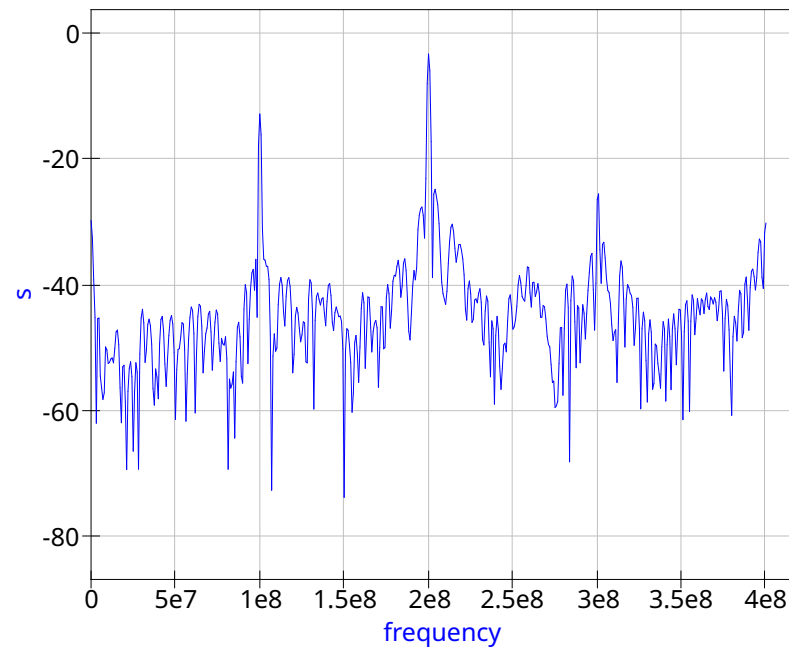
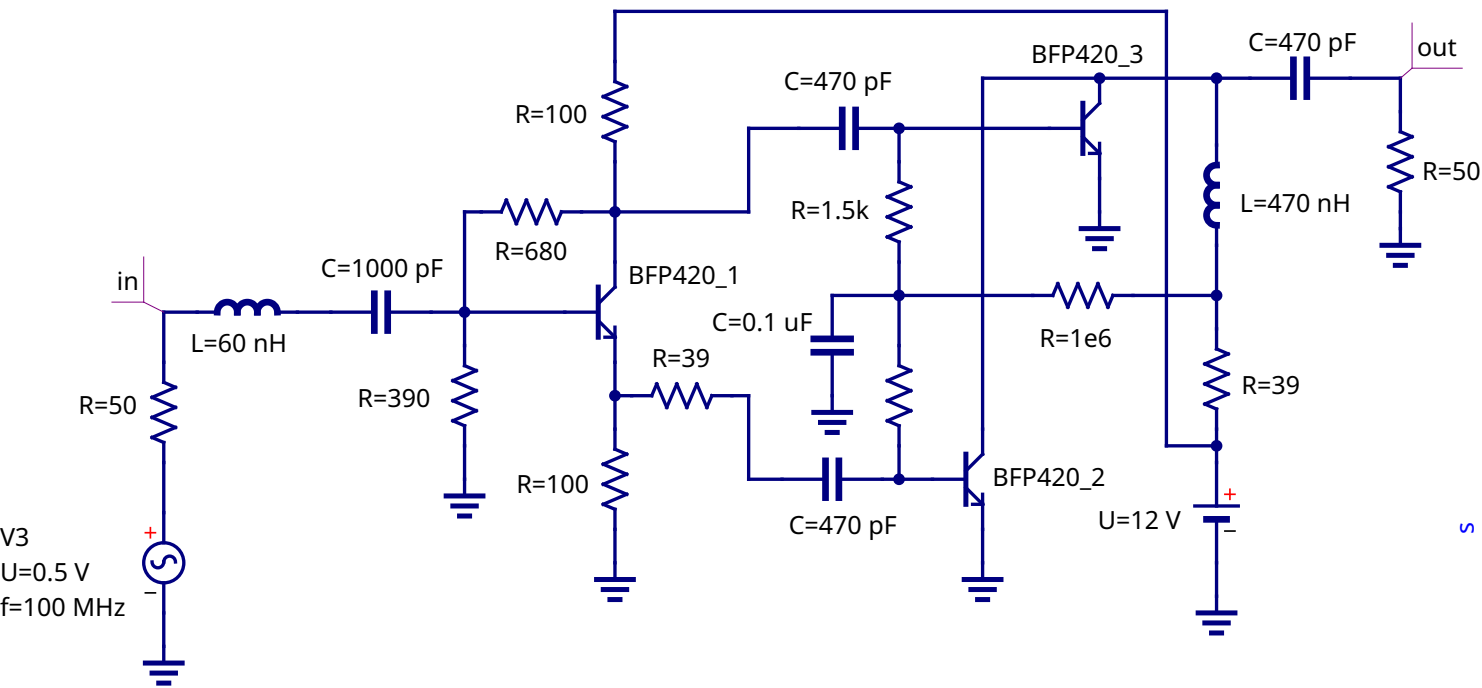


Broad-band UHF transformerless frequency doubler using a bipolar transistor as a voltage/phase divider followed by a pair of bipolar Class "B" amplifiers combined to produce second harmonic of the input. Careful balance is required to suppress the fundamental and third harmonic below -20 dBc. The 0.1 uF capacitor bypasses R.F. plus the A.M. noise contribution of the 1 Meg resistor. With high Ft transistors, this circuit should be effective from low VHF to high UHF frequencies.



Vary the frequency of V3 and observe the output spectrum (note that the doubler has gain). May need to change the parameters of the transient simulation if simulation frequencies are not decade multiples.

dc simulation

transient simulation

Spectrum analysis

Nutmeg  
NutmegEq1  
Simulation=fft  
S=db(v(out))

TR1  
Start=0  
Stop=2e-6  
Points=1001

FFT1  
BW=400MHz  
dF=1MHz  
Window=hanning