

SPECIFICATIONS

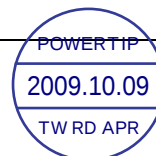
CUSTOMER	:	PTC
SAMPLE CODE	:	SH800480T-007-I01Q
MASS PRODUCTION CODE	:	PH800480T-007-I01Q
SAMPLE VERSION	:	02
SPECIFICATIONS EDITION	:	003
DRAWING NO. (Ver.)	:	LMD- PH800480T-007-I01Q (Ver.002)
PACKAGING NO. (Ver.)	:	PKG- PH800480T-007-I01Q (Ver.001)

Customer Approved

Date:

Approved	Checked	Designer
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- ☐ Preliminary specification for design input
☒ Specification for sample approval



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History of Version

Date (mm / dd / yyyy)	Ver.	Edi.	Description	Page	Design by
02/19/2009	01	001	New Drawing	--	Howard
04/24/2009	01	002	New Sample	--	Howard
10/08/2009	02	003	Add UV EPOXY	Appendix	Howard

Total: 28 Page

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Appendix : 1.LCM Drawing

2. Packaging Specification

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

Primacy(TFT LCD): Himax: HX8262-A & HX8678-A

1. SPECIFICATIONS

1.1 Features

Item	Standard Value
Display Type	800 * 3 (RGB) * 480 Dots
LCD Type	a-Si TFT , Normally white , Transmissive type
Screen size(inch)	7.0 inch
Viewing Direction	6 O'clock
Color configuration	RGB-Strip
Backlight Type	LED B/L
Interface	Digital 24-bits RGB
Other(controller/driver IC)	HX8262-A (Source IC) & HX8678-A (Gate IC) (Or Compatible IC)
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC Detail information please refer web side : http://www.powertip.com.tw/news/LatestNews.asp

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	166.6(W) * 109.4 (L) * 10.5(H)(Max)	mm

LCD panel

Item	Standard Value	Unit
Active Area	152.4 (W) * 91.44 (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	VCC	GND=0	-0.3	7.0	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 Voltage	VCC	-	3.0	3.3	3.6	V
Input H/L Level Voltage	VIH	-	0.7VCC	-	VCC	V
	VIL	-	0	-	0.3VCC	V
Supply Current	I _{CC}	VCC = 3.3 V Pattern= Pattern display	-	200	-	mA
		VCC = 3.3 V Pattern= black *1	-	250	380	mA

Note1:Maximum current display

1.5 Optical Characteristics

TFT LCD Module

VCC = 3.3 V, Ta=25°C

Item	Symbol	Condition	Min.	Typ.	Max.	unit	
Response time	Tr+Tf	Ta = 25°C θX, θY = 0°	-	27	40	ms	Note 2
Viewing angle	Top	θY+	-	35	-	Deg.	Note 4
	Bottom	θY-	-	35	-		
	Left	θX-	-	45	-		
	Right	θX+	-	45	-		
Contrast ratio	CR		200	250	-	-	Note 3
Color of CIE Coordinate (With B/L)	White	X	0.24	0.29	0.34	-	Note1
		Y	0.27	0.32	0.37		
	Red	X	0.55	0.60	0.65		
		Y	0.29	0.34	0.39		
	Green	X	0.32	0.37	0.42		
		Y	0.50	0.55	0.60		
	Blue	X	0.11	0.16	0.21		
		Y	0.08	0.13	0.18		
Average Brightness Pattern=white display (With LCD)*1	IV	IF= 200 mA	300	350	-	cd/m ²	Note1
Uniformity (With LCD)*2	△B	IF= 200 mA	70	-	-	%	Note1

Note 1:

*1 : $\Delta B = B(\min) / B(\max) * 100\%$

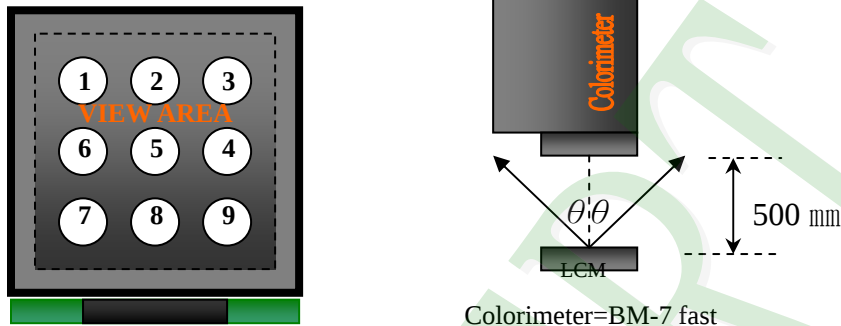
*2 : Measurement Condition for Optical Characteristics:

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** mm , ($\theta = 0^\circ$)

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 $\pm 4\%$



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:

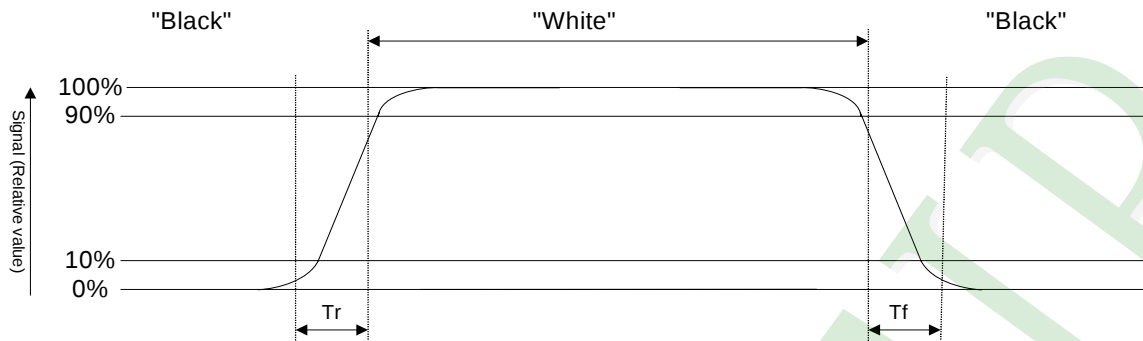
The output signals of photo detector are measured when the input signals are changed from "black" to "white"(falling time) and from "white" to "black"(rising time), respectively. The response time is defined as the time interval between the 10% and 90% of Amplitudes.

Refer to figure as below:

Normally White



Normally Black



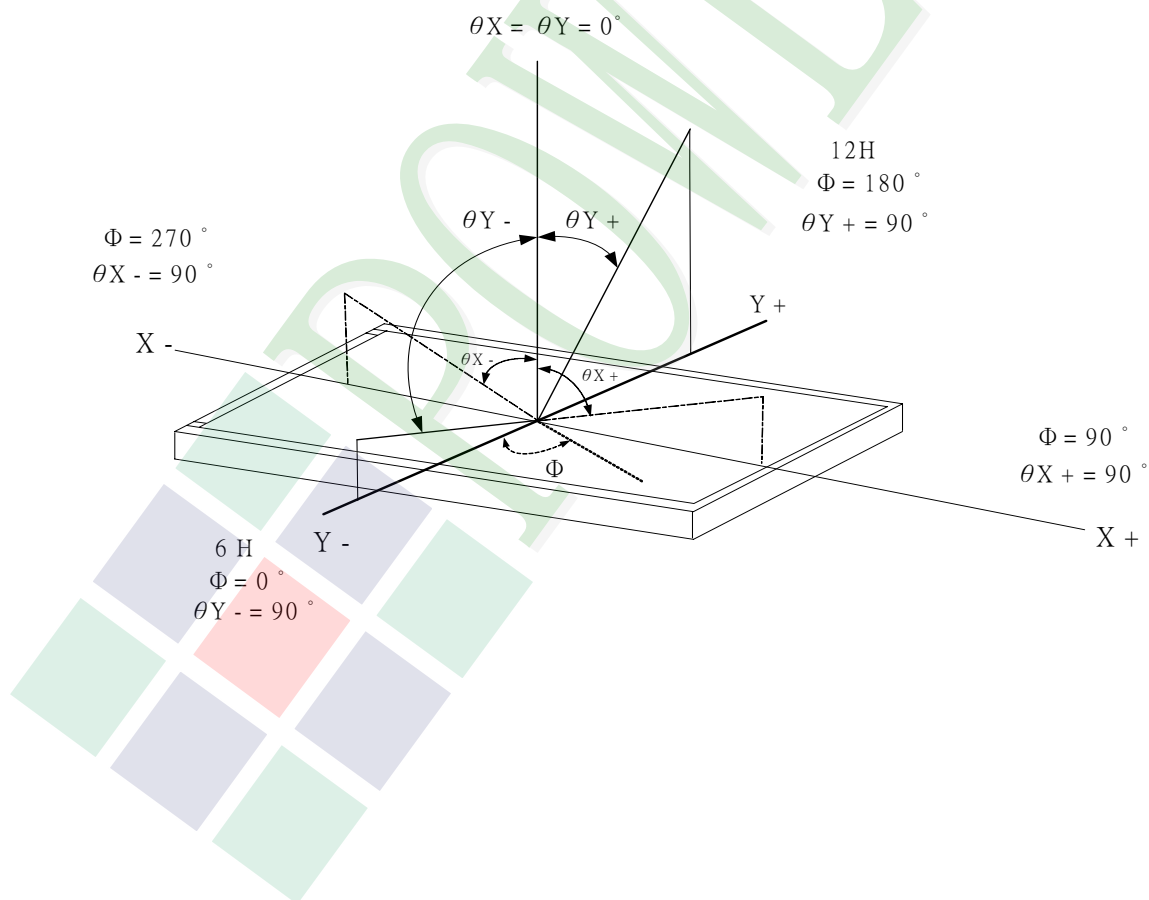
Note3: Definition of contrast ratio:

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

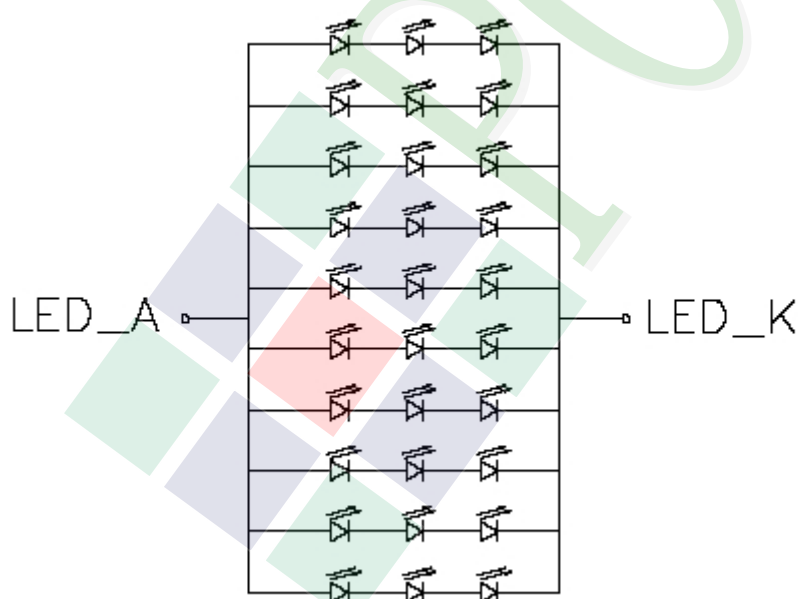
Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25℃	-	250	mA
Reverse Voltage	VR	Ta =25℃	-	15	V
Power Dissipation	PD	Ta =25℃	-	1980	mW

Backlight Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF=200mA	-	9.9	10.5	V
Average Brightness (Without LCD) *1	IV		4350	4800	-	cd/m ²
CIE Color Coordinate*1 (Without LCD)	X		-	0.31	-	-
	Y		-	0.31	-	-
Uniformity *1	△B		70	-	-	*2
Color	White					

*1 : This value will be changed while mass production.

*2 : $\Delta B = B(\min) / B(\max)\%$



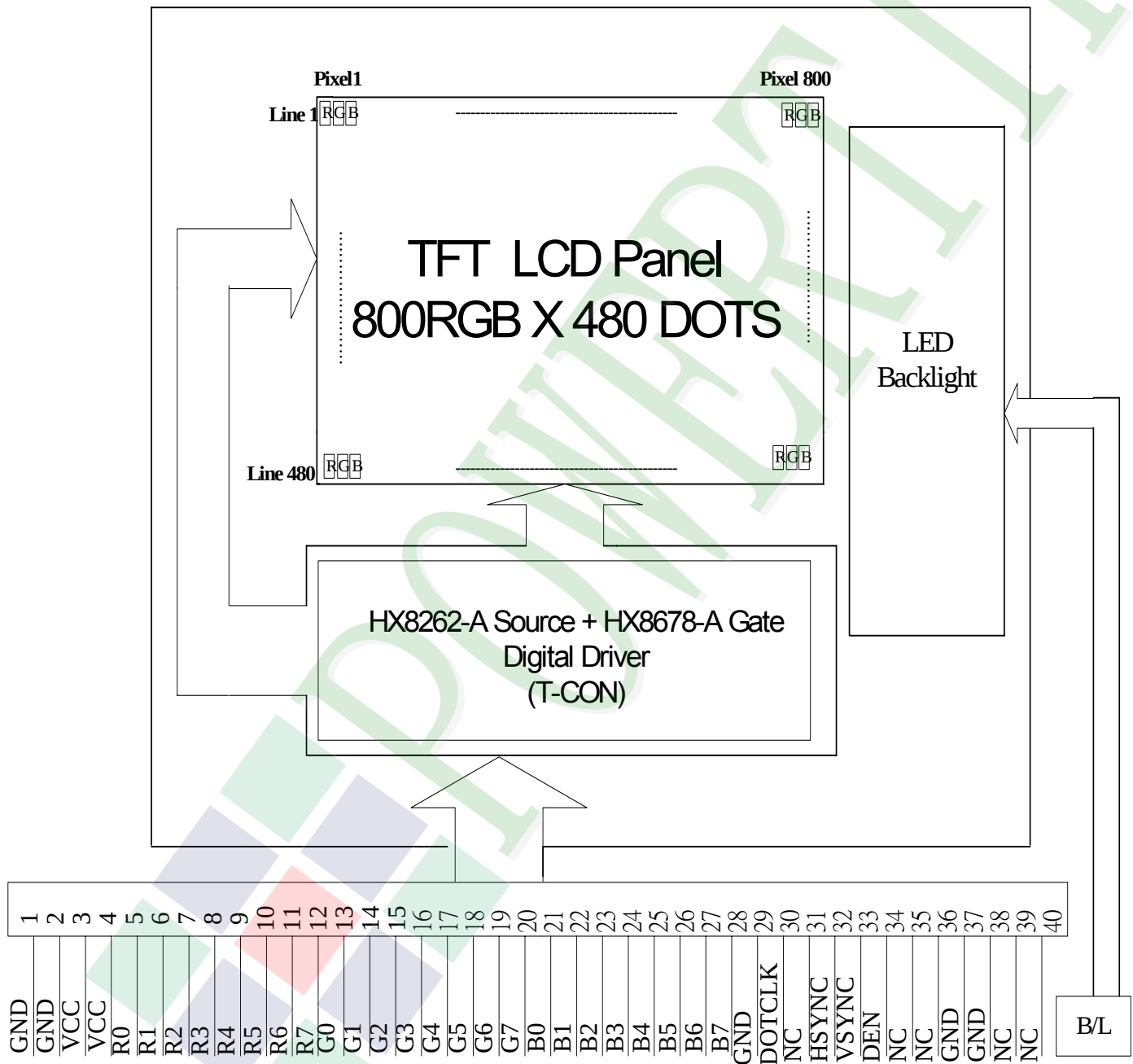
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram



2.2 Interface Pin Description

TFT-LCD Panel Driving

Pin No.	Symbol	Function
1	GND	Ground
2	GND	Ground
3	VCC	+3.3V Power Supply
4	VCC	+3.3V Power Supply
5	R0	Red data bit 0(LSB)
6	R1	Red data bit 1
7	R2	Red data bit 2
8	R3	Red data bit 3
9	R4	Red data bit 4
10	R5	Red data bit 5
11	R6	Red data bit 6
12	R7	Red data bit 7(MSB)
13	G0	Green data bit 0(LSB)
14	G1	Green data bit 1
15	G2	Green data bit 2
16	G3	Green data bit 3
17	G4	Green data bit 4
18	G5	Green data bit 5
19	G6	Green data bit 6
20	G7	Green data bit 7(MSB)

Pin No.	Symbol	Function
21	B0	Blue data bit 0(LSB)
22	B1	Blue data bit 1
23	B2	Blue data bit 2
24	B3	Blue data bit 3
25	B4	Blue data bit 4
26	B5	Blue data bit 5
27	B6	Blue data bit 6
28	B7	Blue data bit 7(MSB)
29	GND	Ground
30	DOTCLK	Dot data clock
31	NC	Not Connect.
32	HSYNC	Horizontal (Line) synchronization input
33	VSYNC	Vertical (Frame) synchronization input
34	DEN	Display enable signal
35	NC	Not Connect.
36	NC	Not Connect.
37	GND	Ground
38	GND	Ground
39	NC	Not Connect.
40	NC	Not Connect.

LED Backlight Driving

Pin No.	Symbol	Function
1	LED-A	Power Supply for LED (Anode)
2	LED-K	Power Supply for LED (Cathode)

2.3 Timing Characteristics

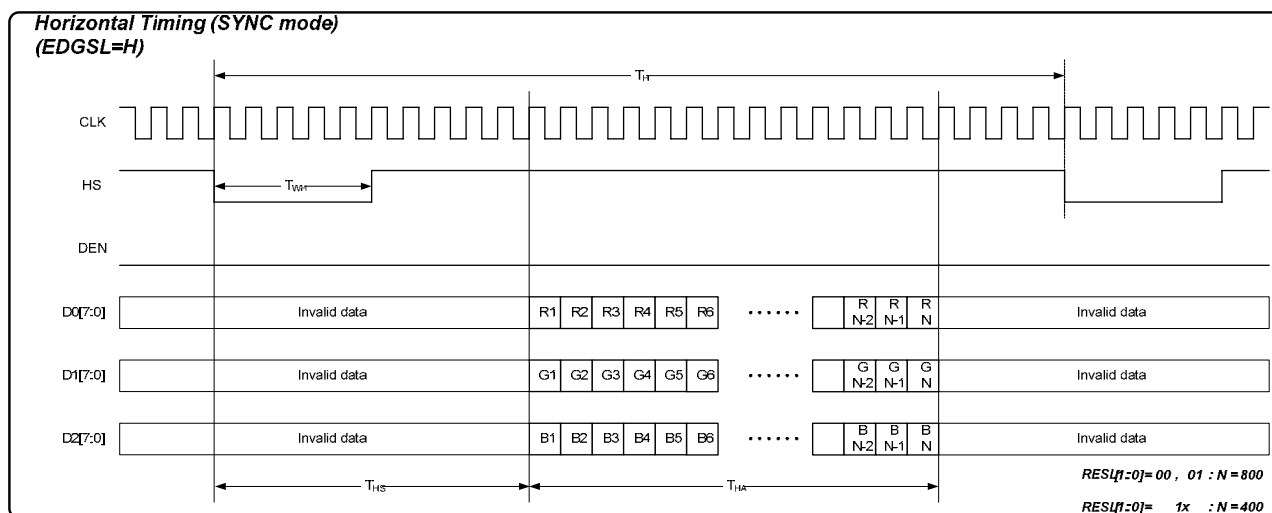
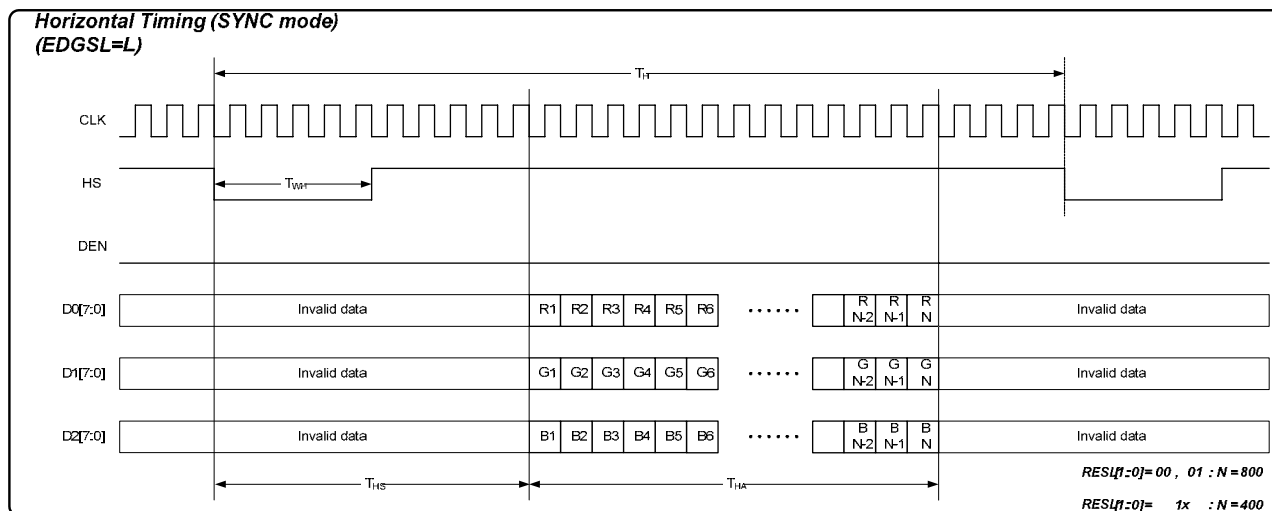
● Sync mode

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
CLK frequency	F_{CPH}	-	33.26	-	MHz
CLK period	T_{CPH}	-	30.06	-	ns
CLK pulse duty	T_{CWH}	40	50	60	%
HS period	T_H	930	1056	1057	T_{CPH}
HS pulse width	T_{WH}	1	128	-	T_{CPH}
HS-first horizontal data time	T_{HS}	STHD[7:0]+88			T_{CPH}
HS Active Time	T_{HA}	-	800	-	T_{CPH}
VS period	T_V	-	525	-	T_H
VS pulse width	T_{WV}	1	2	-	T_H
VS-DE time	T_{VS}	STVD[6:0]+8			T_H
VS Active Time	T_{VA}	-	480	-	T_H

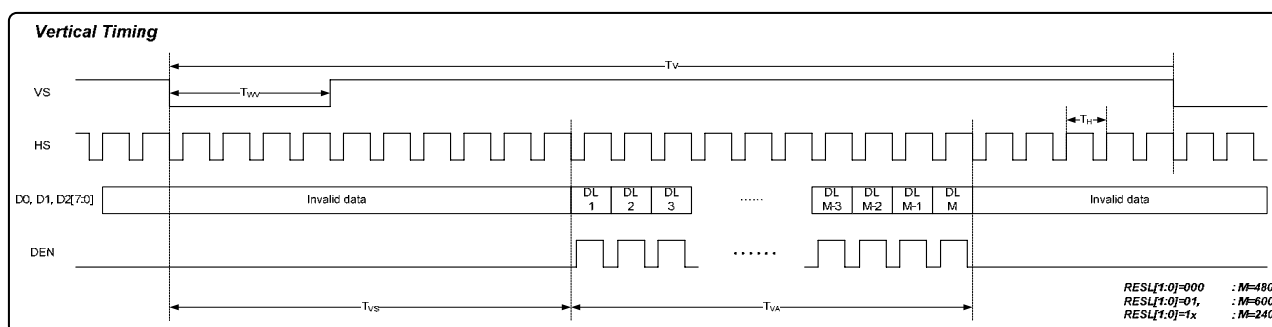
● DE mode

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
CLK frequency	F_{CPH}	-	33.26	-	MHz
CLK period	T_{CPH}	-	30.06	-	ns
CLK pulse duty	T_{CWH}	40	50	60	%
DE period	$T_{DEH}+T_{DEL}$	1000	1056	1200	T_{CPH}
DE pulse width	T_{DEH}	-	800	-	T_{CPH}
DE frame blanking	T_{DEB}	10	45	110	$T_{DEH}+T_{DEL}$
DE frame width	T_{DE}	-	480	-	$T_{DEH}+T_{DEL}$

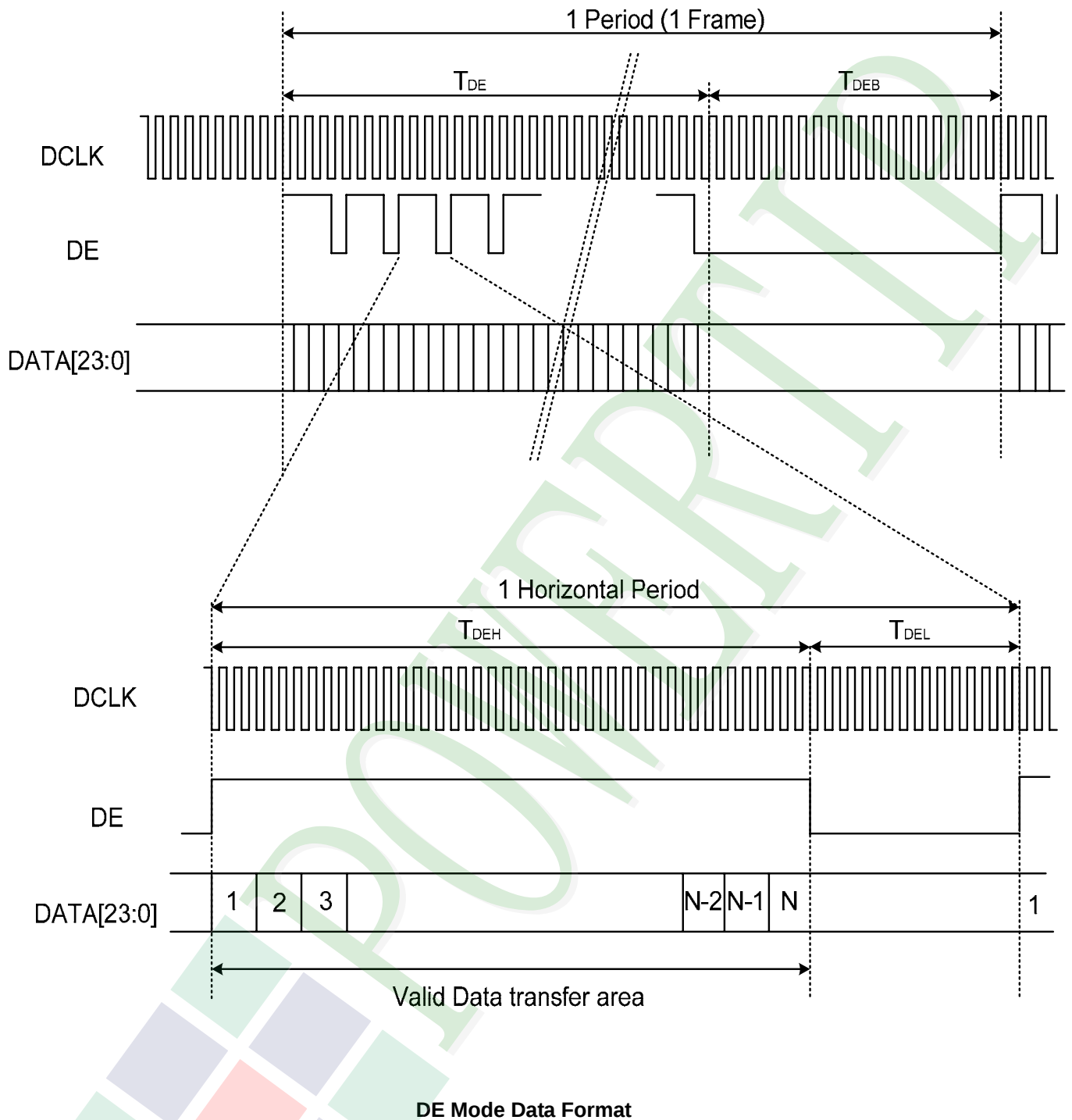
Data input format



SYNC Mode Horizontal Data Format



SYNC Mode Vertical Data Format



2.3 Color Data Assignment

COLOR	INPUT DATA	R DATA								G DATA								B DATA							
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
		MSB							LSB	MSB							LSB	MSB							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	1	0
	BLUE(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	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

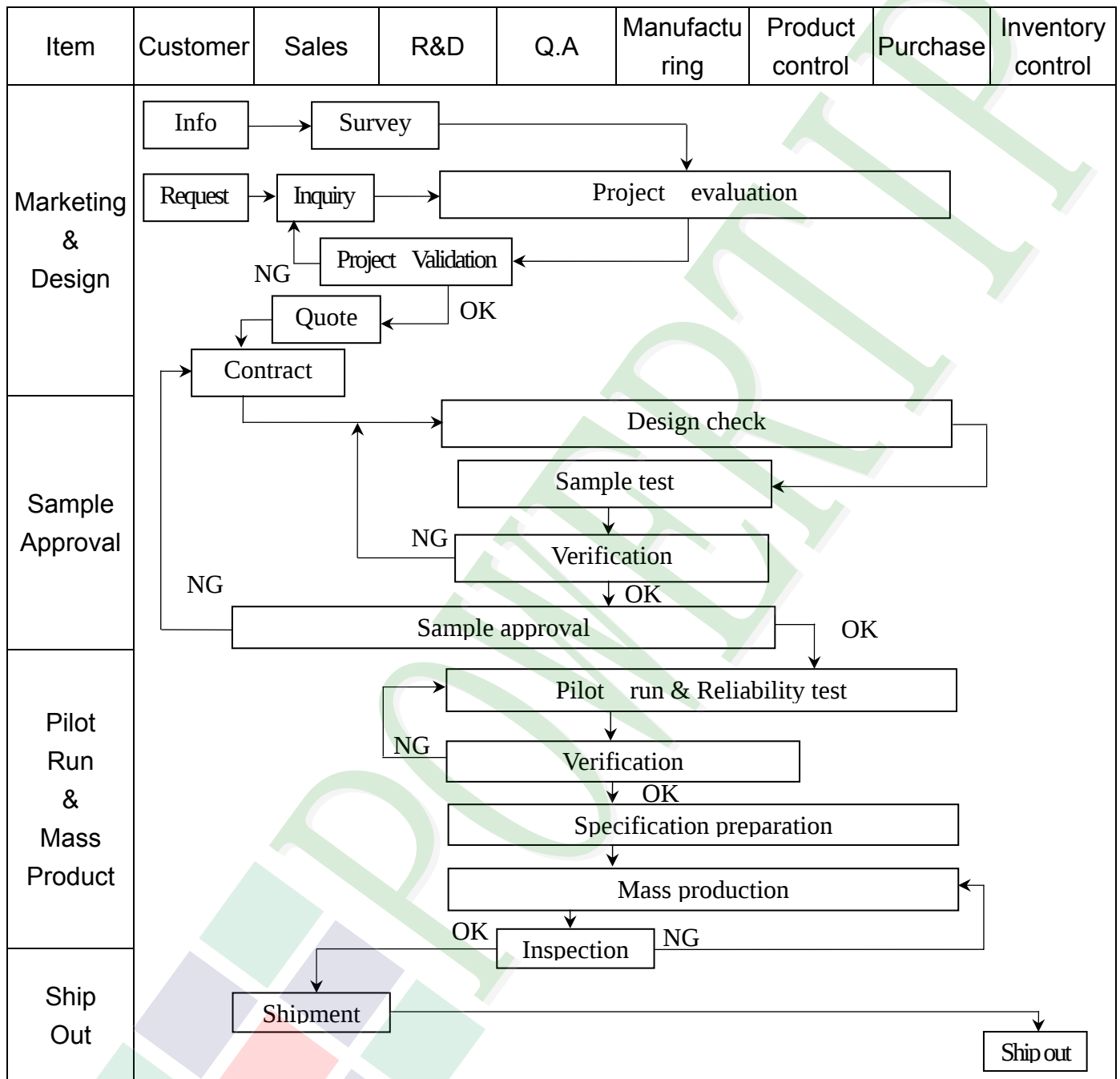
Color (n) : n means level of gray scale

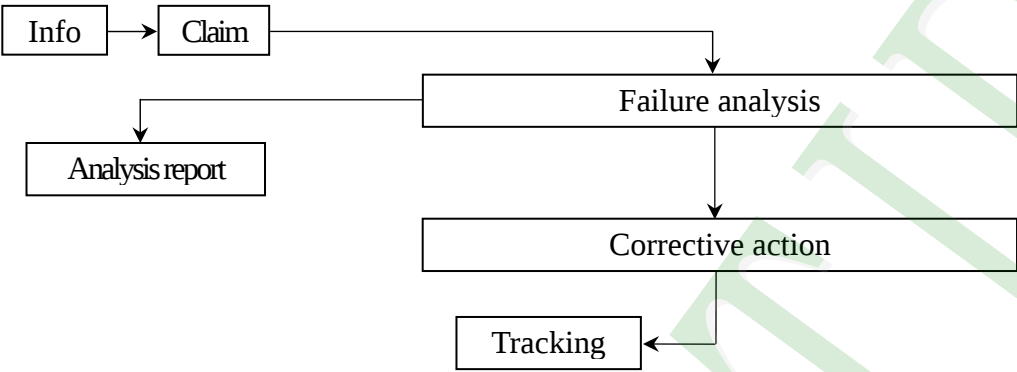
Larger n means brighter level

(2) Data: 1-High, 0-Low

3. QUALITY ASSURANCE SYSTEM

3.1 Quality Assurance Flow Chart



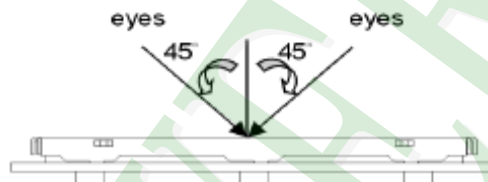
Item	Customer	Sales	R&D	Q.A	Manufacturing	Product control	Purchase	Inventory control
Sales Service	 <pre> graph TD Info[Info] --> Claim[Claim] Claim --> Analysis[Analysis report] Claim --> Failure[Failure analysis] Failure --> Corrective[Corrective action] Corrective --> Tracking[Tracking] </pre>							
Q.A Activity	1. ISO 9001 Maintenance Activities 3. Equipment calibration 5. Standardization Management				2. Process improvement proposal 4. Education And Training Activities			

3.2 Inspection Specification

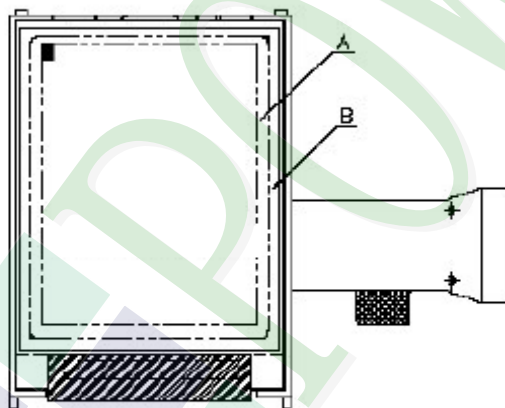
- ◆Scope : The document shall be applied to TFT-LCD Module for 3.5" ~10" (Ver. 03).
- ◆Inspection Standard : MIL-STD-105E Table Normal Inspection Single Sampling Level II.
- ◆Equipment : Gauge 、MIL-STD 、Powertip Tester 、Sample
- ◆Defect Level : Major Defect AQL : 0.4 ; Minor Defect AQL : 1.5
- ◆OUT Going 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

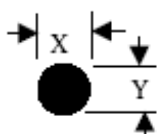
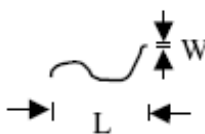
(4). Standard of inspection : (Unit : mm)

◆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	<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.	Item		Acceptance (Q'ty)	Dot Defect	Bright Dot	≤ 4	Dark Dot	≤ 5	Joint Dot	≤ 3	Total	≤ 7	Minor
Item		Acceptance (Q'ty)													
Dot Defect	Bright Dot	≤ 4													
	Dark Dot	≤ 5													
	Joint Dot	≤ 3													
	Total	≤ 7													

◆Specification For TFT-LCD Module 3.5" ~10" :

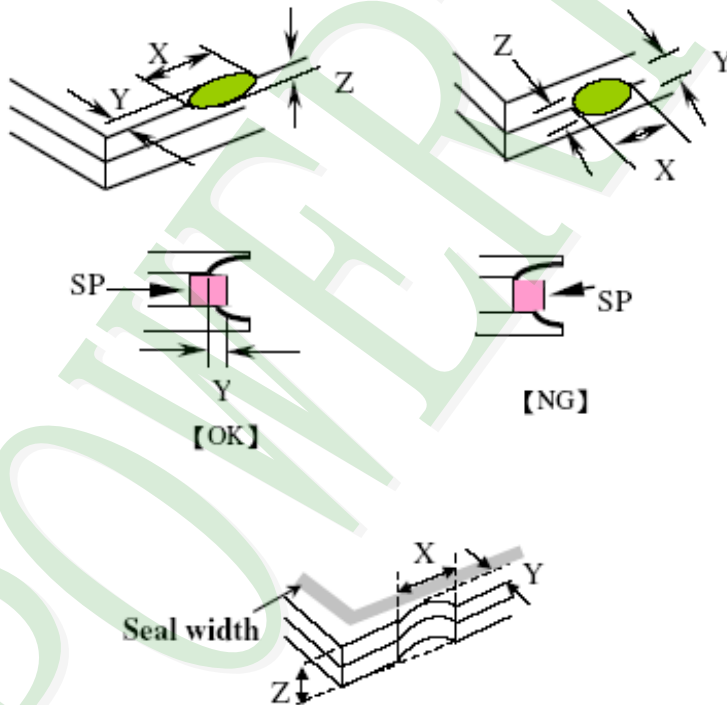
(Ver. 03)

NO	Item	Criterion	Level																																							
06	Black or white dot、scratch、contamination Round type  $\Phi=(x+y) / 2$ Line type 	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>$\Phi \leq 0.25$</td><td>Ignore</td><td rowspan="4">Ignore</td></tr><tr><td>$0.25 < \Phi \leq 0.50$</td><td>5</td></tr><tr><td>$\Phi > 0.50$</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 colspan="2">Dimension</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>Length (L)</th><th>Width (W)</th><th>A area</th><th>B area</th></tr><tr><td>---</td><td>$W \leq 0.03$</td><td>Ignore</td><td rowspan="4">Ignore</td></tr><tr><td>$L \leq 10.0$</td><td>$0.03 < W \leq 0.05$</td><td>4</td></tr><tr><td>$L \leq 5.0$</td><td>$0.05 < W \leq 0.10$</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><td></td></tr></table>	Dimension (diameter : Φ)	Acceptance (Q'ty)		A area	B area	$\Phi \leq 0.25$	Ignore	Ignore	$0.25 < \Phi \leq 0.50$	5	$\Phi > 0.50$	0	Total	5	Dimension		Acceptance (Q'ty)		Length (L)	Width (W)	A area	B area	---	$W \leq 0.03$	Ignore	Ignore	$L \leq 10.0$	$0.03 < W \leq 0.05$	4	$L \leq 5.0$	$0.05 < W \leq 0.10$	2	---	$W > 0.10$	As round type	Total		5		Minor
		Dimension (diameter : Φ)		Acceptance (Q'ty)																																						
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---	$W > 0.10$	As round type																																								
Total		5																																								
07	Polarizer Bubble	<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>$\Phi \leq 0.25$</td><td>Ignore</td><td rowspan="5">Ignore</td></tr><tr><td>$0.25 < \Phi \leq 0.50$</td><td>4</td></tr><tr><td>$0.50 < \Phi \leq 0.80$</td><td>1</td></tr><tr><td>$\Phi > 0.80$</td><td>0</td></tr><tr><td>Total</td><td>5</td></tr></table>	Dimension (diameter : Φ)	Acceptance (Q'ty)		A area	B area	$\Phi \leq 0.25$	Ignore	Ignore	$0.25 < \Phi \leq 0.50$	4	$0.50 < \Phi \leq 0.80$	1	$\Phi > 0.80$	0	Total	5	Minor																							
Dimension (diameter : Φ)	Acceptance (Q'ty)																																									
	A area	B area																																								
$\Phi \leq 0.25$	Ignore	Ignore																																								
$0.25 < \Phi \leq 0.50$	4																																									
$0.50 < \Phi \leq 0.80$	1																																									
$\Phi > 0.80$	0																																									
Total	5																																									

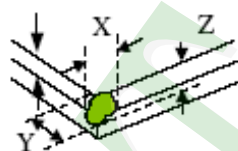
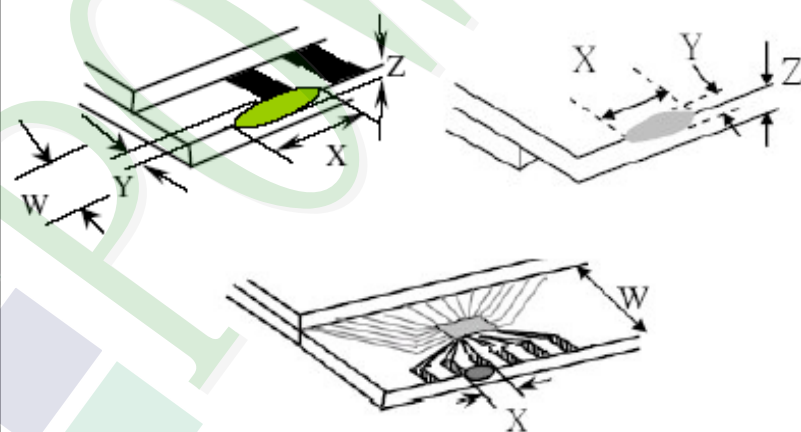


◆Specification For TFT-LCD Module 3.5" ~10" :

(Ver. 03)

NO	Item	Criterion	Level						
08	The crack of glass	Symbols : X : The length of crack Z : The thickness of crack t : The thickness of glass Y : The width of crack. W : terminal length a : LCD side length	Minor						
		8.1 General glass chip : 8.1.1 Chip on panel surface and crack between panels:  <table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>$\leq a$</td><td>Crack can't enter viewing area</td><td>$\leq 1/2 t$</td></tr><tr><td>$\leq a$</td><td>Crack can't exceed the half of SP width.</td><td>$1/2 t < Z \leq 2 t$</td></tr></table>		X	Y	Z	$\leq a$	Crack can't enter viewing area	$\leq 1/2 t$
X	Y	Z							
$\leq a$	Crack can't enter viewing area	$\leq 1/2 t$							
$\leq a$	Crack can't exceed the half of SP width.	$1/2 t < Z \leq 2 t$							

◆Specification For TFT-LCD Module 3.5" ~10" :
(Ver. 03)

NO	Item	Criterion	Level									
08	The crack of glass	Symbols : X : The length of crack Z : The thickness of crack t : The thickness of glass Y : The width of crack. W : terminal length a : LCD side length 8.1.2 Corner crack :  <table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>$\leq 1/5 a$</td><td>Crack can't enter viewing area</td><td>$Z \leq 1/2 t$</td></tr><tr><td>$\leq 1/5 a$</td><td>Crack can't exceed the half of SP width.</td><td>$1/2 t < Z \leq 2 t$</td></tr></table>	X	Y	Z	$\leq 1/5 a$	Crack can't enter viewing area	$Z \leq 1/2 t$	$\leq 1/5 a$	Crack can't exceed the half of SP width.	$1/2 t < Z \leq 2 t$	Minor
		X	Y	Z								
$\leq 1/5 a$	Crack can't enter viewing area	$Z \leq 1/2 t$										
$\leq 1/5 a$	Crack can't exceed the half of SP width.	$1/2 t < Z \leq 2 t$										
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>$\leq a$</td><td>$\leq 1/2 W$</td><td>$\leq t$</td></tr><tr><td>Back</td><td>$\leq a$</td><td>$\leq W$</td><td>$\leq 1/2 t$</td></tr></table>		X	Y	Z	Front	$\leq a$	$\leq 1/2 W$	$\leq t$	Back	$\leq a$	$\leq W$	$\leq 1/2 t$
	X	Y	Z									
Front	$\leq a$	$\leq 1/2 W$	$\leq t$									
Back	$\leq a$	$\leq W$	$\leq 1/2 t$									



◆ Specification For TFT-LCD Module 3.5" ~10" :

(Ver. 03)

NO	Item	Criterion	Level												
08	The crack of glass	Symbols : X : The length of crack Z : The thickness of crack t : The thickness of glass Y : The width of crack. W : terminal length a : LCD side length 8.2.2 Non-conductive portion : <table border="1"> <tr> <td>X</td> <td>Y</td> <td>Z</td> </tr> <tr> <td>$\leq 1/3 a$</td> <td>$\leq W$</td> <td>$\leq t$</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 border="1"> <tr> <td>X</td> <td>Y</td> <td>Z</td> </tr> <tr> <td>$\leq a$</td> <td>$\leq 1/3 W$</td> <td>$\leq t$</td> </tr> </table>	X	Y	Z	$\leq 1/3 a$	$\leq W$	$\leq t$	X	Y	Z	$\leq a$	$\leq 1/3 W$	$\leq t$	Minor
X	Y	Z													
$\leq 1/3 a$	$\leq W$	$\leq t$													
X	Y	Z													
$\leq a$	$\leq 1/3 W$	$\leq t$													

◆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 $+80 \pm 2^{\circ}\text{C}$ 240 hrs Surrounding temperature, then storage at normal condition 4hrs.	
2	Low Temperature Storage Test	Keep in $-30 \pm 2^{\circ}\text{C}$ 240 hrs Surrounding temperature, then storage at normal condition 4hrs.	
3	High Temperature Operating Test	Keep in $+70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 240 hrs Surrounding temperature, then storage at normal condition 4hrs.	
4	Low Temperature Operating Test	Keep in $-20 \pm 2^{\circ}\text{C}$ 240 hrs Surrounding temperature, then storage at normal condition 4hrs.	
5	High Temperature / High Humidity Storage Test & Operating Test	Keep in $+60^{\circ}\text{C}$ / 90% R.H duration for 240 hrs Surrounding temperature, then storage at normal condition 4hrs. (Excluding the polarizer)	
6	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 ambience : $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$ 2. Humidity relative : 30%~60% 3. Energy Storage Capacitance(C_s+C_d) : $150\text{pF} \pm 10\%$ 4. Discharge Resistance(R_d) : $330\Omega \pm 10\%$ 5. Discharge, mode of operation : Single Discharge (time between successive discharges at least 1 sec) (Tolerance if the output voltage indication : $\pm 5\%$)	
7	Temperature Cycling Storage Test	$-20^{\circ}\text{C} \rightarrow +25^{\circ}\text{C} \rightarrow +70^{\circ}\text{C} \rightarrow +25^{\circ}\text{C}$ (30mins) (5mins) (30mins) (5mins) ← 10 Cycle → Surrounding temperature, then storage at normal condition 4hrs.	
8	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	



9	Drop Test (Packaged)											
		<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>	Packing Weight (Kg)	Drop Height (cm)	0 ~ 45.4	122	45.4 ~ 90.8	76	90.8 ~ 454	61	Over 454	46
Packing Weight (Kg)	Drop Height (cm)											
0 ~ 45.4	122											
45.4 ~ 90.8	76											
90.8 ~ 454	61											
Over 454	46											
Drop direction :※1 corner / 3 edges / 6 sides each 1times												

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 $320\pm 10^{\circ}\text{C}$ 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 $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 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.



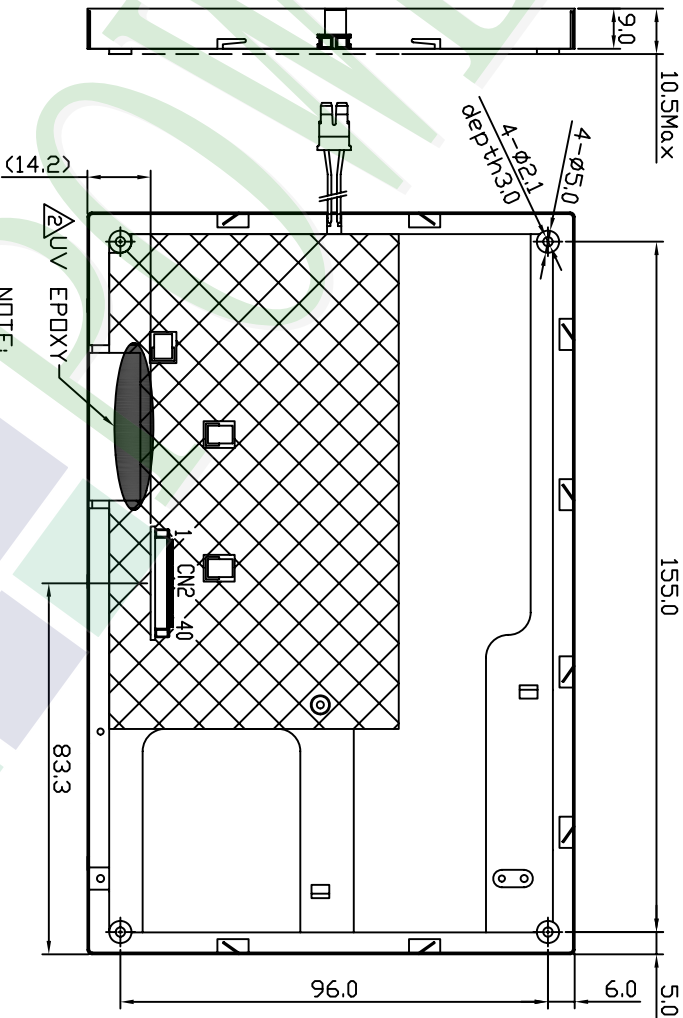
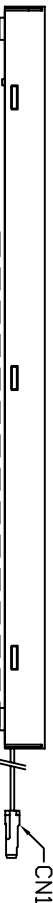
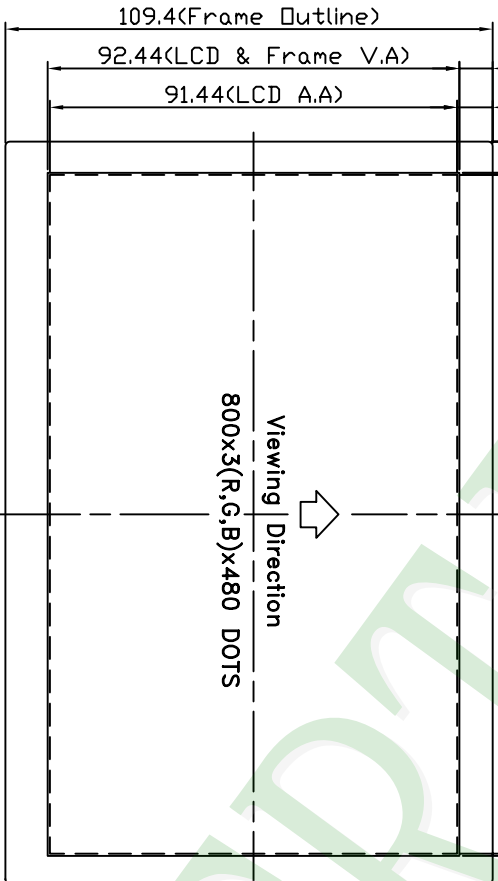
B/L Pin Assign		
Pin no	Symbol	Wire color
1	VLEDA	Red
2	VLEDC	Black

166.6(Frame Outline)
153.4(LCD & Frame V.A)
152.4(LCD A.A)

7.0
(7.5)
7.48
(7.98)

Viewing Direction
800×3(R,G,B)×480 DOTS

PIN 1
PIN 2



NOTE:
1.THE TOLERANCE UNLESS CLASSIFIED ±0.3mm
2.LCD TYPE : a-Si TFT
3.VIEWING DIRECTION : 6 O'CLOCK
4.DISPLAY MODE : POSITIVE / TRANSMISSIVE
5.Top:-20~70°C , Tst:-30~80°C
6.CN1=BHSR-02VS-1(JST),CN2=IMSA-9637S-40Y923(IRISD)
7. Component Area

PART NO:
PH800480T-007-101Q

久正光电股份有限公司
POWERTEP TECHNOLOGY CORPORATION

DRAWING NAME :
LMD-PH800480T-007-101Q

Design
Check
Mag
Stone
Unit
MM
Material
Surface
Precision Level

007									
006									
005									
004									
003									
002	ADD UV EPOXY	Mag	2009/10/08						
001	NEW DRAWING	Mag	2009/02/19						
REV	REV BY	REVISER	DATE						

TITLE:
LCD MODULE DRAWING

Approve
Linda
Page
1/1
Quantity
250 ~ 1000

Ver.001

Documents NO.

PKG-PH800480T-007-I01Q

LCM包裝規格書

LCM Packaging Specifications

Approve

Linda

Check

Stone

Contact

Mag

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

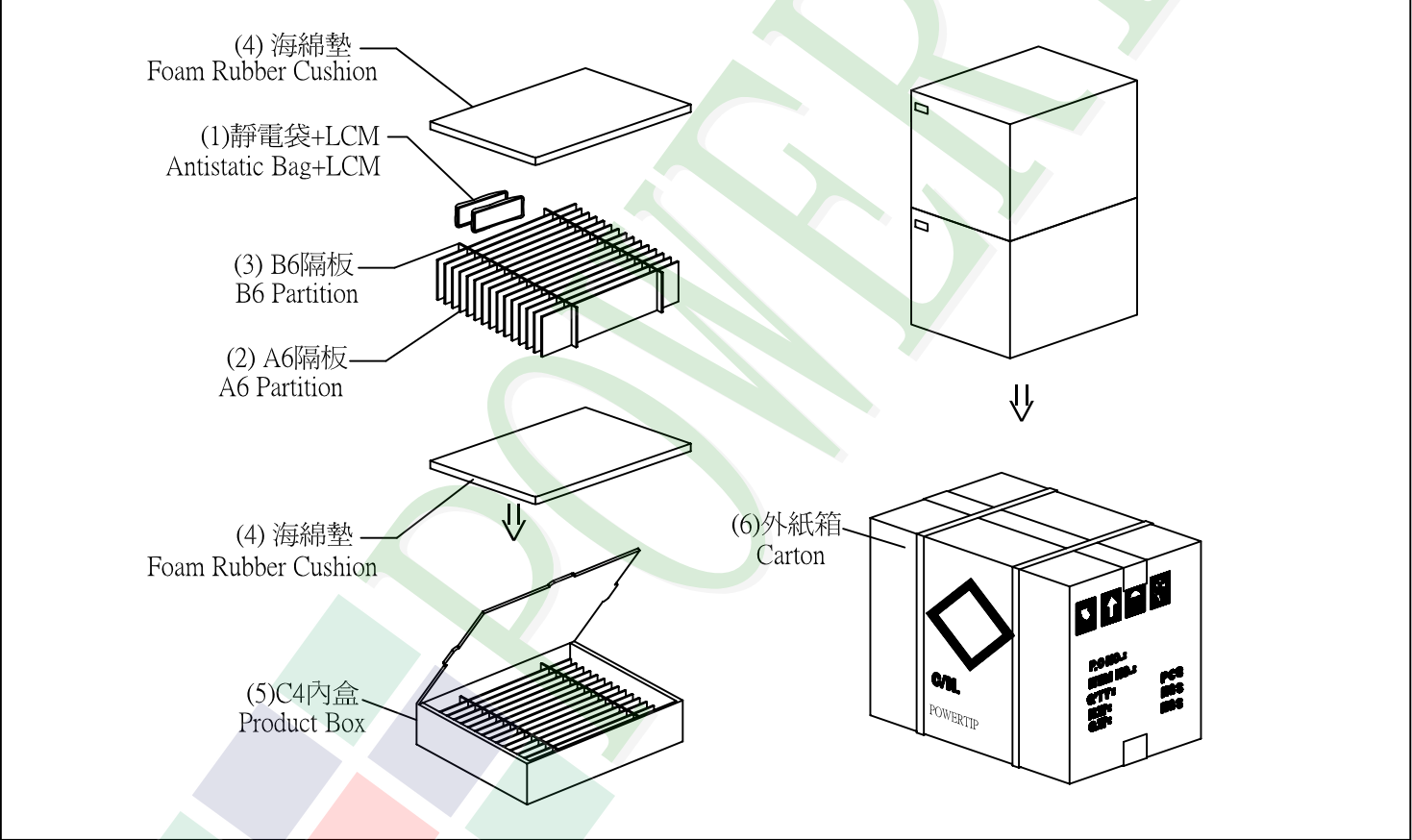
No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 (LCM)	PH800480T-007-I01Q	166.6 X 109.4	0.18	28	5.04
2	靜電袋(1)Antistatic Bag	BAG240170ARABA	240 X 170	0.0048	28	0.1344
3	A6隔板(2)A6 Partition	BX33800012BZBA	338 X 125 X 3	0.038	30	1.14
4	B6隔板(3)B6 Partition	BX29800012BZBA	298 X 125 X 3	0.023	4	0.092
5	海綿墊(4)Foam Rubber Cushion	OTFOAM00005ABA	330 X 290 X 10	0.025	4	0.1
6	C4內盒(5)Product Box	BX36031014AABA	360 X 310 X 142	0.406	2	0.812
7	外紙箱(6)Carton	BX39432432CCBA	394 X 324 X 321	0.884	1	0.884
8						
9						

2.一整箱總重量 (Total LCD Weight in carton) : 8.2 Kg±10%

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

(1)Quantity Of Spacer : A6隔板 X 15 , B6隔板 X 2

(2)Total LCM quantity in carton : quantity per box 14 x no of boxes 2 = 28



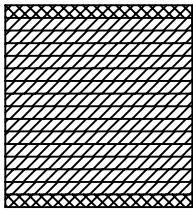
特 記 事 項 (REMARK)

1. Label Specifications :

MODEL:
LOT NO:
QUANTITY:
CHECK:

2. 每個間隔放1片模組，前後間隔不放置模組。(如示意圖)
2. 1 LCM are placed on every other slot of the divider.
Note: First and last slot should be empty.
(See remarks 3 on packaging specifications)

3.放置格示意圖:
3.Each divider is placed inside a product Box



▨ 模組(LCM) X 1pcs.
⊠ 舒美墊(EPE:OTFOAMEP0005BA)
(自裁Size:125X218X20mm)