



# 冀雅（廊坊）电子有限公司

**JIYA (LANGFANG) ELECTRONICS CO., LTD**

## 模块产品规格书 SPECIFICATION FOR LCD MODULE

客户 COSTOMER	
产品型号 MODEL	<b>JYG-48027201G(R)-KT6L2-VC</b>

设 计 ORGANIZED BY	审 核 CHECKED BY	批 准 APPROVED BY
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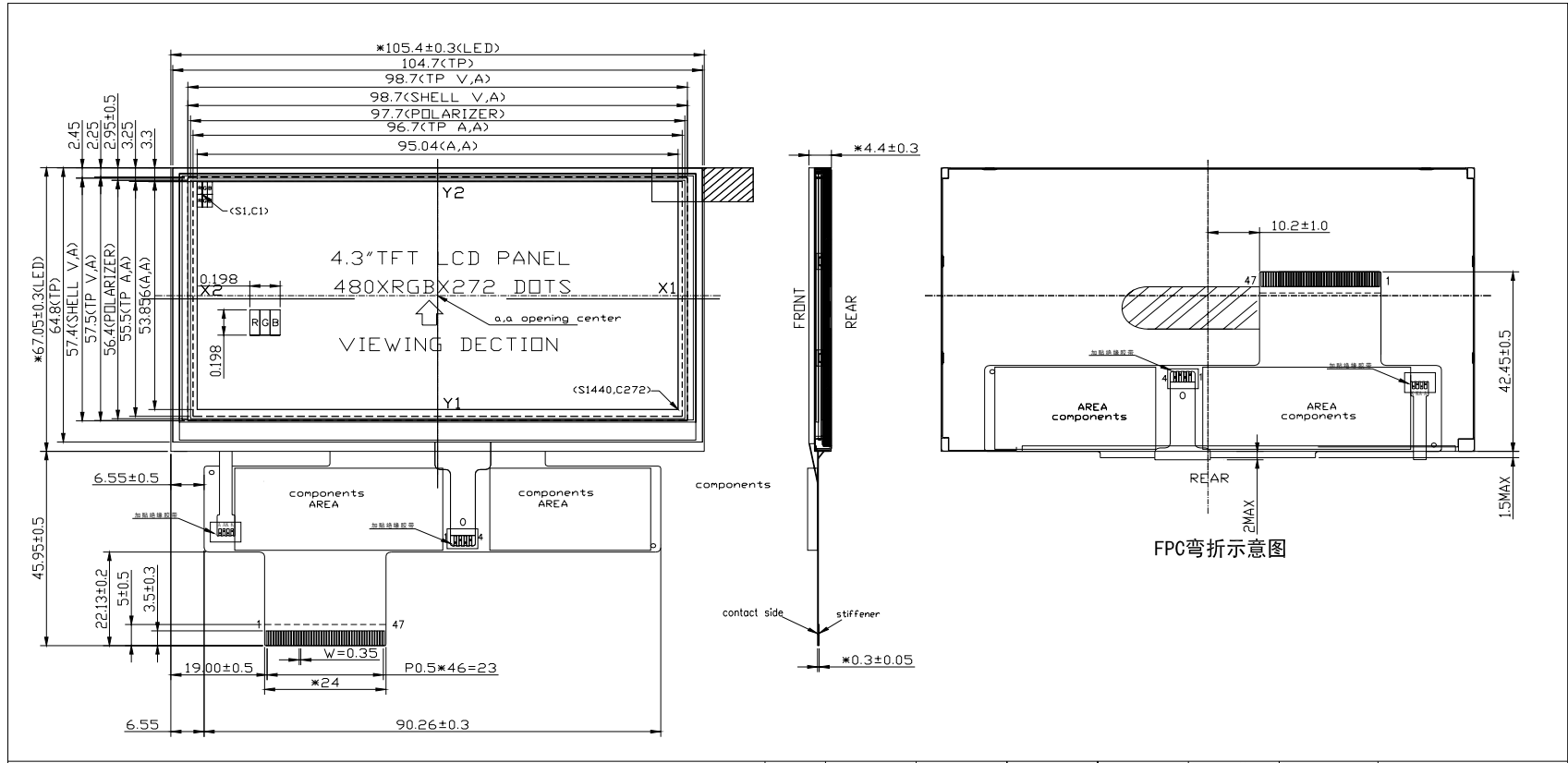
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# 1. LCM DRWING



FPC弯折示意图

更改记录						设计	审核	工艺	标准化	批准	产品型号	JYG-48027201G(R)-KT6L2-VC
更改标记	日期	更改内容	设计	审核	批准	签名	宿惠菊				文件编号	G48027201G(R)-WX-VC
						日期	09.02.03				分文件号	4
											页数	1-1 单位 mm
						未注公差	$\pm 0.2$				冀雅(廊坊)电子有限公司	

## 2. GENERAL DESCRIPTION

MAIN TECHNICS:	COG
DISPLAY CONTENT:	GRAPHIC
DISPLAY TYPE:	262K COLORS-TFT-NEGATIVE-TRANSMISSIVE
DRIVER METHOD:	1/272 DUTY
VIEWING DIRECTION:	6:00
CONTROLLER:	HX8257
BACKLIGHT:	LED WHITE
OPERATING TEMPERATURE:	-20°C-+70°C
STORAGE TEMPERATURE:	-30°C-+80°C
INTERFACE:	24-BITS PARALLEL RGB INTERFACE
REFERENCE DOCUMENTS :	<u>HX8257 datasheet</u>

## 3. MECHANICAL SPECIFICATIONS

ITEM	CONTENT	UNIT
PIXEL'S NUMBER	480*272	PIXEL
MODULE DIMENSION	105.4(w)*113.0(h)*4.4(t)	mm
ACTIVE AREA	95.04(w)*53.856(h)	mm
PIXEL SIZE	0.198(w)*0.198(h)	mm

## 4. ELECTRO-OPTICAL CHARACTERISTICS

Item	Symbol	Conditions	Specifications			Unit	Note	
			Min.	Typ.	Max.			
Transmittance	T%	Viewing normal angle $\theta_x = \theta_y = 0^\circ$	-	6.1	-	%	All left side data are based on CMO's following condition – 6 o'clock NTSC: 50% LC: TN Light : C light (Machine:BM5A) Normal Polarizer (Linear Polarizer)	
Contrast Ratio	CR		-	250	-	-		
Response Time	$T_R$		-	5	-	ms		
	$T_F$		-	15	-	ms		
Chromaticity	Red		$X_R$	0.590	0.620	0.650		-
			$Y_R$	0.314	0.344	0.374		-
	Green		$X_G$	0.276	0.306	0.336		-
			$Y_G$	0.533	0.563	0.593		-
	Blue		$X_B$	0.103	0.133	0.163		-
			$Y_B$	0.119	0.149	0.179		-
White	$X_W$	0.281	0.311	0.341	-			
	$Y_W$	0.319	0.349	0.379	-			
Viewing Angle	Hor.	$\theta_{x+}$	-	45	-	deg.	Simulation data Reference Only	
		$\theta_{x-}$	-	45	-			
	Ver.	$\theta_{y+}$	-	15	-			
		$\theta_{y-}$	-	35	-			

\*Note (1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

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

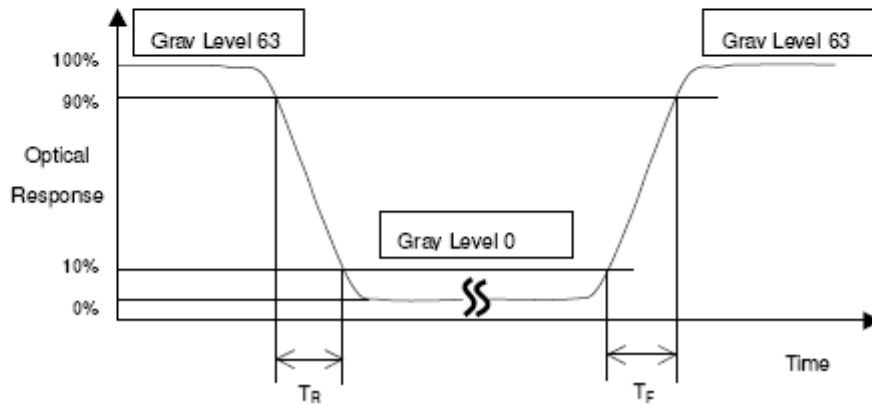
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

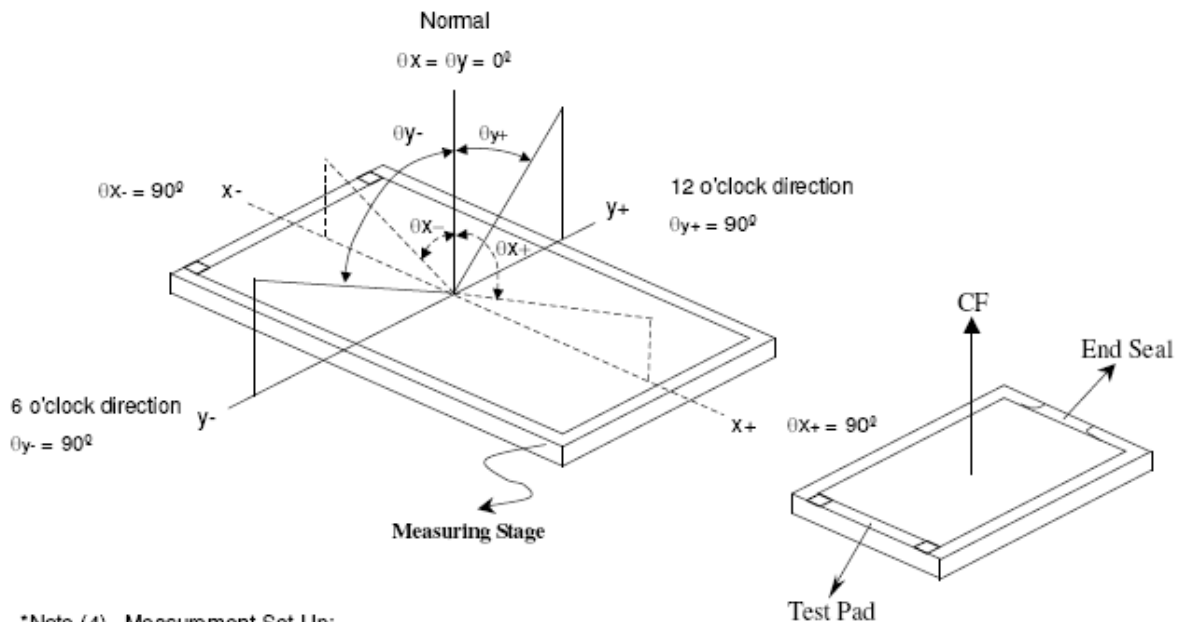
$$\text{CR} = \text{CR} (5)$$

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).

\*Note (2) Definition of Response Time ( $T_R$ ,  $T_F$ ):

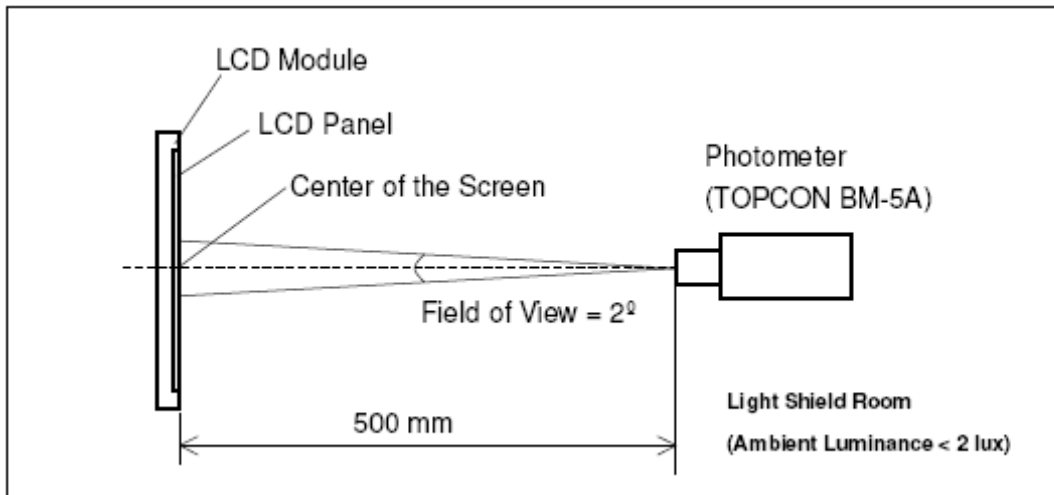


\*Note(3) Definition of Viewing Angle

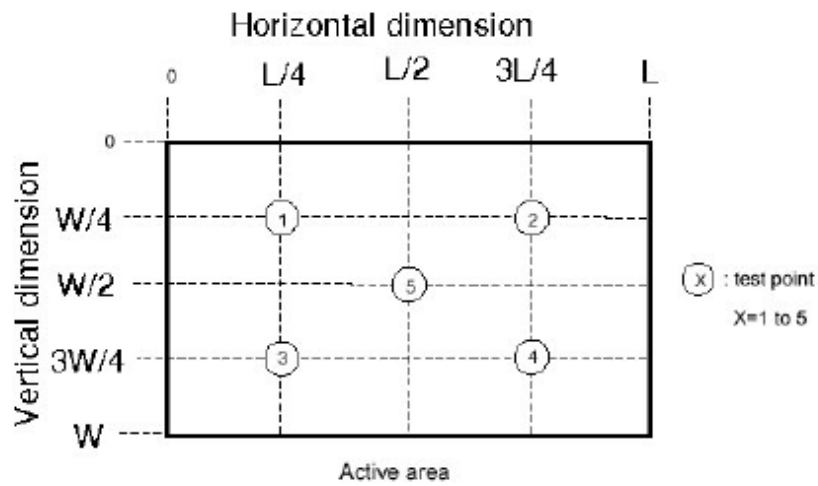


\*Note (4) Measurement Set-Up:

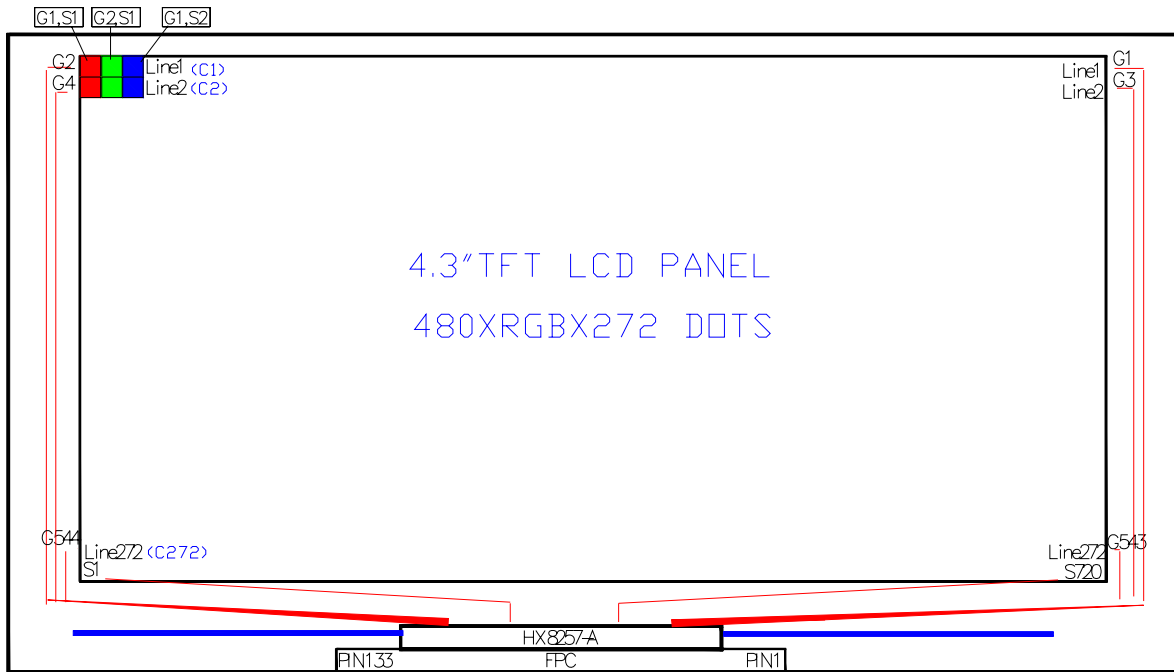
The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



\*Note (5)



## 5. BLOCK DIAGRAM



## 6. ELECTRONIC CHARACTERISTICS

### 6.1 MAXIMUM VALUES

ITEM	SYMBOL	STANDARD VALUE		UNIT
		MIN	MAX	
Logic supply voltage	$V_{DD}$	-0.3	+4.0	V
Operating Temperature	Top	-20	+70	°C
Storage Temperature	Tst	-30	+80	°C

## 6.2. DC CHARACTERISTICS

(Unless otherwise specified, Voltage Referenced to DVSS, VDDIO = 2.2V, TA = 25°C)

Symbol	Parameter	Test condition	Spec.			Unit
			Min.	Typ.	Max.	
VDDIO	Power supply pin of IO pins	Recommend Operating Voltage Possible Operating Voltage	1.8	-	3.6	V
VCI	Booster Reference Supply Voltage Range	Recommend Operating Voltage Possible Operating Voltage	$\geq$ VDDIO & $\geq$ 3	-	3.6	V
I <sub>sleep</sub>	Sleep mode current	-	-	50	-	μA
I <sub>op</sub>	Operating mode current	VCI=3.3V	-	13	15	mA
VCL	Negative V <sub>CI</sub> Output Voltage	No panel loading	- VCI	-	- VCI+0.7	V
VCIX2	V <sub>CIx2</sub> primary booster efficiency <sup>(1)</sup>	No panel loading, ITO for V <sub>CIx2</sub> , V <sub>CI</sub> and V <sub>CHS</sub> = 10 Ohm	5.2	5.4	5.6	V
VDC	V <sub>DC</sub> Output Voltage	VDC[3:0]=1011	4.9	5	5.1	V
VGH	Gate driver High Output Voltage	No panel loading; 3x booster	84	89.5	-	%
	Booster efficiency <sup>(2)</sup>	No panel loading; 4x booster	80	88.5	-	%
VGL	Gate driver Low Output Voltage	V <sub>GL</sub> - 2 x VDC	-10	-10	-9	V
COMH	V <sub>COM</sub> High Output Voltage <sup>(3)</sup>	-	-3%	COMC+COMPP	3%	V
COML	V <sub>COM</sub> Low Output Voltage <sup>(3)</sup>	-	-3%	COMC-COMPP	3%	V
VLCD	V <sub>LCD</sub> Output Voltage	VRH[5:0]=100100	4.41	4.51	4.61	V
V <sub>OH1</sub>	Logic High Output Voltage	I <sub>out</sub> = -100μA	0.9*V <sub>DDIO</sub>	-	V <sub>DD</sub>	V
V <sub>VO</sub>	Source Output Voltage Deviation	-	-	±20	±30	mV
V <sub>OS</sub>	Source Output Voltage Offset	-	-	-	±30	mV
V <sub>OL1</sub>	Logic Low Output Voltage	I <sub>out</sub> = 100μA	0	-	0.1*V <sub>DDIO</sub>	V
V <sub>IH1</sub>	Logic High Input voltage	-	0.8*V <sub>DDIO</sub>	-	V <sub>DDIO</sub>	V
V <sub>IL1</sub>	Logic Low Input voltage	-	0	-	0.2*V <sub>DDIO</sub>	V
I <sub>OH</sub>	Logic High Output Current Source	V <sub>out</sub> = VDD - 0.4V	50	-	-	μA
I <sub>OL</sub>	Logic Low Output Current Drain	V <sub>out</sub> = 0.4V	-	-	-50	μA
I <sub>oz</sub>	Logic Output Tri-state Current Drain Source	-	-1	-	1	μA
I <sub>I/IH</sub>	Logic Input Current	-	-1	-	1	μA

Note : (1) VCIX2 efficiency = VCIX2 / (2 x VCI) x 100%

(2) VGH efficiency = VGH / (VDC x n) x 100% (where n = booster factor)

(3) VCOML < 0V, VCOMH < VCIX2J



### 6.3 .TIMING CHARACTERISTICS

#### Parallel RGB input timing requirement

(480RGBx272,  $T_A=25^{\circ}\text{C}$ ,  $V_{DDIO}=1.8\text{V}$  to  $3.6\text{V}$ ,  $DVSS=0\text{V}$ )

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Clock cycle	$f_{\text{CLK}}^{(1)}$	-	9	15	MHz
Hsync cycle	$1/\text{th}$	-	17.14	-	KHz
Vsync cycle	$1/\text{tv}$	-	59.94	-	Hz
Horizontal Signal					
Horizontal cycle	th	525	525	605	CLK
Horizontal display period	thd	480	480	480	CLK
Horizontal front porch	thf	2	2	82	CLK
Horizontal pulse width	thp <sup>(2)</sup>	2	41	41	CLK
Horizontal back porch	thb <sup>(2)</sup>	2	2	41	CLK
Vertical Signal					
Vertical cycle	tv	285	286	511	H <sup>(1)</sup>
Vertical display period	tvd	272	272	272	H <sup>(1)</sup>
Vertical front porch	tvf	1	2	227	H <sup>(1)</sup>
Vertical pulse width	tvp <sup>(2)</sup>	1	10	11	H <sup>(1)</sup>
Vertical back porch	tvb <sup>(2)</sup>	1	2	11	H <sup>(1)</sup>

Note: (1) Unit:  $\text{CLK}=1/f_{\text{CLK}}$ ,  $\text{H}=\text{th}$ ,

(2) It is necessary to keep  $\text{tvp}+\text{tvb}=12$  and  $\text{thp}+\text{thb}=43$  in sync mode. DE mode is unnecessary to keep it.

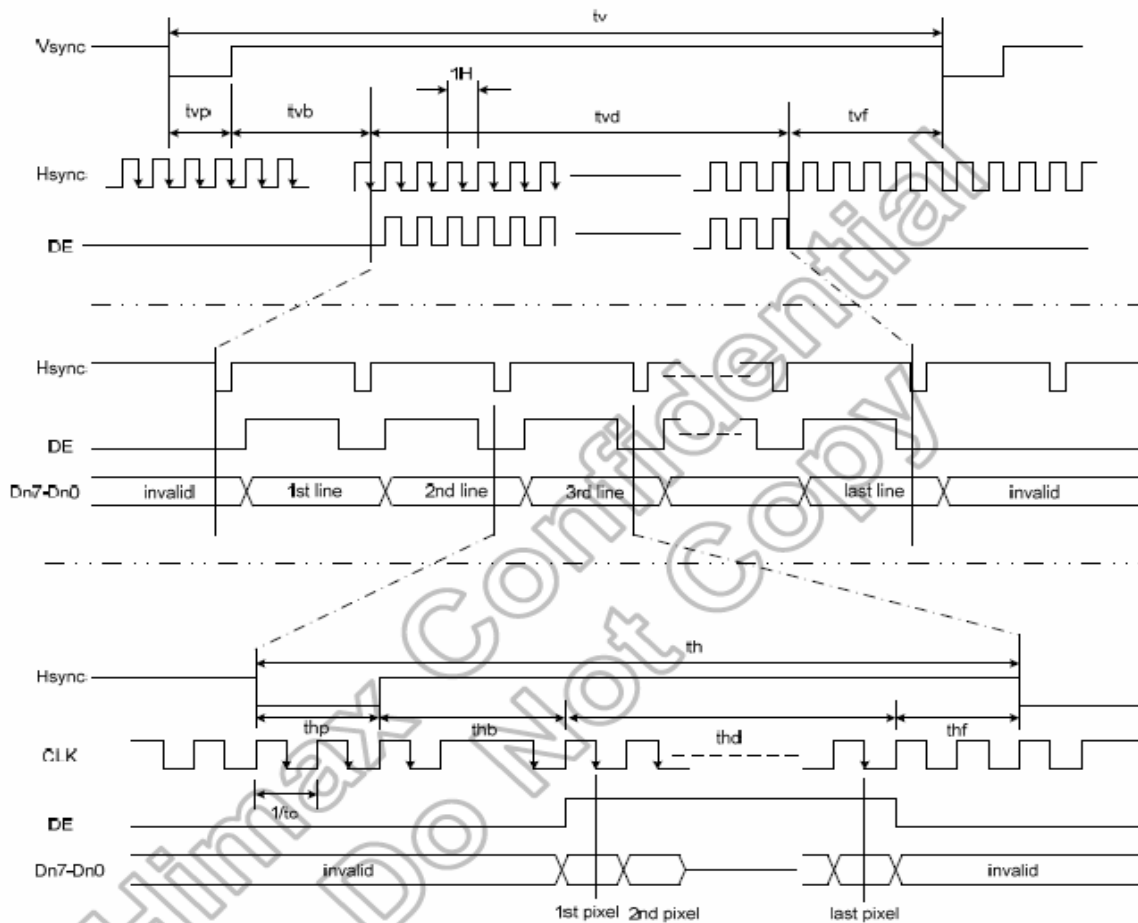


Figure 11.1 Parallel RGB Input Timing

## **7. PINS DESCRIPTION**

Pin No.	Symbol	Description
1	VLED+	Backlight LED anode
2	VLED-	Backlight LED cathode
3	DVSS	Digital ground
4	VDD	Logic Power supply
5	SDO	Data output pin in serial mode
6	SDI	Data input pin in serial mode
7	SCL	Clock pin of serial interface
8	CSB	Chip select pin of serial interface
9	PS	Input data format select signal
10	LR	Shift direction selection signal
11	UD	Scan direction selection signal
12	DE	Input data enable control.
13	VSYNC	Vertical synchronizing signal
14	HSYNC	Horizontal synchronizing signal
15	DISP	Display on/off mode control
16	CLK	Clock signal for data latching and internal counter of the timing controller
17-24	D27-D20	Digital data input
25-32	D17-D10	
33-40	D07-D00	
41	RESETB	Active low global reset signal input
42	VDD	Logic Power supply
43	AVSS	Analog ground
44	X1	touch panel output pin.(Touch screen X corrdinate right)
45	Y1	touch panel output pin.(Touch screen Y corrdinate down)
46	X2	touch panel output pin.(Touch screen X corrdinate left)
47	Y2	touch panel output pin.(Touch screen Y corrdinate up)

## 8. INSTRUCTION DESCRIPTION

Reg#	Register	R/W	R/S	IB15	IB14	IB13	IB12	IB11	IB10	IB9	IB8	IB7	IB6	IB5	IB4	IB3	IB2	IB1	IB0	
R01h	Driver data control	0	1	OEA1	OEA0	PALM	DEO	DEP	HSP	VSP	CLK_T RG	GON	DIT	PINV	BGR	0	UD	LR	NBW	
R02h	Power control (1)	0	1	0	0	VDS1	VDS0	0	EQ2	EQ1	EQ0	DC3	DC2	DC1	DC0	0	AP2	AP1	AP0	
R03h	Power control (2)	0	1	X2EN	XDK	VRC1	VRC0	VDC3	VDC2	VDC1	VDC0	0	0	VRH5	VRH4	VRH3	VRH2	VRH1	VRH0	
R04h	Function control	0	1	0	0	0	0	REV	PA2	PA1	PA0	AGM	SEQ	PS	0	REG	PSHUT	GDIS	COMG	
R05h	PWM control			0	PSWE	DUS	DU4	DU3	DU2	DU1	DU0	PWMA	FBA2	FBA1	FBA0	PWMB	FBB2	FBB1	FBB0	
R06h	VCOM control	0	1	0	0	nOTP	VMC4	VMC3	VMC2	VMC1	VMC0	0	0	eOTP	VDV4	VDV3	VDV2	VDV1	VDV0	
R07h	Vertical Perch	0	1	0	0	0	0	0	0	0	0	0	VBP6	VBP5	VBP4	VBP3	VBP2	VBP1	VBP0	
R08h	Horizontal Perch	0	1	0	0	0	0	0	0	STH1	STH0	HBP7	HBP6	HBP5	HBP4	HBP3	HBP2	HBP1	HBP0	
R09h	Contrast/ Brightness control	0	1	0	BR6	BR5	BR4	BR3	BR2	BR1	BR0	0	0	0	CON4	CON3	CON2	CON1	CON0	
R0Fh	CABC function control	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	DBEN	
R10h	γ control (1)	0	1	0	0	0	0	0	PKP 12	PKP 11	PKP 10	0	0	0	0	0	PKP 02	PKP 01	PKP 00	
R11h	γ control (2)	0	1	0	0	0	0	0	PKP 32	PKP 31	PKP 30	0	0	0	0	0	PKP 22	PKP 21	PKP 20	
R12h	γ control (3)	0	1	0	0	0	0	0	PKP 52	PKP 51	PKP 50	0	0	0	0	0	PKP 42	PKP 41	PKP 40	
R13h	γ control (4)	0	1	0	0	0	0	0	PRP 12	PRP 11	PRP 10	0	0	0	0	0	PRP 02	PRP 01	PRP 00	
R14h	γ control (5)	0	1	0	0	0	0	0	PKN 12	PKN 11	PKN 10	0	0	0	0	0	PKN 02	PKN 01	PKN 00	
R15h	γ control (6)	0	1	0	0	0	0	0	PKN 32	PKN 31	PKN 30	0	0	0	0	0	PKN 22	PKN 21	PKN 20	
R16h	γ control (7)	0	1	0	0	0	0	0	PKN 52	PKN 51	PKN 50	0	0	0	0	0	PKN 42	PKN 41	PKN 40	
R17h	γ control (8)	0	1	0	0	0	0	0	PRN 12	PRN 11	PRN 10	0	0	0	0	0	PRN 02	PRN 01	PRN 00	
R18h	γ control (9)	0	1	0	0	0	VRP 14	VRP 13	VRP 12	VRP 11	VRP 10	0	0	0	0	0	VRP 03	VRP 02	VRP 01	VRP 00
R19h	γ control (10)	0	1	0	0	0	VRN 14	VRN 13	VRN 12	VRN 11	VRN 10	0	0	0	0	0	VRN 03	VRN 02	VRN 01	VRN 00

Note: Software settings will override hardware pin (eg. UD bits override UD pin definition)

## 9. BACKLIGHT PARAMETERS

Item	Symbol	Condition	Rating	Unit
Operating temperature range	Topr		-20~+70	°C
Storage temperature range	Tst		-30~+80	°C

For operation above 25°C ,The Ifm Ifp & Pd must be derated ,the Curent derating is-0.36\*10mA/°C for DC drive and-0.86\*10mA/°C for Pulse drive, the Power dissipation is -0.75\*10mW/°C. The product working current must not more than the 60% of the Ifm or Ifp according to the working temperature.

Ta=25°C,Unless specified, The Ambient temperature Ta=25°C

Item	Symbol	min	typ	max	Unit	Condition
Forward Voltage	Vf	15.0	15.5	16.0	V	If=30mA
Luminance	Lv	4000			cd/m <sup>2</sup>	If=30mA
Color chromaticity	X Y	X=0.26 Y=0.26		X=0.315 Y=0.315		If=30mA

The luminance is the average value of 9 points, and The Lvmax./Lvmin.is more than 70%Typical. The measurement instrument is BL-200-V2 luminance Colorimeter. The aperture is φ 5.0mm.

## 10. Product Quality & Reliability

### 10.1 Standard for Quality Test

#### 10.1.1 Inspection :

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

#### 10.1.2 Electro-Optical Characteristics:

According to the individual specification to test the product.

10.1.3 Test of Appearance Characteristics:

According to the individual specification to test the product.

10.1.4 Test of Reliability Characteristics:

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

10.1.5 Delivery Test:

Before delivering, the supplier should take the delivery test.

A. Test method: According to MIL-STD-105E, General Inspection Level II take a single time.

B. The defects classify of AQL as following:

Major defect: AQL=0.25

Minor defect: AQL=1.0

Total defects: AQL=1.0

**10.2 Standard for inspection**

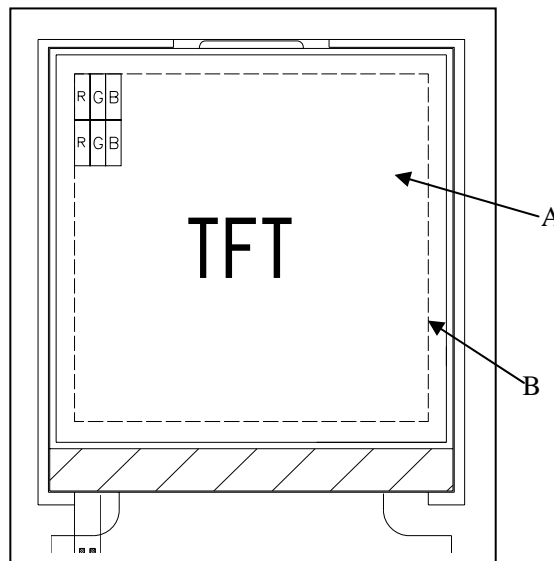
10.2.1 Manner of appearance test:

- a. The test must be under a 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.

10.2.2 Definition of area: A B

A Area : Viewing area.

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

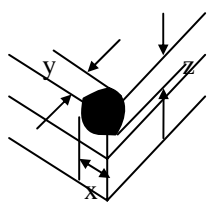


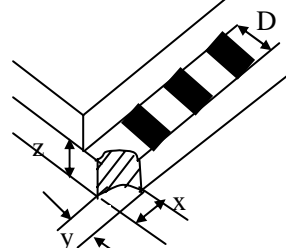
10.2.3 Basic principle:

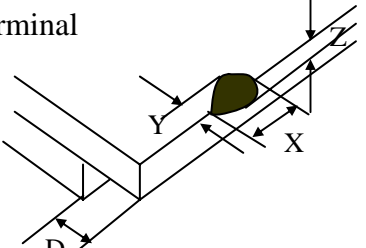
- A. In principle the defect out of Area A should be acceptable if the defect does not affect assemblage and the quality of productions.
- B. If defects that can not describe clearly, acceptable samples will be the standard.
- C. The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.
- D. Must add new item on time when it is necessary.

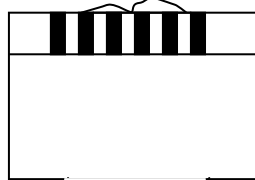
10.2.4 Standard of inspection

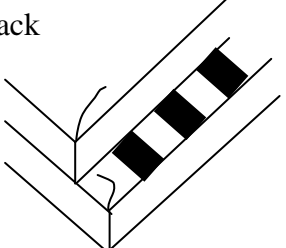


Defect	Inspect item	Criteria
4 Minor	Chip on corner of neat edge	$x \leq 3 \text{ mm}$ $y \leq 3 \text{ mm}$ $z \leq t$
	 <p>X: length      Y: width S: width of edge sealing</p>	<p style="text-align: right;">acceptable</p> <p>any chip exposes the silver dot      reject</p>

Defect	Inspect item	Criteria
5 Minor	Chip on corner of terminal edge	$x < 0.3 \text{ mm}$ or $y < 0.3 \text{ mm}$ ignore
	 <p>D: terminal length</p>	$x \leq 3 \text{ mm}$ $y < D$ two are acceptable

Defect	Inspect item	Criteria
6 Minor	Chip on opposite side of terminal	$a \geq 80 \text{ mm}$ , $x \geq 7 \text{ mm}$ reject
		$a < 80 \text{ mm}$ , $x > 5 \text{ mm}$ reject $y > 1/2D$ reject $z > 1/2t$ , $y > 1/4D$ reject D: terminal length

Defect	Inspect item	Criteria
7 Minor	Cutting/breaking defect (flare)	According to the dimension of drawing
		

Defect	Inspect item	Criteria
8 Minor	Crack 	Any crack trend to extend      reject

Defect	Inspect item	Criteria
9 Major	Liquid leakage, open sealant	reject

Defect	Inspect item	Criteria
10 Minor	Rainbow	According to samples

Defect	Inspect item	Criteria
11 Major	FPC、TCP、FLEX are broken or not connected firmly	reject

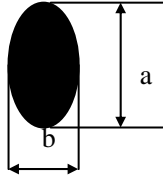
Defect	Inspect item	Criteria
12 Minor	The component on PCB or FPC is missing ,soldered unfirmly or bridged	reject

Defect	Inspect item	Criteria
13 Minor	The soldering tin is not enough	The height that soldering tin covers the bump of component is 1/2 less than the height of bump      reject

Defect	Inspect item	Criteria
14 Minor	The soldering tin overflows	The soldering tin covers whole bump      reject





Defect	Inspect item	Criteria
21 Minor	Black & white dots on touchpanel (round type) Air bubble on touchpanel  $\Phi=(a + b)/2$	1) $\Phi \leq 0.1$ mm                      acceptable 2) $0.1 < \Phi \leq 0.3$ mm      three are acceptable 3) $\Phi > 0.3$ mm                      reject 1.The distance between any two dots should be more than 5mm. 2.Defect outside A area is acceptable. 3.If the air bubble is black, it can be judged as black spot.

Defect	Inspect item	Criteria
22 Minor	Touchpanel warps	According to the dimension of drawing.

Defect	Inspect item	Criteria
23 Minor	Dirty on rear of touchpanel	It's visible at condition of $30 \pm 5$ cm, $45^\circ$

Defect	Inspect item	Criteria
24 Minor	Dirty on rear of touchpanel	It's visible at condition of $30 \pm 5$ cm, $45^\circ$

**10.3RELIABILITY**

ITEM	CONDITION
High temperature operation	70 °C, 96 hrs
Low temperature operation	-20 °C, 96 hrs
Moisture storage	60 °C, 90%RH, 96 hrs
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
LIFE TIME	50,000 hours, 25±10°C, 45±20% RH

## **11.PRECAUTIONS IN USING**

### **11.1 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 isoropyl 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.

### **11.2 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.
- 5) Do not change the positions of components on the PCB.

### **11.3 Eletro-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.

### **11.4 Precaution for soldering**

- 1) Soldering should apply to I/O terminals only.

- 2) Soldering temperature is  $280^{\circ}\text{C}+(-)10^{\circ}\text{C}$ .
- 3) Soldering time 3-4 seconds.
- 4) Eutectic solder (rosin flux filled) should be used.
- 5) 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.
- 6) 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.

#### **11.5 Precaution for operation**

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

#### **11.6 Storage**

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

- 1) Storage them in a sealed polyethylene bag (antistatic), seal the opening, and store it where it is not subjected to direct sunshine, or to the light of fluorescent lamp. If properly sealed, there is no need for desiccant.
- 2) Store them in the temperature range of  $-30^{\circ}\text{C}$ - $80^{\circ}\text{C}$  and at low humidity is recommended.

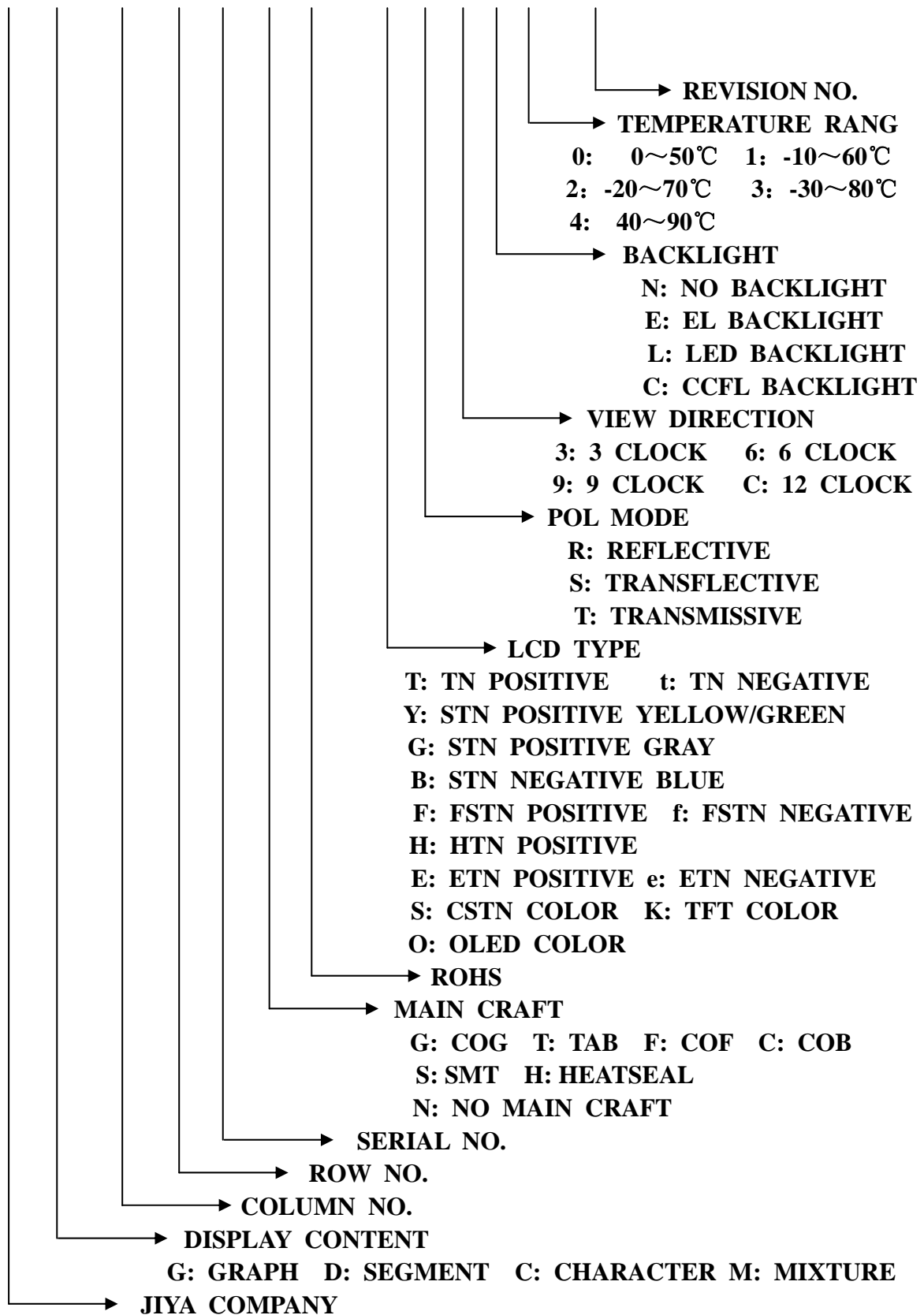
### **12. APPLICATION**

#### **12.1 REFERENCE CIRCUIT**

**TBD**

13. CLASSIFICATION INFORMATION

**JY G-480 272 01 G (R)-K T 6 L 2 - VC**



**14. HISTORY OF VERSION**

<b>REVISIONS</b>					
No.	DATE	DESCRIPTION	ORGANIZED BY	CHECKED BY	APPROVED BY
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					