

A porous Si based novel isolation technology for Mixed-Signal Integrated Circuits

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Abstract

A novel isolation technology for RF applications based on semi-insulating porous Si (PS) is demonstrated. RF cross-talk isolation of -70 dB at 2 GHz and -45 dB at 8 GHz has been demonstrated using PS trenches that provide complete isolation between neighboring regions of a p^+ Si chip. On-chip spiral inductors of 6 nH fabricated over the PS regions have been demonstrated with $Q_{\max} \sim 29$ at 7 GHz and a resonant frequency of over 20 GHz.