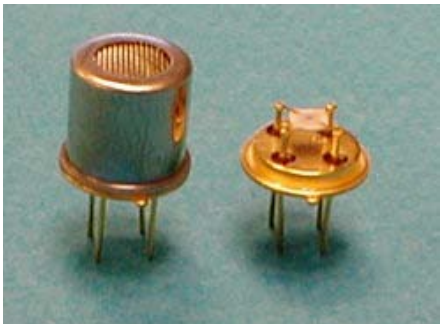
# VOC Sensor (P/N 707)

Synkera Technologies, Inc.
2605 Trade Centre Ave., Ste. C
Longmont, CO 80503

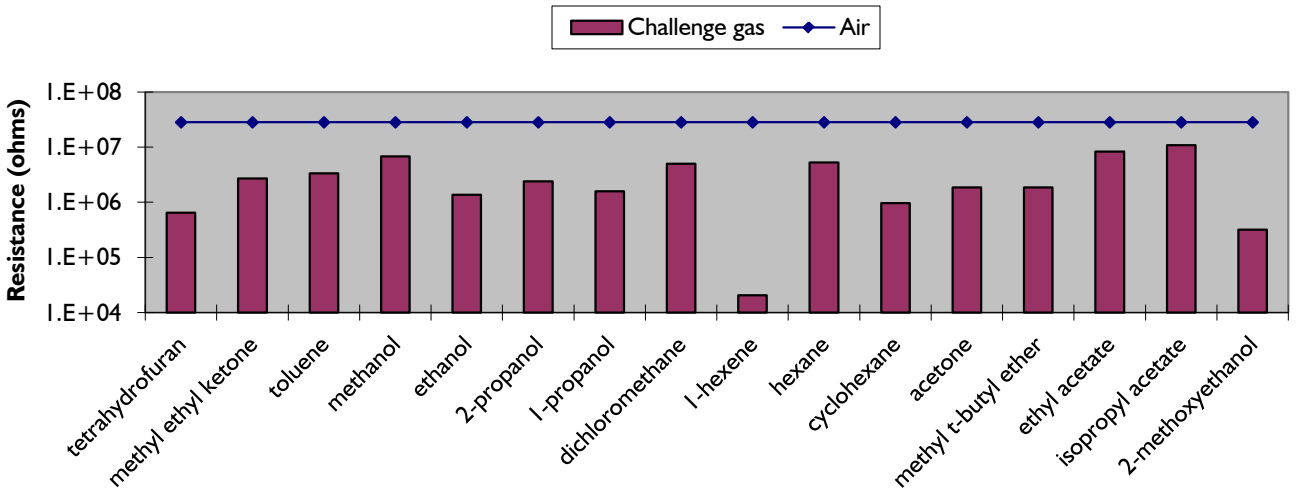
## *SENSOR FEATURES:*

- High sensitivity to a wide range of VOCs.
- Non-specific: responds to many different organic vapors.
- Typical response time < 1 minute to 90% full scale.
- Environmental temperature range of –20 to 50°C.
- Environmental humidity range of 0 to 90% RH, non-condensing.



## *SENSOR RESPONSE CHARACTERISTICS*

The figure below shows typical response and selectivity data for sensors operated under laboratory conditions. Humidity level is ~21% RH.




**Typical sensor response to 100 ppm of a wide range of VOCs.**

## *ELECTRICAL CHARACTERISTICS*

The electrical properties below are typical for VOC Sensors. If the actual values differ the customer will be notified with the shipment. Circuits are available that will be preset to the correct values.

| *PROPERTY* | *SYMBOL* | *VALUE* | *REMARKS* |
|---|---|---|---|
| Heater Power Consumption | $P_H$ | ~ 400 mW | At $V_H$ = 3.5 |
| Heater Voltage | $V_H$ | 3.5 VDC | $T_{sensor}$ ~150°C |
| Heater Resistance | $R_H$ | 30 Ω ± 2 Ω | At room temperature |
| Sensing Voltage | $V_C$ | 5.0 VDC | Recommended |
| Resistance in Air | $R_a$ | 2.00 MΩ / 300 MΩ | Min/Max |
| Resistance in 500 ppm MeOH | $R_{500}$ | 20 kΩ / 5.00 MΩ | Min/Max |
| Sensitivity | $R_a/R_{500}$ | 15 | Min |
| Sensitivity | $R_a/R_{50}$ | 2 | Min |

**Note that all measurements were made in dry gas, at room temperature*

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- For information on warranty, please refer to Synkera Technologies, Inc. Standard Terms and Conditions.
- Information on this data sheet represents typical values from a number of Synkera sensors. Actual values from sensor to sensor can vary slightly.

# Operation of Synkera MOS Sensors

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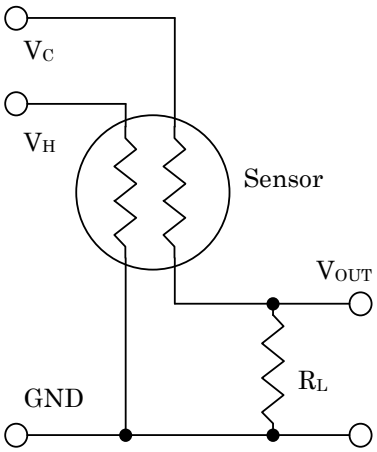
## *BASIC MEASUREMENT CIRCUIT:*

The sensor can be operated using a simple voltage divider. This requires two voltage supplies: heater voltage ($V_H$) and circuit voltage ($V_C$). $V_H$ is applied to the heater in order to maintain a constant, elevated temperature, for optimum sensing. $V_C$ is applied to allow a measurement of the output voltage ($V_{out}$) across a load resistor ($R_L$).




Pins 1 and 3 on the TO-39 header are attached to the heater. Apply $V_H$ across these pins.

Pins 2 and 4 on the TO-39 header are attached to the resistive sensor element. Connect these pins in the measuring circuit.

Synkera supplies basic measurement circuitry for many of our sensors. Please inquire or refer to our website for information regarding circuitry for your application

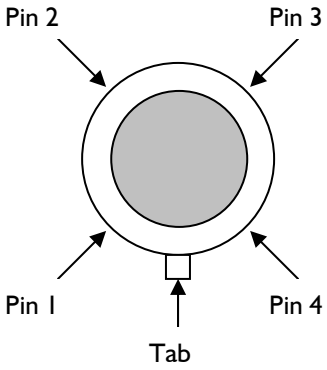
## *SENSOR RESISTANCE CALCULATION:*

Sensor Resistance (Rs) is calculated using the following formula:

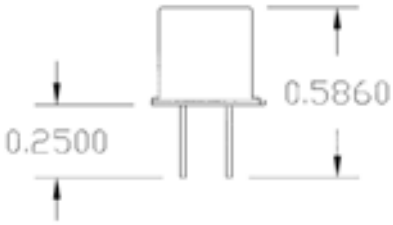
$$R_s = \frac{V_C - V_{out}}{V_{out}} * R_L$$

## *SENSOR PIN OUT:*

Top view of sensor




## *SENSOR DIMENSIONS:*


Synkera Technologies strives to be customer oriented. If you have a special application you would like to discuss, or questions you would like answered please contact us at info@synkera.com.



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