

Next Generation Qualcomm® RF360™ Front End Solution

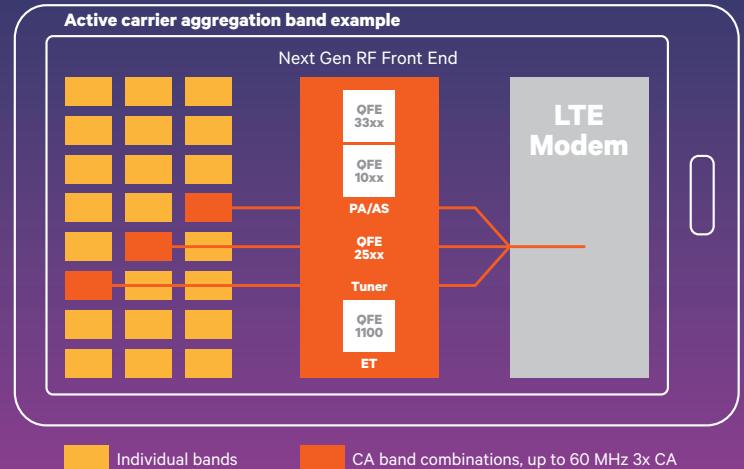
QFE33xx CMOS PA, QFE10xx Antenna Switch, and QFE25xx Antenna Tuner simplify LTE-A RF complexity

Problem

Carrier aggregation increases speed, but increases the number of possible band combinations, RF switch complexity and coexistence challenges.

Solution

Qualcomm RF front end solution flexibly supports global and regional LTE-A band combinations in an industry leading footprint.



The next generation Qualcomm® RF360™ front end solution extends the benefits of RF360 to LTE Advanced (LTE-A). It continues to simplify the RF front end for mobile devices by addressing fragmentation in LTE-A carrier aggregation. QFE33xx CMOS Power amplifiers and QFE10xx antenna switches support a higher number of bands and band combinations while featuring enhancements to power efficiency and reduction in RF board area. Designed to flexibly support regional and global carrier aggregation band combinations, these next generation RF360 products are designed to provide OEMs with the flexibility to design future LTE-A mobile devices. The new RF360 front end products are expected to be available in commercial devices in the second half of 2014.

Comprehensive LTE-A solution

The new modular QFE33xx PA and QFE10xx antenna switch solution, paired with Qualcomm Technologies’ 4th generation LTE Cat6 modem and WTR3925 RF transceiver, offer the first comprehensive announced system-level solution to address global LTE Advanced Carrier Aggregation requirements. This next generation integrated QFE3320 PA/Antenna switch architecture is designed to allow easy customization to meet regional LTE and LTE Advanced Carrier Aggregation requirements across tiers. And wafer level packaging (WLP) offers support for a greater number of bands and band combinations in smaller area. All while providing a boost in overall performance and power savings.

Unrivaled system expertise

Next generation RF360 solutions build on our three decades of systems expertise in mobile broadband and RF technologies. Use these products with our Snapdragon™ mobile processors or Gobi™ LTE modems, Power Management and RF transceiver chips to form a comprehensive performance and area optimized solution that enables OEMs to develop devices that address 3GPP approved band combination from 700–2700 MHz across all major 2G, 3G and 4G networks.

More bands, smaller footprint, better power efficiency

Qualcomm Technologies RF chipsets allow greater integration of RF components in silicon.

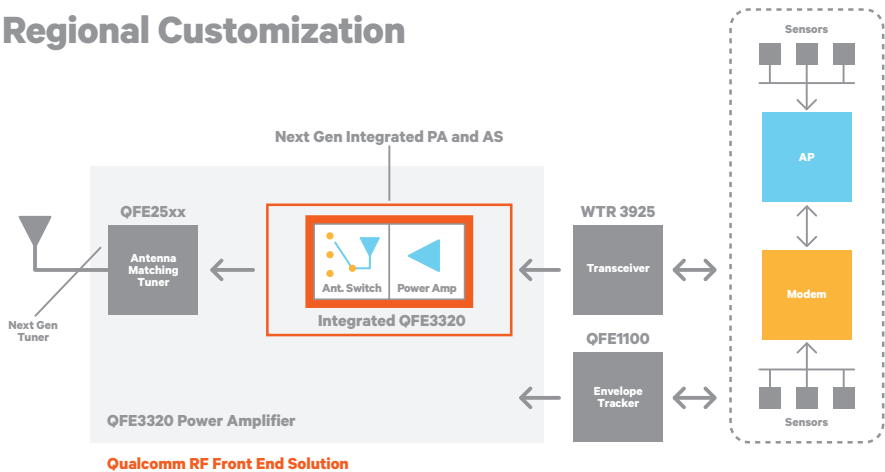
Benefits include:

- Integrated regional QFE3320 and modular global QFE33xx/10xx solutions both allow more than 50% improvement in area efficiency*
- QFE1100 is designed to reduce power consumption leading to longer battery life. QFE1100 is also designed to reduce thermal footprint enabling sleek, attractive designs
- QFE25xx is designed to support higher data rates for demanding applications and enhanced user experience
- Overall system-level solution designed to lower development cost, making it easier to quickly develop multimode multiband LTE devices

*PCB area efficiencies are per band as compared to previous generation QFE23XX chip.

A solution for many scenarios

Regional Customization

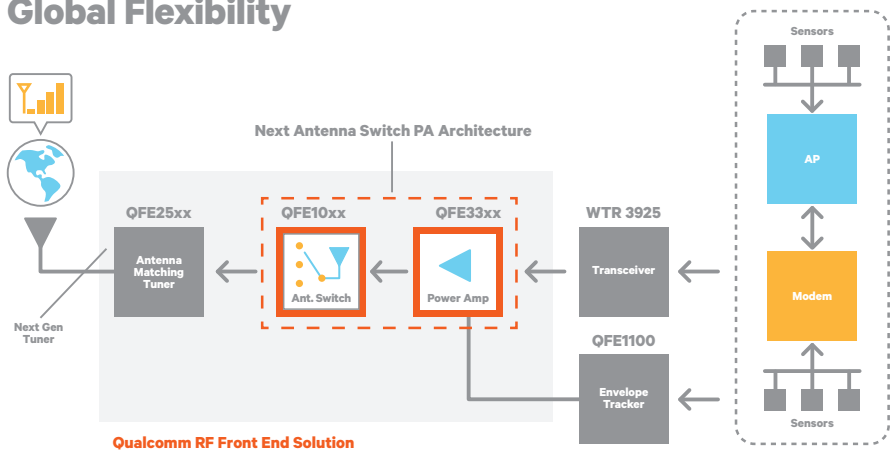


QFE3320 Integrated Power Amp and Antenna Switch

Regional Customization

QFE3320 integrates the Power Amplifier and Antenna switch in an easily customizable design that can be configured to meet regional LTE and LTE-A band requirements.

Global Flexibility



QFE33xx CMOS PA and QFE10xx Antenna Switch

Global Flexibility

Separate QFE3335/45 CMOS power amplifiers and QFE1035/45 antenna switches designed to overcome the challenges of addressing global LTE-A band combinations with fewer LTE design SKUs.

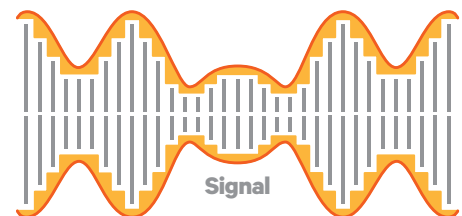
QFE25xx Antenna Matching Tuner

The world's first commercial modem assisted and configurable antenna matching technology enables ultra-thin smartphones to operate over 2G/3G/4G LTE frequency bands, from 700–2700 MHz, all while improving the antenna's performance in the presence of physical impediments, like the user's hand. By maintaining the optimum static and dynamic match between the antenna and the RF front end, it allows for consistent signal strength giving you more bars for better coverage. And when networks don't have to ramp up signal power for someone out of range, the result is continuous and improved talk time for that user, and more reliable coverage for everyone.



QFE1100 Envelope Tracker

The mobile industry's first commercial modem assisted envelope tracking technology for 3G and 4G LTE mobile devices, this chip reduces RF power consumption by up to 20 percent, depending on the mode of operation. By dynamically adjusting the supply voltage to the power amplifier, it is designed to reduce the overall thermal footprint and power dissipation, allowing for thinner handsets and longer battery life.



ET mode - Envelope power tracker

FULLY OPTIMIZED ■ = Wasted energy

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