Abstracts

Artificial-line-division distributed ICs with 0.1-/spl mu/m-gate-length GaAs MESFET and three-dimensional transmission lines

S. Kimura, Y. Imai, S. Yamaguchi, K. Onodera and H. Kikuchi. "Artificial-line-division distributed ICs with 0.1-/spl mu/m-gate-length GaAs MESFET and three-dimensional transmission lines." 2002 Transactions on Microwave Theory and Techniques 50.6 (Jun. 2002 [T-MTT]): 1603-1608.

0.1-/spl mu/m-gate-length GaAs MESFET distributed baseband integrated circuits (ICs) that utilize an artificial-line-division technique and three-dimensional transmission lines are described. The technique reduces return loss of the distributed circuits at high frequencies, and four-layer transmission-line structure reduces parasitic impedance caused by the IC pattern shape and is suitable for the flip-chip bonding module format. A gate-line-division distributed baseband amplifier IC achieved input return loss of less than -13 dB and gain of 11.7 dB in the 0-56 GHz band. A source-line-division distributed level-shift IC achieved output return loss of less than -9.6 dB at high frequencies and insertion loss of 2.7 dB in the 0-79 GHz band. Both results better the performance of all reported GaAs MESFET distributed ICs.

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