

PRODUCT SUMMARY

SKY77910-11 SkyLiTE™ Tx-Rx FEM for Quad-Band GSM / GPRS EDGE w/ Eight Linear TRx Switch Ports, Dual-Band TD-SCDMA, and TDD LTE Band 39

Applications

- Cellular handsets encompassing Quad-Band GSM/EDGE, Dual-Band TD-SCDMA, and TDD LTE
 - Class 4 GSM850/900
 - Class 1 DCS1800/PCS1900
 - Class 12 GPRS multi-slot operation
 - Linear EDGE operation
 - TD-SCDMA Bands 34/39
 - TDD LTE Band 39

Features

- Small, low profile package
 - 5.5 mm x 5.3 mm x 0.8 mm
 - 38-pad configuration
- Fully programmable MIPI® RFFE control
- Eight low insertion loss / high linearity TRx switch ports
- Integrated noise suppression notch filter for WiFi coexistence
- Built-in IEC-compliant antenna ESD protection
- Integrated broadband directional coupler
- High Efficiency (inclusive of coupler)
 - 40% GSM850 36% DCS1800
 - 40% GSM900 36% PCS1900
- Wide GMSK input power range: -1 dBm to 6 dBm
- Tx-VCO-to-antenna and antenna-to-Rx-SAW filter RF interface
- Tx harmonics below -40 dBm
- Current limiting and over-voltage protection for ruggedness and extended battery life
- Input/Output ports internally matched to 50 Ω load
- High impedance control inputs: 20 μA, maximum
- Power control circuitry built-in for improved TRP variation

Description

SkyLiTE™ is Skyworks’ newest family of LTE devices which consists of highly integrated modules incorporating the amplification, switching, WiFi filtering and coupler functions required to support all major FDD/TDD bands. With the addition of external duplexers, this product family provides OEMs with a scalable and reconfigurable front-end system suitable for markets worldwide.

Design of the SKY77910-11 SkyLiTE™ Transmit / Receive Front End Module (FEM) offers a complete transmit VCO-to-Antenna and Antenna-to-receive SAW filter solution for advanced cellular handsets comprising quad-band GSM and linear 2.5G operation in a very low profile (0.9 mm) and compact form factor.

The FEM supports Class 12 General Packet Radio Service (GPRS), EDGE multi-slot operation, and TD-SCDMA and TDD LTE linear transmission. Eight transmit / receive (TRx) ports and an integrated directional coupler enables broadband 3G/4G RF switch-through.

The module consists of a CMOS Power Amplifier (PA) Controller, a low band (LB) PA block supporting GSM850/900 bands, a high band (HB) PA block supporting DCS1800/PCS1900, TD-SCDMA bands 34/39 and TDD LTE band 39, input and output ports internally matched to 50 ohm impedance loads, Tx harmonic filtering, RF switching, and a directional coupler at the antenna output. The custom low-current PA controller includes the Mobile Industry Processor Interface (MIPI®) and decoder circuitry to control the RF switch.

All RF ports Internal matched to a 50 ohm load reduces the external components on the phone board. The Heterojunction Bipolar Transistor (HBT) PA blocks, fabricated in GaAs, share common power supply pads to distribute current. Extremely low leakage current of the SKY77910-11 maximizes handset standby time. The PA outputs and the eight TRx pads connect to the antenna pad through a high-linearity, low-loss switch. The TRx ports feature a 0 volts DC offset level that eliminates external blocking capacitors. An integrated directional coupler precludes any external coupler requirement. The GaAs die, the switch die, the CMOS controller, and the passive components mount onto a multi-layer laminate substrate and the entire assembly encapsulated with plastic overmold. MIPI controls the RF signal flows including mode control and selection of LB or HB PA or TRx port.

In GMSK modes, the PA controller provides envelope amplitude control as a function of VRAMP and reduces sensitivity to input drive, temperature, power supply, and process variations. Skyworks’ Finger-Based Integrated Power Amplifier Control (FB-iPAQ) minimizes output power variation into mismatch. Proper timing of MIPI commands and VRAMP input ensures high isolation between the antenna and Tx-VCO while the VCO is being tuned prior to the transmit burst.

In EDGE and TD-SCDMA / TDD LTE linear modes, VRAMP voltage and MIPI-based bias settings optimize PA linearity and efficiency.



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.

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY77910-11 SkyLiTE™ Tx-Rx Front-End Module	SKY77910-11	TBD

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