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
華凌光電股份有限公司

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF28-240320ED#002-FC

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
			葉虹蘭
ISSUED DATE: 2020/05/14			

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2.Summary

TFT 2.8”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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3.General Specifications

Item	Dimension	Unit
Size	2.8”	
Dot Matrix	240 x RGB x 320(TFT)	dots
Module dimension	50.0(W) x 69.2(H) x 3.42(D)	mm
Active area	43.2 x 57.6	mm
Dot pitch	0.06 x 0.18	mm
LCD type	TFT, Normally White, Transmissive	
TFT Control IC	ILI9341 or Equivalent	
TFT Interface	8-bit/16-bit CPU (build in controller)	
View Direction	6 o’clock	
Gray Scale Inversion Direction	12 o’clock	
Aspect Ratio	3:4	
Backlight Type	LED,Normally White	
CTP IC	FT6336G Or Equivalent	
CTP Interface	I2C	
With /Without TP	With CTP	
Surface	Glare	

*Color tone slight changed by temperature and driving voltage.

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4.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. ≦40℃, 90% RH MAX. Temp.＞40℃, Absolute humidity shall be less than 90% RH at 40℃

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5.Electrical Characteristics

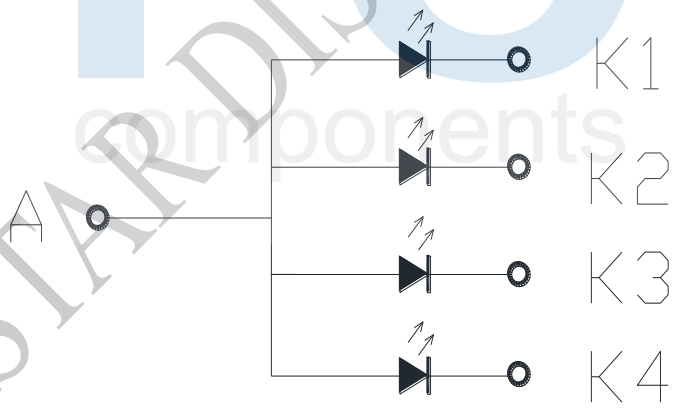
5.1. Operating conditions:

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage For Analog	VCI	2.5		3.3	V
Supply Voltage For Logic	IOVCC	1.65		3.3	V
Supply Current For LCM	ICC	—	5	7.5	mA
Supply Voltage For Touch Logic	VDDT	3.0	3.3	3.6	V

5.2. LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current		-	80	-	mA	
Power Consumption		224	256	272	mW	
LED voltage	VBL+	2.9	3.2	3.4	V	Note 1
LED Life Time		50,000	—	-	Hr	Note 2,3,4

Note 1 : There are 1 Groups LED



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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9.Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr	θ=0°、Φ=0°	-	4	-	ms	Note 3,5
		Tf		-	12	-	ms	
Contrast ratio		CR	At optimized viewing angle	-	500	-	-	Note 4,5
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.26	0.31	0.36		Note 2,6,7
		Wy		0.28	0.33	0.38		
Viewing angle (Gray Scale Inversion Direction)	Hor.	ΘR	CR≧ 10		45	-	Deg.	Note 1
		ΘL			45	-		
	Ver.	ΦT			50	-		
		ΦB			20	-		
Brightness		-	-	300	400	-	cd/m²	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃

Note 1: Definition of viewing angle range

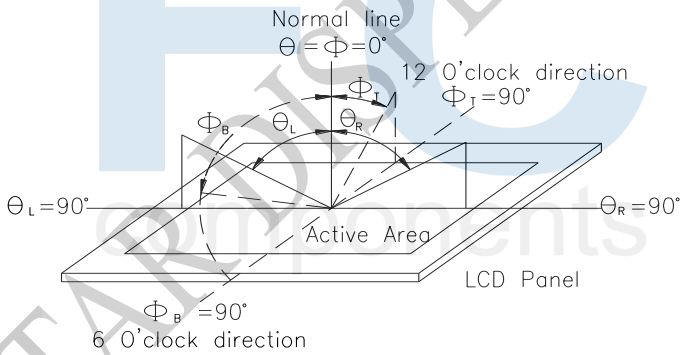


Fig. 9.1. Definition of viewing angle

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-7 or BM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

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10.Interface

10.1. LCM PIN Definition

NO	Symbol	Function	I/O
1~4	DB8~DB11	Data bus	I/O
5	GND	Ground	P
6	IOVCC	power supply	P
7	/CS	Chip select signal.	I
8	RS	register select	I
9	/WR	Write data when WRX is Low.	I
10	/RD	Read strobe signal. Read out data when RDX is Low.	I
11	GND	Ground	P
12	NC	No connection	-
13	NC	No connection	-
14	NC	No connection	-
15	NC	No connection	-
16	LEDA	Anode of LED backlight.	P
17~20	LEDK1~4	Cathode of LED backlight.	P
21	IM0	IM0=0 8Bit DB0-7; IM0=1 16Bit DB0-DB15	P
22	DB12	Data bus	I/O
23~30	DB0~DB7	Data bus	I/O
31	/RESET	System reset pin.	I
32~33	VCI	power supply	P
34	GND	Ground	P
35~37	DB13~DB15	Data bus	I/O

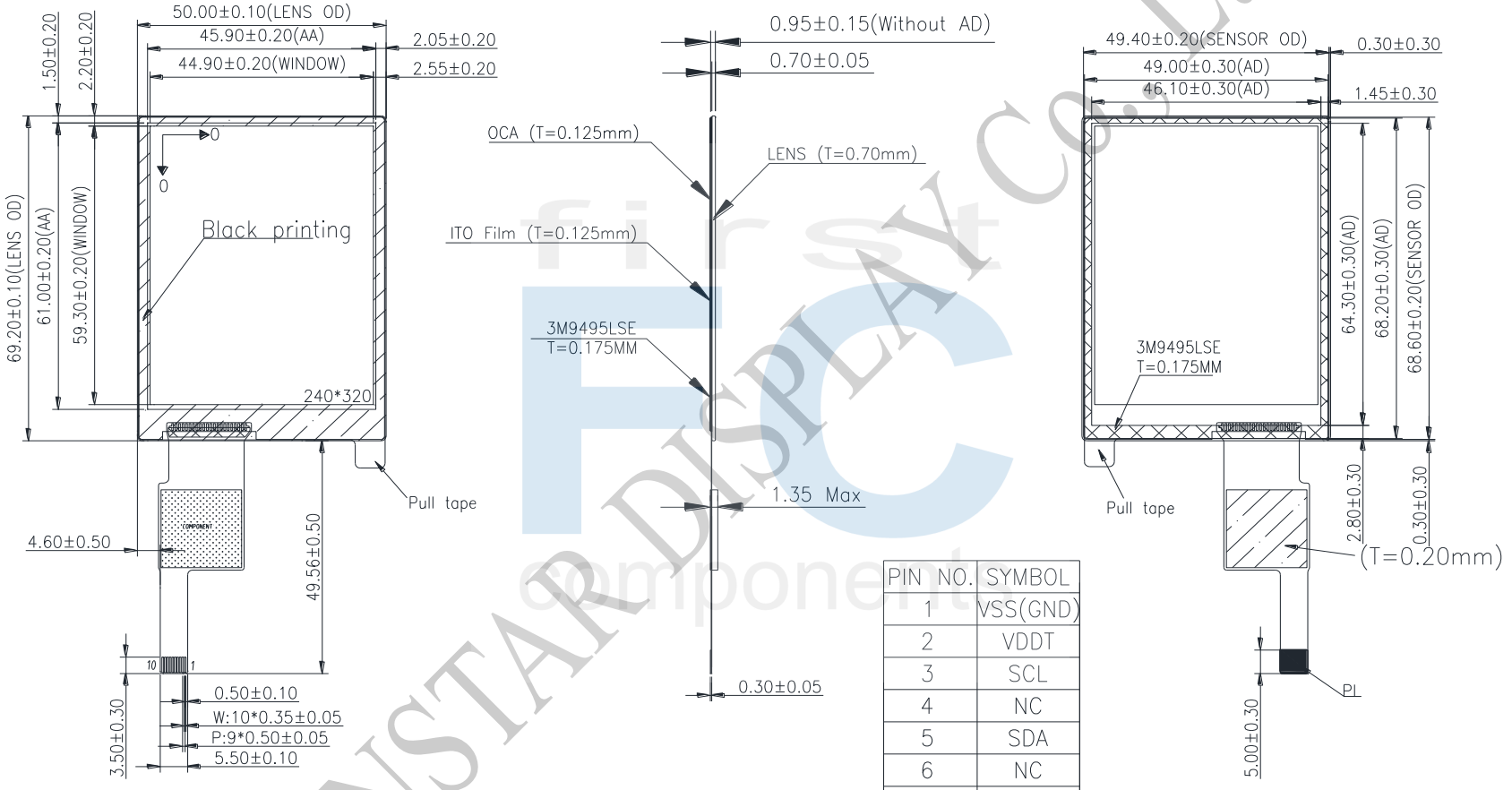
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10.2. CTP PIN Definition

Pin	Symbol	Function	Remark
1	VSS	Ground for analog circuit	
2	VDDT	Power Supply : +3.3V	
3	SCL	I2C clock input	
4	NC	No connect	
5	SDA	I2C data input and output	
6	NC	No connect	
7	/RST	External Reset, Low is active	
8	NC	No connect	
9	/INT	External interrupt to the host	
10	VSS	Ground for analog circuit	

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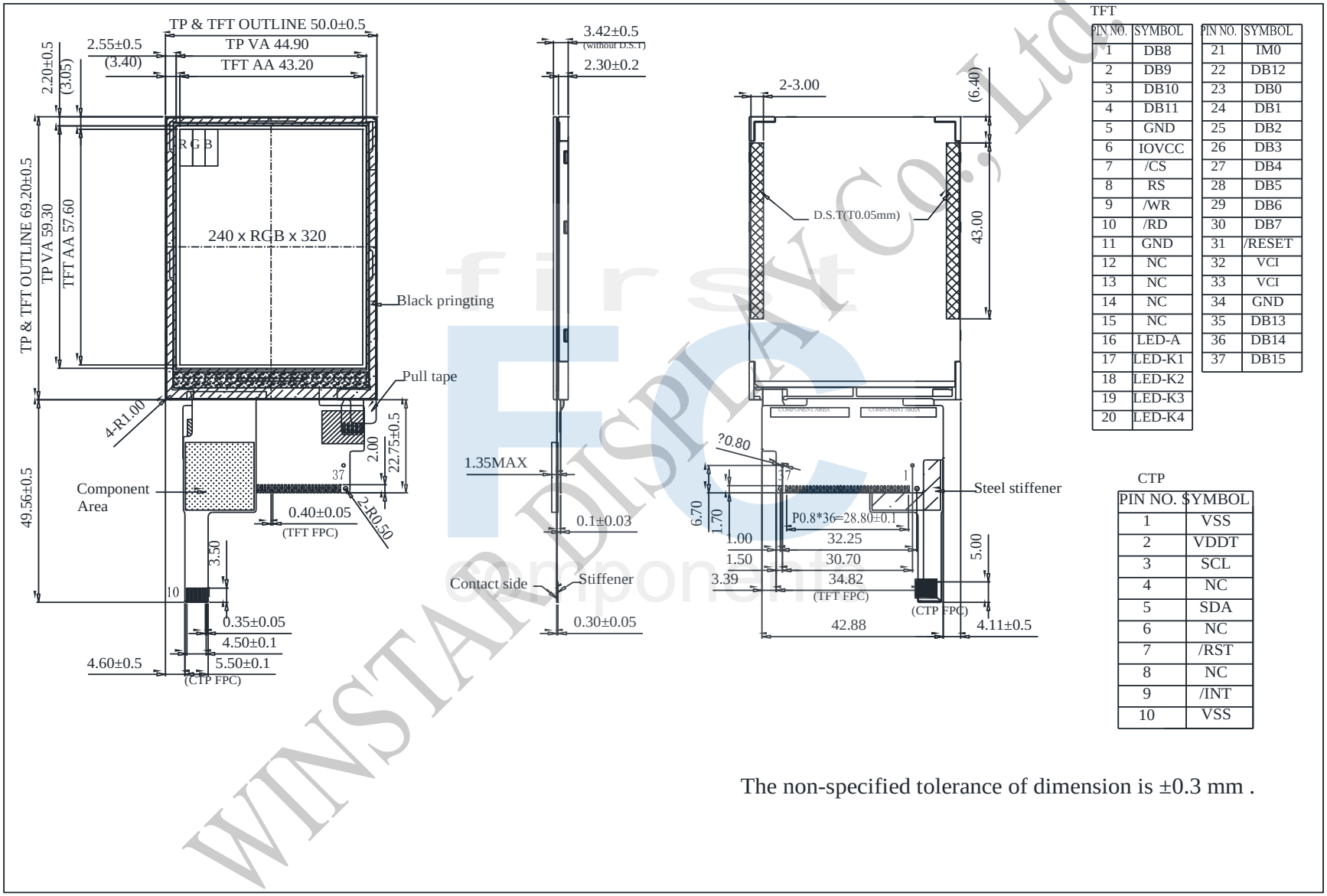
13.Touch Panel Information



PIN NO.	SYMBOL
1	VSS(GND)
2	VDDT
3	SCL
4	NC
5	SDA
6	NC
7	/RST
8	NC
9	/INT
10	VSS(GND)

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14.Contour Drawing



TFT

PIN NO.	SYMBOL
1	DB8
2	DB9
3	DB10
4	DB11
5	GND
6	IOVCC
7	/CS
8	RS
9	/WR
10	/RD
11	GND
12	NC
13	NC
14	NC
15	NC
16	LED-A
17	LED-K1
18	LED-K2
19	LED-K3
20	LED-K4

PIN NO.	SYMBOL
21	IM0
22	DB12
23	DB0
24	DB1
25	DB2
26	DB3
27	DB4
28	DB5
29	DB6
30	DB7
31	/RESET
32	VCI
33	VCI
34	GND
35	DB13
36	DB14
37	DB15

CTP

PIN NO.	SYMBOL
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 .

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