Abstracts

A Novel Monolithic HEMT Harmonic Mixer at Q-Band

R. Katz, S. Maas, A. Sharma and D. Smith. "A Novel Monolithic HEMT Harmonic Mixer at Q-Band." 1995 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 95.1 (1995 [MCS]): 39-42.

A novel Q-band monolithic harmonic mixer has been designed and fabricated using the 0.15 µm pseudomorphic lnGaAs/GaAs HEMT process for the first time. This high performance mixer is capable of downconverting a Q-Band RF signal with the 12th, 14th or 16th harmonic of a S-band LO signal to produce a signal suitable for a phase lock loop. This compact mixer consists of antiparallel HEMT Schottky diodes with a lumped element IF and LO diplexer and a RF band-pass filter. Measured data shows agreement between simulations and measurements. Total chip Size is 1.0 mm x 2.5 mm.

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