▸ Co-integrated pressure sensor

E777.01

FEATURES

- Supply voltage VDD 5V
- Amplified, calibrated, fully signal conditioned output of 4.0 VDC FS span (0.5 to 4.5V signal)
- Output ratiometric with supply voltage
- Digital Signal Processor for correction algorithms
- Multi-order temperature compensation for gain and offset
- For gauge, differential, and absolute applications
- Adjustable output clamps
- Programmable output filter
- EEPROM memory for End-of-line calibration
- –40°C to +125°C operating temperature
- Available packages:
  - **ASIC**^{plus}: SO16w body with nozzle
  - bare die
  - customer specific

APPLICATION

- Automotive pressure sensing (MAP, tire pressure, oil, fuel)
- Barometric measurement
- Medical instrumentation
- Industrial
- HVAC

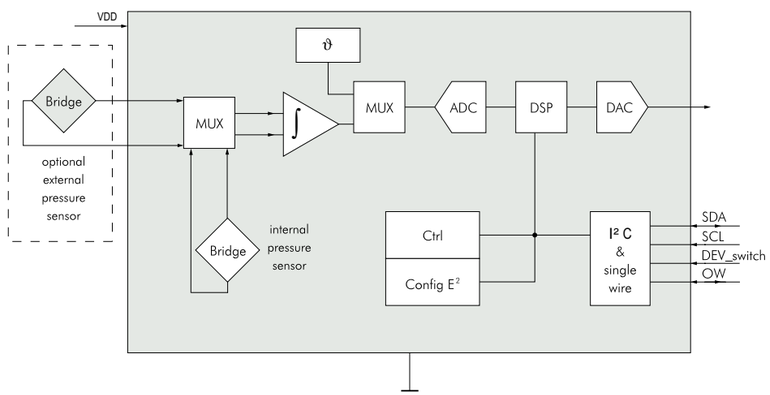
DESCRIPTION

The IC of OEM integrated pressure sensor combines state-of-the-art pressure sensor technology with signal conditioning to produce a fully signal-conditioned, amplified, temperature compensated sensor. The sensor utilizes a digital signal processor to allow multiorder linear correction to achieve increased accuracy over conventional amplified pressure systems. The device is a co-integrated die. It is also available as an IC without the sensor and is therefore suitable for the use of a precision signal processor for separate sensors.

The system uses an on-chip EEPROM to store the calibration data. This allows the device to be calibrated end-of-line and so to compensate for packaging stress and/or parametric changes due to the addition of protective gel. Sensor ID information can also be stored in the EEPROM.

The chip is currently configured for operating pressure ranges from 350mbar FS up to 10bar (5PSI to 145PSI FS). For pressure ranges below 350mbar (5PSI), the IC interfaces with an off-chip sensor. The range is extendable above 10bar.

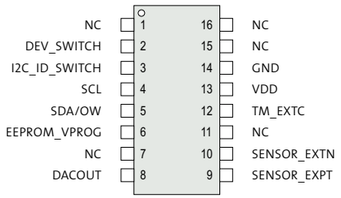
BLOCK DIAGRAM

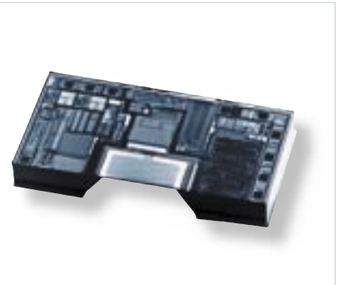


PINNING

Pin	Name	Description
1	NC	Not connected
2	DEV _ SWITCH	Device switch; '0' : enable I²C; '1' : enable one-wire
3	I²C _ ID _ SWITCH	I²C ID switch; '0' : enable write protect; '1': disable write protect (any device ID is possible)
4	SCL	I²C serial clock (internal pull up)
5	SDA/OW	I²C serial data / one wire (internal pull up)
6	EEPROM _ VPROG	EEPROM programming voltage input
7	NC	Not connected
8	DACOUT	Analog output signal
9	SENSOR _ EXPT	External sensor bridge input signal
10	SENSOR _ EXTN	External sensor bridge input signal
11	NC	Not connected
12	TM _ EXTC	Test
13	VDD	Supply voltage
14	GND	Ground
15	NC	Not connected
16	NC	Not connected

PACKAGE





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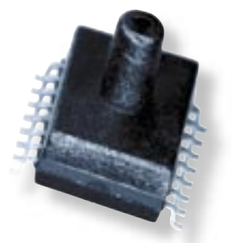
Also available

IC	Description	Pressure range [bar]	Application	Package
777.06	777.01 + MEMS	1, 2, 4, 7	gauge, relative, absolute	SO16 + nozzle
777.07	777.01 + MEMS	0.35	relative	SO16 + nozzle



ASIC^{plus} SO16 package with nozzle