LCD / LCM SPECIFICATION

WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

SPECIFICATION

MODULE NO.: WO24064C-TFH#

General Specification

Item	Dimension	Unit
Number of dots	240 x 64	—
Module dimension	111.4 x 45.5 x 5.6	mm
View area	106.2 x 31.2	mm
Active area	103.17 x 27.49	mm
Dot size	0.40 x 0.40	mm
Dot pitch	0.43 x 0.43	mm
Duty	1/64	
Backlight Type	LED	
IC	ST7586S	
Interface	6800/8080/3-Line/4-Line	

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Digital Power Supply Voltage	VDDI	-0.3	—	3.6	V
Analog Power supply voltage	VDDA	-0.3	—	3.6	V
LCD Power supply voltage	V0-XV0	-0.3	—	19	V
LCD Power supply voltage	VG	-0.3	—	5.5	V

Electrical Characteristics

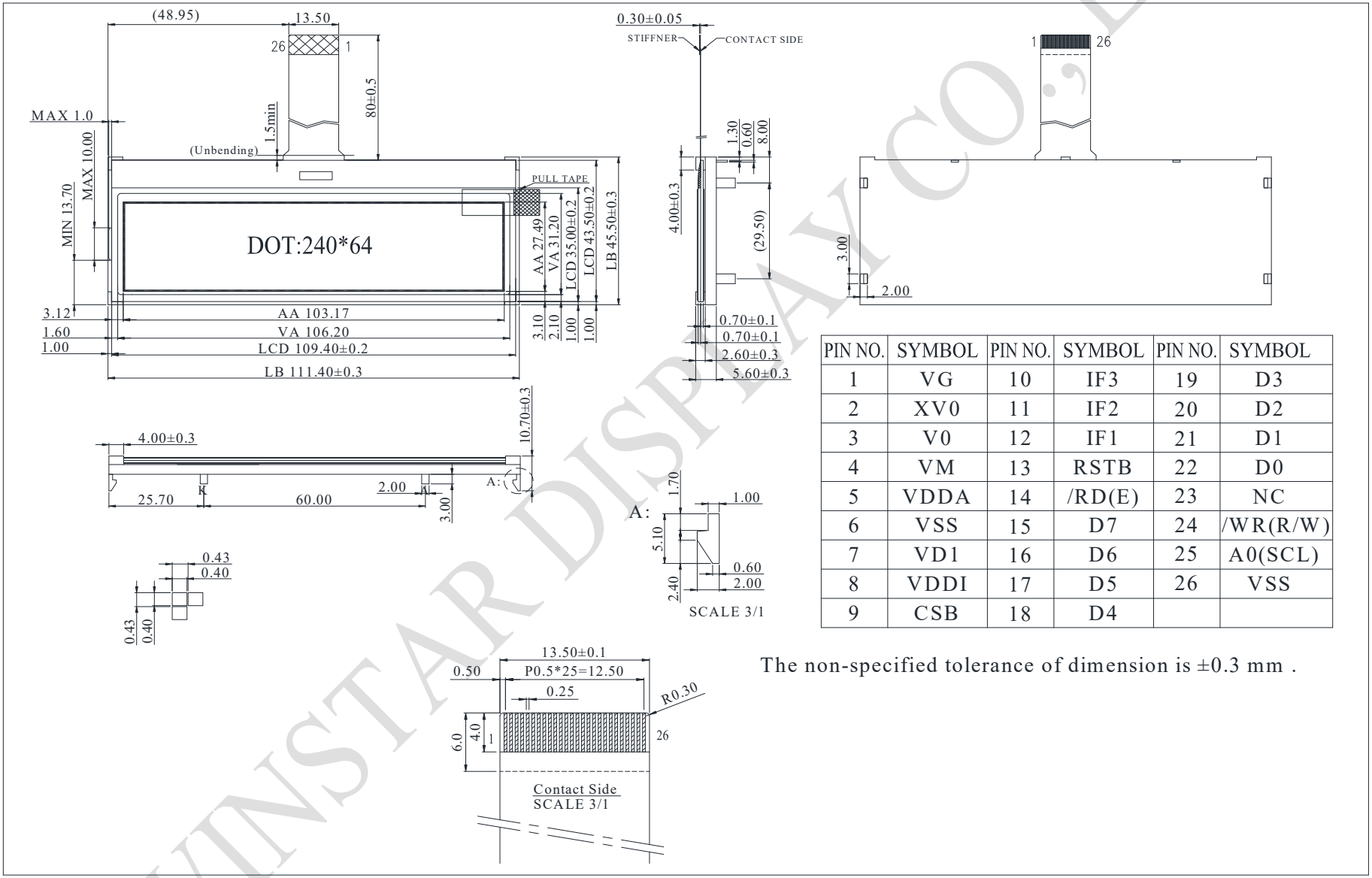
Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	—	3.0	3.3	3.4	V
Supply Voltage For LCM	V0-XV0	Ta=-20℃ Ta=25℃ Ta=+70℃	— 9.8 —	— 10.0 —	— 10.2 —	V V V
Input High Volt.	V_{IH}	—	0.7V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	Vss	—	0.3 V_{DD}	V
Output High Volt.	V_{OH}	—	0.8 V_{DD}	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	Vss	—	0.2V_{DD}	V
Supply Current(No include LED Backlight)	I_{DD}	V_{DD}=3.3V	0.1	1.5	3.0	mA

Interface Pin Function

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>VG</td><td>P</td><td>VG is the power of SEG-drivers.</td></tr>
<tr><td>2</td><td>XV0</td><td>P</td><td>Negative operating voltage of COM-drivers.</td></tr>
<tr><td>3</td><td>V0</td><td>P</td><td>Positive operating voltage of COM-drivers.
V0O is the output of the positive Vop generator.
V0I is the positive Vop supply of LCD drivers.
V0S is the sensor of the positive Vop generator.
V0O, V0I & V0S should be separated on ITO and be connected together by FPC.</td></tr>
<tr><td>4</td><td>VM</td><td>P</td><td>VM is the non-select voltage level of COM-drivers.</td></tr>
<tr><td>5</td><td>VDDA</td><td>P</td><td>Analog power for internal booster.</td></tr>
<tr><td>6</td><td>VSS</td><td>P</td><td>Ground</td></tr>
<tr><td>7</td><td>VD1</td><td>P</td><td>VD1I is the power source of digital circuits.</td></tr>
<tr><td>8</td><td>VDDI</td><td>P</td><td>Power of interface I/O circuit.</td></tr>
<tr><td>9</td><td>CSB</td><td>Input</td><td>Chip select input pin.
CSB=“L”: This chip is selected and the MPU interface is active.</td></tr>
<tr><td>10
11
12</td><td>IF3
IF2
IF1</td><td>Input</td><td>These pins select interface operation mode.
<table>
<tr><th>IF3</th><th>IF2</th><th>IF1</th><th>MPU interface type</th></tr>
<tr><td>H</td><td>H</td><td>L</td><td>80 series 8-bit parallel</td></tr>
<tr><td>H</td><td>L</td><td>L</td><td>68 series 8-bit parallel</td></tr>
<tr><td>L</td><td>H</td><td>H</td><td>8-bit serial (4-Line)</td></tr>
<tr><td>L</td><td>H</td><td>L</td><td>9-bit serial (3-Line)</td></tr>
</table>
Note: Refer to “Interface Selection” for detailed information.</td></tr>
<tr><td>13</td><td>RSTB</td><td>Input</td><td>Reset input pin. When RSTB is “L”, internal initialization procedure is executed.</td></tr>
<tr><td>14</td><td>/RD(E)</td><td>Input</td><td>Read / Write execution control pin. (This pin is only used in parallel interface)</td></tr>
<tr><td>15
16
17
18
19
20
21
22</td><td>D7
D6
D5
D4
D3
D2
D1
D0</td><td>I/O</td><td>The bi-directional data bus of the MPU interface. When CSB is “H”, they are high impedance.
If using serial interface:
D0 is the SDA signal in 4-Line & 3-Line interface.
D1 is the A0 signal in 4-Line interface</td></tr>
<tr><td>23</td><td>NC</td><td></td><td>No connection</td></tr>
</table>

24	/WR(R/W)	Input	Read / Write execution control pin. (This pin is only used in parallel interface)
25	A0(SCL)	Input	The function of this pin is different in parallel and serial interface. In parallel interface: A0 is register selection input.
26	VSS	P	Ground

Contour Drawing



PIN NO.	SYMBOL	PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	VG	10	IF3	19	D3
2	XV0	11	IF2	20	D2
3	V0	12	IF1	21	D1
4	VM	13	RSTB	22	D0
5	VDDA	14	/RD(E)	23	NC
6	VSS	15	D7	24	/WR(R/W)
7	VD1	16	D6	25	A0(SCL)
8	VDDI	17	D5	26	VSS
9	CSB	18	D4		

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