ANALOG PRODUCTS

MC33486 FACT SHEET

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POWER ICs
HIGH-SIDE SWITCH

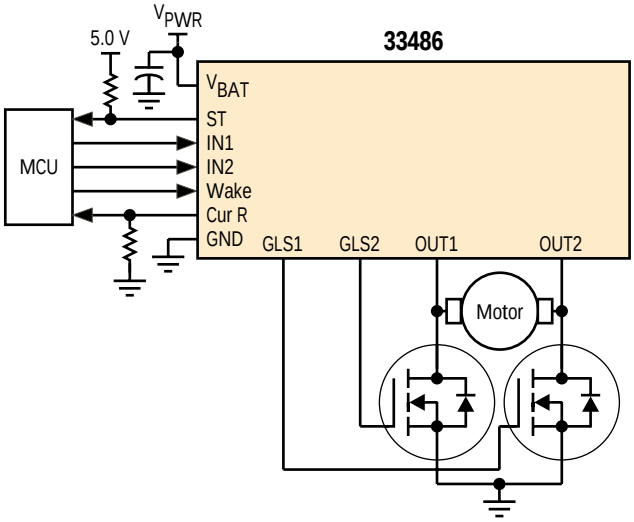
33486 DUAL HIGH-SIDE SWITCH FOR H-BRIDGE

The 33486 is a dual high-side switch for H-Bridge application. Two gate control outputs are provided for controlling two external low-side N-channel FETs where full H-Bridge implementation is required. The IC is applicable for H-Bridge DC motor control or as a simple stand-alone dual high-side protected switch. The 33486 can directly interface to a microcontroller for control and diagnostic functions, is PWM capable, and has a self-adjusted switching speed feature to minimize electromagnetic emission. Each N-channel high-side switch has load current monitoring for short-to-GND and load short protection in addition to having over-temperature protection.

The control circuitry includes an over-voltage detector to turn-OFF the Bridge and protect the load in the event V_{PWR} exceeds 28 V.

The external FETs are protected by the 33486 against load shorts. Low-side protection in combination with high-side protection fully protects the H-Bridge against shorted loads, shorts-to-V_{PWR}, and shorts-to-GND.

Simplified Application Diagram



APPLICATIONS

- Aircraft Systems
- Automotive Systems
- Robotic Systems
- Farm Equipment
- Industrial Actuator Control
- Fractional Horsepower DC-Motor Controls
- Marine Systems
- DC-Motor Control Applications Requiring Diagnostics

CUSTOMER BENEFITS

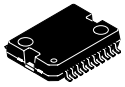
- Economical H-Bridge system solution with minimal component count
- Simple implementation using direct interfacing to a microprocessor
- Easily used in stand-alone manual circuit modes (non-microprocessor applications)
- Fully protected circuit (high-side, low-side, and cross conduction protection)
- Enhanced switching efficiency with very low power dissipation (low $R_{DS(ON)}$)
- Reduced PC board space resulting in improved application reliability

Performance	Typical Values
Outputs	2
$R_{DS(ON)}$ @ 25°C	0.12 Ω
Operating Voltage	8.0 – 28 V
Peak Current	35 A
ESD	± 2000 V
Operating Temp	-40°C ≤ T_A ≤ 125°C
Junction Operating Temp	-40°C ≤ T_J ≤ 150°C

FEATURES

- Very low quiescent current in standby mode.
- 10 A nominal DC current
- 35 A maximum peak current
- Over-voltage shutdown
- High- and low-side over-current protection
- DC to 30 kHz PWM capability
- Accurate high-side current monitoring
- Common diagnostic output
- Additional devices available for comparison in Analog Selector Guide SG1002/D

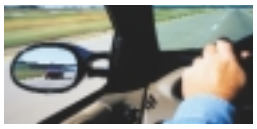
Protection	Shut Down	Auto Retry	Status Reporting
Over Voltage	•	•	
Under Voltage	•	•	
Over Current/SC	•		•
Over Temperature	•	•	•
Open Load		•	
Short to GND	•		•
Short to V_{PWR}	•	•	

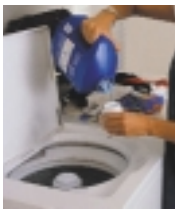
Ordering Information	Package	Ship Method	Motorola Part Number
	20 HSOP	Rail	**33486DH
		T/R	**33486DHR2

Data Sheet Order Number MC33486/D

Contact Sales for Evaluation Kit Availability

**Prefix Index:
PC = Eng Samples; XC = In Qual; MC = Production





QUESTIONS

- Do you need to reduce the cost of an MCU-controlled H-Bridge DC-motor control?
- Do you have limited PC board space available for load control?
- Do you need to design an H-bridge to PWM control a DC-motor over a wide temperature range?
- Are you looking for an easy-to-design H-Bridge circuit with PWM capability?
- Do you need a "smart" switch with internal features which protect both the high- and low-side switches, has fault reporting, and a low standby current?

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