



JICTECH LCD (HONGKONG) CO.,LTD
DONGGUAN JICTECH LCD CO.,LTD
PROFESSIONAL LCM SUPPLIER

PRODUCT SPECIFICATION FOR LCD MODULE

Model NO.: RH101I9BEN-5A

Specification Ver.: 01

APPROVAL FOR SPECIFICATIONS ONLY

APPROVAL FOR SPECIFICATIONS AND SAMPLE

CUSTOMER:

APPROVED BY:

JICTECH LCM R&D CENTER

APPROVED BY

CHECKED BY

PREPARED BY

1.0 General Description

1.1 Introduction

RH101I9BEN-5A Display model 10.1" LCM is a color active matrix thin film transistor (TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. This model is composed of a TFT LCD panel and a driving circuit. This TFT LCD has a 10.1(10:16) inch diagonally measured active display area with (800horizontal by1280 vertical pixel) resolution.

1.2. Features

- 10.1 (10:16 diagonal) inch configuration
- LVDS interface
- 16.7M color
- RoHS Compliance
- Halogen Free

1.3. General information

Item	Specification	Unit
Outline Dimension	229.3 (H) x 149.1 (V) x2.65(D)	mm
Display area	216.96(H) x 135.6 (V)	mm
Number of Pixel	1280 RGB (H) x800(V)	pixels
Pixel pitch	0.13455(H) x 0.13455(V)s	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	Normally Black	
Color Filter Array	RGB vertical stripes	
Backlight	39 White LED	
Interface	LVDS	
Luminous (Without PET)	500 (TYP) / 450 (MIN)	cd/m2
Weight	TBD	g

2.0 Absolute Maximum Ratings

2.1 Electrical Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Power Supply voltage	VDDIN	-0.3	3.6	V	GND=0
	AVDD	-0.3	6.0		
	AVEE	0	-6.0		

2.2 Environment Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Operating Temperature	Topa	-10	50	°C	
Storage Temperature	Tstg	-20	60	°C	

2.3 Back-light Unit:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
LED Current	IF	–	260	–	mA	–	–
LED Voltage	VF	8.7	9	9.9	V	–	–
Life Time		–	15000	–	Hr.	$I \leq 260\text{mA}$	–
Brightness	Luminous	450	500	--	Nits		--
Color	White						

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.

(2) $T_a = 25 \pm 2^\circ\text{C}$

(3) Test condition: LED Current 260mA

3.0 Optical Characteristics

3.1 Optical specification

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (With PZ)	T		—	4.8	—	%	
Contrast	CR		—	800	—		(1)(2)(4)
Response time	Tr+Tf			30	45	msec	(1)(3)
Color chromaticity (CIE1931)	Red	R_x	$\theta=0$ Normal viewing angle	-	0.632		CF glass C light
		R_y			0.314		
	Green	G_x			0.267		
		G_y			0.547		
	Blue	B_x			0.142		
		B_y			0.102		
	White	W_x			0.302		
		W_y			0.321		
Viewing angle	Hor.	θ_L	CR>10	75	85	—	(1)(4)
		θ_R		75	85	—	
	Ver.	θ_U		75	85	—	
		θ_D		75	85	—	
View Direction	ALL						(5)

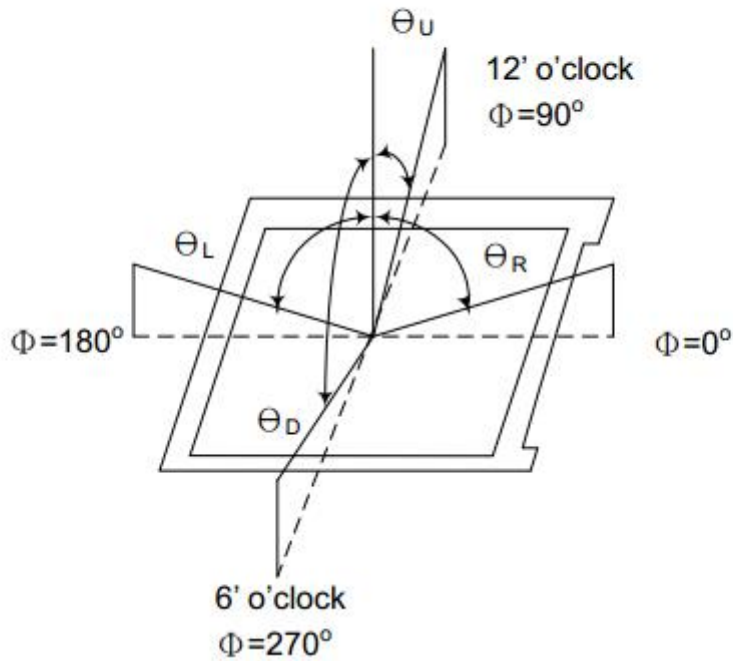
3.2 Measuring Condition

- Measuring surrounding : dark room
- Ambient temperature : 25±2°C
- 15min. warm-up time.

3.3 Measuring Equipment

- TOPCON BM-7
- Measuring spot size : field 2°

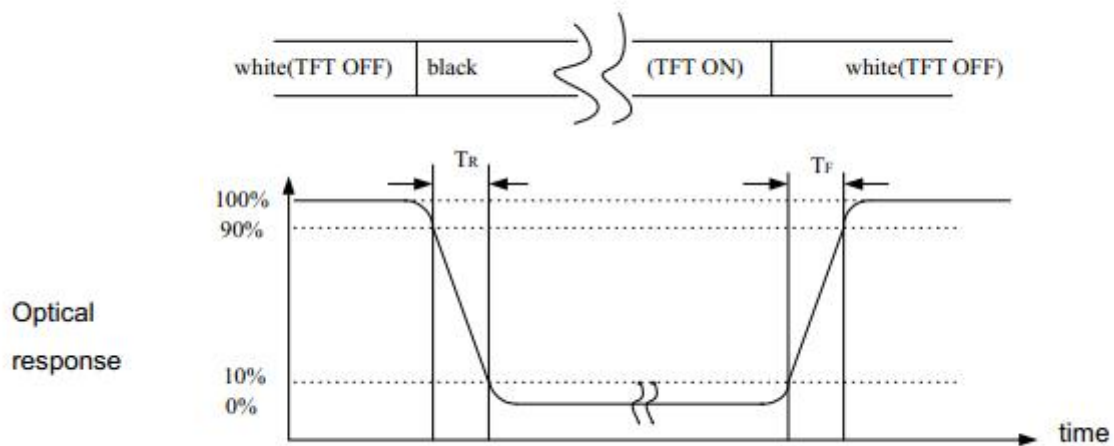
Note (1) Definition of Viewing Angle:

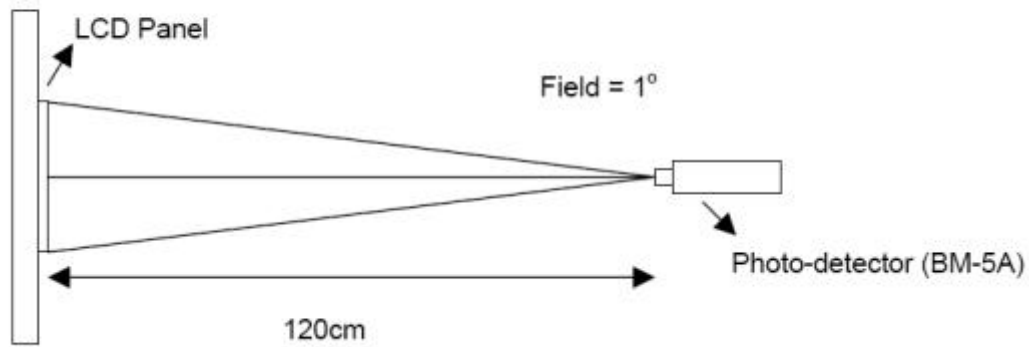
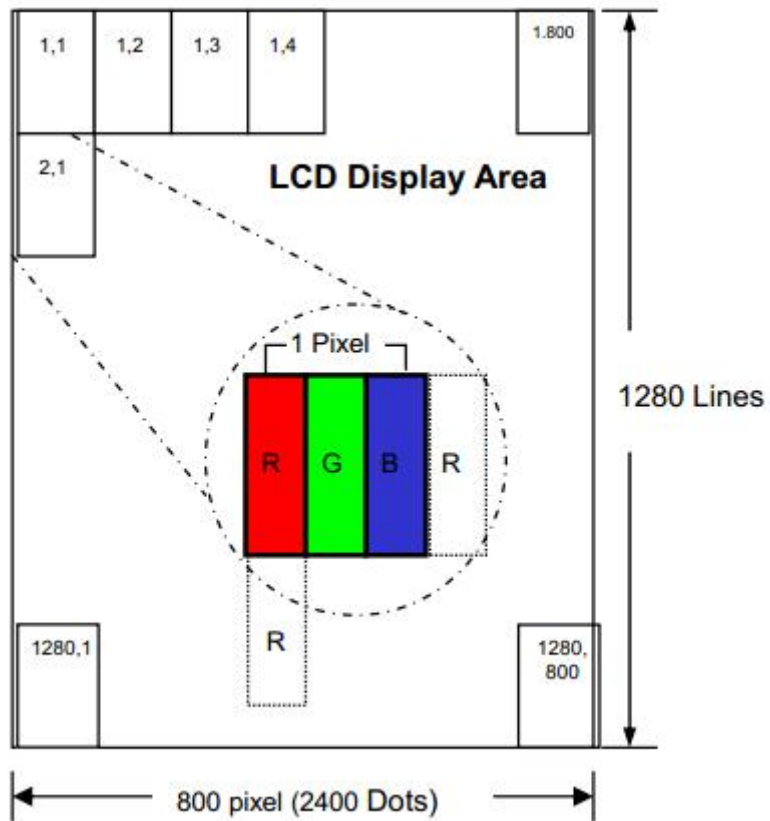


Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

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

Note (3) Definition of Response Time : Sum of T_R and T_F



Note (4) Definition of optical measurement setup**4.0Pixel Format**

5.0 Interface Pin Connection

5.1 TFT LCD Module

PIN NO	SYMBOL	DESCRIPTION
1	NC	NC
2	VDDIN	Power supply VDDIN=3.3V (Typ.)
3	VDDIN	Power supply VDDIN=3.3V (Typ.)
4	VDDIN	Power supply VDDIN=3.3V (Typ.)
5	NC	NC
6	GND	Ground
7	GND	Ground
8	RIN0-	LVDS Negative data signal (-) I
9	RIN0+	LVDS Positive data signal (+)
10	GND	Ground
11	RIN01-	LVDS Negative data signal (-)
12	RIN01+	LVDS Positive data signal (+)
13	GND	Ground
14	RIN02-	LVDS Negative data signal (-)
15	RIN02+	LVDS Positive data signal (+)
16	GND	Ground
17	LVDS_CLK-	LVDS Negative CLK signal (-)
18	LVDS_CLK+	LVDS Positive CLK signal (+)
19	GND	Ground
20	RIN03-	LVDS Negative data signal (-)
21	RIN03+	LVDS Positive data signal (+)
22	GND	Ground
23	NC	NC
24	NC	NC
25	GND	Ground
26	NC	NC
27	NC	NC
28	GND	Ground
29	NC	NC
30	NC	NC
31	LED-	Backlight LED Cathode input pin (-)
32	LED-	Backlight LED Cathode input pin (-)
33	LED-	Backlight LED Cathode input pin (-)
34	NC	NC
35	NC	NC
36	NC	NC
37	NC	NC
38	LED+	Backlight LED Anode input pin (+)
39	LED+	Backlight LED Anode input pin (+)
40	LED+	Backlight LED Anode input pin (+)

5.01 ELECTRICAL CHARACTERISTICS

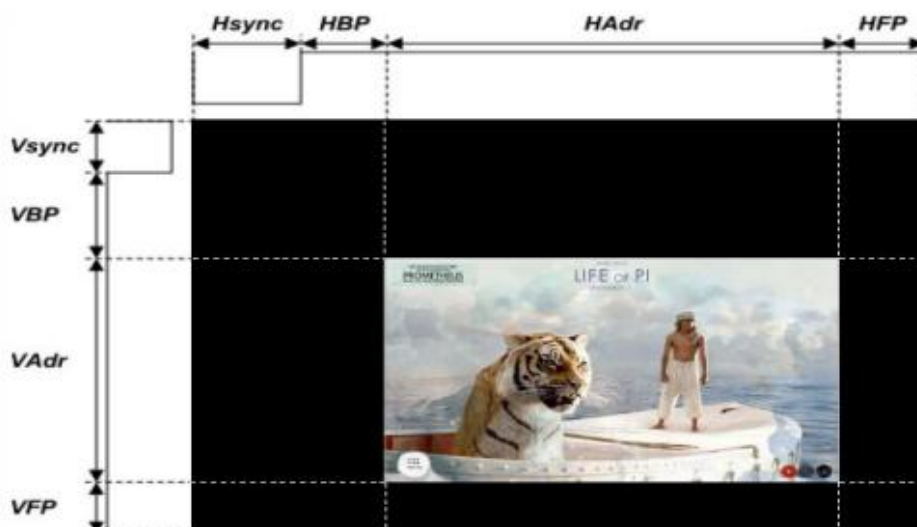
5.01.1TFT LCD Module

Item	Symbol	Min.	Typ.	Max.	Unit	Note
	VCI	3.0	3.3	3.6	V	
Input signal voltage	V _{IH}	0.7DV _{DD}	-	DV _{DD}	V	
	V _{IL}	0	-	0.3DV _{DD}	V	
Power Current	I _{VDD3V3}	-	212	365	mA	

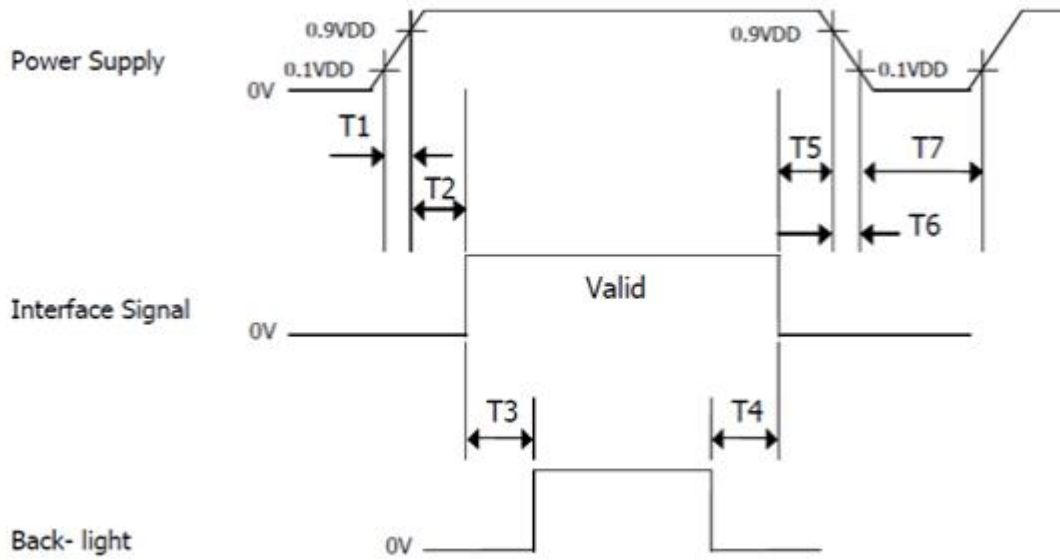
Note (1): GND=0V

5.02 LVDS Interface timing Parameter

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK Frequency	Fdclk	66.3	72.4	78.9	MHz
Horizontal display area	Thd	1280			pixel
HSYNC period time	Th	1380	1440	1500	pixel
HSYNC blanking	thbp+ thfp	100	160	220	pixel
Vertical display area	Tvd	800			H
Frequency	fV	55	60	65	Hz
VSYNC period time	Tv	824	838	872	H
VSYNC blanking	Tvbp+ Tvfp	24	38	72	H



5.03 Power Sequence



< Table6. Sequence Table >

Parameter	Values			Units
	Min	Typ	Max	
T1	0	-	10	ms
T2	0	-	50	ms
T3	200	-	-	ms
T4	500	-	-	ms
T5	0	-	50	ms
T6	0	-	10	ms
T7	500	-	-	ms

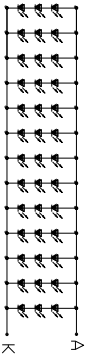
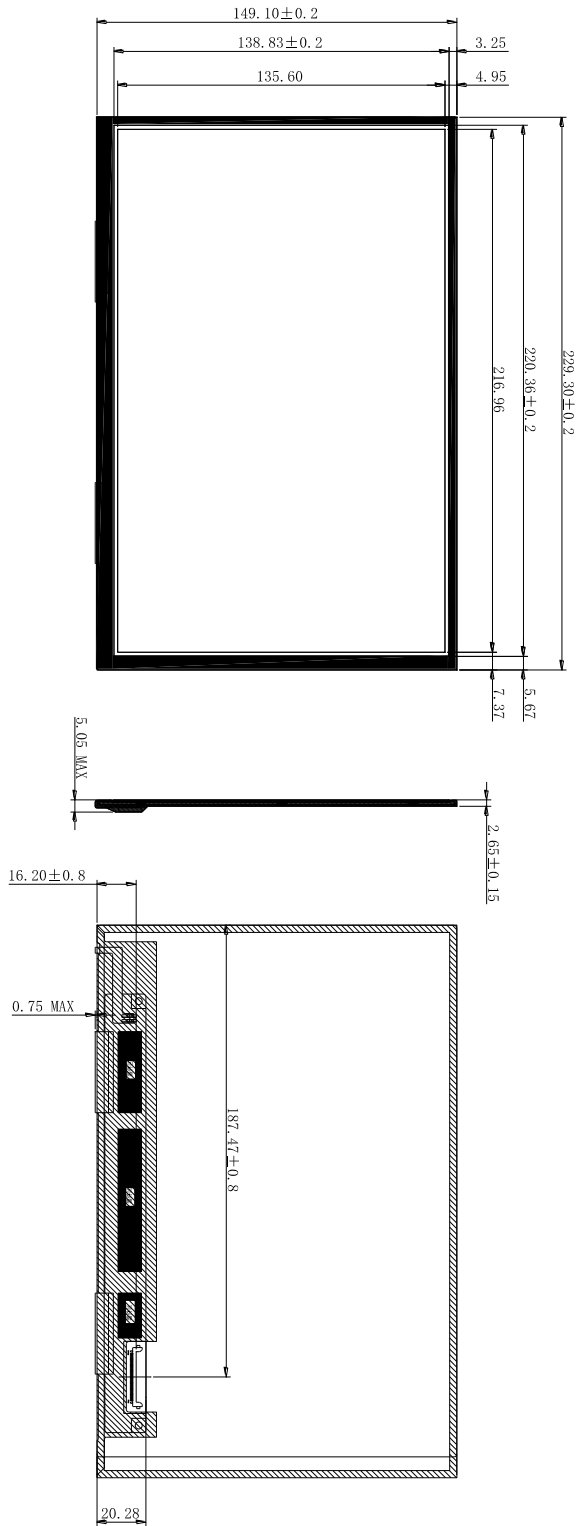
6.0 Reliability test items

NO	Item	Conditions	Remark
1	High Temperature Storage	Ta=+85°C,48hrs	
2	Low Temperature Storage	Ta=-35°C,48hrs	
3	High Temperature Operation	Ta=+75°C,48hrs	
4	Low Temperature Operation	Ta=-25°C,48hrs	
5	High Temperature and High Humidity (operation)	Ta=+40°C,90%RH,96hrs	
6	Thermal Cycling Test (non operation)	-20°C(0.5hr)→+60°C(30min),100cycles	

Note: (1) All tests above are practiced at module type.

(2) There is no display function NG issue occurred, All the cosmetic specification is judged before the reliability stress.



7.0 OUTLINE DIMENSIONS



LED 电路图
3串13并 39LED

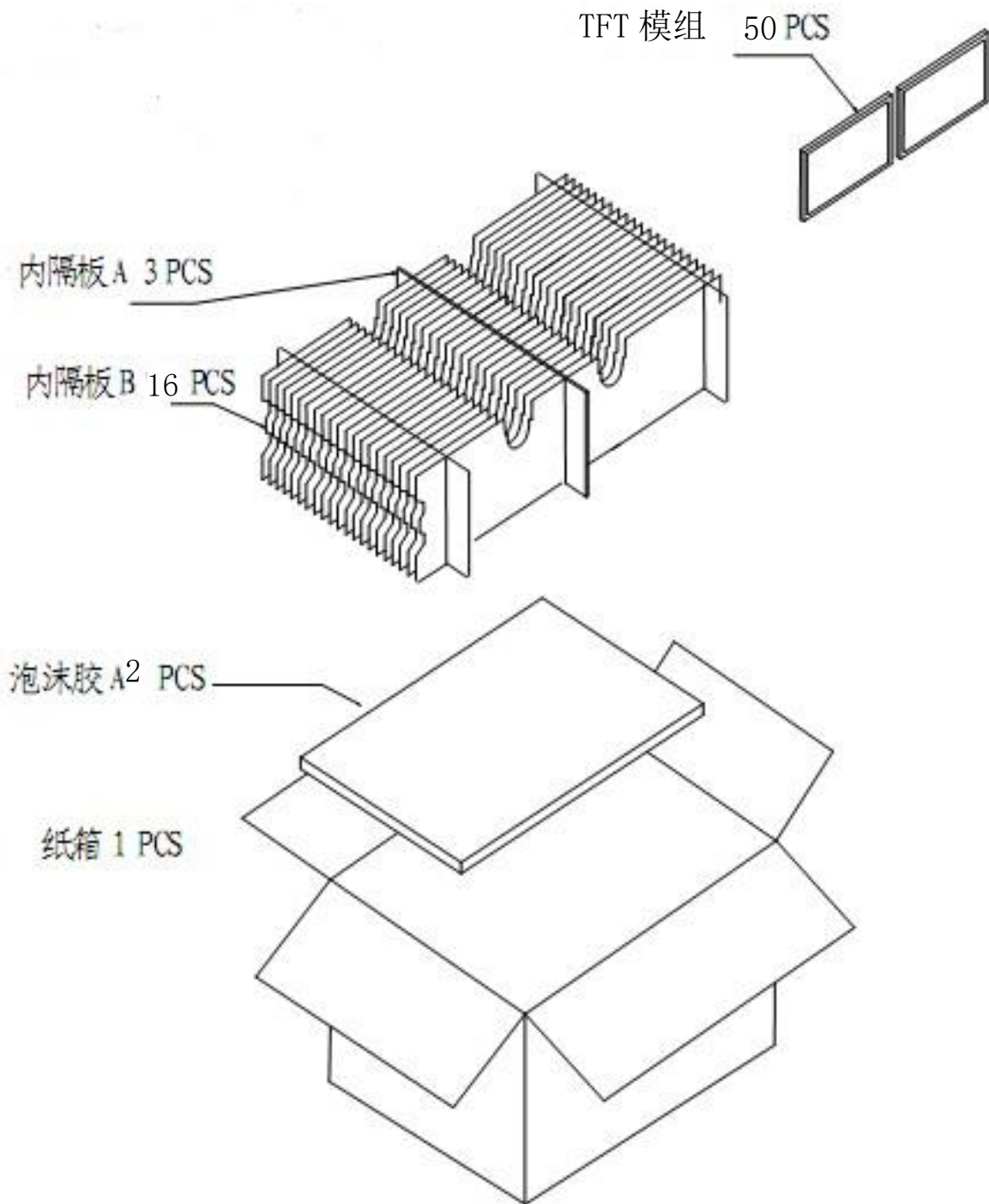
- SPECIFICATION:**
- 1.LCD Panel Type : 10.1inch(AA Diagonal) ALL-TFT
 - 2.Resolution : 1280RGB(H)*800(V)
 - 3.Display Mode : Transmissive, Normally White
 - 4.Viewing Direction : ALL
 - 5.Operating/Storage temperature : -20°C~+70°C/-20°C~+80°C
 - 6.Operating Voltage : VDD=3.3V /IOVDD=1.8V
 - 7.LED Backlight : White, Vf=8.7-9.9 typ. (If=260mA)
 - 8.Touch Panel : Whitout
 - 9.Control IC Interface : LVDS
 - 10.Dimensions with mark "()" are reference.
 - 11.RoHS compliant.

REV.	REVISION RECORD	DATE
01	First issue	2023-10-10

 DONGGUAN JITECHLCD CO.,LTD	
DESIGNED BY:	RH10119BEN-5A
CHECKED BY:	OUTLINE
APPROVED BY:	
UNIT: mm	GENERAL TOL.: ±0.20
PAGE: 1/1	DATE: 2023-10-10

8.0 Packing form

8.1 Packing form 1



9.0 GENERAL PRECAUTION

9.1 Use Restriction

This product is not authorized for use in life supporting systems, aircraft navigation control systems, military systems and any other application where performance failure could be life threatening or otherwise catastrophic.

9.2 Disassembling or Modification

Do not disassemble or modify the module. It may damage sensitive parts inside LCD module, and may cause scratches or dust on the display. HannStar does not warrant the module, if customers disassemble or modify the module.

9.3 Breakage of LCD Panel

9.3.1. If LCD panel is broken and liquid crystal spills out, do not ingest or inhale liquid crystal, and do not contact liquid crystal with skin.

9.3.2. If liquid crystal contacts mouth or eyes, rinse out with water immediately.

9.3.3. If liquid crystal contacts skin or cloths, wash it off immediately with alcohol and rinse thoroughly with water.

9.3.4. Handle carefully with chips of glass that may cause injury, when the glass is broken.

9.4 Electric Shock

9.4.1. Disconnect power supply before handling LCD module.

9.4.2. Do not pull or fold the LED cable.

9.4.3. Do not touch the parts inside LCD modules and the fluorescent LED's connector or cables in order to prevent electric shock.

9.5 Absolute Maximum Ratings and Power Protection Circuit

9.5.1. Do not exceed the absolute maximum rating values, such as the supply voltage variation, input voltage variation, variation in parts' parameters, environmental temperature, etc., otherwise LCD module may be damaged. 9.5.2. Please do not leave LCD module in the environment of high humidity and high temperature for a long time. 11.5.3. It's recommended to employ protection circuit for power supply.

9.6 Operation

9.6.1 Do not touch, push or rub the polarizer with anything harder than HB pencil lead.

9.6.2 Use fingerstalls of soft gloves in order to keep clean display quality, when persons handle the LCD module for incoming inspection or assembly.

9.6.3 When the surface is dusty, please wipe gently with absorbent cotton or other soft material.

9.6.4 Wipe off saliva or water drops as soon as possible. If saliva or water drops contact with polarizer for a long time, they may causes deformation or color fading.

9.6.5 When cleaning the adhesives, please use absorbent cotton wetted with a little petroleum benzine or other adequate solvent.

9.7 Mechanism

Please mount LCD module by using mouting holes arranged in four corners tightly.

9.8 Static Electricity

9.8.1 Protection film must remove very slowly from the surface of LCD module to prevent from electrostatic occurrence.

9.8.2. Because LCD module use CMOS-IC on circuit board and TFT-LCD panel, it is very weak to electrostatic discharge. Please be careful with electrostatic discharge. Persons who handle the module should be grounded through adequate methods.

9.9 Strong Light Exposure

The module shall not be exposed under strong light such as direct sunlight. Otherwise, display characteristics may be changed.

9.10 Disposal

When disposing LCD module, obey the local environmental regulations.