40KPA Pressure Sensor

Features

- Ranges: -100~0kPa…1000kPa(-15~0PSI…150PSI)
- MEMS Technology
- Gauge
- SMD package(SOP6)
- For non-corrosive gas or liquid
- Working temp.: -40℃~+125℃(-40°F~+257°F)
- Pressurize from back side of the chip
- Easy to use and embed in OEM equipment

Applications

- For Medical field, such as digital blooding pressure meter,breathing machine,oxygen generating equipment,monitor etc, medical instruments and device.

- For Automotive electronics field, such as tire pressure gauge, MAP sensor etc.

- For Other fields, such as environment monitoring,liquid level measurement,sport and fitness equipment,air bed,meteorology,other pneumatic device etc.

Introduction

XGZP is a piezoresistive pressure sensor for application in many fields such as medical, consumer electronics etc. The core is a silicon piezoresistive pressure sensing die that is designed and fabricated by MEMS technology. The pressure sensing die is composed of a springy diaphragm and four resistors integrated in the diaphragm. Four piezo-resistors build up a Wheatstone bridge structure. When the springy diaphragm is pressured,Wheatstone bridge produces a linear proportional voltage signal(mV) that is proportional to input pressure.

With standard SOP6 package, XGZP is easy for users to install by surface mounting.

With good repeatability, linearity, stability and sensibility, XGZP is very facile for users to calibrate output, thermal drift and make temperature compensation by using exterior operational amplifier or integrated circuit.

The pressure medium other than dry air or non-corrosive gas can't be used directly. It is highly prohibited to choke the side of pressure diaphragm during actual application.

Electronic Performance

- Power supply: ≤10VDC or ≤2.0mADC
- Input impedance: 4kΩ~6kΩ
- Output impedance:4kΩ~6kΩ
- Insulation resistor:100MΩ,100VDC
- Overpressure:

0~20kPa…200kPa(0~2.9PSI…30PSI): 2X Rated Pressure

0~500kPa…1000kPa(0~75PSI...150PSI): 1.5X Rated Pressure

Construction

- Sensing die: silicon
- Die mounting glue:silicone glue ≤200kPa/30PSI)or Epoxy Glue(>200kPa/30PSI)
- Leading wire: gold wire
- Packing housing: PPS
- Pin: silver plated copper
- Net weight: around 1g

Environment Condition

- Orientation: deviate 90° from any direction, zero change ≤ 0.05%FS
- Shock: no change at 10gRMS, (20~2000)Hz condition
- Impact: 100g, 11ms
- Medium compatibility:

Pressure side: liquid or gas compatible with silicone, silicone glue, epoxy glue or PPS

Reference side: non-conductive, non-corrosive liquid or gas compatible with PPS, silicon and silicone glue or epoxy, gold, aluminum and silver.

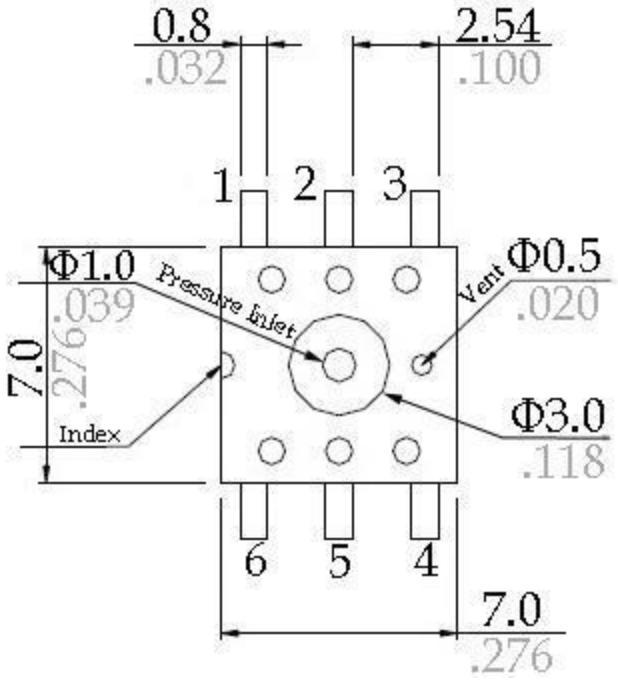
Basic Condition

- Medium: Gas(Clean,dry air and Non-corrosive gases)
- Medium temp: (25±1)℃ /(77±1.8)°F
- Environment temp.: (25±1)℃ /(77±1.8)°F
- Shock: 0.1g (1m/s2) Max
- Humidity: (50%±10%) RH
- Power supply: (5±0.005) VDC

Specifications

Specifications		Min.	Typ.	Max	Unit
Range		-100,7,20,40,100,200,500,700,1000			kPa
Range		-15,1,2.9,5.8,15,30,105,150			PSI
Range		-760,53,150,300,760,1500,3750,5250			mmHg
Working Temp.		-40/-40		+125/257	℃/℉
Storage Temp.		-40/-40		+150/302	℃/℉
Bridge Resistance		4	5	6	kΩ
Zero Output		-15		+15	mV
FS Output	20kPa/2.9PSI	40	55	70	mV
	40kPa/5.8PSI	50	75	100	mV
	≥100kPa/≥15PSI	70	100	130	mV
Bridge Resistance Temp. Coefficient		2400	2800	3200	ppm/℃
Zero Temp. Coefficient		-0.3①/-0.03②		0.3①/0.03②	%FS/℃
FS Temp. Coefficient		-0.19①/-0.06②	-0.22①	-0.25①/0.06②	%FS/℃
Non-linearity			0.2	0.3	%FS
Hysteresis			±0.1		%FS
Repeatability			±0.1		%FS
Annual Drift			±1.0		%FS
Note: Testing at basic condition.&Temp. range for Thermal drift: 0℃~80℃.(32℉~176℉) ① Excitated by constant voltage ②Excitated by constant current					

Dimension (Unit:mm/Inch)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2
3
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Vent
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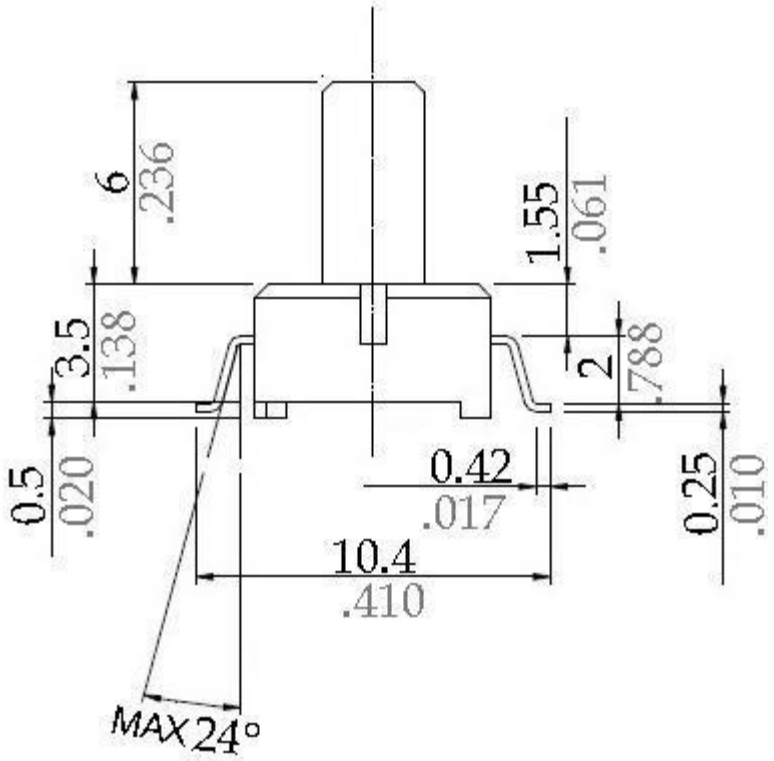
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0.25
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10.4
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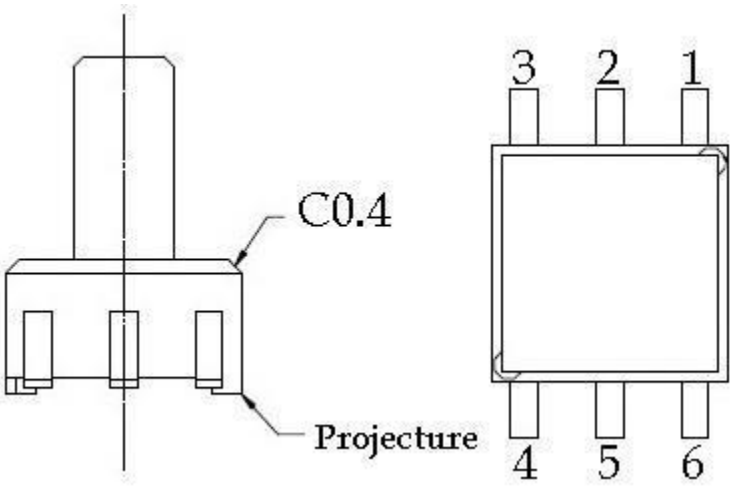
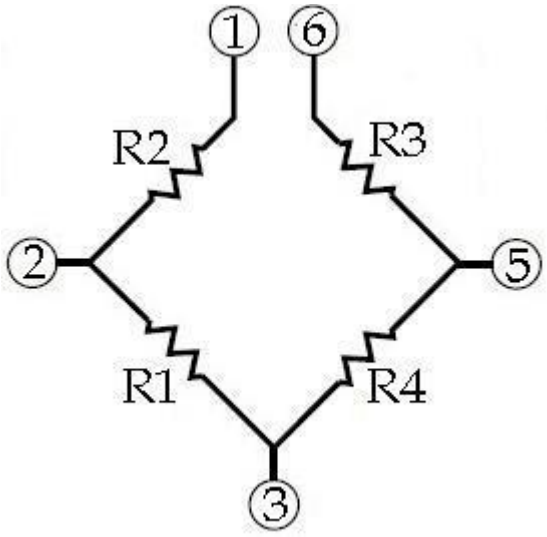
MAX 24°



Equivalent Circuit Diagram



Pin	1	2	3	4	5	6
Definition B1	Vo-	Vs+	Vo+	N/C	GND	Vo-
Definition B2	GND	Vo+	Vs+	N/C	Vo-	GND
Definition B3	GND	Vo-	Vs+	N/C	Vo+	GND

Symbol	Vs+	GND	Vo+	Vo-
Definition	Power +	Power -	Output +	Output -

☼ B1 as default PIN Definition unless otherwise specified.

Order Guide

XGZP	Piezo-resistive Pressure Sensor				
	Code	Range	100kPa=0.1mKp=760mmHg=10MH2O≈1bar≈14.5PSI		
	010G	0～7kPa	Negative pressure is available(-7～7kPa)		
	020G	0～20kPa	Negative pressure is available(-20～20kPa)		
	040G	0～40kPa	Negative pressure is available(-40～40kPa)		
	101G	0～100kPa	Negative pressure is available(-100～100kPa)		
	201G	0～200kPa	Negative pressure is available(-100～200kPa)		
	501G	0～500kPa	Negative pressure is available(-100～500kPa)		
	701G	0～700kPa	Negative pressure is available(-100～700kPa)		
	102G	0～1000kPa	Negative pressure is available(-100～1000kPa)		
		Code			
		S	SOP		
			Code	PIN	
			B1	PIN Def.1	
			B2	PIN Def.2	
			B3	PIN Def.3	
XGZP	101G	S	B1	the whole spec.	