

Pressure Sensor for Altimeter or Barometer

MMR931XA

Outline

This product is an altitude atmospheric pressure sensor which MEMS absolute pressure sensor and AFE IC are modularized. It digitally outputs a pressure value which was corrected completely in the module. Customers need no correction at all because it corrects and outputs the differences of sensors and temperature characteristics. It does not require complicated sensor drive or control circuit, and devices with high performance can be made only with this module and an external microcontroller which will be the host.

Features

(Unless otherwise specified, $T_{opr}=+25^{\circ}\text{C}$)

- (1) Small package 3.0(W)×3.0(D)×1.1(H) mm
- (2) It is able to measure atmospheric pressure from the altitudes of 0m to 9000m equivalent.
(from 30kPa to 110kPa)
- (3) It has Performs high resolution of max 2.0Pa. (0.17m)
- (4) It corrects the differences of sensors and temperature characteristics when shipped from our factory.
- (5) It digitally outputs a corrected pressure value by a built-in sequencer. (SPI, I²C)
- (6) Specifications
 - Supply Voltage VDD 1.7V to 3.6V (3.3V typ.)
VDDIO 1.14V to 3.6V
 - Operating Pressure Range -30°C to +85°C
 - Pressure Range for Working 30kPa to 110kPa
 - Current Consumption^{*1} 2.4/3.8/10/28μA
 - Shut-down Current VDD 0.1μA max.
VDDIO 0.2μA max.
 - Pressure Effective Resolution 17/7/3/2PaRMS^{*3}
 - Absolute Pressure Accuracy ±100Pa
 - Conversion Time^{*2} 4.3/6.64/16.0/44.1msec^{*3}

*1 Average in case of 1sample

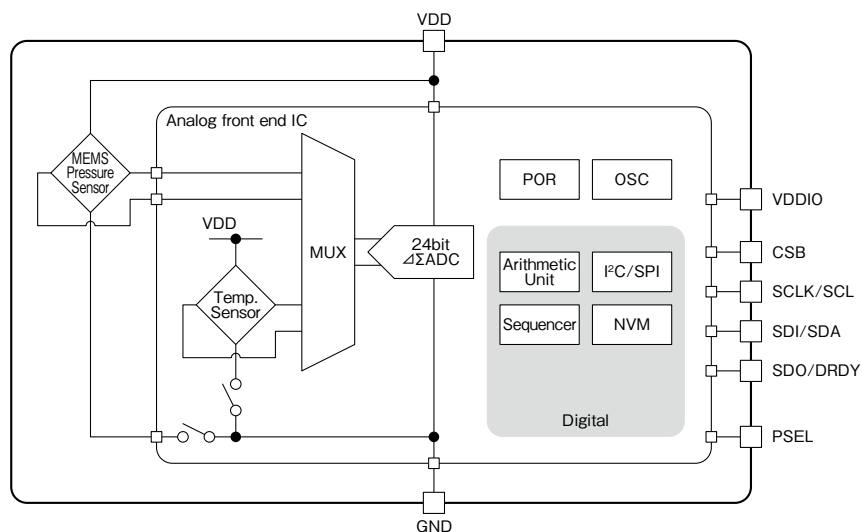
*2 Time from command issue to pressure measurement completion

*3 Settings can be set according to application

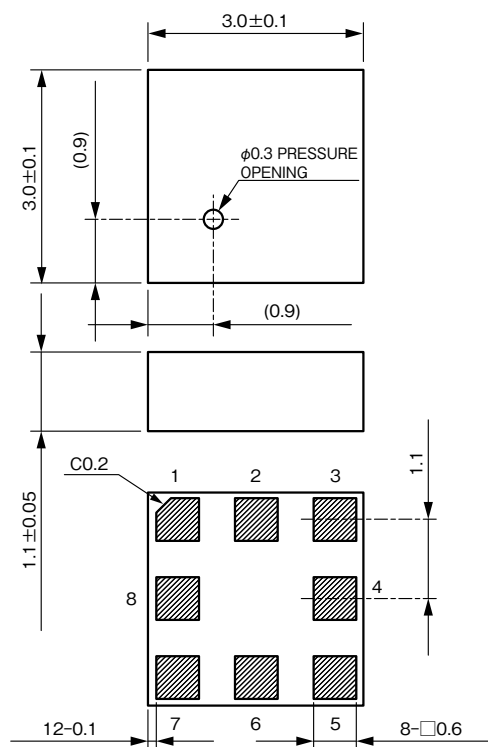
Applications

- (1) Smartphone
- (2) Wearable
- (3) Activity Amount Meter
- (4) Drone
- (5) Tablet PC

Block Diagram



Dimensions (Unit : mm)



Note

- The pressure medium which can use directly is only air. Please do not use other media, especially corrosive gases (organic solvent gas, sulfurous acid gas, hydrogen sulfide gas, etc.) and media which include moisture and foreign substance, since they could cause damages or malfunctions.
- Please handle it noting the foreign body mixing with the pressure opening after opening packing.
- Please do not put stress on the package. It could cause damages or malfunctions.
- The light that enters from the pressure entrance reaches the semiconductor chip. Please avoid use in the environment that light enters into the pressure entrance directly, because the semiconductor chip might malfunction because of light.