

CCS811

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CCS811 – Ultra-low power Digital VOC Sensor for monitoring indoor air quality (IAQ)

- Complete digital solution for detecting Volatile organic compounds (VOCs)
- Optimized low-power modes
- Compact 2.7x4mm package
- Product lifetime >5 years
- Low component count

**Sensing
is life.**

General Description

ams Metal Oxide gas sensors are developed using a unique technology platform enabling sensor miniaturization, low-power consumption and ultra-fast response times for a wide range of applications.

The air quality we experience indoors is very important because we spend most of our time at home, at work, in school or in vehicles. Until recently, IAQ was defined as proper temperature, humidity and CO₂ levels. However, offensive odors, smoke and

other VOCs can have more impact on human comfort, productivity and health within a building.

The CCS811 is a low-power digital gas sensor solution, which integrates a gas sensor solution for detecting low levels of VOCs typically found indoors, with a microcontroller unit (MCU) and an Analog-to-Digital converter to monitor the local environment and provide an IAQ indication over a standard digital interface.

Features

- Integrated MCU
- On-board processing
- Standard digital interface
- Optimized low-power modes
- 2.7 x 4.0mm LGA package
- Low component count
- Proven technology platform

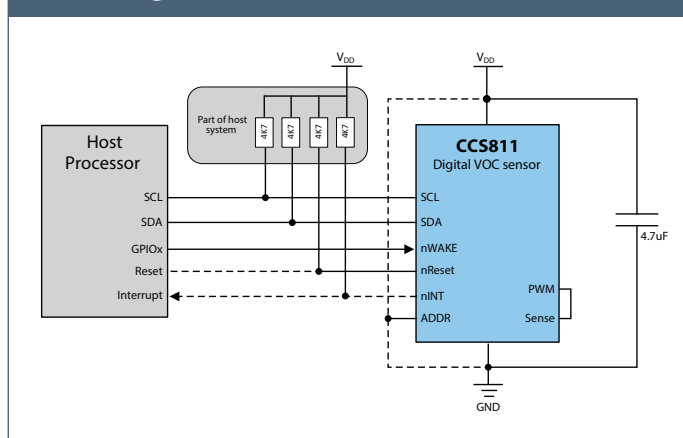
Benefits

- Managing the sensor drive modes and measurements while detecting VOCs
- Provides indication of IAQ levels without a host intervention
- Simplifies development for faster time to market
- Extended battery life in portable applications
- Small form-factor designs
- Saves up to 60% in PCB footprint
- Designed for high volume and reliability (>5 year lifetime)

Specification

Operating temperature range	-5 to +50°C
Operating humidity range	10 to 95% RH
Storage temperature range	-40 to +125°C
Average power consumption	1.3mW to 46mW (depending on IAQ mode)
Interface	Digital CO ₂ eq, TVOC eq, Rs
Package	10 lead, 2.7x4x1.1mm LGA
Sensing Properties	
VOCs detected	Alcohols, Aldehydes, Ketones, Organic Acids, Amines, Aliphatic and Aromatic Hydrocarbons
Response time	Seconds
Expected product lifetime	>5 years
Cross sensitivity	Humidity and Hydrogen
Restrictions	
Contact of the sensitive layer with liquids should be avoided	

Block Diagram



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