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Analog Designer's Toolbox  
From Designers... To Designers

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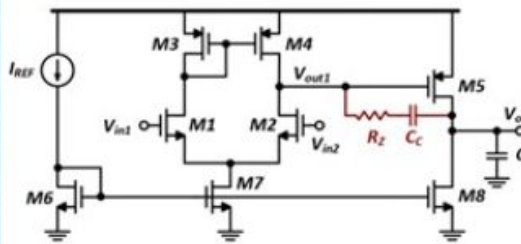
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You are designing this OTA as a unity gain buffer and your nominal simulations are perfectly fine. You got a script from your CAD dept that runs the testbench at many different PVT corners and returns the results in an excel sheet. The spread sheet results looked fine, but you noticed that at some corners the GBW (gain-bandwidth product) is significantly different from the UGF (unity-gain frequency), however, the PM (phase margin) was OK. Should you ignore this discrepancy? Why? What could be the problem?

## Thursday Analog Quiz



Today's question is a tricky one that needs some experience! Read the post and share your experience with the next generations of designers!

As we want to configure our OTA as unity buffer (gain=1),  $GBW \approx UGF$ .  
if the spread sheet reports corners wher  $GBW \neq UGF$  while PM is fine, it's a sign that the single-pole assumption is broken.

### possible causes:

- 1- The feedback factor  $\beta$  changes with freq.
- 2- Extra pole/zero from the compensation network

So, we shouldn't ignore it as it is red flag that our circuit is behaving as clean single-pole system.