TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

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Winstar Display Co., LTD
華凌光電股份有限公司

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF101-19201200NL#0P3-FC

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	**PCB VERSION:** **DATA:**

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
			葉虹蘭
ISSUED DATE: 2023/07/14			

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2.Summary

TFT 10.1" is a color active matrix TFT LCD using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This module has a 10.1 inch diagonally measured active area with WUXGA resolutions (1920 horizontal by 1200 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colors.

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3.General Specifications

Item	Dimension	Unit
Size	10.1	inch
Dot Matrix	1920(H) X RGB X 1200(V)	dots
Module dimension	257.96 x 168.6 x 12.33 Max	mm
Active area	216.8064(H) x 135.504(V)	mm
Pixel pitch	0.11292(H) x 0.11292(V)	mm
LCD type	TFT, Normally Black, Transmissive	
Interface	2ch-LVDS	
Driver IC	FL5893DA or equivalent	
Viewing Angle	80/80/80/80	
Aspect Ratio	16:10	
CTP IC	GT928 or Equivalent	
CTP Interface	I2C	
CTP FW Version	81	
CTP Resolution	1920 * 1200	
Backlight Type	LED,Normally White	
With /Without TP	With CTP	
Surface	Glare	

*Color tone slight changed by temperature and driving voltage.

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4.Absolute Maximum Ratings

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

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

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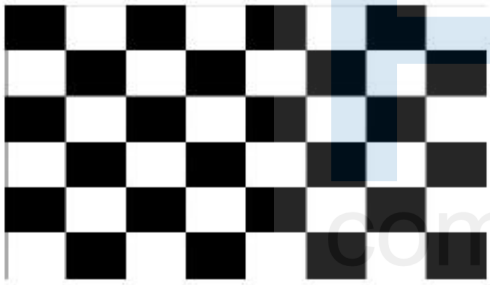
5.Electrical Characteristics

5.1. Typical Operation Conditions (At Ta = 25 °C,)

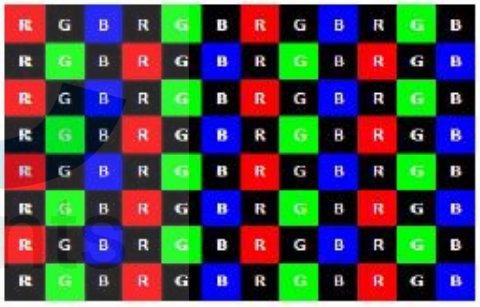
Item	Symbol	Min	Typ.	Max.	Unit	Unit
Power Supply Voltage	VDDIN	3.0	3.3	3.6	V	
	VRP	-	-	300	mV	Ripple
Power Supply Current	IDD	-	300	360	mA	Note 1
Power Consumption	PLCD	-	1	1.2	W	
Rush current	IRUSH	-	-	3.0	A	Note 2
Supply CTP	VDDT	3.1	3.3	3.5	V	
	IVDDT	—	73	110	mA	

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for VDDIN=3.3V, Frame rate fV=60Hz and Clock frequency = 80MHz. Test Pattern of power supply current

a) Typ : Mosaic 8 x 6 Pattern(L0/L255)



b) Max : skip subPixel(L255)



2. The duration of rush current is about 2ms and rising time of Power Input is 1ms(min)

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8.Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr+Tf	θ=0°、Φ=0°	-	30	35	.ms	Note 3
Contrast ratio		CR	At optimized viewing angle	700	900	-	-	Note 4
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.235	0.285	0.335	-	Note 2,6,7
		Wy		0.277	0.327	0.377	-	
Viewing angle	Hor.	ΘR	CR≧10	70	80	-	Deg.	Note 1
		ΘL		70	80	-		
	Ver.	ΦT		70	80	-		
		ΦB		70	80	-		
Brightness		-	-	300	400	-	cd/m²	Center of display
Uniformity		(U)	-	70	-	-	%	Note 5
NTSC Ratio		NTSC	-	-	72	-	%	Note 8

Ta=25±2℃

Note 1: Definition of viewing angle range

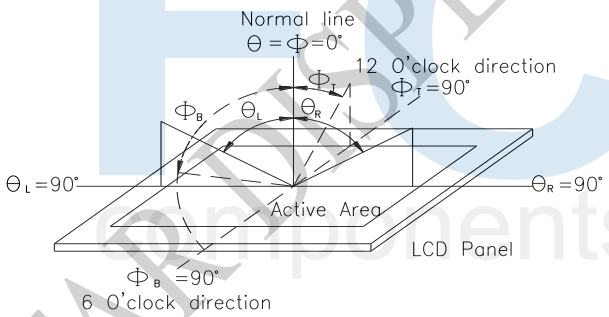


Fig. 8.1. Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7 or BM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

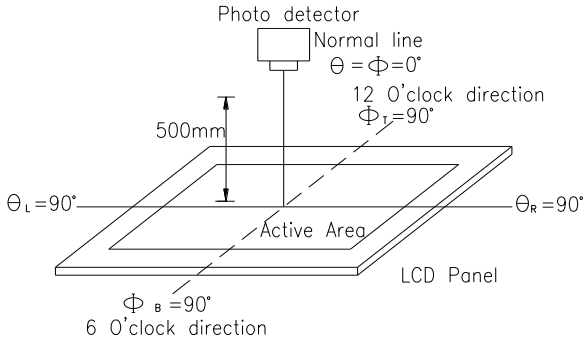


Fig. 8.2. Optical measurement system setup

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9.Interface

9.1. TFT LCD MODULE

Pin No.	Symbol	Description
1-5	NC	No connection
6	GND	Ground
7	ELV3P	EVEN LVDS Positive data signal (+)
8	ELV3N	EVEN LVDS Negative data signal (-)
9	GND	Ground
10	ELV2P	EVEN LVDS Positive data signal (+)
11	ELV2N	EVEN LVDS Negative data signal (-)
12	GND	Ground
13	ELVCLKP	EVEN LVDS Positive CLK signal (+)
14	ELVCLKN	EVEN LVDS Negative CLK signal (-)
15	GND	Ground
16	ELV1P	EVEN LVDS Positive data signal (+)
17	ELV1N	EVEN LVDS Negative data signal (-)
18	GND	Ground
19	ELV0P	EVEN LVDS Positive data signal (+)
20	ELV0N	EVEN LVDS Negative data signal (-)
21	GND	Ground
22	OLV3P	Odd LVDS Positive data signal (+)
23	OLV3N	Odd LVDS Negative data signal (-)
24	GND	Ground
25	OLV2P	Odd LVDS Positive data signal (+)
26	OLV2N	Odd LVDS Negative data signal (-)
27	GND	Ground
28	OLVCLKP	Odd LVDS Positive CLK signal (+)
29	OLVCLKN	Odd LVDS Negative CLK signal (-)
30	GND	Ground
31	OLV1P	Odd LVDS Positive data signal (+)
32	OLV1N	Odd LVDS Negative data signal (-)
33	GND	Ground
34	OLV0P	Odd LVDS Positive data signal (+)

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35	OLV0N	Odd LVDS Negative data signal (-)
36	GND	Ground
37 -39	NC	No connection (PIN39 and PIN40 cannot be short-circuited together)
40	NC	No connection alone
41-45	VDDIN	Power supply VDDIN=3.3V (Typ.)

9.2. Backlight PIN Definition

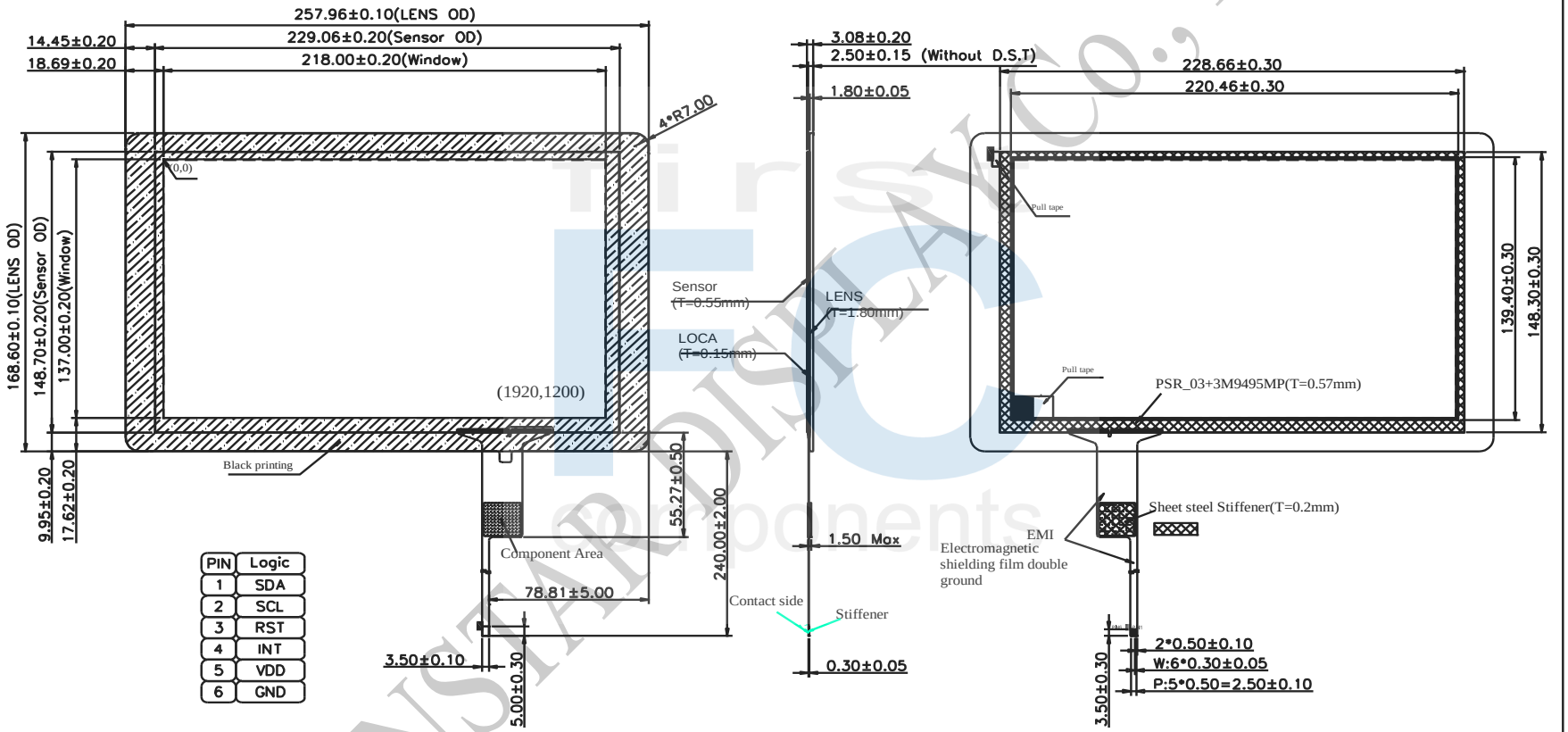
Pin No.	Symbol	Description
1	VLED+	Red, LED_ Anode
2	VLED-	Black, LED_ Cathode

9.3. CTP PIN Definition

Pin	Symbol	Function	Remark
1	SDA	I2C data input and output	
2	SCL	I2C clock input	
3	RST	External Reset, Low is active	
4	INT	External interrupt to the host	
5	VDDT	Power Supply : +3.3V	
6	VSS	Ground for analog circuit	

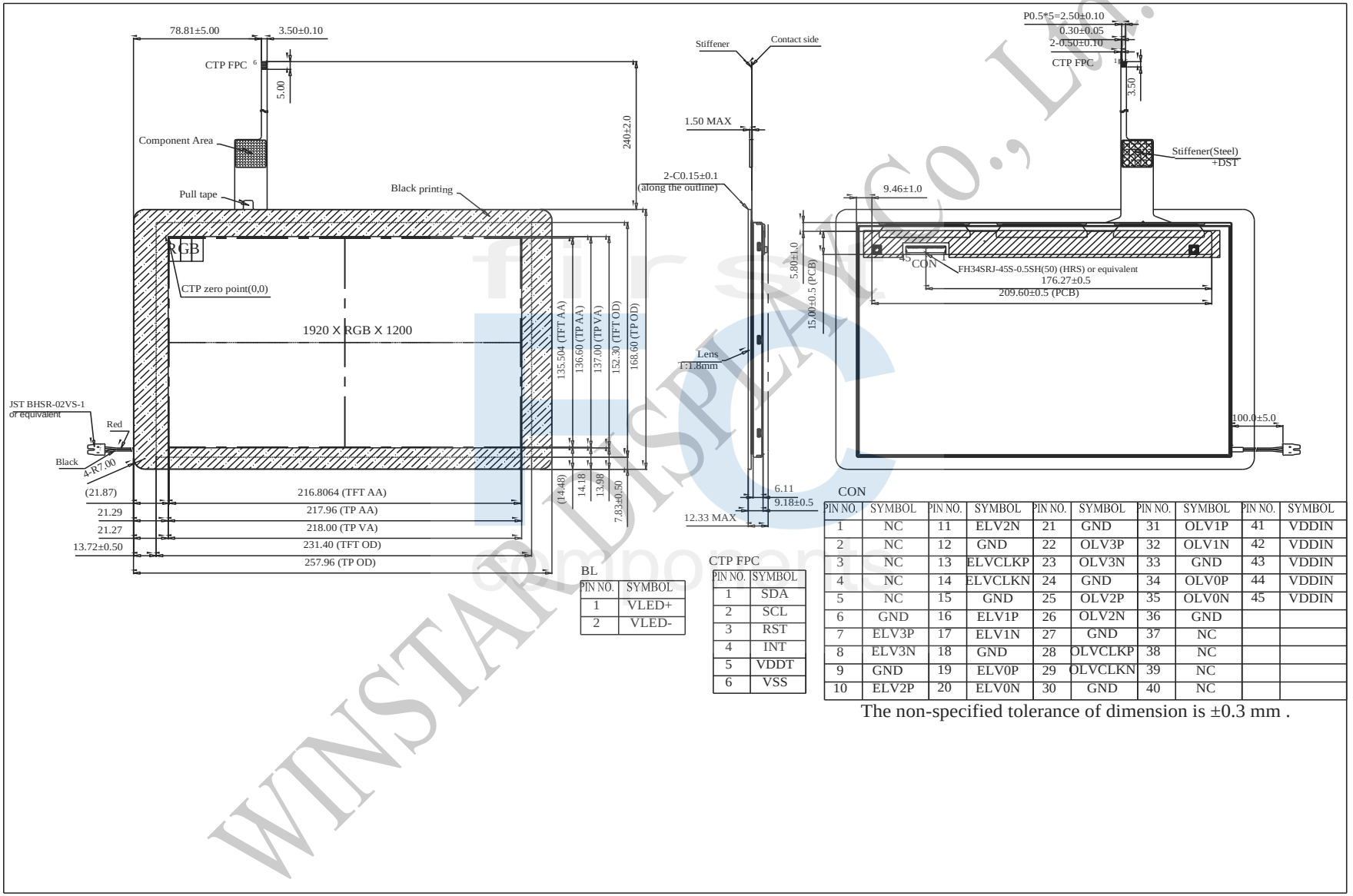
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11.Touch Panel Information



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12.Contour Drawing



BL

PIN NO.	SYMBOL
1	VLED+
2	VLED-

CTP FPC

PIN NO.	SYMBOL
1	SDA
2	SCL
3	RST
4	INT
5	VDDT
6	VSS

CON

PIN NO.	SYMBOL	PIN NO.	SYMBOL	PIN NO.	SYMBOL	PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	NC	11	ELV2N	21	GND	31	OLV1P	41	VDDIN
2	NC	12	GND	22	OLV3P	32	OLV1N	42	VDDIN
3	NC	13	ELVCLKP	23	OLV3N	33	GND	43	VDDIN
4	NC	14	ELVCLKN	24	GND	34	OLV0P	44	VDDIN
5	NC	15	GND	25	OLV2P	35	OLV0N	45	VDDIN
6	GND	16	ELV1P	26	OLV2N	36	GND		
7	ELV3P	17	ELV1N	27	GND	37	NC		
8	ELV3N	18	GND	28	OLVCLKP	38	NC		
9	GND	19	ELV0P	29	OLVCLKN	39	NC		
10	ELV2P	20	ELV0N	30	GND	40	NC		

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

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