PMOLED FOR WEARABLE USE

P/N: DGA-2668-S000

General Specification

The Features is described as follow:

- Module dimension: 59.0 × 18.86 × 1.41 mm
- Active area: 50.535 ×10.695 mm
- Dot Matrix: 128 x 32
- Pixel size: 0.370 × 0.310 mm
- Pixel pitch: 0.395 × 0.335 mm
- Display Mode: Passive Matrix
- Duty: 1/32 Duty
- Display Color: White
- IC: SSD1315
- Interface: 8Bits 68xx 80xx/ SPI/ I2C
- Size: 2.0 inch

Interface Pin Function

No.	Symbol	Function
1	NC	No connection
2	VCC	Power supply for panel driving voltage. This is also the most positive power voltage supply pin. When charge pump is enabled, a capacitor should be connected between this pin and VSS.
3	VCOMH	COM signal deselected voltage level. A capacitor should be connected between this pin and VSS.
4.	IREF	This is segment output current reference pin. When external IREF is used, a resistor should be connected between this pin and VSS to maintain the IREF current at 30uA.
5	D7	These are 8-bit bi-directional data bus to be connected to the microprocessor's data bus. When serial interface mode is selected, D0 will be the serial clock input: SCLK; D1 will be the serial data input: SDIN. 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.
6	D6	
7	D5	
8	D4	
9	D3	
10	D2	
11	D1	
12	D0	
13	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.
14	R/W#	This is read / write control input pin connecting to the MCU interface. When interfacing to a 6800-series microprocessor, this pin will be used as Read/Write (R/W#) selection input. Read mode will be carried out when this pin is pulled HIGH (i.e. connect to VDD) 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.
15	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.

<table>
<tr><td>16</td><td>RES#</td><td>This pin is reset signal input. When the pin is pulled LOW, initialization of the chip is executed. Keep this pin HIGH (i.e. connect to VDD) during normal operation.</td></tr>
<tr><td>17</td><td>CS#</td><td>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).</td></tr>
<tr><td>18</td><td>NC</td><td>No connection</td></tr>
<tr><td>19</td><td>BS2</td><td>MCU bus interface selection pins. Select appropriate logic setting as described in the following table. BS2, BS1 are pin select</td></tr>
<tr><td rowspan="2">20</td><td rowspan="2">BS1</td><td><table>
<tr><td>BS[2:1]</td><td>Interface</td></tr>
<tr><td>00</td><td>4 line SPI</td></tr>
<tr><td>01</td><td>I2C</td></tr>
<tr><td>11</td><td>8-bit 8080 parallel</td></tr>
<tr><td>10</td><td>8-bit 6800 parallel</td></tr>
</table></td></tr>
<tr><td>Note
(1) 0 is connected to VSS
(2) 1 is connected to VDD</td></tr>
<tr><td>21</td><td>VDD</td><td>Power supply pin for core logic operation.
This is a voltage supply pin. It must be connected to external source.</td></tr>
<tr><td>22</td><td>NC</td><td rowspan="8">No connection</td></tr>
<tr><td>23</td><td>NC</td></tr>
<tr><td>24</td><td>NC</td></tr>
<tr><td>25</td><td>NC</td></tr>
<tr><td>26</td><td>NC</td></tr>
<tr><td>27</td><td>NC</td></tr>
<tr><td>28</td><td>NC</td></tr>
<tr><td>29</td><td>NC</td></tr>
<tr><td>30</td><td>VSS</td><td>Ground pin. It must be connected to external ground.</td></tr>
<tr><td>31</td><td>NC</td><td>No connection</td></tr>
</table>

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max	Unit	Notes
Supply Voltage for Logic	VDD	-0.3	-	4	V	1,2
Supply Voltage for Display	VCC	0	-	18	V	1,2
Operating Temperature	TOP	-40	-	+80	℃	-
Storage Temperature	TSTG	-40	-	+85	℃	-

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 Section6 “Electrical Characteristics”. If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate.

Electrical Characteristics

DC Electrical Characteristics

Items		Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Logic	VDD	2.8	3.0	3.3	V
	Operating	VCC	7.5	8.0	8.5	V
Input Voltage	High Voltage	V_{IH}	0.8xVDD	-	VDD	V
	Low Voltage	V_{IL}	0	-	0.2xVDD	V
Output Voltage	High Voltage	V_{OH}	0.9xVDD	-	VDD	V
	Low Voltage	V_{OL}	0	-	0.1xVDD	V

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
ICC	VCC Supply Current	-	11	22	mA	VDD=3V , VCC=8.0, Display 50% ON

Optical Characteristics

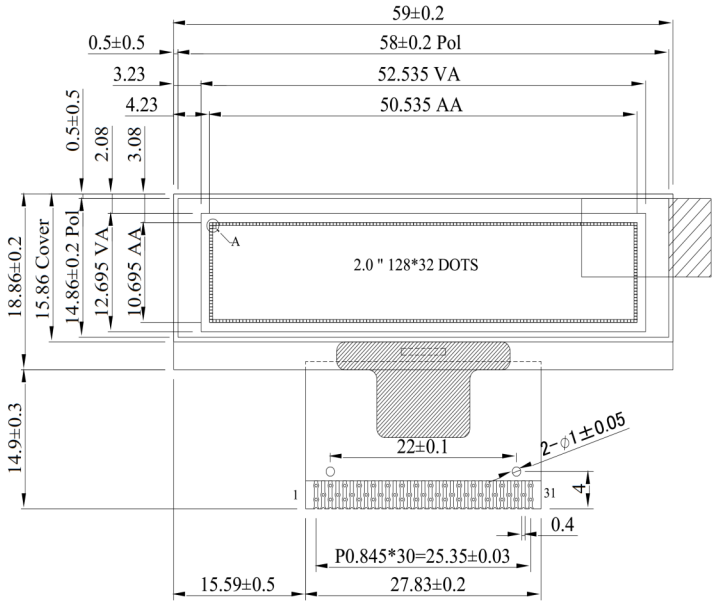
Item	Symbol	Condition	Min	Typ	Max	Unit
View Angle	(V)θ	—	160	—	—	deg
	(H)φ	—	160	—	—	deg
Contrast Ratio	CR	Dark	2000:1	—	—	—
Response Time	T rise	—	—	10	—	μs
	T fall	—	—	10	—	μs
Display with 50% check Board Brightness			60	80	—	cd/m2
CIEx(White)		(CIE1931)	0.26	0.28	0.30	—
CIEy(White)		(CIE1931)	0.30	0.32	0.34	—

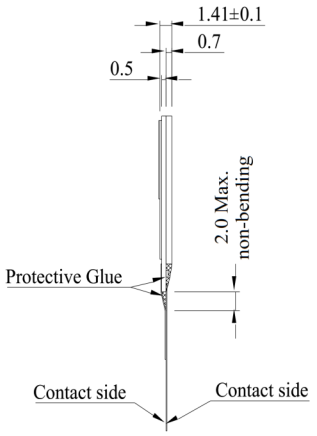
OLED Lifetime

Operating Life Time	Ta=25℃ / Initial 50% check board brightness Typical Value	20,000 Hrs	-	Note

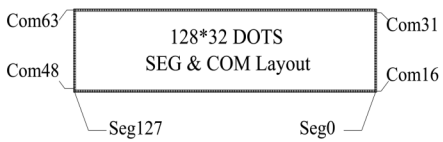
Notes:
1. Life time is defined the amount of time when the luminance has decayed to <50% of the initial value.
2. This analysis method uses life data obtained under accelerated conditions to extrapolate an estimated probability density function (*pdf*) for the product under normal use conditions.
3. Screen saving mode will extend OLED lifetime.

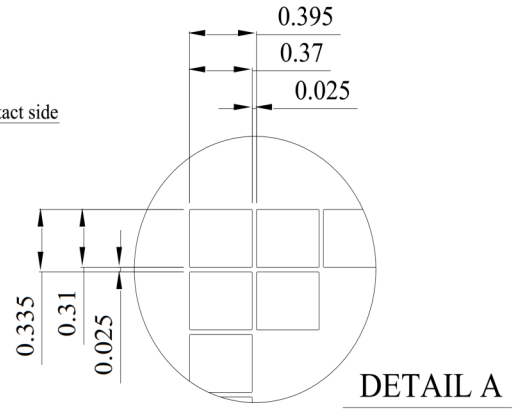
Contour Drawing & Block Diagram





PIN	SYMBOL	PIN	SYMBOL
1	NC	17	CS#
2	VCC	18	NC
3	VCOMH	19	BS2
4	IREF	20	BS1
5	D7	21	VDD
6	D6	22	NC
7	D5	23	NC
8	D4	24	NC
9	D3	25	NC
10	D2	26	NC
11	D1	27	NC
12	D0	28	NC
13	E/RD#	29	NC
14	R/W#	30	VSS
15	D/C#	31	NC
16	RES#		





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

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