Abstracts

Monolithic silicon-glass double balanced mixers for wireless communications

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This paper describes the design, fabrication, and performance of monolithic double balanced mixers designed for cellular applications at 900 and 1800 MHz. The mixers have been fabricated using a process which combines silicon and glass to form a heterolithic microwave integrated circuit (HMIC). The glass provides a low loss substrate for RF or microwave passive structures, while the silicon pedestals embedded in the glass allow the formation of Schottky barrier diodes and vias. The resulting circuits have levels of performance similar to those of hybrid double balanced mixers, but are small, low cost, monolithic die suitable for assembly in a low cost plastic package.

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