



Crystalfontz America, Incorporated

LCD MODULE SPECIFICATIONS

CFAF800480A-050T-TS

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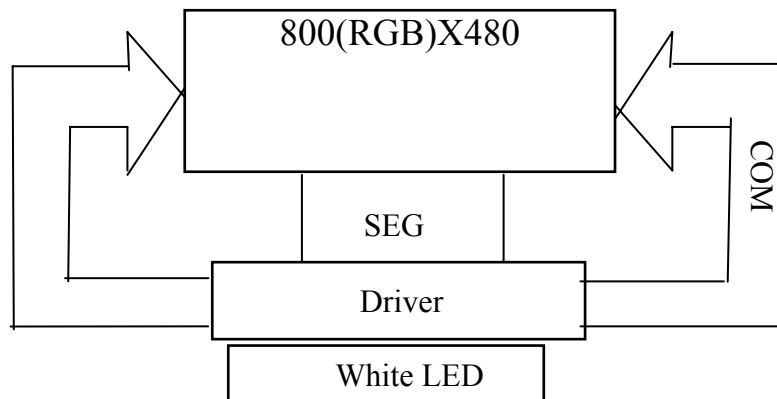
1. General Description

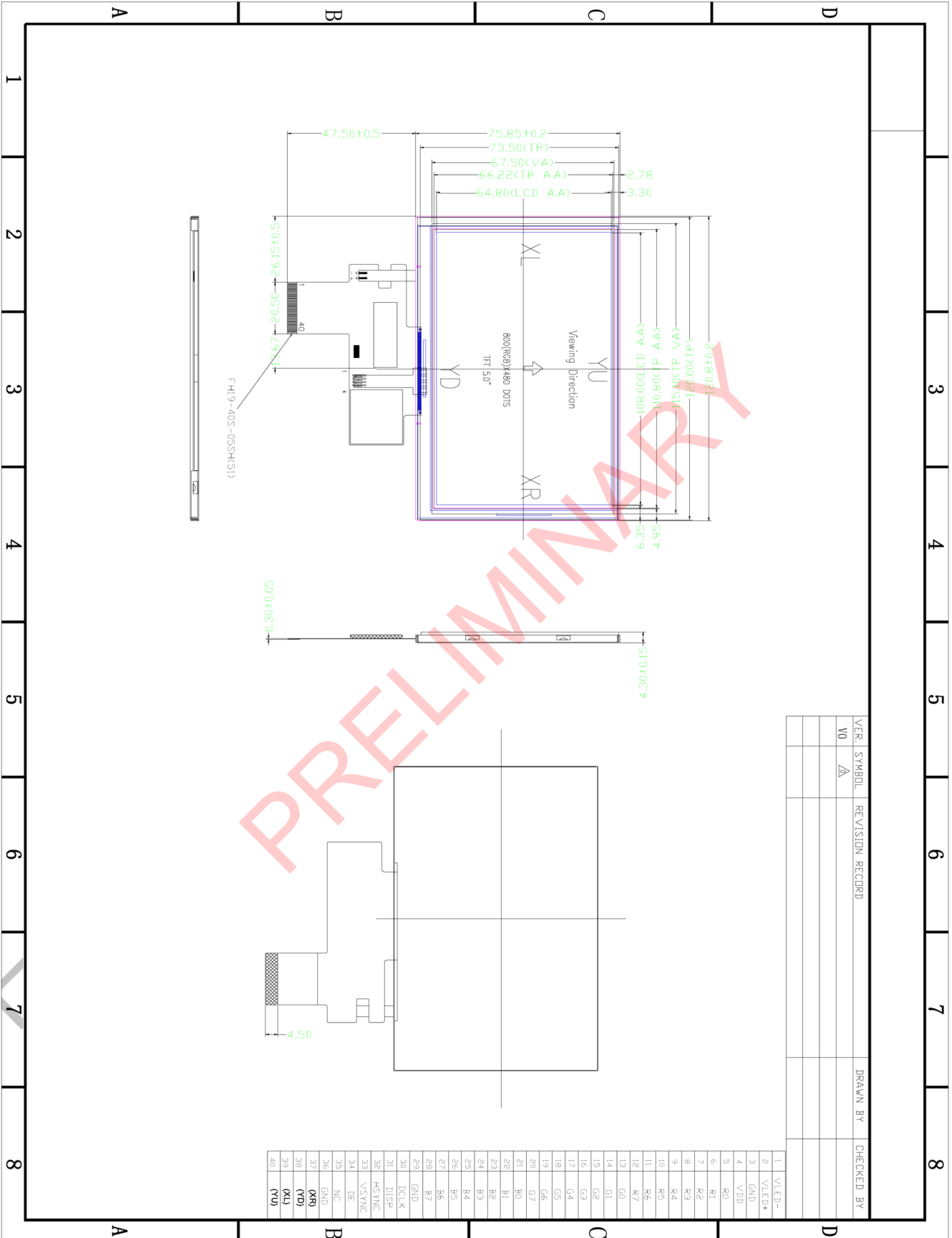
- The CF800480A model is a color TFT LCM and touch panel. This module has a 5.0 inch diagonally measured active area with WVGA(800 horizontal by 480 vertical pixel array). Each pixel is divided into red, green, blue dots which are arranged in vertical stripe.

2. General Feature

Item	General feature	Remark
Display Mod	Normally Black. Transmissive LCD	
Viewing direction	6 o'clock	
Driving method	a-si TFT active matrix	
Input signals	a-si TFT 24RGB Bit compatible RGB I/F	
Outside dimensions	24RGB Bit 120.8mm(W)×75.85mm(H)×4.3mm(D)(Typ)	
Active area	LCD: 108.0mm(W) ×64.80mm(H) TP : 110.8mm(W) ×66.22mm(H)	
Number of Pixels	800(RGB) ×480 pixels	

3. Block Diagram





VER.	SYMBOL	REVISION RECORD	DRAWN BY	CHECKED BY
V0	Δ			

1	VLED+
2	VLED+
3	GND
4	VDD
5	R0
6	R1
7	R2
8	R3
9	R4
10	R5
11	R6
12	R7
13	G0
14	G1
15	G2
16	G3
17	G4
18	G5
19	G6
20	G7
21	B0
22	B1
23	B2
24	B3
25	B4
26	B5
27	B6
28	B7
29	GND
30	DECLK
31	DSP
32	H SYNC
33	V SYNC
34	DE
35	NC
36	GND
37	(XR)
38	(YD)
39	(XU)
40	(YU)

4. Pin Description

Pin No.	Symbol	I/O	Function
1	VLED-	P	Power for LED backlight cathode
2	VLED+	P	Power for LED backlight anode
3	GND	P	Power ground
4	VDD	P	Power voltage
5	R0	I	Red data (LSB)
6	R1	I	Red data
7	R2	I	Red data
8	R3	I	Red data
9	R4	I	Red data
10	R5	I	Red data
11	R6	I	Red data
12	R7	I	Red data (MSB)
13	G0	I	Green data (LSB)
14	G1	I	Green data
15	G2	I	Green data
16	G3	I	Green data
17	G4	I	Green data
18	G5	I	Green data
19	G6	I	Green data
20	G7	I	Green data (MSB)
21	B0	I	Blue data (LSB)
22	B1	I	Blue data
23	B2	I	Blue data
24	B3	I	Blue data
25	B4	I	Blue data
26	B5	I	Blue data
27	B6	I	Blue data
28	B7	I	Blue data (MSB)
29	DGND	I	Digital ground
30	DCLK	I	Pixel clock
31	DISP	I	Display on! off
32	HSYNC	I	Horizontal sync signal
33	VSYNC	I	Vertical sync signal
34	DE	I	Data enable
35	NC	-	No Connect
36	GND	P	Power ground
37	X_R	I/O	Right electrode - differential analog
38	X_B	I/O	Bottom electrode - differential analog
39	X_L	I/O	Left electrode - differential analog
40	X_T	I/O	Top electrode - differential analog

I/O: I: input, O: output, P: power

5. Absolute Maximum Ratings

$T_a=25\pm 5^\circ\text{C}$, GND=0

Item	Symbol	Ratings	Unit	Condition
Operating power	V_{dd}	-0.5~5.0	V	
Operating temperature	T_{OPR}	-20~70	°C	No condensation
Storage temperature	T_{STR}	-30~80		

6. Electrical Specification

6.1 DC characteristics

GND =0V, $V_{dd}=2.85\pm 0.05\text{V}$, $T_{OPR}=-20\sim 70^\circ\text{C}$

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply power	V_{dd}		3.0	3.2	3.4	V
Input high voltage	V_{IH}		$0.7V_{dd}$	—	V_{dd}	
Input low voltage	V_{IL}		GND	—	$0.3V_{dd}$	
Output high voltage	V_{OH}		$0.8V_{dd}$	—	—	
Output low voltage	V_{OL}		—	—	$0.2V_{dd}$	
Logic current consumption	I_{dd}		—	---	---	mA

6.2 Back light circuit characteristics (12 LEDs):

Item	Symbol	Min	Typ.	Max.	Unit	Condition
Operating voltage	V_{LED}	—	19.2	—	V	
Operating current	I_{LED}	—	40	—	mA	
LCM luminance (display white)	B	230	270	—	cd/m ²	—
BL luminance (display white)	BL	4500	—	—	cd/m ²	
LCM brightness uniformity (display white)	BU	80	—	—	%	—

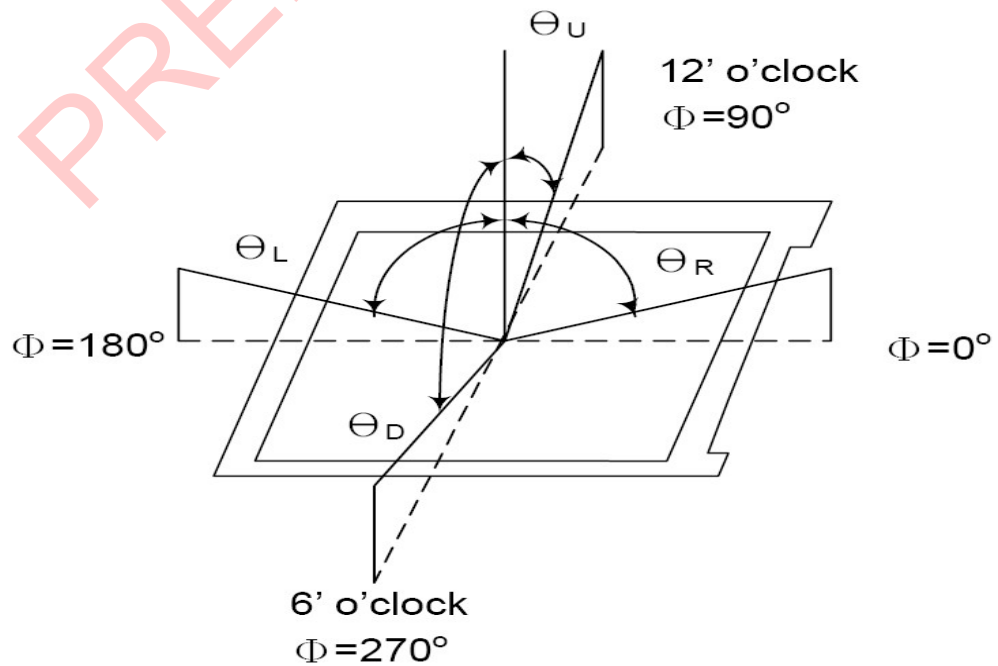
7. Optical Specification

7.1 LCD optical characteristics LCD Ta=25°C

Item	Symbol	Condition	Min	Type	Max	Unit	Note
White luminance (Center)	YL	Normal Viewing Angle		250		cd/m ²	(1)(4)(6) (I _L =40mA)
Response time	T _r		-	2	4	msec	(1)(3)
	T _f		--	6	12		
Contrast ratio	CR		480	600	--	--	(1)(2)
Color Chromaticity (CIE 1931)	white W _x		0.260	0.310	0.360		
	W _y	0.280	0.330	0.380			
Viewing Angle	Hor.	θ _L	65	75	--	(1)(4)	
		θ _R	65	75	--		
	Ver.	θ _U	50	60	--		
		θ _D	60	70	--		
Brightness uniformity	B _{UNI}	θ=0	70	--	--	%	(6)
Optima View Direction			6 o'clock				(5)

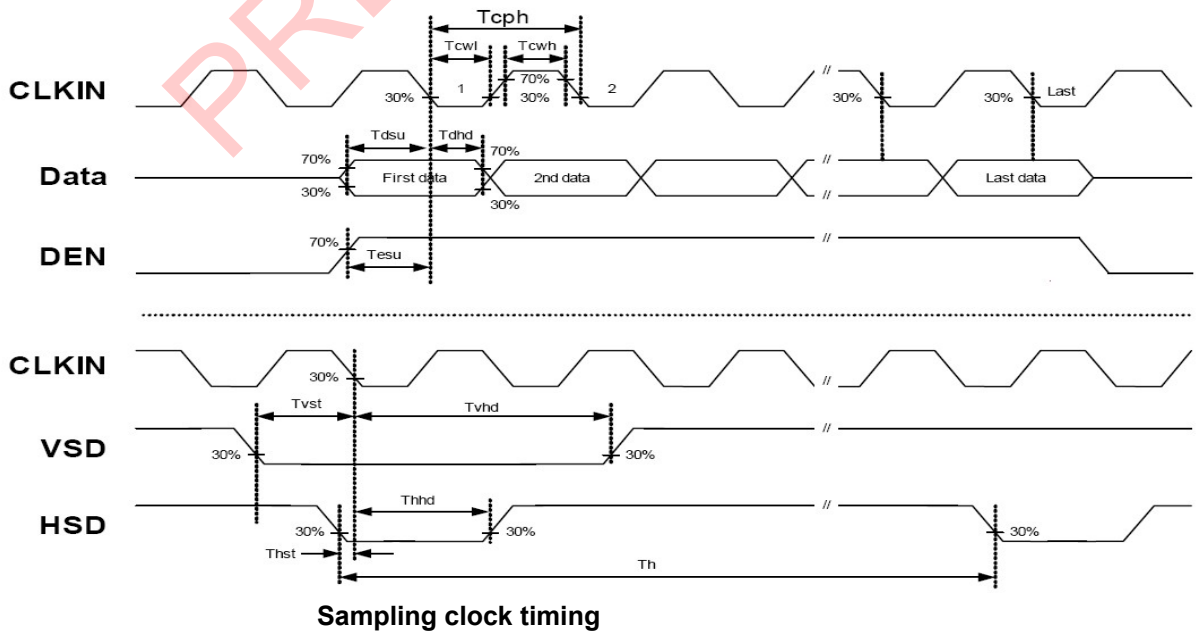
7.2 Measurement system

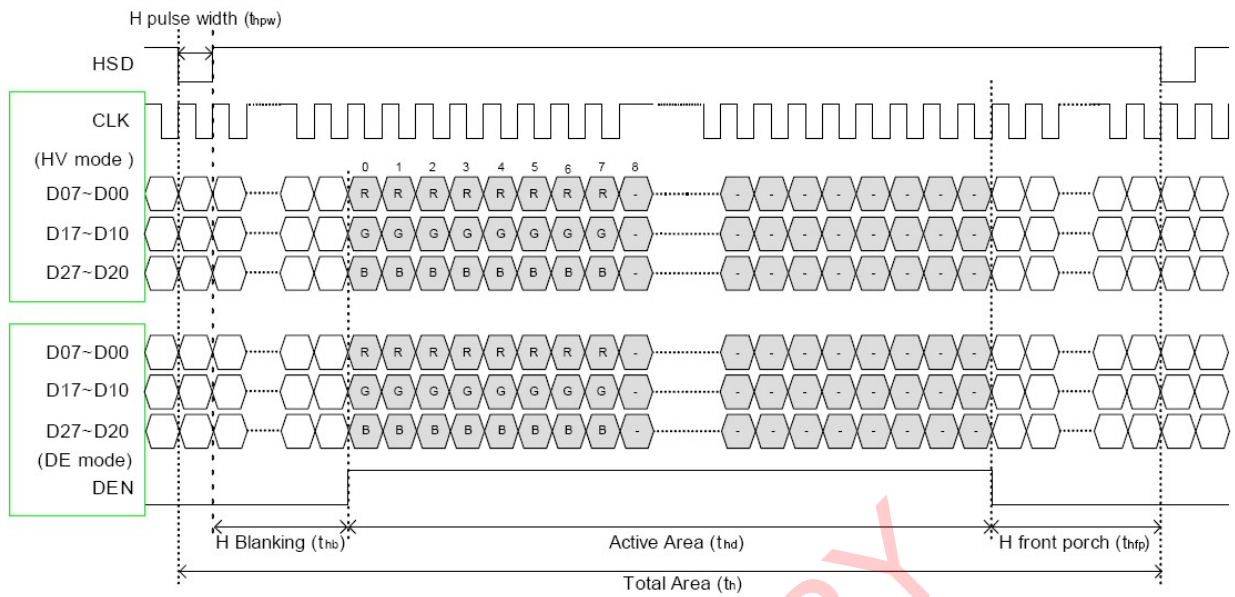
(1) LCD Viewing Angle LCD



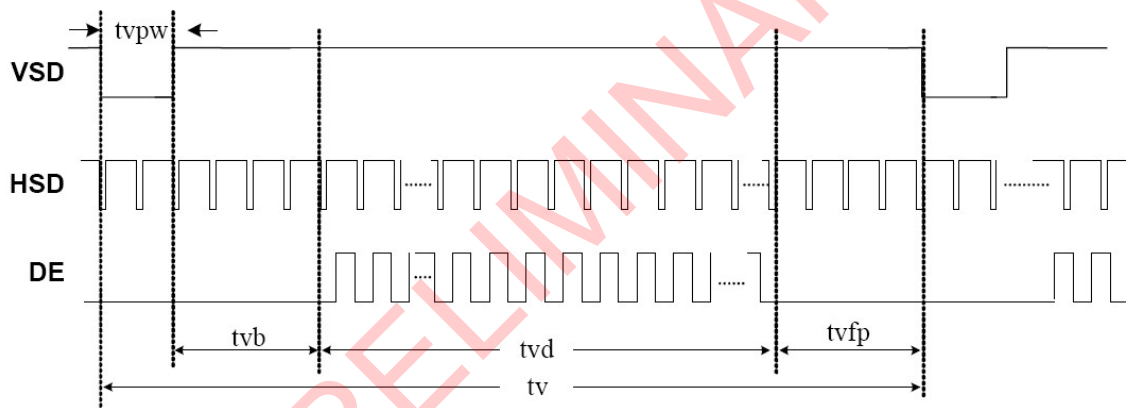
8. Timing Diagram of Interface Signal

Item	Symbol	Min.	Typ.	Max.	Unit	Note
DCLK cycle time	Tcph	25			ns	
DCLK frequency	fclk		30	40	MHz	
DCLK pulse duty	Tcwh	40	50	60	%	
VSD setup time	Tvst	8			ns	
VSD hold time	Tvhd	8			ns	
HSD setup time	Thst	8			ns	
HSD hold time	Thhd	8			ns	
Data setup time	Tdsu	8			ns	
Data hold time	Tdhd	8			ns	
DE setup time	Tesu	8			ns	
DE hold time	Tehd	8			ns	
Horizontal display area	thd		800		Tcph	
HSD period time	th		928		Tcph	
HSD pulse width	thpw	1	48		Tcph	
HSD back porch	thb		40		Tcph	
HSD front porch	thfp		40		Tcph	
Vertical display area	tvd		480		th	
VSD period time	tv		525		th	
VSD pulse width	tvpw		3		th	
VSD back porch	tvb		29		th	
VSD front porch	tvfp		13		th	

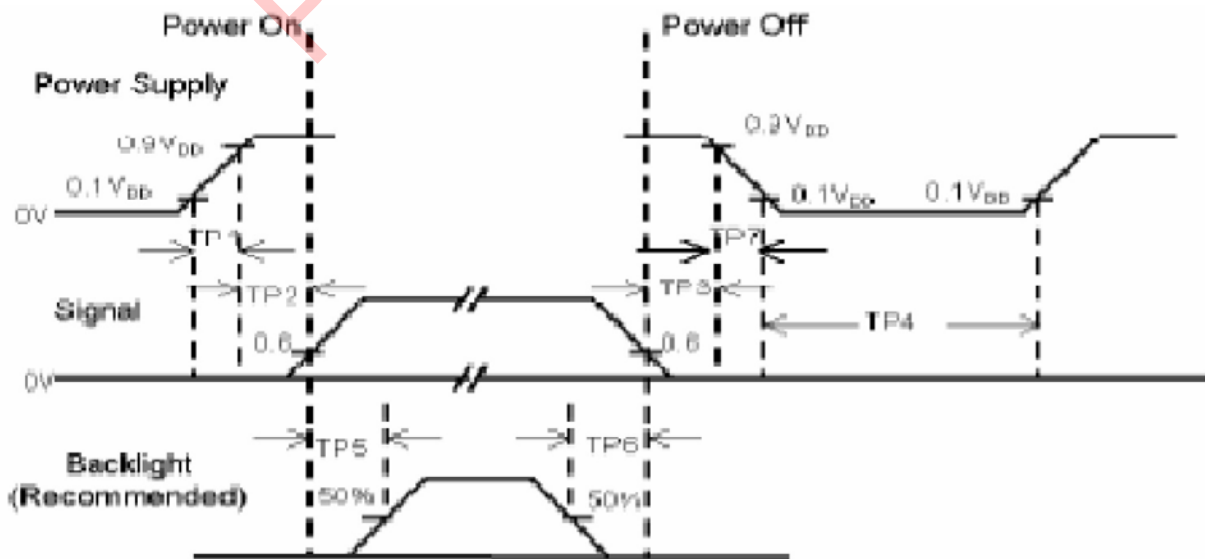




Horizontal display timing range



Vertical timing



Note : (1) The supply voltage of the external system for the module input should be the same as the definition

ofVDD.

- (2) Apply the lamp voltage within the LCD operation range. When the back-light turns on before the LCD operation or the LCD turns off before the back-light turns off, the display may momentarily become white.
- (3) In case of VDD = off level, please keep the level of input signal on the low or keep a high impedance.
- (4) TP4 should be measured after the module has been fully discharged between power off and on period.
- (5) Interface signal shall not be kept at high impedance when the power is on.

9. Touch Screen Panel Specifications

9.1 Structure

Structure	Material	Hardness	MEMO
Up circuit	PET PET film	0.188 (mm)	Glossy surface Scratch prevented conductive film(Single film)
Down Circuit	Glass Glass	0.7 (mm)	conductive glass(strengthen)

9.2 Size

Item	(mm) Size
Outline size	120*73.5
VA) Viewing area	115.1*67.5
(AA) Active area	110.8*66.22

9.3 Electric Property

Item I	Data
Loop Resistance	X: 180-300 X axis:180-300 Ω Y : 552-920 Y axisL:552-920Ω
Linearity	<1.5%
Speed of Response	<15ms
Max value of Voltage	5V(DC)
Insulating resistance	>20M > 20MΩ

9.4 Mechanical Performance

Item	Data
Pression of Operation	10-100 10-100g
Light Transmittance	>80%
Hardness of Surface	>3H

9.5 Environment Parameter

Environment Parameter	Item	Data
	Working Temp. & Humidity Range	-20°C~+70°C, <90%RH
		-30°C~+80°C, <90%RH

