Abstracts

A power PHEMT device technology for broadband wireless access

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An unmatched power InGaAs PHEMT transistor in a ceramic package has been developed for broadband wireless access (BWA) applications. Operating at 3.5 GHz, from 12 V supplies, a typical device delivers more than 40 dBm of peak envelope power at -30 dBc IMD with drain efficiencies as high as 58% in class AB mode. Under the stringent W-CDMA spec of -40 dBc adjacent channel power (with 11.2 dB peak-to-average signal ratio), a small signal gain of 9.5 dB and linear power in excess of 31.5 dBm with 36% efficiency is obtained in class AB mode. Our paper presents the device technology, and the DC and RF performance under W-CDMA and two-tone excitation.

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