freescale Analog



Analog Solutions—Robust Reliable Performance

MC34932

Dual 5A H-bridge power integrated circuit

Overview

The MC34932 is a monolithic dual H-bridge power IC in a robust thermally enhanced package, one that provides ultra-low thermal resistance. Automatic thermal back-off ensures high availability operation in demanding high-current, high-temperature industrial applications. The MC34932 has two independent H-bridge power ICs in the same package. They are designed primarily for low-voltage DC brushed and stepper motor control applications.

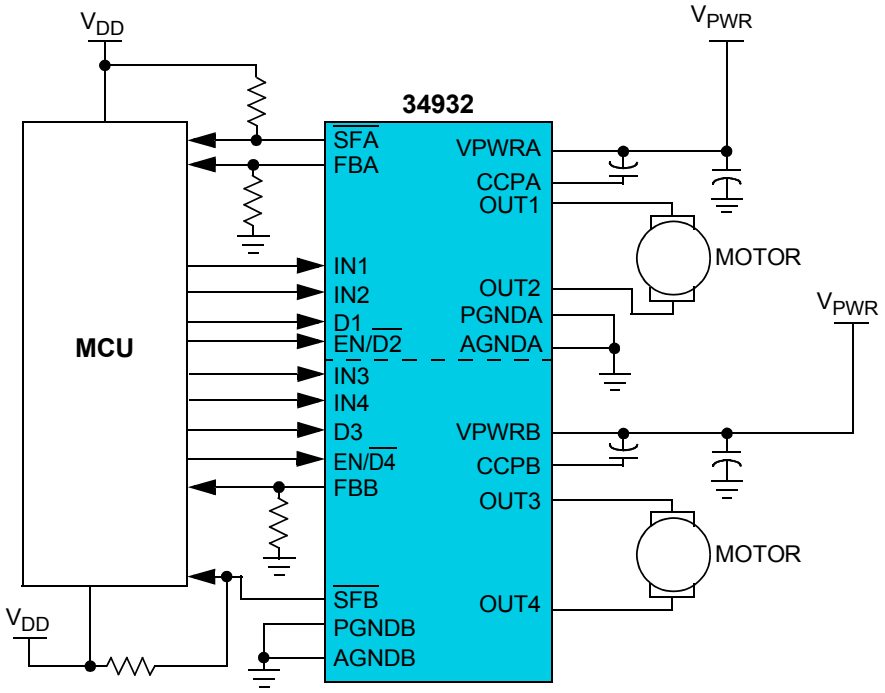
Each H-bridge in the MC34932 is able to control inductive loads with currents up to 5.0 A peak. RMS current capability is subject to the degree of heat sinking provided to the device package. Internal peak-current limiting (regulation) is activated at load currents above 6.5 A ± 1.5 A. The MCU can pulse width modulate the load through the MC34932 at frequencies up to 20 kHz. A load current feedback feature provides a proportional (0.24 percent of the load current) current output suitable for monitoring by a microcontroller's A/D input. A status flag output reports under-voltage, over-current and over-temperature fault conditions.

Independent inputs provide polarity control of each half-bridge totem-pole output. The disable inputs are provided to force the H-bridge outputs to tri-state (high-impedance off-state).

Target Applications

- Dual DC brushed motor drive
- DC brushed and stepper motor driver
- 3D printers
- Factory automation
- POS, ATM, vending kiosks
- Robotics
- Medical pump and valves
- Ticketing, toll systems

Simplified Applications Drawing



Freescale: A Leader in Analog Solutions

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 complete embedded systems.



54-PIN SOICW-EP
98ASA99334D

Product Differentiation

Features	Benefits
Robust thermally enhanced SOIC package	Choice between smaller footprint or visual fillet inspection
Load current mirroring provides a proportional current output (0.24% of the load current)	Provides feedback to a microcontroller for control or protection
Temperature-dependant current-limit threshold reduction	Maintains operation at reduced current for continuous operation
Automatic maximum current regulation via pre-determined MOSFET shut-off times	Reduces safety and reliability risks
Integrated fault detection and interrupt flag for under-voltage, over-current, and over-temperature	Saves board space over discrete solution
Sleep mode with < 20 µA current draw (each half with inputs floating or set to match default logic states)	Reduces power consumption
3.0 and 5.0 V TTL/CMOS logic compatible inputs	Design flexibility
5.0 to 36 V continuous operation (transient operation from 5.0 to 40 V)	Wide range of applications

Performance

Performance	Typical values
Outputs	2
R_{DSON} at 25 ºC	120 mΩ
Operating voltage	5.0 to 36 V
PMW MC34932	11 kHz (max)
PMW MC34932S	20 kHz (max)
ESD	±2000 V
Control/communication	Parallel

Documentation

Freescale Document Number	Title	Description
MC34932	5.0A Dual H-Bridge	Data sheet
SG1002	Analog Product Selector Guide	Selector guide
SG200	Analog and Power Management Industrial Selector Guide	Selector guide
AN2409	Small Outline Integrated Circuit (SOIC)—Fine Pitch Package	Application note

Development Tools

Part Number	Description
KIT33932EKEVBE	Evaluation Kit, featuring the MC33932

For more information, please visit freescale.com/analog

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