



VAMISOUND

THE SOUND
IS YOURS

V-87

BUILDING
INSTRUCTIONS



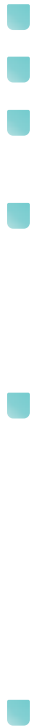
VAMISOUND V-87 BUILDING INSTRUCTIONS

WE SOUND BETTER

Dear **DIY** friend,

first of all thank you for your support and choice of the VAMISOUND product. We wish you a happy DIY and the joy of a new microphone in your arsenal!!

Jan and Milan





VAMISOUND V-87 BUILDING INSTRUCTIONS

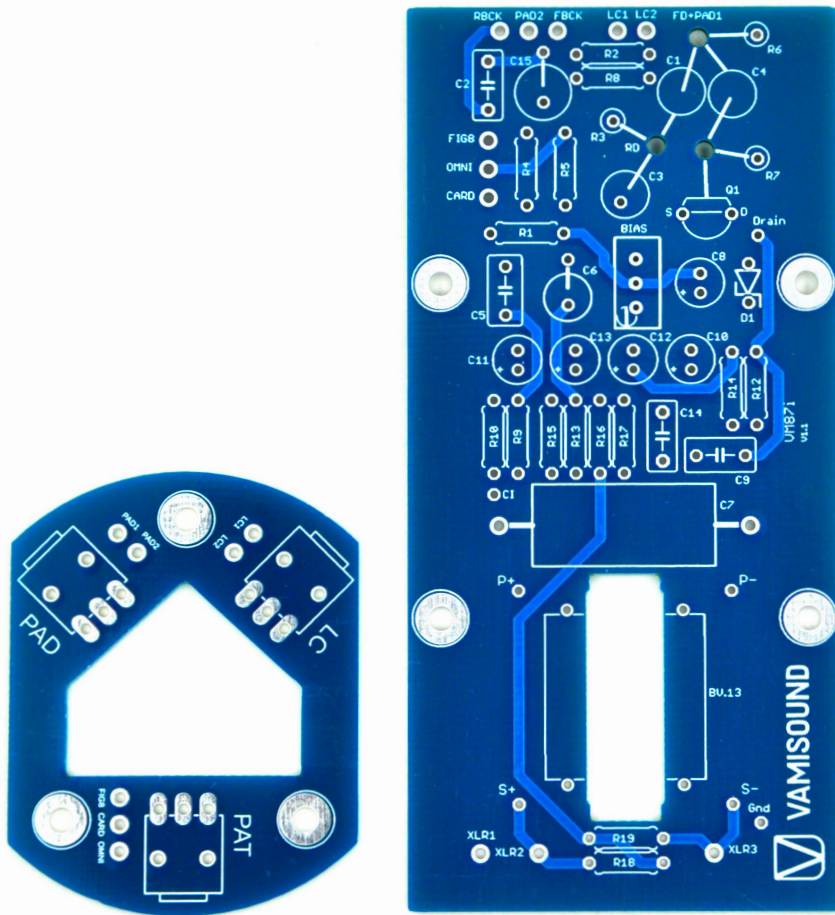
WE SOUND BETTER

Before you start building your new microphone please carefully read this building instructions.

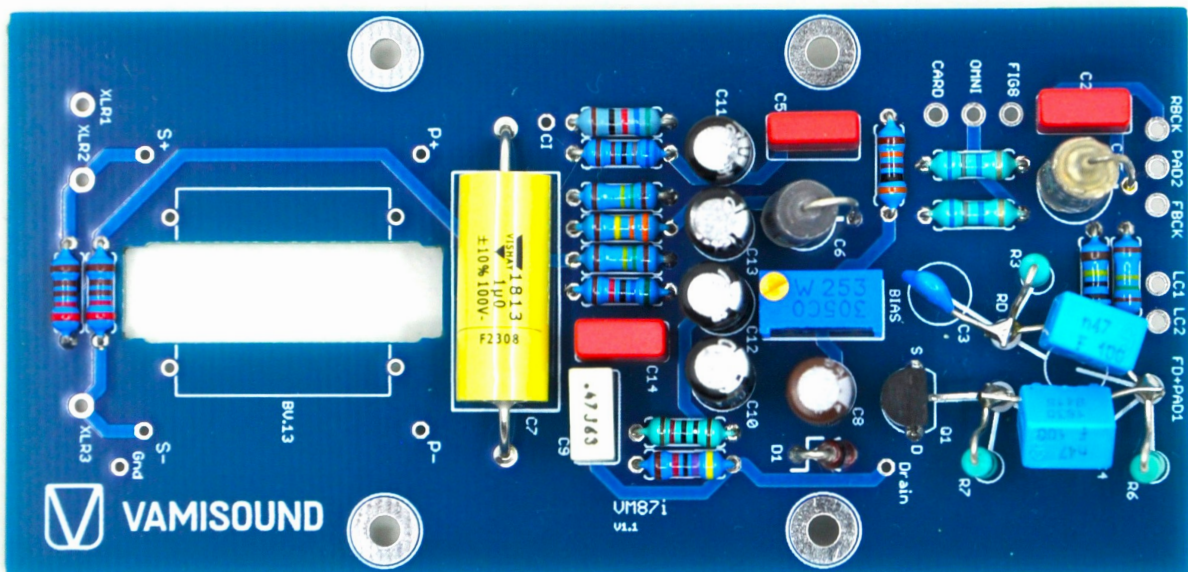
Attention: V-87 is a medium-heavy project. There is quite low amount of electronic parts and straightforward wiring. However, it should be borne in mind that certain manual skills will be required or the successful completion of the mic construction. Good soldering experience and soldering stations with fine soldering tip are recommended. If you do not have this, please delegate the construction to a more experienced technician with proper equipment. We are not responsible for malfunctioning construction or injuries associated with improper assembly of our kits.

Document info	
Document name	V-87 building instructions
Document revision	1.0
PCB revision	1.1
Date	September 2023
Project difficulty	★ ★ ★ ★ ★
Complexity of soldering	★ ★ ★ ★ ★
Risk of electric shock	★ ★ ★ ★ ★
Changes and notes	

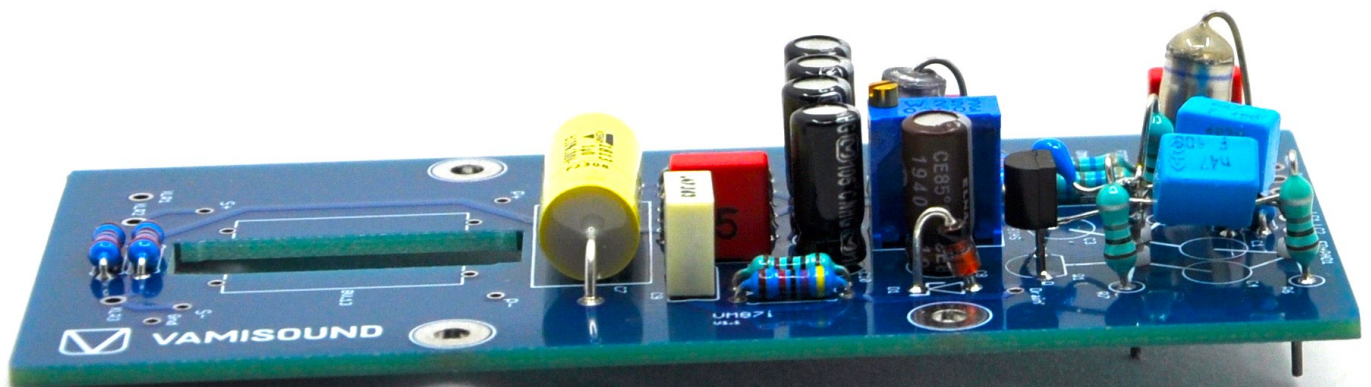
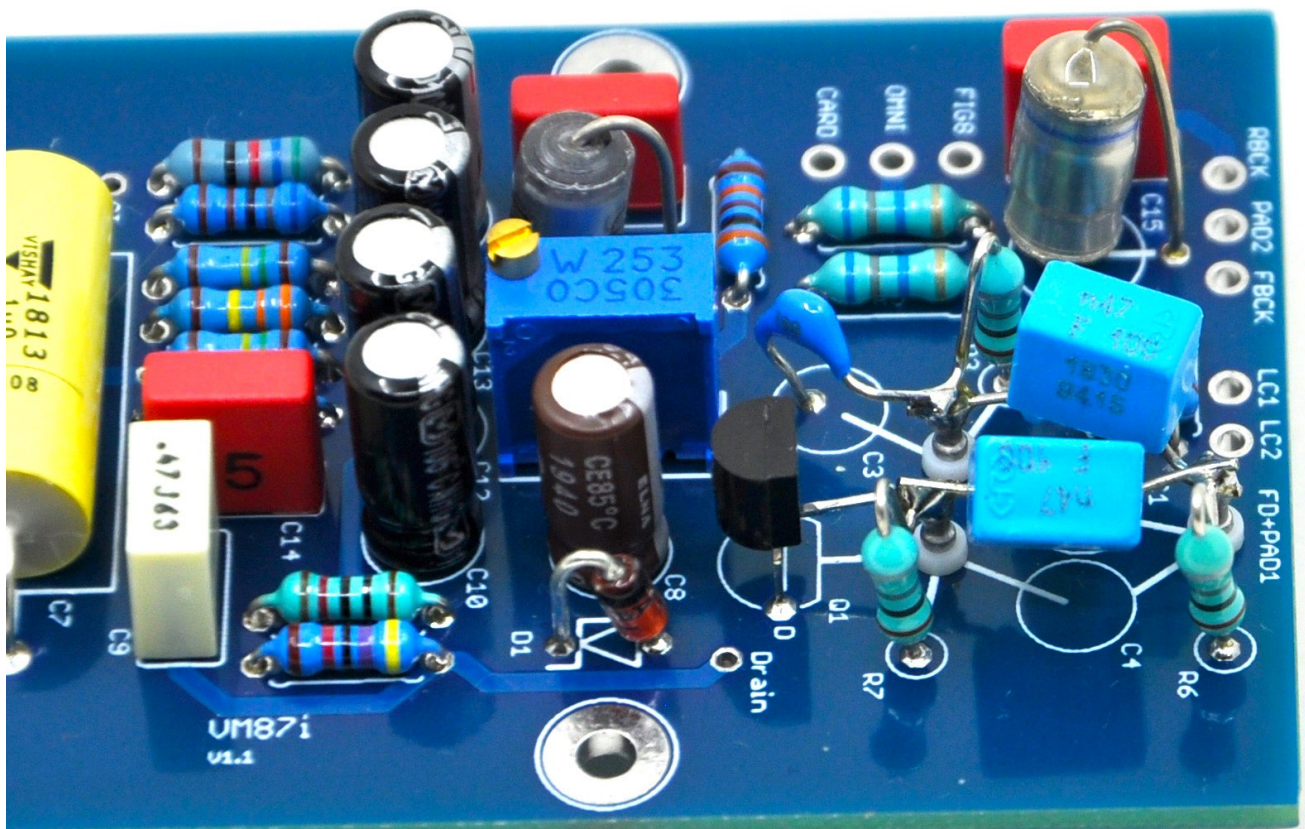
VAMISOUND V-87 pcb kit includes two printed circuit boards - main parts board and switch board.



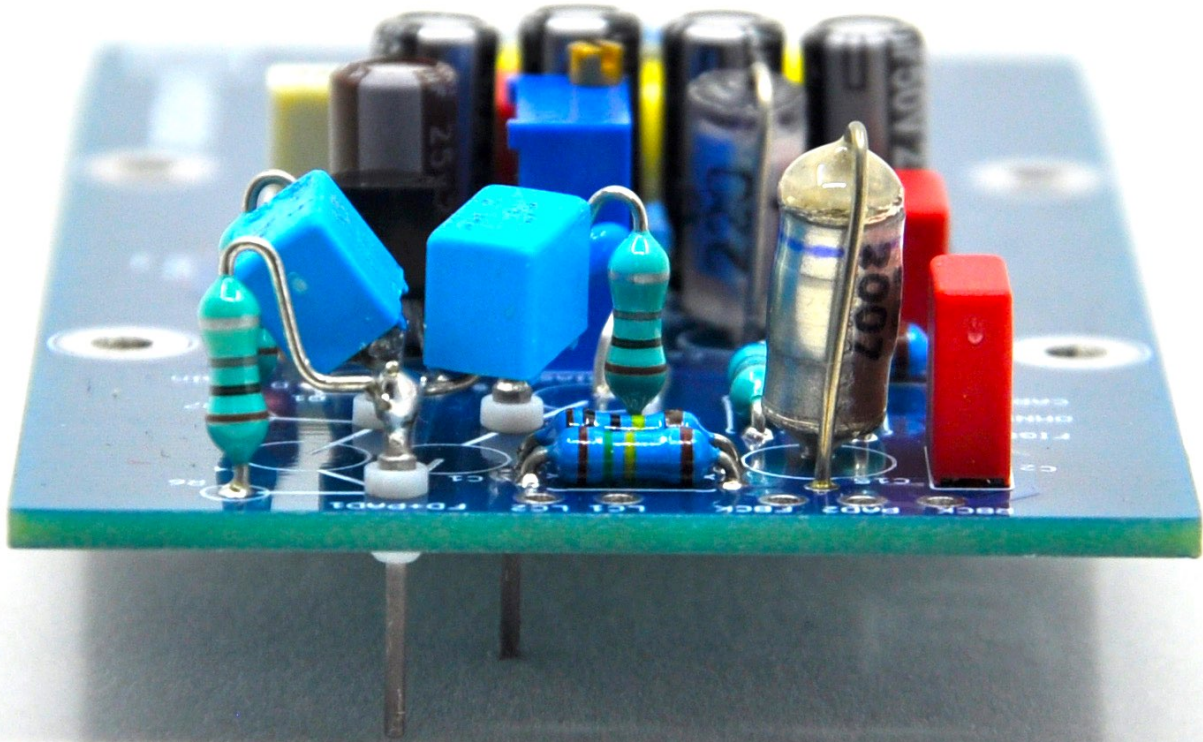
Fitting the board with components is quite simple. First, solder all the resistors. Then the film capacitors and finally the largest components like electrolytic capacitors, bias trimmer and yellow output capacitor C7.



HiZ section (= R3, R7, R6, C1, C3, C4, Q1) is designed point to point. Focus on the three teflon pins and the components around them. These components are connected to the pins without touching the PCB.

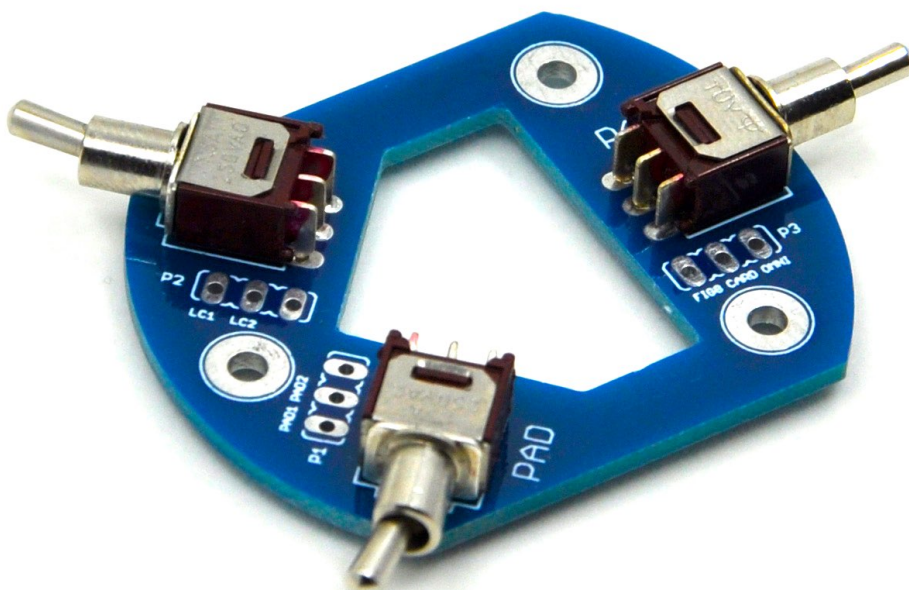


Carefully solder the components to the teflon pins. If you need to hold the component in place before soldering, use for example electrician's tape, metal „third hand holder“ or alligator clip. Do not shorten the teflon pins on the underside of the board. You will need the pins later to solder the cables from the capsule and switch board.

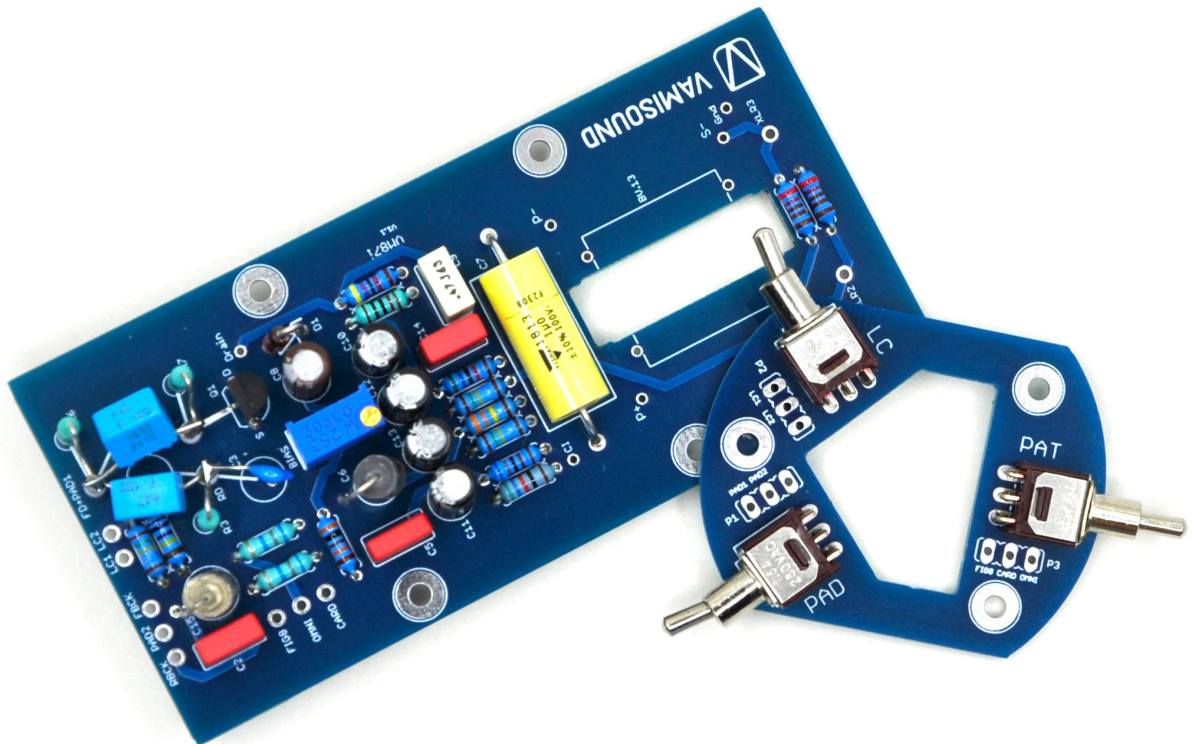


The main component board is now seated. Congratulations!

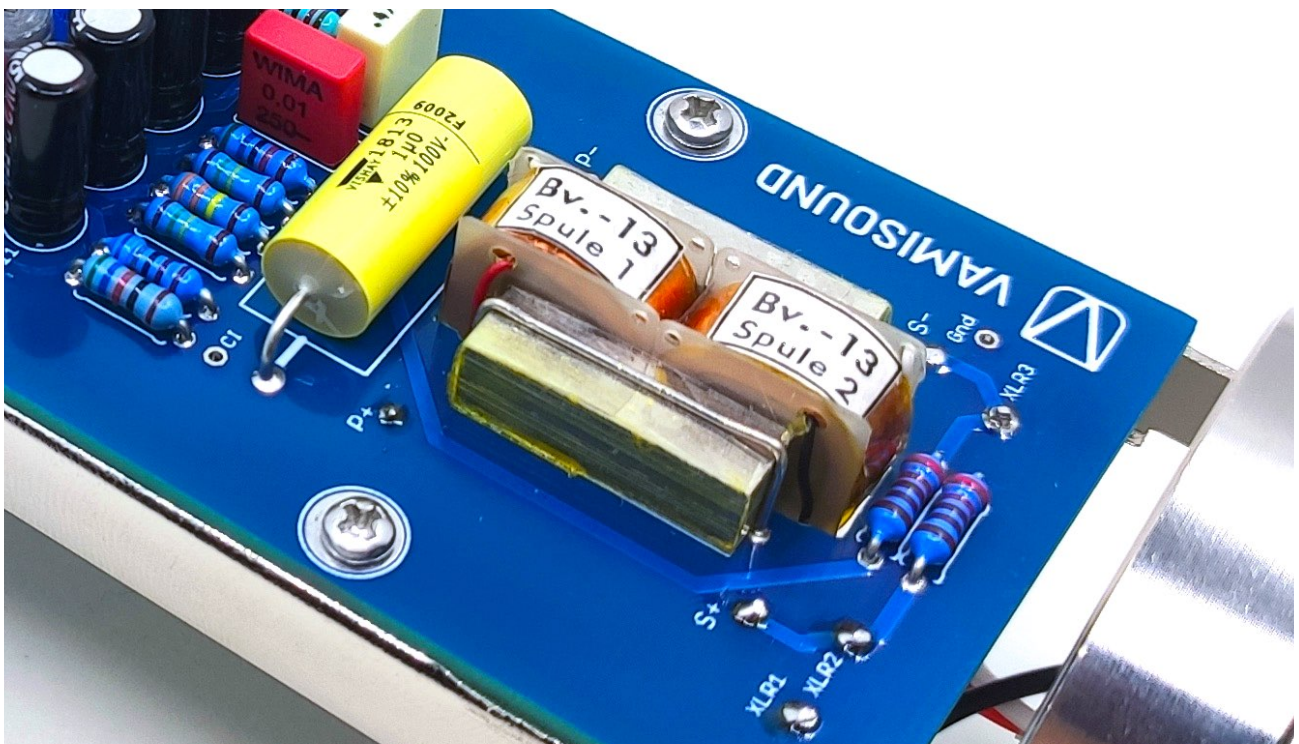
Now it's time to fit the switch board. Make sure the switch is flush with the silk screen on the PCB.



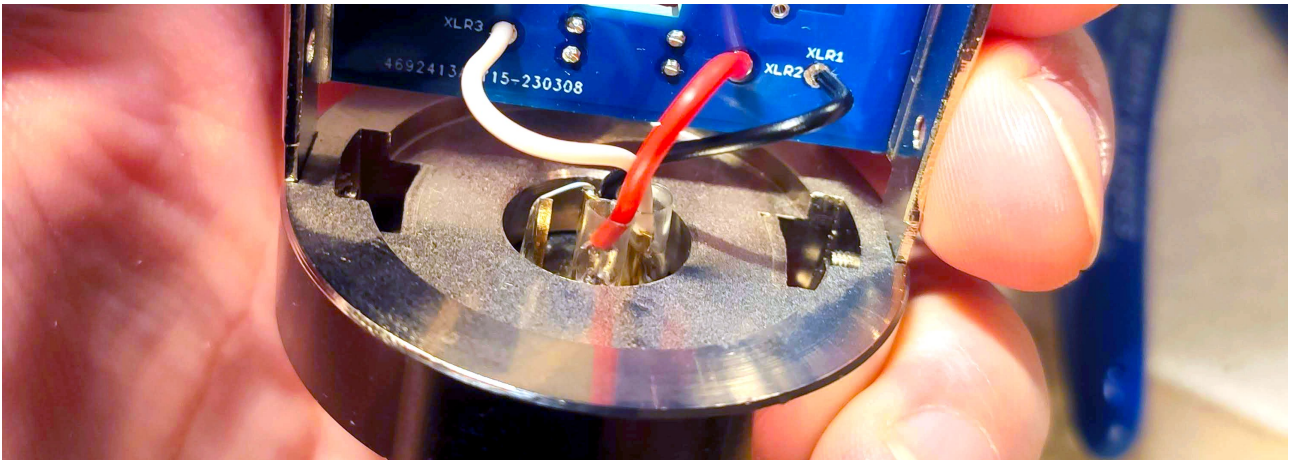
Carefully clean both boards with isopropyl alcohol. Be especially careful not to contaminate the styroflex capacitors with the cleaner (if you have used these).



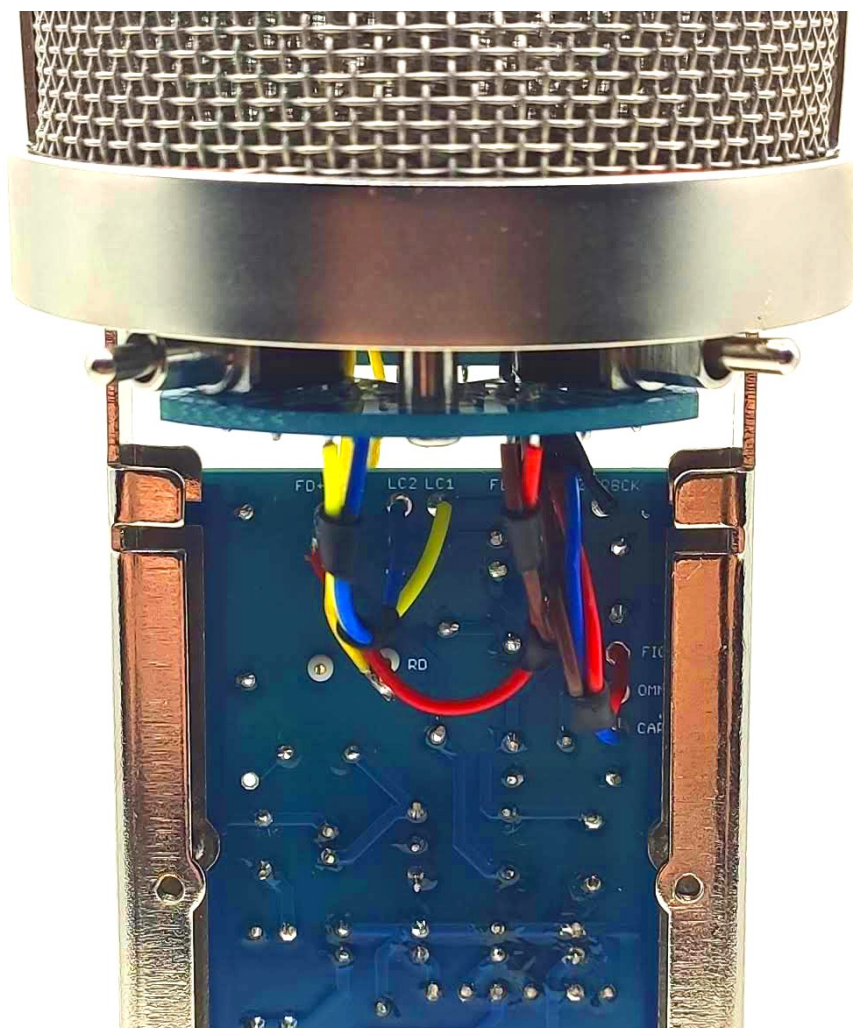
Screw the main parts board to the microphone chassis and install Moby's Bv.13 transformer clone. Enjoy this phase sufficiently :)



Connect the main parts board to the XLR insert. Use three short cables for this. Don't forget to connect pin1 on the XLR connector to the ground lug (which is located on the same connector). Use the remaining resistor legs for this. This provides a connection between the OV circuit board and the microphone body (the so-called chassis ground).



Now it's time to connect the main parts board to the switch board. Check out the wiring section of this manual where everything is illustrated.



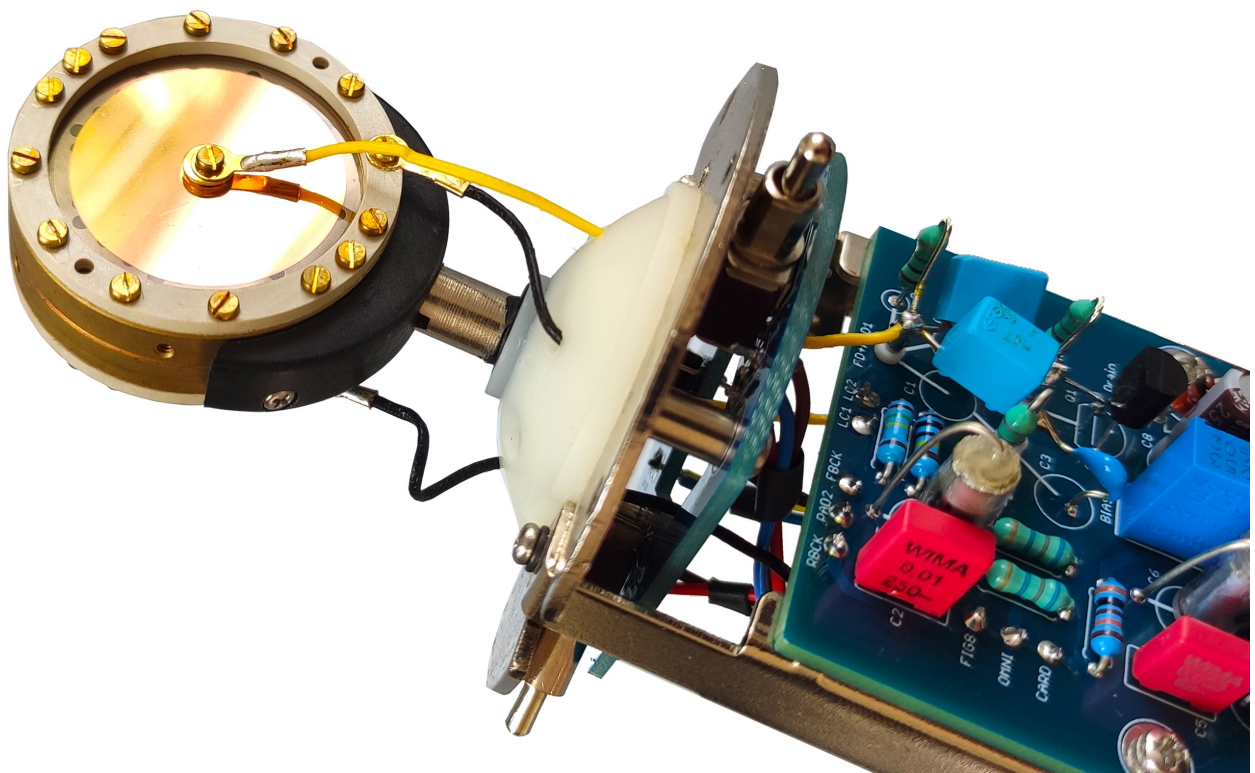
Make the PAD1 pad on the switch board to PAD1 on the main parts board connection directly to the teflon pin leg on the bottom side of main parts pcb.

Now that you have connected the main board to the switch board it's time to connect the cables from the capsule.

A capsule with separate (electrically isolated) backplates is required for this construction. Your capsule therefore has 4 cables.

When soldering the capsule, it is good practice to cover the capsule with a protective foil or other suitable cover to prevent damage.

Solder the cable leading from the center of the front diaphragm (the yellow cable on the pic) to the teflon pin marked „FD“. Cable from front backplate to the "FBCK" pad on main parts board. Plug the cable from the rear capsule backplate into the "RBCK" pad on the main component board. Finally solder the cable from the rear diaphragm to the teflon pin marked "RD". Do this on the back side of the main parts board.



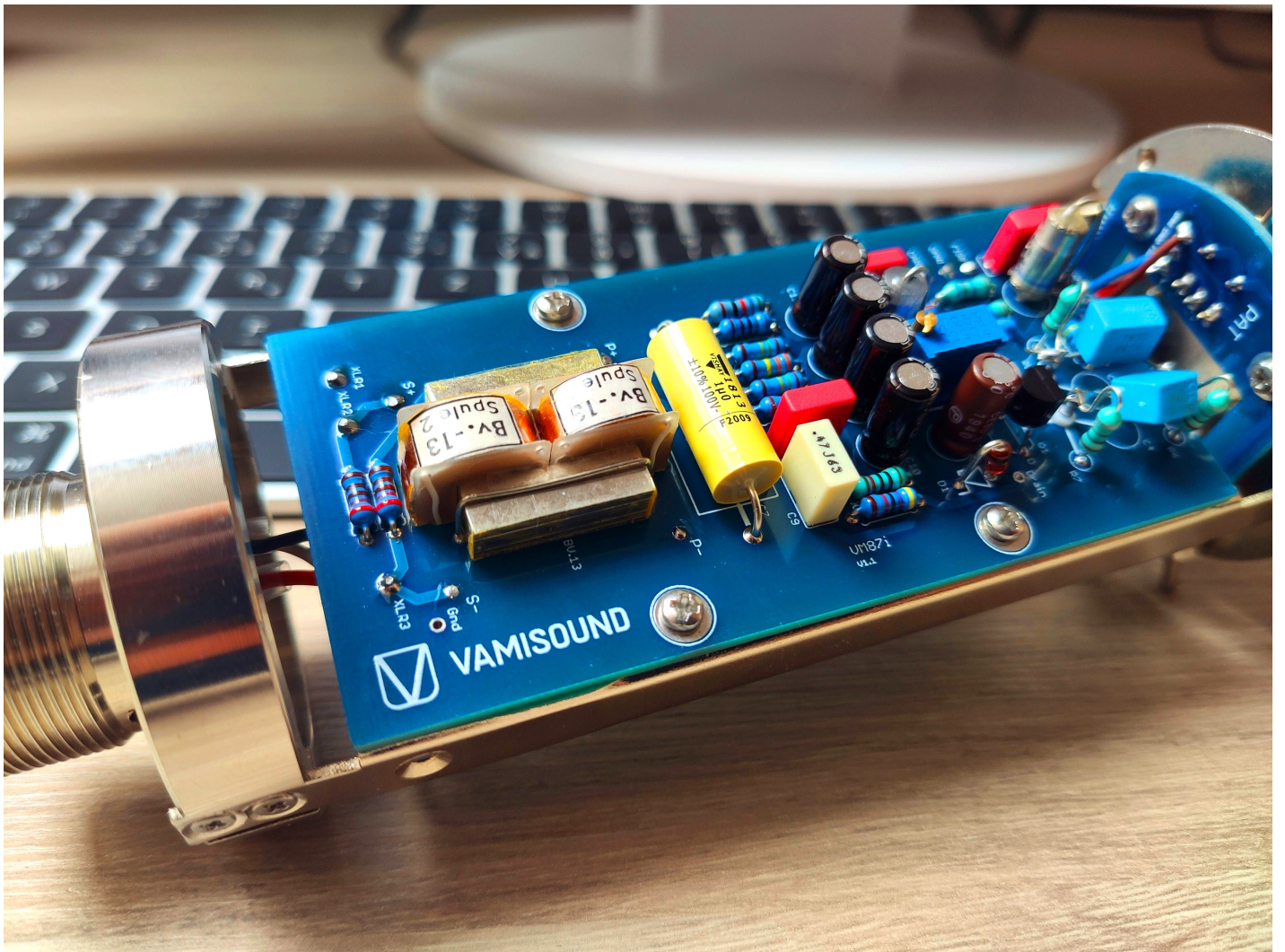
Immediately after connecting the capsule to the main board, screw the headbasket to the rest of the body.

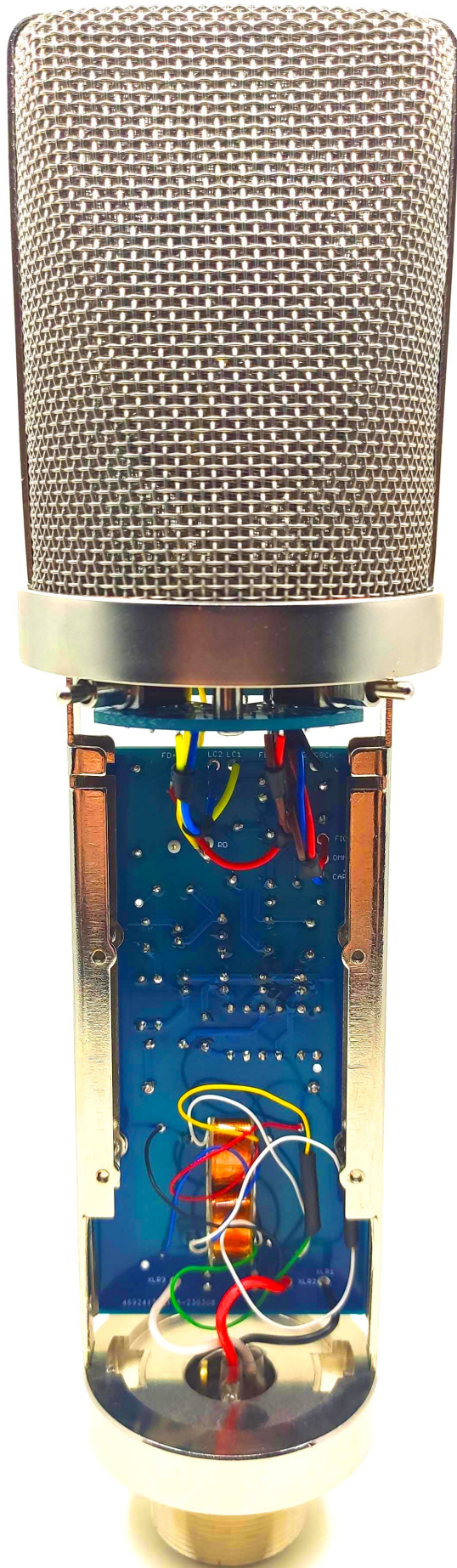
Now it's time to test the circuit. Connect the microphone to phantom power and measure all the necessary voltages. Adjust the FET transistor bias using a trimmer. According to the original U87i schematic, a suitable starting point is about 11V on the FET transistor drain.

Test all microphone characteristics, as well as the attenuation pad and HPF. Everything should work as it should.

Put the body tube on the microphone chassis.

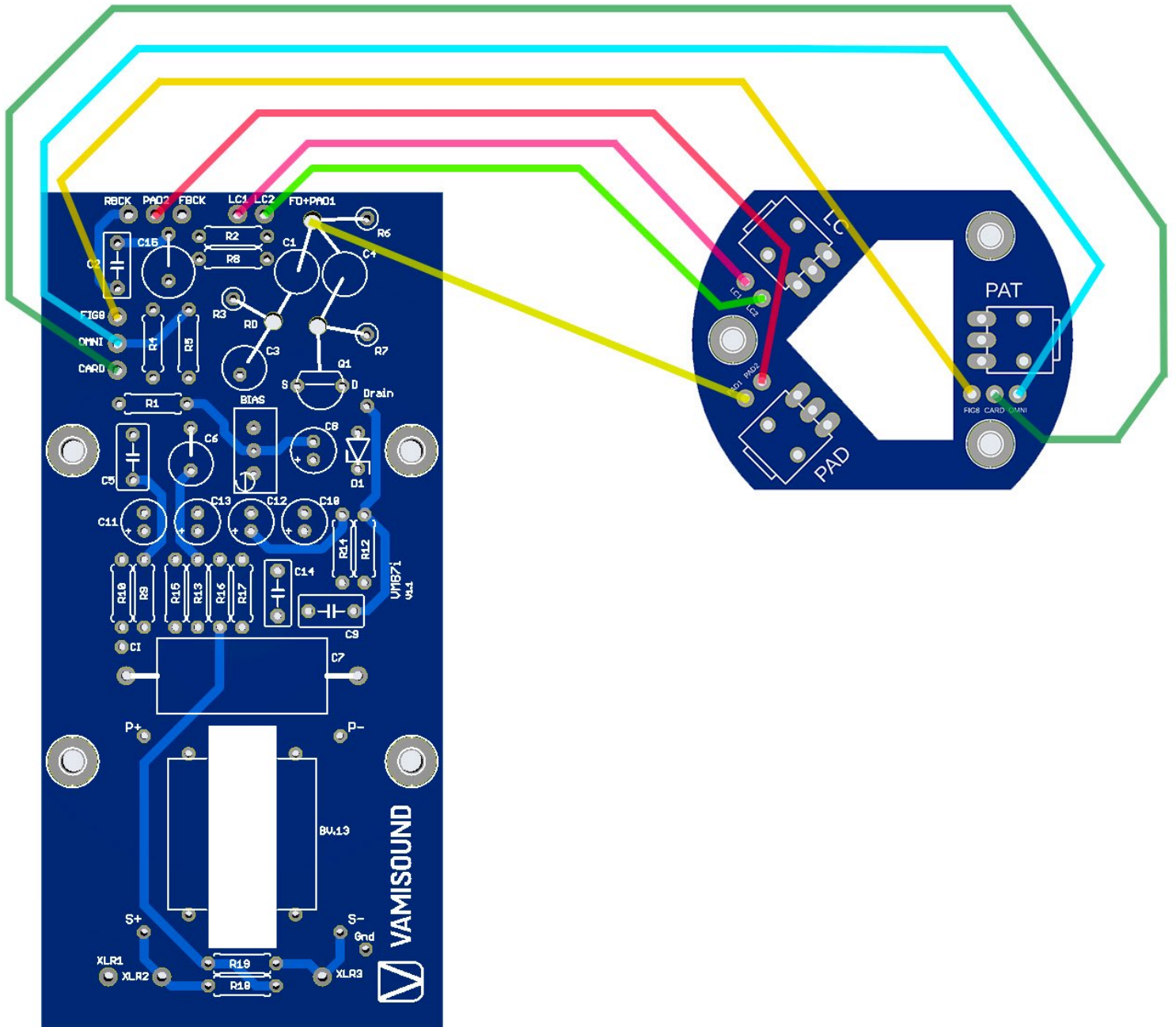
Congratulations, your new microphone is now ready!







WIRING INFO:



- 1) Connect FIG8, OMNI, CARD pads on main parts board via cable to FIG8, OMNI and CARD pads on the switch board.
- 2) Connect LC1 and LC2 pads on the main parts board to LC1 and LC2 pads on the switch board. Use two cables for this.
- 3) Connect PAD2 pad on the main parts board to PAD2 pad on the switch board. PAD1 pad on the switch board connect to teflon pin marked as „FD+PAD1“.
- 4) K87 capsule wiring: Front membrane to FD teflon pin. Rear membrane to RD teflon pin. Front backplate to FBCK pad on the main parts board. Rear backplate to RBCK pad on the main parts board.
- 5) Moby's Bv.13 transformer wiring: Primary start cable (black cable) to P+, primary end cable (red) to P-, secondary start cable (white) to S+, secondary end cable (blue) to S-. Connect secondary cable (green) to another secondary cable (yellow). Join two (white) cables on primary side of transformer together.
- 6) Its always great idea to check phase of DIY microphone against commercial microphone. Swap the XLR2 and XLR3 cables if necessary.

BILL OF MATERIAL

Part	Value	Tol.	Min. V olt.	Dimmensions	link 1	link 2	notes
Resistors							
R1	300K	1 %			mouser link		
R2	150K	1 %			mouser link		
R3	1G	10 %			mouser link		
R4	68M	5 %			mouser link	farnell link	
R5	68M	5 %			mouser link	farnell link	
R6	1G	10 %			mouser link		
R7	1G	10 %			mouser link		
R8	1M	1 %			mouser link		
R9	6K8	1 %			mouser link		
R10	560R	1 %			mouser link		
BIAS trim	25K	10 %			mouser link		Sets the BIAS
R12	47K	1 %			mouser link		
R13	330K	1 %			mouser link		
R14	10K	1 %			mouser link		
R15	150K	1 %			mouser link		
R16	150K	1 %			mouser link		
R17	56K	1 %			mouser link		
R18	2K21	1 %			mouser link		Matched to R19
R19	2K21	1 %			mouser link		Matched to R18
Diodes							
D1	24V	5 %			mouser link		

Part	Value	Tol.	Min.V olt.	Dimmensions	link	type	notes
Capacitors							
C1	470pF		50V		mouser link	styroflex	
C2	0.01uF		50V		mouser link	film	
C3	10pF		50V		mouser link	ceramic	
C4	470pF		50V		mouser link	styroflex	
C5	0.033uF		50V		mouser link	film	
C6	220pF		50V		mouser link	styroflex	
C7	1uF		50V		mouser link	film	
C8	22uF		6.3V		mouser link	electrolytic	
C9	0.47uF		50V		mouser link	film	
C10	4.7uF		50V		mouser link	electrolytic	
C11	2.2uF		50V		mouser link	electrolytic	
C12	10uF		50V		mouser link	electrolytic	
C13	2.2uF		50V		mouser link	electrolytic	
C14	0.01uF		50V		mouser link	film	
C15	560pF		50V		mouser link	styroflex	
Switches							
PAD					tme link		
HPF					tme link		
PATTERN					tme link		
Transformer							
Bv.13				www.mobytransformers.com			

Part	Value			link 1	link 2		
Tranzistors							
Q1	2N3819			mouser link			

