



深圳市耀元鸿科技有限公司

SHEN ZHEN SHI YAO YUAN HONG TECHNOLOGY CO.,LTD

MODEL NO(产品型号) :YT144S025

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)

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1.General Description 基本描述

MODEL NO 产品型号	YT144S025
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	29.50(W)*36.50(H)*2.50(T) (不带触摸) (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





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	160	180	-	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})



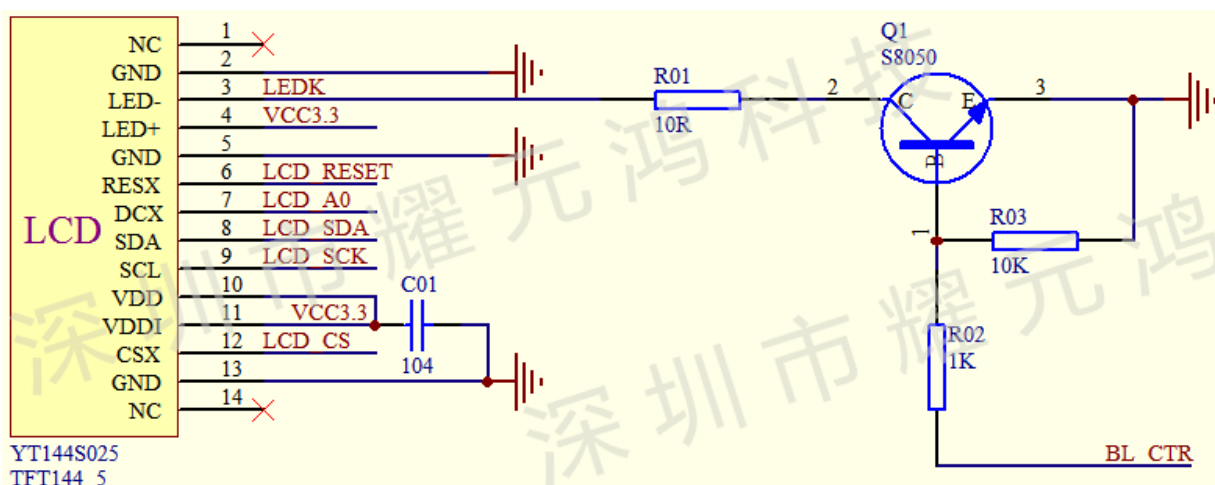
6. Module Function Description 显示屏脚位定义

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)	-
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)	-

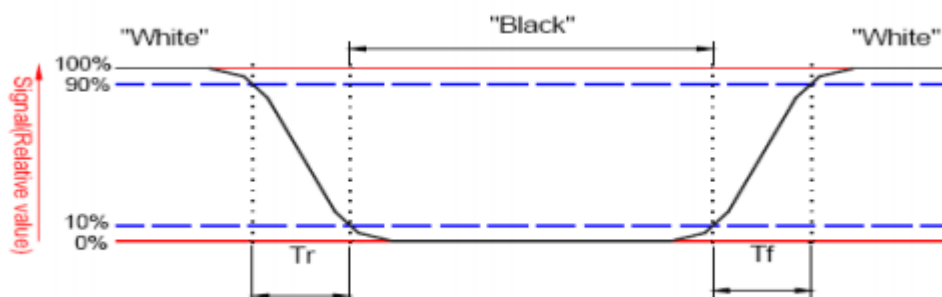
附图 6-1: 显示屏 YT144S025 参考应用电路





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

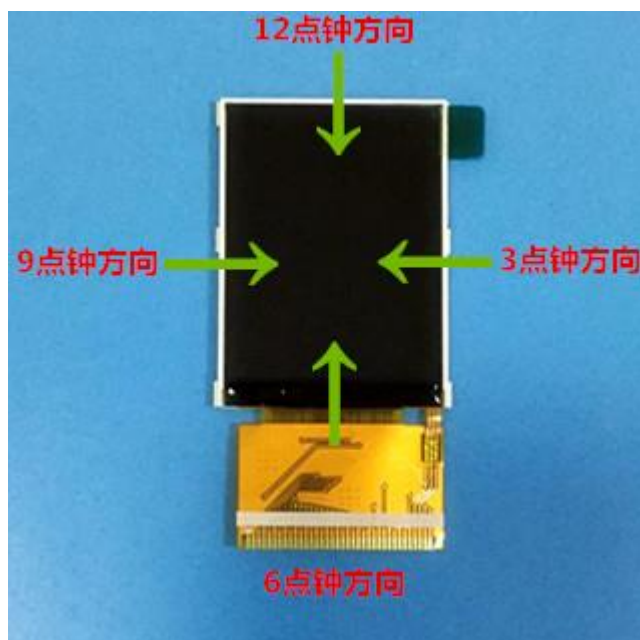


$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "white" state}}{\text{Brightness on the "black" state}}$$

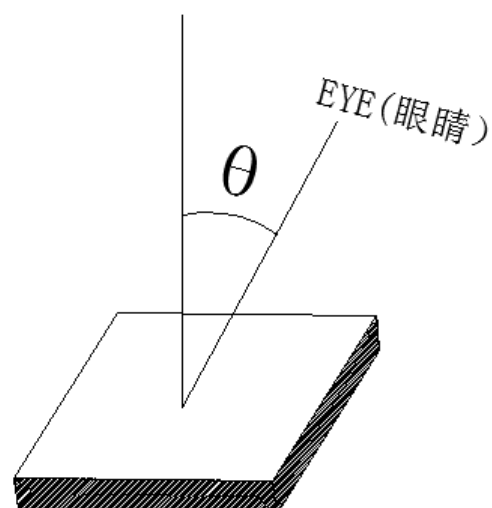
对比度计算公式

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)。

9. Reliability Trial 可靠性实验


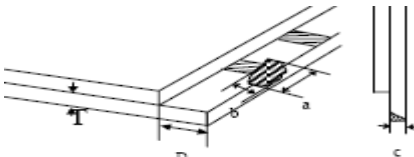
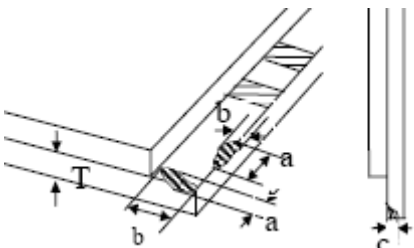
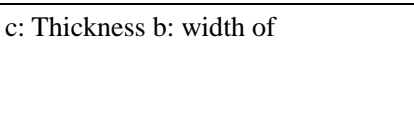
NO. 序号	ITEM 实验项目	CONDITION 实验环境	CRITERION 实验规范
1	High Temperature Non-Operating Test 高温存储实验	80℃*120Hrs	No Defect Of Operational Function In Room Temperature Are Allowable 室温运行功能无缺陷
2	Low Temperature Non-Operating Test 低温存储实验	-30℃*120Hrs	
3	High Temperature/Humidity Non Operating Test 高温高湿实验	60℃*90%RH*120Hrs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



	热冲实验	(30Min) *10CYCLES	
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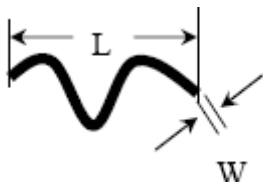
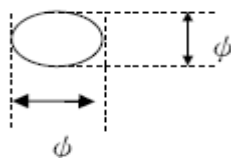
10.Inspection standards 检验标准

10.1Glass defect

NO	Defect item	Criteria	Remark
1	Dimension Unconformity (Major defect)	By Engineering Drawing	
2	Cracks (Major defect)	1. Linear cracks panel 2. Nonlinear crack contrast by limited sample 【Reject】	
3	Glass extrude the conductive area (minor defect)	a: disregards and no influence assemblage. 1) $b \leq 1/3 \text{ Pin width (non bonding area)}$ 2) bonding area $\leq 0.5 \text{ mm}$ 【Accept】	A: Length, b: Width
4	Pin-side ,conductive area damaged (minor defect)	(a c: disregards) $b \leq 1/3 \text{ of effective length for bonding electrode}$ 【Accept】	a: length, b: Width, c: Thickness 
5	Pin-side,non-conductive area damaged (minor defect)	1)Damage area don't touch the ITO (Inclueing contraposition mark, except scribing mark) 2) $C < T$ $b \leq 1/3 \text{ of width}$ 3) $c = T$ b not touch the seal glue 4)a disregards 【Accept】	a: Length, b: Width c: Thickness 
6	Non-pin-side damage (minor defect)	$c < T$ 1)b exceeds $1/3 \text{ Bm}$ $c = T$ b not touch the seal glue 【Reject】	c: Thickness b: width of 



10.2LCD appearance defect(View area)

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

