MC33385

Quad Low-Side Driver

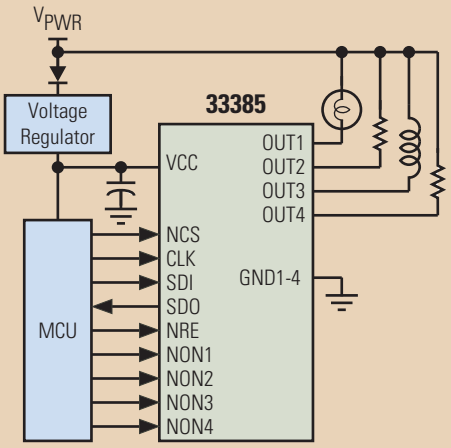
Power Actuation

Low-Side Switch

DESCRIPTION

The MC33385 is a Quad Low-side Driver fully protected switch. This device is a general purpose Low-side Driver but has been especially designed to operate in engine management application as injector driver or automotive gear box. It is interfaced directly with a microcontroller for parallel control of the load and the individual output diagnostic is done through a SPI. The diagnostic logic recognizes 4 failure types at each output stage: overcurrent, short to GND, open load, and over-temperature.

33385 SIMPLIFIED APPLICATION DIAGRAM



APPLICATIONS

- Automotive Systems
- Aircraft Systems
- Robotic Systems
- Farm Equipment
- Industrial Actuator Controls
- Fractional Horsepower DC Motor Controls
- Marine Applications
- Applications where Low-Side Switch Control with Diagnostics is Necessary

PERFORMANCE	TYPICAL VALUES
Outputs	4
$R_{DS(ON)}$ @ 25°C	0.250 Ω
Operating Voltage	9.0 - 45 V
Peak Current	3.0 A each output
Control	Parallel
Operating Temperature	-40°C ≤ T_A ≤ 85°C
Junction Temperature	-40°C ≤ T_J ≤ 100°C

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FEATURES

- RDSON of 250mΩ per Output at 25°C
- Supplied from the main 5V V_{CC}
- Input CMOS Compatible
- Diagnostic through SPI
- Nominal Current of 2A per Output
- Current Limitation at 3A with Automatic Turn Off
- Output Internally Clamped at 50V typ for Inductive Load Drive
- Junction to Case Thermal Resistance of 4.4°C/W
- Individual Output over Temperature Shutdown
- Devices available for comparison are in the Analog Product Selector Guide - SG1002 and Automotive Product Selector Guide - SG187

PROTECTION	DETECT	LIMITING	SHUT DOWN	AUTO RETRY	STATUS REPORTING
Overvoltage		●			
Undervoltage	●			●	
Overcurrent/SC			●		●
Overtemperature			●		●
Open Load					●
Short to GND					●
Short to V_{PWR}				●	

CUSTOMER BENEFITS

- Simple solution for operating low-side power FETs at voltage up to 45 V
- Simple low-side switching of output inductive loads due to internally clamped outputs
- Simple system desigh with direct interfacing to a microprocessor
- Reduced PC board space resulting in enhanced application reliability and lower cost
- Increased efficiency when paralleling outputs

QUESTIONS

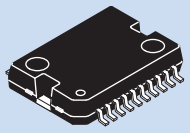
- Do you need to reduce system costs of low-side switching four loads using a microcontroller?
- Do you have to design four high-efficiency switches to control incandescent or inductive loads (or combinations of both) over a wide temperature range?
- Are you looking for an easy-to-design low-side switch, capable of switching four different high-voltage loads (45 VDC)?
- Do you require four “smart” independent low-side switches with internal protection features as well as fault reporting via a SPI interface?

ORDERING INFORMATION

Device	Temperature Range (T_A)	Package
**33385DH/R2	-40°C to 125°C	20 HSOP
**33385VW/R2		
Data Sheet Order Number		MC33385

**Prefix Index:
PC = Engineering Samples; MC = Production

Contact Sales for Evaluation Kit Availability



20 HSOP
1.27 mm Pitch
16.0 mm x 11.0 mm Body
12.2 mm x 6.9 mm Exposed Pad

ARCHIVE INFORMATION

MC33385FS
Rev 2.0

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