深圳品源电子科技有限公司

PIN YUAN Shenzhen PinYuan electronic technology co., LTD

产品规格书

Specification For Approval

产品型号: PY101BDGS40L50L

Customer Approval 客户签名:

☐ **Accept**	☐ **Reject**

品源电子	签 名	日 期
项 目		
审 核		

目录

1.0 Description

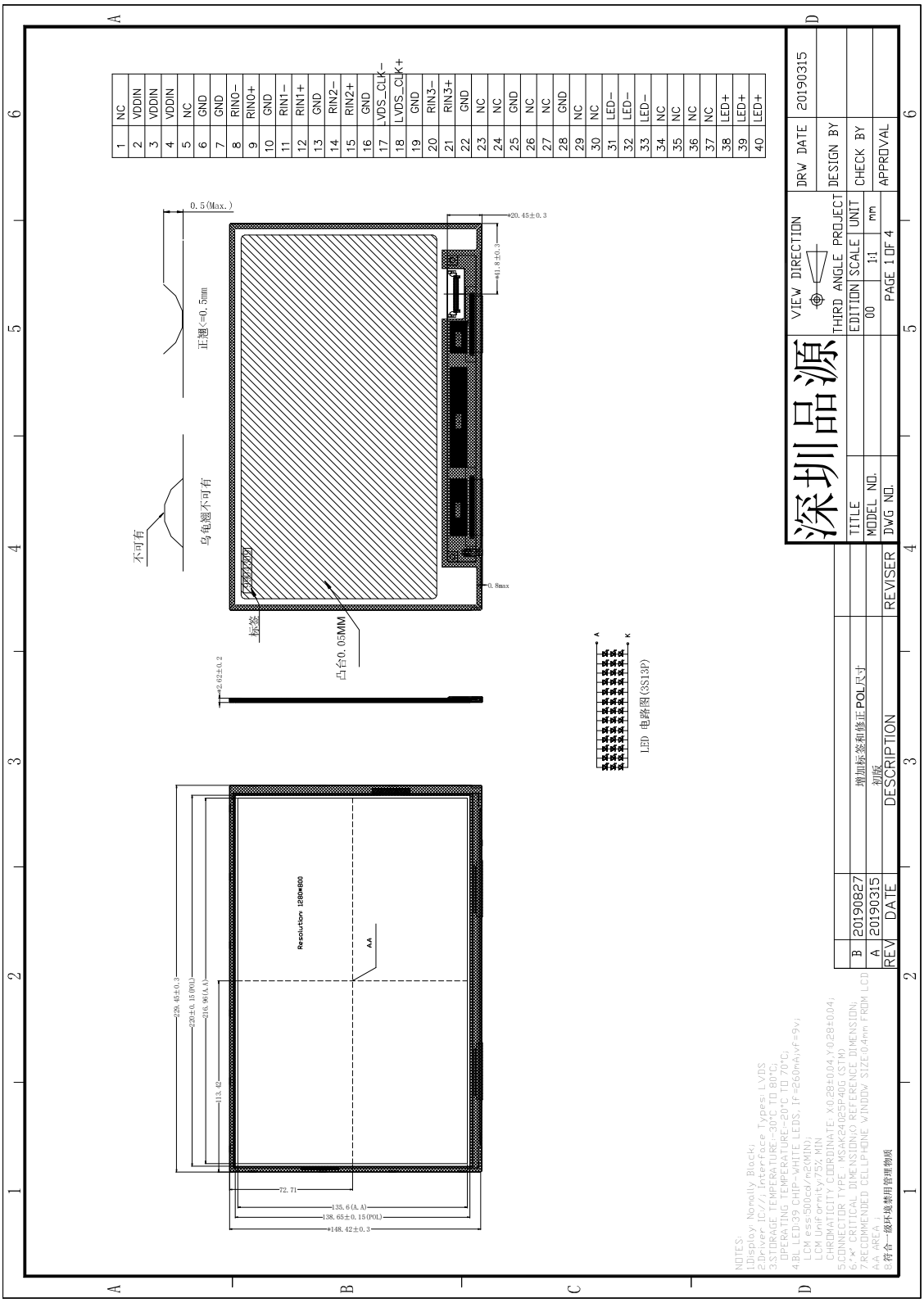
PY101BDGS40L50L is a color active matrix thin film transistor (TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. It is composed of a TFT LCD panel, Driver IC ,FPC and Backlight.

2.0 Features: LCM:

NO.	Item	Specification	Unit
1	Panel Size	10.1″	inch
2	Number of Pixels	1280×RGB(3)×800	pixels
3	Active Area	216.96(W)×135.6(V)	mm
4	Pixel Pitch	0.0565(H)×0.1695(V)	mm
5	Outline Dimension	229.45(W)×149.22(H)×2.62(D)	mm
6	Number of Colors	16.7M	
7	Display Mode	Normally Black,Transmissive	
8	Viewing Direction	ALL	
9	Pixel Arrangement	RGB vertical stripe	
10	Luminance(cd/mˆ2)	500 cd/mˆ2 TYP (LCM)	
11	Contrast Ratio	1000: 1(TYP.)	
12	Interface	LVDS	
13	Backlight	39 White LEDs	
14	Driver IC + LCD	//	

15	Operation Temperature	-20～70℃	
16	Storage Temperature	-30～80℃	

3.0 MECHANICAL SPECIFICATION



4.0 Pin Description

PIN No.	symbol	description
1	NC	Non Connection
2	VDDIN	Power supply vddin=3.3v
3	VDDIN	Power supply vddin=3.3v
4	VDDIN	Power supply vddin=3.3v
5	NC	Non Connection
6	GND	GROUND
7	GND	GROUND
8	RIN0-	LVDS Negative data signal-
9	RIN0+	LVDS Positive data signal+
10	GND	GROUND
11	RIN1-	LVDS Negative data signal-
12	RIN1+	LVDS Positive data signal+
13	GND	GROUND
14	RIN2-	LVDS Negative data signal-
15	RIN2+	LVDS Positive data signal+
16	GND	GROUND
17	LVDS_CLK-	LVDS Negative CLK signal-
18	LVDS_CLK+	LVDS Positive CLK signal+
19	GND	GROUND
20	RIN3-	LVDS Negative data signal-
21	RIN3+	LVDS Positive data signal+
22	GND	GROUND
23	NC	Non Connection
24	NC	Non Connection
25	GND	GROUND
26	NC	Non Connection
27	NC	Non Connection
28	GND	GROUND

29	NC	Non Connection
30	NC	Non Connection
31	LED-	LED Cathode
32	LED-	LED Cathode
33	LED-	LED Cathode
34	NC	Non Connection
35	NC	Non Connection
36	NC	Non Connection
37	NC	Non Connection
38	LED+	LED Anode
39	LED+	LED Anode
40	LED+	LED Anode

5、Electrical Characteristics

5.1 Absolute Maxlmum Rating(DGND=AGND=0V)

Parameter		Symbol	Min.	Max.	Unit	Remarks
Power Supply	LCD Module	VDD	VSS-0.3	3.6	V	Ta = 25 ℃ Note 1&2
Operating Temperature		T_{OP}	-20	+70	℃	Note 3
Storage Temperature		T_{ST}	-30	+80	℃	
Operating Ambient Humidity		Hop	10	90	%RH	
Storage Humidity		Hst	10	90	%RH	

5.2LED Back light specification

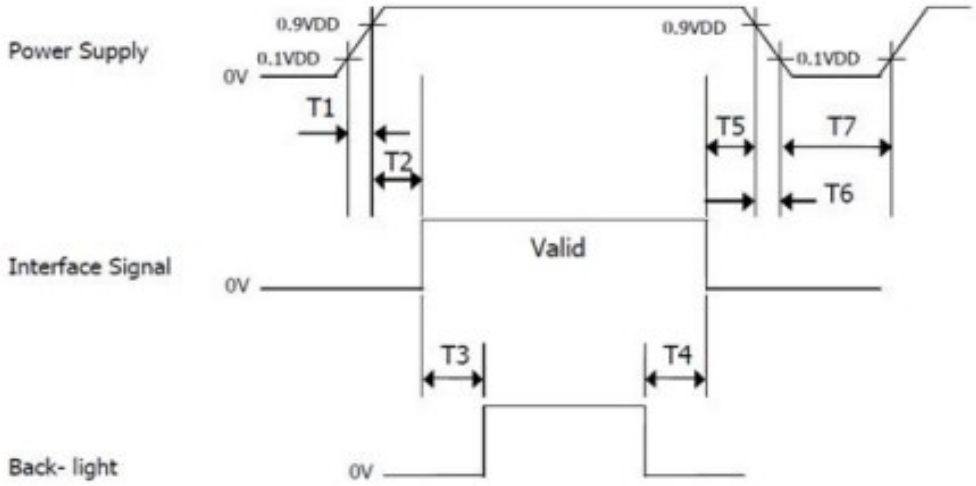
Item	Symbol	MIN	TYP	MAX	Unit	Remark
LED Current	ILED	195	260	273	MA	39LEDS
Forward voltage	VF	9V	9.3V	9.6V	V	IF=260mA,39LEDS
Uniformity	Avg	75			%	
LED Lite		30000			hours	

6. SequentialChart

6.1PowerON/OFFSequence

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. Refer to “AC Characteristics” for more detail on timing.

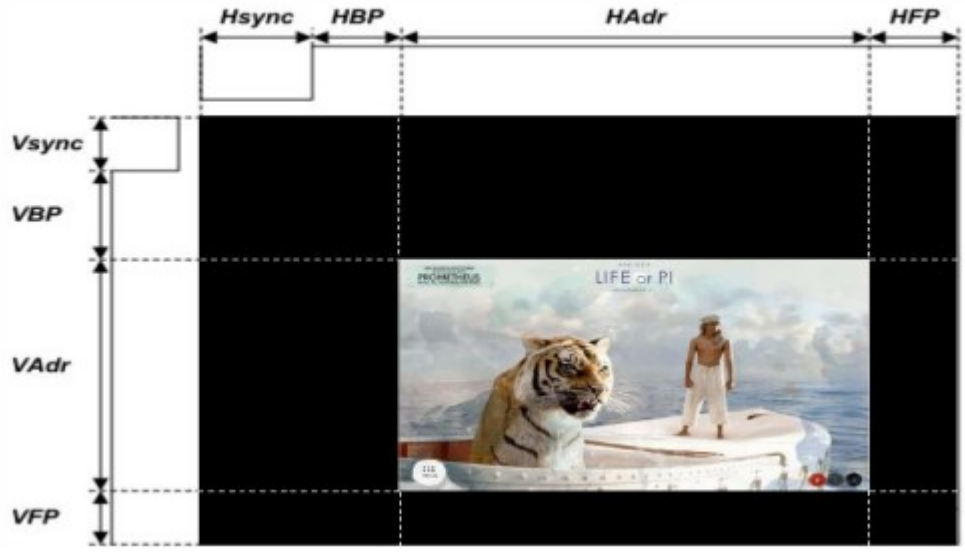
6.2.PWER-ON/OFTIMINGSEQUENCE



< Table6. Sequence Table >

Parameter	Values			Units
	Min	Typ	Max	
T1	0	-	10	ms
T2	0	-	50	ms
T3	200	-	-	ms
T4	500	-	-	ms
T5	0	-	50	ms
T6	0	-	10	ms
T7	500	-	-	ms

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK Frequency	Fdclk	66.3	72.4	78.9	MHz
Horizontal display area	Thd		1280		pixel
HSYNC period time	Th	1380	1440	1500	pixel
HSYNC blanking	thbp+ thfp	100	160	220	pixel
Vertical display area	Tvd		800		H
Frequency	fV	55	60	65	Hz
VSYNC period time	Tv	824	838	872	H
VSYNC blanking	Tvbp+ Tvfp	24	38	72	H

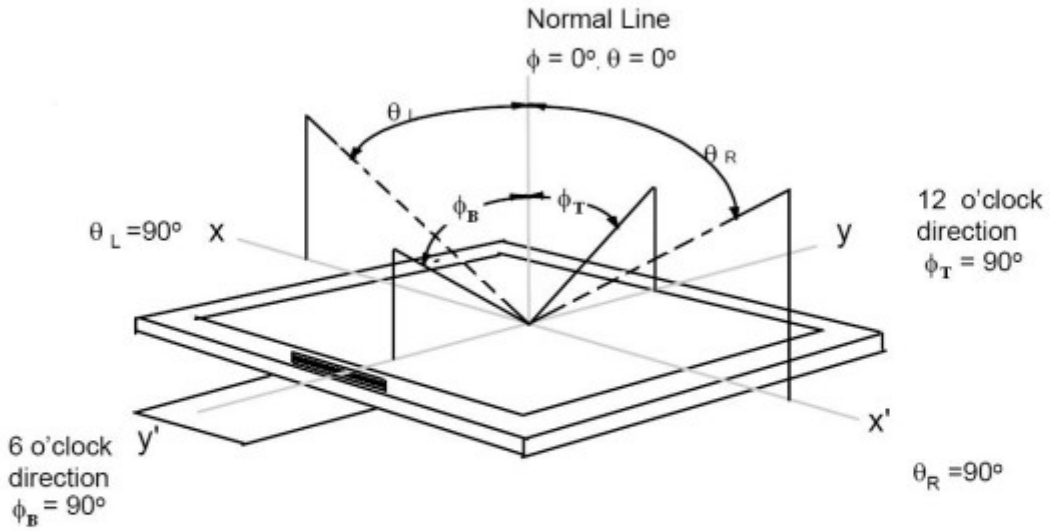


7. OpticalCharacteris

以上 LCD 参数

Item	Symbol	Condition	Min	Typ.	Max	Unit	Note
Viewing Angle	θL	Cr≥10	70	80	--	deg	Note 1
	θ_R		70	80	--		
	ψ_T		70	80	--		
	ψ_B		70	80	--		
Contrast Ratio	Cr	θ=0° FF=0°	--	1000		-	Note 2
Response Time	Tr+Tf		--	35	40	ms	Note 3
Color Coordinate of CIE1931	Rx	θ=0°		--		-	Note 4
	Ry			--			
	Gx			--			
	Gy			--			
	Bx			--			
	By			--			
	Wx			--			
	Wy			--			
NTSC Ratio	NTSC	CIE1931	45	50	--	%	Note 5
Gamma	-		1.9	2.2	2.5		Note 6
Polarization Direction of Front Polarizer	PdF	-		0		deg	Absorption axis Note 7
Polarization Direction of Rear Polarizer	PdR			90		deg	

Note 1:The definition of Viewing Angle
Refer to the graph below marked by θ and Φ.



Note2:ThedefinitionofContrastRatio

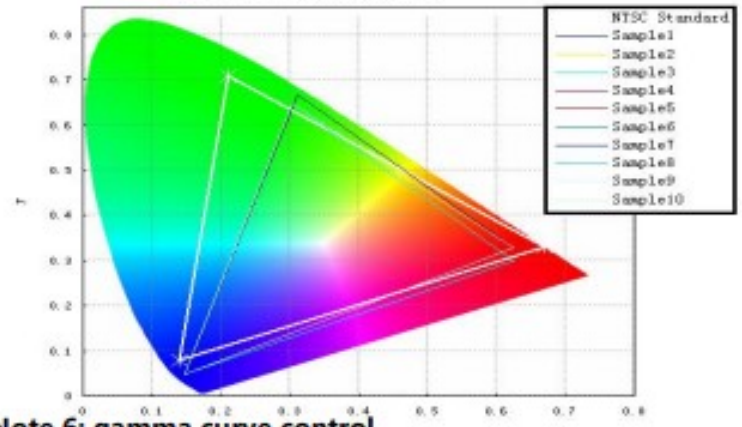
$$\text{Contrast Ratio(CR)} = \frac{\text{Luminance When LCD is at "White" state}}{\text{Luminance When LCD is at "Black" state}}$$

(Contrast Ratio is measured in optimum common electrode voltage)

Note 4: Color Coordinates of CIE 1931
The test condition is at ILED=20mA and measured on the surface of LCD module at 25℃.
Measurement equipment:CS2000 or similar equipments
The Color Coordinate (CIE 1931) is the measurement of the center of the display shown in below figure.

Note 5: Definition of Color of CIE Coordinate and NTSC Ratio.

$$S = \frac{\text{area of RGB triangle}}{\text{area of NTSC triangle}} \times 100\%$$

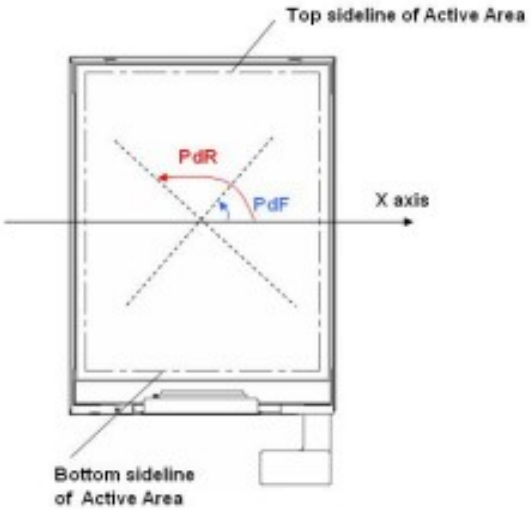


Note 6: gamma curve control

- For gamma curve control, HUAWEI' s request as below:
- 1,the whole curve' s tolerance must control within +/-0.3, HUAWEI will test the gray scale below: 0, 8, 16, 25, 33, 41, 49, 58, 66, 74, 82, 90, 99, 107, 115, 123, 132, 140, 148, 156, 165, 173, 181, 189, 197, 206, 214, 222, 230, 239, 247, 255

Note 7: Polarization Direction Definition

- Viewing direction is normal user viewing direction which is vertical to the display surface
- The polarizer which is closer to viewer is defined as Front Polarizer
- The polarizer which is on the rear side of viewer is defined as Rear Polarizer
- The X axis is defined as parallel line to top & bottom sidelines of the Active Area
- PdF which is marked in blue arrow is polarization degree of Front polarizer
- PdB which is marked in red arrow is polarization degree of Back polarizer
- The polarization degree parameter must be indicated in range of 0deg to 180deg according to above definition



8:QualityAssuranceSystem

8.1TemperatureandHumidity 赖性参数

类型	条件	CRITERIA
High Temperature Operation	60°C ,96 H	Inspection after 2~4 hours storage at room temperature, the sample shall be free from defects: 试验结束后，已测试的 LCD 样品必须在室内正常温湿度环境下放置 2~4 个小时以上才能进行功能和外观检查，样品不允许有以下缺陷： ♦ 无功能不良，例：缺划,，显异，严重爆灯等 2.外观无偏光片气泡，OCA 气泡等不良： ♦ The test samples should be applied to only one test item.每个被测试的模块只能用于其中的一个测试项目。
Low Temperature Operation	-10 °C for 96H	
High Temperature Storage Humidity Storage	40 °C, 90 % RH for 72H	
High Temperature Storage	70 °C for 96H	
Low Temperature Storage	-20 °C for 96H	
Thermal Shock(Storage)	-20 °C (30 min) ↓↑ 25 °C (5 min) ↓↑ 60 °C (30 min) **循环 10 次**	

9.PrecautionRelatingProductHandling

9.1Safety

(1) Do not swallow any liquid crystal, even if there is no proof that liquid crystal ispoisonous.
(2) If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
(3) If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

9.2Storage Conditions

(1) Store the panel or module in a dark place where the temperature is 23±5°C andthe humidity is below 50±20%RH.
(2) Store in anti-static electricity container.
(3) Store in clean environment, free from dust, active gas, and solvent.
(4)Do not place the module near organics solvents or corrosive gases.
(5) Do not crush, shake, or jolt the module.

9.3Handling Precautions

(1) Avoid static electricity which can damage the CMOS LSI.
(2) The polarizing plate of the display is very fragile. So, please handle it verycarefully.
(3) Do not give external shock.
(4) Do not apply excessive force on the surface.
(5) Do not wipe the polarizing plate with a dry cloth, as it may easily scratch theSurface of plate.
(6) Do not use ketonics solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
(7) Do not operate it above the absolute maximum rating.
(8) Do not remove the panel or frame from the module.
(9)When the module is assembled, it should be attached to the system firmly,Be careful not to twist and bend the module.
(10)Wipe off water droplets or oil immediately. If you leave the droplets for a longtime,staining and discoloration may occur.
(11) If the liquid crystal material leaks from the panel,it should be kept away from theeyes or mouth.In case of contact with hands,legs or clothes, it must be washedaway thoroughly with soap.

9.4Warranty

(1)The period is within twelve months since the date of shipping out under normal using and storage conditions.
(2) Do not repaired or modified the LCM . It may cause function to lose efficacy , zhongke does not warrant the LCM.
All process and material comply ROHS.

10 Package Drawing

TBD

最终说明

1. 上面提及到的包装标准是深圳品源电子的出厂质量检验标准的一部分。
2. 客人有任何问题、意见、甚至是不同意见请尽快告知深圳品源电子技术部门。
3. 深圳品源电子不负责因为没有按照前面的注意事项所描述的内容来操作而引起的产品失效.

修改记录

版本号	修改日期	页	描述
V1.0	2024-11-14		第一版