Abstracts

20-GHz 5-dB-Gain Analog Multipliers with AlGaAs/GaAs HBT's (Short Papers)

K. Osafune and Y. Yamauchi. "20-GHz 5-dB-Gain Analog Multipliers with AlGaAs/GaAs HBT's (Short Papers)." 1994 Transactions on Microwave Theory and Techniques 42.3 (Mar. 1994 [T-MTT]): 518-520.

From-DC-to-above-20-GHz monolithic Gilbert cell analog multipliers have been developed using AlGaAs/GaAs HBT technology. As a double balanced active mixer, it exhibits very high conversion gain of above +5 dB with extremely high LO-IF isolation of 33 dB for RF/LO inputs up to 20 GHz. It exhibits conversion gain of +9 dB for 5 GHz RF/LO inputs. As a double balanced upconverter, it exhibits positive conversion gain with high LO-RF isolation of 23 dB for RF output up to 8.5 GHz. As a detection mixer in coherent optical heterodyne receivers, it can operate for RF/LO inputs up to 15 GHz under a less than -7.5 dBm LO input condition.

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