ADVANCED VERSATILE SENSOR SIGNAL PROCESSOR E520.18

ADVANCE PRODUCT INFORMATION - SEP 19, 2012

RoHS compliant

Features

- Optimized for Resistive Sensor Bridges without External Trim Components
- Digital Compensation for Sensor Offset, Sensitivity, Non-linearity and Temperature Dependencies of these Parameters.
- Configurable Input Signal Range ± 3 to ±400 mV
- Offset Compensation up to ± 250 % FS
- 16 bit Delta Sigma ADC for Sensor Path
- Temperature Compensation On-chip, Bridge Resistance, External Diode or External Thermistor
- Single Wire Analog or I²C, SPI or PWM Interface
- Single Wire Digital Programming
- Accommodates 3-Wire Sensor Assembly
- Configurable Supply Options:
  * +8V to +16V Automotive Supply or +3.3V / +5.0V
  * +8 to +36V with External Transistor
- Over-voltage / Reverse Voltage Protection -30/+40V
- GPIO support PWM, Alarm Functions and Mode Selection
- 32 * 16B EEPROM Stores Configuration and Calibration
- Comprehensive Self Tests and Diagnostic Routines Detect Sensor-, Supply-, Logic- or Memory-Faults

Applications

- Automotive, Industrial or Medical Sensors
- Pressure, Strain, Force, Torque Sensors or Gauges
- Resistive Bridges Based on Piezoresistive MEMS or Thick/Thin Film Sensors

General Description

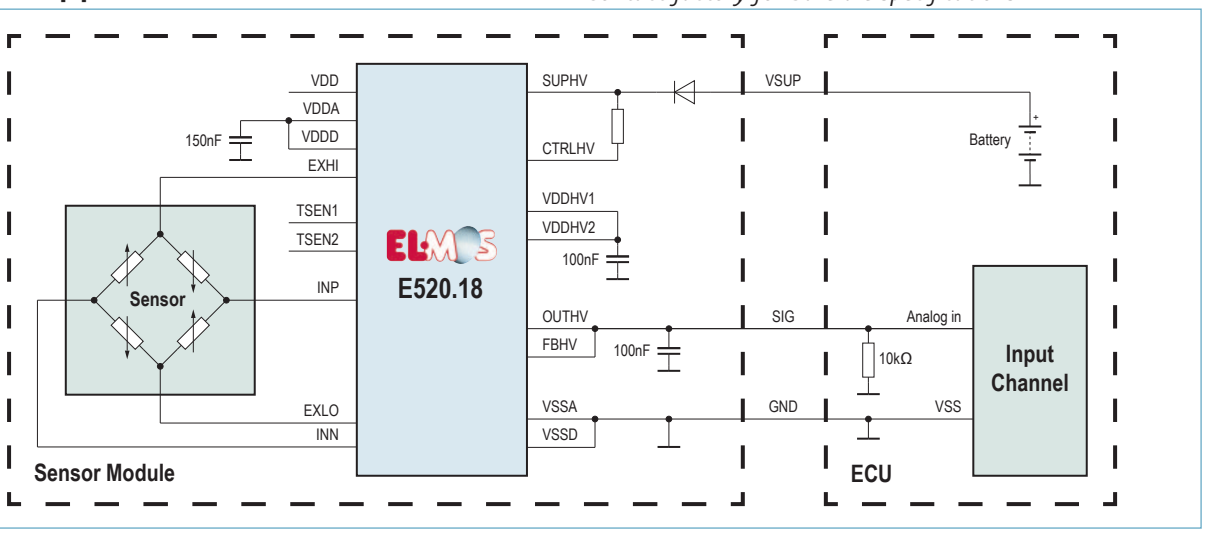
The E520.18 sensor signal processor amplifies and processes sensor bridge signals with a variety of compensation, supply, output, diagnostic and interface options. The programmable high CMRR input amplifier stage processes a wide range of sensor input spans and offsets. Both current and voltage bridge excitation are supported. A lownoise 16-bit delta sigma ADC digitizes the sensor signal. Temperature is measured by a dedicated 14-bit ADC internally, by the bridge resistance or an external thermistor or an external diode. A linearization engine computes compensation for offset, sensitivity, non-linearity and their temperature dependencies. A 12-bit DAC drives a rugged buffered single-wire analog output. The same output also serves as a digital serial input/output interface to allow for insystem configuration and calibration. Alternatively an I²C or an SPI interface is configurable for both signal output and calibration. An embedded EEPROM stores configuration, calibration and custom user information. In addition two GPIOs offer digital PWM and alarm functions. Out-of-range conditions in the sensor, signal path, supplies or memory block are automatically detected and flagged.
The E520.18 is available in a leadless QFN package and is qualified according to AEC-Q100.

Ordering Information

Product ID	Temp. Range	Package
E520.18	-40°C to +125°C	QFN32L5
E520.18-D	-40°C to +150°C	Die*

**Contact factory for bare die specifications*

Typical Applications Circuit



ELMOS Support 09/2012

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