

1. GENERAL SPECIFICATION

1.1 Description

SUPERVIEW Display model G05012AG01A2 is a color active matrix thin film transistor(TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. This model is composed of a TFT LCD panel, a driving circuit and a back light system. This TFT LCD has a 5.0 inch diagonally measured active display area with WQVGA (800 horizontal by 480 vertical pixel) resolution.

1.2 Feature

- TN type for main TFT-LCD panel
- Structure COG+FPC+BL
- Full, Normal (Still), Partial, Sleep mode are available

1.3 General Specification

No.	Item	Specification	Unit	Remark
1	LCD Size	5.0	inch	-
2	Panel Type	a-Si TFT active matrix	-	-
3	Resolution	800 x (RGB) x 480	pixel	-
4	Display Mode	Normally White	-	-
5	Viewing Direction	6 点钟	-	Note
6	Contrast Ratio	500(Typ)	-	-
7	Luminance	300(Typ)	cd/m ²	-
8	Module Size	120.7(W) x75.8(L) x 2.75(T)	mm	Note
9	Active Area	108.00(W) x 64.80(L)	mm	Note
10	Pixel Pitch	0.045(H) × 0.135 (V)	mm	-
11	Driver IC	ILI5960+ILI6122	-	-
12	Light Source	12 LEDs White	-	-
13	Interface	RGB	-	-
14	Operating Temperature	-20~70	°C	-
15	Storage Temperature	-30~80	°C	-

Note: Please refer to the mechanical drawing.

2. MECHANICAL DRAWING

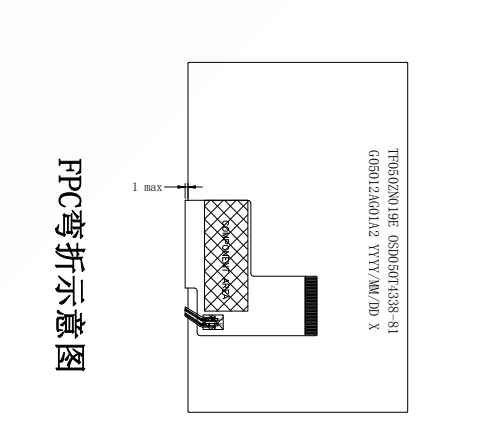
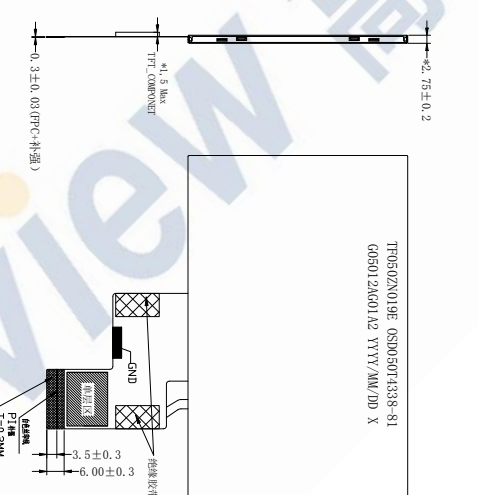
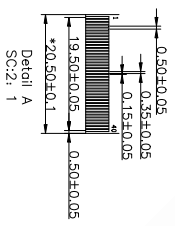
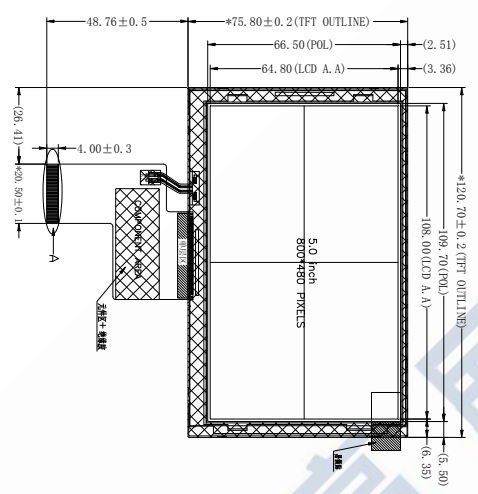
DIMENSION RANGE		尺寸范围	
REFERENCE	mm	inch	mm
DRIVE	0	3	20
DRIVE	5	16	60
DRIVE	10	30	120
DRIVE	15	45	180
DRIVE	20	60	240
DRIVE	25	75	300
DRIVE	30	90	360
DRIVE	35	105	420
DRIVE	40	120	480
DRIVE	45	135	540
DRIVE	50	150	600
DRIVE	55	165	660
DRIVE	60	180	720
DRIVE	65	195	780
DRIVE	70	210	840
DRIVE	75	225	900
DRIVE	80	240	960
DRIVE	85	255	1020
DRIVE	90	270	1080
DRIVE	95	285	1140
DRIVE	100	300	1200
DRIVE	105	315	1260
DRIVE	110	330	1320
DRIVE	115	345	1380
DRIVE	120	360	1440
DRIVE	125	375	1500
DRIVE	130	390	1560
DRIVE	135	405	1620
DRIVE	140	420	1680
DRIVE	145	435	1740
DRIVE	150	450	1800
DRIVE	155	465	1860
DRIVE	160	480	1920
DRIVE	165	495	1980
DRIVE	170	510	2040
DRIVE	175	525	2100
DRIVE	180	540	2160
DRIVE	185	555	2220
DRIVE	190	570	2280
DRIVE	195	585	2340
DRIVE	200	600	2400
DRIVE	205	615	2460
DRIVE	210	630	2520
DRIVE	215	645	2580
DRIVE	220	660	2640
DRIVE	225	675	2700
DRIVE	230	690	2760
DRIVE	235	705	2820
DRIVE	240	720	2880
DRIVE	245	735	2940
DRIVE	250	750	3000
DRIVE	255	765	3060
DRIVE	260	780	3120
DRIVE	265	795	3180
DRIVE	270	810	3240
DRIVE	275	825	3300
DRIVE	280	840	3360
DRIVE	285	855	3420
DRIVE	290	870	3480
DRIVE	295	885	3540
DRIVE	300	900	3600
DRIVE	305	915	3660
DRIVE	310	930	3720
DRIVE	315	945	3780
DRIVE	320	960	3840
DRIVE	325	975	3900
DRIVE	330	990	3960
DRIVE	335	1005	4020
DRIVE	340	1020	4080
DRIVE	345	1035	4140
DRIVE	350	1050	4200
DRIVE	355	1065	4260
DRIVE	360	1080	4320
DRIVE	365	1095	4380
DRIVE	370	1110	4440
DRIVE	375	1125	4500
DRIVE	380	1140	4560
DRIVE	385	1155	4620
DRIVE	390	1170	4680
DRIVE	395	1185	4740
DRIVE	400	1200	4800

公差以上表所示，除非另有指定

LCD PIN ASSIGNMENT

PIN No.	SYMBOL
1	LEDK
2	LEDA
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	DCLK
31	DISP
32	HSYNC
33	VSYNC
34	DE
35	NC
36	GND
37	XR/NC
38	YD/NC
39	XI/NC
40	YU/NC

- 注意:
- 1、请仔细阅读图纸中红色标注的尺寸和描述。
 - 2、未注公差要求为±0.2mm
 - 3、图面所有“*”标注的严格控制尺寸。
 - 4、图面标注格式(…)为参考尺寸。
 - 5、环保要求: RoHS



FPC弯折示意图

Display Type	INX_5.0_800*480", TFT LCD
Control Ratio	500(TPE)
Driver IC	LU9804+LU6122
Interface	RGB
Operating Voltage	VCC: 3.3 V
Luminance	300(TPE)
Center CIE coordinate	X=0.28±0.03, Y=0.30±0.03
Backlight unit	8 series 2 parallel, V=12V, P=40W
Connector Type	
Operation Temp.	-20°C TO 70°C
Storage Temp.	

REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
00	20181127	First Issue			

TYPE	SCALE	PART No.	MODEL No.
LCM	1:1	GD3100A	GD5012AG01A2

APPROVED BY	CHECKED BY	DRAWN BY
核准	核准	繪圖

DATE	MM	DD
年月日		

客户料号(模组)—— TF0502N019E OSD050T4338-81
 我司料号—— G05012AG01A2 YYYY/MM/DD X

年月日
 拉线

4. ELECTRICAL SPECIFICATION for TFT

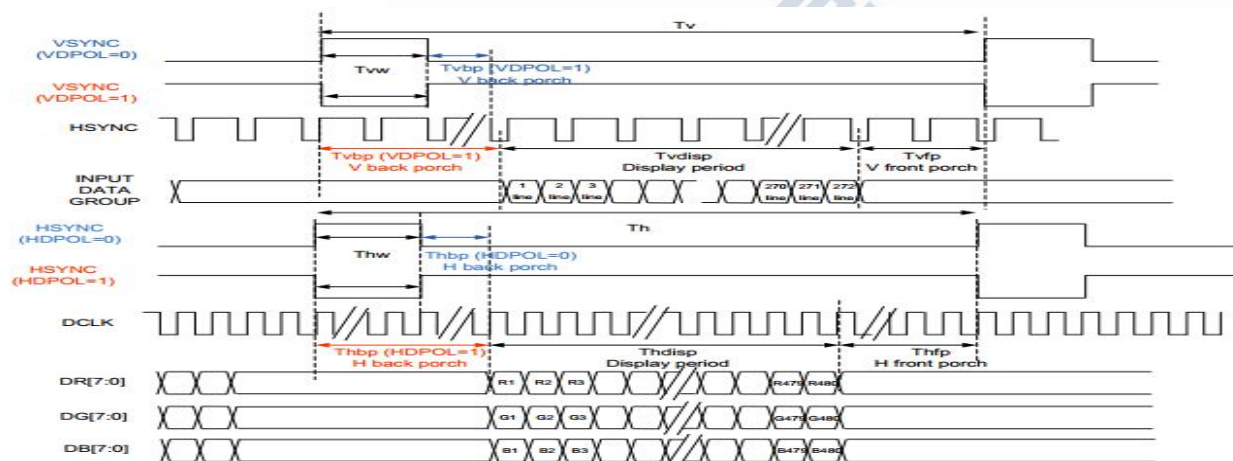
4.1. TFT TYPICAL OPERATION CONDITION

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Digital Power Supply voltage For Lcd	VDD	3.0	3.3	3.6	V	
Analog Power Supply voltage	AVDD	10.3	10.4	10.5	V	
Gate On voltage	VGH	15.3	16.0	16.7	V	
Gate Off voltage	VGL	-6.7	-6.0	-5.3	V	
Common voltage	VCOM	3.3	3.7	4.1	V	NOTE 1
Input Logic high voltage	VIH	0.7VDD		VDD	V	
Input Logic low voltage	VIL	GND		0.3VDD	V	

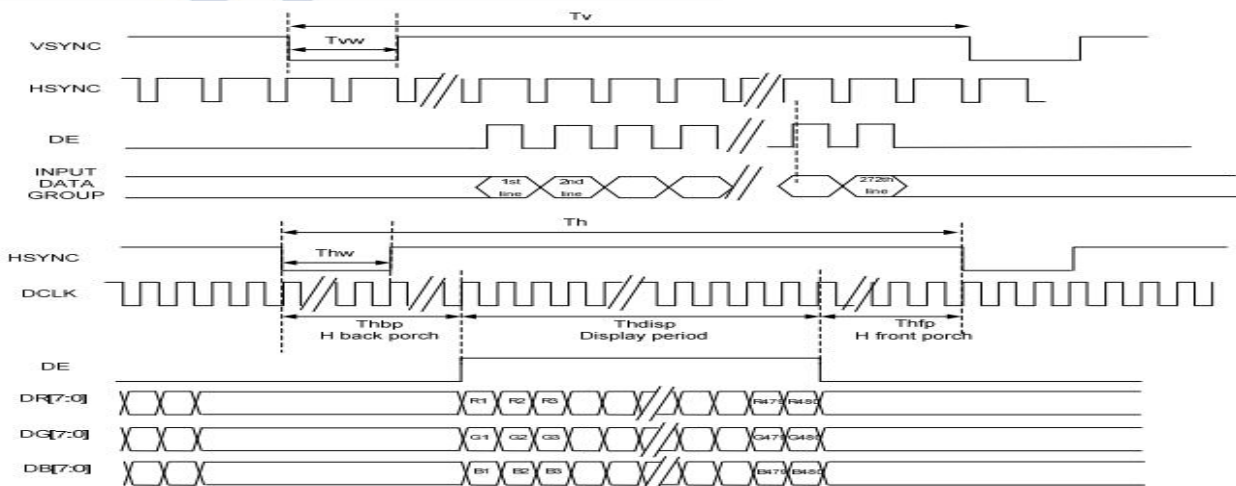
Note1: Please adjust Vcom to make the flicker level be minimum

4.2. Interface Characteristics:

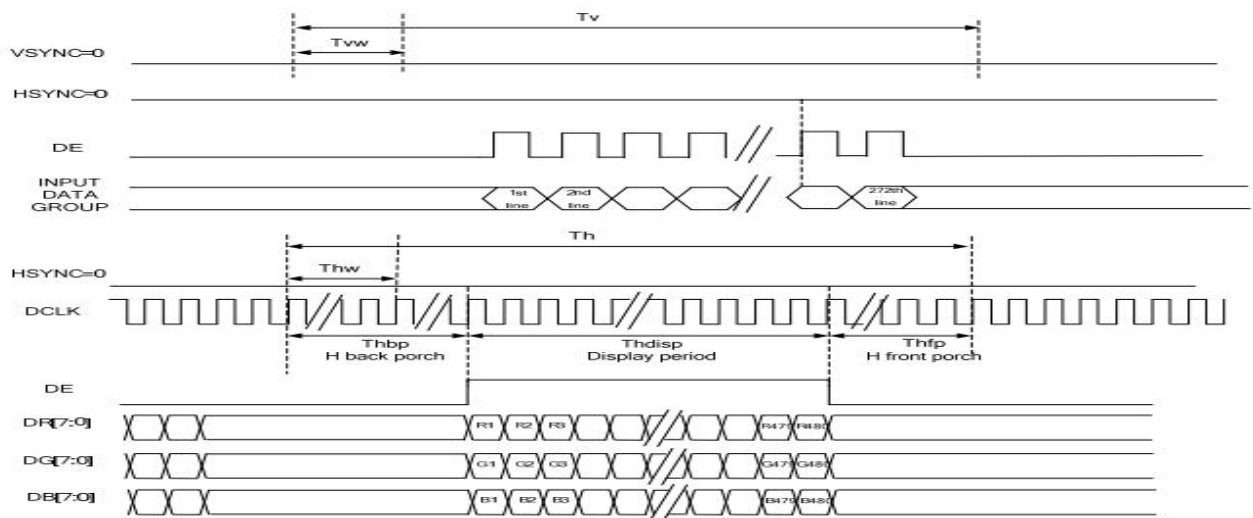
4.2.1 SYNC Mode



4.2.2 SYNC-DE Mode



4.2.3 DE Mode



4.2.4 Timing

Horizontal Input Timing						
Parameter	Symbol	Value			Unit	
		Min.	Typ.	Max.		
Horizontal display area	t_{HD}	--	800	--	CLKIN	
CLKIN frequency	f_{CLK}	--	33.3	50	MHz	
1 Horizontal line period	t_H	862	1056	1200	CLKIN	
HSD pulse width	t_{HPW}	Min.	1	--	CLKIN	
		Typ.	--	--	CLKIN	
		Max.	40	--	CLKIN	
HSD back porch	SYNC	t_{HBP}	46	46	46	CLKIN
HSD front porch	SYNC	t_{HFP}	16	210	354	CLKIN

Vertical Input Timing					
Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Vertical display area	t_{VD}	--	480	--	HSD
VSD period time	t_V	510	525	650	HSD
VSD pulse width	t_{VPW}	1	--	20	HSD
VSD back porch	t_{VBP}	23	23	23	HSD
VSD front porch	t_{VFP}	7	22	147	HSD

Parameter	Symbol	Spec			Unit	Conditions
		Min.	Typ.	Max.		
SCL period	T_{CK}	60	--	--	ns	
SCL high width	T_{CKH}	30	--	--	ns	
SCL low width	T_{CKL}	30	--	--	ns	
Data setup time	T_{SU1}	12	--	--	ns	
Data hold time	T_{HD1}	12	--	--	ns	
CSX to SCL setup time	T_{CS}	20	--	--	ns	
CSX to SDA hold time	T_{CE}	20	--	--	ns	
CSX high pulse width	T_{CD}	50	--	--	ns	

5. OPTICAL CHARACTERISTICS

($T_a=+25^{\circ}\text{C}$, $V_{CI}=+2.85\text{V}$ $I_{OVCC}=+1.8\text{V}$, $I_B=20\text{mA}$)

Item	Symbol	Condition	Values			Unit	Remark	
			Min.	Typ.	Max.			
Viewing Angle Range	Left	θ_L	$CR \geq 10$	-	70	-	degree	Note 1
	Right	θ_R		-	70	-		
	Top	Φ_T		-	50	-		
	Botto	Φ_B		-	70	-		
Response Time	$T_{on} + T_{off}$	Normal $\theta = \phi = 0^{\circ}$	-	35	-	ms	Note ,2	
Contrast Ratio	CR	Normal $\theta = \phi = 0^{\circ}$	400	500	-	-	Note 3	
Luminance	L	Normal $\theta = \phi = 0^{\circ}$	--	300	--	cd/m^2	Note 4	
Color Chromaticity	White	X	Normal $\theta = \phi = 0^{\circ}$	-0.03	0.28	+0.03	-	Note 5
		Y			0.30			
NTSC				50	-	%	Note 6	
Transmittance	Trans		-	4.66		%	Note7	

Note 1: Definition of viewing angle range

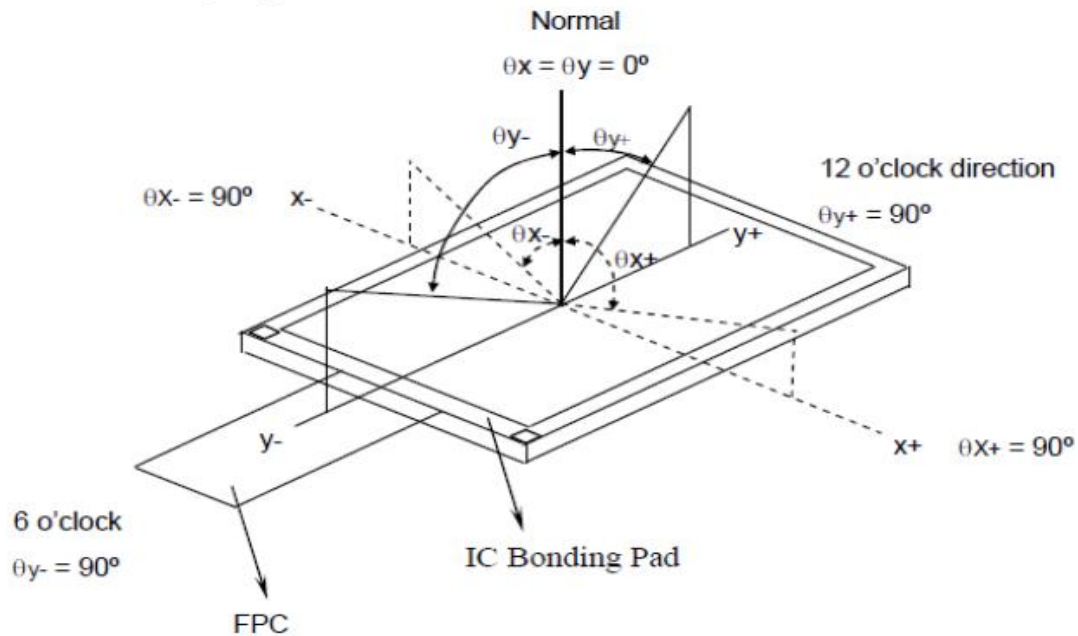


Fig. 1 Optical measurement system setup

Note 2: Definition of response time

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time (T_{on}) is the time between photo detector output intensity changed from 90% to 10%, and fall time (T_{off}) is the time between photo detector output intensity changed from 10% to 90%.

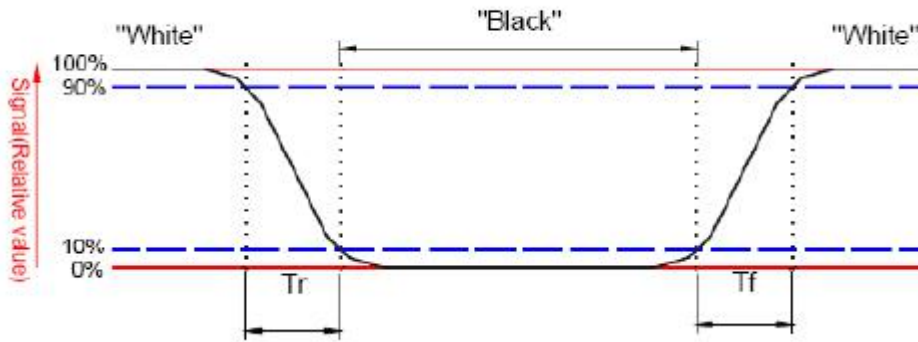


Fig. 2 Definition of response time

Note 3: Definition of contrast ratio

Contrast ratio is calculated by the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "white" state}}{\text{Brightness on the "black" state}}$$

Note 4: Definition of luminance

Measured at the center area of the panel when LCD panel is driven at "white" state.

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at the center point of LCD when panel is driven at "White", "Red", "Green" and "Blue" state respectively.

Note 6: To be measured with Otsuta chromaticity meter LCF-2100M, CF only measure under C light simulation

Note 7: CTC shipping status is cell without polarizer. Transmittance of Specification is cell with polarizer. The tolerance of Transmittance is +/-10%.

6.RELIABILITY TESTS

ITEM	CONDITION	CRITERION
Operating Temperature Test	High Temperature: +70 °C, 96 hrs	No defects in display and operational functions
	Low Temperature: -20 °C, 96 hrs	
Storage Temperature Test	High Temperature: +80 °C, 96 hrs	No defects in display and operational functions
	Low Temperature: -30 °C, 96 hrs	
Humidity Endurance Test	60°C, 90%RH, 96 hrs	No defects in display and operational functions
Thermal Shock Test	-20 °C (30mins)~ +70 °C (30mins) 10 cycles	No defects in display and operational functions
Electro Static Discharge	± 4KV, Human BodyMode, 150pF/330Ω; ± 8KV, Air Mode, 150pF/330Ω	No defects in display and operational functions

NOTE:

- 1) The samples must be free from defect before test, must be restored at room condition at least for 2 hours after reliability test before any inspection.
- 2) Before test the function of TP, the sample must be placed in room temperature for 24hrs after RA test.