ZMD31010

RBic$_{Lite}$™ Low-Cost Sensor Signal Conditioner

The Analog Mixed Signal Company

Brief Description

The RBic$_{Lite}$™ ZMD31010 is a sensor signal conditioner integrated circuit, which enables easy and precise calibration of resistive bridge sensors via EEPROM. When mated to a resistive bridge sensor, it will digitally correct offset and gain with the option to correct offset and gain coefficients and linearity over temperature. A second-order compensation can be enabled for temperature coefficients of gain or offset or bridge linearity. The RBic$_{Lite}$™ communicates via ZMD's ZACwire™ serial interface to the host computer and is easily mass calibrated in a Windows® environment. Once calibrated, the output pin Sig™ can provide selectable 0 to 1 V, rail-to-rail ratiometric analog output, or digital serial output of bridge data with optional temperature data.

Features

- Digital compensation of sensor offset, sensitivity, temperature drift, and non-linearity
- Accommodates differential sensor signal spans, from 1.2 mV/V to 60 mV/V
- ZACwire™ One-Wire Interface (OWI)
- Internal temperature compensation and detection via bandgap PTAT (proportional to absolute temperature)
- Optional sequential output of both, temperature and bridge readings, on ZACwire™ digital output
- Output options: rail-to-rail analog output voltage, absolute analog voltage, digital One-Wire Interface (OWI)
- Fast response time, 1 ms (typical)
- High voltage protection up to 30 V with external JFET
- Chopper-stabilized true differential ADC
- Buffered and chopper-stabilized output DAC

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 @ -50 to 150°C)
- Single pass calibration – quick and precise
- Suitable for battery-powered applications
- Small SOP8 package

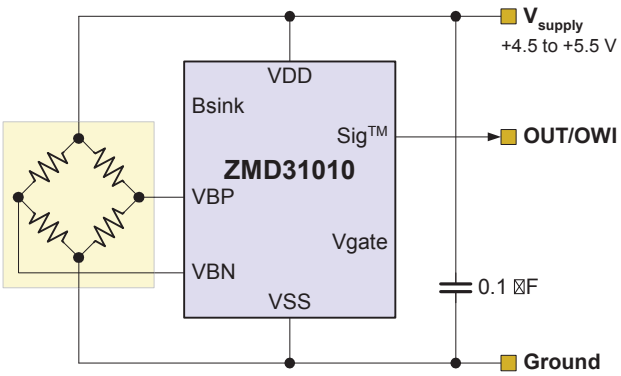
Available Support

- Development Kit available
- Multi-Unit Calibrator Kit available
- Support for industrial mass calibration available
- Quick circuit customization possible for large production volumes

Physical Characteristics

- Supply voltage 2.7 to 5.5 V, with external JFET 5.5V to 30 V
- Current consumption depending on adjusted sample rate: 0.25 mA to 1 mA
- Wide operational temperature: –50 to +150°C

ZMD31010 Application Circuit – Digital Output



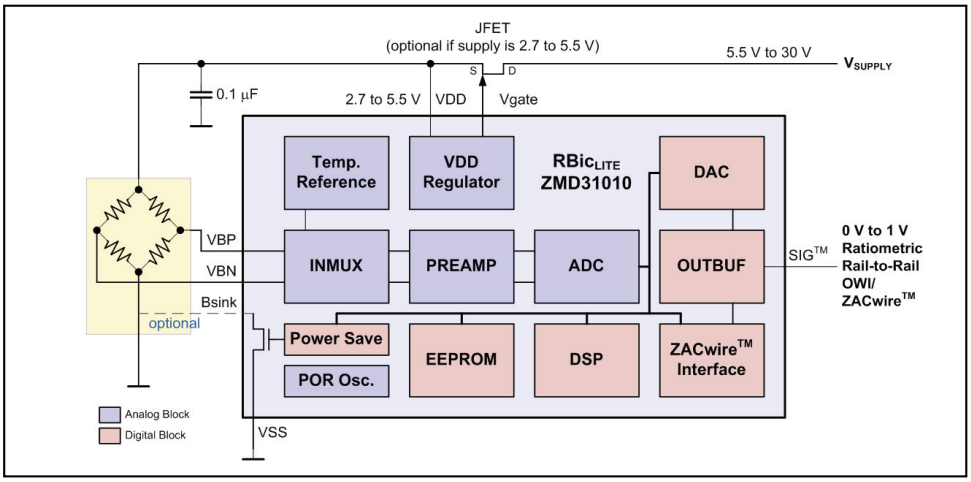
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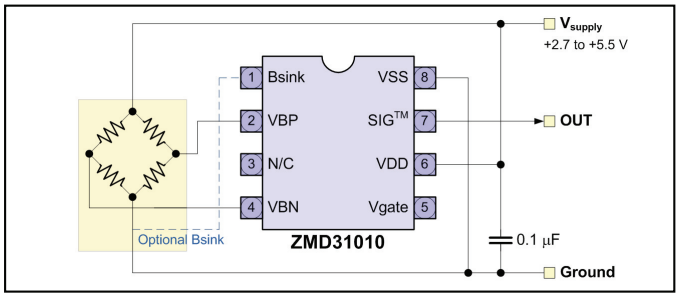
ZMD31010 Block Diagram



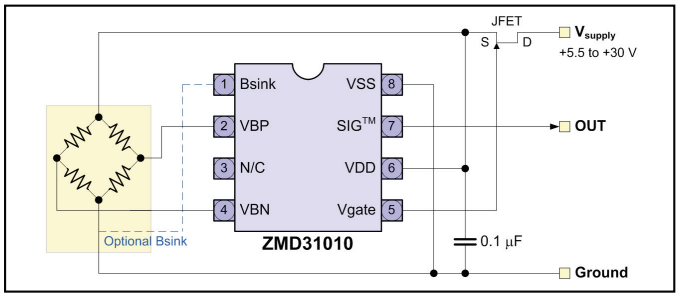
Highly Versatile Applications in Many Markets Including

- ***Industrial***
- ***Building Automation***
- ***Office Automation***
- ***White Goods***
- ***Automotive***
- ***Portable Devices***
- ***Your Innovative Designs***

Rail-to-Rail Ratiometric Voltage Output Applications



Absolute Analog Voltage Output Applications



Ordering Examples *(Please contact ZMDI Sales for additional options.)*

Sales Code	Description	Package
ZMD31010CEB	ZMD31010 RBic$_{Lite}$™ Die — Temperature range:-50°C to +150°C	Unsawn on Wafer
ZMD31010CEC	ZMD31010 RBic$_{Lite}$™ Die — Temperature range:-50°C to +150°C	Sawn on Wafer Frame
ZMD31010CED	ZMD31010 RBic$_{Lite}$™ Die — Temperature range:-50°C to +150°C	Waffle Pack
ZMD31010CEG1	ZMD31010 RBic$_{Lite}$™ SOP8 (150 mil) — Temperature range:-50°C to +150°C	Tube: add “-T” to sales code Reel: add “-R”
ZMD31010KIT	ZMD31010 SSC Evaluation Kit: Communication Board, SSC Board, Sensor Replacement Board, Evaluation Software, USB Cable, 5 IC Samples	Kit

Sales and Further Information

www.zmdi.com sales@zmdi.com

Zentrum Mikroelektronik Dresden AG (ZMD AG)
Grenzstrasse 28
01109 Dresden
Germany
Phone +49 (0)351.8822.7.772
Fax +49(0)351.8822.87.772

ZMD America, Inc.
8413 Excelsior Drive
Suite 200
Madison, WI 53717
USA
Phone +01 (608) 829-1987
Fax +01 (631) 549-2882

ZMD AG, Japan Office
2nd Floor, Shinbashi Tokyu Bldg.
4-21-3, Shinbashi, Minato-ku
Tokyo, 105-0004
Japan
Phone +81.3.6895.7410
Fax +81.3.6895.7301

ZMD Far East, Ltd.
3F, No. 51, Sec. 2,
Keelung Road
11052 Taipei
Taiwan
Phone +886.2.2377.8189
Fax +886.2.2377.8199

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