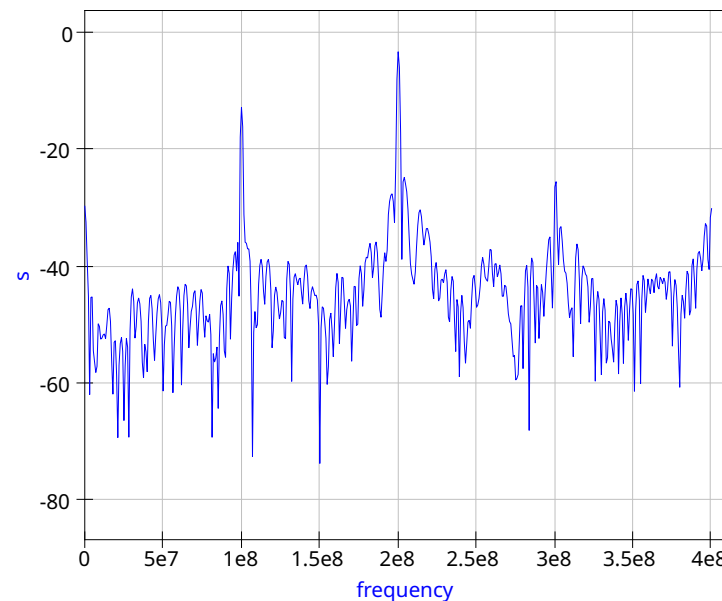
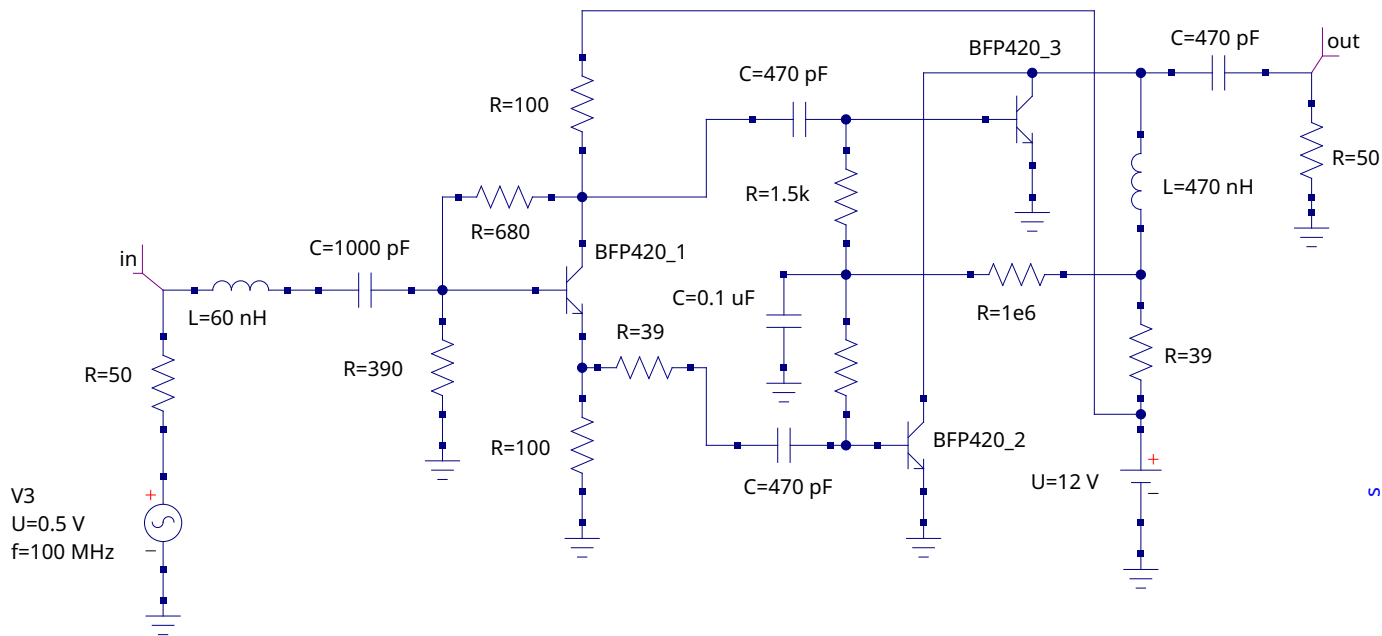


Broad-band UHF transformerless frequency doubler using a bipolar transistor as a voltage/phase divider followed by a pair of bipolar Class "B" amplifiers combined to produce second harmonic of the input. Careful balance is required to suppress the fundamental and third harmonic below -20 dBc. The 0.1 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