Abstracts

A compact 60 GHz sub-harmonically pumped mixer MMIC integrated with an image rejection filter

A. Yamada, Y. Amano, Y. Motouchi, N. Takahashi, E. Suematsu and H. Sato. "A compact 60 GHz sub-harmonically pumped mixer MMIC integrated with an image rejection filter." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1733-1736 vol.3.

In this paper we present a sub-harmonically pumped image-rejection mixer MMIC for antenna-integrated modules in the 60 GHz-band. The mixer MMIC consists of a mixing part and a filter part. The filter has two /spl lambda//2 microstrip resonators and has a mutual-inductive coupling and a capacitive one between its input and output ports, which results in transmission zeros near the pass band. In the mixing part an electrical short circuit for an LO signal is provide by the filter characteristics at an LO frequency instead of a conventional /spl lambda//4-open-stub. The fabricated image-rejection mixer MMIC, of which size is only 1.0 mm/spl times/1.5 mm, shows a conversion loss of 11/spl sim/13 dB and an image rejection ratio of more than 30 dB in a pass-band of 60/spl sim/61.1 GHz when an LO frequency is 29.5 GHz.

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