

RapidRF SMART LDMOS FRONT-END DESIGNS FOR 5G INFRASTRUCTURE

NXP's RapidRF Smart LDMOS front-end designs provide further integration with a highly efficient RF power amplifier, linear pre-driver, Rx LNA with T/R switch, and a circulator all in a compact footprint — and now includes the bias controller and temperature sensor within the power amplifier multi-chip package. These designs incorporate a coupler for DPD feedback and are to be used with digital pre-distortion.

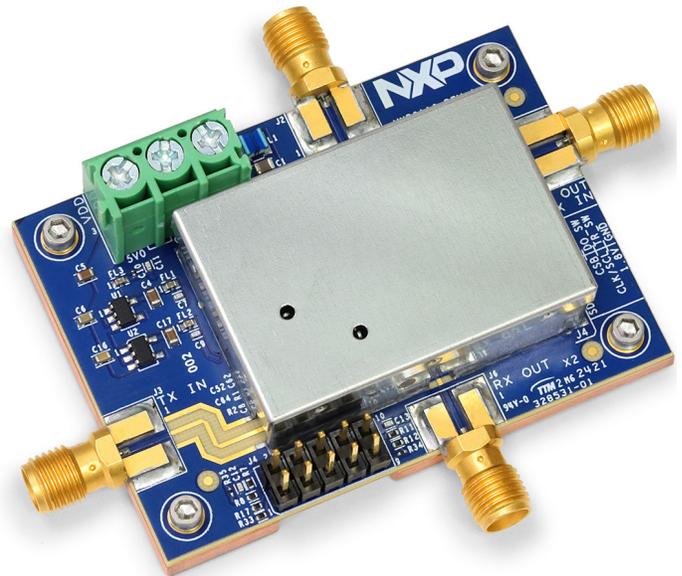
RapidRF reference boards are ideal for 5G radio units requiring 2.5 to 8 Watts (34-39 dBm) average transmit power at the antenna. Versions for multiple bands use a common PCB layout, simplifying both design and manufacturing for faster time-to-market.

KEY FEATURES

- Complete RF TDD front end
 - PA
 - LNA
 - Switch
- Up to 400 MHz bandwidth
- Integrated temperature compensated autobias
- Band change requires replacement of only 2 components
- Dual channel Rx module

TARGET APPLICATIONS

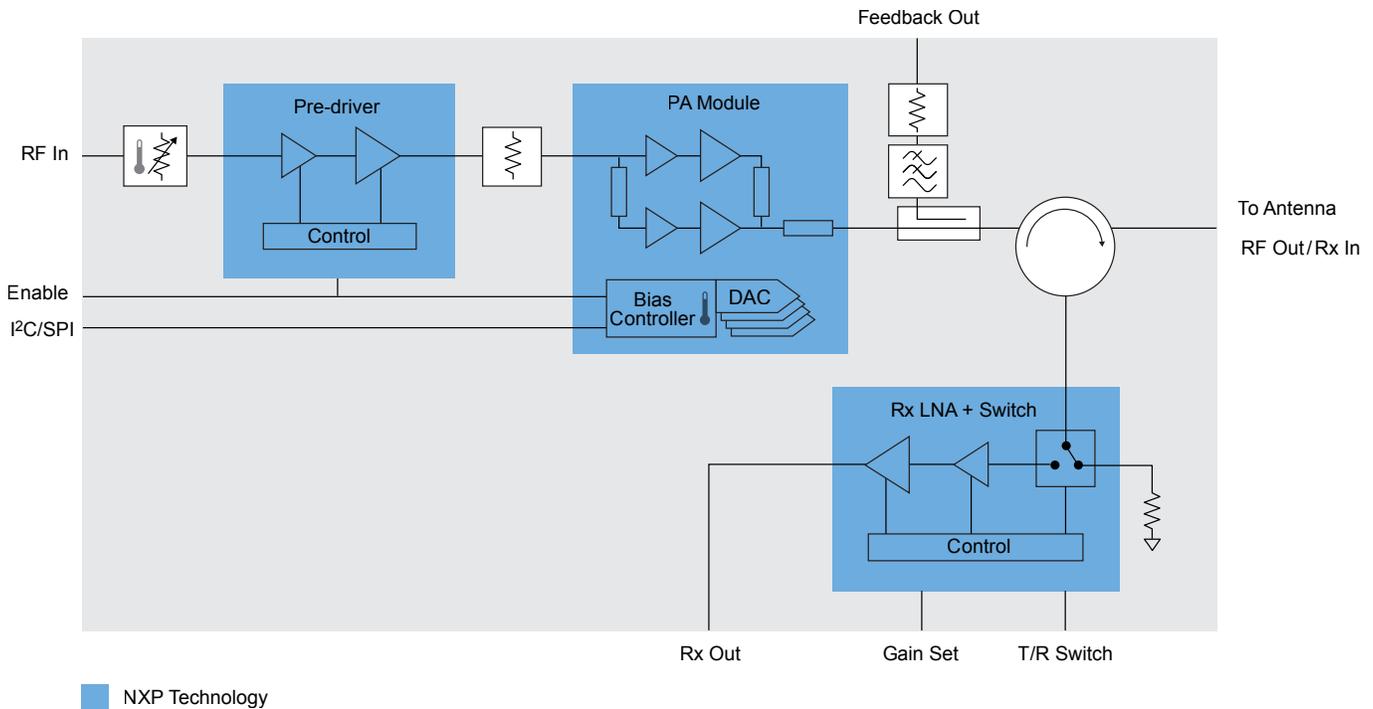
- 5G massive MIMO active antenna systems (typically 64T64R)
- Drivers for high power 5G macro radio heads
- Outdoor small cells
- Open RAN proprietary radio access networks



BENEFITS

- Common footprint for multiple bands and power configurations
- Highly integrated devices reduce BOM
- Simplified manufacturing: no production tuning or calibration needed
- Compact solution with broadband performance
- Simple dual supply design

RapidRF SMART LDMOS BLOCK DIAGRAM



Example of mMIMO Active Antenna System

BOARD DESIGN FILES INCLUDE:

- Board layout
- Schematic
- Board parts list
- Mechanical drawings

RELATED PRODUCTS

- [BTS6201U](#): Tx pre-driver
- [A3M36SL039](#): Power amplifier module with autobias control
- [A3M39SL039](#): Power amplifier module with autobias control
- [BTS7203U](#): Rx analog front-end IC with LNA/Tx switch

LEARN MORE

Get the latest information on NXP's RapidRF Smart LDMOS front-end designs: [nxp.com/RapidRFSL](https://www.nxp.com/RapidRFSL)

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