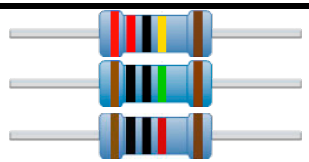
Black Hawk Booster Kit
Building Manual

Effect Pedal Kits:
Black Hawk Booster

The **Black Hawk Booster** is a discrete MosFETeffect pedal that delivers a **maximum of 30dB** of ultra-clean gain with a **minimum tone coloration**. One of the best features of the **Black Hawk Booster** is its **high input impedance**: with almost 5MΩ, you can use it at any place in your pedalboard, specially in front of any device you want to avoid to load. The **Black Hawk Booster** doesn't produce any distortion on its own, but is great to place in front of an amp and push it naturally into distortion.

This pedal only has one external knob: with the *Boost* potentiometer you can set the **amount of gain** of the pedal. And in case you need to lower your volume, just turn it towards the minimum and the **Black Hawk Booster** will act an as **attenuator**! The internal trimmer can be set to adjust the **overall gain volume** of the circuit, and once the sweet spot has been found it's better to let it fixed.

BOM (1/2)

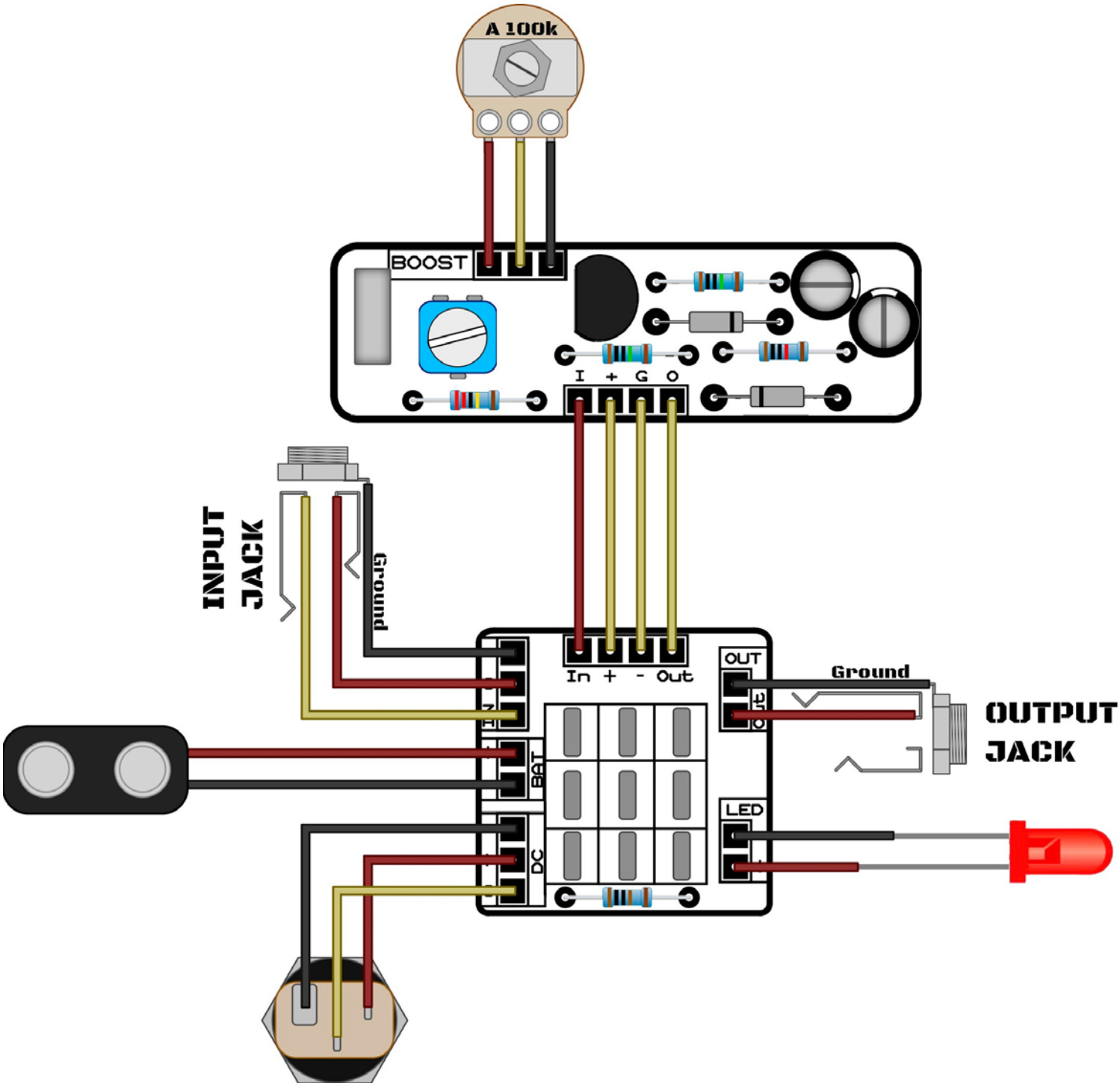
Resistors (4)				Capacitors (3)		
1	R1	2.2M		1	C1	100n
2	R2, R4	10M		1	C2	100u (electrolytic)
1	R3	10k		1	C3	10u (electrolytic)

BOM (2/2)

Diodes, Transistors and ICs		
1	Q1	BS170
2	D1, D2	1N4001
1	RV1	5k

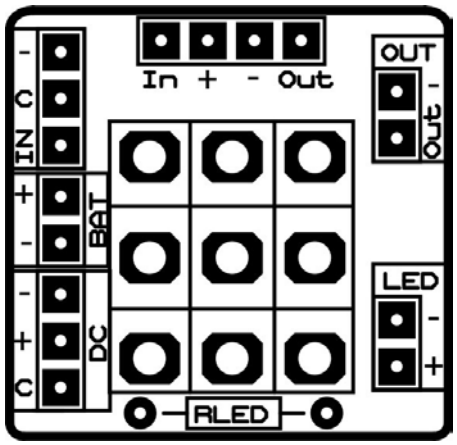
Generic Parts and Potentiometers		
1	Battery clip	
1	DC Jack	
1	RLED	1k LED resistor
1	LED Bezel	
1	3PDT	
2	IN, OUT	6.35mm Jacks
1	100k Logarithmic (A) Potentiometer	Boost

Component Placement

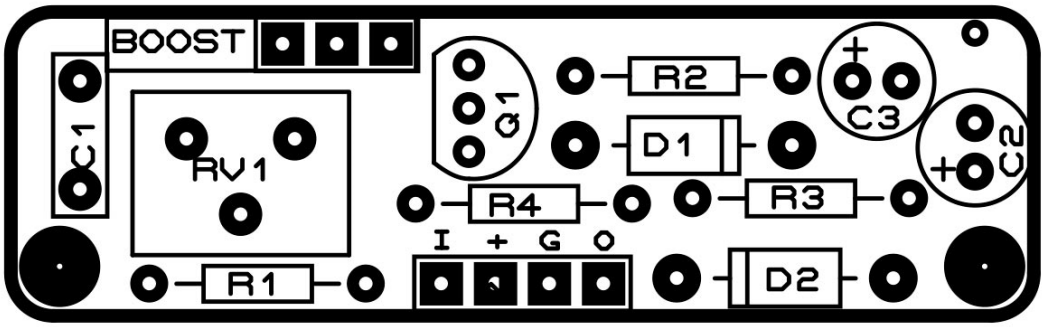


Board Layouts

3PDT PCB

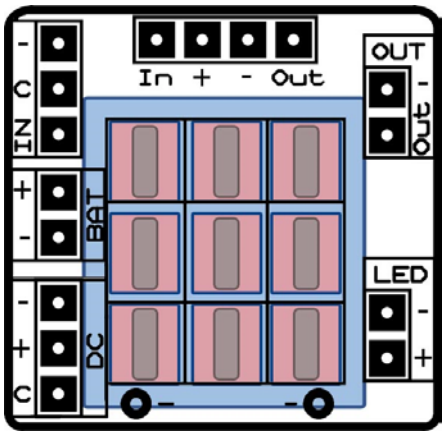


Effect PCB



Building Tips

1- Pay attention to the **orientation of the 3PDT**! In the following picture you can see how the 3PDT pins should be positioned (inserting the pins in the holes can be a bit tight to avoid movement while soldering):



2- For a proper soldering you just have to apply the **right amount of solder wire**. A right solder joint should have a concave shape around the joint and look like this:

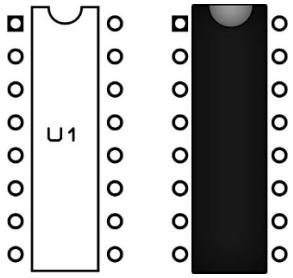
3- Don't apply too much heat! When soldering, the time you hold the solder iron against the joint should be **as short as posible** to avoid damaging any part (a few seconds should be enough). If you can't get a solder joint right, **let it cool** a bit before trying again.

4- If having troubles with the building, checking the schematic in the last page will help you find **where the audio signal stops**. When you find the spot, check out that **everything around that joint is ok** (components placed at their right place, solder joints…).

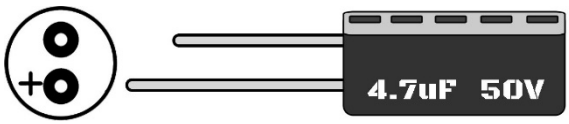
Building Tips

5- Pay attention to the **parts that have a polarity** and make sure they are connected as in the component placement picture:

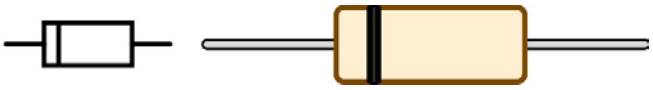
- **ICs** (they have a small dot or indication that must fit the indication in the board



- **Electrolytic capacitors** (longer pin is connected to the "+" hole):



- **Diodes** (check for the mark and make it fit with the one in the PCB):

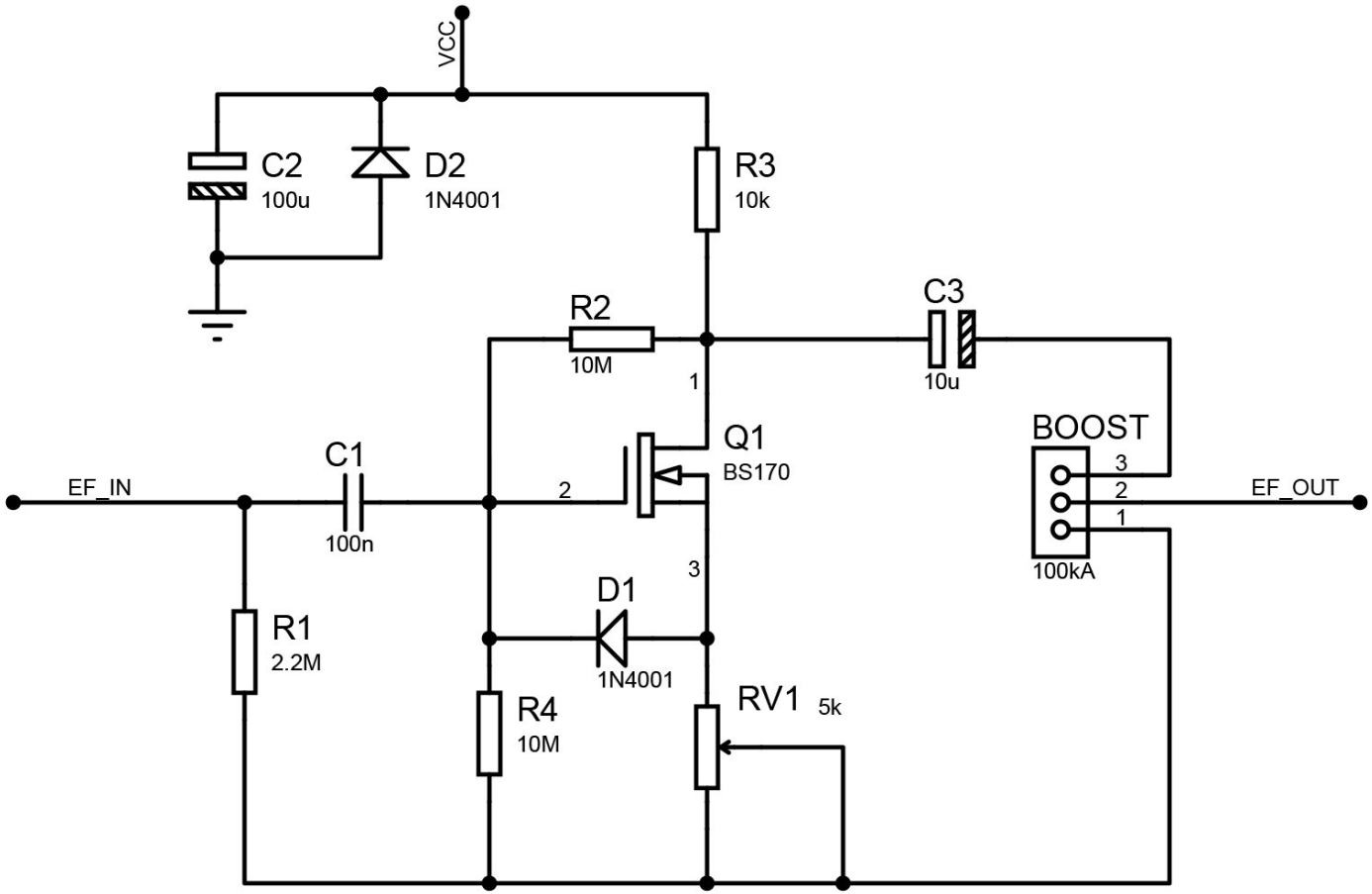


- **Leds** (longer pin is connected to the "+" hole)

- **Transistors** (inserted to fit the drawing in the PCB)

To avoid any issue, check the latest building manual. Use the pictures only as a reference! Colors/shapes can change slightly, always check the part polarity, resistor values, potentiometer placement… before soldering.

Schematic


VCC
C2
100u
D2
1N4001
R3
10k
R2
10M
C3
10u
1
Q1
BS170
2
3
BOOST
3
2
1
100kA
EF_IN
C1
100n
EF_OUT
D1
1N4001
R1
2.2M
R4
10M
RV1
5k