WINSTAR Display

OLED SPECIFICATION

Model No:

WEP12864L#QP3N00000-FC

WINSTAR DISPLAY Co., Ltd.
first components

Represented by:

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SPECIFICATION Version: C

CUSTOMER :

MODULE NO. : WEP12864L#QP3N00000-FC

APPROVED BY: (FOR CUSTOMER USE ONLY)	

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

■APPROVAL FOR SPECIFICATIONS ONLY

□APPROVAL FOR SPECIFICATIONS AND SAMPLE

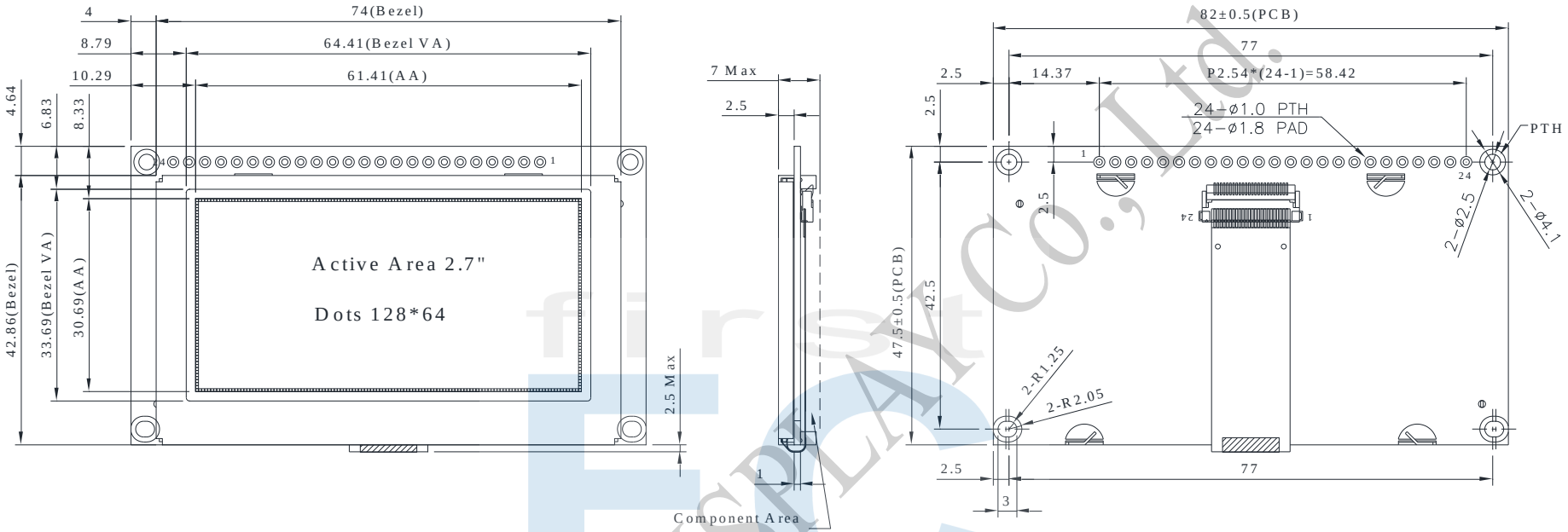
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2.General Specification

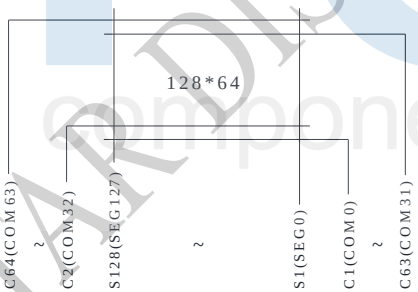
Item	Dimension	Unit
Dot Matrix	128 x 64	–
Module dimension	82.0 × 47.5 × 7 Max.	mm
Active Area	61.41 × 30.69	mm
Pixel Size	0.45 × 0.45	mm
Pixel Pitch	0.48 × 0.48	mm
Display Mode	Passive Matrix	
Display Color	Monochrome (Yellow)	
Drive Duty	1/64 Duty	
OLED IC	SSD1309	
OLED Interface	6800,8080,4-Wire SPI,I2C	
Size	2.7 inch	

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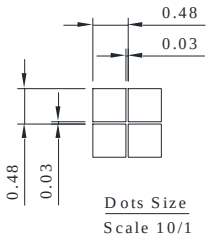
3. Contour Drawing & Block Diagram



PIN	SYMBOL	PIN	SYMBOL	PIN	SYMBOL
1	VSS	9	DB2	17	CS#
2	VDD	10	DB3	18	NC
3	NC	11	DB4	19	BS2
4	D/C#	12	DB5	20	BS1
5	R/W#(WR#)	13	DB6	21	NC
6	E(/RD#)	14	DB7	22	NC
7	DB0	15	NC	23	NC
8	DB1	16	RES#	24	NC



SEG & COM Layout



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

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4.Interface Pin Function

No.	Symbol	Function
1	VSS	Ground.
2	VDD	Power supply pin for core logic operation
3	NC	No connection
4	D/C#	This pin is Data/Command control pin connecting to the MCU. When the pin is pulled HIGH, the data at D[7:0] will be interpreted as data. When the pin is pulled LOW, the data at D[7:0] will be transferred to a command register. In I2C mode, this pin acts as SA0 for slave address selection.
5	R/W# (WR#)	This pin is read / write control input pin connecting to the MCU interface. When 6800 interface mode is selected, this pin will be used as Read/Write (R/W#) selection input. Read mode will be carried out when this pin is pulled HIGH and write mode when LOW. When 8080 interface mode is selected, this pin will be the Write (WR#) input. Data write operation is initiated when this pin is pulled LOW and the chip is selected. When serial or I2C interface is selected, this pin must be connected to VSS.
6	E(/RD#)	This pin is MCU interface input. When 6800 interface mode is selected, this pin will be used as the Enable (E) signal. Read/write operation is initiated when this pin is pulled HIGH and the chip is selected. When 8080 interface mode is selected, this pin receives the Read (RD#) signal. Read operation is initiated when this pin is pulled LOW and the chip is selected. When serial or I2C interface is selected, this pin must be connected to VSS.
7-14	D0~D7	These pins are bi-directional data bus connecting to the MCU data bus. Unused pins are recommended to tie LOW. When serial interface mode is selected, D0 will be the serial clock input: SCLK; D1 will be the serial data input: SDIN and D2 should be kept NC. When I2C mode is selected, D2, D1 should be tied together and serve as SDAout, SDAin in application and D0 is the serial clock input, SCL.
15	NC	No connection
16	RES#	This pin is reset signal input. When the pin is pulled LOW, initialization of the chip is executed. Keep this pin pull HIGH during normal operation.
17	CS#	This pin is the chip select input connecting to the MCU. The chip is enabled for MCU communication only when CS# is pulled LOW (active LOW).
18	NC	No connection

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<table>
<tr><td>19</td><td>BS2</td><td rowspan="2">MCU bus interface selection pins. Select appropriate logic setting as described in the following table. BS2 and BS1 are pin select
<table><tr><td></td><td>BS1</td><td>BS2</td></tr><tr><td>I2C</td><td>1</td><td>0</td></tr><tr><td>4-wire Serial</td><td>0</td><td>0</td></tr><tr><td>8-bit 68XX Parallel</td><td>0</td><td>1</td></tr><tr><td>8-bit 80XX Parallel</td><td>1</td><td>1</td></tr></table>Note
(1) 0 is connected to VSS
(2) 1 is connected to VDD</td></tr>
<tr><td>20</td><td>BS1</td></tr>
<tr><td>21</td><td>NC</td><td>No connection</td></tr>
<tr><td>22</td><td>NC</td><td>No connection</td></tr>
<tr><td>23</td><td>NC</td><td>No connection</td></tr>
<tr><td>24</td><td>NC</td><td>No connection</td></tr>
</table>

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5.Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage for Logic	VDD	-0.3	4.0	V	1, 2
Operating Temperature	TOP	-40	+80	°C	-
Storage Temperature	TSTG	-40	+85	°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

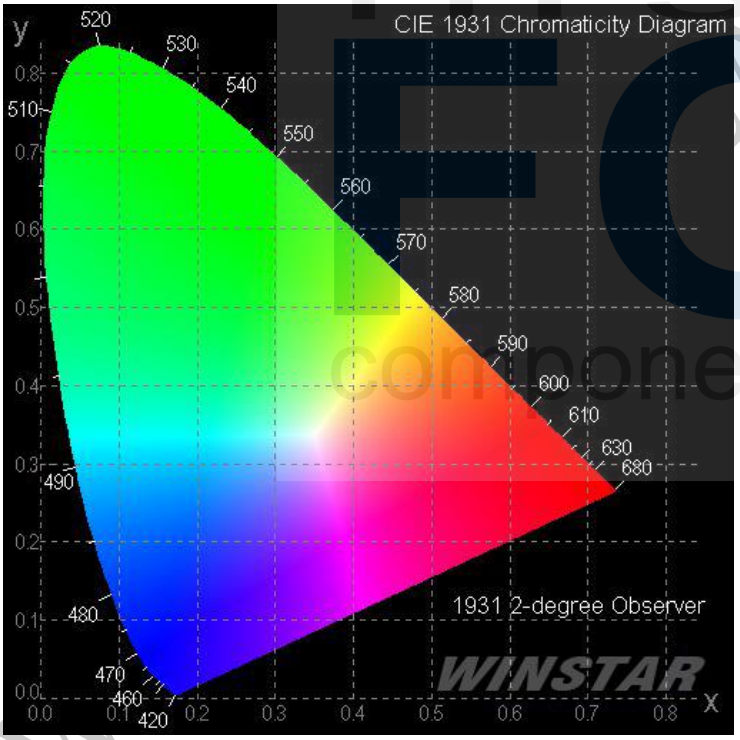
6.1 DC Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage for Logic	VDD	—	2.8	3.0	3.3	V
High Level Input	VIH	—	0.8×VDD	—	—	V
Low Level Input	VIL	—	—	—	0.2×VDD	V
High Level Output	VOH	—	0.9×VDD	—	—	V
Low Level Output	VOL	—	—	—	0.1×VDD	V
50% Check Board operating Current		VDD =3V	—	100	200	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	10,000:1	—	—	—
Response Time	T rise	—	—	10	—	μs
	T fall	—	—	10	—	μs
Display with 50% check Board Brightness			80	100	—	cd/m2
CIEx(Yellow)		(CIE1931)	0.45	0.47	0.49	—
CIEy(Yellow)		(CIE1931)	0.48	0.50	0.52	—



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