



Analog, Mixed-Signal and Power Management

## MPC17510

### 1.2 A 15 V H-Bridge Motor Driver IC

#### Target Applications

- Portable electronics
- Single lens camera
- Digital still camera (DSC)

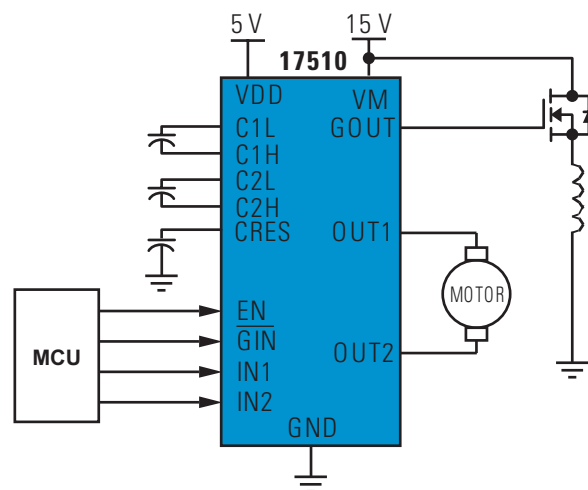
#### Overview

The MPC17510 is a monolithic H-bridge designed to be used in portable electronic applications such as digital and SLR cameras to control small DC motors. The MPC17510 can operate efficiently with supply voltages as low as 2 V to as high as 15 V. Its low  $R_{DS(on)}$  H-bridge output MOSFETs ( $0.45 \Omega$  typical) can provide continuous motor drive currents of 1.2 A and handle peak currents up to 3.8 A. It is easily interfaced to low-cost MCUs via parallel 5.0 V compatible logic. The device can be pulse width modulated (PWM-ed) at up to 200 kHz.

This device contains an integrated charge pump and level shifter (for gate drive voltages), integrated shoot-through current protection (cross-conduction suppression logic and timing), undervoltage detection and shutdown circuitry.

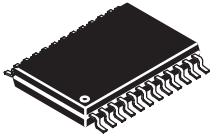
The MPC17510 has four operating modes: Forward, Reverse, Brake and Tristate (High Impedance).

#### Simplified Application Drawing



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Expanding on more than 30 years of innovation, Freescale is a leading provider of high-performance products that use SMARTMOS technology combining digital, power and standard analog functions. Freescale supplies analog and power management ICs that are advancing the automotive, consumer, industrial and networking markets. Analog solutions interface with real-world signals to control and drive for complete embedded systems.



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## Product Features and Benefits

Features	Benefits
2 V–15 V continuous operation	Easy MCU interfacing and control of a single H-bridge
Output current 1.2 A (DC), 3.8 A (peak)	Undervoltage detection to prevent erratic operation
450 mΩ $R_{DS(on)}$ H-bridge MOSFETs	High PWM rate for enhanced motor control
5 V TTL/CMOS-compatible inputs	Output-protected H-bridge operation to 15 V at 1.0 A cont. PWM to 200 kHz
PWM frequencies up to 200 kHz	Low-profile package for a simpler system
Undervoltage shutdown	Low quiescent current
Cross-conduction suppression	Reduced design time

## Protection

Protection	Detect	Shut Down
Undervoltage	•	•

## Performance

Performance	Typical values
Outputs	1
Output Current	1.0 A (DC), 3.0 A (Peak)
Motor Operating Voltage	2–15 V
Logic Operating Voltage	4–5.5 V
PWM Input Control	200 kHz

## Documentation

Freescale Document Number	Title	Description
MPC17510	1.2 A 15 V H-Bridge Motor Driver IC, PWM Clock	Data sheet
SG1002	Analog Product Selector Guide	Selector guide
SG200	Analog and Power Management Industrial Selector Guide	Selector guide

For more information, please visit [freescale.com/analog](http://freescale.com/analog)

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