

TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



SPECIFICATION

MODULE NO.: WF0200BSYAJDNN0#

General Specifications

Item	Dimension	Unit
Size	2.0"	inch
Dot Matrix	240 x RGB x 320(TFT)	dots
Module dimension	38.8(W) x 52.3(H) x 2.15(D)	mm
Active area	30.60 x 40.80	mm
Pixel Pitch	0.1275 x 0.1275	mm
LCD type	TFT, Normally Black, Transmissive	
TFT Interface	MCU / SPI	
TFT Driver IC	ST7789VI or Equivalent	
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.

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	°C
Storage Temperature	TST	-30	—	+80	°C

Electrical Characteristics

Operating conditions

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Analog	V_{DD}	—	2.4	3.3	3.6	V
Interface Operation Voltage	V_{DDI}	—	1.65	1.8	3.6	V
Supply Current For LCM	I_{DD}	$V_{DD} = V_{DDI}$ $= V_{CC} = 3.0V$	—	6.0	9.0	mA

Interface

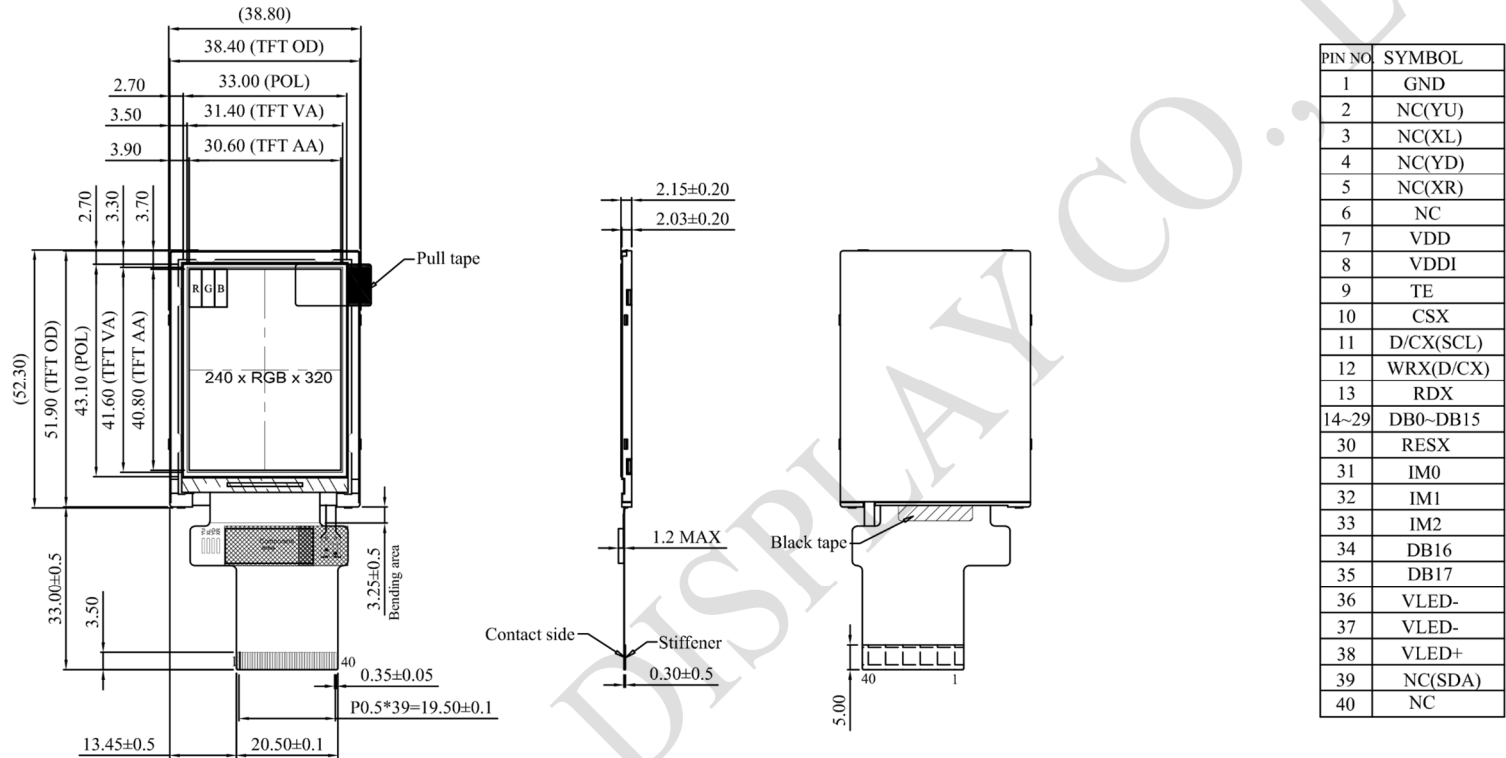
LCM PIN Definition

NO	Symbol	Function																																				
1	GND	Ground																																				
2	NC	No connection																																				
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4	NC	No connection																																				
5	NC	No connection																																				
6	NC	No connection																																				
7	VDD	Power supply																																				
8	VDDI	Power Supply for I/O System.																																				
9	TE	Tearing effect signal is used to synchronize MCU to frame memory writing. If not used, please let this pin open																																				
10	CSX	Chip selection pin Low enable. High disable.																																				
11	DCX(SCL)	(D/CX): This pin is used to select "Data or Command" in the parallel interface. DCX='1': display data or parameter. DCX='0': command data. (SCL): When SPI mode, This pin is used to be serial interface clock.																																				
12	WRX(D/CX)	Display data/command selection Second Data lane in 2 data lane serial interface. (WRX): Write enable in MCU parallel interface. (D/CX): When 4-SPI mode, This pin in 4-line serial interface If not used, please fix this pin at VDDI or GND.																																				
13	RDX	-Read enable in 8080 MCU parallel interface. -If not used, please fix this pin at VDDI or GND.																																				
14~29	DB0~DB15	Data bus line																																				
30	RESX	System reset pin. signal is active low																																				
31	IM0	The MCU interface mode select.																																				
32	IM1																																					
33	IM2		<table border="1"> <thead> <tr> <th>IM2</th> <th>IM1</th> <th>IM0</th> <th>MPU Interface Mode</th> <th>Data pin</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>80-8bit parallel I/F</td> <td>DB[7:0]</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>80-16bit parallel I/F</td> <td>DB[15:0]</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>80-9bit parallel I/F</td> <td>DB[8:0]</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>80-18bit parallel I/F</td> <td>DB[17:0],</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>3-line 9bit serial I/F</td> <td>SDA: in/out</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>4-line 8bit serial I/F</td> <td>SDA: in/out</td> </tr> </tbody> </table>	IM2	IM1	IM0	MPU Interface Mode	Data pin	0	0	0	80-8bit parallel I/F	DB[7:0]	0	0	1	80-16bit parallel I/F	DB[15:0]	0	1	0	80-9bit parallel I/F	DB[8:0]	0	1	1	80-18bit parallel I/F	DB[17:0],	1	0	1	3-line 9bit serial I/F	SDA: in/out	1	1	0	4-line 8bit serial I/F	SDA: in/out
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34~35	DB16~DB17	Data bus line
36	VLED-	Cathode of LED backlight.
37	VLED-	Cathode of LED backlight.
38	VLED+	Anode of LED backlight.
39	NC(SDA)	When SPI mode, This pin is SPI interface input/output pin. The data is latched on the rising edge of the SCL signal. If not used(NC), please fix this pin at VDDI or GND level.
40	NC	No connection

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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	VDD
8	VDDI
9	TE
10	CSX
11	D/CX(SCL)
12	WRX(D/CX)
13	RDX
14~29	DB0~DB15
30	RESX
31	IM0
32	IM1
33	IM2
34	DB16
35	DB17
36	VLED-
37	VLED-
38	VLED+
39	NC(SDA)
40	NC

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