Abstracts

C-band Si 3DMMIC transceiver for wireless applications

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This paper presents a C-band Si MMIC transceiver based on 3DMMIC technology. A low-noise amplifier achieves 8 dB gain and 3 dB noise figure at 1 V collector bias voltage. A power amplifier achieves 19 dBm output power at 4 V collector bias voltage. Down- and up-converters are also presented. The fabricated MMICs achieve performance comparable with that of GaAs MESFET MMICs in the 5 GHz band despite use of a low resistivity Si wafer. The developed Si 3DMMIC with a VCO in a single 1.8 mm/spl times/1.8 mm chip enable the realization of low-cost C-band RF equipment.

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