

MxL800SM

Single Chip Autonomous GPS Receiver SoC

MxL800SM is a highly integrated low power SoC (System on Chip) integrating the functionality of a high performance CMOS GPS receiver targeting applications requiring autonomous GPS operation. MxL800SM delivers exceptional performance, lowest power consumption, smallest footprint and lowest total solution cost. In addition to integrating all functionalities required to receive and demodulate GPS satellite signals, MxL800SM provides interfaces to external MEMS sensors like accelerometers or digital compass to further reduce BOM cost and enable contextual power savings modes based on user behavior: MaxLinear GeoTrack™ technology allows permanent tracking of location and provides position awareness to applications. Enabled by a smart background positioning engine, MxL800SM continuously tracks satellites and provides immediate and accurate position reports on-demand to the host processor. GeoTrack technology is built upon efficient power management algorithms paired to the host processor even when the system is turned off.

MxL800SM is directly powered from the Li-ion system battery with no external switching supply or LDO required. MxL800SM power distribution architecture fits with minimum system impact on legacy designs and also provides significant BOM and footprint savings. MxL800SM is based on a single 65nm monolithic IC, enabling superior reliability and manufacturability compared to discrete and SiP (Silicon in Package) implementations. The cost advantages of standard digital CMOS enable MxL800SM to be the most competitive solution in any autonomous GPS application.

MxL800SM RF input is a single-ended 50Ω interface requiring no external LNA. Additionally, MxL800SM requires no complicated PCB design and noise analysis due to its embedded noise-mitigation algorithms, which provide superior sensitivity and time-to-fix than other solutions.

Multiple host interfaces such as SDIO, SPI, UART or I2C provide system flexibility for integration in any systems. MxL800SM provides several boot modes to remove the costly Flash device while being connected to a host. However, an external flash interface provides additional design flexibility and enables host-less applications.

MxL800SM is based on a fully embedded architecture delivering to the host NMEA messages with position, time and velocity information. MxL800SM utilizes a simple API based SW architecture, reducing integration and test time on the final system. This SW simplicity enables quick and easy implementation of the driver source code on any SW platform and operating system. For engineering mode and evaluation, MxL800SM is provided with a complete evaluation SW with satellites monitoring capability and diagnostic SW including spectrum analyzer.

MxL800SM is available in a small 5x5mm BGA package, which represents a 50% reduction in size compared to other solutions in the market today. For further footprint reduction, a CSP version is also available in a 49 pins version. The small footprint and low BOM count make MxL800SM uniquely suitable for space constrained and power sensitive applications.



Applications

- Digital Camera and CamCoder
- Netbooks, Laptop and UPMC
- PMP/MP4 and Gaming Devices
- Mobile/Portable Applications
- Cellular Phones
- Portable Navigation Device

Features

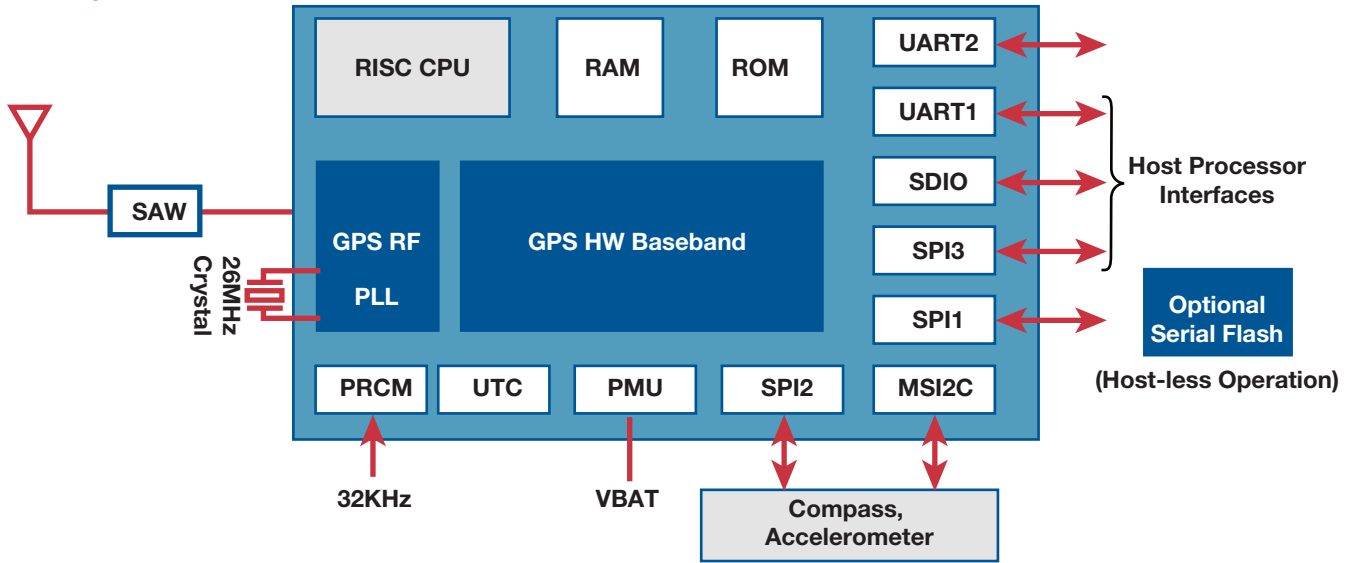
- -165dBm Tracking Sensitivity
- -148dBm Autonomous Acquisition Sensitivity with <35s TTFF and -157dBm Assisted Acquisition
- <2m W Ultra Low Power Tracking Mode
- Single Supply With Direct Battery Connection
- Simple API Based SW Interface for Integration in RTOS, Linux or Windows Mobile Systems
- CSP or BGA 5x5mm Packages
- Assisted GPS and Satellites Orbits Prediction

Benefits

- Background Positioning Operation for Continuous Tracking of Position
- Ultra Low Power Modes
- Optional External LNA
- Unique BOM Integration
- Ultra Low Footprint - <30sq.mm
- Multiple Host Interfaces
- MEMS/Sensors Interfaces

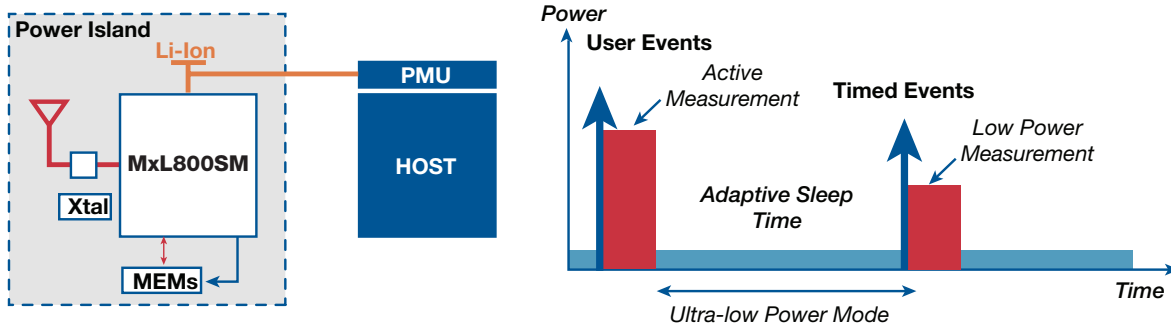
MxL800SM Single Chip Autonomous GPS Receiver SoC

Block Diagram



Geotrack™ Low Power Operation

MaxLinear GeoTrack™ Technology



Ordering Information: MxL 800SM Product Family

Part Number	Description	Package
MxL800SM	Single input supply standard receiver	WLCSP 49p 0.4mm
MxL801SM	MxL800SM + backup memory and RTC retention	WLCSP 49p 0.4mm
MxL805SM	AT-cut 26MHz crystal support	WLCSP 49p 0.4mm
MxL806SM	AT-cut 26MHz crystal support with backup memory retention	WLCSP 49p 0.4mm
MxL810SM	Extended interfaces, all configurations	BGA 64p 0.5mm
MXL800SM-EVK	Evaluation kit: Eval boards and Software Monitor	



MaxLinear Inc.
2051 Palomar Airport Road
Suite 100
Carlsbad, CA 92011 U.S.A.

+1 (760) 692 0711 P
+1 (760) 692 0712 F
sales@maxlinear.com
www.MaxLinear.com

All data and information contained in this product brief are provided for informational purposes only and are subject to change without notice. No part of this publication may be copied or reproduced, in part or complete, or distributed without the express written consent of MaxLinear Inc.

Envisioning, Empowering, Excelling