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
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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF57-320240A2P#004-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
			葉虹蘭
ISSUED DATE: 2022/12/15			

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RECORDS OF REVISION

DOC. FIRST ISSUE

VERSION	DATE	REVISED PAGE NO.	**SUMMARY**
0	2022/12/15		First issue

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Summary

TFT 5.7” is a TN transmissive type color active matrix TFT liquid crystal display that use amorphous silicon TFT as switching devices. This module is a composed of a TFT_LCD module, It is usually designed for industrial application and this module follows RoHs.

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General Specifications

Item	Dimension	Unit
Size	5.7	inch
Dot Matrix	320 x RGBx240(TFT)	dots
Module dimension	141.12x 101.55 x 13.5	mm
Active area	115.2 x 86.4	mm
Dot pitch	0.12 x 0.36	mm
LCD type	TFT, Normally White, Transmissive	
View Direction	12 o'clock	
Gray Scale Inversion Direction	6 o'clock	
Aspect Ratio	4:3	
Backlight Type	LED ,Normally White	
Controller IC	SSD1963	
Interface	Digital 8080 family MPU 8bit/16bit	
With /Without TP	Without TP	
Surface	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: (CON3.Pin1=GND, Pin2=VDD)

Item	Symbol	Min	Typ	Max	Unit	Remark
Supply Voltage For LCM	VDD	3.0	3.1	3.3	V	—
Supply Current For LCM	IDD	—	400	600	mA	Note1

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

Backlight driving conditions (CON3.Pin33,34=VLED-, Pin35,36=VLED+)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Operation Current For LED Driver	VLED=5V	—	370	555	mA	Note 1,2
Power Consumption	VLED=5V	—	1850	2775	mW	Note 1,2
Supply Voltage For LED Driver	VLED+	—	5	—	V	—
LED Life Time	—	—	50,000	—	Hr	Note 2,3,4

Note 1 : Base on VLED= 5V for the back light driver IC specification
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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DC CHARATERISTICS

Parameter	Symbol	Rating			Unit	Condition
		Min	Typ	Max		
Low level input voltage	V_{IL}	0	-	0.3VDD	V	
High level input voltage	V_{IH}	0.7VDD	-	VDD	V	

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Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr+Tf	θ=0°、Φ=0°		25	-	.ms	Note 3
Contrast ratio		CR	At optimized viewing angle	-	300	-	-	Note 4
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		-	-	800	900	-	cd/m^2	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃, V_{LED} / I_{LED}= 5V / 370mA

Note 1: Definition of viewing angle range

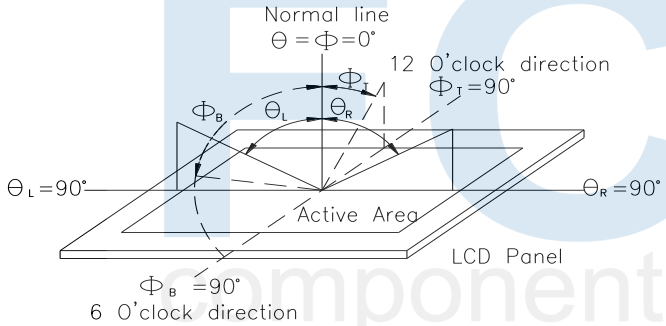


Fig 8.1. Definition of viewing angle

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.

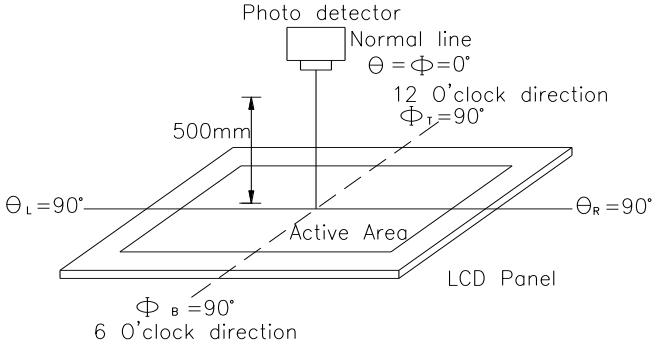


Fig 8.2. Optical measurement system setup

Note 3: Definition of Response time:

The response time is defined as the LCD optical switching time interval between “White” state

Interface

LCM PIN Definition (CON3)

Pin	Symbol	Function	Remark
1	GND	System ground pin of the IC .Connect to system ground.	
2	VDD	Power Supply : +3.3V	
3	BLE	Backlight control signal , H: On \ L: Off	
4	D/C	Data/Command select	
5	WR	Write strobe signal	
6	RD	Read strobe signal	
7	DB0	Data bus	
8	DB1	Data bus	
9	DB2	Data bus	
10	DB3	Data bus	
11	DB4	Data bus	
12	DB5	Data bus	
13	DB6	Data bus	
14	DB7	Data bus	
15	DB8	Data bus (When select 8bits Mode, this pin is NC)	Note1
16	DB9	Data bus (When select 8bits Mode, this pin is NC)	Note1
17	DB10	Data bus (When select 8bits Mode, this pin is NC)	Note1
18	DB11	Data bus (When select 8bits Mode, this pin is NC)	Note1
19	DB12	Data bus (When select 8bits Mode, this pin is NC)	Note1
20	DB13	Data bus (When select 8bits Mode, this pin is NC)	Note1
21	DB14	Data bus (When select 8bits Mode, this pin is NC)	Note1
22	DB15	Data bus (When select 8bits Mode, this pin is NC)	Note1
23	NC	No connect	
24	NC	No connect	
25	CS	Chip select	
26	RESET	Hardware reset	
27	LR	Left / right selection; Default L/R=H	Note 2,3
28	UD	Up/down selection; ; Default U/D=L	Note 2,3
29	NC	No connect	
30	NC	No connect	

31	NC	No connect	
32	NC	No connect	
33	VLED-	Power for LED Driver IC(GND)	
34	VLED-	Power for LED Driver IC(GND)	
35	VLED+	Power for LED Driver IC(+5V)	
36	VLED+	Power for LED Driver IC(+5V)	

Note1: When select 8bit mode, DB0~DB7 be used, DB8~DB15 no connect
When select 16bit mode, DB0~DB15 be used
Note 2: Selection of scanning mode

Setting of scan control input		Scanning direction
UD	LR	
GND	VDD	Up to down, left to right
VDD	GND	Down to up, right to left
GND	GND	Up to down, right to left
VDD	VDD	Down to up, left to right

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



UD=L, LR=H



UD=L, LR=L



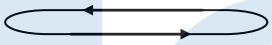
UD=H, LR=H



UD=H, LR=L

Reliability

Content of Reliability Test (Wide temperature, -20℃~70℃)

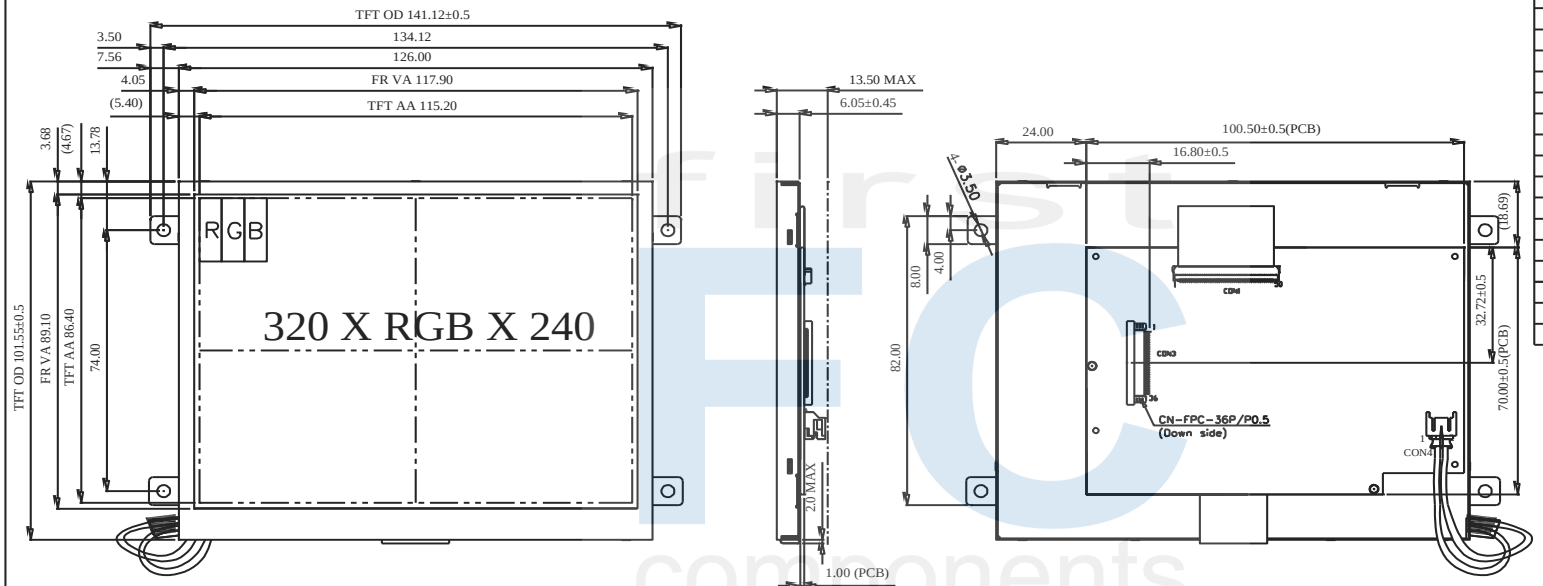
Environmental Test			
Test Item	**Content of Test**	**Test Condition**	**Note**
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80℃ 200hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30℃ 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70℃ 200hrs	——
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20℃ 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60℃,90%RH max	60℃,90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation -20℃ 25℃ 70℃  30min 5min 30min 1 cycle	-20℃/70℃ 10 cycles	——
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes	3
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=±600V(contact), ±800v(air), RS=330Ω CS=150pF 10 times	——

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: The packing have to including into the vibration testing.

Contour Drawing



CON3

PIN NO.	SYMBOL
1	GND
2	VDD
3	BLE
4	D/C
5	WR
6	RD
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	DB8
16	DB9
17	DB10
18	DB11

PIN NO.	SYMBOL
19	DB12
20	DB13
21	DB14
22	DB15
23	NC
24	NC
25	CS
26	RESET
27	LR
28	UD
29	NC
30	NC
31	NC
32	NC
33	VLED-
34	VLED-
35	VLED+
36	VLED+

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

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