# Amplifier and Mixer Solutions for Backhaul Radios to 46.5 GHz

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Hittite Microwave Corporation announces the release of two new amplifier and three new mixer products which are ideal for microwave & millimeterwave radios, military sensors, test & measurement equipment and SatCom applications from 24 to 46.5 GHz.

The HMC1040LP3CE is a self-biased GaAs MMIC Low Noise Amplifier (LNA) which operates between 24 and 43.5 GHz and delivers 23 dB gain, 2.2 dB noise figure and output IP3 up to +22 dBm. This versatile LNA consumes only 70 mA from a +2.5V supply while the output P1dB rating of +12 dBm enables it to serve as a LO driver for many of Hittite’s balanced, I/Q and image reject mixers. The HMC1040LP3CE features I/Os that are DC blocked and internally matched to 50 Ohms, and is ideal for high capacity microwave radios and VSAT applications. The HMC1040LP3CE is housed in a compact 3 x 3 mm QFN plastic package.

The HMC1016 is a four stage GaAs PHEMT MMIC Medium Power Amplifier die which operates between 34 and 46.5 GHz. This powerful amplifier provides 22 dB of gain, +26 dBm of saturated output power, and 17% PAE from a +6V supply. With output IP3 as high as +37 dBm, the HMC1016 is an ideal solution for high linearity applications in point-to-point radio, military and space. This compact wideband driver amplifier occupies less than 2 mm2.

The HMC1041LC4 and HMC1042LC4 are compact I/Q MMIC mixers which cover RF frequencies from 17 to 27 GHz and from 15 to 33.5 GHz respectively. Each mixer utilizes two double balanced mixer cells and a 90 degree hybrid, and is fabricated in a GaAs MESFET process. These highly integrated converters can be used as either image reject mixers or as single sideband upconverters with conversion losses as low as 9 dB. The HMC1041LC4 and HMC1042LC4 are housed in footprint compatible 4 x 4 mm QFN packages and require no external components.

The HMC1043LC3 is a special purpose triple balanced mixer which accepts 16 to 22 GHz at the IF port and 26 to 32 GHz at the RF port. The HMC1043LC3 exhibits excellent LO/RF, LO/IF and 2 LO/IF isolation due to optimized balun structures, and requires no external components. The HMC1043LC3 operates with LO drive levels as low as +9 dBm from 7 to 11 GHz, and is ideal for upconversion and downconversion in satellite transponder applications. The HMC1043LC3 is housed in a compact 3 x 3 mm QFN package and requires no external matching components.

These new products complement the widest selection of microwave and millimeterwave communication solutions available from any OEM. Samples and evaluation PC boards for all SMT packaged products are available from stock and can be ordered via the company's e-commerce site or via direct purchase order. Released data sheets are available on-line at www.hittite.com [1].

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[1] http://www.hittite.com