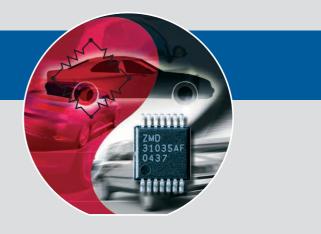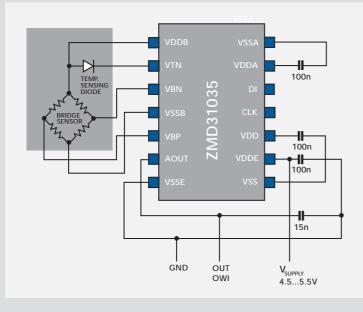# ZMD31035

Automotive Sensor Signal Conditioner

PRELIMINARY

Features

- Digital compensation of sensor offset, sensitivity, temperature drift and non-linearity
- Adjustable to nearly all piezo-resistive bridge sensors types
- Digital one-shot calibration: quick and precise
- Selectable temperature compensation reference: internal or external diode
- Output options: analog voltage (0 to 5V) or one-wire-interface (LIN compatible protocol)
- Digital sensor calibration via one-wire-interface
- Sampling rate typically 125Hz
- High voltage protection
- Reverse polarity and short circuit protection
- Operation temperature –40 to +125°C
- Supply voltage 4.5 to 5.5V

Benefits

- No external trimming components required
- PC-controlled configuration and calibration via one-wire interface – simple, low cost
- High accuracy (±0.1% FSO @ -25 to 85°C; ±0.25% FSO @ -40 to 125°C)

Brief Description

The ZMD31035 is a CMOS integrated circuit for highly-accurate amplification and sensor-specific correction of bridge sensor signals. Digital compensation of sensor offset, sensitivity, temperature drift and non-linearity is accomplished via a 16-bit RISC micro-controller running a correction algorithm with calibration coefficients stored in a non-volatile EEPROM.

The ZMD31035 is adjustable to nearly all piezo-resistive bridge sensors. Measured values are provided at the analog voltage output or at the one-wire-interface.

The digital one-wire-interface can be used for a simple PC-controlled calibration procedure, in order to program a set of calibration coefficients into an on-chip EEPROM. Thus a specific sensor and a ZMD31035 are mated digitally: fast, precise and without the cost overhead associated with trimming by external devices or laser.

The ZMD31035 is optimized for automotive environments by it's protection circuitry and excellent electro-magnetic compatibility.

- Evaluation kit will be available, containing PCBs, SSOP14 samples, software, documentation
- Support for industrial mass calibration available
- Quick circuit customization possible for large production volumes

Application Circuit

Application Examples

- Detection of low-/overpressure in fuel tanks
- MAP Sensors
- Hydraulic reservoir pressure monitoring for ABS and power steering

- Engine management
- Comfort functions
- Tire pressure monitoring (in combination with wireless transmitters)

Ordering Information

Ordering Code	Description	Operating Temperature Range	Package Type	Device Marking	Shipping Form**
ZMD31035AD ES	engineering samples as dice in waffletray		die		waffle tray
ZMD31035AF ES	engineering samples as finished parts		SSOP14	ZMD 31035AF YYWW ***	sample box or tube
ZMD31035AAB*	dice on tested unsawn wafer	-40°C to +125°C	die		6″ wafer
ZMD31035AAC*	dice on tested sawn wafer	-40°C to +125°C	die		sawn 6″ wafer on plastic frame
ZMD31035AAD*	dice in waffle tray	-40°C to +125°C	die		waffle tray (100 dice / tray)
ZMD31035AAF-T*	finished parts in tube	-40°C to +125°C	SSOP14	ZMD 31035AAF YYWW	tube (77 parts / tube)
ZMD31035AAF-R*	finished parts in tape on reel	-40°C to +125°C	SSOP14	ZMD 31035AAF YYWW	tube (2000 parts / reel)
ZMD31035KIT	evaluation kit				box with PCBs, CD-ROM, SSOP14 samples

*   Serial parts – available from serial production start
**   The quantity ordered should be a multiple of the quantity / packing unit as specified
***   Optional labeled with "ES" in addition

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