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冀雅(廊坊)电子股份有限公司  
JIYA (LANGFANG) ELECTRONICS CO., LTD

模块产品规格书  
SPECIFICATION FOR LCD MODULE

产品型号 Product model	JYF-800480T070C800L-VD6 (JY19F33)	
拟制 Prepared by	审核 Checked by	批准 Approved by
LI Changxing	Li Xu Jiang	Jungai Cheng

客户名称 Client name		
客户型号 Client model		
客户确认/Approved signature		
采购/日期 PUR/Date	品质/日期 QC/Date	研发/日期 R&D/Date

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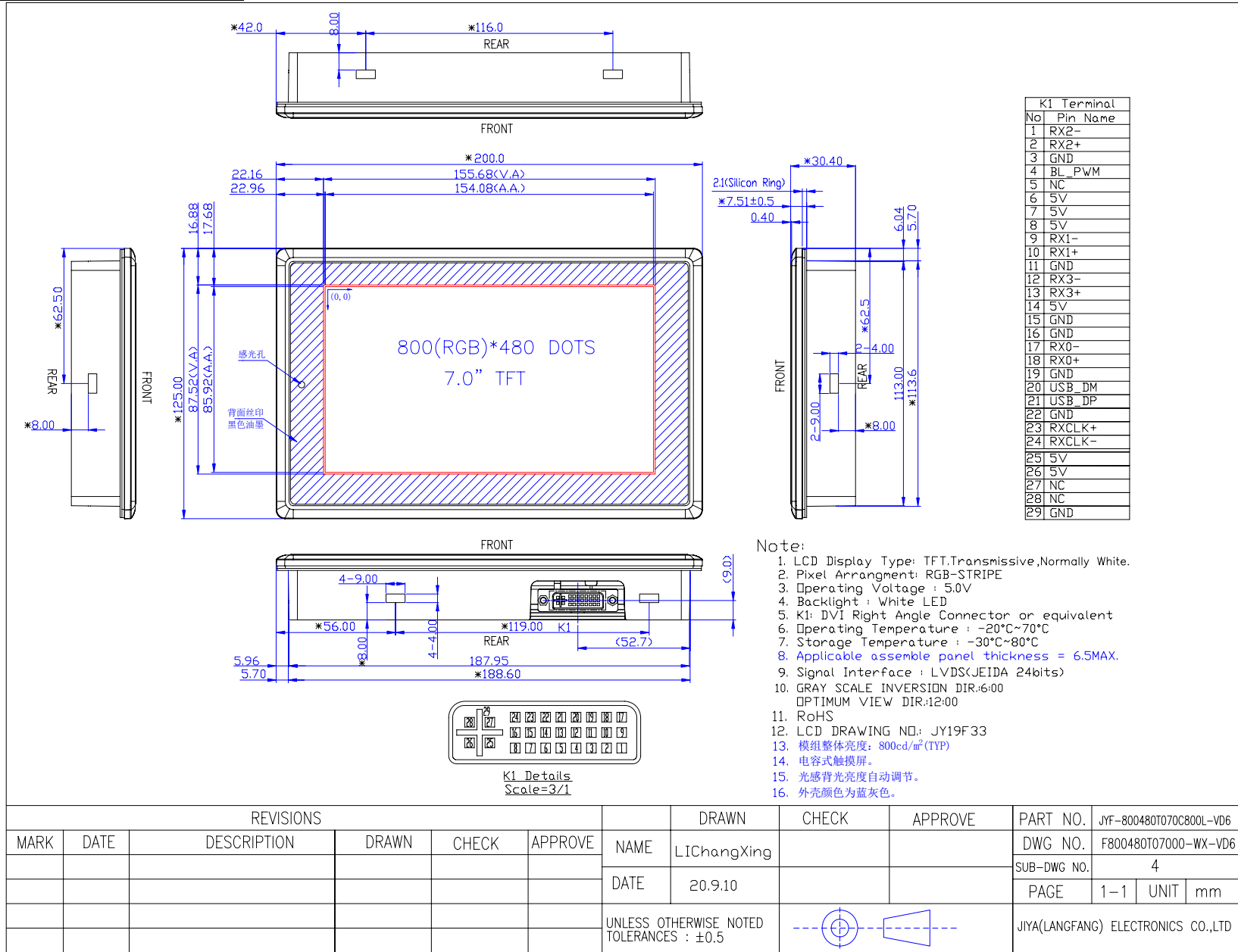
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# 1. LCM DRAWING



REVISIONS						NAME	DRAWN	CHECK	APPROVE	PART NO.	JYF-800480T070C800L-VD6		
MARK	DATE	DESCRIPTION	DRAWN	CHECK	APPROVE	LIChangXing				DWG NO.	F800480T07000-WX-VD6		
						DATE	20.9.10			SUB-DWG NO.	4		
										PAGE	1-1	UNIT	mm
						UNLESS OTHERWISE NOTED TOLERANCES: ±0.5				JIYA(LANGFANG) ELECTRONICS CO.,LTD			

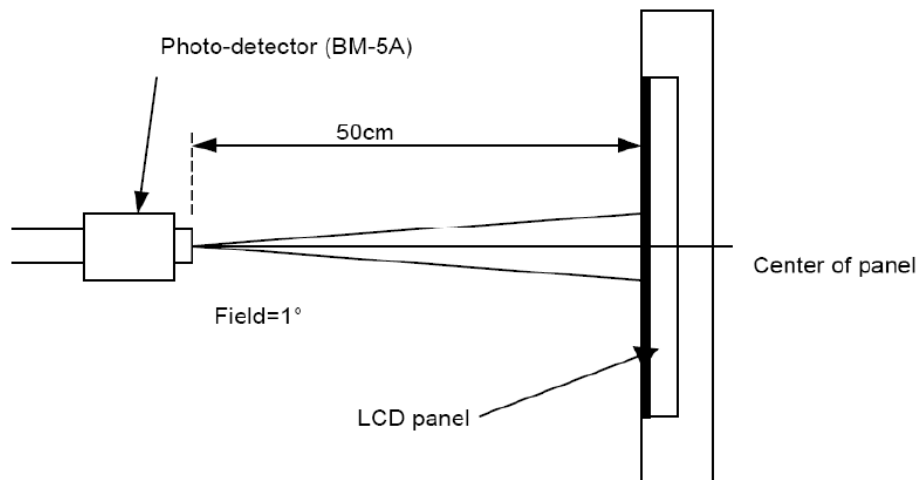
## **2. GENERAL DESCRIPTION**

<b>ITEM</b>	<b>CONTENT</b>	<b>UNIT</b>
SCREEN SIZE	7.0"	
DISPLAY TYPE	a-Si TFT, Negative, Transmissive, Normally White	
SURFACE TREATMENT	--	
Gray scale inversion direction	6:00 O'clock	O'CLOCK
Optimum view direction	12:00 O'clock	O'CLOCK
OPERATING TEMPERATURE	-20~+70	°C
STORAGE TEMPERATURE	-30~+80	°C
BACKLIGHT TYPE	LED, WHITE	
INTERFACE TYPE	8-bit Single-Channel LVDS	
DISPLAY FORMAT	800*(RGB)*480	DOTS
MODULE DIMENSION	200.00(H) x 125.00(V) x 30.40 (D)	mm
ACTIVE AREA	154.08(H) x 85.92(V)	mm
PIXEL PITCH	0.1926 (H) x 0.1790 (W)	mm

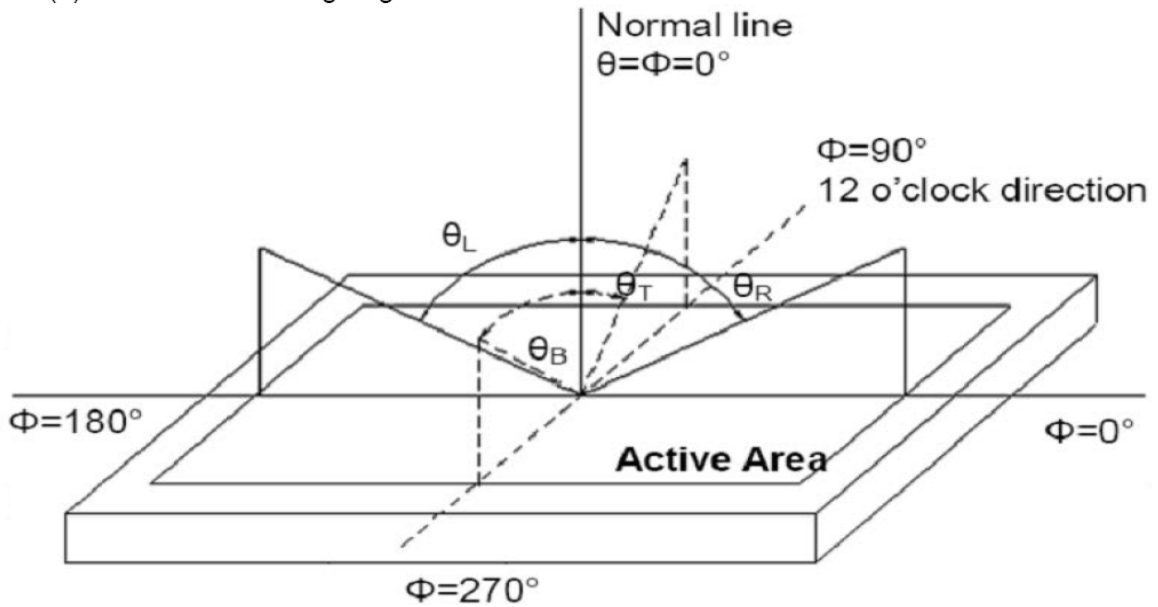
### 3. ELECTRO-OPTICAL CHARACTERISTICS

Item	Conditions	Min.	Typ.	Max.	Unit	Note	
Viewing Angle (CR>10)	Horizontal	$\theta_L$	60	70	-	degree	(1),(2),(6)
		$\theta_R$	60	70	-		
	Vertical	$\theta_T$	40	50	-		
		$\theta_B$	60	70	-		
Contrast Ratio	Center	400	500	-	-	(1),(3),(6)	
Response Time	Rising	-	10	20	ms	(1),(4),(6)	
	Falling	-	15	30			
CF Color Chromaticity (CIE1931)	Red x	Typ. -0.05	-	Typ. +0.05	-	(1), (6)	
	Red y		-		-		
	Green x		-		-		
	Green y		-		-		
	Blue x		-		-		
	Blue y		-		-		
	White x		-		-		
	White y		-		-		

Note (1) Measurement Setup: The LCD module should be stabilized at given temp. 25°C for 15 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 15 minutes in a windless room.



Note (2) Definition of Viewing Angle



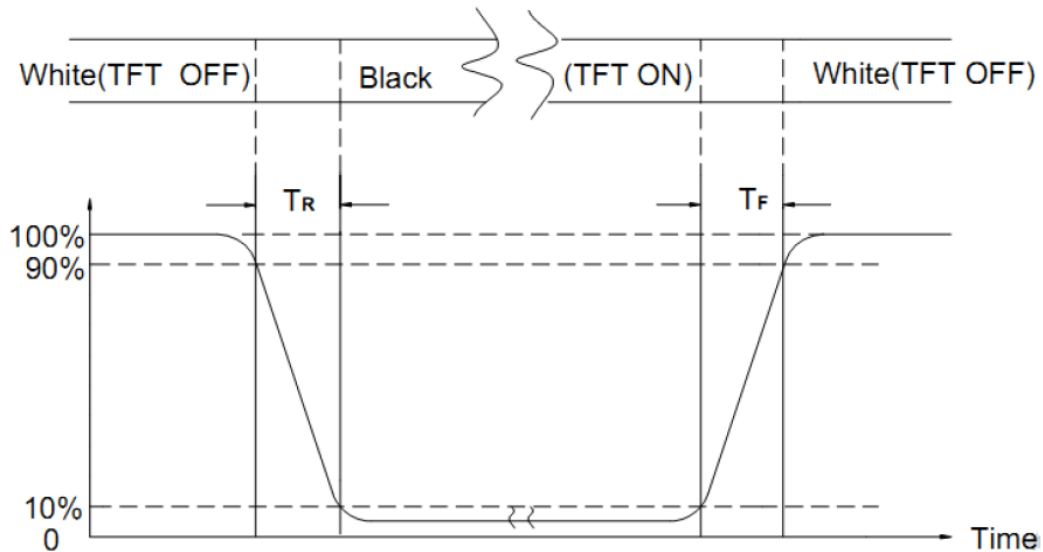
Note (3) Definition of Contrast Ratio (CR)

The contrast ratio can be calculated by the following expression

$$\text{Contrast Ratio (CR)} = L_{63} / L_0$$

L63: Luminance of gray level 63, L0: Luminance of gray level 0

Note (4) Definition of response time



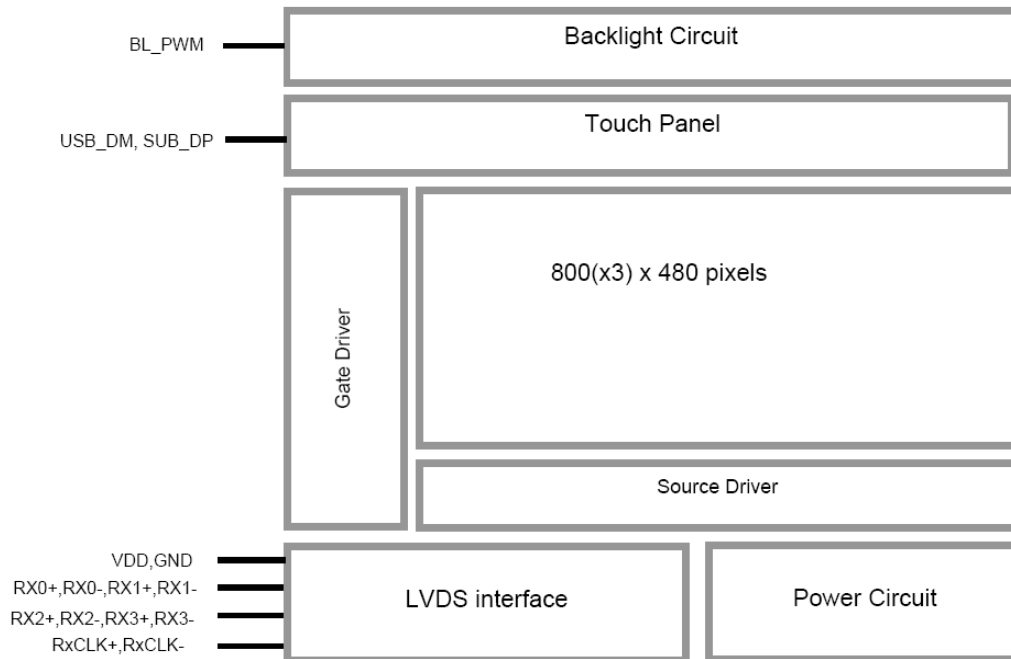
Note (5) Definition of Transmittance (Module is without signal input)

$$\text{Transmittance} = \text{Center Luminance of LCD} / \text{Center Luminance of Back Light} \times 100\%$$

Note (6) Definition of color chromaticity (CIE1931)

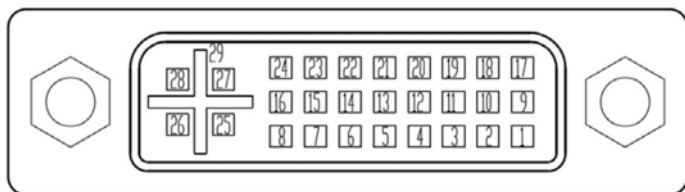
Color coordinates measured at the center point of LCD

## 4. BLOCK DIAGRAM



## 5. PINS DESCRIPTION

Pin No.	Pin Name	IO	Descriptions
1	RX2-	Input	LVDS receiver negative signal channel 2
2	RX2+	Input	LVDS receiver positive signal channel 2
3	GND	Power	Ground
4	BL_PWM	Input	Backlight dimming control(High actives) PWM may be used to adjust the output brightness
5	NC	-	No connection
6	VDD	Power	Positive Power Supply(5.0V)
7	VDD	Power	Positive Power Supply(5.0V)
8	VDD	Power	Positive Power Supply(5.0V)
9	RX1-	Input	LVDS receiver negative signal channel 1
10	RX1+	Input	LVDS receiver positive signal channel 1
11	GND	Power	Ground
12	RX3-	Input	LVDS receiver negative signal channel 3
13	RX3+	Input	LVDS receiver positive signal channel 3
14	VDD	Power	Positive Power Supply(5.0V)
15	GND	Power	Ground
16	GND	Power	Ground
17	RX0-	Input	LVDS receiver negative signal channel 0
18	RX0+	Input	LVDS receiver positive signal channel 0
19	GND	Power	Ground
20	USB_DM	I/O	USB D- signal
21	USB_DP	I/O	USB D+ signal
22	GND	Power	Ground
23	RXCLK+	Input	LVDS receiver positive signal clock
24	RXCLK-	Input	LVDS receiver negative signal clock
25	VDD	Power	Positive Power Supply(5.0V)
26	VDD	Power	Positive Power Supply(5.0V)
27	NC	-	No connection
28	NC	-	No connection
29	GND	Power	Ground



## 6. ELECTRONIC CHARACTERISTICS

### 6.1 Absolute Maximum Ratings

Items	Symbol	Min.	Max.	Unit	Condition
Power Supply voltage	VDD	-0.3	5.5	V	
Operating Temperature	T <sub>OP</sub>	-20	70	°C	No Condensation
Storage Temperature	T <sub>ST</sub>	-30	80	°C	No Condensation

Note:

- \*1. This rating applies to all parts of the module. And should not be exceeded.
- \*2. The operating temperature only guarantees operation of the circuit. The contrast, response speed, and the other specification related to electro-optical display quality is determined at the room temperature, T<sub>OP</sub>=25°C
- \*3. Any Stresses exceeding the Absolute Maximum Ratings may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

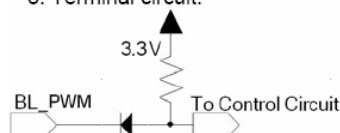
### 6.2 DC Characteristics

VDD=5.0V, GND=0V, T<sub>a</sub>=25°C

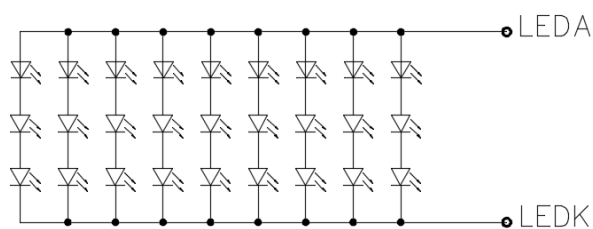
Items	Symbol	MIN.	TYP.	MAX.	Unit	Note
Supply Voltage	VDD	4.7	5.0	5.3	V	
VDD Power Consumption	I <sub>dd</sub>	--	500	--	mA	*1
Input High Voltage	V <sub>IH</sub>	3.0	3.3	-	V	BL_PWM
Input Low Voltage	V <sub>IL</sub>	GND	-	0.3	V	BL_PWM

Note1:

- \*1. BL\_PWM=Hi;
- \*2. Recommended BL\_PWM PWM Freq. is 3kHz.
- \*3. Terminal circuit.



### 6.3 Backlight Specification



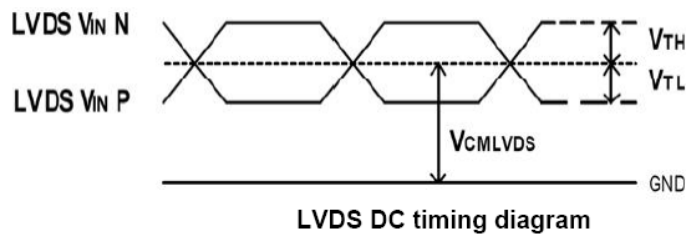
Item	Symbol	MIN	TYP	MAX	UNIT	Test Condition
Supply Voltage	V <sub>f</sub>	8.7	9.6	10.5	V	I <sub>f</sub> =270mA
Supply Current	I <sub>f</sub>	-	270	-	mA	-
Luminous Intensity for LCM	-	700	800	-	cd/m <sup>2</sup>	I <sub>f</sub> =270mA (Duty=100%)
Uniformity for LCM	-	80	-	-	%	I <sub>f</sub> =270mA
Life Time	-	-	20000	-	Hr	I <sub>f</sub> =270mA
Backlight Color	White					



### 6.4 DC Characteristics(LVDS)

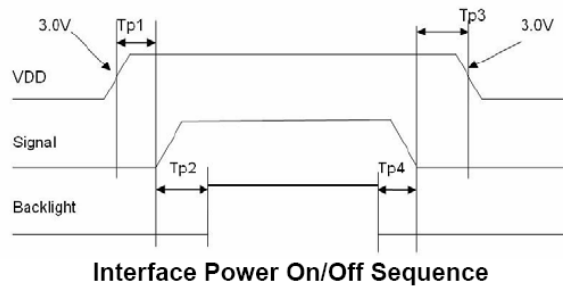
VDD=5.0V,GND=0V,T<sub>a</sub>=25°C

Items	Symbol	MIN.	TYP.	MAX.	Unit	Note
Differential Input High Threshold	V <sub>TH</sub>	-	-	100	mV	
Differential Input Low Threshold	V <sub>TL</sub>	-100	-	-	mV	
Input Current	I <sub>IN</sub>			±10	uA	
Differential Input common Mode voltage	V <sub>CMLVDS</sub>	1.65	-	2.1	V	



### 6.5 POWER ON/OFF SEQUENCE

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Note
VDD 5.0V to signal starting	Tp1	0	-	50	ms	
Signal starting to backlight on	Tp2	150	-	-	ms	
Signal off to VDD 3.0V	Tp3	0	-	50	ms	
Backlight off to signal off	Tp4	150	-	-	ms	



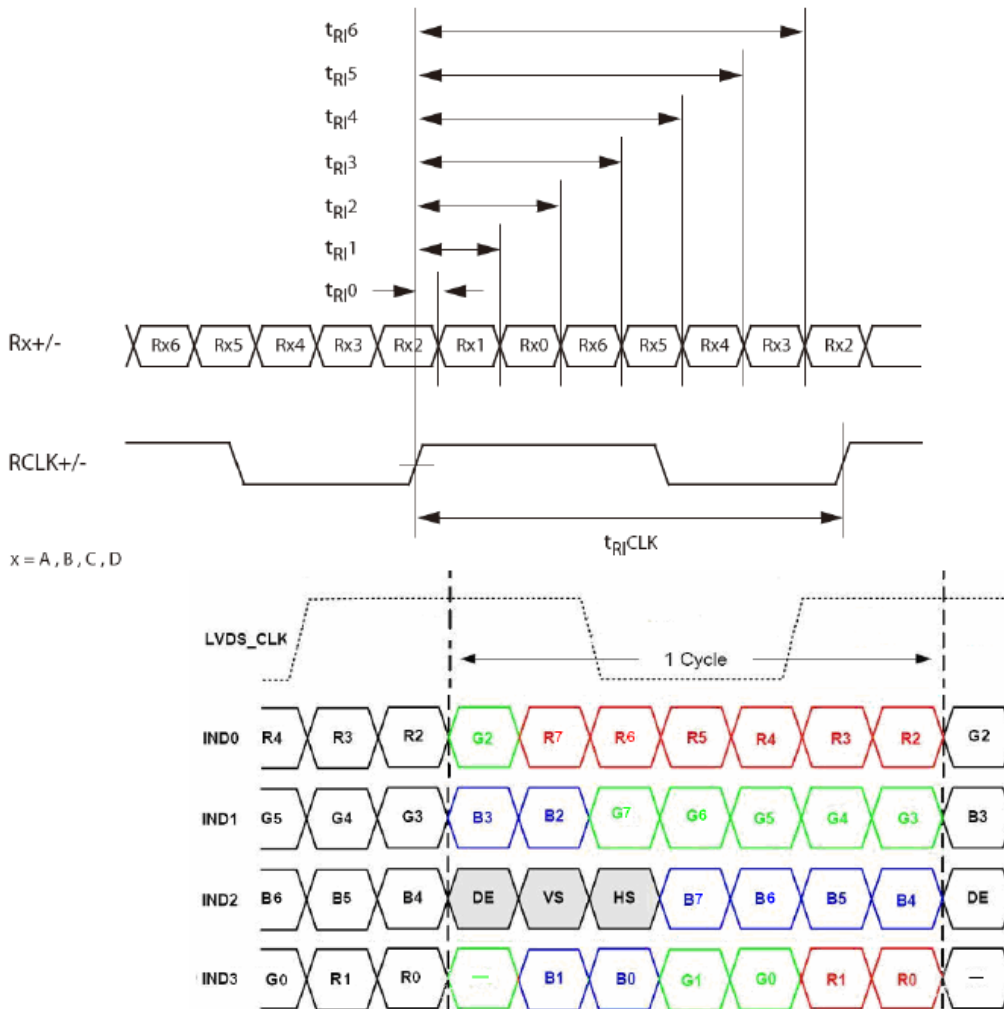
## 6.6 AC Characteristics

### 6.6.1 AC Characteristics(LVDS)

VDD=5.0V,GND=0V,T<sub>a</sub>=25°C

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Input CLK period	t <sub>RI</sub> CLK	8.9	-	50	ns	
Input Data Position 0 ( t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 0	-0.3	-	+0.3	ns	
Input Data Position 1 (t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 1	t <sub>RI</sub> CLK/7-0.3	t <sub>RI</sub> CLK/7	t <sub>RI</sub> CLK/7+0.3	ns	
Input Data Position 2 (t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 2	2t <sub>RI</sub> CLK/7-0.3	2t <sub>RI</sub> CLK/7	2t <sub>RI</sub> CLK/7+0.3	ns	
Input Data Position 3 (t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 3	3t <sub>RI</sub> CLK/7-0.3	3t <sub>RI</sub> CLK/7	3t <sub>RI</sub> CLK/7+0.3	ns	
Input Data Position 4 (t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 4	4t <sub>RI</sub> CLK/7-0.3	4t <sub>RI</sub> CLK/7	4t <sub>RI</sub> CLK/7+0.3	ns	
Input Data Position 5 (t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 5	5t <sub>RI</sub> CLK/7-0.3	5t <sub>RI</sub> CLK/7	5t <sub>RI</sub> CLK/7+0.3	ns	
Input Data Position 6 (t <sub>RI</sub> CLK = 8.9ns )	t <sub>RI</sub> 6	6t <sub>RI</sub> CLK/7-0.3	6t <sub>RI</sub> CLK/7	6t <sub>RI</sub> CLK/7+0.3	ns	

Input Clock and Data timing Diagram:



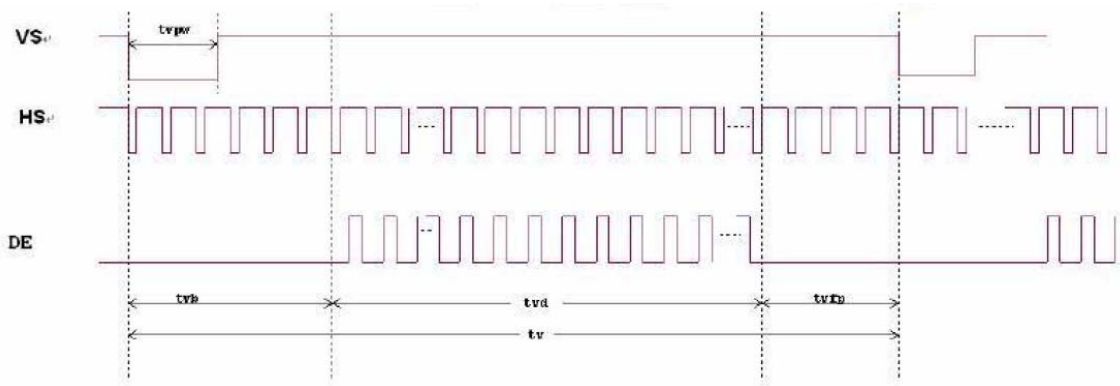
6.6.2AC Characteristics(TFT)

Item	Symbol	MIN.	TYP.	MAX.	Unit	Remark
Horizontal Display Area	thd	-	800	-	DCLK	
DCLK Frequency	fclk	26.4	33.3	46.8	MHz	
One Horizontal Line	th	862	1056	1200	DCLK	
HS pulse width	thpw	1	-	40	DCLK	
HS Blanking	thb	46	46	46	DCLK	
HS Front Porch	thfp	16	210	354	DCLK	

Item	Symbol	Values			Unit	Remark
		MIN.	TYP.	MAX.		
Vertical Display Area	tvd	-	480	-	TH	
VS period time	tv	510	525	650	TH	
VS pulse width	tvpw	1	-	20	TH	
VS Blanking	tvb	23	23	23	TH	
VS Front Porch	tvfp	7	22	147	TH	



1 Horizontal input timing diagram.



Vertical input timing diagram.

## 7. TOUCH PANEL CHARACTERISTICS

### 1、GENERAL SPECIFITION 产品规格

Item 项目	Specification 规格	Remarks 备注
Product name 产品名称	电容式触摸屏	
Touch IC 触控 IC	--	
Structure type 结构类型	G +G	
Operating temperature 操作温度 (°C)	-20°C TO 70°C	
Storage temperature 储存温度 (°C)	-30°C TO 80°C	

### 2、BASIFC FEATURES 基本特征

Item 项目	Specification 规格	Remarks 备注
Outline Dimension 外形尺寸	186.40*111.40*1.88mm (L×W×D)	尺寸仅供参考
Viewing Area 可视区	155.68*87.52 (L×W)	
Construction 结构	Materials used 所用材料	
First Layer 第一层	CG T=0.7mm	
Second Layer 第二层	OCA T=0.2mm	
Third Layer 第三层	ITO GLASS T=0.7mm	
Fourth Layer 第四层	NA	
Fifth Layer 第五层	NA	
Six Layer 第六层	NA	
Seven Layer 第七层	NA	
Surface Hardness 表面硬度	--	
Scope 应用方式	Finger Touch Input 手指触摸输入	

## 8. PRODUCT QUALITY & RELIABILITY

### 8.1 Standard for Quality Test

#### 8.1.1 Inspection :

Before delivering, the supplier should take the following tests, and affirm the quality of product.

#### 8.1.2 Electro-Optical Characteristics:

According to the individual specification to test the product.

#### 8.1.3 Test of Appearance Characteristics:

According to the individual specification to test the product.

#### 8.1.4 Test of Reliability Characteristics:

According to the definition of reliability on the specification for testing products.

#### 8.1.5 Delivery Test:

Before delivering, the supplier should take the delivery test.

A. Test method: According to GB/2828, General Inspection Level II take a single time.

B. The defects classify of AQL as following:

Major defect: AQL=0.65

Minor defect: AQL=1.5

Total defects: AQL=1.5

### 8.2 Standard for inspection

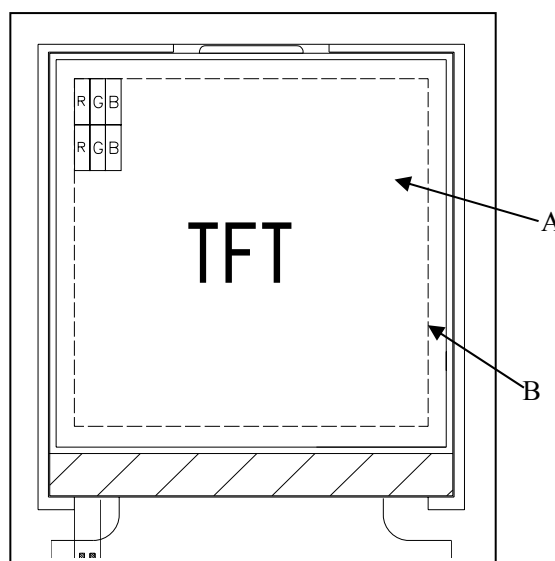
#### 8.2.1 Manner of appearance test:

- The test must be under a 30W~40W fluorescent light, and the distance of view must be at 30~35 cm.
- When test the model of transmissive product must add the reflective plate.
- The test direction is base on about around 45° of vertical line.

#### 8.2.2 Definition of area: A B

A Area : Viewing area.

B Area : Out of viewing area.(Outside viewing area)



#### 8.2.3 Basic principle:

- In principle the defect out of Area A should be acceptable if the defect does not affect assemblage and the quality of productions.
- If defects that can not describe clearly, acceptable samples will be the standard.

C. The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.

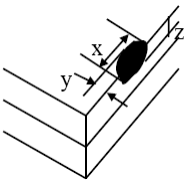
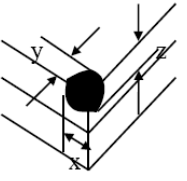
D. Must add new item on time when it is necessary.

8.2.4 Standard of inspection

L:length,W:width, Φ:diameter, t:glass thickness,s: sealwidth,a:LCD length

表 A

No	Inspect item	Criteria	Defect
1	Appearance: Round type (Foreign material/ Pinhole/ color dot)	$\Phi \leq 0.3\text{mm}$ ignore $0.3\text{mm} < \Phi \leq 0.5\text{mm}$ accept 4 $\Phi > 0.5\text{mm}$ reject	Minor
2	Appearance: Line type (scratch/Fiber)	$W \leq 0.08\text{mm}$ ignore $0.08\text{mm} < W \leq 0.10\text{mm}$ L $\leq 5\text{mm}$ accept 5 $W > 0.1\text{mm}$ L $> 5\text{mm}$ reject	Minor
3	Air bubble	$\Phi \leq 0.3\text{mm}$ ignore $0.3\text{mm} < \Phi \leq 0.6\text{mm}$ accept 3 $\Phi > 0.6\text{mm}$ reject	Minor
4	Bright dots、Dark dots (DISPLAY only )	1)Bright dots $\Phi > 1/2$ area of a sub-pixel accept 2 2)Two continuous bright dots reject 3)Dark dots $\Phi > 1/2$ area of a sub-pixel accept 5 4)Two continuous dark dots $\leq 1$ pair 5)Total dots defect $\leq 6$	Minor
5	Line Shape(Display only)	$W \leq 0.08\text{mm}$ ignore $0.08\text{mm} < W \leq 0.10\text{mm}$ L $\leq 5\text{mm}$ accept 5 $W > 0.1\text{mm}$ L $> 5\text{mm}$ reject	Minor
6	Touch panel warps	According to the dimension of drawing	Minor
7	Touch panel is not sensitive	reject	Minor

8	Touch panel not working	reject	Major
9	Touch Panel Linearity	More than 2.5% is not acceptable	Minor
10	Fit degree of touch panel	Bonding tightly with LCD panel, no arch and split phenomenon. accept	Minor
11	Newton Ring	Newton ring dimension $\leq 1/2$ touch panel area and not affect font and line distortion( $\leq 2.5\%$ ),it is acceptable.	Minor
12	Touch panel dispensing effect	1) missing glue reject 2) Full amount of glue, no broken glue, excess - glue phenomenon accept 3) The colloid height exceeds the thickness of the touch screen reject	Minor
13	Chip out x: length y: width z: thickness 	$x \geq 7\text{mm}$ reject $z < 2/3t, y \geq s$ reject $z \geq 2/3t, y \geq 1/3s$ reject $y < 0.3\text{mm}, x$ ignore	Minor
14	any chip exposes the silver dot x: length y: width z: thickness 	$x \geq 7\text{mm}$ reject $x > s * 2/3, y > s * 2/3$ reject z: ignore; any chip exposes the silver dot reject	Minor
15	Bezel: scratch	Length ignore Width $> 0.5\text{mm}$ reject	Minor
16	Bezel: dirt	accept	Minor
17	Bezel:sunken	accept	Minor
18	Missing vertical/horizontal segment, no display ,abnormal display	eject	Major



### 8.3 RELIABILITY TESTS

Item	Condition	Criterion
High temperature operation	70°C, 96 hrs	-Cosmetic defects are not allowed after the test(Polarizer change is exceptional)
Low temperature operation	-20°C, 96 hrs	
Moisture storage	60°C, 90%RH, 96 hrs	-Contrast ratio change over 50% of initial value should not be happened
High temperature storage	80°C, 96 hrs	
Low temperature storage	-30°C, 96 hrs	
Thermal shock	-30 °C (30 minute) 25 °C (5 minute) 80 °C (30 minute) CYCLES: 10	-The current consumption should not be over 20% of initial value -Brightness decrease should be lower than 50% of initial value

## **9.PRECAUTIONS IN USING**

### **9.1 Liquid crystal display (LCD)**

The LCD panel is made up of glass, organic fluid and polarizer. When handling, please pay attention to the following items:

- 1) Keep the operation and storage temperature of the LCD within the range specified in the LCD specification. Otherwise, excessive temperature and humidity would cause polarization degradation, bubble generation or polarizer peel-off.
- 2) Prevent it from mechanical shock by dropping it from a high place, etc.
- 3) Don't contact, push or rub the exposed polarizers with anything harder than HB pencil lead.
- 4) Avoid using chemicals such as acetone, toluene, ethanol and isopropyl alcohol to clean the front/rear polarizers and reflectors, which will cause damage to them.
- 5) Wipe off saliva or water drops immediately. Contact with water over a long period of time may cause deformation or color fading. The LCM is assembled and adjusted with a high degree of precision.
- 6) Do not put or attach anything on the display area. Avoid touching the display area with bare hand.

### **9.2 Precaution for handling LCD modules**

The LCM is assembled and adjusted with a high degree of precision, do not applying excessive shocks to it or making any alterations or modifications to it, the following precautions should be taken when handing.

- 1) Do not drop, bend or twist the module.
- 2) Do not alter or making any modification on the shape of the metal frame.
- 3) Do not change the shape, the pattern wiring or add any extra hole on the PCB.
- 4) Do not modify or touch the zebra rubber strip(conductive rubber) with another object. Do not change the positions of components on the PCB.

### **9.3 Electro-static discharge control**

Careful attention should be paid to control the electrostatic discharge of the modules, since the modules contain no. of CMOS LSI.

- 1) Make sure you are grounded properly when remove the module from its antistatic bag. Be sure that the module and have the same electric potential.
- 2) Only properly grounded soldering iron should be used.
- 3) Modules should be stored in antistatic bag or other containers resistant to static after remove from its original package.
- 4) When using the electric screw-driver is used, make sure the screw driver had been ground potentiality to minimize the transmission of EM wave produced by commutator sparks.
- 5) In order to reduce the generation of static electricity, a relative humidity of 50-60% is recommended.

### **9.4 Precaution for soldering**

Soldering should apply to FPC .

- 1) The soldering temperature is  $340\pm 20^{\circ}\text{C}$  for lead-free solder
- 2) Soldering time 1~3 seconds.

- 3) Eutectic solder (rosin flux filled) should be used.
- 4) If soldering flux is used, be sure to remove any remaining flux after finishing the soldering operation and LCD surface should be covered during soldering to prevent any damage to flux spatters.
- 5) When remove the lead wires from the I/O terminals, use proper de-soldering methods, e.g. suction type de-soldering irons. Do not repeat wiring by soldering more than three times at the pads and plated through holes may be damaged.

#### **9.5 Precaution for operation**

- 1) Adjust liquid crystal driving voltage ( $V_0$ ) to varies viewing angle and obtain the contrast.  $V_0$  should be kept in proper range stated in the specification. Excess voltage will shorten the LCD life.
- 2) Response time is greatly delayed at low temperature. It will recover when go back to normal temperature.
- 3) Condensation on terminals can cause an electrochemical reaction disrupting the terminal circuit. Therefore it should be used under the relative condition of 50% RH.

#### **9.6 Storage**

When long term storage is required, following precautions are necessary:

- 1) The LCD should not be store in high temperature or high humidity.
- 2) For long time storage , the temperature should be 15~35 degree, and relative humidity should be less than 65%.
- 3) The LCD should be store in darkness, to avoid sunlight.
- 4) Pls don't let wet steam or water drop get into the LCD, otherwise the polarizer or ITO electrode will be damaged slowly.

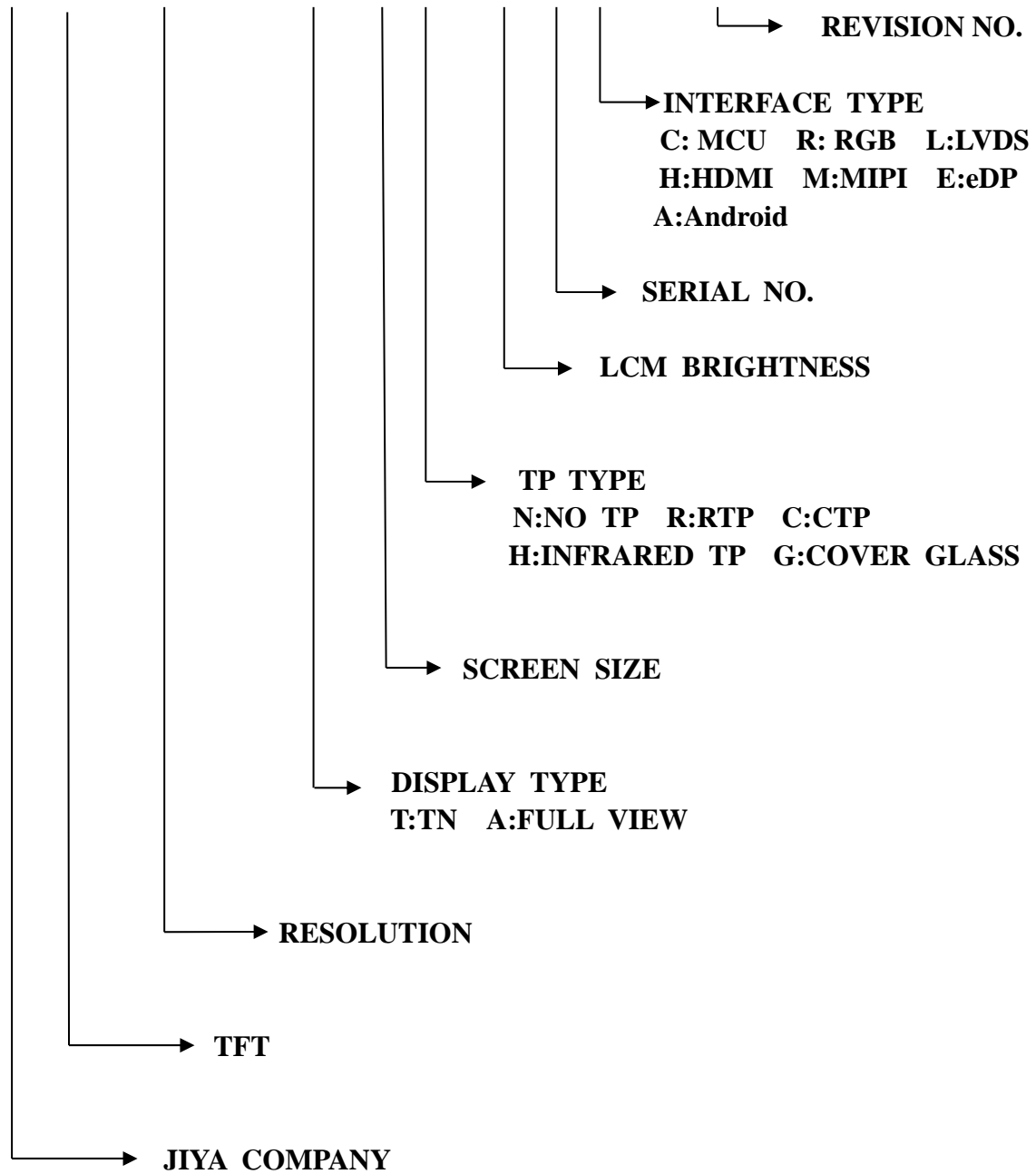
#### **9.7 Product Warranty Period**

Our product warranty period is two years, start with the date of manufacturing, warranty policy is as below:

- 1) Product can replace free if the product return time from product warranty start date is within one year
- 2) Product can repair/rework free if the product return time from product warranty start date is over one year but less than two years
- 3) Product can be paid to repair/rework if the product return time from product warranty start date is over two years but less than three years
- 4) If product return time from product warranty start date is over three years, two parties should resolve it is through mutual negotiation.

**10. CLASSIFICATION INFORMATION**

**JY F - 800480 T 070 C 8 00 L - VD6**



**11. HISTORY OF VERSION**

REVISIONS						
No.	DATE	MARK	DESCRIPTION	ORGANIZED BY	CHECKED BY	APPROVED BY
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						