PRODUCT SUMMARY

SKY77570-12 Tx-Rx Front-End Module for Quad-Band GSM / GPRS / EDGE and TD-SCDMA with 6-Band Antenna Switch Support

Applications

- Quad-band cellular handsets encompassing
  - Class 4 GSM850/900
  - Class 1 DCS1800/PCS1900
  - Class 12 GPRS multi-slot operation
  - EDGE linear modulation
  - 6-band WCDMA antenna switch support
  - TD-SCDMA bands 39/34

Features

- Small, low profile package
  - 6 mm x 6 mm x 0.9 mm
  - 42-pad configuration
- High efficiency
- Tx-VCO-to-antenna and antenna-to-Rx-SAW filter RF interface
- Single RF input

Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to Skyworks *Definition of Green*™, document number SQ04-0074.

Description

SKY77570-12 is a transmit and receive Front End Module (FEM) designed in a very low profile (0.9 mm), compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, and PCS1900 operation—a complete transmit VCO-to-Antenna and Antenna-to-receive SAW filter solution. The FEM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation, EDGE Linear Modulation, and TD-SCDMA (B39/B34). WCDMA switch-through support is provided by four dedicated high-linearity ports.

The module consists of a GSM850/900 PA and DCS1800/PCS1900 PA block, impedance-matching circuitry for 50 Ω input and output impedances, Tx harmonic filtering, high linearity-low insertion loss switches, and a Multi-Function power amplifier Control (MFC) block.The internal MFC function and interface circuitry is provided by a BiCMOS IC.

Fabricated in InGaP/GaAs, the Heterojunction Bipolar Transistor (HBT) PA blocks support the GSM850/900 bands, DCS1800/PCS1900 bands, and TD-SCDMA 39/34 bands. Both PA blocks share common power supply pads to distribute current. The output of the PA block and the outputs to the eight receive pads connect to the antenna pad through a highly linear antenna switch. The WCDMA and Rx ports feature a near 0 V DC offset level, which eliminates any need for external blocking capacitors. The InGaP/GaAs die, switch die, Silicon (Si) controller die, and passive components are mounted on a multi-layer laminate substrate and the entire assembly is encapsulated with plastic overmold.

The SKY77570-12 RF I/O ports are internally matched to a 50 Ω load to reduce the number of external components for a quad-band design. Extremely low leakage current of the FEM maximizes handset standby time. Band selection and control of transmit and receive RF signal flows are performed via six external control pads (see Figure 1). Mode of operation, Tx, Rx, Band (GSM850, GSM900, DCS, PCS, and UMTS) are controlled through the 7 logic inputs LB_EN, HB_EN, MODE0, MODE1, SW0, SW1, and SPDT.

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY77570-12 Tx-Rx Front-End Module	SKY77570-12	