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CERT. No.: 282Q19070712006



CERT. No.: 282E19070712007

Product Specification

Model: TTX080KHT-01

8.0" TFT Display Module (800*600)

This module uses RoHS material

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1. Record of Revision

Rev	Issued Date	Description	Editor
A0	2025/08/07	First Release.	

2 General Specifications

Feature		Spec
Characteristics	Size	8 inch
	Resolution	800(horizontal)*600(Vertical)
	Interface	RGB
	Connect type	Connector
	Color Depth	16.7M
	Technology type	a-Si
	Display Spec. Pixel pitch (mm)	0.2025*0.2025
	Pixel Configuration	R.G.B. Vertical Stripe
	Display Mode	Normally Black
	Driver IC	TBD
	Surface Treatment	HC
	Viewing Direction	ALL
Mechanical	LCM (W x H x D) (mm)	183 *141*3.5
	Active Area(mm)	162*121.5
	With /Without TSP	Without TSP
	Weight (g)	TBD
	LED Numbers	27 LEDs

Note 1: Viewing direction is follow the data which measured by optics equipment.

Note 2: Requirements on Environmental Protection: RoHS

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

3 Input/Output Terminals

model is FH12A-50S-0.5SH manufactured by Hirose.

PIN NO.	SYMBOL	DESCRIPTION
1	LED+	Power for LED backlight(Anode)
2	LED+	Power for LED backlight(Anode)
3	LED-	Power for LED backlight(Cathode)
4	LED-	Power for LED backlight(Cathode)
5	GND	Power ground
6	VCOM	Common voltage
7	DVDD	Powre for Digital Circuit
8	MODE	DE/SYNC mode select
9	DE	Data Input Enable
10	VS	Vertical Sync Input
11	HS	Horizontal Sync Input
12-19	B7-B0	Blue data
20-27	G7-G0	Green data
28-35	R7-R0	Red data
36	GND	Power ground
37	DCLK	Sample clock
38	GND	Power ground
39	L/R	Left/right selection
40	U/D	Up/down selection
41	VGH	Gate ON Voltage
42	VGL	Gate OFF Voltage
43	AVDD	Power for Analog Circuit
44	RESET	Global reset pin.
45	NC	Not connect
46	VCOM	Common Voltage
47	DITHB	Dithering function
48	GND	Power ground
49	NC	Not connect
50	NC	Not connect

Note 1: Global reset pin. Active Low to enter Reset State. Suggest to connecting with an RC reset circuit for stability. Normally pull high.

Note 2: Selection of scanning mode

Setting of scan control input		Scanning direction
U/D	R/L	
GND	V _{CC}	Up to down, left to right
V _{CC}	GND	Down to up, right to left
GND	GND	Up to down, right to left
V _{CC}	V _{CC}	Down to up, left to right

Note 3: DE/SYNC mode select, Normally pull high.

H: DE mode.

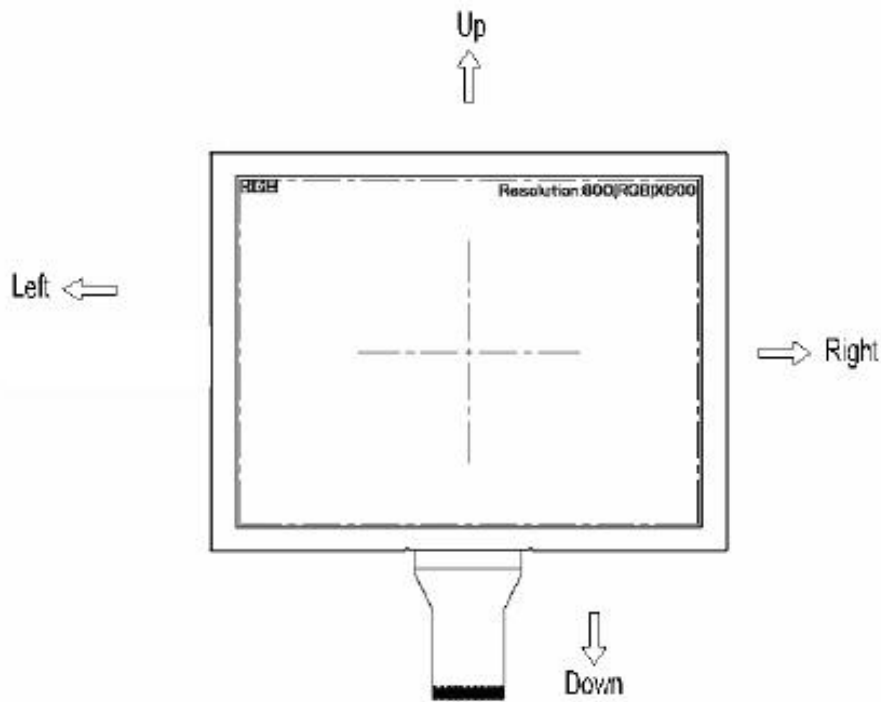
L: HS/VS mode.

Note4: Dithering function enable control. Normally pull high.

DITHB="1", Disable internal dithering function. For 18bit RGB interface, connect two LSB bits of all the R/G/B data buses to GND.

DITHB="0", Enable internal dithering function, For TTL 24bit parallel RGB image data input.

Note 5: Definition of scanning direction.
Refer to the figure as below:



4 Driving TFT LCD Panel

Item	Symbol	MIN	MAX	Unit	Remark
Supply Voltage	V_{DD}	-0.3	3.96	V	
Operating Temperature	T_{OPR}	-20	70	°C	
Storage Temperature	T_{STG}	-30	80	°C	

5 Electrical Characteristics

5.1 Absolute Maximum Rating

(GND=AV_{SS}=0V, Note 1)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	V _{CC}	-0.3	3.96	V	
	AV _{DD}	-0.3	12.0	V	
	V _{GH}	-0.3	V _{GL} +32	V	
	V _{GL}	V _{GL} -32	0.3	V	
	V _{COM}	-0.3	5.43	V	
Operation Temperature Storage Temperature	T _{OP}	-20	70	°C	
	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.

5.2 Typical Operation Conditions

2.8

(GND=AV_{SS}=0V, Note 1)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power voltage	V _{CC}	2.8	3.3	3.6	V	Note 2
	AV _{DD}	9.0	10.6	12.0	V	
	V _{GH}	15.0	20.0	20.0	V	
	V _{GL}	-12	-7.0	-6.0	V	
Input signal voltage	V _{COM}	2.7	3.9	4.94	V	Note 4
Input logic high voltage	V _{IH}	0.8V _{CC}	-	V _{CC}	V	Note 3
Input logic low voltage	V _{IL}	0	-	0.2V _{CC}	V	

Note 1: Be sure to apply V_{CC} and V_{GL} to the LCD first, and then apply V_{GH}.

Note 2: V_{CC} setting should match the signals output voltage (refer to Note 3) of customer's system board.

Note 3: DCLK, HS, VS, RSTB, UPDN, STLR, MODE, DITHB.

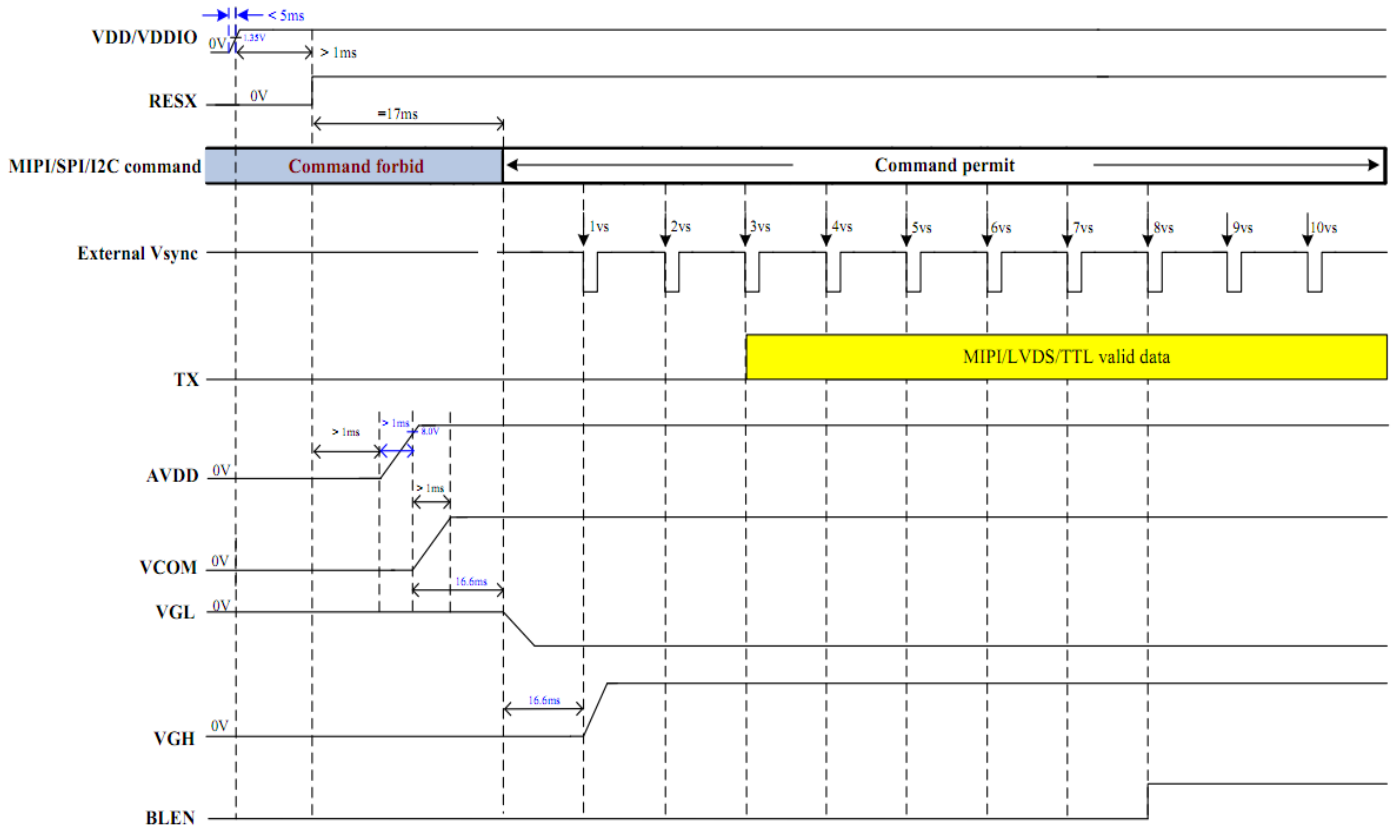
Note 4: Typical V_{COM} is only a reference value, it must be optimized according to each LCM. Be sure to use VR;

5.3 Current Consumption

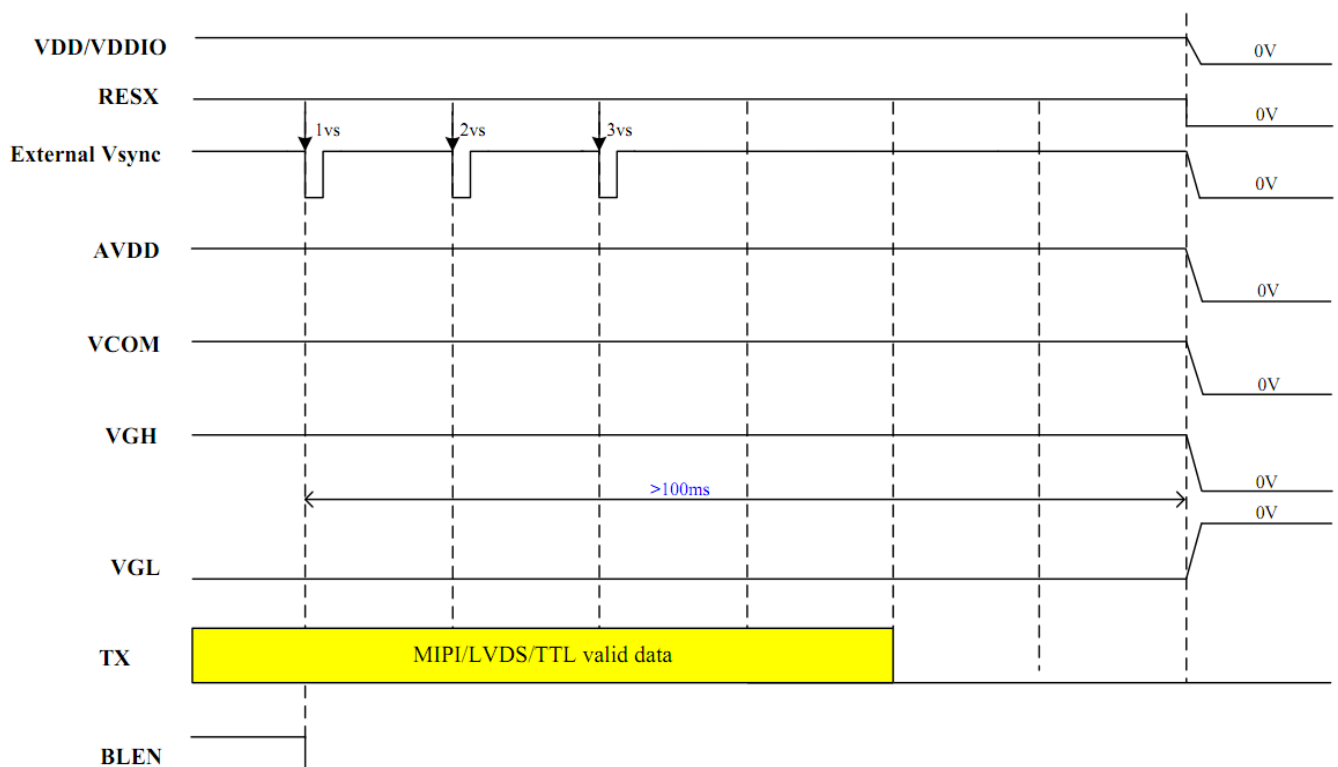
(GND=AV _{SS} =0V)						
Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current for Driver	I _{GH}	-	0.2	0.5	mA	V _{GH} = 20.0 V
	I _{GL}	-	0.2	1.0	mA	V _{GL} = -7.0V
	I _{CC}	-	5.5	10.0	mA	V _{CC} = 3.3V
	I _{AVDD}	-	32.0	50.0	mA	AV _{DD} = 10.6V

5.4 Power sequence

Power on:



Power off:



5.4 Timing Characteristics

5.4.1 AC Electrical Characteristics

Input data /sync parameters

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
CLKIN period	T_{cph}	14	-	-	ns
CLKIN duty ratio	T_{clw}	40	50	60	%
Data setup time	T_{dsu}	5	-	-	ns
Data hold time	T_{dhd}	5	-	-	ns
VSD setup time	T_{ss}	5	-	-	ns
VSD hold time	T_{sh}	5	-	-	ns
HSD setup time	T_{ss}	5	-	-	ns
HSD hold time	T_{sh}	5	-	-	ns
DEN setup time	T_{ss}	5	-	-	ns
DEN hold time	T_{sh}	5	-	-	ns

TTL mode AC electrical characteristics

5.4.2 TTL Timing

24-bit parallel RGB interface

Resolution:800x600

24-bit parallel RGB Input Timing	Symbol	1024RGBx768			1024RGBx600			800RGBx600			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
DCLK Frequency	-	52.7	65	71	41.4	51.2	67.2	33.1	39.6	62.4	MHZ
Horizontal Total	tht	1114	1344	1400	1114	1344	1400	890	1000	1300	DCLK
Hsync Pulse width	ths	1	24	HBP-1	1	24	HBP-1	1	24	HBP-1	DCLK
Horizontal Back Porch	thb	60	160	160	60	160	160	60	160	250	DCLK
Horizontal Valid Data	thd	1024			1024			800			DCLK
Horizontal Front Porch	thfp	30	160	216	30	160	216	30	40	250	DCLK
Vertical Total	tvf	788	806	845	620	635	800	620	660	800	THT
Vsync Pulse Width	tvf	1	2	VBP-1	1	2	VBP-1	1	2	VBP-1	THT
Vertical Back Porch	tvb	8	23	33	8	23	100	8	23	100	THT
Vertical Valid Data	tvf	768			600			600			THT
Vertical Front Porch	tvfp	12	15	44	12	12	100	12	37	100	THT

5.4.3 Timing Diagram

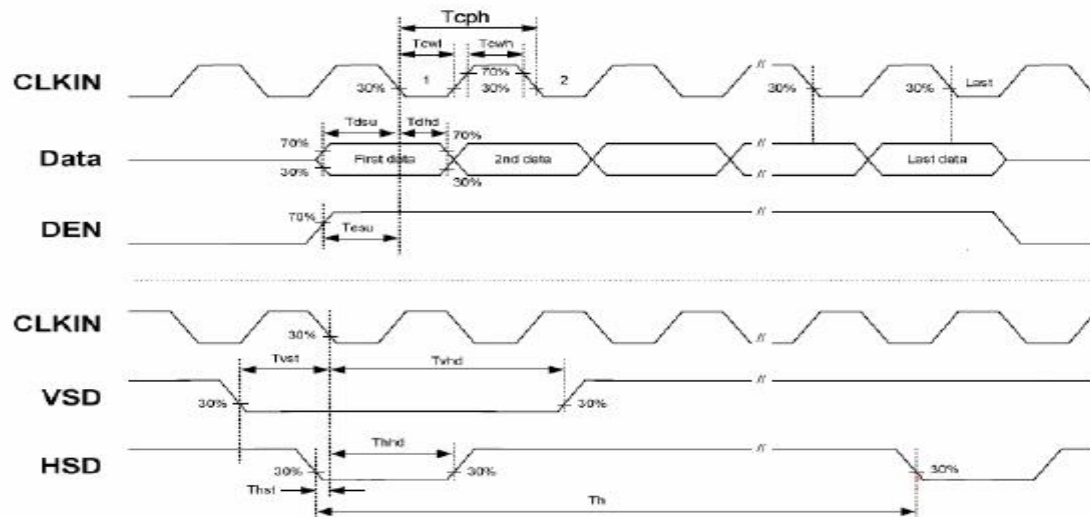
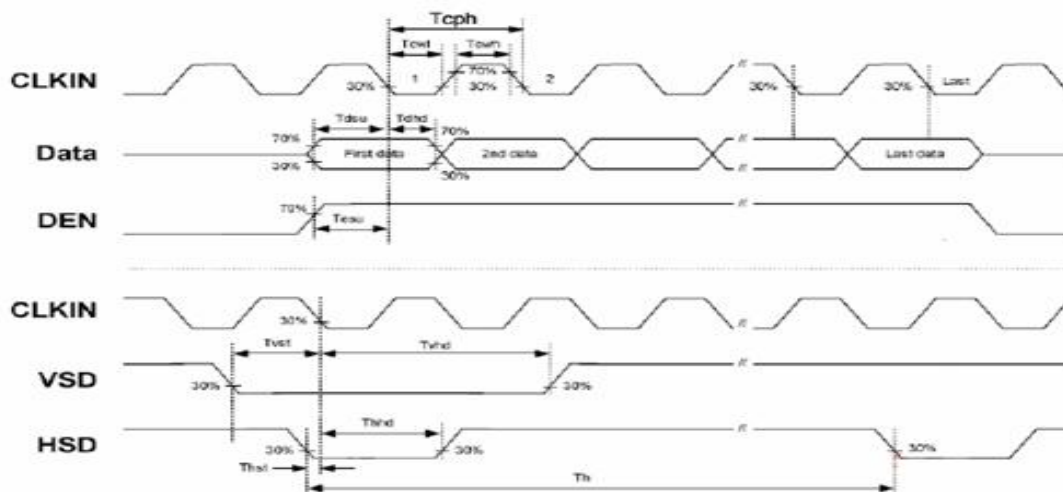


Figure 3.1 Input Clock and Data Timing Diagram





5.4 Driving Backlight

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Forward Current	I_F	-	180	-	mA	
Forward Voltage	V_F	8.4	9.0	10.2	V	
Backlight Power consumption	W_{BL}	-	1.62	-	W	

Note 1: Each LED : $I_F = 20 \text{ mA}$, $V_F = 3.0 \text{ V}$.

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.

6 Optical Characteristics

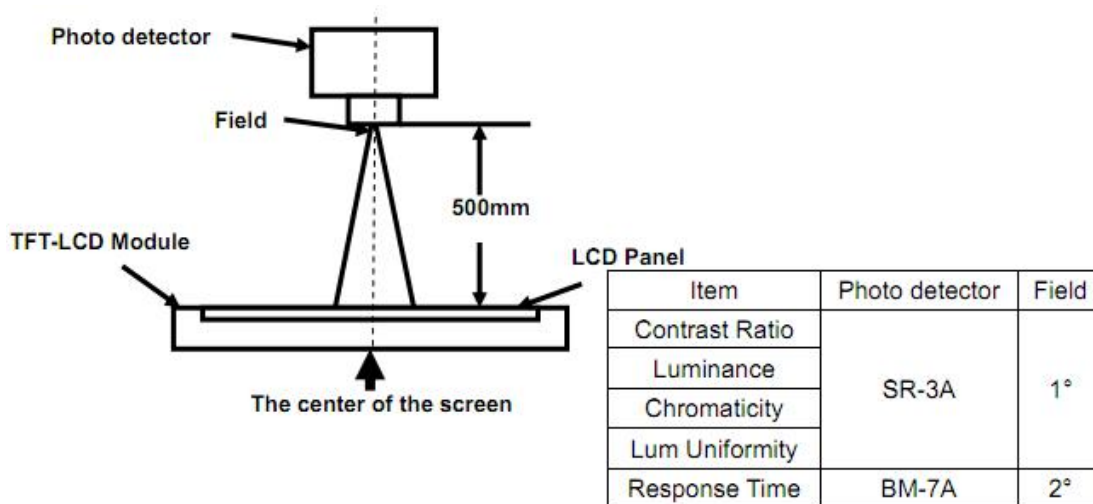
Items	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angles	θ_T	Center $CR \geq 10$	80	85	-	Degree.	Note2
	θ_B		80	85	-		
	θ_L		80	85	-		
	θ_R		80	85	-		
Contrast Ratio	CR	$\Theta = 0$	800	1000	-	-	Note1 Note3
Response Time	T_{ON}	$25^\circ C$	-	10	20	ms	Note1
	T_{OFF}		-	15	30		Note4
Chromaticity	X_W	Backlight is on	0.26	0.31	0.36	-	Note1
	Y_W		0.28	0.34	0.38	-	Note5
Uniformity	U		75	80	-	%	Note1 Note6
Luminance	L		200	250	-		Note1 Note7

Test Conditions:

1. IF=180mA(one channel),the ambient temperature is 25.
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.



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).

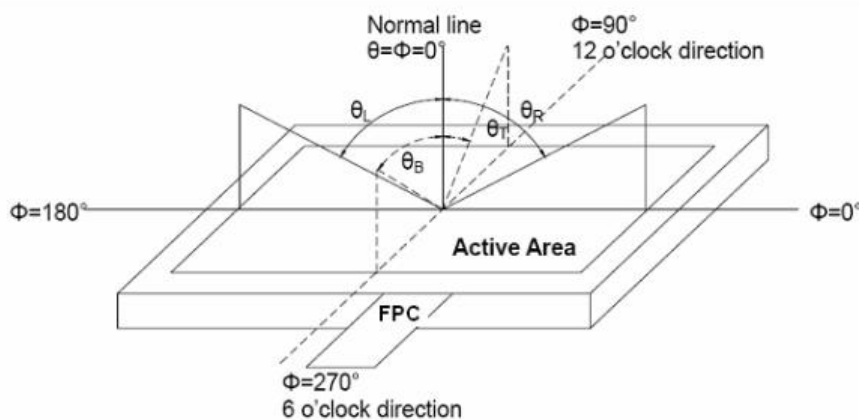


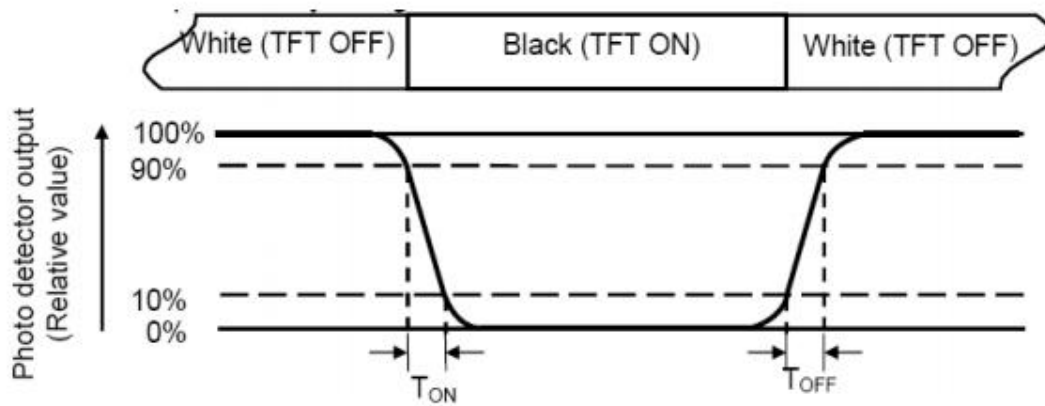
Fig. 1 Definition of viewing angle

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}

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

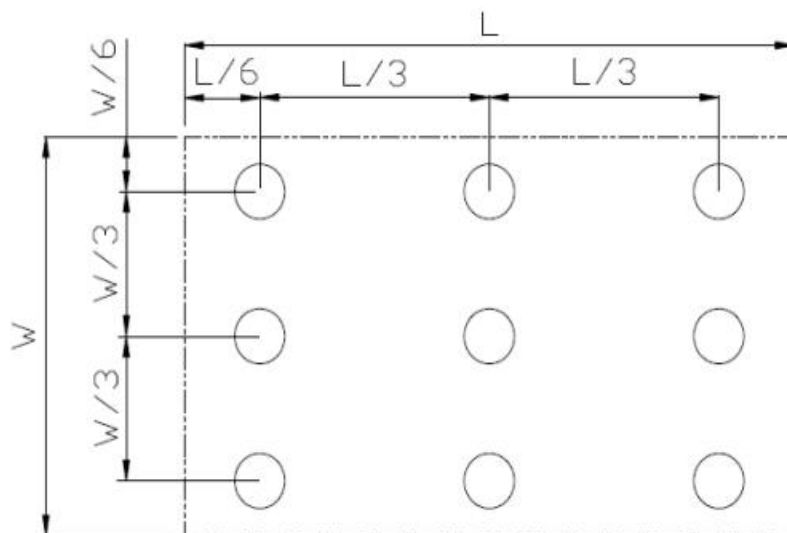


Fig. 2 Definition of uniformity

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.

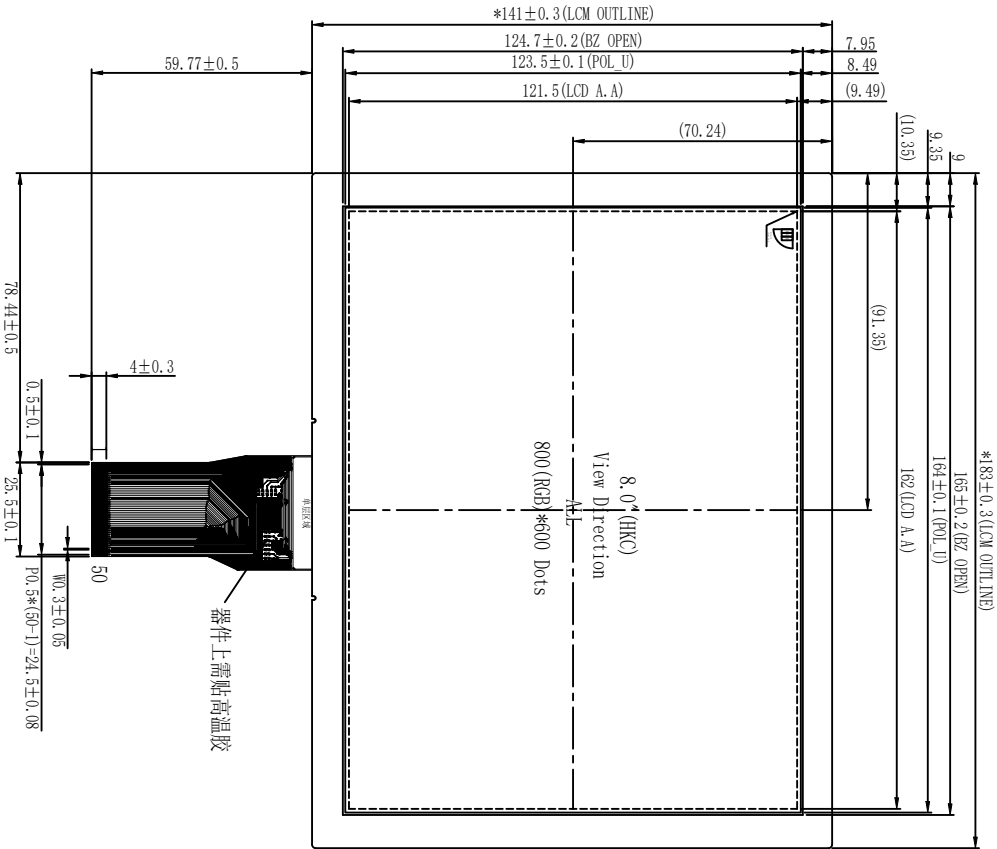
7 Environmental / Reliability Tests

No	Test Item	Condition	Remarks
1	High Temperature Opeartion	Ts= +70℃, 96hrs	Note 1 IEC60068-2-2, GB2423. 2-89
2	Low Temperature Opeartion	Ta= -20℃, 96hrs	Note 2 IEC60068-2-1 GB2423.1-89
3	High Temperature Storage	Ta= +80℃, 96hrs	IEC60068-2-2 GB2423. 2-89
4	Low Temperature Storage	Ta= -30℃, 96hrs	IEC60068-2-1 GB/T2423.1-89
5	High Temperature & Humidity Storage	Ta= +60℃, 90% RH max, 96 hours	IEC60068-2-3 GB/T2423.3-2006
6	Thermal Shock (Non-operation)	-30℃ 30 min ~ +80℃ 30 min Change time: 5min, 20 Cycle	Start with cold temperature,end with high temperature IEC60068-2-14, GB2423.22-87
7	Electro Static Discharge (Opeartion)	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: 80 cm, 1 corner, 3 edges, 6 surfaces	IEC60068-2-32 GB/T2423.8-1995

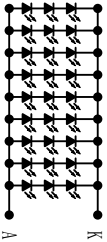
Note: 1. Ts is the temperature of panel's surface.

2. Ta is the ambient temperature of sample.

8 Mechanical Drawing



- NOTES:
1. DISPLAY TYPE: 8.0 INCH TFT /BLACK
 2. BACKLIGHT: 27 CHIP WHITE LED, IN PARALLEL
 3. OPERATING TEMP: -10° C~+60° C
 4. STORAGE TEMP: -20° c~+70° c
 5. RESOLUTION: 800RGBx600
 6. LCD IC:JD9165BA
 7. Luminous instensity(9 AVG):Module:200cd/m2 (MIN.), 250cd/m2 (TYP.)
 8. Uniformity:75% (Min)
 9. “ () ”reference dimension. “ * ” critical dimension
 10. RoHS Compliant



CIRCUIT DIAGRAM- 27LEDS, 8.4V~10.2V/180mA

INTERFACE		RGB Interface	
VIEWING DIRECTION	PPC Connector	MODEL NAME	PART NO.
	ALL	TFT Display Module	TTYX080KIT-01
Gray Scale DIRECTION	FREE	PROJECTION	3RD ANGLE
		UNIT	MM
		SCALE	1:1

LCM ASSIGNMENT:

1	LEDA	11	HS	21	G6	31	R4	41	VGH
2	LEDA	12	B7	22	G5	32	R3	42	VGL
3	LEDK	13	B6	23	G4	33	R2	43	AVDD
4	LEDK	14	B5	24	G3	34	R1	44	RESET
5	GND	15	B4	25	G2	35	R0	45	SCL
6	VCOM	16	B3	26	G1	36	GND	46	VCOM
7	VCC	17	B2	27	G0	37	DCLK	47	DTTB
8	MODE	18	B1	28	R7	38	GND	48	GND
9	DE	19	B0	29	R6	39	L/R	49	SDI
10	VS	20	G7	30	R5	40	U/D	50	CSB

9 Packing

TBD

10. Precautions For Use of LCD modules

10.1 Handling Precautions

- 10.1.1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.
- 10.1.2. 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.
- 10.1.3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.
- 10.1.4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.
- 10.1.5. 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
 - Ketone
 - Aromatic solvents
- 10.1.6. Do not attempt to disassemble the LCD Module.
- 10.1.7. If the logic circuit power is off, do not apply the input signals.
- 10.1.8. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
 - 10.1.8.1. Be sure to ground the body when handling the LCD Modules.
 - 10.1.8.2. Tools required for assembly, such as soldering irons, must be properly ground.
 - 10.1.8.3. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
 - 10.1.8.4. 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.

10.2 Storage Precautions

- 10.2.1. When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.
- 10.2.2. 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%
- 10.2.3. The LCD modules should be stored in the room without acid, alkali and harmful gas.

10.3 Transportation Precautions

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