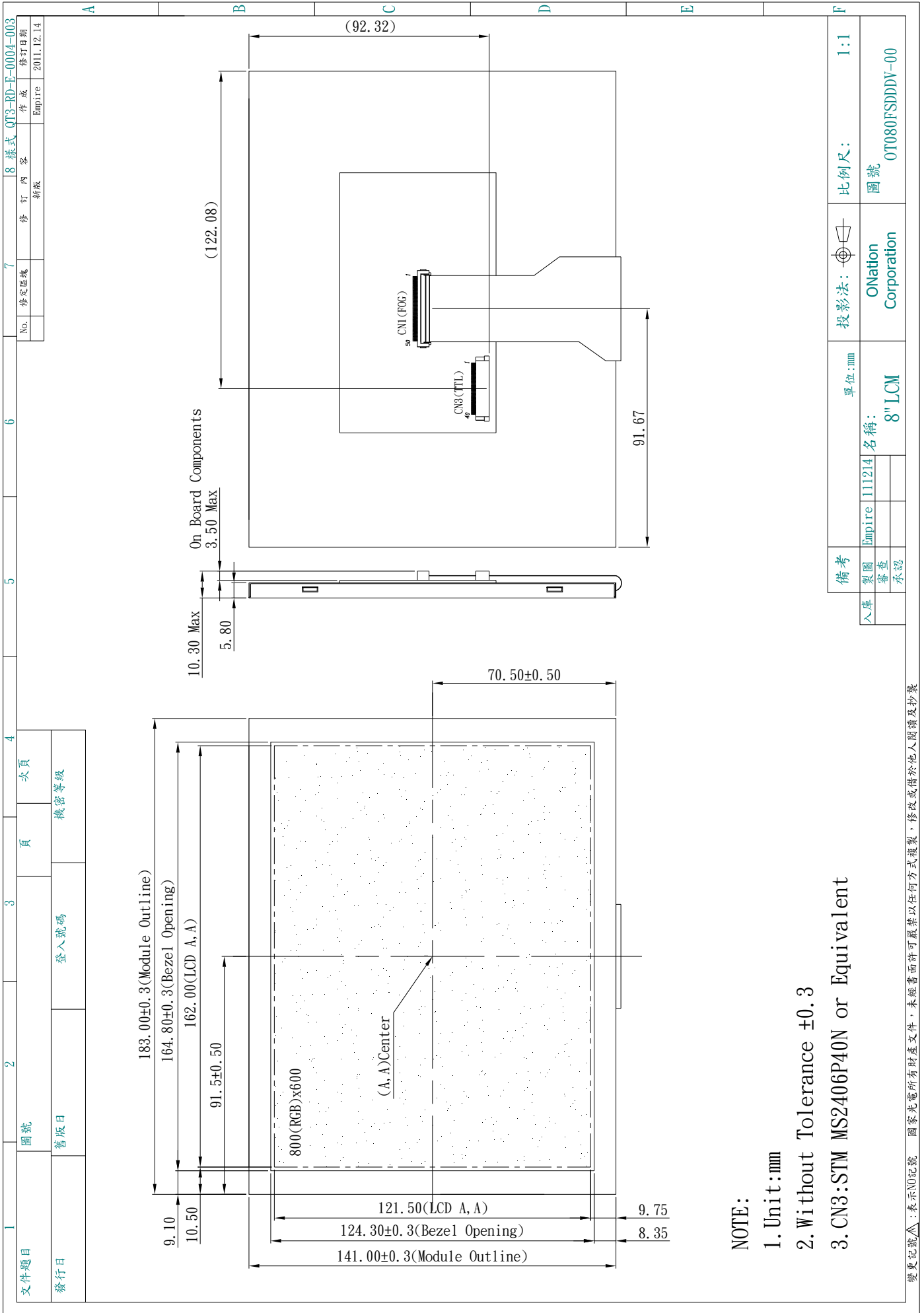
REV	DATE	PAGE	SUMMARY
0.1	2011.12.15	ALL	Preliminary specification was first issued

### 3.MECHANICAL SPECIFICATIONS

(1)	Number Of Dots (Dots)	800(R.G.B) X 600
(2)	Module Size(mm)	183.0(W) X 141.0(H) X 10.3(D) (**)
(3)	Active Area(mm)	162(H) X 121.5(V)
(4)	Pixel Pitch(mm)	0.2025 (H) X 0.2025(V)
(5)	LCD / Polarizer Model	TFT , Transmissive, Normally/White,Anti-glare
(6)	Backlight Color	White,LED
(7)	Viewing Direction	12 O'clock
(8)	Gray Scale Inversion Direction	6 O'clock
(9)	Electrical Interface	TTL Interface
(10)	Color Configuration	R.G.B Stripe
(11)	Module Weight(g)	(TBD)

(\*\* )Module include PCB and component.

# 4. OUTLINE DIMENSIONS



## 5. INTERFACE PIN CONNECTION

### 5.1 LCM PANEL DRIVING SECTION

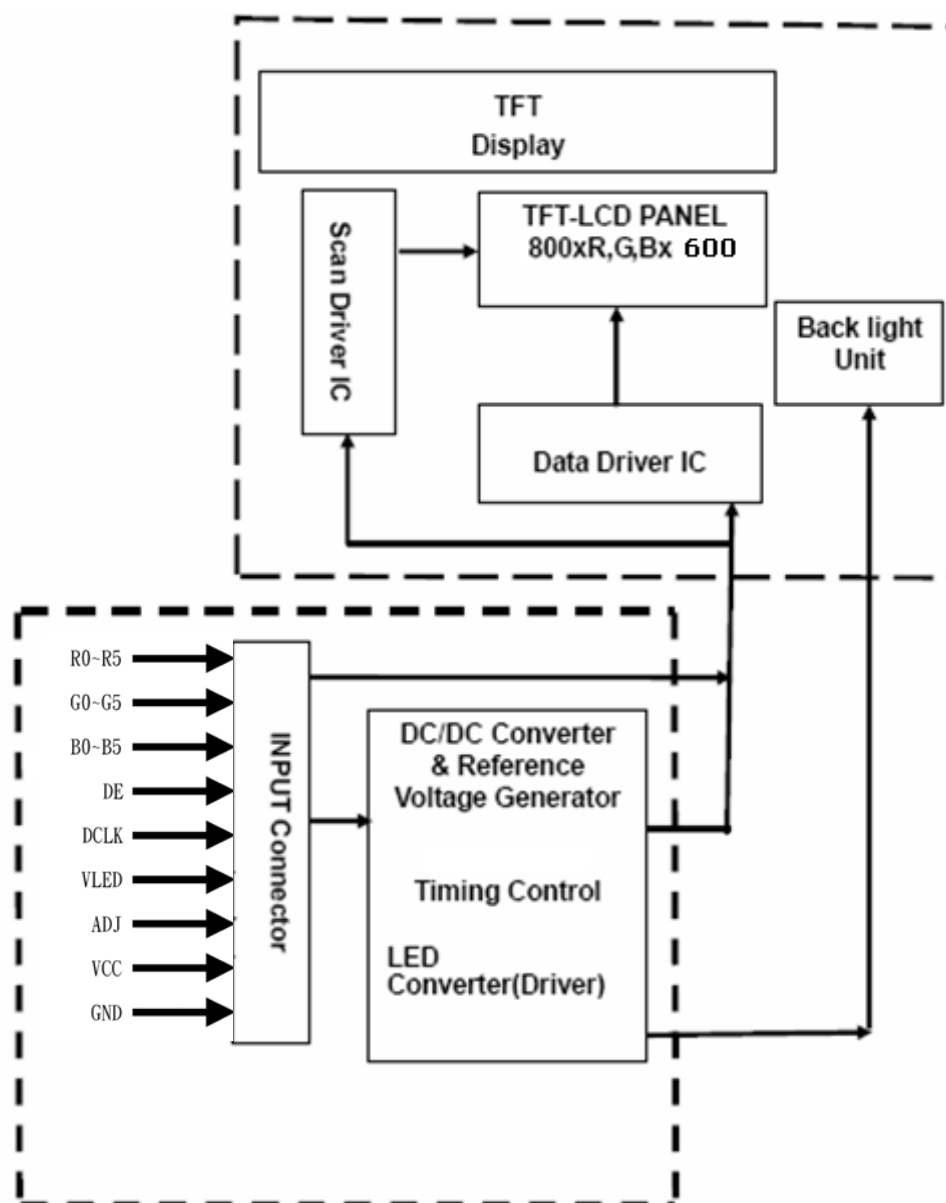
(CN3 Connector: STM MS2406P40N or Equivalent)

PIN NO.	SIGNAL	FUNCTION
1	GND	GROUND
2	GND	GROUND
3	ADJ	Brightness Control For LED B/L
4	VLED	POWER SUPPLY FOR LED DRIVER CIRCUIT
5	VLED	POWER SUPPLY FOR LED DRIVER CIRCUIT
6	VLED	POWER SUPPLY FOR LED DRIVER CIRCUIT
7	VCC	POWER SUPPLY FOR DIGITAL CIRCUIT
8	VCC	POWER SUPPLY FOR DIGITAL CIRCUIT
9	DE	DATA ENABLE
10	GND	GROUND
11	GND	GROUND
12	GND	GROUND
13	B5	BLUE DATA SIGNAL(MSB)
14	B4	BLUE DATA SIGNAL
15	B3	BLUE DATA SIGNAL
16	GND	GROUND
17	B2	BLUE DATA SIGNAL
18	B1	BLUE DATA SIGNAL
19	B0	BLUE DATA SIGNAL(LSB)
20	GND	GROUND
21	G5	GREEN DATA SIGNAL(MSB)
22	G4	GREEN DATA SIGNAL
23	G3	GREEN DATA SIGNAL
24	GND	GROUND
25	G2	GREEN DATA SIGNAL
26	G1	GREEN DATA SIGNAL
27	G0	GREEN DATA SIGNAL(LSB)
28	GND	GROUND
29	R5	RED DATA SIGNA(MSB)
30	R4	RED DATA SIGNA
31	R3	RED DATA SIGNA
32	GND	GROUND
33	R2	RED DATA SIGNA
34	R1	RED DATA SIGNA
35	R0	RED DATA SIGNA(LSB)
36	GND	GROUND
37	GND	GROUND
38	DCLK	CLOCK SIGNALS
39	GND	GROUND
40	GND	GROUND

Remarks:

1. ADJ is brightness control PIN.
2. ADJ signal is 0~3.3V, Operation frequency is 20KHz ~ 200KHz

## 6. BLOCK DIAGRAM



## 7. ABSOLUTE MAXIMUM RATINGS

### 7.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT	REMARK
Digital Supply Voltage	VCC	-0.3	+5.0	V	
Logic Input Voltage	V <sub>IN</sub>	-0.3	VCC+0.3	V	
Logic Output Voltage	V <sub>OUT</sub>	-0.3	VCC+0.3	V	

### 7.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature(°C)	-20	70	-30	80	Note 1,2,3
Humidity(% RH)	-	90	-	90	Note 4

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 : Operation Ta=70°C & -20°C ≤ 240Hrs.

Note 4 : Operation Ta=40°C & RH=90% ≤ 240Hrs.

## 8.ELECTRICAL CHARACTERISTICS

### 8.1 ELECTRICAL CHARACTERISTICS OF LCD

Ta=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Power Voltage For LCD	VCC	3.0	3.3	3.6	V
	ICC	-	(200)	(250)	mA
TFT Device On Voltage	V <sub>GH</sub>	15.3	16	16.7	V
TFT Device Off Voltage	V <sub>GL</sub>	-7.7	-7.0	-6.3	V
Common Power Supply Voltage	VCOM	2.8	(3.8)	4.8	V
LED Driving Voltage	VLED	3	5	5.5	V
	I <sub>LED</sub> (VLED =5V)	-	(520)	(600)	mA
ADJ Input Voltage	V <sub>IH</sub>	1.4	-	-	V
	V <sub>IL</sub>	-	-	0.4	
ADJ Frequency	-	20	-	200	KHz

Note 1 : Test condition : VCC=3.3V ; Test Pattern : Black

Note 2 : Please adjust VCOM to make the flicker level be minimum.



## 9.OPTICAL CHARACTERISTICS

Ta=25°C

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS				REMARK
				MIN.	TYP.	MAX.	UNIT	
Contrast Ratio		CR	Viewing Normal Angle $\Theta_x=\Theta_y=0^\circ$	400	500	-	-	Note (1)
Response Time		TR		-	10	20	ms	Note (2)
		TF		-	15	30	ms	
Chromaticity	White	XW	$\Theta_x=\Theta_y=0^\circ$	0.26	0.31	0.36	-	Note (4)
		YW		0.28	0.33	0.38	-	
Viewing Angle	Hor.	$\Theta_{x+}$	Viewing Angle $\Theta_x=\Theta_y=0^\circ$ CR $\geq 10$	60	70	-	Deg.	Note (3)
		$\Theta_{x-}$		60	70	-		
	Ver.	$\Theta_{y+}$		40	50	-		
		$\Theta_{y-}$		60	70	-		
NTSC		-	-	-	50	-	%	
Luminance		L	ADJ=	200	250	-	cd/m <sup>2</sup>	
Luminance Uniformity		YU	3.3V	70	75	-	%	Note (5)

\*Note (1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

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

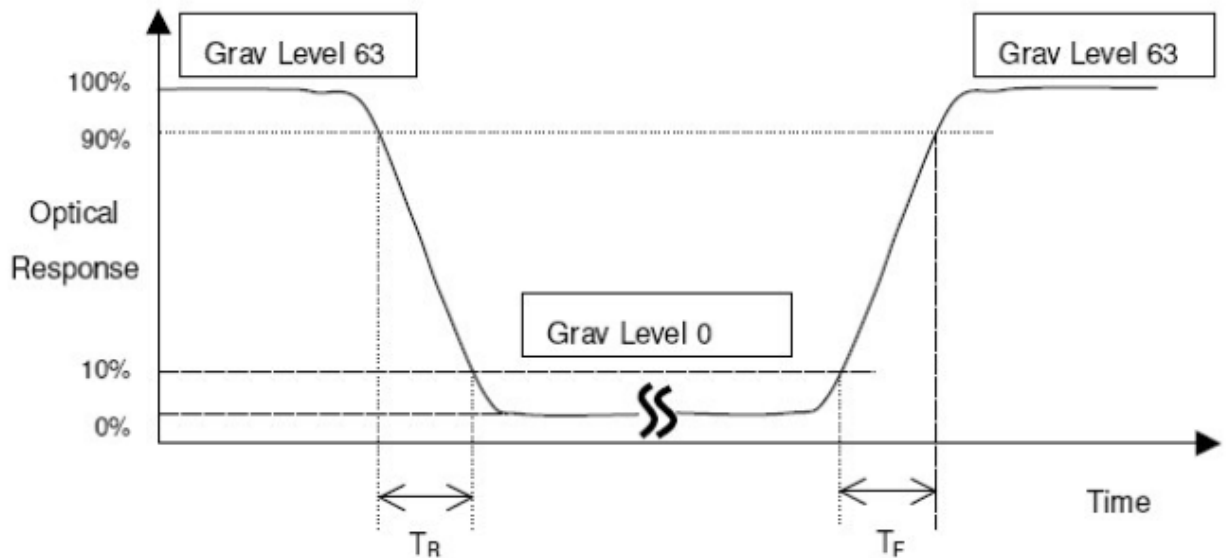
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

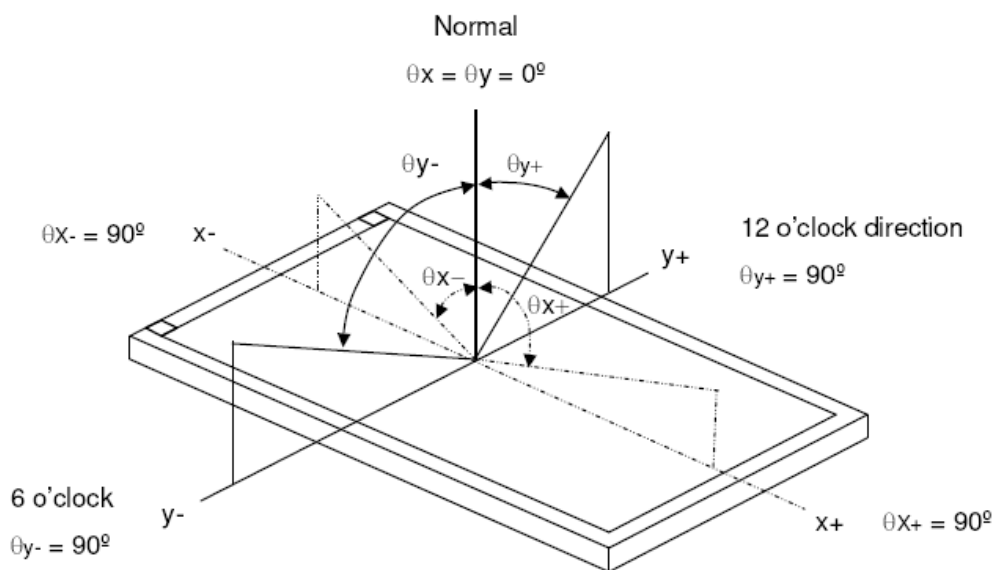
$$CR = CR (5)$$

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

\*Note (2) Definition of Response Time ( $T_R$ ,  $T_F$ ):

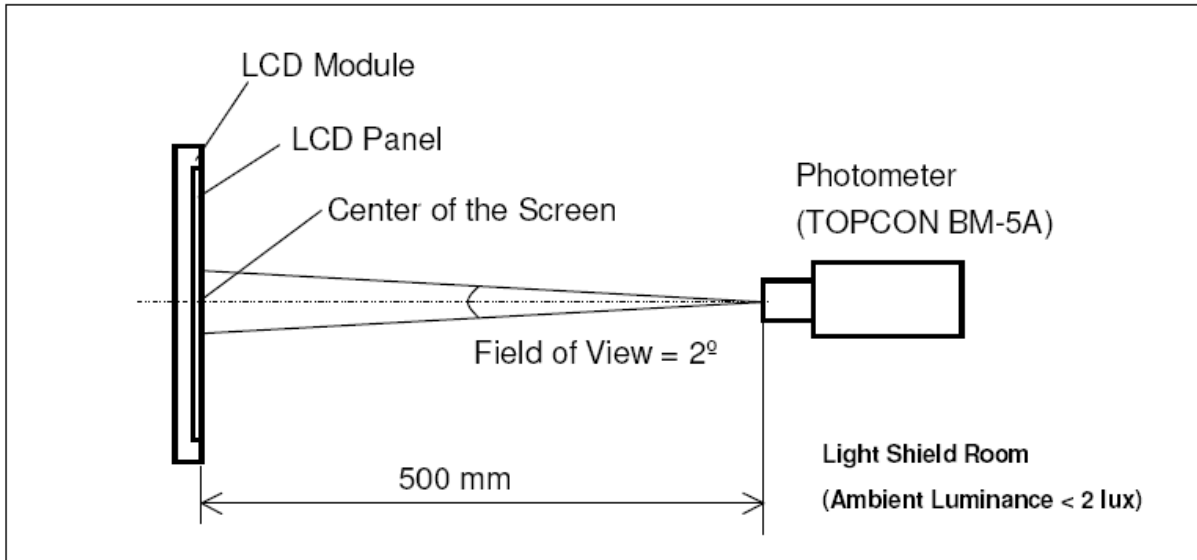


\*Note(3) Definition of Viewing Angle

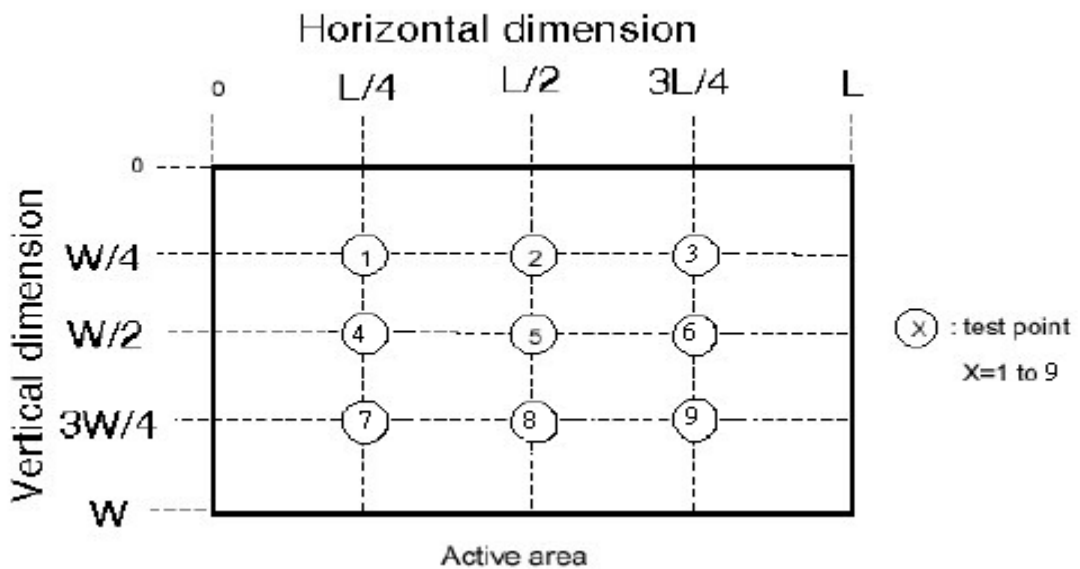


\*Note (4) Measurement Set-Up:

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



\*Note (5)



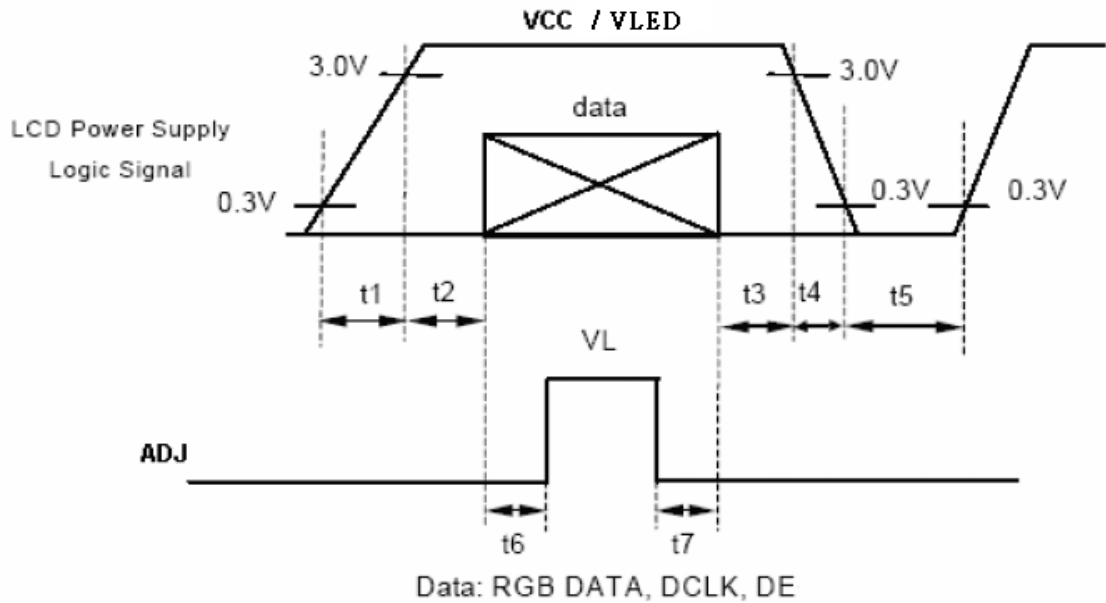
$$\left( 1 - \frac{\text{MAX Luminance} - \text{Average Luminance}}{\text{Average Luminance}} \right) \times 100\% > 70\%$$

# 10. TIMING SPECIFICATIONS

## 10.1 POWER SIGNAL SEQUENCE

Power Signal sequence:

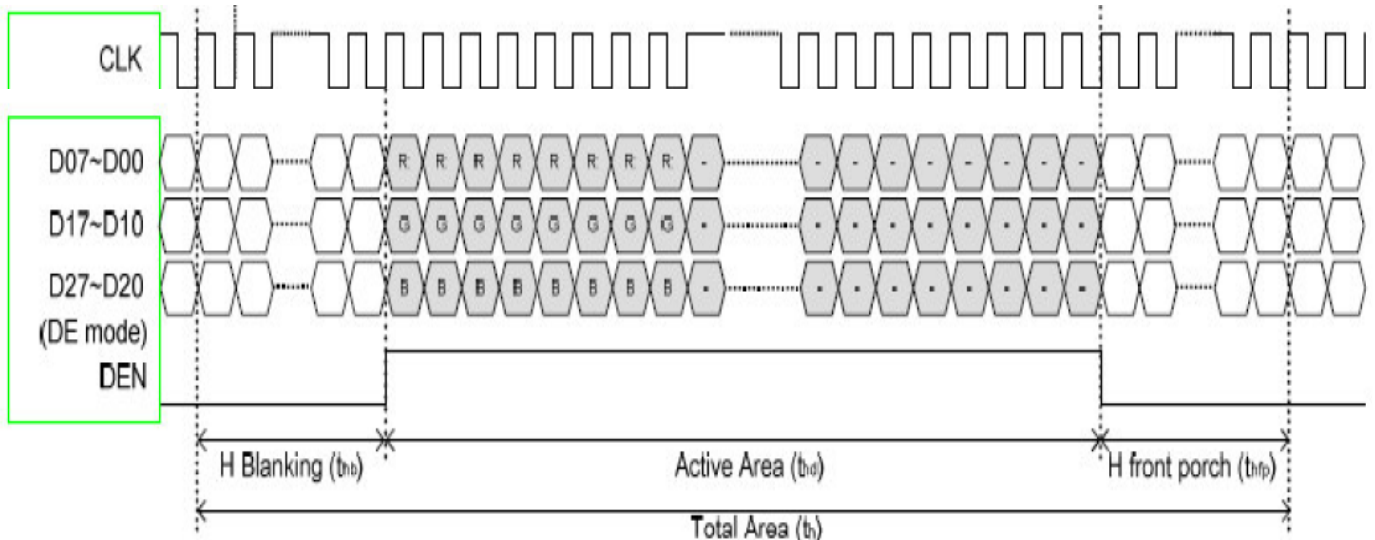
- $t1 \leq 10ms$  ;  $1 \text{ sec} \leq t5$
- $200ms \leq t2$  ;  $200ms \leq t6$
- $0 < t3 \leq 50ms$  ;  $200ms \leq t7$
- $0 < t4 \leq 10ms$



## 10.2 TIMING CHARACTERISTICS

PARAMETER	SYMBOL	SPECIFICATIONS			UNIT
		MIN.	TYP.	MAX.	
Horizontal Display Area	thd	-	800	-	CLK
CLK Frequency	fclk	-	40	50	MHz
One Horizontal Line	th	862	1056	1200	CLK
HS Back Porch	thb	46			CLK
HS Front Porch	thfp	16	210	354	CLK

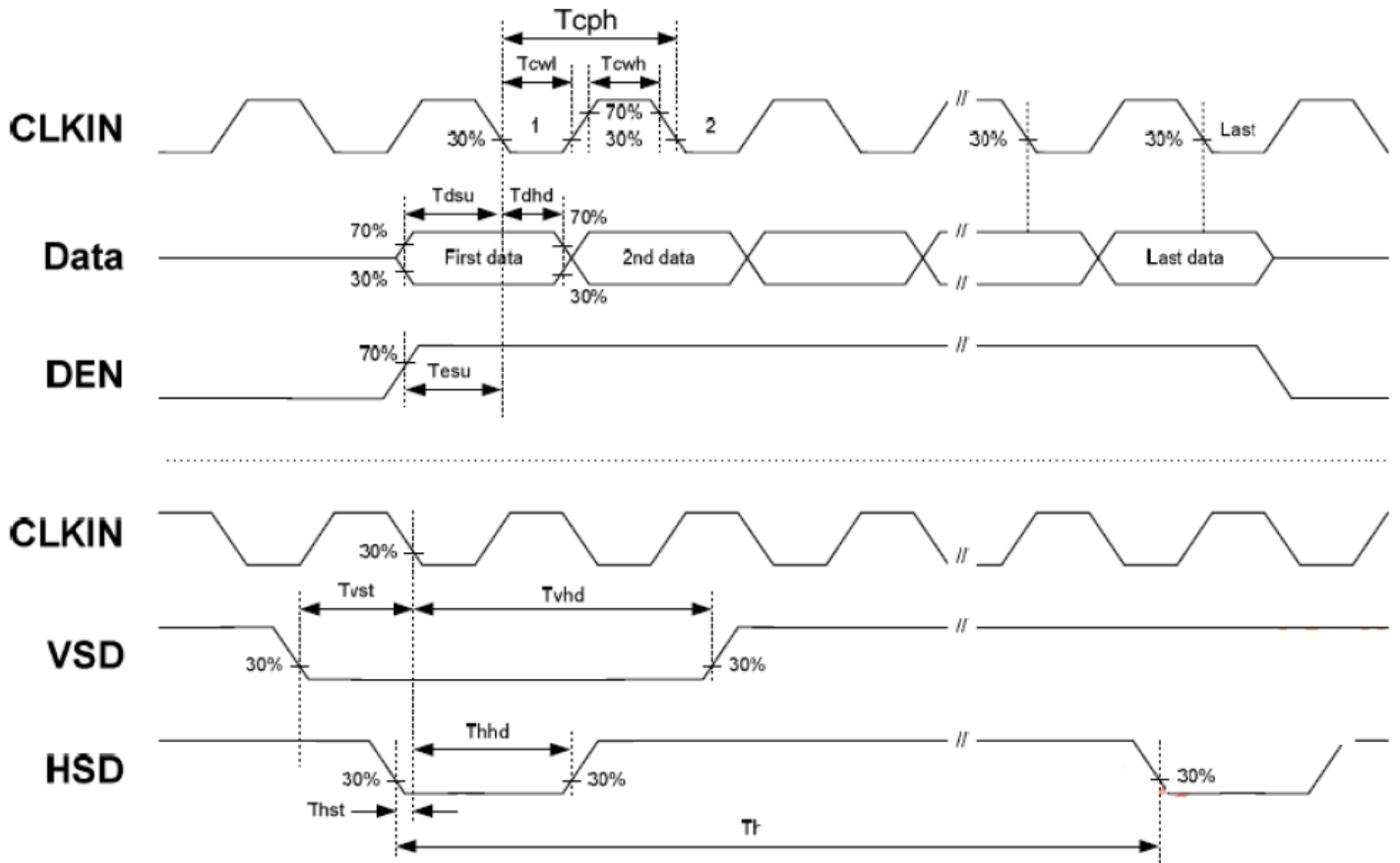
## 10.3 TIMING CHARACTERISTICS DIAGRAMS



### 10.4 AC TIMING CHARATERISTICS

(VCC=3.0 to 3.6V, GND=0V, Ta=-20 to +70°C)

ITEM	SYMBOL	SPECIFICATIONS			UNIT	REMARK
		MIN.	TYP.	MAX.		
HS setup time	Thst	8	-	-	Ns	
HS hold time	Thhd	8	-	-	Ns	
VS setup time	Tvst	8	-	-	Ns	
VS hold time	Tvhd	8	-	-	Ns	
Data setup time	Tdsu	8	-	-	Ns	
Data hold time	Tdhd	8	-	-	Ns	
DE setup time	Tesu	8	-	-	Ns	
DE hold time	Tehd	8	-	-	Ns	
VDD Power On Slew rate	TPOR	-	-	20	ms	
RSTB pulse width	TRst	10	-	-	us	
CLKIN cycle time	Tcoh	20	-	-	Ns	
CLKIN pulse duty	Tcwh	40	50	60	%	
Output stable time	Tsst	-	-	6	us	



## 11. RELIABILITY TEST

ENVIRONMENTAL TEST				
NO.	ITEM	CONDITIONS	TIME PERIOD	REMARK
1	High Temperature Storage	80°C	240HRS	
2	Low Temperature Storage	-30±3°C	240HRS	
3	High Temperature Operation	70°C	240HRS	
4	Low Temperature Operation	-20°C	240HRS	
5	Temperature Cycle	-20°C ← 25°C → 70°C (30min) (5min) (30min)	100CYCLE	
6	High Temperature Humidity Operation	40°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 MODLUE WON'T BE DEFORMATIVE, COLOR CHANGEABLE OR BROKEN.  
c. THE MODULES CAN'T BE APART.

## 12. PRECAUTIONS FOR USE

### 12.1 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.

### 12.2 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.

### 12.3 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.

### 12.4 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.