编号：Q/BHI.LK.Q-831-A005

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-1024600A080N303H-VB(JY20F48)	
拟　　制 Prepared by	审　　核 Checked by	批　　准 Approved by
MaDong	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

公司地址：中国河北省廊坊经济技术开发区二号路 36 号　　邮编：065001
COMPANY ADDRESS：
No.36, Road No.2 Langfang Economic & Technical Development Zone, Hebei Province, P.R. China　　P.C.: 065001
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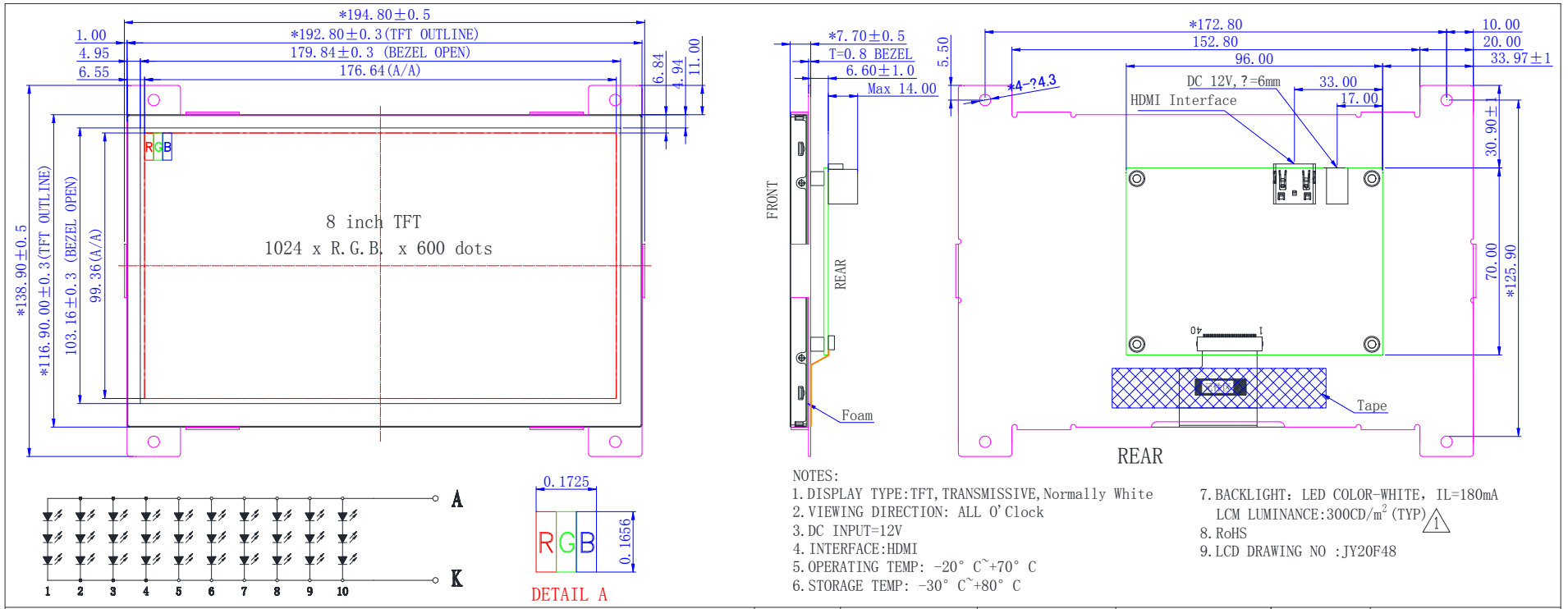
CONTENT

1. LCM DRAWING①REFER TO REVISION HISTORY ON PAGE 25



NOTES:

1. DISPLAY TYPE:TFT, TRANSMISSIVE, Normally White
2. VIEWING DIRECTION: ALL O'Clock
3. DC INPUT=12V
4. INTERFACE:HDMI
5. OPERATING TEMP: -20° C~+70° C
6. STORAGE TEMP: -30° C~+80° C
7. BACKLIGHT: LED COLOR-WHITE, IL=180mA
   LCM LUMINANCE:300CD/m^2 (TYP) ⚠1
8. RoHS
9. LCD DRAWING NO :JY20F48

REVISIONS					
MARK	DATE	DESCRIPTION	DRAWN	CHECK	APPROVE

	DRAWN	CHECK	APPROVE
NAME	MaDong		
DATE	20.08.20		
UNLESS OTHERWISE NOTED TOLERANCES : ±0.3			

PART NO.	JYF-1024600A080N303H-VB		
DWG NO.	F1024600A08003-WX-VB		
SUB-DWG NO.	4		
PAGE	1-1	UNIT	mm
JIYA(LANGFANG) ELECTRONICS CO.,LTD			

2. GENERAL DESCRIPTION

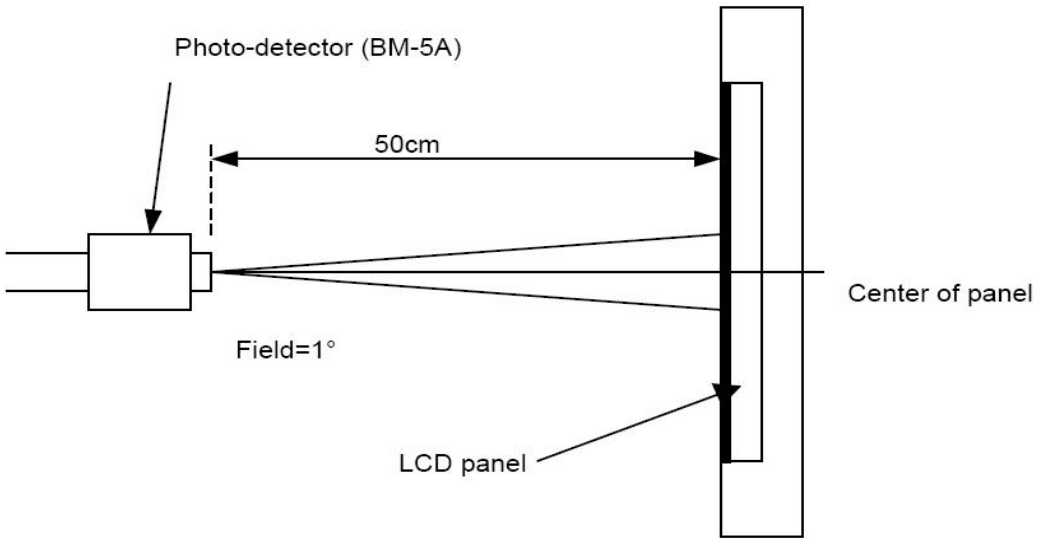
ITEM	CONTENT	UNIT
Screen size	8.0”	
Display type	TFT, Transmissive, Normally White	
Optimum view direction	ALL	O’CLOCK
Opeating temperature	-20~+70	℃
Storage temperature	-30~+80	℃
Backlight type	LED,WHITE	
Interface type	HDMI	
Display format	1024RGB*600	DOTS
Module dimension	194.80(w)*130.90(h)*14.30(t)	mm
Active area	176.64(w)*99.36(h)	mm
Pixel pitch	0.1725(w)*0.1656(h)	mm

3. ELECTRO-OPTICAL CHARACTERISTICS

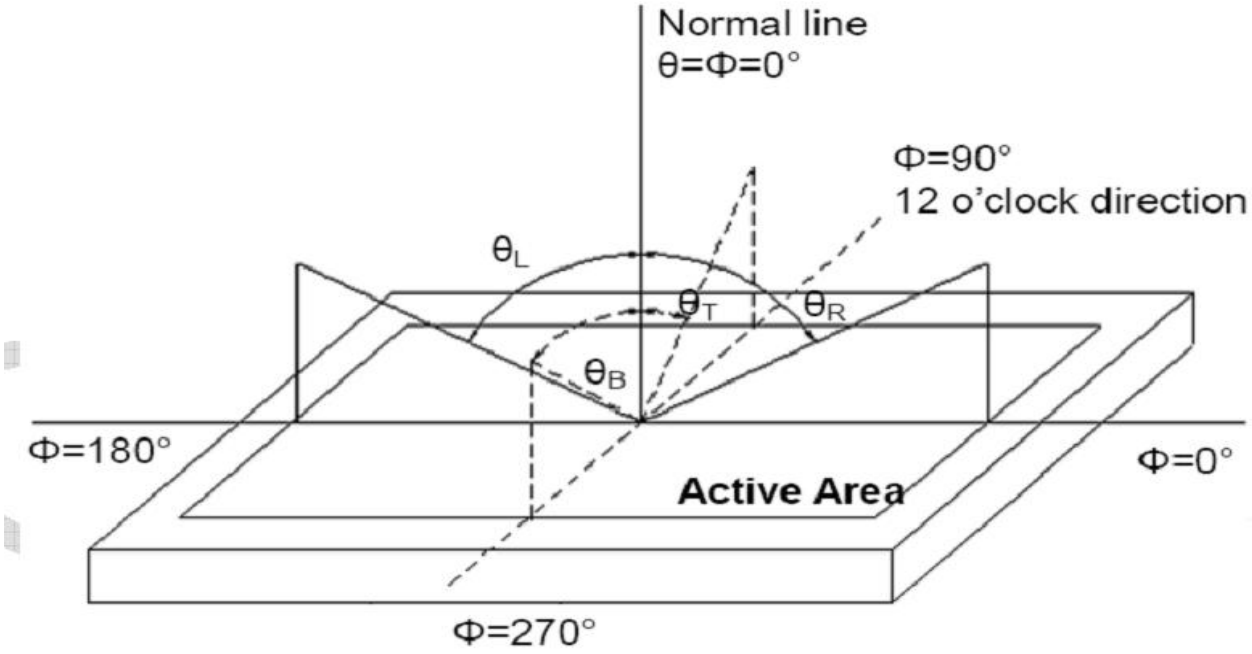
3.1 Optical specification①

Item	Conditions		Min.	Typ.	Max.	Unit	Note
Viewing Angle (CR>10)	Horizontal	θL	-	80	-	degree	(1),(2),(6)
		θR	-	80	-		
	Vertical	θT	-	80	-		
		θB	-	80	-		
Center Luminance of White	LC			300	-	cd/m^2	
Contrast Ratio	Center		500	600	-	-	(1),(3),(6)
Response Time	Rising		-	10	20	ms	(1),(4),(6)
	Falling		-	20	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



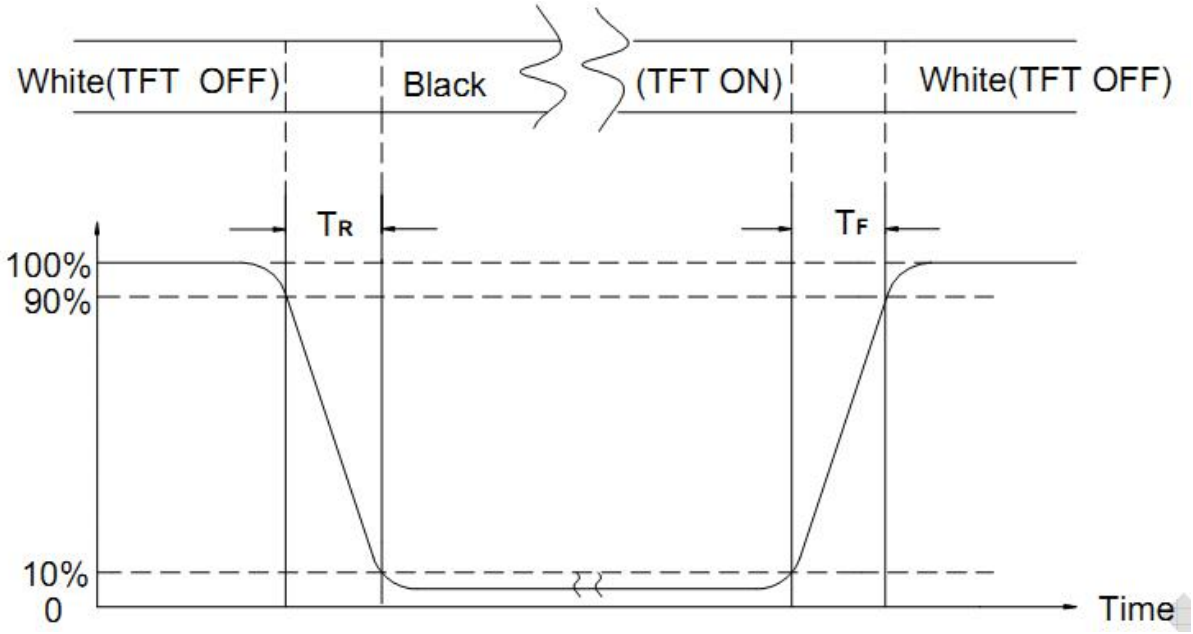
Note (3) Definition of Contrast Ratio (CR)

The contrast ratio can be calculated by the following expression

Contrast Ratio (CR) = L63 / L0

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)

Transmittance = Center Luminance of LCD / Center Luminance of Back Light x 100%

Note (6) Definition of color chromaticity (CIE1931)

Color coordinates measured at the center point of LCD

4.BLOCK DIAGRAM

NC

5. PINS DESCRIPTION

STANDARD HDMI INTERFACE

1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2−
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1−
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0−
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock−
13	CEC
14	NC
15	SCL
16	SDA
17	DDC/CEC Ground
18	+5V Power
19	Hot Plug Detect

6.ELECTRONIC CHARACTERISTICS (TFT)

6.1 Absolute Maximum Ratings

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	V_{DD}	-0.3	5.0	V	
	AV_{DD}	6.5	13.5	V	
	V_{GH}	-0.3	42	V	
	V_{GL}	-20.0	0.3	V	
	V_{GH}-V_{GL}	-	40.0	V	
Operation Temperature	T_{OP}	-20	70	℃	
Storage Temperature	T_{ST}	-30	80	℃	
LED Reverse Voltage	V_R	-	3	V	each LED
LED Forward Current	I_F	-	60	mA	each LED

Note 1: The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

6.2 DC Characteristics

(GND=AVSS=0V, Note 1)

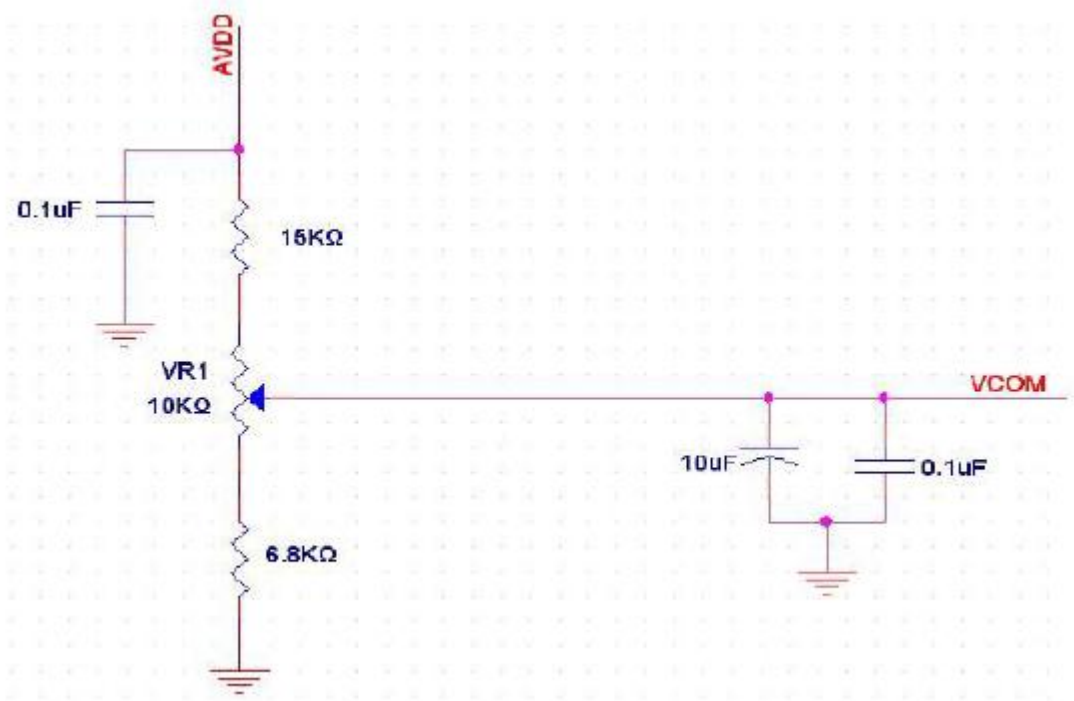
Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power voltage	VDD	3.0	3.3	3.6	V	Note 2
	AVDD	10.8	11	11.2	V	
	VGH	19.7	20	20.3	V	
	VGL	-6.5	-6.8	-7.1	V	
Input signal voltage	VCOM	2.7	(3.7)	4.7	V	Note 3
Input logic high voltage	VIH	0.7VCC	-	VCC	V	Note 4
Input logic low voltage	VIL	0	-	0.3VCC	V	

Note 1: Be sure to apply VCC and VGL to the LCD first, and then apply VGH.

Note 2: VCC setting should match the signals output voltage (refer to Note 3) of customer's system board .

Note 3:Typical Vcom is only a reference value, it must be optimized according to each LCM. Please use VR and base on below application circuit.

Note 4: RESET,STBYB,SELB,L/R,U/D,CABCEN0,CABCEN1.



Current Consumption

(GND=AV_{SS}=0V)

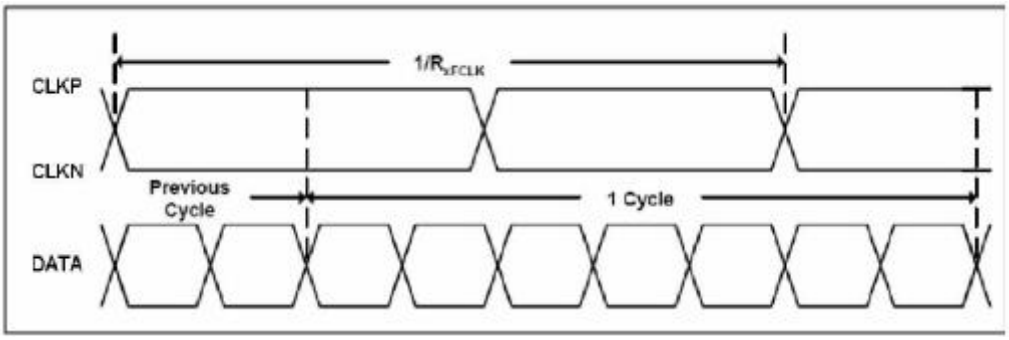
Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current for Driver	I_{GH}	-	0.25	1.0	mA	V_{GH} =20V
	I_{GL}	-	0.25	1.0	mA	V_{GL} = -6.8V
	I_{DD}	-	38	60	mA	DV_{DD} =3.3V
	IAV_{DD}	-	20	30	mA	AV_{DD} =11V

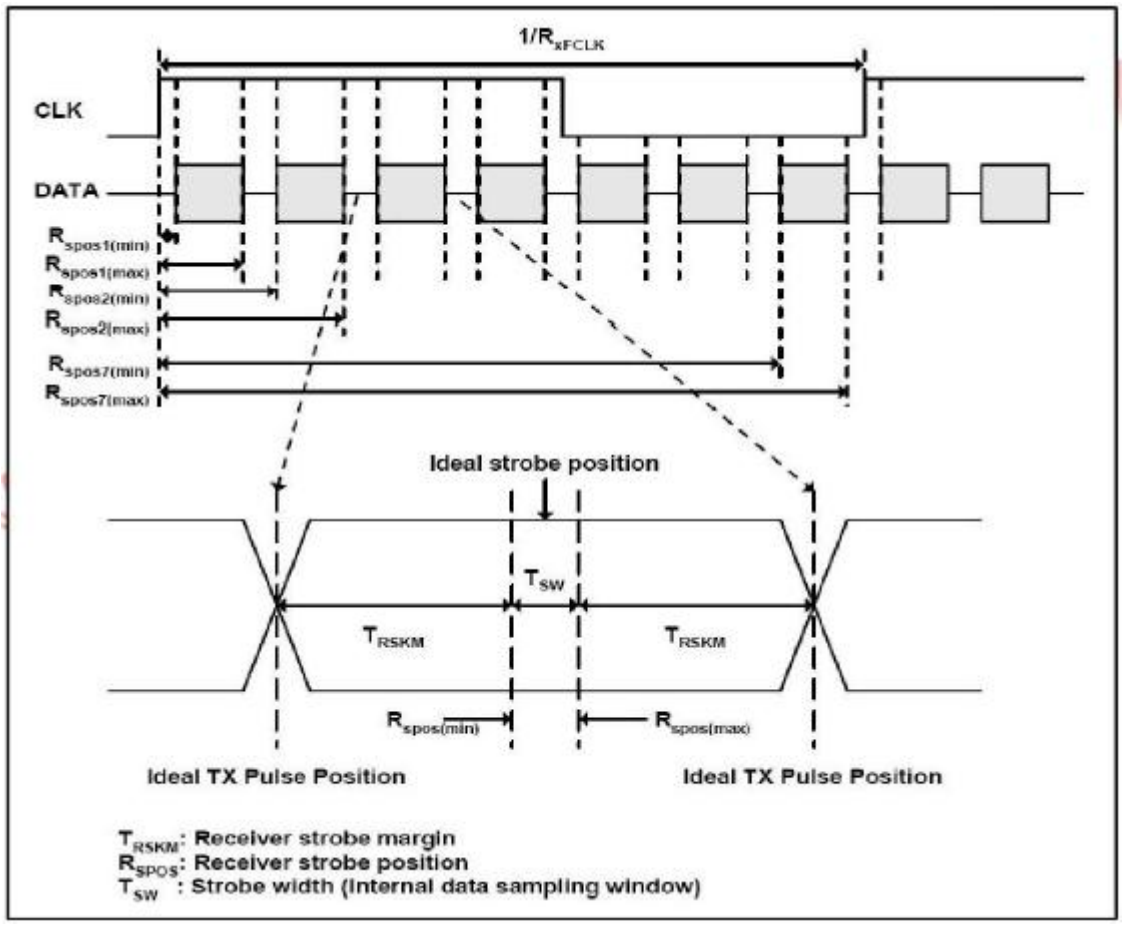
6.3 Timing Characteristics (TFT)

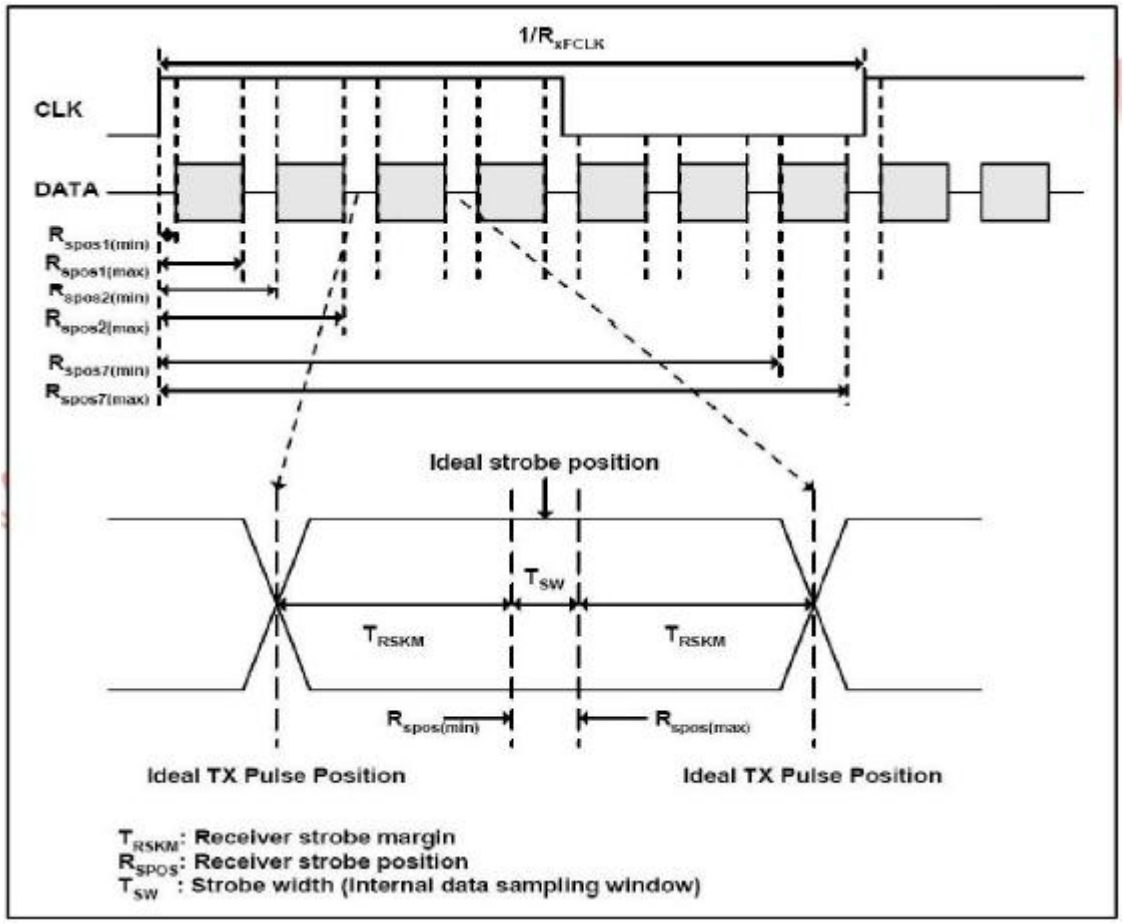
6.3.1 AC Electrical Characteristics

Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Clock frequency	R_{xFCLK}	20	-	71	MHz	
Input data skew margin	T_{RSKM}	500	-	-	ps	
Clock high time	T_{LVCH}	-	4/(7* R_{xFCLK})	-	ns	
Clock low time	T_{LVCL}	-	3/(7* R_{xFCLK})	-	ns	

6.3.2 Input Clock and Data Timing Diagram

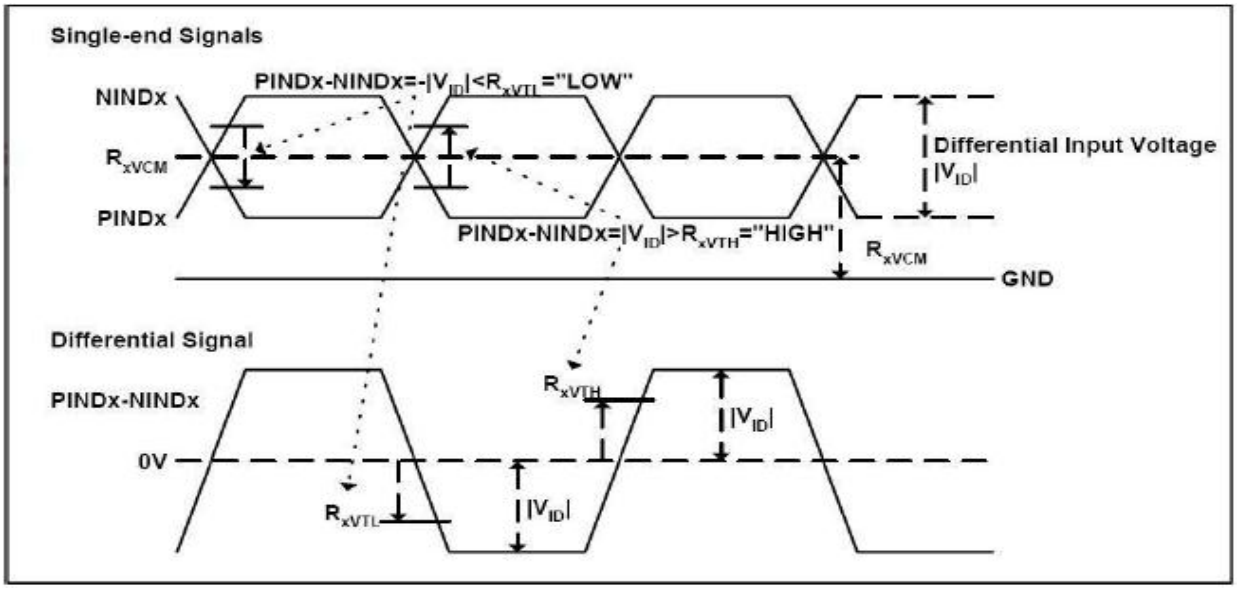






6.3.3 DC Electrical Characteristics

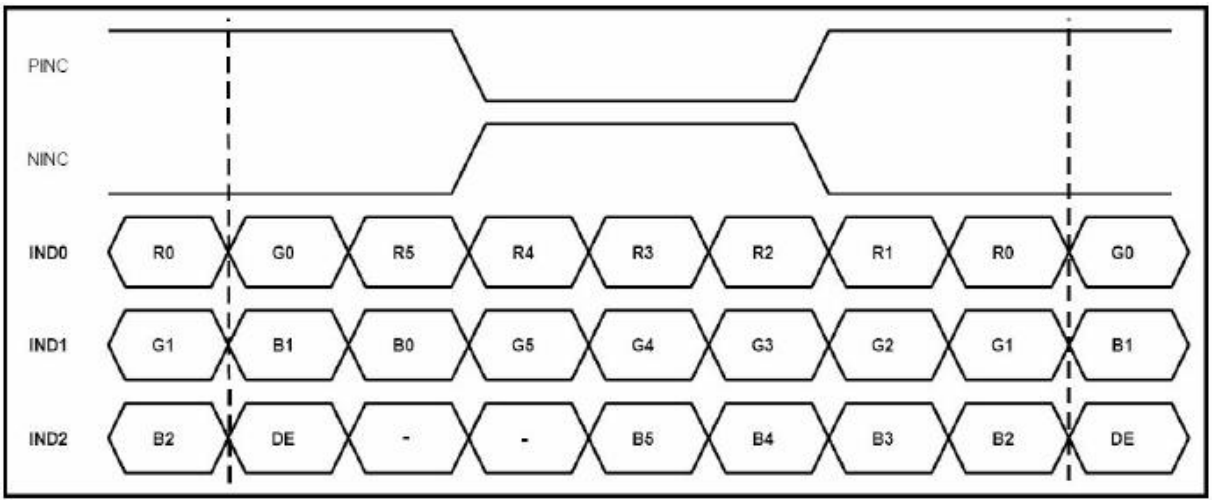
Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Differential input high Threshold voltage	RxVTH	-	-	+0.1	V	RxVCM=1.2V
Differential input low Threshold voltage	RxVTL	-0.1	-	-	V	
Input voltage range (singled-end)	RxVIN	0	-	2.4	V	
Differential input common mode voltage	RxVCM	|VID|/2	-	2.4-|VID|/2	V	
Differential voltage	|VID|	0.2	-	0.6	V	
Differential input leakage current	RVxliz	-10	-	+10	uA	



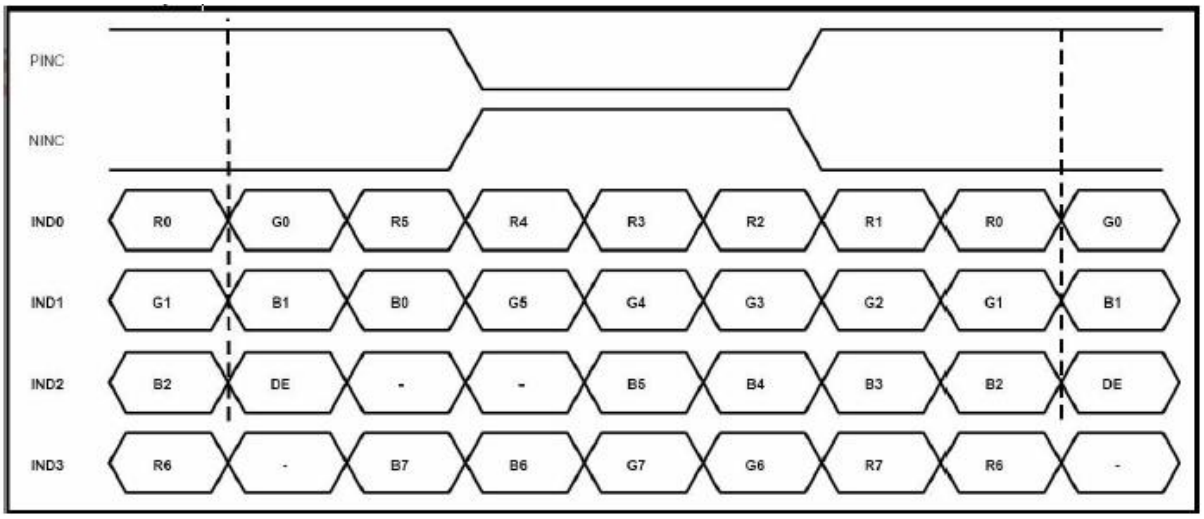
6.3.3 Timing

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Clock Frequency	fclk	40.8	51.2	67.2	MHz	Frame rate =60Hz
Horizontal display area	thd		1024		DCLK	
HS period time	th	1114	1344	1400	DCLK	
HS Blanking	thb	90	320	376	DCLK	
Vertical display area	Thb+thfp		600		H	
VS period time	tv	610	635	800	H	
VS Blanking	Tvb+tvfp	10	35	200	H	

6bit LVDS input



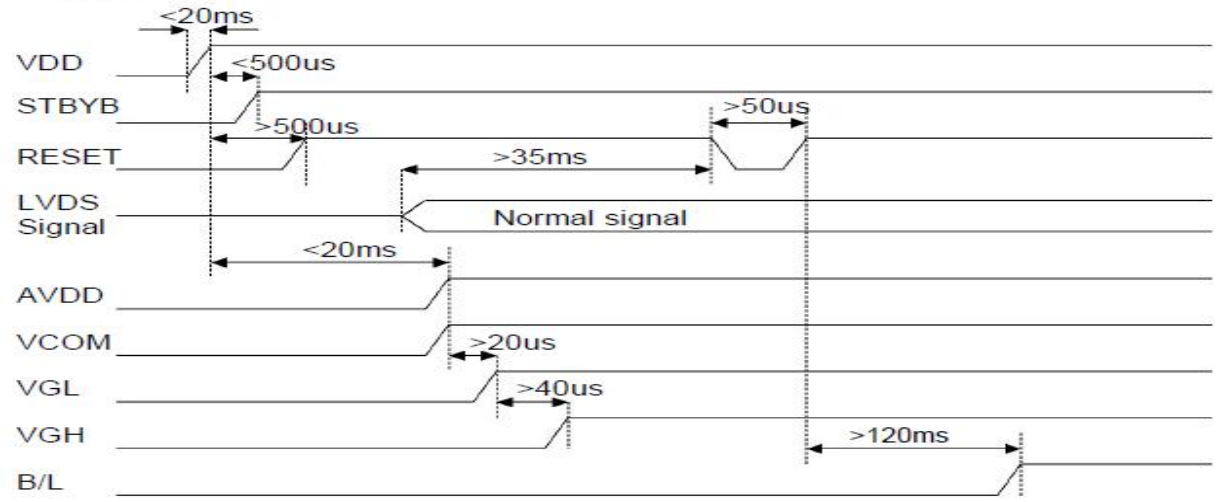
8bit LVDS input



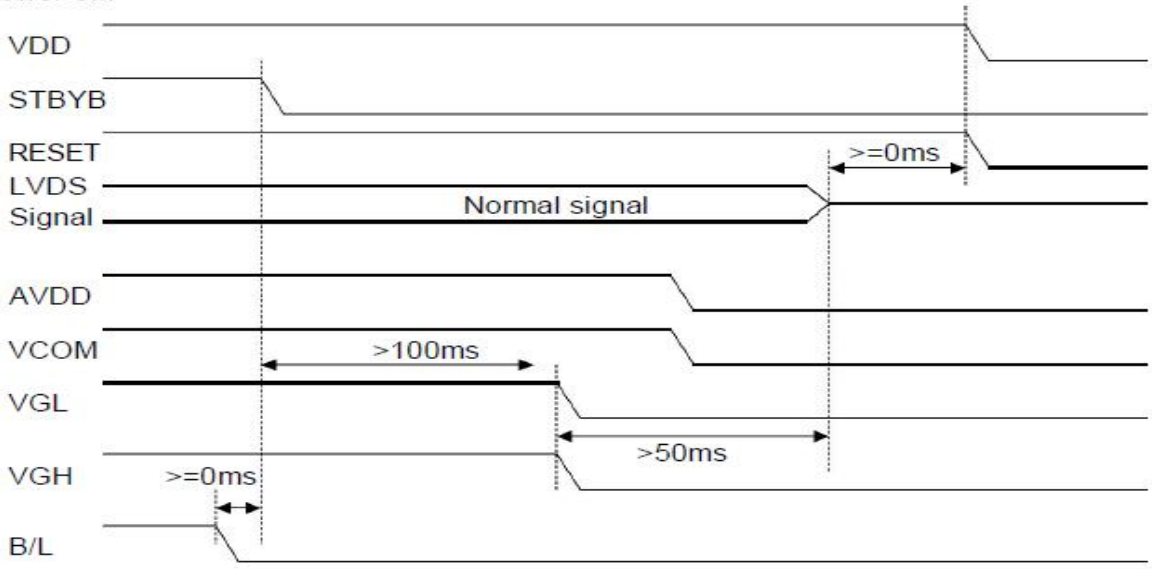
Note: Support DE timing mode only, SYNC mode not supported.

6.3.4 Power ON/OFF SEQUENCE

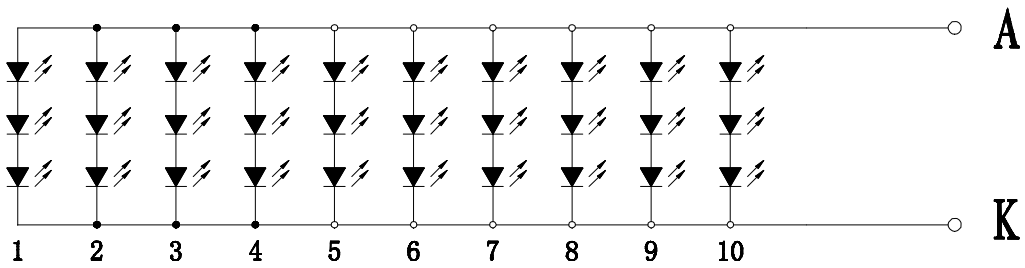
a. Power on:



b. Power off:



6.4 Backlight Characteristic①



Item	Symbol	MIN	TYP	MAX	UNIT	Test Condition
Supply Voltage	Vf	7.9	8.8	9.7	V	If=180mA
Supply Current	If	-	180	-	mA	
Luminous Intensity for LCM	-	250	300	-	cd/m²	If=180mA
Uniformity for LCM	-	75	-	-	%	If=180mA
Life Time	-	20000	-	-	Hr	If=180mA
Backlight Color	White					

Note 1: The LED Supply Voltage is defined by the number of LED at Ta=25℃ and IL = 180mA.

Note 2: The "LED life time" is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and IL =180mA. The LED lifetime could be decreased if operating IL is lager than180mA.

7. INSTRUCTION DESCRIPTION

NC

8. TOUCH PANEL CHARACTERISTICS

NC

9. PRODUCT QUALITY & RELIABILITY

9.1 Standard for Quality Test

9.1.1 Inspection :

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

9.1.2 Electro-Optical Characteristics:

According to the individual specification to test the product.

9.1.3 Test of Appearance Characteristics:

According to the individual specification to test the product.

9.1.4 Test of Reliability Characteristics:

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

9.1.5 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

9.2 Standard for inspection

9.2.1 Manner of appearance test:

a. The test must be under a 30W~40W fluorescent light, and the distance of view must be at 30~35 cm.

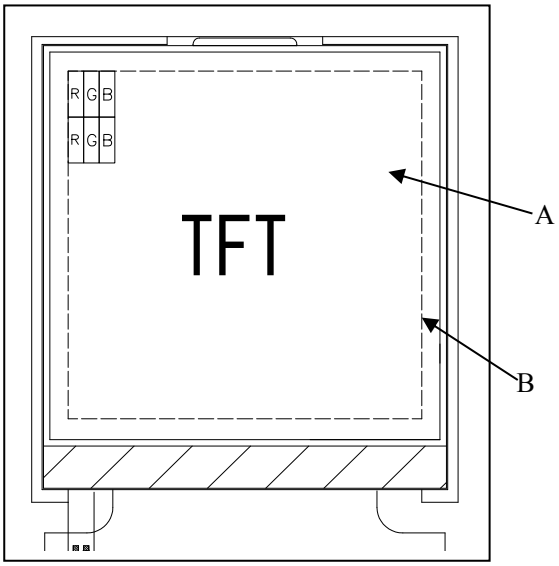
b. When test the model of transmissive product must add the reflective plate.

c. The test direction is base on about around 45° of vertical line.

9.2.2 Definition of area: A B

A Area : Viewing area.

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



9.2.3 Basic principle:

A. In principle the defect out of Area A should be acceptable if the defect does not affect assemblage and the quality of productions.

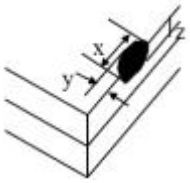
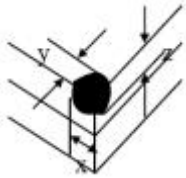
B. If defects that can not describe clearly, acceptable samples will be the standard.
C. The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.
D. Must add new item on time when it is necessary.

9.2.4 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)	Φ≤0.3mm ignore 0.3mm<Φ≤0.5mm accept 4 Φ>0.5mm reject	Minor
2	Appearance: Line type （scratch/Fiber)	W≤0.08mm ignore 0.08mm<W≤0.10mm L≤5mm accept 5 W>0.1mm L>5mm reject	Minor
3	Air bubble	Φ≤0.3mm ignore 0.3mm<Φ≤0.6mm accept 3 Φ>0.6mm reject	Minor
4	Bright dots、Dark dots（DISPLAY only ）	1)Bright dots Φ>1/2 area of a sub-pixelaccept 2 2)Two continuous bright dots reject 3)Dark dots Φ>1/2area of a sub-pixel accept 5 4)Two continuous dark dots≤1pair 5)Total dots defect≤6	Minor
5	Line Shape(Display only)	W≤0.08mm ignore 0.08mm<W≤0.10mm L≤5mm accept 5 W>0.1mm L>5mm 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≦1/2 touch panel area and not affect font and line distortion(≦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≥7mm reject z<2/3t, y≥s reject z≥2/3t, y≥1/3s reject y<0.3mm, x ignore	Minor
14	any chip exposes the silver dot  x: length y: width z: thickness	x≥7mm 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>0.5mm reject	Minor
16	Bezel: dirt	accept	Minor
17	Bezel:sunken	accept	Minor
18	Missing vertical/horizontal segment, no display ,abnormal display	eject	Major

9.3 RELIABILITY

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

10.PRECAUTIONS IN USING

10.1 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.

10.2 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.

10.3 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.

10.4 Precaution for soldering

Soldering should apply to FPC .

1） The soldering temperature is 340±20℃ 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 though holes may be damaged.

10.5 Precaution for operation

1） Adjust liquid crystal driving voltage (Vo) to varies viewing angle and obtain the contrast. Vo 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.

10.6 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.

10.7 Product Warranty Period

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

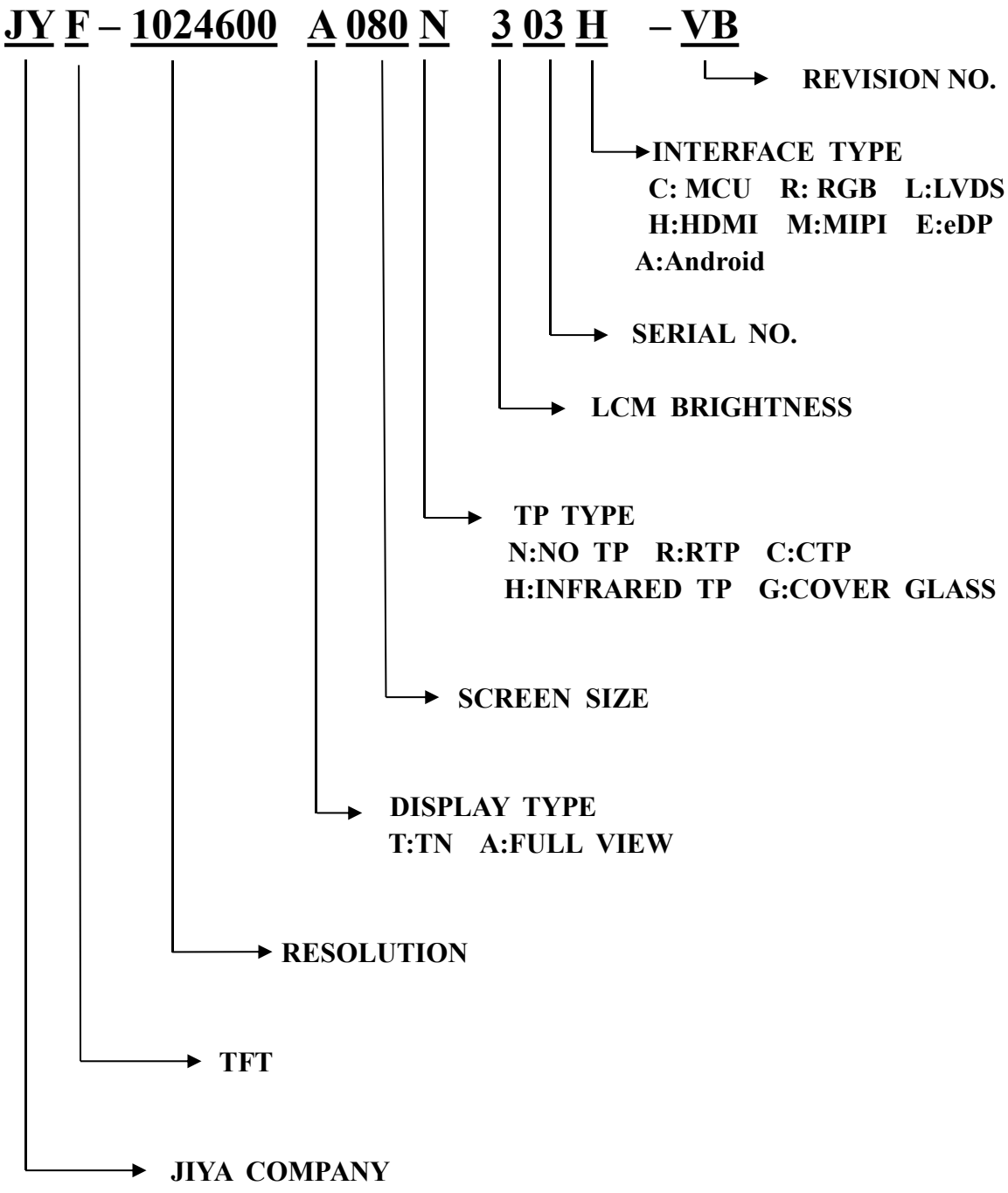
1） Product can replace free if the product return time from product warranty start date is within one year

2） Product can repair/rework free if the product return time from product warranty start d ate 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 s tart 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 s hould resolve it is through mutual negotination.

11. CLASSIFICATION INFORMATION



12. HISTORY OF VERSION

REVISIONS						
No.	DATE	MARK	DESCRIPTION	ORGANIZED BY	CHECKED BY	APPROVED BY
1	20.10.15	①	Change BACKLIGHT Characteristics for page 3△1 and page 5,page18	MaDong	Li Xu Jiang	*Jungai Cheng*
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						