

LCD MODULE

# SPECIFICATION

Customer: \_\_\_\_\_

Model Name: HF055INL -39C

Date: 2024/11/27

Version: R1.0

☒ **Preliminary Specification**

☐ **Final Specification**

For customer's Acceptance

| APPROVED BY | Comment |
|-------------|---------|
|             |         |

| APPROVED BY | Reviewed BY | Prepared BY |
|-------------|-------------|-------------|
|             |             |             |

**Record of Revision**

| Version    | Revise Date | Page | Content         |
|------------|-------------|------|-----------------|
| Pre-spec 0 | 2024/11/27  |      | Initial Release |

## Contents

|                                             |    |
|---------------------------------------------|----|
| 1. General Specifications.....              | 4  |
| 2. Pin Assignment.....                      | 5  |
| 3. Operation Specifications.....            | 6  |
| 3.1 Absolute Maximum Rating.....            | 7  |
| 3.2 Typical Operation Conditions.....       | 7  |
| 3.3 Current Consumption.....                | 7  |
| 3.4 Backlight Driving Conditions.....       | 7  |
| 3.5 Power Sequence.....                     | 8  |
| 3.6 MIPI Signal Timing Characteristics..... | 9  |
| 3.6.1 Ac Electrical characteristics.....    | 11 |
| 3.6.2 Data Input Format.....                | 12 |
| 3.7 Reset Input Timing.....                 | 13 |
| 4. Optical Specifications.....              | 14 |
| 5. Reliability Test Items.....              | 18 |
| 6. General Precautions.....                 | 19 |
| 6.1. Safety.....                            | 19 |
| 6.2. Handling.....                          | 19 |
| 6.3. Static Electricity.....                | 19 |
| 6.4. Storage.....                           | 19 |
| 6.5. Cleaning.....                          | 19 |
| 7. Mechanical Drawing.....                  | 20 |
| 8. Package .....                            | 21 |
| 8.1. Packaging Material Table.....          | 21 |
| 8.2. Packaging Drawing.....                 | 22 |

# 1. General Specifications

| NO | Item                  | Specification                   | Remark |
|----|-----------------------|---------------------------------|--------|
| 1  | LCD Size              | 5.5 inch (Diagonal)             |        |
| 2  | Pixel driving element | LTPS TFT                        |        |
| 3  | Resolution            | 1080 RGB x 1920                 |        |
| 4  | Display mode          | Normally Black, Transmissive    |        |
| 5  | LCD Dot pitch         | 0.063(W) × 0.063(H) mm          |        |
| 6  | LCD Active area       | 68.04(W) × 120.96(H) mm         |        |
| 7  | LCM_TP Module size    | 83.70(W) x141.20(H) x6.08 (D)mm |        |
| 8  | Surface treatment     | Anti-Glare                      |        |
| 9  | Color arrangement     | RGB-stripe                      |        |
| 10 | Interface             | MIPI                            |        |
| 11 | LCD Driver IC         | HX8399A                         |        |
| 12 | Luminance             | 2000                            | cd/m2  |
| 13 | TP Driver IC          | GT911                           |        |

Note 1: Refer to Mechanical Drawing

## 2. Pin Assignment

### 1. TFT LCD Panel Driving Section

FPC Connector is used for the module electronics interface. The recommended model is FH26-39S-0.3SHW(05) FPC Connector(Front-Flip Lower Contact).

Pin No. Symbol I/O Function Remark

| Pin NO | Symbol    | I/O | Function                       | Remark |
|--------|-----------|-----|--------------------------------|--------|
| 1      | LEDA      | P   | LED Anode(A1)                  |        |
| 2      | LEDA      | P   | LED Anode(A2)                  |        |
| 3      | LEDA      | P   | LED Anode(A3)                  |        |
| 4      | LEDA      | P   | LED Anode(A4)                  |        |
| 5      | NC        | -   | Non Connection                 |        |
| 6      | LEDK      | P   | LED Cathode(K1)                |        |
| 7      | LEDK      | P   | LED Cathode(K2)                |        |
| 8      | LEDK      | P   | LED Cathode(K3)                |        |
| 9      | LEDK      | P   | LED Cathode(K4)                |        |
| 10     | GND       | I   | Ground                         |        |
| 11     | TE        | O   | Tearing Effect                 |        |
| 12     | LCM_RST   | I   | Chip reset signal              |        |
| 13     | NC        | -   | Non Connection                 |        |
| 14     | VDD       | P   | Digital power Supply1.8V       |        |
| 15     | IOVCC1.8V | P   | Digital power Supply 1.8V      |        |
| 16     | GND       | P   | Ground                         |        |
| 17     | GND       | P   | Ground                         |        |
| 18     | D0N       | I   | -MIPI Differential Clock Input |        |
| 19     | D0P       | I   | +MIPI Differential Clock Input |        |
| 20     | GND       | P   | Ground                         |        |
| 21     | D1N       | I   | -MIPI Differential Clock Input |        |
| 22     | D1P       | I   | +MIPI Differential Clock Input |        |
| 23     | GND       | P   | Ground                         |        |
| 24     | CLKN      | I   | -MIPI Differential Clock Input |        |
| 25     | CLKP      | I   | +MIPI Differential Clock Input |        |
| 26     | GND       | P   | Ground                         |        |
| 27     | D2N       | I   | -MIPI Differential Data Input  |        |
| 28     | D2P       | I   | +MIPI Differential Data Input  |        |
| 29     | GND       | P   | Ground                         |        |

|    |        |   |                               |  |
|----|--------|---|-------------------------------|--|
| 30 | D3N    | I | -MIPI Differential Data Input |  |
| 31 | D3P    | I | +MIPI Differential Data Input |  |
| 32 | GND    | P | Ground                        |  |
| 33 | GND    | P | Ground                        |  |
| 34 | TP_VCC | P | TP_Digital power Supply 3.3V  |  |
| 35 | TP_RST | I | TP_ Differential Data Input   |  |
| 36 | TP_INT | I | TP_ Differential Data Input   |  |
| 37 | TP_SCL | I | TP_ Differential Data Input   |  |
| 38 | TP_SDA | I | TP_ Differential Data Input   |  |
| 39 | GND    | P | Ground                        |  |

## 2. TP Driving Section

|   |          |   |                             |  |
|---|----------|---|-----------------------------|--|
| 1 | TP_VDD   | P | Digital power Supply 3.3V   |  |
| 2 | TP_RESET | O | TP_ Differential Data Input |  |
| 3 | TP_INT   | O | TP_ Differential Data Input |  |
| 4 | TP_SCL   | O | TP_ Differential Data Input |  |
| 5 | TP_SDA   | O | TP_ Differential Data Input |  |
| 6 | GND      | P | Ground                      |  |

## 3. Operation Specifications

### 3.1. Absolute Maximum Ratings

| Item                                 | Symbol          | Values |     | Unit | Remark |
|--------------------------------------|-----------------|--------|-----|------|--------|
|                                      |                 | Min.   | Max |      |        |
| Power voltage                        | VDDI~GND        | -0.3   | 3.6 | V    |        |
|                                      | VSP~GND         | -0.3   | 6.0 | V    |        |
|                                      | GND~VSN         | -6.0   | 0   | V    |        |
| Operation Temperature                | T <sub>OP</sub> | -10    | 70  | °C   |        |
| Storage Temperature                  | T <sub>ST</sub> | -20    | 80  | °C   |        |
| LED Peak forward current             | I <sub>fp</sub> |        | -   | mA   |        |
| LED Absolute maximum Forward current | I <sub>fm</sub> |        | -   | mA   |        |
| LED Power dissipation                | P <sub>d</sub>  |        | -   | mW   |        |

**Note1 :**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 :** For operation above 25°C,The I<sub>fm</sub> I<sub>fp</sub> & P<sub>d</sub> must be derated,the Current derating is -0.36mA/°C for DC drive and-0.86mA/°C for Pulse drive, the Power dissipation is -0.75mW/°C.The product working current must not more than the 60% of the I<sub>fm</sub> or I<sub>fp</sub> according to the working temperature.

### 3.2. Typical Operation conditions

| Item                          | Symbol | Values  |      |         | Unit | Remark |
|-------------------------------|--------|---------|------|---------|------|--------|
|                               |        | Min.    | Typ. | Max     |      |        |
| Interface Operation voltage   | VDDI   | 1.65    | 1.8  | 3.3     | V    |        |
| Positive power supply Voltage | VSP    | 4.8     | 5.5  | 6.0     | V    |        |
| Negative power supply Voltage | VSN    | -6.0    | -5.5 | -4.8    | V    |        |
| Logic-High Input Voltage      | VIH    | 0.8VDDI | -    | VDDI    | V    |        |
| Logic-Low Input Voltage       | VIL    | VSS     | -    | 0.3VDDI | V    |        |
| Logic-High Output Voltage     | VOH    | 0.8VDDI | -    | VDDI    | V    |        |
| Logic-Low Output Voltage      | VOL    | VSS     | -    | 0.2VDDI | V    |        |

### 3.3. Current Consumption

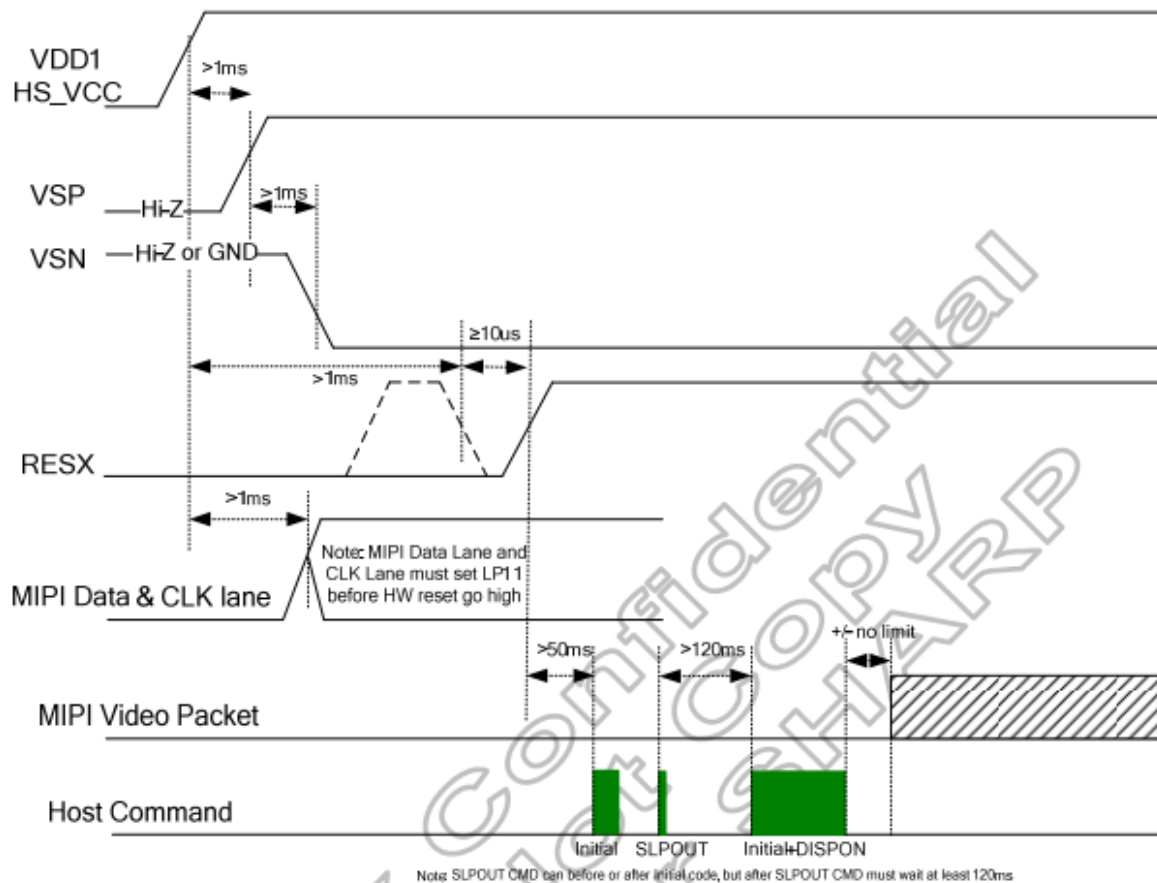
| Item    | Symbol            | Values |      |     | Unit | Remark                |
|---------|-------------------|--------|------|-----|------|-----------------------|
|         |                   | Min.   | Typ. | Max |      |                       |
| Display | IDV <sub>DD</sub> | -      | -    | -   | mA   |                       |
|         | VDDI              | -      | 15   | -   | mA   | V <sub>DD</sub> =1.8V |

### 3.4. Backlight Driving Conditions

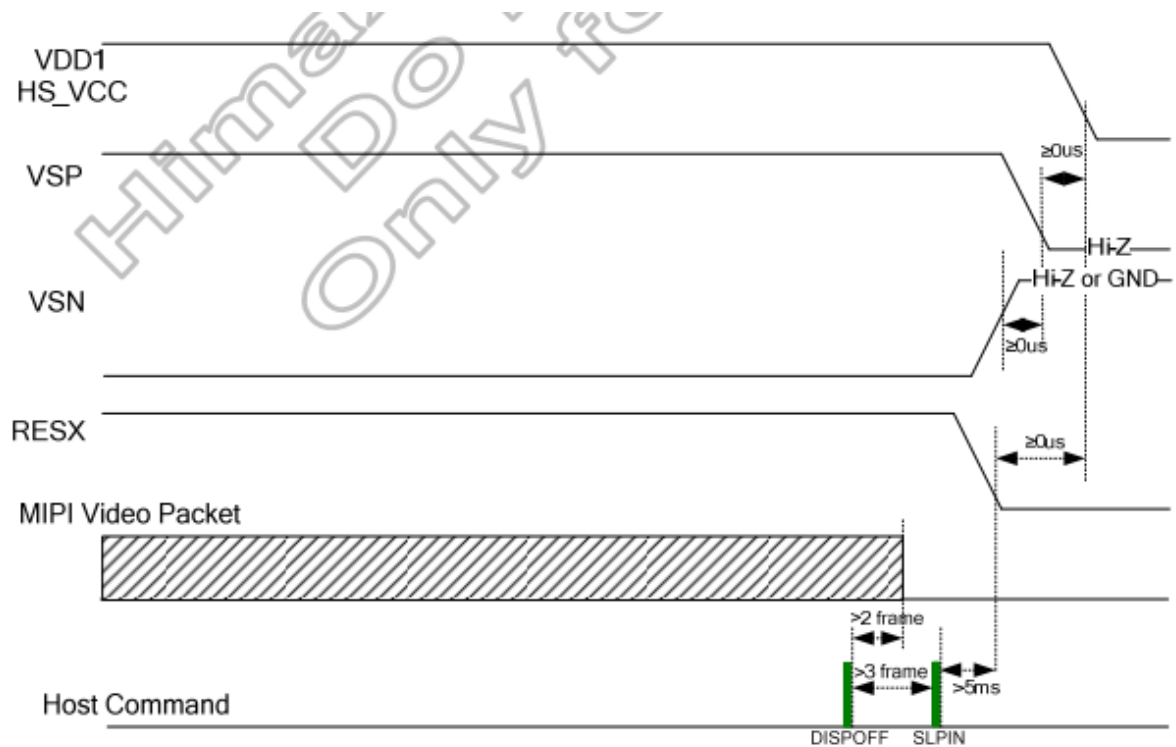
| Item                      | Symbol | Values |      |     | Unit | Remark |
|---------------------------|--------|--------|------|-----|------|--------|
|                           |        | Min.   | Typ. | Max |      |        |
| Voltage for LED backlight | VL     | -      | 18   | -   | V    | Note1  |
| Current for LED backlight | IL     | -      | 180  | -   | mA   |        |
| LED life time             | -      | 20,000 | -    | -   | Hr   | Note2  |

Note1: The LED Supply Voltage is defined by the number of LED at Ta=25℃ and IL =300mA.  
 Note1: The LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃、60±20%RH and IL =300mA.

### 3.5. Power Sequence



**Power on sequence**



**Power off sequence**

### 3.6. MIPI Signal Timing Characteristics

#### 3.6.1. Ac Electrical characteristics

| Parameter                     | Description                                                                                                                                                                                                                | Spec.                              |      |                | Unit |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------|----------------|------|
|                               |                                                                                                                                                                                                                            | Min.                               | Typ. | Max.           |      |
| $T_{REOT}$                    | 30%-85% rise time and fall time                                                                                                                                                                                            | -                                  | -    | 35             | ns   |
| $T_{CLK-MISS}$                | Timeout for receiver to detect absence of Clock transitions and disable the Clock Lane HS-RX.                                                                                                                              | -                                  | -    | 60             | ns   |
| $T_{CLK-POST}^{(1)}$          | Time that the transmitter continues to send HS clock after the last associated Data Lane has transitioned to LP Mode.<br>Interval is defined as the period from the end of THS-TRAIL to the beginning of $T_{CLK-TRAIL}$ . | 60 ns + 52*UI<br>(For DCS)         | -    | -              | ns   |
| $T_{CLK-PRE}$                 | Time that the HS clock shall be driven by the transmitter prior to any associated Data Lane beginning the transition from LP to HS mode.                                                                                   | 8                                  | -    | -              | ns   |
| $T_{CLK-SETTLE}$              | Time interval during which the HS receiver shall ignore any Clock Lane HS transitions, starting from the beginning of $T_{CLK-PRE}$ .                                                                                      | 95                                 | -    | 300            | ns   |
| $T_{CLK-TERM-EN}$             | Time for the Clock Lane receiver to enable the HS line termination, starting from the time point when Dn crosses $V_{IL,MAX}$ .                                                                                            | Time for Dn to reach $V_{TERM-EN}$ | -    | 38             | ns   |
| $T_{HS-SETTLE}$               | Time interval during which the HS receiver shall ignore any Data Lane HS transitions, starting from the beginning of $T_{HSPREPRE}$ .                                                                                      | 85 ns + 6*UI                       |      | 145 ns + 10*UI | ns   |
| $T_{EOT}$                     | Time from start of $T_{HS-TRAIL}$ or $T_{CLK-TRAIL}$ period to start of LP-11 state                                                                                                                                        | -                                  | -    | 105ns+48*UI    | -    |
| $T_{HS-EXIT}^{(1)}$           | time to drive LP-11 after HS burst                                                                                                                                                                                         | 100                                | -    | -              | ns   |
| $T_{HS-PREPRE}$               | Time to drive LP-00 to prepare for HS transmission                                                                                                                                                                         | 40ns + 4*UI                        | -    | 85ns+6*UI      | ns   |
| $T_{HS-PREPRE} + T_{HS-ZERO}$ | $T_{HS-PREPRE}$ + Time to drive HS-0 before the Sync sequence                                                                                                                                                              | 145ns + 10*UI                      | -    | -              | ns   |
| $T_{HS-SKIP}$                 | Time-out at RX to ignore transition period of EoT                                                                                                                                                                          | 40                                 | -    | 55ns+4*UI      | ns   |
| $T_{HS-TRAIL}$                | Time to drive flipped differential state after last payload data bit of a HS transmission burst                                                                                                                            | 60 + 4*UI                          | -    | -              | ns   |
| $T_{LPX}$                     | Length of any Low-Power state period                                                                                                                                                                                       | 50                                 | -    | -              | ns   |
| Ratio $T_{LPX}$               | Ratio of $T_{LPX(MASTER)}/T_{LPX(SLAVE)}$ between Master and Slave side                                                                                                                                                    | 2/3                                | -    | 3/2            | -    |
| $T_{TA-GET}$                  | Time to drive LP-00 by new TX                                                                                                                                                                                              | 5* $T_{LPX}$                       |      |                | ns   |
| $T_{TA-GO}$                   | Time to drive LP-00 after Turnaround Request                                                                                                                                                                               | 4* $T_{LPX}$                       |      |                | ns   |
| $T_{TA-SURE}$                 | Time-out before new TX side starts driving                                                                                                                                                                                 | $T_{LPX}$                          | -    | 2* $T_{LPX}$   | ns   |

Note:(1) For image transmission:

$T_{clk-post}$  min value=164 when MIPI max frequency per lane=0.53Gbps.

$T_{clk-post}$  min value=112 when MIPI max frequency per lane=1Gbps.



## MIPI data-clock timing specification

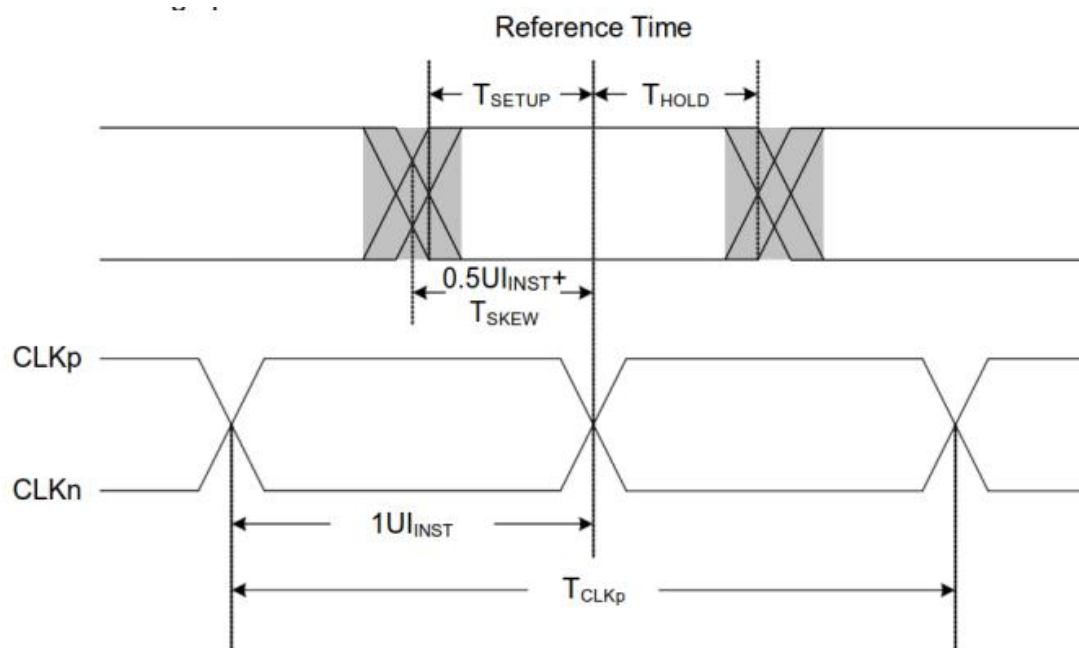


Figure. Data to clock timing

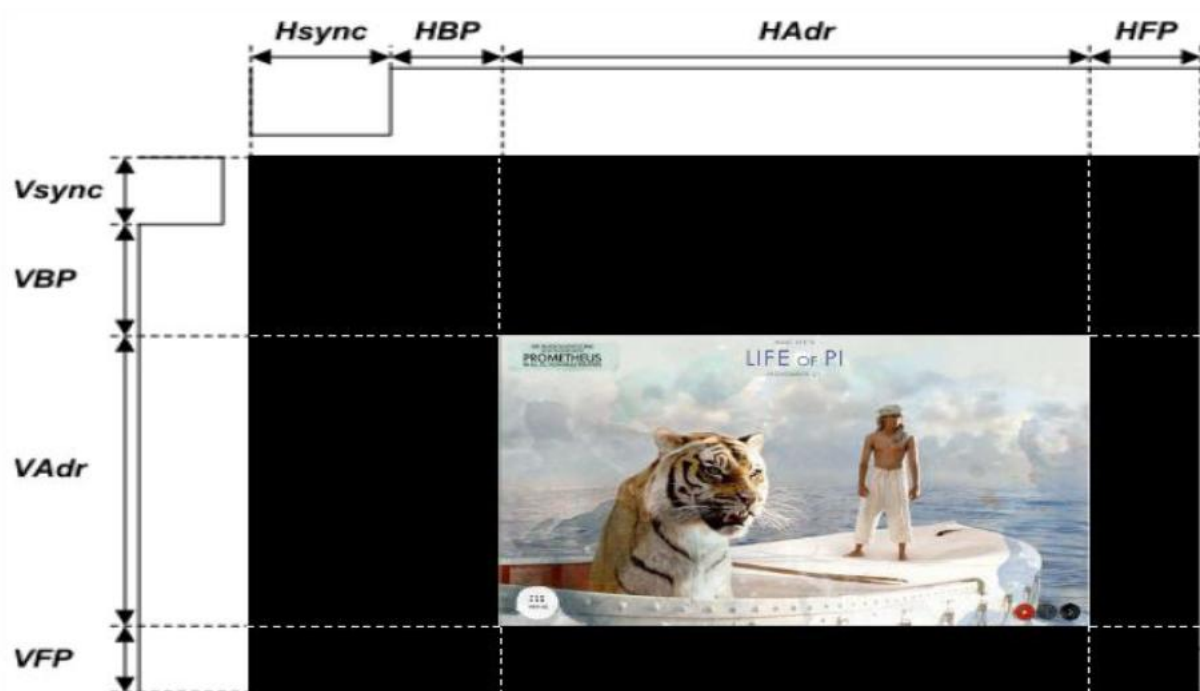
| Parameter                | Symbol      | Spec. |      |                     | Unit        |
|--------------------------|-------------|-------|------|---------------------|-------------|
|                          |             | Min.  | Typ. | Max.                |             |
| UI instantaneous         | $UI_{INST}$ | 1.0   | -    | 12.5 <sup>(1)</sup> | ns          |
| Data to clock setup time | $T_{SETUP}$ | 0.3   | -    | -                   | $UI_{INST}$ |
| Data to clock hold time  | $T_{HOLD}$  | 0.3   | -    | -                   | $UI_{INST}$ |

Note:(1)This value corresponds to a minimum 80 Mbps data rate.

### 3.6.2. Data Input Format

| Item                       | Symbol | Values |      |     | Unit | Remark |
|----------------------------|--------|--------|------|-----|------|--------|
|                            |        | Min    | Typ  | Max |      |        |
| PCLK Frequency             | -      | -      | 148  | -   | MHz  |        |
| Horizontal Total           | THT    | -      | 1340 | -   | DCLK |        |
| Horizontal Synchronization | THS    | -      | 16   | -   | DCLK |        |
| Horizontal Back Porch      | THB    | -      | 16   | -   | DCLK |        |
| Horizontal Address         | THA    | -      | 1080 | -   | DCLK |        |
| Horizontal Front Porch     | THF    | -      | 16   | -   | DCLK |        |
| Vertical Frequency         | -      | -      | 60   | -   | HZ   |        |
| Vertical Total(1)          | TVT    | -      | 1944 | -   | THT  |        |

|                          |     |   |      |   |     |  |
|--------------------------|-----|---|------|---|-----|--|
| Vertical Synchronization | TVS | - | 4    | - | THT |  |
| Vertical Back Porch      | TVB | - | 3    | - | THT |  |
| Vertical Address         | TVA | - | 1920 | - | THT |  |
| Vertical Front Porch     | TVF | - | 9    | - | THT |  |



**Note:(1)(Vertical frequency)x THTxTVTx24bits→total operation bandwidth**

**(2)The min. value of Vertical porch is depending on GOA timing. Please refers to the AP. Note for the min value.**

**(3)THB includes THS.**

### 3.7 Reset Input Timing

When RESETB of the reset pin equals to Low, it will be in the condition of reset. When it is in the condition of reset, it will make the device recover the initial set.

However, in order to avoid the reset noise cause reset, there is a mechanism to judge about whether the reset is needed or not.

The closed interval of low can be shown as the following.

| Parameter             | Symbol | Conditions | Spec. |      |      | Unit |
|-----------------------|--------|------------|-------|------|------|------|
|                       |        |            | Min.  | Typ. | Max. |      |
| Reset low pulse width | Trst   | -          | 20    | -    | -    | μs   |

**Table:Reset timing**



**Figure: Reset timing**

## 4. Optical Specifications

| Item                     | Symbol     | Condition                           | Values |       |       | Unit   | Remark         |
|--------------------------|------------|-------------------------------------|--------|-------|-------|--------|----------------|
|                          |            |                                     | Min.   | Typ.  | Max   |        |                |
| Viewing angle<br>(CR≥10) | $\theta_L$ | $\Phi=180^\circ$                    | -      | 80    | -     | degree | Note1          |
|                          | $\theta_R$ | $\Phi=0^\circ$                      | -      | 80    | -     |        |                |
|                          | $\theta_T$ | $\Phi=90^\circ$                     | -      | 80    | -     |        |                |
|                          | $\theta_B$ | $\Phi=270^\circ$                    | -      | 80    | -     |        |                |
| Response time            | Ton        | Normal<br>$\theta = \Phi = 0^\circ$ | -      | 10    | 20    | msec   | Note3          |
|                          | Toff       |                                     | -      | 15    | 30    | msec   | Note3          |
| Contrast ratio           | CR         |                                     | 700    | 1000  | -     | -      | Note4          |
| Color chromaticity       | Wx         |                                     | 0.277  | 0.297 | 0.317 | -      | Note2          |
|                          | Wy         |                                     | 0.297  | 0.317 | 0.337 | -      | Note5<br>Note6 |
| Luminance                | L          |                                     | -      | 2000  | -     | cd/m2  | Note6          |
| Luminance uniformity     | Yu         |                                     | 70     | 80    | -     | %      | Note7          |
| NTSC                     |            |                                     | -      | 70    |       | %      | Note5          |

### Test Conditions:

1. VDD=3.3V,  $I_L=300\text{mA}$ (Backlight current),the ambient temperature is 25°C.
2. The test systems refer to Note2.

Note 1: Definition of viewing angle range

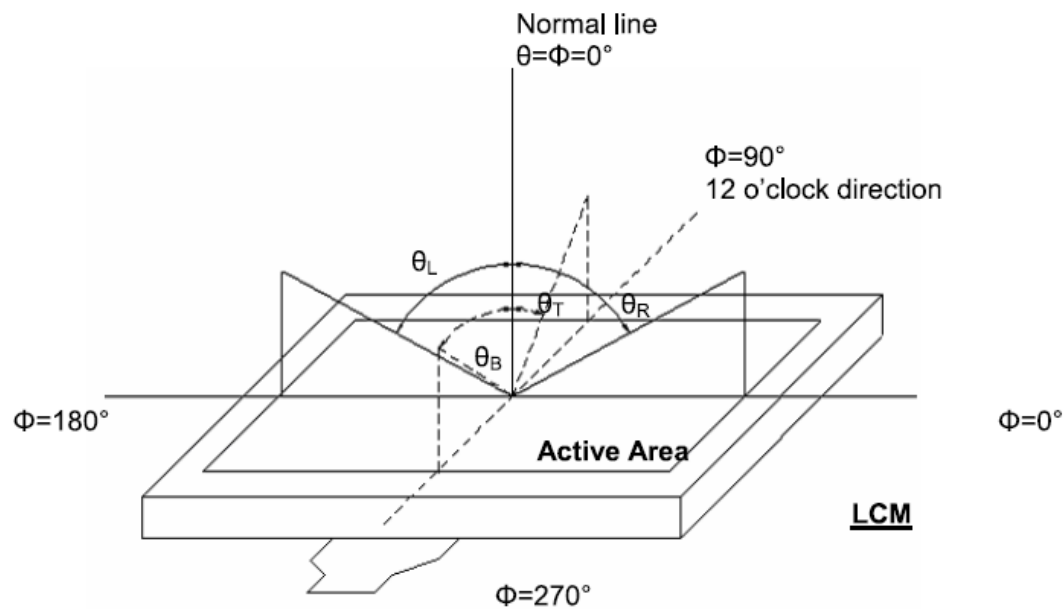


Fig. 4-1 Definition of viewing angle

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.)

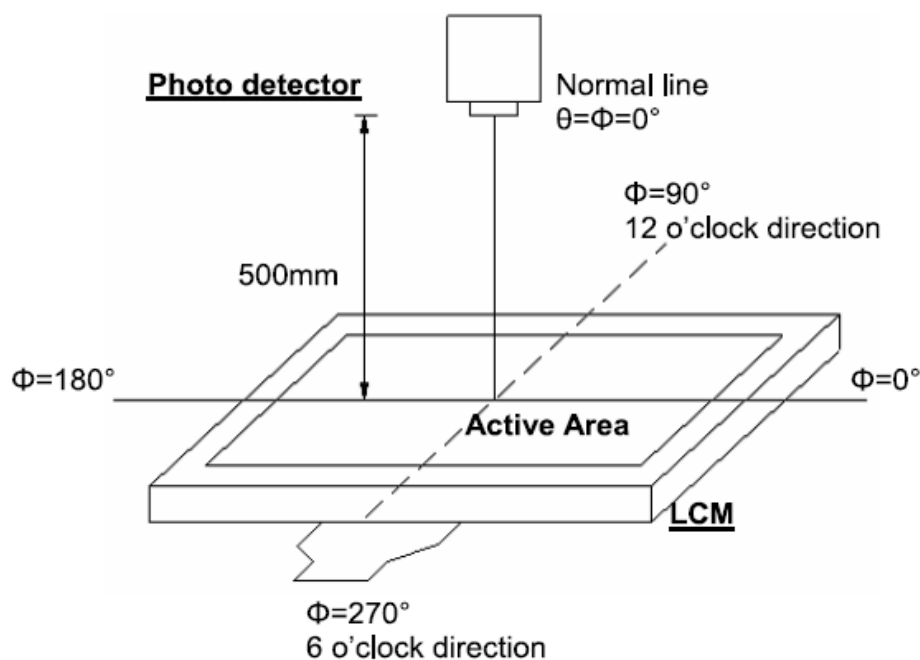


Fig. 4-2 Optical measurement system setup

**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%.

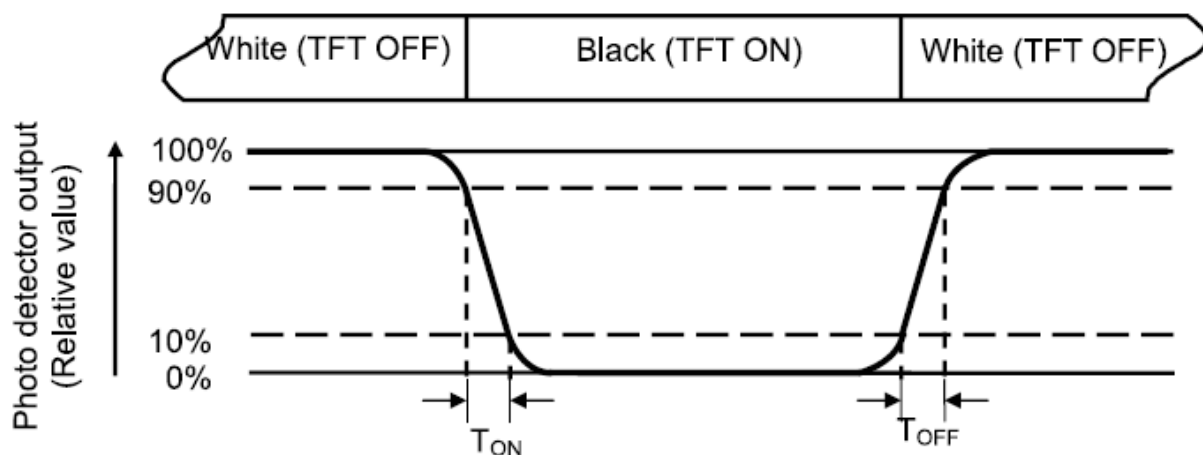


Fig. 4-3 Definition of response time

Note 4: Definition of contrast ratio

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

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  $I_L = 300\text{mA}$ .

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

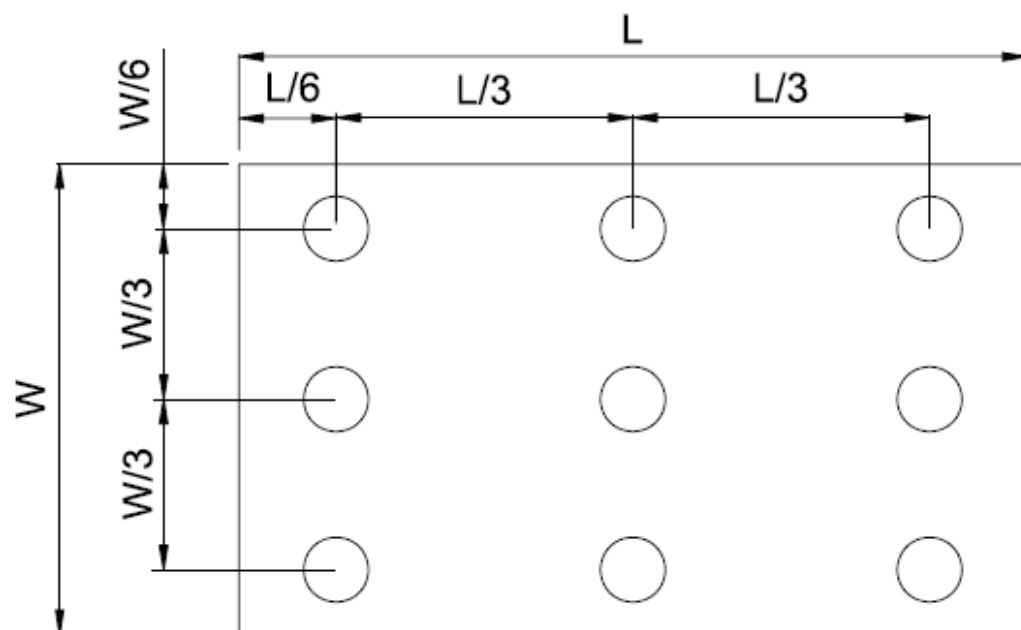


Fig. 4-4 Definition of measuring points

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

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

## 5. Reliability Test Items

| Item                                     | Test Conditions                                                                                                                                   | Remark         |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| High Temperature Storage                 | Ta=80℃ 120hrs                                                                                                                                     | Note 1, Note 4 |
| Low Temperature Storage                  | Ta=-20℃ 120hrs                                                                                                                                    | Note 1, Note 4 |
| High Temperature Operation               | Ts=70℃ 120hrs                                                                                                                                     | Note 2, Note 4 |
| Low Temperature Operation                | Ts=-10℃ 120hrs                                                                                                                                    | Note 1, Note 4 |
| Operate at High Temperature and Humidity | +50℃,90%RH 120hrs                                                                                                                                 | Note 4         |
| Thermal Shock                            | (-20℃ 30min) → (80℃ 30min)]/cycle, 50cycles, Transfer time less than 5 Mins. Recovery Time 2 Hrs.                                                 | Note 4         |
| Extrusion Test                           | 4.5kgf with steel sphere Φ10 Diameter, Test Speed: 5mm/min, Test Points: the center point and four corners.                                       |                |
| Steel Ball Drop Test                     | Steel Ball: Φ25mm, mass: 65g. Drop height: 4 cm. Test position: LCD center, 1 drop.                                                               |                |
| Electro Static Discharge                 | C=150pF,R=300Ω ,8point/Panel<br>Contact:± 2KV, 5times, Human Body Mode<br>Air : ± 6KV, 5times, Human Body Mode<br>(Environment :15℃~35℃, 30%~60%) |                |

**Note1:**Ta is the ambient temperature of samples.

**Note2:**Ts is the temperature of panel's surface.

**Note3:** 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.

**Note4:** 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 sloth with IPA to wipe the polarizer, other chemicals might permanent damage to the polarizer.

## **7. Mechanical Drawing**

| Stack Up              |  |
|-----------------------|--|
| TOP                   |  |
| Cover Glass(CG 0.7mm) |  |
| SCA(0.2mm)            |  |
| ITO Glass(0.55mm)     |  |
| OCA(0.2mm)            |  |
| LCM(4.03mm)           |  |

正视图

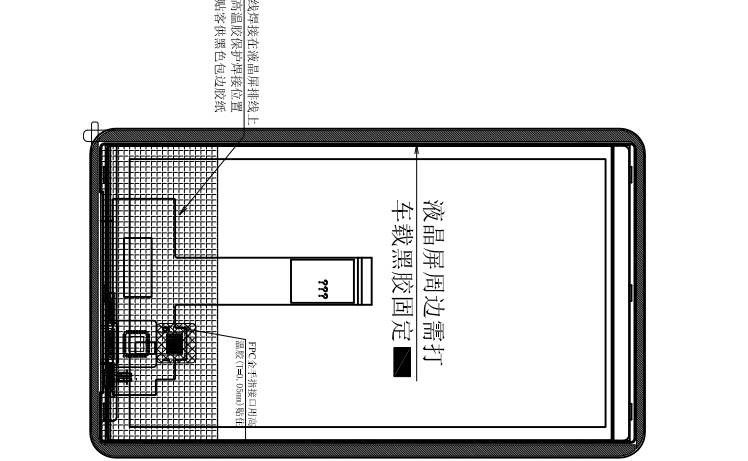
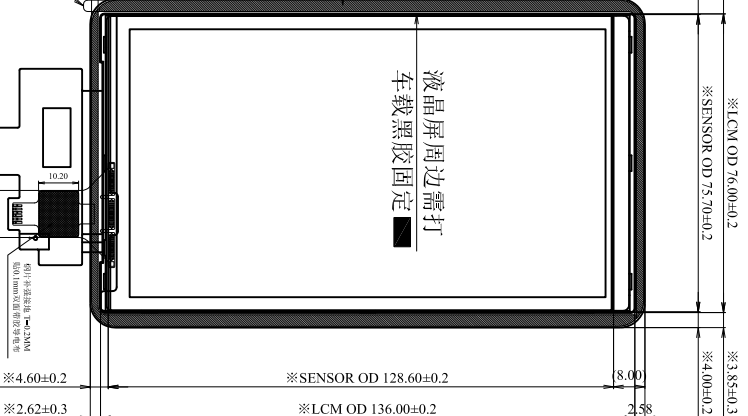
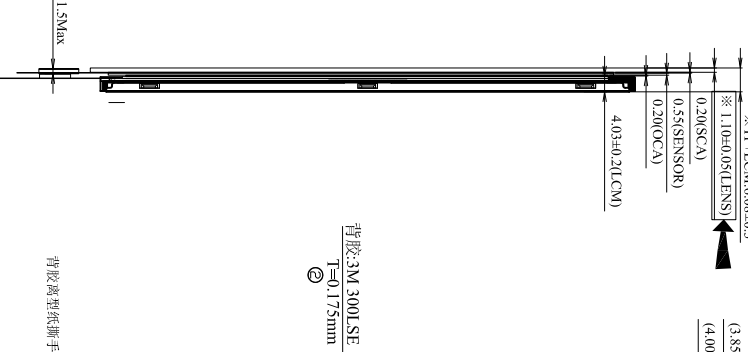
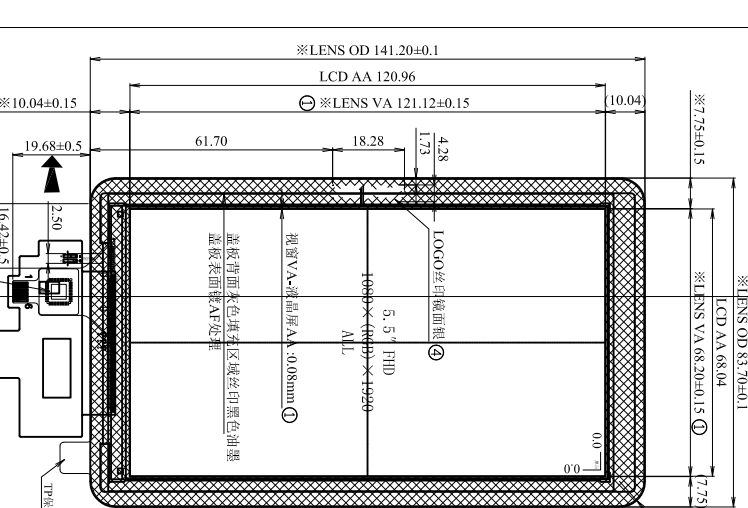
| Sensor ID |     |
|-----------|-----|
| P1        | GND |
| P2        | GND |

| REV. | DESCRIPTION                                      | DATA       | NAME  |
|------|--------------------------------------------------|------------|-------|
| 01   | 图纸初版发行                                           | 2024.12.23 | Kuang |
| 02   | FPC焊接位置加长1.0MM<br>盖板厚度由0.7调整为1.1厚度,液晶屏全贴后周边打车载黑胶 | 2024.12.30 | LuoHP |

侧视图

FPC翻折焊接图

| PIN | NAME         |
|-----|--------------|
| 1   | TP_VDD(3.3V) |
| 2   | TP_RST(3.3V) |
| 3   | TP_INT(3.3V) |
| 4   | TP_SCL(3.3V) |
| 5   | TP_SDA(3.3V) |
| 6   | GND          |



| PIN | SYMBOL     |
|-----|------------|
| 1   | LEDA       |
| 2   | LEDA       |
| 3   | LEDA       |
| 4   | LEDA       |
| 5   | NC         |
| 6   | LEDK       |
| 7   | LEDK       |
| 8   | LEDK       |
| 9   | LEDK       |
| 10  | GND        |
| 11  | TE         |
| 12  | LCM_RST    |
| 13  | NC         |
| 14  | VDD        |
| 15  | IOVCC1.8V  |
| 16  | GND        |
| 17  | GND        |
| 18  | DON        |
| 19  | DOP        |
| 20  | GND        |
| 21  | D1N        |
| 22  | D1P        |
| 23  | GND        |
| 24  | CLKN       |
| 25  | CLKP       |
| 26  | GND        |
| 27  | D2N        |
| 28  | D2P        |
| 29  | GND        |
| 30  | D3N        |
| 31  | D3P        |
| 32  | GND        |
| 33  | GND        |
| 34  | TP_VCC3.3V |
| 35  | TP_RST     |
| 36  | TP_INT     |
| 37  | TP_SCL     |
| 38  | TP_SDA     |
| 39  | GND        |

技术参数:

- 产品结构: G+G (5点触模)
- 驱动芯片: GT911 (21D×12S)
- 供电电压: 3.3V; 通讯电压: 3.3V
- 盖板材质: 旭硝子T=1.1mm (化学强化)
- 透过率: ≥86%; 表面硬度: ≥6H
- 翘曲度: ≤3‰ (不允许反翘)
- 所用材料符合 "RoHS" 标准
- 未注公差: ±0.20 MM; 带 "※" 符号为重点管控尺寸
- 工作环境: 温度-20~+70℃; 储存环境: 温度-30~+80℃

| DRAWN BY:   | Luohp      | PRODUCT NO:     | G05521-02 | SCALE: | 1:1  |
|-------------|------------|-----------------|-----------|--------|------|
| CHECKED BY: | DuanCL     | CLIENT NO:      | RD2419001 | UNITS: | MM   |
| DATE:       | 2025.04.17 | VERSION NUMBER: | V02       | VIEW:  | 投影方式 |

## 8.1. Packaging Material Table

| No. | Item                | Model<br>(Material)    | Dimensions(m<br>m) | Unit<br>weight<br>(kg) | Quantity | Remark |
|-----|---------------------|------------------------|--------------------|------------------------|----------|--------|
| 1   | LCM Module          | HFS055INL-39C          | TBD                | TBD                    | 60pcs    |        |
| 2   | Partition           | BC Corrugated<br>paper | TBD                | TBD                    | 1est     |        |
| 3   | Corrugated<br>Paper | BC Corrugated paper    | TBD                | TBD                    | 4pcs     |        |
| 4   | Corrugated<br>Bar   | BC Corrugated paper    | TBD                | TBD                    | 4pcs     |        |
| 5   | Dust-Proof<br>Bag   | PE                     | TBD                | TBD                    | 1pcs     |        |
| 6   | A/S Bag             | PE                     | 235*155*0.2        | 0.002                  | 60pcs    |        |
| 7   | Carton              | Corrugated paper       | 590*360*210        | TBD                    | 1pcs     |        |
| 8   | Total weight        | TBD                    |                    |                        |          |        |