Abstracts

Varactor-Tuned Planar W-Band Oscillator

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A planar integrated VCO for the W-Band on high resistivity silicon substrate was fabricated. For that purpose an oscillator circuit for fixed frequency CW operation was extended. Frequency variation is obtained by coupling a radial line sector to a disc resonator via a varactor diode. As the active device a Si-MBE (molecular beam epitaxy) made Quasi Read Double Drift IMPATT diode is used. A hyperabrupt doping profile is used in the varactor diode. The hybrid integrated VCO is fabricated on a 10000 Omega · cm silicon substrate. The chip size is 6 · 4.5 mm². A tuning range of 380 MHz around 80.2 GHz with an output power of 18 mW is obtained.

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