

Product Specification

SPECIFICATION  
FOR  
APPROVAL

(●) Preliminary Specification  
( ) Final Specification

Title	Customer Approval Sheet for Lenovo 8WX TDDI HADS
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Customer	Lenovo
Part Number	

SUPPLIER	BOE
MODEL	TV080WXM-LL3
Version	Ex. 1.0

SIGNATURE	DATE
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Please return 1 copy for your confirmation with your signature and comments.

APPROVED BY	DATE
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REVIEWED BY	
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REV.	ECN NO.	DESCRIPTION OF CHANGES	DATE	PREPARED
1.0	-	Initial Release	2019.05.15	路永全

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1-4. Change List

	No.	Reason	Change Details		Remarks
			Before	After	

Remarks:

Product Specification

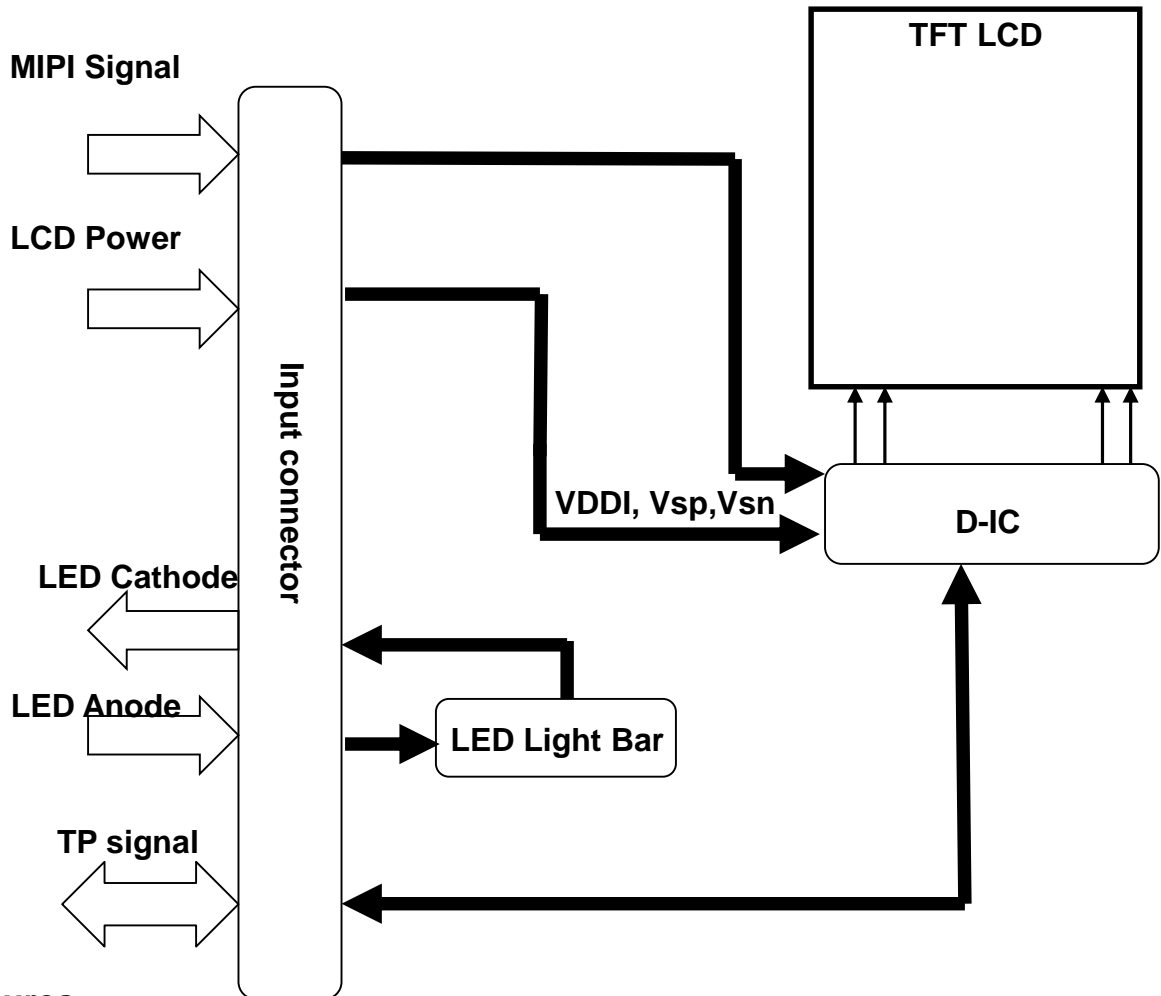
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## 1.0. GENERAL DESCRIPTION

### Block Diagram



### Features

TV080WXM-LL3 is 8.0" color TFT-LCD (Thin Film Transistor Liquid Crystal Display) module composed of LCD panel, Source Driver IC, control circuit and backlight. By applying 8 bit digital data,  $800 \times \text{RGB (3)} \times 1280$ , 16.7M-color images are displayed on the 8" diagonal screen

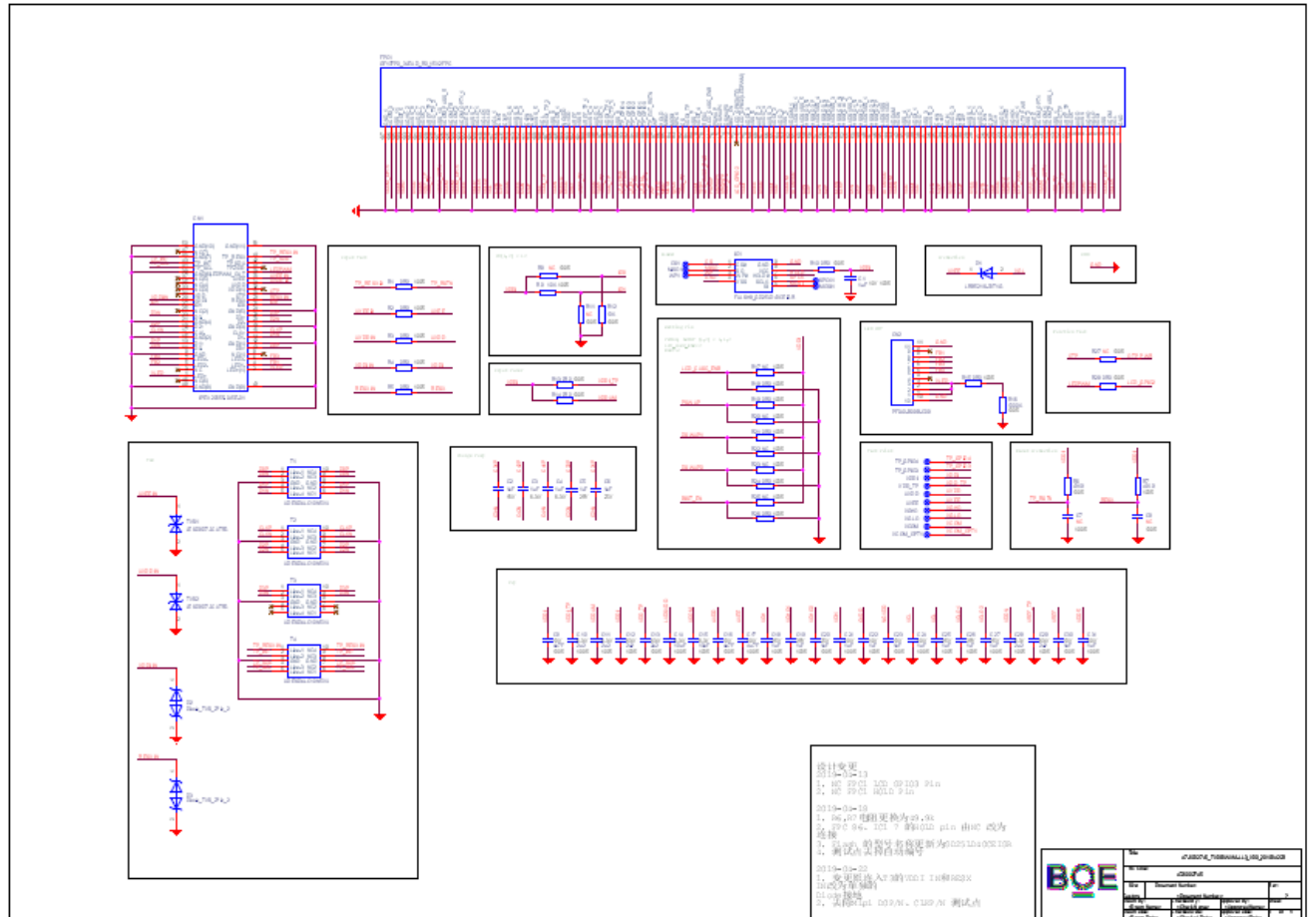
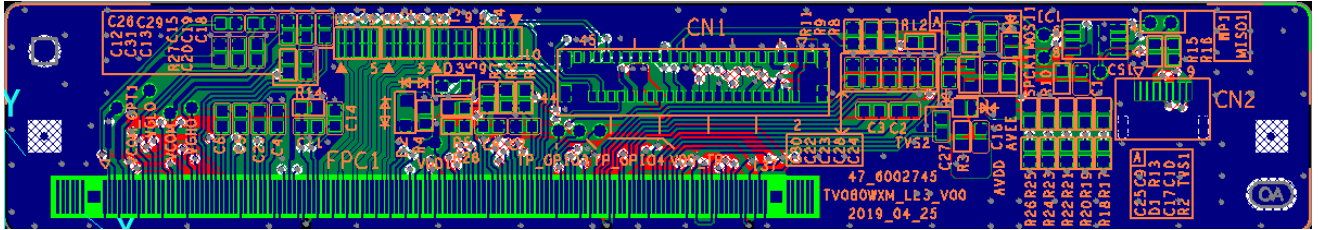
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1.1 General Specifications

Parameter	Specification	Unit	Remarks
Screen Size	8.0	Inch	
Active Area	107.64X172.224	mm	
Panel Size	111.24X180.939	mm	
Outline Dimension	113.72*184.014	mm	W/I FPC bending area
Display Resolution	800*RGB*1280	pixel	
Pixel Pitch	44.85*134.55	um	
Display Method	HADS	-	
Display Mode	Normal black	-	
Display Color	16.7M	-	
Color Gamut	typ:60%, min: 55%	%	NTSC
Luminance	350nit typ/300nit min	nit	TLCM Center
Contrast Ratio	typ 1000:1,min 800:1	-	
Viewing Angle	80/80/80/80(CR>10)	-	Single Center Point
Pol Surface Treatment	HC/Clear	-	
Weight	Max: 150(TLCM)	g	
D-IC	FT8201	-	
Inversion Method	Column	-	
LED Q'ty	20	ea	
Power Consumption	300+1260(Typ.)	mw	Logic + Backlight

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### 1.3.1. PPCA Gerber/Layout and Schematic Diagram



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### 1.3.2. FPC Pin Assignment

Please pay attention that IC bump down(TFT glass up and C/F glass down)

No.1	Dummy	No.28	AVEE	No.55	VSS	No.79	VDDI	No.103	TP_EXT _RSTN	No.127	AVEE	No.157	KEY5
No.2	NULL	No.29	VSS	No.56	VDDN	No.80	AVSS	No.104	TP_GPI O0	No.128	AVSS	No.158	VGHO
No.3	GND	No.30	OTP_P WR	No.57	VDDAM	No.81	AVDD	No.105	TP_GPI O1	No.129	AVDD	No.159	VDDI
No.4	GND	No.31	VGHO	No.58	LVDSV DD	No.82	AVEE	No.106	TP_GPI O2	No.130	C31P	No.160	VSS
No.5	GND	No.32- 33	VGHO1 (2)	No.59	LVDSV SS	No.83	VSS	No.107	TP_GPI O3	No.131	C31N	No.161	VCOM
No.6	GND	No.34- 35	VGHO2 (2)	No.60	HSSI_D 2_P	No.84	VDDI	No.108	TP_GPI O4	No.132- 133	VGL(2)	No.162	VCOM
No.7	VGL	No.36	AVDD	No.61	HSSI_D 2_N	No.85	LCD_G PIO2	No.109	VSS	No.134- 135	VGLO2( 2)	No.163	GND
No.8	VCOM	No.37- 38	VGHO(2)	No.62	LVDSV SS	No.86	LCD_G PIO3	No.110	VDD_T P	No.136- 137	VGLO1( 2)	No.164	GND
No.9	VCOM	No.39	C21P	No.63	HSSI_D 1_P	No.87	LCD_G PIO5	No.111	VDDI_T P	No.138	VGLO	No.165	GND
No.10	VSS	No.40	C21N	No.64	HSSI_D 1_N	No.88	BIST_E N	No.112	VDD5	No.139	AVSS	No.166	GND
No.11	VDDI	No.41	AVDD	No.65	LVDSV SS	No.89	DSWAP 0	No.113	AVDD	No.140	AVEE	No.167	GND
No.12	VGLO	No.42	AVEE	No.66	HSSI_C LK_P	No.90	DSWAP 1	No.114	AVSS	No.141	VCOM_ OPT1	No.168	GND
No.13	VGHO	No.43	AVSS	No.67	HSSI_C LK_N	No.91	PSWAP	No.115	VREF_ TP	No.142- 143	VCOM( 2)	No.169	NULL
No.14	KEY1	No.44	C22P	No.68	LVDSV SS	No.92	LCD_C ASC_E NB	No.116	VSSR	No.144	VCOM_ FB	No.170	Dummy
No.15	LED1	No.45	C22N	No.69	HSSI_D 0_P	No.93	RESX	No.117	VREF	No.145- 147	VCOM_ PASS_ R(3)		
No.16	AVSS	No.46	AVDD	No.70	HSSI_D 0_N	No.94	VDDI	No.118	GVDD	No.148	VSS		
No.17	AVDD	No.47	VCI1	No.71	LVDSV SS	No.95	VSS	No.119	NGVDD	No.149	VDD_T P		
No.18	VDD5	No.48	C41P	No.72	HSSI_D 3_P	No.96	VDDI_T P	No.120	VDDN	No.150	VREF_ TP		
No.19	VREF_ TP	No.49	C41N	No.73	HSSI_D 3_N	No.97	CS	No.121	VSS	No.151	VDD5		
No.20	VDD_T P	No.50	AVSS	No.74	LVDSV SS	No.98	SPCK	No.122	VDDI_T P	No.152	AVDD		
No.21	VSS	No.51	VSS	No.75	LVDSV DD	No.99	MOSI	No.123	VCL	No.153	AVSS		
No.22- 24	VCOM_ PASS_ L (3)	No.52	VDD	No.76	VDDAM	No.100	MISO	No.124	AVSS	No.154	LED4		
No.25- 26	VCOM( 2)	No.53	VDDI	No.77	VSS	No.101	HOLD	No.125	C42P	No.155	LED5		
No.27	VCOM_ OPT1	No.54	VDD	No.78	VDD	No.102	WP	No.126	C42N	No.156	KEY4		



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1.3.3. Pol General Spec

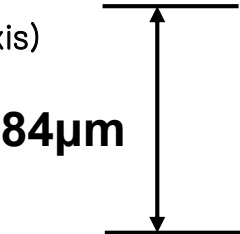
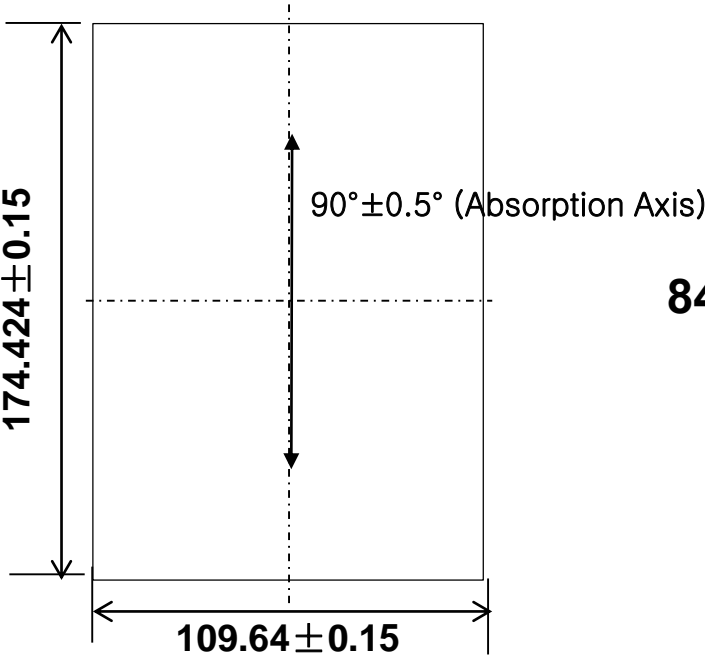
Upper Polarizer (C/F Side)

Code Name:38-1004727  
Part Number:POL\_8WXGA TDDI\_F\_01\_NORMAL\_HC\_HADS\_ /

Adhesive Downwards

HC

Protect Film
HC
TAC
PVA
TAC
Adhesive Layer
Separator



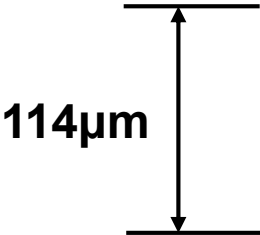
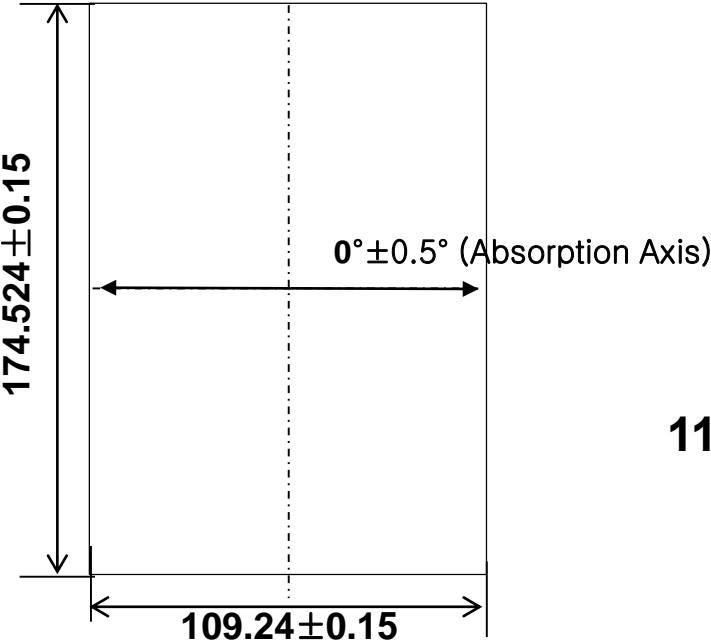
Lower Polarizer (TFT Side)

Code Name:38-1004728  
Part Number:POL\_8WXGA TDDI\_R\_01\_NORMAL\_CLEAR\_HADS\_ /

Adhesive Downwards

Clear

Protect Film
Clear
TAC
PVA
TAC
Adhesive Layer
Separator



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2.0 ABSOLUTE MAXIMUM RATINGS

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

Parameter	Symbol	Min.	Max.	Unit	Remarks
Logic Power Supply Voltage	VDDI	1.65	1.95	V	Note1
Analog Power Supply Voltage	AVDD	4.5	6.5	V	Note1
Analog Power Supply Voltage	AVEE	-6.5	-4.5	V	Note1
LED Forward Current of every LED string	I <sub>LED</sub>	-	21	mA	Note2
LED string Reverse Voltage	V <sub>R</sub>	-	16	V	
Operating Temperature	T <sub>OP</sub>	-20	+60	°C	Note3
Storage Temperature	T <sub>ST</sub>	-30	+70	°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. the max value of LED forward current is relative to ambient temperature,the correlation is show in figure 1.
3. Temperature and relative humidity range are shown in the figure below.  
95 % RH Max. ( 40 °C ≥ Ta)  
Maximum wet - bulb temperature at 39 OC or less. (Ta > 40 OC) No condensation.

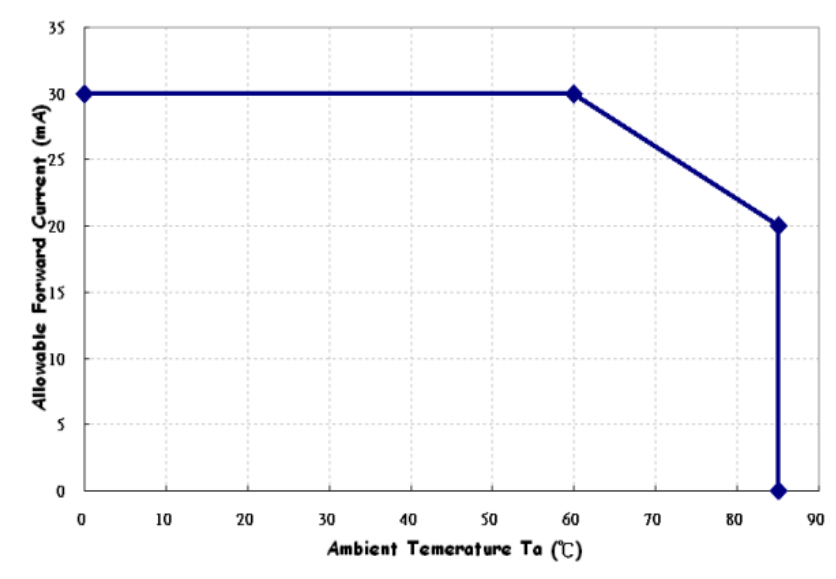


Figure 1. forward current vs ambient temperature

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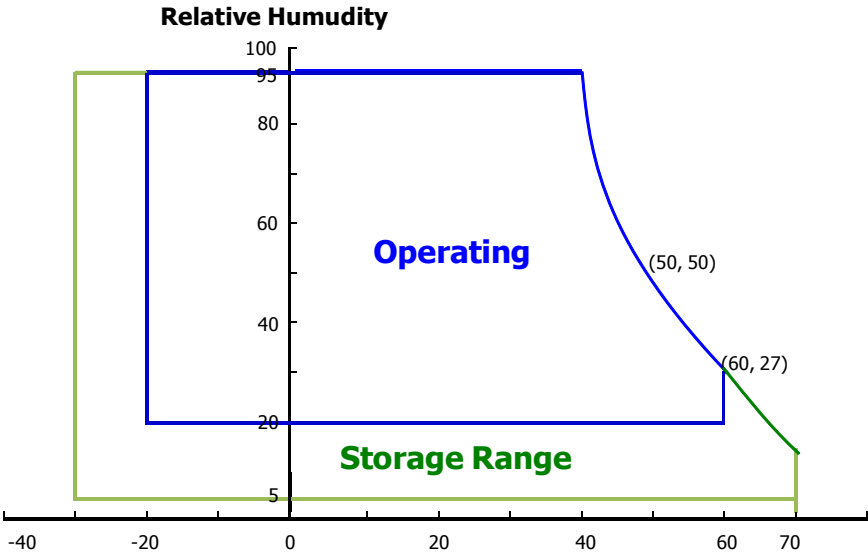


Figure 2. Operation temperature vs Humidity

3.0 Electrical Specifications

[Ta =25±2 °C]

Parameter	Symbol	Values			Unit	Notes
		Min	Typ	Max		
Logic Power Supply Input Voltage	VDDI	1.65	1.8	1.95	Vdc	1
Analog Power Supply Voltage	AVDD	-	6.0	-	Vdc	1
Analog Power Supply Voltage	AVEE	-	-6.0	-	Vdc	1
LED Forward Voltage of every LED string	V <sub>LED</sub>	14	-	16	Vdc	
LED Forward Current of every LED string	I <sub>LED</sub>	-	21	-	mA	60°C
Logic Power Consumption	Plogic	-	-	0.3	W	white
BLU Power Consumption	Pblu	-	1.26	1.344	W	21mA
Rush current	IRUSH	-	-	0.1	A	2
High Voltage level of Gate	VGH	7.3	19	20	Vdc	3
Low Voltage level of Gate	VGL	-18	-11	-5.3	Vdc	3

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.

Test pattern of power supply current is White pattern.

2. The duration of rush current is about 2ms and rising time of Power input is 1ms(min)

3. VGH-VGL ≤ 32V

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3.1. Logic Power Consumption

Parameter	Symbol	Typ.		uite	Notes
		Typ.	Max.		
Normal Mode	IVDD	20	25	mA	@L255
	AVDD	22	27	mA	@L255
	AVEE	18	23	mA	@L255

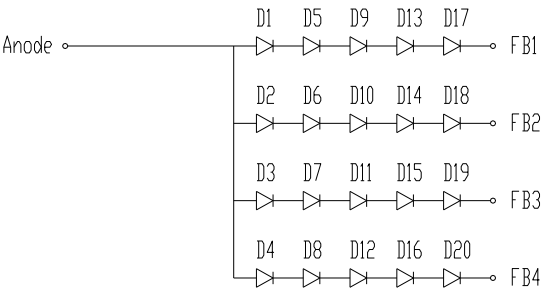
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3.2 BACK LIGHT UNIT

The edge-lighting type of back light unit consists of 20 LEDs which is connected in serial.

Table 3.1 Electrical Characteristics Of Back Light Unit

Parameter	Symbol	Values			Units	Notes
		Min	Typ.	Max		
LED Current	I <sub>LED</sub>	-	21	-	mA	
LED Forward Voltage	V <sub>LED</sub>	2.8	-	3.2	V	



20(5S4P) WHITE LED DIAGRAM

LED Circuit Diagram

3-2-1 LED Rank

Luminous Flux Rank Chart

Condition	Bin code	Luminous Flux rank* ( Lm )		Luminous Intensity for reference ( mcd )	
		Min.	Max.	Min.	Max.
IF = 21mA	E	9.75	10.25	-	-

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3.3. LCD INTERFACE CONNECTIONS

Interface Connector: FPC Connector IPEX20655-045E-01 is used for the module electronics interface.

<Table 3.2. Pin Assignments for the Interface Connector>

Pin	Symbol	Description	Pin	Symbol	Description
1	LED_VOUT	BLU Power	24	GND	Ground
2	LED_VOUT	BLU Power	25	NC	-
3	NC	-	26	ID0	ID
4	LED_FB1	BLU Feedback	27	ID1	ID
5	LED_FB2	BLU Feedback	28	RESX	Reset
6	LED_FB3	BLU Feedback	29	VDDI	Digital Power Supply1.8V
7	LED_FB4	BLU Feedback	30	NC	-
8	NC	-	31	NC	-
9	GND	Ground	32	NC	-
10	D0P	MIPI Input Data Pair	33	NC	-
11	D0N	MIPI Input Data Pair	34	AVDD	Analog Power Supply 6V
12	GND	Ground	35	NC	-
13	D1P	MIPI Input Data Pair	36	AVEE	Analog Power Supply -6V
14	D1N	MIPI Input Data Pair	37	NC	-
15	GND	Ground	38	LEDPWM	LEDPWM,CABC
16	DKP	MIPI Input Data Pair	39	GND	Ground
17	DKN	MIPI Input Data Pair	40	NC	-
18	GND	Ground	41	TP_SCL	For Touch
19	D2P	MIPI Input Data Pair	42	TP_SDA	For Touch
20	D2N	MIPI Input Data Pair	43	TP_INT	For Touch
21	GND	Ground	44	TP_RSTN	Touch Reset
22	D3P	MIPI Input Data Pair	45	GND	Ground
23	D3N	MIPI Input Data Pair			

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4.0. SIGNAL TIMING SPECIFICATIONS

ITEM			SYMBOL	min	typ	max	UNIT
LCD	Frame Rate		-	-	60	-	Hz
	Pixels Rate		-	-	77.96	-	MHz
Timing	Mipi CLK	Frequency	fCLK	-	233.90	-	MHz
		Period	Tclk	-	4.27	-	ns
	Horizontal	Horizontal total time	tHP	-	864	-	t <sub>CLK</sub>
		Horizontal Active time	tHadr	800			t <sub>CLK</sub>
		Horizontal Pulse Width	tHsync	-	14	-	t <sub>CLK</sub>
		Horizontal Back Porch	tHBP	-	25	-	t <sub>CLK</sub>
		Horizontal Front Porch	tHFP	-	25	-	t <sub>CLK</sub>
	Vertical	Vertical total time	tvp	-	1504	-	t <sub>H</sub>
		Vertical Active time	tVadr	1280			t <sub>H</sub>
		Vertical Pulse Width	tVsync	-	8	-	t <sub>H</sub>
		Vertical Back Porch	tVBP	-	32	-	t <sub>H</sub>
		Vertical Front Porch	tVFP	-	184	-	t <sub>H</sub>
Bit Rate			TX SPD (MBPS)	-	467.80	-	Mbps
Lane				-	4	-	Lane



**Product Specification****MIPI interface (Mobile Industry Processing Interface)**

The Display Serial Interface standard defines protocols between a host processor and peripheral devices that adhere to MIPI Alliance standards for mobile device interfaces. The DSI standard builds on existing standards by adopting pixel formats and command set defined in MIPI Alliance standards.

DSI-compliant peripherals support either of two basic modes of operation: Command Mode and Video Mode. Which mode is used depends on the architecture and capabilities of the peripheral. The mode definitions reflect the primary intended use of DSI for display interconnect, but are not intended to restrict DSI from operating in other applications.

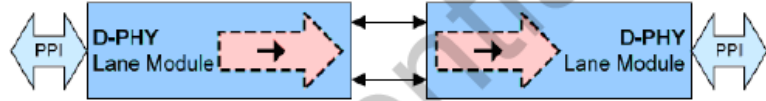
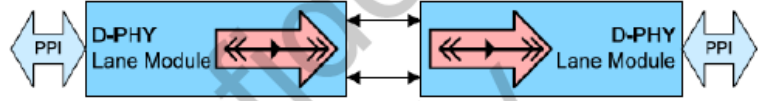
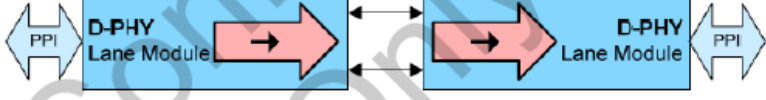
Command Mode refers to operation in which transactions primarily take the form of sending commands and data to a peripheral, such as a display module, that incorporates a display controller. The display controller may include local registers. Systems using Command Mode write to, and read from the registers. The host processor indirectly controls activity at the peripheral by sending commands, parameters and data to the display controller. The host processor can also read display module status information. Command Mode operation requires a bidirectional interface.

Video Mode refers to operation in which transfers from the host processor to the peripheral take the form of a real-time pixel stream. In normal operation, the display module relies on the host processor to provide image data at sufficient bandwidth to avoid flicker or other visible artifacts in the displayed image. Video information should only be transmitted using High Speed Mode. To reduce complexity and cost, systems that only operate in Video Mode may use a unidirectional data path.



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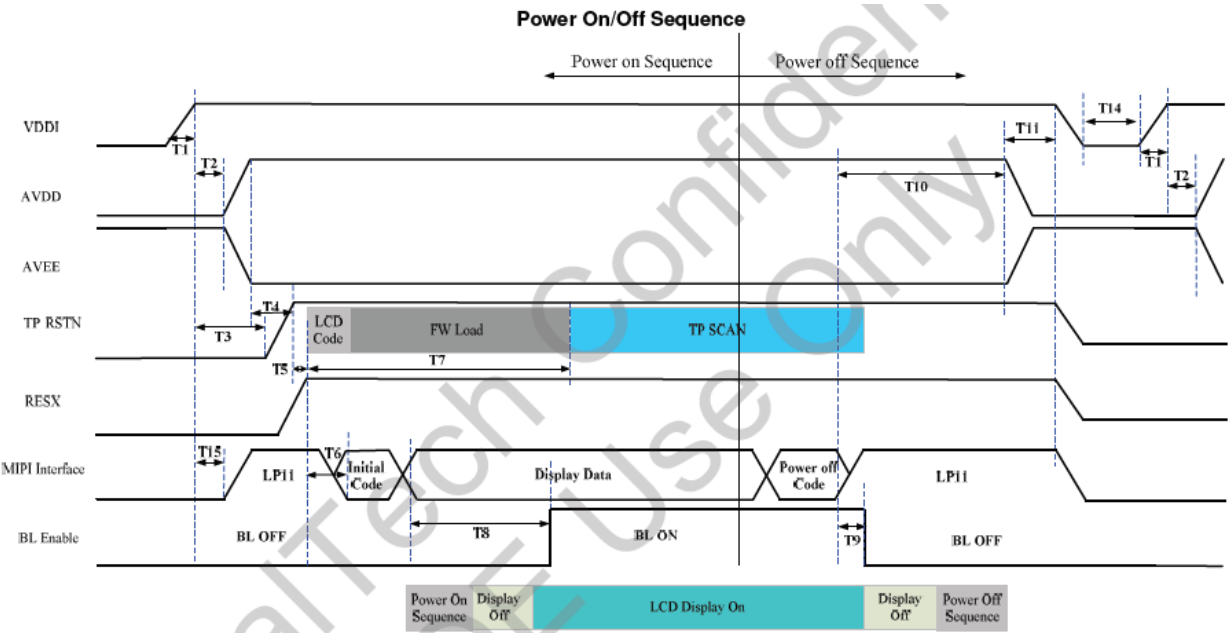
MIPI Lane Configuration

-	Lane support mode	MPU(Host)	FT8201(Slave)
Clock Lane	Unidirectional lane <ul style="list-style-type: none"><li>• High-Speed Clock only</li><li>• Simplified Escape Mode (ULPS Only)</li></ul>		
Data Lane0	Bi-directional lane <ul style="list-style-type: none"><li>• Forward high-speed only</li><li>• Bi-directional Escape Mode</li><li>• Bi-direction LPDT</li></ul>		
Data Lane1	Unidirectional lane <ul style="list-style-type: none"><li>• Forward high-speed only</li><li>• Simplified Escape Mode (ULPS Only)</li></ul>		

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4.2. Power On/Off Sequence

(1). Power on/off Timing Sequence:

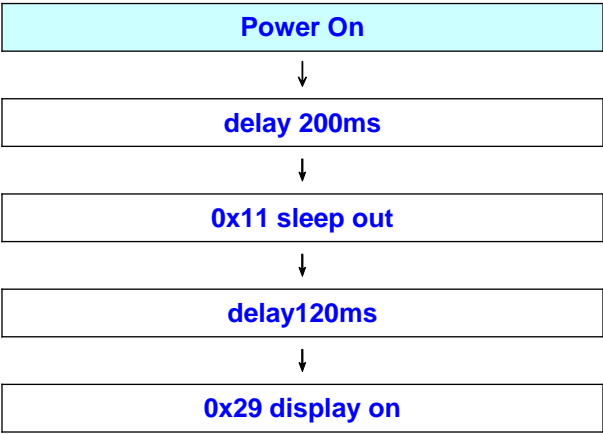


Power On / Off Sequence Timing				
Parameter	Description	Min.	Max.	Unit
T1	Rise time from 0.1VDDI to 0.9VDDI	0	5	mS
T2	AVDD/AVEE rise after VDDI power on	3		mS
T3	TP reset time after VDDI power on	5		mS
T4	TP Reset release time after AVDD power on	100		uS
T5	TP Reset release to LCD Reset release	0		mS
T6	FLASH download LCD code after LCD Reset	35		mS
T7	LCD Reset release to TP SCAN Start	150		mS
T8	LED On after Initial Code	150		mS
T9	LED Off after power off code	50		mS
T10	AVDD/AVEE power down after power off code	150		mS
T11	VDDI power down after AVDD/AVEE power down	5		mS
T12	TP reset time before LCD reset	5		mS
T13	RESX reset falling to TP reset release	5	120	mS
T14	VDDI rise again after previous VDDI powered down	50		mS
T15	MIPI signals start ( Hi-Z/GND to LP11 ) after VDDI power on	3		mS

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4.3. Initial Code

< Power On Sequence >



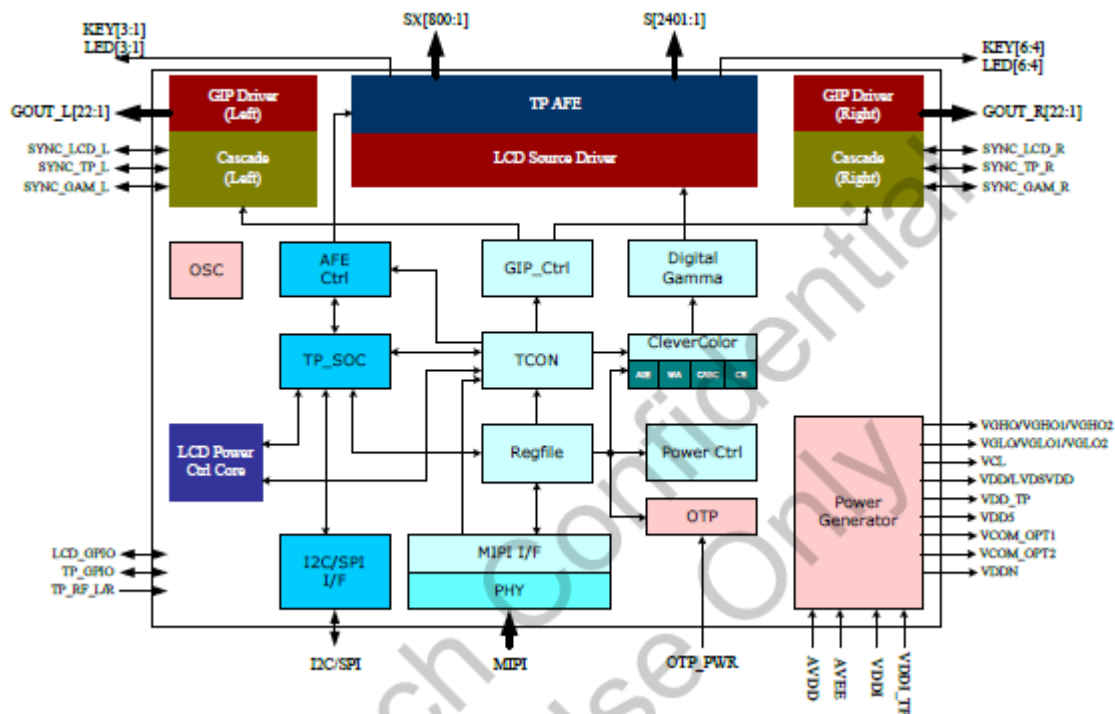
Note : Initial code包含在FW中，  
TP\_RSTN引脚拉高后自动从flash加载  
FW，只需下发sleep out(0x11)及display  
on(0x29)指令

## Product Specification

### 4.4. IC General Spec and Size

#### FEATURES

- 32-bit embedded single-cycle instruction-set MCU
  - Built-in hardware acceleration module
  - Program storage size: 96KByte SRAM
  - Data storage size: 96KByte SRAM
- Super self-capacitance detection technology
- 800 channels
- 10 -point Real Touch
- Anti-floating
- Anti-power interference
- Anti-stress from external
- Anti-RF interference
- Point reporting rate up to 120Hz
- Six virtual buttons
- Six ports for LED respiration lighting driver
- I2C data communication interface



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4.5. Power Consumption

	Parameter	Symbol	Typ.	Unit	Remark
CABC OFF	Logic Power	L0	246	mW	
		L32	247	mW	
		L64	249	mW	
		l96	249	mW	
		L127	249	mW	
		L160	249	mW	
		L192	249	mW	
		l224	249	mW	
		L255	249	mW	
		R255	249	mW	
		G255	249	mW	
		B255	249	mW	
		8 color bar	249	mW	
	BLU	25% on	315	mW	
		50% on	630	mW	
		75% on	945	mW	
		100% on	1260	mW	

Note : CABC OFF

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5.0 Optical Specifications -Backlight 100%

The test of Optical specifications shall be measured in a dark room (ambient luminance  $\leq 1$  lux and temperature =  $25\pm2^{\circ}\text{C}$ ) with the equipment of Luminance meter system (CA-310、BM-5A) 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  $0^{\circ}$ .

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	$\Theta_3$	CR > 10		80	-	Deg.	Note 1
		$\Theta_9$			80	-	Deg.	
	Vertical	$\Theta_{12}$			80	-	Deg.	
		$\Theta_6$			80	-	Deg.	
Color Gamut				55	60	-	%	-
Luminance Contrast ratio		CR	$\Theta = 0^\circ$	800:1	1000 : 1		-	Note 2
Luminance of White	Center Points	$Y_w$	$\Theta = 0^\circ$	300	350	-	cd/m <sup>2</sup>	Note 3 (TLCM)
White Luminance uniformity	13 Points	$\Delta Y_{13}$		75	80	-	%	Note 4
	5 Points	$\Delta Y_5$		80	85	-	%	
White balance		$W_x$	$\Theta = 0^\circ$	0.267	0.297	0.327	-	Note 5
		$W_y$		0.300	0.330	0.360	-	
		CT		6403	7403	8403	K	
Reproduction of color	Red	$R_x$	$\Theta = 0^\circ$	0.586	0.616	0.646	-	Note6 (TLCM)
		$R_y$		0.314	0.344	0.374		
	Green	$G_x$		0.302	0.332	0.362		
		$G_y$		0.556	0.586	0.616		
	Blue	$B_x$		0.108	0.138	0.168		
		$B_y$		0.034	0.064	0.094		
Response Time (Rising + Falling)		$T_{RT}$	Ta= 25° C $\Theta = 0^\circ$	25	30	35	ms	Note 7

Cell & BLU Optical Characteristics

Parameter	Typ	Unit	Remarks
Aperture Ratio	70	%	
Upper Pol Trans.	43	%	
Lower Pol Trans.	43	%	
Panel Trans.	4.9	%	w/o APF
Panel Trans.	-	%	with APF
BLU Luminance	7500	Cd/m <sup>2</sup>	Center Point

**Product Specification****Note :**

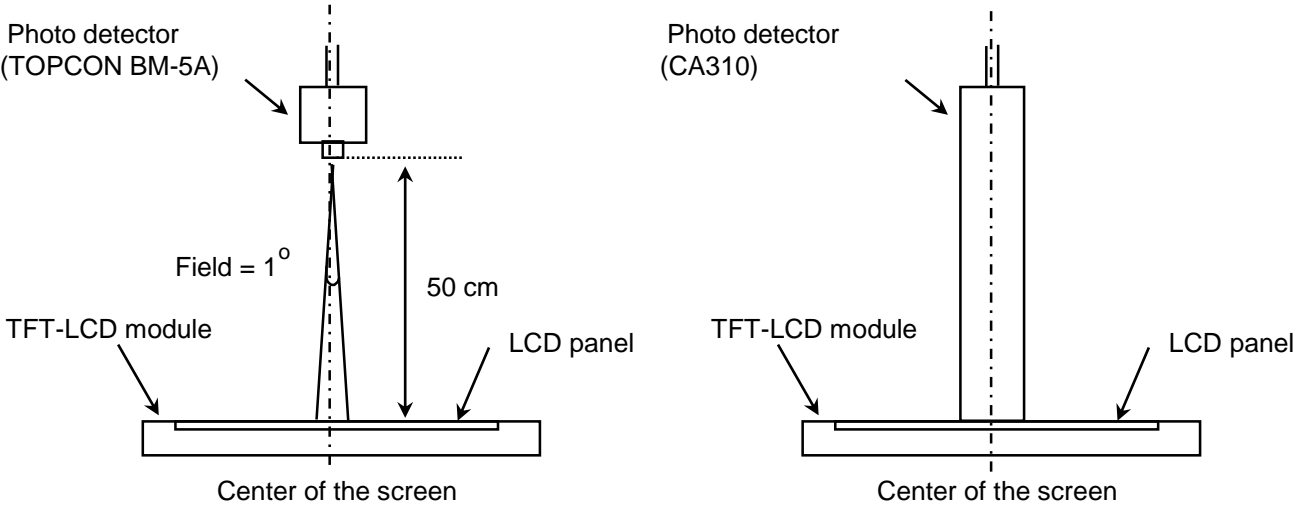
1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see FIGURE 1).
2. Contrast measurements 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. Center Luminance of white is defined as luminance values of 1point 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 1 for a total of the measurements per display. The luminance is measured by CA310 when the LED current is set at 21mA.
4. The White luminance uniformity on LCD surface is then expressed as :  $\Delta Y = \text{Minimum Luminance of 9points} / \text{Maximum Luminance of 9points}$  (see FIGURE 2).
5. The color chromaticity coordinates specified 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 color chromaticity coordinates specified 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.
7. 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  $T_d$ .

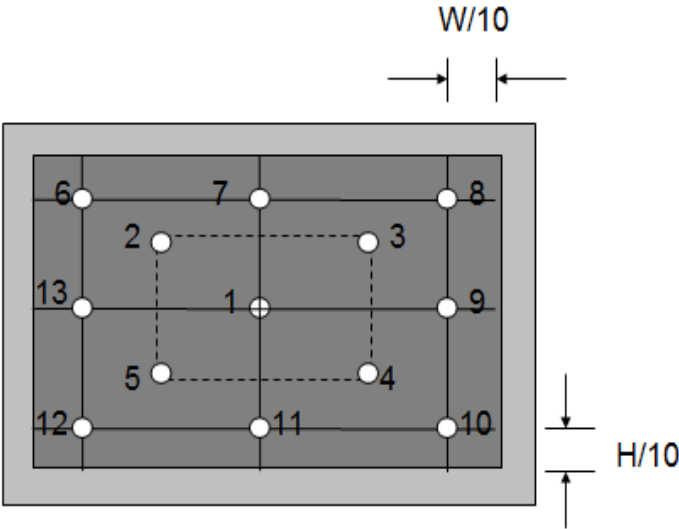
Product Specification

Figure 1. Measurement Set Up



View angle range measurement setup    Luminance , uniformity and color measurement setup

Figure 2. White Luminance and Uniformity Measurement Locations (13 points)



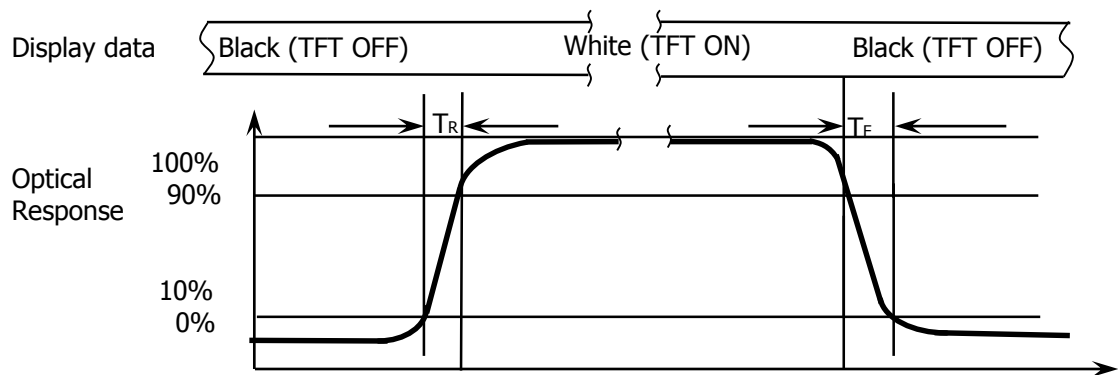
Center Luminance of white is defined as luminance values of center 9 points across the LCD surface. Luminance shall be measured with all pixels in the view field set first to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display.

Brightness  
Uniformity    =     $\frac{\text{Minimum Photo detector output for P1-P13 with all pixels white}}{\text{Maximum Photo detector output for P1-P13 with all pixels white}}$



Product Specification

Figure 3. Response Time Testing

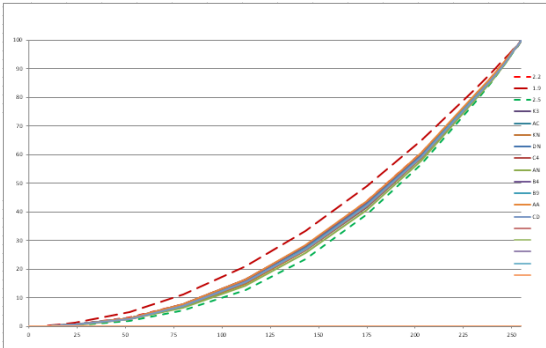


The electro-optical response time measurements shall be made as shown in FIGURE 3 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is  $T_r$  and 90% to 10% is  $T_d$ .

Product Specification

5.1. Gamma/Color Coordinate Uniformity

(1) Gamma Curve  
Request: R/G/B/W, 0-255 gray scale, step 8 gray scale



2.2±0.3

(2)Color Coordinate Uniformity  
Request: white pattern, 0-255 gray scale, step 15 gray scale.

Gray scal	x	y	Gray scal	x	y
0	0.235	0.226	135	0.289	0.315
15	0.276	0.294	150	0.289	0.315
30	0.286	0.311	165	0.290	0.316
45	0.288	0.314	180	0.291	0.317
60	0.289	0.314	195	0.292	0.319
75	0.288	0.314	210	0.293	0.320
90	0.288	0.314	225	0.294	0.322
105	0.288	0.314	240	0.295	0.323
120	0.289	0.214	255	0.296	0.325

Product Specification

6. MECHANICAL CHRACTERISTICS

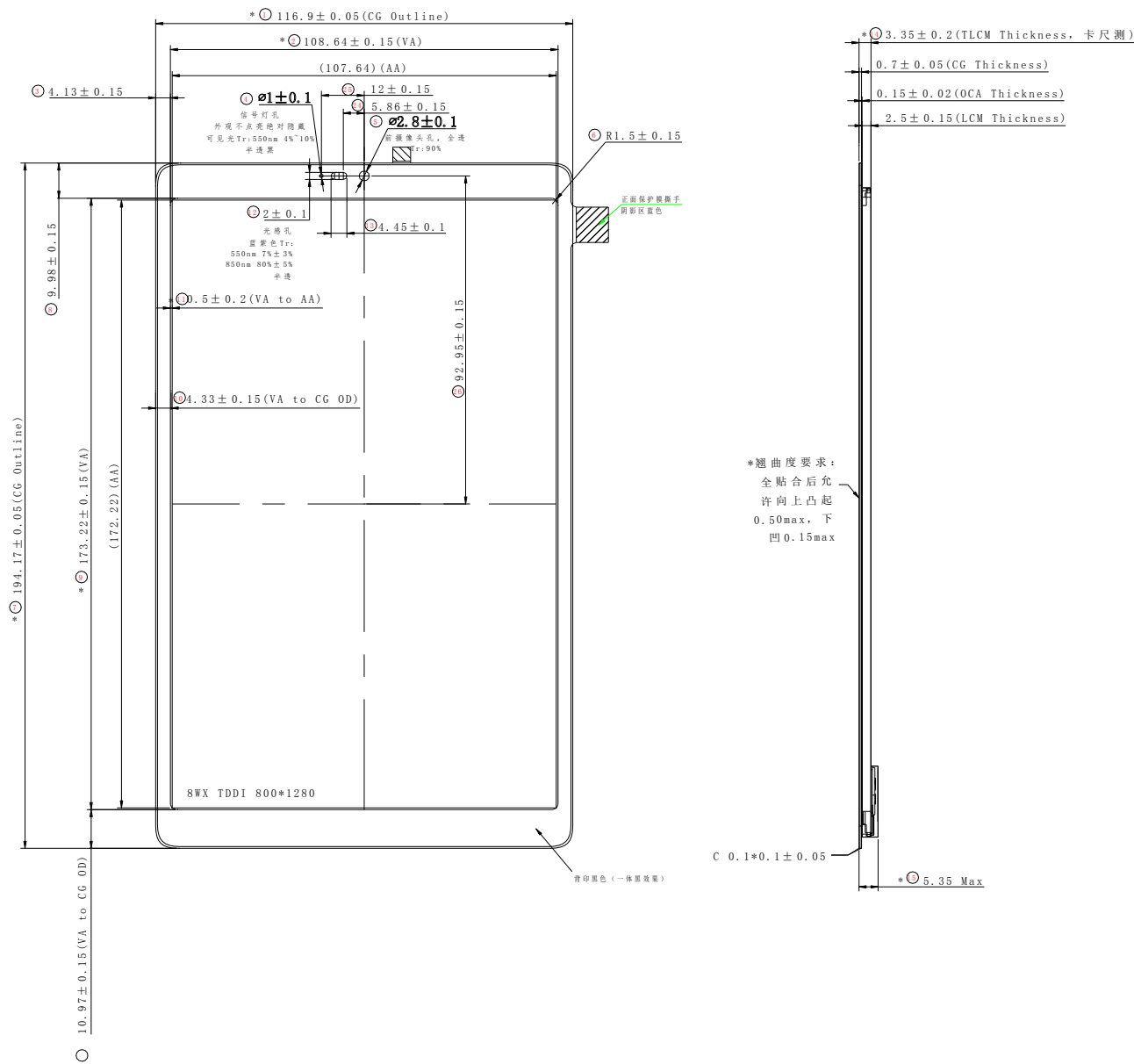
The contents provide general mechanical characteristics for the model.  
In addition the figures in the next page are detailed mechanical drawing of the LCD.

item		Description	Typ.	Tolerance	Unit
Mother glass		Size	2500*2200	-	mm
CF and TFT thickness after slimming		thickness	0.5/0.5		mm
Panel	AA	A/A	107.64×172.224	-	mm
	CF	CF	111.24×177.409	±0.2	mm
	TFT	TFT	111.24×180.939	±0.2	mm
	BM	BM(U/D/L/R)	1.8/6.915/1.8/1.8	-	mm
	IC Bonding area	IC Bonding Area	32.162×1.372	-	mm
	Pol size	Pol Size	CF : 109.64*174.424 ; TFT : 109.24*174.524	±0.15	mm
	Gap between pol~glass(U/D/L/R)	Gap Between Pol~glass border (U/D/L/R)	CF: 0.8/2.185/0.8/0.8 TFT : 1/5.415/1/1	±0.3	mm
Module	Horizontal	Horizontal	113.72	±0.2	mm
	Vertical	Vertical	184.014	±0.2	mm
	Thickness	Thickness	2.5	±0.15	mm
	Uv glue thickness	UV Glue Thick ness	no higher than IC	-	mm

Product Specification

6.1 Touch Display Module Drawing

(1) Front side

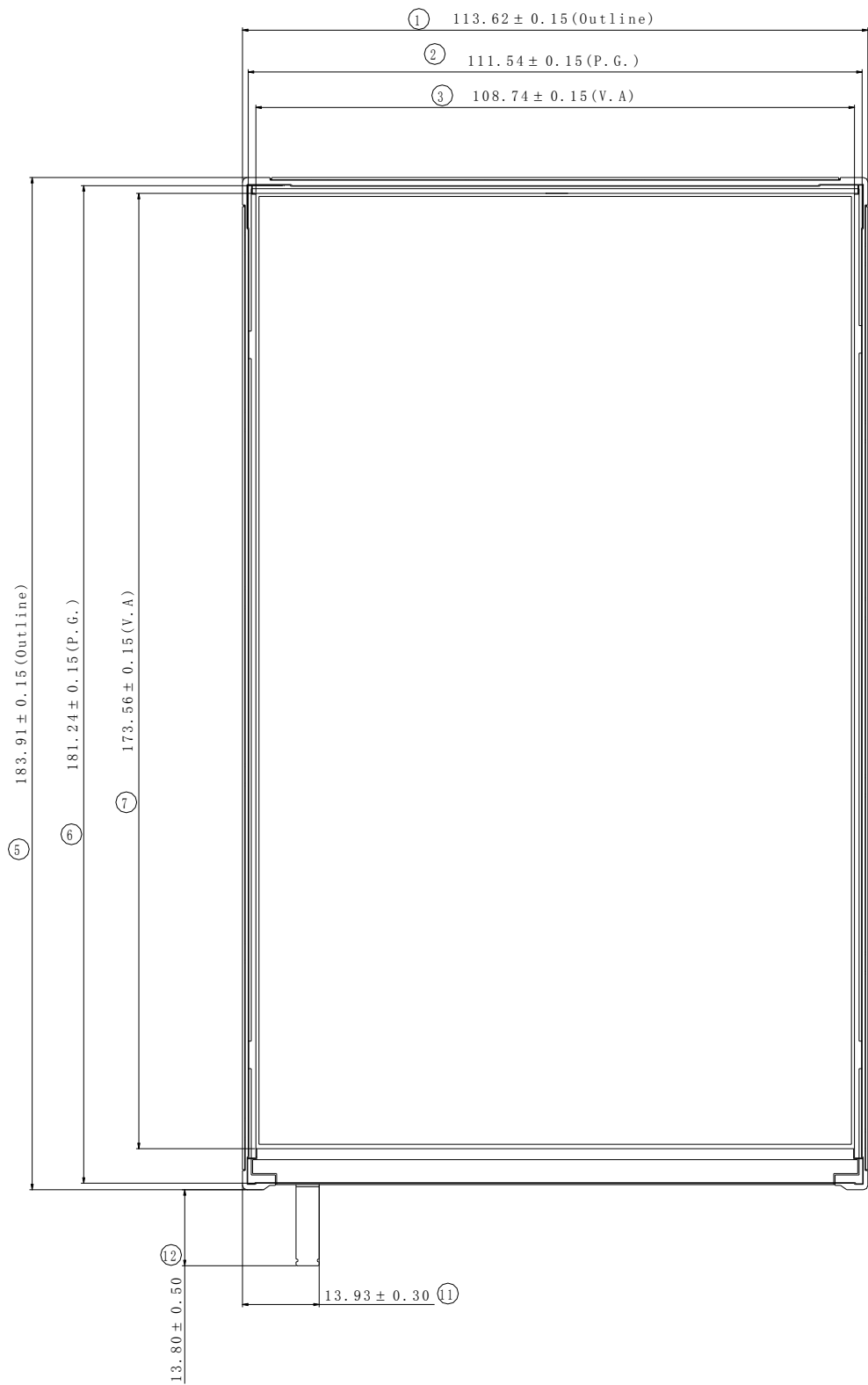


**(2) Rear side**



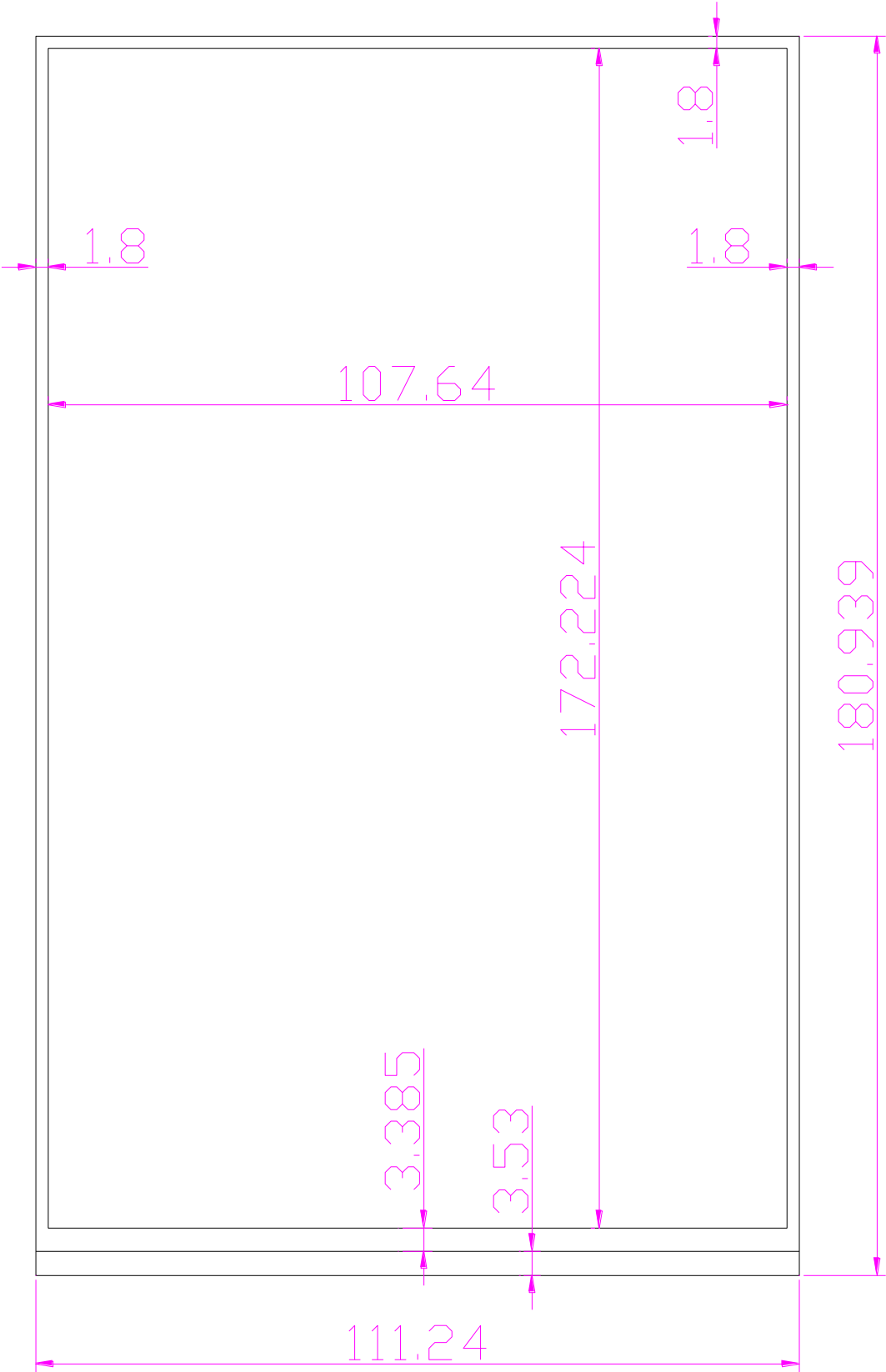
Product Specification

6.2 BLU Outline Dimension



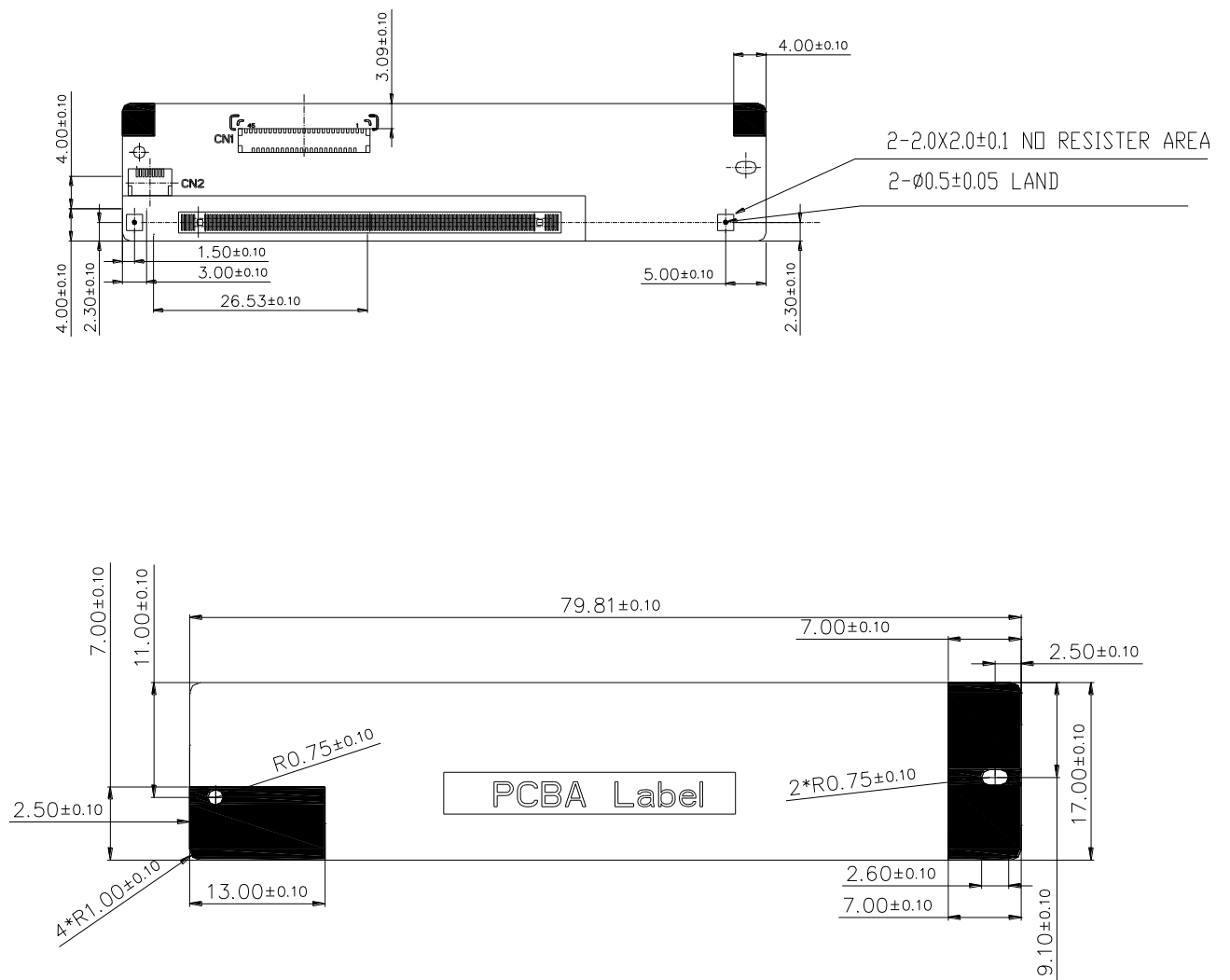
Product Specification

6.3 Panel Outline Dimension



Product Specification

6.4 PCBA Outline Dimension





Product Specification

7.0 Reliability Test






No	Test Item	Test Condition	Remark
1	High temperature storage test	Ta = 80 °C, 240 hrs	-
2	Low temperature storage test	Ta = -40°C, 240 hrs	
3	Thermal Shock Test	-40°C/1hr → 60°C/1hr × 30Cycle	
4	High temperature Operate test	Ta = 60 °C,240hrs,	
5	Low temperature Operate test	Ta = -20 °C, 240hrs	
6	High temperature High humidity	Ta = 60 °C, 90%, 240hrs	

Note (1) criteria : Normal display image with no obvious non-uniformity and no line defect.  
Note (2) Evaluation should be tested after storage at room temperature for more than two hour

Product Specification

8.0. Package

8.1. Packing Description

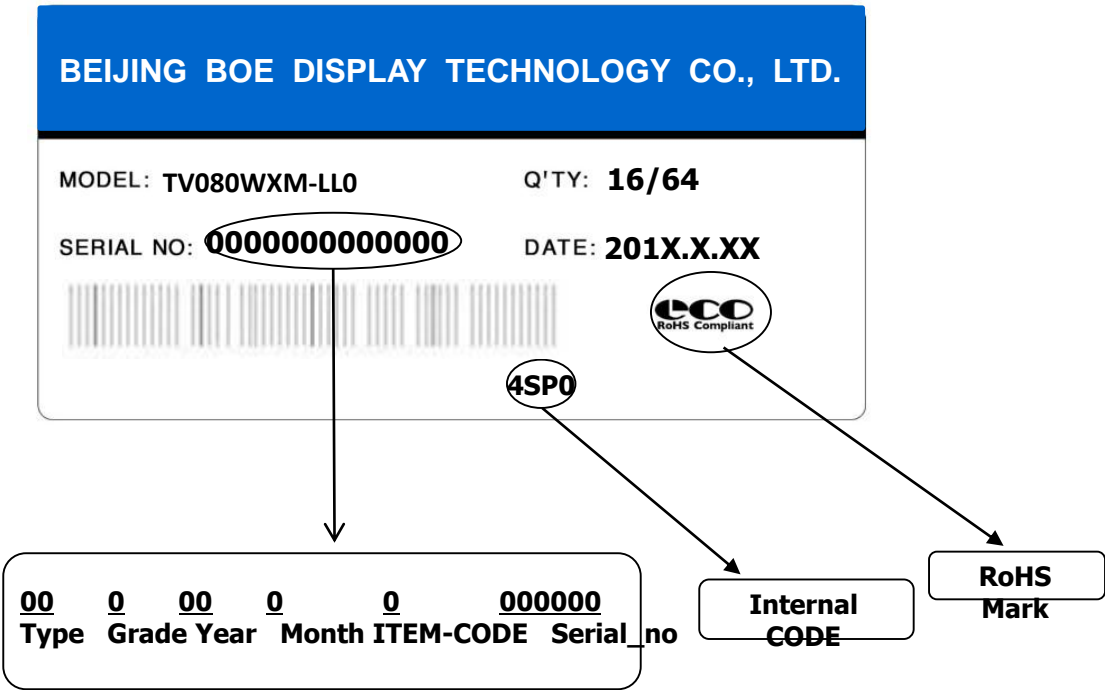
<div>①</div> 	<div>②</div> 	<div>③</div> 
<div>1. 吸塑产品采用8+1模式，产品直接放入吸塑内，CG面向下。 2. 每盘吸塑需要交叉放置，共9PCS吸塑，16PCS产品，</div>	<div>1. 把8+1个装满产品的吸塑放入静电袋内抽真空。</div>	<div>1. 外纸箱内先放置二个内纸箱，内纸箱内各放二片纸板。 2. 抽好真空的16PCS产品放入内纸箱，上面加纸板，内纸箱不封口，</div>
<div>④</div> 	<div>⑤</div> 	
<div>1. 一个外纸箱内共装入4个内纸箱，内纸箱均不封口。 2. 外纸箱使用BOE胶带封箱，并贴上外标签、BOE封签。</div>	<div>1. 4箱一层，共4层， 2. 对竖向、顶层共 8 个边使用合理的护楞。 3. 堆好栈板后使用BOE打包带合理打包。 4. 对整个栈板的四周和顶部缠膜 5. 在栈板短边左上角贴麦头标签。</div>	

Product Specification

8.2 Box label

Label Size: 110mm (L) x55 mm (W)  
Part NO.:D922-00018

Label Picture :



**Product Specification****9.0 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.