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PRODUCT GROUP  
TFT-LCM

Rev.P0

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## 8.88"LCM Product Specification Rev.P0

Customer	
Supplier	Shenzhen XinTianYuan Electronics Co.,Ltd.
Product name	8.88Inch LCM
Model	TI088-I4016G30A-01

**TITLE/SIGNATURE    DATE**

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\_\_\_\_\_  
\_\_\_\_\_

**ITEM SIGNATURE    DATE**

Prepared    heyong  
Approved    lixiyang





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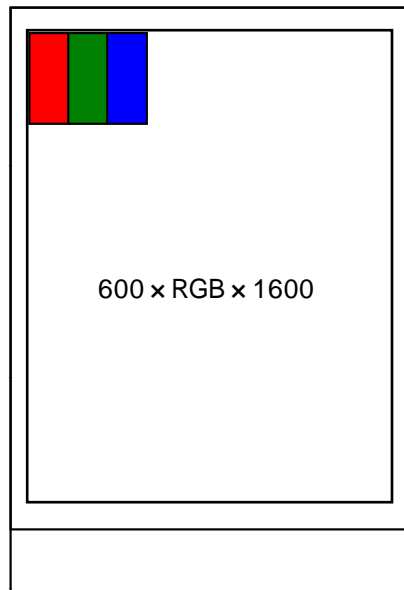
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## 1.0 GENERAL DESCRIPTION

### 1.1 Introduction

T1088-I4016G30A-01 is a color active matrix thin film transistor (TFT) liquid crystal display (LCD) Sub Sheet that uses amorphous silicon TFT as a switching device. This TFT LCD panel (Single Chip) has a 8.88inch diagonally measured active display area with HD-resolution (600 horizontal by 1,600 vertical pixels array).



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5 OF 13**1.2 General Specification**

&lt; Table 1. General Specifications &gt;

Parameter	Specification	Unit	Remarks
Active area	76.36 x 203.62	mm	
Number of pixels	600 x1,600	Pixels	
Pixel pitch	0.12726x0.12726	mm	
Pixel arrangement	RGB Vertical stripe	-	
Display mode	Normally Black		
Dimensional outline	82 × 212.3 × 4.5	-	
Interface	MIPI	-	



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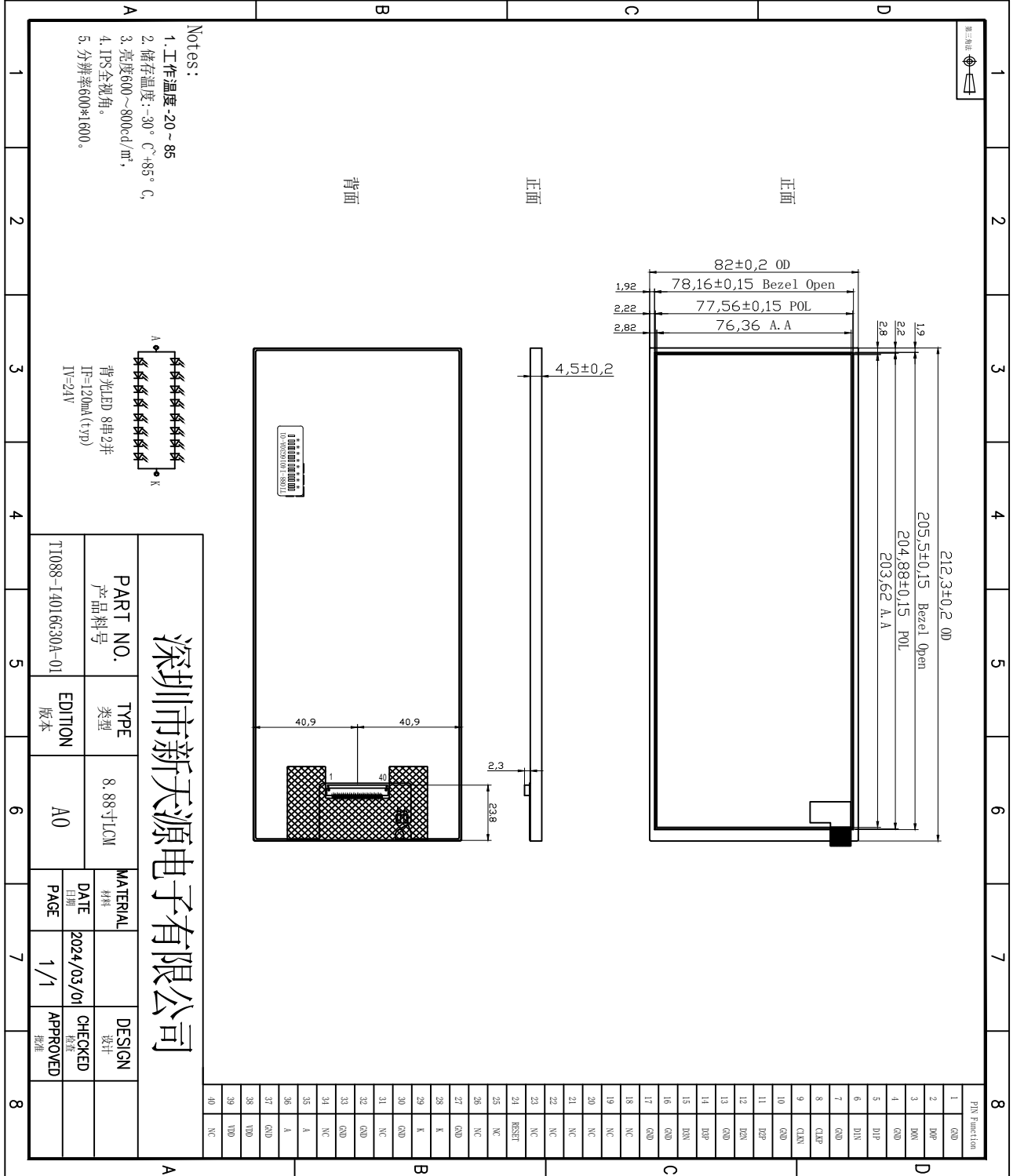
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## 2.0 Mechanical Characteristics



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PART NO.		TYPE		MATERIAL		DESIGN	
产品料号		类型		材料		设计	
T1088-14016C30A-01		8.88+TLCM					
EDITION		A0		DATE		CHECKED	
版本				日期		检查	
				2024/03/01			
				PAGE		APPROVED	
				1/1		批准	



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## 3.0 Pin Assignment For LCD Module

No.	Symbol	Function	Remark
1	GND	Ground	
2	D0P	Positive MIPI differential data input	
3	D0N	Negative MIPI differential data input	
4	GND	Ground	
5	D1P	Positive MIPI differential data input	
6	D1N	Negative MIPI differential data input	
7	GND	Ground	
8	CLKP	Positive MIPI differential clock input	
9	CLKN	Negative MIPI differential clock input	
10	GND	Ground	
11	D2P	Positive MIPI differential data input	
12	D2N	Negative MIPI differential data input	
13	GND	Ground	
14	D3P	Positive MIPI differential data input	
15	D3N	Negative MIPI differential data input	
16	GND	Ground	
17	GND		
18	NC	No connection	
19	NC	No connection	
20	NC	No connection	
21	NC	No connection	
22	NC	No connection	
23	NC	No connection	
24	RESET(3.3V)	Reset pin.	
25	NC	No connection	
26	NC	No connection	
27	GND	Ground	
28	K	LED Cathode	
29	K		
30	GND	Ground	
31	NC	No connection	
32	GND	Ground	
33	GND	Ground	
34	NC	No connection	
35	A	LED Anode	
36	A		
37	GND	Ground	
38	VDD(3.3V)	A power supply for the analog power.	
39	VDD(3.3V)		
40	NC	No connection	



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## 4 Absolute Maximum Ratings

Table 2 Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Conditions
LC Operating Voltage	$V_{op}$	(-5.5)	(5.5)	V	(1),(2),(3),(4)
Operating Temperature	$T_{gs}$	(-20)	(85)	°C	
Storage Temperature	$T_a$	(-30)	(85)	°C	
Operating Humidity	$H_{op}$	(10)	(90)	%RH	
Storage Humidity	$H_{st}$	(10)	(90)	%RH	

Note(1) All the parameters specified in the table are absolute maximum rating values that may cause faulty operation or unrecoverable damage, if exceeded. It is recommended to follow the typical value.

Note(2) All the contents of electro-optical specifications and display fineness are guaranteed under Normal Conditions. Normal conditions are defined as: Temperature: 25 °C, Humidity: 55± 10%RH.

Note(3) Unpredictable results may occur when it was used in extreme conditions.  $T_a$ = Ambient Temperature,  $T_{gs}$ = Glass Surface Temperature. All the display fineness should be inspected under normal conditions.

Note(4) Wet bulb temperature should be lower than 57.8°C, and no condensation of water. Besides, protect the module from static electricity.





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## 5.0 Electrical specifications

**Table 3 Electrical Specifications**

No.	Item	Min.	Typ.	Max.	Unit
1	Vcom voltage	(-1.3)	(-1.1)	(-0.9)	V
2	Frame Rate	-	(60)	-	Hz
3	VGH voltage	(15.5)	(16)	(16.5)	V
4	VGL voltage	(-11.5)	(-11)	(-10.5)	V

Note(1) Both VGH and VGL are TFT gate operation voltage.

Note(2) The setting of electrical parameters should follow the initial code specified by IVO. Vcom must be adjusted to optimize display quality.

Note(3) All the contents of electrical specifications and display fineness are guaranteed under Normal Conditions. Normal conditions are defined as follow: Temperature: 25 °C, Humidity: 55± 10%RH.

### Backlight Driving Conditions (16 White Chips)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply voltage of white LED backlight	VL	22.4	24	25.6	V	Note 1
CurrentforLEDbacklight	IL	120		160		
Luminance (on the module surface,BM-7)		600	700	800	cd/m <sup>2</sup>	
LED life time	-	30,000	-	-	Hr	Note 2



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## 6.0 OPTICAL SPECIFICATION

### 6.1 Overview

The test of view angle range shall be measured in a dark room (ambient luminance  $\leq 1$  lux and temperature =  $25 \pm 2^\circ\text{C}$ ) with the equipment of Luminance meter system (Gonio meter system and TOPCON CS2000/CA310) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of  $\theta$  and  $\Phi$  equal to  $0^\circ$ . We refer to  $\theta \emptyset = 0$  ( $= \theta_3$ ) as the 3 o'clock direction (the "right"),  $\theta \emptyset = 90$  ( $= \theta_{12}$ ) as the 12 o'clock direction ("upward"),  $\theta \emptyset = 180$  ( $= \theta_9$ ) as the 9 o'clock direction ("left") and  $\theta \emptyset = 270$  ( $= \theta_6$ ) as the 6 o'clock direction ("bottom"). While scanning  $\theta$  and/or  $\emptyset$ , the center of the measuring spot on the Display surface shall stay fixed. The luminance, color and uniformity (etc) should be tested by CS2000/CA310. The backlight should be operating for 10 minutes prior to measurement. VDD shall be  $3.3 \pm 0.3\text{V}$  at  $25^\circ\text{C}$ . Optimum viewing angle direction is 6 o'clock

<Table 5. Optical Specifications>

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	$\Theta_3$	CR > 10	75	85	-	Deg.	Note 1
		$\Theta_9$		75	85	-	Deg.	
	Vertical	$\Theta_{12}$		75	85	-	Deg.	
		$\Theta_6$		75	85	-	Deg.	
Contrast ratio		CR	$\Theta = 0^\circ$	-	1000	-	-	Note 2
Luminance of white		L		600	700	800	cd/m <sup>2</sup>	
Color Gamut	NTSC	CIE1931	$\Theta = 0^\circ$	-	70	-	%	Note 4 C Light
Reproduction of color	White	Wx	$\Theta = 0^\circ$	Typ -0.03	0.301	Typ +0.03	-	
		Wy			0.330		-	
Response Time		Tr+Td	Ta= $25^\circ\text{C}$ $\Theta = 0^\circ$	-	30	35	ms	Note 5



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Notes : 1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see FIGURE 1).

2. Contrast measurements shall be made at viewing angle of  $\Theta = 0$  and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state. (see FIGURE 1) Luminance Contrast Ratio (CR) is defined mathematically.

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

3. Luminance of white is defined as luminance values of center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display. The luminance is measured by TOPCON BM-7 when the LED current is set at 20mA.
4. The White luminance uniformity on LCD surface is then expressed as :  $\Delta Y = \text{Minimum Luminance of 9 points} / \text{Maximum Luminance of 9 points}$  (See FIGURE 2).



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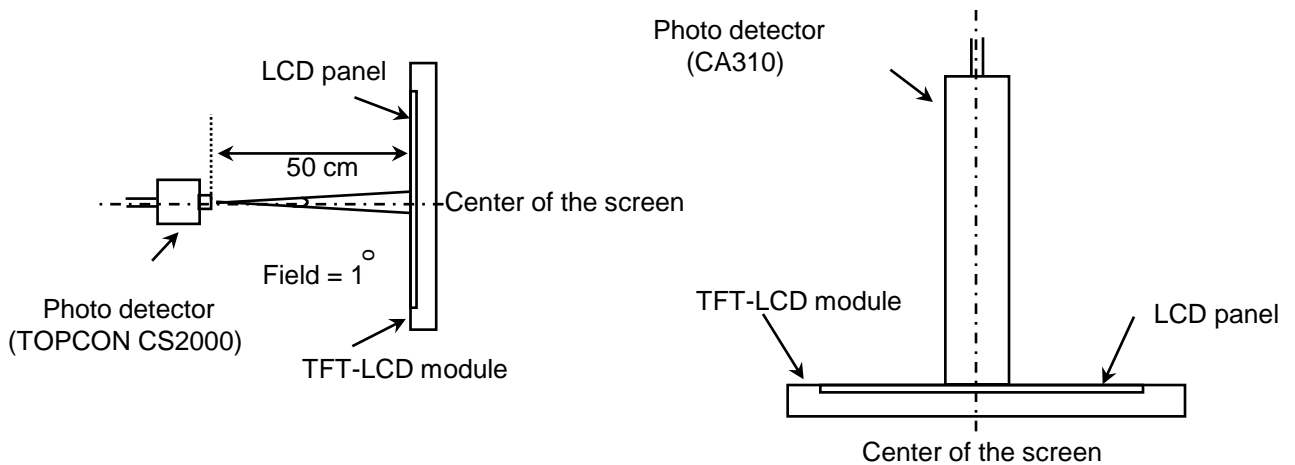
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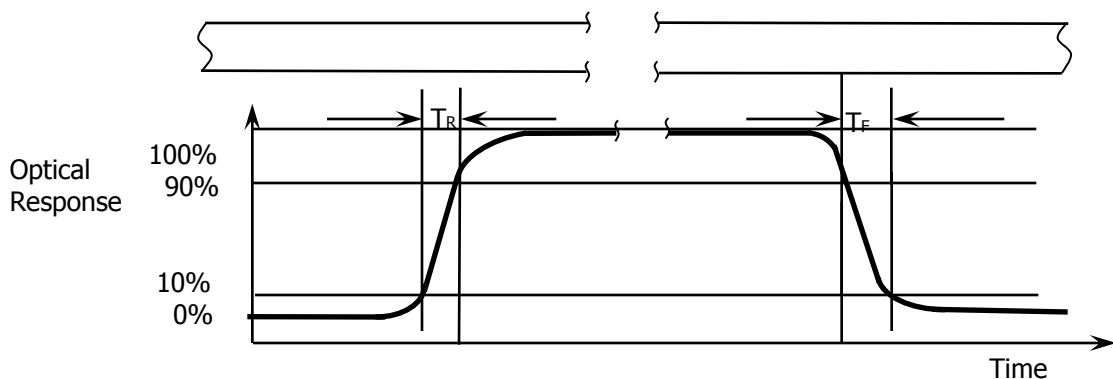
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## 6.2 Optical measurements

Figure 1. Measurement Set Up



View angel range, uniformity, etc. measurement setup    Flicker, measurement setup



The electro-optical response time measurements shall be made as shown in FIGURE 2. The times needed for the luminance to change from 10% to 90% is  $T_R$  and 90% to 10% is  $T_F$ .

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The Reliability test items and its conditions are shown in below.

&lt;Table 9. Reliability test&gt;

No	Test Items	Conditions
1	High temperature storage test	Ta = 85 °C, 72 hrs
2	Low temperature storage test	Ta = -30 °C, 72 hrs
3	High temperature & high humidity (operation test)	Ta = 60 °C, 90%RH, 72hrs
4	Low temperature operation test	Ta = -20 °C, 72hrs
5	High temperature operation test	Ta = 85 °C, 72hrs

**Note :**

After the reliability test, the product only guarantee function normally without any fatal defect (non-display, line defect, abnormal display etc ). All the cosmetic specification is judged before the reliability test.