



0.96" OLED Display Module

BMD31M090 User Guide

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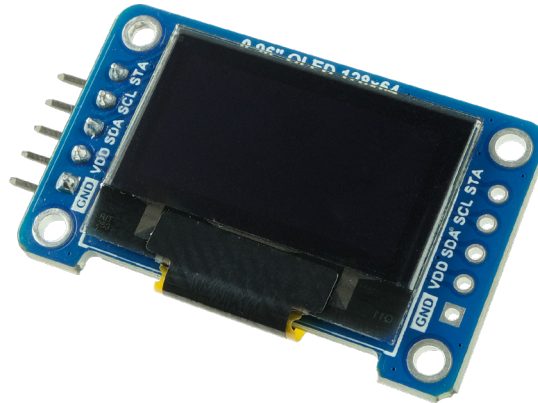
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Introduction

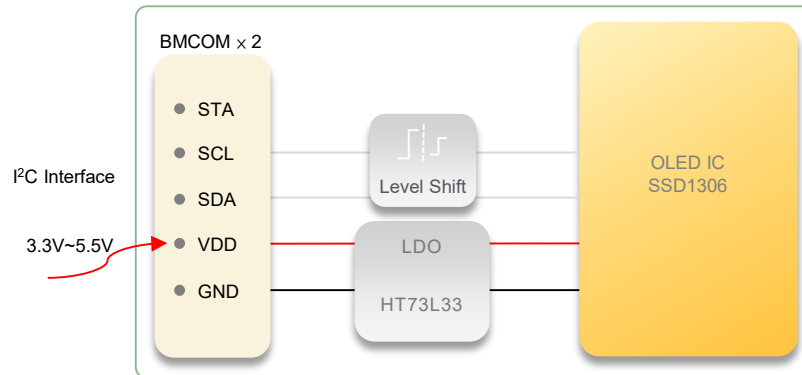
The BMD31M090 is a 0.96" OLED display module from Best Modules, which is developed by using an OLED driver the IC, SSD1306. The OLED display technology has the characteristic of self-illumination to display content on the screen. The screen resolution is 128×64, with white-on-black. The module has large angle of visibility and low power consumption. The module can use the BMCOM interface, which can display string, drawing, marking, picture scrolling and other functions through the I²C communication mode. The module is suitable for various display products.



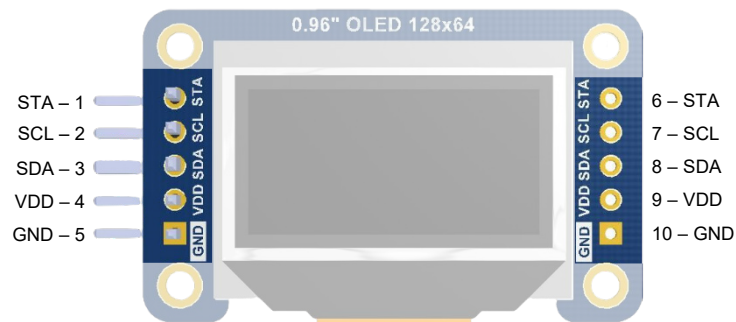
Features

- Operating voltage: 3.3V~5.5V
- Working current: 30mA @ 5V
- Standby current: <10μA @ 5V
- Driver IC: SSD1306
- Characteristics of module:
 - ◆ Resolution: 128×64
 - ◆ Black-on-white or white-on-black
 - ◆ Large angle of visibility
 - ◆ Low power consumption
- Communication interface:
 - ◆ BMCOM×1 (STA, SCL, SDA, VDD, GND)
 - ◆ Communication mode: I²C (Address: Default 0x3C)
- Provides Arduino Library support
- Module size: 37.34mm×23.30mm×7.78mm

Block Diagram



Pin Description



Pin	Function	Description
1&6	STA	STA pins on both sides of the module are internally connected Note: Not used in this module
2&7	SCL	I ² C clock line
3&8	SDA	I ² C data line
4&9	VDD	Positive power supply
5&10	GND	Negative power supply, ground

Technical Specification

Recommended Operating Conditions

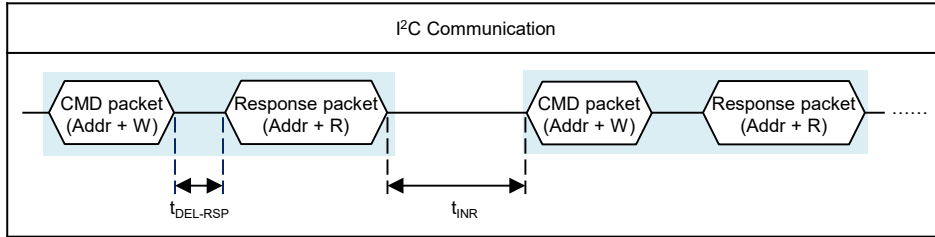
T_a=25°C

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
V _{DD}	Operating Voltage	—	3.3	—	5	V
I _{DD}	Working Current	V _{DD} =5V Full light display	—	30	—	mA
I _{STB}	Standby Current	V _{DD} =5V	—	10	—	μA

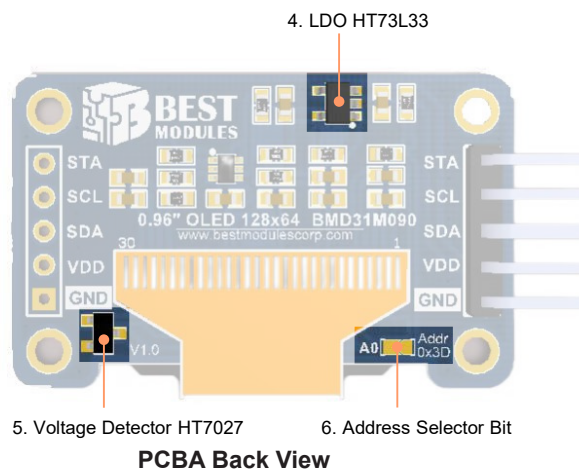
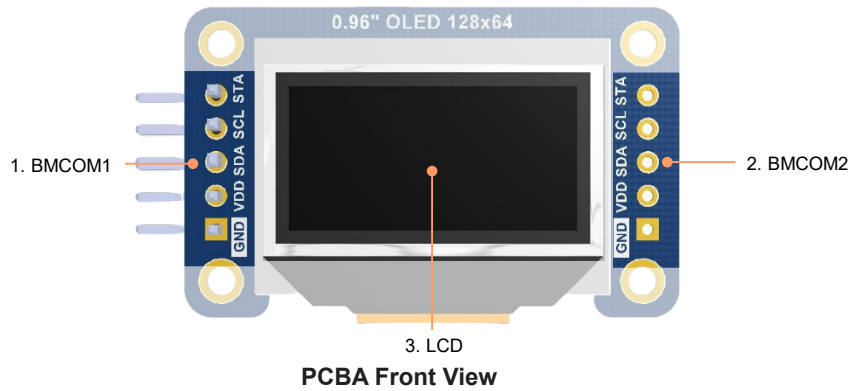
Timing Specification

Ta=25°C

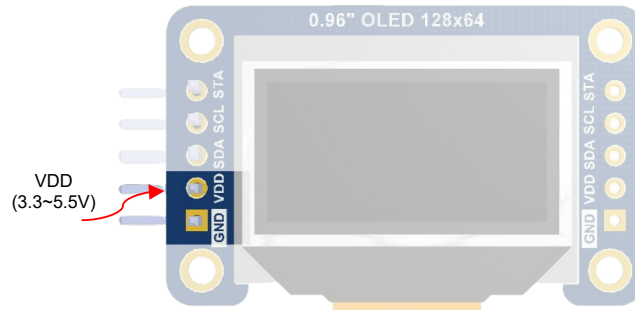
Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
t _{DEL-RSP}	Response Delay Time	V _{DD} =5V	—	5	—	ms
t _{INR}	Interval Time	V _{DD} =5V	10	—	—	ms



Hardware Overview



Power Supply



- BCOM Pin: Enter 3.3V to 5.5V through VDD

Communication Interface

- Communication mode: I²C
 - I²C Address: Default 0x3C
- I²C Address Format:

MSB							LSB
A6	A5	A4	A3	A2	A1	A0	R/W
0	1	1	1	1	0	0	

Slave address (0x3C)

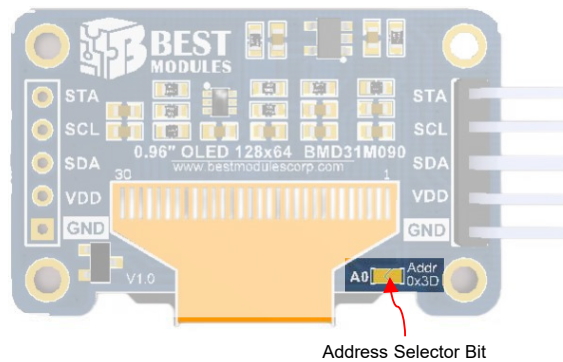
Note: R/W=1: Read direction
=0: Write direction

- I²C Communication rate: $\leq 400\text{kHz}$
- Communication logic reference voltage: 2.5V~5.5V
- The SCL/SDA pin of module with 10k Ω pull-up resistor
- Communication protocol:
 - ◆ Refer to the SSD1306 datasheet

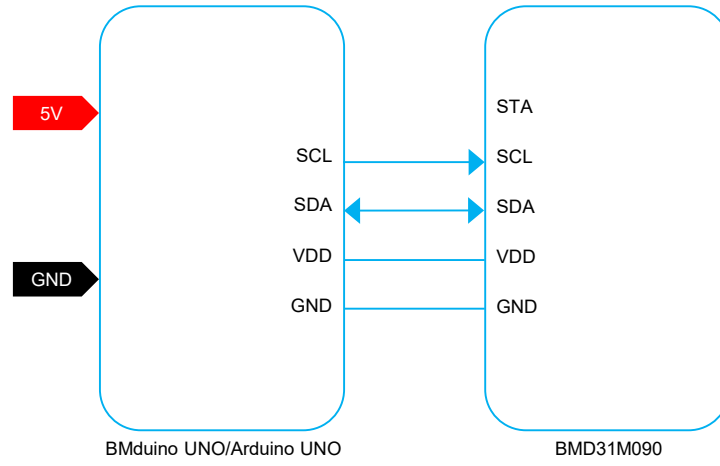
Jumper

- I²C Address selection:

A0-0x3D	I ² C Address
Open circuit	0x3C (Factory default)
Short circuit	0x3D

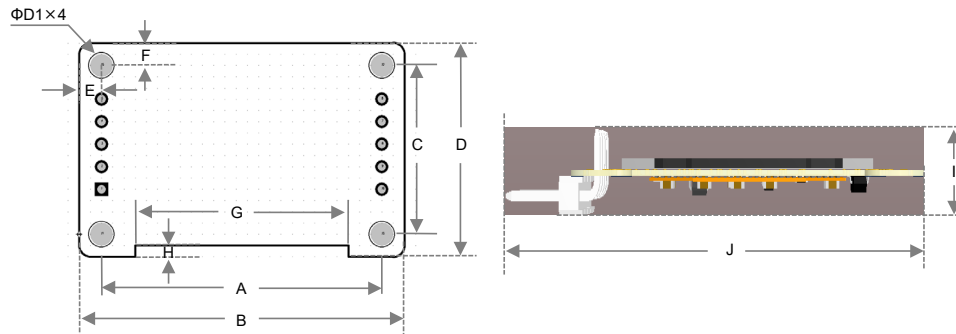


Application Circuits



Connection Diagram

Dimensions



Dimension Information

No.	Unit	mm	inch
A		32.04	1.261
B		37.34	1.470
C		18.00	0.709
D		23.30	0.917
E		2.63	0.104
F		2.69	0.106
G		24.92	0.981
H		1.90	0.075
I		7.78	0.306
J		41.34	1.628
ΦD1		2.2	0.087

Dimension List

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