

PRODUCT SUMMARY

# SKY74219-21: RF Transceiver with Analog I/Q Interface for Quad-Band GSM, GPRS, and EDGE Femto Base Station Applications

## Applications

- GSM850, EGSM900, DCS1800, and PCS1900 femtocell base stations and cellular repeaters
- GPRS femtocell base stations and cellular repeaters
- EDGE femtocell base stations and cellular repeaters

## Features

- General:
  - Low external component count
  - Supports multi-slot GPRS and EDGE applications
  - Low power operation
  - Additional auxiliary system clock
  - Simplified control interface with channel number programming
  - Dual-row RFLGA™ (36-pin, 4 x 4.5 mm) Pb-free (MSL3, 250 °C per JEDEC J-STD-020) package
- Synthesizer:
  - Single integrated, fully programmable fractional-N synthesizer suitable for multi-slot EGPRS operation
  - Fully integrated wideband UHF VCO
  - Crystal oscillator with hybrid digital/analog control
- Transmit:
  - Closed Polar Loop™ transmitter
  - No delay adjustment required
  - Integrated quad-band transmit VCO
  - PA saturation detection and prevention circuit
- Receive:
  - Direct conversion receiver
  - Four separate LNAs with differential inputs
  - Gain selectable in 6 dB steps

**NEW**

Skyworks offers lead (Pb)-free RoHS (Restriction of Hazardous Substances) compliant packaging.



## Description

The SKY74219-21 Transceiver is a highly integrated device designed for Skyworks GSM/EDGE Femto Base Station RF Subsystem. This subsystem is intended for quad-band GSM, GPRS, and EDGE femtocell base stations and cellular repeaters. The device supports the GSM850, EGSM900, DCS1800, and PCS1900 bands.

The receiver consists of four integrated Low Noise Amplifiers (LNAs), a quadrature demodulator, and baseband filters.

The timing and control section of the SKY74219-21 generates a 26 MHz high-stability clock for use on-chip and a 26 MHz signal (SYSCLK) supplied to the baseband. An additional reference clock is also available.

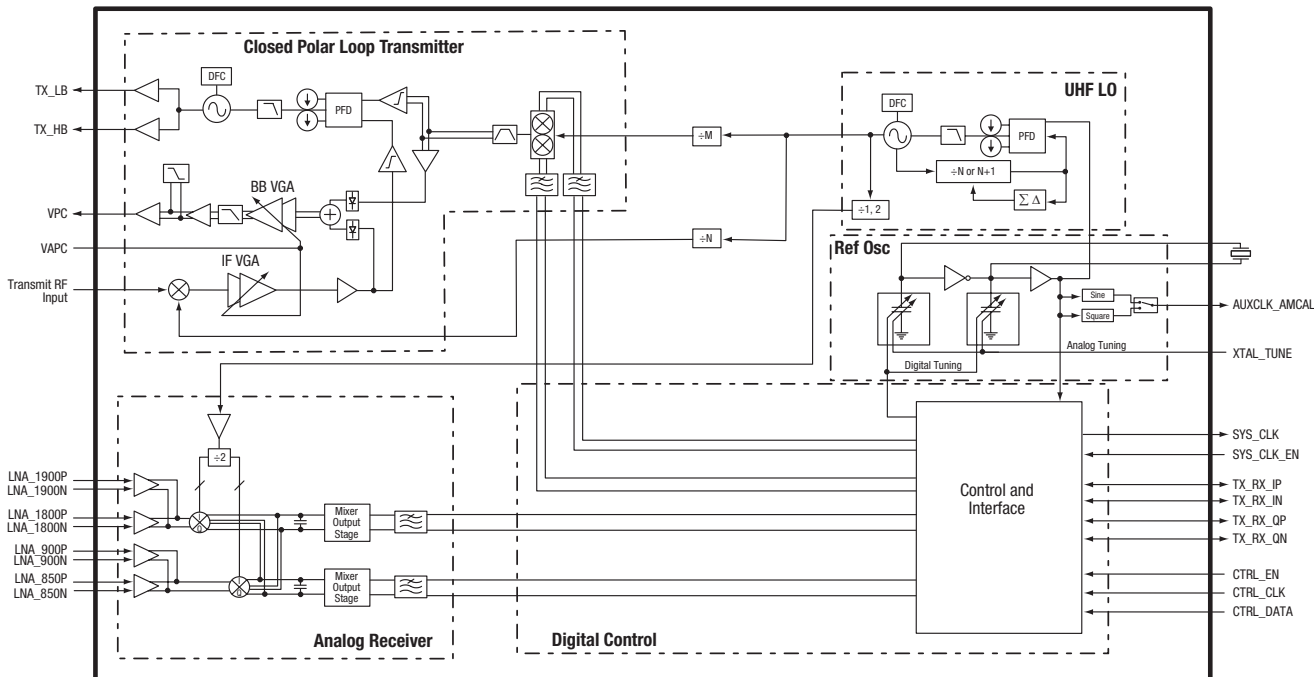
The SKY74219-21 implements Skyworks closed Polar Loop transmit architecture. This architecture, while maintaining the traditional analog In-Phase and Quadrature (I/Q) signals, autonomously splits the amplitude and phase within the device. The filter-saving advantage of the translation-loop approach is embedded in the architecture. Also included is an AM loop that provides both signal AM and power level control.

The SKY74219-21 features an integrated, fully programmable,  $\Sigma\Delta$  fractional-N synthesizer suitable for EGPRS multi-slot operation. The reference frequency for the synthesizer is supplied by an integrated crystal oscillator circuit that enables the use of a low-cost crystal. This circuit provides both digital and analog tuning – coarse digital tuning for factory calibration and analog voltage tuning for Automatic Frequency Correction (AFC). The crystal oscillator circuit also provides a buffered reference frequency output to supply other devices in the system.

The SKY74219-21 is intended to be used with Skyworks SKY65330 Front-End Module (FEM), which contains a switch, PA, and an integrated coupler for use with Skyworks closed Polar Loop EDGE architecture. Together, the transceiver and FEM form the GSM/EDGE Femto Base Station RF Subsystem.

The SKY74219-21 is packaged in a small, 36-pin 4 x 4.5 mm dual-row RF Land Grid Array (RFLGA) package. A functional block diagram is shown in Figure 1.

**PRODUCT SUMMARY • SKY74219-21 RF TRANSCEIVER**



S1042

**Figure 1. SKY74219-21 RF Transceiver Block Diagram**

**Ordering Information**

Model Name	Manufacturing Part Number	Product Revision
SKY74219-21 RF Transceiver	SKY74219-21 (Pb-free package)	*** TBD ***

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