SKY68035-11: Massive IoT Half-duplex Front-end Module with Coupler

Applications

- Low-power, low-data-rate cellular IoT
- Half-duplex operation (HD-FDD):
  - LTE-M
  - NB-IoT
- Universal modem products:
  - Low-band: 5, 8, 12, 13, 14, 17, 18, 19, 20, 26, 28, 71, 85
  - Mid-band: 1, 2, 3, 4, 25, 39, 65, 66, 70, NTN
- Broadband operation on TRX to ANT paths, from 400 MHz to 2.7 GHz

Features

- Output power: +24.5 dBm at antenna, optimized to support LTE for 1 RB to 6 RB
- Broadband PA supporting APT mode of operation or VCC fixed supply: 2.2 V to 4.5 V
- Integrated TX low-pass filters for optimized harmonic rejection
- Integrated SP6T antenna TX/RX switch
- Low leakage current: 0.4 µA
- Adaptive biasing scheme for maximum PA efficiencies
- MIPI® RFFE control interface, 2.0 compliant
- Operating temperature range: –40 °C to +105 °C
- Low-profile 24-pin, 3.0 x 3.0 x 0.67 mm package MSL3, 260 °C per JEDEC J-STD-020
- For RoHS and other product compliance information, see the Skyworks Certificate of Conformance.

Description

The SKY68035-11 is a hybrid, multi-band multi-chip RF front-end (RFFE) module supporting LTE-M/NB-IoT transceiver platforms.

- The module integrates the entire RF front end necessary for an LTE multi-band radio operating in low-band (5, 8, 12, 13, 14, 17, 18, 19, 20, 26, 28, 71, 85) and mid-band (1, 2, 3, 4, 25, 39, 65, 66, 70, NTN) frequencies, including broadband PA with bias

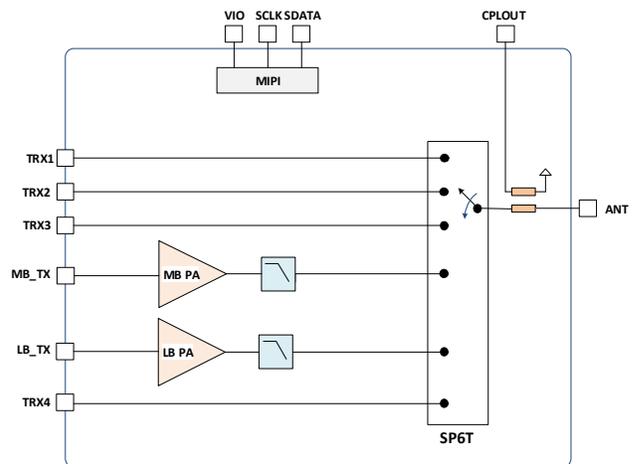controller, TX lowpass harmonic filter, antenna switch, and MIPI RFFE controller.

Figure 1. Block Diagram

TX Section

The PA load-line is optimized for high efficiency while simultaneously meeting 3GPP ACLR and emissions mask specifications with LTE up to 6 RB. An integrated LPF rejects the PA and transceiver harmonics and minimizes post PA losses for optimized transmit current consumption. Out-of-band emissions performance is emphasized by the design to be 3GPP-compliant for low-band and mid-band frequencies.

TRX Paths

The four TRX ports are additional broadband ports that can be used symmetrically for either TX or RX operation.

MIPI RFFE Controller Interface

The SKY68035-11 functional operation is fully controllable by a single MIPI interface which is used to configure the MB and LB PAs in various optimized bias modes, provide band selection, and control the antenna switch.

Ordering Information

Part Number	Part Description
SKY68035-11	Massive IoT Half-Duplex Front-end Module (FEM) with Coupler