

Ultra-low power human body detector

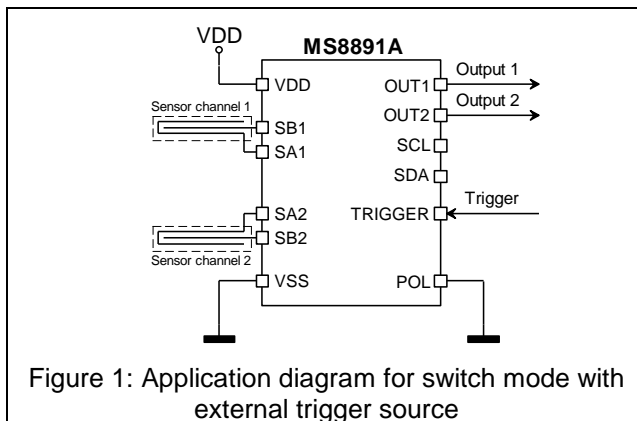
General description

The integrated circuit MS8891A is an ultra-low power, two channel capacitive sensor for human body detection. It offers meter mode or switch mode. In switch mode, the sensor capacitance is compared with a programmable threshold capacitance. The sensor output changes polarity if the sensor capacitance falls below or rises above this threshold capacitance. The comparator outputs are available at circuit pins or can be read via the I²C serial interface. In meter mode, the absolute capacitance values of the sensor channels are measured. The configuration of the various options and the operation of the meter mode are done via the I²C serial interface.

Applications

- Human body detection (e.g. in-ear phone, finger detection)
- Wrist detection (e.g. wearables or medical wearables)
- Capacitive sensor
- Touch and proximity switch

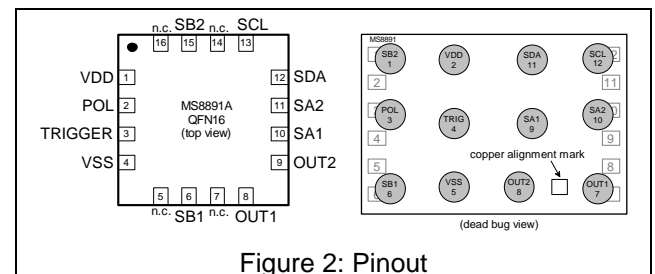
Typical application



Features

- Two capacitive sensor channels
- One or two channel operation
- Meter mode or switch mode
- Capacitance meter with 4 measuring ranges covering 0 to 1.6pF with a resolution of 8 bits
- Individually programmable threshold capacitance
- Programmable measuring interval in switch mode (single, 2 measurements/s, 32 measurements/s, permanent)
- Programmable noise filter in switch mode
- Comparator outputs available at pins OUT1 and OUT2 in switch mode (logical or combinational)
- Polarity of comparator outputs selectable by pin POL
- CMOS or open-drain output drivers
- I²C serial interface
- No external components needed
- Sensor capacitance can be realized with conductive tracks on PCB or casing
- Idle current typ. 50nA
- Average current for 2 measurements/s in switch mode **typ. 725nA**
- Voltage operating range 1.8 to 4.5V
- Temperature operating range -40 to 85°C
- Available in QFN16 (3x3mm) or in CSP12 (1.52x1.03mm)

Pinout



Key advantages

- Reliable human body detection
- Easy to configure and to integrate
- Durable switch technology without wear (no mechanical parts)
- Ultra-low power: fully operable at 725nA
- Ideal for use in battery-operated systems (Wearables, IoT etc.)
- Cost effective solution: no external components
- Versatile: stand-alone or I²C with MCU
- Small footprint: standard 3x3mm QFN16 or 1.52x1.03mm CSP12 (chip scale package)

Request the datasheet or samples at info@microdul.com or call +41 44 455 35 11 for more information