



Analog and Mixed-Signal Fact Sheet

MC33899

Programmable H-Bridge power integrated circuit (IC)

Applications

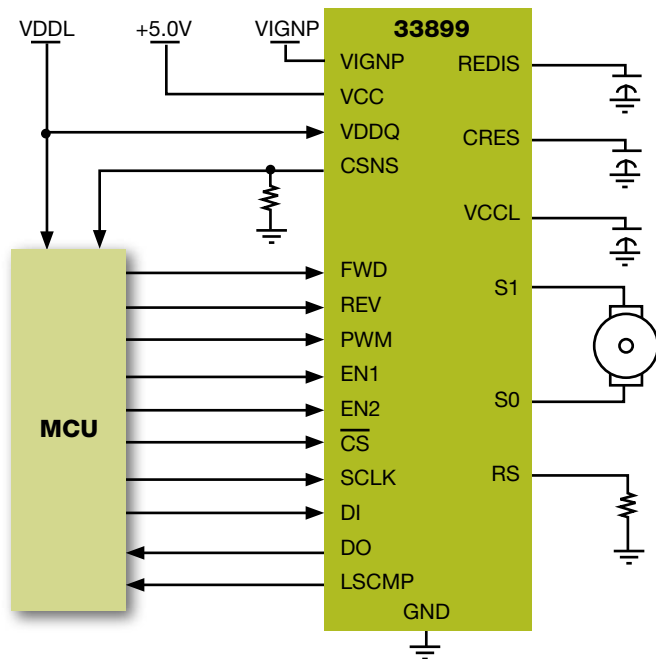
- Electronic throttle control
- DC motor control
- Industrial motors and actuators

Overview

Design engineers want solutions that reduce package count and development time while also providing the diagnostics and protection for various loads. The MC33899 is a programmable H-Bridge power integrated circuit (IC) designed to drive DC motor or bi-directional solenoid controlled actuators such as throttle control or exhaust gas recirculation actuators. It is particularly well suited for the harsh environment found in automotive power train systems.

The key characteristic of this versatile MC33899 DC motor driver is configurability. The selectable slew rate permits the customer to choose the slew rate needed for performance and noise suppression. The serial peripheral interface (SPI) allows the system microprocessor to clear the fault register, select a programmable current limit and select the slew rate. A unique fault restart feature allows the part to be configured to maintain

MC33899 Simplified Application Drawing



limited functionality even in the presence of some faults.

The MC33899 is designed to drive a bidirectional DC motor using pulse-width modulation (PWM) for speed and torque

control. A current mirror output provides an analog feedback signal proportional to the load current. SPI diagnostic reporting includes open circuit, short to battery, short to ground, die temperature range and under voltage.

Documentation

Document Number	Title	Description
MC33899	Data Sheet	Presents the specifications for this product
SG1002	Selector Guide	Analog and power management device comparison
SG187	Selector Guide	Automotive device comparison
AN2388	Application note	Heatsink small outline package (HSOP)

Features

- H-Bridge configuration for bi-directional motors
- Low RDS_{ON} outputs (150 mΩ @ 125°C)
- Current mirror output signal (gain selectable via external resistor)
- Short circuit current limiting
- Thermal shutdown (outputs latched off until reset via SPI)
- Internal charge pump circuit MOSFETs
- SPI selectable slew rate control and current limit
- Detailed fault diagnostics via SPI

Benefits

- Configurability and programmability make this DC motor driver very versatile
- Unique fault restart
- Highly integrated solution
- Robust solution for harsh environment
- Improved reliability

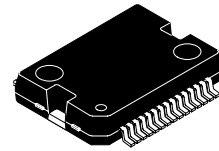
Freescale Semiconductor is a leading provider for over 25 years of high-performance products that use SMARTMOS™ technology that combines digital, power and standard analog functions. The company supplies analog and power management ICs for the automotive, consumer, networking and industrial markets. Freescale's analog and power ICs complement our broad portfolio of microcontrollers, microprocessors, ZigBee® technology, digital signal processors, sensors, development tools and support to offer system solutions to customers.

Orderable Part

Part Number	Temp. Ranges (T _A)	Package
MC33899VW/R2	-40°C to +125°C	30 HSOP

Parametric Table

Performance	Typical Values
H-Bridge outputs	2
High side RDS _{ON}	0.12Ω
Low side RDS _{ON}	0.12Ω
Operating voltage	6.0–26.5V
Control/communication	SPI and parallel



VW SUFFIX (Pb-FREE)
98ASH70329A
30-pin HSOP

Learn More:

For more information about Freescale's Analog products, please visit www.freescale.com/analog.