

SPECIFICATION

PRODUCT NO. :TCXD080IBLON-36

VERSION : Ver 1.0

ISSUED DATE : 2022-11-03

This module uses ROHS material

FOR CUSTOMER: _____

APPROVAL FOR SPECIFICATION

APPROVAL FOR SAMPLE

DATE	APPROVED BY

Xinli Optoelectronics :

Presented by	Reviewed by	Organized by
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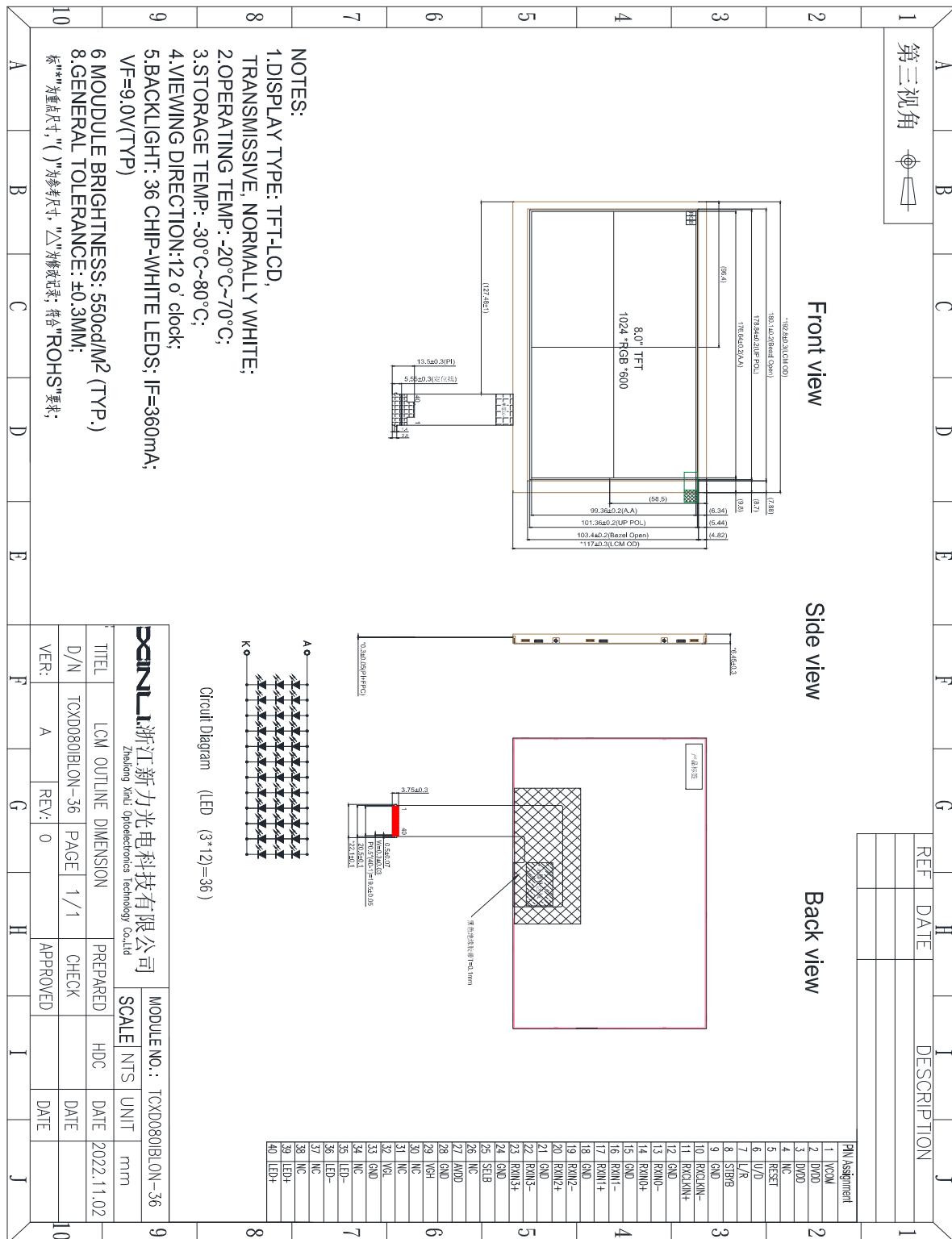
1. Revision Recode

2. General Description and Features

The 8.0 inch Module named TCXD080IBLON-36 is a-Si TFT-LCD module, which is the type of transmissive. It is consisted of TFT-LCD Panel, one Driver IC ,one FPC and one Back-Light unit. Features of this product are listed in the following table.

NO	Item	Contents	Unit
(1)	Module Outsize	192.8(H)*117(V)*6.45(T)	mm
(2)	LCD Active area	176.64(H)*99.36(V)	mm
(3)	Dot Number	1024 RGB (H) x 600(V)	/
(4)	Pixel size	0.1725(H)*0.1656(V)	mm
(5)	LCD type	TFT Transmissive	/
(6)	Display Color	16.7M	/
(7)	Viewing direction (Gray inversion)	6 O'	O'clock
(8)	Backlight Type	36-chip	/
(9)	Power Supply	3.3(TYP)	V
(10)	Drive IC	HX8282&HX8696	/
(11)	Interface type	LVDS interface	/
(12)	Module weight	TBD	g

3. Mechanical Dimension



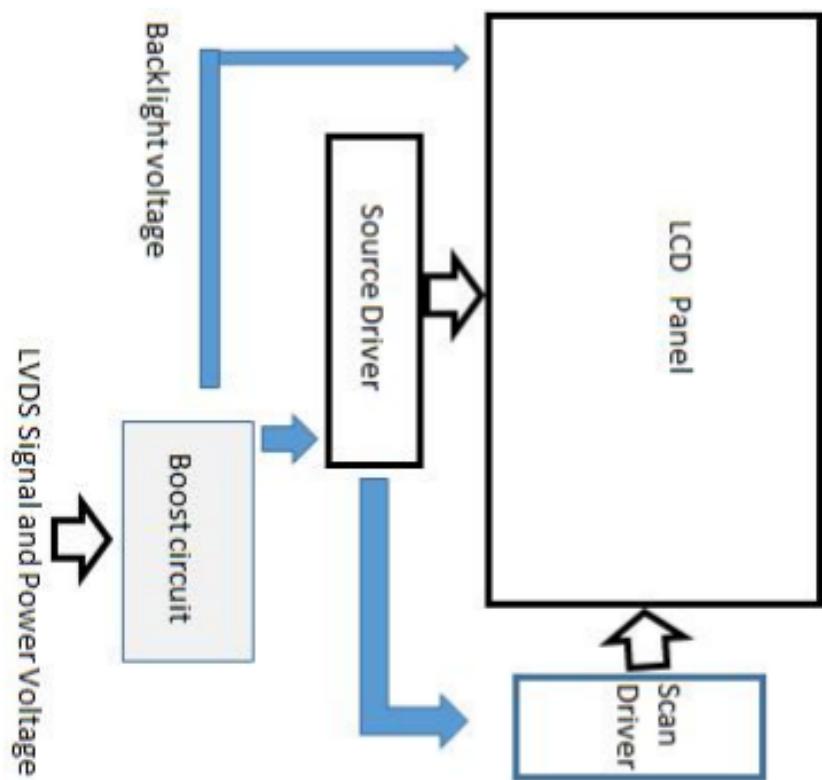
4. Interface Pin Connection

FPC Connector is used for the module electronics interface.

NO	Symbol	Level	Description
1	VCOM	P	The power supply for common voltage in TFT driving.
2	DVDD	P	Power supply for analog circuit
3	DVDD	P	Power supply for analog circuit
4	NC	-	Not connect.
5	RESET	I	Global reset pin
6	U/D	I	Up/down selection . Normally pull low .
7	L/R	I	Left/right selection . Normally pull high.
8	STBYB	I	Standby mode control . Normally pull High
9	GND	P	Ground.
10	LVDSCLK-	I	LVDS input DCLKN
11	LVDSCLK+	I	LVDS input DCLKP
12	GND	P	Ground.
13	LVDSIN0-	I	LVDS input lane: RX0N
14	LVDSIN0+	I	LVDS input lane: RX0P
15	GND	P	Ground.
16	LVDSIN1-	I	LVDS input lane: RX1N
17	LVDSIN1+	I	LVDS input lane: RX1P
18	GND	P	Ground.
19	LVDSIN2-	I	LVDS input lane: RX2N
20	LVDSIN2+	I	LVDS input lane: RX2P
21	GND	P	Ground.
22	LVDSIN3-	I	LVDS input lane: RX3N
23	LVDSIN3+	I	LVDS input lane: RX3P
24	GND	P	Ground.
25	SELB	I	6-bit / 8-bit input select
26	NC	-	Not connect.
27	AVDD	P	Power supply for Analog circuits.
28	GND	P	Ground.
29	VGH	P	Power supply for Gate on
30	NC	-	Not connect.

31	NC	-	Not connect.
32	VGL	P	Power supply for Gate off
33	GND	P	Ground.
34	NC	-	Not connect.
35	LEDK	P	Backlight ground
36	LEDK	P	Backlight ground
37	NC	-	Not connect
38	NC	-	Not connect
39	LEDA	P	Backlight anode
40	LEDA	P	Backlight anode

5. Block Diagram



6. Maximum Rating

Item	Symbol	Rating	Unit
Operating temperature(Humidity)	Top	-20 to 70	°C
Storage temperature(Humidity)	Tst	-30 to 80	°C
power supply	DVDD	-0.5 ~ 3.96	V

NOTE:

If the module was used these absolute maximum ratings as above, it may be damaged permanently. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability. VDD>GND must be maintained.

7. Electrical Characteristics

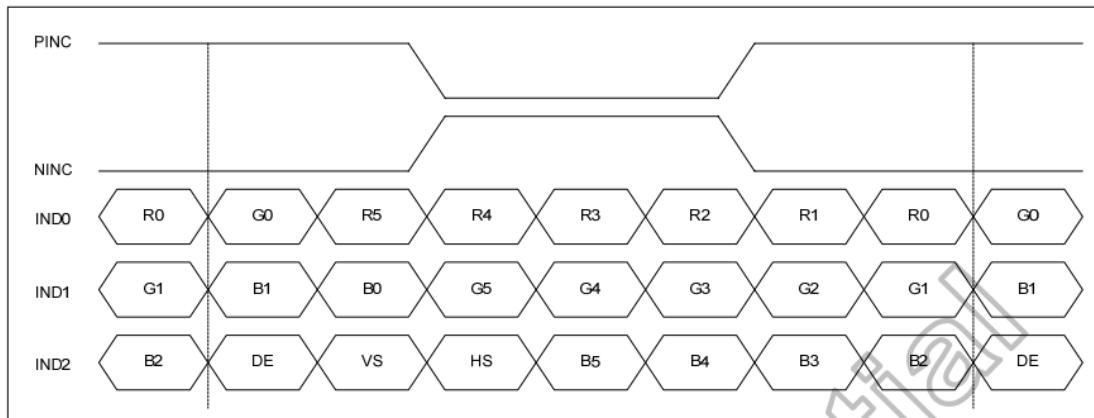
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply	DVDD	-	2.3	3.3	3.6	V
	AVDD	-	10.5	11	11.5	V
	VGH	-	19	20	21	V
	VGL	-	-7.8	-6.8	-5.8	V
	VCOM	-	2.35	3.35	4.35	V
Logic input signal Voltage	H level	V _{ih}	-	0.7*DVDD	-	DVDD
	L level	V _{il}		GND	-	0.3*DVDD
VDD Current	IDD	-	-	TBD	-	mA

8. Backlight Characteristics

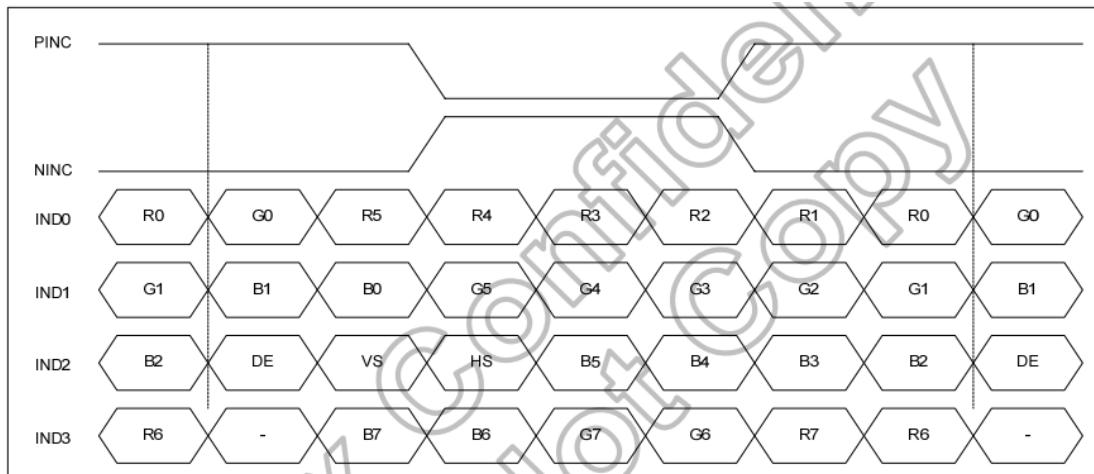
Item	syb	Min	Typ	Max	Unit	Condition
Voltage	Vf	8.4	9.6	10.2	V	IF=360mA
Number of LED	-	36			pcs	-
Power Consumption	PWF	3024	3456	3672	mW	-
LED life-span	-	-	(20000)	-	Hrs	-

9. Electrical Characteristics

9.1. LVDS mode data input format



6-bit LVDS Input



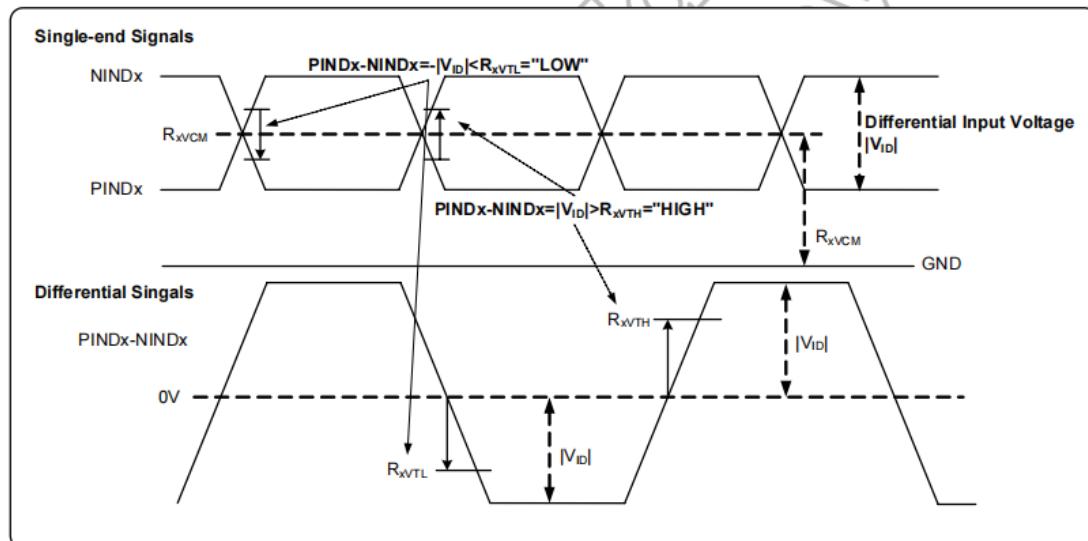
8-bit LVDS Input

9.2. LVDS Input Timing Table

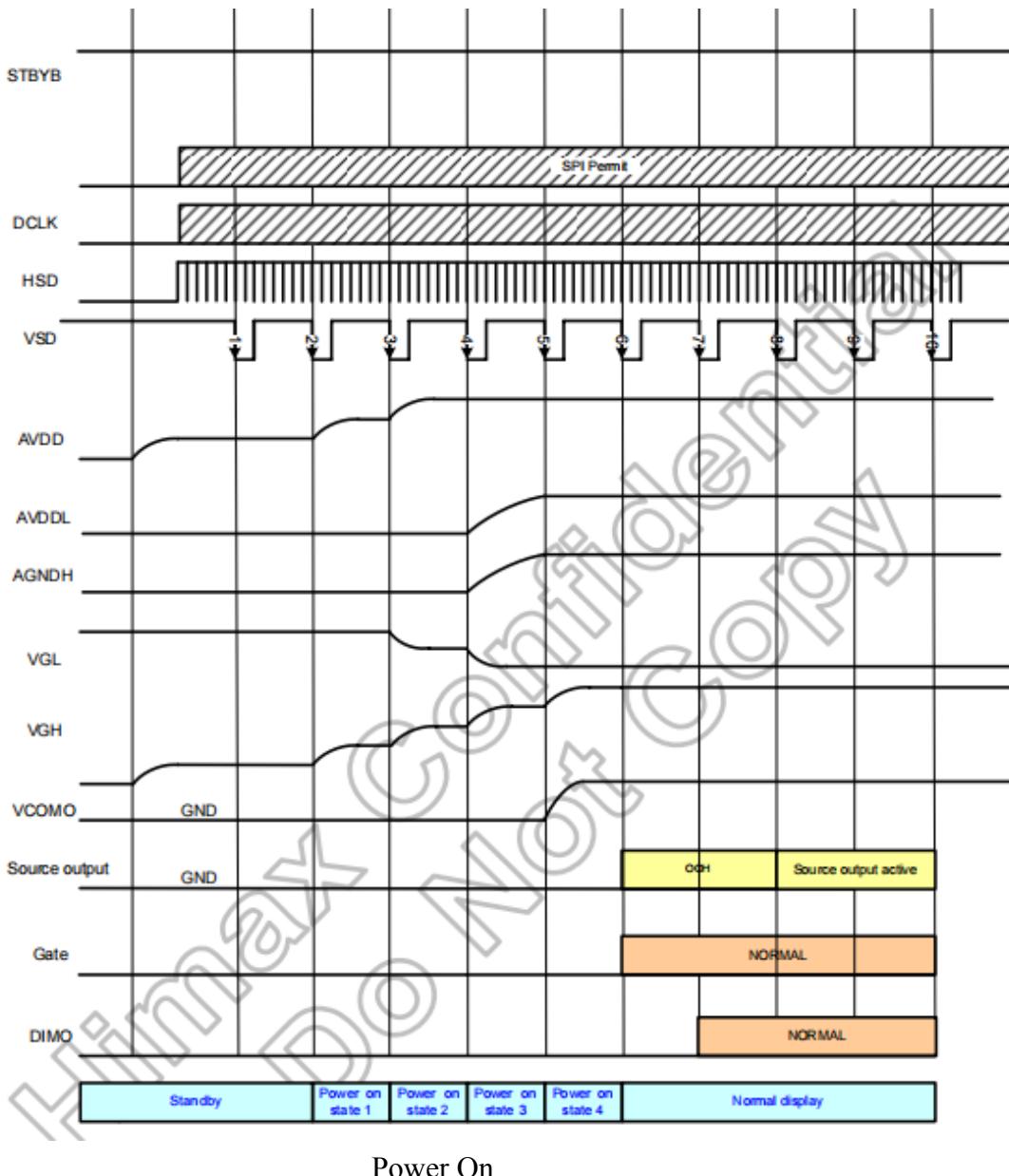
Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
DCLK Frequency	folk	40.8	51.2	67.2	MHz
Horizontal Display Area	thd		1024		DCLK
HSD Period	th	1114	1344	1400	DCLK
HSD Blanking	thb+ thfp	90	320	376	DCLK
Vertical Display Area	tvd		600		T _H
VSD Period	tvbp	610	635	800	T _H
VSD Blanking	tvbp+ tvfp	10	35	200	T _H

9.3.LVDS mode DC electrical characteristics

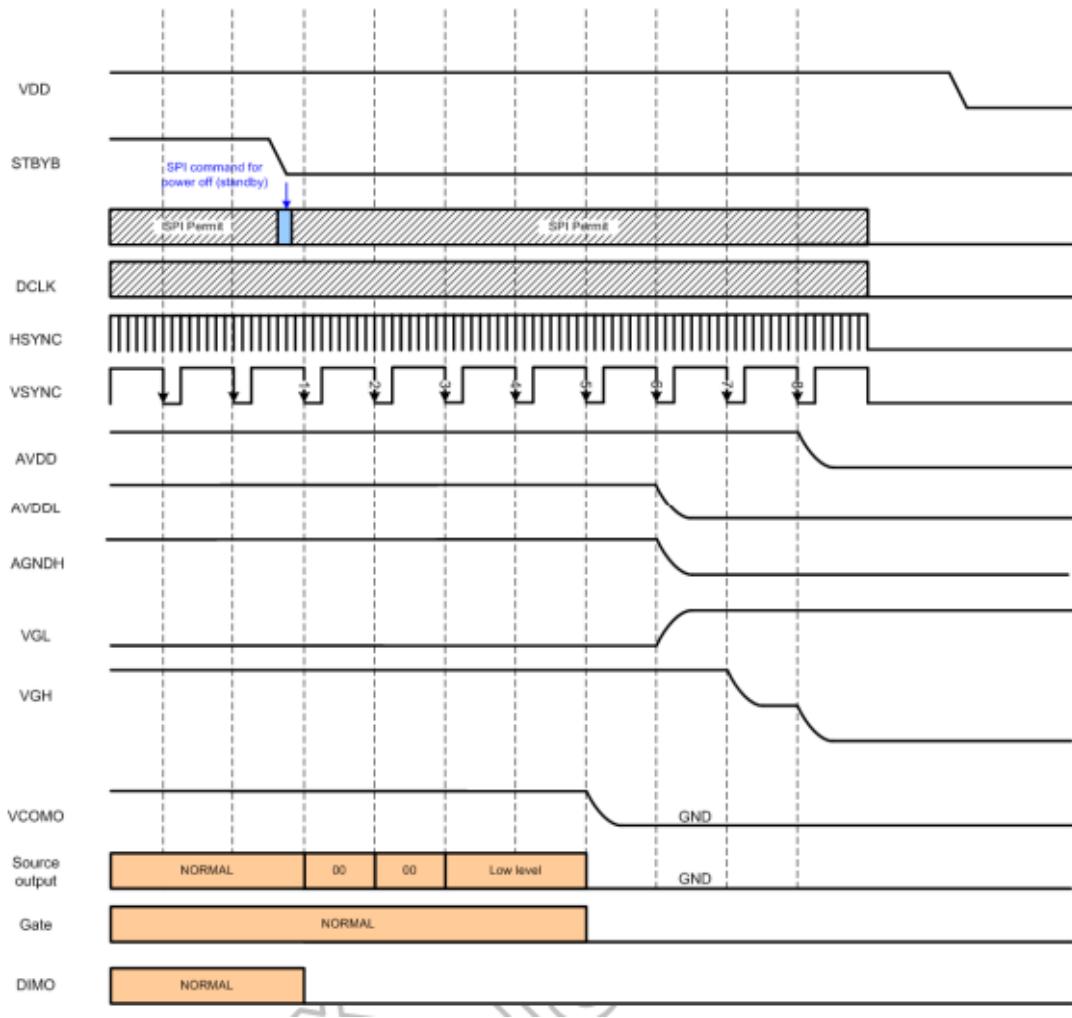
Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Differential input high Threshold voltage	R_{XVTH}	-	-	+0.1	V	$R_{xVCM}=1.2V$
Differential input low threshold voltage	R_{XVTL}	-0.1	-	-	V	
Input voltage range (singled-end)	R_{XVIN}	0	-	$VDD-1.2+ V_{ID} /2$	V	-
Differential input common Mode voltage	R_{xVCM}	$ V_{ID} /2$	-	$VDD-1.2$	V	-
Differential input voltage	$ V_{ID} $	0.2	-	0.6	V	-
Differential input leakage Current	RV_{XliZ}	-10	-	+10	μA	-
LVDS Digital Operating Current	$Iddlvds$	-	15	30	mA	$Fclk=65MHz, VDD=3.3V$
LVDS Digital Stand-by Current	$Istlvds$	-	10	50	μA	Clock & all Functions are stopped



9.4. Power On/off Sequence



Power On



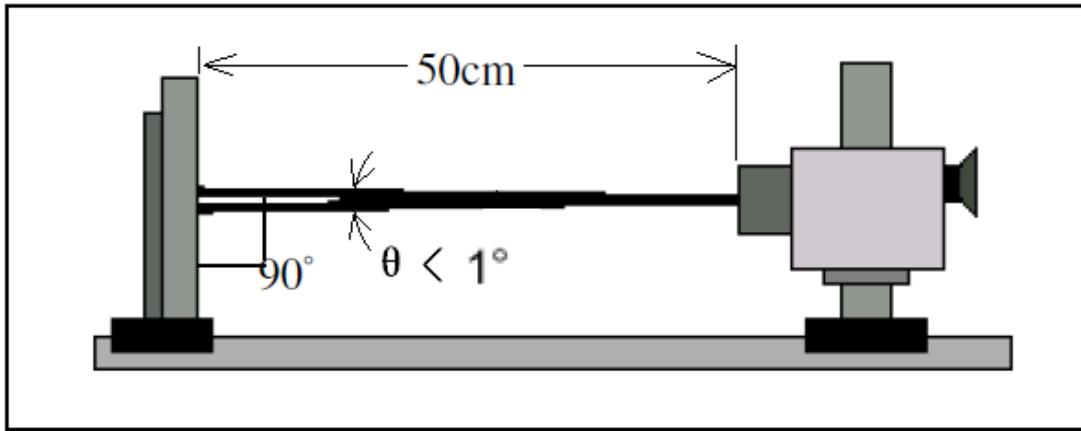
10. Electro-Optical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Response time	Tr+Tf	$\theta = 0$ $= 0$ Ta=25°C	-	16	32	ms	4
Uniformity (Five point)	δ WHITE		-	80	-	%	7
Contrast ratio	Cr		600	800	-	-	3,5
Surface Luminance	Lv		440	550	-	-	3,7
Viewing angle range	Hor.	ΘL	CR>10	70	80	-	deg
		ΘR		70	80	-	deg
	Ver.	ΘU		60	70	-	deg
		ΘD		70	80	-	deg
Color filter chromaticity (x, y)	White	X	$\theta = \phi = 0^\circ$	TBD	TBD	TBD	-
		Y		TBD	TBD	TBD	
	Red	X	$\theta = \phi =$ 0°	TBD	TBD	TBD	
		Y		TBD	TBD	TBD	
	Green	X	$\theta = \phi =$ 0°	TBD	TBD	TBD	
		Y		TBD	TBD	TBD	
	Blue	X	$\theta = \phi =$ 0°	TBD	TBD	TBD	
		Y		TBD	TBD	TBD	

Note 1: Ambient temperature=25°C±2°C

Note 2: To be measured in the dark room with backlight unit.

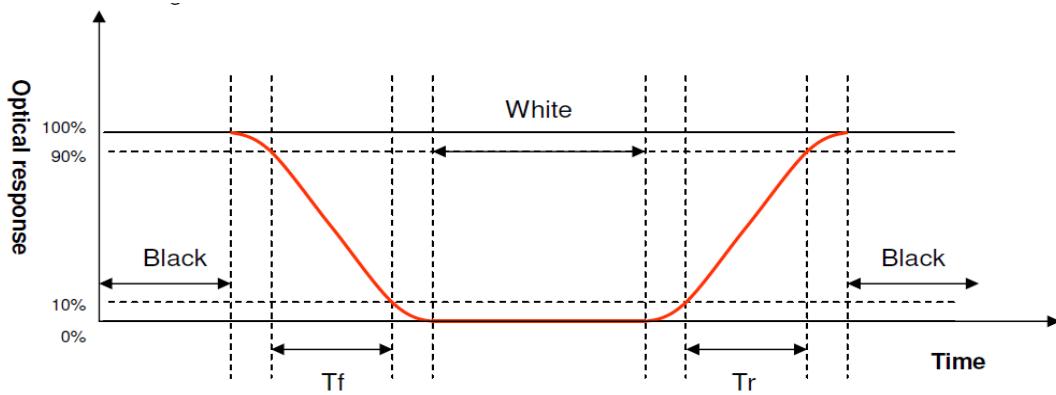
Note 3: To be measured at the center area of panel with a viewing cone of 1 by Topcon luminance meter BM-7A, after 10 minutes operation (module).



Note 4: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from “black” to “white” (rising time) and from “white” to “black” (falling time), respectively. The response time is defined as the time interval between the 10% and 90% of amplitudes.

Refer to figure as below.



Note 5. Definition of contrast ratio:

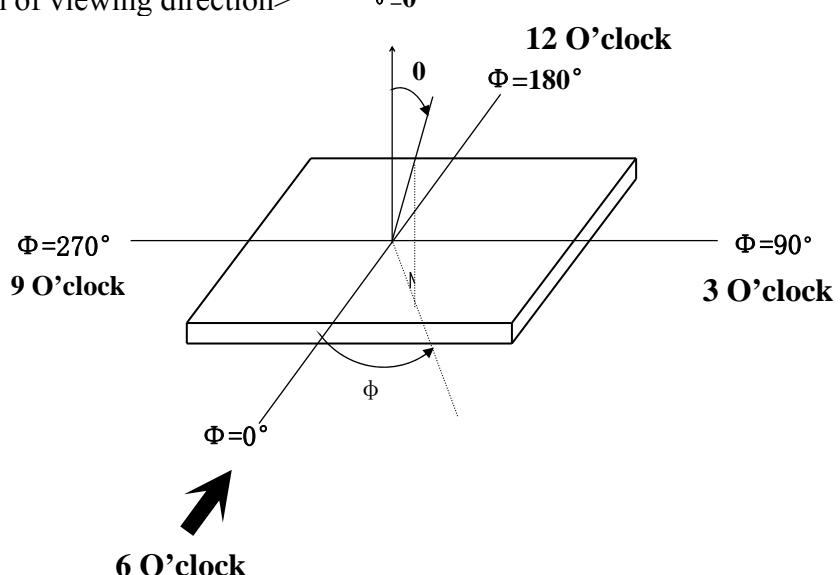
Contrast ratio is calculated with the following formula:

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

Note 6. Definition of viewing angle

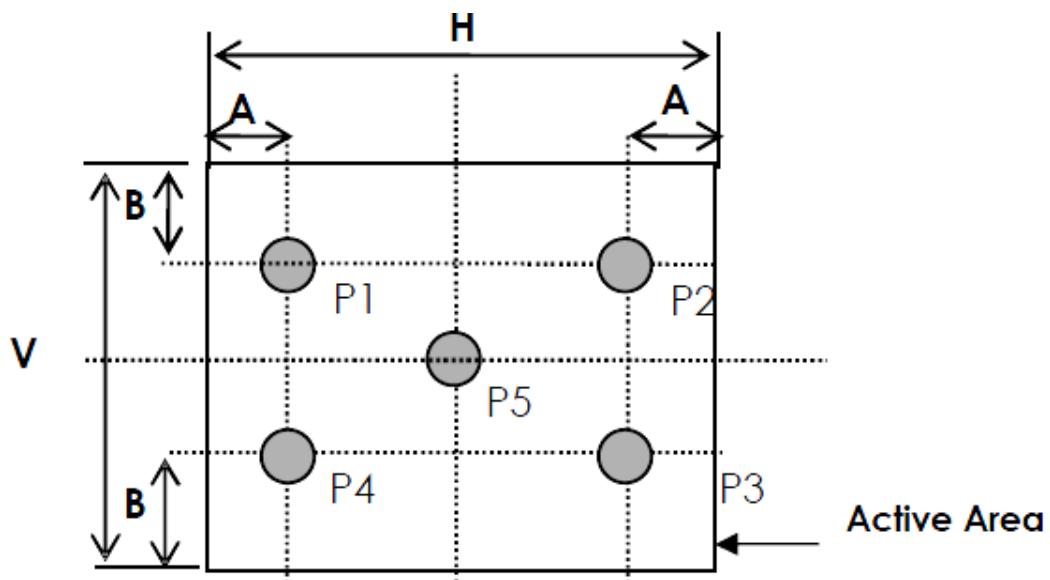
Viewing angle is the angle at which the contrast ratio is greater than 2, for TFT module the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface.

<Definition of viewing direction>



Note 7. Surface luminance is the LCD surface from the surface with all pixels displaying white. Refer to figure as below.

Measuring method for Contrast ratio, surface luminance, Luminance uniformity, CIE (x, y) chromaticity



A : 5 mm B : 5 mm H,V : Active Area

Light spot size $\Delta E=7\text{mm}$, 500mm distance from the LCD surface to detector lens
measurement instrument is TOPCON's luminance meter BM-7A

Uniformity definition= [min of 5point/max of 5points]x100%

Lv = Surface Luminance with all white pixels (P5)

11. Quality Assurance

TBD.

12. Reliability Test

This standard reliability test is done only for the first lot of MP products. Customer and supplier must hold a discussion if other reliability test is requested by customer.

N O.	Test Item	Description	Test Condition
1	High temperature storage	Endurance test applying the high storage temperature for a long time	80°C,240 H
2	Low temperature storage	Endurance test applying the low storage temperature for a long time	-30°C,240H
3	High temperature operation	Endurance test applying the electric stress under high temperature for a long time	70°C,240H
4	Low temperature operation	Endurance test applying the electric stress under low temperature for a long time	-20°C,240H
5	High temperature /humidity storage	Endurance test applying the high temperature and high humidity storage for a long time	60°C,90% RH, 240H

13. Precautions for Operation and Storage

1. Precautions for Operation

- (1) Since LCD panel made of glass, in order to prevent from glass broken or color tone change, please do not apply any mechanical shock or impact or excessive force to it when installing the LCD module.

- (2)If LCD panel is broken and liquid crystal substance leaks out and contact your skin or clothes,please immediately wash it off by using soap and water.
- (3)The polarizer on the LCD surface is soft and easily scratched.Please be careful when handling.
- (4)If LCD surface becomes contaminated,please wipe it off gently by using moisten soft cloth with normal hexane,do not use acetone,ketone,ethanol, alcohol or water.If there is saliva or water on the LCD surface,please wipe it off immediately.
- (5)When handing LCD module,please be sure that the body and the tools are properly grounded.And do not touch I/F pins with bare hands or contaminate I/F pins.
- (6)Do not attempt to disassemble or process the LCD module.
- (7)LCD module should be used under recommended operating conditions shown in chapter 6 and 7.
- (8)Response time will be extremely slower at lower temperature than at specified temperature and LCD will show different color when at higher temperature.The phenomenon will disappear when returning to specified condition.
- (9)Foggy dew,moisture condensation or water droplets deposited on surface and contact terminals will cause polarizer stain or damage,the deteriorated display quality and electrochemical reaction then leads to the shorter life time and permanent damage to the module probably.Please pay attention to the environmental temperature and humidity.

2. Precautions for Storage

- (1)Please store LCD module in a dark place,avoid exposure to sunlight,the light of fluorescent lamp or any ultraviolet ray.
- (2)Keep the environment temperature at between 10°C and 35 °C and at normal humidity.Avoid high temperature,high humidity or temperature below 0°C.
- (3)That keeps the LCD modules stored in the container shipped from supplier before using them is recommended.
- (4)Do not leave any article on the LCD module surface for an extended period of time.

3. Warranty period

Warrants for a period of 12 Months from the shipping date when stored or used under normal condition.



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14.Package Specification

TBD.