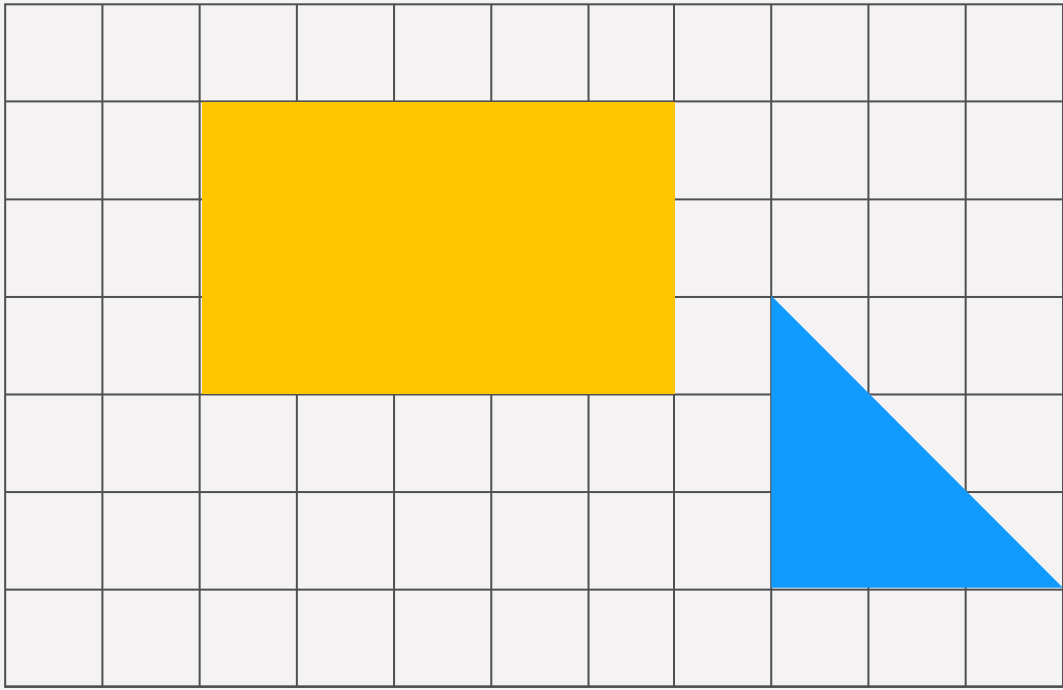
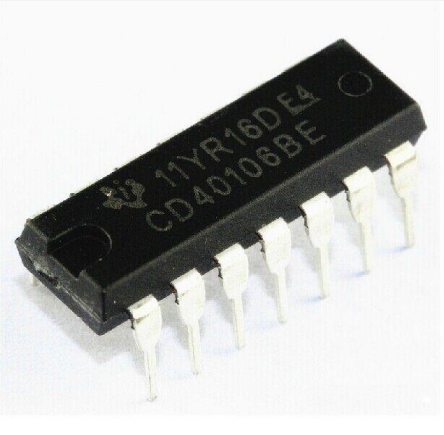
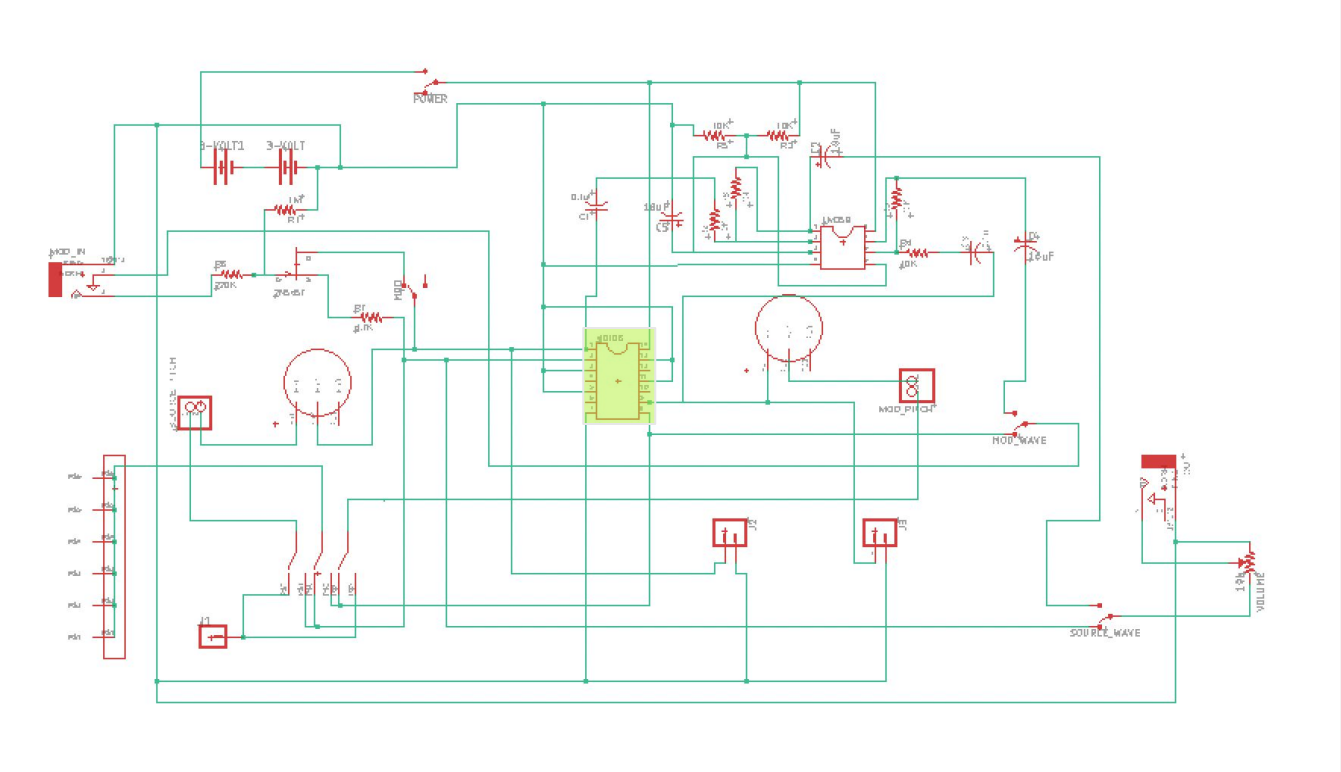
KNITTED NOISE




11YR16DE4
CD40106BE


POWER
3-VOLT1
3-VOLT
MOD_IN
MOD_PITCH
MOD_WAVE
SOURCE_WAVE
VOLUME

Name Department Course Number Section Time Location DATE

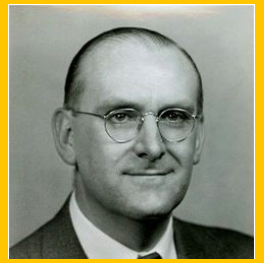
CD40106

CMOS HEX SCHMITT-TRIGGER INVERTERS

Complementary metal-oxide-semiconductor
(sea-moss)

Hex
Greek for Six
Six inverters on chip

Otto H. Schmitt



High (1) and low (0) outputs are Triggered by voltage thresholds

Inverts input signal
In = 0; Out = 1
In = 1; Out = 0

Solder - Square Wave

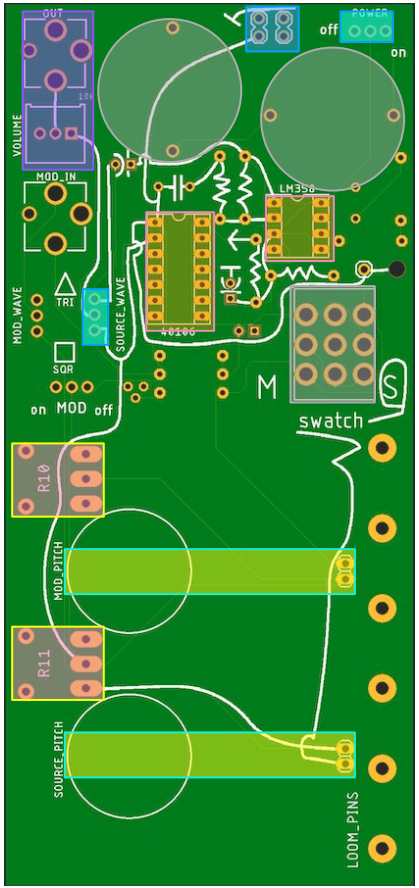
FRONT OF BOARD

- R11, R10 - Dial potentiometers (pots)
- 40106 and LM358 sockets
- Force sensing resistors (FSRs)
- Power and Source_Wave switch
- Female headers
- Volume trimpot
- ⅛” main out mono jack
- Swatch Switch

BACK OF BOARD

- 3 volt battery holders

Switch the Swatch Switch to M
Switch the Source Wave to SQR
Plug 40106 IC into socket
Put 1 uF capacitor into left set of headers
Put batteries in (make sure Power is Off)
Plug cable into OUT
Press the Source FSR to change the pitch
Turn R11 dial pot to set the highest frequency



Solder - Square Wave

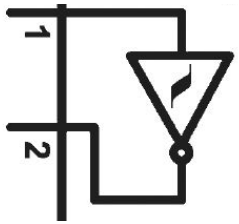
FRONT OF BOARD

- R11, R10 - Dial potentiometers (pots)
- 40106 and LM358 sockets
- Force sensing resistors (FSRs)
- Power and Source_Wave switch
- Female headers
- Volume trimpot
- ⅛” main out mono jack
- Swatch Switch

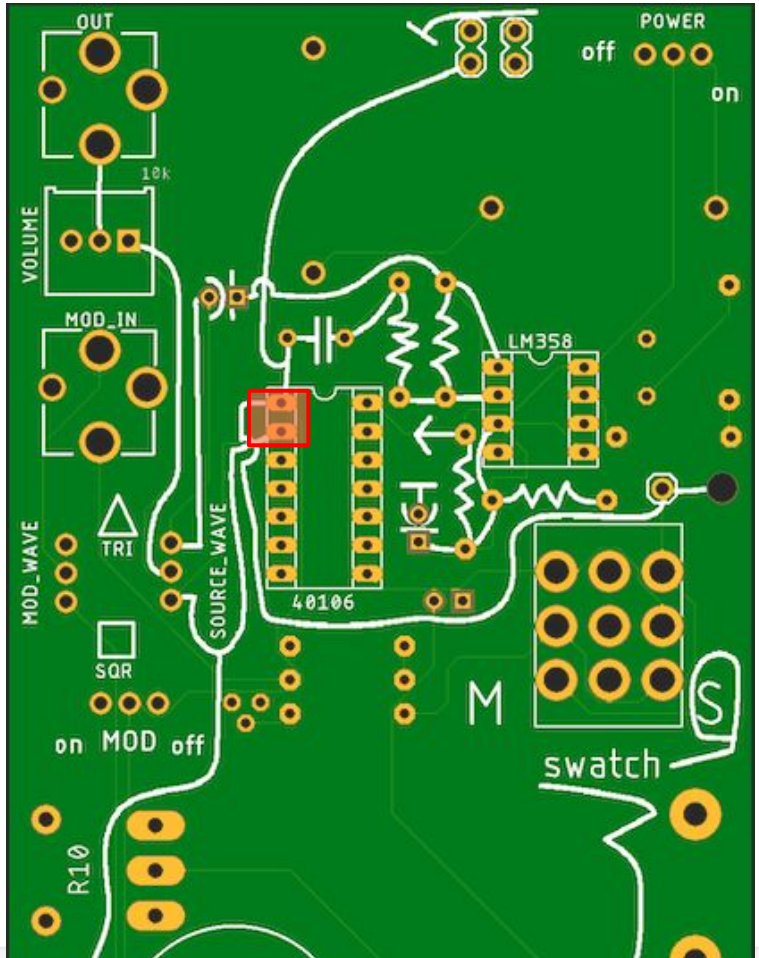
BACK OF BOARD

- 3 volt battery holders

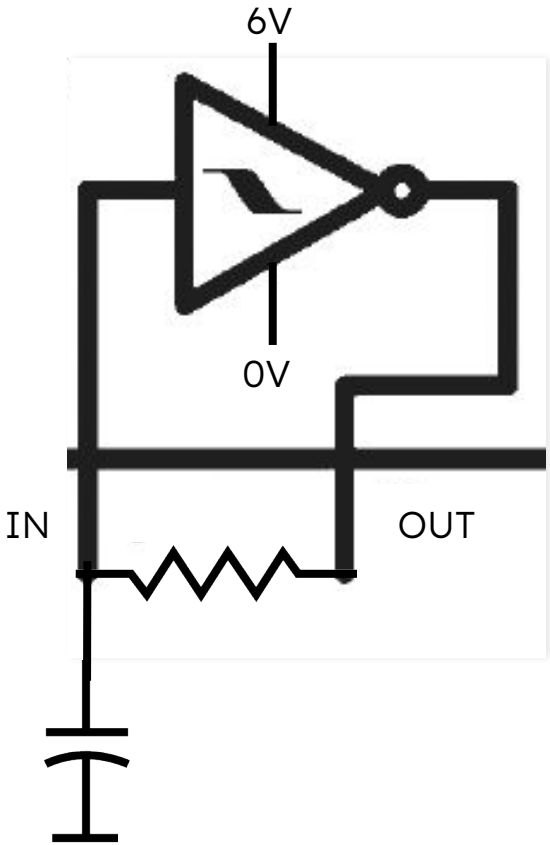
Switch the Swatch Switch to M
Switch the Source Wave to SQR
Plug 40106 IC into socket
Put 1 uF capacitor into left set of headers
Put batteries in (make sure Power is Off)
Plug cable into OUT
Press the Source FSR to change the pitch
Turn R11 dial pot to set the highest frequency



Handmade Electronic Music by Nic Collins

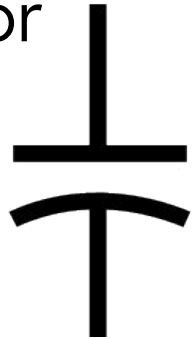


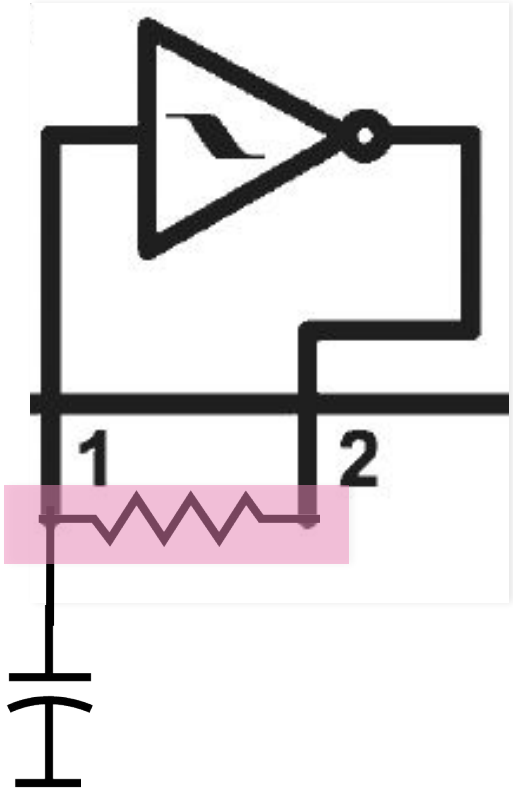
Name Department Course Number Section Time Location DATE



resistor

capacitor

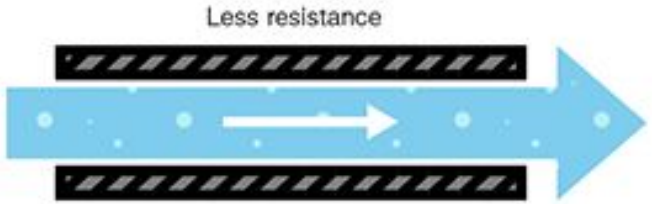




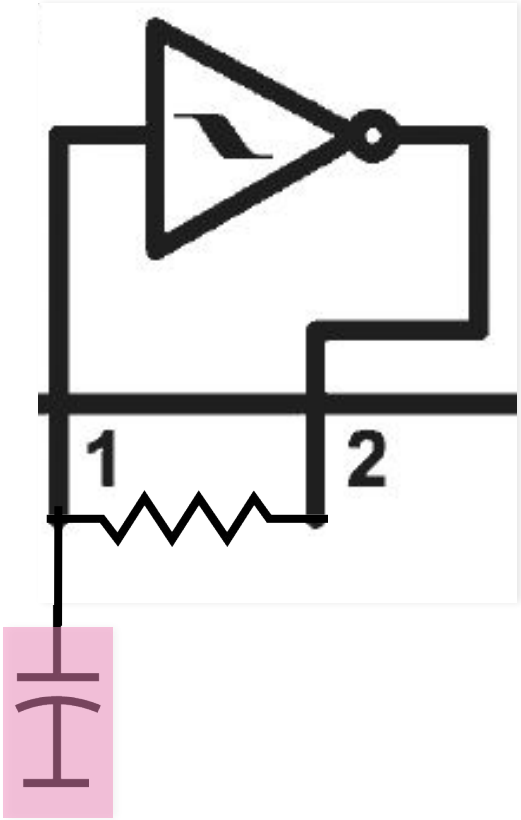
Resistance

Flow of water = flow of electric current

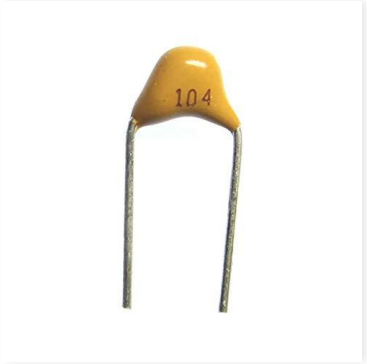
Lower Ohm Value



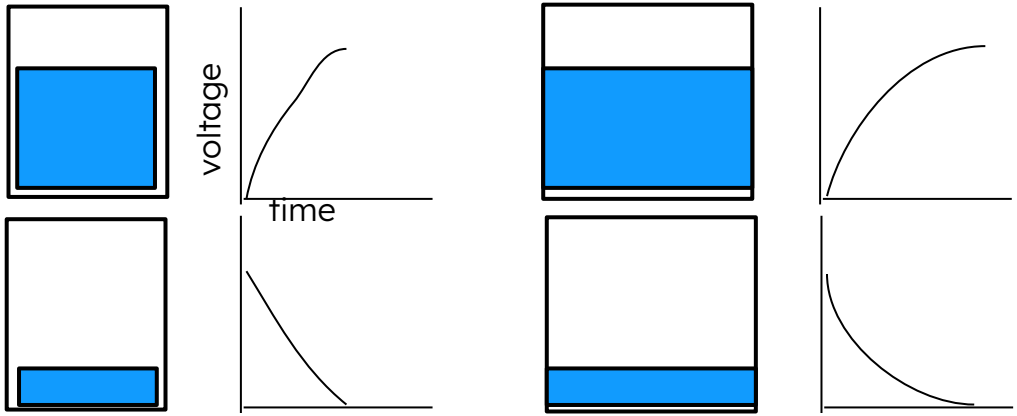
Higher Ohm Value



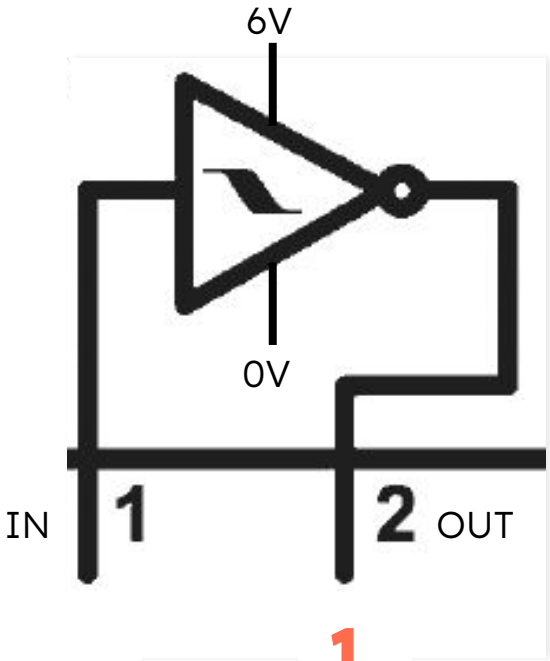
Lower microfarad value



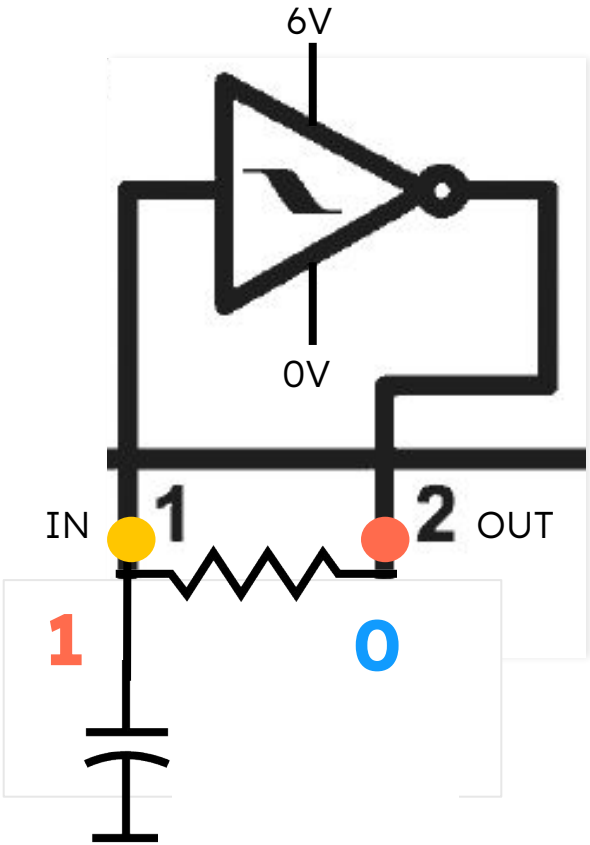
Higher microfarad Value

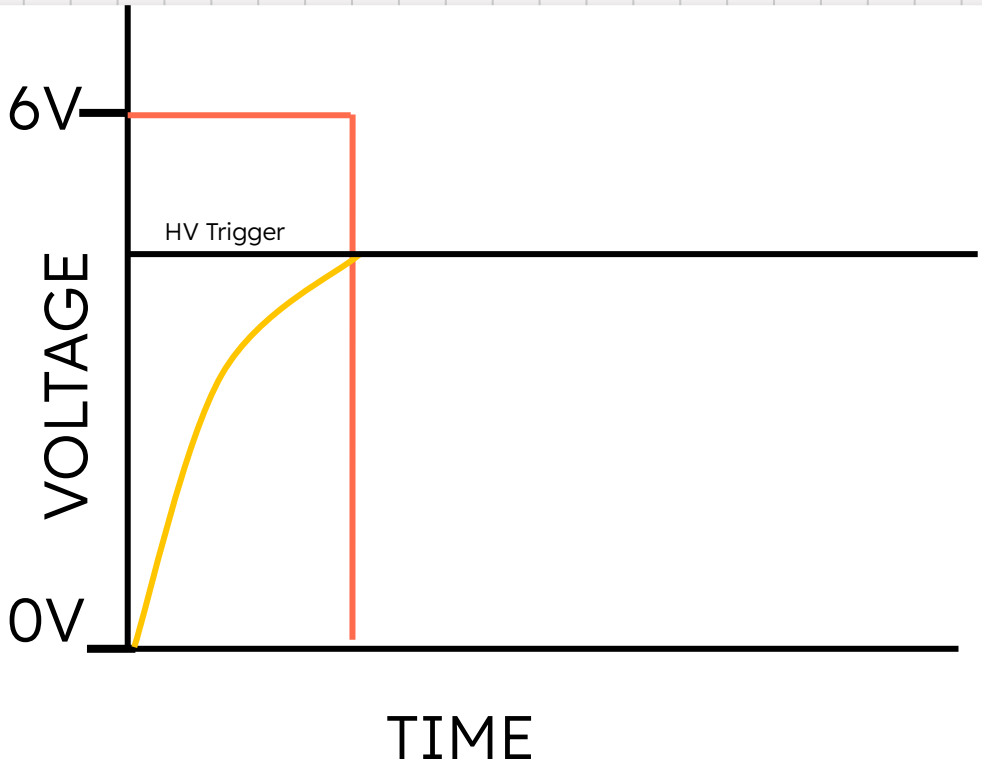


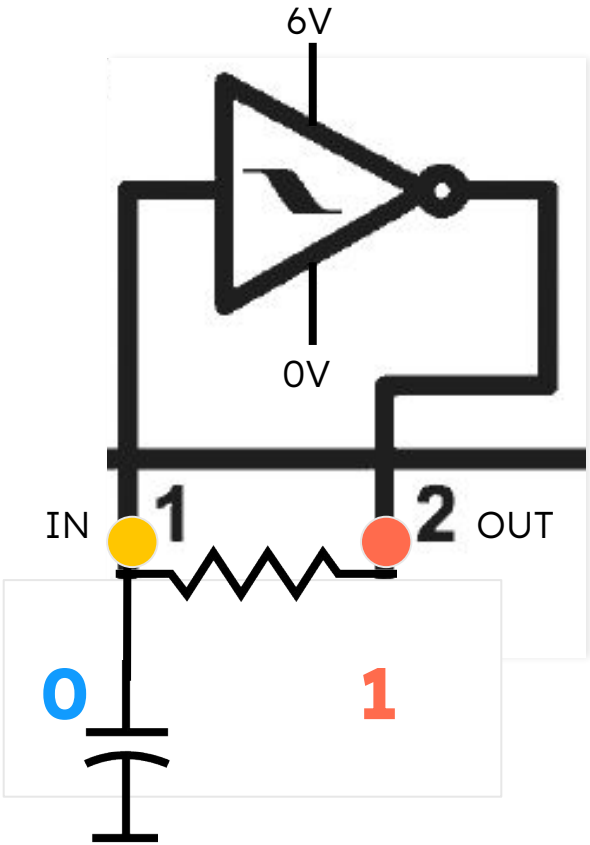
Name Department Course Number Section Time Location DATE

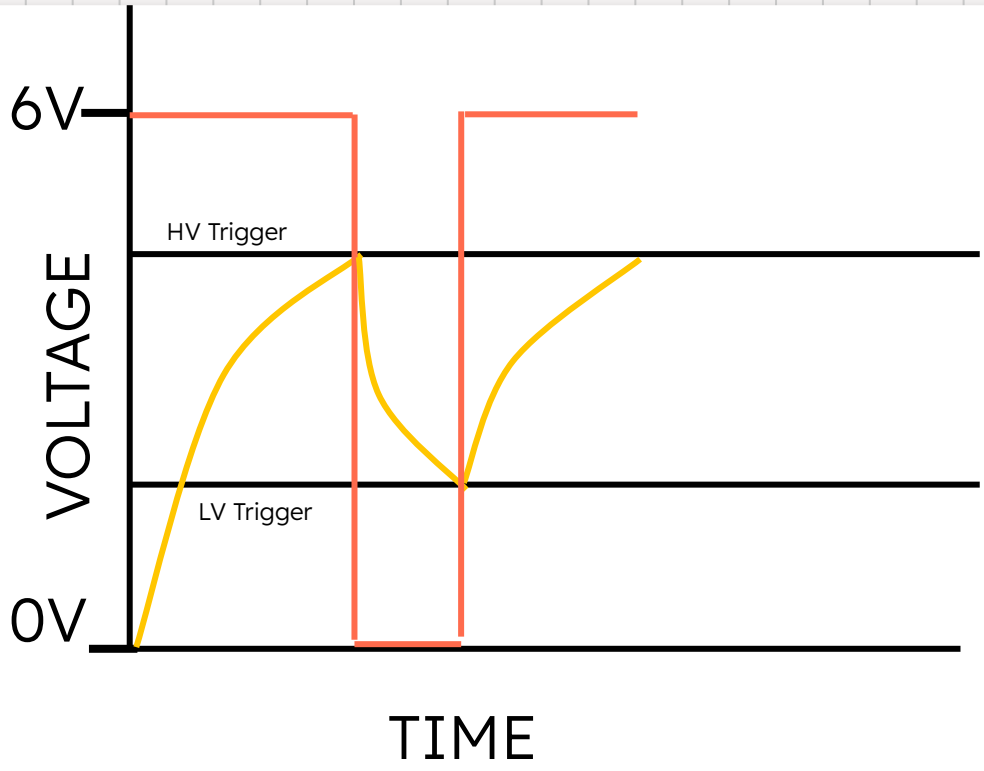


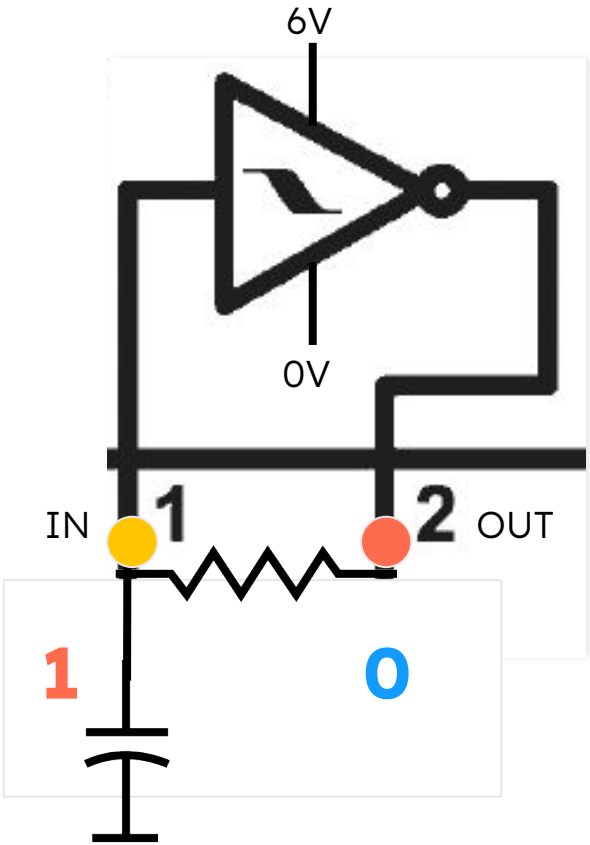
1

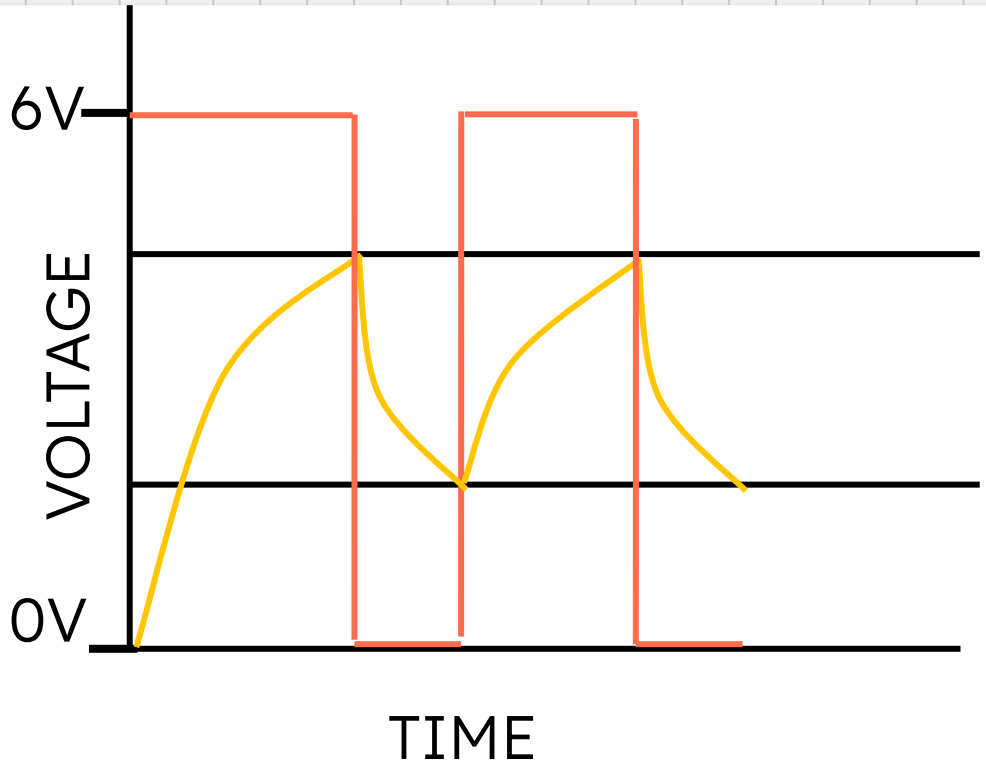

6V
0V
IN
1
2
OUT
1
0

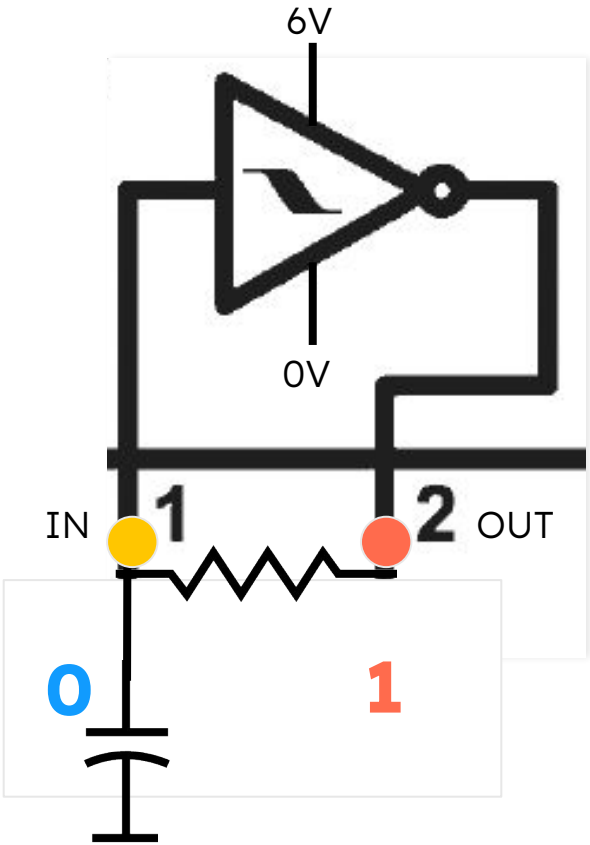

6V
HV Trigger
VOLTAGE
0V
TIME

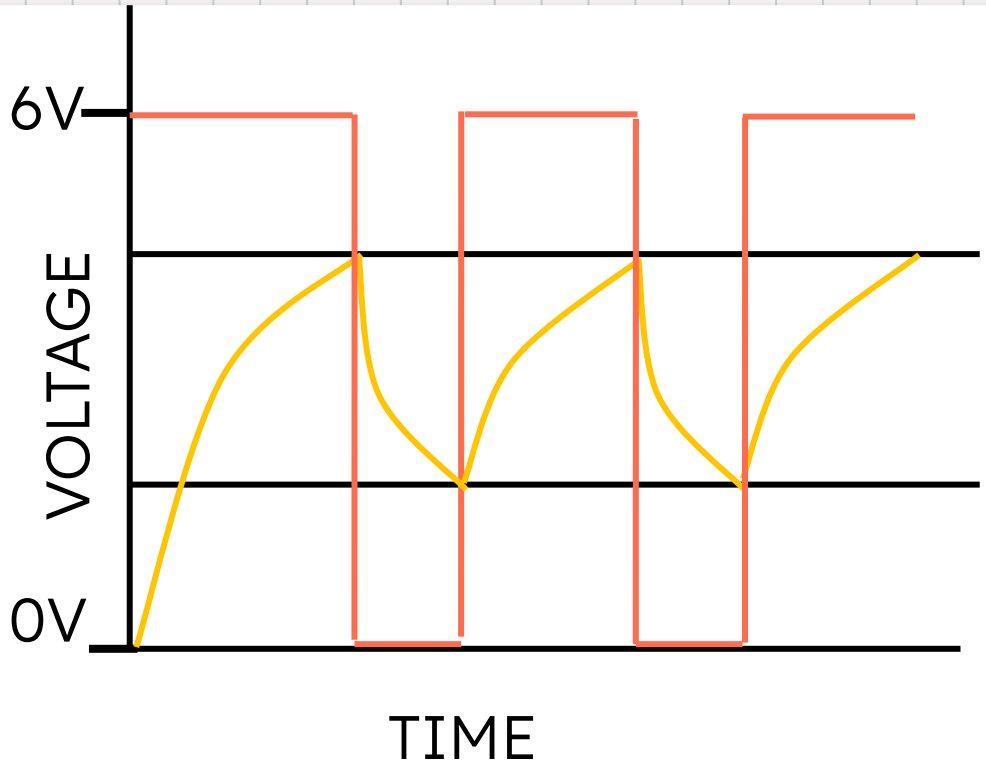

6V
0V
IN
1
2
OUT
0
1


6V
HV Trigger
VOLTAGE
LV Trigger
0V
TIME


6V
0V
IN
1
2
OUT
1
0


6V
VOLTAGE
0V
TIME


6V
0V
IN
1
2
OUT
0
1


6V
VOLTAGE
0V
TIME

Solder - Triangle Wave w/Amplifier

Triangle amplified using LM358 op amp

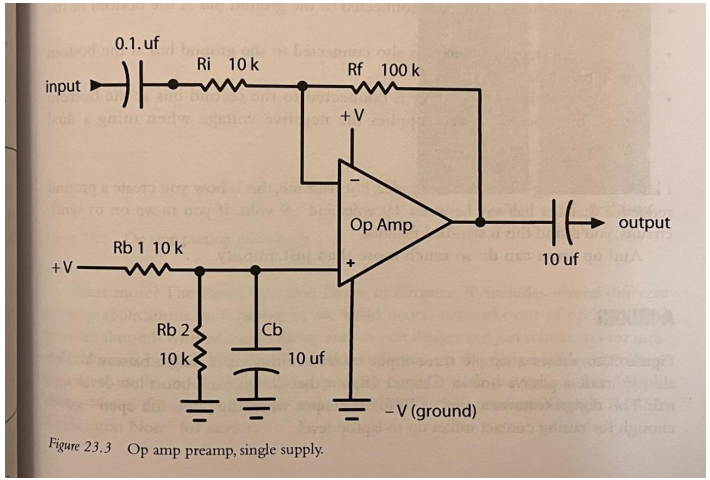


Figure 23.3 Op amp preamp, single supply.

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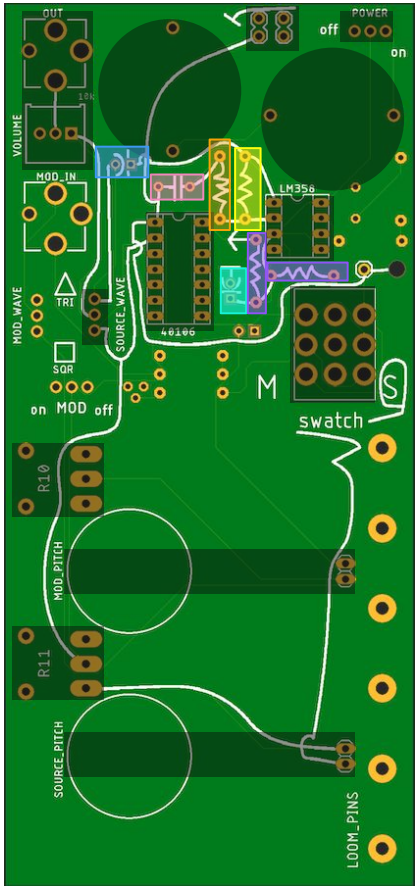
FRONT OF BOARD



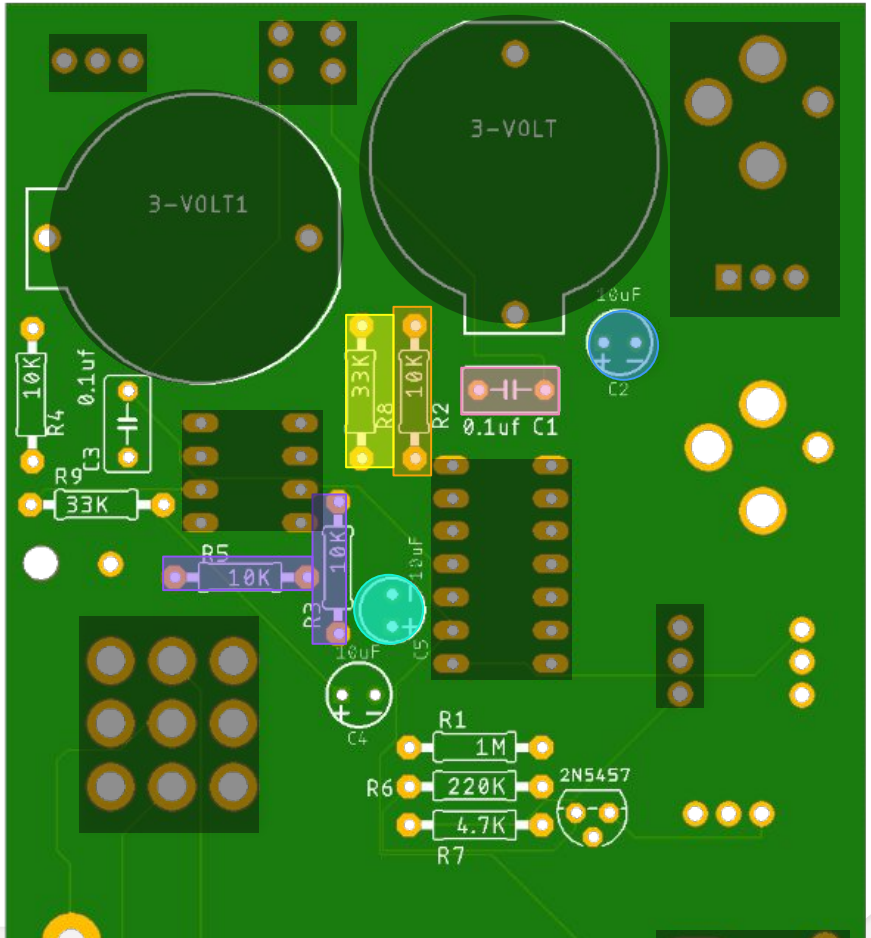
Solder - Triangle Wave w/Amplifier

BACK OF BOARD

- C1 - 0.1 uF
- R2 - 10K
- R8 - 33K
- C5 - 10 uF
- C2 - 10 uF
- R3, R5 - 10K

Plug LM358 into socket
Switch Source Wave to Triangle
Plug cable into OUT
Turn On

BACK OF BOARD



Loom knitting

Photo Credits: Kristen Mangus

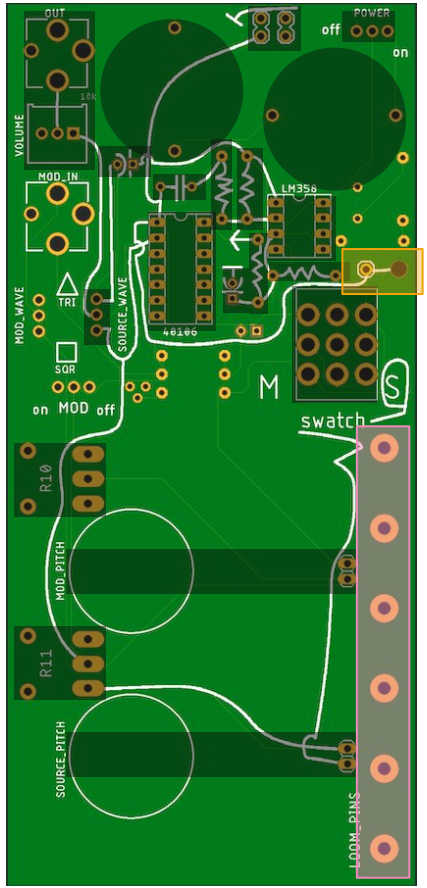
[Ewrap Cast On]
[Ewrap Knit Stitch]

Solder - Knit Sensor

FRONT OF BOARD

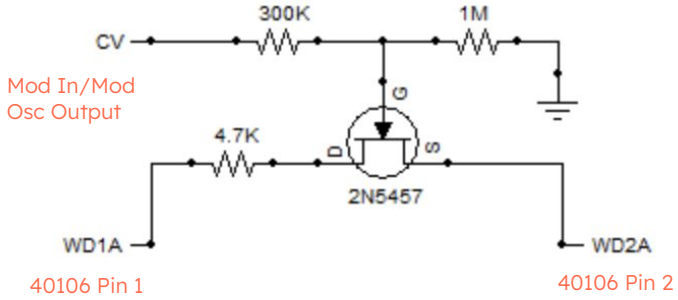
- Loom pins
- Knit Swatch wire or alligator lead

FRONT OF BOARD



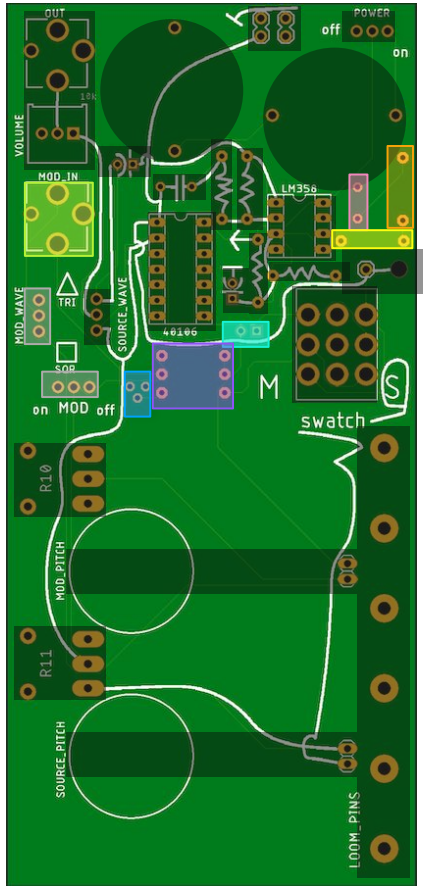
Solder - Mod Oscillator and CV Input

Input 0 to 9V to modulate the frequency of the Voice A Wierd Oscillator. Higher voltage higher frequency lower voltage lower frequency.



Weird Sound Generator Modifications by Ray Wilson of Music From Outer Space (MFOS)

BACK OF BOARD



Solder - Mod Oscillator and CV Input

BACK OF BOARD

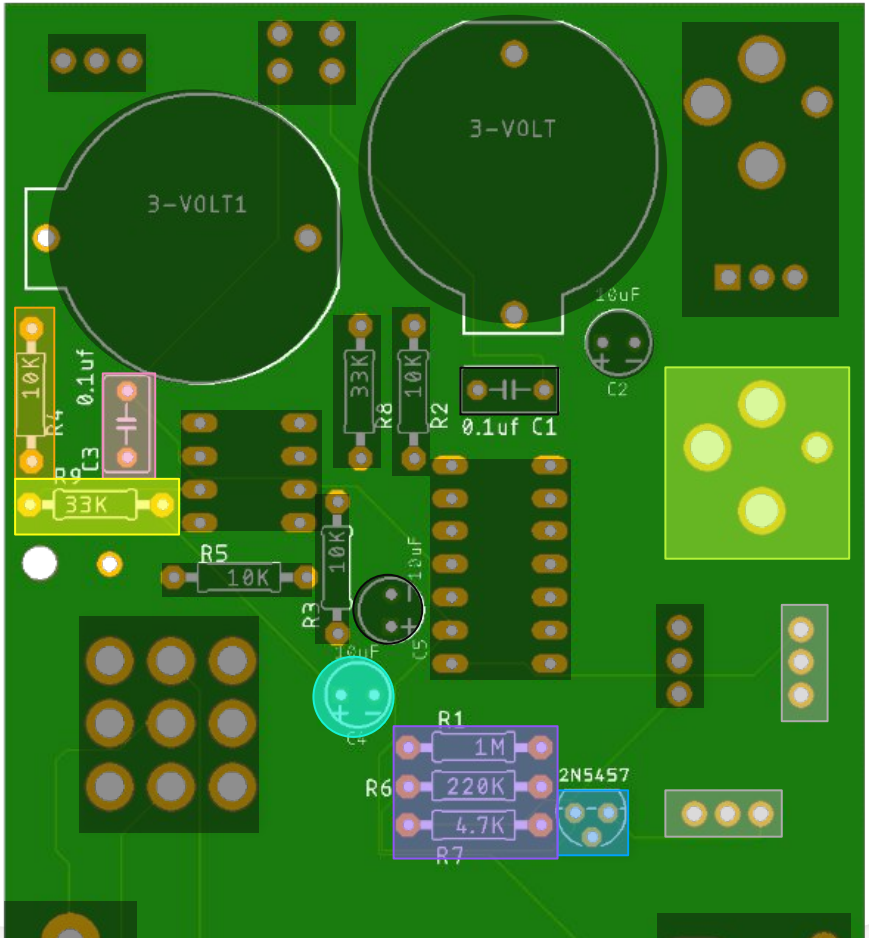
- C3 - 0.1 uF
- R4 - 10K
- R9 - 33K
- C4 - 10 uF
- 2N5457 transistor
- R1 - 1M
- R6 - 220K
- R7 - 4.7K

FRONT OF BOARD

- Mod Wave and Mod On/Off switch
- ⅛” Mod mono in jack

Switch the Mod wave switch to SQR
Switch the Mod switch to On
Plug 1 uF in left header and 100 uF in right
Plug cable into OUT
Press source FSR, stretch knit sensor, and press

BACK OF BOARD



References and Further Resources

Electronics

- Handmade Electronics by Nicolas Collins
- Logic Noise on Hackaday by Elliot Williams
- Weird Sound Generator Modifications by Ray Wilson of Music From Outer Space (MFOS)

Loom Knitting

- E-wrap Tutorial - knittingboard.com
- Loom Hook Tool by Scubaprincess on Thingaverse
- Variety of Knitting Looms on Thingaverse