

Scarab Bender

Based on:

Basic Audio Scarab

Effect type:

Tone bender style Fuzz

Build difficult:

Easy

Amount of parts:

Low, total 14 components

Technology:

Silicon NPN transistors

Power consumption:

9V

Enclosure type:

125b

Get your board at:

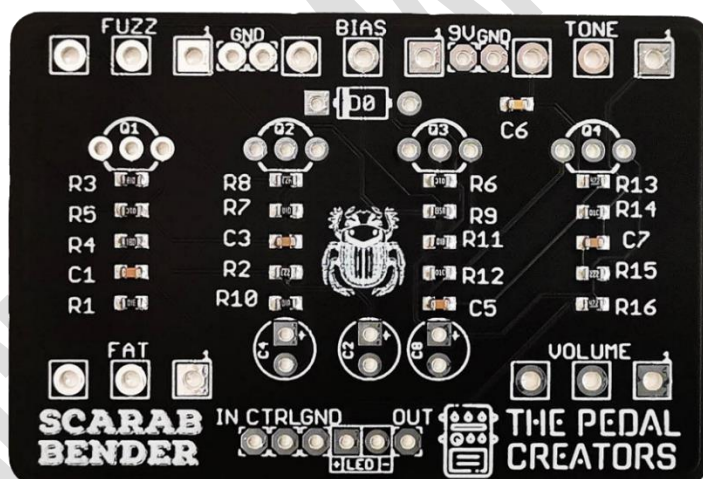
[Scarab Bender SMD](#)

Get your kit at:

[Das Musikding \(Europe\)](#)

Project overview:

Heavy moded Silicon Tone bender MKII designed by John Lyons of Basic Audio. Capable of delivering trademarks Tone benders tones full of sustain and gain while also being versatile enough to craft your own gritty and fat tones through their bias, fat, and tone control respectively.



About The Pedal Creators

Everyone can build excellent boutique guitar **pedals**.

Everything **we do** is to make that **experience** more accessible and **user-friendlier**.

The **Pedal Creators** series are the **best and easiest to build PCBs** ever. Including most **resistors** and **capacitors** already **soldered** on board as SMD components, leaving the key values for you to **experiment** and craft **your own tone**.

Now you can **build** a pedal you are **proud** of in **less than an hour** without any previous experience.

What are you waiting for to **become a Pedal Creator**?

The Pedal creators - key features:

- **Easy to build**, no previous experience required. It's like Lego for musicians.
- **Fast assembly** finish a pedal in less than an hour. Play your favorite record and enjoy the ride along.
- **100% mistake-proof**. Even my grandma can build one while she cooks.
- **Build** your own boutique pedal. Experiment with different values and make the **pedal you always dreamed of**.
- Easy to scale. **Turn your passion into a money-making machine**.

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Introduction

If you are looking for a Tone Bender that jack of all trades the Scarab bender is for you!

This pedal is a go for heavy riffing and ripping leads, but versatile enough to cover all the possible spectrum of fuzz tones delivering slightly fuzzy overdrive, distortion, heavy fizzy distortion/fuzz, muff-like fuzz, and certainly get you into heavy gated, spitting fuzz. All this and still relatively easy to dial, with multiple sweet spots, no bad tones, no extreme and useless settings, like its "distant cousin" [Fuzz factory](#).

The key features that make this fuzz so unique are its Bias control, which sets the amount of voltage that receives Transistor Q3, affecting the overall tone from being gated and gritty on one extreme, sustaining lead tone in the middle. Clean overdrive sounds at the other extreme.

The fat knob switches in between two input capacitors, thickening your signal straight from the start.

This Circuit was verified using both 2n5088 and the higher gain 2n5089; for sure, some MPS18 could do a great job as well. Feel free to socket and try different transistors until you find the one you love the most and share it with our [pedal building community](#).

Controls

- BIAS
- FAT
- FUZZ
- TONE
- VOLUME

Bill of materials

Electrolytics Capacitors

Part	Value
C2	10u
C4	4u7
C8	100u

Potentiometers

Part	Value
BIAS	25k B
FAT	100k B
FUZZ	1k B
TONE	50k B
VOLUME	100k A

Transistors

Part	Value
Q1	2N5088
Q2	2N5088
Q3	2N5088
Q4	2N5088

Diodes

Part	Value
D0	1n5817
Led	3mm Red LED

Shopping list

Electrolytics Capacitors

Qty	Value	Parts
1	100u	C8
1	10u	C2
1	4u7	C4

Potentiometers

Qty	Value	Parts
1	100k A	VOLUME
1	100k B	FAT
1	1k B	FUZZ
1	25k B	BIAS
1	50k B	TONE

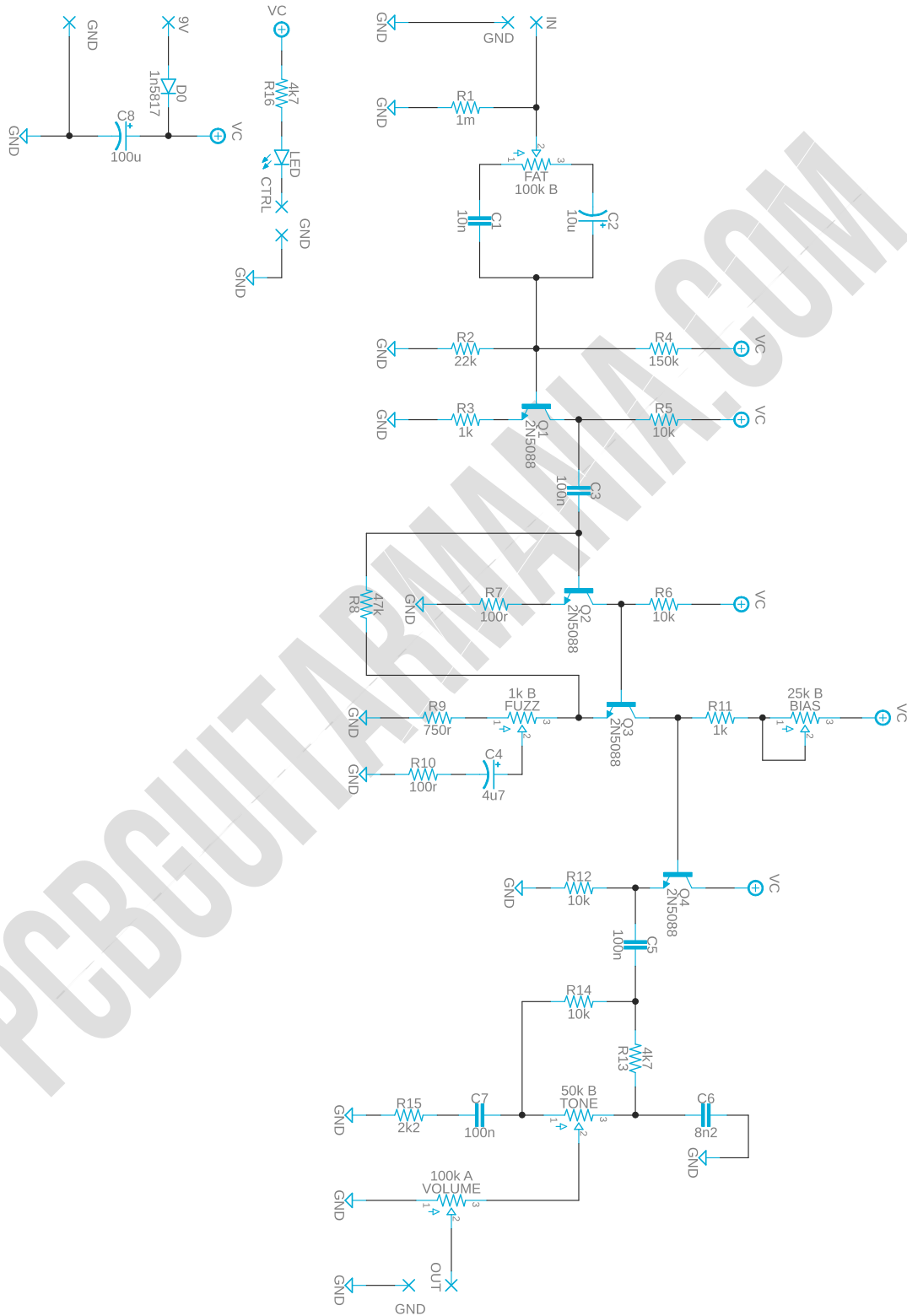
Transistors

Qty	Value	Parts
4	2N5088	Q1, Q2, Q3, Q4

Diodes

Qty	Value	Parts
1	1n5817	D0
1	3mm Red LED	LED

Schematic



Components Recommendations

As many people like to experiment with some pedals with higher voltage, always ensure your **electrolytic capacitors'** max tolerance is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those under 1nf. However, high-quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusive regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

Build Notes

If this is one of your first projects, I recommend you to take a look at our [Pedal Building Guide](#).

For a successful and tidy build, it's recommended the following order:

1. Electrolytic capacitors (always check the polarity)
2. Transistors
3. Wires
4. Potentiometers and switches
5. Off-board wiring

Wiring Diagram

All our projects include a free 3PDT Board to make the wiring easier and tidier. Also, all of our PCBs feature the status LED on board.

The pad named "Ctrl" or "LED" is the one that controls the status of the led; wire it to the "LED" pad on the 3PDT board or in the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it [here](#) to access our [Pedal Wiring Guide](#).

Drill Template

This Project has been planned to fit into a 125b enclosure type.

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print on an A4 page.

Licensing and Usage

We really appreciate your trust and support in buying this PCB, as well as your will to dive into the DIY electronics world. For us, that's why you can make this project work properly and enjoy not only the building process but also experiment and play with it on your rig.

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our [PCB Guitar Mania - Builders Group](#) on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

We tested all our projects following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been checked. These are suggestions based on the schematic analysis and the experiences and opinions of others. Feel free to share with us your views and recommendations regarding the mods your personal experimentation.

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much appreciated.

If you are a builder planning to make your own run of pedals, we also offer the service of custom-made boards with your brand and logo, design according to your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silkscreen or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your designs with your brand and logo, we could undoubtedly reach an agreement.

Follow us on [Instagram](#) and [Facebook](#) to stay in tune with the latest projects!