

# Product Specification

Part Name: OLED Display Module  
Customer Part ID:  
Limito Part ID: QG-2864TSWTG06  
Ver: A

Customer:

Approved by

From: Limito technology Inc.

Approved by

Limito technology Inc.

Notes:

1. Please contact Limito technology Inc. before assigning your product based on this module specification
2. The information contained herein is presented merely to indicate the characteristics and performance of our products. No responsibility is assumed by Limito technology Inc. for any intellectual property claims or other problems that may result from application based on the module described herein.

*Revised History*

<b>Part Number</b>	<b>Revision</b>	<b>Revision Content</b>	<b>Revised on</b>
QG-2864TSWTG06	A	New	

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## 1. Basic Specifications

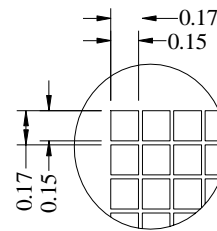
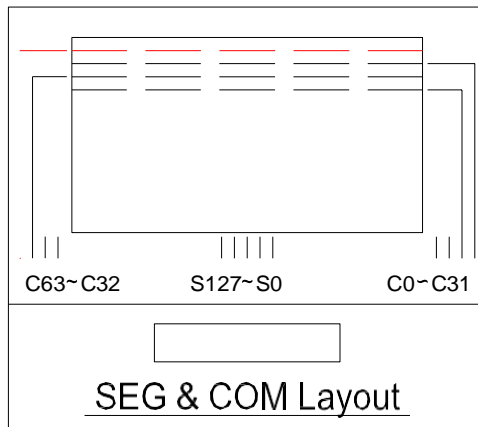
### 1.1 Display Specifications

- 1) Display Mode: Passive Matrix
- 2) Display Color: Monochrome (White)
- 3) Drive Duty: 1/64 Duty

### 1.2 Mechanical Specifications

- 1) Outline Drawing: According to the annexed outline drawing
- 2) Number of Pixels: 128 × 64
- 3) Panel Size: 24.74 × 16.6 × 1.28 (mm)
- 4) Active Area: 21.74 × 10.86 (mm)
- 5) Pixel Pitch: 0.17 × 0.17 (mm)
- 6) Pixel Size: 0.15 × 0.15 (mm)
- 7) Weight: 1.09g

### 1.3 Active Area / Memory Mapping & Pixel Construction



Detail "A"  
Scale (10:1)

## 1.4 Mechanical Drawing

**Active Area 0.96" 128 x 64 Pixels**

**Protective Tape 12x7x0.05mm**

**Polarizer t=0.2mm**

**Remove Tape t=0.15mm Max**

**Contact Slide**

**Detail "A" Scale (10:1)**

Pin	Symbol
1	N.C. (GND)
2	C1P
3	C2N
4	C1P
5	C1N
6	VBAT
7	N.C.
8	VSS
9	VDD
10	BS0
11	BS1
12	NC
13	CS#
14	RES#
15	DC#
16	NC
17	NC
18	D0
19	D1
20	D2
21	NC
22	NC
23	NC
24	NC
25	NC
26	REF
27	VCOMH
28	VCC
29	VSSS
30	N.C. (GND)

Item	Date	Remark
A		Original Drawing

**SEG & COM Layout**

C63 ~ C32    S127 ~ S0    C0 ~ C31

**Notes:**

- Color: White
- Driver IC: SSD1315
- FPC Number: LTI1315P02
- Interface: 3-/4-wire SPI, I2C
- General Tolerance:  $\pm 0.30$

Customer Approval Signature		<b>Limito Technology Inc.</b>				Drawing Number	Rev.
		QG-2864TSWTG06				QG-2864TSWTG06	A
		Title				Material	
		Pixel Number: 128 x 64, Monochrome, COG Package				Soda Lime / Polyimide	
		Tolerance		Drawn		P.M.	
		Dimension $\pm 0.3$		By		Scale	
		Angle $\pm 1$		Date		Sheet Size	
				HONG		1:1 1 of 1 A3	

1.5 Pin Definition

Pin Number	Symbol	I/O	Function												
<b>Power Supply</b>															
9	VDD	P	<b>Power Supply for Logic</b> This is a voltage supply pin. It must be connected to external source.												
8	VSS	P	<b>Ground of Logic Circuit</b> This is a ground pin. It acts as a reference for the logic pins. It must be connected to external ground.												
28	VCC	P	<b>Power Supply for OEL Panel</b> This is the most positive voltage supply pin of the chip. A stabilization capacitor should be connected between this pin and V <sub>SS</sub> when the converter is used. It must be connected to external source when the converter is not used.												
29	VLSS	P	<b>Ground of Analog Circuit</b>												
<b>Driver</b>															
26	IREF	I	<b>Current Reference for Brightness Adjustment</b> This pin is segment current reference pin. A resistor should be connected between this pin and V <sub>SS</sub> . Set the current at 12.5μA maximum.												
27	VCOMH	O	<b>Voltage Output High Level for COM Signal</b> This pin is the input pin for the voltage output high level for COM signals. A capacitor should be connected between this pin and V <sub>SS</sub> .												
<b>DC/DC Converter</b>															
6	VBAT	P	<b>Power Supply for DC/DC Converter Circuit</b> This is the power supply pin for the internal buffer of the DC/DC voltage converter. It must be connected to external source when the converter is used. It should be connected to V <sub>DD</sub> when the converter is not used.												
4 / 5 2 / 3	C1P / C1N C2P / C2N	I	<b>Positive Terminal of the Flying Inverting Capacitor</b> <b>Negative Terminal of the Flying Boost Capacitor</b> The charge-pump capacitors are required between the terminals. They must be floated when the converter is not used.												
<b>Interface</b>															
10 11	BS0 BS1	I	<b>Communicating Protocol Select</b> These pins are MCU interface selection input. See the following table: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>BS0</th> <th>BS1</th> </tr> </thead> <tbody> <tr> <td>I<sup>2</sup>C</td> <td>0</td> <td>1</td> </tr> <tr> <td>3-wire SPI</td> <td>1</td> <td>0</td> </tr> <tr> <td>4-wire SPI</td> <td>0</td> <td>0</td> </tr> </tbody> </table>		BS0	BS1	I <sup>2</sup> C	0	1	3-wire SPI	1	0	4-wire SPI	0	0
	BS0	BS1													
I <sup>2</sup> C	0	1													
3-wire SPI	1	0													
4-wire SPI	0	0													
14	RES#	I	<b>Power Reset for Controller and Driver</b> This pin is reset signal input. When the pin is low, initialization of the chip is executed. Keep this pin pull high during normal operation.												
13	CS#	I	<b>Chip Select</b> This pin is the chip select input. The chip is enabled for MCU communication only when CS# is pulled low.												
15	D/C#	I	<b>Data/Command Control</b> 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. When the pin is pulled high and serial interface mode is selected, the data at SDIN will be interpreted as data. When it is pulled low, the data at SDIN will be transferred to the command register. In I <sup>2</sup> C mode, this pin acts as SA0 for slave address selection. For detail relationship to MCU interface signals, please refer to the Timing Characteristics Diagrams.												
18~20	D0~D2		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, D2 should be either tied LOW or tied together with D1 as the serial data input: SDIN, and D0 will be the serial clock input: SCLK. When I <sup>2</sup> C mode is selected, D2, D1 should be tied together and serve as SDA <sub>out</sub> , SDA <sub>in</sub> in application and D0 is the serial clock input, SCL.												
7,12,16,17, 21~25	N.C.	-	<b>Reserved Pin</b> The N.C. pin between function pins are reserved for compatible and flexible design.												
1, 30	N.C. (GND)	-	<b>Reserved Pin (Supporting Pin)</b> The supporting pins can reduce the influences from stresses on the function pins. These												

**2. Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage for Logic	$V_{DD}$	-0.3	4	V	1, 2
Supply Voltage for Display	$V_{CC}$	0	11	V	1, 2
Supply Voltage for DC/DC	$V_{BAT}$	-0.3	4.5	V	1, 2
Operating Temperature	$T_{OP}$	-40	70	°C	
Storage Temperature	$T_{STG}$	-40	85	°C	3
Life Time (120 cd/m <sup>2</sup> )		10,000	-	hour	4
Life Time (80 cd/m <sup>2</sup> )		30,000	-	hour	4
Life Time (60 cd/m <sup>2</sup> )		50,000	-	hour	4

Note 1: All the above voltages are on the basis of " $V_{SS} = 0V$ ".

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 3. "Optics & Electrical Characteristics". If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate.

Note 3: The defined temperature ranges do not include the polarizer. The maximum withstood temperature of the polarizer should be 80°C.

Note 4:  $V_{CC} = 9.0V$ ,  $T_a = 25°C$ , 50% Checkerboard.

Software configuration follows Section 4.4 Initialization.

End of lifetime is specified as 50% of initial brightness reached. The average operating lifetime at room temperature is estimated by the accelerated operation at high temperature conditions.

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