

Fully Integrated Smart BLDC Motor Driver

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There is tendency for using lot of electromechanical drives instead of mechanical to create more automatic and convenient systems. This means increase of number of DC motors in different devices such as cars, air conditions, computers, household appliances, manufacture machines etc. All this motors have to be driven in different operation modes. Such parameters as rotation speed, current angle, torque, noise should be controlled. Fully integrated DC Motor driver is the cheapest and the most smart solution. These circuits are very easy-to-use for customer and give the complete solution for motor driving.

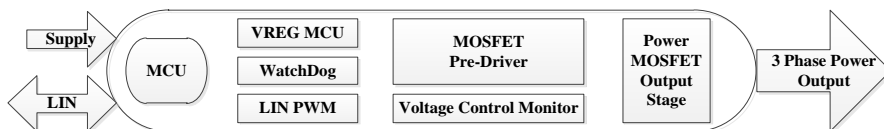


Figure 1 – Structure of fully integrated DC motor driver.

The driver state is defined by the commands coming from the digital part (controlled by software) as well as by internal sensors which detect fault condition which could require change of driver state to protect the IC. The 3 driver outputs can be controlled independently. They can be set individually to high, low or high-impedance state. That is why we will consider the operation of one phase.

Circuit provides 1A output current capability and operates in high temperature range from $-40\text{ }^{\circ}\text{C}$ to $150\text{ }^{\circ}\text{C}$. It operates in normal mode from 8V to 14V supply voltage range and is implemented to fit all quality demands of automotive industry.

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1. Paul R. Gray, Paul J. Hurst, Stephen H. Lewis, Robert G. Meyer, *Analysis and Design of Analog Integrated Circuits* (New York: Berkeley, 2009).
2. T. Kenjo, *Permanent magnet and brushless dc motors* (Oxford, 1985).