Maximum Crank

Based on:
Krank Distortus Maximus

Number of parts:
Low, total 29 components

Enclosure type:
125b

Effect type:
High Gain Drive

Technology:
OpAmp

Get your board at:
Maximum Crank

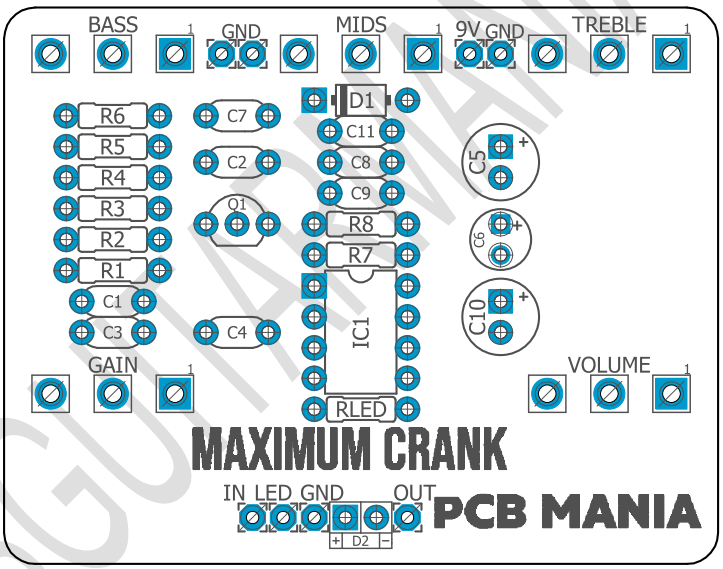
Build difficult:
Easy

Power consumption:
9V

Get your kit at:
Das Musikding (Europe)

Project overview:

Inspired by Krank Distortus Maximus, a discontinued pedal that recreates all the signature tone and high gain of Krank amplifiers. Simple and easy beginner friendly project, yet full of gain and saturation.



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Introduction

This definitely one of the most satisfying and rewarding builds I've ever made! As for sure you are aware that “high gain” and “beginner friendly” are not the most common associated tags when we are talking about DIY pedals, but the Maximum crank really surprised me here!

Once I've finished my build after placing just a very few components, I ended up having a powerful pedal delivering a crazy amount of gain while being dead quiet on noise floor levels.

The 3 band passive tone stack is exactly the same as the one present on most high gain amplifiers so it won't be an issue for you to set that up on your favorite settings and use this pedal as an additional dirt channel for your clean amp.

Controls

- Bass
- Gain
- MIDs
- Treble
- Volume

Bill of materials

Resistors	
Part	**Value**
R1	4M7
R2	430K
R3	43K
R4	390R
R5	10K
R6	56K
R7	100R
R8	33K
RLED	4K7

Capacitors	
Part	**Value**
C1	4n7
C2	22n
C3	22n
C4	4n7
C7	22n
C8	22n
C9	470p
C11	100n

Electrolytics Capacitors	
Part	**Value**
C5	47u
C6	10u
C10	100u

Potentiometers	
Part	**Value**
BASS	1M A
GAIN	50K B
MIDS	25K B
TREBLE	250K A
VOLUME	1M B

IC	
Part	**Value**
IC1	LM386

Transistors	
Part	**Value**
Q1	2N5088

Diodes	
Part	**Value**
D1	1N5817
D2	3mm LED

Switches	
Part	**Value**
-	3PDT Stomp foot

Jacks	
Part	**Value**
-	DC JACK
-	AUDIO JACK
-	AUDIO JACK

Shopping list

Resistors		
Qty	**Value**	**Parts**
1	10K	R5
1	100R	R7
1	33K	R8
1	390R	R4
1	430K	R2
1	43K	R3
1	4K7	RLED
1	4M7	R1
1	56K	R6

Capacitors		
Qty	**Value**	**Parts**
1	100n	C11
4	22n	C2, C3, C7, C8
1	470p	C9
2	4n7	C1, C4

Electrolytic Capacitors		
Qty	**Value**	**Parts**
1	100u	C10
1	10u	C6
1	47u	C5

Potentiometers		
Qty	**Value**	**Parts**
1	1M A	BASS
1	1M B	VOLUME
1	250K A	TREBLE
1	25K B	MIDS
1	50K B	GAIN

IC		
Qty	**Value**	**Parts**
1	LM386	IC1

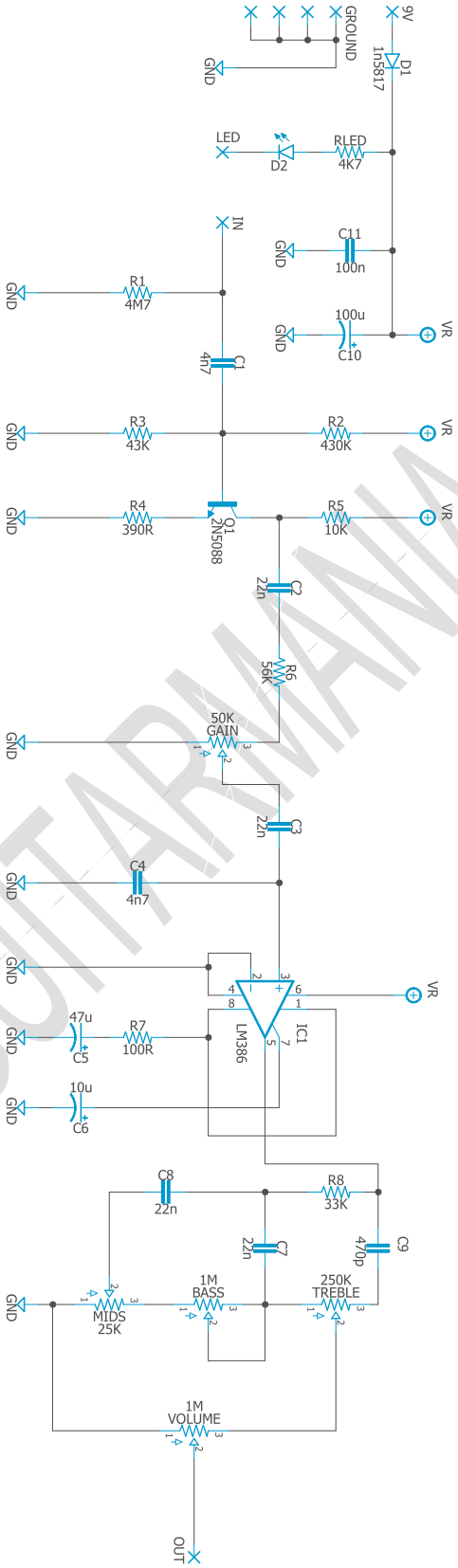
Transistors		
Qty	**Value**	**Parts**
1	2N5088	Q1

Switches		
Qty	**Value**	**Parts**
1	3PDT Stomp foot	-

Jacks		
Qty	**Value**	**Parts**
1	DC JACK	-
2	AUDIO JACK	-

Diodes		
Qty	**Value**	**Parts**
1	1N5817	D1
1	3mm LED	D2

Schematic



Components Recommendations

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

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.

IT MIGHT BE A GOOD IDEA TO PLACE A BIT OF TAPE, FOAM, OR ANY KIND OF PLASTIC TO IN BETWEEN THE LEGS OF THE TONE CONTROL AND THE DIODE TOGGLE TO AVOID UNWANTED SHORTS DUE THEM TOUCHING EACH OTHER.

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

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.

This board has been designed to match our EZ 3PDT PCB check it here to access to 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 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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