

## Ultra-Low Power MEMS CO<sub>2</sub> Gas Sensor

### TCE-11101 HIGHLIGHTS

The TCE-11101 is a miniaturized, ultra-low power MEMS sensor for accurate detection of Carbon Dioxide (CO<sub>2</sub>). It features integrated electronics that offers digital I<sup>2</sup>C communication, along with an on-board processor to support background processing and user configurability. The TCE-11101 also features very wide range of sensing capability, from 400 ppm to 50,000 ppm of CO<sub>2</sub>.

The TCE-11101 features state-of-the-art MEMS technology combined with advanced packaging and software support, all of which enable accuracy of detection while allowing a miniaturized form factor of 5x5x1mm, with average power (under normal usage scenarios) of less than 1 mW.

Other industry-leading features include an embedded temperature sensor, software support available on the embedded micro-controller as well as on the host, automatic background calibration, and an easy-to-use design kit.

The device supports a VDD operating range of 2.7V to 3.3V.

### TCE-11101 FEATURES

- Baseline accuracy:  $\pm 75$  ppm  $\pm 3\%$  of Measured Value
  - Even better accuracy at CO<sub>2</sub> concentrations under 2000 ppm
- Highly stable output
- Industry-leading sensor response time: < 30sec.
- Product variant offers very large sensing range: 400 to 50,000 ppm
- Lifetime: > 5 years
- Host interface: 400 KHz I<sup>2</sup>C

### APPLICATIONS

- Indoor Air Quality (IAQ) monitoring
- Outdoor Air Quality Monitoring (AQM)
- Demand Controlled Ventilation (DCV) for homes and buildings
- Automotive In-cabin monitoring
- IoT monitoring devices for home and personal use
- Breath monitoring
- Leakage detection

### BLOCK DIAGRAM



### ORDERING INFORMATION

PART	TEMP RANGE	PACKAGE
TCE-11101†	0 to 60°C	5x5 mm 28 pin LGA

†Denotes RoHS and Green-Compliant Package