



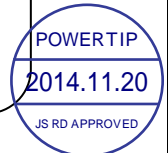
## SPECIFICATIONS

CUSTOMER	:	PTC
SAMPLE CODE	:	SE9664WRF-011-L-Q
MASS PRODUCTION CODE	:	PE9664WRF-011-L-Q
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	002
DRAWING NO. (Ver.)	:	JLMD- PE9664WRF-011-L-Q _001
PACKAGING NO. (Ver.)	:	JPKG- PE9664WRF-011-L-Q _001

### Customer Approved

**Date:**



Approved	Checked	Designer
閻偉	劉進	徐明菲

- Preliminary specification for design input
- Specification for sample approval

### POWERTIP TECH. CORP.

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Note : For detailed information please refer to IC data sheet : Sitronix—ST7567S

## 1. SPECIFICATIONS

### 1.1 Features

Item	Standard Value
Display Type	96*64 dots
LCD Type	FSTN , White, Transmissive , Positive, Extended Temp.
Driver Condition	LCD Module : 1/65 Duty , 1/9 Bias
Viewing Direction	12 O'clock
Weight	3.0g
Interface	4-wire Serial Peripheral Interface (SPI)
Other ( controller / driver IC )	Sitronix- ST7567S
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC Detail information please refer web site : <a href="http://www.powertip.com.tw/news.php?area_id_view=1085560481/">http://www.powertip.com.tw/news.php?area_id_view=1085560481/</a>

### 1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	28.56 (W) * 28.68(L) * 3.0 (H)	mm
Viewing Area	22.96 (W) * 16.48 (L)	mm
Active Area	20.145 (W) * 13.425 (L)	mm
Dot Size	0.195 (W) * 0.195 (L)	mm
Dot Pitch	0.21 (W) * 0.21 (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	4.0	V
LCD Driver Supply Voltage	$V_{LCD}$	V0-XV0	-0.3	16	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

$V_{DD} = 3.0 \pm 0.2V$ ,  $V_{SS} = 0V$ ,  $T_a = 25^\circ C$

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Logic Supply Voltage	$V_{DD}$	-	2.8	3.0	3.2	V
“H” Input Voltage	$V_{IH}$	-	$0.7V_{DD}$	-	$V_{DD}$	V
“L” Input Voltage	$V_{IL}$	-	$V_{SS}$	-	$0.3V_{DD}$	V
“H” Output Voltage	$V_{OH}$	$I_{OH} = 1mA$	$0.8V_{DD}$	-	$V_{DD}$	V
“L” Output Voltage	$V_{OL}$	$I_{OL} = -1mA$	$V_{SS}$	-	$0.2 V_{DD}$	V
Supply Current	$I_{DD}$	$V_{DD} = 3.0V$ ; $V_{OP} = 9.6 V$ ; Pattern = Horizontal Line *1	-	0.2	0.5	mA
LCM Driver Voltage	$V_{OP}^*2$	$-20^\circ C$	9.6	9.8	10.0	V
		$25^\circ C$	9.4	9.6	9.8	
		$70^\circ C$	8.5	8.7	8.9	

NOTE: \*1. The Maximum current display.

\*2. The  $V_{OP}$  test point is V0–XV0.

## 1.5 Optical Characteristics

LCD Panel : 1 / 65 Duty , 1 / 9 Bias ,  $V_{LCD} = 9.6V$  ,  $T_a = 25^{\circ}C$

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Reference
Response Time	Rise	tr	-	-	150	225	ms	Note 2
	Fall	tf		-	250	375		
Viewing angle range	Top	$\theta+$	$C \geq 2.0$	-	25	-	Deg.	Note 1
	Bottom	$\theta-$		-	25	-		
	Left	$\theta L$		-	30	-		
	Right	$\theta R$		-	30	-		
Contrast Ratio		C	$\theta = 0^{\circ}$	26	33	-		Note 3
Average Brightness (With LCD) *2		IV	If=20mA	850	920	-	cd/m <sup>2</sup>	Note 4
CIE Color Coordinate (With LCD) *2		X		0.24	0.29	0.34	-	
		Y		0.24	0.29	0.34	-	
Uniformity *1		$\Delta B$		70	-	-	%	

Note 4 :

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

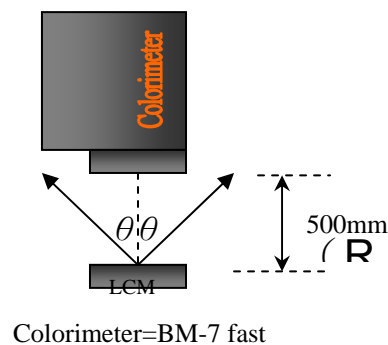
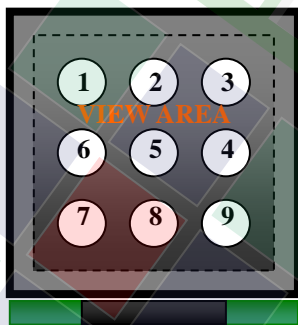
2 : Measurement Condition for Optical Characteristics:

a : Environment:  $25^{\circ}C \pm 5^{\circ}C$  /  $60 \pm 20\% R.H$  , no wind , dark room below 10 Lux at typical lamp current and typical operating frequency.

b : Measurement Distance:  $500 \pm 50$  mm , ( $\theta = 0^{\circ}$ )

c : Equipment: TOPCON BM-7 fast , (field 0.2 $^{\circ}$ ) , after 10 minutes operation.

d : The uncertainty of the C.I.E coordinate measurement  $\pm 0.01$  , Average Brightness  $\pm 4\%$

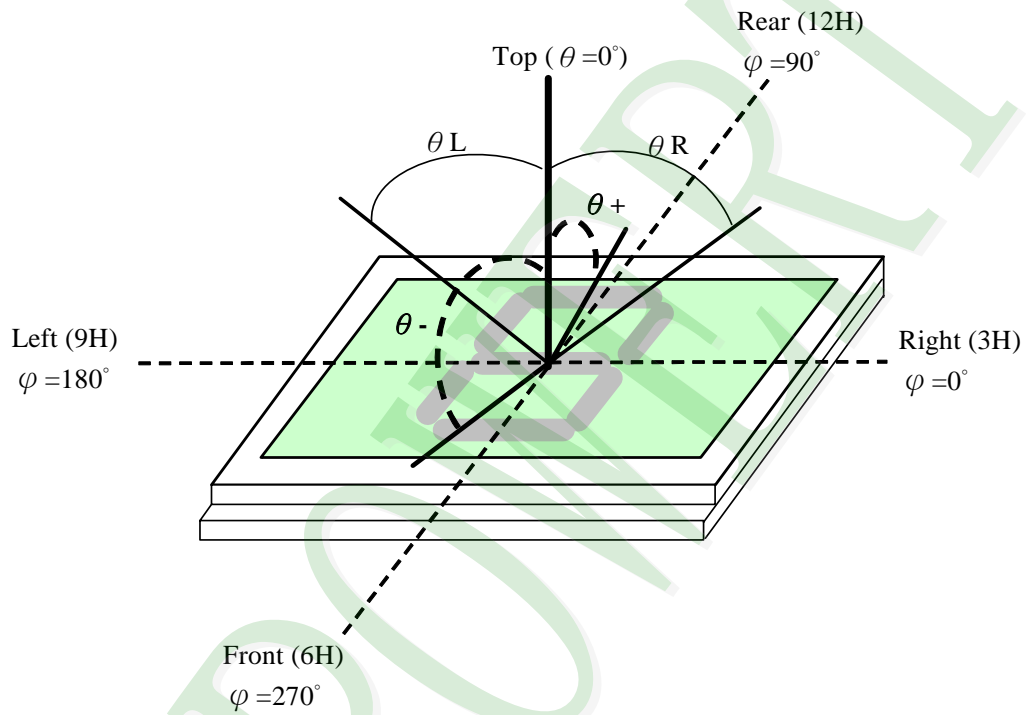


3 : This value will be changed while mass production.

Note 1.

Optical characteristics-2

Viewing angle

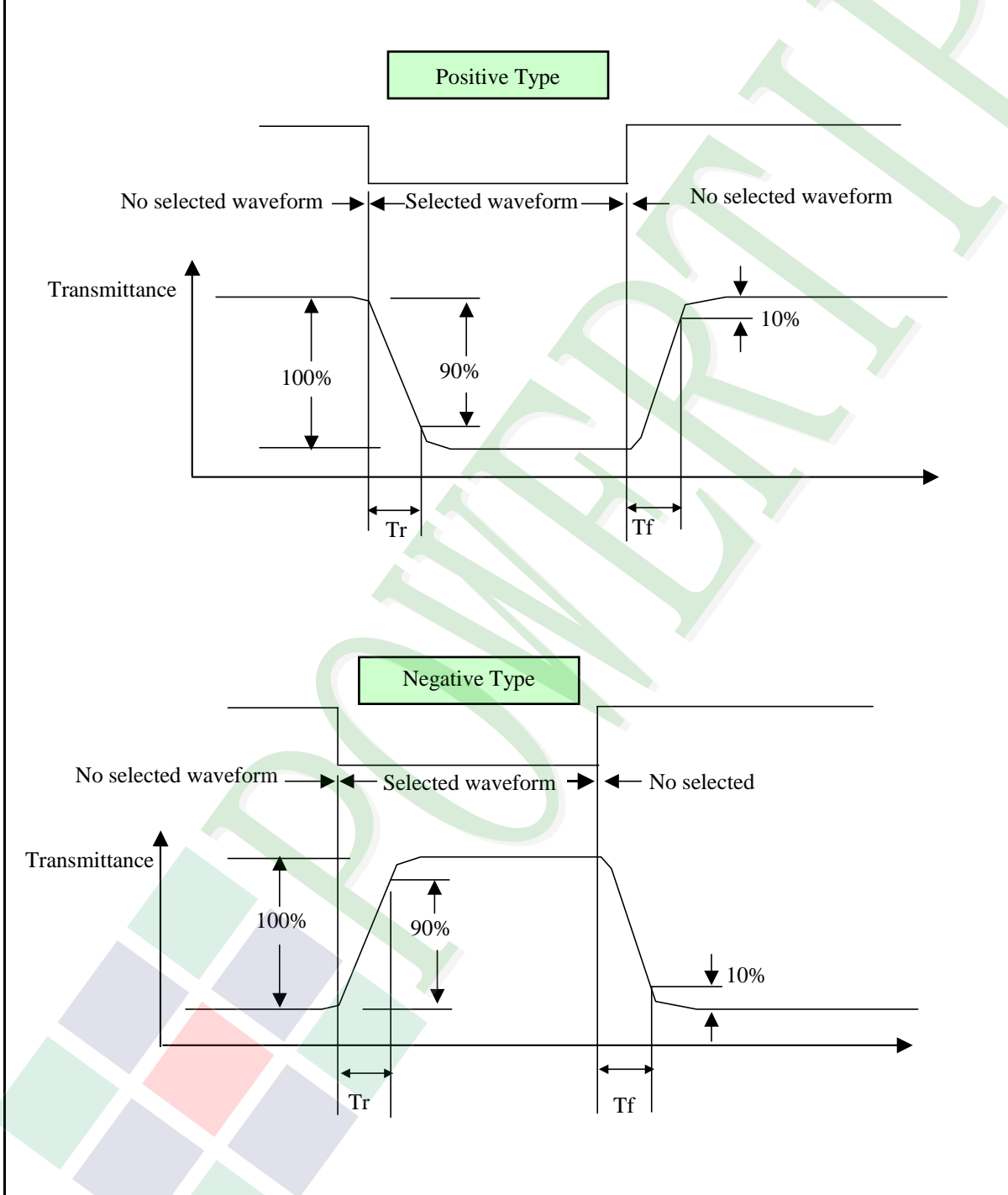


**Viewing angle**

Note 2.

Optical characteristics-3

Fig.2 Definition of response time





Electrical characteristics-2

※2 Drive waveform

$V_{op}$ : Drive voltage

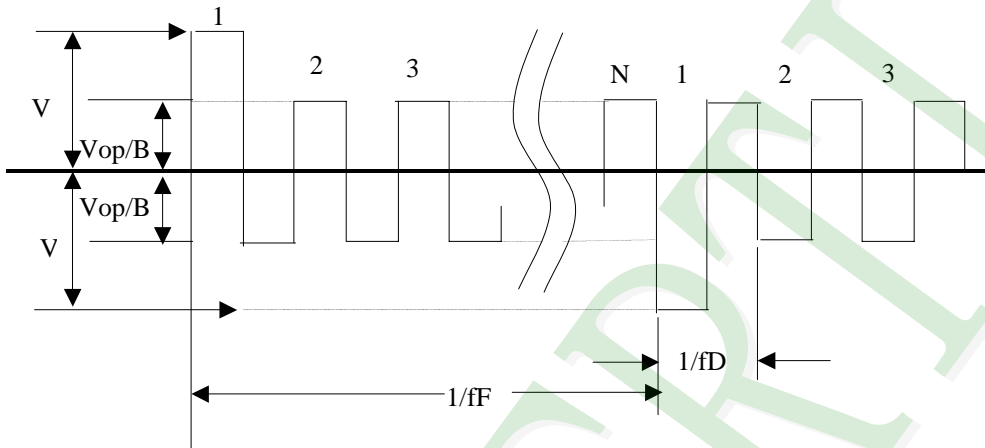
$f_F$ : Frame frequency

$1/B$ : Bias

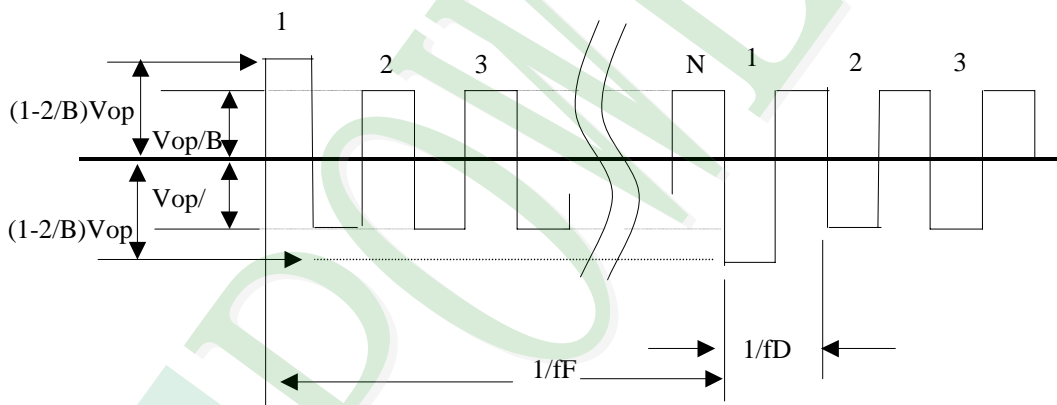
$f_D$ : Drive frequency

$N$ : Duty

(1) Selected waveform



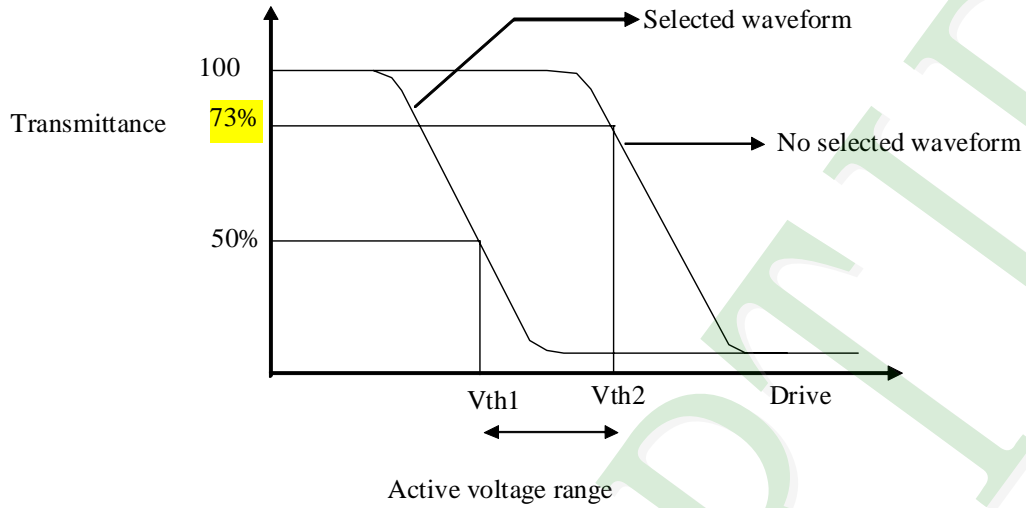
(2) Non- Selected wave form



Note:

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

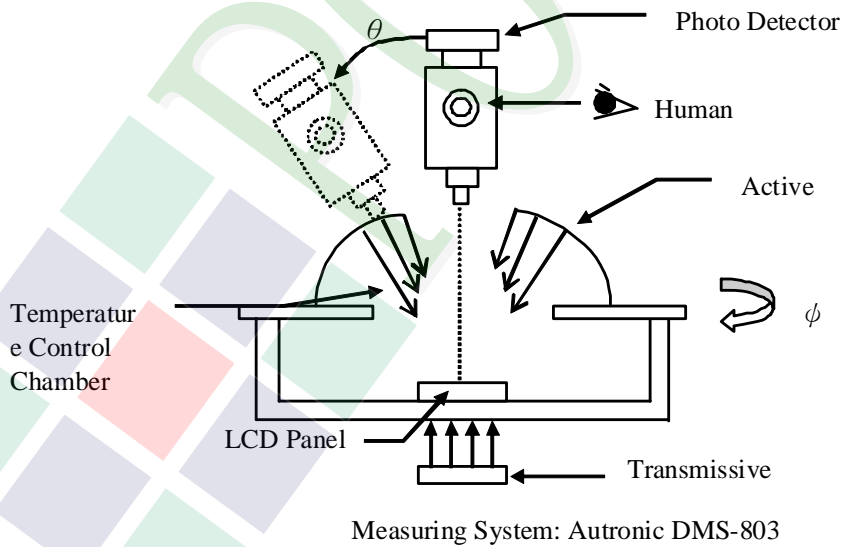
Note 3. : Definition of Vth



	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

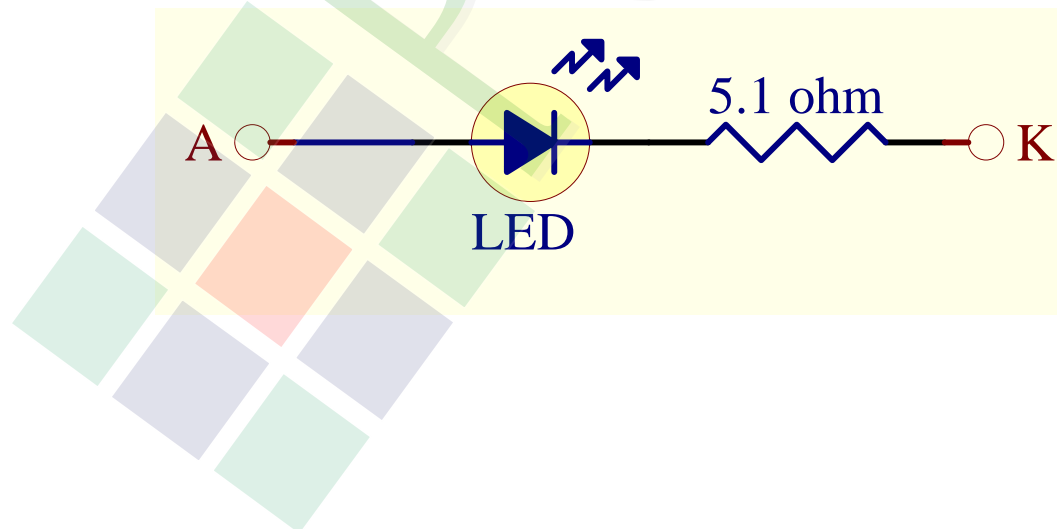
### Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25°C	-	25	mA
Reverse Voltage	VR	Ta =25°C	-	5	V
Power Dissipation	PD	Ta =25°C	-	90	mW

### Electrical / Optical Characteristics

Ta =25°C

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF= 20mA	3.1	3.3	3.6	V
Reverse Current	IR	VR= 5V	-	-	20	uA
CIE Color Coordinate	X	IF= 20mA	0.26	0.29	0.32	-
	Y		0.26	0.29	0.32	
Average Brightness	IV	IF= 20mA	2600	2800	-	cd/m <sup>2</sup>
Color	White					



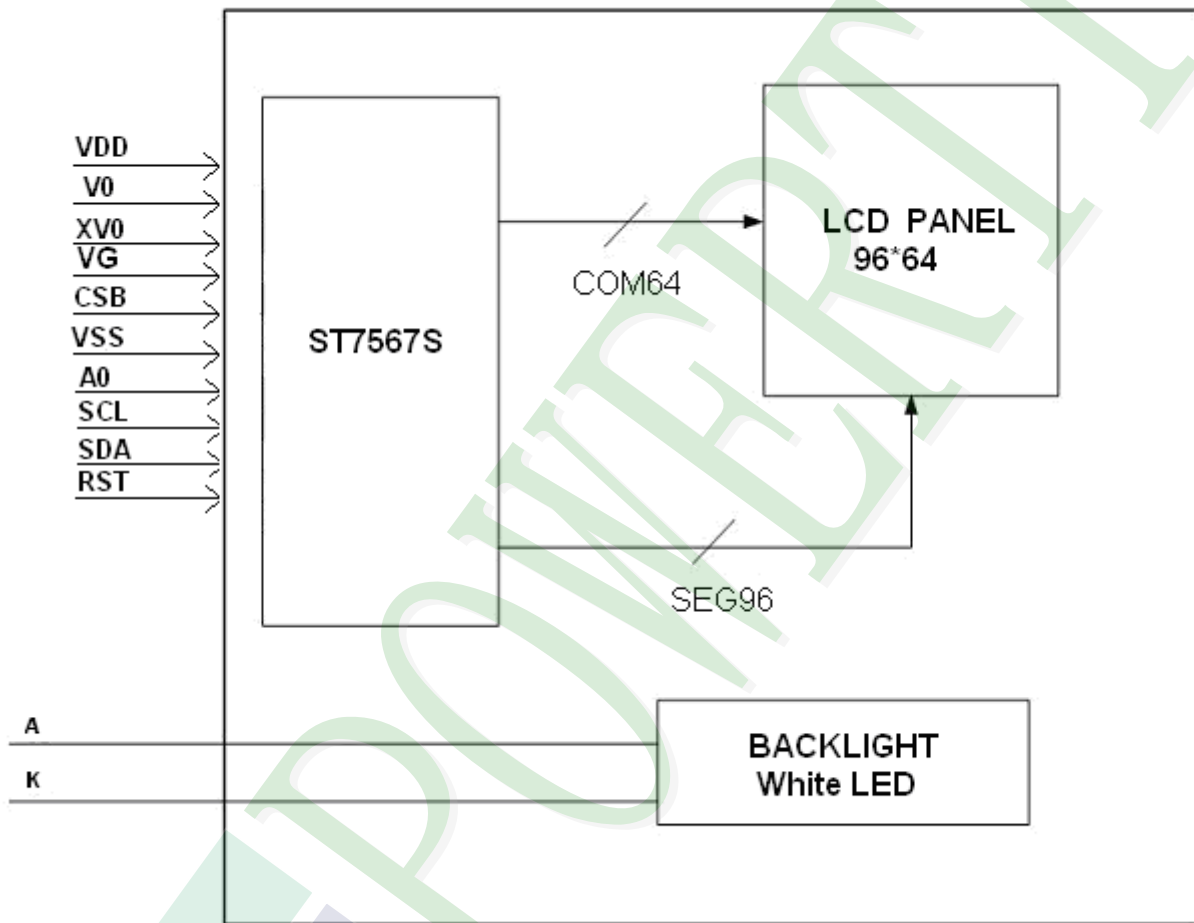
## 2. MODULE STRUCTURE

### 2.1 Counter Drawing

#### 2.1.1 LCM Mechanical Diagram

\* See Appendix

#### 2.1.2 Block Diagram



## 2.2 Interface Pin Description

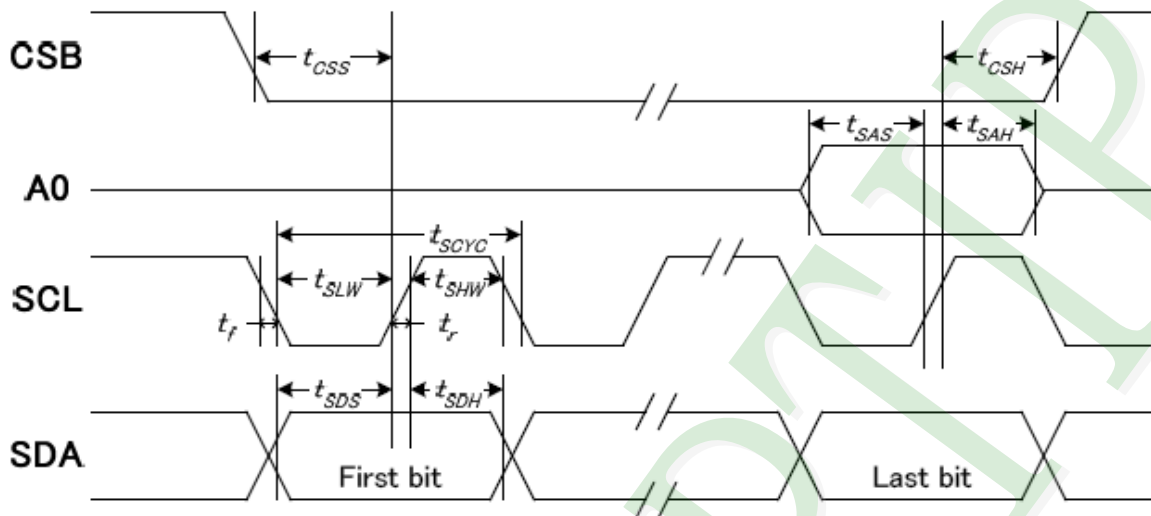
Pin No.	Symbol	Function
1	A	Power supply for LED backlight Anode input
2	K	Power supply for LED backlight Cathode input
3	NC	No connection
4	NC	No connection
5	VDD	Power supply input
6	VDD	Power supply input
7	NC	No connection
8	V0	V0 is the LCD driving voltage for common circuits at negative frame. Please keep this pin open.
9	XV0	V0 is the LCD driving voltage for common circuits at positive frame. Please keep this pin open.
10	VG	VG is the LCD driving voltage for segment circuits. Please keep this pin open.
11	CSB	Chip select input pin. Interface access is enabled when CSB is "L". When CSB is non-active (CSB="H"), D[7:0] pins are high impedance.
12	VSS	Ground
13	VSS	Ground
14	A0	It determines whether the access is related to data or command. A0="H" : Indicates that signals on D[7:0] are display data. A0="L" : Indicates that signals on D[7:0] are command.
15	NC	No connection
16	NC	No connection
17	SCL	Serial clock input terminal
18	SDA	Serial data input terminal
19	NC	No connection
20	NC	No connection
21	NC	No connection
22	NC	No connection
23	RSTB	Hardware reset input pin. When RSTB is "L", internal initialization is executed and the internal registers will be initialized.
24	NC	No connection

### 2.2.1 Refer Initial Code

```
void Initial_Main(void)                // For ST7567S
{
    Write_com(0x 2F);                  // Power control set /voltage follower turns on/ voltage booster
                                        turns on
    Write_com(0x 24);                  // V0 Select internal resistor ratio Rb/Ra mode 100=7.5
    Write_com(0x 81);                  // Electronic volume MODE
    Write_com(0x 31);                  // Sets the V0 output voltage electronic volume register 9.6V
    Write_com(0x 34);                  // 1/65duty
    Write_com(0x 89);                  // BOOSTER
    Write_com(0x 00);                  // 5X
    Write_com(0x C8);                  // Common output select COM=1
    Write_com(0x 40);                  // START LINE 0-line
    Write_com(0x A0);                  // ADC Reverse ADC=0
    Write_com(0x A6);                  // DISPLAY NORMAL RAM Data "H"LCD ON voltage (normal)
    Write_com(0x A4);                  // Normal display model
    Write_com(0x A2);                  // LCD BIAS 1/9
    Write_com(0x AF);                  // Display ON
}
}
```

## 2.3 Timing Characteristics

### System Bus Timing for 4-Line Serial Interface



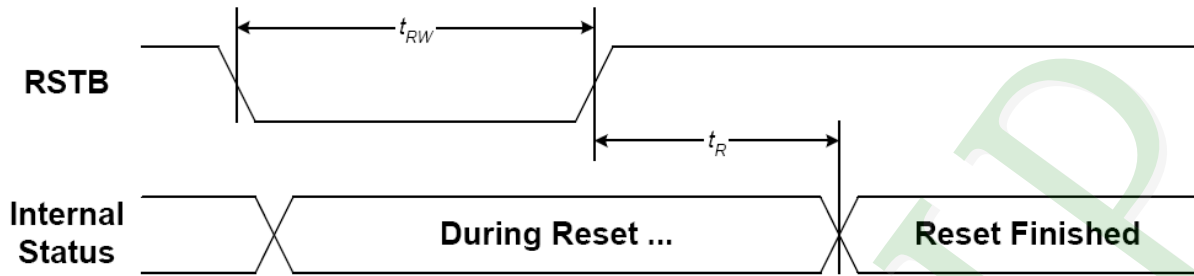
(VDD1 = 3.3V, Ta = 25°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Serial clock period	SCLK	tSCYC		50	—	ns
SCLK "H" pulse width		tSHW		25	—	
SCLK "L" pulse width		tSLW		25	—	
Address setup time	A0	tSAS		20	—	
Address hold time		tSAH		10	—	
Data setup time	SDA	tSDS		20	—	
Data hold time		tSDH		10	—	
CSB-SCLK time	CSB	tCSS		20	—	
CSB-SCLK time		tCSH		40	—	

(VDD1 = 2.8V, Ta = 25°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Serial clock period	SCLK	tSCYC		100	—	ns
SCLK "H" pulse width		tSHW		50	—	
SCLK "L" pulse width		tSLW		50	—	
Address setup time	A0	tSAS		30	—	
Address hold time		tSAH		20	—	
Data setup time	SDA	tSDS		30	—	
Data hold time		tSDH		20	—	
CSB-SCLK time	CSB	tCSS		30	—	
CSB-SCLK time		tCSH		60	—	

### Hardware Reset Timing



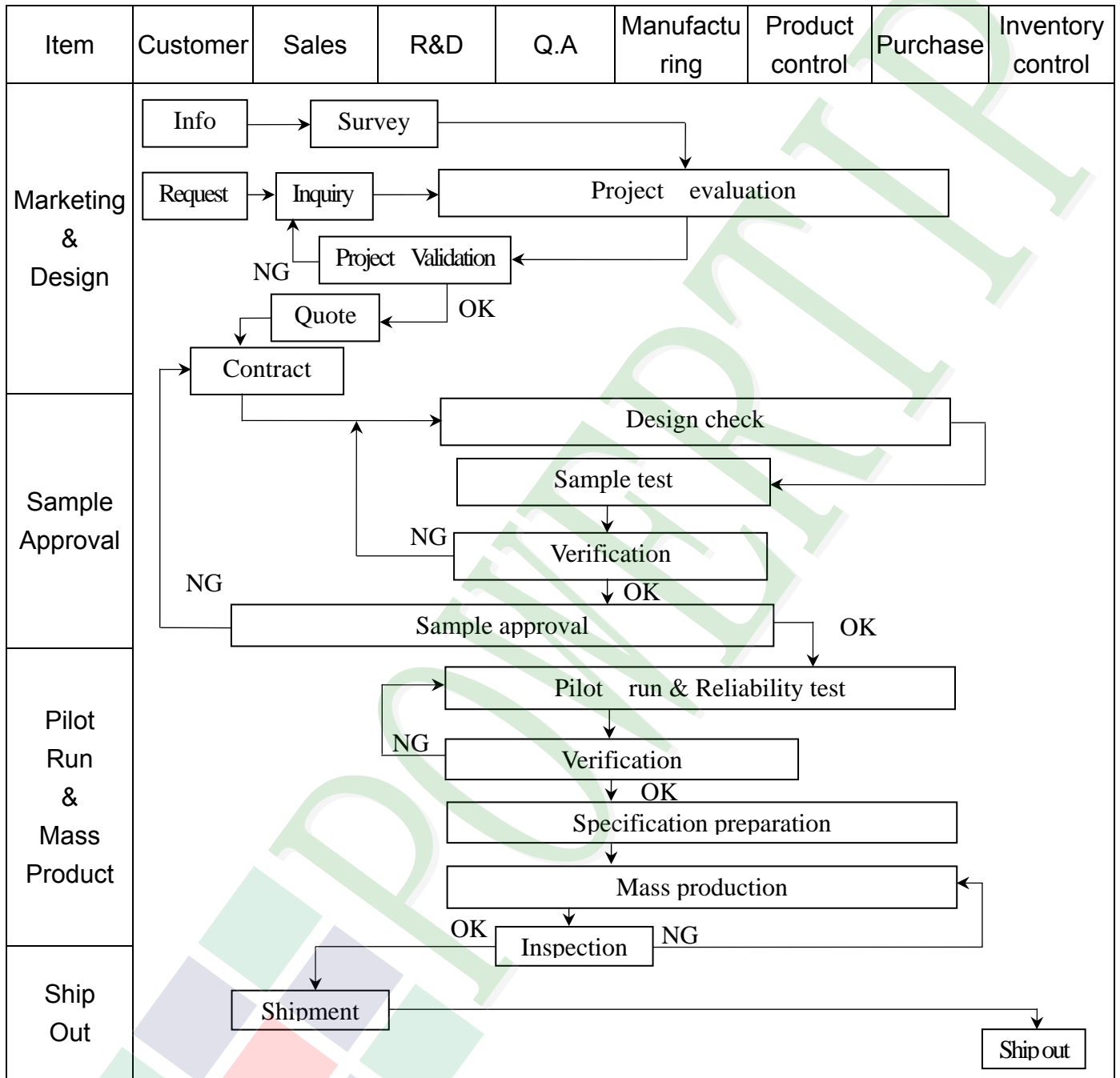
(VDD1 = 3.3V , Ta = 25°C)

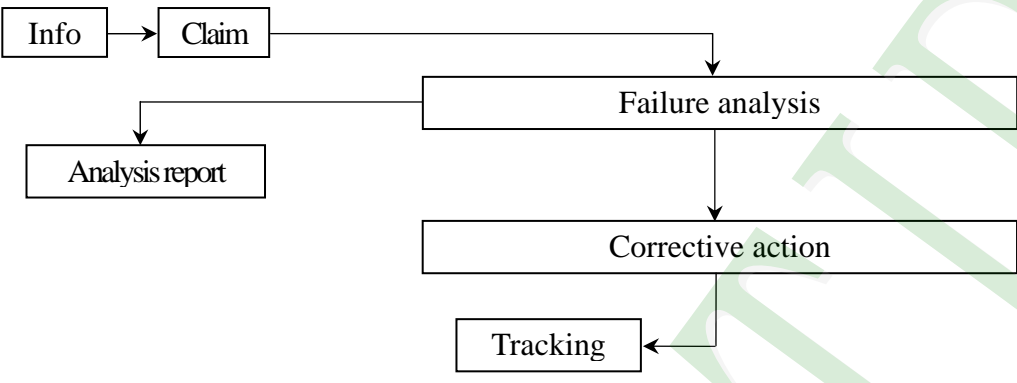
Item	Symbol	Condition	Min.	Max.	Unit
Reset time	tR		—	1.0	Us
Reset "L" pulse width	tRW		1.0	—	



### 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] --&gt; Claim[Claim]     Claim --&gt; Failure[Failure analysis]     Failure --&gt; Report[Analysis report]     Failure --&gt; Action[Corrective action]     Action --&gt; 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)

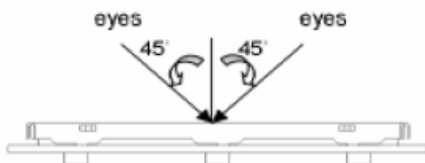


Fig.1

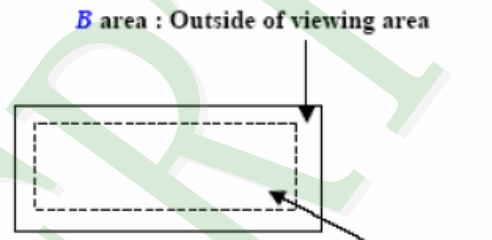
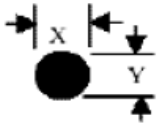
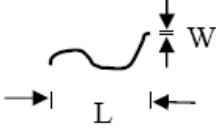
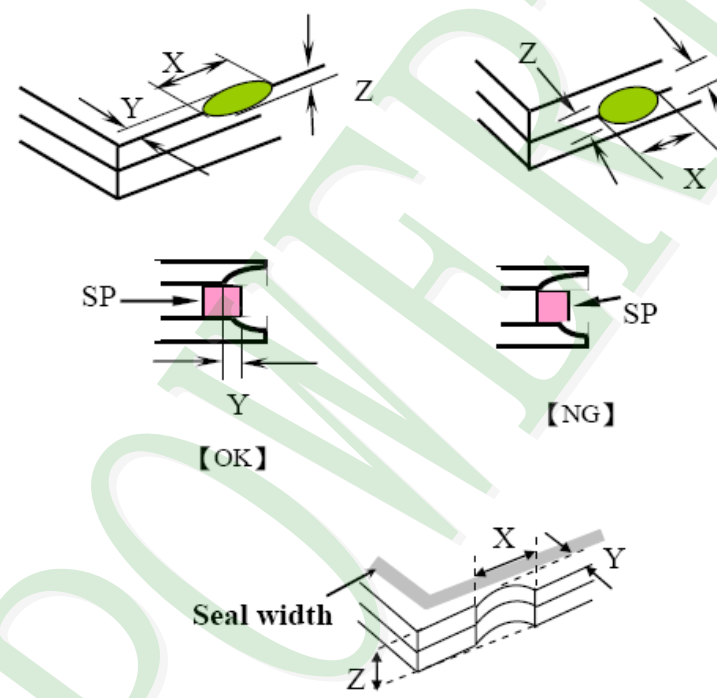


Fig. 2 A area : viewing area

#### ◆ Specification:

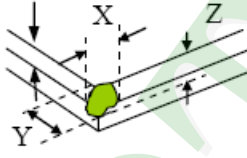
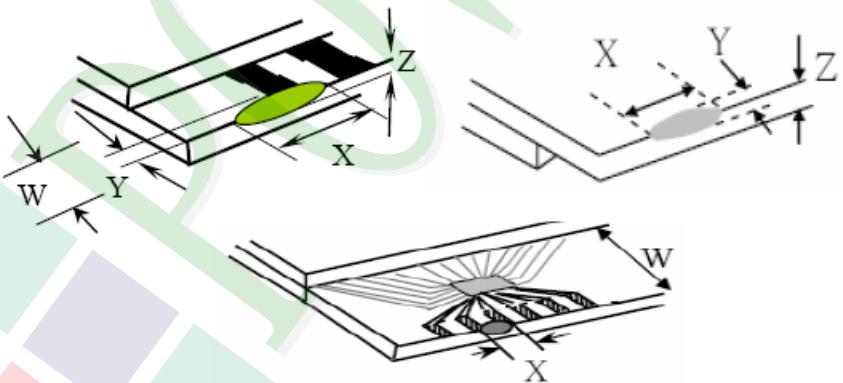
NO	Item	Criterion	Level
01	Product condition	1. 1 The part number is inconsistent with work order of Production.	Major
		1. 2 Mixed production types.	Major
		1. 3 Assembled in inverse direction.	Major
02	Quantity	2. 1 The quantity is inconsistent with work order of production.	Major
03	Outline dimension	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

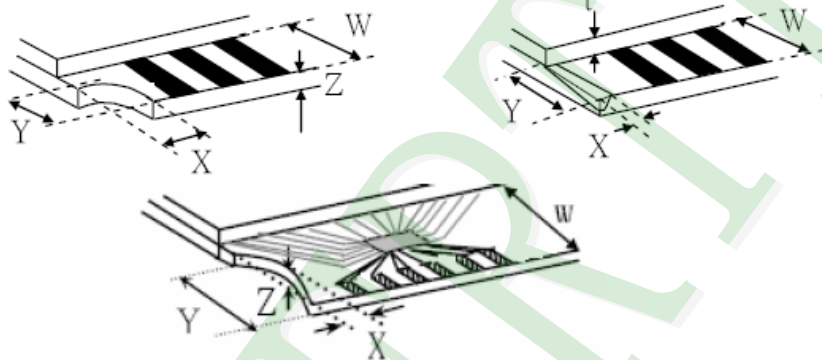
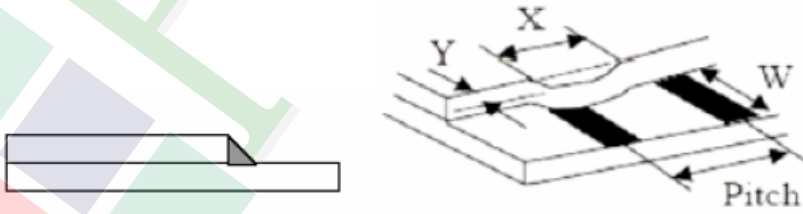
NO	Item	Criterion	Level																																					
05	Black or white dot、scratch、contamination  Round type  $\Phi = (x+y)/2$  Line type 	5. 1 Round type: 5. 1. 1 display only : <ul style="list-style-type: none"> <li>• White and black spots on display <math>\leq 0.30</math> mm , no more than 4 white or black spots present.</li> <li>• Densely spaced : NO more than two spots or lines within 3 mm.</li> </ul> 5. 1. 2 Non-display : <table border="1" data-bbox="491 656 1332 996"> <thead> <tr> <th rowspan="2">Dimension (diameter : <math>\Phi</math>)</th> <th colspan="2">Acceptance (Q'ty)</th> </tr> <tr> <th>A area</th> <th>B area</th> </tr> </thead> <tbody> <tr> <td><math>\Phi \leq 0.10</math></td> <td colspan="2">Accept no dense</td> </tr> <tr> <td><math>0.10 &lt; \Phi \leq 0.20</math></td> <td>3</td> <td rowspan="2">Ignore</td> </tr> <tr> <td><math>0.20 &lt; \Phi \leq 0.30</math></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="443 1070 1380 1406"> <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><math>W \leq 0.03</math></td> <td>Accept no dense</td> <td rowspan="3">Ignore</td> </tr> <tr> <td><math>L \leq 3.0</math></td> <td><math>0.03 &lt; W \leq 0.05</math></td> <td rowspan="2">4</td> </tr> <tr> <td><math>L \leq 2.5</math></td> <td><math>0.05 &lt; W \leq 0.075</math></td> </tr> <tr> <td>---</td> <td><math>W &gt; 0.075</math></td> <td colspan="2">As round type</td> </tr> </tbody> </table>	Dimension (diameter : $\Phi$ )	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="443 1467 1380 1854"> <thead> <tr> <th rowspan="2">Dimension (diameter : <math>\Phi</math>)</th> <th colspan="2">Acceptance (Q'ty)</th> </tr> <tr> <th>A area</th> <th>B area</th> </tr> </thead> <tbody> <tr> <td><math>\Phi \leq 0.20</math></td> <td colspan="2">Accept no dense</td> </tr> <tr> <td><math>0.20 &lt; \Phi \leq 0.50</math></td> <td>3</td> <td rowspan="3">Ignore</td> </tr> <tr> <td><math>0.50 &lt; \Phi \leq 1.00</math></td> <td>2</td> </tr> <tr> <td><math>\Phi &gt; 1.00</math></td> <td>0</td> </tr> <tr> <td>Total quantity</td> <td colspan="2">4</td> </tr> </tbody> </table>	Dimension (diameter : $\Phi$ )	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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Total quantity	4																																							

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>7.1 General glass chip :</p> <p>7.1.1 Chip on panel surface and crack between panels:</p>  <table border="1" data-bbox="502 1489 1300 1780"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td><math>\leq a</math></td> <td>Crack can't enter viewing area</td> <td><math>\leq 1/2 t</math></td> </tr> <tr> <td><math>\leq a</math></td> <td>Crack can't exceed the half of SP width.</td> <td><math>1/2 t &lt; Z \leq 2 t</math></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><b>X</b> : The length of crack  <b>Z</b> : The thickness of crack  <b>t</b> : The thickness of glass</p> <p><b>Y</b> : The width of crack.  <b>W</b> : terminal length  <b>a</b> : LCD side length</p> <hr/> <p>7.1.2 Corner crack :</p>  <table border="1" data-bbox="502 801 1321 1093"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td><math>\leq 1/5 a</math></td> <td>Crack can't enter viewing area</td> <td><math>Z \leq 1/2 t</math></td> </tr> <tr> <td><math>\leq 1/5 a</math></td> <td>Crack can't exceed the half of SP width.</td> <td><math>1/2 t &lt; Z \leq 2 t</math></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="470 1675 1257 1854"> <thead> <tr> <th></th> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>Front</td> <td><math>\leq a</math></td> <td><math>\leq 1/2 W</math></td> <td><math>\leq t</math></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											

NO	Item	Criterion	Level									
07	The crack of glass	<p>Symbols :</p> <p><b>X</b> : The length of crack  <b>Z</b> : The thickness of crack  <b>t</b> : The thickness of glass</p> <p><b>Y</b> : The width of crack.  <b>W</b> : terminal length  <b>a</b> : LCD side length</p>	Minor									
		<p>7.2.2 Non-conductive portion :</p>  <table border="1" data-bbox="582 1037 1209 1189"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td><math>\leq 1/3 a</math></td> <td><math>\leq W</math></td> <td><math>\leq t</math></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="502 1715 1190 1856"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td><math>\leq a</math></td> <td><math>\leq 1/3 W</math></td> <td><math>\leq t</math></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 $\leq 1.5$ 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  
(For Tray)

Approve	Check	Contact
Ryan	Eddy	Terry

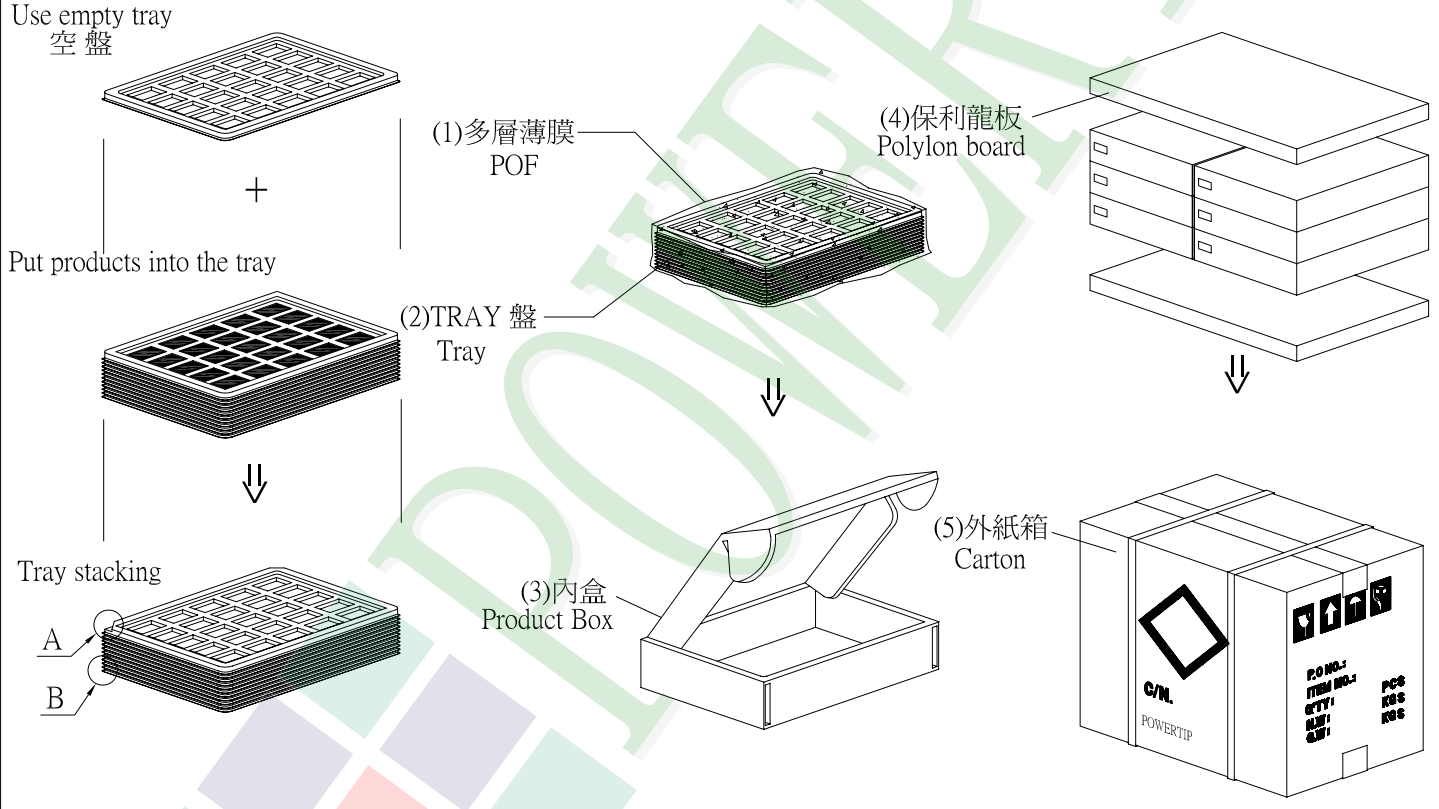
## 1. 包裝材料規格表 (Packaging Material) : (per carton)

No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 (LCM)	PE9664WRF-011-L-Q	28.56 X 28.68X3.0	0.003	1764	5.292
2	多層薄膜(1)POF	OTFILM0BA03ABA	19"X350X0.015	—	6	—
3	TRAY 盤 (2)Tray	TYPE09606403BA	352 X 260 X 10.8	0.1	48	4.8
4	內盒(3)Product Box	BX36627063ABBA	393 X 274 X 68	0.2692	6	1.6152
5	保利龍板(4)Polylon board	OTPLB00PL08ABA	550 X 393 X 20	0.0284	2	0.0568
6	外紙箱(5)Carton	BX57041027CCBA	570 X 410 X 265	1.4208	1	1.4208
7						
8						
9						

2. 一整箱總重量 (Total LCD Weight in carton) : 13.18 Kg±10%

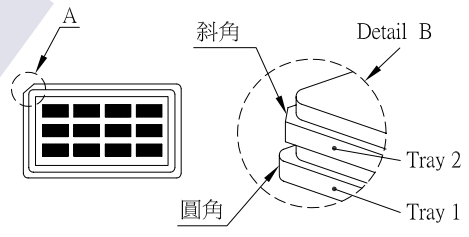
3. 單箱數量規格表 (Packaging Specifications and Quantity) :

(1) LCM quantity per box : no per tray	42	x no of tray	7	=	294
(2) Total LCM quantity in carton : quantity per box	294	x no of boxes	6	=	1764



## 特 記 事 項 (REMARK)

1. Label Specifications :  
參照廠內作業標準



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