POWERTIP TECH. CORP.

SPECIFICATIONS

CUSTOMER	:	PTC
SAMPLE CODE	:	SH480800T-005-Z-Q
MASS PRODUCTION CODE	:	PH480800T-005-Z-Q
SAMPLE VERSION	:	02
SPECIFICATIONS EDITION	:	003
DRAWING NO. (Ver.)	:	LMD-PH480800T-005-Z-Q (Ver.002)
PACKAGING NO. (Ver.)	:	PKG-PH480800T-005-Z-Q (Ver.001)

Customer Approved

Date:

Approved	Checked	Designer
黃秋源 **Oliver Huang**	李厚憲 **Sam Lee**	黃俊清 **Ackey Huang**

POWERTIP
2013.05.06
TW RD APR

☐ Preliminary specification for design input

■ Specification for sample approval

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History of Version

Date	Ver.	Edi.	Description	Page	Design by
08/14/2012	01	001	New Drawing.	-	Ackey
11/28/2012	01	002	New Sample.	-	Ackey
05/02/2013	02	003	Second Sample	-	Ackey

Total: 26 Page

Contents

Note: For detailed information please refer to IC data sheet: NT35510

1.1 Features

Item	Standard Value
Display Type	480 * 3 (RGB) * 800 Dots
LCD Type	Normally Black /MVA , Transmissive Type
Screen size(inch)	4.3”(Diagonal)
Color configuration	R,G, B vertical stripe
Backlight	White LED B/L
Display Interface	16-bits, 18-bits RGB interface MIPI Display Serial Interface (DSI V1.01 r11 and D-PHY V1.0, 1 clock and 1 or 2 data lane pairs)
Driver IC	NT35510
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	62.46 (W) * 105.9 (L) * 2.2 (H)	mm

Note：For detailed information please refer to LCM drawing.

1.3 Absolute Maximum Ratings

Module

Item	Symbol	Condition	Min.	Max.	Unit
Analog operating voltage	VCI ~ VSS	-	-0.3	+5.5	V
Digital operating voltage	IOVCC ~ VSS	-	-0.3	+5.5	V
Operating Temperature	T_{OP}	-	-20	+70	°C
Storage Temperature	T_{ST}	-	-30	+80	°C
Storage Humidity	H_D	Ta ≦ 40 °C	20	90	%RH

1.4 DC Electrical Characteristics

Module VSS = 0V, Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Analog operating voltage	VCI	-	2.8	3.0	3.3	V
Logic operating voltage	IOVCC	-	2.8	3.0	3.3	V
“H” Input Voltage	V_{IH}	-	0.7 IOVCC	-	IOVCC	V
“L” Input Voltage	V_{IL}	-	VSS	-	0.3 IOVCC	V
“H” Output Voltage	V_{OH}	I_{OH}=-1.0mA	0.8 IOVCC	-	IOVCC	mA
“L” Output Voltage	V_{OL}	I_{OL}=+1.0mA	VSS	-	0.2 IOVCC	mA
Supply Current	ICI+IOICC	VCI=IOVCC=3.0V Pattern= red*1	-	30	45	mA

Note1: Maximum current display.

1.5 Optical Characteristics

TFT LCD Panel VCI =IOVCC=3.0V, Ta=25°C

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time		Tr	Ta = 25°C θX, θY = 0°	-	20	35	ms	-
		Tf		-	15	35		
Viewing angle	Top	θY+	CR ≥ 10	70	80	-	Deg.	Note4
	Bottom	θY-		70	80	-		
	Left	θX-		70	80	-		
	Right	θX+		70	80	-		
Contrast ratio		CR	Ta = 25°C θX , θY = 0°	300	-	-	-	Note3
Color of CIE Coordinate	White	X		0.24	0.29	0.34	-	Note1
		Y		0.26	0.31	0.36		
	Red	X		0.61	0.66	0.71		
		Y		0.28	0.33	0.38		
	Green	X		0.22	0.27	0.32		
		Y		0.62	0.67	0.72		
	Blue	X		0.09	0.14	0.19		
		Y		0	0.04	0.09		
Average Brightness Pattern=white display		IV	IF= 20 mA	240	280		cd/m^2	Note1
Uniformity		△B	IF= 20 mA	70	-	-	%	Note1

Note1:

1：△B=B(min) / B(max) × 100%

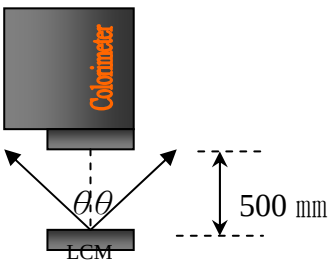
2：Measurement Condition for Optical Characteristics:

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%

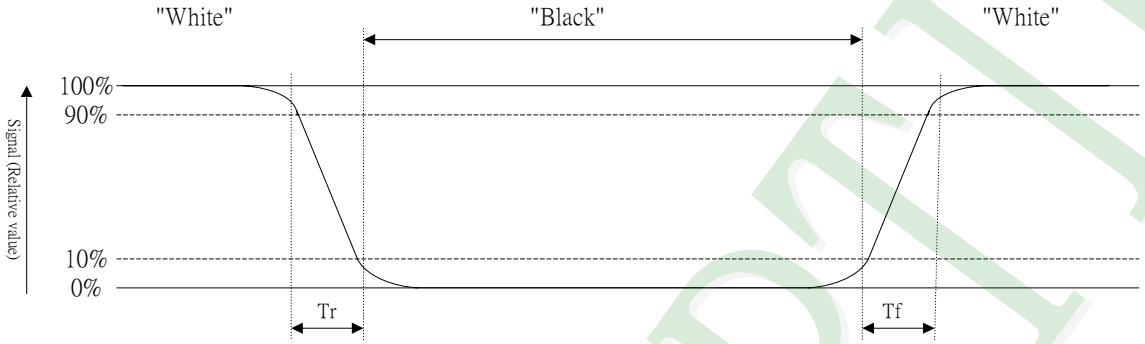


Colorimeter=BM-7 fast

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:



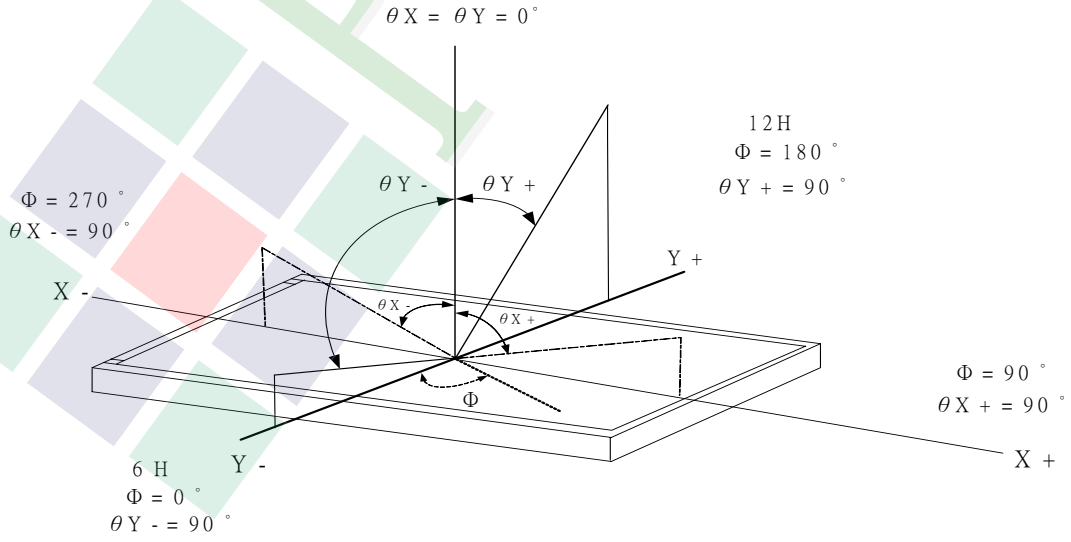
Note3: Definition of contrast ratio:

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℃	-	20	mA
Power Dissipation	PD	Ta =25℃	-	600	mW

Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF= 20 mA	29.0	31.0	33.0	V
Color of CIE Coordinate (Without LCD)	X		0.275	0.305	0.335	-
	Y		0.265	0.295	0.325	
Color	White					

Internal Circuit Diagram

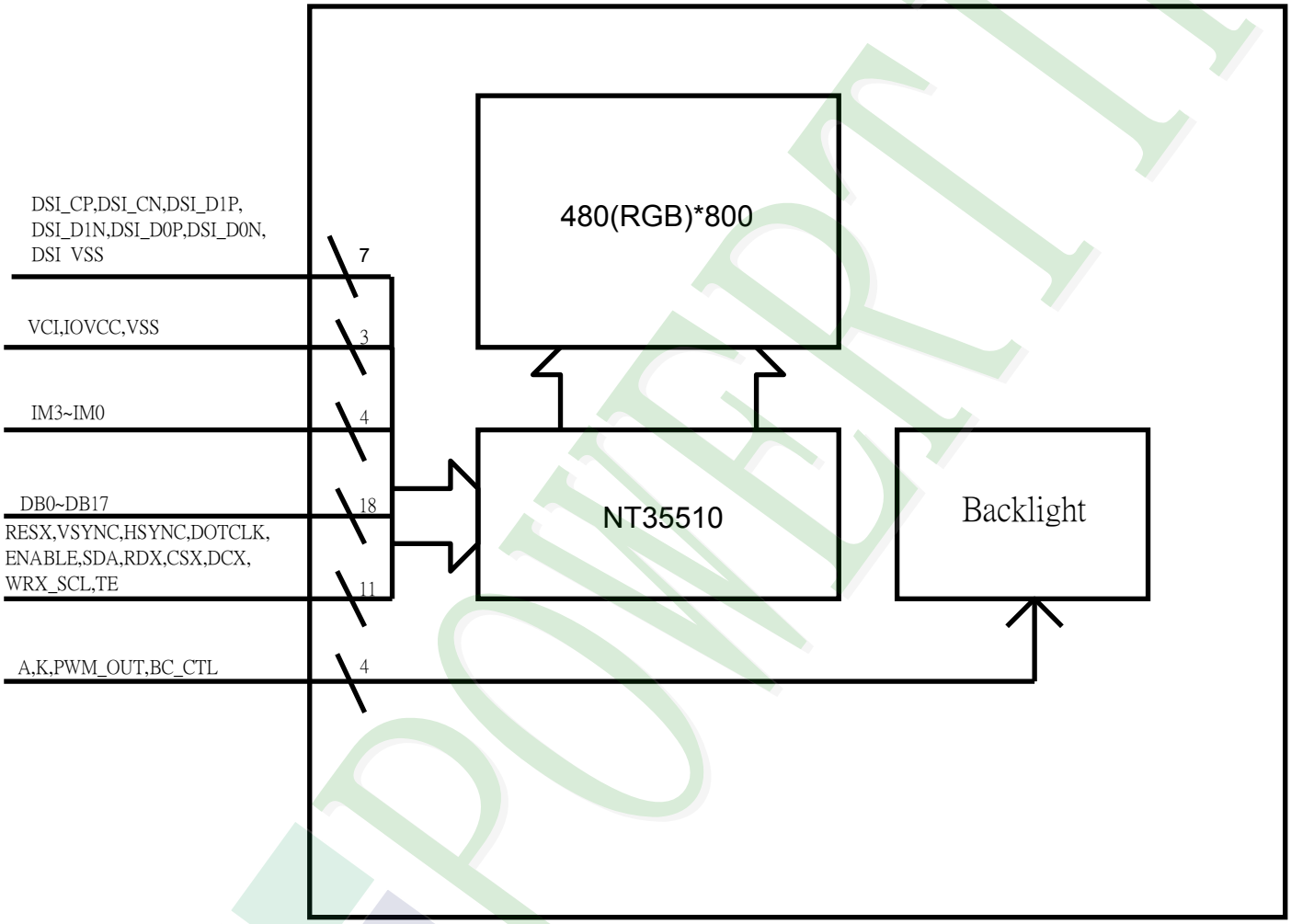
2. MODULE STRUCTURE

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	VCI	A supply voltage to the analog circuit.
2	IOVCC	A supply voltage to the digital circuit.
3	PWM_OUT	Back light control pin. The PWM frequency output for LED driver control. Leave the pin to open when not in use.
4	BC_CTL	Back light control pin. This pin is connected to external LED driver, It's a LED driver control pin which is used for turning ON/OFF of LED backlight. Leave the pin to open when not in use.
5	IM3	Note1
6	IM2	
7	IM1	
8	IM0	
9	RESX	The external reset input. Initializes the chip with a low input. Be sure to execute a power-on reset after supplying power.
10	TE	Tearing effect output. Leave the pin to open when not in use.
11	DB17	Note2
12	DB16	
13	DB15	
14	DB14	
15	DB13	
16	DB12	
17	DB11	
18	DB10	

Pin No.	Symbol	Function
19	DB9	Note2
20	DB8	
21	DB7	
22	DB6	
23	DB5	
24	DB4	
25	DB3	
26	DB2	
27	DB1	
28	DB0	
29	VSYNC	Frame synchronizing signal for RGB interface operation. Fix to VSS level when not in use.
30	HSYNC	Line synchronizing signal for RGB interface operation. Fix to VSS level when not in use.
31	DOTCLK	Dot clock signal for RGB interface operation. Fix to IOVCC level when not in use.
32	ENABLE	Data enable signal for RGB interface operation. Low : access enabled. High : access inhibited. Fix to VSS level when not in use.
33	SDA	Serial data input / output. Fix to IOVCC or VSS level when not in use.
34	RDX	Fix to IOVCC or VSS level when not in use.
35	CSX	Fix to IOVCC or VSS level when not in use.
36	DCX	Display data / command selection. DCX = ”0” : Command DCX = ”1” : Display data or Parameter This pin is not used for 16-bit SPI, I2C, MIPI, please connect to VCI this pin.

Pin No.	Symbol	Function
37	WRX_SCL	WRX_SCL: Writes strobe signal to write data . A synchronous clock signal in SPI I/F. Serial input clock in I2C I/F.
38	DSI_VSS	Ground.
39	DSI_D0N	MIPI DSI differential data 2-pair. If MIPI were not used, they should be connected to VSS.
40	DSI_D0P	
41	DSI_VSS	Ground.
42	DSI_DIN	MIPI DSI differential data 2-pair. If MIPI were not used, they should be connected to VSS.
43	DSI_D1P	
44	DSI_VSS	Ground.
45	DSI_CN	MIPI DSI differential clock pair. If MIPI were not used, they should be connected to VSS.
46	DSI_CP	
47	DSI_VSS	Ground.
48	NC	No Use.
49	VSS	Ground.
50	VSS	Ground.
51	VCI	A supply voltage to the analog circuit.
52	NC	No Use.
53	NC	No Use.
54	A	Backlight LED Anode input pin (A).
55	K	Backlight LED cathode input pin (K).

Note1

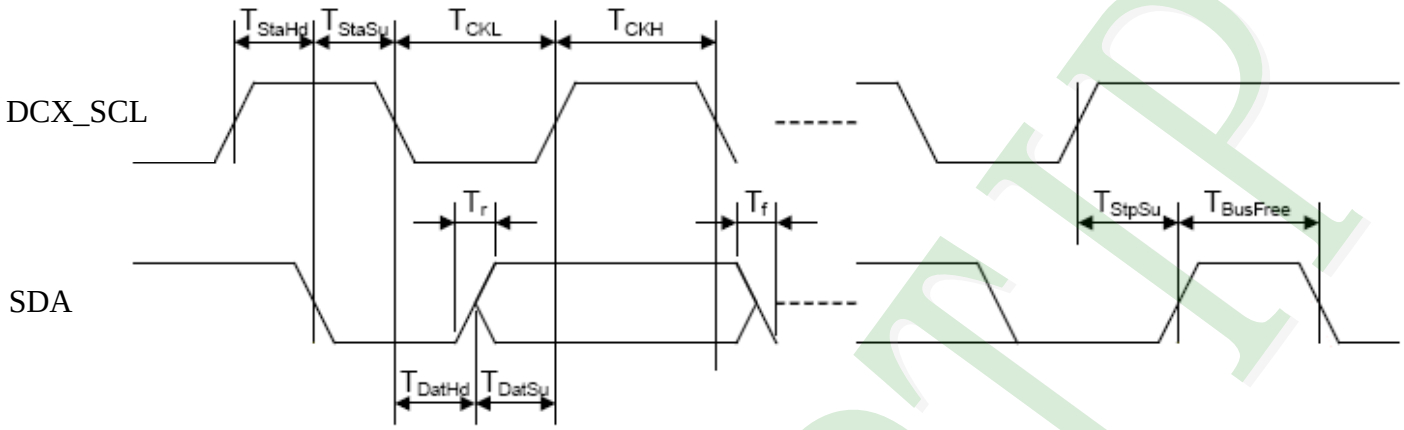
IM3	IM2	IM1	IM0	Display Data	Command
0	0	1	1	RGB I/F,DB[23:0]	16-bit SPI(SCL rising edge trigger), WRX_SDI/SDO
1	0	1	1	RGB I/F,DB[23:0]	16-bit SPI(SCL falling edge trigger), WRX_SDI/SDO
0	1	0	0	RGB I/F,DB[23:0]	I2C I/F,I2C_SDA
0	1	0	1	MIPI DSI,HSSI_D0_P/N,HSSI_D1_P/N	MIPI DSI,HSSI_D0_P/N,HSSI_D1_P/N

Note2

16-bit RGB interface: DB[20:16] and DB[13:8] and DB[4:0], connect unused pins to VSS.
18-bit RGB interface: DB[21:16] and DB[13:8] and DB[5:0], connect unused pins to VSS.
These pins are not used for MIPI , please connect to VSS these pins.

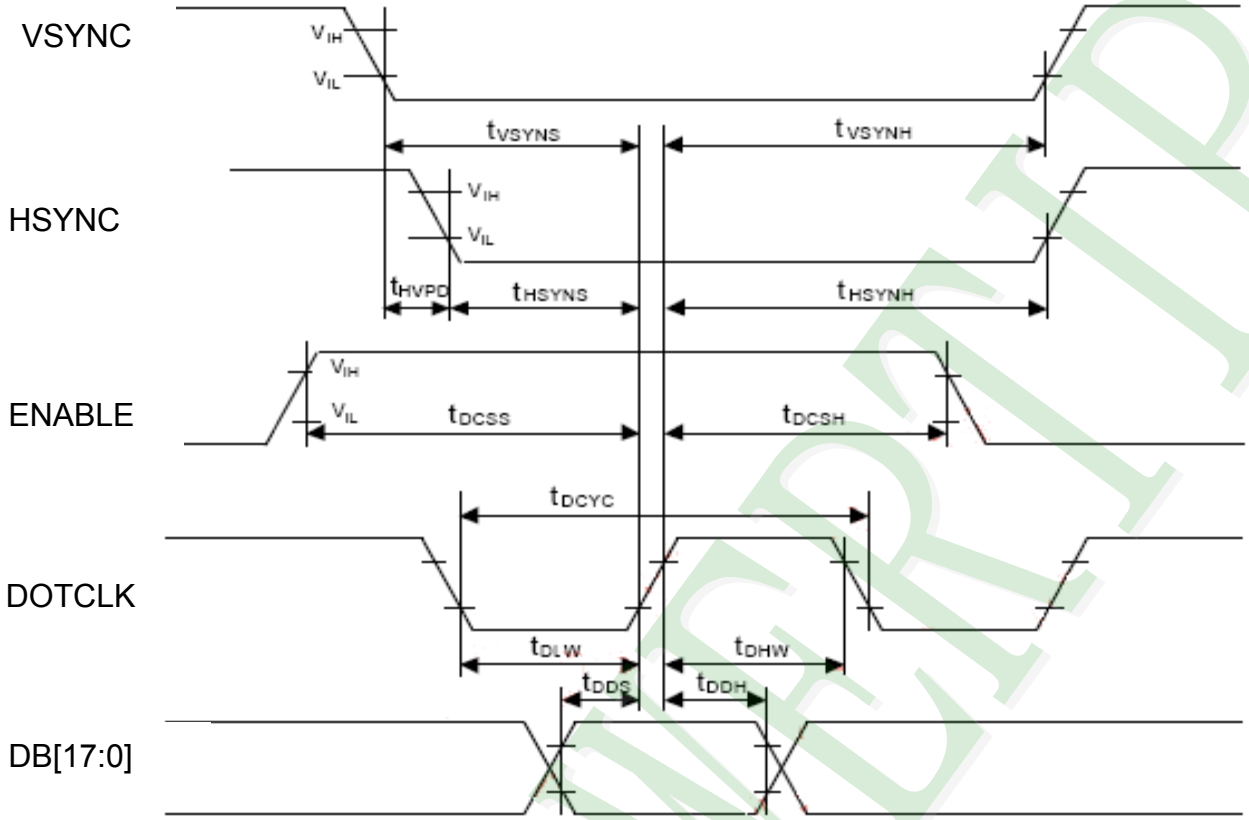
2.3 Timing Characteristics

I2C Bus Timing Characteristics



Signal	Symbol	Parameter	MIN	MAX	Unit	Description
DCX_SCL	$T_{CKL}+T_{CKL}$	Working frequency	-	400	KHz	
	T_{CKL}	I2C clock low	1300	-	ns	
	T_{CKH}	I2C clock high	600	-	ns	
SDA	T_r	I2C data rising time	-	300	ns	
	T_f	I2C data falling time	-	300	ns	
	T_{DatHd}	I2C data hold time	0	900	ns	
	T_{DatSu}	I2C data setup time	100	-	ns	
	T_{StaHd}	I2C start condition hold time	600	-	ns	
	T_{StaSu}	I2C start condition setup time	600	-	ns	
	T_{StpSu}	I2C stop condition setup time	600	-	ns	
	$T_{BusFree}$	I2C bus free time	1300	-	ns	

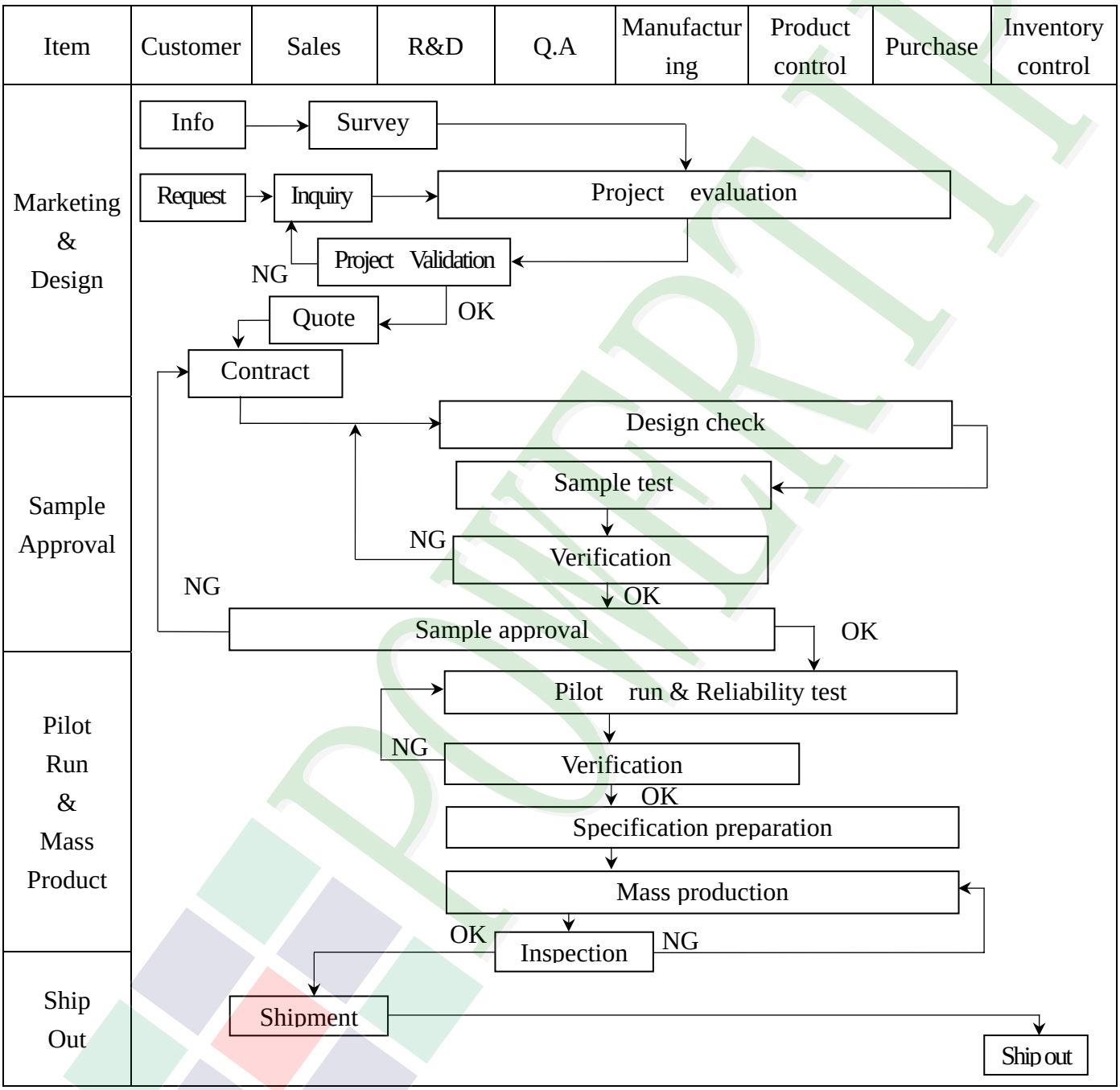
RGB Interface Characteristics

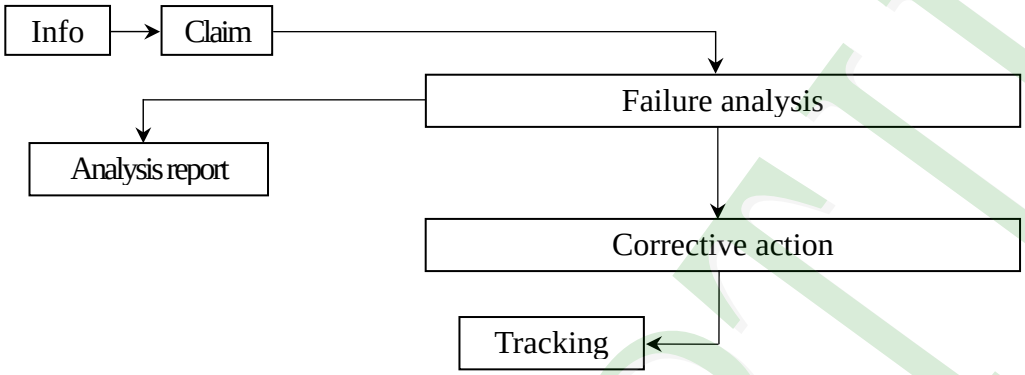


Signal	Symbol	Parameter	MIN	TYP	MAX	Unit	Description
VSYNC	tVSYNS	VSYNC setup time	10	-	-	ns	
	tVSYNH	VSYNC hold time	10	-	-	ns	
HSYNC	tHSYNS	HSYNC setup time	10	-	-	ns	
	tSCYCR	HSYNC hold time	10	-	-	ns	
	tHVPD	HSYNC to VSYNC falling edge	0	-	-	ns	
DOTCLK	tDCYC	PCLK cycle time	33	-	125	ns	
	tDLW	PCLK "L" pulse width	11	-	-	ns	
	tDHW	PCLK "H" pulse width	11	-	-	ns	
	fDFREQ	PCLK frequency	8	-	30	MHz	
ENABLE	tDCSS	DE setup time	10	-	-	ns	
	tDCSH	DE hold Time	10	-	-	ns	
DB[17:0]	tDDS	RGB Data setup time	10	-	-	ns	
	tDDH	RGB Data hold time	10	-	-	ns	

3. QUALITY ASSURANCE SYSTEM

3.1 Quality Assurance Flow Chart



Item	Customer	Sales	R&D	Q.A	Manufactu ring	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

◆Scope：The document shall be applied to TFT-LCD Module for 3.5″ ~10″ (Ver.B01).

◆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

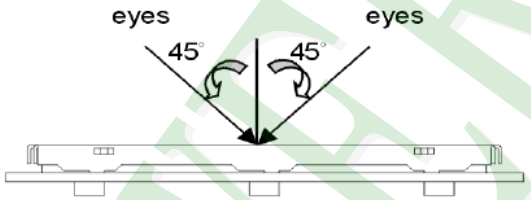
◆OUT Going Defect Level：Sampling.

◆Standard of the product appearance test：

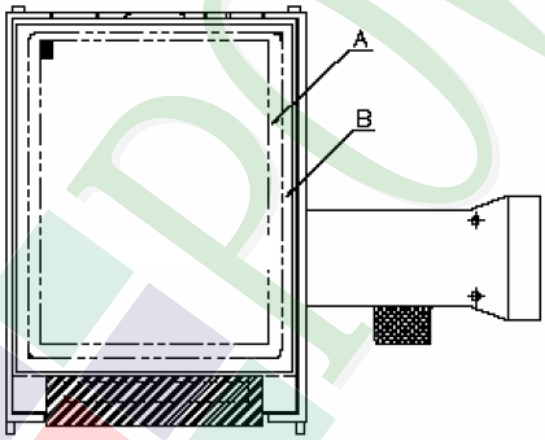
a. Manner of appearance test：

(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

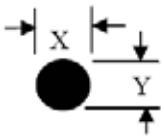
B area : Outside of viewing area

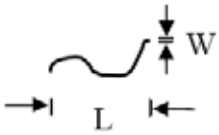
(4). Standard of inspection： (Unit：mm)

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.B01)

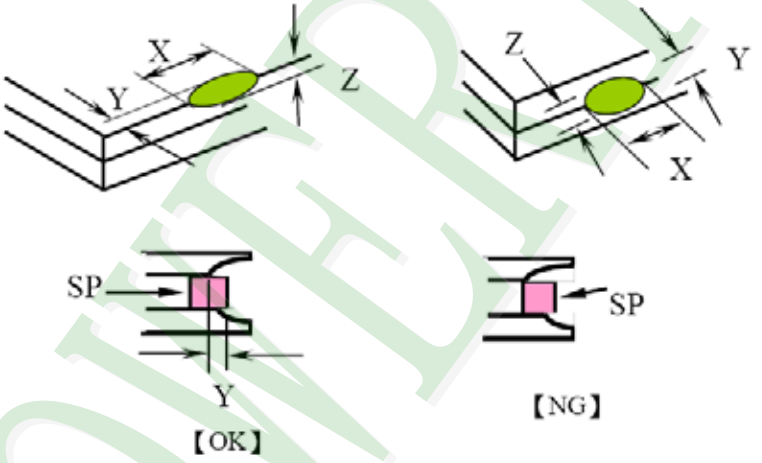
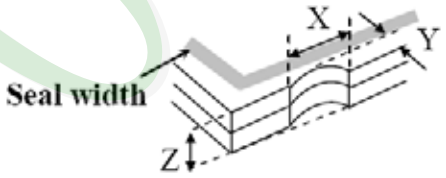
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">Product condition</td><td>1. 1The part number is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>1. 2 Mixed product types.</td><td>Major</td></tr>
<tr><td>1. 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:B01)

<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 rowspan="2">Dimension (diameter : Φ)</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>A area</th><th>B area</th></tr><tr><td>Φ ≦ 0.25</td><td>Ignore</td><td rowspan="4">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 rowspan="2">Length (L)</th><th rowspan="2">Width (W)</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>A area</th><th>B area</th></tr><tr><td>---</td><td>W ≦ 0.03</td><td>Ignore</td><td rowspan="5">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 rowspan="2">Dimension (diameter : Φ)</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>A area</th><th>B area</th></tr><tr><td>Φ ≦ 0.25</td><td>Ignore</td><td rowspan="4">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:B01)

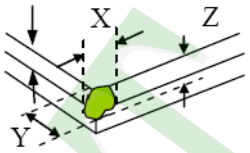
NO	Item	Criterion	Level
08	The crack of glass	Symbols : X : The length of crack Y : The width of crack. Z : The thickness of crack W : terminal length t : The thickness of glass a : LCD side length 8.1 General glass chip : 8.1.1 Chip on panel surface and crack between panels:  	Minor

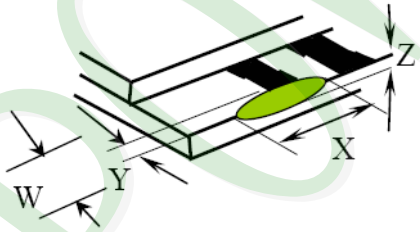
X	Y	Z
≦ a	Crack can't enter viewing area	≦1/2 t
≦ a	Crack can't exceed the half of SP width.	1/2 t < Z ≦2 t

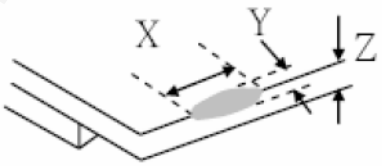
◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.B01)

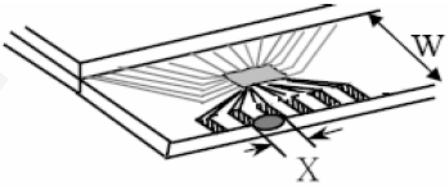
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="2">08</td><td rowspan="2">The crack of glass</td><td>
Symbols :

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 :


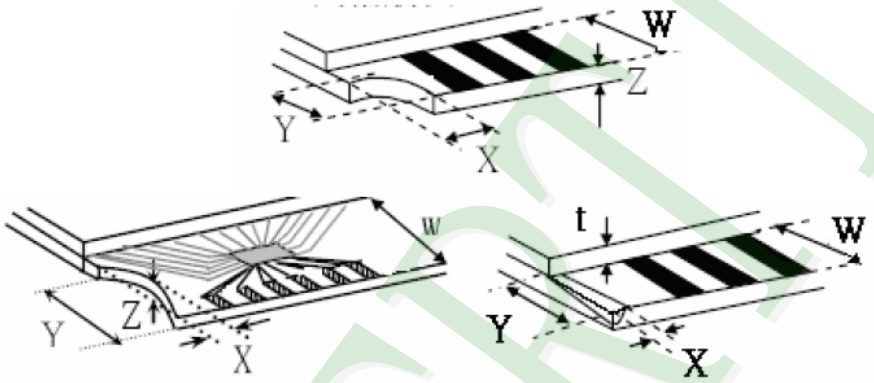
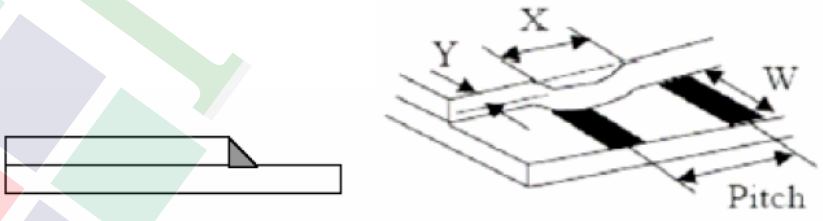
<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦1/5 a</td><td>Crack can’t enter viewing area</td><td>Z ≦ 1/2 t</td></tr>
<tr><td>≦1/5 a</td><td>Crack can’t exceed the half of SP width.</td><td>1/2 t < Z ≦ 2 t</td></tr>
</table>
</td><td>Minor</td></tr>
<tr><td>
8.2 Protrusion over terminal :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

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.B01)

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 ≦ 1/3 a; Y ≦ W; Z ≦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 ≦ a; Y ≦ 1/3 W; Z ≦t	Minor

◆Specification For TFT-LCD Module 3.5″ ~10″ : (Ver.B01)

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.B01)

<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℃ 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℃ 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℃ / 90% R.H duration for 96 hrs
Surrounding temperature, then storage at normal condition 4hrs.
(Excluding the polarizer & T/P)</td></tr>
<tr><td>4</td><td>Temperature Cycling Storage Test</td><td>-30℃ → +25℃ → +80℃ → +25℃
(30mins) (5mins) (30mins) (5mins)
10 Cycle
Surrounding temperature, then storage at normal condition 4hrs.</td></tr>
<tr><td rowspan="2">5</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 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%)</td></tr>
<tr><td>6</td><td>Vibration Test (Packaged)</td><td colspan="2">1. Sine wave 10 55 Hz frequency (1 min/sweep)
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 colspan="2"><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 1time</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 320 ± 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.

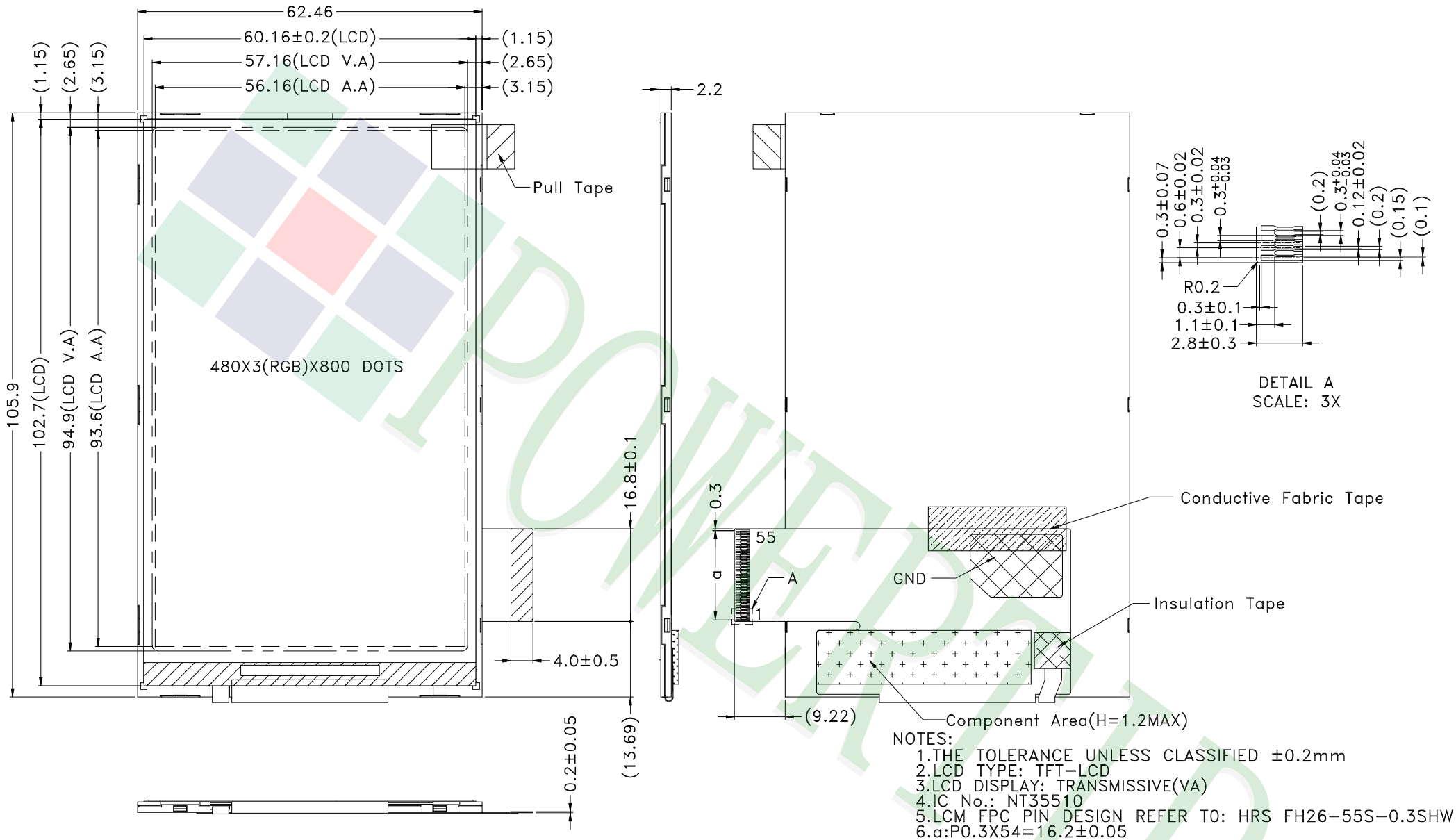
5.4 TERMS OF WARRANTY

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.



NOTES:
1.THE TOLERANCE UNLESS CLASSIFIED ±0.2mm
2.LCD TYPE: TFT-LCD
3.LCD DISPLAY: TRANSMISSIVE(VA)
4.IC No.: NT35510
5.LCM FPC PIN DESIGN REFER TO: HRS FH26-55S-0.3SHW
6.a:P0.3X54=16.2±0.05

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002	MODIFY B/L	Stone	2012/11/30
001	NEW DRAWING	Stone	2012/08/10

PART NO: PH480800T-005-Z-Q

DRAWING NAME : LMD-PH480800T-005-Z-Q

TITLE: LCD MODULE DRAWING

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

Design	Stone	Surface			
Check	Sam	Unit	MM	Material	
Approve	Oliver	Scale	1:1	Thickness	
		Page	1/1	Quantity	

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

PT-A-054-01

Ver.001

Documents NO.	PKG-PH480800T-005-Z-Q

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

Approve	Check	Contact
Oliver	Sam	Stone

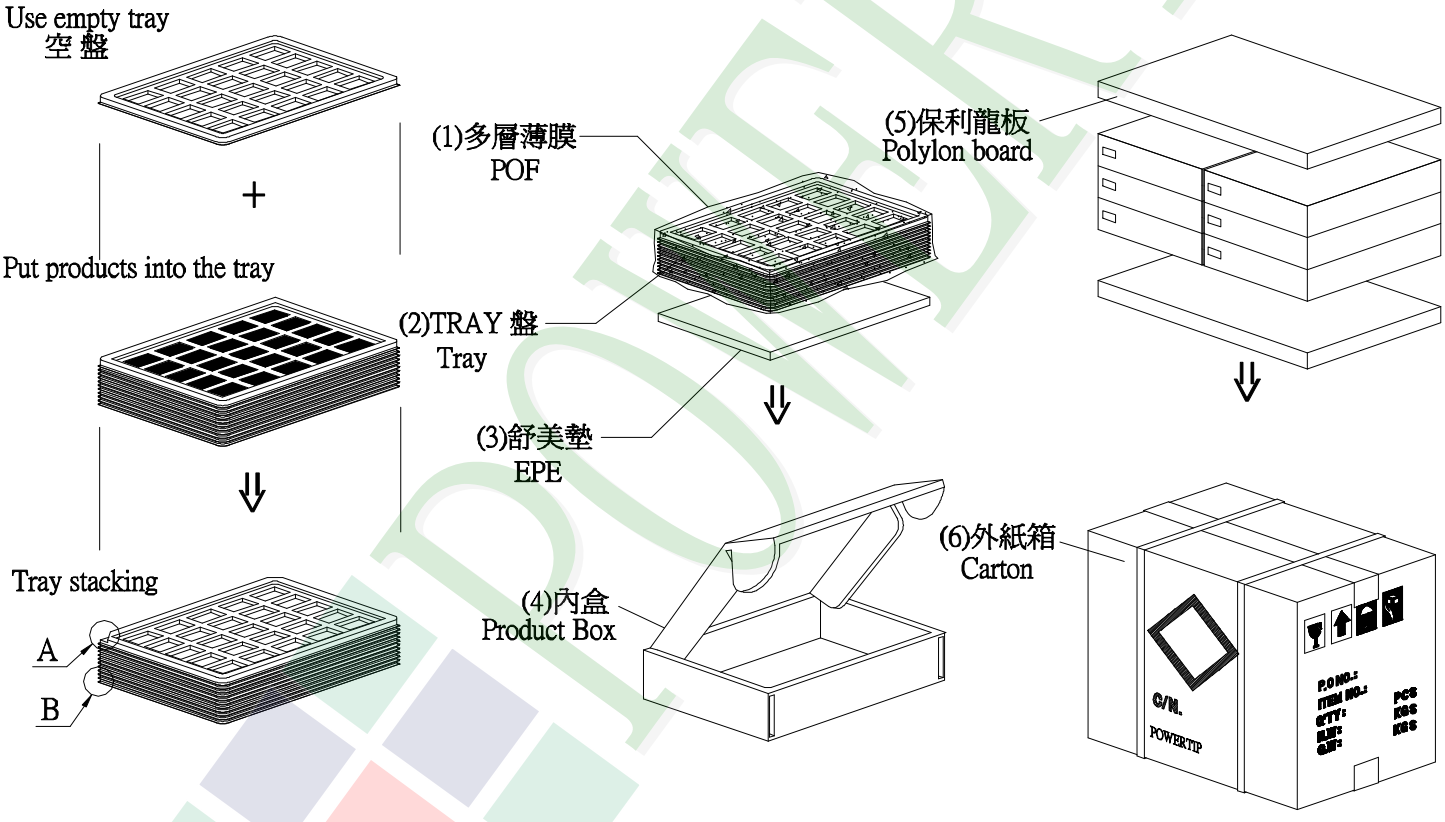
1.包裝材料規格表 (Packaging Material) : (per carton)

No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 (LCD)	PH480800T-005-Z-Q	105.9 X 62.46	0.03	240	7.2
2	多層薄膜(1)POF	OTFILM0BA03ABA	———	——	6	——
3	TRAY 盤 (2)Tray	TY00000000195	352 X 260 X 12.8	0.1	36	3.6
4	舒美墊(3)EPE	OTFOAMEP0019BA	355 X 260 X 10	0.023	6	0.138
5	內盒(4)Product Box	BX36627063ABBA	383 X 270 X 66	0.2692	6	1.6152
6	保利龍板(5)Polylon board	OTPLB00PL08ABA	550 X 393 X 20	0.0284	2	0.0568
7	外紙箱(6)Carton	BX57041027CCBA	570 X 410 X 265	1.4208	1	1.4208
8						
9						

2.一 整箱總重量 (Total LCD Weight in carton) : 14.0 Kg±10%

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

(1)LCD quantity per box : no per tray	8	x no of tray	5	=	40
(2)Total LCD quantity in carton : quantity per box	40	x no of boxes	6	=	240

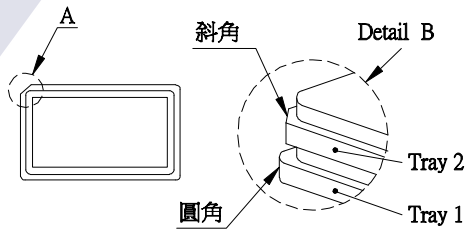


特 記 事 項 (REMARK)

4. Label Specifications :

TYPE			
ID.NO		S/O	
Q'TY	Pcs	Date	
Lot.NO			
Note			

參照"成品包裝點檢作業標準書"內容



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