

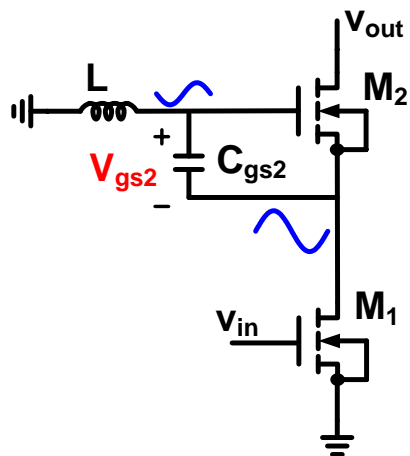
Analysis of Cascode Structure for 60GHz Amplifier Design in 65nm CMOS

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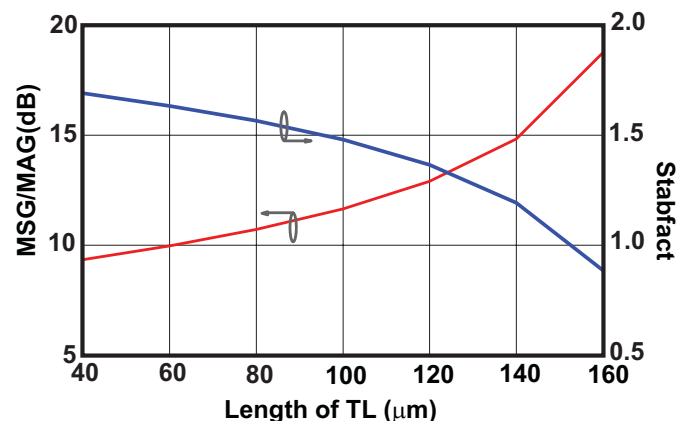
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Cascode structure

- ◆ Due to larger parasitic components of cascode structure at mmW frequency, G_{max} becomes lower as the frequency increases.
- ◆ The inductance can increase the gain while decreasing the stability factor.
- ◆ The inductance have to be optimized reasonably.



Cascode structure with inductance

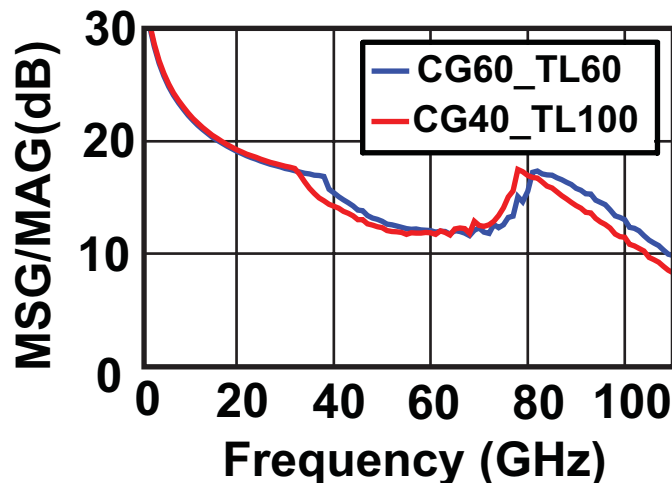


Maximum available gain and K versus the length of TL at 60GHz

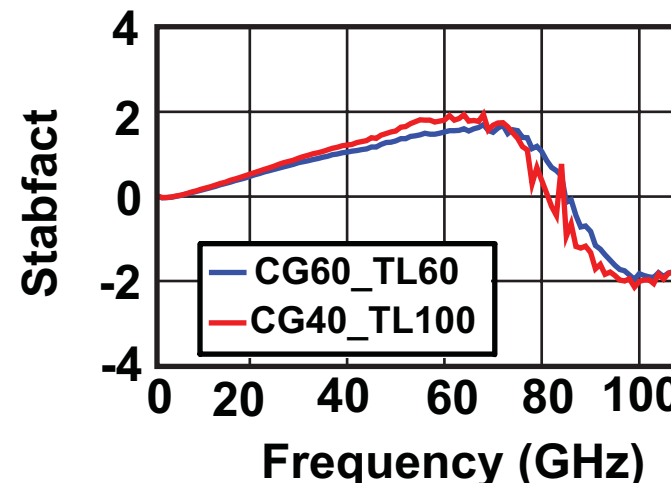
Optimization of TL length

TL length can be optimized according to the theoretical equation presented in this work

- 60- μm CG transistor with 60- μm TL
- 40- μm CG transistor with 100- μm TL have the same gain and stability.



Maximum Gain



Stability factor