



## Sensors

# Pressure Sensors

Designed with versatile packaging and mounting options

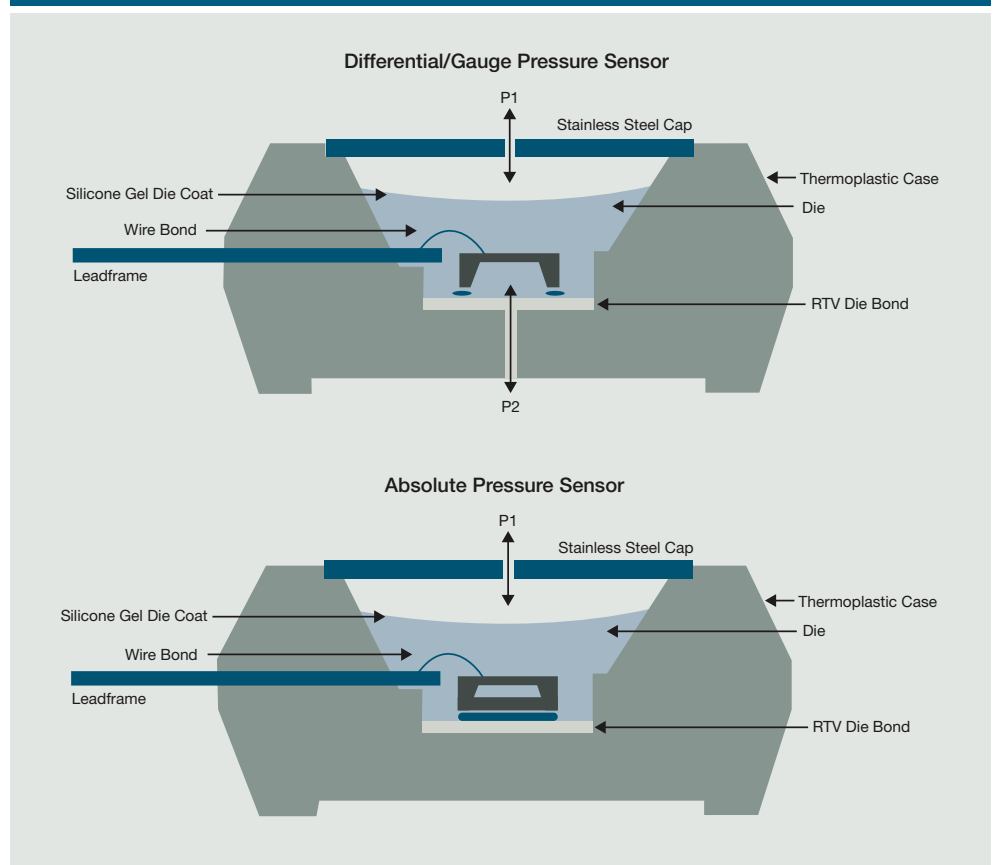
### Overview

Since 1980, Freescale Semiconductor's micro-electromechanical systems (MEMS)-based sensors have been changing the world. Today, our piezoresistive pressure transducers are engineered to sense absolute or differential air pressure. They make technology step into what was previously immeasurable—or untouchable. They help you sense the world.

Freescale has over 300 pressure sensor parts in the portfolio. We have over 30 years of MEMS-based sensor mass production along with a track record for high reliability expected in the automotive market. Globally, we have delivered more than one billion MEMS-based and CMOS state machine based touch sensors.

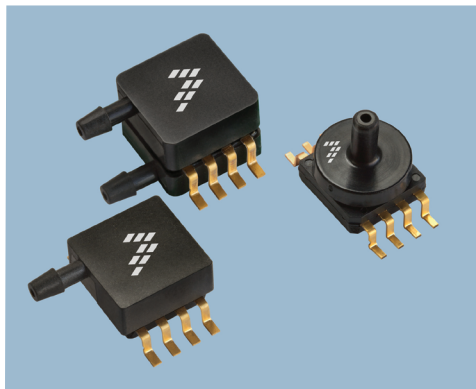
Freescale's Xtrinsic sensing solutions are designed with the right combination of high-performance sensing capability, processing capacity and customizable software to help deliver smart, differentiated sensing solutions. Xtrinsic pressure sensors offer ideal blends of functionality and intelligence designed to help our customers differentiate and win in highly competitive markets.

### Pressure Sensor Technology Comparison



## Low-Voltage Pressure Sensors

Freescale has introduced a series of low-voltage pressure sensors designed to meet power efficiency demands to extend longevity for simpler, cost-sensitive medical and portable electronics. For the latest information on our rapidly expanding 3V pressure sensor lineup visit [freescale.com](http://freescale.com) and search by keyword “MP3V.”



### Featured Device Specifications

Device	Series	Pressure Range (kPa)	Full Scale Span (Typ. V)	Sensitivity (mV/kPa)	Resolution (Pa)
MPL3115A2/T1	Digital/I <sup>2</sup> C	20–110	3.3	–	1.5
MPL115A1T1	Digital/SPI	50–115	4.6	–	150
MPL115A2T1	Digital/I <sup>2</sup> C	50–115	4.6	–	150
MPXH6101A	MPXH	102	4.6	54	
MPXH6115A	MPXH	115	4.6	46	
MPXH6300A	MPXH	300	4.7	16	

Device	Series	Pressure Range (kPa)	Full Scale Span (Typ. mV)	Offset (mV)	Sensitivity (mV/kPa)
MPXM2010	MPXM	10	25	±1.0	2.5
MPXM2053	MPXM	50	40	±1.0	0.8
MPXM2102	MPXM	100	40	±1.0	0.4
MPXM2202	MPXM	200	40	±1.0	0.2

Device	Series	Pressure Range (kPa)	Pressure Range (mm Hg)	Gel Option
MPXC2011DT1	Medical	10	75	Reduced gel
MPXC2012DT1	Medical	10	75	No gel
MPX2300DT1	Medical	40	300	Gel filled
MPX2301DT1	Medical	40	300	Reduced gel

### Sensor Product Series Overview

#### MPXV and MP3V Series

##### Features

- Pressure ranges up to 1000 kPa (150 PSI)
- Temperature compensated from -40°C to +125°C
- Amplified analog output
- Ideally suited for microcontroller interfacing
- Rugged PPS surface mount small outline package (SOP)
- Available with axial and side port

##### Benefits

- Flexible mounting
- High temperature and chemical resistance
- Enhanced media protection
- Suited for system modules

##### Typical Applications

- Respiratory
- Patient monitoring
- Hospital beds
- Household appliances

#### MPXH Series

##### Features

- Pressure ranges up to 300 kPa
- Temperature compensated from -40°C to +125°C
- Amplified analog output
- Ideally suited for microcontroller interfacing
- Small rugged polyphenylene-sulfide (PPS) surface mount package
- High accuracy in the 0°C to +85°C range
- Available with axial and side port

##### Benefits

- User friendly
- Small form factor
- Reliable
- Cost effective

##### Typical Applications

- Barometric absolute pressure (BAP)
- Manifold absolute pressure (MAP)
- Barometric and altimetric measurements
- Industrial control

#### MPXM Series

##### Features

- Pressure ranges up to 200 kPa
- Temperature compensated from 0°C to +85°C
- 40 mV typical full scale span
- Ratiometric to supply voltage
- Unique silicon shear strain gauge
- Available in both gauge and absolute (ported and non-ported) options

##### Benefits

- User friendly
- Very small form factor
- Reliable
- Cost effective
- Easy-to-use tape and reel

##### Typical Applications

- Barometric and altimetric measurements
- Vacuum cleaners
- Water-level measurement
- Sports diagnostic systems
- Medical and health care equipment
- Remote monitoring devices
- Weather forecasting stations

#### Medical Series

##### Features

- Pressure ranges up to 300 mm Hg
- Polysulfone case material (medical, Class V approved)
- Temperature compensation and calibration, all integrated on a single monolithic sensor die

##### Benefits

- No gel, partial gel and full gel options
- Provided in easy-to-use tape and reel
- Small package
- Cost effective

##### Typical Applications

- Non-invasive and invasive blood pressure monitoring
- Wound management
- Hospital and critical care beds
- Patient monitoring systems
- Spirometer and respiratory therapy devices
- Physical therapy equipment
- Dialysis systems
- Drug delivery

### Learn More:

For current information about Freescale products and documentation, please visit [freescale.com/pressure](http://freescale.com/pressure).

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