PRODUCT SUMMARY

SKY68000-11: LTE Dual-Band Front-End Module for IoT

Applications

- Cellular IoT modem devices:
  - 4G LTE technology capability
  - Dedicated LTE half-duplex operation (HD-FDD)
  - Designed to meet 3GPP Rel-12 and Rel-13 specifications (with compatible cellular transceiver)
- LTE dual-band modem products (low-band and mid-band):
  - Band 13
  - Band 4
- PAE optimized for Class 3 LTE output power (+23 dBm)

Features

- Low-loss post-PA transmit front end for enhanced transmitter efficiency (compared to LTE-FDD radio front ends)
- Dual-band PA supporting APT mode of operation or Vcc fixed supply (≥ 2.9 V)
- Low-pass filters for harmonic rejection to comply with spurious emission requirements
- Integrated SP6T antenna Tx/Rx switch
- Integrated Rx SAW filters for out of band rejection for both Band 13 and Band 4
- Supports LTE bandwidths up to 20 MHz with ≤ 6 RB allocation (Cat-0)
- MIPI RFFE control interface, 2.0 compliant
- Small, low profile package (4 mm x 5 mm x 0.9 mm)

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 SKY68000 is a hybrid, dual-band multi-chip RF front-end (RFFE) module supporting cellular LTE Cat-0/Cat-M (Half-Duplex System) transceiver platforms. The module integrates the entire RF front end necessary for an LTE dual-band radio operating in Band 13 and Band 4 including Rx SAW filters, dual-band PA with bias controller, Tx low-pass harmonic filter, antenna switch and MIPI RFFE controller.

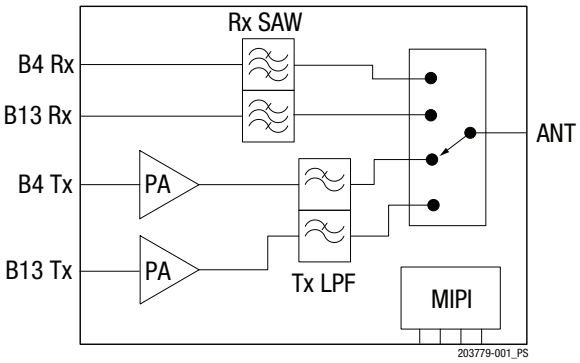

Figure 1. SKY68000-11 Functional Block Diagram

Tx Section

The PA load-line is optimized for high efficiency while simultaneously meeting 3GPP ACLR and emissions mask specifications with an LTE 6RB (maximum) and up to 20MHz BW signal waveform. An integrated LPF is implemented to reject the PA and transceiver harmonics while at the same time minimizing any post PA loss for an optimized transmit current consumption. Out of band emissions performance is emphasized by the design to be compliant for Band 13 and Band 4.

Rx Section

Receive SAW filters are integrated in to the module along with the necessary matching yielding a 50 Ω single-ended impedance for the antenna and Rx ports. The SAW filters provide a high level of rejection to out of band interferers protecting the transceiver from high blocking signal levels and guaranteeing 3GPP LTE blocking test conformance. The Rx SAW filters cascaded with the low throw count switch establishes a lower insertion loss and noise figure than conventional LTE receivers.

MIPI RFFE Controller Interface

The SKY68000-11 functional operation is fully controllable by a single MIPI interface which is used to drive the PA in various optimized bias modes as well as providing band selection and controlling the antenna switch Tx, Rx and band selection.

Figure 1 shows the block diagram for the SKY68000-11.

Ordering Information

Model Name	Manufacturing Part Number	Evaluation Board Part Number
SKY68000-11: LTE Tx/Rx Dual-Band Front-End Module	SKY68000-11	