SPECIFICATION
FOR
LCD MODULE
MODULE NO: YB-TG800320S02A-N-A0

Doc.Version:02

Customer Approval:

☐ Accept   ☐ Reject

YEEBO	NAME	SIGNATURE	DATE
Prepare	Electronic Engineer		
Check	Mechanical Engineer		
Verify			
Approval			

☐APPROVAL FOR SPECIFICATIONS ONLY

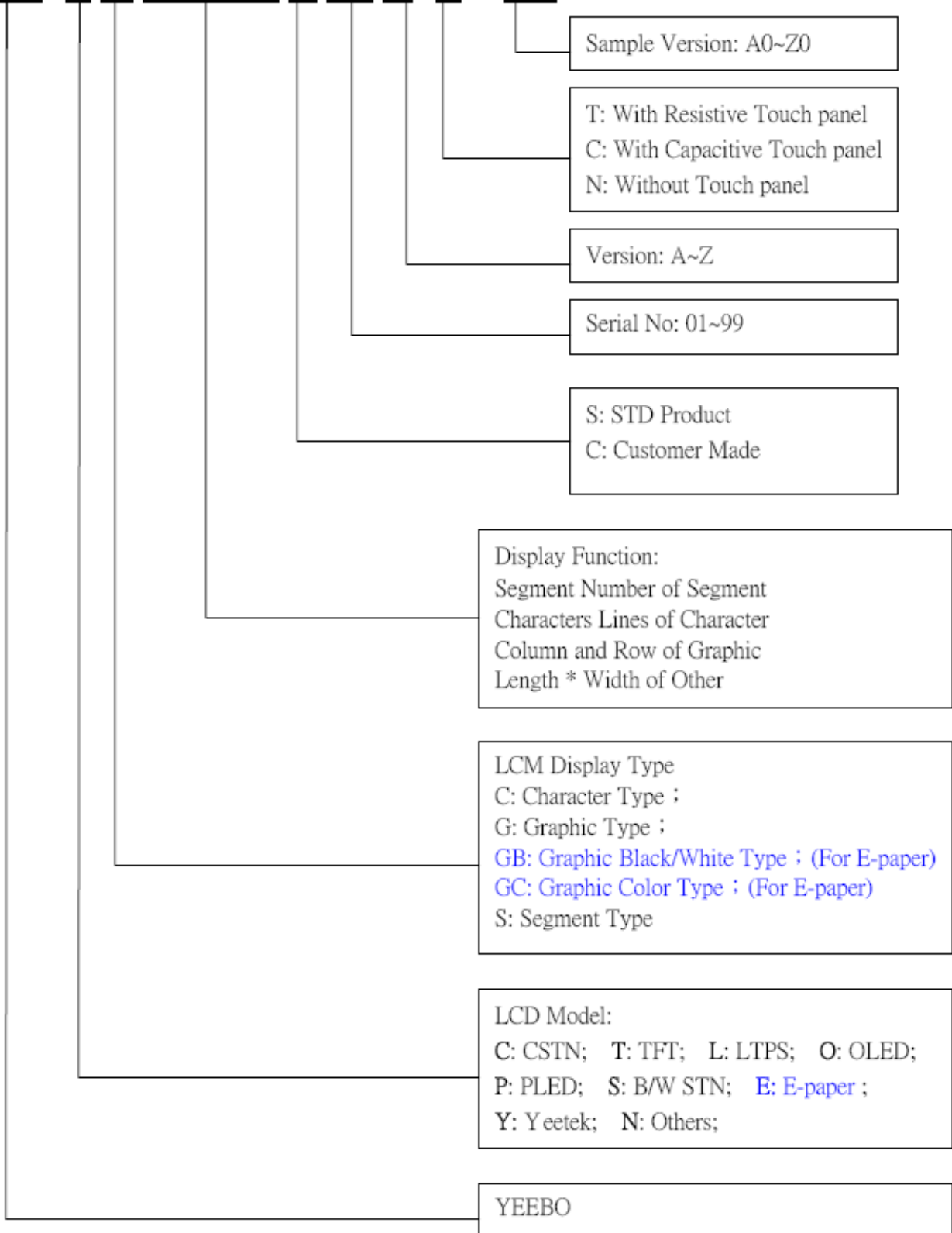■ APPROVAL FOR SPECIFICATIONS AND SAMPLE

WIMRD005-02-D

1. Revision History

Sample Version	DOC. Version	DATE	DESCRIPTION		CHANGED BY
A0	00	2020-01-14	SPEC ONLY	First issue	G.W.L/ Dai
A0	01	2020-09-04	Full SPEC	First Sample	W.J.C/ Dai
A0	02	2020-10-15	Full SPEC	Modify Luminous Intensity for LCM.......P13	W.J.C/ Allenson

2. Table of Contents:

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3. Module Numbering System:

(Example)

YB- T G 240320 S 01 D -T – A0

Sample Version: A0~Z0

T: With Resistive Touch panel
C: With Capacitive Touch panel
N: Without Touch panel

Version: A~Z

Serial No: 01~99

S: STD Product
C: Customer Made

Display Function:
Segment Number of Segment
Characters Lines of Character
Column and Row of Graphic
Length * Width of Other

LCM Display Type
C: Character Type；
G: Graphic Type；
GB: Graphic Black/White Type；(For E-paper)
GC: Graphic Color Type；(For E-paper)
S: Segment Type

LCD Model:
C: CSTN;   T: TFT;   L: LTPS;   O: OLED;
P: PLED;   S: B/W STN;   E: E-paper ;
Y: Yeetek;   N: Others;

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## 4. General Specification:

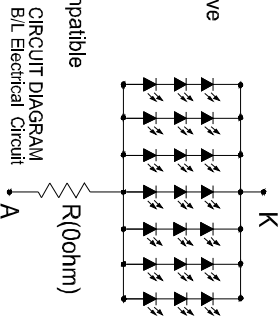| ITEM	CONTENTS
Module Size	164.9(W) *72.456 (H) *3.71 (T) mm
Module Size(With FPC)	164.9(W) *152.616(H) *3.71(T) mm
Display Size (Diagonal)	6.5 inch
Display Format	800(RGB)* 320 Pixels
Active Area	153.84 (W) * 57.088 (H) mm
Dots Pitch	0.1923 * 0.1784 mm
LCD Type	TFT (16.7M)/ Transmissive / Normal White
View Angle (Gray Inversion)	6 O'clock
The Best Viewing Direction	12 O'clock
Controller IC	EK9716BD +EK73002AB or Compatible
Weight	449.8g

5. LCM drawing:
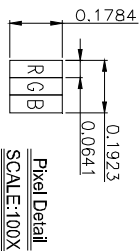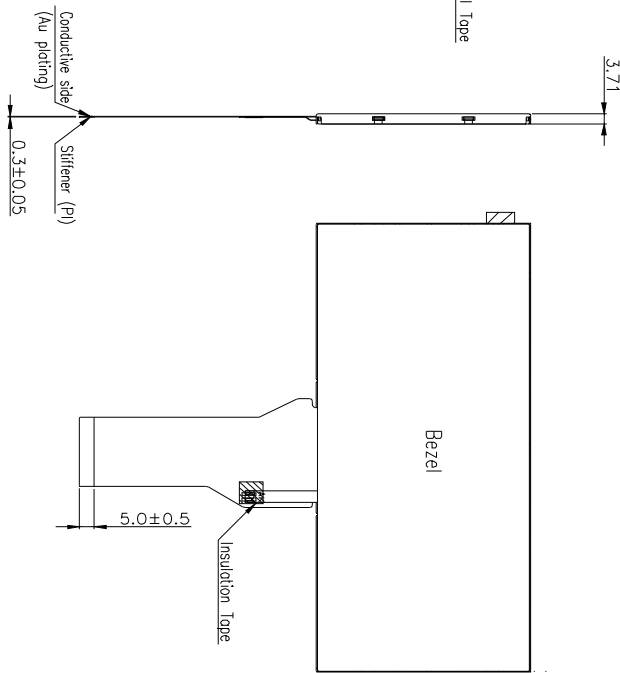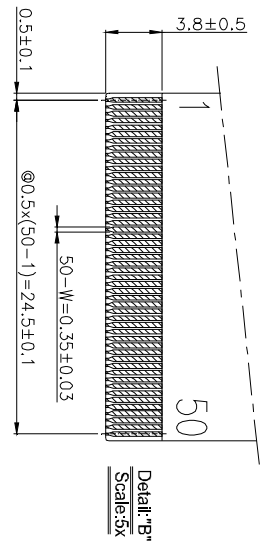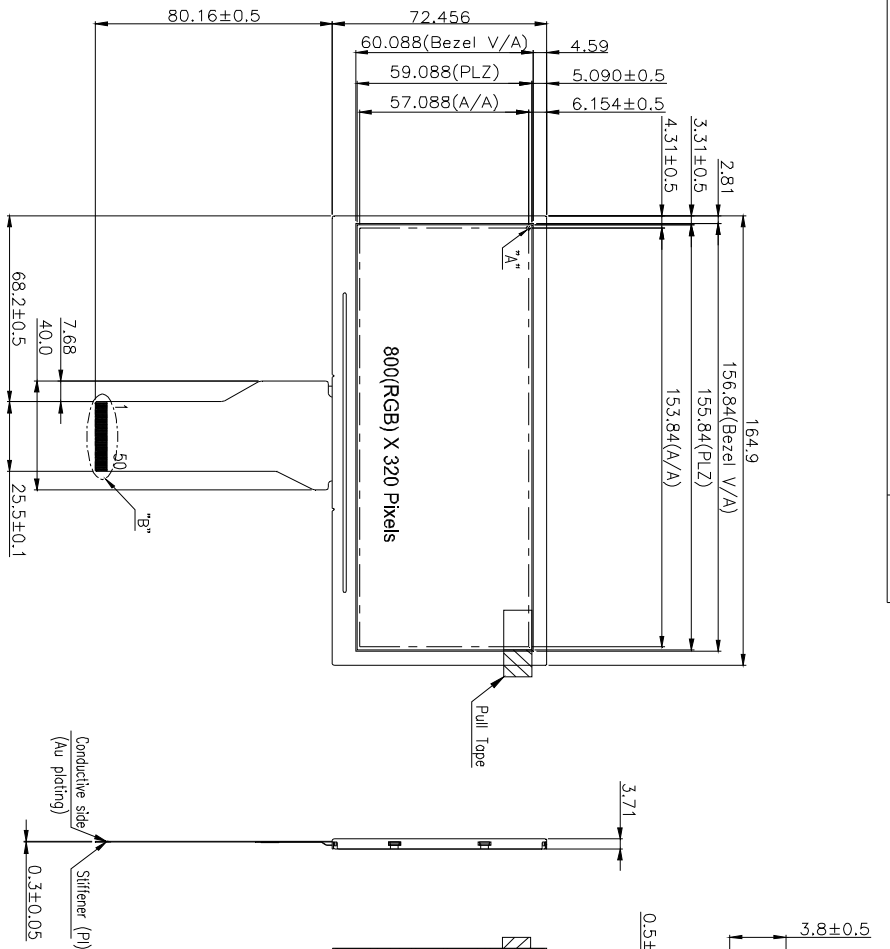
Specification:
1. Display mode: 6.5" TFT/Normally white/Transmissive
2. Viewing Direction (Gray Inversion): 6 o'clock
   The Best Viewing Direction: 12 o'clock
3. Operating temperature: -20°C to +70°C
   Storage temperature: -30°C to +80°C
4. Controller IC: EK9716BD4 + EK73002AB2 or Compatible
5. Backlight color: White(LEDX21);
6. Unspecified tolerance: ±0.30mm
7. ROHS compliant

CIRCUIT DIAGRAM
B/L Electrical Circuit

800(RGB) X 320 Pixels

Pull Tape

Conductive side
(Au plating)
Stiffener (PI)
0.3±0.05

Bezel

Insulation Tape
5.0±0.5

Pixel Detail
SCALE:100X
R G B
0.1784
0.1923
0.0641

Detail "B"
Scale:5x
3.8±0.5
0.5±0.1
@0.5x(50-1)=24.5±0.1
50-W=0.35±0.03
50

3.71

LCD MODULE FPC PIN OUT	
NO.	SYMBOL
1	LED+
2	LED+
3	LED-
4	LED-
5	GND
6	VCOM
7	DVDD
8	MODE
9	DE
10	VSYNC
11	HSYNC
12	B7
13	B6
14	B5
15	B4
16	B3
17	B2
18	B1
19	B0
20	G7
21	G6
22	G5
23	G4
24	G3
25	G2
26	G1
27	G0
28	R7
29	R6
30	R5
31	R4
32	R3
33	R2
34	R1
35	R0
36	GND
37	DCLK
38	GND
39	LCD_LR
40	LCD_UD
41	VGH
42	VGL
43	AVDD
44	RST_LCD_N
45	NC
46	VCOM
47	LCD_DITHB
48	GND
49	NC
50	NC

YEEBO
UNIT: mm SIZE: A4 SCALE: N-T-S
MOD. Name: YB-TG800320S02A-N-A
DESIGNED: 戴文彬 2020-01-13
CHECKED VERIFIED APPROVED
FILE NAME
Count Dwg.
Sheet 1 Of 1

80.16±0.5
72.456
60.088(Bezel V/A)
59.088(PLZ)
57.088(A/A)
4.59
5.090±0.5
6.154±0.5
2.81
3.31±0.5
4.31±0.5
"A"
164.9
156.84(Bezel V/A)
155.84(PLZ)
153.84(A/A)
68.2±0.5
7.68
40.0
1-50
25.5±0.1
"B"

R(0ohm)
A
K

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6. Electrical Characteristics

6-1 Absolute Maximum Ratings

TFT IC Parameter (EK9716BD &EK73002AB)   **(Ta=25℃ VSS=0V)**

Item	Symbol	Min.	Type	Max.	Unit	Remark
Power Supply voltage	DVDD	-0.3		5.0	Volt	
	VDDA	-0.5	-	13.5	Volt	
	VGH	-0.3		42	Volt	
	VGL	VGG-42		-0.3	Volt	
	VGH-VGL	-0.3	-	40	Volt	DVDD =3.3V
Operating Temperature	Topr	-20	-	+70	℃	
Storage Temperature	Tstg	-30	-	+80	℃	

6-2 Operating Conditions

TFT IC Parameter (EK9716BD &EK73002AB)   **(Ta=25℃)**

| Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply voltage	VDD	-	3.1	3.3	3.5	Volt
	AVDD	-	10.1	10.3	10.5	Volt
	VCOM	-	3.2	3.38	3.5	Volt
	VGH		17.8	18.0	18.2	Volt
	VGL	-	-7.8	-8.0	-8.2	Volt
Level Input Voltage (Digital signal)	VIH	-	0.7*VDD	-	VDD	Volt
	VIL	-	GND	-	0.3*VDD	Volt
	VOH	-	VDD-0.4	-	VDD	Volt
	VOL	-	GND	-	GND+0.4	Volt
Power Supply Current for LCM	DVDD_IDD	DVDD=3.3V	-	10	15	mA

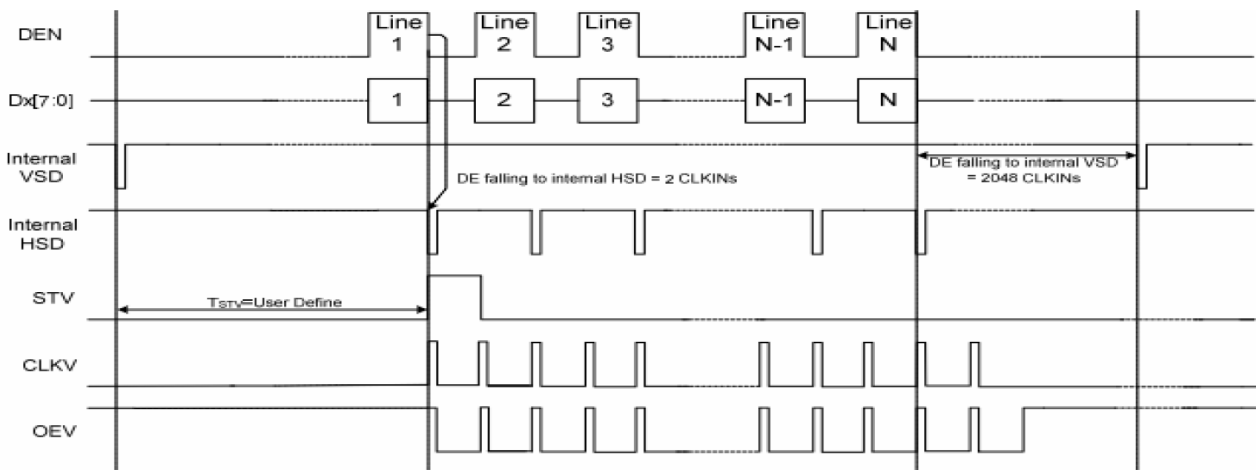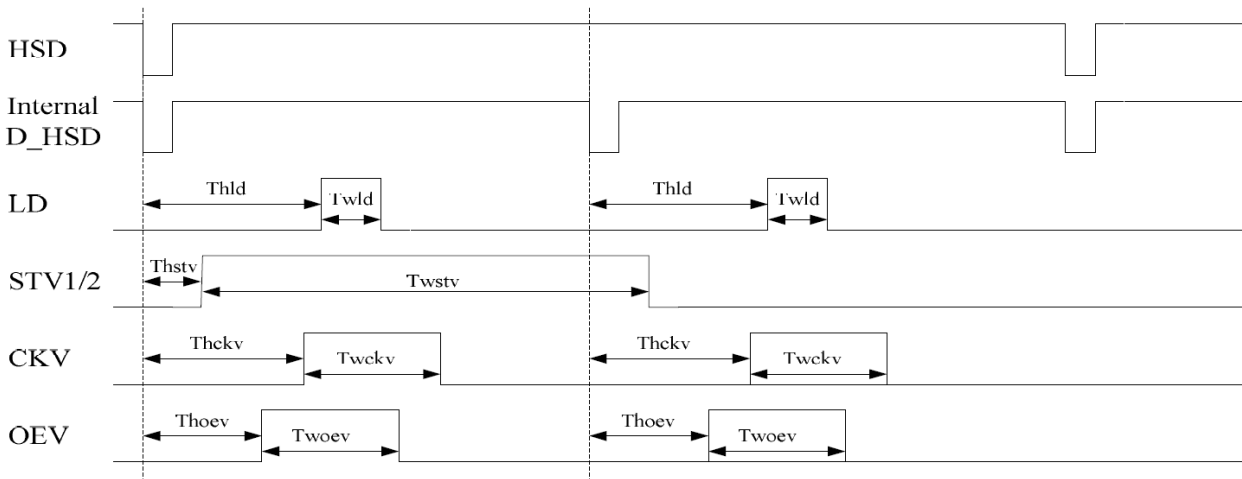## 6-3 Data Input Timing
6-3-1 TFT Data Input Timing
DE MODE (MODE=H)

SYNC MODE(MODE=L)
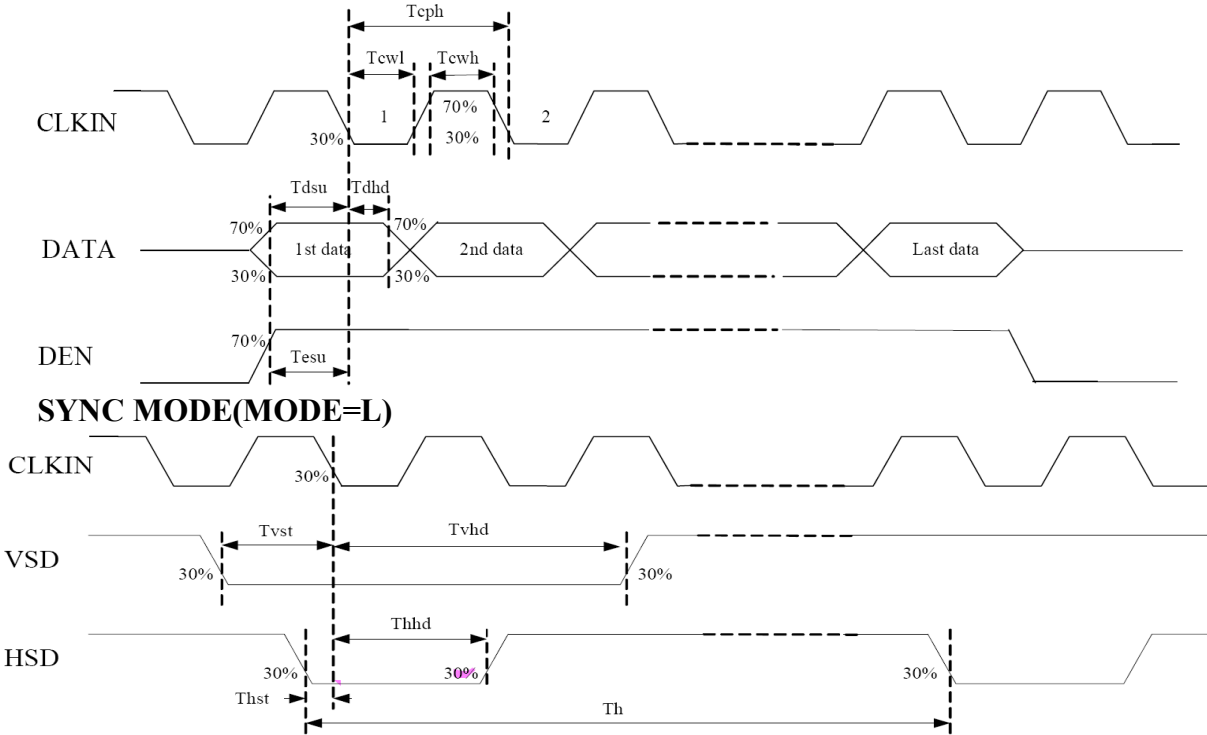
Vertical Timing Diagram SYNC (Dual Gate)
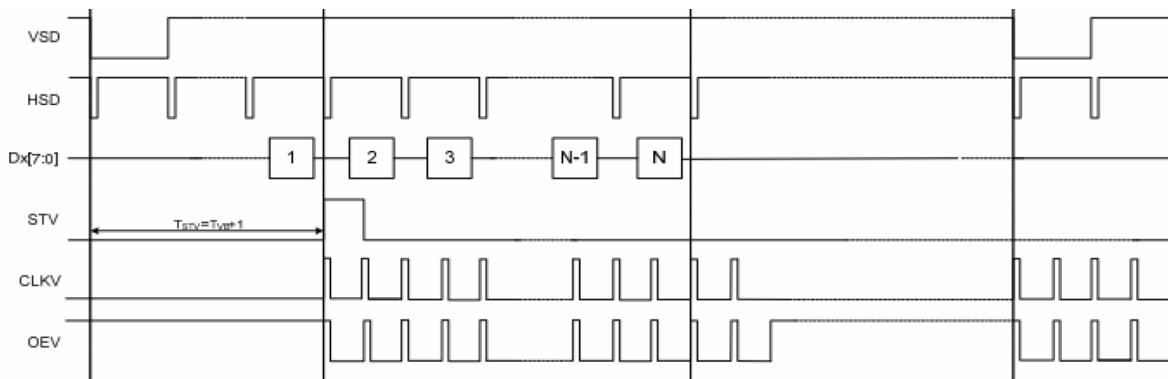
Vertical Timing Diagram DE (Dual Gate)

Gate output Timing Diagram (Dual Gate)

AC Electrical Characteristics (VDD =3.0~3.6V, VDDA=6.5~13.5V, AGND=DGND=0V, TA= -20~85≥)

Parameter	Symbol	Value			Unit	Note
Horizontal display area	thd	800			DCLK	
DCLK frequency	fclk	Min.	Typ.	Max	MHz	
		20	33.3	50		
1 Horizontal Line	th	908	928	1088	DCLK	thb+thpw=88 DCLK is fixed.
HSD pulse width	thpw	1	48	87		
HSD Back Porch (Blanking)	thb	87	40	1		
HSD Front Porch	thfp	20	40	200		

Horizontal input timing

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Vertical display area	tvd		480		H	
VSD period time	tv	517	525	712	H	tvpw+tvb=32H is fixed
VSD pulse width	tvpw	1	1	3	H	
VSD Back Porch (Blanking)	tvb	31	31	29	H	
VSD Front Porch	tvfp	5	13	200	H	

Vertical input timing

7. Optical Characteristics:

Item		Symbol	Conditions	Specifications			Unit	Note
				Min	Typ	Max		
Transmittance		T(%)	-	5.2	5.7	-	-	-
Contrast Ratio		CR	θ=0 Normal Viewing angle	350	500	-		(1) (2)
Response time		TR+TF	-	-	25	-	ms	(1) (3)
Viewing angle	Hor.	Θx+	CR≧10	60	70	-	deg.	-
		Θx-		60	70	-		
	Ver.	Θy+		40	50	-		
		Θy-		50	60	-		

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 Color Degree	0.5070	0.5570	0.6070
		y		0.2702	0.3202	0.3702
	Green	x		0.3085	0.3585	0.4085
		y		0.5316	0.5816	0.6316
	Blue	x		0.1018	0.1518	0.2018
		y		0.0576	0.1076	0.1576
	White	x		0.2412	0.2912	0.3412
		y		0.2646	0.3146	0.3646

Note (1) Definition of Viewing Angle :
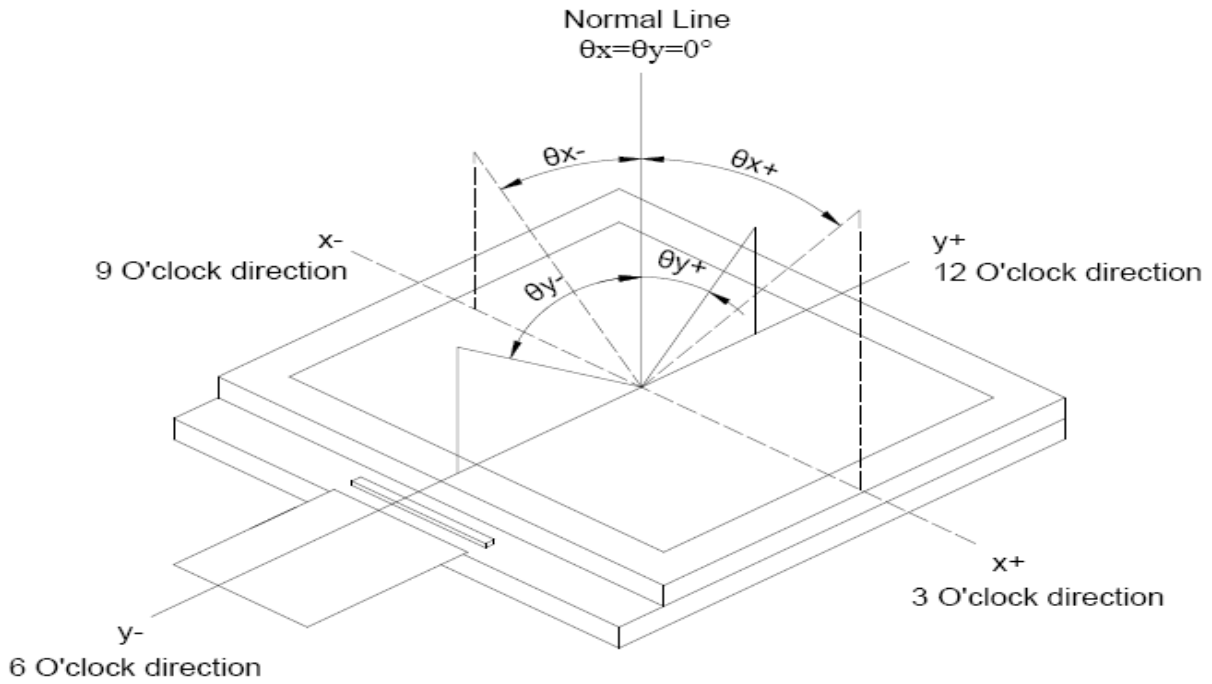
Note (2) Definition of Contrast Ratio(CR) :
    measured at the center point of panel

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

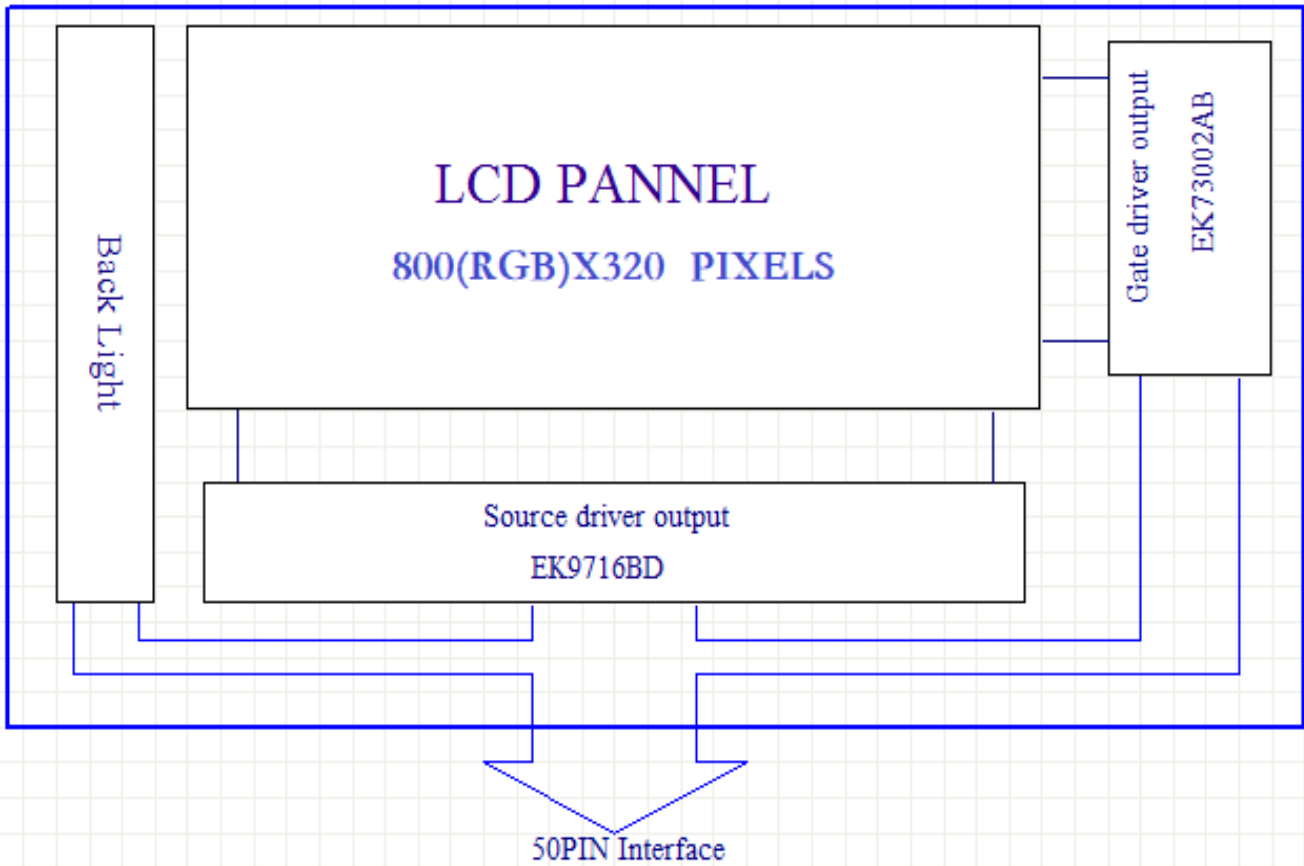Note (3) Definition of Response Time : Sum of TR and TF
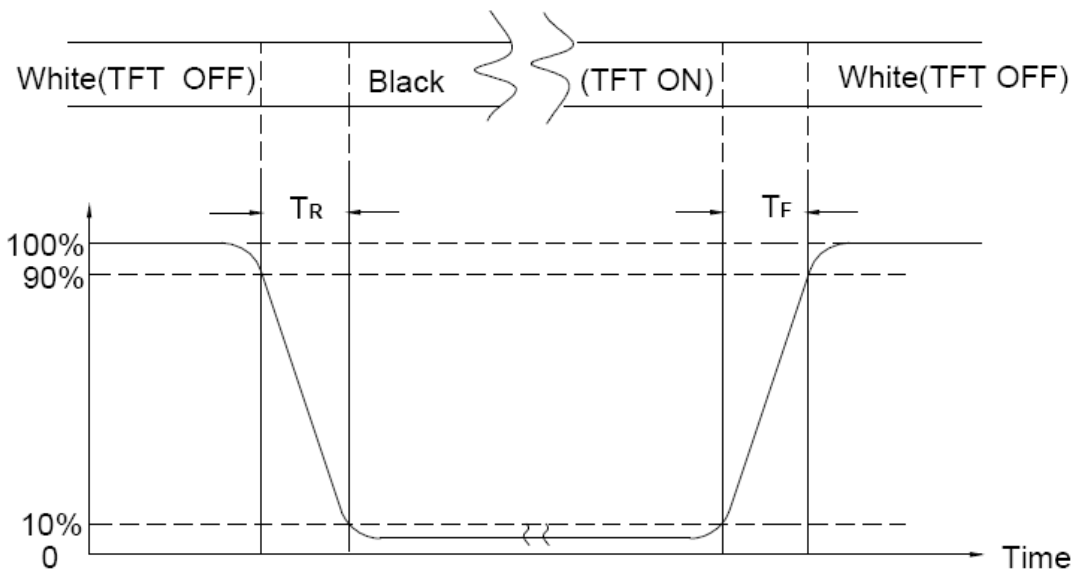
8. Interface Pin Assignment:

8-1 LCM FPC Interface

No.	Symbol	Function
1~2	VLED+	Power for LED backlight (Anode)
3~4	VLED-	Power for LED backlight (Cathode)
5	GND	Power ground
6	VCOM	Common voltage input.
7	DVDD	Power supply.
8	MODE	DE/SYNC mode select. Normally pull high H:DE mode. L:HSD/VSD mode
9	DE	Data Enable signal
10	VS	Vertical sync input. Negative polarity
11	HS	Horizontal sync input. Negative polarity
12~19	B7~B0	Blue Data Input
20~27	G7~G0	Green Data Input
28~35	R7~R0	Red Data Input
36	GND	Power ground
37	DCLK	Data clock Input
38	GND	Power ground
39	L/R	Left or Right Display Control
40	U/D	Up / Down Display Control
41	VGH	Positive Power for TFT.
42	VGL	Negative Power for TFT.
43	AVDD	Analog Power input.
44	RESET	Global reset pin. Active Low to enter Reset State. (Normally pull high.) Suggest to connecting with an RC reset circuit for stability.
45	NC	No connection
46	VCOM	Common voltage input.
47	DITHB	Dithering function enable control. (Normally pull high) DITHB = "1", Disable internal dithering function DITHB = "0", Enable internal dithering function
48	GND	Power ground
49	NC	No connection
50	NC	No connection

9. Block Diagram:

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┌──────────────────────────────────────────────────────────────────┐
│  ┌────────┐   ┌──────────────────────────────────┐  ┌──────────┐ │
│  │        │   │                                  │  │          │ │
│  │        │   │        LCD PANNEL                 │  │ Gate     │ │
│  │ Back   │   │   800(RGB)X320  PIXELS            │  │ driver   │ │
│  │ Light  │   │                                  │  │ output   │ │
│  │        │   │                                  │  │ EK73002AB│ │
│  │        │   │                                  │  │          │ │
│  │        │   └──────────────────────────────────┘  └──────────┘ │
│  │        │                                                       │
│  │        │   ┌──────────────────────────────────┐               │
│  │        │   │    Source driver output          │               │
│  │        │   │        EK9716BD                   │               │
│  └────────┘   └──────────────────────────────────┘               │
│                                                                    │
└──────────────────────────────────────────────────────────────────┘
                         ▼ 50PIN Interface
```

10. 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 Current	I	-	140	-	mA	V=9.6V	
Supply Voltage	V	8.7	9.6	10.2	V		
Luminous Intensity for LCM	IV	400	500	-	Cd/m2	If=140mA	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 follow: the final brightness is at 50% of original brightness

Measured Method: (X*Y: Light Area)   **Internal Circuit Diagram**
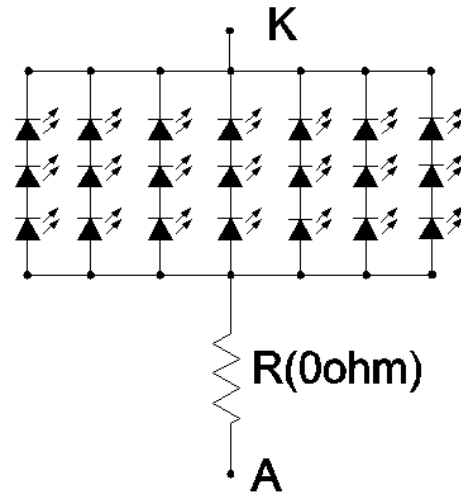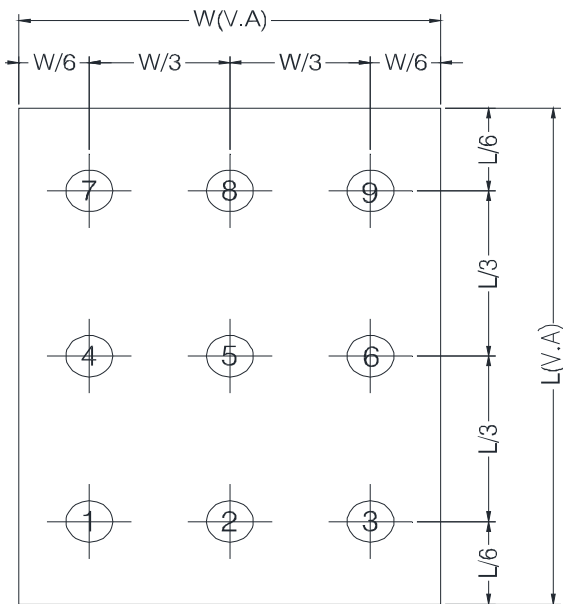
Using aperture of 1°,distance 50cm.

11. Standard Specification for Reliability .:

12–1. 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

12 - 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.

12- 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.

12. Specification of Quality Assurance:

13-1. Purpose

This standard for Quality Assurance should affirm the quality of LCD module products to supply to purchaser by YEEBO CORPORATION (Supplier).

13-2. 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

13-3. 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.

13-4. 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.

13-5. 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
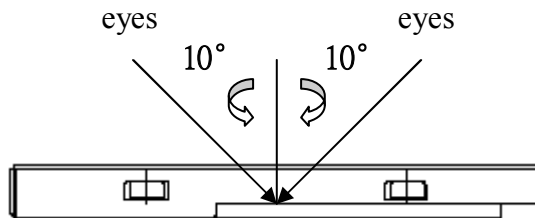
        (iv) Definition of area:
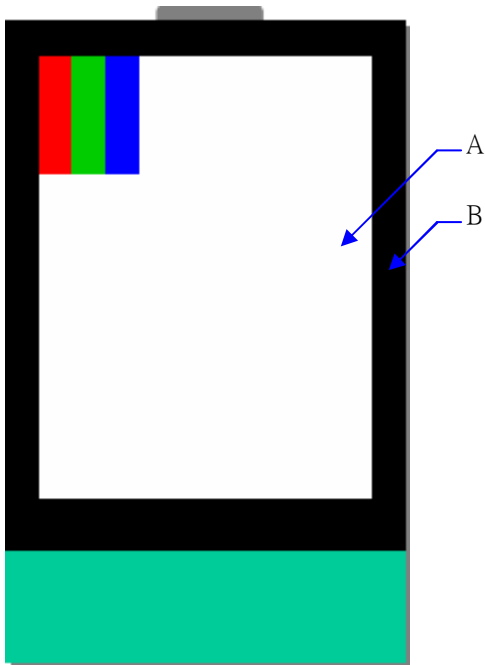
A. Area: Viewing area.

B. Area: Out of viewing area.

          (Outside viewing area)

  b. Basic principle:
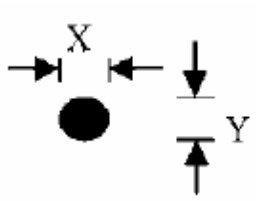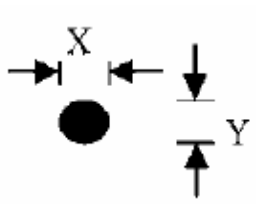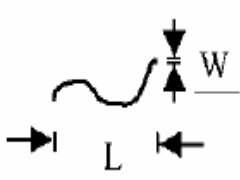
   (i) It will accord to the AQL when the standard can not be described.
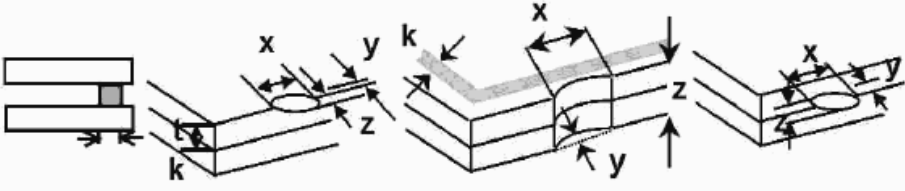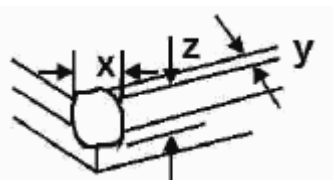
   (ii) The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.
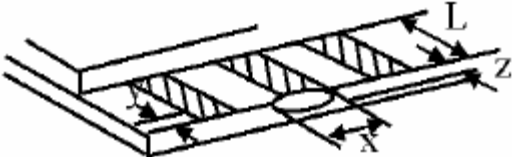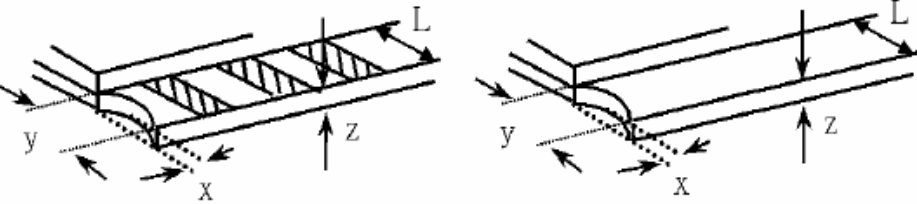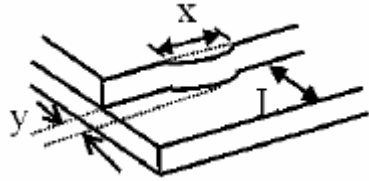
   (iii) Must add new item on time when it is necessary.

  c. Standard of inspection: (Unit: mm)
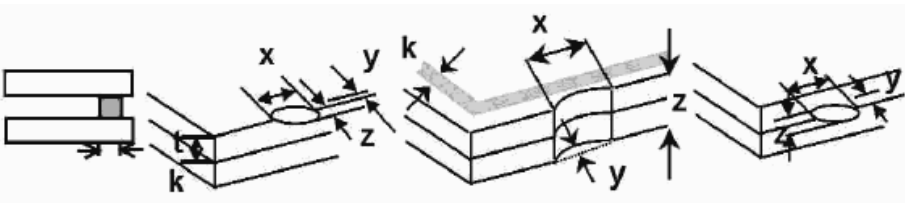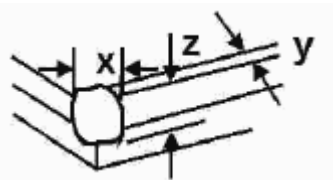
13-6. Inspection specification
Defect out of viewing area can be neglected.

NO	Item	Criterion	AQL
01	Electrical Testing	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	**0.65**
02	Black or White spots or Bright spots or Color spots on LCD (Display only)	2.1 Dot dimension as below drawing: $\Phi = (X+Y) / 2$ <table><tr><td>Size(mm)</td><td>Acceptable Q'ty</td></tr><tr><td>$\Phi \leqq 0.20$</td><td>Accept no dense</td></tr><tr><td>$0.20 < \Phi \leqq 0.40$</td><td>5</td></tr><tr><td>$0.40 < \Phi$</td><td>0</td></tr></table> 2.2 Not visible through 5% ND filter * Densely spaced: No more than two spots within 3mm.	**2.5**
03	LCD and Touch Panel black spots, white spots, contamination (non – display)	3.1 Round type: As following drawing $\Phi = (X+Y) / 2$ <table><tr><td>Size(mm)</td><td>Acceptable Q'ty</td></tr><tr><td>$\Phi \leqq 0.20$</td><td>Accept no dense</td></tr><tr><td>$0.20 < \Phi \leqq 0.40$</td><td>5</td></tr><tr><td>$0.40 < \Phi$</td><td>0</td></tr></table> * Densely spaced: No more than two spots within 3mm. 3.2 Line type: (As following drawing) <table><tr><td>Length(mm)</td><td>Width(mm)</td><td>Acceptable Q'ty</td></tr><tr><td>$L \leqq 10$</td><td>$W \leqq 0.1$</td><td>Accept no dense</td></tr><tr><td>$L \leqq 10.0$</td><td>$0.1 < W \leqq 0.25$</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.	**2.5** **2.5**
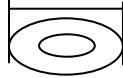
NO	Item	Criterion	AQL
04	Polarizer bubbles	If bubbles are visible, judge using black spot specifications, not easy to find, must check in specify direction <table><tr><td>Size Φ(mm)</td><td>Acceptable Q'ty</td></tr><tr><td>Φ≦0.20</td><td>Accept no dense</td></tr><tr><td>0.20< Φ≦0.50</td><td>4</td></tr><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>	2.5
05	Scratches	Follow NO.3 -2 Line Type.	
06	Mura	Not visible through 5% ND filter in 50% gray.	**2.5**
07	Chipped glass	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><td>z: Chip thickness</td><td>y: Chip width</td><td>x: Chip length</td></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><td>z: Chip thickness</td><td>y: Chip width</td><td>x: Chip length</td></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	2.5

NO	Item	Criterion	AQL
08	Glass crack	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: 8.1.2 Non-conductive portion: ⊙ 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 	2.5

Table (8.1.1):

y: Chip width	x: Chip length	z: Chip thickness
$y \leqq 0.5mm$	$x \leqq 1/8a$	$0 < z \leqq t$

Table (8.1.2):

y: Chip width	x: Chip length	z: Chip thickness
$y \leqq L$	$x \leqq 1/8a$	$0 < z \leqq t$

Table (8.1.3):

y: width	x: length
$y \leqq 1/3L$	$X \leqq a$

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.	2.5 2.5 2.5 2.5 0.65 0.65
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

NO	Item	Criterion	AQL
15	Touch Panel Chipped glass	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: 	2.5

z: Chip thickness	y: Chip width	x: Chip length
Z≦t	≦1/2 k and not over viewing area	x≦1/8a

⊙ Unit: mm
⊙ If there are 2 or more chips, x is the total length of each chip

15.1.2 Corner crack:

z: Chip thickness	y: Chip width	x: Chip length
z≦t	≦1/2 k and not over viewing area	x≦1/8a

⊙ Unit: mm
⊙ If there are 2 or more chips, x is the total length of each chip

NO	Item	Criterion	AQL
16	Touch		2.5

	Panel(Fish eye)	SIZE(mm)	Acceptable Q'ty		
		L≦0.7	Accept no dense	L	
		L>0.7mm	0		
17	Touch Panel Newton ring	Newton ring dimension ≦ 1/2 touch panel area and not affect font and line distortion(≦2.5%) , it is acceptable.			2.5
18	Touch Panel Linearity	Less than 2.5% is acceptable.			2.5
19	LCD Ripple	Touch the touch panel , can not see the LCD ripple. Pen: R 1.0mm silicon rubber. Operation Force: 80g			2.5
20	General appearance	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.			0.65 0.65 0.65 0.65

13. Handling Precaution:

13-1 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.

13-2 Storage

- Store in an ambient temperature of $25\pm10℃$, and in a relative humidity of $50\pm10\%RH$. 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.

13-3 Soldering

- Use only soldering irons with proper grounding and no leakage.
- Iron: No higher than $310\pm10℃$ and less than 3 sec during Hand soldering.
- Rewiring: no more than 2 times.

14. 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 YEEBO 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 YB is limited to repair or replacement on the terms set forth below. YB 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 YB and the customer, YB will only replace or repair any of its LCD which is found defective electrically or visually when inspected in accordance with YB GENERAL LCD INSPECTION STANDARD.

15. Guarantee:

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