**Winstar Display Co., LTD**
**華凌光電股份有限公司**

# SPECIFICATION

**CUSTOMER :** _____

**MODULE NO.:** WF50-800480FH#0P3-FC

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

| SALES BY | APPROVED BY | CHECKED BY | PREPARED BY |
|---|---|---|---|
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| **ISSUED DATE:** 2020/08/14 | | | |

# General Specifications

| Item | Dimension | Unit |
|---|---|---|
| Size | 5.0 | inch |
| Dot Matrix | 800 × 3(RGB) × 480 | dots |
| Module dimension | 120.7 x 75.8 x 23.2 (Max) | mm |
| Active area | 108.0 x 64.8 | mm |
| Dot pitch | 0.135 x 0.135 | mm |
| LCD type | TFT, Normally Black, Transmissive | |
| View Direction | 80/80/80/80 | |
| Aspect Ratio | 16:9 | |
| Backlight Type | LED, Normally White | |
| Controller IC | TFP401 | |
| Interface | HDMI(only for DVI) | |
| CTP IC | ILI2130 (from April 2021) | |
| CTP FW Version | 2 | |
| With /Without TP | With CTP(USB) | |
| Surface | Glare | |

*Color tone slight changed by temperature and driving voltage.

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# 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℃

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# Interface

**LCM PIN Definition(CON4)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | NC | No connection | |
| 2 | 5V | Raspberry Pi:Power 5V | |
| 3 | GPIO02 | Raspberry Pi:GPIO02 | |
| 4 | 5V | Raspberry Pi:Power 5V | |
| 5 | GPIO03 | Raspberry Pi:GPIO03 | |
| 6 | GND | Raspberry Pi:GND | |
| 7 | GPIO04 | Raspberry Pi:GPIO04 | |
| 8 | GPIO14 | Raspberry Pi:GPIO14 | |
| 9 | GND | Raspberry Pi:GND | |
| 10 | GPIO15 | Raspberry Pi:GPIO15 | |
| 11 | GPIO17 | Raspberry Pi:GPIO17 | |
| 12 | GPIO18 | Raspberry Pi:GPIO18 (Backlight Enable) | |
| 13 | GPIO27 | Raspberry Pi:GPIO27 | |
| 14 | GND | Raspberry Pi:GND | |
| 15 | GPIO22 | Raspberry Pi:GPIO22 | |
| 16 | GPIO23 | Raspberry Pi:GPIO23 | |
| 17 | NC | No connection | |
| 18 | GPIO24 | Raspberry Pi:GPIO24 | |
| 19 | GPIO10 | Raspberry Pi:GPIO10 | |
| 20 | GND | Raspberry Pi:GND | |
| 21 | GPIO09 | Raspberry Pi:GPIO09 | |
| 22 | GPIO25 | Raspberry Pi:GPIO25 | |
| 23 | GPIO11 | Raspberry Pi:GPIO11 | |
| 24 | GPIO08 | Raspberry Pi:GPIO08 | |
| 25 | GND | Raspberry Pi:GND | |
| 26 | GPIO07 | Raspberry Pi:GPIO07 | |
| 27 | ID_SD | Raspberry Pi:ID_SD | |
| 28 | ID_SC | Raspberry Pi:ID_SC | |
| 29 | GPIO05 | Raspberry Pi:GPIO05 | |
| 30 | GND | Raspberry Pi:GND | |

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| | | | |
|---|---|---|---|
| 31 | GPIO06 | Raspberry Pi:GPIO06 | |
| 32 | GPIO12 | Raspberry Pi:GPIO12 | |
| 33 | GPIO13 | Raspberry Pi:GPIO13 | |
| 34 | GND | Raspberry Pi:GND | |
| 35 | GPIO19 | Raspberry Pi:GPIO19 | |
| 36 | GPIO16 | Raspberry Pi:GPIO16 | |
| 37 | GPIO26 | Raspberry Pi:GPIO26 | |
| 38 | GPIO20 | Raspberry Pi:GPIO20 | |
| 39 | GND | Raspberry Pi:GND | |
| 40 | GPIO21 | Raspberry Pi:GPIO21 | |

**(CON5)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | 3.3V | TFT Module Power limit can only output 3.3V,100mA | Note1 |
| 2 | 5V | Raspberry Pi:Power 5V | |
| 3 | GPIO02 | Raspberry Pi:GPIO02 | |
| 4 | 5V | Raspberry Pi:Power 5V | |
| 5 | GPIO03 | Raspberry Pi:GPIO03 | |
| 6 | GND | Raspberry Pi:GND | |
| 7 | GPIO04 | Raspberry Pi:GPIO04 | |
| 8 | GPIO14 | Raspberry Pi:GPIO14 | |
| 9 | GND | Raspberry Pi:GND | |
| 10 | GPIO15 | Raspberry Pi:GPIO15 | |
| 11 | GPIO17 | Raspberry Pi:GPIO17 | |
| 12 | GPIO18 | Raspberry Pi:GPIO18 (Backlight Enable) | |
| 13 | GPIO27 | Raspberry Pi:GPIO27 | |
| 14 | GND | Raspberry Pi:GND | |
| 15 | GPIO22 | Raspberry Pi:GPIO22 | |
| 16 | GPIO23 | Raspberry Pi:GPIO23 | |
| 17 | 3.3V | TFT Module Power limit can only output 3.3V,100mA | Note1 |
| 18 | GPIO24 | Raspberry Pi:GPIO24 | |
| 19 | GPIO10 | Raspberry Pi:GPIO10 | |
| 20 | GND | Raspberry Pi:GND | |
| 21 | GPIO09 | Raspberry Pi:GPIO09 | |

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| | | | |
|---|---|---|---|
| 22 | GPIO25 | Raspberry Pi:GPIO25 | |
| 23 | GPIO11 | Raspberry Pi:GPIO11 | |
| 24 | GPIO08 | Raspberry Pi:GPIO08 | |
| 25 | GND | Raspberry Pi:GND | |
| 26 | GPIO07 | Raspberry Pi:GPIO07 | |
| 27 | ID_SD | Raspberry Pi:ID_SD | |
| 28 | ID_SC | Raspberry Pi:ID_SC | |
| 29 | GPIO05 | Raspberry Pi:GPIO05 | |
| 30 | GND | Raspberry Pi:GND | |
| 31 | GPIO06 | Raspberry Pi:GPIO06 | |
| 32 | GPIO12 | Raspberry Pi:GPIO12 | |
| 33 | GPIO13 | Raspberry Pi:GPIO13 | |
| 34 | GND | Raspberry Pi:GND | |
| 35 | GPIO19 | Raspberry Pi:GPIO19 | |
| 36 | GPIO16 | Raspberry Pi:GPIO16 | |
| 37 | GPIO26 | Raspberry Pi:GPIO26 | |
| 38 | GPIO20 | Raspberry Pi:GPIO20 | |
| 39 | GND | Raspberry Pi:GND | |
| 40 | GPIO21 | Raspberry Pi:GPIO21 | |

Note1: The 3.3V supply current is limited; please pay special attention to use

**CTP USB PIN Definition(CON3)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | 5V | Power 5V | |
| 2 | D- | Data line - | |
| 3 | D+ | Data line + | |
| 4 | NC | No connection | |
| 5 | GND | Power Ground | |

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**HDMI**

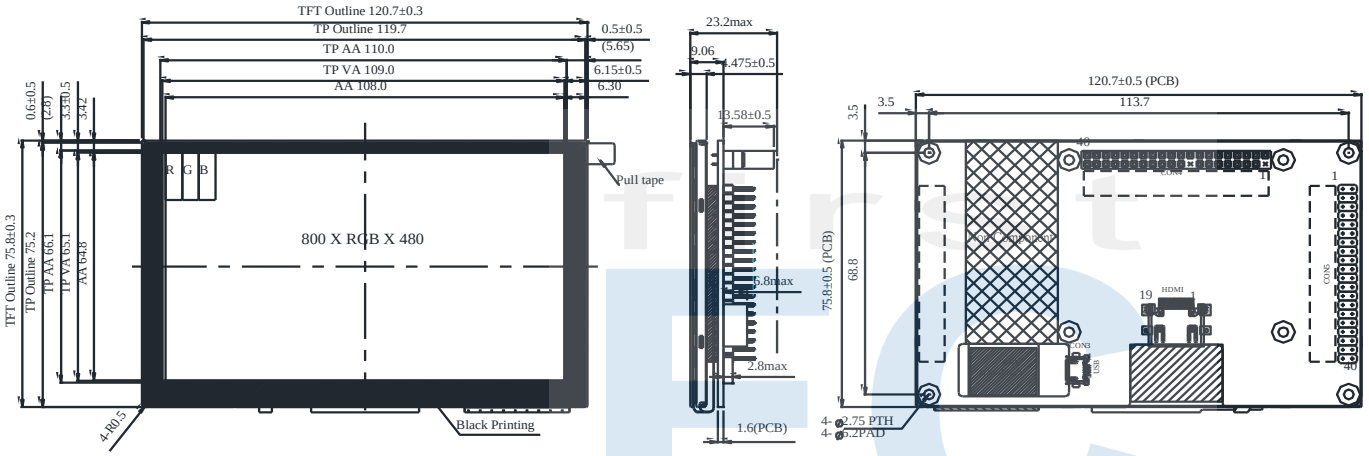
| Pin No. | Symbol | I/O | Function | Remark |
|---|---|---|---|---|
| 1 | Rx2+ | I | +LVDS Differential Data Input | |
| 2 | GND | P | Ground | |
| 3 | Rx2- | I | -LVDS Differential Data Input | |
| 4 | Rx1+ | I | +LVDS Differential Data Input | |
| 5 | GND | P | Ground | |
| 6 | Rx1- | I | -LVDS Differential Data Input | |
| 7 | Rx0+ | I | +LVDS Differential Data Input | |
| 8 | GND | P | Ground | |
| 9 | Rx0- | I | -LVDS Differential Data Input | |
| 10 | RxC+ | I | +LVDS Differential Clock Input | |
| 11 | GND | P | Ground | |
| 12 | RxC- | I | -LVDS Differential Clock Input | |
| 13-14 | NC | - | No connection | |
| 15 | SCL | I/O | DDC(Data Display Channel) Clock | |
| 16 | SDA | I/O | DDC(Data Display Channel) Data | |
| 17 | GND | P | Ground | |
| 18 | 5V | P | Power Supply | |
| 19 | Detect | I/O | Hot plug detect | |

I: input, O: output, P: Power

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# Contour Drawing

Attention: the drawing below is of the version with connectors for Raspb. Pi 1~3 & Pi3B+ versions.
Please note that this datasheet refers to the version without them.




CON4

| Pin | Symbol | Pin | Symbol |
|---|---|---|---|
| 1 | NC | 21 | GPIO09 |
| 2 | 5V | 22 | GPIO25 |
| 3 | GPIO02 | 23 | GPIO11 |
| 4 | 5V | 24 | GPIO08 |
| 5 | GPIO03 | 25 | GND |
| 6 | GND | 26 | GPIO07 |
| 7 | GPIO04 | 27 | ID_SD |
| 8 | GPIO14 | 28 | ID_SC |
| 9 | GND | 29 | GPIO05 |
| 10 | GPIO15 | 30 | GND |
| 11 | GPIO17 | 31 | GPIO06 |
| 12 | GPIO18 | 32 | GPIO12 |
| 13 | GPIO27 | 33 | GPIO13 |
| 14 | GND | 34 | GND |
| 15 | GPIO22 | 35 | GPIO19 |
| 16 | GPIO23 | 36 | GPIO16 |
| 17 | NC | 37 | GPIO26 |
| 18 | GPIO24 | 38 | GPIO20 |
| 19 | GPIO10 | 39 | GND |
| 20 | GND | 40 | GPIO21 |

CON5

| Pin | Symbol | Pin | Symbol |
|---|---|---|---|
| 1 | 3.3V | 21 | GPIO09 |
| 2 | 5V | 22 | GPIO25 |
| 3 | GPIO02 | 23 | GPIO11 |
| 4 | 5V | 24 | GPIO08 |
| 5 | GPIO03 | 25 | GND |
| 6 | GND | 26 | GPIO07 |
| 7 | GPIO04 | 27 | ID_SD |
| 8 | GPIO14 | 28 | ID_SC |
| 9 | GND | 29 | GPIO05 |
| 10 | GPIO15 | 30 | GND |
| 11 | GPIO17 | 31 | GPIO06 |
| 12 | GPIO18 | 32 | GPIO12 |
| 13 | GPIO27 | 33 | GPIO13 |
| 14 | GND | 34 | GND |
| 15 | GPIO22 | 35 | GPIO19 |
| 16 | GPIO23 | 36 | GPIO16 |
| 17 | 3.3V | 37 | GPIO26 |
| 18 | GPIO24 | 38 | GPIO20 |
| 19 | GPIO10 | 39 | GND |
| 20 | GND | 40 | GPIO21 |

HDMI

| Pin | Symbol |
|---|---|
| 1 | RX2+ |
| 2 | GND |
| 3 | RX2- |
| 4 | RX1+ |
| 5 | GND |
| 6 | RX1- |
| 7 | RX0+ |
| 8 | GND |
| 9 | RX0- |
| 10 | RXC+ |
| 11 | GND |
| 12 | RXC- |
| 13 | NC |
| 14 | NC |
| 15 | SCL |
| 16 | SDA |
| 17 | GND |
| 18 | 5V |
| 19 | Detect |

CON3

| PIN NO. | SYMBOL |
|---|---|
| 1 | 5V |
| 2 | D- |
| 3 | D+ |
| 4 | NC |
| 5 | GND |

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

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