



RAYSTAR

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RFS520Q-EZH-DBN

SPECIFICATION

CUSTOMER:

| | |
|--------------------|--|
| APPROVED BY | |
| PCB VERSION | |
| DATE | |

FOR CUSTOMER USE ONLY

| SALES BY | APPROVED BY | CHECKED BY | PREPARED BY |
|-----------------|--------------------|-------------------|--------------------|
| | | | |

Release DATE:

TFT Display Inspection Specification: <https://www.raystar-optronics.com/download/products.htm>

Precaution in use of TFT module: <https://www.raystar-optronics.com/download/declaration.htm>

Revision History

| VERSION | DATE | REVISED PAGE NO. | Note |
|---------|------------|------------------|-------------------------------|
| 0 | 2017/08/03 | | First issue |
| A | 2019/07/18 | | Add O-Film Remark description |

RAYSTAR OPTRONICS

Contents

1.Module Classification Information

2.Summary

3.General Specification

4.Interface

5.Contour Drawing

6.Block Diagram

7.Absolute Maximum Ratings

8.Electrical Characteristics

9.DC Characteristics

10.Interface Timing Characteristics

11.Optical Characteristics

12.Reliability

13.Display start address setting

14.Other

1.Module Classification Information

| | | | | | | | | | | | | |
|----------|----------|----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|
| R | F | S | 52 | 0Q | - | E | Z | H | - | D | B | N |
| 1 | 2 | 3 | 4 | 5 | - | 6 | 7 | 8 | - | 9 | 10 | 11 |

| Item | Description | |
|------|---|--|
| 1 | R : Raystar Optronics Inc. | |
| 2 | Display Type : F→TFT Type, J→ Custom TFT | |
| 3 | Solution: A: 128x160 B:320x234 C:320x240 D:480x234 E:480x272 F:800x480 G:640x480 H:1024x600 I:320x480 J:240x320 K:1280x800 L:240x400 M:1024x768 N:128x128 O:480x800 P:640x320 Q:800x600 S:480x128 T:800x320 | |
| 4 | Display Size : 5.2" TFT | |
| 5 | Version Code. | |
| 6 | Model Type: A : TFT LCD E : TFT+FR+CONTROL BOARD J : TFT+FR+A/D BOARD N : TFT+FR+A/D BOARD+CONTROL BOARD S : TFT+FR+POWER BOARD (DC TO DC) 1 : TFT+CONTROL BOARD | 6 : TFT+FR H : TFT+D/V BOARD I : TFT+FR+D/V BOARD B : TFT+POWER BD |
| 7 | Polarizer Type, Temperature range, View direction | I→Transmissive, W. T, 6:00 ; C→Transmissive, N. T, 6:00 L→Transmissive, W.T,12:00 ; F→Transmissive, N.T,12:00 Y→Transmissive,W.T, IPS TFT ; A→Transmissive, N.T, IPS TFT Z→Transmissive, W.T, O-TFT R→Transmissive, Super W.T, O-TFT N→Transmissive, Super W.T, 6:00; Q→Transmissive, Super W.T, 12:00 V→Transmissive, Super W.T, VA TFT |
| 8 | Backlight | W : LED, White H : LED, High Light White F : CCFL, White |
| 9 | Driver Method | D: Digital A: Analog L : LVDS M:MIPI |
| 10 | Interface | N : without control board A : 8Bit B : 16Bit S:SPI Interface R: RS232 U:USB I: I2C |
| 11 | TS | N : Without TS S : resistive touch panel C : capacitive touch panel capacitive touch panel (G-F-F) G : capacitive touch panel(G-G) |

2.Summary

TFT 5.2" is a TN transmissive type color active matrix TFT liquid crystal display that use amorphous silicon TFT as switching devices. This module is a composed of a TFT_LCD module, It is usually designed for industrial application and this module follows RoHs,

RAYSTAR OPTRONICS

3.General Specifications

- Size: 5.2 inch
- Dot Matrix: 480 x RGBx128 dots
- Module dimension: 180.0 x 65.0 x 8.8 mm
- Active area: 127.152 x 33.9072 mm
- Dot pitch: 0.0883 x 0.2649 mm
- LCD type: TFT, Normally White, Transmissive
- View Direction: 6o'clock
- Gray Scale Inversion Direction: 12 o'clock
- Aspect Ratio: Bar Type
- Backlight Type: LED, Normally White
- Driver IC: SSD1963
- Interface: Digital 8080 family MPU 8bit/16bit
- With /Without TP: Without TP
- Surface: Glare

*Color tone slight changed by temperature and driving voltage.

4.Interface

4.1. LCM PIN Definition (CON4)

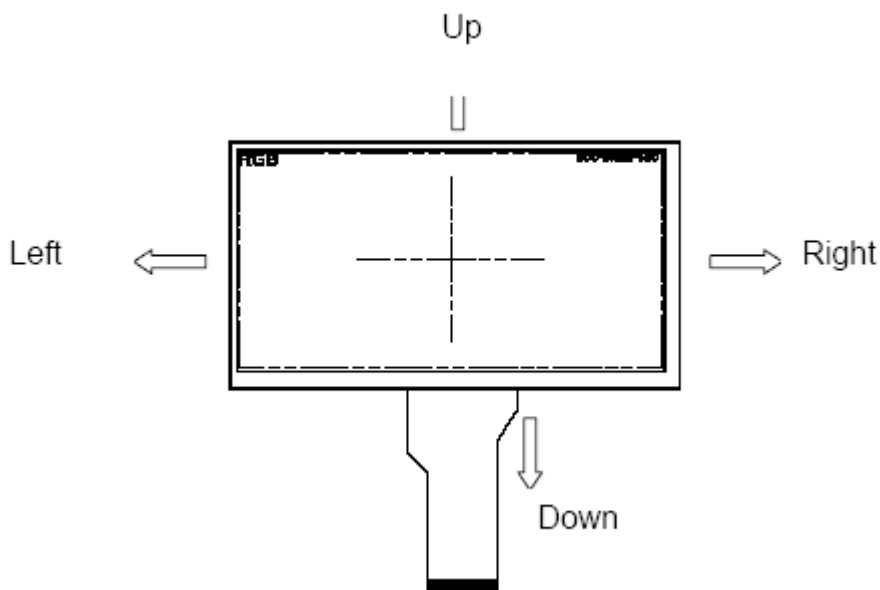
| Pin | Symbol | Function | Remark |
|-----|--------|--|---------|
| 1 | GND | System round pin of the IC. Connect to system ground. | |
| 2 | VDD | Power Supply : +3.3V | |
| 3 | BL_E | Backlight control signal , H: On \ L: Off | |
| 4 | D/C | Data/Command select | |
| 5 | WR | Write strobe signal | |
| 6 | RD | Read strobe signal | |
| 7 | DB0 | Data bus | |
| 8 | DB1 | Data bus | |
| 9 | DB2 | Data bus | |
| 10 | DB3 | Data bus | |
| 11 | DB4 | Data bus | |
| 12 | DB5 | Data bus | |
| 13 | DB6 | Data bus | |
| 14 | DB7 | Data bus | |
| 15 | DB8 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 16 | DB9 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 17 | DB10 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 18 | DB11 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 19 | DB12 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 20 | DB13 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 21 | DB14 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 22 | DB15 | Data bus (When select 8bits mode, this pin is NC) | Note1 |
| 23 | NC | No connect | |
| 24 | NC | No connect | |
| 25 | CS | Chip select | |
| 26 | RESET | Hardware reset | |
| 27 | LR | Right /Left selection; Default R/L is Pull High | Note2,3 |
| 28 | UD | Up/down selection; Default U/D is Pull High | Note2,3 |
| 29 | NC | No connection | |
| 30 | NC | No connection | |
| 31 | NC | No connection | |
| 32 | NC | No connection | |
| 33 | VLED- | VLED- for B/L LED inverter (GND) | |
| 34 | VLED- | VLED- for B/L LED inverter (GND) | |
| 35 | VLED+ | VLED+ for B/L LED inverter (+5V) | |
| 36 | VLED+ | VLED+ for B/L LED inverter (+5V) | |

Note1: When select 8bit mode, DB0~DB7 be used, DB8~DB15 no connect
When select 16bit mode, DB0~DB15 be used

Note 2: Selection of scanning mode, and LR,UD Pull High 10KΩ on FPC

| Setting of scan control input | | Scanning direction |
|-------------------------------|----|---------------------------|
| UD | LR | |
| L | H | Down to up, left to right |
| H | L | Up to down, right to left |
| L | L | Down to up, right to left |
| H | H | Up to down, left to right |

Note 3: Definition of scanning direction.Refer to the figure as below:



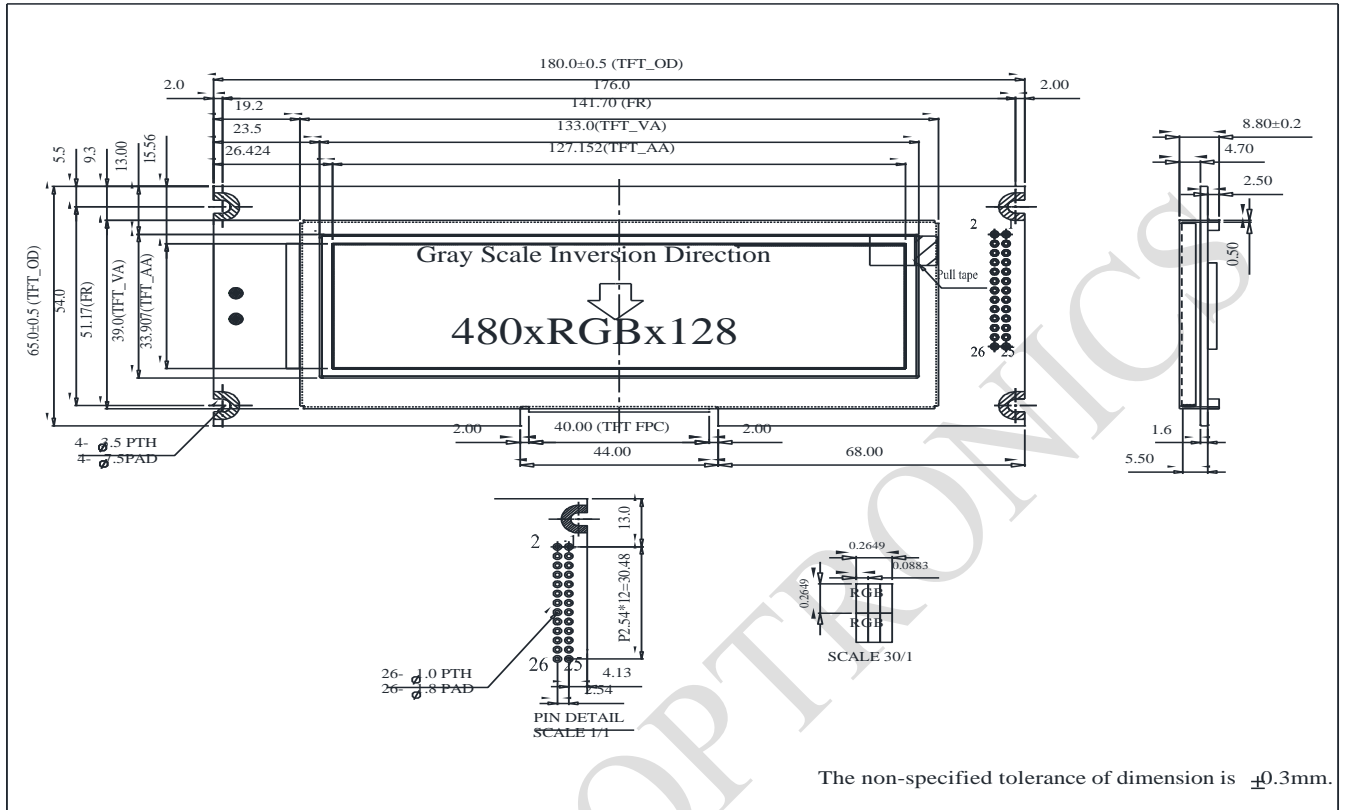
4.2. LCM PIN Definition (CON1)

| Pin | Symbol | Function | Remark |
|-----|--------|--|--------|
| 1 | NC(FG) | No connect (Frame Grand) | |
| 2 | GND | System round pin of the IC. Connect to system ground. | |
| 3 | VDD | Power Supply : +3.3V | |
| 4 | BLE | Backlight control signal , H: On \ L: Off | |
| 5 | WR | Write strobe signal | |
| 6 | RD | Read strobe signal | |
| 7 | CS | Chip select | |
| 8 | D/C | Data/Command select | |
| 9 | NC | No connect | |
| 10 | RESET | Hardware reset | |
| 11 | DB0 | Data bus | |
| 12 | DB1 | Data bus | |
| 13 | DB2 | Data bus | |
| 14 | DB3 | Data bus | |
| 15 | DB4 | Data bus | |
| 16 | DB5 | Data bus | |
| 17 | DB6 | Data bus | |
| 18 | DB7 | Data bus | |
| 19 | NC | No connect | |
| 20 | NC | No connect | |
| 21 | VLED+ | VLED+ for B/L LED inverter (+5V) | Note3 |
| 22 | VLED- | VLED- for B/L LED inverter (GND) | Note3 |
| 23 | NC | No connect | |
| 24 | NC | No connect | |
| 25 | NC | No connect | |
| 26 | GND | Hardware reset | |

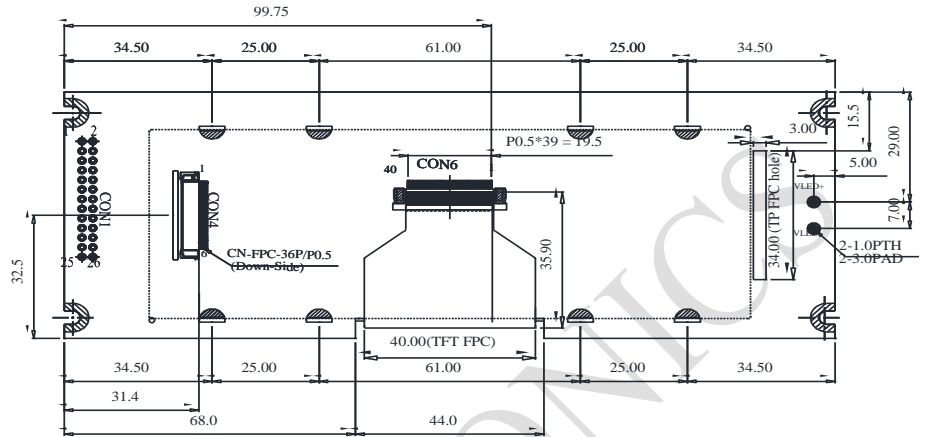
Note3:

When PCB right side CON1 select Pin1~Pin20, Pin21~Pin22 no connect, +5V can input on PCB left side VLED+/- PAD

5. Contour Drawing



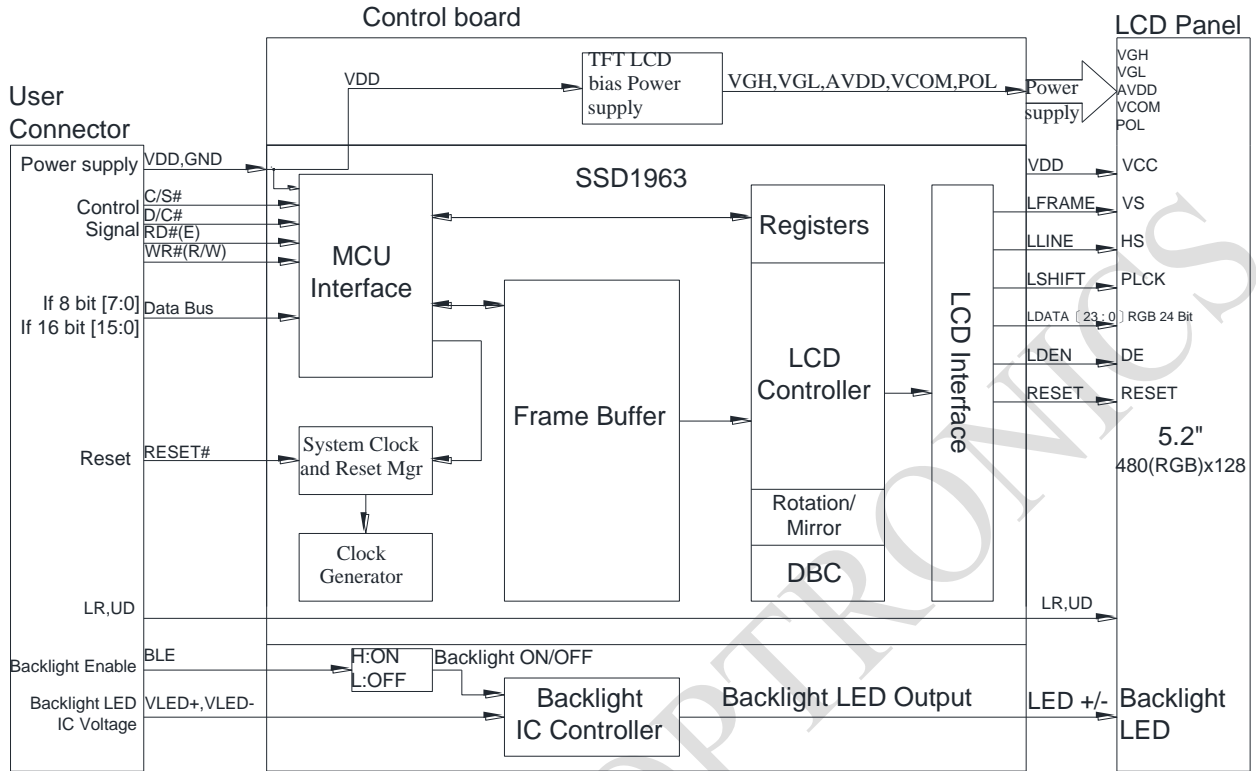
| CON1 | | CON4 | |
|--------|--------|--------|--------|
| IN NO. | SYMBOL | IN NO. | SYMBOL |
| 1 | NC(FG) | 1 | GND |
| 2 | GND | 2 | VDD |
| 3 | VDD | 3 | BL_E |
| 4 | BLE | 4 | D/C |
| 5 | WR | 5 | WR |
| 6 | RD | 6 | RD |
| 7 | CS | 7 | DB0 |
| 8 | D/C | 8 | DB1 |
| 9 | NC | 9 | DB2 |
| 10 | RESET | 10 | DB3 |
| 11 | DB0 | 11 | DB4 |
| 12 | DB1 | 12 | DB5 |
| 13 | DB2 | 13 | DB6 |
| 14 | DB3 | 14 | DB7 |
| 15 | DB4 | 15 | DB8 |
| 16 | DB5 | 16 | DB9 |
| 17 | DB6 | 17 | DB10 |
| 18 | DB7 | 18 | DB11 |
| 19 | NC | 19 | DB12 |
| 20 | NC | 20 | DB13 |
| 21 | VLED+ | 21 | DB14 |
| 22 | VLED- | 22 | DB15 |
| 23 | NC | 23 | NC |
| 24 | NC | 24 | NC |
| 25 | NC | 25 | CS |
| 26 | GND | 26 | RESET |
| | | 27 | LR |
| | | 28 | UD |
| | | 29 | NC |
| | | 30 | NC |
| | | 31 | NC |
| | | 32 | NC |
| | | 33 | VLED- |
| | | 34 | VLED- |
| | | 35 | VLED+ |
| | | 36 | VLED+ |



The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.

RAYSTAR OPTRO

6. Block Diagram



7. Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|-----------------------|--------|-----|-----|-----|------|
| Operating Temperature | TOP | -20 | — | +70 | °C |
| Storage Temperature | TST | -30 | — | +80 | °C |

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

Temp. $\leq 60^{\circ}\text{C}$, 90% RH MAX. Temp. $> 60^{\circ}\text{C}$, Absolute humidity shall be less than 90% RH at 60°C

RAYSTAR OPTRONICS

8. Electrical Characteristics

8.1. Operating conditions: (CON4.Pin1=GND, Pin2=VDD)

| Item | Symbol | Condition | Min | Typ | Max | Unit | Remark |
|------------------------|--------|-----------|-----|-----|-----|------|--------|
| Supply Voltage For LCM | VDD | — | 3.0 | 3.1 | 3.3 | V | - |
| Supply Current For LCM | IDD | — | — | 200 | — | mA | Note1 |

Note 1 : This value is test for VDD =3.3V , Ta=25°C only

8.2. Backlight driving conditions (CON4.Pin33,34=VLED-, Pin35,36=VLED+)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Remark |
|----------------------------------|---------|------|--------|------|------|------------|
| Operation Current For LED Driver | VLED=5V | - | 300 | - | mA | Note 1,2 |
| Supply Voltage For LED Driver | VLED+ | - | 5 | - | V | Note 1,2 |
| LED Life Time | | - | 50,000 | - | Hr | Note 2,3,4 |

Note 1 : Base on VLED= 5V for the back light driver IC specification

Note 2 : Ta = 25 °C

Note 3 : Brightness to be decreased to 50% of the initial value

Note 4 : The single LED lamp case

9.DC CHARATERISTICS

| Parameter | Symbol | Rating | | | Unit | Condition |
|--------------------------|----------|--------|-----|--------|------|-----------|
| | | Min | Typ | Max | | |
| Low level input voltage | V_{IL} | 0 | - | 0.3VDD | V | |
| High level input voltage | V_{IH} | 0.7VDD | - | VDD | V | |

RAYSTAR OPTRONICS

10. Interface timing

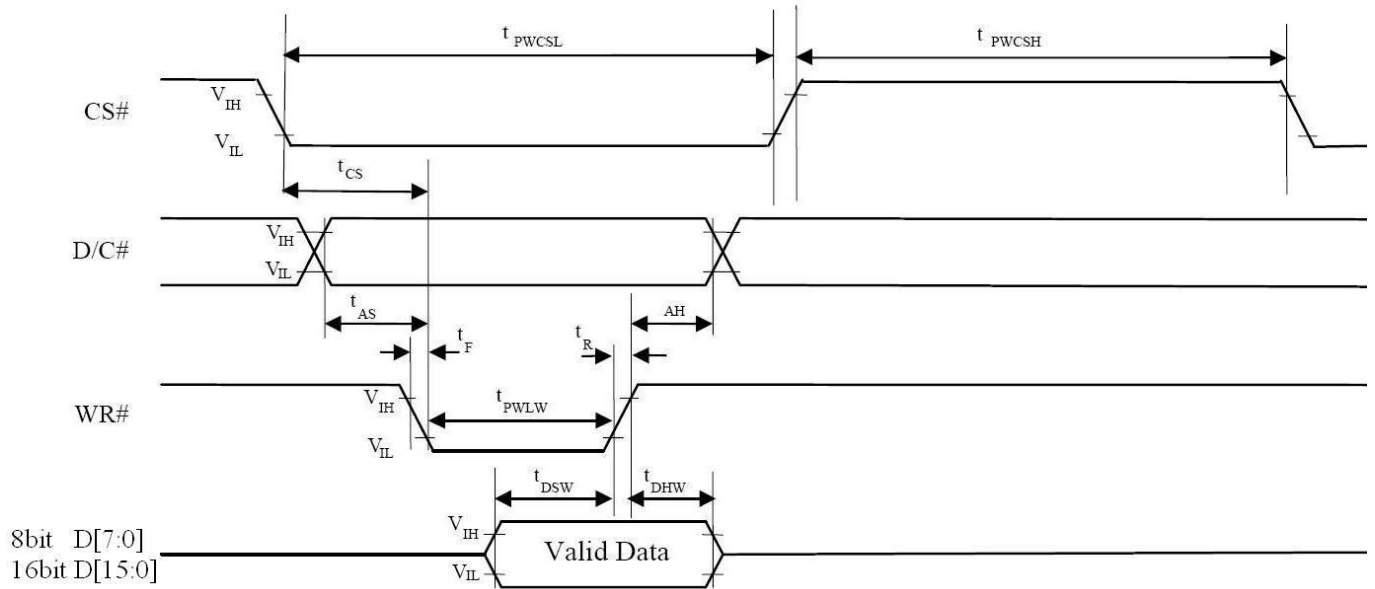
10.1. 8080 Mode 8bit/16bit

The 8080 mode MCU interface consist of CS#, D/C#, RD#, WR#, Data Bus signals. This interface use WR# to define a write cycle and RD# for read cycle. If the WR# goes low when the CS# signal is low, the data or command will be latched into the system at the rising edge of WR#. Similarly, the read cycle will start when RD# goes low and end at the rising edge of RD#.

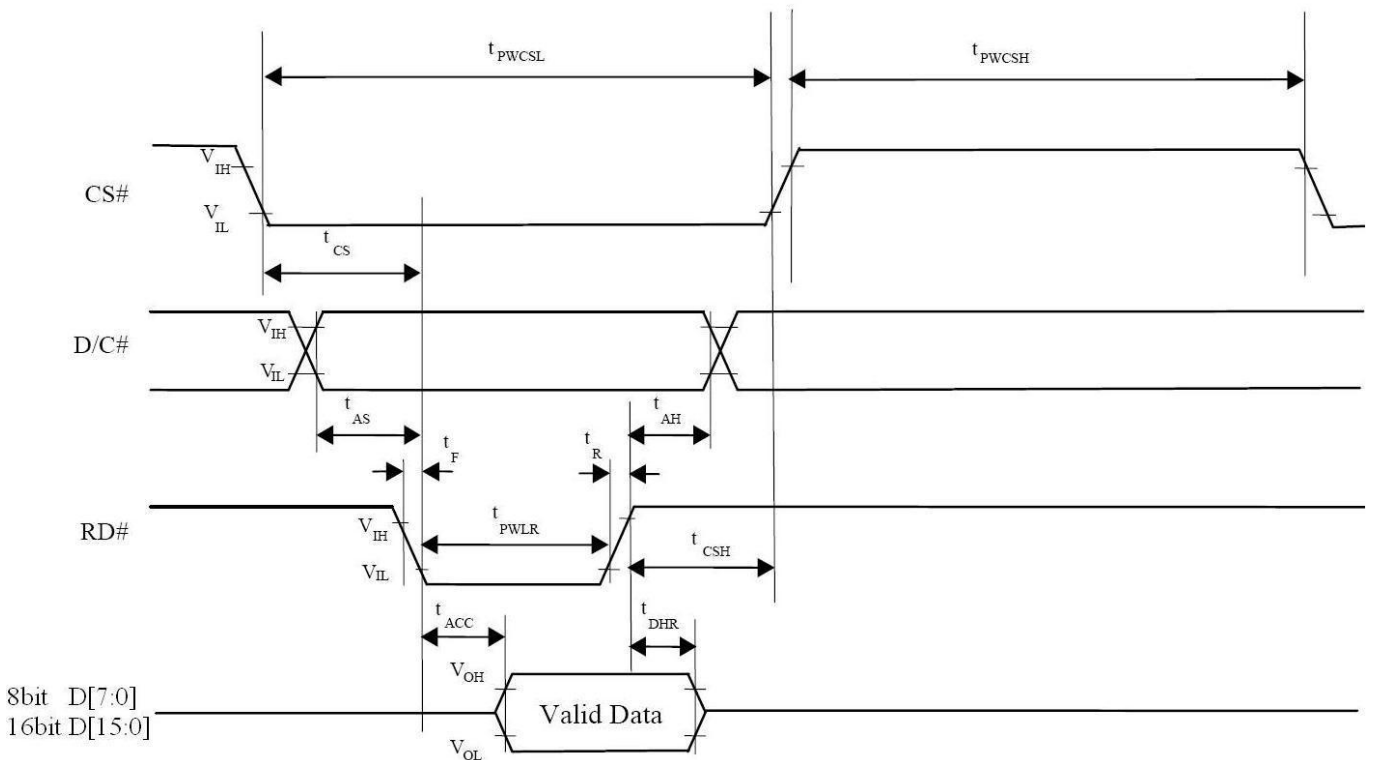
10.2. 8080 Mode Write Cycle

| Symbol | Parameter | Min | Typ | Max | Unit |
|--------|--|----------------|---------------------------------------|-----|------|
| fMCLK | System Clock Frequency | 1 | - | 110 | MHz |
| tMCLK | System Clock Period | 1/ fMCLK | - | - | ns |
| tPWCSH | Control Pulse High Width Write Read | 13 30 | 1.5* tMCLK 3.5* tMCLK | - | ns |
| tPWCSL | Control Pulse Low Width Write (next write cycle) Write (next read cycle) Read | 13 80 80 | 1.5* tMCLK 9* tMCLK 9* tMCLK | - | ns |
| tAS | Address Setup Time | 1 | - | - | ns |
| tAH | Address Hold Time | 2 | - | - | ns |
| tDSW | Write Data Setup Time | 4 | - | - | ns |
| tDHW | Write Data Hold Time | 1 | - | - | ns |
| tPWLW | Write Low Time | 12 | - | - | ns |
| tDHR | Read Data Hold Time | 1 | - | - | ns |
| tACC | Access Time | 32 | - | - | ns |
| tPWLR | Read Low Time | 36 | - | - | ns |
| tR | Rise Time | - | - | 0.5 | ns |
| tF | Fall Time | - | - | 0.5 | ns |
| tCS | Chip select setup time | 2 | - | - | ns |
| tCSH | Chip select hold time to read signal | 3 | - | - | ns |

10.3. Parallel 8080-series Interface Timing Diagram(Write Cycle)



10.4. Parallel 8080-series Interface Timing Diagram(Read Cycle)



10.5. Pixel Data Format

| Interface | Cycle | D[15] | D[14] | D[13] | D[12] | D[11] | D[10] | D[9] | D[8] | D[7] | D[6] | D[5] | D[4] | D[3] | D[2] | D[1] | D[0] |
|----------------------|-----------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 16 bits (565 format) | 1 st | R5 | R4 | R3 | R2 | R1 | G5 | G4 | G3 | G2 | G1 | G0 | B5 | B4 | B3 | B2 | B1 |
| 16 bits | 1 st | R7 | R6 | R5 | R4 | R3 | R2 | R1 | R0 | G7 | G6 | G5 | G4 | G3 | G2 | G1 | G0 |
| | 2 nd | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 | R7 | R6 | R5 | R4 | R3 | R2 | R1 | R0 |
| | 3 rd | G7 | G6 | G5 | G4 | G3 | G2 | G1 | G0 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
| 8 bits | 1 st | | | | | | | | | R7 | R6 | R5 | R4 | R3 | R2 | R1 | R0 |
| | 2 nd | | | | | | | | | G7 | G6 | G5 | G4 | G3 | G2 | G1 | G0 |
| | 3 rd | | | | | | | | | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |

RAYSTAR OPTRONICS

11. Optical Characteristics

| Item | Symbol | Condition. | Min | Typ. | Max. | Unit | Remark | |
|---|--------|-----------------------------------|-----------------------------------|------|------|-------------------|-------------------|------------|
| Response time | Tr+ Tf | $\theta=0^\circ$ 、 $\phi=0^\circ$ | - | 35 | - | .ms | Note 3 | |
| Contrast ratio | CR | At optimized viewing angle | 300 | 500 | - | - | Note 4 | |
| Color Chromaticity | White | Wx | $\theta=0^\circ$ 、 $\phi=0^\circ$ | 0.24 | 0.29 | 0.34 | | Note 2,6,7 |
| | | Wy | | 0.26 | 0.31 | 0.36 | | |
| Viewing angle (Gray Scale Inversion Direction) | Hor. | θ_R | CR ≥ 10 | - | 75 | - | Deg. | Note 1 |
| | | θ_L | | - | 75 | - | | |
| | Ver. | ϕ_T | | - | 75 | - | | |
| | | ϕ_B | | - | 75 | - | | |
| Brightness | - | - | 800 | 850 | - | cd/m ² | Center of display | |
| Uniformity | (U) | - | 75 | - | - | % | Note5 | |

Ta=25±2°C, VLED /ILED = 5V /300mA

Note: After adding a polarized O-film, its viewing angle is enlarged, but its still have gray scale appearance.

Note 1: Definition of viewing angle range

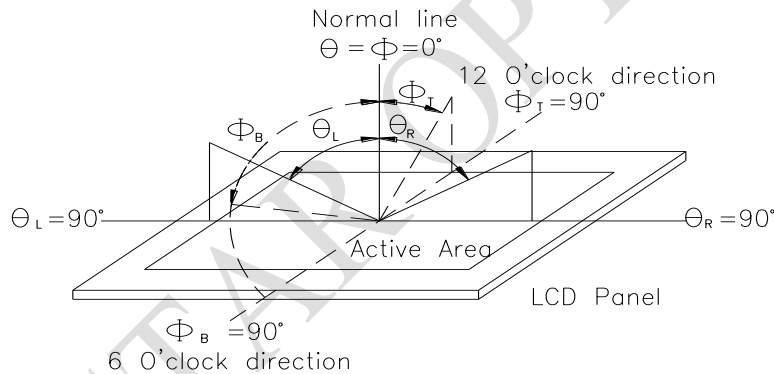


Fig.11.1. Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7orBM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

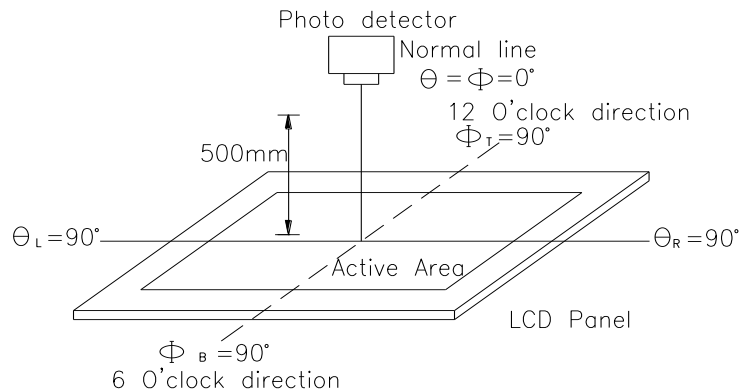
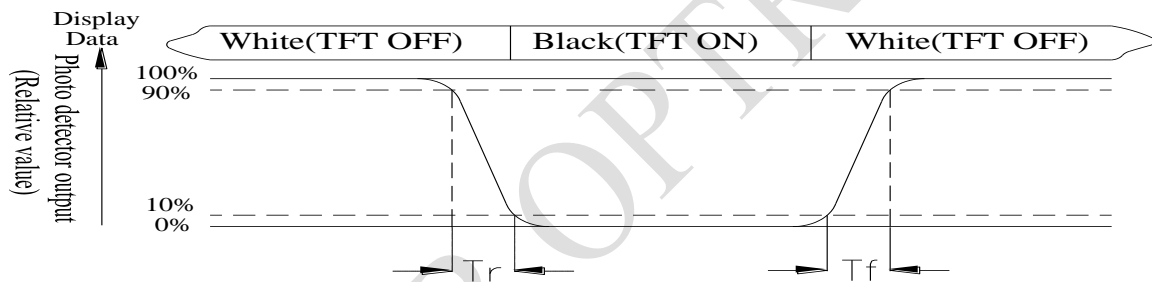


Fig. 11.2. Optical measurement system setup

Note 3: Definition of Response time:

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time, T_r , is the time between photo detector output intensity changed from 90% to 10%. And fall time, T_f , is the time between photo detector output intensity changed from 10% to 90%



Note 4: Definition of contrast ratio:

The contrast ratio is defined as the following expression.

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

Note 5: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (reference the picture in below). Every measuring point is placed at the center of each measuring area.

Luminance Uniformity (U) = $L_{min}/L_{max} \times 100\%$

L = Active area length

W = Active area width

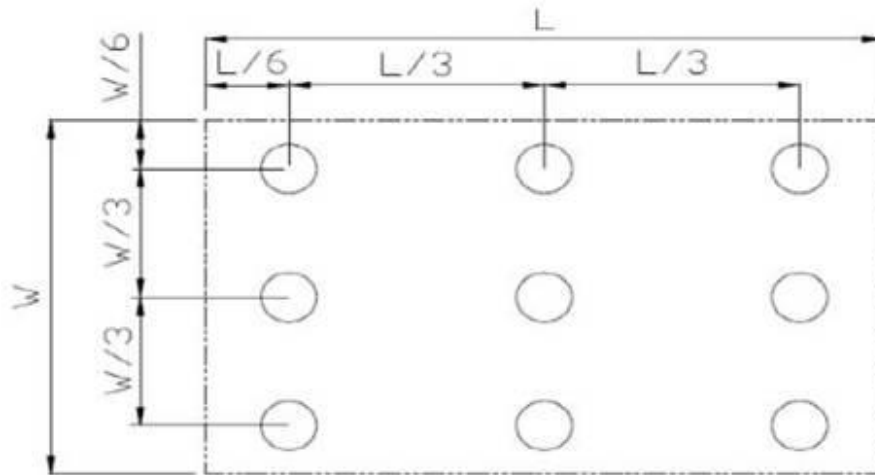


Fig11.3. . Definition of uniformity

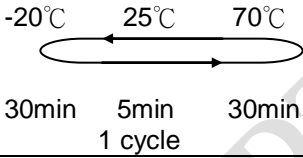
Note 6: Definition of color chromaticity (CIE 1931)

Color coordinates measured at the center point of LCD

Note 7: Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

12. Reliability

Content of Reliability Test (Wide temperature, -20°C ~70°C)

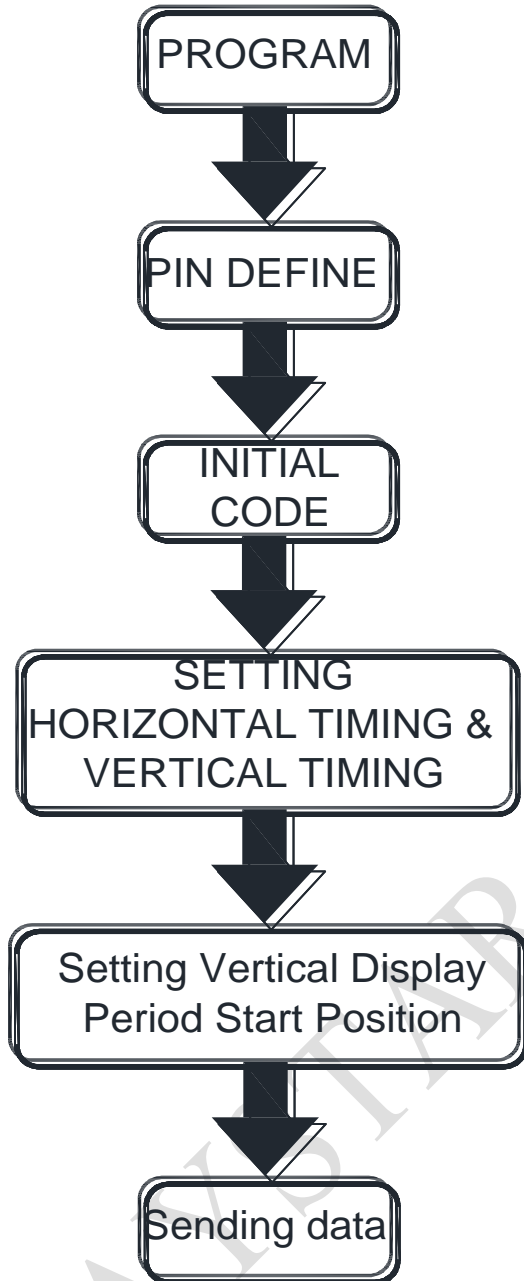
| Environmental Test | | | |
|--------------------------------------|--|---|------|
| Test Item | Content of Test | Test Condition | Note |
| High Temperature storage | Endurance test applying the high storage temperature for a long time. | 80°C 200hrs | 2 |
| Low Temperature storage | Endurance test applying the low storage temperature for a long time. | -30°C 200hrs | 1,2 |
| High Temperature Operation | Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time. | 70°C 200hrs | — |
| Low Temperature Operation | Endurance test applying the electric stress under low temperature for a long time. | -20°C 200hrs | 1 |
| High Temperature/ Humidity Operation | The module should be allowed to stand at 60°C, 90%RH max | 60°C, 90%RH 96hrs | 1,2 |
| Thermal shock resistance | The sample should be allowed stand the following 10 cycles of operation <div style="text-align: center;">  <p>-20°C 25°C 70°C</p> <p>30min 5min 30min</p> <p>1 cycle</p> </div> | -20°C/70°C 10 cycles | — |
| Vibration test | Endurance test applying the vibration during transportation and using. | Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes | 3 |
| Static electricity test | Endurance test applying the electric stress to the terminal. | VS=±600V(contact) , ±800v(air), RS=330Ω CS=150pF 10 times | — |

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: The packing have to including into the vibration testing.

13. Display start address setting



Ex.

One horizontal line=0x0213

VS period time=0x0124

HS Blanking=0x2b

VS Blanking=0x10

HS Front Porch=0x05

VS Front Porch=0x08

Suggestion :

Vertical Display Period

Start Position=0x44

Note :

For different Controller ICs, the value of vertical display period start position need to be adjusted accordingly.

LCM Sample Estimate Feedback Sheet

Module Number : _____

1 、 Panel Specification :

| | | |
|----------------------------|-------------------------------|-------------------------------------|
| 1. Panel Type : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. View Direction : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Numbers of Dots : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. View Area : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Active Area : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. Operating Temperature : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Storage Temperature : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8. Others : | _____ | |

2 、 Mechanical Specification :

| | | |
|-----------------------------|-------------------------------|-------------------------------------|
| 1. PCB Size : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. Frame Size : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Material of Frame : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. Connector Position : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Fix Hole Position : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. Backlight Position : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Thickness of PCB : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8. Height of Frame to PCB : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 9. Height of Module : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 10. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

3 、 Relative Hole Size :

| | | |
|-----------------------------|-------------------------------|-------------------------------------|
| 1. Pitch of Connector : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. Hole size of Connector : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Mounting Hole size : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. Mounting Hole Type : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

4 、 Backlight Specification :

| | | |
|---|-------------------------------|-------------------------------------|
| 1. B/L Type : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. B/L Color : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. B/L Driving Voltage (Reference for LED Type) : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. B/L Driving Current : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Brightness of B/L : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. B/L Solder Method : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

>> **Go to page 2** <<

Module Number : _____

5 · Electronic Characteristics of Module :

| | | |
|-----------------------------|-------------------------------|-------------------------------------|
| 1.Input Voltage : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2.Supply Current : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3.Driving Voltage for LCD : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4.Contrast for LCD : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5.B/L Driving Method : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6.Negative Voltage Output : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7.Interface Function : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8.LCD Uniformity : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 9.ESD test : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 10.Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

6 · Summary :
Sales signature : _____

Customer Signature : _____

Date : / / _____

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