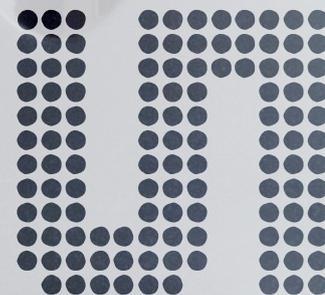


# Gen2 – Save Power and Cost

[www.ams.com/AS3980](http://www.ams.com/AS3980)



## **AS3980 - Low cost UHF Reader IC**

- Optimized for Fast Moving Consumer Goods (FMCG)
- Highly Linear 0dBm Output
- Current consumption 65mA
- Retains -90dBm sensitivity for poor antennas

We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.

## General Description

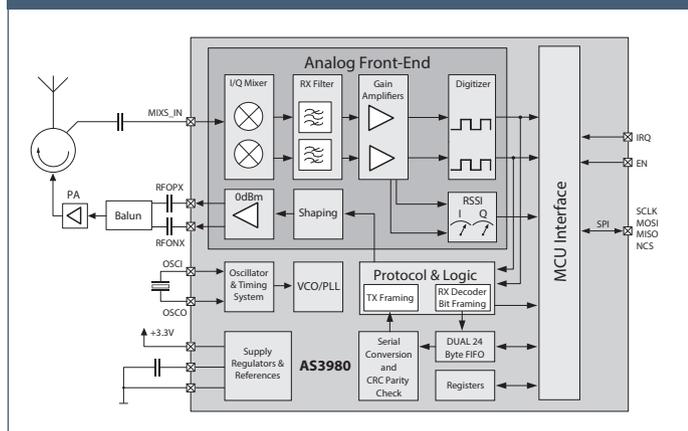
The AS3980 UHF reader chip builds upon on the latest, 3<sup>rd</sup> generation of UHF RFID Reader IC and its completely new low power architecture. Utilizing a 3V supply at 75mA, it enables battery powered products requiring small form factors and embedded applications. With a reduced feature set, the AS3980 is positioned perfectly for cost sensitive applications like consumer or mobile. Unlike alternative low cost solutions, the AS3980 retains its sensitivity robustness against a self-jammer, which is required in typical cost sensitive applications due to poorly performing antennas. Adding a simple low cost 8-bit microcontroller completes a portable UHF Reader system. In embedded systems, the low amount of code load required means the AS3980 can share a common CPU with the rest of the system, hence reducing the BOM further. The reduced feature set of the AS3980 includes only 1 tag read every 500ms, one data rate of 40K/bits at M8 and no direct mode. There is a fixed single ended mixer meaning

further BOM cost reductions through removal of an external Balun. The AS3980 now delivers high performance UHF Reader in a small QFN-48 (7x7mm), while retaining the flexibility, integration and simplicity of the previous generations. The small size combined with the low power operation makes it ideal for embedded or mobile applications. The AS3980 supports ISO29143 Air Interface protocol for mobile RFID Interrogators. The AS3980 has improved -90dBm receive sensitivity while continuing to be robust against antenna reflections or a self-jammer. This is critical for mobile or low cost embedded consumer applications, where the antenna design is challenged and the additional sensitivity/robustness is critical. This allows for a simpler and cheaper antenna to be used reducing overall BOM cost further. The AS3980 provides a highly linear fixed 0dBm output reliably under all conditions.

### Applications

- Embedded consumer/Industrial: beverage dispensing, access control, printers, medical, dongles
- UHF mobile applications: product authentication

### AS3980 Block Diagram



### Features

- AS3980 with highly linear fixed 0dBm output
- Selectable receive sensitivity of -90dBm
- ISO18000-6C (EPC Gen2) protocol support
- 3.3V supply voltage (2.7V to 3.6V)
- Single ended mixer – meaning no Balun is needed
- Limited to a single tag read every 500ms (only one EPC)
- Filters dedicated to 40kHz M8
- Support of ISO29143 (Air Interface for Mobile RFID Interrogators)
- Antenna driver using ASK or PR-ASK modulation
- AM & PM demodulation eliminating communication holes through automatic I/Q selection
- On-board VCO to -124dBc/Hz at 250Khz
- Significant increase of PSRR through on-chip RF output supply regulators
- Power-down, standby and active mode
- Frequency hopping support
- 4 pin SPI interface to MCU using 24 bytes FIFO
- Selectable clock output for MCU
- Large peripheral communication supply range from 1.65V to 5.5V
- Integrated regulators with automatic setting to boost system PSRR
- Adjustable ASK modulation index
- Oscillator using 20MHz crystal
- Wide temperature range: -40°C to 85°C
- 48-pin QFN (7x7mm) package

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