POWERTIP TECH. CORP.

SPECIFICATIONS

CUSTOMER	:	PTC
SAMPLE CODE (Ver.)	:	PS320240T-004-I-05 (Ver.0)
MASS PRODUCTION CODE (Ver.)	:	PH320240T-004-IY3Q (Ver.0)
DRAWING NO. (Ver.)	:	PH-06005-009 (Ver.0)

Customer Approved

Date:

Approved	QC Confirmed	Designer
研發 2006-12-29. 黃敬源	Q.A. DEPT. DEC 28 2006 POWERTIP TECH CORP. 許惠如 12/28/06	研發 2006-12-26. 彭文彥 研發 2006-12-28. 林昭俊

■ Approval For Specifications Only.

* This specification is subject to change without notice.

Please contact Powertip or it's representative before designing your product based on this specification.

☐ Approval For Specifications and Sample.

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History of Version

Date	Ver.	Description	Page	Design by
2006/12/26	0	**MASS PRODUCTION**	-	Peter

Total : 31 Page

Contents

Note : For detailed information please refer to IC data sheet :

Primacy(TFT LCD) :Himax: HX8218-A + HX8615A

(Or comparable IC)

1. SPECIFICATIONS

1.1 Features

LCM

Item	Standard Value
Display Type	320(R、G、B) * 240 Dots
LCD Type	Normally white , Transmissive type
Screen size(inch)	3.5 inch
Viewing Direction	6 O'clock
Color configuration	RGB-Strip
Backlight Type	LED
Interface	Digital 24-bits RGB
Driver IC	HX8218-A + HX8615A **(Or comparable IC)**
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC Detail information please refer web side : http://www.powertip.com.tw/news/LatestNews.asp

LCM Weight : 40 g

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	76.9(W) * 63.9 (L) * 4.85 (H)(Max)	mm

LCM

Item	Standard Value	Unit
Active Area	70.08 (W) * 52.56 (L)	mm
Dot Pitch	0.219 (W) * 0.219 (L)	mm

Note : For detailed information please refer to LCM drawing

1.3 Absolute Maximum Ratings

Module

Item	Symbol	Condition	Min.	Max.	Unit
System Power Supply Voltage	VDD	AVSS=0	-0.3	7.0	V
	VCC	GND=0	-0.3	7.0	
	VGH	GND=0	-0.3	32.0	
	VGL	GND=0	-22.0	0.3	
	VGH-VGL	GND=0	-0.3	45.0	
Input Voltage	Vi	-	-0.3	VDD+0.3	V
	VI	-	-0.3	VCC+0.3	V
Operating Temperature	T_{OP}	Excluded B/L&T/P	-20	70	°C
Storage Temperature	T_{ST}	Excluded B/L&T/P	-30	80	°C

1.4 DC Electrical Characteristics

Module Gnd = 0V , Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Digital Supply Voltage	VCC	-	3	3.3	3.6	V
Digital Operation Current	ICC	-	-	1.8	2.7	mA
Analog Supply Voltage	VDD	-	3.8	5	5.5	V
Analog Operation Current	IDD	-	-	5.8	8.7	mA
Frame frequency	fFrame	-	-	60	90	Hz
Dot Data Clock	DCLK	-	-	-	6.4	MHz

1.5 Optical Characteristics

TFT LCD panel

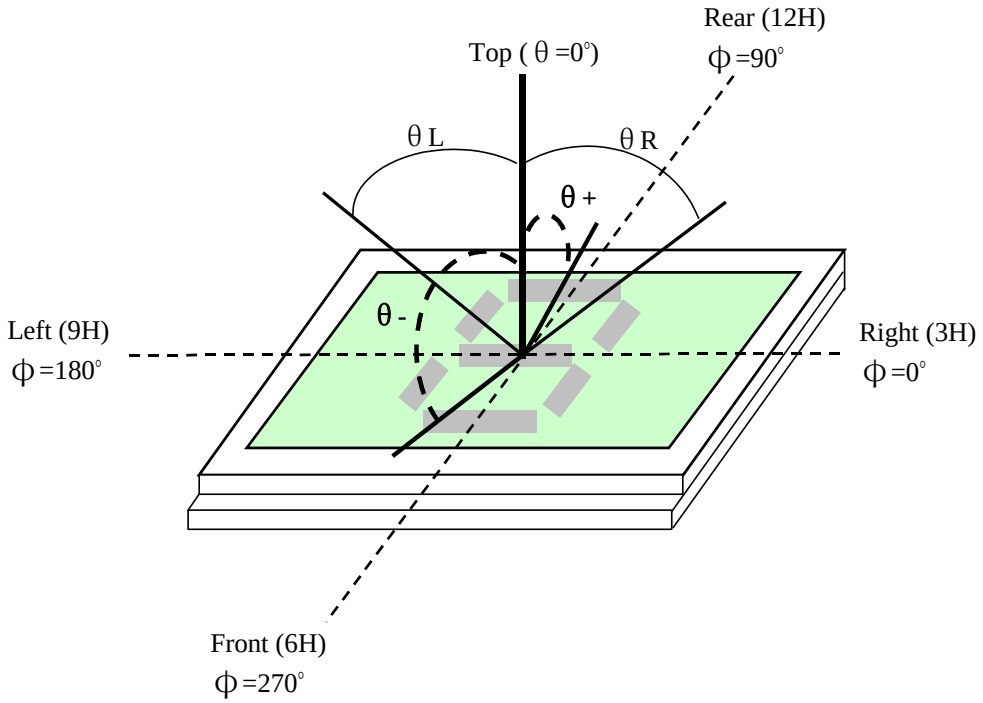
Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time	Rise	Tr	Ta = 25°C θX, θY = 0°	-	15	30	ms	Note2
	Fall	Tf		-	35	50		
Color of CIE Coordinate*1	White	X		0.264	0.314	0.364	-	-
		Y		0.310	0.360	0.410		
	Red	X		0.546	0.596	0.646		
		Y		0.295	0.345	0.395		
	Green	X		0.267	0.317	0.361		
		Y		0.522	0.572	0.622		
	Blue	X		0.086	0.136	0.186		
		Y		0.127	0.177	0.227		
Viewing angle	Top	θY+	CR ≥ 10	-	45	-	deg.	Note1
	Bottom	θY-		-	50	-		
	Left	θ_{X-}		-	50	-		
	Right	θ_{X+}		-	50	-		
Contrast ratio		CR	Ta = 25°C	150	200	-	-	Note3
Average Brightness Pattern=white display (With LCD)		IV	IF= 20mA	180	200	-	cd/m^2	
Uniformity (With LCD)*1		△B	IF= 20mA	70	-	-	%	

*1：△B=B(min) / B(max)

Note 1.

Optical characteristics-2

Viewing angle

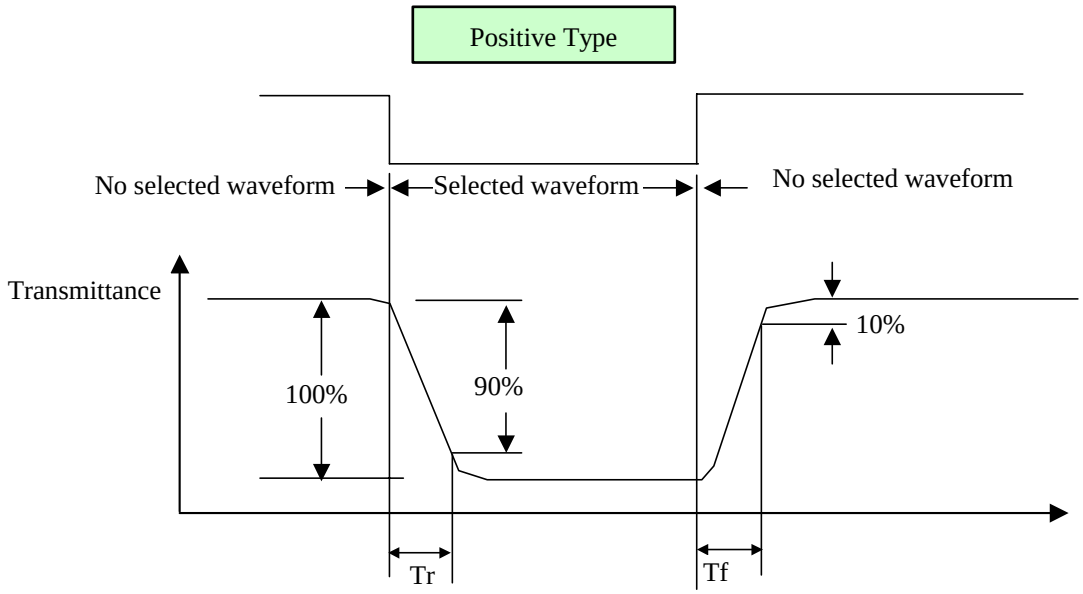


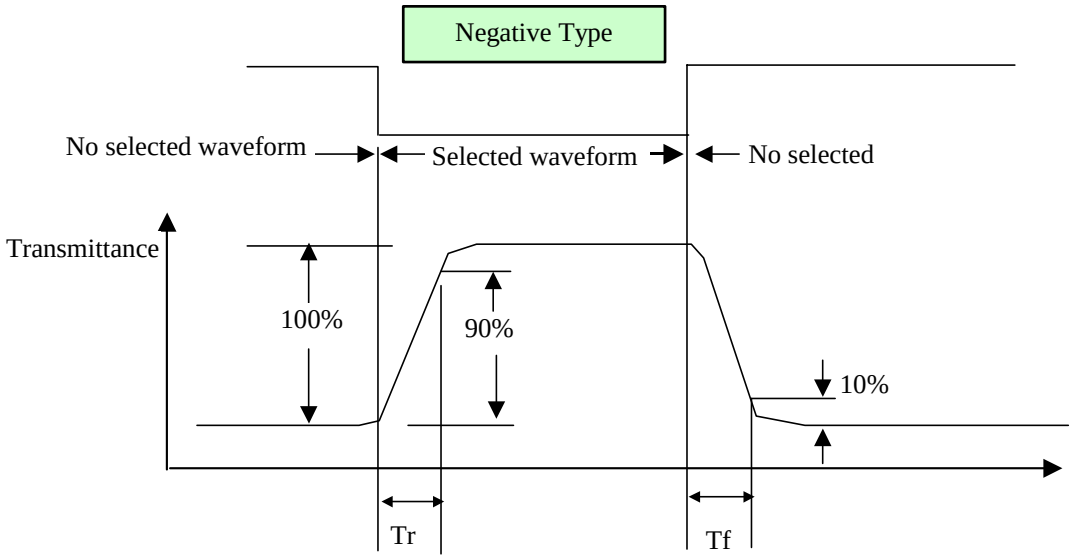
Viewing angle

Note 2.

Optical characteristics-3

Fig.2 Definition of response time





Electrical characteristics-2

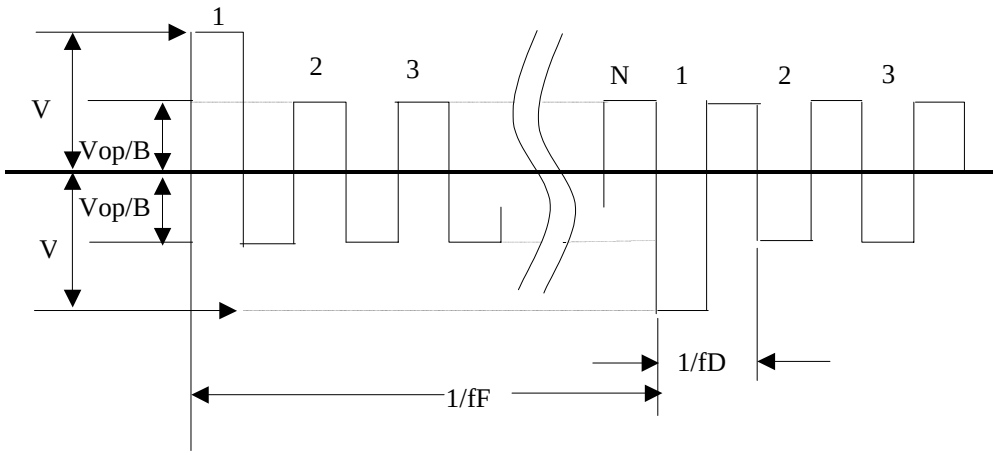
※2 Drive waveform

Vop: Drive voltage fF: Frame frequency

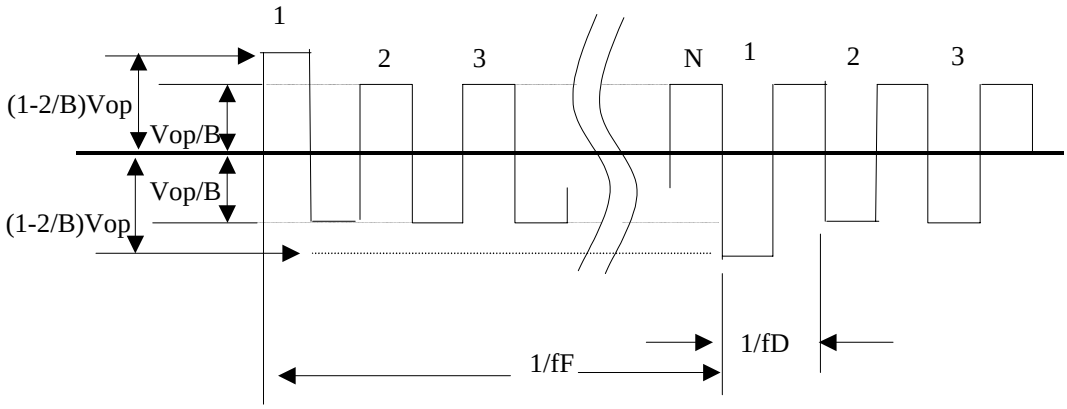
1/B: Bias fD: Drive frequency

N: Duty

(1) Selected waveform



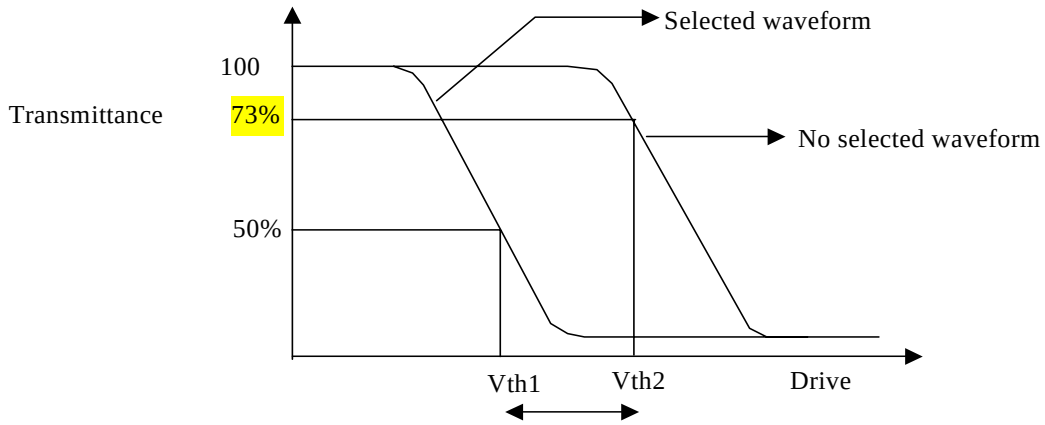
(2) Non- Selected waveform



Note:

Frame frequency is defined as follows: Common side supply voltage peak - to - peak /2 = 1 period

Note 3. : Definition of Vth

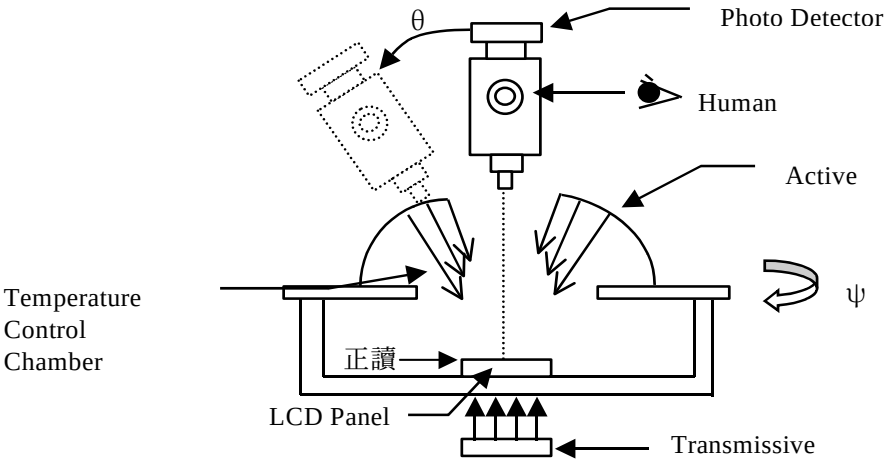


Active voltage range

	Vth1	Vth2
View direction	10°	40°
Drive waveform	(Selected waveform)	(No selected waveform)
Transmittance	50%	73%

※1 Contrast ratio
= (Brightness in OFF state) / (Brightness in ON state)

Outline of Electro-Optical Characteristics Measuring System



Measuring System: Autronic DMS-803

1.6 Backlight Characteristics

LCD Module with LED Backlight

Maximum Ratings

Item	Symbol	Conditions	Min.	Typ	Max.	Unit
Forward Current	I_F	Ta =25°C	-	20	-	mA
Forward Voltage	V_F	Ta =25°C	-	19.8	21.0	V
Power Dissipation	P_D	Ta =25°C	-	-	420	mW

1.7 Touch Screen Characteristic

Operating Voltage

DC 5.0V or less.

Terminal Resistance

X direction 200~900Ω,Y direction 200~900Ω

Linearity

1.5% or less

Insulation Resistance

20MΩ or more at DC25V

Chatting

10ms or less at ON/OFF(Test Conditions)

Tip silicon rubber R0.8mm hardness 60°, loading 250g. Measure by TD210 digital real-time oscilloscope.

Operation Force

Touch force 60g (with R8.0mm silicon finger)

Impact Resistance

No damage when ψ9mm steel ball is dropped on the surface from 30cm height

Static Load Resistance

After 45N load is applied on the area (25 cm^2) of the touch panel after 30sec., still satisfy requirements in section 4 and 5-1.

Surface Hardness

3H or higher (with JIS K5600-5-4 standard)

Tail Peeling Resistance

0.5 kg/cm peeling upward by 90 degree

Tail Bending Resistance

Bending 10 times or more by bending radius R1.0mm 500g, each left and right side 135 degree

Tail Insert/Pull Out Resistance

20 times at least (for HSC/FPC connector)

Light Transmittance

Transmittance 80% or more (total transmittance)(by BYK Gardner Hazegard Plus)

Haze

7 or more for anti-glare type (by BYK Gardner Hazegard Plus)

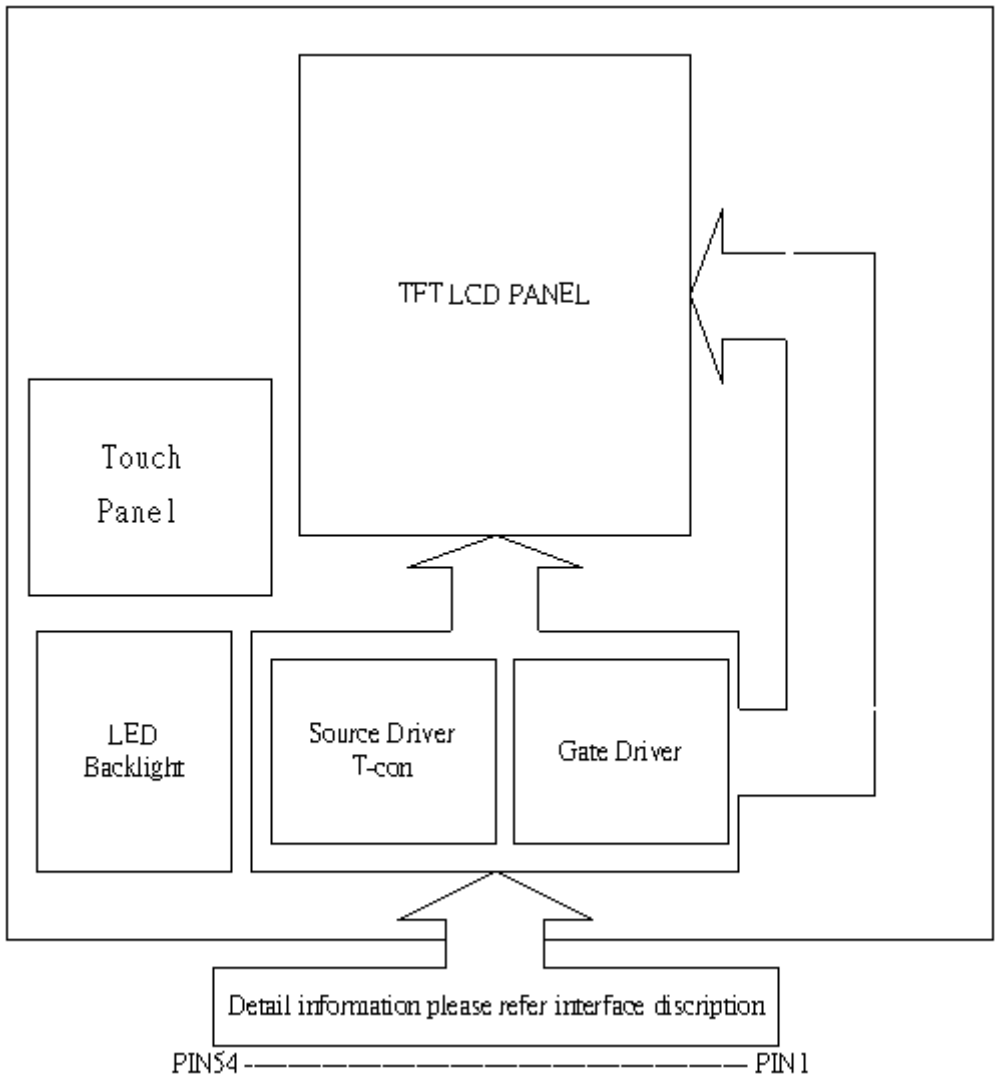
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram



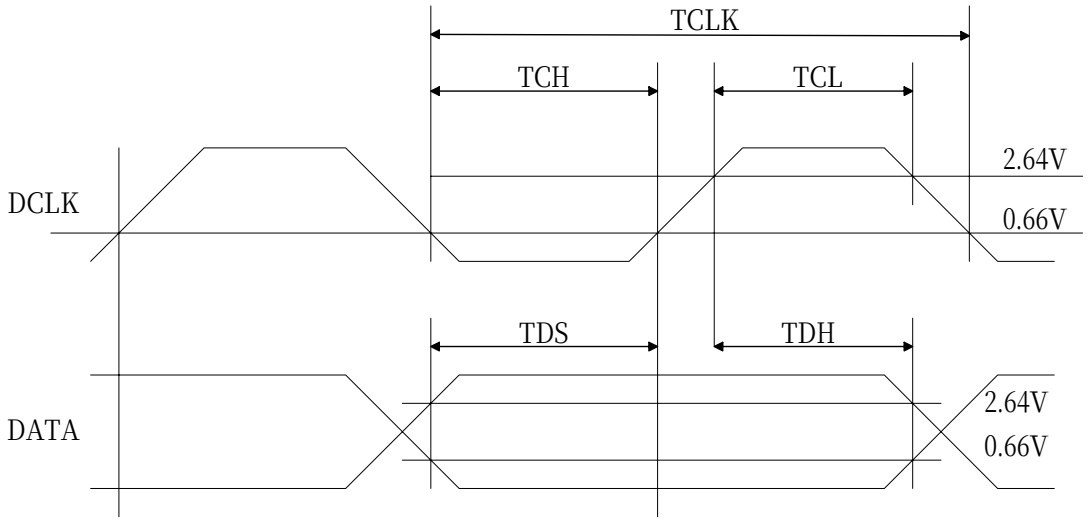
2.2 Interface Pin Description

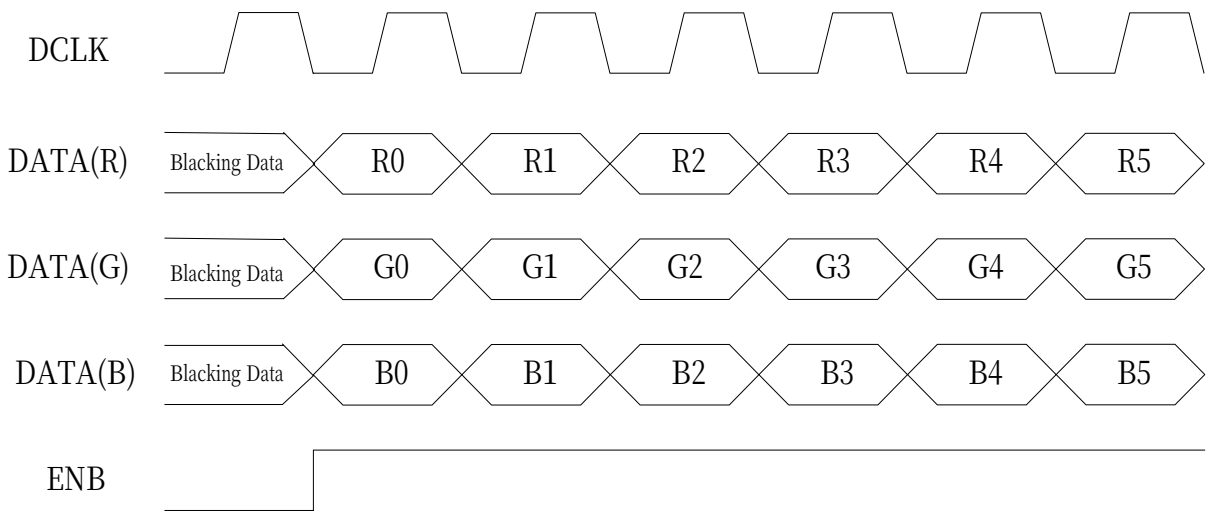
Pin No.	Symbol	Function
1	VBL-	Power supply for LED Backlight cathode input
2	VBL-	Power supply for LED Backlight cathode input
3	VBL+	Power supply for LED Backlight anode input
4	VBL+	Power supply for LED Backlight anode input
5	NC	Not used , Must be open
6	/RESET	Hardware reset
7	POL	Connect to Vcom circuit
8	Y1	Touch panel TOP
9	X1	Touch panel RIGHT
10	Y2	Touch panel BOTTOM
11	X2	Touch panel LEFT
12	B0	Blue data bit 0
13	B1	Blue data bit 1
14	B2	Blue data bit 2
15	B3	Blue data bit 3
16	B4	Blue data bit 4
17	B5	Blue data bit 5
18	B6	Blue data bit 6
19	B7	Blue data bit 7
20	G0	Green data bit 0
21	G1	Green data bit 1
22	G2	Green data bit 2
23	G3	Green data bit 3
24	G4	Green data bit 4
25	G5	Green data bit 5
26	G6	Green data bit 6
27	G7	Green data bit 7
28	R0	Red data bit 0
29	R1	Red data bit 1
30	R2	Red data bit 2
31	R3	Red data bit 3

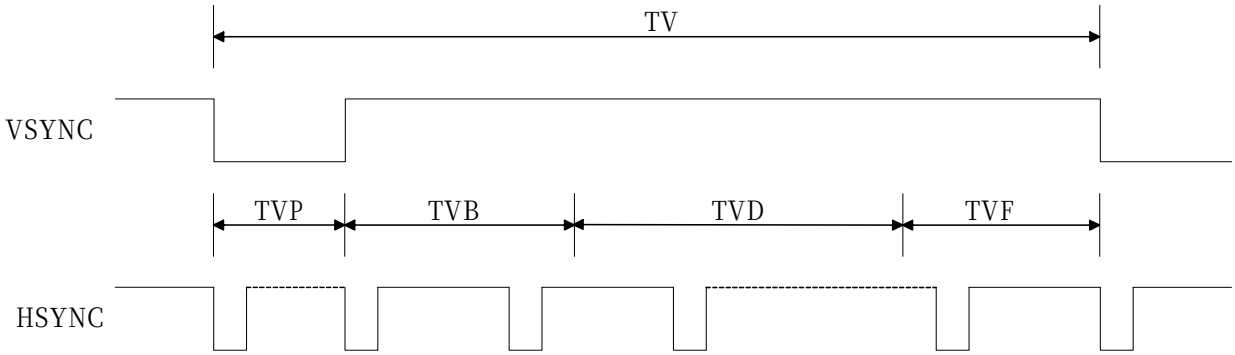
32	R4	Red data bit 4
33	R5	Red data bit 5
34	R6	Red data bit 6
35	R7	Red data bit 7
36	HSYNC	Horizontal sync input
37	VSYNC	Vertical sync input
38	DCLK	Dot data clock
39	V_{DD}	Analog power
40	V_{DD}	Analog power
41	V_{CC}	Digital power
42	V_{CC}	Digital power
43	SPENA	Serial port data enable signal
44	NC	Not used , Must be open
45	V_{GL}	Gate off power
46	NC	Not used , Must be open
47	V_{GH}	Gate on power
48	NC	Not used , Must be open
49	SPCLK	Serial data clock
50	SPDAT	Serial data
51	VCOM	VCOM power
52	ENB	Data enable control
53	GND	Ground
54	VSS	Ground

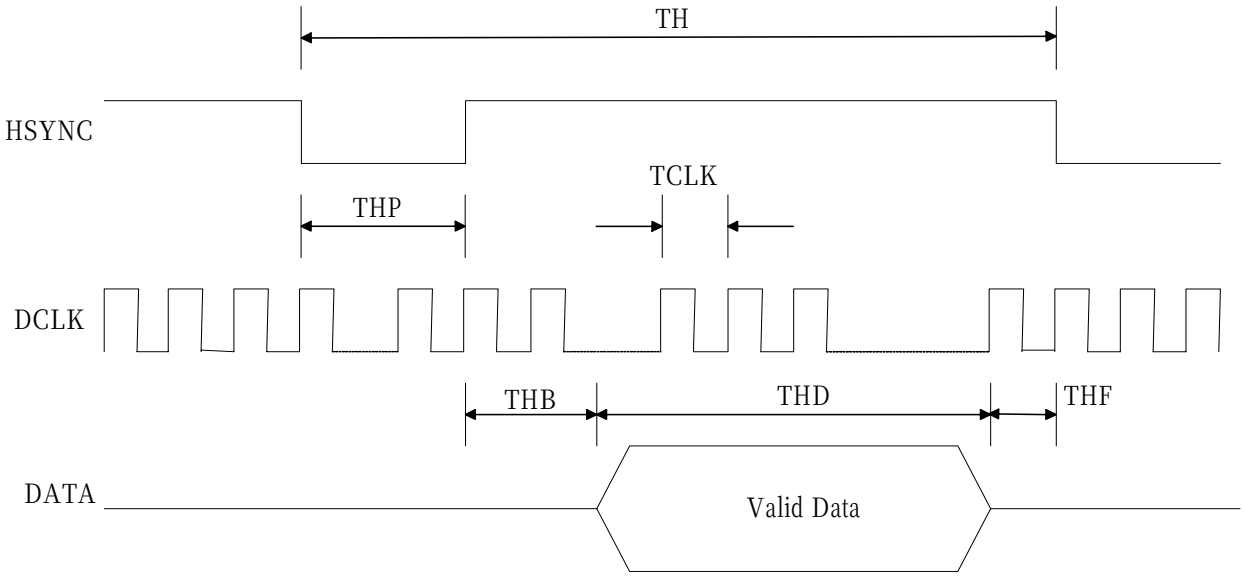
2.3 Timing Characteristics

Signal	Item		Symbol	Min.	Typ.	Max.	Unit
Dclk	Frequency		Dclk	-	6.4	-	MHz
	High Time		Tch	-	78	-	ns
	Low Time		Tcl	-	78	-	ns
Data	Setup Time		Tds	12		-	ns
	Hold Time		Tdh	12		-	ns
Hsync	Period		TH	-	408	-	DCLK
	Pulse Width		Thp	-	30	-	DCLK
	Back-Porch		Thb	-	38	-	DCLK
	Display Period		Thd	-	320	-	DCLK
	Front-Porch		Thf	-	20	-	DCLK
Vsync	Period	NTSC	-	-	262.5	-	TH
		PAL			312.5		
	Pulse Width		Tvp	1	3	5	TH
	Back-Porch	NTSC	Tvb	-	15	-	TH
		PAL			23		
	Display Period		Tvd	-	240	-	TH
	Front-Porch	NTSC	Tvf	-	4.5	-	TH
		PAL			46.5		



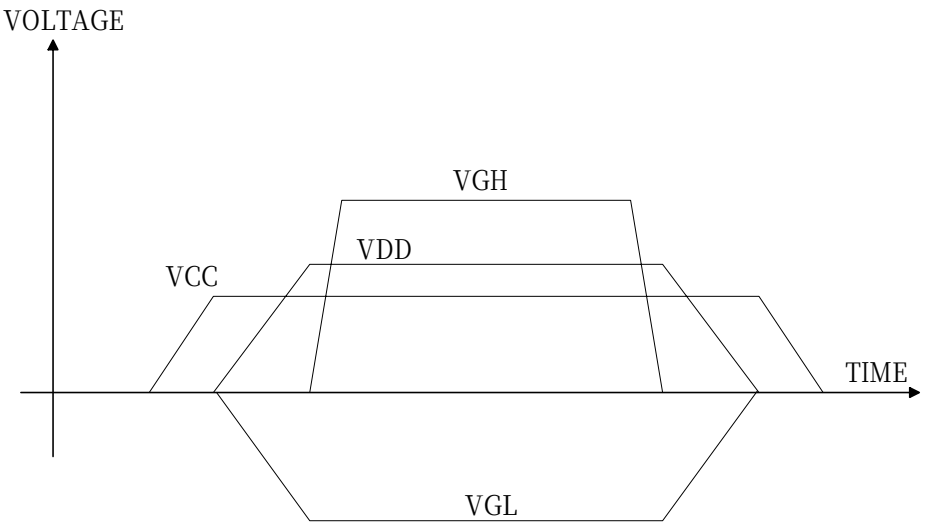

DCLK
DATA(R)
Blacking Data
R0
R1
R2
R3
R4
R5
DATA(G)
Blacking Data
G0
G1
G2
G3
G4
G5
DATA(B)
Blacking Data
B0
B1
B2
B3
B4
B5
ENB


TV
VSYNC
TVP
TVB
TVD
TVF
HSYNC


TH
HSYNC
TCLK
THP
DCLK
THB
THD
THF
DATA
Valid Data

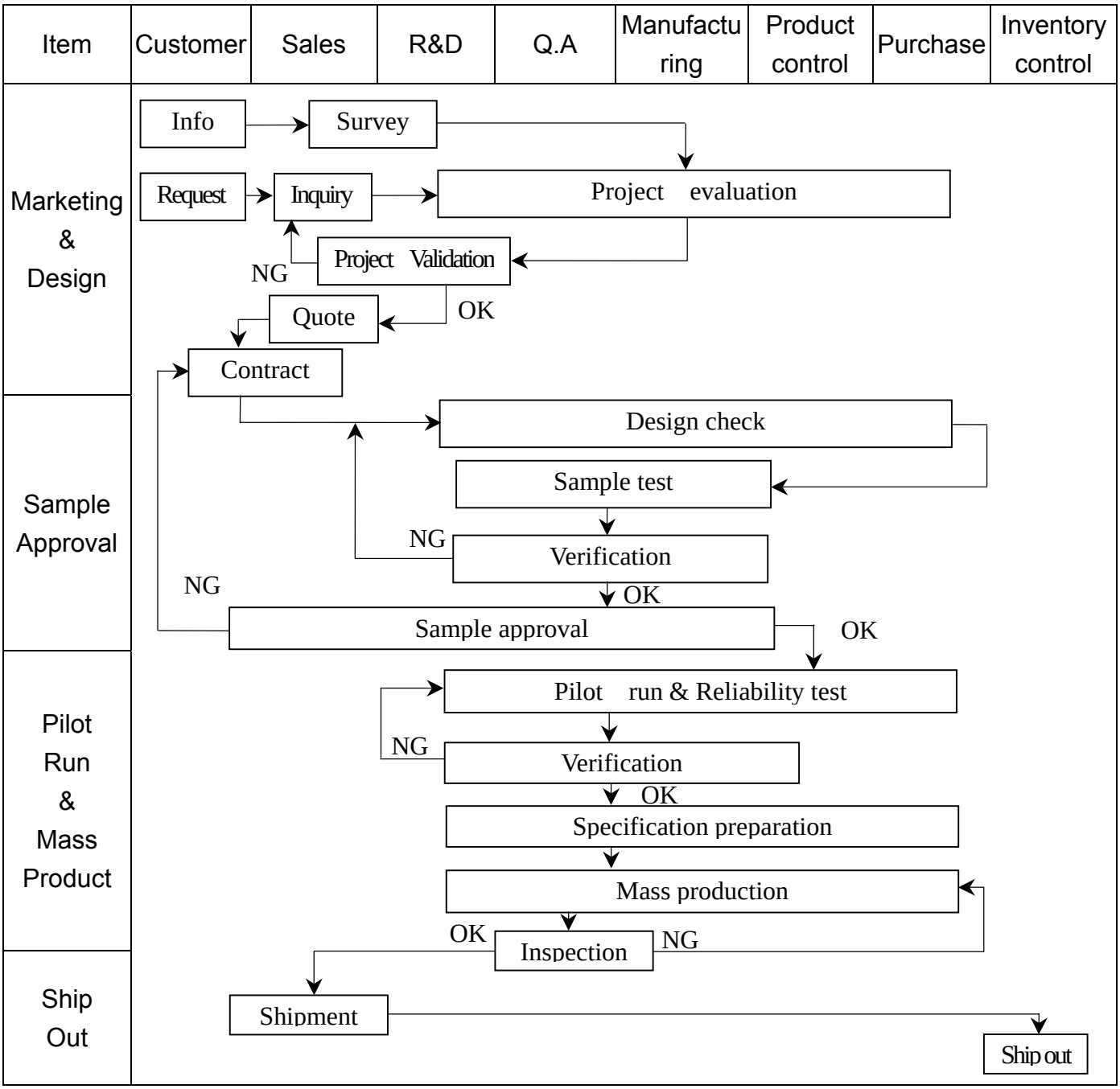
2.4 Power Sequence

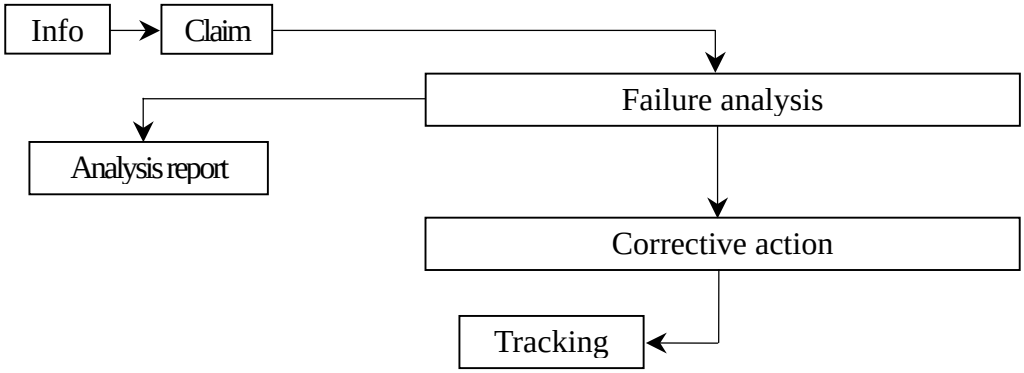
The LCD panel adopts high voltage driver ICs , so it could be permanently damaged if a wrong power on/off sequence is used, When powering on the LCD , VCC should go up firstly, and then turn on VGL and VDD , and finally VGH ,Turn off the LCD panel with reversed order or shut off all the power supplies simultaneously.



3. QUALITY ASSURANCE SYSTEM

3.1 Quality Assurance Flow Chart



Item	Customer	Sales	R&D	Q.A	Manufacturing	Product control	Purchase	Inventory control
Sales Service								
Q.A Activity	1. ISO 9001 Maintenance Activities 2. Process improvement proposal 3. Equipment calibration 4. Education And Training Activities 5. Standardization Management							

3.2 Inspection Specification

1. Inspection Specification

◆Scope ：The document shall be applied to TFT-LCD Module for 3.5″ ~10″ (Ver.02).

◆Inspection Standard：MIL-STD-105E Table Normal Inspection Single Sampling Level Ⅱ.

◆Equipment：Gauge、MIL-STD、Powertip Tester、Sample

◆Defect Level：Major Defect AQL： 0.4 ； Minor Defect AQL： 1.5

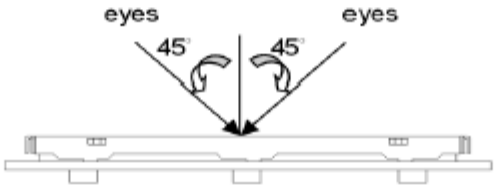
◆OUT Going Defect Level：Sampling.

◆Standard of the product appearance test：

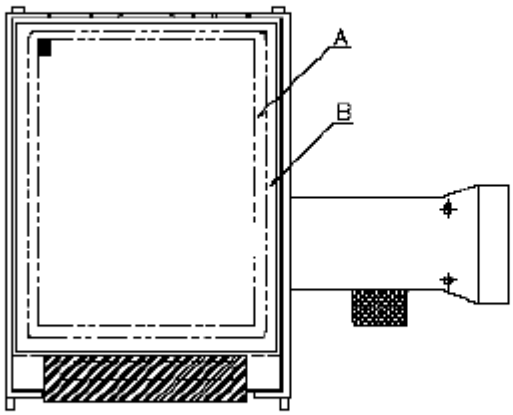
a. Manner of appearance test：

(1). The test best be under 20W×2 fluorescent light，and distance of view must be at 30 cm.

(2). The test direction is base on about around 45° of vertical line.



(3). Definition of area.



A area：viewing area

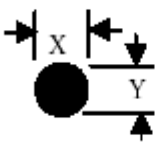
B area：Outside of viewing area

(4). Standard of inspection： (Unit：mm)

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.02)

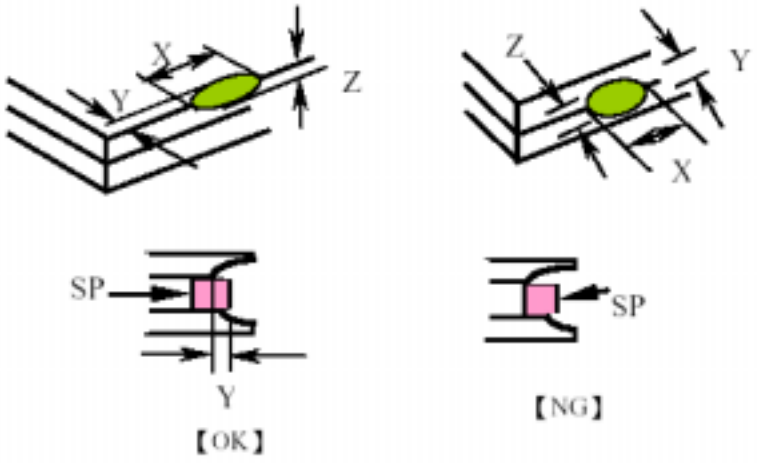
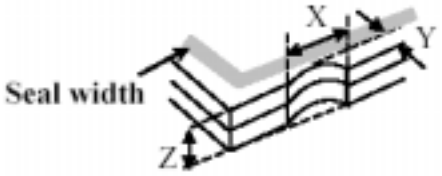
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">Product condition</td><td>1.1The part number is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>1.2 Mixed product types.</td><td>Major</td></tr>
<tr><td>1.3 Assembled in inverse direction.</td><td>Major</td></tr>
<tr><td>02</td><td>Quantity</td><td>2.1The quantity is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>03</td><td>Outline dimension</td><td>3.1 Product dimension and structure must conform to structure diagram.</td><td>Major</td></tr>
<tr><td rowspan="5">04</td><td rowspan="5">Electrical Testing</td><td>4.1 Missing line character and icon.</td><td>Major</td></tr>
<tr><td>4.2 No function or no display.</td><td>Major</td></tr>
<tr><td>4.3 Display malfunction.</td><td>Major</td></tr>
<tr><td>4.4 LCD viewing angle defect.</td><td>Major</td></tr>
<tr><td>4.5 Current consumption exceeds product specifications.</td><td>Major</td></tr>
<tr><td>05</td><td>Dot defect
(Bright dot、Dark dot)
On -display</td><td>
<table>
<tr><th colspan="2">Item</th><th>Acceptance (Q'ty)</th></tr>
<tr><td rowspan="4">Dot Defect</td><td>Bright Dot</td><td>≦ 4</td></tr>
<tr><td>Dark Dot</td><td>≦ 5</td></tr>
<tr><td>Joint Dot</td><td>≦ 3</td></tr>
<tr><td>Total</td><td>≦ 7</td></tr>
</table>
5.1 Inspection pattern：full white , full black , Red , Green and blue screens.
5.2 It is defined as dot defect if defect area ＞1/2 dot.
5.3 The distance between two dot defect ≧5 mm.
</td><td>Minor</td></tr>
</table>

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.02)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>06</td><td>Black or white dot、scratch、contamination
Round type
 

Φ=(x+y) / 2
Line type
 
</td><td>6.1 Round type (Non-display or display) :
<table><tr><th>Dimension (diameter : Φ)</th><th>Acceptance (Q'ty)</th></tr><tr><td>Φ ≦ 0.25</td><td>Ignore</td></tr><tr><td>0.25 < Φ ≦ 0.50</td><td>5</td></tr><tr><td>Φ > 0.50</td><td>0</td></tr><tr><td>Total</td><td>5</td></tr></table>6.2 Line type(Non-display or display) :
<table><tr><th>Length (L)</th><th>Width (W)</th><th>Acceptance (Q'ty)</th></tr><tr><td>---</td><td>W ≦ 0.03</td><td>Ignore</td></tr><tr><td>L ≦10.0</td><td>0.03 < W ≦ 0.05</td><td>4</td></tr><tr><td>L ≦5.0</td><td>0.05 < W ≦ 0.10</td><td>2</td></tr><tr><td>---</td><td>W >0.10</td><td>As round type</td></tr><tr><td colspan="2">Total</td><td>5</td></tr></table></td><td>Minor</td></tr>
<tr><td>07</td><td>Polarizer Bubble</td><td><table><tr><th>Dimension (diameter : Φ)</th><th>Acceptance (Q'ty)</th></tr><tr><td>Φ ≦ 0.25</td><td>Ignore</td></tr><tr><td>0.25 < Φ ≦ 0.50</td><td>4</td></tr><tr><td>0.50 < Φ ≦ 0.80</td><td>1</td></tr><tr><td>Φ > 0.80</td><td>0</td></tr><tr><td>Total</td><td>5</td></tr></table></td><td>Minor</td></tr>
</table>

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver. 02)

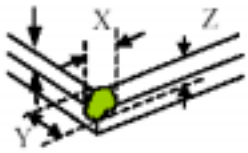
NO	Item	Criterion	Level
08	The crack of glass	Symbols : X : The length of crack Y : The width of crack. Z : The thickness of crack W : terminal length t : The thickness of glass a : LCD side length 8.1 General glass chip : 8.1.1 Chip on panel surface and crack between panels:  	Minor

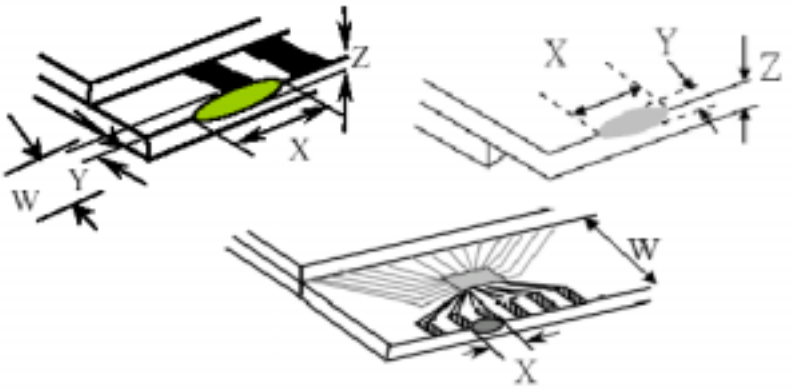
X	Y	Z
≦ a	Crack can't enter viewing area	≦1/2 t
≦ a	Crack can't exceed the half of SP width.	1/2 t < Z ≦2 t

◆Specification For TFT-LCD Module 3.5" ~10" : (Ver. 02)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>08</td><td>The crack of glass</td><td>
Symbols :

X : The length of crack　　Y : The width of crack.
Z : The thickness of crack　　W : terminal length
t : The thickness of glass　　a : LCD side length

8.1.2 Corner crack :


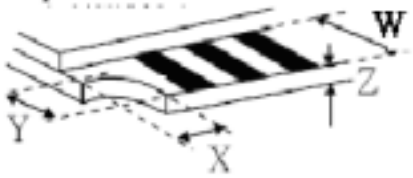
<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦1/5 a</td><td>Crack can't enter viewing area</td><td>Z ≦ 1/2 t</td></tr>
<tr><td>≦1/5 a</td><td>Crack can't exceed the half of SP width.</td><td>1/2 t < Z ≦ 2 t</td></tr>
</table>
8.2 Protrusion over terminal :
8.2.1 Chip on electrode pad :


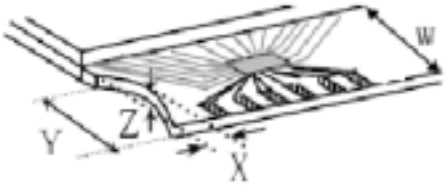
<table>
<tr><th></th><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>Front</td><td>≦ a</td><td>≦ 1/2 W</td><td>≦ t</td></tr>
<tr><td>Back</td><td>≦ a</td><td>≦ W</td><td>≦ 1/2 t</td></tr>
</table>
</td><td>Minor</td></tr>
</table>

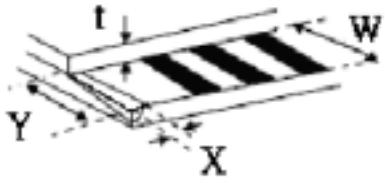
◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver. 02)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>08</td><td>The crack of glass</td><td>
Symbols :

X : The length of crack　　Y : The width of crack.
Z : The thickness of crack　　W : terminal length
t : The thickness of glass　　a : LCD side length

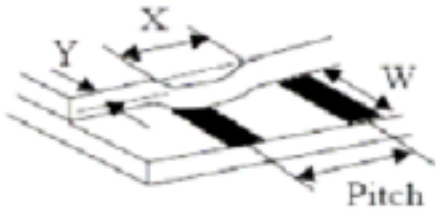
8.2.2 Non-conductive portion :






<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦ 1/3 a</td><td>≦ W</td><td>≦t</td></tr>
</table>
⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications.

8. 2. 3 Glass remain :



<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦ a</td><td>≦ 1/3 W</td><td>≦t</td></tr>
</table>
</td><td>Minor</td></tr>
</table>

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.02)

NO	Item	Criterion	Level
09	Backlight elements	9.1 Backlight can't work normally.	Major
		9.2 Backlight doesn't light or color is wrong.	Major
		9.3 Illumination source flickers when lit.	Major
10	General appearance	10.1 Pin type、quantity、dimension must match type in structure diagram.	Major
		10.2 No short circuits in components on PCB or FPC .	Major
		10.3 Parts on PCB or FPC must be the same as on the production characteristic chart .There should be no wrong parts , missing parts or excess parts.	Major
		10.4 Product packaging must the same as specified on packaging specification sheet.	Minor
		10.5 The folding and peeled off in polarizer are not acceptable.	Minor
		10.6 The PCB or FPC between B/L assembled distance(PCB or FPC) is ≦1.5 mm.	Minor

4. RELIABILITY TEST

4.1 Reliability Test Condition

Ver.02

<table>
<tr><th>NO.</th><th>TEST ITEM</th><th>TEST CONDITION</th></tr>
<tr><td>1</td><td>High Temperature
Storage Test</td><td>Keep in +80 ±2°C 96 hrs
Surrounding temperature, then storage at normal condition 4hrs.</td></tr>
<tr><td>2</td><td>Low Temperature
Storage Test</td><td>Keep in -30 ±2°C 96 hrs
Surrounding temperature, then storage at normal condition 4hrs.</td></tr>
<tr><td>3</td><td>High Temperature /
High Humidity
Storage Test</td><td>Keep in +60°C / 90% R.H duration for 96 hrs
Surrounding temperature, then storage at normal condition 4hrs.
(Excluding the polarizer)</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">ESD Test</td><td>Air Discharge:
Apply 2 KV with 5 times
Discharge for each polarity +/-</td><td>Contact Discharge:
Apply 250 V with 5 times
discharge for each polarity +/-</td></tr>
<tr><td colspan="2">1. Temperature ambinace : 15°C 35°C
2. Humidity relative : 30% 60%
3. Energy Storage Capacitance(Cs+Cd) : 150pF±10%
4. Discharge Resistance(Rd) : 330Ω±10%
5. Discharge, mode of operation :
Single Discharge (time between successive discharges at least 1 sec) (Tolerance if the output voltage indication : ±5%)</td></tr>
<tr><td>5</td><td>Temperature Cycling
Storage Test</td><td>-20°C → +25°C → +70°C → +25°C
(30mins) (5mins) (30mins) (5mins)
10 Cycle
Surrounding temperature, then storage at normal condition 4hrs.</td></tr>
<tr><td>6</td><td>Vibration Test
(Packaged)</td><td>1. Sine wave 10 55 Hz frequency (1 min)
2. The amplitude of vibration :1.5 mm
3. Each direction (X、Y、Z) duration for 2 Hrs</td></tr>
<tr><td>7</td><td>Drop Test
(Packaged)</td><td><table><tr><th>Packing Weight (Kg)</th><th>Drop Height (cm)</th></tr><tr><td>0 ~ 45.4</td><td>122</td></tr><tr><td>45.4 ~ 90.8</td><td>76</td></tr><tr><td>90.8 ~ 454</td><td>61</td></tr><tr><td>Over 454</td><td>46</td></tr></table>Drop direction :※1 corner / 3 edges / 6 sides each 1times</td></tr>
</table>

5. PRECAUTION RELATING PRODUCT HANDLING

5.1 SAFETY

5.1.1 If the LCD panel breaks , be careful not to get the liquid crystal to touch your skin.

5.1.2 If the liquid crystal touches your skin or clothes , please wash it off immediately by using soap and water.

5.2 HANDLING

5.2.1 Avoid any strong mechanical shock which can break the glass.

5.2.2 Avoid static electricity which can damage the CMOS LSI—When working with the module , be sure to ground your body and any electrical equipment you may be using.

5.2.3 Do not remove the panel or frame from the module.

5.2.4 The polarizing plate of the display is very fragile. So , please handle it very carefully, do not touch , push or rub the exposed polarizing with anything harder than an HB pencil lead (glass , tweezers , etc.)

5.2.5 Do not wipe the polarizing plate with a dry cloth , as it may easily scratch the surface of plate.

5.2.6 Do not touch the display area with bare hands , this will stain the display area.

5.2.7 Do not use ketonics solvent & aromatic solvent. Use with a soft cloth soaked with a cleaning naphtha solvent.

5.2.8 To control temperature and time of soldering is 280 ± 10°C and 3-5 sec.

5.2.9 To avoid liquid (include organic solvent) stained on LCM

5.3 STORAGE

5.3.1 Store the panel or module in a dark place where the temperature is 25°C ± 5°C and the humidity is below 65% RH.

5.3.2 Do not place the module near organics solvents or corrosive gases.

5.3.3 Do not crush , shake , or jolt the module.

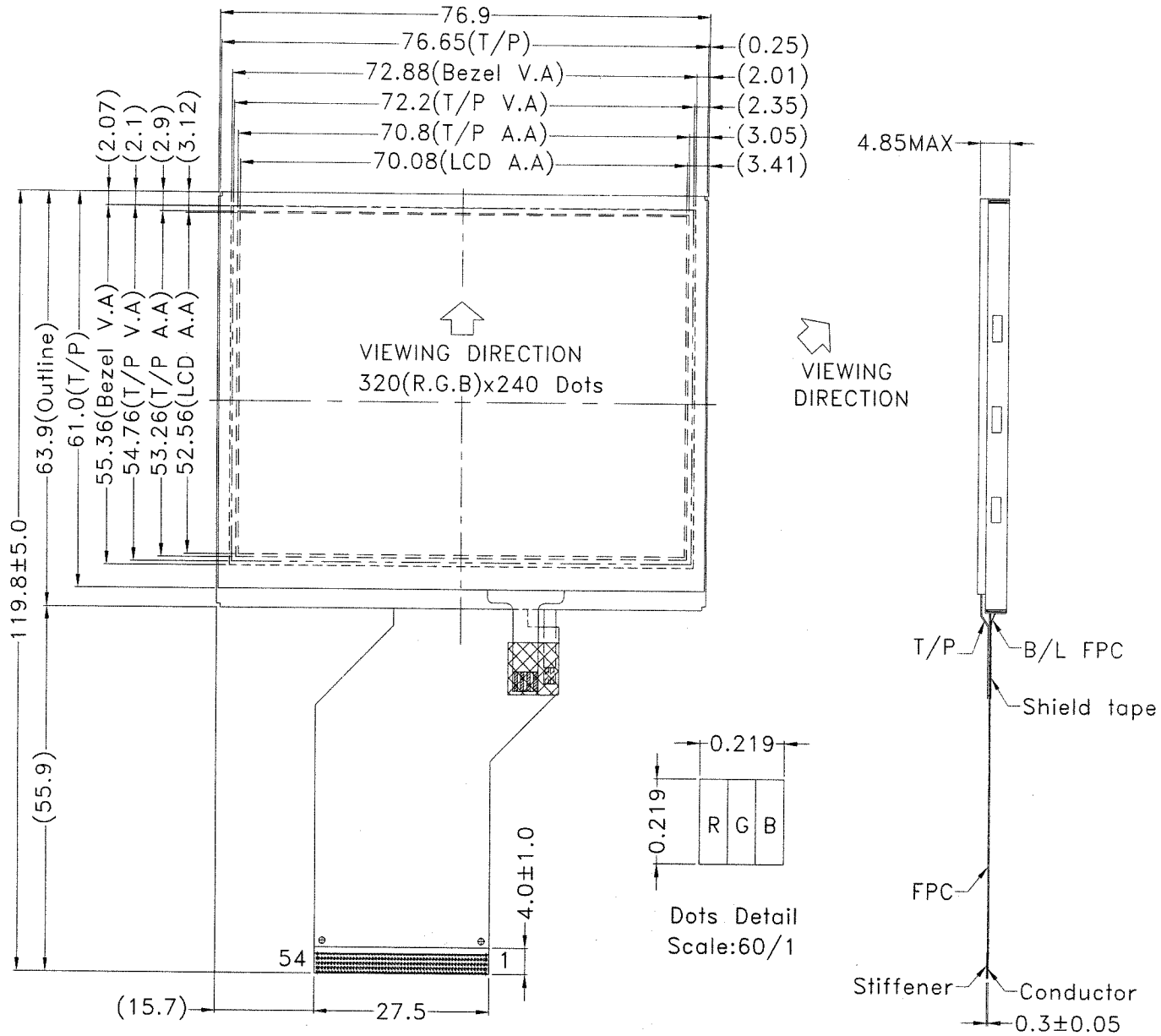
5.4 TERMS OF WARRANTY

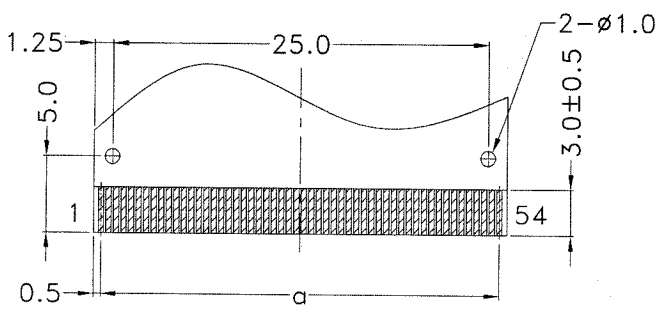
5.4.1 Applicable warrant period

The period is within thirteen months since the date of shipping out under normal using and storage conditions.

5.4.2 Unaccepted responsibility

This product has been manufactured to your company’s specification as a part for use in your company’s general electronic products. It is guaranteed to perform according to delivery specifications. For any other use apart from general electronic equipment, we cannot take responsibility if the product is used in nuclear power control equipment, aerospace equipment , fire and security systems or any other applications in which there is a direct risk to human life and where extremely high levels of reliability are required.





FPC Detail
Scale:2/1

NOTES:
1.LCD TYPE: a-SI TFT
2.LCD DISPLAY:POSITIVE/ TRANSMISSIVE
3.VIEW DIRECTION: 6 O'CLOCK
4.Top: -20~70°C Tst:-30~80°C
5.The tolerance unless classified ±0.3mm
6.a=P0.5x53=26.5±0.1,W=0.35±0.05

RE	DESCRIPTION	DATE

久 正 光 電 股 份 有 限 公 司
POWERTIP TECHNOLOGY CORPORATION

				APPROVED	CHECKER	DRAWN
SCALE:1 1	UNIT:mm	PAGE:1/1		研發 2006-12-29. 李秋華	研發 2006-12-26. 李美倫	研發 2006-12-26. 蔡攻玲
圖面名稱	PH320240T-004-IY3Q					
圖面編號	PH-06005-009	EDI	0			

2-060-01-01

LCM Model	PH320240T-004-IY3Q
版次Ver.0	

LCM包裝規格書
LCM Packaging Specifications (For Tray)

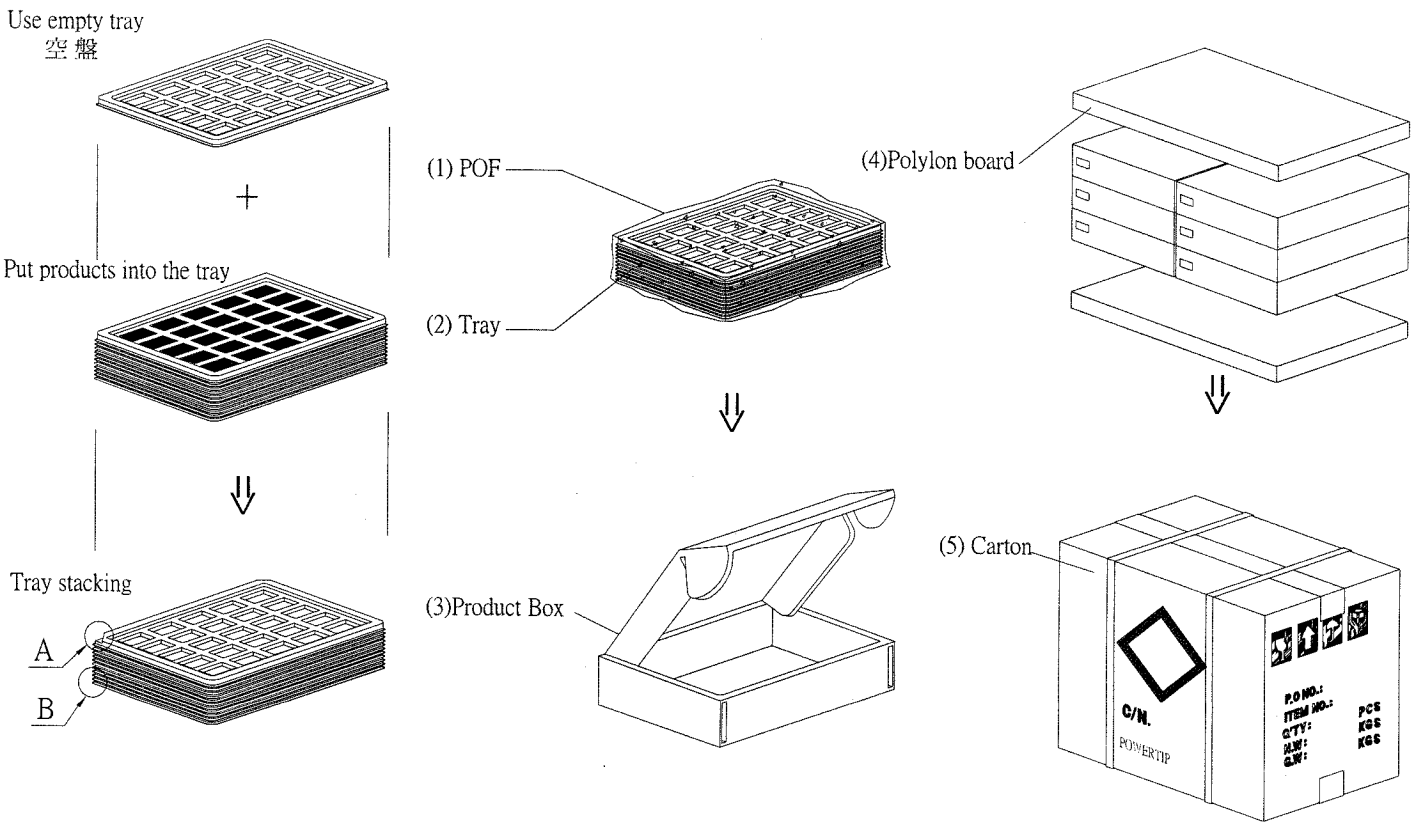
Approve	Check	Contact
研發 2006-12-26 黃威雄	研發 2006-12-26 李美倫	研發 2006-12-26 謝政玲

1.包裝材料規格表 (Packaging Material) : (per carton)

No.	Item	Model	Dimensions (mm)	Quantity
1	成品 (LCM)	PH320240T-004-IY3Q	76.9 X 63.9	288
2	多層薄膜(1)POF	OTFILM0BA03ABA	19"X350X0.015	6
3	TRAY 盤 (2)	TY32024001TZBA	352 X 260 X 10.8	54
4	內盒(3)Product Box	BX36627063ABBA	393 X 274 X 68	6
5	保力龍板(4)Polylon board	OTPLB00PL08ABA	550 X 393 X 20	2
6	外紙箱(5)Carton	BX57041027CCBA	570 X 410 X 265	1
7				
8				
9				

2.單箱數量規格表 (Packaging Specifications and Quantity) :

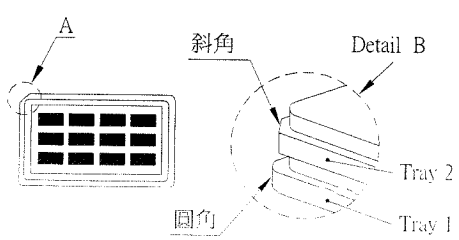
(1)LCM quantity per box : no per tray	6	x no per tray	8	=	48
(2)Total LCM quantity in carton : quantity per box	48	x no of boxes	6	=	288



特 記 事 項 (REMARK)

1. Label Specifications :

MODEL:
LOT NO:
QUANTITY:
CHECK:



2.Rotate tray 180 degrees and place on top of stack. Check the tray stack using Fig. B.
TRAY盤相疊時,需旋轉180度,請詳見B視圖

3.It's also suitable to Panel
(可適用於單品包裝)
TRAY Numberl:PH320240T-001