POWERTIP TECH. CORP.

SPECIFICATIONS

CUSTOMER	:	**CES008**
SAMPLE CODE	:	**SE12864WRF-042HL4Q**
MASS PRODUCTION CODE	:	**PE12864WRF-042HL4Q**
SAMPLE VERSION	:	**01**
SPECIFICATIONS EDITION	:	**003**
DRAWING NO. (Ver.)	:	**JLMD-PE12864WRF-042HL4Q_001**
PACKAGING NO. (Ver.)	:	**JPKG-PE12864WRF-042HL4Q_001**

Customer Approved

Date:

POWERTIP
2010.09.01
JS RD APPROVED

Approved	Checked	Designer
閆偉 Ryan	戴進霞 Una	劉進 **Lori**

□ Preliminary specification for design input

■ Specification for sample approval

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RECORDS OF REVISION

Date (mm / dd / yyyy)	Ver.	Edi.	Description	Page	Design by
07/02/2010	01	001	New Drawing	-	Lori
07/08/2010	01	002	Modify Pin Description	13	Lori
08/27/2010	01	003	New Sample	-	Lori

Total：26pages

Contents

1. SPECIFICATIONS

1.1 Features

Item	Standard Value
Display Type	128*64 Dots
LCD Type	FSTN, Positive, Transflective
Driver Condition	LCD Module：1/65 Duty，1/9 Bias
Viewing Direction	6 O'clock
Backlight	White LED B/L
Weight	29.7g
Interface	Parallel 8080 Series MPU Interface
Other(controller / driver IC)	ST7567
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	80.0(L) *54.0(w) (except FPC length) * 9.7(H)	mm
Viewing Area	70.7 (W) * 38.8 (L)	mm
Active Area	66.545(W) *33.265 (L)	mm
Dot Size	0.505 (W) * 0.505 (L)	mm
Dot Pitch	0.52(W) * 0.52 (L)	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}	-	-0.3	3.6	V
LCD Driver Supply Voltage	VEE-VSS	-	-0.3	16	V
Operating Temperature	T_{OP}	-	-20	+70	℃
Storage Temperature	T_{ST}	-	-30	+80	℃
Storage Humidity	H_D	Ta＜60 ℃	-	90	%RH

1.4 DC Electrical Characterist

VDD =3.0±0.3V， VSS = 0V， Ta = 25℃

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Logic Supply Voltage	VDD	-	2.7	3.0	3.3	V
“H” Input Voltage	VIH	-	0.7 VDD	-	VDD	V
“L” Input Voltage	VIL	-	Vss	-	0.3VDD	V
“H” Output Voltage	VOH	-	0.8 VDD	-	VDD	V
“L” Output Voltage	VOL	-	Vss	-	0.2VDD	V
Supply Current	IDD	VDD=3.0V;VOP= 8.5V; Pattern= Horizontal line *1	-	1.0	1.5	
LCM Driver Voltage	Vop	-20℃	8.5	8.7	8.9	V
		25℃*2	8.2	8.5	8.8	
		+70℃	7.8	8.0	8.2	

NOTE: *1 The Maximum current display;

*2 The VOP is C10’s voltage

1.5 Optical Characteristics

LCD Panel：V_{LCD}=8.5V，1/65Duty，1/9Bias， Ta =25℃

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Reference
Response Time	Rise	tr	C>2.0, ∅ =270°	-	100	150	ms	Note2
	Fall	tf		-	250	375		
Viewing angle range	Top	ΘY+		-	40	-	Deg.	Notes 1
	Bottom	ΘY-		-	40	-		
	Left	ΘX-		-	45	-		
	Right	ΘX+		-	45	-		
Contrast Ratio		C	θ = 0°, ∅ =270°	4	5	-	-	Note 3
Average Brightness (with LCD) *2		IV	IF= 160mA	50	100	-	cd/m2	Note 4
CIE Color Coordinate (With LCD) *2		X		0.23	0.28	0.33	-	
		Y		0.26	0.31	0.36		
Uniformity *1		△B		70	-	-	%	

Note 4 ：

1：△B=B(min) / B(max) * 100%

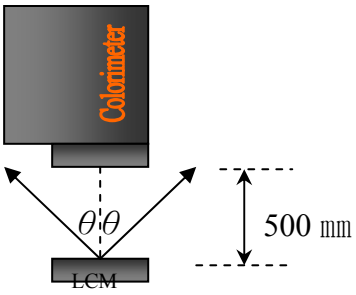
2：Measurement Condition for Optical Characteristics:

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%

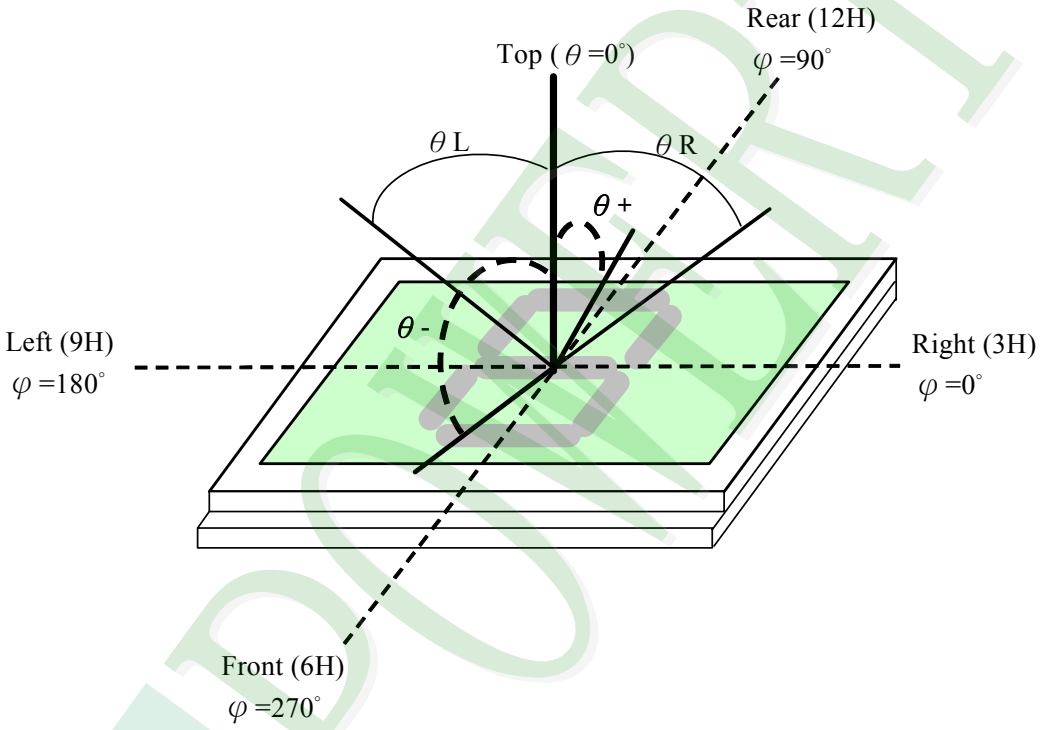


Colorimeter=BM-7 fast

Note 1.

Optical characteristics-2

Viewing angle

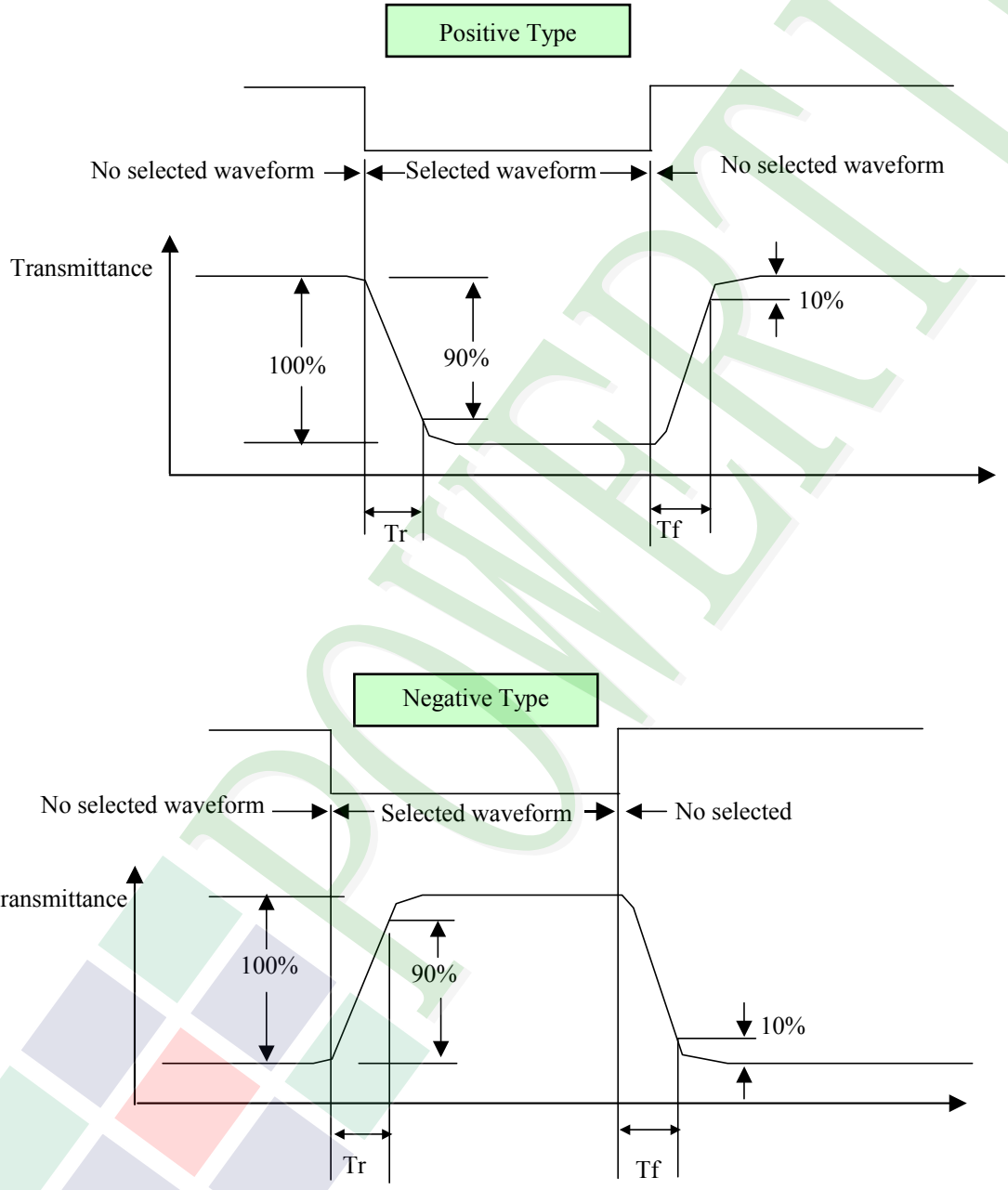


Viewing angle

Note 2.

Optical characteristics-3

Fig.2 Definition of response time



Electrical characteristics-2

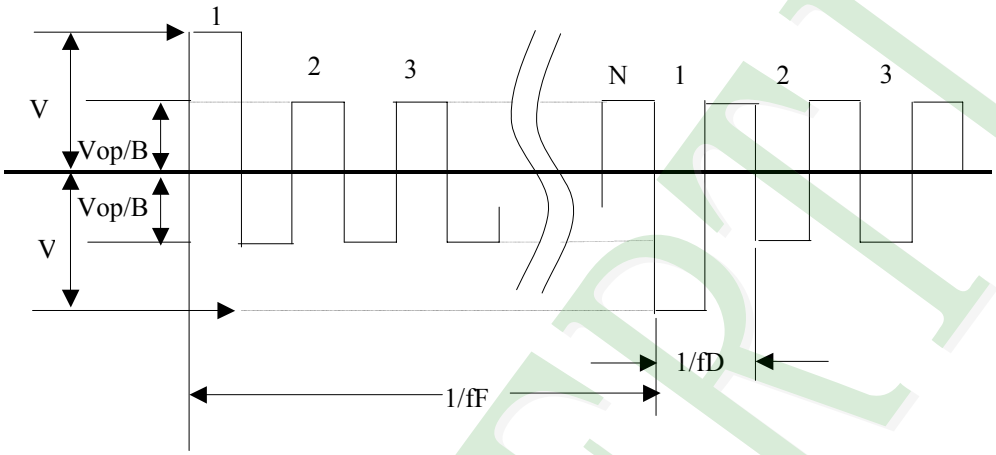
※2 Drive waveform

Vop: Drive voltage　　fF: Frame frequency

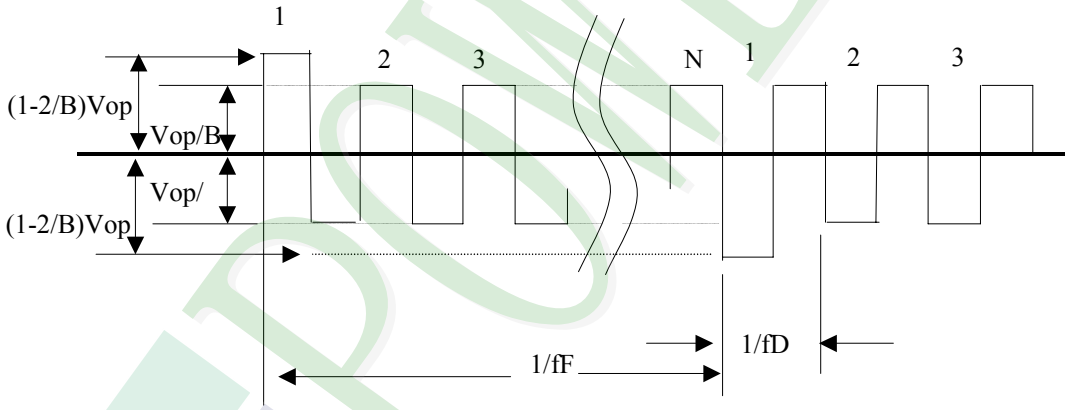
1/B: Bias　　fD: Drive frequency

N: Duty

(1) Selected waveform



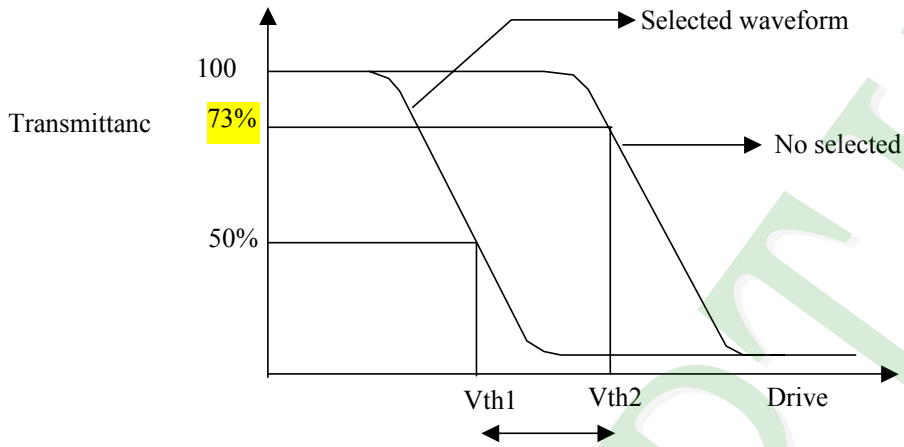
(2) Non- Selected wave form



Note:

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

Note 3. : Definition of Vth

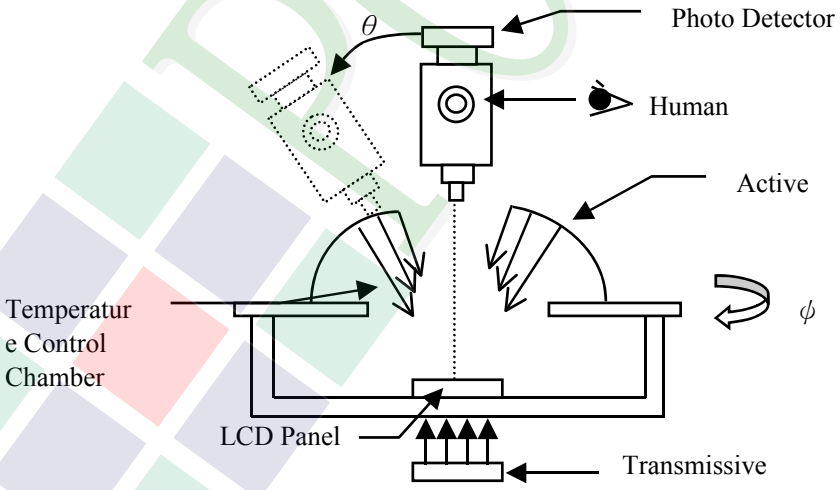


Active voltage range

	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



Measuring System: Autronic DMS-803

1.6 Backlight Characteristics

LCD Module with LED Backlight

Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25℃	-	240	mA
Reverse Voltage	VR	Ta =25℃	-	5	V
Power Dissipation	PD	Ta =25℃	-	1.25	W

Electrical / Optical Characteristics Ta =25℃

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF= 160mA	-	5.0	5.2	V
Reverse Current	IR	VR= 5 V	-	-	16	uA
Average Brightness	IV	IF= 160mA	300	370	-	cd/m2
CIE Color Coordinate	X	IF= 160mA	0.255	-	0.340	-
	Y		0.265	-	0.350	
Uniformity*1	△B	IF= 160 mA	70	-	-	%
Color	WHITE					

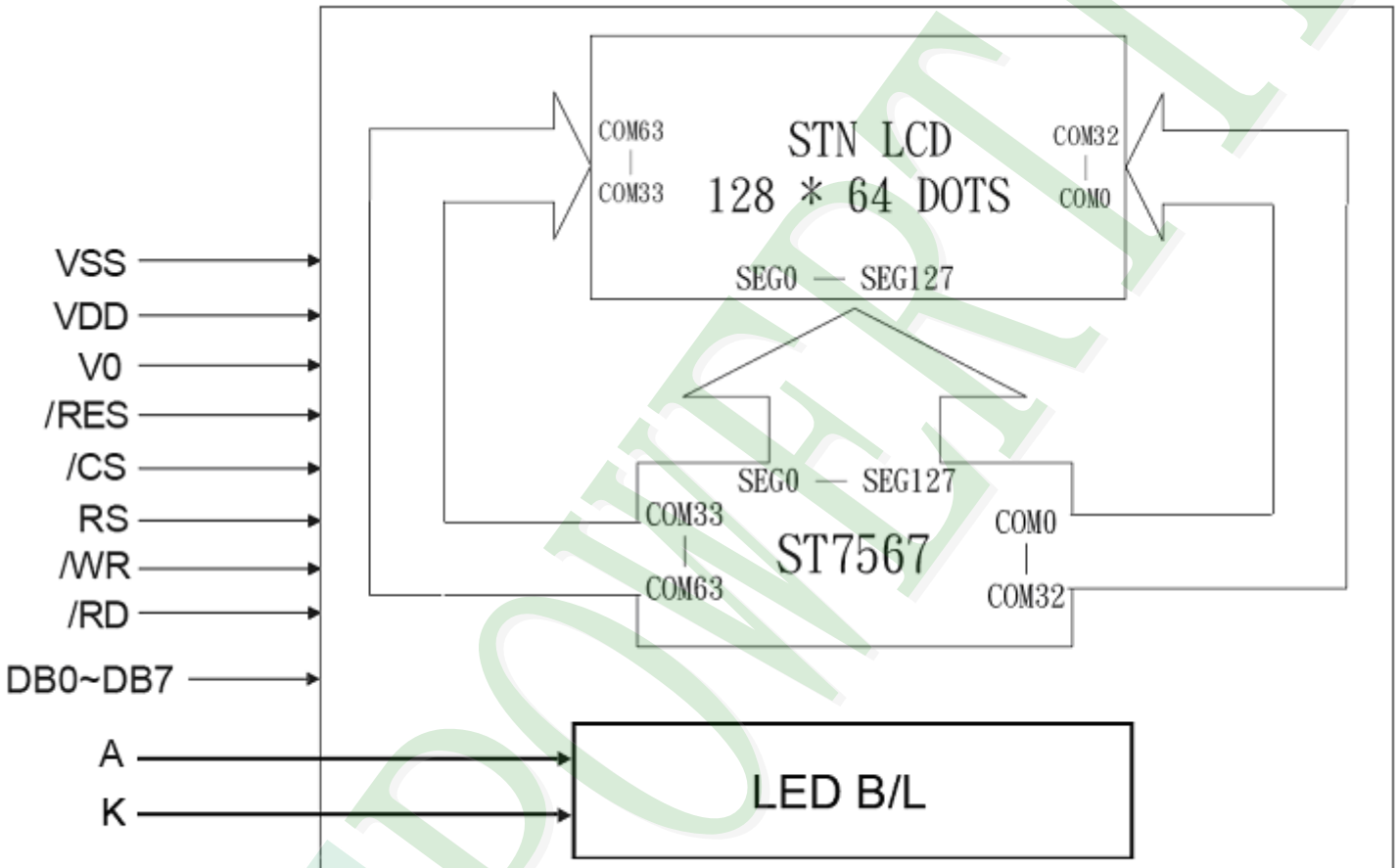
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram

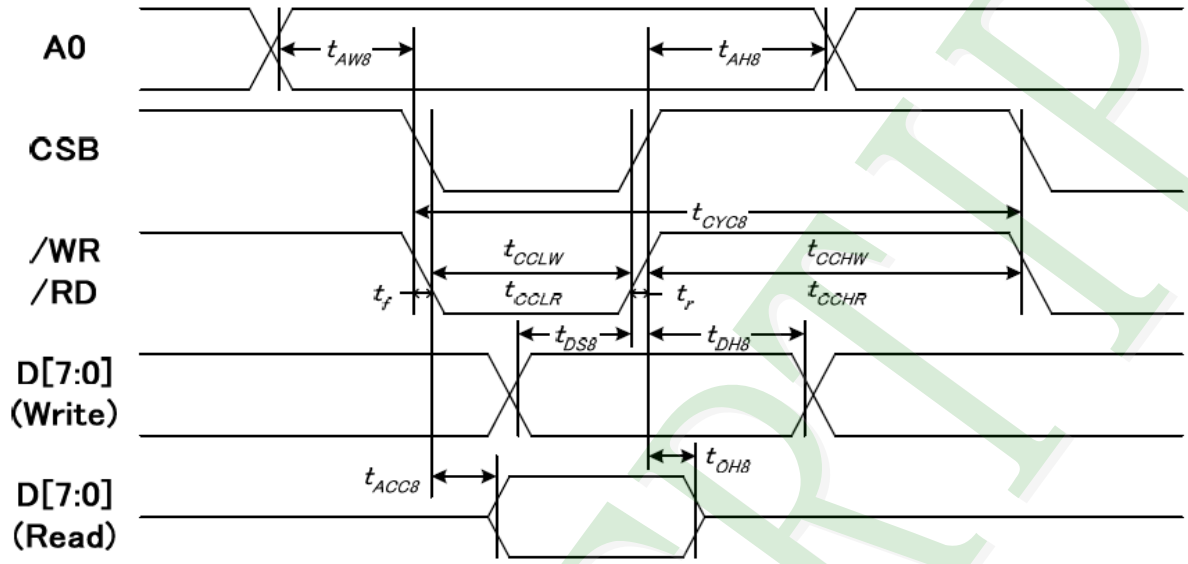


2.2 Interface Pin Description

Pin No.	Symbol	Function
1	VSS	Power Supply (VSS=0)
2	VDD	Power Supply (VDD>VSS)
3	V0	NO Connection
4	/RES	Controller reset (module reset)
5	/CS	Used to enter chip select signal
6	RS	Select control data or display data for read/write operation “L”=control data “H”=display data
7	/WR	Write signal input pin , active “L”.
8	/RD	Read signal input pin , active “L”
9	DB0	Data bus bit 0.
10	DB1	Data bus bit 1.
11	DB2	Data bus bit 2.
12	DB3	Data bus bit 3.
13	DB4	Data bus bit 4.
14	DB5	Data bus bit 5.
15	DB6	Data bus bit 6.
16	DB7	Data bus bit 7.
17	A	Power supply LED backlight(+)
18	K	Power supply LED backlight(-)

2.3 Timing Characteristics

System Bus Timing for 8080 Series MPU



(VDD = 3.3V , Ta =-30~85°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Address setup time	A0	tAW8		0	—	ns
Address hold time		tAH8		10	—	
System cycle time	/WR	tCYC8		240	—	
Enable L pulse width (WRITE)		tCCLW		80	—	
Enable H pulse width (WRITE)		tCCHW		80	—	
Enable L pulse width (READ)	RD	tCCLR		140	—	
Enable H pulse width (READ)		tCCHR		80		
WRITE Data setup time	D[7:0]	tDS8		40	—	
WRITE Data hold time		tDH8		20	—	
READ access time		tACC8	CL = 16 pF	—	70	
READ Output disable time		tOH8	CL = 16 pF	5	50	

(VDD = 2.8V , Ta =-30~85°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Address setup time	A0	tAW8		0	—	ns
Address hold time		tAH8		0	—	
System cycle time	/WR	tCYC8		400	—	
Enable L pulse width (WRITE)		tCCLW		220	—	
Enable H pulse width (WRITE)		tCCHW		180	—	
Enable L pulse width (READ)	RD	tCCLR		220	—	
Enable H pulse width (READ)		tCCHR		180	—	
WRITE Data setup time	D[7:0]	tDS8		40	—	
WRITE Data hold time		tDH8		20	—	
READ access time		tACC8	CL = 16 pF	—	140	
READ Output disable time		tOH8	CL = 16 pF	10	100	

(VDD = 1.8V , Ta =-30~85°C)

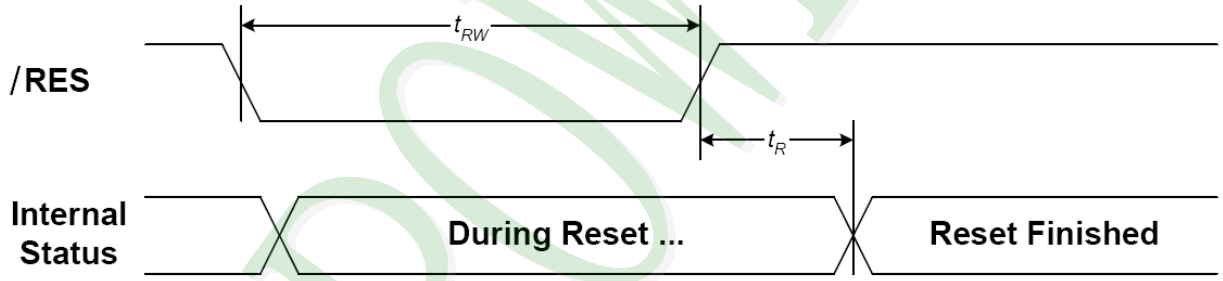
Item	Signal	Symbol	Condition	Min.	Max.	Unit
Address setup time	A0	tAW8		0	—	ns
Address hold time		tAH8		0	—	
System cycle time	/WR	tCYC8		640	—	
Enable L pulse width (WRITE)		tCCLW		360	—	
Enable H pulse width (WRITE)		tCCHW		280	—	
Enable L pulse width (READ)	RD	tCCLR		360	—	
Enable H pulse width (READ)		tCCHR		280		
WRITE Data setup time	D[7:0]	tDS8		80	—	
WRITE Data hold time		tDH8		20	—	
READ access time		tACC8	CL = 16 pF	—	240	
READ Output disable time		tOH8	CL = 16 pF	10	200	

*1 The input signal rise time and fall time (tr, tf) is specified at 15 ns or less. When the system cycle time is extremely fast, (tr + tf) ≦ (tCYC8 – tCCLW – tCCHW) for (tr + tf) ≦ (tCYC8 – tCCLR – tCCHR) are specified.

*2 All timing is specified using 20% and 80% of VDD1 as the reference.

*3 tCCLW and tCCLR are specified as the overlap between CSB being "L" and WR and RD being at the "L" level.

Hardware Reset Timing



(VDD = 3.3V , Ta =-30~85°C)

Item	Symbol	Condition	Min.	Max.	Unit
Reset time	tR		—	1.0	us
Reset "L" pulse width	tRW		1.0	—	

(VDD = 2.8V , Ta =-30~85°C)

Item	Symbol	Condition	Min.	Max.	Unit
Reset time	tR		—	2.0	us
Reset "L" pulse width	tRW		2.0	—	

2.4 Display command

INSTRUCTION	A0	R/W (RWR)	COMMAND BYTE D7	D6	D5	D4	D3	D2	D1	D0	DESCRIPTION
(1) Display ON/OFF	0	0	1	0	1	0	1	1	1	D	D=1, display ON D=0, display OFF
(2) Set Start Line	0	0	0	1	S5	S4	S3	S2	S1	S0	Set display start line
(3) Set Page Address	0	0	1	0	1	1	Y3	Y2	Y1	Y0	Set page address
(4) Set Column Address	0	0	0	0	0	1	X7	X6	X5	X4	Set column address (MSB)
	0	0	0	0	0	0	X3	X2	X1	X0	Set column address (LSB)
(5) Read Status	0	1	0	MX	D	RST	0	0	0	0	Read IC Status
(6) Write Data	1	0	D7	D6	D5	D4	D3	D2	D1	D0	Write display data to RAM
(7) Read Data	1	1	D7	D6	D5	D4	D3	D2	D1	D0	Read display data from RAM
(8) SEG Direction	0	0	1	0	1	0	0	0	0	MX	Set scan direction of SEG MX=1, reverse direction MX=0, normal direction
(9) Inverse Display	0	0	1	0	1	0	0	1	1	INV	INV =1, inverse display INV =0, normal display
(10) All Pixel ON	0	0	1	0	1	0	0	1	0	AP	AP=1, set all pixel ON AP=0, normal display
(11) Bias Select	0	0	1	0	1	0	0	0	1	BS	Select bias setting 0=1/9; 1=1/7 (at 1/65 duty)
(12) Read-modify-Write	0	0	1	1	1	0	0	0	0	0	Column address increment: Read:+0 , Write:+1
(13) END	0	0	1	1	1	0	1	1	1	0	Exit Read-modify-Write mode
(14) RESET	0	0	1	1	1	0	0	0	1	0	Software reset
(15) COM Direction	0	0	1	1	0	0	MY	-	-	-	Set output direction of COM MY=1, reverse direction MY=0, normal direction
(16) Power Control	0	0	0	0	1	0	1	VB	VR	VF	Control built-in power circuit ON/OFF
(17) Regulation Ratio	0	0	0	0	1	0	0	RR2	RR1	RR0	Select regulation resistor ratio
(18) Set EV	0	0	1	0	0	0	0	0	0	1	Double command!! Set electronic volume (EV) level
	0	0	0	0	EV5	EV4	EV3	EV2	EV1	EV0	
(19) Set Booster	0	0	1	1	1	1	1	0	0	0	Double command!!
	0	0	0	0	0	0	0	0	BL1	BL0	Set booster level: 00=4X, 01=5X, 10=6X
(20) Power Save	0	0	Compound Command								Display OFF + All Pixel ON
(21) NOP	0	0	1	1	1	0	0	0	1	1	No operation
(22) Test	0	0	1	1	1	1	1	1	1	-	Do NOT use. Reserved for testing.

Note: Symbol "-" means this bit can be "H" or "L".

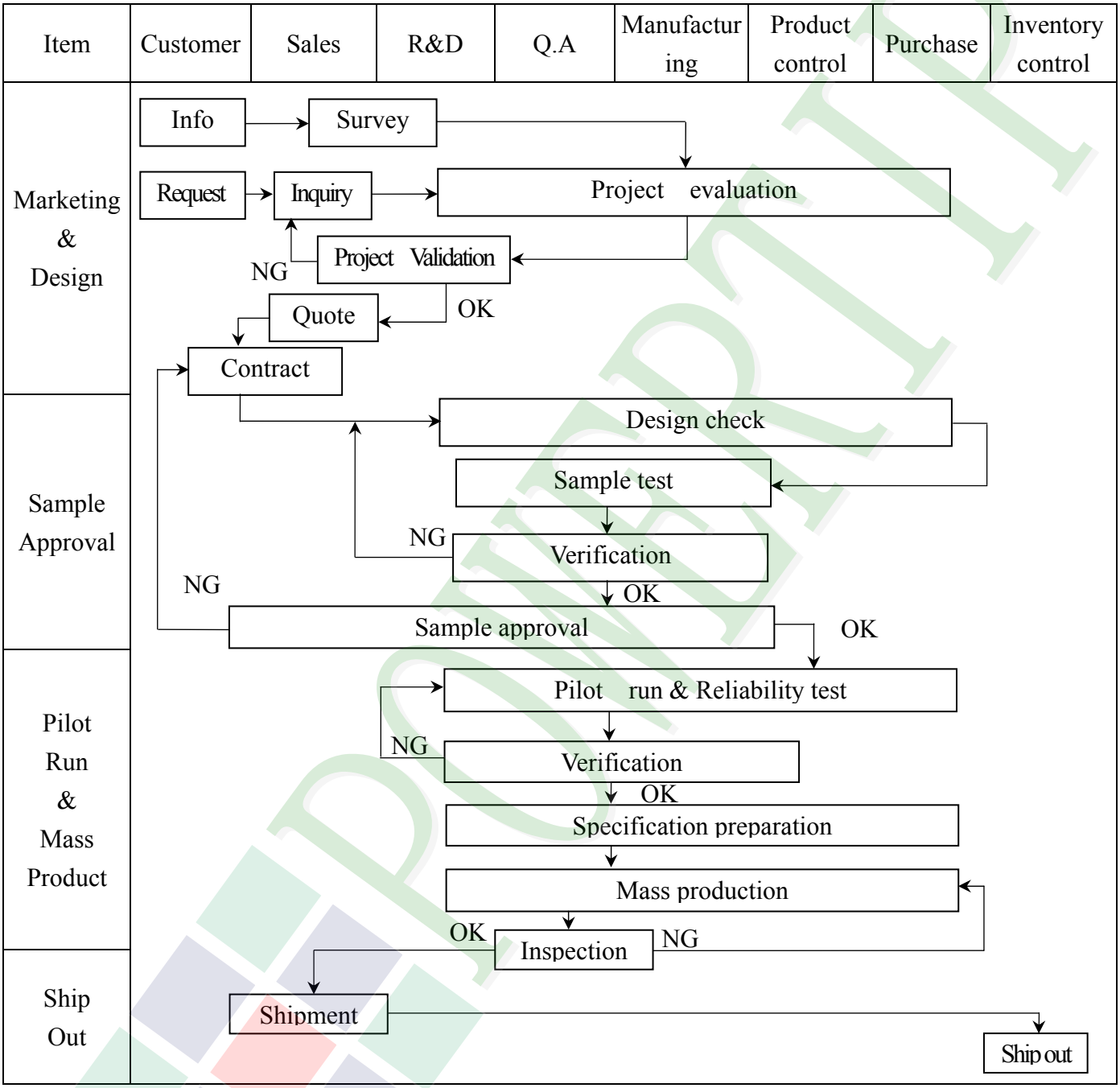
2.5 Jumper

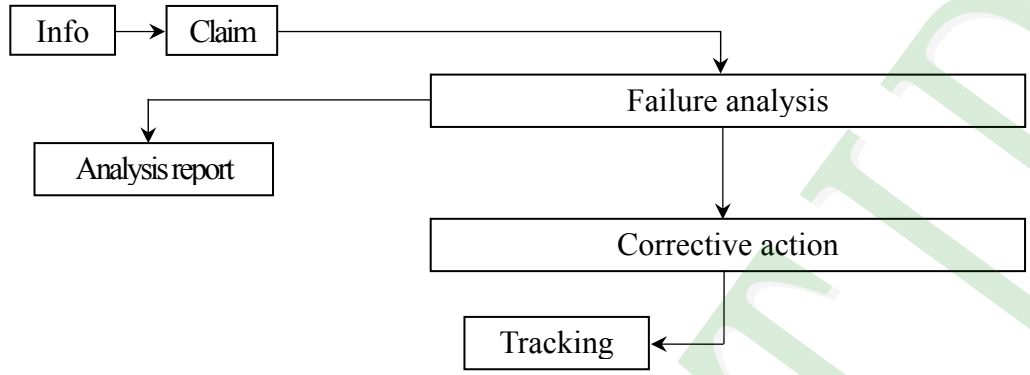
8080 MPU I/F：

J1(2.3)/J2(1.3)/J3(2.3)/J6 : SHORT;
OTHER : OPEN

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 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)

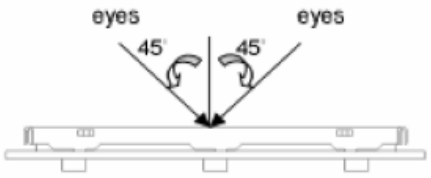


Fig.1

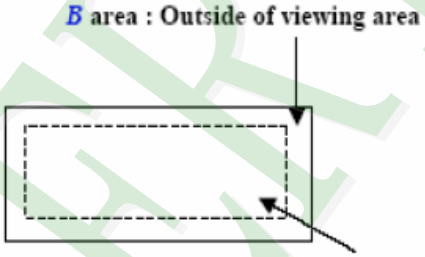


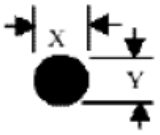
Fig. 2

◆ Specification:

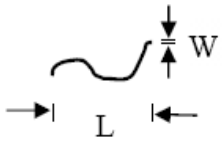
NO	Item	Criterion	Level
01	Product condition	1.1 The part number is inconsistent with work order of Production.	Major
		1.2 Mixed production types.	Major
		1.3 Assembled in inverse direction.	Major
02	Quantity	2.1 The quantity is inconsistent with work order of production.	Major
03	Outline dimension	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)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>05</td><td>Black or white dot、scratch、contamination

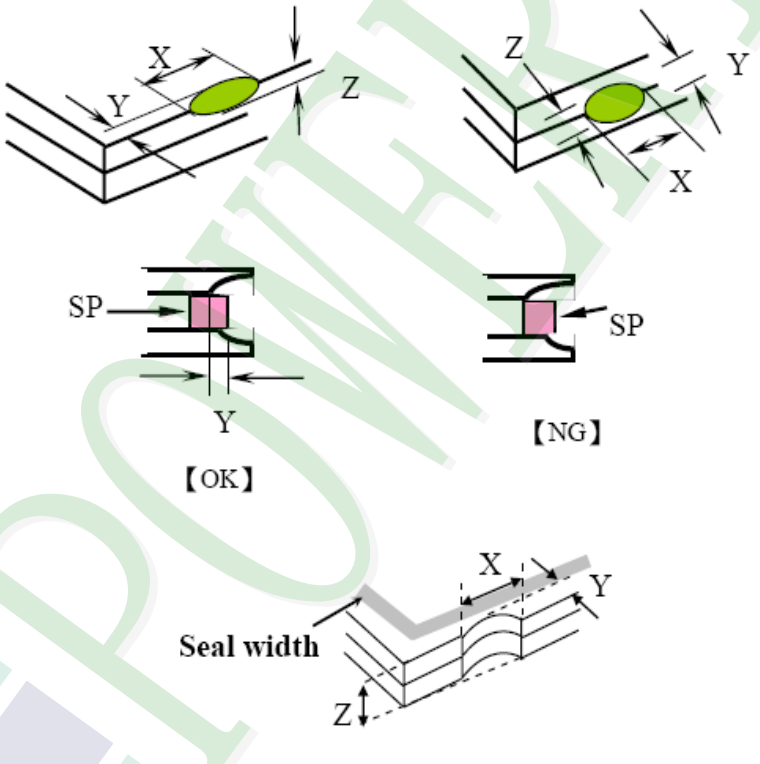
Round type
 

Φ=(x+y)/2

Line type
 
</td><td>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>Φ≦ 0. 10</td><td>Accept no dense</td><td rowspan="4">Ignore</td></tr>
<tr><td>0. 10 ＜ Φ ≦ 0. 20</td><td>3</td></tr>
<tr><td>0. 20 ＜ Φ ≦ 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 ≦ 0. 03</td><td>Accept no dense</td><td rowspan="3">Ignore</td></tr>
<tr><td>L ≦ 3. 0</td><td>0. 03 ＜ W ≦ 0. 05</td><td rowspan="2">4</td></tr>
<tr><td>L ≦ 2. 5</td><td>0. 05 ＜W ≦ 0. 075</td></tr>
<tr><td>---</td><td>W ＞0. 075</td><td colspan="2">As round type</td></tr>
</table></td><td>Minor</td></tr>
<tr><td>06</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. 20</td><td>Accept no dense</td><td rowspan="5">Ignore</td></tr>
<tr><td>0. 20 ＜Φ ≦ 0. 50</td><td>3</td></tr>
<tr><td>0. 50 ＜Φ ≦ 1. 00</td><td>2</td></tr>
<tr><td>Φ ＞ 1. 00</td><td>0</td></tr>
<tr><td>Total quantity</td><td>4</td></tr>
</table></td><td>Minor</td></tr>
</table>

◆Specification For Monotype and Color STN：　(Ver. B01)

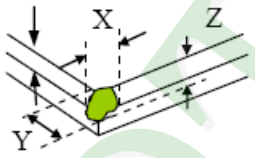
NO	Item	Criterion	Level
07	The crack of glass	Symbols： X : The length of crack　Y : The width of crack. Z : The thickness of crack　W : terminal length t : The thickness of glass　a : LCD side length 7.1 General glass chip： 7.1.1 Chip on panel surface and crack between panels:  	Minor

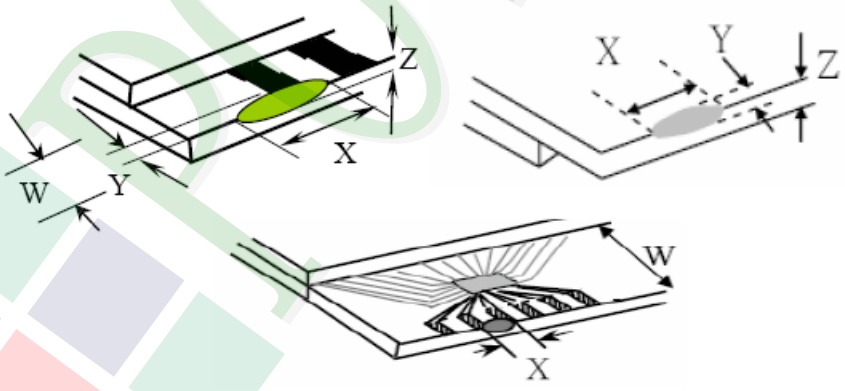
X	Y	Z
≦ a	Crack can't enter viewing area	≦1/2 t
≦ a	Crack can't exceed the half of SP width.	1/2 t < Z ≦2 t

◆Specification For Monotype and Color STN：　(Ver. B01)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>07</td><td>The crack of glass</td><td>
Symbols：

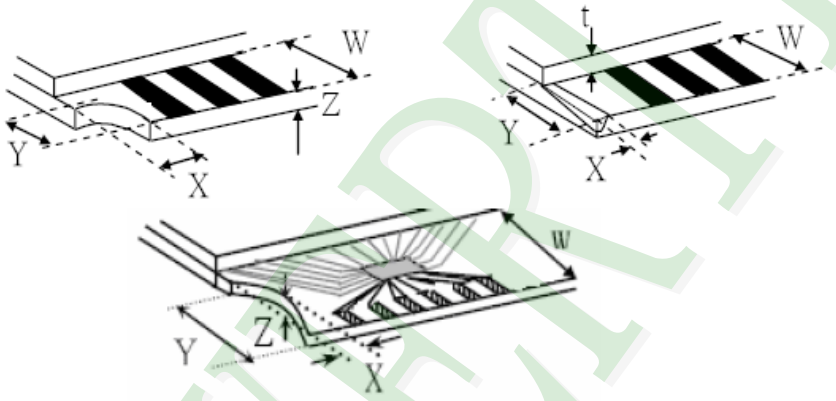
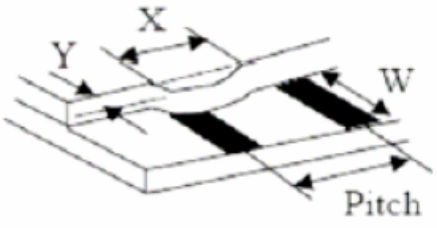
X : The length of crack　　Y : The width of crack.
Z : The thickness of crack　　W : terminal length
t : The thickness of glass　　a : LCD side length

7.1.2 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>
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>≦ a</td><td>≦ 1/2 W</td><td>≦ t</td></tr>
<tr><td>Back</td><td colspan="3">Neglect</td></tr>
</table>
</td><td>Minor</td></tr>
</table>

◆Specification For Monotype and Color STN：　(Ver. B01)

NO	Item	Criterion	Level
07	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 7.2.2 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. 7.2.3 Glass remain：   X ≦ a ; Y ≦ 1/3 W ; Z ≦ t	Minor

◆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

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)</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 +/-
Contact Discharge:
Apply 250 V with 5 times
discharge for each polarity +/-</td></tr>
<tr><td>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>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><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℃and 3-5 sec.

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

5.3 STORAGE

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

5.3.2 Do not place the module near organics solvents or corrosive gases.

5.3.3 Do not crush , shake , or jolt the module.

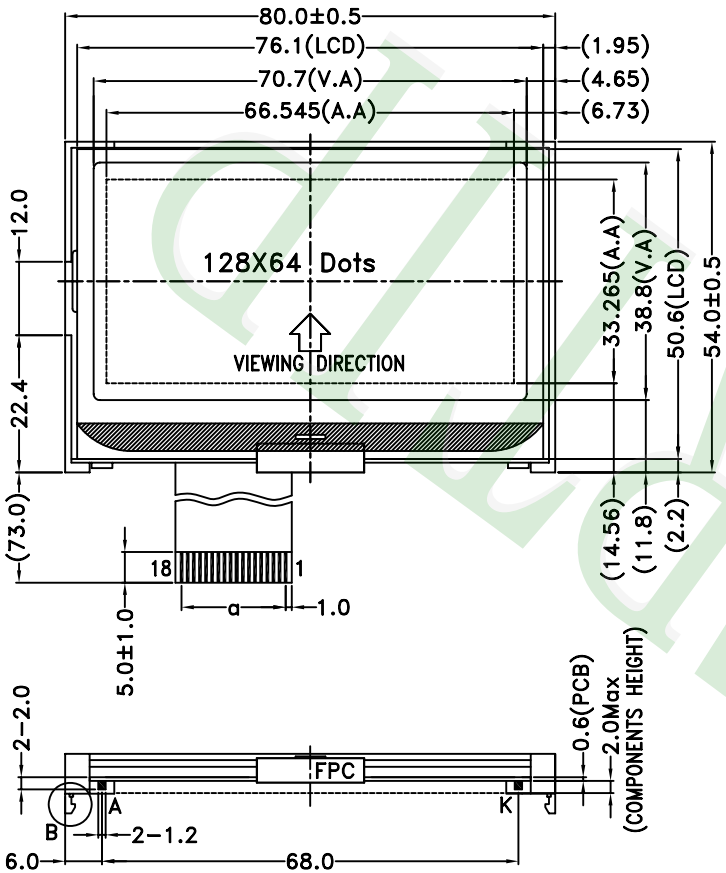
5.4 TERMS OF WARRANTY

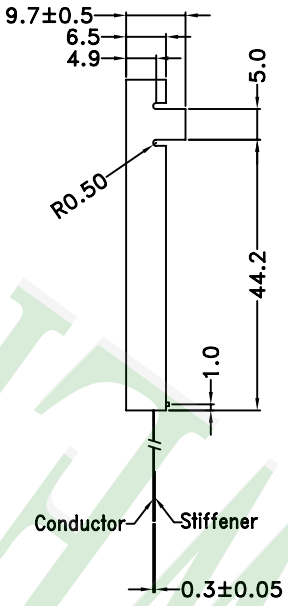
5.4.1 Applicable warrant period

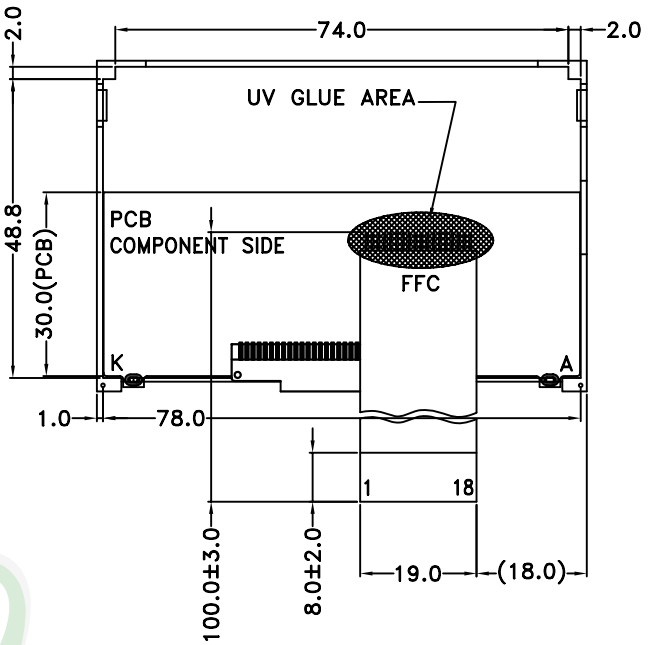
The period is within thirteen months since the date of shipping out under normal using and storage conditions.

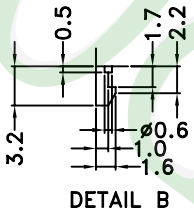
5.4.2 Unaccepted responsibility

This product has been manufactured to your company's specification as a part for use in your company's general electronic products. It is guaranteed to perform according to delivery specifications. For any other use apart from general electronic equipment , we cannot take responsibility if the product is used in nuclear power control equipment , aerospace equipment , fire and security systems or any other applications in which there is a direct risk to human life and where extremely high levels of reliability are required.



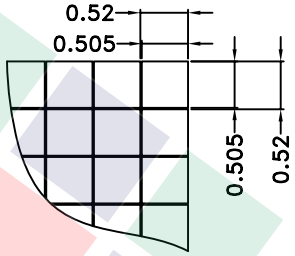






DETAIL B

SCALE:2/1



LCD DOTS
SCALE:15/1

NOTES:
1.LCD type:STN,POSITIVE,Transflective.
2.Viewing direction:6H;
3.T_{OP}:−20°C~70°C, T_{ST}:−30°C~80°C;
4.a=1.0x(18−1)=17.0±0.1 w=0.6±0.5
5.The tolerance unless classified ±0.3mm;
6.This product conforms ROHS.

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002			
001	NEW DRAWING	Terry	2010/04/21

PART NO: PE12864WRF-042HL4Q

DRAWING NAME : JLMD-PE12864WRF-042HL4Q

TITLE: LCD MODULE DRAWING

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

Design	Terry	(3)	Surface		
Check	Zhouaimei	Unit	MM	Material	
Approve	Ryan	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.	JPKG-PE12864WRF-042HL4Q

LCM包裝規格書
LCM Packaging Specifications

Approve	Check	Contact
Ryan	Zhouaimei	Terry

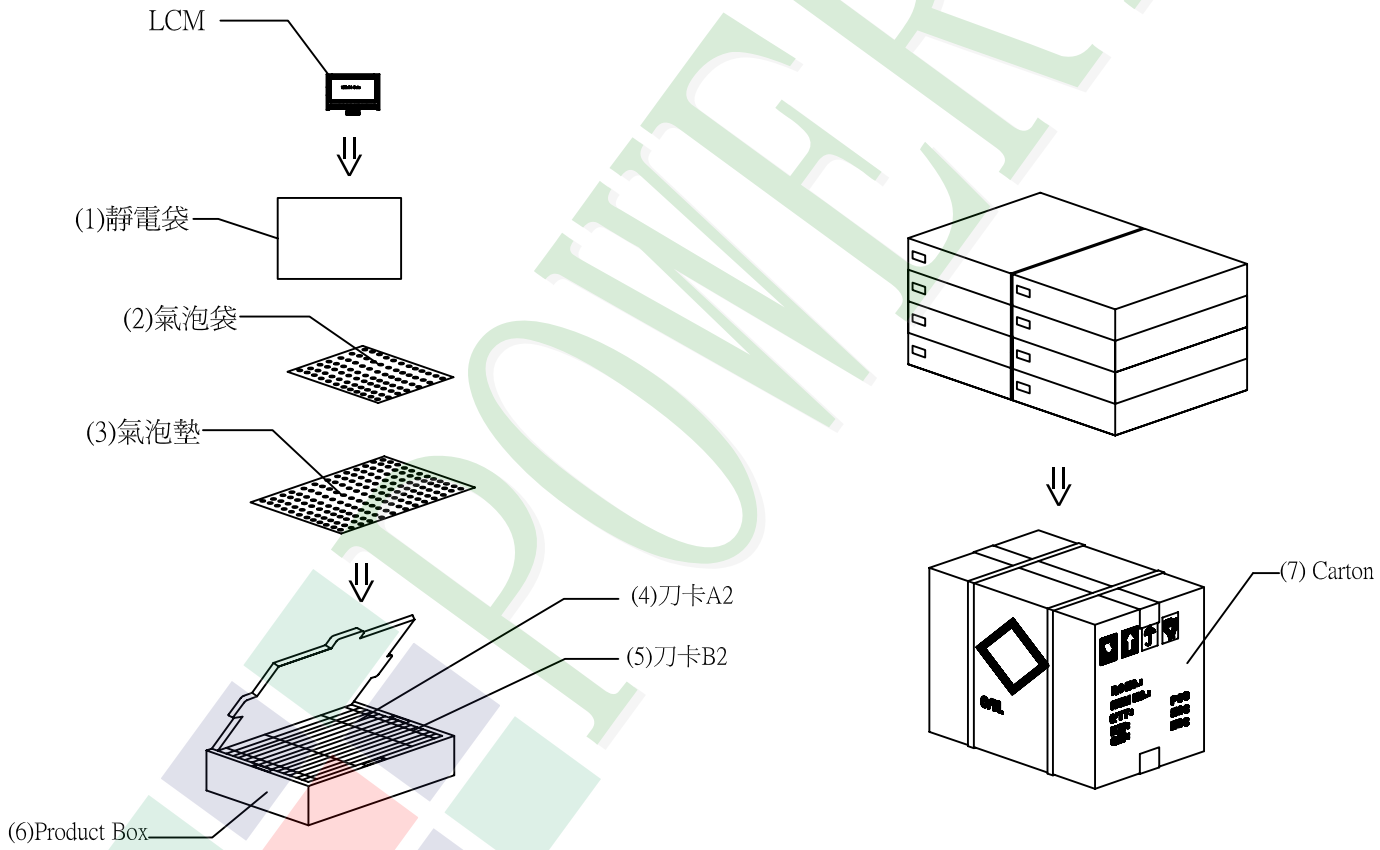
1.包裝材料規格表 (Packaging Material) : (per carton)

No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 LCM	PE12864WRF-042HL4Q	80.0*54.0*9.7	0.03	288	8.64
2	靜電袋 (1)BAG	BAG150100ARABA	150*120*0.05	0.002	288	0.576
3	氣泡袋(2)BAG	BAG100080BWABA	100*80	0.0015	288	0.432
4	氣泡墊(3)BAG	BAG290240BRBBA	240*290*5	0.0029	16	0.0464
5	刀卡A2(4)BX	BX29500072BZBA	295*72*3	0.011	104	1.144
6	刀卡B2(5)BX	BX24500072BZBA	245*72*3	0.01	32	0.32
7	C2內盒(6)Product Box	BX31025580AABA	310*255*86	0.221	8	1.768
8	外紙箱(7)Carton	BX52532536CCBA	525*325*360	1.092	1	1.092
9						

2.一 整箱總重量 (Total LCD Weight in carton) : 14.02 Kg±10%

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

(1)LCM quantity per box : no. per box	12	x no. of box	3	=	36
(2)Total LCM quantity in carton : quantity per box	36	x no. of boxes	8	=	288



特 記 事 項 (REMARK)

1. Label Specifications :

MODEL:
LOT NO:
QUANTITY:
CHECK:

前后空一格