Abstracts

A novel high-Q and wide-frequency-range inductor using Si 3-D MMIC technology

K. Kamogawa, K. Nishikawa, I. Toyoda, T. Tokumitsu and M. Tanaka. "A novel high-Q and wide-frequency-range inductor using Si 3-D MMIC technology." 1999 Microwave and Guided Wave Letters 9.1 (Jan. 1999 [MGWL]): 16-18.

A novel high-Q and wide-frequency-range inductor formed using three-dimensional (3-D) monolithic microwave integrated circuit (MMIC) technology on a conductive Si substrate is presented. A fabricated 1.24-nH spiral inductor achieves the very high resonant frequency of 29.3 GHz and maximum quality factor (Q) of 45.77 owing to thick dielectric layers and a ground plane that overlays the substrate. The measured results show that the Si 3-D MMIC is very suitable for realizing single-chip and mixed-mode transceivers for L-band to Ku-band applications.

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