



LCD Module SPECIFICATION

液晶显示模组规格书

ZX1D30N2424SE09L

深圳市启明显示技术有限公司

0. Revision History (修订记录)

修订内容	时间	修订人	备注

深圳市启明智显科技有限公司

1. Application (应用)

This data sheet is to introduce the specification of ZX1D30N2424SE09L active matrix 16.7M color TFT LCD module. Main color LCD module is controlled by Driver IC ST7789V. If any problem occurs concerning the items not stated in this specification, it must be solved sincerely by both parties after deliberation. As to basic specification of driver IC refer to the IC specification and handbook.

本规格书是为了介绍 ZX1D30N2424SE09L 有源矩阵 16.7M 彩色 TFT LCD 模块的规格。主彩色液晶显示模块由驱动芯片 ST7789V 控制 本规范未尽事宜如有问题，双方必须认真协商解决。驱动 IC 的基本规格参照《IC 规格书》和相关《手册》。

2. Construction and Outline (结构与大纲)

Construction: LCD panel, Driver (COG), FPC with electric components, 2 White LED lump, prism sheet, diffuser, light guide and reflector, plastic frame to fix them mechanically. There shall be no scratches, stains, chips, distortions, and other external drawbacks that may affect the display function. To realize thin module structure, double-sided adhesive tapes are used to fix LCD panels. As these tapes do not guarantee to permanently fix the panels, LCD panel may rise from the module when shipped from factory. So please make sure to design the system to hold the edges of LCD panel by the soft material such as sponge when LCD module is assembled into the cabinet.

结构:液晶面板，驱动或 COG，带电子元件的 FPC，2 个白光 LED 块，棱镜片，扩散器，导光器和反射器，塑料框架机械固定。不应有可能影响显示功能的划痕、污迹、芯片、畸变等外部缺陷。为了实现薄型模块结构，采用双面胶带固定液晶面板。由于这些胶带不能保证永久有效固定面板，LCD 面板在出厂时可能会从模块内移动。所以在液晶模块组包装和进柜时，请务必将包装结构设计成用海绵等软材料支撑液晶面板的边缘。

3. Mechanical Specification (参数规格) Table 1 (表 1)

Item(项目)	Specifications(规格)	Unit(单位)
Screen size(屏幕尺寸)	1.3	inch
Display mode(显示模式)	TFT-LCD Module	-
Active area(显示范围)	23.4*23.4	mm
Display format(分辨率)	240*240	-
Pixel configuration(像素)	0.0975H) x 0.0975(V)	mm
Outline Dimensions(外形尺寸)	26.85*29.55*1.84	Note 1
View Angle(视角)	FULL	
Base color Notes(基色)	Black	-
Weight(重量)	TBD	
Driver IC(驱动 IC)	ST7789V	

Note 1: Not include FPCs & Bezel extrude structure.

备注 1: 不包括排线和面板构造

4. LCD Module Outline dimensions (模组外形图)

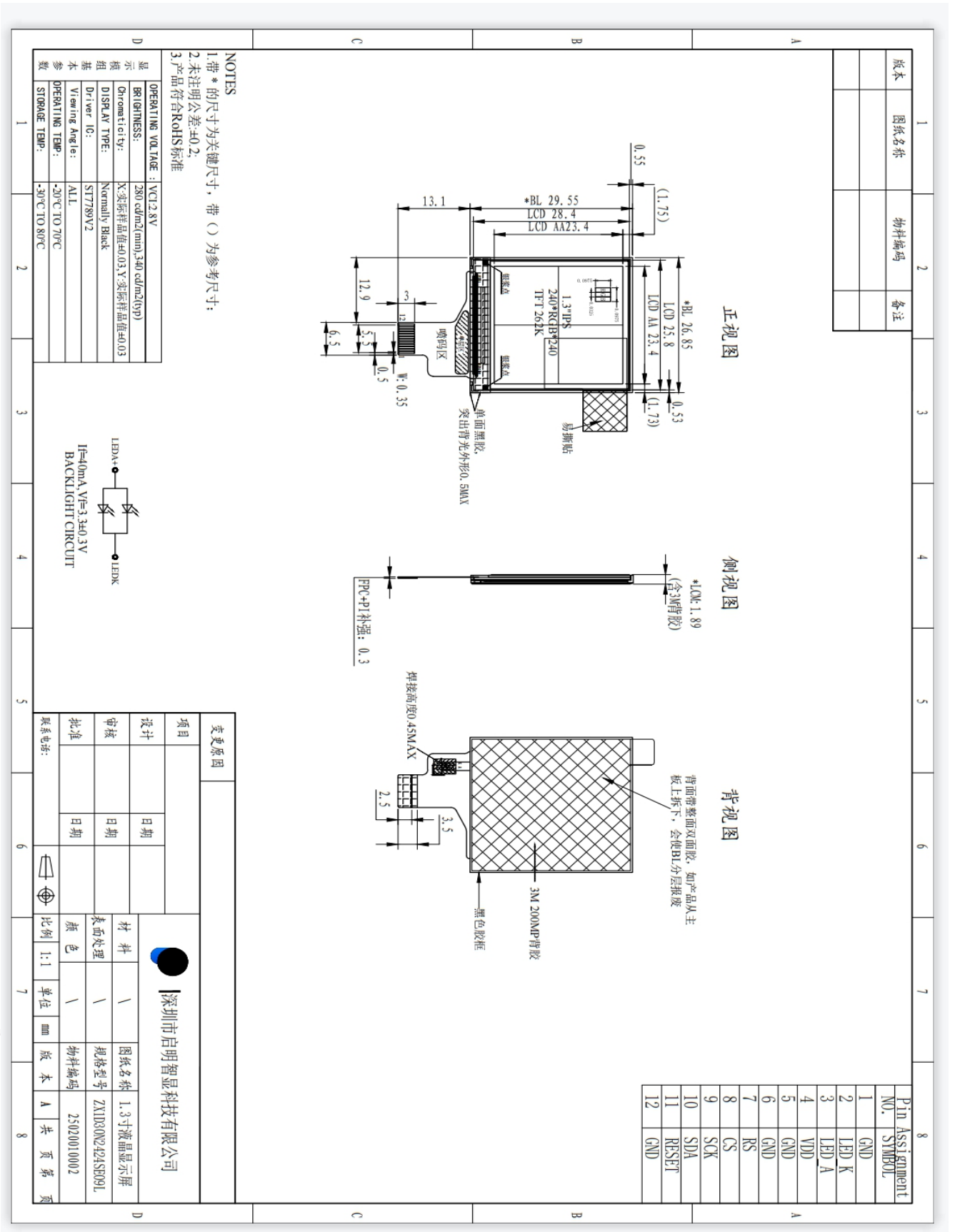


Fig. 1 (图 1)

5. Interface signals (接口信号) Table 2 (表 2)

Pin No.	Symbol	Description	Remark
1	GND	Ground	
2	LEDK	Backlit negative	
3	LEDA	Backlit positive	
4	VDD	Power supply	
5	GND	Ground	
6	GND	Ground	
7	RS	Display data/command selection pin in parallel interface.	
8	CS	Chip selection signal	
9	SCK	Serial clock input for SPI interface.	
10	SDA	SPI interface input pin.	
11	RESET	Reset Signal ,Active Low	
12	GND	Ground	

6. ELECTRICAL SPECIFICATIONS

Item	Symbol	Min.	Typ.	Max.	Unit	Note
TFT Gate ON Voltage	VGH	--	12	--	V	*1,*2
TFT Gate OFF Voltage	VGL	--	-8	--	V	
TFT Common Voltage	Vcom	-2	--	0	V	
Data (RGB signal) Voltage	Vsig	-5	--	5	V	

Note:

*1. VGH is TFT Gate operating Voltage.

*2. VGL is TFT Gate operating Voltage.

The storage structure of this model is C_{ST}(Storage on Common)

*3. Vcom must be adjusted to optimize display quality _Cross talk, Contrast Ratio and etc.

6.1 Absolute Maximum Ratings Table 3(表 3)

(The following are maximum values which, if exceeded, may cause operation or damage to the unit.)

Item	Symbol	Min.	Max.	Unit	Note
LC Operating Voltage	VOP	--	4.6	V	*1,*2
Operating Temperature	T _{OP}	-20	70	°C	
Storage Temperature	T _{ST}	-30	80	°C	
Operating Ambient Humidity	H _{OP}	10	*4	RH	*3
Storage Humidity	H _{ST}	10	*4	RH	*3

Note:

*1. At 25±5°C

*2. Due to the characteristics of LC Material, the Liquid Crystal driving voltage varies with environmental temperature.

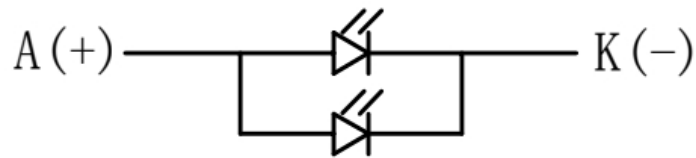
*3. Non-condensation.

*4. Temp. ≤ 60°C, 90%RH Max.

Temp. > 60°C, Absolute humidity shall be less than 90%RH.

7. LED back light (背光灯) Table 6(表 6)

At main panel the back light uses 8 pcs edge light type white LED. 在背光的主面板用 2 颗白色 LED 灯



LED CIRCUIT DIAGRAM:

$V_F=3.2V$ $I_F=40mA$

Fig. 3*Schematics drawing of lighting (绘制照明图 图. 3)

8. Optical Characteristics (光学特征) Table 7 (表 7)

8.1 Optical Specification

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (with Polarizer)	T(%)	—	4.18	4.65	—	%	Normal POL
Transmittance (without Polarizer)	T(%)	—	14.35	15.95	—	%	
Contrast Ratio	CR	$\Theta=0$	640	800	—	—	(1)(2)
Response Time	$T_R + T_F$	Normal viewing angle	—	30	35	msec	(1)(3)
Color Gamut	S(%)			50	—	%	
Color Chromaticity (CIE1931)	White	W_x	+/-0.02	0.302	+/-0.02		(1)(4) CF glass
		W_y		0.325			
	Red	R_x		0.624			
		R_y		0.329			
	Green	G_x		0.288			
		G_y		0.522			
	Blue	B_x		0.136			
		B_y		0.137			
Viewing Angle	Hor.	Θ_L	CR>10	—	80	—	Viewing Angle base on using Normal Polarizer , Reference Only
		Θ_R		—	80	—	
	Ver.	Θ_U		—	80	—	
		Θ_D		—	80	—	
Optima View Direction	ALL						(5)

9. General Precaution (一般注意事项)

9.1 Safety

1. Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
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.

9.2 Storage Conditions

1. Store the panel or module in a dark place where the temperature is $23\pm 5^{\circ}\text{C}$ and The humidity is below $50\pm 20\%\text{RH}$.
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.

9.3 Handling 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 very carefully.
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 the surface of plate.
6. Do not use ketonic 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 long time, staining and discoloration may occur.
11. If the liquid crystal material leaks from the panel, it should be kept away from the eye so mouth in case of contact with hands, legs or clothes, it must be head way thoroughly with soap.

9.4 Warranty

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, Starry does not warrant the LCM.
3. All process and material comply ROHS.

10. Contact information (联系信息)

网址: [http://www. panel-tag.cn/](http://www.panel-tag.cn/)

联系邮箱: panlee@smartpanle.com

样品购买地址: <https://shop212317088.taobao.com/>

微信公众号: 启明智显



有限公司

深圳市启明智显