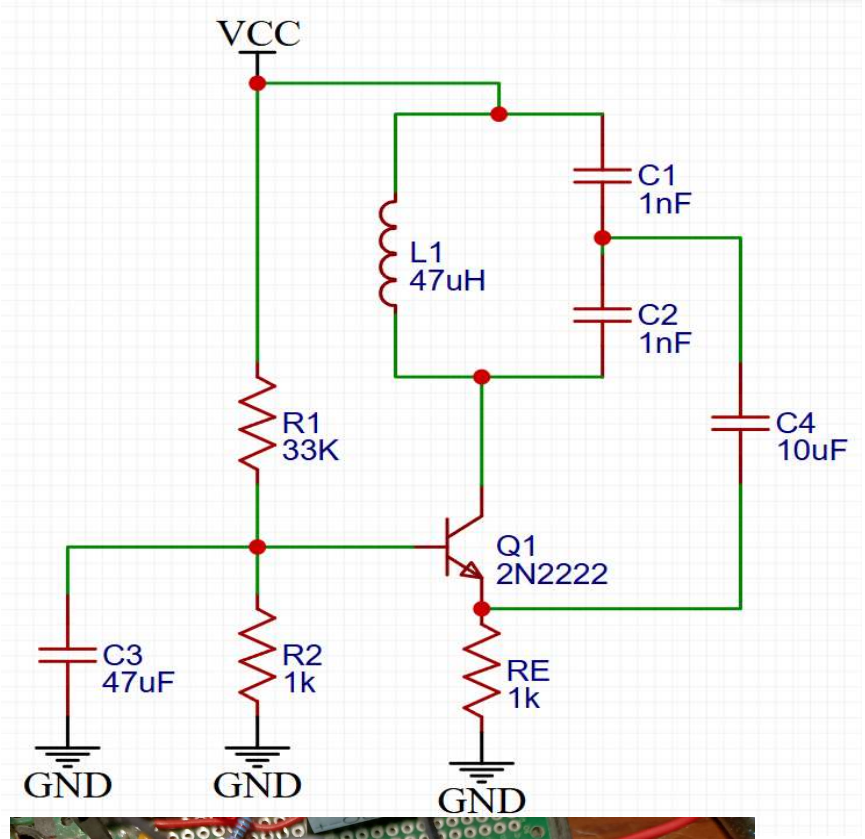
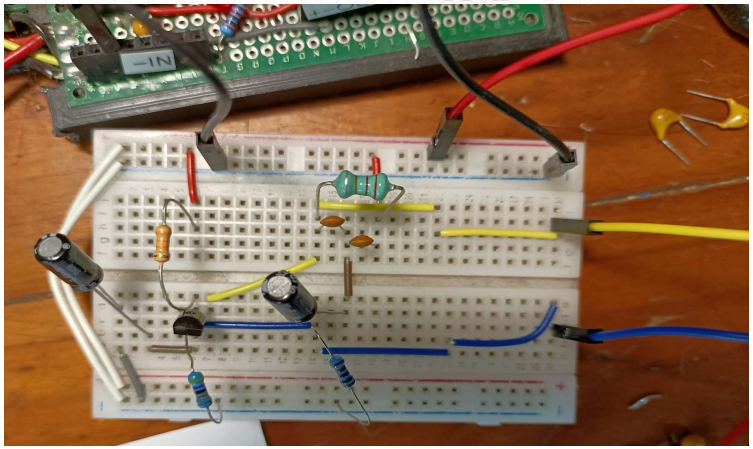
Common Base Colpitts Oscillator





$$\text{Frequency} = \frac{1}{2\pi\sqrt{LC_T}}$$

where

$$C_T = \frac{(C_1)(C_2)}{C_1 + C_2}$$

L1	0.000002	
C1	2.09E-10	
C2	2.17E-10	
CT	1.06E-10	
Freq	10,907,040	

VCC **9 Volts**

Frequency	Q1	L1	C1	C2	C3	C4	R1	R2	RE	Collector Voltage Peak to Peak	Comments
~1mHz	2N2222	47 uH	1 nF	1nF	47uF	10uF	33K	7.7K	1K		as marked on components
1.03 MHz	S9018	40 uH	1,068 pF	937 pF	43.13 uF	11.51 uF	37K	7.7K	1.1K		Actual values in test rig
1.09 MHz	2N2222	0.04 mH	919 pF	1020 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω		Actual values in breadboard circuit
160 KHz	2N2222	0.93 mH	2,330 pF	2350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	16.6 V	Actual values in breadboard circuit
56 KHz	2N2222	9.39 mH	2,330 pF	2350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	14.8 V	Actual values in breadboard circuit
253 KHz	2N2222	0.93 mH	919 pF	1020 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	15.2 V	Actual values in breadboard circuit
360 KHz	2N2222	0.42 mH	919 pF	1020 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	15.8 V	Actual values in breadboard circuit
430 KHz	2N2222	0.28 mH	919 pF	1020 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	16.0 V	Actual values in breadboard circuit
270 KHz	2N2222	0.28 mH	2,330 pF	2350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17 V	Actual values in breadboard circuit
340 KHz	2N2222	0.17 mH	2,330 pF	2350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.2 V	Actual values in breadboard circuit
535 KHz	2N2222	0.17 mH	919 pF	1020 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	16.4 V	Actual values in breadboard circuit
1.07 MHz	2N2222	0.17 mH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	15.6 V	Actual values in breadboard circuit
766 KHz	2N2222	0.17 mH	455 pF	465 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17 V	Actual values in breadboard circuit
850 KHz	2N2222	0.17 mH	346 pF	350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.4 V	Actual values in breadboard circuit
1.15 MHz	2N2222	0.08 mH	346 pF	350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.2 V	Actual values in breadboard circuit
1.49 MHz	2N2222	0.08 mH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	16.8 V	Actual values in breadboard circuit
1.72 MHz	2N2222	0.06 mH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.2 V	Actual values in breadboard circuit
1.37 MHz	2N2222	0.06 mH	346 pF	350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.2 V	Actual values in breadboard circuit
1.74 MHz	2N2222	0.04 mH	346 pF	350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.2 V	Actual values in breadboard circuit
710 KHz	2N2222	0.04 mH	2,330 pF	2350 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω		Actual values in breadboard circuit
2.10 MHz	2N2222	0.04 mH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.6 V	Actual values in breadboard circuit
3.11 MHz	2N2222	0.02 mH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.4 V	Actual values in breadboard circuit
4.33 MHz	2N2222	0.01 mH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	17.2 V	Actual values in breadboard circuit
5.25 MHz	2N2222	6.8 uH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	13 V	Marked value for inductor as couldn't measure it
6.29 MHz	2N2222	4.7 uH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	7.2 V	Marked value for inductor as couldn't measure it
9.30 MHz	2N2222	2.2 uH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	2.7 V	Marked value for inductor as couldn't measure it
11.43 MHz	2N2222	2.2 uH	95 pF	94 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	4.6 V	Marked value for inductor as couldn't measure it
12.5 MHz	2N2222	2.2 uH	65 pF	63 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	4.3 V	Marked value for inductor as couldn't measure it
16.66 MHz	2N2222	1.1 uH**	65 pF	63 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	1.1 V	** Actually L1 was two 2.2uH inductors in parallel
16.01 MHz	2N2222	1.1 uH**	65 pF	63 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	1.1 V	** Actually L1 was two 2.2uH inductors in parallel
8.77 MHz	2N2222	2 uH	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	8.1 V	Marked value for inductor as couldn't measure it
My coil 20 turn coil 3mm dia 0.5mm wire open air-core / hollow inside											
17.77 MHz	2N2222	My coil	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	7,016Ω	1,005Ω	330 mV	
17.85 MHz	2N2222	My coil	209 pF	217 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	**3.2 V**	Change in R2 dramatically increase Vpeak to peak
14.49 MHz	2N2222	My coil	346 pF	350 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	4 V	
23.31 MHz	2N2222	My coil	105 pF	102 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	2.56 V	
26.14 MHz	2N2222	My coil	73 pF	70 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	2.06 V	
29.60 MHz	**S9018**	My coil	73 pF	70 pF	46.8 uF	10.85 uF	32.48K	**470K**	1,005Ω	2.06 V	Change in transistor changed frequency

By OverEngineeredInOz