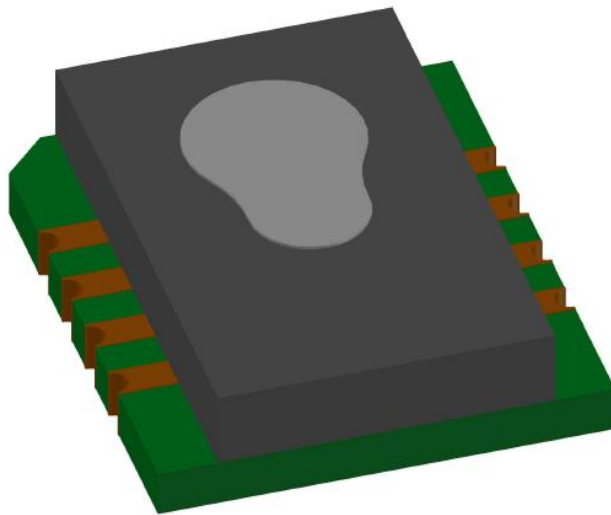


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## **PS-VOC Indoor Air Quality Module**



**ProSense Technologies Co., Ltd.**

## Brief Introduction

PS-VOC Indoor Air Quality Module, combines advanced MEMS technique and semiconductor sensor, is developed for indoor air quality detection, Including VOC, TVOC equivalent and CO<sub>2</sub>, HCHO equivalent. The data is available via I2C and UART series port. This module, famous for its ultra-low power consumption, freedom from temperature affect and so on, is pre-calibrated and can be integrated into your system directly.

## Key Features

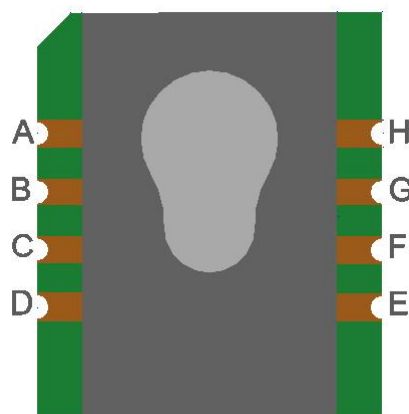
Reliable evaluation of indoor air quality  
 Free from temperature affect  
 High precision、Fast response  
 Ultra-low power consumption (<66mW)  
 High stability  
 Automatic baseline correction  
 Adaptability to harsh environment  
 .....

## Typical Applications

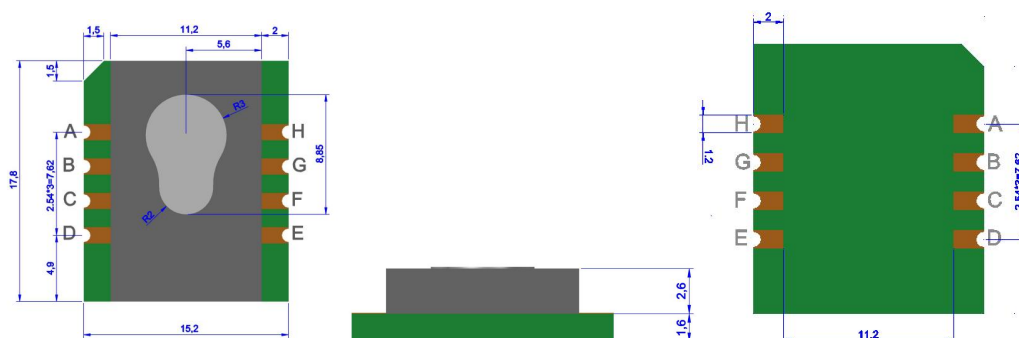
Air cleaners/fresh air system  
 Air conditioners  
 Indoor Air Quality monitoring  
 Portable devices  
 Smart home  
 Green building  
 Wearable devices  
 .....

## Definition of Pins

PIN	DEFINITION
A	UART-RX
B	NC
C	SCL
D	GND
E	SDA
F	NC
G	VCC
H	UART-TX



## Diagram



## Technical Specification

MODEL	PS-VOC
Detection Principle	MEMS metal oxide sensor
Detectable Gas	Indoor air quality (Alcohol、Hydrogen、HCHO etc.)
Detection Range	400-5000 ppm CO2 equivalents 0-50000 ug/m3 TVOC equivalents 0-2000 ug/m3 HCHO equivalents
Warm up time	3minutes
Response Time ( $T_{70}$ )	<20S
Communication Protocol	I2C、UART
Input Voltage	3.3V±0.1V, max. 20mV ripple
Power consumption	Max. 66mW @3.3VDC (20mA)
Interval between measurements	1 Sec.
Calibration	Automatic baseline correction. Baseline resettable
Operating temperature range	-40°C ~ 85°C
Operating Humidity Range	5% - 95%RH (non-condense)
Storage temperature range	-40°C ~ 125°C
Storage Humidity Range	5% - 95%RH (non-condense)
Warranty Period	12 months
Lifetime	10 years
Weight	1g

## Communication Protocol

➤ **UART Series port**

Item	Specification
Baud rate	9600 bits/s
Data bit	8
Parity bit	None
Stop bit	1
Protocol	1, Master send 0xFF 52 01 01 AC to reset baseline to current value. 2, Master send 0xFF 67 01 01 97 to automatic upload data packet once per Sec.. Send 0xFF 67 00 00 99 to restore to query mode. 3, Master send 0xFF 61 02 01 9C in query mode to acquire 13 bytes data packet.

➤ **Data Packet**

Byte	Name	Description
0	Packet Head	0xFF
1-2	eCO2(ppm)	Data[1]*28+Data[2]
3	Status	0x00: OK 0x01: Heating 0x02: Error
4	Temp. Return(°C)	(Data[4]*8-669)/10
5	Humi. Return(%RH)	(Data[5]*8-125)/10
6-7	Sensor Rs (kΩ)	Data[6]*28+Data[7]
8-9	TVOC(ug/m3)	Data[8]*28+Data[9]
10-11	HCHO(ug/m3)	Data[10]*28+Data[11]
12	Check Code	~(Sum(D[1]:D[11]))+1

➤ **I2C Bus**

Item	Specification
Frequency	Standard Mode:100kbts/s
Slave Addr.	0xA2 (7 bit addr. mode, shift left by 0x51)
Do Read	Acquire 13 bytes data packet by do read operation
Do Write	Reset baseline to current value by do write 0xFF 52 01 01 AC operation

## Notes

- 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 °C. Manual soldering conditions are recommended for a maximum temperature of 350 °C 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



**ProSense Technologies Co., Ltd.**

Add: Building4, Lianjian S&T Park, LonghuaDistrict,Shenzhen,China;

Tel: +86 755 3669 0079

Website: <http://www.szprosense.com>

Email: [sales@szprosense.com](mailto:sales@szprosense.com)