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.: WF28-240320JD#0SP0-FC

General Specifications

Item	Dimension	Unit
Size	2.8”	
Dot Matrix	240 x RGB x 320(TFT)	dots
Module dimension	50.5(W) x 69.7(H) x 4.55(D)	mm
Active area	43.2 x 57.6	mm
Dot pitch	0.18 x 0.18	mm
LCD type	TFT, Normally Black, Transmissive	
TFT Driver IC	ILI9341V or equivalent	
TFT Interface	MCU/SPI	
Viewing angle	80/80/80/80	
Aspect Ratio	3：4	
Backlight Type	LED, Normally White	
Touch Panel	Without Touch Panel	
Surface	Glare	

*Color tone slight changed by temperature and driving voltage.

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Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	–	+70	℃
Storage Temperature	TST	-30	–	+80	℃

Electrical Characteristics

Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage for digital	IOVCC	–	1.65	–	3.3	V
Supply Voltage for analog	VCI	–	2.5	–	3.3	V
Power Supply for Current	ICC	IOVCC=VCI =VCC=3.28V	–	12	18	mA

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Interface

LCM PIN Definition

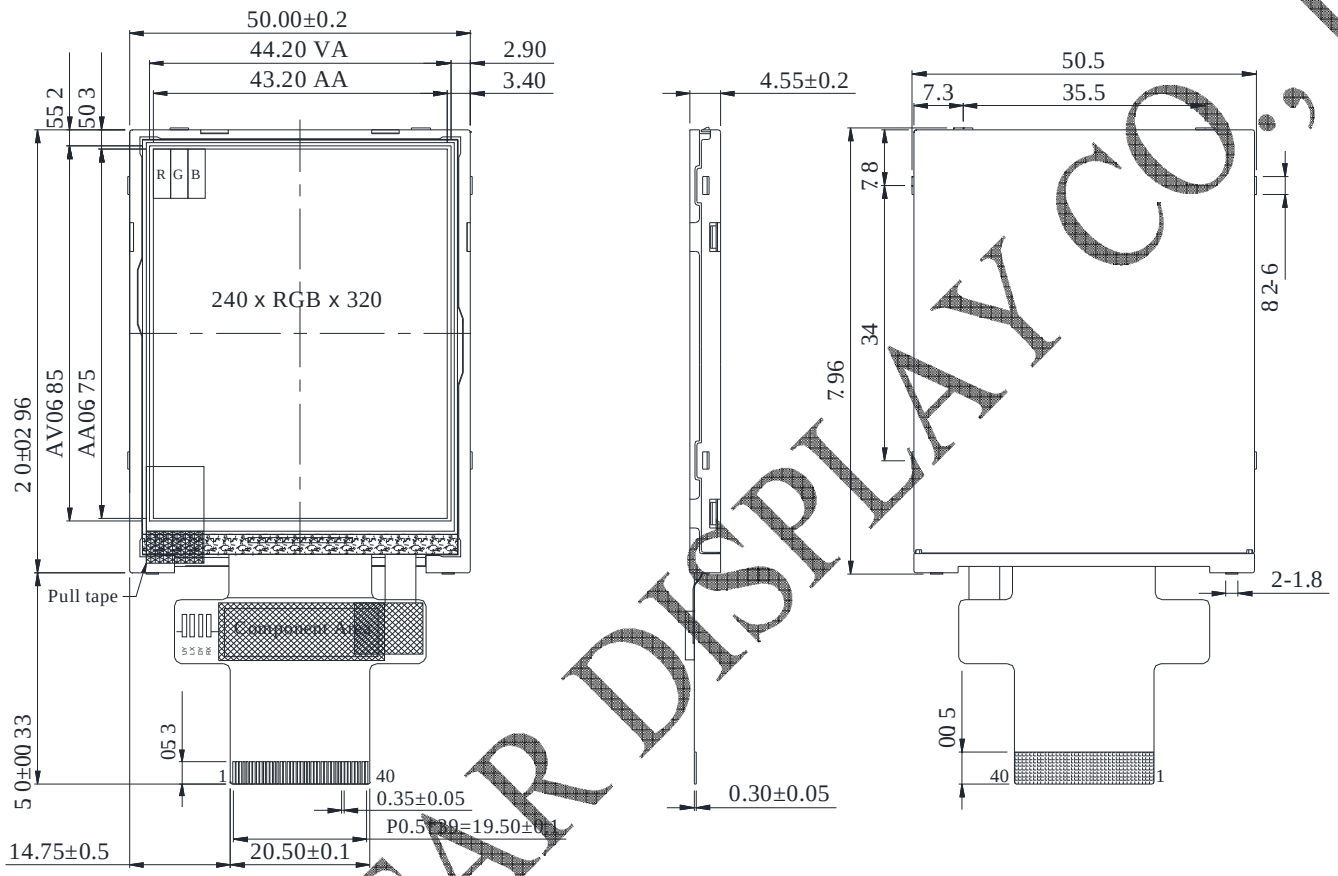
NO	Symbol	Function	I/O
1	GND	Ground	P
2-6	NC	No connection	-
7	VCI	High voltage power supply for analog circuit blocks (2.5 ~ 3.3 V)	P
8	IOVCC	Low voltage power supply for interface logic circuits (1.65 ~ 3.3 V)	P
9	TE	Tearing effect output pin to synchronize MPU to frame writing, activated by S/W command. When this pin is not activated, this pin is low. If not used, open this pin.	O
10	CS	Chip select signal.	I
11	D/CX(SCL)	(D/CX): This pin is used to select “Data or Command” in the parallel interface. When DCX = 1, data is selected. When DCX = 0, command is selected. (SCL): This pin is used as the serial interface clock in 3-wire 9-bit/4-wire 8-bit serial data interface. If not used, this pin should be connected to VDDI or VSS.	I
12	WR(SPI_D/C)	(WRX) - 8080-Ⅰ/8080-Ⅱ system: Serves as a write signal and writes data at the rising edge. (D/CX) - 4-line system: Serves as the selector of command or parameter. Fix to VDDI level when not in use.	I
13	RD	8080-Ⅰ/8080-Ⅱ system (RDX): Serves as a read signal and MCU read data at the rising edge. Fix to VDDI level when not in use.	I
14-29	DB0~DB15	18-bit parallel bi-directional data bus for MCU system and RGB interface mode Fix to VSS level when not in use.	I/O
30	RESET	This signal will reset the device and must be applied to properly initialize the chip. Signal is active low.	I
31	IM0	Select the MCU interface mode	I
32	IM1		
33	IM2		

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<table>
<tr><td></td><td></td><td>
<table>
<tr><th rowspan="2">IM2</th><th rowspan="2">IM1</th><th rowspan="2">IM0</th><th rowspan="2">MCU-Interface Mode</th><th colspan="2">DB Pin in use</th></tr>
<tr><th>Register/Content</th><th>GRAM</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>80 MCU 8-bit bus interface I</td><td>D[7:0]</td><td>D[7:0]</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>80 MCU 16-bit bus interface I</td><td>D[7:0]</td><td>D[15:0]</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>80 MCU 9-bit bus interface I</td><td>D[7:0]</td><td>D[8:0]</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>80 MCU 18-bit bus interface I</td><td>D[7:0]</td><td>D[17:0]</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>3-wire 9-bit data serial interface I</td><td colspan="2">SDA: In/OUT</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>4-wire 8-bit data serial interface I</td><td colspan="2">SDA: In/OUT</td></tr>
</table>
MPU Parallel interface bus and serial interface select
If use RGB Interface must select serial interface.
* : Fix this pin at VDDI or VSS.
</td><td></td></tr>
<tr><td>34</td><td>DB16</td><td rowspan="2">18-bit parallel bi-directional data bus for MCU system and RGB interface mode
Fix to VSS level when not in use.</td><td rowspan="2">I/O</td></tr>
<tr><td>35</td><td>DB17</td></tr>
<tr><td>36</td><td>LEDK</td><td>Cathode of LED backlight.</td><td>P</td></tr>
<tr><td>37</td><td>LEDK</td><td>Cathode of LED backlight.</td><td>P</td></tr>
<tr><td>38</td><td>LEDA</td><td>Anode of LED backlight.</td><td>P</td></tr>
<tr><td>39</td><td>SDI(SDA)</td><td>When IM[3] : Low, Serial in/out signal.
When IM[3] : High, Serial input signal.
The data is applied on the rising edge of the SCL signal.
If not used, fix this pin at VDDI or VSS.</td><td>I/O</td></tr>
<tr><td>40</td><td>SDO</td><td>Serial output signal.
The data is outputted on the falling edge of the SCL signal.
If not used, open this pin</td><td>O</td></tr>
</table>

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Contour Drawing



PIN NO.	SYMBOL
1	GND
2	NC(YU)
3	NC(XL)
4	NC(YD)
5	NC(XR)
6	NC
7	VCI
8	IOVCC
9	TE
10	CS
11	D/CX(SCL)
12	WR(SPI_D/C)
13	RD
14~29	DB0~DB15
30	RESET
31	IM0
32	IM1
33	IM2
34	DB16
35	DB17
36	LEDK
37	LEDK
38	LEDA
39	SDI(SDA)
40	SDO

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

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