订制单位 Department	文件名称 Subject	文件编号 Document No。	
研发部 Research and Development	产品规格书 Product Specifications	总页数 Total Page	Page1/14

Projected Capacitive Touch Panel Product Specification

客户 Customer	
产品简述 Product Description	18.5 INCH PROJECTED CAPACITIVE TOUCH PANEL
规格书通用级别 Application Level	☐ Preliminary Reference Only. ☐ Sample Used Only. ■ Mass-Production Used.
申请日期 Apply Date	2015-10-15
规格书版次 Spec.Version	1.0
产品型号 Part Number	502318-1
产品料号 Product ID	GT-CTP-P18.5-A1

客户确认 Approved By Customer	
客户料号 Customer Part NO。	
审核人员 Checked By	
核准人员 Approved By	

核准 Approved By	审核 Checked By	制定 Prepared By

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修正历史

REVISION HISTORY

序号 Item	版次 Version	修正日期 Date	摘要叙述 Description	页数 Page
1	1.0	2013-11-22	1. Initial Release.	14

1.一般说明 GENERAL DESCRIPTION

1.1 产品摘要 OVERVIEW

这是一款最大可以支持十指触控的投射式电容触摸面板。

This Projected Capacitive Touch Panel can be multi-touch (max to be 10 points touch).

1.2 产品特征 FEATURES

项次 ITMES	规格 SPECIFICATIONS
面板尺寸 Panel Size	18.5 inch
产品结构 Structures	Glass/Glass
总厚度值 Total Thickness	2.0 ± 0.15 mm (Cover_1.1 mm & Sensor_0.7 mm)
作业条件 Operation Conditions	-20℃~+70℃ at Min 45% to Max 85% RH
储存条件 Storage Conditions	-30℃~+80℃ at Min 45% to Max 85% RH

备注 1: 为确保触控模组有效发挥功能，请务必在作业时将控制器做有效的接地动作。

Note1: In order to make a touch panel operate normally, please make sure that the host device is grounded.

备注 2: 作业环境设定值须小于一个大气压压力。

Note2: All environmental characteristics listed as above all should be less than1 atmosphere.

备注 3:触控面板必须由双面胶或其他具有粘性的材料将 TFT-LCD 模组做组合作业，并将触控面版的控制器反折固定在 TFT-LCD 模组下的铁框或其他构件上并加以接地;

Note3: The touch panel must be assembled with LCD panel by VHB or other materials, the control board also be fixed on LCM bezel or other mechanical parts of the system and then be grounded;

备注 4: 假设触控模组没有被有效的执行接地动作时，触控面板可能会有功能性受损或则不稳定等现象发生。

Note4: The touch panel may be damaged functionally or unstable if the panel does not be grounded through your system to earth.

1.3 通用规格 GENERAL SPECIFICATIONS

项次 ITMES	规格 SPECIFICATIONS	备注 NOTE
输入方式 Input Method	Finger or Cap. Stylus	
精确度 Accuracy	Within 2.5mm each target & 10% Jitter limit on moving	Based on WIN7 definition ppi(Pixel per inch)
解析度 Resolution	25ppi (Min.)	
玻璃穿透率 Transparency	85 ± 5%	By BYK-Gardner at 550nm.
玻璃雾度值 Haze	3% (Maximum)	

备注 1: 上表中所列之光学特性数值的测量是采用检测仪器（BYK-Gardner）在波长 550nm 的条件测得。

Note1: The optical characteristics listed as above are measured by BYK-Gardner instrument at 550nm wavelength.

1.4 触控面板规格 TOUCH PANEL SPECIFICATION

项次 ITMES	规格 SPECIFICATIONS
Cover Lens 外观尺寸 Cover Lens O.D.	440.80 mm * 271.40 mm ± 0.30 mm
Sensor Glass 外观尺寸 Sensor Glass O.D.	430.80 mm * 261.40 mm ± 0.30 mm
Cover Lens 可视区 C/L Visual Area	410.8.00 mm * 231.4.00 mm ± 0.20 mm
FPC/COF 厚度值 FPC/COF Thickness	0.3 mm ± 0.05 mm

备注 1: 触控面版的玻璃四周和两侧进行 R 角与 C 角加工，相关加工规格请参照图面尺寸规格标识定义。

Note1: All of the corners and edges of the glass that have chamfer process by CNC machines and all dimensions and tolerances will be defined on the drawing of the touch panel。

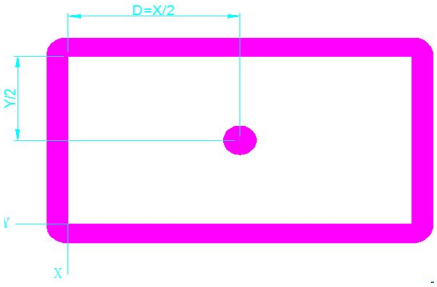
2.可靠度测试报告与规 RELIABILITY TEST REPORT AND SPECIFICATIONS

2.1 机械特性 MECHANICAL CHARACTERISTICS

项次 ITMES		测试条件 CONDITIONS	允许条件 PASS CRITERIA
面板部分 Panel	落球测试 Ball Drop Test	130g ± 2g 40cm	No damage at each cycle drop 5points and each point drop 1 time only
	硬度测试 Hardness	Pencil: 6H Pressure: 1N/45°	Hardness≧6H
	翘曲度 Warpage	By Cage	Warpage≦Length*0.1% Unit: mm
FPC/COF 可靠性测试 FPC/COF Reliability	剥离测试方向 Direction of peeling off	90°	Strength ≧ 500gf/cm
	拉力测试速度 Speed of Pulling out	50mm/min	

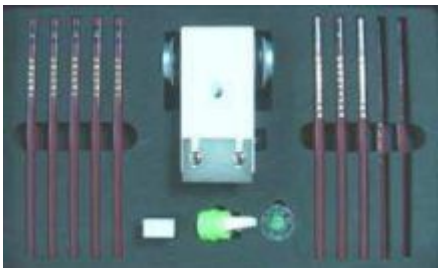
备注 1: 钢球落下测试示意图如下附件图所示.

Note1: The ball drop test illustration is showed as follow.



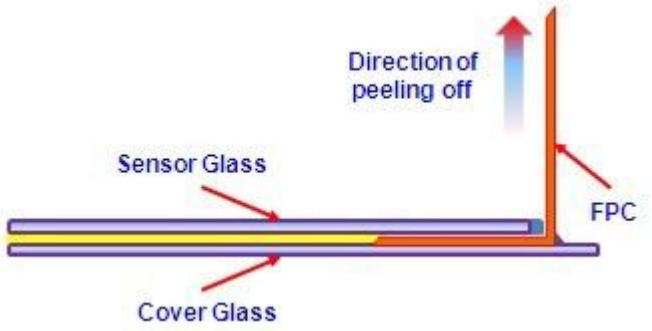
备注 2: 玻璃硬度测试依照 JIS-5400 系列标准规范手法; 相关测试示意图如下附件所示。

Note2: The hardness test follows up the JIS K-5400 serials industry standard and the test illustration is showed as below.



备注 3: FPC/COF 的软板玻璃强度测试依照 ASTM D903/ASTM D3807 系列标准规范手法; 测试示意图如下附件所示。

Note3: The FPC/COF peeling strength test illustration is showed as below, and the test method follows the standard Of ASMT D903/ASMT D3807.



2.2 可靠度规格 RELIABILITY SPECIFICATIONS

环境测试条件类表如下所示。

Environment test conditions are listed as follows.

项次 ITMES	规格 SPECIFICATIONS
恒温恒湿 constant temperature and humidity	The product should be allowed to stand at 60℃ with 90% RH for 240hrs un-load condition and allowed to be normalized for 4hrs.
冷热动擎测试 Thermal Shock	The product should be allowed to stand at -30℃to+80℃ for 30min/cycle with totally 50cycles and allowed to be normalized for 4hrs。
高温储存测试 High Temp. Storage	The sample should be allowed to stand at +80℃ for 240hrs un-load condition and allowed to be normalized for 4hrs.
低温储存测试 High Temp. Storage	The sample should be allowed to stand at -30℃ for 240hrs un-load condition and allowed to be normalized for 4hrs.

3.外观检验 APPEARANCE AND COSMETIC INSPECTION

3.1 外观环境参数 INSPECTION ENVIRONMENT CONDITIONS

I. 触控面板的目视检查作业必须在至少无尘室等级为 10，000 的环境下执行。
The touch panel has to be inspected at a clean room of at least class 10,000.

II. 触控面板的目视检查环境设定值必须被控制温度在 15℃到 25℃以及湿度在 25%到 75%之间。
The visual inspection environment should be set at 15 to 25 degree C and 25% to 75% humidity.

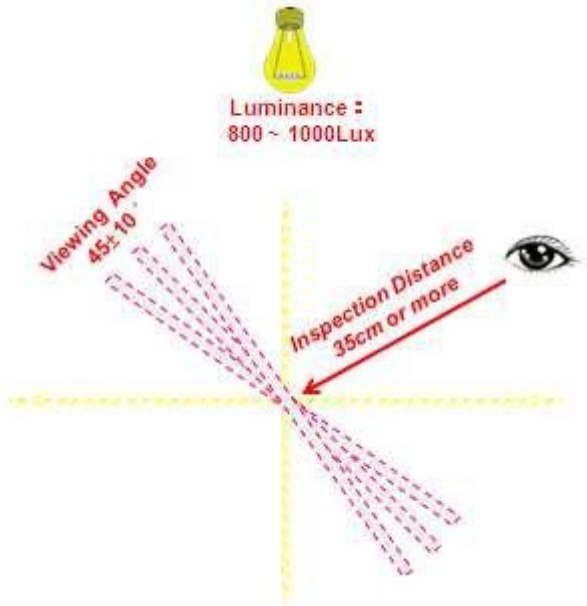
III. 触控面板的外观目视检查之环境照度须设定在 800~1000Lux 的日光灯光源下。
The illumination of the appearance inspection should be 800~1000Lux with fluorescent reflection light source.

IV. 触控面板的目视检查须在人眼裸视基础下，并且触控面板到人眼的目检距离须至少超过 35 公分。
The visual inspection should be kept the distance 35cm or more between the touch panel and the raw eyes of inspectors.

V. 触控面板的裸眼目视检查角度须以 45 度正负 10 度的角度作业。
The viewing angle should be 45±10 degree with an inspector’s raw eyes when visual inspection.

VI. 外观目视检查时间建议为 25 秒正负 5 秒钟的时间。
Visual inspection time is 25±5 second per one’s that we are recommended.

VII. 目视检查示意图如下附图所示。
The visual inspection illustration is showed as below.



3.2 目视检验规范 COSMETIC SPECIFICATIONS

不良的分类共分为 2 种，分别是主要不良项目与次要不良项目；定义分别如下。

Defects are classified two types, one is major and the other is minor according to the defect specification, and they were definition as follows.

检验方法：依据 ANSI/ASQC C1.4-2003 一般检验规范等级二的抽样标准比例。

Test method:According to ANSI/ASQC C1.4-2003. General Inspection Level II take a single time.

I. 主要不良项目 Major defect

任何可能导致有功能性失效或降低使用率的不良原因;例如电性失效或外观受损等。

Any defect may result in functional fail or reduce the usability such as electrical failure, deformation etc.

II. 次要不良项目 Minor defect

不会导致使用率降低的不良原因；例如线性不良或点状不良等现象。

It doesn’ t reduce the usability such as line defect, dot defect etc.

III. 不良项目的抽样判定等级标准依照如下;

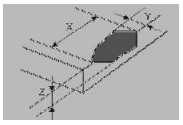
The defects classify of AQL as following:

Major defect:AQL=0.65. Minor defect:AQL=2.5. Total defects:AQL=2.5.

※外 观 不 良 定 义 与 规 范※

※COSMETIC DEFECT DEFENITION AND SPECIFICTIONS ※

外观不良定义 COSMETIC DEFECT DEFENITION	规格 SPECIFICATIONS	允许条件 PASS CRIRERA
Linear Defects (刮伤/擦痕/线状/杂质) (Scratch/Scrub/ Fiber)	W≦0.1mm and L≦10mm	Ignore
	0.1mm＜W≦0.3mm、L≦10mm	N≦5、Distance≧10mm
	W>0.3mm	Not Allowed

外观不良定义 COSMETIC DEFECT DEFENITION		规格 SPECIFICATIONS	允许条件 PASS CRIRERA
点状不良 Dot Defects (气泡/杂质/白点/ 黑点/凹洞/刻痕/ 缺口) (Bubble/Fiber/Particle /Spot/Dent/Nick)		D≦0.35mm	Ignore、Pitch≧5mm
		0.35mm＜D≦0.5mm	N≦5、Pitch≧10mm
		D>0.5mm	Not Allowed
印刷不良 Printing Defects	针孔 Pine Hole	D≦0.35mm	Ignore
	漏光 Light Leakage	Peak to Peak≦0.3mm	Border Area Acceptable
		Peak to Peak≦0.2mm	Logo/icon Area Acceptable
Breakage Defects	Corner Defect 	X≦3.0mm &Y≦3.0mm IFZ≦T/2mm	Be Allowed on Cover Glass
		X≦3.0mm &Y≦3.0mm IFZ≦T/2mm	Be Allowed on Cover Glass
	Edge Defect 	X≦3.0mm &Y≦3.0mm IFZ≦T/2mm	N≦3/Edges、Distance≧20mm Be Allowed on Cover Glass
		X≦3.0mm &Y≦3.0mm IFZ≦T/2mm	N≦3/Edges、Distance≧20mm Be Allowed on Cover Glass
外观造型 ID Appearance		All dimensions by procedures via mechanical must be followed by customer's drawing definition	All dimensions and tolerances must be followed by customer's drawing definition.
印刷色差 Color Shift		Be followed by customer's AI drawing and "PANTONE" no. definition all of the marks	Be followed by "PANTONE" no. or checked by golden sample if have argued.
IR 孔印刷 IR Hole Printing			Be followed by customer spec or checked by golden sample

备注 1: “L” 表示长度，“W” 表示宽度，“N” 表示数量，“Pitch” 代表两个不良之间的距离。

Note1: “L” means Length, “W” for Width, “N” for Quantity and “Pitch” for the distance between both defects.

备注 2: 直径 D 表示为 X 轴与 Y 轴的长度总和除以 2 的结果; 点状不良的外形示意图如下附图所示。

Note2: D=(X+Y)/2, and dot sharp diagram showed as below.

备注 3: “L” 表示长度，“D” 表示宽度;线状不良的外形示意图如下附图所示。

Note3: “L” means Length, “D” for Width, and linear sharp illustration is showed as below.

备注 4: 若有一个既不像点状不良也不像线状不良的灰尘脏污时，请一下面方式作判断解析;

Note4: If the shape of particles is not dot or line,

<A>取一片透明且有刻度的检验规，并将检验规放置在该不良物体上方，并先用点状不良的检验手法判断。

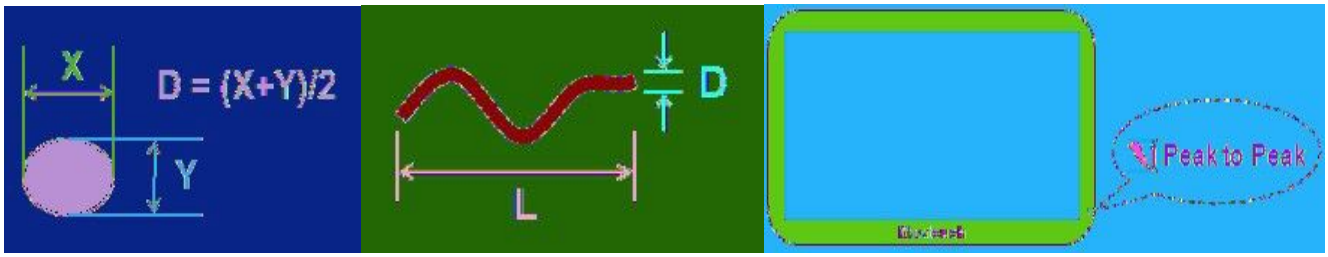
<A> Put Ruler on the particle and inspect it by the inspection method of the particle.

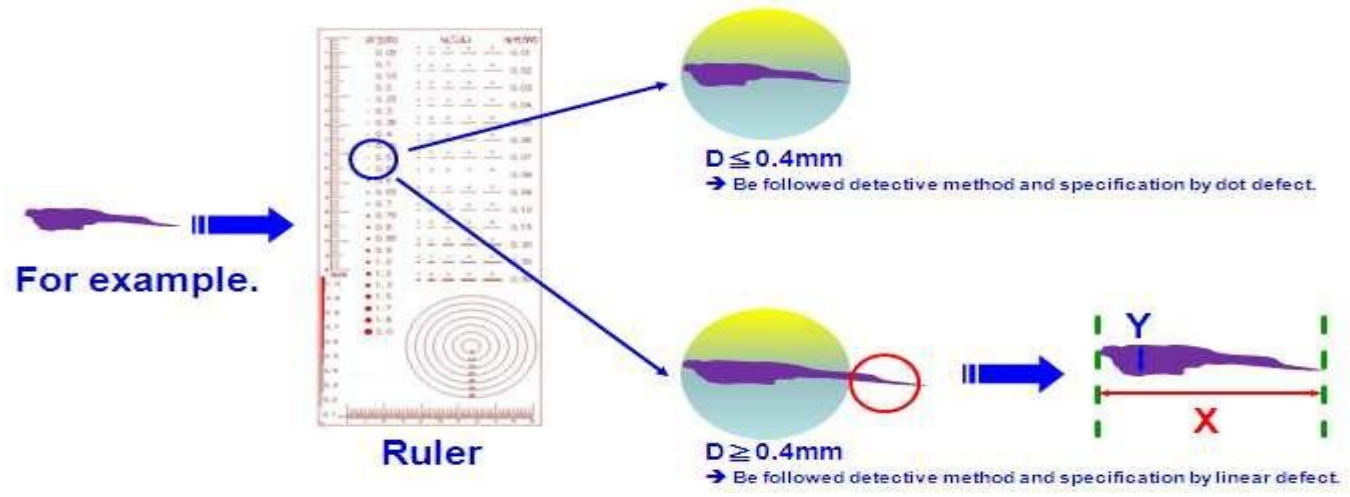
<B>假设不良物体的尺寸大小找过此份规格书中现有的点状不良的规范时，则请改以此规格书中的线状不良规范作判断。

<B> Use the inspection method of the linear particle to inspect the particle, if the size of the particle exceeds the range of the dot particle.

备注 5: 不良物体的尺寸的检测请采用检验规做为测量的依据标准。

Note5: The size of the defects should be measured by Ruler.





4.预防措施 PRECAUTIONS

项次 ITMES	说明 EXPLANATION
储存 Storage	1.触控面板必须被储存放置在一如规格书所建议的有从事环境温度与湿度控制的区域内。 A touch panel should be stored under the environment temperature and humidity controlled as suggested. 2.不可将触控面版直接暴晒在阳光下。 Do not store a touch panel in direct sunlight.
取放 Handling	1.触控面板要自包装箱中取出时，请务必热别注意该包装外的箭头符号是否朝上。 Unpack the carton with the printed red arrow pointing up. 2.无论任何时候都必须以拿取触控面板本身为先。 Hold a touch panel body instead of the FPC/COF all the time. 3.当 Sensor Glass 的保护膜被移除而准备从事组装作业时，务必要避免 Sensor Glass 受到外在因素的污染。 Avoid that the surface of the sensor glass is polluted after removing the protect film when assembly.
清洗 Cleaning	1.若要清洗触控面板，请尽量避免使用诸如强酸或强碱之类的化学溶剂。 Prevent using any kind of the chemical solvent, acidic or alkali solution when cleaning. 2.若要清洗触控面版，我们建议使用中性的清洗剂或丙醇和酒精等。 Neutral detergent or isopropyl alcohol was suggested if the panel is cleaned.
组装 Assembly	1.触控面板在组装时，请不要过度施力导致玻璃表面发生诸如变形或扭曲等变形现象的发生。 Do not apply rough force such as bending or twisting to the touch panel during assembly. 2.对于 FPC 或 COF 的作业时，过度的拉力或绷紧作业是必须被禁止和避免的。 Excessive force or strain to the panel or FPC/COF is prohibited. 3.请在触控面板与 TFT-LCD 面版的中间间隙处选用适合的双面胶带或是具有粘性的泡棉加以阻绝外在的水份和污染源的干扰。 Past VHB tape or sponge with adhesive on the gap between a touch panel and a LCD module to segregate water and dust contamination.
操作 Operation	1.触控面板必须在稳定的环境状况下被使用，环境状态的突然急剧变化有可能会导致触控面板的性能失效。 The panel must be operated in a steady environment, the abrupt change of the environment conditions may cause the malfunction of the panel.

项次 ITMES	说明 EXPLANATION
操作 Operation	1.为确保触控面板的功能得以稳定有效的发挥呈现，请务必确认系统的接地回路与电源供应器的接地回路被正确的衔接与执行（与大地作共地回路是最佳的设计）。 In order to guarantee all functions of a touch panel stable, please make sure that system is grounded or a power adapter is connected correctly to ground loop (Connection to earth ground is suggested). 2.触控面板在操作的过程中，请勿任意插拔触控面板与系统端的界面连接器。 Do not pull the interface connector in or out while the touch panel is operating. 3.触控面板在操作的过程中，请务必禁止与避免使用任何尖锐或硬质物体去敲击触碰。 Any sharp edged or hard objects are interdiction to hitting when touch panel operation.
其他 Others	1.本产品满足 ROHS 的规范要求 The product meets the specification requirement of the ROHS standard criteria. 2.在正常的操作条件基础下，格林触控 提供 1 年的触控面板保修服务。 GreenTouch will provide 1 years product guarantee under normal operation Conditions. 3.假设触控面板将被使用于诸如相对高温，高湿度，高海拔或长时间操作等较为严峻的操作条件时,中心的建议请事先咨询格林触控的产品应用工程人员并取得相关意见; 否则关于产品的可靠度与功能是无法被有效的确保。 If the panel will be used in extreme conditions such as high temperature, high humidity, high altitude or long operation time etc., It is strongly recommended to contact GreenTouch for field application engineer’ s advice. Otherwise, Its reliability and function may not be guaranteed. 4.在触控模组的单体下，请禁止与避免有任何高电压或则静电动擎等外在因素被加诸在模组上。 Avoid high voltage and/or static charge being applied to touch module. 5.保持触控面板的清洁度并避免任何具有粘性的物质粘附在触控面板上。 Keep the panel surface clean. Prevent any kind of adhesive applied on the surface. 6.当操作触控面板时，应该避免有金属或导电物质放置在面板上。 To avoid the metal or any kind of the electric conduction materials on the touch screen when you are handling. 7.触控面板是由人体接触操作,若有任何非导体被应用于面板时,可能会出现触控面板的机能失效。 Any kind of the nonelectric conductor may cause the malfunction when that applied due to touchscreen is sensing by human body. 8.客户端收到面板的机能产品后请于 30 天内使用完毕，否则会因存储环境或时间太长而造成产品表面形成雾状脏污. Please finish installation within 30 days after receive the products. Otherwise, Due to the storageg environment and too long time stay, the surface of the product will be misty.

5. 触控面板图 TOUCH PANEL DRAWING