SPECIFICATION
FOR
LCD MODULE
MODULE NO: YB-TG720720S01A-N-A0

Doc.Version:02

Customer Approval:

□ Accept	□ Reject

YEEBO	NAME	SIGNATURE	DATE
Prepare	Electronic Engineer	梁锦豪	2020-09-18
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	2020-07-17	SPEC ONLY	First issue	LJH/Allenson
A0	01	2020-07-21	SPEC ONLY	Modify Drawing	LJH/Allenson
A0	02	2020-09-18	SPEC ONLY	First Sample	LJH/Allenson

2. Table of Contents:

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;
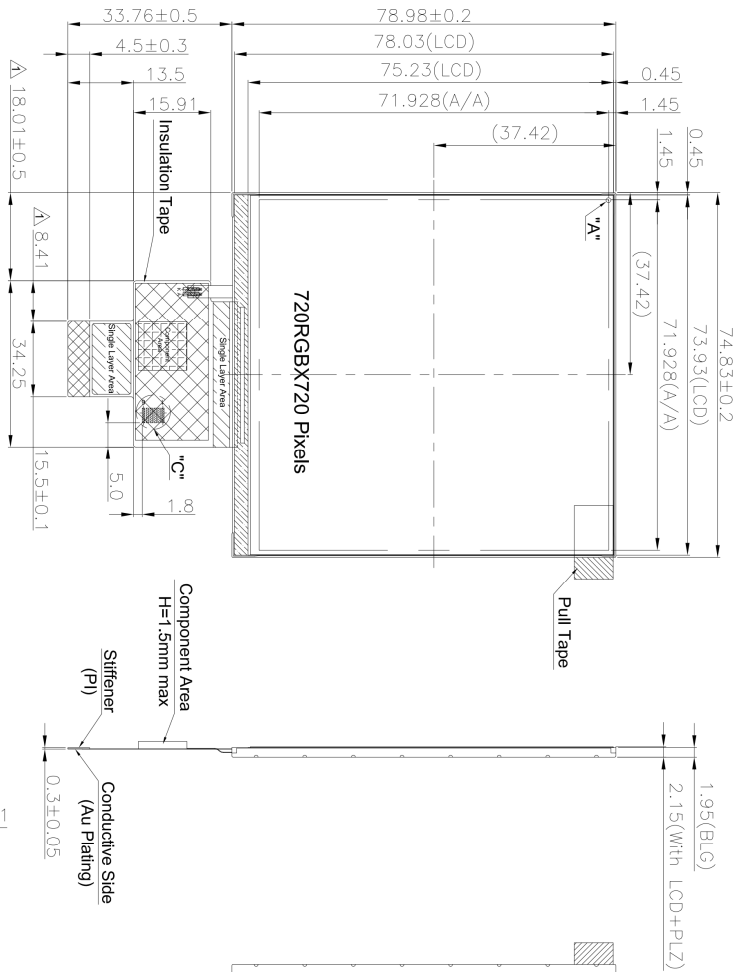
YEEBO

4. General Specification:

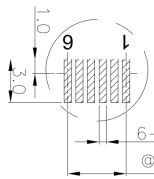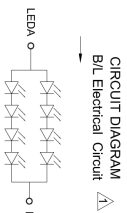| ITEM	CONTENTS
Module Size	74.83 (W) * 78.98 (H) * 2.15 (T) mm
Module Size (with FPC)	74.83 (W) * 112.74 (H) * 2.15 (T) mm
Display Size (Diagonal)	3.95 inch
Display Format	720(RGB)*720 Pixels
Active Area	71.928(H) × 71.928(V)
Pixel Pitch	0.0999(H) mm*0.0999 (V) mm
LCD Type	TFT (16.7M)/ Transmissive / NB
The Best Viewing Direction	FREE
Controller IC	ST7703
Weight	26.5g

Specification:
1. Display mode: 3.95" TFT/ Transmissive / Normally Black
2. Display Color: 16.7M
3. Viewing Direction: Free
4. Controller IC: ST7703 or Compatible
5. Operating temperature: -20°C to +70°C
   Storage temperature: -30°C to +80°C
6. Backlight: 8 chips White LED
7. Unspecified tolerance: ±0.30mm.
8. ROHS compliant

CIRCUIT DIAGRAM
B/L Electrical Circuit

Detail:"C" Scale:3X

Detail:"B" Scale:3X

Detail:"A" Scale:120X

Component Area H=1.5mm max

Stiffener (PI)

Conductive Side (Au Plating)

720RGBX720 Pixels

Insulation Tape

Pull Tape

Bezel

Count drawing & Spec.revision record during discussion with customer

Rec.	Revision content description	Date
#1	FIRST ISSUE	2020-07-17
#2	Modify PIN ASSIGNMENT & Drawing	2020-07-21
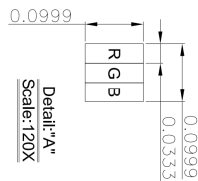
YEEBO

UNIT	SIZE	SCALE
mm	A4	N-T-S

MOD. Name	DESIGNED	CHECKED	VERIFIED	APPROVED
YB-TG720720S01A-N-A	王琬琳			
	2020-07-21	2020/7/21	2020/7/21	2020/7/21

Count Dwg.

FILE NAME

Sheet 1 Of 1

LCD MODULE FPC PIN OUT		CTP PIN ASSIGNMENT	
1	LEDA	1	TP_INT
2	LEDK	2	TP_SCL
3	LEDK	3	TP_SDA
4	VCI	4	TP_RESET
5	IOVCC	5	TP_VCI
6	RESET	6	TP_GND
7	TE		
8	PWM		
9	GND		
10	D0P		
11	D0N		
12	GND		
13	D1P		
14	D1N		
15	GND		
16	CLKP		
17	CLKN		
18	GND		
19	D2P		
20	D2N		
21	GND		
22	D3P		
23	D3N		
24	GND		
25	TP_INT		
26	TP_SDA		
27	TP_SCL		
28	TP_RESET		
29	TP_VCI		
30	TP_GND		

6. Electrical Characteristics

6-1 Absolute Maximum Ratings　　　　　　(Ta=25℃ VSS=0V)

Item	Symbol	Min.	Type	Max.	Unit	Remark
Power Supply Voltage	V_{CI}	-0.3	-	6.6	V	
Logic Input Voltage Range	V_{IH}	-0.3	-	V_{DDI} +0.3	V	
Logic Output Voltage Range	V_{OH}	-0.3	-	V_{DDI} +0.3	V	
Operating Temperature	Topr	-20	-	+70	℃	
Storage Temperature	Tstg	-30	-	+80	℃	

Note1: Absolute maximum rating is the limit value beyond which the IC maybe broken.
　　　　They do not assure operations.

6-2 Operating Conditions　　　　　　　　(Ta=25℃)

Item	Symbol	Condition	Min.	Type	Max.	Unit	Remark
Power Supply Voltage	V_{CI}	-	2.5	2.8	3.6	V	
	IOVCC		1.65	1.8	2.0	V	
IO Supply Voltage	V_{IH}	-	0.7 V_{DDI}	-	V_{DDI}	V	
	V_{IL}	-	V_{SS}	-	0.3 V_{DDI}	V	
	V_{OH}	-	0.8 V_{DDI}	-	V_{DDI}	mA	
	V_{OL}	-	V_{SS}	-	0.2 V_{DDI}	V	
Power Supply Current	I_{DD}	V_{CI}=2.8V	-	40	60	mA	

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6-3 AC Characteristics

DSI Interface Timing Characteristics

High Speed Mode
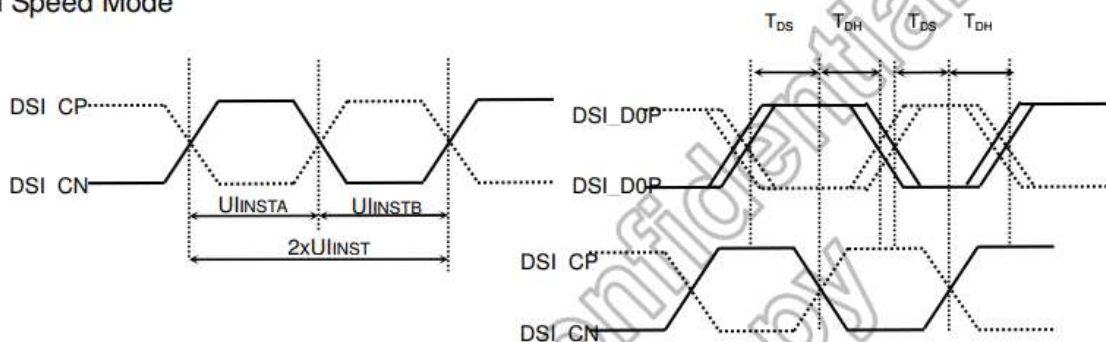
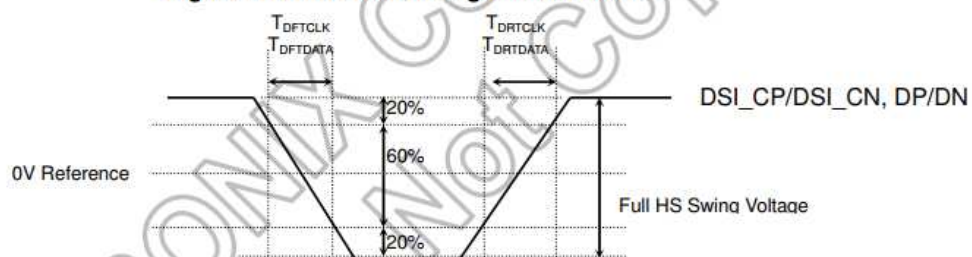Figure 7.4: DSI clock timing Characteristics

Figure 7.5: Rising and falling time on clock and data channel

(VSSA=0V, IOVCC=1.65V to 3.3V, VCI=2.5V to 3.3V, T_A = -30 to 70°C)

Signal	Item	Symbol	Spec. Min.	Spec. Typ.	Spec. Max.	Unit
DSI_CP/ DSI_CN	Double UI instantaneous	$2 \times U_{INST}$	TBD	-	25	ns
	UI instantaneous	U_{INSTA} U_{INSTB}	TBD	-	12.5	ns
DP/DN	Data to clock setup time	T_{DS}	0.15xUI	-	-	ps
	Data to clock hold time	T_{DH}	0.15xUI	-	-	ps
DSI_CP/ DSI_CN	Differential rise time for clock	T_{DRTCLK}	150	-	0.3UI	ps
	Differential fall time for clock	T_{DFTCLK}	150	-	0.3UI	ps
DP/DN	Differential rise time for data	$T_{DRTDATA}$	150	-	0.3UI	ps
	Differential fall time for data	$T_{DFTDATA}$	150	-	0.3UI	ps

Table 7.3: DSI High Speed Mode Characteristics

Low Power Mode
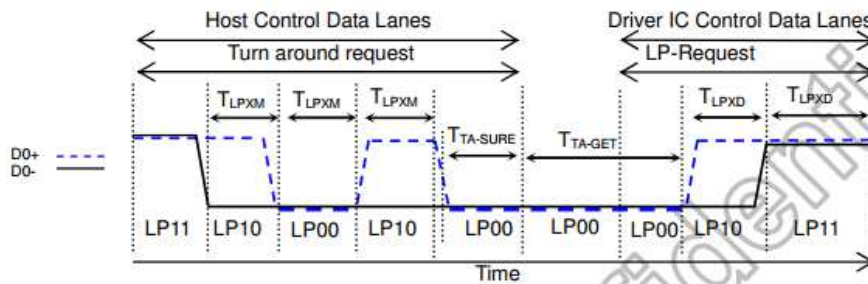
Figure 7.6: BTA from HOST to Display Module Timing
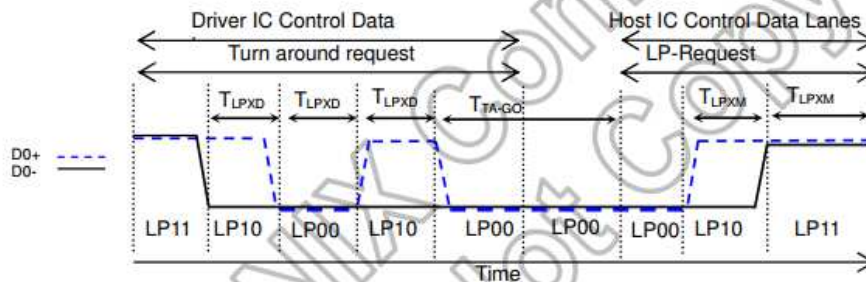
Figure 7.7: BTA from Display Module Timing to HOST

(VSSA=0V, IOVCC=1.65V to 3.3V, VCI=2.3V to 3.3V, T_A = -30 to 70°C)

Signal	Item	Symbol	Spec. Min.	Spec. Typ.	Spec. Max.	Unit
DSI_D0P/ DSI_D0P	Length of LP-00/LP01/LP10/LP11 Host→ Display module	T_{LPXM}	50	-	-	ns
	Length of LP-00/LP01/LP10/LP11 Display module →Host	T_{LPXD}	50	-	-	ns
	Time-out before the MPU start driver	$T_{TA-SURE}$	T_{LPXD}	-	$2 \times T_{LPXD}$	ns
	Time to drive LP-00 by display module	T_{TA-GET}	$5 \times T_{LPXD}$	-	-	ns
	Time to drive LP-00 after turnaround request Host	T_{TAGO}	$4 \times T_{LPXD}$	-	-	ns

Table 7.4: DSI Low Power Mode Characteristics

Reset Timing:
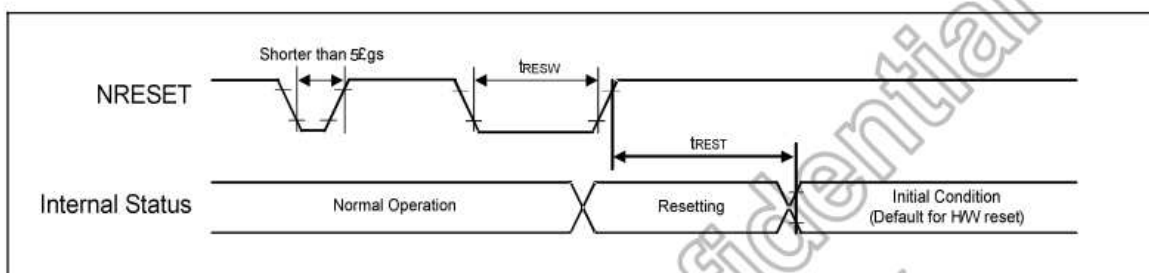
Figure 7.8: Reset input timing

Symbol	Parameter	Related Pins	Spec. Min.	Spec. Typ.	Spec. Max.	Note	Unit
tRESW	Reset low pulse width[1]	NRESET	10	-	-	-	μs
tREST	Reset complete time[2]	-	15	-	-	When reset applied during SLPIN mode	ms
		-	120	-	-	When reset applied during SLPOUT mode	ms

Table 7.8: Reset Input Timing

Power ON/OFF Sequence
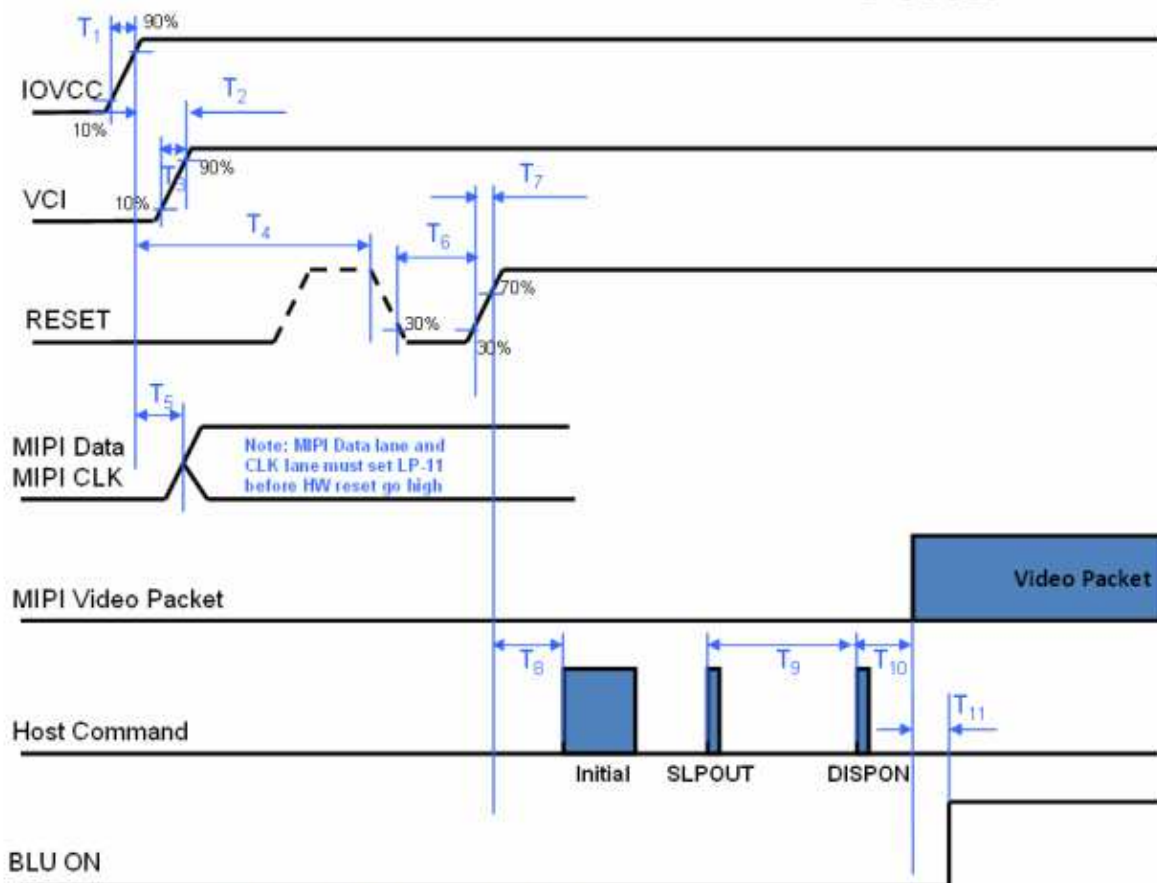
Figure 8-6: DSI Power On Sequence of Power IC Mode

	Min.	Typ.	Max.	Unit
T1	0.01	-	10	ms
T2		No Limit		ms
T3	0.01	-	10	ms
T4	1	-	-	ms
T5	1	-	-	ms
T6	10	-	-	us
T7		No Limit		ns
T8	15	-	-	ms
T9	120	-	-	ms
T10		No Limit		ms
T11	100	150	-	ms

Table 8-1: DSI Power On Timing of Power IC Mode
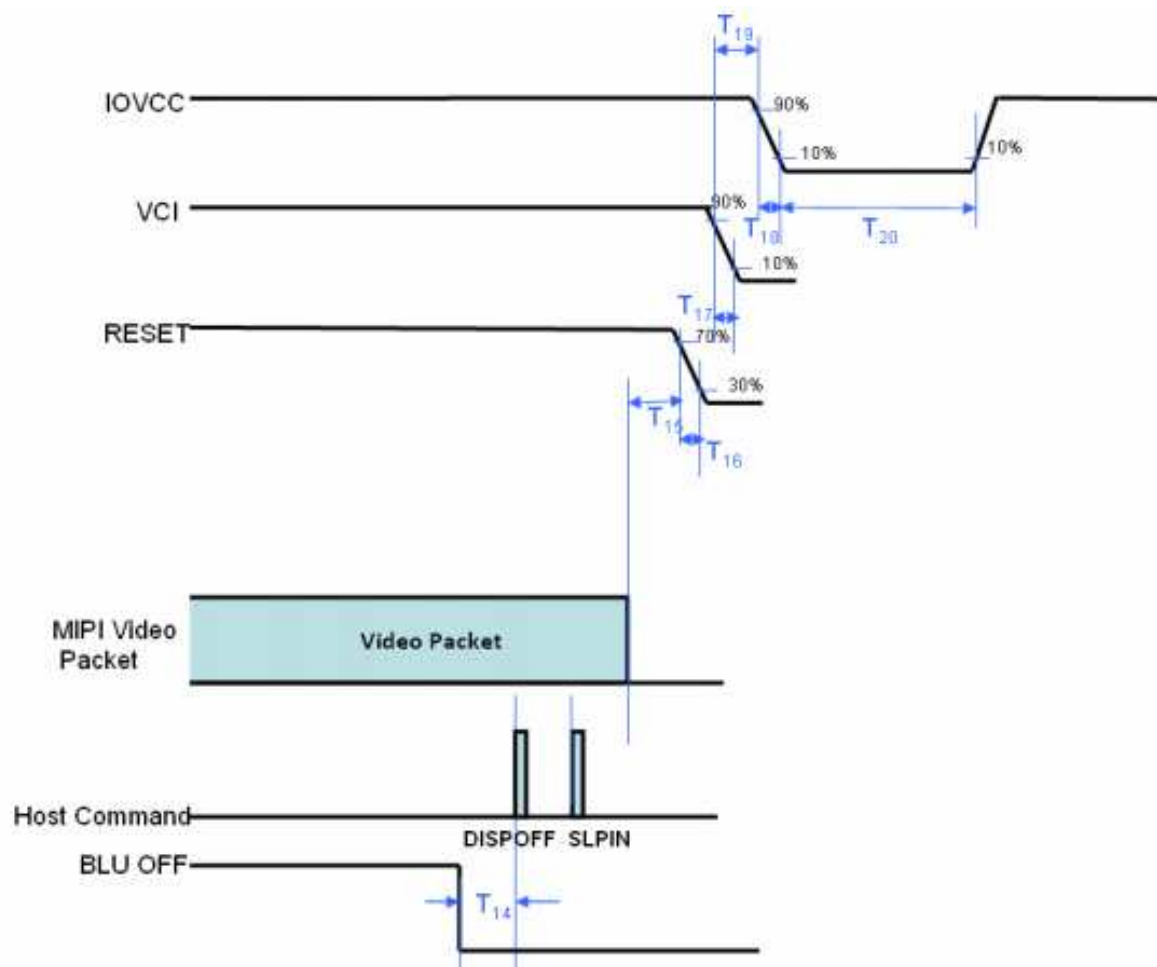
Figure 8-7: DSI Power Off Sequence of Power IC Mode

	Min.	Typ.	Max.	Unit
T14	40	100	-	ms
T15	10	-	-	ms
T16		No Limit		ms
T17		No Limit		ms
T18		No Limit		ms
T19		No Limit		ms
T20	500			ms

Table 8-2: DSI Power Off Timing of Power IC Mode

7. Optical Characteristics:

Item		Symbol	Conditions	Specifications			Unit	Note
				Min	Typ	Max		
Transmittance (with polarizer)		T(%)	-	4.2	4.8	-	-	-
NTSC		%	θ=0	-	60	-	-	-
Contrast Ratio		CR	θ=0 Normal Viewing angle	800	1000	-	-	(1) (2)
Response time		TR+TF	-	-	25	35	ms	(1) (3)
Viewing angle	Hor.	Θx+	CR≧10	-	80	-	deg.	-
		Θx-		-	80	-		
	Ver.	Θy+		-	80	-		
		Θy-		-	80	-		

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	0.5868	0.6368	0.6868
		y		0.2853	0.3353	0.3853
	Green	x		0.2804	0.3304	0.3804
		y		0.5327	0.5827	0.6327
	Blue	x		0.0929	0.1429	0.1929
		y		0.0135	0.0635	0.1135
	White	x		0.2627	0.3127	0.3627
		y		0.2876	0.3376	0.3876

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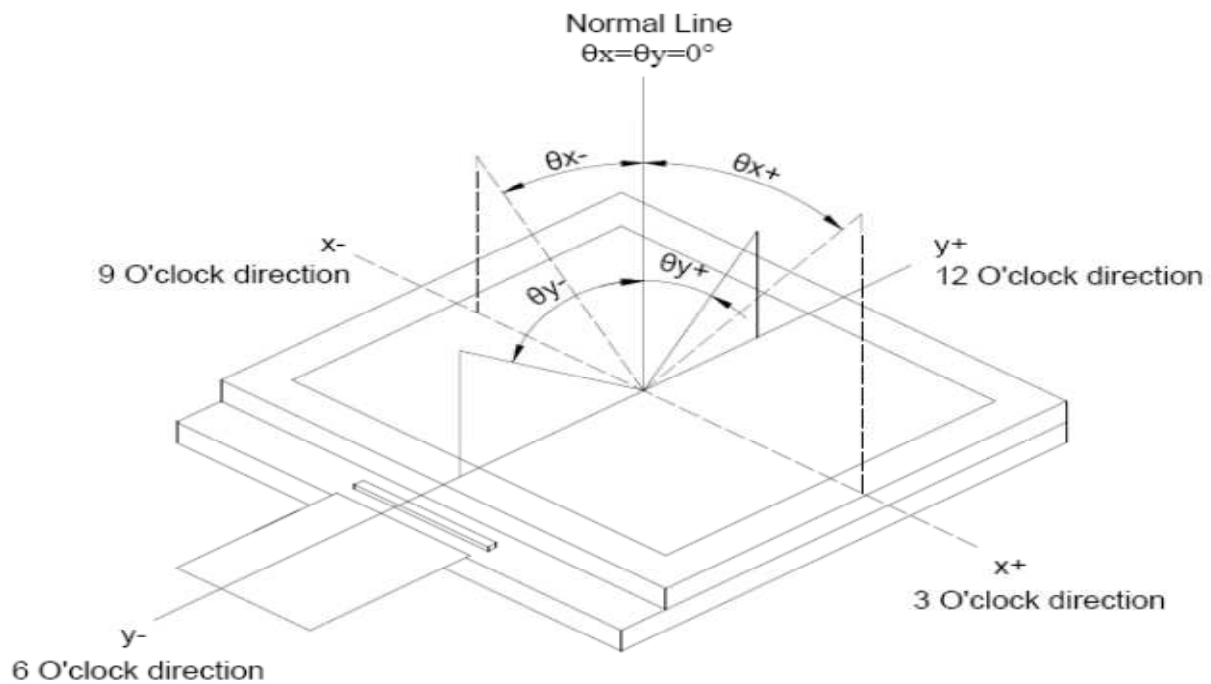
Note (2) Definition of Contrast Ratio(CR) :
measured at the center point of panel

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

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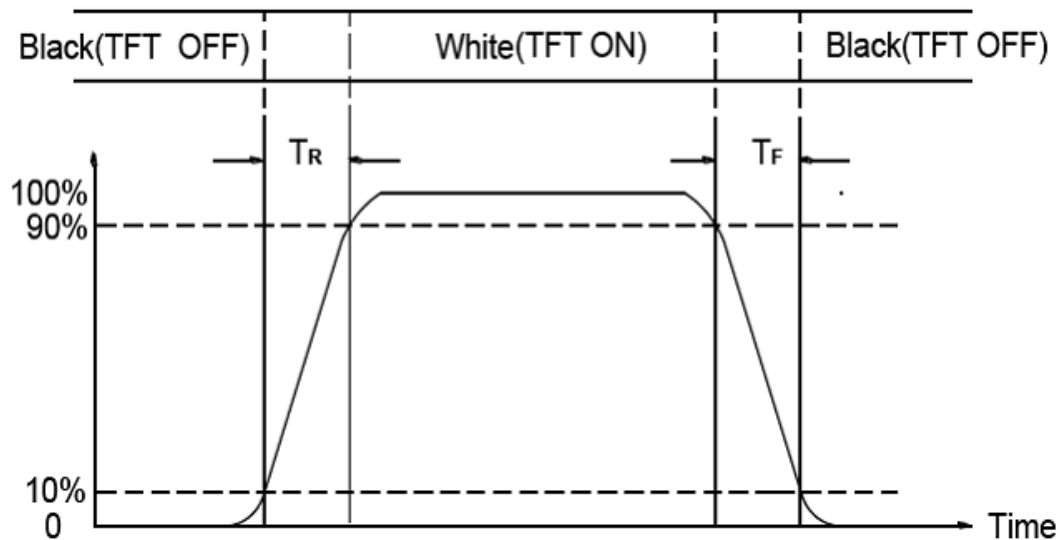
8. Interface Pin Assignment:

8-1 LCM FPC Interface

No.	Symbol	Function	Remark
1	LED-A	LED anode	
2	LED-K	LED cathode	
3	LED-K	LED cathode	
4	VCI	Power Supply	
5	IOVCC	Power Supply	
6	RESET	Reset signal input terminal .	
7	TE	Tearing effect	
8	PWM	This pin is connecting with the external LED driver	
9	GND	Ground	
10	D0P	High speed interface data differential signal input/output pins	
11	D0N	High speed interface data differential signal input/output pins	
12	GND	Ground	
13	D1P	High speed interface clock differential signal input pins	
14	D1N	High speed interface clock differential signal input pins	
15	GND	Ground	
16	CLKP	High speed interface clock differential signal input pins	
17	CLKN	High speed interface clock differential signal input pins	
18	GND	Ground	
19	D2P	High speed interface data differential signal input pins	
20	D2N	High speed interface data differential signal input pins	
21	GND	Ground	
22	D3P	High speed interface data differential signal input pins	
23	D3N	High speed interface data differential signal input pins	
24	GND	Ground	
25	TP_INT	Touch panel interrupt output	
26	TP_SDA	Touch panel I2C data	
27	TP_SCL	Touch panel I2C clock	
28	TP_RESET	Touch panel reset	
29	TP_VCI	Touch panel power supply	
30	TP_GND	Touch panel Ground	

9. Block Diagram:
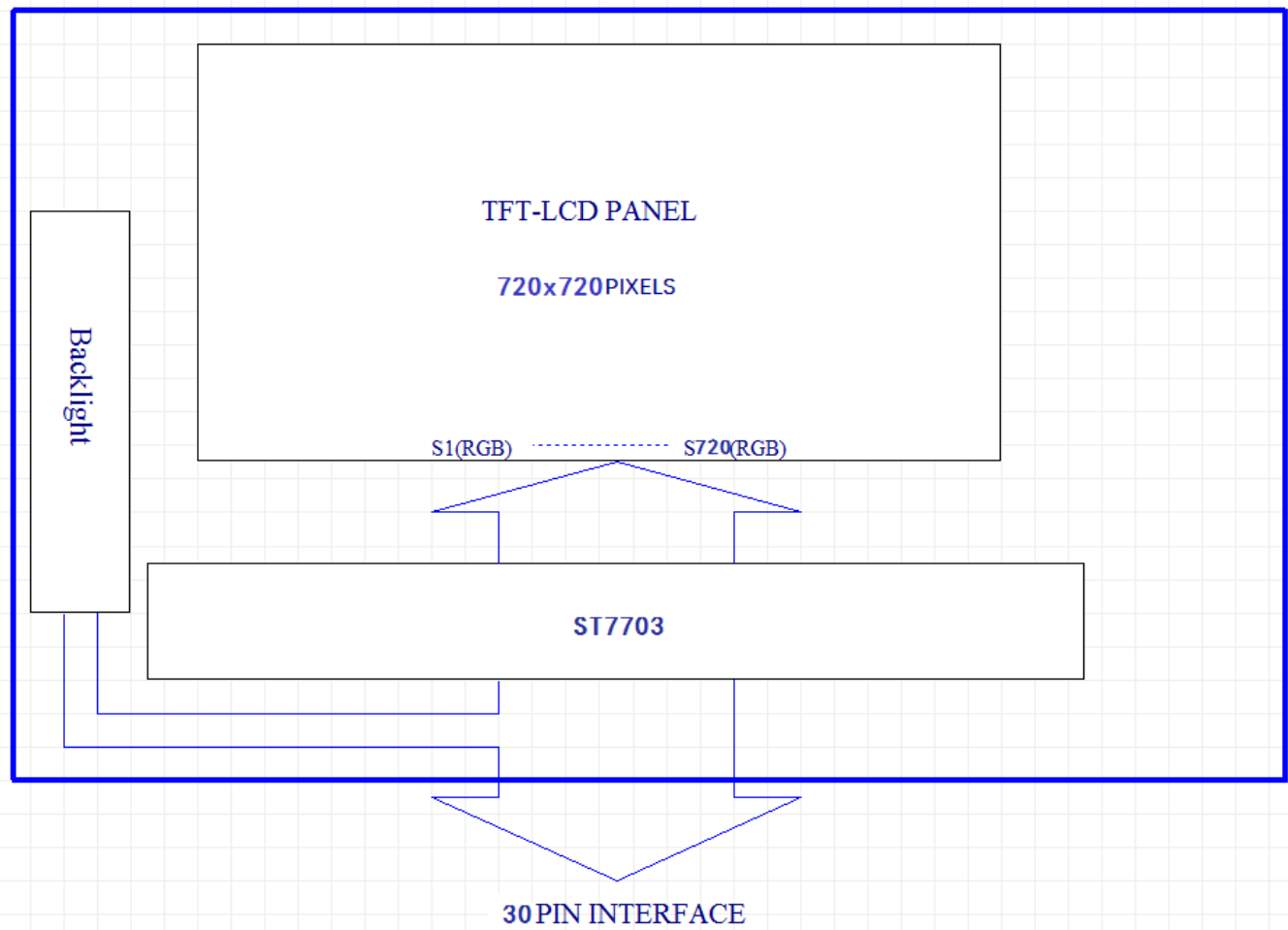
10. Backlight:

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		40		mA	V=12.0V	
Supply Voltage	V	10.8	12.0	13.6	V	If=40mA	
Luminous Intensity for LCM	IV	250	330	-	cd/m2		2
Uniformity for LCM	-	70	-	-	%	If=40mA	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**
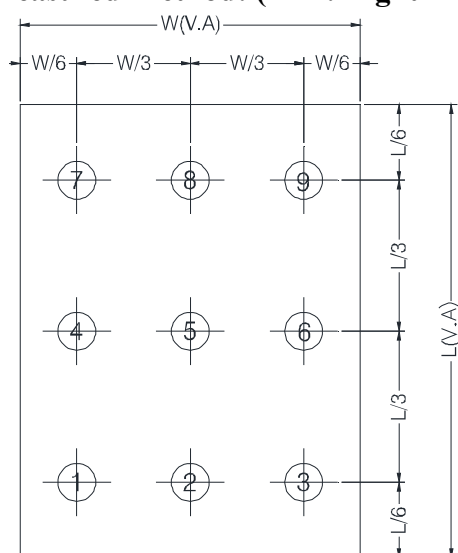
CIRCUIT DIAGRAM
B/L Electrical Circuit
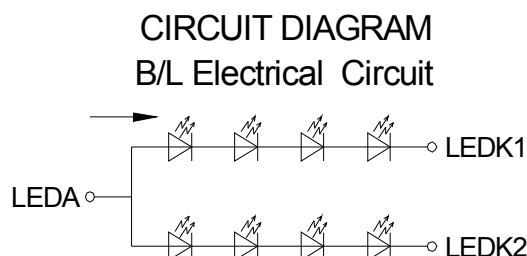
(Effective spatial Distribution)
   Using aperture of 1° ,distance 50cm

11. Standard Specification for Reliability .:

11–1. 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

11 - 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.

11- 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:

12-1. Purpose

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

12-2. 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.

12-5. 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
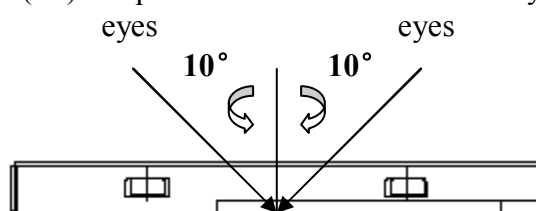
      (iv) Definition of area:
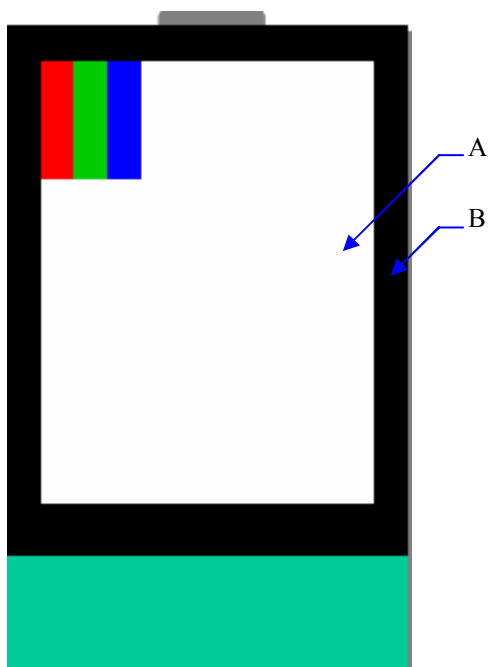
A. Area: Viewing area.

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.
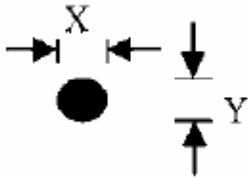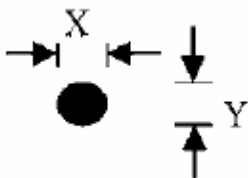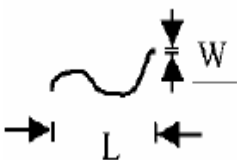
  (ii) The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.
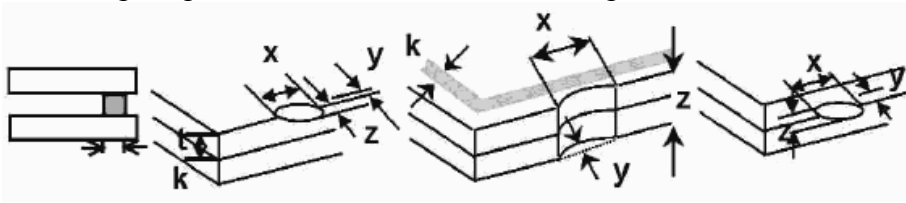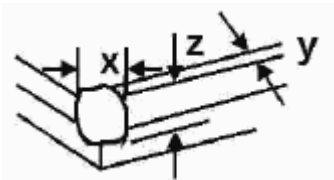
  (iii) Must add new item on time when it is necessary.
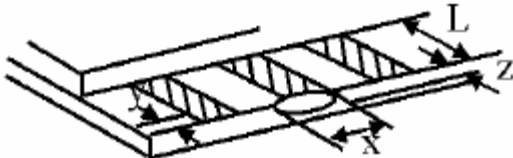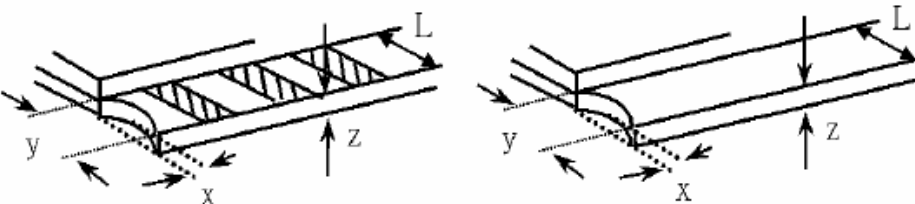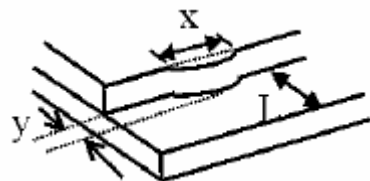
  c. Standard of inspection: (Unit: mm)

12-6. Inspection specification
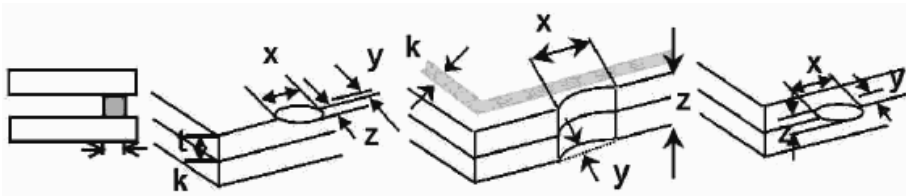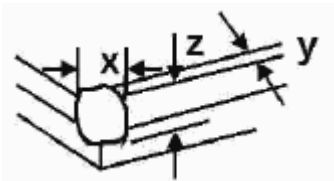
Defect out of viewing area can be neglected.

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

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: _table below_ ⊙ Unit: mm ⊙ If there are 2 or more chips, x is the total length of each chip 15.1.2 Corner crack: _table below_ ⊙ Unit: mm ⊙ If there are 2 or more chips, x is the total length of each chip	2.5

15.1.1 table:

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

15.1.2 table:

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

NO	Item	Criterion	AQL
16	Touch Panel(Fish eye)	<table><tr><td>SIZE(mm)</td><td>Acceptable Q'ty</td></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	2.5
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±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.

13-3 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.

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.