

Atom Boost

Based on:

TC Electronic Spark Mini Boost

Effect type:

Booster

Build difficult:

Easy

Number of parts:

Average, 33 components

Technology:

NPN and PNP transistors

Power consumption:

9V

Enclosure type:

1590bb

Get your board at:

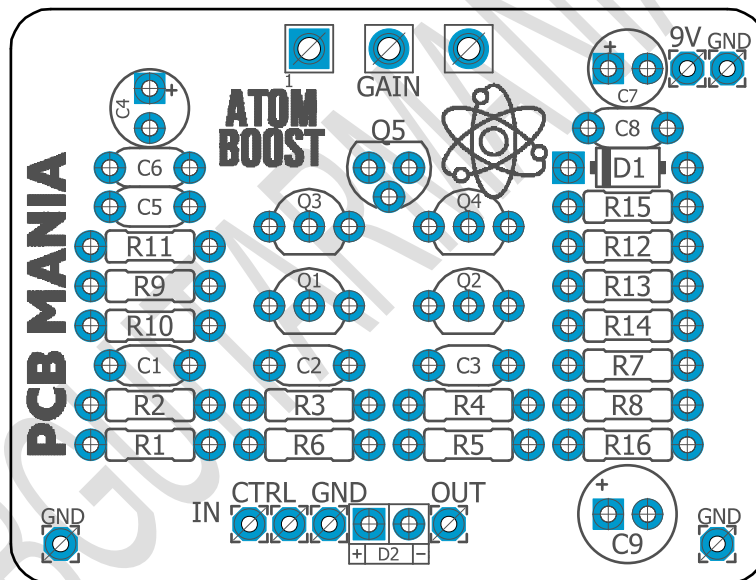
[Atom Boost](#)

Get your kit at:

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

Project overview:

Kick your playing into high gear with this Impressive 20 dB of completely clean boost that makes your core tone shine through. A straightforward project, easy to build, easy to play with!



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Introduction

The Atomic boost is based on the TC Electronics Spark TM and a perfect one knob beginner project to check if you are into DIY. Perfectly suited to add some extra gain to your Leads or to get Crunch/driven sounds out of your semi-dirty amp. Especially when your amp tempts to be a little too dark the nuance of brightness it adds can be very handy without making the signal harsh.

Controls

Potentiometers

- Gain

Bill of materials

Resistors	
Part	Value
R1	1m2
R2	1k
R3	100k
R4	1k
R5	22k
R6	22k
R7	1k
R8	100k
R9	100k
R10	1k
R11	10k
R12	1k
R13	100k
R14	100r
R15*	47r
R16	4k7

Capacitors	
Part	Value
C1	100n
C2	1n
C3	4n7
C5	100p
C6	100p
C8	100n

Electrolytic Capacitors	
Part	Value
C4	1u
C7	10u
C9	220u

Potentiometers	
Part	Value
GAIN	B500K

Transistors	
Part	Value
Q1**	bc549c
Q2**	bc549c
Q3**	bc549c
Q4**	bc549c
Q5*	2n3906

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
4	100k	R3, R8, R9, R13
1	100r	R14
1	10k	R11
5	1k	R2, R4, R7, R10, R12
1	1m2	R1
2	22k	R5, R6
1	47r	R15*
1	4K7	R16

Capacitors		
Qty	Value	Parts
2	100n	C1, C8
2	100p	C5, C6
1	1n	C2
1	4n7	C3

Electrolytic Capacitors		
Qty	Value	Parts
1	10u	C7
1	1u	C4
1	220u	C9

Potentiometers		
Qty	Value	Parts
1	500k b	GAIN

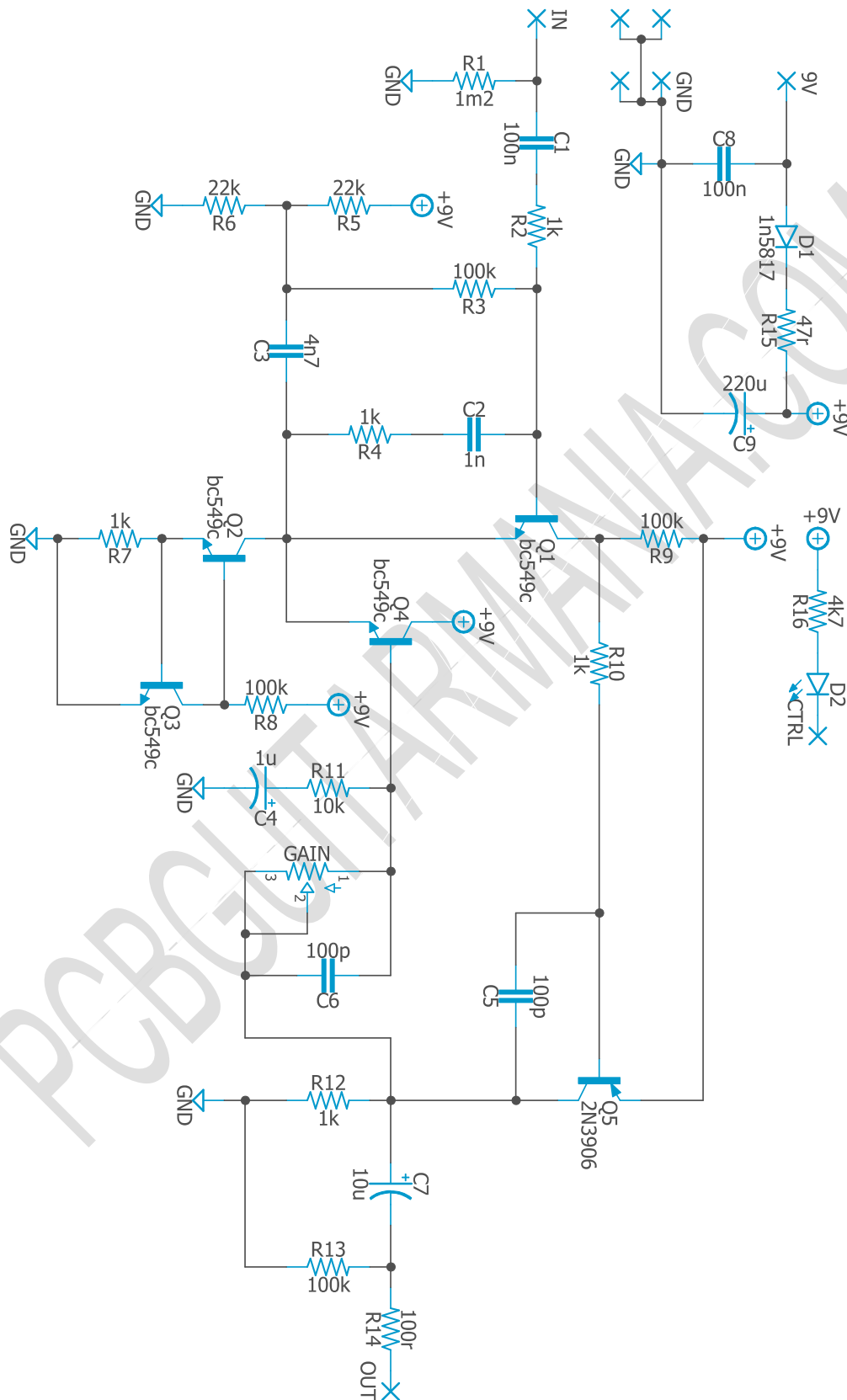
Transistors		
Qty	Value	Parts
1	2n3906*	Q5
4	bc549c**	Q1, Q2, Q3, Q4

Diodes		
Qty	Value	Parts
1	1n5817	D1
1	3mm LED	D2

Switches		
Qty	Value	Parts
1	3PDT Stomp foot	-

Jacks		
Qty	Value	Parts
1	DC Jack	-
2	Audio Jack	-

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. 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

There are plenty of equivalents and similar-sounding transistors so I would recommend using dip sockets and start diving into creating your very own tone.

For instance, you can use Q1-4 - BC547 (type a-b-c the higher the letter, the more gains they are) and for Q5 a - BC557C (flip it 180 degrees to the silkscreen!)

2n3906* PNP transistor. Although the original unit presents a BC558c transistor we have experienced better results with the listed 2n3906. You can still experiment with BC558c just by flipping the transistor 180 degrees. A higher gain direct replacement could be 2N5087.

BC549c** NPN transistor. You can try 2N3904, 2N5088, 2N5089 replacement, just take in mind you need to flip the transistor 180 degrees to the silkscreen. The order listed is from lower to higher gain.

R15* The previous version of this document has a typo and indicates 47k instead of 47r which is the correct value.

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!