

## High Accuracy, Low Power, Waterproof Barometric Pressure and Temperature Sensor IC

### GENERAL INFORMATION

The ICP-101xx pressure sensor family is based on MEMS capacitive technology which provides ultra-low noise at the lowest power, enabling industry leading relative accuracy, sensor throughput, and temperature stability. The pressure sensor can measure pressure differences with an accuracy of  $\pm 1$  Pa, an accuracy enabling altitude measurement differentials as small as 8.5 cm, less than the height of a single stair step.

Consuming only 1.3  $\mu$ A @1 Hz, available in a small footprint 2 mm x 2 mm x 0.72 mm waterproof to 1.5m depth 10-pin LGA package (ICP-10100), the ICP-101xx is ideally suited for mobile phones, wearable fitness monitoring, drones, and battery powered IoT.

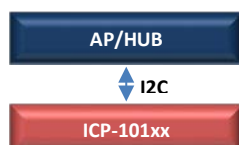
The ICP-101xx offers an industry leading temperature coefficient offset of  $\pm 0.5$  Pa/ $^{\circ}$ C. The combination of high accuracy, low power, temperature stability, waterproofing in a small footprint enables higher performance barometric pressure sensing for sports activity identification, mobile indoor/outdoor navigation, and altitude-hold in drones.

### ORDERING INFORMATION

| PACKAGE             | 3-HOLE<br>IPx8: 1.5m WATERPROOF | 1-HOLE     |
|---------------------|---------------------------------|------------|
| 2x2x0.72mm LGA-10L  | ICP-10100†                      | ICP-10101† |
| 2x2.5x0.92mm LGA-8L | ICP-10110†                      | ICP-10111† |

†Denotes RoHS and Green-Compliant Package

### BLOCK DIAGRAMS

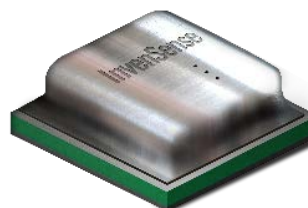


### APPLICATIONS

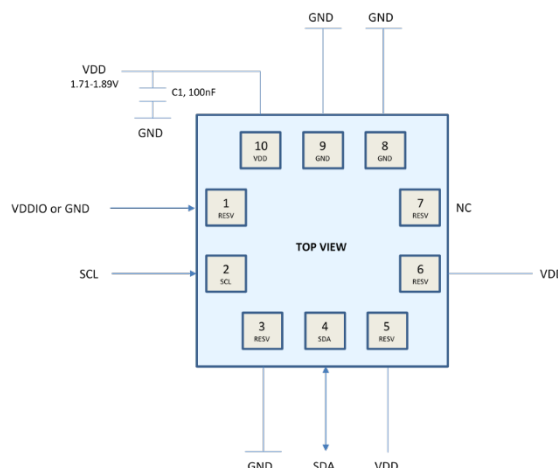
- Altitude Control of Drones and Flying Toys
- Mobile Phones
- Virtual Reality and Gaming Equipment
- Indoor/Outdoor Navigation (dead-reckoning, floor/elevator/step detection)
- Vertical velocity monitoring
- Leisure, Sports, and Fitness Activity Identification
- Weather Forecasting

### FEATURES

- Pressure operating range: 30 to 110 kPa
- Noise and current consumption
  - o 0.4 Pa @ 10.4  $\mu$ A (ULN mode)
  - o 0.8 Pa @ 5.2  $\mu$ A (LN mode)
  - o 3.2 Pa @ 1.3  $\mu$ A (LP mode)
- Pressure Sensor Relative Accuracy:  $\pm 1$  Pa for any 10 hPa change over 950 hPa-1050 hPa at 25 $^{\circ}$ C
- Pressure Sensor Absolute Accuracy:  $\pm 1$  hPa over 950 hPa-1050 hPa, 0 $^{\circ}$ C to 65 $^{\circ}$ C
- Pressure Sensor Temperature Coefficient Offset:  $\pm 0.5$  Pa/ $^{\circ}$ C over 25 $^{\circ}$ C to 45 $^{\circ}$ C at 100 kPa
- Temperature Sensor Absolute Accuracy:  $\pm 0.4^{\circ}$ C
- IPx8: Waterproof to 1.5m depth (ICP-10100 & ICP-10110)
- Temperature operating range: -40  $^{\circ}$ C to 85  $^{\circ}$ C
- Host Interface: I<sup>2</sup>C at up to 400 kHz
- Single Supply voltage: 1.8V  $\pm 5\%$
- RoHS and Green compliant



### TYPICAL OPERATING CIRCUIT



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