



- **For High-Volume Applications**
- **Ultra-Small, Low Cost OEM Pressure Package**

DESCRIPTION

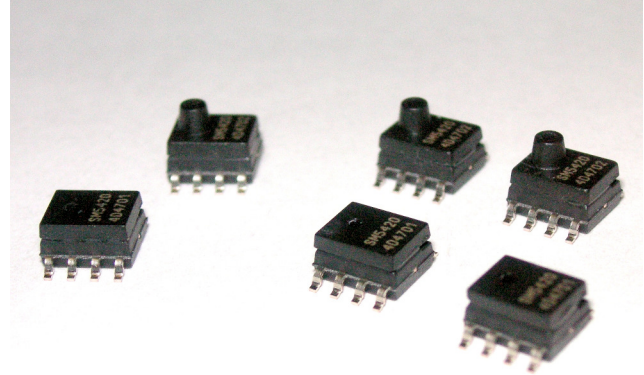
The SM5420C is a small outline SO-8 packaged pressure sensor. The sensor uses SMI's SM5108C micromachined, piezoresistive pressure sensing chip that has been optimized to provide the highest possible accuracy for a package of this size. This performance is achieved through careful resistor placement and mechanical configuration along with advanced MEMS processing.

This sensor is intended for high volume applications where cost is a critical factor, such as consumer tire pressure gauges or automotive tire pressure monitoring. The SM5420C is available as an absolute pressure sensor in full-scale ranges of 15 PSI, 30 PSI, and 100 PSI. It is designed to be surface-mounted on ceramic or printed circuit board substrates by high-volume OEM manufacturers.

The SM5420C is available in a ported configuration to allow positive positioning of a pressure source over the inlet or in a non-ported configuration to be used for sensing general environmental pressures or with an o-ring seal. The port position has been chosen to minimize the chance of pressure pulses directly impacting the face of the sensor die for added long-term reliability in hostile environments. The part comes with gel over the die as standard; the part can be ordered without gel in high volumes where the maximum stability is required, such as in barometric, weather station sensing applications. Please contact SMI for more information.

The SM5420C is shipped in tape-and-reel.

Minimum order quantities apply to this product.



FEATURES

- Available in 15 PSI, 30 PSI, and 100 PSI ranges
- Wide temperature range (-40°C to +125°C)
- Suitable for automated assembly
- Extremely low cost
- Small foot-print 0.16" x 0.20" (4.1 mm x 5.1 mm) package
- Constant current or constant voltage drive
- High milli Volt output

TYPICAL APPLICATIONS

- Automotive Tire Pressure Monitoring
- Engine Control
- Barometric Sensing
- Altitude Correction Detection
- Pneumatic Gauges
- Hand-held Meters
- Home Appliances

CHARACTERISTICS FOR SM5420C - SPECIFICATIONS

All parameters are measured at 5.00 V DC supply at room temperature, unless otherwise specified. All parts are covered with gel.

| | Min. | Typ. | Max. | Units | Notes |
|---------------------------------------|-------|-------|-------|-----------|-------|
| Excitation Voltage DC | 0 | 5.0 | 10 | V | 1 |
| Excitation Current DC | 0 | 1.0 | 1.6 | mA | 1 |
| Full Scale Span, PSI (kPa) | | | | | |
| 15 (103) | 95 | 127 | 160 | mV | |
| 30 (207) | 65 | 100 | 135 | mV | |
| 100 (689) | 65 | 100 | 135 | mV | |
| Zero Offset | -35 | | 35 | mV | |
| Temperature Coefficient of Span | -24 | -19 | -15.5 | %FS/100°C | 2, 3 |
| Temperature Coefficient of Offset | -7 | -1 | +7 | %FS/100°C | 2, 3 |
| Temperature Coefficient of Resistance | +24 | +27.5 | +33 | %/100°C | 2, 3 |
| Pressure Linearity | -0.20 | -0.07 | +0.20 | %FS | 4 |
| Bridge Resistance | 4 | 5 | 6 | kΩ | |
| Input Capacitance | | <2 | | pF | 2 |
| Proof Pressure | 3x | | | Rated FS | 2 |
| Burst Pressure | 5x | | | Rated FS | 2 |
| Operating Temperature | -40 | | +125 | °C | 2 |
| Storage Temperature | -40 | | +150 | °C | 2 |

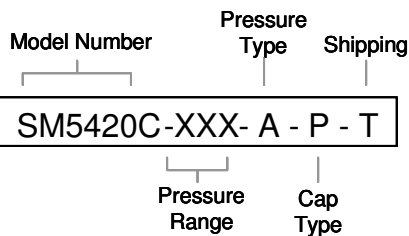
Notes:

- The device can only be driven with the supply voltage connected to the pins as shown. The positive output will increase with increasing pressure applied to the package.
- Tested on sample basis.
- Measured from 0°C to 70°C
- Defined as best straight line fit.

PIN OUT

| | | | |
|---|------|---|------|
| 1 | NC | 8 | +IN |
| 2 | Out+ | 7 | NC |
| 3 | NC | 6 | Out- |
| 4 | -IN | 5 | NC |

ORDERING INFORMATION:

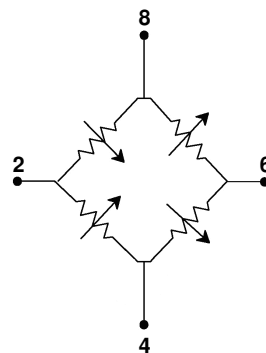


Pressure Range = 015, 030, or 100 for 15, 30 or 100 PSI respectively

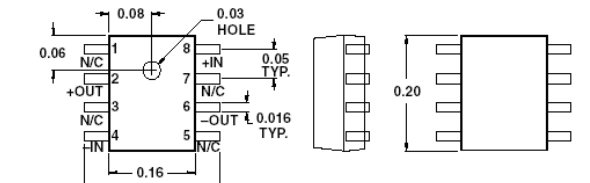
Pressure Type = A (absolute only)

Cap Type = H (hole) or P (port)

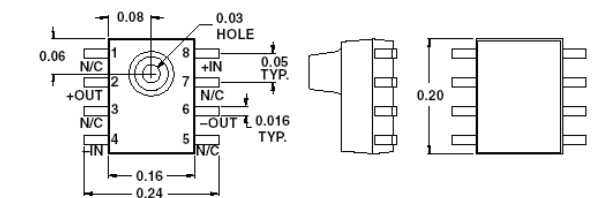
Shipping = T (tape)



SM5420C Pin-out



H configuration



P configuration

Note: All dimensions are in inches



Tect Electronics

The authorized distributor in the Greater China Region
SUNSTAR传感与控制 <http://www.sensor-ic.com/>

TEL:0755-83376549 FAX:0755-83376182E-MAIL: szss20@163.com



**SILICON
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SM5420C

Low-Cost,

SO-8 Packaged Pressure Sensor

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Silicon Microstructures, Inc. ♦ 1701 McCarthy Blvd. ♦ Milpitas, CA 95035 USA

Tel: 408-577-0100 ♦ Fax: 408-577-0123 ♦ sales@si-micro.com ♦ <http://www.si-micro.com>

SUNSTAR自动化 <http://www.sensor-ic.com/> TEL: 0755-83376489 FAX:0755-83376182 E-MAIL: szss20@163.com