



Victor-Touch R&D Center

承 认 书

APPROVAL SHEET

客户名称 (CUSTOMER NAME) : _____

客户编号 (CUSTOMER CODE): _____ 环球RM-1272

产品名称 (DESCRIPTION) : _____ 电容式多点触摸屏

Capacitive multi-point touch panel

产品编号 (PRODUCT CODE): _____ VTC5070A09

送样日期 (SAMPLE DATE): _____ 2012-08-23

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CUSTOMER COMPANY		
核准	审核	确认
APPROVED BY	CHECKED BY	CONFIRM BY

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1. 基本规格 Specification

1.1 适用范围 Scope

本规格书适用于消费类电子的电容式多点触摸屏（如 MID、车载 DVD 等）。

This specification applies to consumer electronics the capacitive touch screen (such as MID, multipoint vehicle DVD, etc.).

1.2 特征和规格 Features and General Specifications

规格 General Specifications (L=Length ; W=Width ; T=Thickness)

项目 Items	规格 Specifications
结构 structure	F/G
外形尺寸 Outline Dimensional	参照附图 Refer to Engineering Drawing
可视区 View Area	参照附图 Refer to Engineering Drawing
驱动区 Active Area	参照附图 Refer to Engineering Drawing
引脚定义 Pin Configuration	参照附图 Refer to Engineering Drawing

1.3 环境参数 Environment Conditions

项目 Items	值 Value
工作温湿度范围 Operating Temperature & Humidity	-20~70℃, 20% ~ 90%RH
储存温湿度范围 Storage Temperature & Humidity	-30~80℃, 20% ~ 90%RH

1.4 机械性能 Mechanical characteristics

项目 Items	值 Value
Finger contact area 手指接触面积	More than 5mm 大于 5MM
光学特征 Optical Characteristics	透光率 Transmittance: ≥87%
表面硬度 Surface Hardness	6H 500 力 , 45 度 6H 500 gf , 45 deg

1.5 电器性能 Electric Characteristics

项目 Items	值 Value
工作电压 Working voltage	DC2.8V~3.3V
绝缘阻抗 Insulation Resistance	> 20M DC25V
工作电流 Working current	12mA~14.5mA
响应时间 Response time	≤16ms

2 实验条件 Testing Condition

2.1 温湿度范围 Temperature and humidity range

在常温条件（5℃-35℃），湿度为 45%-85%，和气压为 860hPa-1060hPa 下进行测试。必要对产品进行精确测试时，应在标准环境为：23℃，65%RH 和 1013hPa，放置 24 小时之后，进行测试。

In room temperature conditions (5 °C - 35 °C), humidity for 45% - 85%, and barometric pressure test 1060hPa 860hPa - under. Necessary to products accurately, should be in standard test for: 23 °C, environment and placed 1013hPa 65% RH and 24 hours later, tested.

2.2 耐冲击试验 Impact Resistance Test

1) 测试条件：当用 64g Φ25.4mm 钢球从 60cm 的高度垂直落在玻璃厚度为 0.7mm-3.0mm 的产品表面中心一次，玻璃不会损坏。

1) Test conditions: when using 64g Φ 25.4 mm ball from 60cm height vertical fell on the thickness of the glass is 0.7 mm - 3.0 mm product surface center once, glass won't damaged.

2) 判定基准：实验后产品各项特征满足，且变动率小于 20%。

2) determine the benchmark: after the experiment, and various features meet product is less than 20% changes rate.

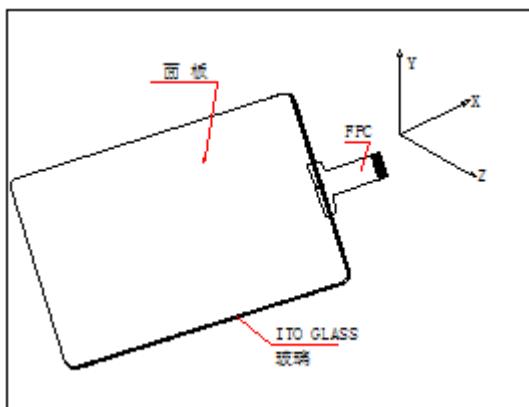
2.3 引线拉力弯曲和耐热性测试 Flexible Pattern Bending and Heat Resistance

1) 引线拉力测试 Flexible pattern heat seal peeling strength:

X: 2000g （水平方向 180°peeling by horizontal 180°）

Y: 500g （朝上 90° peeling by upward 90° ）

Z: 150g （垂方向剥离 Stripping vertical direction）



2) 引线耐变曲性测试 Flexible pattern bending resistance:

弯曲半径 1mm, 弯折 3 次, 满足电器性能的要求。

Bending radius of 1mm, bending 3 times, to meet the requirements of electrical performance

3 电器特性测试条件 Electric characteristics

3.1 绝缘阻抗 Insulation resistance

用绝缘表 (25V) 的负极测试头按压于引线末端, 测试产品的绝缘阻抗。确保绝缘阻抗 $> 20M\Omega$ 。

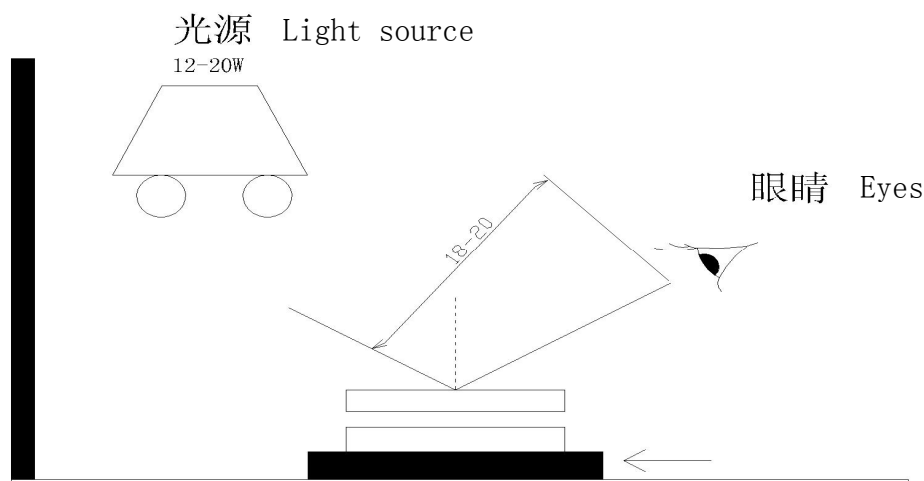
With insulating table (25V) anode test head pressure test the product in the end, lead the insulation impedance. Ensure insulation resistance $\Omega > 20M$.

4 外观检验标准 Appearance limit standard

4.1 点线状杂物 Dot-like and Linear Foreign Matter

试验条件: 在 12-20W 的冷白色荧光灯下检测, 目测距离为 18cm-20cm, 并且在产品的下方加以黑色的纸板作为衬托背景, 每片产品检测时间为 5 秒, 如图:

Test conditions: the 20W in 12 - cold white fluorescent testing and visual distance 20cm 18cm - and for the product to black cardboard below as a foil setting, every piece of product testing time for 5 seconds, as shown in figure:



具体要求如下：（直径、长度、宽、玻璃总厚度）

Remark: (D-diameter, L-length, W-width, GT-glass thickness)

检验项目 Test items	判定基准 Judge criterion
粒状杂物 Granular sundry	产品尺寸：7 寸以下 Product size: 7 inches below
粒状直径 $D \leq 0.1\text{mm}$ dot-like $D \leq 0.1\text{mm}$	可以忽略 Can ignore
$0.10\text{mm} \leq \text{粒状直径} \leq 0.20\text{mm}$ $0.10\text{mm} \leq \text{dot-like } D \leq 0.20\text{mm}$	粒状杂物与另一杂物之间的距离 $> 10\text{mm}$, 只允许有 2 个存在; Space between two dots-like is $> 10\text{mm}$, only 2 are allowed;
粒状直径 $> 0.20\text{mm}$ dot-like $D > 0.20\text{mm}$	属不良品 Defective TP
粒状杂物 Granular sundry	产品尺寸：7 寸以上（含 7 寸）~10.1 寸（含 10.1 寸） Product size: 7 inches above (contain 7 inch) ~ 10.1 inch (including 10.1 inch)
粒状直径 $D \leq 0.10\text{mm}$ dot-like $D \leq 0.10\text{mm}$	可以忽略（密集不可） Can ignore (Dense not)
$0.10\text{mm} < \text{粒状直径} \leq 0.25\text{mm}$ $0.10\text{mm} < \text{dot-like } D \leq 0.25\text{mm}$	粒状杂物与另一杂物之间的距离 $> 20\text{mm}$, 允许有 3 个存在; Space between two dots-like is $> 20\text{mm}$, Only 3 are allowed;
粒状直径 $> 0.25\text{mm}$ dot-like $D > 0.25\text{mm}$	属不良品 Defective TP
粒状杂物 Granular sundry	产品尺寸：10.1 寸以上 Product size: 10.1 inches above

粒状直径 $D \leq 0.20\text{mm}$ dot-like $D \leq 0.20\text{mm}$	可以忽略（密集不可） Can ignore （Dense not）
$0.20\text{mm} < \text{粒状直径} \leq 0.3\text{mm}$ $0.20\text{mm} < \text{dot-like } D \leq 0.3\text{mm}$	粒状杂物与另一杂物之间的距离 $> 20\text{mm}$ ，允许有 3 个存在； Space between two dots-like is $> 20\text{mm}$, Only 3 are allowed;
线状杂物 Linear sundry	
$0.03\text{mm} \leq \text{线状杂物宽}$ $0.03\text{ mm acutities linear sundry wide}$	宽 $\leq 0.03\text{mm}$ ，可以忽略； $W \leq 0.03\text{mm}$ ， Can ignore;
$0.03\text{mm} \leq \text{线状杂物宽} \leq 0.04\text{mm}$ $0.03\text{mm} \leq \text{Linear } W \leq 0.04\text{mm}$	长 $\leq 3.0\text{mm}$ ，只允许有两个存在； $L \leq 3.0\text{mm}$, Were allowed only two exist;
$0.03\text{mm} \leq \text{线状杂物宽} \leq 0.05\text{mm}$ $0.03\text{mm} \leq \text{Linear } W \leq 0.05\text{mm}$	长 $\leq 2.0\text{mm}$ ，只允许有一个存在； $L \leq 2.0\text{mm}$, Only allow a exist;
线状杂物宽 $> 0.05\text{mm}$ 或长度 $> 3.0\text{mm}$ Linear $W > 0.05\text{mm}$ and $L > 3.0\text{mm}$	属不良品 Defective TP

4.2 断裂和破损 Chip and Crack

角破损： $X \leq 1.5\text{mm}$, $Y \leq 0.5\text{mm}$ 和 $Z \leq \text{GT}$, 可忽略。

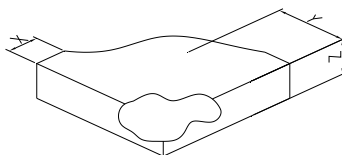
Corner chip: $X \leq 1.5\text{mm}$, $Y \leq 0.5\text{mm}$ and $Z \leq \text{GT}$, ignored.

1、若角断裂位于导电面外,严重影响产品的功能,TP 属不良品;

1、 If corner chip appears located outside the contact side, which affect product function seriously, the TP is defective;

2、若角断裂位于线路上,严重影响产品的功能,TP 属不良品;

2、 If corner chip appears located on circuit, which affect product function seriously, the TP is defective;



边破损: $X \leq 3.0\text{mm}$, $Y \leq 0.5\text{mm}$ 和 $Z \leq GT$, 可忽略。

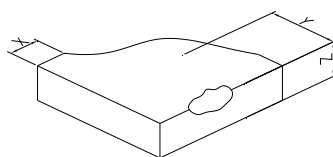
Side Chip: $X \leq 3.0\text{mm}$, $Y \leq 0.5\text{mm}$ and $Z \leq GT$, ignored.

1、若边断裂位于导电面外,严重影响产品的功能,TP 属不良品;

1、 If side chip appears located outside the contact side, which affect product function seriously, the TP is defective;

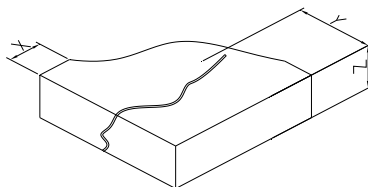
2、若边断裂位于线路上,严重影响产品的功能,TP 属不良品;

2、 If side chip appears located on circuit, which affect product function seriously, the TP is defective;



裂纹: TP 属不良品。

Crack: The TP is defective.



5 信赖性条件 Reliability Conditions

5.1 耐高温高湿测试 Temperature and Humidity Resistance

在 60°C , 90% RH 条件下存放 240 小时, 取出在常温常湿下满足各项电气参数.

At 60°C , 90% RH conditions 240 hours, remove deposit in normal temperature often wet all electrical parameters meet.

5.2 高温存储 Heat resistance

将产品放在在 70°C 条件下存放 240 小时, 取出在常温 下再存放 24 小时后, 满足各项电气参数.

The requirements in 6 shall be satisfied after exposing at 70°C , for 240 Hours and at normal temperature and humidity for 24 hours.

5.3 冷热冲击 Thermal Shock

按照 -20°C (0.5 小时) $\rightarrow 70^{\circ}\text{C}$ (0.5 小时) 的条件循环 5 次, 取出在常温常湿下再存放 24 小时后, 满足电气参数.

According to -20°C (0.5 hour) - 70°C (0.5 hour) conditions, take out 5 times in circulation under

normal temperature often wet store again after 24 hours, meet the electrical parameters.

6. 包装及运送 Packaged and shipped

6.1 包装 Package

批量出货产品采用纸箱内嵌 KT 板方式包装.

The batch outgoing goods use cartons with embedded KT board packing.

6.2 运送 transport

避免产品直接暴露在阳光直射下运输.

Avoid products under direct exposure to direct sunlight transportation.

7 使用过程中的注意事项 Using Precautions

7.1 储存的注意事项 Cautions for Storage

储存产品时须按样品承认书的温湿度要求放置，注意不可受日光直射或重物重压.

According to the sample must be stored product placement of temperature and humidity admit it, note are not required under direct sunlight or clog weigh.

7.2 搬运的注意事项 Cautions for unpacking

1) 尽量减少搬运次数。

1) Minimize the number of handling。

2) 尽量使用搬运工具。

2) Try to use handling tools.

3) 堆放不能超过三层，轻拿轻放，向上放置。

3) No more than three layer, pile up gentle with place.

7.3 装配注意事项 Assembly precautions

1) 不要对产品施加额外的拉力。

1) Do not exert extra force to touch panel.

2) 须保持产品的透明清晰度，请在接触产品之前戴上指套或手套。请注意玻璃边角部位。

2) Since touch panel is transparent and clear, make sure to wear fingerstall or glove before touching. Be careful your hands and other parts from injury at handling by glass corners.

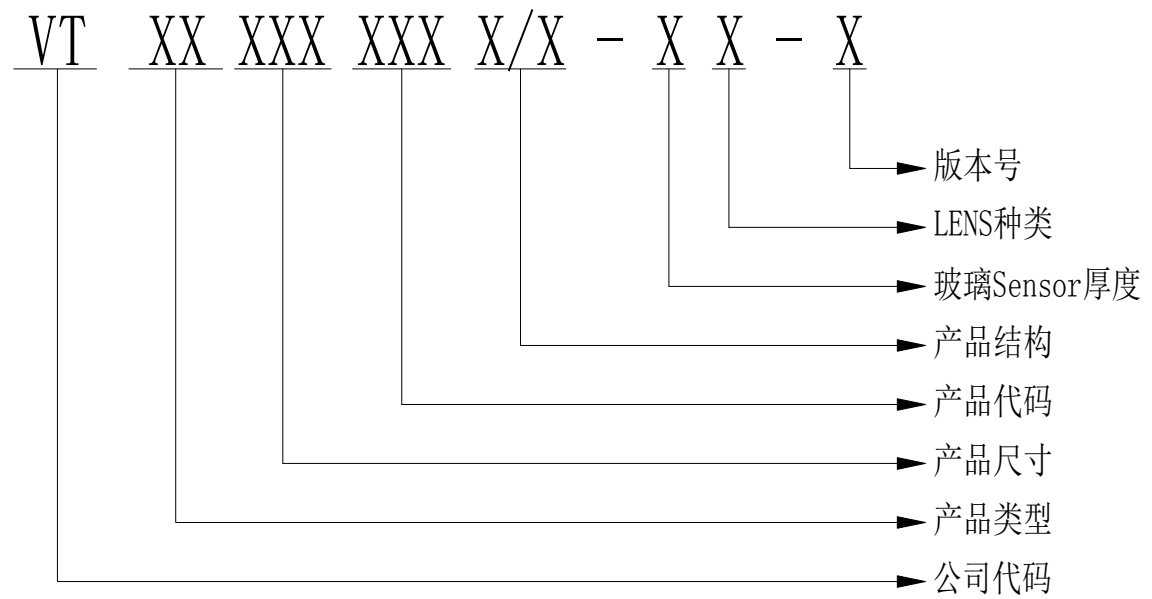
3) 当掌握产品时，请握住产品的四周，不要握中央，以免指套或手套上的脏污会留在产品上。在取出产品时，请不要握拿引线，以免造成产品与引线松动。

- 3) When handling, make sure to hold the touch panel borders not center parts to avoid dirt to touch panel. Do not lift touch panel by tail to avoid tail loosen.
- 4) 安装组合时, 请不要重拉 FPC, 因为重拉将使 FPC 从产品上剥离。
- 4) When installing and assembling, do not lift tail with heavy force to avoid tail peeling off touch panel.
- 5) 请不要在 FPC 上粘贴或安装其它物品。如: 在 FPC 上贴一层 FILM 或金属板, 因为这些附加物会对 FPC 顶部施加一个额外的压力, 从而导致 FPC 内侧松动。
- 5) Do not stick or mount other parts on the tail, such as additional film or metal plate. As it will exert extra force to tail tip and cause tail loosen.
- 6) 请不要从侧边使力拉 FPC, 因为侧边给的拉力会使 FPC 破裂。
- 6) Please don't pull makes force from side to side, because the FPC tension will make FPC burst.
- 7) 如有通气槽, 请在设计产品结构时, 注意产品附的不能有液体物和粉状物。
- 7) If there is air groove on touch panel, when design product structure, make sure no liquid and powder near the air groove.
- 7) 为了不使 TP 表面受压, 因此机壳与我司 TP 组合间隙须保持在 0.2mm-0.5mm 的范围内。
- 7) In order to avoid heavy stress to touch panel surface, make sure to keep 0.2mm-0.5mm assembling gap between touch panel and case.

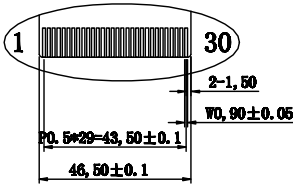
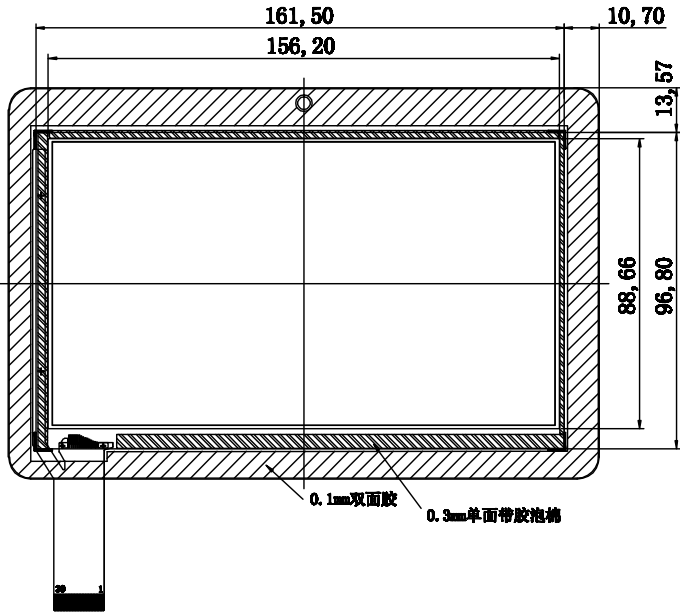
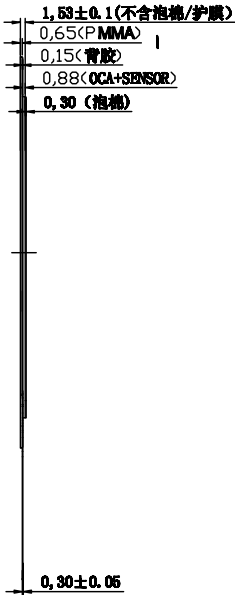
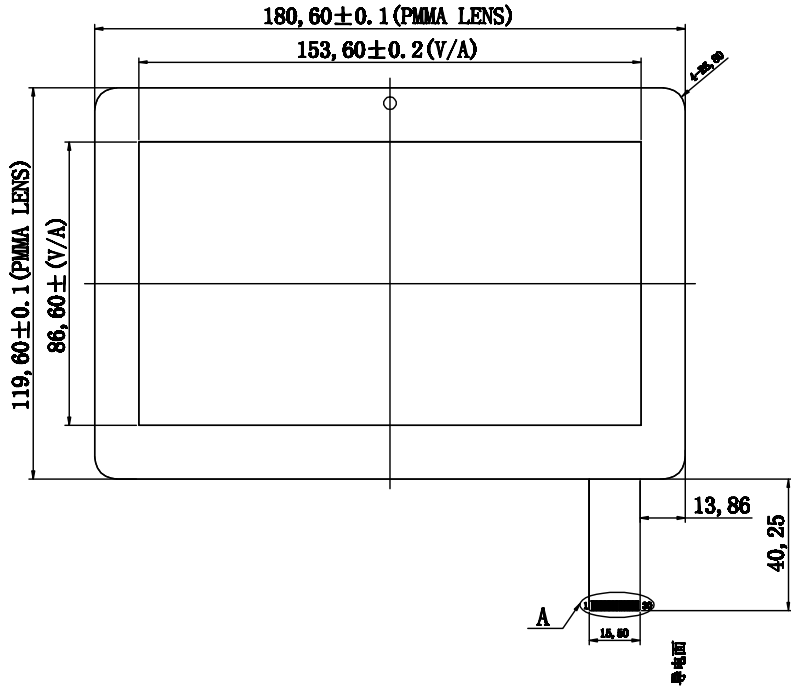
8. 样品承认书的反馈 **Samples of feedback admit it**

- 1) 此样品承认书只为产品的品质保障。实际上机使用, 请检查和评估我司产品与贵司机器设备的配置状况。
- 1) The sample for the quality of the products admitted book guarantee. The actual computer use, please check and evaluate our products and the expensive department machine equipment status.
- 2) 当贵司评估后, 请贵司在我司的确认书上盖上确认图章, 并且将附本寄回我司, 倘若在量产前副本或承认样品未达到我司, 我们将默认贵司承认了我司的样品及承认书。
- 2) when the expensive department assessment, please the expensive department in our confirmation on the cover, and will confirm chop attached in return we, if copy or admit sample amount antenatal fails to achieve our company, we will default the expensive department acknowledged our samples and admitted that book.
- 3) 样品承认书变更内容需针对实际情况进行协商变更, 需重新更新承认书。
- 3) Sample admit it to change content must negotiate according to the actual conditions change, to reconsider update admitted that book.

9、编码规则 (Regulation Of Code-Making)



0. 5%	0. 5%	0. 5%	0. 5%
0. 5%	08/24/12	第一次图纸	向宗文



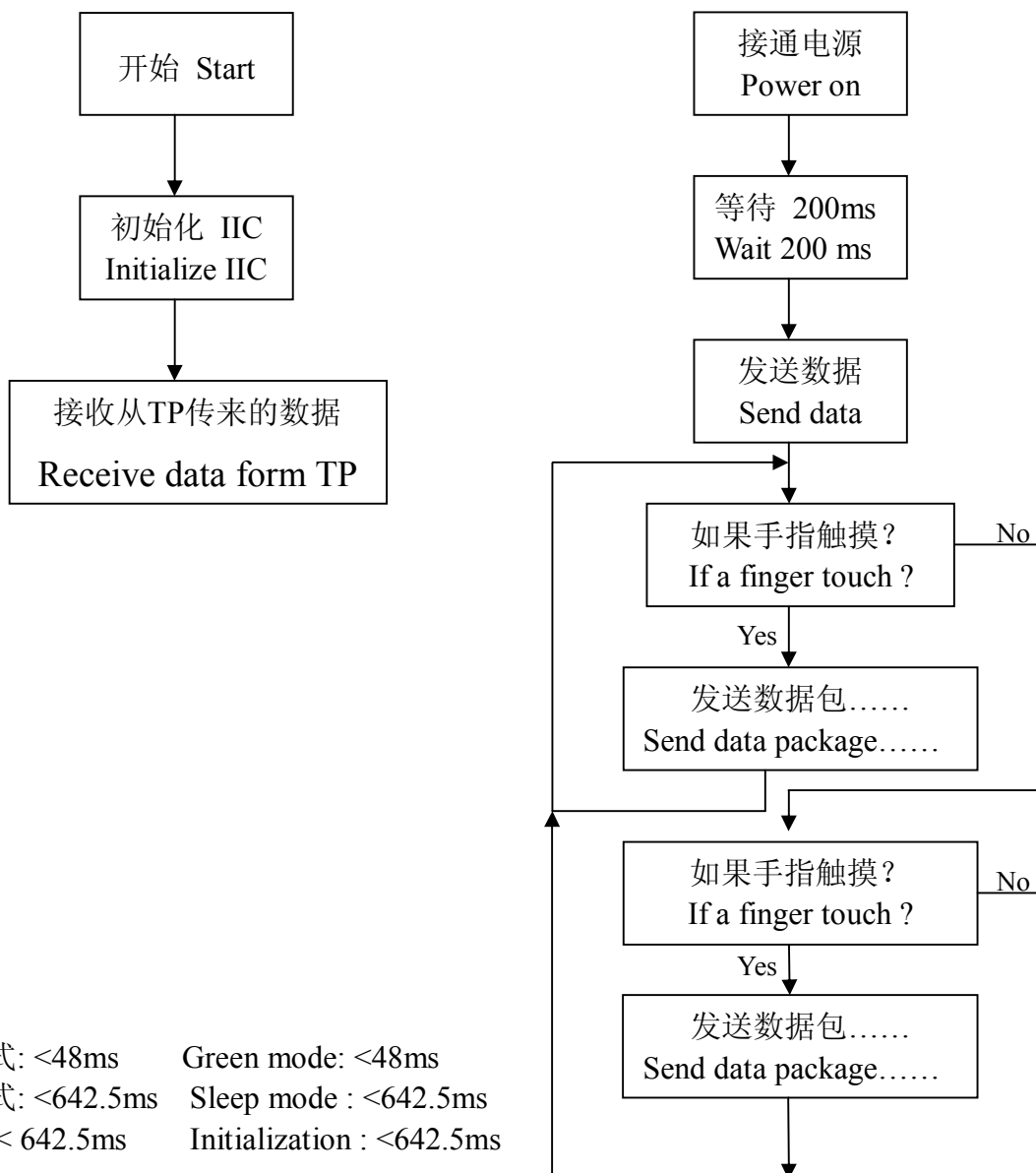
- 1. 操作温度:-10°C~+60°C;
 储存温度:-20°C~+70°C。
- 2. 敲击寿命>100万次。
- 3. 线性≤3.0%。
- 4. 操作压力:≤10g。
- 5. 表面硬度≥3H
- 6. 透光率≥80±2%。
- 7. 符合ROHS标准。
- 8. 未注公差:±0.2。

VTC5070A09

SCALE	1:1	MATERIAL	PMMA+Glass		Version	10
UNIT	mm	TOLERANCE	±0.3mm		NO:	1 of 1
DESIGN	Xiang	DATE	20120824		Victor-touch Technology Co.,LTD.	
CHECK		DATE	20120824		深圳市纬拓光电技术有限公司	
RELEASE	Victor	DATE	20120824			

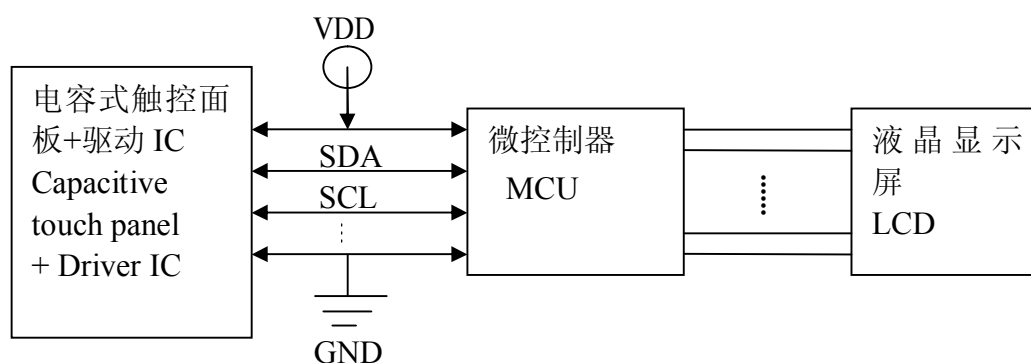
11.说明 Explain

11.1 流程图 Flow Chart



省电模式: <48ms Green mode: <48ms
睡眠模式: <642.5ms Sleep mode : <642.5ms
初始化:< 642.5ms Initialization : <642.5ms

11.2 原理框图 Principle diagram



11.3 软件说明 Software Show

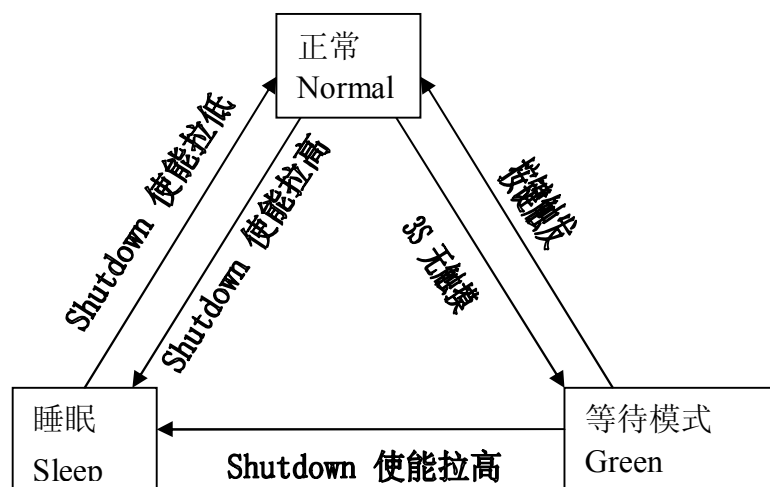
11.3.1 主控软件编程应用说明 Touch IC Software Show

11.3.1.1 主控接口类型及器件地址 Master interface type and device address

Touch IC 采用标准硬件 I2C 通信接口，通信速率最高 250k bps。在通信中，Touch IC 始终作为从设备，其从设备地址为 0b1010 101x。主控寻址 Touch IC 时，同时还要发送读写控制位，0 表示 主控进行写操作，1 表示主控进行读操作。读写控制位是附在从设备地址后，与从设备地址组成 一个字节，因此，主控对 Touch IC 进行写操作时，寻址 0xAA，进行读操作时寻址 0xAB。

Touch IC with standard hardware the I2C communication interface, communication 250k BPS rate highest. In communications, Touch IC always as from the equipment from equipment, 0b1010 address for 101x. Master addressing Touch IC, while also send literacy control bit, 0 means master for write operation, 1 says read operation control. Literacy is attached to control bit from equipment from equipment with addresses composed a byte, therefore address to Touch on the control IC write operation, addressing 0xAA, when addressing 0xAB read operation.

工作模式切换



当主机待机时，必须控制 S H U T D O W N 脚输出高，让 Touch IC 进入 Sleep 模式，以达到省电的目的。

When a host standby, must control S H U T D O W N feet high, make Touch IC output into S l e e p mode, in order to achieve the purpose of save the electricity .

1). 正常模式 Normal mode

Touch IC 工作在 Normal 模式下，保持 16ms 的扫描周期，并且在此 16ms 内保持最大耗电状态。在此模式下，各点坐标的最快更新速率为 16ms。

In Normal mode Touch IC work under the scanning, keep 16ms in this cycle, and within 16ms largest power consumption status. In this mode, the fastest each point coordinates for 16ms update rate.

当有按键触发时，Touch IC 进入 Normal 模式，按键松开时，保持 Normal 模式 3s。

When a key trigger when Normal mode, Touch IC into buttons, keep Normal mode loose. "3s".

2). 等待模式 Green mode

Touch IC 工作在 Green 模式下，保持 48ms 扫描周期。在此 48ms 之内，仅在检测和数据处理时工作在最大耗电状态，其余时间处于低耗电状态。

Touch IC working in Green mode, keep 48ms scanning cycle. In this 48ms inside, only in the detection and data processing in maximum power consumption when work state, the rest of the time in low consumption electric state.

当无按键时间达到 3s 以上，Touch IC 自动进入 Green 模式。

When no buttons time reaching 3s above, Touch IC automatic Green mode into.

3). 睡眠模式 Sleep mode

主机可以通过 SHUTDOWN 口线输出低使 Touch IC 高时进入 Normal 模式，通过 SHUTDOWN 口线输出高使 Touch IC 低时进入 Sleep 模式。退出 Sleep 模式后恢复为原来的工作模式。

Host can through SHUTDOWN mouth lines output low make Touch when Normal mode into IC high, through SHUTDOWN mouth lines output high make Touch IC low into Sleep mode. After Sleep mode for recovery from original work mode.

当主机需要切换工作状态时，请控制 SHUTDOWN 口线，如 TFT 屏点亮时，应该将 SHUTDOWN 口线置低使能 Touch IC；TFT 屏熄灭时，应将 SHUTDOWN 口线置高以降低触摸屏的功耗。

When a host need to switch work condition, please control SHUTDOWN mouth line, such as TFT screens light, should will SHUTDOWN mouth that can Touch line buy low IC; TFT screens out, SHUTDOWN mouth line should be to reduce the high touch screen for power consumption.
