

# CDMA

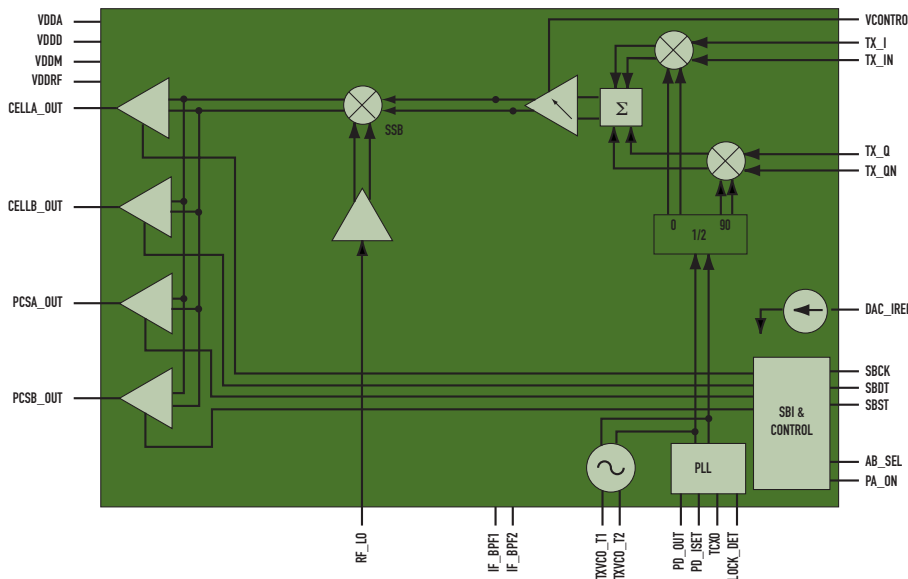
## Tx BASEBAND/RF PROCESSOR



# RFT3100™

**QUALCOMM**  
CDMA Technologies  
Enabling the future of communications.™

**Figure 1. RFT3100 Processor Functional Block Diagram**



bandpass filter normally required between the upconverter and driver amplifier, providing overall board area and cost savings. RFT3100 functionality is specifically controlled from the MSM device via the three-line serial bus interface (SBI).

Designed to meet the requirements for global CDMA markets, the RFT3100 device will operate over the following Tx frequency ranges:

Cellular band  
824 MHz - 925 MHz  
PCS band  
1750 MHz - 1910 MHz

### RFT3100 OVERVIEW

The RFT3100™ Baseband-to-Radio Frequency (RF) Transmit Processor performs all transmit (Tx) signal processing functions required between the analog baseband and the Power Amplifier (PA) for IS-95 Code Division Multiple Access (CDMA) cellular, JSTD-018 PCS, and ARIB-53 (Japan) single-band and dual-band applications. The RFT3100 device incorporates the previous-generation functionality of the IFT3000™ Baseband-to-Intermediate Frequency (IF) Processor together with RF upconversion and driver amplifiers. In addition to offering the most advanced and

integrated CDMA Tx solution available, providing a board area savings of more than 65 percent over previous generation chipsets, the RFT3100 device minimizes power consumption for extended talk-time performance.

The RFT3100 device is available in three configurations: dual-band cellular and PCS (RFT3100-1), cellular-only (RFT3100-2), and PCS-only (RFT3100-3).

Utilizing an analog baseband interface, the RFT3100 device connects directly to QUALCOMM's MSM3100™

and MSM3300™ chipsets. The baseband quadrature signals are upconverted to the cellular or PCS frequency bands and amplified to provide signal drive capability to the PA. The RFT3100 device includes an IF mixer for upconverting analog baseband to IF, a programmable Phase Locked Loop (PLL) for generating Tx IF frequency, single-sideband upconversion from IF to RF, two cellular and two PCS driver amplifiers (dual-band version), and Tx power control through an 85 dB variable gain amplifier (VGA). The single-sideband upconversion also eliminates the need for a

The range of supply voltage for the RFT3100 device is from 2.7 V to 3.3 V, which provides operating compatibility for platforms utilizing a single-cell Li-Ion battery design. RFT3100 operating modes are controlled by the MSM and include selective power-down, gain control, and punctured CDMA transmission (gated Tx power) for optimal power savings and talk-time improvement.

The RFT3100 device is fabricated on an advanced BiCMOS process, which accommodates both precision high-frequency analog circuits and low-power CMOS functions, and is available in a 32-pad BCC++ plastic package.

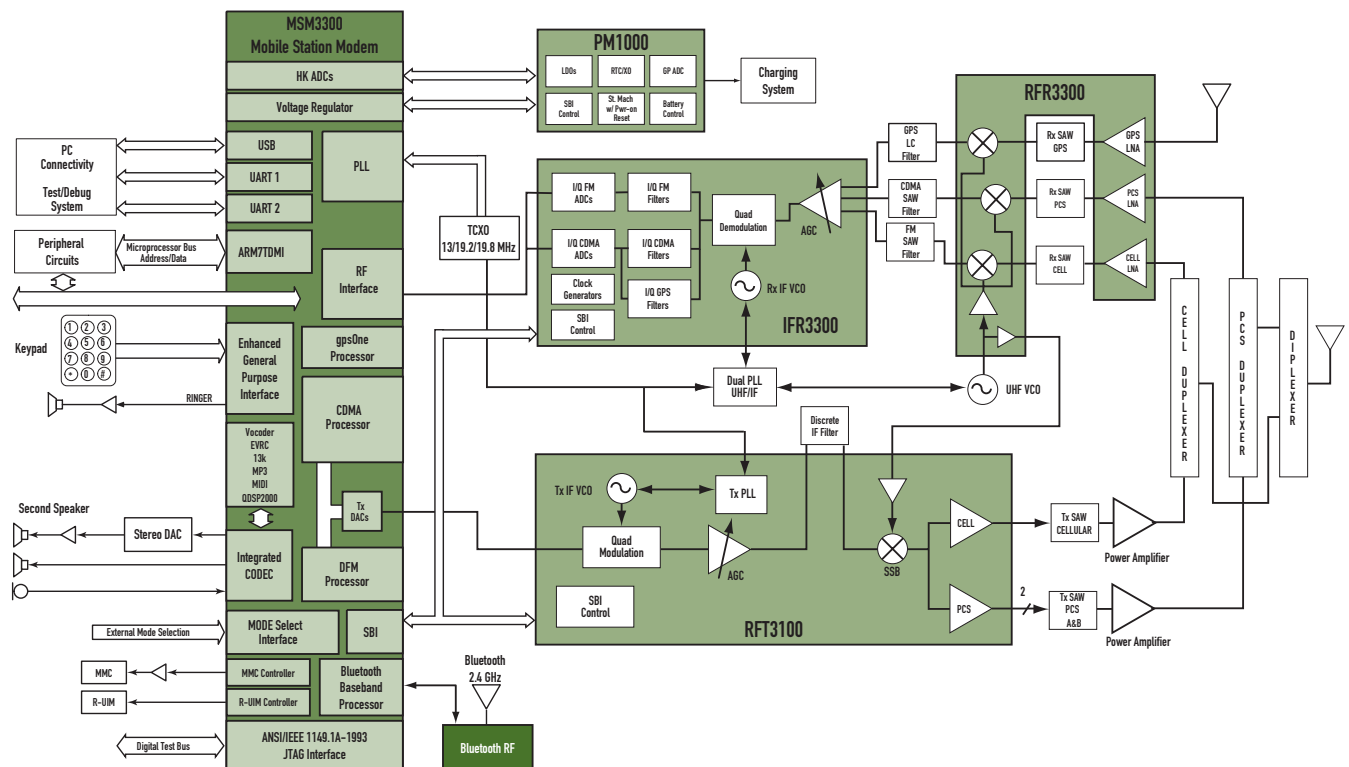
## RFT3100 FEATURES

- |   |  |  |  |
|---|--|--|--|
| <ul style="list-style-type: none"> <li>• Full upconversion from analog baseband to RF</li> <li>• Integrated I/Q modulator, IF VCO/PLL, SSB upconverter, VGA and driver amplifiers</li> <li>• Designed for dual-mode cellular (CDMA/AMPS), single-band PCS, or dual-band PCS (PCS CDMA/AMPS) applications</li> <li>• Eliminates image-reject filter</li> </ul> | <ul style="list-style-type: none"> <li>• between upconverter and driver amplifier</li> <li>• Includes two cellular and two PCS driver amplifier outputs (dual-band version)</li> <li>• MSM-controlled operation via Serial Bus Interface (SBI)</li> <li>• Tx power control through 85 dB dynamic range VGA</li> <li>• Puncture mode (gated Tx power) for extended talk-time</li> </ul> | <ul style="list-style-type: none"> <li>• performance</li> <li>• Simplified RF PCB design and shorter development cycle time</li> <li>• Supply voltage from 2.7 V to 3.3 V</li> </ul> | <ul style="list-style-type: none"> <li>• BCC++ 32-pad plastic chip scale package (5 mm x 5 mm x 0.8 mm)</li> </ul> |
|---|--|--|--|

### Table 1. RFT Selection Guide

Part Number	Functionality
RFT3100-1	Dual-band Cellular and PCS
RFT3100-2	Cellular-only
RFT3100-3	PCS-only

**Figure 2. RFT3100 as Part of QUALCOMM's MSM3300 Chipset Architecture  
(Dual Band: AMPS and PCS CDMA with GPS configuration shown)**



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Printed in USA 6/2001 RFT3100-SS X3