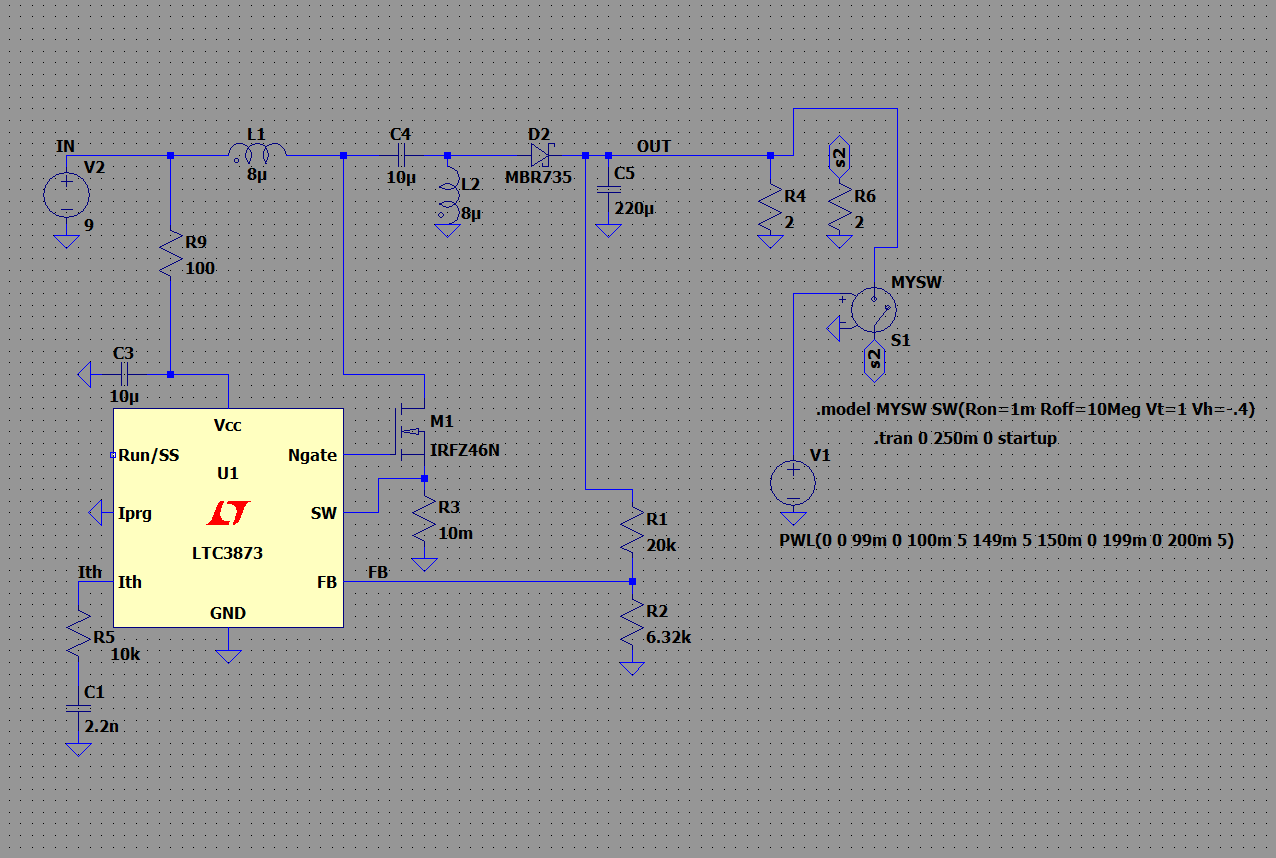
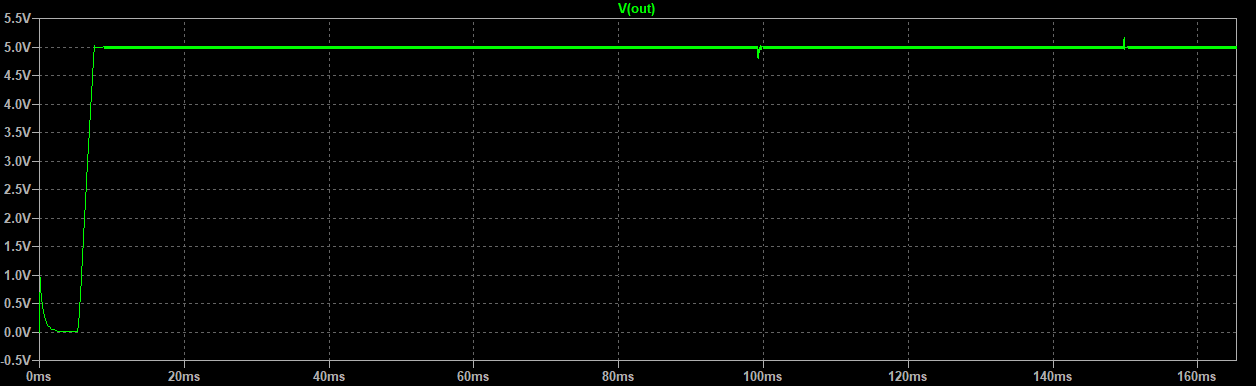


It is so bad. For transient response.

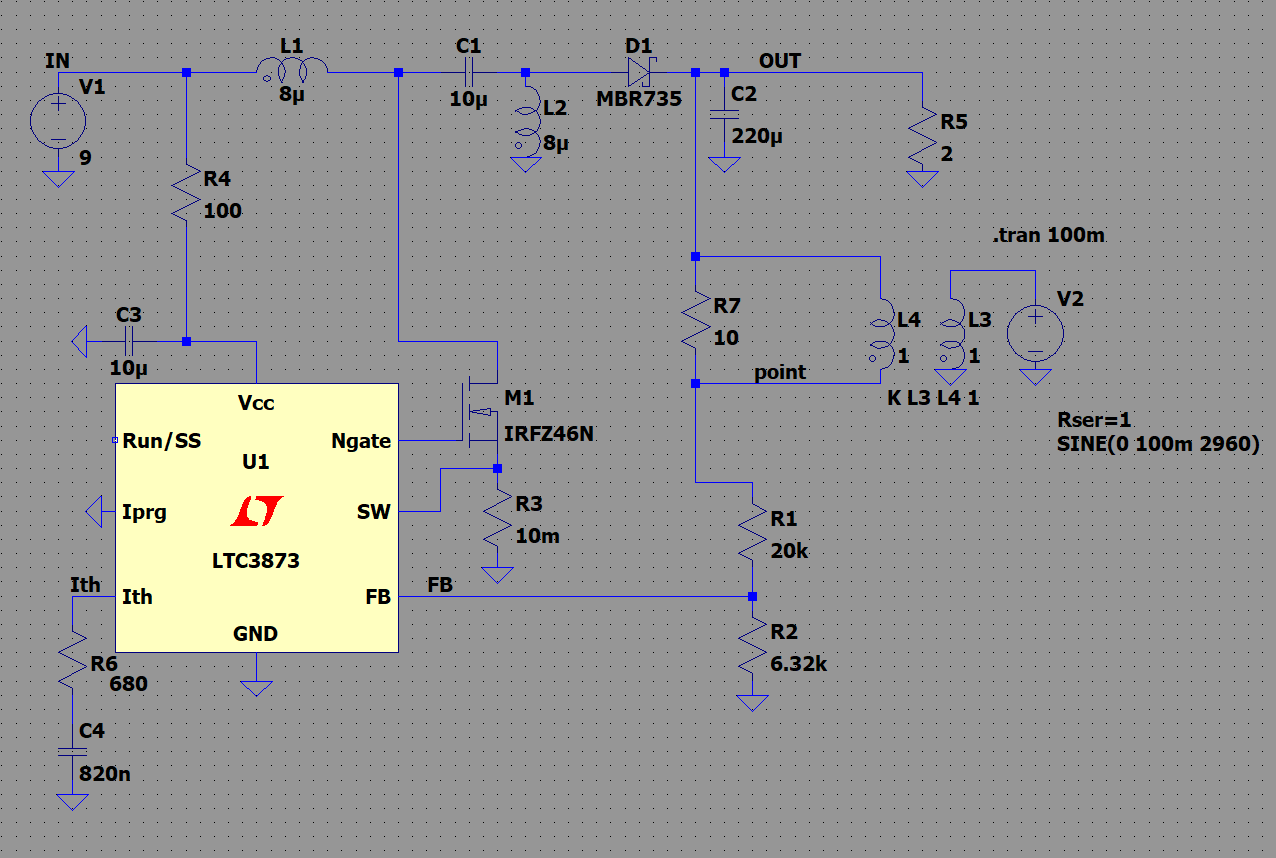


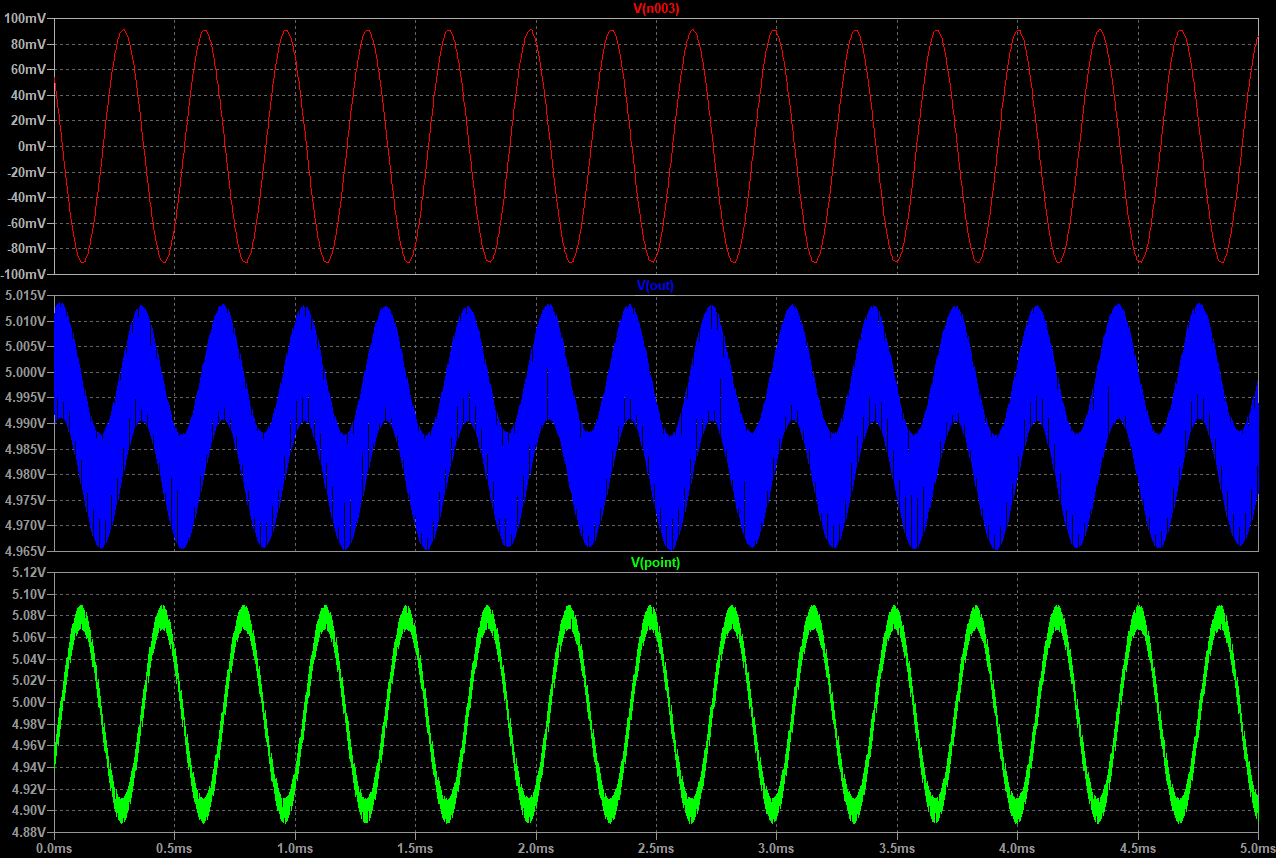


After all this calculation old try and error value 10-15k ohm 2.2-4.7nF compensator network Works better.

And I realized now testing LTC3873 model can’t be used for AC analysis. I changed compensation network contsless times and bode plots are the same so we will do one by one I guess. In dc analysis. First, we need to check if compansator is close to the expecter from edited pdf. We look 3 frequencies fp, fz, fc or fpc, fzc, fc. Also I did put link about this, but did find more clear video: <https://www.youtube.com/watch?v=LDPAbScpzZw&t=192>

Fc=2960Hz, Fz= 296Hz, Fp=2.96Hz





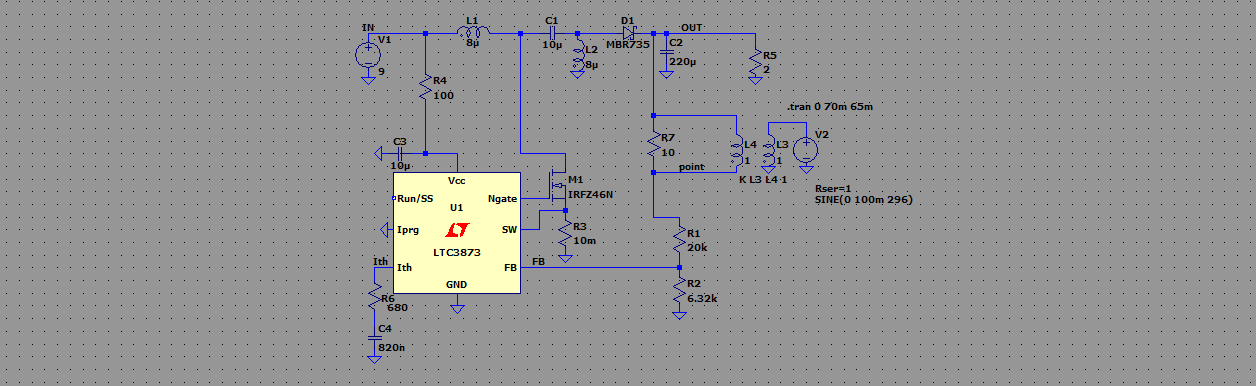
You can see our signal 100mV sinus signal peak to peak 200mV is injected(bit noisy because didn’t find right value for it) on Vpoint and effected Vout.

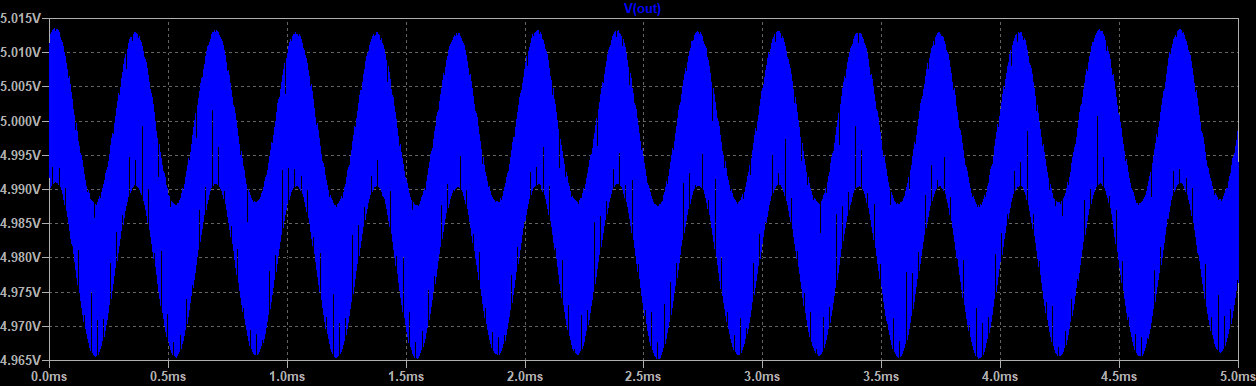
Calculation of gain is Vout(peak-peak) / Vpoint(peak-peak) = gain

Or Vout(peak-peak) / injected signal(peak-peak) = gain

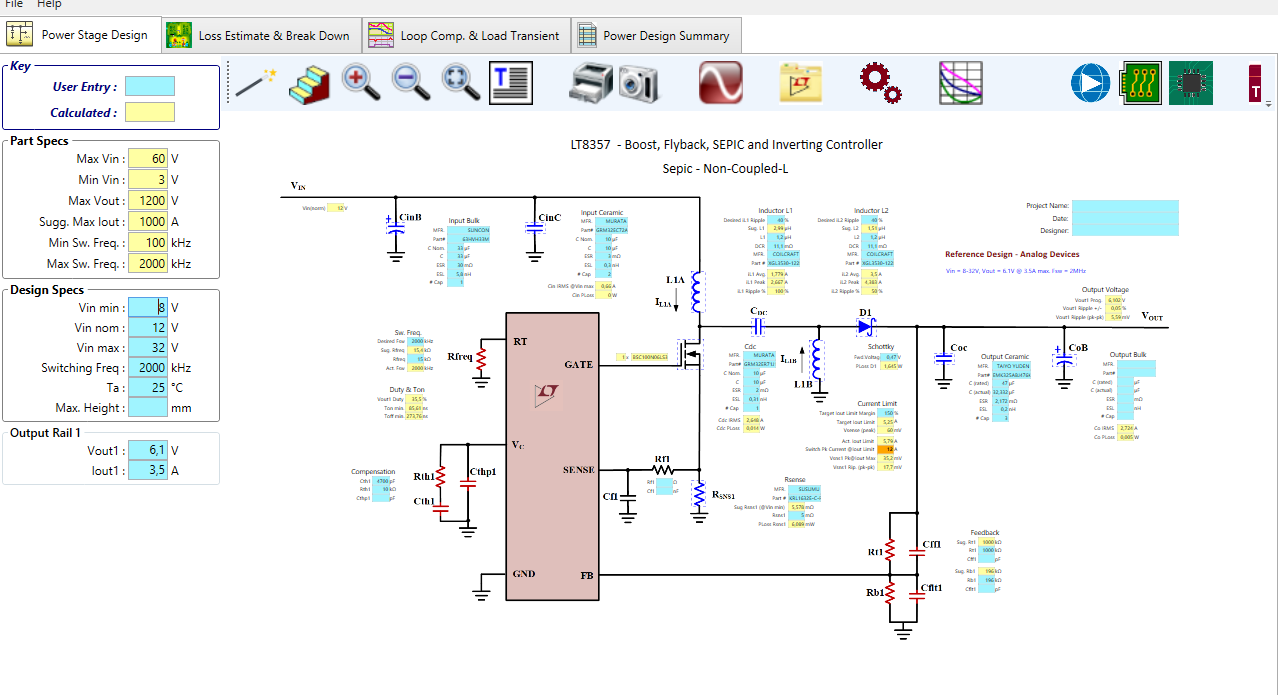
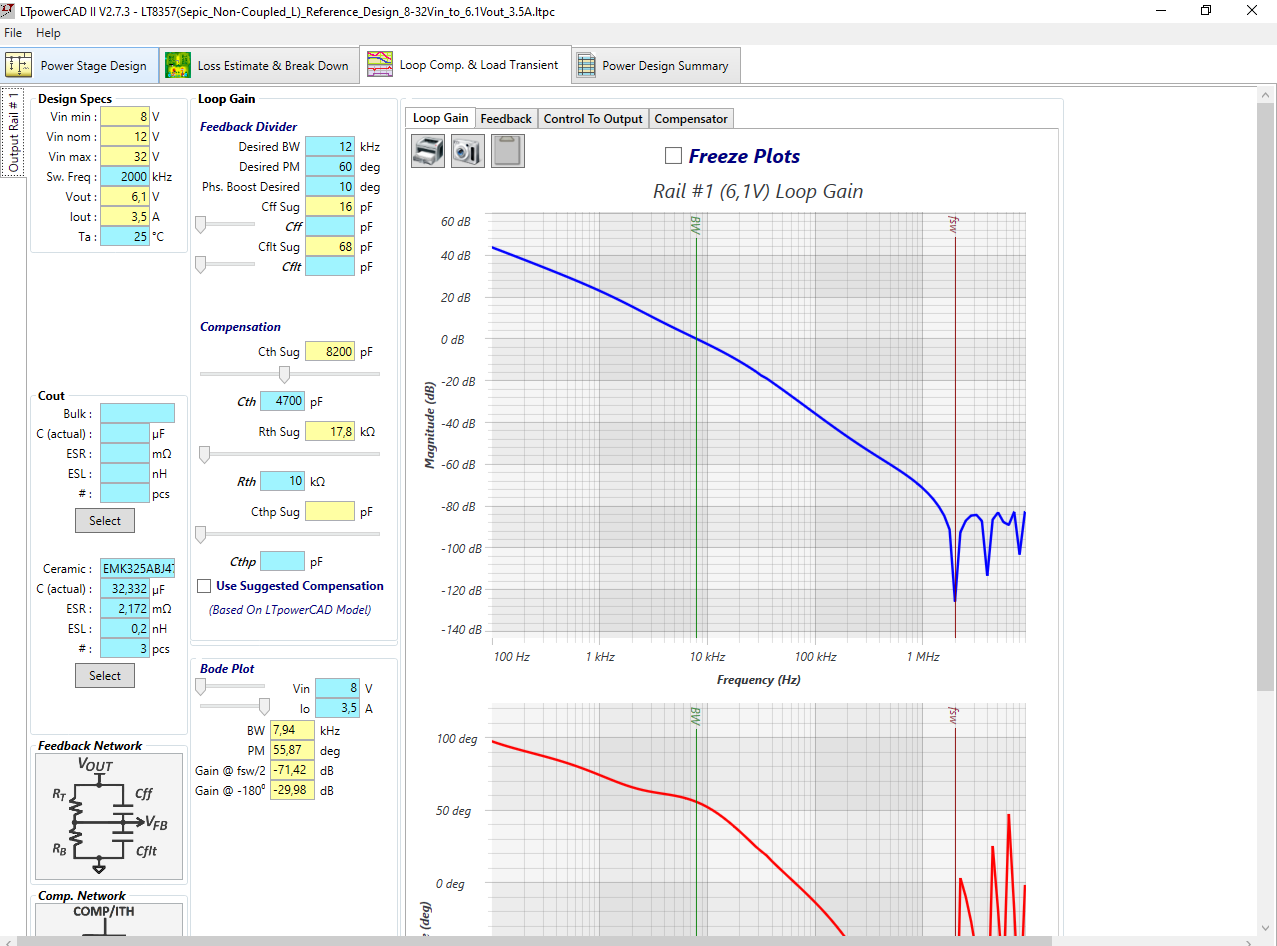
(5.0132-4.9656) / (5.088-4.89) = .0476 / .198 = .24

Or .0476 / .2 = .2375 = -12.5 dB





Calculation becomes lower gain than fc that shouldn’t be so didn’t get the loop compensation we want with compensator network. According to gain is so low and fzc gain lower than fc gain. We failed and i tried different ic which has calculation on LT power CAD. Also failed in simulation.

Screen shots for not for my attemts all companies Texas, LT, ST hve this sort of power tools on PC programs and on internet. Also have excel files which does the same calculations for you. I recommend to you use LM51561 it has Excel files. Or IC you cant find for your situation with this kind of tools. Even than power stage calculations didn’t work. Those aren’t different IC to IC if switching frequency is same. I tried above tool for power stage calculation for and our calculation for power stage work better. If we come to compensato, it is to hard and long to confirm compensation if you don’t have the tools. My last recommendation is the same as before. After, I’ll start to explain current mode in this file, voltage mode in other file.