MS5540C

Miniature Barometer Module

The MS5540C is a SMD-hybrid device including a precision piezoresistive pressure sensor and an ADC-Interface IC. The MS5540C HE is the high endurance version of MS5540C sensor. It is a miniature version of the MS5534C barometer/altimeter module and provides a 16 Bit data word from a pressure and temperature dependent voltage. MS5540C is a low power, low voltage device with automatic power down (ON/OFF) switching. A 3-wire interface is used for all communications with a micro-controller.
Compared to MS5534A the pressure range (measurement down to 10 mbar) has been improved. The MS5540C is fully software compatible to the MS5534C and previous versions of MS5540. In addition, the MS5540C is from its outer dimensions compatible to the MS54XX series of pressure sensors. Compared to the previous version the ESD sensitivity level has been improved to 4kV on all pins. The gel protection of the sensor provides a water protection sufficient for 100 m waterproof watches without any additional protection.

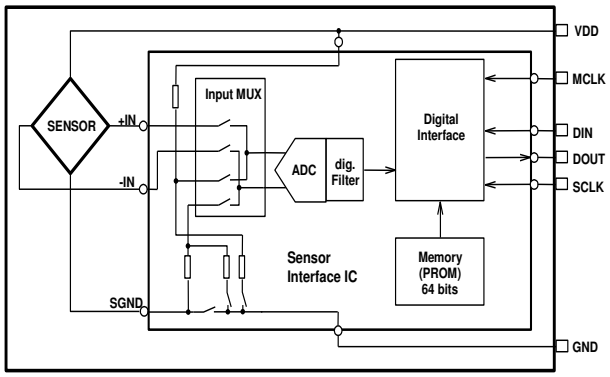
FEATURES

- 10 - 1100 mbar absolute pressure range
- 6 coefficients for software compensation stored on-chip
- Piezoresistive silicon micromachined sensor
- Integrated miniature pressure sensor 6.2 x 6.4 mm
- 16 Bit ADC
- 3-wire serial interface
- 1 system clock line (32.768 kHz)
- Low voltage and low power consumption
- High Endurance (HE version)

APPLICATIONS

- Mobile altimeter / barometer systems
- Weather control systems
- Adventure or multi-mode watches
- GPS receivers
- High endurance pad technology (HE version)

TECHNICAL DATA

Sensor Performances (V_{DD} = 3 V)				
Pressure	**Min**	**Typ**	**Max**	**Unit**
Range	10		1100	mbar
ADC		16		bit
Resolution		0.1		mbar
Accuracy 0°C to +50°C, 300 to 1000 mbar	-1		+1	mbar
Accuracy -40°C to +85°C 300 to 1000 mbar	-2		+5	mbar
Response time		35		ms
Long term stability		-1		mbar/yr
Temperature	**Min**	**Typ**	**Max**	**Unit**
Range	-40		+85	°C
Resolution	0.005		0.015	°C
Accuracy	-0.8		+0.8	°C

FUNCTIONAL BLOCK DIAGRAM