

Next-Generation RF Transistors with Advanced Technology Boost Receiver Sensitivity at High Frequencies



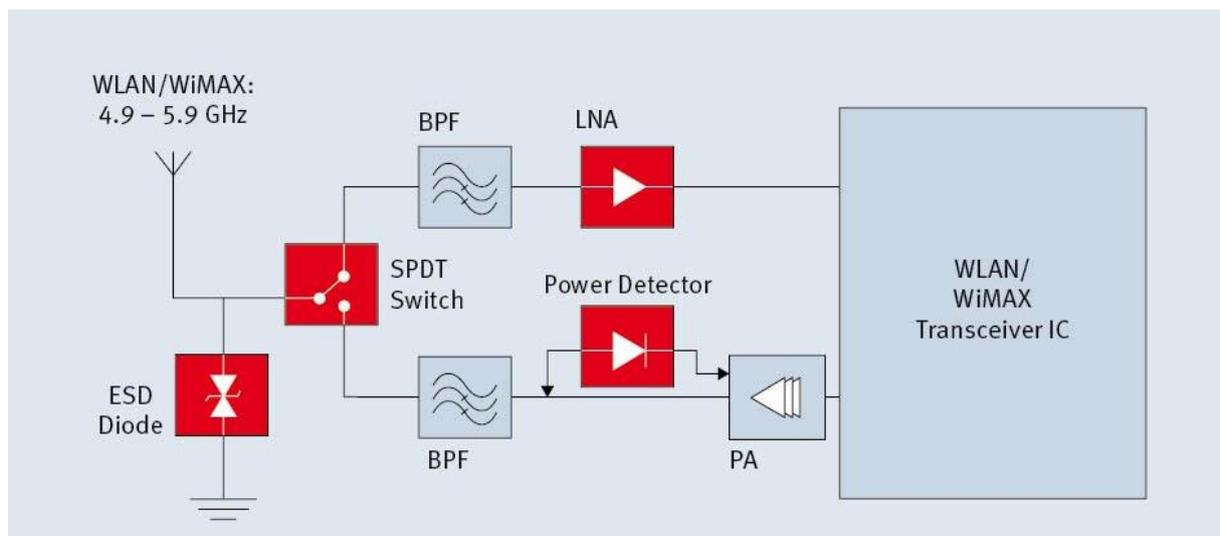
Complementing our RF transistor and MMIC portfolio, we now offer RF transistors based on our next-generation SiGe:C HBT (Silicon Germanium Carbon Hetero Bipolar Transistor) technology. To develop this technology, our R&D experts set themselves the target of reducing the gap between Gamma Opt point (location of optimum source impedance for minimum

noise figure) at 5-6GHz and 50Ω. This allows customers to quickly design systems supporting input matching without requiring any external matching components. These eight-generation RF transistors thus set a new performance benchmark, providing a best-in-class LNA solution. Benefits include a low noise figure (less than 1dB at 5-6GHz at application level and 0.75dB NF_{min} at transistor level), best power gain (around 15dB) at

5 – 6GHz Wi-Fi® wireless LAN (WLAN, IEEE802.11a/n) and WiMAX (IEEE802.16e) front-end

application level and 22dB maximum power gain at application level, reduced BOM, smaller PCB footprint and best linearity at lower supply voltages. This new family is also robust against ESD and high input power thanks to integrated ESD protection at the input and output.

These transistors come in a variety of packages. The BFP840ESD device is available in a SOT343 package, BFP840FESD in TSFP-4 and BFR840L3RHESD in an ultra-small TSLP-3 (1 x 0.6 x 0.31mm³) package. Additional device variants based on this new technology are currently under development.



Key Features

- Higher gain @ >4GHz
- 0.75dB NF_{min} @ 5-6GHz

- Excellent linearity at low operating voltages
- Integrated ESD protection
- Low power consumption
- Low external parts count
- Low power consumption, ideal for mobile applications
- Best in Class Noise Performance: 0.75dB NFmin @ 5-6GHz
- Inherent power and noise matching @ 5-6GHz
- High maximum RF input power

Applications

- Mobile and fixed connectivity applications: WLAN 802.11, WiMAX and UWB
- Satellite communication systems: satellite radio (SDARS, DAB), navigation systems (e.g. GPS, GLONASS) and C-band LNB (1st and 2nd stage LNA)
- K_u band LNB frontend (2nd stage or 3rd stage LNA and active mixer)
- K_a band oscillators (DROs)

For more information, please [click here](#).

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WiMAX (IEEE802.16e) front-end**