

SPECIFICATIONS

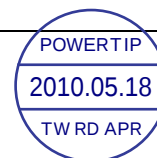
CUSTOMER	:	PTC
SAMPLE CODE	:	PS320240WRF-008H01
MASS PRODUCTION CODE	:	PE320240WRF-008-HQ
SAMPLE VERSION	:	03
SPECIFICATIONS EDITION	:	005
DRAWING NO. (Ver.)	:	LMD-PE320240WRF-008-HQ (Ver.001)
PACKAGING NO. (Ver.)	:	PKG-PE320240WRF-008-HQ (Ver.002)

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

[illegible]

Total : 28 Page



Contents

1. SPECIFICATIONS

- 1.1 Features
- 1.2 Mechanical Specifications
- 1.3 Absolute Maximum Ratings
- 1.4 DC Electrical Characteristics
- 1.5 Optical Characteristics
- 1.6 Backlight Characteristics

2. MODULE STRUCTURE

- 2.1 Counter Drawing
- 2.2 Interface Pin Description
- 2.3 Timing Characteristics
- 2.4 JUMPER(Setting different use)

3. QUALITY ASSURANCE SYSTEM

- 3.1 Quality Assurance Flow Chart
- 3.2 Inspection Specification

4. RELIABILITY TEST

- 4.1 Reliability Test Condition

5. PRECAUTION RELATING PRODUCT HANDLING

- 5.1 Safety
- 5.2 Handling
- 5.3 Storage
- 5.4 Terms of Warranty

Appendix :

- 1. LCM drawing
- 2. LCM Packaging Specifications

Note : For detailed information please refer to IC data sheet : NOVATEK --- NT7711H-D
NT7712H-D

1. SPECIFICATIONS

1.1 Features

Item	Standard Value
Display Type	320 * 240 Dots
LCD Type	FSTN, Positive, Transflective
Driver Condition	LCD Module: 1/240 Duty, 1/13 Bias
Viewing Direction	6 O'clock
Backlight	LED B/L
Weight	180 g
Interface	4 bits parallel data input
Driver IC	NT7711H-D, NT7712H-D
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	167.0 (L) * 111.0 (w) * 7.5 (H)	mm
Viewing Area	120.2 (L) * 90.0 (w)	mm
Active Area	115.185 (L) * 86.385 (w)	mm
Dot Size	0.345 (L) * 0.345 (w)	mm
Dot Pitch	0.36(L) * 0.36 (w)	mm

Note : For detailed information please refer to LCM drawing

1.3 Absolute Maximum Ratings

Item	Symbol	Condition	Min.	Max.	Unit
Power Supply Voltage	$V_{DD}-V_{SS}$	—	-0.3	+7.0	V
LCD Driver Supply Voltage	V_{OP}	—	-0.3	+38	V
Operating Temperature	T_{OP}	—	-20	70	°C
Storage Temperature.	T_{ST}	—	-30	80	°C
Storage Humidity	H_D	$T_a < 60\text{ }^{\circ}\text{C}$	20	90	%RH

1.4 DC Electrical Characteristics

$V_{DD} = 2.9V \sim 5.5V$, $V_{SS} = 0V$, $T_a = 25^{\circ}C$

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Logic Supply Voltage	VDD	-	2.9	5.0	5.5	V
“H” Input Voltage	V _{IH}	-	0.8 V _{DD}	-	-	V
“L” Input Voltage	V _{IL}	-	-	-	0.2 V _{DD}	V
“H” Output Voltage	V _{OH}	I _{OH} =-0.4mA	V _{DD} -0.4	-	-	V
“L” Output Voltage	V _{OL}	I _{OL} =0.4mA	-	-	0.4	V
Supply Current	I _{dd}	V _{DD} = 3V ; V _{OP} = 23.0V; Pattern= Full display	-	0.1	-	mA
		V _{DD} = 3V ; V _{OP} = 23.0V; Pattern= Net dots*1	-	0.1	0.3	
Supply Current	I _{dd}	V _{DD} = 5V ; V _{OP} = 23.0V; Pattern= Full display	-	0.1	-	mA
		V _{DD} = 5V ; V _{OP} = 23.0V; Pattern= Net dots *1	-	0.3	0.5	
Supply Current	I _{op}	V _{DD} = 3V ; V _{OP} = 23.0V; Pattern= Full display	-	1.5	-	mA
		V _{DD} = 3V ; V _{OP} = 23.0V; Pattern= Horizontal line*1	-	5	10	
Supply Current	I _{op}	V _{DD} = 5V ; V _{OP} = 23.0V; Pattern= Full display	-	1.5	-	mA
		V _{DD} = 5V ; V _{OP} = 23.0V; Pattern= Horizontal line*1	-	5	10	
LCM Driver Voltage	V _{OP} *2	-20℃	24.0	24.2	24.4	V
		25℃	22.7	23.0	23.3	
		70℃	21.9	22	22.1	

NOTE: *1 The Maximum current display;

*2 The VOP test point is VOP+ ~ VOP-.

1.5 Optical Characteristics

LCD Panel: 1/240 Duty, 1/13 Bias, $V_{op} = 23\text{ V}$, $T_a = 25^\circ\text{C}$

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Reference
Response Time	Rise	tr	25°C	-	140	210	ms	Note 2
	Fall	tf	25°C	-	370	555		
Viewing angle range	Top	ΘY+	C≥2.0, ∅ =270°	-	35	-	-	Note 1
	Bottom	ΘY-		-	35	-		
	Left	ΘX-		-	35	-		
	Right	ΘX+		-	40	-		
Contrast Ratio		CR	θ = 0°, ∅ =270°	2	4	-	-	Note 4
Average Brightness (With B/L)		IV	IF= 160mA	50	60	-	cd/m ²	-
CIE Color Coordinate (With B/L)		X		0.26	0.31	0.36	-	Note 4
		Y	0.28	0.33	0.38			
Uniformity		△B	IF= 160mA	70	-	-	%	-

Note 4:

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

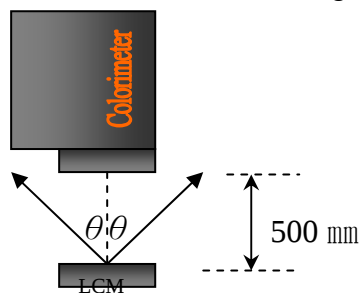
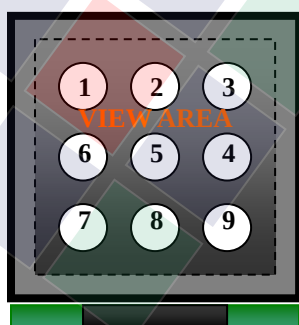
2 : Measurement Condition for Optical Characteristics:

a : Environment: 25 ± 5 / $60 \pm 20\%$ 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 $\pm 4\%$



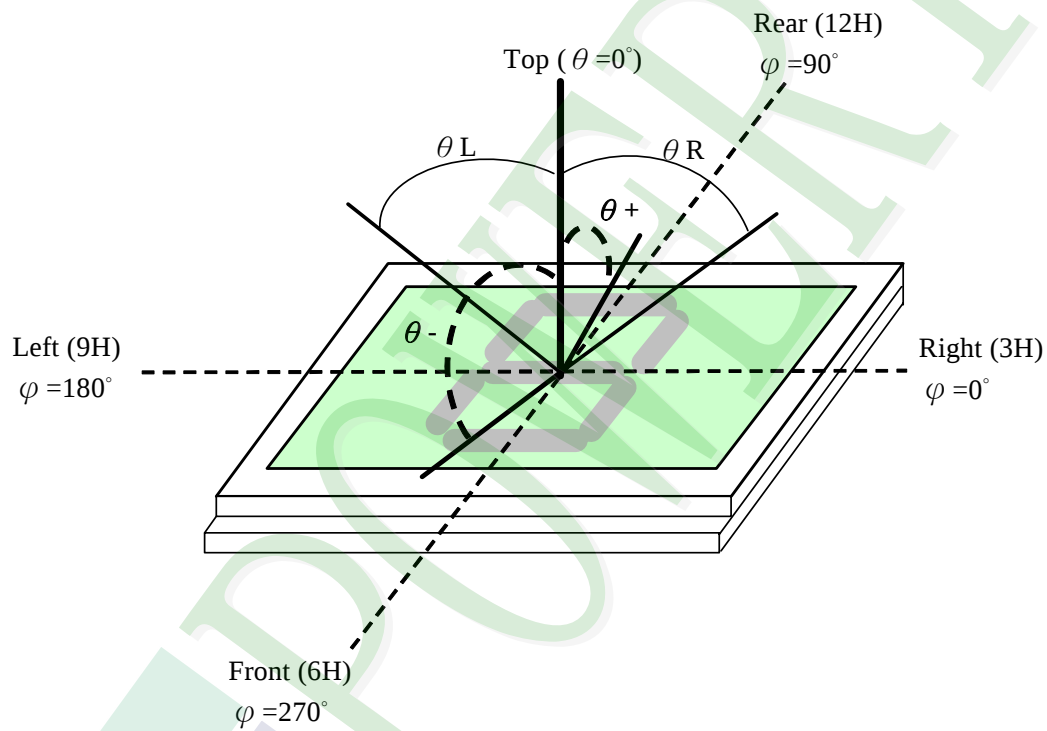
Colorimeter=BM-7 fast



Note 1.

Optical characteristics-2

Viewing angle

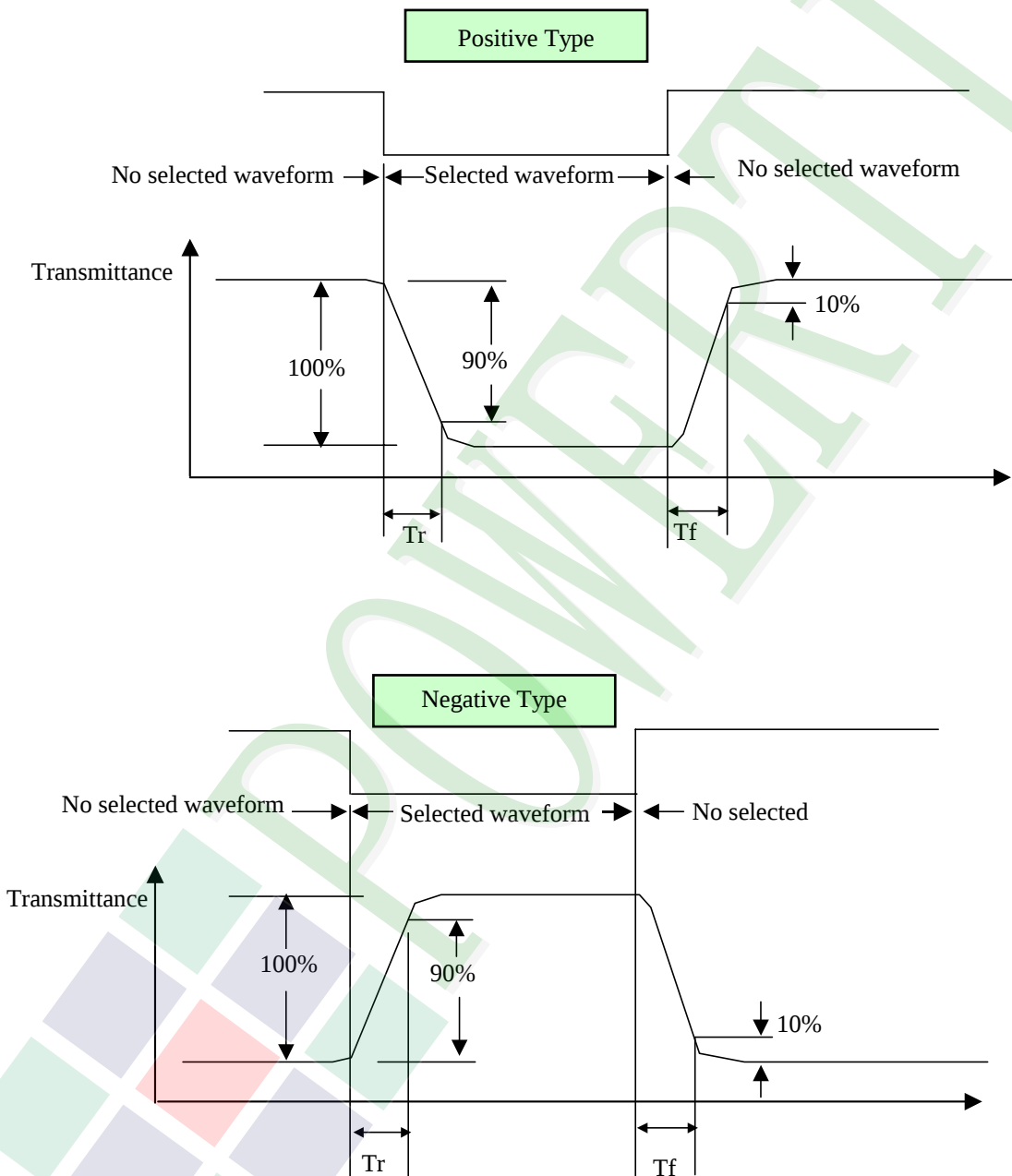




Note 2.

Optical characteristics-3

Fig.2 Definition of response time





Electrical characteristics-2

2 Drive waveform

V_{op} : Drive voltage

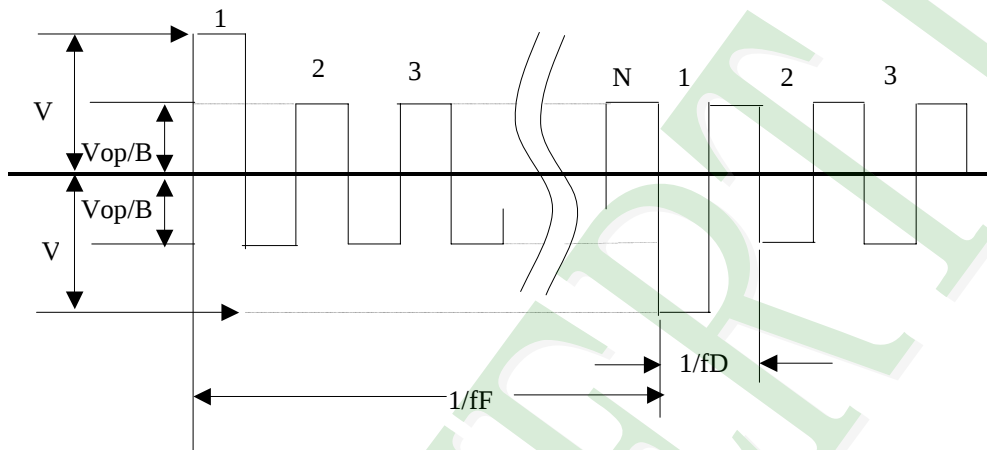
f_F : Frame frequency

$1/B$: Bias

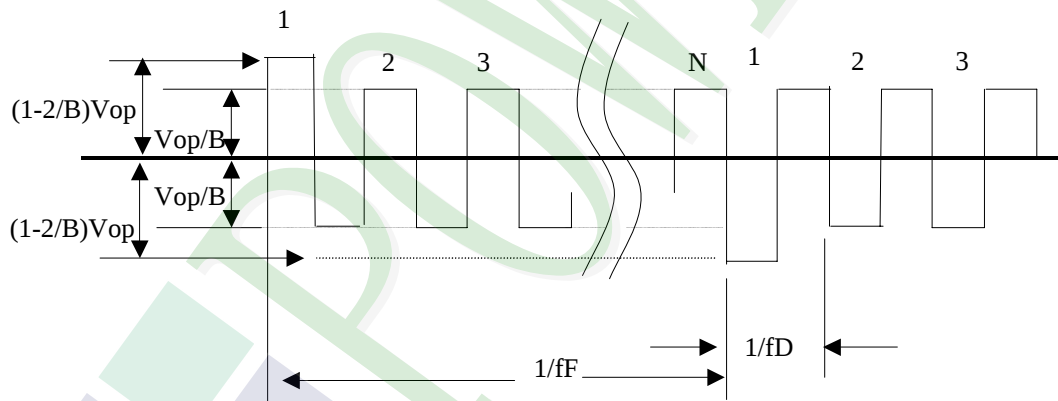
f_D : Drive frequency

N : Duty

(1) Selected waveform



(2) Non- Selected wave form

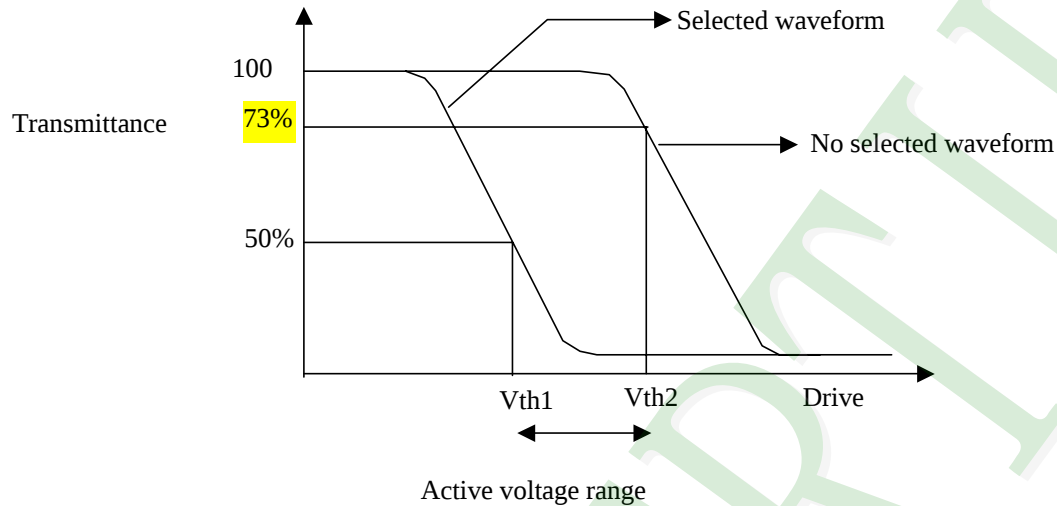


Note:

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



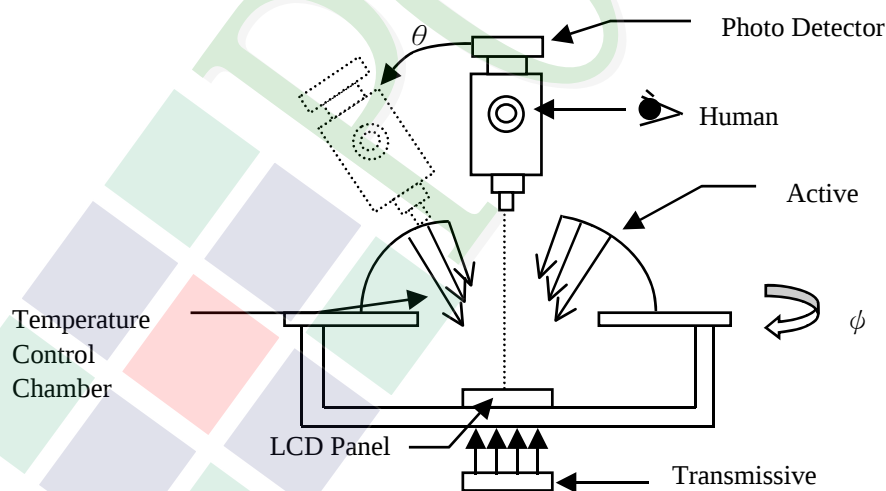
Note 3. : Definition of V_{th}



	V_{th1}	V_{th2}
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

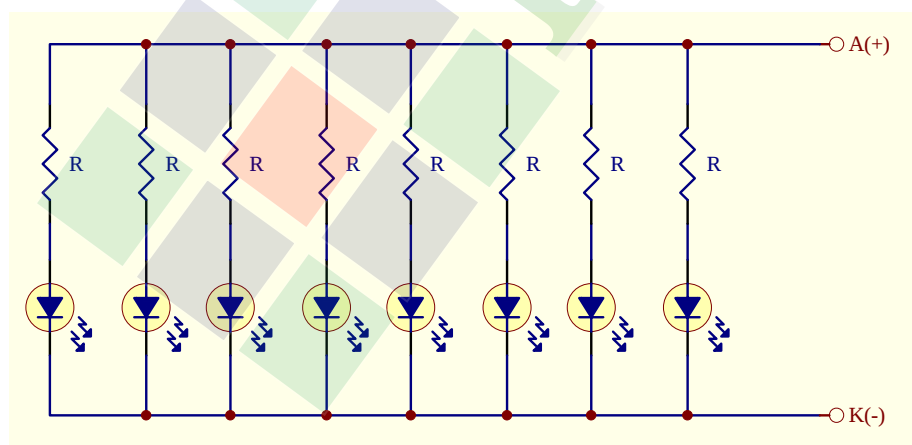
Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	I_F	$T_a = 25^\circ\text{C}$	-	160	mA
Reverse Voltage	V_R	$T_a = 25^\circ\text{C}$	-	0.8	V
Power Dissipation	P_d	$T_a = 25^\circ\text{C}$	-	0.48	W
Operating Temperature	T_{OP}	-	-20	70	$^\circ\text{C}$
Storage Temperature.	T_{ST}	-	-30	80	$^\circ\text{C}$

Electrical / Optical Characteristics

$T_a = 25^\circ\text{C}$

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF = 160mA	-	3.3	3.5	V
Average Brightness (Without LCD)	IV		450	600	-	cd/m ²
CIE Color Coordinate (Without LCD)	X		0.26	-	0.31	-
	Y		0.26	-	0.31	-
Color	White					

Internal Circuit Diagram:



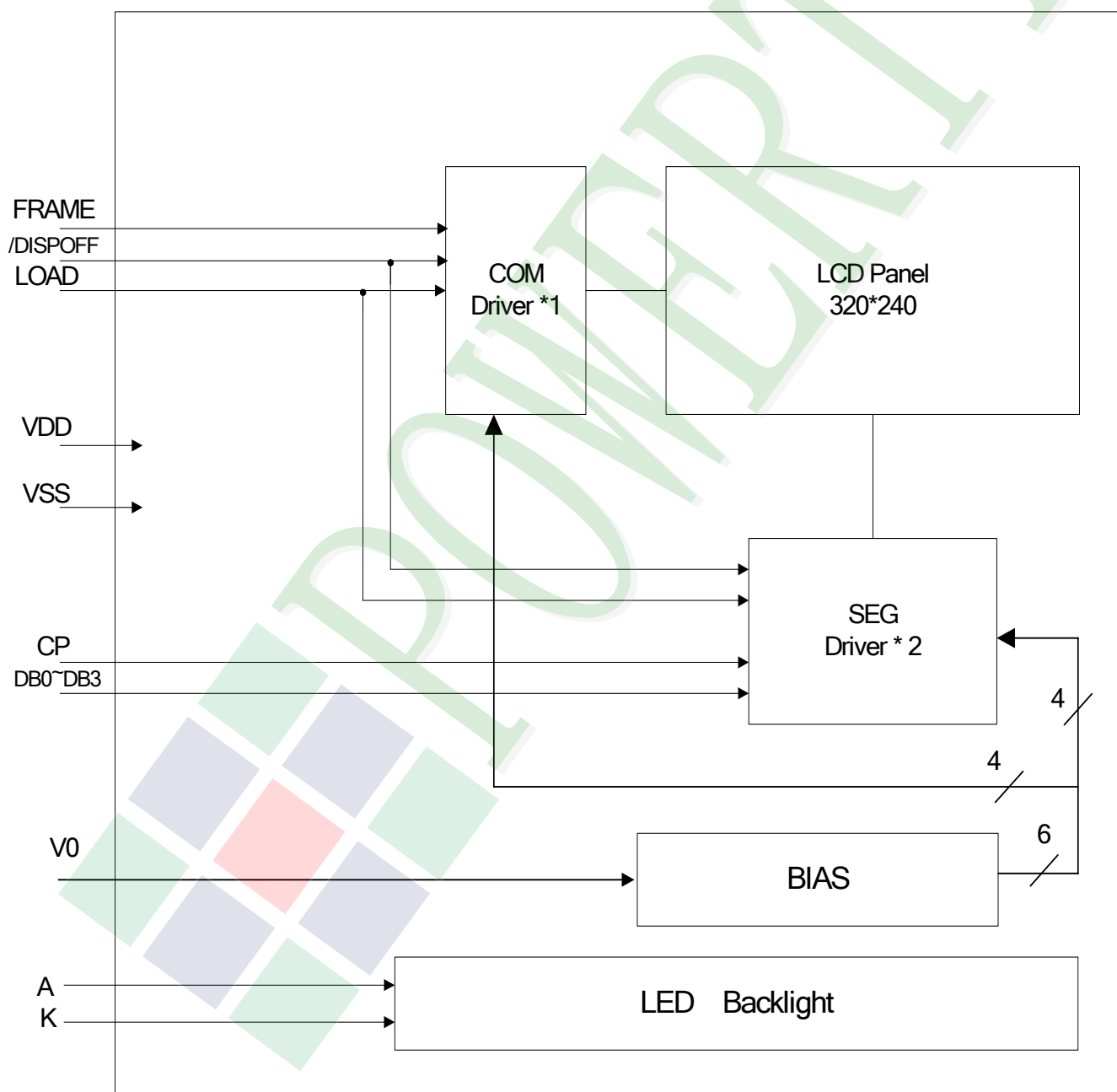
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

Block Diagram



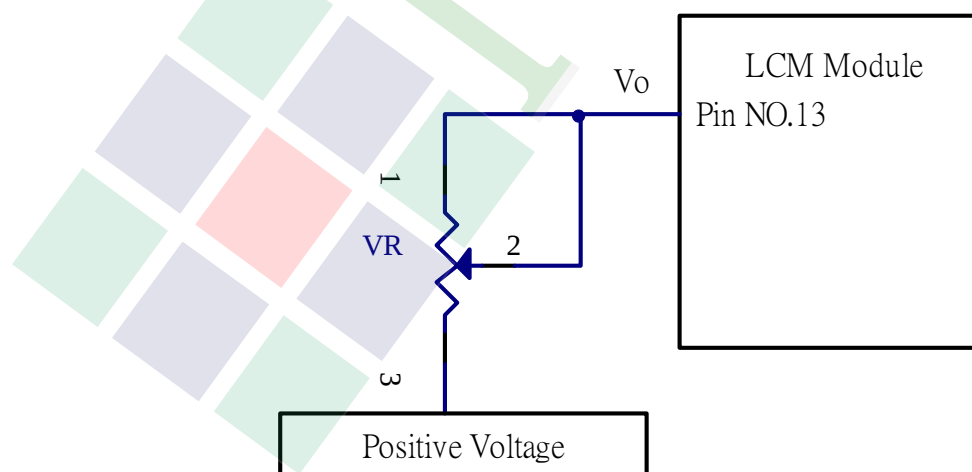
2.2 Interface Pin Description

Pin No.	Symbol	Function
1	DB0	Display data input pin
2	DB1	Display data input pin
3	DB2	Display data input pin
4	DB3	Display data input pin
5	/DISPOFF	Enable Driver On (H) or Off (L)
6	FRAME	First Line Marker
7	N C	Not Connect , Must be open
8	LOAD	Input data latch signal
9	CP	Data input shift signal
10	V _{DD}	Logic system power supply pin
11	V _{SS}	System Ground
12	NC	Not Connect
13	V _O	LCD Contrast Adjust
14	V _{SS}	System Ground

B/L Interface Pin Description

Pin No.	Symbol	Function
1	A	Power supply for LED backlight anode input
2	-	-
3	K	Power supply for LED backlight cathode input

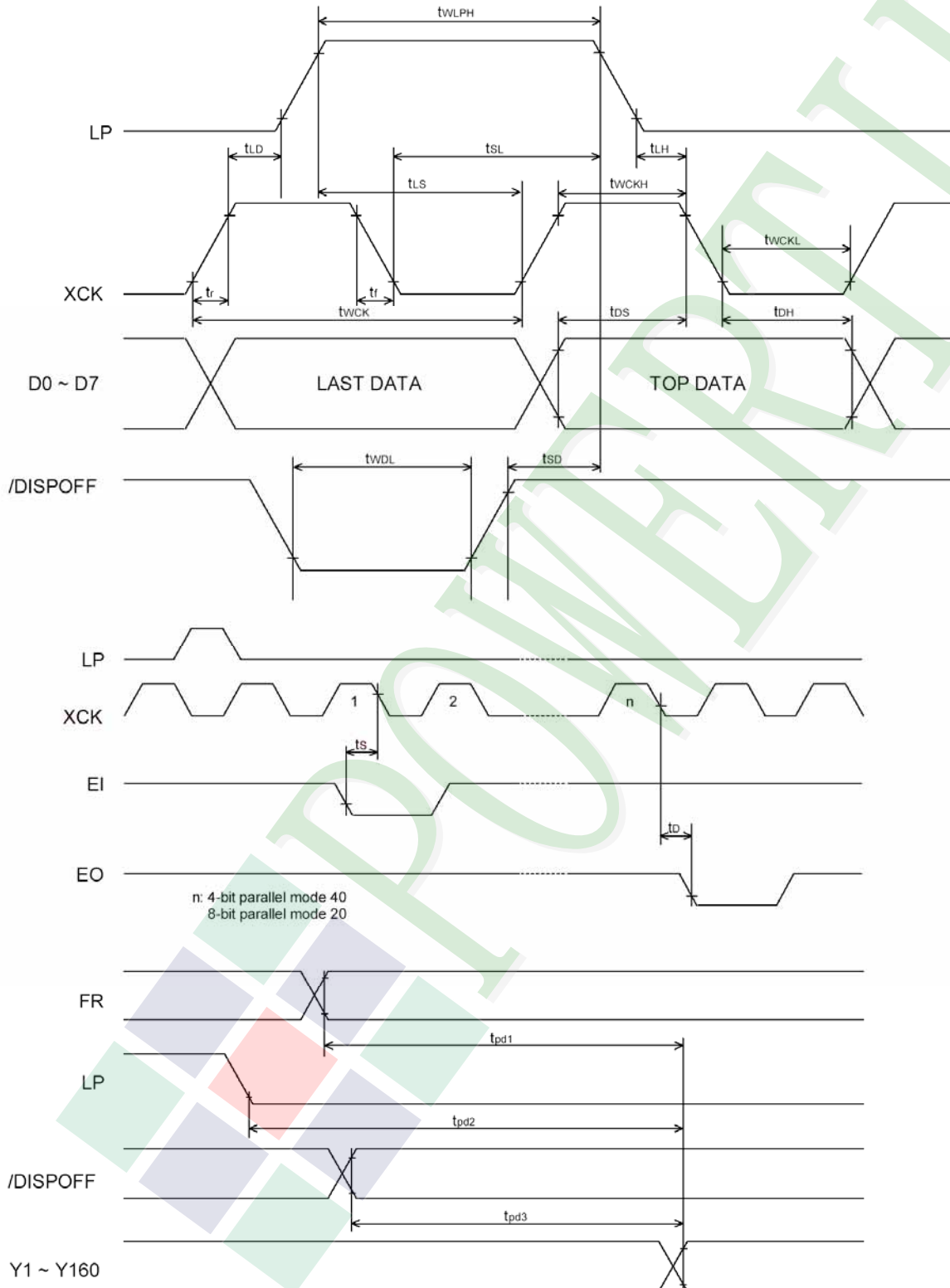
Contrast Adjust:





2.3 Timing Characteristics

NT7711 Segment Mode



VDD=4.5~5.5V

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Shift clock period	tWCK	50	-		ns	tr, tf ≤ 10ns, Note 1
Shift clock "H" pulse width	tWCKH	15	-		ns	
Shift clock "L" pulse width	tWCKL	15	-		ns	
Data setup time	tDS	10	-		ns	
Data hold time	tDH	12	-		ns	
Latch pulse "H" pulse width	tWLPH	15	-		ns	
Shift clock rise to Latch pulse rise time	tLD	0	-		ns	
Shift clock fall to Latch pulse fall time	tSL	30	-		ns	
Latch pulse rise to Shift clock rise time	tLS	25	-		ns	
Latch pulse fall to Shift clock fall time	tLH	25	-		ns	
Input signal rise time	tr		-	50	ns	Note 2
Input signal fall time	tf		-	50	ns	Note 2
Enable setup time	tS	20	-		ns	
/DISPOFF Removal time	tSD	100	-		ns	
/DISPOFF enable pulse width	tWDL	1.2	-		μs	
Output delay time (1)	tD		-	30	ns	CL=15pF
Output delay time (2)	tpd1, tpd2		-	1.2	μs	CL=15pF
Output delay time (3)	tpd3		-	1.2	μs	CL=15pF

Note

1. Take the cascade connection into consideration.
2. (tWCK - tWCKH - tWCKL)/2 is the maximum in the case of high speed operation.

VDD=2.9~4.5V

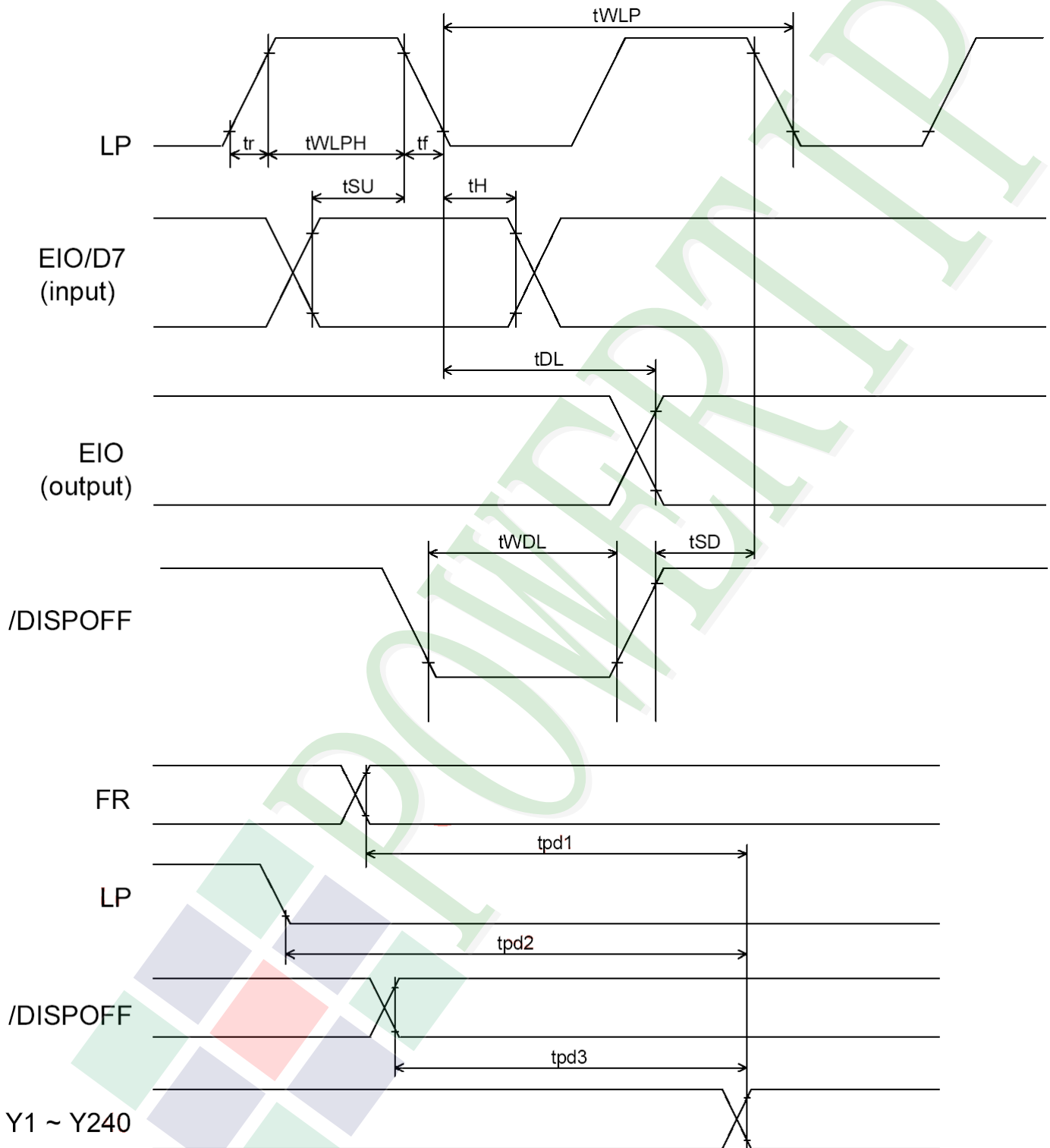
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Shift clock period	tWCK	82	-		ns	tr, tf ≤ 10ns, Note 1
Shift clock "H" pulse width	tWCKH	28	-		ns	
Shift clock "L" pulse width	tWCKL	28	-		ns	
Data setup time	tDS	20	-		ns	
Data hold time	tDH	23	-		ns	
Latch pulse "H" pulse width	tWLPH	30	-		ns	
Shift clock rise to Latch pulse rise time	tLD	0	-		ns	
Shift clock fall to Latch pulse fall time	tSL	65	-		ns	
Latch pulse rise to Shift clock rise time	tLS	30	-		ns	
Latch pulse fall to Shift clock fall time	tLH	35	-		ns	
Input signal rise time	tr		-	50	ns	Note 2
Input signal fall time	tf		-	50	ns	Note 2
Enable setup time	tS	30	-		ns	
/DISPOFF Removal time	tSD	100	-		ns	
/DISPOFF enable pulse width	tWDL	1.2	-		μs	
Output delay time (1)	tD		-	57	ns	CL=15pF
Output delay time (2)	tpd1, tpd2		-	1.2	μs	CL=15pF
Output delay time (3)	tpd3		-	1.2	μs	CL=15pF

Note

1. Take the cascade connection into consideration.
2. (tWCK - tWCKH - tWCKL)/2 is the maximum in the case of high speed operation.



NT7712 Common Mode



VDD=2.9~5.5V

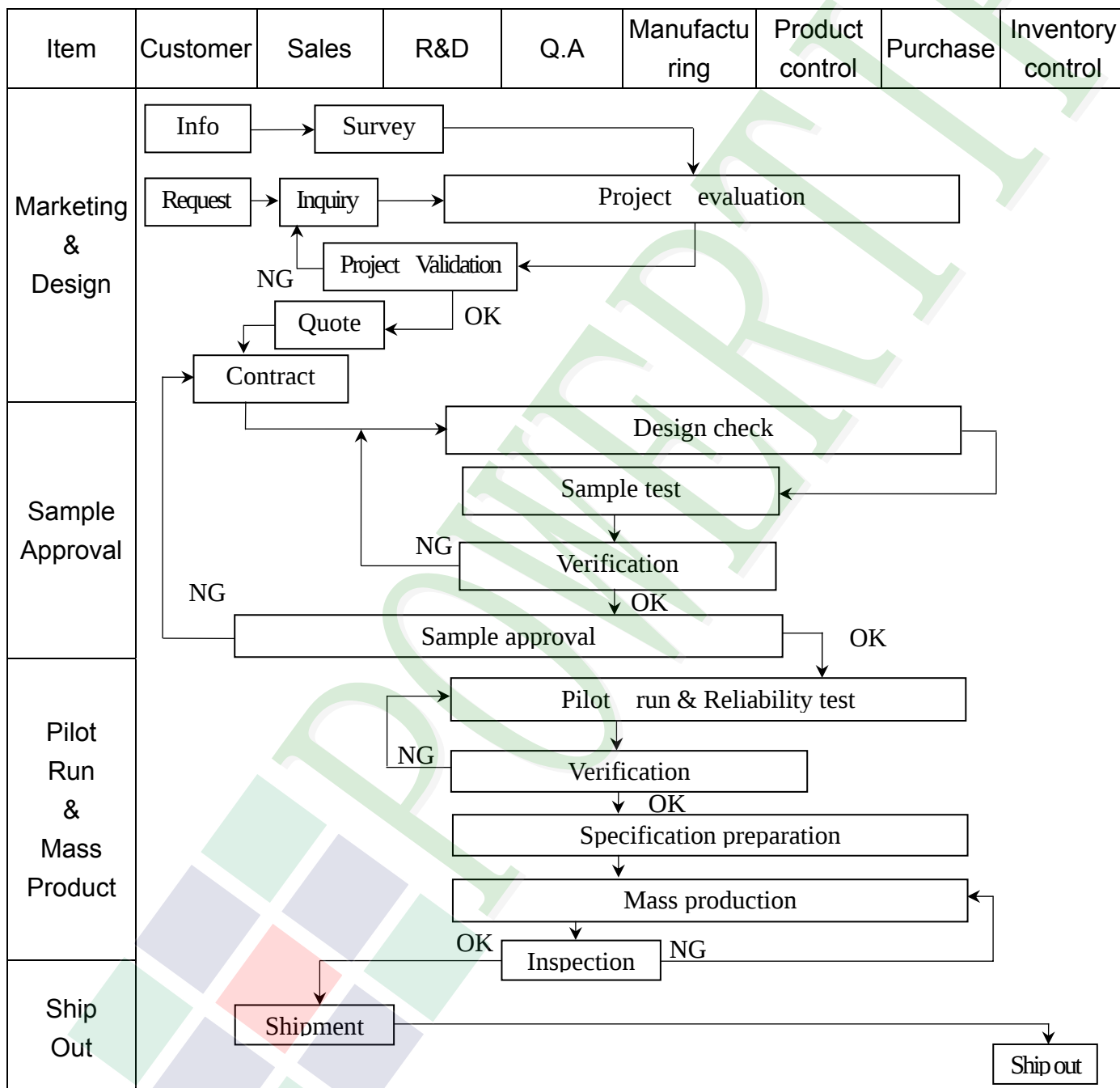
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Shift clock period	t_{WLP}	250	-	-	ns	$t_r, t_f \leq 20\text{ns}$
Shift clock "H" pulse width	t_{WLPH}	15	-	-	ns	VDD=5.0V±10%
		30	-	-	ns	VDD=2.5~4.5V
Data setup time	t_{SU}	30	-	-	ns	
Data hold time	t_H	50	-	-	ns	
Input signal rise time	t_r		-	50	ns	
Input signal fall time	t_f		-	50	ns	
/DISPOFF Removal time	t_{SD}	100	-	-	ns	
/DISPOFF enable pulse width	t_{WDL}	1.2	-	-	μs	
Output delay time (1)	t_{DL}	-	-	200	ns	CL=15pF
Output delay time (2)	t_{pd1}, t_{pd2}	-	-	1.2	μs	CL=15pF
Output delay time (3)	t_{pd3}	-	-	1.2	μs	CL=15pF

2.4 JUMPER(Setting different use)

JO(3-2) SHORT

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 --> Failure[Failure analysis]; Claim --> Report[Analysis report]; Failure --> Action[Corrective action]; Action --> 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 LCD Module for Monotype and Color STN(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 .

◆ **Manner of appearance test** :

- (1). The test be under 20W×2 fluorescent light ' and distance of view must be at 30 cm.
- (2). Standard of inspection : (Unit : mm)
- (3). The test direction is base on about around 45° of vertical line. (Fig. 1)
- (4). Definition of area . (Fig. 2)

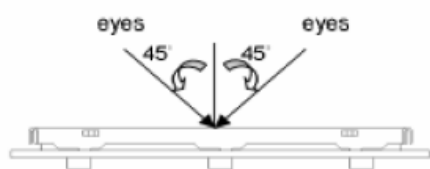


Fig.1

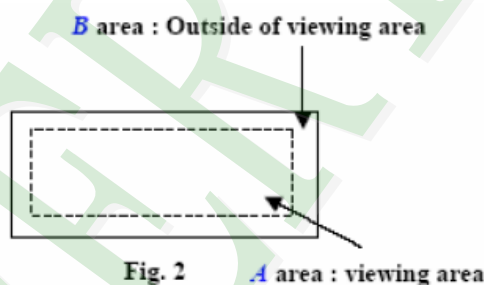


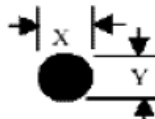
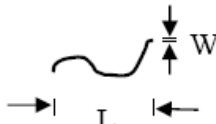
Fig. 2

◆ **Specification:**

NO	Item	Criterion	Level
01	Product condition	1. 1 The part number is inconsistent with work order of Production.	Major
		1. 2 Mixed production 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 Output data is error.	Major
		4. 4 LCD viewing angle defect.	Major
		4. 5 Current consumption exceeds product specifications.	Major

◆Specification For Monotype and Color STN :

(Ver. B01)

NO	Item	Criterion	Level																																			
05	Black or white dot 、 scratch 、 contamination Round type  $\Phi=(x+y)/2$ Line type 	5. 1 Round type: 5. 1. 1 display only : • White and black spots on display ≤ 0.30 mm , no more than 4 white or black spots present. • Densely spaced : NO more than two spots or lines within 3 mm. 5. 1. 2 Non-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>$\Phi \leq 0.10$</td><td>Accept no dense</td><td rowspan="4">Ignore</td></tr><tr><td>$0.10 < \Phi \leq 0.20$</td><td>3</td></tr><tr><td>$0.20 < \Phi \leq 0.30$</td><td>2</td></tr><tr><td>Total quantity</td><td>4</td></tr></table> 5. 1. 3 Line type: <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>Accept no dense</td><td rowspan="3">Ignore</td></tr><tr><td>$L \leq 3.0$</td><td>$0.03 < W \leq 0.05$</td><td rowspan="2">4</td></tr><tr><td>$L \leq 2.5$</td><td>$0.05 < W \leq 0.075$</td></tr><tr><td>---</td><td>$W > 0.075$</td><td colspan="2">As round type</td></tr></table>	Dimension (diameter : Φ)	Acceptance (Q'ty)		A area	B area	$\Phi \leq 0.10$	Accept no dense	Ignore	$0.10 < \Phi \leq 0.20$	3	$0.20 < \Phi \leq 0.30$	2	Total quantity	4	Dimension		Acceptance (Q'ty)		Length (L)	Width (W)	A area	B area	---	$W \leq 0.03$	Accept no dense	Ignore	$L \leq 3.0$	$0.03 < W \leq 0.05$	4	$L \leq 2.5$	$0.05 < W \leq 0.075$	---	$W > 0.075$	As round type		Minor
Dimension (diameter : Φ)	Acceptance (Q'ty)																																					
	A area	B area																																				
$\Phi \leq 0.10$	Accept no dense	Ignore																																				
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---	$W \leq 0.03$	Accept no dense	Ignore																																			
$L \leq 3.0$	$0.03 < W \leq 0.05$	4																																				
$L \leq 2.5$	$0.05 < W \leq 0.075$																																					
---	$W > 0.075$	As round type																																				
06	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>$\Phi \leq 0.20$</td><td>Accept no dense</td><td rowspan="4">Ignore</td></tr><tr><td>$0.20 < \Phi \leq 0.50$</td><td>3</td></tr><tr><td>$0.50 < \Phi \leq 1.00$</td><td>2</td></tr><tr><td>$\Phi > 1.00$</td><td>0</td></tr><tr><td>Total quantity</td><td>4</td><td></td></tr></table>	Dimension (diameter : Φ)	Acceptance (Q'ty)		A area	B area	$\Phi \leq 0.20$	Accept no dense	Ignore	$0.20 < \Phi \leq 0.50$	3	$0.50 < \Phi \leq 1.00$	2	$\Phi > 1.00$	0	Total quantity	4		Minor																		
Dimension (diameter : Φ)	Acceptance (Q'ty)																																					
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$\Phi > 1.00$	0																																					
Total quantity	4																																					



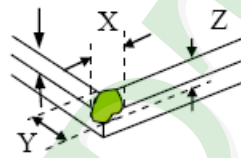
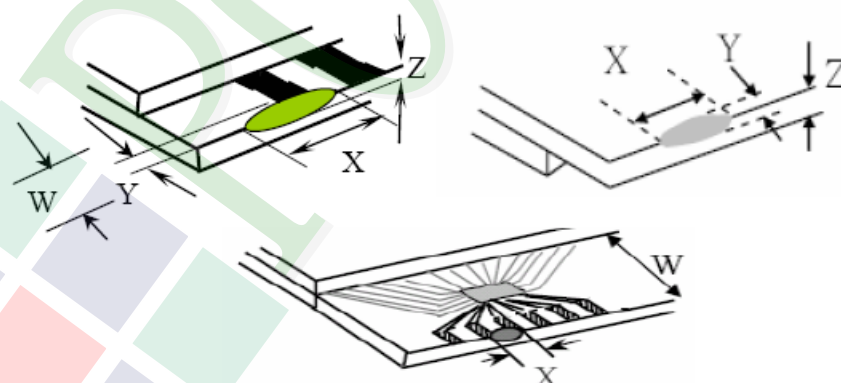
◆ Specification For Monotype and Color STN :

(Ver. B01)

NO	Item	Criterion	Level						
07	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						
		7.1 General glass chip : 7.1.1 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.	$1/2 t < Z \leq 2 t$							

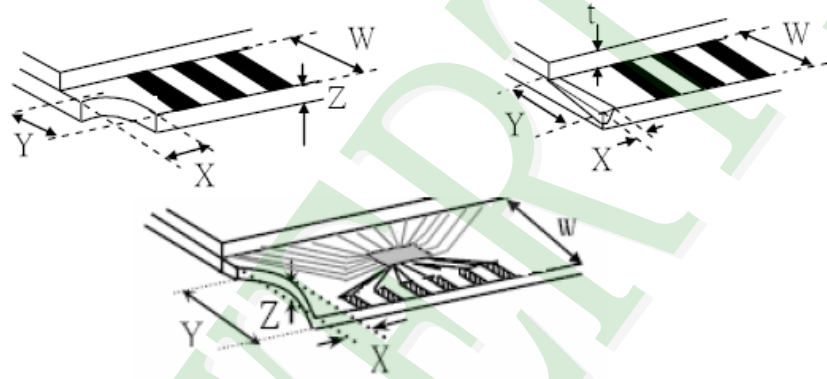
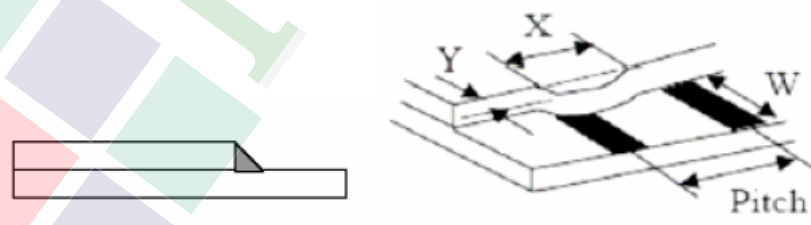
◆ Specification For Monotype and Color STN :

(Ver. B01)

NO	Item	Criterion	Level									
07	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 7.1.2 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.	$1/2 t < Z \leq 2 t$										
7.2 Protrusion over terminal : 7.2.1 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 colspan="3">Neglect</td></tr></table>		X	Y	Z	Front	$\leq a$	$\leq 1/2 W$	$\leq t$	Back	Neglect		
	X	Y	Z									
Front	$\leq a$	$\leq 1/2 W$	$\leq t$									
Back	Neglect											

◆ Specification For Monotype and Color STN :

(Ver. B01)

NO	Item	Criterion	Level									
07	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									
		7.2.2 Non-conductive portion :  <table><tr><th>X</th><th>Y</th><th>Z</th></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. 7.2.3 Glass remain :  <table><tr><th>X</th><th>Y</th><th>Z</th></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
X	Y	Z										
$\leq 1/3 a$	$\leq W$	$\leq t$										
X	Y	Z										
$\leq a$	$\leq 1/3 W$	$\leq t$										



◆ Specification For Monotype and Color STN :

(Ver. B01)

NO	Item	Criterion	Level
08	Backlight elements	8. 1 Backlight can't work normally.	Major
		8. 2 Backlight doesn't light or color is wrong.	Major
		8. 3 Illumination source flickers when lit.	Major
09	General appearance	9. 1 Pin type must match type in specification sheet.	Major
		9. 2 No short circuits in components on PCB or FPC.	Major
		9. 3 Product packaging must the same as specified on packaging specification sheet.	Minor
		9. 4 The folding and peeled off in polarizer are not acceptable.	Minor
		9. 5 The PCB or FPC between B/L assembled distance (PCB or FPC) is ≤ 1.5 mm.	Minor



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.

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

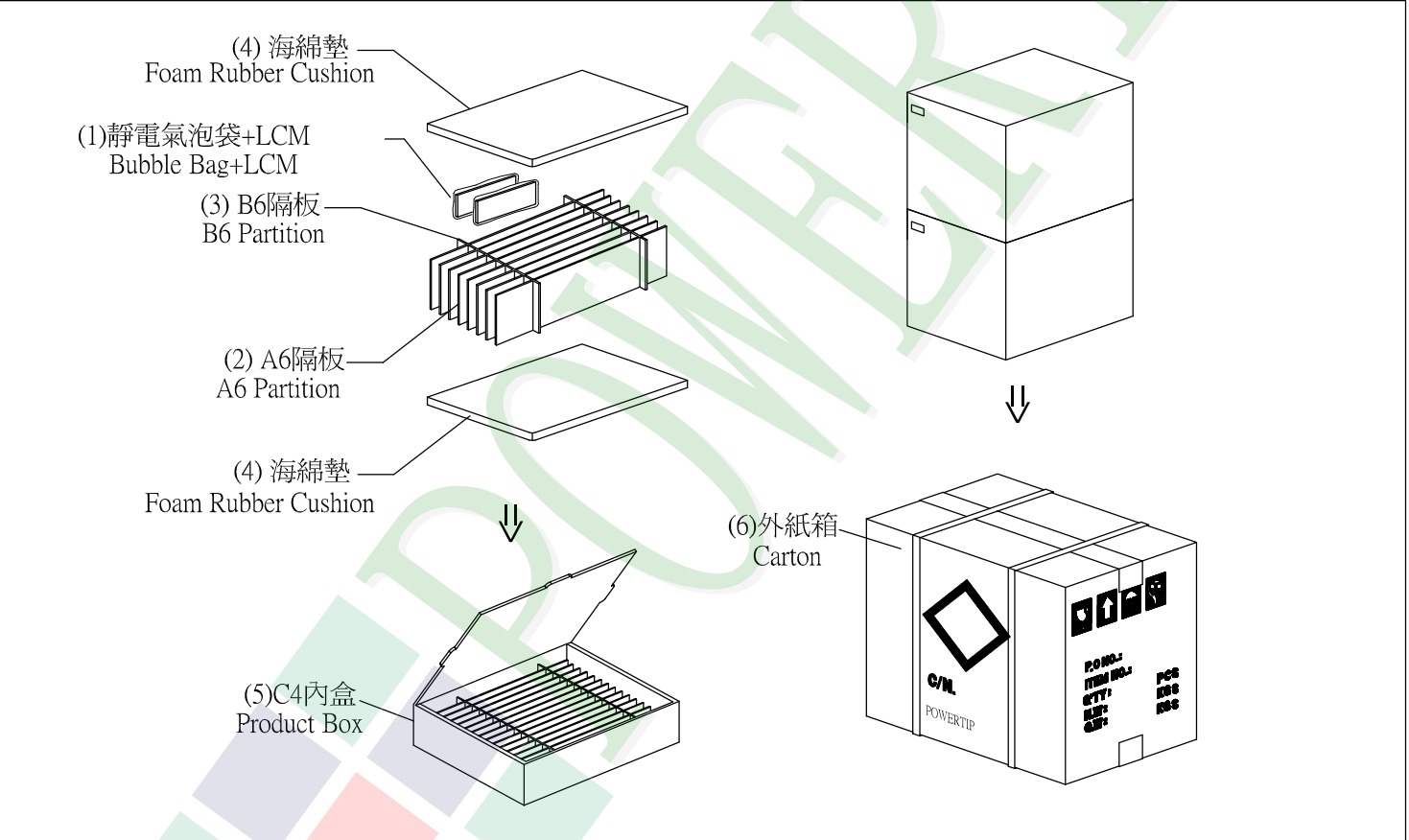
No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 (LCM)	PE320240WRF-008-HQ	167.0 X 111.0	0.1825	28	5.11
2	靜電氣泡袋(1)Bubble Bag	BAG170150BRABA	150 X 175	0.0047	28	0.132
3	A6隔板(2)A6 Partition	BX33800012BZBA	338 X 125 X 3	0.038	16	0.608
4	B6隔板(3)B6 Partition	BX29800012BZBA	298 X 125 X 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) : 7.74 Kg±10%

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

(1)Quantity Of Spacer : A6隔板 X 8 , 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2片模組，前後間 隔不放
置模組。(如示意圖)

2. 2 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

1. 模組(LCM) X 2pcs.

2. 空格(Blank Space)