

## 产品规格书

## Specification

产品名称 (Product): 2.4 寸液晶显示模组/2.4inch TFT LCD Module驱 动 板 (Driver board): JD24TWD版 本 号 (Version): VER:2.00液 晶 屏 (TFT LCD): T24P138

客 户 名 称 (Customer): \_\_\_\_\_

客 户 型 号 (Cust.P/N): \_\_\_\_\_

日 期 (Date): \_\_\_\_\_

客户 CUSTOMER			承制方 MANUFACTURER		
品质	工程	审批	审核	批准	销售
Quality	Engineer	Approved	Checked	Approved	Sales

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## 版本更改 Version

日期/Date	版本/Ver.	修改版本/Modification
2010-12-23	RD001	第一版(The First Version)
2011-03-01	VER:1.00	第二版( The Second Edition)
2011-03-14	VER:1.01	第三版（增加料号，修改丝印） The Third Edition（Add material number and modify screen printing）
2011-04-15	VER:1.02	第四版（修改电源方案兼容 5V 输入） The Fourth Edition（Modify the power plan to be compatible with 5V input）
2012-04-20	VER:1.03	第五版（修改电路） The Fifth Edition（modification circuits）
2013-06-09	VER:2.00	第六版(更换方案) The Sixth Edition（replacing scheme）
2013-07-05	VER:2.00	第七版（增加料号） The Seventh Edition（Increase the materials issue）

## 1. 概况 Profile:

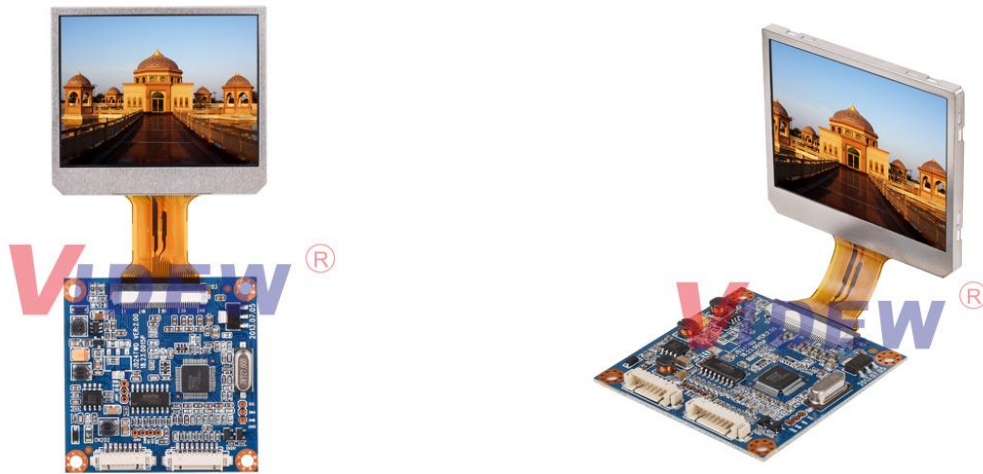
JD24TWD VER:2.00 T24P138 彩色数字驱动模组，由 JD24TWD VER:2.00 驱动板和（T24P138）屏组成。输入 CVBS 信号,有 PAL 制和 NTSC 两种制式，可实现自动识别。按键调节，带 OSD 菜单控制。它主要用于可视电话，也可用于其他显示电子设备。

JD24TWD VER:2.00 T24P138 Color Digital Module is comprised by JD24TWD VER:2.00 driver board and (T24P138) screen. The LCD module supports CVBS signal input ,NTSC and PAL formats which two formats applies to auto identification. Button adjustment with OSD menu control. It is mainly used for video phones and other display electronic devices.

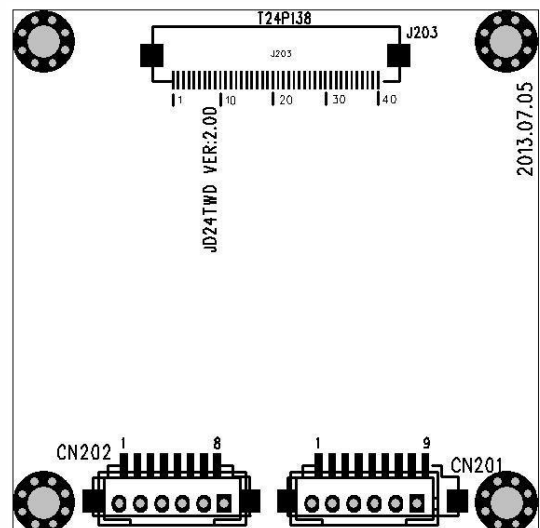
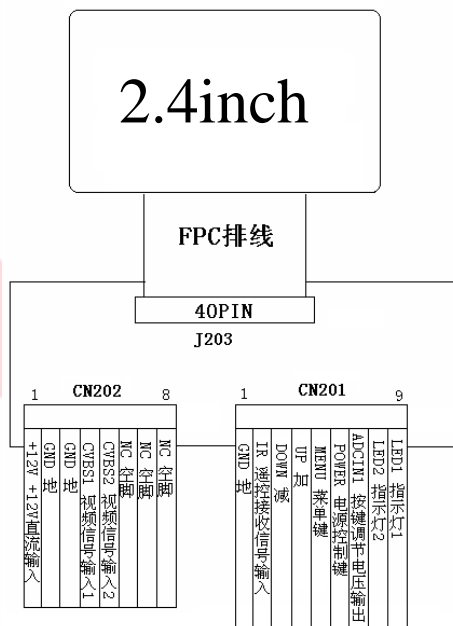
## 2. 基本参数 Specifications:

No.	项目/Item	说明/Description	Note
1	液晶屏显示尺寸/LCD Display	2.4 寸/2.4inch	
2	液晶屏显示比例/ LCD Display Ratio	4:3	
3	背光方式/Backlight	LED	
4	亮度/Brightness	300 cd/m <sup>2</sup>	
5	解析度/Resolution	480(RGB)×234	
6	视角范围/View angle	(50/65/65/65)up/down/left/right	
7	液晶屏尺寸/LCD dimension	55.5 (W) ×47.9 (H) ×3.17 (D) mm	
8	有效显示范围/Effect area	48.0 (H) ×35.69 (V) mm	
9	驱动板尺寸/Driver board size	50.0 (W) ×50.0 (H) ×5.2 (D) mm	
10	工作电压（纹波小于 0.3VP-P） Working Voltage (Wave<0.3VP-P)	最小：DC9V；标准：DC12V；最大：DC15V； Min:DC9V; Standard: DC12V; Max: DC15V;	
11	工作电流（DC 12V 供电时） Working Current (DC 12V supply)	DC50mA±10Ma	
12	消耗功率/Power Consumption	0.6W (TYP)	
13	启动时间/Start Time	≤1.0 秒 ≤1.0 S	
14	工作温度范围/Working Temp.	-10℃~60℃	
15	储存温度范围/Storage Temp.	-20℃~70℃	
16	环境相对湿度/ENV. Humidity	5~95%RH	

### 3. 产品图片/Product Picture:



### 4. 连线示意图/Wiring Diagram:



## 5. 驱动板接口定义/Interface Definition:

### 5.1. CN202 接口定义/ CN202 Interface Definition:

PIN	Function	I/O/P	脚位定义说明/PIN Definition	Note
1	+12V	I	直流电源输入/DC power input	注释 1/Note 1
2	GND	P	地/ Ground	
3	GND	P	地/ Ground	
4	CVBS 1	I	视频信号输入 1/Video Signal input 1	注释 1/Note 2
5	CVBS 2	I	视频信号输入 2/Video Signal input 2	注释 1/Note 2
6	NC	I	空脚/ null	
7	NC	-	空脚/ null	
8	NC	-	空脚/ null	

注释 1: DC4.5V±20%的直流电源输入

Note 1: DC4.5V plus or minus 20% dc power input

注释 2: 0.5V<sub>P-P</sub>-1.8V<sub>P-P</sub> 视频信号输入

Note 2: 0.5VP-P-1.8VP-P Video signal input

### 5.2. CN201 接口定义/ CN201 Interface Definition:

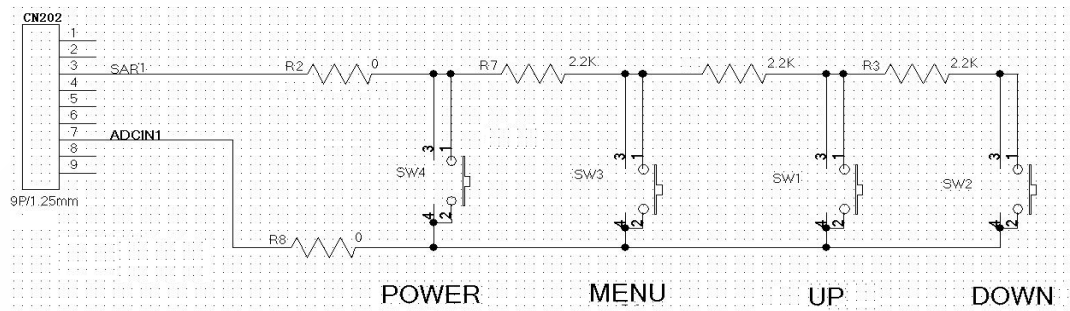
PIN	Function	I/O	脚位定义说明/PIN Definition	Note
1	GND	P	地/ GND	
2	IR	I	遥控接收信号输入/Remote reception signal input	预留/ reserved
3	DOWN	I	减/-	
4	UP	I	加/+	
5	MENU	I	菜单键/menu key	
6	POWER	I	电源控制键/Power control key	
7	ADCIN1	I	按键调节电压输出/Press the button to adjust the voltage output	
8	LED2	I	指示灯 2/ LED2	
9	LED1	I	指示灯 1/ LED1	



### 5.2.1. 按键板/SJD-keypad



### 5.2.2. 按键板接线图/Wiring Diagram of keypad:



### 5.4. J103 接口定义/J103 Interface Definition:

PIN NO.	Symbol	Description	Remark
1~8	D0~D7	Data bus	
9	DCLK	Data clock input	
10	VSYNC	Vertical sync input	
11	HSYNC	Horizontal sync input	
12	SCL	Serial command clock input	
13	SDA	Serial command data input	
14	CSB	Serial communication chip select	
15	VDDIO	Input I/O power supply	
16	AGND	Analog ground for source driver	
17	NC	No Connection	
18	FB	Main boost regulator feedback input	
19	NC	No Connection	
20	VLED	Supply voltage for LED backlight	

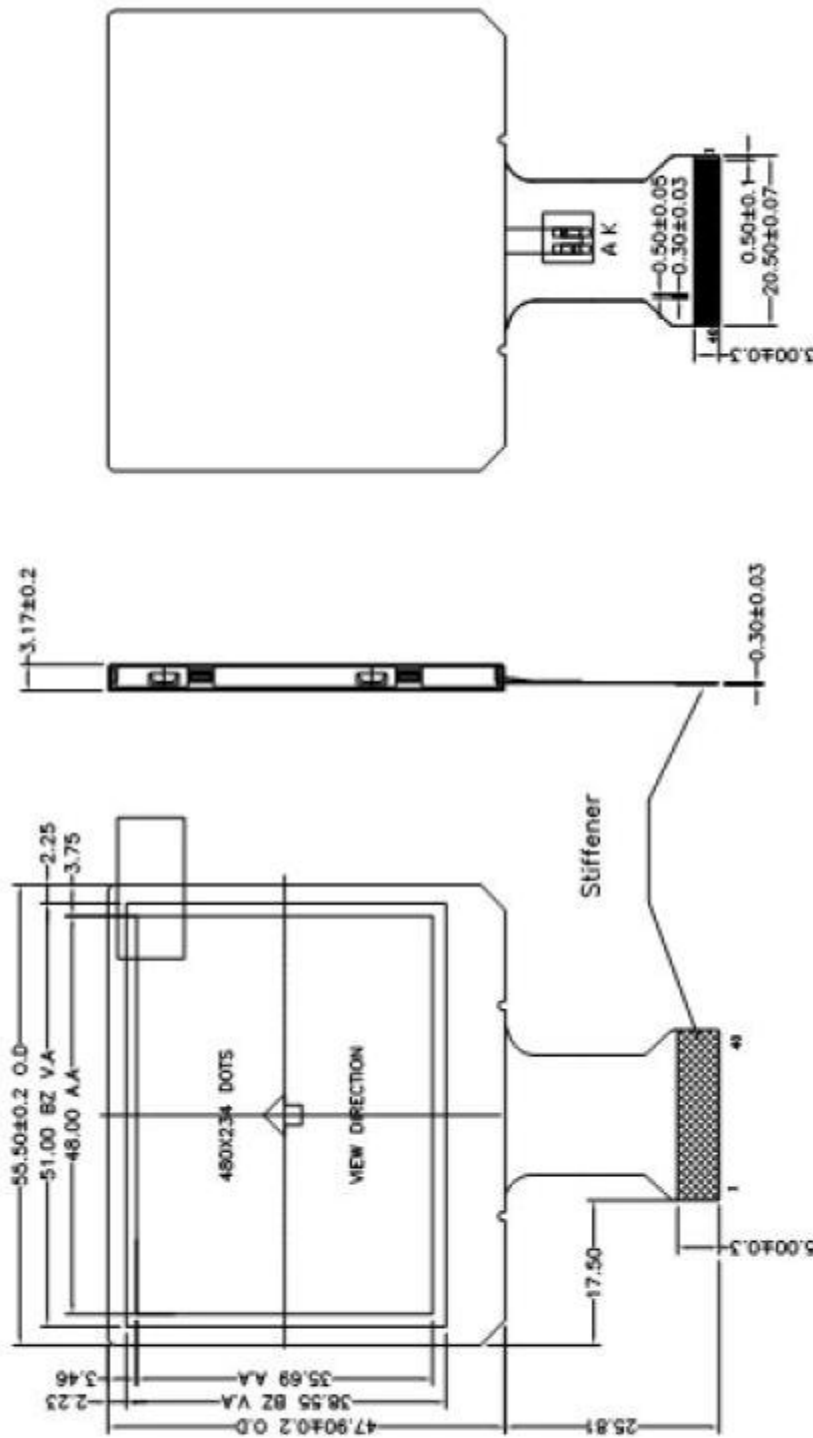
21	DRV	Gate signal for the power transistor of the boost converter	
22	VDD	Charge Pump power supply	
23	GND	Digital ground.	
24	C1N	Pins to connect capacitors for power circuitry	
25	C1P	Pins to connect capacitors for power circuitry	
26	NC	NO connection	
27	C2N	Pins to connect capacitors for power circuitry	
28	C2P	Pins to connect capacitors for power circuitry	
29	VDD3	Charge Pump circuit reference voltage	
30	C3N	Pins to connect capacitors for power circuitry	
31	C3P	Pins to connect capacitors for power circuitry	
32	VDD_25V	Intermediate voltage for charge Pump	
33	VCAC	Define the amplitude of VCOM swing	
34	FRP	Frame polarity output for VCOM	
35	VGH	Positive power supply for gate driver outputs	
36	C4N	Pins to connect capacitors for power circuitry	
37	C4P	Pins to connect capacitors for power circuitry	
38	VGL	Negative low power supply for gate driver outputs	
39	NC	NO connection	
40	VCOM	Common electrode driving voltage	

**I: input, O: output, P: Power**



## 6. 结构图/Structure:

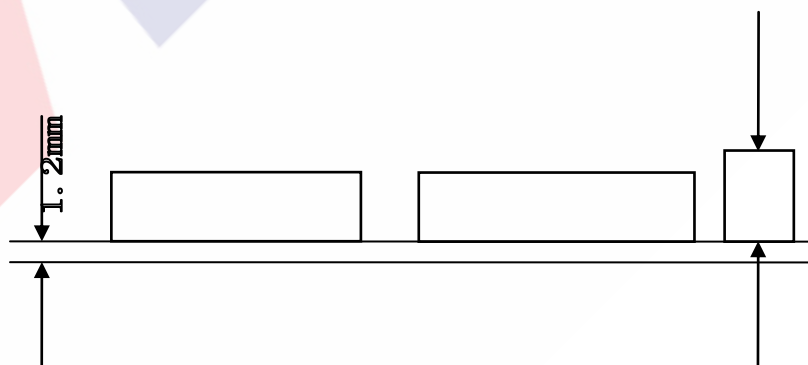
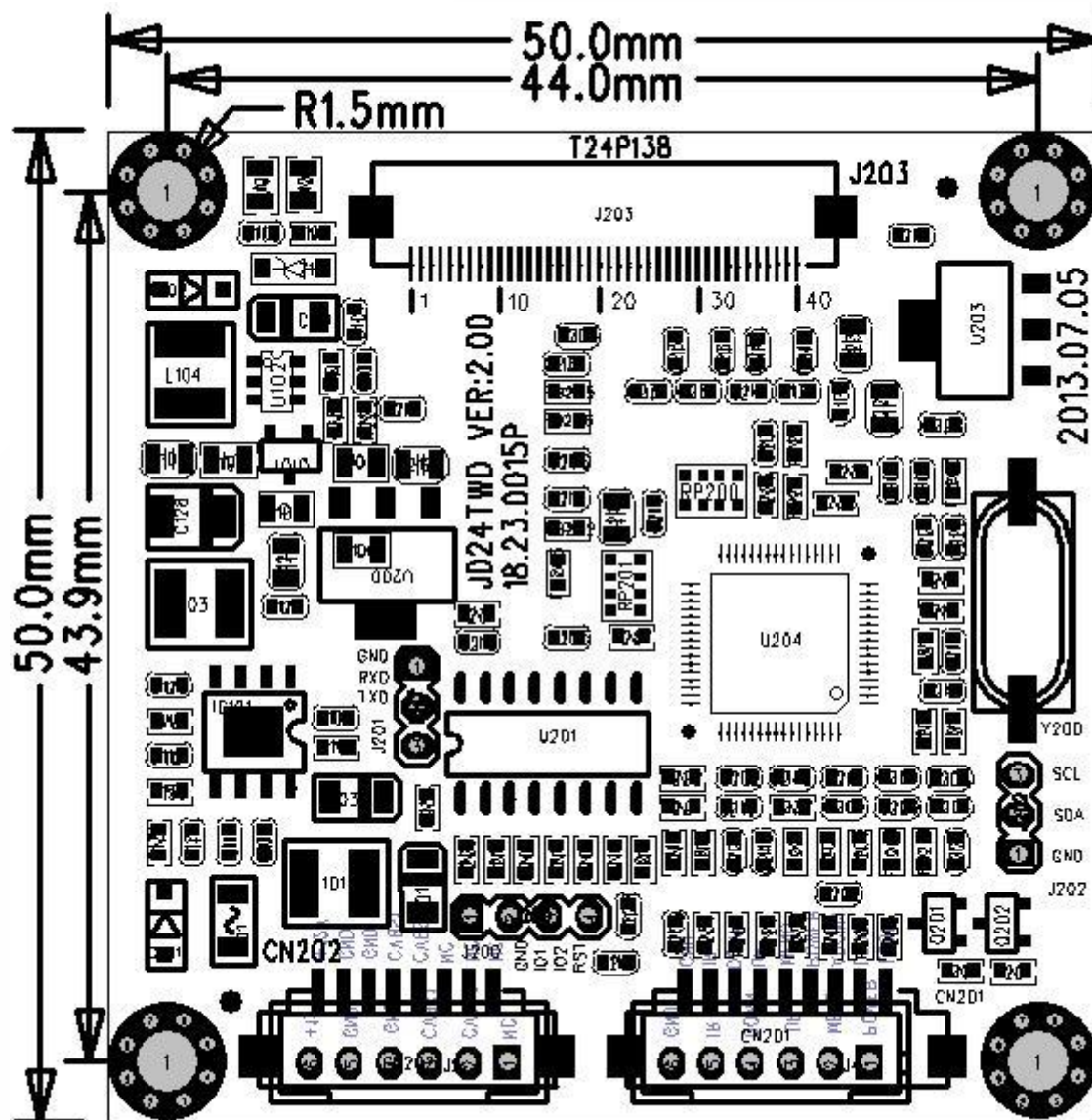
### 6.1. TFT LCD Panel:



CIRCUIT DIAGRAM

- NOTES:
- 1) DISPLAY TYPE: 2.36" TFT Transmissive
  - 2) DRIVE METHOD: 16.7M
  - 3) VIEW DIRECTION: 6 O'CLOCK
  - 4) NUMBER OF DOTS: 480X234 DOTS
  - 5) DRIVE IC: OTA5182A
  - 6) WHITE BACKLIGHT: 2-CHIP WHITE LED
  - 7) OPERATING TEMP: -10°C-----60°C  
STORAGE TEMP: -20°C-----70°C
  - 8) 产品符合ROHS标准

6.2. PCB 尺寸/PCB size: 50.0 (W)×50.0(H) ×5.2(D)mm



## 7. 产品标示/Product Label:

**T24P138**

## 8. 包装、运输及贮存/Packing Shipping

### 8.1. 供货包装/Packing

**TBD**

### 8.2. 运输及贮存/Shipping

运输过程避免碰撞和雨雪淋袭；严禁与化学物品及潮湿物品同库贮存。

Don't hit and rain when transportation: Don't storage with chemic goods and wet goods together.

## 9. JD24TWD 调试注意事项/Notes

9.1. TFT 出厂前已用专用仪器进行精密调试和老化、测试，一般不需要再做调整。

TFT have used by special instrument to adjust precision and aging, test before leave factory, no need adjust again.

9.2. 调整前，应正确连接电源、视频信号，应数次开关电源以及视频信号检查图像情况。

Please correctly connect power, video signal before you adjust, should be on/off power and video signal to check the image's effect.

9.3. 因为此产品为电子产品，请注意防静电。

Due to this product is electronic product, please notice prevent static.

9.4. 2.4" TFT- LCD PANEL 为玻璃制品，小心拿放，以免破裂。

2.4" TFT-LCD Panel is a glasswork, place carefully ,broken for fear.

9.5. 按按键时需注意不能让手碰到按键引脚，因人体有一定的电阻，如触摸到会对按键功能造成影响。

Don't touch pushbutton's pin feet when you adjust potentiometers, due to person have resistance, you will effect pushbutton's function when touch it.

## 10. 2.4"TFT- LCD PANEL 判定标准/Judgment:

目的: 制定 PANEL 的标准供进料检查、制程检查、客户检查的依据.

Aim: Make the panel standards to material purchasing, process inspecting and customer checking.

范围: 适用于 2.4"TFT LCD 产品.

Ranges: apply to 2.4"TFT LCD modules

作业内容/Determinant standard and method:

### 10.1. 判定标准及方法:

Judgment standard and method:

#### 10.1.1. LCD 显示屏伤痕检测方法判定:

The method and determinant of inspecting the nick of panel of LCD:

在 20W 萤光灯下, 距离 PANEL 30CM 处垂直 (或左、右 45 度) 观察, 如果没有看见异物、伤痕, 则判定 OK, 否则 NG.

Inspect vertically (or at 45° angle from left/right) under the light tube (the power is 20 W) in the distance of 30cm to the panel. If there is no nick, it determines "OK", otherwise "NG".

#### 10.1.2. LCD 显示屏黑点, 白点, 色点检测方法判定:

The method and determinative for black & white & color spots for the Panel of LCD:

### 1. 检查方法/Inspection Method:

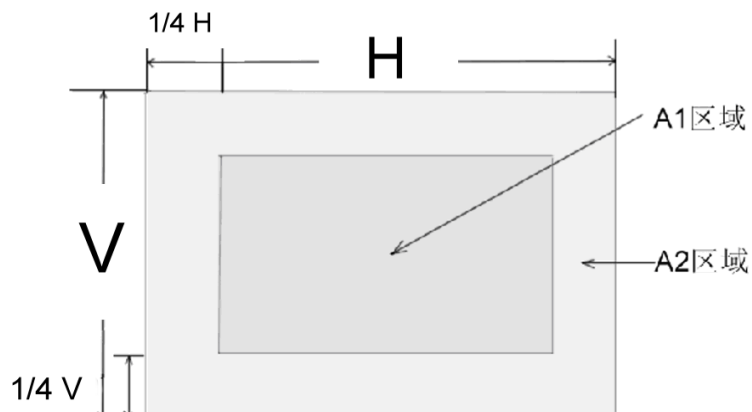
黑点: 在表示点灯状况下, 把检查黑点的 MASK 摆在 LCD 黑点的附近, 目视观察比较大小.

Black spots: under the situation of "turn on the light", set the MASK of black spot inspection near the black spot then compare the big and small by eyes.

白点, 色点: 在表示点灯状况下, 把检查黑点的 MASK 重叠在 LCD 白点 (色点) 处, 目视观察判断白点 (色点) 是否可以隐藏.

White & Color spots: under situation of "turn on the light", set the Mask of black spot inspection on the white spot (or color spot) then observe them by eyes if it can hide.

## 2. 显示屏区域划分/Division of LCD Panel:



注/Note: A1 区域: 图像有效区域中心范围。

A1 area: The center of the available area for the picture

A2 区域: 图像有效区域边缘范围 (四周的区域)。

A2 Area: The edge of the available area for the picture

## 10.2. 判定选择/Judgment:

欠点直径 (mm) Spot Diameter		允收范围/Accept Range	
		A1 区域/A1 area	A2 区域/A2 area
黑点 Black spot	$d \leq 0.15$	不计/Disregard	不计/Disregard
	$0.15 < d \leq 0.3$	4	4
	$0.3 < d \leq 0.5$	2	3
	$0.5 < d < 0.8$	0	2
白点或色点 White spot or Color spot	$d \leq 0.15$	不计/Disregard	不计/Disregard
	$0.15 < d \leq 0.3$	3	3
	$0.3 < d \leq 0.5$	1	2
	$0.5 < d < 0.8$	0	1

## 注/Note:

1. 大小: 平均直径= (最长直径+最小直径) /2

Size: Average Diameter= (Max. Diameter + Min. Diameter) /2

2. 关于小欠点密集的时候, 用上述的基准判断。

Using information above as a standard in order to judge while the e spots are dense.

3. 黑斑、白斑: 通过电压的变化来看, 用对比的方法, 对于明显斑点用点规格判断。

Black & White spot: To judge the obvious spots through the change of voltage by comparison.

4. 总的黑点、白点、色点个数: A1+A2 区≤4 个。

Total quantity of Black & white & color spot: A1+A2≤4.