Helios™ Polar Loop™ DigRF EDGE RF Subsystem Family

Robust and easy-to-implement Polar Loop™ technology

Description

Skyworks Helios™ Polar Loop™ DigRF EDGE Subsystem combines a direct conversion transceiver and a Power Amplifier (PA) with controller, TR switch and coupler into a dual-chip radio solution that saves significant space, cost, and design cycle time while providing improved performance. It is designed to directly connect to digital baseband device via DigRF interface. All of the necessary RF components needed to build a quad-band, multi-standard handset have been incorporated into the Helios Polar Loop Radio. The highly integrated subsystem includes Skyworks SKY74200 DigRF transceiver and SKY77520 TR Front-end module.

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 nonconstant 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 entire RF subsystem fits into a 210 mm^2 area.

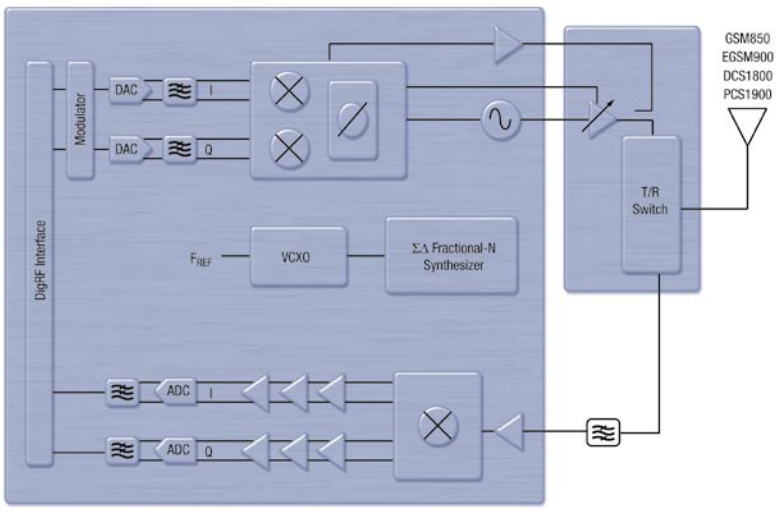
The SKY74200 is based on Skyworks industry-leading, single-chip direct conversion transceiver technology. This device consists of a direct conversion receiver, a transmitter with integrated Voltage Controlled Oscillators (VCOs), low dropout regulators and a fully integrated fractional-N synthesizer. Together with the SKY77520 TR FEM, a seamless closed-loop transmit system is formed. The SKY74200 is available in a 64-pin, 7 x 11 x 1.2 mm Multi-Chip Module (MCM) package. The SKY77520 TR FEM incorporates a GSM850/900 block, a DCS1800/PCS1900 block, impedance-matching circuitry for 50Ω input and output, an integrated coupler, a T/R switch, and a PA control block. The SKY77520 is fabricated using GaAs technology and is available in a 28-pin, 8 x 8 x 1.5 MCM package.

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
- Closed loop phase and amplitude modulation (GMSK, 3π/8 -PSK) via control of non-linear GSM PA
- PA inside control loop provides excellent EVM and phase error performance
- Direct conversion receiver
- Direct connection to battery
- DigRF compatible interface
- Compact real estate of 210 mm^2



Helios™ Polar Loop™ DigRF EDGE Subsystem functional block diagram

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

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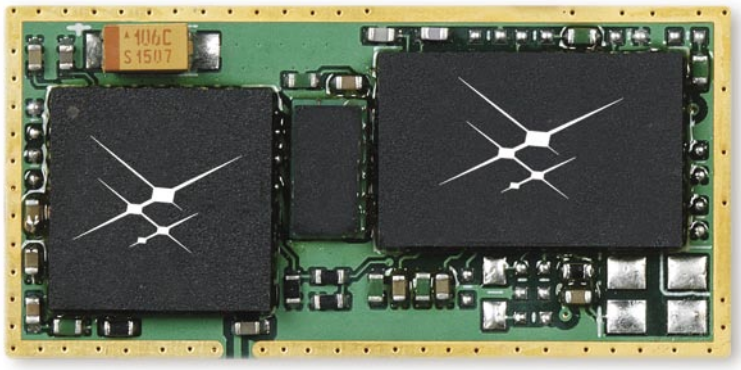
Ordering Information

Model Name	Manufacturing Part Number	Product Revision
Helios Polar Loop DigRF EDGE Subsystem:	SKY74200	RF Transceiver
	SKY77520	Transmit Recieve Front-End-Module



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