



Doc.No.: CTP043B0

REV : 00

PAGE : 1 / 16

EFFECTIVE DATE : 2015-10-26

# SPECIFICATION OF LCD MODULE

MODULE NO: CTP043B0

Customer Approval:

Accept

Reject

FUTURE FOCUS	SIGNATURE	DATE
PREPARED BY		
CHECKED BY		
APPROVED BY		



Doc.No.: CTP043B0

REV : 00

PAGE : 2 / 16

EFFECTIVE DATE : 2015-10-26

## 文件版本记录 DOCUMENT REVISION HISTORY

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# 目录

## Contents

	页码 Pages
1. 概述 General	1
2. 产品用途 Application	1
3. 产品特性 Characteristics	1
3.1 结构特性 Structure Characteristics	1
3.2 温度和光学特性 Temperature and Optical Characteristics	2
3.3 机械特性 Mechanical Characteristics	2
3.4 电气参数 Electrical Characteristics	2
4. 可靠性 Reliability	3
5. 保存期限 Shelf Life	4
6. 保修期限 Warranty	4
7. 操作注意事项 Handling Precaution	4

### 附录 Appendix

I .CTP产品通用检验标准 General Inspection Specification for CTP (Class A1)

II .工程图 Counter Drawing

III.包装图纸 Packaging Drawing

### 1.概述 General

项目 Item	描述 Description	备注 Remark
产品型号 Part No	CTP043B0	
视窗尺寸 Viewing Area	4.3inch diagonal	
产品结构 Product Structure	G+G	
品质标准 Inspection Specification	A1	详见附页 I Refer to Appendix I

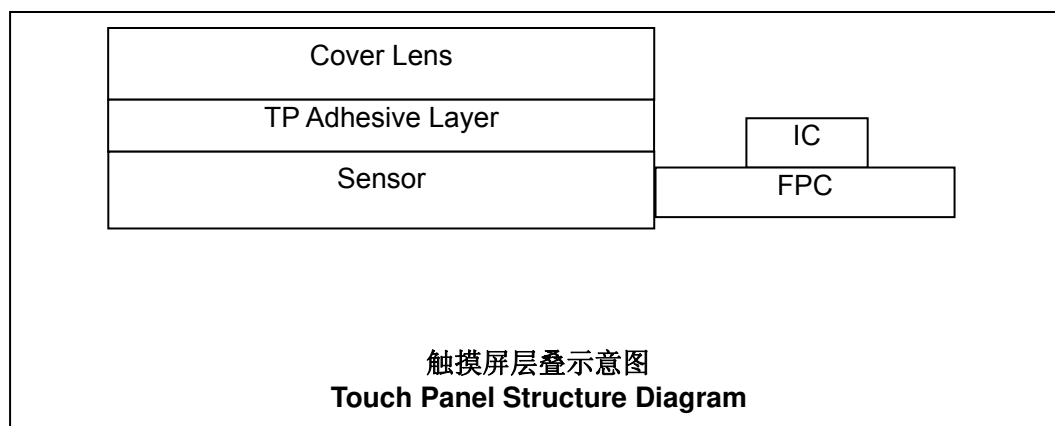
### 2.产品用途 Application

- 消费电子 Consumer Electronics       非消费类 Non-Consumer  
 工业类 Industrial                               车载 Automotive  
 其他用途 Others: \_\_\_\_\_

### 3.产品特性 Characteristics

#### 3.1 结构特性 Structure Characteristics

项目 Item	规格 Specification	材料 Material	备注 Remark
盖板 Cover Lens	详见附页 II Refer to Appendix II	玻璃 Glass	
表面处理 Surface Treatment	/	/	
TP 粘结层 TP Adhesive Layer	/	光学透明胶 OCA	
功能片 Sensor	详见附页 II Refer to Appendix II	ITO玻璃 ITO Glass	
驱动芯片 Driver IC	GT911	/	
模组粘结层 Module Adhesive Layer	/	/	
显示模组 Display Module	详见附页 II Refer to Appendix II	/	
产品净重 Product Net Weight	30g	/	仅供参考 Reference only



### 3.2 温度和光学特性 Temperature and Optical Characteristics

项目 Item	描述 Description	备注 Remark
工作温度 Operating Temperature	-20 °C ~ 70°C	
储存温度 Storage Temperature	-30 °C ~ 80°C	
触摸屏透过率 TP Transmittance	≥80%	550nm波长 @550nm wavelength
感光孔透过率 IR Hole Transmittance	/	550nm波长 @550nm wavelength
	/	850nm波长 @850nm wavelength

### 3.3 机械特性 Mechanical Characteristics

项目 Item	描述 Description	备注 Remark
表面硬度 Surface Hardness	6H	铅笔测试, 负载500g, 45度 Pencil, Loading 500g, 45 deg
落球 Ball-falling Test	40cm	钢球重量64g Steel ball weight 64g
FPC弯折测试 FPC bending test	10times	弯折半径大于1mm R≥1 mm

### 3.4 电气参数 Electrical Characteristics

[ ] COB

项目 Item	描述 Description	备注 Remark
通道数 Channels		

[ √ ] COF

项目 Item	描述 Description	备注 Remark
操作系统 Operating System	/	
产品ID Product ID	/	
支持触点数量 Touch Count	5点	
支持LCM分辨率 Display Resolution Supported	800*480	
TP坐标原点位置 Origin of Coordinates	左上	
接口形式 Interface	IIC	

I <sup>2</sup> C设置地址 I <sup>2</sup> C Slave Address	默认		
供电电压 Power Voltage	3.3V		
接口信号电压 Interface Signal Voltage	3.3V		
电源纹波 Power Ripple	Vpp≤50mV		
工作电流（正常模式） Operating Current (Normal Mode)	额定值 Typical Value	10mA	
	最大值 Maximum Value	15mA	
工作电流（休眠模式） Operating Current (Sleep mode)	额定值 Typical Value	90uA	
	最大值 Maximum Value	120uA	
说明 Note	详细应用参考对应的IC规格书； Refer to IC specification for details;		

#### 4.可靠性 Reliability

项目 Item	描述 Description		备注 Remark
高温储存 High Temperature Storage	80 °C X 120Hrs, 5pcs		取出后在室温条件下存放24小时后，无功能不良 No functional defects at room temperature after 24 hours
低温储存 Low Temperature Storage	-30°C X 120Hrs, 5pcs		
高温高湿模拟工作 High Temperature-Humidity Simulation of Operating Model	60°C X 90%RH X 120Hrs, 5pcs		
冷热冲击储存 Thermal Shock Cycle - Storage	(-30°C X 30mins → 25°C X 10mins → 80°C X 30mins → 25°C X 10mins) X 10 Cycles, 5pcs		
ESD 测试 ESD Test	空气放电 Air Discharge	±8KV, 5pcs	整机测试 Terminal Testing
	接触放电 Contact Discharge	±4KV, 5pcs	
包装震动 Vibration Test for Packaging	频率4.2Hz, 振幅1英寸, 时间45分钟; 实验数量1箱 Frequency 4.2Hz, Swing 1 inch, 45mins; 1 carton.		试验后外观无损伤功能无异常 No visual damages and functional defects
包装跌落 Drop Test for Packaging	一角三棱六面, 高度0.8米; 实验数量1箱 Drops on one corner, three edges, and six sides; Drop height: 0.8m; 1 carton.		



Doc.No.: CTP043B0

REV : 00

PAGE : 7 / 16

EFFECTIVE DATE : 2015-10-26

## 5.保存期限 Shelf Life

考虑到 TP 长时间存放有保护膜残胶的风险，我们建议客户收到货后 1 个月内完成组装。

It is recommended that TP assembly must be completed within one month upon receipt, considering the risk that the protective film glue may stick to the surface of TP when stored for more than one month.

## 6.保修期限 Warranty

自出货之日起 1 年内发现的不良（按本规格书规定的储存和使用条件下），OD 可以安排修理或换货。

OD warrants that the products will be free from defects for a period of twelve (12) months from the date of shipment when used under the specified storage and utilization conditions of this specification. Defective products of OD-Display's making, once proved, will be either repaired or replaced.

## 7.操作注意事项 Handling Precaution

7.1 由于电容式触摸屏是由玻璃所制，请勿强力撞击，或高处落下。Do not apply strong stress on CTP product, or drop it from heights as it is made of glass.

7.2 为确保产品洁净度，请在接触产品之前戴上清洁的指套、手套和面罩以免留下指纹。Must wear glove or finger cots at handling to avoid fingerprint on screen.

7.3 制品上有污迹时，请以柔质绵布或沾有中性洗涤剂/酒精的布料轻拭。To remove dirt or contamination on the surface, use soft cotton or cloth with ethanol / alcohol wipe off gently.

7.4 拿取产品时请勿拉其尾端(FPC)提起产品,请提起产品本体。Holding the panel body instead of FPC at all time.

7.5 安装时请勿过度折弯或强力拉扯 FPC,避免造成折伤。Do not over-bend or pull the FPC when installing or handling, to avoid FPC damage.

7.6 安装时请勿用硬物接触电容式触摸屏背后的油墨，避免造成刮伤。Do not contact the ink behind CTP with hard object to avoid scratches when installing or handling.

7.7 请勿以锐利刀刃或其它尖锐物在产品上划动磨擦。Do not scratch or rub with knives or other sharp object.

7.8 请勿任意拉扯、弯折、剥离或拆解产品。Do not stretch、bend、detach or disassemble product.

7.9 请勿将产品堆叠放置以免引起表面刮花造成外观不良。In order o avoid scratch, do not pile products.

7.10 请避免将产品靠近或暴露于有机溶剂，酸性气体的环境下使用及存放。Keep away from organic solvent or acidic environment.

7.11 产品使用需要避免高压和静电。Pay Attention to high voltage and static electricity.

7.12 操作电容式触摸屏时，请采用手指或导电性笔触摸。Please touch with finger or electric pen during operating CTP.



Doc.No.: CTP043B0

REV : 2.1

PAGE : 8 / 16

EFFECTIVE DATE : 2015-11-19

# Management System of Third-order Document

## CTP inspection specification for customer

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**1. Purpose**

The purpose of this specification is to establish CTP appearance and function inspection standard for defining inspection items, methods and standard to ensure meeting customer requirements.

**2. Scope**

This specification is applicable to capacitive touch panel manufactured by OD.

**3. Equipment for inspection**

lamp-box, ionizing fan, 10X microscopes, film card, alcohol/oil ether/acetone, finger cots, vernier caliper, anti-static wrist straps, microcalliper, feeler, pencil hardness tester, spectrophotometer, drop ball test, etc.

**4. Sampling Plan and Reference Standards**

Appearance inspection and function test are based on GB/T 2828.1---2012/ISO2859-1:1999.

Normally checking the sampling plan one time and performing general inspection level II.

Product	consumer electronics	Non-consumer electronics	Industrial control	vehicle
AQL	MA=0.4 MI=1.5	MA=0.4 MI=1.0	MA=0.25 MI=0.65	MA=0.15 MI=0.4

**5. Inspection Conditions and Inspection Reference**

5.1 Inspection environment: temperature: 23±3°C; humidity: 45~75%RH; cleanness: 10000 grade;

5.2 Inspection distance: 30cm±5cm;

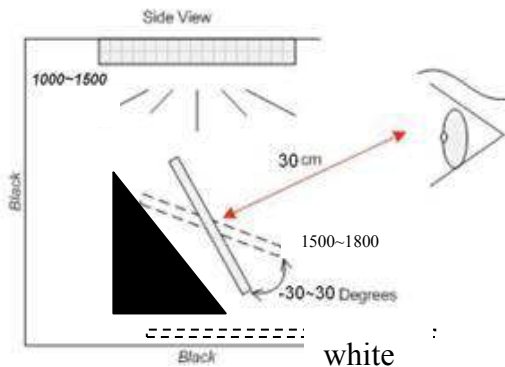
5.3 Inspection angle: vertical rotate angle: ±30°, up->down; horizontal rotate angle: ±30°, left->right

5.4 Inspection luminance : fluorescent (finished product) inspection luminance is 800~1000Lux;

5.5 Background color: black/white;

5.6 Inspection time : 10~15s/ pcs;

**Black Booth or Black Background**



5.7 Area partition:

5.7.1 A area: front side visible area - BM(Black Mask), the area encircled by blue lines.

5.7.2 B area: four broadside(inspect from broadside) area & FPC area, encircled by green lines.



5.8 Defect type:

5.8.1 A area defect type:

line defect (scratch、soft flocks、 fibre) 、 dot defect (white dot、 black dot、 same color dot、 different color dot、 dust、 bubble) 、 surface stain、 pinhole、 light leak、 scratch.

5.8.2 B area defect type:

broken、 crack/chipping、 FPC defect

5.9 Beyond above items, judge by the limited sample.

**6. Defects and Acceptance Standards**

6.1 Electrical properties test

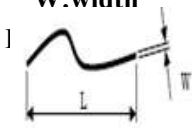
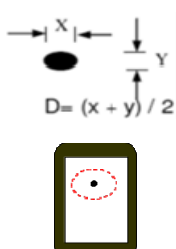
Check with OD tester.The program will release result automatically. There are “OK” 、 “PASS” 、 “NG”and the final judgment must be“OK”“PASS”,and we need to pass the draw line test.

Refer to 《\*\*serise IC test program》

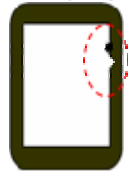
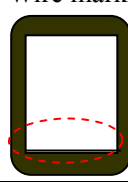
No.	Defect	Description	Accepted standard	MA J	MI N
6.1.1	short	Measured data has much difference compared with normal; line is not stable	Reject	√	
6.1.2	open	Measured data has no change.line is open	Reject	√	
6.1.3	No reaction	No reaction and there is no line in screen	Reject	√	
6.1.4	Mis-dispaly/abnormally display	Screen has display but line is open or bent	Reject	√	
6.1.5	Botton no reaction	Press the botton but no reaction	Reject	√	
6.1.6	Botton no correct	Press the botton .reaction is not stable	Reject	√	

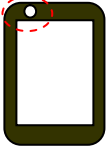
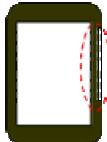



6.2 Appearance inspection

6.2.1 dot/line defect

Defect	≦6"	6~11"	11~15"	>15"	Accepted standard	MAJ	MIN
<b>S/C , line defect</b> <b>W:width</b> 	Tactile S/C->NG	Tactile S/C->NG	Tactile S/C->NG	Tactile S/C->NG	Reject		√
	W≤0.03mm, ->OK; Density is high ->NG	W≤0.05mm, ->OK; Density is high ->NG	W≤0.05mm, ->OK; Density is high ->NG	W≤0.05mm, ->OK; Density is high ->NG	Accept		√
	0.03mm< W≤0.10mm, L≤5mm quantity≤2 distance> 10mm	0.05mm< W≤0.1mm, L≤8mm quantity≤3 distance> 10mm	0.05mm< W≤0.1mm, L≤10mm quantity≤2 distance> 10mm	0.05mm< W≤0.1mm, L≤12mm quantity≤2 distance> 10mm	Accept		√
	W>0.10mm L>5mm	W>0.1mm L>8mm	W>0.1mm L>10mm	W>0.1mm L>12mm	Reject		√
<b>Dot defect</b> <b>D:Diameter</b> 	W≤0.10mm, ->OK; Density is high ->NG	W≤0.15mm, ->OK; Density is high ->NG	W≤0.15mm, ->OK; Density is high ->NG	W≤0.15mm, ->OK; Density is high ->NG	Accept		√
	0.10mm<D≤ 0.25mm quantity≤2 distance> 10mm	0.15mm<D≤ 0.30mm quantity≤3 distance> 10mm	0.15mm<D≤ 0.40mm quantity≤3 distance> 10mm	0.20mm<D≤ 0.50mm quantity≤3 distance> 10mm	Accept		√
	D>0.25mm	D>0.30mm	D>0.40mm	D>0.50mm	Reject		√

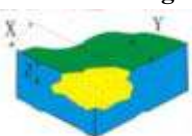
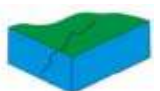
## 6.2.2 LENS defect

Defect	Description	Accepted standard	MAJ	MIN
<b>Printing zigzag</b> 	zigzag width which is almost the same with VA area W≤0.15mm	Accept		√
	zigzag width which is almost the same with VA area W>0.15mm	Reject		√
<b>Wire mark</b> 	≤0.15mm	Accept		√
	>0.15mm	Reject		√



<p>Ink pinhole</p> 	<p>Invisible with reflector light</p>	<p>Accept</p>		<p>√</p>
<p>Ink film defect</p>	<p>Ink film:s/c、 soft flocks、 fibre Ink film stain/color shift:refer to limited sample Ink film foreign material/scratch: refer to 6.2.1 visible area judgment</p>	<p>Accept</p>		<p>√</p>
<p>Ink light leak</p> 	<p>Broadside light leak width≤0.15mm Each side light leak quantity≤1</p>	<p>Accept</p>		<p>√</p>
<p>Ink color shift</p>	<p>Refer to limited sample</p>			<p>√</p>
<p>font、 glass silver line (ink area) width≥0.2mm</p> 	<p>D≤0.20mm; N≤2 ↑</p>	<p>Accept</p>		<p>√</p>
	<p>D&gt;0.20mm</p>	<p>Reject</p>		<p>√</p>
	<p>Refer to limited sample, if it's out of spec</p>	<p>Reject</p>		<p>√</p>
<p>word/color error</p>	<p>Word or color or position is different from drawing and sample.</p>	<p>Reject</p>	<p>√</p>	
<p>word missing (width≤0.2mm)</p> 	<p>height, a≤1/4h, width≤1/2w</p>	<p>Accept</p>		<p>√</p>
<p>Font thickness different and color nonuniform</p> 	<p>Refer to limited sample, if it's out of spec</p>	<p>Reject</p>		<p>√</p>
<p>IR/video/receive hole/ Button hole</p>	<p>Irregular hole , offside, refer to drawing</p>	<p>Accept</p>		<p>√</p>
	<p>Foreign material/scratch exist in hole,refer to 6.2.1</p>	<p>Reject</p>		<p>√</p>


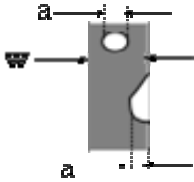
<b>LENS broadside foreign material</b>	Width ≤ 0.15mm	Accept		√
<b>Ink spill</b>	LENS broadside or receive hole or button hole have ink spill defect, refer to limited sample.	Accept		√

6.2.3 Breakage

Defect	≦ 6"	6~11"	11~15"	>15"	Accepted standard	MAJ	MIN
<b>LENS breakage</b> 	X ≤ 0.3mm, Y ≤ 0.3mm, one side ≤ 1	X ≤ 0.3mm, Y ≤ 0.4mm, one side ≤ 1	X ≤ 0.4mm, Y ≤ 0.4mm, one side ≤ 1	X ≤ 0.5mm, Y ≤ 0.5mm, one side ≤ 1	Accept		√
	X > 0.3mm, Y > 0.3mm	X > 0.3mm, Y > 0.4mm	X > 0.4mm, Y > 0.4mm	X > 0.5mm, Y > 0.5mm	Reject		√
<b>Sensor breakage</b>	Not affect ITO line, not lengthen, function test is OK And be non-visual after attaching Lens				Accept		√
	affect ITO line and be visual				Reject		√
<b>Glass crack</b> 	Crack lengthen to outside				Accept		√
	Crack lengthen to inside				Reject		√

6.2.4 FPC defect

Defect	Description	Accepted standard	MAJ	MIN
<b>FPC folding</b> 	FPC is folding and can not restore-> Reject FPC is folding and can restore->compare with limited sample	Reject		√
<b>FPC cover layer defect</b>	FPC cover layer peeling off	Reject		√
<b>FPC color shift and bubble</b>	PI layer have color shift or bubbled due to high welding temperature or long welding time.	Reject		√
<b>Golden finger defect</b> 	peeling off、bonding deformed、glue remained、oxidized, stained	Reject		√

<p><b>Joggle defect</b></p> 	<p>bent, broken, peeling off</p>	<p>Reject</p>		<p>√</p>
<p><b>FPC defect</b></p> 	<p>(golden finger) dented, pin hole <math>a \leq w/3</math></p>	<p>Accept</p>		<p>√</p>
	<p>open/scratch/cracked</p>	<p>Reject</p>		<p>√</p>
	<p>oxidized, stained</p>	<p>Reject</p>		<p>√</p>
<p><b>FPC loophole</b></p>	<p>Soft loophole <math>\leq 2.0\text{mm}</math>, hard (PCB、PC、steel cover layer) loophole <math>\leq 1.0\text{mm}</math></p>	<p>Accept</p>		<p>√</p>

6.2.5 Attaching defect (protective film/adhesive tape/foam/PC...)

Defect	Description	Accepted standard	MAJ	MIN
<p><b>High temperature glue paper</b></p>	<p>1.Glue paper attached in FPC doesn't cover component or FPC cove layer. 2.Glue paper attached in golden finger doesn't cover golden finger or peel off</p>	<p>Reject</p>		<p>√</p>
<p><b>Protective film</b></p>	<p>Clean、attaching flat、no shifting or bubble</p>	<p>Accept</p>		<p>√</p>
	<p>Protective film attaching bubble in VA: <math>D \leq 2.0\text{mm}</math> <math>N \leq 5</math> distance <math>\leq 20\text{mm}</math></p>	<p>Accept</p>		<p>√</p>
	<p>Protective film attaching bubble in VA: <math>D &gt; 2.0\text{mm}</math> <math>N &gt; 5</math> distance <math>&gt; 20\text{mm}</math></p>	<p>Reject</p>		<p>√</p>
<p><b>Tape</b></p>	<p>Attach position refer to the drawing</p>	<p>Accept</p>		<p>√</p>
<p><b>Foam</b></p>	<p>Gap spec: <math>0.5 \pm 0.5\text{mm}</math>, foam must be smaller than sensor edge side and can not enter into VA.</p>	<p>Accept</p>		<p>√</p>
<p><b>PC board/ adhesive tape</b></p>	<p>Tape must be smaller than LENS edge side and can not be folding ,dent or shifting.</p>	<p>Accept</p>		<p>√</p>
<p><b>Anti-explosion fim/Anti-glare film/blue film</b></p>	<p>Impression print refer to the limited sample</p>	<p>Accept</p>		<p>√</p>
	<p>Attach position refer to the drawing</p>	<p>Accept</p>		<p>√</p>

6.2.6 Others

