



ANALOG PRODUCTS

MC33143 FACT SHEET

POWER ICs HIGH-SIDE SWITCH

33143 SMART DUAL HIGH-SIDE SWITCH (140 mΩ R_{DS(on)})

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.

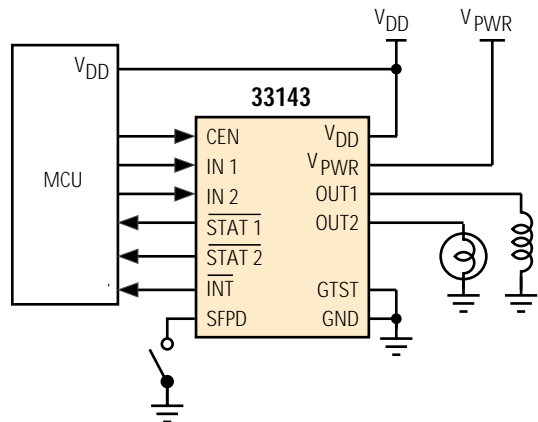
Each output is enabled with a 5.0 V CMOS logic signal applied to a respective parallel input. When turned on, the outputs provide full supply (battery) voltage to the load.

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 _{DS(on)} @ 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 _A ≤ 125°C
Junction Operating Temp	-40°C ≤ T _J ≤ 150°C

FEATURES

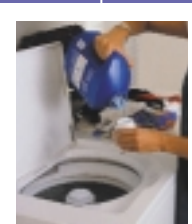
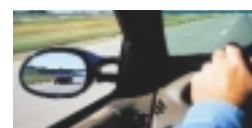
- Outputs clamped for switching inductive loads
- Very low operational bias currents < 2.0 mA
- CMOS input logic compatible with 5.0 V logic levels
- Load dump robust (60 V transient at V_{PWR})
- Sleep mode current < 25 μ A
- Switch outputs can be paralleled for higher currents
- Additional devices 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:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217
1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center,
3-20-1, Minami-Azabu, Minato-ku, Tokyo 106-8573 Japan
81-3-3440-3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre,
2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong
852-26668334

Technical Information Center: 1-800-521-6274

HOME PAGE: <http://www.motorola.com/semiconductors>



MOTOROLA and the Stylized M Logo are registered in the U.S. Patent & Trademark Office.
All other product or service names are the property of their respective owners.
© Motorola, Inc. 2002

MC33143FS/D
Rev. 1

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

更多产品请看本公司产品专用销售网站：

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达消费电子产品网：<http://www.icasic.com/>

商斯达实业科技产品网：<http://www.sunstars.cn/>

传感器销售热线：

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-83370250 83376489 83376549 83607652 83370251 82500323

传真：0755-83376182 (0) 13902971329 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

技术支持：0755-83394033 13501568376

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

TEL: 010-81159046 82615020 13501189838 FAX: 010-62543996

上海分公司：上海市北京东路 668 号上海赛格电子市场 2B35 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382