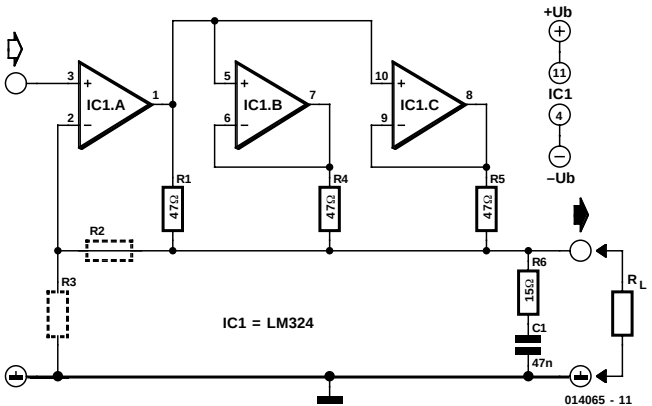
Parallel Opamps

048

National Semiconductor application note

Some applications notes are real evergreens. This one originally dates from 1979(!) but has lost nothing of its relevance and is always very interesting when you're looking for something like this.

Opamps can only deliver a limited current; typically only about 10 mA max. When more current is required, several opamps can be connected in parallel. But this usually doesn't work very well because opamps are never 100% equal. In practice they will fight each other and only get warm, which was not the intention of course.



In the adjacent application note, IC1a is the boss and is supported by IC1b and IC1c or as many stages as you require. IC1a delivers, via R1, current to the load R_L. The 'helper-opamps' are connected to the voltage drop across R1. This way they will all deliver an identical current, because the resistors R4 and R5 have all the same values. Make sure that the whole thing does not oscillate — the addition of an RC-network R5-C1 across the load can work wonders.

The circuit can be used with symmetrical or single-ended power supplies. In the latter case you will have to connect the negative lead of the power supply to 0 V.

IC1a may also be configured as an amplifier. In this case you will have to add the dotted resistors. To obtain unity gain, omit R3 and use a wire link for R2.

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