

## ASI-T-3009B2SRN/AW

<b>Item</b>	<b>General feature</b>	<b>Remark</b>
<b>MODELE SIZE</b>	<b>3.0"</b>	<b>"</b>
<b>LCD Type</b>	<b>TFT TRANSMISSIVE</b>	<b>/</b>
<b>Viewing Direction</b>	<b>6</b>	<b>O'Clock</b>
<b>Outside dimensions(W*H*T)</b>	<b>43.44*75.31*3.75</b>	<b>mm<sup>3</sup></b>
<b>Active Area(W*H)</b>	<b>36.84*65.52</b>	<b>mm<sup>2</sup></b>
<b>Number of Pixels</b>	<b>960*240</b>	<b>/</b>
<b>Driver IC IC</b>	<b>ILI8961</b>	<b>/</b>
<b>Colors</b>	<b>262K</b>	<b>/</b>
<b>Interface Type</b>	<b>SPI+8-Bit RGB Interface</b>	<b>/</b>
<b>Input Voltage</b>	<b>3.3</b>	<b>V</b>

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**1.GENERAL INFORMATION**

Item	General feature	Remark
MODELE SIZE	3.0"	"
LCD Type	TFT TRANSMISSIVE	/
Viewing Direction	6	O'Clock
Outside dimensions(W*H*T)	43.44*75.31*3.75	mm <sup>3</sup>
Active Area(W*H)	36.84*65.52	mm <sup>2</sup>
Number of Pixels	960*240	/
Driver IC IC	ILI8961	/
Colors	262K	/
Interface Type	SPI+8-Bit RGB Interface	/
Input Voltage	3.3	V

**2. Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit
Supply Voltage for Logic	Vdd	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vdd+0.3	V
Operating Temperature	Top	-10	60	C
Storage Temperature	Tst	-20	70	C
Humidity	RH	/	90%(Max60°C)	RH

### 3. ELECTRICAL CHARACTERISTICS

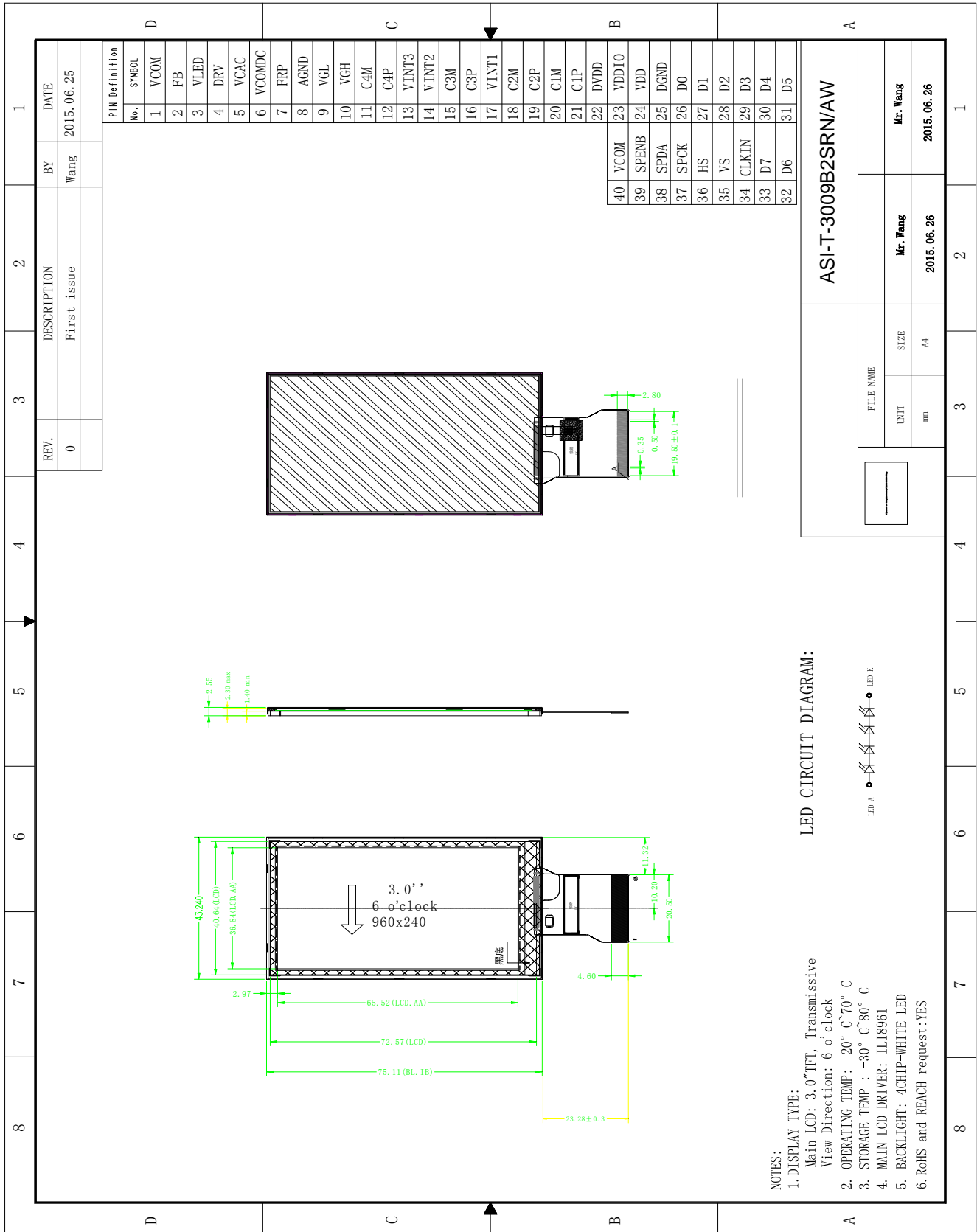
#### 3.1 DC Characteristics

Parameter	Symbol	Min	Type	Max	Unit
Supply Voltage for Logic	Vdd-Vss	2.7	3.3	3.6	V
Input Current	I <sub>dd</sub>	/	TBD	TBD	mA
Input Voltage H Level	V <sub>ih</sub>	0.8IOV <sub>CC</sub>	-	IOV <sub>CC</sub>	V
Input Voltage L Level	V <sub>il</sub>	-0.3	-	0.2 IOV <sub>CC</sub>	V
Output Voltage H Level	V <sub>oh</sub>	0.8 IOV <sub>CC</sub>	-	IOV <sub>CC</sub>	V
Output Voltage L Level	V <sub>ol</sub>	-	-	0.2 IOV <sub>CC</sub>	V

#### 3.2 Backlight Characteristics

Item	Symbol	Min	Type	Max	Unit	Condition
Forward voltage	V <sub>f</sub>	12.0	12.8	13.6	V	If= 20mA/LED
Luminance	L <sub>v</sub>	230	/	/	cd/m <sup>2</sup>	
Number of LED	/	4			Piece	/
Connection mode	S	Series			/	/
(Uniformity)	Avg	80	/	/	%	If= 20mA/LED

4. LCM Structure chart



**5.Interface Description**

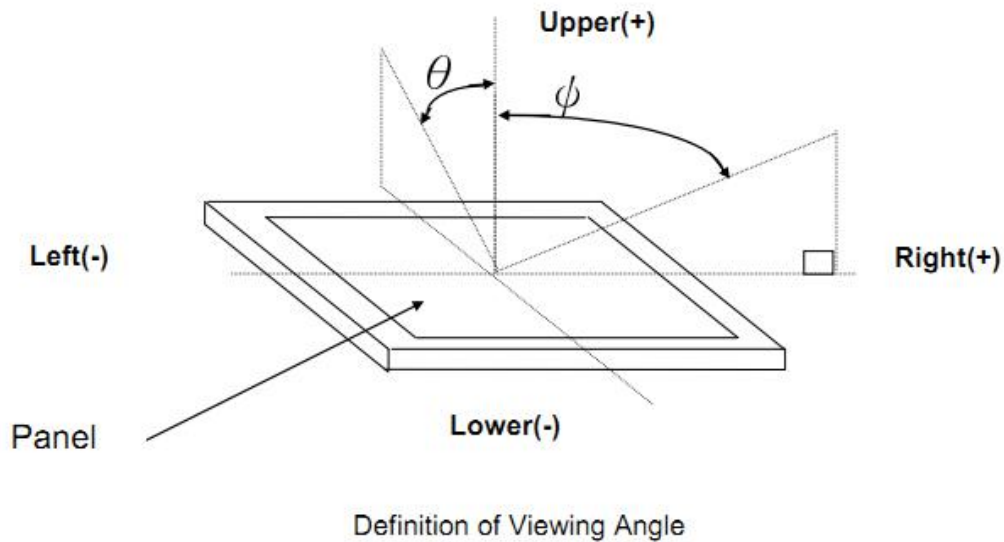
No.	SYMBOL	I/O	Description
1	VCOM		Common electrode driving voltage
2	FB		LED power cathode
3	VLED		LED power anode
4	DRV		Power transistor signal for back light power boost converter.
5	VCAC		Power setting capacitor for VCOM AC.
6	VCOMDC		VCOM DC voltage output pin
7	FRP		Frame polarity output for panel VCOM.
8	AGND		Ground pin for analog circuits.
9	VGL		Power setting capacitor connect pin
10	VGH		Power setting capacitor connect pin
11	C4M		Capacitor connect pin for internal charge pump.
12	C4P		Capacitor connect pin for internal charge pump.
13	VINT3		Power setting capacitor connect pin.
14	VINT2		Power setting capacitor connect pin.
15	C3M		Capacitor connect pin for internal charge pump.
16	C3P		Capacitor connect pin for internal charge pump.
17	VINT1		Power setting capacitor connect pin.
18	C2M		Capacitor connect pin for internal charge pump.
19	C2P		Capacitor connect pin for internal charge pump.
20	C1M		Capacitor connect pin for internal charge pump.
21	C1P		Capacitor connect pin for internal charge pump.
22	DVDD		Power setting capacitor connecting pins.
23	VDDIO		Power supply for digital interface
24	VDD		Power setting
25	DGND		Ground for digital circuits.
26~33	D0~D7		Data bus
34	CLKIN		Data clock input
35	VS		Vertical sync input
36	HS		Horizontal sync input
37	SPCK		Serial command clock input
38	SPDA		Serial command data input
39	SPENB		Serial communication chip select
40	VCOM		Common electrode driving voltage

6. Optical Specification

Items		Symbol	Condition	Specifications			Unit	Note
Transmittance		T%	Viewing Angle x= y=0	4.5			nit	
Contrast Ratio		CR		800				
Response Time		Ton+Toff		30				
---				Min	Typ	Max		
Chromaticity	Red	XR	Viewing Angle x= y=0		0.			
		Y <sub>R</sub>		0.322		-		
	Green	X <sub>G</sub>		0.290		-		
		Y <sub>R</sub>		0.588		-		
	Blue	X <sub>B</sub>		0.134		-		
		Y <sub>B</sub>		0.124		-		
	White	X <sub>W</sub>		0.298		-		
		Y <sub>W</sub>		0.328		-		

(Using CPT LC+ EWV Polarizer+Corresponding Backlight, reference only)

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	REMARK
Transmittance	T			5.6		%	
Contrast Ratio	CR		---	400	---		Note 3
Response Time	Tr+Tf	$\theta = \psi = 0^\circ$	---	30	---	ms	Note 4
Viewing angle	CR $\geq$ 10	U	55	65		degree	Note 5
		D	40	50		degree	Note 5
		L	50	60		degree	Note 5
		R	50	60		degree	Note 5
Color Filter Chromaticity	W	x	0.287	0.297	0.307		Note 6
		y	0.325	0.335	0.345		
		Y	31.1	34.1	37.1		
	R	x	0.589	0.599	0.609		
		y	0.307	0.317	0.327		
		Y	19.1	22.1	25.1		
	G	x	0.271	0.281	0.291		
		y	0.535	0.545	0.555		
		Y	56.2	60.2	64.2		
	B	x	0.134	0.144	0.154		
		y	0.150	0.160	0.170		
		Y	17.0	20.0	23.0		
	NTSC				48.7		



Response time is the time required for the display to transition from white to black (Rising time,  $T_r$ ) and from black to white (Falling time,  $T_f$ ).for additional information

(3) Contrast Ratio(CR) 对比度

Contrast Ratio(CR) is defined mathematically as: CR 公式定义

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

$$\text{对比度 (CR)} = L_{\text{亮}} / L_{\text{暗}}$$

Surface luminance is the center point across the lcd surface 500mm from the surface with all pixels displaying white.



### 7.LCM Inspection standard

#### 7.1 Special examination requirements:

Examination Acceptable Standard:

Remarks:

- Items: 1.Backlight installed  
 2.Brightness,uniformity and efficiency must be in specs requested.  
 Backlight 3.Backlight colors must be in specs requested

Visual Examination  
With Magnifier

- Bezzel To reject visible damages,shape changes or solder chips.  
 W % ' 1.Bent track angle cannot be bigger than  $d e'$  as shown  
 2.To reject cracks or breaks on enforced panel, or bubbles taking more than 20% of whole section  
 \* To reject scratches or dirt spots or small objects on connection pins  
 4.To reject oxygenized or defects on connection pins  
 5.To reject any connection pins missing or incomplete electroplated layers



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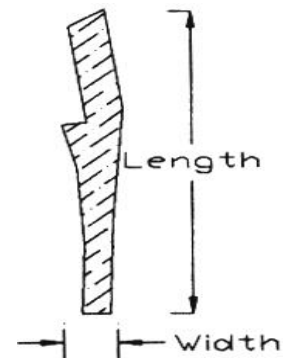
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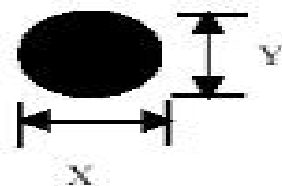
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 8QGHU IOXRUVFHQW OLJKW LI WKH VLJH RI  
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 LV UHMHFWHG  
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 GLVSOD\  
 FKDUH QPDUWHU KRZ ELJ WKH VLJH RI  
 1HZWRQ V ULQJV LW LV UHMHFWHG

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WKDQ RI HDFK VLQJOH FRQWDFW SDG

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7KDW P\ EH DFFHSWDEOH WR KDYH WKH VHDOLQJ IDOOLQJ RII LI W  
DFKLHYHV WKH UHTXHVW  
7KH VXUIDFH RI WKH FRDWLQJ DGKHVLYH SRVLWLRQ DFFRUGLQJ WR  
UHTXLUHPHQWV KHLJKW FDQ QRW H[FHHG WKH SRODUL]LQJ ILOP ,  
FRYHUHG WHUPLQDOV

,I WKH DERYH XQGHVLUDEOH GRHV QRW RFFXU LQ WKH YLHZDEOH DUHD WK

**8.RELIABILITY TEST**

Test item	Test condition
High temperature storage	80°C, 48hr
Low temperature storage	-30°C, 240 hr/ -40°C, 8hr
High temperature operation	70°C, 48 hr
Low temperature operation	-20°C, 48 hr
High temperature and high humidity operation	60°C、95%RH, 48 hr
Thermal shock	-40°C (30min) 80°C (30min) 48 cycles

After completing the reliability test, leave the samples under the room temperature and for the following inspection items:

- 1.No clearly visible defects or deterioration of display quality allowed.
- 2.No function-related abnormalities.
- 3.Connected parts still connecting tightly.
- 4.Display characteristics fulfill initial value, contrast ratio should be an least 30% of initial value.

## 9. Storage Precautions

9.1 When storing the LCD modules, the following precaution are necessary.

9.2 Store them in a sealed polyethylene bag. If properly sealed, there is no need for the desiccant.

9.3 Store them in a dark place. Do not expose to sunlight or fluorescent light, keep the temperature between 0°C and 35°C, and keep the relative humidity between 40%RH and 60%RH.

9.4 The polarizer surface should not come in contact with any other objects (We advise you to store them in the anti-static electricity container in which they were shipped).

9.5 Liquid crystals solidify under low temperature (below the storage temperature range) leading to defective orientation or the generation of air bubbles (black or white). Air bubbles may also be generated if the module is subject to a low temperature.

9.6 If the LCD modules have been operating for a long time showing the same display patterns, the display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear. A normal operating status can be regained by suspending use for some time. It should be noted that this phenomenon does not adversely affect performance reliability.

9.7 To minimize the performance degradation of the LCD modules resulting from destruction caused by static electricity etc., exercise care to avoid holding the following sections when handling the modules.

9.7.1 - Exposed area of the printed circuit board.

9.7.2 - Terminal electrode sections.