



**ANALOG PRODUCTS**

**MC33385 FACT SHEET**

POWER ICs  
LOW-SIDE SWITCH

**33385 QUAD LOW-SIDE SWITCH (250 mΩ R<sub>DS(on)</sub>)**

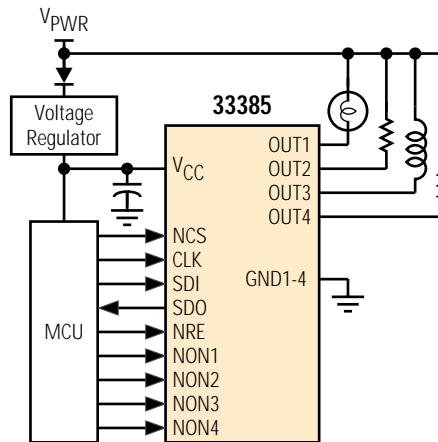
The 33385 is a fully protected quad low-side switch. It interfaces directly with a microcontroller for parallel control of independent output loads. Independent output diagnostics are via SPI. The diagnostic logic reports output over current, output short-to-GND, output open load, and over temperature conditions.

The 33385 outputs are current limited and internally clamped to control incandescent and inductive loads.

**APPLICATIONS**

- Aircraft Systems
- Automotive 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

Simplified Application Diagram



**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 design with direct interfacing to a microprocessor
- Reduced PC board space resulting in enhanced application reliability and lower costs
- Increased efficiency when paralleling outputs

Performance	Typical Values
Outputs	4
R <sub>DS(on)</sub> @ 25°C	0.250 Ω
Operating Voltage	9.0 – 45 V
Peak Current	3.0 A each output
Control	Parallel
Operating Temp	-40°C ≤ T <sub>A</sub> ≤ 125°C
Junction Operating Temp	-40°C ≤ T <sub>J</sub> ≤ 150°C

## FEATURES

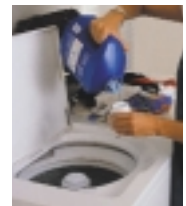
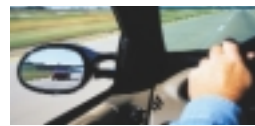
- Four low-side with independent CMOS inputs
- 5.0 V  $V_{CC}$
- SPI Diagnostic Reporting
- 2.5 A per output (steady state)
- 3.0 A current limit with automatic retry
- 50 V internally clamped outputs for inductive load switching
- Independent output over-temperature shutdown
- Additional devices available for comparison in Analog Selector Guide SG1002/D

Protection	Detect	Limiting	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 T/R	**33385DH **33385DHR2
Data Sheet Order Number			MC33385/D
Contact Sales for Evaluation Kit Availability			
**Prefix Index: PC = Eng Samples; XC = In Qual; MC = Production			

## 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?



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MC33385FS/D  
Rev. 1

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