

SDC OLED For HP
MODEL : ATNA56WR01-002

PRODUCT SPECIFICATION

Any modification of spec is not allowed without SDC's permission.

PREPARED BY : OLED Development Team

Samsung Display Co., LTD.

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REVISION HISTORY

Date.	Rev.No.	Page	Revision Description
18/08/22	000	All	Initial Release - preliminary
18/10/24	001	All	Power sequence, Reliability condition, Module Picture, Cosmetic, Optical/Electrical Characteristic, General Information, Mechanical Information

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1. GENERAL DESCRIPTION

DESCRIPTION

The ATNA56WR01-002 uses a organic light emitting diode display (OLED) that uses low temperature poly silicon TFTs as switching components. This model is composed of a TFT OLED panel, a driver circuit.

This 15.6" model has a resolution of 3840 x 2160 pixels and can display up to 16,777,216 colors.

FEATURES

OLED Display

High contrast ratio & Fast Response

UHD(3840 x 2160 pixels) resolution

eDP(V1.4b)

APPLICATIONS

Tablet PC

Notebook PC

If the intent to use this product is for other purpose, please contact Samsung Display.

GENERAL INFORMATION

Item	Specification	Unit	Note
Display area	344.2176 (H) x 193.6224 (V) (15.6" diagonal)	mm	
Driver Element	LTPS TFT active matrix		
Display colors	1,064M(RGB 8bit+2FRC)		
Number of pixel	3840 * 2160 (UHD)	Pixel	16:9
Pixel Arrangement	RGB Stripe Type		
Pixel pitch	89.64 x 89.64, Sub Pixel : 29.88 x 89.64	um	
Display Mode	OLED		
Thickness of glass	0.7	mm	
Surface treatment	Glare		
Environmental safe regulation	Pb Free, Halogen Free		

MECHANICAL INFORMATION

Item		Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal (H)	348.0876	348.2176	348.3476	mm	-
	Vertical (V)	214.944	215.572	216.20	mm	With PCB
	Depth (D)	1.039	1.154	1.269	mm	POL~Cover Panel (Body)
		-	-	2.192	mm	With PCB
Weight		-	-	200	g	w/o Cover Panel Protective Film

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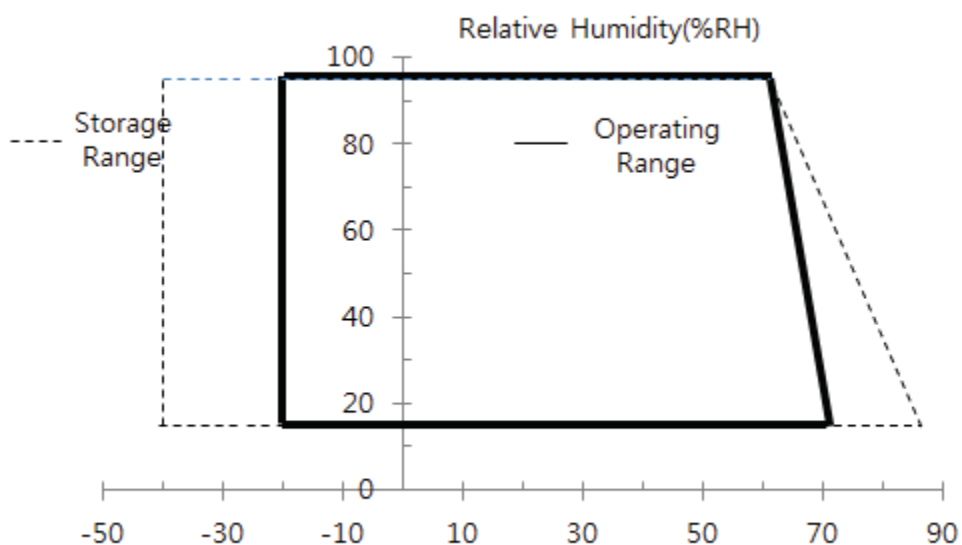
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2. ABSOLUTE MAXIMUM RATINGS

2.1 ENVIRONMENTAL ABSOLUTE RATINGS

Item	Symbol	Min.	Max.	Unit	Note
Storage temperature	TSTG	-40	85	°C	(1)
Operating temperature (Temperature of Environment)	TOPR	-20	70	°C	(1)

Note (1) The range of temperature and relative humidity are shown in the graph below 93% RH.



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2.2 ELECTRICAL ABSOLUTE RATINGS

(1) OLED MODULE

V_{SS} = GND = 0V

Item		Symbol	Min.	Max.	Unit	Note
Supply Voltage	System	VDD_3.3V	-0.3	+4.6	V	(1), (2)
	EL Power	VBAT	-0.3	+27	V	(1), (2)
Signal Input Voltage		System_I/O	-0.3	VDD_1.8V+0.2	V	(2)

Note 1) VDD_3.3V, VBAT should satisfy the condition of VDD_3.3V, VBAT > VSS(AGND).

Note 2) If the supplied voltage exceeds the maximum limitation, D-IC can be damaged permanently.

Therefore, while operating, it's recommended to use D-IC within the maximum electrical limitation.

If not, D-IC can cause decreased reliability or operational problems.

Note 3) Temperature should not exceed 29°C and there should be no condensation.

2.3 THE OTHERS

(1) STATIC ELECTRICITY PRESSURE RESISTANCE

Item	Test Conditions	Remark
CONTACT DISCHARGE	T.B.D	Non-Operating
AIR DISCHARGE	T.B.D	Non-Operating

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3. OPTICAL CHARACTERISTICS

The following items are measured under the stable conditions.* The optical characteristics should be measured in the dark room or the equivalent environment by the methods shown in the Note (5).

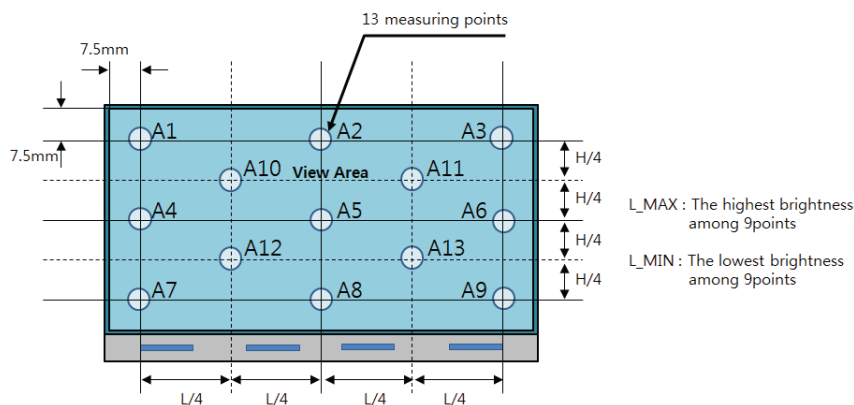
Measuring equipment : TOPCON SR-3

Ta = 25 ± 2 °C, V_{LCD,VCC} = 3.3V, fv= 60Hz

Item	Symbol	Temp	Condition	Min.	Typ.	Max.	Unit	Note
Brightness		25 °C	Normal (White Mode)	360	400	440	cd/m ²	(1)
Uniformity		25 °C	Normal (White Mode)	63	-	-	%	(1)
Contrast ratio	K	25 °C	Φ=0°,θ=0°		100,000	-	-	(2)
Color of CIE coordinate	White	x	25 °C Φ=0° θ=0°, 400nit	0.293	0.313	0.333	-	(1),(2), (3),(4)
		y		0.309	0.329	0.349	-	
	Red	x		0.650	0.680	0.710	-	
		y		0.290	0.320	0.350	-	
	Green	x		0.215	0.265	0.315	-	
		y		0.640	0.690	0.740	-	
	Blue	x		0.110	0.150	0.190	-	
		y		0.020	0.060	0.100	-	
Color Gamut		25 °C	DCI P3	-	100	-	%	(3), (4)
White Temperature °K		25 °C	Φ=0° θ=0°, 400nit	-	6500	-		(3), (4)
GAMMA		25 °C	Φ=0° θ=0°, 400nit	2.0	2.2	2.4	-	(3), (4)
Response Time		25 °C	On/Off	-	1	-	ms	(3), (4)
View angle		25 °C	Upper/Down/Right/Left Contrast Ratio ≥10	Over 85°				(3)
WAD	Δuv	25 °C	Φ=45°	T.B.D				(4)

NOTE (1) Uniformity measuring point

$$\text{Uniformity} = L_{\text{min}} / L_{\text{max}} * 100 [\%]$$



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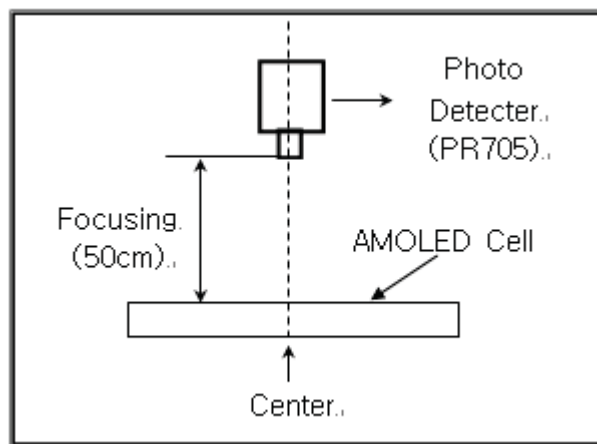
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Note (2) Definition of contrast ratio (K)

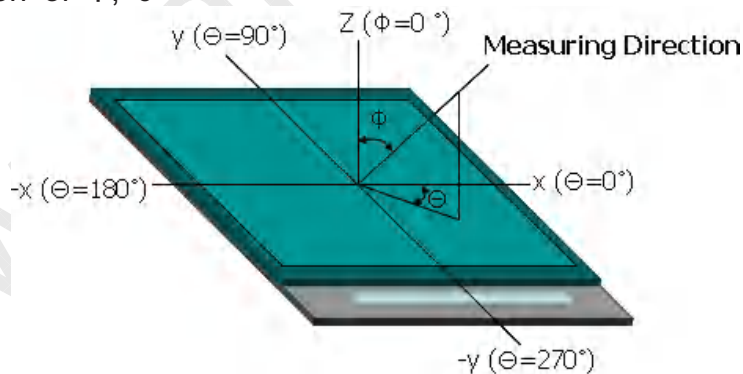
$$\text{Contrast Ratio(K)} = \frac{\text{Brightness of selected dot (White patterned area) at } 400\text{cd/m}^2}{\text{Brightness of non-selected dot (Black patterned area) at } 400\text{cd/m}^2}$$

Note (3) Optical measuring system, temperature regulated chamber
external Light : dark state .

Test angle is +80~-80 degrees due to measuring system limitation.

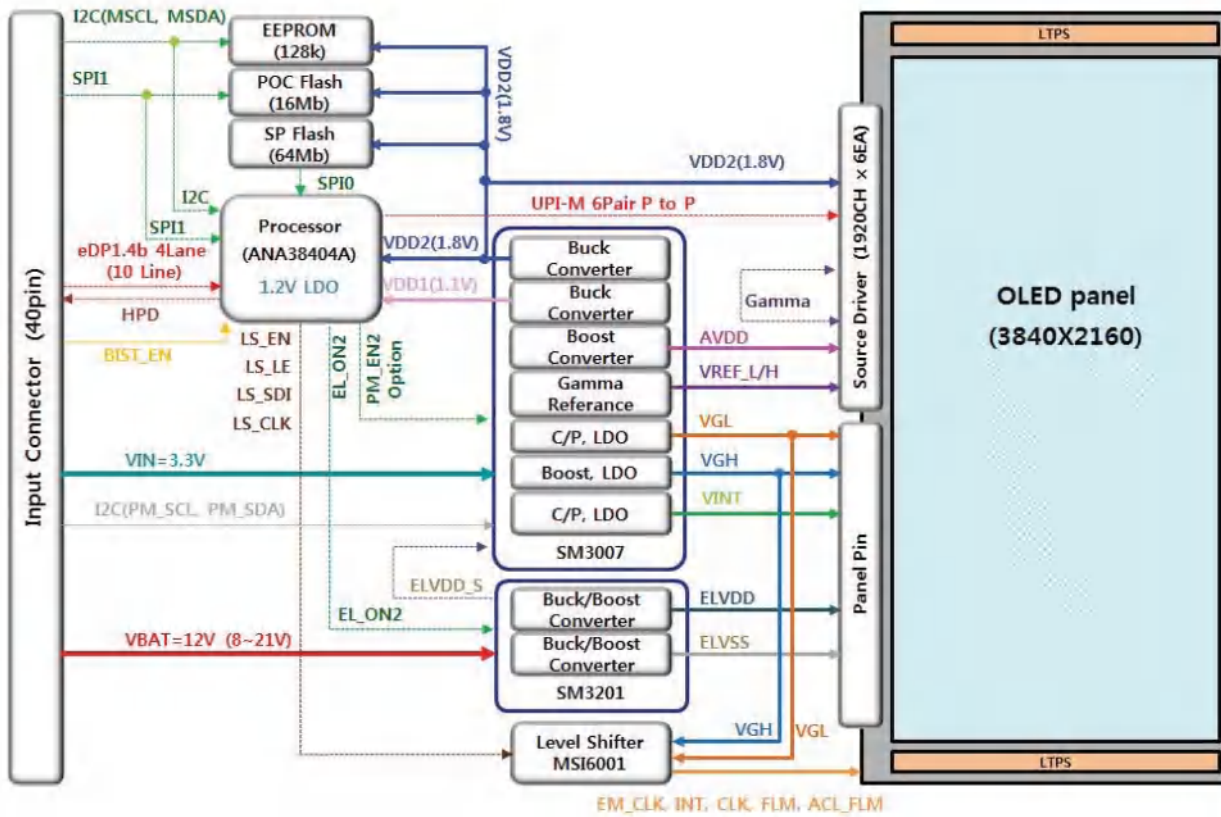


Note (4) Definition of Φ , θ



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4. BLOCK DIAGRAM



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5. ELECTRICAL CHARACTERISTICS

5.1 OLED MODULE

(Tamb=-20 to 60℃)

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note	
System	Analog/ Logic Vol.	VDD_3.3V	-	3.10	3.30	3.50	VDC		
Panel	Analog Vol.	VBAT	-	8.0	12.0	21.0	VDC		
Input Voltage	H-level	VIH	-	0.7xVDD_1.8	-	VDD_1.8	VDC		
	L-level	VIL	-	Vss	-	0.3xVDD_1.8	VDC		
Output Voltage	H-level	VOH	IOH = -2/4/8/12mA	0.8xVDD_1.8	-	VDD_1.8	VDC		
	L-level	VOL	IOH = -2/4/8/12mA	Vss	-	0.2xVDD_1.8	VDC		
Current	Logic	VDD_3.3V	Full White (Normal operation)	509	566	623	mA	(1) (2)	
	Panel	IVBAT		1004	1140	1278			
Consump tion	Logic	VDD_3.3V		1.68	1.87	2.05	W	(1) (2)	
	Panel	PVBAT		10	11.4	12.8			
Frame Frequency		fFRM		-	-	60	-	Hz	(3)

Note(1) : VDD_3.3V=3.3(V) VBAT=10.0(V), Full White pattern. Temperature = 22±3℃ Room Temperature

Note(2) : Measured using SDC Standard Operating Circuit.

Current Consumption could be different under customer's DC-DC circuit design.

Note(3) : Frame Frequency is followed by SET Software Setting

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