



Comprehensive Radio Solutions

## RFX275-20 RF Subsystem

### Quad-band GSM/EDGE radio solution

#### Overview

The RFX275-20 subsystem provides a highly integrated, comprehensive radio solution for GSM, GPRS and EDGE terminals. This solution offers antenna-to-bits functionality using less than 250 mm<sup>2</sup> of valuable board space.

The RFX275-20 full radio subsystem functions over the GSM850, EGSM900, DCS1800 and PCS1900 frequency bands. This solution is based on Freescale's revolutionary Polar architecture that delivers an optimal balance of low current, small size and, most important, a radio that's easier to manufacture.

#### MMM6000 Transceiver

The MMM6000 transceiver provides the highest level of integration available today. It includes data converters typically found in a separate analog baseband. This solution is one of the first DigRF digital interface standard-compliant radios.

The direct-conversion receiver architecture integrates low-noise amplifiers (LNAs), as well as the receive and transmit voltage-control oscillators (VCOs).

The transmit section is based on Polar modulation architecture with direct modulation of the VCO by a fractional-N synthesizer and allows a filter-free transmit lineup.

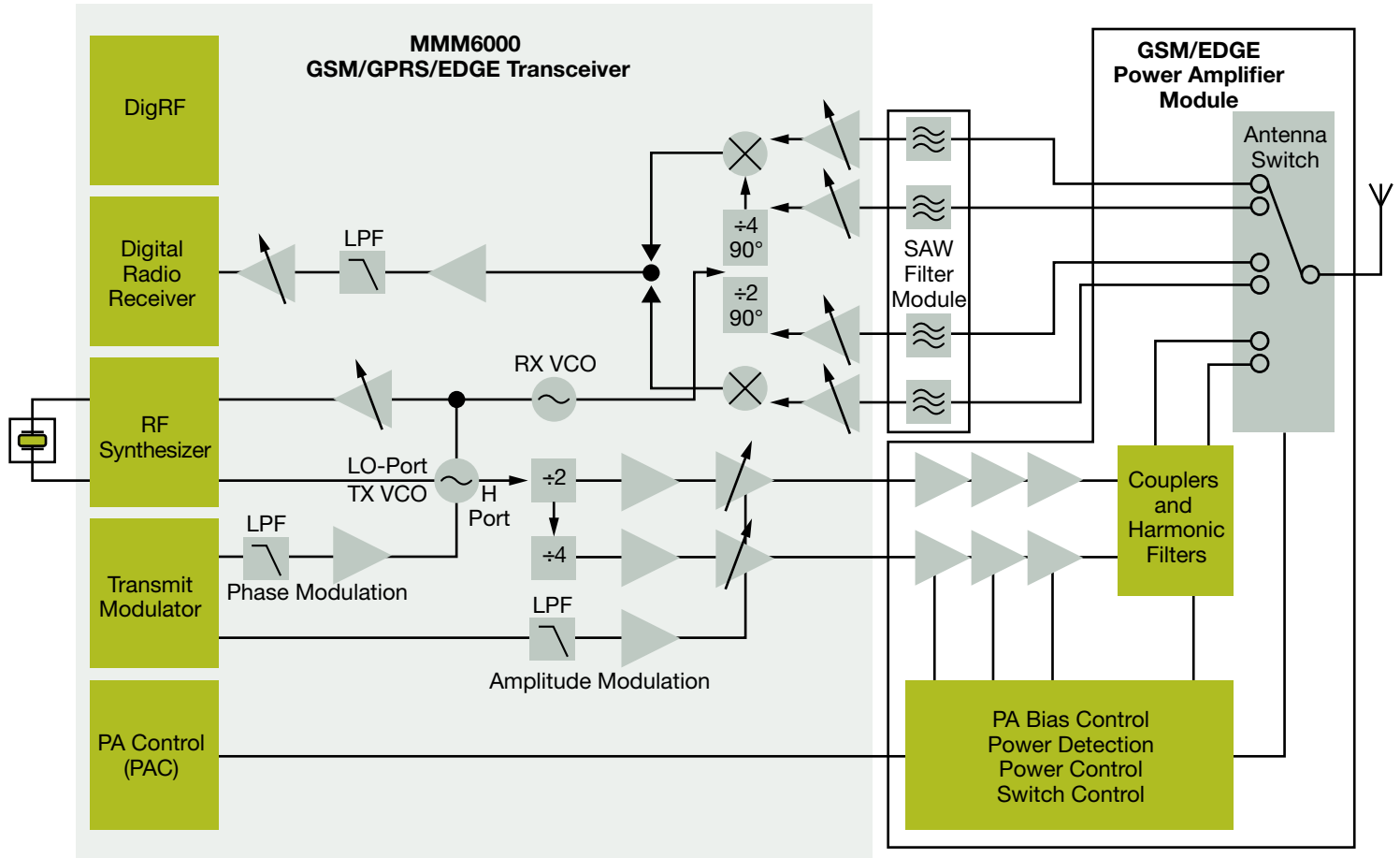
An on-chip transmit/receive sequencer generates appropriate timing events for the transmitter calibration and the GMSK transmit/receive burst, limiting the RF hardware dependency of the Layer 1 engine software to an absolute minimum. The MMM6000 provides all of this functionality in a compact 9 x 11 mm package.

The MMM6000 transceiver is a part of Freescale's cellular platform solutions. The DigRF interface also allows this solution to work with other digital basebands.

#### Key Benefits

- Complete antenna-to-bits functionality—no separate analog baseband required
- Highest level of integration provides extremely compact 250 mm<sup>2</sup> 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 microcontroller provides less dependency on Layer 1 software and simplifies software programming

## RFX275-20 Block Diagram



### Key Features

- Quad-band: GSM850, EGSM900, DCS1800 and PCS1900
- EDGE Class 12 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
- Direct-conversion/filter-free revolutionary Polar transmitter
- Lowest current consumption
- 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](http://www.freescale.com/cellularRF).