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HT156WXB-502**Preliminary Product Specification Rev. P0****BEIJING BOE OPTOELECTRONICS TECHNOLOGY**

SPEC. NUMBER	PRODUCT GROUP TFT-LCD	REV. P0	ISSUE DATE 2011.02.28	PAGE 1 OF 34
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 京东方 BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2011.02.28

REVISION HISTORY

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SPEC. NUMBER	SPEC TITLE	PAGE
	HT156WXB-502 Preliminary Product Specification	2 OF 34

B2006-5006-O (2/3)

A4(210 X 297)

**京东方
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TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

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	14
6.0	Signal Timing Specification	18
7.0	Signal Timing waveforms	20
8.0	Input Signals, Display Colors & Gray Scale of Colors	22
9.0	Power Sequence	23
10.0	Connector description	24
11.0	Mechanical Characteristics	25
12.0	Reliability Test	26
13.0	Handling & Cautions.	26
14.0	Label	27
15.0	Packing information	29
16.0	Mechanical Outline Dimension	30
17.0	EDID Table	32

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

3 OF 34

B2006-5006-O (3/3)

A4(210 X 297)



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

P0

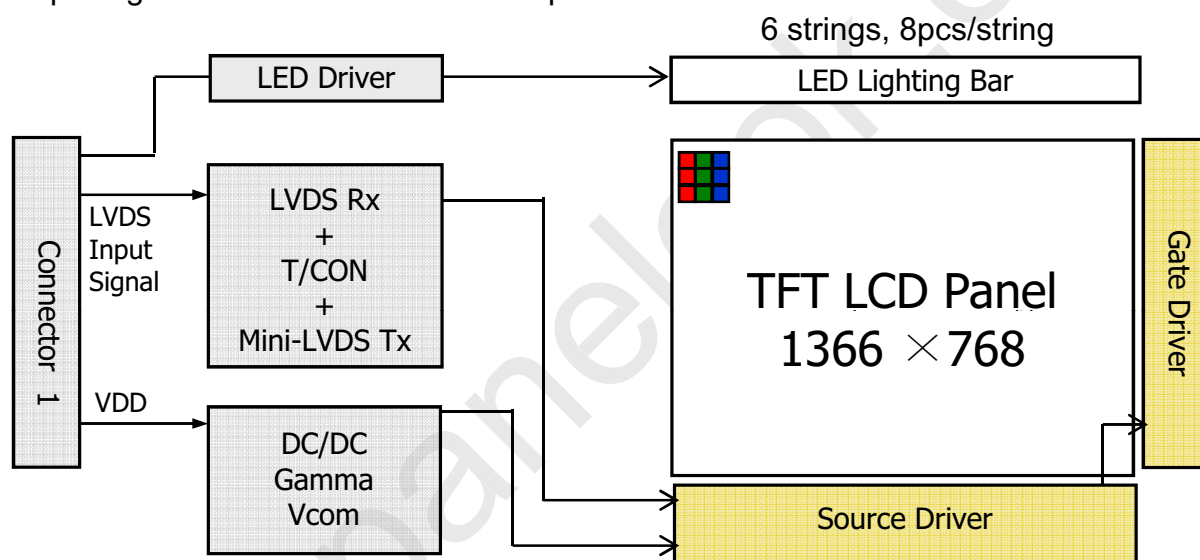
ISSUE DATE

2011.02.28

1.0 GENERAL DESCRIPTION

1.1 Introduction

HT156WXB-502 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 15.6 inch diagonally measured active area with WXGA resolutions (1366 horizontal by 768 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical Stripe and this module can display 262,144 colors. The TFT-LCD panel used for this module is a low reflection and higher color type. Therefore, this module is suitable for Notebook PC. The LED Driver for back-light driving is built in this model. All input signals are LVDS interface compatible.



1.2 Features

- 1 Channel LVDS Interface with 1 pixel / clock
- Thin and light weight
- 6-bit color depth, display 262K colors
- Single LED Lighting Bar. (Right side/Vertical Direction)
- Data enable signal mode
- Side Mounting Frame
- Green Product (RoHS & Halogen free product)
- On board LED Driving circuit
- Low driving voltage and low power consumption
- On board EDID chip


SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

4 OF 34

 京东方 BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2011.02.28

1.3 Application

- Notebook PC (Wide type)

1.4 General Specification

The followings are general specifications at the model HT156WXB-500. (listed in Table 1.)

<Table 1. General Specifications>

Parameter	Specification	Unit	Remarks
Active area	344.232(H) × 193.536(V)	mm	
Number of pixels	1366 (H) × 768 (V)	pixels	
Pixel pitch	0.252 (H) × 0.252 (V)	mm	
Pixel arrangement	RGB Vertical stripe		
Display colors	262K	colors	
Display mode	Normally White		
Dimensional outline	359.3±0.5 (H) × 209.5±0.5 (V) × 5.5 (D:max)	mm	
Weight	450 (max)	g	
Surface treatment	Glare / Hardness 3H		
Back-light	Up edge side, 1-LED Lighting Bar type		Note 1
Power consumption	P _D : 1.4 (max)	W	
	P _{BL} : 3.7 (max)	W	
	P _{total} : 5.1(max)	W	

SPEC. NUMBER	SPEC TITLE HT156WXB-502 Preliminary Product Specification	PAGE 5 OF 34
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京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

ISSUE DATE

P0

2011.02.28

2.0 ABSOLUTE MAXIMUM RATINGS

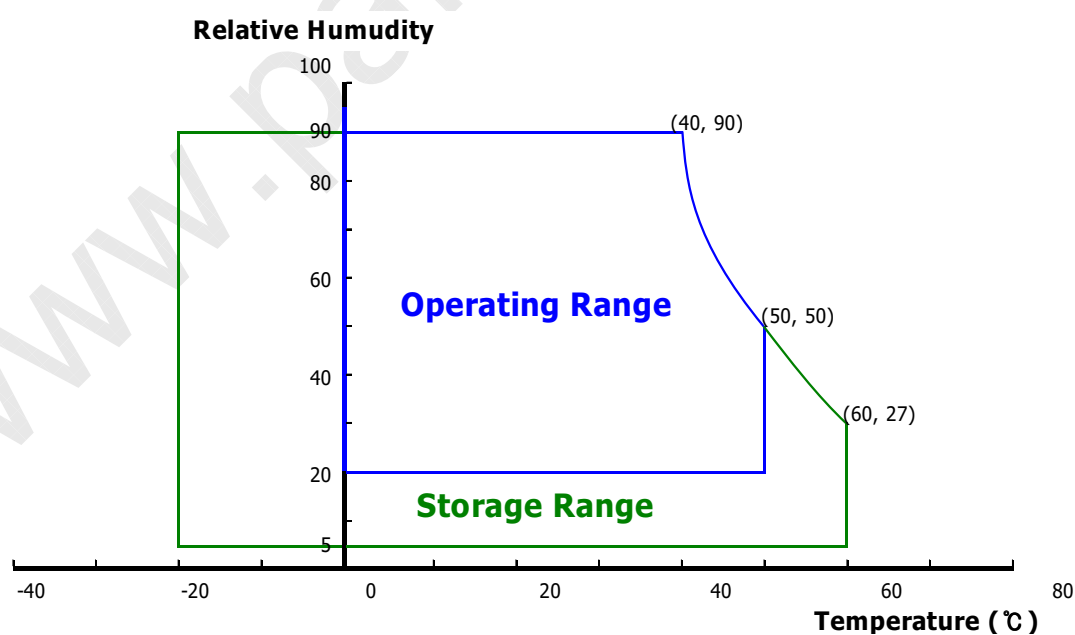
The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. Absolute Maximum Ratings >

Ta=25+/-2°C

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Voltage	V _{DD}	-0.3	4.0	V	Note 1
Logic Supply Voltage	V _{IN}	V _{SS} -0.3	V _{DD} +0.3	V	
Operating Temperature	T _{OP}	0	+50	°C	Note 2
Storage Temperature	T _{ST}	-20	+60	°C	

- Notes : 1. Permanent damage to the device may occur if maximum values are exceeded functional operation should be restricted to the condition described under normal operating conditions.
2. Temperature and relative humidity range are shown in the figure below.
 95 % RH Max. (40 °C ≥ Ta)
 Maximum wet - bulb temperature at 39 °C or less. (Ta > 40 °C) No condensation.



SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

6 OF 34

B2006-5006-O (3/3)

A4(210 X 297)



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

ISSUE DATE

P0

2011.02.28

3.0 ELECTRICAL SPECIFICATIONS

3.1 Electrical Specifications

< Table 3. Electrical specifications >

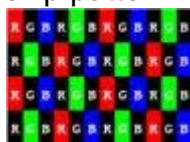
Ta=25+/-2°C

Parameter		Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	V _{DD}	3.0	3.3	3.6	V	Note 1
Permissible Input Ripple Voltage	V _{RF}	-	-	100	mV	At V _{DD} = 3.3V
Power Supply Current	I _{DD}	-	-	425	mA	Note 1
Positive-going Input Threshold Voltage	V _{IT+}	-	-	100	mV	V _{cm} = 1.2V typ.
Negative-going Input Threshold Voltage	V _{IT-}	-100	-	-	mV	
Differential Input Voltage	V _{ID}	200	-	600	mV	
Power Consumption	P _D	-	-	1.4	W	Note 1
	P _{BL}	-	-	3.6	W	Note 2
	P _{total}	-	-	5.1	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 3.3V at 25°C.

a) Typ : Window XP pattern

b) Max : Vertical 2 line skip pattern



2. Calculated value for reference (V_{LED} × I_{LED} / LED driver efficiency)

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

7 OF 34

B2006-5006-O (3/3)

A4(210 X 297)


京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

ISSUE DATE

P0

2011.02.28

3.0 ELECTRICAL SPECIFICATIONS

3.2 Backlight Unit

< Table 4. LED Driving guideline specifications >

Ta=25+/-2°C

Parameter		Min.	Typ.	Max.	Unit	Remarks
LED Forward Voltage	V_F	3.0	3.2	3.4	V	-
LED Forward Current	I_F	-	20		mA	-
LED Power Consumption	P_{LED}		3.1	3.3	W	Note 1
LED Life-Time	N/A	30,000	-	-	Hour	$I_F = 20mA$
Power supply voltage for LED Driver		V_{LED}	7	12	20	V
EN Control Level	Backlight on		2.0		5.0	V
	Backlight off		0		1.0	V
PWM Control Level	PWM High Level		2.0		5.0	V
	PWM Low Level		0		0.1	V
PWM Control Frequency		F_{PWM}	600	1k	10k	Hz
Duty Ratio		-	5	-	100	%

Notes : 1. Calculator Value for reference $V_F \times I_F \times N = P_{LED}$ (N is LED quantity)

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

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

8 OF 34

B2006-5006-O (3/3)

A4(210 X 297)


京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

4.0 OPTICAL SPECIFICATION

4.1 Overview

The test of Optical specifications shall be measured in a dark room (ambient luminance ≤ 1 lux and temperature = $25 \pm 2^\circ\text{C}$) with the equipment of Luminance meter system (Goniometer system and TOPCON BM-5) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of θ and Φ equal to 0° . 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 θ and/or Φ , the center of the measuring spot on the Display surface shall stay fixed. The backlight should be operating for 30 minutes prior to measurement. VDD shall be $3.3 \pm 0.3\text{V}$ at 25°C . Optimum viewing angle direction is 6 o'clock.

4.2 Optical Specifications

<Table 5. Optical Specifications>

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	Θ_3	CR > 10	40	45	-	Deg.	Note 1
		Θ_9		40	45	-	Deg.	
	Vertical	Θ_{12}		10	15	-	Deg.	
		Θ_6		30	35	-	Deg.	
Luminance Contrast ratio		CR	$\Theta = 0^\circ$	400	500			Note 2
Luminance of White	5 Points	Y_w	$\Theta = 0^\circ$ ILED = 20mA	187	220	-	cd/m ²	Note 3
White Luminance uniformity	5 Points	ΔY_5		80	-	-		Note 4
	13 Points	ΔY_{13}		65	-	-		
White Chromaticity		x_w	$\Theta = 0^\circ$	0.283	0.313	0.343		Note 5
		y_w		0.299	0.329	0.359		
Reproduction of color	Red	x_R	$\Theta = 0^\circ$	-0.03	T.B.D	+0.03		
		y_R			T.B.D			
	Green	x_G			T.B.D			
		y_G			T.B.D			
	Blue	x_B			T.B.D			
		y_B			T.B.D			
Color Gamut			$\Theta = 0^\circ$	60			%	
Response Time (Rising + Falling)		T _{RT}	Ta= 25° C $\Theta = 0^\circ$	-	8	16	ms	Note 6
Cross Talk		CT	$\Theta = 0^\circ$	-	-	2.0	%	Note 7

SPEC. NUMBER

SPEC TITLE


HT156WXB-502 Preliminary Product Specification

PAGE

9 OF 34

B2006-5006-O (3/3)

A4(210 X 297)

 京东方 BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2011.02.28
<p>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).</p> <p>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.</p> $CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$ <p>3. Center Luminance of white is defined as luminance values of 5 point average 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.</p> <p>4. The White luminance uniformity on LCD surface is then expressed as : $\Delta Y = \text{Minimum Luminance of 5(or 13) points} / \text{Maximum Luminance of 5(or 13) points}$ (see FIGURE 2 and FIGURE 3).</p> <p>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.</p> <p>6. The electro-optical response time measurements shall be made as FIGURE 4 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.</p> <p>7. Cross-Talk of one area of the LCD surface by another shall be measured by comparing the luminance (Y_A) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (Y_B) of that same area when any adjacent area is driven dark. (See FIGURE 5).</p>			
SPEC. NUMBER	SPEC TITLE		PAGE
	HT156WXB-502 Preliminary Product Specification		10 OF 34



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

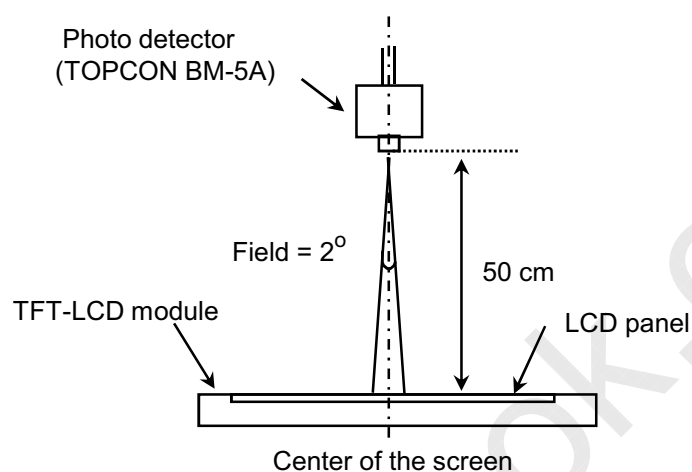
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ISSUE DATE

2011.02.28

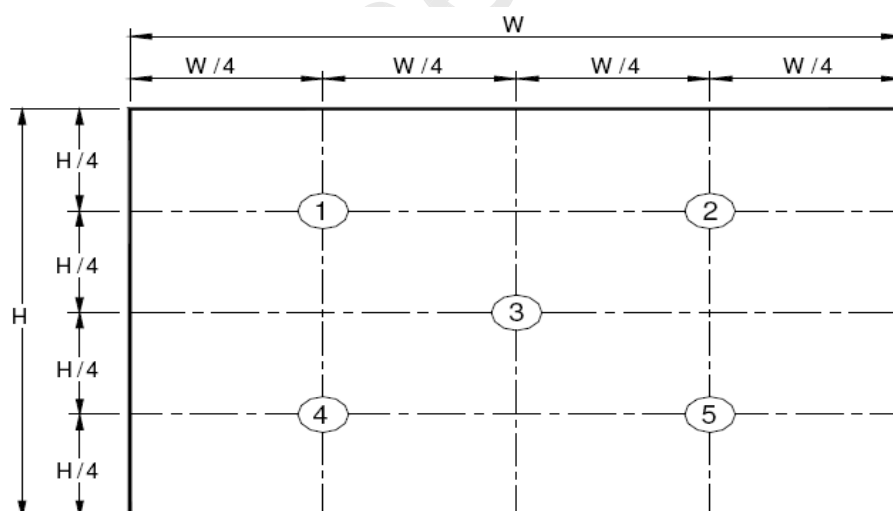
4.3 Optical measurements

Figure 1. Measurement Set Up



Optical characteristics measurement setup

Figure 2. White Luminance and Uniformity Measurement Locations (5 points)



Center Luminance of white is defined as luminance values of center 5 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.

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

11 OF 34



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

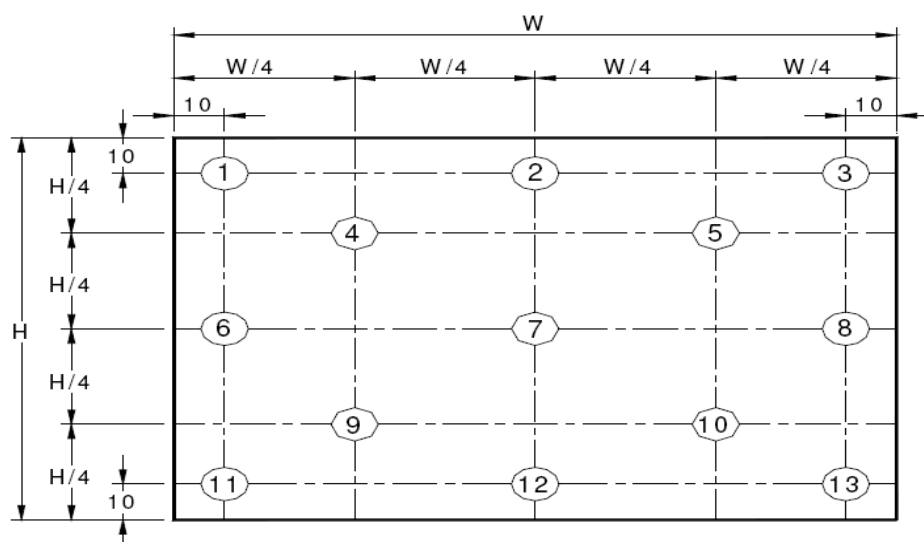
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P0

ISSUE DATE

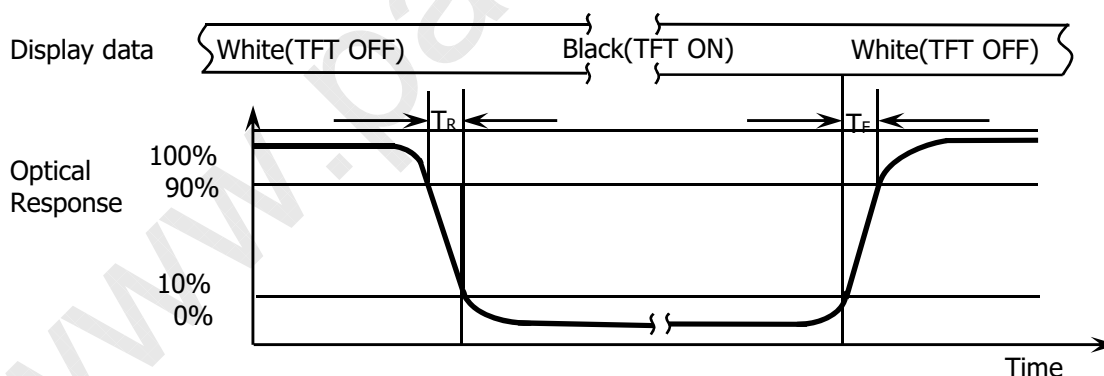
2011.02.28

Figure 3. Uniformity Measurement Locations (13 points)



The White luminance uniformity on LCD surface is then expressed as : ΔY_5 = Minimum Luminance of five points / Maximum Luminance of five points (see FIGURE 2) , ΔY_{13} = Minimum Luminance of 13 points /Maximum Luminance of 13 points (see FIGURE 3).

Figure 4. Response Time Testing



The electro-optical response time measurements shall be made as shown in FIGURE 4 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is T_d and 90% to 10% is T_r .

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

12 OF 34



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

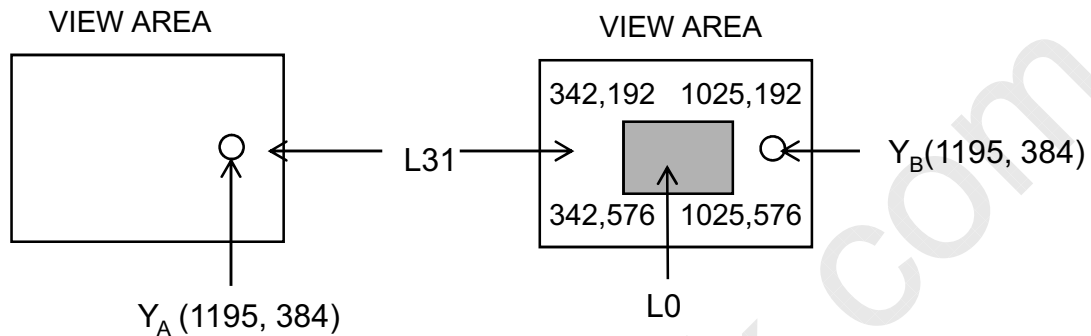
REV

P0

ISSUE DATE

2011.02.28

Figure 5. Cross Modulation Test Description



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

Where:

Y_A = Initial luminance of measured area (cd/m²)

Y_B = Subsequent luminance of measured area (cd/m²)

The location measured will be exactly the same in both patterns

Cross-Talk of one area of the LCD surface by another shall be measured by comparing the luminance (Y_A) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (Y_B) of that same area when any adjacent area is driven dark (Refer to FIGURE 5).

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

13 OF 34

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

5.0 INTERFACE CONNECTION.**5.1 Electrical Interface Connection**

The electronics interface connector is I-PEX 20455-040E-12 or Compatible or equivalent. The mating connector part number is I-PEX 20455-040T-11 or Compatible. The connector interface pin assignments are listed in Table 6.

<Table 6. Pin Assignments for the Interface Connector>

Terminal	Symbol	Functions
Pin No.	Symbol	Description
1	NC	No Connection
2	VDDIN	Power Supply, 3.3V (typ.)
3	VDDIN	Power Supply, 3.3V (typ.)
4	VDC	VDC 3.3Vpower for EDID
5	BISTC	BIST control(Note.1)
6	CLK EDID	EDID Clock
7	Data EDID	EDID Data
8	RxIN0-	Transmission Data of 0 Negative -
9	RxIN0+	Transmission Data of 0 Positive +
10	GND	Ground
11	RxIN1-	Transmission Data of 1 Negative -
12	RxIN1+	Transmission Data of 1 Positive +
13	GND	Ground
14	RxIN2-	Transmission Data of 2 Negative -
15	RxIN2+	Transmission Data of 2 Positive +
16	GND	Ground
17	RxCLKIN-	Sampling Clock of Negative -
18	RxCLKIN+	Sampling Clock of Positive +
19	COLOR_ENIN	Color Engine Enable
20	NC	No Connection
21	NC	No Connection
22	GND	Ground
23	NC	No Connection
24	NC	No Connection
25	GND	Ground
26	(SDA_L)	LCD internal use only
27	(SCL_L)	
28	GND	Ground
29	NC	No Connection
30	NC	No Connection

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

14 OF 34

B2006-5006-O (3/3)

A4(210 X 297)

**京东方**
BOE**PRODUCT GROUP**

REV

ISSUE DATE

TFT LCD PRODUCT

P0

2011.02.28

Terminal	Symbol	Functions
Pin No.	Symbol	Description
31	VLED_GND	LED Ground
32	VLED_GND	LED Ground
33	VLED_GND	LED Ground
34	NC	No Connection
35	PWM	System PWM Signal Input
36	LED_EN	LED enable pin(+3.3V Input)
37	DCR	Dynamic Backlight Enable
38	VLED	LED Power Supply 7V-20V
39	VLED	LED Power Supply 7V-20V
40	VLED	LED Power Supply 7V-20V

Note.1

-BIST="H (3.3V)" : Display BIST pattern @ No LVDS CLK or DE

(white->black->red->green->blue->white...)

-BIST="L(GND or NC)" : Display black pattern @ No LVDS CLK or DE

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

15 OF 34

B2006-5006-O (3/3)

A4(210 X 297)



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

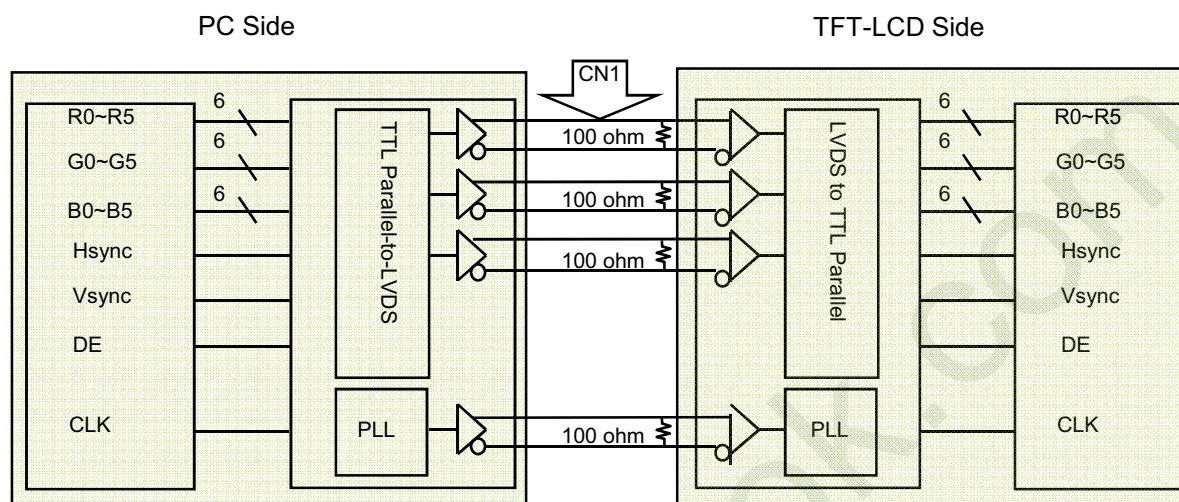
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P0

ISSUE DATE

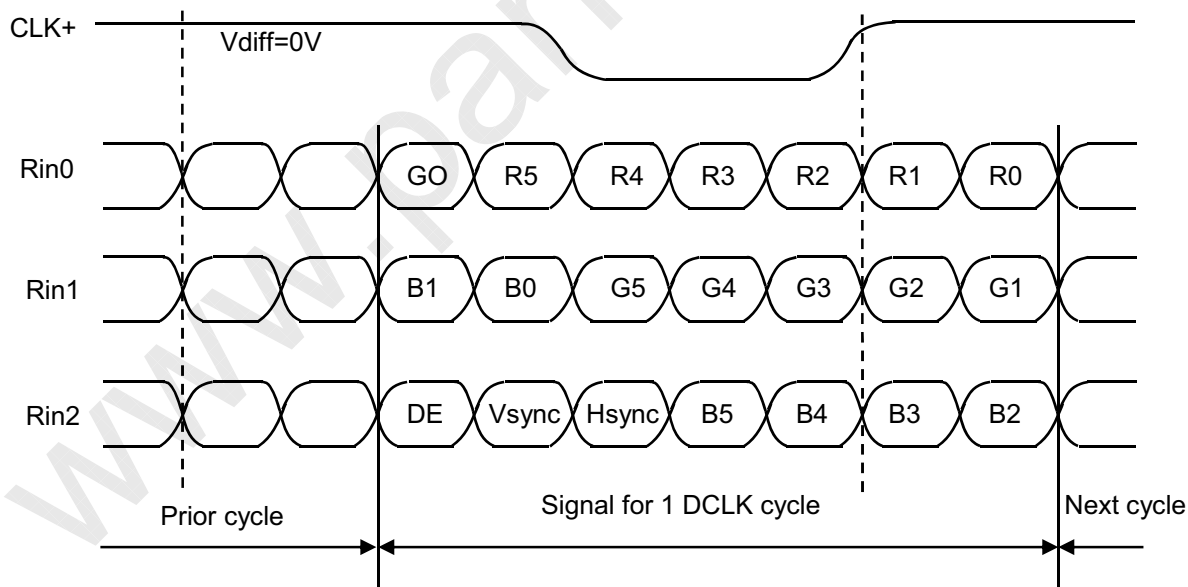
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5-2. LVDS Interface



Note. Transmitter : Thine THC63LVDM63A or equivalent.
Transmitter is not contained in Module.

5.3.LVDS Input signal



Note. Pin connection in case of using Thine THC63LVDM63A

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

16 OF 34

**京东方
BOE****PRODUCT GROUP**

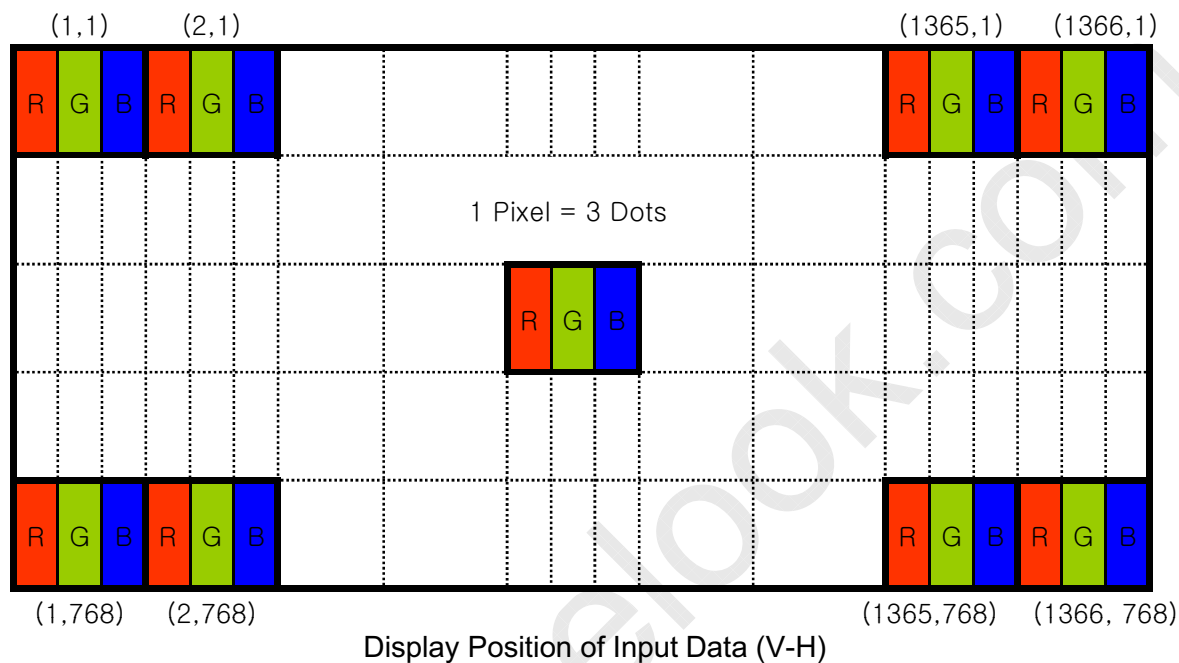
TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

5.3 Data Input Format**5.4 Back-light & LCM Interface Connection**

Interface Connector: MS24022P10 or Equivalent

<Table 7. Pin Assignments for the BLU & LCM Connector>

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	LED6	LED cathode connection	6	LED1	LED cathode connection
2	LED5	LED cathode connection	7	NC	No Connection
3	LED4	LED cathode connection	8	Vout	LED anode connection
4	LED3	LED cathode connection	9	Vout	LED anode connection
5	LED2	LED cathode connection	10	Vout	LED anode connection

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

17 OF 34

B2006-5006-O (3/3)

A4(210 X 297)

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

6.0 SIGNAL TIMING SPECIFICATION**6.1 The HT156WXB-502 is operated by the DE only.**

Item		Symbols	Min	Typ	Max	Unit
Clock	Frequency	1/Tc	67.5	72.3	-	MHz
	High Time	Tch	-	4/7	-	Tc
	Low Time	Tcl	-	3/7	-	Tc
Frame Period		Tv	778	790	802	lines
			-	60	-	Hz
			-	16.7	-	ms
Vertical Display Period		Tvd	768	768	768	lines
One line Scanning Period		Th	1446	1526	1586	clocks
Horizontal Display Period		Thd	1366	1366	1366	clocks

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

18 OF 34

B2006-5006-O (3/3)

A4(210 X 297)

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

P0

ISSUE DATE

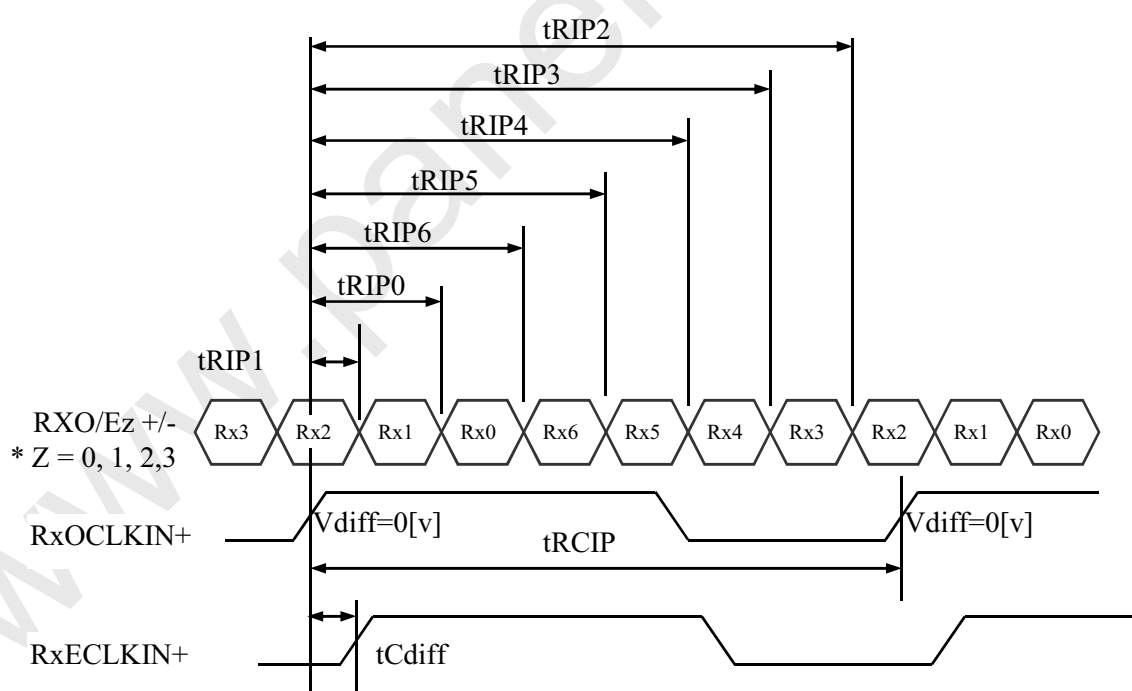
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6.2 LVDS Rx Interface Timing Parameter

The specification of the LVDS Rx interface timing parameter is shown in Table 8.

<Table 8. LVDS Rx Interface Timing Specification>

Item	Symbol	Min	Typ	Max	Unit	Remark
CLKIN Period	tRCIP	-	13.83	14.8	nsec	
CLK Difference	tCdiff	-tRCIP*(3/7)	0	+tRCIP*(3/7)	nsec	
Input Data 0	tRIP1	-0.4	0.0	+0.4	nsec	
Input Data 1	tRIP0	tRCIP/7-0.4	tRCIP/7	tRCIP/7+0.4	nsec	
Input Data 2	tRIP6	2 × tRCIP/7-0.4	2 × tRCIP/7	2 × tRCIP/7+0.4	nsec	
Input Data 3	tRIP5	3 × tRCIP/7-0.4	3 × tRCIP/7	3 × tRCIP/7+0.4	nsec	
Input Data 4	tRIP4	4 × tRCIP/7-0.4	4 × tRCIP/7	4 × tRCIP/7+0.4	nsec	
Input Data 5	tRIP3	5 × tRCIP/7-0.4	5 × tRCIP/7	5 × tRCIP/7+0.4	nsec	
Input Data 6	tRIP2	6 × tRCIP/7-0.4	6 × tRCIP/7	6 × tRCIP/7+0.4	nsec	



$$* V_{diff} = (RXO/Ez+) - (RXO/Ez-), \dots, (RXO/ECLK+) - (RXO/ECLK-)$$

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

19 OF 34



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

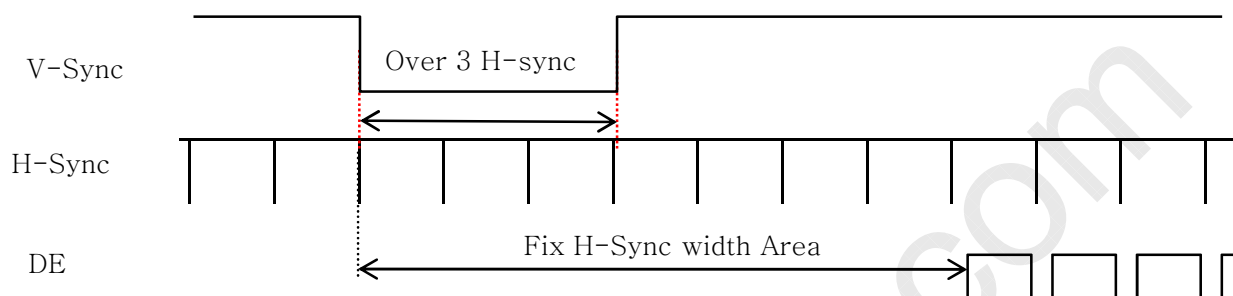
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ISSUE DATE

2011.02.28

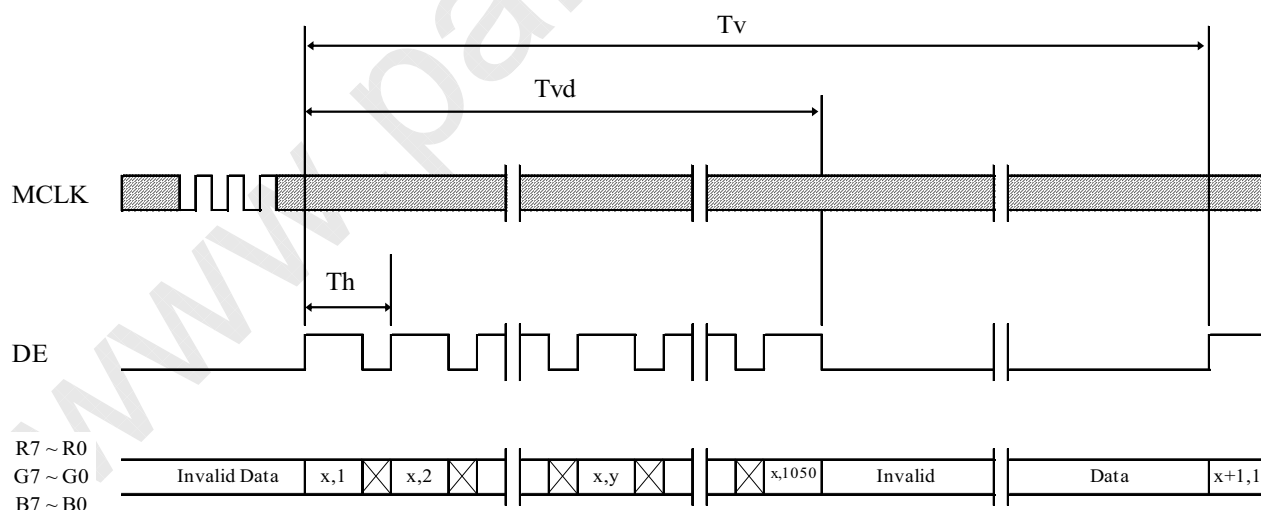
7.0 SIGNAL TIMING WAVEFORMS OF INTERFACE SIGNAL

7.1 Sync Timing Waveforms



- 1) Need over 3 H-sync during V-Sync Low
- 2) Fix H-Sync width from V-Sync falling edge to first rising edge

7.2 Vertical Timing Waveforms



SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

20 OF 34



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

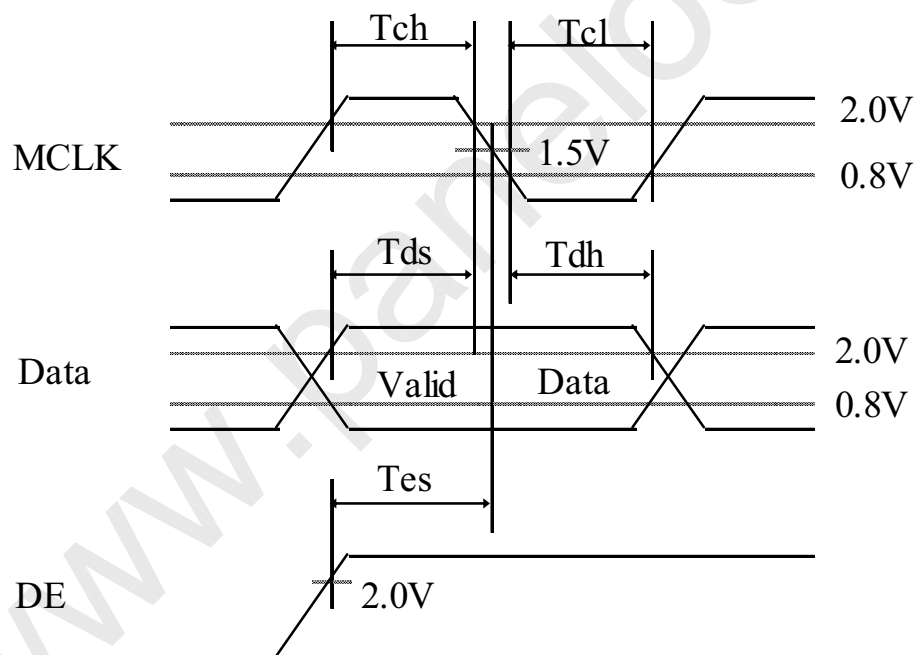
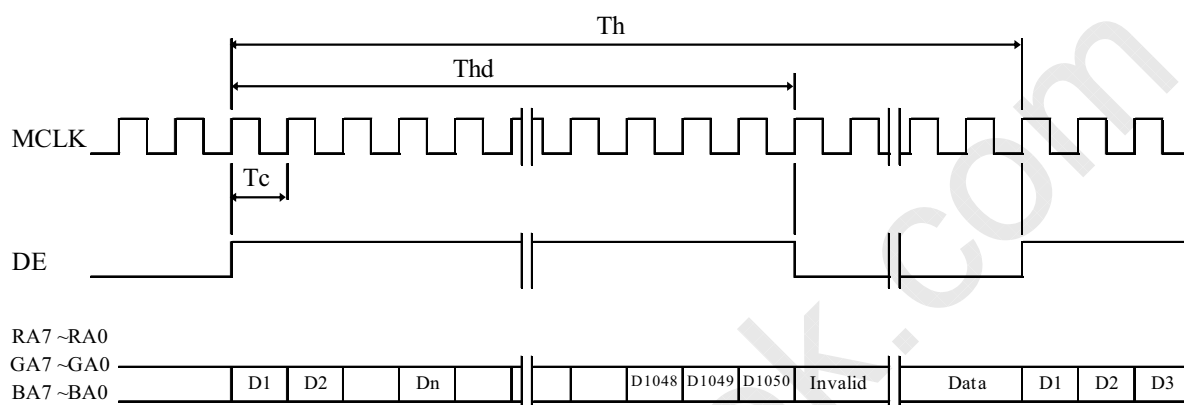
REV

P0

ISSUE DATE

2011.02.28

7.3 Horizontal Timing Waveforms



SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

21 OF 34

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

8.0 INPUT SIGNALS, BASIC DISPLAY COLORS & GRAY SCALE OF COLORS

	Colors & Gray scale	Data signal																	
		R0	R1	R2	R3	R4	R5	G0	G1	G2	G3	G4	G5	B0	B1	B2	B3	B4	B5
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
	Light Blue	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
	Purple	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
	△	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△ ▽	↑ ↓						↑ ↓						↑ ↓					
	Brighter	1	0	1	1	1	1	0	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
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

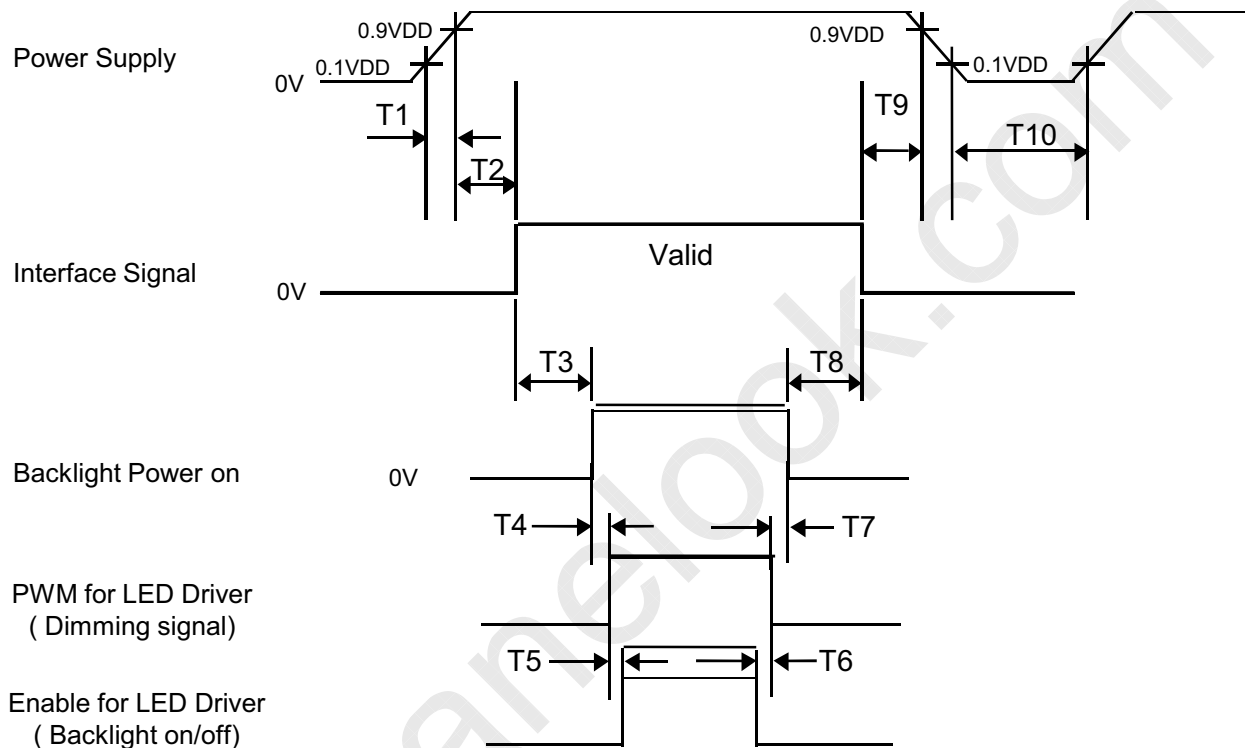
P0

ISSUE DATE

2011.02.28

9.0 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



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

- $0 \text{ ms} \leq T6$
- $10 \text{ ms} \leq T7$
- $200 \text{ ms} \leq T8$
- $0 \text{ ms} \leq T9 \leq 50 \text{ ms}$
- $1 \text{ s} \leq T10$

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.

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

23 OF 34



 京东方 BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2011.02.28

10.0 Connector Description

Physical interface is described as for the connector on LCM.

These connectors are capable of accommodating the following signals and will be following components.

10.1 TFT LCD Module

Connector Name /Description	For Signal Connector
Manufacturer	IPEX or Compatible
Type/ Part Number	I-PEX 20455-040E-12 or Compatible
Mating housing/ Part Number	I-PEX 20455-040T-11 or Compatible

SPEC. NUMBER	SPEC TITLE HT156WXB-502 Preliminary Product Specification	PAGE 24 OF 34
--------------	--	------------------

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

11.0 MECHANICAL CHARACTERISTICS**11.1 Dimensional Requirements**

FIGURE 6 shows mechanical outlines for the model HT156WXB-502.
Other parameters are shown in Table 9.

<Table 9. Dimensional Parameters>

Parameter	Specification	Unit
Active Area	344.232 (H) × 193.536 (V)	
Number of pixels	1366 (H) X 768 (V) (1 pixel = R + G + B dots)	
Pixel pitch	0.252 (H) X 0.252 (V)	
Pixel arrangement	RGB Vertical stripe	
Display colors	262,144	
Display mode	Normally white	
Dimensional outline	359.3 ± 0.5 × 209.5 ± 0.5 × 5.5(max)	mm
Weight	450 (max)	gram
Back Light	Connector : MS24022P10	
	LED, Horizontal-LED Array type	

10.2 Mounting

See FIGURE 6.

10.3 Glare and Polarizer Hardness.

The surface of the LCD has a glare coating to maximize readability and hard coating to reduce scratching.

10.4 Light Leakage

There shall not be visible 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 350lux.

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

25 OF 34

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

P0

ISSUE DATE

2011.02.28

12.0 RELIABILITY TEST

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

<Table 10. Reliability test>

No	Test Items	Conditions
1	High temperature storage test	Ta = 60 °C, 240 hrs
2	Low temperature storage test	Ta = -20 °C, 240 hrs
3	High temperature & high humidity operation test	Ta = 50 °C, 50%RH, 240 hrs
4	High temperature operation test	Ta = 50 °C, 240 hrs
5	Low temperature operation test	Ta = 0 °C, 240 hrs
6	Thermal shock	Ta = -20 °C ↔ 60 °C (0.5 hr), 100 cycle
7	Vibration test (non-operating)	1.5G, 1~500Hz sine +X,+Y+Z Sweep rate : 30min.
8	Shock test (non-operating)	220G, Half Sine Wave 2msec ±X, ±Y, ±Z Once for each direction
9	Electro-static discharge test (non-operating)	Air : 150 pF, 330Ω, 15 KV Contact : 150 pF, 330Ω, 8 KV

13.0 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.

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

26 OF 34

B2006-5006-O (3/3)

A4(210 X 297)



 京东方 BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2011.02.28

(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.

14.0 LABEL

(1) Product label



1	2	3	4	5	6	7
X	X	X	X	1	0	X
X	X	X	X	0	X	X
X	X	X	X	X	X	X

Type designation

No 5. Month (1, 2, 3, ..., 9, X, Y, Z)

No 1. Control Number

No 6. Product Identification (FG)

No 2. Rank / Grade

No 7. Serial Number


No 3. Line classification (BOE OT:A/BC)

No 4. Year (05 : 2005, 06: 2006, ...)

SPEC. NUMBER	SPEC TITLE	PAGE
	HT156WXB-502 Preliminary Product Specification	27 OF 34

 京东方 BOE	PRODUCT GROUP		REV	ISSUE DATE
	TFT LCD PRODUCT		P0	2011.02.28

(2) High voltage caution label

	HIGH VOLTAGE CAUTION	COLD CATHODE FLUORESCENT LAMP IN LCD PANEL CONTAINS A SMALL AMOUNT OF MERCURY. PLEASE FOLLOW LOCAL OR- DINANCES OR REGULATIONS FOR DISPOSAL.
	RISK OF ELECTRIC SHOCK, DISCONNECT THE ELECTRIC POWER BEFORE SERVICING	

(3) Box label

Label Size: 110 mm (L) × 56 mm (W)

Contents

Model: HT156WXB-502

Q'ty: Module Q'ty in one box

Serial No.: Box Serial No. See next figure for detail description.

Date: Packing Date

Internal use of Product



00	0	0	00	0	0000	000000
Type	Grade	Line	Year	Month	Internal use	Serial No

SPEC. NUMBER	SPEC TITLE	PAGE
	HT156WXB-502 Preliminary Product Specification	28 OF 34



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

REV

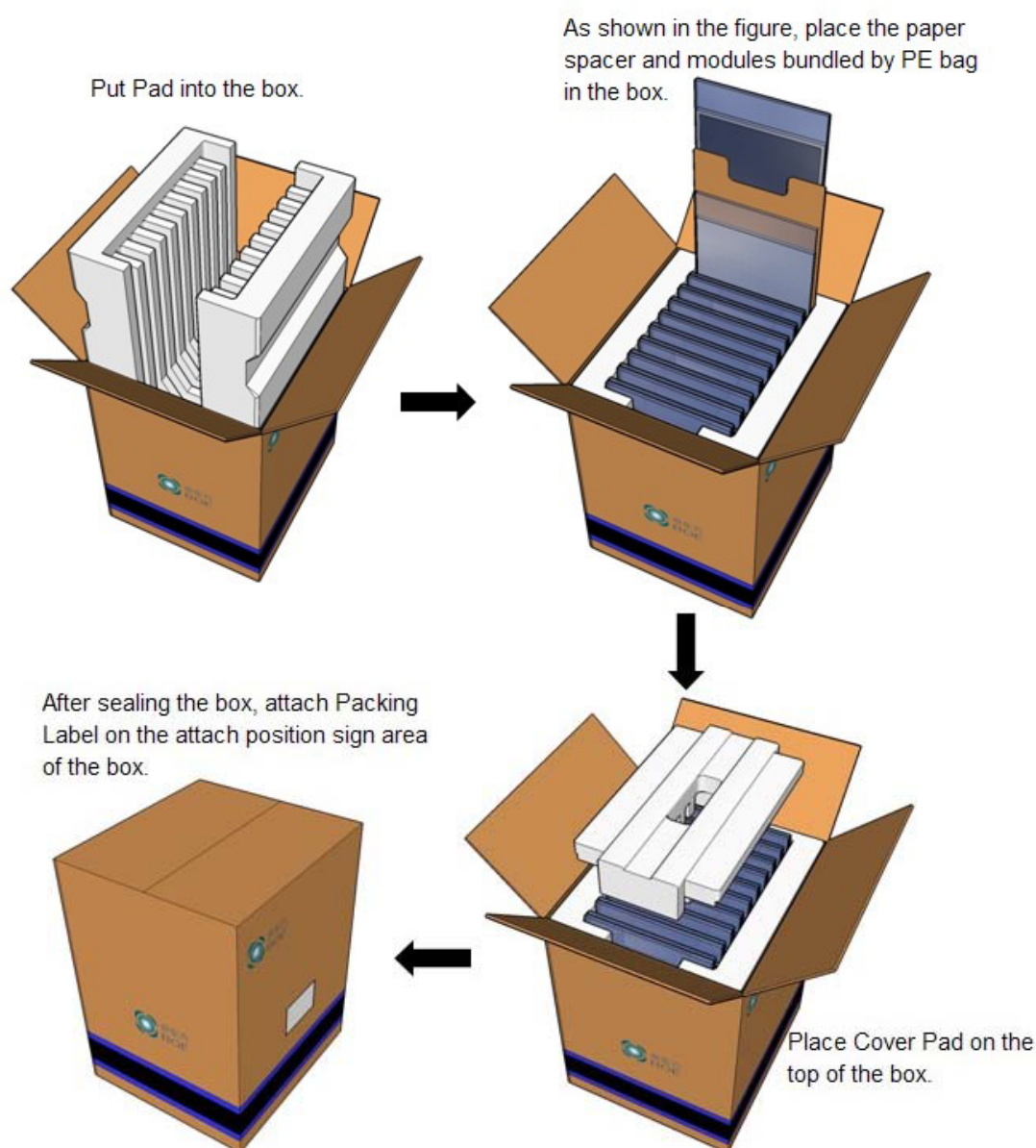
P0

ISSUE DATE

2011.02.28

15.0 PACKING INFORMATION

15.1 Packing order



15.2 Notes

- Box Dimension: 364mm(W) x 332mm(D) x 453mm(H)
- Package Quantity in one Box: 20pcs
- Total Weight: 11kg

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

29 OF 34

**京东方
BOE****PRODUCT GROUP**

TFT LCD PRODUCT

REV

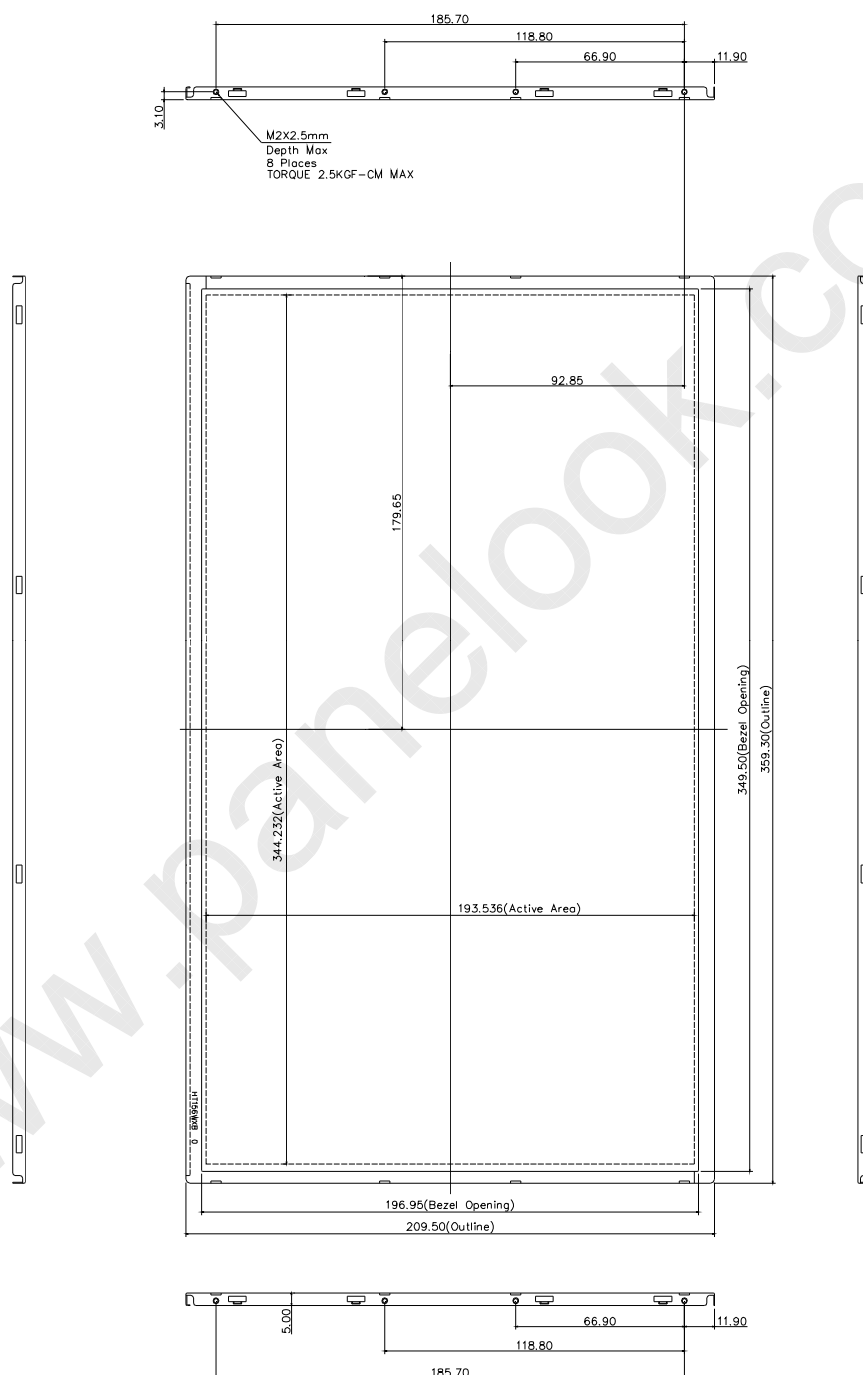
P0

ISSUE DATE

2011.02.28

16.0 MECHANICAL OUTLINE DIMENSION

Figure 6. TFT-LCD Module Outline Dimension (Front View)



SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

30 OF 34

B2006-5006-O (3/3)

A4(210 X 297)



京东方
BOE

PRODUCT GROUP

TFT LCD PRODUCT

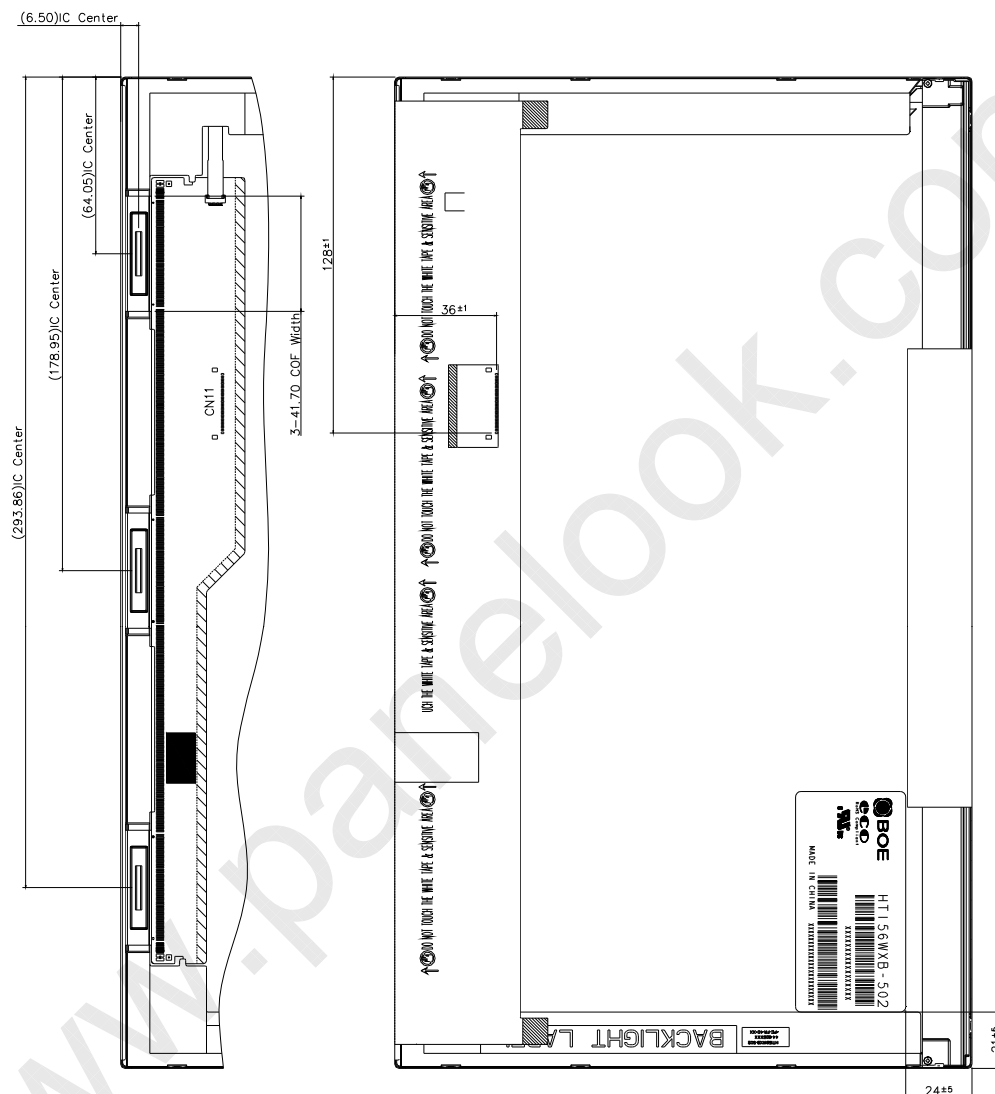
REV

P0

ISSUE DATE

2011.02.28

Figure 7. TFT-LCD Module Outline Dimensions (Rear view)



NOTE

- 1.CN11 : I-PEX 20455-040E-#2 OR EQUIVALENT
- 2.IN ORDER TO AVOID IC DAMAGE,NO OVERLAPPING IS SUGGESTED AT CABLES OR ANTENNAS .CAMERA,WLAN ,WAN OVER COF LOCATION
- 3.OTHER SPECIFICATION : REFERS TO SPEC SHEET
- 4.GENERAL TOLERANCE : ± 0.5

SPEC. NUMBER

SPEC TITLE

HT156WXB-502 Preliminary Product Specification

PAGE

31 OF 34



 京东方 BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2011.02.28
17.0 EDID Table TBD			
SPEC. NUMBER	SPEC TITLE	PAGE	
	HT156WXB-502 Preliminary Product Specification	32 OF 34	

B2006-5006-O (3/3)

A4(210 X 297)