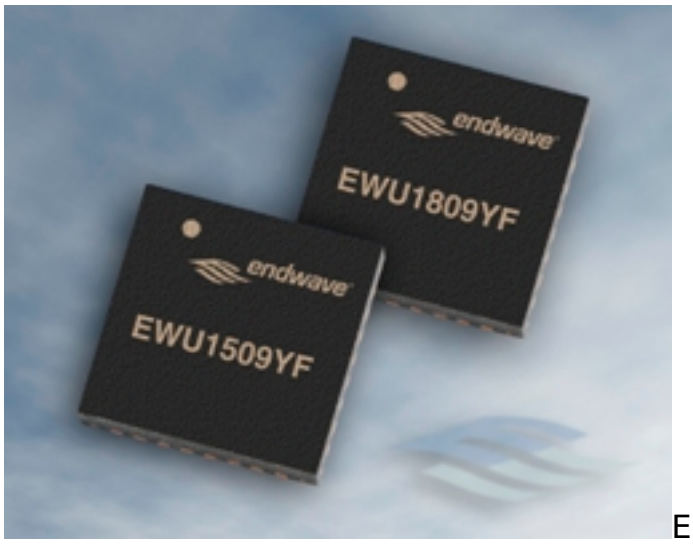
Multi-function Upconverter MMICs Extend To 24 GHz



Endwave Corporation has added a pair of integrated frequency upconverters to its line of high-performance GaAs monolithic-microwave-integrated-circuit (MMIC) products. The models EWU1509YF and EWU1809YF frequency upconverters operate over intermediate-frequency (IF) ranges of DC to 4 GHz and generate frequencies of 10.0 to 15.4 GHz and 17.0 to 24.0 GHz, respectively. Based on GaAs pseudomorphic high-electron-mobility-transistor (pHEMT) technology, the highly integrated MMICs incorporate several frequency mixers, local oscillator (LO) amplifier or frequency doubler, and variable-gain RF amplifier circuitry. They are ideal for a wide range of applications, including in commercial and military transmitter systems.

The lower-frequency model EWU1509YF GaAs MMIC upconverter operates over an IF range of DC to 4 GHz with LO signals from 6.0 to 19.4 GHz at a nominal level of +2 dBm to produce RF outputs from 10.0 to 15.4 GHz. It achieves typical conversion gain of 16 dB and +19 dBm typical RF output power at 1-dB compression. RF output levels can be adjusted in level by means of a 27-dB RF gain-adjustment range. The output third-order intercept point is typically +28 dBm at the maximum RF gain setting. Model EWU1509YF is designed for low-power applications, drawing typically only 380 mA current from a +4.5 VDC supply.

The higher-frequency model EWU1809YF GaAs MMIC upconverter accepts IF signals from DC to 4.5 GHz and LO signals from 8.5 to 12.0 GHz and nominally +2 dBm to produce RF output signals from 17.0 to 24.0 GHz with typical conversion gain of 5 dB. It generates +19 dBm typical RF output power at 1-dB compression, but allows this level to be adjusted by means of an integrated 18-dB RF gain adjustment range. The output third-order intercept point is typically +25 dBm at the maximum RF gain setting.

Both GaAs MMIC frequency upconverters feature integrated electrostatic-discharge

(ESD) protection bias circuitry per Human Body Model (HBM) Class 1A requirements. The RoHS-compliant devices are housed in compact 5 x 5 mm, 32-lead, plastic-overmolded QFN surface-mount-technology (SMT) packages and rated for operating temperatures from -55 to +85°C. All devices are 100% DC and RF tested and visually inspected to IPC-A-610 requirements. For more information on the models EWU1509YF and EWU1809YF GaAs MMIC upconverters, and to download datasheets on these or any of the company's other MMIC and module products, visit www.endwave.com [1].

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Links:
[1] http://www.endwave.com