# TFT DISPLAY SPECIFICATION




WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

Represented by:

first FC components

**FIRST Components s.r.l.**
www.first-components.com
technical@first-components.com
+39 0332 1888005

# SPECIFICATION

**CUSTOMER :** _____

**MODULE NO.:** WF43-480272QP#G05-FC

| | |
|---|---|
| **APPROVED BY:**<br>**( FOR CUSTOMER USE ONLY )** | **PCB VERSION:** **DATA:** |

| SALES BY | APPROVED BY | CHECKED BY | PREPARED BY |
|---|---|---|---|
| first FC components | | | |
| **ISSUED DATE:** | 2026/08/06 | | |

# General Specifications

| Item | Dimension | Unit |
|---|---|---|
| Size | 4.3 | inch |
| Dot Matrix | 480 x RGBx272(TFT) | dots |
| Module dimension | 106.7 x 83.98 x 8.05 | mm |
| Active area | 95.04 x 53.856 | mm |
| Dot pitch | 0.066 x 0.198 | mm |
| LCD type | TFT, Normally White, Transmissive | |
| View Direction | 12 o'clock | |
| Gray Scale Inversion Direction | 6 o'clock | |
| Aspect Ratio | 16:9 | |
| Backlight Type | LED, Normally White | |
| Controller IC | SSD1963 | |
| Interface | Digital 8080 family MPU 8bit/16bit | |
| With /Without TP | With RTP | |
| Surface | Anti-Glare | |

*Color tone slight changed by temperature and driving voltage.

first FC components

# Absolute Maximum Ratings

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

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

1. Temp. ≦ 60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

first FC components

# Electrical Characteristics

**Operating conditions: (CON3.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 | 300 | mA | Note1 |

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

**Backlight driving conditions (CON3.Pin33,34=VLED-, Pin35,36=VLED+)**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|
| Operation Current For LED Driver | VLED+=3.3V | 270 | - | 405 | mA | Note 1,2 |
| Power Consumption | VLED+=3.3V | 891 | - | 1337 | mW | Note 1,2 |
| Supply Voltage For LED Driver | VLED+ | 3.3 | - | 5 | V | Note 1,2 |
| LED Life Time | | 50,000 | - | - | Hr | Note 2,3,4 |

Note 1 : Base on VLED= 3.3V for the back light driver IC specification
Note 2 : Ta = 25 ℃
Note 3 : Brightness to be decreased to 50% of the initial value
Note 4 : The single LED lamp case

first FC components

# Optical Characteristics

| Item | | Symbol | Condition. | Min | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|---|---|
| Response time | | Tr+ Tf | θ=0°、Φ=0° | - | 25 | 50 | .ms | Note 3 |
| Contrast ratio | | CR | At optimized viewing angle | - | 500 | - | - | Note 4 |
| Color Chromaticity | White | Wx | θ=0°、Φ=0 | 0.265 | 0.315 | 0.365 | | Note 2,6,7 |
| | | Wy | | 0.276 | 0.326 | 0.376 | | |
| Viewing angle (Gray Scale Inversion Direction) | Hor. | ΘR | CR≧10 | - | 70 | - | Deg. | Note 1 |
| | | ΘL | | - | 70 | - | | |
| | Ver. | ΦT | | - | 50 | - | | |
| | | ΦB | | - | 60 | - | | |
| Brightness | | - | - | 250 | 350 | - | cd/m2 | Center of display |
| Uniformity | | (U) | - | 75 | - | - | % | Note5 |

Ta=25±2℃, VLED /ILED = 3.3V /270mA

Note 1: Definition of viewing angle range

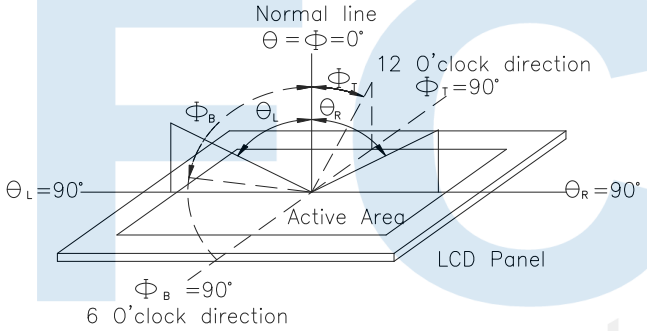



Fig. 1. Definition of viewing angle

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-7 or BM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

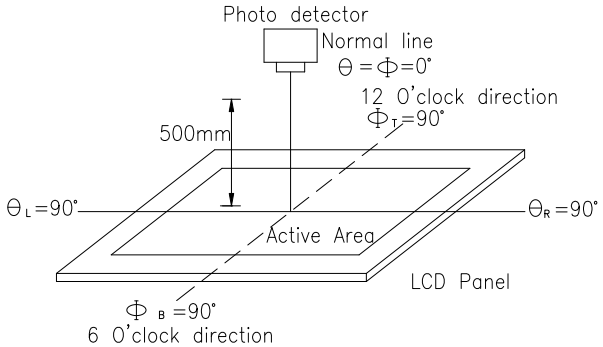



Fig. 2. Optical measurement system setup

Note 3: Definition of Response time:

# Interface

**LCM PIN Definition (CON3)**

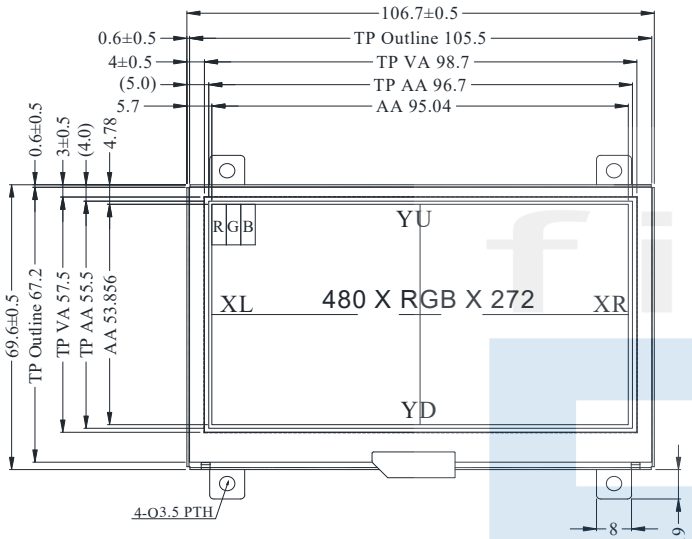
| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | GND | System round pin of the IC. Connect to system ground. | |
| 2 | VDD | Power Supply : +3.3V | |
| 3 | BL_E | Backlight control signal , H: On \ L: Off | |
| 4 | D/C | Data/Command select | |
| 5 | WR | Write strobe signal | |
| 6 | RD | 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 connection | |
| 24 | NC | No connection | |
| 25 | CS | Chip select | |
| 26 | RESET | Hardware reset | |
| 27 | DISP_ON | Display control H: On \ L:Off | |
| 28 | NC | No connection | |
| 29 | XL | Left electrode | |
| 30 | YU | Top electrode | |

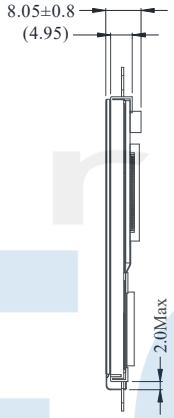
| | | | |
|---|---|---|---|
| 31 | XR | Right electrode | |
| 32 | YD | Bottom electrode | |
| 33 | VLED- | VLED- for B/L LED inverter (GND) | |
| 34 | VLED- | VLED- for B/L LED inverter (GND) | |
| 35 | VLED+ | VLED+ for B/L LED inverter (+3.3V) | |
| 36 | VLED+ | VLED+ for B/L LED inverter (+3.3V) | |

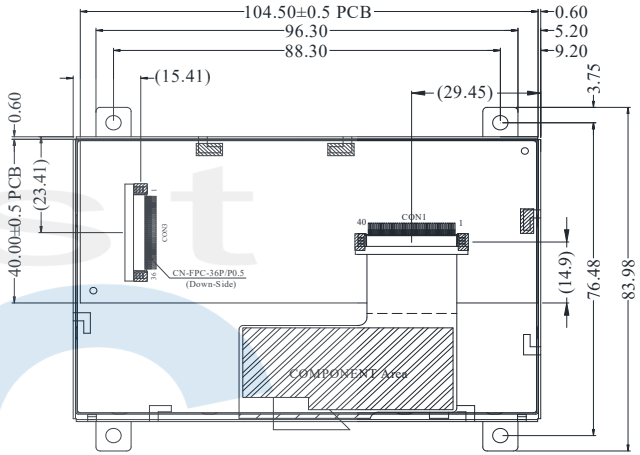
Note1: When select 8bit mode, DB0~DB7 be used, DB8~DB15 no connect
When select 16bit mode, DB0~DB15 be used

first FC components

# Contour Drawing




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

The non-specified tolerance of dimension is ±0.3 mm .

first FC components