Abstracts

A sub-nanosecond resonant-type monolithic T/R switch for millimeter-wave systems applications

M. Madihian, L. Desclos, K. Maruhashi, K. Onda and M. Kuzuhara. "A sub-nanosecond resonant-type monolithic T/R switch for millimeter-wave systems applications." 1998 Transactions on Microwave Theory and Techniques 46.7 (Jul. 1998 [T-MTT]): 1016-1019.

This paper is concerned with the design consideration, fabrication process, and performance of a V-band monolithic transmit/receive (T/R) switch for millimeter-wave wireless networks applications. The developed switch integrated circuit (IC) has a novel structure in which to pass a signal, it presents a parallel resonant circuit to the signal by forward biasing a pair of switching heterojunction FET's (HJFETs), but to block the signal, it presents a series resonant circuit to the signal by reverse biasing the switching HJFETs. With a control voltage of 0/3.2 V, the developed T/R switch exhibits a minimum insertion loss of 3.9 dB, a maximum isolation of 41 dB, and a high switching speed of 250 ps, over 57-61 GHz. The monolithic T/R switch chip size is 3.3 mm/spl times/1.7 mm.

❑ Return to main document.