Abstracts

A High-Power Q-Band PHEMT for Communication Terminal Applications

P.M. Smith, C.T. Creamer, W.F. Kopp, D.W. Ferguson, P. Ho and J.R. Willhite. "A High-Power Q-Band PHEMT for Communication Terminal Applications." 1994 MTT-S International Microwave Symposium Digest 94.2 (1994 Vol. II [MWSYM]): 809-812.

A high-power 0.15µm gate-length pseudomorphic HEMT (PHEMT), developed specifically for high reliability millimeter-wave satellite communication applications, is reported. The device has demonstrated state-of-the-art performance at 44.5 GHz, generating nearly 800 mW output power with 5.8 dB power gain and 25% power-added efficiency, and is designed for operation at low channel temperatures for excellent long-term reliability. The 1800µm gate-width PHEMTs described herein have been produced on 3-inch wafers with high yield and exceptional consistency of high frequency characteristics--for example, five devices sampled from one wafer exhibited output power of 28.94 ± 0.07 dBm. In addition, data is presented for a 2-stage hybrid amplifier based on the newly developed PHEMTs that is ideally suited to integration into multi-Watt Q-band transmitters.

❑ Return to main document.