



## MS5637-02BA03

### Low Voltage Barometric Pressure Sensor

#### SPECIFICATIONS

- ◆ QFN package 3 x 3 x 0.9 mm<sup>3</sup>
- ◆ High-resolution module, 13 cm
- ◆ Supply voltage: 1.5 to 3.6 V
- ◆ Fast conversion down to 0.5 ms
- ◆ Low power, 0.6  $\mu$ A (standby  $\leq$  0.1  $\mu$ A at 25°C)
- ◆ Integrated digital pressure sensor (24 bit  $\Delta\Sigma$  ADC)
- ◆ Operating range: 300 to 1200 mbar, -40 to +85 °C
- ◆ I<sup>2</sup>C interface
- ◆ No external components (internal oscillator)

The MS5637 is an ultra-compact micro altimeter. It is optimized for altimeter and barometer applications in Smart-phones and Tablet PCs. The altitude resolution at sea level is 13 cm of air. The sensor module includes a high-linearity pressure sensor and an ultra-low power 24 bit  $\Delta\Sigma$  ADC with internal factory-calibrated coefficients. It provides a precise digital 24-bit pressure and temperature value and different operation modes that allow the user to optimize for conversion speed and current consumption. A high-resolution temperature output allows the implementation of an altimeter/thermometer function without any additional sensor. The MS5637 can be interfaced to any microcontroller with I<sup>2</sup>C-bus interface. The communication protocol is simple, without the need of programming internal registers in the device. Small dimensions of 3 x 3 x 0.9 mm<sup>3</sup> allow the integration in mobile devices. This new sensor module generation is based on leading MEMS technology and latest benefits from MEAS Switzerland proven experience and know-how in high volume manufacturing of altimeter modules, which has been widely used for over a decade. The sensing principle employed leads to very low hysteresis and high stability of both pressure and temperature signal.

## FEATURES

### FIELD OF APPLICATION

Smart-phones  
 Tablet PCs  
 Personal navigation devices

### TECHNICAL DATA

Sensor Performances (V <sub>DD</sub> = 3 V)				
Pressure	Min	Typ	Max	Unit
Maximum Range	10		2000	mbar
ADC	24			bit
Resolution (1)	0.11 / 0.062 / 0.039 / 0.028 / 0.021 / 0.016			mbar
Error band at 25°C, 300 to 1200 mbar	-2		+2	mbar
Error band, -20°C to + 85°C 300 to 1200 mbar (2)	-4		+4	mbar
Response time (1)	0.5 / 1.1 / 2.1 / 4.1 / 8.22 / 16.44			ms
Long term stability		±1		mbar/yr
Temperature	Min	Typ	Max	Unit
Range	-40		+85	°C
Resolution		<0.01		°C
Accuracy at 25°C	-1		+1	°C
Notes: (1) Oversampling Ratio: 256 / 512 / 1024 / 2048 / 4096 / 8192 (2) With auto-zero at one pressure point				

### FUNCTIONAL BLOCK DIAGRAM

