**ZMD**®

# ZMD31030

## Automotive Sensor Signal Conditioner with LIN Interface
### PRELIMINARY

## Features

- Digital compensation of sensor offset, sensitivity, temperature drift and non-linearity
- Adjustable to nearly all piezo-resistive bridge sensor types
- Digital one-shot calibration: quick and precise
- Selectable temperature compensation reference: internal or external diode
- Selectable separate input channel for an external temperature sensor
- Output options: PWM (bridge sensor signal) or LIN interface (bridge and temp. sensor signal)
- Digital sensor calibration via LIN interface
- Sampling rate typically 125Hz
- High voltage protection
- Reverse polarity and short circuit protection
- Operation temperature -40 to +125°C
- Supply voltage 8 to 18V

## Benefits

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

## Brief Description

ZMD31030 is a CMOS integrated circuit for highly-accurate amplification and sensor-specific correction of bridge sensor and temperature 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 ZMD31030 is adjustable to nearly all piezo-resistive bridge sensors. Measured values are provided at the PWM output or at the LIN interface.

The digital LIN bus 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 ZMD31030 are mated digitally: fast, precise and without the cost overhead associated with trimming by external devices or laser.

The ZMD31030 is optimized for automotive environments by it's protection circuitry and excellent electromagnetic compatibility.

- Evaluation kit will be available, containing PCBs, SSOP20 samples, software, documentation
- Support for industrial mass calibration available
- Quick circuit customization possible for large production volumes

## Block Schematic and Application Circuit (Example)
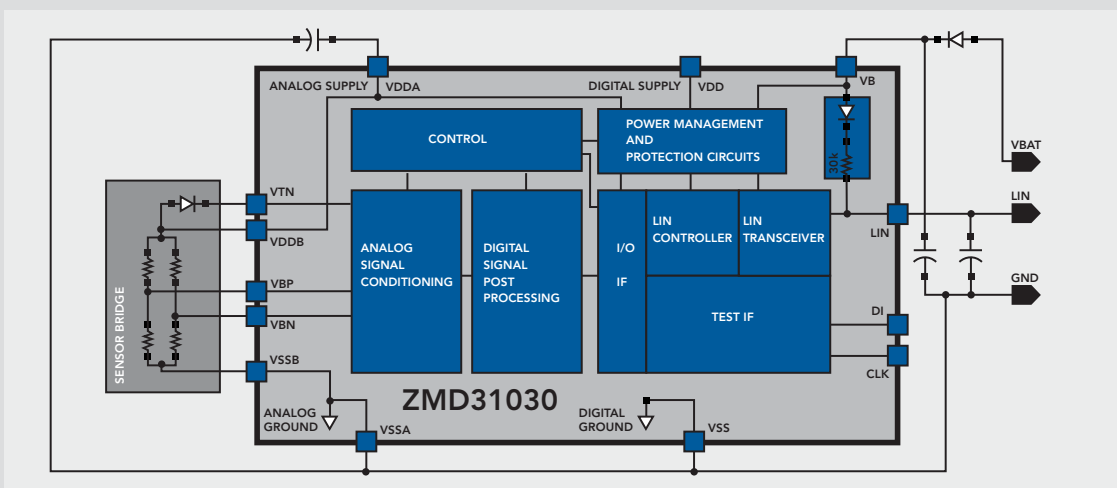


**lin**
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## Application Examples

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

## LIN (Local Interconnect Network)

- Low-cost open bus standard for electronic components in cars
- Sub-bus for CAN (Controller Area Network)
- Single master/multiple slave concept
- Single-wire data transmission with battery voltage swing



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## Ordering Information

| Ordering Code | Description | Operating Temperature Range | Package Type | Device Marking | Shipping Form** |
|---|---|---|---|---|---|
| ZMD31030AD ES | engineering samples as dice in waffletray | | die | | waffle tray |
| ZMD31030AF ES | engineering samples as finished parts | | SSOP20 | ZMD 31030AF YYWW*** | sample box or tube |
| ZMD31030AAB* | dice on tested unsawn wafer | -40°C to +125°C | die | | 6" wafer |
| ZMD31030AAC* | dice on tested sawn wafer | -40°C to +125°C | die | | sawn 6" wafer on plastic frame |
| ZMD31030AAD* | dice in waffle tray | -40°C to +125°C | die | | waffle tray (100 dice/tray) |
| ZMD31030AAF-T* | finished parts in tube | -40°C to +125°C | SSOP20 | ZMD 31030AAF YYWW | tube (66 parts/tube) |
| ZMD31030AAF-R* | finished parts in tape on reel | -40°C to +125°C | SSOP20 | ZMD 31030AAF YYWW | tape on reel (2000 parts/reel) |
| ZMD31030KIT | evaluation kit | | | | box with PCBs, CD-ROM, SSOP20 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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