Reaper Device

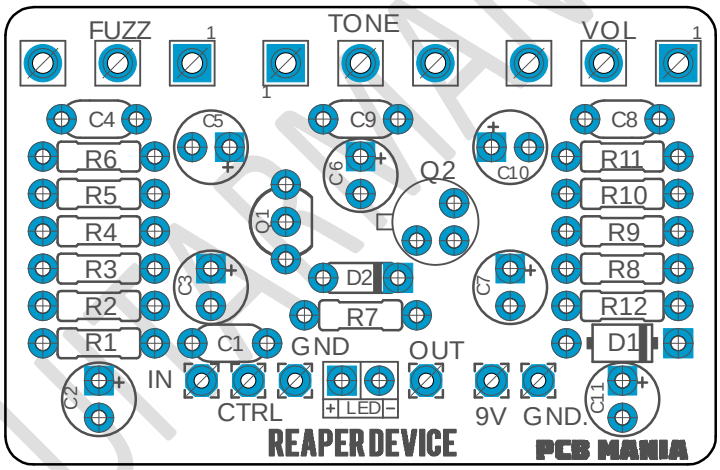
Based on:
EQD Tone Reaper
Effect type:
Fuzz
Build difficult:
Beginner

Amount of parts:
Low, total 45 components
Technology:
Germanium – Silicon hybrid transistors
Power consumption:
2mA (9v)

Enclosure type:
1590b
Get your board at:
Reaper Device
Get your kit at:
Das Musikding (Europe)

Project overview:
The Reaper is based on the legendary (3-knob) tone bender with a hybrid silicon germanium circuit that allows you to dial an array of tones from every bender version.

It is also great for anyone looking for high gain style grind tone at its higher fuzz settings.



Real measures are:

49mm width x 31mm height

1.92” width x 1.22” height

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Introduction

This circuit has roots on the 3-knob Tone Bender, with the Darlington pair of germanium transistors simplified into a single high gain silicon transistor MPSA18.

On this design the tone control has also been modified into a BMP tone stack.

Controls

- Tone: Treble to the left, Bass to the right.
- Fuzz: Controls the sustain and nature.
- Level: Controls the output.

Bill of materials

Resistors	
Part	**Value**
R1	1m
R2	47k
R3	330r
R4	470k
R5	10k
R6	10k
R7	1k
R8	1k
R9	10k
R10	33k
R11	33k
R12	4k7

Potentiometers	
Part	**Value**
TONE	100k B
VOL	100k A
FUZZ	250k B

Capacitors	
Part	**Value**
C1	100pf
C2	1uf
C3	10uf
C4	47pf
C5	1uf
C6	1uf
C7	22uf
C8	10n
C9	470pf
C10	1uf
C11	100uf

Diodes	
Part	**Value**
D1	1n4001
D2	1N4148
LED	3mm red Led

Transistor	
Part	**Value**
Q1	2N5088
Q2	AC176 (100 - 120 HFE)

Shopping list

Resistors		
Qty	**Value**	**Device**
3	10k	R5, R6, R9
1	330r	R3
2	33k	R10, R11
1	470k	R4
1	47k	R2
1	4k7	R12
2	1k	R7, R8
1	1m	R1

Capacitors		
Qty	**Value**	**Device**
1	10n	C8
1	10uf	C3
1	100pf	C1
1	100uf	C11
4	1uf	C2, C5, C6, C10
1	22uf	C7
1	470pf	C9
1	47pf	C4

Transistors		
Qty	**Value**	**Device**
1	AC176	Q2
1	2N5088	Q1

Potentiometers		
Qty	**Value**	**Device**
1	100k A	VOL
1	100k B	TONE
1	250k B	FUZZ

Diodes		
Qty	**Value**	**Device**
1	1N4148	D2
1	1n4001	D1
1	3mm LED	LED

Components Recommendations

This board has been tested using Film box capacitors for most of the values over 1nf, and ceramics discs for the ones 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 exclusively regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

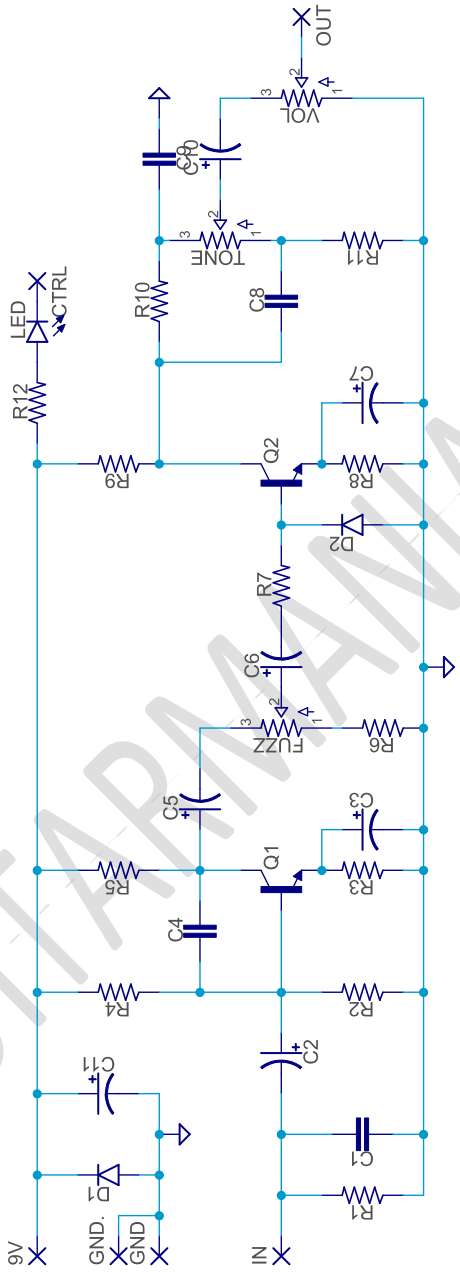
Build Notes

If this is one of your first projects I recommend you to take a look on our Pedal Building Guide

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

1. Resistors & diodes
2. Capacitors, starting with the smaller ones and the ceramic ones.
3. Electrolytic capacitors (always check the polarity)
4. Transistors
5. Wires
6. Potentiometers and switches
7. Off board wiring

Schematic

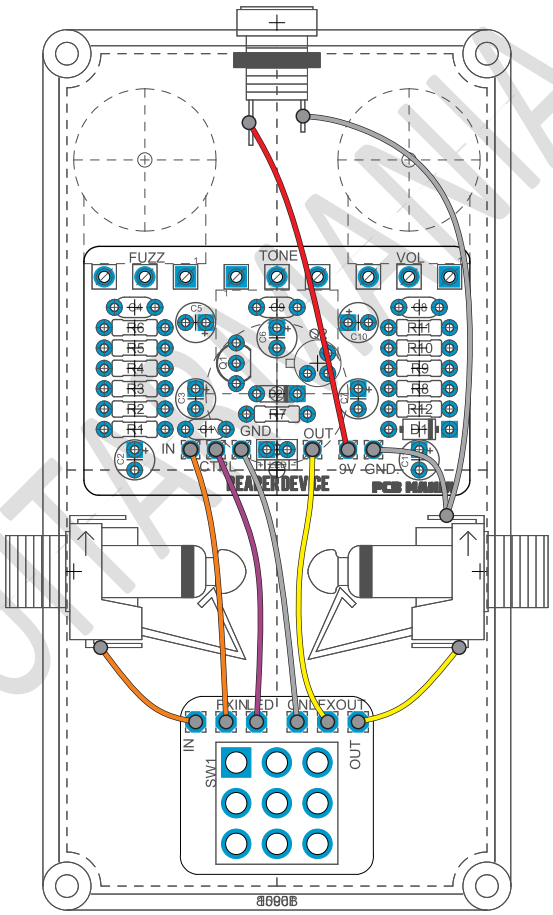


Wiring Diagram

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 control slug of your 3PDT.

You can take a look on the following diagram to understand the general connections. For further information check our Pedal Wiring guide.



Drill Template

This Project has been planned to fit into a 1590B enclosure type.

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

Licensing and Usage

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

We try to reply to every question we receive on our email or in our social media, but we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook, in order to post all your doubts, issues, suggestions or request, as well to share your builds and have some feedback from us and other fellow builders!

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

These boards may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though accreditation or a link back is always greatly 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 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 silk screen, 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 own designs, with your brand and logo we could certainly reach an agreement.

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