

INDUSTRIAL STRENGTH... Start Your Application From YOURITECH

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on-site service

Optical Bonding

In-house Manufacturing

Cover glass

System solutions

OEM Solutions

Custom Display

Production Custom designs Installation

Mechanical design



MODEL NO : ET050WV03-TT

MODEL VERSION: 01

SPEC VERSION : 1.0

ISSUED DATE: 2020-06-30

☐ Preliminary Specification

☒ Final Product Specification

Customer : _____

Approved by	Notes

Youri Confirmation

Prepared by	Reviewed by	Approved by
John	Johnny	Wang

1. Introduction

1.1 Scope of application

LCD specification: Dots 800xRGBx480

As to basic specification of the driver IC, refer to the IC (ST7262H) specification and data book.

All material & processing of the LCD module should be Lead Free.

1.2 TFT features:

Structure: TFT PANNEL+IC +FPC+BL+CTP;

ALL O'CLOCK Type LCD

800dot-segment and 480dot-common outputs;

16.7M Color can be selected by software;

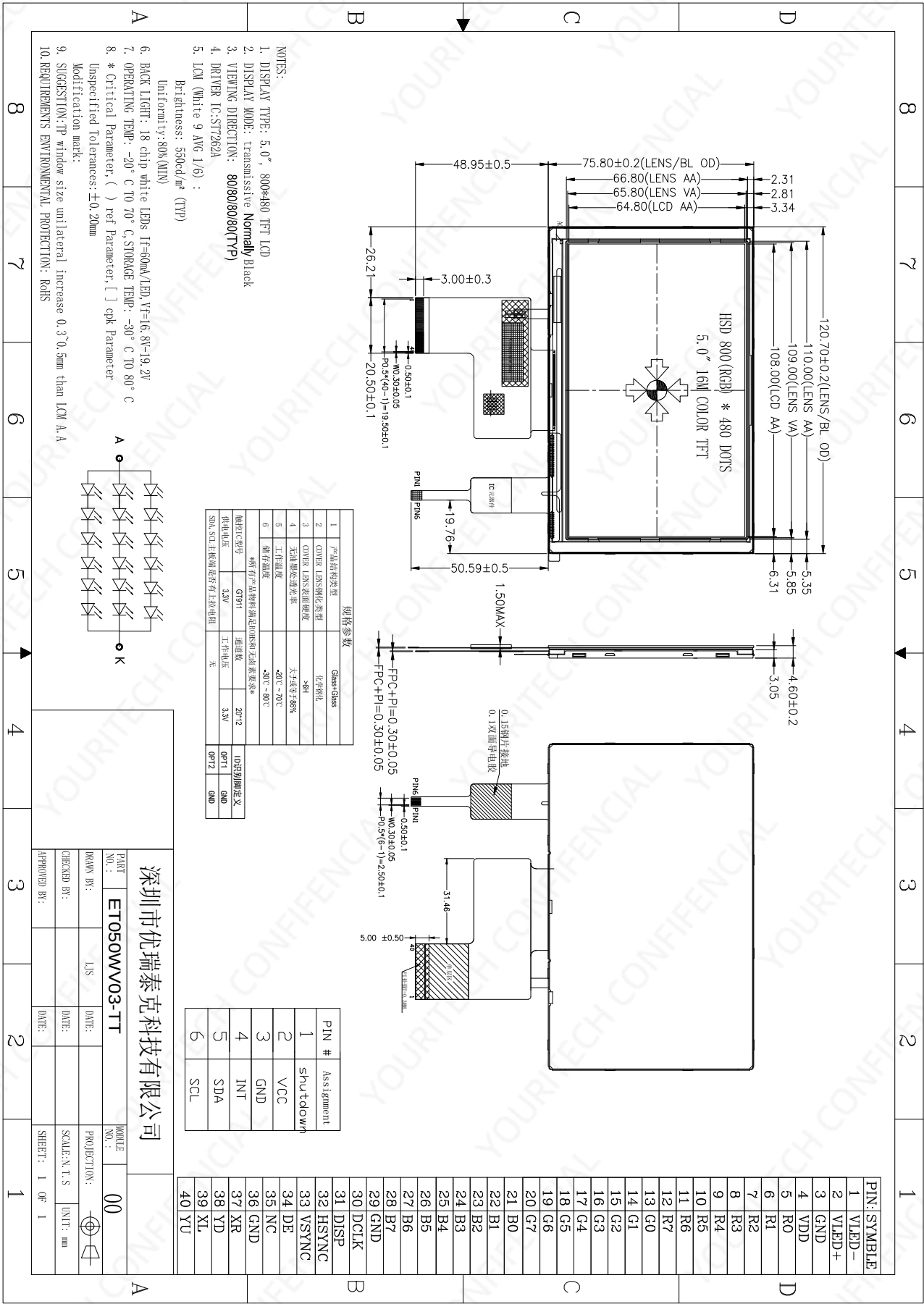
White LED back light;

24BIT RGB Interface

1.3 Applications:

2. LCM General specification

ITEM	Standard value	Unit
LCD Type	Normally Black	--
Drive element	TFT active matrix	--
Number of pixels	800*3RGB(H)X480(V)	Dots
Pixel arrangement	RGB Vertical Stripe	--
Pixel Pitch (W*H)	0.135 (H) x 0.135 (V)	mm
Active area	108(H) x 64.8(V)	mm
Viewing direction	ALL O'CLOCK	--
TFT Driver IC	ST7262H	--
TFT interface	24BIT RGB Interface	--
LCM Size(W*H*T)	120.70(W) ×75.80(H) ×3.05(T)	mm
LCM+CTP Size(W*H*T)	120.70(W) ×75.80(H) ×4.60(T)	mm
Approx. Weight	TBD	g
Touch structure	G+G	--
Touch Driver IC	GT911	--
Touch Interface	I2C	--



3.Absolute Maximum Rating

Characteristics	Symbol	Min.	Max.	Unit
LCM Operating Temperature	T _{OPR}	-20	+70	°C
LCM Storage Temperature	T _{STG}	-30	+80	°C
TP Operating Temperature & Humidity(20% ~ 90%RH)	T _{OPR}	-20	+70	°C
TP SStorage Temperature & Humidity(20% ~ 90%RH)	T _{STG}	-30	+80	°C
Humidity	RH	--	90	%

4.Electrical Characteristics

4.1 TFT DC Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Note
TFT OperationFrame rate	Hz	--	60	--	Hz	--
Supply Voltage for(DC/DC)	VDD	3.1	3.3	3.6	V	--
Data (RGB signal) Voltage	Vsig	--	--	--	V	Note 1

Note 1: VCOM value should be adjusted by different condition to optimize Flicker Value.

Note 2: VGH and VGL are the operating voltages of TFT gate.

4.2 Back-Light Unit Characeristics

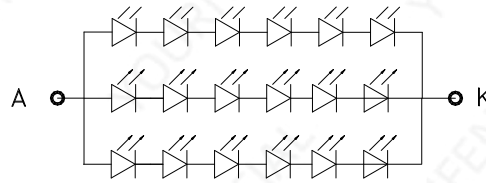
The back-light system is an edge-lighting type with 18 white LEDs. The characteristics of the back-light are shown in the following tables.

Characteristics	Symbol	Min.	Type	Max.	Unit	Notes
Forward Voltage	V _F	16.8	--	19.2	V	--
Forward current	I _F	--	60	--	mA	--
Luminance(With LCD)	L _v	--	550	--	cd/m ²	--
LED life time	N/A	--	30,000	--	Hr	Note 1

Note:

- (1) The “LED life time” is defined as the module brightness decrease to 50% of original brightness at I_L=20mA/LED. The LED life time could be decreased if operating I_L is larger than 25mA/LED.

Backlight circuit diagram shown in below:



5. Module Function Description

LCM:

Pin No.	Symbol	Description	Notes
1	LEDK	POWER SUPPLY- FOR BACKLIGHT cathode	
2	LEDA	POWER SUPPLY+ FOR BACKLIGHT ANODE	
3	GND	Ground	
4	VDD	POWER SUPPLY	
5-12	R0-R7	8 bit data bus display red data.	
13-20	G0-G7	8 bit data bus display green data.	
21-28	B0-B7	8 bit data bus display blue data.	
29	GND	Ground	
30	DCLK	Pixel clock signal in RGB I/F	
31	DISP	Display on/off	
32	HSYNC	Horizontal sync. Signal in RGB I/F	
33	VSYNC	Vertical sync. Signal in RGB I/F	
34	DE	Data enable signal in RGB I/F mode 1	
35	NC	NC	
36	GND	Ground	
37	XR	NC	
38	YD	NC	
39	XL	NC	
40	YU	NC	

TP:

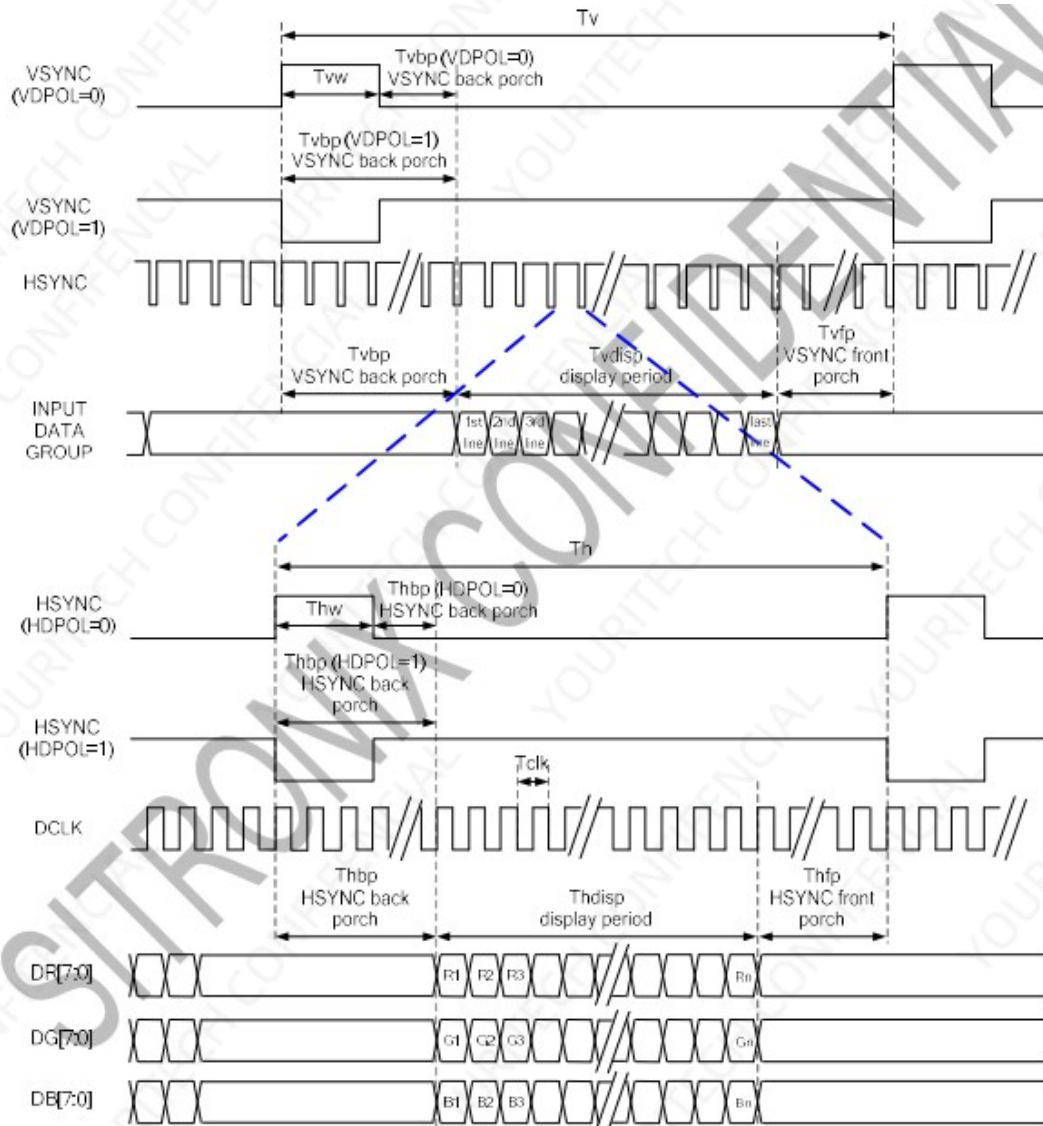
Pin No.	Symbol	Description	Notes
1	Shutdown	CTP Shutdown PIN	
2	VCC	CTP_Power Supply	
3	GND	Ground	
4	INT	CTP_STOP Singnal	
5	SDA	CTP_Data Singnal	
6	SCL	CTP_Clock Singnal	

6. Timing Characteristics

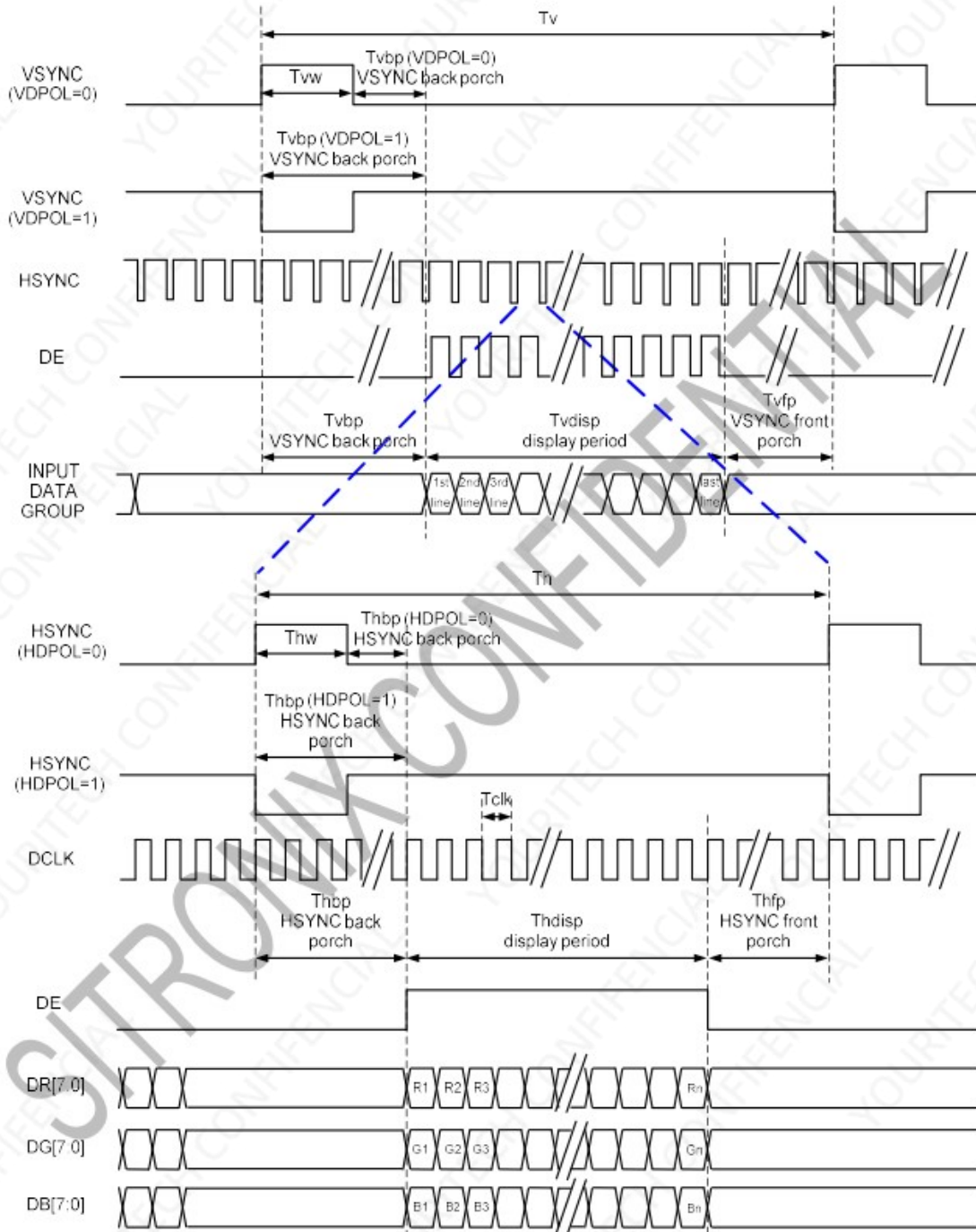
RGB Mode Selection Table	DCLK	HSYNC	VSYNC	DE
SYNC - DE Mode	Input	Input	Input	Input
SYNC Mode	Input	Input	Input	GND
DE Mode	Input	GND	GND	Input

Note: "Input" means these signals are driven by host side

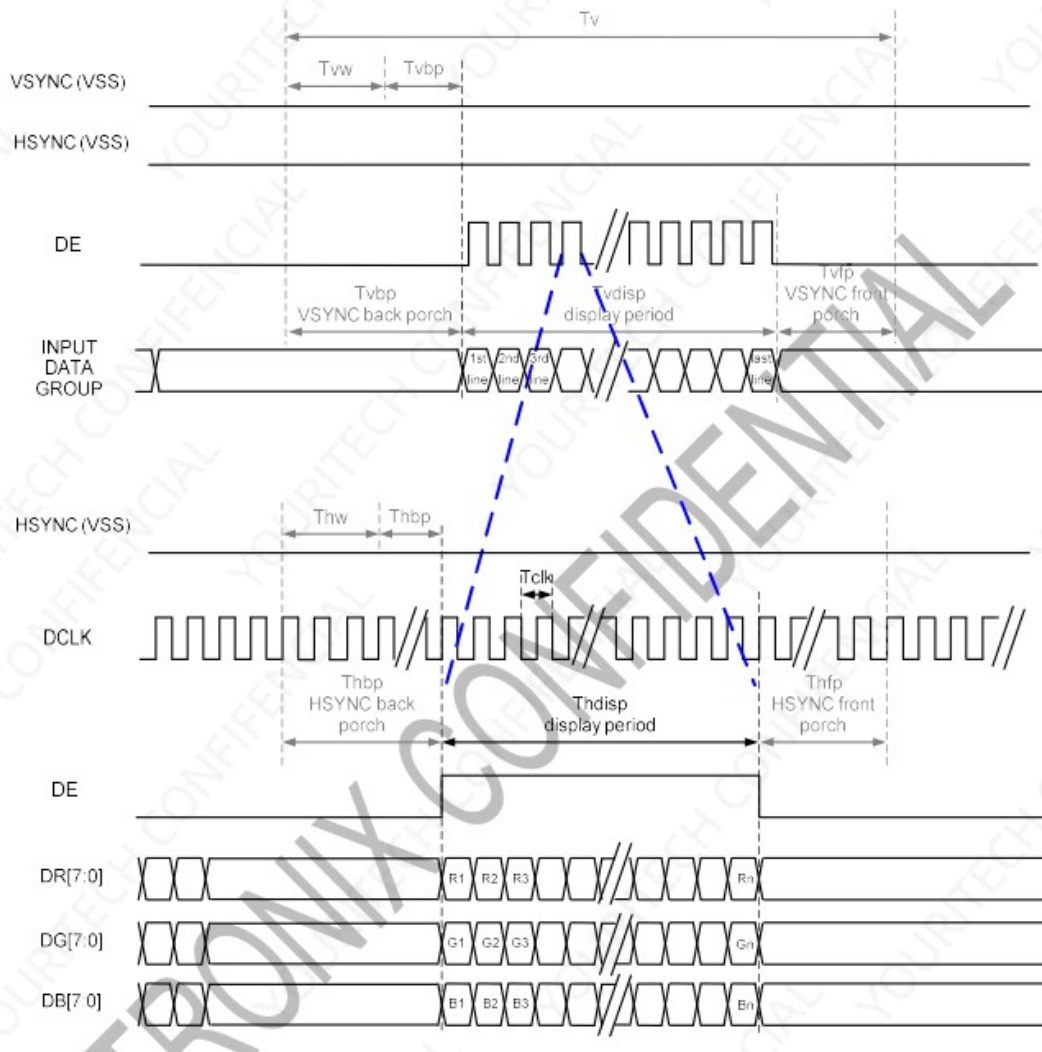
SYNC Mode:



SYNC-DE Mode:



DE Mode:



Parallel 24-bit RGB Input Timing (PVDD=PVDD1=VDD=VDDI= 3.3V, AGND= 0V, TA=25°C)

Parallel 24-bit RGB Interface Timing Table						
Item	Symbol	Min.	Typ.	Max.	Unit	Remark
DCLK Frequency	Fclk	23	25	27	MHz	
HSYNC	Period Time	Th	-	816	896	DCLK
	Display Period	Tdisp	800			DCLK
	Back Porch	Thbp	-	8	48	DCLK
	Front Porch	Thfp	-	8	48	DCLK
	Pulse Width	Thw	-	4	8	DCLK
VSYNC	Period Time	Tv	-	496	504	HSYNC
	Display Period	Tdisp	480			HSYNC
	Back Porch	Tvbp	-	8	12	HSYNC
	Front Porch	Tvfp	-	8	12	HSYNC
	Pulse Width	Tvw	-	4	8	HSYNC

Note: The minimum blanking time depends on the GIP timing of the panel specification.

7.Optical Characteristics

Optical Specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (with Polarizer)		T (%)	Θ=0 Normal viewing angle	—	(4.8)	—	%	Measuring with normal polarizer , Reference Only Base on Vop=5.1V
Transmittance (without Polarizer)		T (%)		—	(16.2)	—	%	
Contrast Ratio		CR		(800)	(1000)	—	—	(1)(2)
Response Time		T _R +T _F		—	30	40	msec	(1)(3)
Color Gamut	(%)			45	50	—	%	C-light
Color Chromaticity (CIE1931)	White	W _x		—	(0.320)	—	—	(1)(4) CF glass C-light
		W _y		—	(0.345)	—		
	Red	R _x		—	(0.629)	—	—	
		R _y		—	(0.326)	—		
	Green	G _x	—	(0.337)	—	—		
		G _y	—	(0.546)	—			
	Blue	B _x	—	(0.136)	—	—		
		B _y	—	(0.143)	—			
Viewing Angle	Hor.	Θ _L	CR>10	70	80	—	—	(1)(4) Measuring with normal polarizer , Reference Only
		Θ _R		70	80	—		
	Ver.	Θ _U		70	80	—		
		Θ _D		70	80	—		
Optima View Direction		Free						(5)

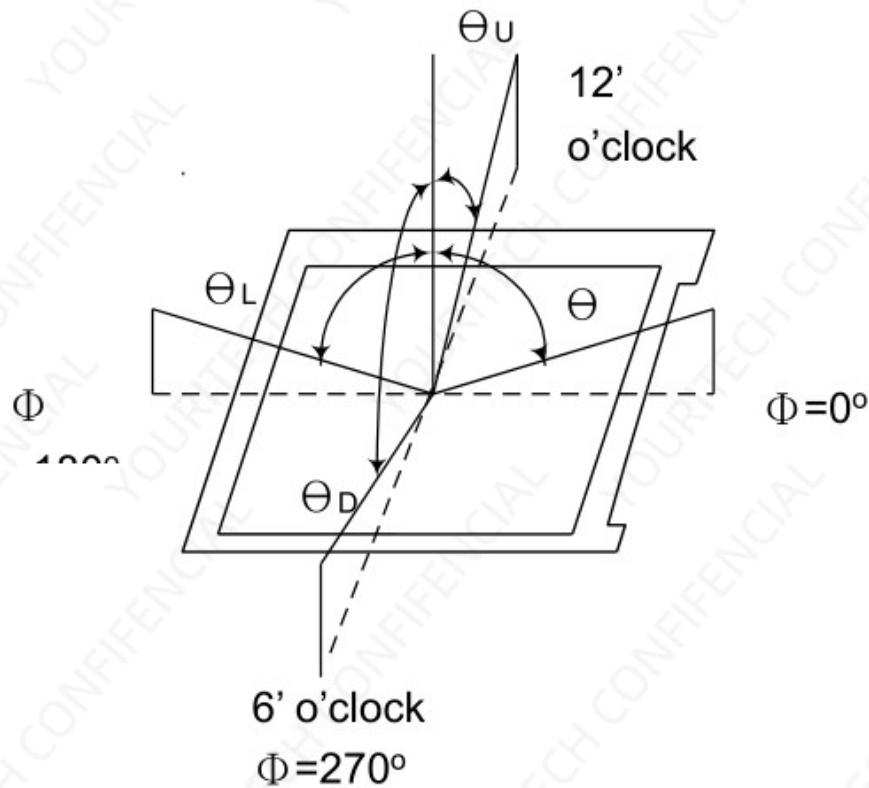
Measuring Condition

- Measuring surrounding : dark room
- Ambient temperature : $25\pm 2^\circ\text{C}$
- 15min. warm-up time.

Measuring Equipment

- FPM520 of Westar Display technologies, INC., which utilized SR-3 for Chromaticity and BM-5A for other optical characteristics.

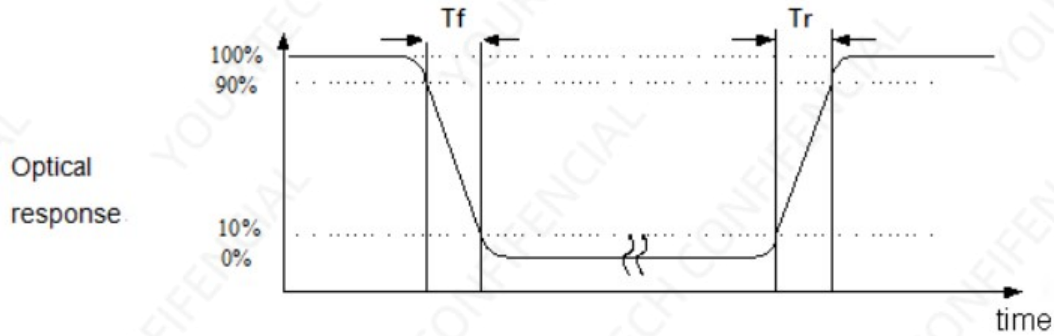
Note (1) Definition of Viewing Angle:



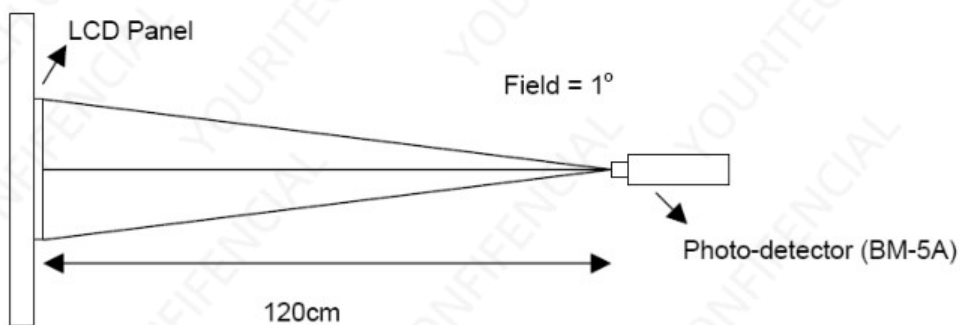
Note (2) Definition of Contrast Ratio (CR) :
 measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

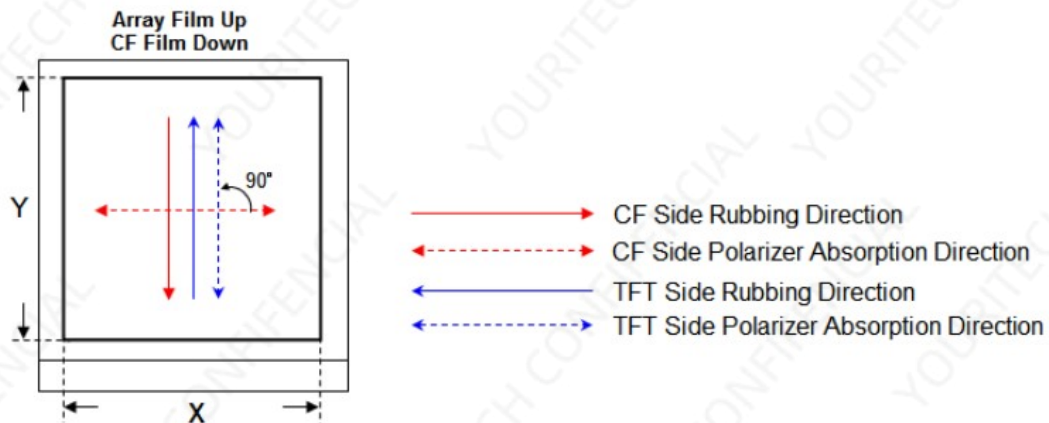
Note (3) Definition of Response Time : Sum of T_R and T_F



Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction & Polarizer Absorption Direction



Item	Specifications	Unit	Note
Rubbing Direction	90° (TFT) / -90° (CF)	degree	2-domain IPS-pro
Absorption axis of Polarizer	90° (TFT) / 0° (CF)	degree	Array Film Up CF Film Down

8. Reliability Test Item

No.	Test Item	Test Condition	Notes
1	High Temp. Storage	+80°C / 96H	1. Functional test is OK. Missing Segment, short, unclear segment non-display, display abnormally and liquid crystal leakage un-allowed. 2. No low temperature bubbles, end seal loose and fall, frame rainbow.
2	Low Temp. Storage	-30°C / 96H	
3	High Temp. Operating	+70°C / 96H	
4	Low Temp. Operating	-20°C / 96H	
5	High Temperature / Humidity storage	60°C x 90%RH / 96H	
6	Thermal and cold shock	Static state, -20°C (30min) ~70°C (30min), 50 cycles	

9. Packing Method----TBD

- END -