## Brief Introduction

The air quality sensor with the model of M-VOC-5 from ProSense combines advanced MEMS technique & semiconductor technology. The sensor's conductivity changes according to the concentration of the VOC gas which can be quantified by measuring the conductivity. Thanks to the MEMS technique the sensor has typical advantages of small size, low power consumption, high stability, low cost, etc.
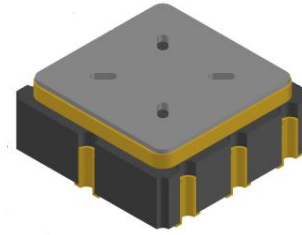
Feature

*Reliable evaluation of indoor air quality

*Free from temperature affect

*High precision、Fast response

*Ultra-low power consumption（<66mW）

*High stability

*Automatic baseline correction

*Adaptability to harsh environment

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Application

Air cleaners/fresh air system

Air conditioners

Indoor air quality monitoring

Portable devices

Smart home

Green building

Wearable devices

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Technical Specification

Item	Parameter
Principle	MEMS technique semiconductor
Range	0-5ppm
Overload	500ppm
Typical sensor resistance in unpolluted air[1]	3～3000kΩ
Response time（t_{70}）	＜20 Seconds
Sensitivity[2]	＞1.0
Temperature Range	-10℃～50℃
Airflow Velocity	＜3m/s
Humidity Range	5％－95％（non-condense）
Heater Resistance	180～220Ω
Circuit Voltage	2.5～2.8V
Heater Power Consumption	32～36mW
Sensor Voltage[3]	≤4V
Sensor Power Consumption	≤1mW
Lifetime	10 years
Warranty Period	12 months
Weight	1g

Note：

1. R0 refers to the output in clean air with temperature of 23 ± 5 ℃ and humidity of 50 ± 10%；

2. Sensitivity is defined as R0/Rg, Rg is the sensor resistance in the air of 5ppm ethanol concentration, 23 ± 5 ℃, 50 ± 10%;

3. Sensor Voltage is the voltage applied to the sensor electrodes, and should be kept between 1.5~4V in clean air.

Dimensions
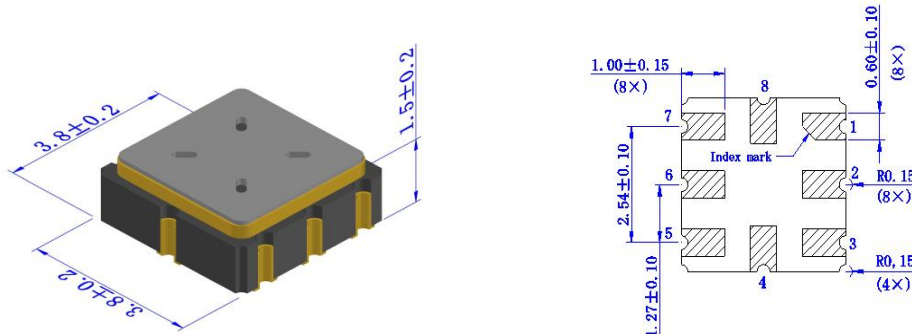
Notes：1 All dimensions in mm
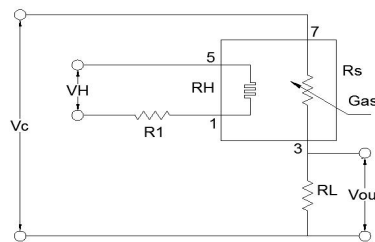
2 All tolerances ±0.15mm unless otherwise stated

Definition of Pins

PIN	DEFINITION
1	Heater Electrode 1
2	NA
3	Sensor Electrode 1
4	NA
5	Heater Electrode 2
6	NA
7	Sensor Electrode 2
8	NA

Recommend Circuit

Note：

1. VH：3.3VDC ± 2%；   Vc：3.3VDC ± 2%；
2. R1 is designed for modification of sensing performance which is recommended to be kept between 32 and 36mW；
3. R_L should be kept at ≥10 kΩ to avoid sensor damage；
4. Temperature compensation is not included.

Typical Response Curve

The typical response of the sensor to to Alcohol and HCHO is in the following curve

Tem. & Humidity Influence

The typical influence of t & RH is shown in the following curve
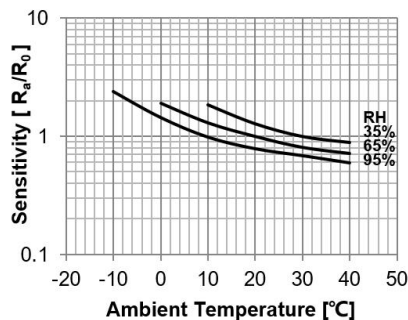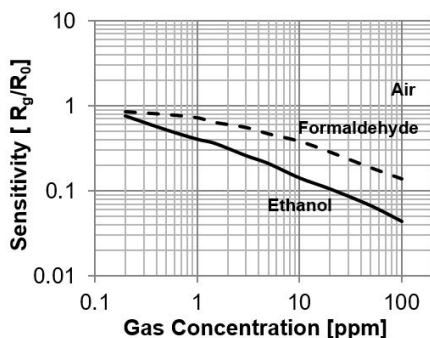
R0：resistance in clean air

Rg：resistance in target gas

R0: resistance in clean air at 25 ℃ & 50%RH

Ra: resistance in clean air at different temperature & humidity

➢ Avoid changing or moving sensor on the module.

➢ Avoid exposure to organic vapor, organic solvent, silicone vapor.

➢ The gas sensor must be reflow soldering in neutral atmosphere. The welding furnace should have sufficient flow of clean air to maintain the air clean. The maximum temperature is 260 ℃. Manual soldering conditions are recommended for a maximum temperature of 350 ℃ for 5 seconds.

➢ It is recommended to preheat at least 60 min. to get a reliable result if the module is powered off for a long time.

➢ Protect from excessive vibration and shock.

➢ No recommended for industrial safety/personal monitoring

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