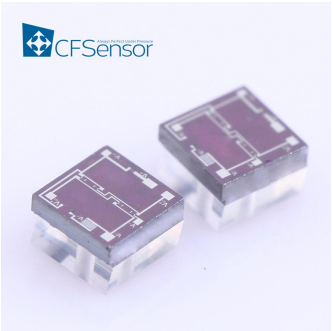
XGZP2406 SOI Pressure Sensor Die

Features



- Ranges: 0 ~ 5000kPa
- Piezoresistive MEMS Technology
- SOI structure,Temp.Compensated.
- Solid state, High reliability
- Absolute, Gage
- Industry Level,Cost effective

Applications

- For Automotive electronics field, such as tire pressure gauge, MAP sensor etc.
- For Home appliance field, such as air compressor etc.
- For Hydraulic control, such as pump,submergence,fire control,dam etc,.
- For Industry field, such as oil,mine,electricity,high-speed railway etc,.
- For Other fields, such as liquid level measurement,instruments and meters etc.

Introduction

XGZP2406 series pressure sensor chips are designed and fabricated by MEMS technology on six inch silicon wafers in a class-100 clean room. The pressure sensing chip utilizes a piezoresistive Wheatstone bridge in a design that anodically bonds glass to a chemically etched silicon diaphragm.. Four piezo-resistors form a Wheatstone bridge structure. When the springy diaphragm is pressured, Wheatstone bridge produces a linear millivolt voltage signal that is proportional to input pressure.

Chip size is 2.4 × 2.4 × 0.62mm(0.094 × 0.094 × 0.024 in) for silicon bonding with glass.It provide a best-in-class operating temperature(-40--180'c)/(-40--356℉)and superior stability.

With good repeatability, linearity, stability and sensibility, XGZP2406 is also easy for users to calibrate output, thermal drift etc,. by using operational amplifier or integrated circuit.It's applicable for fluid filled and isolated from measured media,and other simple packaged sensor.

Electronic Performances

- Power supply/Excitation: ≤10VDC or ≤3.0mADC
- Input impedance : 7kΩ ~ 9kΩ(constant voltage) or 3kΩ ~ 5kΩ(constant current)
- Output impedance : 4KΩ ~ 6KΩ

Basic Conditions

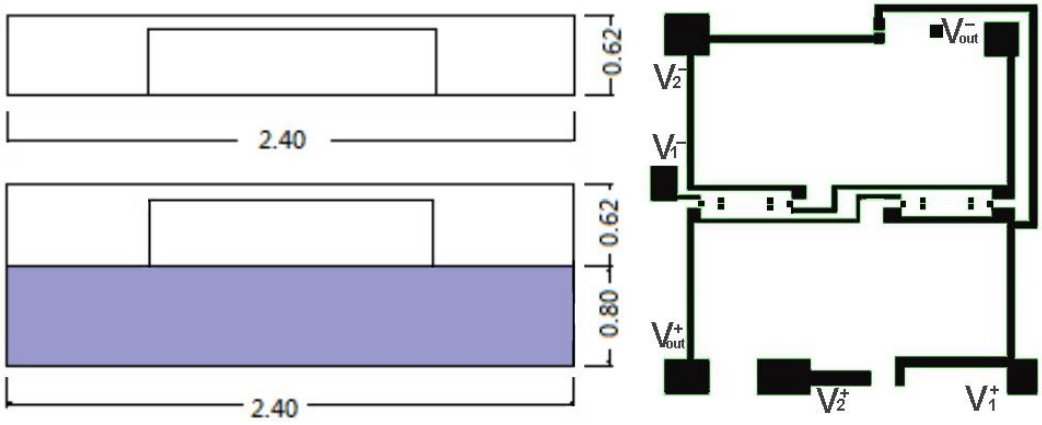
- Medium: Air(Clean,dry air and Non-corrosive gases)
- Medium temp: (25±1)℃/(77±1.8)℉
- Environment temp.: (25±1)℃/(77±1.8)℉
- Shock: 0.1g (1m/s2) Max
- Humidity: (50%±10%) RH
- Power supply: (5±0.005) VDC

Specifications

Specifications	Min.	Typ.	Max	Unit
Range		0 ~ 5000		kPa
		0 ~ 725		PSI
		0 ~ 50		Bar
Ambient Temp.	-40/-40		+180/356	℃/℉
Storage Temp.	-50/-58		+300/572	℃/℉
Zero Output/Offset	-10		+10	mV
FS Output	60		200	mV
Bridge Resistance	4	5	6	kΩ
Temp. Coefficient of Resistance	300		500	ppm/℃
TCO(Temp. Coefficient of Offset)	-0.02		0.02	%FS/℃
TCS(Temp. Coefficient of Span)	-0.03		0.03	%FS/℃
Over Pressure		2X		≤1000kPA
		1.5X	2X	≥2000kPA
Non-linearity	-0.3	±0.10	±0.3	%FS
Hysteresis	-0.15	±0.075	±0.15	%FS
Repeatability	-0.15	±0.075	±0.15	%FS

Note:
Testing at basic condition.
Temp. range for Thermal Drift:0℃ ~ 80℃.(32℉ ~ 176℉)
The listed specifications and measurements are subject to change without prior notice.

Dimension (Unit:mm)&Electric Connection



Glass Thickness:0.8MM(Available without glass on Gage for economical options).

Order Guide

XGZP2406	Piezo-resistive Pressure Sensor Chip			
	Range	Notes		
	[0 ~ 700]kPa	G&A	Y	
	[0 ~ 1000]kPa	G&A	Y	
	[0 ~ 2000]kPa	G&A	N	
	[0 ~ 3500]kPa	G&A	N	
	[0 ~ 5000]kPa	A	N	
		Code	Pressure Type	
		A	Absolute	
		G	Gage	
			Code	Pressurize
			Y	Available to pressurize from back side
			N	Unavailable to pressurize from back side
XGZP2406	[0 ~ 5000]kPa	A	N	the whole spec.

Notes:

■ Storage

All pressure sensors should be stored in their original packaging. They should not be placed in harmful environments such as corrosive gases nor exposed to heat or direct sunlight, which may cause deformations. Similar effects may result from extreme storage temperatures and climatic conditions. Avoid storing the sensor dies in an environment where condensation may form or in a location exposed to corrosive gases, which will adversely affect their performance. Plastic materials should not be used for wrapping/packing when storing or transporting these dies, as they may become charged. Pressure sensor dies should be used soon after opening their seal and packaging.

■ Operation

Media compatibility with the pressure sensors must be ensured to prevent their failure. The use of other media can cause damage and malfunction. Never use pressure sensors in atmospheres containing explosive liquids or gases.

Ensure pressure equalization to the environment, if gauge pressure sensors are used. Avoid operating the pressure sensors in an environment where condensation may form or in a location exposed to corrosive gases. These environments adversely affect their performance.

If the operating pressure is not within the rated pressure range, it may change the output characteristics. This may also happen with pressure sensor dies if an incorrect mounting method is used. Be sure that the applicable pressure does not exceed the overpressure, as it may damage the pressure sensor.

Do not exceed the maximum rated supply voltage nor the rated storage temperature range, as it may damage the pressure sensor.

Temperature variations in both the ambient conditions and the media (liquid or gas) can affect the accuracy of the output signal from the pressure sensors. Be sure to check the operating temperature range and thermal error specification of the pressure sensors to determine their suitability for the application.

Connections must be wired in accordance with the terminal/PIN assignment specified in the data sheets. Care should be taken as reversed pin connections can damage the pressure transmitters or degrade their performance. Contact between the pressure sensor terminals and metals or other materials may cause errors in the output characteristics.

■ Design notes (dies)

This specification describes the mechanical, electrical and physical requirements of a piezoresistive sensor die for measuring pressure. The specified parameters are valid for the pressure sensor die with pressure application either to the front or back side of the diaphragm as described in the data sheet. Pressure application to the other side may result in differing data. Most of the parameters are influenced by assembly conditions. Hence these parameters and the reliability have to be specified for each specific application and tested over its temperature range by the customer.

■ Handling/Mounting (dies)

Pressure sensor dies should be handled appropriately and not be touched with bare hands. They should only be picked up manually by the sides using tweezers. Their top surface should never be touched with tweezers. Latex gloves should not be used for handling them, as this will inhibit the curing of the adhesive used to bond the die to the carrier. When handling, be careful to avoid cuts caused by the sharp-edged terminals. The sensor die must not be contaminated during manufacturing processes (gluing, soldering, silk-screen process).

The package of pressure sensor dies should not to be opened until the die is mounted and should be closed after use. The sensor die must not be cleaned. The sensor die must not be damaged during the assembly process (especially scratches on the diaphragm).

■ Soldering (transducers, transmitters)

The thermal capacity of pressure sensors is normally low, so steps should be taken to minimize the effects of external heat.

High temperatures may lead to damage or changes in characteristics.

A non-corrosive type of flux resin should normally be used and complete removal of the flux is recommended.

Avoid rapid cooling due to dipping in solvent. Note that the output signal may change if pressure is applied to the terminals during soldering.

【 WARRANTY 】

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