



Comprehensive Radio Solutions

RFX275-30 RF Subsystem

Quad-band EDGE radio solution

Overview

The RFX275-30 RF subsystem provides a highly integrated, comprehensive radio solution for EDGE terminals, utilizing a CMOS 90 nm-based, single-chip transceiver. Based on Freescale's revolutionary Polar architecture, the RFX275-30 delivers an optimal balance of low current, small size and a highly manufacturable radio.

The RFX275-30 improves on Freescale's first generation EDGE subsystem with embedded intelligence and simplified Layer 1 programming. As multiband and multimode phone electronics become more complex and form factors become smaller, simplified programming is key to getting a phone right the first time. Traditional RF baseband programming must consider the critical timing between the transceiver, power amplifiers, switches, low noise amplifiers, baseband processor and voltage regulators. The digital baseband must perform many calibrations to control a transceiver and the detailed timing of all transceiver functions. With Freescale's revolutionary approach, an engineer enters a single command stating the desired channel and power level. This command sets the parameters and times the events so that system compliance is virtually assured.

MMM7010 Transceiver

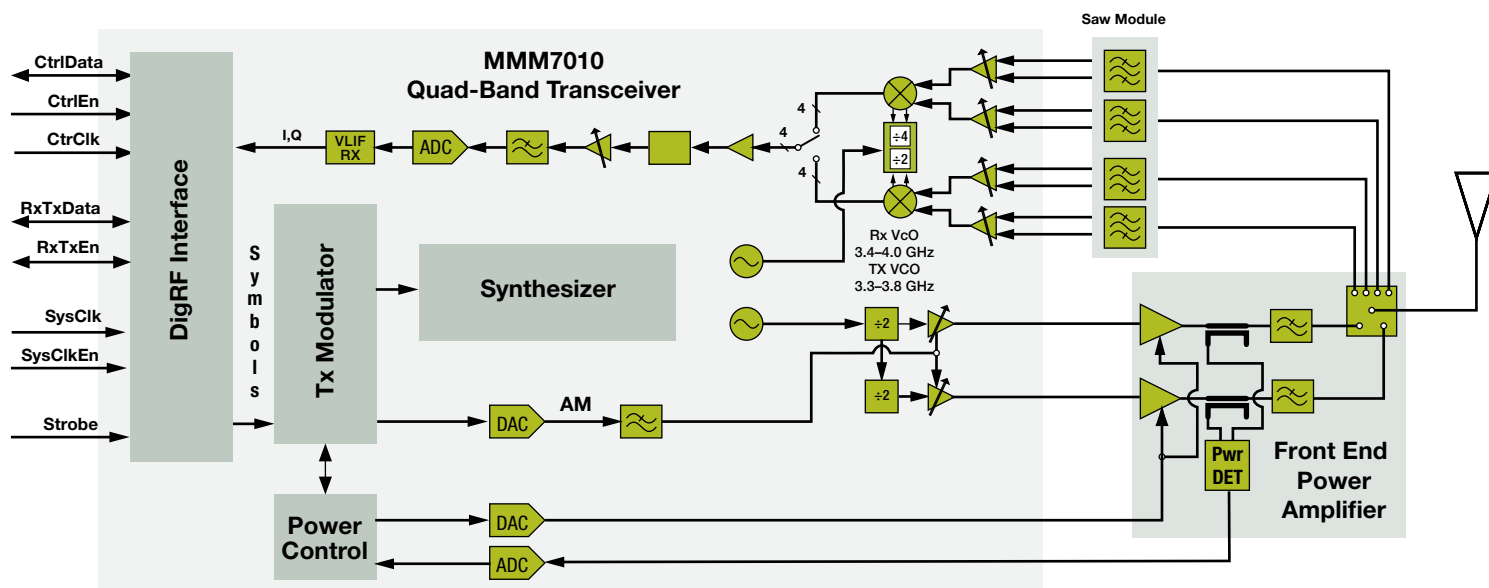
The MMM7010 is a highly integrated GSM/GPRS/EDGE transceiver that provides antenna-to-digital bits functionality in a compact 5.2 mm x 6.8 mm package. The transceiver operates over the GSM850, EGSM900, DCS1800 and PCS1900 transmit and receive frequency bands.

The MMM7010 transceiver includes a VLIF receive architecture with integrated low-noise amplifiers (LNAs) and a polar modulation transmit architecture with direct phase modulation of the voltage-control oscillator (VCO) by a fractional N synthesizer. Both the receive and transmit VCOs are fully integrated. The polar architecture allows for a filter-free transmit lineup. A timing controller generates appropriate timing events for the transmitter calibration and the transmit/receive bursts, thereby limiting the RF hardware dependency of the baseband Layer 1 engine software to an absolute minimum.

Key Benefits

- Significantly shorter test and development times with improved final yields
- Complete antenna-to-bits functionality—no separate analog baseband required
- Highest level of integration provides extremely compact board area
- Freescale's revolutionary Polar architecture provides:
 - Complete closed-loop control for manufacturability ease
 - Extremely low current consumption
- Complies with industry-standard DigRF interface for ease of design
- Embedded control provides less dependency on Layer 1 software and simplifies software programming

RFX275-30 Block Diagram



Key Features

- Quad-band: GSM850, EGSM900, DCS1800 and PCS1900
- EDGE Class 45 operation
- GMSK Power Class 4 operation in GSM850 and EGSM900 bands
- GMSK Power Class 1 operation in DCS1800 and PCS1900 bands
- EDGE Power Class E2 operation
- Low current consumption

- Direct-conversion/filter-free revolutionary Polar transmitter
- Closed-loop power control
- Streamlined programming model for rapid software implementation
- DigRF interface to digital baseband processor
- Auto-calibrated transmitter
- High immunity to remodulation

Learn More:

For more information about Freescale's products, please visit www.freescale.com/cellularRF.