PRESSURE SENSORS

Ultra-Low Pressure Analog Sensor

SM6250-DDN-T-050-000

FEATURES

- -50 to +50 mbar
- 10x burst pressure
- Amplified analog output
- 2.7 V to 5.5 V operation
- SOIC-16 Package
- -40°C to 85°C operating temperature range

DESCRIPTION

The Silicon Microstructures' SM6250 Series of MEMS pressure sensors combines state-of-the-art pressure sensor technology with CMOS mixed-signal processing technology in a dual ported SOIC-16 package.

Combining the pressure sensor with a signal conditioning ASIC in a single package simplifies the use of advanced silicon micromachined pressure sensors. The pressure sensor can be mounted directly to a standard printed circuit board (PCB). Pressure is measured from the backside, while additional protection to the electronic circuitry is provided by protective gel on the topside. The SM6250 is shipped uncalibrated and uncompensated with only a functional test.

The SM6250 Series pressure sensors are based on SMI's highly stable, piezoresistive pressure sensor die. The model SM6250 is designed for operating pressure range of -50 to +50 mbar differential pressure.

Medical	Industrial	Consumer
Sleep Apnea	Airflow Measurement	Sports Equipment
Gas Flow Instrumentation	Pneumatic Gauges	Appliances
Ventilators	Pressure Switches	
Air Flow Monitors	Safety Cabinets	
CPAP	Life Sciences	
Negative Pressure Wound Therapy	Gas Flow Instrumentation	

+1-(408) 577-0100 / sales@si-micro.com / www.si-micro.com

ABSOLUTE MAXIMUM RATING TABLE

All parameters are specified at V_{DD} = 5.0 V DC supply at 25°C, unless otherwise noted.

No.	Characteristic	Symbol	Minimum	Typical	Maximum	Units
1	Supply Voltage	V_{DD}			6.00	V
2	Supply Current	I_{VDD}			4.00	mA
3	Operating Temperature Range	T_{OP}	-40		85	°C
4	Storage Temperature Range	T_{STG}	-40	-	125	°C

No.	Product Number	Operating Pressure	Proof Pressure (P_{PROOF})[a]	Burst Pressure (P_{BURST})[b]
5	SM6250-DDN-T-050-000	-50 to +50 mbar	+/-4.8 PSI	+/-6.0 PSI

Notes:

a. 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

b. Burst pressure is the pressure at which the device suffers catastrophic failure resulting in pressure loss through the device.

OPERATING CHARACTERISTICS TABLE

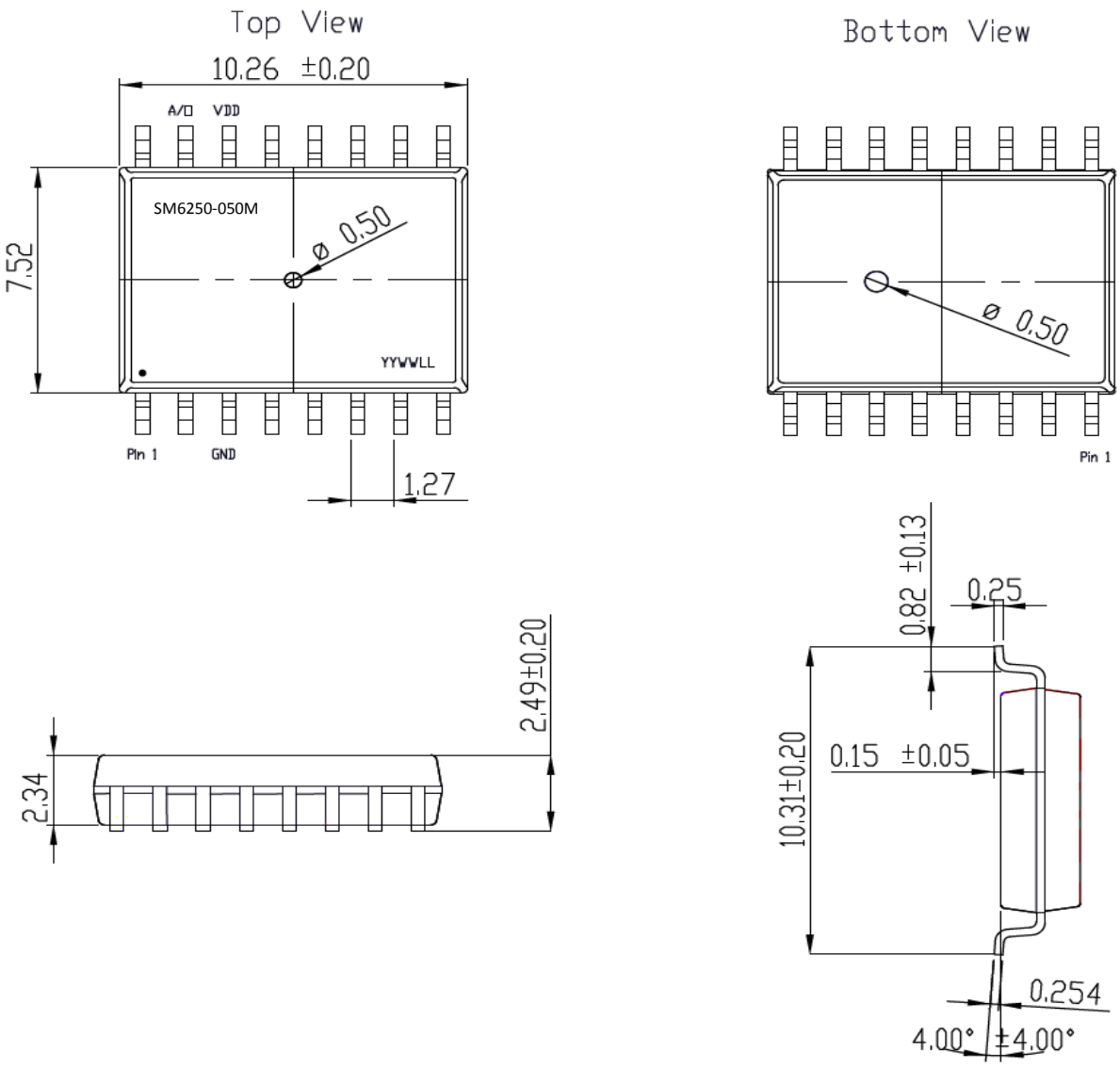
All parameters are specified at V_{DD} = 5.0 V DC supply at 25°C, unless otherwise noted.

No.	Characteristic	Symbol	Minimum	Typical	Maximum	Units
6	Supply Voltage	V_{DD}		5.0		V
7	Supply Current	I_{DD}		1.9		mA
8	Functional Zero Pressure Output[c]	Zero		2.7		V
9a	Functional FS Pressure Output[c]	-FSO		1.5		V
9b	Functional FS Pressure Output[c]	+FSO		3.9		V
10	Full-scale (FS) Pressure	FS P_{RANGE}	-50		+50	mbar

Notes:

c. Analog front end settings: pre amp gain = 12, ADC offset ± ½ and Gain_B = 669 hex.

SOIC-16 Hole (H) Package Dimensions



Pin No.	Pin Function		Pin No.	Pin Function
1	NC		9	NC
2	NC		10	NC
3	Ground		11	NC
4	NC		12	NC
5	NC		13	NC
6	NC		14	VDD
7	NC		15	Analog Out
8	NC		16	NC

Ordering Information

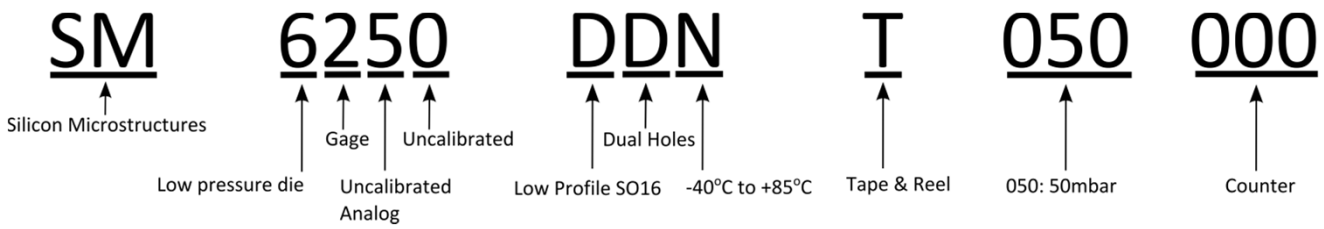
Order Code	Pressure Type	Full-Scale Pressure Range	Cap Configuration	Shipping Configuration
SM6250-DDN-T-050-000	Differential	+/- 50 mbar	No Port	Tape & Reel

Notes:
(1) Devices are not traceable back to functional tests data due to not calibrating devices.
(2) Devices meet MSL3 moisture sensitivity standards.

Qualification Standards

- For qualification specifications, please contact Sales at sales@si-micro.com

Part Number Legend



Silicon Microstructures Warranty and Disclaimer:

Silicon Microstructures, Inc. reserves the right to make changes without further notice to any products herein and to amend the contents of this data sheet at any time and at its sole discretion.

Information in this document is provided solely to enable software and system implementers to use Silicon Microstructures, Inc. products and/or services. No express or implied copyright licenses are granted hereunder to design or fabricate any silicon-based microstructures based on the information in this document.

Silicon Microstructures, Inc. makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Silicon Microstructures, Inc. assume any liability arising out of the application or use of any product or silicon-based microstructure, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. “Typical” parameters which may be provided in Silicon Microstructure’s data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typicals”, must be validated for each customer application by customer’s technical experts. Silicon Microstructures, Inc. does not convey any license under its patent rights nor the rights of others. Silicon Microstructures, Inc. makes no representation that the circuits are free of patent infringement. Silicon Microstructures, Inc. products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Silicon Microstructures, Inc. product could create a situation where personal injury or death may occur. Should Buyer purchase or use Silicon Microstructures, Inc. products for any such unintended or unauthorized application, Buyer shall indemnify and hold Silicon Microstructures, Inc. and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Silicon Microstructures, Inc. was negligent regarding the design or manufacture of the part.

Silicon Microstructures, Inc. warrants goods of its manufacture as being free of defective materials and faulty workmanship. Silicon Microstructures, Inc. standard product warranty applies unless agreed to otherwise by Silicon Microstructures, Inc. in writing; please refer to your order acknowledgement or contact Silicon Microstructures, Inc. directly for specific warranty details. If warranted goods are returned to Silicon Microstructures, Inc. during the period of coverage, Silicon Microstructures, Inc. will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer’s sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Silicon Microstructures, Inc. be liable for consequential, special, or indirect damages.

While Silicon Microstructures, Inc. provides application assistance personally, through its literature and the Silicon Microstructures, Inc. website, it is up to the customer to determine the suitability of the product for its specific application. The information supplied by Silicon Microstructures, Inc. is believed to be accurate and reliable as of this printing. However, Silicon Microstructures, Inc. assumes no responsibility for its use. Silicon Microstructures, Inc. assumes no responsibility for any inaccuracies and/or errors in this publication and reserves the right to make changes without further notice to any products or specifications herein

Silicon Microstructures, Inc.TM and the Silicon Microstructures, Inc. logo are trademarks of Silicon Microstructures, Inc. All other service or product names are the property of their respective owners.