

RF Power LDMOS Transistors Deliver Ease-of-Integration Features and High Efficiency

Freescale Semiconductor has expanded on its commitment to GSM EDGE wireless networks with the introduction of three high-performance RF power transistors based on laterally-diffused metal oxide semiconductor (LDMOS) technology. The devices incorporate enhancements that make them easy to integrate into amplifiers while delivering exceptional levels of performance.

For GSM EDGE applications, the MRFE6S9046N operates from 920 to 960 MHz and delivers a 17.8 W average RF power output with 19 dB of gain, up to 42.5% efficiency and EVM of up to 2.1% RMS. It is housed in Freescale's over-molded plastic package that combines precise mechanical tolerances and cost-effectiveness. The package is also surface-mountable making it compatible with automated pick-and-place manufacturing, and enhanced internal impedance matching enables manufacturers to more easily accommodate printed circuit board variations.

The internal output matching enables a user-friendly terminal impedance at the fundamental frequency, but also includes second and third harmonic terminations for higher efficiency, in line with the theory of Class F amplifiers.

These 28 V devices are designed for Class AB and Class C operation in GSM and EDGE systems. In GSM EDGE service, the MRF8S9100H/HS delivers 45 W average power gain of 19.1 dB and efficiency of 44% at 940 MHz, and EVM of 2.0 percent RMS.

In GSM EDGE service, the MRF8S18120H/HS delivers 46 W average power gain of 18.2 dB, efficiency of 42% at 1840 MHz and EVM of 1.7 percent RMS. The MRF8S9100H/HS and MRF8S18120H/HS are housed in rugged air-cavity ceramic packages. The MRF8S9100H/HS can also be operated in the GSM 800 band, and the MRF8S18120H/HS supports operation in the GSM 1900 frequency band. All three devices are internally-matched to simplify circuit design, are RoHS compliant and contain internal ESD protection circuitry. The MRFE6S9046N is in full production and samples are available. The MRF8S9100H/HS and the MRF8S18120H/HS are sampling now, with full production expected in July 2009. Visit us at Booth 2018

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