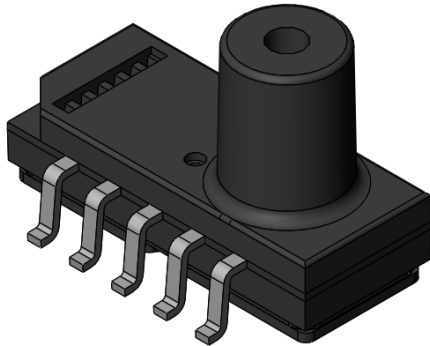


Medium Pressure Digital Sensor

SM4291-HGE-S-500-000 Gauge Pressure Sensor



FEATURES

- Pressure range of 0 to -500 mBar (0 to -7.3 PSI) gauge output
- Both I²C Digital Interface and analog output
- 16-bit digital, pressure calibrated and temperature compensated output
- Digital accuracy: $\pm 1\%$ full scale ($\pm 1.5\%$ analog accuracy)
- Compensated temperature range: -20 to 85 °C
- Insensitive to mounting orientation
- Robust JEDEC SOIC-10 package for automated assembly
- Manufactured according to ISO9001 and ISO/TS 16949 standards

DESCRIPTION

The SM4291 is a digital, low pressure MEMS sensor offering state-of-the-art pressure transducer technology and CMOS mixed signal processing technology to produce a digital, fully conditioned, pressure and temperature compensated sensor in a JEDEC standard SOIC-10 package with a vertical port. It is a gauge pressure sensor.

Combining the pressure sensor with a signal-conditioning ASIC in a single package simplifies the use of advanced silicon micro-machined pressure sensors. The pressure sensor can be mounted directly on a standard printed circuit board and a high level, calibrated pressure signal can be acquired from the digital interface. This eliminates the need for additional circuitry, such as a compensation network or microcontroller containing a custom correction algorithm.

The SM4291 is available for shipment in sticks or tape & reel.

Absolute Maximum Ratings

No.	Characteristic	Symbol	Minimum	Maximum	Units
1	Supply Voltage	V_{DD}	-0.3	6.0	V
2	Compensated Temperature	T_{COMP}	-20	+85	°C
3	Operating Temperature ^(a)	T_{OP}	-20	+85	°C
4	Storage Temperature ^(a)	T_{STG}	-40	+125	°C

No.	Characteristic	Symbol	Minimum
5	Proof Pressure ^(a, b, c)	P_{Proof}	1720 mBar (25 PSI)
6	Burst Pressure ^(a, b, d)	P_{Burst}	2760 mBar (40 PSI)

Notes:

- a. Tested on a sample basis.
- b. Clean, dry gas compatible with wetted materials. Wetted materials include plastic, silicon and RTV.
- c. Proof pressure is defined as the maximum pressure to which the device can be taken and still perform within specifications after returning to the operating pressure range
- d. Burst pressure is the pressure at which the device suffers catastrophic failure resulting in pressure loss through the device.

Operating Characteristics Table

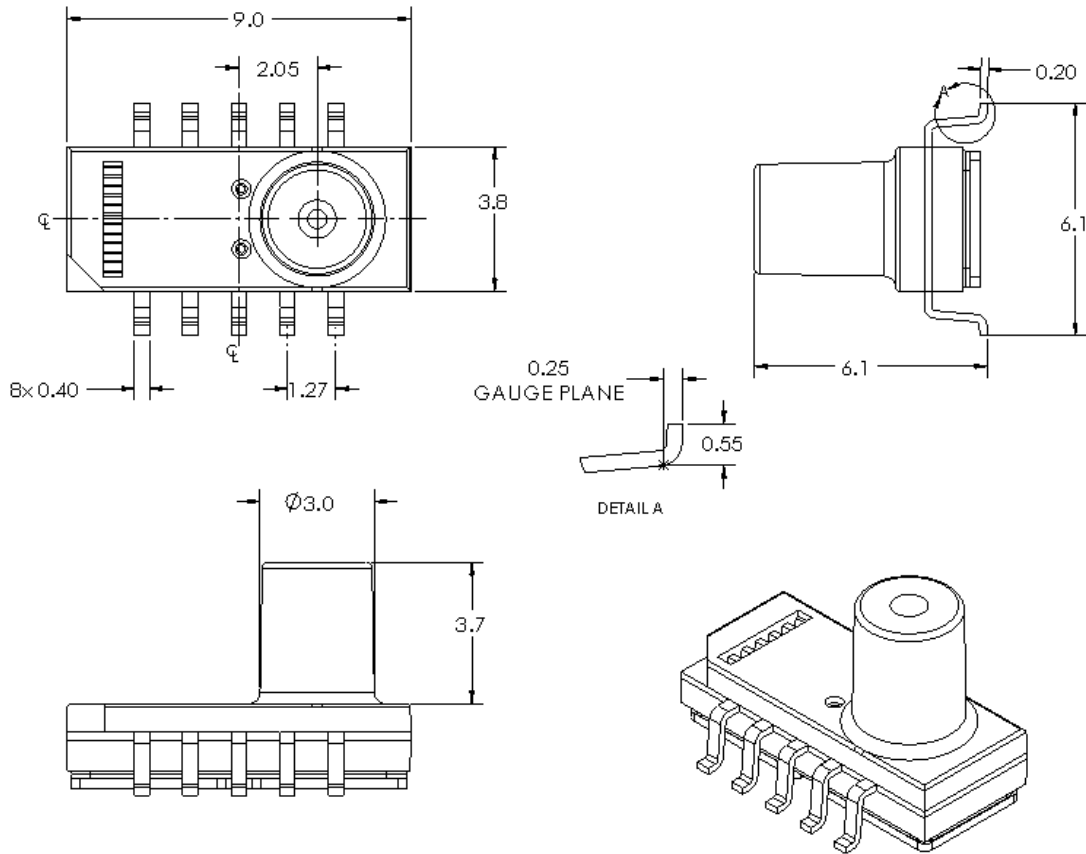
All parameters are specified at Vdd = 3.3 V DC supply voltage at 25°C, unless otherwise noted.

No.	Characteristic	Symbol	Minimum	Typical	Maximum	Units
7	Supply Voltage	V_{DD}	3.0	3.3	3.6	V
8	Current Consumption	I_{VDD}	TBD	4.5	TBD	mA
9	Pressure Output @ $P_{MIN} = 0$ mBar	OUT_{MIN}		-26,214		Counts
				10%		V_{DD}
10	Pressure Output @ $P_{MAX} = -500$ mBar	OUT_{MAX}		+26,214		Counts
				90%		V_{DD}
11	Full Scale Span	FSS		52,428		Counts
				80%		V_{DD}
12	Resolution			16		Bits
13	Update Rate			2000		Hz
14	Bandwidth			10		Hz
15	Accuracy ^(e)	D ACC		1		%FS
16	Accuracy ^(e)	A ACC		1.5		%FS

Notes:

- e. The accuracy specification applies over all operating conditions. This specification includes the combination of linearity, repeatability, and hysteresis errors over pressure, temperature, and voltage.

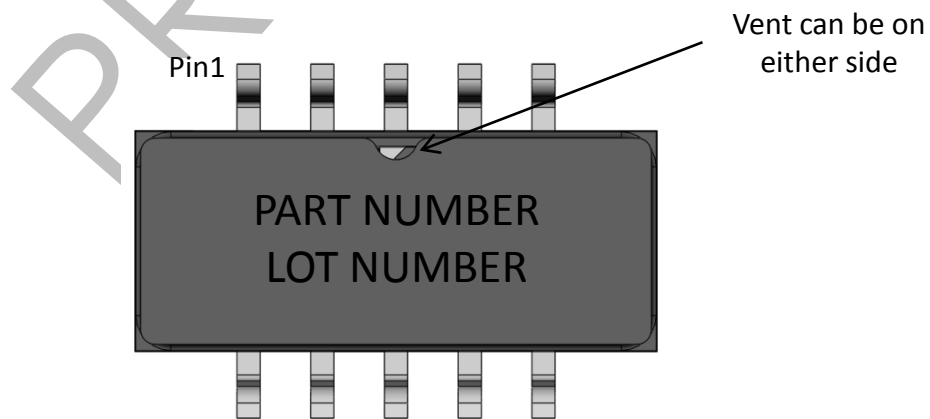
SM4291 Package Dimensions



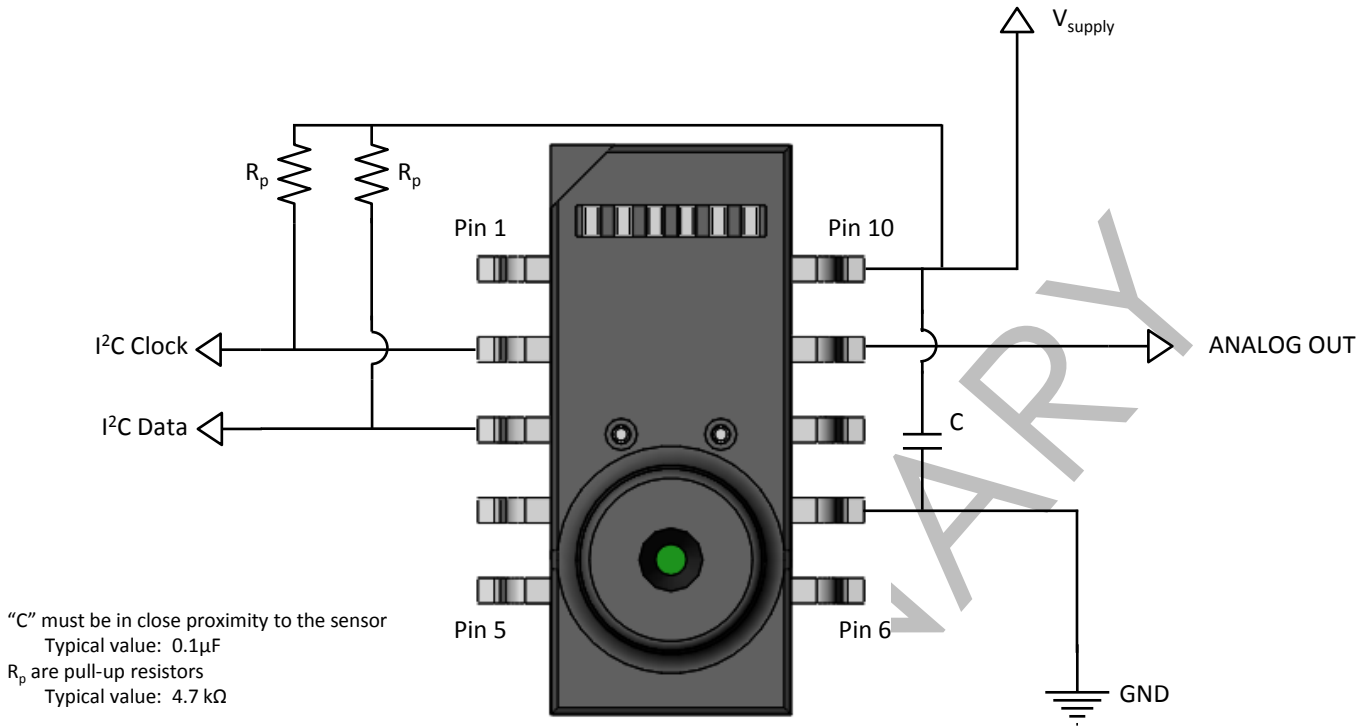
Notes:

- All dimensions in units of [mm]
- Moisture Sensitivity Level (MSL): Level 1
- Wetted materials: Silicon, RTV, Plastic

Part & Lot Number Identification



SM4291 pin out diagram

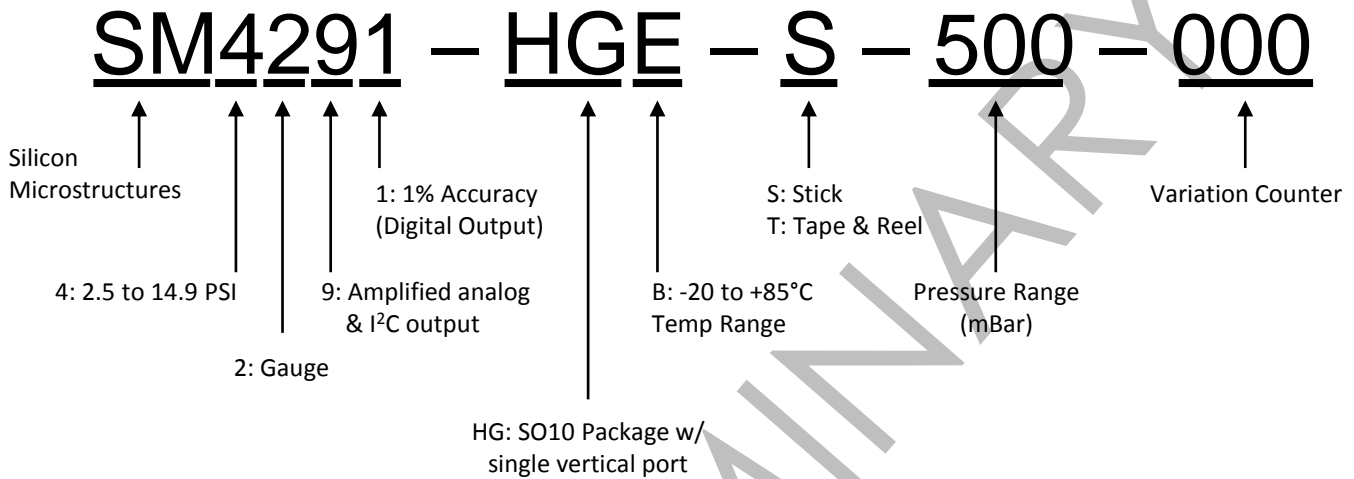


Pin No.	Pin Function
1	NC
2	SCL
3	SDA
4	NC
5	NC
6	NC
7	GND
8	NC
9	Analog Out
10	Power

NOTES:

- Do not connect to NC pins

Part Number Legend



PRELIMINARY

Qualification Standards

REACH Compliant
 RoHS Compliant
 PFOS/PFOA Compliant
 For qualification specifications, please contact Sales at sales@si-micro.com



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