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## Digital Pressure and Humidity Sensor

The MS8607 peripheral module provides the necessary hardware to interface the MS8607 digital pressure, relative humidity and temperature sensor to any system that utilizes Pmod compatible expansion ports configurable for I<sup>2</sup>C communication. The MS8607 sensor is a self-contained pressure, humidity and temperature sensor that is fully calibrated during manufacture. The sensor can operate from 1.5V to 3.6V. The MS8607 is ideal for weather station applications embedded into compact devices and any applications in which pressure, humidity and temperature monitoring is required.

- Operating pressure range: 300 to 1200 mbar
- Measures relative humidity from 0% to 100%
- Measures temperature from -40°C to 125°C
- Extended pressure range 10 to 2000 mbarr
- Fast response time
- I<sup>2</sup>C communication
- Very low power consumption

- 12-pin Pmod compatible connector
- I<sup>2</sup>C interface
- Secondary 12-pin connector allows daisy chain
- FPGA fabric available for download
- $\mu$ C C code available for download
- Selectable resolution for pressure
- Selectable resolution for humidity and temperature
- Electronic ID code stored on chip

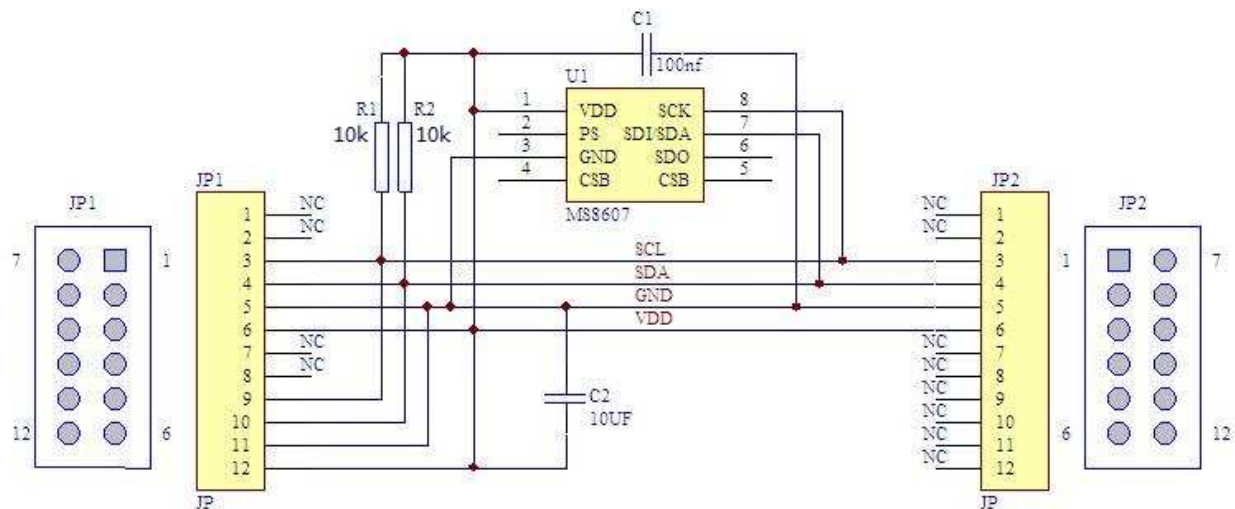
## MS8607 PERIPHERAL MODULE

Digital Pressure and Humidity Sensor

### Performance

- Pressure range: 300 to 1200 mbar
- 0% to 100% relative humidity range
- -40°C to 125°C temperature range
- Operates from 1.5V to 3.6V
- Absolute Pressure accuracy  $\pm 2\text{mBar}$  (25°C)
- Absolute Humidity accuracy  $\pm 3\% \text{RH}$  (25°C, 20-80%RH)
- Absolute Temperature accuracy  $\pm 1^\circ\text{C}$  (-20...+85°C)

### Schematic



**MS8607 PERIPHERAL MODULE**  
Digital Pressure and Humidity Sensor

Connector Pin Assignments (I<sup>2</sup>C Communications)

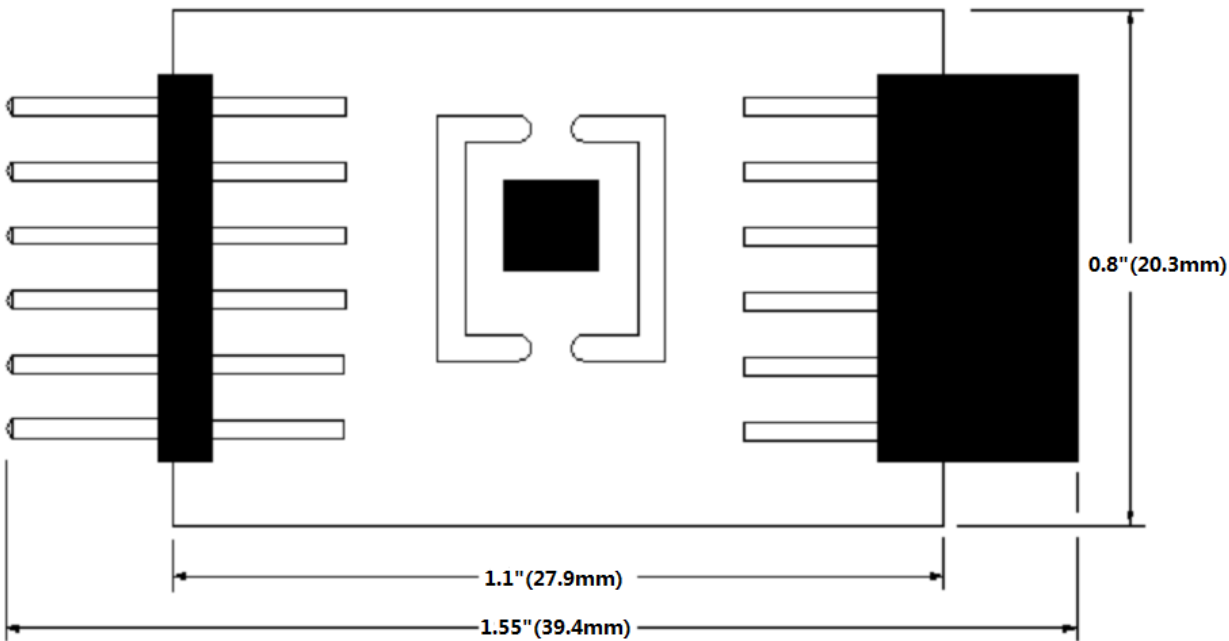
System Plug (Table 1)

| Connector J1 |        |                               |
|--------------|--------|-------------------------------|
| Pin No.      | Signal | Description                   |
| 1            | N/C    | Not Connected                 |
| 2            | N/C    | Not Connected                 |
| 3            | SCL    | I <sup>2</sup> C Serial Clock |
| 4            | SDA    | I <sup>2</sup> C Serial Data  |
| 5            | GND    | Ground                        |
| 6            | Vdd    | Power Supply                  |
| 7            | N/C    | Not Connected                 |
| 8            | N/C    | Not Connected                 |
| 9            | SCL    | I <sup>2</sup> C Serial Clock |
| 10           | SDA    | I <sup>2</sup> C Serial Data  |
| 11           | GND    | Ground                        |
| 12           | Vdd    | Power Supply                  |

Expansion Socket (Table 2)

| Connector J2 |        |                               |
|--------------|--------|-------------------------------|
| Pin No.      | Signal | Description                   |
| 1            | N/C    | Not Connected                 |
| 2            | N/C    | Not Connected                 |
| 3            | SCL    | I <sup>2</sup> C Serial Clock |
| 4            | SDA    | I <sup>2</sup> C Serial Data  |
| 5            | GND    | Ground                        |
| 6            | Vdd    | Power Supply                  |
| 7            | N/C    | Not Connected                 |
| 8            | N/C    | Not Connected                 |
| 9            | N/C    | Not Connected                 |
| 10           | N/C    | Not Connected                 |
| 11           | N/C    | Not Connected                 |
| 12           | N/C    | Not Connected                 |

Dimensions(mm)





## MS8607 PERIPHERAL MODULE

Digital Pressure and Humidity Sensor

### Detailed Description

#### I<sup>2</sup>C Interface

The peripheral module can interface to the host in one of two ways. It can plug directly into a Pmod-compatible port (configured for I<sup>2</sup>C) through connector J1, or in this case, other I<sup>2</sup>C boards can attach to the same I<sup>2</sup>C bus through connector J2.

#### I<sup>2</sup>C Interface (Daisy Chaining Modules)

Alternatively, the peripheral module can connect to other I<sup>2</sup>C-based Pmod modules through the expansion J2 connector. Connector J1 provides connection of the module to the Pmod host. The pin assignments and functions adhere to the Pmod standard as shown in Table 1. The J2 connector allows the module to be connected through a daisy-chain from another I<sup>2</sup>C module and/or provide I<sup>2</sup>C and power connections to other I<sup>2</sup>C modules on the same bus. See Table 2.

#### External Control Signals

The IC operates as an I<sup>2</sup>C slave using the standard 2 wire I<sup>2</sup>C connection scheme. The IC is controlled either by the host (through the Pmod connector). In cases where one or more of the SCL and SDA signals are driven from an external source, resistors R1, R2 provide pull-up. However, this also increases the apparent load to the external driving source. If the external source is incapable of driving these loads, they should be removed.

### Reference Material

- Refer to the MS8607 data sheet for detailed information regarding operation of the IC: <http://www.meas-spec.com/downloads/xxxxxxxx.pdf>
- The complete software sensor evaluation kit for ZEDBOARD is available at <http://www.meas-spec.com/TBD/xxxxx.zip> (MS8607 ZedBoard Driver)
- The complete software sensor evaluation kit for MICROZED BOARD is available at <http://www.meas-spec.com/TBD/xxxxx.zip> (MS8607 MicroZed Board Driver)
- The Boot.bin file of MicroZed Touch Screen Demo Kit for Digital Component Sensors at <http://www.meas-spec.com/TBD/xxxxx.zip> (MicroZed Touch Screen Demo)

### Ordering Information

| Description              | Part Number |
|--------------------------|-------------|
| MS8607 PERIPHERAL MODULE | DPP901Z000  |

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