

Freescale revamps 1GHz cellular infrastructure product line with sixth-generation LDMOS RF technology

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Freescale Semiconductor has significantly enhanced its line of RF power transistors to help customers improve system performance in cellular infrastructure applications operating at frequencies up to 1GHz. The portfolio features cost-effective, high-power plastic devices and higher power, high linearity metal-ceramic devices, all using Freescale's high-voltage sixth-generation (HV6) laterally diffused metal oxide semiconductor (LDMOS) technology.

“Freescale is continually upgrading its RF device portfolios to meet customer needs and the changing requirements of the dynamic cellular infrastructure market,” said Gavin P. Woods, vice president and general manager of Freescale’s RF Division. “We have completely renewed our 1GHz RF portfolio with HV6 LDMOS technology, one of our most advanced processes for RF devices. This product line enhancement will help our customers improve system performance and reduce costs in RF base station power amplifiers.”

HV6: A Step Up in Performance

Freescale’s advanced HV6 technology enables superior electrical performance and improved long-term reliability over the company’s previous LDMOS generations. Due to significant improvements in the LDMOS die, HV6-based RF devices can demonstrate up to 15 percentage point improvement in operating efficiency and up to a 50

percent increase in power density over previous generations of Freescale devices. Improvements in efficiency can help reduce overall system power consumption, resulting in lower operating costs for cellular base station operators.

HV6 technology also features a 2 dB gain improvement over some previous-generation Freescale products. In addition, the HV6 devices demonstrate excellent linearity at rated power and in back-off condition.

Spanning 10 W to 220 W, the HV6-enhanced RF product portfolio is designed for GSM, GSM EDGE and CDMA cellular infrastructure applications in the 800MHz to 1GHz range. The wide range of power level offerings means that Freescale RF devices are available to fit virtually every wireless infrastructure application. For example, lower-power devices can be used as drivers for higher-power RF transistors. The availability of higher-gain products also means that fewer devices are needed to achieve the optimum power levels required by power amplifier manufacturers.

Highest Power Plastic RF Devices Available

The enhanced line-up of 1GHz RF products includes devices in cost-effective plastic packages from 10 W up to 125 W. These plastic devices include the MW6S010N/G, the MRF6S9045N/B, the MRF6S9060N/B and the MRF6S9125N/B. Each of these plastic devices features matt tin-plated copper flange material for exceptional heat dissipation. The 125 W MRF6S9125N/B is the highest-rated RF power transistor commercially available in plastic packaging.

A pioneer in the development of plastic packaging for high-power RF devices, Freescale recently achieved a major industry milestone with the shipment of more than 10 million high-power, high-frequency RF power transistors in plastic packages. Freescale is one of the few silicon

suppliers to offer RF power transistor performance in plastic that is comparable to devices employing metal-ceramic packages. Freescale's heritage of plastic packaging leadership spans more than 30 years, and the company continues to set the pace in plastic package performance, temperature ratings, reliability and volume production.

Ceramic Packaging with Superior Thermal Resistance

Freescale has introduced a new generation of high-power metal-ceramic package devices for 1GHz cellular infrastructure applications. These devices cover the 130 W to 220 W power range. Each device includes Freescale's advanced Low Rth packaging technology, which uses a copper laminate flange material designed to reduce thermal resistance by 15-20 percent, compared to devices with a copper tungsten flange.

The metal-ceramic devices in the enhanced 1GHz portfolio include the MRF6S9130H/S, the MRF6S9160H/S and the MRF6P9220H.

To learn more about Freescale's enhanced 1GHz RF portfolio and see product demonstrations, visit Freescale Semiconductor at the 2005 International Microwave Symposium (IMS) this week in Long Beach, California.

Pricing and Availability

The MRF6S9045N, MRF6S9060N, MRF6S010N and MRF6s9130H/S are in full production now. Samples of the MRF6S9125N/B, MRF6S9220H and MRF6S9160H/S are now available, with full production planned for early Q3 2005. For specific sampling and pricing information, please contact Freescale Semiconductor, your local Freescale sales office, or your Freescale authorized distributor.

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