



Product Overview

LV8907UW: Sensor-less Three-phase Brushless DC Motor Controller, with Gate Drivers, for Automotive

For complete documentation, see the data sheet.



The LV8907 is a high performance, sensor-less three-phase BLDC motor controller with integrated gate drivers for driving external N-MOSFETs. An on-chip two-stage charge pump provides required gate current for a wide range of ultra low RDS(ON) type external N-MOSFETs. The device offers a rich set of system protection and diagnostic functions such as over-current, over-voltage, short-circuit, under-voltage, over-temperature and many more. It supports open-loop as well as closed-loop speed control with user configurable startup, speed setting and proportional/integral (PI) control coefficients, making it suitable for a wide range of motor and load combinations. With an in-built linear regulator for powering an external circuit, a watchdog timer and a Local Interconnect Network (LIN) transceiver, the LV8907 offers the smallest system solution footprint. An SPI interface is provided for parameter setting and monitoring the system health. With the operating junction temperature tolerance up to 175°C and electrically LIN compatible control signals (PWM and Enable), the LV8907 is an ideal solution stand-alone automotive BLDC motor control systems.

Features

- Operating junction temperature up to 175°C
 - Operating voltage range from 5.5 V to 20 V with tolerance from 4.5 V to 40 V
 - Embedded proprietary sensor-less commutation control
 - In-built LIN transceiver and Watchdog timer
 - SPI interface for real-time parameterization and diagnostic
 - Various system protection features including Shoot through protection using configurable dead-time Drain-source short detection Cycle-by-cycle current limit and over-current shutdown Over-voltage and under-voltage shutdown Over-temperature warning and shutdown Input PWM fault detection
 - Integrated 5 V/3.3 V regulator output for external circuit
 - Integrated gate drivers for driving six N-MOSFETs
 - Two-stage charge pump for continuous 100% duty-cycle operation
 - Supports open-loop as well as closed-loop speed control
- For more features, see the data sheet

Benefits

- Automobile application applicable
- Wide capability for various motors
- BOM cost reduction
- Connectivity with automotive network system
- Optional capability for micro-processor
- Building high reliable and robust system

Applications

- Automotive pumps (Fuel, Oil, and Hydraulic)
- Fans (HVAC, Radiator, Battery Cooling, LED Headlight Cooling)
- BLDC motor control with or without LIN control

End Products

- Automotives
- White goods
- Industrials

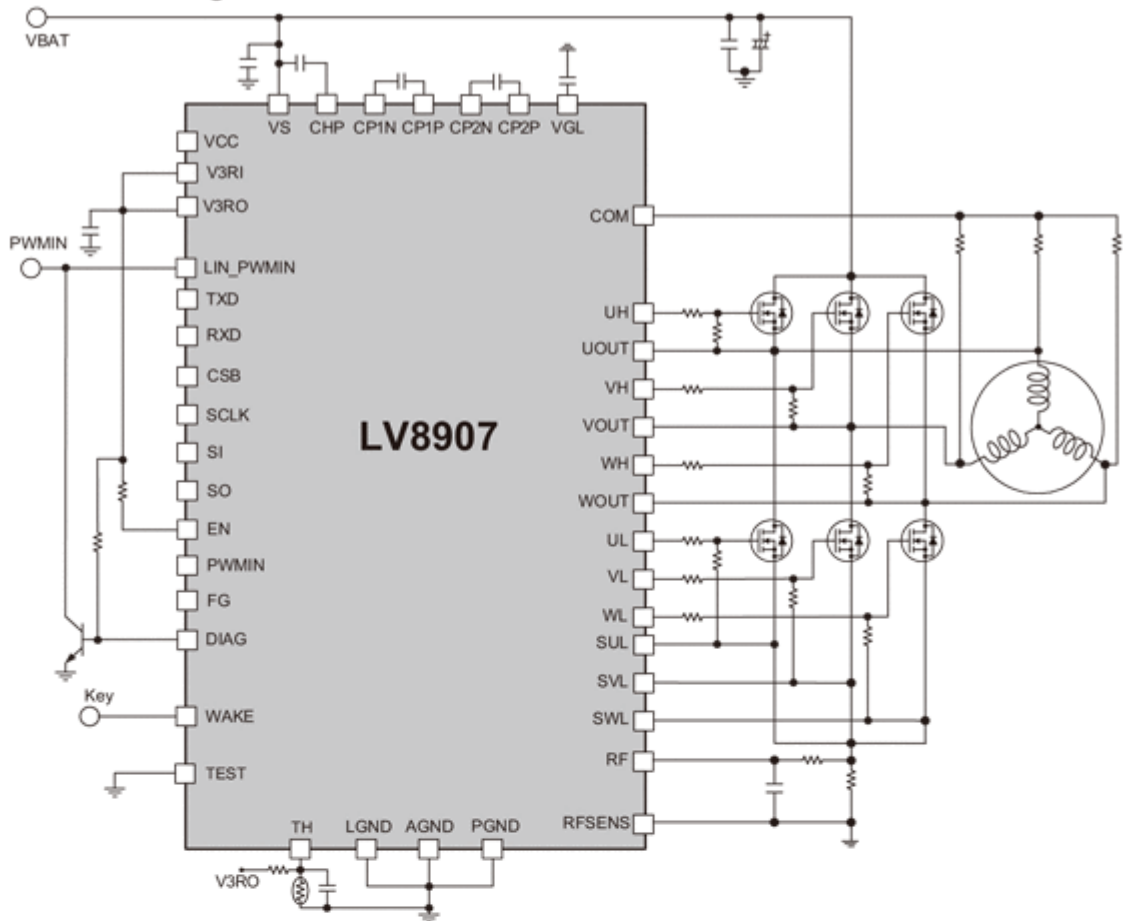
Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Phase	V _M Min (V)	V _M Max (V)	V _{CC} Min (V)	V _{CC} Max (V)	I _O Max (A)	I _O Peak Max (A)	Control Type	Package Type
LV8907UWR2G	7.3998	AEC Qualified PPAP Capable Pb-free Halide free	Active	3	5.5	20			0.05	0.4	PWM	SQFP-48K

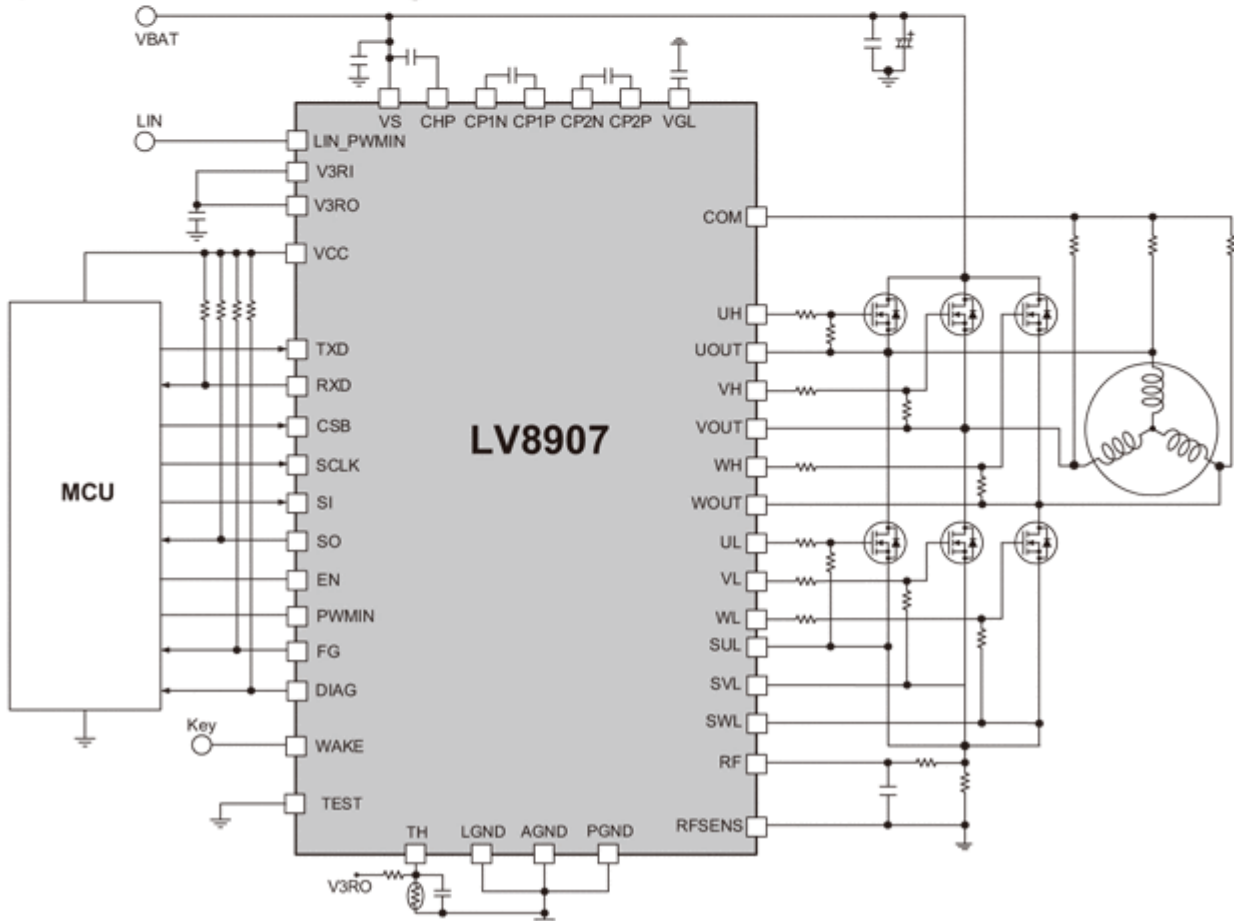
Application Diagram

APPLICATION BLOCK DIAGRAMS

Example of Standalone Configuration



Example of LIN Based Control Configuration



For more information please contact your local sales support at www.onsemi.com.

Created on: 12/14/2019