SPECIFICATION

MODULE NO.: WO12864H

General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
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	

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

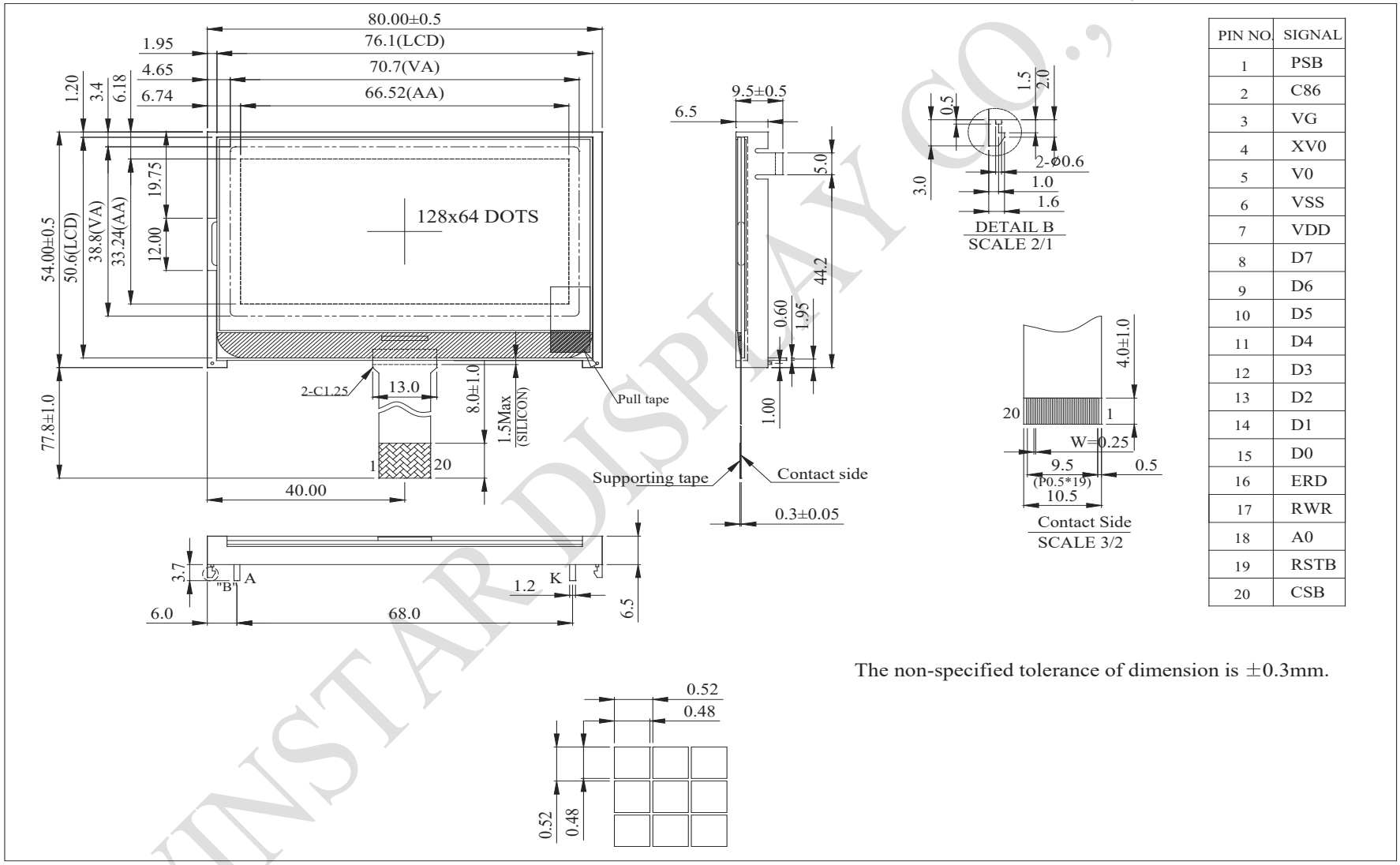
Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	—	3.0	3.3	3.6	V
Supply Voltage For LCM	XV0-V0	Ta=-20℃	—	—	—	V
		Ta=25℃	—	10.0	—	V
		Ta=70℃	—	—	—	V
Input High Volt.	V_{IH}	—	0.7V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	Vss	—	0.3V_{DD}	V
Output High Volt.	V_{OH}	—	0.8 V_{DD}	—	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	—	2.0	—	mA

Interface Pin Function

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Level</th><th>Description</th></tr>
<tr><td>1</td><td>PSB</td><td>I</td><td>PSB selects the interface type: Serial or Parallel.</td></tr>
<tr><td>2</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></td></tr>
<tr><td>3</td><td>VG</td><td>Power</td><td>VG is the LCD driving voltage for segment circuits.</td></tr>
<tr><td>4</td><td>XV0</td><td>Power</td><td>XV0 is the LCD driving voltage for common circuits at positive frame.</td></tr>
<tr><td>5</td><td>V0</td><td>Power</td><td>V0 is the LCD driving voltage for common circuits at negative frame.</td></tr>
<tr><td>6</td><td>VSS</td><td>Power</td><td>This is a 0V terminal connected to the system GND.</td></tr>
<tr><td>7</td><td>VDD</td><td>Power</td><td>Shared with the MPU power supply terminal VDD. (3.3 V)</td></tr>
<tr><td rowspan="2">8-15</td><td rowspan="2">D7-D0</td><td>I/O</td><td>When using 8-bit parallel interface: (6800 or 8080 mode)
8-bit bi-directional data bus. Connect to the data bus of 8-bit microprocessor.
When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.</td></tr>
<tr><td>I</td><td>When using serial interface: 4-LINE
D7=SDA : Serial data input.
D6=SCL : Serial clock input.
D[5:0] are not used and should connect to “H” by VDD1 or VDDH.
When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.</td></tr>
<tr><td>16</td><td>ERD</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 VDD1 or VDDH.</td></tr>
</table>

<table>
<tr><td>17</td><td>RWR</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 VDD1 or VDDH.</td></tr>
<tr><td>18</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>19</td><td>RSTB</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>20</td><td>CSB</td><td>I</td><td>Chip select input pin. Interface access is enabled when CSB is “L”.When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.</td></tr>
</table>

Contour Drawing &Block Diagram



PIN NO.	SIGNAL
1	PSB
2	C86
3	VG
4	XV0
5	V0
6	VSS
7	VDD
8	D7
9	D6
10	D5
11	D4
12	D3
13	D2
14	D1
15	D0
16	ERD
17	RWR
18	A0
19	RSTB
20	CSB

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