# LCD / LCM SPECIFICATION




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

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# SPECIFICATION

## MODULE NO.: WO12864-xxxQ#FC

# General Specification

| Item | Dimension | Unit |
|---|---|---|
| Number of Dots | 128 x 64 dots | — |
| Module dimension | 80.0 x 54.0 x 9.5 | mm |
| View area | 70.7 x 38.8 | mm |
| Active area | 66.52 x 33.24 | mm |
| Dot size | 0.48 x 0.48 | mm |
| Dot pitch | 0.52 x 0.52 | mm |
| Duty | 1/65 , 1/9 Bias | |
| Backlight Type | LED | |
| IC | ST7567 | |
| Interface | 6800/8080/4-Line SPI | |

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# Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating Temperature | $T_{OP}$ | -20 | — | +70 | ℃ |
| Storage Temperature | $T_{ST}$ | -30 | — | +80 | ℃ |
| Input Voltage | $V_I$ | -0.3 | — | $V_{DD}$+0.3 | V |
| Digital Power Supply Voltage | $V_{DD}$-Vss | -0.3 | — | 3.6 | V |
| LCD Power supply voltage | V0-XV0 | -0.3 | — | 16 | V |

# Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage For Logic | $V_{DD}$-$V_{SS}$ | — | 2.7 | 3.0 | 3.3 | V |
| Supply Voltage For LCM | $V_{OP}$ | Ta=-20℃ | — | — | — | V |
| | | Ta=25℃ | 9.7 | 9.9 | 10.1 | V |
| | | Ta=70℃ | — | — | — | V |
| Input High Volt. | $V_{IH}$ | — | 0.7 $V_{DD}$ | — | $V_{DD}$ | V |
| Input Low Volt. | $V_{IL}$ | — | Vss | — | 0.3$V_{DD}$ | V |
| Output High Volt. | $V_{OH}$ | — | 0.8 $V_{DD}$ | — | $V_{DD}$ | V |
| Output Low Volt. | $V_{OL}$ | — | Vss | — | 0.2 $V_{DD}$ | V |
| Supply Current | $I_{DD}$ | $V_{DD}$=3.0V | — | 0.3 | 1.0 | mA |

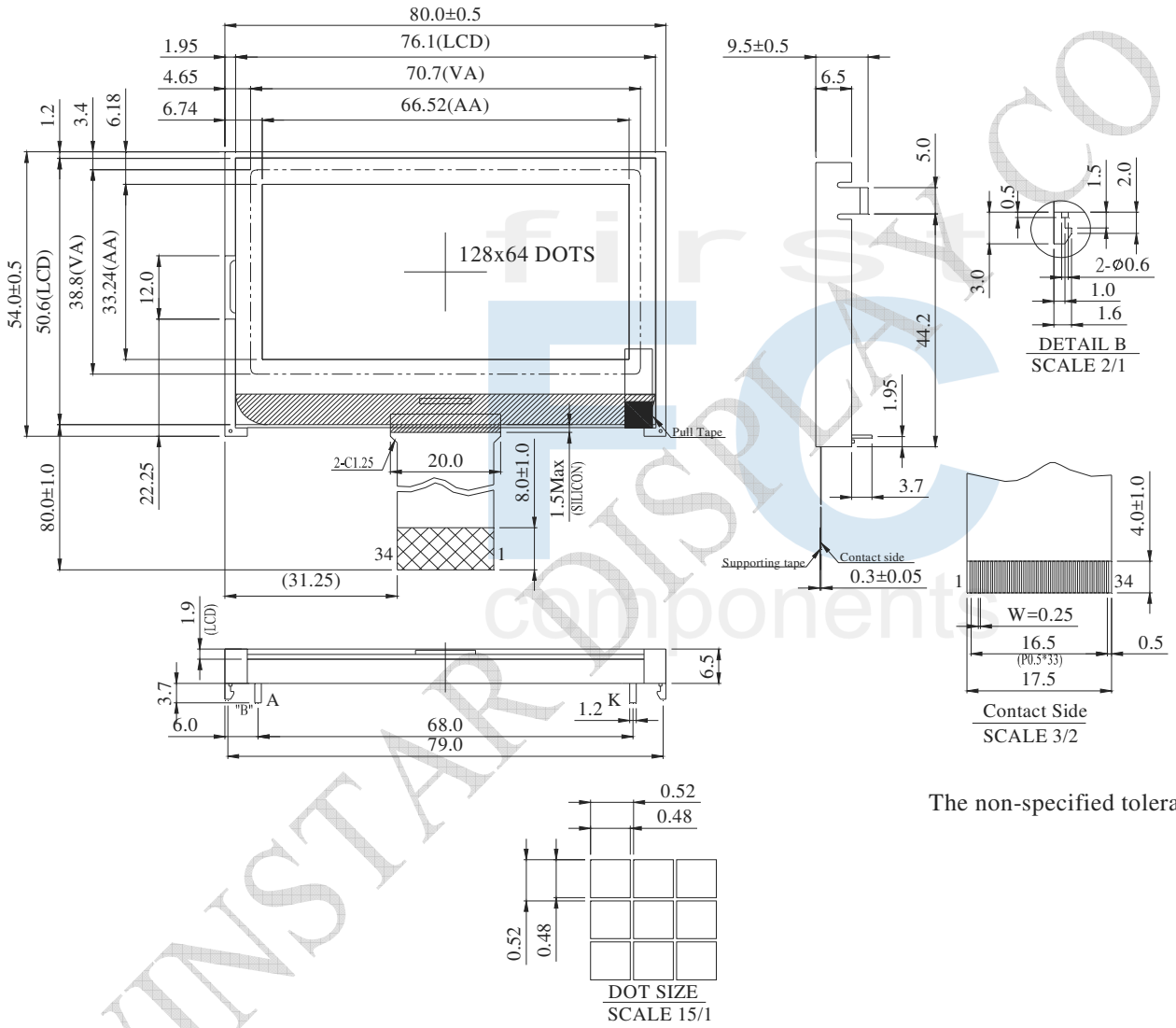
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# Interface Pin Function

| Pin No. | Symbol | Function |
|---|---|---|
| 1 | CSB | Chip select input pin |
| 2 | RSTB | Hardware reset input pin |
| 3 | A0 | It determines whether the access is related to data or command.<br>A0="H" : Indicates that signals on D[7:0] are display data.<br>A0="L" : Indicates that signals on D[7:0] are command. |
| 4 | RWR | Write execution control pin |
| 5 | ERD | Read execution control pin |
| 6~13 | D0~D7 | Data bus |
| 14 | VDD | Power |
| 15 | VSS | Ground |
| 16~20 | NC | No connection |
| 21 | V0 | LCD driving voltage for common circuits at negative frame |
| 22 | XV0 | XV0 is the LCD driving voltage for common circuits at positive frame |
| 23~24 | NC | No connection |
| 25 | VG | LCD driving voltage for segment circuits |
| 26~30 | NC | No connection |
| 31 | C86 | C86 selects the microprocessor type in parallel interface mode |
| 32 | PSB | This pin configures the interface to be parallel mode or serial mode. |
| 33-34 | NC | No connection |

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# Contour Drawing




| PIN NO. | SIGNAL | PIN NO. | SIGNAL |
|---|---|---|---|
| 1 | CSB | 18 | NC |
| 2 | RSTB | 19 | NC |
| 3 | A0 | 20 | NC |
| 4 | RWR | 21 | V0 |
| 5 | ERD | 22 | XV0 |
| 6 | D0 | 23 | NC |
| 7 | D1 | 24 | NC |
| 8 | D2 | 25 | VG |
| 9 | D3 | 26 | NC |
| 10 | D4 | 27 | NC |
| 11 | D5 | 28 | NC |
| 12 | D6 | 29 | NC |
| 13 | D7 | 30 | NC |
| 14 | $V_{DD}$ | 31 | C86 |
| 15 | $V_{SS}$ | 32 | PSB |
| 16 | NC | 33 | NC |
| 17 | NC | 34 | NC |

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

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