XGZP6867A PRESSURE SENSOR

FEATURES



- Wide Ranges: -100···0~25···1000kPa(show in Pressure Range Example)
- Gauge Pressure Type (Positive&Vacuum)
- For Non-corrosive Gas or Air
- Optional 5V, 3.3V or 3.0 Voltage
- Calibrated Amplified Analog Voltage Signal
- Temp. Compensated: 0℃ ~ +85℃
- Affordable Cost, Easy-to-use

APPLICATIONS

- Medical&Healthcare
- Industrial&Automation
- Domestic Appliance
- Consumer Electronic
- Automotive Electronic

INTRODUCTION

XGZP6867A is a perfect silicon pressure sensor offering a ratiometric analog interface for reading pressure over the specified full scale pressure span.

The XGZP6867A incorporates a silicon piezoresistive pressure sensor die and an interior Application Specific Integrated Circuit(ASIC) in a DIP6 package

The XGZP6867A is fully calibrated and temperature compensated for specified span, so XGZP6867A pressure sensor satisfy the perfect accuracy, which is designed for a wide range of applications in medical care&health, home appliances, consumer electronic, industry, automotive, IoT and other pneumatic devices etc by utilizing a microcontroller or microprocessor with A/D inputs.

XGZP6867A pressure sensor is for high volume application at an affordable cost and perfect performance.

Customized calibration parameter (pressure range, working voltage, output etc.) are available.

PERFORMANCE SPECIFICATION

Unless otherwise specified, measurements were taken with a a temperature of 25±1℃ and humidity from 25% ~ 85%RH

CHARACTERISTIC		MIN.	TYP.	MAX	UNIT
Available Pressure Range①		-100··· ~ 0 ~ 25···1000			kPa
Power Supply②		4.75	5	5.25	Vdc
		3.135	3.3	3.465	Vdc
		2.85	3.0	3.15	Vdc
Current Consumption		-	1.8	-	mA
Output Range③	5Vdc Power Supply	0.2 ~ 4.7			Vdc
	3.3Vdc Power Supply	0.3 ~ 3.0			Vdc
	3.0Vdc Power Supply	0.15 ~ 2.85			Vdc
Total Accuracy	0~85℃@5V or 3.3V voltage	-1.5	-	1.5	%FSS
	0~85℃@3.0V voltage	-2.5	-	2.5	%FSS
Long Term Stability(1000 hr, 25°C)		-	-	±0.5	%FSS
Over Pressure④	Pressure ≤100kPa	-	2X	-	FSS
	100kPa < Pressure	-	-	1.5X	FSS
Burst Pressure④	Pressure ≤100kPa	-	3X	-	FSS
	100kPa < Pressure	-	-	2X	FSS
Compensation Temperature		0	-	85	℃
Operating Temperature		-30	-	105	℃
Storage Temperature		-40	-	125	℃
ESD Protection(Human Body Mode)		-	±2000	-	V
Response Time(T90)		-	5	-	ms

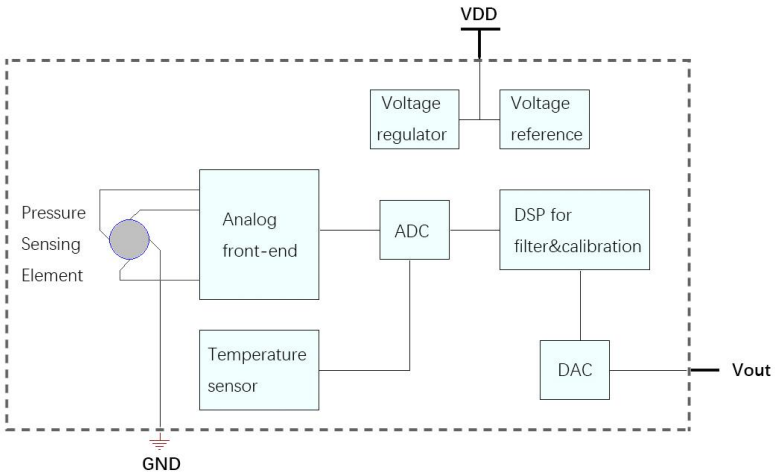
① The range cover all pressure ranges as shown as “PRESSURE RANGE EXAMPLE” list.

② Sensors are either 3.3 Vdc or 5.0 Vdc based on the “ORDER GUIDE” selected; and overload voltage(6.5Vdc above) or current(5mA above) may burn the IC and cause the sensor fail thoroughly.

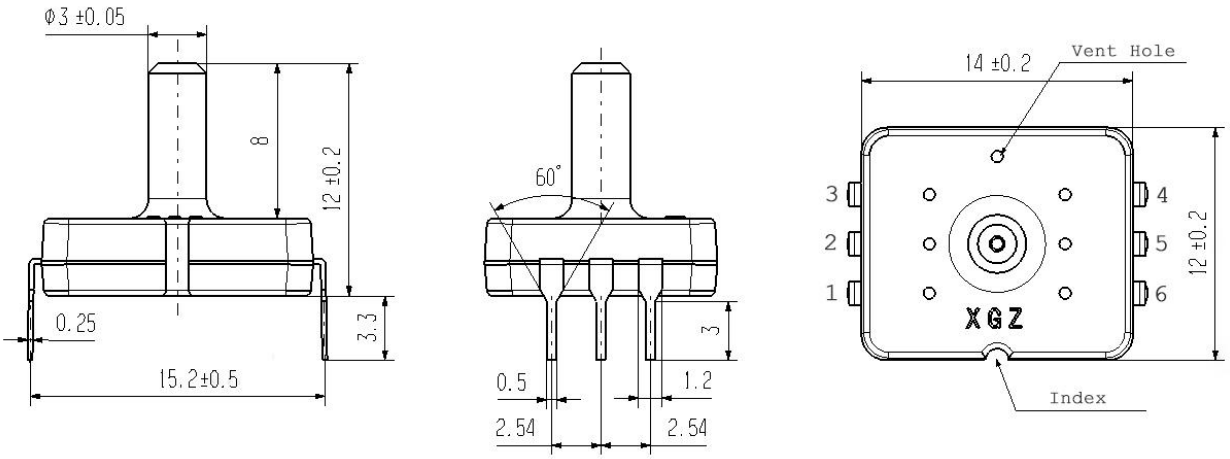
③ The output value is achieved within the specified operating voltage, contact CFSensor for customized output if required.

④ The indicated value is general value, contact CFSensor for more information on specific pressure range.

BLOCK DIAGRAM



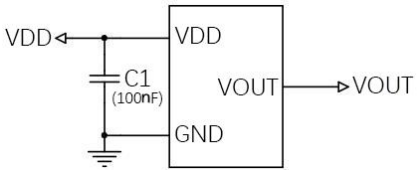
DIMENSION(Unit:mm Unspecified Tolerances:±0.2mm)



PIN DEFINITION

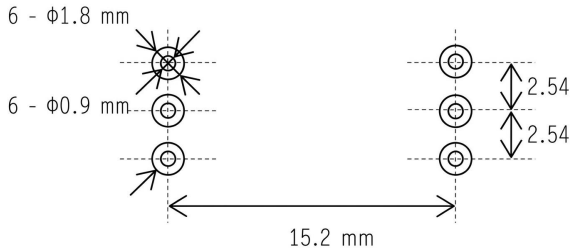
PIN1	PIN2	PIN3	PIN4	PIN5	PIN6
VSS	OUT	VDD	N/C	N/C	N/C

N/C	Do not connect to external circuitry or ground
VDD	Voltage supply
VSS	Ground
OUT	Output voltage



Recommended Application Circuit

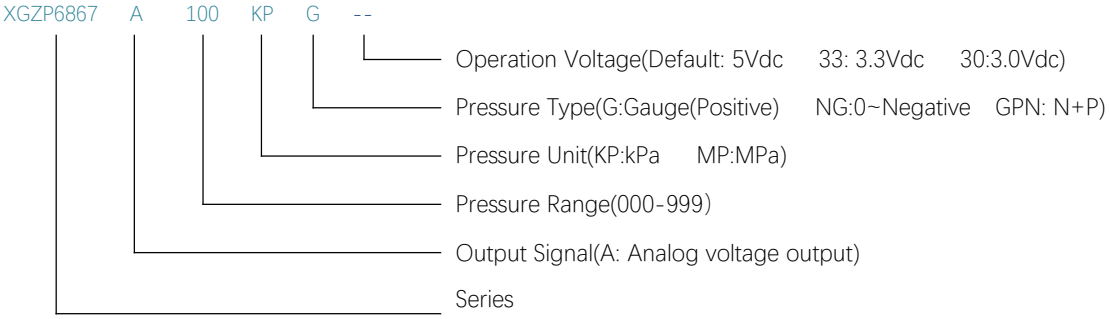
FOOTPRINT(Unit:mm)





NOTE: FOOTPRINT LAYOUT FOR REFERENCE ONLY CONTACT CFSENSOR FOR ABOVE FILE IF REQUIRED

ORDER GUIDE



Note: Output 0.2 ~ 4.7V@5V and 0.3 ~ 3.0V@3.3V and 0.15 ~ 2.85@3.0V as default output. For custom output, consult CFSensor for code.

PRESSURE RANGE EXAMPLE

Notes: 1. Unit conversion: 1000hPa=1000mbar≈750mmHg≈100kPa≈14.5PSI≈10mH_2O≈1bar=0.1MPa;

2. Available for more custom pressure range e.g. -100 ~ 700kPa, , 0-40kPa etc,.

Pressure Range （kPa）	Part Number(5V Power supply)	Part Number(3.3V Power	Part Number(3.3V Power supply)
0~25	XGZP6867A025KPG	XGZP6867A025KPG33	XGZP6867A025KPG30
0~50	XGZP6867A050KPG	XGZP6867A050KPG33	XGZP6867A050KPG30
0~100	XGZP6867A100KPG	XGZP6867A100KPG33	XGZP6867A100KPG30
0~200	XGZP6867A200KPG	XGZP6867A200KPG33	XGZP6867A200KPG30
0~500	XGZP6867A500KPG	XGZP6867A500KPG33	XGZP6867A500KPG30
0~700	XGZP6867A700KPG	XGZP6867A700KPG33	XGZP6867A700KPG30
0~1000	XGZP6867A001MPG	XGZP6867A001MPG33	XGZP6867A001MPG30
0~-50	XGZP6867A050KPNG	XGZP6867A050KPNG33	XGZP6867A050KPNG30
0~-100	XGZP6867A100KPNG	XGZP6867A100KPNG33	XGZP6867A100KPNG30
-100~+100	XGZP6867A100KPGPN	XGZP6867A100KPGPN33	XGZP6867A100KPGPN30
★Above P/N is example only, consult CFSensor whether required pressure range is under normal production before place order.			

PACKING INFORMATION

Packing	Plastic Tube	Inner Box	Note
Quantity	25PCS per tube	600pcs(30pcs tube)	Anti-static bag

Note:The sensor should be stored in an ESD protective container before using them.

OVERALL NOTES

Unless otherwise specified, following notes are general attention or presentation for all products from CFSensor.

Mounting

The following steps is for transmitting the air pressure to sensor after sensor soldering on PCB.

▼ For some sensors that come with inlet tube, select the flexable pipe to suit the pressure inlet that is firm enough to prevent the pressure leaks.

▼ Atmosphere hole (for Gauge type sensors) and Inlet pipe/hole can't be blocked with gel or glue etc,..

▼ Avoiding excessive external force operation

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.

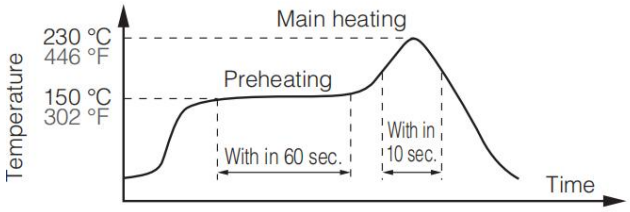
▼DIP soldering (DIP Terminal)

⊙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 PCB which has a small thermal capacity.

▼Reflow soldering (SMD Terminal)

⊙The recommended reflow temperature profile conditions are given below.



⊙Self alignment may not always work as expected, therefore, please carefully note the position of the terminals and pattern.

⊙The temperature of the profile is assumed to be a value measured with the PCB 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.

▼ Consult CFSensor for leadfree soldering.

Connecting

▼ Correctly wire as in the connection diagram. Reverse connection may damage the product and degrade the performance.

▼ Do not use idle terminals(N/C) to prevent damages to the sensor.

Cleaning

▼ Since the pressure sensor is exposed to the atmosphere, do not allow cleaning fluid to enter inside from atmosphere hole (for Gauge type sensors) and inlet pipe.

▼ Avoid ultrasonic cleaning since this may cause breaks or disconnections in the wiring.

Environment

▼Please avoid using or storing the pressure sensor 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 itself does not have a water-proof construction(even available media can be liquid), please do not use the sensor in a location where it may be sprayed with water, etc.

▼Avoid using the pressure sensors in an environment where condensation may form. Furthermore, its output may fluctuate if any moisture adhering to it freezes.

▼The pressure sensor 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 pressure sensor where it will be susceptible to ultrasonic or other high-frequency vibration.

▼Keeping the sensors sealed in static shielding bags with an oxygen-free condition and use the sensor as soon as possible once unfold the package, because the sensors' PINs may be oxidated a bit under atmosphere environment(slight oxidation wouldn't affect soldering and performance)

More Precautions

▼That using the wrong pressure range or mounting method may result in accidents.

▼The only direct pressure medium you can use is non-corrosive gas or air as illuminated above(Note: some sensors are compatible with liquid media). The use of other media, in particular, corrosive gases and liquid (organic solvent based, sulfurous acid based, and hydrogen sulfide based, etc.) or contains foreign substances will cause malfunction and damage. Please do not use them and check with CFSensor.

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

atmospheric pressure inlet(only for Gauge type pressure sensor) 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, bear in mind the following handling precautions.
⊙When storing the pressure sensor, use a conductive material to short the pins or wrap the entire sensor in aluminum foil. Common plastic containers should not be used to store or transport the sensor since they readily become charged.
⊙When using the pressure sensor, 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.

【 SAFETY NOTES 】

Using these sensors products may malfunction due to external interference and surges, therefore, please confirm the performance and quality in actual use. Just in case, please make a safety design on the device (fuse, circuit breaker, such as the installation of protection circuits, multiple devices, etc.), so it would not harm life, body, property, etc even a malfunction occurs. To prevent injuries and accidents, please be sure to observe the following items:

●The driving current and voltage should be used below the rated value.
●Please follow the terminal connection diagram for wiring. Especially for the reverse connection of the power supply, it will cause an accident due to circuit damage such as heat, smoke, fire, etc.
●In order to ensure safety, especially for important uses, please be sure to consider double safety circuit configuration.
●Do not apply pressure above the maximum applied pressure. In addition, please be careful not to mix foreign matter into the pressure medium. Otherwise, the sensor will be discarded, or the media will blew out and cause an accident.
●Be careful when fixing the product and connecting the pressure inlet. Otherwise, accidents may occur due to sensor scattering and the blowing out of the media.
●If the sensor come with sharp PIN, please be careful not to hurt your body when using it.

【 WARRANTY 】

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