ZPSL81 Product Overview

The ZPSL81 drives a 3-phase brushless and sensor-less DC motor in full bridge mode. Various functions and parameters are predefined in the OTP registers. The OTP registers can be programmed through standard LIN protocol via RX and TX pins with a LIN transceiver. The motor driver block integrates the pre-drivers, internal power FETs and commutation logic. This device is capable of spin up the motor and maintain constant speed. The start-up includes an inductive sense routine, blind spin routine, or hall assisted start-up followed by a six-step spin up and then hand over to sine mode. The speed of the motor can be controlled through the PWMIN pin. In automotive applications, this device can drive an external supply isolation FET (ISOFET) and protect the device and motor from supply overvoltage spikes. In the event of a supply spike, the ISOFET can either be turned off and the motor is tristate, or function as a regulator.

Features

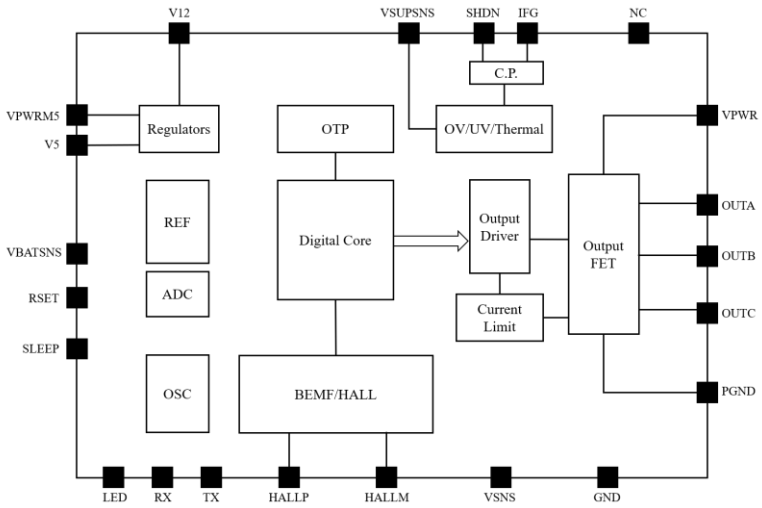
- Sensor-less 3 phase motor control
- Integrated pre-drivers and internal MOSFET
- Auto spin-up using inductive sensing for position detect or blind spin startup or hall assisted startup mechanism
- Programmable spin up current limit
- Guaranteed start-up from reverse spin condition
- Open or closed loop speed control
- Built in AGS control
- Sinusoidal (sine) PWM drive with bit selectable option for a 6-step drive
- Programmable spin up current limit
- Programmable acceleration and deceleration control
- Programmable alarm and retry timing
- Pole mismatch compensation to minimize jitter
- 5-bit torque adjustment for best torque ripple
- Speed fault detection
- Optional Emergency Brake upon power loss

- Power FET with 320mΩ RDSON (High side + Low side)
- 6V to 22.0V operation without supply spike protection
- 6V to 80.0V operation with supply spike protection enabled and 80V MOSFET, chip supply is protected at 16V
- LIN protocol via RX & TX pins

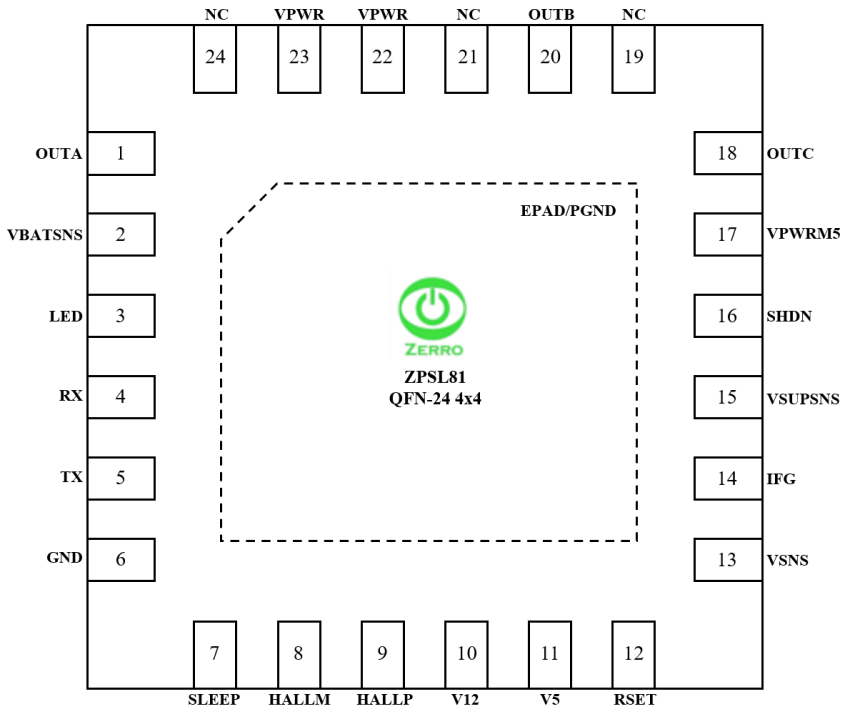
- ZPSL81-1 up to 0.5A drive
- ZPSL81-2 up to 1.0A drive
- ZPSL81-3 up to 1.5A drive
- ZPSL81-4 up to 2.0A drive
- QFN24L 4x4 or CSP49 2.6x2.6

- Pass ISO7637-2 Pulse 2a, 3b
- Pass ISO16750-2 Pulse 5,5b
- Pass IEC61000-4-4 and IEC61000-4-5

Chip Level Block Diagram



Package option1: QFN24L 4mm x 4mm Pin out



Package option2: CSP49 2.6mm x 2.6mm Pin out

