

# TFT DISPLAY SPECIFICATION



**WINSTAR Display Co.,Ltd.**  
**華凌光電股份有限公司**



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### SPECIFICATION

**MODULE NO.: WF52QSZBSDBN0#**

### General Specifications

| Item                           | Dimension                          | Unit |
|--------------------------------|------------------------------------|------|
| Size                           | 5.2                                | inch |
| Dot Matrix                     | 480 x RGB x 128                    | 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                 | 6 o'clock                          |      |
| Gray Scale Inversion Direction | 12 o'clock                         |      |
| Aspect Ratio                   | Bar Type                           |      |
| Backlight Type                 | LED, Normally White                |      |
| Controller IC                  | SSD1963                            |      |
| Interface                      | Digital 8080 family MPU 8bit/16bit |      |
| Touch Panel                    | Without Touch Panel                |      |
| Surface                        | Anti-Glare                         |      |

\*Color tone slight changed by temperature and driving voltage.

# Absolute Maximum Ratings

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

## Electrical Characteristics

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

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

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

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

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

# Interface

## 1. LCM PIN Definition (CON4)

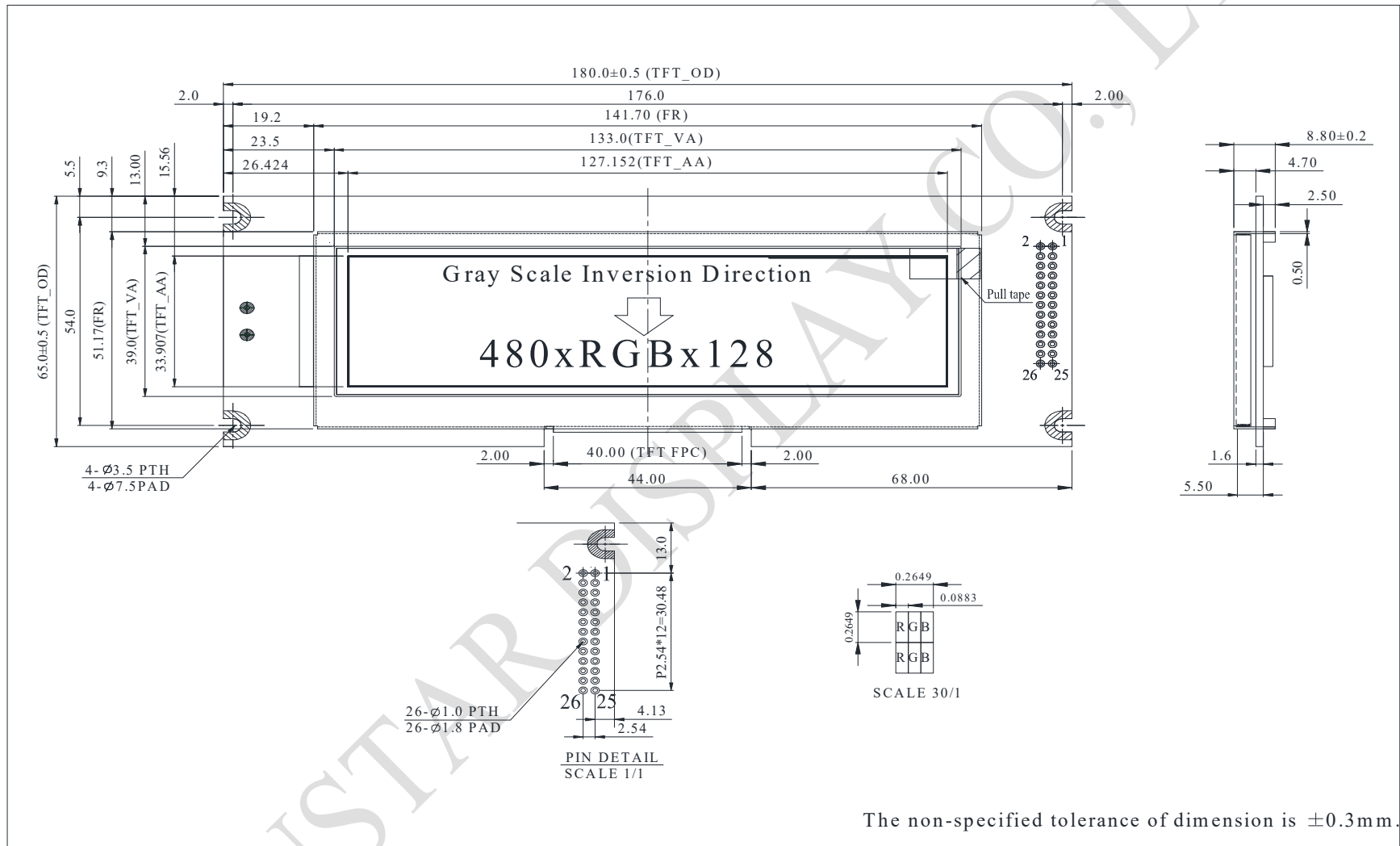
| Pin | Symbol | Function                                              |
|-----|--------|-------------------------------------------------------|
| 1   | GND    | System round pin of the IC. Connect to system ground. |
| 2   | VDD    | Power Supply : +3.3V                                  |
| 3   | BL_E   | 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)     |
| 16  | DB9    | Data bus (When select 8bits mode, this pin is NC)     |
| 17  | DB10   | Data bus (When select 8bits mode, this pin is NC)     |
| 18  | DB11   | Data bus (When select 8bits mode, this pin is NC)     |
| 19  | DB12   | Data bus (When select 8bits mode, this pin is NC)     |
| 20  | DB13   | Data bus (When select 8bits mode, this pin is NC)     |
| 21  | DB14   | Data bus (When select 8bits mode, this pin is NC)     |
| 22  | DB15   | Data bus (When select 8bits mode, this pin is NC)     |
| 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       |
| 28  | UD     | Up/down selection; Default U/D is Pull High           |
| 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) |

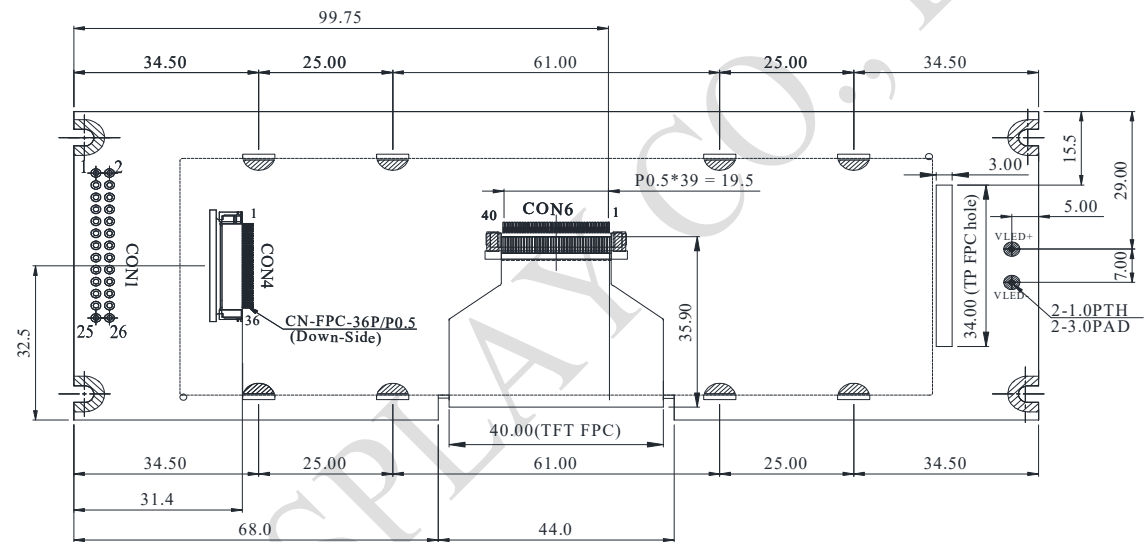
## 2. LCM PIN Definition (CON1)

| Pin | Symbol | Function                                              |
|-----|--------|-------------------------------------------------------|
| 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)                      |
| 22  | VLED-  | VLED- for B/L LED inverter (GND)                      |
| 23  | NC     | No connect                                            |
| 24  | NC     | No connect                                            |
| 25  | NC     | No connect                                            |
| 26  | GND    | System round pin of the IC. Connect to system ground. |

# Contour Drawing



| CON1    |        | CON4    |        |
|---------|--------|---------|--------|
| PIN NO. | SYMBOL | PIN 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  $\pm 0.3\text{mm}$ .