Specification for Colour TFT Display module
7" WVGA colour TFT module with Capacitive Touch Panel and Moth Eye Film

Manufacturer	Yes Optoelectronics Co.,Ltd
Part n°	YTS700RLAT-04-102C
Ordering n°	
Customer Part n°	
Revision n°	1.0
Issue Date	2017-02-17

Customer's Approval

Company name	
Printed name	
Job title	
Signature	
Approval Stage:	This product is approved for the following production stage: - ☐ Sample / Prototype ☐ Pre-Production ☐ Mass Production
Approval Date	

Supplied by Anders Electronics plc
Manufactured by Yes Optoelectronics Co.,Ltd

PRODUCT   :   LCD MODULE
MODEL NO   :   YTS700RLAT-04-102C
SUPPLIER   :   Yes Optoelectronics Co.,Ltd
DATE   :   FEB.17.2017

SPECIFICATION

Approved	Checked	Department
XIAO YU	**LIANGYUEYAO**	**TP & TFT LCM Department**

CUSTOMER:
MODEL NO.:   DATE:

Approved	Checked	Department

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Revision Record

Rev No.	Rev Date	Contents	Remark
1.0	2017.02.17	New creation	

1. General Specifications

No	Item	Contents	Unit
1	Size	7.0	inch
2	Resolution	800RGB*480	
3	Interface	RGB	
4	Color Depth	16	M
5	Technology Type	a-Si TFT	
6	Sub pixel size	0.0642*0.179	mm
7	Pixel Arrangement	RGB-stripe	
8	Display Mode	Transmissive	
9	Viewing Direction	12:00	o'clock
10	LCM (W x H x D)	181.08*112.92*8.67	mm
11	Active Area (W x H)	154.08*85.92	mm
12	With/Without TSP	With CTP	
13	LED Numbers	24	

2. Mechanical Drawing

CUSTOMER'S APPROVED:	DATE:	PAGE:

	Operating Voltage:	VCC=3.3V typ.
2	Resolution:	800RGB*480
3	Color:	16M
4	Interface:	RGB
5	Display type:	Transmissive
6	Viewing Direction:	12:00
7	Operating Temp:	-30°C~85°C
8	Storage Temp:	-30°C~85°C
9	Driver IC:	HX8264-E,HX8664-B
10	Unspecified tolerance:	±0.3
11	CTP Driver IC:	FT5526
12	LCM Luminance:	750cd/M2(min)

Attach Moth eye film

Yes Optoelectronics Display Co.,Ltd.

No. YTS700RLAT-04-102C Ver.1

	Drw 李静 17.2.4
Unit:mm	Chk
	APV

BLACK PRINTING ON BACK GALSS

3M Adhesive T=0.15mm

bottom contact

3. PIN Assignment

Pin No	Symbol	I/O	Function	Remark
1	K	P	LED backlight cathode	
2	A	P	LED backlight anode	
3	GND	P	Ground	
4	VCC	P	Logic regulator power supply	
5-12	R0-R7	I	Data bit	
13-20	G0-G7	I	Data bit	
21-28	B0-B7	I	Data bit	
29	GND	P	Ground	
30	DOTCLK	I	Clock signal for data latching and internal counter of the timing controller.	
31	DISPLAY	-	Display on/off mode control.	
32	HSYNC	I	Horizontal sync input with negative polarity.	
33	VSYNC	I	Vertical sync input with negative polarity.	
34	ENABLE	I	Input data enable control.	
35	NC	-	No connection	
36	GND	P	Ground	
37	INT	I	External interrupt to the host	
38	SCL	I	Serial clock	
39	SDA	I	I2C SDA	
40	RESET	I	Reset Signal	

PS. For further details, please refer to HX8264-E,HX8664-B data sheet.

4. Absolute Maximum Rating

AGND = GND = 0V , Ta = 25°

Item	Symbol	Min	Max	Unit	Remark
Power Voltage	VCC	-0.5	6	V	
	VGH	-0.3	42	V	
Backlight Forward Current	I_{LED}		120	mA	For each LED
Operating Temperature	T_{OPR}	-30	85	° C	
Storage Temperature	T_{STG}	-30	85	° C	

C

The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

5. Electrical Characteristics

5.1. Recommended Operating Condition

AGND = GND = 0V , Ta = 25° C

Item	Symbol	Min	Typ.	Max	Unit	Remark
Power Voltage	VCC	2.7	3.3	3.6	V	
Input logic high voltage	V_{IH}	0.7 VDD	-	VDD	V	
Input logic low voltage	V_{IL}	0	-	0.3VDD	V	

5. 2. Rcommended Driving Condition for Backlight

Ta = 25° C

Item	Symbol	Min	Typ.	Max	Unit	Remark
Forward Voltage	Vf		18.5	21.0	V	
Forward Current	If		310		mA	
Operating Life Time	-	20000			Hours	

Note 1:The LED supply voltage is defined by the number of LED at Ta=25℃ and If =310 mA.

Note 2:The "Operating Life Time" is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and If =310 mA. The LED lifetime could be decreased if operating If is larger than 310 mA.

6. Timing Characteristics

6.1. AC Electrical Characteristics

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
HS setup time	Thst	8	-	-	ns
HS hold time	Thhd	8	-	-	ns
VS setup time	Tvst	8	-	-	ns
VS hold time	Tvhd	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
VDD Power On Slew rate	TPOR	-	-	20	ms
RSTB pulse width	TRst	10	-	-	µs
CLKIN cycle time	Tcph	20	-	-	ns
CLKIN pulse duty	Tcwh	40	50	60	%
Output stable time	Tsst	-	-	6	µs

6. 2.DC Electrical Characteristics

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Power supply voltage	VDD	2.7	3.3	3.6	V	-
Power supply voltage	AVDD	6.5	-	13.5	V	AVDD-V1 ≧ 0.5V
Low level input voltage	V_{IL}	0	-	0.3VDD	V	For Digital Circuit
High level input voltage	V_{IH}	0.7VDD	-	VDD	V	For Digital Circuit
Output low voltage	V_{OL}	-	-	GND+0.4	V	I_{OL}=400µA
Output high voltage	V_{OH}	VDD-0.4	-	-	V	I_{OH}=-400µA
Pull low/high resistance	R_i	200K	250K	300K	Ohm	For the digital input pin @VDD=3.3V
Input leakage current	Ii	-	-	+/- 1	µA	For Digital Circuit
Digital Operation current	Idd	-	5	10	mA	Fclk=50MHz,FLD=48KHz,VDD=3.3V CABC function disable, No load
Digital stand-by current	Ist1	-	10	50	µA	Clock & all functions are stopped
Analog Operating current	Idda	-	5	10	mA	No load,Fclk=50MHz,FLD = 48KHz @ AVDD = 10V, V1=8V, V14 = 0.4V
Analog Stand-by current	Ist2	-	10	50	µA	No load,Clock & all functions are stopped
Input level of V1 ~ V7	Vref1	0.4*AVDD	-	AVDD-1	V	Gamma correction voltage input
Input level of V8 ~ V14	Vref2	0.1	-	0.6*AVDD	V	Gamma correction voltage input
Output Voltage deviation	Vod1	-	+/-20	+/-35	mV	Vo=AGND+0.1V ~ AGND+0.5V & Vo=AVDD-0.5V ~ AVDD-0.1V
Output Voltage deviation	Vod2	-	+/-15	+/-20	mV	Vo=AGND+0.5V ~ AVDD-0.5V
Output Voltage Offset between Chips	Voc	-	-	+/- 20	mV	Vo=AGND+0.5V ~ AVDD-0.5V
Dynamic Range of Output	Vdr	0.1	-	AVDD-0.1	V	SO1 ~ SO1200
Sinking Current of Outputs	IOLy	80	-	-	µA	SO1~SO1200; Vo= 0.1V vs. 1.0V, AVDD=13.5V
Driving Current of Outputs	IOHy	80	-	-	µA	SO1 ~ SO1200 ; Vo = 0.1V vs. 12.5V , AVDD=13.5V
Resistance of Gamma Table	Rg	0.7*Rn	1.0*Rn	1.3*Rn	ohm	Rn:Internal gamma resistor
Dcmp Buffer Output Voltage variation	VDvar	-	-	-180	mV	AVDD=13.5V,C=1µF AVDD-0.5 ≦ GMI 1/2 ≦ AVDD-0.1 Isink = -3.5mA
		-	-	180	mV	AVDD=13.5V,C=1µF 0.1 ≦ GMI 1/2 ≦ 0.5 Isource = 3.5mA , Isink = -3.5mA
		-	-	+/-90	mV	AVDD=13.5V,C=1µF 0.5 ≦ GMI 1/2 ≦ AVDD-0.5 Isource = 3.5mA , Isink = -3.5mA

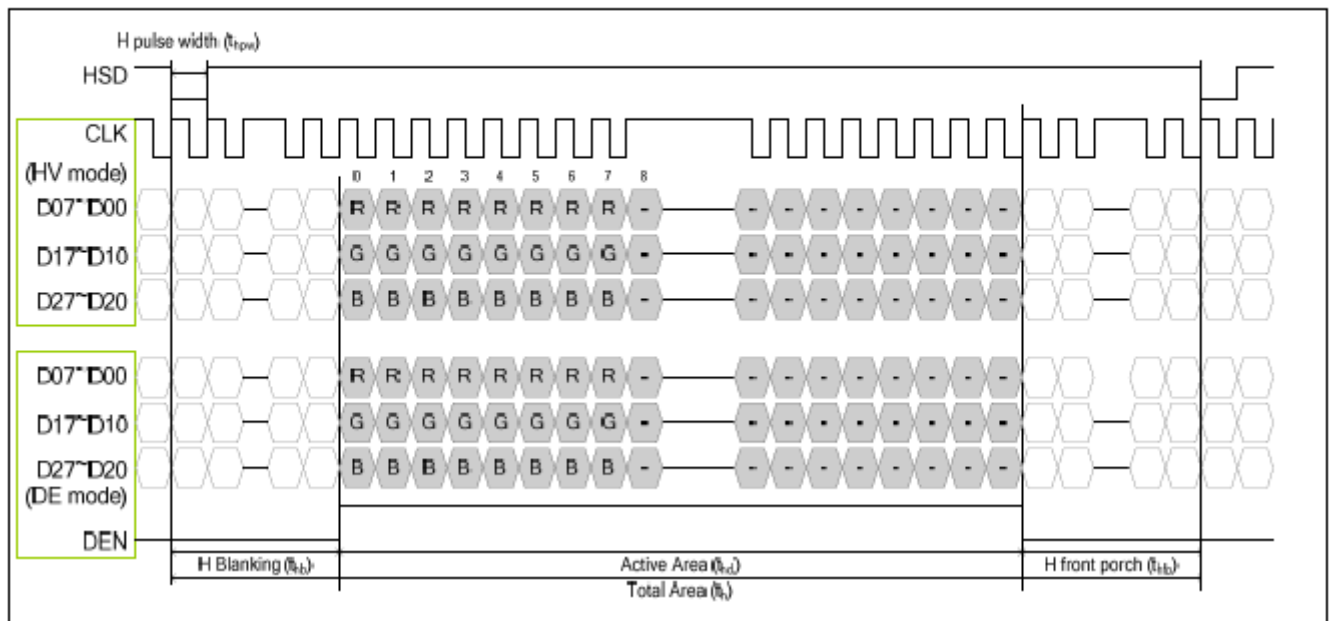6.3.Timing

Resolution : 800x480

- **Horizontal Timing**

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Horizontal Display Area	thd	-	800	-	DCLK
DCLK frequency	fclk	-	33.3	50	MHz
One Horizontal Line	th	862	1056	1200	DCLK
HS pulse width (Min.)	thpw		1		DCLK
HS pulse width (Typical.)	thpw		-		DCLK
HS pulse width (Max.)	thpw		40		DCLK
HS Back Porch (Blanking)	thb	46	46	46	DCLK
HS Front Porch	thfp	16	210	354	DCLK
DE mode Blanking	th-thd	45	256	400	DCLK

- **Vertical Timing**

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Vertical Display Area	tvd		480		TH
VS period time	tv	510	525	650	TH
VS pulse width	tvpw	1	-	20	TH
VS Back Porch (Blanking)	tvb	23	23	23	TH
VS Front Porch	tvfp	7	22	147	TH
DE mode Blanking	tv-tvd	4	45	170	TH

6. 4.Data Input Format

- **Horizontal timing**

Horizontal input timing diagram

- **Vertical Timing**
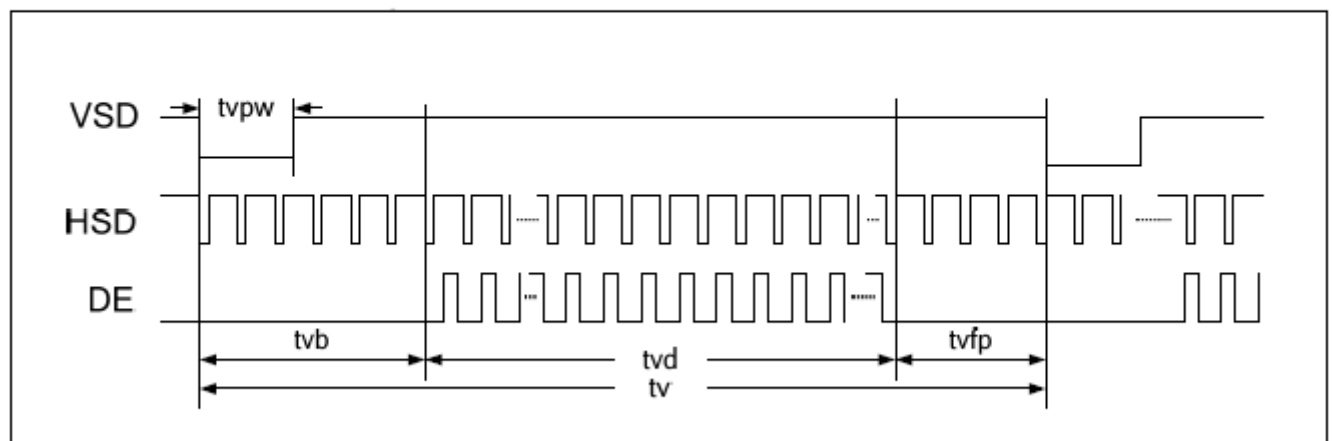
Vertical input timing diagram

6. 5. Input Clock and Data Timing Diagram
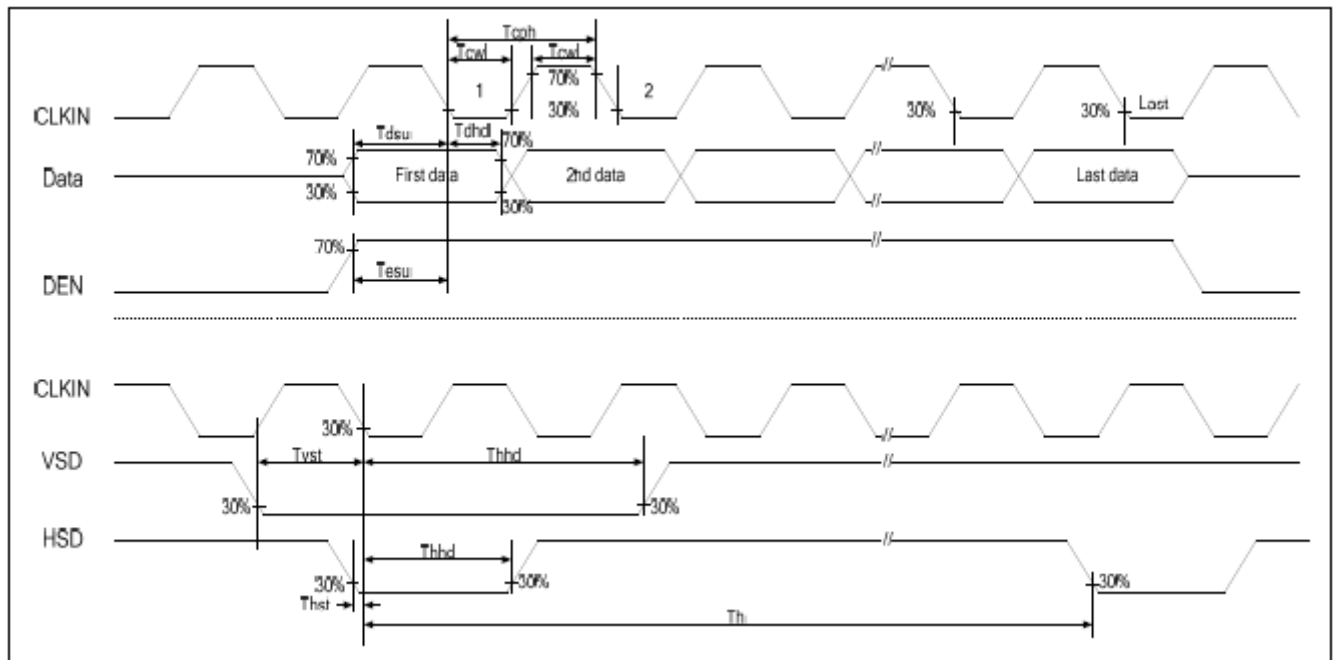
6. 6.Power ON/OFF Sequence

HX8264-E has a power ON/OFF sequence control function. In order to prevent IC from power on reset fail, the rising time(TPOR) of the digital power supply VDD should be maintained within the given specifications.The VGL voltage must be stable before STBYB signal drive Hi at power on sequence. Please refer to "AC characteristics" for more detail on timing.
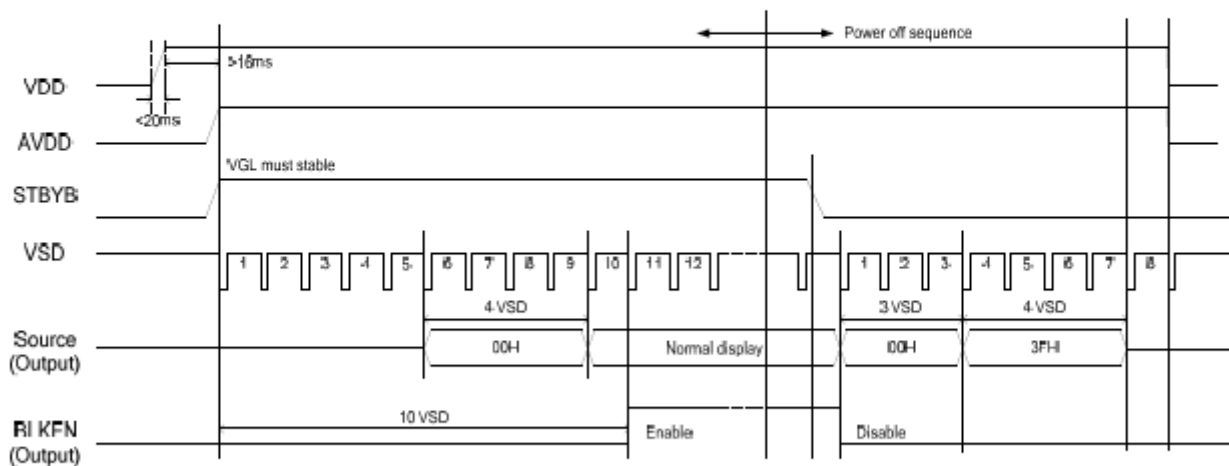
Power on/off timing sequence

7. Optical Characteristics

Item		Symbol	Condition	Min	Typ.	Max	Unit	Remark
View Angles		θT	CR≥10	40	50		Degree	Note 2
		θB		60	70			
		θL		60	70			
		θR		60	70			
Contrast Ratio		CR	θ = 0°	400	500			Note 1 Note 3
Response Time		T$_{ON}$	25° C		25	50	ms	Note 1 Note 4
		T$_{OFF}$						
Chromaticity	W$_x$	x		0.282	0.312	0.342		Note 1 Note 5
	W$_y$	y		0.301	0.331	0.361		
Uniformity		U		75			%	Note 5
Luminance		L		750	900		cd/m^2	Note 1 Note 5

Test Conditions:

1．If=310mA(Backlight current), VCC =3.3V,the ambient temperature is 25°C.

2．The test systems refer to Note 2.

Note1: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 5Minutes operation, the optical properties are measured at the center point of the LCD screen. ALL input terminals LCD panel must be ground when measuring the center area of the panel.
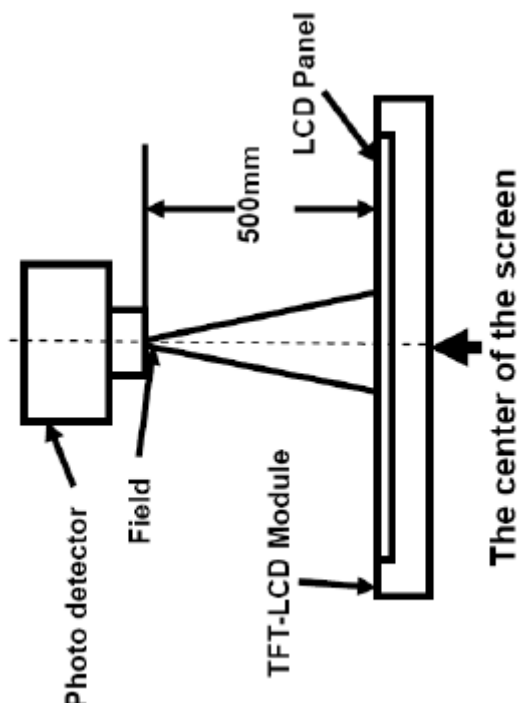
Item	Photo detector	Field
Contrast Ratio	CS1000	1º
Luminance		
Lum Uniformity		
Chromaticity	CS1000	
Response Time	DMS703	
		-

Note2: Definition of viewing angle range and measurement system.
Viewing angle is measured at the center point of the LCD by CONOSCOPE (DMS703)
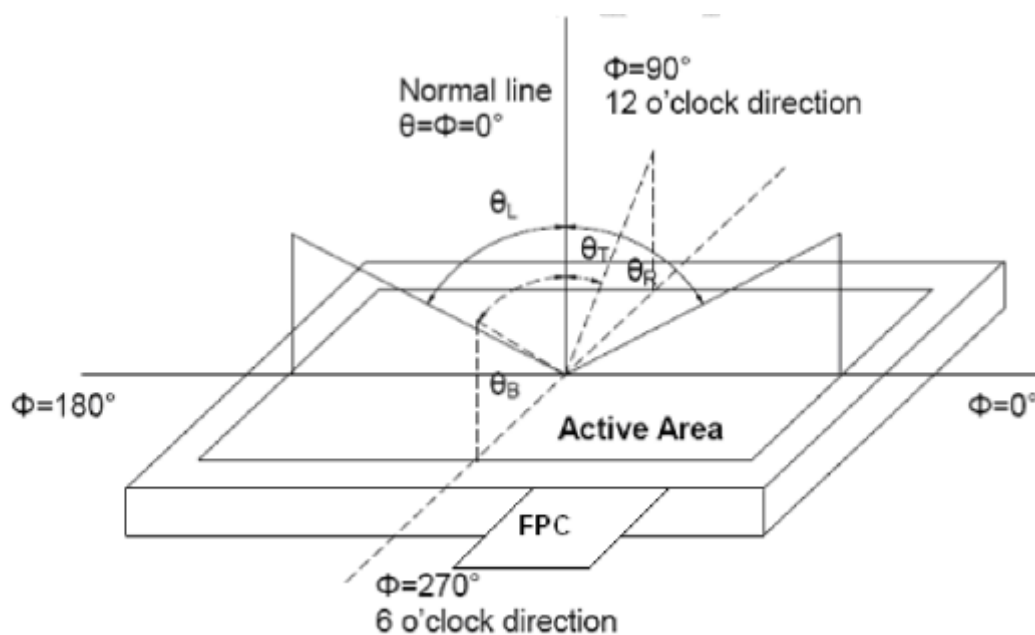
NOTE3: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD is on the "White" state}}{\text{Luminance measured when LCD is on the "Black" state}}$$

"Black state ":The state is that the LCD should drive by Vblack.

Vwhite: To be determined   Vblack: To be determined

Note4: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% to90%.
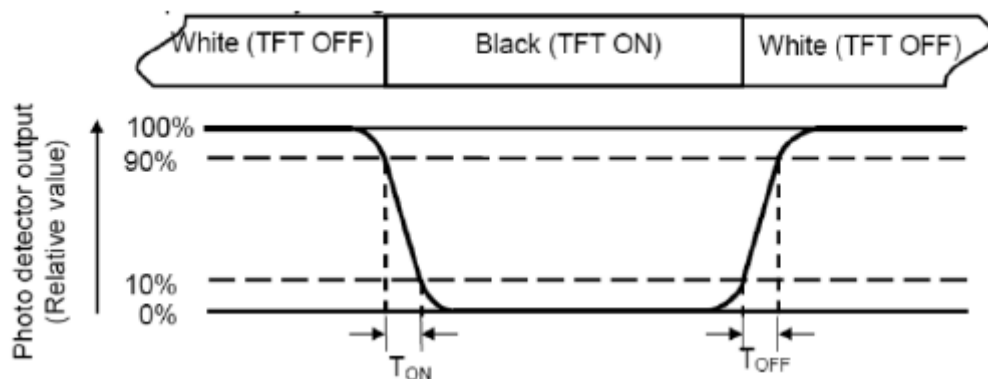
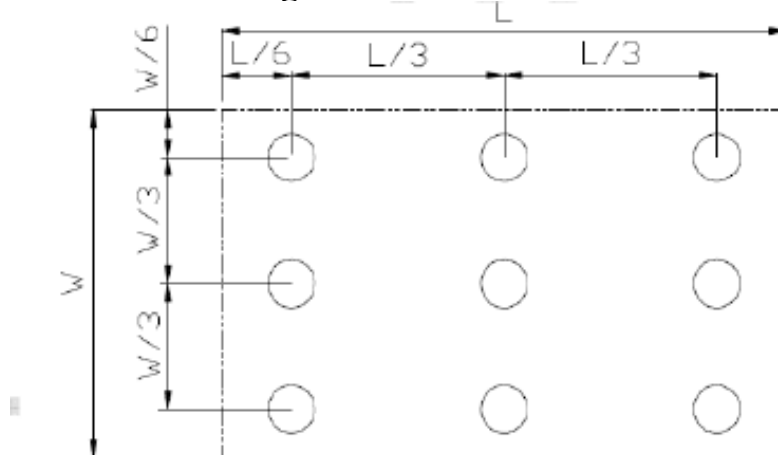Note5:Definition of color chromaticity（CIE1931）

Color coordinates measured at center point of LCD.

Note6: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas(Refer Fig.2).Every measuring point is placed at the center of each measuring area.

   Luminance Uniformity (U)=Lmin/Lmax

   L--------Active area length   W--------Active area width

   L max: The measured Maximum luminance of all measurement position.
   L min: The measured Minimum luminance of all measurement position.
   Note7: Definition of luminance:
   Measure the luminance of white state at center point.

8. Environmental/Reliability Test

No.	Test Item	Test Condition	Inspection after test
1	High Temperature Storage	80 ±2℃/240 hours	Inspection after 2~4hours storage at room temperature,the sample shall be free from defects: 1.Air bubble in the LCD; 2.Sealleak; 3.Non-display; 4.missing segments; 5.Glass crack; 6.Current Idd is twice higher than initial value.
2	Low Temperature Storage	-30 ±2℃/240 hours	
3	High Temperature Operating	70 ±2℃/240 hours	
4	Low Temperature Operating	-20 ±2℃/240 hours	
5	Temperature Cycle	-30℃～30℃～80℃ × 10cycles (30min.) (5min.) (30min.)	
6	Damp Proof Test	60℃ ±5℃ ×90%RH/120 hours	
7	Vibration Test	Frequency：10Hz~55Hz~10Hz Amplitude：1.5mm, X，Y，Z direction for total	
8	Dropping test	Drop to the ground from 1m height, one time, every side of carton. (Packing condition)	

Remark:
1.The test samples should be applied to only one test item.
2.Sample size for each test item is 5~10pcs.
3.For Damp Proof Test, Pure water(Resistance＞10MΩ) should be used.
4.In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judge as a good part.
5.Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.
6.Please use automatic switch menu(or roll menu) testing mode when test operating mode.

9. Packing Drawing

10. Standard Specifications For Product Quality

10.1. Manner of test:

10.1.1   The test must be under 40W fluorescent light, and the distance of view must be at 30±10cm.

10.1.2   Room temperature 25±5℃   Humidity: (60±10)％RH.

10.2. Quality specification

It shall be based on GB2828-87, inspection level Ⅱ.

	IETM	CHECK LEVEL	AQL
MAJOR (MA)	1.Liquid crystal leakage 2.Wrong polarizer 3.Outside dimension 4. Bright dot、Dark dot 5. Display abnormal 6. Class crack	Ⅱ	0.25
MINOR (MI)	1. Spot Defect (Including black spot、white spot、pinhole、foreign particle、bubbles、hurt） 2. fragment 3. Line Defect (Including black line、white line、cratch) 4. Incision defect 5. Newton's ring 6. Other visual defects	Ⅱ	1.0

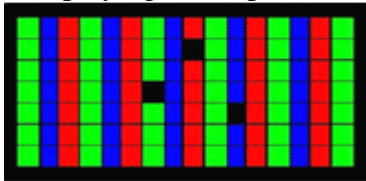## 10.3.   Definition of area:
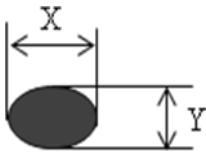
10.3.1 Ⅰ area: viewing area
      Ⅱ area: outside viewing area
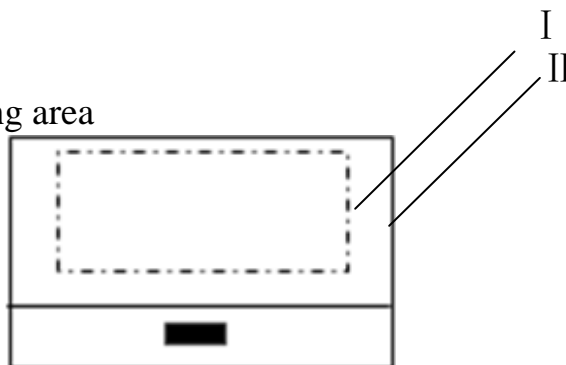
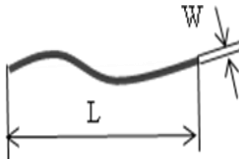## 10.4.Standard of appearance test for Ⅰ area: (unit: mm)

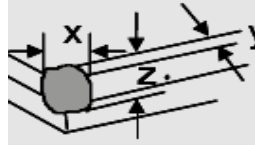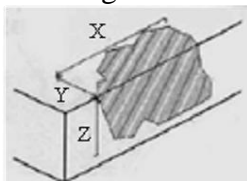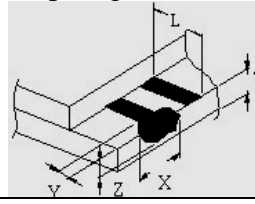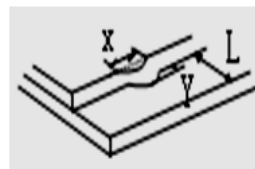NOTE：Defect ignore for Ⅱ area .
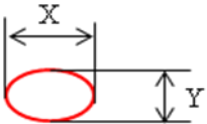
10.4.1 Bright/Dark Dots explain

Name	Explain	Definition
Bright dot	Dots appear bright and unchanged in size in which LCD panel isdisplaying under black pattern 	The definition of dot: The size of a defective dot over 1/2 of single pixel dot is regarded as one defective dot . NOTE: One pixel consists of 3 sub-pixels, including R,G, and B dot.(Sub-pixel = Dot)
Dark dot	Dots appear dark and unchanged in size in which LCD panel isdisplaying under pure red, green, blue pattern. 	
ADJACENT DOT	Adjacent two sub-pixel are defect（define two dot defect）	

10.4.2 Inspection standard

№	Items	Criterion		Checking Manner	Defect Classes
1	Bright/dark dot	Under 6" (contain 6")	Bright dot：2 Dark dot：N≤4 **Note:** be more than 5mm apart	Checking with eyes	MAJ
		6"-12"	Bright dot：N≤4 Dark dot：N≤5 Total Bright and Dark Dots：N≤8 **Note ：** 1.Two bright dot defects (red, green, blue, and white) should be larger than 15mm； 2.The distance between black dot defects or black and bright dot defects should be more than 5mm apart.		
2	Spot Defect (Including black spot.white spot. Pinhole.foreign particle.bubbles.hurt） D=(X+Y)/2	Under 6" （contain 6"）	D≤0.1 Ignore 0.1＜D≤0.35 N≤3 0.35＜D N=0	Checking with eyes	MIN
		6"-12"	D≤0.3 Ignore 0.3＜D≤0.6 N≤4 0.6＜D N=0		

№	Items	Criterion		Checking manner	Defect classes
3	Line Defect (Including black Line.white line. scratch) 	Under 6" （contain 6"）	W≤0.02 Ignore 0.02＜W≤0.04 L≤5 N≤2 0.04＜W≤0.06 L≤5 N≤1 W＞0.06 N=0	Checking with eyes	MIN
		6"-12"	W≤0.07 Ignore 0.07＜W≤0.1 L≤10 N≤4 W＞0.1 N=0		
4	Display abnormal	Not allowed		Checking with eyes	MAJ
5	Outside dimension	Accord with drawing		Callipers	MAJ
6	Class crack	Not allowed		Checking with eyes	MAJ
7	Leak	Not allowed		Checking with eyes	MAJ
8	Comer fragment 	X≤3 Y≤3 Z≤T Ignore Note ： 1.No hurt identifying .wire.seal 2.T：Glass thickness X: Length Y: Width Z: thickness		Checking with eyes	MIN
9	Side fragment 	Y≤1 Z≤T Ignore Note ： 1.No hurt identifying .wire.seal 2.T：Glass thickness X: Length Y: Width Z: thickness		Checking with eyes	MIN
	Step fragment 	Y≤1 and Y≤1/4 L		Checking with eyes	MIN
	Incision defect 	Y≤1 and accord with outside dimension		Checking with eyes	MIN

№	Items	Criterion		Checking manner	Defect classes
10	Newton's ring（CTP or Cover board） X Y D=(X+Y)/2	Under 6"(contain 6") 6"-12"	D≤25 N≤3 D＞25 N=0 D≤70 N≤5 D＞70 N=0		Checking with eyes	MIN

11. Precautions for Use of LCD Modules

11.1 Handing Precautions

(1) The display panel is made of glass and polarizer. As glass is fragile. It tends to become or chipped during handling especially on the edges. Please avoid dropping or jarring. Do not subject it to a mechanical shock by dropping it or impact.

(2) If the display panel is damaged and the liquid crystal substance leaks out, be sure not to get any in your mouth. If the substance contacts your skin or clothes, wash it off using soap and water.

(3) Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary. Do not touch the display with bare hands. This will stain the display area and degraded insulation between terminals (some cosmetics are determined to the polarizer).

(4) The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully. Do not touch, push or rub the exposed polarizers with anything harder than an HB pencil lead (glass,tweezers, etc.). Do not put or attach   anything on the display area to avoid leaving marks on. Condensation on the surface and contact with terminals due to cold will damage, stain or dirty the polarizer. After products are tested at low temperature they must be warmed up in a container before coming is contacting with room temperature air.

(5) If the display surface becomes contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If it is heavily contaminated, moisten cloth with one of the following solvents
- Isopropyl alcohol
- Ethyl alcohol

Do not scrub hard to avoid damaging the display surface.

(6) Solvents other than those above-mentioned may damage the polarizer. Especially, do not use the following.
- Water
- Ketone
- Aromatic solvents

Wipe off saliva or water drops immediately, contact with water over a long period of time may cause deformation or color fading. Avoid contacting oil and fats.

(7) Exercise care to minimize corrosion of the electrode. Corrosion of the electrodes is accelerated by water droplets, moisture condensation or a current flow in a high-humidity environment.

(8) Install the LCD Module by using the mounting holes. When mounting the LCD module make sure it is free of twisting, warping and distortion. In particular, do not forcibly pull or bend the I   O cable
or the backlight cable.

(9) Do not attempt to disassemble or process the LCD module.

(10) NC terminal should be open. Do not connect anything.

(11) If the logic circuit power is off, do not apply the input signals.

(12) Electro-Static Discharge Control,Since this module uses a CMOS LSI, the same careful attention should be paid to electrostatic discharge as for an ordinary CMOS IC. To prevent destruction of the elements by static electricity, be careful to

maintain an optimum work environment.

  - Before remove LCM from its packing case or incorporating it into a set, be sure the module and your body have the same electric potential.Be sure to ground the body when handling the LCD modules.

  - Tools required for assembling, such as soldering irons, must be properly grounded.   make certain the AC power source for the soldering iron does not leak. When using an electric screwdriver to attach LCM, the screwdriver should be of ground potentiality to minimize as much as possible any transmission of electromagnetic waves produced sparks coming from the commutator of the motor.

  - To reduce the amount of static electricity generated, do not conduct assembling and other work under dry conditions. To reduce the generation of static electricity be careful that the air in the work is not too dried. A relative humidity of 50%-60% is recommended.As far as possible make the electric potential of your work clothes and that of the work bench the ground potential.

 The LCD module is coated with a film to protect the display surface. Exercise care when peeling off this protective film since static electricity may be generated.

(13)Since LCM has been assembled and adjusted with a high degree of precision, avoid applying excessive shocks to the module or making any alterations or modifications to it.

- Do not alter, modify or change the shape of the tab on the metal frame.
- Do not make extra holes on the printed circuit board, modify its shape or change the positions of components to be attached.
- Do not damage or modify the pattern writing on the printed circuit board.
- Absolutely do not modify the zebra rubber strip (conductive rubber) or heat seal connector.
- Except for soldering the interface, do not make any alterations or modifications with a soldering iron.
- Do not drop, bend or twist LCM.

11.2 Storage Precautions

When storing the LCD modules, the following precaution is necessary.

(1) Store them in a sealed polyethylene bag. If properly sealed, there is no need for the dessicant.

(2) Store them in a dark place. Do not expose to sunlight or fluorescent light, keep the temperature between 0°C and 35°C.

(3) The polarizer surface should not come in contact with any other objects. (We advise you to store them in the container in which they were shipped).

11.3 Others

Liquid crystals solidify under low temperature (below the storage temperature range)   leading to defective orientation or the generation of air bubbles (black or white). Air bubbles may also be generated if the module is subject to a low temperature.

If the LCD modules have been operating for a long time showing the same display patterns,the display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear.A normal operating status can be regained by suspending use for some time. It should be noted that this phenomenon does not adversely affect performance reliability.

To minimize the performance degradation of the LCD modules resulting from destruction caused by static electricity etc., exercise care to avoid holding the following sections when handling the modules.
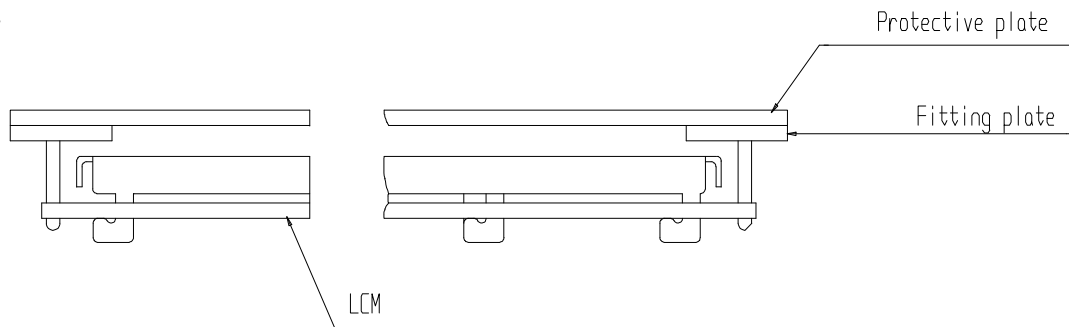
- Exposed area of the printed circuit board.
-Terminal electrode sections.

11.4 USING LCD MODULES
Installing LCD Modules

The hole in the printed circuit board is used to fix LCM as shown in the picture below. Attend to the following items when installing the LCM.

(1) Cover the surface with a transparent protective plate to protect the polarizer and LC cell.

(2) When assembling the LCM into other equipment, the spacer to the bit between the LCM and the fitting plate should have enough height to avoid causing stress to the module   surface, refer to the individual specifications for measurements. The measurement tolerance should be ±0.1mm.

Precaution for assemble the module with BTB connector:

Please note the position of the male and female connector position,don't assemble or assemble like the method which the following picture shows
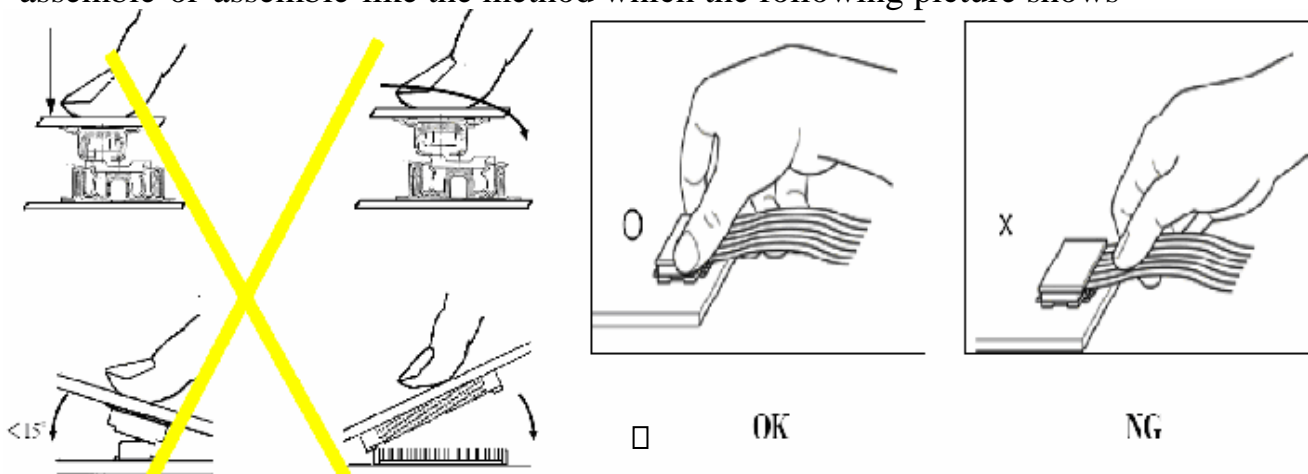
Precaution for soldering to the LCM

	Hand soldering	Machine drag	Machine press soldering
No ROHS Product	290°C~350°C. Time : 3-5S.	330°C ~350°C. Speed : 4-8mm/s.	300°C~330C. Time : 3-6S. Press: 0.8~1.2Mpa

ROHS Product	340°C~370°C. Time : 3-5S.	350°C ~370°C. Time : 4-8 mm/s.	330°C~360C. Time : 3-6S. Press: 0.8~1.2Mpa

(1)If soldering flux is used, be sure to remove any remaining flux after finishing to soldering operation. (This does not apply in the case of a non-halogen type of flux.) It is recommended that you protect the LCD surface with a cover during soldering to prevent any damage due to flux spatters.

(2) When soldering the electroluminescent panel and PC board, the panel and board should not be detached more than three times. This maximum number is determined by the temperature and time conditions mentioned above, though there may be some variance depending on the temperature of the soldering iron.

(3) When remove the electroluminescent panel from the PC board, be sure the solder has completely melted, the soldered pad on the PC board could be damaged.

Precautions for Operation

(1) It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage then the limit cause the shorter LCD life.An electrochemical reaction due to direct current causes LCD's undesirable deterioration, so that the use of direct current drive should be avoided.

(2) Response time will be extremely delayed at lower temperature than the operating temperature range and on the other hand at higher temperature LCD's show dark color in them.However those phenomena do not mean malfunction or out of order with LCD's, Which will come back in the specified operating temperature.

(3) If the display area is pushed hard during operation, the display will become abnormal. However, it will return to normal if it is turned off and then back on.

(4) A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit. Usage under the maximum operating temperature,50%RH or less is required.

(5) Input each signal after the positive/negative voltage becomes stable.

(6) Please keep the temperature within specified range for use and storage. Polarization degradation, bubble generation or polarizer peel-off may occur with high temperature and high humidity.

Safety

(1) It is recommended to crush damaged or unnecessary LCDs into pieces and wash them off with solvents such as acetone and ethanol, which should later be burned.

(2) If any liquid leaks out of a damaged glass cell and comes in contact with the hands, wash off thoroughly with soap and water.

(3) WEEE order must be executed in product scrap

12. Prior Consult Matter

1.①For YES standard products, we keep the right to change material, process ... for improving the product property without notice on our customer.

②For OEM products, if any change needed which may affect the product property, we will consult with our customer in advance.

2.If you have special requirement about reliability condition, please let us know before you start the test on our samples.

13. Factory

FACTORY NAME: YES OPTOELECTRONICS CO.,LTD
FACTORY ADDRESS: No.288Yueling Road Anshan, Liaoning, P.R.CHINA
FACTORY PHONE: 86-412-5211859 FAX: 86-412-5211729

PRODUCT   :   LCD MODULE

MODEL NO.   : MTP700-008BAAMFIL

SUPPLIER   : ANSHAN YES

DATE   :   2015.10.19

SPECIFICATION

Approved	Checked	Department
XIAOYU	**GAOYANYAH**	**TP&TFT LCM Department**

CUSTOMER:

MODEL NO.:   DATE:

Approved	Checked	Department

ADD: 215# QIANSHAN ROAD,ANSHAN LIAONING P.R.CHINA
TEL: 86-412-5211859   FAX: 86-412-5211729   P.C.:114044
E-mail :   yes@yes-lcd.com,   yeslcd@globalsources.com
Web: http://www.yes-lcd.com
             http://www.asiansources.com/sante.com

<u>CONTENTS 1</u>

RECORD OF REVISIONS

Revision	Date	Page	Description
01	2015.10.19	all	New Creation

1. PRODUCT CLASSIFICATION
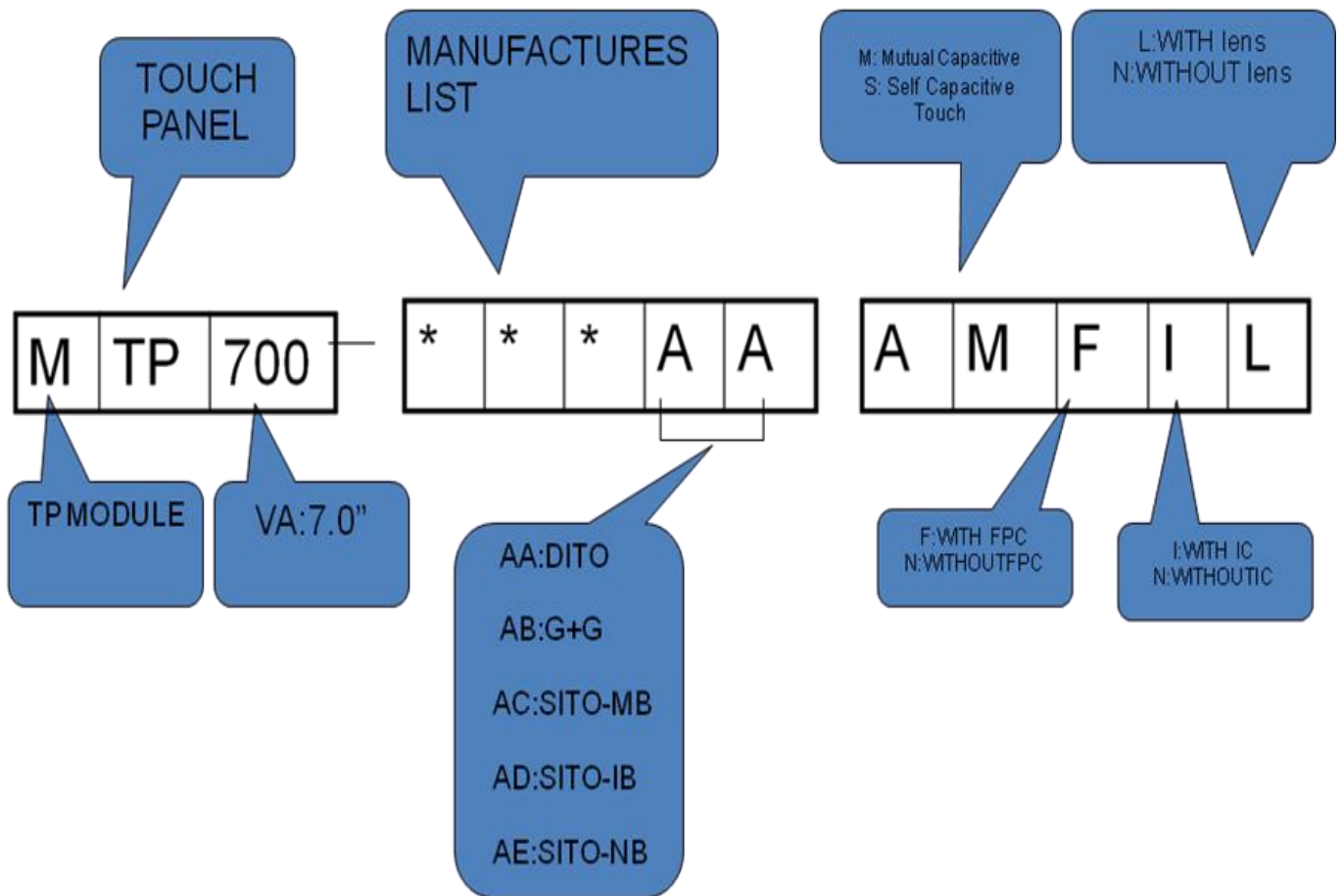
2. PRODUCT DESCRIPTION

General Description

Product type	Projected capacitive Touch Panel
Product structure	Glass lens +Glass sensor
Product Size	7″（A.A）
Resolution	800*480
Operation temperature	-20℃～70℃
Storage temperature	-30℃～80℃
Control IC	FT5526
Sensor Channel	TX27,RX16

● **Mechanical Description**

Item	Standard Value	Unit
TP outline dimension	181.08（W）*112.92（H）*2.1（T）	mm
TP view area	155.08（W）*86.92（H）	mm
sensor outline dimension	162.75 (W) * 98.75 (H)	mm
sensor active area	155.6（W）*92.0（H）)	mm

● **Structure Description**

TP LENS

LOCA

SENSOR
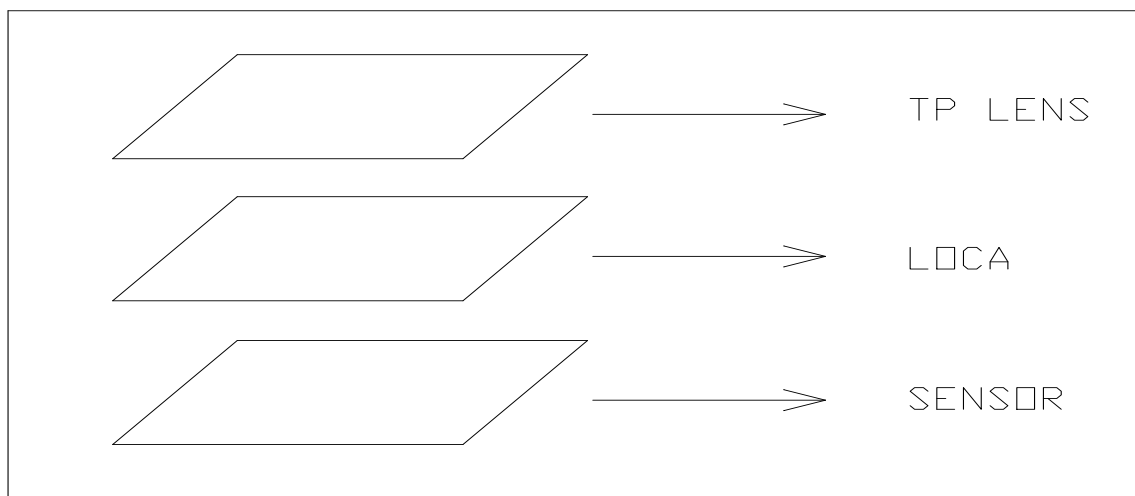
● **Communication Interface**
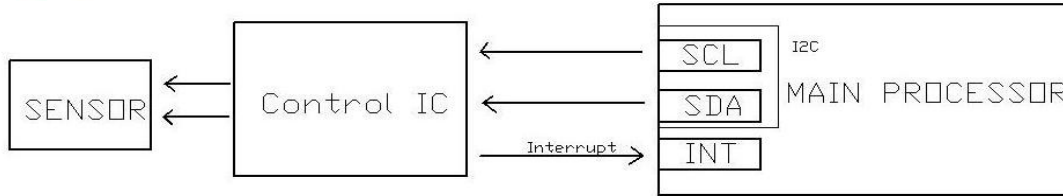
I/O Voltage	3.3V
Multi-touch max points	4Points
INT Mode	Trigger
Communication interface/address	0x70(8 bit)
SCL frequency	100K-400K

3. EXTERNAL DIMENSIONS
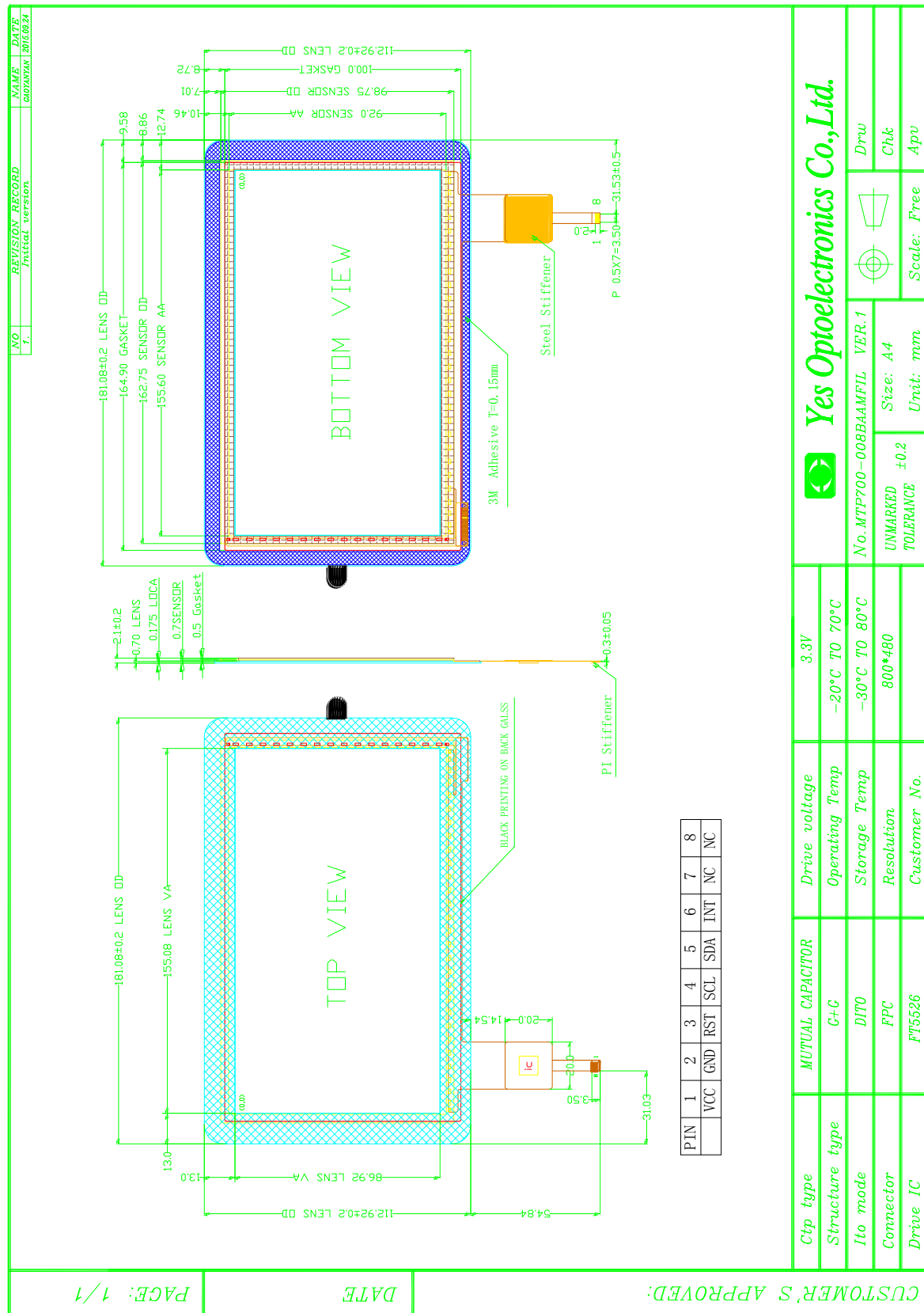
4. HARDWARE INTERFACE BLOCK DIAGRAM

5. PRODUCT SPECIFICATIONS

VDDA=2.8~3.3V, Ta=-10~60℃

Item	Min	Typ	Max	Unit	Note
Transmittance	86	87		%	
Power Supply voltage	2.8		3.6	V	DC
Power Supply Current(Active Mode)		7.5	10	mA	
Power Supply Current(monitor Mode)		3.7		mA	
Input high-level voltage	0.8 x VDDA		VDDA	V	
Input low -level voltage	-0.3		0.2 x VDDA	V	
Output high -level voltage	0.8 x VDDA			V	IOH=-0.1mA
Output low -level voltage			0.2 x VDDA	V	IOH=0.1mA

Note: All current measurements are average current.

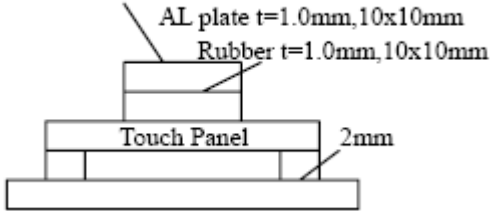# 6. FPC INTERFACE PIN

● **Connector Type**

Connecting Type	Pins Number	Manufacturer	Part Number

● **Pin Definitions**

NO.	Pin Name	Description
1	VCC	Analog power supply
2	GND	Digital ground
3	RST	Reset Signal
4	SCL	I2C SCL
5	SDA	I2C SDA
6	INT	External interrupt to the host
7	NC	NC
8	NC	NC

7. RELIABILITY TEST

● **Mechanical Test**

No.	Item	Requirement	Verification method
1	Impact Resistance Test	No crack after test	Use the 32mm diameter steel ball is dropped on the glass surface from 50cm height at 12times glass side.
2	Static Load Resistance Test	No crack after test	After 4.5Kg load for 1 min is applied to the center area(1.0cm^2)of the touch panel, the requirements in optical characteristic and electrical characteristics shall be satisfied AL plate t=1.0mm,10x10mm Rubber t=1.0mm,10x10mm Touch Panel 2mm
3	Surface hardness	6H	

● **Electrical Test**

No.	Item	Specification	Remark
1	Function test	No OPEN and no SHORT for all sensors. Linearity is OK	Test Condition: Temperature: 25℃ Voltage: 3.3V

● **Optical Test**

No.	Item	Specification	Remark
1	Transmission	T87%	Total light wavelength

8. Attention

项目 Projec	注意事项 Notes
Store	(1) In accordance with the specifications required storage temperature range of book preservation products. (2) Please ensure the product packaging when stored in good condition. (3) Avoid direct sunlight product. (4) To avoid product contact with water, organic solvents, acid and sulfuric acid compounds.
Unpacking	(1) Do not grasp the FPC to take place through the product. (2) According to the box on the "Over / under" Mark the direction of opening the product packaging.
Operating	(1) Input should use your fingers or pens. (2) Can not pull hard FPC, to avoid bad electrical connection inside the product;not twisted and bent FPC output, so as to avoid adverse FPC connection to the controller. (3) Can not bend and break the product. (4) Do not drop the product of the action on the drop zone, in order to avoid misuse.
Installed	(1) Do not touch too much pressure is applied to the product caused injury. (2) Machine design, avoid injury and acute angle-shaped bend FPC FPC. (3) Do not connect the FPC and the department of screen put too much pressure, leading to screen the internal electrical connection is unstable. (4) Assembly of the product to avoid tool damage. (5) Try to avoid static electricity installed.