Product Brief MVT3000D Series

High Performance Digital Temperature Sensor

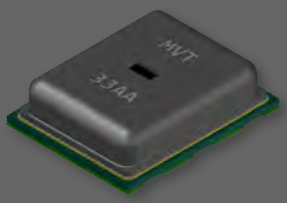
Features

- Fast response time
  - Down to 5 seconds time constant
- High accuracy
  - Temperature (MVT3001D): ±0.2°C typ. (-10 – 80°C)
- Configurable resolution
  - 8, 10, 12 or 14 bits
- Fully compliant I²C interface
- Extended supply voltage range of 1.8V – 5.5V
- Very low power consumption
  - 1.0 µA avg. current at one temperature measurement per second (8-bit, 1.8V supply)
- Miniature form factor for use in compact systems
  - 3 × 2.4 × 0.8 mm DFN-style LGA package

Applications

The MVT3000D series is ideal for use in temperature sensing for the consumer electronics, automotive, industrial, agricultural and other sectors. Some application examples include:

- OEM products
- Battery-powered systems
- Smartphones and tablets
- Instrumentation
- Heating, ventilation & air conditioning systems
- Drying
- Medical equipment
- Refrigeration equipment
- Building automation
- White goods
- Metrology
- Data logging



MVT DFN-style package

The MVT3000D series is packaged in a miniature and convenient DFN-style package with pins for serial data (SDA), serial clock (SCL), and chip power supply (VDD and VSS).

MVT3000D Series Temperature Sensors Accuracy Comparison

	MVT3001D	MVT3004D
Temperature accuracy	±0.2°C typical ±0.3°C maximum	±0.3°C typical ±0.5°C maximum
Temperature accuracy range	-10 – 80°C	0 – 70°C
Operating range	-40 – 125°C	
Average Current (1 meas. per second)	1 µA (8-bit) 12.9 µA (14-bit)	

Description

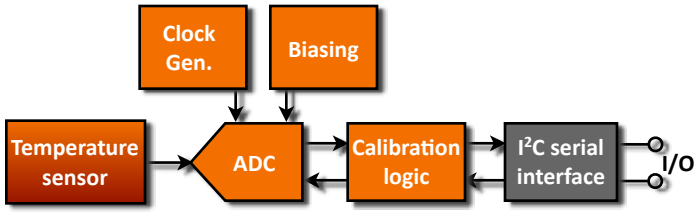
MEMS Vision's temperature sensors are built using the company's revolutionary MoSiC™ technology and the long experience of its team with ASIC designs, enabling high levels of performance, such as fast temperature measurement and high accuracy.

The technology also offers a very robust proprietary sensor-level protection, ensuring excellent stability against aging and harsh environmental conditions such as shock and volatile chemicals.

The highly miniaturized smart sensors provide standard digital I²C outputs which are fully calibrated and linearized for plug-and-play integration. The output temperature resolution can be independently programmed for maximum flexibility and to minimize power consumption, depending on the application and operating conditions.

The micro-Watt levels of power consumption of these sensors make them the ideal choice for portable and remote applications.

MEMS Vision's temperature sensors offer the industry's most competitive performance-to-price value, for a wide range of applications and end users.



MVT3000D series functional diagram.

User Benefits

- Long Term Stability and Reliability: Proprietary sensing structures and protection technology, robust biasing circuitry, and self-diagnosis algorithms ensure accurate and repeatable measurements.
- Digital Output: Allows for native interfacing with embedded system components such as FPGAs or off-the-shelf micro-controllers.
- Fully Calibrated System: Built-in digital sensor calibration ensures high accuracy measurements and linear behavior under varying sensing environments.

MVT3001D chip

MVT3001D-M Evaluation module

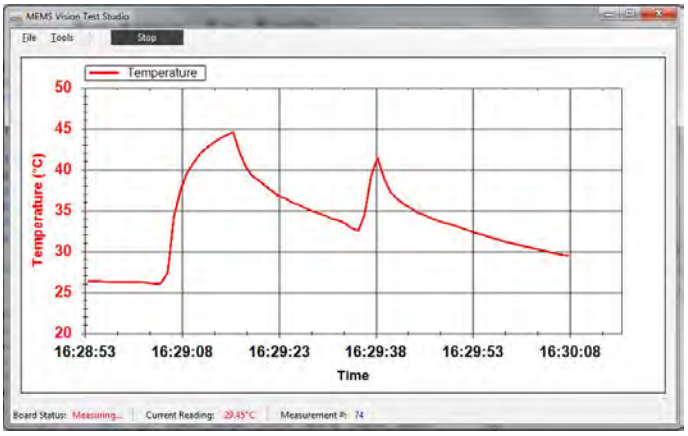
MVEVB3 evaluation board and MVT3001D module.

Evaluation Kit

The MVT3000D series Evaluation Kit is used by partners to assess the high performance MVT3000D series temperature sensor chips.

The hardware allows users to carry out data logging experiments, and can communicate with the MEMS Vision Test Studio software on a PC through a standard USB interface.

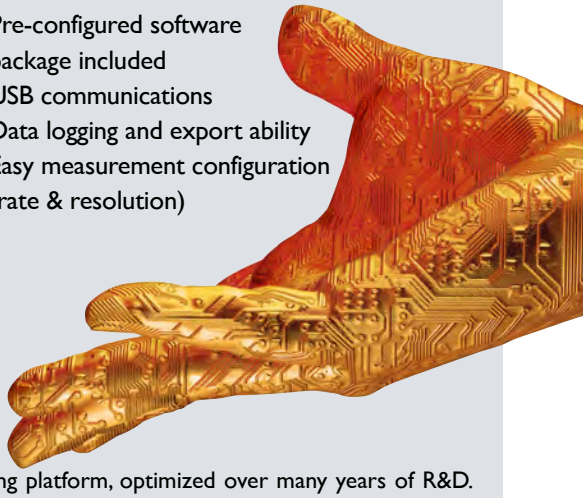
This software makes it possible to view measurements in real-time, adjust the resolution of the sensor, configure measurement parameters, and download previously logged measurements. The evaluation kit can be powered directly from the USB port of a computer, or from the supplied battery, to enable fully autonomous (untethered) data logging.



MEMS Vision Test Studio user interface.

Kit Features

- Includes 3 MVT3000D series sensor modules and an extension cable
- USB or battery operation
- Convenient sensor monitoring
  - Data logging mode or live data display
  - Embedded measurement push button
- Embedded micro-controller
  - Preconfigured for quick evaluation
- EEPROM for on-board data storage
- PC software interface
  - Pre-configured software package included
  - USB communications
  - Data logging and export ability
  - Easy measurement configuration (rate & resolution)



COMPANY PROFILE

MEMS Vision provides miniaturized sensing products fabricated with a proprietary manufacturing platform, optimized over many years of R&D. This platform allows for our MEMS transducers to be fabricated directly above the electronics, and to be suitable for use in harsh environments. The results of this unique technology are ideal solutions for compact systems that meet the stringent performance and power consumption requirements of high-end applications. Notably, our products can be used in environmental sensing for the consumer electronics, automotive, industrial, and agricultural sectors.

MEMS Vision sensing products have very small footprints and provide high accuracy, robustness, reliability, and durability. Our experienced team also offers customized MEMS / IC design services and IP for MEMS-based highly integrated systems, with proven first-pass silicon success.

Harness the infinite possibilities of the infinitely small.
Reach the highest levels of system integration and performance.