Abstracts

A decade bandwidth resistive FET singly balanced MIC mixer

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A novel decade bandwidth resistive FET singly balanced MIC mixer using a broadband CPW to CPS balun is developed. The mixer uses two NEC71000 MESFETs and realized with uniplanar lines. At 17 dBm LO power and 1 GHz IF, the mixer shows a conversion loss of 5.7 to 11 dB for 2 to 20 GHz RF and 10 to 15 dB for 20 to 27 GHz RF. The IF bandwidth is from 10 MHz to 7 GHz. The signal orthogonality between RF and IF makes the IF signal may overlap the RF signal. The mixer shows an output P/sub 1/ /sub dB/ of 11.5 dBm (corresponding to input P/sub 1/ /sub dB/ of 18.5 dBm) at 8 GHz RF, 1 GHz IF and 16.5 dBm LO power. The input IF, is 24 to 37 dBm corresponding to 2.5 to 20 GHz RF and 1 GHz IF. The mixer is fabricated on a 15 mil thick Al/sub 2/O/sub 3/ MIC substrate.

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