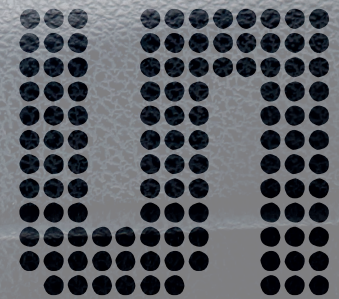


Accurate capacity sensing

ams.com/AS8579



AS8579 – Capacitive Sensing

- Touchless, wear-free, established technology
- Active shielding for cable and PCB
- Reliable, automotive qualified product
- Up to 10 independent measurement lines possible (10 SEN lines)

**Sensing
is life.**

General Description

The AS8579 is a capacitive sensor that detects the presence of a human being. The capacitive sensor measures the impedance that originates between a conducting surface (metallic object) and a human being. The IC captures the current of a metal object and applies algorithms to determine the capacitive and resistive information. The outcome information can be read through a SPI Interface that can be also used for IC configuration. This high precision

performance sensor also supports a multitude of diagnostic features that meet standard functional safety requirements. The capacitive sensing IC is specifically designed to function in an electro-magnetic environment (EMC) with high magnetic disturbances. This allows the sensor to distinguish in a hands-on application if the driver's hand is on the steering wheel or not. The AS8579 is available in an SSOP24 package and operates at a supply voltage of 5V.

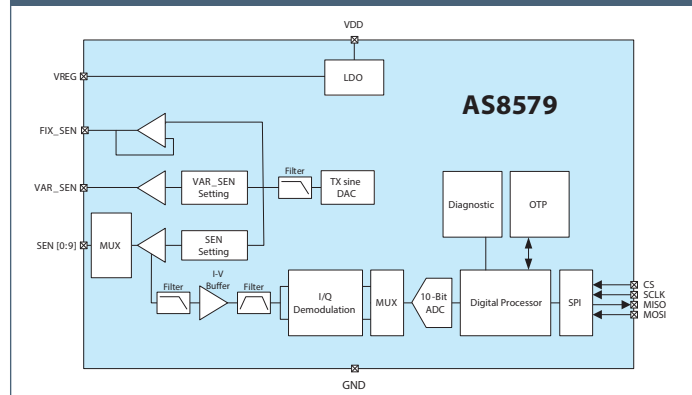
Benefits

- Accurate capacitive measurement (including resistive information)
- Higher durability and lower system costs
- Enabler for safety critical applications
- Suitable for automotive applications

Benefits

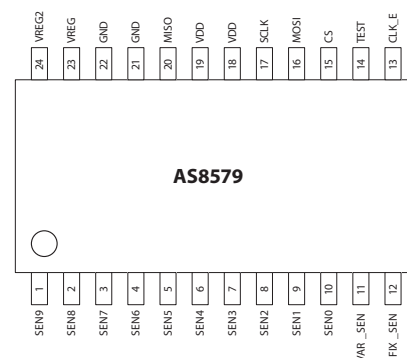
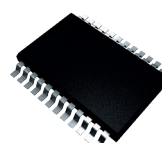
- I/Q-Signal demodulation
- VAR&FIX_SEN function to avoid parasitic influences from cable and PCB
- Designed according functional safety standard
- AEC-Q100 Grade 1 qualified

Block Diagram

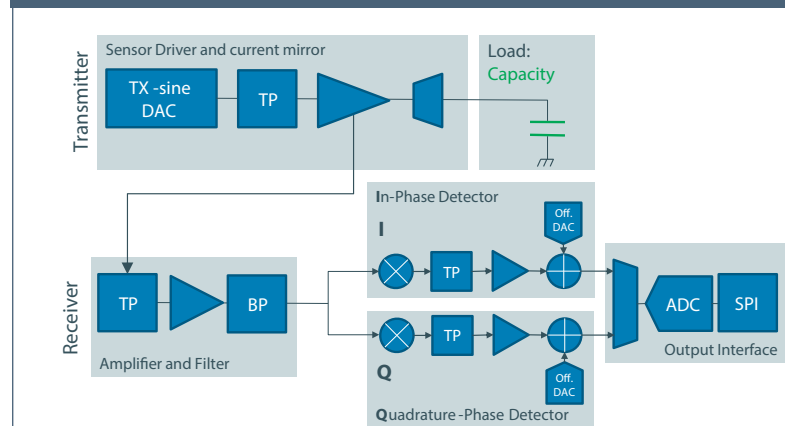


Package-Pinout

Package SSOP24



Function Principle



Operating Principle:

- Transmitter block forces a sine wave voltage across the load
- Receiver block detects the current response of the load
- Current response is converted to a voltage and demodulated into in-phase (I) and quadrature (Q) components
- I/Q-signals were filtered and offset compensated
- single 10bit ADC is shared between I- and Q-path and digitizes the measurements automatically

Facts:

- Measurement of the sensor impedance is enabled by a transceiver architecture operating between 45 – 125kHz
- Up to 16 samples can be accumulated inside the chip
- Measuring Z and derive C helps to cancel out external influences (leather gloves, moisture etc.)

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