ALL SHORE INDUSTRIES

ASI-T-4608032A3FN/Z

ITEM	CONTENTS
Module Size	120.7(W) * 54.7(H) * 2.9(T) mm
Module Size(With FPC)	120.7(W) *103.83 (H) * 2.9(T) mm
Display Size	4.6 inch
Display Format	800(RGB)* 320Pixel
Active Area	108.0(W) * 43.2(H) mm
Dots Pitch	0.045 * 0.135mm
LCD Type	Active matrix TFT/ Transmissive
Input Data	24 bit RGB interface
Viewing Direction (Gray inversion)	6 O'clock
The Best Viewing Direction	12 O'clock
Source Drive IC	HX8264-E00DPD400
Gate Drive IC	HX8664-B00BPD400
Weight	TBD

1. Revision History

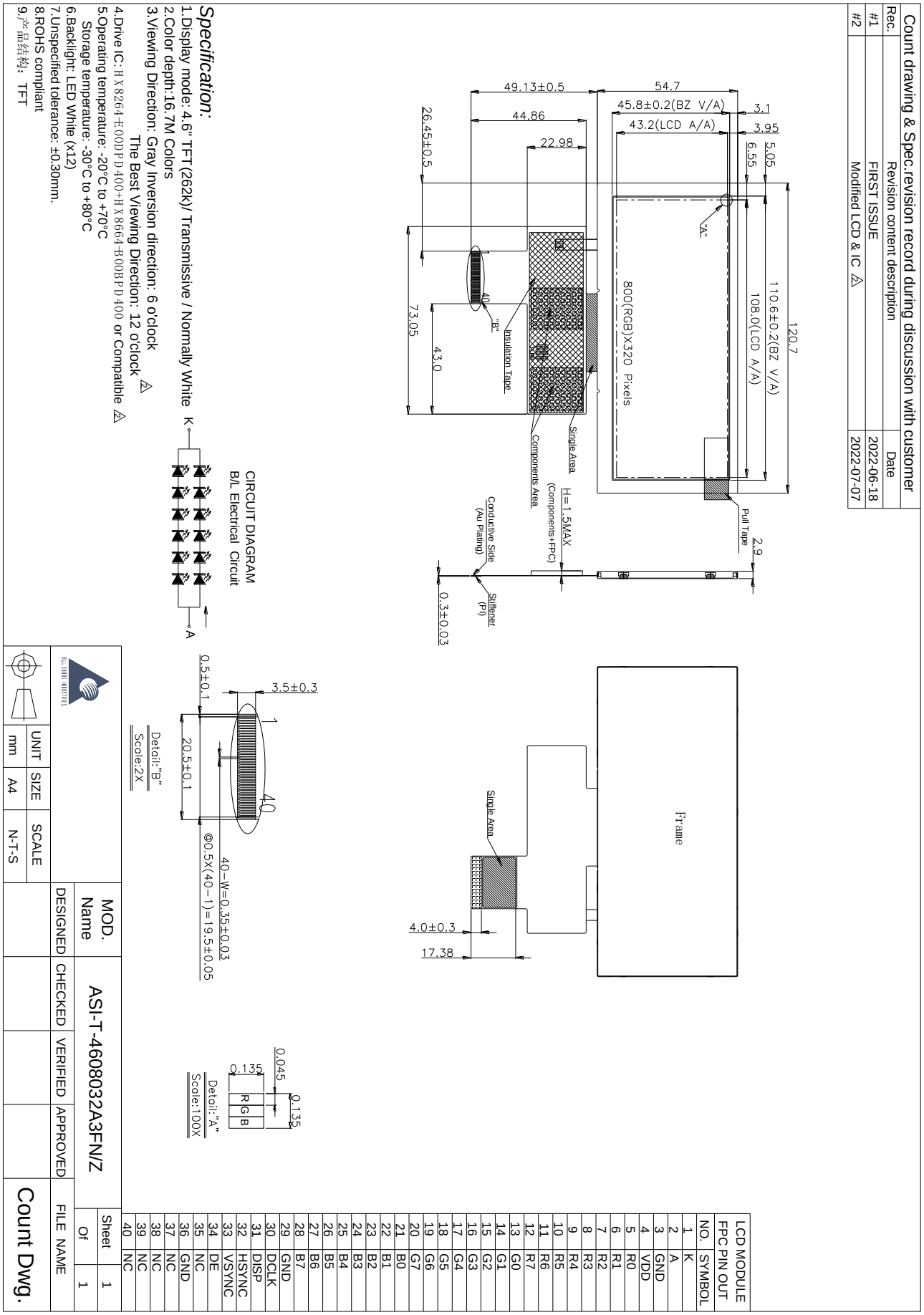
Sample Version	DOC. Version	DATE	DESCRIPTION		CHANGED BY
A0	00	2022/6/20	Spec Only	First issue	F.J.C/HHK
A0	01	2022-07-08	Spec Only	Modify IC and LCD	Jia Cheng /M.C.M

2. Table of Contents:

3. General Specification:

ITEM	CONTENTS
Module Size	120.7(W) * 54.7(H) * 2.9(T) mm
Module Size(With FPC)	120.7(W) *103.83 (H) * 2.9(T) mm
Display Size	4.6 inch
Display Format	800(RGB)* 320Pixel
Active Area	108.0(W) * 43.2(H) mm
Dots Pitch	0.045 * 0.135mm
LCD Type	Active matrix TFT/ Transmissive
Input Data	24 bit RGB interface
Viewing Direction (Gray inversion)	6 O'clock
The Best Viewing Direction	12 O'clock
Source Drive IC	HX8264-E00DPD400
Gate Drive IC	HX8664-B00BPD400
Weight	TBD

4. LCM drawing:



5. Electrical Characteristics:

5-1 Absolute Maximum Ratings

(Ta=25℃ VSS=0V)

Item	Symbol	Min.	Type	Max.	Unit	Remark
Digital Supply Voltage	VDD	-0.5		5.0	V	
Analog Supply Voltage	AVDD	-0.5	-	15	V	
Operating Temperature	Topr	-20	-	+70	℃	
Storage Temperature	Tstg	-30	-	+80	℃	

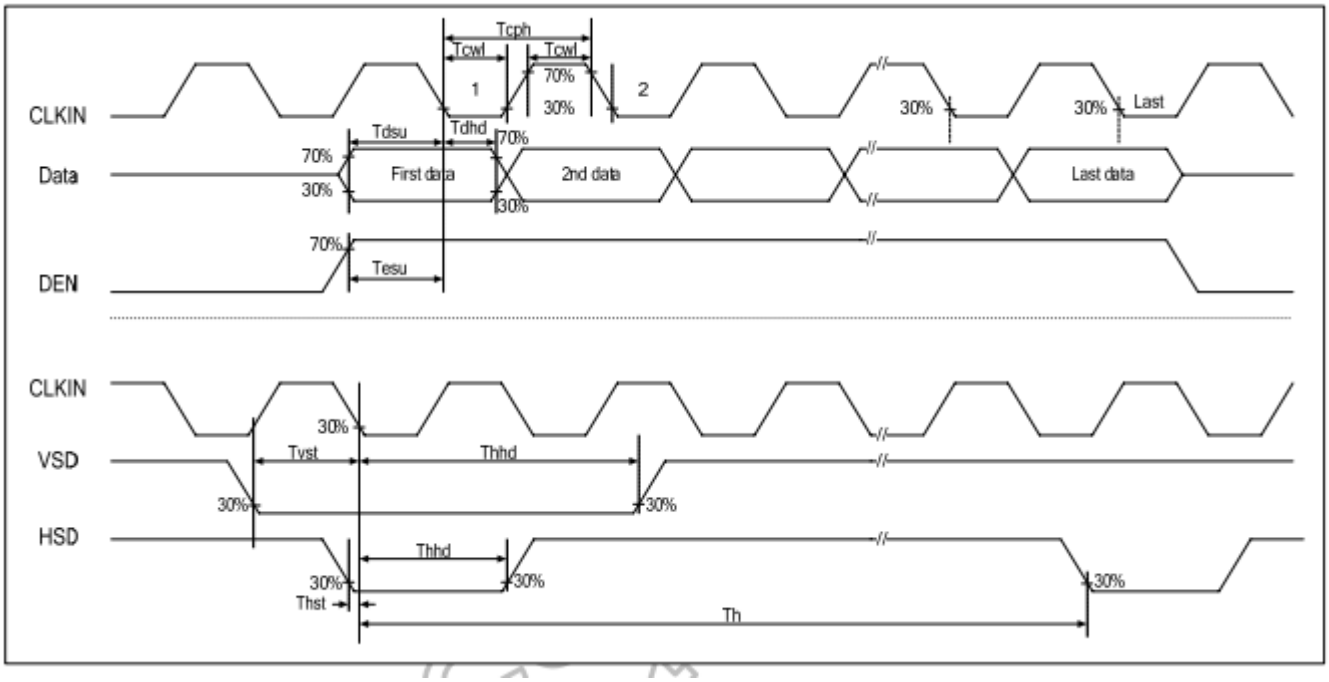
5-2 Operating Conditions

(Ta=25℃ VSS=0V)

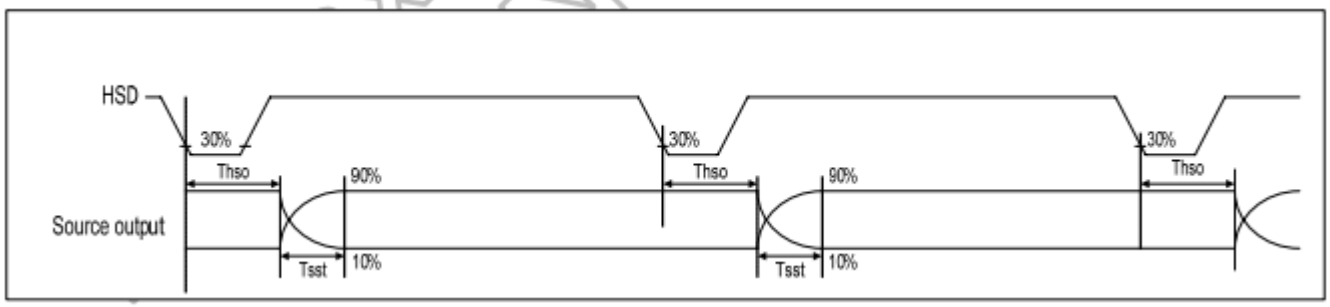
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage	VDD	-	2.7	3.3	3.6	V
	AVDD	-	6.5	-	13.5	V
	VGH	-	14.5	15	15.5	V
	VGL	-	-8.5	-18	-7.5	V
Common Electrode Voltage	VCOM	-	3.74	4.24	4.74	V
Current for Driver	I_{VDD}	DVDD=3.3V	-	TBD	-	mA
	I_{AVDD}	AVDD=10V	-	TBD	-	mA

5-3 Data Input Timing

5-3-1 Input clock and data timing waveform

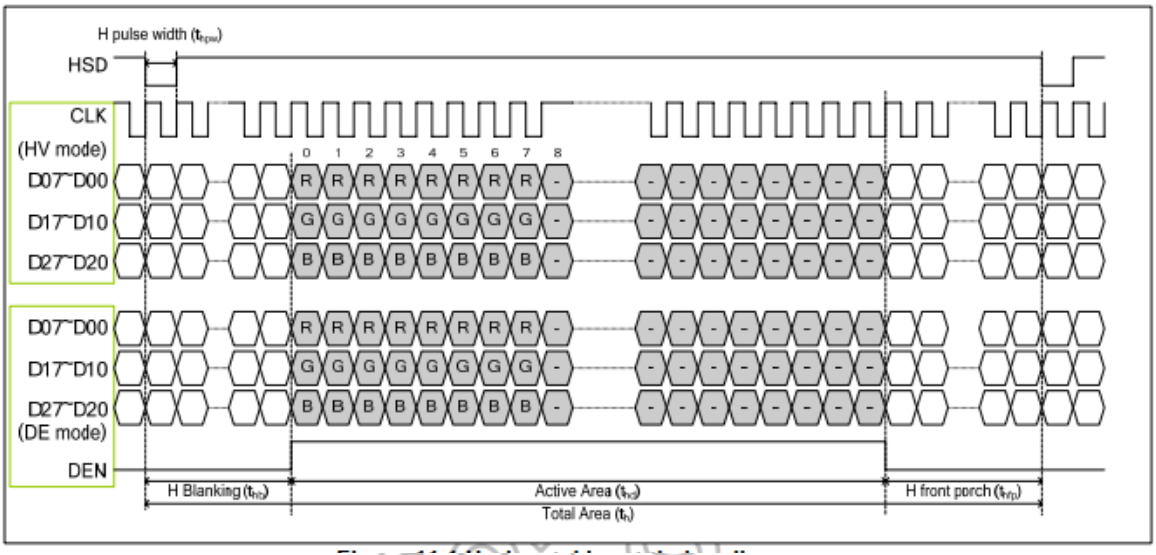


5-3-2 Source output timing waveform

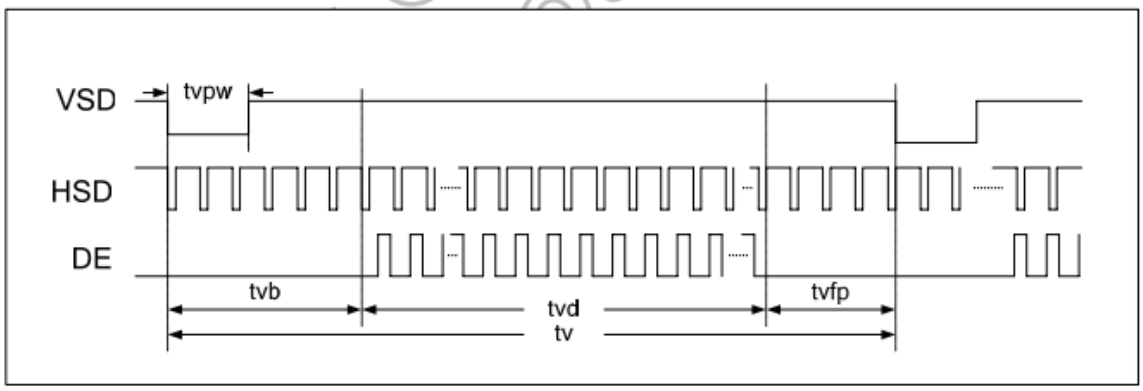


5-3-3 Data input format (800×480)

- **Horizontal timing**



- **Vertical Timing**



- **Horizontal Timing**

Parameter	Symbol	Spec. Min.	Spec. Typ.	Spec. Max.	Unit
Horizontal Display Area	thd	-	800	-	DCLK
DCLK frequency	fclk	-	33.3	50	MHz
One Horizontal Line	th	862	1056	1200	DCLK
HS pulse width (Min.)	thpw		1		DCLK
HS pulse width (Typical.)	thpw		-		DCLK
HS pulse width (Max.)	thpw		40		DCLK
HS Back Porch (Blanking)	thb	46	46	46	DCLK
HS Front Porch	thfp	16	210	354	DCLK
DE mode Blanking	th-thd	45	256	400	DCLK

- **Vertical Timing**

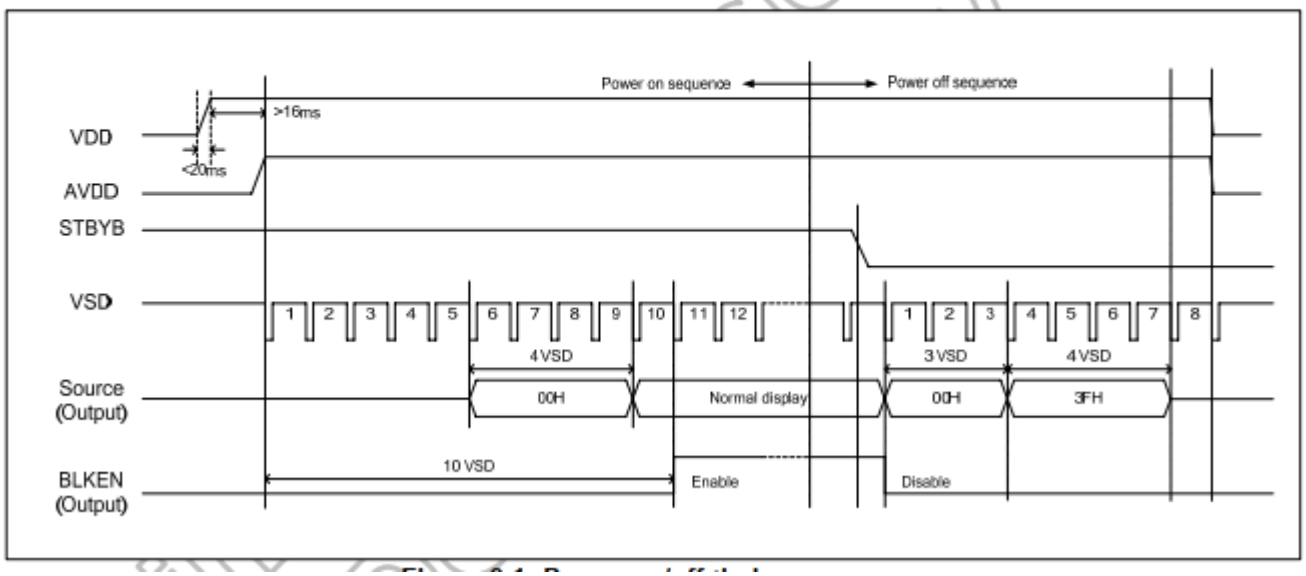
Parameter	Symbol	Spec. Min.	Spec. Typ.	Spec. Max.	Unit
Vertical Display Area	tvd		480		TH
VS period time	tv	510	525	650	TH
VS pulse width	tvpw	1	-	20	TH
VS Back Porch (Blanking)	tvb	23	23	23	TH
VS Front Porch	tvfp	7	22	147	TH
DE mode Blanking	tv-tvd	4	45	170	TH

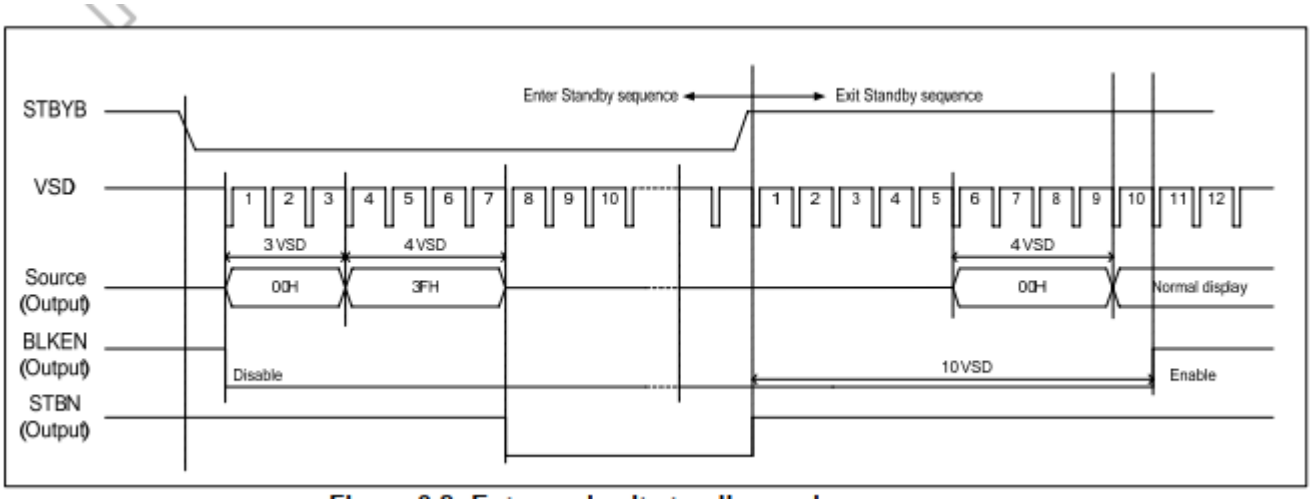
5-3-4 Power on/off sequence

To prevent the device damage from latch up, the power on/off sequence shown below must be followed.

Power ON: VDD, GND → AVDD, AVSS → V1 to V14
Power OFF: V1 to V14 → AVDD, AVSS → VDD, GND

HX8264-E has a power ON/OFF sequence control function. 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. Please refer to "AC characteristics" for more detail on timing.





6. Optical Characteristics:

Item		Symbol	Conditions	Specifications			Unit	Note
				Min	Typ	Max		
Transmittance		T(%)	-	3.55	4.48	-	%	-
Contrast Ratio		CR	Θ=0 Normal Viewing angle	400	500	-		(1) (2)
Response time		TR+TF	-	-	25	50	ms	(1) (3)
Viewing angle	Hor.	Θx+	CR≧10	60	70	-	deg.	(1)
		Θx-		60	70	-		
	Ver.	Θy+		40	50	-		
		Θy-		60	70	-		

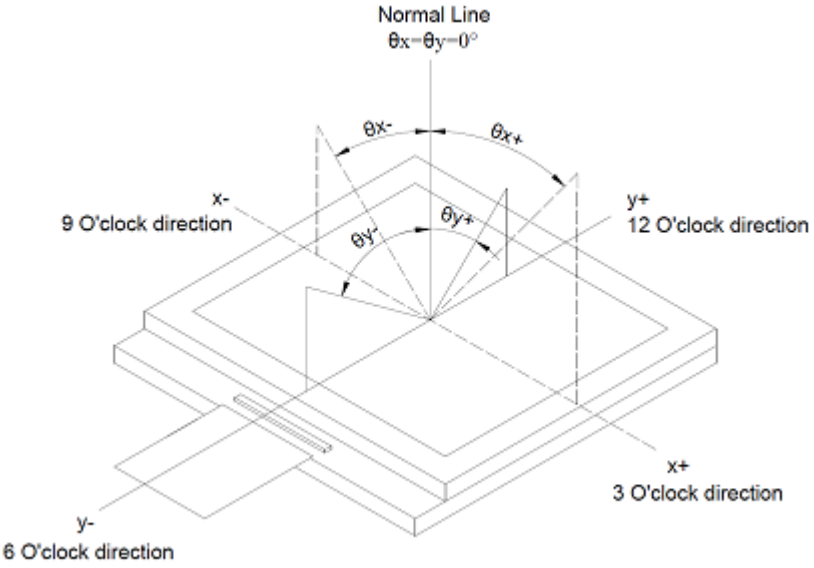
Measuring Condition

1. Measuring surrounding: dark room
2. Ambient temperature: 25±2℃
3. 30 min. Warm-up time.

Color of CIE Coordinate:

Item		Symbol	Condition	Min.	Typ.	Max.
Chromaticity Coordinates (Transmissive)	Red	x	θ = ϕ = 0° LED Backlight	TBD	0.579	TBD
		y		TBD	0.308	TBD
	Green	x		TBD	0.316	TBD
		y		TBD	0.553	TBD
	Blue	x		TBD	0.138	TBD
		y		TBD	0.129	TBD
	White	x		TBD	0.312	TBD
		y		TBD	0.330	TBD

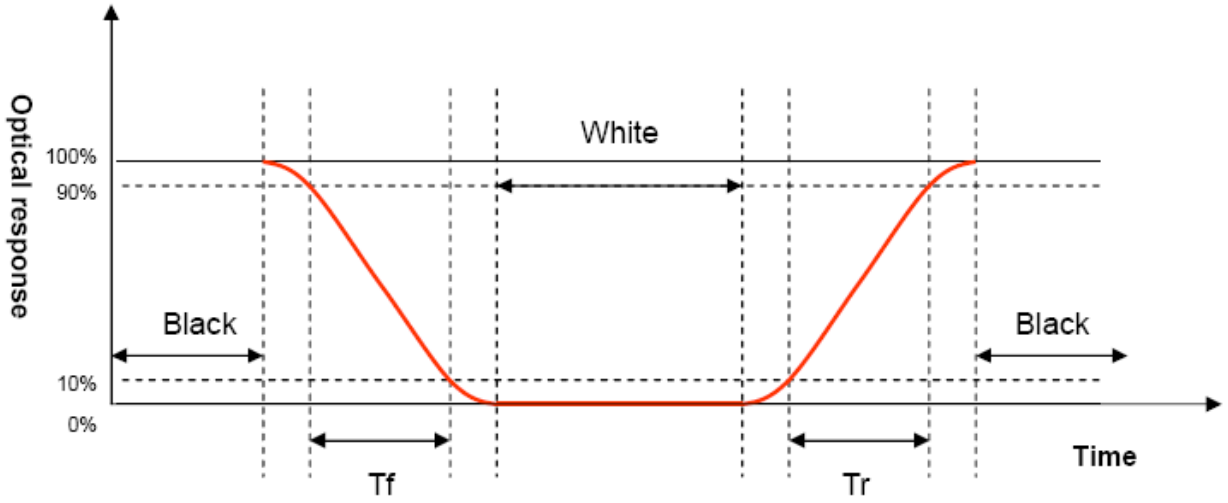
Note (1) Definition of Viewing Angle :



Note (2) Definition of Contrast Ratio(CR) :
measured at the center point of panel

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when LCD is at "White" state}}{\text{Photo detector output when LCD is at "Black}}$$

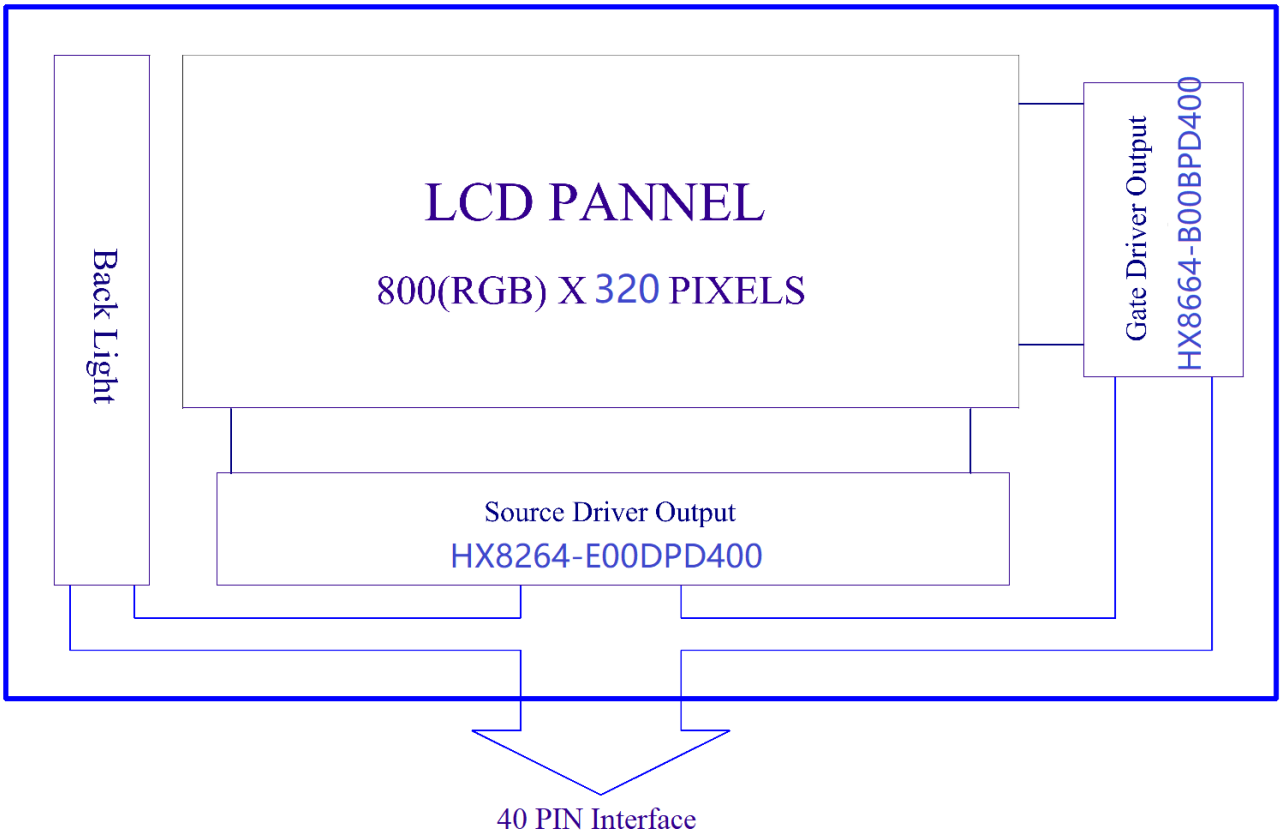
Note (3) Definition of Response Time : Sum of TR and TF



7. Interface Pin Assignment:

PIN NO.	Symbol	I/O	Description
1	K	P	Power for LED backlight cathode
2	A	P	Power for LED backlight anode
3	GND	P	Power ground
4	VDD	P	Power voltage
5~12	R0~R7	I	Red data
13~20	G0~G7	I	Green data
21~28	B0~B7	I	Blue data
29	GND	P	Power ground
30	DCLK（CLK）	I	Pixel clock
31	DISP	I	Display on/off , normally pulled high
32	HSYNC （HSD）	I	Horizontal sync signal If not used, fix this pin at VDD
33	VSYNC （VSD）	I	Vertical sync signal If not used, fix this pin at VDD
34	DEN（DE）	I	Data enable (active High)
35	NC	-	No connection
36	GND	P	Power ground
37	NC	-	No connection
38	NC	-	No connection
39	NC	-	No connection
40	NC	-	No connection

8. Back Diagram :



9. Backlight:

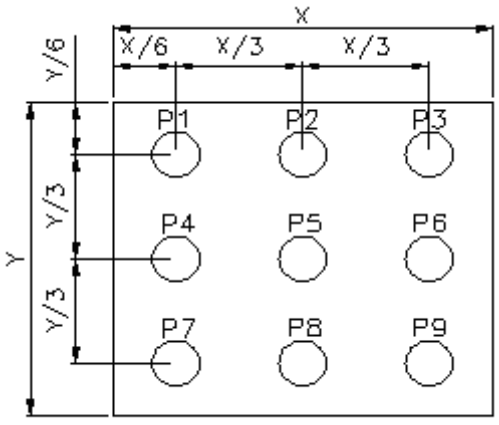
1. Standard Lamp Styles (Edge Lighting Type):
The LED chips are distributed over the edge light area of the illumination unit, which gives the less power consumption:

2. The Main Advantages of the LED Backlight are as following:
2.1 The brightness of the backlight can simply be adjusted.
By a resistor or a potentiometer.

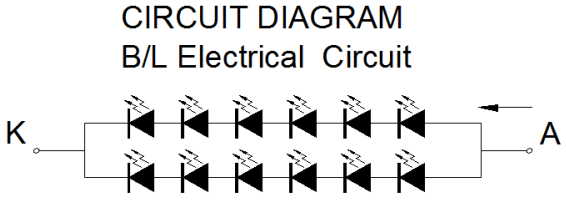
3. Data About LED Backlight: **(Ta=25℃)**

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
Supply Voltage	V	16.2	18.6	20.4	V	If=40mA	
Luminous Intensity for LCM	IV	280	310	-	Cd/m^2	If=40mA	2
Uniformity for LCM	-	70	-	-	%		3
Life Time	-	20000	-	-	Hr.		4
Color	White						

NOTE:
1. Backlight Only
2. Average Luminous Intensity of P1-P9
3. Uniformity = Min/Max * 100%
4. LED life time defined as follows: The final brightness is at 50% of original brightness



Internal Circuit Diagram



(Effective spatial Distribution)

Using aperture of 1°, distance 50cm.

10. Standard Specification for Reliability .:

10–1. Standard Specifications for Reliability of LCD Module

No	Item	Description
01	High temperature operation	The sample should be allowed to stand at 70℃ for 120 hours under driving condition and then returning it to normal temperature condition, and allowing it stand for 2 hours.
02	Low temperature operation	The sample should be allowed to stand at -20℃ for 120 hours under driving condition and then returning it to normal temperature condition, and allowing it stand for 2 hours.
03	High temperature storage	The sample should be allowed to stand at 80℃ for 240 hours under no-load condition, and then returning it to normal temperature condition, and allowing it stand for 2 hours.
04	Low temperature storage	The sample should be allowed to stand at -30℃ for 240 hours under no-load condition, then returning it to normal temperature condition, and allowing it stand for 2 hours.
05	Moisture storage	The sample should be allowed to stand at 60℃,90%RH MAX for 240 hours under no-load condition, then taking it out and drying it at normal temperature for 2 hours.
06	Thermal shock storage	The sample should be allowed to stand the following 10 cycles : -30℃ for 30 minutes → normal temperature for 5 minutes → +80℃ for 30 minutes → normal temperature for 5 minutes, as one cycle.
07	Packing vibration	Frequency range : 10Hz ~ 55Hz Amplitude of vibration : 1.5mm Sweep time: 12 min X,Y,Z 2 hours for each direction.
08	Packing drop test	According to ISTA 1A 2001.
09	Electrical Static Discharge	Air: ±6KV 150pF/330Ω 5 times
		Contact: ±4KV 150pF/330Ω 5 time

*Sample size for each test item is 3~5pcs

10 - 2. Testing Conditions and Inspection Criteria

For the final test the testing sample must be stored at room temperature for 24 hours, after the tests listed in Table 12.2, Standard specifications for Reliability have been executed in order to ensure stability.

No	Item	Test Model	In section Criteria
01	Current Consumption	Refer To Specification	The current consumption should conform to the product specification.
02	Contrast	Refer To Specification	After the tests have been executed, the contrast must be larger than half of its initial value prior to the tests.
03	Appearance	Visual inspection	Defect free.

10 - 3. MTBF

MTBF	Functions, performance, appearance, etc. shall be free from remarkable deterioration within 50,000 hours under ordinary operating and storage conditions room temperature (25±5℃), normal humidity (50±10% RH), and in area not exposed to direct sun light.

11. Specification of Quality Assurance:

11-1. Purpose

This standard for Quality Assurance should affirm the quality of LCD module products to supply to purchaser by All Shore Industries, Inc. (Supplier).

11-2. Standard for Quality Test

a. Inspection:
Before delivering, the supplier should take the following tests, and affirm the quality of product.

b. Electro-Optical Characteristics:
According to the individual specification to test the product.

c. Test of Appearance Characteristics:
According to the individual specification to test the product.

d. Test of Reliability Characteristics:
According to the definition of reliability on the specification for testing products.

e. Delivery Test:
Before delivering, the supplier should take the delivery test.

(i) Test method: According to **ISO2859-1.**General Inspection Level Ⅱ take a single time.

(ii) The defects classify of AQL as following:
Major defect: AQL = 0.65
Minor defect: AQL = 2.5
Total defects: AQL = 2.5

12-3. Non- conforming Analysis & Deal With Manners

a. Non- conforming Analysis:

(i) Purchaser should supply the detail data of non- conforming sample and the non-conforming.

(ii) After accepting the detail data from purchaser, the analysis of non- conforming should be finished in two weeks.

(iii) If supplier can not finish analysis on time, must announce purchaser before 3 days.

b. Disposition of non- conforming:

(i) If find any product defect of supplier during assembly time, supplier must change the good product for every defect after recognition.

(ii) Both supplier and customer should analyze the reason and discuss the disposition of non- conforming when the reason of nonconforming is not sure.

12-4. Agreement items

Both sides should discuss together when the following problems happen.

a. There is any problem of standard of quality assurance, and both sides should think that must be modified.
b. There is any argument item which does not record in the standard of quality assurance.
c. Any other special problem.

11-5. Standard of The Product Appearance Test

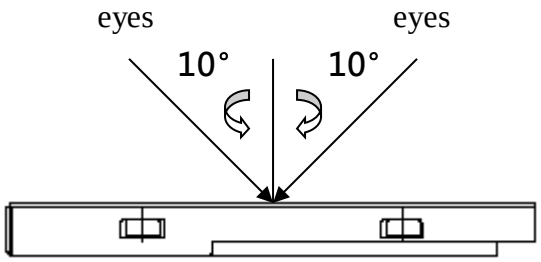
a. Manner of appearance test:

(i) The test must be under 20W × 2 or 40W fluorescent light, and the distance of view must be at 30±5cm.

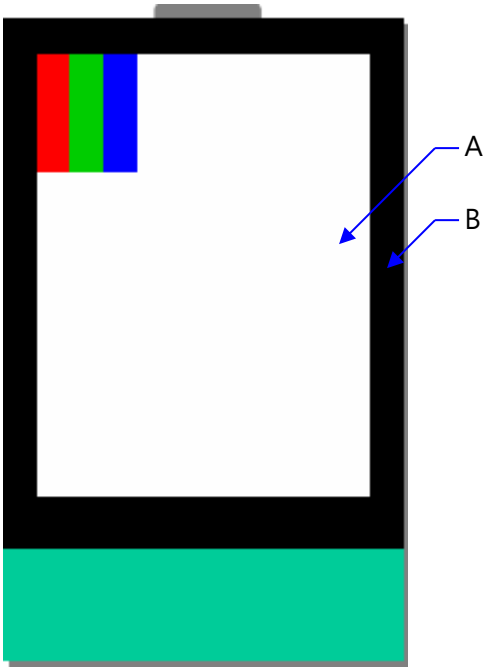
(ii) When test the model of transmissive product must add the reflective plate.

(iii)The test direction is base on around 10° of vertical line.

(iiii)Temperature: 25±5℃ Humidity: 60±10%RH



(iv) Definition of area:



A. Area: Viewing area.

B. Area: Out of viewing area.
(Outside viewing area)

b. Basic principle:

(i) It will accord to the AQL when the standard can not be described.

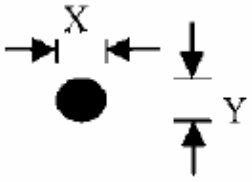
(ii) The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.

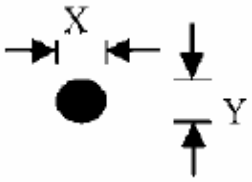
(iii) Must add new item on time when it is necessary.

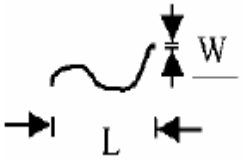
c. Standard of inspection: (Unit: mm)

11-6. Inspection specification

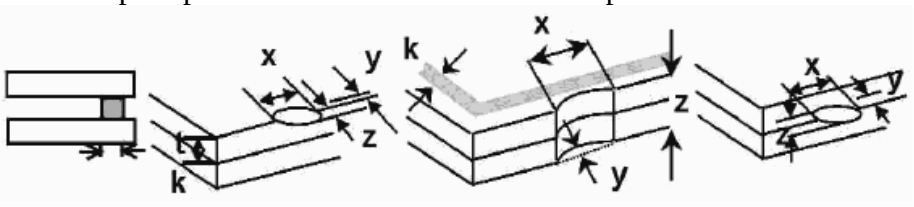
Defect out of viewing area can be neglected.

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>AQL</th></tr>
<tr><td>01</td><td>Electrical Testing</td><td>1.1 Missing vertical, horizontal segment, segment contrast defect.
1.2 Missing character, dot or icon.
1.3 Display malfunction.
1.4 No function or no display.
1.5 Current consumption exceeds product specifications.
1.6 LCD viewing angle defect.
1.7 Mixed product types.
1.8 Flicker</td><td>0.65</td></tr>
<tr><td>02</td><td>Black or White spots or Bright spots or Color spots on LCD (Display only)</td><td>2.1 Dot dimension as below drawing:
Φ = (X+Y) / 2
 

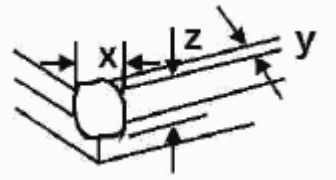
<table><tr><th>Size(mm)</th><th>Acceptable Q'ty</th></tr><tr><td>Φ≦0.20</td><td>Accept no dense</td></tr><tr><td>0.20< Φ≦0.40</td><td>5</td></tr><tr><td>0.40< Φ</td><td>0</td></tr></table>2.2 Not visible through 5% ND filter
* Densely spaced: No more than two spots within 3mm.</td><td>2.5</td></tr>
<tr><td rowspan="2">03</td><td rowspan="2">LCD and Touch Panel black spots, white spots, contamination (non – display)</td><td>3.1 Round type: As following drawing
Φ = (X+Y) / 2
 

<table><tr><th>Size(mm)</th><th>Acceptable Q'ty</th></tr><tr><td>Φ≦0.20</td><td>Accept no dense</td></tr><tr><td>0.20< Φ≦0.40</td><td>5</td></tr><tr><td>0.40< Φ</td><td>0</td></tr></table>* Densely spaced: No more than two spots within 3mm.</td><td>2.5</td></tr>
<tr><td>3.2 Line type: (As following drawing)
 

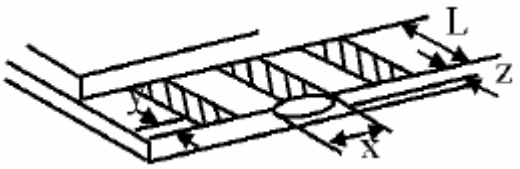
<table><tr><th>Length(mm)</th><th>Width(mm)</th><th>Acceptable Q'ty</th></tr><tr><td>L≦10</td><td>W≦0.1</td><td>Accept no dense</td></tr><tr><td>L≦10.0</td><td>0.1<W≦0.25</td><td>4</td></tr><tr><td>L>10</td><td>----</td><td>Rejection</td></tr><tr><td>----</td><td>0.25<W</td><td>Rejection</td></tr></table>* Densely spaced: No more than two lines within 3mm.</td><td>2.5</td></tr>
</table>

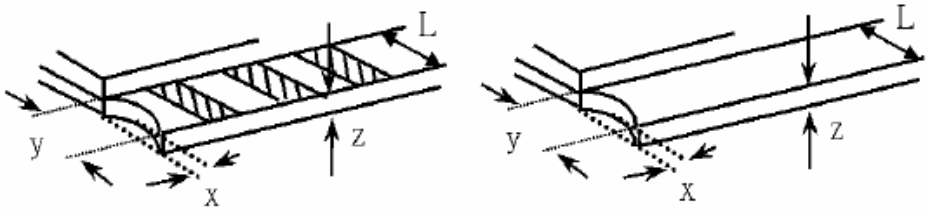
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>AQL</th></tr>
<tr><td>04</td><td>Polarizer bubbles</td><td>If bubbles are visible, judge using black spot specifications, not easy to find, must check in specify direction
<table>
<tr><th>Size Φ(mm)</th><th>Acceptable Q'ty</th></tr>
<tr><td>Φ≦0.20</td><td>Accept no dense</td></tr>
<tr><td>0.20< Φ≦0.50</td><td>4</td></tr>
<tr><td>0.50< Φ≦1.00</td><td>3</td></tr>
<tr><td>1.00< Φ</td><td>0</td></tr>
<tr><td>Total Q'ty</td><td>4</td></tr>
</table></td><td>2.5</td></tr>
<tr><td>05</td><td>Scratches</td><td>Follow NO.3 -2 Line Type.</td><td></td></tr>
<tr><td>06</td><td>Mura</td><td>Not visible through 5% ND filter in 50% gray.</td><td>2.5</td></tr>
<tr><td>07</td><td>Chipped glass</td><td>Symbols:
x: Chip length y: Chip width z: Chip thickness
k: Seal width t: Glass thickness a: LCD side length
L: Electrode pad length
7.1 General glass chip:
7.1.1 Chip on panel surface and crack between panels:
 

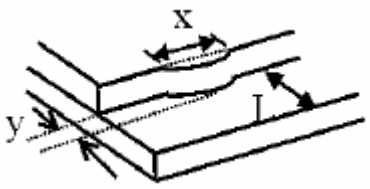
<table>
<tr><th>z: Chip thickness</th><th>y: Chip width</th><th>x: Chip length</th></tr>
<tr><td>Z≦1/2t</td><td>Not over viewing area</td><td>x≦1/8a</td></tr>
<tr><td>1/2t< z≦2t</td><td>Not exceed 1/3k</td><td>x≦1/8a</td></tr>
</table>
⊙
Unit: mm
⊙ If there are 2 or more chips, x is the total length of each chip

7.1.2 Corner crack:
 

<table>
<tr><th>z: Chip thickness</th><th>y: Chip width</th><th>x: Chip length</th></tr>
<tr><td>Z≦1/2t</td><td>Not over viewing area</td><td>x≦1/8a</td></tr>
<tr><td>1/2t< z≦2t</td><td>Not exceed 1/3k</td><td>x≦1/8a</td></tr>
</table>
⊙
Unit: mm
⊙ If there are 2 or more chips, x is the total length of each chip</td><td>2.5</td></tr>
</table>

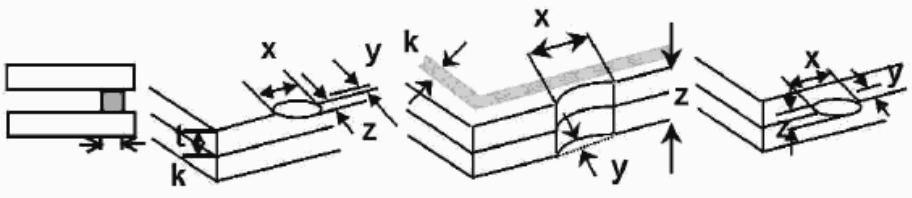
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>AQL</th></tr>
<tr><td>08</td><td>Glass crack</td><td>
Symbols:
x: Chip length y: Chip width z: Chip thickness
k: Seal width t: Glass thickness a: LCD side length
L: Electrode pad length
8.1 Protrusion over terminal:
8.1.1 Chip on electrode pad:


<table>
<tr><th>y: Chip width</th><th>x: Chip length</th><th>z: Chip thickness</th></tr>
<tr><td>y≦0.5mm</td><td>x≦1/8a</td><td>0< z≦t</td></tr>
</table>
8.1.2 Non-conductive portion:


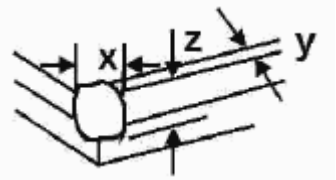
<table>
<tr><th>y: Chip width</th><th>x: Chip length</th><th>z: Chip thickness</th></tr>
<tr><td>y≦L</td><td>x≦1/8a</td><td>0< z≦t</td></tr>
</table>
⊙ If there chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications.
⊙ If the product will be heat sealed by the customer, the alignment mark must mot be damaged.
8.1.3 Substrate protuberance and internal crack


<table>
<tr><th>y: width</th><th>x: length</th></tr>
<tr><td>y≦1/3L</td><td>X≦a</td></tr>
</table>
</td><td>2.5</td></tr>
</table>

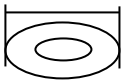
NO	Item	Criterion	AQL
09	Cracked glass	The LCD with extensive crack is not acceptable.	2.5
10	Backlight elements	10.1 Illumination source flickers when lit. 10.2 Spots or scratches that appear when lit must be judged. Using LCD spot, lines and contamination standards. 10.3 Backlight doesn't light or color is wrong.	2.5 2.5 0.65
11	Bezel	Bezel must comply with product specifications.	2.5
12	PCB、COB	12.1 COB seal may not have pinholes larger than 0.2mm or contamination. 12.2 COB seal surface may not have pinholes through to the IC. 12.3 The height of the COB should not exceed the height indicated in the assembly diagram. 12.4 There may not be more than 2mm of sealant outside the seal area on PCB. And there should be no more than three places. 12.5 Parts on PCB must be the same as on the production characteristic chart, There should be no wrong parts, missing parts or excess parts. 12.6 The jumper on the PCB should conform to the product characteristic chart. 12.7 PCBA cosmetic control base on latest IPC standard,IPC-A-610,acceptalbe limit of grade 2.	2.5 2.5 2.5 2.5 0.65 0.65 2.5
13	FPC	13.1 FPC terminal damage ≦ 1/2 FPC terminal width and can not affect the function , we judge accept. 13.2 FPC alignment hole damage ≦ 1/2 alignment area and can not affect the function , we judge accept.	2.5 2.5
14	Soldering	14.1 No cold solder joints, missing solder connections, oxidation or icicle. 14.2 No short circuits in components on PCB or FPC.	2.5 0.65

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>AQL</th></tr>
<tr><td>15</td><td>Touch Panel Chipped glass</td><td>
Symbols:
x: Chip length y: Chip width z: Chip thickness
k: Seal width t: Touch Panel Total thickness a: LCD side length
L: Electrode pad length
15.1 General glass chip:
15.1.1 Chip on panel surface and crack between panels:


<table>
<tr><th>z: Chip thickness</th><th>y: Chip width</th><th>x: Chip length</th></tr>
<tr><td>Z≦t</td><td>≦1/2 k and not over viewing area</td><td>x≦1/8a</td></tr>
</table>
⊙ Unit: mm
⊙ If there are 2 or more chips, x is the total length of each chip

15.1.2 Corner crack:


<table>
<tr><th>z: Chip thickness</th><th>y: Chip width</th><th>x: Chip length</th></tr>
<tr><td>z≦t</td><td>≦1/2 k and not over viewing area</td><td>x≦1/8a</td></tr>
</table>
⊙ Unit: mm
⊙ If there are 2 or more chips, x is the total length of each chip
</td><td>2.5</td></tr>
</table>

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>AQL</th></tr>
<tr><td>16</td><td>Touch Panel(Fish eye)</td><td>
<table>
<tr><th>SIZE(mm)</th><th>Acceptable Q’ty</th></tr>
<tr><td>L≦0.7</td><td>Accept no dense</td></tr>
<tr><td>L>0.7mm</td><td>0</td></tr>
</table>
L 
</td><td>2.5</td></tr>
<tr><td>17</td><td>Touch Panel Newton ring</td><td>Newton ring dimension ≦ 1/2 touch panel area and not affect font and line distortion(≦2.5%) , it is acceptable.</td><td>2.5</td></tr>
<tr><td>18</td><td>Touch Panel Linearity</td><td>Less than 2.5% is acceptable.</td><td>2.5</td></tr>
<tr><td>19</td><td>LCD Ripple</td><td>Touch the touch panel , can not see the LCD ripple.
Pen: R 1.0mm silicon rubber.
Operation Force: 80g</td><td>2.5</td></tr>
<tr><td>20</td><td>General appearance</td><td>20.1 Pin type must match type in specification sheet.
20.2 LCD pin loose or missing pins.
20.3 Product packaging must the same as specified on packaging specification sheet.
20.4 Product dimension and structure must conform to product specification sheet.</td><td>0.65
0.65
0.65
0.65</td></tr>
</table>

12. Handling Precaution:

12-1 Handling of LCM

- Don't give external shock.
- Don't apply excessive force on the surface.
- Liquid in LCD is hazardous substance. Must not lick and swallow. when the liquid is attach to your hand, skin, cloth etc. Wash it out thoroughly and immediately.
- Don't operate it above the absolute maximum rating.
- Don't disassemble the LCM.
- The operators should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such as the LSI pads,the copper leads on the PCB and the interface terminals with any parts of the human body.
- The modules should be kept in antistatic bags or other containers resistant to static for storage.
- The module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

12-2 Storage

- Store in an ambient temperature of 25±10℃, and in a relative humidity of 50±10%RH. Don't expose to sunlight or fluorescent light.
- Storage in a clean environment, free from dust, active gas, and solvent.
- Store in anti-static electricity container.
- Store without any physical load.

12-3 Soldering

- Use only soldering irons with proper grounding and no leakage.
- Iron: No higher than 310±10℃ and less than 3 sec during Hand soldering.
- Rewiring: no more than 2 times.

13. Warranty

This product has been manufactured to specifications 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 will not take responsibility if the product is used in medical devices, 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. If the product is to be used in any of the above applications, we will need to enter into a separate product liability agreement.

1. We cannot accept responsibility for any defect arise after additional process of the product (including disassembly and reassembly), after product delivery.
2. We cannot accept responsibility for any defect, which may arise after the application of strong external force to the product.
3. We cannot accept responsibility for any defect, which may arise due to the application of static electricity after the product has passed your company's acceptance inspection procedures.
4. We can not accept responsibility for industrial property, which may arise through the use of your product , with exception to those issues relating directly to the structure or method of manufacturing of our product within one year from All Shore shipment.
5. For Heatseal Product which required to heatseal by customer side, parts must be used within three months after delivery from factory.
6. For TAB Product which required to solder by customer side, parts must be used within three months after delivery from factory.
7. The liability of ASI is limited to repair or replacement on the terms set forth below. ASI will not be responsible for any subsequent or consequential events or injury or damage to any personnel or user including third party personnel and/or user. Unless otherwise agreed in writing between ASI and the customer, ASI will only replace or repair any of its LCD which is found defective electrically or visually when inspected in accordance with ALL SHORE GENERAL LCD INSPECTION STANDARD.

14. Guarantee:

Our products meet requirements of the environment.
All Shore ROHS requirement is based on European Union Directive 2011/65/EU (ROHS) Requirements and Update.