

SPECIFICATIONS

CUSTOMER	:	CES008
SAMPLE CODE	:	PS320240WRM-002I01
MASS PRODUCTION CODE	:	PE320240WRM002IP1Q
SAMPLE VERSION	:	02
SPECIFICATIONS EDITION	:	003
DRAWING NO. (Ver.)	:	LMD-PE320240WRM002IP1Q_002
PACKAGING NO. (Ver.)	:	PKG-PE320240WRM002IP1Q_001

Customer Approved

Date:



Approved	Checked	Designer
閔偉 Ryan	劉進 Lori	汪秀俊

- Preliminary specification for design input
- Specification for sample approval

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Note : For detailed information please refer to IC data sheet : RAIO --- RA8835P3N

1. SPECIFICATIONS

1.1 Features

Item	Standard Value
Display Type	320 * 240 Dots
LCD Type	STN, Negative, Transmissive
Driver Condition	LCD Module: 1/240 Duty, 1/15 Bias
Viewing Direction	6 O'clock
Backlight	LED B/L
Weight	250 g
Interface	Support 8080 MPU Parallel 8 Bits data bus
Controller IC	RAIO RA8835P3N
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	153.54 (L) * 120.24 (w) * 18.9(H)(Max)	mm
Viewing Area	120.14 (L) * 92.14 (w)	mm
Active Area	115.18 (L) * 86.38 (w)	mm
Dot Size	0.34 (L) * 0.34 (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_0-V_{SS}	—	-0.3	+25.0	V
Input Voltage	V_{IN}	—	-0.3	$V_{DD}+0.3$	V
Operating Temperature	T_{OP}	—	-20	70	°C
Storage Temperature.	T_{ST}	—	-30	80	°C
Storage Humidity	H_D	$T_a < 60\text{ °C}$	20	90	%RH

1.4 DC Electrical Characteristics

$V_{DD} = 4.5V \sim 5.5V$, $V_{SS} = 0V$, $T_a = 25^{\circ}C$

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Logic Supply Voltage	V_{DD}	—	4.5	5.0	5.5	V
“H” Input Voltage	V_{IH}	—	$0.5 V_{DD}$	—	V_{DD}	V
“L” Input Voltage	V_{IL}	—	V_{SS}	—	$0.2 V_{DD}$	V
“H” Output Voltage	V_{OH}	$I_{OH} = -5.0mA$	2.4	—	—	V
“L” Output Voltage	V_{OL}	$I_{OL} = +5.0mA$	—	—	$V_{SS} + 0.4$	V
Supply current	I_{DD}	$V_{DD} = 5.0V$	—	40	80	mA
LCM driving voltage	V_{OP} (V_{OP+} - V_{OP-})	-20°C	21.7	21.9	22.1	V
		25°C	21.2	21.5	21.8	
		70°C	20.2	20.4	20.6	

1.5 Optical Characteristics

LCD Panel: 1/240 Duty, 1/15 Bias, $V_{LCD} = 22\text{ V}$, $T_a = 25^\circ\text{C}$

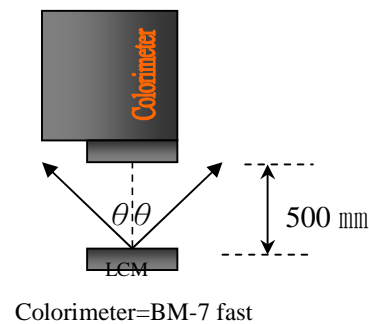
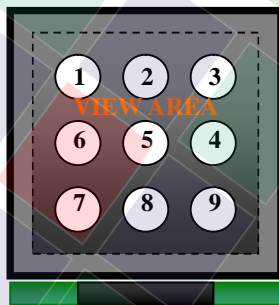
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	Reference
Response Time	Rise	tr	-	230	345	ms	Note2
	Fall	tf	-	130	195		
Viewing angle range	Top	$\theta Y+$	-	40	-	Deg.	Note 1
	Bottom	$\theta Y-$	-	40	-		
	Left	$\theta X-$	-	45	-		
	Right	$\theta X+$	-	45	-		
Contrast Ratio	CR	$\theta = 0^\circ$, $\phi = 270^\circ$,	-	3	-	-	Note 3
Average Brightness (with B/L) *2	IV	IF =160mA	45	180	-	cd/m ²	-
CIE Color Coprdinate (with B/L) *2	X		0.27	0.32	0.37	-	Note 4
	Y	0.29	0.34	0.39			
Uniformity *1	ΔB		70	-	-	%	-

Note 4:

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

2 : Measurement Condition for Optical Characteristics:

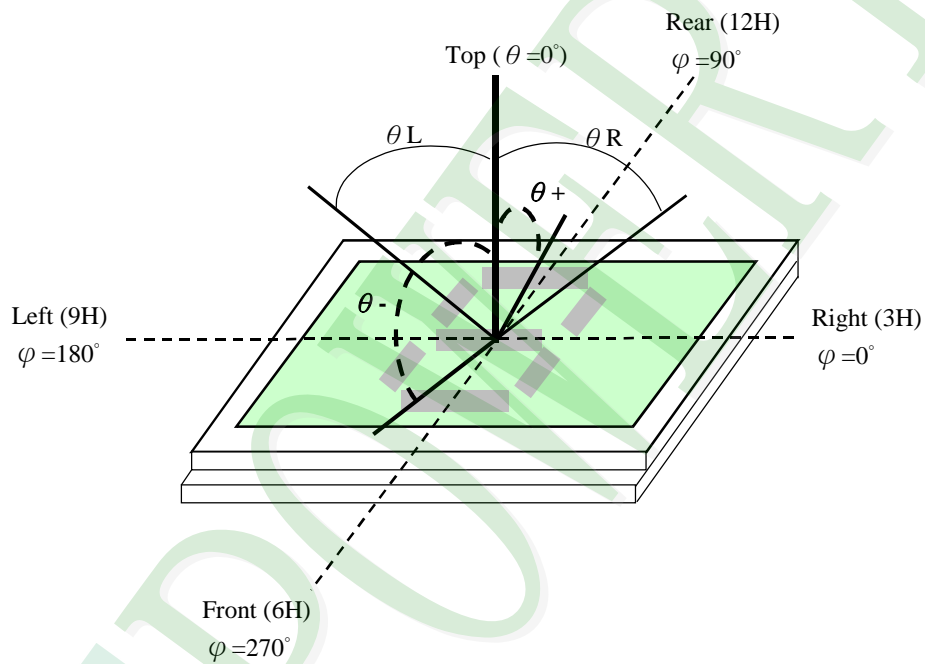
- a : Environment: $25^\circ\text{C} \pm 5^\circ\text{C}$ / $60 \pm 20\%$ R.H , no wind , dark room below 10 Lux at typical lamp current and typical operating frequency.
- b : Measurement Distance: 500 ± 50 mm , ($\theta = 0^\circ$)
- c : Equipment: TOPCON BM-7 fast , (field 1°) , after 10 minutes operation.
- d : The uncertainty of the C.I.E coordinate measurement ± 0.01 , Average Brightness $\pm 4\%$



Note 1.

Optical characteristics-2

Viewing angle

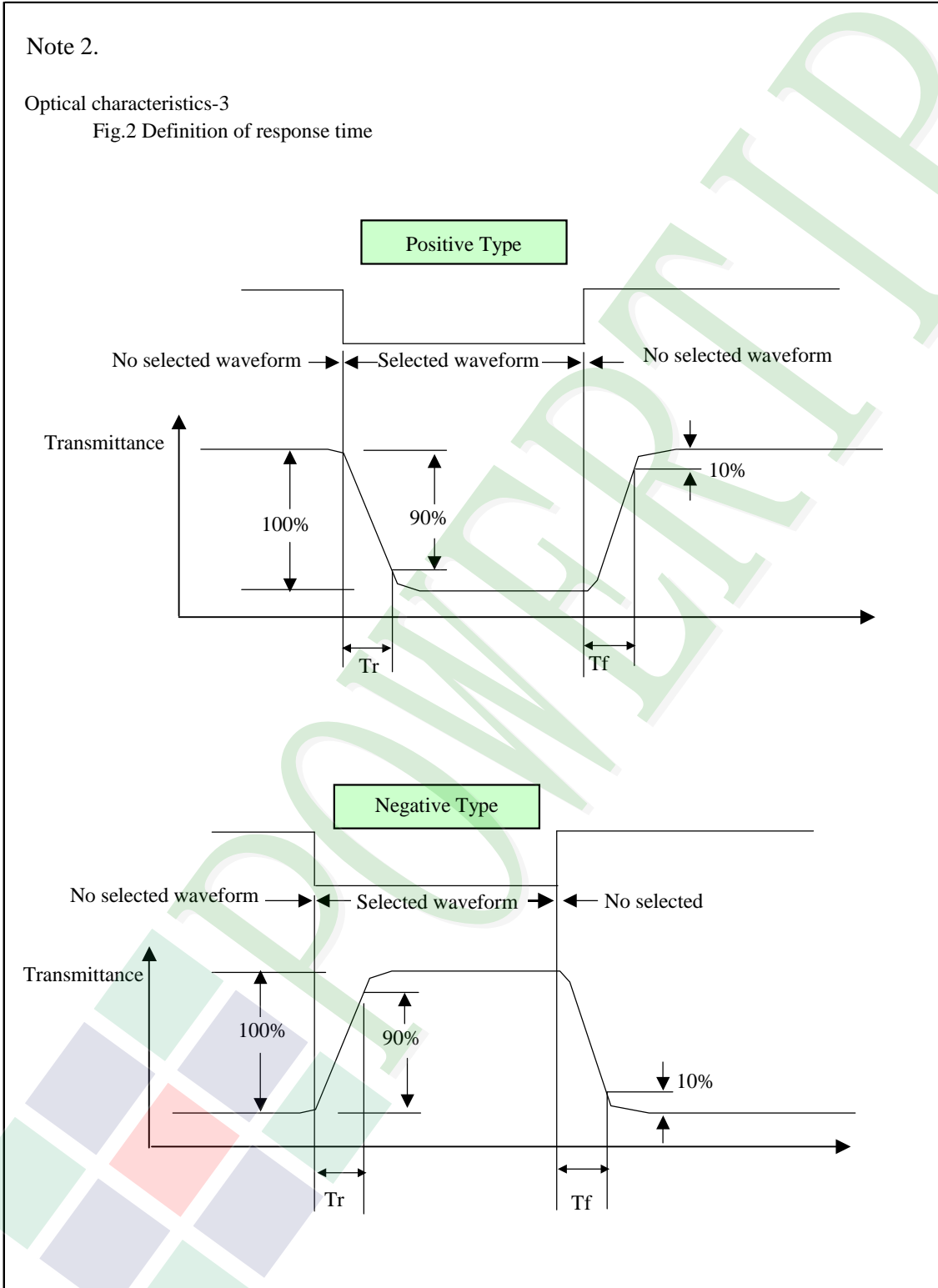


Viewing angle

Note 2.

Optical characteristics-3

Fig.2 Definition of response time





POWER TIP

Electrical characteristics-2

※2 Drive waveform

Vop: Drive voltage

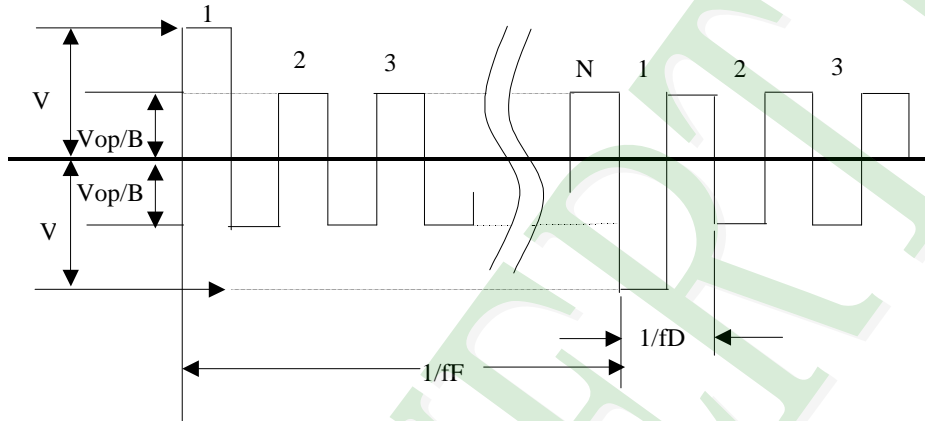
1/B: Bias

N: Duty

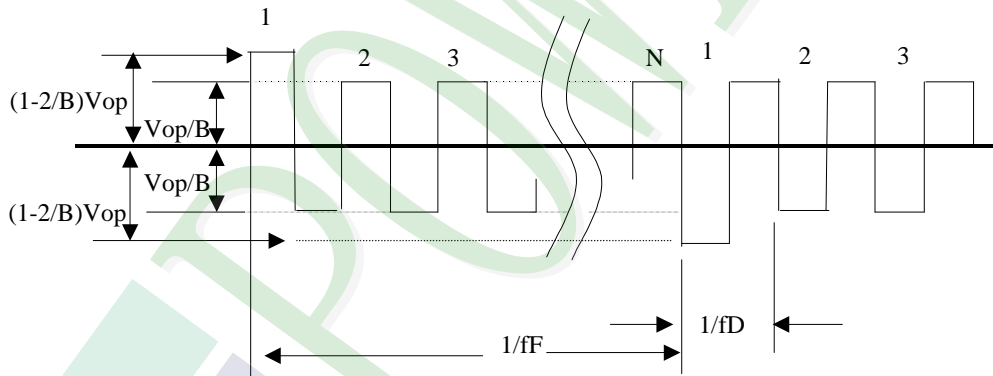
fF: Frame frequency

fD: Drive frequency

(1) Selected waveform



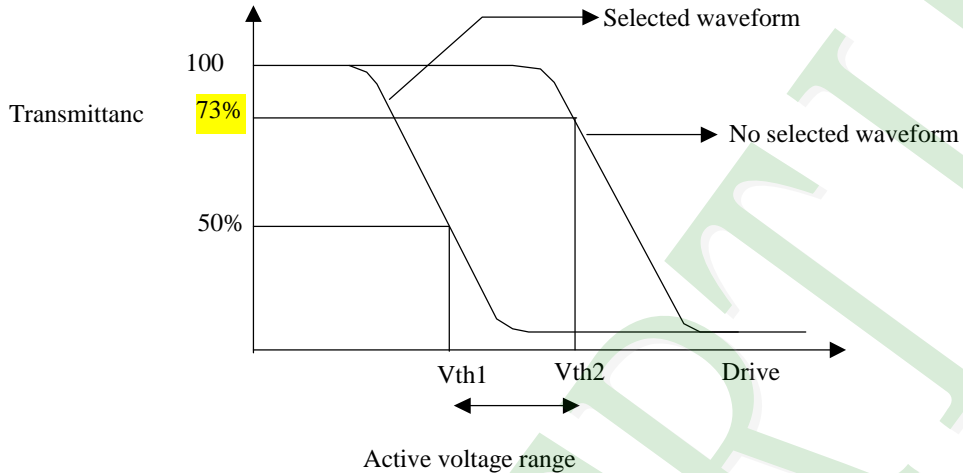
(2) Non- Selected waveform



Note:

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

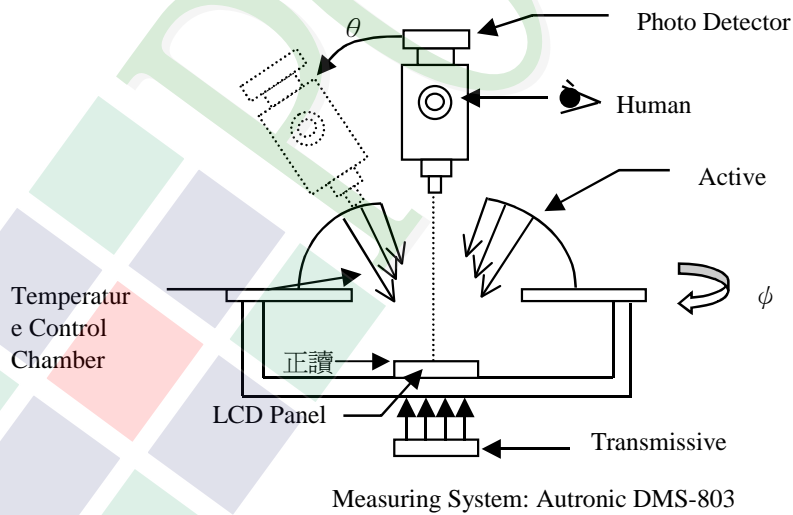
Note 3. : Definition of Vth



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

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

Outline of Electro-Optical Characteristics Measuring System



1.6 Backlight Characteristics

LCD Module with LED Backlight

Maximum Ratings

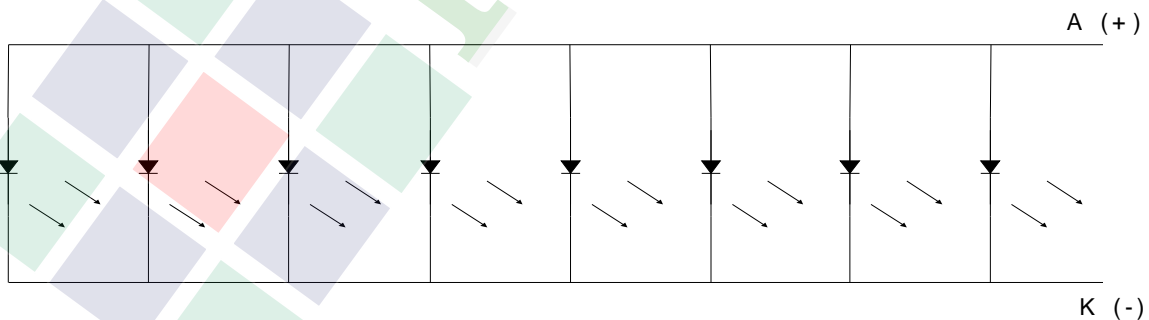
Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	I_F	$T_a = 25^\circ\text{C}$	—	160	mA
Reverse Voltage	V_R	$T_a = 25^\circ\text{C}$	—	5	V
Power Dissipation	P_D	$T_a = 25^\circ\text{C}$	—	0.8	W

Electrical / Optical Characteristics

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

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 160\text{ mA}$	—	3.7	4.2	V
Reverse Current	I_R	$V_R = 5\text{ V}$	—	—	10	μA
Average Brightness (Without LCD) *1	I_V	$I_F = 160\text{ mA}$	210	280	—	cd/m^2
CIE Color Coordinate (Without LCD) *1	X	$I_F = 160\text{ mA}$	0.25	0.28	0.31	—
	Y		0.26	0.29	0.32	
Uniformity *2	ΔB	$I_F = 160\text{ mA}$	70	—	—	%
Color	White					

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



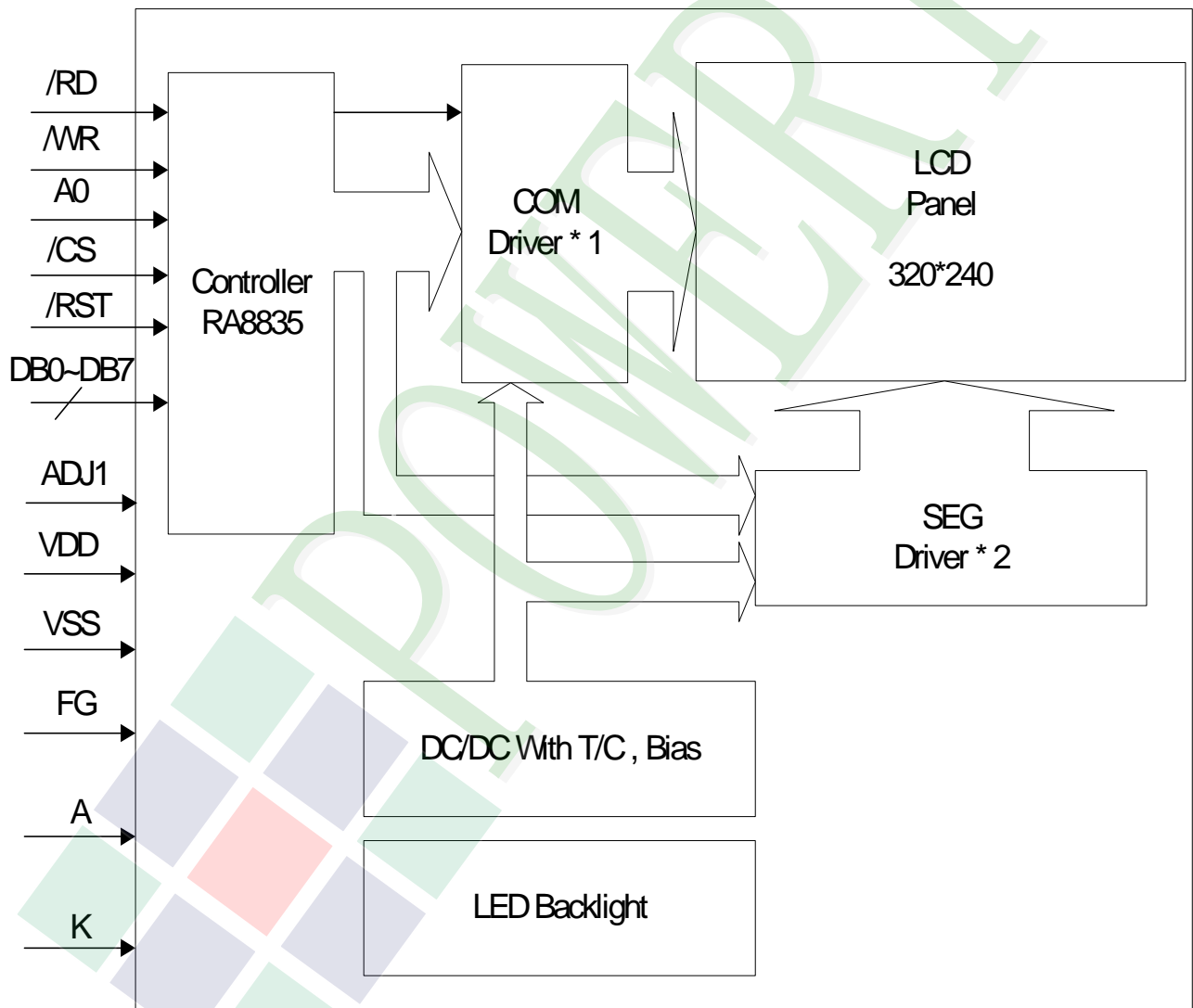
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram



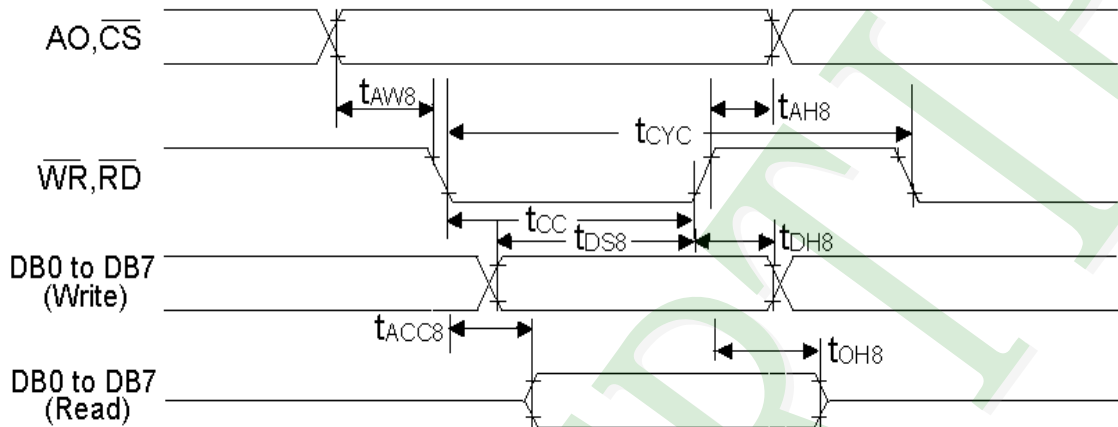
2.2 Interface Pin Description

Pin No.	Symbol	Function
1	V _{SS}	Ground (V _{SS} =0 V)
2	V _{DD}	Power Supply (V _{DD} = 5.0 V)
3	ADJ1	Operating voltage for LCD. (Must be open)
4	/RD	Data read (read data from the module at "L")
5	/WR	Data write (write data to the module at "L")
6	A0	Command / Data read or write select (H: command, L : data)
7	DB0	Data bus bit 0
8	DB1	Data bus bit 1
9	DB2	Data bus bit 2
10	DB3	Data bus bit 3
11	DB4	Data bus bit 4
12	DB5	Data bus bit 5
13	DB6	Data bus bit 6
14	DB7	Data bus bit 7
15	/CS	Chip select, active "L"
16	/RST	Reset input, active "L"
17	ADJ1	Operating voltage for LCD. (Must be open)
18	FG	Frame ground (connected to metal bezel)
19	NC	Not connection (Must be open)
20	NC	Not connection (Must be open)
	A	Power supply for LED backlight anode input.
	K	Power supply for LED backlight cathode input.

Built in positive voltage generator circuit and temperature compensation circuit.
 Built in Timing mode for 8080 families.

2.3 Timing Characteristics

8080 family interface timing



Signal	Symbol	Parameter	Min	Max	Unit
AO, /CS	t_{AH8}	Address hold time	10	-	ns
	t_{AW8}	Address setup time	0	-	ns
/WR, /RD	t_{CYC8}	System cycle time	See note	-	ns
	t_{CC}	Strobe pulse width	120	-	ns
DB0 to DB7	t_{DS8}	Data setup time	120	-	ns
	t_{DH8}	Data hold time	5	-	ns
	t_{ACC8}	RD access time	-	50	ns
	t_{OH8}	Output disable time	10	50	ns

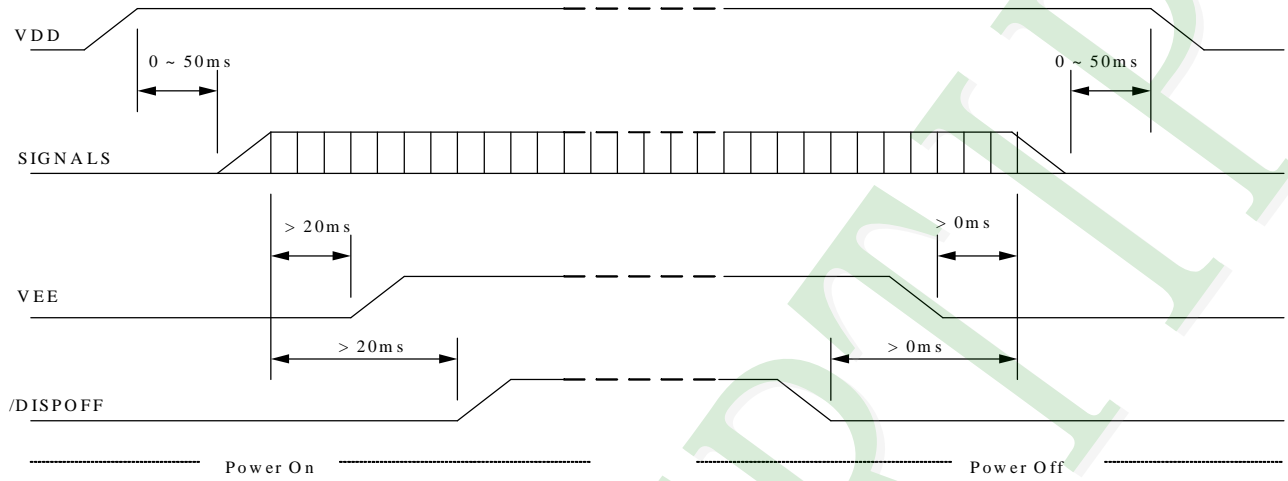
Note : For memory control and system control command:

$$t_{CYC8} = 2t_c + t_{CC} + t_{CEA} + 75 > t_{ACV} + 245$$

For all other commands:

$$t_{CYC8} = 4t_c + t_{CC} + 30$$

Timing of power supply for graphic modules



Display Command

Class	Command	Code											Hex	Command description	Command read Parameters		
		RD	WR	A0	D7	D6	D5	D4	D3	D2	D1	D0			Number of bytes	Section	
System control	SYSTEM SET	1	0	1	0	1	0	0	0	0	0	0	0	40	Initialize device and display	8	9.2.1
	SLEEP IN	1	0	1	0	1	0	1	0	0	1	1	53	Enter standby mode	0	9.2.2	
Display control	DISP ON/OFF	1	0	1	0	1	0	1	1	0	0	D	58.59	Enable and disable display and display flashing	1	9.3.1	
	SCROLL	1	0	1	0	1	0	0	0	1	0	0	44	Set display start address and display regions	10	9.3.2	
	CSRFORM	1	0	1	0	1	0	1	1	1	0	1	5D	Set cursor type	2	9.3.3	
	CGRAM ADR	1	0	1	0	1	0	1	1	1	0	0	5C	Set start address of character generator RAM	2	9.3.6	
	CSRDIR	1	0	1	0	1	0	0	1	1	CD 1	CD 0	4C to 4F	Set direction of cursor movement	0	9.3.4	
	HDOT SCR	1	0	1	0	1	0	1	1	0	1	0	5A	Set horizontal scroll position	1	9.3.7	
	OVLAY	1	0	1	0	1	0	1	1	0	1	1	5B	Set display overlay format	1	9.3.5	
Drawing control	CSRW	1	0	1	0	1	0	0	0	1	1	0	46	Set cursor address	2	9-r1	
	CSRR	1	0	1	0	1	0	0	0	1	1	1	47	Read cursor address	2	9.4.2	
Memory control	MWRITE	1	0	1	0	1	0	0	0	0	1	0	42	Write to display memory	-	9.5.1	
	MRAD	1	0	1	0	1	0	0	0	0	1	1	43	Read from display memory	-	9.5.2	

Notes

- In general, the internal registers of the RA8835 series are modified as each command parameter is input. However, the microprocessor does not have to set all the parameters of a command and may send a new input will have been changed but the remaining parameter registers are unchanged.
 - 2-byte parameters (where two bytes are treated as 1 data item) are handled as follows:
 - CSRW, CSRR: Each byte is processed individually. The microprocessor may read or write just the low byte of the cursor address.
 - SYSTEM SET, SCROLL, CGRAM ADR: Both parameter bytes are processed together. If the command is changed after half of the parameter has been input, the single byte is ignored.
- APL and APH are 2-byte parameters, but are treated as two 1-byte parameters.



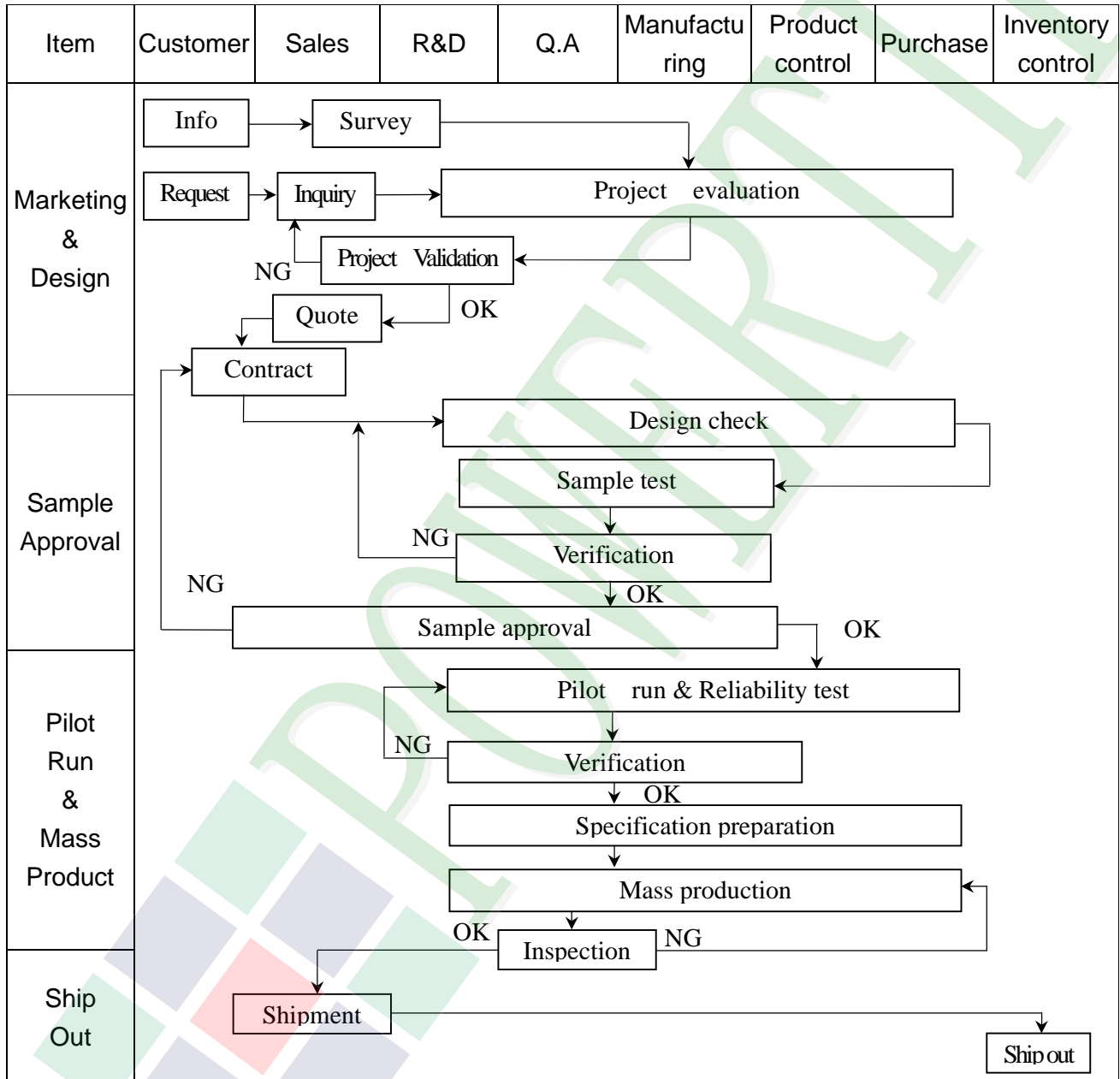
2.5 JUMPER(Setting different use)

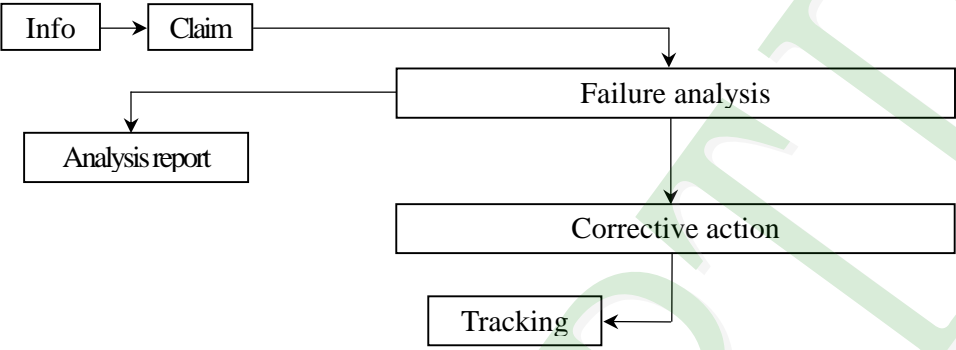
JMS(1),JDS(1),JP70(2),JP71(1),JP72(1), JP73(1),JP74(2),JP75(1),JP76(2),JP77(2),JF Short



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)

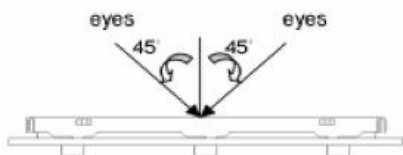


Fig.1

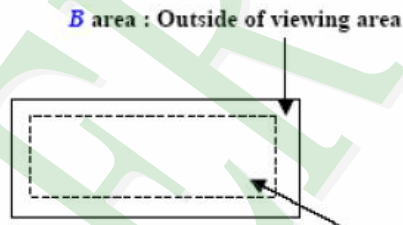


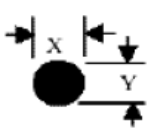
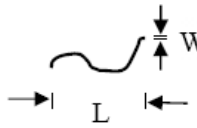
Fig. 2 A area : viewing area

◆ 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

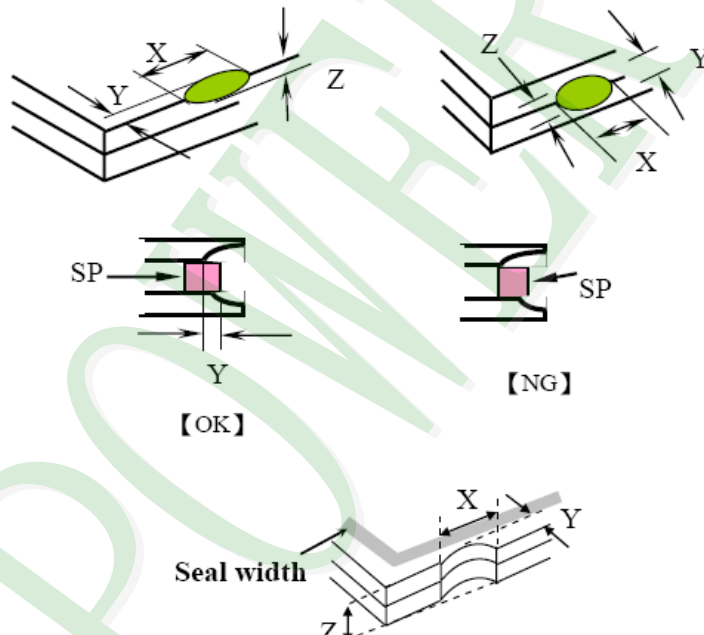
◆ Specification For Monotype and Color STN :

(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 : <ul style="list-style-type: none"> • 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 border="1" data-bbox="519 693 1299 1008"> <thead> <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> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td colspan="2">Accept no dense</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.20$</td> <td>3</td> <td rowspan="2">Ignore</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.30$</td> <td>2</td> </tr> <tr> <td>Total quantity</td> <td colspan="2">4</td> </tr> </tbody> </table> 5. 1. 3 Line type: <table border="1" data-bbox="470 1071 1347 1386"> <thead> <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> </thead> <tbody> <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> </tbody> </table>	Dimension (diameter : Φ)	Acceptance (Q'ty)		A area	B area	$\Phi \leq 0.10$	Accept no dense		$0.10 < \Phi \leq 0.20$	3	Ignore	$0.20 < \Phi \leq 0.30$	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
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06	Polarizer Bubble	<table border="1" data-bbox="470 1449 1347 1806"> <thead> <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> </thead> <tbody> <tr> <td>$\Phi \leq 0.20$</td> <td colspan="2">Accept no dense</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.50$</td> <td>3</td> <td rowspan="3">Ignore</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 colspan="2">4</td> </tr> </tbody> </table>	Dimension (diameter : Φ)	Acceptance (Q'ty)		A area	B area	$\Phi \leq 0.20$	Accept no dense		$0.20 < \Phi \leq 0.50$	3	Ignore	$0.50 < \Phi \leq 1.00$	2	$\Phi > 1.00$	0	Total quantity	4		Minor																			
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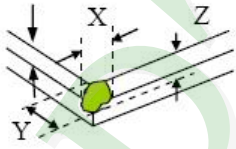
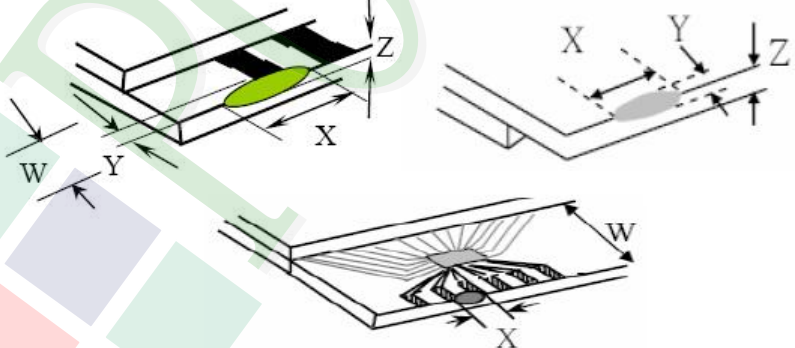
◆ Specification For Monotype and Color STN :

(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 border="1" data-bbox="535 1470 1282 1743"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <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> </tbody> </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.	$1/2 t < Z \leq 2 t$							

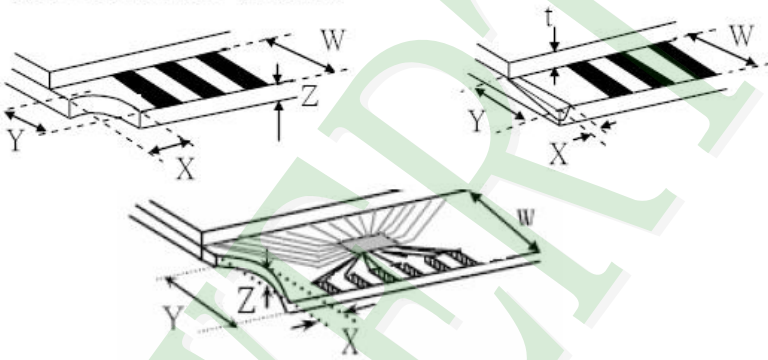
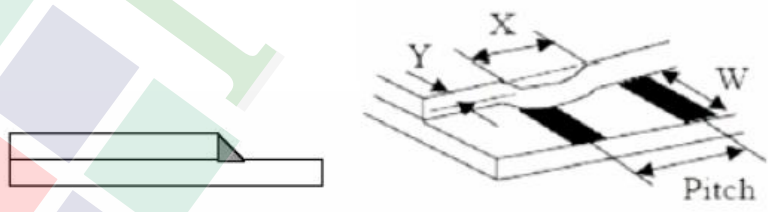
◆ Specification For Monotype and Color STN :

(Ver. B01)

NO	Item	Criterion	Level									
07	The crack of glass	<p>Symbols :</p> <p>X : The length of crack Z : The thickness of crack t : The thickness of glass</p> <p>Y : The width of crack. W : terminal length a : LCD side length</p> <hr/> <p>7.1.2 Corner crack :</p>  <table border="1" data-bbox="537 835 1295 1108"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <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> </tbody> </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.	$1/2 t < Z \leq 2 t$										
<p>7.2 Protrusion over terminal :</p> <p>7.2.1 Chip on electrode pad :</p>  <table border="1" data-bbox="506 1654 1237 1822"> <thead> <tr> <th></th> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <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> </tbody> </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	<p>Symbols :</p> <p>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</p>	Minor									
		<p>7.2.2 Non-conductive portion :</p>  <table border="1" data-bbox="609 1050 1193 1186"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>$\leq 1/3 a$</td> <td>$\leq W$</td> <td>$\leq t$</td> </tr> </tbody> </table> <p>⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications.</p> <p>7.2.3 Glass remain :</p>  <table border="1" data-bbox="535 1690 1177 1816"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>$\leq a$</td> <td>$\leq 1/3 W$</td> <td>$\leq t$</td> </tr> </tbody> </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.

LCM包裝規格書

LCM Packaging Specifications

Approve

Check

Contact

Linda

Stone

Mag

Documents NO. PKG-PE320240WRM002IP1Q

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

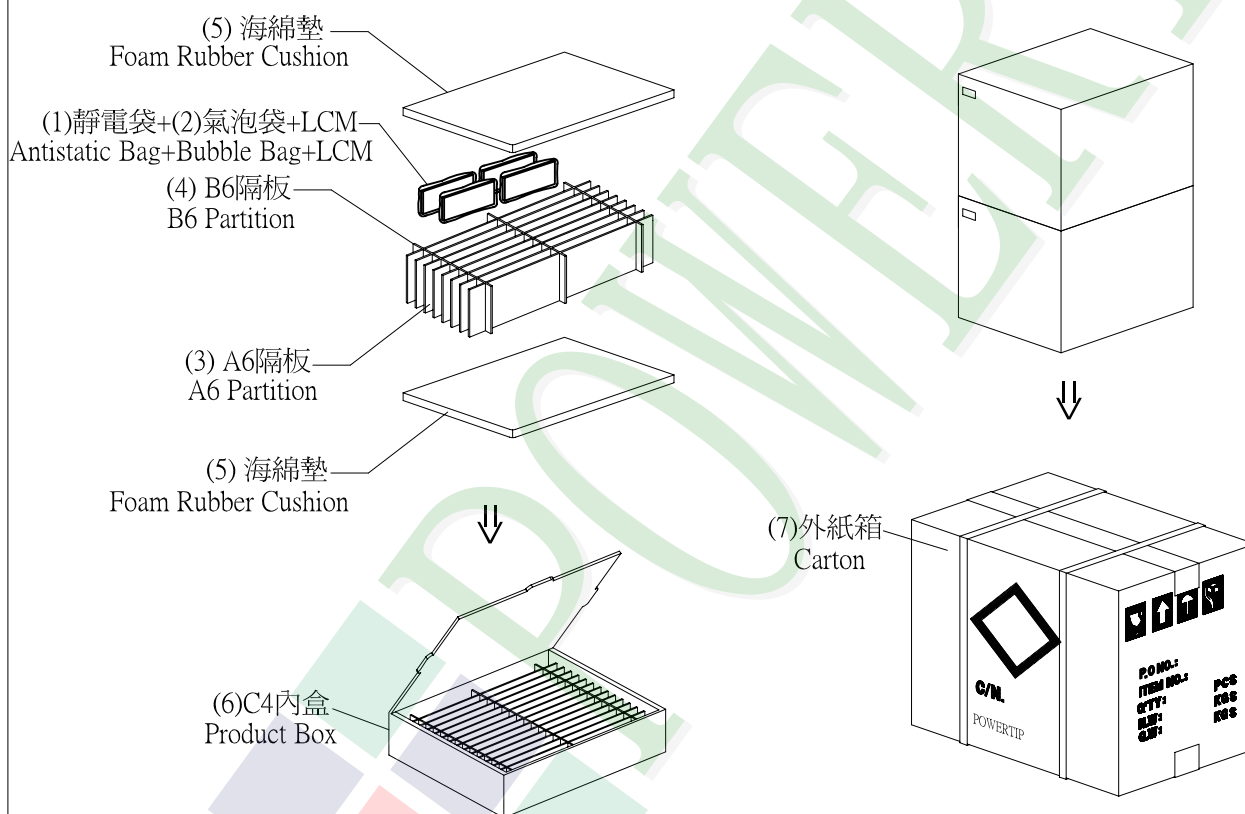
No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 (LCM)	PE320240WRM002IP1Q	148.02 X 120.24	0.25	28	7.0
2	靜電袋(1)Antistatic Bag	BAG240170ARABA	240 X 170	0.0048	28	0.134
3	氣泡袋(2)Bubble Bag	BAG170150AWBBA	170 X 150	0.0047	28	0.132
4	A6隔板(3)A6 Partition	BX33800012BZBA	338 X 125 X 3	0.038	16	0.608
5	B6隔板(4)B6 Partition	BX29800012BZBA	298 X 125 X 3	0.023	6	0.138
6	海綿墊(5)Foam Rubber Cushion	OTFOAM00005ABA	330 X 290 X 10	0.025	4	0.1
7	C4內盒(6)Product Box	BX36031014AABA	360 X 310 X 142	0.406	2	0.812
8	外紙箱(7)Carton	BX39432432CCBA	394 X 324 X 321	0.884	1	0.884
9						

2. 一整箱總重量 (Total LCD Weight in carton) : 9.81 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 3

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



特記事項 (REMARK)

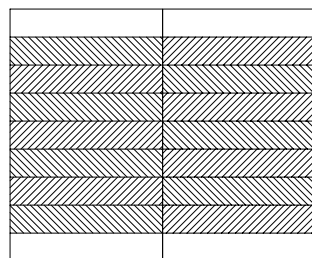
4. 每個間隔放1片模組，前後間隔不放置模組。
(如放置格示意圖)

4. LCM are placed on every other slot of the divider.

Note: First and last slot should be empty.
(See remarks 5 on packaging specifications)

5. 放置格示意圖:

5. Each divider is placed inside a product Box



模組(LCM)

空格(Blank Space)