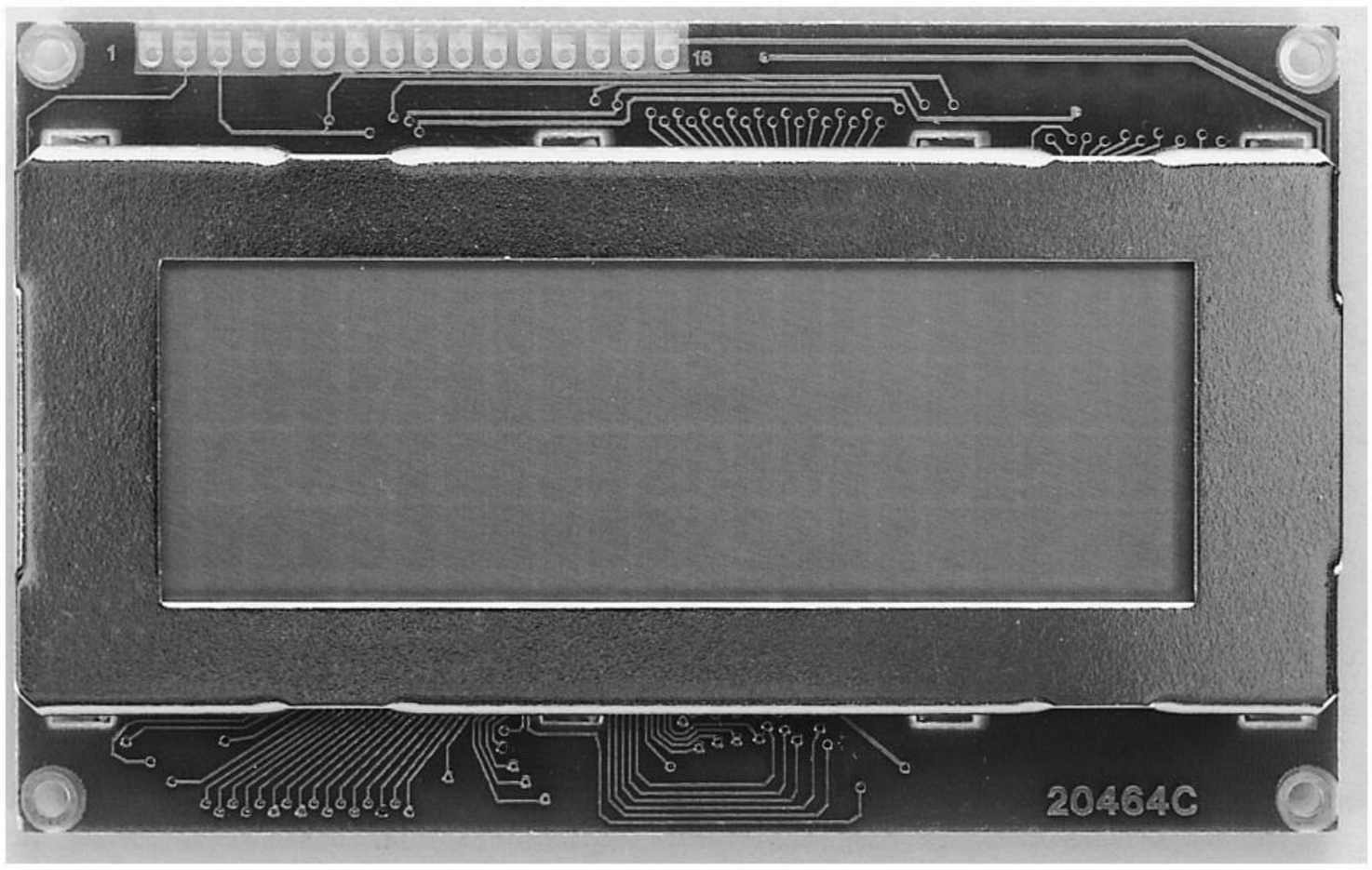
AND002004A-OLED



General Specification

Item	Dimension	Unit
Number of Characters	20 characters x 4 Lines	—
Module dimension	98.0 x 60.0 x 10.0(MAX)	mm
View area	70.0 x 25.2	mm
Active area	70.16 x 20.95	mm
Dot size	0.54 x 0.55	mm
Dot pitch	0.6x 0.59	mm
Character size	2.9 x 4.75	mm
Character pitch	3.54 x 5.4	mm
LCD type	OLED , Yellow	
Duty	1/16	

Absolute Maximum

Item	Symbol	Min	Max	Unit	Notes
Operating Temperature	T_{OP}	-40	+80	℃	
Storage Temperature	T_{ST}	-40	+80	℃	
Input Voltage	V_I	-0.3	VDD	V	
Supply Voltage For Logic	VDD-V_{SS}	-0.3	5.3	V	

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Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	VDD-VSS	—	3.0	5.0	5.3	V
Input High Volt.	VIH	—	0.9 VDD	—	VDD	V
Input Low Volt.	VIL	—	GND	—	0.1VDD	V
Output High Volt.	VOH	IOH=-0.5mA	0.8 VDD	—	VDD	V
Output Low Volt.	VOL	IOL=0.5mA	GND	—	0.2 VDD	V
Supply Current	IDD	VDD=5V	—	43	—	mA
CIEx(Yellow)		x,y(CIE1931)	0.44	0.48	0.52	
CIEy(Yellow)		x,y(CIE1931)	0.46	0.50	0.54	

Optical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
View Angle	(V)θ		160			deg
	(H)φ		160			deg
Contrast Ratio	CR	Dark	2000:1		—	—
Response Time	T rise	—		10		μs
	T fall	—		10		μs
Supply Voltage For Logic 5V 50% Check Board Brightness		With polarizer 215mW(5V*43mA)		80		Nits Note1
Supply Voltage For Logic 3V 50% Check Board Brightness		With polarizer		50		nits

Notes: 1.When random texts pattern is running , averagely , at any instance , about 1/2 of pixels will be on.

2. You can to use the display off mode to make long life.

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Interface Signal Pinout

Pin No.	Symbol	Level	Description
1	VSS	0V	Ground
2	VDD	5.0V	Supply Voltage for logic
3	NC	—	
4	RS	H/L	H: DATA, L: Instruction code
5	R/W	H/L	H: Read(MPU→Module) L: Write(MPU→Module)
6	E	H,H→L	Chip enable signal
7	DB0	H/L	Data bit 0
8	DB1	H/L	Data bit 1
9	DB2	H/L	Data bit 2
10	DB3	H/L	Data bit 3
11	DB4	H/L	Data bit 4
12	DB5	H/L	Data bit 5
13	DB6	H/L	Data bit 6
14	DB7	H/L	Data bit 7
15	NC	—	
16	NC	—	

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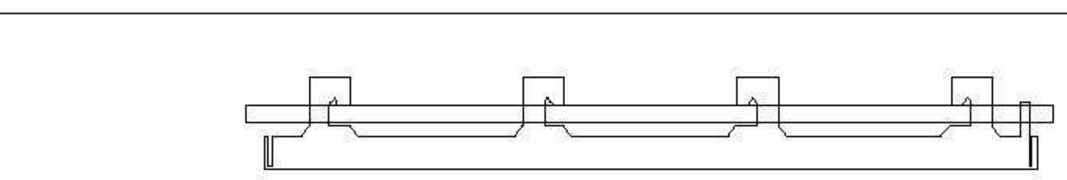
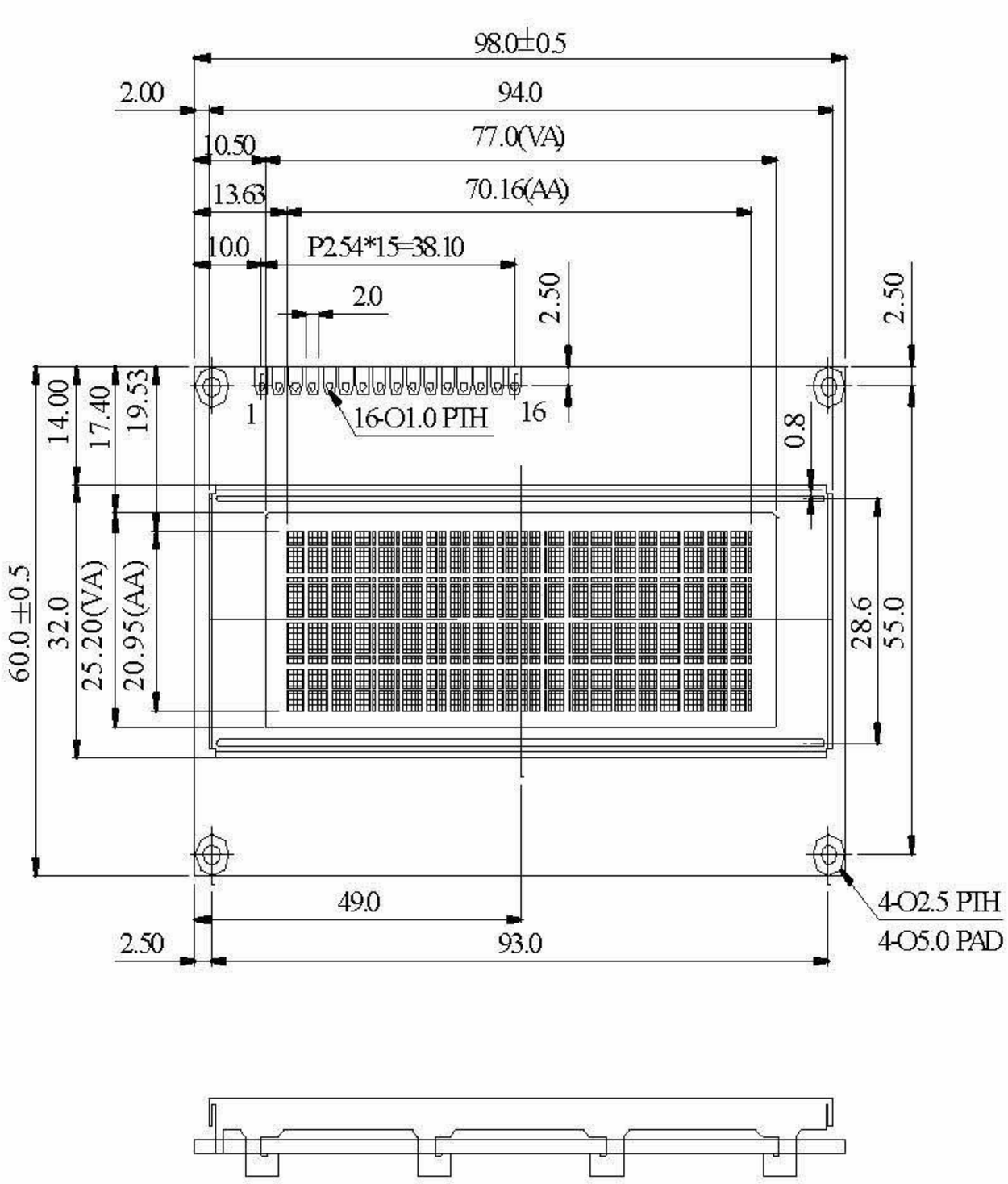
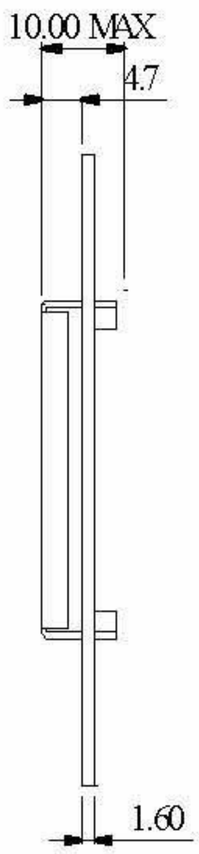
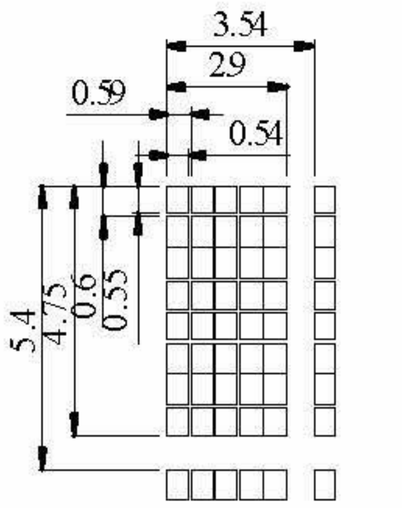
Dimensional Outline









PIN NO.	SYMBOL
1	Vss
2	Vdd
3	NC
4	RS
5	R/W
6	E
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	NC
16	NC

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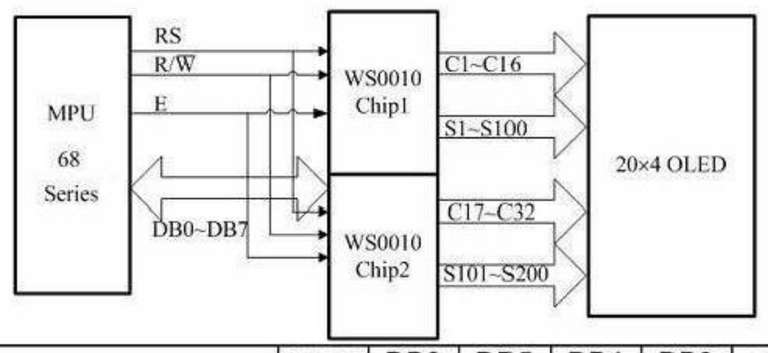
OLED Lifetime

ITEM	Conditions	Typ	Remark
Operating Life Time	Ta=25℃ /Initial 50% check board brightness 80nits	100,000 Hrs	Note

Notes:

1. Simulation pattern for operation test: interchanging with 50% checkboard
   The brightness decay does not exceed 50%.
2. You can use the display off mode to make long life.
3. The average operating lifetime at room temperature is estimated by the accelerated operation at high temperature conditions.

Block Diagram



Address Format			DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0
CA (Character Address)			1	ADD6	ADD5	ADD4	ADD3	ADD2	ADD1	ADD0
Display position	1	2	3	4	.....	.....	17	18	19	20
DD RAM Address	00	01	02	03	.....	.....	10	11	12	13
DD RAM Address	40	41	42	43	.....	.....	50	51	52	53
DD RAM Address	14	15	16	17	.....	.....	24	25	26	27
DD RAM Address	54	55	56	57	.....	.....	64	65	66	67

Reliability

Content of Reliability Test

Environmental Test			
Test Item	**Content of Test**	**Test Condition**	**Applicable Standard**
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80℃ 240hrs	——
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	80℃ 240hrs	——
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-40℃ 240hrs	——
High Temperature/ Humidity Storage	Endurance test applying the high temperature and high humidity storage for a long time.	60℃,90%RH 240hrs	——
Temperature Cycle	Endurance test applying the low and high temperature cycle. -40℃ 25℃ 80℃ 30min 5min 30min 1 cycle	-40℃/80℃ 100 cycles	——
Mechanical Test			
Vibration test	Endurance test applying the vibration during transportation and using.	10~22Hz→1.5mmp-p 22~500Hz→1.5G Total 0.5hrs	——
Shock test	Constructional and mechanical endurance test applying the shock during transportation.	50G Half sign wave 11 msedc 3 times of each direction	——
Atmospheric pressure test	Endurance test applying the atmospheric pressure during transportation by air.	115mbar 40hrs	——
Others			
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=800V,RS=1.5kΩ CS=100pF 1 time	——

***Supply voltage for logic system=5V. Supply voltage for LCD system =Operating voltage at 25℃