WINSTAR Display

OLED SPECIFICATION

Model No:

WEO9664B#A00-FC

WINSTAR DISPLAY Co., Ltd.

SPECIFICATION Version: E

CUSTOMER :
MODULE NO. : WEO9664B#A00-FC

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
first FC components			
RELEASE DATE:			

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MODEL NO：

RECORDS OF REVISION			DOC. FIRST ISSUE
VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2013/09/12		First release
A	2014/06/12		Add Low Temperature storage.
B	2014/12/08		Modified VCC,ICC ,Brightness & the height of module.
C	2015/11/30		Modify Life Time
D	2016/03/23		Modify Static electricity test
E	2016/11/21		Add FPC bending rule

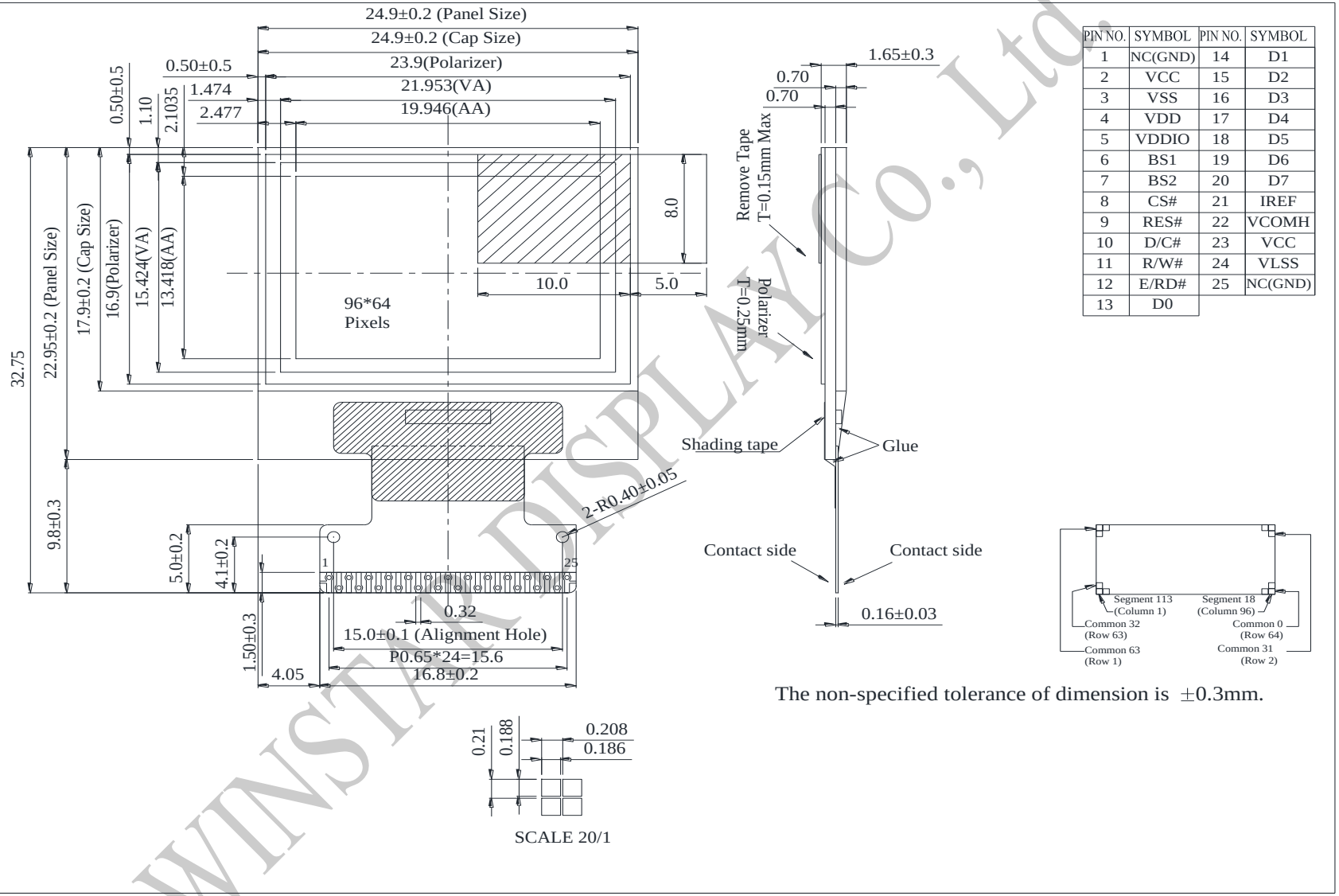
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2.General Specification

2.1. Item	Dimension	Unit
Dot Matrix	96 x 64 Dots	—
Module dimension	24.9 × 22.95 × 1.65 (mm)	mm
Active Area	19.946 × 13.418 (mm)	mm
Pixel Size	0.186 × 0.188 (mm)	mm
Pixel Pitch	0.208 × 0.21 (mm)	mm
Display Mode	Passive Matrix	
Display Color	Blue	
Drive Duty	1/64 Duty	
IC	SSD1305Z	

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3. Contour Drawing & Block Diagram

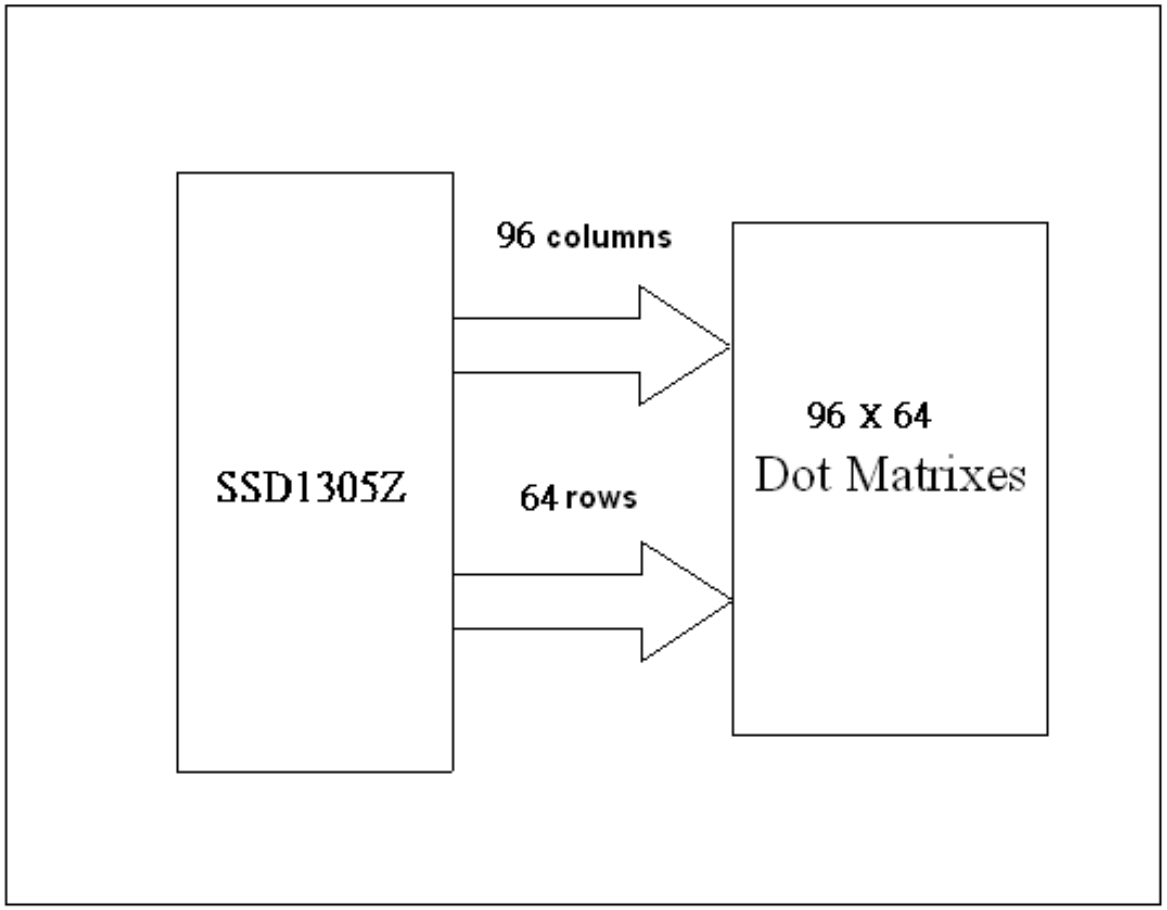


PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	NC(GND)	14	D1
2	VCC	15	D2
3	VSS	16	D3
4	VDD	17	D4
5	VDDIO	18	D5
6	BS1	19	D6
7	BS2	20	D7
8	CS#	21	IREF
9	RES#	22	VCOMH
10	D/C#	23	VCC
11	R/W#	24	VLSS
12	E/RD#	25	NC(GND)
13	D0		

The non-specified tolerance of dimension is ±0.3mm.

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VCC Supplied Externally



*For more information, please refer to Application Note provided by Winstar

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4. Interface Pin Function

<table>
<tr><th>Pin Number</th><th>Symbol</th><th>I/O</th><th>Function</th></tr>
<tr><td>1.</td><td>N.C.
(GND)</td><td>-</td><td>Reserved Pin(Supporting Pin)
The supporting pins can reduce the influences from stresses on the function pins. These pins must be connected to external ground.</td></tr>
<tr><td>2.</td><td>VCC</td><td>P</td><td>Power Supply for OLED Panel
This is the most positive voltage supply pin of the chip.It must be supplied externally.</td></tr>
<tr><td>3.</td><td>VSS</td><td>P</td><td>Ground of Logic Circuit
This is a ground pin. It also acts as a reference for the logic pins. It must be connected to external ground.</td></tr>
<tr><td>4.</td><td>VDD</td><td>P</td><td>Power Supply for Logic Circuit
This is a voltage supply pin. It must be connected to external source.</td></tr>
<tr><td>5.</td><td>VDDIO</td><td>P</td><td>Power supply for interface logic level.
It should be match with MCU interface voltage level. VDDIO must always be equal or lower than VDD.</td></tr>
<tr><td>6.
7.</td><td>BS1
BS2</td><td>I</td><td>Communicating Protocol Select
These pins are MCU interface selection input. See the following table:
<table>
<tr><td></td><td>68XX-parallel</td><td>80XX-parallel</td><td>Serial</td><td>I2C</td></tr>
<tr><td>BS1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
<tr><td>BS2</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td>8.</td><td>CS#</td><td>I</td><td>Chip Select
This pin is the chip select input. The chip is enabled for MCU communication only when CS# is pulled low.</td></tr>
<tr><td>9.</td><td>RES#</td><td>I</td><td>Power Reset for Controller and Driver
This pin is reset signal input. When the pin is low, initialization of the chip is executed.</td></tr>
<tr><td>10.</td><td>D/C#</td><td>I</td><td>Data/ Command Control
This pin is Data/Command control pin. When the pin is pulled high, the input at D7~D0 is treated as display data. When the pin is pulled low, the input at D7~D0 will be transferred to the command register. For detail relationship to MCU interface signals, please refer to the Timing Characteristics Diagrams.
When the pin is pulled high and serial interface mode is selected, the data at SDIN is treated as data. When it is pulled low, the data at SDIN will be transferred to the command register. In I2C mode, this pin acts as SA0 for slave address selection.</td></tr>
<tr><td>11.</td><td>R/W#</td><td>I</td><td>Read/ Write Selector Write
This pin is MCU interface input. When interfacing to a68XX-series microprocessor, this pin will be used as Read/Write (R/W#) selection input. Pull this pin to “High” for read mode and pull it to “Low” for write mode.
When 80XXinterface mode is selected, this pin will be the Write (WR#) input. Data write operation is initiated when this pin is pulled low and the CS# is pulled low.</td></tr>
</table>

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12.	E/RD#	I	Read/Write Enable or Read This pin is MCU interface input. When interfacing to a68XX-series microprocessor, this pin will be used as the Enable (E) signal. Read/write operation is initiated when this pin is pulled high and the CS# is pulled low. When connecting to an 80XX-microprocessor, this pin receives the Read (RD#) signal. Data read operation is initiated when this pin is pulled low and CS# is pulled low.
13. 14. 15. 16. 17. 18. 19. 20.	D0~D7	I/O	Host Data In put/ Output Bus These pins are 8-bit bi-directional data bus to be connected to the microprocessor's data bus. When serial mode is selected, D1 will be the serial data input SDIN and D0 will be the serial clock input SCLK. When I2Cmode is selected, D2 & D1 should be tired together and serve as SDAout & SDAin in application and D0 is the serial clock input SCL.
21.	IREF	I	Current Reference for Brightness Adjustment This pin is segment current reference pin. A resistor should be connected between this pin and VSS. Set the current lower than 10μA.
22.	VCOMH	O	Voltage Output High Level for COM Signal This pin is the input pin for the voltage output high level for COM signals. A capacitor should be connected between this pin and VSS.
23.	VCC	P	Power Supply for OLED Panel This is the most positive voltage supply pin of the chip.It must be supplied externally.
24.	VLSS	P	Ground of Analog Circuit This is an analog ground pin. It should be connected to VSS externally.
25.	N.C. (GND)	-	Reserved Pin(Supporting Pin) The supporting pins can reduce the influences from stresses on the function pins. These pins must be connected to external ground.

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5.Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage for Logic	VDD	-0.3	4	V	1, 2
Supply Voltage for Display	VCC	0	15	V	1, 2
Operating Temperature	TOP	-40	+80	°C	-
Storage Temperature	TSTG	-40	+80	°C	-

Note 1: All the above voltages are on the basis of “VSS = 0V”.
Note 2: When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur. Also, for normal operations, it is desirable to use this module under the conditions according to Section 6 ‘’Electrical Characteristics”. If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate

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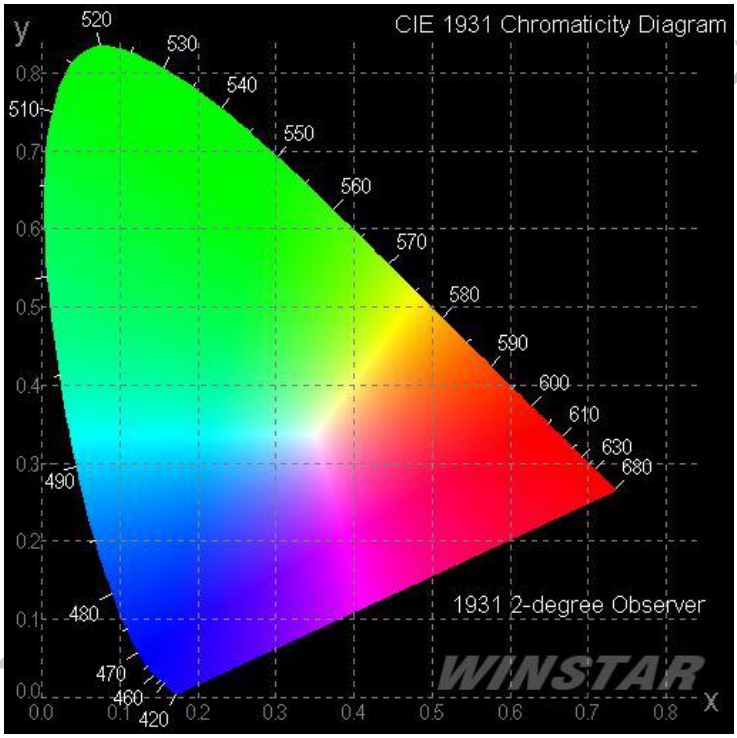
6.Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage for Logic	VDD	—	2.8	3.0	3.3	V
Supply Voltage for Display	VCC	—	10	12	14	V
Input High Volt.	VIH	—	0.8×VDD	—	VDDIO	V
Input Low Volt.	VIL	—	0	—	0.2×VDD	V
Output High Volt.	VOH	—	0.9×VDD	—	VDDIO	V
Output Low Volt.	VOL	—	0	—	0.1×VDD	V
50% Check Board operating Current	ICC	VCC=12V	7	8	10	mA

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7.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
Display with 50% check Board Brightness			60	80		cd/m2
CIEx(Blue)		(CIE1931)	0.12	0.16	0.20	
CIEy(Blue)		(CIE1931)	0.19	0.23	0.27	



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