

# INDUSTRIAL STRENGTH... Start Your Application From **YOURITECH**

Integration support

Obsolescence Management

Embedded Systems

Human Machine Interface

Touch Solutions

Software

Quality Management

Open Frame Monitors

LCD Controller

Research & Development

Firmware

EMC tests

on-site service

In-house Manufacturing

Cover glass

System solutions

OEM Solutions

Custom Display

PCAP

Mechanical design

Production Custom designs Installation



SPECIFICATION  
FOR  
LCM+CTP Module

|            |              |
|------------|--------------|
| MODULE No: | ET070WS07-KT |
| CUSTOMER:  |              |

|             |         |      |
|-------------|---------|------|
| YOURITECH   | INITIAL | DATE |
| PREPARED BY |         |      |
| CHECKED BY  |         |      |
| APPROVED BY |         |      |

|             |         |      |
|-------------|---------|------|
| CUSTOMER    | INITIAL | DATE |
| APPROVED BY |         |      |

# Shenzhen Youritech Technology Co.,Limited

## Revision History

[illegible]

|          |              |     |      |              |
|----------|--------------|-----|------|--------------|
| Part. No | ET070WS07-KT | REV | V1.0 | Page 2 of 37 |
|----------|--------------|-----|------|--------------|

# Shenzhen Youritech Technology Co.,Limited

## Contents

|                                                    |    |
|----------------------------------------------------|----|
| 1. Basic Specifications .....                      | 5  |
| 1.1 TFT Features .....                             | 5  |
| 1.2 CTP Features .....                             | 5  |
| 1.3 Mechanical Information .....                   | 6  |
| 2. Block Diagram .....                             | 6  |
| 3. Outline dimension .....                         | 7  |
| 4. Input terminal Pin Assignment .....             | 8  |
| 4.1 TFT PIN Define .....                           | 8  |
| 4.2 CTP PIN Define .....                           | 10 |
| 5. LCD Optical Characteristics .....               | 11 |
| 5.1 Optical specification .....                    | 11 |
| 6. Electrical Characteristics .....                | 14 |
| 6.1 Absolute Maximum Rating .....                  | 14 |
| 6.2 DC Electrical Characteristics .....            | 14 |
| 6.3 LED Backlight Characteristics .....            | 15 |
| 7. Timing Characteristics .....                    | 17 |
| 7.1 AC Electrical Characteristics .....            | 17 |
| 7.2 Input Clock and Data Timing Diagram .....      | 17 |
| 7.3 DC Electrical Characteristics .....            | 18 |
| 7.4 Timing .....                                   | 19 |
| 7.5 Data Input Format .....                        | 20 |
| 8. CTP Specification .....                         | 21 |
| 8.1 Electrical Characteristics .....               | 21 |
| 8.1.1 Absolute Maximum Rating .....                | 21 |
| 8.1.2 DC Electrical Characteristics (Ta=25℃) ..... | 21 |
| 8.1.4 AC Characteristics .....                     | 22 |
| 8.2 I2C Timing .....                               | 22 |
| 9. LCD Module Out-Going Quality Level .....        | 26 |
| 9.1 VISUAL & FUNCTION INSPECTION STANDARD .....    | 26 |
| 9.1.1 Inspection conditions .....                  | 26 |
| 9.1.2 Definition .....                             | 26 |
| 9.1.3 Sampling Plan .....                          | 28 |
| 9.1.4 Criteria (Visual) .....                      | 29 |
| 10. Reliability Test Result .....                  | 35 |
| 11. Cautions and Handling Precautions .....        | 36 |
| 11.1 Handling and Operating the Module .....       | 36 |

|          |              |     |      |              |
|----------|--------------|-----|------|--------------|
| Part. No | ET070WS07-KT | REV | V1.0 | Page 3 of 37 |
|----------|--------------|-----|------|--------------|

# Shenzhen Youritech Technology Co.,Limited

|                                      |    |
|--------------------------------------|----|
| 11.2 Storage and Transportation..... | 36 |
| 12. Packing.....                     | 37 |

# Shenzhen Youritech Technology Co.,Limited

## 1.Basic Specifications

### \* Description

This is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This module is composed of a Transmissive type TFT-LCD Panel, driver circuit, capacitance touch panel back-light unit. The resolution of a 7.0 " TFT-LCD contains 1024x600 pixels, and can display up to 16.7M colors.

### 1.1 TFT Features

| General Information | Items                     | Specification                           | Unit    | Note |
|---------------------|---------------------------|-----------------------------------------|---------|------|
|                     |                           | Main Panel                              |         |      |
|                     | Display area(AA)          | 154.21(H)*85.92(V) (7.0inch)            | mm      |      |
|                     | Driver element            | TFT active matrix                       | -       |      |
|                     | Display colors            | 16.7M                                   | colors  |      |
|                     | Number of pixels          | 1024(RGB)*600                           | dots    |      |
|                     | Pixel arrangement         | RGB vertical stripe                     | -       |      |
|                     | Pixel pitch               | 0.1506(H)*0.1432(V)                     | mm      |      |
|                     | Viewing angle             | All                                     | o'clock |      |
|                     | Controller IC             | EK73215& EK79001                        | -       |      |
|                     | LCM Interface             | 6/8 BIT LVDS                            | -       |      |
|                     | Display mode              | Transmissive /Normally Black            | -       |      |
|                     | Operating temperature     | -30~+85                                 | ℃       |      |
|                     | Storage temperature       | -40~+90                                 | ℃       |      |
|                     | Module bonding technology | Use Optical bonding between LCM and CTP | -       |      |

### 1.2 CTP Features

| General Information | Items         | Specification            | Unit | Note |
|---------------------|---------------|--------------------------|------|------|
|                     |               | Main Panel               |      |      |
|                     | Structure     | G+G                      | -    |      |
|                     | Controller IC | GT9271                   | -    |      |
|                     | Interface     | I2C                      | -    |      |
|                     | Slave Address | 0x5D(7bit) or 0x14(7bit) | -    |      |
|                     | Touch mode    | Multi-point              | -    | -    |

|          |              |     |      |              |
|----------|--------------|-----|------|--------------|
| Part. No | ET070WS07-KT | REV | V1.0 | Page 5 of 37 |
|----------|--------------|-----|------|--------------|

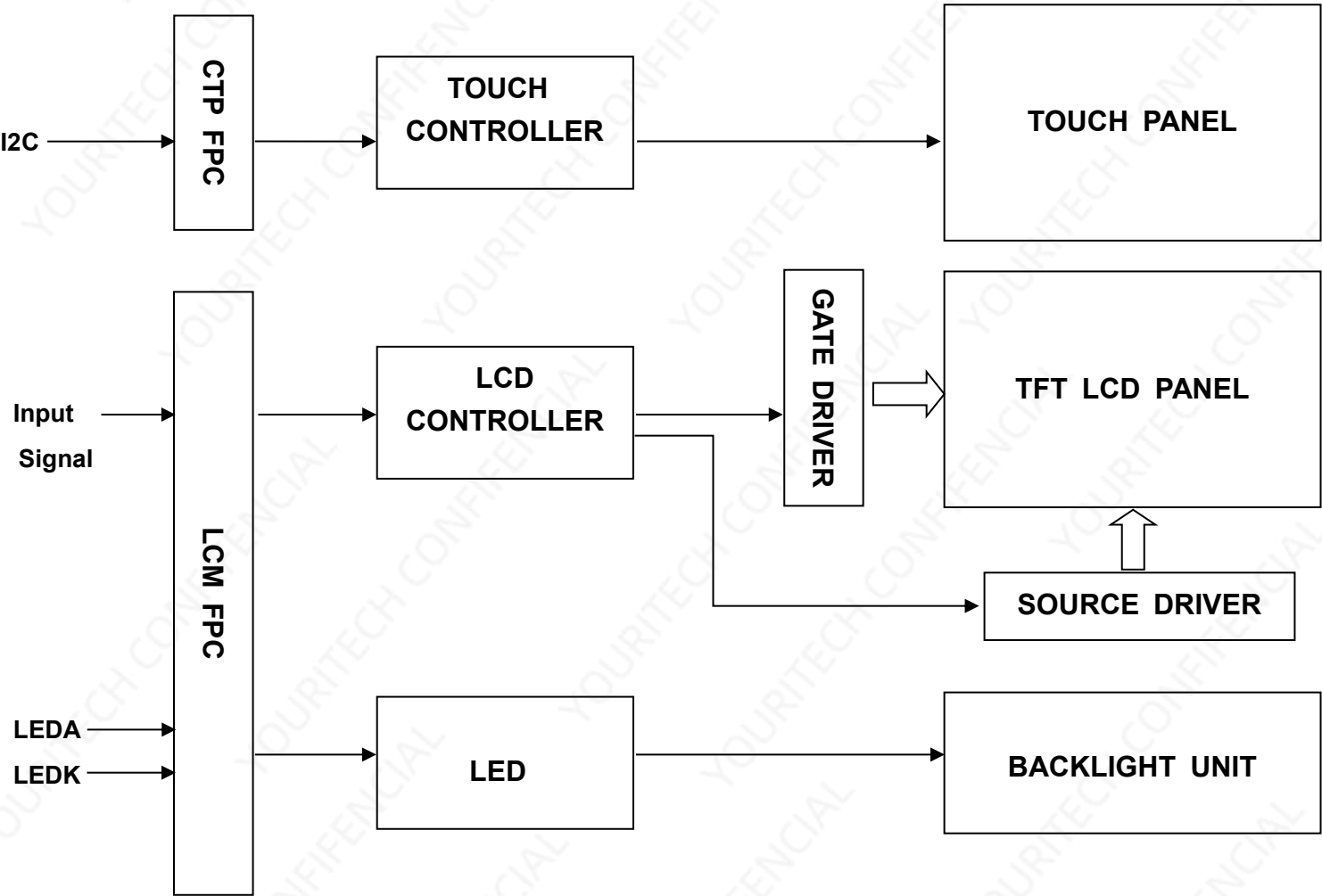
# Shenzhen Youritech Technology Co.,Limited

|             |     |   |  |
|-------------|-----|---|--|
| Logic level | 3.3 | V |  |
|-------------|-----|---|--|

## 1.3 Mechanical Information

| Item        |               | Min. | Typ.   | Max. | Unit | Note |
|-------------|---------------|------|--------|------|------|------|
| Module size | Horizontal(H) | -    | 182.07 | -    | mm   |      |
|             | Vertical(V)   | -    | 117.60 | -    | mm   |      |
|             | Depth(D)      | -    | 7.22   | -    | mm   |      |
| Weight      |               | -    | 218    | -    | g    |      |

## 2. Block Diagram





# Shenzhen Youritech Technology Co.,Limited

## 4. Input terminal Pin Assignment

### 4.1 TFT PIN Define

| NO. | SYMBOL   | DISCRIPTION                                                                                                                                               | I/O |
|-----|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 1   | NC       | --                                                                                                                                                        | --  |
| 2   | VDD      | Power supply for digital circuits                                                                                                                         | P   |
| 3   | VDD      |                                                                                                                                                           |     |
| 4   | NC       | --                                                                                                                                                        | --  |
| 5   | RESET    | Global reset pin. Active low to enter reset state.                                                                                                        | I   |
| 6   | STBYB    | Standby mode, Normally pulled high<br>STBYB = "1", normal operation<br>STBYB = "0", timing controller, source driver will turn off, all output are High-Z | I   |
| 7   | GND      | Ground                                                                                                                                                    | P   |
| 8   | RXIN0-   | - LVDS differential data input                                                                                                                            | I   |
| 9   | RXIN0+   | + LVDS differential data input                                                                                                                            | I   |
| 10  | GND      | Ground                                                                                                                                                    | P   |
| 11  | RXIN1-   | - LVDS differential data input                                                                                                                            | I   |
| 12  | RXIN1+   | + LVDS differential data input                                                                                                                            | I   |
| 13  | GND      | Ground                                                                                                                                                    | P   |
| 14  | RXIN2-   | - LVDS differential data input                                                                                                                            | I   |
| 15  | RXIN2+   | + LVDS differential data input                                                                                                                            | I   |
| 16  | GND      | Ground                                                                                                                                                    | P   |
| 17  | RXCLKN-  | - LVDS differential clock input                                                                                                                           | I   |
| 18  | RXCLKN+  | + LVDS differential clock input                                                                                                                           | I   |
| 19  | GND      | Ground                                                                                                                                                    | P   |
| 20  | RXIN3-   | - LVDS differential data input                                                                                                                            | I   |
| 21  | RXIN3+   | + LVDS differential data input                                                                                                                            | I   |
| 22  | GND      | Ground                                                                                                                                                    | P   |
| 23  | NC       | --                                                                                                                                                        | --  |
| 24  | NC       | --                                                                                                                                                        | --  |
| 25  | GND      | Ground                                                                                                                                                    | P   |
| 26  | NC       | --                                                                                                                                                        | --  |
| 27  | DIMO(NC) | No Connection.                                                                                                                                            | --  |

# Shenzhen Youritech Technology Co.,Limited

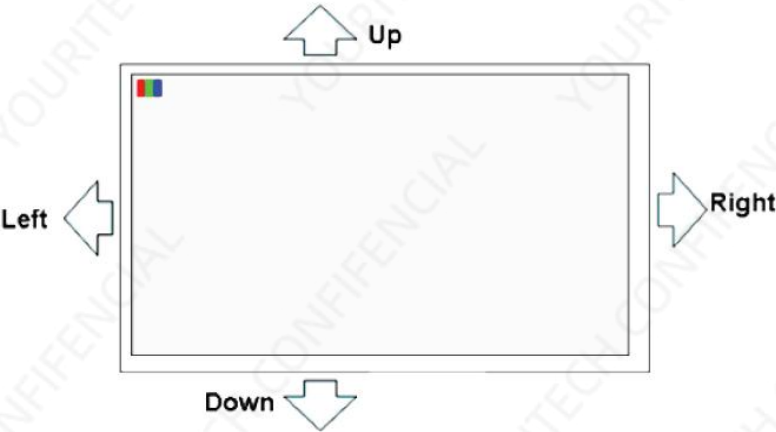
|    |      |                                                                            |    |
|----|------|----------------------------------------------------------------------------|----|
| 28 | SELB | Input data format selection.<br>SLEB=0, 8-BIT LVDS.<br>SLEB=1, 6-BIT LVDS。 | I  |
| 29 | NC   | --                                                                         | -- |
| 30 | GND  | Ground                                                                     | P  |
| 31 | LED- | LED Cathode                                                                | P  |
| 32 | LED- |                                                                            |    |
| 33 | L/R  | Horizontal shift direction (source output) selection(NOTE1)                | I  |
| 34 | U/D  | Vertical shift direction (gate output) selection(NOTE1)                    | I  |
| 35 | NC   | --                                                                         | -- |
| 36 | NC   | --                                                                         | -- |
| 37 | NC   | --                                                                         | -- |
| 38 | NC   | --                                                                         | -- |
| 39 | LED+ | LED Anode                                                                  | P  |
| 40 | LED+ |                                                                            |    |

Note1: When L/R="0", set right to left scan direction.

When L/R="1", set left to right scan direction.

When U/D="0", set top to bottom scan direction.

When U/D="1", set bottom to top scan direction.



# Shenzhen Youritech Technology Co.,Limited

## 4.2 CTP PIN Define

| NO. | SYMBOL | DISCRIPTION                    | I/O |
|-----|--------|--------------------------------|-----|
| 1   | GND    | Ground                         | P   |
| 2   | NC     | --                             | --  |
| 3   | VDD    | Supply voltage                 | P   |
| 4   | SCL    | I2C clock input                | I   |
| 5   | SDA    | I2C data input and output      | I   |
| 6   | INT    | External interrupt to the host | I   |
| 7   | RST    | External Reset, Low is active  | I   |
| 8   | GND    | Ground                         | P   |

# Shenzhen Youritech Technology Co.,Limited

## 5. LCD Optical Characteristics

### 5.1 Optical specification

| Item                      |         | Symbol        | Condition            | Min.  | Typ.   | Max.  | Unit.  | Note             |
|---------------------------|---------|---------------|----------------------|-------|--------|-------|--------|------------------|
| Contrast Ratio            |         | CR            | $\Theta=0$           | 800   | 1000   | --    |        | (1)(2)           |
| Response time             | Rising  | $T_{R+T_F}$   | Normal viewing angle | --    | 25     | 35    | msec   | (1)(3)           |
|                           | Falling |               |                      |       |        |       |        |                  |
| Color Gamut               |         | S(%)          |                      | --    | 47.76  | --    | %      |                  |
| Color Filter Chromaticity | White   | $W_X$         |                      | -0.04 | 0.3221 | +0.04 |        | (1)(4)<br>CA-310 |
|                           |         | $W_Y$         |                      |       | 0.3528 |       |        |                  |
|                           | Red     | $R_X$         |                      |       | 0.6004 |       |        |                  |
|                           |         | $R_Y$         |                      |       | 0.3658 |       |        |                  |
|                           | Green   | $G_X$         |                      |       | 0.3235 |       |        |                  |
|                           |         | $G_Y$         |                      |       | 0.5496 |       |        |                  |
|                           | Blue    | $B_X$         |                      |       | 0.1467 |       |        |                  |
|                           |         | $B_Y$         |                      |       | 0.1212 |       |        |                  |
| Viewing angle             | Hor.    | $\Theta L(-)$ | CR>10                | 80    | --     | --    | (1)(4) |                  |
|                           |         | $\Theta R(+)$ |                      | 80    | --     | --    |        |                  |
|                           | Ver.    | $\Theta U(+)$ |                      | 80    | --     | --    |        |                  |
|                           |         | $\Theta D(-)$ |                      | 80    | --     | --    |        |                  |
| Option View Direction     |         | All           |                      |       |        |       |        |                  |

\*The data comes from the LCD specification.

#### Measuring Condition

Measuring surrounding : dark room

Ambient temperature :  $25 \pm 2^\circ\text{C}$

15min. warm-up time.

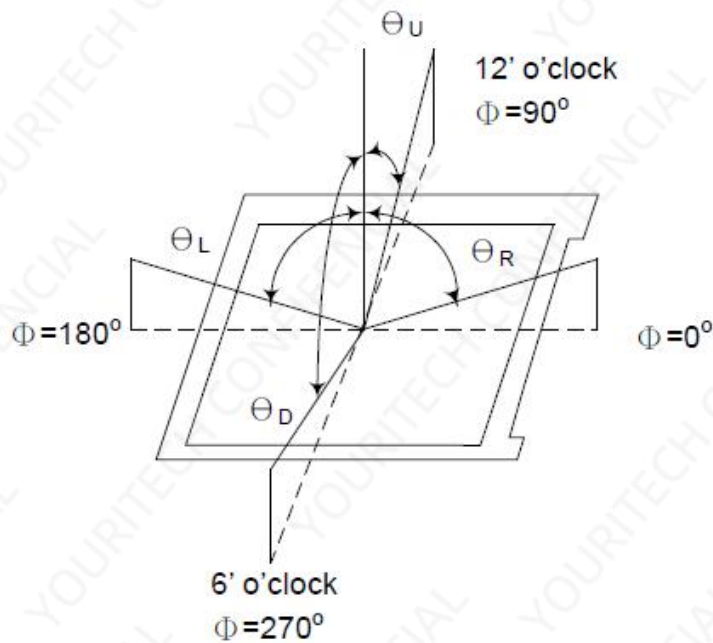
#### Measuring Equipment

FPM520 of Westar Display technologies, INC., which utilized SR-3 for Chromaticity and BM-5A for other optical characteristics.

|          |              |     |      |               |
|----------|--------------|-----|------|---------------|
| Part. No | ET070WS07-KT | REV | V1.0 | Page 11 of 37 |
|----------|--------------|-----|------|---------------|

# Shenzhen Youritech Technology Co.,Limited

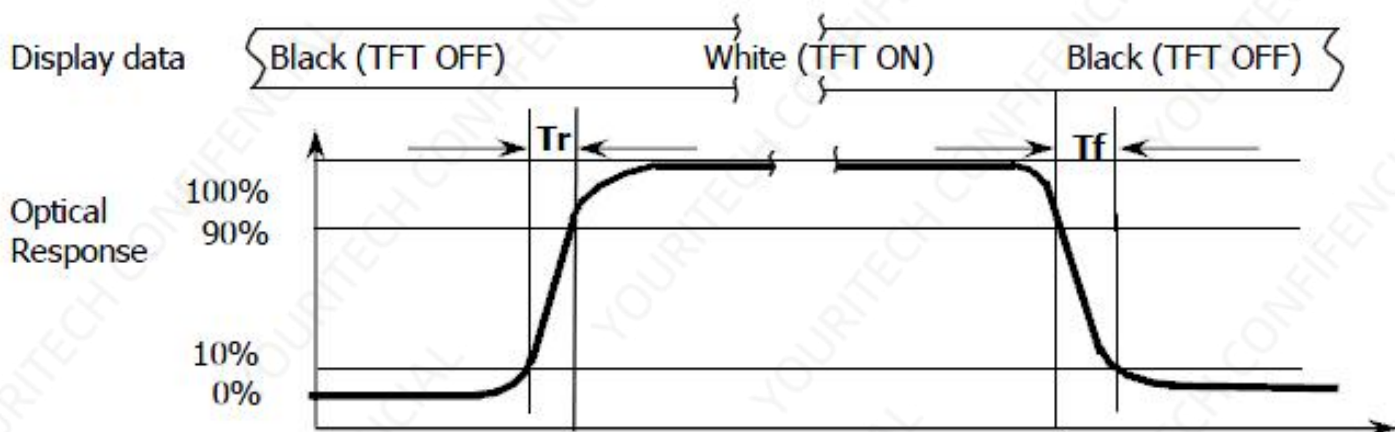
**Note (1):** Definition of Viewing Angle :



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

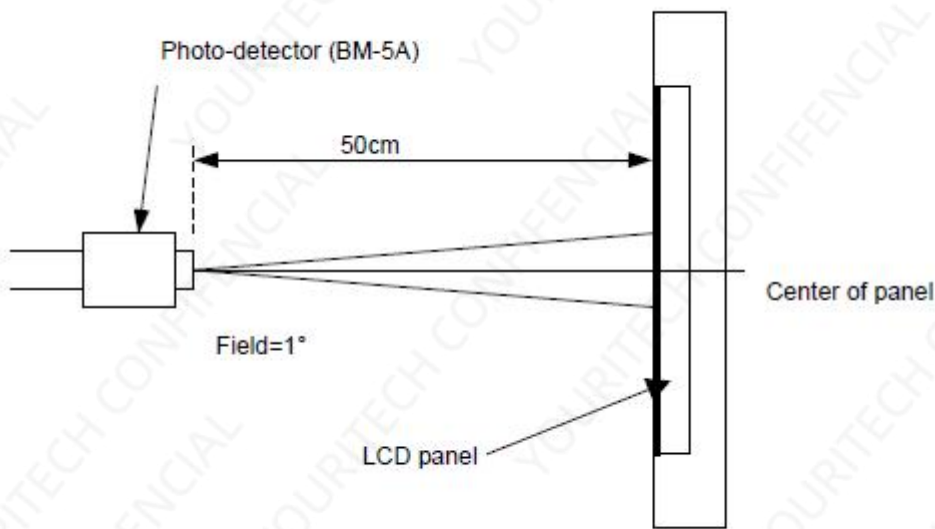
$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

**Note (3):** Response Time



# Shenzhen Youritech Technology Co.,Limited

**Note (4):** Definition of optical measurement setup



# Shenzhen Youritech Technology Co.,Limited

## 6. Electrical Characteristics

### 6.1 Absolute Maximum Rating

| Characteristics        | Symbol          | Min. | Max. | Unit | Note  |
|------------------------|-----------------|------|------|------|-------|
| Digital Supply Voltage | VDD             | -0.3 | 6.0  | V    | Note1 |
| Operating temperature  | T <sub>OP</sub> | -30  | +85  | °C   |       |
| Storage temperature    | T <sub>ST</sub> | -40  | +90  | °C   |       |

NOTE1: If the absolute maximum rating of even is one of the above parameters is exceeded even momentarily, the quality of the product may be degraded. Absolute maximum ratings, therefore, specify the values exceeding which the product may be physically damaged. Be sure to use the product within the range of the absolute maximum ratings.

### 6.2 DC Electrical Characteristics

| Characteristics        | Symbol          | Min.    | Typ. | Max.    | Unit | Note |
|------------------------|-----------------|---------|------|---------|------|------|
| Digital Supply Voltage | VDD             | 3.0     | 3.3  | 5.8     | V    |      |
| Normal mode Current    | IDD             | --      | 90   | 180     | mA   |      |
| Level input voltage    | V <sub>IH</sub> | 0.7*VDD | --   | VDD     | V    |      |
|                        | V <sub>IL</sub> | 0       | --   | 0.3*VDD | V    |      |
| Level output voltage   | V <sub>OH</sub> | VDD-0.4 | --   | --      | V    |      |
|                        | V <sub>OL</sub> | 0       | --   | 0.4     | V    |      |

# Shenzhen Youritech Technology Co.,Limited

## 6.3 LED Backlight Characteristics

The back-light system is edge-lighting type with 27 chips LED

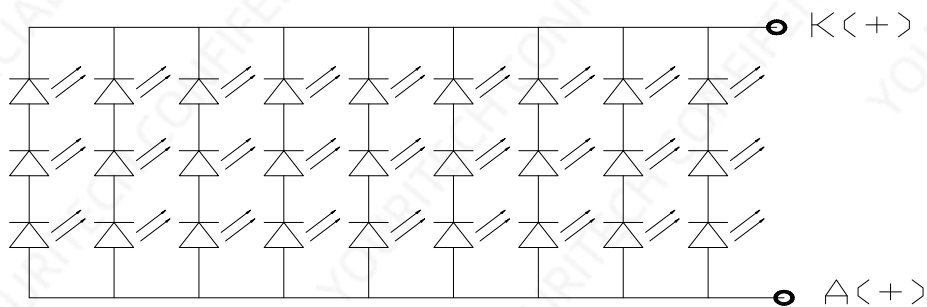
| Item                                      | Symbol | Min. | Typ.  | Max. | Unit              | Note    |
|-------------------------------------------|--------|------|-------|------|-------------------|---------|
| Forward Current                           | $I_F$  | 180  | 270   | 540  | mA                |         |
| Forward Voltage                           | $V_F$  | 9.11 | 9.3   | 9.9  | V                 |         |
| LCM Luminance<br>( $I_F = 270\text{mA}$ ) | LV     | 750  | 900   | --   | cd/m <sup>2</sup> | Note3   |
| LCM Luminance<br>( $I_F = 540\text{mA}$ ) | LV     | 1400 | 1600  | --   | cd/m <sup>2</sup> | Note3   |
| LED life time                             | Hr     | --   | 50000 | --   | Hour              | Note1,2 |
| Uniformity                                | Avg    | 80   | --    | --   | %                 | Note3   |

Note1: LED life time (Hr) can be defined as the time in which it continues to operate under the condition:

$T_a = 25 \pm 3^\circ\text{C}$ , typical IL value indicated in the above table until the brightness becomes less than 50%.

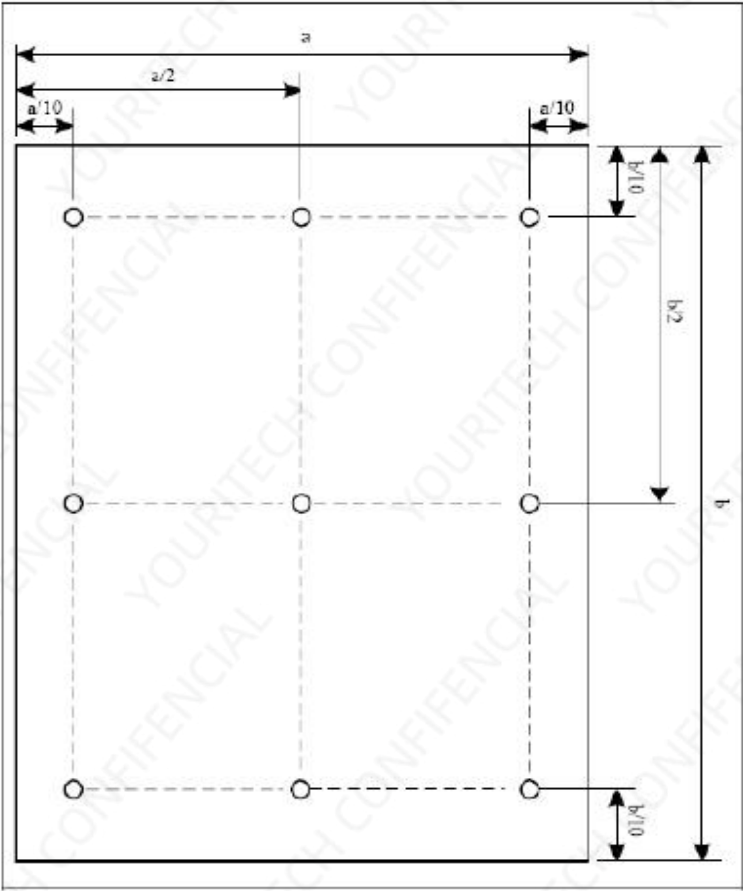
Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at

$T_a = 25^\circ\text{C}$  and  $I_L = 270\text{mA}$ . The LED lifetime could be decreased if operating  $I_L$  is larger than 270mA. The constant current driving method is suggested.



B/L Circuit

Note (3) Luminance Uniformity of these 9 points is defined as below:



Uniformity =  $\frac{\text{minimum luminance in 9 points (1-9)}}{\text{maximum luminance in 9 points (1-9)}}$

Luminance =  $\frac{\text{Total Luminance of 9 points}}{9}$

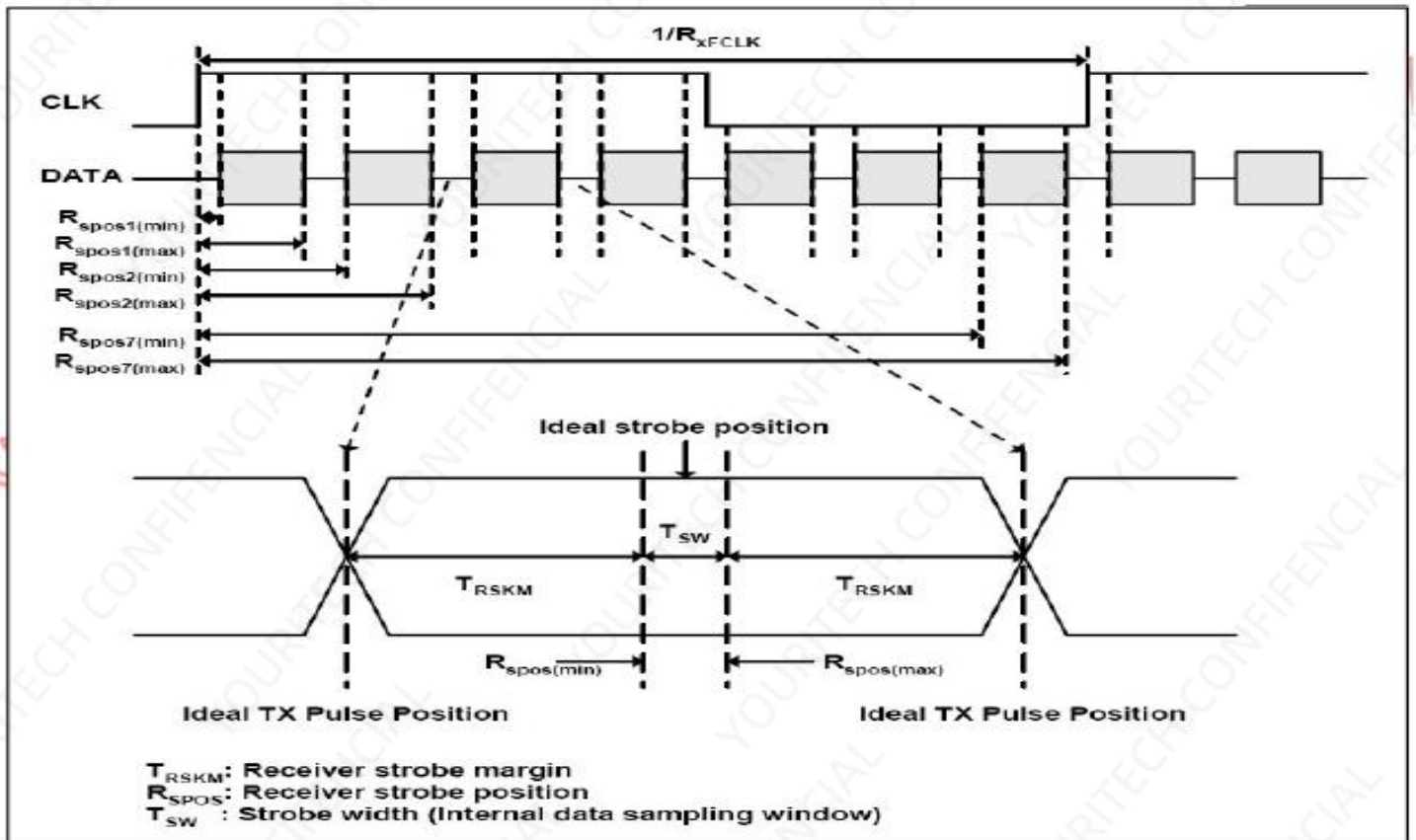
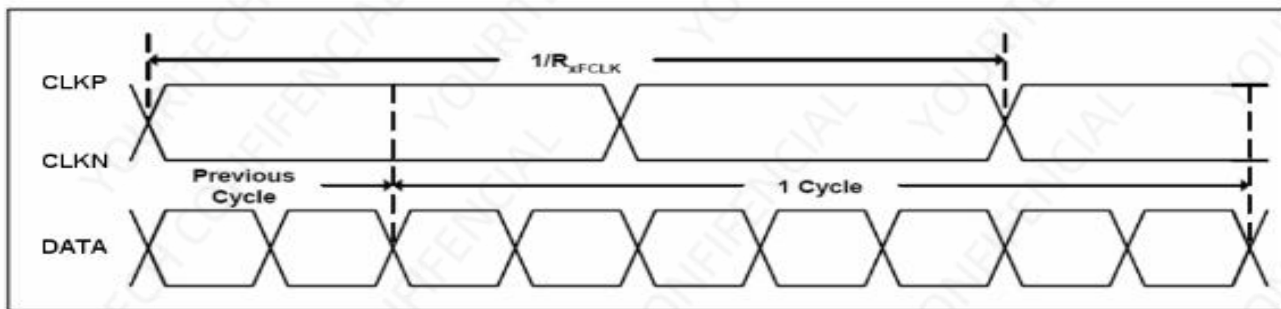
# Shenzhen Youritech Technology Co.,Limited

## 7. Timing Characteristics

### 7.1 AC Electrical Characteristics

| Parameter              | Symbol      | Values |                     |      | Unit | Remark |
|------------------------|-------------|--------|---------------------|------|------|--------|
|                        |             | Min.   | Typ.                | Max. |      |        |
| Clock frequency        | $R_{xFCLK}$ | 40.8   | 51.2                | 67.2 | MHz  |        |
| Input data skew margin | $T_{RSKM}$  | 500    | -                   | -    | ps   |        |
| Clock high time        | $T_{LVCH}$  | -      | $4/(7 * R_{xFCLK})$ | -    | ns   |        |
| Clock low time         | $T_{LVCL}$  | -      | $3/(7 * R_{xFCLK})$ | -    | ns   |        |

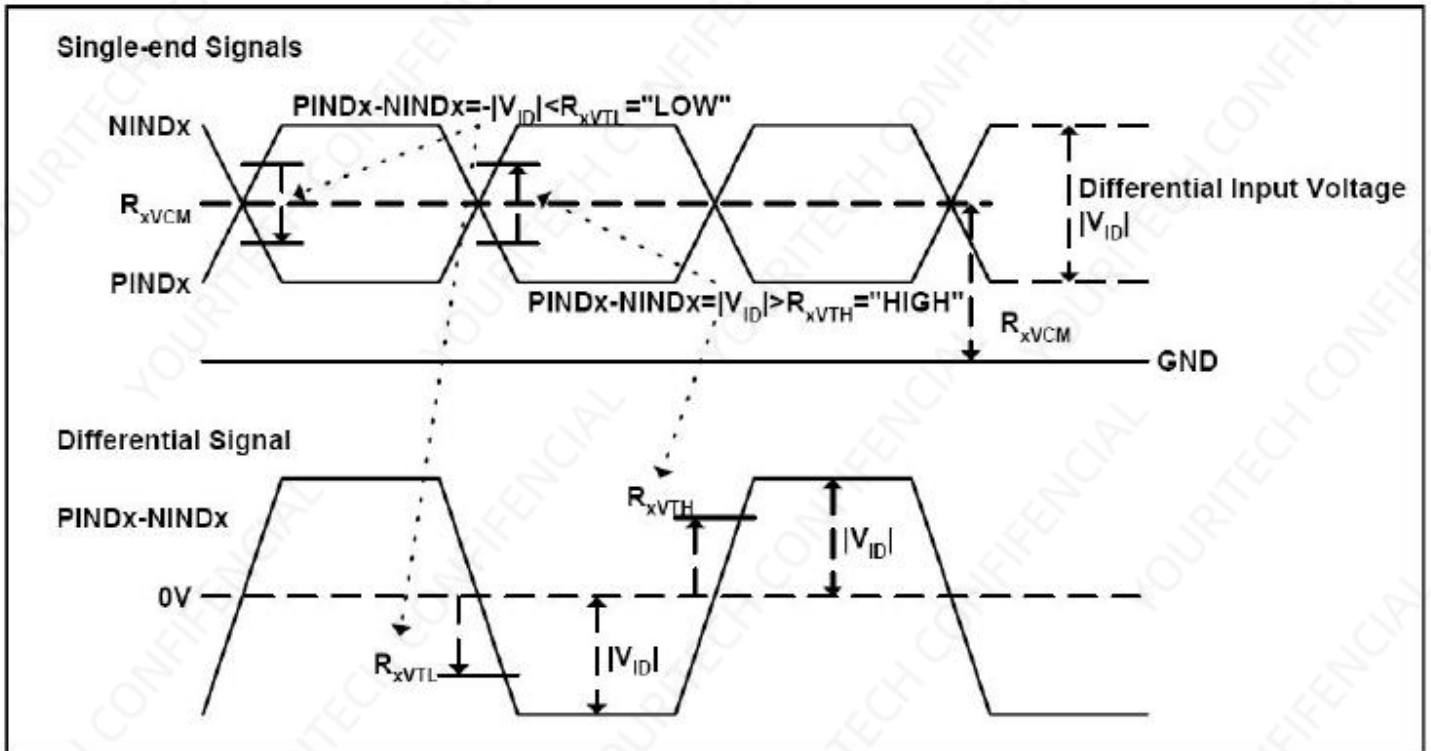
### 7.2 Input Clock and Data Timing Diagram



# Shenzhen Youritech Technology Co.,Limited

## 7.3 DC Electrical Characteristics

| Parameter                                 | Symbol         | Values       |      |                  | Unit | Remark          |
|-------------------------------------------|----------------|--------------|------|------------------|------|-----------------|
|                                           |                | Min.         | Typ. | Max.             |      |                 |
| Differential input high Threshold voltage | $R_{xVTH}$     | -            | -    | +0.1             | V    | $R_{xVCM}=1.2V$ |
| Differential input low Threshold voltage  | $R_{xVTL}$     | -0.1         | -    | -                | V    |                 |
| Input voltage range (singled-end)         | $R_{xVIN}$     | 0            | -    | 2.4              | V    |                 |
| Differential input common mode voltage    | $R_{xVCM}$     | $ V_{ID} /2$ | -    | $2.4- V_{ID} /2$ | V    |                 |
| Differential voltage                      | $ V_{ID} $     | 0.2          | -    | 0.6              | V    |                 |
| Differential input leakage current        | $R_{V_{xIIZ}}$ | -10          | -    | +10              | uA   |                 |



# Shenzhen Youritech Technology Co.,Limited

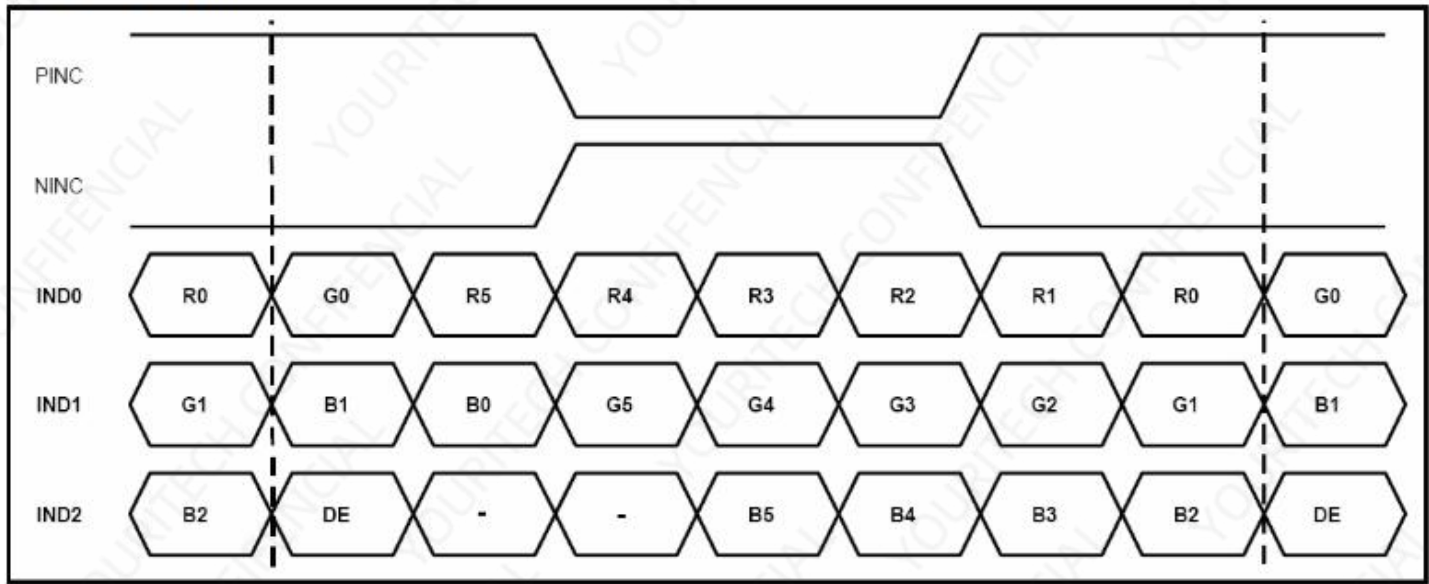
## 7.4 Timing

| Item                    | Symbol | Values |      |      | Unit | Remark           |
|-------------------------|--------|--------|------|------|------|------------------|
|                         |        | Min.   | Typ. | Max. |      |                  |
| Clock Frequency         | fclk   | 40.8   | 51.2 | 67.2 | MHz  | Frame rate =60Hz |
| Horizontal display area | thd    | 1024   |      |      | DCLK |                  |
| HS period time          | th     | 1114   | 1344 | 1400 | DCLK |                  |
| HS Blanking             | thb    | 90     | 320  | 376  | DCLK |                  |
| Vertical display area   | tvd    | 600    |      |      | H    |                  |
| VS period time          | tv     | 610    | 635  | 800  | H    |                  |
| VS Blanking             | thb    | 10     | 35   | 200  | H    |                  |

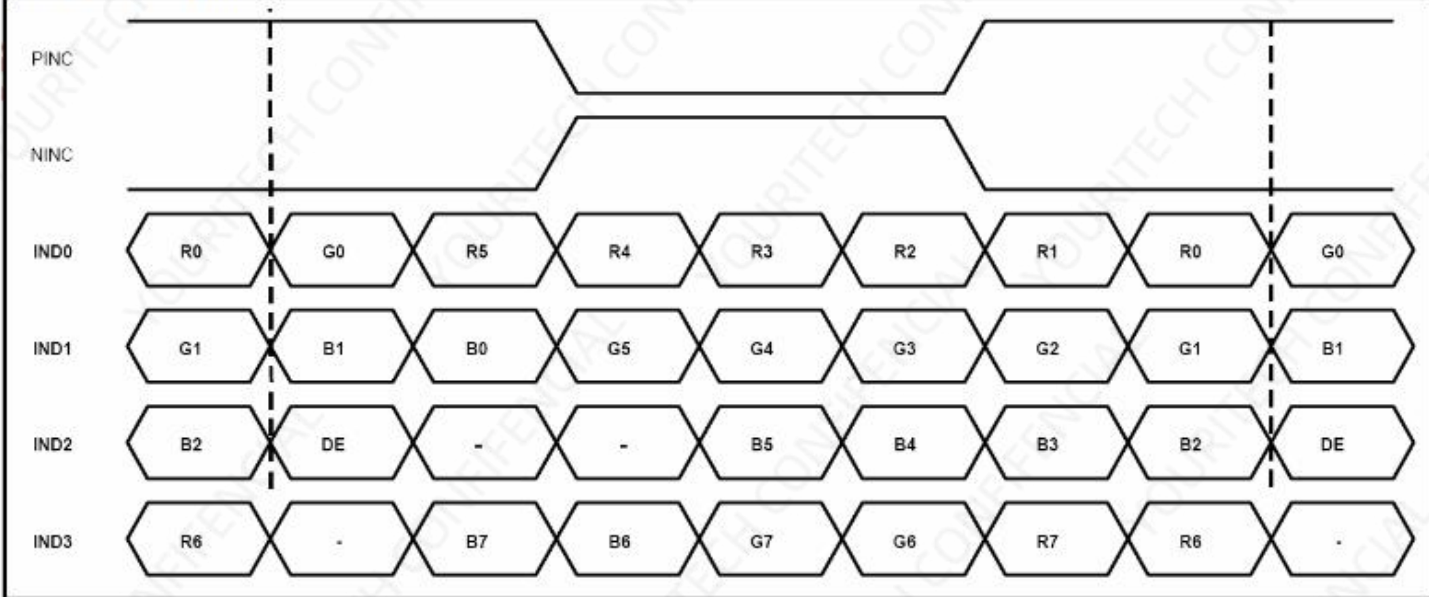
# Shenzhen Youritech Technology Co.,Limited

## 7.5 Data Input Format

### 6bit LVDS input



### 8bit LVDS input



Note: Support DE timing mode only, SYNC mode not supported.

# Shenzhen Youritech Technology Co.,Limited

## 8. CTP Specification

### 8.1 Electrical Characteristics

#### 8.1.1 Absolute Maximum Rating

| Item                  | Symbol          | Min. | Max. | Unit | Note |
|-----------------------|-----------------|------|------|------|------|
| Power Supply Voltage  | VDD             | 2.66 | 3.47 | V    |      |
| Operating temperature | T <sub>OP</sub> | -30  | +85  | °C   |      |
| Storage temperature   | T <sub>ST</sub> | -40  | +90  | °C   |      |

#### 8.1.2 DC Electrical Characteristics (Ta=25°C)

(Ambient temperature:25°C, VDD=2.8V, VDDIO=1.8V or VDDIO=VDD)

| Item                            | Min.     | Typ. | Max.     | Unit | Note |
|---------------------------------|----------|------|----------|------|------|
| Power Supply Voltage/VDD        | 2.66     | 3.3  | 3.47     | V    |      |
| Normal mode operating current   | --       | 13   | --       | mA   |      |
| Green mode operating current    | --       | 4.5  | --       | mA   |      |
| Sleep mode operating current    | 70       | --   | 120      | uA   |      |
| Digital Input low voltage/VIL   | -0.3     | --   | 0.25*VDD | V    |      |
| Digital Input high voltage/VIH  | 0.75*VDD | --   | VDD+0.3  | V    |      |
| Digital Output low voltage/VOL  | --       | --   | 0.15*VDD | V    |      |
| Digital Output high voltage/VOH | 0.85*VDD | --   | --       | V    |      |

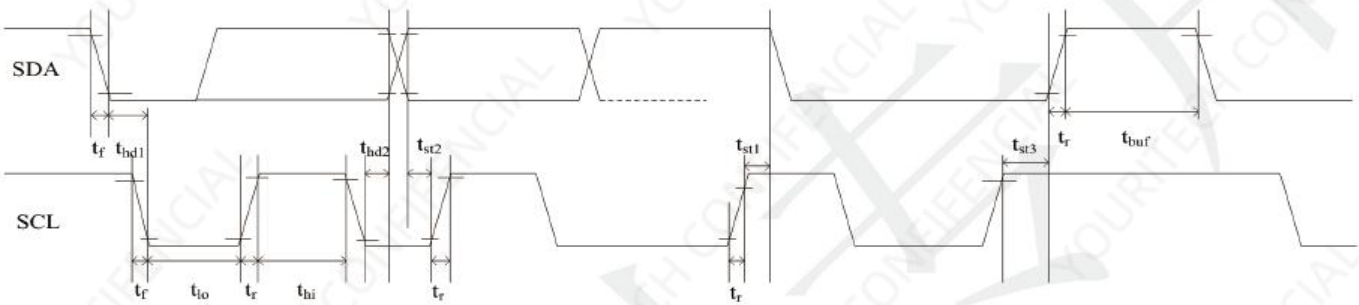
## 8.1.3 AC Characteristics

(Ambient temperature:25℃, VDD=2.8V, VDDIO=1.8V)

| Parameter                         | Min | Typ | Max | Unit | Note |
|-----------------------------------|-----|-----|-----|------|------|
| OSC oscillation frequency         | 59  | 60  | 61  | MHZ  |      |
| I/O output rise time,low to high  | -   | 14  | -   | ns   |      |
| I/O output rfall time,high to low | -   | 14  | -   | ns   |      |

## 8.2 I2C Timing

GT9271 provides a standard I2C interface for SCL and SDA to communicate with the host. GT9271 always serves as slave device in the system with all communication being initialized by the host. It is strongly recommended that transmission rate be kept at or below 400Kbps. The I2C timing is shown below:



# Shenzhen Youritech Technology Co.,Limited

Test condition 1: 1.8V host interface voltage, 400Kbps transmission rate, 2K pull-up resistor

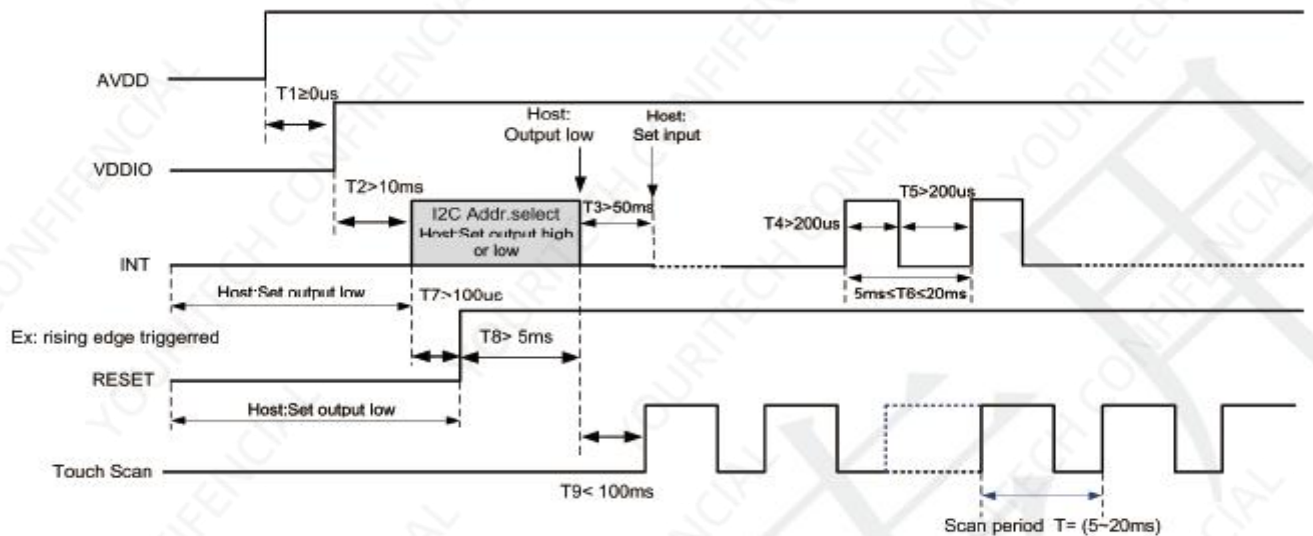
| Parameter                          | Symbol    | Min. | Max. | Unit |
|------------------------------------|-----------|------|------|------|
| SCL low period                     | $t_{lo}$  | 1.3  | -    | us   |
| SCL high period                    | $t_{hi}$  | 0.6  | -    | us   |
| SCL setup time for Start condition | $t_{st1}$ | 0.6  | -    | us   |
| SCL setup time for Stop condition  | $t_{st3}$ | 0.6  | -    | us   |
| SCL hold time for Start condition  | $t_{hd1}$ | 0.6  | -    | us   |
| SDA setup time                     | $t_{st2}$ | 0.1  | -    | us   |
| SDA hold time                      | $t_{hd2}$ | 0    | -    | us   |

Test condition 2: 3.3V host interface voltage, 400Kbps transmission rate, 2K pull-up resistor

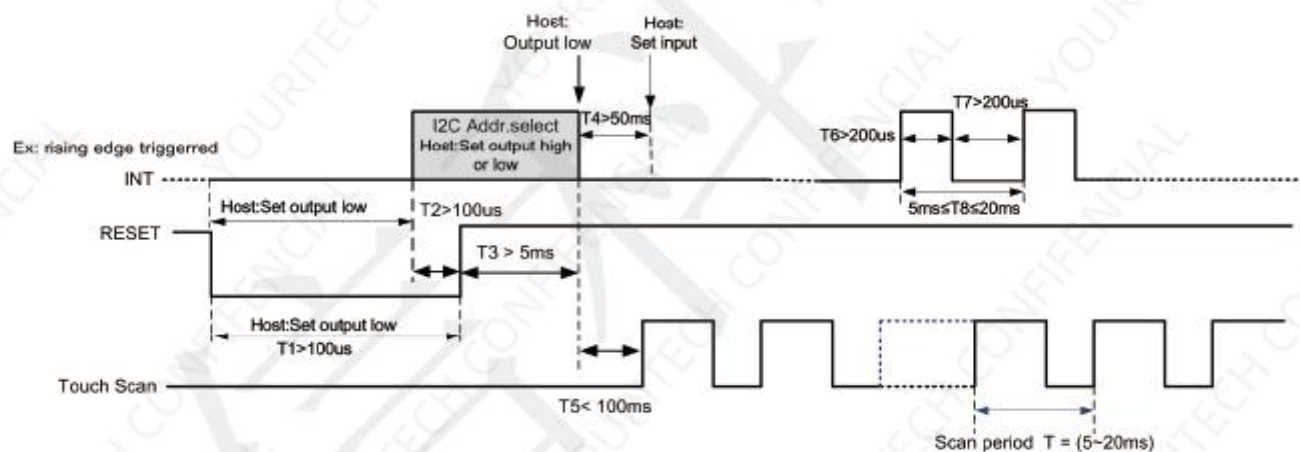
| Parameter                          | Symbol    | Min. | Max. | Unit |
|------------------------------------|-----------|------|------|------|
| SCL low period                     | $t_{lo}$  | 1.3  | -    | us   |
| SCL high period                    | $t_{hi}$  | 0.6  | -    | us   |
| SCL setup time for Start condition | $t_{st1}$ | 0.6  | -    | us   |
| SCL setup time for Stop condition  | $t_{st3}$ | 0.6  | -    | us   |
| SCL hold time for Start condition  | $t_{hd1}$ | 0.6  | -    | us   |
| SDA setup time                     | $t_{st2}$ | 0.1  | -    | us   |
| SDA hold time                      | $t_{hd2}$ | 0    | -    | us   |

GT9271 supports two I2C slave addresses: 0xBA/0xBB and 0x28/0x29. The host can select the address by changing the status of Reset and INT pins during the power-on initialization phase. See the diagram below for configuration methods and timings:

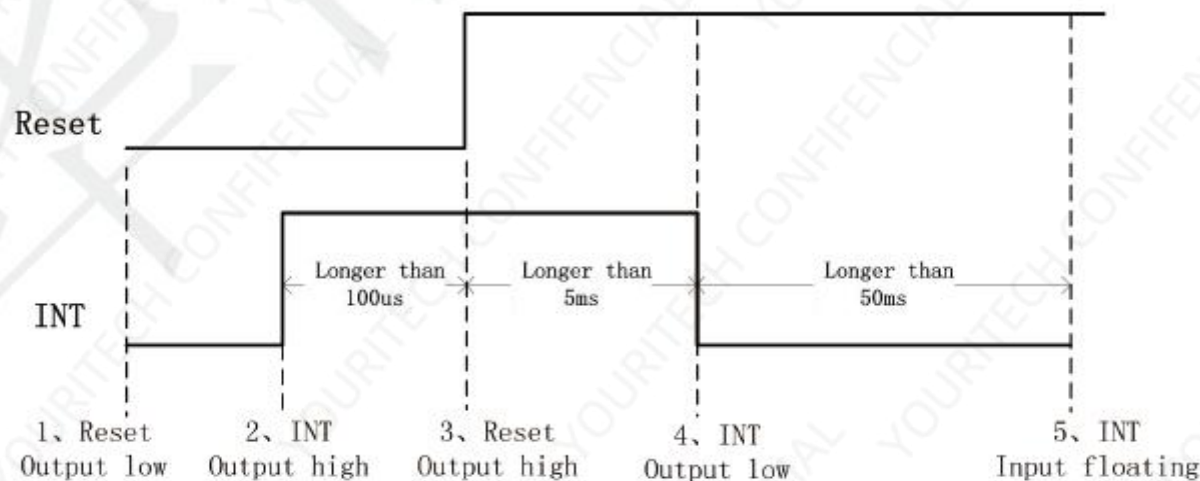
## Power-on Timing:



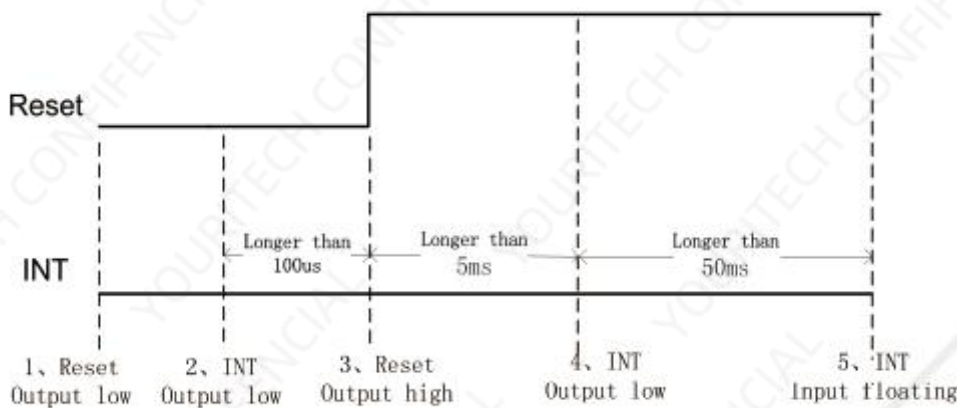
## Timing for host resetting GT9271:



## Timing for setting slave address to 0x28/0x29:



## Timing for setting slave address to 0xBA/0xBB:



## a) Data Transmission

(For example: slave address is 0xBA/0xBB)

Communication is always initiated by the host. Valid Start condition is signaled by pulling SDA line from high to low when SCL line is high. Data flow or address is transmitted after the Start condition.

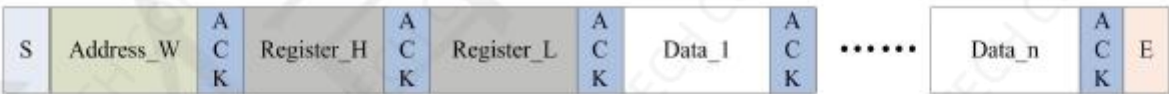
All slave devices connected to I<sup>2</sup>C bus should detect the 8-bit address issued after Start condition and send the correct ACK. After receiving matching address, GT9271 acknowledges by configuring SDA line as output port and pulling SDA line low during the ninth SCL cycle. When receiving unmatched address, namely, not 0XBA or 0XBB, GT9271 will stay in an idle state.

For data bytes on SDA, each of 9 serial bits will be sent on nine SCL cycles. Each data byte consists of 8 valid data bits and one ACK or NACK bit sent by the recipient. The data transmission is valid when SCL line is high.

When communication is completed, the host will issue the Stop condition which implies the transition of SDA line from low to high when SCL line is high.

## b) Writing Data to GT9271

(For example: slave address is 0xBA/0xBB)



Timing for Write Operation

The diagram above displays the timing sequence of the host writing data onto GT9271. First, the host issues a Start condition. Then, the host sends 0XBA (address bits and R/W bit; R/W bit as 0 indicates Write operation) to the slave device.

After receiving ACK, the host sends the 16-bit register address (where writing starts) and the 8-bit data bytes (to be written onto the register).

The location of the register address pointer will automatically add 1 after every Write Operation. Therefore, when the host needs to perform Write Operations on a group of registers of continuous addresses, it is able to write continuously. The Write Operation is terminated when the host issues the Stop condition.

c) Reading Data from GT9271  
(For example: slave address is 0xBA/0xBB)



Timing for Read Operation

The diagram above is the timing sequence of the host reading data from GT9271. First, the host issues a Start condition and sends 0xBA (address bits and R/W bit; R/W bit as 0 indicates Write operation) to the slave device.

After receiving ACK, the host sends the 16-bit register address (where reading starts) to the slave device. Then the host sets register addresses which need to be read.

Also after receiving ACK, the host issues the Start condition once again and sends 0xBB (Read Operation). After receiving ACK, the host starts to read data.

GT9271 also supports continuous Read Operation and, by default, reads data continuously. Whenever receiving a byte of data, the host sends an ACK signal indicating successful reception. After receiving the last byte of data, the host sends a NACK signal followed by a STOP condition which terminates communication.

## 9. LCD Module Out-Going Quality Level

### 9.1 VISUAL & FUNCTION INSPECTION STANDARD

#### 9.1.1 Inspection conditions

Inspection performed under the following conditions is recommended.

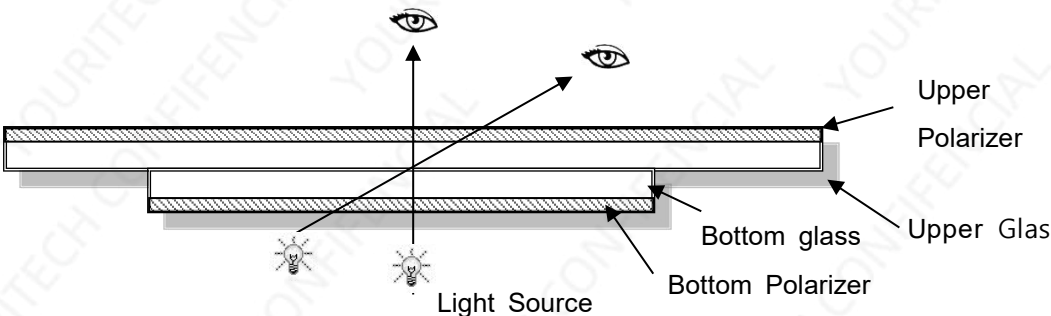
Temperature :  $25\pm5^{\circ}\text{C}$

Humidity :  $65\%\pm10\%\text{RH}$

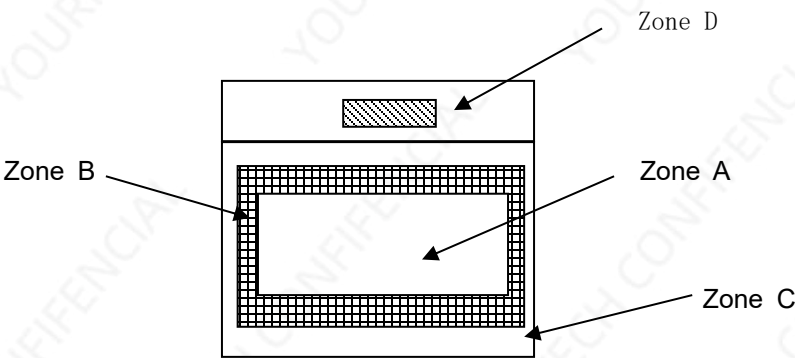
Viewing Angle : Normal viewing Angle.

Illumination: Single fluorescent lamp (300 to 700Lux)

Viewing distance:30-50cm



#### 9.1.2 Definition



Zone A : Effective Viewing Area(Character or Digit can be seen)

Zone B : Viewing Area except Zone A

Zone C : Outside (Zone A+Zone B) which can not be seen after assembly by customer .)

Zone D : IC Bonding Area

Note:As a general rule ,visual defects in Zone C can be ignored when it doesn't effect product function or appearance after assembly by customer

# Shenzhen Youritech Technology Co.,Limited

## 9.1.3 Sampling Plan

According to GB/T 2828-2012 ; , normal inspection, Class II

AQL:

| Major defect | Minor defect |
|--------------|--------------|
| 0.65         | 1.5          |

LCD: Liquid Crystal Display , LCM: Liquid Crystal Module, CTP: Capacitive Touch Panel

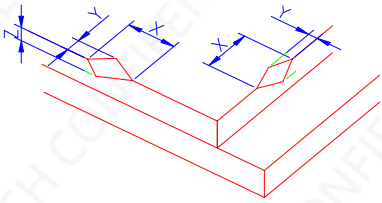
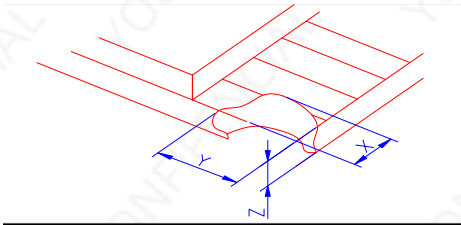
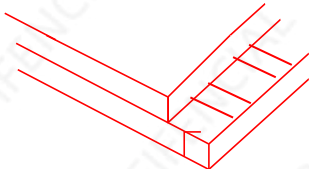
| No | Items to be inspected | Criteria                                                                                                                | Classification of defects |
|----|-----------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------|
| 1  | Functional defects    | 1) No display, Open or miss line<br>2) Display abnormally, Short<br>3) Backlight no lighting, abnormal lighting.<br>etc | Major                     |
| 2  | Missing               | Missing components and etc                                                                                              |                           |
| 3  | Outline dimension     | Overall outline dimension beyond the drawing is not allowed, deformation and etc                                        |                           |
| 4  | Color tone            | Color unevenness, refer to limited sample                                                                               | Minor                     |
| 5  | Spot/Line defect      | Light dot, Dim spot, (Note1)<br>Polarizer Air Bubble,<br>Polarizer accidented spot and etc                              |                           |
| 6  | Soldering appearance  | Good soldering , Peeling off is not allowed<br>and etc                                                                  |                           |
| 7  | LCD/Polarizer/CTP     | Black/White spot/line, scratch, crack, etc.                                                                             |                           |

**Note1:** a) Light dot: Dots appear bright and unchanged in size in which LCD panel is displaying under black pattern.

b) Dim dot: Dots appear dark and unchanged in size in which LCD panel is displaying under pure red, green, blue picture.

# Shenzhen Youritech Technology Co.,Limited

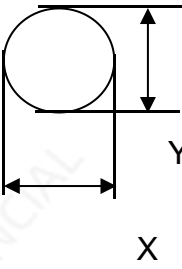
## 9.1.4 Criteria (Visual)

| Number                                                                                                              | Items                          | Criteria(mm)                                                                                                                                                                                                                      |   |   |   |        |                                |    |
|---------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|--------------------------------|----|
| 1.0 LCD<br>Crack/Broken<br>NOTE:<br>X: Length<br>Y: Width<br>Z: Height<br>L: Length of IT<br>O,<br>T: Height of LCD | (1) The edge of LCD broken     | <div></div> <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤3.0mm</td><td>&lt;Inner border line of the seal</td><td>≤T</td></tr></table> | X | Y | Z | ≤3.0mm | <Inner border line of the seal | ≤T |
| X                                                                                                                   | Y                              | Z                                                                                                                                                                                                                                 |   |   |   |        |                                |    |
| ≤3.0mm                                                                                                              | <Inner border line of the seal | ≤T                                                                                                                                                                                                                                |   |   |   |        |                                |    |
|                                                                                                                     | (2)LCD corner broken           | <div></div> <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤3.0mm</td><td>≤L</td><td>≤T</td></tr></table>                               | X | Y | Z | ≤3.0mm | ≤L                             | ≤T |
| X                                                                                                                   | Y                              | Z                                                                                                                                                                                                                                 |   |   |   |        |                                |    |
| ≤3.0mm                                                                                                              | ≤L                             | ≤T                                                                                                                                                                                                                                |   |   |   |        |                                |    |
|                                                                                                                     | (3) LCD crack                  | <div></div> <div>Crack<br/>Not allowed</div>                                                                                                  |   |   |   |        |                                |    |

# Shenzhen Youritech Technology Co.,Limited

2.0

Spot defect



$$\Phi=(X+Y)/2$$

① light dot ( black/white spot , pinhole, stain, etc. )

| Zone<br>Size (mm)       | Acceptable Qty                  |        |   |
|-------------------------|---------------------------------|--------|---|
|                         | A                               | B      | C |
| $\Phi \leq 0.15$        | Ignore                          | Ignore |   |
| $0.15 < \Phi \leq 0.25$ | 3(distance $\geq 10\text{mm}$ ) |        |   |
| $0.25 < \Phi \leq 0.4$  | 2(distance $\geq 10\text{mm}$ ) |        |   |
| $\Phi > 0.4$            | 0                               |        |   |

② Dim spot ( light leakage、dent、dark spot, etc )

| Zone<br>Size (mm)       | Acceptable Qty                   |        |   |
|-------------------------|----------------------------------|--------|---|
|                         | A                                | B      | C |
| $\Phi \leq 0.15$        | Ignore                           | Ignore |   |
| $0.15 < \Phi \leq 0.25$ | 3( distance $\geq 10\text{mm}$ ) |        |   |
| $0.25 < \Phi \leq 0.4$  | 2( distance $\geq 10\text{mm}$ ) |        |   |
| $\Phi > 0.4$            | 0                                |        |   |

③ Polarizer accidented spot

| Zone<br>Size (mm)     | Acceptable Qty                   |   |        |
|-----------------------|----------------------------------|---|--------|
|                       | A                                | B | C      |
| $\Phi \leq 0.2$       | Ignore                           |   | Ignore |
| $0.2 < \Phi \leq 0.5$ | 2( distance $\geq 10\text{mm}$ ) |   |        |
| $\Phi > 0.5$          | 0                                |   |        |

④Polarizer Bubble

| Zone<br>Size (mm)     | Acceptable Qty                  |   |        |
|-----------------------|---------------------------------|---|--------|
|                       | A                               | B | C      |
| $\Phi \leq 0.2$       | Ignore                          |   | Ignore |
| $0.2 < \Phi \leq 0.4$ | 2(distance $\geq 10\text{mm}$ ) |   |        |
| $\Phi > 0.4$          | 0                               |   |        |

Part. No

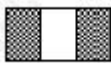
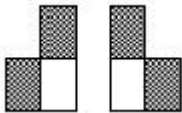
ET070WS07-KT

REV

V1.0

Page 30 of 37

# Shenzhen Youritech Technology Co.,Limited

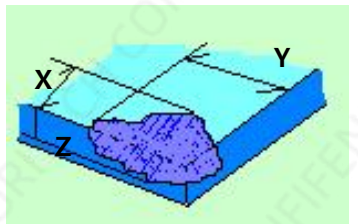
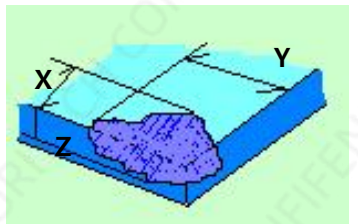
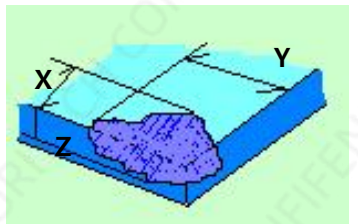
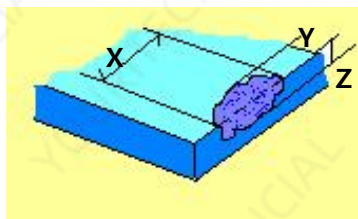
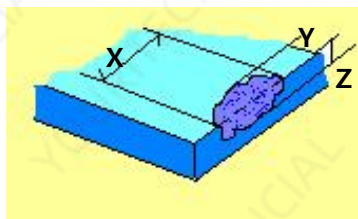
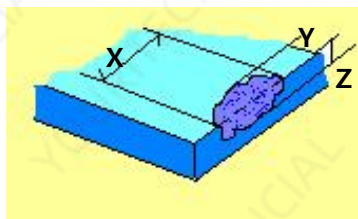
| 3.0                       | LCD Pixel defect                                                                                                                      | Pixel bad points <table border="1"> <tr> <th>Item</th><th>Zone A</th><th>Acceptable Qt</th></tr> <tr> <td rowspan="3">Bright dot</td><td>Random</td><td><math>N \leq 2</math></td></tr> <tr> <td>2 dots adjacent</td><td><math>N \leq 0</math></td></tr> <tr> <td>3 dots adjacent</td><td><math>N \leq 0</math></td></tr> <tr> <td rowspan="3">Dark dot</td><td>Random</td><td><math>N \leq 3</math></td></tr> <tr> <td>2 dots adjacent</td><td><math>N \leq 0</math></td></tr> <tr> <td>3 dots adjacent</td><td><math>N \leq 0</math></td></tr> <tr> <td>Distance</td><td>               1. Minimum Distance Between Bright dots.<br/>               2. Minimum Distance Between dark dots<br/>               3. Minimum Distance Between dark and bright dot.             </td><td>5mm</td></tr> <tr> <td colspan="2">Total bright and dark dot</td><td><math>N \leq 4</math></td></tr> </table> <p>Note:</p> <p>A) Bright dot: Dots appear bright and unchanged in size in which LCD panel is displaying under black pattern.</p> <p>B) Dark dot: Dots appear dark and unchanged in size in which LCD panel is displaying under pure red, green, blue picture.</p> <p>C) 2 dot adjacent = 1 pair = 2 dots</p> <p>Picture:</p> <div>  <p>2 dot adjacent</p>  <p>2 dot adjacent (vertical)</p> </div> <div>  <p>2 dot adjacent</p>  <p>2 dot adjacent (slant)</p> </div> | Item | Zone A | Acceptable Qt | Bright dot | Random | $N \leq 2$ | 2 dots adjacent | $N \leq 0$ | 3 dots adjacent | $N \leq 0$ | Dark dot | Random | $N \leq 3$ | 2 dots adjacent | $N \leq 0$ | 3 dots adjacent | $N \leq 0$ | Distance | 1. Minimum Distance Between Bright dots.<br>2. Minimum Distance Between dark dots<br>3. Minimum Distance Between dark and bright dot. | 5mm | Total bright and dark dot |  | $N \leq 4$ |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|---------------|------------|--------|------------|-----------------|------------|-----------------|------------|----------|--------|------------|-----------------|------------|-----------------|------------|----------|---------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------|--|------------|
| Item                      | Zone A                                                                                                                                | Acceptable Qt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
| Bright dot                | Random                                                                                                                                | $N \leq 2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
|                           | 2 dots adjacent                                                                                                                       | $N \leq 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
|                           | 3 dots adjacent                                                                                                                       | $N \leq 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
| Dark dot                  | Random                                                                                                                                | $N \leq 3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
|                           | 2 dots adjacent                                                                                                                       | $N \leq 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
|                           | 3 dots adjacent                                                                                                                       | $N \leq 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
| Distance                  | 1. Minimum Distance Between Bright dots.<br>2. Minimum Distance Between dark dots<br>3. Minimum Distance Between dark and bright dot. | 5mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |
| Total bright and dark dot |                                                                                                                                       | $N \leq 4$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |        |               |            |        |            |                 |            |                 |            |          |        |            |                 |            |                 |            |          |                                                                                                                                       |     |                           |  |            |

# Shenzhen Youritech Technology Co., Limited

| 4.0                  | <p>Line defect (LCD /Polarizer backlight black/white line, scratch, stain)</p>  <p>W: width, L : length</p> <p>N : Count</p> | <table><tr><th rowspan="2">Width(mm)</th><th rowspan="2">Length(m)<br/>m)</th><th colspan="3">Acceptable Qty</th></tr><tr><th>A</th><th>B</th><th>C</th></tr><tr><td><math>\Phi \leq 0.05</math></td><td>Ignore</td><td colspan="2">Ignore</td><td rowspan="3">Ignore</td></tr><tr><td><math>0.05 &lt; W \leq 0.06</math></td><td><math>L \leq 5.0</math></td><td colspan="2"><math>N \leq 3</math></td></tr><tr><td><math>0.06 &lt; W \leq 0.08</math></td><td><math>L \leq 4.0</math></td><td colspan="2"><math>N \leq 2</math></td></tr><tr><td><math>W &gt; 0.08</math></td><td colspan="4">Define as spot defect</td></tr></table> | Width(mm) | Length(m)<br>m) | Acceptable Qty |  |  | A | B | C | $\Phi \leq 0.05$ | Ignore | Ignore |  | Ignore | $0.05 < W \leq 0.06$ | $L \leq 5.0$ | $N \leq 3$ |  | $0.06 < W \leq 0.08$ | $L \leq 4.0$ | $N \leq 2$ |  | $W > 0.08$ | Define as spot defect |  |  |  |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------|----------------|--|--|---|---|---|------------------|--------|--------|--|--------|----------------------|--------------|------------|--|----------------------|--------------|------------|--|------------|-----------------------|--|--|--|
| Width(mm)            | Length(m)<br>m)                                                                                                                                                                                               | Acceptable Qty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
|                      |                                                                                                                                                                                                               | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | B         | C               |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| $\Phi \leq 0.05$     | Ignore                                                                                                                                                                                                        | Ignore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           | Ignore          |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| $0.05 < W \leq 0.06$ | $L \leq 5.0$                                                                                                                                                                                                  | $N \leq 3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| $0.06 < W \leq 0.08$ | $L \leq 4.0$                                                                                                                                                                                                  | $N \leq 2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| $W > 0.08$           | Define as spot defect                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| 5.0                  | Electronic Components SMT.                                                                                                                                                                                    | Not allow missing parts, solderless connection, cold solder joint, mismatch, The positive and negative polarity opposite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| 6.0                  | Display color& Brightness.                                                                                                                                                                                    | <p>1. Color: Measuring the color coordinates, The measurement standard according to the datasheet or samples.</p> <p>2. Brightness: Measuring the brightness of White screen, The measurement standard according to the datasheet or Samples.</p>                                                                                                                                                                                                                                                                                                                                                                                       |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |
| 7.0                  | LCD Mura/Waving/ Hot spot                                                                                                                                                                                     | Not visible through 5% ND filter in 50% gray or judge by limit sample if necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |                 |                |  |  |   |   |   |                  |        |        |  |        |                      |              |            |  |                      |              |            |  |            |                       |  |  |  |

|                      |                       |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|----------------------|-----------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|--------|------------------|----------------|----------------|--|---|---|---|------------------|------------------|--------|--------|-------------------------|-----------------------------------|----------------------|-------------------------|-----------------------------------|--|---------------|----------------------|--------------|------------|--|--|------------|-----------------------|--|--|--|--|
| 8.0                  | CTP<br>Related        | CTP Cover<br>sensor acc<br>identified<br>black/white<br>spot | <table><tr><td rowspan="2">Size <math>\Phi</math>(mm)</td><td colspan="3">Acceptable Qty</td></tr><tr><td>A</td><td>B</td><td>C</td></tr><tr><td><math>\Phi \leq 0.15</math></td><td colspan="2">Ignore</td><td rowspan="3">Ignore</td></tr><tr><td><math>0.15 &lt; \Phi \leq 0.25</math></td><td colspan="2">4 ( distance <math>\geq 10\text{mm}</math> )</td></tr><tr><td><math>0.25 &lt; \Phi \leq 0.35</math></td><td colspan="2">3 ( distance <math>\geq 10\text{mm}</math> )</td></tr><tr><td><math>\Phi &gt; 0.35</math></td><td colspan="2">0</td><td></td></tr></table>                            |                                   |                |        | Size $\Phi$ (mm) | Acceptable Qty |                |  | A | B | C | $\Phi \leq 0.15$ | Ignore           |        | Ignore | $0.15 < \Phi \leq 0.25$ | 4 ( distance $\geq 10\text{mm}$ ) |                      | $0.25 < \Phi \leq 0.35$ | 3 ( distance $\geq 10\text{mm}$ ) |  | $\Phi > 0.35$ | 0                    |              |            |  |  |            |                       |  |  |  |  |
|                      |                       |                                                              | Size $\Phi$ (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Acceptable Qty                    |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A                                 | B              | C      |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       |                                                              | $\Phi \leq 0.15$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Ignore                            |                | Ignore |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       |                                                              | $0.15 < \Phi \leq 0.25$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4 ( distance $\geq 10\text{mm}$ ) |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       |                                                              | $0.25 < \Phi \leq 0.35$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3 ( distance $\geq 10\text{mm}$ ) |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       | $\Phi > 0.35$                                                | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                   |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       | CTP Cover<br><br>scratch                                     | <table><tr><td rowspan="2">Width(mm)</td><td rowspan="2">Ignore<br/>(mm)</td><td colspan="3">Acceptable Qty</td></tr><tr><td>A</td><td>B</td><td>C</td></tr><tr><td><math>\Phi \leq 0.05</math></td><td>Ignore</td><td colspan="3">Ignore</td></tr><tr><td><math>0.05 &lt; W \leq 0.06</math></td><td><math>L \leq 4.0</math></td><td colspan="3"><math>N \leq 3</math></td></tr><tr><td><math>0.06 &lt; W \leq 0.08</math></td><td><math>L \leq 3.0</math></td><td colspan="3"><math>N \leq 2</math></td></tr><tr><td><math>0.08 &lt; W</math></td><td colspan="4">Define as spot defect</td></tr></table> |                                   |                |        | Width(mm)        | Ignore<br>(mm) | Acceptable Qty |  |   | A | B | C                | $\Phi \leq 0.05$ | Ignore | Ignore |                         |                                   | $0.05 < W \leq 0.06$ | $L \leq 4.0$            | $N \leq 3$                        |  |               | $0.06 < W \leq 0.08$ | $L \leq 3.0$ | $N \leq 2$ |  |  | $0.08 < W$ | Define as spot defect |  |  |  |  |
|                      |                       |                                                              | Width(mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Ignore<br>(mm)                    | Acceptable Qty |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
|                      |                       |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   | A              | B      | C                |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
| $\Phi \leq 0.05$     | Ignore                |                                                              | Ignore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                   |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
| $0.05 < W \leq 0.06$ | $L \leq 4.0$          |                                                              | $N \leq 3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                   |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
| $0.06 < W \leq 0.08$ | $L \leq 3.0$          | $N \leq 2$                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |
| $0.08 < W$           | Define as spot defect |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                |        |                  |                |                |  |   |   |   |                  |                  |        |        |                         |                                   |                      |                         |                                   |  |               |                      |              |            |  |  |            |                       |  |  |  |  |

# Shenzhen Youritech Technology Co., Limited

|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-----------------------|------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------|---------------------------------|---|--------------|---|--|
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <table><tr><td rowspan="5"><div>CTP Cover<br/>Pinhole/ Lack of ink</div></td><td><table><tr><td><div>Zone<br/>Size (mm)</div></td><td colspan="2">Acceptable Qty</td></tr><tr><td></td><td colspan="2">C</td></tr><tr><td><math>\Phi \leq 0.2</math></td><td colspan="2">Ignore</td></tr><tr><td><math>0.2 &lt; \Phi \leq 0.3</math></td><td colspan="2">4(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>0.3 &lt; \Phi \leq 0.4</math></td><td colspan="2">2(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>\Phi &gt; 0.4</math></td><td colspan="2">0</td></tr></table></td></tr></table> | <div>CTP Cover<br/>Pinhole/ Lack of ink</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <table><tr><td><div>Zone<br/>Size (mm)</div></td><td colspan="2">Acceptable Qty</td></tr><tr><td></td><td colspan="2">C</td></tr><tr><td><math>\Phi \leq 0.2</math></td><td colspan="2">Ignore</td></tr><tr><td><math>0.2 &lt; \Phi \leq 0.3</math></td><td colspan="2">4(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>0.3 &lt; \Phi \leq 0.4</math></td><td colspan="2">2(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>\Phi &gt; 0.4</math></td><td colspan="2">0</td></tr></table> | <div>Zone<br/>Size (mm)</div> | Acceptable Qty        |                       |                              | C                                                                                     |                                                                                       | $\Phi \leq 0.2$                                          | Ignore                |                                 | $0.2 < \Phi \leq 0.3$ | 4(distance $\geq 10\text{mm}$ ) |                                 | $0.3 < \Phi \leq 0.4$ | 2(distance $\geq 10\text{mm}$ ) |   | $\Phi > 0.4$ | 0 |  |
| <div>CTP Cover<br/>Pinhole/ Lack of ink</div>                                                | <table><tr><td><div>Zone<br/>Size (mm)</div></td><td colspan="2">Acceptable Qty</td></tr><tr><td></td><td colspan="2">C</td></tr><tr><td><math>\Phi \leq 0.2</math></td><td colspan="2">Ignore</td></tr><tr><td><math>0.2 &lt; \Phi \leq 0.3</math></td><td colspan="2">4(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>0.3 &lt; \Phi \leq 0.4</math></td><td colspan="2">2(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>\Phi &gt; 0.4</math></td><td colspan="2">0</td></tr></table>                                                                                                            | <div>Zone<br/>Size (mm)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Acceptable Qty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                       | C                     |                              | $\Phi \leq 0.2$                                                                       | Ignore                                                                                |                                                          | $0.2 < \Phi \leq 0.3$ | 4(distance $\geq 10\text{mm}$ ) |                       | $0.3 < \Phi \leq 0.4$           | 2(distance $\geq 10\text{mm}$ ) |                       | $\Phi > 0.4$                    | 0 |              |   |  |
|                                                                                              | <div>Zone<br/>Size (mm)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Acceptable Qty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | $\Phi \leq 0.2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ignore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | $0.2 < \Phi \leq 0.3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4(distance $\geq 10\text{mm}$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| $0.3 < \Phi \leq 0.4$                                                                        | 2(distance $\geq 10\text{mm}$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| $\Phi > 0.4$                                                                                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | <table><tr><td rowspan="6"><div>CTP Bonding bubble/<br/>accident spot</div></td><td><table><tr><td rowspan="2">Size <math>\Phi(\text{mm})</math></td><td colspan="2">Acceptable Qty</td></tr><tr><td>A</td><td>B</td></tr><tr><td><math>\Phi \leq 0.1</math></td><td colspan="2">Ignore</td></tr><tr><td><math>0.1 &lt; \Phi \leq 0.2</math></td><td colspan="2">3(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>0.2 &lt; \Phi \leq 0.3</math></td><td colspan="2">2(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>\Phi &gt; 0.3</math></td><td colspan="2">0</td></tr></table></td></tr></table> | <div>CTP Bonding bubble/<br/>accident spot</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <table><tr><td rowspan="2">Size <math>\Phi(\text{mm})</math></td><td colspan="2">Acceptable Qty</td></tr><tr><td>A</td><td>B</td></tr><tr><td><math>\Phi \leq 0.1</math></td><td colspan="2">Ignore</td></tr><tr><td><math>0.1 &lt; \Phi \leq 0.2</math></td><td colspan="2">3(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>0.2 &lt; \Phi \leq 0.3</math></td><td colspan="2">2(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>\Phi &gt; 0.3</math></td><td colspan="2">0</td></tr></table> | Size $\Phi(\text{mm})$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Acceptable Qty                |                       | A                     | B                            | $\Phi \leq 0.1$                                                                       | Ignore                                                                                |                                                          | $0.1 < \Phi \leq 0.2$ | 3(distance $\geq 10\text{mm}$ ) |                       | $0.2 < \Phi \leq 0.3$           | 2(distance $\geq 10\text{mm}$ ) |                       | $\Phi > 0.3$                    | 0 |              |   |  |
| <div>CTP Bonding bubble/<br/>accident spot</div>                                             | <table><tr><td rowspan="2">Size <math>\Phi(\text{mm})</math></td><td colspan="2">Acceptable Qty</td></tr><tr><td>A</td><td>B</td></tr><tr><td><math>\Phi \leq 0.1</math></td><td colspan="2">Ignore</td></tr><tr><td><math>0.1 &lt; \Phi \leq 0.2</math></td><td colspan="2">3(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>0.2 &lt; \Phi \leq 0.3</math></td><td colspan="2">2(distance <math>\geq 10\text{mm}</math>)</td></tr><tr><td><math>\Phi &gt; 0.3</math></td><td colspan="2">0</td></tr></table>                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Size $\Phi(\text{mm})$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Acceptable Qty                |                       | A                     | B                            | $\Phi \leq 0.1$                                                                       | Ignore                                                                                |                                                          | $0.1 < \Phi \leq 0.2$ | 3(distance $\geq 10\text{mm}$ ) |                       | $0.2 < \Phi \leq 0.3$           | 2(distance $\geq 10\text{mm}$ ) |                       | $\Phi > 0.3$                    | 0 |              |   |  |
|                                                                                              | Size $\Phi(\text{mm})$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Acceptable Qty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | $\Phi \leq 0.1$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ignore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | $0.1 < \Phi \leq 0.2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3(distance $\geq 10\text{mm}$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | $0.2 < \Phi \leq 0.3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2(distance $\geq 10\text{mm}$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| $\Phi > 0.3$                                                                                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | <table><tr><td>Assembly deflection</td><td colspan="3">beyond the edge of backlight <math>\leq 0.2\text{mm}</math></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Assembly deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | beyond the edge of backlight $\leq 0.2\text{mm}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| Assembly deflection                                                                          | beyond the edge of backlight $\leq 0.2\text{mm}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | <table><tr><td rowspan="2"><div>CTP cover broken</div><div>X : length</div><div>Y : width</div><div>Z : height</div></td><td><table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td><math>X \leq 0.5\text{mm}</math></td><td><math>Y \leq 0.5\text{mm}</math></td><td><math>Z &lt; \text{cover thickness}</math></td></tr></table></td><td rowspan="2"></td></tr><tr><td><div>*</div><div>Circuitry broken is not allowed.</div></td></tr></table>                                                                                              | <div>CTP cover broken</div> <div>X : length</div> <div>Y : width</div> <div>Z : height</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td><math>X \leq 0.5\text{mm}</math></td><td><math>Y \leq 0.5\text{mm}</math></td><td><math>Z &lt; \text{cover thickness}</math></td></tr></table>                                                                                                                                                                                                                                                                                                                          | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Y                             | Z                     | $X \leq 0.5\text{mm}$ | $Y \leq 0.5\text{mm}$        | $Z < \text{cover thickness}$                                                          |  | <div>*</div> <div>Circuitry broken is not allowed.</div> |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| <div>CTP cover broken</div> <div>X : length</div> <div>Y : width</div> <div>Z : height</div> | <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td><math>X \leq 0.5\text{mm}</math></td><td><math>Y \leq 0.5\text{mm}</math></td><td><math>Z &lt; \text{cover thickness}</math></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Z                             | $X \leq 0.5\text{mm}$ | $Y \leq 0.5\text{mm}$ | $Z < \text{cover thickness}$ |  |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Z                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| $X \leq 0.5\text{mm}$                                                                        | $Y \leq 0.5\text{mm}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | $Z < \text{cover thickness}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| <div>*</div> <div>Circuitry broken is not allowed.</div>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | <table><tr><td rowspan="2"><div>CTP cover broken</div><div>X : length</div><div>Y : width</div><div>Z : height</div></td><td><table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td><math>X \leq 0.3\text{mm}</math></td><td><math>Y \leq 0.3\text{mm}</math></td><td><math>Z &lt; \text{cover thickness}</math></td></tr></table></td><td></td></tr><tr><td><div>*</div><div>Circuitry broken is not allowed.</div></td></tr></table>                                                                                                          | <div>CTP cover broken</div> <div>X : length</div> <div>Y : width</div> <div>Z : height</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td><math>X \leq 0.3\text{mm}</math></td><td><math>Y \leq 0.3\text{mm}</math></td><td><math>Z &lt; \text{cover thickness}</math></td></tr></table>                                                                                                                                                                                                                                                                                                                          | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Y                             | Z                     | $X \leq 0.3\text{mm}$ | $Y \leq 0.3\text{mm}$        | $Z < \text{cover thickness}$                                                          |  | <div>*</div> <div>Circuitry broken is not allowed.</div> |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| <div>CTP cover broken</div> <div>X : length</div> <div>Y : width</div> <div>Z : height</div> | <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td><math>X \leq 0.3\text{mm}</math></td><td><math>Y \leq 0.3\text{mm}</math></td><td><math>Z &lt; \text{cover thickness}</math></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Z                             | $X \leq 0.3\text{mm}$ | $Y \leq 0.3\text{mm}$ | $Z < \text{cover thickness}$ |  |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
|                                                                                              | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Z                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| $X \leq 0.3\text{mm}$                                                                        | $Y \leq 0.3\text{mm}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | $Z < \text{cover thickness}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |
| <div>*</div> <div>Circuitry broken is not allowed.</div>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                       |                       |                              |                                                                                       |                                                                                       |                                                          |                       |                                 |                       |                                 |                                 |                       |                                 |   |              |   |  |

Criteria ( functional items)

|          |              |     |      |               |
|----------|--------------|-----|------|---------------|
| Part. No | ET070WS07-KT | REV | V1.0 | Page 33 of 37 |
|----------|--------------|-----|------|---------------|

# Shenzhen Youritech Technology Co.,Limited

| Number | Items                 | Criteria (mm) |
|--------|-----------------------|---------------|
| 1      | No display            | Not allowed   |
| 2      | Missing segment       | Not allowed   |
| 3      | Short                 | Not allowed   |
| 4      | Backlight no lighting | Not allowed   |
| 5      | CTP no function       | Not allowed   |

# Shenzhen Youritech Technology Co.,Limited

## 10. Reliability Test Result

Remark:

| Item                                 | Condition                                                                                                                                      | Inspection after test                                                                                                                                                                                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High Temperature Operating           | 85°C,96H                                                                                                                                       | Inspection after 2~4hours<br>storage at room temperature,<br>the sample shall be free from<br>defects:<br>1.Air bubble in the LCD;<br>2.Non-display;<br>3.Missing segments/line;<br>4.Glass crack;<br>5.Current IDD is twice higher<br>than initial value. |
| Low Temperature Operating            | -30°C, 96HR                                                                                                                                    |                                                                                                                                                                                                                                                            |
| High Temperature Storage             | 90°C, 96HR                                                                                                                                     |                                                                                                                                                                                                                                                            |
| Low Temperature Storage              | -40°C, 96HR                                                                                                                                    |                                                                                                                                                                                                                                                            |
| High Temperature & High<br>Operating | +60°C, 90% RH ,96 hours.                                                                                                                       |                                                                                                                                                                                                                                                            |
| Thermal Shock (Non-operation)        | -10°C,30 min ↔ 60°C,30 min,<br>Change time:5min 20CYC.                                                                                         |                                                                                                                                                                                                                                                            |
| ESD test                             | C=150pF, R=330,5points/panel<br>Air:±8KV, 5times; Contact:±6KV, 5 times;<br>(Environment: 15°C~35°C, 30%~60%).                                 |                                                                                                                                                                                                                                                            |
| Vibration (Non-operation)            | Frequency range:10~55Hz, Stroke:1.5mm<br>Sweep:10Hz~55Hz~10Hz 2 hours for each direction of<br>X.Y.Z. (6 hours for total) (Package condition). |                                                                                                                                                                                                                                                            |
| Box Drop Test                        | 1 Corner 3 Edges 6 faces,80cm(MEDIUM BOX)                                                                                                      |                                                                                                                                                                                                                                                            |

- 1.The test samples should be applied to only one test item.
- 2.Sample size for each test item is 5~10pcs.
- 3.For Damp Proof Test, Pure water(Resistance > 10MΩ) should be used.
- 4.In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.
- 5.Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.
6. The color fading mura of polarizing filter should not care.

# Shenzhen Youritech Technology Co., Limited

## 11. Cautions and Handling Precautions

### 11.1 Handling and Operating the Module

(1) When the module is assembled, it should be attached to the system firmly.

Do not warp or twist the module during assembly work.

(2) Protect the module from physical shock or any force. In addition to damage, this may cause improper operation or damage to the module and back-light unit.

(3) Note that polarizer is very fragile and could be easily damaged. Do not press or scratch the surface.

(4) Do not allow drops of water or chemicals to remain on the display surface.

If you have the droplets for a long time, staining and discoloration may occur.

(5) If the surface of the polarizer is dirty, clean it using some absorbent cotton or soft cloth.

(6) The desirable cleaners are water, IPA (Isopropyl Alcohol) or Hexane.

Do not use ketene type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanent damage to the polarizer due to chemical reaction.

(7) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs, or clothes, it must be washed away thoroughly with soap.

(8) Protect the module from static; it may cause damage to the CMOS ICs.

(9) Use finger-stalls with soft gloves in order to keep display clean during the incoming inspection and assembly process.

(10) Do not disassemble the module.

(11) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.

(12) Pins of I/F connector shall not be touched directly with bare hands.

(13) Do not connect, disconnect the module in the "Power ON" condition.

(14) Power supply should always be turned on/off by the item 6.1 Power On Sequence & 6.2 Power Off Sequence

### 11.2 Storage and Transportation.

(1) Do not leave the panel in high temperature, and high humidity for a long time.

It is highly recommended to store the module with temperature from 0 to 35 °C and relative humidity of less than 70%

(2) Do not store the TFT-LCD module in direct sunlight.

(3) The module shall be stored in a dark place. When storing the modules for a long time, be sure to adopt effective measures for protecting the modules from strong ultraviolet radiation, sunlight, or fluorescent light.

(4) It is recommended that the modules should be stored under a condition where no condensation is allowed. Formation of dewdrops may cause an abnormal operation or a failure of the module.

In particular, the greatest possible care should be taken to prevent any module from being operated where condensation has occurred inside.

(5) This panel has its circuitry FPC on the bottom side and should be handled carefully in order not to be stressed.

|          |              |     |      |               |
|----------|--------------|-----|------|---------------|
| Part. No | ET070WS07-KT | REV | V1.0 | Page 36 of 37 |
|----------|--------------|-----|------|---------------|

12. Packing

