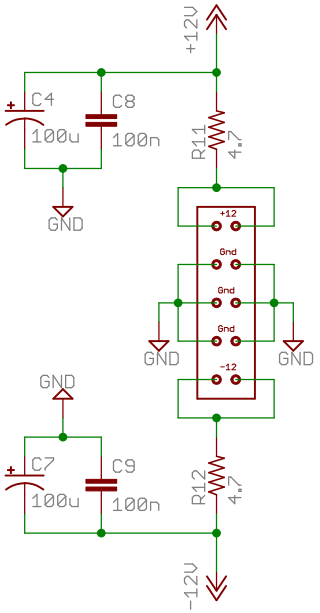
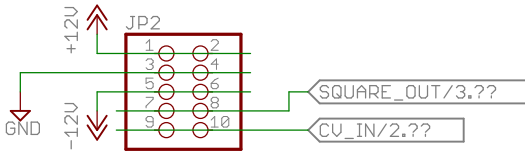
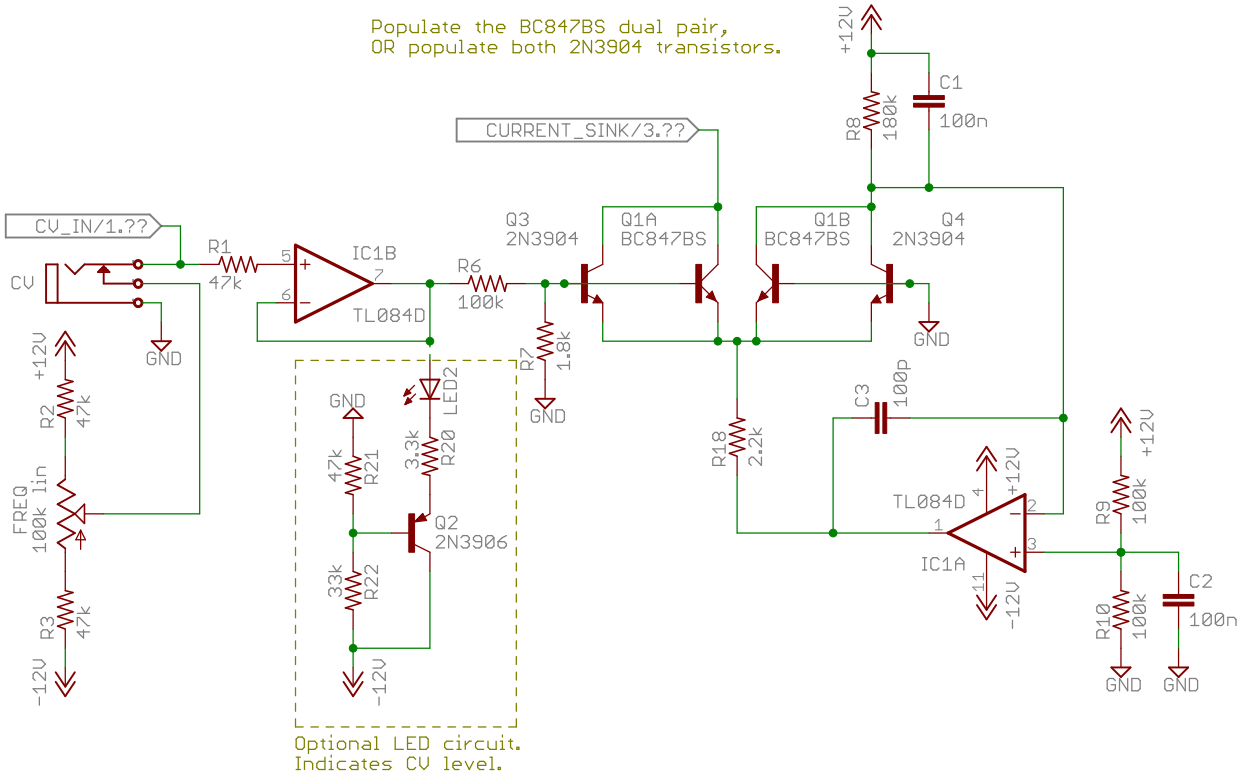
Ryan Jensen
2015-November

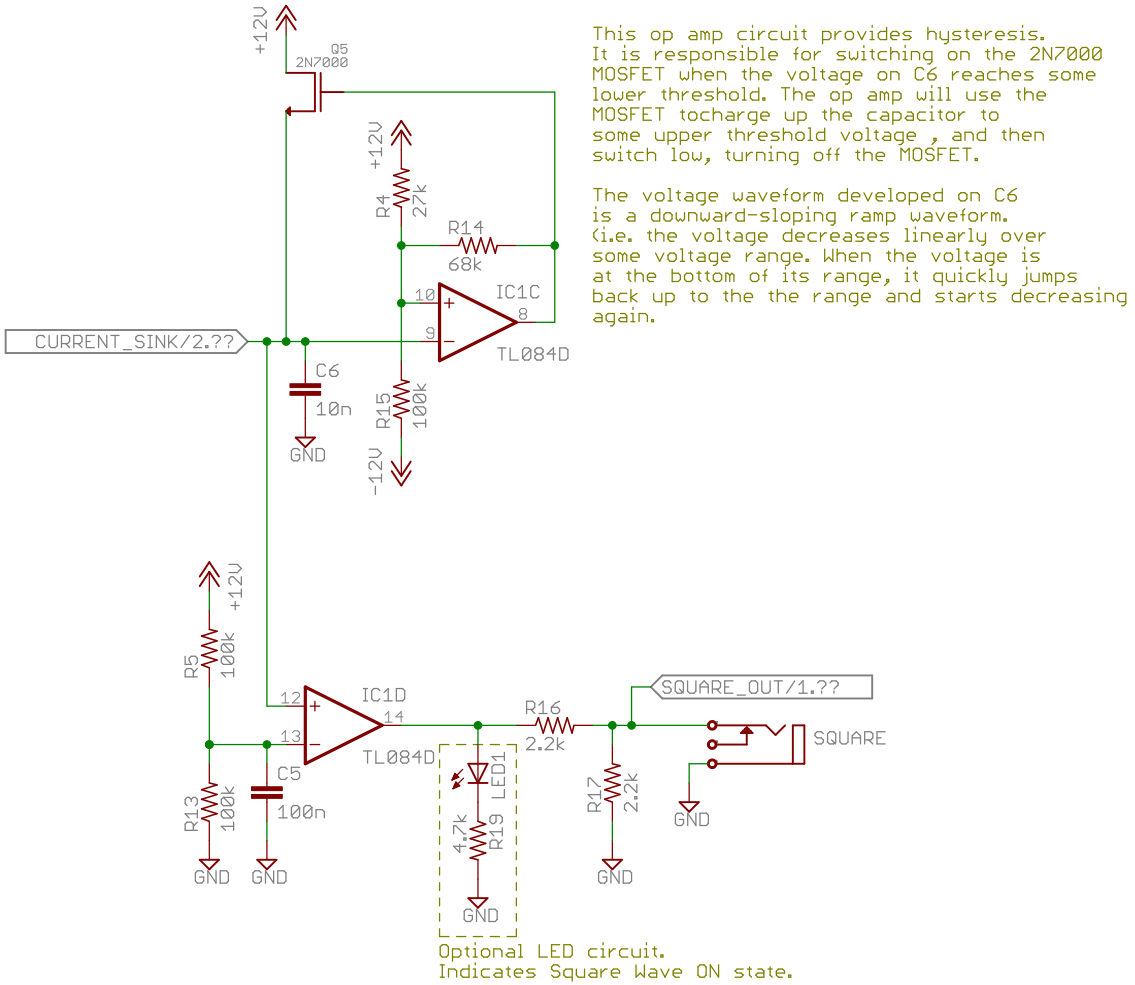
PS-VCO

An attempt at creasing minimalistic VCO.






Populate the BC847BS dual pair,
OR populate both 2N3904 transistors.
CURRENT_SINK/3.??
CV_IN/1.??
CV
R1
47k
IC1B
TL084D
R6
100k
Q3
2N3904
Q1A
BC847BS
Q1B
BC847BS
Q4
2N3904
+12V
R8
180k
C1
100n
GND
R7
1.8k
R18
2.2k
C3
100p
R2
47k
FREQ
100k lin
R3
47k
-12V
LED2
R20
3.3k
R21
47k
Q2
2N3906
R22
33k
Optional LED circuit.
Indicates CV level.
TL084D
IC1A
R9
100k
R10
100k
C2
100n



This op amp circuit provides hysteresis.
It is responsible for switching on the 2N7000 MOSFET when the voltage on C6 reaches some lower threshold. The op amp will use the MOSFET tocharge up the capacitor to some upper threshold voltage , and then switch low, turning off the MOSFET.

The voltage waveform developed on C6 is a downward-sloping ramp waveform. (i.e. the voltage decreases linearly over some voltage range. When the voltage is at the bottom of its range, it quickly jumps back up to the the range and starts decreasing again.

Optional LED circuit.
Indicates Square Wave ON state.