PRODUCT SUMMARY

Helios™ Mini RF Subsystem for GSM, GPRS, and EDGE Mobile Handset Applications

Applications

- EDGE-based wireless data services
- GSM850, EGSM900, DCS1800, and PCS1900 handsets
- GPRS handsets and modules

Features

- Polar Loop™ transmit modulation architecture
- Integrated noise filtering; no pre-PA filters required
- PA forms a closed loop phase and amplitude modulation (GMSK, 3π/8 8-PSK) with transceiver
- No isolator required (closed loop around PA provides excellent EVM and phase error performance into high VSWR)
- Direct conversion receiver
- Transmitter with integrated VCOs
- Fully integrated fractional-N synthesizer and UHF VCO
- Impedance matching circuitry
- RF transceiver provides an integrated 26 MHz crystal oscillator with a 13 or 26 MHz output
- High system efficiency

Skyworks offers lead (Pb)-free “environmentally friendly” packaging that is RoHS compliant (European Parliament for the Restriction of Hazardous Substances).

Description

Skyworks Helios™ Mini EDGE RF Subsystem combines a direct conversion transceiver and a Power Amplifier (PA) with controller and coupler into a dual-chip radio solution that saves significant space, cost, and design cycle time while providing world-class GSM/GPRS/EDGE performance.

All of the necessary RF components needed to build a quad-band, multi-standard handset have been incorporated into the Helios Mini EDGE RF Subsystem. The highly integrated subsystem includes Skyworks SKY74945 RF transceiver and SKY77332 PA/PA Controller (PAC).

At the heart of the RF subsystem is Skyworks advanced Polar Loop™ transmit modulation architecture. This unique architecture enables the radio to transmit both constant as well as non-constant envelope signals through the same transmit path to minimize the number of external components required to build a mobile handset. This significantly reduces the complexity, size, cost, and power requirements of next-generation Enhanced Data for GSM Evolution (EDGE) platforms.

The SKY74945 is based on Skyworks industry-leading, single-chip direct conversion transceiver technology. This device consists of a direct conversion receiver, a transmitter with an integrated Voltage Controlled Oscillator (VCO), and a fully integrated fractional-N synthesizer. Together with the SKY77332 PA/PAC, a seamless closed-loop transmit system is formed. The SKY74945 is fabricated using BiCMOS technology and is available in a 58-pin, 6 x 7 x 1 mm RF Land Grid Array (RFLGA™) package.

The SKY77332 PA incorporates a GSM850/900 block, a DCS1800/PCS1900 block, impedance-matching circuitry for 50 Ω input and output, an integrated coupler, a downconverter, and a PA control block. The SKY77332 is fabricated using GaAs technology and is available in a 56-pin, 8 x 8 x 1.5 mm Multi-Chip Module (MCM) package.

A functional block diagram for the Helios Mini EDGE RF Subsystem is shown in Figure 1.
Figure 1. Helios Mini EDGE RF Subsystem Functional Block Diagram

Ordering Information

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<tr>
<td>SKY74945 RF Transceiver</td>
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<td>SKY77332 Power Amplifier with Controller</td>
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