PRESSURE SENSORS

Low Pressure Sensor
Amplified Analog Output

SM6295-BCM-S-040-000

FEATURES

- Pressure range from 0 to 40 cmH_2O
- 5.0 V operation
- Amplified analog output (10 to 90%Vdd)
- Compensated temperature range: 0 to 60°C
- Gage pressure configuration
- Insensitive to mounting orientation
- Pressurized from backside to protect topside electronics

DESCRIPTION

The SM6295-BCM-S-040-000 is an amplified analog, low pressure MEMS sensor offering state-of-the-art pressure transducer technology and CMOS mixed signal processing technology to produce an analog, fully conditioned, pressure and temperature compensated sensor in a JEDEC standard SOIC-16 package with dual vertical porting. It is available in a gage pressure configuration.

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 analog output. This eliminates the need for additional circuitry, such as a compensation network or microcontroller containing a custom correction algorithm.

The SM6295-BCM-S-040-000 is shipped in sticks. The SM6295-BCM-T-040-000 is shipped in tape & reel.

Medical	Industrial	Consumer
CPAP	Airflow Measurement	Sports Equipment
Ventilators	Pneumatic Gauges	Appliances
Gas Flow Instrumentation	Pressure Switches	
Air Flow Monitors	Life Sciences	
	Gas Flow Instrumentation	

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Absolute Maximum Ratings

All parameters are specified at Vdd = 5.0 V supply voltage at 25°C, unless otherwise noted.

No.	Characteristic	Symbol	Minimum	Typical	Maximum	Units
1	Supply Voltage	V_{DD}	0.0		6.0	V
2	Operating Temperature	T_{OP}	-20		+85	°C
3	Storage Temperature	T_{STG}	-40	-	+125	°C

No.	Product Number	Operating Pressure	Proof Pressure (P_{PROOF})[a, b]	Burst Pressure (P_{BURST})[a, c]
5	SM6295-BCM-T-040-000[d] SM6295-BCM-S-040-000[e]	40 cmH_2O	±4.8 PSI	±6.0 PSI

Notes:

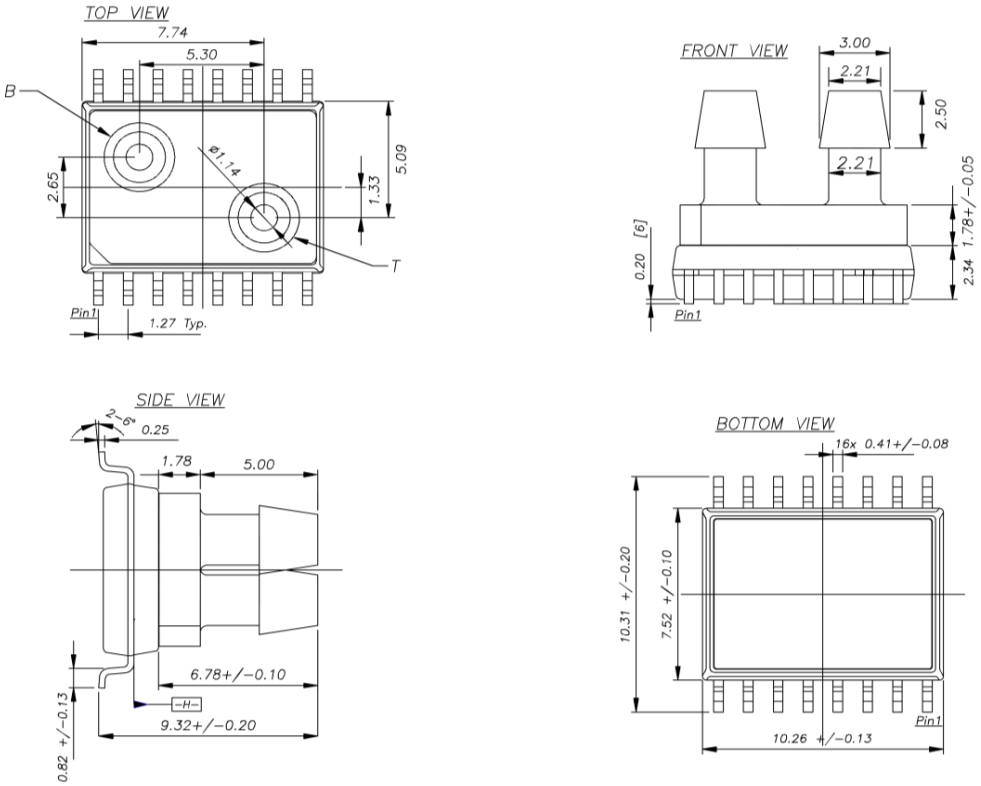
a. Tested on a sample basis.
b. Proof pressure is defined as the maximum pressure to which the device can be taken and still perform within specifications after returning to the operating pressure range
c. Burst pressure is the pressure at which the device suffers catastrophic failure resulting in pressure loss through the device.
d. Shipped in Tape & Reel
e. Shipped in sticks

No.	Characteristic	Symbol	Minimum	Typical	Maximum	Units
6	Supply Voltage	V_{DD}	4.75	5.0	5.25	V
7	Supply Current	I_{VDD}		4.5		mA
8	Zero Offset Voltage	V_{ZERO}		10		%VDD
9	Full Scale Output	FSO		90		
10	Full Scale Span	FS		80		
11	Compensated Temperature Range	T_{COMP}	0		+60	°C
12	Accuracy [f]	ACC	-2.5		+2.5	%FS

Notes:

f. The accuracy specification applies over the compensated temperature range. This specification includes the combination of linearity, repeatability, and hysteresis errors over pressure and temperature .

SOIC-16 (C) Vertical Package Dimensions

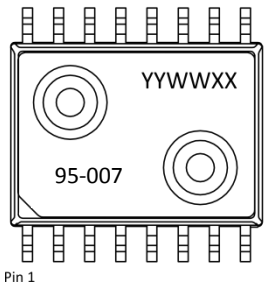


Notes:

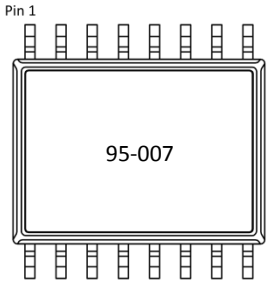
- All dimensions in units of [mm]
- Moisture Sensitivity Level (MSL): Level 3
- Wetted materials: Silicon, glass, copper, silicone, epoxy, mold compound.
- Tolerance on all dimensions ±0.13 mm unless otherwise specified.
- [B] is tube connected to bottom side of sensor die.
- [T] is tube connected to top side of sensor die.
- An increase in bottom pressure will result in an increase in sensor output

Part & Lot Number Identification

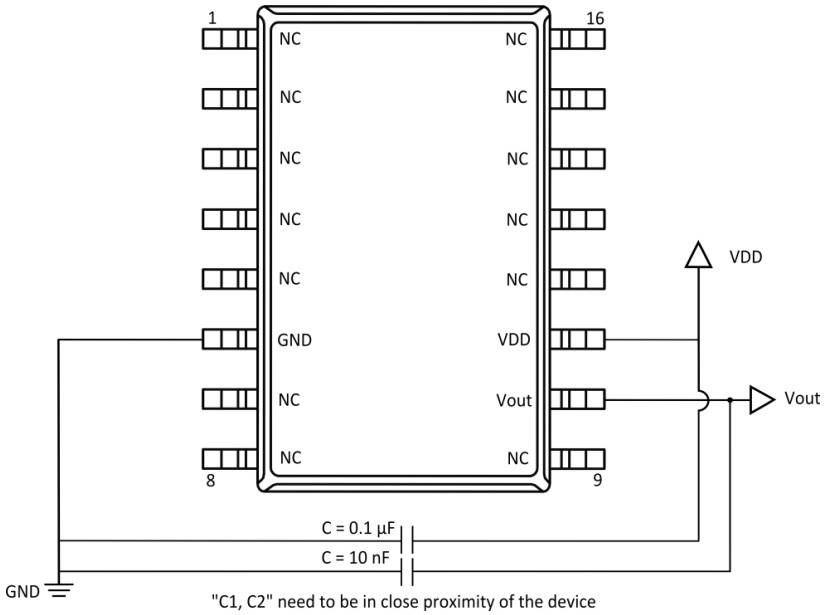
Top View



Bottom View



SM6295 Applications Circuit



Pin No.	Pin Function
1	NC
2	NC
3	NC
4	NC
5	NC
6	GND
7	NC
8	NC
9	NC
10	Vout: Analog Output
11	VDD
12	NC (I^2C SCK)
13	NC (I^2C SDA)
14	NC
15	NC
16	NC

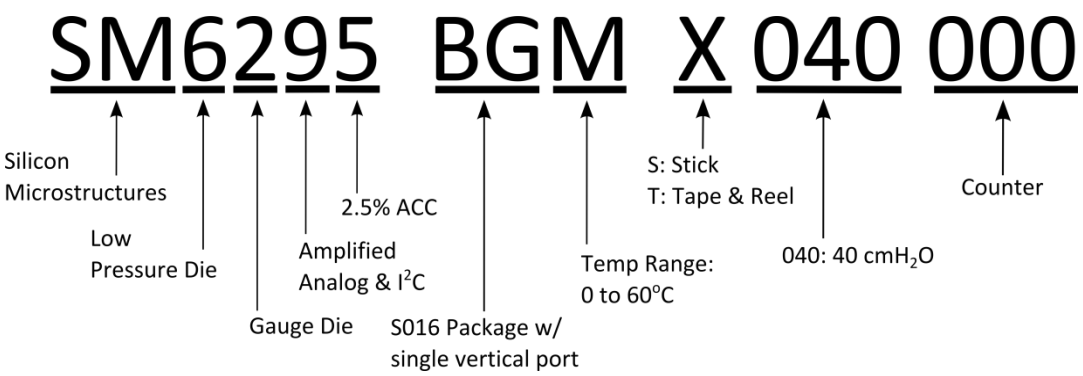
NOTES:

- Do not connect to NC pins
- Pins 12 and 13 can be used for I^2C digital interface. They then need pull-up resistors to VDD (e.g. 4.7 kΩ). When using only the analog output, do not connect to these pins.

Ordering Information

Order Code	Part Marking	Minimum Pressure Range	Positive Pressure Range	Pressure Type	Port Configuration	Shipping Method
SM6295-BCM-T-040-000	95-007	0 cmH_2O	40 cmH_2O	Gage	Dual Vertical	Tape & Reel
SM6295-BCM-S-040-000	95-007	0 cmH_2O	40 cmH_2O	Gage	Dual Vertical	Sticks

Part Number Legend



Qualification Standards

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

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