

## Description

The IDT SGAS707 is a solid-state chemiresistor sensor designed to detect volatile organic chemicals (VOCs) in air. The sensor uses an integrated heater with highly sensitive polymer-MOx composite material designed for detection of VOCs.

The chemiresistor sensors in the IDT SGAS family are based on the principle that metal-oxide materials undergo surface interactions (physisorption and chemisorption) with gas molecules at elevated temperatures, resulting in a measurable change in electrical resistance. As metal-oxide materials are polycrystalline (i.e., composed of multiple grains with distinct grain boundaries), the adsorbed gases have significant electronic effects on the individual grains. These gas-solid interactions result in a change in electron (or hole) density at the surface (i.e., a space charge forms), which in turn changes the electrical conductivity of the oxide. IDT has developed a set of nanostructured gas-sensing materials with excellent sensitivity and stability.

**Figure 1. Product Photo**



## 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: 0°C to 40°C
- Environmental humidity range: 0% to 90% RH, noncondensing

## Typical Applications

- Indoor Air Quality
- Ventilation Control
- Air Purification
- Gas Concentration Detection

## Examples of Target Gases

- Formaldehyde
- Toluene
- Xylenes
- Acetone
- Isobutylene
- Octane
- Alcohols

## Available Support

- Evaluation Kit – SMOD707 Smart Sensing Module
- Application Notes
- Instruction Videos
- Reference Design

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