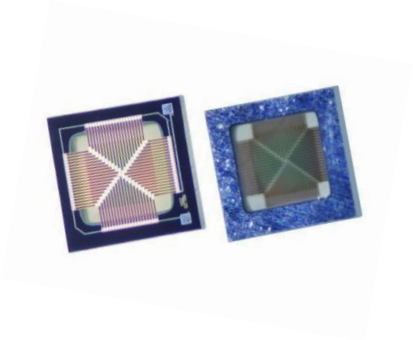
XGZT1104 THERMOPILE SENSOR DIE

FEATURES

1) MEMS Technology
2) Seebeck Effect
3) High Sensitivity
4) High Reliability



APPLICATIONS

1) Non-contact temperature measurements
2) Ear thermometers; Forehead thermometer
3) Continuous temperature control of manufacturing
4) Consumer applications
5) Home appliance temperature measurement

BASE SPECIFICATION

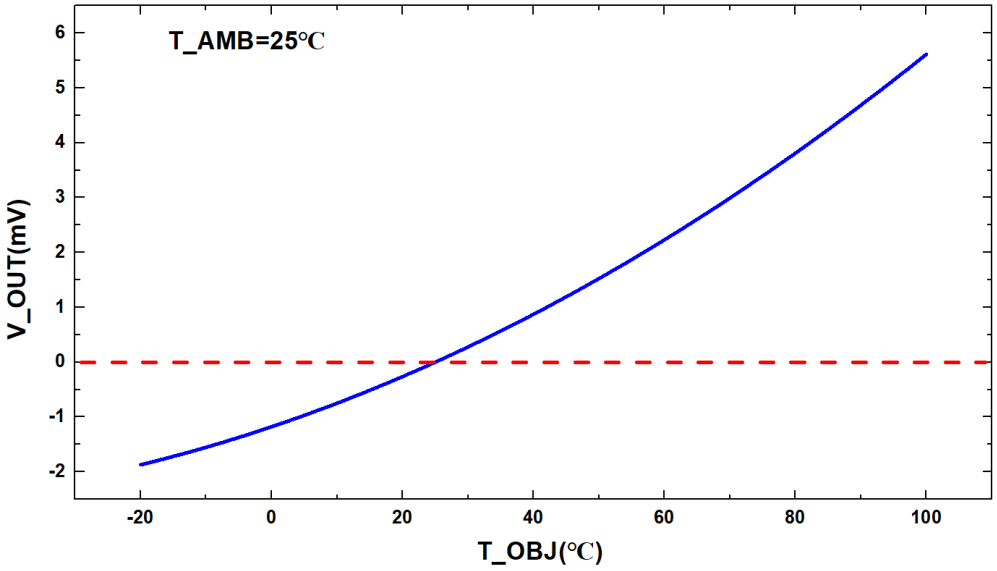
ITEM	VALUE	UNIT
Chip Size	1100 X 1100	um^2
Sensitive Area	760 X 760	um^2
Bonding Pad Size	80 X 80	um^2

Wafer Size	150±0.5	mm
Wafer Thickness	400	um
Dicing Channel Width	100	um
Die Quantity/Wafer	13448	pcs

PERFORMANCE

PARAMETER	VALUE	UNIT	REMARK
Thermopile resistance	129±30%	kΩ	temp=25℃
Noise voltage	46.2	nV/Hz½	temp=25℃
Responsivity	87	V/W	500K(5.5μm, long pass)
Temp. Coefficient of resistance	0.1	%/℃	temp=25℃-75℃
Time constant	25	ms	
Specific detectivity	1.1E08	cmHz1/2/W	500K, 1Hz
NCT	100 ± 3%	KΩ	25℃
Thermistor BETA-value	3950 ± 1%	K	25℃/50℃
Operating temperature	-20 ~ +100	℃	
Storage Temperature	-40 ~ +125	℃	

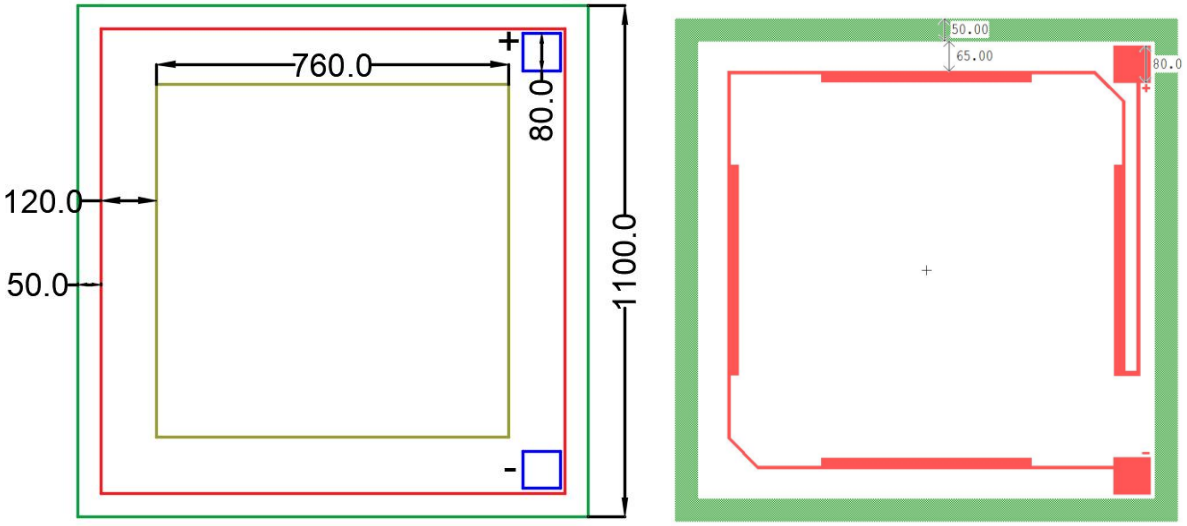
TYPICAL PERFORMANCE CURVES



Note:

1. Full FOV contact
2. Test Distance: 2.5cm
3. Package Method: TO46

DIE DIMENSION



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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