



承认(规格)书 Specification Sheet

客户 :
(Customer Name) _____

品名:
(Material Name) _____

料号:
(Chuang pin Material Number) P V 1 8 5 0 0 1 T X 3 0 B

客户订单名称:
(Maker Name) _____

规格书版本:
(Spec Approval Sheet Version) V 1.0

客户承认 Customer			
Approved by 承认	Checked by 审核	Approved by 承认	
		Checked by 审核	
		Designed by 编写	



文件名称	BLU Purchase Specification 液晶模组规格书	页次	
产品名称		版次	1.0

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Product Specification

Rev. P0



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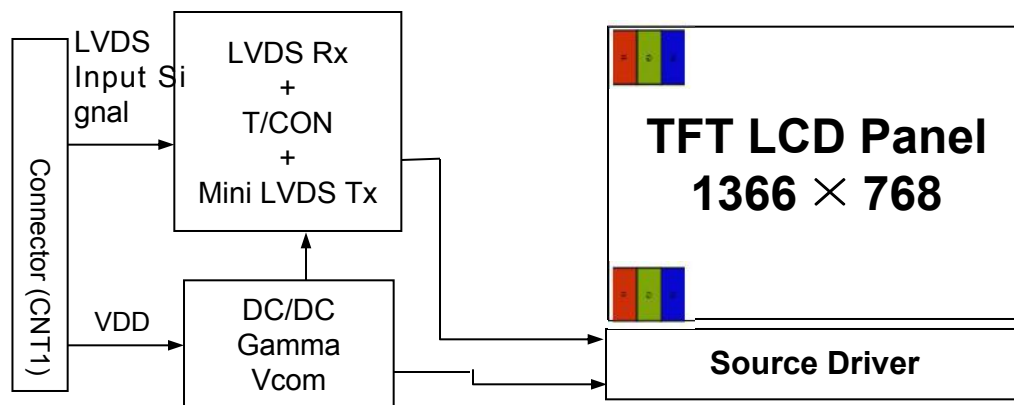
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1.0 GENERAL DESCRIPTION

1.1 Introduction

PV185001TX30B is a color active matrix TFT LCD open cell using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This open cell has a 18.5 inch diagonally measured active area with HD resolutions (1366 horizontal by 768 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colors. The TFT-LCD panel used for this OC is adapted for a low reflection and higher color type.



1.2 Features

- **LVDS Interface with 1 pixel / clock**
- High-speed response
- 6-bit (Hi-FRC) color depth, display 16.7M colors
- High luminance and contrast ratio, low reflection and wide viewing angle
- DE (Data Enable) only
- RoHS/Halogen Free
- Gamma Correction
- Reverse type



1.3 Application

- Desktop Type of PC & Workstation Use
- Slim-Size Display for Stand-alone Monitor
- Display Terminals for Control System
- Monitors for Process Controller

1.4 General Specification

The followings are general specifications at the model PV185001TX30B.

<Table 1. General Specifications>

Parameter	Specification	Unit	Remarks
Active area	409.8(H) X 230.4(V)	mm	
Number of pixels	1366(H) ×768(V)	pixels	
Sub Pixel Pitch	0.100(H) x 0.300(V)	mm	
Pixel arrangement	RGB Vertical stripe		
Display colors	16.7M	colors	
Display mode	Normally Black		
Open Cell Transmittance	5.2	%	At center point with BOE BLU
Weight	TBD	g	
Surface Treatment	Haze 25%, 3H		



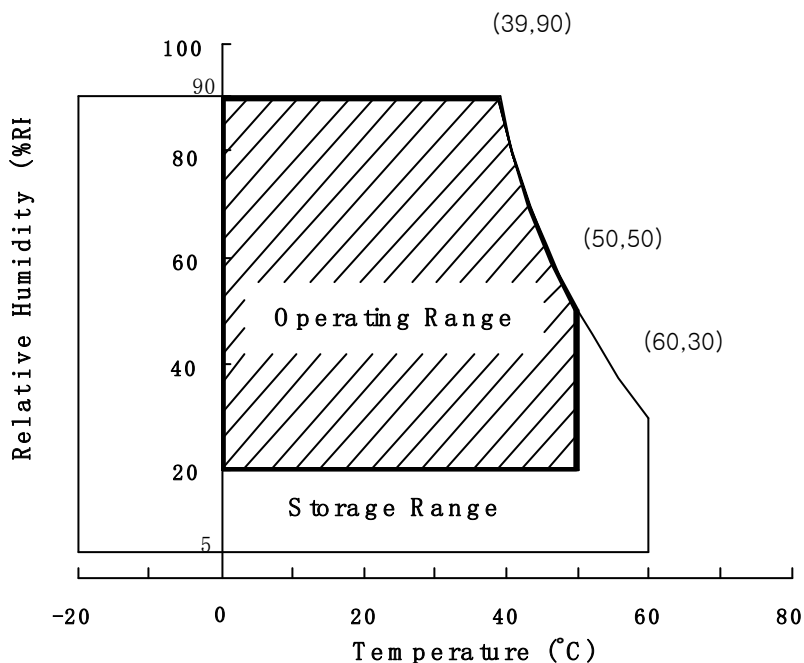
2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. Absolute Maximum Ratings> [VSS=GND=0V]

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Voltage	V_{DD}	-0.3	5.5	V	Ta = 25 °C
Logic Supply Voltage	V_{IN}	VSS-0.3	$V_{DD}+0.3$	V	
Operating Temperature	T_{OP}	-15	+65	°C	1)
Storage Temperature	T_{ST}	-20	+70	°C	1)

Note : 1) Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39 °C max. and no condensation of water.





3.0 ELECTRICAL SPECIFICATIONS

3.1 Electrical Specifications

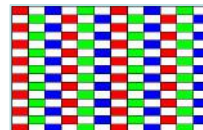
< Table 3. Electrical specifications >

[Ta =25±2 °C]

Parameter		Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	V _{DD}	4.5	5.0	5.5	V	Note1
Power Supply Current	I _{DD}	-	500	720	mA	
In-Rush Current	I _{RUSH}	-	2.0	3.0	A	Note 2
Permissible Input Ripple Voltage	V _{RF}	-	-	300	mV	Note1,3
High Level Differential Input Threshold Voltage	V _{IH}	-	-	+100	mV	
Low Level Differential Input Threshold Voltage	V _{IL}	-100	-	-	mV	
Differential input voltage	V _{ID}	200	-	600	mV	
Differential input common mode voltage	V _{cm}	1.0	1.2	1.5		V _{IH} =100mV, V _{IL} =-100mV
Power Consumption	P _D	-	2.5	3.6	W	@60Hz

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for VDD=5.0V, Frame rate=60Hz
Clock frequency 75.4MHz. Test Pattern of power supply current

- a) Typ : Color Test
- b) Max : Skip Sub-pixel



- 2. Duration of rush current is about 2 ms and rising time of VDD is 520 μs ± 20 %
- 3. Ripple Voltage should be covered by Input voltage Spec.



4.0 OPTICAL SPECIFICATION

4.1 Overview

The test of Optical specifications shall be measured in a dark room (ambient luminance ≤ 1 lux and temperature = $25 \pm 2^\circ\text{C}$) with the equipment of Luminance meter system (Goniometer system and TOPCONE PR730) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of Θ and Φ equal to 0° . We refer to $\Theta_{0=0}$ ($=\Theta_3$) as the 3 o'clock direction (the "right"), $\Theta_{0=90}$ ($=\Theta_{12}$) as the 12 o'clock direction ("upward"), $\Theta_{0=180}$ ($=\Theta_9$) as the 9 o'clock direction ("left") and $\Theta_{0=270}$ ($=\Theta_6$) as the 6 o'clock direction ("bottom"). While scanning Θ and/or Φ , the center of the measuring spot on the Display surface shall stay fixed. The measurement shall be executed after 30 minutes warm-up period. VDD shall be 5.0V +/-10% at 25°C . Optimum viewing angle direction is 6 °clock.

4.2 Optical Specifications

[VDD = 5.0V, Frame rate = 60Hz, Clock = 74.25MHz, Ta = $25 \pm 2^\circ\text{C}$]

< Table 5. Module Optical >

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	Θ_3	CR > 10	85	89	-	Deg.	Note 1
		Θ_9		85	89	-	Deg.	
	Vertical	Θ_{12}		85	89	-	Deg.	
		Θ_6		85	89	-	Deg.	
Luminance Contrast ratio		CR		700	1000			Note 2
Cell Transmittance		Tr		-	5.2		%	Note 3
Reproduction of color	White	W_x	$\Theta = 0^\circ$ (Center) Normal Viewing Angle	0.283	0.313	0.343	-	Note 4 (BOE BL)
		W_y		0.299	0.329	0.359	-	
	Red	R_x		-	T.B.D	-	-	
		R_y		-	T.B.D	-	-	
	Green	G_x		-	T.B.D	-	-	
		G_y		-	T.B.D	-	-	
	Blue	B_x		-	T.B.D	-	-	
		B_y		-	T.B.D	-	-	
Response Time	GTG	T_g		14	20	ms	Note 5	
Cross Talk		CT		-	-	2.0	%	Note 6

**Note :**

1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing 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.
2. Contrast measurements shall be made at viewing angle of $\theta = 0^\circ$ 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 shown in Appendix) Luminance Contrast Ratio (CR) is defined mathematically.

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

3. Luminance of LCD module shall be made without signal input. Cell transmittance is defined mathematically, BLU provided by BOEDT.

$$\text{Transmittance} = \frac{\text{Luminance of LCD Module}}{\text{Luminance of BLU}}$$

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. Response time T_g is the average time required for display transition by switching the input signal as below table and is based on Frame rate $f_V = 60\text{Hz}$ to optimize. Each time in below table is defined as appendix Figure 3 and shall be measured by switching the input signal for "any level of gray(bright)" and "any level of gray(dark)"
6. Cross-Talk of one area of the LCD surface by another shall be measured by comparing the luminance (Y_A) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (Y_B) of that same area when any adjacent area is driven dark. (See Figure 4 shown in Appendix).



5.0 INTERFACE CONNECTION.

5.1 Electrical Interface Connection

- CN1 Module Side Connector : UJU IS100-L30R-C23or Equivalent
 User Side Connector : JAE FI-X30H or Equivalent

Pin No	Symbol	Function	Remark	
1	NC	Not Connect		
2	NC	Not Connect(*Reserved for LCD manufacturer's use)		
3	NC	Not Connect(*Reserved for LCD manufacturer's use)		
4	GND	Power Ground		
5	RX0-	Negative Transmission data of Pixel 0		
6	RX0+	Positive Transmission data of Pixel 0		
7	GND	Power Ground		
8	RX1-	Negative Transmission data of Pixel 1		
9	RX1+	Positive Transmission data of Pixel 1		
10	GND	Power Ground		
11	RX2-	Negative Transmission data of Pixel 2		
12	RX2+	Positive Transmission data of Pixel 2		
13	GND	Power Ground		
14	RXCLK-	Negative Transmission Clock		
15	RXCLK+	Positive Transmission Clock		
16	GND	Power Ground		
17	RX3-	Negative Transmission data of Pixel 3		
18	RX3+	Positive Transmission data of Pixel 3		
19	GND	Power Ground		
20	NC	Not Connect		
21	NC			
22	NC			
23	GND	Power Ground		
24	GND			
25	GND			
26	VDD		Power Supply: +5V	
27	VDD			
28	VDD			
29	VDD			
30	VDD			

Note 1 : This pin should be connected with GND.



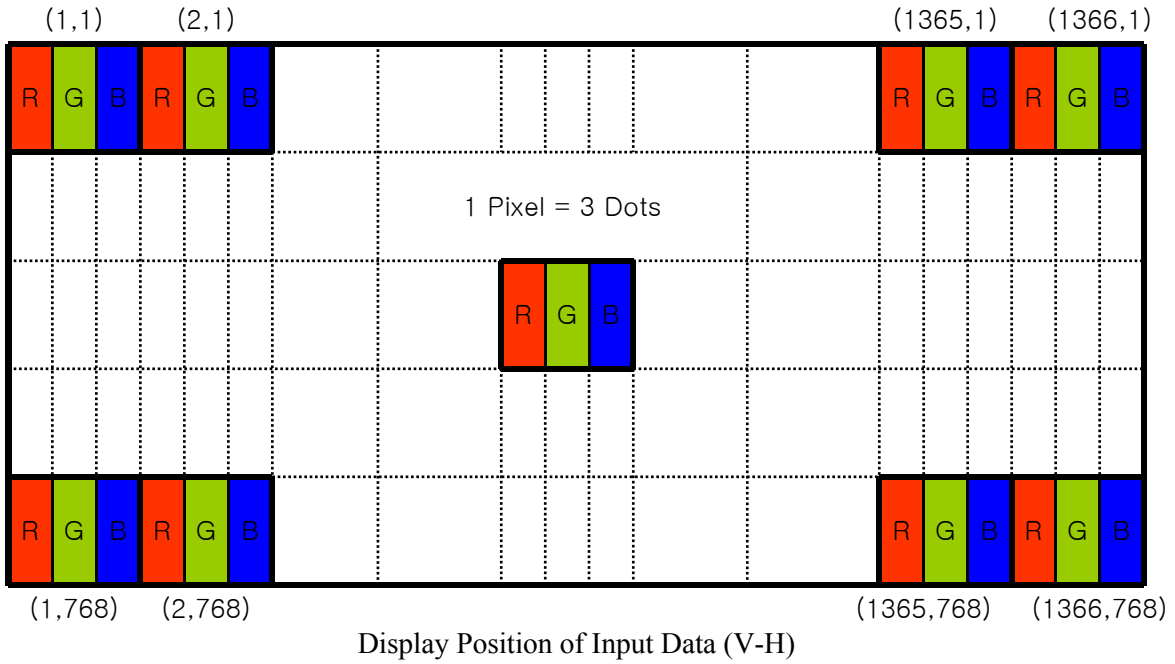
5.2 LVDS Interface (Tx; THC63LVDF83A or Equivalent)

5.2.1 LVDS Interface

	Input Signal	Transmitter		Interface		MV185WHB-N20 (CN11)	Remark
		Pin No.	Pin No.	System (Tx)	TFT-LCD (Rx)	Pin No.	
LVDS	OR0	51	48 47	OUT0- OUT0+	RX0- RX0+	5 6	
	OR1	52					
	OR2	54					
	OR3	55					
	OR4	56					
	OR5	3					
	OG0	4					
	OG1	6	46 45	OUT1- OUT1+	RX1- RX1+	8 9	
	OG2	7					
	OG3	11					
	OG4	12					
	OG5	14					
	OB0	15					
	OB1	19	42 41	OUT2- OUT2+	RX2- RX2+	11 12	
	OB2	20					
	OB3	22					
	OB4	23					
	OB5	24					
	Hsync	27					
	Vsync	28					
DE	30	40 39	CLK OUT- CLK OUT+	RX CLK- RX CLK+	14 15		
MCLK	31						
OR6	50	38 37	OUT3- OUT3+	RX3- RX3+	17 18		
OR7	2						
OG6	8						
OG7	10						
OB6	16						
OB7	18						
RSVD	25						



5.3 Data Input Format





6.0 SIGNAL TIMING SPECIFICATION

6.1 The PV185001TX30B is operated by the DE only.

Item	Symbols		Min	Typ	Max	Unit
DCLK	Period	tCLK	10.6	13.26	15.91	ns
	Frequency	-	62.9	75.4	94.3	MHz
Horizontal Display Term	Period	tHP	1446	1560	1936	tCLK
	Horizontal Valid	tHV	1366	1366	1366	tCLK
	Horizontal Blank	tHB	80	194	570	tCLK
	Frequency	fH	40.3	48.36	60.45	KHz
Vertical Display Term	Period	tVP	778	806	888	tHP
	Vertical Valid	tVV	768	768	768	tHP
	Vertical Blank	tVB	10	98	120	tHP
	Frequency	fV	50	60	75	Hz
LVDS Receiver clock	Input spread spectrum ratio	SSr	-3	-	+3	%

Note: The DCLK range at last line of V-blanking should be set in 0~987

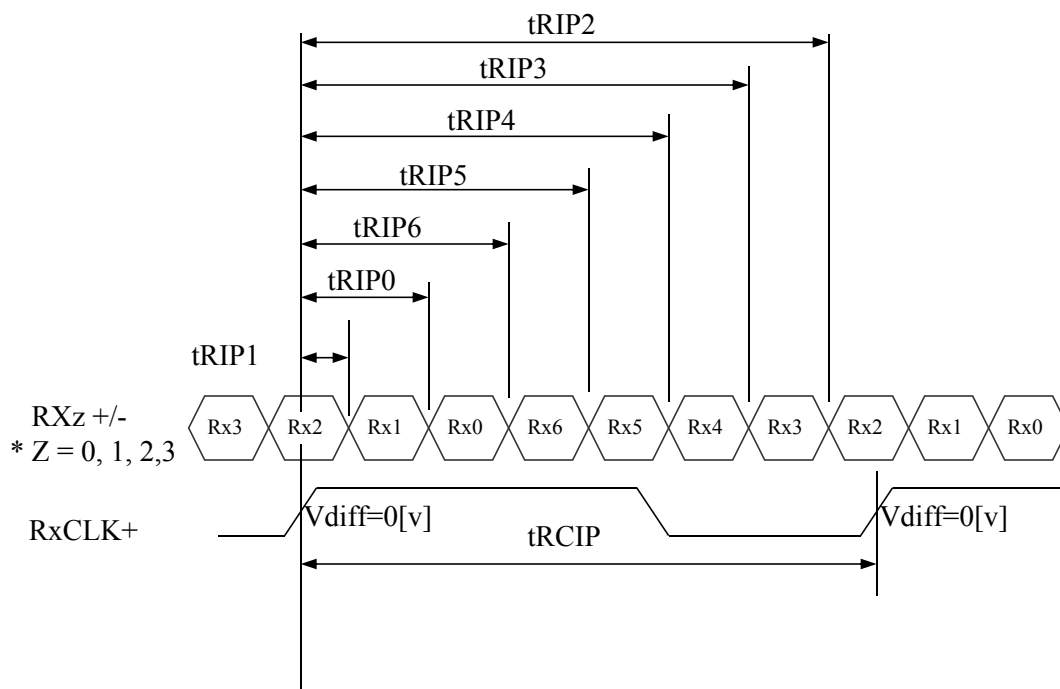


6.2 LVDS Rx Interface Timing Parameter

The specification of the LVDS Rx interface timing parameter is shown in Table 4.

<Table 4. LVDS Rx Interface Timing Specification>

Item	Symbol	Min	Typ	Max	Unit	Remark
CLKIN Period	tRCIP	10.60	13.26	15.91	nsec	
Input Data 0	tRIP1	-0.4	0.0	+0.4	nsec	
Input Data 1	tRIP0	tRCIP/7-0.4	tRCIP/7	tRCIP/7+0.4	nsec	
Input Data 2	tRIP6	2 ×tRCIP/7-0.4	2 ×tRCIP/7	2 ×tRCIP/7+0.4	nsec	
Input Data 3	tRIP5	3 ×tRCIP/7-0.4	3 ×tRCIP/7	3 ×tRCIP/7+0.4	nsec	
Input Data 4	tRIP4	4 ×tRCIP/7-0.4	4 ×tRCIP/7	4 ×tRCIP/7+0.4	nsec	
Input Data 5	tRIP3	5 ×tRCIP/7-0.4	5 ×tRCIP/7	5 ×tRCIP/7+0.4	nsec	
Input Data 6	tRIP2	6 ×tRCIP/7-0.4	6 ×tRCIP/7	6 ×tRCIP/7+0.4	nsec	

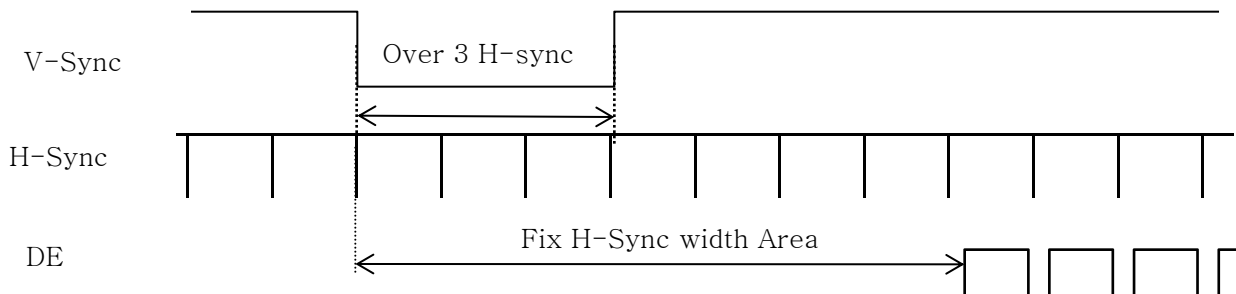


* $V_{diff} = (RXZ+) - (RXZ-), \dots, (RXCLK+) - (RXCLK-)$



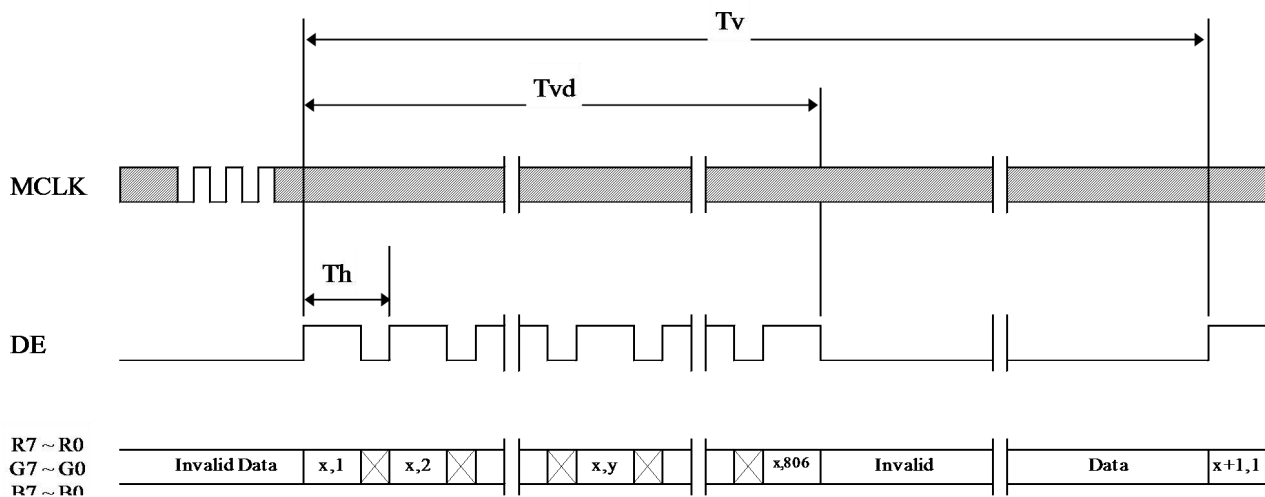
7.0 SIGNAL TIMING WAVEFORMS OF INTERFACE SIGNAL

7.1 Sync Timing Waveforms



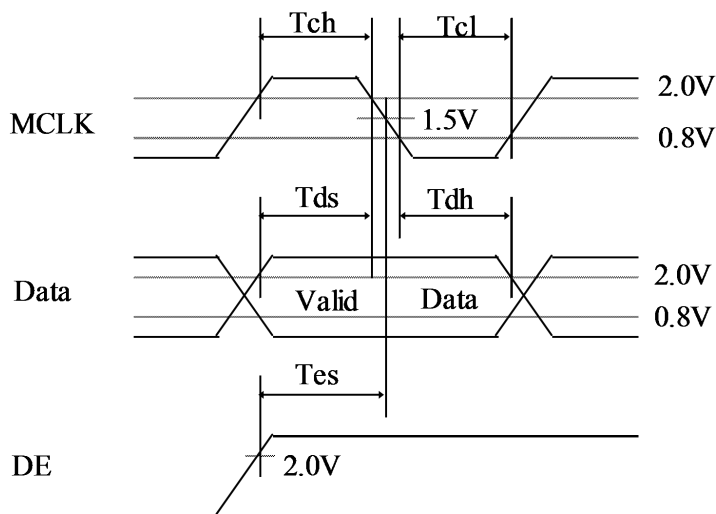
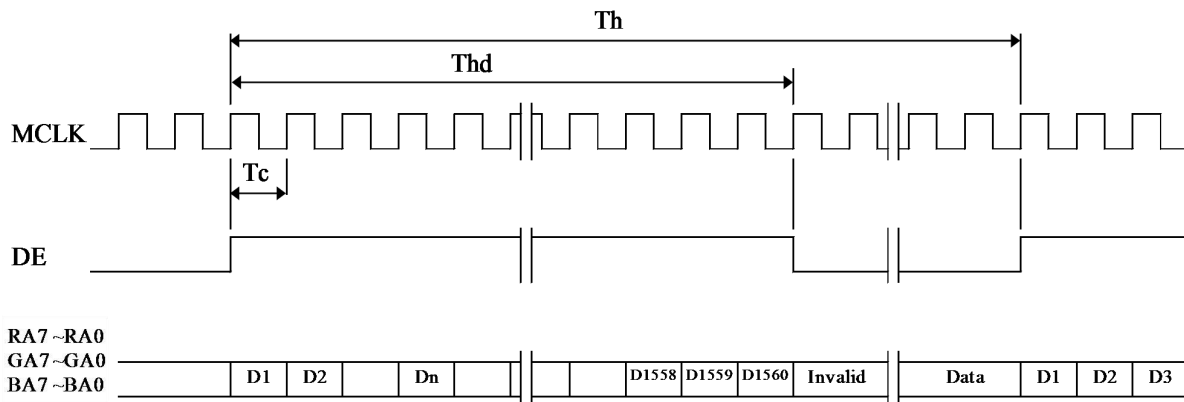
- 1) Need over 3 H-sync during V-Sync Low
- 2) Fix H-Sync width from V-Sync falling edge to first rising edge

7.2 Vertical Timing Waveforms





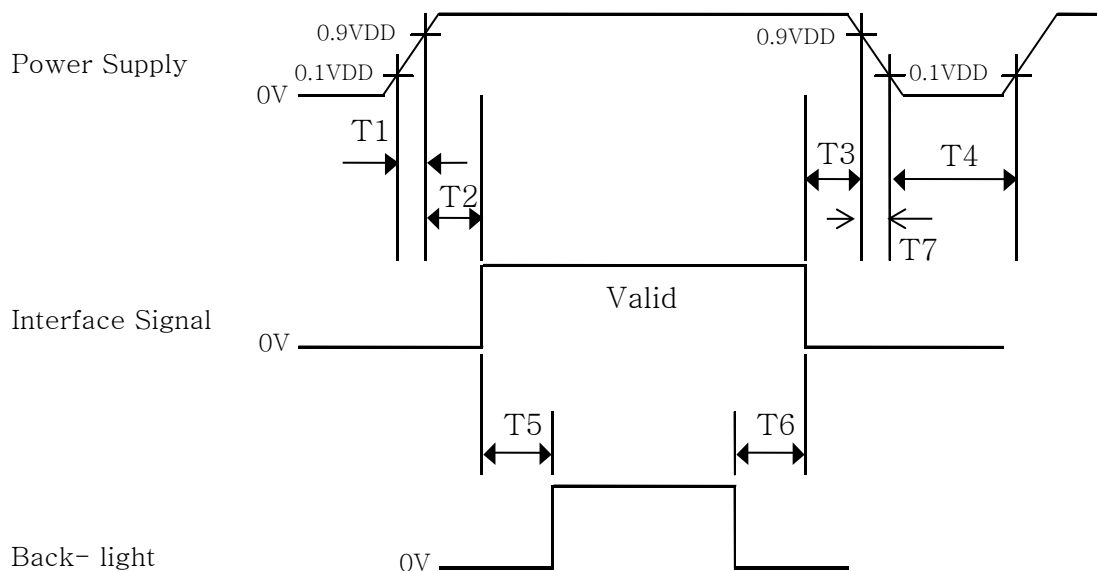
7.3 Horizontal Timing Waveforms





9.0 POWER SEQUENCE

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence shall be as shown in below



- $0.5 \text{ ms} \leq T1 \leq 10 \text{ ms}$
- $0 \leq T2 \leq 50 \text{ ms}$
- $0 \leq T3 \leq 50 \text{ ms}$
- $1 \text{ sec} \leq T4$
- $200 \text{ ms} \leq T5$
- $200 \text{ ms} \leq T6$

Notes:

1. When the power supply VDD is 0V, keep the level of input signals on the low or keep high impedance.
2. Do not keep the interface signal high impedance when power is on.
3. Back Light must be turn on after power for logic and interface signal are valid.
4. T7 decreases smoothly, there is none re-bouncing voltage.
5. The above power sequence be satisfied at these case
 - a. AC/DC Power On/Off
 - b. Mode Change(Resolution, Frequency, Timing, Sleep Mode, Color Depth Change, etc)

If not to follow power sequence, these is a risk of abnormal display.



10.0 MECHANICAL CHARACTERISTICS

10.1 Dimensional Requirements

FIGURE 5 (located in Appendix) shows mechanical outlines for the model PV185001TX30B
Other parameters are shown in Table 8.

<Table 8. Dimensional Parameters>

Parameter	Specification	Unit
Weight	TBD	gram
Active area	409.8(H) X 230.4(V)	mm
Sub Pixel pitch	0.100(H) x 0.300(V)	mm
Number of pixels	1366(H)×768 (V) (1 pixel = R + G + B dots)	pixels

10.2 Mounting

See FIGURE 5 . (shown in Appendix)

10.3 Anti-Glare and Polarizer Hardness.

The surface of the LCD has an anti-glare coating to minimize reflection and a coating to reduce scratching.

10.4 Light Leakage

There shall not be visible light from the back-lighting system around the edges of the screen as seen from a distance 50cm from the screen with an overhead light level of 350lux.



11.0 RELIABILITY TEST

The Reliability test items and its conditions are shown in below.

<Table 9 Reliability Test Parameters >

No	Test Items	Conditions	
1	High temperature storage test	Ta = 60 °C, 240 hrs	
2	Low temperature storage test	Ta = -20 °C, 240 hrs	
3	High temperature & high humidity operation test	Ta = 50 °C, 80%RH, 240hrs	
4	High temperature operation test	Ta = 50 °C, 240hrs	
5	Low temperature operation test	Ta = 0°C, 240hrs	
6	Thermal shock	Ta = -20 °C ↔ 60 °C (0.5 hr), 100 cycle	
7	Vibration test (non-operating)	Frequency	Random, 10 ~ 300 Hz, 30 min/Axis
		Gravity / AMP	1.5 Grms
		Period	X, Y, Z 30 min
8	Shock test (non-operating)	Gravity	50G
		Pulse width	11msec, sine wave
		Direction	±X, ±Y, ±Z Once for each
9	Electro-static discharge test	Air : 150 pF, 330Ω, 15 KV	Contact : 150 pF, 330Ω, 8 KV



12.0 HANDLING & CAUTIONS

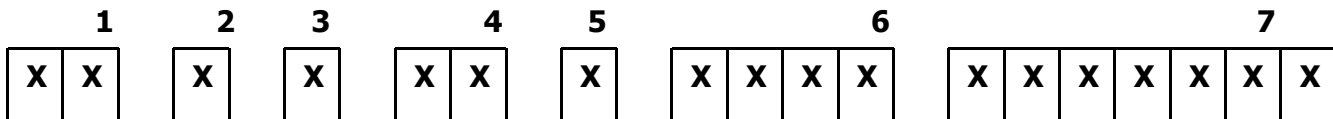
- (1) Cautions when taking out the module
 - Pick the pouch only, when taking out module from a shipping package.
- (2) Cautions for handling the module
 - As the electrostatic discharges may break the LCD module, handle the LCD module with care. Peel a protection sheet off from the LCD panel surface as slowly as possible.
 - As the LCD panel and back - light element are made from fragile glass material, impulse and pressure to the LCD module should be avoided.
 - As the surface of the polarizer is very soft and easily scratched, use a soft dry cloth without chemicals for cleaning.
 - Do not pull the interface connector in or out while the LCD module is operating.
 - Put the module display side down on a flat horizontal plane.
 - Handle connectors and cables with care.
- (3) Cautions for the operation
 - When the module is operating, do not lose CLK, ENAB signals. If any one of these signals is lost, the LCD panel would be damaged.
 - Obey the supply voltage sequence. If wrong sequence is applied, the module would be damaged.
- (4) Cautions for the atmosphere
 - Dew drop atmosphere should be avoided.
 - Do not store and/or operate the LCD module in a high temperature and/or humidity atmosphere. Storage in an electro-conductive polymer packing pouch and under relatively low temperature atmosphere is recommended.
- (5) Cautions for the module characteristics
 - Do not apply fixed pattern data signal to the LCD module at product aging.
 - Applying fixed pattern for a long time may cause image sticking.
- (6) Other cautions
 - Do not disassemble and/or re-assemble LCD module.
 - Do not re-adjust variable resistor or switch etc.
 - When returning the module for repair or etc., Please pack the module not to be broken. We recommend to use the original shipping packages.



13.0 PRODUCT SERIAL NUMBER



Label Size: 40mm (L) x 9 mm (W)



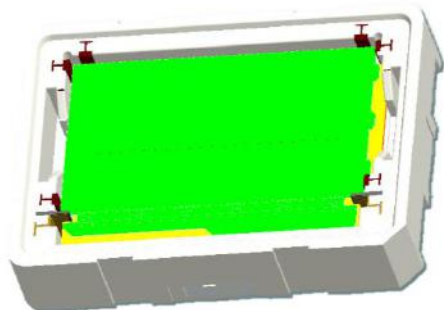
- 1. Control Number
- 2. Rank / Grade
- 3. Line Classification
- 4. Year (2001 : 01, 2002 : 02, ...)

- 5. Month (1,2,3, ... , 9, X, Y, Z)
- 6. Internal Use
- 7. Serial Number

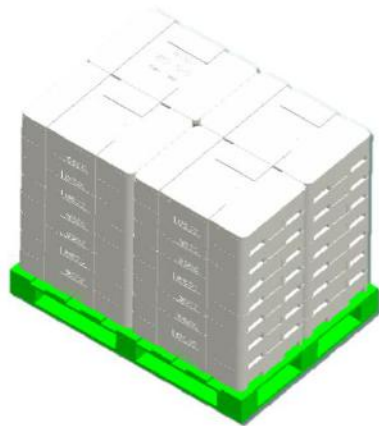


14.0 Packing

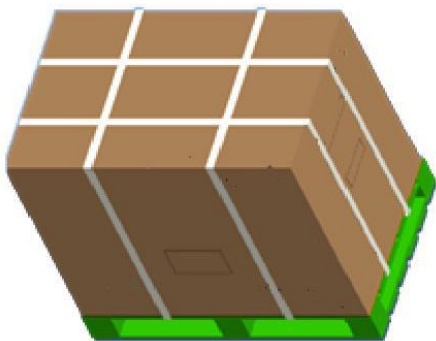
14.1 Packing Order



Put EPE pads and open cells into the box, 20 pcs open cells per box.



Place the paper pad on the pallet, and put the EPO boxes on the pallet (8ea boxes per row) and a cover on the top of the boxes.



Cover with 1 out box.
Pack with 4 packing belts.



Pack with 4 belts (32ea boxes and 4 covers per pallet).



14.2 Packing Note

- Box Dimension : 384mm(W) × 497mm(L) × 118mm(H)
- Package Quantity in one Box : 20pcs

14.3 Box label

- Label Size : 108 mm (L) × 56 mm (W)
- Contents
 - Model : PV185001TX30B
 - Q`ty : Module 20 Q`ty in one box
 - Serial No. : Box Serial No. See next page for detail description.
 - Date : Packing Date



15.0 APPENDIX

Figure 1. Measurement Set Up

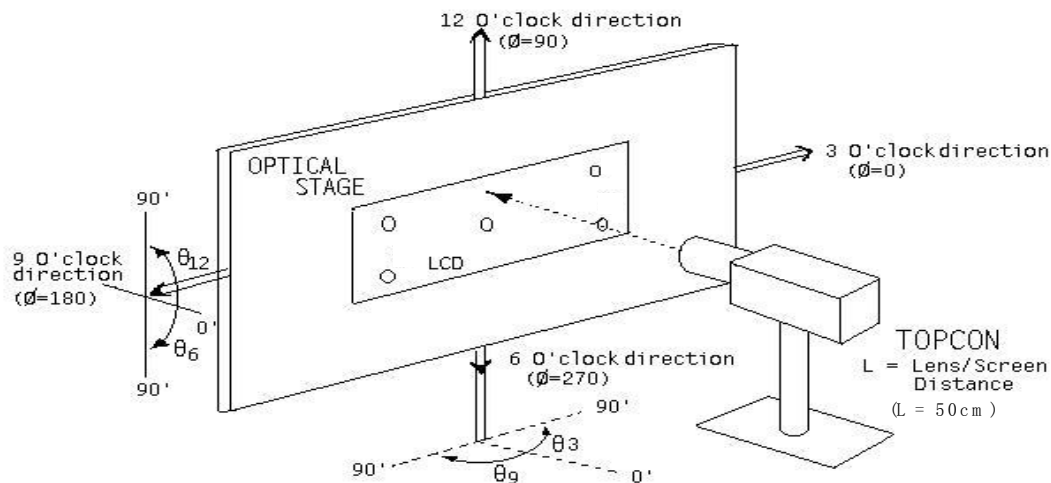


Figure 2. White Luminance and Uniformity Measurement Locations (9 points)

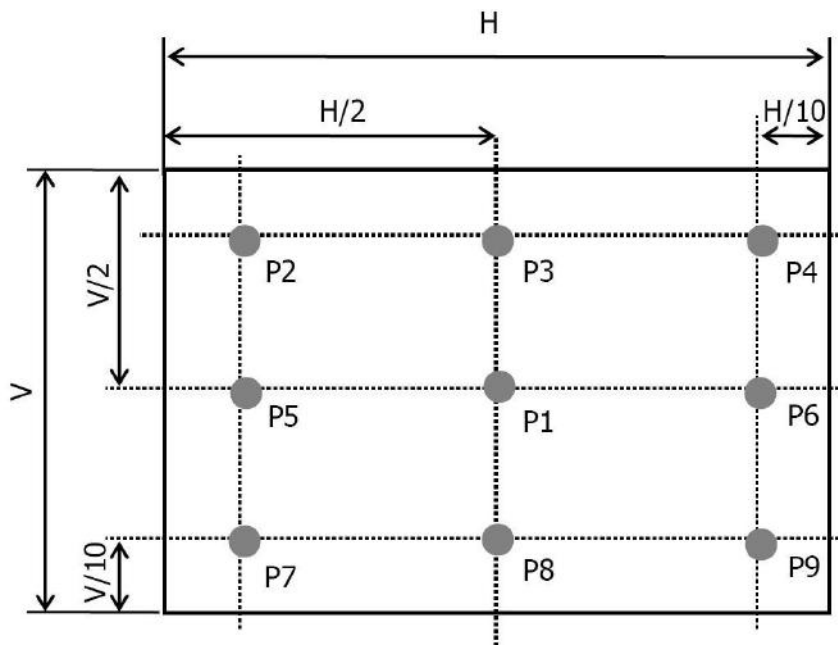




Figure 3. Response Time Testing

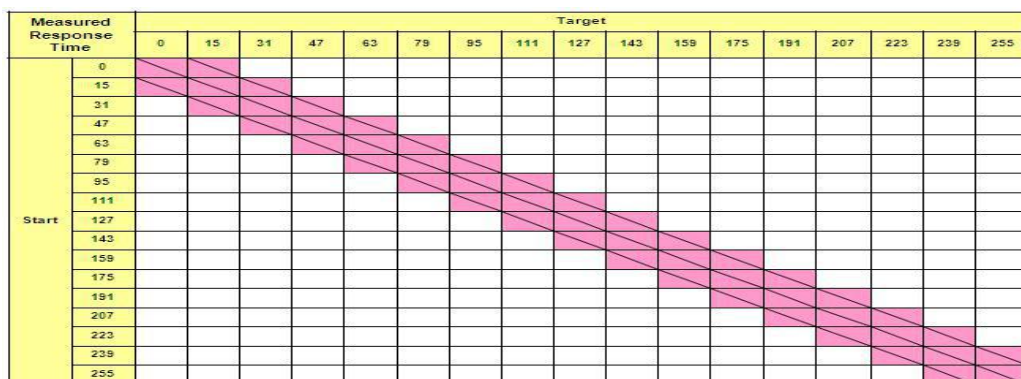
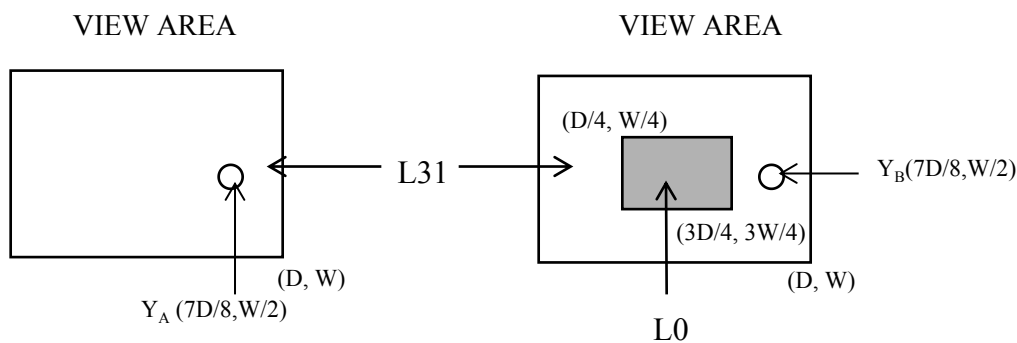


Figure 4. Cross Modulation Test Description



$$\text{Cross-Talk (\%)} = \left| \frac{Y_B - Y_A}{Y_A} \right| \times 100$$

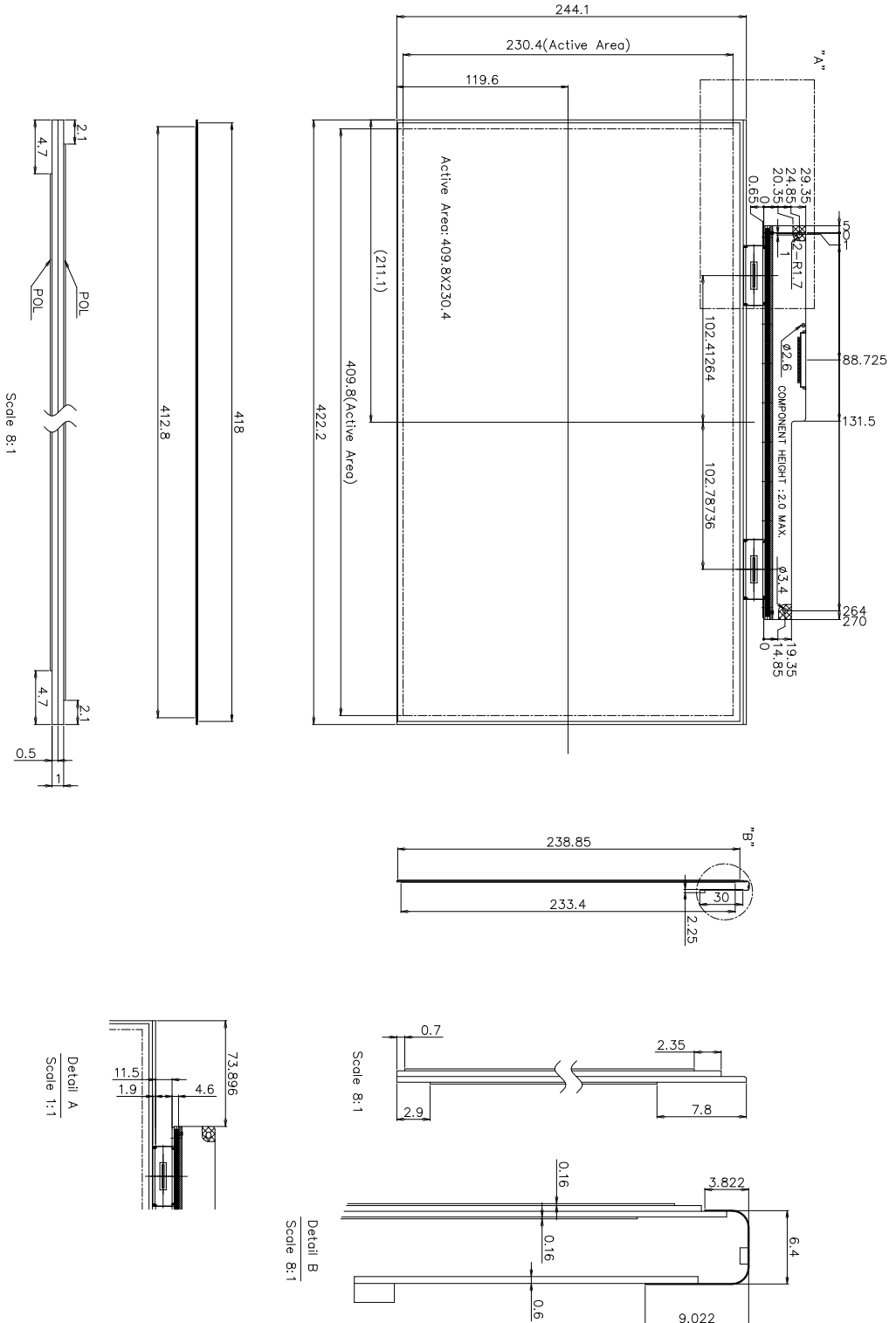
Where: Y_A = Initial luminance of measured area (cd/m²)

Y_B = Subsequent luminance of measured area (cd/m²)

The location measured will be exactly the same in both patterns



Figure 5. Open Cell Outline Dimensions (Front view)





1.0 目的

为使背光模组在采购及检验时有标准依据，特制定此规格书文件

2.0 范围

适用于液晶模组 185 寸 LED(备注：双灯条，单条 64 pcs LED)侧背光，带 DBEF ,匹配 MV185WHB-N02 玻璃。

3.0 职责

R D: 本规格书之制定与修改

采购：以本规格书为采购依据

Q A: 以本规格为标准执行检测

4.0 安全规格

ROHS 基准 环境物质管制基准

5.0 环境条件

项目	规格	备注
操作温度 (°C)	-15—65	
操作湿度 (%)	5—95	最大值时温度 40 (°C)
储存温度 (°C)	-20—70	
储存湿度 (°C)	8—90	最大值时温度 50 (°C)

6 产品规格

序号 NO.	项目 Item	规格描述 Specification	备注 Remark
1	发光类型 BLU TYP	LED	双灯条
2	铁框尺寸 Bezel size	430.37mm*254.6mm*11.2mm	
3	模组尺寸 Moudle size	430.37mm*254.6mm*11.2 (YTP)	
4	显示区尺寸 Active area	413.4mm*233.4mm	M/F area
5	重量 Weight	TBD	-----
6	ROHS	ROHS compliant	



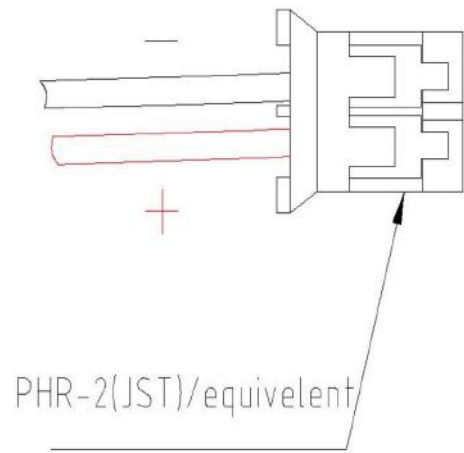
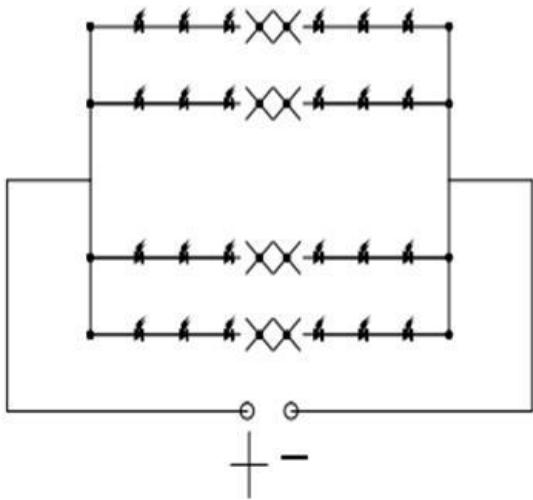
6.1 电气特性

项目 Item	标记 Symbol	条件 Condition	数值 Values			单位 Unit	备注 Remark
			MIN	TYP	MAX		
灯条输入电压 Input lightbar votage	V_{pin}	单条 single	-----	48	51	V	NOTE 1/2
灯条输入电流 Input lightbar current	I_{pin}	单条 single	-----	240	-----	mA	
LED 寿命 Led life Time	Hours	-----	30000	-----	-----		

NOTE 1:

灯条串并定义及接口型号定义: Light bar Series and Parallel condition,interface type condition:
 16 串 4 并 / 16 series 4 Parallel

/

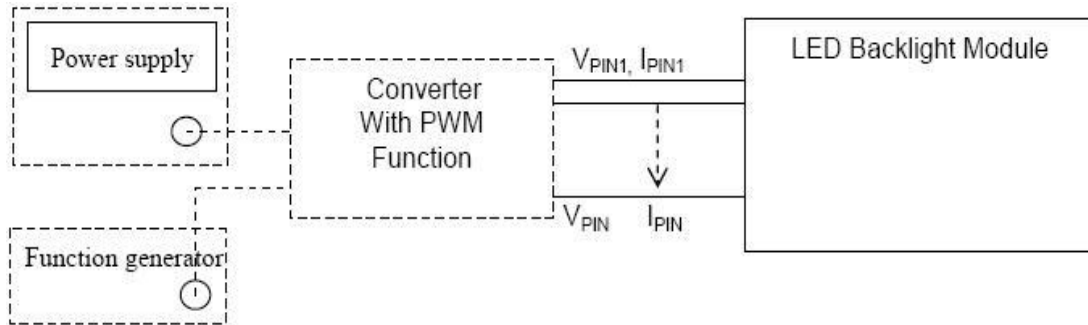


原理图: 16*4=64

电流: 240mA



NOTE 2:



6.2 光学规格

环境温度(Ta)=25°C±2 湿度 HR=65%±10

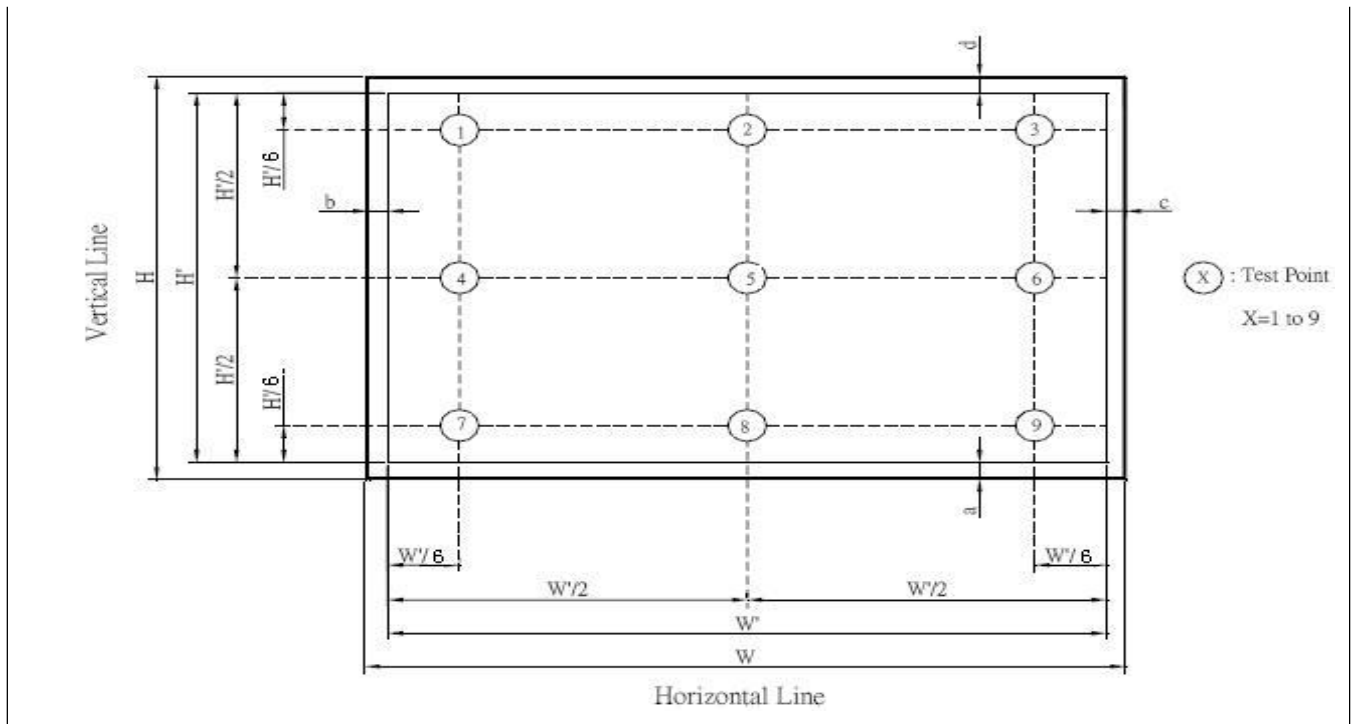
項目 Item	單位 unit	規 格 Spection			备注 Remark		
		MIN	TYP	MAX			
1	模组亮度 BLU Brightness	Center point	cd/m ²	850	930	---	Center point (NOTE 1)
	均匀性 Uniformity	9 点	%	72	75	---	(NOTE2)
2	模组色度 LCM CIE	x	---	---	---	---	Center point
		y	---	---	---	---	Center point

NOTE 1: 中心点为最亮点 The center brightness data ia the maximum

NOTE 2: 下图示中 9 点之最小数值点比中心点，均匀性定义: Minimum(1-9)/Maximum(5)

The figure bleow the minimum value of 9 point divided by the center ,

Luminous uniformity is defined: Minimum(1-9)/Maximum(5)



1. W : The length of BLU luminant area , H : The wide of BLU luminant area
2. $W' = W - b - c$ $H' = H - a - d$

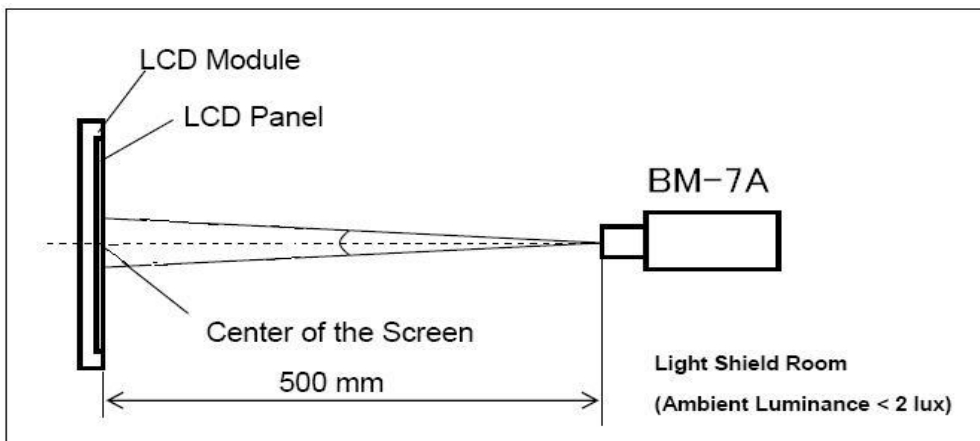
6.3 光学测试标准

4.3.1 辉度计: TOPCON-7A 视角:1° 辉度计与被测物体距离: 500±50mm

TOPCON-7A Angle:1° Distance:500±50mm

4.3.2 测试条件: 环境温度: 25°C±2°C, 湿度 (HR) =65±10%, 环境亮度≤2Lux, 点亮 20 分钟后测试

Test conditions: the ambient temperatue is 25°C±2°C ,humidity 65±10%,the ambient brightness≤2Lux, 20 minutes after lighting.





7.1 背光检验规格

7.1.1 背光画面检验规格 BLU screen test specifications

序号	项目 Item	检验项目 Test project	规格 Specifications	判定 Determinant	检验工具 Inspection tools	
1	背光 BLU	亮点, 暗点, 异物	$D \leq 0.15$	忽略 ignore	菲林卡尺 Film caliper (NOTE 1) (NOTE 2) (NOTE3)	
			$0.15 < D \leq 0.5$	$n \leq 3, S \geq 5$		
			$D \geq 0.5$	NOT allow		
		线状异物, 划伤, 刮伤	$W \leq 0.1$	忽略 ignore		
			$0.1 < W \leq 0.2$ $0.3 \leq L \leq 5$	$n \leq 3, S \geq 5$		
			$0.2 < W, 0.3 < L$	NOT allow		
		亮暗不均 Mura	---	依限度样品 by limit sample		目视 eye
		水波纹 Ripple	---	依限度样品 by limit sample		目视 eye

7.1.2 外观检验

Appearance Inspection Specification

序号	项目 Item	检验项目 Test project	规格 Specifications	判定 Determinant	检验工具 Inspection tools
1	钣金 BEZEL	刮伤/压痕 Scratch/sunken	$W \leq 0.15$	忽略 ignore	菲林卡尺 Film caliper
			$0.15 < W \leq 0.25$ $L \leq 20\text{mm}$	$n \leq 4$	
			$0.15 < W \leq 0.25$ $20 < L \leq 50$	$n \leq 2$	
		无感刮伤	-----	不计	目视 eye
		毛边 Rough edge	$L > 0.1\text{mm}$	Not allow	目视 eye
		氧化生锈 Oxidation and RUST	-----	Not allow 断面依限度样品	目视 eye
		脏污/油污 Dirty filth/greasy dirt	-----	Not allow	目视 eye



2	线材 Wire	破裂 Broken	-----	Not allow	目视 eye
3	连接器 connector	破裂/变形 Broken/Deformation	-----	Not allow	目视 eye
4	胶带 Tape	偏移/浮起 Offset/Emerge	-----	Not allow	目视 eye
5	标签 Lable	无 No Lable	-----	Not allow	目视 eye
		破损 Broken	-----	Not allow	目视 eye
		脏污 Dirt	能够识别 Can be read	OK	目视 eye
		不清晰 Not clear	能够识别 Can be read	OK	目视 eye
		内容错误 Mistake	-----	Not allow	目视 eye

Note 1:

目视距离: 30±5cm , 检查角度: 上下±30 度, 左右±45 度。

Inspection distance: 30±5cm ,

Inspection Angle: ±30 degress up and down the left ± 45 degress

Note 2:

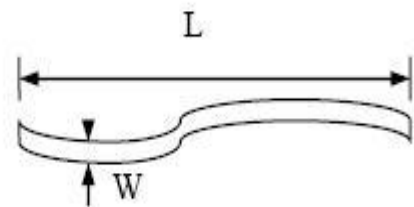
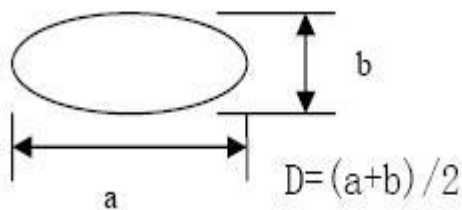
“S” 定义: 点与点之间的距离

The “S” definition: The distance between the defect dot

Note 3:

a, b, D, W, L 的定义, 具体如下:

The a, b, D, W, L definition, for the next:



8.0 可靠性测试项目及条件



Reliability Test Items and Conditions

项目 Item		测试条件 Test condition	判定基准
动作 实验	高湿高湿 Operate at High Temperature and HUmidity	+45°C , 85%RH, 240Hrs	A,B,C,D,E,F
	高温 High temperature operation	Ta=60°C , 240Hrs	A,B,C,D,E
	低湿 Low temperature operation	0±2°C 、 240Hrs	A,B,C,D,E
	连续点灯	25 ± 2°C , 65 ± 10%RH/10000Hrs	A,B,C,D,E
	开/关灯 On/Off lighting	On(30sec)/Off(30sec) 、 10000 cycles	A,B,G
	冷热冲击 Thermal Shock	-20°C/30min-70°C/30min for a total 200 cycles, Start with cold temperature and end with high temperature	A,B,C,D,E,F
	高温 High temperature	60±2°C ,240Hrs,	A,B,C,D,E
	低温 Low temperature	-20±2°C 、 240Hrs	A,B,C,D,E
振动 实验	振动 Vibration Test	Sinusoidal Vibration level: 1.5G Bandwidth:10~300Hz Waveform: sine wave 30min for each direction X,Y,Z(1.5Hrs in total)	A,B
包装跌落实验 Packing drop test		0<W<= 10, 106cm; 10<W<=24, 91cm 24<W<=45, 76cm , 1角3棱6面	A,B
线材 组	线材 Bending	导线折弯拉力 :0.6kgf±90° ,10次 ;0.6kgf ±180° , 10次	A,B
	端子 Pulling	静荷重 :出现方向拉力维持 3kgf ,1min	A,B
Connector 强度		抗拉力大于 1.5 kgf	A,B

NOTE 1:

测试后, 须放置常温, 常温 2 小时后测试

After testing, shall be placed at normal room temperature and Humidity after 2 huors for judgment



判定基准：

- A. 点灯画面无异常
- B. 外观无异党(损坏、破裂、刮伤、锈蚀、严重变形等情形)
- C. 辉度值维持初始值 60%以上
- D. 辉度均匀度变化率小于 30%
- E. 色度变化 X,Y 小于 0.2
- F. 不能结露
- G. 辉度值维持初始值 50%以上

9.0 包装标示

Packing Marked

9.1 外箱出货条码

Shipping label outside the box

9.1.2 标签内容(Carton Used)

物料品名	
数量	
电流	
电压	
检验日期	
备注	



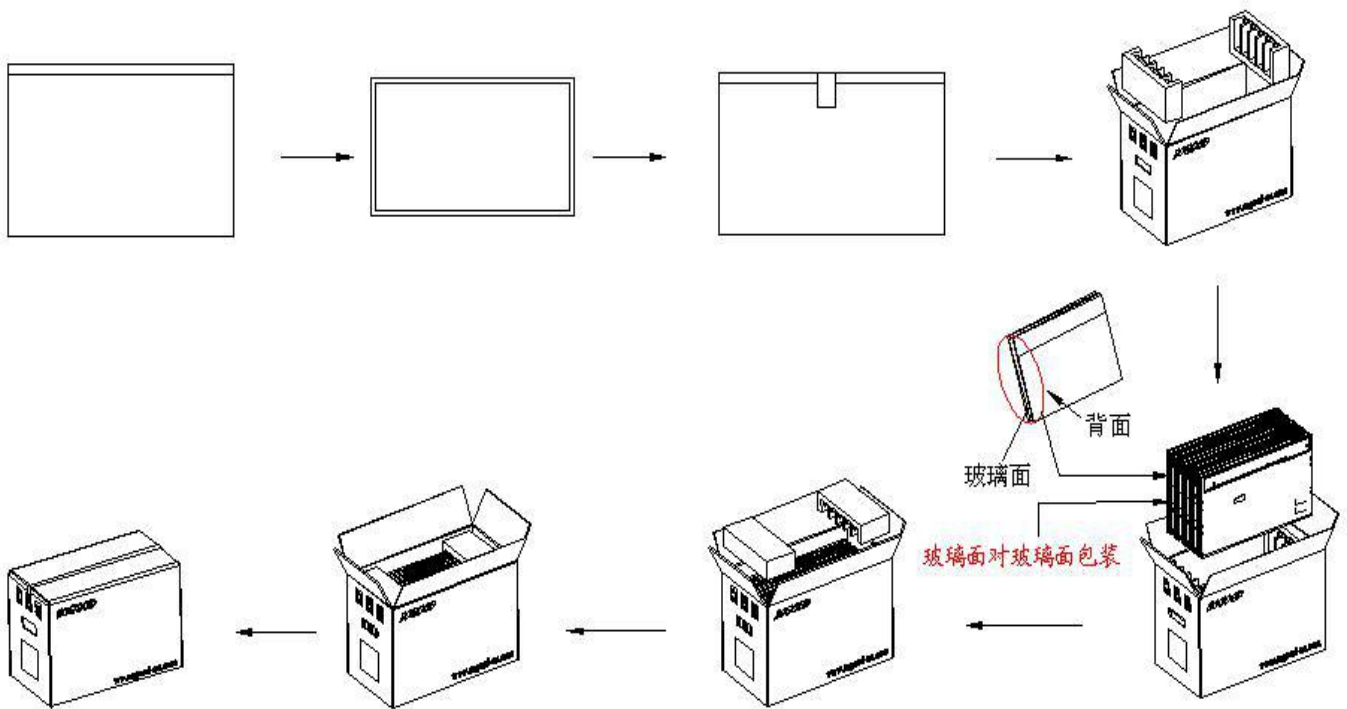
9.2 背光条码

9.2.1 标签样式



9.3 包装方式 Packing Method

9.3.1 背光包装方式 BLU packing



9.3.2 储存条件:

正常情况：温度：18℃～24℃；湿度：50%～70%RH



10. 注意事项 General Precautions

10.1.1 储存 Storage

1. 模组需储存在暗室，并要求室温在 $25 \pm 10^{\circ}\text{C}$ ，湿度在 $65 \pm 10\%RH$ ，不能暴露在阳光下
Stor the module ina dark room where must keep at $25 \pm 10^{\circ}\text{C}$, $65 \pm 10\%RH$, the module shall be exposed under strong light such as direct sunlight.

2. 请不要将产品放置在有机溶剂中或是有腐蚀性气体的场合
Do not store the produce in surroundings containing organic solvent or corrosive gas

3. 应当把产品储存在防静电容器中或是防静电膜中
Store the module in an anti-electrostatic container or film .

10.1.2 操作 Handing

1. 请不要施加机械振动或是过大外力在模组上
Do not subject the module to mechanical shock or to excessive force
On its surface

2. 禁止放置污染物在模组表面，不可使用裸露的手碰触产品。
To avoid contamination on the display surface, do not touch the module
Surface with bare hands

3. Must be the correct way to connec the power cable, otherwise it will
Cause damage

10.1.3 运输 transportation

1. 运输过程中严禁超高堆放挤压，倒放，整车装卸。
In transporting, Goods are strictly prohibited during the ultra-high stacking
Extrusion, upside down, entire vehicle liading and unloading.

2. 防静电措施 Static Electricity
人体在接触产品时，应当以适当的方式接地
Persons who handle the module should be grounded through adequate methods.

10.2 其它 Other

1. 对本规格书，如有任何议疑，经双方协议后处理。
About this specification, if any question, go through both sides agreement
Post-processing.

2. 任何变更都必须经过联络，并取得双方同意后主可变更，并针对变更内容记录管理。
Any changes must get into contant with each other, get tht agreement then
To change , and update the contents to record.