

深圳市正晶浩电子有限公司

SHENZHEN ZJH DISPLAYER TECHNOLOGYCO.,LTD

网址: www.zjhlcd.com 电话: 133-9284- 8764

MODEL NO(产品型号): **YT144S005**

1.44 inch LCD TFT

(1.44 英寸彩色液晶显示屏)

128RGBx128 Resolution and 65K color

(128x128 分辨率, 6 万 5 千种色)

电话: 0755-29355801

传真: 0755-29355801

MOBILE: 13392848764

邮箱: 1553309801@qq.com

QQ: 1553309801

网址: www.zjhlcd.com

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1.General Description 基本描述

MODEL NO 产品型号	YT144S005
Display Mode 显示模式	Transmissive 全透
Display Format 显示格式	Graphic 128RGB*128 Dot-matrix 128xRGBx128 图形点阵
Input Data 显示屏接口类型	SPI-4 line interface SPI-4 线接口
Viewing Direction 视角方向	12 o'clock 12 点钟
Drive 显示屏驱动芯片	ST7735S (台湾矽创)

2. Mechanical Specification 机械规格

Item	Specifications	Unit
Dimensional outline 显示屏外围尺寸	32.36(W)*38.00(H)*2.60(T)（不带触摸） 32.36(W)*38.00(H)*3.80(T)（带触摸） (FPC not include)	mm
Resolution 分辨率	128RGB*128	dots
LCD Active area 显示尺寸	25.50(W)*26.50 (H)	mm
Pixel size 像素尺寸	0.199(W)*0.207(H)	mm

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4. Electrical Maximum Ratings 电气极限

Item 项目	Symbol 符号	Min 最小值	Max 最大值	Unit 单位	Note 备注
Supply voltage (VDDI) 工作电压(VDDI)	V	1.8	3.3	V	-
Supply voltage (VDD) 工作电压(VDD)	V	2.8	3.3	V	-
Operating temperature 工 作温度范围	T _{OPR}	-20	70	℃	-
Storage temperature 存储温度范围	T _{STR}	-30	80	℃	-

※NOTE: VDDI 和 VDD 可以直接连一起, 共用一组 (2.8V~3.3V) 电压供电。

5. Brightness characteristic&Power dissipation 亮度特性&功耗

Item 项目	Symbol 符号	Min 最小值	Typical 典型值	Max 最大值	Unit
LED module Forward voltage LED 背光源正向电压	V _{LED}	2.9	3.1	3.3	V
LED module current LED 背光源电流	I _{LED}	-	18	-	mA
LCD Surface Luminance 显示屏表面亮度	L _S	180	200	-	Cd/m ²
LCD Surface brightness uniform LED 背光源均匀度	L _D	80	-	-	%
LCD power dissipation 显示屏总功耗	P _{LCD}	-	0.060	-	W

※NOTE: $P_{LCD} = VDD * (I_{LED} + I_{LCD})$

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6. Module Function Description 显示屏脚位定义

6.1 Display Pin 显示屏引脚

PIN No. 引脚序号	Symbol 引脚名称	Description 作用描述	Notes 备注
1	NC	No connection (空脚)	-
2	GND	Ground (接地脚)	-
3	LED-	Cathode of Backlight (背光负极供电脚)	-
4	LED+	Anode of Backlight (2.9V-3.3V Typical:3.1V) (背光正极供电脚,电压范围:2.9-3.3V,典型值:3.1V)	-
5	GND	Ground (接地脚)	-
6	RESX	-This signal will reset the device and it must be applied to properly initialize the chip. -Signal is active low. (显示屏复位脚,低电平有效)	-
7	DCX	-Display data/command selection pin in 4-line SPI interface. (4线SPI接口显示数据或显示指令选择脚) DCX='1': display data or parameter. (DCX=1:选择显示数据或参数寄存器) DCX='0': command data (DCX=0:选择指令寄存器)	-
8	SDA	-Serial input/output signal in 4-line SPI. (4线SPI串口数据输入/输出脚)	-
9	SCL	-4-line SPI serial interface clock. (4线SPI串口时钟脚)	-
10	VDD	Power Supply for Analog, Digital System and Booster Circuit. (显示屏主电源供电脚 2.8-3.3V)	-
11	VDDI	Power Supply for I/O System. (显示屏 I/O 口电源供电脚 1.8-3.3V)	-

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12	CSX	-Chip selection pin Low enable. High disable. (显示屏驱动芯片选脚, 低电平使能)	-
13	GND	Ground (接地脚)	-
14	NC	No connection (空脚)	-

6.2 Touch Panel Pin 触摸屏引脚

1	YU	Touch panel Logical foot (四线电阻触摸屏逻辑脚)	-
2	XL	Touch panel Logical foot (四线电阻触摸屏逻辑脚)	-
3	YD	Touch panel Logical foot (四线电阻触摸屏逻辑脚)	-
4	XR	Touch panel Logical foot (四线电阻触摸屏逻辑脚)	-

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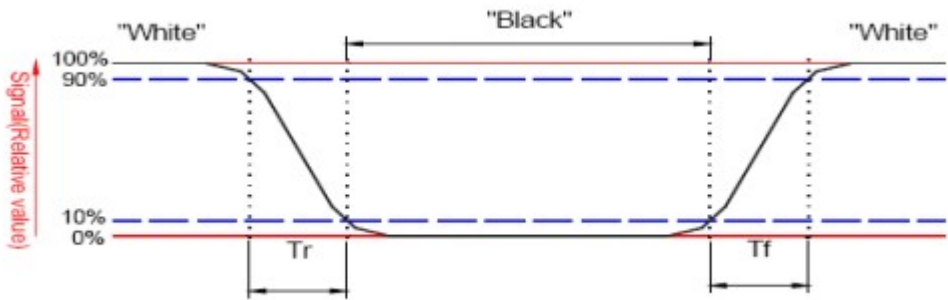
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7.Response time&Contrast ratio 响应时间与对比度

Item 项目	Symbol 符号	Condition 条件	Remark			Unit 单位
			Min. 最小值	Typ. 典型值	Max. 最大值	
Response time 响应时间	Tr+Tf	$\theta = 0^{\circ}$	-	30	60	ms
Contrast ratio 对比度	CR	$\theta = 0^{\circ}$	200	300	-	-



响应时间图示

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "white" state}}{\text{Brightness on the "black" state}}$$

对比度计算公式

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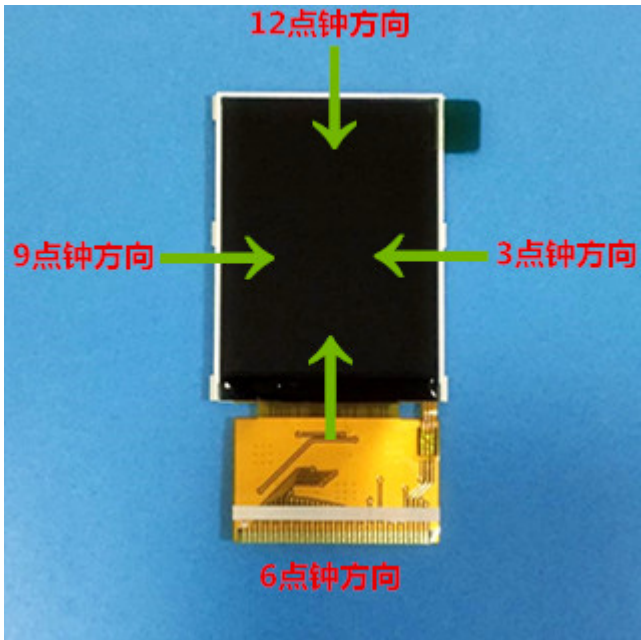
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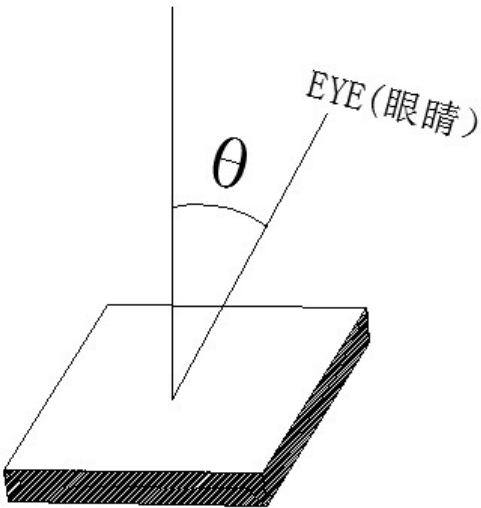
MODEL NO(产品型号) :YT144S005

8.Viewing Angle 视角宽度

Item 项目	Symbol 符号	Condition 条件	Remark			Unit 单位
			Min. 最小值	Typ. 典型值	Max. 最大值	
Viewing angle 视角宽度	Top 12 点钟方向	$CR \geq 10$ 对比度大于等于 10	30	40	-	Deg. 度
	Bottom 6 点方向	$CR \geq 10$ 对比度大于等于 10	40	50	-	
	Left 9 点钟方向	$CR \geq 10$ 对比度大于等于 10	40	50	-	
	Right 3 点钟方向	$CR \geq 10$ 对比度大于等于 10	40	50	-	



垂直于屏表面



NOTE:3 点,6 点,9 点,12 点方向视角的大小指的是垂直于屏表面的线眼睛视线之间的夹角(θ)。

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9. Reliability Trial 可靠性实验

NO. 序号	ITEM 实验项目	CONDITION 实验环境	CRITERION 实验规范
1	High Temperature Non-Operating Test 高温存储实验	80℃*120Hrs	No Defect Of Operational Function In Room Temperature Are Allowable 室温运行功能无缺陷
2	Low Temperature Non-Operating Test 低温存储实验	-30℃*120Hrs	
3	High Temperature/Humidity Non Operating Test 高温高湿实验	60℃*90%RH*120Hrs	
4	High Temperature Operating Test 高温工作实验	70℃*72Hrs	
5	Low Temperature Operating Test 低温工作实验	-20℃*72Hrs	
6	Thermal Shock Test 热冲实验	-20 ℃ (30Min) ↔70 ℃ (30Min) *10CYCLES	

10. Inspection standards 检验标准

10.1 Glass defect

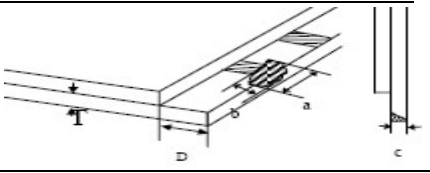
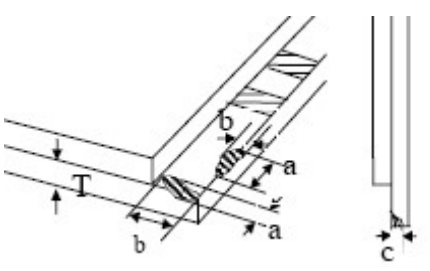
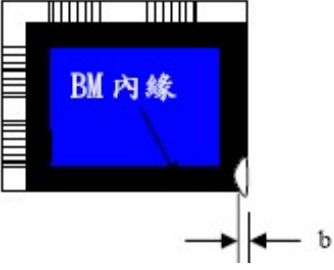
NO	Defect item	Criteria	Remark
1	Dimension Unconformity (Major defect)	By Engineering Drawing	
2	Cracks (Major defect)	1. Linear cracks panel 【Reject】 2. Nonlinear crack contrast by limited sample	
3	Glass extrude the conductive area (minor defect)	a: disregards and no influence assemblage. 1) $b \leq 1/3$ Pin width(non bonding area) 【Accept】 2) bonding area ≤ 0.5 mm 【Accept】	A: Length, b: Width
4	Pin-side ,conductive area damaged	(a c: disregards) $b \leq 1/3$ of effective length for	a: length, b: Width, c: Thickness

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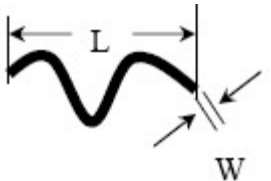
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	(minor defect)	bonding electrode 【Accept】	
5	Pin-side,non-conductive area damaged (minor defect)	1)Damage area don't touch the ITO (Inclueing contraposition mark, except scribing mark) 【Accept】 2) $C < T$ $b \leq BM1/3$ of width 【Accept】 3) $c = T$ b not touch the seal glue 【Accept】 4)a disregards	a: Length, b: Width c: Thickness 
6	Non-pin-side damage (minor defect)	$c < T$ 1)b exceeds $1/3 B_m$ 【Reject】 $c = T$ b not touch the seal glue 【Reject】	c: Thickness b: width of 

10.2LCD appearance defect(View area)

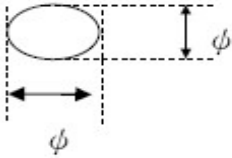
NO	Defect item	Criteria		Remark
1	Fiber、glass cratch、polarizer scratch/folded (minor defect)	Specification	Allowable	note1:L: Length, W: Width note2: disregard if out of AA 
		$W \leq 0.03mm$	disregard	
		$0.03mm < W \leq 0.05mm$; $L \leq 3.0mm$	2	
		$0.05mm < W \leq 0.1mm$; $L \leq 3.0mm$	1	
		$W > 0.1mm$; $L > 3.0mm$	0	
2	Polarizer bubble、concave and convex (minor defect)	$\phi \leq 0.2mm$	disregard	note1: $\phi = (L+W)/2$, L:Length, W :Width note2:disregard if out of AA
		$0.2mm < \phi \leq 0.3mm$	2	
		$0.3mm < \phi \leq 0.5mm$	1	
		$0.5mm < \phi$	0	
3	Black dots、dirty dots、impurities、eye winker	$\phi \leq 0.15mm$	disregard	note2:disregard if out of AA
		$0.15mm < \phi \leq 0.25mm$	2	

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	(minor defect)	$0.25\text{mm} < \phi \leq 0.3\text{mm}$	1	
		$0.3\text{mm} < \phi$	0	
4	Polarizer prick (minor defect)	$\phi \leq 0.1\text{mm}$	disregard	note1: $\phi = (L+W)/2$, L=Length, W=Width note2:the distance between two dots>5mm
		$0.1\text{mm} < \phi \leq 0.25\text{mm}$	3	
		$\phi > 0.25\text{mm}$	0	

11.Package Method 包装方法

显示屏出货包装示意图：

