Abstracts

3-9-GHz GaN-based microwave power amplifiers with L-C-R broad-band matching

Y.-F. Wu, R.A. York, S. Keller, B.P. Keller and U.K. Mishra. "3-9-GHz GaN-based microwave power amplifiers with L-C-R broad-band matching." 1999 Microwave and Guided Wave Letters 9.8 (Aug. 1999 [MGWL]): 314-316.

We present an initial demonstration of GaN-based broad-band power amplifiers in the form of a flip-chip integrated circuit (FC-IC) with AlN as the circuit substrates. The input matching consists of a high-to-low impedance transformer and an L-C-R broad-band network. Using 0.7-/spl mu/m gate-length GaN high-electron-mobility transistors (HEMT's) with current-gain and power-gain cutoff frequencies of 18 and 35 GHz, excellent transducer gain up to 11.5 dB at 8 GHz, along with a bandwidth of 3-9 GHz, was achieved. The saturation power levels were about 32 and 35 dBm, respectively, for these two amplifiers using 1- and 2 mm-wide devices, which are about twice as high as achievable with GaAs-based counterparts of the same sizes.

❑ Return to main document.