Abstracts

Tuning a bandpass filter by optical control of a negative-resistance circuit

Y. Yamamoto, Y. Imon, S. Mikumo and M. Katsuragi. "Tuning a bandpass filter by optical control of a negative-resistance circuit." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part I [T-MTT]): 2006-2010.

A novel tunable active bandpass filter is presented in X-band. Basically, this is an end-coupled half-wavelength microstrip bandpass filter coupled by a high-Q value negative-resistance circuit, which is optically tunable. In this filter, one MESFET works both as a tuning element and negative resistance. To increase the tunability of the active MESFET circuit compared with the half-wavelength resonator, the port of the negative resistance is connected to the open stub through one side line in the quarter-wavelength coupler. Tuning range of 123 MHz is achieved by optical tuning. This optically tunable range of the active bandpass filter exceeds 1% of the center frequency.

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