Introduction

Improve indoor air quality and safety with the Fermion MEMS VOC Sensor, a high-sensitivity detector for volatile organic compounds (1-500ppm). Designed for homes, offices, and industrial environments, this low-power sensor delivers fast, accurate results with MEMS technology.

Wide VOC Detection (1-500ppm)

The MEMS-based sensor detects formaldehyde, toluene, ethanol, and other harmful VOCs, ensuring reliable air quality monitoring.

Ultra-Low Power (＜20mA) & Compact

At just 13×13×2.5mm, this energy-efficient sensor integrates seamlessly into air purifiers, IoT devices, and portable detectors.

Fast Response & Long Lifespan (≥5 Years)

With minimal preheating time and durable construction, the sensor is ideal for continuous monitoring in high-humidity or polluted environments.

The MEMS series currently encompasses 11 different types of gas sensors (HCHO, CO, CH4, VOC, NH3, H2S, EtOH, Smoke, Odor, H2, NO2), which can be combined as per specific requirements.

Please note: This sensor is capable of only qualitative measurements. For quantitative measurements, kindly consider purchasing the Gravity: Factory Calibrated Electrochemical Gas Sensor Series.

Precautions for use

Kindly remove the protective film before usage.

To prevent exposure to volatile silicon compounds vapors (such as silicone adhesive, hair gel, silicone rubber, or other locations where volatile silicon compounds are present).

Avoid exposure to high concentrations of corrosive gases (such as H2S, SOX, Cl2, HCl, etc.).

Prevent contamination from alkalis, alkali metal salts, and halogens.

Refrain from prolonged exposure to extreme environments (such as high temperatures, high humidity, high pollution).

Avoid contact with water, condensation, and freezing.

Minimize excessive vibration, impact, and dropping.

Please refrain from employing this module in systems that involve personal safety concerns.

For extended periods of non-usage, it is advisable to preheat the module for at least 24 hours.

Features

Compact size, measuring only 13*13*2.5mm

Low power consumption, operating current < 20mA

High sensitivity and rapid response recovery

Advanced MEMS technology

Applications

Environmental monitoring: identify the sources and levels of benzene in the ambient air

Indoor air quality: measure the concentration of formaldehyde in the indoor air

Industrial safety: detect any leaks or spills of tetrachloroethylene

Fire detection: detect the early signs of fire and smoke by sensing the changes in the composition and concentration of VOCs in the air.

Health applications: measure the amount of acetone in the breath and provide feedback or guidance for diabetes management.

Specification

Gas detected: ethanol, formaldehyde, toluene, etc

Detection range: 1-500ppm

Operating voltage: 3.3-5V

Operating current: < 20mA

Output signal: Analog voltage

Sensitivity: R0 (in air)/Rs (in 50ppm ethanol) ⩾ 3

Operating temperature: -10-50℃

Operating humidity: 15-90%RH (non-condensing)

Lifespan: ⩾5 years (in air)

Dimension: 13×13 x 2.5mm/0.0.51×0.51x0.1"

Documents

Product wiki

Schematics & Dimension

Characteristic Parameter

Component Packaging

Shipping List

Fermion: MEMS VOC Sensor (breakout) × 1

2.54mm pitch header pin × 1