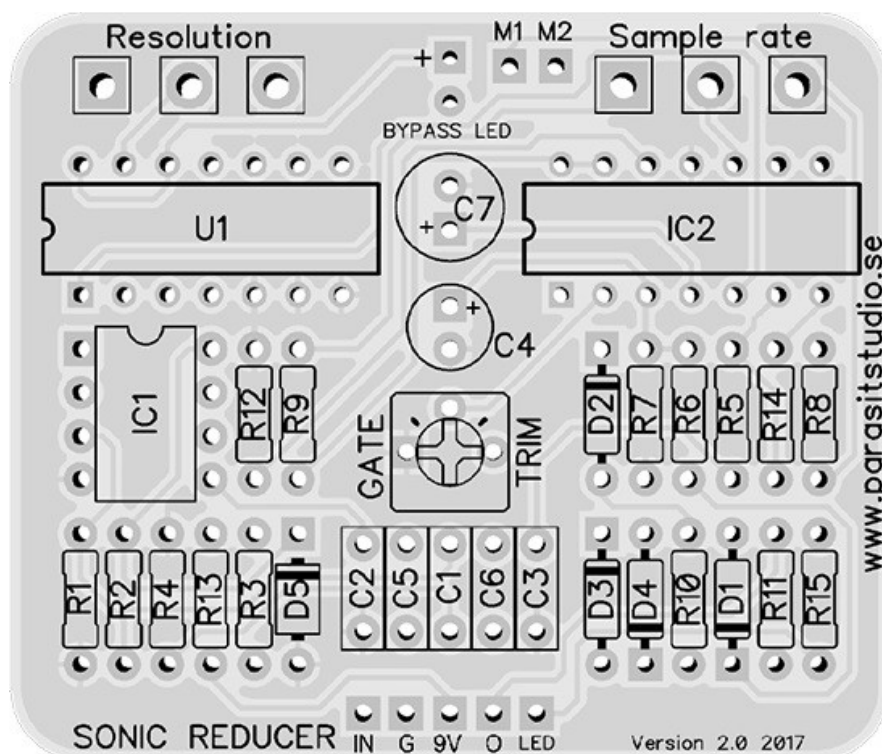


SONIC REDUCER BITCRUSHER

Build Document last updated june 2017
for PCB version 2.0

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 through. Happy playing!



Changelog version 2.0

- Input stage redesigned. It's now possible to use lower noise TL072 and TL074 without the risk of oscillation.
- JET removed. No longer a need for a hard to source JFET or SMD adapter.
- Range extended – more crush!
- Controls reversed.
- Board-mounted bypass LED.

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	2.2M	IC1	TL072
C2	47nF	R2	2.2M	IC2	TL074
C3	100nF	R3	1M	U1	CD4066BE
C4	10uF	R4	1M	Potentiometers SAMPLE RATE C1M RESOLUTION B50K GATE (TRIM) 100K	
C5	22nF	R5	1K		
C6	100nF	R6	100R		
C7	100uF	R7	2.2K		
Diodes		R8	15K		
D1	1N4148	R9	33K		
D2	1N4148	R10	4.7K		
D3	1N4148	R11	100K		
D4	1N4148	R12	470K		
D5	1N5817	R13	470K		
1x LED		R14	470K		
		R15*	15K		

- The Gate trimmer sets the threshold for the oscillator in relation to the input signal. Adjust until the oscillator only turns on when playing.
- * Current Limiting Resistor for your bypass LED. 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.
- Mount the bypass LED in the two top pads that says "bypass led". There's a LED symbol on the bottom side. Long LED leg goes to the + pad. Solder the LED from the component side last after you have placed the PCB inside your enclosure.
- Not included in the BOM but good to have: enclosure, input and output jacks, LED bezel, DC jack, 3PDT switch and knobs.

Drilling template



- Use at your own risk! This template is approximate.
- Make sure your printer isn't doing any scaling / is set to 100% print size.
- Drill footswitch, LED's, DC jack and input/output jacks to your own preference.
- **Measure and confirm before drilling!**

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 insted of a cheap iron.

Musikding DIY kit

If you have bought the Musikding DIY kit and have recieved a faulty faulty, incorrect or missing component, please contact musikding.

[Contact us](#)

Smallbear Electronics / Synthcube DIY kit

If you have bought the Smallbear Electronics DIY kit and got a faulty, incorrect or missing component, please contact Smallbear Electronics.

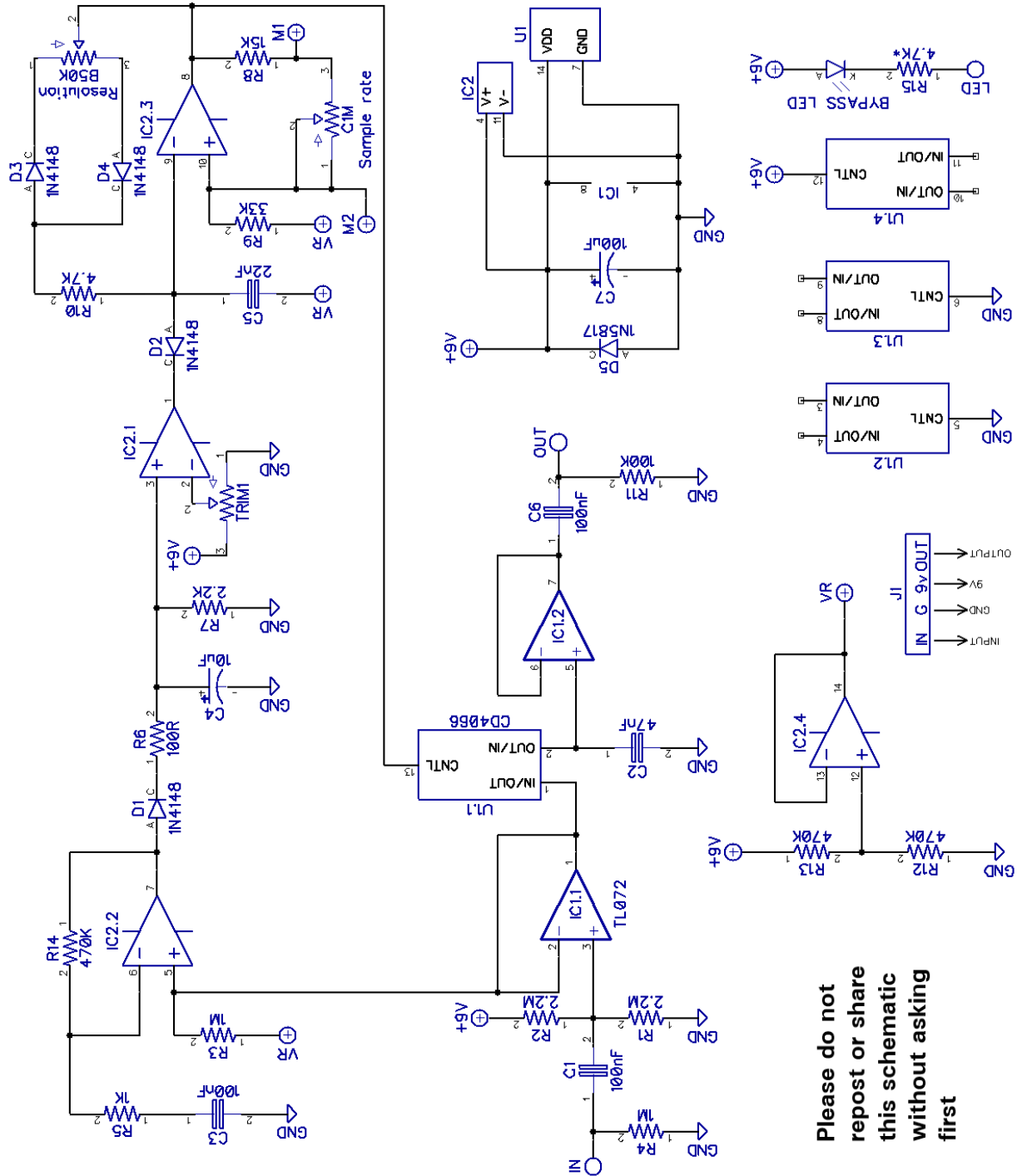
smallbearelec@synthcube.com

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Schematic



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