

Aero™ I/Aero I+ GSM/GPRS Transceiver

INTEGRATED TRANSCEIVERS FOR MULTI-BAND
GSM/GPRS WIRELESS COMMUNICATIONS



FEATURES

- Single 8 x 8 mm package
- Complete multi-band GSM cellular radio front-end using 100% CMOS RF 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:
 - Low-IF receiver
 - Universal baseband interface
 - Offset-PLL transmitter
 - Dual RF synthesizer
 - Digitally-controlled crystal oscillator (DCXO), (Aero I+)
- Complete integration of VCO and PLL components and tuning inductors
- GPRS Class 12 compliant
- 3-wire serial interface
- 2.7 to 3.0 V operation

APPLICATIONS

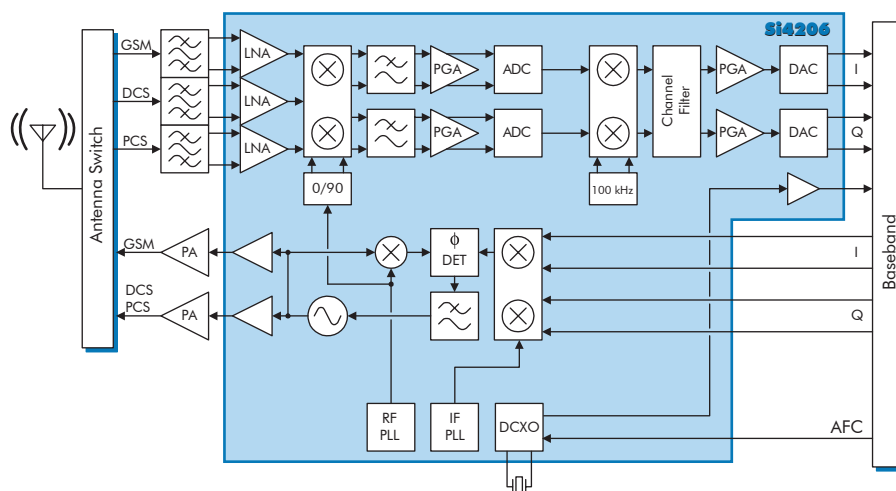
- Multi-band GSM/GPRS digital cellular handsets
- Multi-band GSM/GPRS wireless data modems

PRODUCT DESCRIPTION

The Aero I/Aero I+ transceiver is the industry's smallest single-package RF transceiver for multi-band GSM/GPRS cellular handsets and wireless data modems. The Aero I's architecture integrates all sensitive components including all RF and IF VCOs, loop filters, clock coupling capacitors and all VCO tuning components. Compared to conventional GSM handsets, the Aero I requires approximately 70 fewer discrete components, greatly simplifying the design and manufacture of today's ultra-small GSM/GPRS handsets and modems where board space is a premium. The Aero I+ transceiver integrates a digitally-controlled crystal oscillator (DCXO) to eliminate expensive and bulky VC-TCXO modules and completely integrates the reference oscillator and varactor.

The receive section uses a digital low-IF architecture that avoids the difficulties associated with direct conversion receivers while lowering cost and reducing complexity. The universal analog baseband interface is compatible with any baseband subsystem. The transmit section uses an offset phase-locked loop (PLL) with a fully integrated transmit VCO. The frequency synthesizer takes advantage of Silicon Labs' proven synthesizer technology to integrate RF and IF VCOs, varactors and loop filters.

Aero I+ TRANSCEIVER BLOCK DIAGRAM



PRODUCT BRIEF

**SMALLEST FOOTPRINT
SIMPLIFIES HANDSET DESIGN**



**PROVEN TECHNOLOGY.
HIGHEST INTEGRATION.
SMALLEST FOOTPRINT.**

Single Package

The Aero I/Aero I+ transceiver is packaged in a single, compact 8 x 8 mm land grid array (LGA) that simplifies board layout, lowers insertion costs and streamlines inventory management.

Proven Technology

The Aero I/Aero I+ transceiver employs the same architecture and software programming of the Aero/Aero+ transceiver that has been proven in mass production.

Highest Level of Integration

The Aero I/Aero I+ transceiver integrates all sensitive components including all RF and IF VCOs, loop filters, clock coupling capacitors and all VCO tuning components.

Smallest Footprint

Today's handsets demand a small transceiver footprint to maintain small form factor while adding additional features. For triple-band designs, Aero I+ requires only 1.3 cm² of board space including a DCXO.

75% Area Reduction / 85% Fewer Components

Aero I/Aero I+ Transceiver
Actual size shown



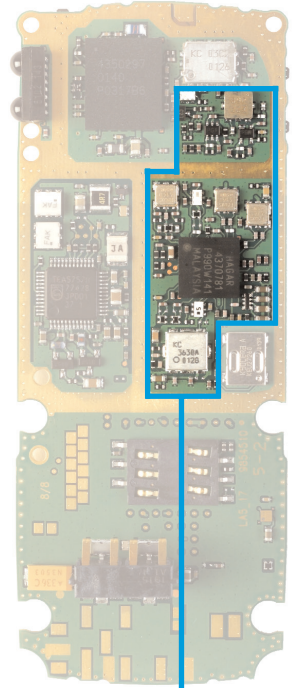
Si4206 Transceiver

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

Smallest Footprint

- 8 x 8 mm package
- Only 11 components required for dual-band

Alternate Technology



RF Subsection

TYPICAL SIZE COMPARISON			
	Total Area	External Modules	Components
Silicon Laboratories' Aero I+	1.3 cm²	0	11
Conventional RF Front End	5 cm²	2	80

CONTACT INFORMATION



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ORDERING INFORMATION

Product

Si4205-BM

Si4206-BM

Data Sheets

Si4205-DS

Si4206-DS

Evaluation Boards

Si4205-EVB

Si4206-EVB

Description

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

Multi-band Transceiver with DCXO—GSM 850 or E-GSM 900, DCS 1800, PCS 1900

Aero I GSM/GPRS Transceiver Data Sheet

Aero I+ GSM/GPRS Transceiver Data Sheet

Aero I Evaluation Board

Aero I+ Evaluation Board