LCD Module SPECIFICATION

液晶显示模组规格书

ZX7D00C8048R

0.Revision History（修订记录）

修订内容	时间	修订人	备注

1.Application(应用)

This data sheet is to introduce the specification of ZX7D00C8048R ctive matrix 16.7M color TFT LCD module. Main color LCD module is controlled by Driver IC EK9716BD4.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 ZX7D00C8048R 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 **EK9716BD4** 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, 24 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，24 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。

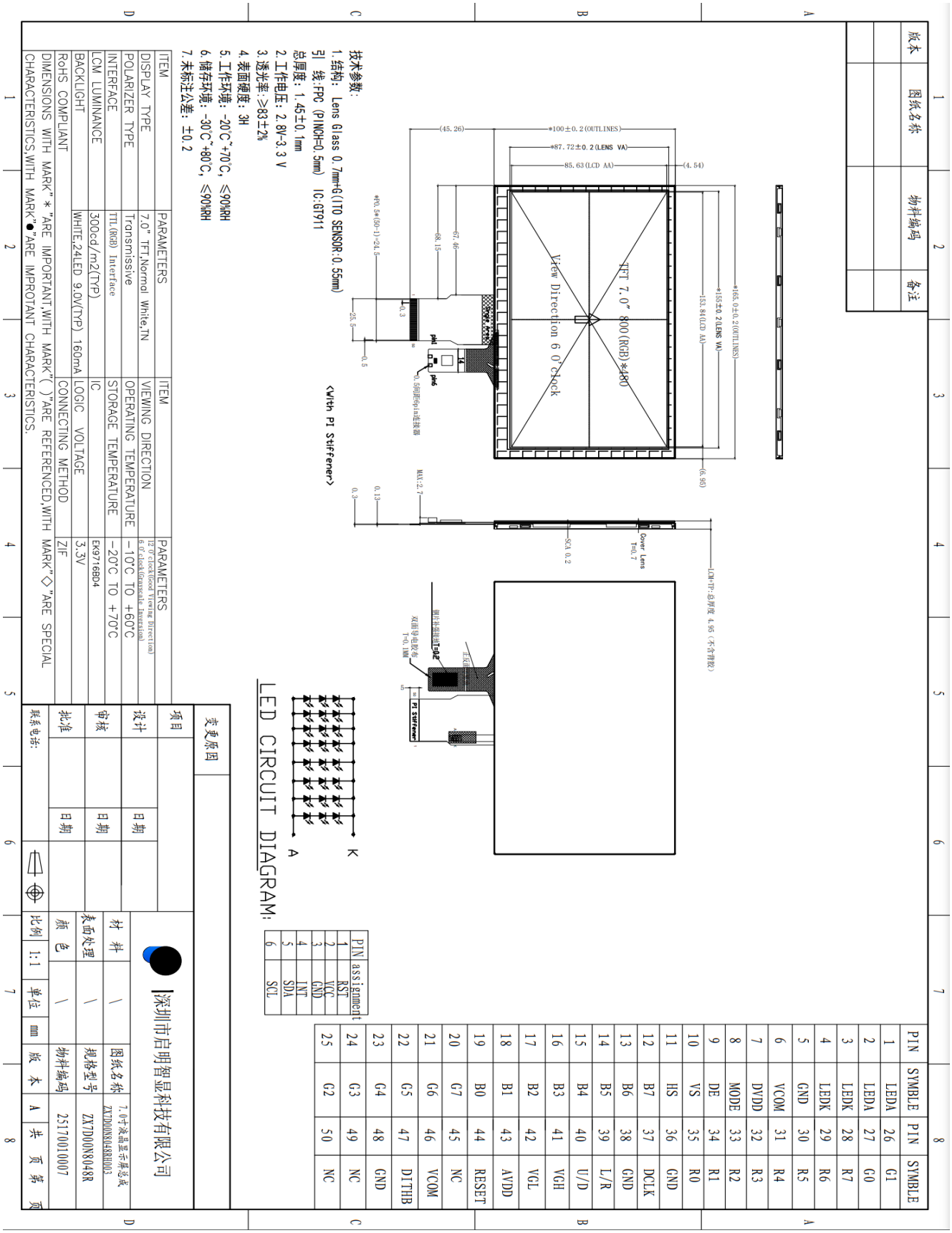
3. Mechanical Specification(参数规格) Table 1(表 1)

Item	Standard Value	Unit
Display Size	7.0”	--
Number of Pixels	800(V)x3(RGB)x480(H)	--
Active Area	154.08(V) *85.92(H)	mm
Pixel pitch	0.1926 × 0.179	mm
Outline Dimension	165(H) ×100(W) × 4.95(T)	mm
Pixel Arrangement	RGB vertical stripe	-
Display Mode	Normally white	-
Number of color	16.7M	-
Viewing Direction	6 o’clock (Gray inversion)	-
Interface	TTL(RGB) interface	-
Driver IC	TBD	-
Driver Condition	3.3	V
Backlight	White LED	-
Touch Panel	Touch Panel	-
Operation Temperature	-10~60	℃
Storage Temperature	-20~70	℃

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 ）



ITEM	PARAMETERS
DISPLAY TYPE	7.0" TFT,Normal White,TN
POLARIZER TYPE	Transmissive
INTERFACE	TTL(RGB) Interface
LCM LUMINANCE	300cd/m2(TYP)
BACKLIGHT	WHITE,24LED 9.0V(TYP) 160mA
RoHS COMPLIANT	CONNECTING METHOD

ITEM	PARAMETERS
VIEWING DIRECTION	12 O' clock(Good Viewing Direction) 6 O' clock(Grayscale Inversion)
OPERATING TEMPERATURE	-10℃ TO +60℃
STORAGE TEMPERATURE	-20℃ TO +70℃
IC	EK9716BD4
LOGIC VOLTAGE	3.3V
CONNECTING METHOD	ZIF

DIMENSIONS WITH MARK"＊"ARE IMPORTANT,WITH MARK"( )"ARE REFERENCED,WITH MARK"◇"ARE SPECIAL CHARACTERISTICS,WITH MARK"●"ARE IMPROTANT CHARACTERISTICS.

PIN	assignment
1	RST
2	VCC
3	GND
4	INT
5	SDA
6	SCL

PIN	SYMBLE	PIN	SYMBLE
1	LEDA	26	G1
2	LEDA	27	G0
3	LEDK	28	R7
4	LEDK	29	R6
5	GND	30	R5
6	VCOM	31	R4
7	DVDD	32	R3
8	MODE	33	R2
9	DE	34	R1
10	VS	35	R0
11	HS	36	GND
12	B7	37	DCLK
13	B6	38	GND
14	B5	39	L/R
15	B4	40	U/D
16	B3	41	VGH
17	B2	42	VGL
18	B1	43	AVDD
19	B0	44	RESET
20	G7	45	NC
21	G6	46	VCOM
22	G5	47	DITHB
23	G4	48	GND
24	G3	49	NC
25	G2	50	NC

Fig.1(图 1)

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

Pin NO.	Symbol	Description
1-2	LEDA	Back light anode
3-4	LEDK	Back light cathode
5	GND	Ground
6	VCOM	For external VCOM DC input
7	DVDD	Digital Power
8	MODE	DE/SYNC mode select
9	DE	Data ENEABLE signal
10	VS	Frame synchronizing signal
11	HS	Line synchronizing signal
12-19	B7-B0	Data bus
20-27	G7-G0	Data bus
28-35	R7-R0	Data bus
36	GND	Ground
37	DCLK	Dot clock signal
38	GND	Ground
39	L/R	Source right or left sequence control.
40	U/D	Gate up or down scan control
41	VGH	Positive Power for TFT
42	VGL	Negative Power for TFT
43	AVDD	Analog Power
44	RESET	Global reset signal pin .Active low to enter reset state.suggest to connecting with an RC reset circuit for stability.normally pull high.
45	NC	Not connect
46	VCOM	For external VCOM DC input
47	DITHB	Dithering setting.DITH=”H” 6bit resolution; DITH=”L” 8bit resolution(default setting)
48	GND	Ground
49	NC	Not connect
50	NC	Not connect

6. ELECTRICAL CHARACTERISTICS(电气特征)

6.1 ABSOLUTE MAXIMUM RATINGS (绝对最大额定值) Table 3(表 3)

Item	Symbol	Min	Type	Max	Uint
Digita Voltage	DVDD	2.8	3.3	3.6	V
Gate Driver High Voltage	VGH	14.5	15	15.5	V
Gate Driver Low Voltage	VGL	-10.5	-10	-9.5	V
Analog Voltage	AVDD	10.2	10.4	10.6	V
Input signal voltage	VCOM	3.54	(4.04)	4.54	V
Input logic high voltage	VIH	0.7DVDD	-	DVDD	V
Input logic low voltage	VIL	GND	-	0.3DVDD	V
Output logic high voltage	VOH	DVDD-0.3	-	DVDD	V
Output logic low voltage	VOL	GND	-	0.4	V

7. LED back light(背光灯) Table 6(表 6)

At main panel the back light uses 24 pcs edge light type white LED.

Item	Symbol	Min	Type	Max	Uint
Forward voltage	V_F	8.4	9.0	9.9	V
Forward current	I_F	-	160	-	mA
Luminance	Lv	-	300	-	cd/m2
Power Consumption	P_{LED}	-	1260	-	mW
Uniformity(with L/G)	Avg	75	80	-	%
LED Life-Time	Hr	-	30000	-	Hour

Note 1:The LED Supply Voltage is defined by the number of LED at Ta=25℃ and I_L=20mA/LED.

Note 2:The "LED life time" is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and I_L=20mA/LED. The LED lifetime could be decreased if operating I_L is large than 20mA/LED.

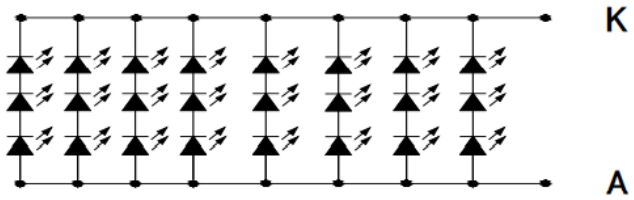


Fig.3*Schematics drawing of lighting (绘制照明图 图.3)

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

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Contrast Ratio		CR	θ=0°	500	800	-	-
Transmittance		Trans	θ=0°	4.42	5.02	-	%
Response Time		T_r+T_f	θ=0°	-	25	50	ms
Color Chromaticity (CIE1931)	White	Wx	θ=0°	0.290	0.310	0.330	-
		Wy		0.310	0.330	0.350	
	Red	Rx		0.561	0.581	0.601	
		Ry		0.291	0.311	0.331	
	Green	Gx		0.291	0.311	0.331	
		Gy		0.535	0.555	0.575	
	Blue	Bx		0.116	0.136	0.156	
		By		0.099	0.119	0.139	
Color Gamut		NTSC	θ=0°	41	51	-	%
Viewing Angle	ϕ=90°	$θ_T$	Cr≥10	-	70	-	Degree
	ϕ=270°	$θ_B$		-	60	-	Degree
	ϕ=180°	$θ_L$		-	70	-	Degree
	ϕ=0°	$θ_R$		-	70	-	Degree

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±5° C and The 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.

9.3 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.