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TFT-LCD

Rev.P0

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### 3.4" LCM Product Specification Rev.P0

Customer	
Supplier	Shenzhen XinTianYuan Electronics Co.,Ltd.
Product name	3.4 寸液晶显示屏
Model	TB034-I4008S55A-00

**TITLE/SIGNATURE    DATE**

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

**ITEM SIGNATURE    DATE**

Prepared    heyong

Approved    lixiyang





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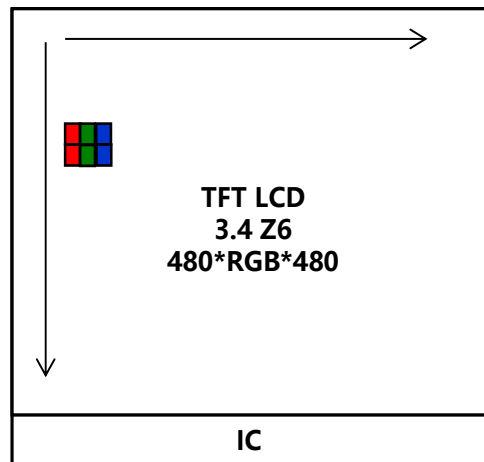
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## 1.0 GENERAL DESCRIPTION

### 1.1 Introduction

TB034-I4008S55A-00 is a color active matrix TFT LCD Q-panel using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This Q-panel has a 3.4 inch diagonally measured active area with Z6 resolutions (480 horizontal by 480 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this Q-panel can display 16.7M colors.



### 1.2 Features

- Border (U/D/L/R) : 1.92/5.44/1.92/1.92mm
- NTSC : 72% @C Light
- 0.8t Panel
- wide viewing angle (U/D/L/R) : 85/85/85/85°

### 1.3 Application

- White Goods

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5 OF 13**1.4 General Specification**

&lt; Table 1. General Specifications &gt;

Parameter	Specification	Unit	Remarks
Active area	60.48(H)×60.48(V)	mm	
Number of pixels	480(H) × 480(V) (1 pixel = R + G + B dots)	Pixels	
Pixel pitch	0.042(H) × 0.126 (V)	mm	
Pixel arrangement	RGB Vertical stripe	-	
Display colors	16.7M	Colors	
Display mode	Normally Black	-	
Dimensional outline	65.72(H) × 69.64(V) × 2.45(D)	mm	
Interface	MIPI	-	



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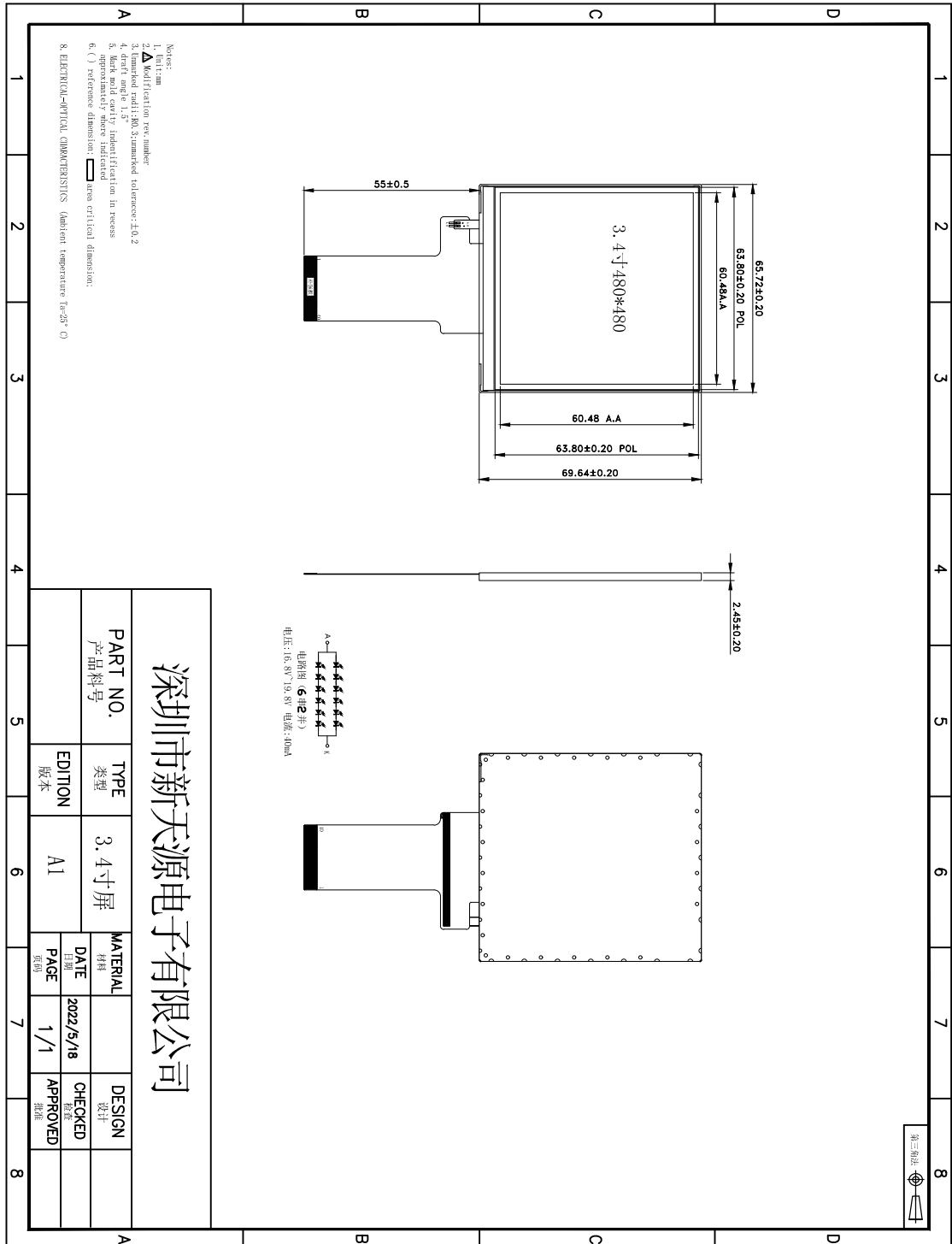
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2.0 Mechanical Characteristics





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**3.0 Pin Assignment For LCD Module**

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



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## 4.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. Environment Absolute Maximum Ratings> [Ta =25±2 °C]

Parameter	Symbol	Min.	Max.	Unit	Remarks
Operating Temperature	T <sub>OP</sub>	-20	70	°C	
Storage Temperature	T <sub>ST</sub>	-30	80	°C	

Note:

1. These range above is maximum value not the actual operating temperature . Actual Operating temperature is no more than 40°C and temperature refers to the LCM surface temperature ;



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9 OF 13**5.0 Electrical specifications**

Parameter	Symbol	Values			Unit	Notes
		Min	Typ	Max		
System Voltage	VDD	2.5	2.8	3.6	V	
Interface Operation Voltage	VDDI	1.65	1.8	3.3	V	
TFT Gate ON Voltage	VGH	11.5	12	17	V	
TFT Gate OFF Voltage	VGL	-7.6	-12	-12	V	
TFT Common Electrode Voltage	VCOM		VSS		V	
Max Voltage of Source	VOP	-	-	5.0	V	

Notes :

1. VGH is TFT Gate operating voltage.
2. VGL is TFT Gate operating voltage. The low voltage level of VGL signal must be fluctuates with same phase as Vcom.
3. Vcom must be adjusted to optimize display quality, as Crosstalk and Contrast Ratio etc..
4. The value is just the reference value. The customer can optimize the setting value by the different D-IC



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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  $\theta=0$  ( $=\theta_3$ ) as the 3 o'clock direction (the "right"),  $\theta=90$  ( $=\theta_{12}$ ) as the 12 o'clock direction ("upward"),  $\theta=180$  ( $=\theta_9$ ) as the 9 o'clock direction ("left") and  $\theta=270$  ( $=\theta_6$ ) as the 6 o'clock direction ("bottom"). While scanning  $\theta$  and/or  $\Phi$ , 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	$\theta = 0^\circ$	800	1000	-	-	Note 2
Luminance of white		L		-	500	-	cd/m <sup>2</sup>	
Color Gamut	NTSC	CIE1931	$\theta = 0^\circ$	67	72	-	%	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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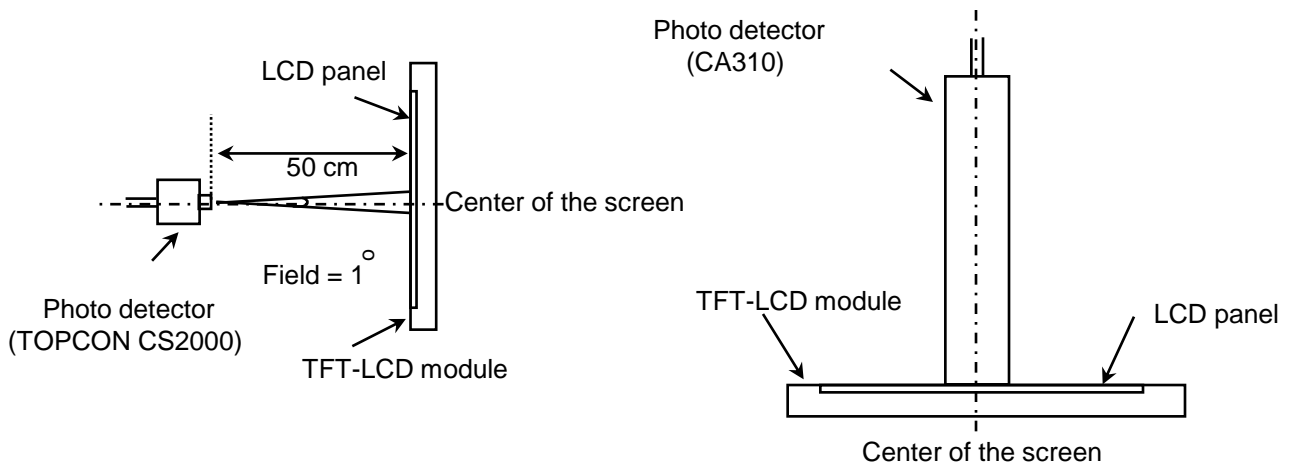
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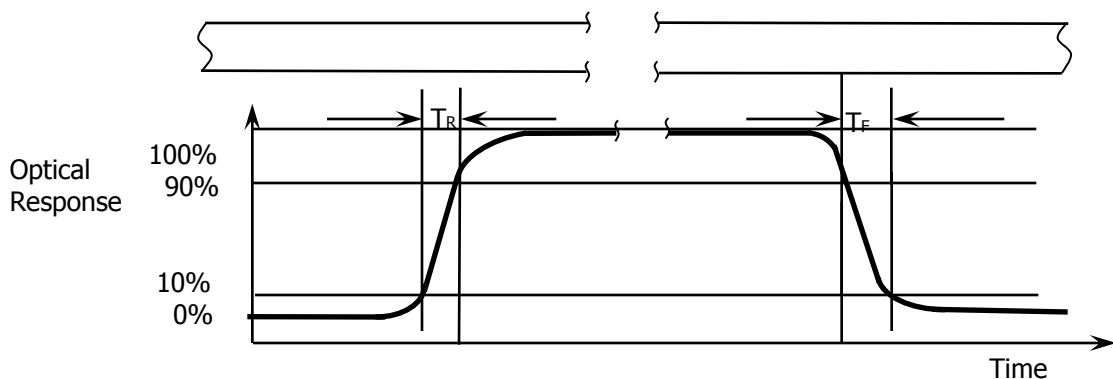
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## 6.2 Optical measurements

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 = 80 °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 = 70 °C, 72hrs
6	Image sticking	25°C , 5 x 5 chess , G127 , 5mins消失

**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.