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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-1280800A101NA09L-VA(JY20F25)	
拟制 Prepared by	审核 Checked by	批准 Approved by
Gao Song	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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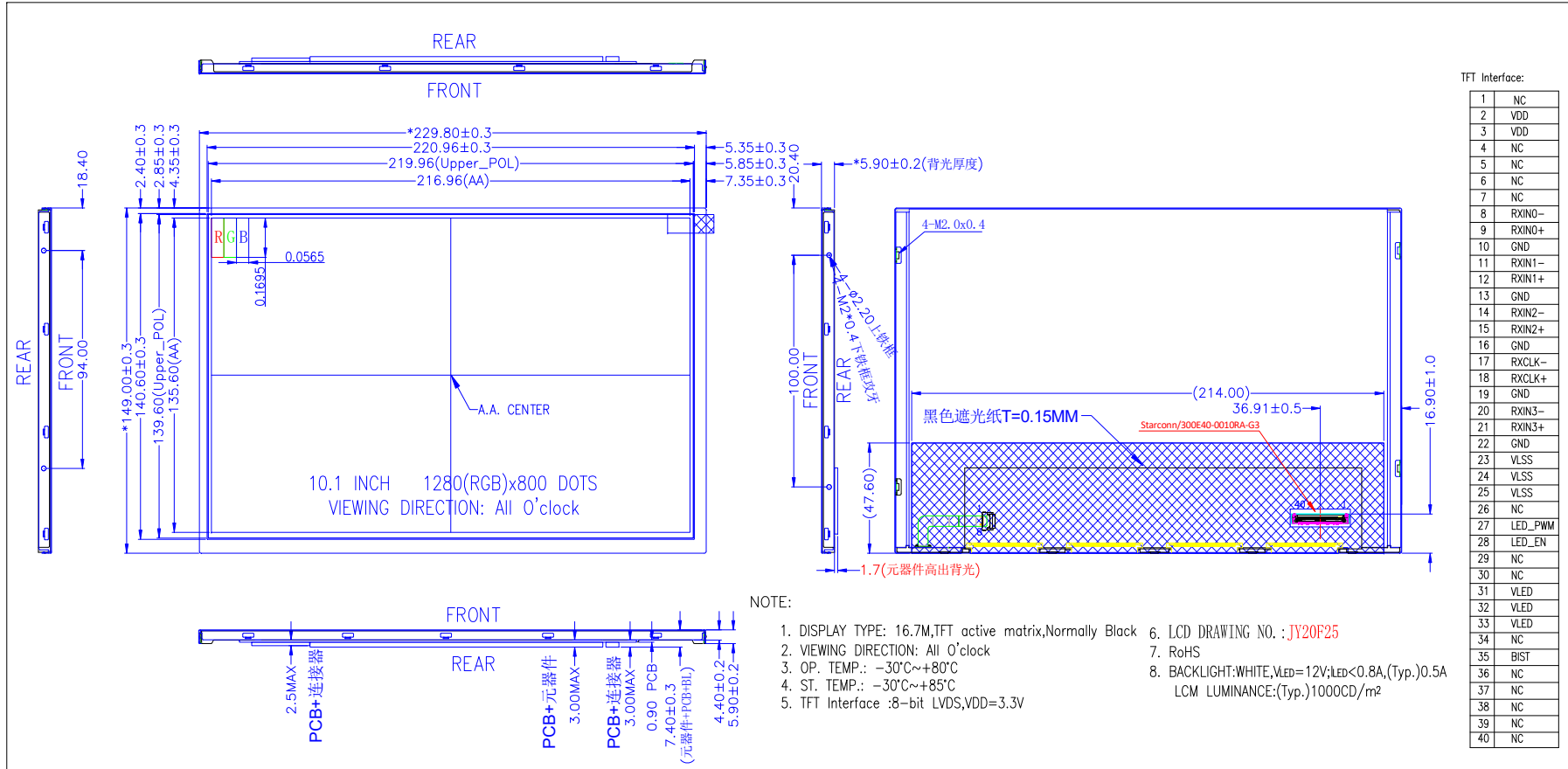
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1.LCM DRAWING



REVISIONS						MARK	DATE	DESCRIPTION	DRAW	CHECK	APPROVE	NAME	DRAW	CHECK	APPROVE	PART NO.	JYF-1280800A101NA09L-VA
												Gao Song				DWG NO.	F1280800A10109-WX
																SUB-DWG NO.	4
																PAGE	1-1
																UNIT	mm
																JIYA (LANGFANG) ELECTRONICS CO.,LTD	
																UNLESS OTHERWISE NOTED TOLERANCES : ±0.2	

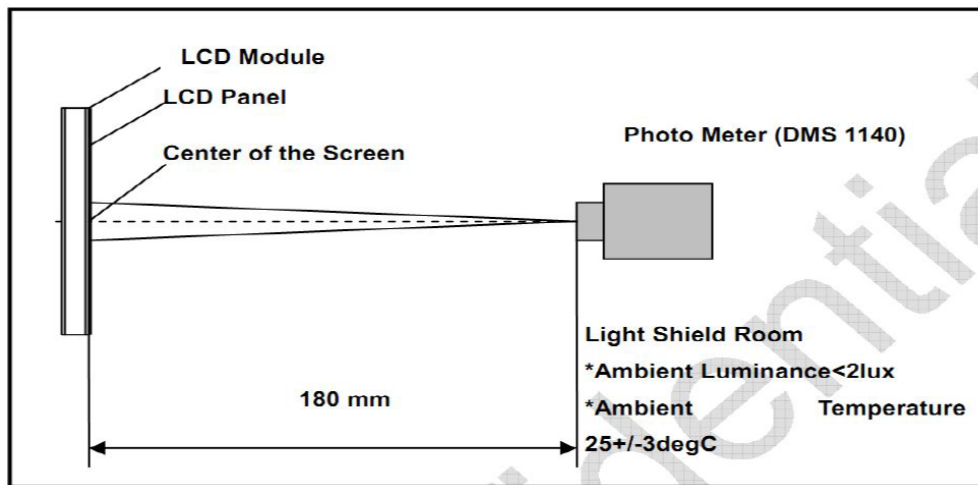
2. GENERAL DESCRIPTION

ITEM	CONTENT	UNIT
SCREEN SIZE	10.1”	
DISPLAY TYPE	16.7M,TFT active matrix,Normally Black	
VIEW DIRECTION	ALL	O’CLOCK
OPEATING TEMPERATURE	-30~+80	°C
STORAGE TEMPERATURE	-30~+85	°C
BACKLIGHT TYPE	LED,WHITE	
INTERFACE TYPE	8-bit LVDS	
DISPLAY FORMAT	1280RGB*800	DOTS
MODULE DIMENSION	229.8.00(w)*149.00(h)*5.95(t)	mm
ACTIVE AREA	216.96(w)*135.60(h)	mm
PIXEL PITCH	0.1695(w)*0.1695(h)	mm

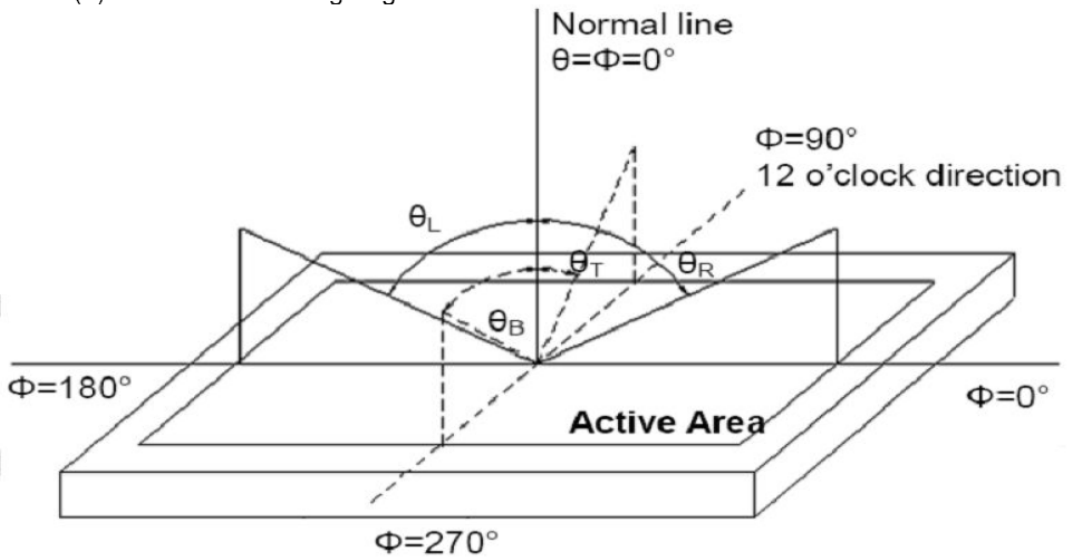
3.ELECTRO-OPTICAL CHARACTERISTICS

Item	Conditions	Min.	Typ.	Max.	Unit	Note	
Viewing Angle (CR>10)	Horizontal	θ_L	-	85	-	degree	(1),(2),(6)
		θ_R	-	85	-		
	Vertical	θ_T	-	85	-		
		θ_B	-	85	-		
Contrast Ratio	Center	600	800	-	-	(1),(3),(6)	
Response Time	Rising	-	25	35	ms	(1),(4),(6)	
	Falling						
CF Color Chromaticity (CIE1931)	Red x	Typ. -0.05	0.610	Typ. +0.05	-	(1), (6)	
	Red y		0.335		-		
	Green x		0.340		-		
	Green y		0.595		-		
	Blue x		0.155		-		
	Blue y		0.205		-		
	White x		0.340		-		
	White y		0.370		-		

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



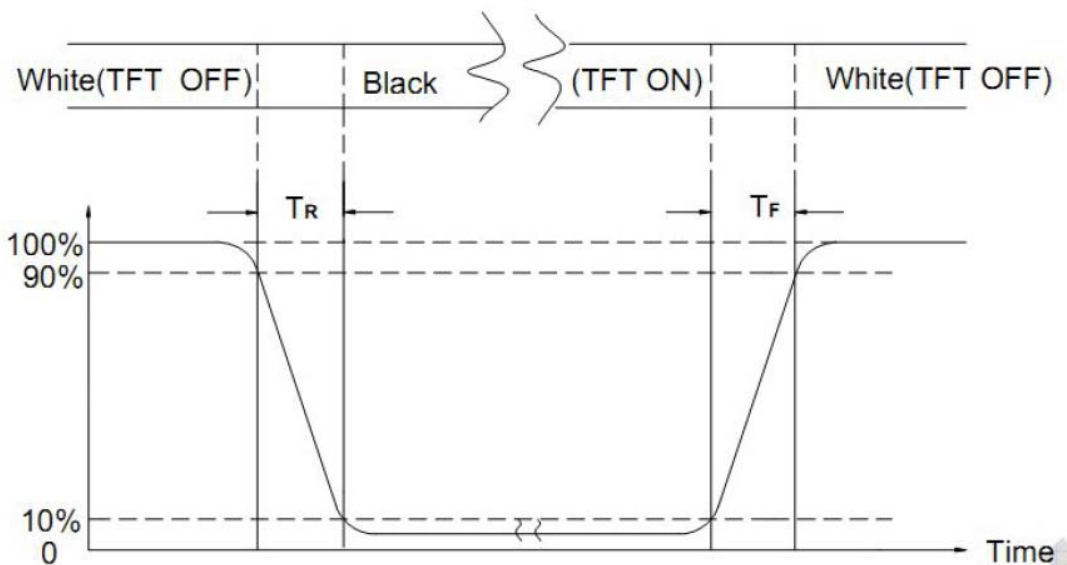
Note (3) Definition of Contrast Ratio (CR)

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

None

5. PINS DESCRIPTION

PIN	PIN NAME	DESCRIPTION	Remark
1	NC	No connection	
2	VDD	Power Supply	
3	VDD		
4	NC		
5	NC	No connection	
6	NC		
7	NC		
8	RXIN0-	-LVDS Differential Data Input	R0~R5,G0
9	RXIN 0+	+LVDS Differential Data Input	
10	GND	Ground	
11	RXIN 1-	-LVDS Differential Data Input	G1~G5,B0, B1
12	RXIN 1+	+LVDS Differential Data Input	
13	GND	Ground	
14	RXIN 2-	-LVDS Differential Data Input	B2~B5,HS, VS,DE
15	RXIN 2+	+LVDS Differential Data Input	
16	GND	Ground	
17	RXCLK-	-LVDS Differential Clock Input	LVDS CLK
18	RXCLK+	+LVDS Differential Clock Input	
19	GND	Ground	
20	RXIN 3-	-LVDS Differential Data Input	R6,R7,G6,G7, B6,B7
21	RXIN 3+	+LVDS Differential Data Input	
22	GND	Ground	
23	VLSS	Ground	
24	VLSS		
25	VLSS		
26	NC	No connection	
27	LED_PWM	CABC controller signal output for backlight	
28	LED_EN	CABC Enable Input	
29	NC	No connection	
30	NC	No connection	
31	VLED	VIN Voltage(12V TYP)	
32	VLED		
33	VLED		
34	NC	No connection	
35	BIST	No connection	
36	NC	No connection	
37	NC	No connection	
38	NC	No connection	
39	NC	No connection	
40	NC	No connection	

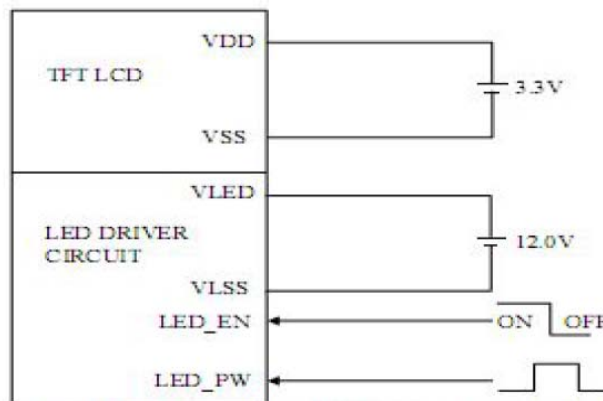
6.ELECTRONIC CHARACTERISTICS

6.1 MAXIMUM VALUES

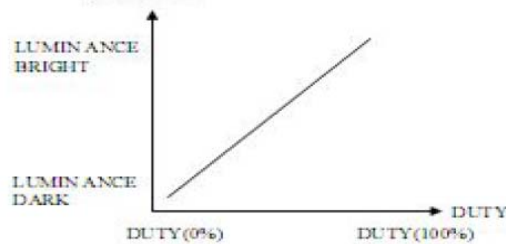
6.1.1 Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Remark
Digital Supply Voltage	VDD	-0.3	4.0	V	
VIN Voltage	VLED	-0.3	50	V	
Operating Temperature	T _{OP}	-30	80	°C	
Storage Temperature	T _{ST}	-30	85	°C	

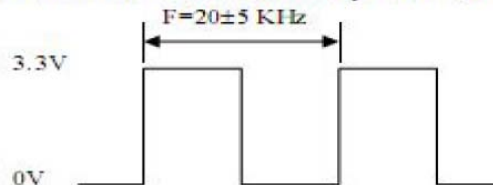
6.1.2 Power Supply For LCM



NOTE (1) : ADJUST THE PWM SIGNAL IN ORDER TO CONTROL LED BACKLIGHTS BRIGHTNESS. THE HIGHER THE DUTY CYCLE, THE HIGHER THE BRIGHTNESS LUMINANCE



NOTE (2) : PWM SIGNAL=0~3.3V · OPERATION FREQUENCY : 20±5KHz



6.2 DC CHARACTERISTICS

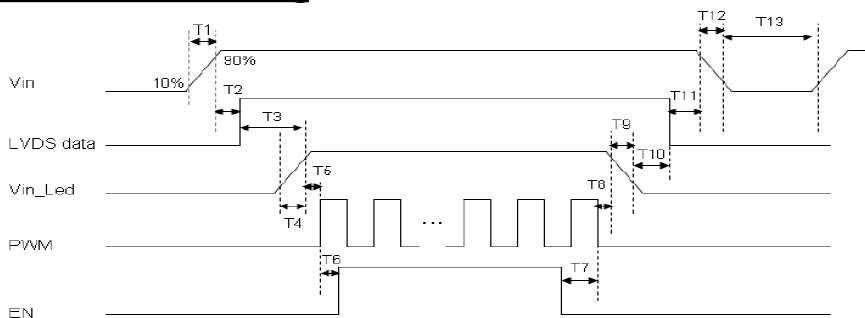
Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Digital Supply Voltage	VDD	2.75	3.3	3.6	V	
VIN Voltage	VLED	4.5	-	40		
Input logic high voltage	V _{IH}	0.7*VDD	-	VDD	V	
Input logic low voltage	V _{IL}	GND	-	0.3*VDD	V	

6.3 BACKLIGHT/OPTICAL CHARACTERISTICS

Item	Symbol	MIN	TYP	MAX	UNIT	NOTE
Backlight Power	LED_VCC	8	12	15	V	Ta = 25°C
Backlight Power	I _{LED_VCC}	-	0.5	0.8	A	LED_VCC=12V
EN Signal Voltage	V _{IH}	LED_EN	1.65	5.25	V	
	V _{IL}		GND		0.4	
Luminous Intensity for LCM	V _{IH}	LED_PWM	0.8V _{en}	5.25	V	
	V _{IL}		GND		0.2V _{en}	
PWM Frequency	LED_PWM	100		20000	Hz	
Lifetime		50000	-	-	Hr	
Color		White				
Average Brightness	-	850	1000	-	Cd/cm ²	
Luminance uniformity	-	80	-	-	%	

6.4 TIMING CHARACTERISTICS

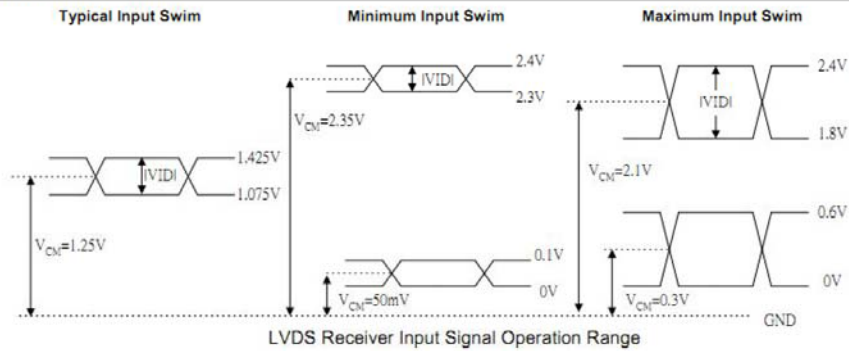
6.4.1 Power On and Reset Timing



Parameter	Symbol	Unit	Min	Typ.	Max
VIN Rise Time	T1	ms	0.5	--	10
VIN Good to Signal Valid	T2	ms	30	--	90
Signal Valid to Backlight On	T3	ms	200	--	--
Backlight Power On Time	T4	ms	0.5	--	--
Backlight VDD Good to System PWM On	T5	ms	10	--	--
System PWM ON to Backlight Enable ON	T6	ms	10	--	--
Backlight Enable Off to System PWM Off	T7	ms	0	--	--
System PWM Off to B/L Power Disable	T8	ms	10	--	--
Backlight Power Off Time	T9	ms	0.5	10	30
Backlight Off to Signal Disable	T10	ms	200	--	--
Signal Disable to Power Down	T11	ms	0	--	50
VIN Fall Time	T12	ms	0.5	10	30
Power Off	T13	ms	500	--	--

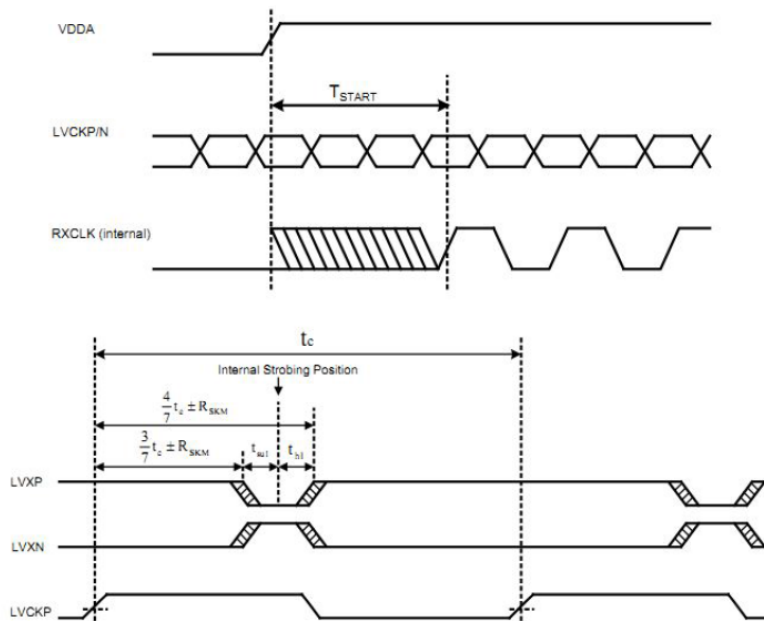
6.4.2 LVDS Signal DC Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max	Unit
V_{TH}	Differential Input High Threshold	$V_{CM} = +1.2V$	-	-	100	mV
V_{TL}	Differential Input Low Threshold		-100	-	-	mV
I_{CC}	Average Supply Current		-	TBD	-	mA



6.4.3 LVDS Signal AC Characteristics

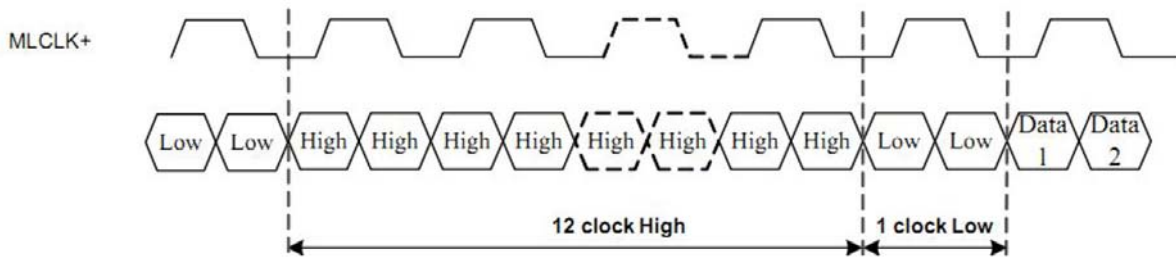
Symbol	Parameter	Conditions	Min.	Typ.	Max	Unit
F_{OP}	Input Operating Frequency range	$RX_HF=0$	25	-	100	MHz
		$RX_HF=1$	100	-	170	MHz
R_{SKM}	Receiver Skew Margin	85MHz, $ VID =400mV$, $V_{CM}=1.2V$	450	-	-	pS
		150MHz, $ VID =400mV$, $V_{CM}=1.2V$	267	-	-	pS
T_{STRAT}	Receiver startup time (after a valid LVDS clock is applied)		-	-	10	mS



NOTE: LVCK is advanced or delayed with respect to data until errors are observed at the receiver outputs. The advance or delay is then reduced until there are no data errors observed. The magnitude of the advance or delay is RSKM.

6.4.4 Mini-LVDS Output Timing

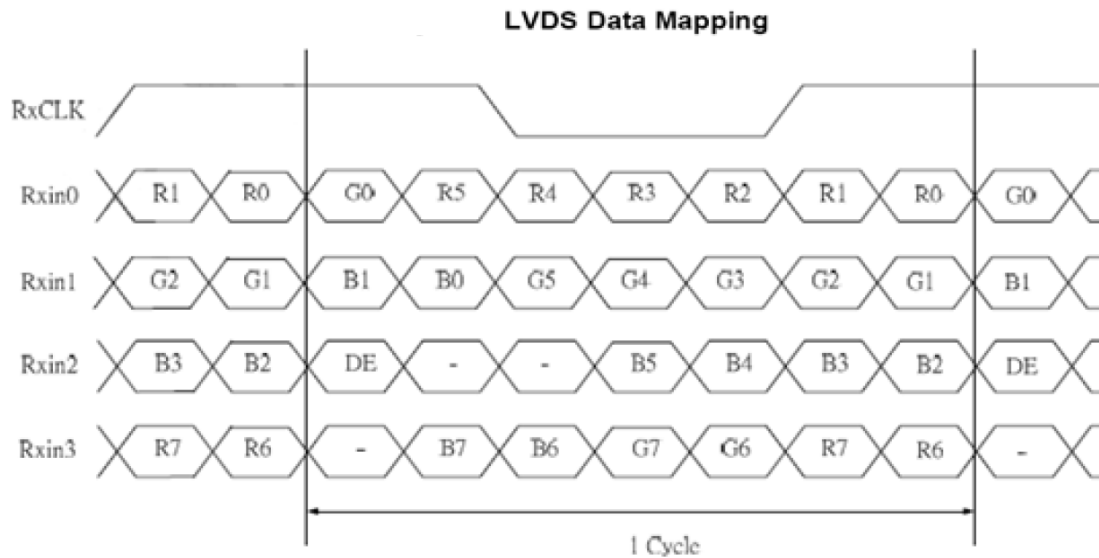
mini-LVDS Reset Pules Timing



6.4.5 Interface Timing

Parameter	Symbol	Unit	Min.	Typ.	Max.
Frame Rate	--	Hz	-	60	-
Frame Period	t _V	line	(815)	(823)	(1023)
Vertical Display Time	t _{VD}	line	800		
Vertical Blanking Time	t _{VW} +t _{VBP} +t _{VFP}	line	(15)	(23)	(33)
1 Line Scanning Time	t _H	clock	(1410)	(1440)	(1470)
Horizontal Display Time	t _{HD}	clock	1280		
Horizontal Blanking Time	t _{HW} +t _{HBP} +t _{HFP}	clock	(60)	(160)	(190)
Clock Rate	1/T _C	MHz	(68.9)	(71.1)	(73.4)

6.4.6 LVDS Data MAPPING



7. INSTRUCTION DESCRIPTION

None

8. TOUCH PANEL CHARACTERISTICS

None

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

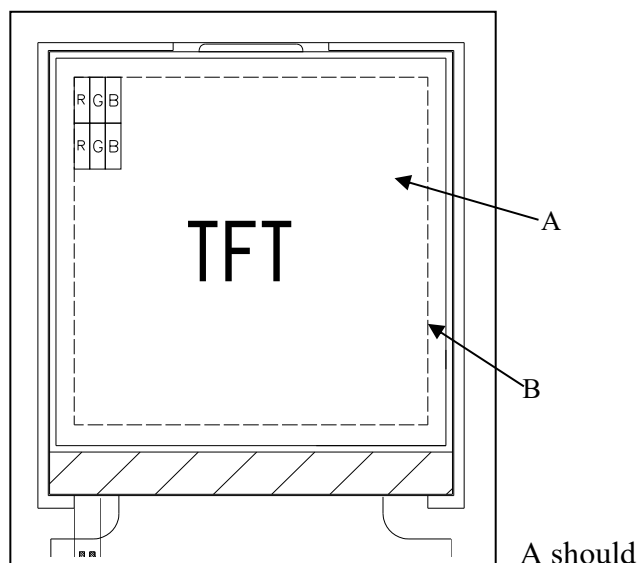
9.2.1 Manner of appearance test:

- 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.

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:

- 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.
- The sample of the lowest acceptable quality level must be discussed by both

supplier and customer when any dispute happened.

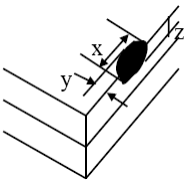
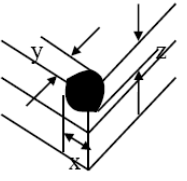
D. Must add new item on time when it is necessary.

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)	$\Phi \leq 0.3\text{mm}$ 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 5mm accept 5 $W > 0.1\text{mm}$ L $>$ 5mm 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 1pair 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 5mm accept 5 $W > 0.1\text{mm}$ 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 $\leq 1/2$ 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

9.3RELIABILITY

Item	Condition	Criterion
High temperature operation	80℃, 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	-30℃, 96 hrs	
Moisture storage	60℃, 90%RH, 96 hrs	
High temperature storage	85℃, 96 hrs	
Low temperature storage	-30℃, 96 hrs	
Thermal shock	-30 ℃ (30 minute) 25 ℃ (5 minute) 85 ℃ (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 handling.

- 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 $340\pm 20^{\circ}\text{C}$ 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.

10.5 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.

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.

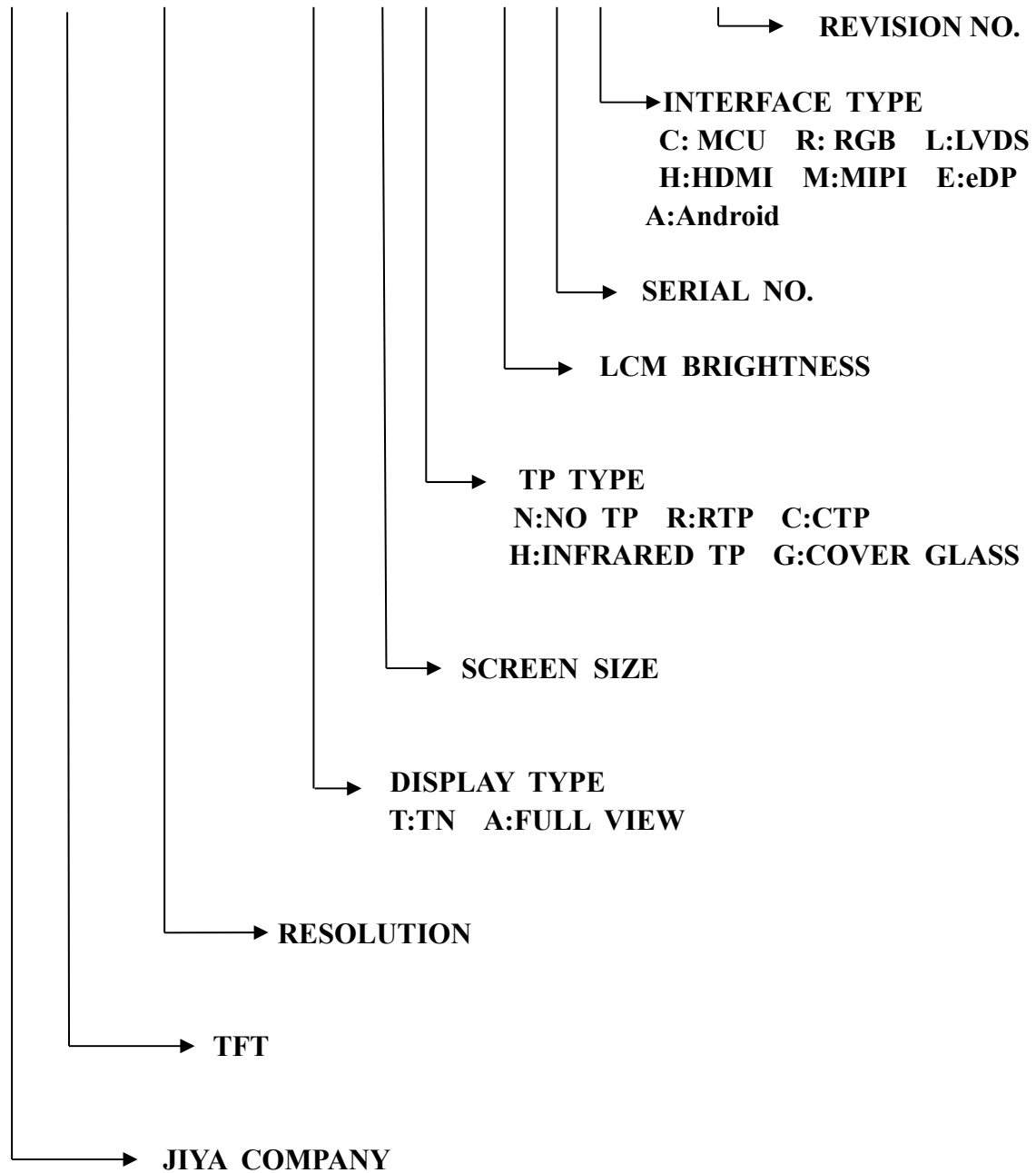
10.7 Product Warranty Period

Our product warranty period is two years, start with the date of manufacturing, warranty 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 negotinat

11. CLASSIFICATION INFORMATION

JY F - 1280800 A 101 N A 09 L - VA



12. HISTORY OF VERSION

REVISIONS						
No.	DATE	MARK	DESCRIPTION	ORGANIZED BY	CHECKED BY	APPROVED BY
1						
2						
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