

TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



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WEB: <https://www.winstar.com.tw> E-mail: sales@winstar.com.tw

SPECIFICATION

MODULE NO.: WF24MTLAJDNN0#

General Specifications

| Item | Dimension | Unit |
|--------------------------------|-----------------------------------|------|
| Size | 2.4 | inch |
| Dot Matrix | 240 x RGB x 320(TFT) | dots |
| Module dimension | 42.72(W) x 60.26(H) x 2.25(D) | mm |
| Active area | 36.72 x 48.96 | mm |
| Pixel Pitch | 0.153 x 0.153 | mm |
| LCD type | TFT, Normally White, Transmissive | |
| TFT Interface | SPI | |
| TFT Driver IC | ST7789V or Equivalent | |
| View Direction | 6 o'clock | |
| Gray Scale Inversion Direction | 12 o'clock | |
| Aspect Ratio | Portrait | |
| Backlight Type | LED, Normally White | |
| Touch Panel | Without Touch Panel | |
| Surface | 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

Operating conditions

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---------------------------|-----------------|-----------|-----|-----|-----|------|
| Supply Voltage For Analog | V _{CC} | — | 2.4 | 3.3 | 3.6 | V |
| Supply Current For LCM | I _{CC} | — | — | 6.4 | 9.6 | mA |

Interface

LCM PIN Definition

| NO | Symbol | Function | | | | | | | | | | | | | | | | | | |
|-------|-----------|---|-----|---------------------------|---------------------|-----|--------------------|----------|---|---|---|---|------------------------|-------------|---|---|---|---|---------------------------|---------------------|
| 1 | GND | Ground | | | | | | | | | | | | | | | | | | |
| 2 | VLED+ | Anode of LED backlight. | | | | | | | | | | | | | | | | | | |
| 3 | VLED- | Cathode of LED backlight. | | | | | | | | | | | | | | | | | | |
| 4 | GND | Ground | | | | | | | | | | | | | | | | | | |
| 5 | VCC | Power supply | | | | | | | | | | | | | | | | | | |
| 6 | RESET | System reset pin. (RESX) signal is active low | | | | | | | | | | | | | | | | | | |
| 7 | SDA | When IM3: Low, SPI interface input/output pin. When IM3: High, SPI interface input pin. The data is latched on the rising edge of the SCL signal. If not used, please fix this pin at VDDI or DGND level. | | | | | | | | | | | | | | | | | | |
| 8 | DCX(SCL) | This pin is used to be serial interface clock. DCX='1': display data or parameter. DCX='0': command data. If not used, please fix this pin at VDDI or DGND. | | | | | | | | | | | | | | | | | | |
| 9 | CSX | Chip selection pin Low enable. High disable. | | | | | | | | | | | | | | | | | | |
| 10 | WRX(D/CX) | Display data/command selection pin in 4-line serial interface. Second Data lane in 2 data lane serial interface. If not used, please fix this pin at VDDI or DGND. | | | | | | | | | | | | | | | | | | |
| 11 | GND | Ground | | | | | | | | | | | | | | | | | | |
| 12 | SDO(DOUT) | SPI interface output pin. The data is output on the falling edge of the SCL signal. If not used, let this pin open. | | | | | | | | | | | | | | | | | | |
| 13 | TE | Tearing effect signal is used to synchronize MCU to frame memory writing. If not used, please let this pin open | | | | | | | | | | | | | | | | | | |
| 14 | IM3 | The MCU interface mode select. <table border="1" data-bbox="509 1532 1426 1762"> <thead> <tr> <th>IM3</th> <th>IM2</th> <th>IM1</th> <th>IM0</th> <th>MPU Interface Mode</th> <th>Data pin</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>4-line 8bit serial I/F</td> <td>SDA: in/out</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>4-line 8bit serial I/F II</td> <td>SDA:in/ SDO: out</td> </tr> </tbody> </table> | IM3 | IM2 | IM1 | IM0 | MPU Interface Mode | Data pin | 0 | 1 | 1 | 0 | 4-line 8bit serial I/F | SDA: in/out | 1 | 1 | 1 | 0 | 4-line 8bit serial I/F II | SDA:in/ SDO: out |
| IM3 | IM2 | IM1 | IM0 | MPU Interface Mode | Data pin | | | | | | | | | | | | | | | |
| 0 | 1 | 1 | 0 | 4-line 8bit serial I/F | SDA: in/out | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 0 | 4-line 8bit serial I/F II | SDA:in/ SDO: out | | | | | | | | | | | | | | | |
| 15 | GND | Ground | | | | | | | | | | | | | | | | | | |
| 16-19 | NC | No connection | | | | | | | | | | | | | | | | | | |
| 20 | GND | Ground | | | | | | | | | | | | | | | | | | |

Contour Drawing

