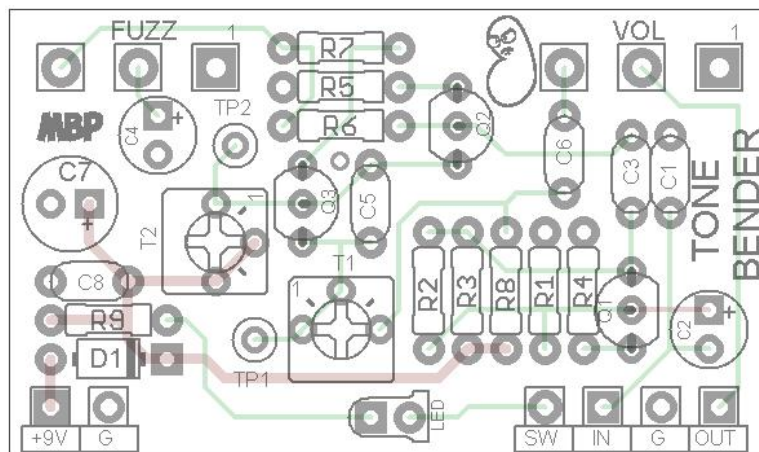
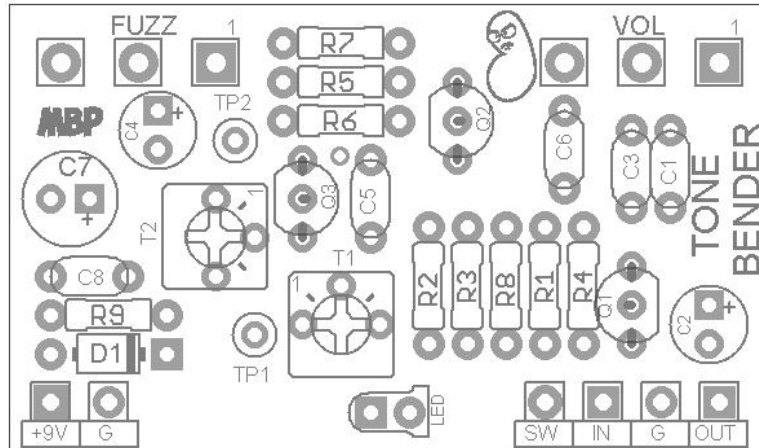


TONEBENDER

FX Type: Fuzz

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1.96" W x 1.15" H



This project is a silicon version of the Tonebender fuzz, most closely comparing to the Coloursound® Mark ii™. There are many variations of Tonebenders using both germanium and silicon transistors with different tweaks and values. This project is a great “middle of the road” version. And, it is nothing less than an absolute Wall of Fuzz. So, have fun!

Terms of Use: You are free to use purchased **Tonebender** circuit boards for both DIY and small commercial operations. You may not offer **Tonebender** PCBs for resale or as part of a “kit” in a commercial fashion. Peer to peer re-sale is, of course, okay.

Resistors		B.O.M. Caps		Diodes	
R1	100k	C1	10n	D1	1N5817
R2	470k	C2	4u7	Transistors	
R3	10k	C3	100n	Q1 - Q3	Si
R4	2k7	C4	4u7	Trimpots	
R5	100R	C5	10pF	T1	25k
R6	100k	C6	100n	T2	100k
R7	220R	C7	100uF	Pots	
R8	1k	C8	100n	FUZZ	1kC
R9	4k7			VOL	100kA

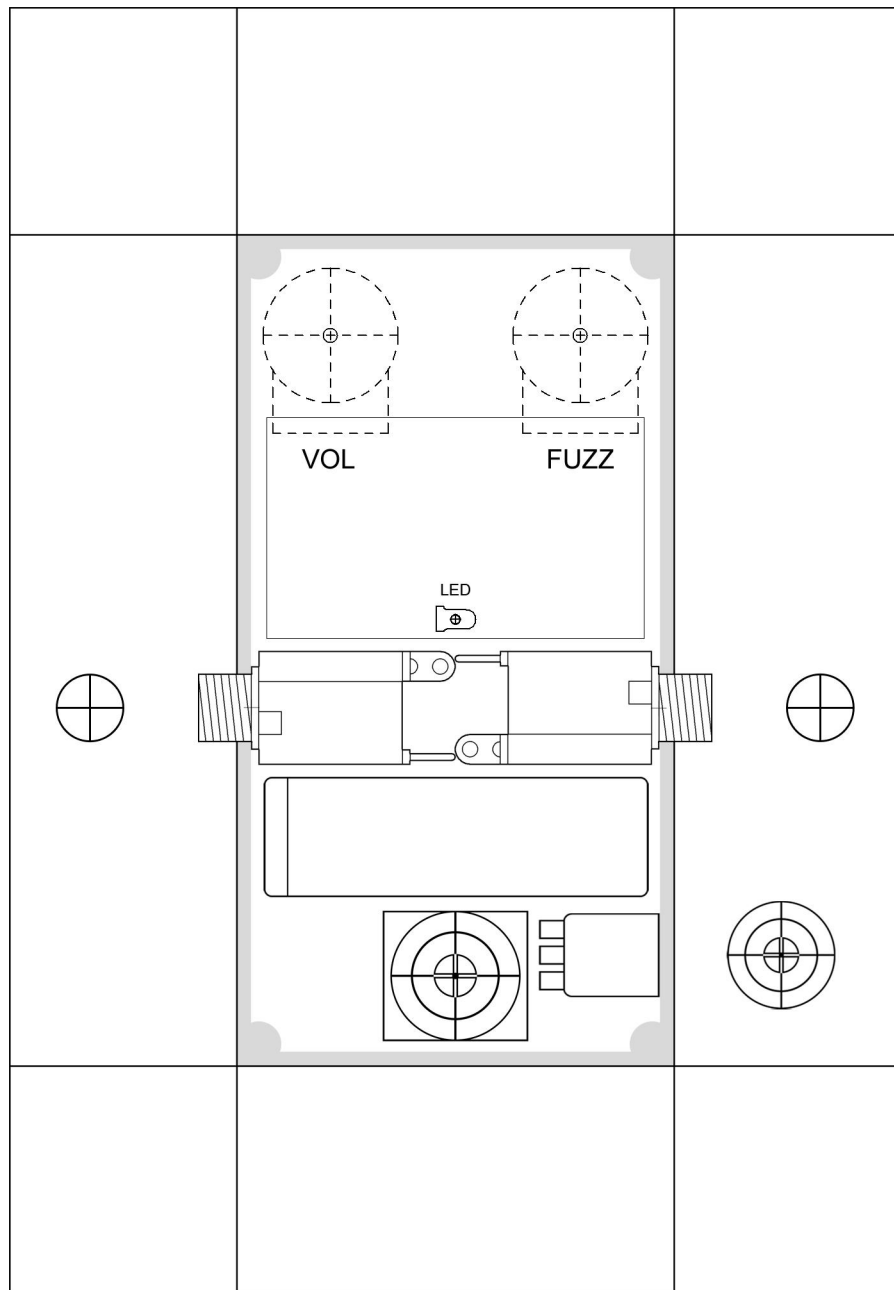
Shopping List			
Value	QTY	Type	Rating
100R	1	carbon / metal film	1/4W
220R	1	carbon / metal film	1/4W
1k	1	carbon / metal film	1/4W
2k7	1	carbon / metal film	1/4W
10k	1	carbon / metal film	1/4W
100k	2	carbon / metal film	1/4W
470k	1	carbon / metal film	1/4W
10pF	1	ceramic	16v
10n	1	film	16v
100n	3	film	16v
4u7	2	electrolytic	16v
100uF	1	electrolytic	16v
1N5817	1		
Si	3	NPN	
25k	1	Bourns 2262	
100k	1	Bourns 2263	
1kC	1	16mm PCB mount	
100kA	1	16mm PCB mount	

- C6 listed as 10n on some schematics. I prefer 100n in this spot for extra bass.
- Q1 – Q3: There are many NPN transistors that will work in the Tonebender. Generally, you want to stick to the lower gains especially for Q1 and Q2. Good ones to use for Q1-Q3 are 2n3904, 2n2222a, BL182, 2n3565, BC108 and 109. You can try higher gain transistors on Q3 such as the 2N5088 or BC459B or C. Pinouts will vary with some of these transistors. The pinout on the PCB for Q1 – Q3 is the identical to the 2n3904 (C-B-E).
- T1 is to set the bias on the collector of Q3. Using your DMM, place the black lead to ground and the red lead on the “TP1” pad. Adjust T1 until you get a reading of about 4.5v. Lower values (between 3.5-4.5v will result a more compressed and squishy sound.
- T2 is purely for experimentation. Usually this is a fixed value resistor of 47k. So, start with the trimpot set halfway up for general bias. You can then experiment with the bias point to find your optimal fuzz tone.



Drilling Guide

4.64" W x 6.68" H



Download the Photoshop file used to make this template:

http://www.madbeanpedals.com/projects/Tonebender/Tonebender_Drill.zip