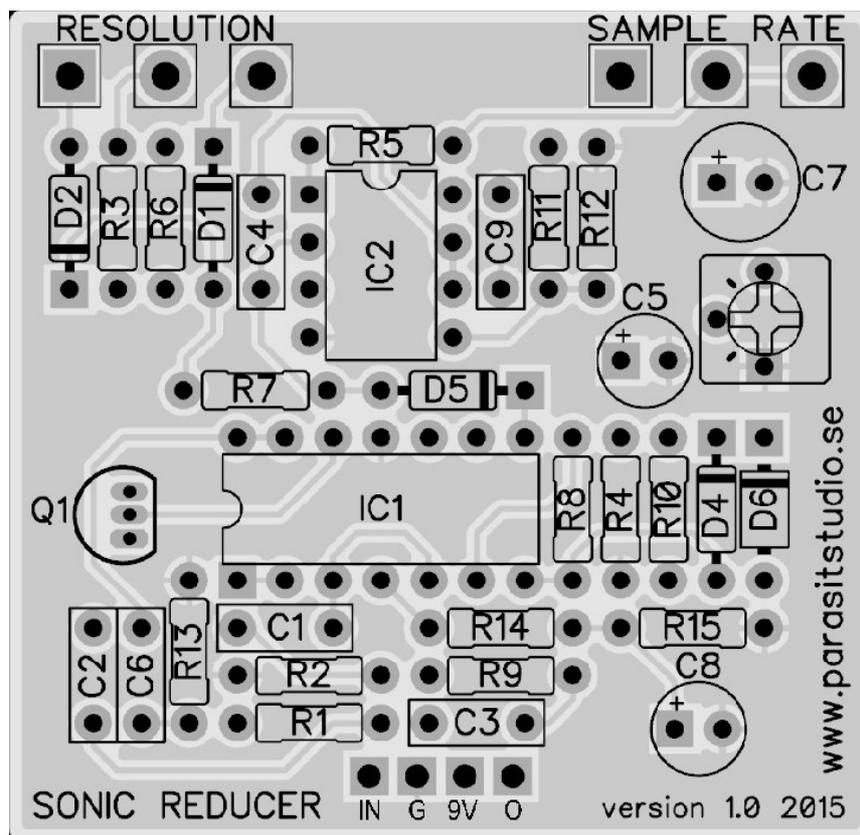


SONIC REDUCER BITCRUSHER

Build Document last updated may 2016
for PCB version 1.0

The Sonic Reducer bitcrusher is a sample rate reducer / aliaser that uses sample and hold to take "snapshots" of your signal. It basically works as a crude analog to digital converter. A pulse oscillator determines at which frequency these samples are taken. The resolution pot controls the pulsewidth of the oscillator - wider pulse lets more clean signal though. Happy playing!



General builds tips

- Solder the low profile components first, from short to tall. Recommended order: resistors, diodes, IC socket, film-caps, electrolytics, pots.
- Always use sockets for IC chips and transistors to avoid heating them directly. It also makes it much easier to swap them out if needed. *Note: The transistor socket for this PCB doesn't actually fit a socket. Just be careful when soldering.*
- Pay special attention to the orientation of the diodes and electrolytics.
- This PCB is designed for board mounted angled pots, but if you want to use regular solderlug-pots, the square holes represents pin 1 of the pot.
- Mount the pots on the bottom (solder side) of the board, and solder it on the top (component side).

Wiring

For more info on how to wire up the stompswitch, jacks ect, please visit the Parasit Studio website and download the PDF called "offboard wiring". You can find it here:

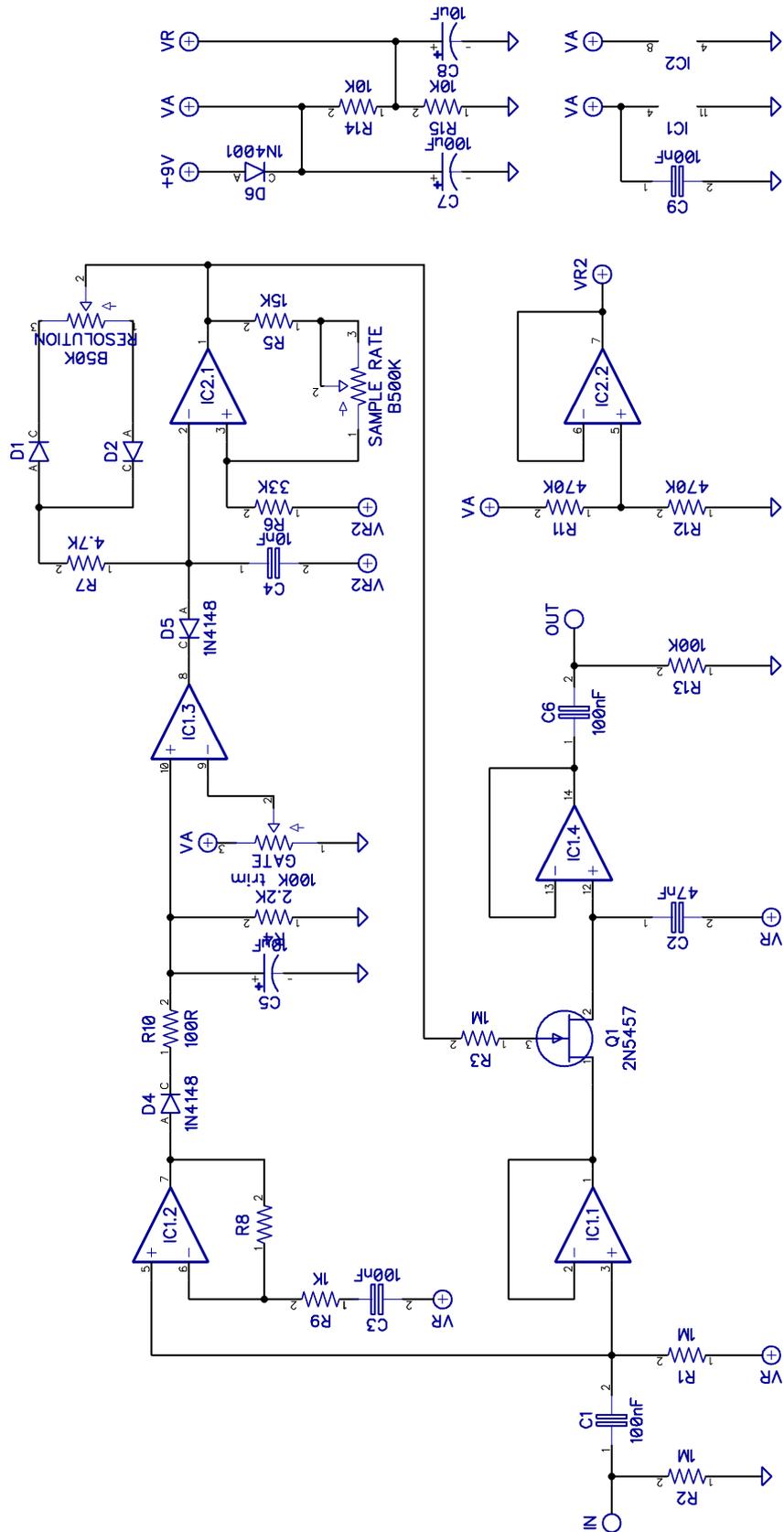
<http://www.parasitstudio.se/build-docs.html>

Sonic Reducer Bill of Materials (BOM)

Capacitors		Resistors		IC's	
C1	100nF	R1	1M	IC1	LM324
C2	47nF	R2	1M	IC2	TL072
C3	100nF	R3	1M		
C4	10nF	R4	2.2K		
C5	10uF	R5	15K		
C6	100nF	R6	33K	Transistors	
C7	100uF	R7	4.7K	Q1	2N5457
C8	10uF	R8	470K		
C9	100nF	R9	1K		
Diodes		R10	100R	Potentiometers	
D1	1N4148	R11	470K	SAMPLE RATE	B500K
D2	1N4148	R12	470K	RESOLUTION	B50K
D4	1N4148	R13	100K	GATE (TRIM)	100K
D5	1N4148	R14	10K		
D6	1N5817	R15	10K		
1x LED		CLR*			

- The Gate trimmer sets the threshold for the oscillator in relation to the input signal. Adjust until the oscillator only turns on when playing.
- Q1 can be replaced by a J201 with no difference in sound, but check the pinout compared to the 2N5457.
- The LM324 op amp is crucial. A TL074 will most likely cause problems.
- The distance between the pots (measured from the center of each pot): 1.15 inch / 29.21 mm. **Measure and confirm before drilling!**
- * Current Limiting Resistor for your bypass LED. Both these need to be wired offboard. Use the appropriate value for your LED type. I suggest using a 4.7K resistor for a normal diffused LED, or a 15K resistor for a clear superbright LED.
- **Not included in the BOM but good to have: enclosure, input and output jacks, LED bezel, DC jack, 3PDT switch and knobs.**

Schematic



Troubleshooting

There's always a chance of running into trouble. To minimize error, follow the BOM and general building tips carefully. Take your time and don't rush. Take a break now and then. Use good solder, and it helps to have a decent soldering station instead of a cheap iron.

If you are still having trouble, please visit the madbean forum Parasit Studio subforum section and ask for help there.

<http://www.madbeanpedals.com/forum/index.php?board=84.0>

If you have bought the Musikding kit and have received a faulty or missing component, please contact musikding directly.

<https://www.musikding.de/kontakt.php?lang=eng>

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