

Aero™ II GSM/GPRS Transceiver

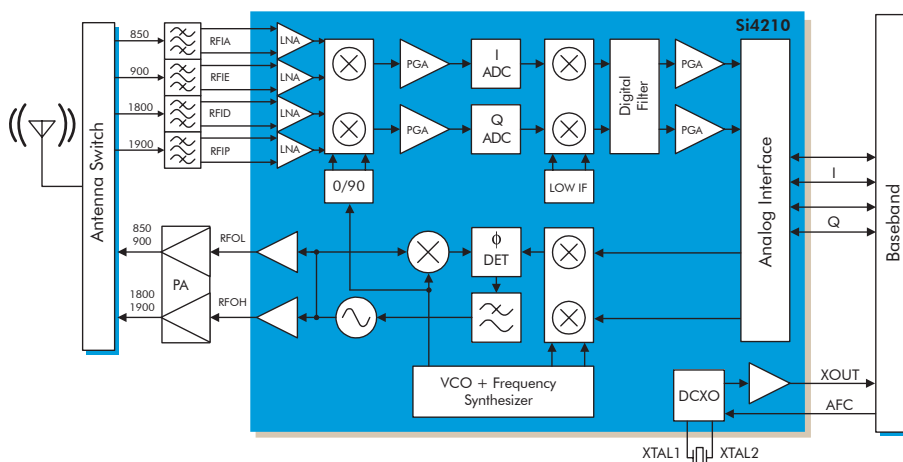
**SINGLE-CHIP CMOS TRANSCEIVER FOR QUAD-BAND
GSM/GPRS WIRELESS COMMUNICATIONS**



PRODUCT DESCRIPTION

The Aero II transceiver is the industry's smallest, highest performance single-chip transceiver for quad-band GSM/GPRS cellular handsets and wireless data modems. The Aero II's proven architecture integrates all sensitive components such as TX and RF VCOs, loop filters, tuning inductors, varactors and clock coupling capacitors into a single integrated circuit. Compared to competing solutions, the Aero II transceiver reduces component count and board space by half and implements an entire quad-band radio, excluding the power amplifier and antenna switch, in 1.0 cm². Delivering industry leading performance, the Aero II transceiver improves call quality and eases the design and manufacturing process. The Aero II receiver leverages a proven digital low-IF architecture that avoids the inherent difficulties associated with direct conversion receivers while delivering higher performance, lower solution cost and reduced complexity. The transmit section uses an offset phase-locked loop (OPLL) integrated with Silicon Laboratories' patented synthesizer technology. The software-programmable universal baseband interface allows handset designers to implement the transceiver with all leading basebands. The Aero II transceiver further implements a proven digitally-controlled crystal oscillator (DCXO) that enables the use of a standard 26 MHz crystal to provide the transceiver reference clock, thereby reducing the handset BOM.

Aero II TRANSCEIVER BLOCK DIAGRAM



FEATURES

- Small 5 x 5 mm package
- Complete quad-band GSM cellular radio front-end using 100% CMOS technology
 - GSM 850 Class 4, small MS
 - E-GSM 900 Class 4, small MS
 - DCS 1800 Class 1
 - PCS 1900 Class 1
- Integrated GSM/GPRS transceiver including:
 - Digital low-IF receiver
 - Offset-PLL transmitter
 - Frequency synthesizer
 - Universal baseband interface
 - Digitally-controlled crystal oscillator (DCXO)
- Complete integration of VCOs, tuning components and PLL components
- GPRS Class 12 compliant
- 3-wire serial interface
- 2.7 to 3.0 V operation

APPLICATIONS

- Multi-band GSM/GPRS digital cellular handsets
- Multi-band GSM/GPRS wireless data modems

ACTUAL SIZE



PRODUCT BRIEF

SMALLEST FOOTPRINT

BEST-IN-CLASS PERFORMANCE



SILICON LABORATORIES

EASIEST TO DESIGN
EASIEST TO MANUFACTURE
PROVEN TECHNOLOGY

Best Solution

Today's handsets demand the smallest transceiver footprint and the highest integration. Aero II enables handset manufacturers to achieve a lower bill of materials (BOM) and faster time to market by delivering the smallest, most integrated, easiest to design and easiest to manufacture transceiver for GSM/GPRS handsets.

Highest Performance

The Aero II transceiver provides industry leading performance and design flexibility. The Aero II transceiver continues Silicon Laboratories' GSM/GPRS integration roadmap of best-in-class products for wireless handsets.

Highest Integration

Based on Silicon Laboratories' patented technology and CMOS design innovation, the Aero II transceiver integrates all sensitive components including TX and RF VCOs, loop filters, tuning inductors, varactors and clock coupling capacitors, and includes a DCXO. This integration simplifies design and ensures consistent performance for customers seeking turnkey RF designs.

Proven Technology

Aero II is a third generation transceiver. It employs the same proven architecture and software programming interface of the Aero family that has shipped into tens of millions of GSM/GPRS handsets worldwide.

50% Area Reduction/50% Fewer Components

Aero II Transceiver

Actual size shown



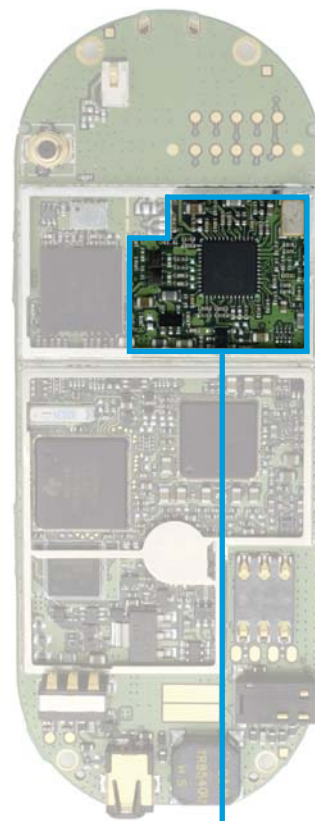
Si4210 Transceiver

- All sensitive components are integrated
- Simplifies handset design and production

Smallest Footprint

- 5 x 5 mm package
- Only 19 external components for quad-band operation

Alternate Solution 1



RF Subsection

TYPICAL SIZE COMPARISON			
	Total Area	Modules	External Components
Silicon Laboratories' Aero II	1.0 cm²	0	19
Alternate Solution 1	3.1 cm²	0	59
Alternate Solution 2	2.2 cm²	1	46

CONTACT INFORMATION



SILICON LABORATORIES

Silicon Laboratories Inc.

4635 Boston Lane • Austin, TX 78735

Phone: (512)416-8500

Toll Free: 1(877)444-3032

Email: aeroinfo@silabs.com

Web site: www.silabs.com

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ORDERING INFORMATION

Product

Si4210-GM

Description

Quad-band Transceiver—GSM 850, E-GSM 900, DCS 1800, PCS 1900

Data Sheets

Si4210-DS

Aero II GSM/GPRS Transceiver Data Sheet

Evaluation Boards

Si4210-EVB

Aero II Evaluation Board

Si4210-TCXO-EVB

Aero II TCXO Evaluation Board