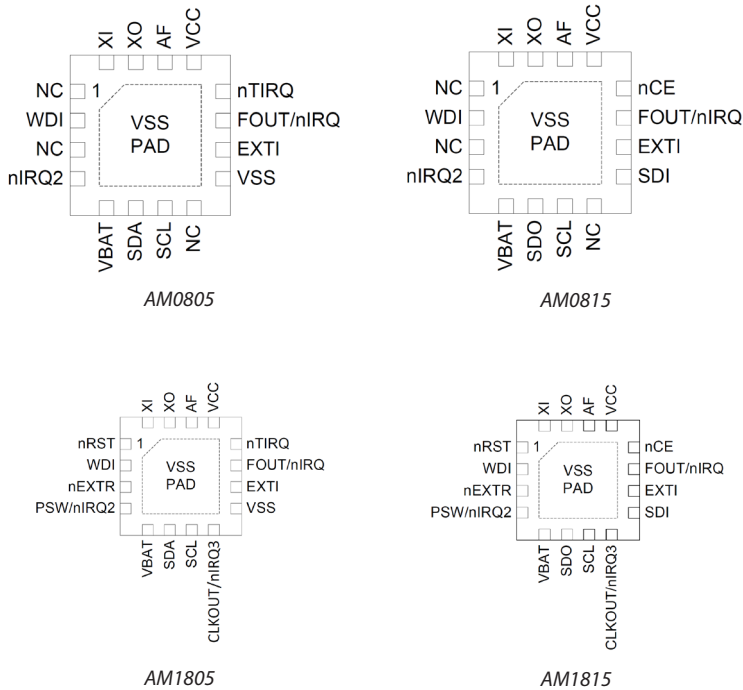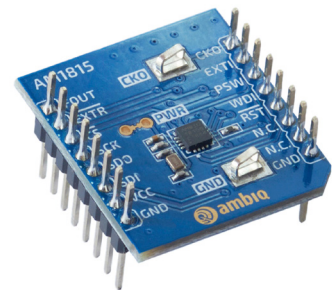# Artasie Real-Time Clock Family

Selector Guide

The Ambiq Artasie Real-Time Clock family provides a groundbreaking combination of ultra-low power coupled with a highly sophisticated feature set. With power requirements significantly lower than any other industry RTC (as low as 14 nA), these are the first semiconductors based on Ambiq's innovative SPOT™ (Subthreshold Power Optimized Technology) CMOS platform.

AM0805

AM0815

AM1805

AM1815

Pin Configuration Diagram for Ambiq Artasie RTC Family

The Ambiq Artasie RTC family includes on-chip oscillators to provide minimum power consumption, full RTC functions including battery backup and programmable counters and alarms for timer and watch-dog functions, and either an I²C or SPI serial interface for communication with a host controller.

Artasie Real-Time Clock Family

Feature Highlights:

- Serves as a companion part for host processors including microcontrollers, radios, and digital signal processors.

- Includes three distinct feature groups: 1) baseline timekeeping, 2) advanced timekeeping, and 3) power management.

- Baseline timekeeping feature group supports the standard 32.786 kHz crystal (XT) oscillation mode for maximum frequency accuracy with an ultra-low current draw of 55 nA.

- Advanced timekeeping feature group supports two additional oscillation modes: 1) RC oscillator mode, and 2) Autocalibration mode.

- A proprietary calibration algorithm allows the Ambiq Artasie RTC to digitally tune the RC oscillator frequency and the XT oscillator frequency with accuracy as low as 2 ppm at a given temperature.

	AMO805	AM0815	AM1805	AM1815
Ultra-Low Supply Current	< 14 nA with RC oscillator < 22 nA with RC oscillator and autocalibration < 55 nA with crystal oscillator			
Baseline Timekeeping				
Crystal (XT) Oscillator	✓	✓	✓	✓
Number of GP Outputs	4	3	4	3
Advanced Timekeeping				
RC Oscillator	✓	✓	✓	✓
Calibration/Auto-calibration	✓	✓	✓	✓
Watchdog Timer (WDT)	✓	✓	✓	✓
RAM (Bytes)	256	256	256	256
Enhanced I/O and Power Management				
VBAT Switch	✓	✓	✓	✓
External Interrupts	✓	✓	✓	✓
Reset Management	--	--	✓	✓
Power Switch and Sleep Finite State Machine (FSM)	--	--	✓	✓
Programmable Charging Current	--	--	✓	✓
Interface	I^2C up to 400 kHz	3/4-wire SPI up to 2 MHz	I^2C up to 400 kHz	3/4-wire SPI up to 2 MHz
Wide Operating Range				
Operating Voltage	1.5-3.6 V	1.5-3.6 V	1.5-3.6 V	1.5-3.6 V
Operating Temperature	-40℃ to 85℃	-40℃ to 85℃	-40℃ to 85℃	-40℃ to 85℃
Package Options	3 mm x 3 mm, 16-pin QFN package	3 mm x 3 mm, 16-pin QFN package	3 mm x 3 mm, 16-pin QFN package (also available in wafer form)	3 mm x 3 mm, 16-pin QFN package (also available in wafer form)
Ordering Information	• AM0805AQ • AM1805I2CEVB (EVB)	• AM0815AQ • AM1815SPIEVB (EVB)	• AM1805AQ • AM1805I2CEVB (EVB)	• AM1815AQ • AM1815SPIEVB (EVB)