

MC33884

Switch Monitor Interface

Flexible I/O

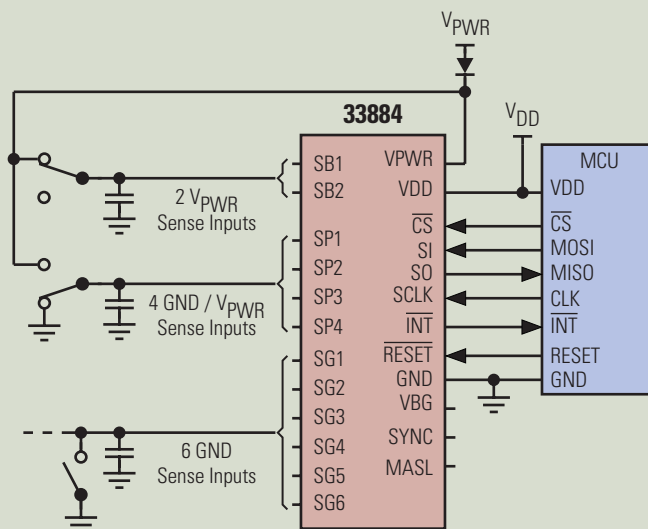
DESCRIPTION

The 33884 provides ON/OFF status reporting of multiple external system switches. The device efficiently interfaces between system electrical switches and low voltage microprocessors. All inputs are protected against transients when implemented with recommended discharge capacitors placed on the inputs.

The 33884 has four operational modes:

- *Sleep* reduces current to 10 μ A and disables the IC
- *Normal* interrupts the MCU when an external switch status changes
- *Polling* periodically reads switch status, interrupts the MCU only when a switch is "closed", reverting operation to Normal mode
- *Polling + INT Timer* interrupts the MCU when switch is sensed "closed" or when internal timer "times out". Mode continues with all switches "open"; otherwise reverts to normal mode.

33884 SIMPLIFIED APPLICATION DIAGRAM



APPLICATIONS

- Aircraft Systems
- Aerospace Systems
- Robotic Systems
- Automotive Systems
- Process Control Systems
- Security Systems
- Applications where Switch Status Verification for Safety, Operation, or Process Control Purposes is of Critical Concern

PERFORMANCE

TYPICAL VALUES

Inputs	12
Switch Voltage Range	-14 – V_{PWR}
Operating Voltage	7.0 – 26 V (V_{PWR})
Contact Wetting Current	1.0 mA
Quiescent Current	10 μ A
Control	SPI
Operating Temperature	-40°C $\leq T_A \leq$ 105°C

FEATURES

- Full operation with $7.0\text{ V} \leq V_{\text{PWR}} \leq 26\text{ V}$, limited operation with $5.5\text{ V} \leq V_{\text{PWR}} \leq 7.0\text{ V}$
- Input voltage range: -14 V to 40 V
- Interface directly to microprocessors using SPI protocol
- Wake up on change of monitored switch status
- Programmable wetting current
- Four switch-to-ground switches
- Six (fixed function) inputs monitoring six switch-to-ground switches
- Two (fixed function) inputs monitoring two switch-to-battery switches
- Quiescent current in sleep mode $\leq 10\text{ }\mu\text{A}$
- Reset input defaults the device to sleep mode
- Devices available for comparison are in the Analog Product Selector Guide - SG1002, and Automotive Product Selector Guide - SG187

PROTECTION	DETECT	LIMITING	SHUT DOWN	STATUS REPORTING
------------	--------	----------	-----------	------------------

Internal 4.0 kV ESD protection of inputs

CUSTOMER BENEFITS

- Low system cost, minimal component count, and simple circuit hook-up to system
- Simple interfacing to 5.0 V microprocessors having SPI
- Robust with proven automotive track record
- Simple means of confirming open/closed switch status of multiple system switches
- Ease and versatility of reporting switch status

QUESTIONS

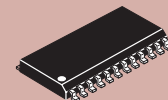
- Are you looking for an easy-to-design-in device that will continuously monitor the ON/OFF status of multiple switches used in your system?
- Does your system have available a SPI protocol microprocessor?
- Do you need a device to reduce the switch monitoring burden placed on the system's microprocessor?
- Do you need a versatile device that can monitor both the status of multiple system switches and source or sink currents to operate peripheral devices of your system?
- Do you need a switch status-reporting device that has a sleep mode feature for system power conservation?
- Do you need a switch status-reporting device that will pinpoint a specific switch in a system as having changed its ON/OFF status?
- Do you have little PC board space available for the monitoring of switches or for the driving of peripheral devices or circuits?

ORDERING INFORMATION

Device	Temperature Range (T_A)	Package
MC33884DW/R2	-40°C to 105°C	24 SOICW
MCZ33884EG/R2		24 SOICW (Pb-free)

Data Sheet Order Number MC33884

Contact Sales for Evaluation Kit Availability



24 SOICW
1.27 mm Pitch
15.4 mm x 7.5 mm Body