uN3010 Technology Overview

The Atheros uN3010 is a high-performance GPS solution, consisting of the CMOS uN3010 GPS IC teamed with the powerful ORION v2.2 multi-mode navigation software.

The uN3010 IC is a highly-integrated GPS receiver comprised of a single-conversion RF front-end and a GPS baseband processor combined into a single die. The L1 RF front-end includes an on-chip low noise amplifier (LNA), and a configurable phase-locked loop (PLL) that supports six (6) TCXO frequencies. The uN3010 provides 20- channel GPS operation and is based on an optimized 16-bit DSP with a compact, embedded real-time operating system (RTOS).

The ORION v2.2 Software is a powerful GPS navigation software package that supports autonomous, assisted-conventional, and single-fix Assisted-GPS (AGPS) modes while exceeding 3GPP AGPS performance requirements. ORION v2.2 also provides advanced acquisition algorithms to efficiently find weak GPS signals by utilizing the company's third-generation search engine, and advanced tracking loops. These features allow ORION to quickly adapt to the dynamic conditions found in harsh urban canyons.

With the uN3010, Atheros offers one of the highest performance, most cost-effective GPS solutions on the market today which also delivers on the size, power and cost requirements so important to our customers.

Atheros ROCm Platform

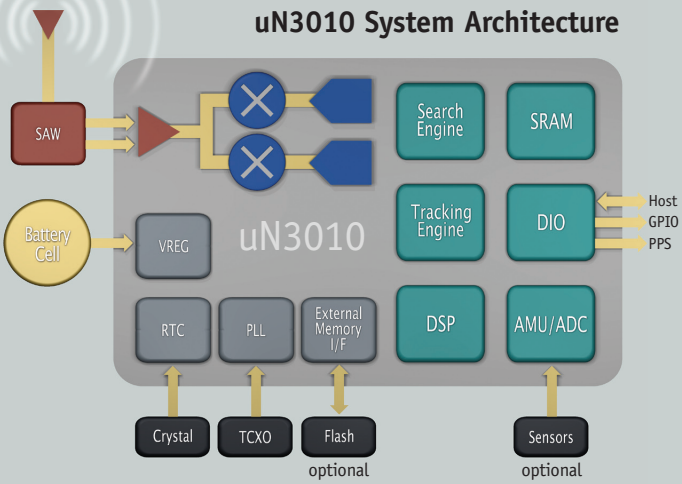
Radio-On-Chip for Mobile (ROCm) Products

The combination of ROCm wireless solutions for mobile WLAN, Bluetooth® and GPS, with Atheros' dominant position in the home, office and Metro Wi-Fi networking markets enables a worldwide wireless ecosystem based on the company's technologies. Atheros-engineered ROCm technologies provide the most reliable wireless performance and connectivity anywhere you go.

The Atheros ROCm technologies give customers the unsurpassed ability to:

- Build the most power-efficient devices
- Design for the smallest form factor applications
- Achieve the most cost-effective designs
- Deliver Atheros-class performance in a wide array of mobile devices, all featuring a high level of design and integration ease.

uN3010 System Architecture

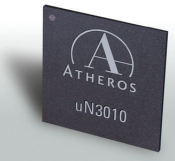


ROCm® ATHEROS

RADIO ON CHIP mobile

uN3010

Single-chip GPS in low-cost CMOS process with digital and RF functions implemented in a single monolithic die



Market-Leading Efficiency and Performance

uN3010 Solution Highlights

- Low-cost, single-chip GPS RF front-end and baseband processor implemented in a single monolithic die
- 20-channel GPS architecture, featuring eight independent search engines for simultaneous search and 12 tracking channels with power-down capability
- Advanced power management architecture minimizes consumption through the individual power-down of multiple core and I/O islands
- Low-power RTC suitable for coin-cell battery backup
- High sensitivity operation with autonomous and assisted support
- Supports autonomous, assisted conventional, and single-fix AGPS modes while exceeding requirements for 3GPP

uN3010 Portable Evaluation Kit (EVK)

Complete with software and an integrated uN3010 daughterboard, the ORION RX2 Evaluation Kit (EVK) is a full-featured GPS receiver that provides a conventional platform to evaluate the performance of the ORION RX2™.

uN3010 Evaluation Kit (EVK)

Atheros offers a comprehensive Evaluation Kit (EVK) that is a complete GPS receiver used for evaluating the GPS performance. This kit includes the GPS board, software, product-ready reference designs and user manuals.

uN3010 Software Development Kit (SDK)

An ORION v2.2 Software Development Kit (SDK) is also available, providing developers with the freedom to customize and add functional blocks to meet application specific requirements.

uN3010 Specifications

On-chip functionality	Single-chip BB/RF/LNA	
Frequency Band	L1 Band, C/A Code	
Standards	NMEA, 3GPP	
Peripheral Interface	3 UARTS, Independent baud rate 4.8K – 230K	
	2 High-Speed SPI ports	
	GPIO ports for external I/O	
	(19 on BGA, 5 on CSP)	
Supported TCXO Frequencies	13.0, 16.3676, 16.369,	
	19.2, 26.0 & 32.7352 MHz	
Sensitivity		
Autonomous Cold Start Acquisition	-144 dBm	
Assisted Acquisition	-160 dBm	
Autonomous Tracking	-160 dBm	
Positional Accuracy (CEP50)		
Autonomous Positional Error	1.5 m	
Velocity Accuracy (30 m/s)		
	Speed <0.06 m/s	
	Heading <0.20 deg	
Time To First Fix (50% @ -130 dBm)		
Hot Start	1.5 s	
Cold Start	37 s	
Power		
Acquisition	60 mW	
Tracking	50 mW	
Physical Specifications	5 x 5 mm CSP-102 ball	
	(500 µm pitch)	
	10 x 10 mm BGA-144 ball	
	(800 µm pitch)	
Ordering Information		
	3010AB-CC102E-T	CSP Tape & Reel
	3010AB-ER144E-J	BGA Tray
	3010AB-ER144E-T	BGA Tape & Reel

Atheros Communications is a leading developer of semiconductor system solutions for wireless and wired network communications products. Atheros combines its wireless and networking systems expertise with high-performance radio frequency (RF), mixed signal and digital semiconductor design skills to provide highly integrated chipsets that are manufactured on low-cost, standard complementary metal-oxide semiconductor (CMOS) processes. Atheros technology is used by a broad base of leading customers, including personal computer, networking equipment and consumer device manufacturers.

ATHEROS®

WIRELESS FUTURE. UNLEASHED NOW.™

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