

## SPECIFICATIONS

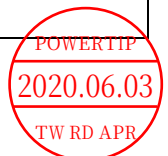
|                        |   |                                   |
|------------------------|---|-----------------------------------|
| CUSTOMER               | : |                                   |
| SAMPLE CODE            | : | SH320240T028-ZHC01                |
| MASS PRODUCTION CODE   | : | PH320240T028-ZHC01                |
| PCAP FIRMWARE VERSION  | : | CW035012_V2_20171117.bin          |
| SAMPLE VERSION         | : | 01                                |
| SPECIFICATIONS EDITION | : | 004                               |
| DRAWING NO. (Ver.)     | : | LMD-PH320240T028-ZHC01 (Ver.002)  |
| PACKAGING NO. (Ver.)   | : | PKG- PH320240T028-ZHC01 (Ver.001) |

**Customer Approved**

Date:

| Approved        | Checked           | Designer           |
|-----------------|-------------------|--------------------|
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- ☐ Preliminary specification for design input  
☒ Specification for sample approval



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## History of Version

| Date<br>(mm / dd / yyyy) | Ver. | Edi. | Description                                                                          | Page               | Design by |
|--------------------------|------|------|--------------------------------------------------------------------------------------|--------------------|-----------|
| 06/14/2019               | 01   | 001  | New Drawing                                                                          | --                 | Howard    |
| 10/31/2019               | 01   | 002  | New Sample<br>Add Ts Note1 & Ta Note 2<br>Modify Component height and Add Print Line | -<br>5<br>Appendix | Howard    |
| 04/20/2020               | 01   | 003  | According to customer request modify Contents                                        | -                  | Howard    |
| 06/02/2020               | 01   | 004  | According to customer request modify Contents                                        | -                  | Howard    |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
|                          |      |      |                                                                                      |                    |           |
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|                          |      |      |                                                                                      |                    |           |

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Note: For detailed information please refer to IC data sheet:

Primacy(TFT LCD):

Sitronix: ST7272A

## 1. SPECIFICATIONS

### 1.1 Features

| <u>Item</u>                 | <u>Standard Value</u>                                                                                                                                                                                                     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display Type                | 320 * 3 (RGB) * 240 Dots                                                                                                                                                                                                  |
| LCD Type                    | Full Viewing Angle, Normally Black, Transmissive type                                                                                                                                                                     |
| Screen size(inch)           | 3.5 inch                                                                                                                                                                                                                  |
| Surface treatment           | Anti-Glare                                                                                                                                                                                                                |
| Color configuration         | RGB-Strip                                                                                                                                                                                                                 |
| Backlight Type              | White LED B/L                                                                                                                                                                                                             |
| Interface                   | Parallel RGB (Data), SPI (Configuration)                                                                                                                                                                                  |
| Other(controller/driver IC) | ST7272A<br>(Or Compatible IC)                                                                                                                                                                                             |
| ROHS                        | THIS PRODUCT CONFORMS THE ROHS OF PTC<br>Detail information please refer website :<br><a href="http://www.powertip.com.tw/news_detail.php?Key=1&amp;cID=1">http://www.powertip.com.tw/news_detail.php?Key=1&amp;cID=1</a> |

### 1.2 Mechanical Specifications

| <u>Item</u>       | <u>Standard Value</u>       | <u>Unit</u> |
|-------------------|-----------------------------|-------------|
| Outline Dimension | 76.9(W) * 63.9(L) * 5.05(H) | mm          |

#### LCD Panel

| <u>Item</u> | <u>Standard Value</u> | <u>Unit</u> |
|-------------|-----------------------|-------------|
| Active Area | 70.08(W) * 52.56(L)   | mm          |
| Pixel Size  | 0.219(W) * 0.219(H)   | mm          |

Note: For detailed information please refer to LCM drawing

## 1.3 Absolute Maximum Ratings

### Module

| Item                            | Symbol               | Condition | Min. | Max.  | Unit | Remark |
|---------------------------------|----------------------|-----------|------|-------|------|--------|
| Power Supply for TFT Panel      | VDD                  | GND=0     | -0.3 | 4.5   | V    |        |
| Power Supply for Backlight Unit | VCC                  | GND=0     | -0.3 | +20.0 | V    |        |
| Operating Temperature           | T <sub>OP</sub> (Ts) | Note 1    | -20  | 70    | °C   |        |
| Storage Temperature             | T <sub>ST</sub> (Ta) | Note 2    | -30  | 80    | °C   |        |

The absolute maximum rating values of this product are not allowed to be exceeded at any time. 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

### Module

GND = 0V, Ta = 25°C

| Item                              | Symbol          | Condition    | Min.   | Typ. | Max.   | Unit |
|-----------------------------------|-----------------|--------------|--------|------|--------|------|
| Power Supply for TFT Panel        | VDD             | GND=0V       | 3.0    | 3.3  | 3.6    | V    |
| Power Supply for Backlight Unit   | VCC             | GND=0V       | 5      | 12   | 15     | V    |
| Input Voltage for TFT Panel       | V <sub>IH</sub> | GND=0V       | 0.7VDD | -    | VDD    | V    |
|                                   | V <sub>IL</sub> | GND=0V       | 0      | -    | 0.3VDD |      |
| Supply Current for TFT Panel      | IDD             | IDD@VDD=3.3V | -      | 25   | 40     | mA   |
| Supply Current for Backlight Unit | ICC             | ICC@VCC=5V   | -      | 170  | 260    |      |
| Supply Current for Backlight Unit | ICC             | ICC@VCC=12V  | -      | 70   | 105    |      |
| Input Voltage for PWM Signal      | VPH             | GND=0V       | 1.2    | -    | -      | V    |
|                                   | VPL             | GND=0V       | -      | -    | 0.4    | V    |
| Dimming Clock Rate                | fP              | GND=0V       | 5      | -    | 100    | KHz  |

## 1.5 Optical Characteristics

TFT LCD Module

VDD = 3.3 V, Ta=25°C

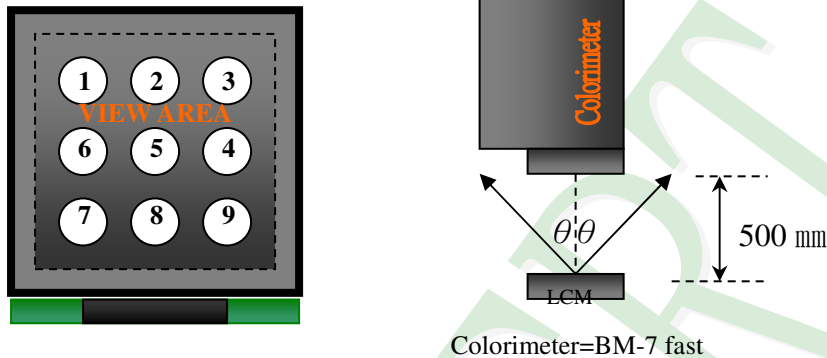
| Item                                                              | Symbol |     | Condition                              | Min. | Typ. | Max. | unit              |        |
|-------------------------------------------------------------------|--------|-----|----------------------------------------|------|------|------|-------------------|--------|
| Response time                                                     | Tr+Tf  |     | Ta = 25°C<br>θX, θY = 0°               | -    | 30   | 40   | ms                | Note 2 |
| Viewing angle                                                     | Top    | θY+ | CR ≥ 10                                | -    | 80   | -    | Deg.              | Note 4 |
|                                                                   | Bottom | θY- |                                        | -    | 80   | -    |                   |        |
|                                                                   | Left   | θX- |                                        | -    | 80   | -    |                   |        |
|                                                                   | Right  | θX+ |                                        | -    | 80   | -    |                   |        |
| Contrast ratio                                                    |        | CR  | Ta = 25°C<br>θX, θY = 0°               | 650  | 800  | -    |                   | Note 3 |
| Color of CIE<br>Coordinate<br>(With B/L & TP)                     | White  | X   |                                        | 0.23 | 0.28 | 0.33 | -                 | Note1  |
|                                                                   |        | Y   |                                        | 0.27 | 0.32 | 0.37 |                   |        |
|                                                                   | Red    | X   |                                        | 0.57 | 0.62 | 0.67 |                   |        |
|                                                                   |        | Y   |                                        | 0.31 | 0.36 | 0.41 |                   |        |
|                                                                   | Green  | X   |                                        | 0.29 | 0.34 | 0.39 |                   |        |
|                                                                   |        | Y   |                                        | 0.55 | 0.60 | 0.65 |                   |        |
|                                                                   | Blue   | X   |                                        | 0.09 | 0.14 | 0.19 |                   |        |
|                                                                   |        | Y   |                                        | 0.04 | 0.09 | 0.14 |                   |        |
| Average Brightness<br>Pattern=white display<br>(With B/L & TP) *1 | IF     |     | VCC=12.0V<br>PWM="High"<br>(Duty=100%) | 650  | 800  | -    | cd/m <sup>2</sup> | Note1  |
| Uniformity<br>(With B/L & TP) *2                                  | ΔB     |     | VCC=12.0V<br>PWM="High"<br>(Duty=100%) | 70   | -    | -    | %                 | Note1  |

Note 1:

\*1:  $\Delta B = B(\min) / B(\max) * 100\%$

\*2: Measurement Condition for Optical Characteristics:

- a: Environment:  $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$  /  $60 \pm 20\%$  R.H, no wind, dark room below 10 Lux at typical lamp current and typical operating frequency
- b: Measurement Distance:  $500 \pm 50$  mm, ( $\theta = 0^{\circ}$ )
- c: Equipment: TOPCON BM-7 fast, (field  $1^{\circ}$ ), after 10 minutes operation
- d: The uncertainty of the C.I.E coordinate measurement  $\pm 0.01$ , Average Brightness  $\pm 4\%$



To be measured at the center area of panel with a viewing cone of  $1^{\circ}$  by Topcon luminance meter BM-7, after 10 minutes operation (module)

Note 2: Definition of response time:

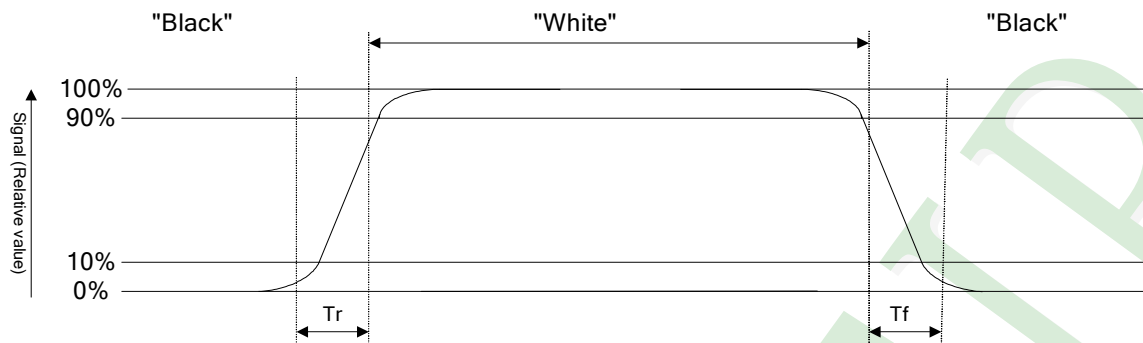
The output signals of photo detector are measured when the input signals are changed from "black" to "white" (falling time) and from "white" to "black" (rising time), respectively. The response time is defined as the time interval between the 10% and 90% of Amplitudes.

Refer to figure as below:

Normally White



## Normally Black



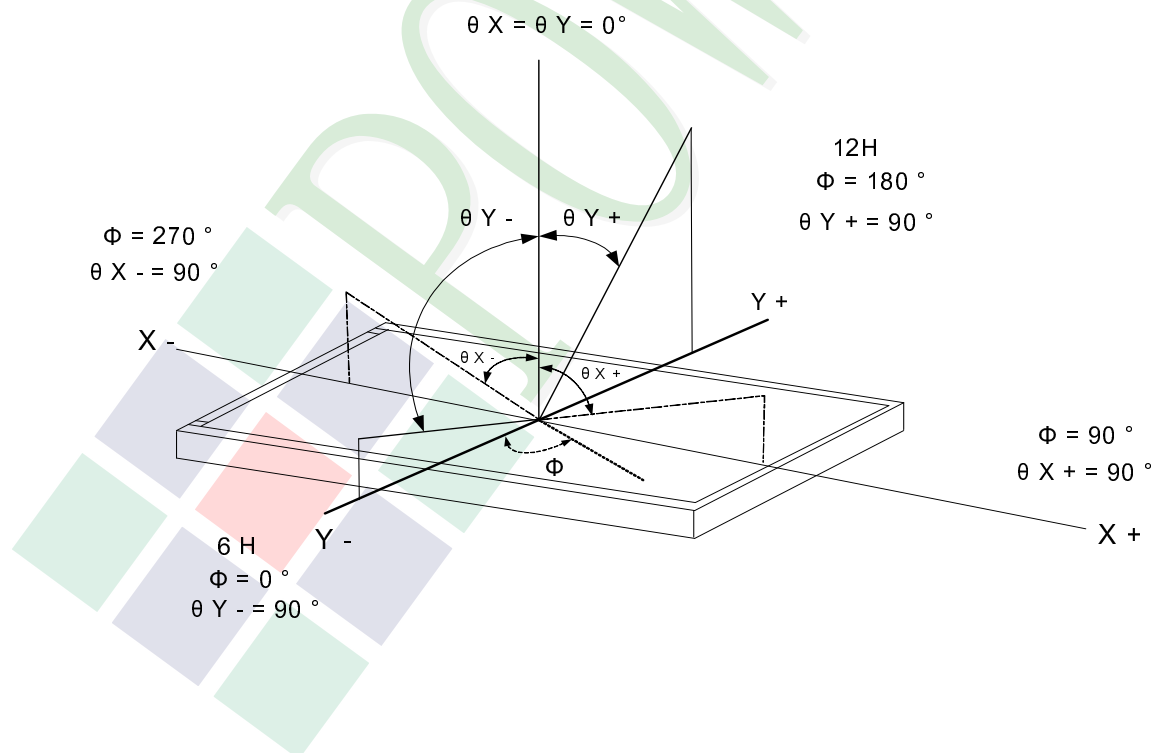
Note 3: Definition of contrast ratio:

Contrast ratio is calculated with the following formula

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

Note 4: Definition of viewing angle:

Refer to figure as below:





## 1.6 Backlight Characteristics

### Maximum Ratings

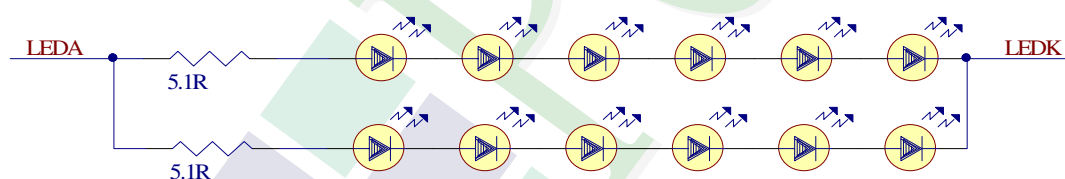
| <u>Item</u>         | <u>Symbol</u> | <u>Min.</u> | <u>Max.</u> | <u>Unit</u> | <u>Remark</u> |
|---------------------|---------------|-------------|-------------|-------------|---------------|
| LED Forward Current | $I_F$         |             | 30          | mA          | One LED       |
| LED Reverse Voltage | $V_R$         |             | 5.0         | V           |               |

### Electrical / Optical Characteristics

| <u>Item</u>   | <u>Symbol</u> | <u>Min.</u> | <u>Typ.</u> | <u>Max.</u> | <u>Unit</u> | <u>Remark</u> |
|---------------|---------------|-------------|-------------|-------------|-------------|---------------|
| LED Voltage   | $V_L$         | 18.0        | 19.0        | -           | V           | Note1         |
| LED Current   | $I_L$         | -           | 40          | -           | mA          | -             |
| LED life time | -             | 50,000      | -           | -           | Hr          | Note2         |

Note 1: The LED Supply Voltage is defined by the number of LED at  $T_a=25^{\circ}\text{C}$  and  $I_L=40\text{ mA}$

Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at  $T_a=25^{\circ}\text{C}$  and  $I_L=40\text{ mA}$ . The LED life time could be decreased if operating  $I_L$  is larger than 40 mA



## 1.7 Touch Panel Characteristics

### Features

| Item             | Standard Value                                                         |
|------------------|------------------------------------------------------------------------|
| Touch Panel Size | 3.5"                                                                   |
| Touch type       | True Multi-Touch Capacitive Touch Panel                                |
| Input Method     | True Multi-touch with up to 5 Points of Absolution X and Y Coordinates |
| Output Interface | I <sup>2</sup> C                                                       |
| IC               | HY4635                                                                 |

### I<sup>2</sup>C Address

| Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 0     | 1     | 1     | 1     | 0     | 0     | 0     | R/W   |

Bit 0: 0 for Write / 1 for Read

### Absolute Maximum Ratings

| Item                  | Symbol          | Condition      | Min. | Max. | Unit |
|-----------------------|-----------------|----------------|------|------|------|
| Supply voltage        | TPVDD           | -              | -0.3 | 3.6  | V    |
| Operating Temperature | T <sub>OP</sub> | Non condensing | -20  | 70   | °C   |
| Storage Temperature   | T <sub>ST</sub> | Non condensing | -30  | 80   | °C   |

### DC Electrical Characteristics

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

### Optical Characteristics

| Item                      | Standard Value | Unit |
|---------------------------|----------------|------|
| Total light transmittance | 85% or more    | -    |
| Hardness                  | ≥6H            | -    |

### PCAP Firmware Information

File: CW035012\_V2\_20171117.bin

SHA-256: F73E1631AD350878F3A179D8C8B3BF0C5C50DB10CBC82BCC84CE396FF45E929E

Remark: None

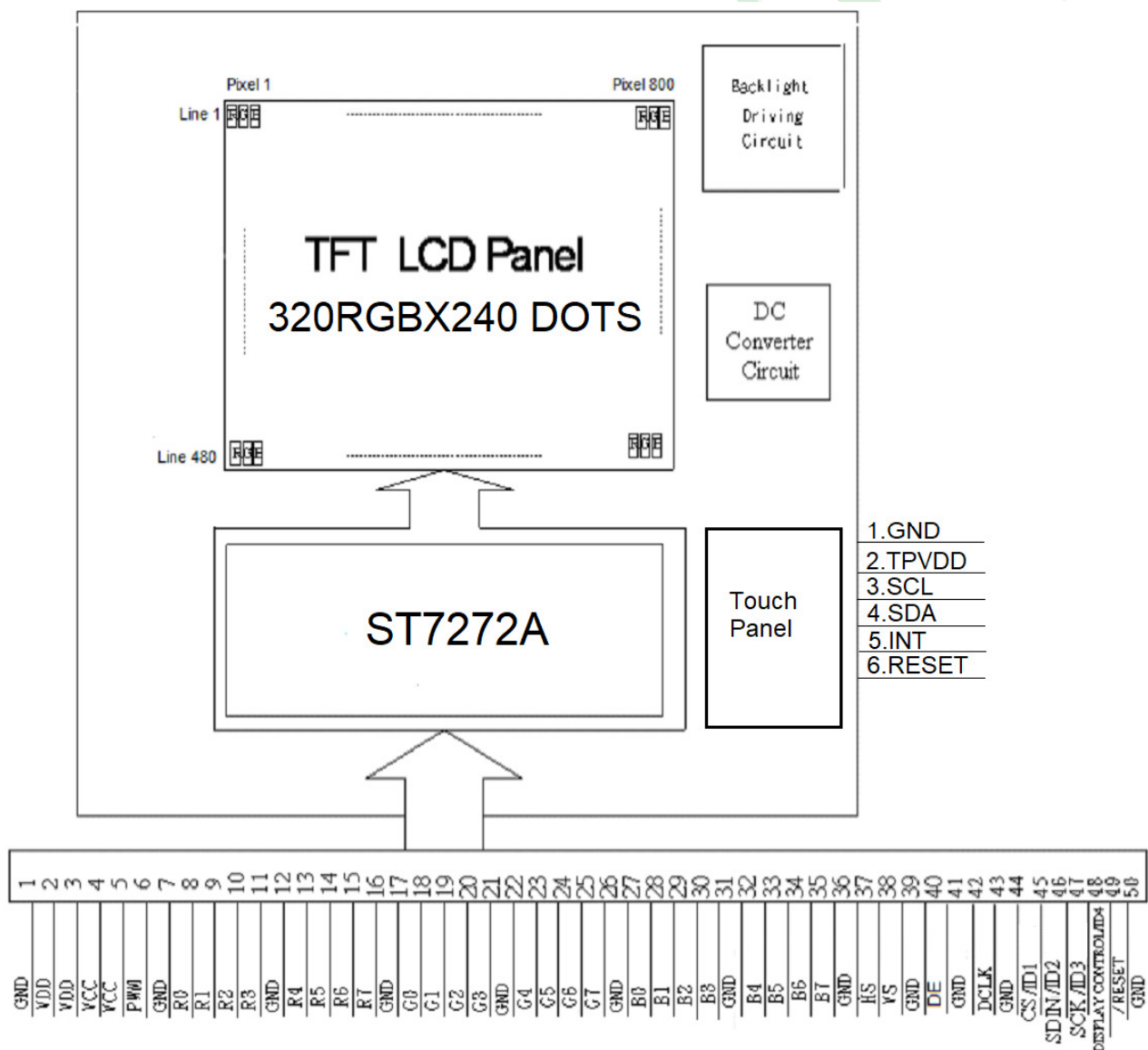
## 2. Module Structure

### 2.1 Counter Drawing

#### 2.1.1 LCM Mechanical Diagram

\* See Appendix

#### 2.1.2 Block Diagram



## 2.2 Interface Pin Description

### TFT LCM Interface

| <u>Pin#</u> | <u>Name</u> | <u>Description</u>                                                                                      |
|-------------|-------------|---------------------------------------------------------------------------------------------------------|
| 1           | GND         | Power ground.                                                                                           |
| 2           | VDD         | Power for Digital Circuit.                                                                              |
| 3           | VDD         | Power for Digital Circuit.                                                                              |
| 4           | VCC         | Power For LED backlight.                                                                                |
| 5           | VCC         | Power For LED backlight.                                                                                |
| 6           | PWM         | Shutdown & Dimming control input for backlight. Do not allow this pin to float. "Hi" =100%, "Low" = 0%. |
| 7           | GND         | Power ground.                                                                                           |
| 8           | R0          | Red Data.                                                                                               |
| 9           | R1          | Red Data.                                                                                               |
| 10          | R2          | Red Data.                                                                                               |
| 11          | R3          | Red Data.                                                                                               |
| 12          | GND         | Power ground.                                                                                           |
| 13          | R4          | Red Data.                                                                                               |
| 14          | R5          | Red Data.                                                                                               |
| 15          | R6          | Red Data.                                                                                               |
| 16          | R7          | Red Data.                                                                                               |
| 17          | GND         | Power ground.                                                                                           |
| 18          | G0          | Green Data.                                                                                             |
| 19          | G1          | Green Data.                                                                                             |
| 20          | G2          | Green Data.                                                                                             |
| 21          | G3          | Green Data.                                                                                             |
| 22          | GND         | Power ground.                                                                                           |
| 23          | G4          | Green Data.                                                                                             |
| 24          | G5          | Green Data.                                                                                             |
| 25          | G6          | Green Data.                                                                                             |
| 26          | G7          | Green Data.                                                                                             |
| 27          | GND         | Power ground.                                                                                           |
| 28          | B0          | Blue Data.                                                                                              |
| 29          | B1          | Blue Data.                                                                                              |

| Pin# | Name                  | DESCRIPTION                                                                      |
|------|-----------------------|----------------------------------------------------------------------------------|
| 30   | B2                    | Blue Data.                                                                       |
| 31   | B3                    | Blue Data.                                                                       |
| 32   | GND                   | Power ground.                                                                    |
| 33   | B4                    | Blue Data.                                                                       |
| 34   | B5                    | Blue Data.                                                                       |
| 35   | B6                    | Blue Data.                                                                       |
| 36   | B7                    | Blue Data.                                                                       |
| 37   | GND                   | Power ground.                                                                    |
| 38   | HS                    | Line synchronization signal. Horizontal Sync Input.                              |
| 39   | VS                    | Frame synchronization signal. Vertical Sync Input.                               |
| 40   | GND                   | Power ground.                                                                    |
| 41   | DE                    | Data Enable.                                                                     |
| 42   | GND                   | Power ground.                                                                    |
| 43   | DCLK                  | Sample clock. Data will be latched at the falling edge of DCLK.                  |
| 44   | GND                   | Power ground.                                                                    |
| 45   | CS/ ID1               | Serial communication chip selection/ID[4:1]These pins select LCM type. See NOTE1 |
| 46   | SDIN/ ID2             | Serial communication data/ ID[4:1]These pins select LCM type. See NOTE1          |
| 47   | SCK/ ID3              | Serial communication clock/ ID[4:1]These pins select LCM type. See NOTE1         |
| 48   | DISPLAY CONTROL / ID4 | Display Enable(Hi Active)/ ID[4:1]These pins select LCM type. See NOTE1          |
| 49   | /RESET                | Global Reset (Low Active).                                                       |
| 50   | GND                   | Power ground.                                                                    |

Note1:

ID Pins Definition:

|             | PIN 45 ID1 | PIN 46 ID2 | PIN 47 ID3 | PIN 48 ID3 |
|-------------|------------|------------|------------|------------|
| 3.5" Module | X          | 0          | 0          | X          |
| 4.3" Module | X          | 1          | 0          | X          |
| 5.0" Module | X          | 0          | 1          | X          |
| 7.0" Module | X          | 1          | 1          | X          |

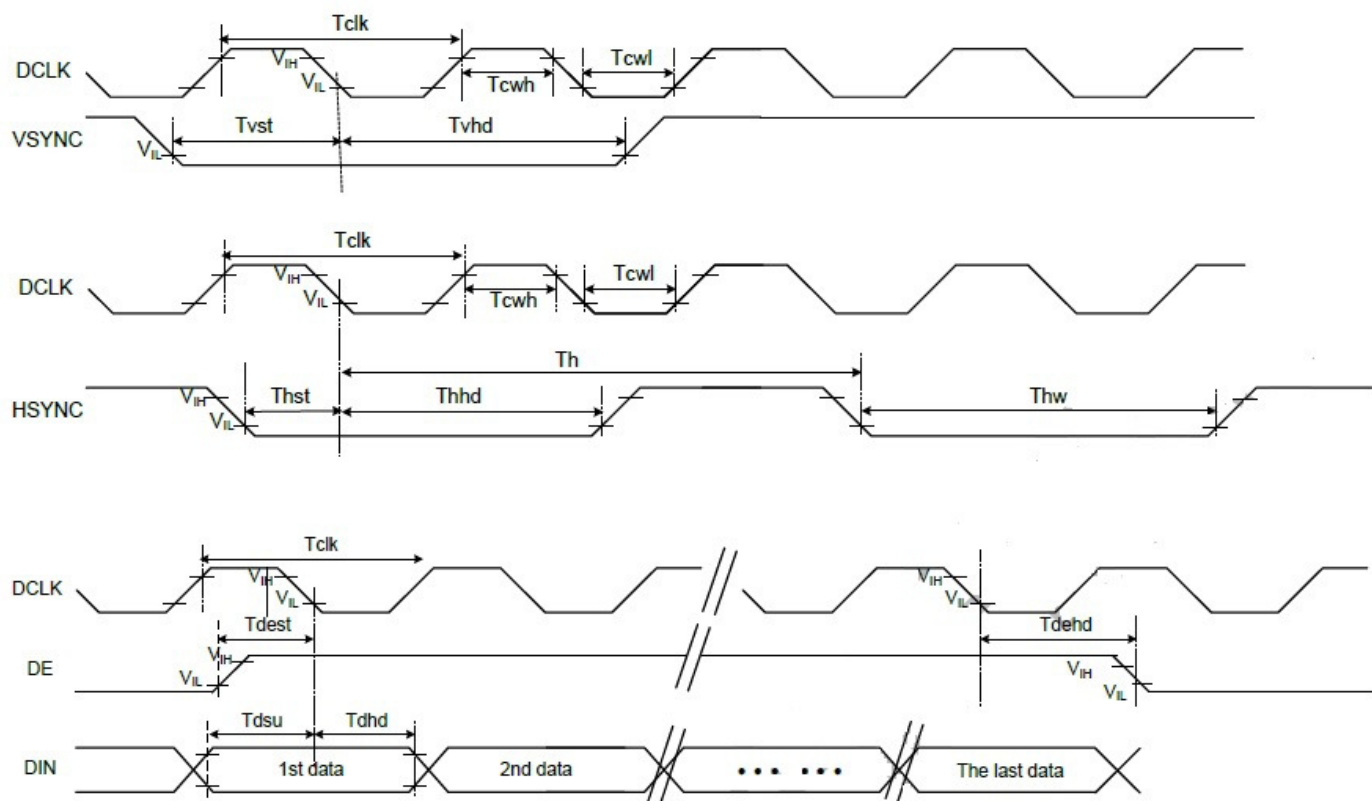
1. Resistor = 10k ohm
2. "X" = No use

## 2.3 Timing Characteristics

### 2.3.1 RGB Mode Selection Table

| <u>RGB Mode Selection Table</u> | <u>DCLK</u> | <u>HSYNC</u> | <u>VSYNC</u> | <u>DE</u> |
|---------------------------------|-------------|--------------|--------------|-----------|
| SYNC - DE Mode                  | Input       | Input        | Input        | Input     |
| SYNC Mode                       | Input       | Input        | Input        | GND       |
| DE Mode                         | Input       | GND          | GND          | Input     |

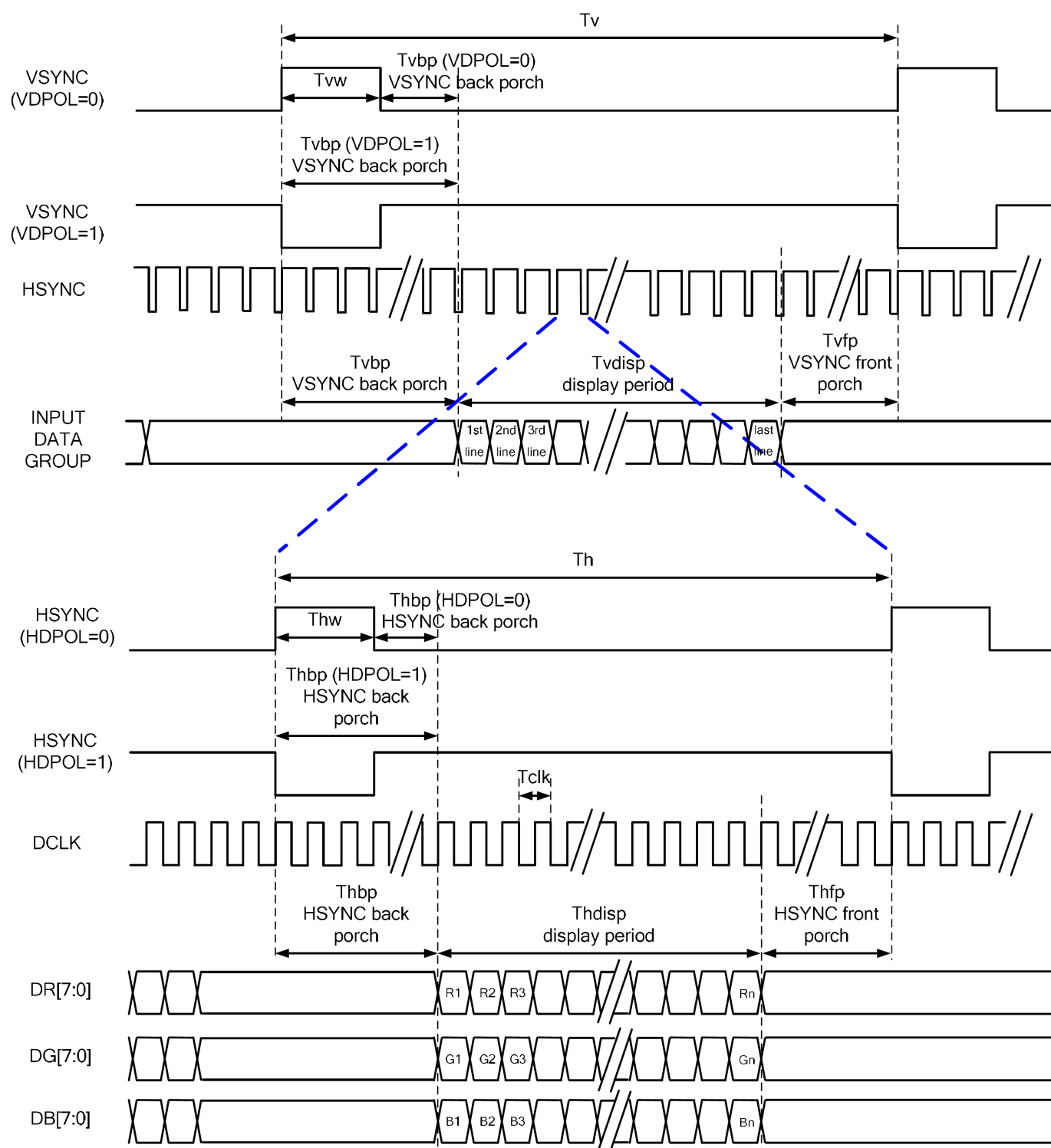
## 2.3.2 System Bus Timing for RGB Interface



VDD= 3.3V, Ta=25°C

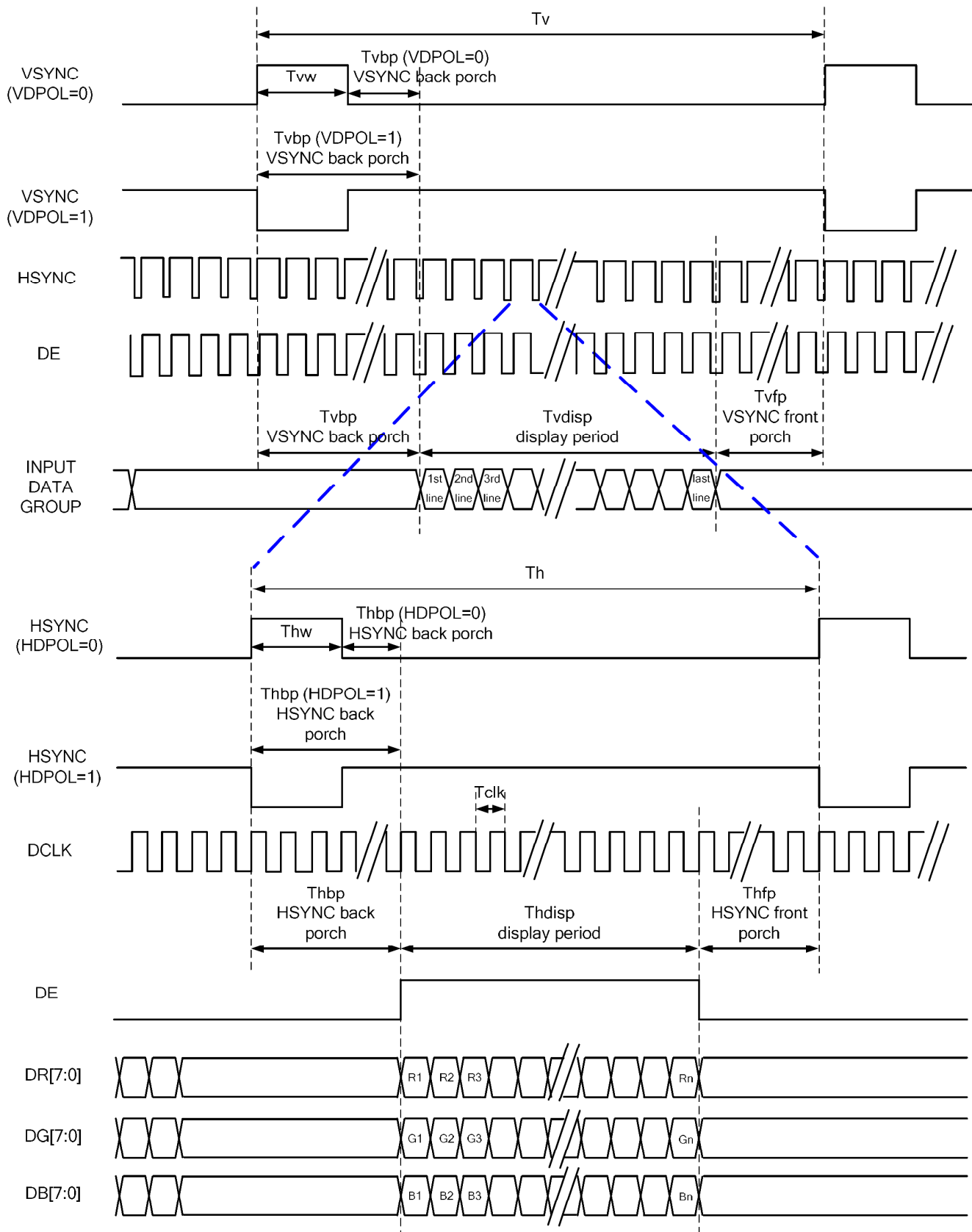
| Item             | Symbol     | Min | Typ. | Max | Unit | Conditions |
|------------------|------------|-----|------|-----|------|------------|
| CLK Pulse Duty   | $T_{clk}$  | 40  | 50   | 60  | %    |            |
| HSYNC Width      | $T_{hw}$   | 2   | -    | -   | DCLK |            |
| HSYNC Period     | $T_h$      | 55  | 60   | 65  | us   |            |
| VSYNC Setup Time | $T_{vst}$  | 12  | -    | -   | ns   |            |
| VSYNC Hold Time  | $T_{vhd}$  | 12  | -    | -   | ns   |            |
| HSYNC Setup Time | $T_{hst}$  | 12  | -    | -   | ns   |            |
| HSYNC Hold Time  | $T_{hhd}$  | 12  | -    | -   | ns   |            |
| Data Setup Time  | $T_{dsu}$  | 12  | -    | -   | ns   |            |
| Data Hold Time   | $T_{dhhd}$ | 12  | -    | -   | ns   |            |
| DE Setup Time    | $T_{dest}$ | 12  | -    | -   | ns   |            |
| DE Hold Time     | $T_{dehd}$ | 12  | -    | -   | ns   |            |

## 2.3.3 Parallel RGB SYNC Mode

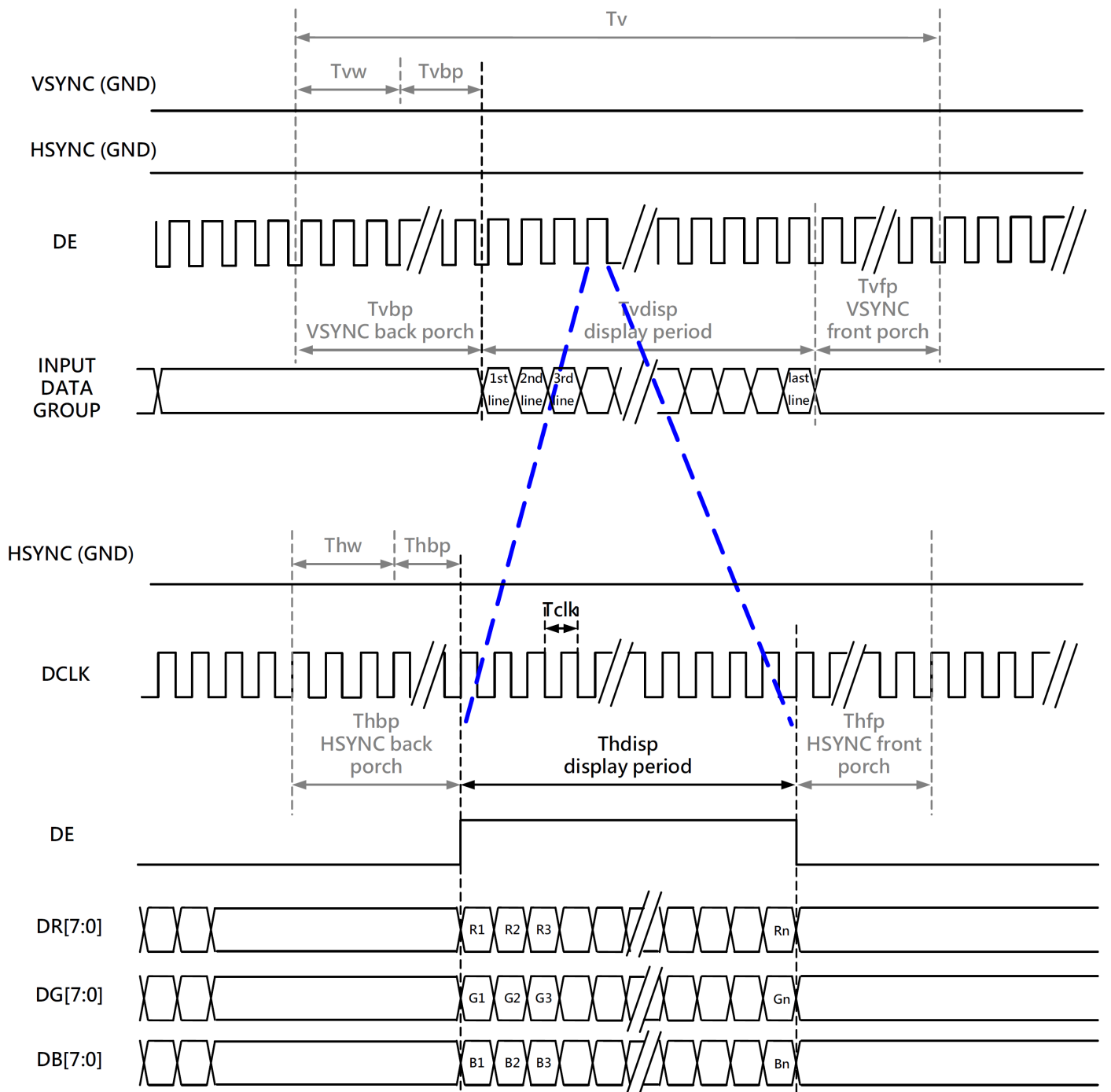




## 2.3.4 Parallel RGB SYNC-DE Mode



## 2.3.5 Parallel RGB DE Mode

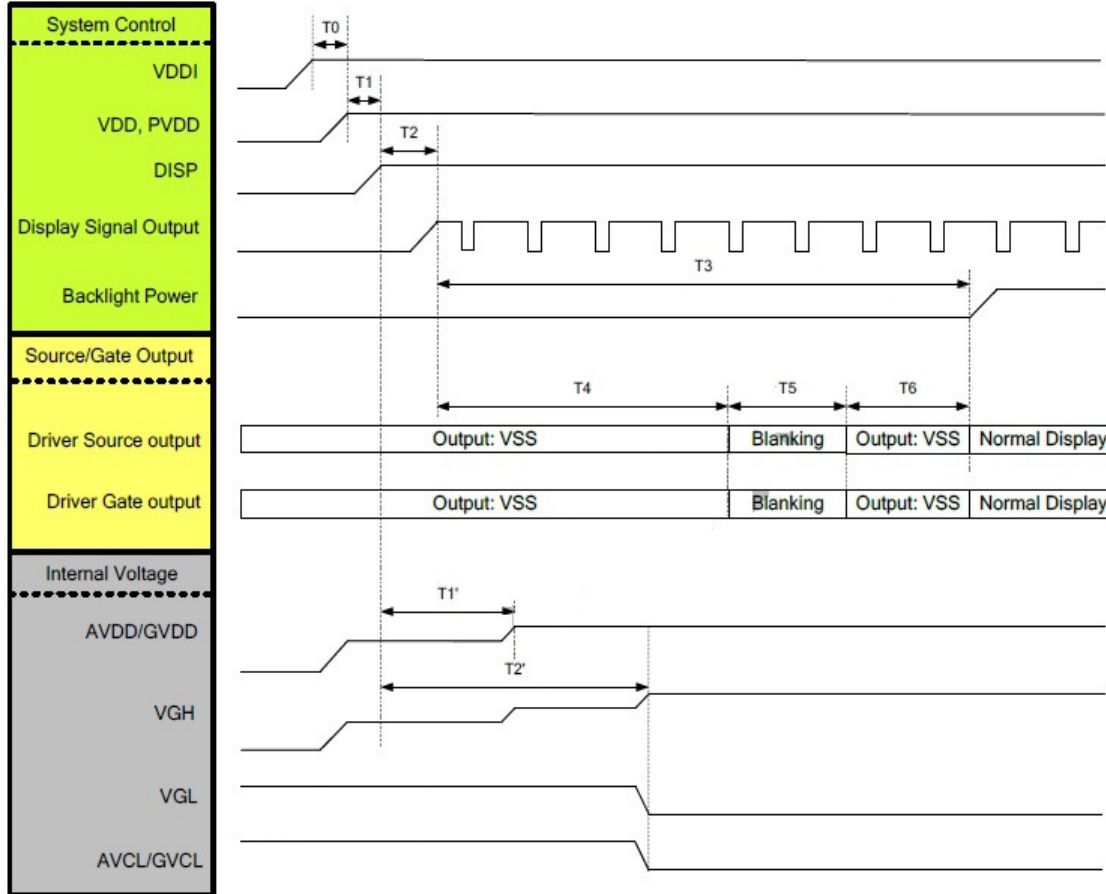


## 2.3.6 Parallel RGB Input Timing Table

| Parallel 24-bit RGB Input Timing Table |                |        |     |     |     |       |
|----------------------------------------|----------------|--------|-----|-----|-----|-------|
| Parameter                              |                | Symbol | Min | Typ | Max | Unit  |
| DCLK frequency                         |                | Fclk   | 5   | 6   | 8   | MHz   |
| DCLK Period                            |                | Tclk   | 125 | 167 | 200 | ns    |
| HSYNC                                  | Period Time    | Th     | 325 | 371 | 438 | DCLK  |
|                                        | Display Period | Thdisp |     | 320 |     |       |
|                                        | Back Porch     | Thbp   | 3   | 43  | 43  |       |
|                                        | Front Porch    | Thfb   | 2   | 8   | 75  |       |
|                                        | Pulse Width    | Thw    | 2   | 4   | 43  |       |
| VSYNC                                  | Period Time    | Tv     | 244 | 260 | 289 | HSYNC |
|                                        | Display Period | Tvdisp |     | 240 |     |       |
|                                        | Back Porch     | Tvbp   | 2   | 12  | 12  |       |
|                                        | Front Porch    | Tvfb   | 2   | 8   | 37  |       |
|                                        | Pulse Width    | Tvw    | 2   | 4   | 12  |       |

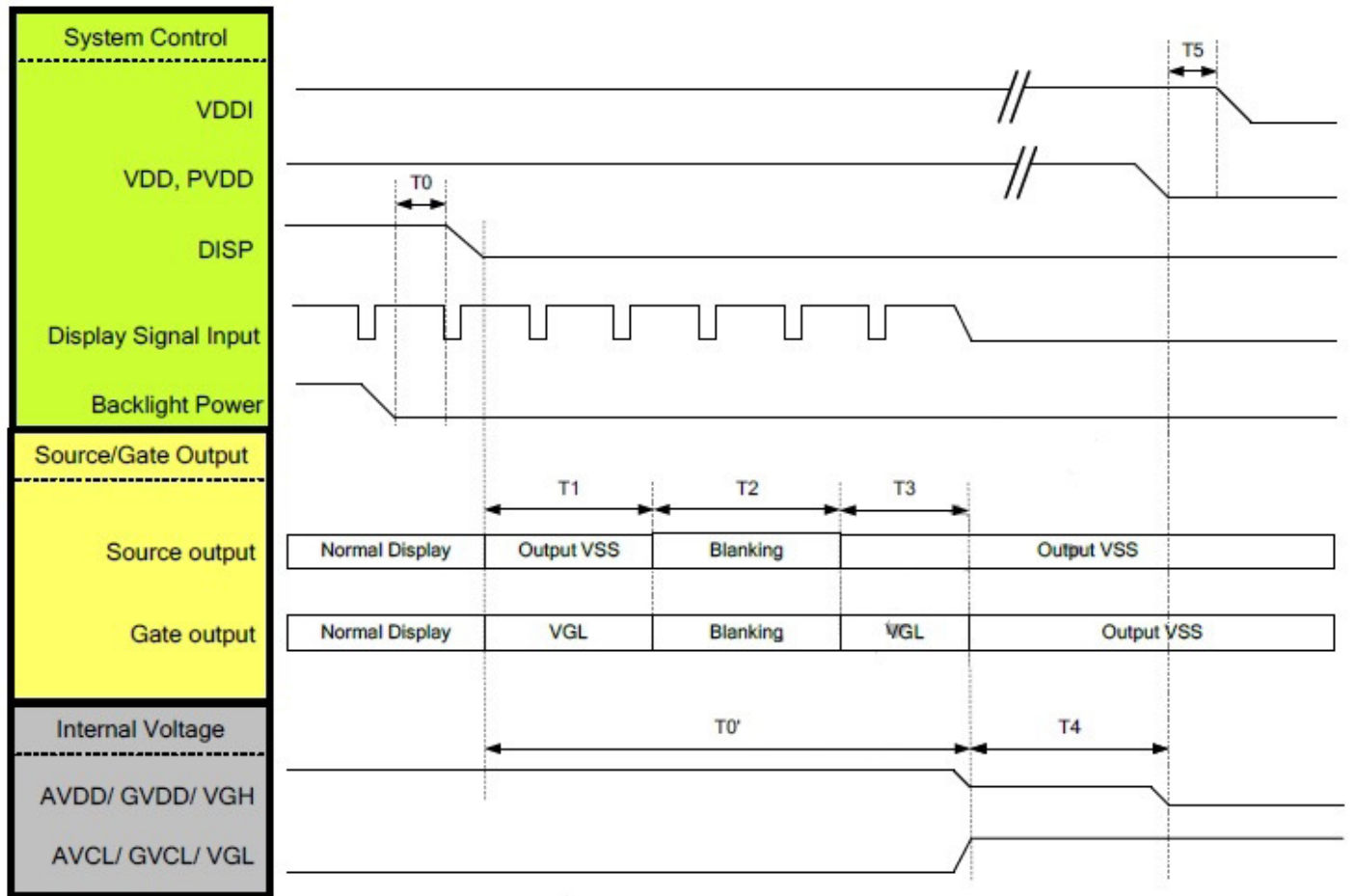
## 2.3.7 Power ON/OFF Sequence

### Power ON Sequence



| Symbol | Description                                           | Min. Time | Unit |
|--------|-------------------------------------------------------|-----------|------|
| T0     | Analog power on delay time                            | 0         | ms   |
| T1     | System power stability to DISP= "High"                | 0         | ms   |
| T2     | DISP= "High" to display signal output                 | 10        | ms   |
| T3     | Display signal output to backlight power on           | 250       | ms   |
| T4     | Display signal output to source output                | 100       | ms   |
| T5     | Source/ Gate blanking time                            | 30        | ms   |
| T6     | Source/ Gate automatic output VSS                     | 80        | ms   |
| T1'    | DISP= "High" to AVDD/GVDD voltage stable time         | 20        | ms   |
| T2'    | DISP= "High" to VGH/VGL/AVCL/GVCL voltage stable time | 60        | ms   |

## Power OFF Sequence



| Symbol | Description                                           | Min. Time | Unit |
|--------|-------------------------------------------------------|-----------|------|
| T0     | Backlight power off to DISP off                       | 5         | ms   |
| T1     | Source voltage output VSS and Gate voltage output VGL | 30        | ms   |
| T2     | Source/ Gate blanking time                            | 30        | ms   |
| T3     | Source voltage output VSS and Gate voltage output VGL | 20        | ms   |
| T4     | AVDD/ GVDD/ VGH discharge time                        | 5         | ms   |
| T5     | Analog power off to digital power off time            | 0         | ms   |
| T0'    | Source and Gate voltage discharge complete width      | 80        | ms   |

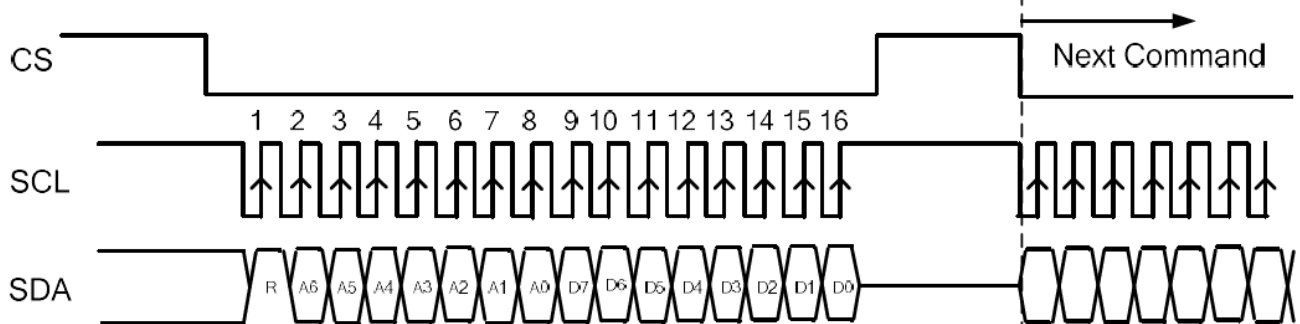
## 2.4 3-wire Serial Interface (SPI)

R/W: Read/Write mode control bit.

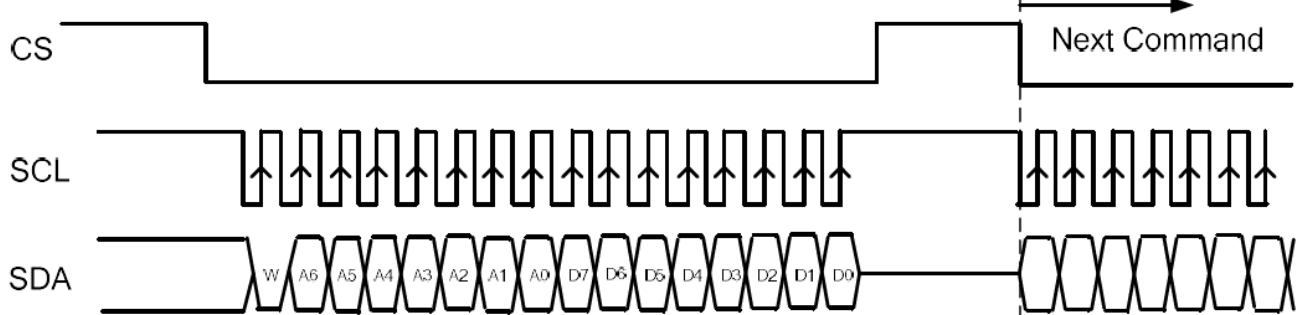
R/W=1: Read mode

R/W=0: Write mode

Read Mode



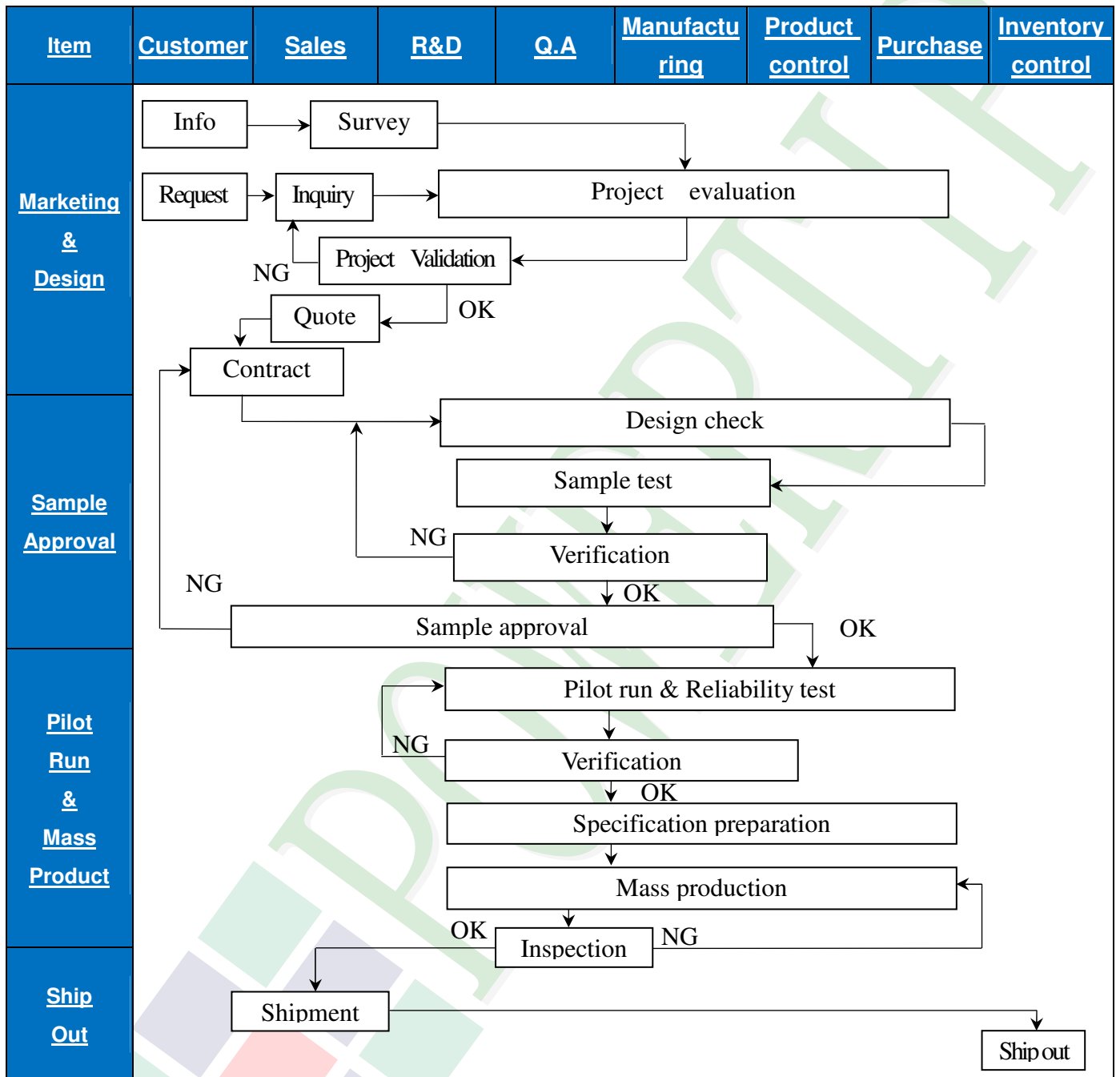
Write Mode

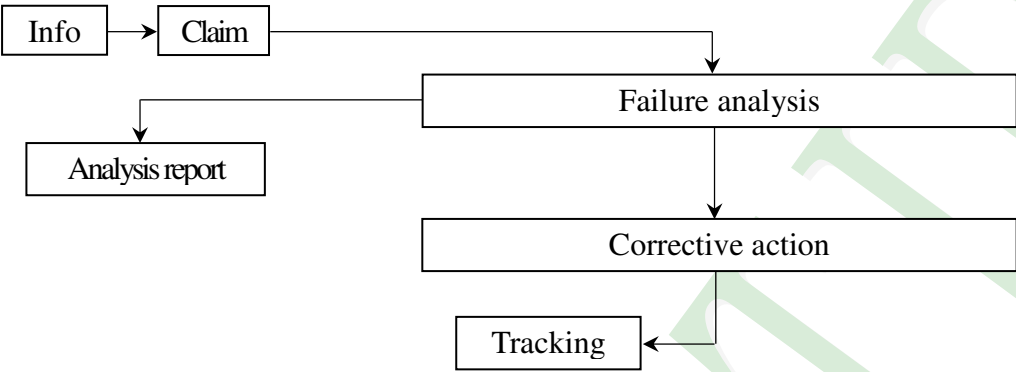


- a. Each serial command consists of 16 bits of data which is loaded one bit a time at the rising edge of serial clock SCL.
- b. Common loading operation starts from the falling edge of CS and is completed at the next rising edge of CS.
- c. The serial control block is operational after power on reset, but commands are established by the VSYNC signal. If command is transferred multiple times for the same register, the last command before the VSYNC signal is valid.
- d. If less than 16 bits of SCL are input while CS is low, the transferred data is ignored.
- e. If 16 bits or more of SCL are input while CS is low, the previous 16 bits of transferred data before then rising edge of CS pulse are valid data.
- f. Serial block operates with SCL clock.
- g. Serial data can be accepted in the power save mode.
- h. After power on reset or GRB reset, it is required 100ms delay to begin SPI communication.

### 3. Quality Assurance System

#### 3.1 Quality Assurance Flow Chart



| Item                 | Customer                                                                                                                                                                                                                                                                                                                              | Sales | R&D | Q.A | Manufacturing | Product control | Purchase | Inventory control |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|---------------|-----------------|----------|-------------------|
| <u>Sales Service</u> |  <pre> graph TD     Info[Info] --&gt; Claim[Claim]     Claim --&gt; Analysis[Analysis report]     Claim --&gt; Failure[Failure analysis]     Failure --&gt; Corrective[Corrective action]     Corrective --&gt; Tracking[Tracking]           </pre> |       |     |     |               |                 |          |                   |
| <u>Q.A Activity</u>  | 1. ISO 9001 Maintenance Activities<br>2. Process improvement proposal<br>3. Equipment calibration<br>4. Education And Training Activities<br>5. Standardization Management                                                                                                                                                            |       |     |     |               |                 |          |                   |

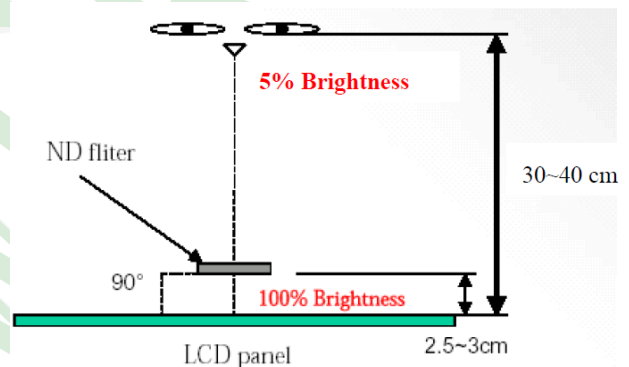
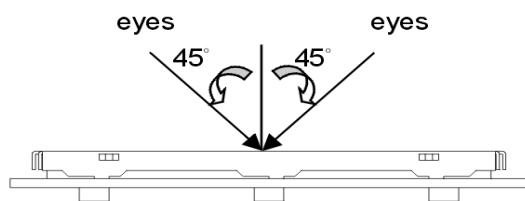


### 3.2 Inspection Specification

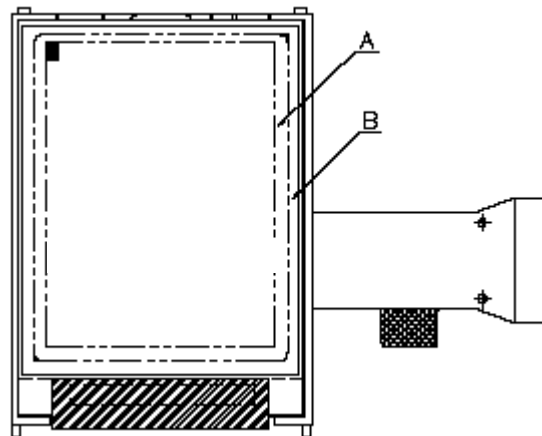
- ◆Scope: The document shall be applied to TFT-LCD Module for 3.5" -15" (Ver.B01).
- ◆Inspection Standard: MIL-STD-105E Table Normal Inspection Single Sampling Level II.
- ◆Equipment: Gauge, MIL-STD, Powertip Tester, Sample
- ◆Defect Level: Major Defect AQL: 0.4; Minor Defect AQL: 1.5
- ◆OUT Going Defect 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

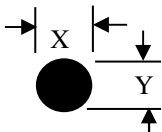
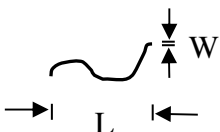
#### (4). Standard of inspection : (Unit : mm)

**◆Specification For TFT-LCD Module 3.5" ~15" :**
**(Ver.B01)**

| NO                                                                                                                                                                                                                                                            | Item                                                        | Criterion                                                                                                                                                                                                                                                          | Level |                   |                   |            |            |     |          |     |           |     |       |     |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|-------------------|------------|------------|-----|----------|-----|-----------|-----|-------|-----|-------|
| 01                                                                                                                                                                                                                                                            | Product condition                                           | 1. 1 The part number is inconsistent with work order of production.                                                                                                                                                                                                | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 1. 2 Mixed product types.                                                                                                                                                                                                                                          | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 1. 3 Assembled in inverse direction.                                                                                                                                                                                                                               | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
| 02                                                                                                                                                                                                                                                            | Quantity                                                    | 2. 1 The quantity is inconsistent with work order of production.                                                                                                                                                                                                   | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
| 03                                                                                                                                                                                                                                                            | Outline dimension                                           | 3. 1 Product dimension and structure must conform to structure diagram.                                                                                                                                                                                            | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
| 04                                                                                                                                                                                                                                                            | Electrical Testing                                          | 4. 1 Missing line character and icon.                                                                                                                                                                                                                              | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 4. 2 No function or no display.                                                                                                                                                                                                                                    | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 4. 3 Display malfunction.                                                                                                                                                                                                                                          | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 4. 4 LCD viewing angle defect.                                                                                                                                                                                                                                     | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 4. 5 Current consumption exceeds product specifications.                                                                                                                                                                                                           | Major |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               |                                                             | 4. 6 Mura cannot be seen through 5% ND filter at 50% Gray, should be judged by the viewing angle of 90 degree.                                                                                                                                                     | Minor |                   |                   |            |            |     |          |     |           |     |       |     |       |
| 05                                                                                                                                                                                                                                                            | Dot defect<br><br>(Bright dot, Dark dot)<br><br>On -display | <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> | Item  |                   | Acceptance (Q'ty) | Dot Defect | Bright Dot | ≤ 4 | Dark Dot | ≤ 5 | Joint Dot | ≤ 3 | Total | ≤ 7 | Minor |
|                                                                                                                                                                                                                                                               |                                                             | Item                                                                                                                                                                                                                                                               |       | Acceptance (Q'ty) |                   |            |            |     |          |     |           |     |       |     |       |
| Dot Defect                                                                                                                                                                                                                                                    | Bright Dot                                                  | ≤ 4                                                                                                                                                                                                                                                                |       |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               | Dark Dot                                                    | ≤ 5                                                                                                                                                                                                                                                                |       |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               | Joint Dot                                                   | ≤ 3                                                                                                                                                                                                                                                                |       |                   |                   |            |            |     |          |     |           |     |       |     |       |
|                                                                                                                                                                                                                                                               | Total                                                       | ≤ 7                                                                                                                                                                                                                                                                |       |                   |                   |            |            |     |          |     |           |     |       |     |       |
| 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 that can not be seen through 5% ND filter. |                                                             |                                                                                                                                                                                                                                                                    |       |                   |                   |            |            |     |          |     |           |     |       |     |       |

◆ Specification For TFT-LCD Module 3.5" ~15" :

(Ver.B01)

| NO                      | Item                                                                                                                                                                                                                                                                                                      | Criterion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Level                   |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------|--|--------|--------|------------------|--------|--------|-------------------------|---|-------------------------|---|---------------|---|-------------|------------|-----------|-------------------|--|--------|--------|-------------------|-----|---------------|--------|--------|---------------|----------------------|---|--------------|----------------------|---|-----|------------|---------------|-------|--|---|-------------|-----|---------------|--------|--------|---------------|----------------------|---|-----|------------|---------------|-------|--|---|-------|
| 06                      | <p>Black or white<br/>Dot, scratch,<br/>contamination</p> <p>Round type</p>  <p><math>\Phi = (x + y) / 2</math></p> <p>Line type</p>  | <p>6. 1 Round type (Non-display or display):</p> <table><thead><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></thead><tbody><tr><td><math>\Phi \leq 0.25</math></td><td>Ignore</td><td rowspan="4">Ignore</td></tr><tr><td><math>0.25 &lt; \Phi \leq 0.50</math></td><td>5</td></tr><tr><td><math>\Phi &gt; 0.50</math></td><td>0</td></tr><tr><td>Total</td><td>5</td></tr></tbody></table> <p>6. 2 Line type(Non-display or display):</p> <table><thead><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></thead><tbody><tr><td rowspan="5">3.5'' to less 9''</td><td>---</td><td><math>W \leq 0.03</math></td><td>Ignore</td><td rowspan="5">Ignore</td></tr><tr><td><math>L \leq 10.0</math></td><td><math>0.03 &lt; W \leq 0.05</math></td><td>4</td></tr><tr><td><math>L \leq 5.0</math></td><td><math>0.05 &lt; W \leq 0.10</math></td><td>2</td></tr><tr><td>---</td><td><math>W &gt; 0.10</math></td><td>As round type</td></tr><tr><td colspan="2">Total</td><td>5</td></tr><tr><td rowspan="4">9'' to 15''</td><td>---</td><td><math>W \leq 0.05</math></td><td>Ignore</td><td rowspan="4">Ignore</td></tr><tr><td><math>L \leq 10.0</math></td><td><math>0.05 &lt; W \leq 0.10</math></td><td>5</td></tr><tr><td>---</td><td><math>W &gt; 0.10</math></td><td>As round type</td></tr><tr><td colspan="2">Total</td><td>5</td></tr></tbody></table> | Dimension (diameter: Φ) | Acceptance (Q'ty) |  | A area | B area | $\Phi \leq 0.25$ | Ignore | Ignore | $0.25 < \Phi \leq 0.50$ | 5 | $\Phi > 0.50$           | 0 | Total         | 5 | module size | Length (L) | Width (W) | Acceptance (Q'ty) |  | A area | B area | 3.5'' to less 9'' | --- | $W \leq 0.03$ | Ignore | Ignore | $L \leq 10.0$ | $0.03 < W \leq 0.05$ | 4 | $L \leq 5.0$ | $0.05 < W \leq 0.10$ | 2 | --- | $W > 0.10$ | As round type | Total |  | 5 | 9'' to 15'' | --- | $W \leq 0.05$ | Ignore | Ignore | $L \leq 10.0$ | $0.05 < W \leq 0.10$ | 5 | --- | $W > 0.10$ | As round type | Total |  | 5 | Minor |
|                         |                                                                                                                                                                                                                                                                                                           | Dimension (diameter: Φ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         | Acceptance (Q'ty) |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | A area                  | B area            |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| $\Phi \leq 0.25$        | Ignore                                                                                                                                                                                                                                                                                                    | Ignore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| $0.25 < \Phi \leq 0.50$ | 5                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| $\Phi > 0.50$           | 0                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| Total                   | 5                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| module size             | Length (L)                                                                                                                                                                                                                                                                                                | Width (W)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Acceptance (Q'ty)       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | A area                  | B area            |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| 3.5'' to less 9''       | ---                                                                                                                                                                                                                                                                                                       | $W \leq 0.03$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Ignore                  | Ignore            |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | $L \leq 10.0$                                                                                                                                                                                                                                                                                             | $0.03 < W \leq 0.05$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | $L \leq 5.0$                                                                                                                                                                                                                                                                                              | $0.05 < W \leq 0.10$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | ---                                                                                                                                                                                                                                                                                                       | $W > 0.10$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | As round type           |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | Total                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| 9'' to 15''             | ---                                                                                                                                                                                                                                                                                                       | $W \leq 0.05$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Ignore                  | Ignore            |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | $L \leq 10.0$                                                                                                                                                                                                                                                                                             | $0.05 < W \leq 0.10$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | ---                                                                                                                                                                                                                                                                                                       | $W > 0.10$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | As round type           |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         | Total                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| 07                      | <p>Polarizer<br/>Bubble</p>                                                                                                                                                                                                                                                                               | <table><thead><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></thead><tbody><tr><td><math>\Phi \leq 0.25</math></td><td>Ignore</td><td rowspan="5">Ignore</td></tr><tr><td><math>0.25 &lt; \Phi \leq 0.50</math></td><td>4</td></tr><tr><td><math>0.50 &lt; \Phi \leq 0.80</math></td><td>1</td></tr><tr><td><math>\Phi &gt; 0.80</math></td><td>0</td></tr><tr><td>Total</td><td>5</td></tr></tbody></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Dimension (diameter: Φ) | Acceptance (Q'ty) |  | A area | B area | $\Phi \leq 0.25$ | Ignore | Ignore | $0.25 < \Phi \leq 0.50$ | 4 | $0.50 < \Phi \leq 0.80$ | 1 | $\Phi > 0.80$ | 0 | Total       | 5          | Minor     |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           | Dimension (diameter: Φ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         | Acceptance (Q'ty) |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | A area                  | B area            |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           | $\Phi \leq 0.25$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ignore                  | Ignore            |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           | $0.25 < \Phi \leq 0.50$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           | $0.50 < \Phi \leq 0.80$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1                       |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| $\Phi > 0.80$           | 0                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
| Total                   | 5                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |
|                         |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                   |  |        |        |                  |        |        |                         |   |                         |   |               |   |             |            |           |                   |  |        |        |                   |     |               |        |        |               |                      |   |              |                      |   |     |            |               |       |  |   |             |     |               |        |        |               |                      |   |     |            |               |       |  |   |       |

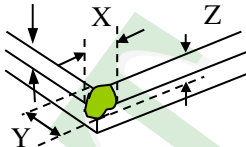
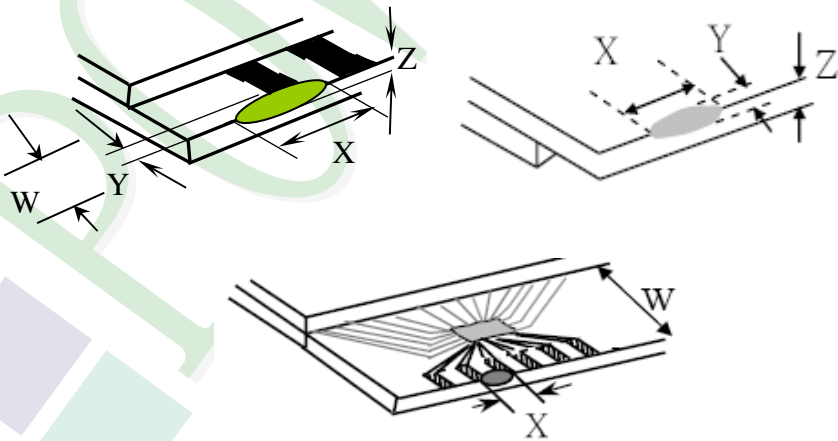
**◆Specification For TFT-LCD Module 3.5" ~15" :**

(Ver.B01)

| NO       | Item                                     | Criterion                                                                                                                                                                                                                                                                                                                                                                                                                                       | Level |   |   |   |          |                                |              |
|----------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|---|---|----------|--------------------------------|--------------|
| 08       | The crack of glass                       | <p>Symbols :</p> <p>X: The length of crack<br/>Z: The thickness of crack<br/>T: The thickness of glass</p> <p>Y: The width of crack.<br/>W: terminal length<br/>a : LCD side length</p>                                                                                                                                                                                                                                                         | Minor |   |   |   |          |                                |              |
|          |                                          | <p>8.1 General glass chip:</p> <p>8.1.1 Chip on panel surface and crack between panels:</p> <p>Seal width</p> <table><thead><tr><th>X</th><th>Y</th><th>Z</th></tr></thead><tbody><tr><td><math>\leq a</math></td><td>Crack can't enter viewing area</td><td><math>\leq 1/2 t</math></td></tr><tr><td><math>\leq a</math></td><td>Crack can't exceed the half of SP width.</td><td><math>1/2 t &lt; Z \leq 2 t</math></td></tr></tbody></table> |       | X | Y | Z | $\leq a$ | Crack can't enter viewing area | $\leq 1/2 t$ |
| X        | Y                                        | Z                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |   |   |   |          |                                |              |
| $\leq a$ | Crack can't enter viewing area           | $\leq 1/2 t$                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |   |   |   |          |                                |              |
| $\leq a$ | Crack can't exceed the half of SP width. | $1/2 t < Z \leq 2 t$                                                                                                                                                                                                                                                                                                                                                                                                                            |       |   |   |   |          |                                |              |

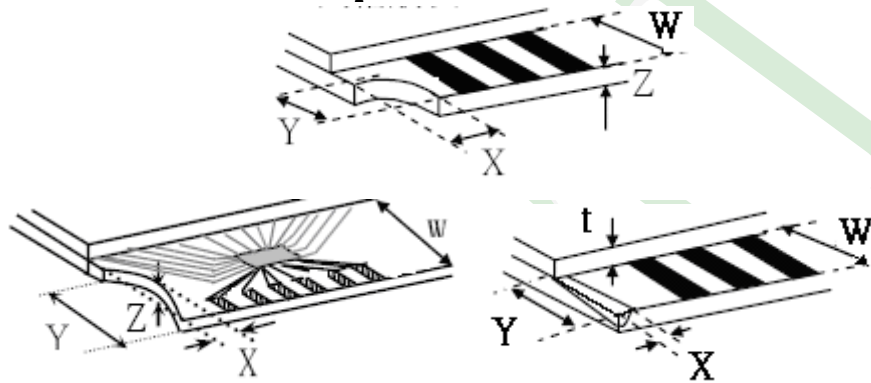
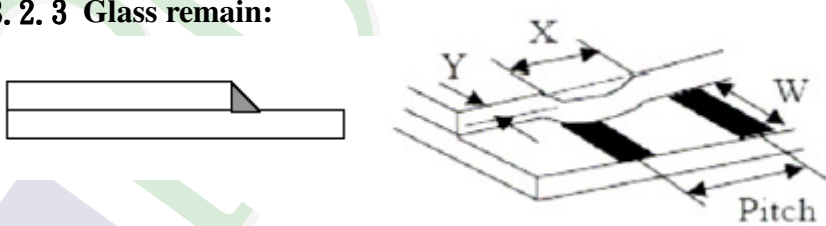
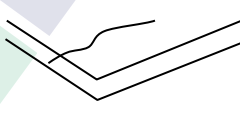
◆Specification For TFT-LCD Module 3.5" ~15" :

(Ver.B01)

| NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Item                                     | Criterion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Level        |          |          |              |                                |                |              |                                          |                      |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|----------|--------------|--------------------------------|----------------|--------------|------------------------------------------|----------------------|--------------|
| 08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | The crack of glass                       | <p><b>Symbols :</b></p> <p><b>X:</b> The length of crack<br/><b>Z:</b> The thickness of crack<br/><b>t:</b> The thickness of glass</p> <p><b>Y:</b> The width of crack.<br/><b>W:</b> terminal length<br/><b>a:</b> LCD side length</p> <p>8.1.2 Corner crack:</p>  <table><thead><tr><th><u>X</u></th><th><u>Y</u></th><th><u>Z</u></th></tr></thead><tbody><tr><td><math>\leq 1/5 a</math></td><td>Crack can't enter viewing area</td><td><math>Z \leq 1/2 t</math></td></tr><tr><td><math>\leq 1/5 a</math></td><td>Crack can't exceed the half of SP width.</td><td><math>1/2 t &lt; Z \leq 2 t</math></td></tr></tbody></table> | <u>X</u>     | <u>Y</u> | <u>Z</u> | $\leq 1/5 a$ | Crack can't enter viewing area | $Z \leq 1/2 t$ | $\leq 1/5 a$ | Crack can't exceed the half of SP width. | $1/2 t < Z \leq 2 t$ | Minor        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                          | <u>X</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>Y</u>     | <u>Z</u> |          |              |                                |                |              |                                          |                      |              |
| $\leq 1/5 a$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Crack can't enter viewing area           | $Z \leq 1/2 t$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |          |          |              |                                |                |              |                                          |                      |              |
| $\leq 1/5 a$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Crack can't exceed the half of SP width. | $1/2 t < Z \leq 2 t$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |          |          |              |                                |                |              |                                          |                      |              |
| <p>8.2 Protrusion over terminal:</p> <p>8.2.1 Chip on electrode pad:</p>  <table><thead><tr><th></th><th><u>X</u></th><th><u>Y</u></th><th><u>Z</u></th></tr></thead><tbody><tr><td>Front</td><td><math>\leq a</math></td><td><math>\leq 1/2 W</math></td><td><math>\leq t</math></td></tr><tr><td>Back</td><td><math>\leq a</math></td><td><math>\leq W</math></td><td><math>\leq 1/2 t</math></td></tr></tbody></table> |                                          | <u>X</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>Y</u>     | <u>Z</u> | Front    | $\leq a$     | $\leq 1/2 W$                   | $\leq t$       | Back         | $\leq a$                                 | $\leq W$             | $\leq 1/2 t$ |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>X</u>                                 | <u>Y</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>Z</u>     |          |          |              |                                |                |              |                                          |                      |              |
| Front                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | $\leq a$                                 | $\leq 1/2 W$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\leq t$     |          |          |              |                                |                |              |                                          |                      |              |
| Back                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\leq a$                                 | $\leq W$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | $\leq 1/2 t$ |          |          |              |                                |                |              |                                          |                      |              |

**◆Specification For TFT-LCD Module 3.5" ~15" :**

(Ver.B01)

| NO       | Item               | Criterion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Level    |          |          |              |          |          |          |          |          |          |              |          |       |
|----------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|--------------|----------|----------|----------|----------|----------|----------|--------------|----------|-------|
| 08       | The crack of glass | <p><b>Symbols:</b></p> <p><b>X:</b> The length of crack<br/><b>Z:</b> The thickness of crack<br/><b>t:</b> The thickness of glass</p> <p><b>Y:</b> The width of crack.<br/><b>W:</b> terminal length<br/><b>a:</b> LCD side length</p> <hr/> <p><b>8.2.2 Non-conductive portion:</b></p>  <table><tr><th><u>X</u></th><th><u>Y</u></th><th><u>Z</u></th></tr><tr><td><math>\leq 1/3 a</math></td><td><math>\leq W</math></td><td><math>\leq t</math></td></tr></table> <p>If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications.</p> <p><b>8.2.3 Glass remain:</b></p>  <table><tr><th><u>X</u></th><th><u>Y</u></th><th><u>Z</u></th></tr><tr><td><math>\leq a</math></td><td><math>\leq 1/3 W</math></td><td><math>\leq t</math></td></tr></table> <p><b>8.2.4 Cracking:</b></p>  <p><b>Not Allowed</b></p> | <u>X</u> | <u>Y</u> | <u>Z</u> | $\leq 1/3 a$ | $\leq W$ | $\leq t$ | <u>X</u> | <u>Y</u> | <u>Z</u> | $\leq a$ | $\leq 1/3 W$ | $\leq t$ | Minor |
|          |                    | <u>X</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <u>Y</u> | <u>Z</u> |          |              |          |          |          |          |          |          |              |          |       |
|          |                    | $\leq 1/3 a$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\leq W$ | $\leq t$ |          |              |          |          |          |          |          |          |              |          |       |
| <u>X</u> | <u>Y</u>           | <u>Z</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |          |          |              |          |          |          |          |          |          |              |          |       |
| $\leq a$ | $\leq 1/3 W$       | $\leq t$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |          |          |              |          |          |          |          |          |          |              |          |       |
|          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |          |          |              |          |          |          |          |          |          |              |          |       |
|          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |          |          |              |          |          |          |          |          |          |              |          |       |

**◆Specification For TFT-LCD Module 3.5" ~15" :**
**(Ver.B01)**

| <u>NO</u> | <u>Item</u>        | <u>Criterion</u>                                                                     | <u>Level</u> |
|-----------|--------------------|--------------------------------------------------------------------------------------|--------------|
| 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 $\leq 1.5$ mm.   | Minor        |

## 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              | <div>-30℃ → +25℃ → 80℃ → +25℃</div> <div>(30mins) (5mins) (30mins) (5mins)</div> <div>← 20 Cycle →</div>                                                                                                                                                                                                                         |                                                                                   |
| 5                                                        | ESD Test                                      | Air Discharge:<br>Apply 2 KV with 5 times<br>Discharge for each polarity +/-                                                                                                                                                                                                                                                     | Contact Discharge:<br>Apply 250 V with 5 times<br>discharge for each polarity +/- |
|                                                          |                                               | 1. Temperature ambience: 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)<br>(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                                            |                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
| 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 :  $+20 \sim 30^{\circ}\text{C}$

Humidity :  $50 \sim 70\%$

Atmospheric pressure :  $86 \sim 106\text{Kpa}$



## 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 polarizing with anything harder than an HB pencil lead (glass, tweezers, etc.)
- 5.2.5 Do not wipe the polarizing 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 ketonics 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  $320 \pm 10^{\circ}\text{C}$  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 (SMPS) 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.

### 5.3 Storage

- 5.3.1 Store the panel or module in a dark place where the temperature is  $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$  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.

[illegible]

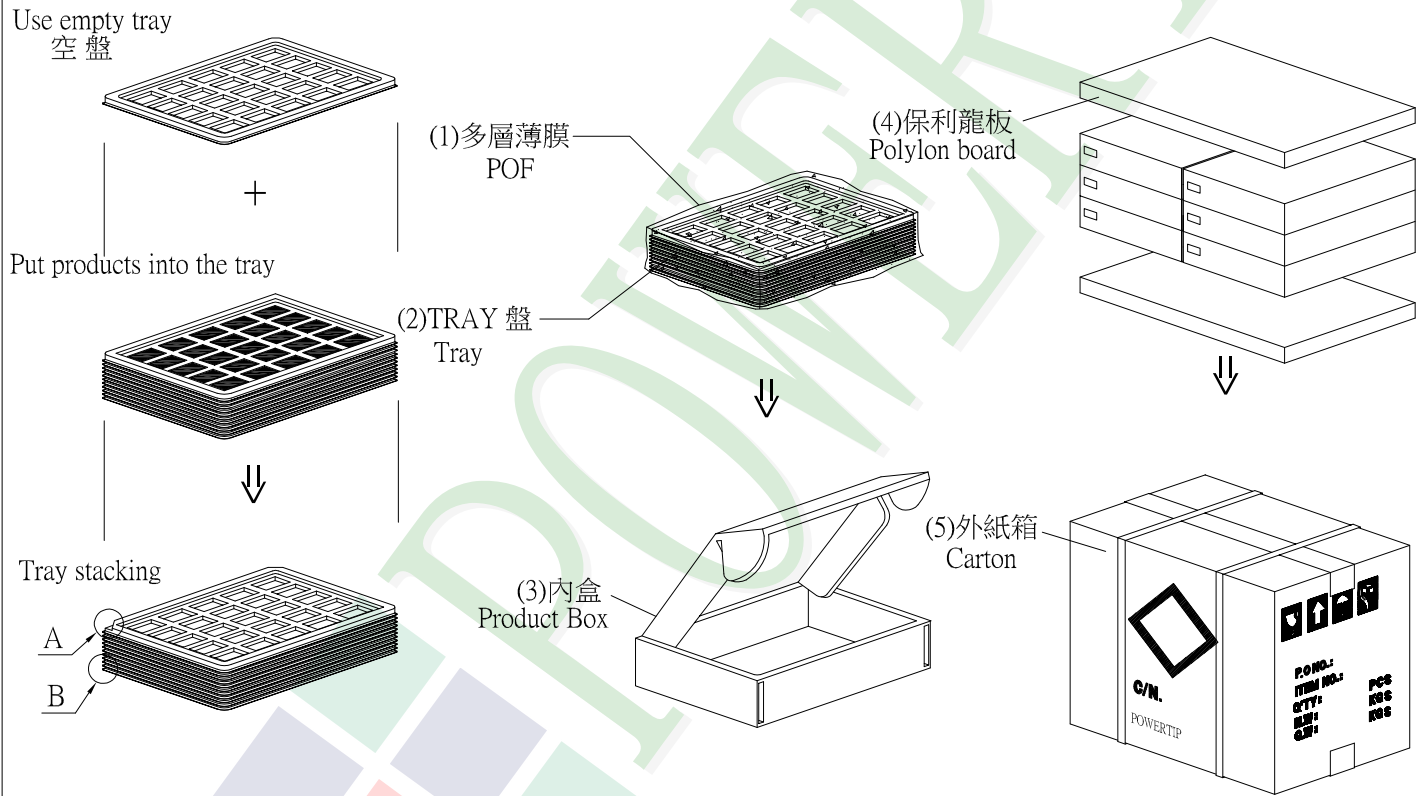
1.包裝材料規格表 (Packaging Material) : (per carton)

| No. | Item                 | Model              | Dimensions (mm)  | 1Pcs Weight | Quantity | Total Weight |
|-----|----------------------|--------------------|------------------|-------------|----------|--------------|
| 1   | 成品 (LCM)             | PH320240T028-ZHC01 | 76.9X63.9X5.05   | 0.046       | 252      | 11.592       |
| 2   | 多層薄膜(1)POF           | OTFILM0BA03ABA     | 19"X350X0.015    | ——          | 6        | ——           |
| 3   | TRAY 盤 (2)Tray       | TYSG000000137      | 352 X 260 X 12.3 | 0.1         | 48       | 4.8          |
| 4   | 內盒(3)Product Box     | BX36627063ABBA     | 393 X 274 X 68   | 0.182       | 6        | 1.092        |
| 5   | 保利龍板(4)Polylon board | OTPLB00PL08ABA     | 550 X 393 X 20   | 0.0284      | 2        | 0.0568       |
| 6   | 外紙箱(5)Carton         | BX57041027CCBA     | 570 X 410 X 265  | 1.0         | 1        | 1.0          |
| 7   |                      |                    |                  |             |          |              |
| 8   |                      |                    |                  |             |          |              |
| 9   |                      |                    |                  |             |          |              |

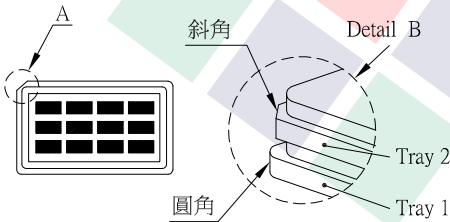
2.一整箱總重量 (Total LCD Weight in carton) : 18.54 Kg±10%

3.單箱數量規格表 (Packaging Specifications and Quantity) :

|                                                    |    |               |   |   |     |
|----------------------------------------------------|----|---------------|---|---|-----|
| (1)LCM quantity per box : no per tray              | 6  | x no of tray  | 7 | = | 42  |
| (2)Total LCM quantity in carton : quantity per box | 42 | x no of boxes | 6 | = | 252 |



特 記 事 項 (REMARK)



TRAY盤相疊時,需旋轉180度,請詳見B視圖  
Rotate tray 180 degrees and place on top of stack.  
Check the tray stack using Fig. B.