

Si4300 GSM/GPRS Power Amplifier

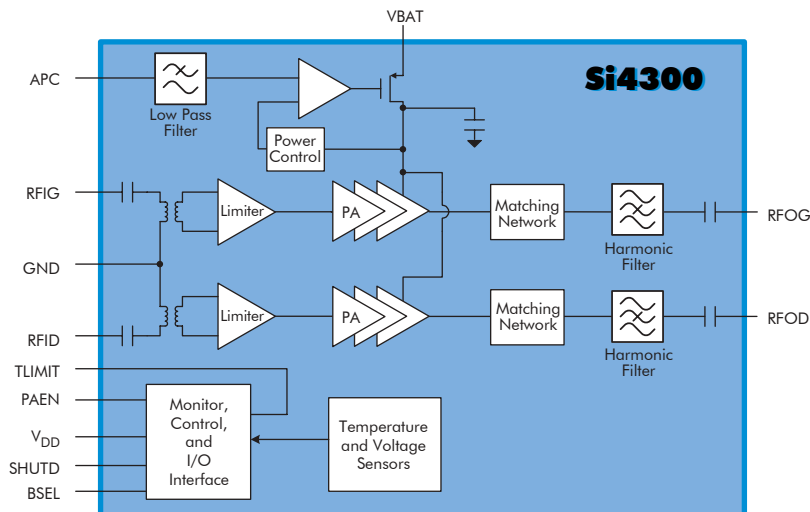
**DUAL-BAND GSM 900 AND DCS 1800
MONOLITHIC POWER AMPLIFIER SYSTEM**



PRODUCT DESCRIPTION

The Si4300 GSM Power Amplifier (PA) is the industry's smallest, high-performance and high-power PA solution available for GSM cellular applications. This complete monolithic integrated circuit (IC), integrates all the functions between the transceiver and the antenna switch module (ASM). The monolithic IC consists of two separate amplifiers optimized to operate in the GSM 900 and DCS 1800 bands. The Si4300 is General Packet Radio Services (GPRS) Class 12 compatible and can be used in GPRS multi-slot applications. The Si4300 IC is a single die, manufactured using a standard CMOS process, on a ceramic substrate. The Si4300 integrates complete power control circuitry, thermal and load mismatch protection, harmonic filtering and input output matching networks. This unparalleled integration eliminates more external components than any other power amplifier solution on the market without sacrificing performance. Additionally, the Si4300 offers generous margin to the 3GPP specifications to enable the system designer to quickly move from design, through full type approval (FTA) and into high-yield production.

Si4300 BLOCK DIAGRAM



FEATURES

- Small 25 mm² (3.9 x 6.4 x 1.3 mm) package
- Unparalleled integration
 - 70% less board area, and 90% fewer components
 - Complete power control
 - Thermal and load mismatch protection
 - Harmonic filtering
 - Input and output matching circuits
- Optimal current consumption for all power levels during burst operation
 - Enables longer talk times
- Low power-down current during receive and standby
- GPRS Class 12 compatible
- 3.0 to 5.5 V operation

APPLICATIONS

- E-GSM 900 and DCS 1800 dual-band cellular handsets
- GPRS data terminals

ACTUAL SIZE



Top View



Side View

PRODUCT BRIEF

**THE NEW STANDARD IN
INTEGRATED GSM
POWER AMPLIFIERS**



SILICON LABORATORIES

HIGHLY INTEGRATED, MONOLITHIC IC PROVIDING WORLD-CLASS PERFORMANCE AND QUALITY

Unparalleled Integration in the Smallest Package

The Si4300 is the smallest complete power amplifier solution and offers dramatic reductions in board area and component count without sacrificing performance. This high level of integration, elimination of external components and ease of use makes the Si4300 well suited for the lightest, smallest and highest volume dual-band applications.

Monolithic IC

Unlike PA modules (PAM), which consist of multiple die and numerous discretes, the Si4300 is manufactured using a single die attached to a ceramic substrate. The Si4300 represents not only the world's first monolithic GSM PA solution, but also the world's first GSM PA based on a standard CMOS process. This monolithic GSM PA solution is available in a small (3.9 x 6.4 x 1.3 mm) and reliable surface-mount ceramic package.

Performance

The Si4300 provides high performance and generous margin to all key 3GPP specifications for all operating conditions.

Quality

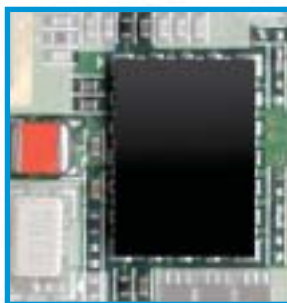
With its small size, monolithic construction, protection circuits and excellent in-system performance, the Si4300 continues Silicon Laboratories' commitment to creating world-class products by delivering a high quality and reliable power amp solution.

70% Area Reduction / 90% Fewer Components



Si4300 Power Amp

- Small 25 mm² (3.9 x 6.4 mm) ceramic package
- Single monolithic die on a ceramic substrate
- Complete system integration and integrated thermal and load mismatch protection circuits



Alternate Solution 1

- Large 70 mm² (7.0 x 10.0 mm) laminate package
- Multi-chip module (3 dies, 5 discretes)
- Requires 12 external discrete components
- No integrated protection circuits

TYPICAL COMPARISON

	Package	Total System Area	Total Component Count	Integrated Power Control	Integrated Protection Circuits	Module
Si4300 Power Amp	25 mm ²	25 mm ²	1	Yes	Yes	No
Alternate Solution 1	70 mm ²	98 mm ²	13	Yes	No	Yes
Alternate Solution 2	49 mm ²	83 mm ²	25	Yes	No	Yes

Revolutionary Power Amplifier

The Silicon Laboratories' Si4300 GSM/GPRS PA is a revolutionary addition to the wireless product portfolio. The Si4300 continues Silicon Laboratories' record of innovation and commitment to radio integration for GSM handsets, modems and terminals. The Si4300 is the first GSM PA to integrate all the PA functions into a single monolithic IC and the first GSM PA implemented in standard digital CMOS.

CONTACT INFORMATION



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ORDERING INFORMATION

Product

Si4300-BM

Description

GSM/GPRS Power Amplifier

Data Sheets

Si4300-DS

Si4300 Data Sheet

Evaluation Boards

Si4300-EVB

Evaluation Board