

ANALOG PRODUCTS

MC33880 FACT SHEET



APPLICATIONS

- Automotive Systems
- Multiple Relay, Solenoid, Lamp, and Small Motor Driver for Industrial and Robotic Systems
- Load Control in Boats, RVs and Marine Systems
- Appliance and White Goods Electrical Actuators
- Electronic Gaming Machines (Casino and Arcade)

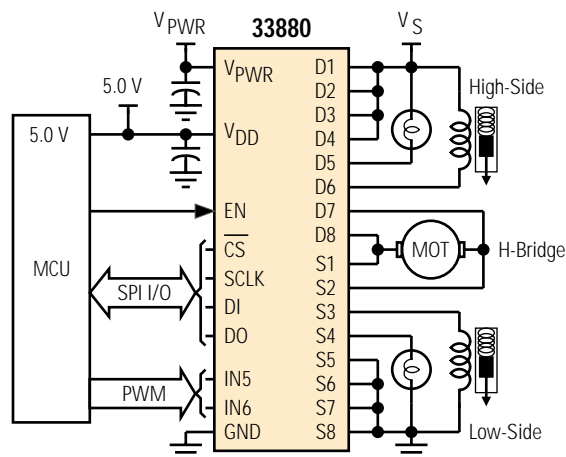
33880 (0.55 Ω $R_{DS(on)}$) CONFIGURABLE EIGHT-OUTPUT SWITCH WITH SPI

The 33880 device is an eight-output hardware-configurable high-side/low-side switch with 8-bit serial input control. Two of the outputs can be controlled directly via microcontroller for Pulse Width Modulation (PWM) applications.

The 33880 controls various inductive or incandescent loads by directly interfacing with a microcontroller.

The circuit's innovative monitoring and protection features include very low standby currents, "cascadable" fault reporting, internal 40 V output clamping for low-side configurations, internal -20 V output clamping for high-side configurations, output-specific diagnostics, and independent shutdown of outputs.

Simplified Application Diagram



All Output Switches are High- or Low-Side Configurable

CUSTOMER BENEFITS


- Easiest way to interface a microcontroller to DC loads
- Versatile output control (each output can be used for either high- or low-side switching)
- Expandable control via daisy-chaining
- Expandable control via paralleling
- Simplified system design
- Reduced board space
- Enhanced reliability

Performance	Typical Values
Outputs	8
$R_{DS(on)}$ @ 25°C	0.55 Ω
Operating Voltage	5.5 – 24.5 V
Control	SPI
Peak Current	0.8 A each output
RMS Current	0.6 A (one output ON)
RMS Current	0.350 A (all outputs ON)
ESD	± 2000 V
Operating Temp	-40°C $\leq T_A \leq$ 125°C
Junction Operating Temp	-40°C $\leq T_J \leq$ 150°C

FEATURES

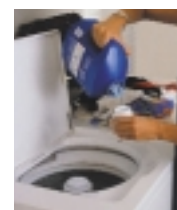
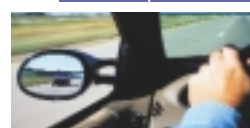
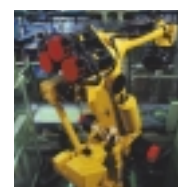
- Eight independent high-side or low-side output switches
- Two PWM-able outputs
- Logic inputs TTL/CMOS compatible
- SPI operation guaranteed to 4.0 MHz
- Power-saving sleep mode
- Power-on Reset
- Diagnostic SPI output bits corresponding to each switch
- Additional devices available for comparison in Analog Selector Guide SG1002/D

Protection	Detect	Limiting	Shut Down	Auto Retry	Status Reporting
Over Voltage	•		•	•	
Over Current/SC	•	•		•	•
Over Temperature	•		•	•	•
Open Load	•				•

Ordering Information	Package	Ship Method	Motorola Part Number
	32 SOICW	Rail T/R	**33880DWB **33880DWBR2
Data Sheet Order Number			MC33880/D
Contact Sales for Evaluation Kit Availability			
**Prefix Index: PC = Eng Samples; XC = In Qual; MC = Production			

QUESTIONS

- Are there multiple DC loads to control via microprocessor?
- Does the MCU have SPI I/O?
- Is expandability required in future designs?
- Is there a requirement for PWM control of current?
- Is space limited?



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MC33880FS/D
Rev. 1