

# MPM281 High Stable Piezoresistive OEM Pressure Sensor



## Features

- Pressure range 0~20kPa...100MPa
- Gauge, absolute, sealed gauge
- Constant current / constant voltage power supply
- Silicone oil or Fluorinated Oil filled, enable to measure various media
- $\Phi$ 19mm standard OEM pressure sensor
- Full stainless steel 316L
- Wide temperature compensation -10°C ~80°C
- Long-term stability  $\pm$  0.1%FS/year

## Application

- Industrial process control
- Level measurement
- Gas, liquid pressure measurement
- Pressure checking meter
- Pressure calibrator
- Liquid pressure system and switch
- Cooling equipment and air conditioning system
- Aviation and navigation inspection

## Introduction

MPM281 high stable OEM sensor is the piezoresistive pressure sensor with isolated construction and precise compensation. It uses high stable silicon die, stainless steel 316L housing with diameter  $\Phi$ 19mm. Wider temperature compensation and zero correction are calibrated by laser trimming technics. The measured pressure is transmitted onto silicon die through 316L diaphragm and inner media, to transform the pressure to electric signal. It can be filled with Fluorinated Oil. Because of its good biological inertness, it can dissolve a large amount of breathing gas, and can be quickly discharged from the human body. It is more suitable for the pressure measurement of the oxygen in medical applications.

MPM281 pressure sensor is inspected and screened on automatic production line, testing and checking time after time strictly. It is widely used for various pressure measurement fields.

## Electrical Performance

- Power supply:  $\leq$ 2.0mA DC;  $\leq$ 10V DC
- Electrical connection:  $\phi$ 0.5mm Kovar pin or 100mm silicon rubber flexible wires
- Common mode voltage output: 50% input (typ.)
- Input impedance: 2k $\Omega$ ~6k $\Omega$
- Output impedance: 3.5k $\Omega$ ~6k $\Omega$
- Response (10%~90%): <1ms
- Insulation resistor: 100M $\Omega$ , 100VDC
- Overpressure: 1.5 times FS

## Construction Performance

- Diaphragm: stainless steel 316L
- Housing: stainless steel 316L
- Pressure leading tube : stainless steel 316L
- Pin: Kovar
- O-ring: Viton
- Net weight: ~16g

### Environment Condition

- Shock: no change at 10gRMS, (20~2000)Hz
- Impact: 100g,11ms
- Media compatibility: the gas or liquid which is compatible with stainless steel and Viton

### Basic Condition

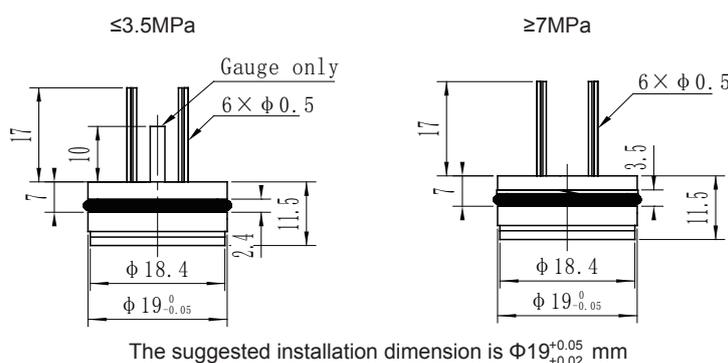
- Media temperature: (35±1)°C
- Environment temperature: (35±1)°C
- Shock: 0.1g(1m/s<sup>2</sup>)Max
- Humidity: (50%±10%)RH
- Local air pressure: (86~106)kPa
- Power supply: (1.5±0.0015)mADC

### Specification

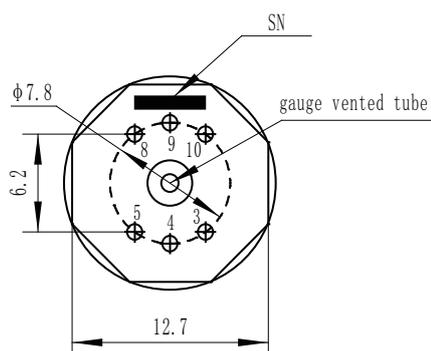
Item*	Min.	Typ.	Max.	Units
Linearity		±0.15	±0.20	%FS,BFSL
Repeatability		±0.05	±0.075	%FS
Hysteresis		±0.05	±0.075	%FS
Zero output			±2	mV DC
FS output **	70			mV DC
Zero thermal error***		±0.75	±1.0	%FS,@35°C
Span thermal error		±0.75	±1.0	%FS,@35°C
Compensated temp. range	-10~80 0~70(7kPa,20kPa,35kPa)			°C
Working temp. range	-40~125			°C
Storage temp. range	-40~125			°C
Stability error		±0.1	±0.2	%FS/year

\*testing at basic condition  
\*\* for range code 0C, FS output ≥45mV  
\*\*\*for rang code 0C, Zero thermal error≤1.5%FS

### Outline Construction (Unit: mm)



### Electrical Connection



Pin	For range 02/03/17/18/19/20		For other range	
	Definition	Wire color	Definition	Wire color
4	-OUT	Blue	+OUT	Red
5	-IN	Yellow	-IN	Yellow
8	+IN	Black	+IN	Black
9	+OUT	Red	-OUT	Blue

Note: The actual electrical connection method, please check the parameter label enclosed with products.

## Order Guide

MPM281 MPM281FL		High Stable Piezoresistive OEM Pressure Sensor (MPM281FL:Filled with Flourinated Oil)					
Range code	Pressure range	Ref.	Range code	Pressure range	Ref.		
0C	0kPa~7kPa	G	12	0MPa~2MPa	G.A		
0B	0kPa~20kPa	G	13	0MPa~3.5MPa	G.A.S		
0A	0kPa~35kPa	G.A	14	0MPa~7MPa	S.A		
02	0kPa~70kPa	G.A	15	0MPa~10MPa	S.A		
03	0kPa~100kPa	G.A	17	0MPa~20MPa	S.A		
07	0kPa~200kPa	G.A	18	0MPa~35MPa	S.A		
08	0kPa~350kPa	G.A	19	0MPa~70MPa	S.A		
09	0kPa~700kPa	G.A	20	0MPa~100MPa	S.A		
10	0kPa~1000kPa	G.A					
		Code	Pressure type				
		G	Gauge				
		A	Absolute				
		S	Sealed gauge				
		Code	Pressure connection				
		0 or null	O-ring				
		Code	Compensation				
		L	Laser trimming				
		M	Outer compensated resistor (providing resistor)				
		Code	Electrical connection				
		1	Kovar pin(default)				
		2*	100mm silicon rubber flexible wires				
		Code	Special measurement				
		Y	Gauge sensor to measure vacuum				
MPM281	07	G	0	L	1	Y	the whole spec

\*The default code for electrical connection is "1" on the parameter card. And it is also allowed to print code "1" if the electrical connection is flexible wire (original code "2"). The wire length shall be as per customers' request on the contact.

### Notes

- 1.It is recommended that the sensor should be installed as Suspended Mode to avoid face type seal and avoid affecting sensor stability.
- 2.Please pay attention to protect the diaphragm and the compensated board to prevent any damage or bad performance.
- 3.Temperature resistant range of standard Viton O-ring of sensor is -20°C ~250°C . When working temperature is lower than -20°C , or sensor is applied in critical