上海冠显光电科技有限公司
Shanghai Top Display Optoelectronics Co., LTD

规格书
Final-specfication

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● 版本记录

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1. 硬件介绍 Hardware introduction

本章节主要介绍了产品外观图和硬件配置图。

This chapter mainly introduces the product appearance diagram, hardware configuration diagram and tools required for debugging.

1.1. 产品外观 Product Appearance

以下为本型号对应的产品外观外观图（硬件接口等依具体型号背板元器件有所不同），如图 1.1-1 示。The following is the appearance of the product corresponding to this model (hardware interfaces, etc., vary according to the specific model of backplane components), as shown in Figure 1.1-1

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Note: There is no key structural process modification or major layout adjustment, only changes in product process or reliability. The company will not initiate changes to the outside product appearance. The specific items are subject to the received goods.



图 1.1-1 2.8 寸串口显示屏

Figure 1.1-1 2.8 inch UART screen

1.2. 硬件配置 Hardware configuration

以下以电容屏为例，介绍该尺寸产品的硬件配置参考图，如图 1.2-1 所示。

The following is the reference diagram of the hardware configuration of the product of this size, taking the capacitive screen as an example, as shown in Figure 1.2-1.



图 1.2-1 2.8 驱动板硬件配置

Figure 1.2-1 2.8 Drive board hardware configuration

1.3. 连接器定义 Connector Definitions

引脚名称 Pin Name	类型 Type	复位状态 Reset status	内部可配置上下拉电阻 Internally configurable pull-down resistors	默认驱动能力(mA) Default drive capability (mA)	电压 Voltage	功能 Function
POWER	POWER	-	-	-	0V	POWER-GND
GND	POWER	-	-	-	0V	POWER-GND
NC	-	-	-	-	-	Float
NC	-	-	-	-	-	Float
TXD	-	-	-	-	5V	UART2-TX (to user's RX)
RXD	-	-	-	-	5V	UART2-TX (to user's RX)
NC	-	-	-	-	-	Float
NC	-	-	-	-	-	Float
VCC-IN	POWER	-	-	-	5V	POWER-INPUT
VCC-IN	POWER	-	-	-	5V	POWER-INPUT

2. 产品规格 Product Specifications

● 产品参数 Product parameter	
型号 Model	TY028QVC01NH
产品系列 Product serial	消费级 basic series
核心处理器 Core processor	TR230M
尺寸 Size	2.8inch
分辨率 Resolution	240RGB×320
屏幕有效显示区(mm) Active area(mm)	43.2(W)×56.7(H)
产品尺寸(mm) Product size(mm)	55.6(W)×85.2(H)×13.6(T)
颜色 Color	16-bit5R6G5B
存储空间 Storage	用户可用 16 M Bytes Customer available 16 M Bytes
图片格式 Pictures format	JPG/PNG

固件升级方式 Firmware update	TF Card (Needs to be combined with a debugging tool)
UI 下载方式 Download pictures	TF Card (Needs to be combined with a debugging tool)
● **屏幕参数 LCD screen**	
显示器类型 Display type	TFT LCD TN
背光 Back light	LED
亮度（cd/㎡） Brightness(cd/m²)	370
对比度 Contrast	500
背光寿命（小时） Backlight life(hour)	30000
视角(T/B/L/R) Perspective(T/B/L/R)	（55/30/50/50）
● **触摸盖板 Touch panel**	
触摸类型 Touch mode	无 NONE
● **环境电气参数 Environmental electrical parameters**	
输入电压	5V

Voltage	5V
功耗 Power consumption	5V/105mA (最大值，启动电流) 5V/105mA (Max Max brightness) 5V/53mA (关闭背光) 5V/53mA (Backlight off)
工作温度 Working temperature	-20℃～70℃
存储温度 Storage temperature	-30℃～85℃
工作湿度 Working humidity	10%~90%
存储湿度 Storage humidity	10%~90%
● **通讯接口参数 Communication interface parameters**	
通讯方式 Communication mode	TTL 3.3V & 5V 兼容
通讯波特率 Baud	2400~115200，典型值 115200 2400~115200，typical value is 115200
数据帧格式 Data frame format	8N1
通讯插件规格 plug-inspecification	FPC1.0-10pin

● 其他外设 Other external equipment	
RTC	预留（默认不贴） Receive(default not paste)
蜂鸣器 Buzzer	支持 Support

3. 可靠性测试 Reliability Test

3.1. ESD 测试 ESD Test

3.1.1. 执行标准 Implementation Standards

执行标准 Implementation standards	GB/T 17626.2
性能判据 Performance criteria	B

3.1.2. 测试环境 Test Environment

测试环境温度：25℃

Test ambient temperature: 25℃

测试环境湿度：**50%**

Test environment humidity: 50%

大气压力：**86~106KPa**

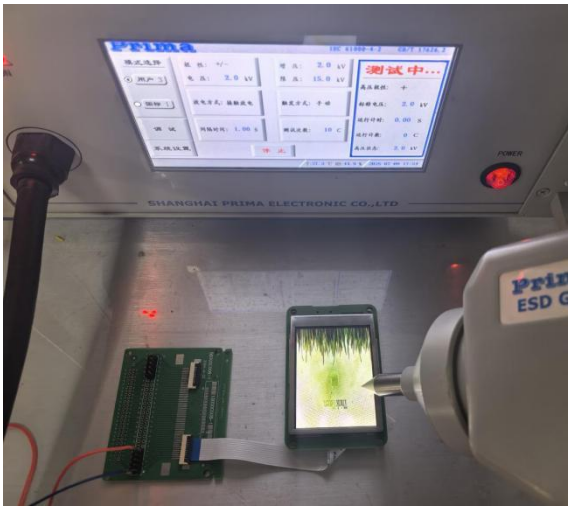
Atmospheric pressure: 86 ~ 106Kpa

测试过程：将产品放置于测试台，针对串口屏铁框周边以及显示区域依次进行接触和空气放电，测试过程观察屏幕有无死机、黑屏、白屏、花屏、重启等异常现象。

Test process: place the product on the test bench, conduct contact and air discharge in turn around the iron frame of the serial port screen and the display area, and observe whether there is any abnormal reset and restart display.

测试备注：当前试验测试均为产品裸露测试，实际产品装配机器上，保持屏幕和机器良好接地，或触摸板表面有 PVC 或盖板保护，整机 ESD 性能指标会更高。

Test remarks: The current tests are all bare product tests. On the actual product assembly machine, keep the screen and the machine well grounded, or the touch panel surface is protected by PVC or a cover plate, the ESD performance index of the whole machine will be higher.



3.1.3. 测试数据结果：Test Date Results

放电类型 Discharge type	放电值 Discharge value	测试结果 Test Results	性能判据 Performance Criteria
接触放电 Contact	±4KV	测试通过 Test Passed	B
空气放电 Air Discharge	±4KV	测试通过 Test Passed	B

3.2. 电快速瞬变群脉冲测试 Electrical fast transient group pulse testing (EFT)

3.2.1. 执行标准 Implementation Standards

执行标准 Implementation standards	GB/T 17626.4

3.2.2. 测试环境 Test Environment

测试环境温度：25℃

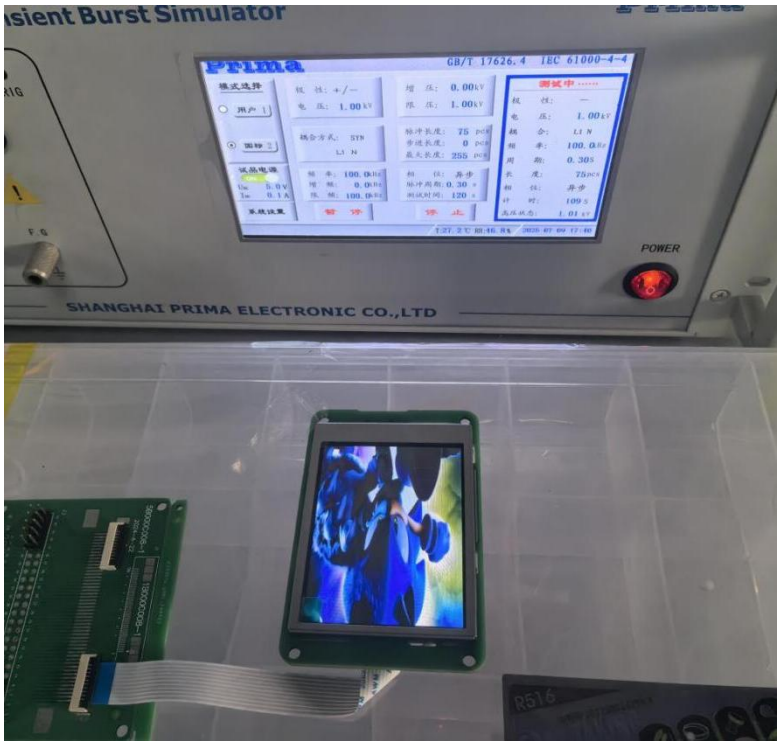
Test ambient temperature: 25℃

测试环境湿度：**50%**

Test environment humidity: 50%

测试过程：将产品放置于测试台上，垫高 10CM,通过群脉冲发生仪耦合脉冲群后的电源对屏幕进行供电，观察是否有复位重启显示异常等现象。

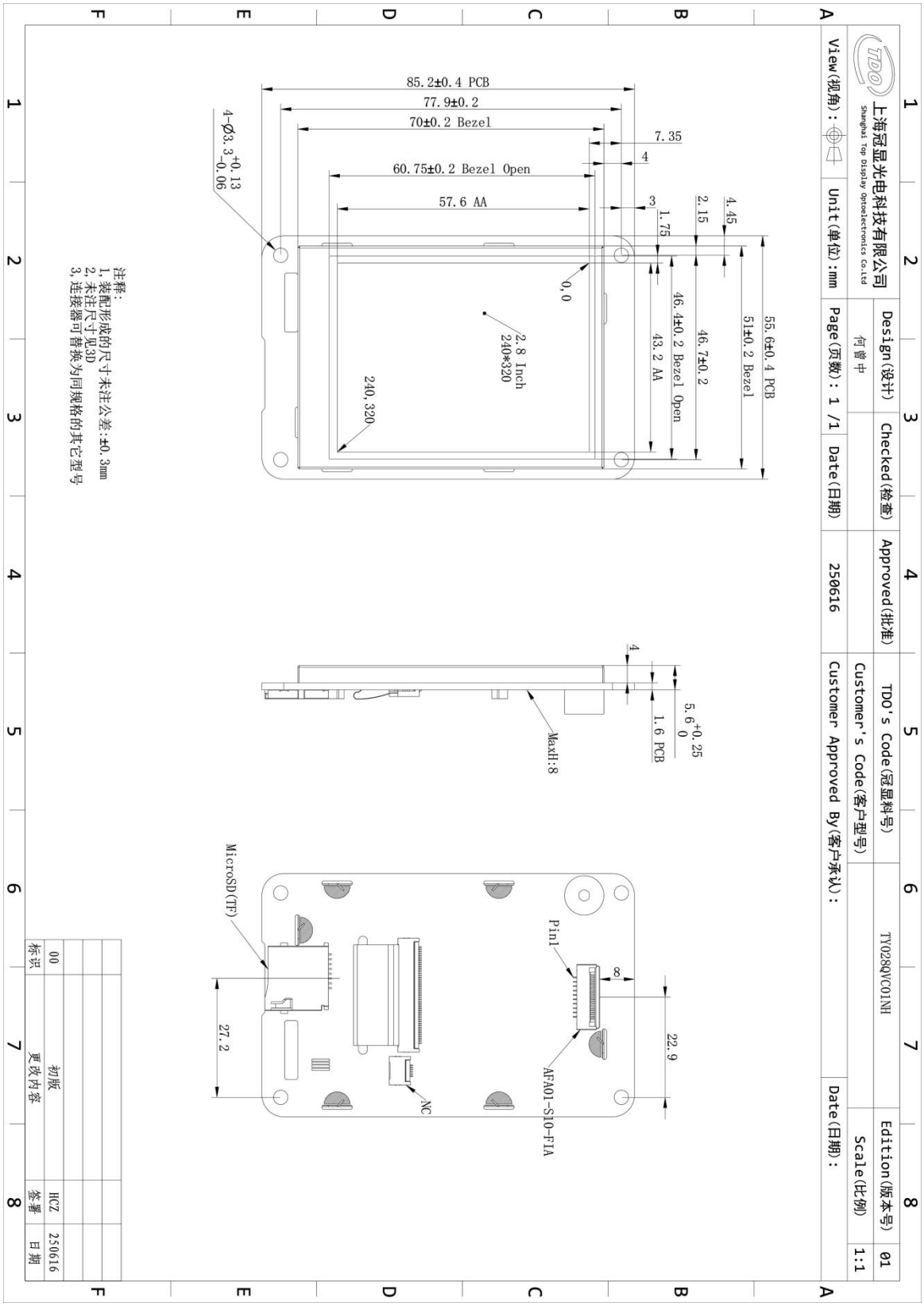
Test process: place the product in the high and low temperature test box, and power the screen through the power supply after the pulse group is coupled by the group pulse generator, and observe whether there is abnormal reset and restart display and other phenomena.



3.2.3. 测试数据结果 Test Date Results

执行标准 Implementation standards	GB/T 17626.4
性能判据 Performance criteria	B
测试环境 Test environment	±2.0KV ; 100KHZ ; 120S

4.产品尺寸 Product Size



5.型号定义 Model Definition

TY 028 QV C 01 N H

12 3 4 5 6 7 8

① ： 1 码--TDO 缩写，固定。

1 position--TDO abbreviation, fixed。

② ： 1 码---U(U 系列串口）/P(并口)/Y(Y 系列串口)/H(HDMI 接口类)/S(转接板)

1 position--U(U series serial port)/P(parallel port)/Y(Y series serial port)/H(HDMI interface type)/S(adapter board)

③ ： 3 码--尺寸,eg.028->2.8 寸

3 position--size,eg.028->2.8 inch

④ ： 2 码--分辨率缩写

2 position--resolution abbreviation

⑤ ： 1 码--C（消费级）/ H（商业级）/ M（医疗级）/ L（MINI 板）/ P（带外壳）

1 position--H (standard series)/C (basic series)/L (MINI board series)/P (with housing series)/M (medical series)/A (AV series)

⑥ ： 2 码--流水号

2 position---serial number

⑦ ： 1 码--C(带电容触摸面板)/R(带电阻触摸面板)/N(不带触摸面板)

1 position---C (with capacitance touch panel)/R (with resistive touch panel)/N(with NO touch panel)

⑧ ： 1 码--平台号,F-TR660/ G-TR540 /H-TR230M / J-TR240 / K-TR661 / D-TR670 / 0-安卓/ 1-Linux

1 position--platform number,F-TR660/ H-TR230M/J-TR240 / 0-android/ 1-Linux

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6.包装与物理尺寸 Packaging and Physical Dimensions

单品重量 Single product weight					
净重量（G）Net weight (G)	TBD				
包装标准和总重量 Packaging standard and total weight					
包装箱型号 Packing box model	包装箱尺寸（长*宽*高,单位：mm）Packing box size (length*width*height, unit: mm)	层数 Layers	数量（PCS）/层 Quantity (PCS)/layer	总数量（片）Total quantity (pieces)	总重量（KG）Total weight (KG)

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电话:021-64297098
传真:021-64297089
Email:sales@shtdo.com
官网:www.shtdo.com
地址:上海市闵行区新骏环路88号13A栋4楼
官方旗舰店:shop163014679.taobao.com



TEL:021-6429098

FAX:021-6429089

EMAIL:sales@shtdo.com

WEB:www.shtdo.com

ADDR:Shanghai, Minhang district, Xinjunhuan Road 88, Building13A, 4th floor

Online shop:http://shtdo.en.alibaba.com/

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