

TGS 8101 Integrated IAQ Sensor

Features:

- * Ultra-compact size
- * MEMS gas sensor technology
- * Integrated temperature/humidity sensor
- * Pre-calibrated
- * ASIC technology
- * Digital IAQ output

Applications:

- * Indoor air quality control
- * Smart home automation

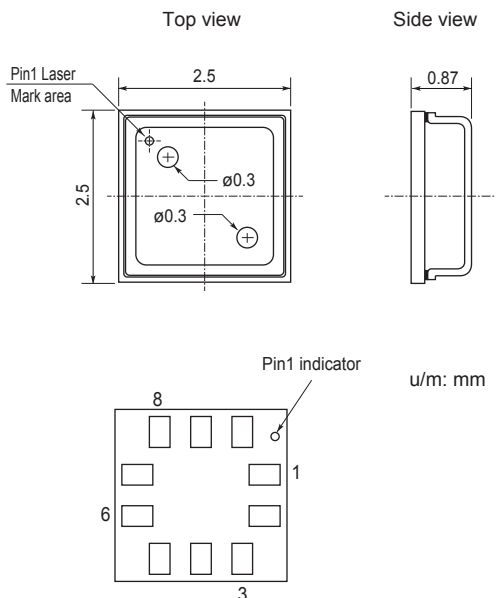
The **TGS8101** is an ultra-compact sensor for gas, relative humidity, and temperature. The device includes sensors and a mixed signal ASIC which provides measurement information through digital serial interfaces.

The gas sensing element consists of a metal oxide compound deposited over a micro hot plate built for high operating temperatures that enable it to detect VOCs and alcohol gas. The humidity sensing element consists of a fringed capacitor structure capable of detecting relative humidity variations.

TGS8101 is available in a small top-holed cap land grid array (HLGA) package with two air inlets for an optimized airflow to the gas sensor.



Dimensions:



Pin Connections:

Pin No	Name	Description
1	VDD_IO (VDD)	Power supply for I/O pins
2	SCL (SCL)	I2C serial clock (SCL)
		SPI serial port clock (SPC)
3	GND (GND)	0V
4	SDA/SDI/SDO	I2C serial data (SDA)
		4-wire SPI (SDI)
		3-wire SPI (SDI/SDO)
5	SDO/SA0	I2C device address (SA0)
		4-wire SPI (SDO)
6	CS (CS)	I2C/SPI mode selection
7	INT1_DRDY	Interrupt or data ready
8	GND (GND)	0V
9	GND (GND)	0V
10	VDD (VDD)	Power supply

IMPORTANT NOTE: OPERATING CONDITIONS IN WHICH FIGARO SENSORS ARE USED WILL VARY WITH EACH CUSTOMER'S SPECIFIC APPLICATIONS. FIGARO STRONGLY RECOMMENDS CONSULTING OUR TECHNICAL STAFF BEFORE DEPLOYING FIGARO SENSORS IN YOUR APPLICATION AND, IN PARTICULAR, WHEN CUSTOMER'S TARGET GASES ARE NOT LISTED HEREIN. FIGARO CANNOT ASSUME ANY RESPONSIBILITY FOR ANY USE OF ITS SENSORS IN A PRODUCT OR APPLICATION FOR WHICH SENSOR HAS NOT BEEN SPECIFICALLY TESTED BY FIGARO.

Specifications: (tentative)

Model number			TGS8101
Electrical specifications	Supply voltage	V_{DD}	1.7~3.6V
	Supply current	I_{DD}	2mA in pulse mode (at $V_{DD}=2.5V$), ODR 1Hz (typical)
	Supply current in power-down mode	$I_{DDP_{DN}}$	0.5uA at $T=25^{\circ}C$ (typical)
	Operating temperature range	T_{op}	-40 ~ +85°C
Gas sensor specifications	Operating gas range	G_{op}	0 ~ 100ppm of TVOC
Temperature sensor specifications	Operating temperature range	T_{op}	-40 ~ +85°C
	Temperature resolution	T_r	0.03°C (typical)
	Temperature accuracy (typical)	T_{acc}	±0.5% at 15 ~ 40°C ±1.0% at 0 ~ 60°C
Humidity sensor specifications	Operating humidity range	H_{op}	0 ~ 100%RH
	Humidity resolution	H_r	0.1%RH (typical)
	Humidity accuracy (typical)	H_{acc}	±3.5% at 20 ~ 80%RH ±5.0% at 0 ~ 100%RH

Conditions at $V_{DD}=2.5V$, $T=25^{\circ}C$ unless otherwise noted

All sensor characteristics shown in this brochure represent typical characteristics. Actual characteristics vary from sensor to sensor. The only characteristics warranted are those in the Specification table above.

FIGARO ENGINEERING INC.
1-5-11 Senba-nishi
Mino, Osaka 562-8505 JAPAN
Tel: 81-72-728-2561
Fax: 81-72-728-0467
email: figaro@figaro.co.jp
www.figaro.co.jp

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Contact:

UNITRONIC GmbH
Mündelheimer Weg 9
40472 Düsseldorf

Telefon 0211 / 95 110
Telefax 0211 / 95 11 111
info@unitronic.de

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