▶ Sensorless position control of DC-motors   E910.40

FEATURES

- ▶ Supply voltage range VDD 9V to 16V
- ▶ Full motor control and diagnosis
- ▶ Driving a four N-channel-power-MOSFET full bridge
- ▶ Pulse width modulation with 8bit resolution for high side drivers
- ▶ Drive frequency 23 kHz
- ▶ Reduced current peaks during motor start and acceleration
- ▶ Active motor braking
- ▶ Motor position determined by sensing motor current fluctuations
- ▶ Shortcircuit and overvoltage protected outputs
- ▶ One pin microprocessor interface with automatic baud rate recognition
- ▶ Motor turned off automatically 200 ms after the last valid transmission
- ▶ Low standby current (typ. < 200 µA)
- ▶ −40°C to +125°C operating temperature
- ▶ SO20w package

APPLICATION

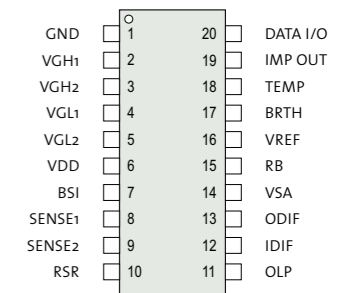- ▶ Seat adjustment
- ▶ Steering column adjustment
- ▶ Fuel pump

DESCRIPTION

The IC enables a µC to track the position of a DC-motor by counting its current ripples. The ripple signal is available on an output pin to connect controllers or dedicated logic. With the bidirectional interface the actual position can be read out and IC parameters can be changed. Main parameters are motor direction and PWM to control high side drivers. The IC can be adapted to different motor characteristics by changing the RC-filter on ODIF, IDIF, OLP and the voltage divider on BRTH.
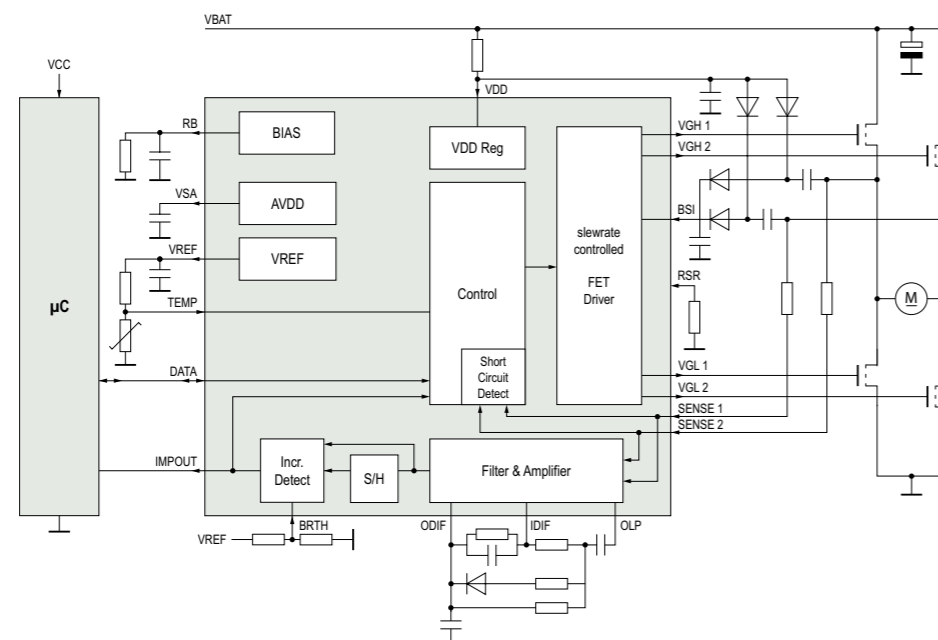
PINNING

Pin	Name	Description
1	GND	Ground
2	VGH1	Gate voltage for high side driver 1
3	VGH2	Gate voltage for high side driver 2
4	VGL1	Gate voltage for low side driver 1
5	VGL2	Gate voltage for low side driver 2
6	VDD	Input supply voltage
7	BSI	Input bootstrap voltage
8	SENSE1	Voltage sense bridge 1
9	SENSE2	Voltage sense bridge 2
10	RSR	External resistor to adjust slew rate
11	OLP	Output low pass filter
12	IDIF	Inverting input differential amplifier
13	ODIF	Output differential amplifier
14	VSA	Internal 9V analog supply
15	RB	External bias resistor
16	VREF	Internal 5V supply voltage
17	BRTH	Input breake threshold
18	TEMP	Input temperature monitor
19	IMP OUT	Incremental output for counting pulses, open drain
20	DATA I/O	Serial data I/O

PACKAGE

BLOCK DIAGRAM