



A Professional Manufacturer of Display

Manufacturer Certificated



CERT. No.: 282Q19070712006



CERT. No.: 282E19070712007

Product Specification

Model: TTX080SHT-01

8.0" TFT Display Module (800*480)

This module uses RoHS material

Tailor Pixels Technology Co., Ltd.

www.tailorpixels.com

tailor@tailorpixels.com

Ph: 86-755-8821 2653

Contents

1. Record of Revision.....	2
2. General Specifications.....	3
3. Mechanical Drawing.....	4
4. Interface.....	5
5. Absolute Maximum Ratings.....	6
6. Electrical Characteristics.....	7
7. Optical Characteristics.....	12
8. Environmental / Reliability Tests.....	15
9. Precautions For Use of LCD modules.....	16

1 Record of Revision

Rev	Issued Date	Description	Remark
1.0	2020/01/05	First Release.	

2 General Specifications

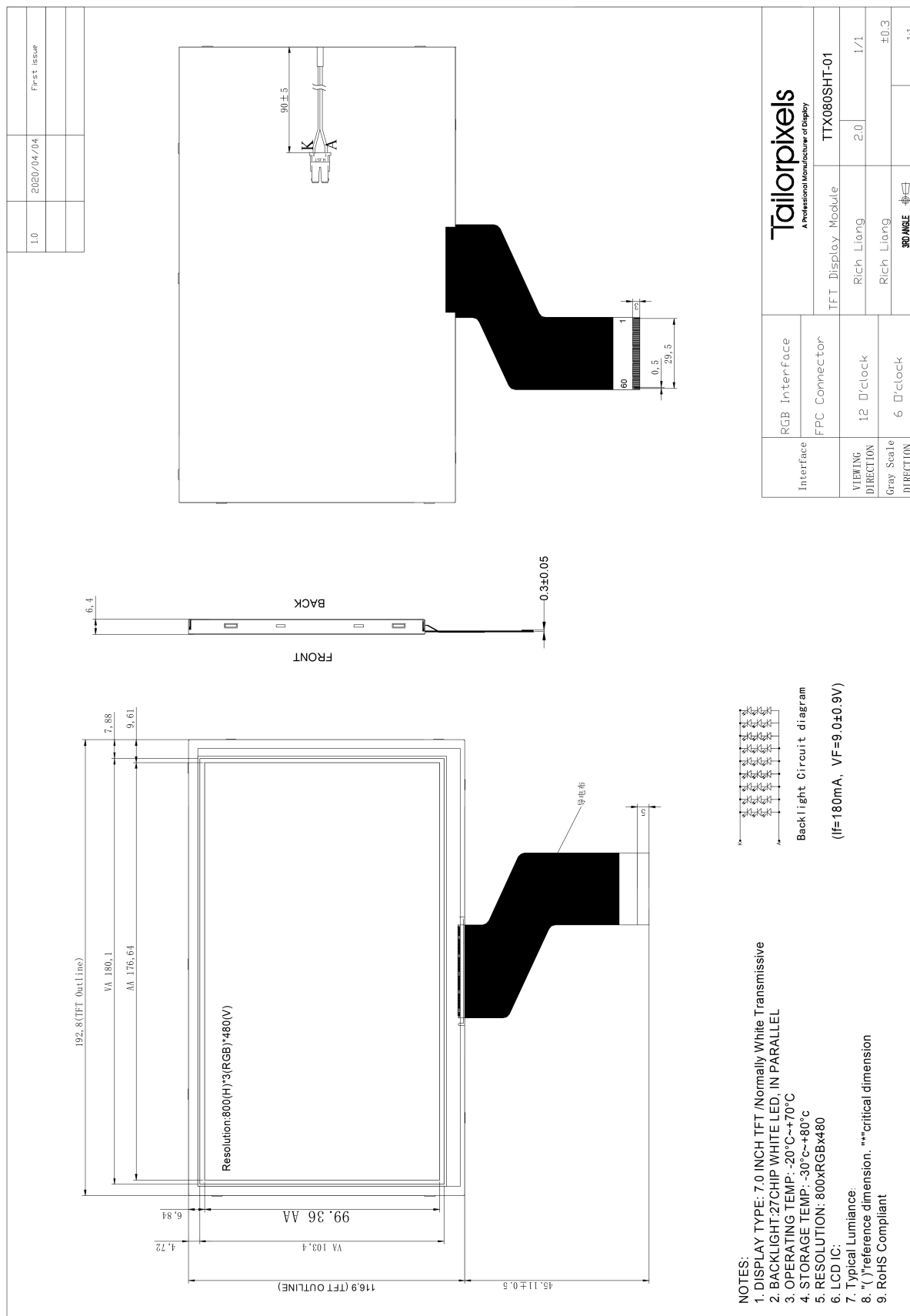
Feature		Spec
Characteristics	Size	8 inch
	Resolution	800(horizontal)*480(Vertical)
	Interface	RGB
	Connect type	Connector
	Color Depth	16.7M
	Technology type	a-Si
	Display Spec. Pixel pitch (mm)	0.0736×3(H) x 0.207(V)
	Pixel Configuration	R.G.B. Vertical Stripe
	Display Mode	Normally White
	Driver IC	-
	Surface Treatment	HC
	Viewing Direction	12 O'clock
	Gray Viewing Direction	6 O'clock
Mechanical	LCM (W x H x D) (mm)	192.8*116.9*6.4
	Active Area(mm)	176.64 x 99.36
	With /Without TSP	Without
	Weight (g)	TBD
	LED Numbers	27 LEDs

Note 1: Viewing direction follows the data measured by optics equipment.

Note 2: Requirements on Environmental Protection: RoHS

Note 3: LCM weight tolerance: +/- 5%

3 Mechanical Drawing



4 Interface

No.	Symbol	Description
1	GND	Power ground
2	AVDD	Power for Analog circuit
3	VCC	Power for Digital circuit
4	R0	Red data
5	R1	Red data
6	R2	Red data
7	R3	Red data
8	R4	Red data
9	R5	Red data
10	R6	Red data
11	R7	Red data
12	G0	Green data
13	G1	Green data
14	G2	Green data
15	G3	Green data
16	G4	Green data
17	G5	Green data
18	G6	Green data
19	G7	Green data
20	B0	Blue data
21	B1	Blue data
22	B2	Blue data
23	B3	Blue data
24	B4	Blue data
25	B5	Blue data
26	B6	Blue data
27	B7	Blue data
28	DCLK	Sample clock
29	DE	Data Input Enable
30	HS	Horizontal Sync Input
31	VS	Vertical Sync Input
32	MODE	DE/SYNC mode select (Note3)
33	RESET	Global reset pin.(Note1)
34	STBYB	STBYB=0 timing controlsruce
35	SHLR	Right/ left selection
36	VCC	Power ground

37	UPDN	Up/down selection
38	GND	Power ground
39	GND	Power ground
40	AVDD	Power for Analog circuit
41	VCOM	Common voltage
42	DITH	Dithering function
43~55	NC	No connection
56	VGH	Gate ON voltage
57	VCC	Power for Digital circuit
58	VGL	Gate OFF voltage
59	GND	Power ground
60	NC	No connection

5 Absolute Maximum Ratings

(Note 1)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	DV_{DD}	-0.3	5.0	V	
	AV_{DD}	6.5	13.5	V	
	V_{GH}	-0.3	40.0	V	
	V_{GL}	-20.0	0.3	V	
	$V_{GH}-V_{GL}$	-	40.0	V	
Operation Temperature	T_{OP}	-20	70	°C	
Storage Temperature	T_{ST}	-30	80	°C	

Note 1: The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the 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 Electrical Characteristics

6.1 Operation Conditions

Item	Symbol	Values			Unit	Remark
		Min	Type.	Max		
Input Signal Voltage	V _{COM}	3.4	3.7	4.0	V	Note 1
Power Voltage	V _{GL}	-9.8	-6.8	-3.8	V	Note 2
	V _{GH}	16	20	24	V	

Note 1:

(1) Vcom value is available in the condition:

The ambient temperature is 25℃

The operation frequency is 60Hz

(2) The gate IC is the HX8696-A00DPD300 COG Himax,the source IC is the HX8282-A08DPD300 COG.

Note 2:

(1) Be sure to apply VCC and VGL to the LCD first, and then apply VGH

(2) Be sure center contrast ratio is 90% at least when VGL drifts3v and VGH drifts 4v.

Operation Frequency is @ 60Hz.

Item	Symbol	Values			Unit	Remark
		Min	Type.	Max		
Input Signal Voltage	V _{COM}	3.4	3.7	4.0	V	Note 1
Power Voltage	V _{GL}	-9.8	-6.8	-3.8	V	Note 2
	V _{GH}	16	20	24	V	

Note 1:

(1) Vcom value is available in the condition:

The ambient temperature is 25℃

The operation frequency is 60Hz

(2) The gate IC is the HX8696-A00DPD300 COG Himax,the source IC is the HX8282-A08DPD300 COG.

Note 2:

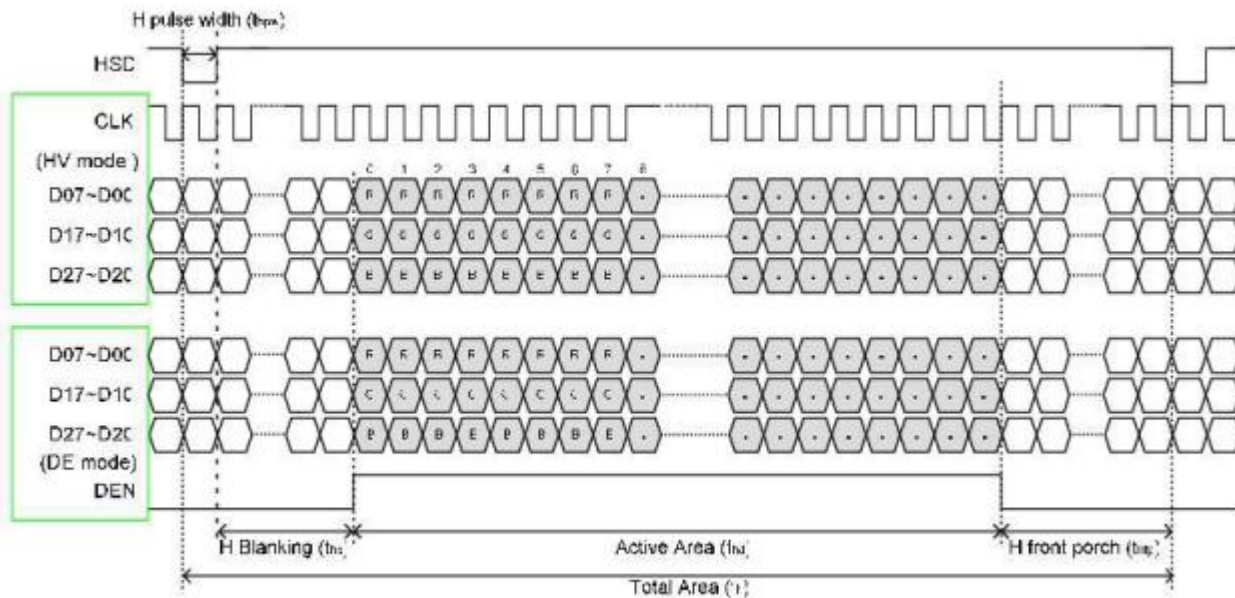
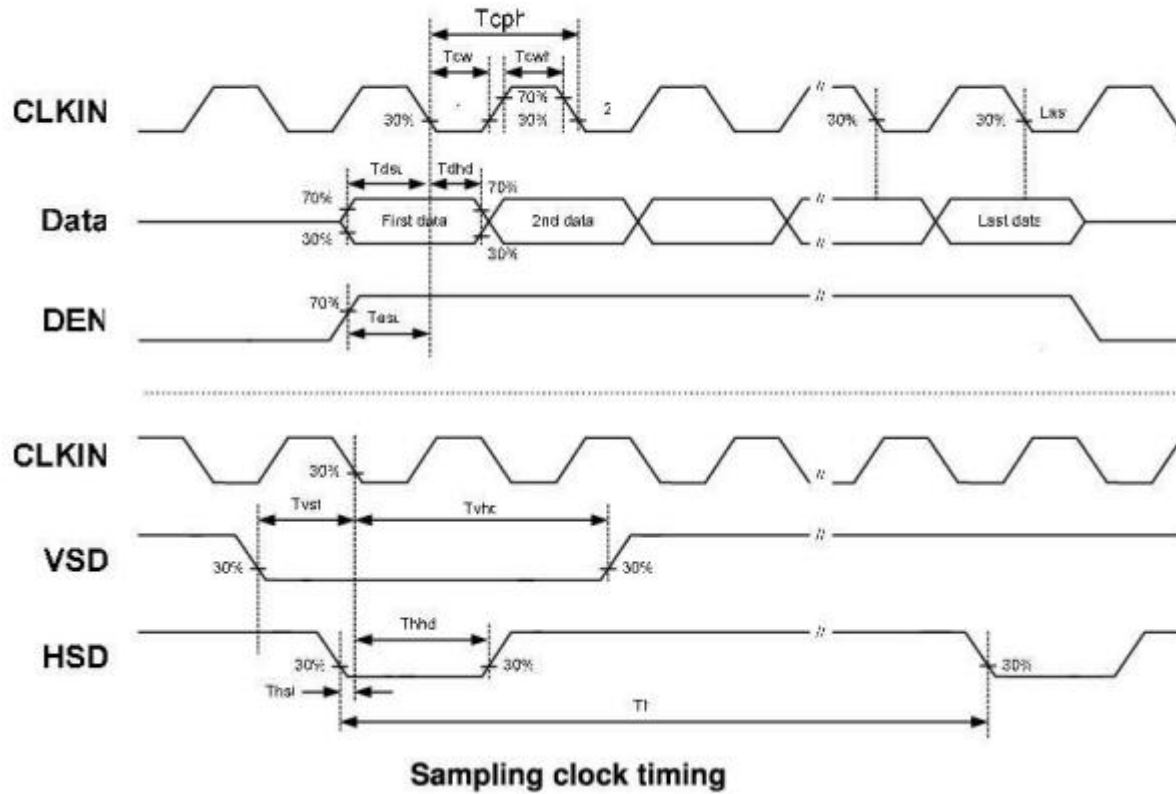
(1) Be sure to apply VCC and VGL to the LCD first, and then apply VGH

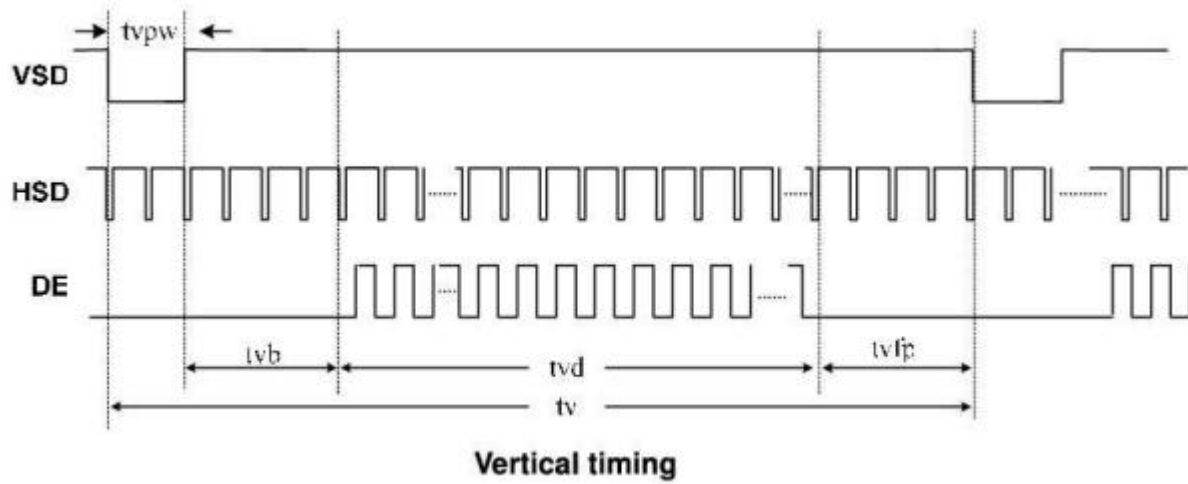
(2) Be sure center contrast ratio is 90% at least when VGL drifts3v and VGH drifts 4v.

Operation Frequency is @ 60Hz.

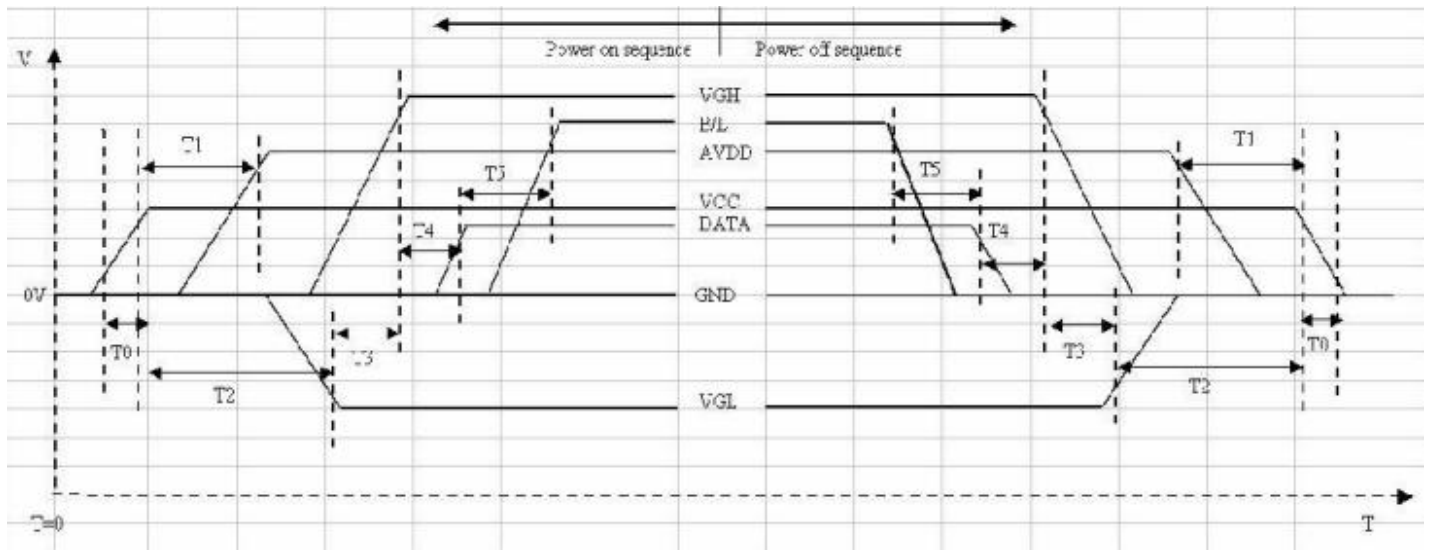
6.2 Interface Timing

Timing Diagram of Interface Signal

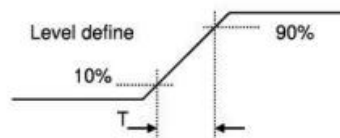




6.3 Power sequence



Item	Min.	Typ.	Max.	Unit
T0	0.5	--	20	msec
T1	16	.	.	msec
T2	20	.	.	msec
T3	10	.	.	msec
T4	10	.	50	msec
T5	50	.	.	msec



Power On Sequence: VCC-> AVDD -> VGL -> VGH -> Data -> B/L

Power Off Sequence: B/L-> Data -> VGH -> VGL -> AVDD -> VCC

Notes: Data include R0~R7, G0~G7, B0~B7, HSD, VSD, DCLK, SHLR, UPDN, DE MODE, RSTB, STBYB, SHLR, UPDN, DITH

6.4 Driving Backlight

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Forward Current	I_F	-	180	-	mA	
Forward Voltage	V_F	8.1	9.0	9.9	V	

Note 1: Each LED : $I_F = 20 \text{ mA}$, $V_F = 3.2 \text{ V}$.

Note 2: Optical performance should be evaluated at $T_a = 25^\circ\text{C}$ only.

Note 3: If LED is driven by high current, high ambient temperature & humidity condition. The life time of LED will be reduced. Operating life means brightness goes down to 50% initial brightness. Typical operating life time is estimated data.

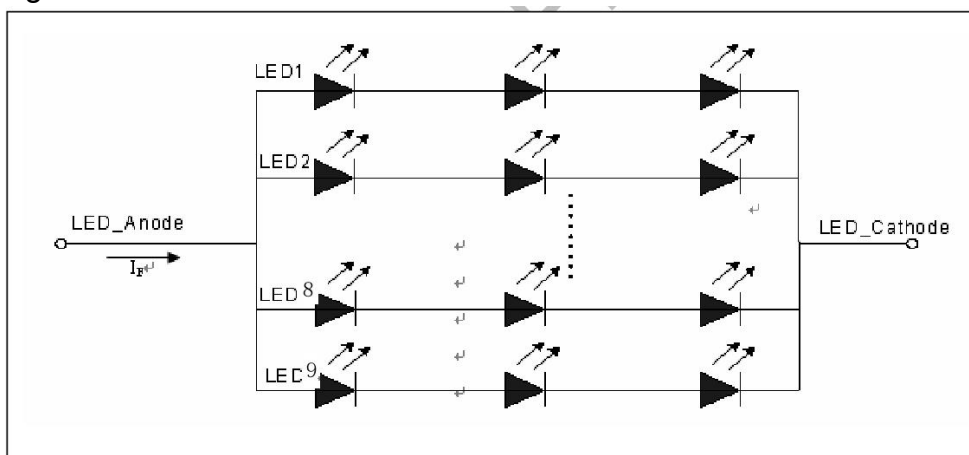


Figure : LED connection of backlight

7 Optical Characteristics

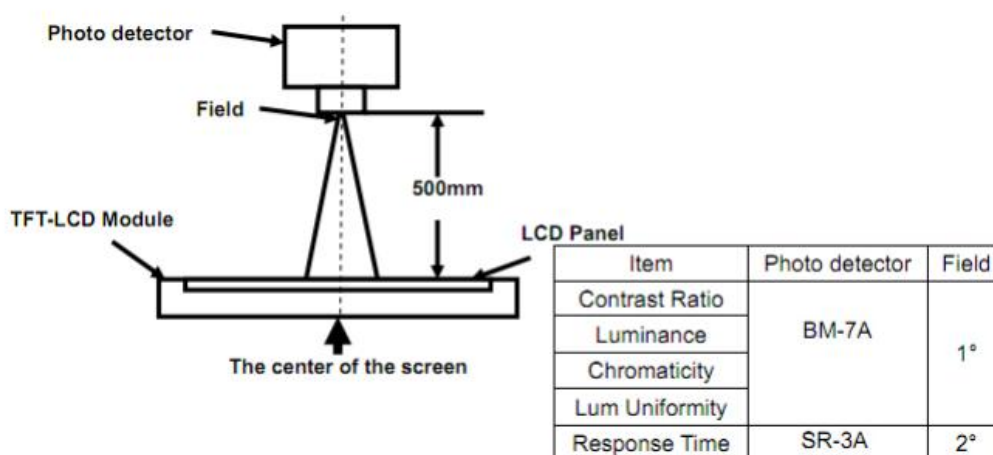
Items	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angles	θ_L		60	75	-	Degree.	Note2
	θ_R		60	75	-		
	θ_T		40	70	-		
	θ_B		60	75	-		
Contrast Ratio	CR	$\Theta = 0$	-	400	500	-	Note1, Note3
Response Time	T_{ON}	25°C	-	10	20	ms	Note1, Note4
	T_{OFF}		-	15	30		
Chromaticity	White	Normal $\Theta = 0^\circ$	0.26	0.31	0.36	-	Note1, Note5
	Y_W		0.28	0.33	0.38	-	
Color Gamut	NTSC		-	50	-	%	Note1, Note6
Luminance	L			350			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 the darkroom. After 5 minutes of 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.



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).

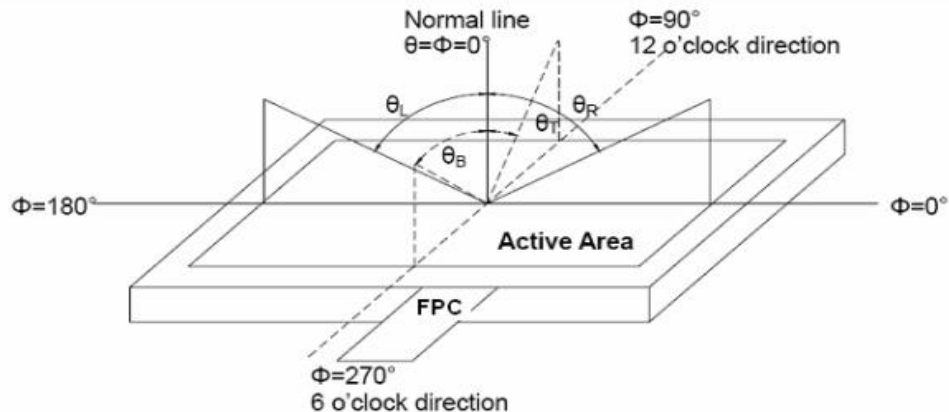


Fig. 1 Definition of viewing angle

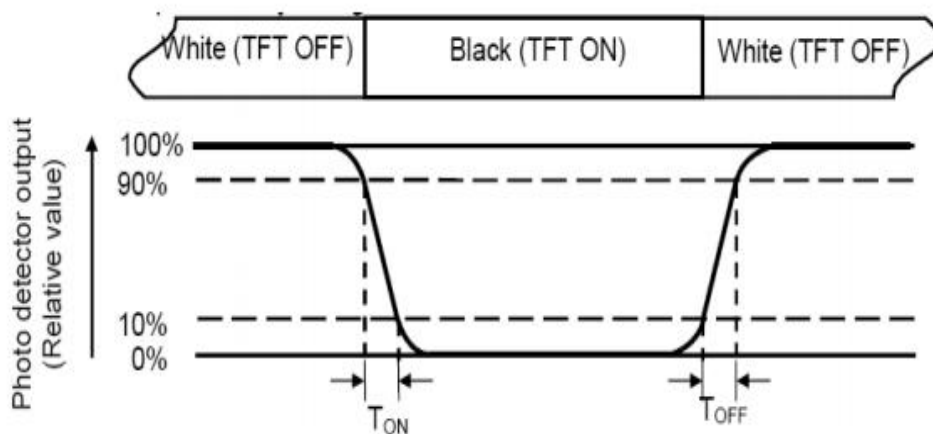
Note 3: Definition of contrast ratio

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

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) = $L_{min} / L_{max} \times 100\%$

L-----Active area length W----- Active area width

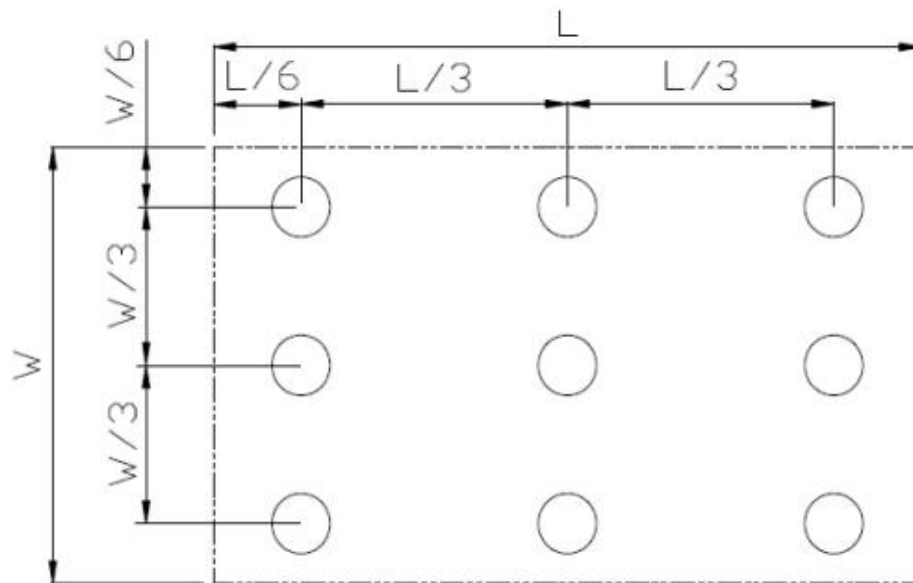


Fig. 2 Definition of uniformity

L_{max} : The measured maximum luminance of all measurement position.

L_{min} : 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	$T_s = +70^{\circ}\text{C}$, 240hrs	Note 1 IEC60068-2-2, GB2423. 2-89
2	Low Temperature Operation	$T_a = -20^{\circ}\text{C}$, 240hrs	Note 2 IEC60068-2-1 GB2423.1-89
3	High Temperature Storage	$T_a = +80^{\circ}\text{C}$, 240hrs	IEC60068-2-2 GB2423. 2-89
4	Low Temperature Storage	$T_a = -30^{\circ}\text{C}$, 240hrs	IEC60068-2-1 GB/T2423.1-89
5	High Temperature & Humidity Storage	$T_a = +60^{\circ}\text{C}$, 90% RH max, 160 hours	IEC60068-2-3 GB/T2423.3-2006
6	Thermal Shock (Non-operation)	-30°C 30 min ~ $+80^{\circ}\text{C}$ 30 min Change time: 5min, 30 Cycle	Start with cold temperature, end with high temperature IEC60068-2-14, GB2423.22-87
7	Electro Discharge (Operation) Static	$C=150\text{pF}$, $R=330\ \Omega$, 5 points/panel Air: $\pm 8\text{KV}$, 5 times; Contact: $\pm 4\text{KV}$, 5 times; (Environment: $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$, 30% ~ 60%, 86Kpa ~ 106Kpa)	IEC61000-4-2 GB/T17626.2-1998
8	Vibration (Non-operation)	Frequency range: 10~55Hz, Stroke: 1mm 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, $\pm X$, $\pm Y$, $\pm Z$ 3 times for each direction	IEC60068-2-27 GB/T2423.5-1995
10	Package Drop Test	Height: 80 cm, 1 corner, 3 edges, 6 surfaces	IEC60068-2-32 GB/T2423.8-1995

Note: 1. T_s is the temperature of panel's surface.

2. T_a is the ambient temperature of sample.

9 Precautions For Use of LCD modules

9.1 Handling Precautions

- 9.1.1 The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.
- 9.1.2 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.
- 9.1.3 Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.
- 9.1.4 The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.
- 9.1.5 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 the 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
- 9.1.6 Do not attempt to disassemble the LCD Module.
- 9.1.7 If the logic circuit power is off, do not apply the input signals.
- 9.1.8 To prevent the destruction of the elements by static electricity, be careful to maintain an optimum work environment.
 - 9.1.8.1 Be sure to ground the body when handling the LCD Modules.
 - 9.1.8.2 Tools required for assembly, such as soldering irons, must be properly ground.
 - 9.1.8.3 To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
 - 9.1.8.4 The LCD Module is coated with a film to protect the display surface. Be careful when peeling off this protective film since static electricity may be generated.

9.2 Storage Precautions

- 9.2.1 When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.
- 9.2.2 The LCD modules should be stored under the storage temperature range. If the LCD modules will be stored for a long time, the recommended condition is:
 Temperature: 0°C ~ 40°C, Relatively humidity: ≤80%
- 9.2.3 The LCD modules should be stored in the room without acid, alkali, and harmful gas.

9.3 Transportation Precautions

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