TFT DISPLAY SPECIFICATION



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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF0154-240240AS#0SP0-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
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ISSUED DATE: 2025/04/23			

General Specifications

Item	Dimension	Unit
Size	1.54”	inch
Dot Matrix	240 x RGB x 240	dots
Module dimension	31.52 x 33.72 x 1.94	mm
Active area	27.72 x 27.72	mm
Pixel pitch	0.1155 x 0.1155	mm
LCD type	TFT, Normally Black, Transmissive	
Viewing Angle	80/80/80/80	
Backlight Type	LED,Normally White	
Drive IC	ST7789T3-G4-1 or Equivalent	
TFT Interface	SPI	
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	-10	—	+60	℃
Storage Temperature	TST	-20	—	+70	℃

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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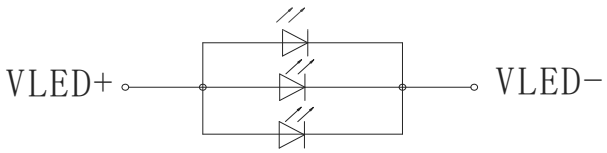
Electrical Characteristics

TFT LCD MODULE

Parameter	Symbol	Value			Unit	Remark
		Min.	Typ.	Max.		
Analog Supply Voltage	VDD	2.4	2.8	3.3	V	-
Power Supply for I/O System	IOVCC	1.65	1.8	3.3	V	IOVCC≦VDD
Input High Voltage	VIH	0.7 IOVCC	-	IOVCC	V	Digital input pins
Input Low Voltage	VIL	0	-	0.3 IOVCC	V	Digital input pins
Output High Voltage	VoH	0.8 IOVCC	-	IOVCC	V	Digital input pins
Output Low Voltage	VoL	0	-	0.2 IOVCC	V	Digital input pins
(Panel+LSI) Power Consumption	Black Mode	-	6.0	-	mA	VDD =2.8V
	Sleeping Mode	-	0.015	-	mA	

Backlight Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	Vf	If=60mA	2.8	3.0	3.2	V
Backlight Power Consumption	WBL	If=60mA	-	192	-	mW
LED Life Time	-		-	30,000	-	Hr



Backlight LED Circuit

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Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr+ Tf	θ=0°、Φ=0°	-	30	40	.ms	Note 3
Contrast ratio		CR	At optimized viewing angle	700	900	-	-	Note 4
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.238	0.288	0.338		Note 2,6,7
		Wy		0.259	0.309	0.359		
Viewing angle	Hor.	ΘR	CR≧10	75	80	-	Deg.	Note 1
		ΘL		75	80	-		
	Ver.	ΦT		75	80	-		
		ΦB		75	80	-		
Brightness		-	-	800	850	-	cd/m^2	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃

Note 1: Definition of viewing angle range

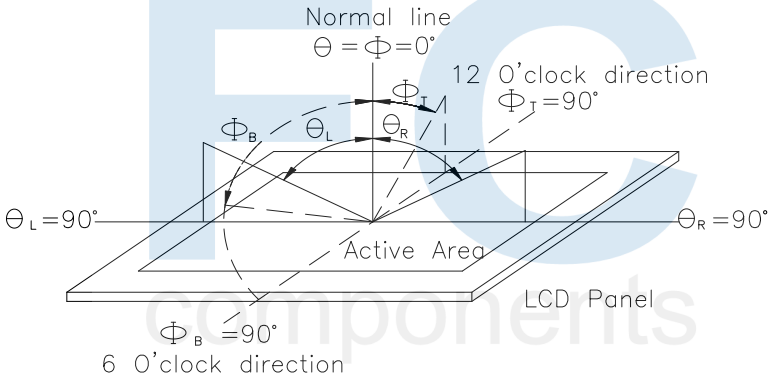


Fig 6.1. Definition of viewing angle

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.

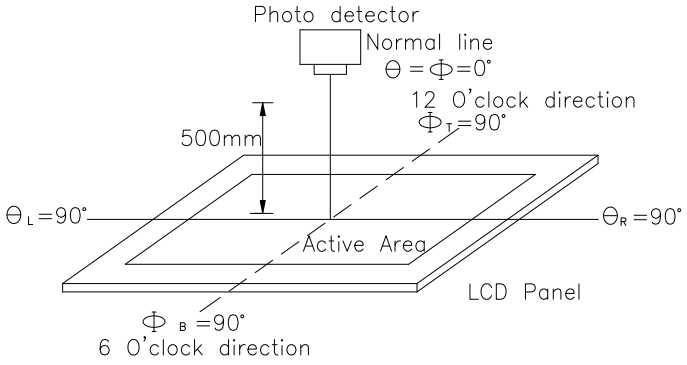


Fig 6.2. Optical measurement system setup

Note 3: Definition of Response time:

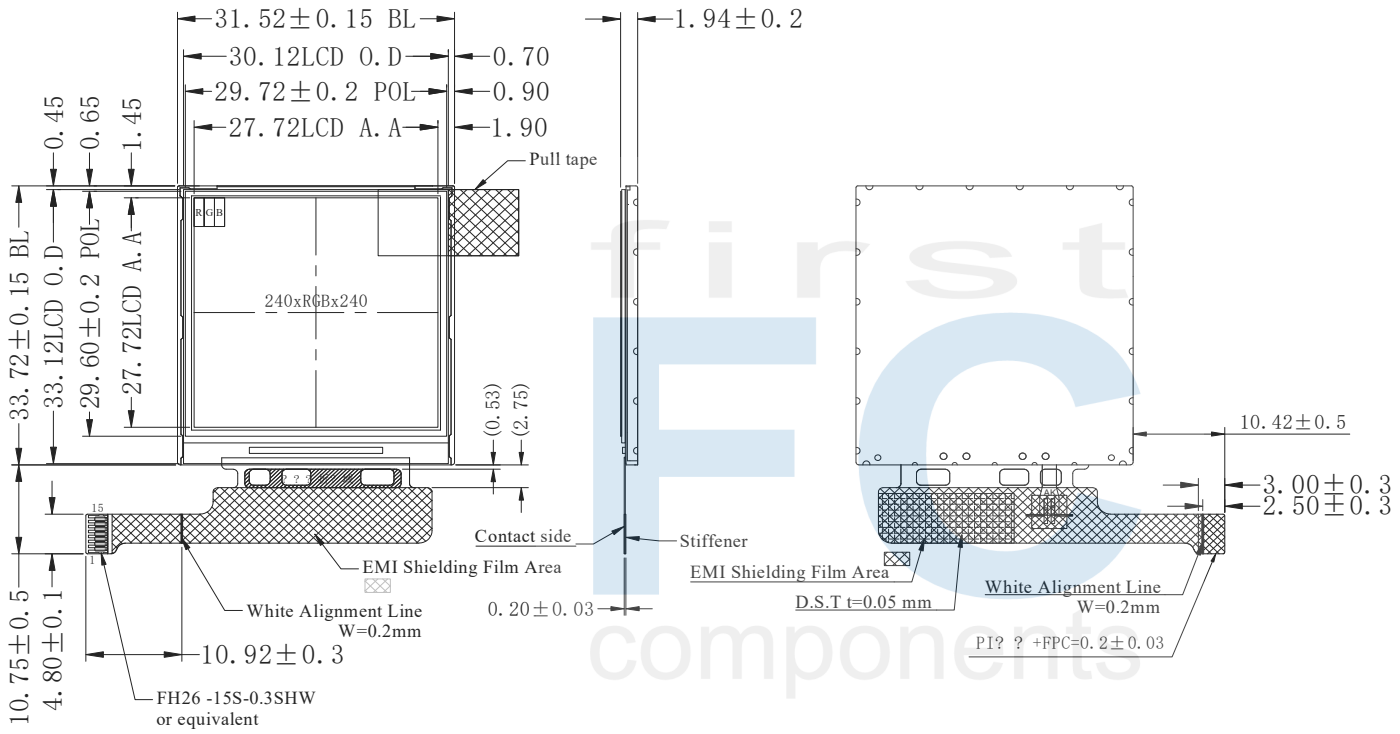
Interface

LCM PIN Definition

Pin No.	Symbol	Function
1	GND	Ground.
2	IOVCC	Power Supply for I/O System(VDDI)
3	CS	Chip selection pin(CSX)
4	RESET	This signal will reset the device(Active Low, RESX)
5	RS	Display data/command selection pin in 4-line serial interface(D/CX)
6	GND	Ground.
7	SCL	This pin is used to be serial interface clock
8	SDA	SPI interface input/output pin(In: DIN, Out: DOUT)
9	GND	Ground.
10	VDD	Power Supply for Analog
11	FMARK	Tearing effect signal is used to synchronize MCU to frame memory writing.
12	VLED-	Power Supply For LED Backlight Cathode Input
13	VLED-	Power Supply For LED Backlight Cathode Input.
14	VLED+	Power Supply For LED Backlight Anode Input.
15	VLED+	Power Supply For LED Backlight Anode Input.

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Contour Drawing



PinNo.	Symbol
1	GND
2	IOVCC
3	CS
4	RESET
5	RS
6	GND
7	SCL
8	SDA
9	GND
10	VDD
11	FMARK
12	VLED-
13	VLED-
14	VLED+
15	VLED+

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

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