

# TFT DISPLAY SPECIFICATION



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



## SPECIFICATION

**MODULE NO.: WF70A9SWAGDNN0#**

### General Specifications

| Item             | Dimension                         | Unit |
|------------------|-----------------------------------|------|
| Size             | 7.0                               | inch |
| Dot Matrix       | 800 x RGB x 480(TFT)              | dots |
| Module dimension | 165.8 (W) x 106.61 (H) x 6.5(D)   | mm   |
| Active area      | 152.40 x 91.44                    | mm   |
| Pixel pitch      | 0.1905 x 0.1905                   | mm   |
| LCD type         | TFT, Normally Black, Transmissive |      |
| View Direction   | 80/80/80/80                       |      |
| TFT Interface    | 24-bit RGB                        |      |
| TFT Driver IC    | HX8249-A + HX8678-C or Equivalent |      |
| Aspect Ratio     | 15:9                              |      |
| Backlight Type   | LED, Normally White               |      |
| 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    | -30 | —   | +80 | °C   |
| Storage Temperature   | TST    | -40 | —   | +85 | °C   |

## Electrical Characteristics

### Operating conditions

| Item                    | Symbol | Min | Typ | Max | Unit |
|-------------------------|--------|-----|-----|-----|------|
| Supply Voltage          | Vcc    | 2.7 | 3.3 | 3.6 | V    |
| Current of power supply | Icc    | —   | 101 | 150 | mA   |

# Interface

## 1. LCM PIN Definition

| Pin  | Symbol   | Function                                                                                                                                                                                                                                              |      |          |      |   |         |   |   |       |         |
|------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------|---|---------|---|---|-------|---------|
| 1-4  | NC       | No connection                                                                                                                                                                                                                                         |      |          |      |   |         |   |   |       |         |
| 5    | GND      | Power Ground                                                                                                                                                                                                                                          |      |          |      |   |         |   |   |       |         |
| 6    | NC       | No connection                                                                                                                                                                                                                                         |      |          |      |   |         |   |   |       |         |
| 7    | VCC      | Power voltage                                                                                                                                                                                                                                         |      |          |      |   |         |   |   |       |         |
| 8    | MODE     | Input timing mode selection.<br><table border="1"> <thead> <tr> <th>MODE</th><th>Function</th><th>Note</th></tr> </thead> <tbody> <tr> <td>0</td><td>DE only</td><td>-</td></tr> <tr> <td>1</td><td>HS+VS</td><td>Default</td></tr> </tbody> </table> | MODE | Function | Note | 0 | DE only | - | 1 | HS+VS | Default |
| MODE | Function | Note                                                                                                                                                                                                                                                  |      |          |      |   |         |   |   |       |         |
| 0    | DE only  | -                                                                                                                                                                                                                                                     |      |          |      |   |         |   |   |       |         |
| 1    | HS+VS    | Default                                                                                                                                                                                                                                               |      |          |      |   |         |   |   |       |         |
| 9    | DE       | Data enable signal for TTL mode.                                                                                                                                                                                                                      |      |          |      |   |         |   |   |       |         |
| 10   | VS       | Vertical sync input                                                                                                                                                                                                                                   |      |          |      |   |         |   |   |       |         |
| 11   | HS       | Horizontal sync input                                                                                                                                                                                                                                 |      |          |      |   |         |   |   |       |         |
| 12   | B7       | Blue data(MSB)                                                                                                                                                                                                                                        |      |          |      |   |         |   |   |       |         |
| 13   | B6       | Blue data                                                                                                                                                                                                                                             |      |          |      |   |         |   |   |       |         |
| 14   | B5       | Blue data                                                                                                                                                                                                                                             |      |          |      |   |         |   |   |       |         |
| 15   | B4       | Blue data                                                                                                                                                                                                                                             |      |          |      |   |         |   |   |       |         |
| 16   | B3       | Blue data                                                                                                                                                                                                                                             |      |          |      |   |         |   |   |       |         |
| 17   | B2       | Blue data                                                                                                                                                                                                                                             |      |          |      |   |         |   |   |       |         |
| 18   | B1       | Blue data                                                                                                                                                                                                                                             |      |          |      |   |         |   |   |       |         |
| 19   | B0       | Blue data(LSB)                                                                                                                                                                                                                                        |      |          |      |   |         |   |   |       |         |
| 20   | G7       | Green data(MSB)                                                                                                                                                                                                                                       |      |          |      |   |         |   |   |       |         |
| 21   | G6       | Green data                                                                                                                                                                                                                                            |      |          |      |   |         |   |   |       |         |
| 22   | G5       | Green data                                                                                                                                                                                                                                            |      |          |      |   |         |   |   |       |         |
| 23   | G4       | Green data                                                                                                                                                                                                                                            |      |          |      |   |         |   |   |       |         |
| 24   | G3       | Green data                                                                                                                                                                                                                                            |      |          |      |   |         |   |   |       |         |
| 25   | G2       | Green data                                                                                                                                                                                                                                            |      |          |      |   |         |   |   |       |         |
| 26   | G1       | Green data                                                                                                                                                                                                                                            |      |          |      |   |         |   |   |       |         |
| 27   | G0       | Green data(LSB)                                                                                                                                                                                                                                       |      |          |      |   |         |   |   |       |         |
| 28   | R7       | Red data(MSB)                                                                                                                                                                                                                                         |      |          |      |   |         |   |   |       |         |
| 29   | R6       | Red data                                                                                                                                                                                                                                              |      |          |      |   |         |   |   |       |         |
| 30   | R5       | Red data                                                                                                                                                                                                                                              |      |          |      |   |         |   |   |       |         |
| 31   | R4       | Red data                                                                                                                                                                                                                                              |      |          |      |   |         |   |   |       |         |

| 32  | R3                                    | Red data                                                                                                                                                                                                                                                                                                                 |     |                                       |      |   |               |         |   |               |   |
|-----|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------------------|------|---|---------------|---------|---|---------------|---|
| 33  | R2                                    | Red data                                                                                                                                                                                                                                                                                                                 |     |                                       |      |   |               |         |   |               |   |
| 34  | R1                                    | Red data                                                                                                                                                                                                                                                                                                                 |     |                                       |      |   |               |         |   |               |   |
| 35  | R0                                    | Red data (LSB)                                                                                                                                                                                                                                                                                                           |     |                                       |      |   |               |         |   |               |   |
| 36  | GND                                   | Power Ground                                                                                                                                                                                                                                                                                                             |     |                                       |      |   |               |         |   |               |   |
| 37  | DCLK                                  | Sample clock                                                                                                                                                                                                                                                                                                             |     |                                       |      |   |               |         |   |               |   |
| 38  | GND                                   | Power Ground                                                                                                                                                                                                                                                                                                             |     |                                       |      |   |               |         |   |               |   |
| 39  | L/R                                   | Horizontal shift direction (source output) selection.<br><table border="1"> <thead> <tr> <th>L/R</th><th>Source output sequence and data order</th><th>Note</th></tr> </thead> <tbody> <tr> <td>1</td><td>Left to right</td><td>Default</td></tr> <tr> <td>0</td><td>Right to left</td><td>-</td></tr> </tbody> </table> | L/R | Source output sequence and data order | Note | 1 | Left to right | Default | 0 | Right to left | - |
| L/R | Source output sequence and data order | Note                                                                                                                                                                                                                                                                                                                     |     |                                       |      |   |               |         |   |               |   |
| 1   | Left to right                         | Default                                                                                                                                                                                                                                                                                                                  |     |                                       |      |   |               |         |   |               |   |
| 0   | Right to left                         | -                                                                                                                                                                                                                                                                                                                        |     |                                       |      |   |               |         |   |               |   |
| 40  | U/D                                   | Vertical shift direction (gate output) selection.<br><table border="1"> <thead> <tr> <th>U/D</th><th>Function</th><th>Note</th></tr> </thead> <tbody> <tr> <td>1</td><td>Top→bottom</td><td>Default</td></tr> <tr> <td>0</td><td>Bottom→top</td><td>-</td></tr> </tbody> </table>                                        | U/D | Function                              | Note | 1 | Top→bottom    | Default | 0 | Bottom→top    | - |
| U/D | Function                              | Note                                                                                                                                                                                                                                                                                                                     |     |                                       |      |   |               |         |   |               |   |
| 1   | Top→bottom                            | Default                                                                                                                                                                                                                                                                                                                  |     |                                       |      |   |               |         |   |               |   |
| 0   | Bottom→top                            | -                                                                                                                                                                                                                                                                                                                        |     |                                       |      |   |               |         |   |               |   |
| 41  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 42  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 43  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 44  | RESET                                 | Reset pin. The chip is in reset state when RESETB=0.                                                                                                                                                                                                                                                                     |     |                                       |      |   |               |         |   |               |   |
| 45  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 46  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 47  | DITHB                                 | STBYB Standby mode setting pin. The chip is in standby mode when S<br>TBYB=0.                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 48  | GND                                   | Power Ground                                                                                                                                                                                                                                                                                                             |     |                                       |      |   |               |         |   |               |   |
| 49  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |
| 50  | NC                                    | No connection                                                                                                                                                                                                                                                                                                            |     |                                       |      |   |               |         |   |               |   |

## 2. Backlight PIN Definition

| Pin | Symbol | Description         |
|-----|--------|---------------------|
| 1   | VLED+  | Red, LED_ Anode     |
| 2   | VLED-  | Black, LED_ Cathode |

# Contour Drawing

