

KHS-200 MEMS Micro-Pellistor Hydrogen Sensor

General Description

KHS-200 MEMS-based micro-pellistor is specifically designed for hydrogen gas detection, and with no cross-sensitivity to methane. KHS-200 micro-pellistor is based on Kebaili Corporation's proprietary 1 mm² microchip die size MEMS microhotplate platform technology.

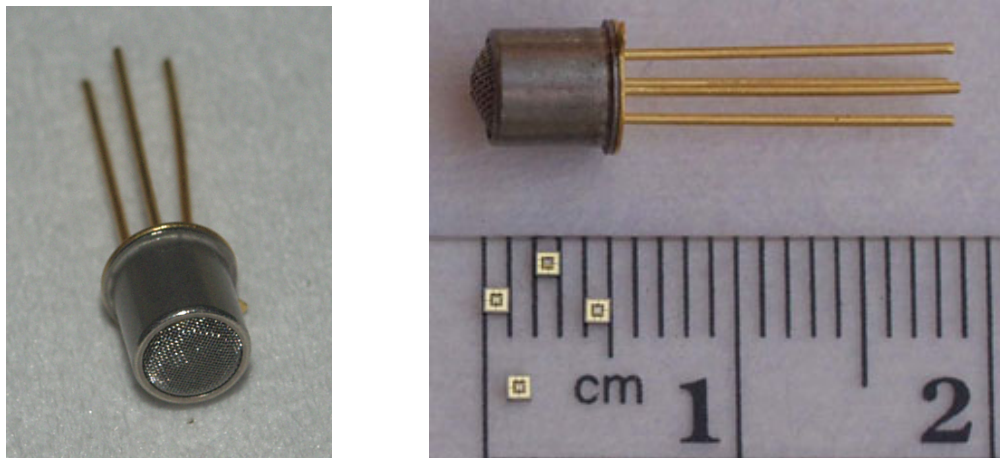


Figure 1. KHS-200 MEMS Micro-Pellistor

KHS-200 MEMS micro-pellistor is based on the principle of conventional catalytic bead gas sensor.

KHS-200 consists of a catalytic sensing element and a reference element for temperature and humidity compensation. Hydrogen gas is catalytically oxidized with oxygen from the atmosphere at the catalytic sensing element. The microcatalytic oxidation of hydrogen is an exothermic reaction, which will increase the sensing element temperature and resistance. The change in the catalytic sensing element resistance due to the hydrogen oxidation, is directly proportional to the hydrogen concentration from 0 to 100% LEL (0 to 4% hydrogen by volume in air).

KHS-200 MEMS micro-pellistor is packaged in a standard 3-pin TO-18 style package with a metal cap and a metal mesh filter.

Electrical Specifications

- Temperature and humidity compensated sensor.
- Supply voltage: constant 1.5 Volts
- Sensor: MEMS micropellistor
- Range: 0-100% LEL
- Response time: 1 second
- Power: 30mW max.
- Temperature range: -55°C to 125°C
- Humidity range: 0% to 100% RH (non-condensing)

Packaging Information

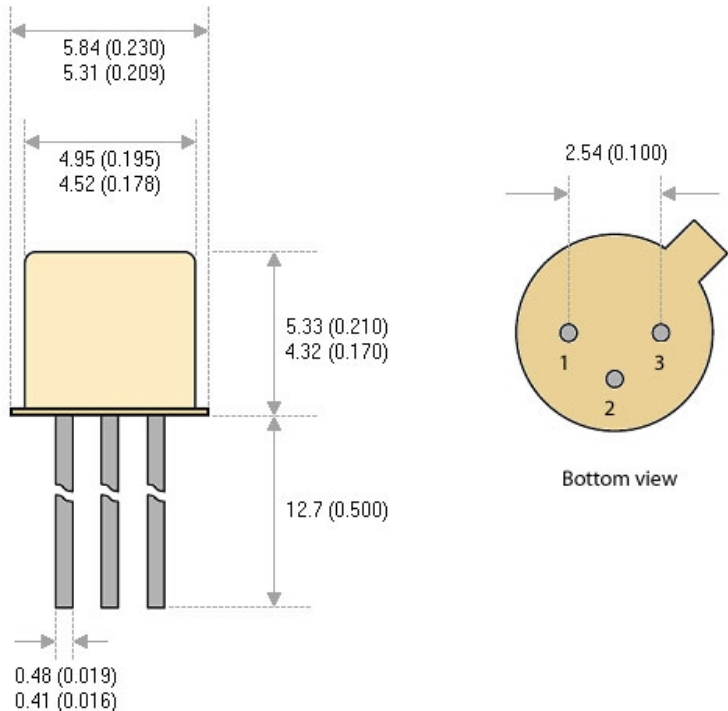


Figure 2. KHS-200 MEMS Micro-Pellistor 3-Pin TO-18 Package

Application Circuit

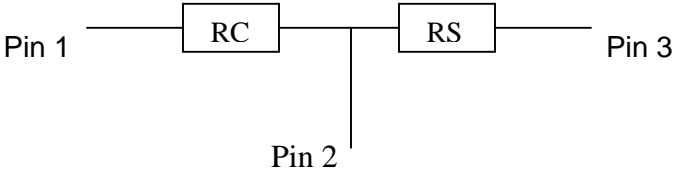


Figure 3. KHS-200 MEMS Micro-Pellistor Circuit Diagram

KHS-200 MEMS micro-pellistor is used in a standard wheatstone bridge configuration. An instrumentation amplifier such as AD623 from Analog Devices is used to amplify the bridge output signal.

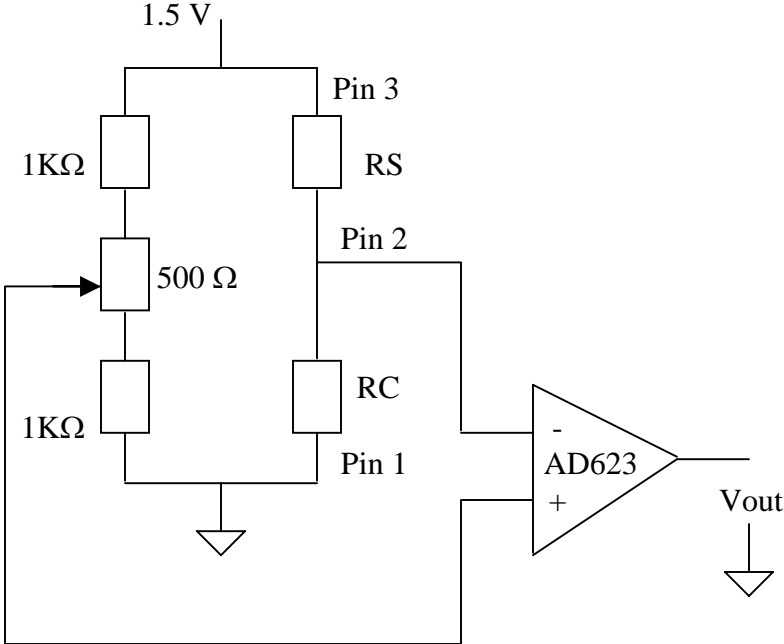


Figure 4. KHS-200 MEMS Micro-Pellistor Typical Operating Circuit

KHS-200 MEMS micro-pellistor response to hydrogen gas in the range of 0 to 100% LEL.

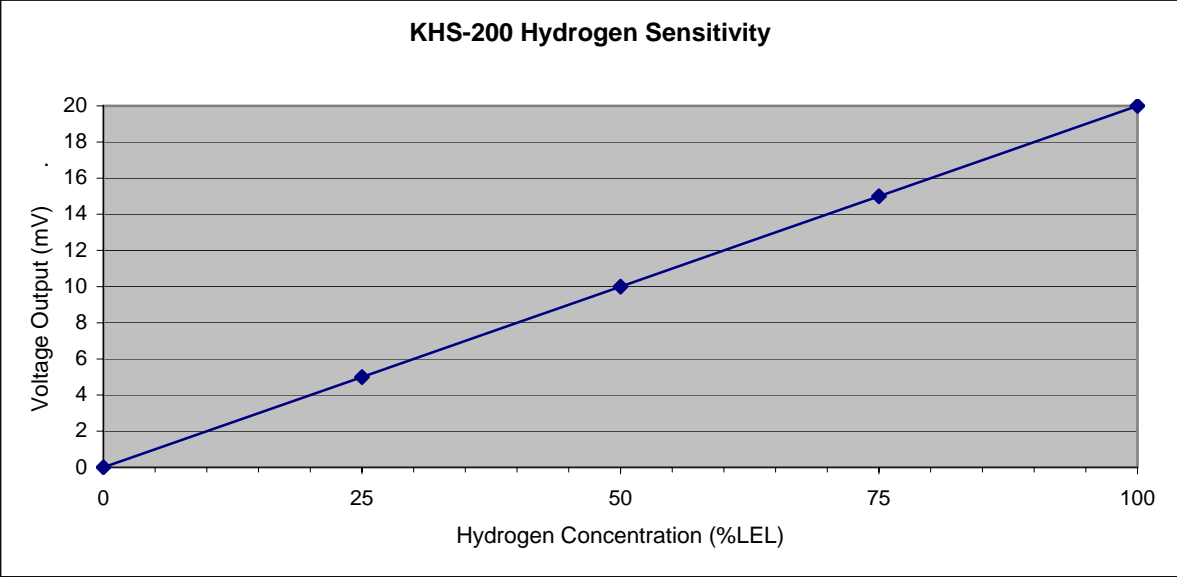


Figure 5. KHS-200 MEMS Micro-Pellistor Output Signal