SPECIFICATION

产品说明书

版本：1.0

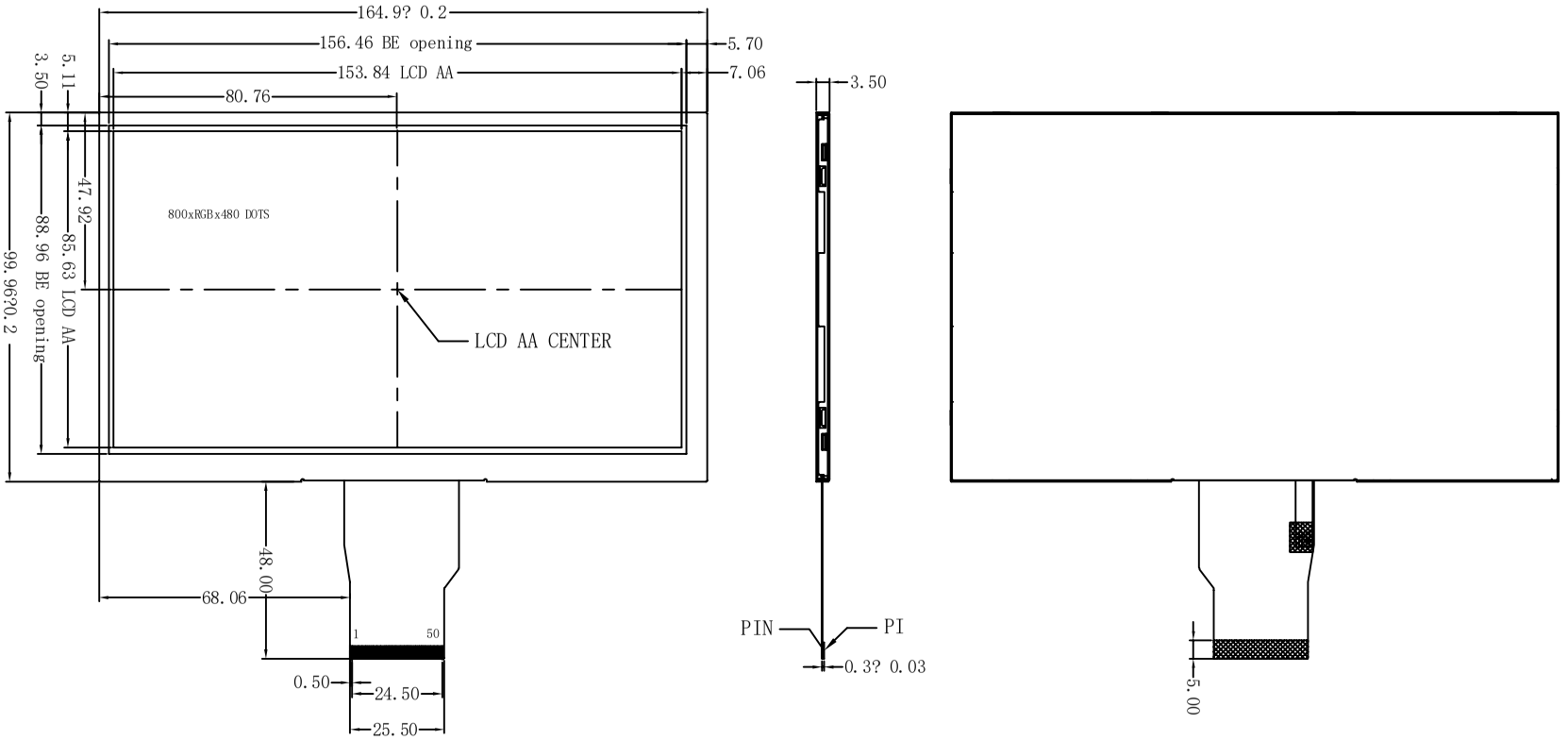
Model/型号：JR-TFT070T01A

中山市锦润电子有限公司	CUSTOMER/客户:
制作(PRO.)： 审核(REV.)： 批准(APP.)：	确认(PRO.)： 审核(REV.)： 批准(APP.)：

1. PHYSICAL DATA

Item	Contents	Unit
LCD type	**TFT TRANSMISSIVE**	---
Viewing direction	**6**	o'clock
Module size (W□ H □ T)	**164.9 × 100 × 3 . 5**	mm^3
Active area(W × H)	**135.84×85.63**	mm^2
Number of dots(W × H)	**800(RGB) × 4 8 0**	dots
Pixel Pitch(W × H)	0.0632xRGB×0.1790	mm
Colors	**16.7M**	---
Backlight Type	**18 white leds 9.6V 120mA**	---
Interface Type	**RGB**	---

2. Mechanical Dimension



NO.	Pin name	NO.	Pin name
1	A1	33	R2
2	A2	34	R1
3	K1	35	R0
4	K2	36	GND
5	GND	37	DCLK
6	VCOM	38	GND
7	DVDD	39	L/R
8	MODE	40	U/D
9	DE	41	VGH
10	VS	42	VGL
11	HS	43	AVDD
12	B7	44	RESET
13	B6	45	NC
14	B5	46	VCOM
15	B4	47	DITHB
16	B3	48	GND
17	B2	49	NC
18	B1	50	NC
19	B0		
20	G7		
21	G6		
22	G5		
23	G4		
24	G3		
25	G2		
26	G1		
27	G0		
28	R7		
29	R6		
30	R5		
31	R4		
32	R3		

Note:

LCD TYPE: 7 inch TFT Transmissive

DISPLAY MODE: Normally white

VIEW DIRECTION: 6 O'clock

OPERATING TEMP.: -10? C ~ 50? C

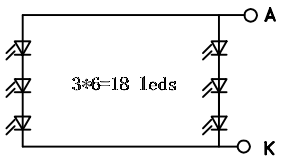
STORAGE TEMP.: -20? C ~ 60? C

BACK LIGHT: 18 White leds

BL voltage/current: 9.6V / 120mA

ALL MATERIALS MUST BE ROHS COMPLIANT

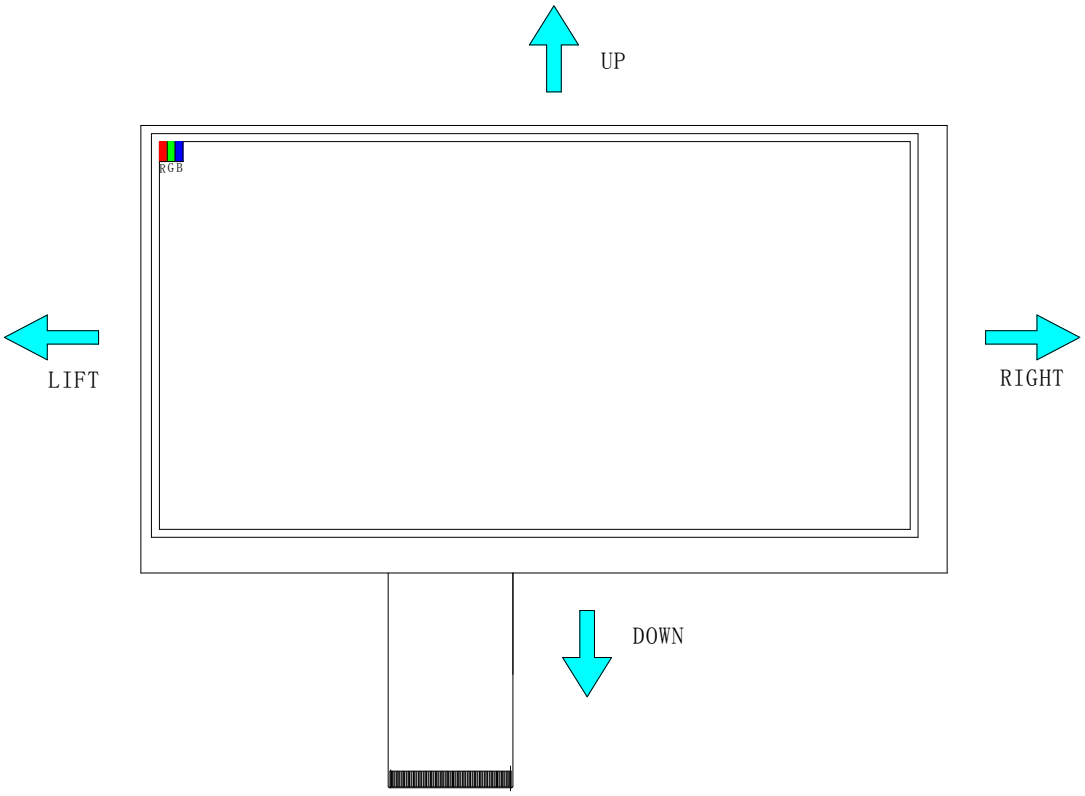
BACK LIGHT CIRCUIT



JR-TFT070T01

3. Pin Descriptions

Pin No.	Symbol	Functional
1	LED A	LED Anode
2	LED A	LED Anode
3	LED K	LED Cathode
4	LED K	LED Cathode
5	GND	Digital Ground
6	VCOM	For external VCOM DC input
7	DVDD	Digital Power
8	MODE	DE/SYNC mode select MODE=H: DE mode(normally pull high) MODE=L: HSD/VSD mode
9	DE	Data enable signal
10	VSYNC	Vertical sync input.Negative polarity
11	HSYNC	Horizontal sync input.Negative polarity
12~19	B7~B0	Blue data Input
20~27	G7~G0	Green data Input
28~35	R7~R0	Red data Input
36	GND	Digital Ground
37	DCLK	Clock input
38	GND	Digital Ground
39	SHLR	Source right or left sequence control SHLR=H: right shift, Left → Right SHLR=L: left right, Right → Left
40	UPDN	Gate up or down scan control UPDN=H: up shift, Down → Up UPDN=L: down shift, Up → Down
41	VGH	Positive Power for TFT
42	VGL	Negative Power for TFT
43	AVDD	Analog Power
44	RSTB	Global reset pin.Active low to enter reset state Suggest to connecting with an RC reset circuit for stability. Normally pull high.（RC circuit :R=10KΩ，C=1uF）
45	NC	Not connect
46	VCOM	For external VCOM DC input
47	DITHB	Dithering setting
48	GND	Digital Ground
49	NC	Not connect
50	NC	Not connect



UPDN	SHLR	FUNCTION
0	1	Normal display
0	0	Inverse left and right
1	1	Inverse up and down
1	0	Inverse left and right Inverse up and down

4. ELECTRICAL CHARACTERISTICS

4.1 Absolute maximum ratings

Parameter	Symbol	Min	Max	Unit
Power supply1	VDD	-0.5	+3.96	V
Power supply2	AVDD	-0.5	+13.8	V

4.2 TFT LCD Module

ITEM		Sym.	Min	Typ	Max	Unit	Note
Power for circuit driving		VDD	2.8	3.3	3.5	V	
Logic input voltage	Low voltage	VIL	GND	-	0.3VDD	V	
	High voltage	VIH	0.7VDD	-	VDD	V	
Power voltage		VGH	16	-	25	V	
		VGL	-7	-	-5	V	
		AVDD	-	10.3	-	V	
		VCOM	-	3.8	-	V	Note

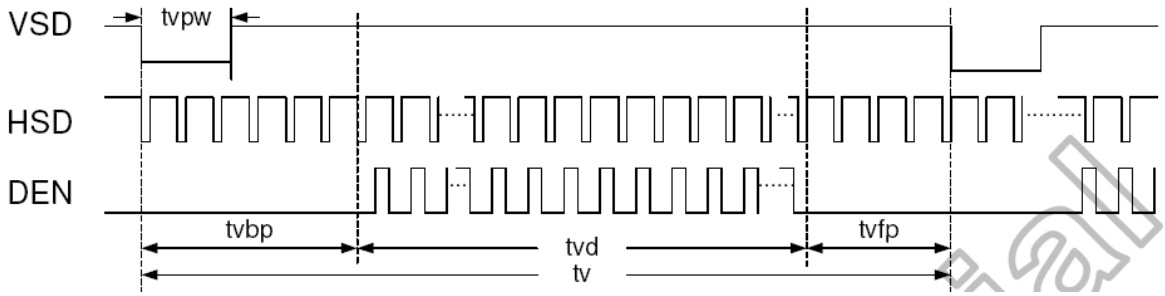
Note: Please adjust Vcom to make the flicker level be minimum

5. AC ELECTRICAL CHARACTERISTICS

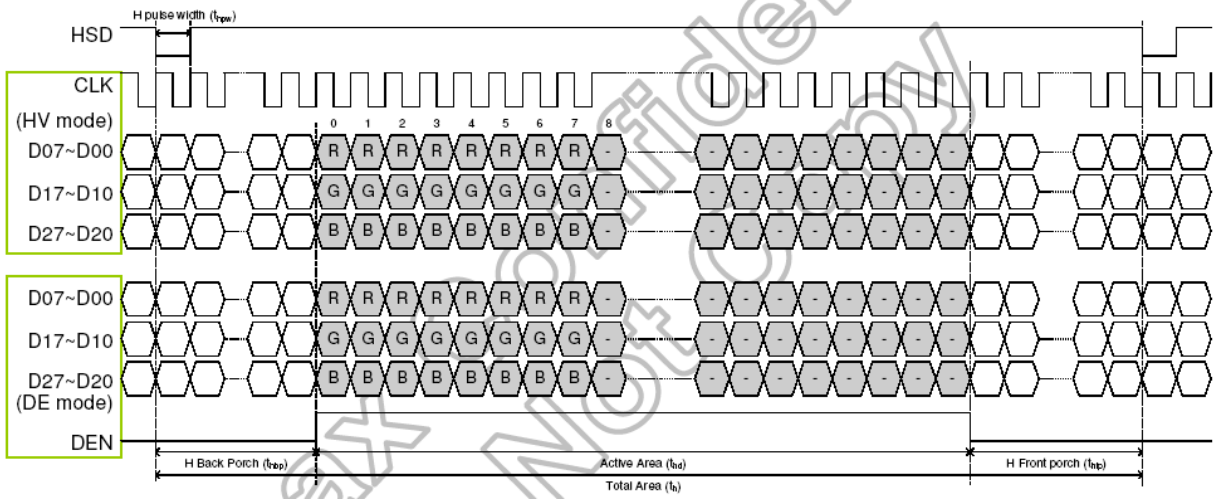
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
VDD Power On Slew rate	T_{POR}	From 0V to 90% VDD	-	-	20	ms
RSTB pulse width	T_{RST}	CLKIN = 50MHz	50	-	-	us
CLKIN cycle time	Tcph	-	20	-	-	ns
CLKIN pulse duty	Tcwh	-	40	50	60	%
VSD setup time	Tvst	-	8	-	-	ns
VSD hold time	Tvhd	-	8	-	-	ns
HSD setup time	Thst	-	8	-	-	ns
HSD hold time	Thhd	-	8	-	-	ns
Data set-up time	Tdsu	DR[7:0], DG[7:0], DB[7:0] to CLKIN	8	-	-	ns
Data hold time	Tdhd	DR[7:0], DG[7:0], DB[7:0] to CLKIN	8	-	-	ns
DEN setup time	Tesu	-	8	-	-	ns
DEN hold time	Tehd	-	8	-	-	ns
Output stable time	Tsst	10% to 90% target voltage. CL=120pF, R=10K ohm	-	-	6	us

6. Data input format

Vertical input timing



Horizontal timing



Horizontal input Timing

Parameter	Symbol	Value			Unit	Note
Horizontal display area	thd	800			DCLK	
DCLK frequency	fclk	Min.	Typ.	Max		
		20	33.3	50	MHz	
1 Horizontal Line	th	908	928	1088	DCLK	thb+thpw=88 DCLK is fixed.
HSD pulse width	thpw	1	48	87		
HSD Back Porch (Blanking)	thb	87	40	1		
HSD Front Porch	thfp	20	40	200		

Vertical input Timing

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Vertical display area	tvd		480		H	
VSD period time	tv	517	525	712	H	tvpw+tvb=32H Is fixed
VSD pulse width	tvpw	1	1	3	H	
VSD Back Porch (Blanking)	tvb	31	31	29	H	
VSD Front Porch	tvfp	5	13	200	H	

7. Backlight Characteristic

ITEM	Symbol	Values			Unit	Remark
		Min	Typ.	Max.		
LED Current	Iled	-	120	-	mA	Total LED
Forward Voltage	VF	8.7	9.3	9.9	V	IF=120mA
Reverse Current	IR	-	-	50	uA	VR=5V 1LED
Power Dissipation	Pd	1116			mW	Total LED
Reverse Voltage	VR	5			V	1 LED
LCM Surface Luminance	Ls	-	260	-	cd/㎡	
LCM Surface Brightness uniform	Ld	80	-	-	%	

8. Electro-optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (Without Polarizer)		T		—	17.5	—	%	
Contrast Ratio		CR	Θ=0 Normal viewing angle	400	500	—		(1)(2)
Response time	Rising	T_R		—	5	7	msec	(1)(3)
	Falling	T_F		—	20	28		
Color gamut		S		—	50	—	%	C light
Color chromaticity (CIE1931)	White	W_x		0.237	0.287	0.337		(1)(4) CF Glass C light
		W_y		0.265	0.315	0.365		
	Red	Rx		0.579	0.629	0.679		
		Ry		0.297	0.347	0.397		
	Green	Gx		0.270	0.320	0.370		
		Gy		0.501	0.551	0.601		
	Blue	Bx		0.099	0.149	0.199		
		By		0.134	0.184	0.234		
Viewing angle (With EWV PZ)	Hor.	Θ_L	CR>10	60	70	—		
		Θ_R		60	70	—		
	Ver.	Θ_U		40	50	—		
		Θ_D		50	60	—		
Optima View Direction		6 O' clock						(5)

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 Θ= 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. Transmittance is the Value with Polarizer

4. The color chromaticity coordinates specified in Table 5 shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.

5. The electro-optical response time measurements shall be made as FIGURE 3 by switching the "data" input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Tr, and 90% to 10% is Td.

9. Reliability

ITEM	CONDITION	Remark
High Temperature Storage Test	60℃ 120Hrs	
Low Temperature Storage Test	-20℃ 120Hrs	
High Temperature Operating Test	50℃ 120Hrs	
Low Temperature Operating Test	-10℃ 120Hrs	
High Temperature/Humidity Non Operating Test	80℃ 90%RH 120Hrs	
Thermal Shock Test	-10℃(30Min) - 5 0℃(30Min) x 10CYCLES	

ESD

TEST ITEM	CONDITION	Remark
Electro static discharge test(non opeation)	150pF 330 Ω	
	contact: ±4KV ;Air ±8KV	

10. GENERAL PRECAUTION

10.1 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.

10.2 STORAGE CONDITIONS

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

10.3 HANDLING PRECAUTIONS

9. Avoid static electricity which can damage the CMOS LSI.
10. The polarizing plate of the display is very fragile. So, please handle it very carefully.
11. Do not give external shock.
12. Do not apply excessive force on the surface.
13. Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the Surface of plate.
14. Do not use ketonics solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
15. Do not operate it above the absolute maximum rating.
16. Do not remove the panel or frame from the module.
17. When the module is assembled, it should be attached to the system firmly, Be careful not to twist and bend the module.
18. Wipe off water droplets or oil immediately. If you leave the droplets for a long time, staining and discoloration may occur.

10.4 WARRANTY

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