TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

Represented by:

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

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF70-800480D3D#0F7-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
first FC components			
ISSUED DATE: 2025/05/29			

General Specifications

Item	Dimension	Unit
Size	7.0	inch
Dot Matrix	800 x RGB x 480 (TFT)	dots
Module dimension	182.2 x 101.2 x 8.6	mm
Active area	154.08 x 85.92	mm
Pixel Pitch	0.1926 X 0.179	mm
LCD type	TFT, Normally White, Transmissive	
View Direction	12 o'clock	
Gray Scale Inversion Direction	6 o'clock	
Aspect Ratio	16:9	
Backlight Type	LED ,Normally White	
Color arrangement	RGB- Stripe	
TFT Driver IC	ILI6137A +ILI5960-9G or equivalent	
TFT Interface	24-bit RGB	
CTP IC	ILI2130 or Equivalent	
CTP Interface	I2C	
CTP FW Version	0x07.0x00.0x00.0x00.0x65.0x90.0x00.0x01	
CTP Resolution	16384*16384	
With /Without TP	With CTP	
Surface	Glare	

*Color tone slight changed by temperature and driving voltage.

first components

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℃

first FC components

Electrical Characteristics

Operating conditions:

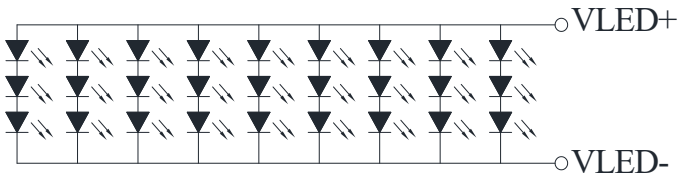
Item	Symbol	Min	Typ	Max	Unit	Remark
Supply Voltage For Logic	VCC	3.0	3.3	3.6	V	Note 2
Power voltage	AVDD	10.2	10.4	10.6	V	
Power Supply For Current	VCC =3.3V	-	3.1	-	mA	-
Power voltage	VGH	14.5	15.0	15.5	V	-
Power voltage	VGL	-10.5	-10	-9.5	V	-
Input signal voltage	VCOM	3.54	4.04	4.54	V	Note 4
Power AVDD For Current	IADD	-	13.7	-	mA	
Power VGH For Current	IGH	-	0.57	-	mA	
Power VGL For Current	IGL	-	0.63	-	mA	
Power VCOM For Current	ICOM	-	0.03	-	mA	
Supply CTP	VDDT	3.0	3.3	3.6	V	
	ICTP	—	65	98	mA	

Note: (1) Vcom must be adjusted to optimize display quality: cross-talk, contrast ratio and etc.
(2) VGH is TFT gate operating voltage
(3) VGL is TFT gate operating voltage
(4) Environmental condition: 25±5
(5) Reference waveform for panel light on is as below: (release after sample output)

LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current	ILED	-	180	-	mA	-
Power Consumption	-	1512	1764	1980	mW	-
LED voltage	VLED+	8.4	9.8	11.0	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

Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr+ Tf	θ=0°、Φ=0°	-	25	50	.ms	Note 3
Contrast ratio		CR	At optimized viewing angle	500	800	-	-	Note 4
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.26	0.31	0.36	-	Note 2,5,6
		Wy		0.28	0.33	0.38	-	
Viewing angle (Gray Scale Inversion Direction)	Hor.	ΘR	CR≧10	-	75	-	Deg.	Note Note 1
		ΘL		-	75	-		
	Ver.	ΦT		-	75	-		
		ΦB		-	75	-		
Brightness		-	-	200	250	-	cd/m²	Center of display
Uniformity		(U)	-	70	-	-	%	Note 5

Ta=25±2℃

Note: After adding a polarized O-film, its viewing angle is enlarged, but its still have gray scale appearance.

Note 1: Definition of viewing angle range

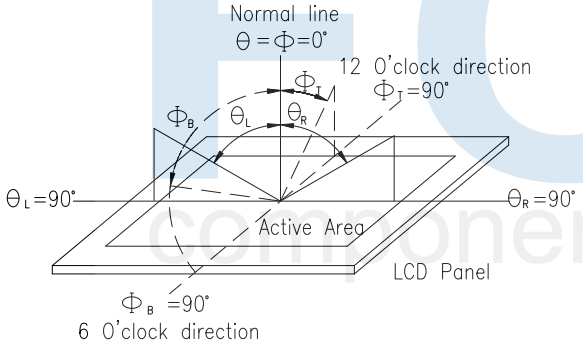


Fig. 1. Definition of viewing angle

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.

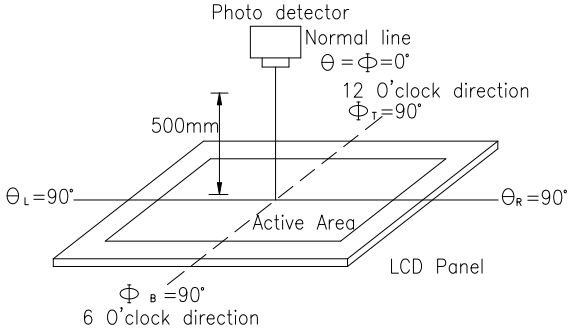


Fig. 2. Optical measurement system setup

Interface

LCM PIN Definition

Pin	Symbol	Function	Remark
1	VLED+	Power supply for backlight	
2	VLED+	Power supply for backlight	
3	VLED-	Backlight ground	
4	VLED-	Backlight ground	
5	GND	Power ground	
6	VCOM	Common voltage	
7	VCC	Power for Digital Circuit	
8	MODE	DE/SYNC mode select	Note 1
9	DE	Data Input Enable (DEN)	
10	VS	Vertical Sync Input (VSD)	
11	HS	Horizontal Sync Input (HSD)	
12	B7	Blue data(MSB)	
13	B6	Blue data	
14	B5	Blue data	
15	B4	Blue data	
16	B3	Blue data	
17	B2	Blue data	
18	B1	Blue data	Note 2
19	B0	Blue data(LSB)	Note 2
20	G7	Green data(MSB)	
21	G6	Green data	
22	G5	Green data	
23	G4	Green data	
24	G3	Green data	
25	G2	Green data	
26	G1	Green data	Note 2
27	G0	Green data(LSB)	Note 2
28	R7	Red data(MSB)	
29	R6	Red data	
30	R5	Red data	
31	R4	Red data	
32	R3	Red data	

33	R2	Red data	
34	R1	Red data	Note 2
35	R0	Red data(LSB)	Note 2
36	GND	Power Ground	
37	DCLK	Sample clock (CLK)	Note 3
38	GND	Power Ground	
39	L/R	Left / right selection	Note 4,5
40	U/D	Up/down selection	Note 4,5
41	VGH	Gate ON Voltage	
42	VGL	Gate OFF Voltage	
43	AVDD	Power for Analog Circuit	
44	RESET	Global reset pin.	Note 6
45	NC	No connection	
46	VCOM	Common Voltage	
47	DITHB	Dithering function	Note 7
48	GND	Power Ground	
49	NC	No connection	
50	NC	No connection	

I: input, O: output, P: Power

Note 1: When select DE mode, MODE="1", VS and HS must pull high.
When select SYNC mode, MODE= "0", DE must be grounded.

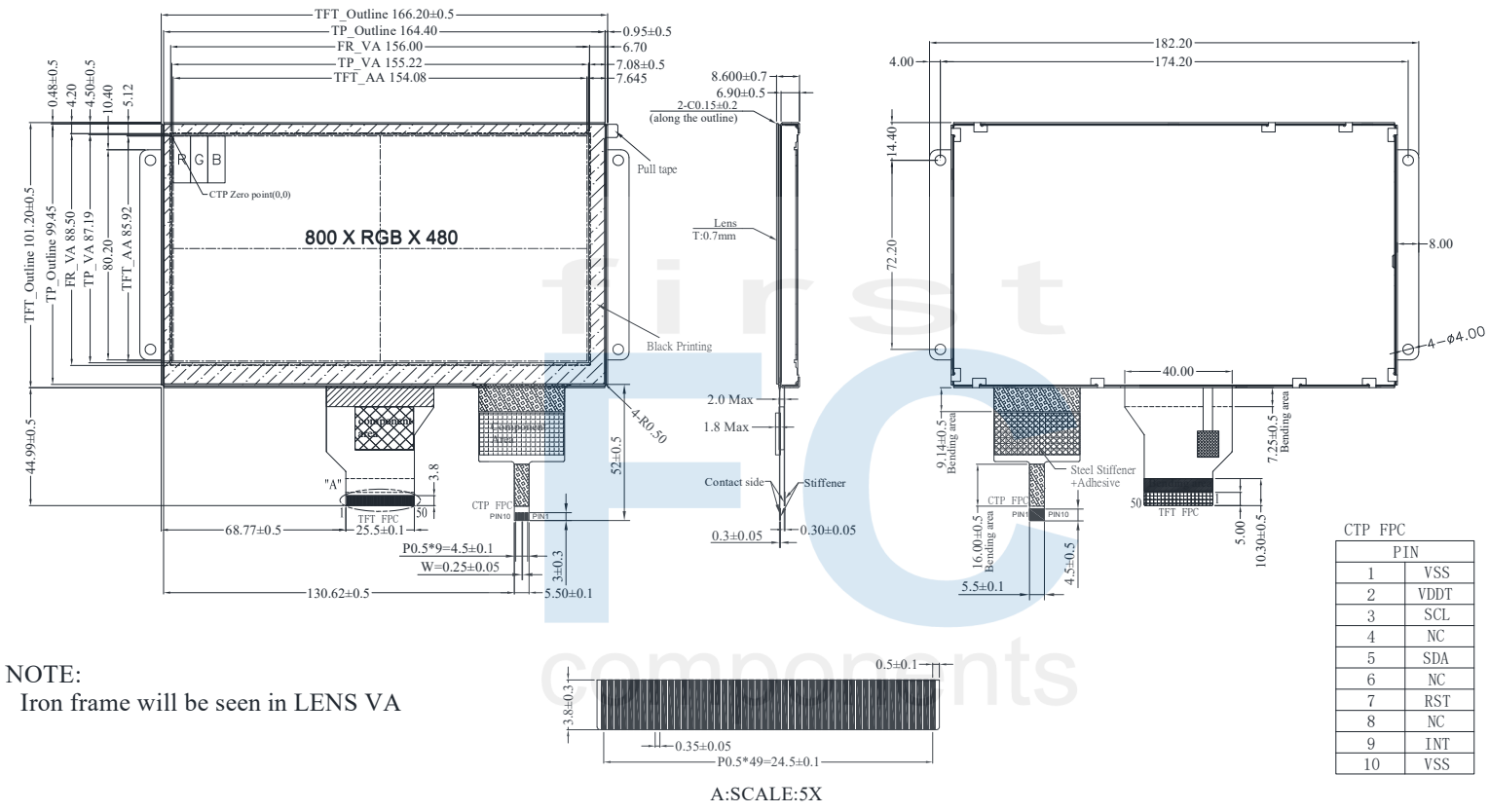
Note 2: When input 18 bits RGB data, the two low bits of R,G and B data must be grounded.

Note 3: Data shall be latched at the falling edge of DCLK.

Note 4: Selection of scanning mode

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

Contour Drawing



A:SCALE:5X

NOTE:
Iron frame will be seen in LENS VA

TFT FPC

PIN	
1	VLED+
2	VLED+
3	VLED−
4	VLED−
5	GND
6	VCOM
7	VCC
8	MODE
9	DE
10	VS
11	HS
12	B7
13	B6
14	B5
15	B4
16	B3
17	B2
18	B1
19	B0
20	G7
21	G6
22	G5
23	G4
24	G3
25	G2
26	G1
27	G0
28	R7
29	R6
30	R5
31	R4
32	R3
33	R2
34	R1
35	R0
36	GND
37	DCLK
38	GND
39	L/R
40	U/D
41	VGH
42	VGL
43	AVDD
44	RESET
45	NC
46	VCOM
47	D1THB
48	GND
49	NC
50	NC

CTP FPC

PIN	
1	VSS
2	VDDT
3	SCL
4	NC
5	SDA
6	NC
7	RST
8	NC
9	INT
10	VSS

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

first components