XinaBox Datasheet SG33 - VOC & eCO2

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SG33 - VOC & eCO2 (CCS811)

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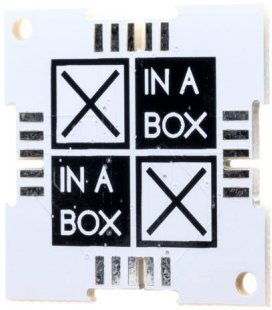

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☒CHIP	
Main Category	Sensor
Sub Category	Gas
Introduced	1 January 2017
Current version	1.0.0
Current version date	1 January 2017
Dimensions	
Size	2x2U (32x32mm)
Weight	3 g
Height	2.6/1.0/0mm
Main Chip Set	
Main Chip	CCS811
I²C Configuration	
Default Address	0x5A
Alternative Addresses	0x5B
Change Setting	Solder

Overview

This xCHIP is equipped to sense a variety of Volatile Organic Compounds (VOCs) (https://en.wikipedia.org/wiki/Volatile_organic_compound). This ☒CHIP is based on the CCS811 which is an ultra-low power digital gas sensor which integrates a metal oxide (MOX) gas sensor to detect a wide range of Volatile Organic Compounds (VOCs), for indoor air quality monitoring, a micro-controller unit (MCU), and an I^2C interface.

CCS811 is based on ams unique micro-hotplate technology which enables a highly reliable solution for gas sensors, very fast cycle times and a significant reduction in average power consumption. The integrated MCU manages the sensor drive modes and raw sensor data measured while detecting VOCs. The I^2C digital interface significantly simplifies the hardware and software design, enabling a faster time to market. CCS811 supports intelligent algorithms to process raw sensor measurements to output a TVOC value or equivalent CO2 (eCO2) levels, where the main cause of VOCs is from humans. CCS811 supports multiple measurement modes that have been optimized for low-power consumption during an active sensor measurement and idle mode extending battery life in portable applications.

Product Highlights

- Integrated MCU
- On-board processing
- Standard I^2C digital interface
- Optimised low-power modes
- Low component count
- Proven technology platform

Applications

- Smart Phones
- Wearables
- Home and Building Automation

Specifications

- Based on the CCS811 From AMS.
- 5 modes of operation.
  1. Mode 0: Idle, low current mode.
  2. Mode 1: Constant power mode, IAQ measurement every second.
  3. Mode 2: Pulse heating mode IAQ measurement every 10 seconds.
  4. Mode 3: Low power pulse heating mode IAQ measurement every 60 seconds.
  5. Mode 4: Constant power mode, sensor measurement every 250ms.
- Early-Life Use (Burn-In) for 48 hours in the selected mode.
- eCO_2 The equivalent CO2 (eCO2) output range for CCS811 is from 400ppm to 8192ppm.
- TVOC The Total Volatile Organic Compound (TVOC) output range for CCS811 is from 0ppb to 1187ppb.
- Temperature and Humidity Compensation.
- Interrupt and Interrupt on Threshold.
- Automatic Baseline Correction.
- Manual Baseline Correction.

External Links

Documents

- CCS811 From AMS (http://ams.com/documents/20143/36005/CCS811_DS000459_6-00.pdf)

GitHub

- SG33 on GitHub (https://github.com/xinabox/xSG33)