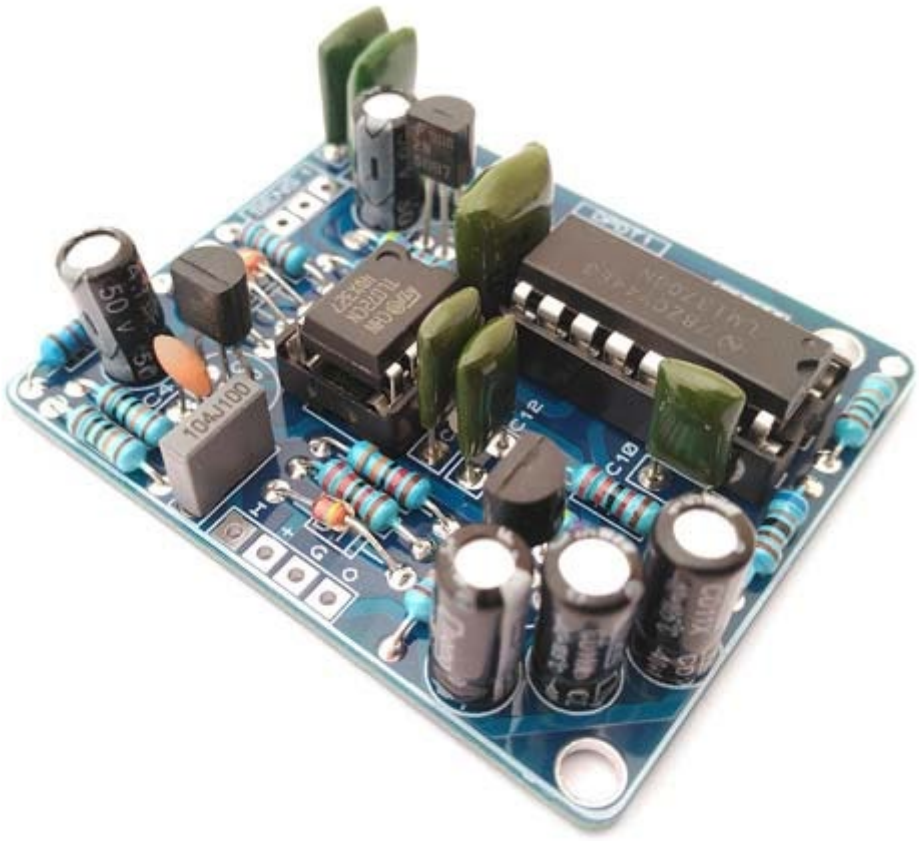
Micro V Envelope Filter Kit
Building Manual



Effect Pedal Kits:
Micro V Envelope Filter

The **Micro V Envelope Filter** is a **vintage autowah** that was designed as a compact version of the **Mutron III**. While it only has two settings (filter frequency and range), it can deliver a wide range of sounds that go from a funk bass or a leading guitar. But this effect is not only limited to guitar and bass: the **Micro V Envelope Filter** can be used with any other electric instrument like keyboards.

This version of the **Micro V Envelope Filter** has been **modernized**: now it includes True Bypass to avoid tone loss, and a current production OTA (LM13700) has been used instead of the original one. Besides, the two OTA sections have been used in parallel for a smoother sound!

– *Hi/Lo switch* sets the frequency range in which the Micro V Envelope Filter moves

– *Range* sets how much the filter will move in response to the input signal

BOM (1/2)

Resistors (17)			
3	R1, R8, R18	22k	
1	R2	33k	
3	R3, R4, R5	100k	
1	R6	10k	
1	R7	15k	
1	R9	680	
2	R10, R17	47k	
1	R11	4.7k	
1	R12	510k	
2	R14, R15	330	
1	R16	6.8k	

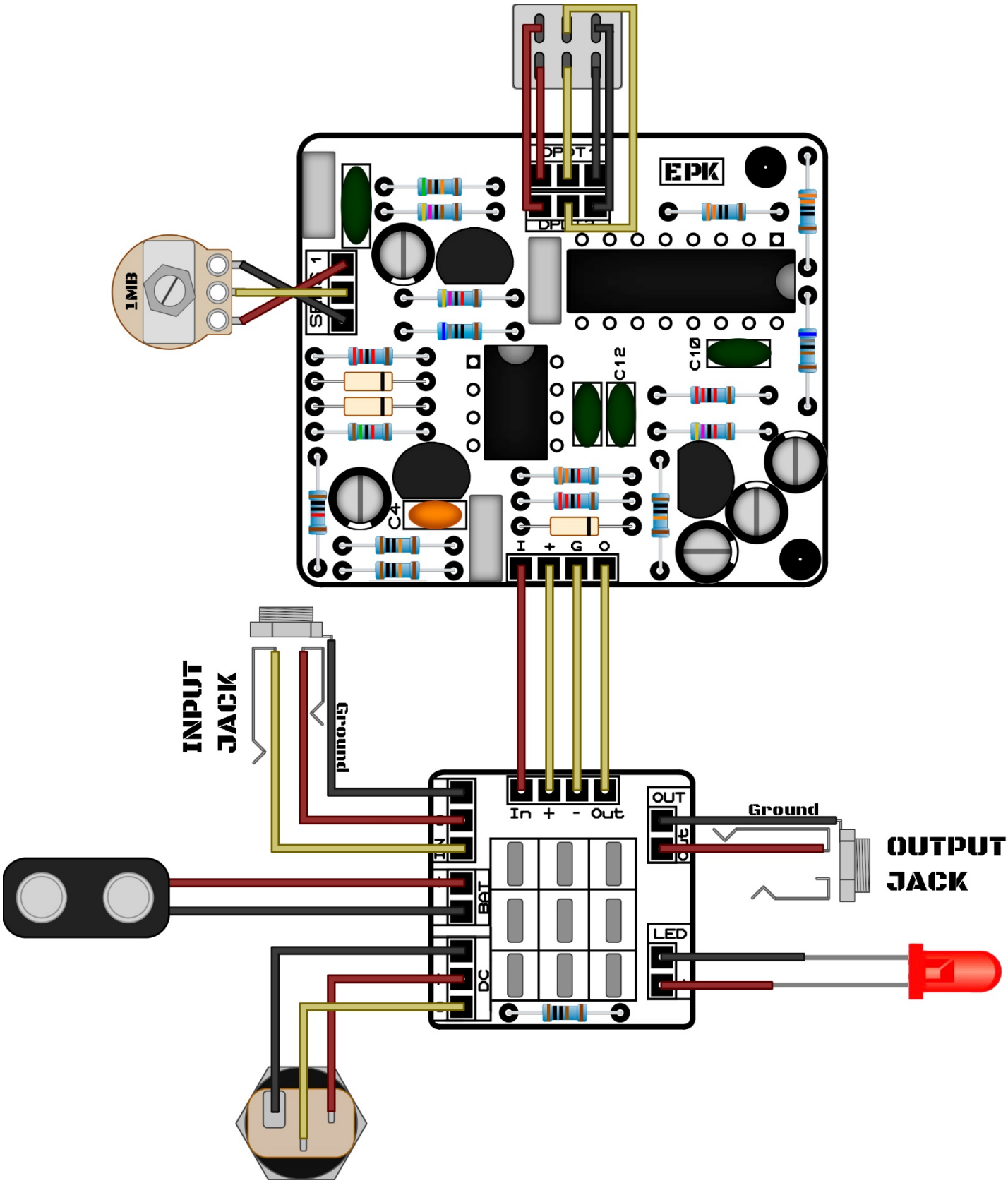
Capacitors (13)		
2	C1, C2	100u (electrolytic)
1	C3	100n
1	C4	100p (ceramic)
2	C5, C6	4.7u (electrolytic)
1	C7	47n
1	C8	68n
1	C9	33n
2	C10, C12	2.2n
1	C11	1.8n
1	C13	10u (electrolytic)

BOM (2/2)

Diodes, Transistors and ICs		
1	U1	TL072
1	U2	LM13700
2	Q1, Q2	2N5088
1	Q3	2N5087
3	D1, D2, D3	1N914

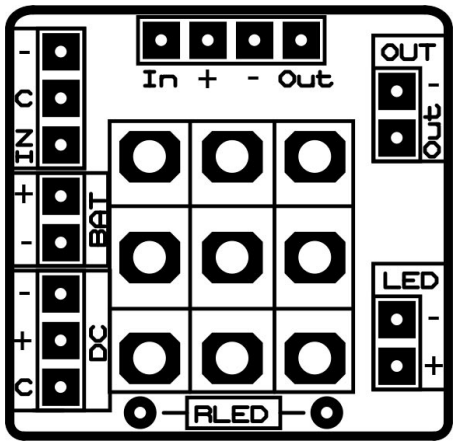
Generic Parts and Potentiometers		
1	Battery clip	
1	DC Jack	
1	RLED	1k LED resistor
1	LED Bezel	
1	3PDT	
2	IN, OUT	6.35mm Jacks
1	1MA Logarithmic Potentiometer	Sens
1	DPDT	

Component Placement

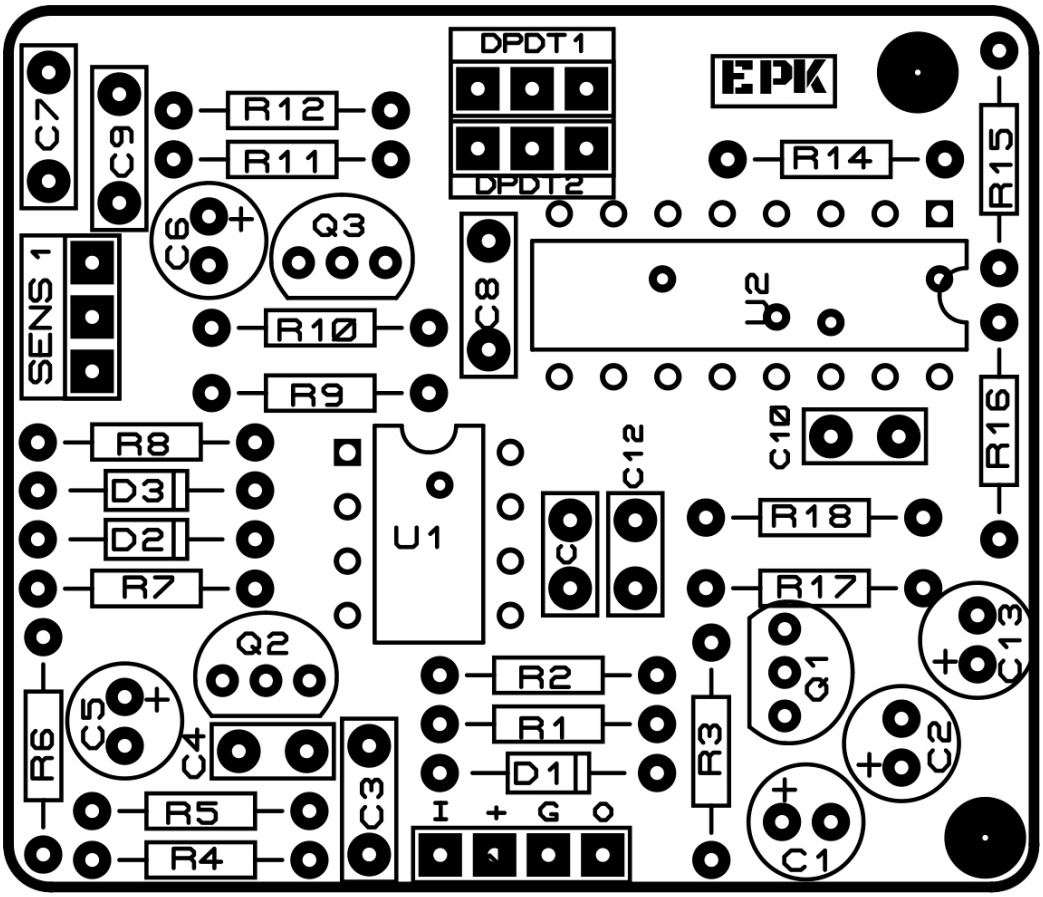


Board Layouts

3PDT PCB

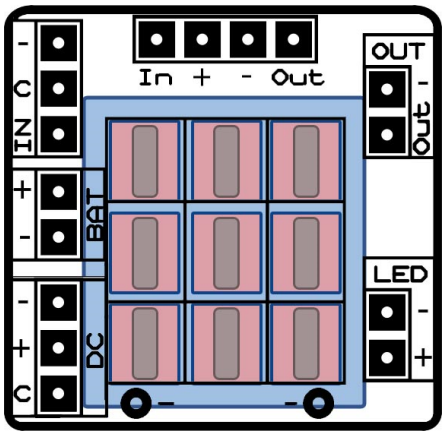


Effect PCB



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:

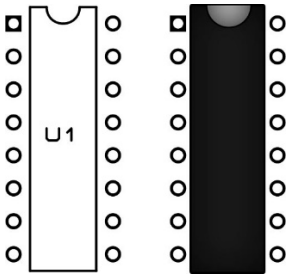
3- Don't apply too much heat! When soldering, the time you hold the solder iron against the joint should be **as short as posible** to avoid damaging any part (a few seconds should be enough). If you can't get a solder joint right, **let it cool** a bit before trying again.

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…).

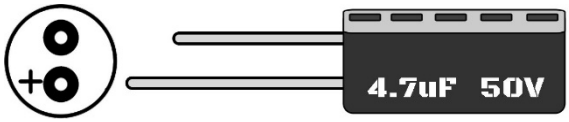
Building Tips

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

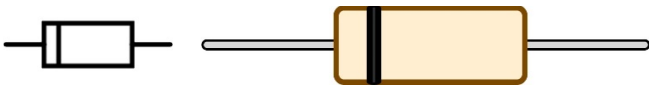
- **ICs** (they have a small dot or indication that must fit the indication in the board



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

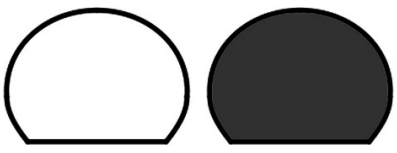


- **Diodes** (check for the mark and make it fit with the one in the PCB):



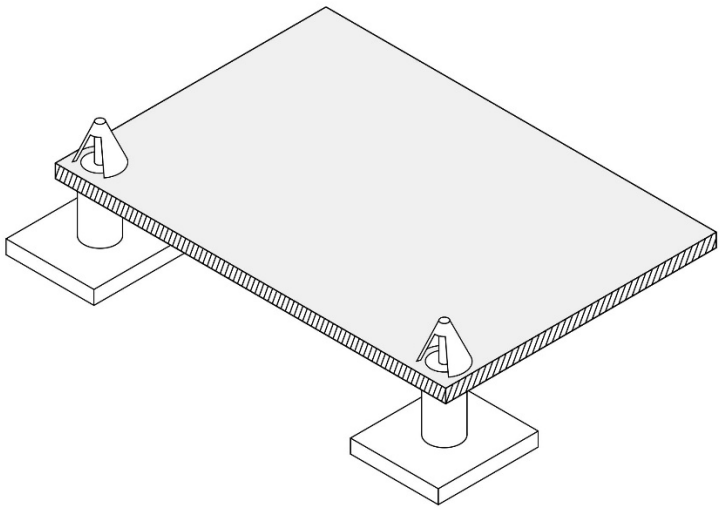
- **Leds** (longer pin is connected to the "+" hole)

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



Building Tips

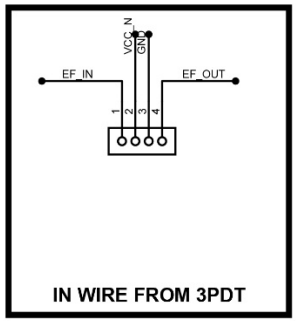
6- With the kit we include plastic PCB supports with an adhesive bottom. You can use them to anchor the PCB to your enclosure for a better stability. Just insert the PCB support tip into the 3.5mm holes and remove the adhesive protective film.

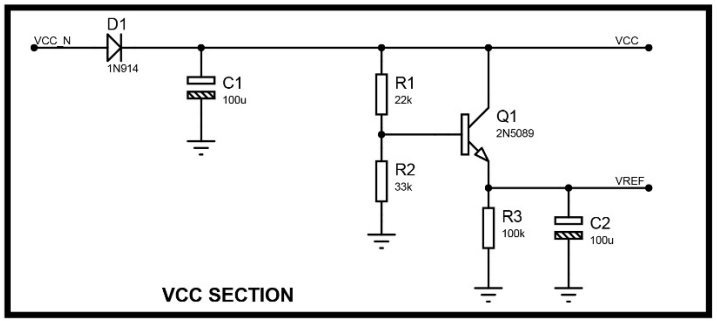


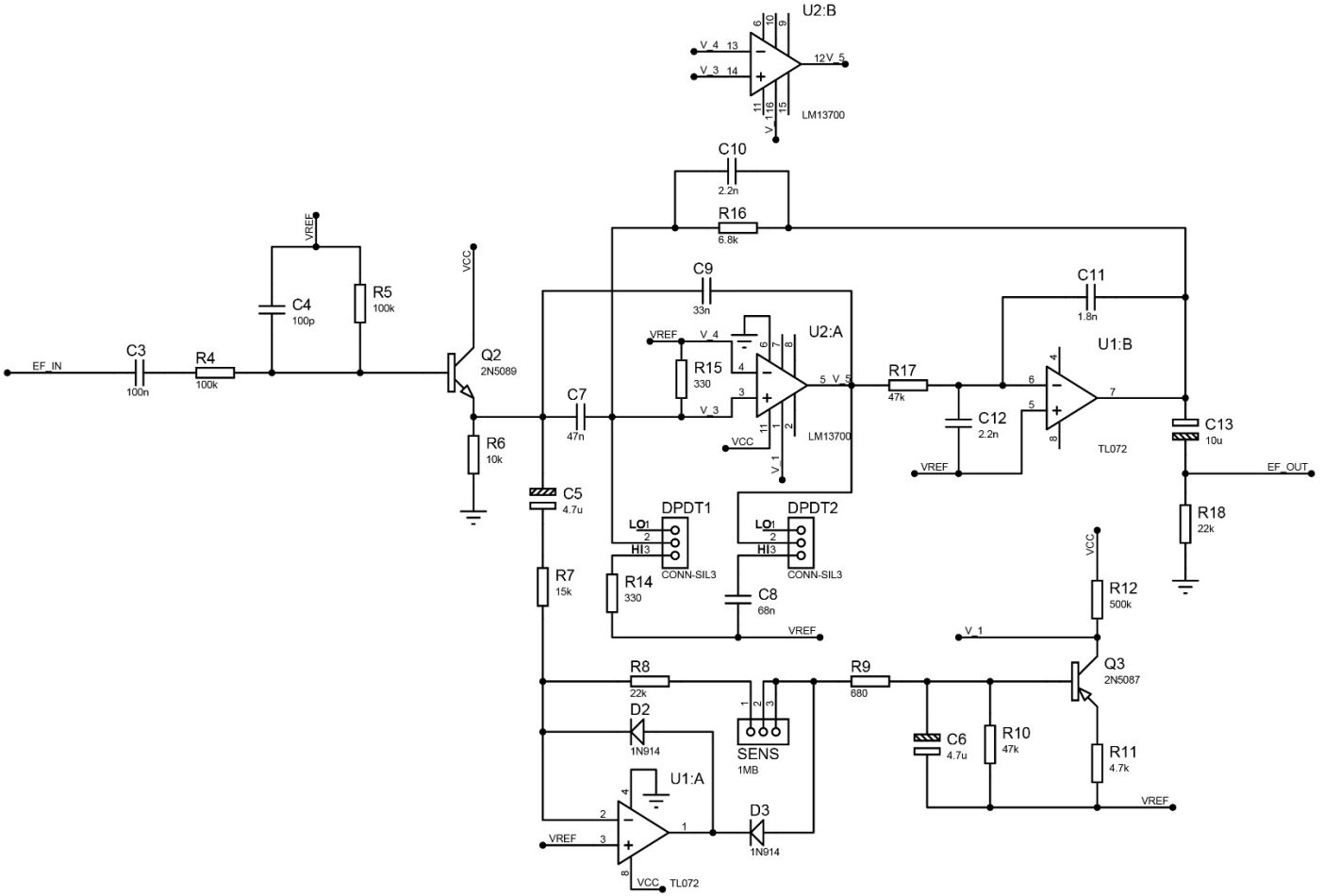
To avoid any issue always check the latest building manual. Use the pictures only as a reference! Colors/shapes of wires, PCB or parts can change slightly, this doesn't affect their functionality in any way.

Always double check part polarity, resistor and capacitor values, potentiometer placement, IC orientation… before soldering.

Schematic


VCC_N
GND
EF_IN
EF_OUT
1
2
3
4
IN WIRE FROM 3PDT


D1
1N914
VCC_N
VCC
C1
100u
R1
22k
Q1
2N5089
R2
33k
VREF
R3
100k
C2
100u
VCC SECTION


U2:B
LM13700
C10
2.2n
R16
6.8k
C9
33n
C11
1.8n
U1:B
TL072
U2:A
LM13700
VREF
C4
100p
R5
100k
C3
100n
R4
100k
EF_IN
Q2
2N5089
R6
10k
C7
47n
R15
330
R17
47k
C12
2.2n
C13
10u
EF_OUT
R18
22k
C5
4.7u
DPDT1
DPDT2
CONN-SIL3
R7
15k
R14
330
C8
68n
R12
500k
R8
22k
R9
680
Q3
2N5087
D2
1N914
SENS
1MB
C6
4.7u
R10
47k
R11
4.7k
U1:A
D3
1N914
TL072