Abstracts

Fundamental limitations of conversion loss and output power on an even harmonic mixer with junction capacitance

K. Itoh and M. Shimozawa. "Fundamental limitations of conversion loss and output power on an even harmonic mixer with junction capacitance." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 1333-1336 vol.2.

An even harmonic mixer with an anti-parallel diode pair is an effective technique for low spurious transmitters and direct conversion receivers. This paper describes general representation of conversion loss and output power on the even harmonic mixer with junction capacitance. For the anti-parallel diode pair, the switch model with resistance and non-linear capacitance is employed for the analytical approach. The analyses clarify fundamental limitation of the characteristics on the even harmonic mixer with the optimized junction dimension. This paper contributes to the design methodology for the even harmonic mixer used in millimeter wave systems.

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