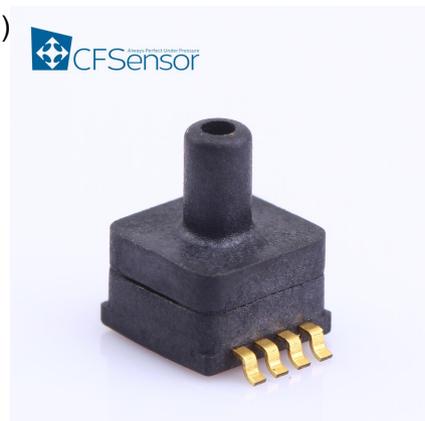


# XGZP6867A Pressure Sensor Module

## Features

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- Ranges: -100kPa~0kPa...700kPa(0PSI~1.5PSI...100PSI)
- High Accuracy
- Gage or Negative Pressure Type
- For Non-corrosive gas or air or liquid
- Calibrated Amplified Analog signal or Digital output
- Temp. Compensated:0°C~+60°C(32°F~+140°F)
- Direct application,Low Cost.



## Applications

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- For Small household appliances field, such as electric cooker,milk machine,purifier,coffee machine etc, medical instruments and device.
- For Medical and healthy equipment field
- For air pump, air compressor, pressure gauge and meter etc.
- For Other fields, such as medical device, automotive, liquid level, diving equipment etc.

## Introduction

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XGZP6867A is a perfect silicon pressure sensor module offering a ratiometric analog interface or I2C signal for reading pressure over the specified full scale pressure span and temp.range.

The XGZP6867A incorporates a silicon piezoresistive pressure sensor and an Application Specific Integrated Circuit(ASIC) inside of SOP 8 package. There is fluorine silicon gel cover on chip surface, so this sensor is moistureproof and waterproof.

The XGZP6867A is fully calibrated and temperature compensated for offset,sensitivity, temperature and non-linearity,so XGZP6867A pressure sensor module satisfy the perfect repeatability,linearity, stability and sensibility,which can be applied directly in Automotive electronic, instruments and meters etc.

XGZP6867A pressure sensor module have high volume application due to the small volume, low price and good performance.

## Performance Parameter

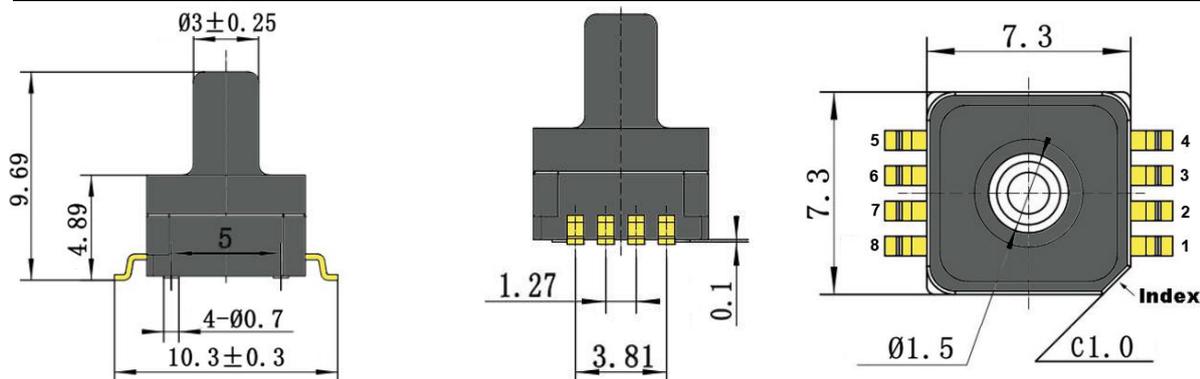
Unless otherwise specified, measurements were taken with a supply voltage of 5 Vdc at a temperature of 25±1°C and humidity ranging from 25%~85%RH

Item	Data	Unit
Power Supply	5(or 3.3 or 3)	V
Max. Excitation current	3	mA
Analog output	0.5-4.5(or 0.2-2.7 or customized)	V
Accuracy(≥20kPa)	±1.5	%Span
TCO(Temp. Coefficient of Offset)	±0.04	%FS/°C
TCS(Temp. Coefficient of Span)	±0.04	%FS/°C
Long Term Stability(1year)	±0.5	%Span
Over Pressure	2X (≤200kPa)	Rated
	1.5X(≥200kPa)	
Compensation Temp.	0 ~ 60/32 ~ 140	°C/°F
Ambient Temp.	-10 ~ 85/14 ~ 176	°C/°F
Storage Temp.	-40 ~ 125/-40 ~ 257	°C/°F

## Pressure Range (100kPa=0.1MPa=1bar≈14.5PSI)

Pressure Range (kPa)	Model
-100 ~ 0	XGZP6867A100KPGN
-20 ~ 0	XGZP6867A020KPGN
0 ~ 5	XGZP6867A005KPG
0 ~ 10	XGZP6867A010KPG
0 ~ 20	XGZP6867A020KPG
0 ~ 40	XGZP6867A040KPG
0 ~ 100	XGZP6867A100KPG
0 ~ 200	XGZP6867A200KPG
0 ~ 500	XGZP6867A500KPG
0 ~ 700	XGZP6867A700KPG
-5 ~ 5	XGZP6867A005KPGPN
-40 ~ 40	XGZP6867A040KPGPN
-100 ~ 100	XGZP6867A100KPGPN
Available for more custom pressure range such like -2.5~2.5kPa, 0~60kPa etc., Please contact factory for tailor-made parameter	

## Dimension&Electric Connection (Unit:mm)



## PIN Definition

1	3	7	2、4、5、6、8
Out	VDD	GND	N/C

### NOTE:

- 1,N/C Pins must be left floating
- 2,Soldering of lead Pins:250°C for 5 sec max.
- 3,0.1uf capacitor must be connected between VDD and GND

## Order Guide

XGZP6867	A	040	KP	G	
					Pressure Type(G: Gage GN:Negative GNP: Negative to Positive)
					Pressure Unit(MP:MPa KP:kPa)
					Pressure Range(000-999)
					Output Signal(A: Analog(0.5-4.5V) D:I2C)
					Model

Note: 5Vdc as default power voltage, add 33(or 30) behind model signify 3.3V(or 3.0V) power supply, e.g. XGZP6867A040KPG33(or XGZP6867A040KPG30).

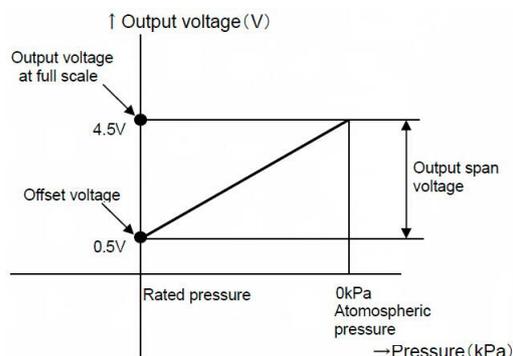
## Notes:

1. Implement ESD protection during soldering and assembly.
2. Overload voltage(6.5Vdc) or current(5mA) may burn the ASIC.
3. The medium must be compatible with the pressurized parts.
4. Please contact us for special request on parameter and application.

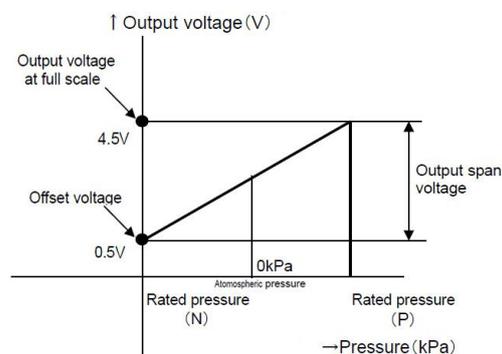
### XGZP6867A Output VS. Pressure

(Output can be calibrated to reverse line with pressure, e.g. -100~0kPa correspond with 4.5~0.5V)

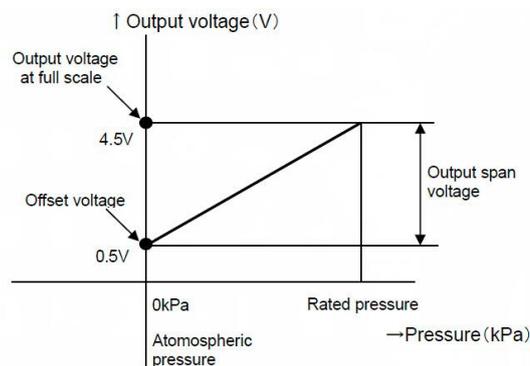
Model	100KPGN	020KPGN
Output (V)	Pressure (kPa)	
0.5	-100	-20
1.5	-75	-15
2.5	-50	-10
3.5	-25	-5
4.5	0	0



Model	005KPGPN	040KPGPN	100KPGPN
Output (V)	Pressure (kPa)		
0.5	-5	-40	-100
1.5	-2.5	-20	-50
2.5	0	0	0
3.5	2.5	20	50
4.5	5	40	100



Model	005KPG	010KPG	020KPG	040KPG	100KPG	200KPG	500KPG	700KPG
Output (V)	Pressure (kPa)							
0.5	0	0	0	0	0	0	0	0
1.5	1.25	2.5	5	10	25	50	125	175
2.5	2.5	5	10	20	50	100	250	350
3.5	3.75	7.5	15	30	75	150	375	525
4.5	5	10	20	40	100	200	500	700



Any more question, please contact sales or tech-support([info@CFSensor.com](mailto:info@CFSensor.com))

The listed specifications and dimensions are subject to change without prior notice.

## Overall Notes:

### **Mounting**

Adopting land on the PC board for ensuring the sensor is securely fixed.

### **Soldering**

Due to its small size, the thermal capacity of the pressure sensor is low. Therefore, take steps to minimize the effects of external heat. Damage and changes to characteristics may occur due to heat deformation. Use a non-corrosive resin type of flux. Since the pressure sensor is exposed to the atmosphere, do not allow flux to enter inside.

#### ▼ Manual soldering

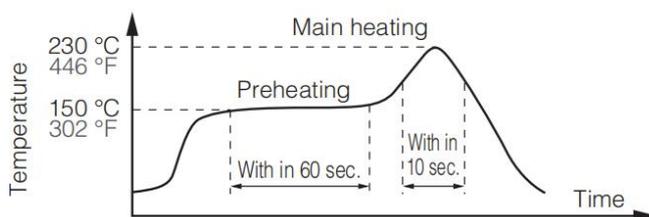
- Raise the temperature of the soldering tip between 260 and 300°C/500 and 572°F (30 W) and solder within 5 seconds.
- The sensor output may vary if the load is applied on the terminal during soldering.
- Keep the soldering tip clean.

#### ▼ DIP soldering (DIP Terminal)

- Keep the temperature of the DIP solder tank below 260°C/500 and solder within 5 seconds.
- To avoid heat deformation, do not perform DIP soldering when mounting on the circuit board which has a small thermal capacity.

#### ▼ Reflow soldering (SMD Terminal)

- The recommended reflow temperature profile conditions are given below.



- We recommend the screen solder printing method as the method of cream.
- Please refer to the recommended PC board specification diagram for the PC board foot pattern.
- Self alignment may not always work as expected, therefore, please carefully the position of the terminals and pattern.
- The temperature of the profile is assumed to be a value measured with the printed wiring board of the terminal neighborhood.
- Please evaluate solderability under the actual mounting conditions since welding and deformation of the pressure inlet port may occur due to heat stress depending on equipments or conditions.

#### ▼ Rework soldering

- Complete rework at a time.
- Use a flattened soldering tip when performing rework on the solder bridge. Do not add the flux.
- Keep the soldering tip below the temperature described in the specifications.
- ▼ Avoid drop and rough handling as excessive force may deform the terminal and damage soldering characteristics.

- ▼ Keep the circuit board warpage within 0.05 mm of the full width of the sensor.
- ▼ After soldering, do not apply stress on the soldered part when cutting or bending the circuit board.
- ▼ Prevent human hands or metal pieces from contacting with the sensor terminal. Such contact may cause anomalous outlets as the terminal is exposed to the atmosphere.
- ▼ After soldering, prevent chemical agents from adhering to the sensor when applying coating to avoid insulation deterioration of the circuit board.
- ▼ Please consult us concerning leadfree soldering.

### **Wire Connection**

- ▼ Correctly wire as in the connection diagram. Reverse connection may damage the product and degrade the performance.
- ▼ Do not use idle terminals to prevent damages to the sensor.

### **Cleaning**

- ▼ Since the pressure sensor chip is exposed to the atmosphere, do not allow cleaning fluid to enter inside.
- ▼ Avoid ultrasonic cleaning since this may cause breaks or disconnections in the wiring.

### **Environment**

- ▼ Please avoid using or storing the pressure sensor chip in a place exposed to corrosive gases (such as the gases given off by organic solvents, sulfurous acid gas, hydrogen sulfides, etc.) which will adversely affect the performance of the pressure sensor chip.
- ▼ Since this pressure sensor chip does not have a water-proof construction, please do not use the sensor in a location where it may be sprayed with water, etc.
- ▼ Avoid using the pressure sensors chip in an environment where condensation may form. Furthermore, its output may fluctuate if any moisture adhering to it freezes.
- ▼ The pressure sensor chip is constructed in such a way that its output will fluctuate when it is exposed to light. Especially when pressure is to be applied by means of a transparent tube, take steps to prevent the pressure sensor chip from being exposed to light.
- ▼ Avoid using the pressure sensor chip where it will be susceptible to ultrasonic or other high-frequency vibration.
- ▼ Please keep the sensors sealed using static shielding bags on storage. The PINs of sensor are plated by Ag. If the sensors expose to an atmosphere, the PINs will be black by oxidation.

### **Quality Check under actual loading conditions**

To assure reliability, check the sensor under actual loading conditions. Avoid any situation that may adversely affect its performance.

### **Other handling precautions**

- ▼ That using the wrong pressure range or mounting method may result in accidents.
- ▼ The only direct pressure medium you can use is gas or liquid. The use of other media, in particular, corrosive gases or liquid (organic solvent based, sulfurous acid based, and hydrogen

sulfide based, etc.) and media that contains foreign substances will cause malfunction and damage. Please do not use them.

▼ The pressure sensor chip is positioned inside the pressure inlet. Never poke wires or other foreign matter through the pressure inlet since they may damage the chip or block the inlet. Avoid use when the atmospheric pressure inlet is blocked.

▼ Use an operating pressure which is within the rated pressure range. Using a pressure beyond this range may cause damage.

▼ Since static charge can damage the pressure sensor chip, bear in mind the following handling precautions.

○ When storing the pressure sensor chips, use a conductive material to short the pins or wrap the entire chip in aluminum foil. Plastic containers should not be used to store or transport the chips since they readily become charged.

○ When using the pressure sensor chips, all the charged articles on the bench surface and the work personnel should be grounded so that any ambient static will be safely discharged.

▼ Based on the pressure involved, give due consideration to the securing of the pressure sensor DIP type and to the securing and selection of the inlet tube.

## Safety Precautions

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● Do not use these sensors under any circumstances in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.

● Before connecting a connector, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., and make sure that the connector is connected properly. Take note that mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.

● Do not use any pressure sensor which has been disassembled or remodeled.

● Protection circuit recommended.

The possible failure mode is either open or short of the output transistor.

An excess heat is the cause for short mode failure. For any important and serious application in terms of safety, add protection circuit or any other protection method.

• Various safety equipment and safety equipment

• Traffic light

• Security crime prevention equipment

• Equipment concerning control and safety of trains, cars, etc.

• Applications such as temperature control using sensor output etc.

● If it is expected that malfunction of each sensor may cause injury to persons or serious expansion damage, be sure to implement safety measures such as double safety circuit.