SKY5A3043 Sky5® Low Band Tx-Rx Front-End Module for 3G/4G/5G Applications with Low Band/High Band 2G

Applications

- Automotive
- Telematics (4G/5G)
- Network Attached Device (NAD)

Features

- MIPI® RFFE 3.0 control IF w/1.8 V nominal supply
- VCC switch for versatile power supply connections
- Integrated duplexer Band 8, 26, and 28a
- Integrated Low Noise Amplifiers (LNA):
  - Auxiliary RX supporting 617 MHz to 960 MHz
- 4 auxiliary 3G/4G/5G Tx/TRx for additional bands:
  - Auxiliary TX supporting 663 MHz to 915 MHz
- Tx filtering for harmonically-related LB-MB downlink CA
- Integrated low band and high band 2G PAs
- High Band 2G includes companion MB/HB modules
- Integrated bi-directional RF coupler with cascade support
- Automotive support:
  - AEC-Q104, PPAP, IMDS material declaration
- Small, low profile package:
  - 7.6 mm x 6.0 mm x 0.80 mm (Max)
  - 56-pad configuration

3G/4G/5G Features

- WCDMA, HSPA+
- CDMA2000 1x RC1, RC3, EVDO (Rev A)
- FDD LTE: Uplink QPSK, 16QAM, 64QAM
- Integrated Bands n8, n26, n28a

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

The SKY5A3043 Sky5® supports 2G/3G/4G/5G mobile devices and operates efficiently in 3G/4G/5G modes. The device 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 B8, B26, and B28a 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 SKY5A3043 is optimized for LTE Advanced which utilizes Carrier Aggregation (CA) 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 device 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. A Collector Voltage Amplitude Controller (COVAC) minimizes output power variation into mismatch.

In EDGE linear mode, VRAMP voltage and MIPI-based bias settings jointly optimize PA linearity and efficiency.

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

Ordering Information

Part Number	Part Description	Evaluation Board Part Number
SKY5A3043	Low Band Tx-Rx Front-End Module for 3G/4G/5G Applications with Low Band/High Band 2G	SKY5A3043EK1