

## SOLON/SOLONIC TECHNOLOGY CO., LTD.

### PRODUCT SPECIFICATION


**MODEL: SL-8.0-800480-ATMN-06**

< ◇ > Preliminary Specification

< ◇ > Engineering Specification

< ◆ > Approval Specification

CUSTOMER'S APPROVAL	
CUSTOMER :	LCT0008R0BA0I26CQ101
SIGNATURE:	DATE:

APPROVED	PREPARED
For and on behalf of BY SOLONIC TECHNOLOGY CO.,LTD.	By
	
..... Authorized Signature(s)	

Prepared By:

SOLON/SOLONIC TECHNOLOGY CO., LTD.

TEL : +86-512-66800109

FAX : +86-512-68783146

- This specification is subject to change without notice. Please contact Solon or it's representative before designing your product based on this specification.

THIS DOCUMENT IS THE SOLE PROPERTY OF **SOLONIC TECHNOLOGY CO., LTD**  
AND SHOULD NOT BE USED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN PERMISSION

本文件屬於碩享科技有限公司獨有財產，未經書面許可不得使用或部分使用

Model No.: SL-8.0-800480-ATMN-06



# 產品規格書

產品型號 : SL-8.0-800480-ATMN-06

**PRODUCT NO. : SL-8.0-800480-ATMN-06**

**VERSION REV 1.6**

**ISSUED DATE : 2023-01-08**

This module uses ROHS material

**FOR CUSTOMER :** \_\_\_\_\_

: APPROVAL FOR SPECIFICATION

: APPROVAL FOR SAMPLE

DATE	APPROVED BY

**Solonic :**

Presented by	Reviewed by	Organized by

Note:

1.Solonic Technology Co.,Ltd. reserves the right to make changes without futher notice to any products

hereinto improve reliability, function or design.

2.All rights are reserved. No one is permitted to reproduce or duplicate the whole or part of ths document

without Solonic Technology Co., Ltd. permission.

## Revision History

Revision	Date	Originator	Detail	Remarks
1.0	20230216	YZD	Initial Release	
1.1	20230217	YZD	Change the content of spraying code	
1.2	20230510	YZD	Add Reset time sequence	
1.3	20230515	YZD	Change the power-on and power-off sequence	
1.4	20230816	L	Change the content of spraying code	
1.5	20230818	L	Add Packaging	
1.6	20230922	L	Optimized specification	

## Table of Contents

No.	Item	Page
1.	General Description .....	5
2.	Module Parameter .....	5
3.	Absolute Maximum Ratings .....	5
4.	DC Characteristics .....	6
5.	Backlight Characteristic .....	6
5.1.	Backlight Characteristics .....	6
5.2.	Backlighting circuit.....	6
6.	Optical Characteristics.....	7
6.1.	Optical Characteristics .....	7
6.2.	Definition of Response Time .....	7
6.3.	Definition of Contrast Ratio .....	8
6.4.	Definition of Viewing Angles.....	8
6.5.	Definition of Color Appearance .....	9
6.6.	Definition of Surface Luminance, Uniformity and Transmittance ...	9
7.	Block Diagram and Power Supply.....	10
8.	Interface Pins Definition.....	11
9.	AC Characteristics .....	13
9.1.	AC Electrical Characteristics .....	13
9.2.	Input Clock and Data Timing Diagram .....	13
9.3.	Data Input Format/Reset time sequence .....	14
9.4.	Reset time sequence.....	14

9.5. Power On/Off Sequence .....	15
10. Quality Assurance .....	16
10.1. Purpose .....	16
10.2. Standard for Quality Test.....	16
10.3. Nonconforming Analysis & Disposition .....	16
10.4. Agreement Items .....	16
10.5. Standard of the Product Visual Inspection .....	16
10.6. Inspection Specification .....	17
10.7. Classification of Defects.....	21
10.8. Identification/marketing criteria .....	21
10.9. Packing .....	21
11. Reliability Specification .....	22
12. Precautions and Warranty .....	23
12.1. Safety.....	23
12.2. Handling.....	23
12.3. Storage .....	23
12.4. Metal Pin (Apply to Products with Metal Pins).....	23
12.5. Operation .....	24
12.6. Static Electricity .....	24
12.7. Limited Warranty .....	24
13. Packaging .....	25
14. Outline Drawing .....	27

## 1. General Description

The specification is a transmissive type color active matrix liquid crystal display (LCD) which uses amorphous thin film transistor (TFT) as switching devices. This product is composed of a TFT-LCD panel, driver ICs and a backlight unit.

## 2. Module Parameter

Features	Details	Unit
Display Size(Diagonal)	8.0"	
LCD type	TN TFT	
Display Mode	Transmissive /Normal white	
Resolution	800 RGB x 480	Pixels
View Direction	12 O'clock	Best Image
Gray Scale Inversion Direction	6 O'clock	
Module Outline	192.8(H) x116.9(V) x 6.4(T) (Note1 )	mm
Active Area	176.64(H) x99.36(V)	mm
Pixel Size	220.8(H) x207 (V)	um
Pixel Arrangement	R.G.B Stripe	
Polarizer Surface Treatment	Anti-Glare	
Display Colors	16.7M	
Interface	24 Bit RGB	
With or Without Touch Panel	Without	
Operating Temperature	<b>-20~70</b>	°C
Storage Temperature	<b>-30~80</b>	°C
Weight	195	g

Note 1: Exclusive hooks, posts , FFC/FPC tail etc.

## 3. Absolute Maximum Ratings

$V_{SS}=0V, T_a=25^{\circ}C$

Item	Symbol	Min.	Max.	Unit
Supply Voltage	DVDD	-0.3	5.0	V
Storage temperature	T <sub>STG</sub>	<b>-30</b>	<b>80</b>	°C
Operating temperature	T <sub>OP</sub>	<b>-20</b>	<b>70</b>	°C

Note 1: If  $T_a$  below  $50^{\circ}C$ , the maximal humidity is 90%RH, if  $T_a$  over  $50^{\circ}C$ , absolute humidity should be less than 60%RH.

Note 2: The response time will be extremely slow when the operating temperature is around  $-10^{\circ}C$ , and the back ground will become darker at high temperature operating.

## 4. DC Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
Digital Power Supply Voltage	DVDD	3.0	3.3	3.6	V
Analog Power Supply Voltage	AVDD	10.3	10.4	10.5	V
TFT Device on voltage	V <sub>GH</sub>	15.3	16.0	16.7	V
TFT Device off voltage	V <sub>GL</sub>	-7.7	-7.0	-6.3	V
Common Electrode Driving Voltage	V <sub>COM</sub>	3.4	4.4	5.4	V
Low Level Input Voltage	V <sub>IL</sub>	0	-	0.3*DVDD	V
High Level Input Voltage	V <sub>IH</sub>	0.7*DVDD	-	DVDD	V

Note: Typical V<sub>COM</sub> is only a reference value. It must be optimized according to each LCM. Please use VR.

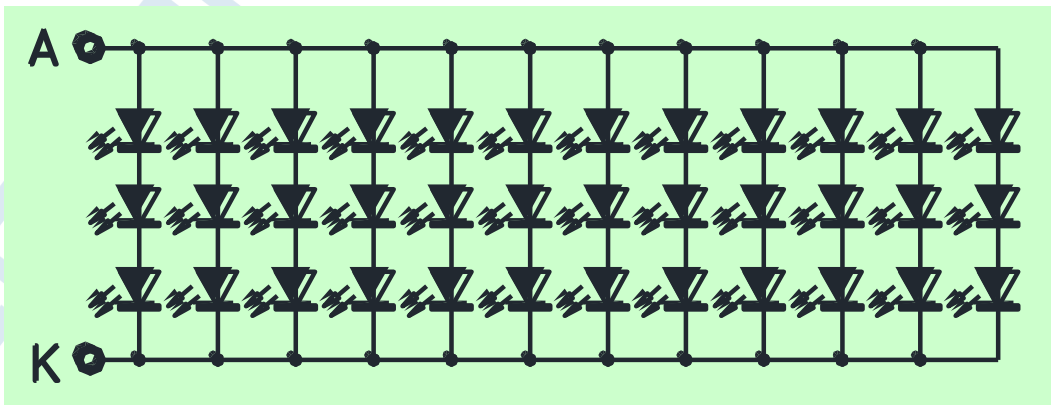
## 5. Backlight Characteristic

### 5.1. Backlight Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V <sub>F</sub>	T <sub>a</sub> =25 °C, I <sub>F</sub> =20mA/LED	8.4	<b>9.2</b>	10.6	V
Forward Current	I <sub>F</sub>	T <sub>a</sub> =25 °C	-	<b>240</b>	-	mA
Power dissipation	P <sub>D</sub>		-	<b>2208</b>	-	mW
Uniformity	Avg		70	75	-	%
LED working life(25°C)	-		-	20,000	-	Hrs
Drive method	Constant current					
LED Configuration	36 White LEDs(3 LEDs in one string and 12 groups in parallel)					

Note1: LED life time defined as follows: The final brightness is at 50% of original brightness.  
The environmental conducted under ambient air flow, at T<sub>a</sub>=25 ± 2 °C, 60%RH ± 5%, I<sub>F</sub>=20mA/LED.

### 5.2. Backlighting circuit



## 6. Optical Characteristics

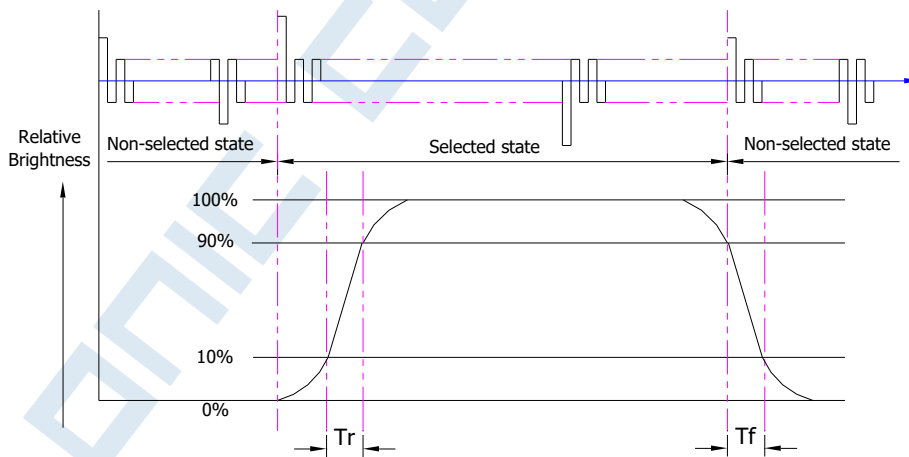
### 6.1. Optical Characteristics

Ta=25°C, DVDD=3.3V

Backlight On (Transmissive Mode)	Item	Symbol	Condition	Specification			Unit	
				Min.	Typ.	Max.		
	Luminance on TFT( $I_f=20\text{mA/LED}$ )	Lv	Normally viewing angle $\theta_x = \phi_y = 0^\circ$	400	500	-	cd/m <sup>2</sup>	
	Contrast ratio(See 6.3)	CR		400	500	-		
	Response time (See 6.2)	T <sub>R</sub>		-	10	20	ms	
		T <sub>F</sub>		-	15	30		
	Chromaticity Transmissive (See 6.5)	White		X <sub>w</sub>	0.261	0.311	0.361	
				Y <sub>w</sub>	0.293	0.343	0.393	
	Viewing Angle (See 6.4)	Horizontal	$\theta_{x+}$	55	70	-	Deg.	
			$\theta_{x-}$	55	70	-		
		Vertical	$\phi_{y+}$	35	50	-		
			$\phi_{y-}$	55	70	-		

### 6.2. Definition of Response Time

#### 6.2.1. Normally Black Type (Negative)

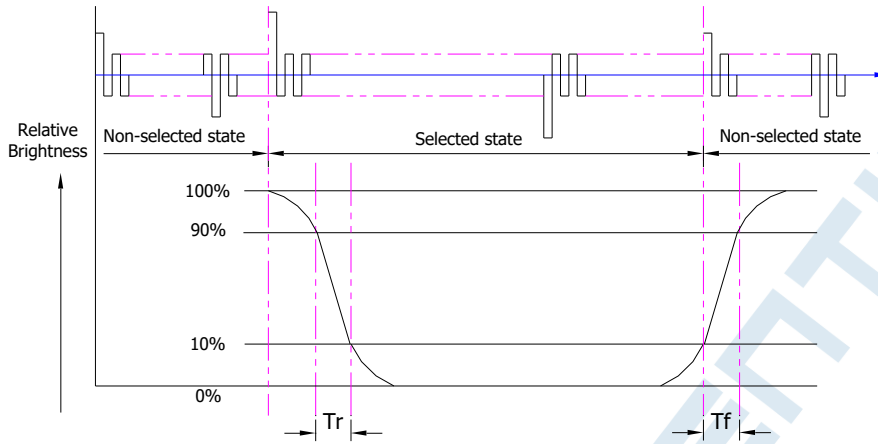


Tr is the time it takes to change from non-selected stage with relative luminance 10% to selected state with relative luminance 90%;

Tf is the time it takes to change from selected state with relative luminance 90% to non-selected state with relative luminance 10%.

Note : Measuring machine: LCD-5100

## 6.2.2. Normally White Type (Positive)



$T_r$  is the time it takes to change from non-selected state with relative luminance 90% to selected state with relative luminance 10%;

$T_f$  is the time it takes to change from selected state with relative luminance 10% to non-selected state with relative luminance 90%;

Note : Measuring machine: LCD-5100 or EQUI

## 6.3. Definition of Contrast Ratio

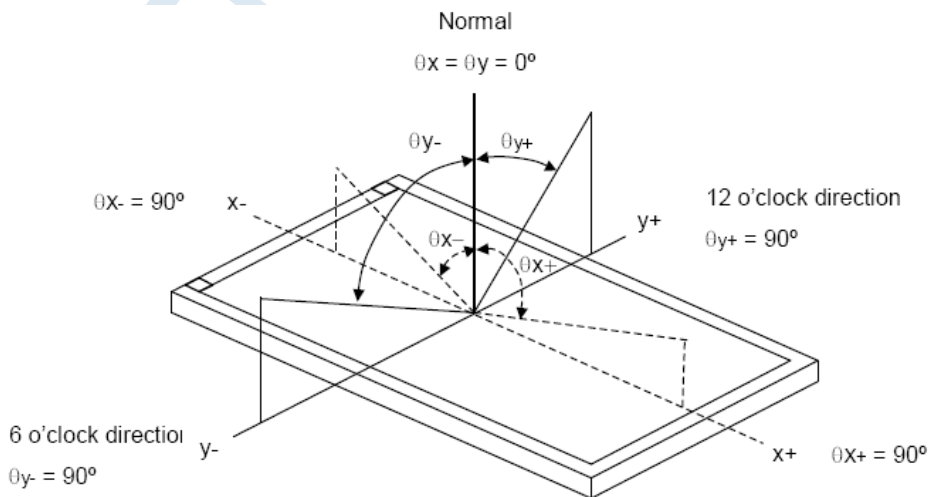
Contrast is measured perpendicular to display surface in reflective and transmissive mode.

The measurement condition is:

Measuring Equipment	Eldim or Equivalent
Measuring Point Diameter	3mm//1mm
Measuring Point Location	Active Area centre point
Test pattern	A: All Pixels white
	B: All Pixel black
Contrast setting	Maximum

Definitions: CR (Contrast) = Luminance of White Pixel / Luminance of Black Pixel

## 6.4. Definition of Viewing Angles



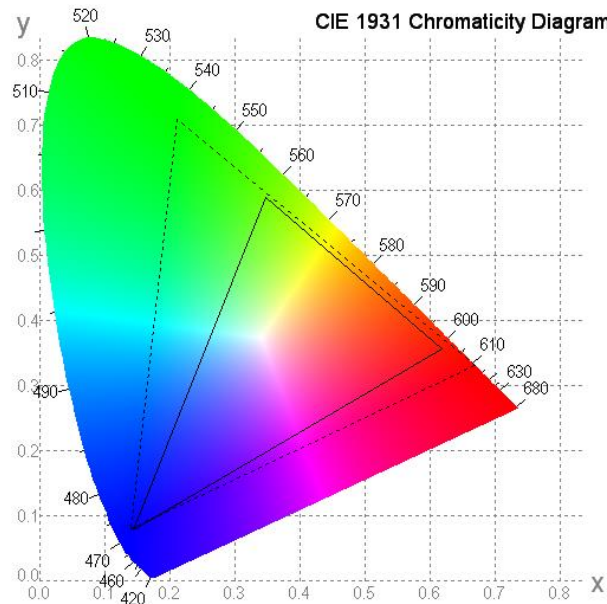
Measuring machine: LCD-5100 or EQUI

## 6.5. Definition of Color Appearance

R,G,B and W are defined by (x, y) on the IE chromaticity diagram

NTSC=area of RGB triangle/area of NTSC triangleX100%

Measuring picture: Red, Green, Blue and White (Measuring machine: BM-7)



## 6.6. Definition of Surface Luminance, Uniformity and Transmittance

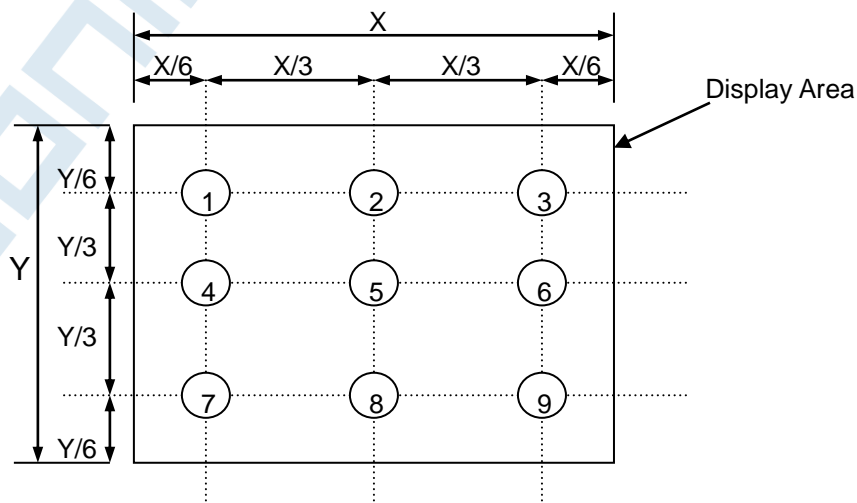
Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.

6.6.1. Surface Luminance:  $L_V = \text{average } (L_{P1}:L_{P9})$

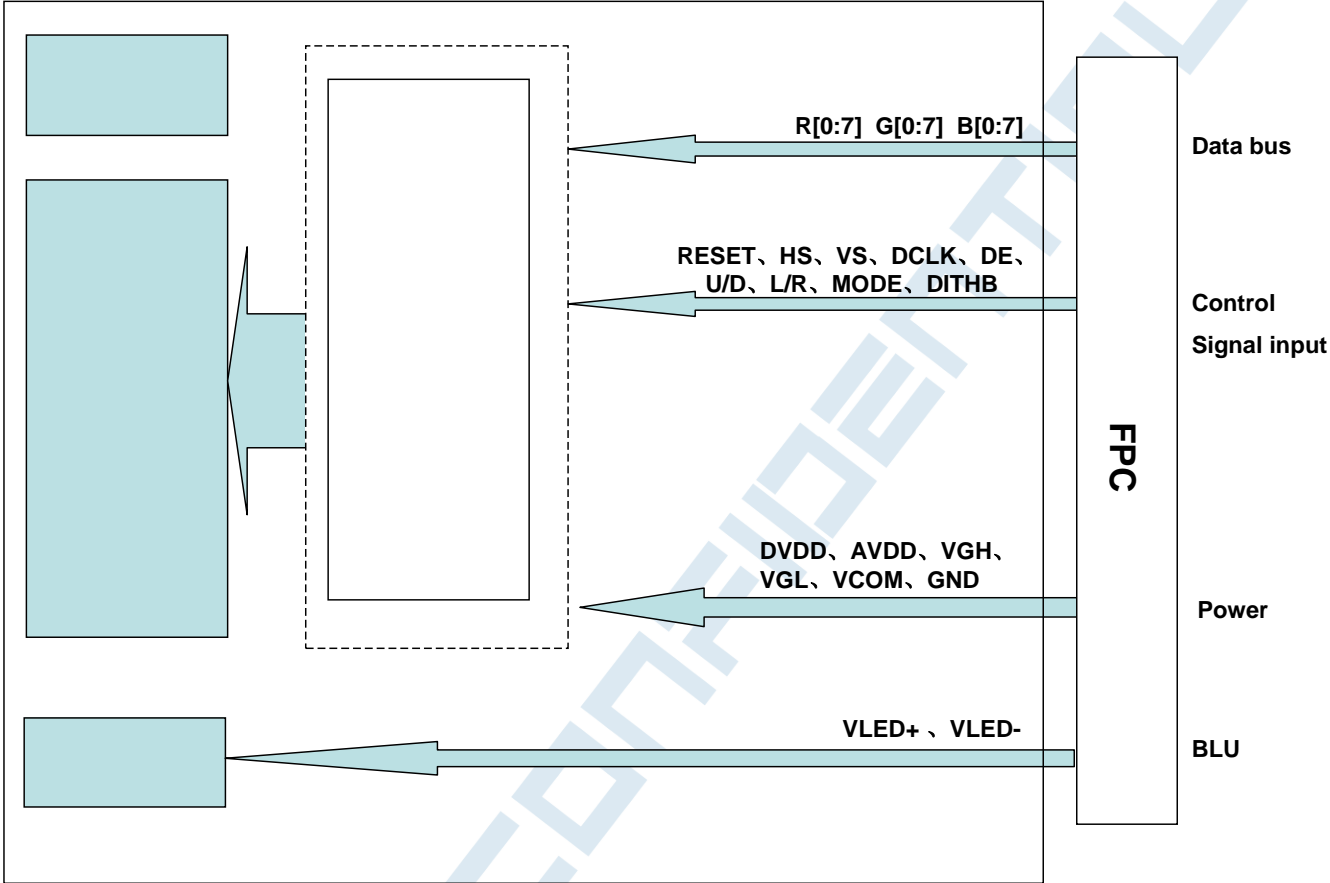
6.6.2. Uniformity = Minimal ( $L_{P1}:L_{P9}$ ) / Maximal ( $L_{P1}:L_{P9}$ ) \* 100%

6.6.3. Transmittance =  $L_V$  on LCD /  $L_V$  on Backlight \* 100%

Note : Measuring machine: BM-7



## 7. Block Diagram and Power Supply



## 8. Interface Pins Definition

No.	Symbol	Function	Remark
1	VLED+	Led anode	
2	VLED+	Led anode	
3	VLED-	Led cathode	
4	VLED-	Led cathode	
5	GND	Ground	
6	VCOM	Common voltage input	
7	DVDD	Digital power supply	
8	MODE	DE/SYNC mode select. H:DE mode, L:SYNC mode	Note1
9	DE	Data enable signal, active high to enable data	
10	VS	Vertical sync input, negative polarity	
11	HS	Horizontal sync input, negative polarity	
12	B7	Blue data (MSB)	
13	B6	Blue data	
14	B5	Blue data	
15	B4	Blue data	
16	B3	Blue data	
17	B2	Blue data	
18	B1	Blue data	Note2
19	B0	Blue data (LSB)	Note2
20	G7	Green data (MSB)	
21	G6	Green data	
22	G5	Green data.	
23	G4	Green data	
24	G3	Green data	
25	G2	Green data	
26	G1	Green data.	Note2
27	G0	Green data (LSB)	Note2
28	R7	Red data (MSB)	
29	R6	Red data	
30	R5	Red data	
31	R4	Red data	
32	R3	Red data	
33	R2	Red data	
34	R1	Red data	Note2
35	R0	Red data (LSB)	Note2
36	GND	Ground	
37	DCLK	Clock for input data	Note3
38	GND	Ground	
39	L/R	Source left or right sequence control	Note4,5
40	U/D	Gate up or down scan control	Note4,5

THIS DOCUMENT IS THE SOLE PROPERTY OF **SOLONIC TECHNOLOGY CO., LTD.**  
AND SHOULD NOT BE USED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN PERMISSION

本文件屬於碩亨科技有限公司獨有財產，未經書面許可不得使用或部分使用

41	VGH	Positive power of TFT	
42	VGL	Negative power of TFT	
43	AVDD	Analog power supply	
44	RESET	Global reset pin	Note6
45	NC	No connection	
46	VCOM	Common voltage input	
47	DITHB	Dithering setting. H: 6bit resolution, L: 8bit resolution	Note7
48	GND	Ground	
49	NC	No connection	
50	NC	No connection	

Note1:DE/SYNC mode select.Normally pull high.

When select DE mode,MODE="1",VS and HS can pull high or be ground.

When select SYNC mode,MODE="0",DE can pull high or be ground.

Note2:When input 18 bits RGB data,the two low bits of R,G and B data must be grounded.

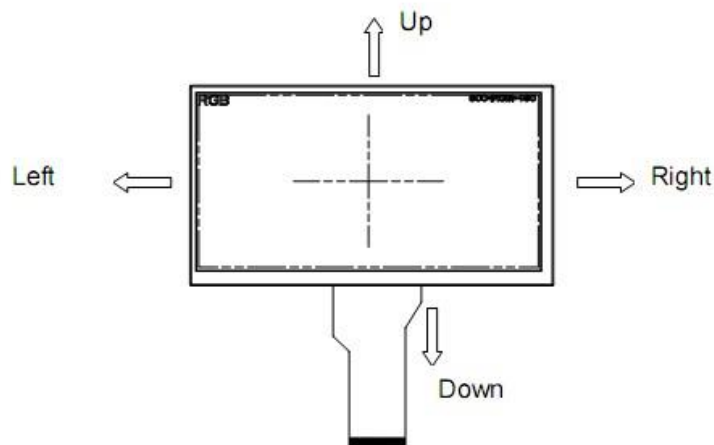
Note3:Data shall be latched at the falling edge of DCLK.

Note4:Selection of scanning mode.

Setting of scan control input		Scanning direction
U/D	L/R	
GND	DV <sub>DD</sub>	Up to down, left to right
DV <sub>DD</sub>	GND	Down to up, right to left
GND	GND	Up to down, right to left
DV <sub>DD</sub>	DV <sub>DD</sub>	Down to up, left to right

Note5:Definition of scanning direction.

Refer to the figure as below:



Note6:Global reset pin.Active low to enter reset state.Suggest to connect with an RC reset circuit for stability.Normally pull high.

Note 7:Dithering function enable control,normally pull high.

When DITHB="1",Disable internal dithering function,

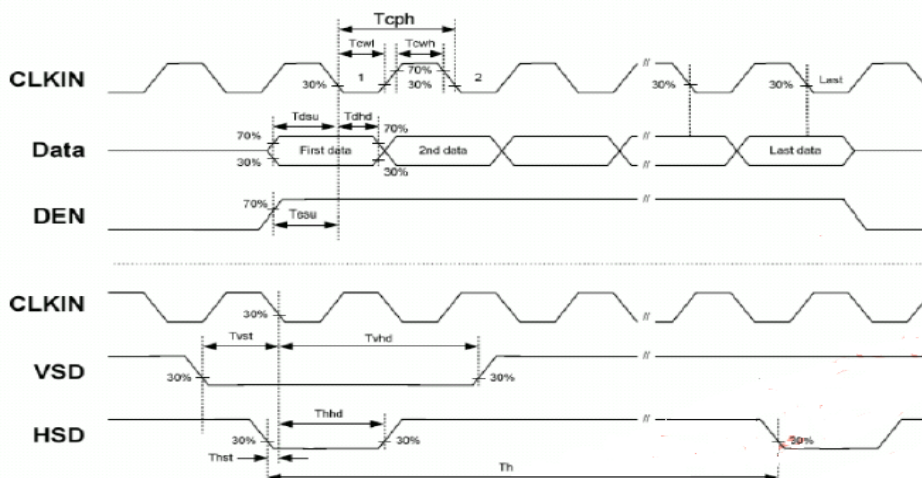
When DITHB="0",Enable internal dithering function.

## 9. AC Characteristics

### 9.1. AC Electrical Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
DCLK cycle time	Tcph	25			ns
DCLK frequency	fclk		33.3	40	MHz
DCLK pulse duty	Tcwh	40	50	60	%
VSD setup time	Tvs	8			ns
VSD hold time	Tvhd	8			ns
HSD setup time	Thst	8			ns
HSD hold time	Thhd	8			ns
Data setup time	Tdsu	8			ns
Data hold time	Tdhd	8			ns
DE setup time	Tesu	8			ns
DE hold time	Tehd	8			ns
Horizontal display area	thd		800		Tc h
HSD period time	th		1056		Tc
HSD pulse width	thpw	1		40	Tcph
HSD back porch	thb	46	46	46	Tcph
HSD front porch	thfp	16	210	354	Tcph
Vertical display area	tvd		480		th
VSD period time	tv		525		th
VSD pulse width	tvpw	1		20	th
VSD back porch	tvb	23	23	23	th
VSD front porch	tvfp	7	22	147	th

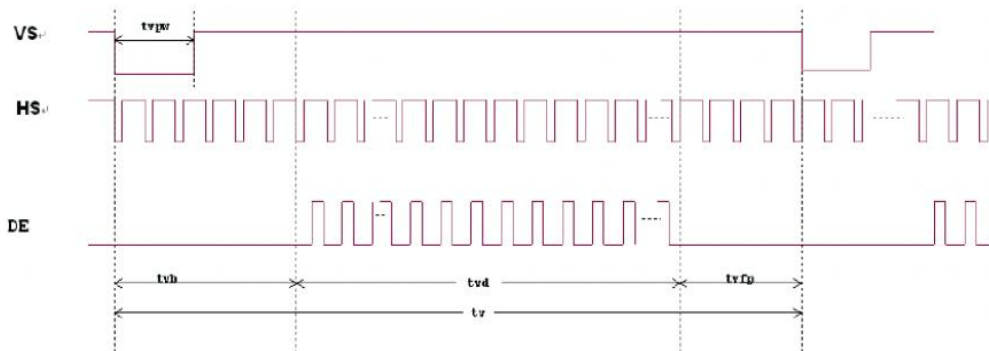
### 9.2. Input Clock and Data Timing Diagram



## 9.3. Data Input Format/Reset time sequence

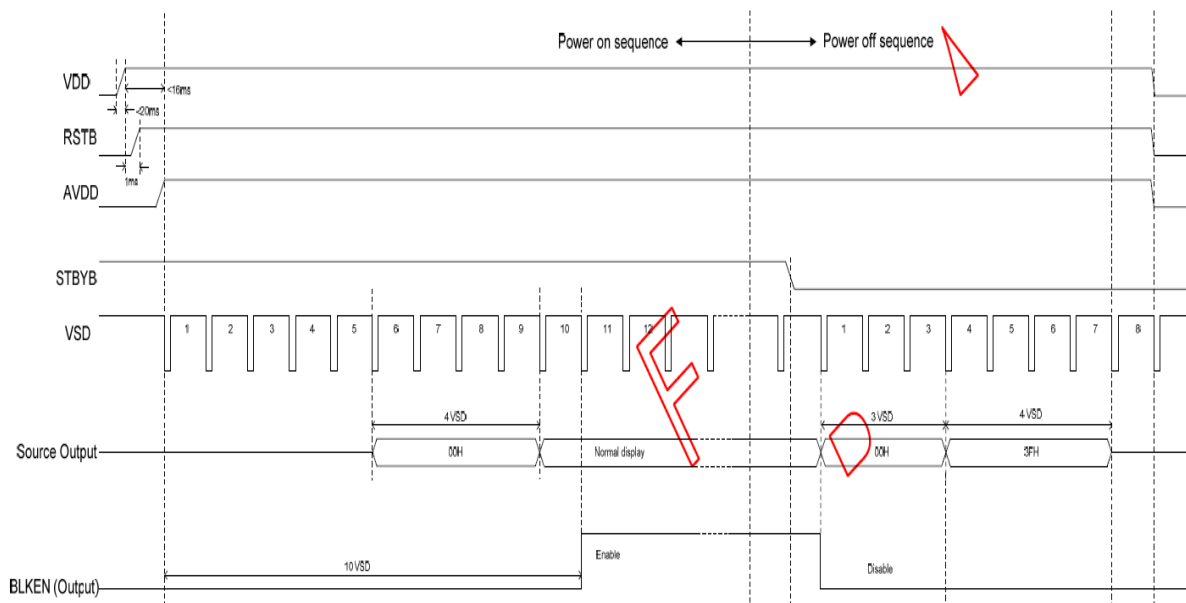


Horizontal input timing diagram.



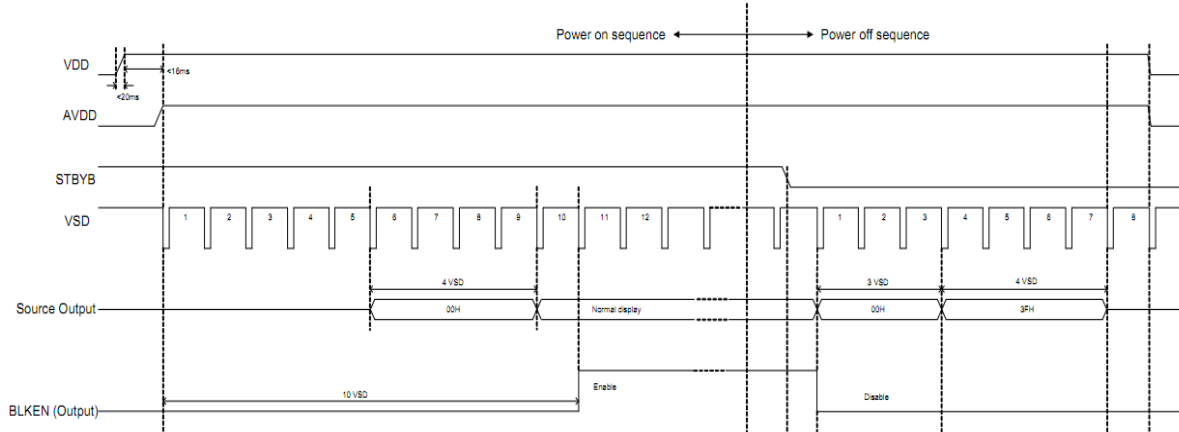
Vertical input timing diagram.

## 9.4. Reset time sequence

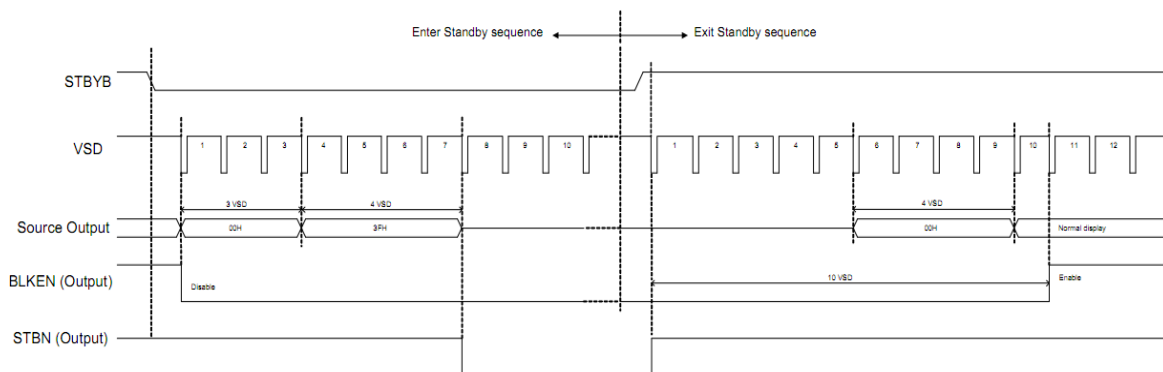


## 9.5. Power On/Off Sequence

In order to prevent IC from power on reset fail, the rising time (TPOR) of the digital power supply VDD should be maintained within the given specifications. Refer to "AC Characteristics" for more detail on timing. This is another paragraph of sub-function description.



Power-On/Off Timing Sequence



Enter and Exit Standby Mode Sequence

## 10. Quality Assurance

### 10.1. Purpose

This standard for Quality Assurance assures the quality of LCD module products supplied to customer.

### 10.2. Standard for Quality Test

#### 10.2.1. Sampling Plan:

GB2828.1-2012

Single sampling, general inspection level II

#### 10.2.2. Sampling Criteria:

Visual inspection: AQL 1.5%

Electrical functional: AQL 0.65%.

#### 10.2.3. Reliability Test:

Detailed requirement refer to Reliability Test Specification.

### 10.3. Nonconforming Analysis & Disposition

#### 10.3.1. Nonconforming analysis:

10.3.1.1. Customer should provide overall information of non-conforming sample for their complaints.

10.3.1.2. After receipt of detailed information from customer, the analysis of nonconforming parts usually should be finished in one week.

10.3.1.3. If cannot finish the analysis on time, customer will be notified with the progress status.

#### 10.3.2. Disposition of nonconforming:

10.3.2.1. Non-conforming product over PPM level will be replaced.

10.3.2.2. The cause of non-conformance will be analyzed. Corrective action will be discussed and implemented.

### 10.4. Agreement Items

Shall negotiate with customer if the following situation occurs:

10.4.1. There is any discrepancy in standard of quality assurance.

10.4.2. Additional requirement to be added in product specification.

10.4.3. Any other special problem.

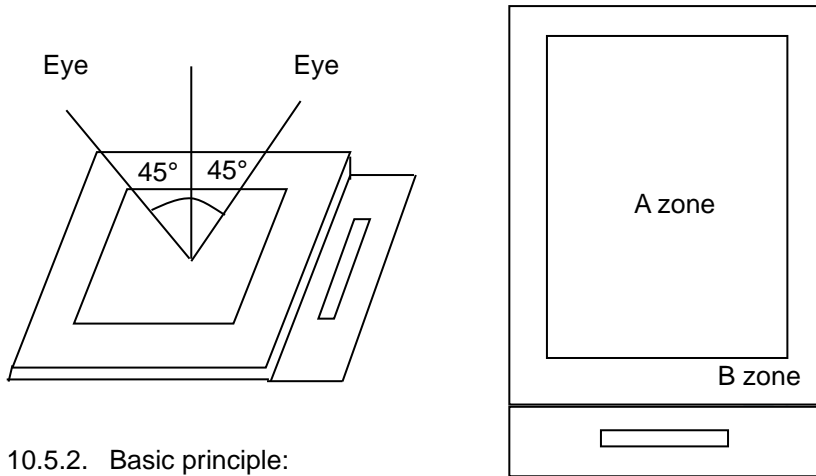
### 10.5. Standard of the Product Visual Inspection

#### 10.5.1. Appearance inspection:

10.5.1.1. The inspection must be under illumination about 1000 – 1500 lx, and the distance of view must be at 30cm ± 2cm.

10.5.1.2. The viewing angle should be 45° from the vertical line without reflection light or follows customer's viewing angle specifications.

### 10.5.1.3. Definition of area: A Zone: Active Area, B Zone: Viewing Area,

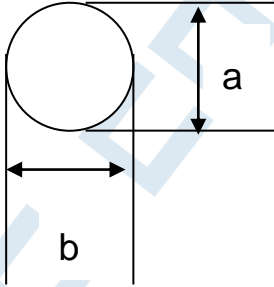


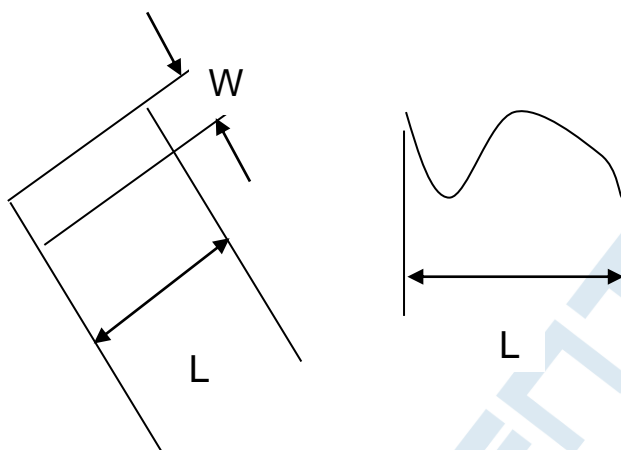
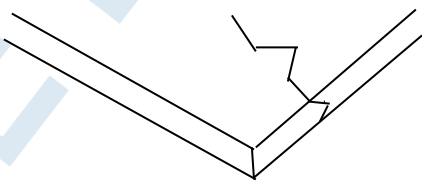
### 10.5.2. Basic principle:

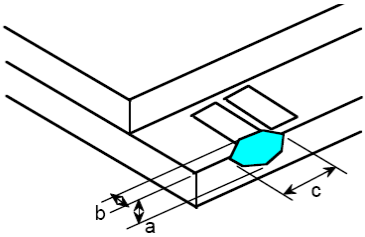
10.5.2.1. A set of sample to indicate the limit of acceptable quality level must be discussed by both us and customer when there is any dispute happened.

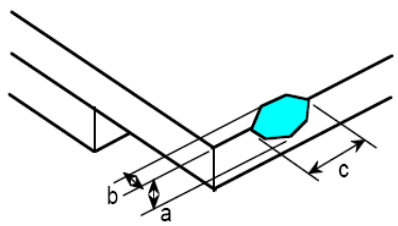
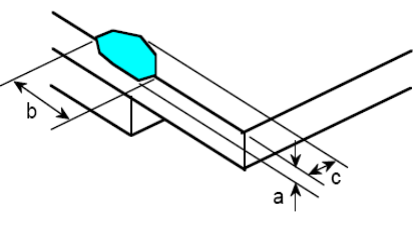
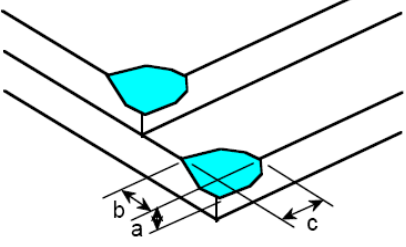
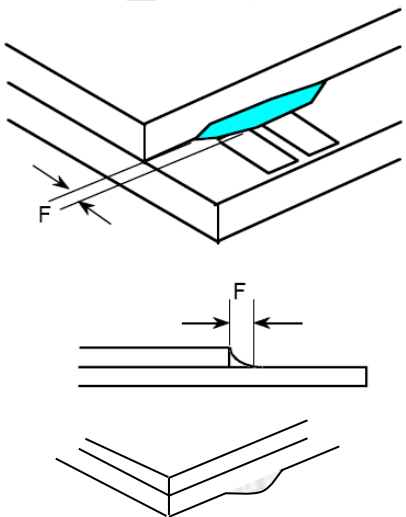
10.5.2.2. New item must be added on time when it is necessary.

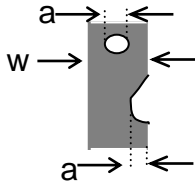
### 10.6. Inspection Specification

No.	Item	Criteria (Unit: mm)																		
01	Black / White spot Foreign material (Round type) Pinholes Stain Particles inside cell. (Minor defect)	 <div style="margin-top: 10px;"> <math>\phi = (a + b) / 2</math>                      Distance between 2 defects should more than 5mm apart.                 </div> <table border="1" style="margin-top: 10px; width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Size</th> <th style="width: 40%;">Area</th> <th style="width: 20%;">Acc. Qty</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><math>\phi \leq 0.20</math></td> <td></td> <td style="text-align: center;">Ignore</td> </tr> <tr> <td style="text-align: center;"><math>0.20 &lt; \phi \leq 0.50</math></td> <td></td> <td style="text-align: center;"><math>N \leq 3</math></td> </tr> <tr> <td style="text-align: center;"><math>0.50 &lt; \phi</math></td> <td></td> <td style="text-align: center;">0</td> </tr> </tbody> </table>	Size	Area	Acc. Qty	$\phi \leq 0.20$		Ignore	$0.20 < \phi \leq 0.50$		$N \leq 3$	$0.50 < \phi$		0						
Size	Area	Acc. Qty																		
$\phi \leq 0.20$		Ignore																		
$0.20 < \phi \leq 0.50$		$N \leq 3$																		
$0.50 < \phi$		0																		
02	Electrical Defect (Minor defect)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Bright dot</th> <th style="width: 20%;">Display Area</th> <th style="width: 20%;">Total</th> <th rowspan="3" style="width: 30%; text-align: center;">Note1</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;"><math>N \leq 2</math></td> <td style="text-align: center;"><math>N \leq 2</math></td> </tr> <tr> <td style="text-align: center;">Dark dot</td> <td style="text-align: center;"><math>N \leq 4</math></td> <td style="text-align: center;"><math>N \leq 4</math></td> </tr> <tr> <td style="text-align: center;">Total dot</td> <td style="text-align: center;"><math>N \leq 4</math></td> <td style="text-align: center;"><math>N \leq 4</math></td> <td></td> </tr> <tr> <td style="text-align: center;">Mura</td> <td colspan="2" style="text-align: center;"><b>Not visible through 5% ND filters.</b></td> <td style="text-align: center;">Note 2</td> </tr> </tbody> </table> <p>Remark:                      1. Bright dot caused by scratch and foreign object accords to item 1.</p>	Bright dot	Display Area	Total	Note1		$N \leq 2$	$N \leq 2$	Dark dot	$N \leq 4$	$N \leq 4$	Total dot	$N \leq 4$	$N \leq 4$		Mura	<b>Not visible through 5% ND filters.</b>		Note 2
Bright dot	Display Area	Total	Note1																	
	$N \leq 2$	$N \leq 2$																		
Dark dot	$N \leq 4$	$N \leq 4$																		
Total dot	$N \leq 4$	$N \leq 4$																		
Mura	<b>Not visible through 5% ND filters.</b>		Note 2																	

03	Black and White line Scratch Foreign material (Line type) (Minor defect)	 <table border="1" data-bbox="614 750 1236 1019"> <thead> <tr> <th>Length</th> <th>Width</th> <th>Acc. Qty</th> </tr> </thead> <tbody> <tr> <td>/</td> <td><math>W \leq 0.1</math></td> <td>Ignore</td> </tr> <tr> <td><math>L \leq 2.5</math></td> <td><math>0.1 &lt; W \leq 0.2</math></td> <td>3</td> </tr> <tr> <td><math>L &gt; 2.5</math></td> <td><math>0.2 &lt; W</math></td> <td>0</td> </tr> <tr> <td colspan="2">Total</td> <td>3</td> </tr> </tbody> </table> <p data-bbox="550 1064 1404 1131">Distance between 2 defects should more than 3mm apart. Scratches not viewable through the back of the display are acceptable.</p>	Length	Width	Acc. Qty	/	$W \leq 0.1$	Ignore	$L \leq 2.5$	$0.1 < W \leq 0.2$	3	$L > 2.5$	$0.2 < W$	0	Total		3
Length	Width	Acc. Qty															
/	$W \leq 0.1$	Ignore															
$L \leq 2.5$	$0.1 < W \leq 0.2$	3															
$L > 2.5$	$0.2 < W$	0															
Total		3															
04	Glass Crack (Minor defect)	 <p data-bbox="550 1456 1181 1489">Crack is potential to enlarge, any type is not allowed.</p>															

05	Glass Chipping Pad Area: (Minor defect)	 <table border="1" data-bbox="861 1657 1332 1836"> <thead> <tr> <th>Length and Width</th> <th>Acc. Qty</th> </tr> </thead> <tbody> <tr> <td><math>c &gt; 3.0, b &lt; 1.0</math></td> <td>1</td> </tr> <tr> <td><math>c &lt; 3.0, b &lt; 1.0</math></td> <td>3</td> </tr> <tr> <td colspan="2"><math>a &lt; \text{Glass Thickness}</math></td> </tr> </tbody> </table>	Length and Width	Acc. Qty	$c > 3.0, b < 1.0$	1	$c < 3.0, b < 1.0$	3	$a < \text{Glass Thickness}$	
Length and Width	Acc. Qty									
$c > 3.0, b < 1.0$	1									
$c < 3.0, b < 1.0$	3									
$a < \text{Glass Thickness}$										

06	<p>Glass Chipping Rear of Pad Area: (Minor defect)</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Length and Width</th> <th style="width: 40%;">Acc. Qty</th> </tr> </thead> <tbody> <tr> <td><math>c &gt; 3.0, b &lt; 1.0</math></td> <td style="text-align: center;">1</td> </tr> <tr> <td><math>c &lt; 3.0, b &lt; 1.0</math></td> <td style="text-align: center;">2</td> </tr> <tr> <td><math>c &lt; 3.0, b &lt; 0.5</math></td> <td style="text-align: center;">4</td> </tr> <tr> <td colspan="2" style="text-align: center;"><math>a &lt; \text{Glass Thickness}</math></td> </tr> </tbody> </table>	Length and Width	Acc. Qty	$c > 3.0, b < 1.0$	1	$c < 3.0, b < 1.0$	2	$c < 3.0, b < 0.5$	4	$a < \text{Glass Thickness}$	
Length and Width	Acc. Qty											
$c > 3.0, b < 1.0$	1											
$c < 3.0, b < 1.0$	2											
$c < 3.0, b < 0.5$	4											
$a < \text{Glass Thickness}$												
07	<p>Glass Chipping Except Pad Area: (Minor defect)</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Length and Width</th> <th style="width: 40%;">Acc. Qty</th> </tr> </thead> <tbody> <tr> <td><math>c &gt; 3.0, b &lt; 1.0</math></td> <td style="text-align: center;">1</td> </tr> <tr> <td><math>c &lt; 3.0, b &lt; 1.0</math></td> <td style="text-align: center;">2</td> </tr> <tr> <td><math>c &lt; 3.0, b &lt; 0.5</math></td> <td style="text-align: center;">4</td> </tr> <tr> <td colspan="2" style="text-align: center;"><math>a &lt; \text{Glass Thickness}</math></td> </tr> </tbody> </table>	Length and Width	Acc. Qty	$c > 3.0, b < 1.0$	1	$c < 3.0, b < 1.0$	2	$c < 3.0, b < 0.5$	4	$a < \text{Glass Thickness}$	
Length and Width	Acc. Qty											
$c > 3.0, b < 1.0$	1											
$c < 3.0, b < 1.0$	2											
$c < 3.0, b < 0.5$	4											
$a < \text{Glass Thickness}$												
08	<p>Glass Corner Chipping: (Minor defect)</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Length and Width</th> <th style="width: 40%;">Acc. Qty</th> </tr> </thead> <tbody> <tr> <td><math>c &lt; 3.0, b &lt; 3.0</math></td> <td style="text-align: center;">Ignore</td> </tr> <tr> <td colspan="2" style="text-align: center;"><math>a &lt; \text{Glass Thickness}</math></td> </tr> </tbody> </table>	Length and Width	Acc. Qty	$c < 3.0, b < 3.0$	Ignore	$a < \text{Glass Thickness}$					
Length and Width	Acc. Qty											
$c < 3.0, b < 3.0$	Ignore											
$a < \text{Glass Thickness}$												
09	<p>Glass Burr: (Minor defect)</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Length</th> <th style="width: 40%;">Acc. Qty</th> </tr> </thead> <tbody> <tr> <td><math>F &lt; 1.0</math></td> <td style="text-align: center;">Ignore</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Glass burr don't affect assemble and module dimension.</p>	Length	Acc. Qty	$F < 1.0$	Ignore						
Length	Acc. Qty											
$F < 1.0$	Ignore											

10	FPC Defect: (Minor defect)		10.1 Dent, pinhole width $a < w/3$ . (w: circuitry width.) 10.2 Open circuit is unacceptable. 10.3 No oxidation, contamination and distortion.								
11	Bubble on Polarizer (Minor defect)	<table border="1" style="margin: auto;"> <thead> <tr> <th style="width: 50%;">Diameter</th> <th style="width: 50%;">Acc. Qty</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><math>\varphi \leq 0.30</math></td> <td style="text-align: center;">Ignore</td> </tr> <tr> <td style="text-align: center;"><math>0.30 &lt; \varphi \leq 0.50</math></td> <td style="text-align: center;"><math>N \leq 2</math></td> </tr> <tr> <td style="text-align: center;"><math>0.50 &lt; \varphi</math></td> <td style="text-align: center;"><math>N=0</math></td> </tr> </tbody> </table>		Diameter	Acc. Qty	$\varphi \leq 0.30$	Ignore	$0.30 < \varphi \leq 0.50$	$N \leq 2$	$0.50 < \varphi$	$N=0$
Diameter	Acc. Qty										
$\varphi \leq 0.30$	Ignore										
$0.30 < \varphi \leq 0.50$	$N \leq 2$										
$0.50 < \varphi$	$N=0$										
12	Dent on Polarizer (Minor defect)	<table border="1" style="margin: auto;"> <thead> <tr> <th style="width: 50%;">Diameter</th> <th style="width: 50%;">Acc. ty</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><math>\varphi \leq 0.25</math></td> <td style="text-align: center;">Ignore</td> </tr> <tr> <td style="text-align: center;"><math>0.25 &lt; \varphi \leq 0.50</math></td> <td style="text-align: center;"><math>N \leq 4</math></td> </tr> <tr> <td style="text-align: center;"><math>0.50 &lt; \varphi</math></td> <td style="text-align: center;">None</td> </tr> </tbody> </table>		Diameter	Acc. ty	$\varphi \leq 0.25$	Ignore	$0.25 < \varphi \leq 0.50$	$N \leq 4$	$0.50 < \varphi$	None
Diameter	Acc. ty										
$\varphi \leq 0.25$	Ignore										
$0.25 < \varphi \leq 0.50$	$N \leq 4$										
$0.50 < \varphi$	None										
13	Bezel	13.1 No rust, distortion on the Bezel. 13.2 No visible fingerprints, stains or other contamination.									
14	Touch Panel	D: Diameter W: width L: length 14.1 Spot: $D < 0.25$ is acceptable $0.25 \leq D \leq 0.4$ 2dots are acceptable and the distance between defects should more than 10 mm. $D > 0.4$ is unacceptable 14.2 Dent: $D > 0.40$ is unacceptable 14.3 Scratch: $W \leq 0.03$ , $L \leq 10$ is acceptable, $0.03 < W \leq 0.10$ , $L \leq 10$ is acceptable Distance between 2 defects should more than 10 mm. $W > 0.10$ is unacceptable.									
15	PCB	15.1 No distortion or contamination on PCB terminals. 15.2 All components on PCB must same as documented on the BOM/component layout. 15.3 Follow IPC-A-600F.									
16	Soldering	Follow IPC-A-610C standard									

17	Electrical Defect (Major defect)	<p>The below defects must be rejected.</p> <p>17.1 Missing vertical / horizontal segment, 17.2 Abnormal Display. 17.3 No function or no display. 17.4 Current exceeds product specifications. 17.5 LCD viewing angle defect. 17.6 No Backlight. 17.7 Dark Backlight. 17.8 Touch Panel no function.</p>
----	-------------------------------------	--

Remark: LCD Panel Broken shall be rejected. Defect out of LCD viewing area is acceptable.

### 10.7. Classification of Defects

10.7.1. Visual defects (Except no / wrong label) are treated as minor defect and electrical defect is major.

10.7.2. Two minor defects are equal to one major in lot sampling inspection.

### 10.8. Identification/marketing criteria

Any unit with illegible / wrong /double or no marking/ label shall be rejected.

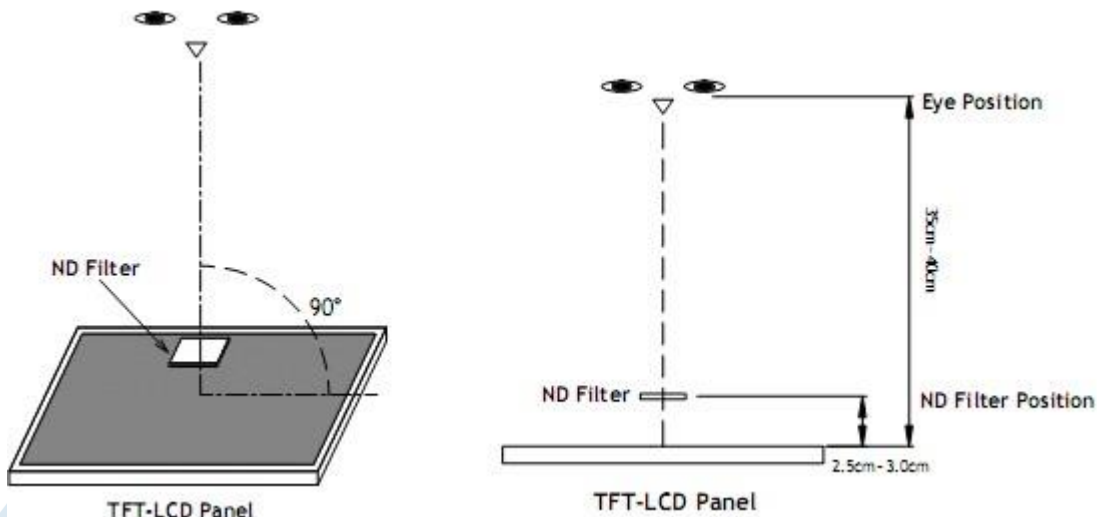
### 10.9. Packing

10.9.1. There should be no damage of the outside carton box, each packaging box should have one identical label.

10.9.2. Modules inside package box should have compliant mark.

10.9.3. All direct package materials shall offer ESD protection.

**Note1:** Bright dot is defined as the defective area of the dot is larger than 50% of one sub-pixel area.



**Bright dot:** The bright dot size defect at black display pattern. It can be recognized by 2% transparency of filter when the distance between eyes and panel is  $350\text{mm} \pm 50\text{mm}$ .

**Dark dot:** Cyan, Magenta or Yellow dot size defect at white display pattern. It can be recognized by 5% transparency of filter when the distance between eyes and panel is  $350\text{mm} \pm 50\text{mm}$ .

**Note2:** Mura on display which appears darker / brighter against background brightness on parts of display area.

## 11. Reliability Specification

No	Item	Condition	Quantity	Criteria
1	High Temperature Operating	<b>70°C, 240Hrs</b>	2	GB/T2423.2-2008
2	Low Temperature Operating	<b>-20°C, 240Hrs</b>	2	GB/T2423.1-2008
3	High Humidity	<b>60°C, 90%RH, 240Hrs</b>	2	GB/T2423.3-2006
4	High Temperature Storage	<b>80°C, 240Hrs</b>	2	GB/T2423.2-2008
5	Low Temperature Storage	<b>-30°C, 240Hrs</b>	2	GB/T2423.1-2008
6	Thermal Cycling Test	<b>-20°C, 60min~70°C, 60min, 20 cycles.</b>	2	GB/T2423.22-2012
7	Packing vibration	Frequency range:10Hz~50Hz Acceleration of gravity:5G X, Y, Z 30 min for each direction.	2	GB/T5170.14-2009
8	Electrical Static Discharge	Air: $\pm 8KV$ 150pF/330 $\Omega$ 5 times Contact: $\pm 4KV$ 150pF/330 $\Omega$ 5 times	2	GB/T17626.2-2006
9	Drop Test (Packaged)	Height:80 cm,1 corner, 3 edges, 6 surfaces.	2	GB/T2423.8-1995

Note1. No deflection cosmetic and operational function allowable.

Note2. Total current Consumption should be below double of initial value

## 12. Precautions and Warranty

### 12.1. Safety

- 12.1.1. The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.
- 12.1.2. Since the liquid crystal cells are made of glass, do not apply strong impact on them. Handle with care.

### 12.2. Handling

- 12.2.1. Reverse and use within ratings in order to keep performance and prevent damage.
- 12.2.2. Do not wipe the polarizer with dry cloth, as it might cause scratch. If the surface of the LCD needs to be cleaned, wipe it swiftly with cotton or other soft cloth soaked with petroleum IPA, do not use other chemicals.

### 12.3. Storage

- 12.3.1. Do not store the LCD module beyond the specified temperature ranges.
- 12.3.2. Strong light exposure causes degradation of polarizer and color filter.

### 12.4. Metal Pin (Apply to Products with Metal Pins)

#### 12.4.1. Pins of LCD and Backlight

12.4.1.1. Solder tip can touch and press on the tip of Pin LEAD during the soldering

#### 12.4.1.2. Recommended Soldering Conditions

Solder Type: Sn96.3~94-Ag3.3~4.3-Cu0.4~1.1

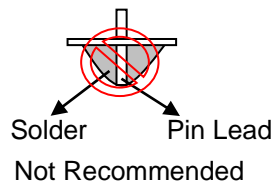
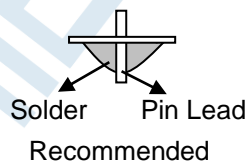
Maximum Solder Temperature: 370°C

Maximum Solder Time: 3s at the maximum temperature

Recommended Soldering Temp: 350±20°C

Typical Soldering Time: ≤3s

#### 12.4.1.3. Solder Wetting



#### 12.4.2. Pins of EL

12.4.2.1. Solder tip can touch and press on the tip of EL leads during soldering.

12.4.2.2. No Solder Paste on the soldering pad on the motherboard is recommended.

#### 12.4.2.3. Recommended Soldering Conditions

Solder type: Nippon Alimit Leadfree SR-34, size 0.5mm

Recommended Solder Temperature: 270~290°C

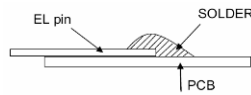
Typical Soldering Time: ≤2s

Minimum solder distance from EL lamp (body): 2.0mm

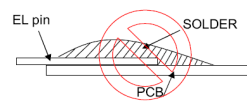
12.4.2.4. No horizontal press on the EL leads during soldering.

12.4.2.5. 180° bend EL leads three times is not allowed.

## 12.4.2.6. Solder Wetting

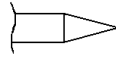


Recommended

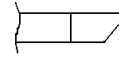


Not Recommended

## 12.4.2.7. The type of the solder iron:

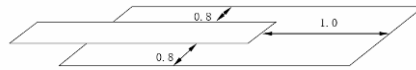


Recommended



Not Recommended

## 12.4.2.8. Solder Pad



## 12.5. Operation

- 12.5.1. Do not drive LCD with DC voltage
- 12.5.2. Response time will increase below lower temperature
- 12.5.3. Display may change color with different temperature
- 12.5.4. Mechanical disturbance during operation, such as pressing on the display area, may cause the segments to appear “fractured”.
- 12.5.5. Do not connect or disconnect the LCM to or from the system when power is on.
- 12.5.6. Never use the LCM under abnormal condition of high temperature and high humidity.
- 12.5.7. Module has high frequency circuits. Sufficient suppression to the electromagnetic interface shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.
- 12.5.8. Do not display the fixed pattern for long time (we suggest the time not longer than one hour) because it may develop image sticking due to the TFT structure.

## 12.6. Static Electricity

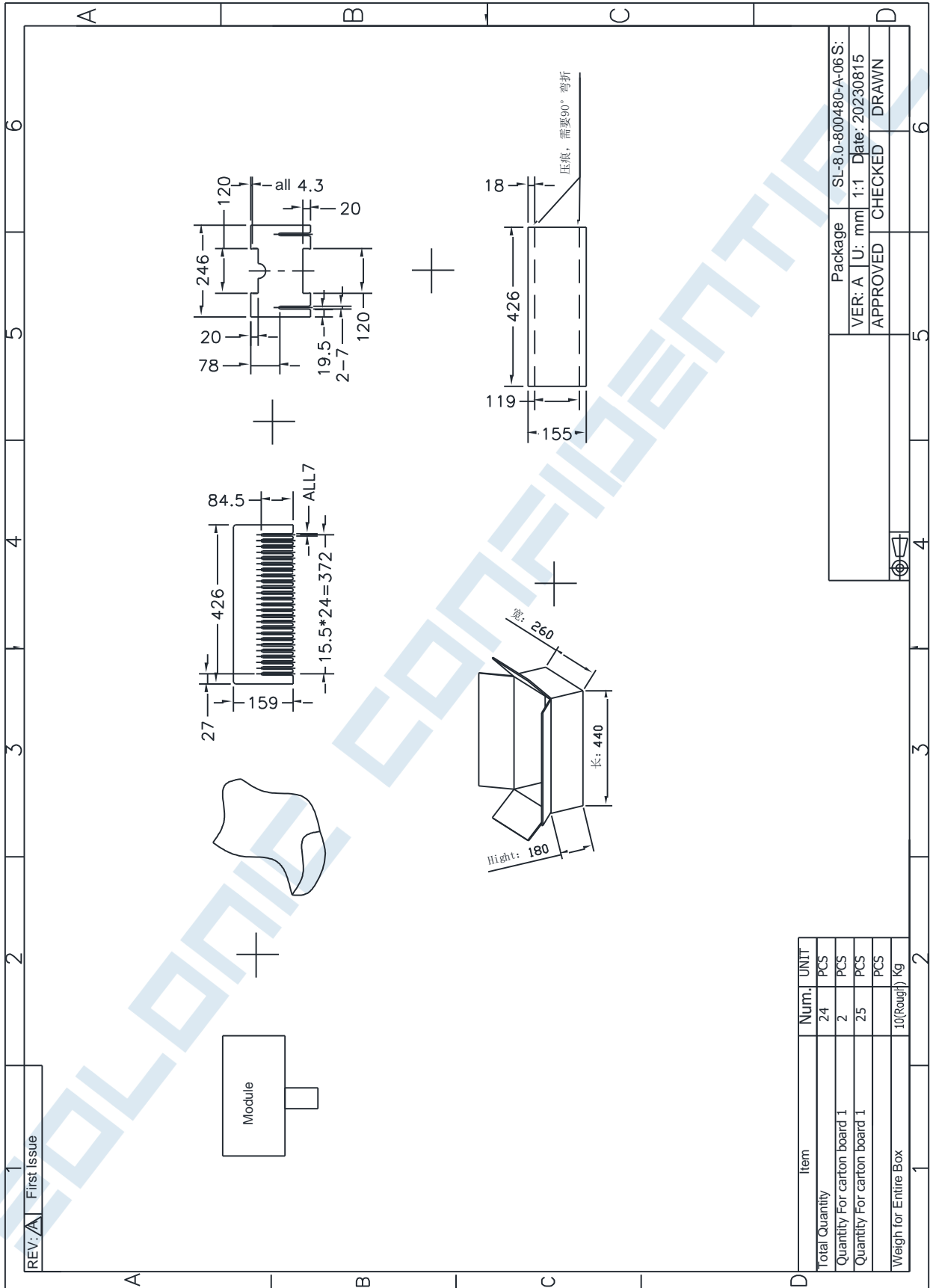
- 12.6.1. CMOS LSIs are equipped in this unit, so care must be taken to avoid the electro-static charge, by ground human body, etc.
- 12.6.2. The normal static prevention measures should be observed for work clothes and benches.
- 12.6.3. The module should be kept into anti-static bags or other containers resistant to static for storage.

## 12.7. Limited Warranty

- 12.7.1. Our warranty liability is limited to repair and/or replacement. We will not be responsible for any consequential loss.
- 12.7.2. If possible, we suggest customer to use up all modules in six months. If the module storage time over twelve months, we suggest that recheck it before the module be used.
- 12.7.3. After the product shipped, any product quality issues must be feedback within three months, otherwise, we will not be responsible for the subsequent or consequential events.

## 13. Packaging

品号:	机型: SL-8.0-800480-ATMN-06 (Rohs)				
品名	规格	单位	组成数	底数	备注
双坑刀卡	246x159x 双坑/A/A=A/2 卡位	PCS	25	24	每个盒子放 24pcs
双坑刀卡	426x159x 双坑/A/K=K/25 卡位	PCS	2	24	每个盒子放 24pcs
外箱	440x260x180/K=K/尚诚包装/无丝印	个	1	24	每箱放 23pcs
限位纸卡	426*155/K5K/限位纸卡/和刀卡一起配套送	个	1	24	放刀卡上面, 限位产品跳动
红色静电袋	200*300MM	个	24	24	每给产品一个
珍珠棉	400*100*20mm 红色珍珠棉	个	1	24	内箱刀卡底下垫一个(可以用 435*100*20mm 裁)
外箱标签	100x80/无/宋体	个	1	1	每个外箱贴 1 张
Rohs 标签	13x9/无/宋体/蓝底黑字	个	1	1	贴在外箱标签里面



THIS DOCUMENT IS THE SOLE PROPERTY OF **SOLONIC TECHNOLOGY CO., LTD.**  
 AND SHOULD NOT BE USED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN PERMISSION  
 本文件屬於碩享科技有限公司獨有財產，未經書面許可不得使用或部分使用

