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Design of a Phemt Buffer Amplifier in Mm-Wave Band around 60 GHz

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Abstract : One major problem of most electronic systems operating in the millimeter wave band is the signal generation with a high purity and a stable carrier frequency. This problem is overcome by using the combination of a signal with a low frequency local oscillator (LO) and several stages of frequency multipliers. The use of these frequency multipliers to create millimeter-wave signals is an attractive alternative to direct generation signal. Therefore, the isolation problem of the local oscillator from the other stages is always present, which leads to have various mechanisms that can disturb the oscillator performance, thus a buffer amplifier is often included in oscillator outputs. In this paper, we present the study and design of a buffer amplifier in the mm-wave band using a 0.15µm pHEMT from UMS foundry. This amplifier will be used as a part of a frequency quadrupler at 60 GHz.

Keywords : Mm-wave band, local oscillator, frequency quadrupler, buffer amplifier
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