

Brief Description

The ZSSC3136 is a member of the ZSSC313x family of CMOS integrated circuits for automotive/ industrial sensor applications. All family members are well suited for highly accurate amplification and sensor-specific correction of resistive bridge sensor signals. An internal 16-bit RISC microcontroller running a correction algorithm compensates sensor offset, sensitivity, temperature drift, and non-linearity of the connected sensor element. The required calibration coefficients are stored by the one-pass calibration procedure in an on-chip EEPROM.

The ZSSC3136 is optimized for SIL (Safety Integrity Level) rated switch applications. The integrated adjustable digital filter offers the possibility of setting up fast switching real-time applications as well as stabilized switching applications in the case of disturbed or unstable input signals.

In addition to the general features for switch applications, the ZSSC3136 offers the capability to set up safety-relevant SIL2 rated switches due to its extended safety functionalities.

Features

- Analog gain of 105, maximum overall gain of 420
- Sample rate: 200 Hz maximum
- ADC resolution: 13/14 bit
- External temperature sensor
- Safety functionalities: Calibration microcontroller, sensor connection, analog front-end
- Adjustable to nearly all resistive bridge sensor types
- Digital compensation of sensor offset, sensitivity, temperature drift, and non-linearity
- Output options: ratiometric analog voltage output (5 - 95% in maximum, 12.4 bit resolution) or ZACwire™ (digital One-Wire Interface (OWI))
- Sensor biasing by voltage
- High voltage protection up to 33 V
- Supply current: max. 5.5mA
- Reverse polarity and short circuit protection
- Wide operation temperature: -40 to +150°C
- Traceability by user-defined EEPROM entries

* Note: I²C™ is a trademark of NXP.

** FSO = Full Scale Output.

Benefits

- Capability for setting up SIL level 2 applications
- Application-focused feature set
- No external trimming components required
- Only a few external protection devices needed
- PC-controlled configuration and one-pass/ end-of-line calibration via I²C™* or ZACwire™ interface: simple, cost-efficient, quick, and precise
- High accuracy (0.25% FSO** @ -25 to +85°C; 0.5% FSO @ -40 to +125°C)
- Optimized for automotive/ industrial environment due to robust protection circuitries, excellent electromagnetic compatibility and AEC-Q100 qualification

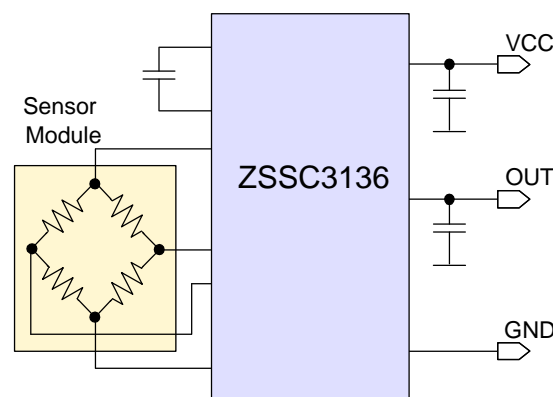
Available Support

- Evaluation Kits
- Application Notes
- Mass Calibration System

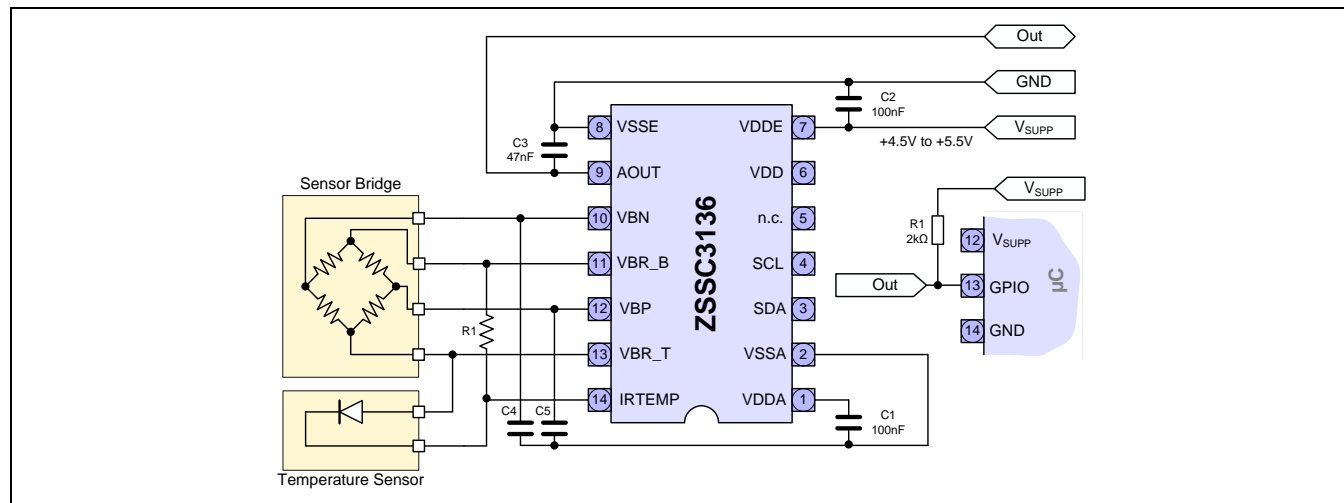
Physical Characteristics

- Supply voltage 4.5 to 5.5 V
- Operation temperature: -40°C to +125°C (-40°C to +150°C extended temperature range depending on product version)
- Available in RoHS-compliant JEDEC-SSOP14 package or delivery as die

ZSSC3136 Minimum Application Requirements



ZSSC3136 Switch Application Example



Ordering Information *(See data sheet section 8 for complete delivery options.)*

Product Sales Code	Description	Package
ZSSC3136BE1	ZSSC3136 die – tested; temperature range -40 to +150 °C	Unsawn wafer: add “B” to sales code Die on frame: add “C” to sales code
ZSSC3136BA1	ZSSC3136 die – tested; temperature range -40 to +125 °C	Unsawn wafer: add “B” to sales code Die on frame: add “C” to sales code
ZSSC3136BE2	ZSSC3136 SSOP14 – temperature range -40 to +150 °C	Tube: add “T” to sales code Tape & Reel: add “R”
ZSSC3136BA2	ZSSC3136 SSOP14 – temperature range -40 to +125 °C	Tube: add “T” to sales code Tape & Reel: add “R”
ZSSC313xKITV1.1	ZSSC313x Evaluation Kit, revision 1.1, including Evaluation Board, ZSSC3136 IC samples, USB cable (software can be downloaded from the product page www.IDT.com/ZSSC3136)	Kit
ZSSC313x Mass Calibration System V1.1	Modular Mass Calibration System (MSC) for ZSSC313x including MCS boards, cable, connectors (software can be downloaded from the product page www.IDT.com/ZSSC3136)	Kit

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