



### Digital output MEMS pressure sensor

#### Performance

|                                   |                      |
|-----------------------------------|----------------------|
| Pressure range(FS) .....          | 1~75 mbar            |
| Accuracy(BFSL typical).....       | ±0.25% FS            |
| Span stability(typical) .....     | ±0.5% FS/1000H       |
| Total error band(>5mbar)          | ±1% FS               |
| Total error band(≤5mbar) .....    | ±3% FS               |
| Interface type .....              | I <sup>2</sup> C/SPI |
| Output type(A type) .....         | 10%~90%              |
| Output type(B type) .....         | 5%~95%               |
| Resolution(14bits) .....          | 0.008% FS            |
| Response frequency(typical) ..... | 2KHz                 |
| Load resistance .....             | >10KΩ                |

#### Electrical

|  |            |
|--|------------|
| Excitation .....                       | 3.3±0.3Vdc |
| Supply current(@ 3.3Vdc typical) ..... | 2mA        |
| Excitation .....                       | 5±0.25Vdc  |
| Supply current(@ 5Vdc typical) .....   | 3mA        |
| Warm up .....                          | <7ms       |
| ESD susceptibility .....               | 4KV        |

#### Environmental

|                                    |   |
|------------------------------------|---|
| Operation temperature .....        | -40 to 125°C                                    |
| Compensated temperature .....      | 0 to 60°C                                       |
| Solder temperature(SIP/DIP).....   | 5s Max. at 250°C                                |
| Reflow peak temperature (SMT)..... | 15s Max. at 250°C                               |
| Thermal hysteresis .....           | ±0.5% FS  |
| Gravity(1g) sensitivity .....      | ±0.15% FSO                                      |
| Pressure cycles .....              | 10 million FS cycles                            |
| Overload(1mbar).....               | >100 * FS                                       |
| Overload(5mbar).....               | >40 * FS  |
| Overload(10/25mbar).....           | >20 * FS  |
| Overload(15/50/75mbar).....        | >10 * FS  |
| Burst pressure.....                | >3 * Overload                                   |
| Vibration .....                    | <20 g@10~2000Hz                                 |
| Shock .....                        | <100 g, 11ms pulse                              |
| Media .....                        | Ceramic,Silicon,Glass,Silicone epoxy compatible |
| Cover .....                        | Polyamide                                       |
| Substrate .....                    | Ceramic   |
| Sealing .....                      | Silicone epoxy                                  |
| Pressure port .....                | 1/8" barbed ports(for 3/32" ID tubing)          |
| Electrical connection.....         | DIP,SIP or SMT                                  |

#### Features

- Piezoresistive MEMS element
- I<sup>2</sup>C or SPI Interface protocols
- ASIC fully calibrated
- Gas and non-corrosive fluids
- Low cost OEM
- Range: 1 to 75 mbar
- Temperature compensated
- Various package
- Small size
- Energy efficient
- Excellent long-term stability
- Industry-leading TEB
- RoHS compliant.

TEB=Total Error Band

ASIC=Application Specific Integrated Circuit

#### Application

- Anesthesia machines
- Spirometers
- Hospital room air pressure
- Nebulizers
- VAV control
- Static duct pressure
- HVAC transmitters
- Clogged HVAC filter detection

VAV=Variable Air Volume

HVAC=Heating, Ventilation, Air Conditioning

#### Ordering Information

P2102R-10MG-SD-SA-5

Range in mbar:  
5/10/15/25/50/75 for Gauge  
1/5/10/15/25/50/75 for Differential

Reference type:  
G= Gauge pressure  
D= Differential

Port type:  
S= Sider port

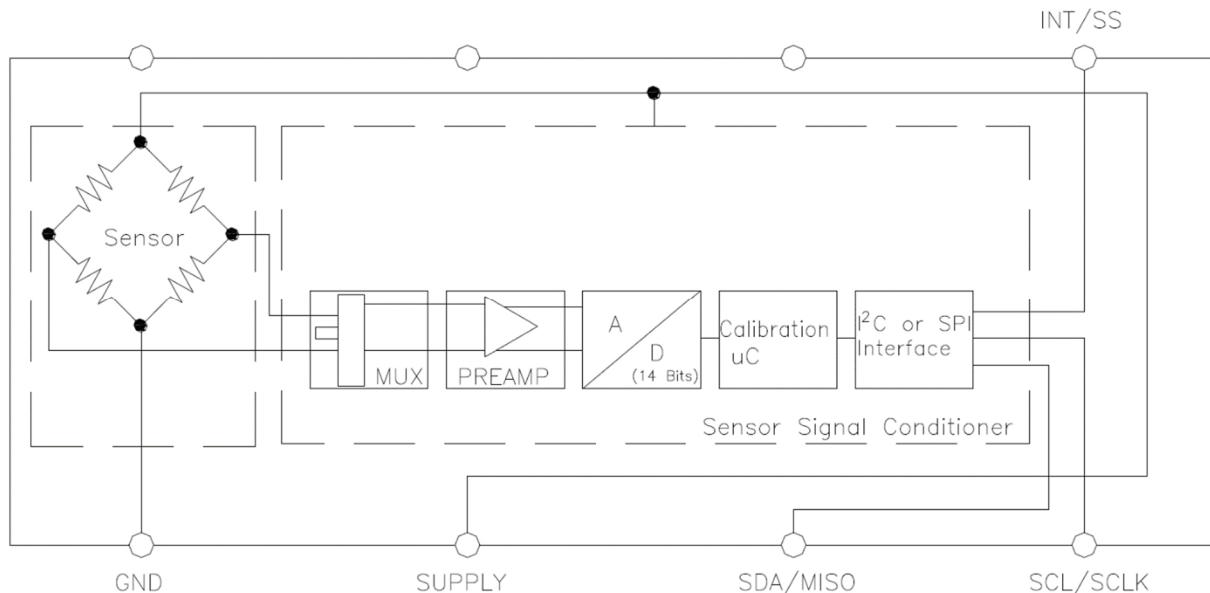
Excitation type:  
3.3= 3.3Vdc  
5= 5Vdc

Output option:  
A= 10~90%  
B= 5~95%

Interface:  
I= I<sup>2</sup>C  
S= SPI

Solder type:  
D= DIP

## Schematic & Dimension:



CONNECTION DIAGRAM

| Output type | 1      | 2                   | 3         | 4         | 5      | 6     | 7     | 8     |
|-------------|--------|---------------------|-----------|-----------|--------|-------|-------|-------|
| Digital     | Ground | V <sub>supply</sub> | SDA/MIS O | SCL/SC LK | INS/SS | Blank | Blank | Blank |

