

## MPM180/MPM185 TO-8 Housing Piezoresistive Pressure Sensor

### Features

- Pressure range 0~20kPa...1MPa
- Gauge, absolute and differential pressure
- Constance current power supply
- Measure non-conductive, non-corrosive gas or liquid
- TO-8 packing, enable for PCB installation
- Accuracy class optional
- 3/16 inch port
- Low cost, compact size



### Application

- Air pressure control
- Physiology guarding
- Medicine equipment, blood-pressure meter
- Pressure calibrator
- Aviation and spaceflight
- Communication system

### Introduction

MPM180/MPM185 TO-8 housing piezoresistive pressure sensor uses advanced ion implantation and micro-mechanical working technology to produce silicon die which has Wheatstone Bridges and precise mechanical structure, housing sensor as TO-8 type. The measure pressure acts on silicon die through pressure port directly, and transforms the pressure value into output voltage signal by linearity relationship. Laser trimming compensates sensor temperature performance. The sensor could be used on PCB or small space fields to measure gauge, absolute or differential pressure for the gas or liquid.

### Electric Performance

Power supply:  $\leq 2.0\text{mADC}$

Electric connection:  $\Phi 0.45 \times 22\text{mm}$ , TO-8 packing, 6-pin Kovar

Common mode voltage output: 50% of input (typ.)

Input impedance:  $3\text{k}\Omega \sim 8\text{k}\Omega$

Output impedance:  $3.5\text{k}\Omega \sim 6\text{k}\Omega$

Response (10% ~ 90%):  $< 1\text{ms}$

Insulation resistor:  $100\text{M}\Omega$ , 100VDC

Overpressure: 1.5 times FS or  $\leq 200\text{psi}$ , min. value is valid

### Construction

Pressure port: stainless steel

Sensor: gold, aluminum, silicon, Pyrex

<http://www.microsensor.cn>

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Pin: Kovar

Net weight: ~4g

## Environment Condition

Orientation: deviate 90° from any direction, zero change  $\leq 0.05\%FS$

Shock: no change at 10gRMS, (20 ~ 2000)Hz condition

Impact: 100g, 11ms

Media compatibility:

Top: the non-corrosive and non-conductive gas or liquid which is compatible with Nickel, stainless steel and silicon glue;

Bottom: the gas or liquid which is compatible with silicon, Pyrex, RTV and gold.

## Basic Condition

Media temperature: (25±1) °C

Environment temperature: (25±1) °C

Shock: 0.1g (1m/s/s) max

Humidity: (50%±10%) RH

Environment pressure: (86 ~ 106) kPa

Power supply: 1.5±0.0015) mADC

## Basic Specification

Specification*	A	B	C	Units
Non-linearity	±0.15	±0.25	±0.5	%FS, BFSL
Repeatability	±0.05	±0.05	±0.10	%FS
Hysteresis	±0.05	±0.05	±0.10	%FS
Zero output	±2			mVDC
FS output	≥50			mVDC
Zero thermal error	±0.75	±1.0	±1.5	%FS, @25°C
Span thermal error	±0.75	±1.0	±2.0	%FS, @25°C
Thermal hysteresis(typ.)	±0.1			%FS
Long-term stability(typ.)	±0.2			%FS/year
Compensated temp. range	0~50			°C
Working temp. range	-40~125			°C
Storage temp. range	-40~125			°C

\*testing at standard condition

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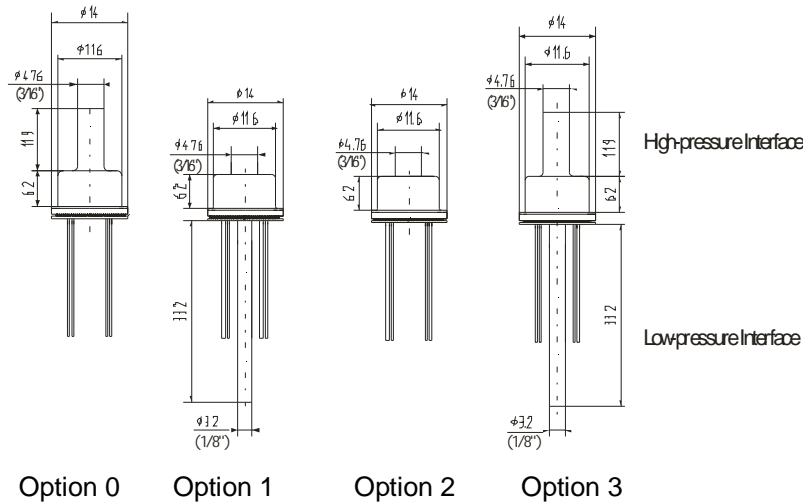
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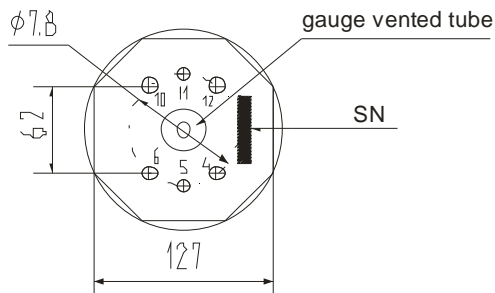
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## Outline Construction

(Units: mm)



## Electric Connection



	Pin	Electric connection
Laser trimming	4	+OUT
	5	+IN
	6	-IN
	10	-OUT
Other pins useless		
No laser trimming	4	+OUT
	5, 12	+IN
	6, 11	-IN
	10	-OUT

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## Order Guide

MPM185	TO-8 Housing Piezoresistive Pressure Sensor						
	Range code	Pressure range	Range code	Pressure range			
	0B	0~20kPa	0A	0~35kPa			
MPM180	TO-8 Housing Piezoresistive Pressure Sensor						
	Range code	Pressure range	Range code	Pressure range			
	02	0~70kPa	08	0~350kPa			
	03	0~100kPa	09	0~700kPa			
	07	0~200kPa	10	0~1000kPa			
	Code	Pressure type					
	G	Gauge					
	A	Absolute					
	D	Differential pressure					
	Code	Power supply					
	L	Constant current					
	Code	Pressure connection					
		Top	Bottom				
	0	3/16" tube	Non				
	1	3/16" hole	1/8" tube				
	2	3/16" hole	None				
	3	3/16" tube	1/8" tube				
	Code	Temperature compensated method					
	L	Laser trimming					
	M	Providing compensated resistors value					
	Code	Accuracy class					
	A	±0.15%BFSL					
	B	±0.25%BFSL					
	C	±0.50%BFSL					
MPM180	03	G	L	0	L	B	the whole spec