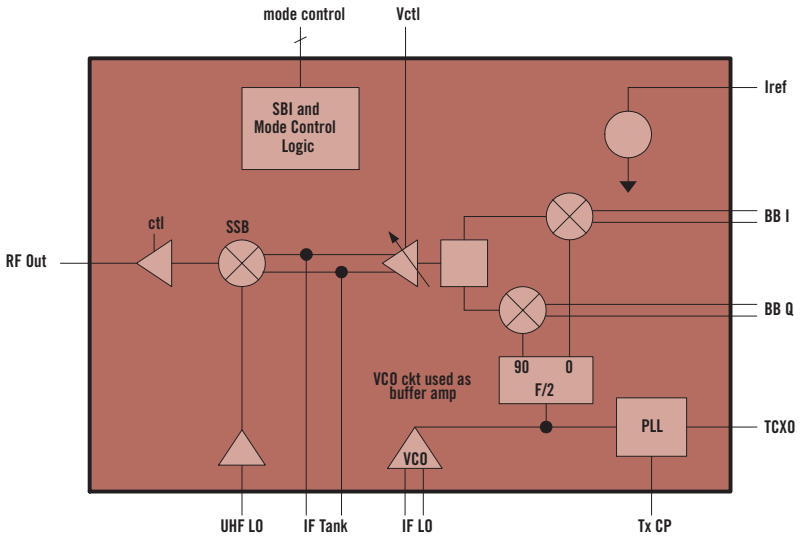


RFT3500 Functional Block Diagram

Overview

At QUALCOMM CDMA Technologies (QCT), we strive to constantly improve the indispensable communication tools we all use every day. QCT creates state-of-the-art chipsets, system software, development tools and products — such as the Launchpad™ suite of technologies and software — that support the most advanced digital wireless features and functionality available for wireless devices and base stations — while continually reducing complexity, cost and board-space requirements.

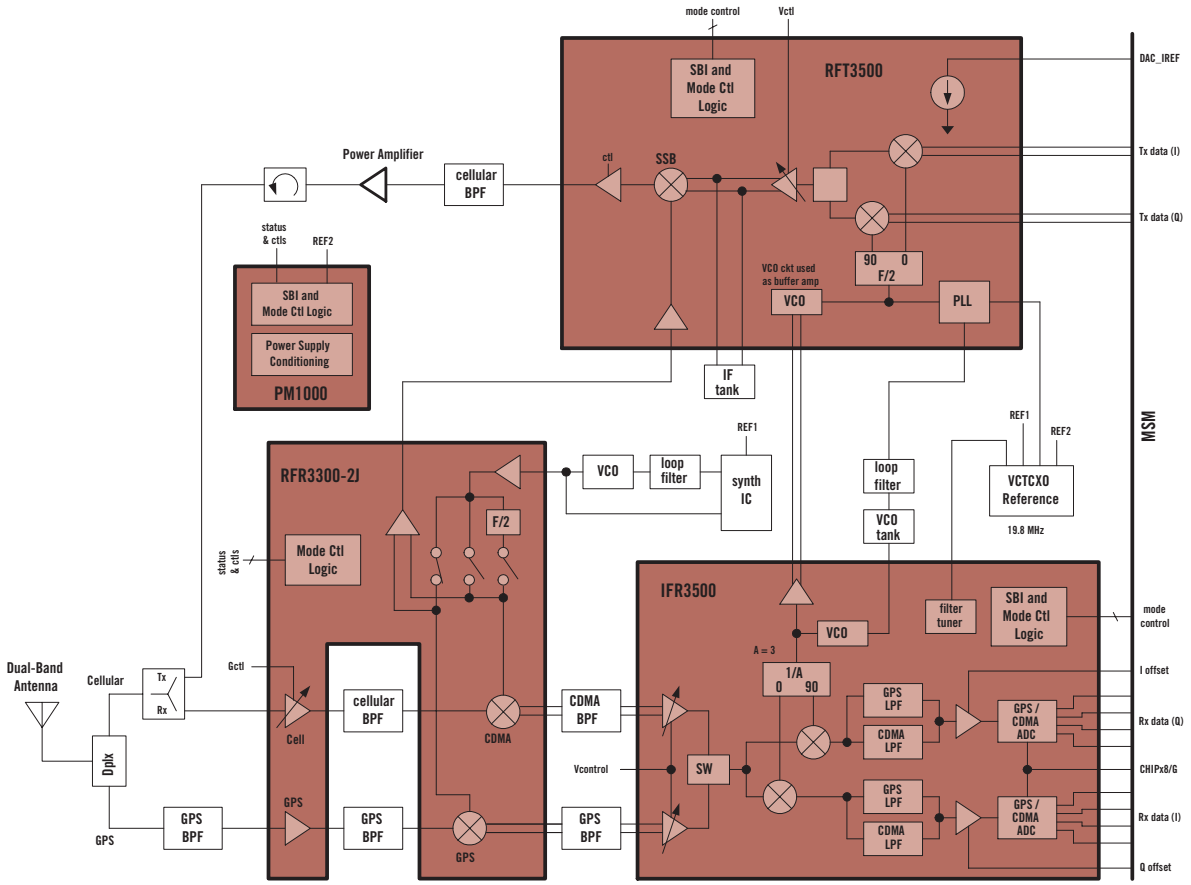
The RFT3500™ device is a fully integrated baseband-to-RF transmit processor performing all transmit (Tx) signal processing functions required between the analog baseband output from QCT's Mobile Station Modem™ (MSM™) devices and the power amplifier (PA) for ARIB-53 (Japan) J-CDMA applications. The RFT3500 device leverages previous RFT3100™ circuit designs but consumes less current and requires fewer external parts to offer a tightly integrated CDMA Tx solution that simplifies RF PCB design, shortens development-cycle time, and improves handset talk-time performance.

Using an analog baseband interface, the baseband quadrature signals are upconverted to the cellular frequency band and amplified to provide signal drive capability to the PA. The RFT3500 device includes a quadrature baseband-to-IF upconverter, a programmable PLL for generating the Tx IF frequency, single-sideband upconversion from IF to RF, cellular driver amplifier, Tx power control through a 90 dB VGA, and optional Tx IF VCO. The single-sideband upconversion also eliminates the need for an IF SAW filter normally required between the upconverter and driver amplifier, providing further board area and cost savings. Used in conjunction with QCT's IFR3500™ device, the RFT3500 device accommodates sharing of the IF LO synthesizer to enable simplified frequency plans and reduced cost. Also, for cellular applications involving GPS, an external UHF synthesizer with single VCO can be shared between the RFT3500 and QCT's RFR3300-2J™ device. Designed to meet the requirements for global CDMA markets, the RFT3500 device will operate over the following Tx frequency range:

Cellular Band
887 MHz – 925 MHz

The range of supply voltage is from 2.7 to 3.15 V, which provides operating compatibility for platforms utilizing a single-cell Li-Ion battery design. RFT3500 device operating modes are controlled by the MSM chip and include IF LO synthesizer programming, gain control, selective power-down, and punctured CDMA transmission (gated Tx power) for optimal power savings and extending talk-time. The RFT3500 device is fabricated on an advanced BiCMOS process that accommodates both precision high-frequency analog circuits and low-power CMOS functions, and is provided in a 32-pad BCC++ plastic package that includes an exposed center ground slug for improved RF grounding, mechanical strength, and thermal continuity.

As with all QCT products, the RFT3500 device features the unparalleled customer support you have come to expect from your partner of choice for complete wireless communications solutions. QCT is committed to providing innovative multimode, multi-network chipsets, system software and development tools that will help ensure your competitive success in the wireless communications marketplace for 3G and beyond.



RFT3500 as Part of QUALCOMM's Chipset Architecture (J-CDMA Phone with gpsOne configuration shown)

RFT3500 Device Features

- Full upconversion from analog baseband to RF Tx
- Tx functionality includes integrated I/Q modulator, IF PLL and optional VCO, SSB upconverter, VGA, and driver amplifier
- Designed for single-band J-CDMA cellular applications
- Tx analog baseband interface compatible with MSM3100™, MSM3300™, MSM5105™, MSM5100™, and MSM5500® devices
- Current consumption optimized for J-CDMA applications
- Low external parts count
- IF LO synthesizer can be shared between RFT3500 and IFR3500 devices for easier frequency planning and reduced cost
- Single UHF VCO can be shared between RFT3500 and RFR3300-2J devices for applications involving GPS
- Tx power control through 90 dB dynamic range VGA
- Puncture mode (gated Tx power) for extended talk-time performance
- Supply voltage from 2.7 to 3.15 V
- 32-pad BCC++ plastic chip scale package (5 mm x 5 mm x 0.8 mm)

Printed in USA 4/2004 RFT3500-SS X9