The Analog Mixed Signal Company

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

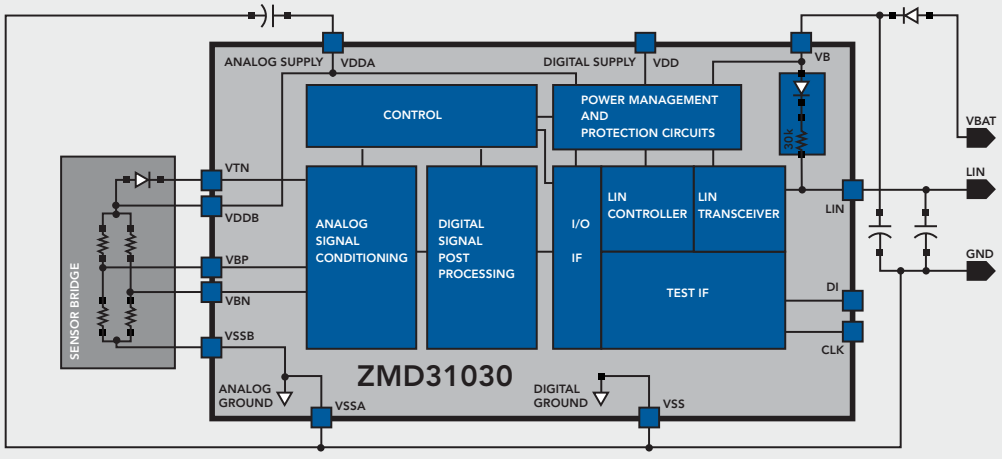
- No external trimming components required
- PC-controlled configuration and calibration via digital LIN bus interface – simple, low cost
- High accuracy (±0.1% FSO @ -25 to 85°C; ±0.25% FSO @ -40 to 125°C)

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 coeffi-cients 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-con-trolled calibration procedure, in order to program a set of cali-bration 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)



LOCAL INTERCONNECT NETWORK
www.lin-subbus.de

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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