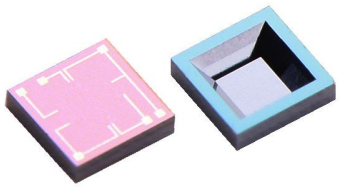
XGZP1704 Pressure Sensor Chip

Features

- Ranges: 0 ~ 40kPa···200kPa
- Piezoresistive MEMS Technology
- Absolute,Gauge,Excited by voltage or current.
- Solid state,High reliability
- Cost effective



Applications

- TPMS sensor, MAP sensor, oil pressure test, Automotive electronics field etc.
- For Home appliance field, such as Air compressors, home appliances, and other civilian fields
- For water pressure test field, such as water pump, fire, diving, dam etc.
- Oxygen equipment, electronic blood pressure monitor, massager Medical electronics field.
- Meteorology, air pressure switches, children's toys, sports and fitness, etc.

Introduction

XGZP1704 chip series pressure sensor chips are designed and fabricated by MEMS technology.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 produces a linear millivolt voltage that is proportional to input pressure.

With good repeatability, linearity, stability and sensibility, XGZP1704 chip is also easy for users to calibrate output, thermal drift and make temperature compensation by using operational amplifier or integrated circuit.

Electronic Performances

- Power supply/Excitation: ⩽10VDC or ⩽3.0mADC
- Input impedance : 4KΩ ~ 6KΩ
- 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

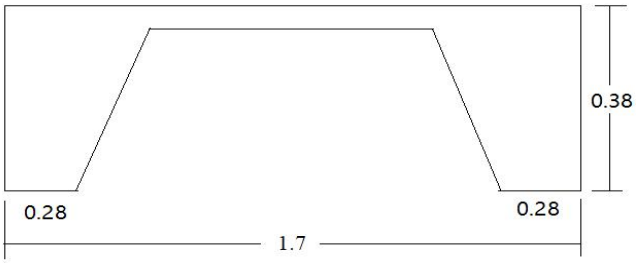
Specifications

Specifications		Min.	Type.	Max	Unit
Range		-100 ~ 0···40···200			K pa
		-14.5 ~ 0···5.8···30			PSI
		-750 ~ 0···300···1500			Mm Hg
Ambient Temp.		-40/-40		+125/257	℃/℉
Storage Temp.		-50/-58		+150/302	℃/℉
Zero Output/Offset		-10		+10	mV
FS Output	40kPa/5.8PSI	50		90	mV
	⩾100kPa/⩾15PSI	60		110	mV
Temp. Coefficient of Resistance		2200	2600	3000	ppm/℃
TCO(Temp. Coefficient of Offset)		-0.2		0.2	%FS/℃①
		-0.03	0.01	0.03	%FS/℃②
TCS(Temp. Coefficient of Span)		-0.25	-0.21	-0.17	%FS/℃①
		-0.06	±0.02	0.06	%FS/℃②
Over Pressure			2X		
Non-linearity		-0.3		+0.3	%FS
Hysteresis		-0.2		+0.2	%FS
Repeatability		-0.2		+0.2	%FS
Note: ① Excitated by constant voltage ②Excitated by constant current Unless otherwise specified,measurements were taken on base of above testing condition.					

Note:

1. Test under above base conditions
2. Temperature drift test temperature range is 0-80℃

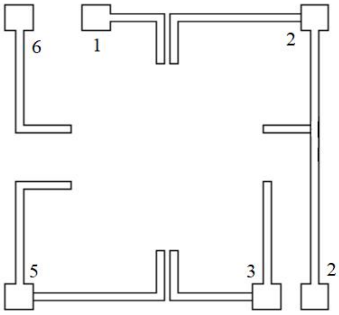
Dimension (Unit:mm)



☼The size including the dicing line(100um)

☼Available QTY/Wafer: 5000pcs(appr.)

Electric Connection



Bondpad	1	2	3	5	6
Definition(B1)	Output+	Power-	Output-	Power+	Output+
Definition(B2)	Power-	Output+	Power+	Outout-	Power-

☼ The chip is compatible with B1 and B2 definition.

☼ Both Pad2 are available and can freely select one of them for soldering as package request.

☼ Pad size:100um*100um

Order Guide

XGZP1704	Piezo-resistive Pressure Sensor Chip			
	Range code	Range	Note	
	040	0 ~ 40kPa	Available measured range: -40 ~ 40kPa	
	101	0 ~ 100kPa	Available measured range: -100 ~ 100kPa	
	201	0 ~ 200kPa	Available measured range: -100 ~ 200kPa	
		Code	Pressure Type	
		G	Gauge	
			Code	Pressurize Direction
			Y	Available to pressurize from back side
			N	Unavailable to pressurize from back side
XGZP1704	101	G	Y	the whole spec.

Notes:

■ Storage

All pressure sensors die 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 】

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. CFSensor reserves the right to make changes without further notice to any product herein. CFSensor makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does CFSensor assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. CFSensor does not convey any license under its patent rights nor the rights of others.

【 CONTACT 】

CFSensor
22F/14Bldg High-Tech Park High-Tech Area Wuhu P.R.C.241000
Tel/Fax:+86 18226771331 Email:INFO@CFSensor.com