Abstracts

77 GHz Monolithic MMIC Schottky- and PIN-Diode Switches Based on GaAs MESFET and Silicon SIMMWIC Technology

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We report on the design, fabrication and evaluation of 77 GHz monolithically integrated MMIC switches. Single-pole double-throw (SPDT) and single-pole three-throw (SP3T) switches were realized with Schottky diodes in a 0.25 mu-m GSAS MESFET technology. To our knowledge, this is the first fabrication of Schottky diodes as switching elements at W-band. In a silicon SIMMWIC technology SPDT switches were developed with PIN diodes. Insertion losses of 1.5-2.5 dB and isolations better than 20 dB were obtained at 77 GHz for the different switch types. A comparison between the GaAs MESFET and tha SIMMWIC technology concerning switch RF-performance, power capability and switching speed is given in this paper.

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