SPECIFICATIONS

CUSTOMER	:	
SAMPLE CODE	:	SH320240T-009-I22Q
MASS PRODUCTION CODE	:	PH320240T-009-I22Q
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	001
DRAWING NO. (Ver.)	:	LMD-PH320240T-009-I22Q (Ver:001)
PACKAGING NO. (Ver.)	:	

Customer Approved

Date:

Approved	Checked	Designer
廖志豪 **Rex Liao**	張慶源 **Yuan Chang**	陳宗淇 **Howard Chen**

POWERTIP
2012.08.31
TWRD APR

■ Preliminary specification for design input

☐ Specification for sample approval

POWERTIP TECH. CORP.

History of Version

Date (mm / dd / yyyy)	Ver.	Edi.	Description	Page	Design by
08/31/2012	01	001	New drawing.	--	Howard

Total: 27 Page

Contents

Note : For detailed information please refer to IC data sheet :
Primacy(TFT LCD): Himax: HX8218-A + HX8615A
(Or compatible IC)

1. SPECIFICATIONS

1.1 Features

Main LCD panel

Item	Standard Value
Display Type	320(R、G、B) * 240 Dots
LCD Type	Normally white , Transmissive type
Screen size(inch)	5.7 inch
Viewing Direction	6 O'clock
Color configuration	RGB-Strip
Backlight	LED
Interface	Digital 24-bits RGB
Other(controller/driver IC)	320(R、G、B) * 240 Dots
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC Detail information please refer web side : http://www.powertip.com.tw/news.php?area_id_view=1085560481/

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	159.8 (W) * 111.0 (L) * 9.0 (H)(Max)	mm

LCD panel

Item	Standard Value	Unit
Viewing Area	116.2 (W) * 87.4 (L)	mm
Active Area	115.2 (W) * 86.4 (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
Input Voltage	Vi	-	-0.3	VDD+0.3	V
Operating Temperature	T_{OP}	-	-20	70	°C
Storage Temperature	T_{ST}	-	-30	80	°C

1.4 DC Electrical Characteristics

Module   GND = 0V, Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage1	VDD	-	3.0	3.3	3.6	V
Supply Current	IDD	VDD = 3.3 V Pattern= TBD	-	TBD	-	mA
		VDD = 3.3 V Pattern= TBD *1	-	TBD	TBD	mA

Note1:Maximum current display

1.5 Optical Characteristics

TFT LCD Module   VDD= 3.3V, Ta=25°C

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time	Rise	Tr	Ta = 25°C θX, θY = 0°	-	(15)	(30)	ms	Note 2
	Fall	Tf		-	(35)	(50)		
Viewing angle	Top	θY+	CR ≥ 10	-	(50)	-	Deg.	Note 4
	Bottom	θY-		-	(45)	-		
	Left	θX-		-	(50)	-		
	Right	θX+		-	(50)	-		
Contrast ratio		CR	Ta = 25°C θX , θY = 0°	-	(150)	(250)	-	Note 3
Color of CIE Coordinate （With B/L）	White	X	Ta = 25°C θX , θY = 0°	-	TBD	-	-	Note1
		Y		-	TBD	-		
	Red	X		-	TBD	-		
		Y		-	TBD	-		
	Green	X		-	TBD	-		
		Y		-	TBD	-		
	Blue	X		-	TBD	-		
		Y		-	TBD	-		
Average Brightness Pattern=white display (With B/L)		IV	IF=(200)mA	TBD	TBD	-	cd/m^2	Note1
Uniformity (With B/L)		△B	IF=(200)mA	(70)	-	-	%	Note1

Note 1:

*1：△B=B(min) / B(max) * 100%

*2：Measurement Condition for Optical Characteristics:

    a：Environment: 25 ±5 / 60±20%R.H，no wind，dark room below 10 Lux at typical lamp current and typical operating frequency.

    b：Measurement Distance: 500 ± 50 ㎜ ，(θ= 0°)

    c：Equipment: TOPCON BM-7 fast，(field 1°)，after 10 minutes operation.

    d：The uncertainty of the C.I.E coordinate measurement ±0.01，Average Brightness ± 4%

Colorimeter=BM-7 fast
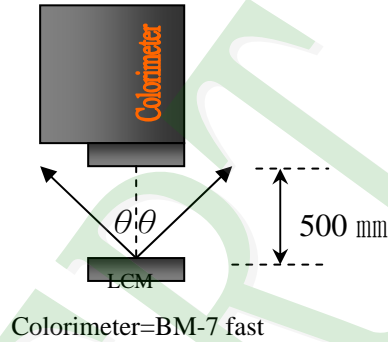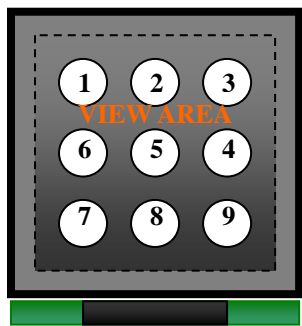
To be measured at the center area of panel with a viewing cone of 1° by Topcon luminance meter BM-7, after 10 minutes operation (module)

Note2: Definition of response time:

    The output signals of photo detector are measured when the input signals are changed from "black" to "white"(falling time) and from "white" to "black"(rising time), respectively. The response time is defined as the time interval between the 10% and 90% of Amplitudes.

    Refer to figure as below:
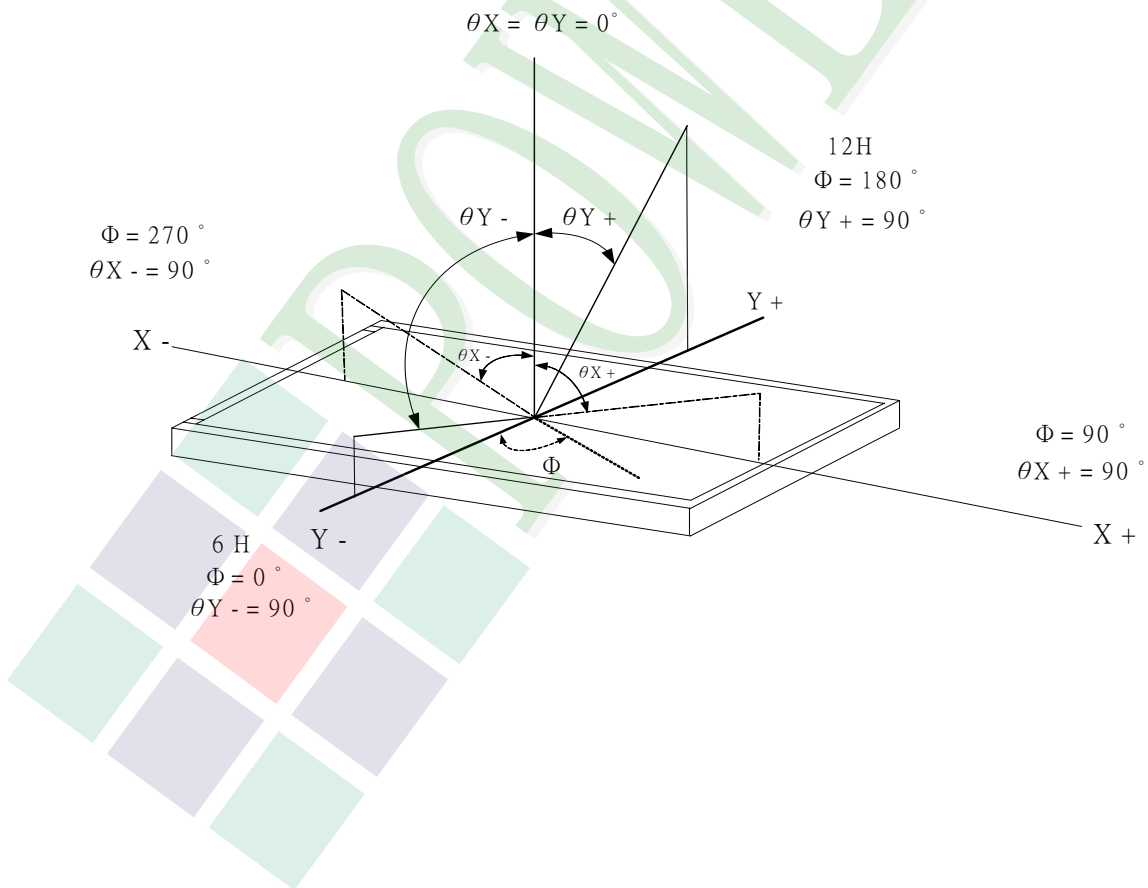
Normally White

Normally Black
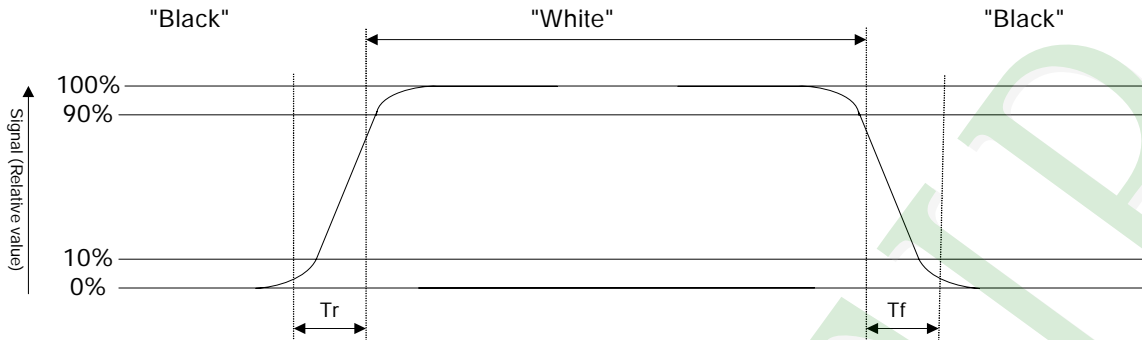
Note3: Definition of contrast ratio:

Contrast ratio is calculated with the following formula

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when LCD is at "White" state}}{\text{Photo detector output when LCD is at "Black" state}}$$

Note4: Definition of viewing angle:

Refer to figure as below:

1.6 Backlight Characteristics

Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25℃	-	200	mA
Reverse Voltage	VR	Ta =25℃	-	10	V
LED Power Dissipation	PD_{LED}	Ta =25℃ / 20mA	-	0.12	W
Power Dissipation	PD	Ta =25℃	-	2.4	W

Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF		(6.0)	(6.8)	(8.5)	V
Average Brightness (without LCD)	IV	IF= 200 mA	(3800)	(4500)	-	cd/m^2
Color		White				
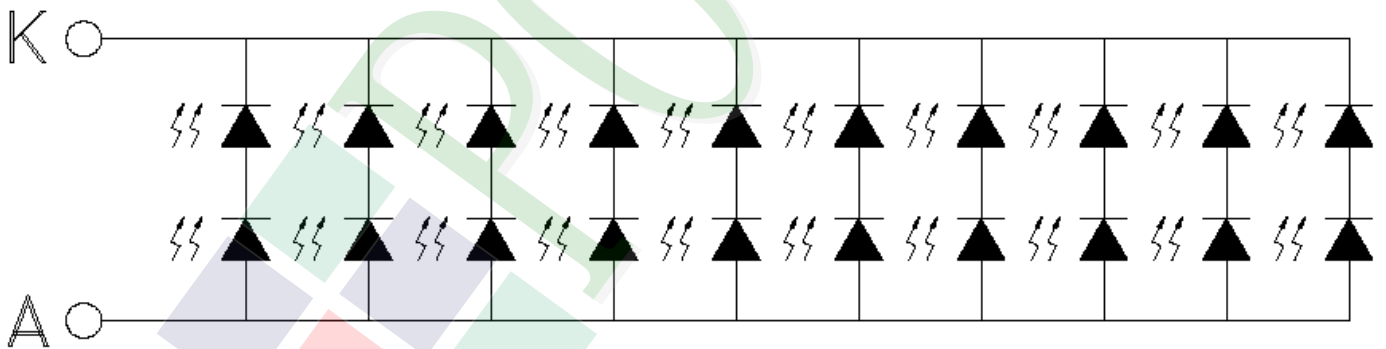
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram
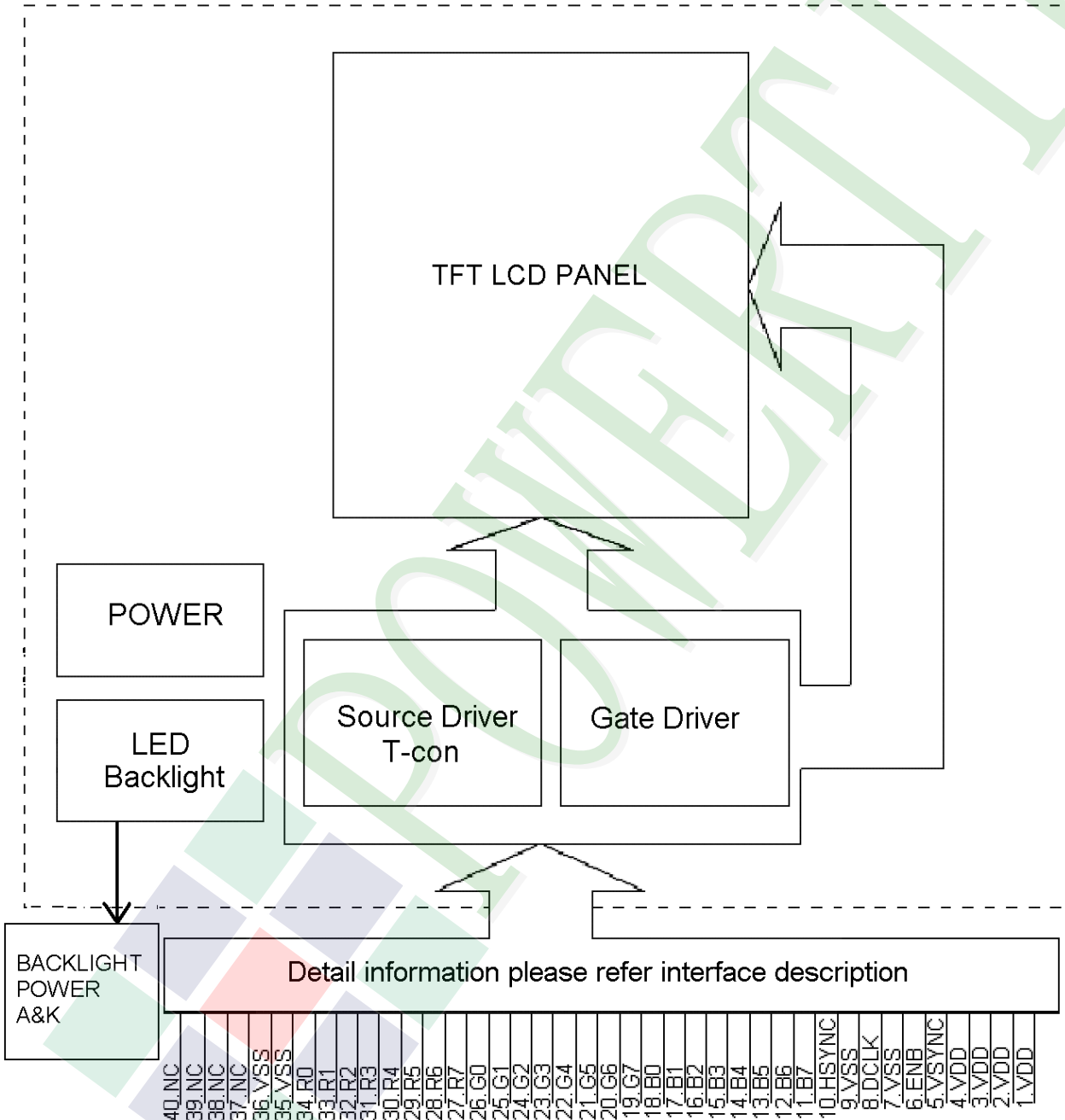
2.2 Interface Pin Description

Pin No.	Symbol	Function
1	VDD	Analog power.
2	VDD	
3	VDD	
4	VDD	
5	VSYNC	Vertical sync input
6	ENB	Data enable control
7	VSS	Ground
8	DCLK	Dot data clock
9	VSS	Ground
10	HSYNC	Horizontal sync input
11	B7	data bit B7
12	B6	data bit B6
13	B5	data bit B5
14	B4	data bit B4
15	B3	data bit B3
16	B2	data bit B2
17	B1	data bit B1
18	B0	data bit B0
19	G7	data bit G7
20	G6	data bit G6
21	G5	data bit G5
22	G4	data bit G4
23	G3	data bit G3
24	G2	data bit G2
25	G1	data bit G1
26	G0	data bit G0

Interface Pin Description(CONT.)

27	R7	data bit R7
28	R6	data bit R6
29	R5	data bit R5
30	R4	data bit R4
31	R3	data bit R3
32	R2	data bit R2
33	R1	data bit R1
34	R0	data bit R0
35	VSS	Ground
36	VSS	Ground
37	NC	No use.
38	NC	No use.
39	NC	No use.
40	NC	No use.

Backlight Pin Description

1	A	Power supply for LED Backlight anode input.
2	NC	No use.
3	K	Power supply for LED Backlight cathode input.

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	Tv		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		

![POWERTIP logo]
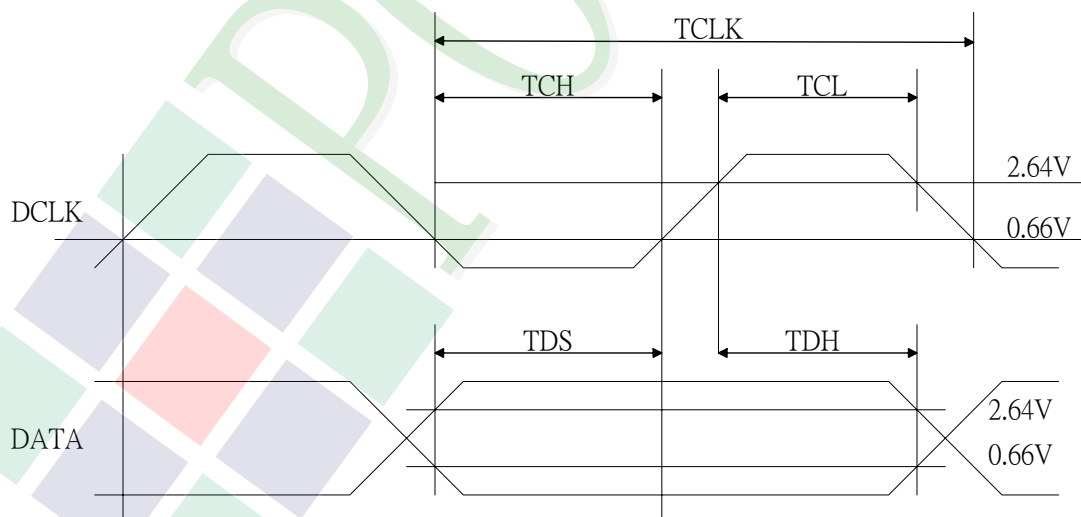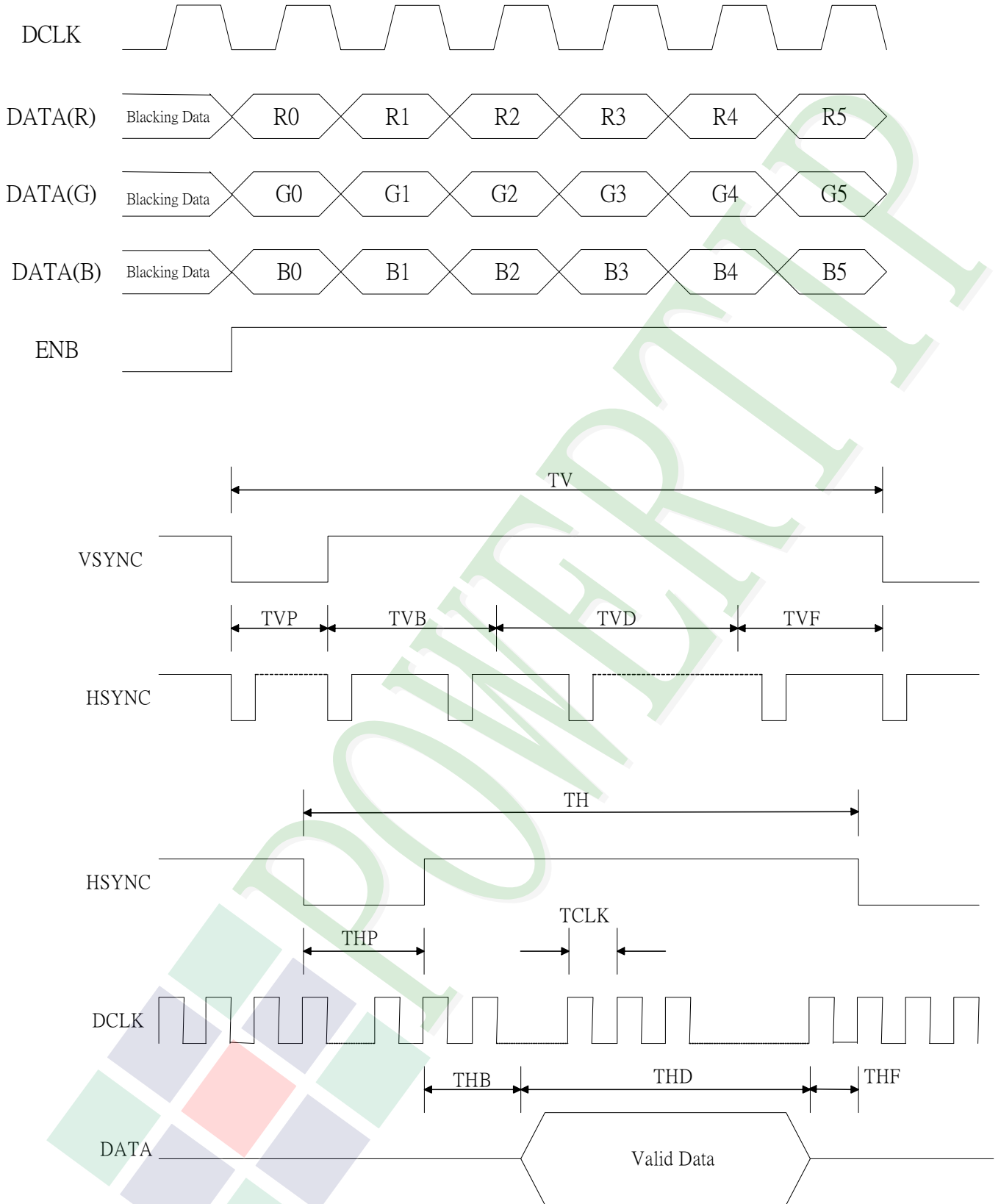
Color Data Assignment

COLOR	INPUT DATA	R7 MSB	R6	R5	R4	R3	R2	R1	R0 LSB	G7 MSB	G6	G5	G4	G3	G2	G1	G0 LSB	B7 MSB	B6	B5	B4	B3	B2	B1	B0 LSB
BASIC COLOR	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	BLUE(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	CYAN	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	MAGENTA	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	YELLOW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	WHITE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RED	RED(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GREEN	GREEN(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	GREEN(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	GREEN(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	GREEN(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
BLUE	BLUE(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BLUE(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	BLUE(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	BLUE(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	BLUE(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

[Note]
(1) Definition of gray scale
    Color (n) : n means level of gray scale
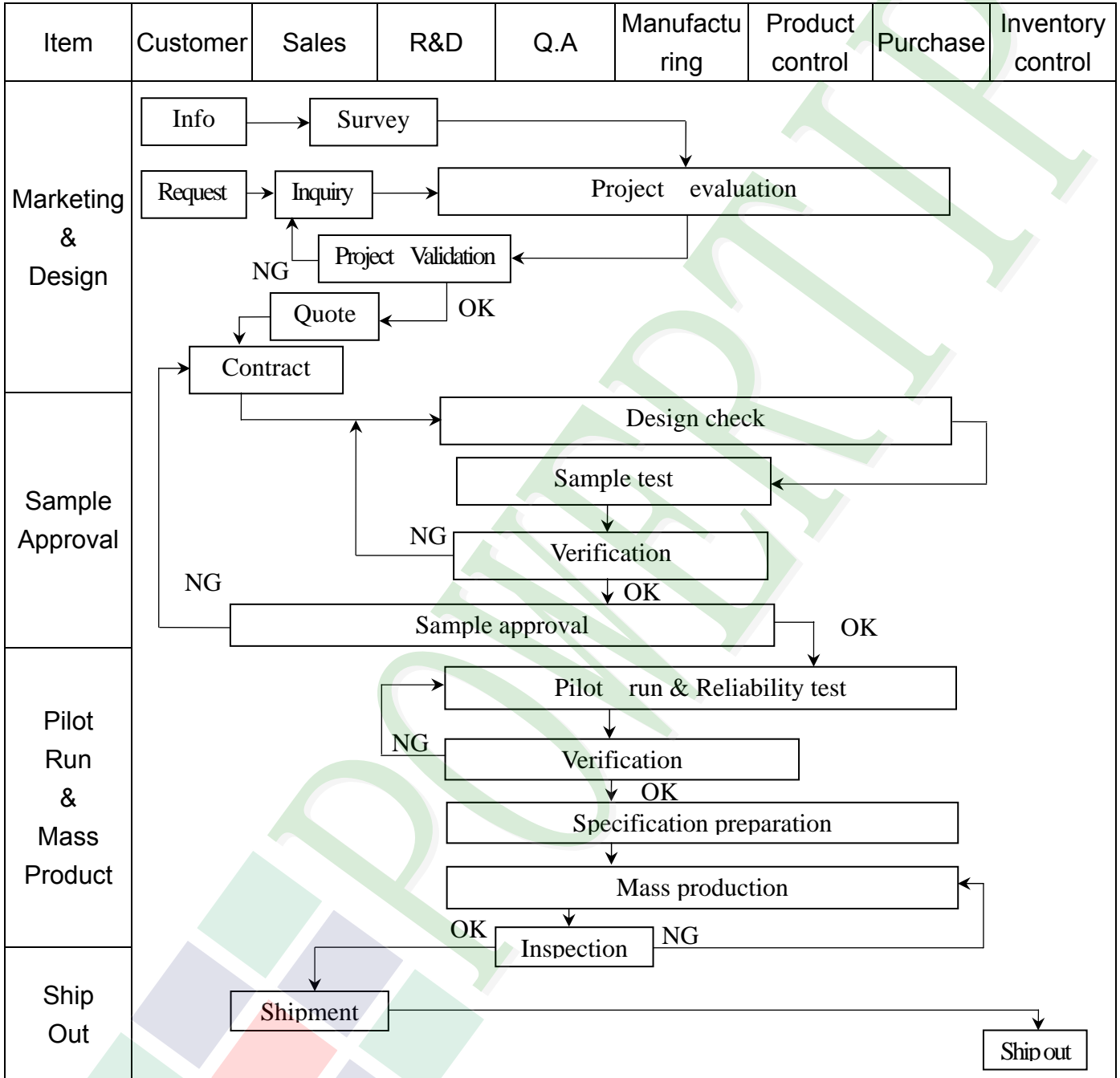   Larger n means brighter level
(2) Data: 1-High, 0-Low

2.4 JUMPER(Setting different use)
(J1-1J2-2,J3-2,J4-1,J5-1,J6-2)

# 3. QUALITY ASSURANCE SYSTEM

3.1 Quality Assurance Flow Chart

Item	Customer	Sales	R&D	Q.A	Manufactu ring	Product control	Purchase	Inventory control
Marketing & Design								
Sample Approval								
Pilot Run & Mass Product								
Ship Out								

Info → Survey

Request → Inquiry → Project evaluation

NG ← Project Validation

OK

Quote

Contract

Design check

Sample test

NG → Verification

OK

NG → Sample approval → OK

Pilot run & Reliability test

NG → Verification

OK → Specification preparation

Mass production

OK → Inspection → NG

Shipment

Ship out

Item	Customer	Sales	R&D	Q.A	Manufact uring	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							

Sales Service flow:

Info → Claim → Failure analysis → Corrective action → Tracking

Failure analysis → Analysis report

3.2 Inspection Specification

◆Scope ： The document shall be applied to TFT-LCD Module for 3.5″ ~10″ (Ver.03).

◆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.
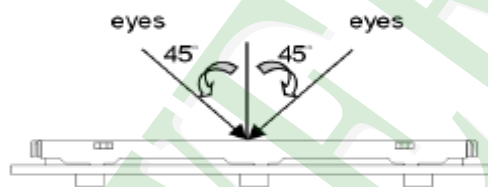
　(3). Definition of area.
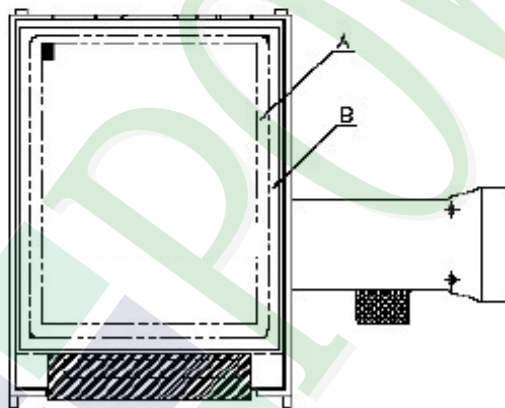
A area : viewing area

B area : Outside of viewing area

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

◆Specification For TFT-LCD Module 3.5″ ~10″ :   (Ver. 03)
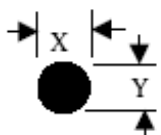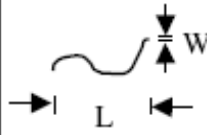
NO	Item	Criterion	Level
01	Product condition	1.1 The part number is inconsistent with work order of production.	Major
		1.2 Mixed product types.	Major
		1.3 Assembled in inverse direction.	Major
02	Quantity	2.1 The quantity is inconsistent with work order of production.	Major
03	Outline dimension	3.1 Product dimension and structure must conform to structure diagram.	Major
04	Electrical Testing	4.1 Missing line character and icon.	Major
		4.2 No function or no display.	Major
		4.3 Display malfunction.	Major
		4.4 LCD viewing angle defect.	Major
		4.5 Current consumption exceeds product specifications.	Major
05	Dot defect (Bright dot 、 Dark dot) On -display	(see table below)	Minor

	Item	Acceptance (Q'ty)
Dot Defect	Bright Dot	≦ 4
	Dark Dot	≦ 5
	Joint Dot	≦ 3
	Total	≦ 7

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.
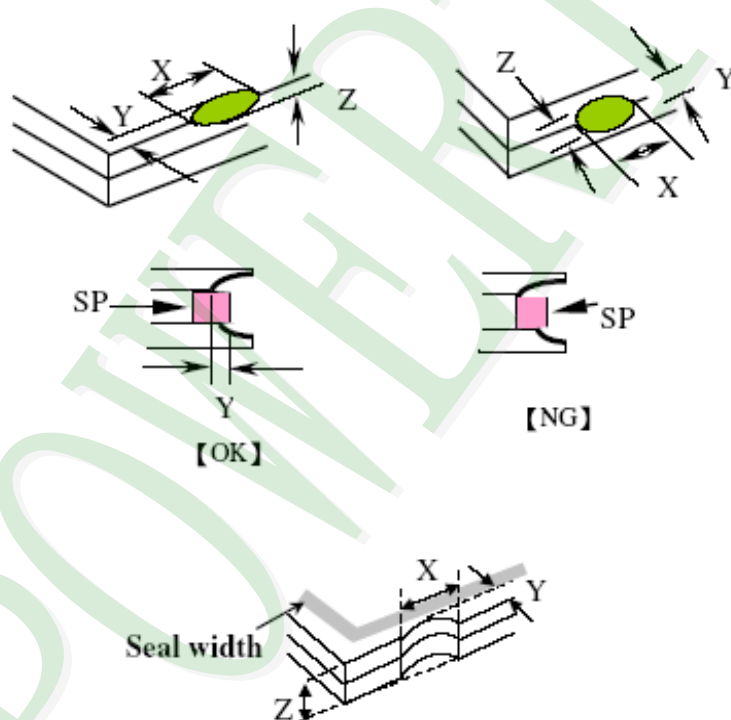
NO	Item	Criterion	Level
06	Black or white dot、scratch、contamination Round type X / Y Φ＝(x＋y)／2 Line type W / L	**6.1 Round type (Non-display or display) :** *(see table below)* **6.2 Line type(Non-display or display) :** *(see table below)*	Minor

6.1 Round type (Non-display or display) :

Dimension (diameter：Φ)	Acceptance (Q'ty)	
	A area	B area
Φ ≤ 0.25	Ignore	Ignore
0.25 < Φ ≤ 0.50	5	
Φ > 0.50	0	
Total	5	

6.2 Line type(Non-display or display) :

Dimension		Acceptance (Q'ty)	
Length (L)	Width (W)	A area	B area
---	W ≤ 0.03	Ignore	Ignore
L ≤ 10.0	0.03 < W ≤ 0.05	4	
L ≤ 5.0	0.05 < W ≤ 0.10	2	
---	W > 0.10	As round type	
Total		5	

NO	Item	Criterion	Level
07	Polarizer Bubble	*(see table below)*	Minor

Dimension (diameter：Φ)	Acceptance (Q'ty)	
	A area	B area
Φ ≤ 0.25	Ignore	Ignore
0.25 < Φ ≤ 0.50	4	
0.50 < Φ ≤ 0.80	1	
Φ > 0.80	0	
Total	5	

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
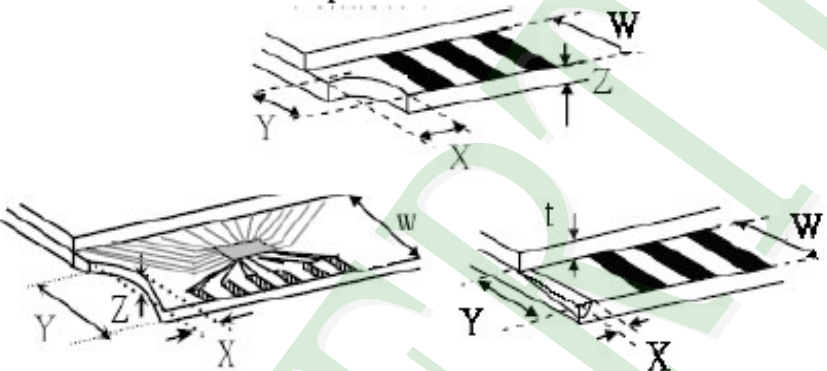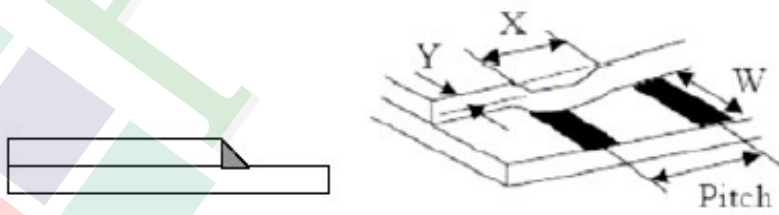
NO	Item	Criterion	Level
08	The crack of glass	Symbols： X : The length of crack　　Y : The width of crack. Z : The thickness of crack　W : terminal length t : The thickness of glass　　a : LCD side length **8.1.2 Corner crack：** <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≦1/5 a</td><td>Crack can't 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><td></td><td>X</td><td>Y</td><td>Z</td></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>	Minor

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 8.2.2 Non-conductive portion : | X	Y	Z
---	---	---
≦ 1/3 a	≦ W	≦ t | ⊙ 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 : | X	Y	Z
---	---	---
≦ a	≦ 1/3 W	≦ t		Minor

POWERTIP

◆Specification For TFT-LCD Module **3.5″ ~10″** :   (Ver. 03)
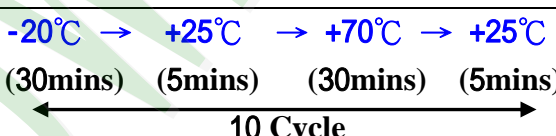
NO	Item	Criterion	Level
09	Backlight elements	9.1 Backlight can't work normally.	Major
		9.2 Backlight doesn't light or color is wrong.	Major
		9.3 Illumination source flickers when lit.	Major
10	General appearance	10.1 Pin type、quantity、dimension must match type in structure diagram.	Major
		10.2 No 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.03

NO.	TEST ITEM	TEST CONDITION
1	**High Temperature Storage Test**	**Keep in** +80 ±2℃ 96 hrs **Surrounding temperature, then storage at normal condition 4 hrs.**
2	**Low Temperature Storage Test**	**Keep in** - 30 ±2℃ 96 hrs **Surrounding temperature, then storage at normal condition 4 hrs.**
3	**High Temperature / High Humidity Storage Test**	**Keep in** +60℃ / 90% **R.H duration for** 96 hrs **Surrounding temperature, then storage at normal condition 4 hrs.** **(Excluding the polarizer)**
4	**ESD Test**	**Air Discharge:** **Apply** 2 **KV with** 5 **times** **Discharge for each polarity +/-** **Contact Discharge:** **Apply** 250 **V with** 5 **times** **discharge for each polarity +/-** 1. **Temperature ambiance :** 15℃～35℃ 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%)**
5	**Temperature Cycling Storage Test**	- 20℃ → +25℃ → +70℃ → +25℃ (30 mins) (5 mins) (30 mins) (5 mins) ←————— 10 Cycle —————→ **Surrounding temperature, then storage at normal condition 4 hrs.**
6	**Vibration Test (Packaged)**	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**
7	**Drop Test (Packaged)**	<table><tr><td>**Packing Weight (Kg)**</td><td>**Drop Height (cm)**</td></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 1 times

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 320±10℃ and 3-5 sec.

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

5.3 STORAGE

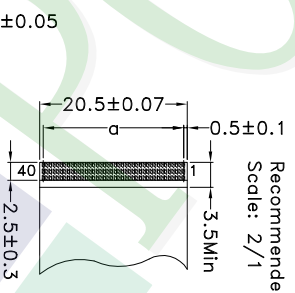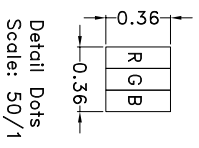5.3.1   Store the panel or module in a dark place where the temperature is 25℃ ±5℃ and the humidity is below 65% RH.

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.

005	004	003	002	001	0	REV
				A	NEW DRAWING	
						REV BY
					Winnie	REVISER
					2012/08/31	DATE
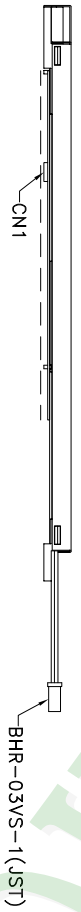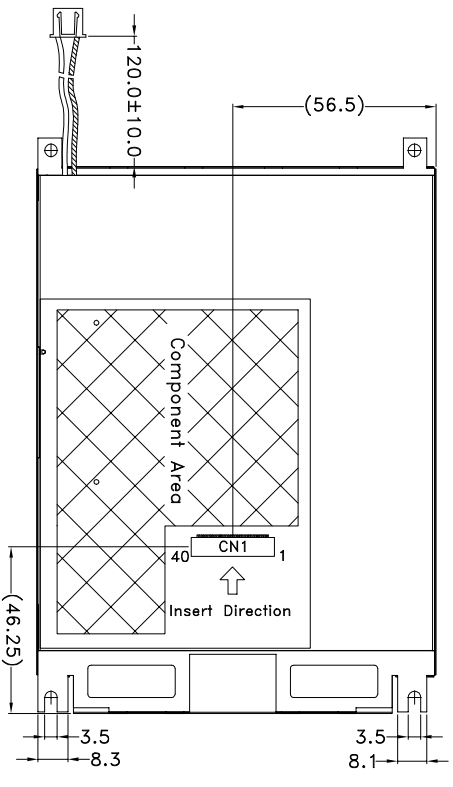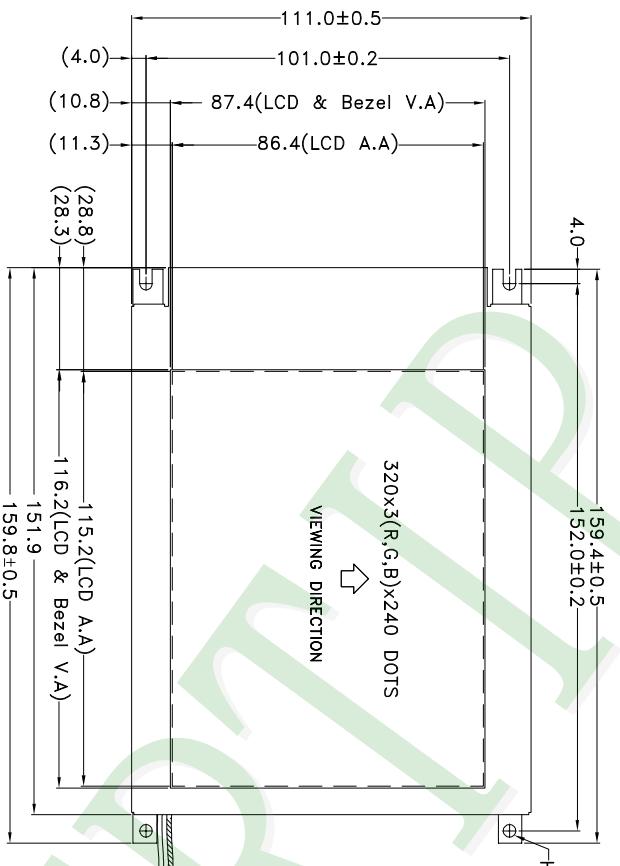
Note:
1. The tolerance unless classified ±0.3mm
2. LCD type: a-si TFT
3. LCD mode: Positive / Transmissive
4. View direction: 6 o'clock
5. $T_{op} = -20°C \sim 70°C$, $T_{st} = -30°C \sim 80°C$
6. a=(P0.5x39=19.5±0.05, W=0.3±0.03)
7. CN1:9681S-40A-GF(IRISO)
8. ▨ PCB Component Area

111.0±0.5
101.0±0.2
(4.0)
(10.8) 87.4(LCD & Bezel V.A)
(11.3) 86.4(LCD A.A)
159.4±0.5
152.0±0.2
4.0
(28.8)
(28.3)
115.2(LCD A.A)
116.2(LCD & Bezel V.A)
151.9
159.8±0.5

320x3(R,G,B)x240 DOTS

VIEWING DIRECTION

Hole 4−ø3.5

(A)
1 Red line
3

CN1

BHR−03VS−1(JST)

Detail Dots
Scale: 50/1

0.36
0.36
R G B

9.0Max
(Component Area)
7.5
2.0

120.0±10.0

(56.5)

Recommended design rule for CN1 FPC
Scale: 2/1

Component Area

40 CN1 1

Insert Direction

(46.25)

3.5
8.3
3.5
8.1

0.3±0.05
Stiffener
Conductor

20.5±0.07
a
0.5±0.1
40 1
2.5±0.3
3.5Min

大正光電股份有限公司
POWERTIP TECHNOLOGY CORPORATION

	Design	Check	Approve
	Winnie Chang	Tina Chen	Linda Lee

PART NO: PH320240T-009-I22Q
DRAWING NAME: LMD-PH320240T-009-I22Q
TITLE: LCD MODULE DRAWING

Page	Scale	Unit	Material	Surface
1/1	1:2.1	MM	Thickness	Quantity
		⊕ ⟨3⟩		

Length(mm)	Tolerance(mm)	Precision Level
1 ~ 4		-
4 ~ 16		-
16 ~ 63		-
63 ~ 250		-
250 ~ 1000		-

PT-A-054-01