

Micro Analog Systems releases Capacitive Sensor Signal Conditioning IC

Targeted for humidity and pressure sensor modules

Helsinki, Finland – 5 March 2021 - Micro Analog Systems Oy today announced MAS6513, a 24-bit Capacitive Sensor Signal Conditioning IC primarily intended for humidity and pressure sensor modules.

The device has a ratiometric capacitance to digital converter (CDC) employing a delta-sigma ($\Delta\Sigma$) conversion technique to provide a high-resolution output. Its current consumption is extremely low down to 0.77 μA for one capacitance and temperature conversion in a second which makes it an ideal solution for interfacing a capacitive sensor in battery powered and power consumption critical portable applications. It can operate at wide supply voltage range from 1.9 V to 5.5 V.

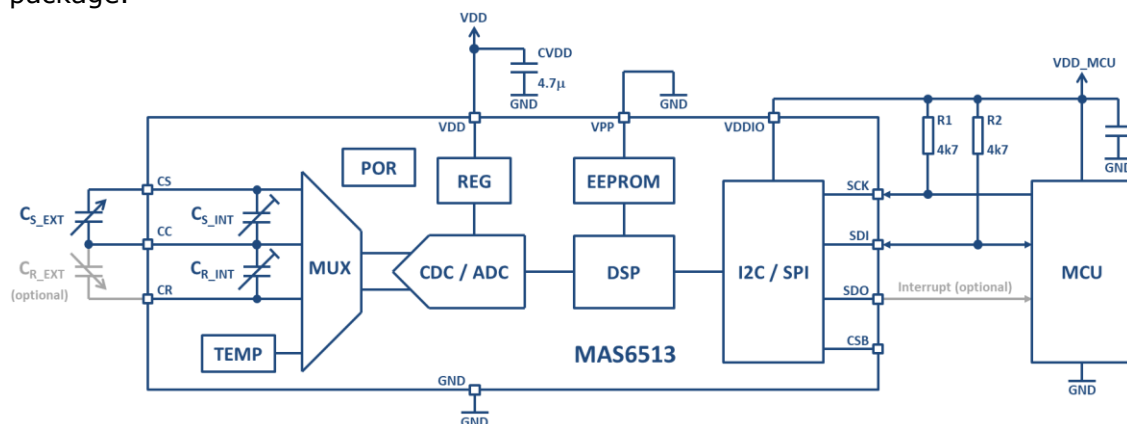
The $\Delta\Sigma$ -converter has seven oversampling ratio (OSR) values to choose from that allow doing wide range of optimization in conversion resolution, speed and current consumption.

Three capacitance measurement modes are supported and the output can be proportional to capacitance difference (CS-CR), ratio (CS-CR)/CS or a sum (CS+CR). In addition to capacitance measurement the device has temperature sensor which is capable of measuring temperature in a wide -40°C ... $+125^{\circ}\text{C}$ temperature range.

Built-in 24-bit calculation engine produces calibrated high-resolution output which can comprise of up to 3rd order linearization and 2nd order temperature compensation of sensor capacitance value and up to 2nd order linearization of the on-chip temperature sensor signal. The device includes a 512-bit EEPROM memory for storing capacitive sensor front-end trim values and calibration coefficients on-chip.

The MAS6513 can run measurements either command based (One shot mode) or automatically (Continuous mode). Optional interrupt output can be configured to given an interrupt when new results are available or when any result has exceeded programmable alert limits.

Standard 2-wire I²C bus and 4/3-wire SPI serial interface communication are supported. The MAS6513 is available in dies and a small DFN-12 3x3x0.75 mm package.



FEATURES

- Single or Dual Capacitance Sensors
- Very Low Power Consumption
- On-Chip Temperature Sensor -40°C...+125°C
- 24-Bit Ratiometric $\Delta\Sigma$ CDC
- Built-in 24-Bit Calibration Calculation
- IIR Filter
- 512 Bit EEPROM Calibration Memory
- Optional Interrupt Output
- Alert Function
- Programmable Alternative I2C Device Address
- I²C and SPI Bus
- DFN-12 Package

MAS6513 is available in a QFN-12 3x3x0.75 package as well as dies in die tray. For further information and samples please contact Micro Analog Systems Oy.

About Micro Analog Systems

Founded in 1984, Micro Analog Systems Oy is a privately owned fabless semiconductor house located in Helsinki, Finland. MAS supplies Application Specific Standard Parts and ASICs for worldwide customer base. MAS current product portfolio consists of time signal receiver ICs, crystal oscillator ICs and AD converters for sensor applications as well as of other high performance analog ICs.

For More Information

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