LCD / LCM SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

Represented by:

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SPECIFICATION

MODULE NO.: WO12864-xxxU#FC

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General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	58.2 x 44.7 x 3.9(MAX)	mm
View area	52.0 x 33.5	mm
Active area	47.76 x 30.29	mm
Dot size	0.40 x 0.35	mm
Dot pitch	0.42 x 0.37	mm
Duty	1/64	
Backlight Type	LED	
IC	ST7565P	

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	–	+70	℃
Storage Temperature	T_{ST}	-30	–	+80	℃
Power Supply Voltage	VDD	-0.3	–	3.6	V
Power supply voltage (VDD standard)	V0, VOUT	-0.3	–	14.5	V
Power supply voltage (VDD standard)	V1, V2, V3, V4	-0.3	–	V0+0.3	V

Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	–	3.0	–	3.3	V
Supply Voltage For LCD	V_{OP}	Ta=-20℃	–	–	–	V
		Ta=25℃	8.3	8.5	8.7	V
		Ta=70℃	–	–	–	V
Input High Volt.	V_{IH}	–	0.8V_{DD}	–	V_{DD}	V
Input Low Volt.	V_{IL}	–	V_{SS}	–	0.2V_{DD}	V
Output High Volt.	V_{OH}	–	0.8V_{DD}	–	V_{DD}	V
Output Low Volt.	V_{OL}	–	V_{DD}	–	0.2V_{DD}	V
Supply Current	I_{DD}	V_{DD}=3.3V	–	1	2	mA

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Interface Pin Function

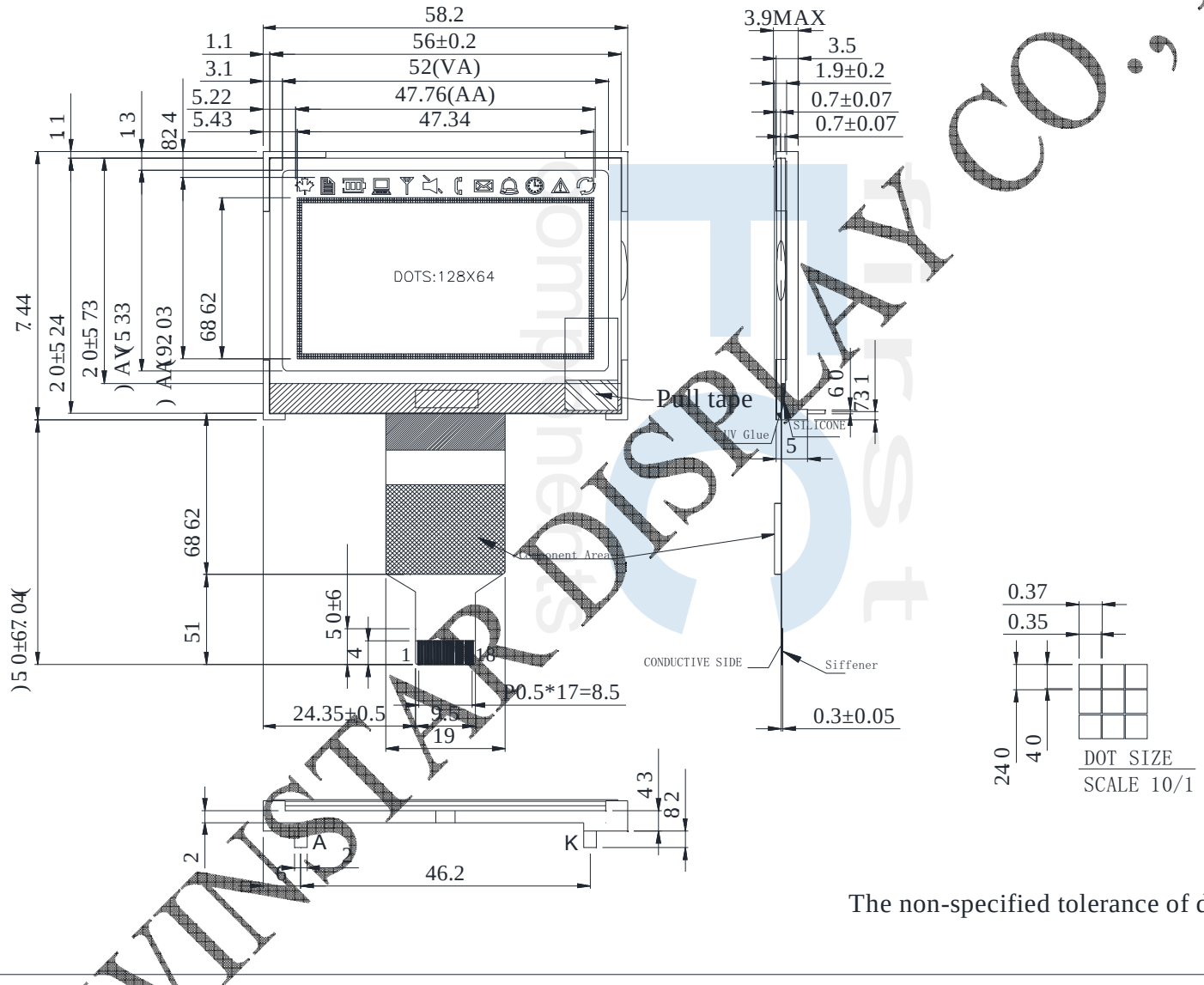
<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>VDD</td><td>_</td><td>Power supply pin for logic.</td></tr>
<tr><td>2</td><td>VSS</td><td>_</td><td>Ground pin, connected to 0V</td></tr>
<tr><td>3</td><td>/CS1</td><td rowspan="2">I</td><td rowspan="2">Chip select input pin. Interface access is enabled when CS1B is “L” and CB2 is “H”. When chip is on-active (CS1B=“H” or CS2=”L”), D[7:0] pins are high impedance.</td></tr>
<tr><td>4</td><td>CS2</td></tr>
<tr><td>5</td><td>/RES</td><td>I</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>6</td><td>A0</td><td>I</td><td>It determines whether the access is related to data or command.
A0=“H”: Indicates that signals on D[7:0] are display data.
A0=“L”: Indicates that signals on D[7:0] are command.</td></tr>
<tr><td>7</td><td>R/W</td><td>I</td><td>Read/Write execution control pin. When PSB is “H”,
<table>
<tr><th>C86</th><th>MPU Type</th><th>RWR</th><th>Description</th></tr>
<tr><td>H</td><td>6800 series</td><td>R/W</td><td>Read/Write control input pin.
R/W=“H”: read.
R/W=“L”: write.</td></tr>
<tr><td>L</td><td>8080 series</td><td>/WR</td><td>Write enable input pin.
Signals on D[7:0] will be latched at the rising edge of /WR signal.</td></tr>
</table>
RWR is not used in serial interface and should fix to “H” by VDD.</td></tr>
<tr><td>8</td><td>E</td><td>I</td><td>Read/Write execution control pin. When PSB is “H”,
<table>
<tr><th>C86</th><th>MPU Type</th><th>ERD</th><th>Description</th></tr>
<tr><td>H</td><td>6800 series</td><td>E</td><td>Read/Write control input pin.
R/W=”H“: When E is “H”, D[7:0] are in output mode.
R/W=”L“: Signals on D[7:0] are latched at the falling edge of E signal.</td></tr>
<tr><td>L</td><td>8080 series</td><td>/RD</td><td>Read enable input pin.
When /RD is “L”, D[7:0] are in output mode.</td></tr>
</table>
ERD is not used in serial interface and should fix to “H” by VDD.</td></tr>
<tr><td>9-16</td><td>D0-D7</td><td>I/O</td><td>Data bus line</td></tr>
</table>

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<table>
<tr><td>17</td><td>C86</td><td>I</td><td>C86 selects the microprocessor type in parallel interface mode.
<table><tr><th>PSB</th><th>C86</th><th>Selected Interface</th></tr><tr><td>“H”</td><td>“H”</td><td>Parallel 6800 Series MPU Interface</td></tr><tr><td>“H”</td><td>“L”</td><td>Parallel 8080 Series MPU Interface</td></tr><tr><td>“L”</td><td>“X”</td><td>Serial 4-Line SPI Interface</td></tr></table>Please refer to “APPLICATION NOTES” and “Microprocessor Interface” (Section 6) for detailed connection of the selected interface.</td></tr>
<tr><td>18</td><td>P/S</td><td>I</td><td>PSB selects the interface type: Serial or Parallel.</td></tr>
</table>

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Contour Drawing



PIN NO.	SYMBOL
1	VDD
2	VSS
3	/CS1
4	CS2
5	/RES
6	A0
7	R/W
8	E
9	D0
10	D1
11	D2
12	D3
13	D4
14	D5
15	D6
16	D7
17	C86
18	P/S

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

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