



PRODUCT SPECIFICATION

KADI Model: KD080QSV24ND-DC31

CUSTOMER Model: -

Description: 8.0" TFT-LCD Module with CTP

Version: 1.0

KADI	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE			
DATE	2022.8.11	2022.8.11	2022.8.11

CUSTOMER APPROVAL	SIGNATURE	DATE



Contents

1. General Specifications	4
2. Absolute Maximum Ratings	5
3. Electrical Characteristics	5
4. Interface Pin Assignment	7
5. Interface Characteristics	10
6. Optical Specifications	14
7. Reliability Test Items	17
8. Mechanical Drawing	18
9. Packing	19
10. Precautions for Use of LCD modules	20



1. General Specifications

1.1 LCM General Information

Item	Specification	Unit
LCD Size	8.0	inch
Number of Pixels	800(H) RGB x 600(V)	pixels
Display Mode	Normally White	-
Viewing Direction	12 O'clock	o'clock
Interface	RGB	-
Display Colors	16.7M	colors
Outline Dimension	228.59(H) x 178.20(V) x 7.8(D)	mm
Active Area	162.00(H) x 121.50 (V)	mm
Pixel Pitch	0.2025(H) x 0.2025(V)	mm
Driver IC	-	-
Operation Temperature	-20~70	°C
Storage Temperature	-30~80	°C

1.2 Touch Panel Information

Item	Specification
Touch Structure	G+G
Bonding Type with LCM	Perimeter Bonding
Driver IC	FT5436DQQ
Interface	I ² C
Touch Count Max	5 Points
Surface treatment	-
Surface hardness	6H
I2C slave address	0x70
Origin of coordinate	Top Left Corner

Note1: Requirements on environmental protection RoHS compliant.



2. Absolute Maximum Ratings

Item	Symbol	MIN.	MAX.	Unit	Note
Analog Supply voltage	VDD	-0.3	5.0	V	Note 1

Note 1: Permanent damage may occur to the LCD module if beyond this specification.

Functional operation should be restricted to the conditions described under normal operating conditions.

3. Electrical Characteristics

3.1 Recommended Operating Condition for TFT LCD

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Analog Supply voltage	VCC	3.0	3.3	3.6	V	
Power supply for LCD	AVDD	10.2	10.4	10.6	V	
	VGH	15.3	16.0	16.7	V	
	VGL	-7.7	-7.0	-6.3	V	
	VCOM	2.8	3.8	4.8	V	
Logic input voltage	VIH	0.7*VCC	-	VCC	V	
	VIL	GND	-	0.3*VCC	V	

3.2 Recommended Driving Condition for Backlight

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Driving Current	I _F	-	180	-	mA	
Driving Voltage	V _F	8.4	-	10.5	V	
Power consumption	W _{BL}	1.512	-	1.890	W	
LED Life-Time	N/A	30,000	-	-	Hours	Ta=25°C Note 1



Note 1:LED lifetime is defined as the module brightness decay 50% of original brightness at Ta=25 degree, typical current.

Note 2:LED circuit : -

3.3 Touch Panel

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply voltage	VCC	-	3.3	-	V	
Analog supply current	I _{VCC}	-	TBD	-	mA	VCC=3.3V
Input high-level voltage	VIH	0.7*VCC	-	VCC	V	
Input low -level voltage	VIL	GND	-	0.3*VCC	V	



4. Interface Pin Assignment

4.1 LCM Pin Assignment

Recommended connector: FH12A-50S-05H manufactured by HIROSE

No.	Symbol	Description
1-2	LED +	LED Anode
3-4	LED -	LED Cathode
5	GND	Power ground
6	VCOM	Common voltage
7	VCC	Power for Digital circuit
8	MODE	DE/SYNC mode select (Note3)
9	DE	Data Input Enable
10	VS	Vertical Sync Input
11	HS	Horizontal Sync Input
12	B7	Blue data(MSB)
13	B6	Blue data
14	B5	Blue data
15	B4	Blue data
16	B3	Blue data
17	B2	Blue data
18	B1	Blue data
19	B0	Blue data(LSB)
20	G7	Green data (MSB)
21	G6	Green data
22	G5	Green data
23	G4	Green data
24	G3	Green data
25	G2	Green data
26	G1	Green data
27	G0	Green data (LSB)
28	R7	Red data (MSB)
29	R6	Red data
30	R5	Red data
31	R4	Red data
32	R3	Red data
33	R2	Red data



深圳市卡迪显示科技有限公司

SHENZHEN KADI DISPLAY

34	R1	Red data	
35	R0	Red data (LSB)	
36	GND	Power ground	
37	DCLK	Sample clock	
38	GND	Power ground	
39	L/R	Right/ left selection	(Note2,5)
40	U/D	Up/down selection	(Note2,5)
41	VGH	Gate ON voltage	
42	VGL	Gate OFF voltage	
43	AVDD	Power for Analog circuit	
44	RESET	Global reset pin	(Note1)
45	NC	No connection	
46	VCOM	Common voltage	
47	DITHB	Dithering function	(Note4)
48	GND	Power ground	
49-50	NC	No connection	

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	VCC	Up to down, left to right
VCC	GND	Down to up, right to left
GND	GND	Up to down, right to left
VCC	VCC	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.

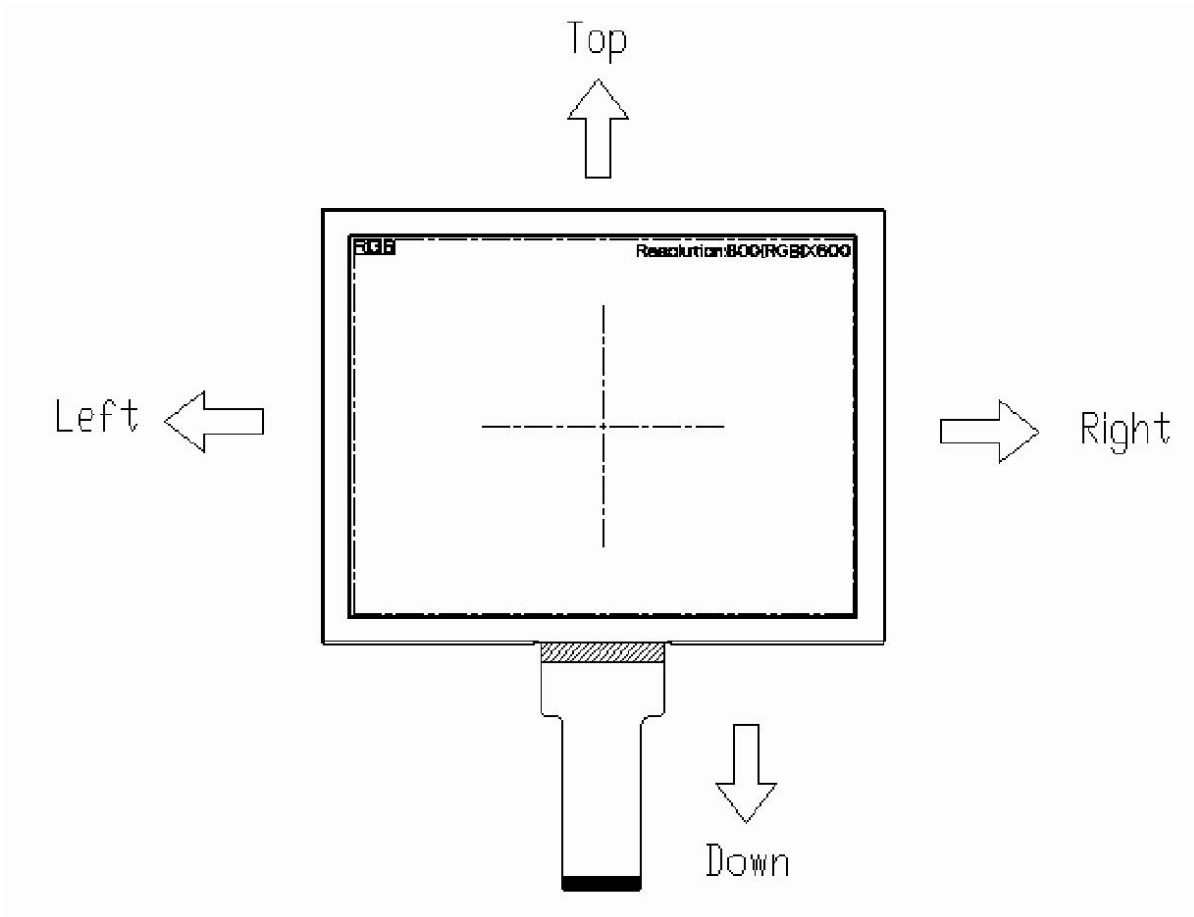
DITHB=" 1 " ,Disable internal dithering function. For 18bit RGB interface, connect two LSB bits of all the R/G/B data buses to GND.

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:



4.2 Touch FPC Pin Assignment

Recommended connector: FH12A-6S-05H manufactured by HIROSE

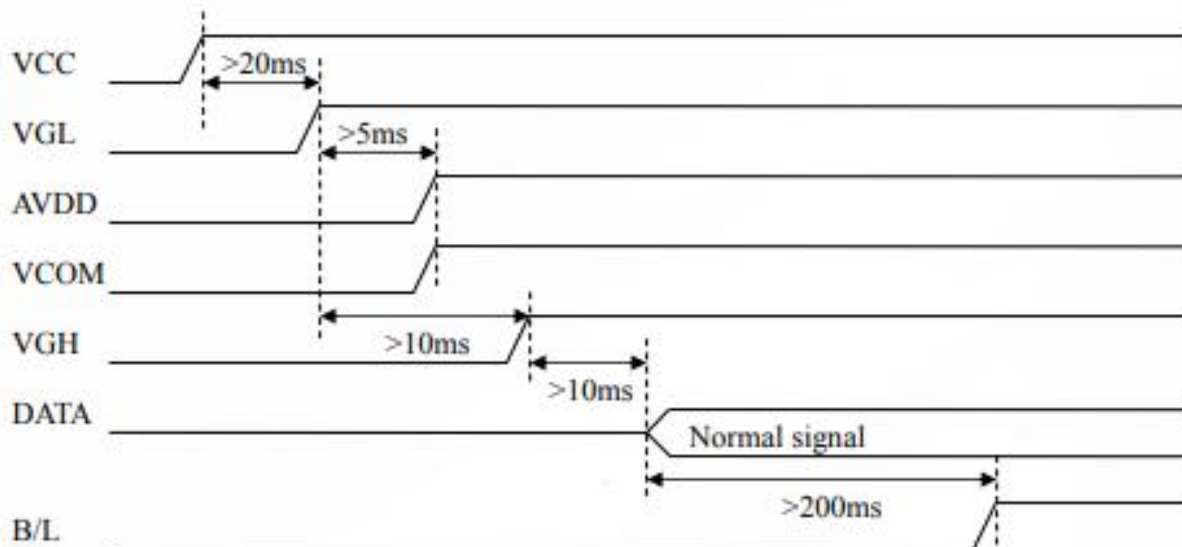
No.	Symbol	Description
1	VDD 2.8V	Power Supply (2.8V)
2	INT 2.8V	Interrupt signal from CTP(2.8V)
3	SDA 2.8V	I2C data input and output(2.8V)
4	SCL 2.8V	I2C clock input(2.8V)
5	RST	Reset Pin for CTP
6	GND	Ground



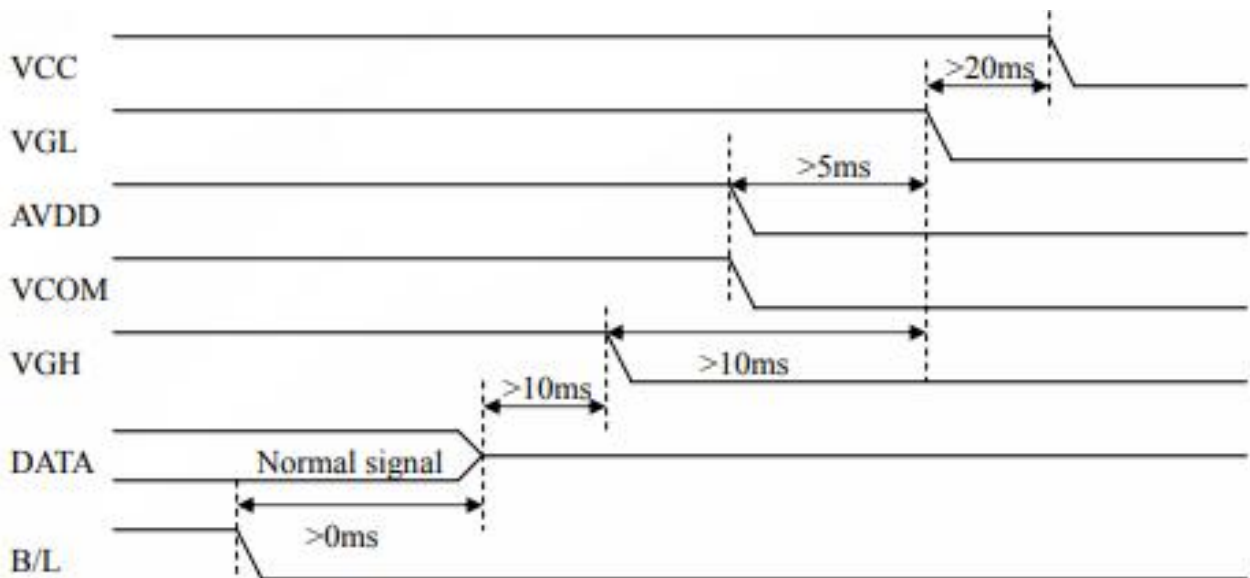
5. Interface Characteristics

5.1 Power Sequence

5.1.1 Power on



5.1.2 Power off



Note: Data include R0~R7, B0~B7, GO~G7, STLR,UPDN, DCLK, HS,VS,DE.



5.2 Timing Characteristics

5.2.1 AC Electrical Characteristics

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
HS setup time	T_{hst}	8	-	-	Ns	
HS hold time	T_{hhd}	8	-	-	Ns	
VS setup time	T_{vst}	8	-	-	Ns	
VS hold time	T_{vhhd}	8	-	-	Ns	
Data setup time	T_{dsu}	8	-	-	Ns	
Data hole time	T_{dhd}	8	-	-	Ns	
DE setup time	T_{esu}	8	-	-	Ns	
DE hole time	T_{ehd}	8	-	-	Ns	
VDD Power On Slew rate	T_{POR}	-	-	20	ms	
RSTB pulse width	T_{Rst}	10	-	-	us	
CLKIN cycle time	T_{coh}	20	-	-	Ns	
CLKIN pulse duty	T_{cwh}	40	50	60	%	
Output stable time	T_{sst}	-	-	6	us	



5.2.2 Timing

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Horizontal Display Area	thd	-	800	-	DCLK	
DCLK Frequency	fclk	-	40	50	MHz	
One Horizontal Line	th	862	1056	1200	DCLK	
HS pulse width	thpw	1	-	40	DCLK	
HS Back Porch(Blanking)	thb	46	46	46	DCLK	
HS Front Porch	thfp	16	210	354	DCLK	

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Vertical Display Area	tvd	-	600	-	TH	
VS period time	tv	624	635	700	TH	
VS pulse width	tvpw	1	-	20	TH	
VS Back Porch(Blanking)	tvb	23	23	23	TH	
VS Front Porch	tvfp	1	12	77	TH	



5.2.3 Timing Diagram

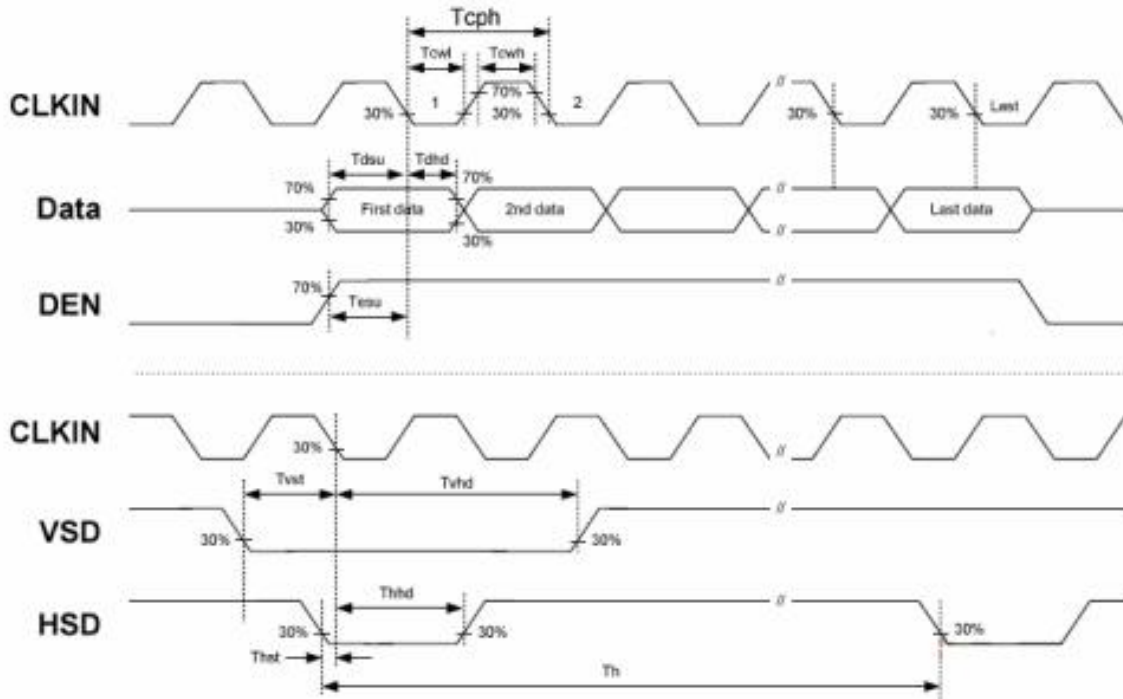


Figure 3.1 Input Clock and Data Timing Diagram



Figure 3.2 Horizontal input timing diagram.

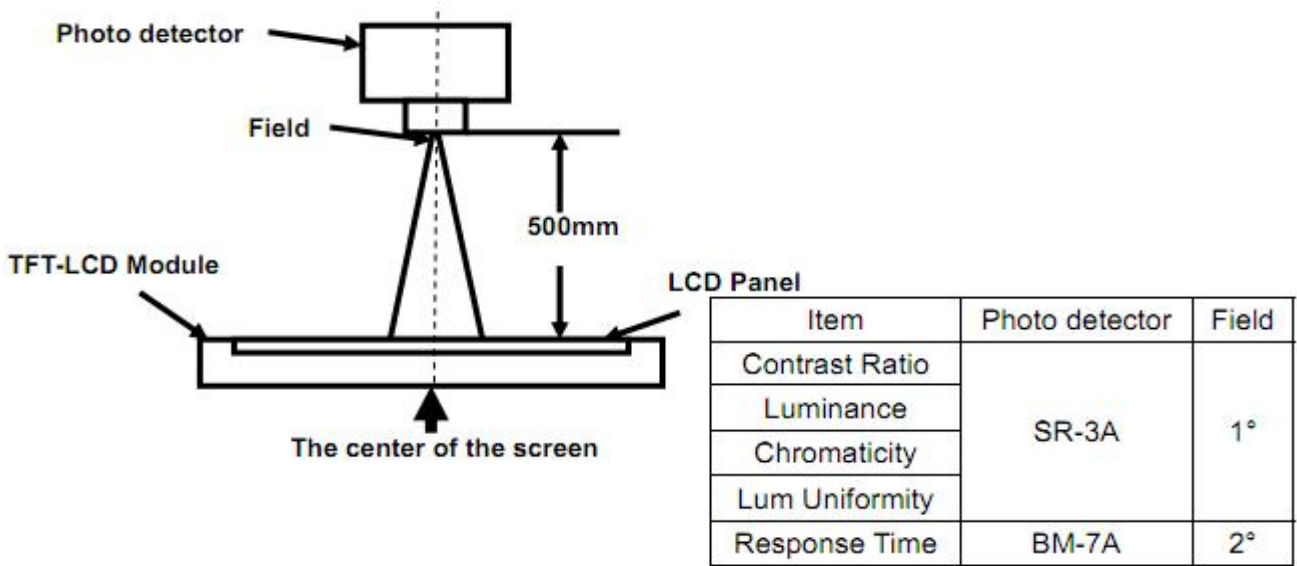


6. Optical Specifications

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle (CR≥10) B/L ON	θ_T	$\Phi=90^\circ$ (12 o'clock)	45	55	-	deg	Note2
	θ_B	$\Phi=270^\circ$ (6 o'clock)	60	70	-	deg	Note2
	θ_L	$\Phi=180^\circ$ (9 o'clock)	60	70	-	deg	Note2
	θ_R	$\Phi=0^\circ$ (3 o'clock)	60	70	-	deg	Note2
Response Time	T_{ON}	Normal $\theta=\Phi=0^\circ$	-	10	20	msec	Note4
	T_{OFF}		-	15	30	msec	Note4
Contrast Ratio	CR		400	500	-	-	Note1 Note3
Color Chromaticity	W_x		0.26	0.31	0.36	-	Note1 Note5
	W_y		0.28	0.33	0.38	-	Note1 Note5
Luminance	L		150	200	-	cd/m ²	Note1 Note7
Luminance Uniformity	Y_U		75	80	-	%	Note1 Note6
NTSC	-		-	50	-	%	-

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).

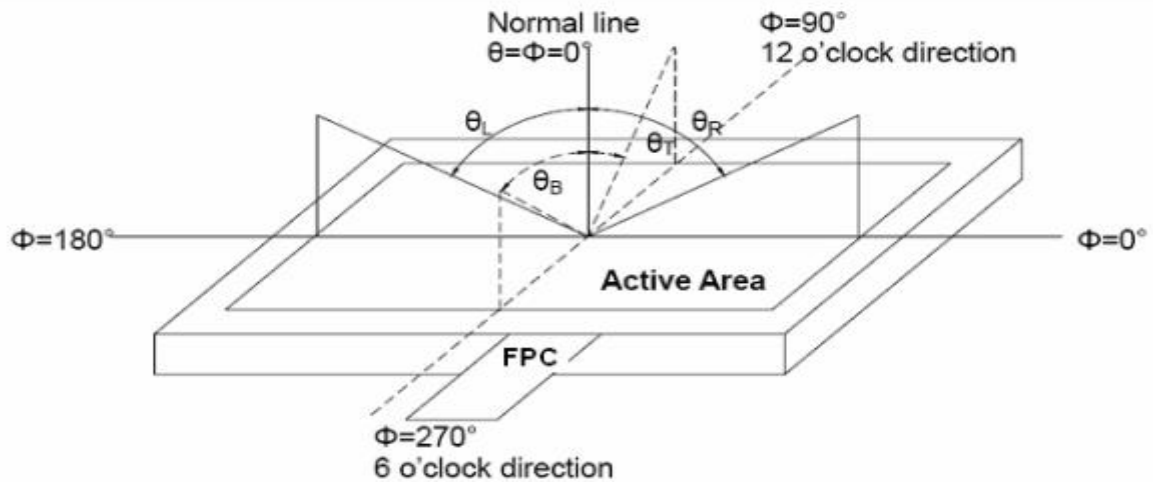


Fig. 1 Definition of viewing angle

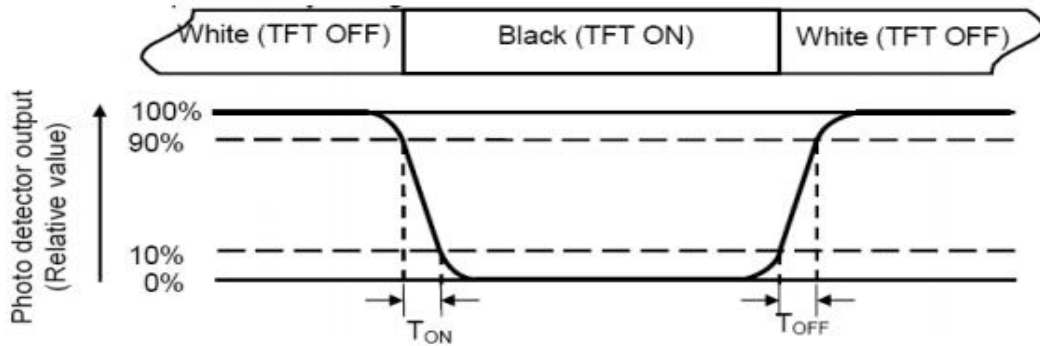
Note 3: Definition of contrast ratio

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$



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

The luminance uniformity in surface luminance is determined by measuring luminance at each test position 1 through n, and then dividing the maximum luminance of n points luminance by minimum luminance of n points luminance. For more information see FIG.2.

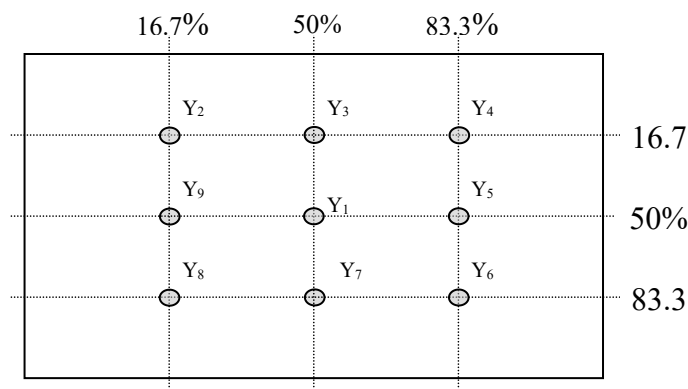


Fig. 2 Definition of points

Note 7: Definition of Luminance (Refer Fig. 2)

Surface luminance is the luminance with all pixels displaying white.

L_v = Average Surface Luminance with all white pixels($P_1, P_2, P_3, \dots, P_n$).



7. Reliability Test Items

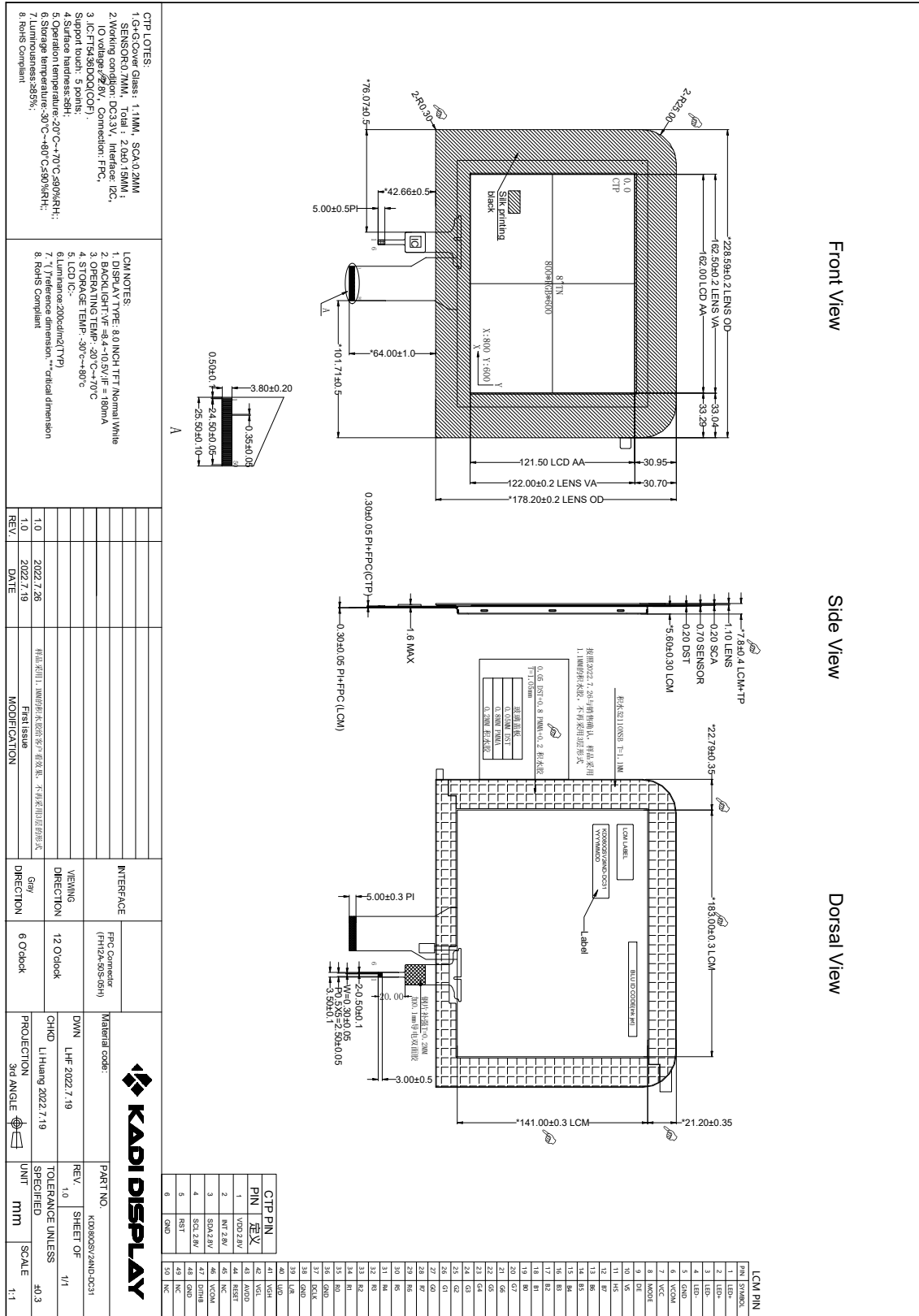
Test Item	Test Conditions
High Temperature Storage	Ta= +80°C 96hrs
Low Temperature Storage	Ta= -30°C 96hrs
High Temperature Operation	Ta= +70°C 96hrs
Low Temperature Operation	Ta= -20°C 96hrs
High Temperature and Humidity Storage	Ta= +60°C, 90% RH 96hrs
Thermal Shock (Non-operation)	-30°C/30 min ~ +80°C/30 min for 20 cycles Start with cold temperature end with high temperature
Electro Static Discharge	Contact = ± 4 kV, class B Air = ± 8 kV, class B R=330Ω,C=150pF
Vibration	Sweep: 10Hz~55Hz~10Hz Stroke: 1.5mm 2 hrs for each direction of X .Y. Z.
Mechanical Shock	60G 6ms,±X,±Y,±Z 3 times for each direction
Package Drop Test	Height: 60 cm 1 corner, 3 edges, 6 surfaces

Notes: The test result shall be evaluated after the sample has been left at room temperature and humidity for 2 hours without load. No condensation shall be accepted. The sample will not be accepted if appear these defects:

- 1). Air bubble in the LCD
- 2). Seal leak or Glass crack
- 3). Non display or abnormal display
- 4). Brightness reduction >50%



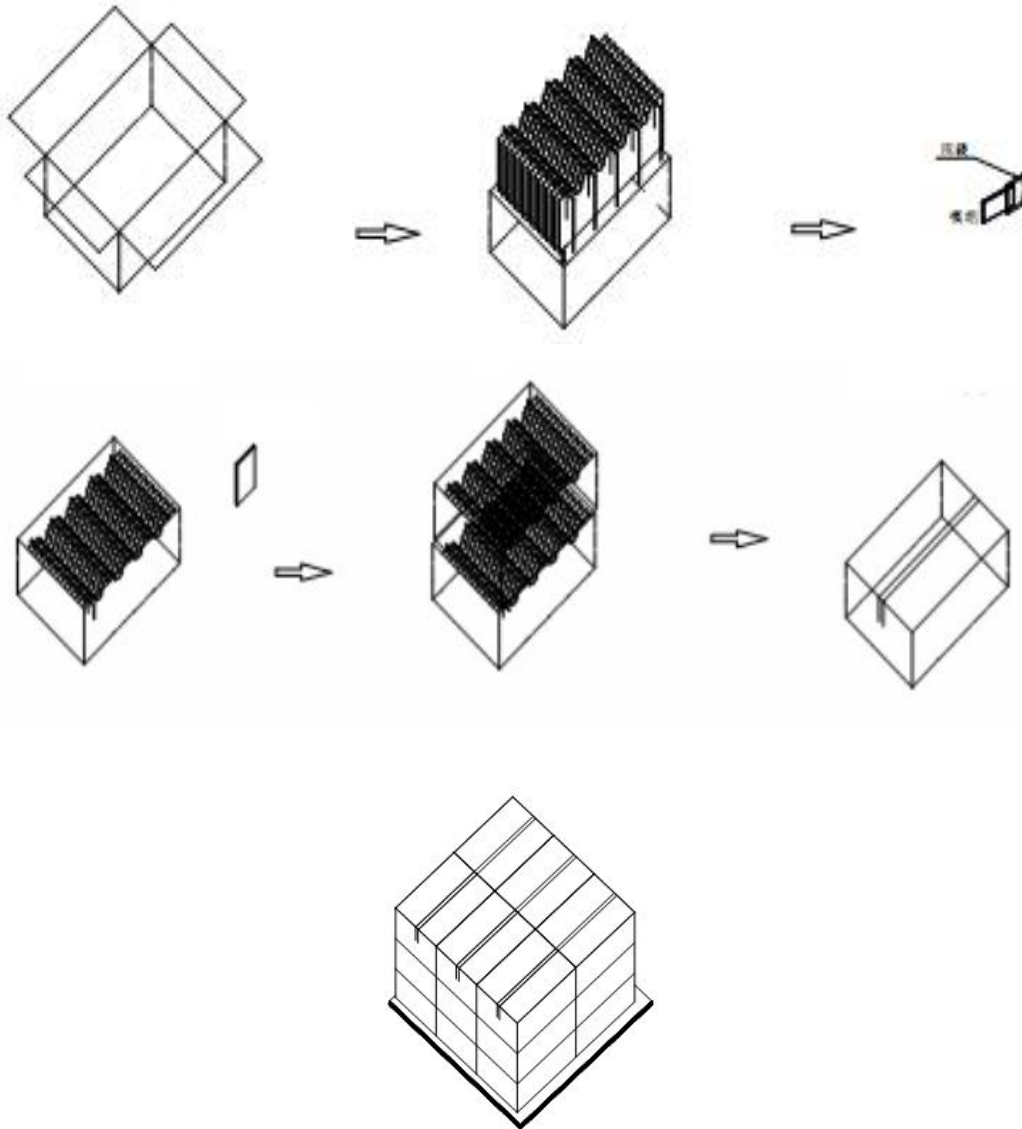
8. Mechanical Drawing





9. Packing

Packing Method



Steps:

1. Put module into tray cavity
2. Tray stacking
3. Put 1 cardboard under the tray stack and 1 cardboard above
4. Fix the cardboard to the tray stack with adhesive tape
5. Put the tray stack into carton
6. Carton sealing with adhesive tape



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
- Ketene
- 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°C ~40°C 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.