TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

Represented by:

FIRST Components s.r.l.
www.first-components.com
technical@first-components.com
+39 0332 1888005

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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF57-320240A3D#005-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
			葉虹蘭
ISSUED DATE: 2023/02/17			

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General Specifications

Item	Dimension	Unit
Size	5.7	inch
Dot Matrix	320 x RGBx240(TFT)	dots
Module dimension	141.12(W) x 101.55(H) x 7.55(D)	mm
Active area	115.2 x 86.40	mm
Dot pitch	0.12 x 0.36	mm
LCD type	TFT, Normally White, Transmissive	
TFT Driver IC	HX8218 +HX8615 or Equivalent	
TFT Interface	24-bit RGB	
View Direction	12 o'clock	
Gray Scale Inversion Direction	6 o'clock	
Aspect Ratio	4:3	
Backlight Type	LED,Normally White	
With /Without TP	With RTP	
Surface	Anti-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	℃

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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Electrical Characteristics

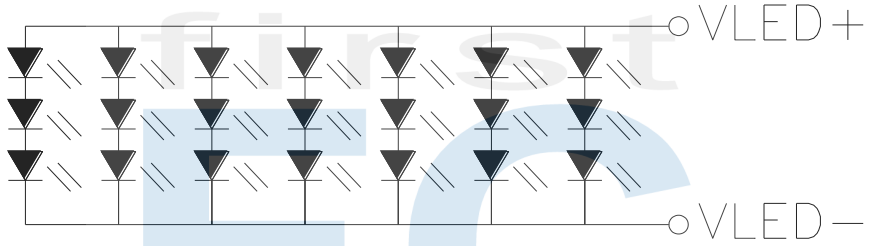
Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	VCC	—	3.0	3.3	3.6	V
Supply Current	ICC	VCC=3.3V	—	230	345	mA

LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current	—	—	140	—	mA	—
Power Consumption	—	1204	—	1470	mW	—
LED voltage	VBL+	8.6	—	10.5	V	Note 1
LED Life Time	—	—	50,000	—	Hr	Note 2,3,4

Note 1 : There are 1 Groups LED



Backlight LED Circuit

Note 2 : Ta = 25 ℃

Note 3 : Brightness to be decreased to 50% of the initial value

Note 4 : The single LED lamp case.

Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr+ Tf	θ=0°、Φ=0°	-	25	-	.ms	Note 3,5
Contrast ratio		CR	At optimized viewing angle	-	300	-	-	Note 4,5
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.267	0.317	0.367		Note 2,6,7
		Wy		0.303	0.353	0.403		
Viewing angle (Gray Scale Inversion Direction)	Hor.	ΘR	CR≧10	-	60	-	Deg.	Note 1
		ΘL		-	60	-		
	Ver.	ΦT		-	70	-		
		ΦB		-	70	-		
Brightness		-	-	550	600		cd/m^2	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃, IL=140mA

Note 1: Definition of viewing angle range

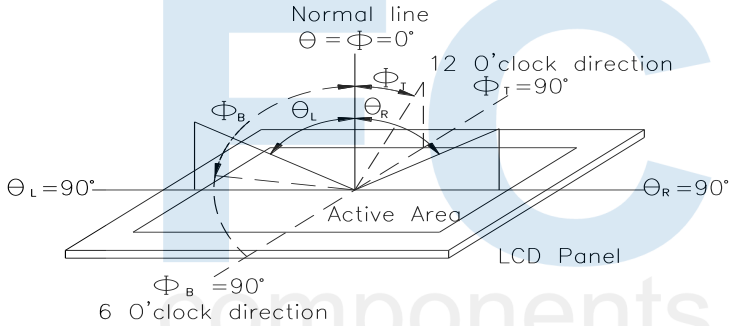


Fig.8.1. Definition of viewing angle

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-7orBM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

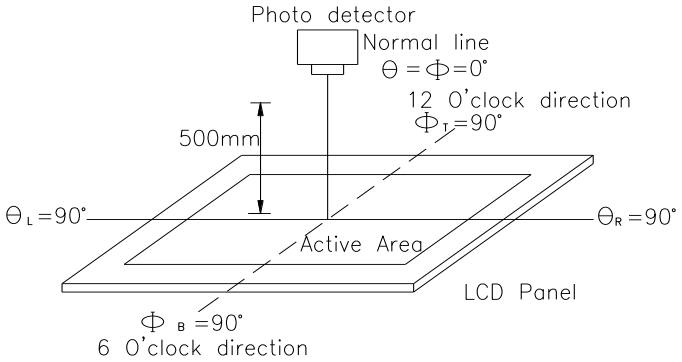


Fig. 8.2. Optical measurement system setup

Note 3: Definition of Response time:

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time, Tr, is the time between photo detector output intensity changed

Interface

LCM PIN Definition

Pin	Symbol	Function	Remark
1	NC	No connection	
2	NC	No connection	
3	GND	System ground pin of the IC. Connect to system ground.	
4	VCC	Power Supply	
5	R0	Red Data bit(LSB)	
6	R1	Red Data bit	
7	R2	Red Data bit	
8	R3	Red Data bit	
9	R4	Red Data bit	
10	R5	Red Data bit	
11	R6	Red Data bit	
12	R7	Red Data bit (MSB)	
13	G0	Green Data bit(LSB)	
14	G1	Green Data bit	
15	G2	Green Data bit	
16	G3	Green Data bit	
17	G4	Green Data bit	
18	G5	Green Data bit	
19	G6	Green Data bit	
20	G7	Green Data bit (MSB)	
21	B0	Blue Data bit(LSB)	
22	B1	Blue Data bit	
23	B2	Blue Data bit	
24	B3	Blue Data bit	
25	B4	Blue Data bit	
26	B5	Blue Data bit	
27	B6	Blue Data bit	
28	B7	Blue Data bit (MSB)	
29	GND	System ground pin of the IC. Connect to system ground.	
30	CLK	Dot data clock	
31	R/L	Shift direction of device internal shift register control.	Note2,3

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32	Hsync	Horizontal sync signal	Note1
33	Vsync	Vertical sync signal	Note1
34	DE	Data Enable signal	Note1
35	U/D	Up/down selection	Note2,3
36	RESET	Hardware reset	
37	XR	Right electrode	
38	YD	Bottom electrode	
39	XL	Left electrode	
40	YU	Top electrode	

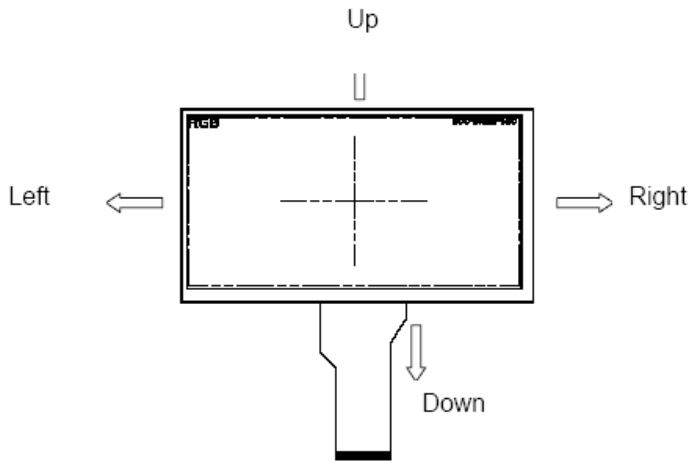
For digital 24Bit RGB input data format, both SYNC mode and DE mode are supported. If DE signal is fixed low, SYNC mode is used. Otherwise,DE mode is used. Suggest used SYNC mode!!

Mode	D[23:16]	D[15:8]	D[7:0]	IHS	IVS	DEN
24 bit RGB	R[7:0]	G[7:0]	B[7:0]	HSYNC	VSYNC	DE signal is fixed low for SYNC mode
				Floating if not used	Floating if not used	DE for DE Mode

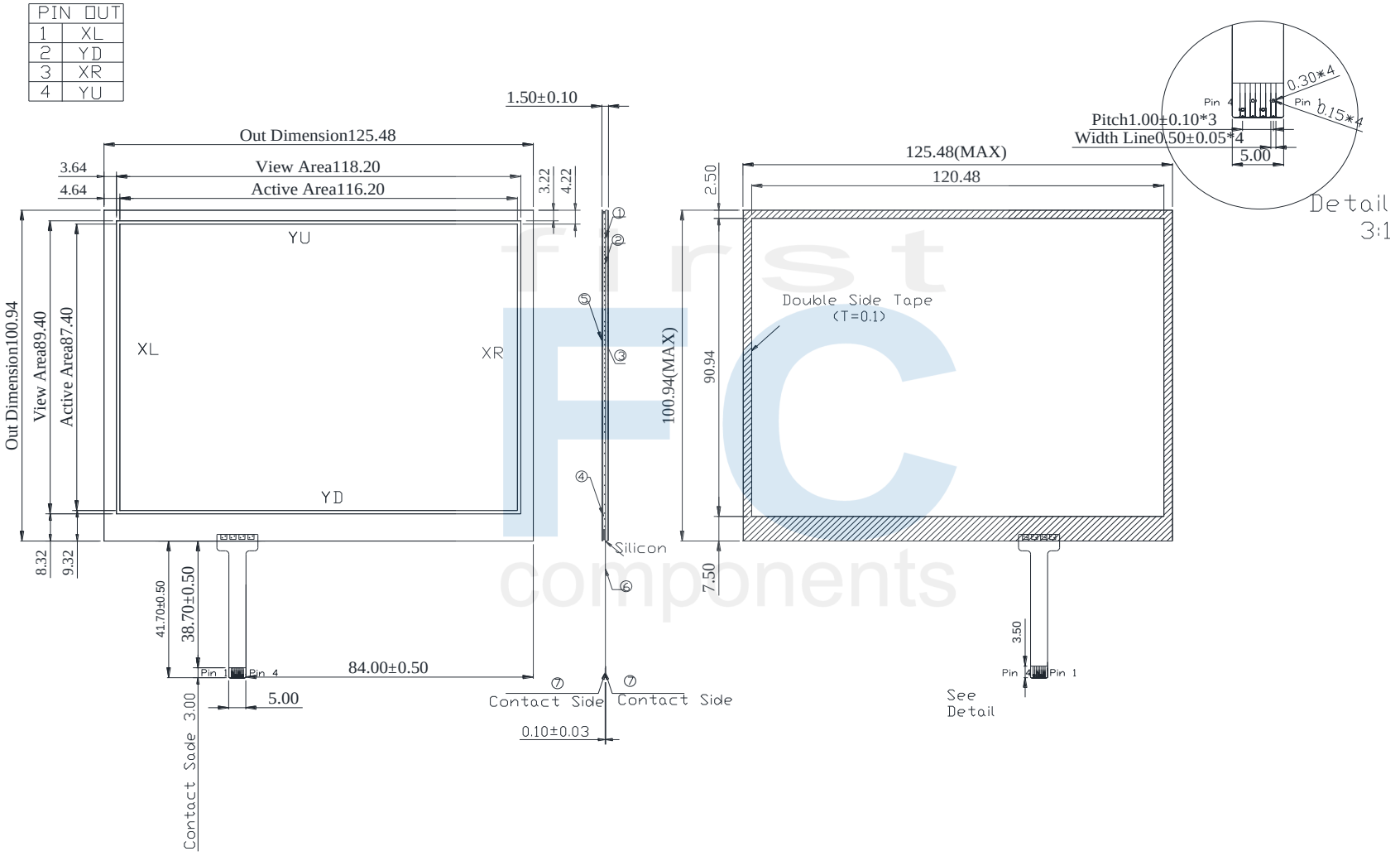
Note 2: Selection of scanning mode

Setting of scan control input		Scanning direction
U/D	R/L	
GND	VCC	Up to down, left to right
VCC	GND	Down to up, right to left
GND	GND	Up to down, right to left
VCC	VCC	Down to up, left to right

Note 3: Definition of scanning direction. Refer to the figure as below:



Touch Panel Information

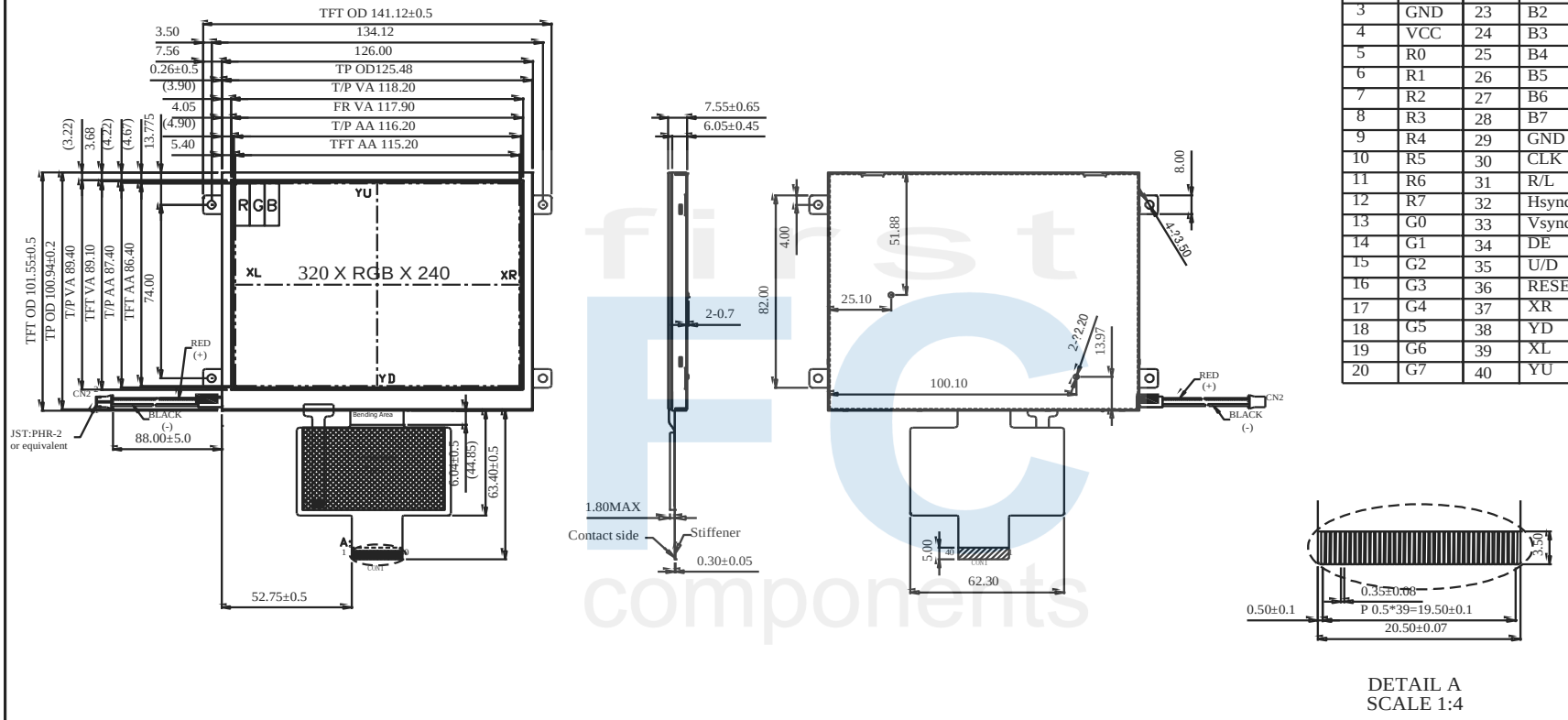


Resistance Touch Panel General Specifications

Item	Description
Driving condition	DC5V
Operating force	60~150g
Linearity max	≤±1.5%
Insulating resistance	＞20MΩ，25V(DC)
Light transparence	70%
Structure type	ITO Film/ITO Glass(F/G)
Surface Hardness	3H typ
Pen Hitting Durability (with the silicon rubber)	＞1000,000 times
X Axis resistance	200~900Ω
Y Axis resistance	200~900Ω

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Contour Drawing



CN2	
RED	VLED+
BLACK	VLED-

CON1			
PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	NC	21	B0
2	NC	22	B1
3	GND	23	B2
4	VCC	24	B3
5	R0	25	B4
6	R1	26	B5
7	R2	27	B6
8	R3	28	B7
9	R4	29	GND
10	R5	30	CLK
11	R6	31	R/L
12	R7	32	Hsync
13	G0	33	Vsync
14	G1	34	DE
15	G2	35	U/D
16	G3	36	RESET
17	G4	37	XR
18	G5	38	YD
19	G6	39	XL
20	G7	40	YU

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