## Variable Stuttering Pedal



Stuttering pedal. 2N5485 switches signal on and off. Top two opamps do buffering in and out. Lower two opamps do a variable duty cycle, variable speed control signal to the switch. I think I got the pot rotation directions right, but I always mess that up until I actually hook them up. The curvy sided caps are electros. The curvy side is negative. Look up the pinout on the JFET you use and get it right. Other JFETs work, anything with Vgsoff less than the zener voltage of 5.6 V . 2SK30A works. The BF 24 x series does funny stuff to the signal that I haven't figured out. TLO7x opamps work. Look up the pinout for the particular opamp you use, and get the pinout right. I didn't find a ticking problem with the reference, but that's always a possibility during layout. Change the 1 uF NP or film on the integrator up to slow the max speed down; decrease it to speed the speed range up.

About A B and C: You can hook this up two ways, as a series switch or a shunt switch. As a series switch, connect B to The JFET then acts like a switch which opens to turn the signal off. This can sometimes be noisier than shunt switching. If you connect A to C and change Rsource to a dead short, then the JFET mutes the signal when it's turned on by shunting the signal to AC ground.

The shunt switching is more flexible. If you change Rsource to a 1 M pot, the "off" signal level is variable from 0 up to no noticeable "off".

## Variable Stuttering Pedal - Version 2



Stuttering pedal version 2. The first 2N5485 switches signal to ground when the second 2N5485 is off. When the second 2N5485 is on, the first is off and signal flows. This seems to interject a cancellation of the JFET gate-to-channel feedthrough in that the on signal from one is fighting the off signal on the other.

As such, expect that the degree of matching of the 1 nF caps, gate diodes, 100 K gate resistors, and JFETs will all affect feedthrough to an extent. Matched JFETs would be nice, but they 'd need to be matched for capacitance gate-to-channel, and I don't have a matcher for that. Duals ought to do it, but dual JFETs are ... um... rare.

CMOS switching gates might be a natural there, as the gates inside one package might be better matched than non-monolithic JFETs.

Still, it's about 30db better than single JFET versions of either variety.
There are two bias voltages for isolation. Note that there are current spikes of about 20 ma on the grounds of the three LFO opamps. If you don't isola te these spikes from the other analog ground by careful wire routing and decoupling, it will still tick.

