Product Overview

AX8052F131: RF Microcontroller, Ultra-low Power

For complete documentation, see the data sheet

Product Description

The AX8052F131 is a complete universal RF-microcontroller transmit operation in the 400 - 470 MHz and 800 - 940 MHz bands. It offers high integration, small footprint, flexibility and ultra-low power consumption. The AX8052F131 is able to transmit data rates of up to 350 kbps for FSK modulated data and up to 2000 kbps for ASK or PSK modulated data. It is a highly integrated, flexible, low power and low cost transmit solution that supports multi channel operation for channel bandwidths above 40 kHz.

AX8052F131 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 AX8052F131 specifically targets ultra-low power applications. Four system clock sources can be selected on the fly, allowing to flexibly adapt the system speed to varying application needs. The core consumes 150 µA/MHz and AX5052F131 consumes 950 nA in sleep mode with wake-up timer running and with 256 Byte SRAM retention.

The AX5052F131 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

- Carrier frequency range 400 - 470 and 800 - 940 MHz
- Ultra-low Power AX8052 MCU
- High-performance RF transmitter
- Dual channel DMA engine

Benefits

- Ideal RF-microcontroller for many applications
- Consumes 950 nA in sleep mode with wake-up timer running and with 256 Byte SRAM retention
- RF transmitter with 16 dBm output power
- Transfer data to and from XRAM to any peripheral on chip

Applications

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

End Products

- Toys
- Garage Door Openers
- Remote Keyless Entry
- Pointers / Keyboards
- Sensor Readout

Part Electrical Specifications

Product	Compliance	Status	Bits	ROM (bits)	RAM (bits)	Bus Cycle Time Min (µs)	Instruction Cycle Time Min (µs)	Interrupts	IO Ports	ADC	PWM Outputs	Timers	USB	LCD Controller/ Driver	V_{DD} Min (V)	V_{DD} Max (V)	Package Type
AX8052F131-2-TB05	Pb-free Halide free	Active															QFN-40
AX8052F131-2-TX30	Pb-free Halide free	Active															QFN-40

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