



LCD Module SPECIFICATION

液晶显示模组规格书

ZX2D00N2432IB016

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 ZX2D00N24321B016 6active matrix 16.7M color TFT LCD module. Main color LCD module is controlled by Driver IC ST7789V3. 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 ZX2D00N24321B016 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 ST7789V3 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, 4 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，4 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)

No.	Item 项目	Specification 规格	Unit 单位	Remark
1	LCD Size 液晶面板尺寸	2.0	inch	-
2	Panel Type 面板类型	IPS	-	-
3	Resolution 分辨率	240xRGBx320	Pixel	-
4	Display Mode 显示模式	Normally Black	-	-
5	Number of Colors 颜色数量	262K	-	-
6	Viewing Direction 使用视角	ALL	-	Note1
7	NTSC 色彩饱和度	60%	-	Typ.
8	Contrast Ratio 对比度	1000	-	Min.
9	Luminance 亮度	350	cd/m2	Typ.
10	Module Size 模组尺寸	35.70 (H) *51.20 (V) *2.40 (D)	mm	Note1
11	Panel Active Area 可视区域	30.60*40.80	mm	Note1
12	Pixel Pitch 像素尺寸	42.5 (H) × 3 × 125.7 (V)	um	-
13	Pixel Arrangement 像素排列	RGB-stripe		-
14	Weight 重量	TBD	g	-
15	Driver IC 驱动芯片	ST7789V3	-	-
16	Driver IC RAM Size 记忆体		bit	-
17	Light Source 背光源	4 white LEDs	-	-
18	Interface 接口方式	MCU 8bit	-	-

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)

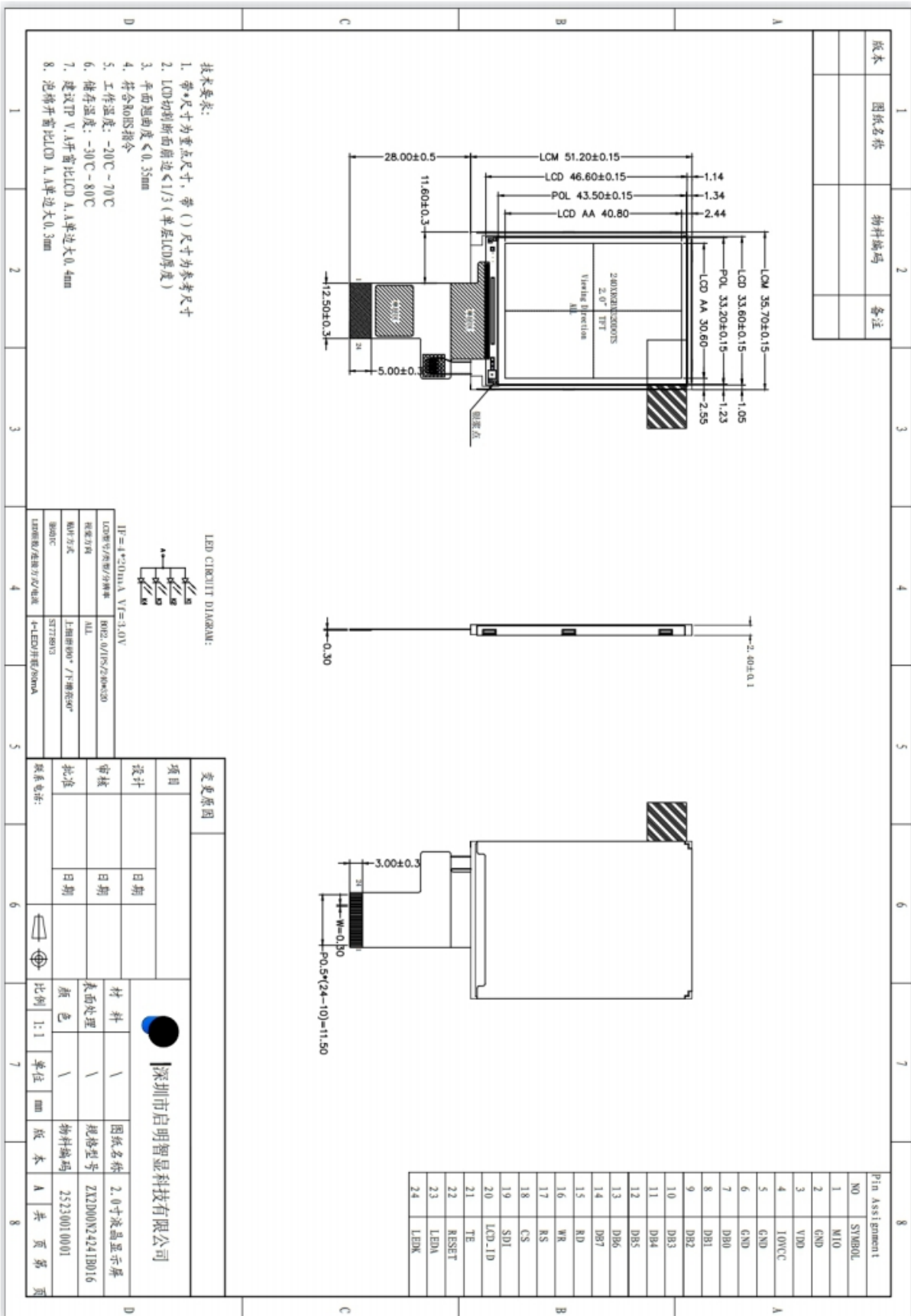


Fig. 1 (图 1)

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

Pin No. Pin	Symbol 符号	Function 功能描述
1	MIO	
2	GND	Ground 接地。
3	VDD	Analog Power Supply for LCM 系统输入电压。
4	IOVCC	I/O Circuit Power Supply 系统 I/O 端口电压。
5	GND	Ground 接地。
6	GND	Ground 接地。
7-14	DB0-DB7	Data interface 数据接口。
15	RD	Read the signal 读取信号。
16	WR	Write signal 写入信号。
17	RS	Register select signal. 0:index register; 1:data register. 注册选择信号。
18	CS	Chip select pin 片选信号。
19	SDI	
20	LCD-ID	ID
21	TE	切屏同步
22	RESET	Chip reset signal 复位。
23	LED+	Backlight anode 背光正极输入端。
24	LED-	Backlight cathode 背光负极输入端。

6. ELECTRICAL CHARACTERISTICS (电气特征)

6.1 Absolute Maximum Ratings 极限参数

Item 项目	Symbol	Value	Unit	Remark
Analog Power Supply Voltage 模拟供电电压	VCI	-0.3~+6	V	-
Digital Power Supply Voltage 数字电源电压	VDD	-0.3~+6	V	-
I/O Power Supply Voltage I/O 端口供电电压	I0VCC	-0.3~4.5	V	-

6.2 Typical Operation Conditions 典型工作条件

Item 项目	Symbol	Min. 最小	Typ. 典型	Max. 最大	Unit
Analog Supply Voltage 模拟供电电压	VCI	2.7	2.8	3.3	V
Digital Supply Voltage 数字电源电压	VDD	2.7	2.8	3.3	V
I/O Supply Voltage 接口电压	I0VCC	1.65	1.8/2.8	3.3	V
Input High Voltage 输入高电平	V _{IH}	0.8*10VCC	-	10VCC	V
Input Low Voltage 输入低电平	V _{IL}	0	-	0.2*10VCC	V
Output High Voltage 输出高电平	VOH	0.8*10VCC	-	-	V
Output Low Voltage 输出低电平	VOL	-	-	0.2*10VCC	V

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 8 颗白色 LED 灯

Parameter	Symbol	Min.	Typ.		Unit
LED Current 背光电流	IB	-	80	-	mA
LED Voltage 背光电压	Vf	-	3.2		V
Power Consumption 功耗	PBL	-	-	-	mW

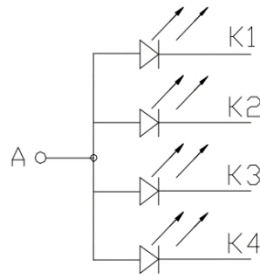
Note:

*8 pcs of LED

*Please consider Allowable Forward Current on used temperature *4 颗灯

* 请考虑允许范围内的正向电流的使用温度

LED CIRCUIT DIAGRAM:



$$IF = 4 * 20m A \quad Vf = 3.0V$$

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

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

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	
Response Time 响应时间	Ton+Toff	$\theta = \Phi = 0^\circ$	-	30	35	ms	
Contrast Ratio 对比度	CR	$\theta = \Phi = 0^\circ$	800	1000	-	-	
Luminance 亮度	L	$\theta = \Phi = 0^\circ$	-	350	-	cd/m ²	
Color Chromaticity (CIE1931) 色坐标	White	W _x	Normal $\theta = \Phi = 0^\circ$	-0.02	0.318	+0.02	-
		W _y			0.346		
	Red	R _x			0.635		
		R _y			0.336		
	Green	G _x			0.295		
		G _y			0.575		
	Blue	B _x			0.133		
		B _y			0.123		
Uniformity 均匀度	U _L	$\theta = \Phi = 0^\circ$	80	-	-	%	
Flicker 闪烁	-	-	No Visible		-	-	

Fig.4 (图4)

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 $50\pm 20\%RH$.
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/>

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