

Approval sheet

Customer: _____

Model name: JT700MIWH-11

Spec NO: _____

Date: 2015.6.10

Version: 01

- Preliminary Specification**
- Final Specification**

For Customer's Acceptance

Approved by	Content

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1. General Specification

No.	Item	Specification	Remark
1	LCD size	7.0 inch(Diagonal)	
2	Driver element	a-Si TFT active matrix	
3	Resolution	800 × 3(RGB) × 480	
4	Display mode	Normally White, Transmissive	
5	Dot pitch	0.1905(W) × 0.1905(H) mm	
6	Active area	152.4(W) × 91.44(H) mm	
7	Module size	165(W) × 104.54(H) × 5.2(D) mm	Note 1
8	Surface treatment	Anti-Glare	
9	Color arrangement	RGB-stripe	
11	Interface	LVDS	
12	Backlight power consumption	1.92W	
13	Optimum viewing direction	12 O'CLOCK	
14	Weight	TBD	

Note 1: Refer to Mechanical Drawing.

2. Pin Assignment

TFT LCD Panel Driving Section

FPC Connector is used for the module electronics interface. The recommended model is FH12A-50S-0.5SH manufactured by Hirose.

Pin No.	Symbol	I/O	Function	Remark
1	VDD	P	Power Voltage for digital circuit	
2	VDD	P	Power Voltage for digital circuit	
3	VDD	P	Power Voltage for digital circuit	
4	NC	/	No connect	
5	VSS	P	Ground	
6	RX0-	I	-LVDS differential data input	
7	RX0+	I	+ LVDS differential data input	
8	VSS	P	Ground	
9	RX1-	I	-LVDS differential data input	
10	RX1+	I	+ LVDS differential data input	
11	VSS	P	Ground	
12	RX2-	I	-LVDS differential data input	
13	RX2+	I	+ LVDS differential data input	
14	VSS	P	Ground	
15	RXC-	I	-LVDS differential clock input	
16	RXC+	I	+ LVDS differential clock input	
17	VSS	P	Ground	
18	RX3-	I	-LVDS differential data input	
19	RX3+	I	+ LVDS differential data input	
20	VSS	P	Ground	
21	VSS	P	Ground	
22	DITHB	I	Dither function control pin	
23	VSS	P	Ground	
24	U/D	I	UP or down Display Control	
25	L/R	I	Left or Right Display Control	
26	NC	/	No connect	

27	VLED	P	Backlight power input(5V)	
28	VLED	P	Backlight power input(5V)	
29	VLED	P	Backlight power input(5V)	
30	VLED	P	Backlight power input(5V)	

I: input, O: output, P: Power

3. Operation Specifications

3.1. Absolute Maximum Ratings (Note 1)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	DVDD	-0.3	5.0	V	
	AVDD	6.5	13.5	V	
	VGH	-0.3	40.0	V	
	VGL	-20.0	0.3	V	
	VGH-VGL	-	40.0	V	
Operation Temperature	TOP	-20	70	°C	
Storage Temperature	TST	-30	80	°C	
LED Reverse Voltage	VR	-	1.2	V	Each LED, Note 2
LED Forward Current	IF	-	25	mA	Each LED

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.

Note 2: VR Conditions: Zener Diode 20mA

3.1.1. Typical Operation Conditions (NOTE1)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power voltage	DVDD	3.0	3.3	3.6	V	Note 2
	AVDD	10.2	10.4	10.6	V	
	VGH	16	18	19	V	
	VGL	-7	-6	-5	V	
Input signal voltage	VCOM	4.1	4.6	5.1	V	
Input logic high voltage	VIH	0.7 DVDD	-	DVDD	V	Note 3
Input logic low voltage	VIL	0	-	0.3 DVDD	V	

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

Note 2: DV_{DD} setting should match the signals output voltage (refer to Note 3) of Customer's system board.

3.1.2. Current Consumption (Note3)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current for Driver	I_{GH}	-	TBD		mA	
	I_{GL}	-	TBD		mA	
	IDV_{DD}	-	TBD		mA	
	$I_{AV_{DD}}$	-	TBD		mA	

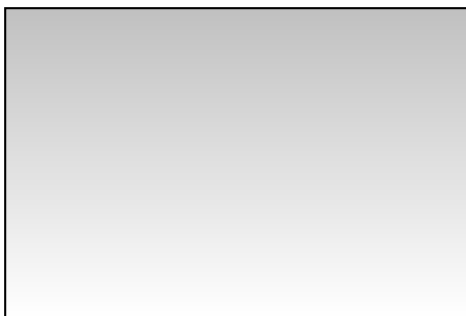
3.1.3. Backlight Driving Conditions

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Voltage for LED backlight	V_L	-	9.6	-	V	Note 1
Current for LED backlight	I_L	-	200	-	mA	
LED life time	-	30,000	50,000	-	Hr	Note 2

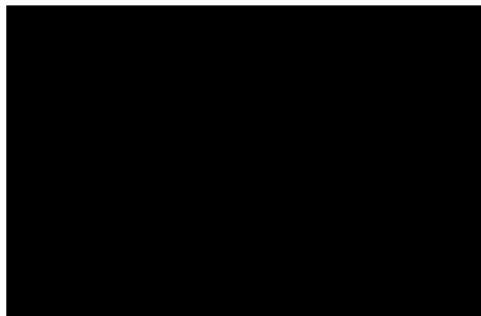
Note 1: The LED Supply Voltage is defined by the number of LED at $T_a=25^{\circ}\text{C}$ and $I_L=160\text{mA}$.

Note 2: The "LED life time" is defined as the module brightness decrease to 50% original brightness at $T_a=25^{\circ}\text{C}$ and $I_L=160\text{mA}$. The LED lifetime could be decreased if operating I_L is larger than 160 mA.

Note 3:Typ.specification:Gray-level test pattern; Max.specification:Black-level test pattern.



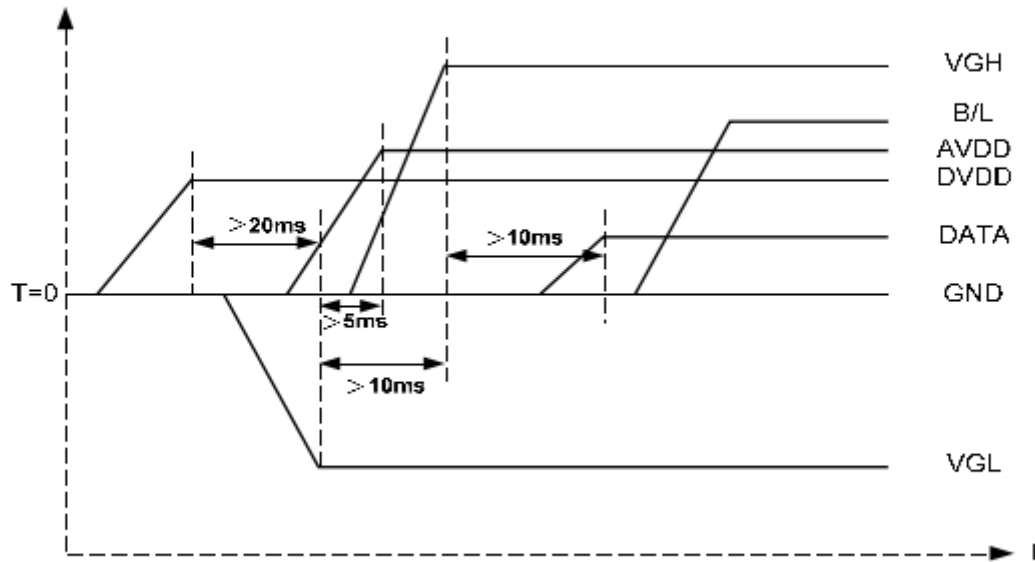
(a) Gray-level test pattern



(b) Black-level test pattern

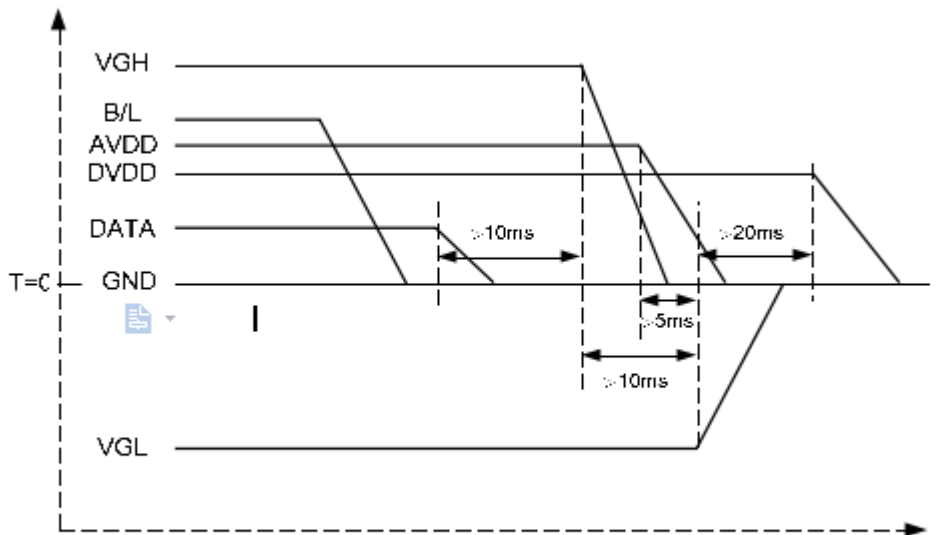
3.2. Power Sequence

a. Power on:



DV_{DD}→VGL→VGH→Data→B/L

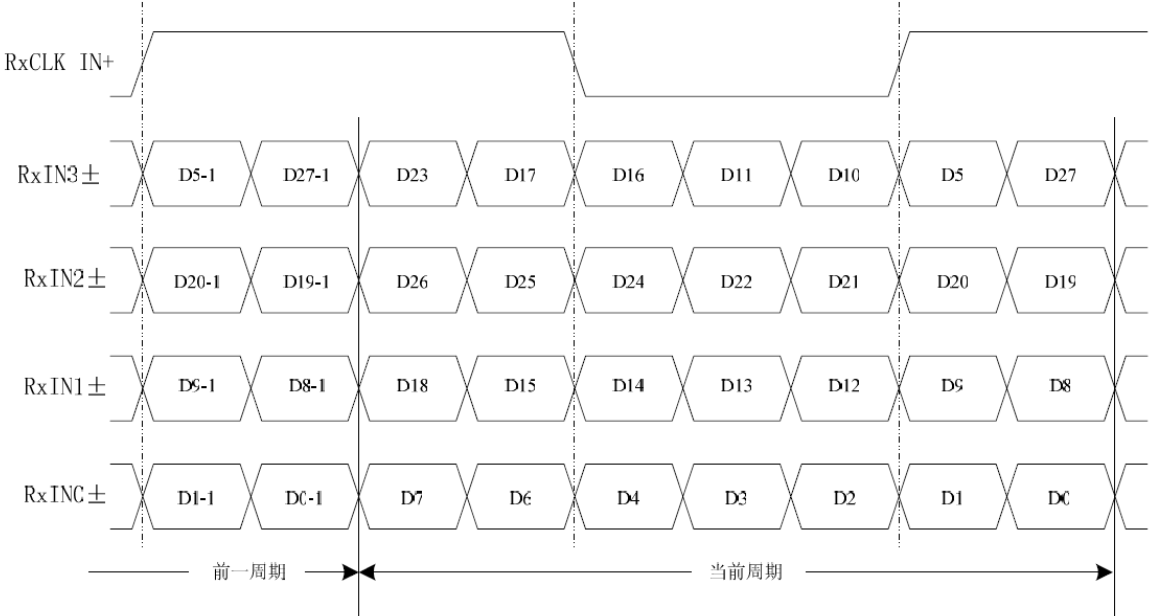
b. Power off:



B/L→Data→VGH→VGL→DV_{DD}

Note: Data include R0~R5, B0~B5, GO~G5, DCLK, DE.

3.3. Timing Characteristics



4. Optical Specifications

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (CR \geq 10)	θ_L	$\Phi=180^\circ$ (9 o'clock)	60	70	-	degree	Note 1
	θ_R	$\Phi=0^\circ$ (3 o'clock)	60	70	-		
	θ_T	$\Phi=90^\circ$ (12 o'clock)	50	60	-		
	θ_B	$\Phi=270^\circ$ (6 o'clock)	60	70	-		
Response time	T _{ON}	Normal $\theta=\Phi=0^\circ$	-	10	20	msec	Note 3
	T _{OFF}		-	15	30	msec	Note 3
Contrast ratio	CR		150	250	-	-	Note 4
	W _X		-	0.290	-	-	
	W _Y		-	0.320	-	-	
Luminance	L		-	600	-	cd/m ²	Note 6
Luminance uniformity	YU		70	75	-	%	Note 7

Test conditions:

1. $DV_{DD}=3.3V$, $I_L=200mA$ (Backlight current), the ambient temperature is 25°C
2. The test systems refer to Note 2.

Note 1: Definition of viewing angle range

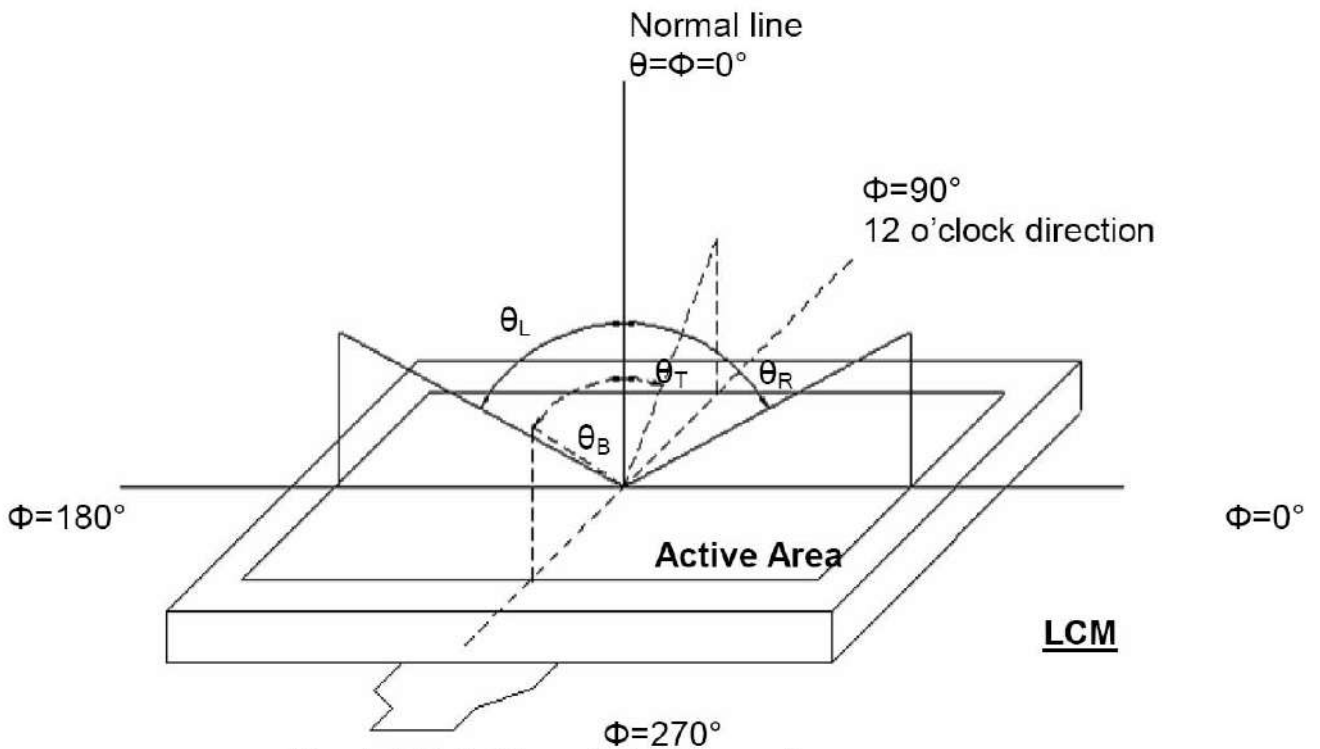


Fig. 4-1 Definition of viewing angle

Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 30 minutes operation, the optical properties are measured at the center point of the LCD screen. (Response time is measured by Photo detector TOPCON BM-7, other items are measured by BM-5A/Field of view: 1° /Height: 500mm.)

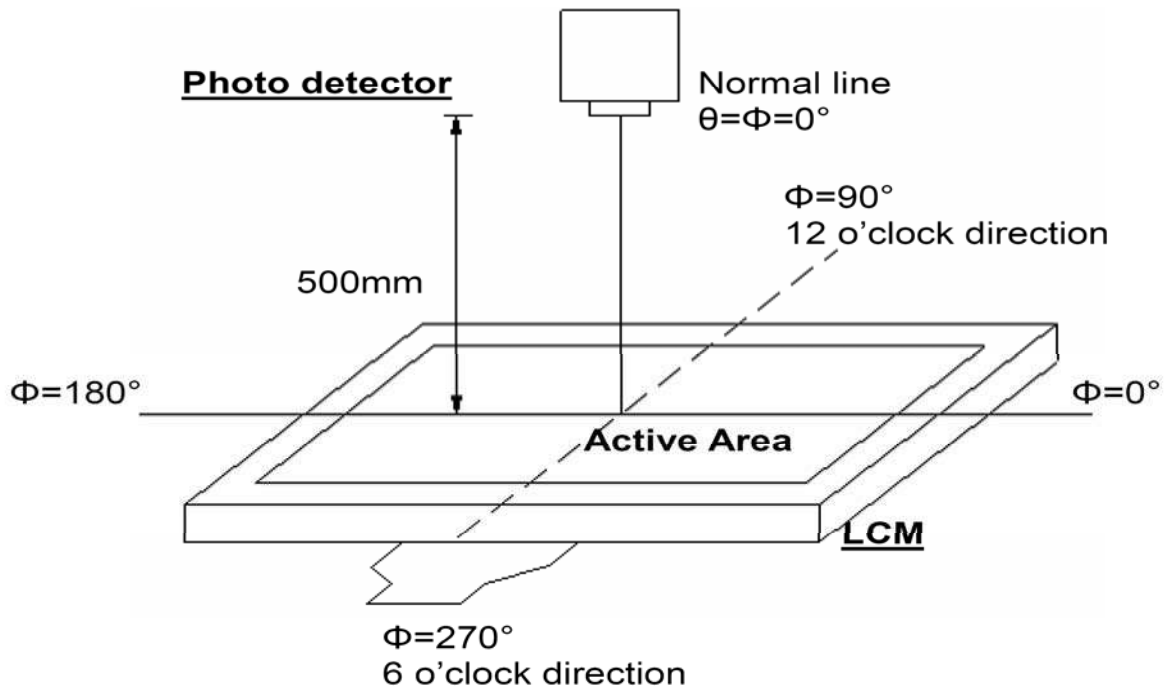


Figure 4-2 Optical measurement system setup

Note 3: Definition of Response time

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time (T_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{OFF}) is the time between photo detector output intensity changed from 10% to 90%.

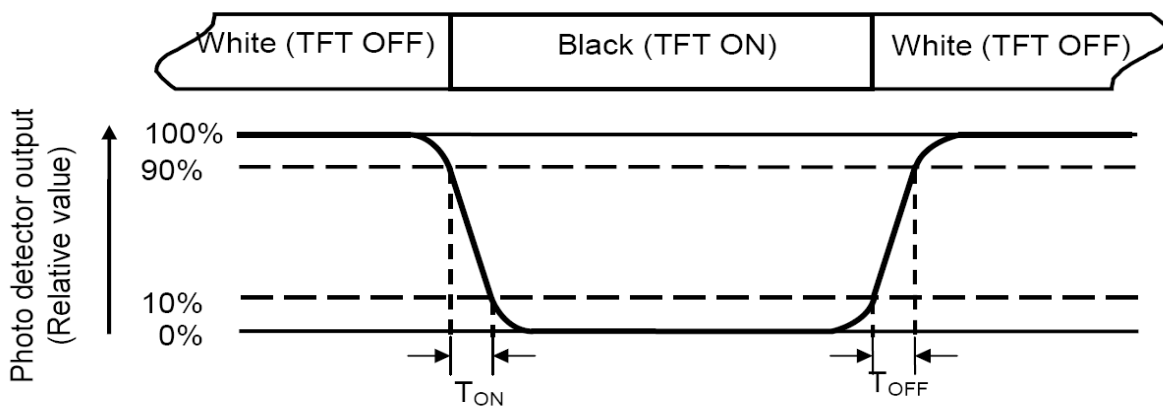


Figure 4-3 Definition of response time

Note 4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{state White"} \text{ the on LCD when measured Luminance}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is $I_L=180\text{mA}$.

Note 7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer to Fig. 4-4).

Every measuring point is placed at the center of each measuring area.

$$\text{Luminance Uniformity (YU)} = \frac{B_{\min}}{B_{\max}}$$

L=Active area length W=Active area width

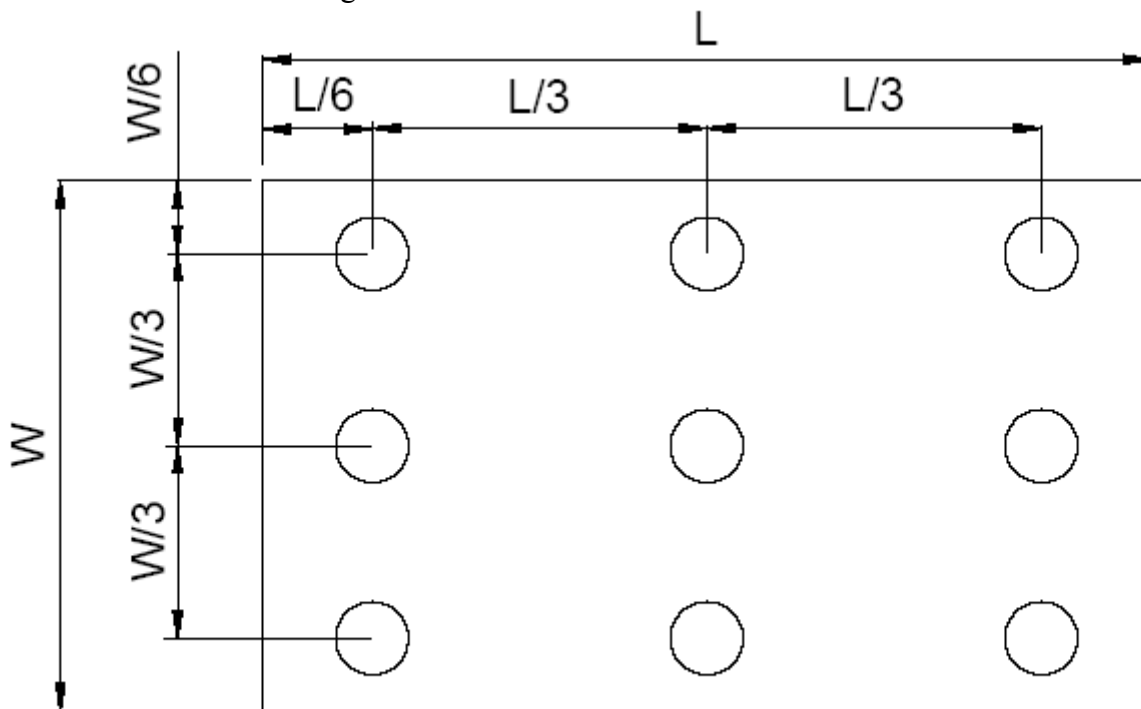


Fig. 4-4 Definition of measuring points

B_{\max} : The measured maximum luminance of all measurement position.

B_{\min} : The measured minimum luminance of all measurement position.

5. Reliability Test Items

(NOTE 3)

Item	Test Conditions	Remark
High temperature storage	Ta=80℃ 240hrs	NOTE1 , NOTE4
Low temperature storage	Ta=-30℃ 240hrs	NOTE1 , NOTE4
High temperature operation	Ta=70℃ 240hrs	NOTE2 , NOTE4
Low temperature operation	Ta=-20℃ 240hrs	NOTE2 , NOTE4
Operate at high temperature and humidity	+60℃ , 90%RH 240hrs	NOTE4
Thermal Shock	-30℃/30min~+80℃/30min for a total 100 cycles ,start with cold temperature and end with high temperature .	NOTE4
Vibration Test	Frequency range:10~55HZ Stroke:1.5mm Swap:10HZ~55HZ~10HZ 2 hours of each direction of X.Y. Z (6 hours for total)	
Mechanical shock	100G 6ms, ± X, ± Y, ± Z 3 times for each direction	
Package vibration test	Random vibration :0.15G*G/HZ from 5-200 HZ,-6dB/Octave from 200-500HZ of each direction of X.Y. Z (6 hours for total)	
Low temperature storage	Height:60cm 1 corner ,3 edges ,6 surfaces	
Low temperature storage	± 2KV ,Human Body Mode, 100pF/1500 Ω	

Note 1: Ta is the ambient temperature of samples.

Note 2: Ts is the temperature of panel's surface.

Note 3: In the standard condition, there shall be no practical problem that may affect the display function. After the reliability test, the product only guarantees operation, but don't guarantee all of the cosmetic specification.

Note 4: Before cosmetic and function test, the product must have enough recovery time,at least 2 hours at room temperature.

6. General Precautions

6.1. Safety

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

6.2. Handling

1. The LCD panel is plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.

2. The polarizer attached to the display is easily damaged. Please handle it carefully to avoid scratch or other damages.

3. To avoid contamination on the display surface, do not touch the module surface with bare hands.

4. Keep a space so that the LCD panels do not touch other components.

5. Put cover board such as acrylic board on the surface of LCD panel to protect panel from damages.

6. Transparent electrodes may be disconnected if you use the LCD panel under environmental conditions where the condensation of dew occurs.

7. Do not leave module in direct sunlight to avoid malfunction of the ICs.

6.3. Static Electricity

1. Be sure to ground module before turning on power or operating module.

2. Do not apply voltage which exceeds the absolute maximum rating value.

6.4. Storage

1. Store the module in a dark room where must keep at $25\pm 10^{\circ}\text{C}$ and 65%RH or less.

2. Do not store the module in surroundings containing organic solvent or corrosive gas.

3. Store the module in an anti-electrostatic container or bag.

6.5. Cleaning

1. Do not wipe the polarizer with dry cloth. It might cause scratch.

2. Only use a soft cloth with IPA to wipe the polarizer, other chemicals might permanent damage to the polarizer .

7. Mechanical Drawing

Pin	Symbol
1	VDD
2	VDD
3	VDD
4	NC
5	VSS
6	RX0-
7	RX0+
8	VSS
9	RX1-
10	RX1+
11	VSS
12	RX2-
13	RX2+
14	VSS
15	RX3-
16	RX3+
17	VSS
18	RX3-
19	RX3+
20	VSS
21	VSS
22	DITHB
23	VSS
24	U/D
25	L/R
26	NC
27	VSS
28	VLED
29	VLED
30	VLED

NOTES:

- GENERAL TOLERANCE: ±0.2
- REFERENCE DIMENSION
- RECOMMENDED CUSHION ADHERENT ARME: TP V. A+1.6mm
- REPRESENTED DIMENSION: (mm)
- REQUIREMENTS ON ENVIRONMENTAL PROTECTION: RoHS

Display Type	NORMALLY WHITE, TRANSMISSIVE
Viewing Angle	12° O'CLOCK
LCD Driver IC	H8262+H8678
Logic Voltage	VDD=3.3V
Operation Temperature	-20°C TO 20°C
Storage Temperature	-30°C TO 85°C
Interface	LVD0
Backlight	30-LED WHITE
Surface luminance	600cd/m ²
White X/Y	X:0.29±0.04 Y:0.32±0.04

DRAWN	MEI.CHECKED	BE.CHECKED	APPROVED	DATE	SIGN
				2016.6.08A 2016.4.11A	

MODULE SPEC.

UNIT: mm SCALE: FIT SHEET 1 OF 1

DRAWING NO. JT700MIWH-11

Jasonic Technology Limited

8. Package Drawing

8.1. Packaging Material Table

No.	Item	Model (Material)	Dimensions(mm)	Unit Weight (kg)	Quantity	Remark
1	LCM Module	JT700MIWH-11	165x104.4x5.2	---	60	
2	Partition	BC Corrugated paper	512x349x226	1.466	1set	
3	Corrugated Paper	B Corrugated paper	510x350	0.071	4pcs	
4	Corrugated Bar	B Corrugated paper	512x11x3	0.046	4pcs	
5	Dust-Proof Bag	PE	700 × 530	0.048	1pcs	
6	A/S Bag	PE	180 × 133 × 0.2	0.002	30pcs	
7	Carton	Corrugated paper	530 × 355 × 255	1.100	1 pcs	
8	Total weight	TBD				

8.2. Packaging Quantity

Total LCM quantity in Carton: no. Of Partition $2 \text{ Rows} \times \text{quantity per Row } 30 = 60$
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8.3. Packaging drawing

TBD