

# SiRFstarIII GSC3e/LP & GSC3f/LP

## Flagship Performance, Low Power GPS Solution

### PRODUCT OVERVIEW

These low-power star performers deliver top-notch accuracy, -159 dBm tracking, and track all satellites in view, setting the benchmark for real-time navigation, even through urban canyons and dense foliage. Flagship SiRFstarIII™ technology packs over 200,000 correlators—for fast and deep signal searches—into a new power-saving design, providing makers of portable and wireless devices with a low-power premium GPS solution. These chips are low-power drop-in replacements for the GSC3 and GSC3f.



### GENERAL SPECIFICATIONS

#### Supported Software

Standard

- GSW3 GPS software (API compatible with GSW2)

Premium

- SiRFInstantFix™ extended ephemeris service
- SiRFDRIve® GPS/Dead Reckoning software for continuous and accurate positioning
- SiRFLoc® Client A-GPS Multimode Location Engine™ for GSM/3GPP

#### Package

- Type: 140-ball grid array (BGA) with a pitch of 0.65 mm Pb free
- Dimensions: 7 mm x 10 mm; Height: 1.4 mm
- Typical total solution footprint: 130 mm<sup>2</sup>

### KEY FEATURES

- SiRFstarIII™ GSP Core
- Digital and RF in a single package
- 50-MHz ARM7TDMI processor plus 1 Mb SRAM to enable user tasks
- SiRFLoc Client A-GPS multi-standard support: 3GPP, 3GPP2, PDC, iDen, TIA-916
- Supports seven reference frequencies between 13 MHz and 33 MHz
- Extensive GPS receiver peripherals: two UARTS, high speed serial bus, battery-backed SRAM, ten GPIOs
- 4 Mbit flash memory option

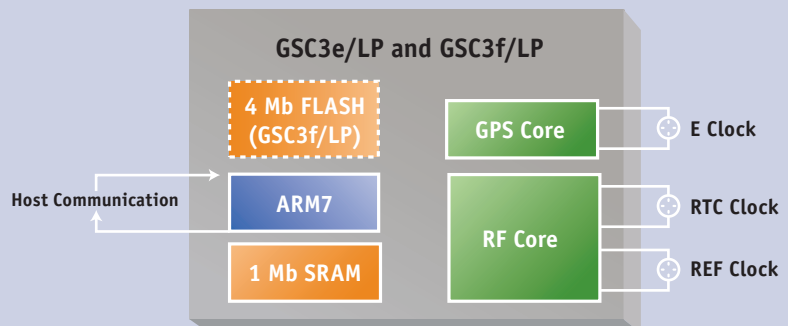
#### GPS Architecture Highlights

- 200,000+ effective correlators for very fast TTFF and high sensitivity acquisition
- Low 100 ms interrupt load on microprocessor
- High sensitivity for indoor fixes
- SBAS (WAAS and EGNOS) support

#### GPS Features

- Real time navigation for Location Based Services (LBS) and E-911 compliant
- 20-channel architecture

### GSC3e/LP and GSC3f/LP BLOCK DIAGRAM



## TECHNICAL SPECIFICATIONS

### Horizontal Position Accuracy<sup>1</sup>

Autonomous	<2.5 m
SBAS	<2.0 m

### Velocity Accuracy<sup>2</sup>

Speed	<0.01 m/s
Heading	<0.01°

### Time To First Fix<sup>3</sup>

Hot start - Autonomous	<1 s
Warm start - Autonomous	<35 s
Cold start - Autonomous	<35 s
MS Based - GSM coarse time	<1.5 s
MS Assisted - GSM coarse time	<6.6 s

### Sensitivity<sup>4</sup>

Autonomous acquisition	-142 dBm
GSM / UMTS coarse time aided	-155 dBm
CDMA precise time aided	-155 dBm
Tracking	-159 dBm

### Receiver

Tracking	L1, CA Code
Channels	up to 20
Max update rate	1 Hz
Max altitude/velocity	<60,000 ft/<1,000 knots
Protocol support	A13/F, SiRF Binary, NMEA

### System Integration

I/O Interface	UART
External reference clock	13, 16.369, 16.8, 19.2, 24.55, 26, 33.6 MHz
RTC input	32.768 kHz

### Power<sup>5</sup>

Continuous Autonomous operation	62 mW
TricklePower	40 mW

### Size

Package dimensions	7 x 10 x 1.4 mm
Typical design footprint	130 mm <sup>2</sup>

1. 50% 24 hr static, -130 dBm 2. 50% @ 30 m/s 3. 50% -130 dBm  
Fu 0.5 ppm Tu ±2 s Pu 30 Km 4. -142 dBm ≈ 28 dB-Hz with 4 dB  
noise figure 5. Average, TricklePower 200:1

## ORDERING INFORMATION

Part Number	Temp. Range	Description
GSC3eLP-7975	-40° to +85° C	
GSC3fLP-7979	-40° to +85° C	With Flash

For more information about this and related products, contact your SiRF representative, or call our sales force at (1) 408) 467-0410, or visit [www.sirf.com](http://www.sirf.com).

For the location of your nearest authorized SiRF distributor, visit [www.sirf.com](http://www.sirf.com).

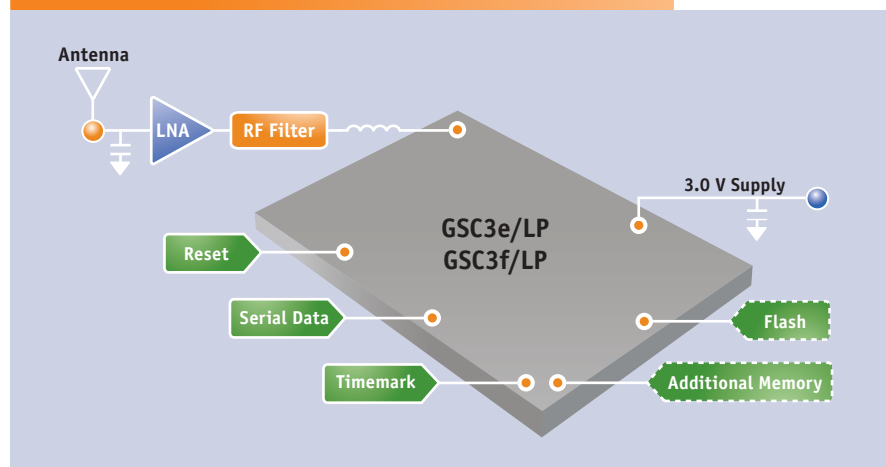
## HIGHLIGHTED ADVANTAGES

Supporting multiple reference frequencies, the GSC3e(f)/LP RF section is a highly integrated RF implementation. The GSC3e/LP's flash option, the GSC3f/LP, has an integrated 4-megabit flash memory, eliminating the need for an external flash component and significantly simplifying the routing associated with integrating a GPS receiver into a board design.

The GSC3e(f)/LP is supported by SiRF standard autonomous software that's setting new performance benchmarks in the portable navigation systems market. The SiRF standard autonomous software also supports SiRFInstantFix technology, which eliminates the initial task of obtaining broadcast GPS data from the satellites themselves, resulting in a faster Time-To-First-Fix (TTFF), even in weak signal environments.

The GSC3e(f)/LP supports SiRFLoc Client, the patented Multimode A-GPS software powering mobile phones optimized for location-enabled-services. SiRFLoc improves GPS location capability in wireless system environments by utilizing various modes of wireless infrastructure assistance to improve weak signal reception. Additionally, the GSC3e(f)/LP supports SiRFDrive dead reckoning technology for enhanced positioning accuracy and availability.

## GSC3e/LP and GSC3f/LP SYSTEM CONFIGURATION



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