

## Description

The IDT SGAS711 is a solid-state chemiresistor sensor designed to detect flammable gases in air. The SGAS711 sensor uses an integrated heater with highly sensitive MOx material tailored for detection of flammable gases, such as methane, propane, hydrogen, liquefied petroleum gas (LPG), and more. In addition to detecting flammable gases, the sensor is also sensitive to other hydrocarbons, such as pentane and R410a, and it can be used for leak detection.

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 flammable gases
- Non-specific response; capable of being calibrated to detect a wide range of flammable gases
- Long lifetime (several years in typical applications)
- Typical response time < 30 seconds to 90% of full scale
- Environmental temperature range: -20°C to 50°C
- Minimal response to environmental humidity over the range of 0% to 95%, non-condensing
- Rugged, reliable sensor based on IDT's exclusive technology
- TO-39 package

## Typical Applications

- Leak Detection
- Gas Concentration Detection
- Process Control

## Examples of Target Gases

- Hydrocarbons (HC)
- Hydrogen
- Liquid Petroleum Gas (LPG)
- Methane
- Natural Gas
- Propane
- Pentane
- R410a

## Available Support

- Evaluation kit – SMOD711 Smart Sensing Module
- Application notes
- Instruction videos
- Reference designs

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