nas Technologies Corp.
啟迪科技股份有限公司

Specification
of
NTP-101CM-BI4

Proposed By			Customer's Approval
Designed	Checked	Approved	

版本/Version	1.0

nas Technologies Corp.
啟迪科技股份有限公司

客戶名稱: Customer Name:	

啟迪型號: Nas Tech Model No.	

客戶型號: Customer Model No:	

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Model No:		Version
Issued date		
Revised date		

Approved	Checked	Prepared
日期 Date	日期 Date	日期 Date

本承認書內容貴公司確認無誤懇請於下方承認欄內簽章寄回。
Please confirm your acceptance of this approval sheet by return fax

客戶意見欄 Customer's Proposal	簽名 Signature	原因 Reason
□承認 Approval	日期 Date	
□不同意 Disagree	日期 Date	

版本/Version	1.0

Revision History

Date	Rev.	Contents	Remark
20100607	1.0	New Create	*Wesley Yen*

Table of Contents

1. Feature

The product is a 10.1 inch capacitive touch panel. The touch panel is composed of cover lens glass, ITO glass , pin to pin FPC and PCBa control board with sensor IC.

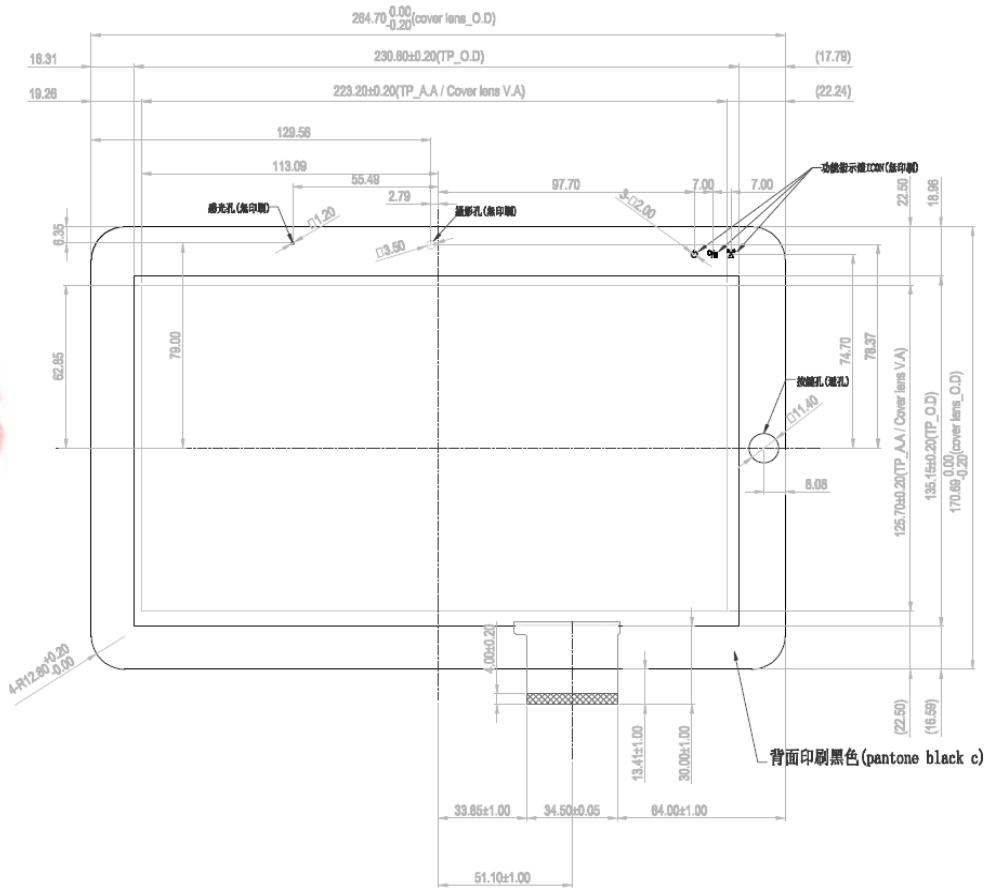
2. General Specification

2.1 Outline Specification

Item	Description	Unit
Size	10.1	inch
TP View Area	223.20 * 125.70	mm
TP Outline Area	264.70±0.2 * 170.69±0.2	mm
Transmittance	> 85%	-
TP Resolution	19968x11264	T.B.D.

3. Mechanical Drawing

3.1 Front View



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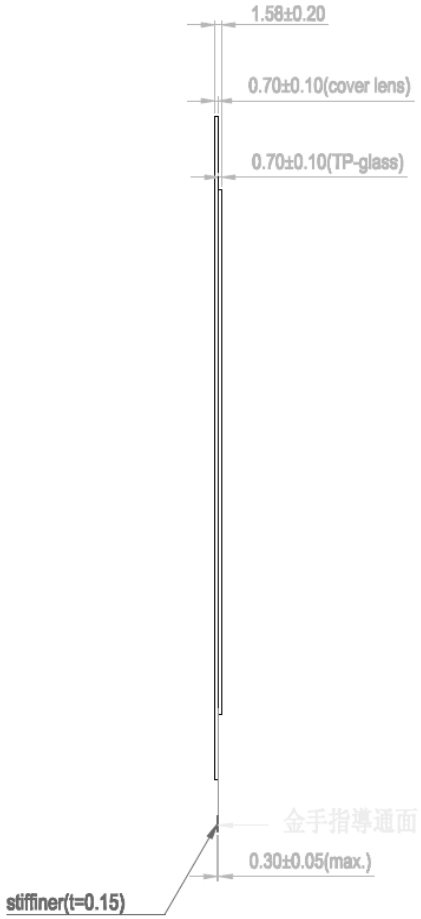
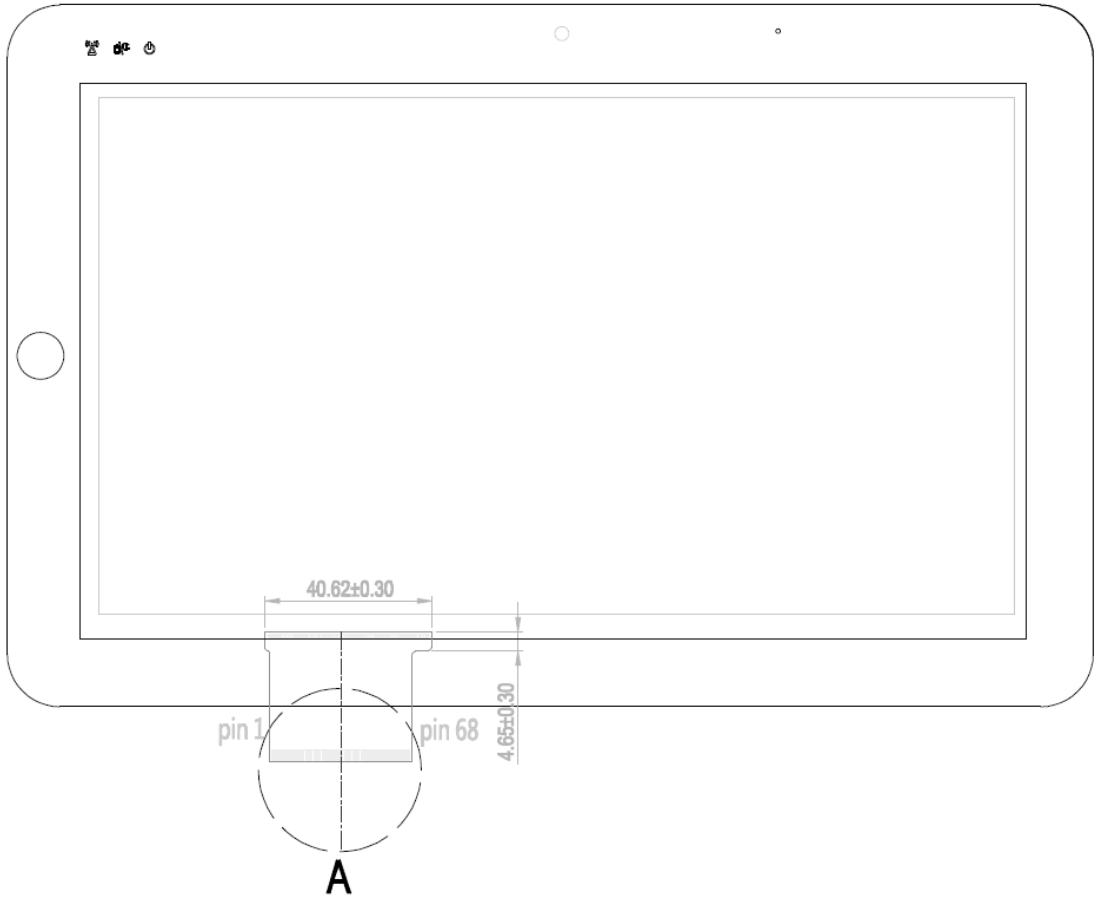
3.2 Side View



3.3 Back View



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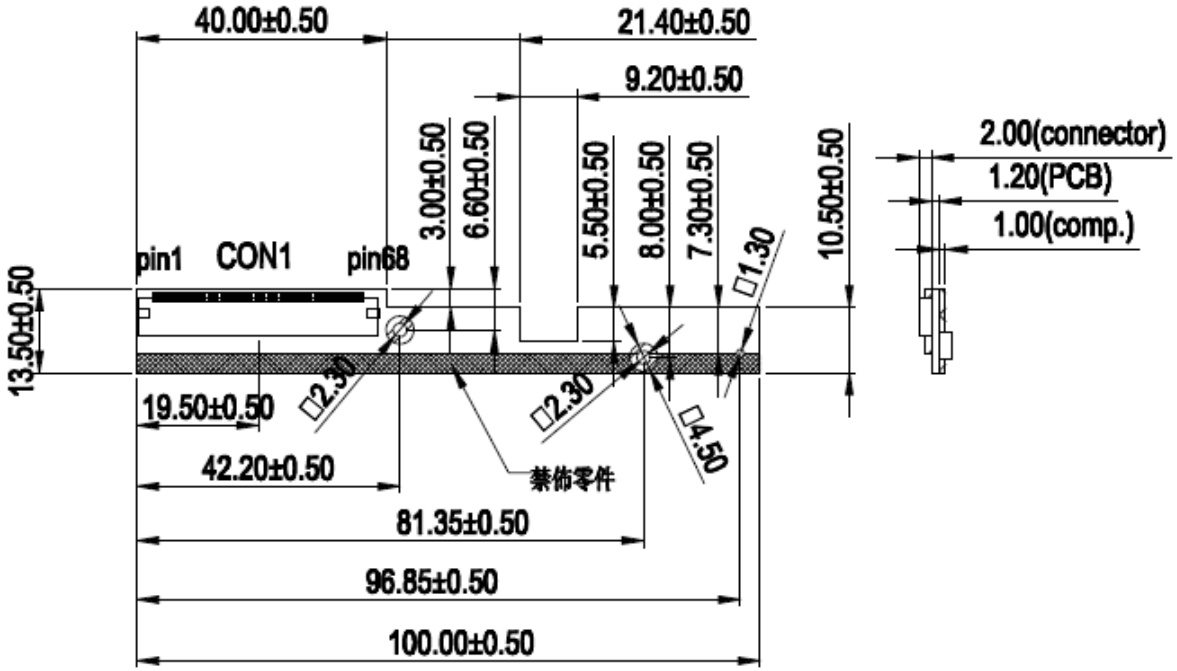
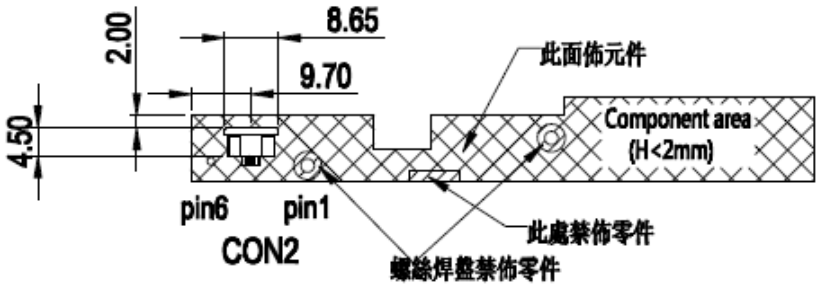
3.4 PCBa View





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4. Electrical Specifications

4.1 Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-50	-	+150	℃	Note1
Ambient Temperature with Power Applied	-20	-	+75	℃	-
Supply Voltage Relative to Vss	2.7	-	5.25	V	-

Note1:
Higher storage temperatures reduce data retention time. Recommended storage temperature is +25℃.Extended duration storage temperatures above 65℃ degrade reliability.

4.2 DC Electrical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
Power Supply	VCC	-	5.0	-	V
Current Consumption For Operation	VCC = 3.3V	T.B.D.	T.B.D.	T.B.D.	mA
Current Consumption For Sleep Mode	VCC = 3.3V	T.B.D.	T.B.D.	T.B.D.	mA

Note: It may cause permanent damage to the device due to over stress the maximum. Exposure to maximum rating conditions for extended periods may affect device reliability also.

5. Pin Assignment

Pin No.	Symbol	Description	Note
1	GND	Reference Ground	
2	D+	USB D+	
3	D-	USB D-	
4	GND	Reference Ground	
5	VCC	Power Input	
6	VCC	Power Input	

6. Firmware Protocol

6.1Device Descriptor

0x12	Length
0x01	Descriptor Type
0x1001	USB Ver.
0x00	Device Class
0x00	Device Sub Class
0x00	Device Protocol
Endpoint Packet Size	Max Packet Size
0x0121	Vendor ID
0x0189	Product ID
0x0000	Device
0x01	Manufacturer
0x02	Product
0x00	Serial Number
0x01	Num Configurations

6.2HID Configuration Descriptor

Configuration Descriptor HID Configuration Descriptor	
0x09	Length
0x02	Type
0x2200	Total Length
0x01	Interfaces
0x01	Configuration Value
0x00	Configuration
0x80	Attributes
0x20	Max Power

Interface Descriptor HID Interface Descriptor	
0x09	Length
0x04	Descriptor Type
0x00	Interface Number
0x00	Alternate Setting
0x01	Num Endpoints
0x03	Interface Class
0x00	Interface Sub Class
0x00	Interface Protocol
0x00	Interface
Class Descriptor HID Descriptor	
0x09	Length
0x21	Descriptor Type
0x0101	HID
0x00	Country Code
0x01	Num Descriptors
0x22	Descriptor Type
Report Descriptor Size	Report Descriptor Length
IN endpoint (mandatory for HID)	
Endpoint Descriptor HID Endpoint Descriptor	
0x07	Length
0x05	Descriptor Type
0x81	Endpoint Address
0x03	Attributes
Endpoint Packet Size	Max Packet Size
8	Interval
OUT endpoint (optional for HID)	
Endpoint Descriptor HID Endpoint Descriptor	
0x07	Length
0x05	Descriptor Type

0x01	Endpoint Address
0x03	Attributes
Endpoint Packet Size	Max Packet Size
10	Interval
0x05, 0x0D	USAGE_PAGE (Digitizers)
0x09, 0x04	USAGE (Touch Screen)
0xA1, 0x01	COLLECTION (Application)
0x85, REPORTID_MTOUCH	REPORT_ID (Touch)
0x09, 0x22	USAGE (Finger)
0xA1, 0x02	COLLECTION (Logical)
0x09, 0x42	USAGE (Tip Switch)
0x15, 0x00	LOGICAL_MINIMUM (0)
0x25, 0x01	LOGICAL_MAXIMUM (1)
0x75, 0x01	REPORT_SIZE (1)
0x95, 0x01	REPORT_COUNT (1)
0x81, 0x02	INPUT (Data,Var,Abs) ==>Tip Switch
0x09, 0x32	USAGE (In Range)
0x81, 0x02	INPUT (Data,Var,Abs)==>In Range
0x09, 0x47	
0x81, 0x02	INPUT (Data,Var,Abs)==>In Range
0x95, 0x05	REPORT_COUNT (6)
0x81, 0x03	INPUT (Cnst,Ary,Abs)==>Dummy Data
0x75, 0x08	REPORT_SIZE (8)
0x09, 0x51	USAGE (Temp Identifier)
0x95, 0x01	REPORT_COUNT (1)
0x81, 0x02	INPUT (Data,Var,Abs) ==> Report ID
0x05, 0x01	USAGE_PAGE (Generic Desk.)
0x26, 0xFF, 0x0F	LOGICAL_MAXIMUM (4095)
0x75, 0x10	REPORT_SIZE (16)
0x55, 0x0F	UNIT_EXPONENT (-2)

0x65, 0x11	UNIT (Inch,EngLinear)
0x09, 0x30	USAGE (X)
0x35, 0x00	PHYSICAL_MINIMUM (0)
0x46, 0xDF, 0x00	PHYSICAL_MAXIMUM
0x81, 0x02	INPUT (Data,Var,Abs) ===>X
0x09, 0x31	USAGE (Y)
0x46, 0x7D, 0x00	PHYSICAL_MAXIMUM
0x81, 0x02	INPUT (Data,Var,Abs) ===>Y
0xC0	END_COLLECTION
0xa1, 0x02	COLLECTION (Logical)
0x05, 0x0D	USAGE_PAGE (Digitizers)
0x09, 0x42	USAGE (Tip Switch)
0x15, 0x00	LOGICAL_MINIMUM (0)
0x25, 0x01	LOGICAL_MAXIMUM (1)
0x75, 0x01	REPORT_SIZE (1)
0x95, 0x01	REPORT_COUNT (1)
0x81, 0x02	INPUT (Data,Var,Abs) ==>Tip Switch
0x09, 0x32	USAGE (In Range) ==>In Range
0x81, 0x02	INPUT (Data,Var,Abs)
0x09, 0x47	
0x81, 0x02	INPUT (Data,Var,Abs)==>In Range
0x95, 0x05	REPORT_COUNT (6)
0x81, 0x03	INPUT (Cnst,Ary,Abs) ==>Dummy Data
0x75, 0x08	REPORT_SIZE (8)
0x09, 0x51	USAGE (Temp Identifier)
0x95, 0x01	REPORT_COUNT (1)
0x81, 0x02	INPUT (Data,Var,Abs) ==> Report ID
0x05, 0x01	USAGE_PAGE (Generic Desktop)
0x26, 0xFF, 0x0F	LOGICAL_MAXIMUM (4095)
0x75, 0x10	REPORT_SIZE (16)

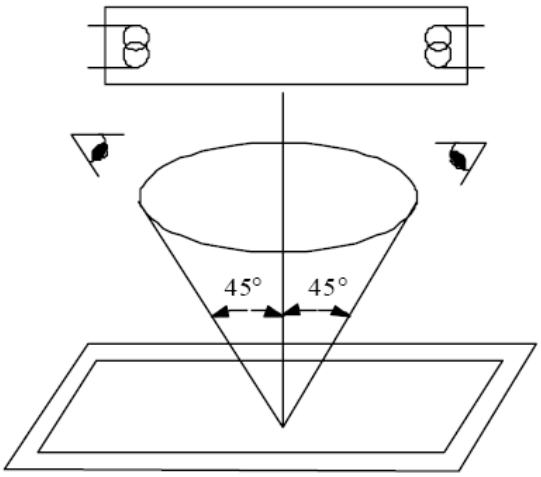
0x55, 0x0F	UNIT_EXPONENT (-2)
0x65, 0x11	UNIT (Inch,EngLinear)
0x09, 0x30	USAGE (X)
0x35, 0x00	PHYSICAL_MINIMUM (0)
0x46, 0xDF, 0x00	PHYSICAL_MAXIMUM
0x81, 0x02	INPUT (Data,Var,Abs) ===>X
0x09, 0x31	USAGE (Y)
0x46, 0x7D, 0x00	PHYSICAL_MAXIMUM
0x81, 0x02	INPUT (Data,Var,Abs) ===>Y
0xC0	END_COLLECTION
0x05, 0x0d	USAGE_PAGE (Digitizers)
0x25, 0x03	LOGICAL_MAXIMUM (2)
0x09, 0x54	USAGE (Actual count)
0x95, 0x01	REPORT_COUNT (1)
0x75, 0x08	REPORT_SIZE (8)
0x81, 0x02	INPUT (Data,Var,Abs)
0x85, REPORTID_MAX_COUNT	REPORT_ID (Feature)
0x09, 0x55	USAGE(Maximum Count)
0x25, 0x03	LOGICAL_MAXIMUM (2)
0xB1, 0x02	FEATURE (Data,Var,Abs)
0xC0	END_COLLECTION
0x05, 0x01	USAGE_PAGE (Generic Desktop)
0x09, 0x01	USAGE (Mouse)
0xA1, 0x01	COLLECTION (Application)
0x85, REPORTID_MOUSE	REPORT_ID (Mouse)
0x09, 0x01	USAGE (Pointer)
0xA1, 0x00	COLLECTION (Physical)
0x05, 0x09	USAGE_PAGE (Button)
0x19, 0x01	USAGE_MINIMUM (Button 1)
0x29, 0x02	USAGE_MAXIMUM (Button 2)

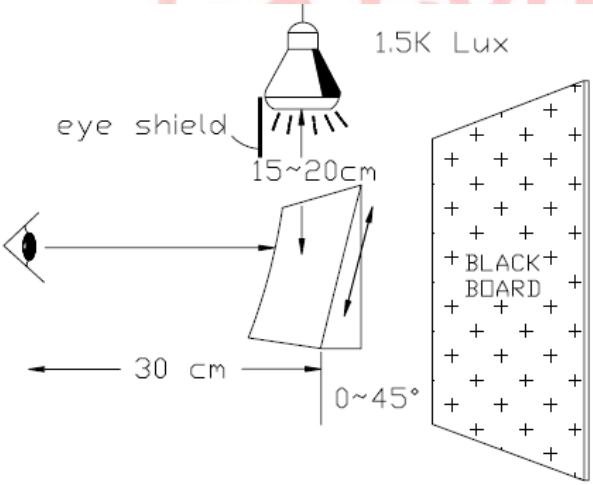
0x15, 0x00	LOGICAL_MINIMUM (0)
0x25, 0x01	LOGICAL_MAXIMUM (1)
0x75, 0x01	REPORT_SIZE (1)
0x95, 0x02	REPORT_COUNT (2)
0x81, 0x02	INPUT (Data,Var,Abs)
0x95, 0x06	REPORT_COUNT (6)
0x81, 0x03	INPUT (Cnst,Var,Abs)
0x05, 0x01	USAGE_PAGE (Generic Desktop)
0x46, 0xFF, 0x0F	PHYSICAL_MAXIMUM (4095)
0x09, 0x30	USAGE (X)
0x09, 0x31	USAGE (Y)
0x75, 0x10	REPORT_SIZE (16)
0x95, 0x02	REPORT_COUNT (2)
0x15, 0x00	LOGICAL_MINIMUM (0)
0x26, 0xFF, 0x0F	LOGICAL_MAXIMUM (4095)
0x81, 0x02	INPUT (Data,Var,Abs)
0xC0	END_COLLECTION
0xC0	END_COLLECTION

7. Inspection Conditions

7.1 Environmental Conditions

- Observation distance: 30±5 cm
- Viewing Angle: ±45°
- Background Color: Black
- Ambient Temperature: 20℃ ~ 30℃
- Ambient Humidity: 55±10%RH
- Ambient Illumination: > 1500LUX
- View angle should be smaller than 45°

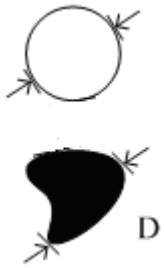
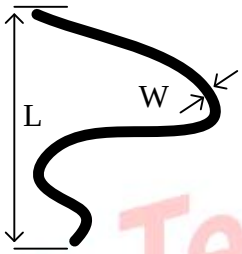
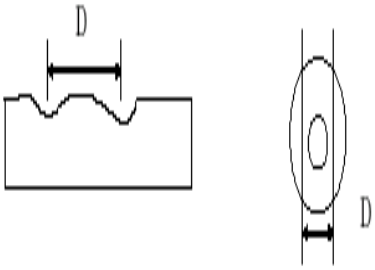
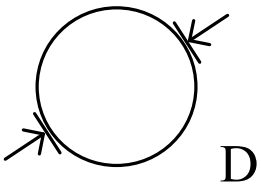


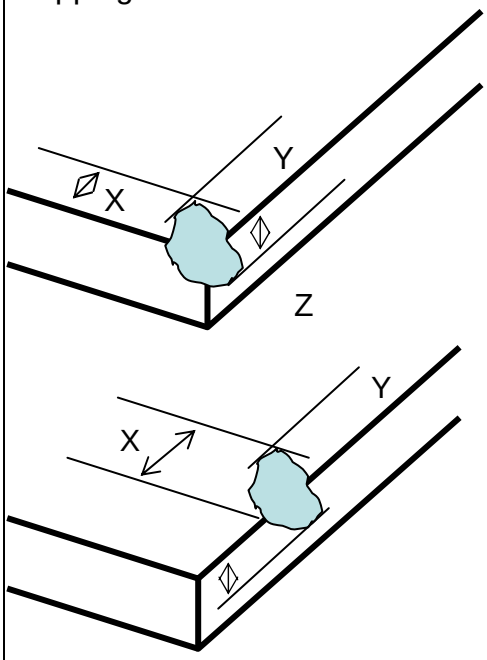


7.2 Inspection Plan

- Follow MIL-STD-105E, normal, level II, AQL = 1

8. Inspection Standards

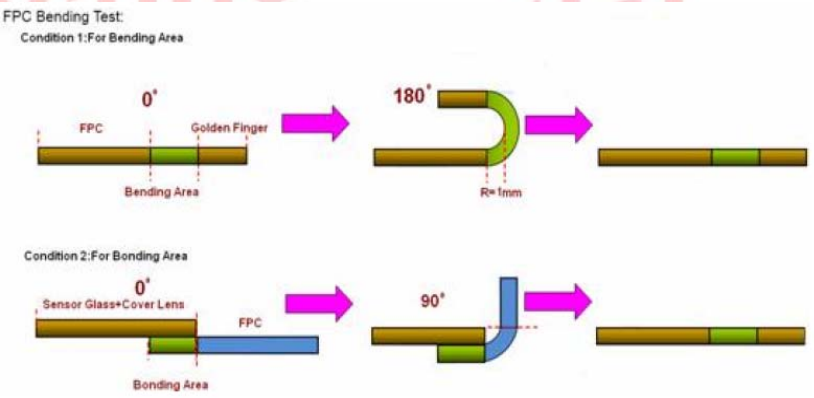
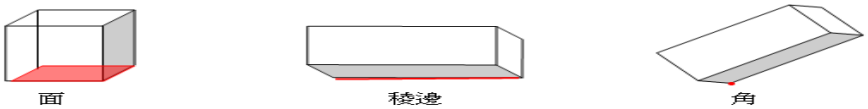
Item	Inspection Criteria	Judgment
Black & White Spot 	The following black / white spot are within the viewing area Average Diameter: D (mm)	
	D≦ 0.50mm	Ignored
	0.50mm ＜ D ≦ 1.0mm	5
	D ≧ 1.0mm	0
Scratch & Foreign Fiber 	The following black / white lines are within the viewing area. Width: W(mm), Length: L(mm)	
	W ≦ 0.10mm	Ignored
	0.10mm ＜ W ≦ 0.15mm, L≦10mm	3
	W ＞ 0.15mm	0
Fish eyes on film 	D < 1.0mm	Ignored
	0.5mm ≦ D ≦ 1.0mm	4
	1.0mm ＜ D ≦ 1.5mm	2
	-	-
	D ＞ 1.5mm	0
Bubble / Dent / Bubble 	Bubbles within viewing area. Average diameter: D(mm)	
	D≦ 1.0mm	Ignored
	1.0mm ＜D≦ 1.5mm	5
	D＞ 1.5mm	0

Chipping on Glass 	Corner: X ≦ 2mm, Y≦ 2mm, Z ＜ t (Trace can not be damaged) Edge: X ≦ 2mm, Y≦ 2mm, Z ＜ t (Trace can not be damaged)

Note:

- Inspection area is TP active area
- The foreign material that can be blown out by air or washed out by wet cleaning are not regarded as a defect
- If we can not see any spot or line in appropriate operating condition of panel, it's acceptable

9. Reliability

No.	ITEM	DESCRIPTION	NOTE
1	High Temperate Storage	溫度 80±2°C, 240 hrs. 常溫放置 2Hr 後	-
2	Low Temperate Storage	溫度-30±2°C, 240 hrs；常溫放置 2Hr 後	-
3	Temperate/ Humidity	溫度 60±2°C, 溼度 90%RH, 240 hrs. ；常溫放置 2Hr 後	-
4	Thermal Shock	溫度-30℃(30min)→溫度+80℃(30min)爲 1 次溫度循環、50 次溫度循環；常溫放置 2Hr 後	-
5	FPC Peeling	500g/cm 	-
6	FPC Bending Test	Minimum 10 cycles for each side 	-
7	Impact	Φ9 mm 的鋼球由 0.3m 的高度落下	
8	Package Drop Test	(1)在高度 75cm，六面的落下方式依序測試各做 1 次落下試驗 (2)在高度 75cm，四角的落下方式依序測試各做 1 次落下試驗 (3)在高度 75cm，二稜的落下方式依序測試各做 1 次落下試驗 (落下測試，請考慮在包裝結構最脆弱的地方。) 	
Remark		判定基準： 1. 檢測產品的觸控連續性。	

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	2. 無電性與動作異常。 3. 外觀無損壞、破裂、嚴重變形等情形	

10. Linearity Test

1. Test Condition:

Temperature:	25 ℃				
Drawing Speed:	50 mm / sec				
Test Head: (Size) :	11 mm				
Deep: (Loading/Gap)	R Type:		(g)	C Type: 0	(mm)
Drawing Lines:	Vertical:	20	(lines)	Horizontal: 20	(lines)
Resolution	Vertical:	19968	(dot)	Horizontal: 11264	(dot)

2. P/F Judgment:

Linearity Boundary: ■ 337.92 (resolution) □ ± _____ (mm)

3. Test Result:

Item	Good	NG	Remark
Vertical direction P/F	■ PASS	□ FAIL	<= 3%
Horizontal direction P/F	■ PASS	□ FAIL	<= 3%
Dialog direction P/F	■ PASS	□ FAIL	<= 3%

4. Drawing Plot: