



Product Overview

AX8052F143: RF Microcontroller, Ultra-low Power

For complete documentation, see the data sheet

Product Description

The AX8052F143 is a one chip solution compatible with many standard applications in the Internet of Things. A sensitivity of -126 dBm at 868 MHz and 1.2 kbps with a current consumption of only 9.5 mA make the AX8052F143 an outstanding device in its field. The low phase noise and high efficiency 16 dBm transmitter are obvious features. Data-rates range from 0.1 to 125 kbps. The frequency range from 27 MHz to 1050 MHz allows this RF-microcontroller to be the ideal device for many applications including automatic meter reading and security. The average 4.5 μ A duty-cycle receive current is just one of the many outstanding parameters.

The AX8052F143 microcontroller core executes the industry standard 8052 instruction set. The system clock can be programmed freely from DC to 20 MHz. As instructions are executed in a single cycle, the core can deliver 20 MIPS. A 64 kByte flash memory is provided, allowing to program applications in C. A fully associative cache and a pre-fetch controller hide the latency of the flash memory.

The AX8052F143 features a dual channel DMA engine that can transfer data to and from XRAM to any peripheral on chip. A dedicated AES engine with its own DMA engine is provided for encryption. Further peripherals include three general purpose timers with optional sigma-delta output mode. The timers can be used as baud rate generators for the two UARTs. A master/slave SPI interface is provided. A 10-bit, 500 kSample/s ADC with flexible input modes, as well as comparators allow to interface with analog data streams.

Features

- Frequency Range of 27 MHz to 1050 MHz
- Ultra-low Power AX8052 MCU
- High Performance Narrow-band RF-Transceiver
- 5 mm x 7 mm QFN40 package

Benefits

- Wide frequency range to work with
- Consumes 950 nA in sleep mode with wake-up timer running and with 256 Byte SRAM retention.
- Wide variety of shaped modulations supported (FSK, MSK, 4-FSK, GFSK, GMSK, AFSK, ASK, FM)
- Ultra-low power, high performance device housed in a small package for multiple applications.

Applications

- Security Applications
- Building Automation
- Wireless Applications
- Automatic Meter Reading (AMR)

Part Electrical Specifications

Product	Compliance	Status	Bits	ROM (bits)	RAM (bits)	Bus Cycle Time Min (μ s)	Instruction Cycle Time Min (μ s)	Interrupts	IO Ports	ADC	PWM Outputs	Timers	USB	LCD Controller/Driver	V _{DD} Min (V)	V _{DD} Max (V)	Package Type
AX8052F143-2-TB05	Pb-free Halide free	Active															QFN-40
AX8052F143-2-TX30	Pb-free Halide free	Active															QFN-40

For more information please contact your local sales support at www.onsemi.com

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