GW9110

Sensor Signal Conditioner IC for Resistive or Voltage Output Sensors

Description

The GW9110 is a sensor signal conditioning read out IC for highly accurate amplification, digitization, and sensor-specific correction.
The GW9110 is designed for use with bridge sensors with resistive or voltage output. The programmable integrated sensor interface allows applying various sensors for a wide range of applications.

The GW9110 provides measurement value readouts and programmable capabilities via an I2C, SPI or single wire interface(SWI).

It integrates an analog front end, a sigma-delta ADC, a sequencer, and control registers. The programmable sequencer can be used to read out ADC data accumulated and averaged depending on the application. The GW9110 average mode can eliminate the minimum and the maximum value.

Features

- 8-channel analog differential input
- Low noise PGA
- 24-bit sigma delta ADC
- Programmable data rates: 12.8 kSPS
- Internal oscillator: 4 MHz, 1.5% accuracy
- Internal temperature sensor
- 2 general purpose I/Os
- Internal LDO to generate the supply for the digital core logics
- A sequencer to read out ADC data automatically supporting two modes:
  - Single conversion mode
  - Continuous conversion mode
  - A 128-sample FIFO for storing conversion data
- SENT (Single Edge Nibble Transmission) for transmitting high resolution sensor data in automotive applications
- Host interface (I2C, SPI or SWI) for sensor calibration
- Reprogrammable 128-bit non-volatile memory(NVM) for analog calibration data programmed via I2C or SPI interface

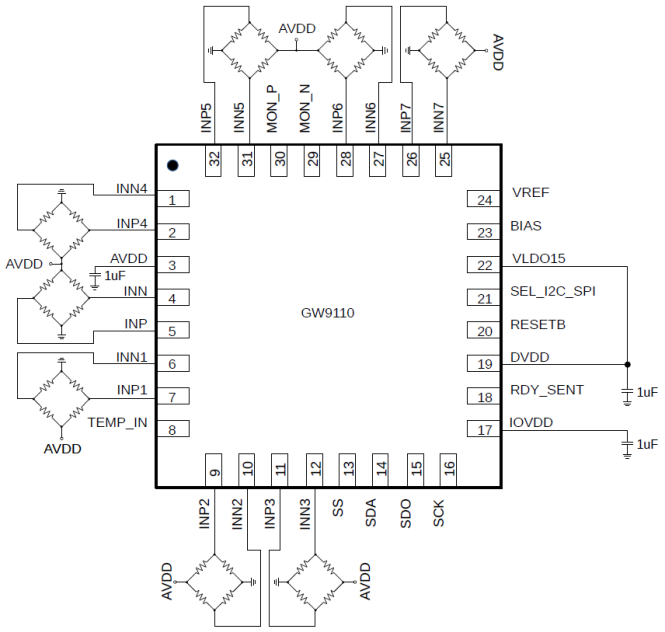
Physical Characteristics

- Supply voltages
  - Core supply voltage, V_{DD}: 1.35V to 1.65V
  - I/O supply voltage, V_{DDIO}: 3.0V ~ 5.5V
  - Analog supply voltage, V_{DDA}: 4.5V ~ 5.5V
- Operating temperature: -40°C to 85°C
- Available in 5x5 5mm pitch 32-QFN, 4x4 0.5mm 24 QFN package, and 5x5 0.65mm 20 QFN package

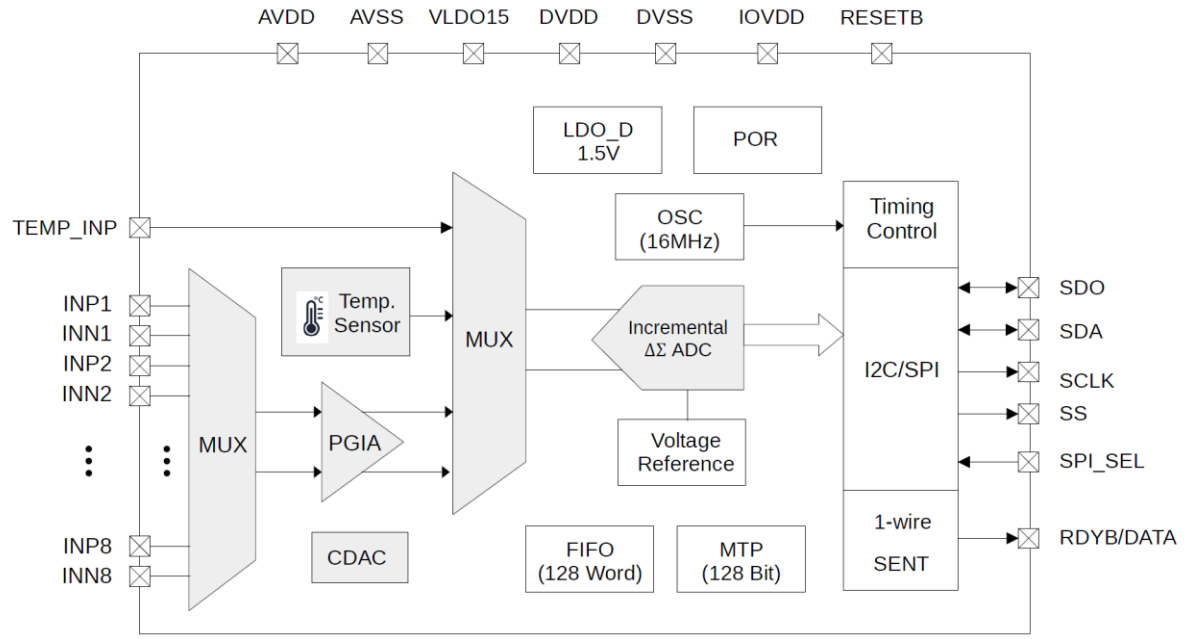
Typical Applications

- Calibrated, continuously operating sensors with digital interface.
- Pressure, flow, and level sensing
- Industrial applications, e.g., process/factory automation
- Consumer/white goods, e.g., HVAC, weight scales
- Medical applications, e.g., blood pressure, continuous smart health monitors

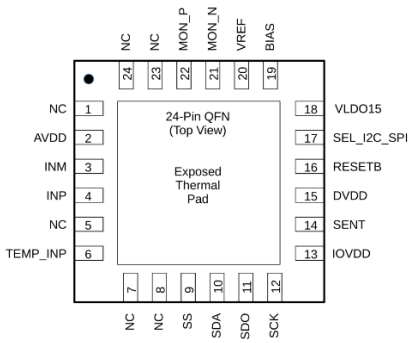
Basic Application Diagram

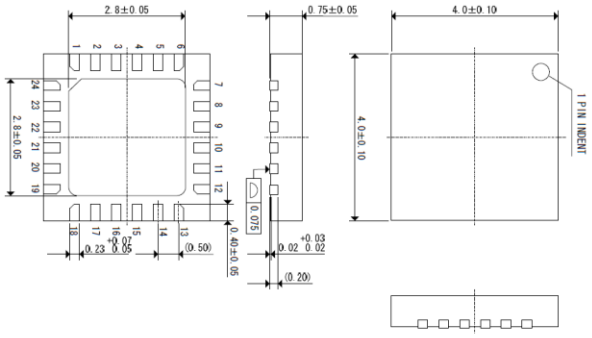


Block Diagram



Package Information





Ordering Information

Device name	Package	Remark
GW9110_Q32	32QFN, 0.5mm pitch 5x5 body	8 channel input
GW9110_Q24	24QFN, 0.5mm pitch 4x4 body	1 channel input
GW9110_Q20	20QFN, 0.65mm pitch 5x5 body	1 channel input

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