

# TFT DISPLAY SPECIFICATION



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



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### SPECIFICATION

MODULE NO.: WF70A7TIAHLNB0#

### General Specifications

| Item                           | Dimension                         | Unit |
|--------------------------------|-----------------------------------|------|
| Size                           | 7.0                               | inch |
| Dot Matrix                     | 1024 x RGB x 600(TFT)             | dots |
| Module dimension               | 202.0 (W) x 135.5 (H) x 8.73 (D)  | mm   |
| Active area                    | 154.2144 x 85.92                  | mm   |
| Dot pitch                      | 0.1506 x 0.1432                   | mm   |
| LCD type                       | TFT, Normally White, Transmissive |      |
| View Direction                 | 12 o'clock                        |      |
| Gray Scale Inversion Direction | 6 o'clock                         |      |
| Aspect Ratio                   | 16:9                              |      |
| Control IC                     | --                                |      |
| TFT Driver IC                  | EK79001HE + EK73215BCGA           |      |
| TFT Interface                  | LVDS                              |      |
| Backlight Type                 | LED, Normally White               |      |
| Touch Panel                    | Projected capacitive touch screen |      |
| PCAP IC                        | ILI2511 Or equivalent             |      |
| PCAP Interface                 | USB (I2C available)               |      |
| PCAP FW Version                | V 6. 0. 0. 0. 7.65. 0. 1          |      |
| 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

### 1. Typical Operation Conditions

| Item                     | Symbol | Values   |      |          | Unit |
|--------------------------|--------|----------|------|----------|------|
|                          |        | Min.     | Typ. | Max.     |      |
| Power voltage            | DVDD   | 3.0      | 3.3  | 3.6      | V    |
|                          | AVDD   | 9.4      | 9.6  | 9.8      | V    |
|                          | VGH    | 17       | 18   | 19       | V    |
|                          | VGL    | -6.6     | -6.0 | -5.4     | V    |
| Supply Voltage For Touch | VDDT   | 4.4      | 5.0  | 5.5      | V    |
| Input signal voltage     | VCOM   | 3.1      | 3.3  | 3.6      | V    |
| Input logic high voltage | VIH    | 0.7 DVDD | -    | DVDD     | V    |
| Input logic low voltage  | VIL    | 0        | -    | 0.3 DVDD | V    |

### 2. Current Consumption

| Item               | Symbol | Values |      |      | Unit |
|--------------------|--------|--------|------|------|------|
|                    |        | Min.   | Typ. | Max. |      |
| Current for Driver | IGH    | -      | 0.2  | 1.0  | mA   |
|                    | IGL    | -      | 0.2  | 1.0  | mA   |
|                    | IDVDD  | -      | 4.0  | 10   | mA   |
|                    | IAVDD  | -      | 20   | 50   | mA   |

### 3. Backlight Driving Conditions

| Item                      | Symbol | Values |        |      | Unit |
|---------------------------|--------|--------|--------|------|------|
|                           |        | Min.   | Typ.   | Max. |      |
| Voltage for LED backlight | VL     | 8.4    | 9.8    | 10.8 | V    |
| Current for LED backlight | IL     | --     | 300    | --   | mA   |
| LED life time             | -      | -      | 50,000 | -    | Hr   |

# Interface

## 1. LCM PIN Definition

FPC Connector is used for the module electronics interface. The recommended model is FH12A-40S-0.5SH manufactured by Hirose.

| Pin No. | Symbol   | I/O | Function                                                                                                                                                     |
|---------|----------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | VCOM     | P   | Common Voltage                                                                                                                                               |
| 2       | VDD      | P   | Digital circuit                                                                                                                                              |
| 3       | VDD      | P   | Digital circuit                                                                                                                                              |
| 4       | NC       | --- | No connection                                                                                                                                                |
| 5       | Reset    | I   | Global reset pin                                                                                                                                             |
| 6       | STBYB    | I   | Standby mode, Normally pulled high<br>STBYB = "1", normal operation<br>STBYB = "0", timing controller, source driver will turn off,<br>all output are High-Z |
| 7       | GND      | P   | Ground                                                                                                                                                       |
| 8       | RXIN0-   | I   | Negative LVDS differential data input                                                                                                                        |
| 9       | RXIN0+   | I   | Positive LVDS differential data input                                                                                                                        |
| 10      | GND      | P   | Ground                                                                                                                                                       |
| 11      | RXIN1-   | I   | Negative LVDS differential data input                                                                                                                        |
| 12      | RXIN1+   | I   | Positive LVDS differential data input                                                                                                                        |
| 13      | GND      | P   | Ground                                                                                                                                                       |
| 14      | RXIN2-   | I   | Negative LVDS differential data input                                                                                                                        |
| 15      | RXIN2+   | I   | Positive LVDS differential data input                                                                                                                        |
| 16      | GND      | P   | Ground                                                                                                                                                       |
| 17      | RXCLKIN- | I   | Negative LVDS differential clock input                                                                                                                       |
| 18      | RXCLKIN+ | I   | Positive LVDS differential clock input                                                                                                                       |
| 19      | GND      | P   | Ground                                                                                                                                                       |
| 20      | RXIN3-   | I   | Negative LVDS differential data input                                                                                                                        |
| 21      | RXIN3+   | I   | Positive LVDS differential data input                                                                                                                        |
| 22      | GND      | P   | Ground                                                                                                                                                       |
| 23      | NC       | --- | No connection                                                                                                                                                |
| 24      | NC       | --- | No connection                                                                                                                                                |
| 25      | GND      | P   | Ground                                                                                                                                                       |
| 26      | NC       | --- | No connection                                                                                                                                                |
| 27      | DIMO     | O   | Backlight CABC controller signal output                                                                                                                      |
| 28      | SELB     | I   | 6bit/8bit mode select      H:6bit / L:8bit                                                                                                                   |

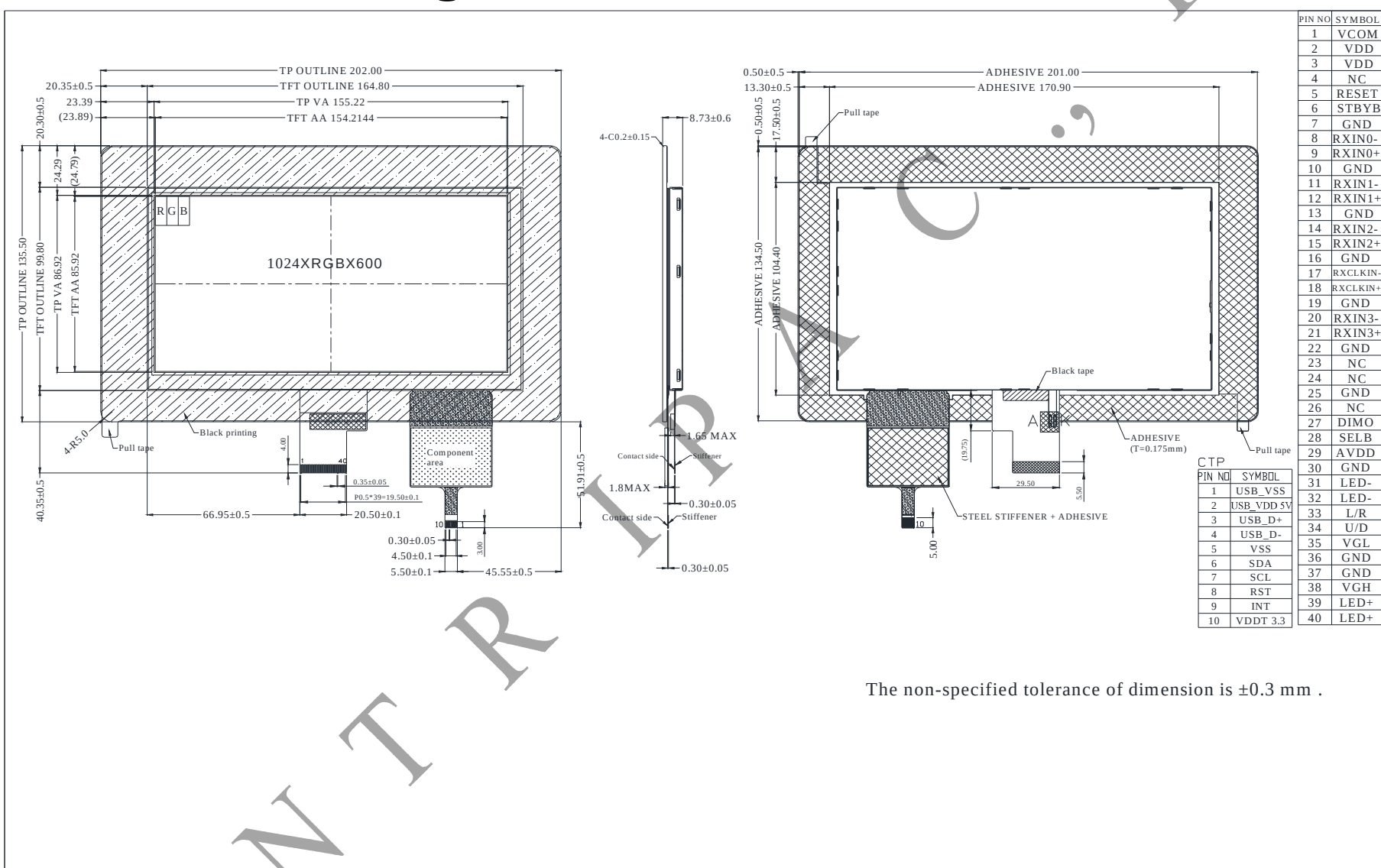
|    |      |   |                          |
|----|------|---|--------------------------|
| 29 | AVDD | P | Power for Analog Circuit |
| 30 | GND  | P | Ground                   |
| 31 | LED- | P | LED Cathode              |
| 32 | LED- | P | LED Cathode              |
| 33 | L/R  | I | Horizontal inversion     |
| 34 | U/D  | I | Vertical inversion       |
| 35 | VGL  | P | Negative power for TFT   |
| 36 | GND  | P | Ground                   |
| 37 | GND  | P | Ground                   |
| 38 | VGH  | P | Positive power for TFT   |
| 39 | LED+ | P | LED Anode                |
| 40 | LED+ | P | LED Anode                |

I:input ,O:output,P:power

## 2. PCAP PIN Definition

| Pin | Symbol     | Function                       |
|-----|------------|--------------------------------|
| 1   | USB_VSS    | System ground                  |
| 2   | USB_VDD 5V | Power supply                   |
| 3   | USB_D+     | Data +                         |
| 4   | USB_D-     | Data -                         |
| 5   | VSS        | System ground                  |
| 6   | SDA        | I2C data input and output      |
| 7   | SCL        | I2C clock input                |
| 8   | RST        | External Reset, Low is active  |
| 9   | INT        | External interrupt to the host |
| 10  | VDDT 3.3   | Power supply                   |

# Contour Drawing



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