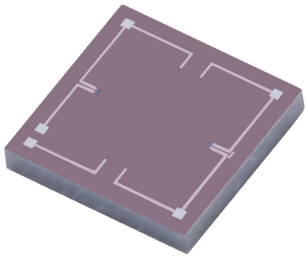
XGZP2604 Pressure Sensor Die

Features

- Ranges: 0 ~ 1kPa···1000kPa(0 ~ 0.15PSI···150PSI)
- Piezoresistive MEMS Technology
- Solid state,High reliability
- Gauge pressure, Excited by voltage or current.
- Cost effective



Applications

■ For Medical and healthy equipment field, such as Blood pressure test and monitor, Patient Monitoring, Infusion and Syringe Pumps, Anesthesia Machines, Respirators and Ventilators, NPWT, DVT, COPD Treatment, catheter, Kidney dialysis, Cupping& Cosmetology, Massage device etc.

■ For Home appliance field, such as Refrigerator, Printer, Humidifier, Washer/Dryer, Coffee Machine, Cleaner, Robotic, Emergency Lamp,Sport Equipment etc.

■ For Other fields, such as air pump, emergency lamp, dust collector, HVAC and pneumatic device,automotive application etc.

Introduction

XGZP2604 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 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.

Chip size is 2.6×2.6×0.4 mm for silicon bonding without glass. With good repeatability, linearity, stability and sensibility, XGZP2604 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: ⩽15VDC or ⩽3.0mADC
- Input impedance : 4KΩ ~ 6KΩ
- Output impedance : 4KΩ ~ 6KΩ

Basic Conditions

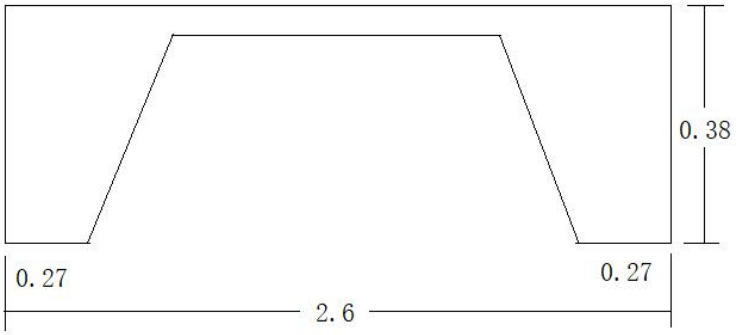
- Medium: Air(Clean,dry air and Non-corrosive gases)
- Medium temp: (25±1)℃/(77±1.8)℉
- Environment temp.: (25±1)℃/(77±1.8)℉
- Shock: 0.1g (1m/s2) Max
- Humidity: (50%±10%) RH
- Power supply: (5±0.005) VDC

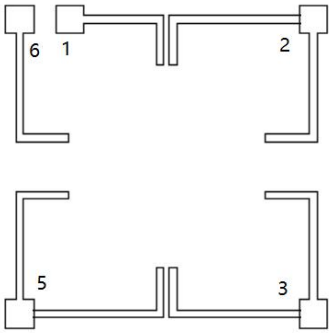
Specifications

Specifications		Min.	Typ.	Max	Unit
Range		0 ~ 1……1000			kPa
		0 ~ 0.15……150			PSI
Operating Temp.		-40/-40		+125/257	℃/℉
Storage Temp.		-50/-58		+150/302	℃/℉
Zero Output/Offset		-10		+10	mV
FS Output	⩽3kpa	20		40	mV
	7kPa	35		65	mV
	⩾100KPa	60		120	mV
Temp. Coefficient of Resistance		1600	2100	2600	ppm/℃
TCO(Temp. Coefficient of Offset)		-0.05		0.05	%FS/℃①
		-0.05		0.05	%FS/℃②
TCS(Temp. Coefficient of Span)		-0.26	-0.23	-0.20	%FS/℃①
		-0.05		0.05	%FS/℃②
Over Pressure			2X		
Non-linearity		-0.3	±0.15	0.3	%FS
Hysteresis		-0.3	±0.15	0.3	%FS
Repeatability		-0.3	±0.15	0.3	%FS

Note: ① Excited by constant voltage
②Excited by constant current
Unless otherwise specified,measurements were taken on base of above testing condition.

Dimension (Unit:mm)& Electric Connection





Bondpad	1	2	3	4	5
Definition(B1)	Out +	Power -	Out -	Power +	Out +
Definition(B2)	Power -	Out +	Power +	Out -	Power -

☼The die is compatible with B1 and B2 definition.
☼The size including the dicing line(100um)
☼The Pad size: 110um*110um
☼Available QTY/Wafer: 2000pcs(appr.)

Order Guide

XGZP2604	Piezo-resistive Pressure Sensor Chip			
	Range	Notes		
	001	[0 ~ 1]kPa Available measured range: -1 ~ 1kPa		
	003	[0 ~ 3]kPa Available measured range: -3 ~ 3kPa		
	007	[0 ~ 7]kPa Available measured range: -7 ~ 7kPa		
	040	[0 ~ 40]kPa Available measured range: -40 ~ 40kPa		
	701	[0 ~ 700]kPa Available measured range: -100 ~ 700kPa		
	102	[0 ~ 1000]kPa Available measured range: -100 ~ 1000kPa		
		Code	Pressure Type	
		G	Gauge	
			Code	Pressurize Direction
			Y	Available to pressurize from back side
			N	Unavailable to pressurize from back side
XGZP2604	007	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 】

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