

TFT-DISPLAY DATASHEET

ONation
Model: OT101DAWDLV-HO

BRIEF SPEC.:

Main Feature	Landscape Type White LED Backlight Wide Viewing Angle
Active Screen Area	222.72 x 125.28 (mm)
Diagonal Format	10,1" 16:9
Resolution	1024 x 600
Colors	R.G.B Stripe
Backlight	LED, White
Brightness	1000 cd/m ²
LED Life Time	50,000h (Typ.)
Interface	LVDS
Viewing Angle	-70~80(H), -70~80(V) no
Touchscreen	3,3V (Typ.)
Power Supply	224 x 143 x 12,4 (mm)
Module Outline	
Operation Temperature	-30... +70 °C
Storage Temperature	-30... +80 °C
Surface Treatment	N/A



ONation Corporation

TFT COLOR LCD MODULE

MODEL: OT101DAWDLV-H0
(Complied with RoHS)

WSVGA
LVDS interface

Version: P0.1

Customer : _____
Approved By : _____
Date: _____

ONATION		
APPROVAL	CHECKER	PREPARE

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

C O N T E N T S

NO.	ITEM	PAGE
1	RECORD OF REVISION	0-1
2	MECHANICAL SPECIFICATIONS	1
3	OUTLINE DIMENSIONS	2
4	INTERFACE PIN CONNECTION	3~4
5	BLOCK DIAGRAM	5
6	ABSOLUTE MAXIMUM RATINGS	6
7	ELECTRICAL CHARACTERISTICS	7
8	OPTICAL CHARACTERISTICS	8~10
9	TIMING SPECIFICATIONS	11~12
10	RELIABILITY TEST	13
11	LCM INSPECTION STANDARD	14
12	PACKAGE INFORMATION	14
13	PRECAUTIONS FOR USE	15

1.RECORD OF REVISION

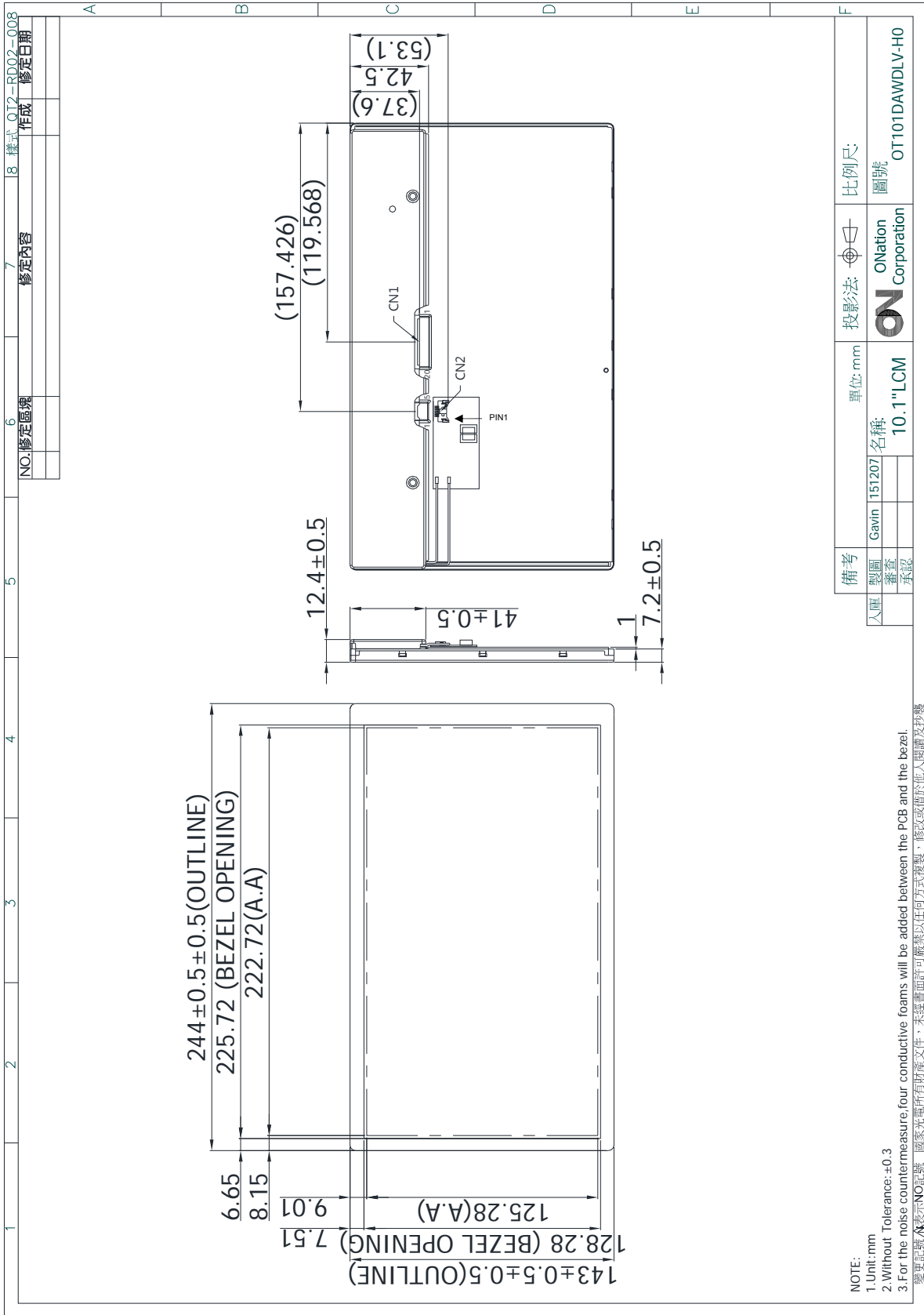
REV	DATE	PAGE	SUMMARY
0.1	2015.12.10	ALL	Preliminary specification was first issued.

2.MECHANICAL SPECIFICATIONS

(1)	Number Of Dots (Dots)	1024(R.G.B) X 600
(2)	Module Size(mm)	224(H) X 143(V) X 124(D) (**)
(3)	Active Area(mm)	222.72(H) X 125.28(V)
(4)	Pixel Pitch(mm)	0.2175 (H) X 0.2088(V)
(5)	LCD / Polarizer Model	TFT , Transmissive, Normally/White
(6)	Backlight Color	White, LED
(7)	Viewing Direction	Wide View Angle Horizontal : Right side 80°(typ.), Left side 80°(typ.) Vertical : Up side 80°(typ.), Down side 80°(typ.)
(8)	Gray Scale Inversion Direction	NO GSI
(9)	Electrical Interface	LVDS Interface
(10)	Color Configuration	R.G.B Stripe
(11)	Module Weight(g)	TBD

(**)Module include PCB and component.

3. OUTLINE DIMENSIONS



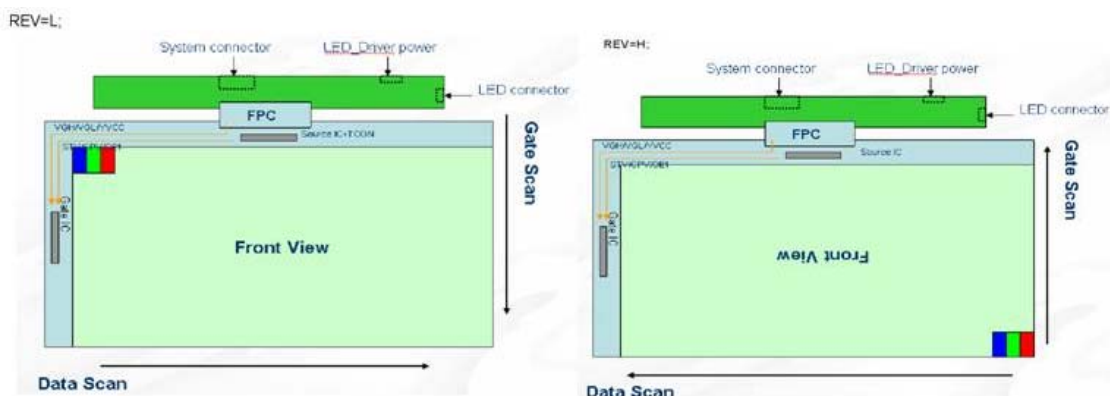
4. INTERFACE PIN CONNECTION

4.1 LCM PANEL DRIVING SECTION

CN1:STM MSB240420HD or equivalent

PIN NO.	SIGNAL	FUNCTION	REMARK
1	VCC	Digital Power	
2	VCC	Digital Power	
3	GND	Ground	
4	REV	Reverse Scan Selection(H: right to left ,down to up ; L : left to right , up to down)	Note1
5	RxIN0-	Differential Clock Input,CH0(Negative)	
6	RxIN0+	Differential Clock Input,CH0(Positive)	
7	GND	Ground	
8	RxIN1-	Differential Clock Input,CH1(Negative)	
9	RxIN1+	Differential Clock Input,CH1(Positive)	
10	GND	Ground	
11	RxIN2-	Differential Clock Input,CH2(Negative)	
12	RxIN2+	Differential Clock Input,CH2(Positive)	
13	GND	Ground	
14	RxCLKIN-	Differential Clock Input (Negative)	
15	RxCLKIN+	Differential Clock Input (Positive)	
16	GND	Ground	
17	RxIN3-	Differential Clock Input,CH3(Negative)	
18	RxIN3+	Differential Clock Input,CH3(Positive)	
19	SEL68	6/8 bits LVDS data input selection(H:8bit;L/Floating:6bit)	
20	NC	No connection	

Note1:

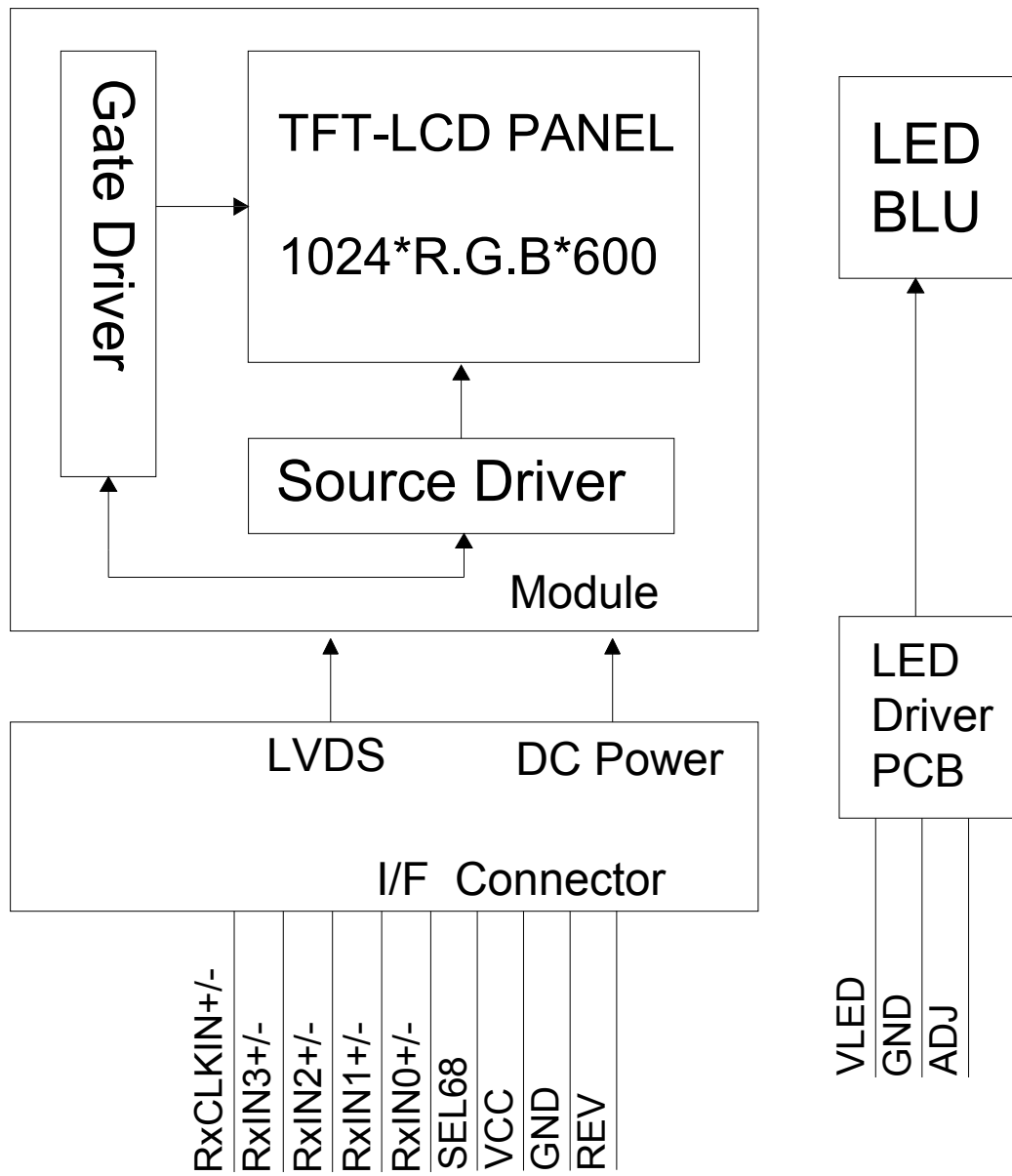


4.2 BACKLIGHT PANEL DRIVING SECTION

Mating Connector : 3808K-Q05N-03R or Equivalen

PIN NO.	SIGNAL	FUNCTION
1	VLED	Power Supply for LED Circuit
2	VLED	Power Supply for LED Circuit
3	GND	Ground
4	GND	Ground
5	ADJ	Adjust Brightness Control For LED B/L

5. BLOCK DIAGRAM



6. ABSOLUTE MAXIMUM RATINGS

6.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT	REMARK
Supply Voltage For LCM	VCC	-0.3	+3.6	V	
	VLED	-0.3	50	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)	-30	(70)	-30	80	Note 1,2
Humidity(% RH)	10	85	10	95	

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=50°C & RH=85% ≤ TBD Hrs.

7. ELECTRICAL CHARACTERISTICS

7.1 ELECTRICAL CHARACTERISTICS OF LCD

Ta=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Power Voltage For LCD	VCC	3.0	3.3	3.6	V	
	ICC	-	-	191	mA	Note 1

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

7.2 BACKLIGHT UNITS

Ta=25°C

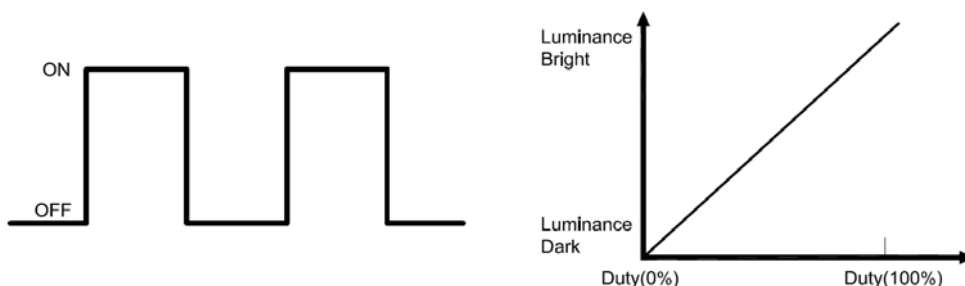
ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
LED Driving Voltage		VLED	8	12	16	V	
		ILED	-	TBD	TBD	mA	
PWM Control Level	PWM High Level	-	3.0	3.3	3.6	V	
	PWM Low Level	-	0	-	1.0	V	
PWM Control Duty Ratio		-	0	-	100	%	
PWM Control Frequency		f _{PWM}	100	-	2000	Hz	
LED Life Time (For Reference Only)		Ta=25°C 60-70%RH (Note 1)	-	50000	-	Hr	

Note 1: The LED of B/L is drive by current only, drive voltage is for reference only. drive voltage can make driving current under safety area(current between minimum and maximum). 50,000 hours is only an estimate for reference.

Note 2: The lifetime of LED is defined as the time when it continues to operate under the conditions at Ta= 25 ±2°C and PWM = 100% (LED forward current) until the brightness becomes ≤ 50% of its original value.

Note 3: ADJ signal Vp-p =3.0 ~ 3.6 V, operation frequency: 100Hz ~ 2000Hz:

PWM DIMMING DUTY



8. OPTICAL CHARACTERISTICS

Ta=25°C

ITEM	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	REMARK
Contrast Ratio	CR	Viewing Normal Angle $\Theta_x = \Theta_y = 0^\circ$	(400)	(500)	-	-	Note 1
Response Time	TR+TF		-	16	20	ms	Note 2
Chromaticity	White	Wx	(0.255)	(0.305)	(0.355)	-	Note 4
		Wy	(0.275)	(0.325)	(0.375)	-	
Viewing Angle	Hor.	θ_{x+}	70	80	-	Deg.	Note 3
		θ_{x-}	70	80	-		
	Ver.	θ_{y+}	70	80	-		
		θ_{y-}	70	80	-		
Luminance	L	PWM=100%	900	1000	-	cd/m2	
Luminance Uniformity	YU	PWM=100%	75	80	-	%	Note 5

Note 1 : Definition of Contrast Ratio (CR) :

The contrast ratio can be calculated by the following expression.

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

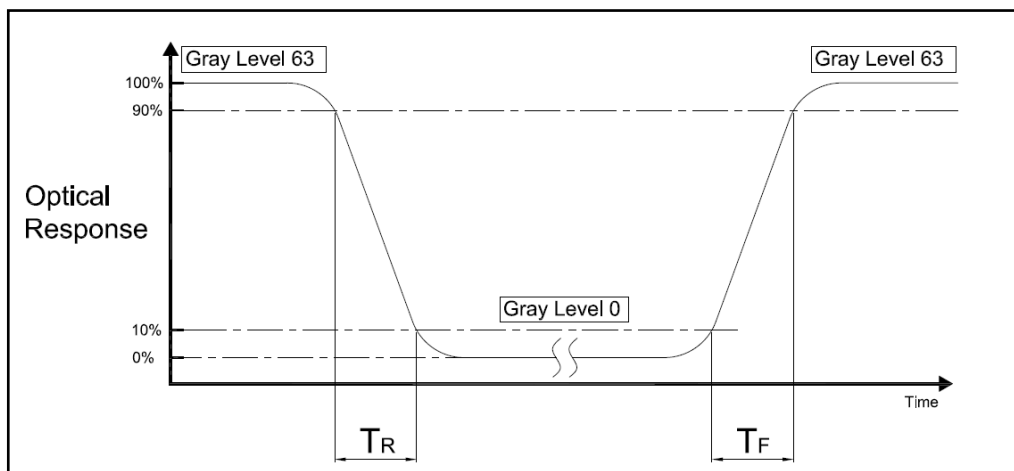
L63 : Luminance of gray level 63

L0 : Luminance of gray level 0

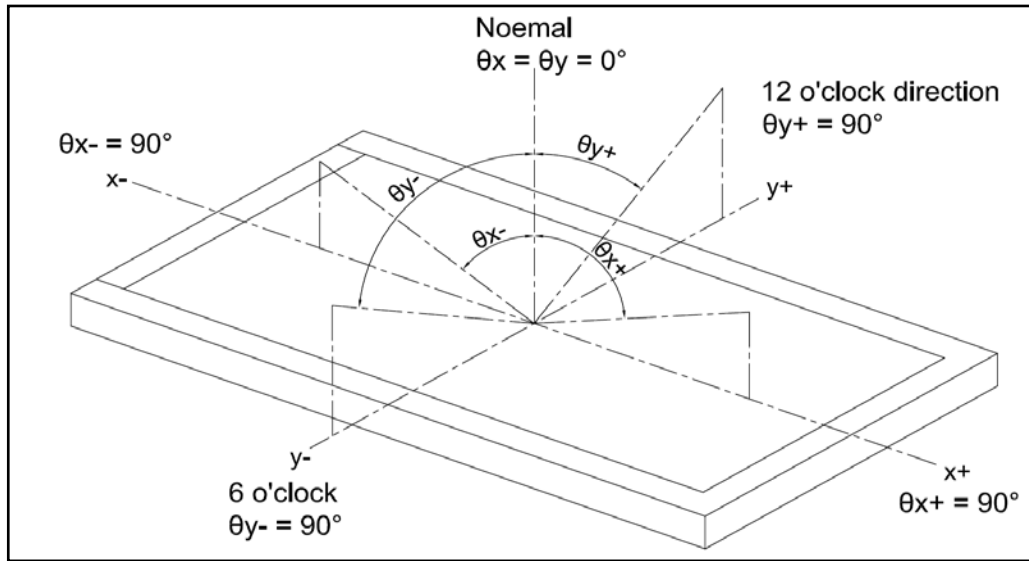
$$\text{CR} = \text{CR}(5)$$

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)

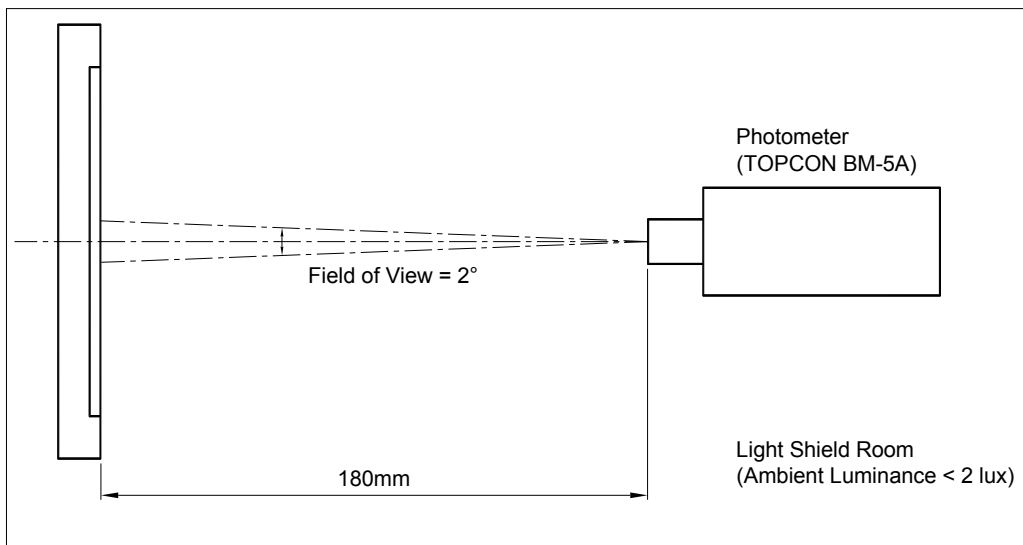


Note 3 : Definition of Viewing Angle

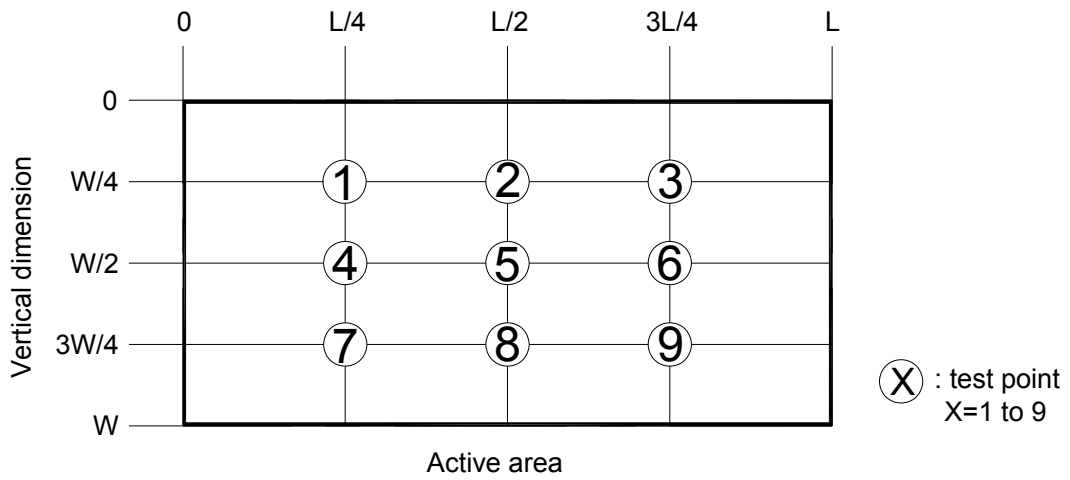


Note 4 : Measurement Set-Up:

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 :

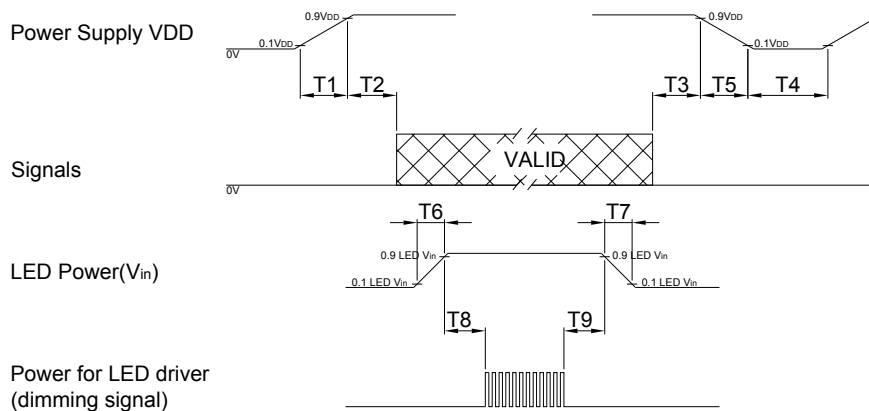


$$\left(1 - \frac{\text{MAX Luminance} - \text{Average Luminance}}{\text{Average Luminance}} \right) \times 100\% = YU$$

9. TIMING SPECIFICATIONS

9.1 POWER ON/OFF SEQUENCE

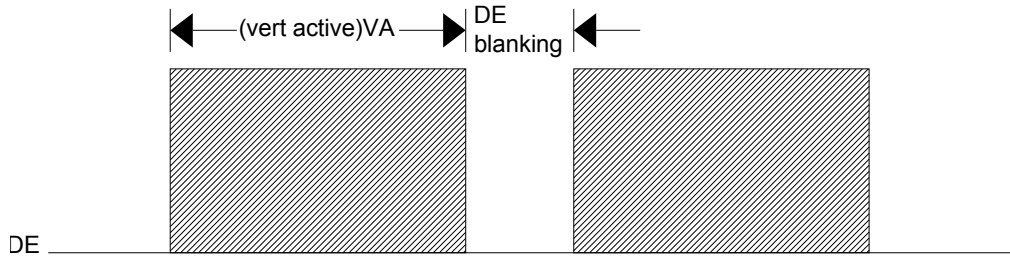
ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
VCC rising Time from 10% to 90%	T1	0.5	-	10	ms	
Delay from VCC to valid data at power ON	T2	0	-	50	ms	
Delay from valid data OFF to VCC OFF at power OFF	T3	0	-	50	ms	
VCC OFF time for Windows restart	T4	500	-	-	ms	
VCC falling time from 90% to 10%	T5	0	-	10	ms	
LED Vin rising time from 10% to 90%	T6	0.5	-	10	ms	
LED Vin falling time from 90% to 10%	T7	0.5	-	10	ms	
Delay from LED driver Vin rising time 90% to PWM ON	T8	0	-	10	ms	
Delay from PWM Off to LED Driver Vin falling time 10%, Must Keep rule	T9	0	-	-	ms	



9.2 TIMING CHARACTERISTICS

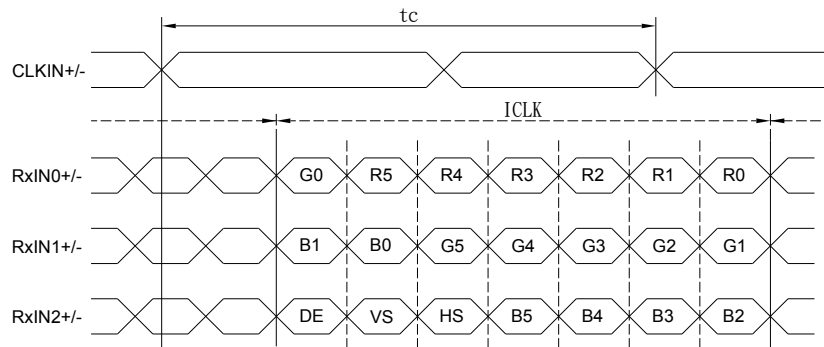
Synchronization Method : DE only

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
LVDS Clock Frequency	fdck	45	51.2	57	MHz	
H Total Time	T _{hp}	1324	1344	1364	clocks	
H Active Time	HA	1024	1024	1024	clocks	
H Blanking Time	THBLANK	300	320	340	clocks	
V Total Time	T _{VP}	625	635	645	lines	
V Active Time	VA	600	600	600	lines	
V Blanking Time	TVBLANK	25	35	45	lines	
V Frequency	fv	55	60	65	Hz	

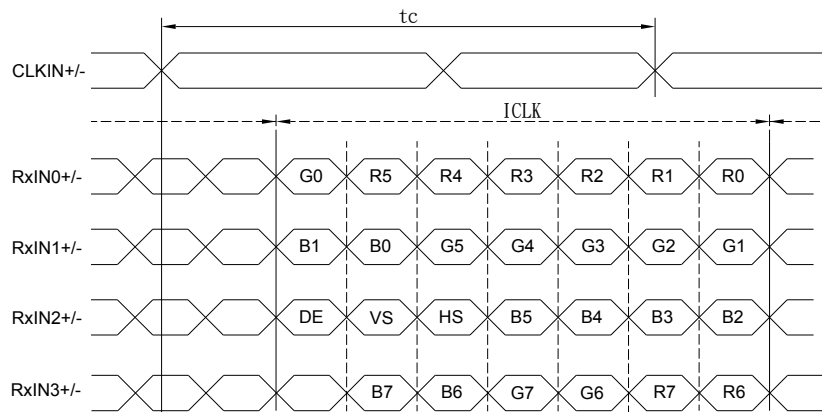


19.3 TIMING DIAGRAM OF INTERFACE SIGNAL

6bit LVDS input



8bit LVDS input



10. RELIABILITY TEST

ENVIRONMENTAL TEST				
NO.	ITEM	CONDITIONS	TIME PERIOD	REMARK
1	High Temperature Storage	(80°C)	TBD HRS	
2	Low Temperature Storage	-30°C	TBD HRS	
3	High Temperature Operation	(70°C)	TBD HRS	
4	Low Temperature Operation	-30°C	TBD HRS	
5	Temperature Cycle	-20°C~60°C	1HRS/ 10CYCLE	
6	High Temperature Humidity Storage	50°C 85%RH	TBD HRS	

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
OT101DAWDLV-H0	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.