

**PROPRIETARY NOTE**

THIS SPECIFICATION IS THE PROPERTY OF BOE SDT AND SHALL NOT BE REPRODUCED OR COPIED WITHOUT THE WRITTEN PERMISSION OF BOE SDT AND MUST BE RETURNED TO BOE SDT UPON ITS REQUEST



SPEC. NUMBERS	PRODUCT GROUP TFT-LCM	Rev. P0.1	ISSUE DATE 2017.8.24	PAGE 1 OF 25
---------------	--------------------------	--------------	-------------------------	-----------------

**TITLE : TDA121-001V01**  
**Preliminary Product Specification**  
**P0.1**

ITEM	SIGNATURE	ITEM	SIGNATURE		
Prepared		Checked			
Countersigned		Approved			

**BEIJING BOE SPECIAL DISPLAY TECHNOLOGY**



<b>PRODUCT GROUP</b>	REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT	P0.1	2017.8.29	

<b>SPEC. NUMBER</b>	<b>SPEC. TITLE</b>	<b>PAGE</b>
	TDA121-001V01 Preliminary Product Specification	3 OF 25

## Contents

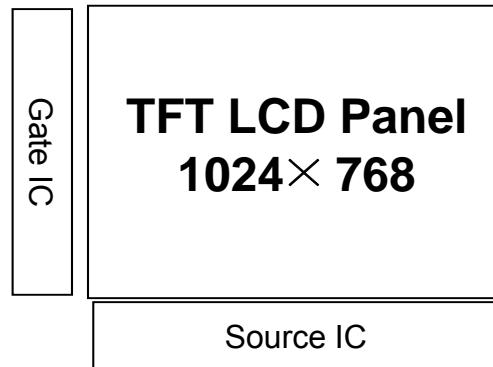
No.	Items	Page
1.0	General Description	4
2.0	Absolute Maximum ratings	6
3.0	Electrical specifications.	7
4.0	Optical specifications.	9
5.0	Interface Connection	13
6.0	Signal Timing Specifications	16
7.0	Input Signals, Display Colors & Gray Scale of Colors	17
8.0	Power Sequence	18
9.0	Mechanical Characteristics	19
10.0	Reliability Test	20
11.0	Handling & Cautions.	21
12.0	Label	22
13.0	Packing information	23
14.0	Mechanical Outline Dimension	24

<b>PRODUCT GROUP</b>		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			4 OF 25

## 1.0 GENERAL DESCRIPTION

### 1.0.1 Introduction

TDA121-001V01 is a color active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This module has a 12.1 inch diagonally measured active area with UXGA resolutions (1024 horizontal by 768 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in 2 domain stripe and this module can display 262k colors. The TFT-LCD panel used for this module is adapted for a low reflection and higher color type.



### 1.0.2 Features

- High luminance
- High contrast ratio, wide viewing angle
- Wide operating temperature
- LVDS interface
- RoHS Compliant

### 1.0.3 Application

- TFT-LCD Monitor
- Industrial
- Vehicle

<b>PRODUCT GROUP</b>	REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT	P0.1	2017.8.29	

SPEC. NUMBER	SPEC. TITLE	PAGE
	TDA121-001V01 Preliminary Product Specification	5 OF 25

**1.0.4 General Specification**

< Table 1. General Specifications >

<b>Parameter</b>	<b>Specification</b>	<b>Unit</b>	<b>Remarks</b>
Active area	245.76 (H) × 184.32(V)	mm	
Number of pixels	1024(H) × 768(V)	Pixels	
Pixel pitch	0.255(H) × 0.255 (V)	mm	
Pixel arrangement	BGR 2 domain stripe		
Display colors	262K	Colors	6bit
Display mode	Normally Black		
Dimensional outline	260.5 (H) × 204 (V) × 9(D) typ.	mm	
Weight	TBD	kg	
Surface treatment	Clear		
LED life	50,000	hr	

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 6 OF 25

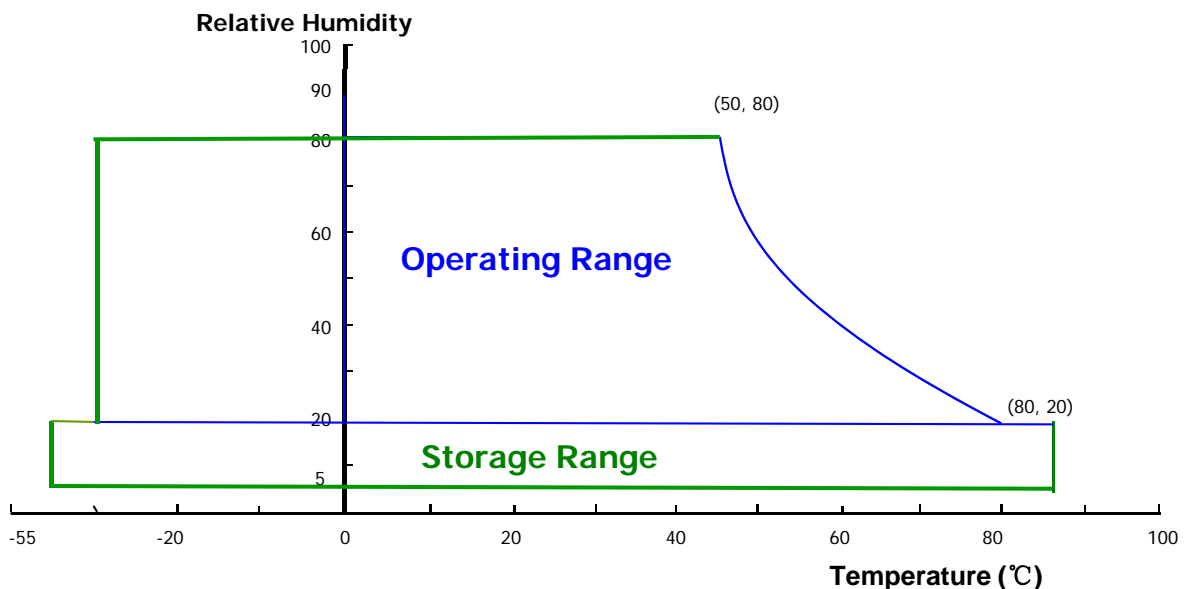
## 2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. LCD Module Electrical Specifications > [Ta =25±2 °C]

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Voltage (LCD Module)	V <sub>DD</sub>	3.0	3.6	V	
Back-light LED Forward Current	I <sub>F</sub>	-	80	mA	One LED
Back-light LED Pulse Forward Current	I <sub>FP</sub>	-	120	mA	One LED
Operating Temperature	T <sub>OP</sub>	-30	+80	°C	Note.1
Storage Temperature	T <sub>ST</sub>	-40	+85	°C	

Note : 1) Temperature and relative humidity range are shown in the figure below.  
Wet bulb temperature should be 39 °C max. and no condensation of water.



PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 7 OF 25

### 3.0 ELECTRICAL SPECIFICATIONS

#### 3.0.1 TFT LCD Module

< Table 3. LCD Module Electrical Specifications > [Ta =25±2 °C]

Parameter	Symbol	Values			Unit	Notes
		Min	Typ	Max		
Power Supply Input Voltage	V <sub>DD</sub>	3	3.3	3.6	V	Note 1
Power Supply Current	I <sub>DD</sub>	-	90	130	mA	
Differential input common mode voltage	V <sub>com</sub>	0.7	1.2	1.6	V	V <sub>IH</sub> =100mV, V <sub>IL</sub> =-100mV
Power Consumption	P <sub>p</sub>	-	2.9	4	W	
	P <sub>BL</sub>	-	9.2	12	W	
	P <sub>total</sub>	-	12.1	16	W	

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.  
The current draw and power consumption specified is for 5V at 25 °C  
Max value at White Pattern

2. Calculated value for reference (VLED X ILED)

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	

SPEC. NUMBER	SPEC. TITLE	PAGE
	TDA121-001V01 Preliminary Product Specification	8 OF 25

**3.2 Back-light Unit**

< Table 4. LED Driving guideline specifications > Ta=25+/-2°C

Parameter		Min.	Typ.	Max.	Unit	Remarks
LED Forward Voltage	V <sub>F</sub>	2.8	3.1	3.4	V	-
LED Forward Current	I <sub>F</sub>	-	80	-	mA	Single Channel
LED Power Consumption	P <sub>LED</sub>	-	-	9.2	W	Note 1
LED Life-Time	N/A	50000			Hour	IF = 80mA Note 2
Power supply voltage for Back light	V <sub>LED</sub>	22.4	24.8	27.2	V	
Power supply Current for Back light	I <sub>LED</sub>	-	0.32		A	

Notes : 1. Calculator Value for reference  $I_F \times V_F \times 8 = P_{LED}$

2. The LED Life-time define as the estimated time to 50% degradation of initial luminous.

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			9 OF 25

## 4.0 OPTICAL SPECIFICATION

### 4.0.1 Overview

The test of view angle range shall be measured in a dark room (ambient luminance  $\leq 1$ lux and temperature =  $25 \pm 2^\circ\text{C}$ ) with the equipment of Luminance meter system (PR-655 and CS-2000A) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of  $\theta$  and  $\Phi$  equal to  $0^\circ$ . We refer to  $\theta_{\phi=0}$  ( $=\theta_3$ ) as the 3 o'clock direction (the "right"),  $\theta_{\phi=90}$  ( $=\theta_{12}$ ) as the 12 o'clock direction ("upward"),  $\theta_{\phi=180}$  ( $=\theta_9$ ) as the 9 o'clock direction ("left") and  $\theta_{\phi=270}$  ( $=\theta_6$ ) as the 6 o'clock direction ("bottom"). While scanning  $\theta$  and/or  $\phi$ , the center of the measuring spot on the Display surface shall stay fixed. The luminance, color and uniformity (etc) should be tested by CS-2000A. The backlight should be operating for 10 minutes prior to measurement. VDD shall be  $5 \pm 0.5\text{V}$  at  $25^\circ\text{C}$ . Optimum viewing angle direction is 6 o'clock

<Table 5. Optical Specifications>

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	$\Theta_3$	CR > 10	85	-	-	Deg.	Note 1
		$\Theta_9$		85	-	-	Deg.	
	Vertical	$\Theta_{12}$		85	-	-	Deg.	
		$\Theta_6$		85	-	-	Deg.	
Luminance Contrast ratio		CR	$\Theta = 0^\circ$	800	1000	-		Note 2
Luminance of White	9points max	$Y_w$	$\Theta = 0^\circ$	400	500	-	cd/m <sup>2</sup>	Note 3
White Luminance uniformity	9 Points	$\Delta Y9$		80	-	-	%	Note 4
Reproduction of color	White	$W_x$	$\Theta = 0^\circ$	TBD	TBD	TBD		Note 5
		$W_y$		TBD	TBD	TBD		
Response Time		$T_{RT}$	Ta= $25^\circ\text{C}$ $\Theta = 0^\circ$	-	-	25	ms	Note 6
Cross Talk		CT	$\Theta = 0^\circ$	-	-	TBD	%	Note 7
Colour Gamut			NTSC 1976	68	72	-	%	

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			10 OF 25

Notes : 1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see FIGURE 1).

2. Contrast measurements shall be made at viewing angle of  $\Theta = 0$  and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state . (see FIGURE 1) Luminance Contrast Ratio (CR) is defined mathematically.

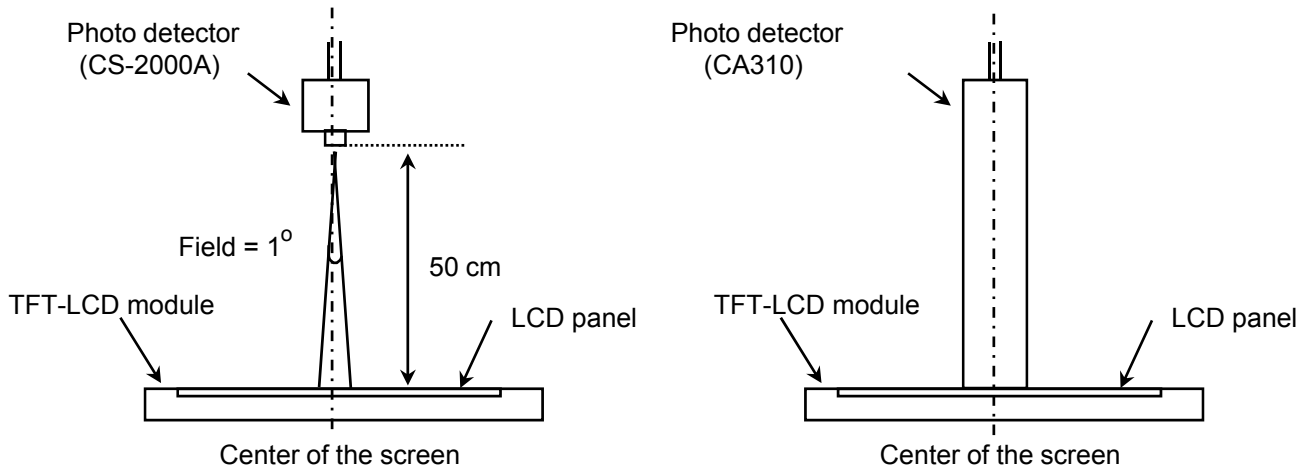
$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

3. Luminance of white is defined as luminance values of 9point max across the LCD surface. Luminance shall be measured with all pixels in the view field set first to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display. The luminance is measured by BM-5A when the LED current is set at 60mA.
4. The White luminance uniformity on LCD surface is then expressed as :  $\Delta Y = \text{Minimum Luminance of 9 points} / \text{Maximum Luminance of 9 points}$  (see FIGURE 2).
5. The color chromaticity coordinates specified in Table 5. shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.
6. The electro-optical response time measurements shall be made as FIGURE 3 by switching the "data" input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is  $T_r$ , and 90% to 10% is  $T_d$ .
7. Cross-Talk of one area of the LCD surface by another shall be measured by comparing the luminance (YA) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (YB) of that same area when any adjacent area is driven dark. (See FIGURE 4).

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 11 OF 25

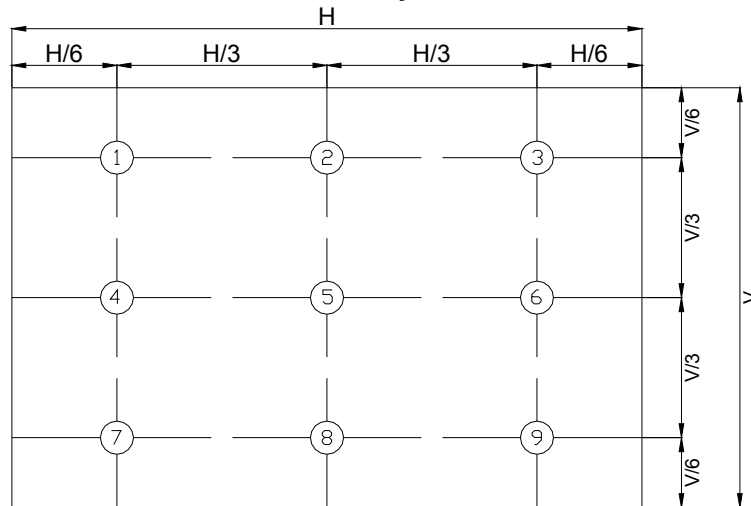
#### 4.0.2 Optical measurements

**Figure 1. Measurement Set Up**



View angel range, uniformity, etc. measurement setup    Flicker, measurement setup

**Figure 2. White Luminance and Uniformity Measurement Locations (9 points)**

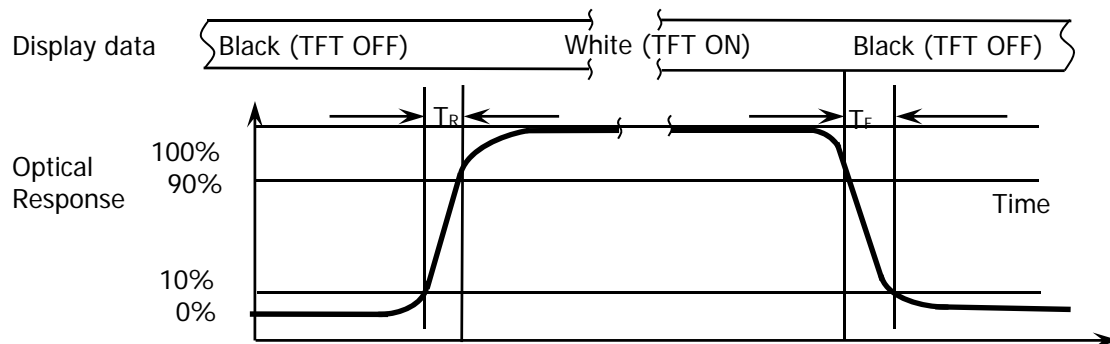


Luminance of white is defined as luminance values of max 9 points across the LCD surface. Luminance shall be measured with all pixels in the view field set first to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display.

The White luminance uniformity on LCD surface is then expressed as :  $\Delta Y9 = \text{Minimum Luminance of 9 points} / \text{Maximum Luminance of 9points}$  (see FIGURE 2).

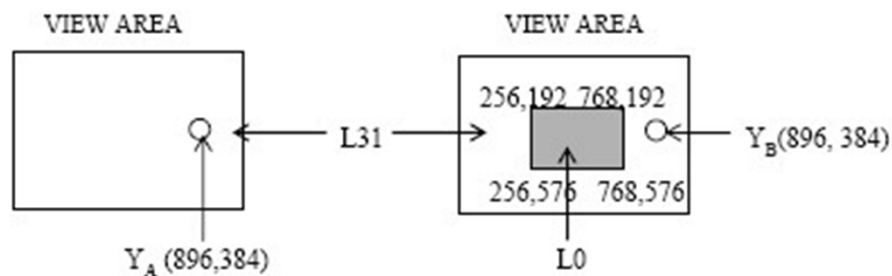
PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 12 OF 25

**Figure 3. Response Time Testing**



The electro-optical response time measurements shall be made as shown in FIGURE 3 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Tr and 90% to 10% is Td.

**Figure 4. Cross Modulation Test Description**



$$\text{Cross-Talk (\%)} = \left| \frac{Y_B - Y_A}{Y_A} \right| \times 100$$

Where:

YA = Initial luminance of measured area (cd/m<sup>2</sup>)

YB = Subsequent luminance of measured area (cd/m<sup>2</sup>)

The location measured will be exactly the same in both patterns

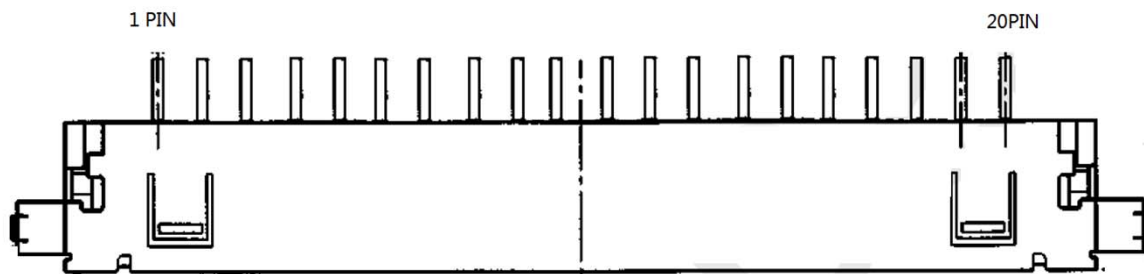
PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			13 OF 25

## 5.0 INTERFACE CONNECTION.

### 5.0.1 Electrical Interface Connection

Interface Connector: 20 pin LVDS connector **FI-SEB20P-HFE**(JAE);3.3V input power supply.

The connector interface pin assignments are listed in Table 6.

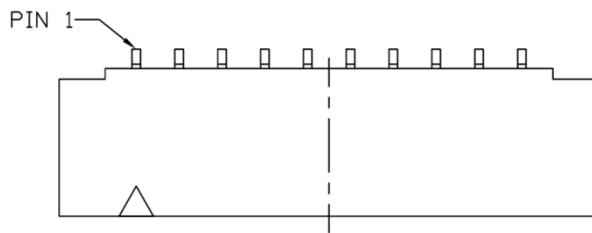


<Table 6. Pin Assignments for the Interface Connector>

Pin No.	Symbol	Functions	Pin No.	Symbol	Functions
1	LVDS2P	LVDS Data2+	11	VSS	GND
2	LVDS2N	LVDS Data2-	12	LVDS0P	LVDS Data0+
3	NC	No connect	13	LVDS0N	LVDS Data0-
4	NC	No connect	14	VSS	GND
5	VSS	GND	15	NC	No connect
6	LVDSCLKP	LVDS CLK+	16	NC	No connect
7	LVDSCLKN	LVDS CLK-	17	NC	No connect
8	VSS	GND	18	NC	No connect
9	LVDS1P	LVDS Data1+	19	VCC	+3.3V power supply
10	LVDS1N	LVDS Data1-	20	VCC	+3.3V power supply

<b>PRODUCT GROUP</b>		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 14 OF 25

Interface Connector: Connector of LED Converter of BLU 50214-01001-001(Aces)

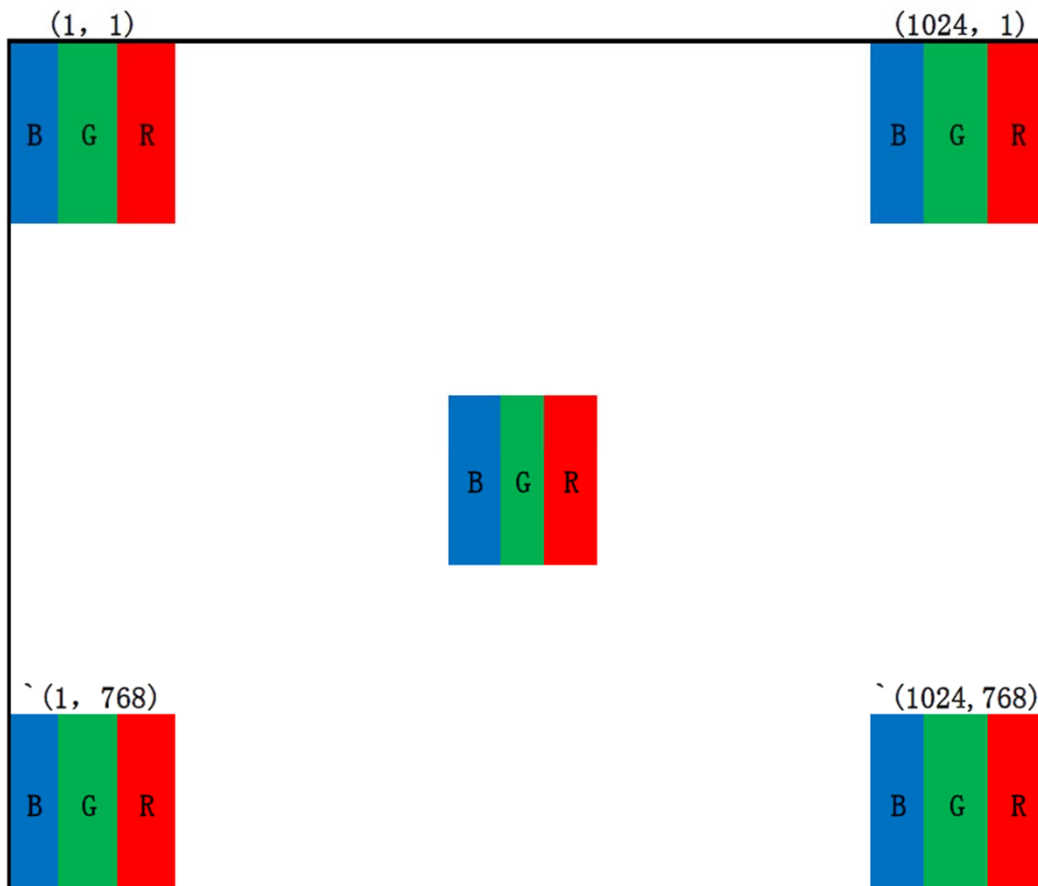


<Table 7. Pin Assignments for the Interface Connector of LED

Pin No	Symbol	Description
1	VCC	Converter input voltage 12V
2	VCC	Converter input voltage 12V
3	VCC	Converter input voltage 12V
4	VCC	Converter input voltage 12V
5	GND	Converter ground
6	GND	Converter ground
7	GND	Converter ground
8	GND	Converter ground
9	EN	Enable pin
10	PWM	Backlight Adjust

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 15 OF 25

## 5.2 Data Input Format



Display Position of Input Data (V-H)

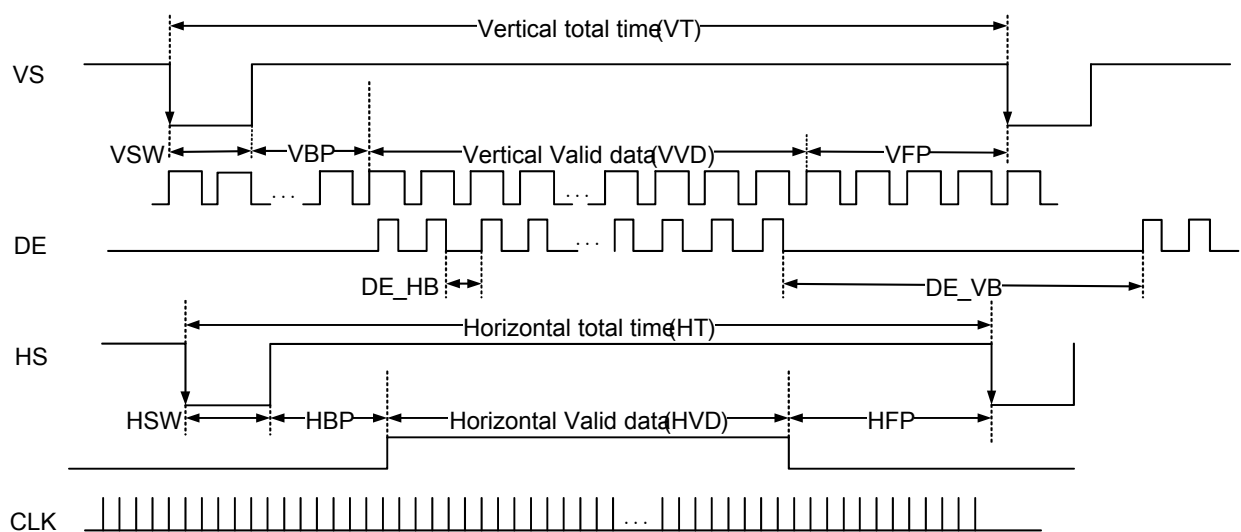
PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 16 OF 25

## 6.0 SIGNAL TIMING SPECIFICATION

6.0.1 The TDA201-001V03 is operated by the DE only.

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Clock Frequency	1/Tclock	-	65	-	Mhz
Horizontal active timing	HVD	-	1024	-	Clocks
Hsync pulse width	HSW	-	192	-	Clocks
Horizontal Back porch	HBP	-	160	-	Clocks
Horizontal front porch	HFP	-	24	-	Clocks
Vertical active timing	VVD	-	768	-	Lines
Vsync pulse width	VSW	-	6	-	Lines
Vertical Back porch	VBP	-	29	-	Lines
Vertical front porch	VFP	-	3	-	Lines

### 6.0.2 Timing diagrams of interface signal



PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			17 OF 25

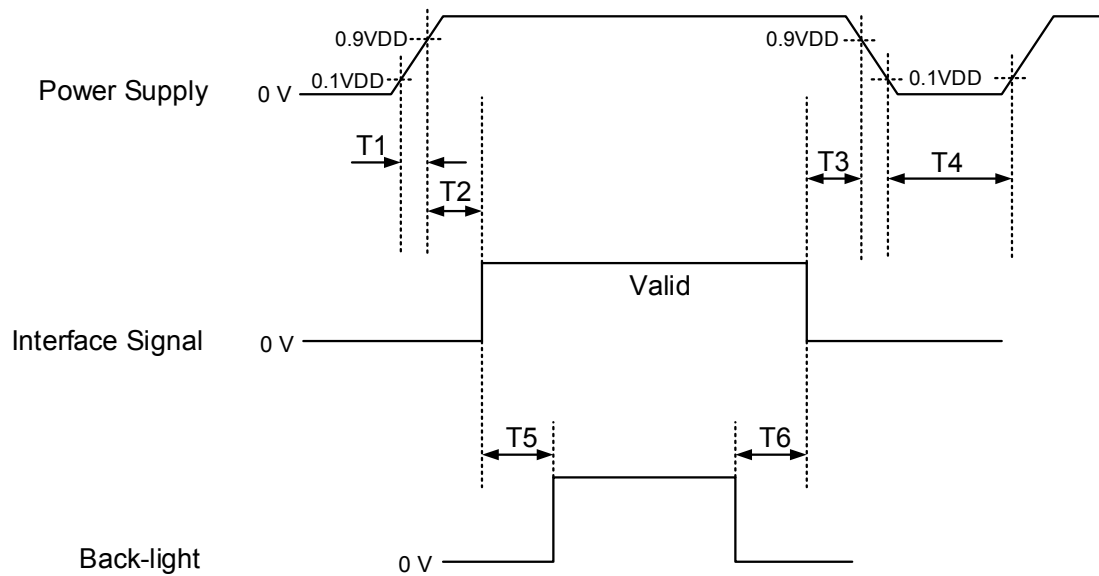
### 7.0 INPUT SIGNALS, BASIC DISPLAY COLORS & GRAY SCALE OF COLORS

Color & Gray Scale		Input Data Signal																	
		Red Data						Green Data						Blue Data					
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale of Red	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	▽	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale of Green	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Darker	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	▽	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Gray Scale of Blue	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Darker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	▽	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Gray Scale of White	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
	Darker	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1
	▽	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE TDA121-001V01 Preliminary Product Specification			PAGE 18 OF 25

## 8.0 POWER SEQUENCE

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence shall be as shown in below



- $0.5 \text{ ms} \leq T1 \leq 10 \text{ ms}$
- $0 \leq T2 \leq 50 \text{ ms}$
- $0 \leq T3 \leq 50 \text{ ms}$
- $1 \text{ sec} \leq T4$
- $200 \text{ ms} \leq T5$
- $200 \text{ ms} \leq T6$

### Notes:

1. When the power supply VDD is 0V, keep the level of input signals on the low or keep high impedance.
2. Do not keep the interface signal high impedance when power is on. Back Light must be turn on after power for logic and interface signal are valid.

<b>PRODUCT GROUP</b>	REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT	P0.1	2017.8.29	

SPEC. NUMBER	SPEC. TITLE	PAGE
	TDA121-001V01 Preliminary Product Specification	19 OF 25

**9.0 MECHANICAL CHARACTERISTICS**

**9.0.1 Dimensional Requirements**

<Table 8. Dimensional Parameters>

Parameter	Specification	Unit
Active Area	245.76 (H) × 184.32(V)	mm
Number of pixels	1024(H) X768(V) (1 pixel = R + G + B dots)	pixels
Pixel pitch	0.065(H) × 0.065(V)	mm
Pixel arrangement	BGR 2 domain stripe	
Display colors	262K (6bit)	colors
Display mode	Normally Black	
Dimensional outline	260.5(H) × 204(V) × 9(D) (typ.)	mm
Weight	TBD	kg
Back-light	Edge side, 1-LED Lighting Bar Type	
LED life	50,000	hr

**9.0.2 Mounting**

See FIGURE 5&6.

**9.0.3 Glare and Polarizer Hardness.**

The surface of the LCD has a hard coating to reduce scratching.

**9.0.4 Light Leakage**

There shall not be obvious light from the back-lighting system around the edges of the screen as seen from a distance 50cm from the screen with an overhead light level of 150lux.

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			20 OF 25

**10.0 RELIABILITY TEST**

The Reliability test items and its conditions are shown in below.

<Table 9. Reliability test>

**TBD**

Note1:

2hr is keeping temperature time,When the temperature reach -55°C or 80°C ;

Note2:

ESD Test based on GB/T17626 , Store capacitance is 15pF.Released resistance is 330Ω

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			21 OF 25

## 11.0 HANDLING & CAUTIONS

- (1) Cautions when taking out the module
  - Pick the pouch only, when taking out module from a shipping package.
- (2) Cautions for handling the module
  - As the electrostatic discharges may break the LCD module, handle the LCD module with care. Peel a protection sheet off from the LCD panel surface as slowly as possible.
  - As the LCD panel and back - light element are made from fragile glass material, impulse and pressure to the LCD module should be avoided.
  - As the surface of the polarizer is very soft and easily scratched, use a soft dry cloth without chemicals for cleaning.
  - Do not pull the interface connector in or out while the LCD module is operating.
  - Put the module display side down on a flat horizontal plane.
  - Handle connectors and cables with care.
- (3) Cautions for the operation
  - When the module is operating, do not lose CLK, ENAB signals. If any one of these signals is lost, the LCD panel would be damaged.
  - Obey the supply voltage sequence. If wrong sequence is applied, the module would be damaged.
- (4) Cautions for the atmosphere
  - Dew drop atmosphere should be avoided.
  - Do not store and/or operate the LCD module in a high temperature and/or humidity atmosphere. Storage in an electro-conductive polymer packing pouch and under relatively low temperature atmosphere is recommended.
- (5) Cautions for the module characteristics
  - Do not apply fixed pattern data signal to the LCD module at product aging.
  - Applying fixed pattern for a long time may cause image sticking.
- (6) Other cautions
  - Do not disassemble and/or re-assemble LCD module.
  - Do not re-adjust variable resistor or switch etc.
  - When returning the module for repair or etc., Please pack the module not to be broken. We recommend to use the original shipping packages.

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			22 OF 25

## 12.0 LABEL

(1) Product label



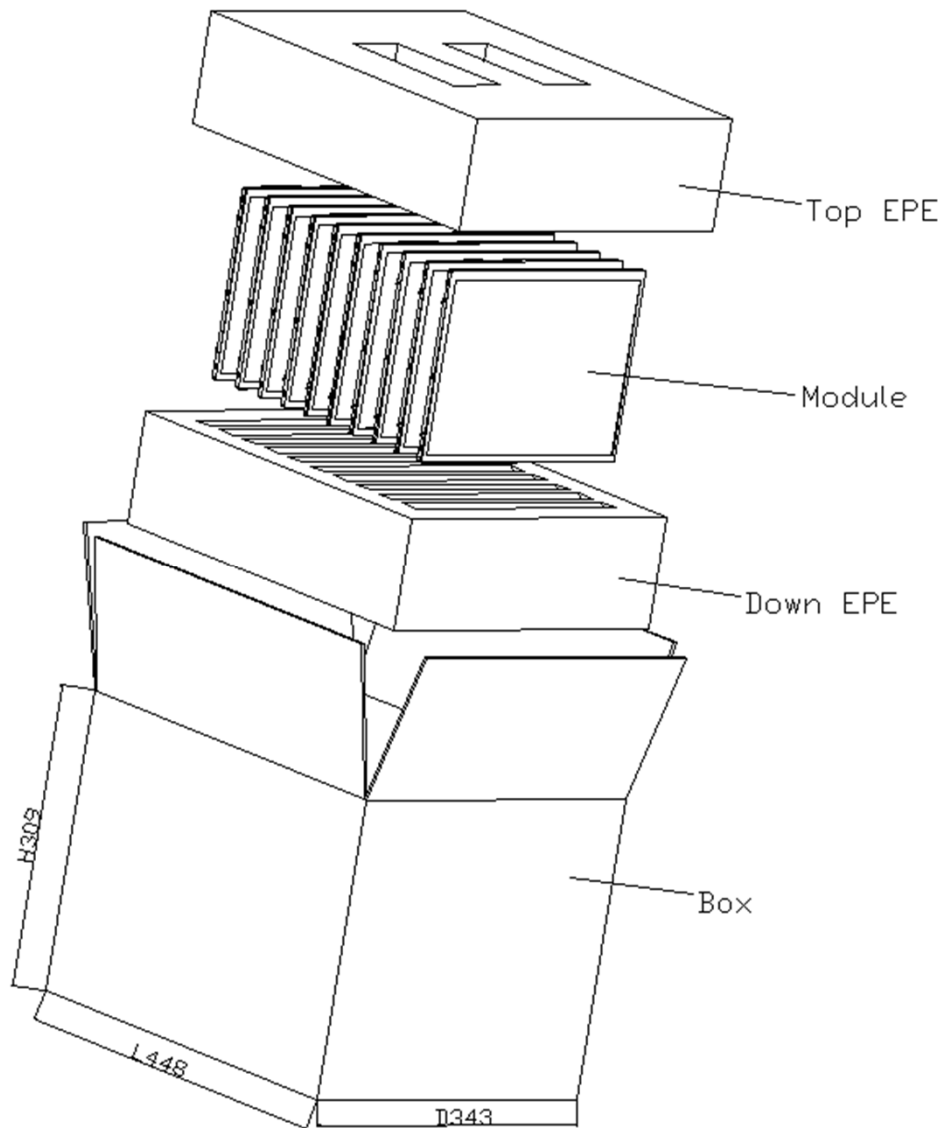
1                      2                      3                      4                      5                      6                      7

Note:

- 1: Manufacturer and Product Type
- 2: Product Size
- 3: Year(2010 -A 2011—B.....)
- 4: Month(1,2,3.....7,8,9,X,Y,Z)
- 5: Date
- 6: Stage Identification(Z1,D1)
- 7: Serial Number

PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			23 OF 25

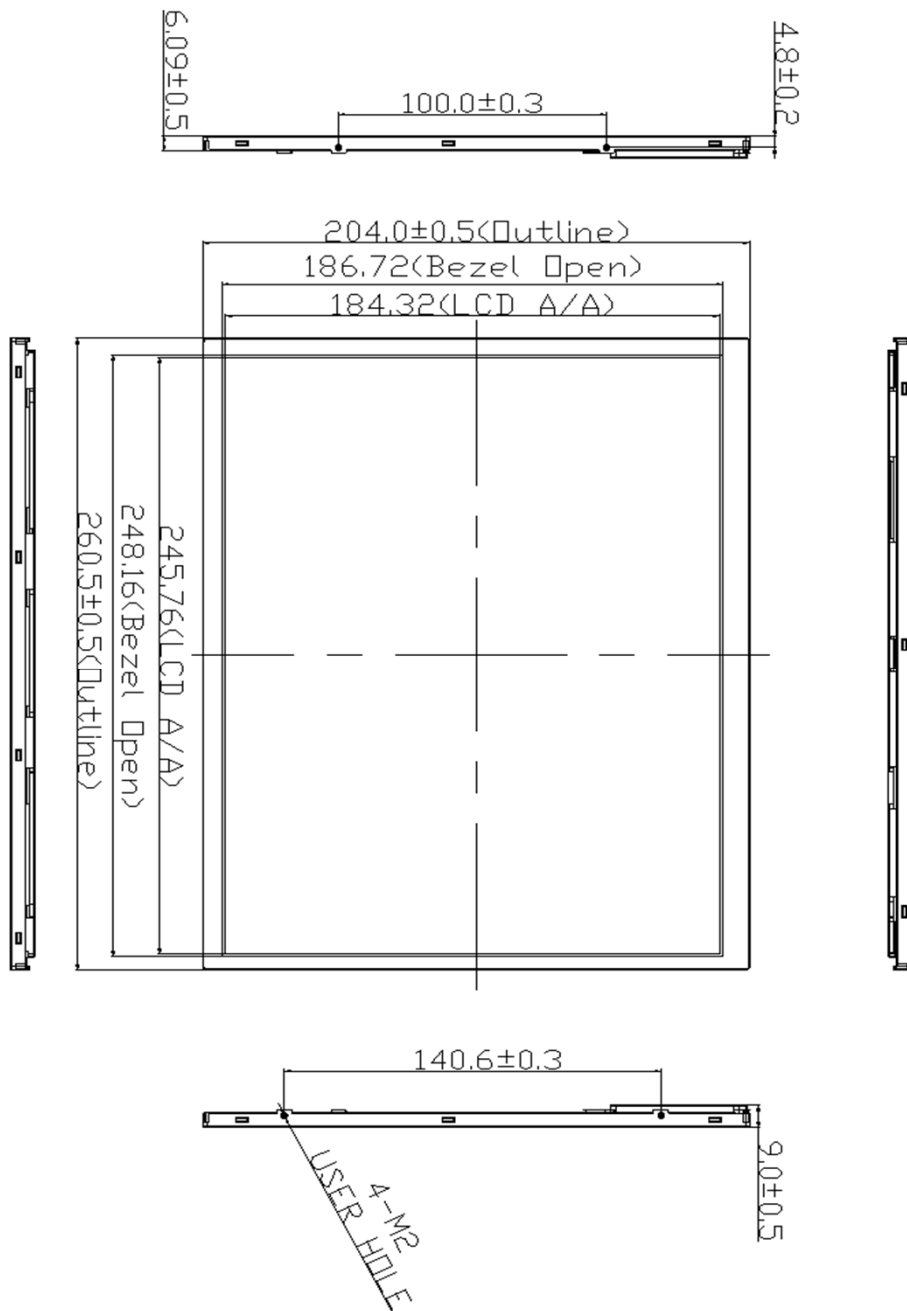
### 13.0 PACKING INFORMATION



PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			24 OF 25

### 14.0 MECHANICAL OUTLINE DIMENSION

Figure 5. TFT-LCD Module Outline Dimension (Front View)



PRODUCT GROUP		REV	ISSUE DATE	<b>BOE</b>
LCM PRODUCT		P0.1	2017.8.29	
SPEC. NUMBER	SPEC. TITLE			PAGE
	TDA121-001V01 Preliminary Product Specification			25 OF 25

Figure 6. TFT-LCD Module Outline Dimensions (Rear view)

