

MiCS-VZ-89TE Specifications

Performance

Detection Method	Semiconductor gas sensor, detecting a wide range of VOCs
Monitoring Range	400-2000 ppm equivalent CO ₂ 0-1000 ppb isobutylene equivalent tVOCs
PWM Output	Pin 1 : TTL output 30Hz +/-1%, Range 5...95%, duty cycle @ 3.3V Use a pull-up resistance between Pin 1 and Pin 6 Pull-up value: typ. 10kOhms
I ² C Output	Pin 2 and 4 ; Pull-up of 4.7 kOhms on master SDA and SCL
Response Time	Equivalent to conventional NDIR-CO2 sensors < 5 seconds for tVOC
Refresh Output Frequency	1 Hz

Operation

Supply Voltage	3.3V DC regulated +/- 5%
Operating Power	125 mW
Warm-up Time	15 min
Operating Temperature	0°C to 50°C
Operating Humidity	0%RH to 95%RH (non condensing)
Storage Temperature	-40°C to 80°C
Storage Humidity	0%RH to 95%RH (non condensing)

IMPORTANT PRECAUTIONS

Read the following instructions carefully before using the indoor air quality sensor described in this document to avoid erroneous readings and to prevent the device from permanent damage.

- The sensor must not be exposed to high concentrations of organic solvents, ammonia, silicone vapor or cigarette-smoke in order to avoid poisoning the sensitive layer.
- The sensor should be protected against water and dust projections.
- Telaire strongly recommends using ESD protection equipment to handle the sensor.

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MiCS-VZ-89TE - Power-On Self-Test

Parameter	Criteria	Failed Diagnostic Indicator
Sensor Resistance Range	Range Check	PWM < 5 % at Power ON
Sensor Operating Power	Range Check	PWM < 5 % at Power ON

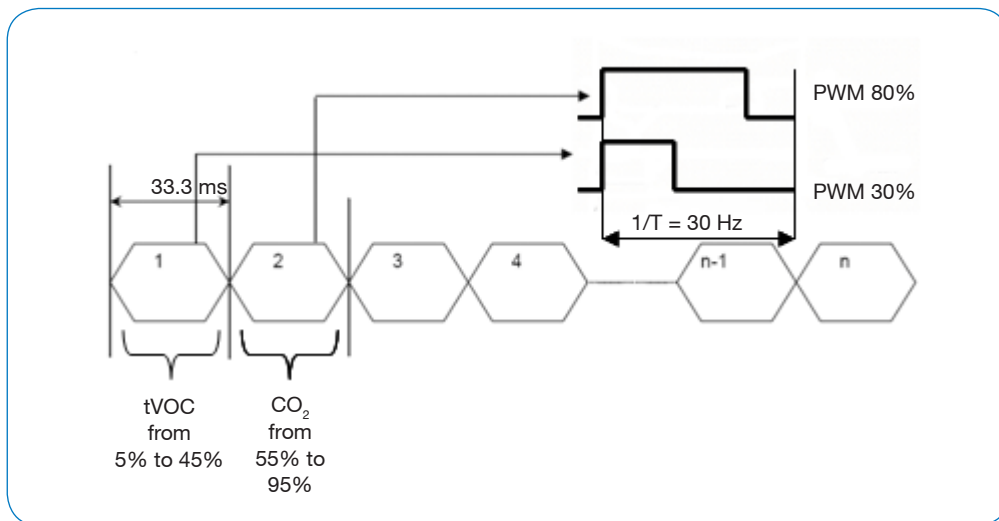
MiCS-VZ-89TE - PWM Output

After Power-on self-test (2 seconds) , the device will provide either a single “Failed Diagnostic Level” in case of sensor failure of the sensor or PWM multiplexed output indicating “CO₂_equivalent_Level” and “tVOC_isobutylene_equivalent_Level” referred to the isobutylene sensitivity unit.

A simple method to test the reactivity and sensitivity of the MiCS-VZ-89TE VOC gas sensor is to expose the sensor to the bottleneck of a container of alcohol for example.

CO ₂ epu [ppm]	PWM Output [1%]
400	55
1027	70.7
1654	86.4
2000	95

tVOC (isobutylene) [ppb]	PWM Output [%]
0	5
200	13
500	25
1000	45



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MiCS-VZ-89TE - Output

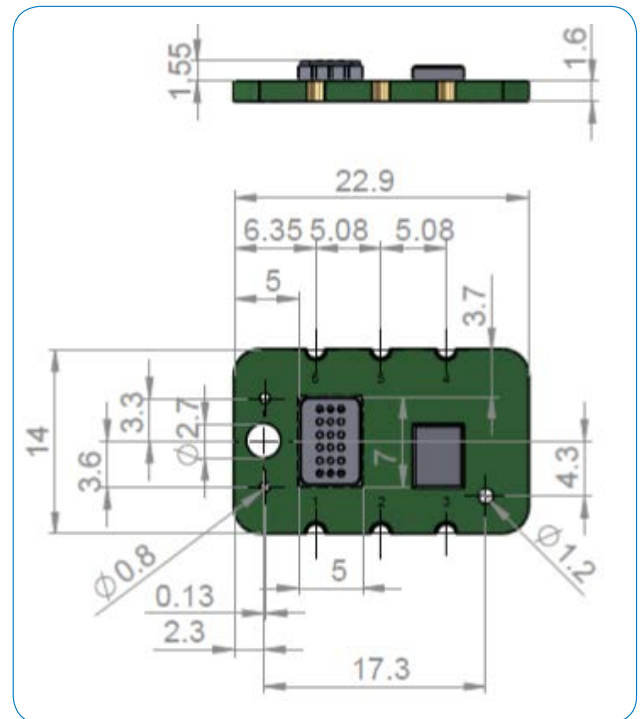
Out of this initial period, the device will have the I²C data CO₂ equivalent [ppm] and tVOC equivalent referred to the isobutylene sensitivity unit [ppb]. For more information refer to I²C Application Note.

- D1: Data_byte_1: tVOC-signal level value
- D2: Data_byte_2: CO₂-equivalent signal level value
- D3: Data_byte_3: Raw sensor value MSB
- D4: Data_byte_4: Raw sensor value
- D5: Data_byte_5: Raw sensor value LSB
- D6: Data_byte_6: Error status byte
- D7: Data_byte_7: DRC

Package Outline Dimensions

The MiCS-VZ-89TE is available as PCB and can be mounted with a M2.5 screw in appliances.

Connections are made with soldering on card edge (cut via connector).



Pin Connection VZ-23TE

6: + 3.3V	5: NC	4: SDA
1: PWM OUT	2: SCL	3: GND



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