TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

Represented by:

first FC components

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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF39-480128FD#0PW0-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
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ISSUED DATE: 2024/09/05			

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General Specifications

Item	Dimension	Unit
Size	3.9	inch
Dot Matrix	480 x RGBx128(TFT)	dots
Module dimension	105.5(W) x 37.0(H) x 3.05(D)	mm
Active area	95.04 x 25.34	mm
Pixel pitch	0.198 x 0.198	mm
LCD type	TFT, Normally Black, Transmissive	
Viewing Angle	85/85/85/85	
Aspect Ratio	Bar Type	
TFT Driver IC	ST7282A or equivalent	
TFT Interface	24-bit RGB	
Backlight Type	LED,Normally White	
With /Without TP	Without TP	
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	-30	—	+80	℃
Storage Temperature	TST	-40	—	+90	℃

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:

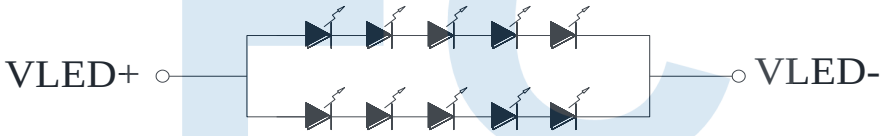
Item	Symbol	Min	Typ	Max	Unit	Remark
Supply Voltage For LCM	VCC	3.0	3.3	3.6	V	
Supply Current For LCM	ICC	-	14	25	mA	Note1

Note 1 : This value is test for VCC=3.3V , Ta=25 ℃ only

LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current	-	-	40	-	mA	-
Power Consumption	-	560	600	680	mW	-
LED voltage	VLED+	14	15	17	V	Note 1
LED Life Time	-	50,000	-	-	Hr	Note 2,3,4

Note 1 : There are 1 Groups LED



CIRCUIT DIAGRAM

Note 2 : Ta = 25 ℃
Note 3 : Brightness to be decreased to 50% of the initial value
Note 4 : The single LED lamp case

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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	1000	1200	-	-	Note 4
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.257	0.307	0.357	-	Note 2,6,7
		Wy		0.289	0.339	0.389	-	
Viewing angle	Hor.	ΘR	CR≧10	80	85	-	Deg.	Note 1
		ΘL		80	85	-		
	Ver.	ΦT		80	85	-		
		ΦB		80	85	-		
Brightness		-	-	400	500	-	cd/m²	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃

Note 1: Definition of viewing angle range

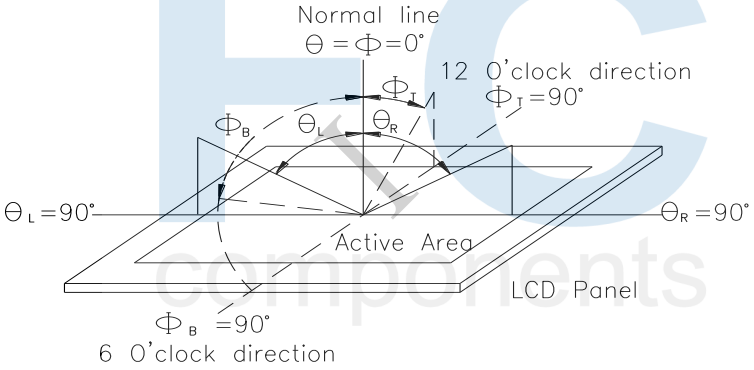


Fig. 1. Definition of viewing angle

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.

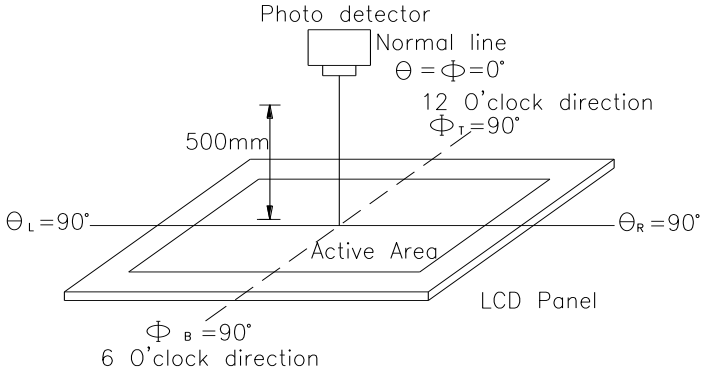


Fig. 2. Optical measurement system setup

Interface

LCM PIN Definition

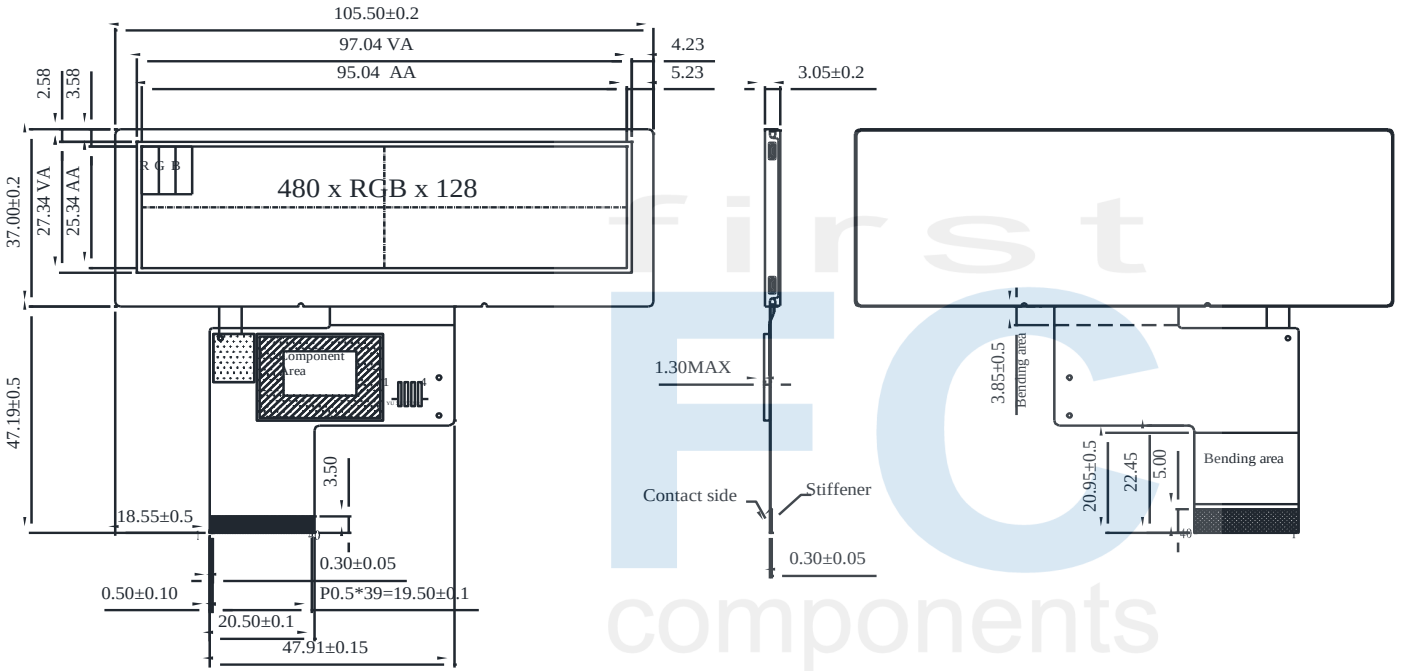
Pin	Symbol	Function	Remark
1	VLED-	Power for LED backlight cathode	
2	VLED+	Power for LED backlight anode	
3	GND	Power ground	
4	VCC	Power voltage	
5	R0	Red data	
6	R1	Red data	
7	R2	Red data	
8	R3	Red data	
9	R4	Red data	
10	R5	Red data	
11	R6	Red data	
12	R7	Red data	
13	G0	Green data	
14	G1	Green data	
15	G2	Green data	
16	G3	Green data	
17	G4	Green data	
18	G5	Green data	
19	G6	Green data	
20	G7	Green data	
21	B0	Blue data	
22	B1	Blue data	
23	B2	Blue data	
24	B3	Blue data	
25	B4	Blue data	
26	B5	Blue data	
27	B6	Blue data	
28	B7	Blue data	
29	GND	Power ground	
30	DCLK	Pixel clock input pin	

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<table>
<tr><td>31</td><td>DISP</td><td>DISP sets the display mode.<table><tr><th>DISP</th><th>Function Description</th></tr><tr><td>L</td><td>Standby mode</td></tr><tr><td>H</td><td>Normal display mode</td></tr></table></td><td></td></tr>
<tr><td>32</td><td>HSYNC</td><td>Horizontal sync signal, default is negative polarity.</td><td></td></tr>
<tr><td>33</td><td>VSYNC</td><td>Vertical sync signal, default is negative polarity.</td><td></td></tr>
<tr><td>34</td><td>NC</td><td>No connection</td><td></td></tr>
<tr><td>35</td><td>NC</td><td>No connection</td><td></td></tr>
<tr><td>36</td><td>GND</td><td>Power ground</td><td></td></tr>
<tr><td>37</td><td>NC(XR)</td><td>No connection</td><td></td></tr>
<tr><td>38</td><td>NC(YD)</td><td>No connection</td><td></td></tr>
<tr><td>39</td><td>NC(XL)</td><td>No connection</td><td></td></tr>
<tr><td>40</td><td>NC(YU)</td><td>No connection</td><td></td></tr>
</table>

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Contour Drawing



PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	VLED-	21	B0
2	VLED+	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	DCLK
11	R6	31	DISP
12	R7	32	HSYNC
13	G0	33	VSYNC
14	G1	34	NC
15	G2	35	NC
16	G3	36	GND
17	G4	37	NC(XR)
18	G5	38	NC(YD)
19	G6	39	NC(XL)
20	G7	40	NC(YU)

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

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