TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

Represented by:

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

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF70-1024600A8H#VP3-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
ISSUED DATE:	**2025/02/25**		

General Specifications

Item	Dimension	Unit
Size	7.0	inch
Dot Matrix	1024 x RGBx600(TFT)	dots
Module dimension	169.9(W) x 103.4(H) x 26.5 (D)	mm
Active area	154.2144 x 85.92	mm
Pixel pitch	0.1506 x 0.1432	mm
LCD type	TFT, Normally Black, Transmissive	
Viewing Angle	85/85/85/85	
Aspect Ratio	16:9	
Controller IC	TFP401 or equivalent	
Backlight Type	LED, Normally White	
TFT Interface	HDMI(only for DVI)	
CTP IC	ILI2130 or Equivalent	
CTP Interface	USB	
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.

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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	Remark
Supply Voltage For LCM	VDD	—	4.9	5	5.1	V	-
Supply Current For LCM	IDD	—	—	1453	2180	mA	Note 1
LED life time	—	—	50,000	—	—	Hr	Note 4

Backlight conditions:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
PWM Control Level (Backlight PWM)	High Level	-	3.3	-	V	
	Low Level	-	0	-	V	
PWM Control Frequency	-	-	1K	-	Hz	

Note 1 : This value is test for VDD =5.0V , Ta=25℃ only

Note 2 : Please make sure to support enough current.

Note3 : Touch panel driver is base on the mouse driver program and through USB port connect to PC or embedded board.Can only support the single touch.

Note 4: The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and IL =240mA. The LED lifetime could be decreased if operating IL is lager than 240mA.

Note5: The PWM control circuit is able to adjust the duty ratio linearly from 0 to 95%.

Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr	θ=0°、Φ=0°	-	13	20	.ms	Note 3
		Tf		-	15	25		
Contrast ratio		CR	At optimized viewing angle	600	800	-	-	Note 4
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.269	0.319	0.369	-	Note 2,5,6
		Wy		0.291	0.341	0.391	-	
Viewing angle	Hor.	ΘR	CR≧10	80	85	-	Deg.	Note 1
		ΘL		80	85	-		
	Ver.	ΦT		80	85	-		
		ΦB		80	85	-		
Brightness		-	-	400	450	-	cd/m2	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃,

Note 1: Definition of viewing angle range

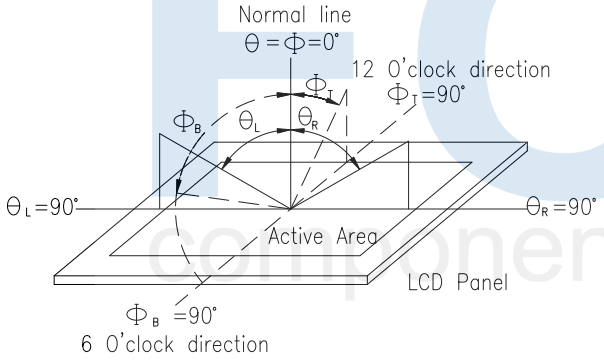
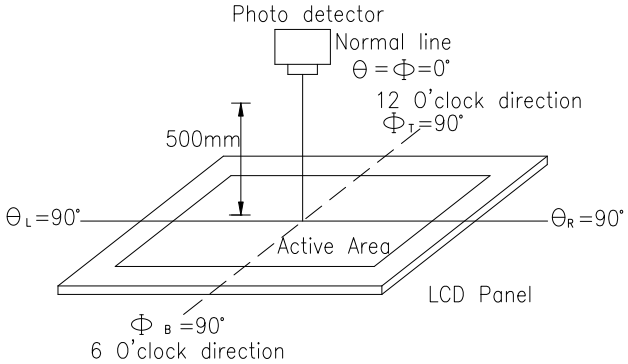


Fig. 1. Definition of viewing angle

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.



Interface

LCM PIN Definition(CON6)

Pin	Symbol	Function	Remark
1	NC	No connection	
2	5V	Raspberry Pi:Power 5V	
3	GPIO02	Raspberry Pi:GPIO02	
4	5V	Raspberry Pi:Power 5V	
5	GPIO03	Raspberry Pi:GPIO03	
6	GND	Raspberry Pi:GND	
7	GPIO04	Raspberry Pi:GPIO04	
8	GPIO14	Raspberry Pi:GPIO14	
9	GND	Raspberry Pi:GND	
10	GPIO15	Raspberry Pi:GPIO15	
11	GPIO17	Raspberry Pi:GPIO17	
12	BL-PWM(GPIO18)	Raspberry Pi:GPIO18 (Backlight PWM)	
13	GPIO27	Raspberry Pi:GPIO27	
14	GND	Raspberry Pi:GND	
15	GPIO22	Raspberry Pi:GPIO22	
16	GPIO23	Raspberry Pi:GPIO23	
17	NC	No connection	
18	GPIO24	Raspberry Pi:GPIO24	
19	GPIO10	Raspberry Pi:GPIO10	
20	GND	Raspberry Pi:GND	
21	GPIO09	Raspberry Pi:GPIO09	
22	GPIO25	Raspberry Pi:GPIO25	
23	GPIO11	Raspberry Pi:GPIO11	
24	GPIO08	Raspberry Pi:GPIO08	
25	GND	Raspberry Pi:GND	
26	GPIO07	Raspberry Pi:GPIO07	
27	ID_SD	Raspberry Pi:ID_SD	
28	ID_SC	Raspberry Pi:ID_SC	
29	GPIO05	Raspberry Pi:GPIO05	
30	GND	Raspberry Pi:GND	

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31	GPIO06	Raspberry Pi:GPIO06	
32	GPIO12	Raspberry Pi:GPIO12	
33	GPIO13	Raspberry Pi:GPIO13	
34	GND	Raspberry Pi:GND	
35	GPIO19	Raspberry Pi:GPIO19	
36	GPIO16	Raspberry Pi:GPIO16	
37	GPIO26	Raspberry Pi:GPIO26	
38	GPIO20	Raspberry Pi:GPIO20	
39	GND	Raspberry Pi:GND	
40	GPIO21	Raspberry Pi:GPIO21	

LCM PIN Definition (CON5)

Pin	Symbol	Function	Remark
1	3.3V	TFT Module Power limit can only output 3.3V,100mA	Note1
2	5V	Raspberry Pi:Power 5V	
3	GPIO02	Raspberry Pi:GPIO02	
4	5V	Raspberry Pi:Power 5V	
5	GPIO03	Raspberry Pi:GPIO03	
6	GND	Raspberry Pi:GND	
7	GPIO04	Raspberry Pi:GPIO04	
8	GPIO14	Raspberry Pi:GPIO14	
9	GND	Raspberry Pi:GND	
10	GPIO15	Raspberry Pi:GPIO15	
11	GPIO17	Raspberry Pi:GPIO17	
12	BL-PWM(GPIO18)	Raspberry Pi:GPIO18 (Backlight PWM)	
13	GPIO27	Raspberry Pi:GPIO27	
14	GND	Raspberry Pi:GND	
15	GPIO22	Raspberry Pi:GPIO22	
16	GPIO23	Raspberry Pi:GPIO23	
17	3.3V	TFT Module Power limit can only output 3.3V,100mA	Note1
18	GPIO24	Raspberry Pi:GPIO24	
19	GPIO10	Raspberry Pi:GPIO10	
20	GND	Raspberry Pi:GND	
21	GPIO09	Raspberry Pi:GPIO09	

22	GPIO25	Raspberry Pi:GPIO25	
23	GPIO11	Raspberry Pi:GPIO11	
24	GPIO08	Raspberry Pi:GPIO08	
25	GND	Raspberry Pi:GND	
26	GPIO07	Raspberry Pi:GPIO07	
27	ID_SD	Raspberry Pi:ID_SD	
28	ID_SC	Raspberry Pi:ID_SC	
29	GPIO05	Raspberry Pi:GPIO05	
30	GND	Raspberry Pi:GND	
31	GPIO06	Raspberry Pi:GPIO06	
32	GPIO12	Raspberry Pi:GPIO12	
33	GPIO13	Raspberry Pi:GPIO13	
34	GND	Raspberry Pi:GND	
35	GPIO19	Raspberry Pi:GPIO19	
36	GPIO16	Raspberry Pi:GPIO16	
37	GPIO26	Raspberry Pi:GPIO26	
38	GPIO20	Raspberry Pi:GPIO20	
39	GND	Raspberry Pi:GND	
40	GPIO21	Raspberry Pi:GPIO21	

Note1: The 3.3V supply current is limited; please pay special attention to use

USB

Pin	Symbol	Function	Remark
1	5V	Power Supply (5V)	
2	D-	Data line -	
3	D+	Data line +	
4	NC	No connection	
5	GND	Power Ground	

POWER JACK

Pin No.	Symbol	I/O	Function	Remark
1	5V	P	Power Supply (5V)	
2	GND	P	Ground	
3	NC		No connection	

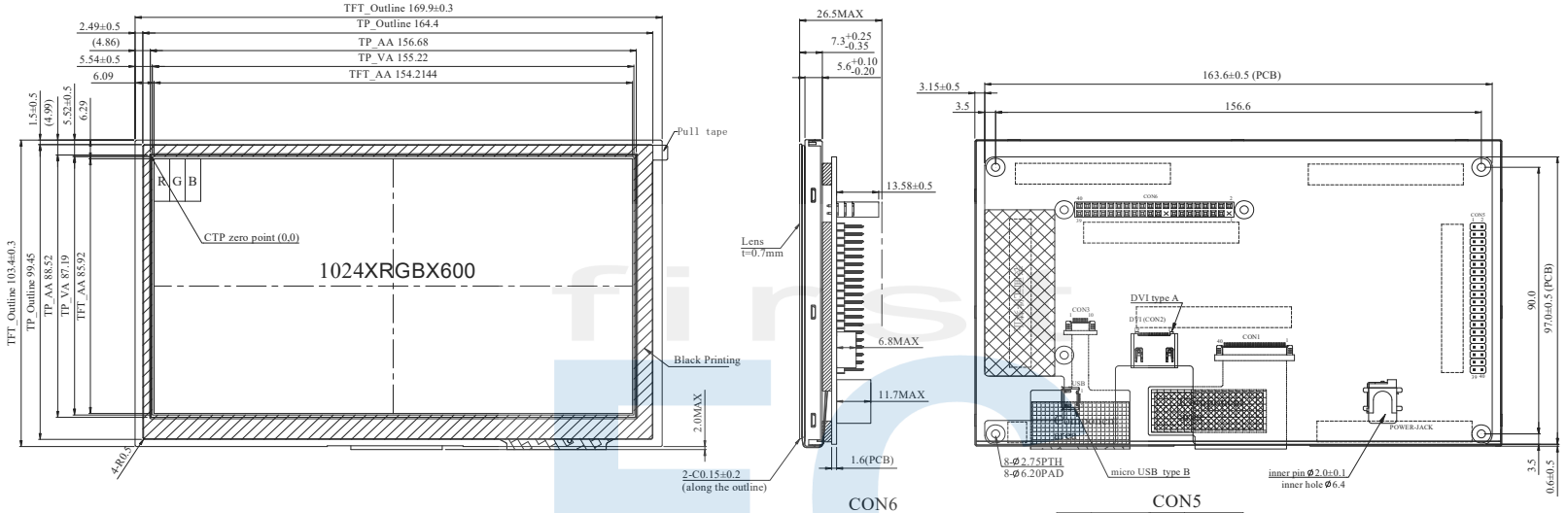
DVI

Pin No.	Symbol	I/O	Function	Remark
1	Rx2+	I	Channel-2 positive receiver input; low-voltage signal differential- input pair.	
2	GND	P	Ground	
3	Rx2-	I	Channel-2 negative receiver input; low-voltage signal differential- input pair.	
4	Rx1+	I	Channel-1 positive receiver input; low-voltage signal differential- input pair.	
5	GND	P	Ground	
6	Rx1-	I	Channel-1 negative receiver input; low-voltage signal differential- input pair.	
7	Rx0+	I	Channel-0 positive receiver input; low-voltage signal differential- input pair.	
8	GND	P	Ground	
9	Rx0-	I	Channel-0 negative receiver input; low-voltage signal differential- input pair.	
10	RxC+	I	Clock positive receiver input; low-voltage signal differential- input pair.	
11	GND	P	Ground	
12	RxC-	I	Clock negative receiver input; low-voltage signal differential- input pair.	
13-14	NC	-	No connection	
15	SCL	I/O	DDC(Data Display Channel) Clock	
16	SDA	I/O	DDC(Data Display Channel) Data	
17	GND	P	Ground	
18	5V	P	Power Supply	
19	Detect	I/O	Hot plug detect	

I: input, O: output, P: Power

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Contour Drawing



POWER JACK

PIN NO	SYMBOL
1	5V
2	GND
3	NC

2 — 1
(GND) (5V)

USB

PIN NO	SYMBOL
1	5V
2	D-
3	D+
4	NC
5	GND

DVI

PIN NO	SYMBOL
1	RX2+
2	GND
3	RX2-
4	RX1+
5	GND
6	RX1-
7	RX0+
8	GND
9	RX0-
10	RXC+
11	GND
12	RXC-
13	NC
14	NC
15	SCL
16	SDA
17	GND
18	5V
19	Detect

CON6

Pin	Symbol	Pin	Symbol
1	NC	21	GPIO09
2	5V	22	GPIO25
3	GPIO02	23	GPIO11
4	5V	24	GPIO08
5	GPIO03	25	GND
6	GND	26	GPIO07
7	GPIO04	27	ID_SD
8	GPIO14	28	ID_SC
9	GND	29	GPIO05
10	GPIO15	30	GND
11	GPIO17	31	GPIO06
12	BL-PWM (GPIO18)	32	GPIO12
13	GPIO27	33	GPIO13
14	GND	34	GND
15	GPIO22	35	GPIO19
16	GPIO23	36	GPIO16
17	NC	37	GPIO26
18	GPIO24	38	GPIO20
19	GPIO10	39	GND
20	GND	40	GPIO21

CON5

Pin	Symbol	Pin	Symbol
1	3.3V	21	GPIO09
2	5V	22	GPIO25
3	GPIO02	23	GPIO11
4	5V	24	GPIO08
5	GPIO03	25	GND
6	GND	26	GPIO07
7	GPIO04	27	ID_SD
8	GPIO14	28	ID_SC
9	GND	29	GPIO05
10	GPIO15	30	GND
11	GPIO17	31	GPIO06
12	BL-PWM (GPIO18)	32	GPIO12
13	GPIO27	33	GPIO13
14	GND	34	GND
15	GPIO22	35	GPIO19
16	GPIO23	36	GPIO16
17	3.3V	37	GPIO26
18	GPIO24	38	GPIO20
19	GPIO10	39	GND
20	GND	40	GPIO21

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

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