

# BCFUZZ

## FX TYPE: Octave Fuzz

Based on the Octane2™

Enclosure Size: 1590B

"Softie" compatibility: Softie3

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## Overview

The **Business Card Fuzz (BCFUZZ)** is a simple NPN style Fuzz Face. It has one added control (Squish) for highly compressed, bumblebee fuzz tones. It's designed for Si NPN transistors. Germanium types will also work (if spec'd appropriately).

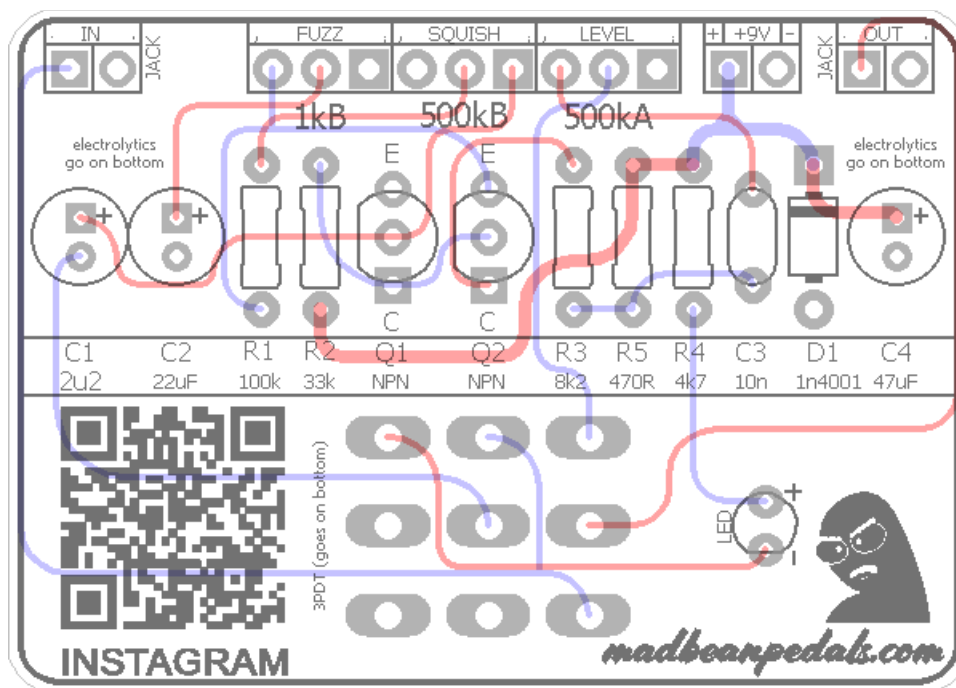
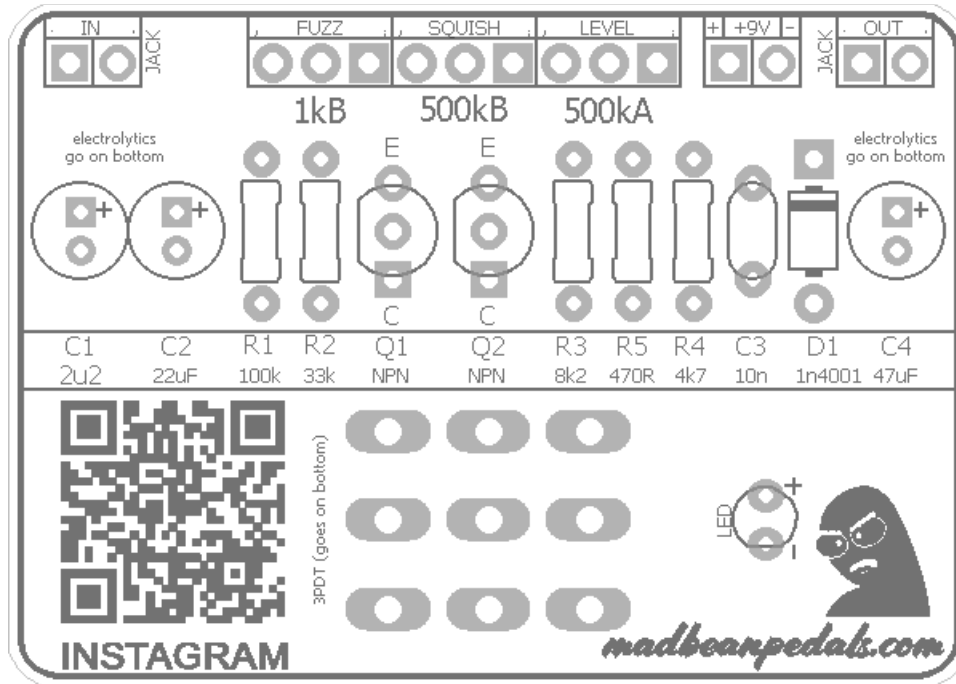
It can be built by anyone, even a first time builder!

## Controls

- **FUZZ, LEVEL** - Standard controls.
- **SQUISH** - FULL CCW is a stock Fuzz Face. As you turn up the SQUISH control, it adds resistance to the feedback path between Q2 and Q1. This makes the fuzz compress even further. At the highest setting, the fuzz will squish down into bumble fuzz tones.

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

**Technical assistance** for your build(s) is available via the [madbeanpedals](http://madbeanpedals.com) forum. Please go there rather than emailing me for assistance on [builds](#). This is because (1) I'm not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.



The electrolytic caps, LED and 3PDT are soldered to the **bottom** of the PCB. You might consider *soldering the transistors and 10n cap on the bottom, as well*. I had to remove the lock washer on my 3PDT to get enough clearance to close the lid fully (with the transistors on top). Putting them on the bottom ensures an easy fit. Just make sure the transistors are in the right pin orientation!

Resistors		Type	Rating	
R1	100k	Metal / Carbon Film	1/4W	
R2	33k	Metal / Carbon Film	1/4W	
R3	8k2	Metal / Carbon Film	1/4W	<a href="https://smallbear-electronics.mybigcommerce.com/resistors/">https://smallbear-electronics.mybigcommerce.com/resistors/</a>
R4	4k7	Metal / Carbon Film	1/4W	
R5	470R	Metal / Carbon Film	1/4W	
Caps		Type	Rating	
C1	2u2	Electrolytic	16v min.	<a href="https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-16v-1-f-100-f/">https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-16v-1-f-100-f/</a>
C2	22uF	Electrolytic	16v min.	<a href="https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-16v-1-f-100-f/">https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-16v-1-f-100-f/</a>
C3	10n	Film	16v min.	<a href="https://smallbear-electronics.mybigcommerce.com/topmay-tmc05-001-f-1-f/">https://smallbear-electronics.mybigcommerce.com/topmay-tmc05-001-f-1-f/</a>
C4	47uF	Electrolytic	16v min.	<a href="https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-16v-1-f-100-f/">https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-16v-1-f-100-f/</a>
Diodes		Type	Rating	
D1	1n4001		1W	<a href="https://smallbear-electronics.mybigcommerce.com/diode-1n4001/">https://smallbear-electronics.mybigcommerce.com/diode-1n4001/</a>
LED	LED	Diffused	5mm	<a href="https://smallbear-electronics.mybigcommerce.com/led-t-1-3-4-5mm-diffused/">https://smallbear-electronics.mybigcommerce.com/led-t-1-3-4-5mm-diffused/</a>
Transistors		Type	Rating	
Q1	NPN	Si or Germanium		
Q2	NPN	Si or Germanium		<a href="https://smallbear-electronics.mybigcommerce.com/bipolar-si/">https://smallbear-electronics.mybigcommerce.com/bipolar-si/</a>
Switch		Type	Rating	
BYP	3PDT	PCB Pin of lug		<a href="https://smallbear-electronics.mybigcommerce.com/gorva-mechano-premium-3pdt-solder-terminal/">https://smallbear-electronics.mybigcommerce.com/gorva-mechano-premium-3pdt-solder-terminal/</a>
Jacks		Type	Rating	
IN/OUT	TS	Mono	1/4"	<a href="https://smallbear-electronics.mybigcommerce.com/1-4-in-mono-nys229/">https://smallbear-electronics.mybigcommerce.com/1-4-in-mono-nys229/</a>
DC	TRS	Plastic	2.1mm	<a href="https://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/">https://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/</a>
Pots		Type	Rating	
FUZZ	1kB	Solder Lug Pot	16mm	
SQUISH	500kB	Solder Lug Pot	16mm	<a href="https://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-solder-terms-linear-audio-taper/">https://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-solder-terms-linear-audio-taper/</a>
LEVEL	500kA	Solder Lug Pot	16mm	
ENCLOSURE				
		1590B		<a href="https://smallbear-electronics.mybigcommerce.com/b-g/">https://smallbear-electronics.mybigcommerce.com/b-g/</a>

- For silicon transistors, any pair will work well so long as you stick to the following specs: HFE under 300 and Q1 a bit lower gain than Q2 (although this is not strict). Some silicon transistor types could be 2n3904, BC108, BC109, 2n3565, 2n2369. I built mine with 2n3904 with HFE in the 180's. They sound great in this circuit!
- If you want to use germanium NPN, then Q1 should be Hfe 60-80, Q2 Hfe 100-130 and leakage under 300 uA for both.

### MODS

More fuzz - change fuzz pot to 2k $\Omega$ .

More squish - change Squish to 1M $\Omega$ .

More volume - change 470R resistor to 680R or 820R.

Q1	NPN
C	1.43
B	0.64
E	0
Q2	NPN
C	6.19 - 2.7
B	1.42
E	0.78

- 9.5vDC One Spot
- Current Draw: 1mA  
VOL, FUZZ @ 50%
- SQUISH @ 0
- The second reading on the collector of Q2 is with the SQUISH control all the way up.

**Note:** Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.

