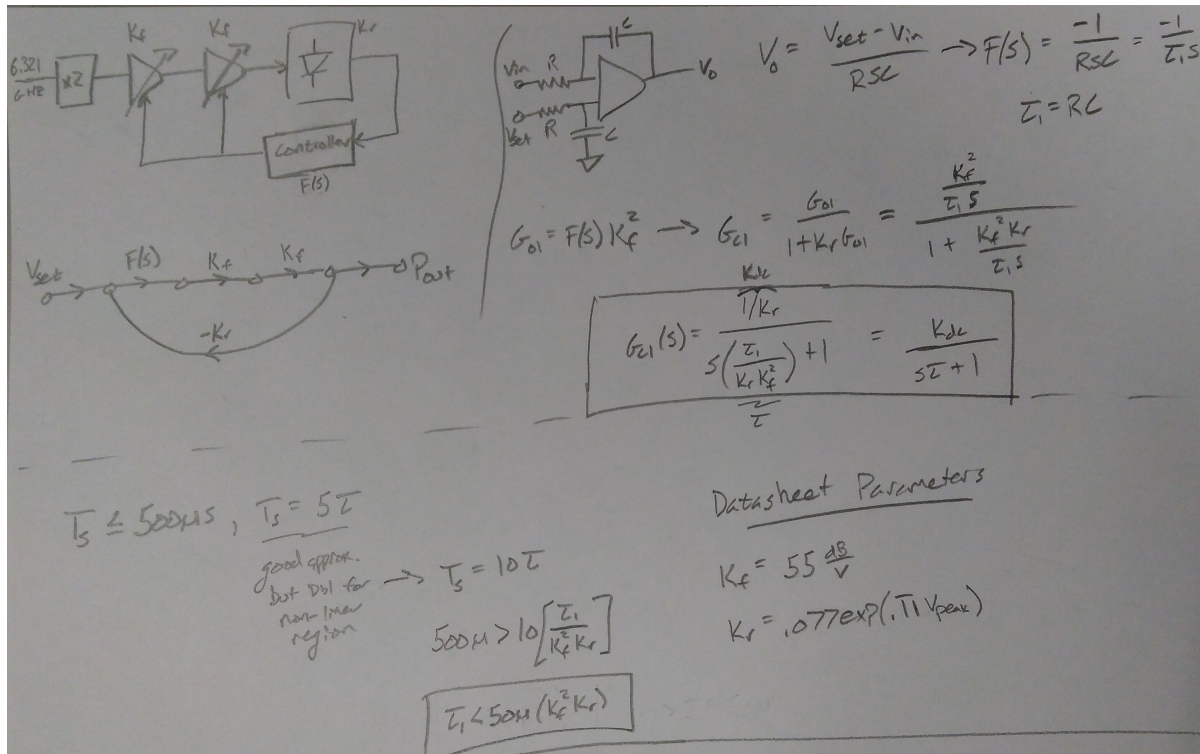


Power Controller

Design of an adjustable output power stabilizer circuit utilized in a 12 GHz synthesizer. Designed with both the ADL6010 and the LTC5564 envelope detectors due to the long lead time of the ADL6010.

► # Imports↔

► #CSS↔

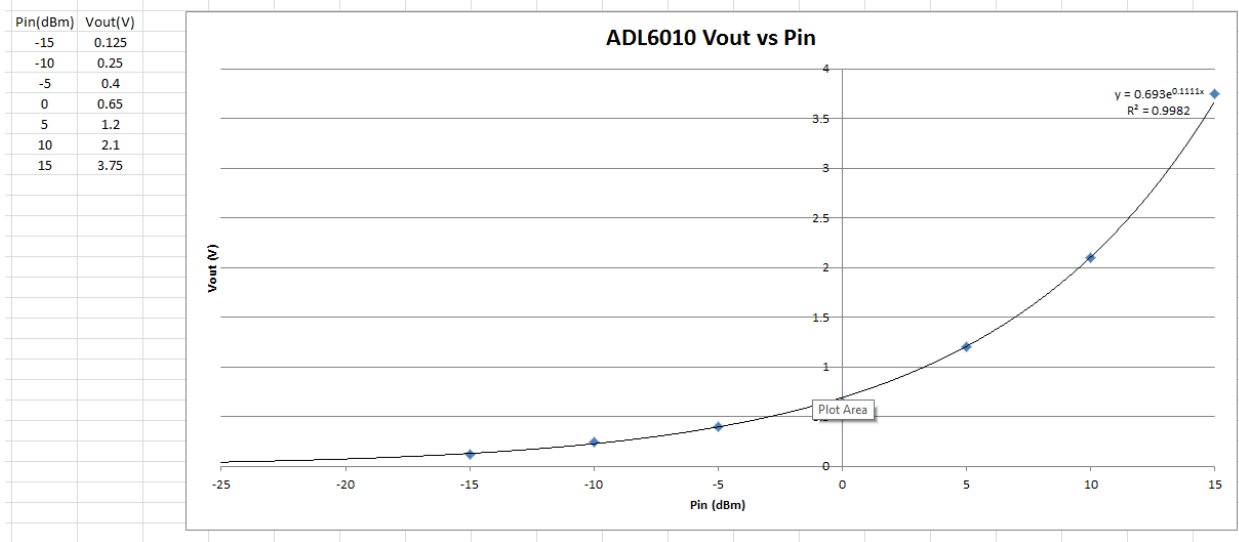


► # Designing the Controller↔

Due to long lead times of the ADL6010, an alternative envelope detector was used until the ADL6010 arrived. The LTC5564 had a similar response to the ADL6010, but could not be used due to its high temperature dependency. The same PI filter was used with little consequence, just a slower response, but worked well enough until the ADL6010 arrived.

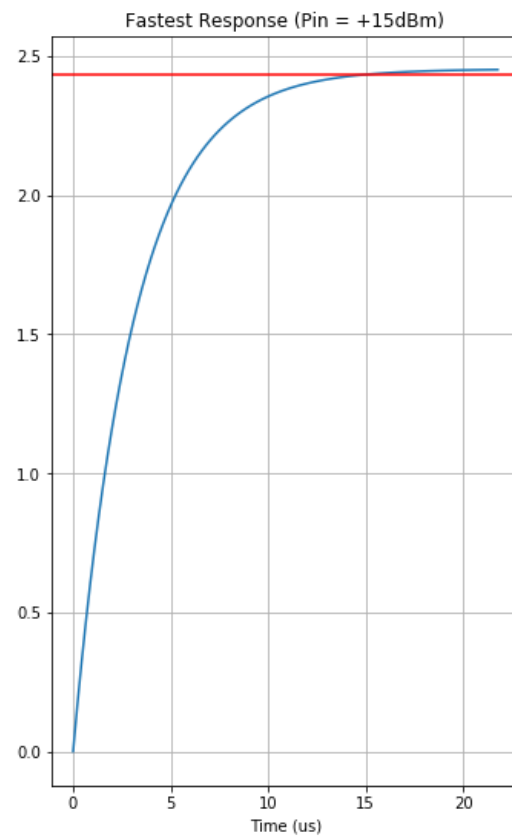
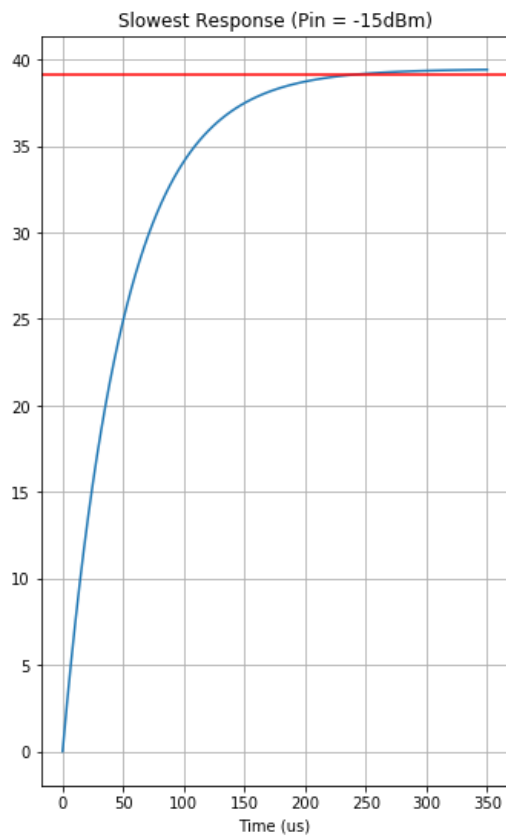
ADL6010

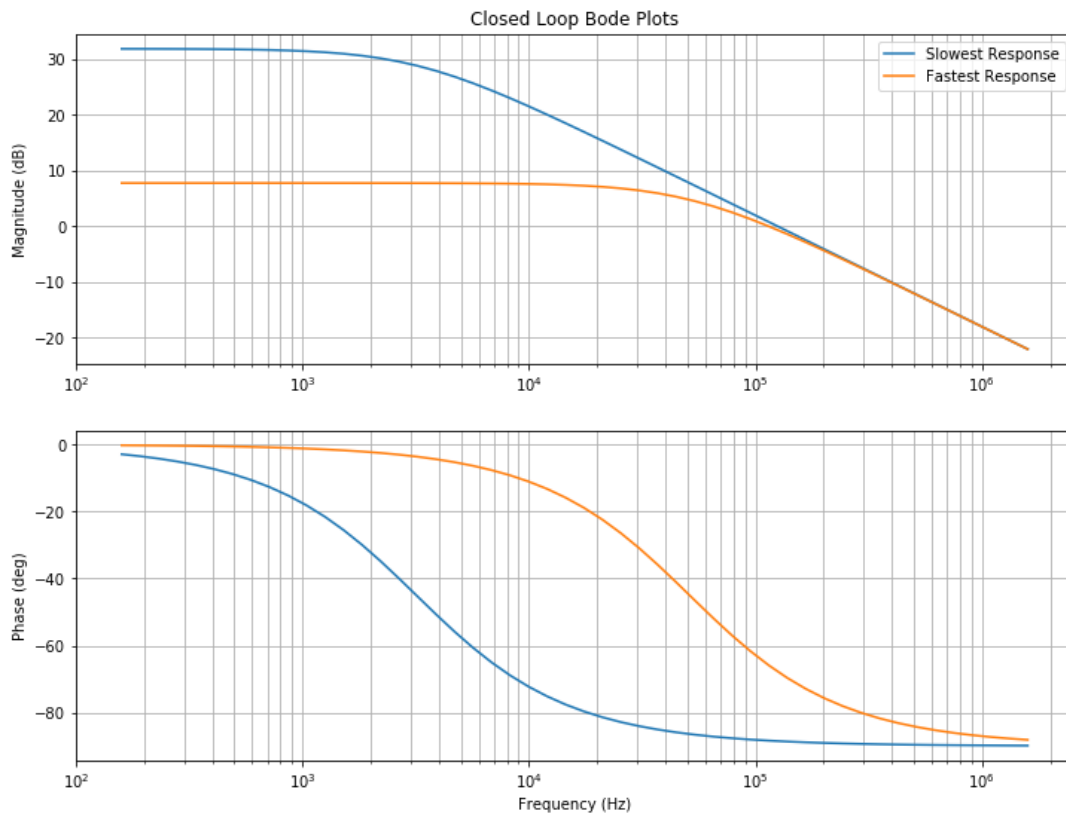
From the ADL6010 Datasheet, K_r is given as a linear value in V/V. But in the V/dBm units needed, it is very nonlinear as shown below. Taking the derivative of the graph below, the value of k_r in units of V/dBm can be approximated.



► # ADL6010 Response Times↔

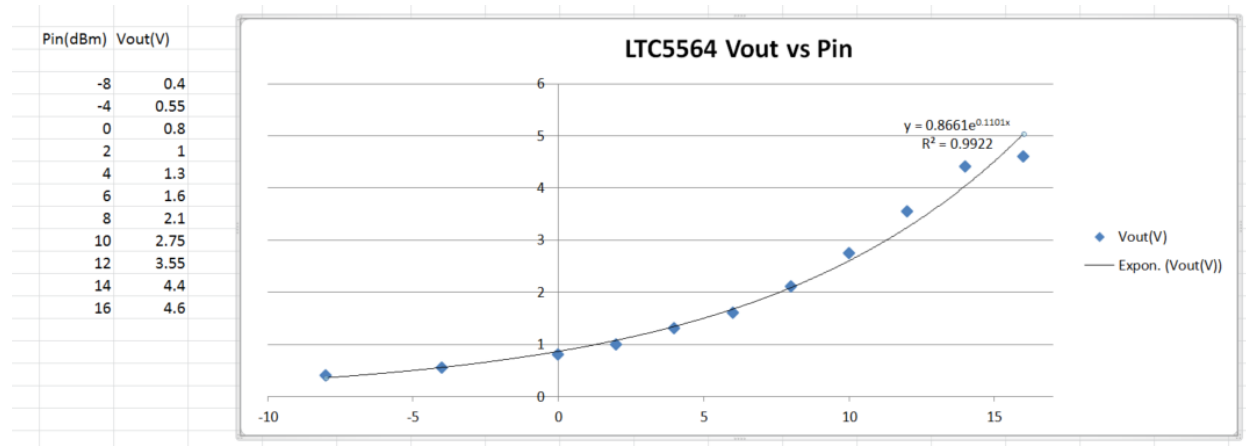
R=3833.9 Ohms C=1.0e-06 uF





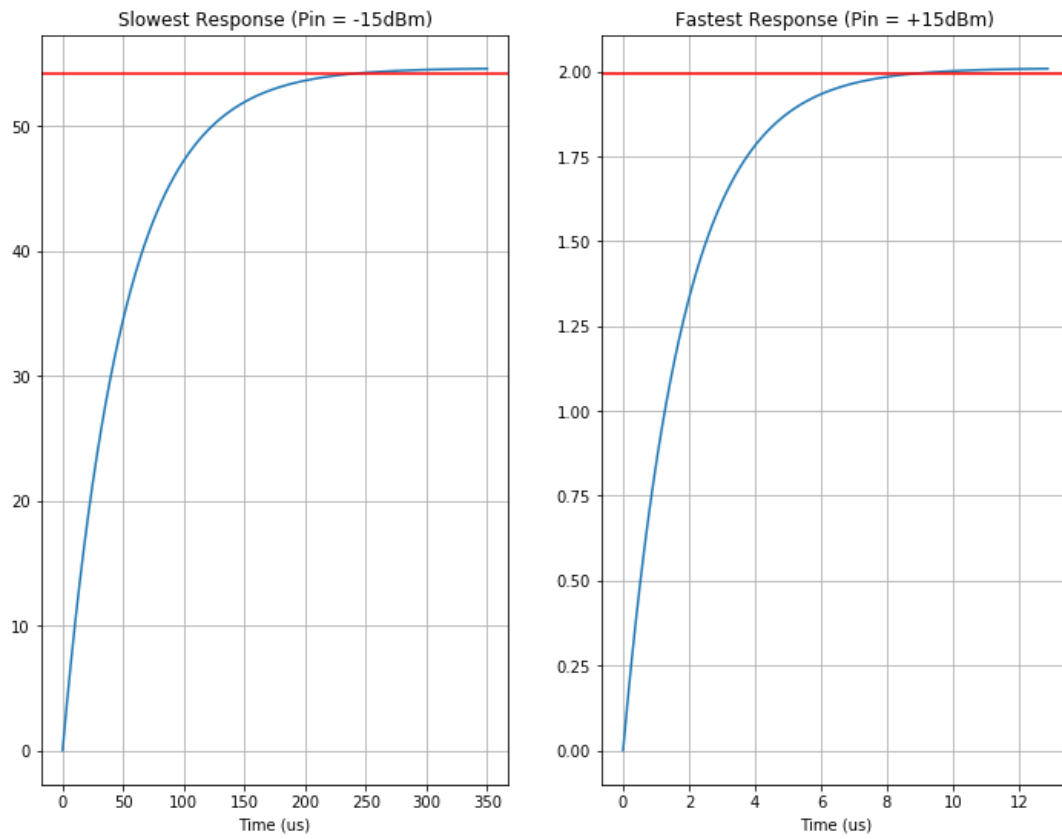
LTC5564

Due to the long lead time of the ADL6010, the LTC5564 was also examined for use. It appears to have a similar response, however it looks like it will be unusable due to its temperature dependency. Again, using the data from the datasheet to estimate k_r :



► # LTC5564 Response Times↔

R=2767.0 Ohms C=1.0e-06 uF



► # LTC5564 Bode plot↔

