億 都 集 團
YEEBO GROUP

CODICO

SPECIFICATION
FOR
CTP MODULE

MODULE NO: YB-TG1280800S11A-C-A0

Doc.Version:01

Customer Approval:

□ Accept	□ Reject

YEEBO	NAME	SIGNATURE	DATE
Prepare	Mechanical Engineer	李毅斌	2021-12-07
Check	Electronic Engineer		2021-12-07
Verify			2021-12-07
Approval			2021-12-08

□ APPROVAL FOR SPECIFICATIONS ONLY

■ APPROVAL FOR SPECIFICATIONS AND SAMPLE

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1. Revision History

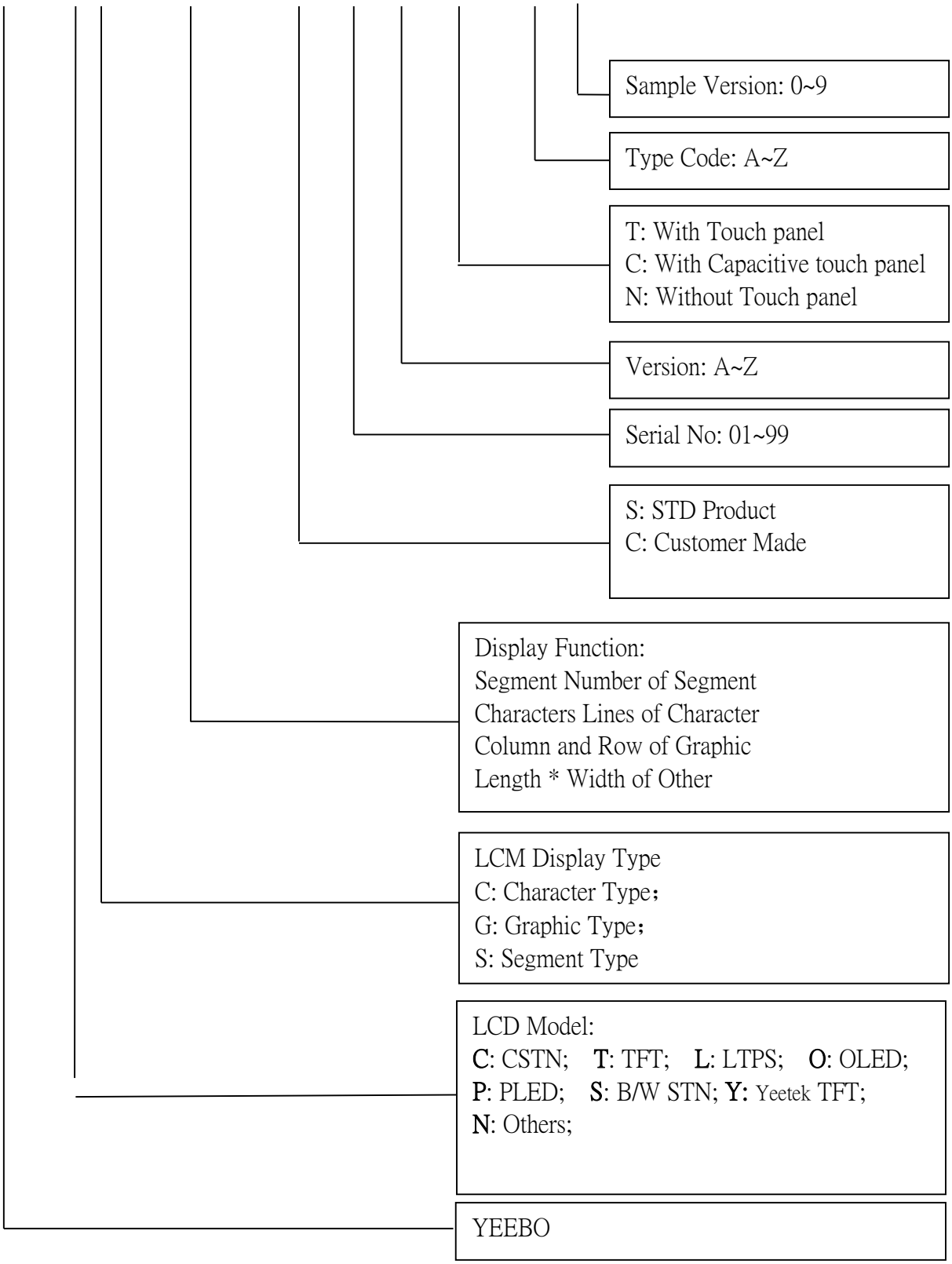
Sample Version	DOC. Version	DATE	DESCRIPTION		CHANGED BY
A0	00	2021-08-21	Spec Only	First issue	L.Y.B
A0	01	2021-12-07	Full Spec	Modify TFT&First sample	L.Y.B

2. Table of Contents:

3. Module Numbering System:

(example)

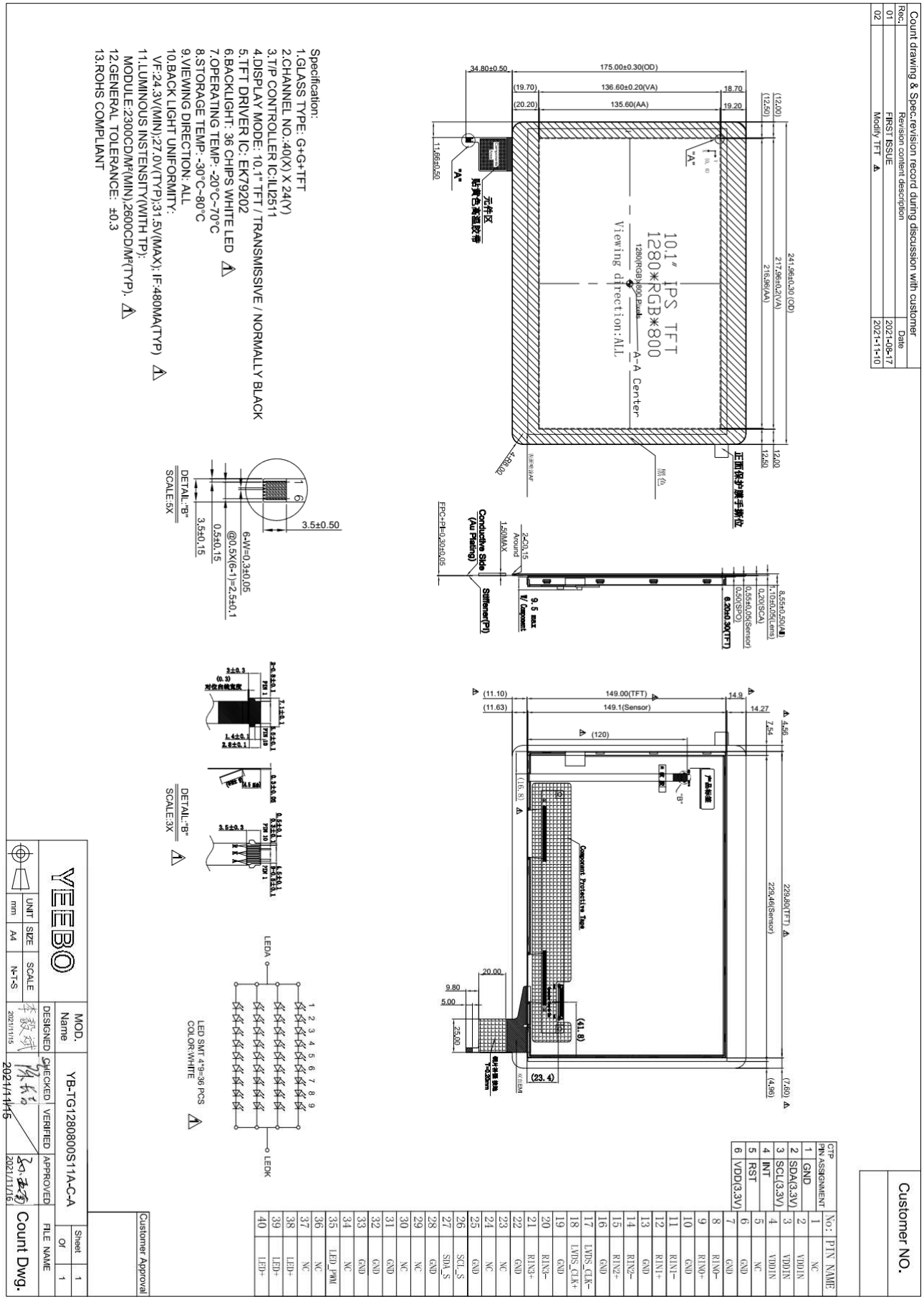
YB- TG 1280800 S 11 A -C – A 0



4. General Specification:

ITEM	CONTENTS
Assembly Module Size	241.96 (W) * 175.00 (H) * 8.55 (T) mm
Display Size(Diagonal)	10.1 inch
Display Format	1280(RGB)*800
View Area of TP Sensor(mm)	217.96(W) * 136.60(H)
Active Area	216.96(W) * 135.60 (H) mm
Dot pitch	0.1695(W) x 0.1695(H)
LCD Type	TFT / Transmissive / Normally Black
View Angle	ALL
TFT IC	EK79202
Transmittance	≥85%
CTP IC	ILI 2511
CTP Interface	I2C
Weight(g)	≈450g
Firmware	9279_20200720_V2.hex
Test Configuration	9279_20200720_V2.dat

5. LCM drawing:



6. Electrical Characteristics

6-1 Absolute Maximum Ratings

6-1-1 Absolute Maximum Ratings(TFT)

(Note 1)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	VDD	-0.3	5.0	V	TA=25℃
Operation Temperature	T_{OP}	-20	70	℃	
Storage Temperature	T_{ST}	-30	80	℃	

Note1 : The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

6-1-2 Absolute Maximum Ratings(TP)

Parameter	Symbol	Min	Max	Unit
USB 5V input power supply voltage	V_{DD5V}	-0.3	6.0	V
V_{DD3A} to GND	V_{DD3A}	-0.3	3.6	V
V_{DD3D} to GND	V_{DD3D}	-0.3	3.6	V
V_{DDIO} to GND	V_{DDIO}	-0.3	3.6	V
V_{DD16} to GND	V_{DD16}	-0.3	1.65	V
V_{GH} to GND	V_{GH}	-0.3	32	V
V_{TX} to GND	V_{TX}	-0.3	32	V
ESD Susceptibility HBM (Human Body Mode)**(Note 1)**	HBM		4000	V
ESD Susceptibility MM (Machine Mode)	MM		400	V

Note 1: Devices are ESD sensitive. Handling precaution is recommended.

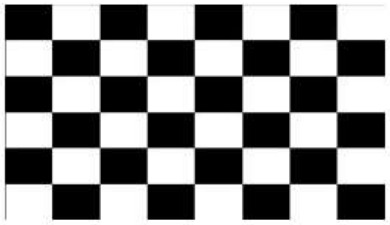
6-2 Operating Conditions

6-2-1 Operating Conditions(TFT)

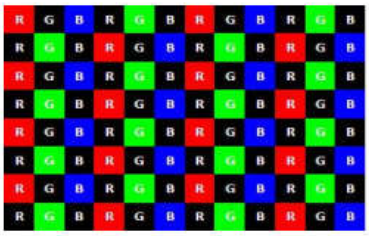
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Power supply voltage	V_{DD}	3.0	3.3	3.6	V	
Input logic high voltage	V_{IH}	0.7 V_{DD}	-	VDD	V	
Input logic low voltage	V_{IL}	0	-	0.3 V_{DD}	V	
Power supply current			127	343	mA	
Power Consumption	P_{DD}	-	0.42	1.13	W	1

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for VDD=3.3V, Frame rate fv=60Hz and Clock frequency = 72.4MHz. Test Pattern of power supply current

a) Typ : Mosaic 8 x 6 Pattern(L0/L255)



b) Max : skip subPixel(L255)



6-2-2 Operating Conditions(TP)

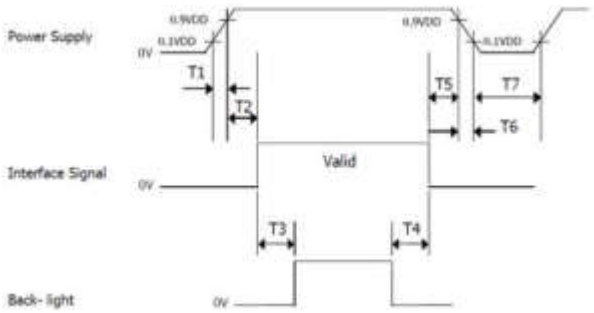
Parameter	Symbol	Min	Max	Unit
USB 5V input power supply voltage	V_{DD5V}	4.4	5.5	V
V_{DD3A} to GND	V_{DD3A}	3.0	3.6	V
V_{DD3D} to GND	V_{DD3D}	3.0	3.6	V
V_{DDIO} to GND	V_{DDIO}	1.8	3.6	V
V_{GH} to GND	V_{GH}	-0.3	32	V
V_{TX} to GND	V_{TX}	-0.3	32	V
Operating Ambient Temperature Range	T_A	-40	105	°C
Operating Junction Temperature Range	T_J	-40	125	°C
Storage Ambient Temperature Range	T_{ST}	-40	150	°C

Note: The device is not guaranteed to function outside its operating conditions.

6-3 Timing Characteristics

6-3-1 Timing Characteristics(TFT)

Power sequence

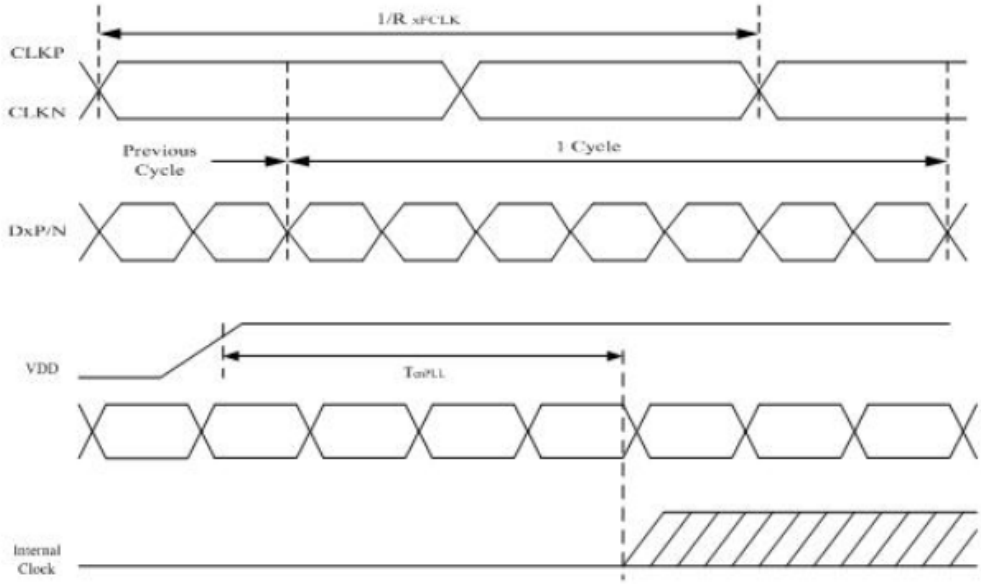


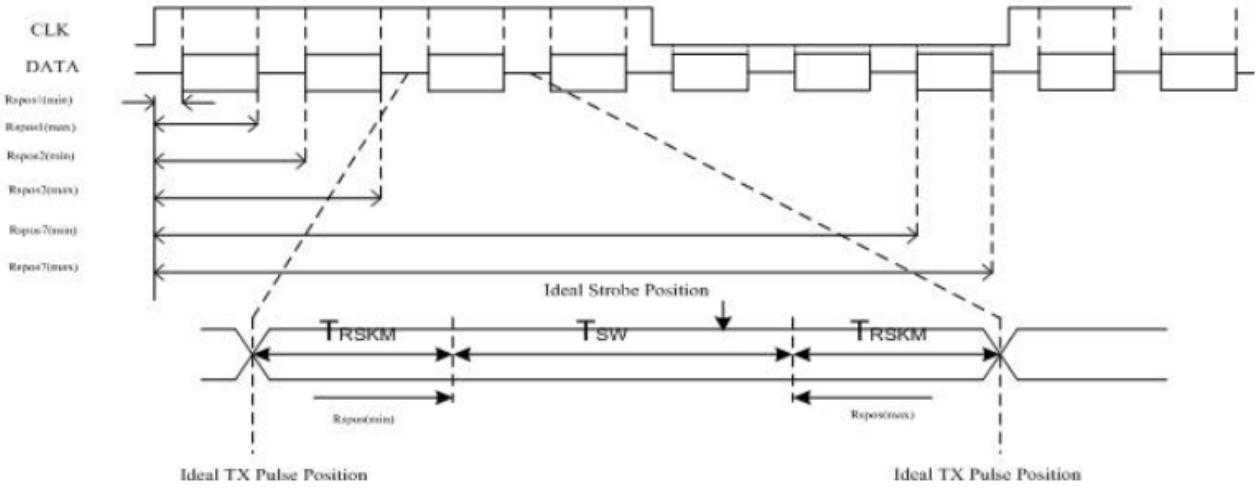
< Table6. Sequence Table >

Parameter	Values			Units
	Min	Typ	Max	
T1	0	-	10	ms
T2	0	-	50	ms
T3	200	-	-	ms
T4	500	-	-	ms
T5	0	-	50	ms
T6	0	-	10	ms
T7	500	-	-	ms

AC Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Remark
Clock frequency	RxFCLK	30	-	TBD	MHz	Refer to input timing table for each display resolution
Input data skew margin	TRSKM	500	-	-	ps	|VID| = 200mV RxVCM = 1.2V RxFCLK = 81MHz
Clock high time	TLVCH	-	4/(7* RxFCLK)	-	ns	
Clock low time	TLVCL	-	3/(7* RxFCLK)	-	ns	
PLL wake-up time	TenPLL	-	-	150	us	
Clock frequency	RxFCLK	30	-	TBD	MHz	Refer to input timing table for each display resolution
Input data skew margin	TRSKM	500	-	-	ps	|VID| = 200mV RxVCM = 1.2V RxFCLK = 81MHz
Clock high time	TLVCH	-	4/(7* RxFCLK)	-	ns	
Clock low time	TLVCL	-	3/(7* RxFCLK)	-	ns	

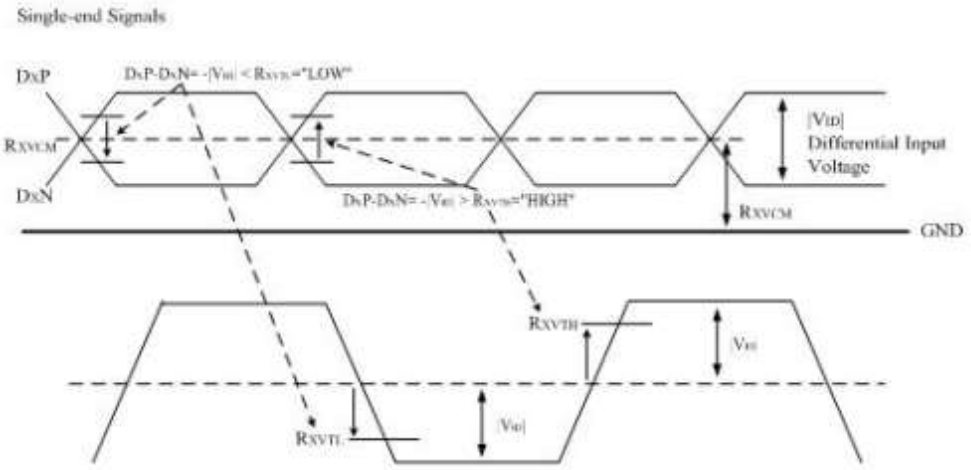




TRSKM : Receiver strobe margin
RSPOS : Receiver strobe position
TSW : Strobe width (internal data sampling window)

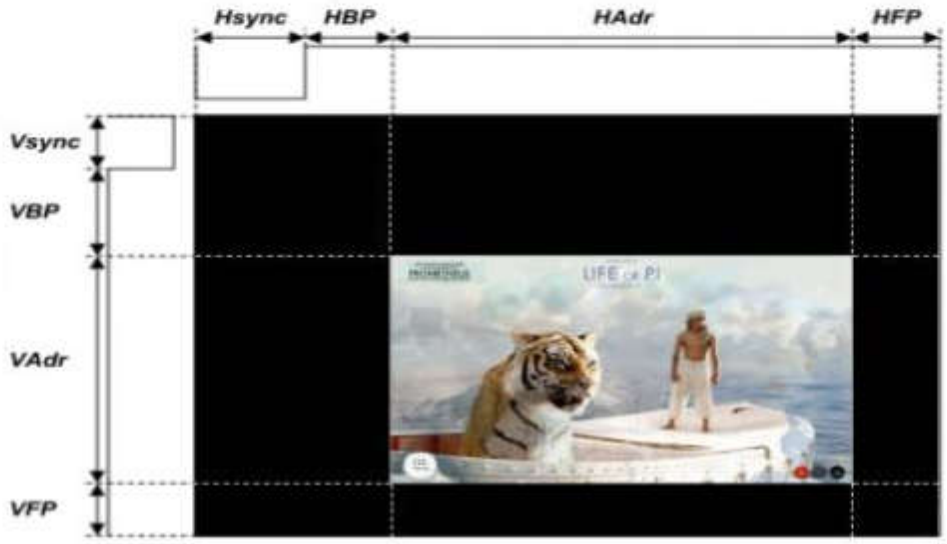
DC Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Differential input high threshold voltage	RXVTH	+0.1	0.2	0.3	V	RXVCM=1.2V
Differential input low threshold voltage	RXVTL	-0.3	-0.2	-0.1	V	
Input voltage range (singled-end)	RXVIN	0.7	-	1.7	V	
Differential input common mode voltage	RXVCM	1	1.2	1.4	V	|VID|=0.2
Differential input impedance	ZID	80	100	125	ohm	
Differential input voltage	|VID|	0.2	-	0.6	V	
Differential input leakage current	ILCLVDS	-10	-	+10	uA	
LVDS Digital Operating Current	IVDDMIPI	-	15	20	mA	FDCLK=80MHz, VDD=3.3V, Input pattern: 55h->Aah->55h->Aah
LVDS Digital Stand-by Current	ISTMIPI	-	-	250	uA	Clock & all Functions are stopped



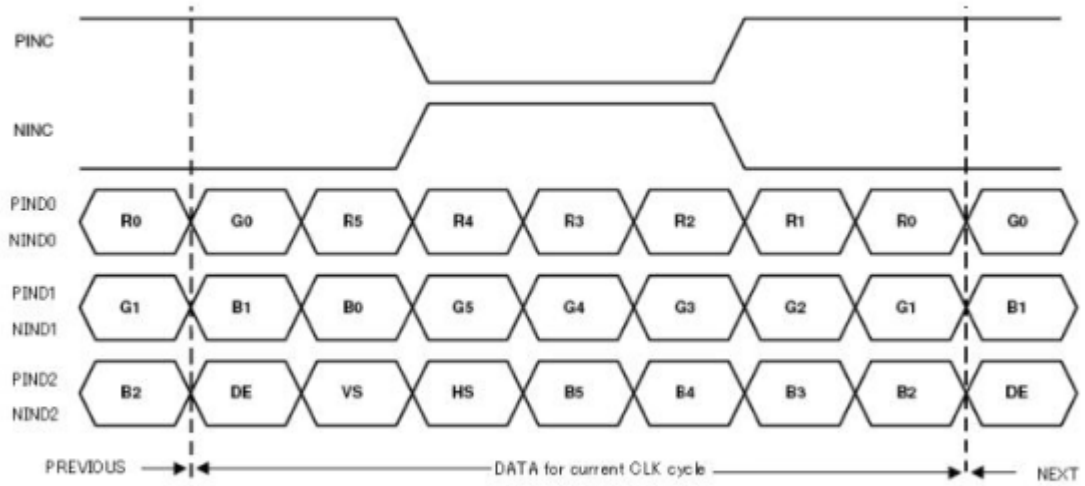
Timing Controller

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK Frequency	Fdclk	66.3	72.4	78.9	MHz
Horizontal display area	Thd		1280		pixel
HSYNC period time	Th	1380	1440	1500	pixel
HSYNC blanking	thbp+ thfp	100	160	220	pixel
Vertical display area	Tvd		800		H
Frequency	fV	55	60	65	Hz
VSYNC period time	Tv	824	838	872	H
VSYNC blanking	Tvbp+ Tvfp	24	38	72	H

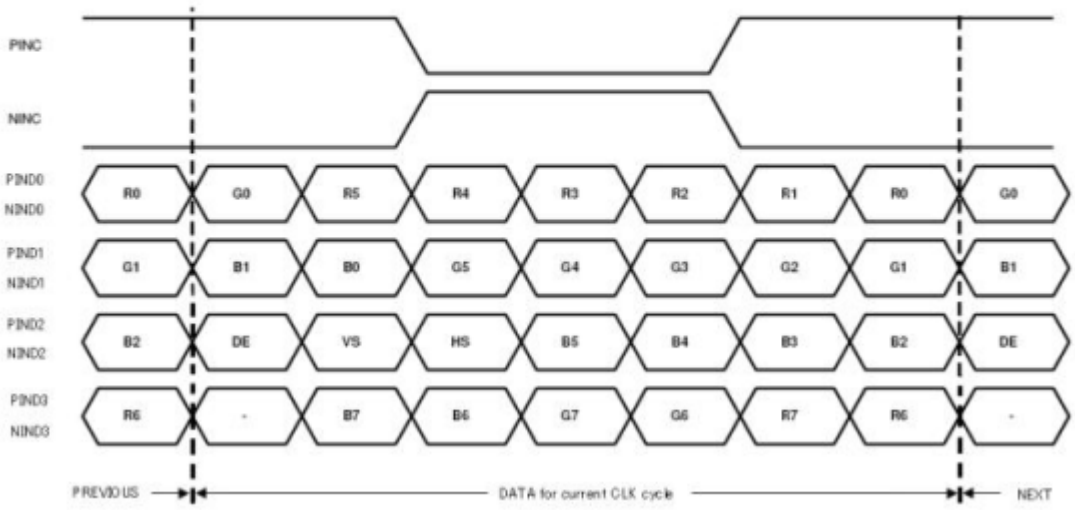


LVDS Data Input Format

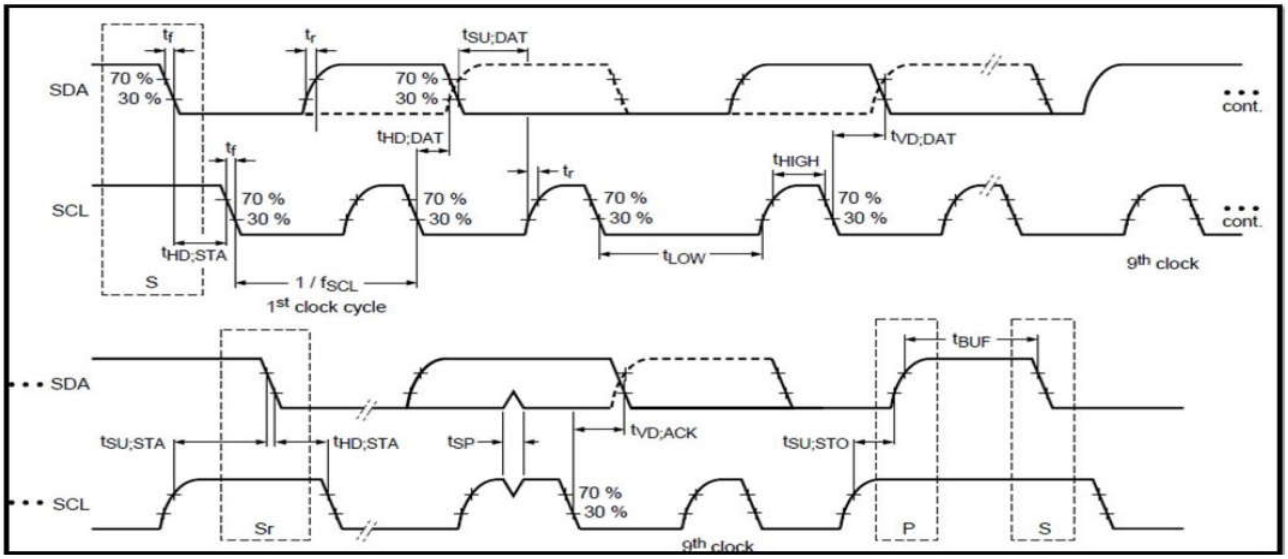
6bits LVDS Input



8bits LVDS Input

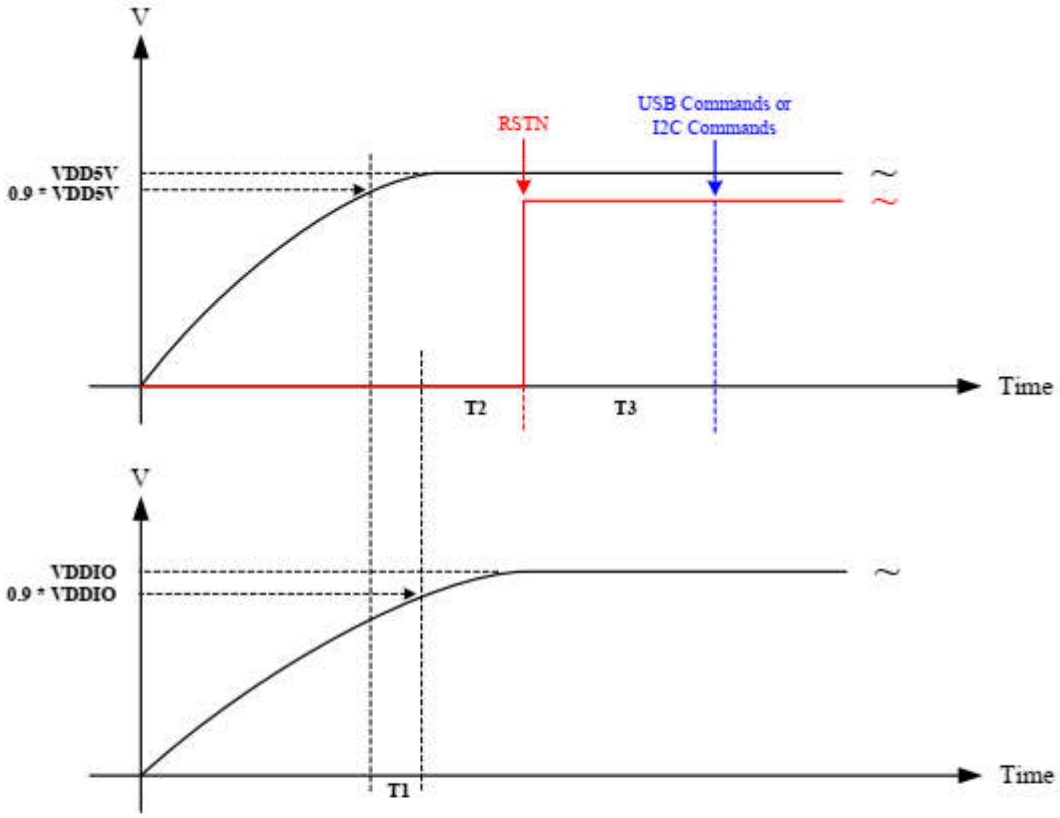


6-3-2 Timing Characteristics(TP)



Parameter	Symbol	Standard-mode		Fast-mode		Unit
		Min	Max	Min	Max	
SCL clock frequency	f_{SCL}	0	100	0	400	kHz
Hold time START condition	$t_{HD;STA}$	4.0	-	0.6	-	us
LOW period of the SCL clock	t_{Low}	4.7	-	1.3	-	us
HIGH period of the SCL clock	t_{High}	4.0	-	0.6	-	us
Set-up time for a repeated START condition	$t_{SU:STA}$	4.7	-	0.6	-	us
Data hold time	$t_{HD;DAT}$	300	-	300	-	ns
Data set-up time	$t_{SU;DAT}$	250	-	100	-	ns
Rise time of both SDA and SCL signals (30% to 70%)	t_r	-	1000	20	300	ns
Fall time of both SDA and SCL signals (70% to 30%)	t_f	-	300	20	300	ns
Set-up time for STOP condition	$t_{SU;STO}$	4.0	-	0.6	-	us
Bus free time between a STOP and START condition	t_{BUF}	4.7	-	1.3	-	us
Capacitive load for each bus line	C_b	-	400	-	400	pF
Noise margin at the LOW level for each connected device	V_{nL}	$0.1V_{DD}$	-	$0.1V_{DD}$	-	V
Noise margin at the HIGH level for each connected device	V_{nH}	$0.2V_{DD}$	-	$0.2V_{DD}$	-	V

Power On Sequence

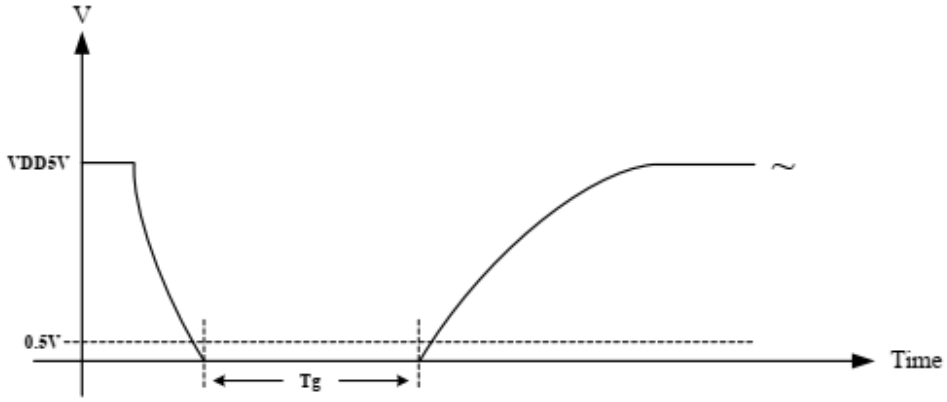


1. T1: the time difference between 0.9*VDD5V and 0.9*VDDIO. T1 must be ≥ 0 sec.
2. T2: the time difference between 0.9*VDDIO and RSTN. T2 must be ≥ 200 us.
3. T3: the time difference between RSTN and Commands.

   T3 in case of USB must be ≥ 20 ms.

   T3 in case of I2C must be ≥ 300 ms.

Power Off to Power On Sequence



Tg : the time difference between power-off and power-on. Tg must be > 10us.

Note. During the power off time, the VDD5V must be lower than 0.5V that make sure the touch controller have been correctly reset.

7. Optical Characteristics:

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (CR≥ 10)	θ_L	Φ=180° (9 o'clock)	70	80	-	degree	Note 1
	θ_R	Φ=0°(3 o'clock)	70	80	-		
	θ_T	Φ=90° (12 o'clock)	70	80	-		
	θ_B	Φ=270° (6 o'clock)	70	80	-		
Response time	T_{ON+} T_{OFF}	Normal θ=Φ=0°	-	30	35	msec	Note 3
Contrast ratio	CR		-	1000	-	-	Note 4
Color chromaticity	W_X		0.26	0.31	0.36	-	Note 2 Note 5 Note 6
	W_Y		0.30	0.35	0.40	-	
Luminance	L		1950	2200	-	cd/m²	Note 6
Luminance uniformity	Y_U		70	75	-	%	Note 7
Color Gamut	NTSC	CIE1931	45	50	-	%	

The test systems refer to Note 2.

Note 1: Definition of viewing angle range

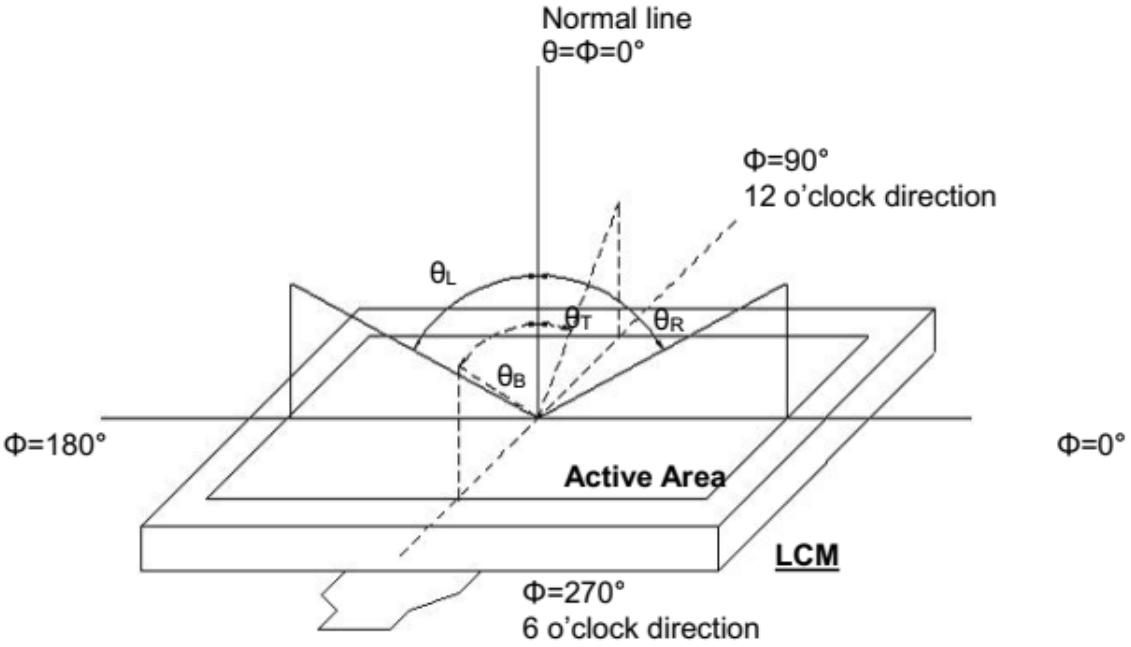


Fig. 4-1 Definition of viewing angle

Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 30 minutes operation, the optical properties are measured at the center point of the LCD screen. (Viewing angle is measured by ELDIM-EZ contrast/Height :1.2mm, Response time is measured by Photo detector TOPCON BM-7, other items are measured by BM-5A/ Field of view: 1° /Height: 500mm.) or CA-210.

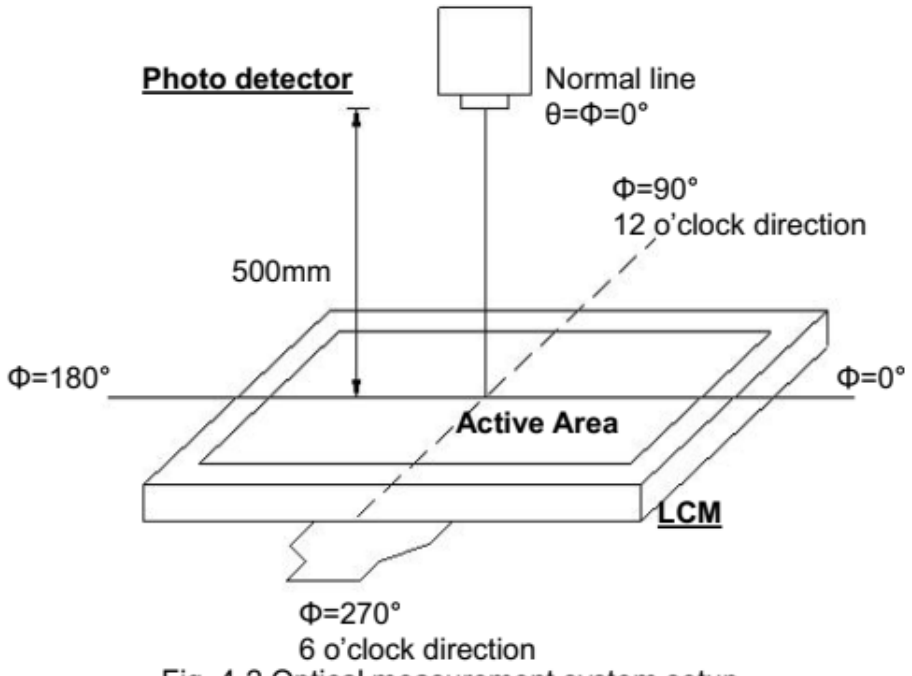


Fig. 4-2 Optical measurement system setup

Note 3: Definition of Response time

The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (T_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{OFF}) is the time between photo detector output intensity changed from 10% to 90%.

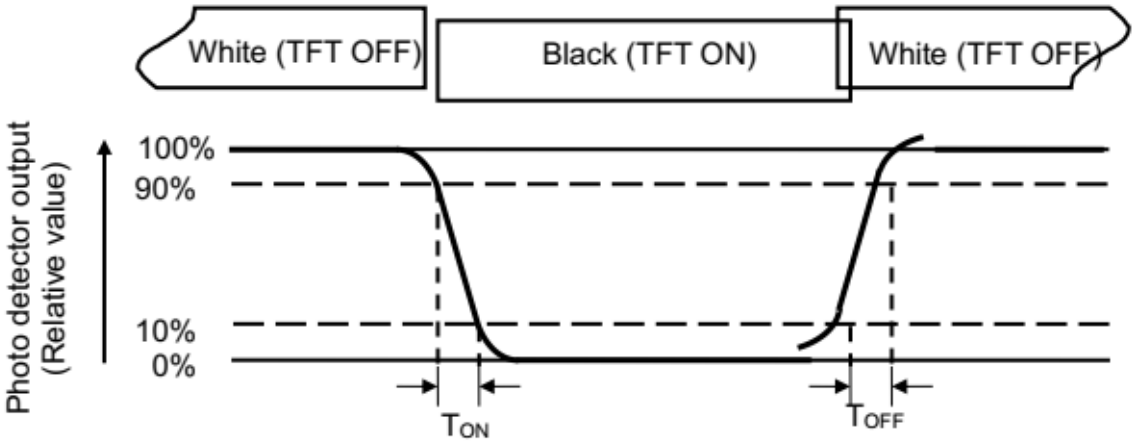


Fig. 4- 3 Definition of response time

Note 4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is I_L=480mA .

Note 7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas(Refer to Fig. 4-4).

Every measuring point is placed at the center of each measuring area.

$$Luminance\ \ Uniformity\ (Yu) = \frac{B_{min}}{B_{max}}$$

L-------Active area length W----- Active area width

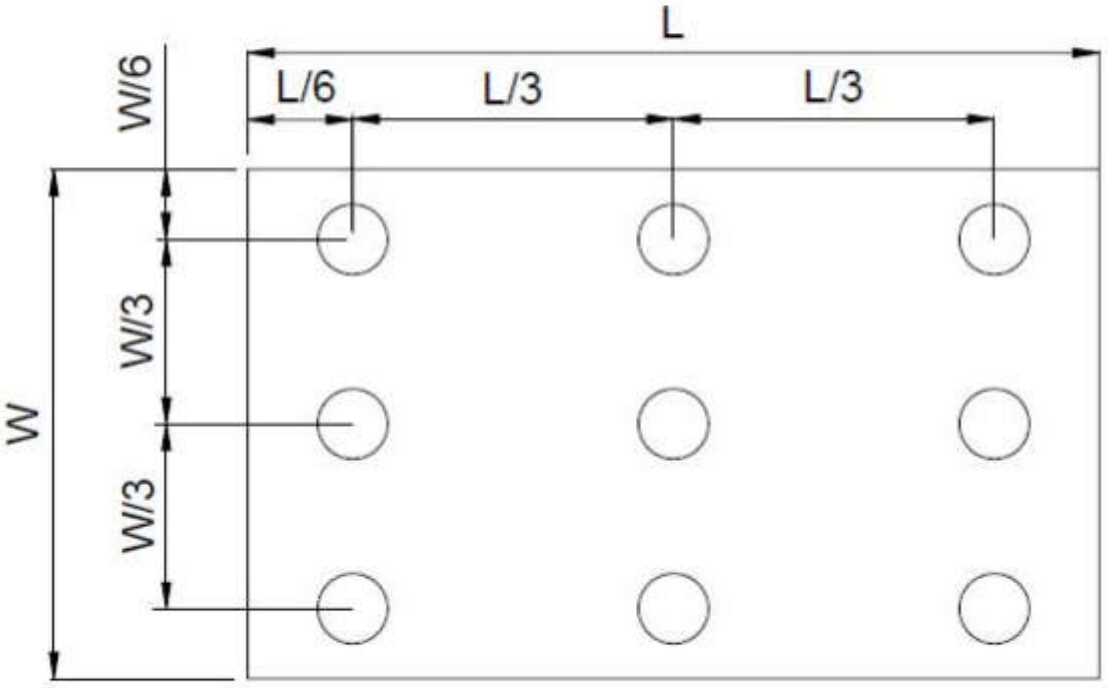


Fig. 4-4 Definition of measuring points

B_{MAX}: The measured maximum luminance of all measurement position.

B_{MIN}: The measured minimum luminance of all measurement position.

8. Interface Pin Assignment

8-1. Interface Pin Assignment(TFT):

FPC Connector is used for the module electronics interface.The recommended model is MSAK24025P40G (STM) or equivalent.

Pin No	Symbol	I/O	Function	Remark
1	NC	-	No Connection	
2	VDD	P	Power supply 3.3V	
3	VDD	P	Power supply 3.3V	
4	VDD	P	Power supply 3.3V	
5	NC	-	No Connection	
6	GND	P	Ground	
7	GND	P	Ground	
8	RIN0-	I	-LVDS Differential Data Input	
9	RIN0+	I	+LVDS Differential Data Input	
10	GND	P	Ground	
11	RIN1-	I	-LVDS Differential Data Input	
12	RIN1+	I	+LVDS Differential Data Input	
13	GND	P	Ground	
14	RIN2-	I	-LVDS Differential Data Input	
15	RIN2+	I	+LVDS Differential Data Input	
16	GND	P	Ground	
17	LVDS_CLK-	I	-LVDS Differential Clock Input	
18	LVDS_CLK+	I	+LVDS Differential Clock Input	
19	GND	P	Ground	
20	RIN3-	I	-LVDS Differential Data Input	
21	RIN3+	I	+LVDS Differential Data Input	
22	GND	P	Ground	
23	NC	-	No Connection	
24	NC	-	No Connection	
25	GND	P	Ground	
26	SCL_S	-	Reserved for LCD manufacturer’ s use ,not connection	
27	SDA_S	-	Reserved for LCD manufacturer’ s use ,not connection	
28	GND	P	Ground	
29	NC	-	No Connection	
30	NC	-	No Connection	

31	GND	P	Ground	
32	GND	P	Ground	
33	GND	P	Ground	
34	NC	-	No Connection	
35	LED_PWM	I	PWM Dimming Input. Pulling this pin below the specified threshold for dimming off. Pulling it up above the specified threshold for dimming on. If there is no need for dimming function, connect DIM and EN pins together.	
36	NC	-	No Connection	
37	NC	-	No Connection	
38	VLED	P	Back-light Input Supply. This supplies power to all the internal control circuitry, both BS regulators and the high-side switch. A decoupling capacitor to ground must be placed close to this pin to minimize switching spikes.	
39	VLED	P		
40	VLED	P		

Note I: input; O: output; P: Power or Ground(0V).

BL-FPC Connector is used for the module electronics interface. The recommended model is F31L-1A7H1-11010 manufactured by AORORA or equivalent..

Note 1

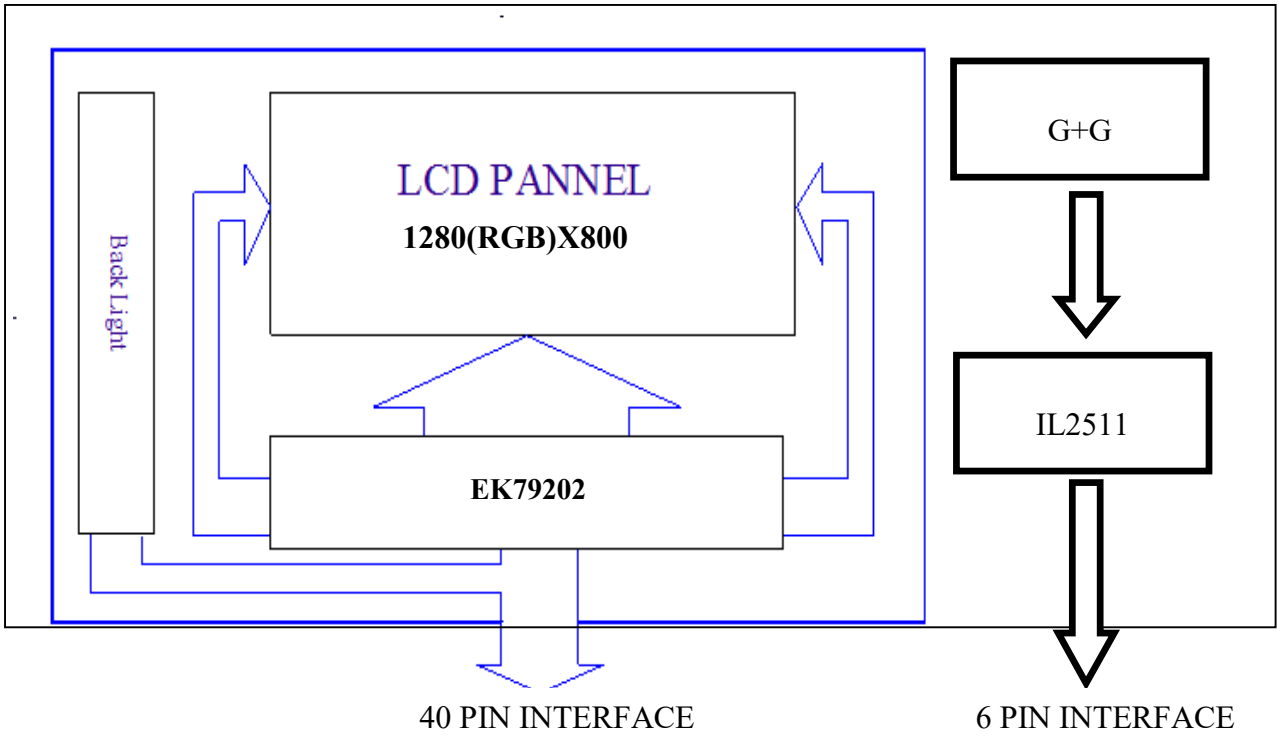
BL PIN	1	2	3	4	6	7	8	9	10
	A	A	A	NC	K	K	NC	R (NTC+)	R (NTC-)

Note 1 :Please see the module drawing for detail information.

8-2 Interface Pin Assignment(TP):

No.	Symbol	Function
1	GND	Power ground
2	SDA	I2C data signal
3	SCL	I2C clock signal
4	INT	Interrupt signal
5	RST	System reset signal input
6	VDD	Power supply.

9. Block Diagram:



10. Backlight:

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Voltage for LED Backlight	V_L	24.3	27.0	31.5	V	Note 1
Crrent for LED Backlight	I_L	-	480	-	mA	
LED life time	-	20,000	-	-	Hr	Note 2
Luminous Intensity	IV	1950	2200	-	Cd/m^2	
Uniformity	-	70	-	-	%	

Parameter		Symbol	Values			Unit	Remark
			Min.	Typ.	Max.		
Power Input Voltage		VLED	5	12	18	[Volt]	
Power Input Current		IVLED	-	1200	-	[mA]	100%Brightness (VLED=12V),EFFICIENCY (90%)
Power Consumption		PVLED	-	14.4	-	[Watt]	100%Brightness (VLED=12V)
EN Control Level	Backlight on	VENH	1.2	3.3	5.5	[Volt]	PWM Dimming
	Backlight off	VENL	-	-	0.4	[Volt]	
PWM Control Level	PWM High level	VPWH	1.2	3.3	5.5	[Volt]	
	PWM Low level	VPWL	-	-	0.4	[Volt]	
PWM Control	PWM Duty Ratio	-	1	-	-	%	
	PWM Frequency	FPWM	5	-	100	[KHz]	

Note1: V_L=27V, I_L=480mA (Backlight circuit: 9 series connection, 4 parallel connection), the ambient temperature is 25℃.

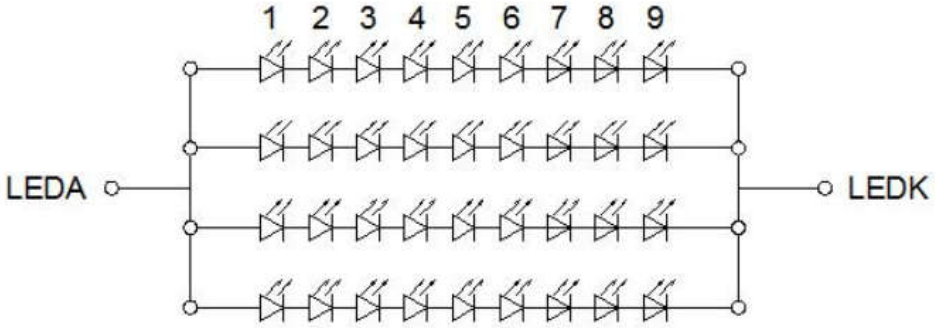


Fig. 3-1 LED test circuit diagram

Note 2: The "LED life time" is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and 1/2 rated current. The LED lifetime could be decreased if operating I_L is larger than 480mA.

11. Standard Specification for Reliability :

11–1. Standard Specifications for Reliability

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: ±4KV 150pF/330Ω 5 times
		Contact: ±2KV 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 11-1, 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

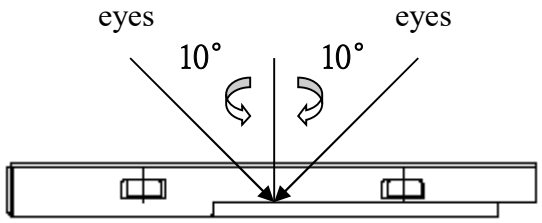
a. Manner of appearance test:

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

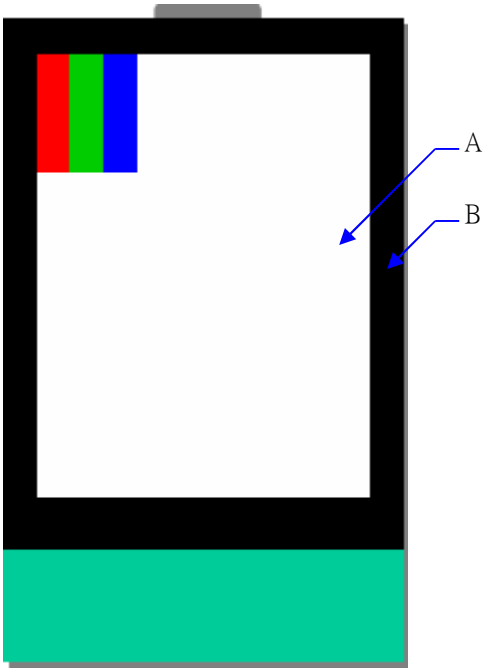
(ii) When test the model of transmissive product must add the reflective plate.

(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:

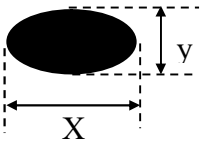
(i) It will accord to the AQL when the standard can not be described.

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

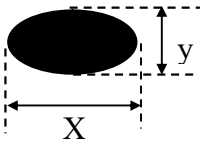
(iii) Must add new item on time when it is necessary.

c. Standard of inspection: (Unit: mm)

12-6. Inspection specification

<table>
<tr><th>Item</th><th>Specification Unit : mm</th><th>AQL</th></tr>
<tr><td>Electrical Testing</td><td>1.1 Open
1.2 Short
1.3 T/P failure
1.4 Missing vertical, horizontal segment, segment contrast defect.
1.5 Missing character, dot or icon.
1.6 Display malfunction.
1.7 No function or no display.
1.8 Current consumption exceeds product specifications.
1.9 LCD viewing angle defect.
1.10 Mixed product types.
1.11 Flicker</td><td>0.65</td></tr>
<tr><td>explosion-proof film bubble/Concave and convex point/indentation / Contamination</td><td>
<table>
<tr><th>D</th><th>Acceptable numbers</th></tr>
<tr><td>≤0.3</td><td>ignored (No more than five spots within 5mm G)</td></tr>
<tr><td>0.3≤D≤0.5</td><td>4</td></tr>
<tr><td>0.5＜D≤1.0</td><td>2</td></tr>
<tr><td>1.0＜D≤1.5</td><td>2</td></tr>
<tr><td>D＞1.5</td><td>NG</td></tr>
</table>


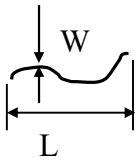
D=(x+y)/2
1、 Product’s front side checked according to this specification, back side ignored, but light leakage is not allowed.
2、 Printing ink peel off is not allowed.
3、 The particle will be ignored when it is removable by cleaning
* Densely spaced: No more than two spots within 10mm</td><td>2.5</td></tr>
</table>

<table>
<tr>
<td>Black spots / White spots /Bright spots/ Color spots /polluted inside/ punctured</td>
<td>
<table>
<tr><th>D</th><th>Acceptable numbers</th></tr>
<tr><td>≤0.2</td><td>ignored (No more than five spots within 5mm)</td></tr>
<tr><td>0.2≤D≤0.4</td><td>4</td></tr>
<tr><td>0.4<D≤0.8</td><td>3</td></tr>
</table>


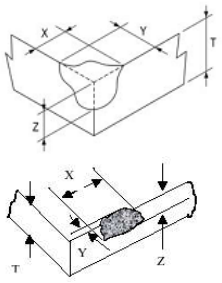
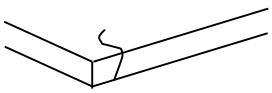
D=(x+y)/2
1、Product’s front side checked according to this specification, back side ignored, but light leakage is not allowed.

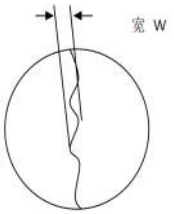
2、Printing ink peel off is not allowed.

3、The particle will be ignored when it is removable by cleaning

* Densely spaced: No more than two spots within 10mm
</td>
<td>2.5</td>
</tr>
<tr>
<td>Linear Object: Fiber, scurf, scratches and other linear defects (not affecting function)</td>
<td>
<table>
<tr><th>W</th><th>L</th><th>Acceptable numbers</th></tr>
<tr><td>≤0.05</td><td>≤8</td><td>ignored No more than five lines within 5mm)</td></tr>
<tr><td>0.1<W≤0.3</td><td>≤8</td><td>2</td></tr>
<tr><td>W〉0.3</td><td></td><td>NG</td></tr>
</table>


The reverse side scratches, not affect to the electronic circuit, cannot find the scratches from the front side is acceptable

* Densely spaced: No more than two lines within 10mm
</td>
<td>2.5</td>
</tr>
<tr>
<td>Glass edge chipping、edge breakage</td>
<td>
<table>
<tr><th colspan="2">Edge breakage can’t affect visual effection (edge breakage can’t cause damage to circuit); over lens have no visual damage</th></tr>
<tr><td>conditions</td><td>Acceptable numbers</td></tr>
<tr><td>X≤3mm,Y≤2mm, Z≤T</td><td>5</td></tr>
</table>

</td>
<td>2.5</td>
</tr>
<tr>
<td>Glass broken</td>
<td>Visual broken is NG, and there is no potential fault.

</td>
<td>0.65</td>
</tr>
</table>

<table>
<tr><td colspan="2">1. V/A printed edges sawtooth inspected according to this standard
2. LOGO's sawtooth</td><td colspan="2"><table>
<tr><td colspan="2">Some contentious defect judged according to samples</td></tr>
<tr><td>Product type</td><td>Conditions</td></tr>
<tr><td>Same size</td><td>1、width below 0.2 inch（included）ignored，above 0.2 NG
2、Length not accounted</td></tr>
</table></td><td> 
</td><td>2.5</td></tr>
<tr><td colspan="2">Specific dimension</td><td colspan="2">In accordance with product outline drawing or specification (key dimension) or engineering sample.</td><td>2.5</td></tr>
<tr><td colspan="2">Glue overflow/Frame</td><td colspan="2">1. Glue overflow exceed 0.2mm to the black frame is not allowed.
  </td><td>2.5</td></tr>
<tr><td rowspan="3">FPC</td><td>Bonding bubble/ Misalignment</td><td colspan="2">FPC golden finger hot pressure's bubble or impurity diameter shall be below 1/2 of the pressed area, pressed deviation shall not exceed 1/2 of the silver line width, and 40X microscope cannot have obvious cracks.</td><td>0.65</td></tr>
<tr><td>Folded mark（minor fault）</td><td colspan="2">Linearity irreversibility folded mark and acute angle folded mark is NG.</td><td>2.5</td></tr>
<tr><td>EMI FILM（minor fault）</td><td colspan="2">Surface broken, scratched≦0.3mm
Surface broken below 5mm can be modified by print ink, after modified, the result shall be achieved to EMI</td><td>2.5</td></tr>
</table>

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 280±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.