Abstracts

DC-110-GHz MMIC traveling-wave switch

H. Mizutani and Y. Takayama. "DC-110-GHz MMIC traveling-wave switch." 2000 Transactions on Microwave Theory and Techniques 48.5 (May 2000 [T-MTT]): 840-845.

This paper presents the broadest band monolithic-microwave integrated-circuit traveling-wave switch ever reported for millimeter-wave applications. The developed switch with the novel structure of a 400-/spl mu/m-gate finger field-effect transistor (FET) indicated an insertion loss of less than 2.55 dB and an isolation of better than 22.2 dB from dc to 110 GHz. Also, the switch indicated no degradation of insertion loss and an ON/OFF ratio of more than 22.7 dB up to an input power of 26.5 dBm at 40 GHz. Circuit analytical results based on a lossy transmission-line model for small-signal performance and circuit simulation results using the two-terminal nonlinear FET model for large-signal operation successfully showed good agreement with the experimental results.

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