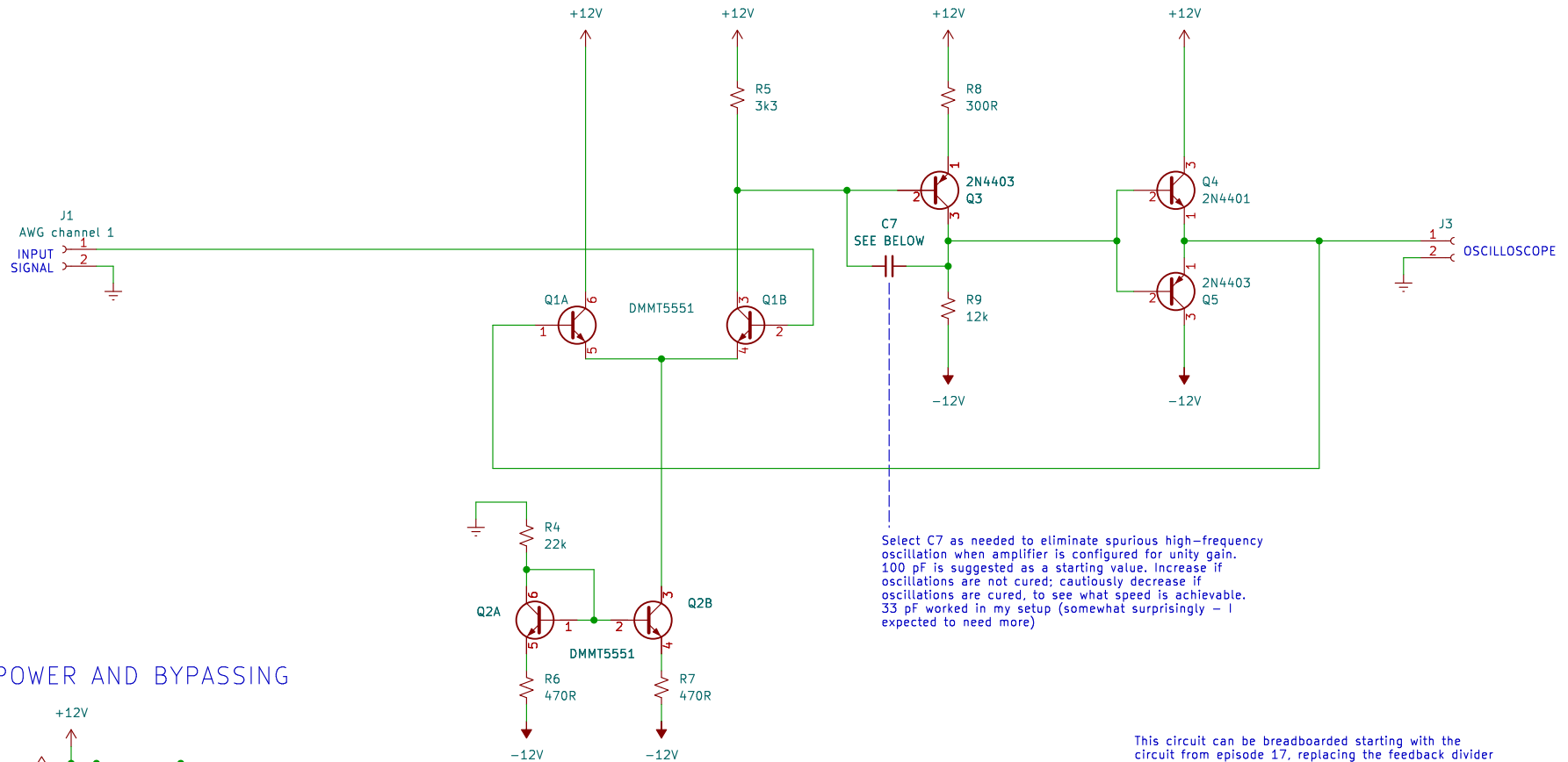


## LONG-TAILED PAIR

## GAIN STAGE

## FOLLOWER STAGE

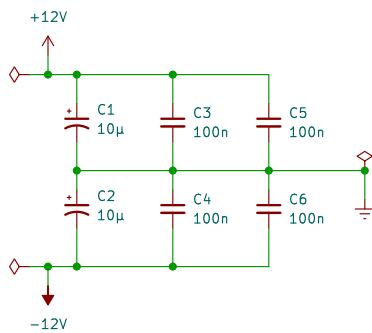


Select C7 as needed to eliminate spurious high-frequency oscillation when amplifier is configured for unity gain. 100 pF is suggested as a starting value. Increase if oscillations are not cured; cautiously decrease if oscillations are cured, to see what speed is achievable. 33 pF worked in my setup (somewhat surprisingly - I expected to need more)

This circuit can be breadboarded starting with the circuit from episode 17, replacing the feedback divider with a simple wire.

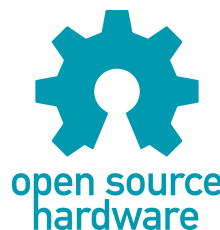
1. Make the modification, observe unity gain but likely high-frequency oscillation.
2. Attempt to cure the oscillation by adding compensation capacitor C7.

## POWER AND BYPASSING



Place C3, C4 as close to Q1 as possible.  
Place C5, C6 as close to Q4 and Q5 as possible.

## 500 μA CURRENT SOURCE



Transistors 101, episode 18

The differential pair becomes an op-amp

**Kludges from Kevin's Cave**

Sheet: /

File: LongTailedPair5.kicad\_sch

**Title: Long-tailed pair: the basic circuit**

Size: USLetter Date: 2025-02-08

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