Abstracts

Low-phase noise AlGaN/GaN FET-based voltage controlled oscillators (VCOs)

J.B. Shealy, J.A. Smart and J.R. Shealy. "Low-phase noise AlGaN/GaN FET-based voltage controlled oscillators (VCOs)." 2001 Microwave and Wireless Components Letters 11.6 (Jun. 2001 [MWCL]): 244-245.

The first report of AlGaN/GaN HEMT-based voltage controlled oscillators (VCOs) is presented. Varactor-tuned oscillators implemented using distributed networks oscillate at 6 GHz with high output power (0.5 W), low-phase noise (-92 dBc/Hz SSB noise at 100 kHz offset), and high-tuning bandwidth (10%). The measured phase noise of AlGaN/GaN FETs is compared to the phase noise of GaAs FET and GaAs HBTs at 6 GHz, indicating the AlGaN/GaN FET exhibits equivalent SSB noise to GaAs FETs. These results indicate high power AlGaN/GaN-based VCOs may be used to simplify the line up in a communication radio, while improving the overall efficiency of the radio.

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