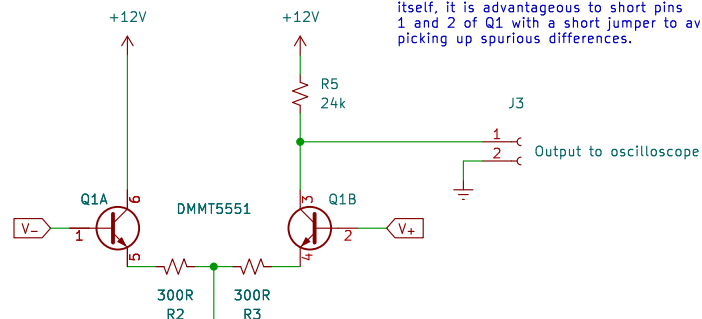


T1 is a small 120V:6.3VCT power transformer Triad Magnetics F-14X or similar. Suitable transformers can often be scavenged from discarded equipment with linear power supplies.

LONG-TAILED PAIR



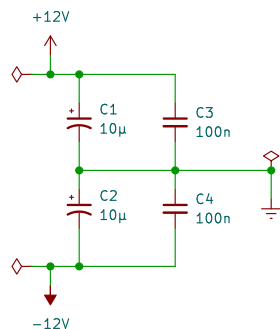
Test rig allows testing the pair's response to common mode and differential signals, together or separately.

When applying the common mode signal by itself, it is advantageous to short pins 1 and 2 of Q1 with a short jumper to avoid picking up spurious differences.

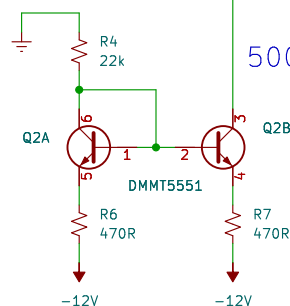
This circuit can be breadboarded starting with the circuit from episode 14, removing R4 and replacing it with the current source. All other subcircuits are unchanged between the two episodes.

Test first with R2 and R3 in place. Then remove R2 and R3 and replace with short circuits. Observe that the gain is improved, the CMRR is unchanged, the circuit remains thermally stable, but large signals suffer soft clipping.

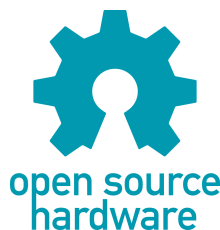
POWER AND BYPASSING



Place C3, C4 as close to Q1 as possible.



500 μ A CURRENT SOURCE



Transistors 101, episode 15

The differential pair: improving CMRR

Kludges from Kevin's Cave

Sheet: /

File: LongTailedPair2.kicad_sch

Title: Long-tailed pair: the basic circuit

Size: USLetter Date: 2025-01-28

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