Inelco Hunter Limited
specialist supplier of electronic components & solutions

# SPECIFICATIONS

| | | |
|---|---|---|
| **CUSTOMER** | : | - |
| **SAMPLE CODE** | : | **SJXT480272T017-ZBR** |
| **MASS PRODUCTION CODE** | : | **JXT480272T017-ZBR** |
| **SAMPLE VERSION** | : | **01** |
| **SPECIFICATIONS EDITION** | : | **001** |
| **DRAWING NO. (Ver.)** | : | **LMD-JXT480272T017-ZBR (Ver.001)** |
| **PACKAGING NO. (Ver.)** | : | - |

## Customer Approved

**Date:**

INELCO HUNTER
2025.05.20
UK/TW RD MAY

| Approved | Checked | Designer |
|---|---|---|
| **Rex Liao** | **Howard Chen** | **Yantong Su** |

■ Preliminary specification for design input
□ Specification for sample approval

## History of Version

| Date (mm / dd / yyyy) | Ver. | Edi. | Description | Page | Design by |
|---|---|---|---|---|---|
| 03/20/2025 | 01 | 001 | Preliminary. | - | Yantong |
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## Contents





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# 1. SPECIFICATIONS

## 1.1 Features

| Item | Standard Value |
|---|---|
| Display Type | 480 * 3 (RGB) * 272 Dots |
| LCD Type | Full Viewing Angle , Normally Black , Transmissive type |
| Screen size(inch) | 4.3” inch |
| Optical Type | OCA |
| Color configuration | R,G, B vertical stripe |
| Weight | - |
| Display Interface | Digital 24-bits RGB |
| Driver IC | ST7282A-G6-E8A |
| ROHS | THIS PRODUCT CONFORMS TO ROHS |

## 1.2 Mechanical Specifications

| Item | Standard Value | Unit |
|---|---|---|
| Outline Dimension | 115.1(W) x 78.94(L) x 4.67(H) | mm |

LCD panel

| Item | Standard Value | Unit |
|---|---|---|
| Active Area | 95.04 (W) x 53.856 (L) | mm |

Note : For detailed information please refer to LCM drawing





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## 1.3 Absolute Maximum Ratings

| Item | Symbol | Condition | Min. | Max. | Unit |
|---|---|---|---|---|---|
| System Power Supply Voltage | VDD | GND=0 | -0.5 | +4.6 | V |
| Operating Temperature | $T_{OP}$ (Ts) | Note 1 | -20 | +70 | °C |
| Storage Temperature | $T_{ST}$ (Ta) | Note 2 | -30 | +80 | °C |
| Storage Humidity | $H_D$ | Ta ≦ 60 °C | - | 90 | %RH |

The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

Note 1：Ts is the temperature of panel's surface.

Note 2：Ta is the ambient temperature of samples.

## 1.4 DC Electrical Characteristics

GND = 0V, Ta = 25°C

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Power supply Voltage | VDD | - | 3.0 | 3.3 | 3.6 | V |
| "H" Input Voltage | $V_{IH}$ | - | 0.7*VDD | - | VDD | V |
| "L" Input Voltage | $V_{IL}$ | - | GND | - | 0.3* VDD | V |
| Supply Current | IDD | VDD=3.3V | - | 25 | 35 | mA |





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## 1.5 Optical Characteristics

VDD =3.3V, Ta=25°C

| Item | | Symbol | Condition | Min. | Typ. | Max. | unit | |
|---|---|---|---|---|---|---|---|---|
| Response time | | Tr + Tf | Ta = 25°C<br>θX, θY = 0° | - | 40 | 60 | ms | Note2 |
| Viewing angle | Top | θY+ | CR ≥ 10 | - | 80 | - | Deg. | Note4 |
| | Bottom | θY- | | - | 80 | - | | |
| | Left | θX- | | - | 80 | - | | |
| | Right | θX+ | | - | 80 | - | | |
| Contrast ratio | | CR | Ta = 25°C<br>θX , θY = 0° | 500 | 600 | - | - | - |
| Color of CIE Coordinate | White | X | | - | (0.32) | - | - | Note1 |
| | | Y | | - | (0.36) | - | | |
| | Red | X | | - | (0.58) | - | | |
| | | Y | | - | (0.33) | - | | |
| | Green | X | | - | (0.34) | - | | |
| | | Y | | - | (0.62) | - | | |
| | Blue | X | | - | (0.13) | - | | |
| | | Y | | - | (0.13) | - | | |
| Average Brightness (With LCD & TP ) *2 | | IV | IF= 20mA | - | (320) | - | cd/m$^2$ | Note1 |
| Uniformity (With LCD& TP ) *1 | | △ B | IF= 20mA | 70 | - | - | % | Note1 |

Note1:

1：△ B=B(min) / B(max) × 100%

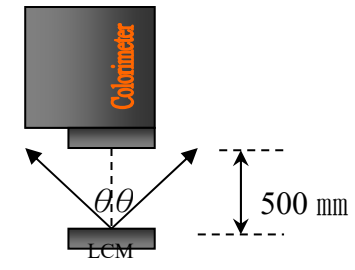
2：Measurement Condition for Optical Characteristics:

a：Environment: 25℃±5℃ / 60±20%R.H，no wind，dark room below 10 Lux at typical lamp current and typical operating frequency.

b：Measurement Distance: 500 ± 50 ㎜ ，(θ= 0°)

c：Equipment: TOPCON BM-7 fast，(field 1°)，after 10 minutes operation.

d：The uncertainty of the C.I.E coordinate measurement ±0.01，Average Brightness ± 4%

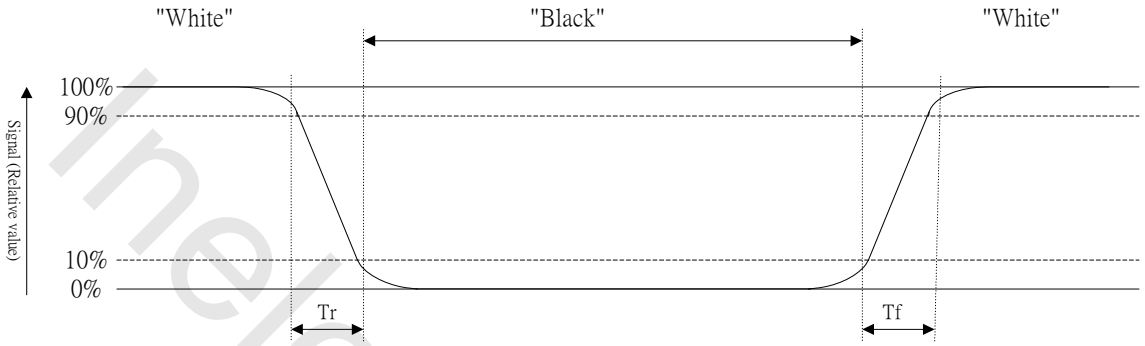




Colorimeter=BM-7 fast

Note2: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from “black” to “white”(falling time) and from “white” to “black”(rising time), respectively. The response time is defined as the time interval between the 10% and 90% of Amplitudes.

Refer to figure as below:



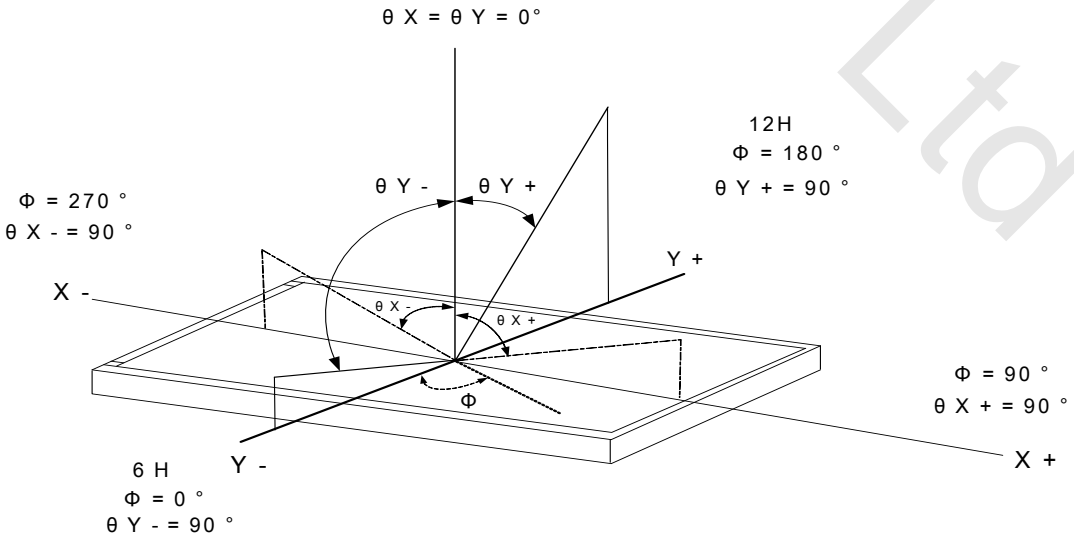

Note3: Definition of contrast ratio:

Contrast ratio is calculated with the following formula

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when LCD is at “White” state}}{\text{Photo detector output when LCD is at “Black” state}}$$

Note4: Definition of viewing angle:

Refer to figure as below:





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## 1.6 Backlight Characteristics

Maximum Ratings

| Item | Symbol | Conditions | Min. | Max. | Unit |
|---|---|---|---|---|---|
| LED Forward Current | IF | Ta =25℃ | - | - | mA |
| LED Reverse Voltage | VR | Ta =25℃ | - | - | V |
| Power Dissipation | PD | Ta =25℃ | - | - | mW |

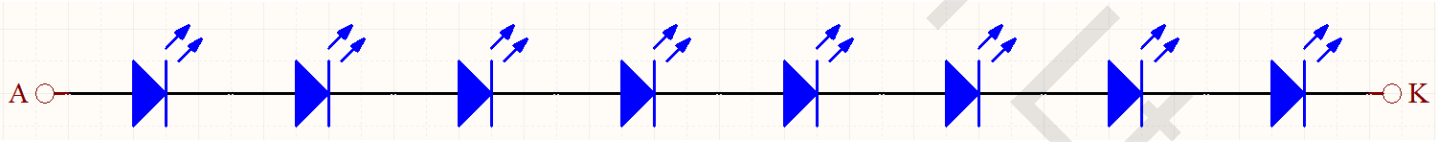
Electrical / Optical Characteristics

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|---|
| Forward Voltage | VF | IF=20mA | - | (24.8) | - | V | Note1 |
| Average Brightness (Without LCD ) | IV | | - | (6500) | - | $cd/m^2$ | - |
| CIE Color Coordinate (Without LCD ) | X | | - | (0.24) | - | - | - |
| | Y | | - | (0.24) | - | | |
| Color | White | | | | | | |

Note 1: The LED Supply Voltage is defined by the number of LED at Ta=25℃ and IL =20 mA .

Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and IL =20 mA. The LED life time could be decreased if operating IL is larger than 20 mA.

**Internal Circuit Diagram**




Other Description

| Item | Conditions | Description |
|---|---|---|
| Life Time* Note 2 | Ta =25℃<br>IF= 20mA | 20,000 hrs |





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## 1.7 Touch Panel Characteristics

### 1.7.1 Features

| Item | Standard Value |
|---|---|
| Touch Panel Size | 4.3” |
| Touch type | Projective capacitive touch panel |
| Input Method | Finger or Conductive Pen |
| Support Operation | 5 Points touch |
| Firmware Ver | - |
| Output Interface | I2C |
| IC | FT5446U |

### 1.7.2 I²C Address

| Bit7 | Bit6 | Bit5 | Bit4 | Bit3 | Bit2 | Bit1 | Bit0 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 0 | 0 | 0 | **R/W** |

### 1.7.3 Absolute Maximum Ratings

| Item | Symbol | Condition | Min. | Max. | unit |
|---|---|---|---|---|---|
| Operating Temperature | $T_{OP}$ | - | -20 | +70 | °C |
| Storage Temperature | $T_{ST}$ | - | -30 | +80 | °C |

### 1.7.4 DC Electrical Characteristics

| Item | Symbol | Condition | Min. | Typ. | Max. | unit |
|---|---|---|---|---|---|---|
| Power Supply Voltage | TPVDD | - | - | 3.3 | - | V |

### 1.7.5 Optical Characteristics

| Item | Standard Value | unit |
|---|---|---|
| Total light transmittance | 85% or more | - |
| Hardness Of Surface | ⩾7H | - |

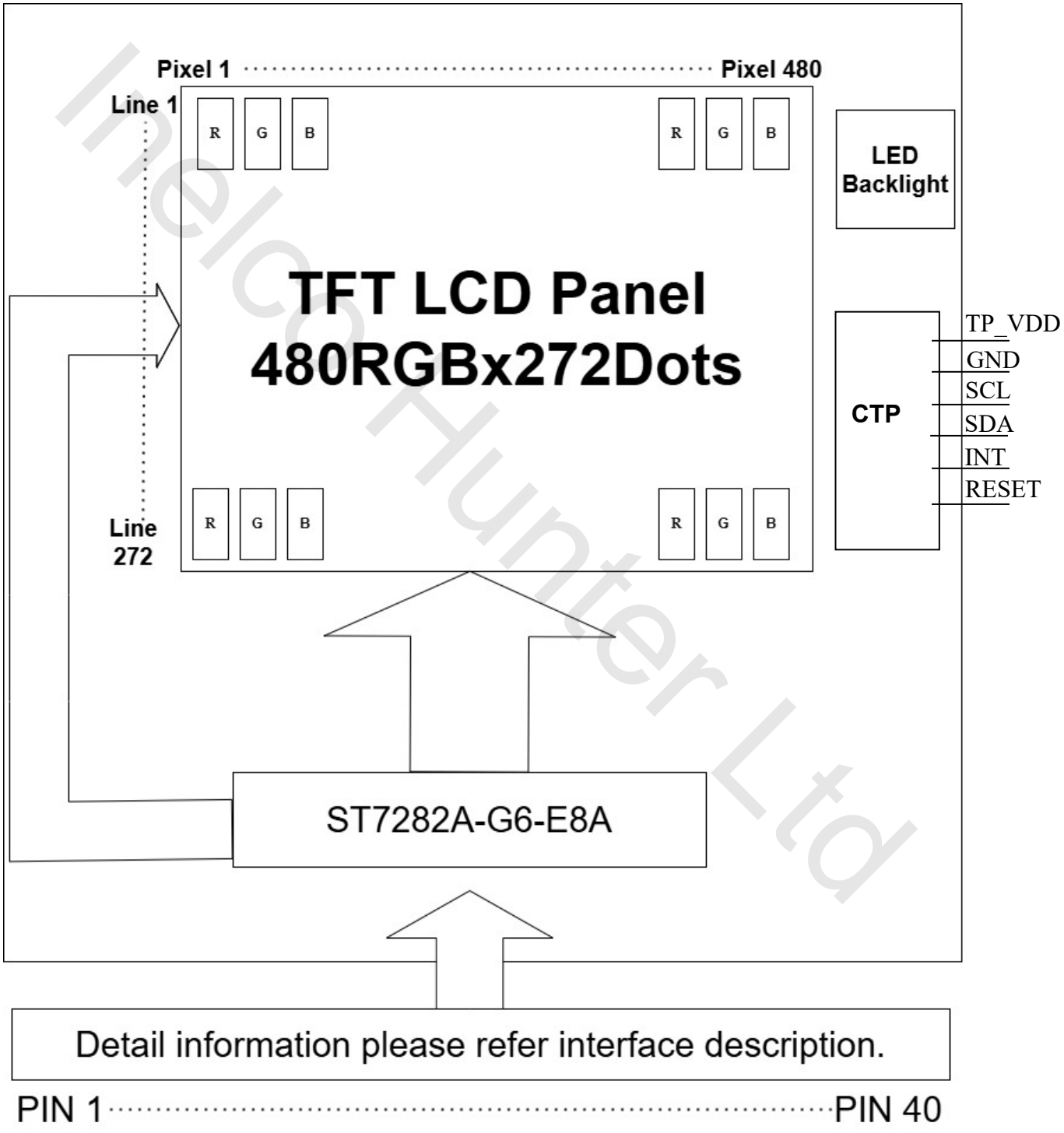
# 2. MODULE STRUCTURE

## 2.1 Counter Drawing

### 2.1.1 LCM Mechanical Diagram

* See Appendix

### 2.1.2 Block Diagram





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## 2.2 Interface Pin Description

| Pin No. | Symbol | Function |
|---|---|---|
| 1 | K | Power supply for LED Backlight cathode input |
| 2 | A | Power supply for LED Backlight anode input |
| 3 | GND | Ground |
| 4 | VDD | Digital power |
| 5 | DR0 | Red data bit 0 |
| 6 | DR1 | Red data bit 1 |
| 7 | DR2 | Red data bit 2 |
| 8 | DR3 | Red data bit 3 |
| 9 | DR4 | Red data bit 4 |
| 10 | DR5 | Red data bit 5 |
| 11 | DR6 | Red data bit 6 |
| 12 | DR7 | Red data bit 7 |
| 13 | DG0 | Green data bit 0 |
| 14 | DG1 | Green data bit 1 |
| 15 | DG2 | Green data bit 2 |
| 16 | DG3 | Green data bit 3 |
| 17 | DG4 | Green data bit 4 |
| 18 | DG5 | Green data bit 5 |
| 19 | DG6 | Green data bit 6 |
| 20 | DG7 | Green data bit 7 |
| 21 | DB0 | Blue data bit 0 |
| 22 | DB1 | Blue data bit 1 |
| 23 | DB2 | Blue data bit 2 |
| 24 | DB3 | Blue data bit 3 |
| 25 | DB4 | Blue data bit 4 |
| 26 | DB5 | Blue data bit 5 |
| 27 | DB6 | Blue data bit 6 |
| 28 | DB7 | Blue data bit 7 |





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| | | |
|---|---|---|
| 29 | GND | Ground |
| 30 | DCLK | Dot data clock. DCLK polarity: negative |
| 31 | DISP | Display control / standby mode selection<br>“High” : Normal display |
| 32 | HSYNC | Horizontal sync input. HSYNC polarity: negative. |
| 33 | VSYNC | Vertical sync input. VSYNC polarity: negative |
| 34 | DE | Data input enable. Active High to enable the data input |
| 35 | NC | Not Connection |
| 36 | GND | Ground |
| 37 | NC | Not Connection |
| 38 | NC | Not Connection |
| 39 | NC | Not Connection |
| 40 | NC | Not Connection |

## CTP interface

| Pin No. | Symbol | Function |
|---|---|---|
| 1 | TP_VDD | Power supply for CTP |
| 2 | GND | Ground |
| 3 | SCL | I2C Clock. |
| 4 | SDA | I2C Data. |
| 5 | INT | The interrupt from the CTP to the Host<br>H: CTP interrupt not requested<br>L: CTP request interrupt |
| 6 | RESET | RESET pin for CTP |





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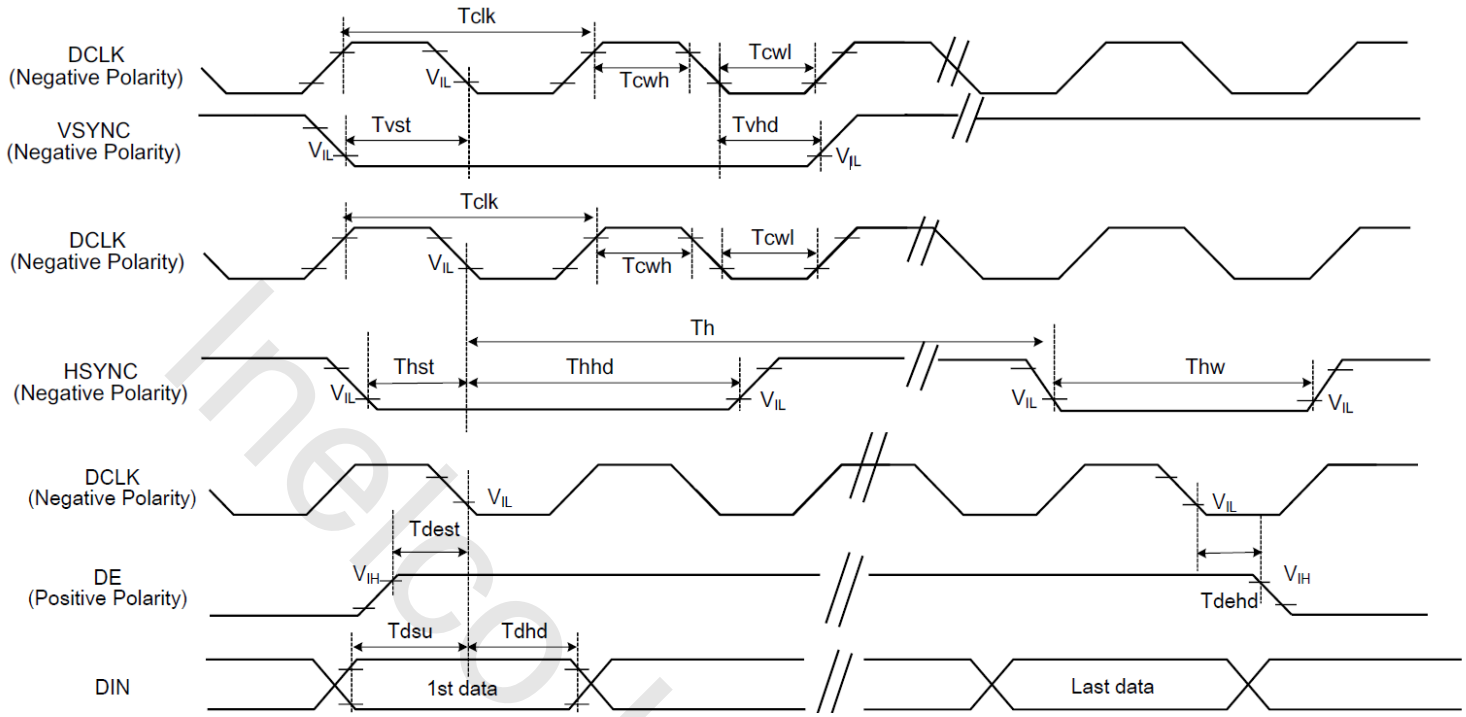
## 2.3 Timing Characteristics

### 2.3.1 Clock and Data Input Timing Diagram




| Parameters | Symbol | Spec | | | Unit | Conditions |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| CLK pulse duty | Tcw | 40 | 50 | 60 | % | |
| Hsync width | Thw | 2 | - | - | DCLK | |
| HSYNC period | Th | 55 | 60 | 65 | us | |
| VSYNC setup time | Tvst | 12 | -- | -- | ns | |
| VSYNC hold time | Tvhd | 12 | -- | -- | ns | |
| HSYNC setup time | Thst | 12 | -- | -- | ns | |
| HSYNC hold time | Thhd | 12 | -- | -- | ns | |
| Data setup time | Tdsu | 12 | -- | -- | ns | |
| Data hold time | Tdhd | 12 | -- | -- | ns | |
| DE setup time | Tdest | 10 | -- | -- | ns | |
| DE hold time | Tdehd | 10 | -- | -- | ns | |

**Parallel 24-bit RGB Input Timing Table**

| Parameters | | Symbol | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| DCLK frequency | | Fclk | 8 | 9 | 12 | MHz |
| DCLK Period | | Tclk | 83 | 111 | 125 | nS |
| HSYNC | Period Time | Th | 485 | 531 | 598 | DCLK |
| | Display Period | Thdisp | - | 480 | - | DCLK |
| | Back Porch | Thbp | 3 | 43 | 43 | DCLK |
| | Front Porch | Thfp | 2 | 8 | 75 | DCLK |
| | Pulse Width | Thw | 2 | 4 | 75 | DCLK |
| VSYNC | Period Time | Tvdisp | 276 | 292 | 321 | H |
| | Display Period | Tvbp | - | 272 | - | H |
| | Back Porch | Tvfp | 2 | 12 | 12 | H |
| | Front Porch | Tvw | 2 | 8 | 37 | H |
| | Pulse Width | Tvdisp | 2 | 4 | 37 | H |

## RGB Mode Selection Table

| RGB Mode Selection Table | DCLK | HSYNC | VSYNC | DE |
|---|---|---|---|---|
| SYNC - DE Mode | Input | Input | Input | Input |
| SYNC Mode | Input | Input | Input | GND |
| DE Mode | Input | GND | GND | Input |

Note: “Input” means these signals are driven by host side





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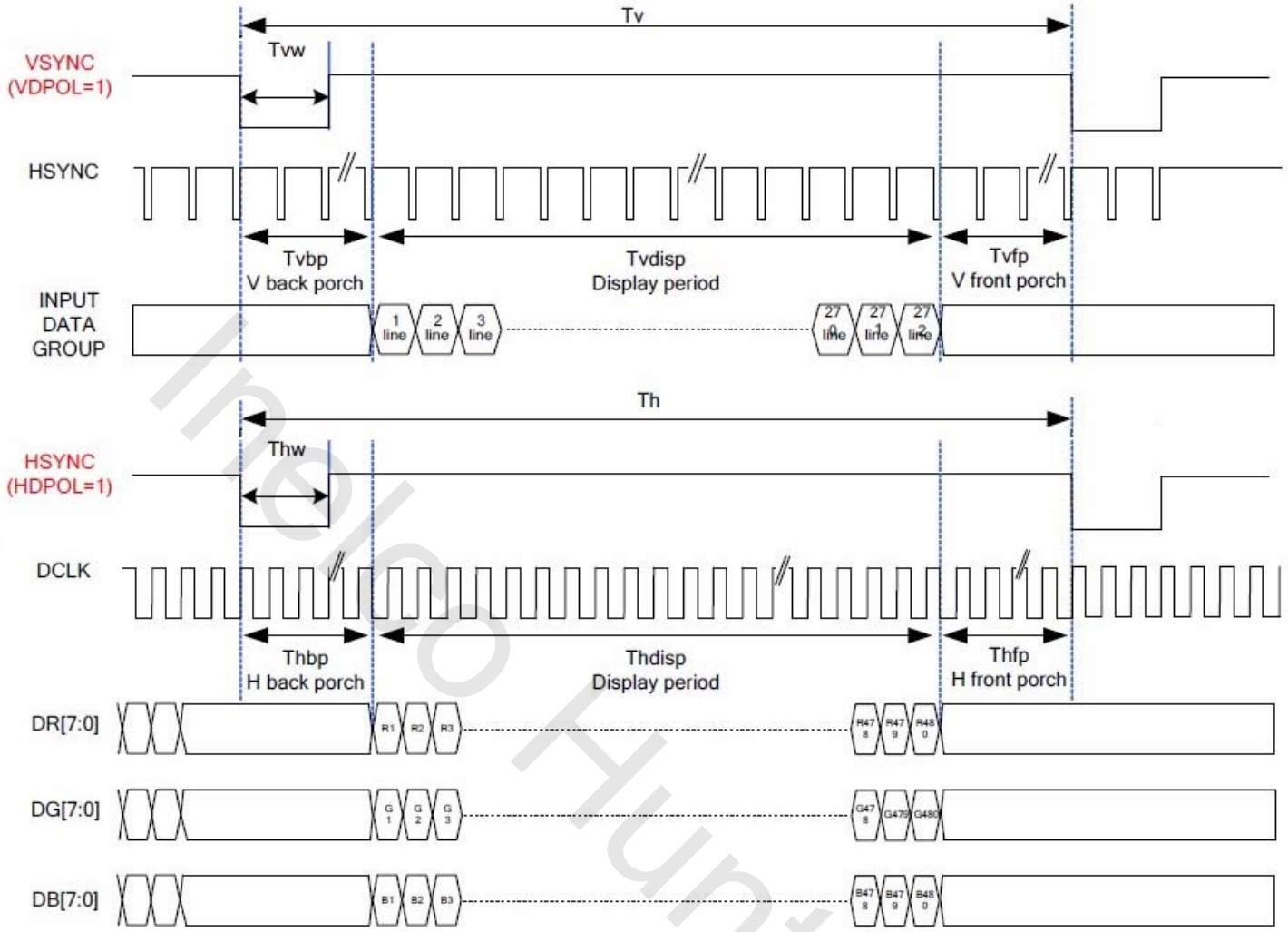
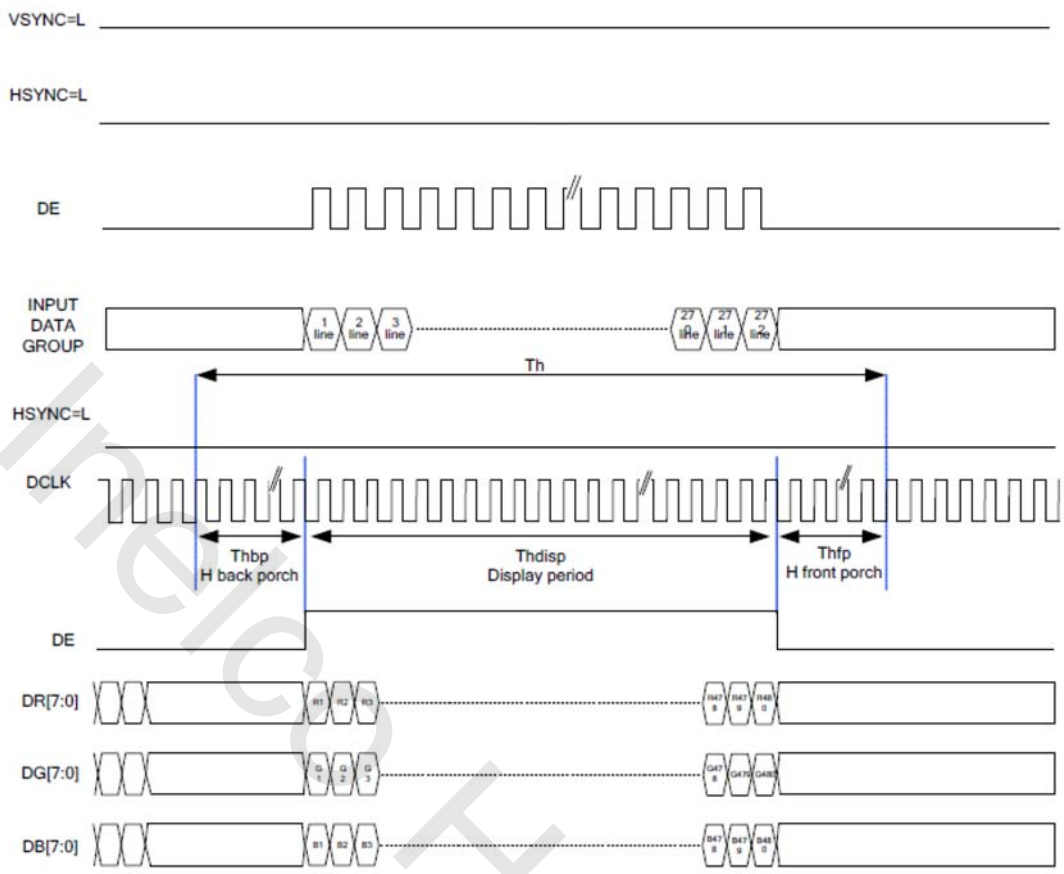
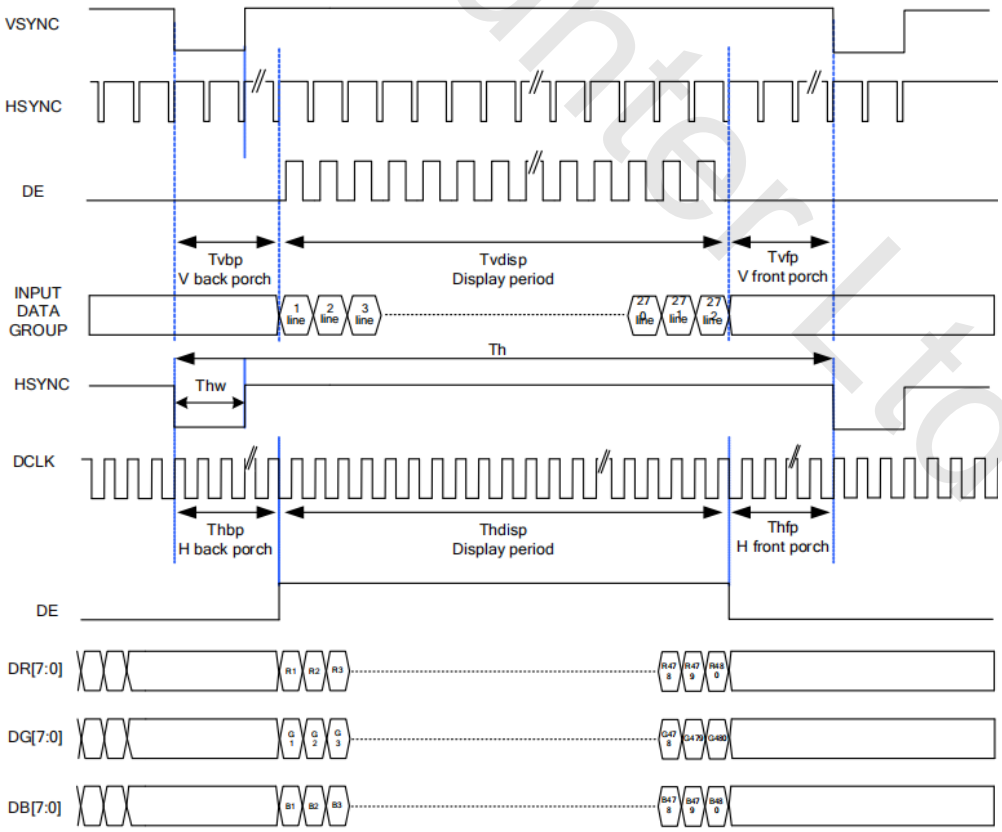



**SYNC Mode Timing Diagram**




**DE Mode Timing Diagram**




**SYNC-DE Mode Timing Diagram**





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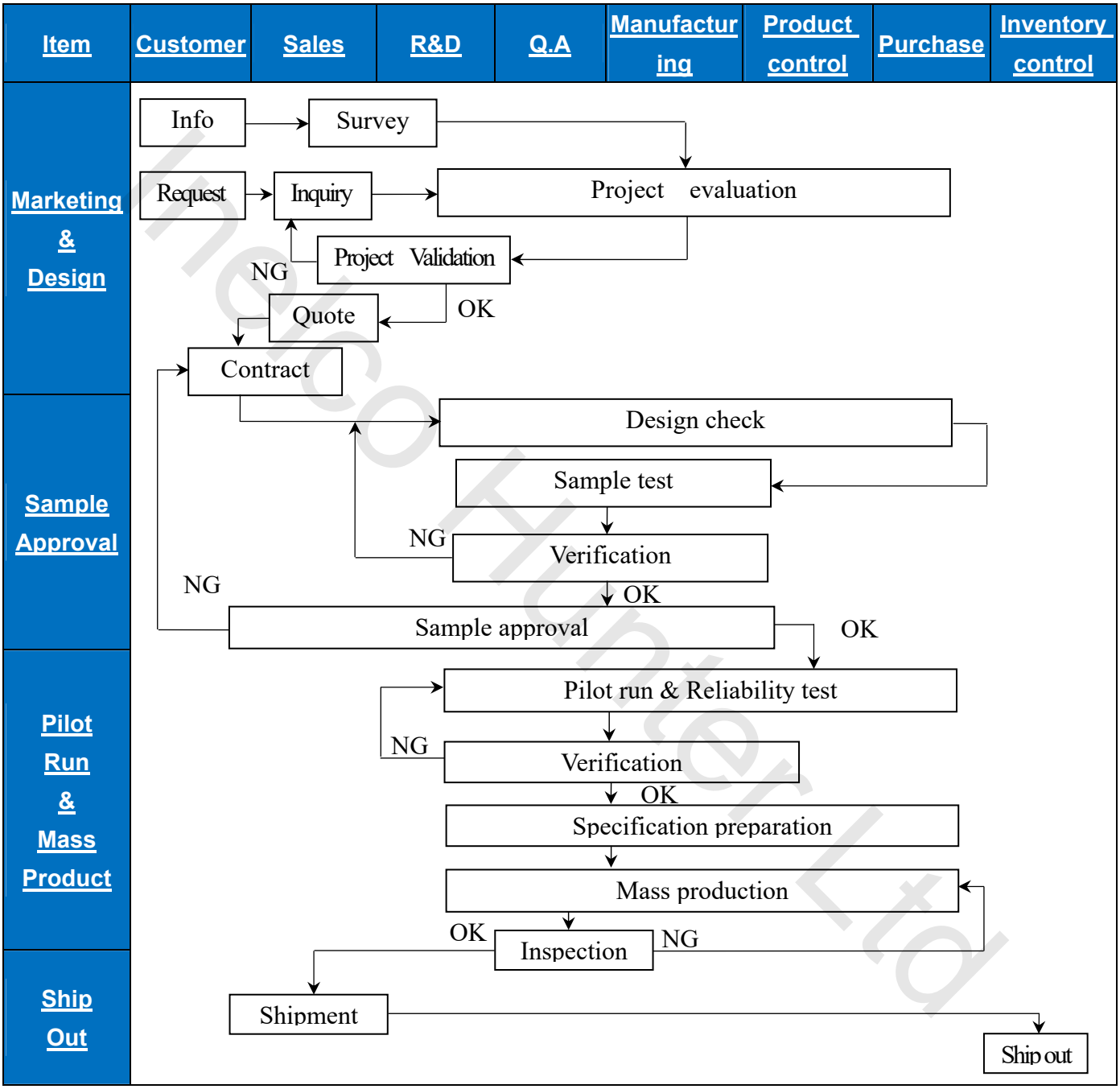
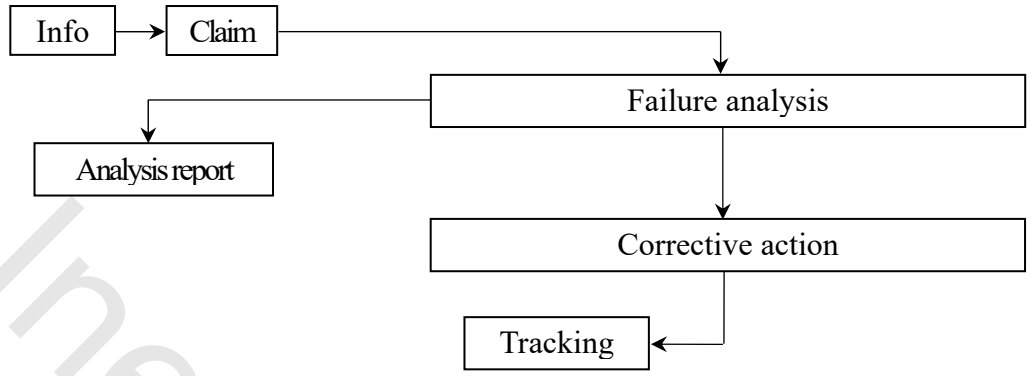
# 3. QUALITY ASSURANCE SYSTEM

## 3.1 Quality Assurance Flow Chart



| Item | Customer | Sales | R&D | Q.A | Manufacturing | Product control | Purchase | Inventory control |
|---|---|---|---|---|---|---|---|---|
| Sales Service |  | | | | | | | |
| Q.A Activity | 1. ISO 9001 Maintenance Activities<br>3. Equipment calibration<br>5. Standardisation Management | | | | 2. Process improvement proposal<br>4. Education and Training Activities | | | |







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## 3.2 Inspection Specification

◆Scope: The document shall be applied to TFT-LCD Module for 3.5”-20〞 (Ver.B01).

◆Inspection Standard: MIL-STD-105E Table Normal Inspection Single Sampling Level Ⅱ.

◆Equipment: Gauge, MIL-STD, IHL Tester, Sample

◆Defect Level: Major Defect AQL: 0.4; Minor Defect AQL: 1.5

◆OUT Going Defect Level: Sampling.

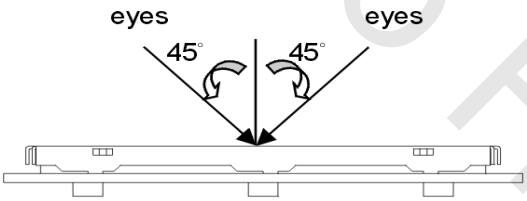
◆Standard of the product appearance test:

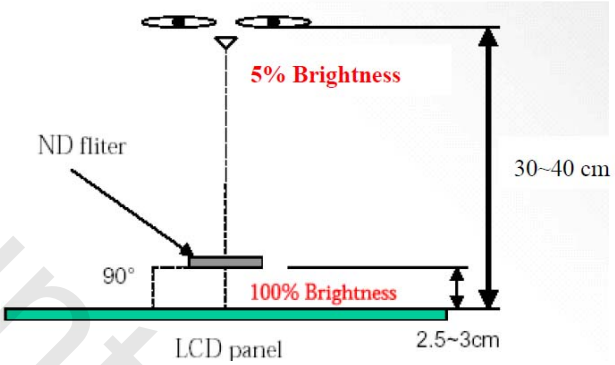
a. Manner of appearance test:

(1). The test best be under 20W×2 fluorescent light(about 300lux ～500lux)

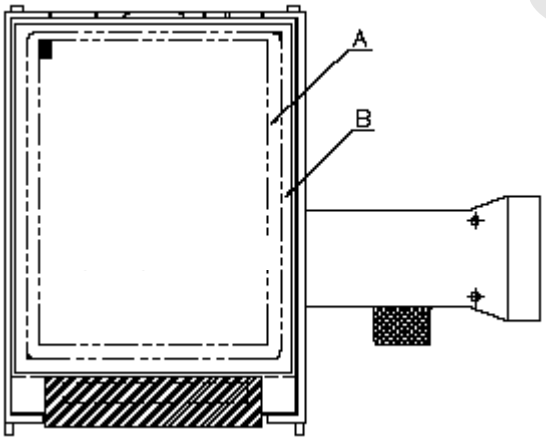
, and distance of view must be at 30~40 cm.

(2). The test direction is base on about around 45˚ of vertical line.




(3). Definition of area.




A area: viewing area

B area: Outside of viewing area

(4). Standard of inspection： (Unit：mm)

◆Specification for TFT-LCD Module 3.5”~20”: (Ver.B01)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">Product condition</td><td>1.1The part number is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>1.2 Mixed product types.</td><td>Major</td></tr>
<tr><td>1.3 Assembled in inverse direction.</td><td>Major</td></tr>
<tr><td>02</td><td>Quantity</td><td>2.1 The quantity is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>03</td><td>Outline dimension</td><td>3.1 Product dimension and structure must conform to structure diagram.</td><td>Major</td></tr>
<tr><td rowspan="6">04</td><td rowspan="6">Electrical Testing</td><td>4.1 Missing line character and icon.</td><td>Major</td></tr>
<tr><td>4.2 No function or no display.</td><td>Major</td></tr>
<tr><td>4.3 Display malfunction.</td><td>Major</td></tr>
<tr><td>4.4 LCD viewing angle defect.</td><td>Major</td></tr>
<tr><td>4.5 Current consumption exceeds product specifications.</td><td>Major</td></tr>
<tr><td>4.6Mura cannot be seen through 5% ND filter at 50% Gray , should be judged by the viewing angle of 90 degree.</td><td>Minor</td></tr>
<tr><td>05</td><td>Dot defect<br><br>(Bright dot, Dark dot)<br><br>On -display</td><td>
<table>
<tr><th colspan="2">Item</th><th>Acceptance (Q’ty)</th></tr>
<tr><td rowspan="4">Dot Defect</td><td>Bright Dot</td><td>≦ 4</td></tr>
<tr><td>Dark Dot</td><td>≦ 5</td></tr>
<tr><td>Joint Dot</td><td>≦ 3</td></tr>
<tr><td>Total</td><td>≦ 7</td></tr>
</table>
5.1 Inspection pattern: full white, full black, Red, Green and blue screens.<br>
5.2 It is defined as dot defect if defect area ＞1/2 dot.<br>
5.3 The distance between two dot defect ≧5 mm.<br>
5.4 Bright dot : Dots appear bright and unchanged in visible with 5% ND filter is defined.<br>
5.5 Tiny bright dot: bright dot area ≦1/2 dot.<br>
a. Dots appear bright and unchanged in visible with 5% ND filter is defined defect and is judged in accordance with 6.1<br>
b. Dots invisible with 5% ND Filter is Ignored.
</td><td>Minor</td></tr>
</table>





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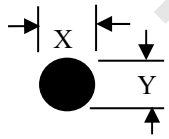
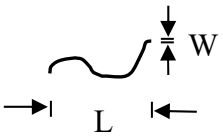
◆Specification for TFT-LCD Module 3.5″ ~20″ : (Ver.B01)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>06</td><td>Black or white Dot, scratch, contamination<br><br>Round type<br>  <br><br>Φ= (x+y) / 2<br><br>Line type<br>  <br></td><td>
6.1 Round type (Non-display or display):
<table>
<tr><th rowspan="2">Dimension (diameter: Φ)</th><th colspan="2">Acceptance (Q'ty)</th></tr>
<tr><th>A area</th><th>B area</th></tr>
<tr><td>Φ ≦ 0.25</td><td>Ignore</td><td rowspan="4">Ignore</td></tr>
<tr><td>0.25 ＜ Φ ≦ 0.50</td><td>5</td></tr>
<tr><td>Φ ＞ 0.50</td><td>0</td></tr>
<tr><td>Total</td><td>5</td></tr>
</table>
6.2 Line type(Non-display or display):
<table>
<tr><th rowspan="2">module size</th><th rowspan="2">Length (L)</th><th rowspan="2">Width (W)</th><th colspan="2">Acceptance (Q'ty)</th></tr>
<tr><th>A area</th><th>B area</th></tr>
<tr><td rowspan="5">3.5” to less 9”</td><td>---</td><td>W ≦ 0.03</td><td>Ignore</td><td rowspan="5">Ignore</td></tr>
<tr><td>L ≦10.0</td><td>0.03 ＜W ≦ 0.05</td><td>4</td></tr>
<tr><td>L ≦5.0</td><td>0.05 ＜W ≦ 0.10</td><td>2</td></tr>
<tr><td>---</td><td>W ＞0.10</td><td>As round type</td></tr>
<tr><td colspan="2">Total</td><td>5</td></tr>
<tr><td rowspan="4">9” to 20”</td><td>---</td><td>W ≦ 0.05</td><td>Ignore</td><td rowspan="4">Ignore</td></tr>
<tr><td>L ≦10.0</td><td>0.05 ＜W ≦ 0.10</td><td>5</td></tr>
<tr><td>---</td><td>W ＞ 0.10</td><td>As round type</td></tr>
<tr><td colspan="2">Total</td><td>5</td></tr>
</table>
</td><td>Minor</td></tr>
<tr><td>07</td><td>Polarizer Bubble</td><td>
<table>
<tr><th rowspan="2">Dimension (diameter: Φ)</th><th colspan="2">Acceptance (Q'ty)</th></tr>
<tr><th>A area</th><th>B area</th></tr>
<tr><td>Φ ≦ 0.25</td><td>Ignore</td><td rowspan="5">Ignore</td></tr>
<tr><td>0.25 ＜ Φ ≦ 0.50</td><td>4</td></tr>
<tr><td>0.50 ＜ Φ ≦ 0.80</td><td>1</td></tr>
<tr><td>Φ ＞0.80</td><td>0</td></tr>
<tr><td>Total</td><td>5</td></tr>
</table>
</td><td>Minor</td></tr>
</table>





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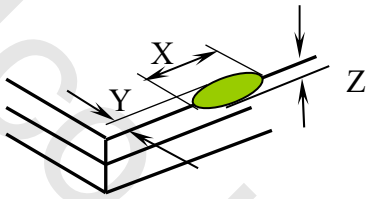
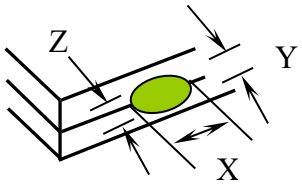
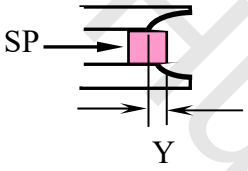
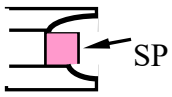
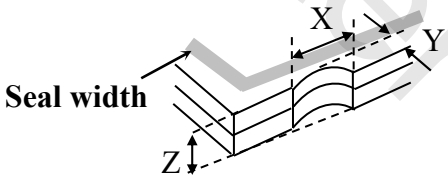
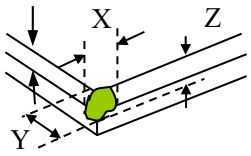
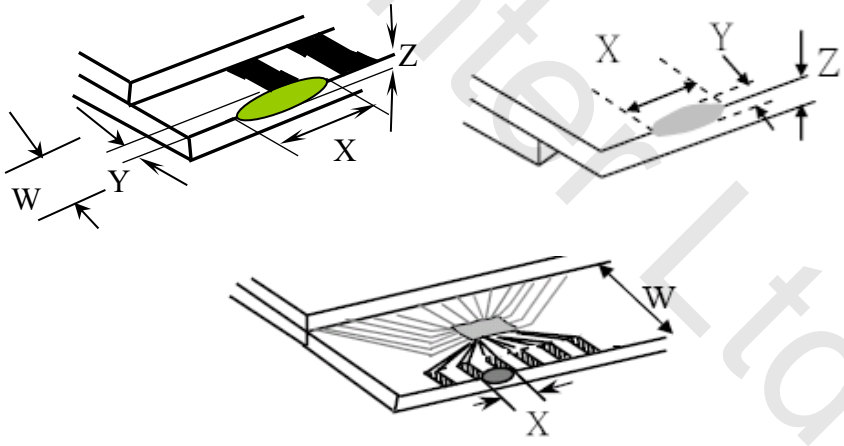
◆Specification for TFT-LCD Module 3.5″ ~20″ : (Ver.B01)

| NO | Item | Criterion | Level |
|---|---|---|---|
| 08 | The crack of glass | Symbols :<br>X: The length of crack Y: The width of crack.<br>Z: The thickness of crack W: terminal length<br>T: The thickness of glass a : LCD side length<br>8.1 General glass chip:<br>8.1.1 Chip on panel surface and crack between panels:<br>  <br><br>  <br><br>  <br><br>【OK】<br>  <br><br>【NG】<br>  <br> | Minor |

| X | Y | Z |
|---|---|---|
| ≦ a | Crack can't enter viewing area | ≦1/2 t |
| ≦a | Crack can't exceed the half of SP width. | 1/2 t < Z ≦2 t |

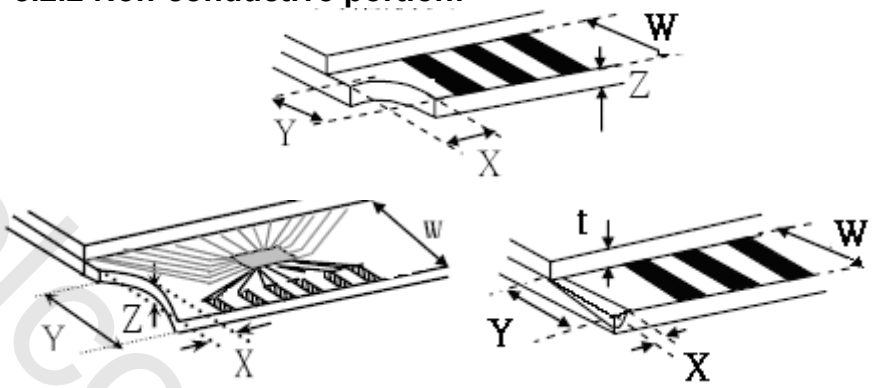
◆Specification for TFT-LCD Module 3.5″ ~20″ : (Ver.B01)

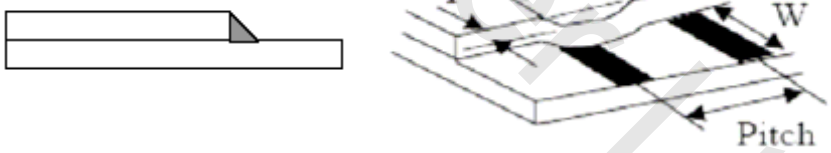
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="2">08</td><td rowspan="2">The crack of glass</td><td>
Symbols :<br><br>
X: The length of crack Y: The width of crack.<br>
Z: The thickness of crack W: terminal length<br>
t: The thickness of glass a: LCD side length<br><br>
8.1.2 Corner crack:<br>


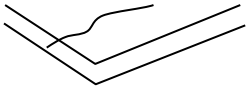
<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦1/5 a</td><td>Crack can't enter viewing area</td><td>Z ≦ 1/2 t</td></tr>
<tr><td>≦1/5 a</td><td>Crack can't exceed the half of SP width.</td><td>1/2 t < Z ≦ 2 t</td></tr>
</table>
</td><td rowspan="2">Minor</td></tr>
<tr><td>
8.2 Protrusion over terminal:<br>
8.2.1 Chip on electrode pad:<br>


<table>
<tr><th></th><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>Front</td><td>≦ a</td><td>≦ 1/2 W</td><td>≦ t</td></tr>
<tr><td>Back</td><td>≦ a</td><td>≦ W</td><td>≦ 1/2 t</td></tr>
</table>
</td></tr>
</table>

◆Specification for TFT-LCD Module 3.5″ ~20″ : (Ver.B01)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>08</td><td>The crack of glass</td><td>
Symbols:<br><br>
X: The length of crack Y: The width of crack.<br>
Z: The thickness of crack W: terminal length<br>
t: The thickness of glass a: LCD side length<br><br>
8.2.2 Non-conductive portion:<br>


<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦ 1/3 a</td><td>≦ W</td><td>≦t</td></tr>
</table>
⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications<br>
8.2.3 Glass remain:<br>


<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦ a</td><td>≦ 1/3 W</td><td>≦t</td></tr>
</table>
8.2.4 Cracking:<br>

Not Allowed
</td><td>Minor</td></tr>
</table>

◆Specification for TFT-LCD Module 3.5″ ~20″ : (Ver.B01)

| NO | Item | Criterion | Level |
|---|---|---|---|
| 09 | Backlight elements | 9.1 Backlight can't work normally. | Major |
| | | 9.2 Backlight doesn't light or color is wrong. | Major |
| | | 9.3 Illumination source flickers when lit. | Major |
| 10 | General appearance | 10.1 Pin type, quantity, dimension must match type in structure diagram. | Major |
| | | 10.2 No short circuits in components on PCB or FPC. | Major |
| | | 10.3 Parts on PCB or FPC must be: no wrong parts, missing parts or excess parts. | Major |
| | | 10.4 Product packaging must the same as specified on packaging specification sheet. | Minor |
| | | 10.5 The folding and peeled off in polarizer are not acceptable. | Minor |
| | | 10.6 The PCB or FPC between B/L assembled distance(PCB or FPC ) is ≦1.5 mm. | Minor |





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## 4. Reliability Test

### 4.1 Reliability Test Condition (Ver.B01)

| NO. | TEST ITEM | TEST CONDITION |
|---|---|---|
| 1 | High Temperature Storage Test | Keep in 80 ±5℃ 240 hrs |
| 2 | Low Temperature Storage Test | Keep in -30 ±5℃ 240 hrs |
| 3 | High Temperature / High Humidity Storage Test | Keep in 60 ℃ / 90% R.H duration for 240 hrs (Excluding the polarizer) |
| 4 | Temperature Cycling Storage Test | -30℃ → +25℃ → 80℃ → +25℃<br>(30mins) (5mins) (30mins) (5mins)<br>20 Cycle |
| 5 | ESD Test | Air Discharge: Apply 2 KV with 5 times Discharge for each polarity +/- / Contact Discharge: Apply 250 V with 5 times discharge for each polarity +/-<br>1. Temperature ambiance: 15℃～35℃<br>2. Humidity relative: 30%～60%<br>3. Energy Storage Capacitance(Cs+Cd): 150pF±10%<br>4. Discharge Resistance(Rd): 330Ω±10%<br>5. Discharge, mode of operation:<br>Single Discharge (time between successive discharges at least 1 sec) (Tolerance if the output voltage indication: ±5%) |
| 6 | Vibration Test (Packaged) | 1. Sine wave 10～55 Hz frequency (1 min/sweep)<br>2. The amplitude of vibration: 1.5 mm<br>3. Each direction (X, Y, Z) duration for 2 hrs |
| 7 | Drop Test (Packaged) | Packing Weight (Kg) / Drop Height (cm): 0 ~ 45.4 / 122; 45.4 ~ 90.8 / 76; 90.8 ~ 454 / 61; Over 454 / 46<br>Drop Direction :※1 corner / 3 edges / 6 sides each 1time |

**◎Result Evaluation Criteria :**
**Under the display quality test conditions with normal operations with normal operation state. Do not change these conditions as such changes may affect practical display function.**
**(Normal operation state)**
**Temperature：+20~30°C**
**Humidity：50~70%**
**Atmospheric pressure：86~106Kpa**

# 5. PRECAUTION RELATING PRODUCT HANDLING

## 5.1 SAFETY

5.1.1 If the LCD panel breaks, be careful not to get the liquid crystal to touch your skin.

5.1.2 If the liquid crystal touches your skin or clothes, please wash it off immediately by using soap and water.

## 5.2 HANDLING

5.2.1 Avoid any strong mechanical shock which can break the glass.

5.2.2 Avoid static electricity which can damage the CMOS LSI—When working with the module, be sure to ground your body and any electrical equipment you may be using.

5.2.3 Do not remove the panel or frame from the module.

5.2.4 The polarizing plate of the display is very fragile. So, please handle it very carefully, do not touch, push or rub the exposed polarising with anything harder than an HB pencil lead (glass, tweezers, etc.)

5.2.5 Do not wipe the polarising plate with a dry cloth, as it may easily scratch the surface of plate.

5.2.6 Do not touch the display area with bare hands, this will stain the display area.

5.2.7 Do not use ketonic solvent & aromatic solvent. Use with a soft cloth soaked with a cleaning naphtha solvent.

5.2.8 To control temperature and time of soldering is 320 ± 10℃ and 3 ~ 5 sec.

5.2.9 To avoid liquid (include organic solvent) stained on LCM.

5.2.10 Caution! (LCM products with Capacitive Touch Panel)
Strong EMI-sources such as switch-mode power supplies (SPS) can lead to touch malfunction (e.g., ghost-touches). Therefore, the touch needs to be thoroughly tested inside the target application.

5.2.11 CAUTION: Continuously displaying same static image will result in high possibility of image sticking/image burn-in effect due to TFT panel characteristic.

5.2.12 Double-sided tape designed to be attached with the customer's mechanical device, please follow up the rules and regulations published by the original manufacturer of double-side tape for the attachment operation.

## 5.3 STORAGE

5.3.1 Store the panel or module in a dark place where the temperature is 25℃ ± 5℃ and the humidity is below 65% RH.

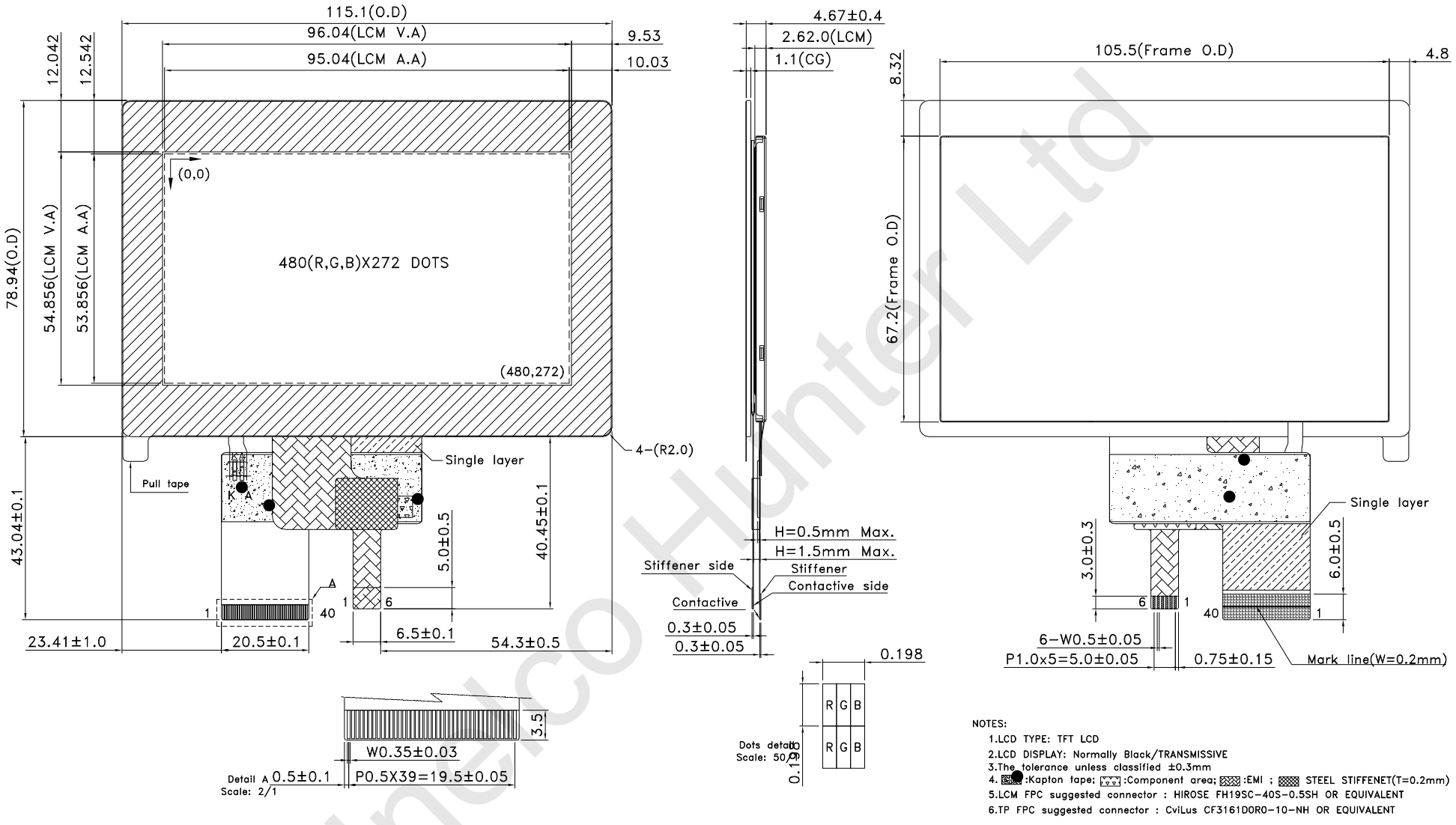
5.3.2 Do not place the module near organics solvents or corrosive gases.

5.3.3 Do not crush, shake, or jolt the module.

## 5.4 TERMS OF WARRANTY

5.4.1 Applicable warrant period
The period is within thirteen months since the date of shipping out under normal using and storage conditions.

5.4.2 Unaccepted responsibility
This product has been manufactured to your company's specification as a part for use in your company's general electronic products. It is guaranteed to perform according to delivery specifications. For any other use apart from general electronic equipment, we cannot take responsibility if the product is used in nuclear power control equipment, aerospace equipment, fire and security systems or any other applications in which there is a direct risk to human life and where extremely high levels of reliability are required.




NOTES:

1.LCD TYPE: TFT LCD
2.LCD DISPLAY: Normally Black/TRANSMISSIVE
3.The tolerance unless classified ±0.3mm
4. :Kapton tape; :Component area; :EMI ; STEEL STIFFENET(T=0.2mm)
5.LCM FPC suggested connector : HIROSE FH19SC-40S-0.5SH OR EQUIVALENT
6.TP FPC suggested connector : CviLus CF3161DOR0-10-NH OR EQUIVALENT

| REV | REV BY | REVISER | DATE |
|---|---|---|---|
| 007 | | | |
| 006 | | | |
| 005 | | | |
| 004 | | | |
| 003 | | | |
| 002 | | | |
| 001 | NEW DRAWING | Joy | 2025/03/20 |

PART NO: JXT480272T017-ZBR

DRAWING NAME : LMD-JXT480272T017-ZBR

TITLE: LCD MODULE DRAWING

Inelco Hunter Limited

| | | | |
|---|---|---|---|
| Design | Joy Tseng | Surface | |
| Check | Tina Chen | Unit | MM |
| Approve | Bright Chiang | Material | |
| Scale | 1:1 | Thickness | |
| Page | 1/1 | Quantity | |

| Length(Min) (mm) \ Tolerance Precision | Precision Level |
|---|---|
| 1 ~ 4 | - |
| 4 ~ 16 | - |
| 16 ~ 63 | - |
| 63 ~ 250 | - |
| 250 ~ 1000 | - |