

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 : ET050WV04-TT

MODEL VERSION: 01

SPEC VERSION : 1.0

ISSUED DATE: 2020-05-13

☐ 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 (ST7262A) 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+RTP;

ALL O'CLOCK Type LCD

800dot-segment and 480dot-common outputs;

16.7M Color can be selected by software;

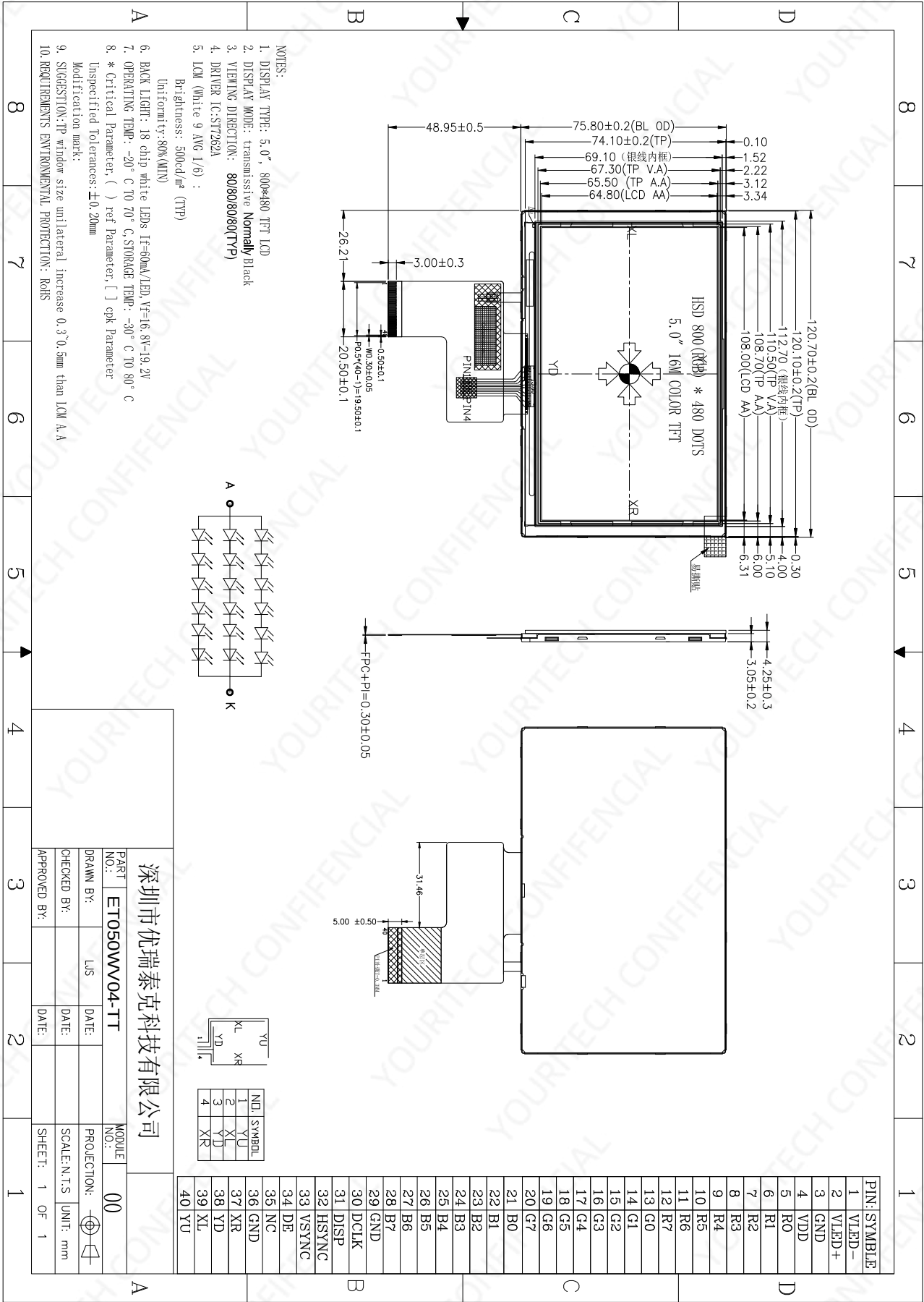
White LED back light;

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	ST7262A	--
TFT interface	24BIT RGB Interface	--
LCM Size(W*H*T)	120.7(W) ×75.8(H) ×3.05(T)	mm
LCM+RTP Size(W*H*T)	120.7(W) ×75.8(H) ×4.25(T)	mm
Approx. Weight	TBD	g
Touch structure	--	--
Touch Driver IC	--	--
Touch Interface	--	--



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
Supply Voltage for I/O	VDDIO	3.0	3.3	3.6	V
Supply Voltage for(DC/DC)	VDD	3.0	3.3	3.6	V
Supply Voltage for(DC/DC)	AVDD	--	--	--	V
Supply Voltage for(DC/DC)	AVEE	--	--	--	V
Current Consumption	I _{DD}	--	TBD	--	mA
	I _{DD-SLEEP}	--	TBD	--	uA

4.2 Back-Light Unit Characteristics

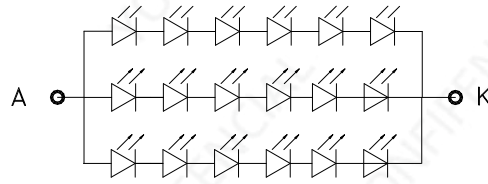
The back-light system is an edge-lighting type with 18 white LEDs. The characteristics of the back-light are shown in the following tables.

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	--	500	--	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:

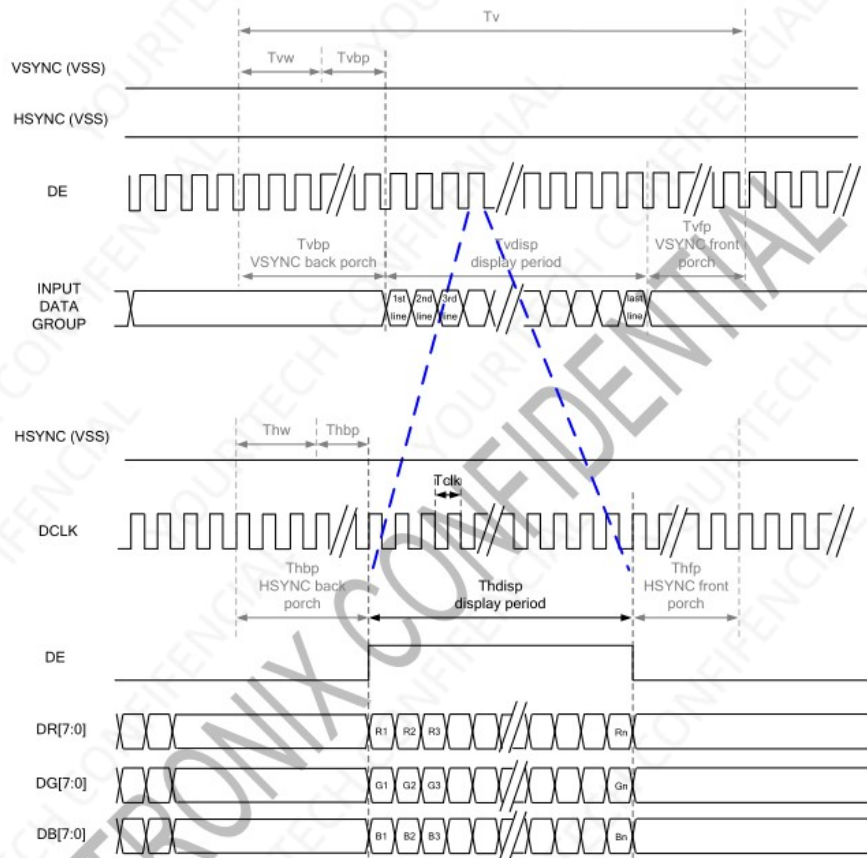


5. Module Function Description

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	Data bus	
13-20	G0-G7	Data bus	
21-28	B0-B7	Data bus	
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	VSNC	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	Touch panel coordinate in the Right	
38	YD	Touch panel coordinate in the Down	
39	XL	Touch panel coordinate in the Left	
40	YU	Touch panel coordinate in the Up	

6. Timing Characteristics

DE Mode



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

Parallel 24-bit RGB Input Timing Table

Parallel 24-bit RGB Input Timing (PVDD=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	TBD	TBD	TBD	MHz	
DCLK Period	Tclk	TBD	TBD	TBD	ns	
HSYNC	Period Time	Th	TBD	TBD	DCLK	
	Display Period	Thdisp	TBD	TBD	DCLK	
	Back Porch	Thbp	TBD	TBD	DCLK	
	Front Porch	Thfp	TBD	TBD	DCLK	
	Pulse Width	Thw	TBD	TBD	DCLK	
VSYNC	Period Time	Tv	TBD	TBD	HSYNC	
	Display Period	Tvdisp	TBD	TBD	HSYNC	
	Back Porch	Tvbp	TBD	TBD	HSYNC	
	Front Porch	Tvfp	TBD	TBD	HSYNC	
	Pulse Width	Tvw	TBD	TBD	HSYNC	

7.Optical Characteristics

Optical Specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (with Polarizer)		T (%)	$\Theta=0$ 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)

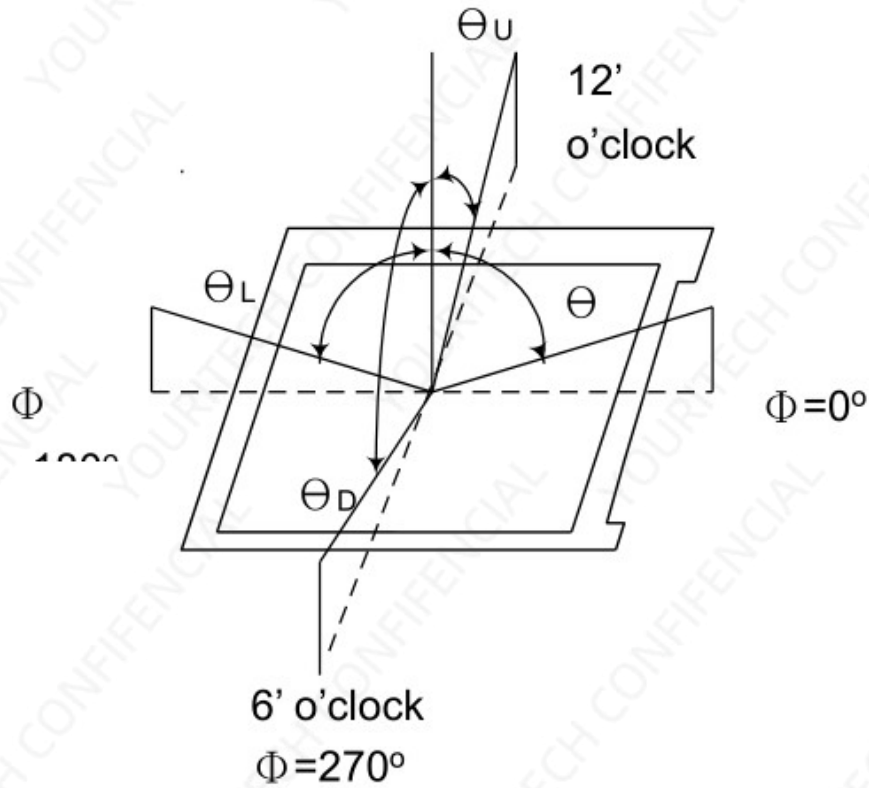
Measuring Condition

- 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.

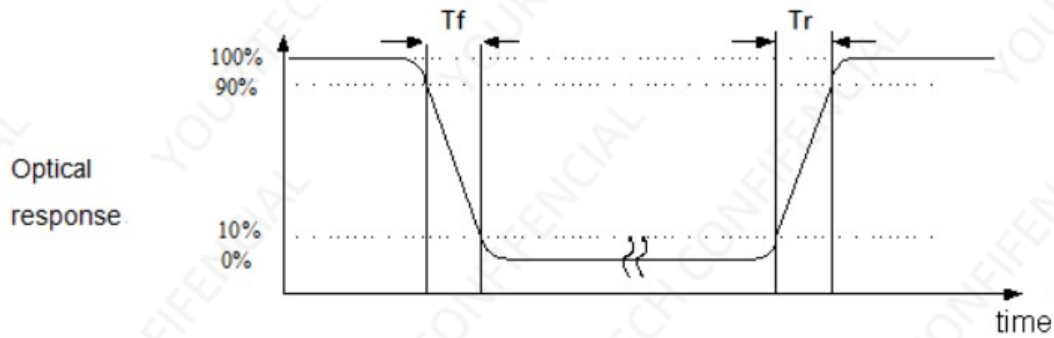
Note (1) Definition of Viewing Angle:



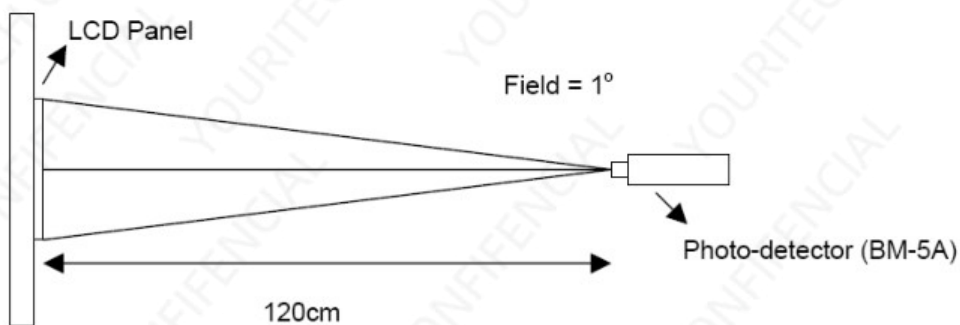
Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

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

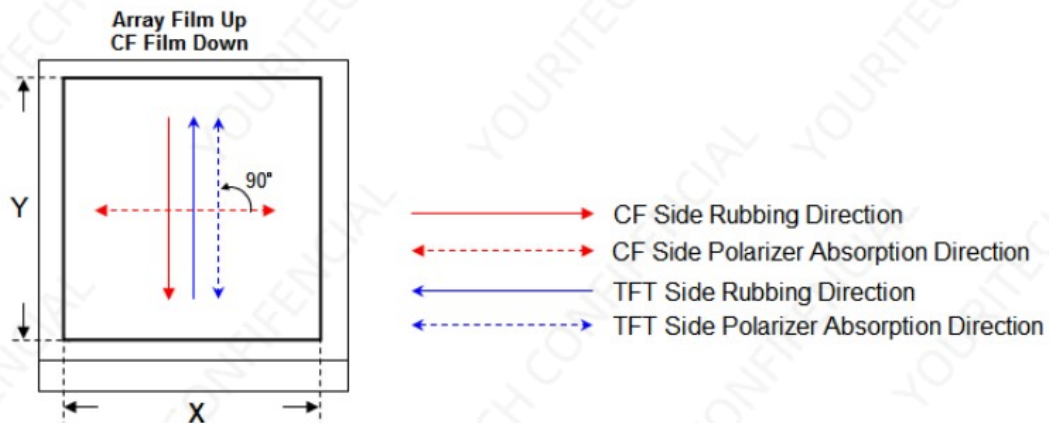
Note (3) Definition of Response Time : Sum of T_R and T_F



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.	Item	Conditions	Remark
1	High Temperature Storage	Ta=+80°C, 240hrs	-
2	Low Temperature Storage	Ta=-30°C, 240hrs	-
3	High Temperature Operation	Ta=+70°C, 240hrs	-
4	Low Temperature Operation	Ta=-20°C, 240hrs	-
5	High Temperature and High Humidity (Operating)	Ta=+60°C, 90%RH, 240hrs	-

Note: (1) All tests above are practiced at module type.

(2) There is no display function NG issue occurred, all the cosmetic specification is judged before the reliability stress.

9. Packing Method----TBD

- END -