

PRODUCT OVERVIEW

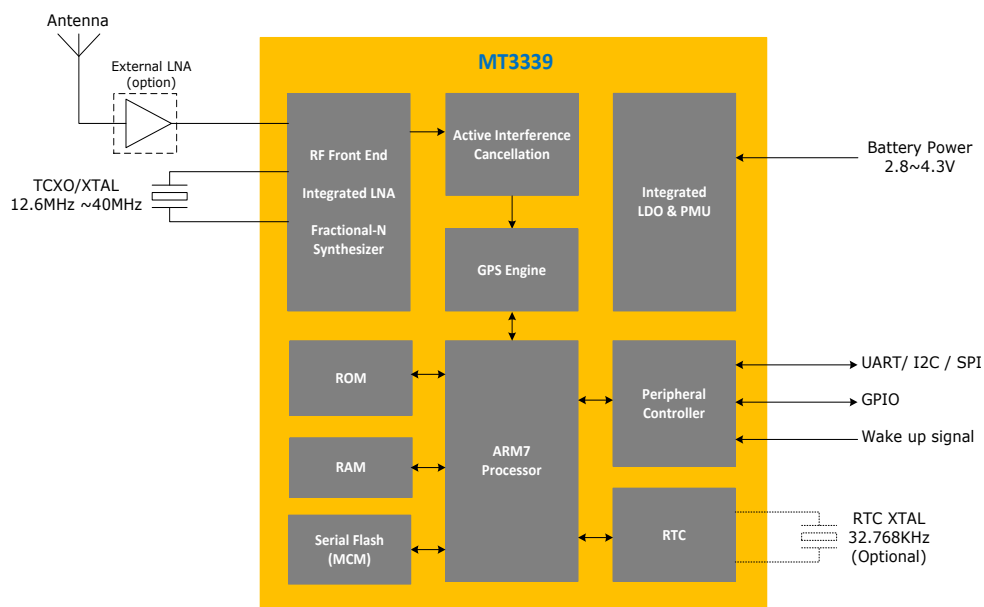
MT3339 is a high-performance single-chip GPS solution which includes on-chip CMOS RF, digital baseband, and ARM7 CPU. It is able to achieve the industry’s highest level of sensitivity, accuracy and Time-to-First-Fix (TTFF) with the lowest power consumption in a small-footprint lead-free package. Its small footprint and minimal BOM requirement provide significant reductions in the design, manufacturing and testing resource required for portable applications.

With built-in LNA to reach total NF to 2.2 dB, you can eliminate antenna requirement and do not need external LNA. With its on-chip image-rejection mixer, the spec of external SAW filter is alleviated. With an on-chip automatic center frequency calibration band pass filter, an external filter is not required. The on-chip power management design allows MT3339 to be easily integrated into your system without extra voltage regulator. With both linear and a highly efficient switching type regulator embedded, MT3339 allows direct battery connection and does not need any external LDO, which gives customers plenty of choices for the application circuit.

12 multi-tone active interference cancellers (ISSCC2011 award) offer you more flexibility in system design. The integrated PLL with Voltage Controlled Oscillator (VCO) provides excellent phase noise performance and fast locking time. A battery backed-up memory and a real-time clock are also provided to accelerate acquisition at the system restart-up.

MT3339 supports up to 210 PRN channels. With 66 search channels and 22 simultaneous tracking channels, MT3339 acquires and tracks satellites in the shortest time even at indoor signal levels. MT3339 supports various location and navigation applications, including autonomous GPS, QZSS, DGPS (RTCM) and AGPS.

Through MT3339’s excellent low-power consumption characteristic (acquisition 25 mW, track 18 mW), while using power sensitive devices, especially portable applications such as DSC, cellular phone, PMP and gaming devices, you will not need to worry about the operating time anymore and can have more fun.



FEATURES

Specifications

- 22 tracking / 66 acquisition-channel GPS receiver
- Supports up to 210 PRN channels
- Supports QZSS ranging
- Supports WAAS/EGNOS/MSAS/GAGAN
- 12 multi-tone active interference cancellers (ISSCC2011 award)
- RTCM ready
- Indoor and outdoor multi-path detection and compensation
- Supports FCC E911 compliance and A-GPS
- Max. fixed update rate up to 10 Hz

Advanced software features

- EPOTM orbit prediction
- EASY
- PPS sync NMEA

Reference oscillator

- TCXO Frequency: 16.368 MHz, 12.6 ~ 40.0 MHz
- TCXO Frequency variation: ± 2.0 ppm
- XTAL Frequency variation: ± 10 ppm

ARM7EJ-S CPU

- Up to 98 MHz processor clock
- Dynamic clock rate control

Pulse-per-second (PPS) GPS time reference

- Adjustable duty cycle
- Typical accuracy: ± 10 ns

Power scheme

- A 1.8 volts SMPS build-in SOC
- Direct lithium battery connection (2.8 ~ 4.3 volts)

- Self build 1.2 volts RTC LDO, 1.2 volts core LDO, and 2.8 volts TCXO LDO

Build-in reset controller

- Not need external reset control IC

Internal real-time clock (RTC)

- 32.768 KHz ± 20 ppm crystal
- Timer pin for external device on/off control
- 1.2 volts RTC clock output

Serial interface

- UART : 4800/9600/38400/115200 bps
- GPIO interface (up to 16 pins)

NMEA

- NMEA 0183 standard V3.01 and backward compliance
- Supports 219 different datum

Superior sensitivities

- Acquisition: -148 dBm (cold) / -163 dBm (hot)
- Tracking: -165 dBm

Ultra-low power consumption

- Acquisition: 25 mW
- Tracking: 18 mW

Package

- VFBGA: 4.3 mm x 4.3 mm, 57 balls, 0.5 mm pitch

Slim hardware design

- 52 mm² solution footprint with all software features inside
- 9 passive external components