



SKYWORKS®

## PRODUCT SUMMARY

# SKY58101-11 Sky5® Low Band Tx-Rx Front-End Module for 3G/4G/5G Applications with Low Band / High Band 2G

## Applications

- Multi-band 2G/3G/4G/5G Mobile Devices
- Handsets, Data Cards, M2M
- LTE Advanced Carrier Aggregation (CA)

## Features

- MIPI® RFFE 3.0 control interface with 1.8V/1.2V supply
- Integrated switched duplexer filters for Bands 8, 12, 20, 26, 28A, and 29
- Integrated Low Noise Amplifiers (LNA)
- Four auxiliary 3G/4G/5G Tx outputs for external filters
- Four auxiliary 3G/4G/5G TRx ports to support additional bands
- Tx filtering for harmonically-related LB-MB downlink CA
- Integrated low band and high band 2G PAs
- Capable to operating as ET (Envelope Tracking)
- High band 2G works with companion MB/HB modules
- Integrated bi-directional RF coupler with cascade support
- Small, low profile package:
  - 7.6 mm x 6.0 mm x 0.75 mm
  - SkyShield™ Shielded Module
  - 56-pad configuration

## 3G Features

- WCDMA, HSPA+
- CDMA2000 1x RC1, RC3, EVDO (Rev A)

## 4G Features

- FDD LTE
- Uplink QPSK, 16QAM, 64QAM
- Critical L+M, L+H Downlink CA Support

## 5G Features

- n8, n12, n20, n26, n28A, n28B, n71, n13, n14

## Description

The SKY58101-11 Sky5® Multimode Multiband Tx-Rx Front-End Module (FEM) supports 2G/3G/4G/5G mobile devices and operates efficiently in 3G/4G/5G modes. The SKY58101-11 is part of our Sky5® product portfolio. The FEM consists of a low-band 3G/4G/5G PA block, low band and high-band 2G PA blocks, a silicon controller containing the MIPI RFFE interface, RF band switches, antenna switches, a bi-directional coupler, integrated filters for Bands 8, 12, 20, 26, 28A, and 29, and low noise amplifier (LNA). Extremely low leakage current maximizes device standby time.

The IC die and passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated in a 7.6 mm x

6.0 mm x 0.75 mm, 56-pad MCM, SMT plastic package which allows a highly manufacturable, low cost solution.

The SKY58101-11 FEM is optimized for LTE Advanced which utilizes Carrier Aggregation for higher data rates. The combined filtering, RF matching and TRx switching internal to the FEM optimizes performance for popular Downlink (DL) CA band combinations in a compact and low-cost solution. The FEM contains the necessary components between the antenna and RFIC transceiver and is optimized to provide superior Rx sensitivity and Tx efficiency.

Selecting the linear-GMSK operation standard disables VRAMP input, so all PA biasing depends only on MIPI mode selection. The transmitted envelope is then a linear function of RF input.

Selecting VRAMP-enabled operation, the PA controller provides VRAMP control of the GMSK envelope and reduces sensitivity to input drive, temperature, power supply, and process variations. The Skyworks Finger-Based Integrated Power Amplifier Control (FB-iPAC) minimizes output power variation into mismatch.

Exceptional RF coexistence planning and system techniques are employed to minimize Rx de-sensitizing ("de-sense").



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

| Part Number | Part Description   | Evaluation Board Part Number |
|-------------|--|------------------------------|
| SKY58101-11 | SKY58101-11 Sky5® Low Band Tx-Rx Front-End Module for 3G/4G/5G Applications with Low Band / High Band 2G | SKY58101-11EK1               |

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