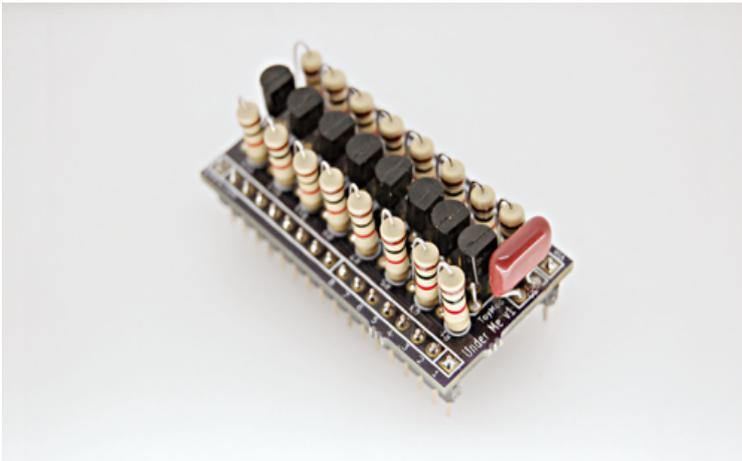




The Toymakers @ tymkrs.com
Questions? Please contact us:
feedback@tymkrs.com

DATASHEET

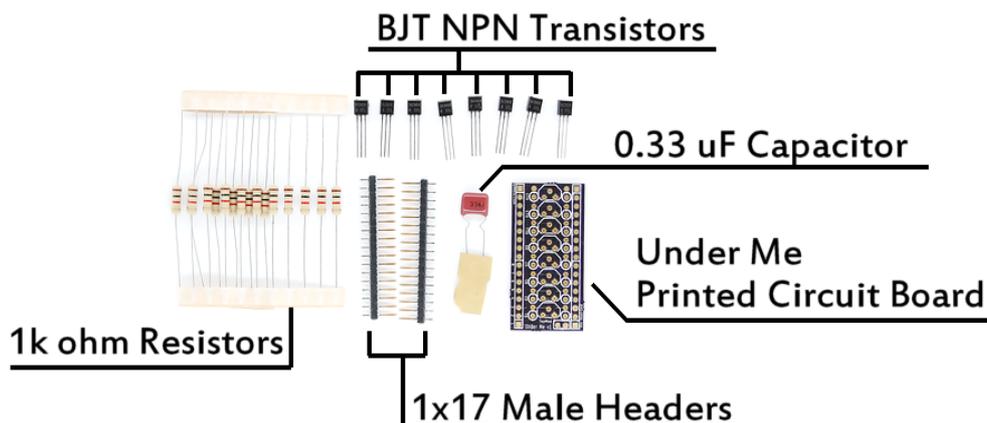


Under Me Low Pass Filter Kit

The Under Me kit allows lower frequency signals through a user-chosen range of available roll-off frequencies.

- Kit Type: Through-hole soldering
- Assembly instructions: In datasheet
- Function: Low pass filter kit
- Uses up to 11 wires to activate 8 different roll-off frequencies

KIT CONTENTS



Contents of the Under Me Kit:

- Under Me printed circuit board (23.39 x 44.65 x 1.60mm)
- 2 – 1x17 male headers
- Electrical Components

Electrical Components:

Reference	Quantity	Type	Value
R1 – R16	16	Resistor, 1/4W	1k ohm
T1 - T8	8	NPN BJT Transistor	2N3904
C1	1	Capaciator, 16V	0.33 uF

2N3904 BJT NPN Transistor Maximal Operating Conditions

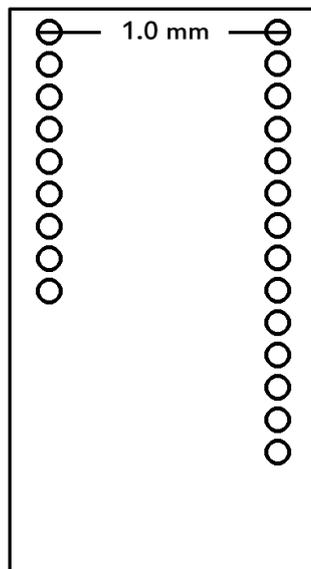
Datasheet: http://www.ece.rice.edu/~jdw/data_sheets/2N3904.pdf

Parameter	Max Ratings	Unit
Collector-emitter voltage	40	V
Operating Temperature	-65 to +150	°C
Collector Current (DC)	200	mA
Peak Collector Current	200	mA
Peak Base Current	100	mA
Total Power Dissipation	625	mW

Recommended Operating Conditions

Parameter	Ratings	Unit
Supply Voltage	3.3 – 5.0	V
Ambient Temperature	25	°C

Mounting Holes:



Tools and material required for assembly (not included with the kit):

- Soldering iron
- Solder
- Wire clippers

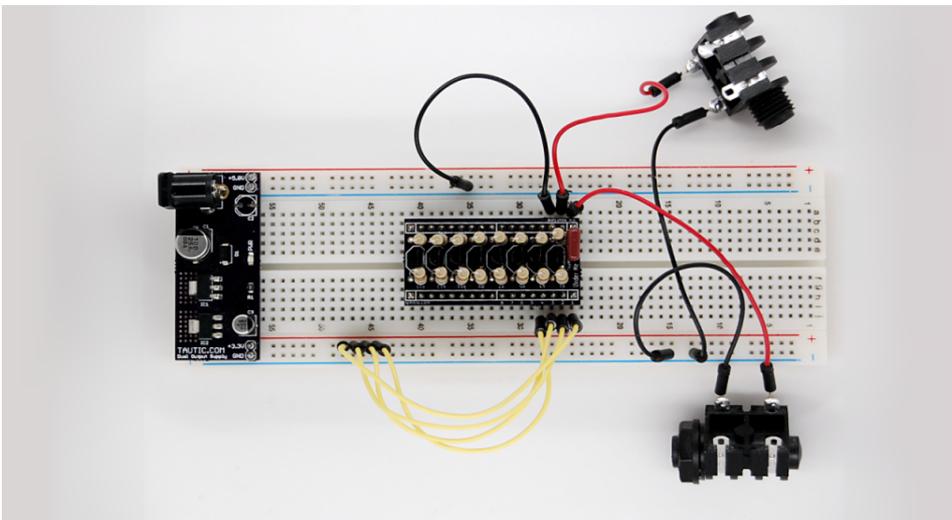
User provided items required for intended function:

- Power Supply
- Breadboard
- 11 Breadboard Wires

Additional physical/electrical specifications:

- Printed Circuit Board size: 0.92 x 1.76 x 0.063" (23.99 x 44.65 x 1.60mm)
- PCB thickness: 0.063" (1.60mm), not including any components
- PCB thickness: 0.827" (21mm), max height with transistors
- Mounting holes: Holes are breadboard header friendly. The holes shown on the picture above are not connected to the circuit electrically, they are for stability only.

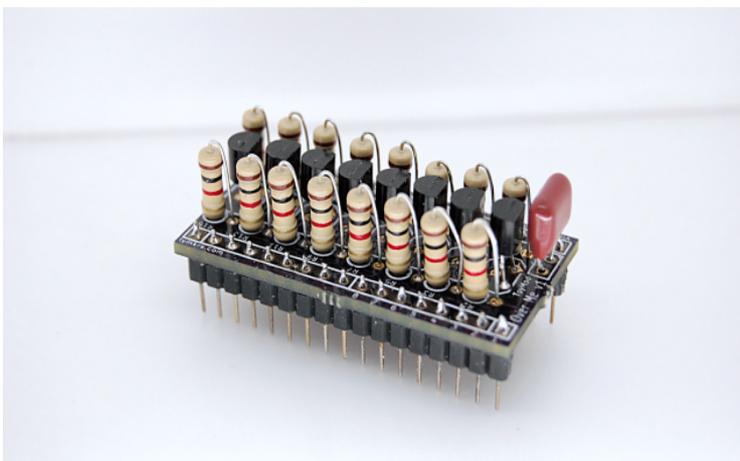
Additional Pictures:



Example Set-up

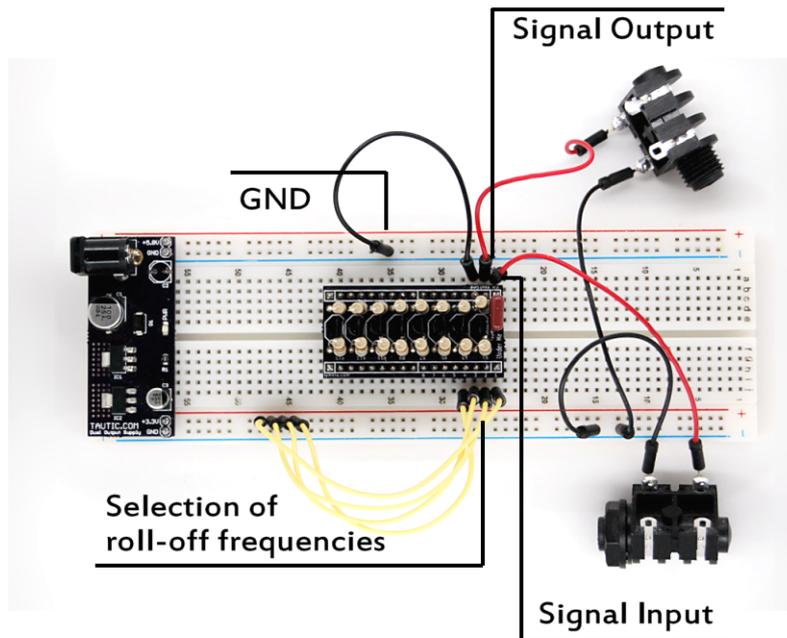
Assembly Instructions

Build Notes:



- Use the graphic/silkscreen guidelines to place the transistors.
- For the resistors, they are soldered in vertically with the larger graphic circle indicating which side the body of the resistor goes on.
- The capacitor's polarity does not matter, so place and solder!

Use Instructions



- On the board you will see 1-8 on oneside and Vin, Vout, and GND on the other side.
- Vin is where you would connect the signal you want to go through the high pass filter kit. We did this by soldering up a 1/4" audio jack.
- Vout is where the filtered signal would come out from. Again, we did this by soldering up a 1/4" audio jack.
- GND would of course be connected to GND of the rest of the circuit. Note that the GNDs of the signals should also be connected to the GND of the filter circuit.
- Depending on which pins you put power to, you change how high the rolloff frequency of the filter is. Please look at the following table for what happens when you put power to the various pins:

Rolloff Frequencies									
Resistance (ohms)	Power placed to pin								Roll-off Frequency (Hz)
1000	1								482.5
500	1	2							965.1
333.33	1	2	3						1449
250	1	2	3	4					1930.1
200	1	2	3	4	5				2412.7
166.67	1	2	3	4	5	6			2895.2
142.86	1	2	3	4	5	6	7		3377.7
125	1	2	3	4	5	6	7	8	3860.3

All frequencies BELOW the roll-off frequency will pass through the Vout.

Extra Information: <http://tymkrs.tumblr.com/post/52590855413/tymkrs-under-me-low-pass-filter-kit>