

## ANALOG PRODUCTS

### MC33143 FACT SHEET



### 33143 SMART DUAL HIGH-SIDE SWITCH (140 mΩ R<sub>DS(on)</sub>)

The 33143 is a dual high-side switch for use in controlling moderate current loads (1.0 A), such as small motors, relays, solenoids, and incandescent lamps.

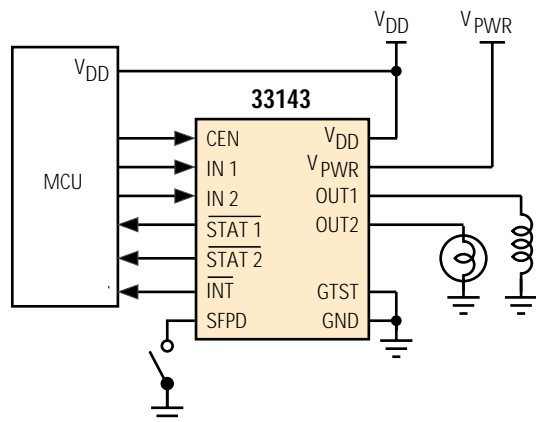
Each output is enabled with a 5.0 V CMOS logic signal applied to a respective parallel input. When turned on, the outputs provide full supply (battery) voltage to the load.

An internal charge pump is incorporated to provide efficient gate enhancement of the internal high-side N-channel power output devices. The outputs are designed to provide drive current to low impedance solenoids. Features of the 33143 include individual output fault status reporting, interrupt output for system use, chip enable (sleep mode), and internal output independent over current and over temperature shutdown with automatic retry recovery. It also has over voltage protection with automatic recovery, which "globally" disables both outputs for the duration of the over voltage condition.

#### APPLICATIONS

- Aircraft Systems
- Automotive Controls
- Robotic Systems
- Farm Equipment
- Industrial Actuator Controls
- Fractional Horsepower DC-Motor Controls
- Marine Systems
- Incandescent Lamp Control
- Applications where high-side switch control with diagnostics is necessary

Simplified Application Diagram



#### CUSTOMER BENEFITS


- Low system cost, simplified circuitry, minimal boardspace
- Simple system design with direct interfacing to a microprocessor
- Easily used in stand-alone manual circuit modes (non-microprocessor applications)
- Simplified high-side switching of inductive loads with internally clamped outputs
- Applicable for high-side switching of capacitive, inductive, or incandescent loads

Performance	Typical Values
Outputs	2
R <sub>DS(on)</sub> @ 25°C	0.14 Ω
Operating Voltage	5.5 – 26 V
Peak Current	3.0 A each output
ESD	± 2000 V
Operating Temp	-40°C ≤ T <sub>A</sub> ≤ 125°C
Junction Operating Temp	-40°C ≤ T <sub>J</sub> ≤ 150°C

## FEATURES

- Outputs clamped for switching inductive loads
- Very low operational bias currents < 2.0 mA
- CMOS input logic compatible with 5.0 V logic levels
- Load dump robust (60 V transient at  $V_{PWR}$ )
- Sleep mode current < 25  $\mu$ A
- Switch outputs can be paralleled for higher currents
- Additional devices available for comparison in Analog Selector Guide SG1002/D

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

Ordering Information	Package	Ship Method	Motorola Part Number
	24 SOICW	Rail T/R	**33143DW **33143DWR2
Data Sheet Order Number			MC33143/D
Contact Sales for Evaluation Kit Availability			
**Prefix Index: PC = Eng Samples; XC = In Qual; MC = Production			

## QUESTIONS

- Do you need to reduce system complexity for high-side switching of two loads using a microcontroller?
- Do you have only a little PC board space available for load control?
- Do you have to design a dual high-efficiency switch to control capacitive, incandescent, or inductive loads over a wide temperature range?
- Are you looking for an easy-to-design high-side solid state relay switch, capable of switching two loads?
- Do you require a "smart" switch with internal protection?

### How to reach us:

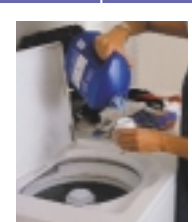
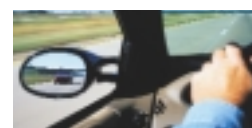
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