Rugged High-Frequency Low Noise RF Transistors Meet Demanding Requirements of 5 GHz Wireless Applications

At the IEEE MTT-S International Microwave Symposium today, Infineon Technologies AG launched a new SiGe:C (Silicon-Germanium: Carbon) HBT (hetero-junction bipolar transistor) device series for Low Noise Amplifier (LNA) applications. The new BFx840xESD series is particularly well-suited for design of consumer wireless products operating in the 5-6 GHz range, including current and next generation WiFi® access points and modules.

The new transistors allow engineers to boost the overall performance of WiFi systems to achieve both wider coverage areas and the very high throughput defined in the upcoming IEEE 802.11ac standard. Additional applications for the new devices include WiMAX and UWB wireless and satellite communications.

This eighth generation of Infineon’s SiGe:C process technology is engineered with inherent power and noise matching in the 5 GHz band, so it achieves its best-in-class system performance (18 dB gain and 0.96 dB noise figure) with only 8 external passives and a single inductor in WiFi LNA application circuits (4 less than alternatives).

“This evolution of the Infineon SiGe:C portfolio provides designers with the means to achieve RF performance goals in compact, low power wireless systems,” said Houssem Chouik, Product Marketing Manager for RF Transistor Solutions at Infineon Technologies. “Based on the eighth generation of our HBT process technology, these new devices once again meet or exceed the RF performance levels of alternatives and provide cost savings by reducing the number of passive devices needed in system design.”

The new BFx840xESD series transistors, when measured on device level in the test fixture, achieve 22 dB - 23 dB maximum gain and have best-in-class noise figures of 0.65 dB - 0.85 dB in 5 GHz band. This allows engineers to readily meet design goals of total system noise levels below 2dB. WiFi LNA designs using these transistors need 50 percent fewer external parts than other available solutions.

Key Characteristics

Features of the BFx840xESD series that contribute to system reliability and design flexibility include the following.

• On-chip electrostatic discharge (ESD) protection up to 1.5 kV human body model (HBM) and RF power overdrive handling capability of 20 dBm.

• Operation with supply voltage as low as 1.2 V with no performance deterioration, is excellent for battery-driven systems.

• Availability in three different package types for design-in to different platforms, including standard SOT-343, flat-lead TSFP-4-1, and ultra low-height (0.31 mm) TSLP-3-9 for RF module applications.

Availability

Samples of the BFx840xESD are now available, along with evaluation boards. Production ramp is expected this summer. For further information, please visit www.infineon.com/next-generation_rf-transistors [1].

www.infineon.com [2]

Posted by Sara Cohen, Editorial Intern

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[1] http://www.infineon.com/cms/en/product/promopages/PMM/rf-transistors/index.html
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