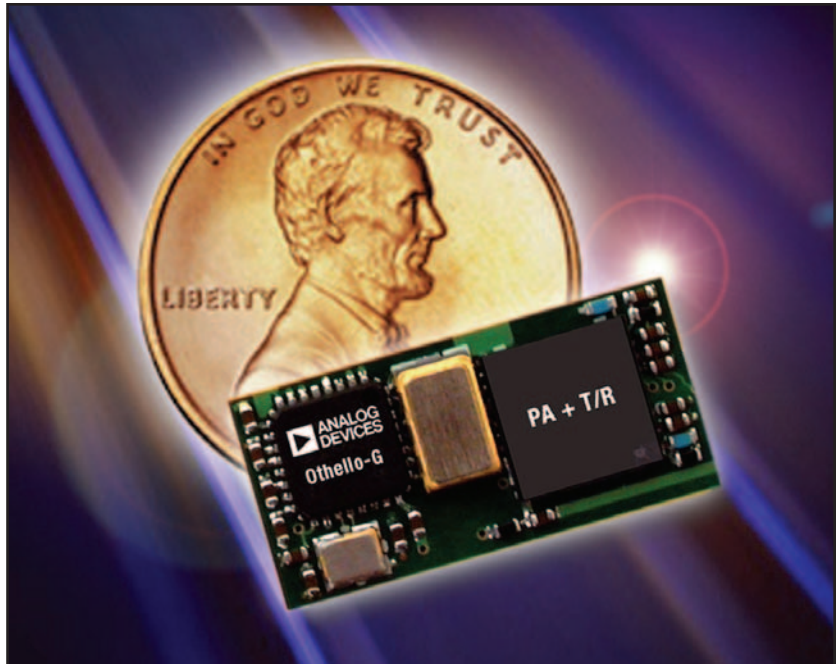


# AD6548 Othello-G Complete GSM/GPRS Transceiver

*Key Features:*

- Complete Quad-band GSM/GPRS Transceiver
- Direct-conversion (Zero-IF) Receiver
- Integrated VCOs, PLL loop filter
- Integrated Power Management
- Smallest quad-band GSM/GPRS Radio Solution



**Overview**

The AD6548 Othello-G transceiver sets new standards for integration and total solution size in GSM/GPRS radio design. The combination of the direct-conversion receiver architecture, translational-loop transmitter, and integration of all critical functions and components reduces layout size and BOM cost while providing state-of-the-art performance with substantial margin for manufacturing.

Othello-G is a true quad-band design, with independent programmable-gain LNAs for 850, 900, 1800, and 1900 MHz frequency bands. Local oscillator (LO) generation for both transmit and receive bands is performed on chip with a fast-locking fractional-N PLL synthesizer with integrated loop filters, TX and RX VCOs, and tank circuits. The AD6548 also includes an on-chip crystal oscillator and calibration system, eliminating the traditional external VCTCXO and reducing cost. The translation-loop transmitter architecture eliminates the need for external filtering between the transceiver and PA.

In addition, the AD6548 includes on-chip voltage regulators with independent power-down controls, enabling direct-to-battery connection, minimizing power consumption, and eliminating the need for external regulator components.

The only external components required for a complete GSM/GPRS radio design are 4 non-critical decoupling capacitors, SAW filters and matching components, and a power amplifier. A complete reference design with PA, T/R switch, all matching components and filters occupying 1.5 cm<sup>2</sup> is available.

<b>Part Number</b>	AD6548BCP
<b>Package type</b>	32-lead LFCSP
<b>Package Size</b>	5 x 5 mm
<b>Temperature Range (oC)</b>	-20 to +85

## Othello® Radio Technology

The AD6548 Othello-G is part of the Analog Devices Othello family of direct-conversion transceivers. Othello technology, introduced as the first open-market direct-conversion GSM radio in 1999, is available in products for GSM/GPRS, EDGE, TD-SCDMA, and W-CDMA. A combination of patented circuit designs, architectures, and system knowledge were used to solve the historical problems of self-detection, dc offset, and VCO phase errors. Consequently, GSM radios experienced a significant reduction on components and cost, with the elimination of IF SAW filters, VCOs, and associated components. Direct-conversion has become the preferred architecture for cellular transceivers.

Othello-G integrates all small-signal radio functions, including:

- Direct-conversion receiver
- Translation-loop transmitter
- Low-Dropout (LDO) voltage regulators
- VCOs and loop filters
- Reference crystal oscillator
- 805/900/1800/1900 MHz operation
- Class 12 GPRS operation

*A complete data sheet is available under non-disclosure agreement.*

## About Analog Devices in Wireless

Analog Devices has been a leading supplier of chips and chipsets for digital wireless systems since 1990. Analog Devices has built a vast portfolio of products for the design of mobile devices that has evolved from catalog DSPs and analog components, to sophisticated digital baseband processors, advanced mixed signal, power management and radio frequency ICs to complete chipsets and reference designs. These products include a number of industry firsts including the Othello family – the world's first open-market direct conversion radio chipset; and the SoftFone platform, the first RAM-based digital baseband processor, which enables wireless terminal device manufacturers to easily customize user features and options entirely in software, while incorporating breakthrough advancements in power consumption, cost and size. SoftFone chipsets are available for GSM, GPRS, EDGE, TD-SCDMA and W-CDMA standards.

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