MPM283 Piezoresistive OEM Pressure Sensor

Features

- Pressure range: 0kPa~200kPa…100MPa
- Gauge, absolute and sealed gauge
- Constant current / constant voltage power supply
- Isolated construction, enable to test measure various fluid media
- Φ12.6mm compact size OEM pressure sensor
- Stainless steel 316L/ Hastelloy C materials
- Wide temperature compensation range -10℃ ~80℃

Application

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

Introduction

MPM283 piezoresistive pressure sensor is OEM pressure sensor with stainless steel isolated diaphragm, the whole product has integrated construction, high endurance, high stability and good reliability, it can be used specially for middle and high pressure measurement. The sensor using high accurate and stable pressure die, are produced on the advanced production line. Sensors are tested automatically, and compensated zero and temperature performance with provided resistors. The installation dimension is consistent with general products which makes the sensor has a good interchangeability.

Electrical Performance

- Power supply: ≤2.0mA DC; ≤10V DC
- Electrical connection: Kovar pin or 100mm silicon rubber flexible wires
- Common mode voltage output: 50% of input (typ.)
- Input impedance: 2kΩ~6kΩ
- Output impedance: 3.5kΩ~6kΩ
- Response (10%~90%): <1ms
- Insulated resistor: 100MΩ, 100VDC
- Overpressure: 1.5 time FS or 110MPa(min. value is valid)

Construction Performance

- Diaphragm: stainless steel 316L
- Housing: stainless steel 316L
- Pin: Kovar or silicon rubber flexible wires
- O-ring: Viton
- Net weight: ~8g

Environment Condition

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

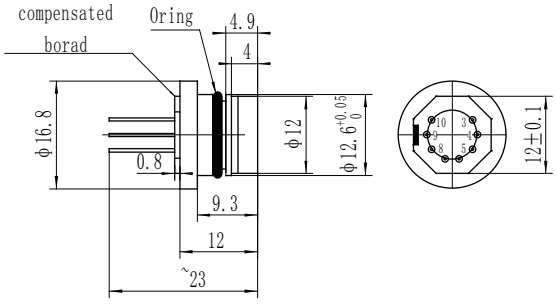
Basic Condition

- Media temperature: (35±1)℃
- Environment temperature: (35±1)℃
- Shock: 0.1g (1m/s2) Max
- Humidity: (50%±10%)RH
- Local air pressure: (86~106)kPa
- Power supply: (1.5±0.0015)mA DC

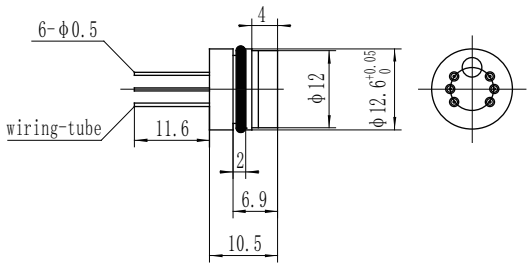
Specification

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			±3	mV DC
FS output	70			mV DC
Zero thermal error		±0.75	±1.0	%FS, @35℃
Span thermal error		±0.75	±1.0	%FS, @35℃
Compensated temp. range	-10 ~ 80			℃
Working temp. range	-40 ~ 125			℃
Storage temp. range	-40 ~ 125			℃
Long-term stability		±0.1	±0.2	%FS/year
*testing at basic condition **03,07, Compensated temp. range,0℃ ~70℃ ,@35℃				

Outline Construction (Unit: mm)



MPM283 Type Ⅰ

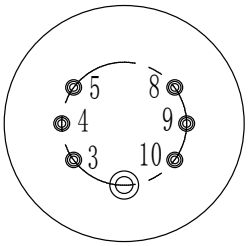


MPM283 Type Ⅱ

The suggested mounting dimension is Φ12.6 $^{+0.12}_{+0.08}$ mm

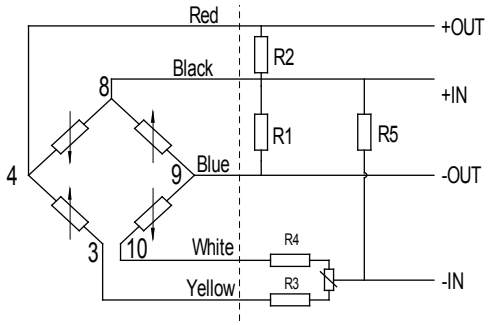
Electrical Connection

MPM283 Ⅱ and MPM283 Ⅰ (M)

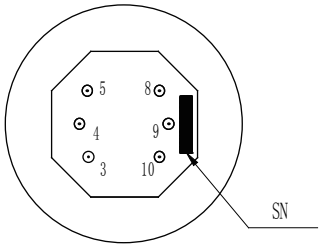


Pin	Definition	Wire color
3	-IN	Yellow
4	-OUT	Blue
8	+IN	Black
9	+OUT	Red
10	-IN	White
Range code 17/18/19/20		

Pin	Definition	Wire color
3	-IN	Yellow
4	+OUT	Red
8	+IN	Black
9	-OUT	Blue
10	-IN	White
For other range		



MPM283 Type Ⅰ



Pin	Definition	Wire color
4	-OUT	Blue
5	-IN	Yellow
8	+IN	Black
9	+OUT	Red
Range code 17/18/19/20		

Pin	Definition	Wire color
4	+OUT	Red
5	-IN	Yellow
8	+IN	Black
9	-OUT	Blue
For other range		

Notes

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

1. The resistance bridge on the left of the dashed is sensing die's bridge circuit;

2. If the sensor has no compensated board, it is needed to connect outer compensated resistor to compensate zero and temperature drift, the connection to see the above chart. Connect zero calibrated resistor R3 (R4), the other resistor R4 (R3) is short circuit as negative power supply; R1 or R2 is zero temperature compensated resistor, only one of them is used, the other is open circuit. The user could select according the specification label which is enclosed with pressure sensor; R5 is sensitivity compensated resistors. We suggest that please connect the outer compensated resistors with pressure sensor as close as possible.

Order Guide

MPM283	Piezoresistive OEM Pressure Sensor						
	Code	Assembling type					
	Ⅰ	with cap Φ16.8 mm					
	Ⅱ	Φ12.6×10.5 mm					
		Range code	Pressure range	Pressure type			
		07	0kPa~200kPa	G.A			
		08	0kPa~350kPa	G.A			
		09	0kPa~700kPa	G.A			
		10	0MPa~1MPa	G.A			
		12	0MPa~2MPa	G.A			
		13	0MPa~3.5MPa	G.S.A			
		14	0MPa~7MPa	S.A			
		15	0MPa~10MPa	S.A			
		17	0MPa~20MPa	S.A			
		18	0MPa~35MPa	S.A			
		19	0MPa~70MPa	S.A			
		20	0MPa~100MPa	S.A			
			Code	Pressure type			
			G	Gauge			
			A	Absolute			
			S	Sealed gauge			
				Code	Temperature compensated type		
				L	With compensated circuit board		
				M	Outer compensated resistor (providing resistor value)		
					Code	Electric connection	
					1	Kovar pin	
					2*	100mm silicon rubber flexible wires	
MPM283	Ⅱ	17	S	M	2	the whole spec	

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

Notes

1.Please pay attention to protect the diaphragm to prevent sensor from damaging;

2.Please do not pull or drag the Kovar pin or flexible leading wires;

3.The viton rubber o-ring of sensing element could bear the temperature with range of -20~250℃ . If the working temperature of sensing element is lower than -20℃ or the element is applied in critical environment, please contact us.