

# XGZP6847 Pressure Sensor Module

## Features

- Ranges: -100kPa~0kPa...1000kPa(-15PSI~0PSI...150PSI)
- Perfect Accuracy( $\pm 1.0\%$ ) of full scale
- Gage, Vacuum Type
- For Non-corrosive gas or dry air
- Calibrated, Amplified analog output
- Temp. Compensated:  $0^{\circ}\text{C} \sim +85^{\circ}\text{C}$  ( $32^{\circ}\text{F} \sim +185^{\circ}\text{F}$ )
- Direct application, Low Cost.



## Applications

- For Medical equipment field, such as therapy equipment, breathing machine, oxygen generating equipment, monitor, alcohol tester, etc.
- For Sport and fitness equipment field, such as massage, air spring bed, etc.
- For Home appliance field, such as washing machine, active oxygen water machine, beer machine, coffee machine, etc.
- For Other fields, such as air pump, emergency lamp, dust collector, HVAC and pneumatic device etc.

## Introduction

XGZP6847 is a perfect silicon pressure sensor module offering a ratiometric analog interface for reading pressure over the specified full scale pressure span and temp. range.

The XGZP6847 incorporates a silicon piezoresistive pressure sensor (XGZP SOP6) and an on-board Application Specific Integrated Circuit (ASIC) under PC board in a DIP8 package.

The XGZP6847 is fully calibrated and temperature compensated for offset, sensitivity, temperature and non-linearity, so XGZP6847 pressure sensor module satisfies the perfect repeatability, linearity, stability and sensibility, which can be applied directly in medical equipment, fitness machine, home electronics, and other pneumatic devices etc.

XGZP6847 pressure sensor module is for high volume application at an affordable cost and perfect performance.

Custom calibrations (excitation voltage, output voltage, and pressure range) are available.

## Performance Parameter

Unless otherwise specified, measurements were taken with a supply voltage of 5 Vdc at a temperature of  $25 \pm 1^\circ\text{C}$  and humidity ranging from 25% ~ 85

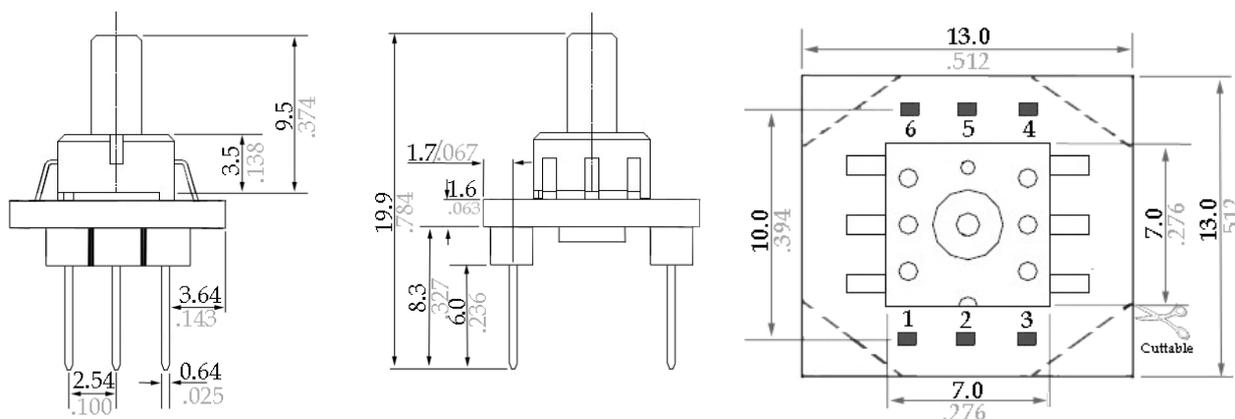
Item	Data	Unit
Output Signal	0.5-4.5	V
Accuracy	$\pm 1.0$	%Span
TSO(Temp. Coefficient of Offset)	$\pm 0.03$	%FS/ $^\circ\text{C}$
TCS(Temp. Coefficient of Span)	$\pm 0.03$	%FS/ $^\circ\text{C}$
Long Term Stability(1year)	$\pm 2$	%Span
Over Pressure	2X ( $\leq 500\text{kPa}$ )	Rated
	1.5X ( $\geq 500\text{kPa}$ )	
Compensation Temp.	0 ~ 85/32 ~ 176	$^\circ\text{C}/^\circ\text{F}$
Ambient Temp.	-20 ~ 100/-4 ~ 212	$^\circ\text{C}/^\circ\text{F}$
Storage Temp.	-40 ~ 125/-40 ~ 257	$^\circ\text{C}/^\circ\text{F}$

## Pressure Range (100kPa=0.1MPa=1bar $\approx$ 14.5PSI)

Pressure Range (kPa)	Model
0 ~ 10	XGZP6847010KPG
0 ~ 20	XGZP6847020KPG
0 ~ 40	XGZP6847040KPG
0 ~ 100	XGZP6847100KPG
0 ~ 200	XGZP6847200KPG
0 ~ 500	XGZP6847500KPG
0 ~ 700	XGZP6847700KPG
0 ~ 1000	XGZP6847001MPG
-100 ~ 0	XGZP6847100KPGN
-30 ~ 0	XGZP6847030KPGN
-20 ~ 0	XGZP6847020KPGN
-40 ~ 40	XGZP6847040KPGPN
-100 ~ 100	XGZP6847100KPGPN

-100 ~ 700	XGZP6847700KPGPN
Available for more custom pressure range	

### Dimension (Unit:mm/Inch)



### Electric Connection

1	2	3	4	5	6
N/C	Vdd	GND	Vdd	OUT	GND

NOTE:

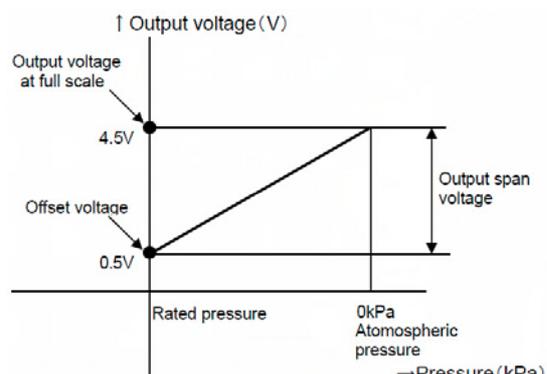
- 1, N/C Pins must be left floating
- 2, Soldering of lead Pins: 250°C for 5 sec max.

### Notes:

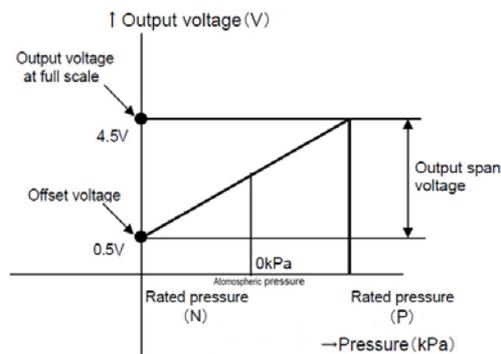
1. Attention that the medium should be compatible with the pressure parts.
2. Please contact us if special request on parameter and application.

XGZP6847 Output VS. Pressure

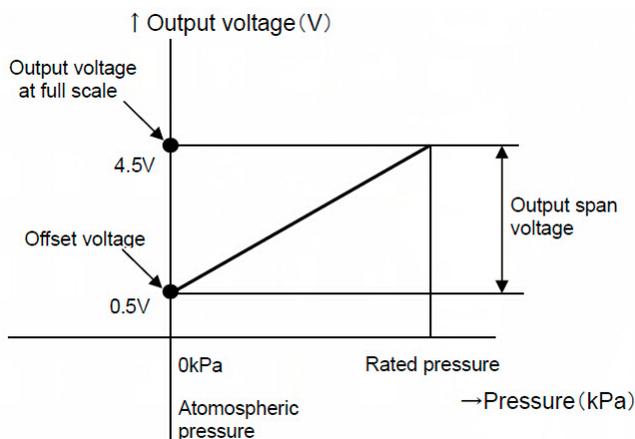
Model	100KPGN	030KPGN	020KPGN
Output (V)	Pressure (kPa)		
0.5	-100	-30	-20
1.5	-75	-22.5	-15
2.5	-50	-15	-10
3.5	-25	-7.5	-5
4.5	0	0	0



Model	040KPGPN	100KPGPN	700KPGPN
Output (V)	Pressure (kPa)		
0.5	-40	-100	-100
1.5	-20	-50	100
2.5	0	0	300
3.5	20	50	500
4.5	40	100	700



Model	010KP G	020KP G	040KP G	100KPG	200KP G	500KP G	700KP G	001MPG
Output (V)	Pressure (kPa)							
0.5	0	0	0	0	0	0	0	0
1.5	2.5	5	10	25	50	125	175	250
2.5	5	10	20	50	100	250	350	500
3.5	7.5	15	30	75	150	375	525	750
4.5	10	20	40	100	200	500	700	1000



**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

- Set the soldering tip from 260 to 300°C (30W), and solder for no more than 5 seconds.
- Please note that output may change if the pressure is applied on the terminals when the soldering.
- Thoroughly clean the soldering iron.

▼ SMD soldering

- Please keep the SMD solder bath temperature no higher than 260°C/500°F. When soldering, heat should be applied no longer than five seconds.
- When mounting onto a PCB of low thermal capacity, please avoid SMD soldering as this may cause heat deformity.

▼ Solder reworking

- Finish reworking in one operation.
- For reworking of the solder bridge, use a soldering iron with a flat tip. Please do not add more flux when reworking.
- Please use a soldering iron that is below the temperature given in the specifications in order to maintain the correct temperature at the tip of the soldering iron.
- Too much force on the terminals will cause deformation and loss in effectiveness of the solder. Therefore, please avoid dropping and careless handling of the product.
- Please control warping of the PCB within 0.05 mm of the sensor width.
- When cut folding the PCB after mounting the sensor, take measures to prevent stress to the soldered parts.
- The sensor terminals are designed to be exposed, so contact of the terminals with metal shards and the like will cause output errors. Therefore, please be careful and prevent things such as metal shards and hands from contacting the terminals.
- To prevent degradation of the PCB insulation after soldering, please be careful not to get chemicals on the sensor when coating.
- Please consult us regarding the use of lead-free solder.

■ **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.

#### ■ **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 dry air. The use of other media, in particular, corrosive gases (organic solvent based gases, sulfurous acid based gases, and hydrogen sulfide based gases, etc.) and media that contains moisture or 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.

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