POWERTIP TECH. CORP.

SPECIFICATIONS

CUSTOMER	:	CTW1447
SAMPLE CODE	:	SE128128WRF016K01Q
MASS PRODUCTION CODE	:	PE128128WRF016K01Q
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	001
DRAWING NO. (Ver.)	:	LMD- PE128128WRF016K01Q (Ver.001)
PACKAGING NO. (Ver.)	:	

Customer Approved

Date:

Approved	Checked	Designer
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POWERTIP
2009.09.09
TW RD APR

■ Preliminary specification for design input

□ Specification for sample approval

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History of Version

Date (mm / dd / yyyy)	Ver.	Edi.	Description	Page	Design by
09/08/2009	**01**	**001**	**New Drawing**	**-**	**Howard**

Total: 29 Page

Contents

Note：For detailed information please refer to IC data sheet： Sitronix—ST7571

1. SPECIFICATIONS

1.1 Features

Main LCD Panel

Item	Standard Value
Display Type	128 * 128 Dots
LCD Type	FSTN, Positive, Transflective
Driver Condition	LCD Module :1/128Duty, 1/12 Bias
Viewing Direction	12 O'clock
Backlight	White LED
Weight	-
Interface	8 bit Parallel data bus for 8080,6800 & 3-wire,4-wire Serial Bus I/F
Driver IC	Driver IC : **Sitronix—ST7571**
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	36.6 (L) * 44.5 (W) * 2.99(H)(MAX)	mm
Viewing Area	33.5(L) * 33.5 (W)	mm
Active Area	28.14 (L) * 30.06 (W)	mm
Dot Size	0.235 (W) × 0.22 (H)	mm
Dot Pitch	0.215 (W) × 0.2 (H)	mm

Note : For detailed information please refer to LCM drawing

1.3 Absolute Maximum Ratings

Item	Symbol	Condition	Min.	Max.	Unit
Power Supply Voltage	VDD	-	-0.3	+4	V
LCD Driver Supply Voltage	V0-XV0	-	-0.3	+15	V
LCD Driver Supply Voltage	VG,VM	-	-0.3	VDD	V
Input Voltage	VIN	-	-0.4	VDD+0.3	V
Operating Temperature	T_{OP}	-	-20	+70	℃
Storage Temperature	T_{ST}	-	-30	+80	℃
Storage Humidity	H_D	Ta < 40 ℃	20	90	%RH

1.4 DC Electrical Characteristics

VSS = 0V, Ta = 25℃

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Logic Supply Voltage	VDD	-	3.0	3.3	3.4	V
"H" Input Voltage	V_{IHC}	-	0.7* VDD	-	VDD	V
"L" Input Voltage	V_{ILC}	-	VSS	-	0.3* VDD	V
Supply Current	IDD	V_{DD}= TBD V;V_{OP}= TBD V; Pattern= Full display	-	TBD	-	mA
		V_{DD}= TBD V;V_{OP}= TBD V; Pattern= Horizontal line *1	-	TBD	-	mA
LCM Driver Voltage	V_{OP}	-20℃	-	TBD	-	V
		25℃	-	TBD	-	
		70℃	-	TBD	-	

Note*1:Maximum current display

2:The V_{OP} test point is V0-XV0

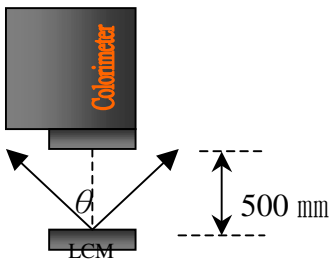
1.5 Optical Characteristics

FSTN LCD Panel VDD =3.3V, Ta=25℃

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time	Rise	tr	C ≥ 2.0 ∅ =0°	-	TBD	-	ms	Note1
	Fall	tf		-	TBD	-		
Viewing angle	Top	θY+		-	TBD	-	Deg.	Note3
	Bottom	θY-		-	TBD	-		
	Left	θX-		-	TBD	-		
	Right	θX+		-	TBD	-		
Contrast ratio		CR	θ = 0°, ∅ = 0°	-	TBD	-	-	Note2
Color of CIE Coordinate (With LCD) *1		X	-	-	TBD	-	-	Note1
		Y		-	TBD	-		
Average Brightness Pattern=white display (With B/L)		IV	IF= (15)mA	-	TBD	-	cd/m^2	Note4
Uniformity (With B/L)		△B	IF= (15)mA	(70)	-	-	%	Note4

Note1:

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%

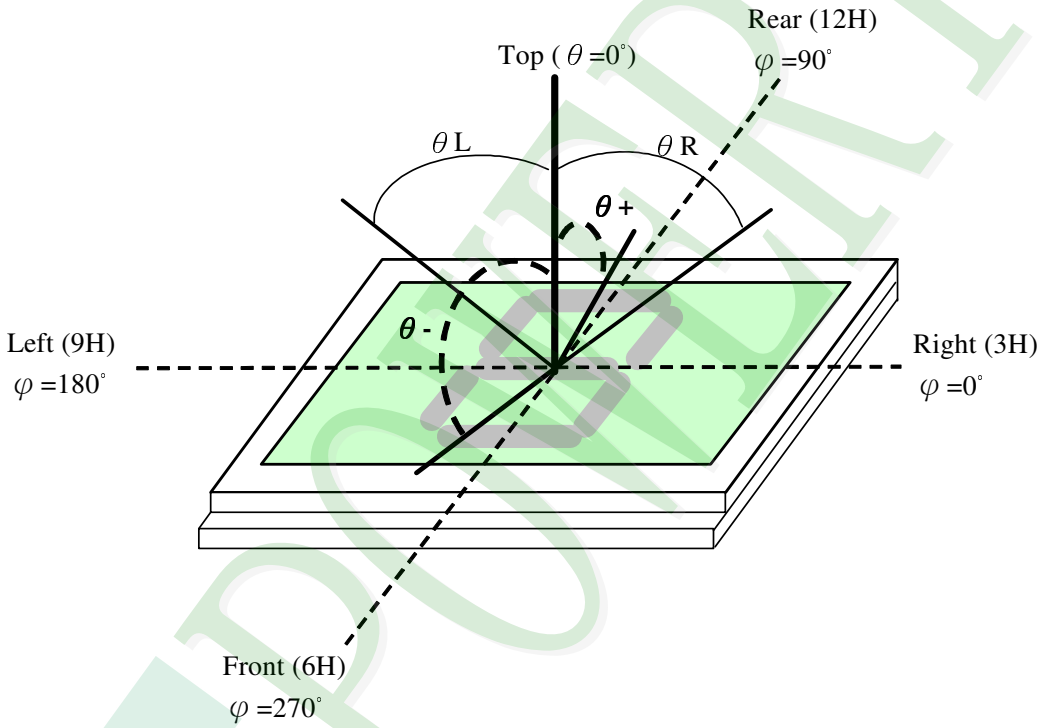


Colorimeter=BM-7 fast

Note 1.

Optical characteristics-2

Viewing angle

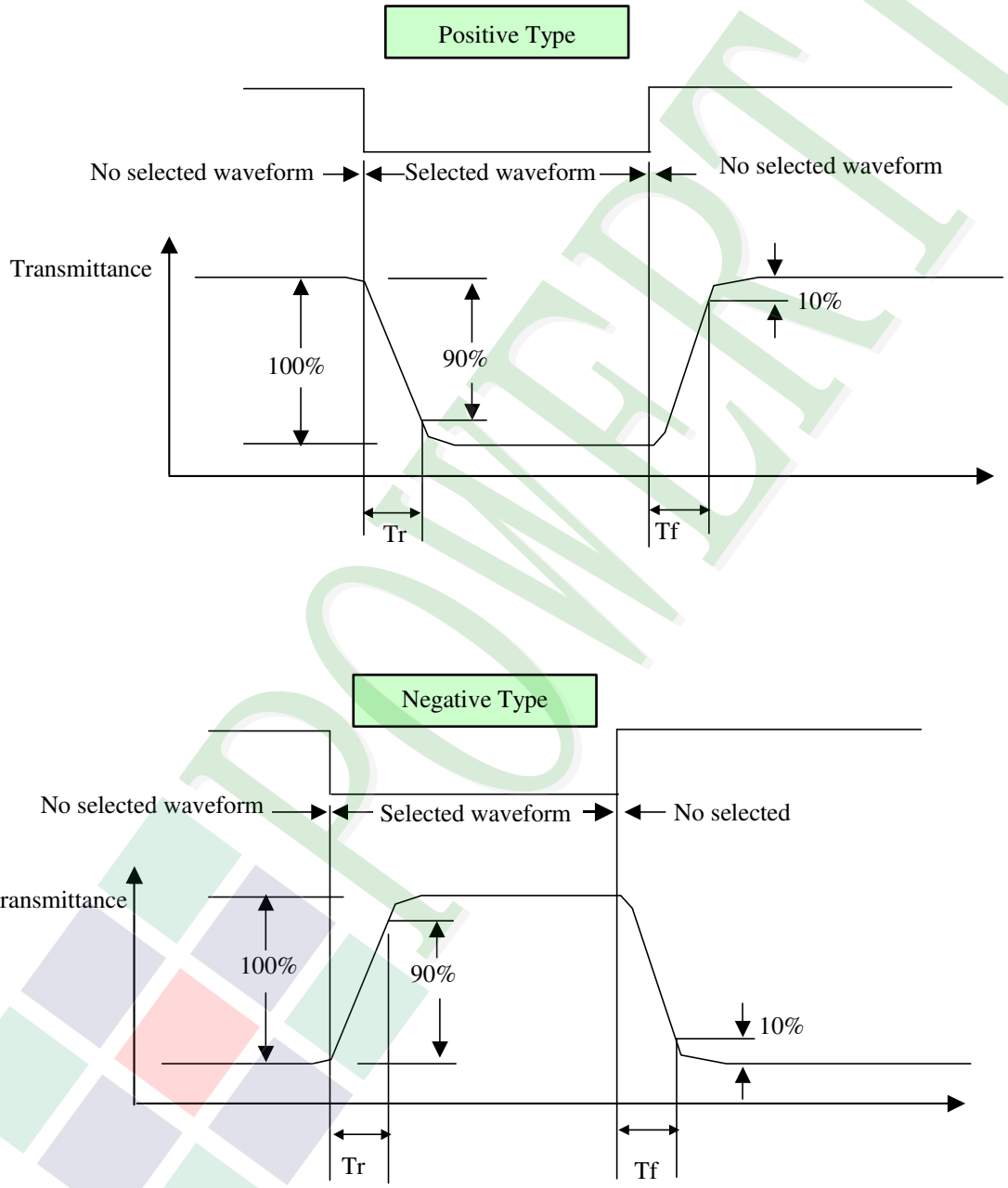


Viewing angle

Note 2.

Optical characteristics-3

Fig.2 Definition of response time



Electrical characteristics-2

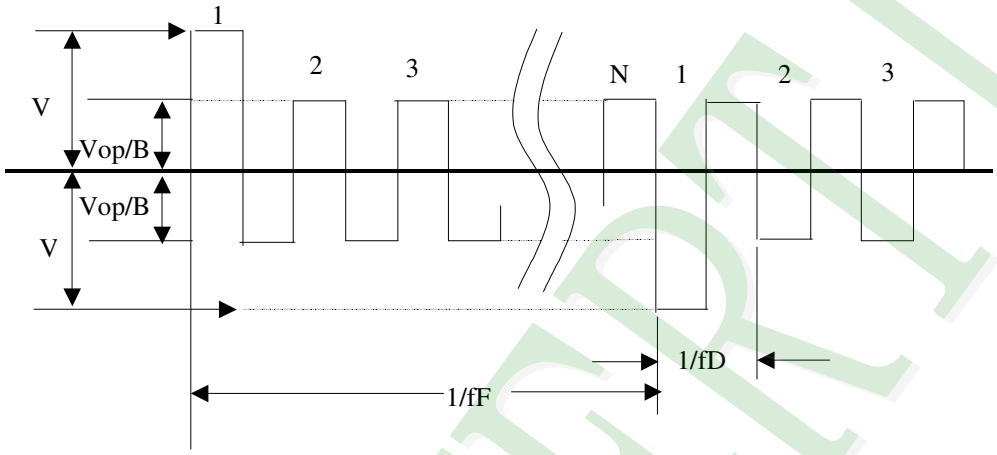
※2 Drive waveform

Vop: Drive voltage fF: Frame frequency

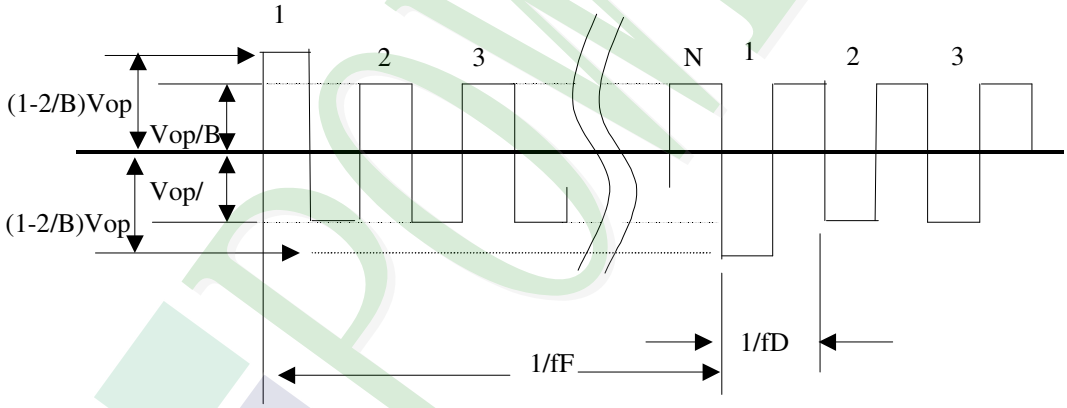
1/B: Bias fD: Drive frequency

N: Duty

(1) Selected waveform



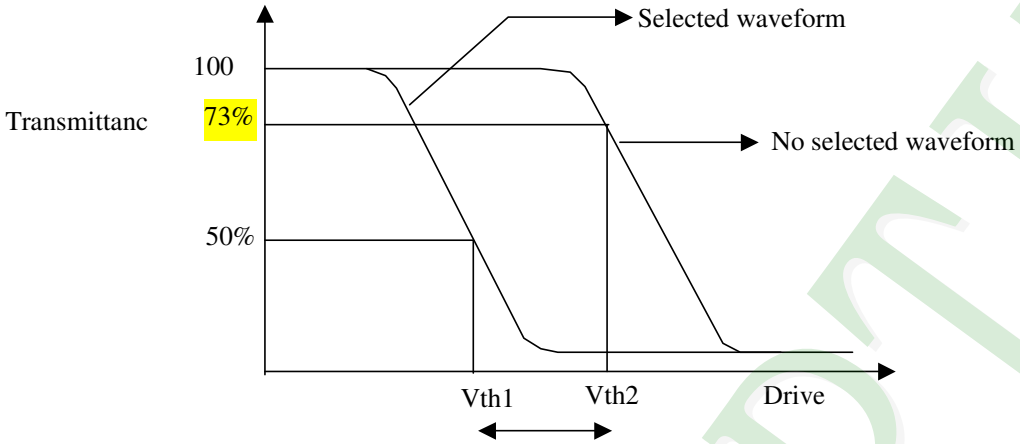
(2) Non- Selected wave form



Note:

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

Note 3. : Definition of Vth

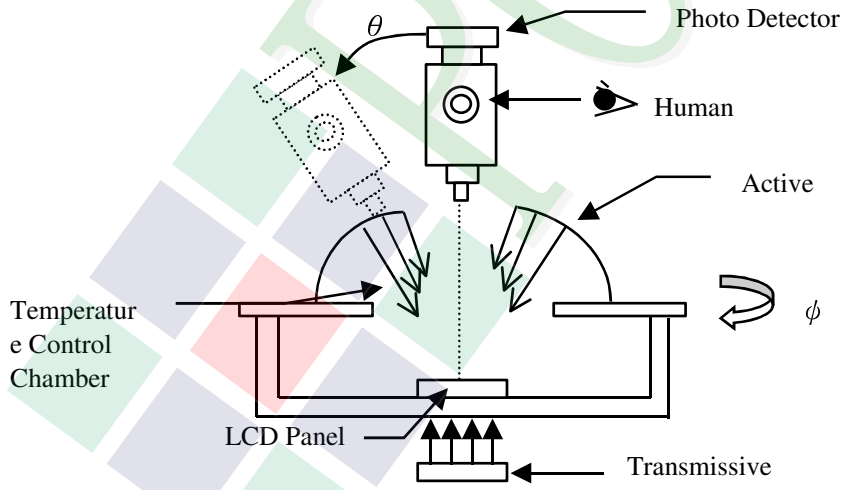


Active voltage range

	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 & LED Characteristics

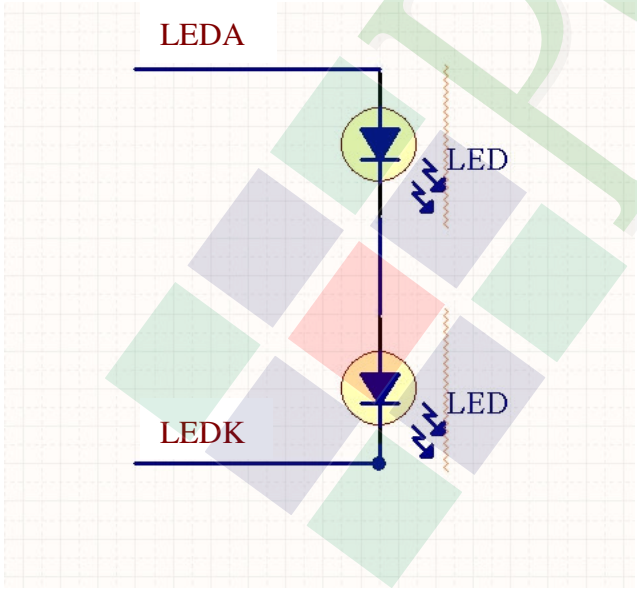
Maximum Ratings

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

Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Average Brightness (without LCD)	IV	IF= (15)mA	-	TBD	-	cd/m^2
Color of CIE Coordinate (without LCD)	X		-	TBD	-	-
	Y		-	TBD	-	
Color	White					

*1 This value will be changed while mass production.
*2 △B=B(min) / B(max) %



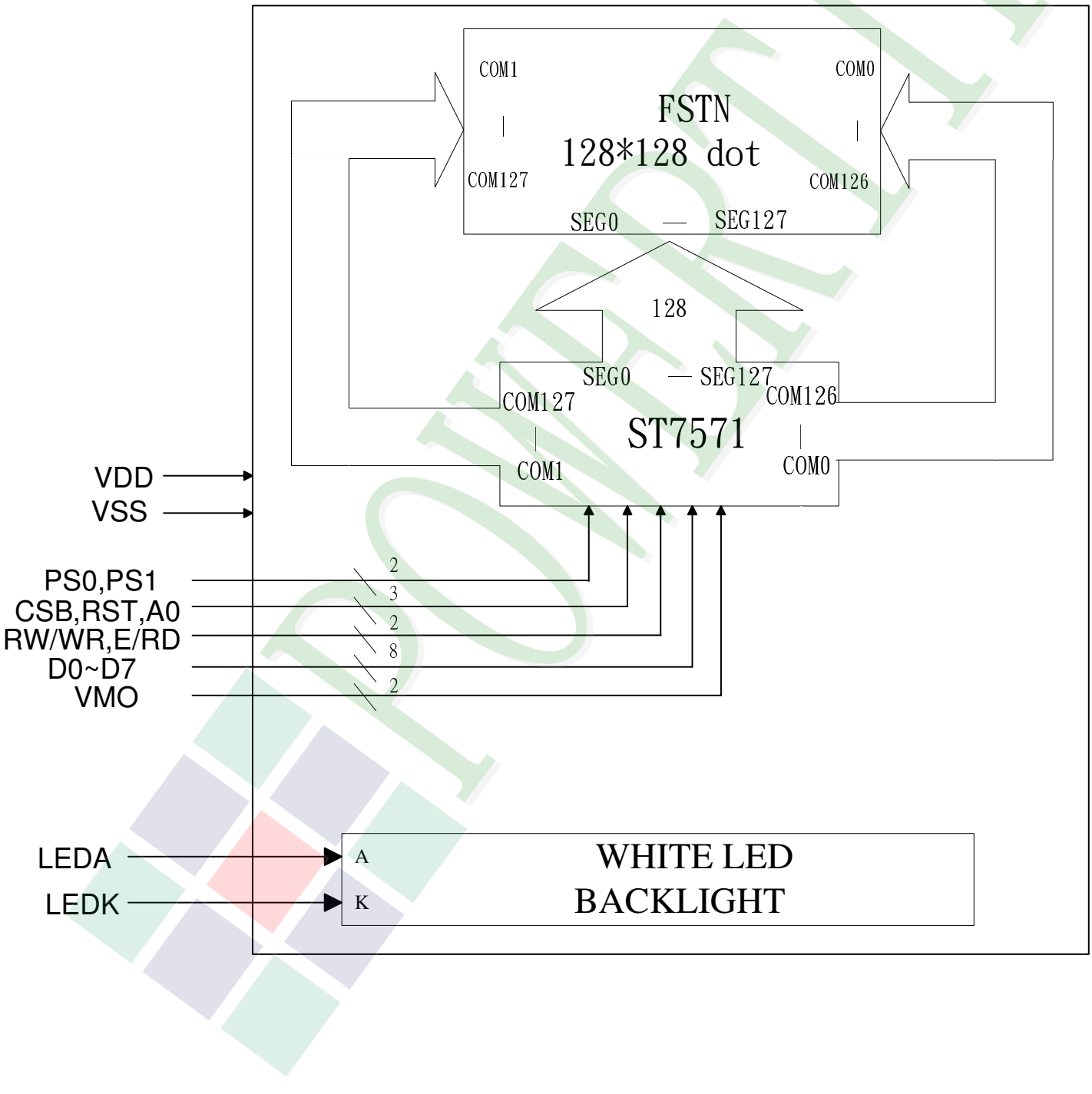
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram



2.2 Interface Pin Description

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>PS0</td><td rowspan="5">
<table>
<tr><th>PS0</th><th>PS1</th><th>Interface mode</th></tr>
<tr><td>H</td><td>L</td><td>Parallel 8080 interface</td></tr>
<tr><td>H</td><td>H</td><td>Parallel 6800 interface</td></tr>
<tr><td>L</td><td>L</td><td>3 Line Serial</td></tr>
<tr><td>L</td><td>H</td><td>4 Line Serial</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>PS1</td></tr>
<tr><td>3</td><td>CSB</td><td>Chip select signal , Active “L”.</td></tr>
<tr><td>4</td><td>RST</td><td>Reset input pin. When RESET is “L”, initialization is executed.</td></tr>
<tr><td>5</td><td>A0</td><td>Command / Display data selection.L : Command , H : Display data.</td></tr>
<tr><td>6</td><td>RW/WR</td><td>Write execution control pin .
<table>
<tr><th>WR</th><th>Description</th></tr>
<tr><td>RW</td><td>Write control input pin.
Keep this pin at “L” Level</td></tr>
<tr><td>/WR</td><td>The data on D[7:0] will be latched at the rising
Edge of /WR signal</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>E/RD</td><td>Read/Write execution control pin .
<table>
<tr><th>WR</th><th>Description</th></tr>
<tr><td>E</td><td>The data on D[7:0] will be latched at the falling
Edge of E signal</td></tr>
<tr><td>/RD</td><td>Keep this pin at “H Level</td></tr>
</table>
</td></tr>
<tr><td>8</td><td>D0</td><td rowspan="8">When parallel interface:
D[7:0] are 8-bit data bus
D[7:0] are Connect to the 8-bit data bus of a standard microprocessor
When CSB is non-active (CSB=”H”), D[7:0] pins are high impedance.
When using serial interface : 3/4-LINE
D7=SDA: Serial data input. D6=SCL: Serial clock input.
D[5:0] are not used and should connect to “H” by VDD.
When CSB is non-active (CSB=”H”),D[7:0] pins are high impedance.
When using I2C interface:
D7=SCL, Serial clock input.
D[6:4]SDA_IN , Serial input data
D[3:2] SDA_OUT, output the acknowledge signal of the I2C interface protocol
D[6:2] Must be connected together (SDA)
D[1:0]:SA[1:0]I2C slave address bits of ST7571.Must connect to VDD or VSS</td></tr>
<tr><td>9</td><td>D1</td></tr>
<tr><td>10</td><td>D2</td></tr>
<tr><td>11</td><td>D3</td></tr>
<tr><td>12</td><td>D4</td></tr>
<tr><td>13</td><td>D5</td></tr>
<tr><td>14</td><td>D6</td></tr>
<tr><td>15</td><td>D7</td></tr>
</table>

Pin No.	Symbol	Function
16	VDD	Shared with the MPU power supply terminal VDD. (3.0 V)
17	VSS	This is a 0V terminal connected to the system GND.
18	VMO	VM is the LCD driving voltage for common circuits.
19	VM0	VM is the LCD driving voltage for common circuits.
20	N.C	N.C
21	N.C	N.C
22	N.C	N.C
23	N.C	N.C
24	N.C	N.C
25	N.C	N.C
26	N.C	N.C
27	N.C	N.C
28	N.C	N.C
29	LEDK	Power supply for LED Backlight Cathode input.
30	LEDA	Power supply for LED Backlight Anode input.

2.3 Timing Characteristics

8080 Interface

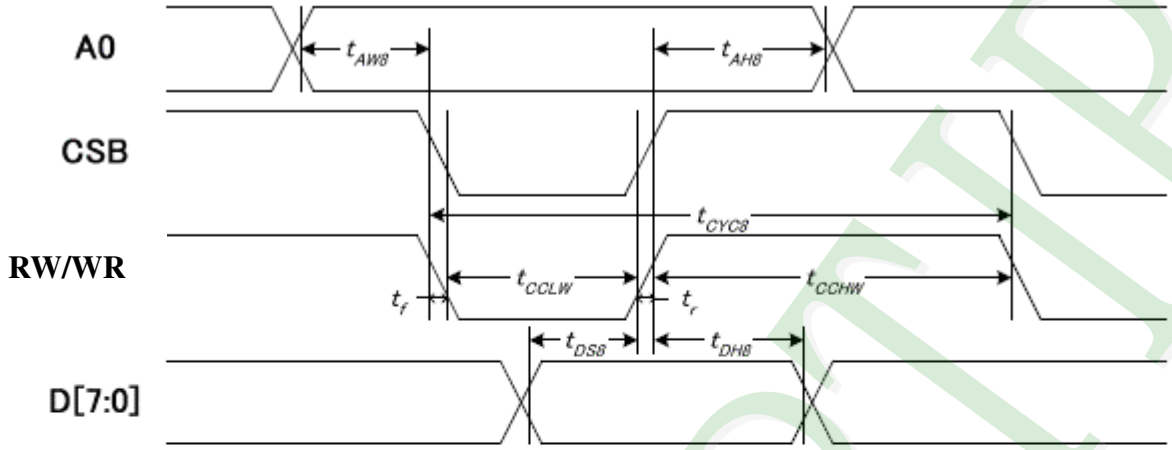


Fig. 31

VDD=3.3V,Ta=-30~80℃

Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Address hold time	A0	tAH8		0	—	ns
Address setup time		tAW8		0	—	
System cycle time	RW/W	tCYC8		500	—	
Write L pulse width		tCCLW		250	—	
Write H pulse width		tCCHW		250	—	
WRITE Data setup time	DB[7:0]	tDS8		80	—	
WRITE Data hold time		tDH8		30	—	

6800 Interface

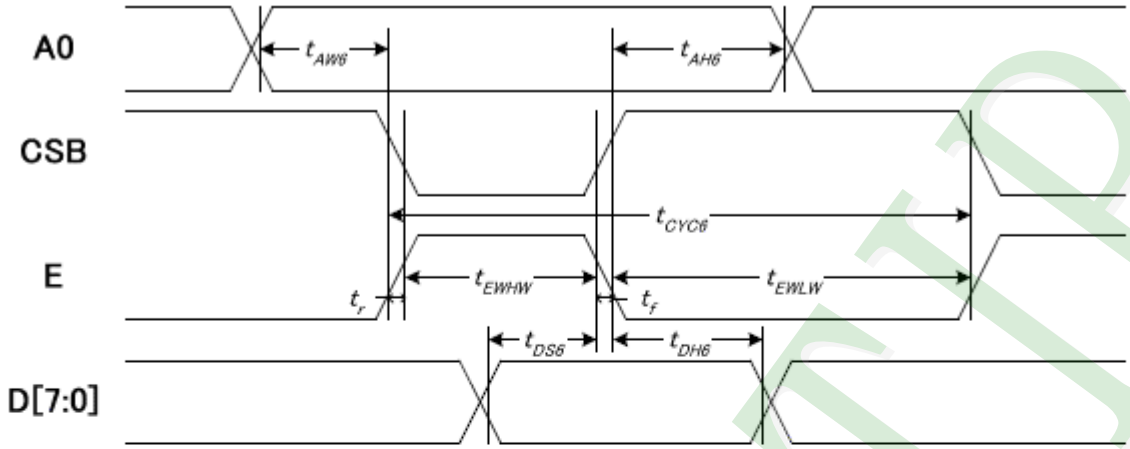
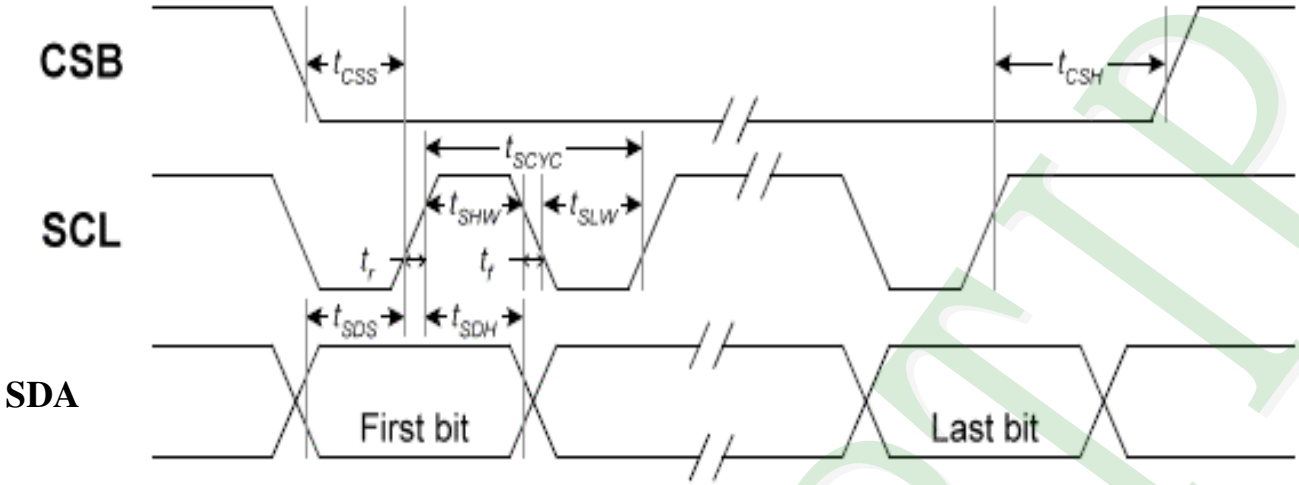


Fig. 32

VDD=3.3V,Ta=-30~80℃

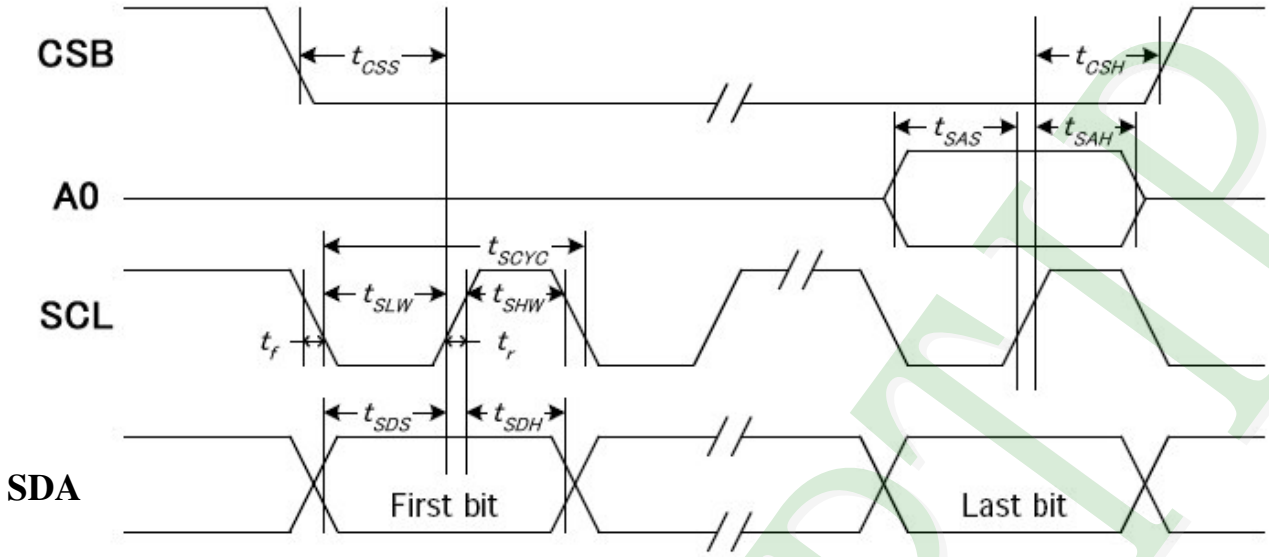
Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Address hold time	A0	tAH6		0	—	ns
Address setup time		tAW6		0	—	
System cycle time	E	tCYC6		500	—	
Enable L pulse width (Write)		tEWLW		250	—	
Enable H pulse width (Write)		tEWHW		250	—	
WRITE Data setup time	DB[7:0]	tDS6		80	—	
WRITE Data hold time		tDH6		30	—	

Serial 3-Line Interface



Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Serial Clock Period	SCL	tSCYC		200	—	ns
SCL "H" pulse width		tSHW		80	—	
SCL "L" pulse width		tSLW		80	—	
Data setup time	SID	tSDS		60	—	
Data hold time		tSDH		30	—	
CS-SCL time	CSB	tCSS		40	—	
CS-SCL time		tCSH		100	—	

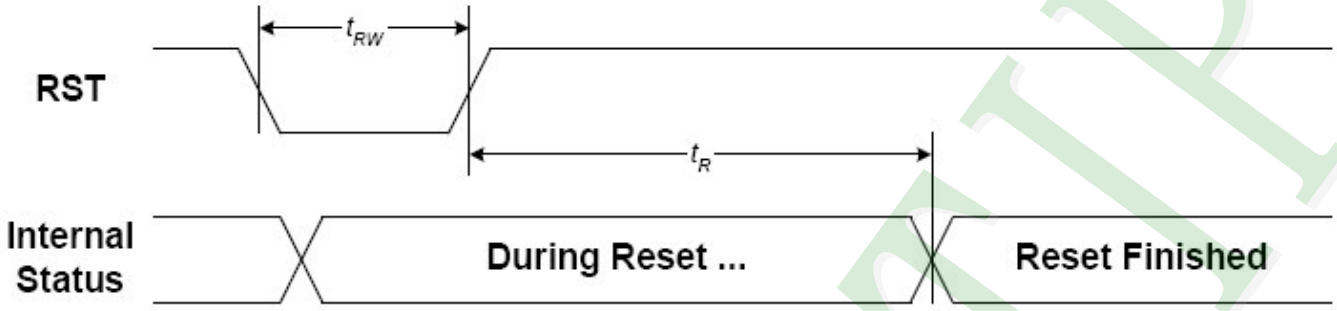
Serial 4-Line Interface



Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Serial Clock Period	SCL	tSCYC		200	—	ns
SCL "H" pulse width		tSHW		80	—	
SCL "L" pulse width		tSLW		80	—	
Address setup time	A0	tSAS		60	—	
Address hold time		tSAH		30	—	
Data setup time	SDA	tSDS		60	—	
Data hold time		tSDH		30	—	
CS-SCL time	CSB	tCSS		40	—	
CS-SCL time		tCSH		100	—	

LCD Reset

LCD Reset

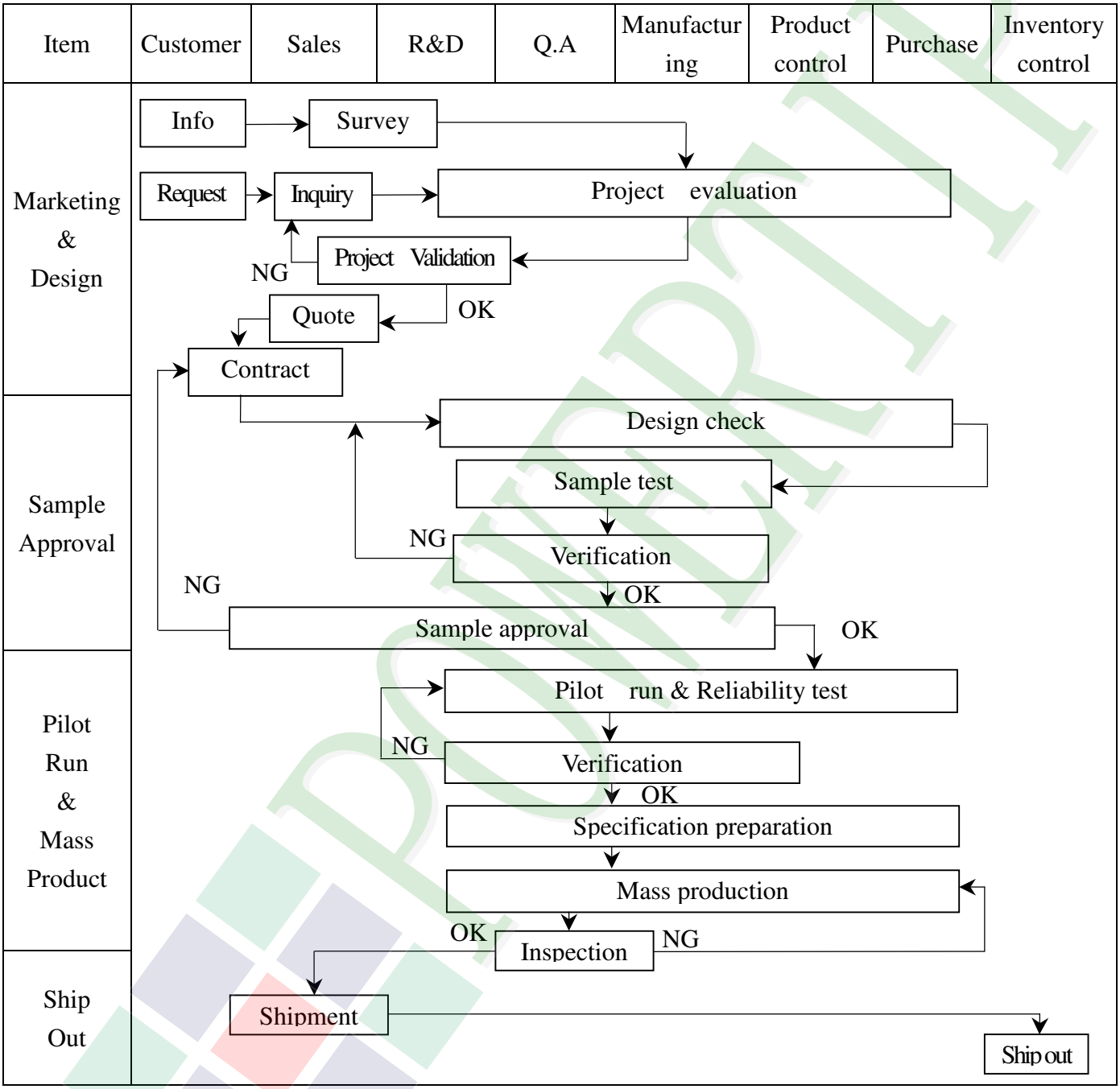


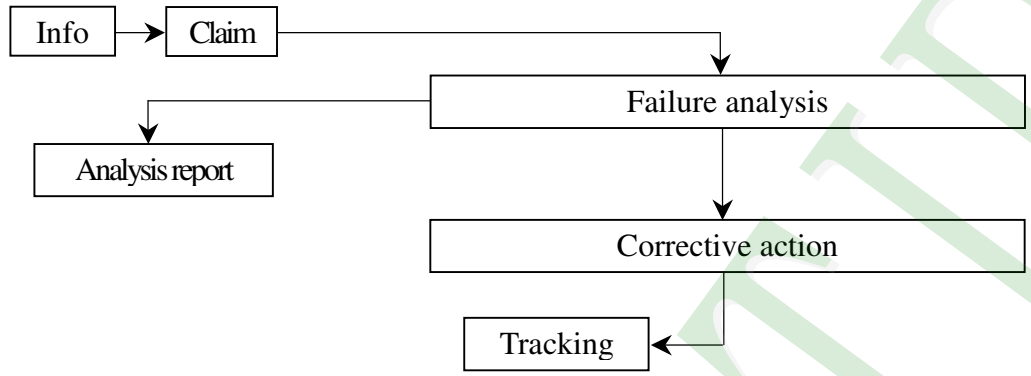
VDD = 3.3V, Ta=25℃

Item	Signal	Symbol	Condition	Rating			Units
				Min.	Typ.	Max.	
Reset time		tR		120	—	—	ms
Reset "L" pulse width	RST	tRW		2.0	—	—	us

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 PE128128WRF016K01Q(Ver. 001).**

◆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)

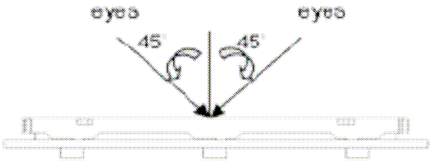


Fig.1

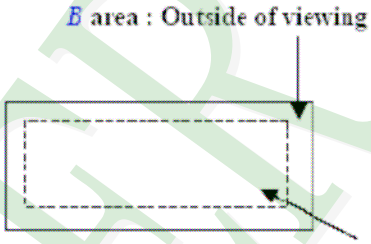


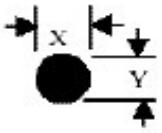
Fig. 2 A area : viewing area

◆ Specification:

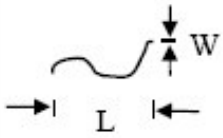
NO	Item	Criterion	level
01	Product condition	1.1 The part number is inconsistent with work order of Production.	Major
		1.2 Mixed production types.	Major
		1.3 Assembled in inverse direction.	Major
02	Quantity	2.1 The quantity is inconsistent with work order of production.	Major
03	Outline dimension	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 PE128128WRF016K01Q(Ver. 001).

<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

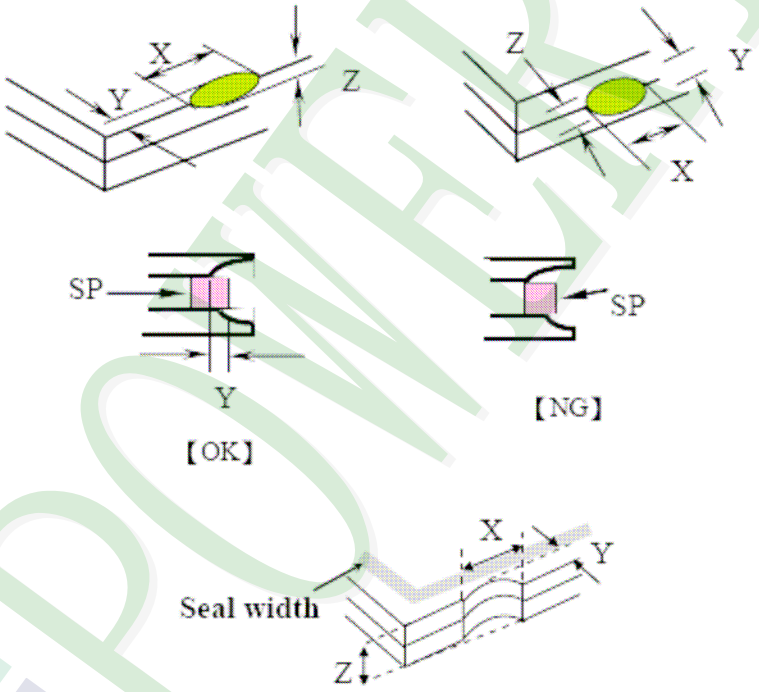
Round type
 

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="3">Ignore</td></tr>
<tr><td>0. 10 ＜ Φ ≦ 0. 20</td><td>1</td></tr>
<tr><td>Total quantity</td><td>1</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. 02</td><td>Accept no dense</td><td rowspan="2">Ignore</td></tr>
<tr><td>L ≦ 3. 0</td><td>0. 02 ＜ W ≦ 0. 05</td><td>1</td></tr>
<tr><td>---</td><td>W ＞0. 05</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 PE128128WRF016K01Q(Ver. 001).

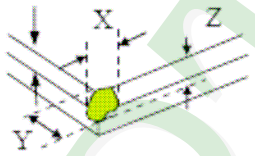
NO	Item	Criterion	Level
07	The crack of glass	Symbols : X : The length of crack Y : The width of crack. Z : The thickness of crack W : terminal length t : The thickness of glass a : LCD side length 7.1 General glass chip : 7.1.1 Chip on panel surface and crack between panels: 	Minor

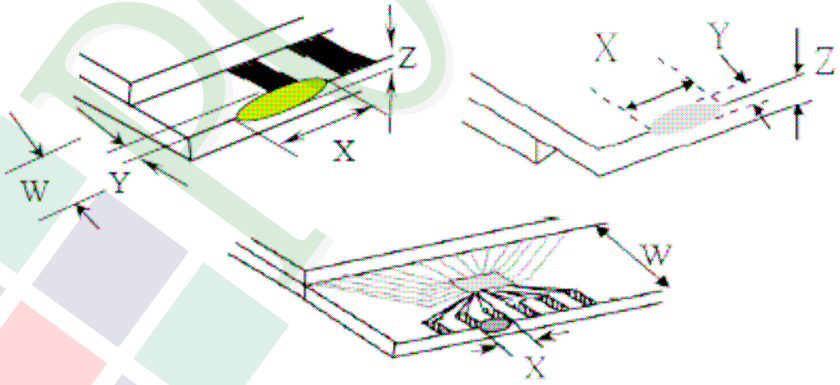
X	Y	Z
≦ a	Crack can't enter viewing area	≦1/2 t
≦ a	Crack can't exceed the half of SP width.	1/2 t < Z ≦2 t

◆Specification For PE128128WRF016K01Q(Ver. 001).

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="2">07</td><td rowspan="2">The crack of glass</td><td>
Symbols :

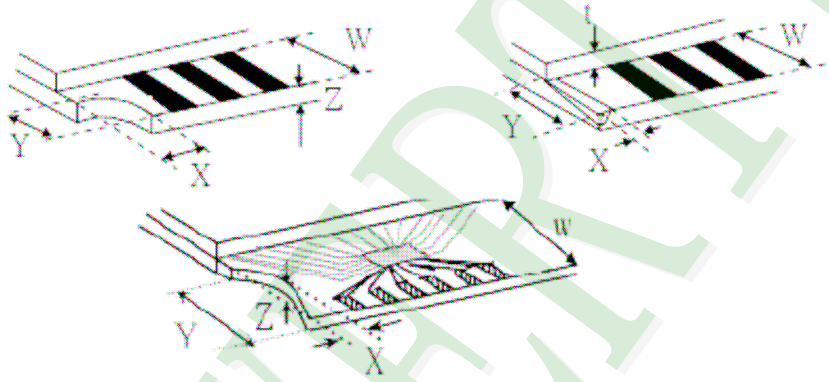
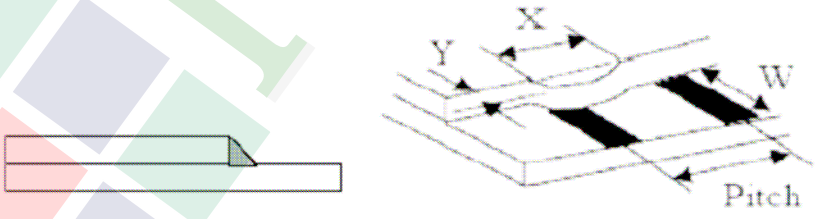
X : The length of crack　　Y : The width of crack.
Z : The thickness of crack　　W : terminal length
t : The thickness of glass　　a : LCD side length

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>
</td><td rowspan="2">Minor</td></tr>
<tr><td>
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></tr>
</table>

◆Specification For PE128128WRF016K01Q(Ver. 001).

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 PE128128WRF016K01Q(Ver. 001).

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

<table>
<tr><th>NO.</th><th>TEST ITEM</th><th colspan="2">TEST CONDITION</th></tr>
<tr><td>1</td><td>High Temperature
Storage Test</td><td colspan="2">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 colspan="2">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 colspan="2">Keep in +60℃ / 90% R.H duration for 96 hrs
Surrounding temperature, then storage at normal condition 4hrs.
(Excluding the polarizer & T/P)</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">ESD Test</td><td>Air Discharge:
(include mobile phone)
Apply 2 KV with 5 times
Discharge for each polarity +/-</td><td>Contact Discharge:
(include mobile phone)
Apply 250V with 5 times
discharge for each polarity +/-</td></tr>
<tr><td colspan="2">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 s)
(Tolerance if the output voltage indication: ±5%)</td></tr>
<tr><td>5</td><td>Temperature Cycling
Storage Test</td><td colspan="2">-20℃ → +25℃ → +70℃ → +25℃
(30mins) (30mins) (30mins) (30mins)
10 Cycle
Surrounding temperature, then storage at normal condition 4hrs.</td></tr>
<tr><td>6</td><td>Vibration Test
(Packaged)</td><td colspan="2">1. Sine wave 10～55 Hz frequency (1 min)
2. The amplitude of vibration :1.5 mm
3. Each direction (X、Y、Z) duration for 2 Hrs</td></tr>
<tr><td>7</td><td>Drop Test
(Packaged)</td><td colspan="2"><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 1times</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.

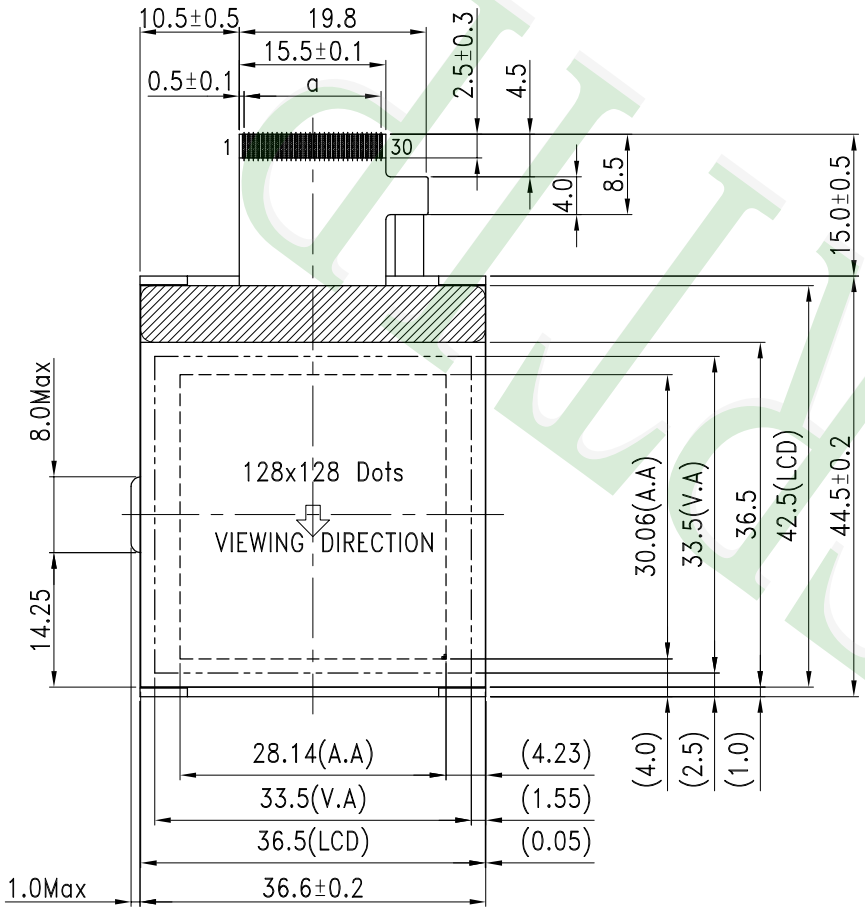
5.4 TERMS OF WARRANTY

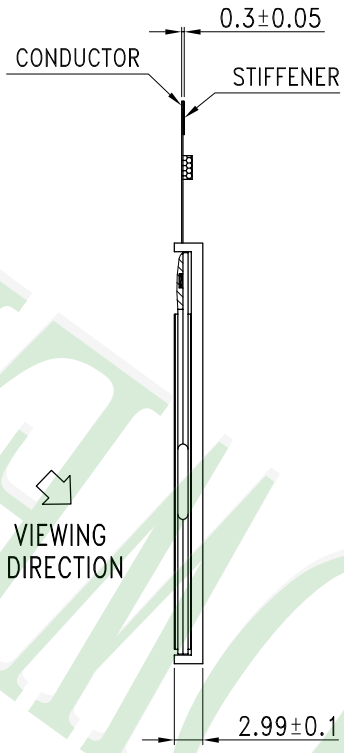
5.4.1 Applicable warrant period

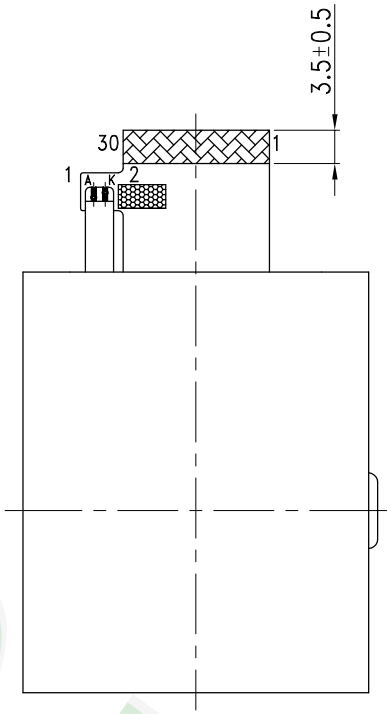
The period is within thirteen months since the date of shipping out under normal using and storage conditions.

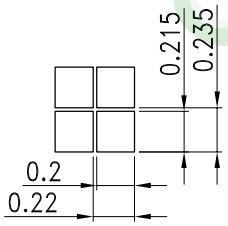
5.4.2 Unaccepted responsibility

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.









Dots Detail
Scale: 20X

PIN	NAME
1	PS0
2	PS1
3	CSB
4	RST
5	A0
6	RW/WR
7	E/RD
8	D0
9	D1
10	D2
11	D3
12	D4
13	D5
14	D6
15	D7
16	VDD
17	VSS
18	VM0
19	VM0
20	NC
21	NC
22	NC
23	NC
24	NC
25	NC
26	NC
27	NC
28	NC
29	LEDK
30	LEDA

NOTES:
1.THE TOLERANCE UNLESS CLASSFIED ±0.2mm
THE R FOR NOT ASSIGNED 0.5±0.1mm
2.TOP: −20° C~70° C , TST−30°C~80°C
3.LCD TYPE: FSTN
4.LCD DISPLAY: TRANSFLECTIVE
5.DRIVER IC: ST7571
6.VIEWING DIRECTION: 12 O'CLOCK
7.a:P0.5X(30−1)=14.5±0.05 , W=0.3±0.03
8.COMPONENT AREA HEIGHT 1.0 MAX.

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002			
001	NEW DRAWING	Eve	2009/09/04

PART NO: PE128128WRF016K01Q

DRAWING NAME: LMD-PE128128WRF016K01Q

TITLE: LCD Module Drawing

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

Design	Eve	⟨3⟩	Surface		
Check	Stone	Unit	MM	Material	
Approve	Linda	Scale	1:0.8	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