Abstracts

High-power broadband AlGaN/GaN HEMT MMICs on SiC substrates (2001 Vol. II [MWSYM])

B.M. Green, V. Tilak, Sungjae Lee, Hyungtak Kim, J.A. Smart, K.J. Webb, J.R. Shealy and L.F. Eastman. "High-power broadband AlGaN/GaN HEMT MMICs on SiC substrates (2001 Vol. II [MWSYM])." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 1059-1062 vol.2.

Broadband, high power cascode AlGaN/GaN HEMT MMIC amplifiers with high gain and power-added efficiency (PAE) have been fabricated on high-thermal conductivity SiC substrates. A cascode gain cell exhibiting 5 W of power at 8 GHz with a small signal gain of 19 dB was realized. A broadband amplifier MMIC using these cascode cells in conjunction with a lossy-match input matching network was designed, fabricated, and evaluated, showing a useful operating range of DC-8 GHz with an output power of 5-7.5 W and a PAE of 20-33% respectively. A nonuniform distributed amplifier (NDA) based on this same process yielded an output power of 3-6 W over a DC-8 GHz bandwidth with an associated PAE of 13-31%.

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