

## ASI-T-300Q1A2MN/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>ALL</b>	<b>O'Clock</b>
<b>Outside dimensions(W*H*T)</b>	<b>43.04*74.91*2.30max</b>	<b>mm<sup>3</sup></b>
<b>Active Area(W*H)</b>	<b>36.72*65.28</b>	<b>mm<sup>2</sup></b>
<b>Number of Pixels</b>	<b>360RGB*640</b>	<b>/</b>
<b>Driver IC</b>	<b>ST7701S</b>	<b>/</b>
<b>Colors</b>	<b>262K</b>	<b>/</b>
<b>Interface Type</b>	<b>MIPI /3W+RGB16BIT</b>	<b>/</b>
<b>Input Voltage</b>	<b>3.3</b>	<b>V</b>

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**1.GENERAL INFORMATION**

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<b>Input Voltage</b>	<b>3.3</b>	<b>V</b>

**2. Absolute Maximum Ratings**

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

### 3. ELECTRICAL CHARACTERISTICS

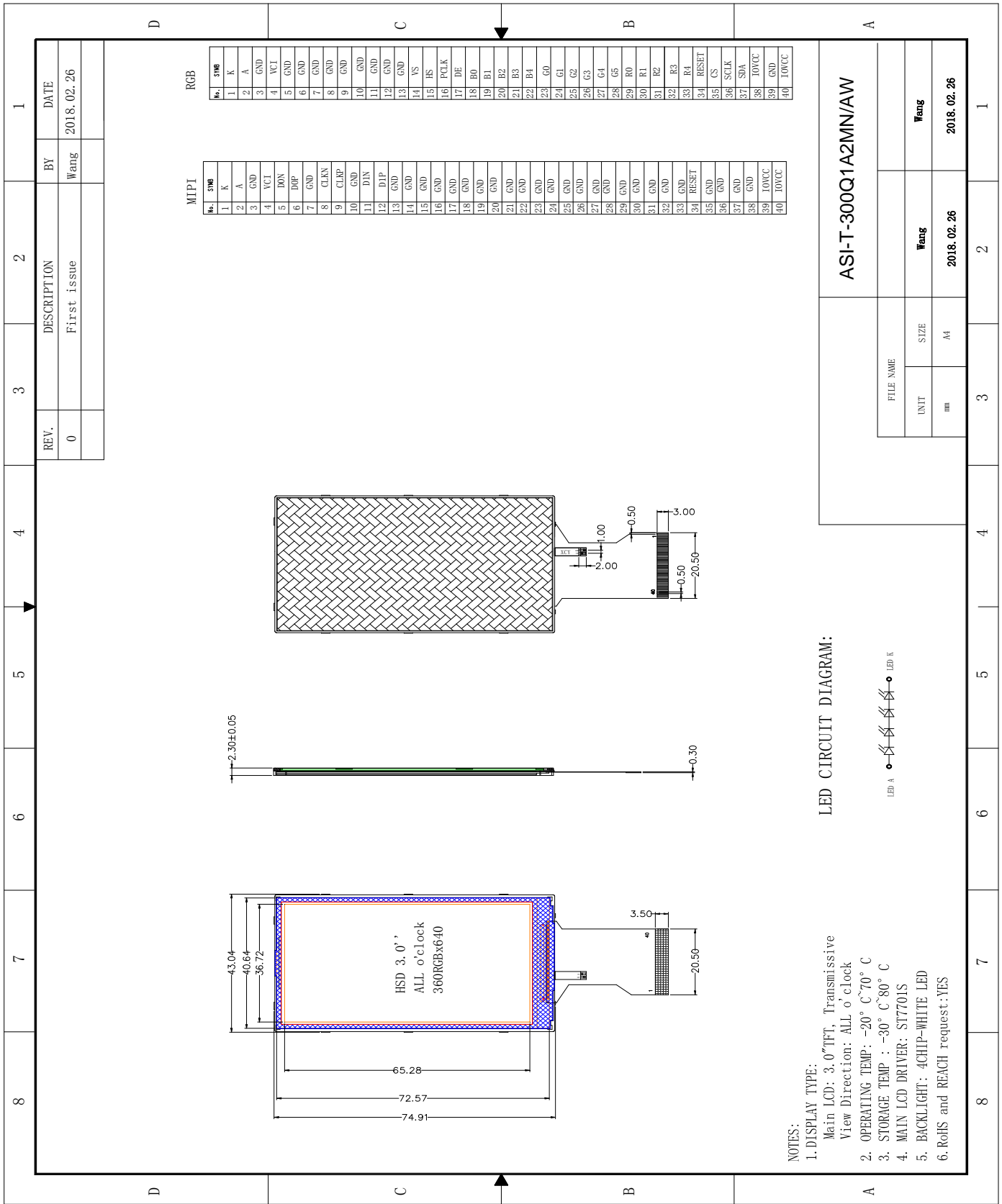
#### 3.1 DC Characteristics

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>	11.2	12.8	13.2	V	If= 20mA/LED
Luminance	L <sub>v</sub>	230	/	/	cd/m <sup>2</sup>	
Number of LED	/	4			Piece	/
Connection mode	S	Seiral			/	/
Uniformity	Avg	80	/	/	%	If= 20mA/LED

4. LCM Structure chart



**5. Interface Description**

No.	SYMBOL	I/O	Description
1	<b>LEDK</b>		<i>LED power cathode</i>
2	<b>LEDA</b>		<i>LED power anode</i>
3	<b>GND</b>		<i>Ground for digital circuits.</i>
4	<b>VCC</b>		<i>Power supply for interface logic circuit. 2.8V/3.3V</i>
5	<b>D0N</b>		<i>MIPI DSI differential data pair.</i>
6	<b>D0P</b>		<i>MIPI DSI differential data pair.</i>
7	<b>GND</b>		<i>Ground for digital circuits.</i>
8	<b>CLKN</b>		<i>MIPI DSI differential clock pair.</i>
9	<b>CLKP</b>		<i>MIPI DSI differential clock pair.</i>
10	<b>GND</b>		<i>Ground for digital circuits.</i>
11	<b>D1N</b>		<i>MIPI DSI differential data pair.</i>
12	<b>D1P</b>		<i>MIPI DSI differential data pair.</i>
13-33	<b>GND</b>		<i>Ground for digital circuits.</i>
34	<b>RESET</b>		<i>This signal will reset the device and must be applied to properly initialize the chip. initialize the chip.</i>
35-38	<b>GND</b>		<i>Ground for digital circuits.</i>
39	<b>IOVCC</b>		<i>A supply voltage to the interface pins (IOVcc = 1.65 ~ 3.3V).</i>
40	<b>IOVCC</b>		<i>A supply voltage to the interface pins (IOVcc = 1.65 ~ 3.3V).</i>

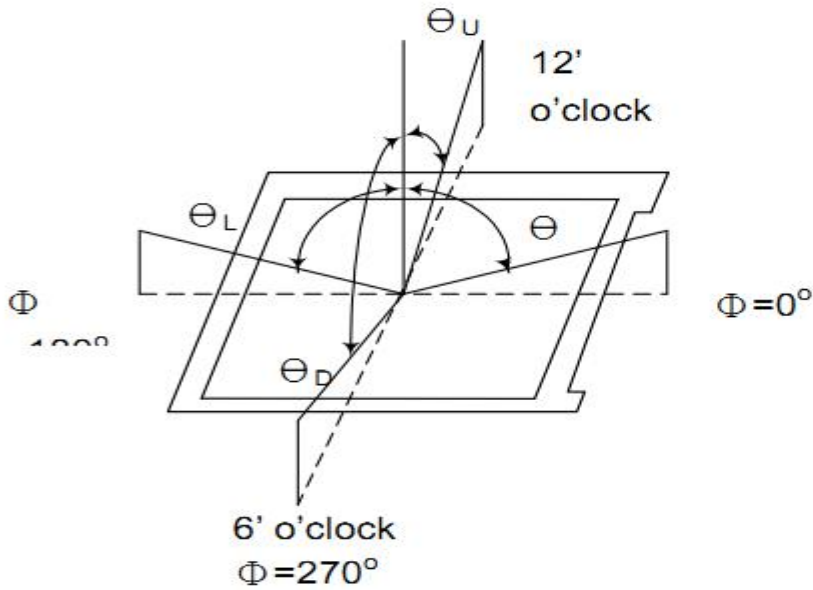
## ASI-T-300Q1A2MN/AW

No.	SYMBOL	I/O	Description
1	K		<i>LED power cathode.</i>
2	A		<i>LED power anode.</i>
3	GND		<i>Ground pin for analog circuits.</i>
4	VCI		<i>Power supply for interface logic circuit. 2.8V</i>
5-13	GND		<i>Ground pin for analog circuits.</i>
14	VS		<i>Frame synchronizing signal.</i>
15	HS		<i>Line synchronizing signal.</i>
16	DCLK		<i>Dot clock signal.</i>
17	DEN		<i>A data ENABLE input signal.</i>
18-22	B0-B4		<i>Data Pin</i>
23-28	G0-G5		<i>Data Pin</i>
29-33	R0-R4		<i>Data Pin</i>
34	RESET		<i>This signal will reset the device and must be applied to properly initialize the chip.</i>
35	CS		<i>A chip select signal.</i>
36	SCL		<i>Serial interface clock.</i>
37	SDA		<i>The data is applied on the rising edge of the SCL signal.</i>
38	IOVCC		<i>A supply voltage to the interface pins (IOVcc = 1.65 ~ 3.3V).</i>
39	GND		<i>Ground pin for analog circuits.</i>
40	IOVCC		<i>A supply voltage to the interface pins (IOVcc = 1.65 ~ 3.3V).</i>

6.Optical Specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Transmittance (with Polarizer)		T (%)	Θ=0 Normal viewing angle	(3.3)	(3.7)	—	%
Transmittance (without Polarizer)		T (%)		(11.2)	(12.4)	—	%
Contrast Ratio		CR		600	800	—	—
Response Time	Rising	T <sub>R</sub>		—	30	45	msec
	Falling	T <sub>F</sub>					
Color Gamut		(%)		54	60	—	%
Color Chromaticity (CIE1931)	White	W <sub>x</sub>		(0.276)	(0.296)	(0.316)	—
		W <sub>y</sub>		(0.305)	(0.325)	(0.345)	
	Red	R <sub>x</sub>		(0.627)	(0.647)	(0.667)	—
		R <sub>y</sub>		(0.309)	(0.329)	(0.349)	
	Green	G <sub>x</sub>	(0.259)	(0.279)	(0.299)	—	
		G <sub>y</sub>	(0.530)	(0.550)	(0.570)		
	Blue	B <sub>x</sub>	(0.114)	(0.134)	(0.154)	—	
		B <sub>y</sub>	(0.103)	(0.123)	(0.143)		
Viewing Angle	Hor.	Θ <sub>L</sub>	CR>10	—	80	—	—
		Θ <sub>R</sub>		—	80	—	
	Ver.	Θ <sub>U</sub>		—	80	—	
		Θ <sub>D</sub>		—	80	—	





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

Contrast Ratio(CR)

Contrast Ratio(CR) is defined mathematically as: CR

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

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

**7.LCM Inspection standard**

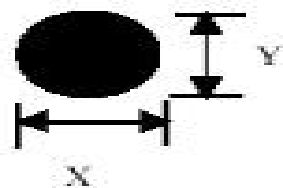
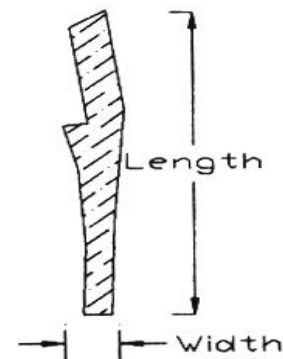
**7.1 Special examination requirements:**

Examination Items:	Acceptable Standard:	Remarks:
Backlight	1.Backlight installed 2.Brightness,uniformity and efficiency must be in specs requested. 3.Backlight colors must be in specs requested	Visual Examination With Magnifier
Bezzel	To reject visible damages,shape changes or solder chips.	
FPC	1.Bent track angle cannot be bigger than 90° as shown 2.To reject cracks or breaks on enforced panel, or bubbles taking more than 20% of whole section 3.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	



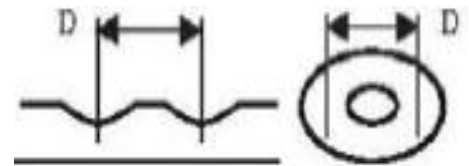
**7.2 TFT examination standard:**

Examination Items:	Accessible standard		Remarks:
1.Line Shape Defects (lines in black or white)	length (mm) ---- $L \leq 5$	wide (mm) $W \leq 0.05$ $0.05 < W \leq 0.1$	Accessible QTY access 1
2.Scratching	length (mm) ---- $L \leq 5$	wide (mm) $W \leq 0.05$ $0.05 < W \leq 0.1$	Accessible QTY access 1
3. Dot Shape Defectives	size (mm) $D \leq 0.10$ $0.10 < D \leq 0.20$ $0.2 < D \leq 0.25$ $D > 0.25$		Accessible QTY access 2 1 0



$D = (\text{long length} X + \text{short length} Y) / 2$

4. TP:	size(mm)	Accessible QTY
Dimples or	$D \leq 0.20$	access
Bubbles	$0.20 < D \leq 0.30$	6
	$0.3 < D \leq 0.5$	2
	$D > 0.5$	0



5. Neton's Rings Exam. A Even & equal Newton's rings(as drawing A)  
 1.If the size of Newton's rings is more than 25% of T/P area, it is rejected.  
 2.Under fluorescent light,if the size of Newton's rings is no more than 25% and also do not change display images, it is acceptable.

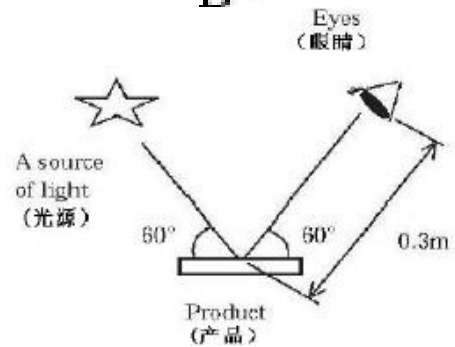


A

B Uneven & unequal Newton's rings (as drawing B)  
 1.Under no fluorescent light, if the size of Newton's rings is bigger than 7mm, it is rejected.  
 2.Under fluorescent light, as long as the display characters or images are changed,no matter how big the size of Newton's rings, it is rejected.



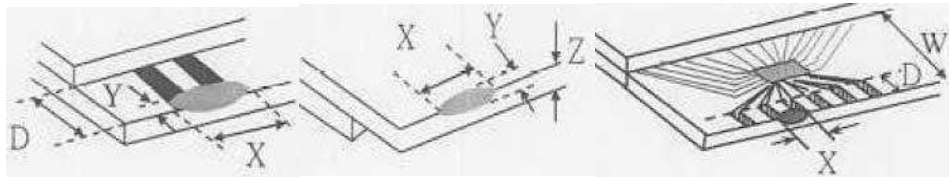
B



Remarks: please remove the protect film when it is tested.

6. Surface Defect	Z	X	Y
	$Z \leq 1/2t$	$X \leq a$	
	$Z \leq 1/2t$	$X \leq a$	
7. Corner Defect	Z	X	Y
	$Z \leq 1/2t$	$X \leq 1/8a$	
	$Z \leq 1/2t$	$X \leq 1/8a$	

8 Contact Pads Defects



	X	Y	Z
Front Side	$X \leq 1/5a$	$Y \leq 0.5mm$	$z \leq t$
Back Side	$X \leq 1/5a$	$Y \leq 0.5mm$	$z \leq 1/2t$

When it has defects more than one location, X is the total length of all defects. It cannot be in view area. Defect size cannot be bigger than 25% of each single contact pad.

9. Crack Defect



Minor

Polarizer,  
Reflection Panel or  
Glass Panel

Any cracks that trend to extend to longer is rejected

$S < 0.3mm$	Acceptable
$0.3mm \leq S < 0.5mm$	Minor
$S \geq 0.5mm$	Major

In batch processing if there are two or more bias/oblique at the same time, according to the highest defect level surface can not be soft cloth light wipe or air gun blowing dirty foreign matter (including Buss, dust, solder ball, glue, shadow, etc.) according to the point line specifications to determine Strip color, stagger, flow trace, glass leaky according to color picture judgment Viewing angle error is not acceptable; Shows that the water ripple is not acceptable; It's not acceptable to be with a shaking display.

Missing	1. Irregular Black Regiment found in the viewport, light group (extruded glass will move) cannot be accepted 2. Cavitation rebound: Percussion bubbles cannot be accepted	Major
COG	1. IC can not be damaged , scratch 2. Sealing glue into the viewport can not be accepted	minor

**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.