

TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



SPECIFICATION

MODULE NO.: WFN0200A2T07ADNN000

General Specifications

Item	Dimension	Unit
Size	2.0	inch
Dot Matrix	240 x RGB x 320 (TFT)	dots
Module dimension	35.8 x 52.1 x 2.65	mm
Active area	30.6 x 40.8	mm
Pixel pitch	0.1275 x 0.1275	mm
LCD type	TFT, Normally Black, Transflective	
Viewing Angle	80/80/80/80	
TFT Interface	3/4serial 8/9/16/18bit MCU 3/4SPI+16/18BIT RGB	
Backlight Type	LED ,Normally White	
TFT Driver IC	ST7789 or Equivalent	
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

1. Operating conditions

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Digital Supply Voltage	VCI	2.5	3.3	3.6	V
Digital interface supply Voltage	IOVCC	1.65	1.8	3.3	V
Normal mode Current consumption	IDD	--	6	12	mA
Level input voltage	VIH	0.7IOVCC		IOVCC	V
	VIL	GND		0.3IOVCC	V
Level output voltage	VOH	0.8IOVCC		IOVCC	V
	VOL	GND		0.2IOVCC	V

2.LED driving conditions

Item	Symbol	Min.	Typ.	Max.	Unit
LED current	-	60	80	-	mA
LED voltage	VLED+	2.8	3.2	3.3	V
LED Life Time	-	50,000	-	-	Hr

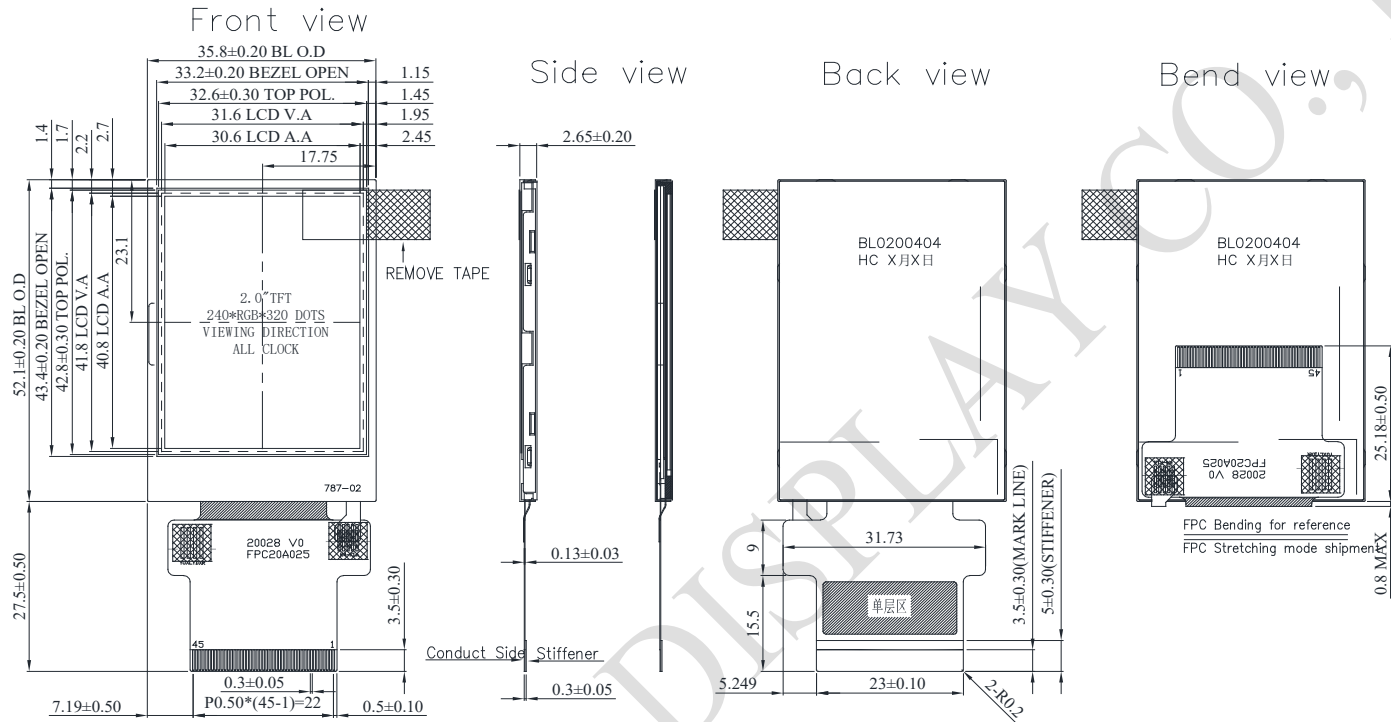
Interface

1. LCM PIN Definition

Pin No	Symbol	Description	I/O
1	GND	Ground.	P
2	VCI	Supply voltage (3.3V).	P
3	IOVCC	Supply voltage (1.65-3.3V).	P
4	IM2	MPU Parallel interface bus and serial interface select If use RGB Interface must select serial interface. Fix this pin at IOVCC and GND.	I
5	IM1		
6	IM0		
7	RESET	This signal will reset the device and must be applied to properly initialize the chip.	I
8	CS	Chip select input pin ("Low" enable). fix this pin at GND when not in use.	I
9	DC(SPI-SCL)	-Display data/command selection pin in parallel interface. -This pin is used to be serial interface clock. DC='1': display data or parameter. DC='0': command data. -If not used, please fix this pin at GND.	I
10	WR(SPI-RS)	-Write enable in MCU parallel interface. Display data/command selection pin in 4-line serial interface. Second Data lane in 2 data lane serial interface. -If not used, please fix this pin at GND.	I
11	RD	Serves as a read signal and MCU read data at the rising edge. fix this pin at IOVCC or GND when not in use.	I
12	VSYN	Frame synchronizing signal for RGB interface operation. fix this pin at GND when not in use.	I
13	HSYN	Line synchronizing signal for RGB interface operation. fix this pin at GND when not in use.	I
14	ENABLE	Data enable signal for RGB interface operation. fix this pin at GND when not in use.	I
15	DOTCLK	Dot clock signal for RGB interface operation. Fix this pin at GND when not in use.	I
16	SDA	Serial input signal. The data is latched on the rising edge of the SCL signal. fix this pin at GND when not in use.	I

17-34	DB0-DB17	18-bit parallel bi-directional data bus for MCU system and RGB interface mode . Fix to GND level when not in use	I/O
35	SDO	SPI interface output pin. -The data is output on the falling edge of the SCL signal. -If not used, let this pin open.	O
36	LEDA	Anode pin of backlight	P
37	LEDK1	Cathode pin OF backlight	P
38	LEDK2	Cathode pin OF backlight	P
39	LEDK3	Cathode pin OF backlight	P
40	LEDK4	Cathode pin OF backlight	P
41	XR(NC)	Touch panel Right Glass Terminal	A/D
42	YU(NC)	Touch panel Top Film Terminal	A/D
43	XL(NC)	Touch panel LEFT Glass Terminal	A/D
44	YD(NC)	Touch panel Bottom Film Terminal	A/D
45	GND	Ground.	P

Contour Drawing



IM2	IM1	IM0	Interface type	DB Pin in use
0	0	0	DBI Tyb_8-bit interface	DB7-DB0
0	0	1	DBI Tyb_16-bit interface	DB15-DB0
0	1	0	DBI Tyb_9-bit interface	DB8-DB0
0	1	1	DBI Tyb_18-bit interface	DB17-DB0
1	0	1	3-Wire 9 BIT data serial interface	SDA SCL CS
1	1	0	4-Wire 8 BIT data serial interface	SDA SCL CS RS

NOTE:

1. If not use PIN, fix to the GND, IOVCC or NC.

2. If use RGB mode must select serial interface.

NO.	Pin Name
1	GND
2	VCI
3	IOVCC
4	IM2
5	IM1
6	IM0
7	RESET
8	CS
9	DC(SPI-SCL)
10	WR(SPI-RS)
11	RD
12	VSYNC
13	HSYNC
14	ENABLE
15	DOTCLK
16	SDA
17	DB0
18	DB01
19	DB02
20	DB03
21	DB04
22	DB05
23	DB06
24	DB07
25	DB08
26	DB09
27	DB10
28	DB11
29	DB12
30	DB13
31	DB14
32	DB15
33	DB16
34	DB17
35	SDO
36	LEDA
37	LEDK1
38	LEDK2
39	LEDK3
40	LEDK4
41	XR(NC)
42	YU(NC)
43	XL(NC)
44	YD(NC)
45	GND

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