Tailorpixels

A Professional Manufacturer of Display

Manufacturer Certificated

9001 CERT. No.: 282Q19070712006

14001 CERT. No.: 282E19070712007

Product Specification

Model: TTG100XRT-01

10.0″TFT Display Module(1200*1200）

This module uses RoHS material

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Contents

1. Record of Revision

Version	Revise Date	Content	Editor
1.0	2026/04/09	First Release.	Rich Liang

2 General Specifications

Feature		Spec
Characteristics	LCD Size	10.0 inch
	Display Format	1200 (RGB) ×1200
	Interface	MIPI
	Color Depth	16.7M
	Technology type	a-Si
	Pixel pitch	0.12285(H)*0.12285(V)
	Display Mode	Normally Blcak
	Driver IC	JD9366
	Surface Treatment	HC
	Viewing Direction	ALL
	Gray Viewing Direction	FREE
Mechanical	LCM (W x H x D) (mm)	185.82X192.32X5.0
	Active Area(mm)	179.82x 179.82
	With /Without TSP	Without TSP
	Weight (g)	TBD
	LED Numbers	30LEDs

Note 1: Viewing direction is following the data which measured by optics equipment.
Note 2: Requirements on Environmental Protection: RoHS
Note 3: LCM weight tolerance: +/- 5%

3 Input/Output Terminals

No.	Symbol	Description
1	NC	No connection
2	VDDIN	Power Voltage for digital circuit
3	VDDIN	Power Voltage for digital circuit
4	GND	Ground
5	RESET	Device reset signal 3.3V
6	NC	No connection
7	GND	Ground
8	MIPI_D0-	MIPI differential data0 input(Negative)
9	MIPI_D0+	MIPI differential data0 input(Positive)
10	GND	Ground
11	MIPI_D1-	MIPI differential data1 input(Negative)
12	MIPI_D1+	MIPI differential data1 input(Positive)
13	GND	Ground
14	MIPI_CLK-	MIPI differential clock input(Negative)
15	MIPI_CLK+	MIPI differential clock input(Positive)
16	GND	Ground
17	MIPI_D2-	MIPI differential data2 input(Negative)
18	MIPI_D2+	MIPI differential data2 input(Positive)
19	GND	Ground
20	MIPI_D3-	MIPI differential data3 input(Negative)

21	MIPI_D3+	MIPI differential data3 input(Positive)
22	GND	Ground
23	NC/TP_RST	No connection
24	NC/TP_INT	No connection
25	NC/TP_SDA	Ground
26	NC/TP_SCL	No connection
27	NC/TP_GND	No connection
28	NC/TP_VCC	No connection
29	GND	Ground
30	GND	Ground
31	LED-	LED Cathode
32	LED-	LED Cathode
33	NC	No connection
34	NC	No connection
35	NC	No connection
36	NC	No connection
37	NC	No connection
38	NC	No connection
39	LED+	LED Anode
40	LED+	LED Anode

4 Absolute Maximum Ratings

Item	Symbol	Min.	Typ.	Max.	Unit
Digital Supply Voltage	VDD	1.65	3.3	3.6	V
I/O Supply Voltage	IOVCC	1.65	1.8	1.95	V
Input High Voltage	VIH	0.7*IOVCC	-	VDD	V
Input Low Voltage	VIL	0	-	0.3*IOVCC	V
Output High Voltage	VOH	0.8*IOVCC	-	-	V
Output Low Voltage	VOL	-	-	0.3*IOVCC	V

5 Electrical Characteristics

5.1 Operating conditions:

Parameter	Symbol	MIN	TYP	MAX	Unit	Remark
Power Voltage	V_{cc}	3.0	3.3	3.6	V	
Digital Operation Current	Icc		5		mA	
Gate On Power	V_{GL}	-11.8	-11.5	-11.2	V	
Gate Off Power	V_{GH}	18.2	18.5	18.8	V	
Vcom Voltage	Vcom	-1.3	-0.8	-0.3	V	Note1
Analog Operating voltage	VSP	5.3	5.8	6.5	V	
Analog Operating voltage	VSN	-5.3	5.8	-6.5	V	

5.2 Driving Backlight

Item	Symbol	MIN	TYP	MAX	Unit	Remark
LED current	I_F	-	360		mA	
Power Consumption					mW	
LED Voltage	V_F	-	15	17	V	Note 1
LED Life Time	W_{BL}	35000	-	-	Hr	Note 2,3

Note 1 : There are 1 Groups LED

Note 2 : Ta = 25℃

Note 3 : Brightess to be decreased to 50% of the initial value

6 Interface Timing

6.1 MIPI input timing

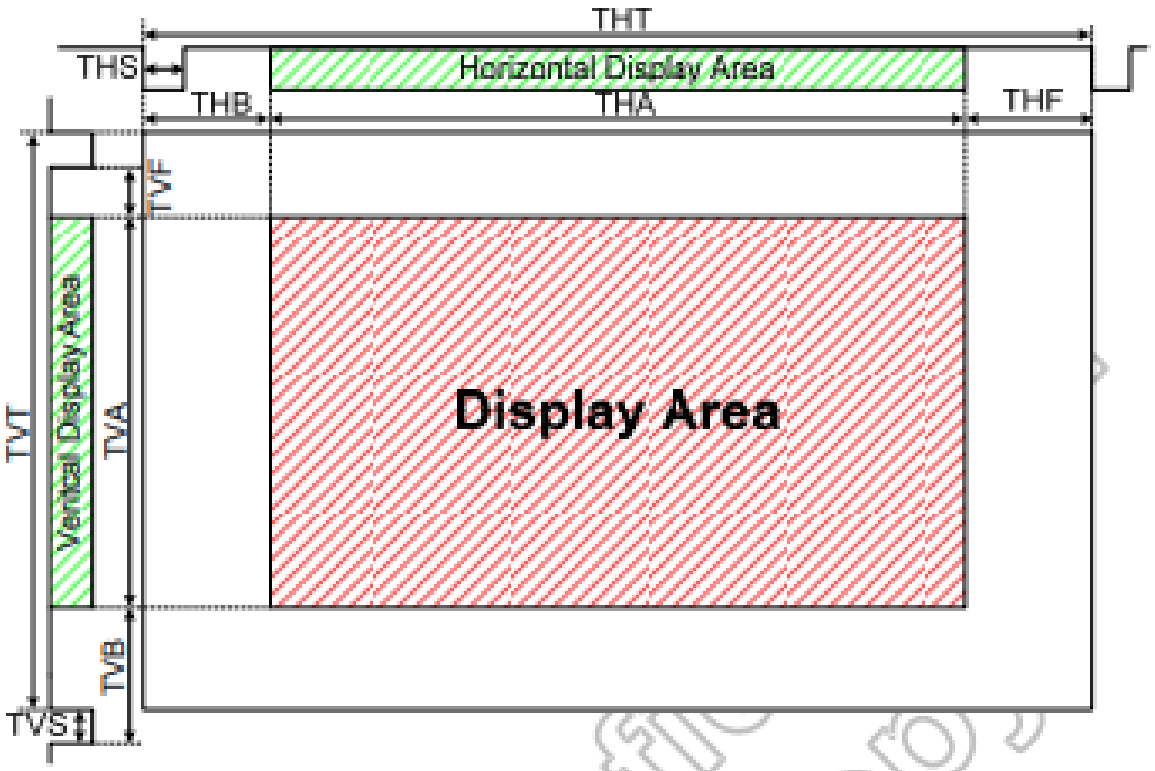


Figure 7.6: MIPI video input timing

DSI Format

Information is transferred between host processor and peripheral using one or more serial data signals and accompanying serial clock. The action of sending high-speed serial data across the bus is called a HS transmission or burst. Between transmissions, the differential data signal or Lane goes to a low-power state (LPS). Interfaces should be in LPS when they are not actively transmitting or receiving high-speed data. Figure 7.4 shows the basic structure of a HS transmission. N is the total number of bytes sent in the transmission

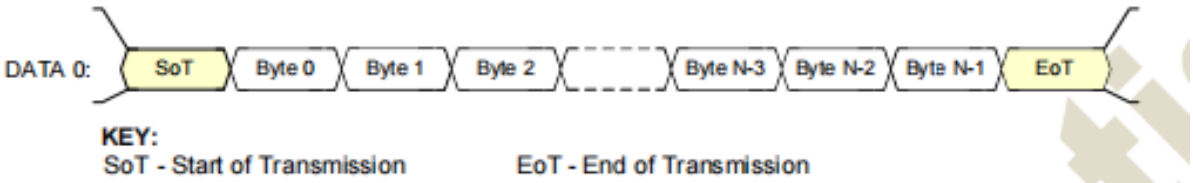


Figure 7.4: Basic HS Transmission Structure

Multi Lane Distribution and Merging

DSI is a Lane-scalable interface. Applications requiring more bandwidth than that provided by one Data Lane may expand the data path to two, three, or four Lanes wide and obtain approximately linear increases in peak bus bandwidth.

Multi-Lane implementations shall use a single common clock signal, shared by all Data Lanes. Conceptually, between the PHY and higher functional blocks is a layer that enables multi-Lane operation.

Since a HS transmission is composed of an arbitrary number of bytes that may not be an integer multiple of the number of Lanes, some Lanes may run out of data before others. Therefore, the Lane Management layer, as it buffers up the final set of less-than-N bytes, de-asserts its “valid data” signal into all Lanes for which there is no further data.

Although all Lanes start simultaneously with parallel SoTs, each Lane operates independently and may complete the HS transmission before the other Lanes, sending an EoT one cycle (byte) earlier.

The N PHYs on the receiving end of the Link collect bytes in parallel and feed them into the Lane Management layer. The Lane Management layer reconstructs the original sequence of bytes in the transmission. Figure 7.5 & 7.6 illustrate a variety of ways a HS transmission can terminate for different number of Lanes and packet lengths

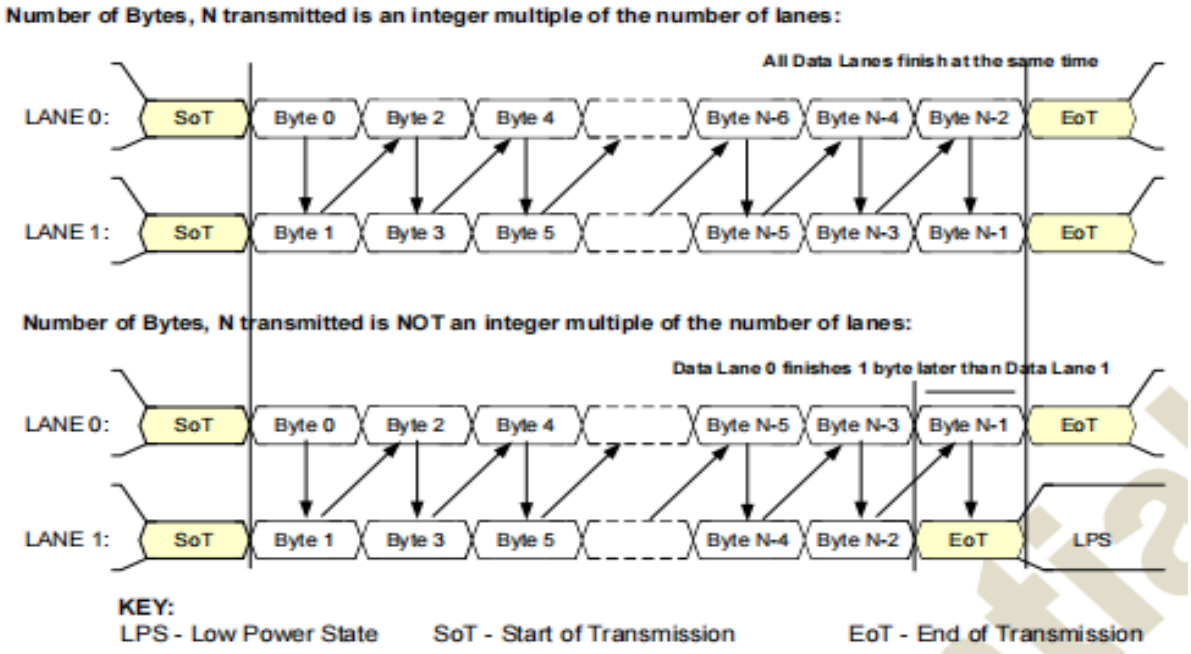
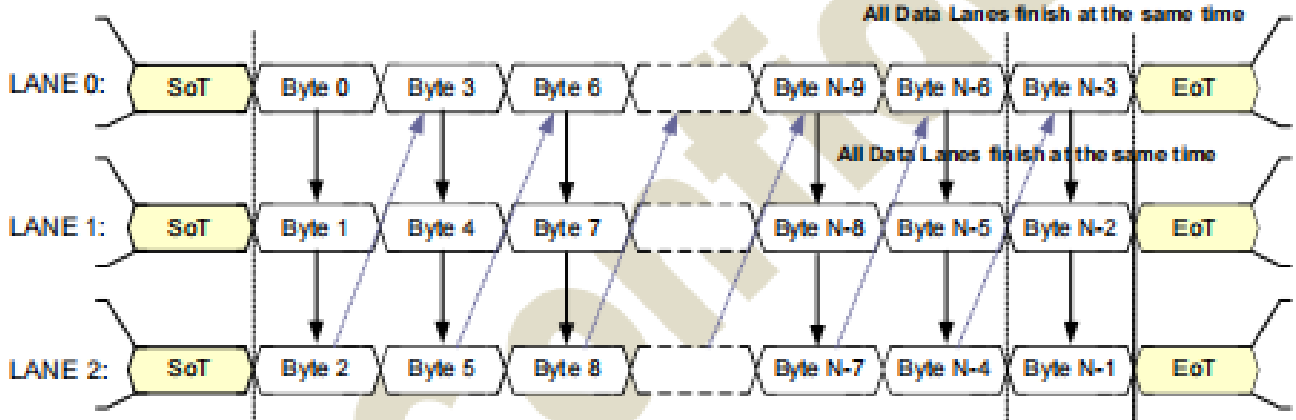
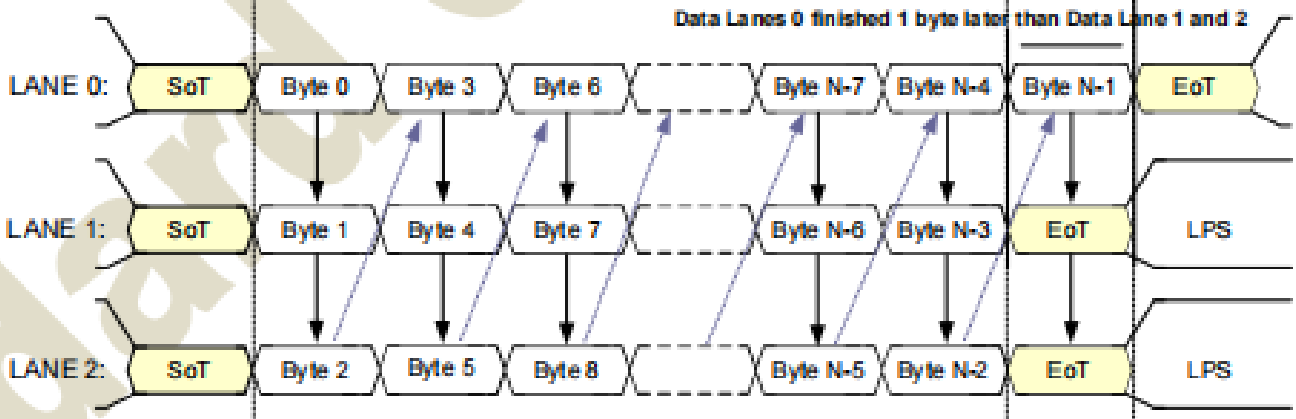


Figure 7.5: Two Lane HS Transmission Example

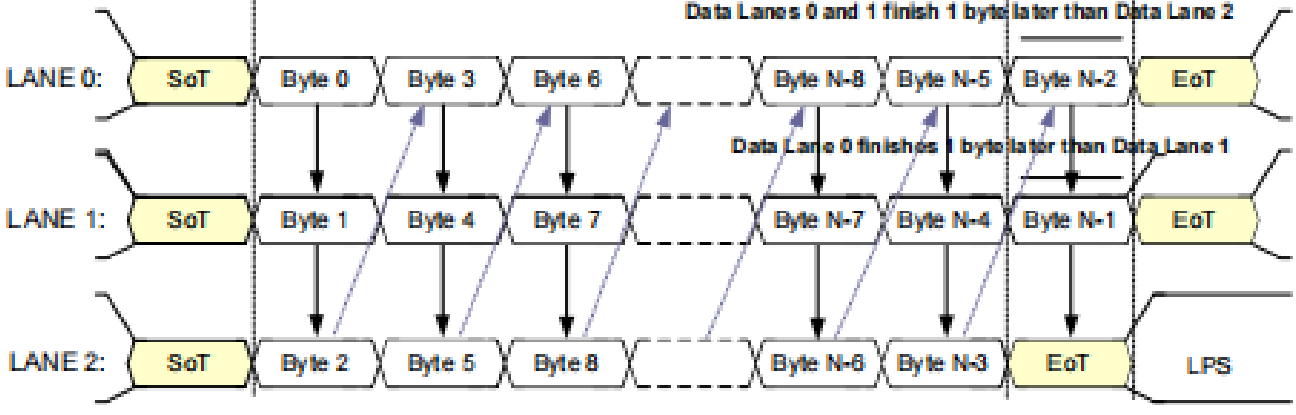
Number of Bytes, N transmitted is an integer multiple of the number of lanes:



Number of Bytes, N transmitted is NOT an integer multiple of the number of lanes (Example 1):



Number of Bytes, N transmitted is NOT an integer multiple of the number of lanes (Example 2):



KEY:
LPS - Low Power State SoT - Start of Transmission EoT - End of Transmission

6.2 **Power-up Sequence Example**

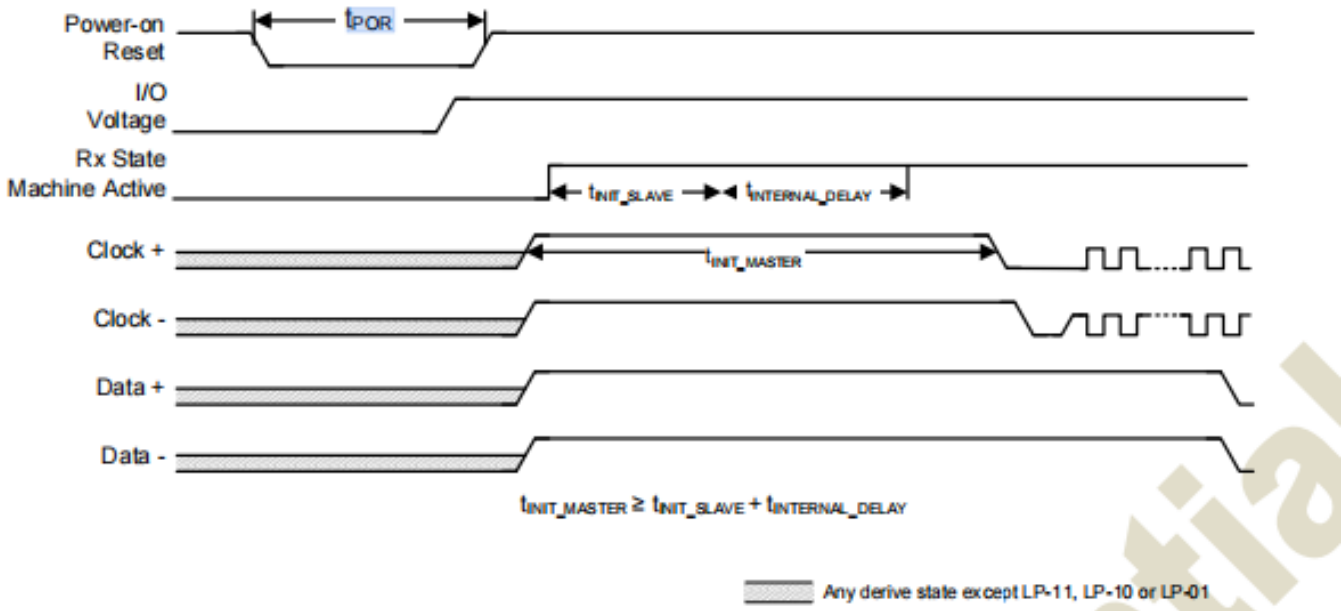


Figure 7.3: Peripheral Power-Up Sequencing Example

Tearing effect line timing

The Tearing Effect signal is described below:

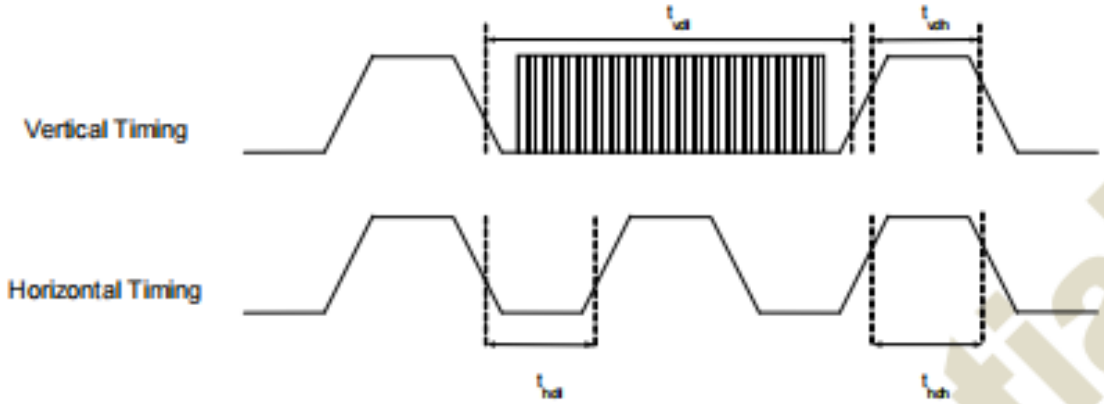


Figure 9.6: Tearing Effect Line timing

Note: 1. tvdl = Vtotal – (VFP+VS+VBP)

2. tvdh = VFP+VS+VBP

3. thdl = Htotal – (HFP+HS+HBP)

4. thdh = HFP+HS+HBP

5. Base on panel loading C<30pF.

The signal's rise and fall times (tf, tr) are stipulated to be equal to or less than 15ns

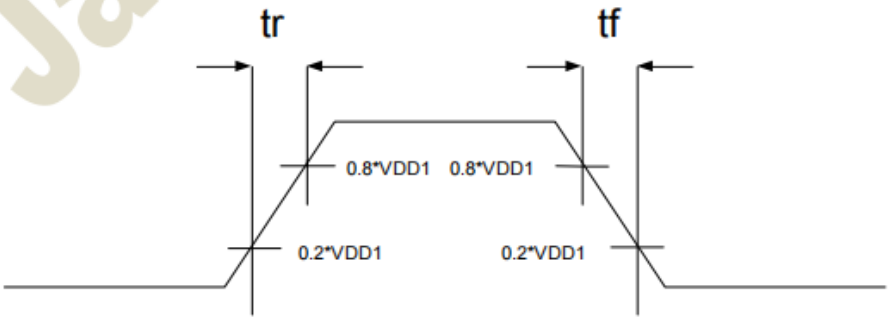


Figure 9.7: Tearing Effect Line definition of tf, tr

Timing requirements for reset

When RESETB of the reset pin equals to Low, it will be in the condition of reset. When it is in the condition of reset, it will make the device recover the initial set.

However, in order to avoid the reset noise cause reset, there is a mechanism to judge about whether the reset is needed or not.

The closed interval of low can be shown as the following.

(VDD=1.7V~2.0V, VSS=0V, T_A=-20℃~+85℃)

Parameter	Symbol	Conditions	Spec.			Unit
			Min.	Typ.	Max.	
Reset low pulse width	Trst	-	20	-	-	μs

Table 13.5: Reset timing

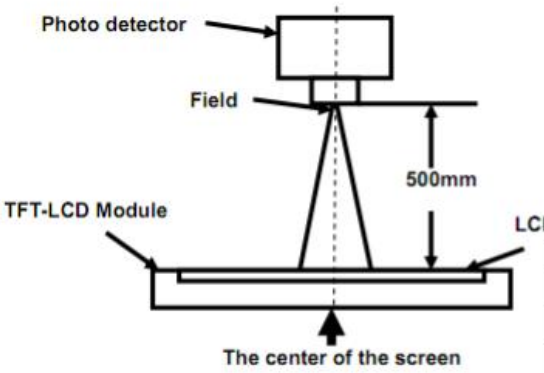
Figure 13.6: Reset timing

7 Optical Characteristics

Items		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angles		θ_T	Center CR≥10	-	85	-	Degree.	Note2
		θ_B		-	85	-		
		θ_L		-	85	-		
		θ_R		-	85	-		
Contrast Ratio		CR	Θ =0		1000		-	Note1, Note3
Response Time		T_{ON}	25° C	-	30	45	ms	Note1, Note4
		T_{OFF}		-	30	45		
Chromaticity	White	X_W	Backlight is on	0.282	0.312	0.342	-	Note1, Note5
		Y_W		0.319	0.349	0.379	-	
	Red	X_R		0.609	0.639	0.669	-	
		Y_R		0.314	0.344	0.374	-	
	Green	X_G		0.264	0.294	0.324	-	
		Y_G		0.557	0.587	0.617	-	
	Blue	X_B		0.102	0.132	0.162	-	
		Y_B		0.106	0.136	0.166	-	
Uniformity		U		75	80	-	%	Note1, Note6
NTSC					50		%	Note5
Luminance		L		-	1000			Note1, Note7

Test Conditions:
1. IF= 20mA(one channel),the ambient temperature is 25°C.
2. The test systems refer to Note 1 and Note 2.

Note 1: Definition of optical measurement system.
The optical characteristics should be measured in dark room. After 5 minutes operation, the optical Properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.



Item	Photo detector	Field
Contrast Ratio	BM-7A	1°
Luminance		
Chromaticity		
Lum Uniformity		
Response Time	SR-3A	2°

Note 2: Definition of viewing angle range and measurement system.
Viewing angle is measured at the center point of the LCD by CONOSCOPE (ergo-80).

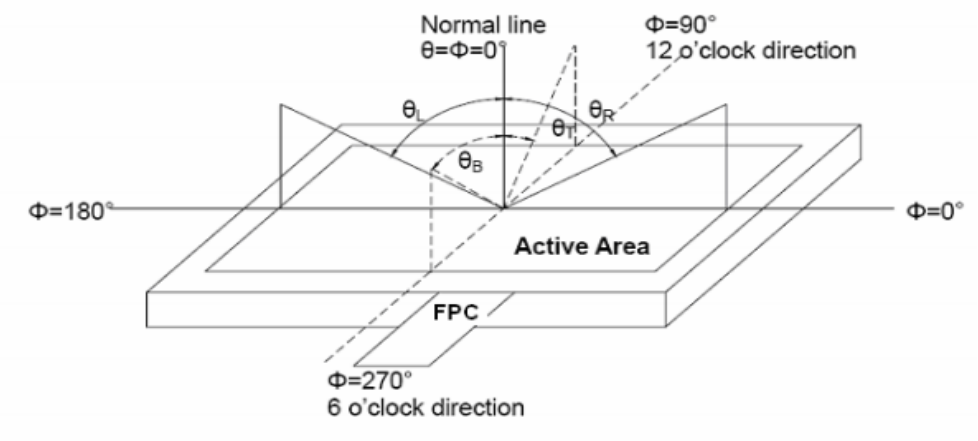


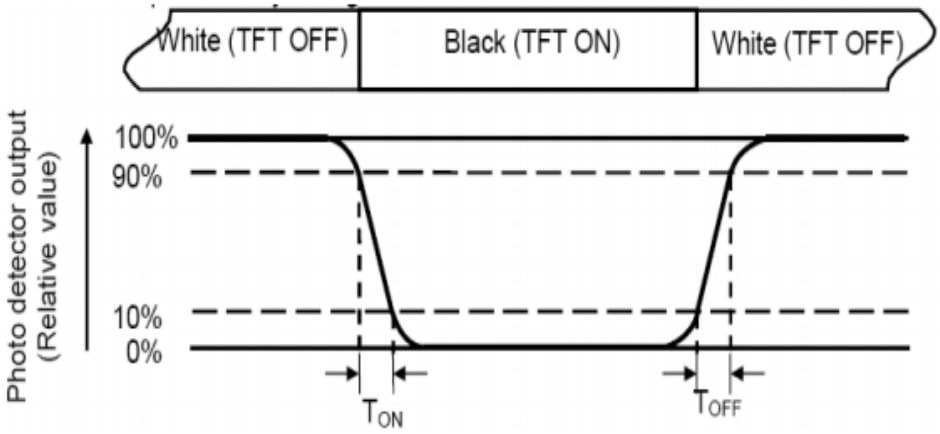
Fig. 1 Definition of viewing angle

Note 3: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD is on the "White" state}}{\text{Luminance measured when LCD is on the "Black" state}}$$

Note 4: Definition of Response time

The response time is defined as the LCD optical switching time interval Between “White” state and “Black” state. Rise time (TON) is the time between Photo detector output intensity changed from 90% to 10%. And fall time (TOFF) is The time between photo detector output intensity changed from 10% to 90%



Note 5: Definition of color chromaticity (CIE1931)
Color coordinates measured at center point of LCD.
Note 6: Definition of Luminance Uniformity
Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the Center of each measuring area
Luminance Uniformity (U) = Lmin/ Lmax X100%
L-------Active area length W----- Active area width

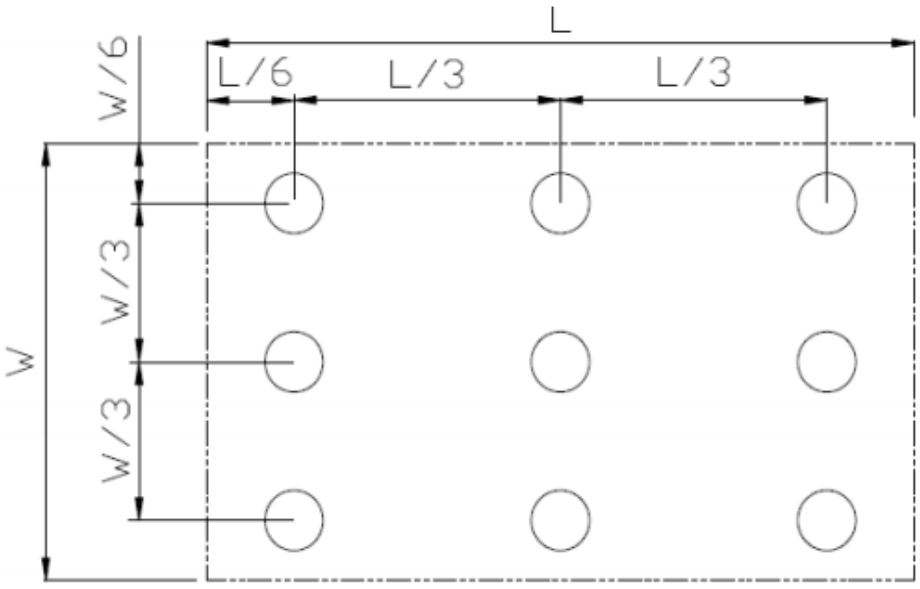


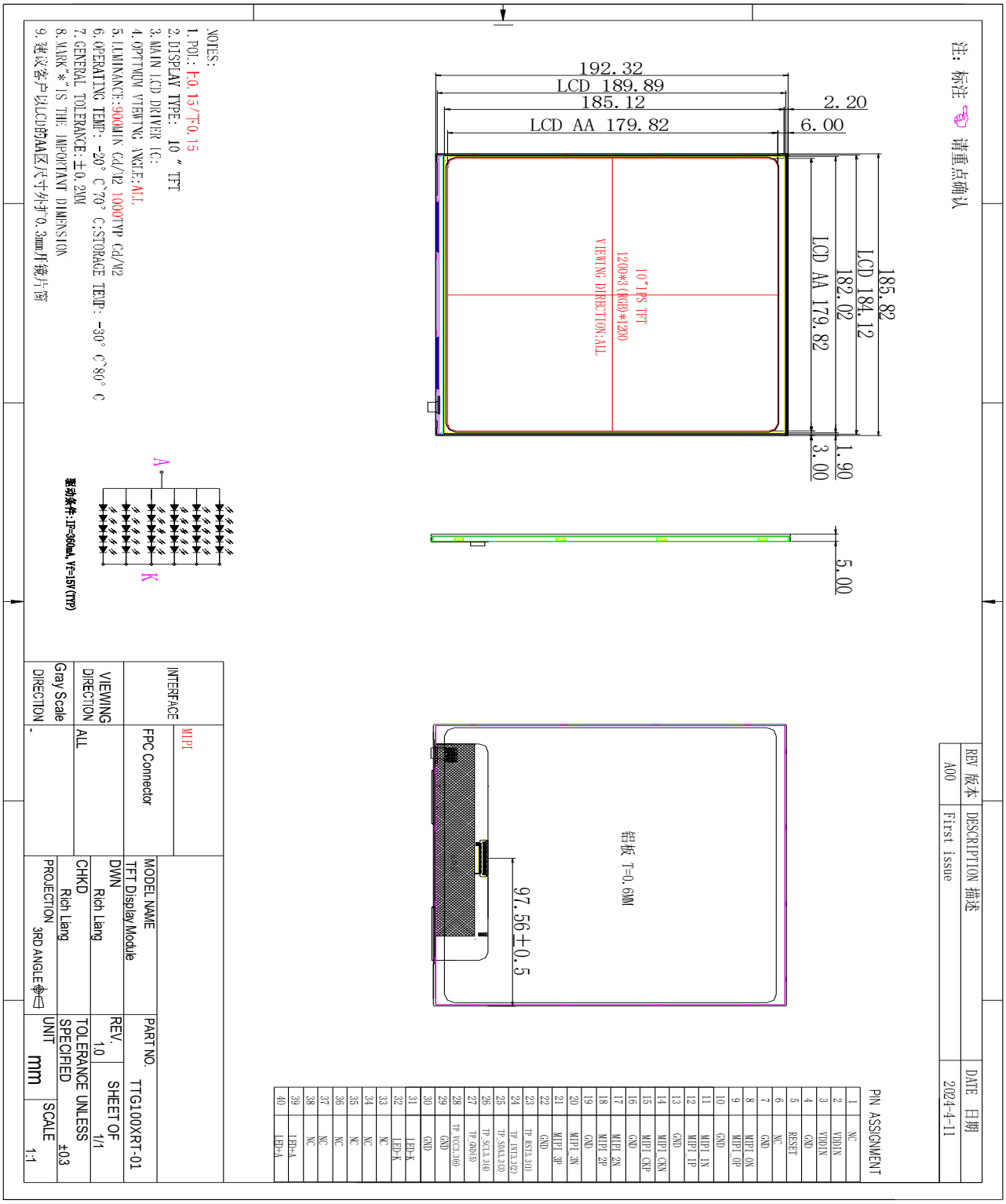
Fig. 2 Definition of uniformity
Lmax: The measured maximum luminance of all measurement position.
Lmin: The measured minimum luminance of all measurement position.
Note 7: Definition of Luminance:
Measure the luminance of white state at center point.

8 Environmental / Reliability Tests

No	Test Item	Condition	Remarks
1	High Temperature Operation	Ts= +70℃, 240hrs	Note 1 IEC60068-2-2, GB2423. 2-89
2	Low Temperature Operation	Ta= -20℃, 240hrs	Note 2 IEC60068-2-1 GB2423.1-89
3	High Temperature Storage	Ta= +80℃, 240hrs	IEC60068-2-2 GB2423. 2-89
4	Low Temperature Storage	Ta= -30℃, 240hrs	IEC60068-2-1 GB/T2423.1-89
5	High Temperature & Humidity Storage	Ta= +60℃, 90% RH max, 160 hours	IEC60068-2-3 GB/T2423.3-2006
6	Thermal Shock (Non-operation)	-30℃ 30 min ~ +80℃ 30 min Change time: 5min, 30 Cycle	Start with cold temperature, end with high temperature IEC60068-2-14, GB2423.22-87
7	Electro Static Discharge (Operation)	C=150pF, R=330 Ω, 5 points/panel Air:±8KV, 5 times; Contact: ±4KV, 5 times; (Environment: 15℃ ~ 35℃, 30% ~ 60%, 86Kpa ~ 106Kpa)	IEC61000-4-2 GB/T17626.2-1998
8	Vibration (Non-operation)	Frequency range: 10~55Hz, Stroke: 1.mm Sweep: 10Hz~55Hz~10Hz 2 hours for each direction of X .Y. Z. (package condition)	IEC60068-2-6 GB/T2423.5-1995
9	Shock (Non-operation)	60G 6ms, ± X, ±Y , ± Z 3 times for each direction	IEC60068-2-27 GB/T2423.5-1995
10	Package Drop Test	Height: 60 cm, 1 corner, 3 edges, 6 surfaces	IEC60068-2-32 GB/T2423.8-1995

Note: 1. Ts is the temperature of panel's surface.
2. Ta is the ambient temperature of sample.

9 Mechanical Drawing



1 0.Packing

TBD

11. Precautions for Use of LCD modules

11.1 Handling Precautions

11.1.1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

11.1.2. If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

cause the color tone to vary.

11.1.4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

11.1.5. If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol
- Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

Water ； Ketene ； Aromatic solvents

11.1.6. Do not attempt to disassemble the LCD Module.

11.1.7. If the logic circuit power is off, do not apply the input signals.

11.1.8. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

11.1.8.1. Be sure to ground the body when handling the LCD Modules.

11.1.8.2. Tools required for assembly, such as soldering irons, must be properly ground.

11.1.8.3. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

11.1.8.4. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

11.2 Storage Precautions

11.2.1. When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.

11.2.2. The LCD modules should be stored under the storage temperature range If the LCD modules will be stored for a long time, the recommend condition is:

Temperature : 0℃ ～ 40℃ Relatively humidity: ≤80%

11.2.3. The LCD modules should be stored in the room without acid, alkali and harmful gas.

11.3 Transportation Precautions

The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.