**Winstar Display Co., LTD**
華凌光電股份有限公司
WEB: https://www.winstar.com.tw E-mail: sales@winstar.com.tw

# SPECIFICATION

## MODULE NO.: WO12864-xxxL#FC

# General Specification

| Item | Dimension | Unit |
|---|---|---|
| Number of dots | 128 x 64 | — |
| Module dimension | 60.10 x 44.50 x 5.01(Max) | mm |
| View area | 54.6 x 32.0 | mm |
| Active area | 49.89 x 27.49 | mm |
| Dot size | 0.36 x 0.40 | mm |
| Dot pitch | 0.39 x 0.43 | mm |
| Drive Method | 1/65 DUTY, 1/9BIAS | |
| Backlight Type | LED | |
| IC | ST7567A (SPI & I2C) | |

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Represented by:
first FC components
FIRST Components srl Via Cavour 69, 21020 Buguggiate (VA)
T. +39 0332 1888005 web: www.first-components.com

# 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 | — | 4.0 | V |
| LCD Power supply voltage | V0-XV0 | -0.3 | — | 18.0 | V |

# Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage For Logic | $V_{DD}$-$V_{SS}$ | — | 2.9 | 3.0 | 3.1 | V |
| Supply Voltage For LCD *Note | $V_{OP}$ | Ta=-20℃ | — | — | — | V |
| | | Ta=25℃ | 9.3 | 9.5 | 9.7 | V |
| | | Ta=70℃ | — | — | — | V |
| Input High Volt. | $V_{IH}$ | — | 0.7$V_{DD}$ | — | $V_{DD}$ | V |
| Input Low Volt. | $V_{IL}$ | — | $V_{SS}$ | — | 0.3$V_{DD}$ | V |
| Supply Current | $I_{DD}$ | — | | | 2.0 | mA |

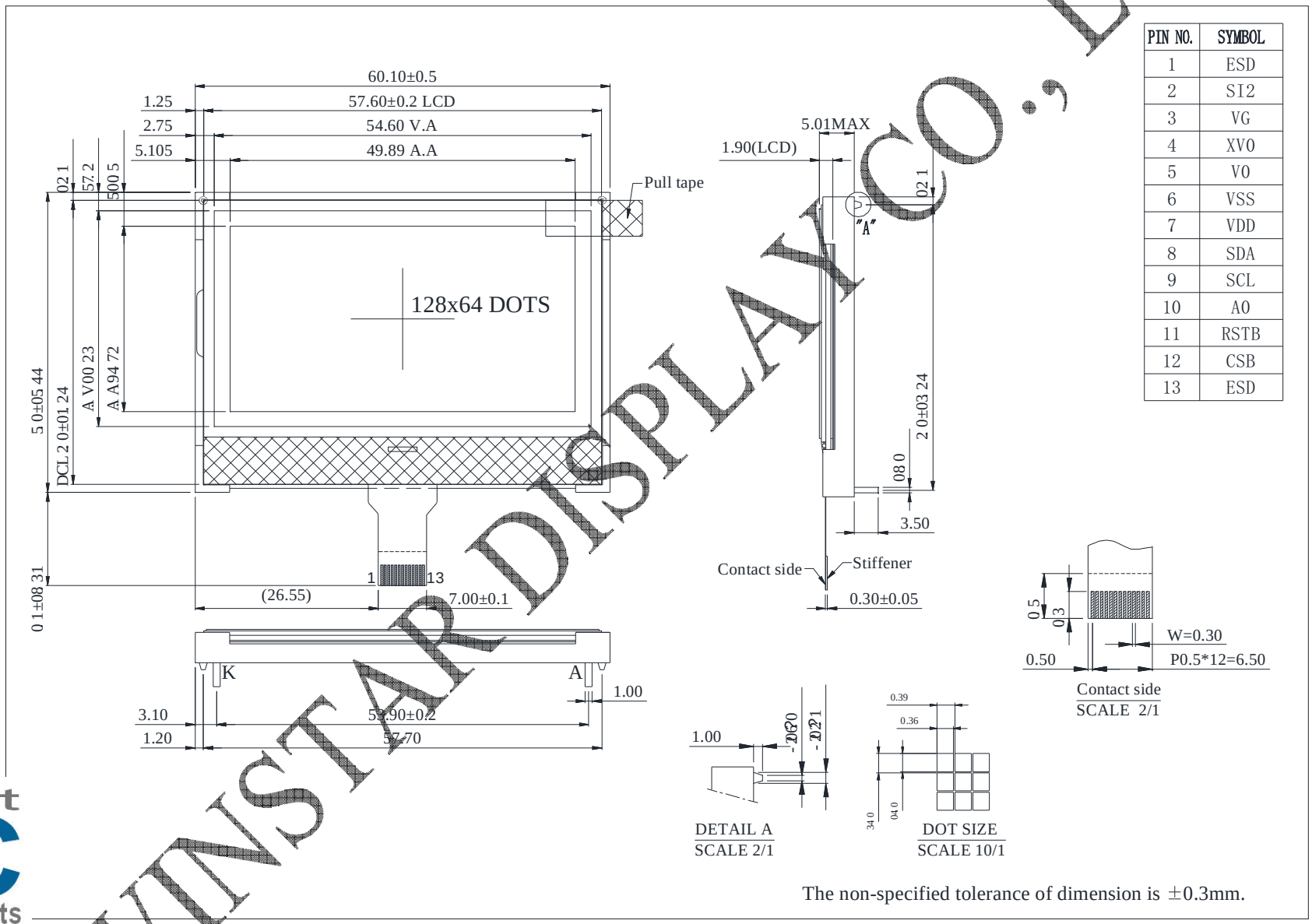
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# Interface Pin Function

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>1</td><td>ESD</td><td>ESD</td></tr>
<tr><td>2</td><td>SI2</td><td>These pins select the display duty and bias of ST7567A.
<table>
<tr><th>SEL2</th><th>SEL1</th><th>Duty</th><th>Bias</th></tr>
<tr><td>“L”</td><td>“L”</td><td>1/65</td><td>1/9 or 1/7</td></tr>
<tr><td>“L”</td><td>“H”</td><td>1/49</td><td>1/8 or 1/6</td></tr>
<tr><td>“H”</td><td>“L”</td><td>1/33</td><td>1/6 or 1/5</td></tr>
<tr><td>“H”</td><td>“H”</td><td>1/55</td><td>1/8 or 1/6</td></tr>
</table></td></tr>
<tr><td>3</td><td>VG</td><td>VG is the LCD driving voltage for segment circuits</td></tr>
<tr><td>4</td><td>XV0</td><td>XV0 is the LCD driving voltage for common circuits at positive frame.</td></tr>
<tr><td>5</td><td>V0</td><td>V0 is the LCD driving voltage for common circuits at negative frame.</td></tr>
<tr><td>6</td><td>VSS</td><td>GROUND</td></tr>
<tr><td>7</td><td>VDD</td><td>POWER</td></tr>
<tr><td>8</td><td>SDA</td><td rowspan="2">D[1:3] must be connected together as SDA.<br>D[4:7]=(1,1,1,1): ID Pin, D[4:7] should fix to “H” or “L” by VDDH or VSSL.</td></tr>
<tr><td>9</td><td>SCL</td></tr>
<tr><td>10</td><td>A0</td><td>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.</td></tr>
<tr><td>11</td><td>RSTB</td><td>Hardware reset input pin. When RSTB is “L”, internal initialization is executed and the internal registers will be initialized.</td></tr>
<tr><td>12</td><td>CSB</td><td>Chip select input pin. Interface access is enabled when CSB is “L”.<br>When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.</td></tr>
<tr><td>13</td><td>ESD</td><td>ESD</td></tr>
</table>

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# Contour Drawing




| PIN NO. | SYMBOL |
|---|---|
| 1 | ESD |
| 2 | SI2 |
| 3 | VG |
| 4 | XVO |
| 5 | VO |
| 6 | VSS |
| 7 | VDD |
| 8 | SDA |
| 9 | SCL |
| 10 | AO |
| 11 | RSTB |
| 12 | CSB |
| 13 | ESD |

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