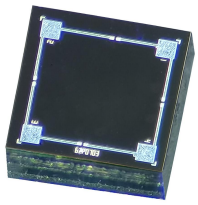
XGZP0703 Pressure Sensor Die

Features



- Ranges: 0～100kPa…2000kPa(0～15psi…300psi)
- Piezoresistive MEMS Technology
- Silicon-Silicon,Solid state,High reliability
- Absolute Pressure, Excited by voltage or current
- Miniature size,Cost effective

Applications

- For Automotive electronics field, such as tire pressure gauge, MAP sensor etc.
- For Air compressor,household electrical appliances etc.
- For Water pump,fire controlling,diving,other fields,dam engineering,switch etc.
- For Pressure gauges,instruments and meters, and medical field etc.

Introduction

XGZP0703 series pressure sensor chip is a miniature silicon piezoresistive sensor die that is designed and fabricated by MEMS technology on six inch silicon wafers in a class 100 clean room. The pressure sensing chip is composed of a springy diaphragm and four resistors integrated in the diaphragm. Four piezo-resistors form a Wheatstone bridge structure. When the springy diaphragm is pressured, Wheatstone bridge will output linear millivolt voltage that is proportional to input pressure.

Chip size is 0.7×0.7×0.3 mm for silicon bonding with silicon, which provide state-of-the-art performance in a leading small size for oil-filling or isolated-diaphragm sensor.

With good repeatability, linearity, stability and sensibility, XGZP0703 is also easy for users to calibrate output, thermal drift and make temperature compensation by using operational amplifier or integrated circuit.

Electronic Performance

- Power Supply/Excitation: ≤15VDC or ≤3.0mADC
- Input Impedance : 4KΩ～6KΩ
- Output Impedance : 4KΩ～6KΩ

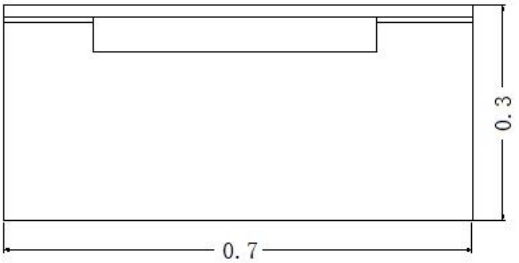
Basic Condition

- 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

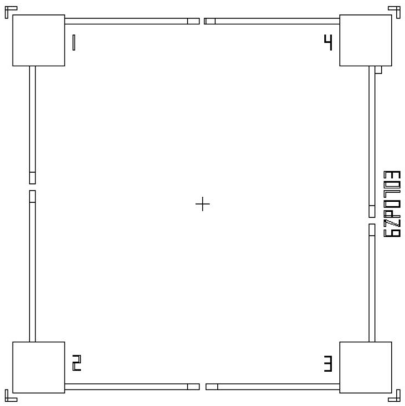
Specifications

Specifications	Min.	Typ.	Max	Unit
Constant Voltage		5	10	V
Constant Current		1.5	3	mA
Bridge Resistance	4	5	6	kΩ
Input&Output Impedance	4	5	6	kΩ
Operating Temperature	-40		+125	℃
Storage Temperature	-50		+150	℃
Zero Output/Offset	-20		20	mV
FS Output(≤100KPA)	60		120	mV
Temp. Coefficient of Resistance	1800	2400	3000	ppm/°C
TCO(Temp. Coefficient of Offset)	-0.06	±0.03	0.06	%FS/°C
TCS(Temp. Coefficient of Span)	-0.22	-0.19	-0.16	%FS/°C
Burst Pressure		2X		
Non-linearity	-0.5	±0.3	0.5	%FS
Hysteresis	-0.3	±0.2	0.3	%FS
Repeatability	-0.3	±0.2	0.3	%FS
Note: Unless otherwise specified,measurements were taken on base of above testing condition.				

Dimension (Unit:mm)



Electric Connection



Pad No.	1	4	3	2
Definition	Power +	Output -	Power -	Output +

Order Guide

XGZP0703	Piezo-resistive Pressure Sensor Chip		
	Code	Range	
	101	0～100kPa	
	701	0～700kPa	
	202	0～2000kPa	
XGZP0703	701	the whole spec.	

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

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

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.