

PRODUCT SPECIFICATION

CDTECH Model: **KD057BV02HG**

CUSTOMER Model:

Description: **5.7" TFT-LCD Module**

Version: **1.0**

CDTECH	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE	LXM	HZX	ZHP
DATE	2022.6.3	2022.6.5	2022.6.5

CUSTOMER APPROVAL	SIGNATURE	DATE

[illegible]



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1. General Specifications

1.1 LCM General Information

Item	Specification	Unit
LCD Size	5.7	inch
Number of Pixels	640(RGB)×480	pixels
Display Mode	Normally Black	-
Viewing Direction	Free	o' clock
Interface	RGB	-
Display Colors	16.7M	colors
Outline Dimension	127.0(W)*98.43(L)*5.8(H)	mm
Active Area	115.2(W)* 86.40(L)	mm
Pixel Pitch	0.18 (w) x 0.18 (L)	mm
Driver IC	JD9168S	-
Operation Temperature	-20~70	°C
Storage Temperature	-30~80	°C

Note1:

Requirements on Environmental Protection: RoHS Compliant

2. Elecrical Characteristics

2.1 Recommended Operating Condition for TFT LCD

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Supply current	I _{VDD}	-	TBD	-	mA	
Supply voltage	IOVCC	2.8	3.0	3.3	V	
Input voltage	VIH	0.7*VCC	-	VCC	V	
	VIL	VSSI	-	0.3*VCC	V	

2.2 ABSOLUTE MAXIMUM RATINGS

Parameter of absolute maximum ratings	Symbol	Min	Max	Unit
Operating temperature	Top	-20	70	°C
Storage temperature	Tst	-30	80	°C
Humidity	RH	-	90%(Max60 °C)	RH

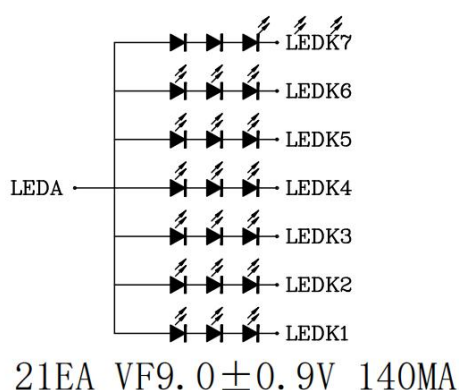
2.3 Recommended Driving Condition for Backlight

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Driving Current	I _F	-	140	-	mA	
Driving Voltage	V _F	8.1	9.0	9.9	V	
Connection mode	3S7P	-	-	-	-	
Number of LED	-	-	21	-	Piece	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. Interface Pin Assignment

3.1 LCM Pin Assignment

No.	Symbol	Description
1	SDA	SPI data
2	CSX	Chip select
3	SCL	SPI clock
4	RESX	Reset
5	B0	RGB data
6	B1	RGB data
7	B2	RGB data
8	B3	RGB data
9	B4	RGB data
10	B5	RGB data
11	B6	RGB data
12	B7	RGB data
13	G0	RGB data
14	G1	RGB data
15	G2	RGB data
16	G3	RGB data
17	G4	RGB data
18	G5	RGB data
19	G6	RGB data
20	G7	RGB data
21	R0	RGB data
22	R1	RGB data
23	R2	RGB data
24	R3	RGB data
25	R4	RGB data
26	R5	RGB data
27	R6	RGB data
28	R7	RGB data
29	GS	Gate scan
30	SS	Source scan
31	LAN0	Lane mode
32	LAN1	Lane mode
33	LVFMT	LVDS data for mat
34	STBYB	Standby mode

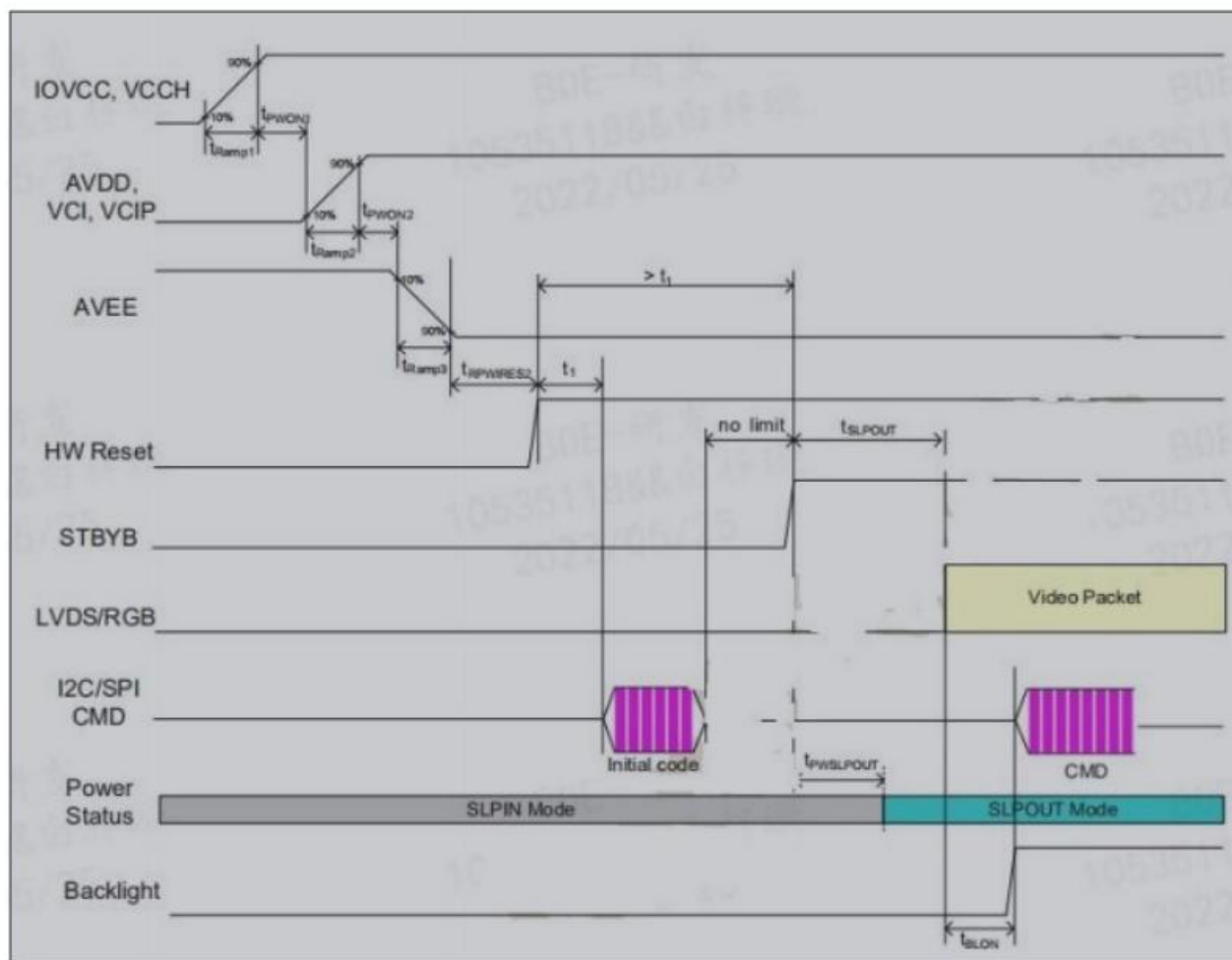
35	IM0	IF mode select
36	IM1	IF mode select
37	DCLK	RGB clock
38	DE	RGB data enable
39	VS	RGB V-sync
40	HS	RGB H-sync
41	DS2	Data lane seq
42	DS1	Data lane seq
43	DS0	Data lane seq
44	PS	Data lane seq
45	GND	Ground
46	D0N	LVDS D0N
47	D0P	LVDS D0P
48	D1N	LVDS D1N
49	D1P	LVDS D1P
50	CKN	LVDS CKN
51	CKP	LVDS CKP
52	D2N	LVDS D2N
53	D2P	LVDS D2P
54	D3N	LVDS D3N
55	D3P	LVDS D3P
56	IOVCC	Power
57	AVDD	Power
58	AVEE	Power
59	VPP	OTP power
60	GND	Ground

3.2 Backlight LED FPC Pin Assignment (if necessary)

No.	Symbol	Description
1	NC	Nc
2	LEDA	Power for LED backlight (Anode)
3	LEDK1	Power for LED backlight (Cathode)
4	LEDK2	Power for LED backlight (Cathode)
5	LEDK3	Power for LED backlight (Cathode)
6	LEDK4	Power for LED backlight (Cathode)
7	LEDK5	Power for LED backlight (Cathode)
8	LEDK6	Power for LED backlight (Cathode)

9	LEDK7	Power for LED backlight (Cathode)
10	NC	Nc

3.3 Power Sequence



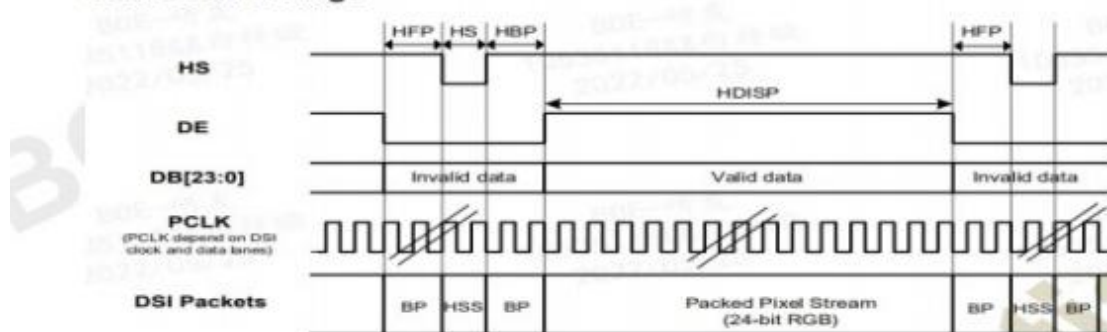
IM[1:0]	I	IOVCC/VSSD	Select the interface mode as listed below: <table><tr><th colspan="2">IM[1:0]</th><th>Interface</th></tr><tr><td>0</td><td>0</td><td>DSI</td></tr><tr><td>0</td><td>1</td><td>LVDS</td></tr><tr><td>1</td><td>0</td><td>RGB</td></tr><tr><td>1</td><td>1</td><td>Not used</td></tr></table> RGB IF data format (RGB565 / RGB666 / RGB888) is selected by DCS command (0x3A).	IM[1:0]		Interface	0	0	DSI	0	1	LVDS	1	0	RGB	1	1	Not used																																																																																																																																																																																																																																																																																																																																																																																																									
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3.4 RGB Interface Definition

Horizontal Timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
DCLK Frequency	fclk	-		-	MHz
Horizontal Display Area	thd	640			DCLK
HS Period	th		-	-	DCLK
HS Pulse Width	thpw	-	100	-	DCLK
HS Back Porch	thbp	-	100	-	DCLK
HS Front Porch	thfp	-	400	-	DCLK

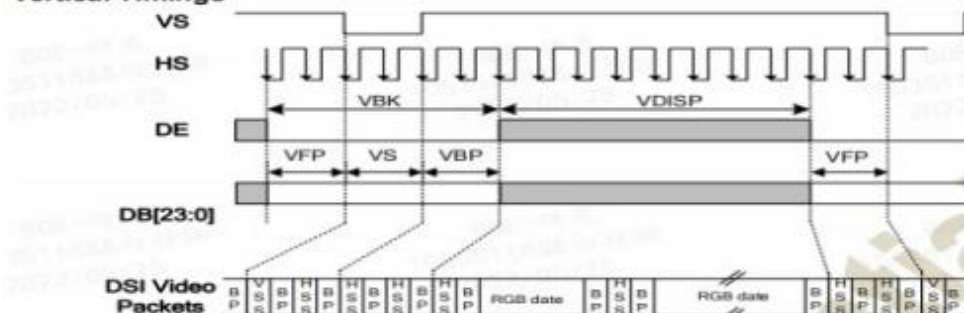
Horizontal Timings



Vertical Timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Vertical Display Area	tvd	480			TH
VS Period	tv	-	-	-	TH
VS Pulse Width	tvpw	2	-	-	TH
VS Back Porch	tvbp	2	-	-	TH
VS Front Porch	tvfp	2	-	-	TH

Vertical Timings

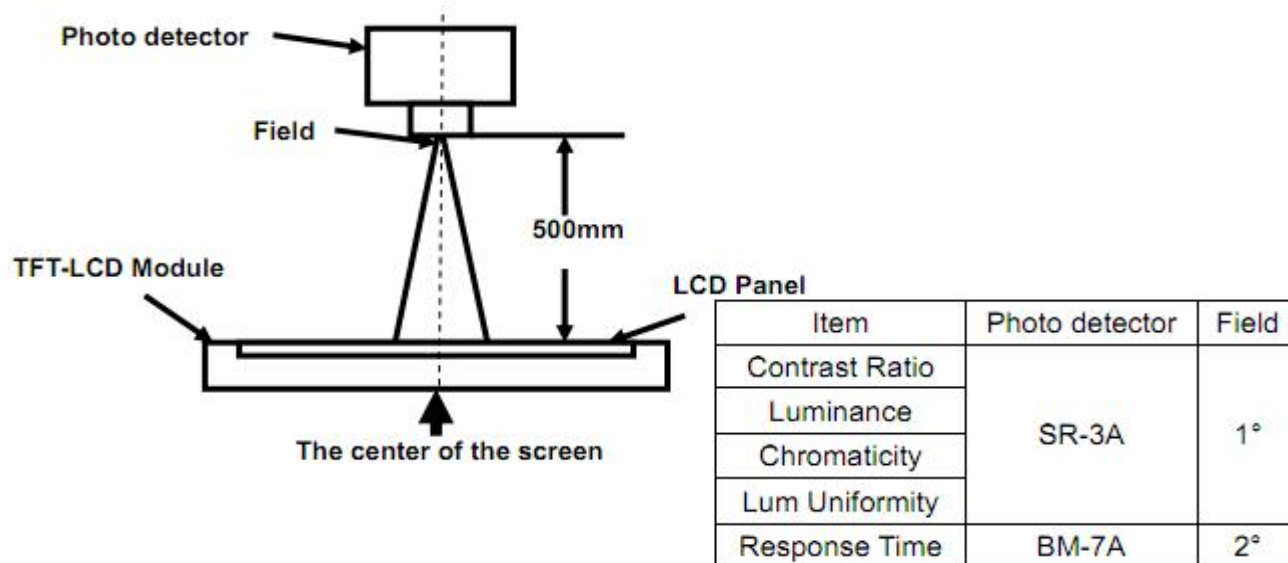


4. Optical Specifications

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle (CR≥10) B/L ON	θ_T	$\Phi=90^\circ$ (12 o'clock)	75	80	-	deg	Note2
	θ_B	$\Phi=270^\circ$ (6 o'clock)	75	80	-	deg	Note2
	θ_L	$\Phi=180^\circ$ (9 o'clock)	75	80	-	deg	Note2
	θ_R	$\Phi=0^\circ$ (3 o'clock)	75	80	-	deg	Note2
Response Time	T_{ON+} T_{OFF}	Normal $\theta=\Phi=0^\circ$	-	30	35	msec	Note4
Contrast Ratio	CR		1000	1200	-	-	Note1 Note3
Color Chromaticity	W_X		0.262	0.292	0.332	-	Note1 Note5
	W_Y		0.307	0.337	0.367	-	Note1 Note5
Luminance	L		450	500	-	cd/m ²	Note1 Note7
Luminance Uniformity	Y_U		75	80	-	%	Note1 Note6
NTSC	-		-	60	-	%	-

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).

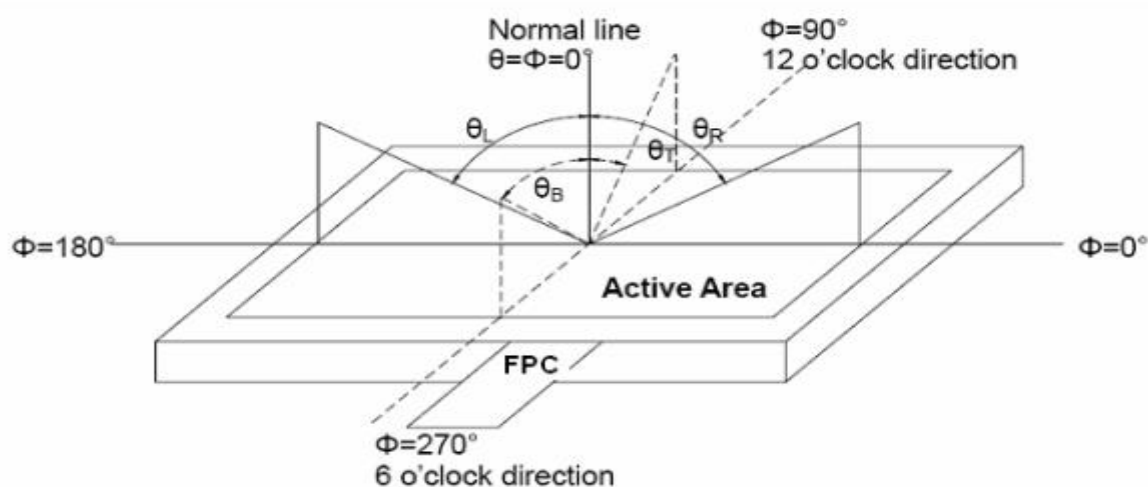


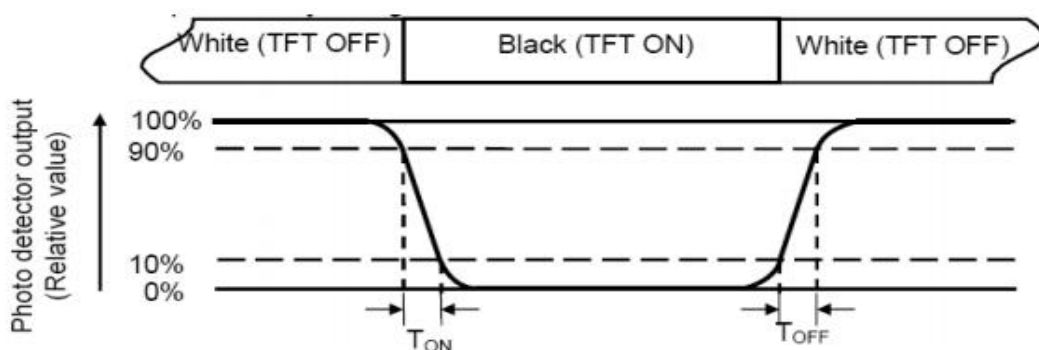
Fig. 1 Definition of viewing angle

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

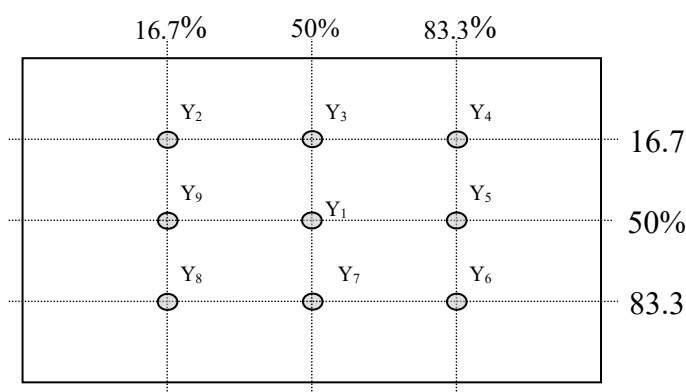


Fig. 2 Definition of points

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($P_1, P_2, P_3, \dots, P_n$)

5. Reliability Test Items

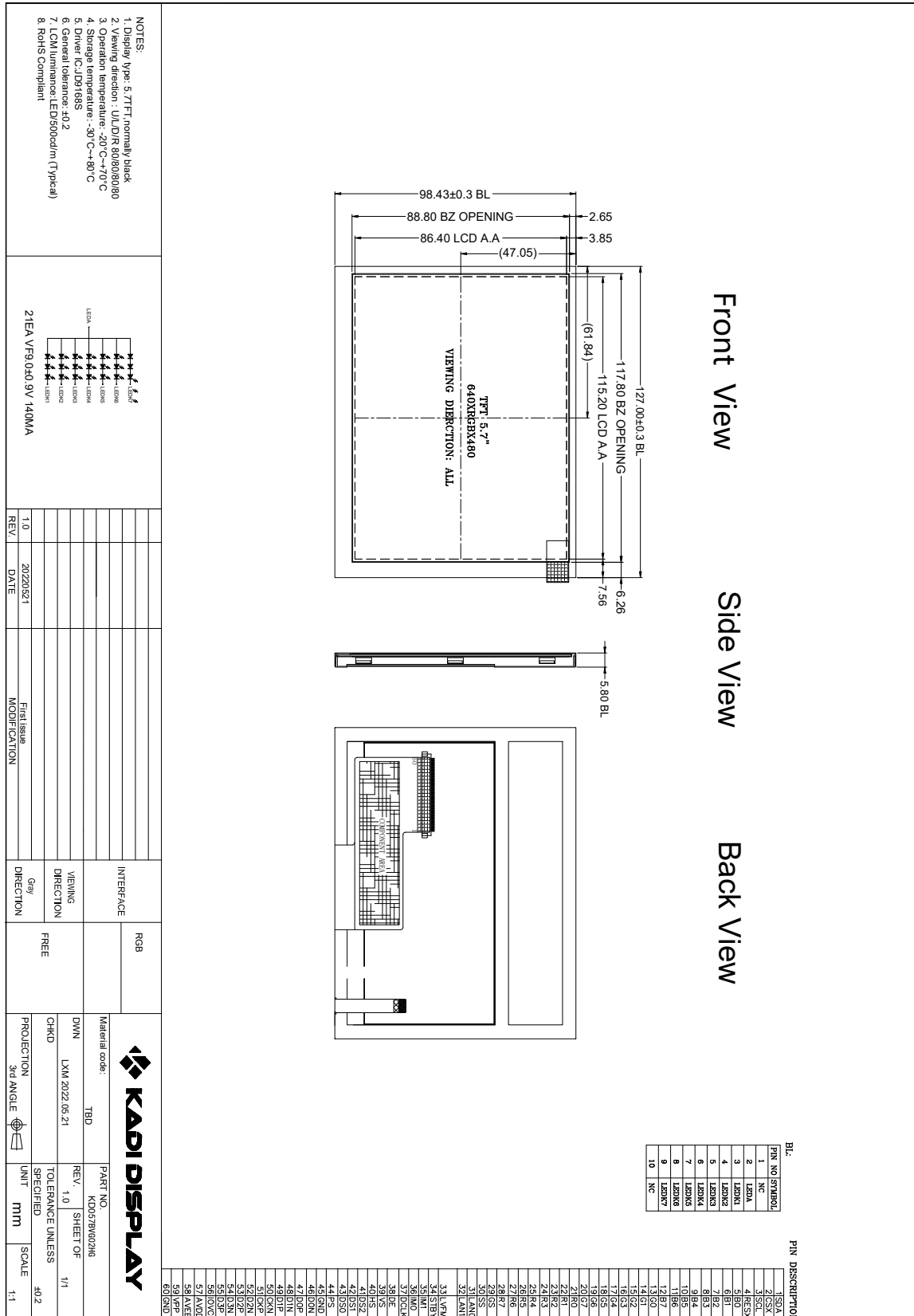
Test Item	Test Conditions
High Temperature Storage	Ta= +80℃ 96hrs
Low Temperature Storage	Ta= -30℃ 96hrs
High Temperature Operation	Ta= +70℃ 96hrs
Low Temperature Operation	Ta= -20℃ 96hrs
High Temperature and Humidity Operation	Ta= +60℃, 90% RH 96hrs
Thermal Shock (Non-operation)	-30℃/30 min ~ +80℃/30 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:

1. 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%

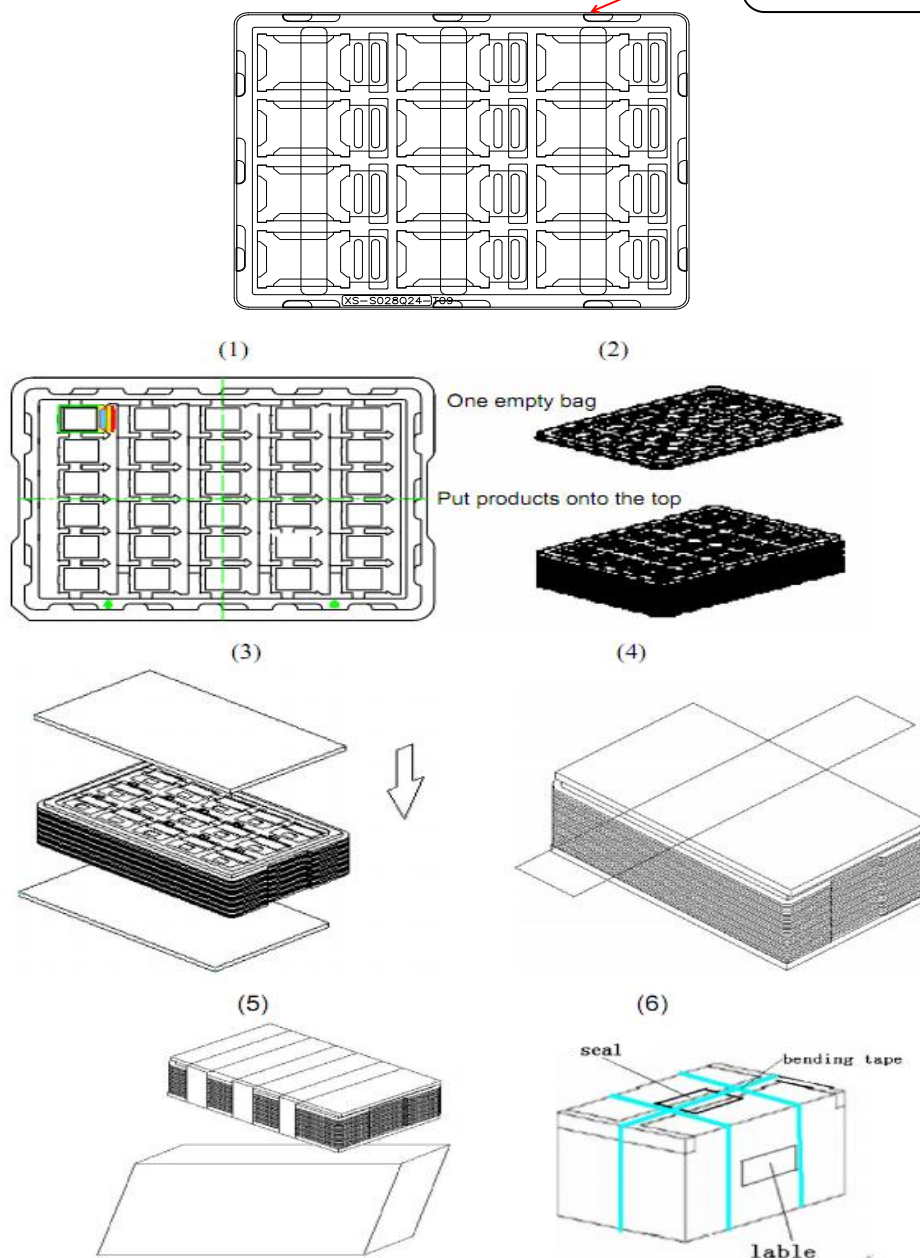
6. Mechanical Drawing



7. Packing

Packing Method

按照公司产品的默认包装方式更新包装, 或者
按照客户指定要求更新包装方式



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.

8. Precautions for Use of LCD modules

8.1 Handling Precautions

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

8.1.2. 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.

8.1.3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

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

8.1.5. 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

8.1.6. Do not attempt to disassemble the LCD Module.

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

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

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

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

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

8.1.8.4. 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.

8.2 Storage Precautions

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

8.2.2. 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%

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

8.3 Transportation Precautions

The LCD modules should be no falling and violent shocking during transportation, and also should avoid



深圳市卡迪显示科技有限公司

Shenzhen Kadi Display Technology., Ltd

excessive press, water, damp and sunshine.