

承 认 书

品名：XBW080AL02-S-03V0

客户承认：

制作	审核	批准

公司承认：

制作	审核	批准

Revision History

Version and Date	Page	Old description	New Description	Remark
1.0_2014-09-05	all	Trial version		
1.1_2014-09-27	10	LCM Outline Dimension	Update Outline Drawing	
	21~22		Add key device backup table	

**Note : The Product and specifications are subject to change without any notice.
Please ask for the latest Product Standards to guarantee the satisfaction of
our product requirements.**

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3. PRODUCT INFORMATION

3.1. Description

a color active matrix LCD module incorporating amorphous silicon TFT (Thin Film Transistor). It is composed of a color TFT-LCD panel, driver ICs, FPC and a backlight unit. The screen format is intended to support the 16:10 , 800(H) x1280(V) screen and 16.7M colors (RG B 8-bits data driver) without LED backlight driving circuit. All input signals are MIPI interface compatible.

3.2. Applications

- ☐ UMPC
- ☐ Portable DVD
- ☐ GPS
- ☐ Notebook
- ☐ I pad

3.3. Features

- ☐ High Resolution: WXGA 800(RGB) x1280 Dots
- ☐ adopting a high aperture ratio
- ☐ 21 chip LED backlight
- ☐ Dot-Inversion

3.4. General Specifications

Item	Specification	Unit	Remark
Screen size	8.0(Diagonal)	inch	
Display Mode	Normally Black	-	-
Display Technology	α-Si TFT active matrix	-	-
Outline Dimension	184.04 (H) X 114.6(V) X 2.6(T)	mm	2.6 is the maximum value
Active Area	107.64(H) X 172.224 (V)	mm	-
Resolution	800X3(RGB)X1280	dots	-
Pixel Pitch	134.55(H) X3X134.55 (V)	μm	-
Pixel Configuration	RGB Stripe	-	-
Weight	90	g	Max
Backlight	21 LED	-	-
Luminance	300Min. 320Typ.	cd/m2	5 Point
Surface Treatment	Anti-Glare	-	-
Signal Interface	4 Lane MIPI	-	-
Viewing Direction	IPS	ALL	Note

NOTE: about Viewing Direction, the best viewing direction is 12 o'clock, and the optimum contrast direction is at 6 o'clock.

4. ABSOLUTE MAXIMUM RATINGS

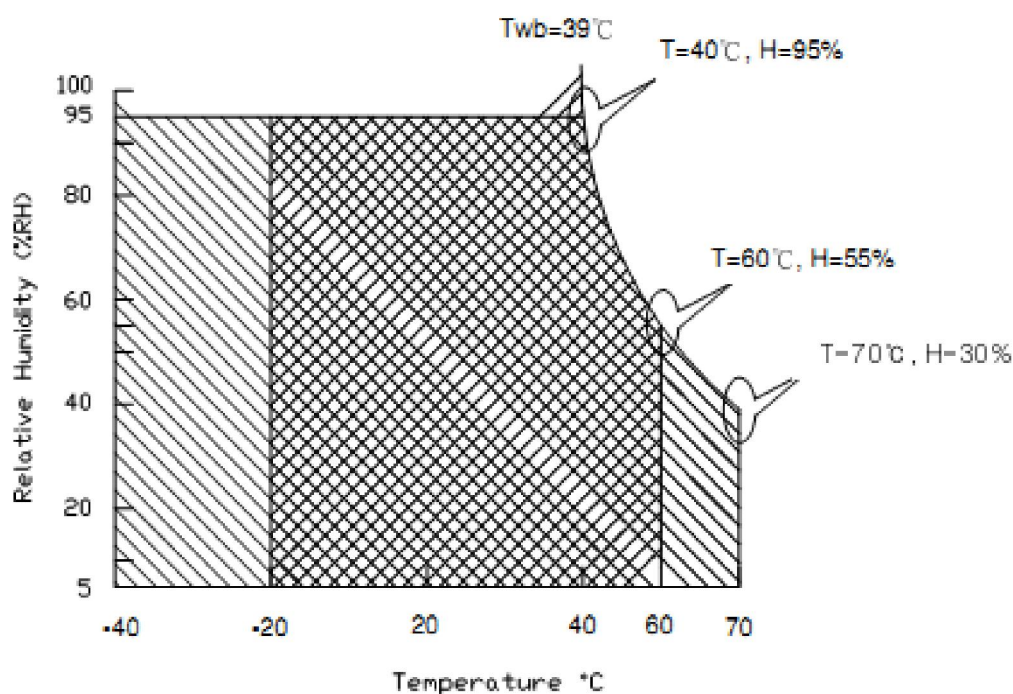
Item	Symbol	Condition	Min.	Max.	Unit	Remark
Power Voltage	VDD,	GND=0	-0.3	4	V	
Power Voltage	V _{in}	GND=0	-0.3	VDD+0.3	V	NOTE
Logic Output Voltage	V _{OUT}	GND=0	-0.3	VDD+0.3	V	NOTE
Storage Temperature(Ambient)		-	-20	+60	°C	
Operation Temperature(Ambient)		-	0	+50	°C	
Storage Humidity		-	10	90	%RH	
Operation Ambient Humidity		-	10	90	%RH	

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. _ 60, 90% RH MAX_.

Temp. _ 60_, Absolute humidity shall be less than 90% RH at _60_

2.Dry Bulb Temperature [°C]



Operating Range 

Storage Range  + 

No.	Test Item	Condition
1	High Temperature Storage test	Ta=60°C,96h
2	Low Temperature Storage test	Ta=-20°C,96h
3	High temperature operation test	Ta=50°C,50%RH,96h
4	Low temperature operation test	Ta=0°C,96h

5. ELECTRICAL SPECIFICATIONS(Ta=25°C)

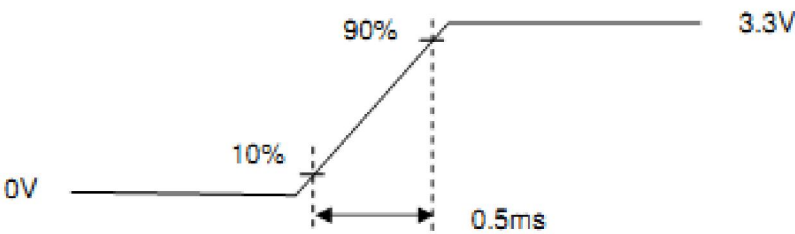
5.1. Operating conditions:

Ta = 25 ± 2 °C

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power Supply Voltage	VDD	3	3.3	3.6	V	

Note 1: The ambient temperature is Ta = 25 ± 2 °C.

Note 2: Measure Condition



Vin rising time

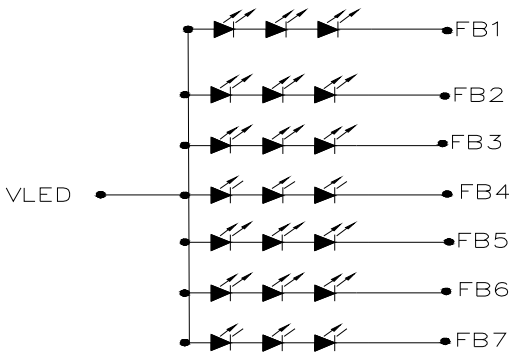
5.2. Backlight Driving Section

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
LED Voltage	VLED	8.7	9.3	10.5	V	Note 1
LED Current	ILED	-	140	175	mA	
Power Consumption	PLED	-	1.302	1.83	W	
Life Time	-	-	(25,000)	-	hr	Note2;3

Note 1: There are 1 Groups LED

Note 2: The ambient temperature is Ta = 25 ± 2 °C.

Note 3: Brightness to be decreased to 50% of the initial value



BLU CIRCUIT DIAGRAM

6. OPTICAL SPECIFICATIONS(Ta=25°C)

Item	Symbol	Min.	Typ.	Max.	Unit	Remarks
Contrast Ratio	C/R	500	700	-		Fig.1
Brightness		300	320		cd/m2	Full White Pattern 5 Point
Brightness Uniformity		-	80%	-	%	Full White Pattern Fig.1,2
Response Time	Tr+Tf	-	30	35	ms	Fig.3
Color Coordinate	WHITE	Wx	0.27	0.29	0.31	Full White Pattern
		Wy	0.30	0.32	0.34	
view angle		θl	-	85	-	Fig.4 Center (C/R>10)
		θr	-	85	-	
		θu	-	85	-	
		θd	-	85	-	
Transmittance Ratio	TR	-	-	4	%	LCD With POL

Note:

1. Contrast Ratio(CR) is defined mathematically as :

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

2. Surface luminance is the center point across the LCD surface 500mm from the surface with all pixels displaying white. For more information see FIG 1.

3. Response time is the time required for the display to transition from black to white (Rise Time, Tr) and from white to black(Decay Time, Tf). For additional information see FIG 3.

4. Viewing angle is the angle at which the contrast ratio is greater than 5. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG 4.

5. Optimum contrast is obtained by adjusting the LCD Threshold voltage (Vth& Vsat)

7.2 Optical Characteristic Measurement Equipment and Method

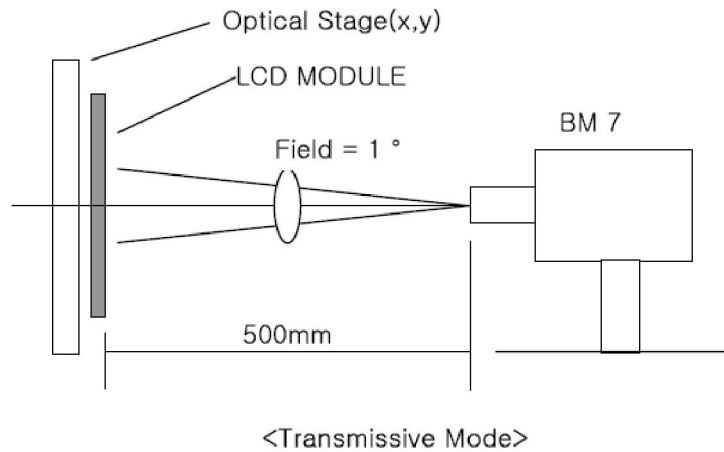


FIG. 1 Optical Characteristic Measurement Equipment and Method

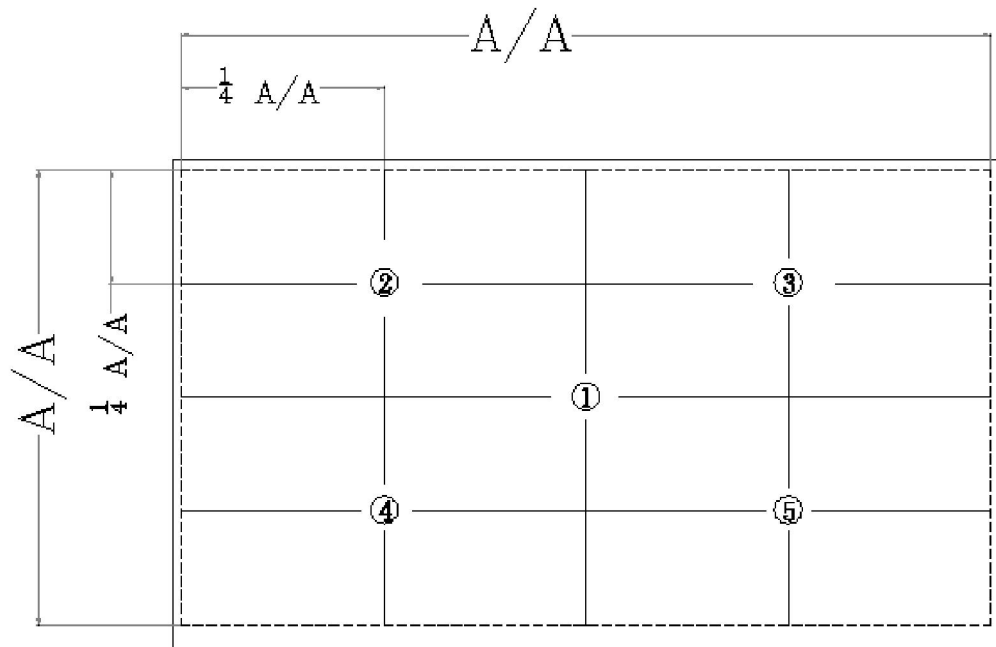
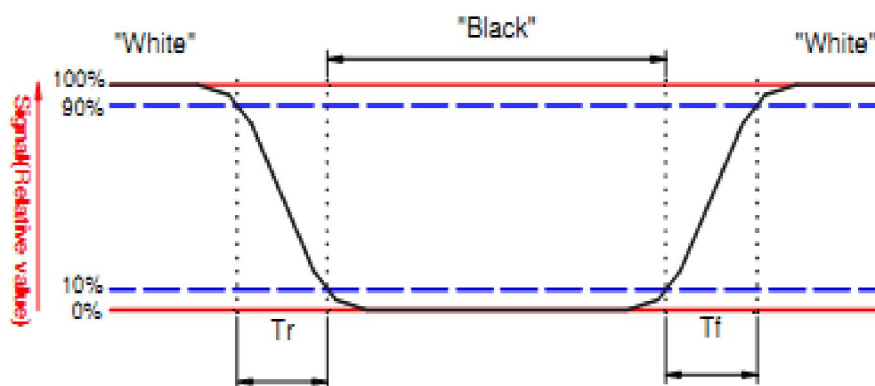


FIG.2 Brightness Uniformity :The brightness uniformity of the five main measuring points

The output signals of BM-7 or equivalent are measured when the input signals are changed from "Black" to "White" (falling time) and from "White" to "Black" (rising time), respectively. The response time interval between the 10% and 90% of amplitudes. Refer to figure as below.



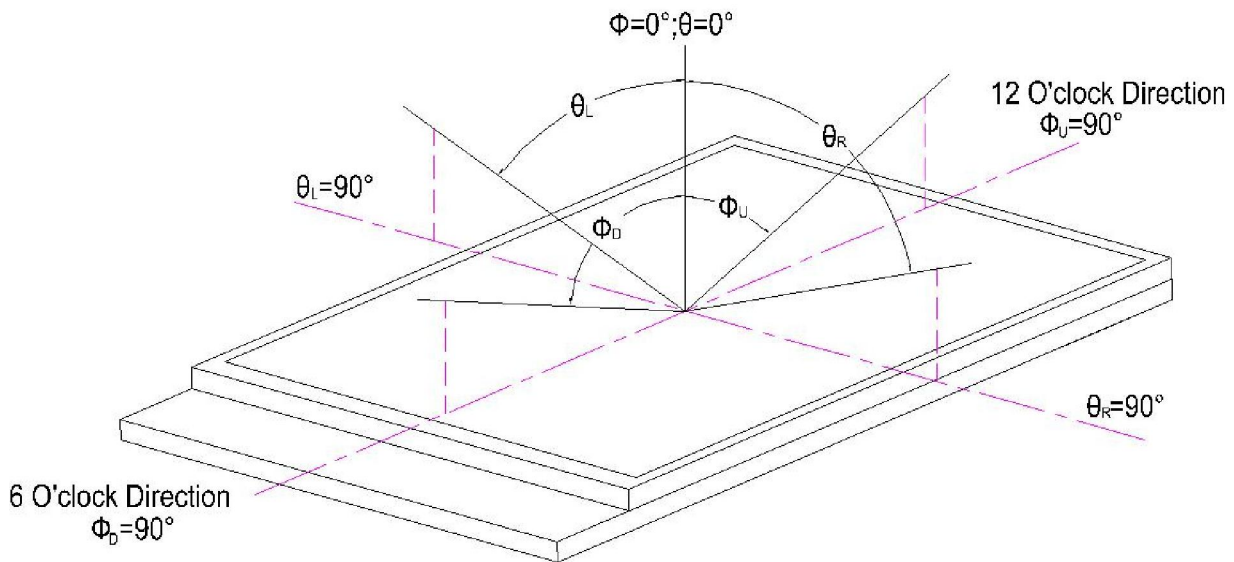
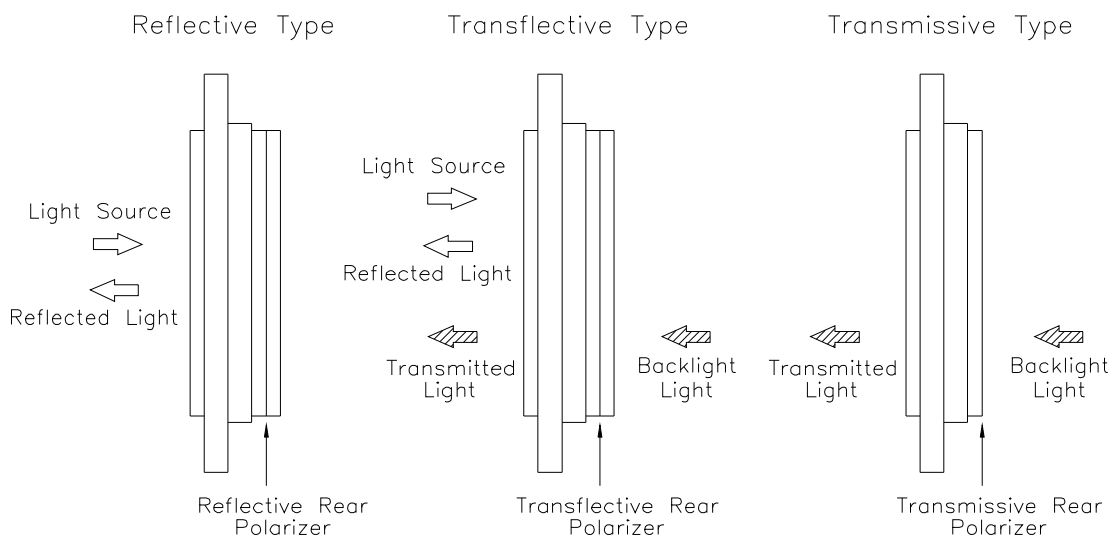


FIG.4 The definition of Viewing Angle

Test equipment setup:

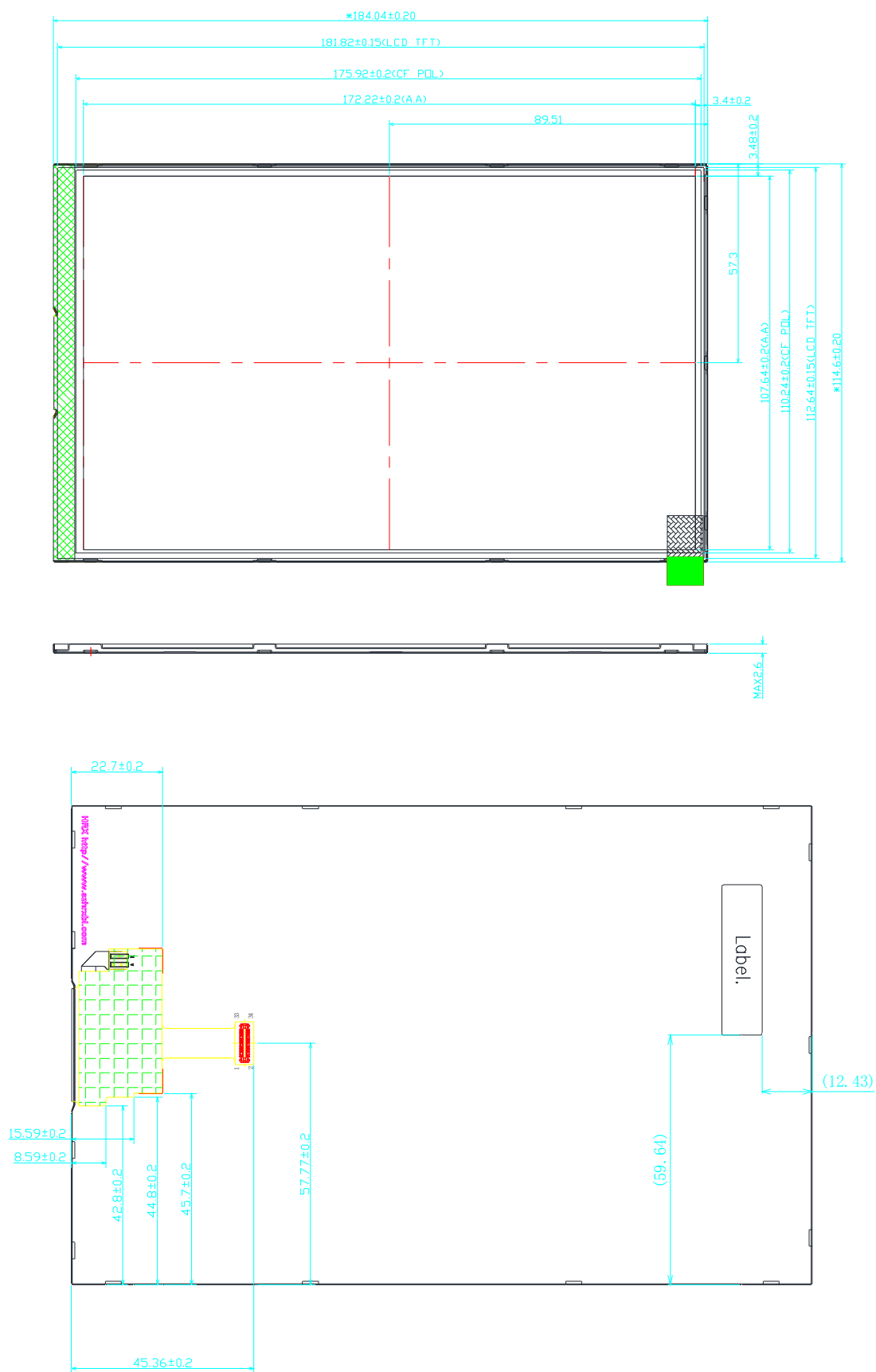
After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

7. Viewing Modes

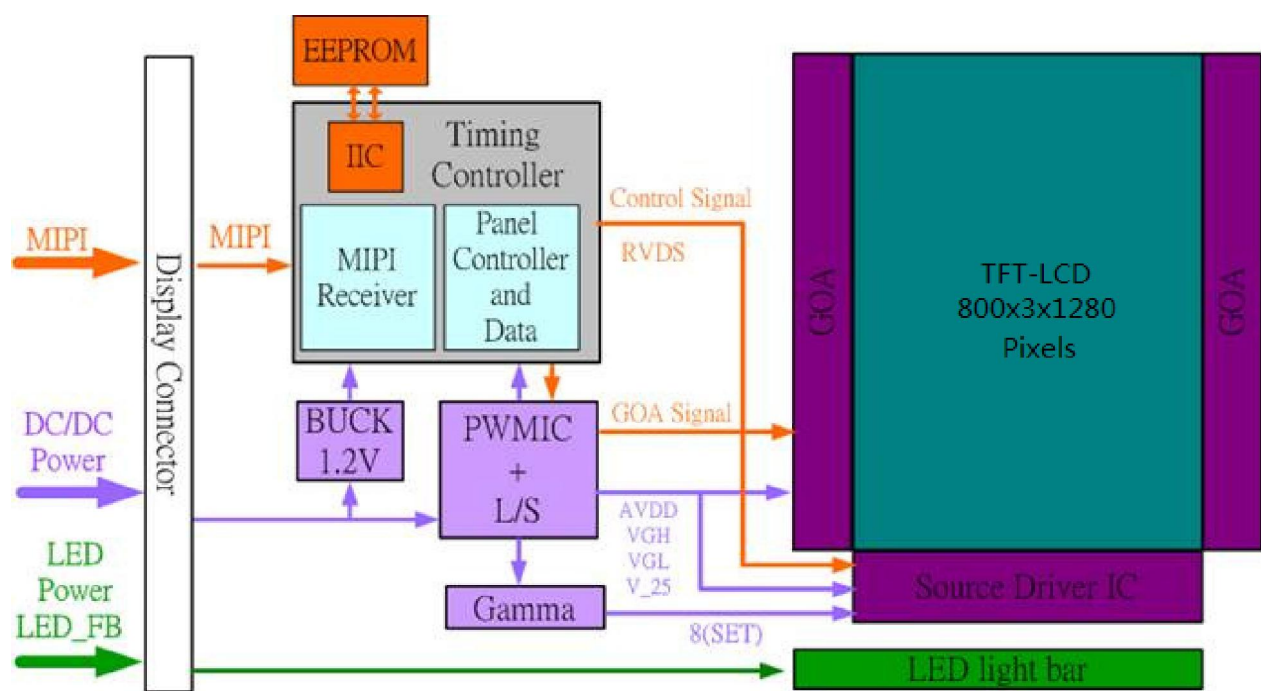


The viewing mode of the LCM is “Transmissive Type”

8. <Outline dimension>



9. <Block diagram>



10. INTERFACE

10.1 LCM PIN Definition

Physical interface is described as for the connector on module.

These connectors are capable of accommodating the following signals and will be following components.

Connector Name / Designation	For Signal Connector
Manufacturer	UJU
Type / Part Number	BF040-I34B-C08-A

Pin No.	Symbol	Description	Remark
1	VLED	Anode for light bar	
2	VLED	Anode for light bar	
3	VLED	Anode for light bar	
4	BCCTL	Power enable from i-Chip	
5	BCO	B/L enable from i-Chip	
6	FB1	Cathode for light bar	
7	FB2	Cathode for light bar	
8	FB3	Cathode for light bar	
9	WPN	OTP write protection	

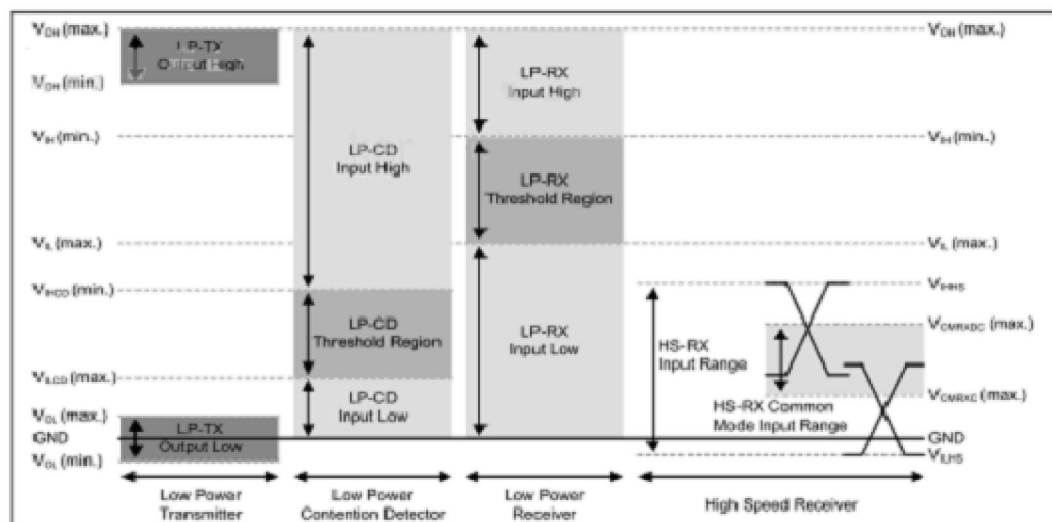
10	RESET	Device reset signal	
11	GND	Ground	
12	VPP	OTP burning high voltage (7.5V)	
13	D2P	-MIPI differential data input	
14	GND	Ground	
15	D2N	+MIPI differential data input	
16	D1P	-MIPI differential data input	
17	GND	Ground	
18	D1N	+MIPI differential data input	
19	CKP	Positive MIPI Differential Data Input	
20	GND	Ground	
21	CKN	Positive MIPI Differential Data Input	
22	D0P	-MIPI differential data input	
23	GND	Ground	
24	D0N	+MIPI differential data input	
25	SCL	I2C-SCL input	
26	GND	Ground	
27	VDDL	Logic Supply (1.8V)	
28	D3P	-MIPI differential data input	
29	VDDP	Power supply (3.3V)	
30	D3N	+MIPI differential data input	
31	VDDP	Power supply (3.3V)	
32	GND	Ground	
33	VDDP	Power supply (3.3V)	
34	SDA	I2C DATA input	

11. Command/AC Timing

11.1 MIPI DC Electrical CHARACTERISTICS

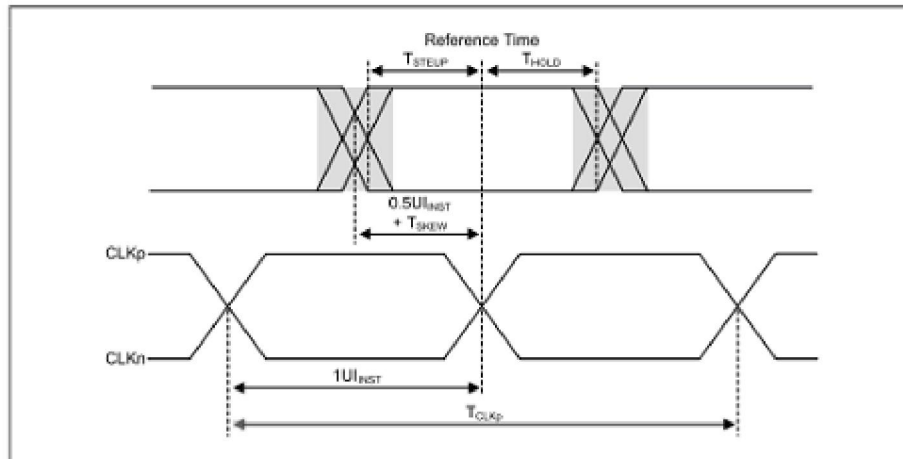
MIPI Receiver Differential Input (DC Characteristics)					
Symbol	Parameter	Min	Typ	Max	Unit
BR _{MIPI}	Input data bit rate	450	---	---	Mbps
V _{IDTH}	Differential input high threshold (HS Rx mode)	---	---	200	mV
V _{IDTL}	Differential input low threshold (HS Rx mode)	70	---	330	mV
V _{IHHS}	Single-end input high voltage (HS Rx mode)	---	---	70	mV
V _{ILHS}	Single-end input low voltage (HS Rx mode)	-70	---	---	mV
Z _{id}	Differential input impedance	---	---	460	Ω
V _{IHL}	Logic 1 input voltage (LP Rx mode)	-40	---	---	mV
V _{ILL}	Logic 0 input voltage (LP Rx mode)	---	---	450	mV
V _{HYST}	Input hysteresis	80	100	125	V
V _{IHCD}	Logic 1 contention threshold				mV
V _{ILCD}	Logic 0 contention threshold			550	mV

Line contention detection (Voltage level)



MIPI High-Speed Data-clock Timing

Host sends a differential clock signal to the IC for data sampling. This signal is a DDR (half-rate) clock and has one transition per data bit time. The timing relationship of the DDR Clock differential signal to the Data differential signal is shown in following figure.



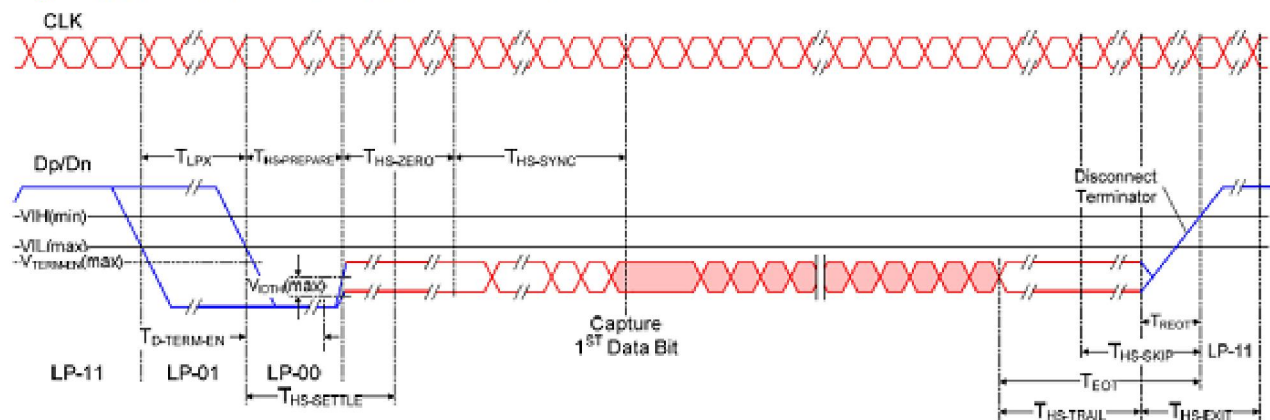
Symbol	Parameter	Min	Typ	Max	Unit	Notes
$T_{SKEW[TX]}$	Data to Clock Skew (measured at transmitter)	-0.15			---	1
$T_{SETUP[RX]}$	Data to Clock Setup Time (receiver)	0.15	---	---	UI_{INST}	2, 3
$T_{HOLD[RX]}$	Data to Clock Hold Time (receiver)	0.15	---	---	UI_{INST}	2, 3

Note:

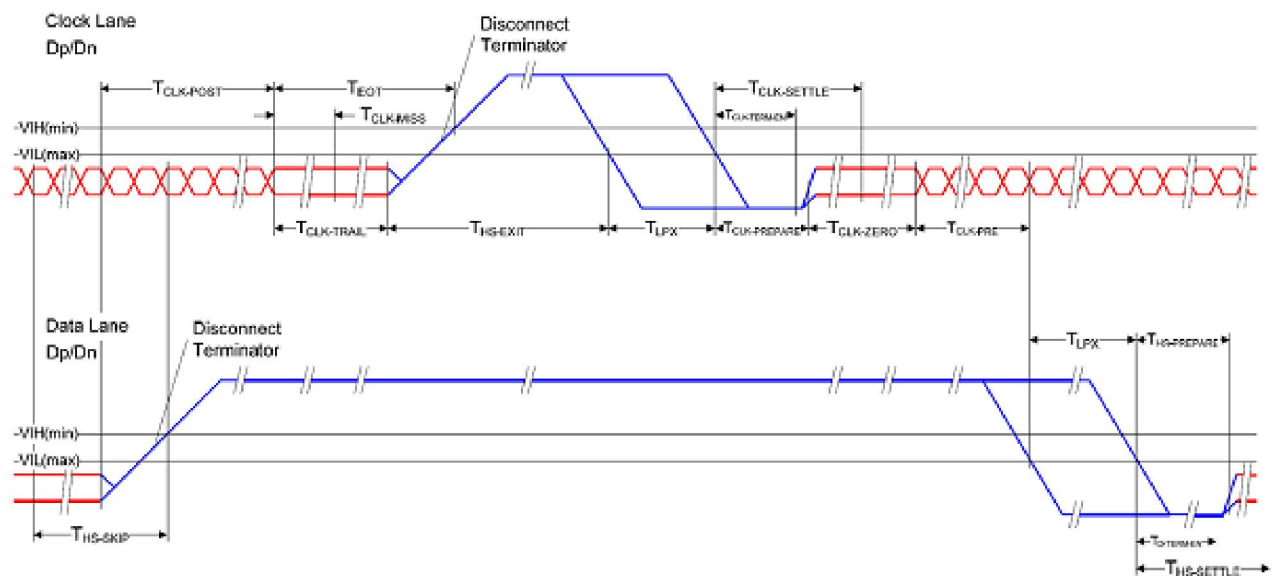
1. Total silicon and package delay budget of $0.3 \cdot UI_{INST}$
2. Total setup and hold window for receiver of $0.3 \cdot UI_{INST}$
3. $T_{SETUP[RX]}$ and $T_{HOLD[RX]}$ without FPCB and connector and guaranteed by design

11.2 Timing diagram 1

High-Speed Data Transmission in Bursts



Switching the Clock Lane between Clock Transmission and Low-Power Mode



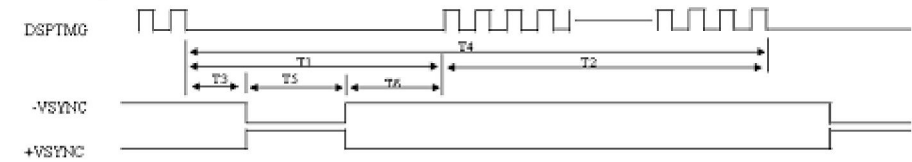
11.3 Timing diagram 1

B080EAN01.0 Input Timing (Chroma Lighting)			
Vertical Total	VT (tv)	1300	line
Vertical Front-Porch	VFP (tvp)	8	line
Vertical Active	VA (tvd)	1280	line
Vertical Sync.	VS (twv)	4	line
Vertical Back-Porch	VBP (tvbp)	8	line
Horizontal Total	HT (th)	960	clk(pixel)
Horizontal Front-Porch	HFP (thfp)	24	clk(pixel)
Horizontal Active	HA (thd)	800	clk(pixel)
Horizontal Sync.	HS (thw)	4	clk(pixel)
Horizontal Back-Porch	HBP (thbp)	132	clk(pixel)
Pixel Frequency	CLK (fc)	75.00	MHz

Driving

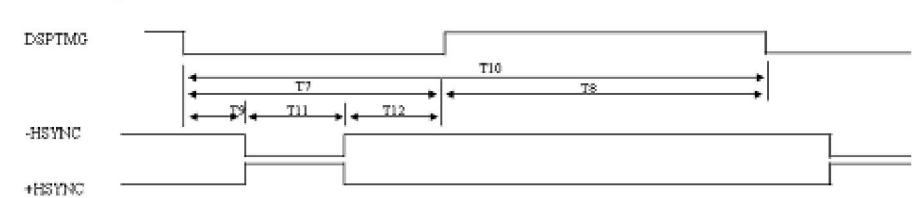
(LVDS Receiver Output)

Vertical Timing



Item	T1 Vertical Blanking	T2 Active Field	T3 VSYNC Front Porch	T4 Frame Time	T5 VSYNC Width	T6 VSYNC Back Porch
Value	20	1200	9	1300	4	9

Horizontal Timing



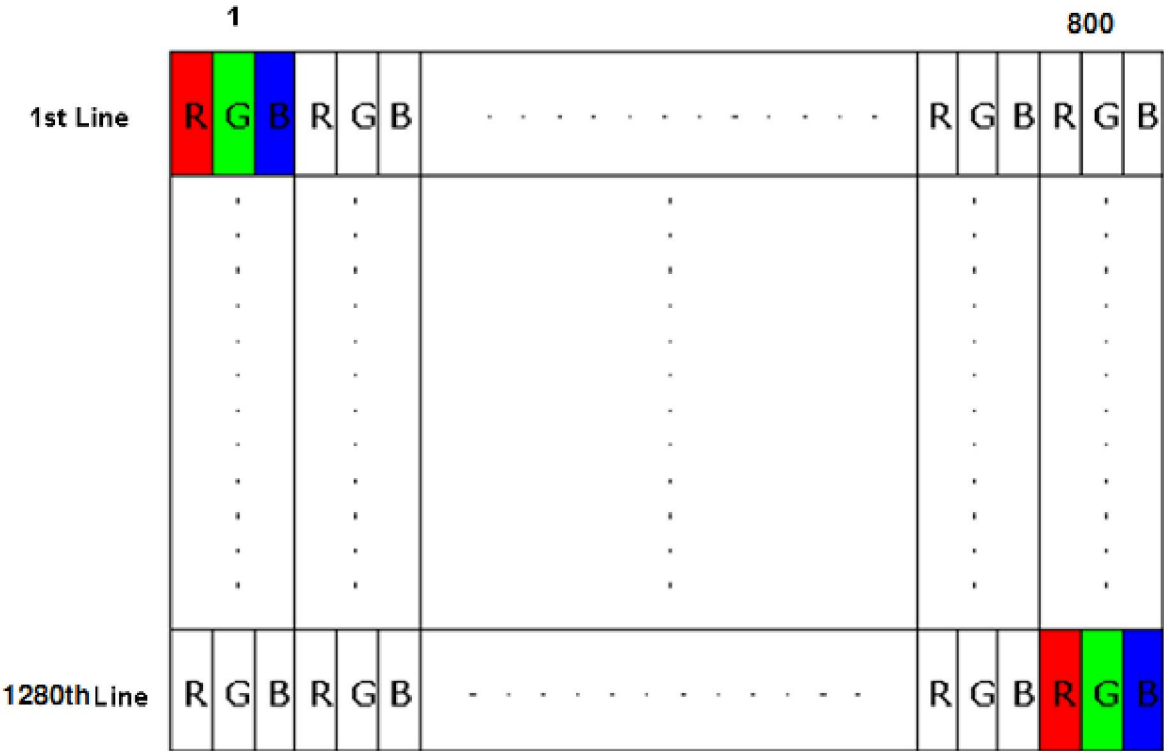
Item	T7 Horizontal Blanking	T8 Active Field	T9 HSYNC Front Porch	T10 H line Time	T11 HSYNC Width	T12 HSYNC Back Porch
Value	160	800	24	660	4	132

Dot Timing

Item	Dot Clock Frequency	Data Clock Frequency
Value	75MHz	Dot Clock Frequency

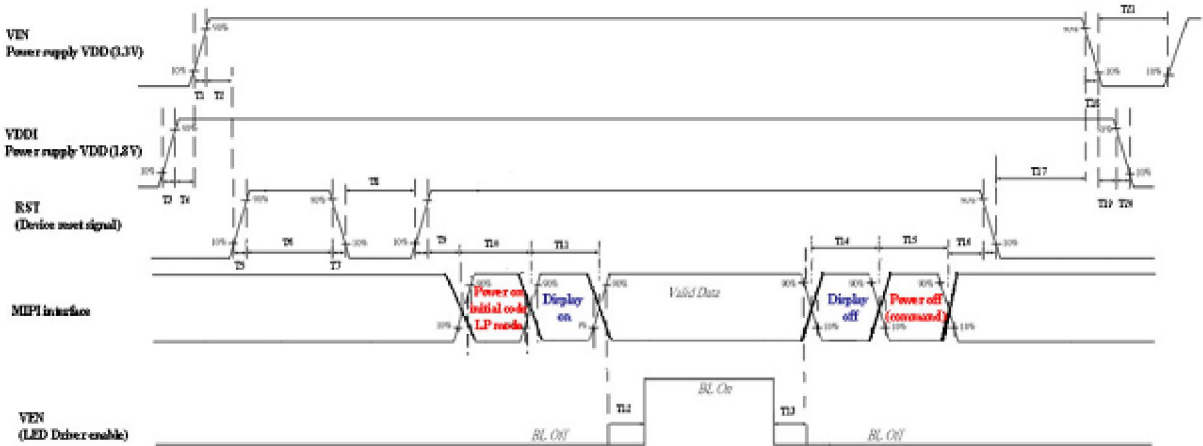
11.4 Pixel Format Image

Following figure shows the relationship of the input signals and LCD pixel format.



11.5 Power ON/OFF Sequence

Power on/off sequence is as follows. Interface signals and LED on/off sequence are also shown in the chart.



Power Sequence Timing			
Parameter	Value		Units
	Min.	Max.	
T1	0.5	10	ms
T2	1	-	
T3	0.5	10	
T4	0	50	
T5	0	0.002	
T6	1	-	
T7	0	0.002	
T8	0.01	-	
T9	5	-	
T10	180	-	
T11	33.4	-	
T12	200	-	
T13	200	-	
T14	33.4	-	
T15	180	-	
T16	50	-	
T17	120	-	
T18	0	10	
T19	0	10	
T20	0	10	
T21	500	-	

11.6 Init

```
GP_COMMAD_PA(3);  
SPI_WriteData(0xF0);  
SPI_WriteData(0x5A);  
SPI_WriteData(0x5A);  
GP_COMMAD_PA(3);  
SPI_WriteData(0xD0);  
SPI_WriteData(0x00);  
SPI_WriteData(0x10);  
GP_COMMAD_PA(1);  
SPI_WriteData(0x11);  
Delay (100);  
GP_COMMAD_PA(4);  
SPI_WriteData(0xC3);  
SPI_WriteData(0x40);  
SPI_WriteData(0x00);  
SPI_WriteData(0x28);  
GP_COMMAD_PA(1);  
SPI_WriteData(0x29);
```

12. Handling Precautions

(1) Safety

The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.

(2) Handling

- A. The LCD and touch panel is made of plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.
- B. Do not handle the product by holding the flexible pattern portion in order to assure the reliability
- C. Transparency is an important factor for the touch panel. Please wear clear finger sacks, gloves and mask to protect the touch panel from finger print or stain and also hold the portion outside the view area when handling the touch panel.
- D. Provide a space so that the panel does not come into contact with other components.
- E. To protect the product from external force, put a covering lens (acrylic board or similar board) and keep an appropriate gap between them.
- F. Transparent electrodes may be disconnected if the panel is used under environmental conditions where dew condensation occurs.
- G. Property of semiconductor devices may be affected when they are exposed to light, possibly resulting in IC malfunctions.
- H. To prevent such IC malfunctions, your design and mounting layout shall be done in the way that the IC is not exposed to light in actual use.

(3) Static Electricity

- A. Ground soldering iron tips, tools and testers when they are in operation.
- B. Ground your body when handling the products.
- C. Power on the LCD module before applying the voltage to the input terminals.
- D. Do not apply voltage which exceeds the absolute maximum rating.
- E. Store the products in an anti-electrostatic bag or container.

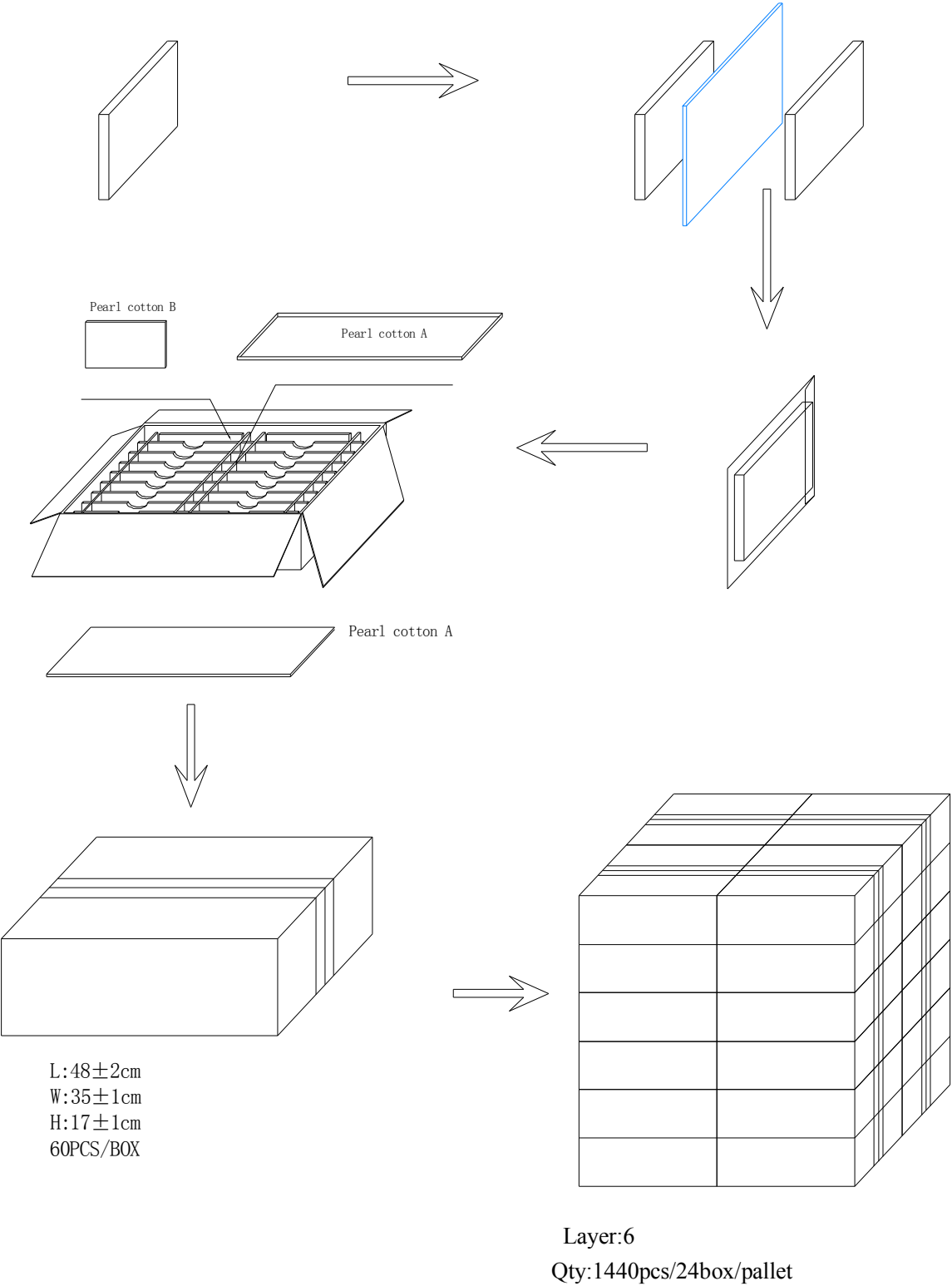
(4) Storage

- A. Store the products in a dark place at $+25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ with low humidity (40% RH to 60% RH). Don't expose to sunlight or fluorescent light.
- B. Storage in a clean environment, free from dust, active gas, and solvent.


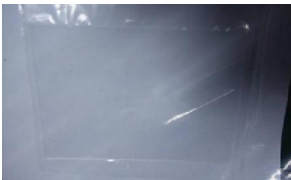

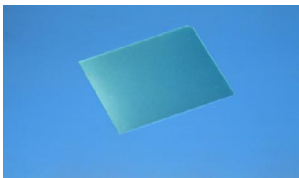
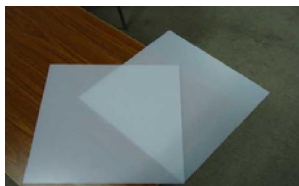
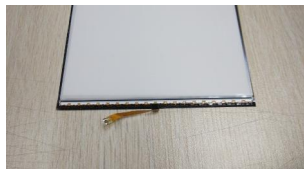

(5) Cleaning

- A. Do not wipe the touch panel with dry cloth, as it may cause scratch.
- B. Wipe off the stain on the product by using soft cloth moistened with ethanol. Do not allow ethanol to get in between the upper film and the bottom glass. It may cause peeling issue or defective operation. Do not use any organic solvent or detergent other than ethanol.

13.Packaging



14.LCM key device backup table

NO.	Material	Supplier	Specifications	picture	Remarks
1	LED		080067B-V1		
2	LGP		080067B-V1		
3	Glue frame		080067B-V1		
4	Zengguan g tablets		080067B-V1		
5	Diffusion sheet		080067B-V1		
6	Light Bar		080067B-V1		
7	Iron frame		080067B-V1		
8	FOG	AUO	080067B-V1	