

ASSEMBLY MANUAL FOR

NUMITRON v5

IV-9 CLOCK

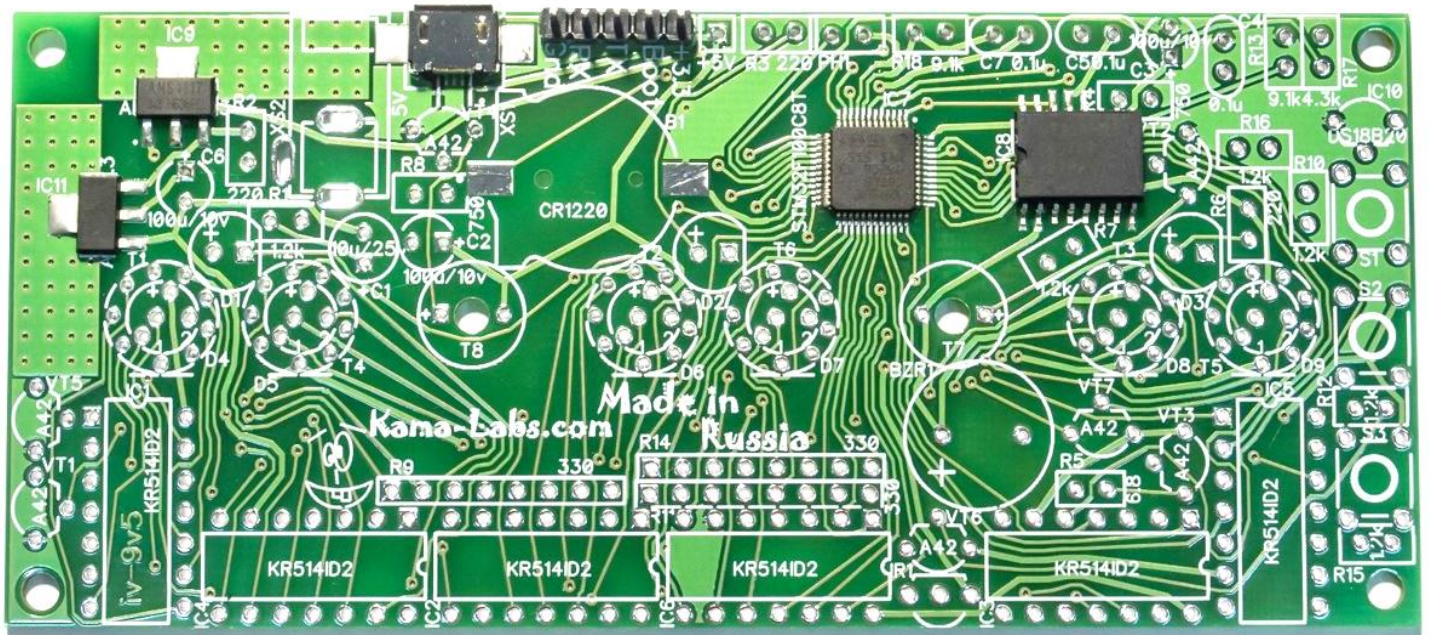
If you will have any questions, contact
with me here:

info@kama-labs.com

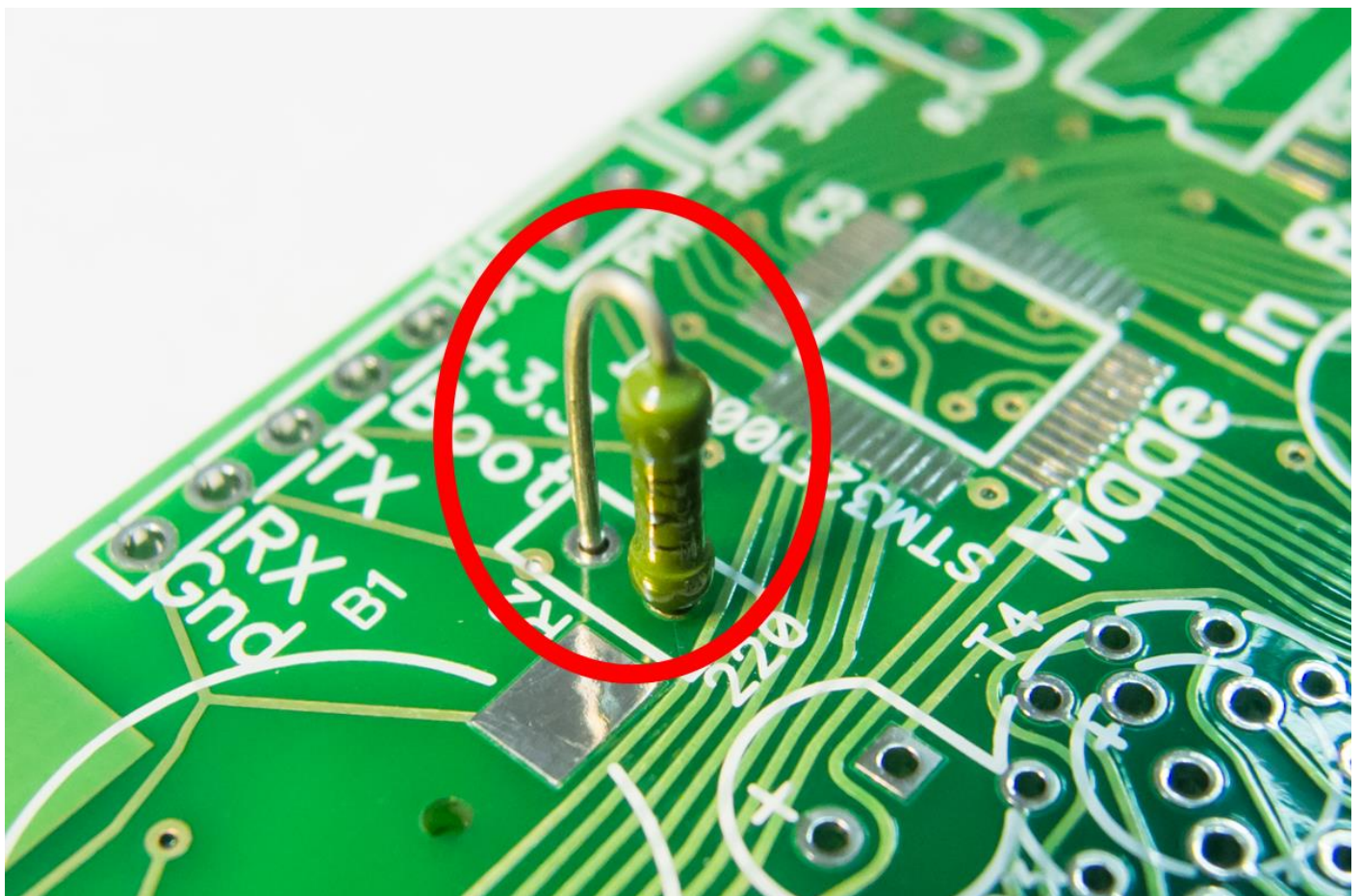
GOOD LUCK!



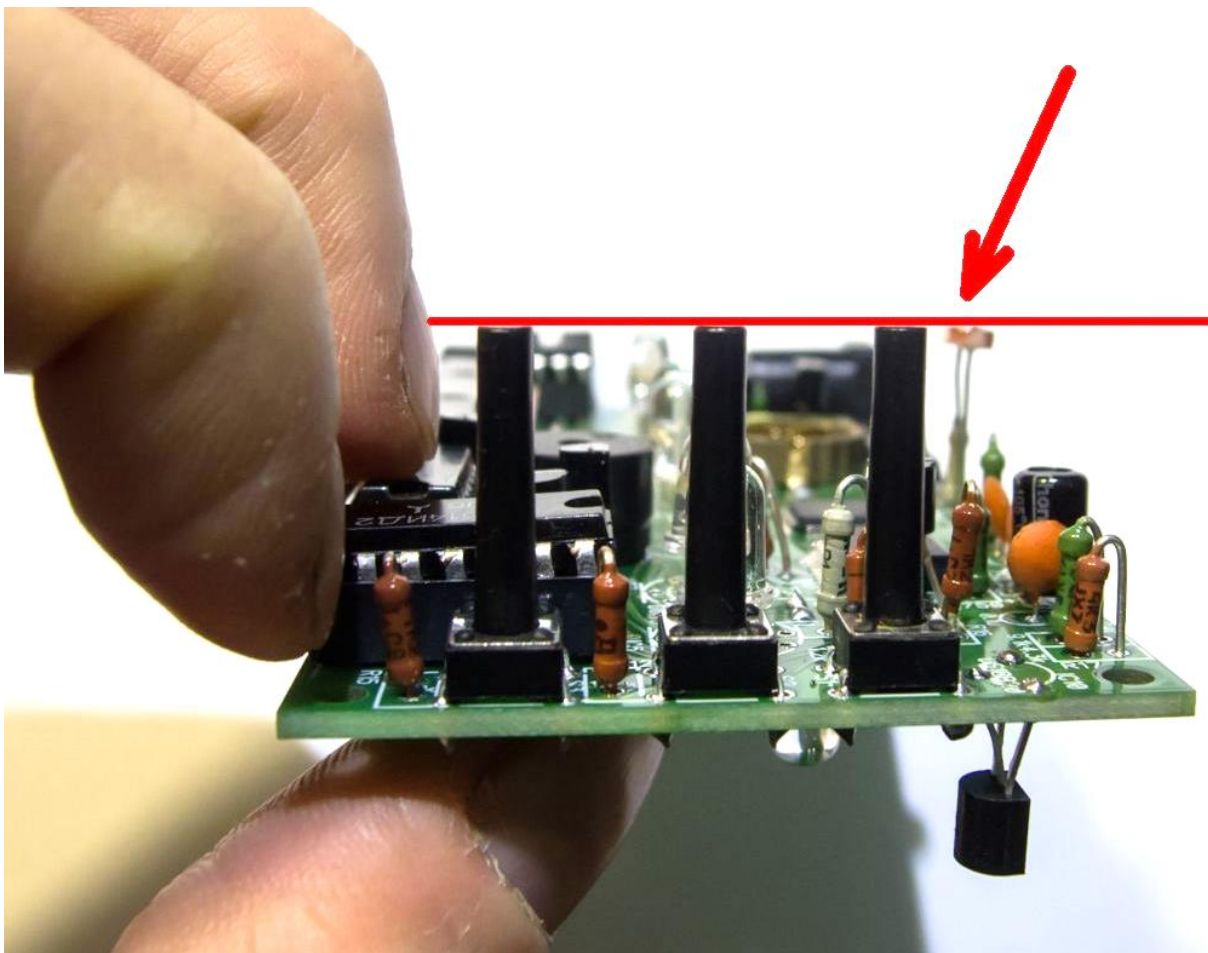
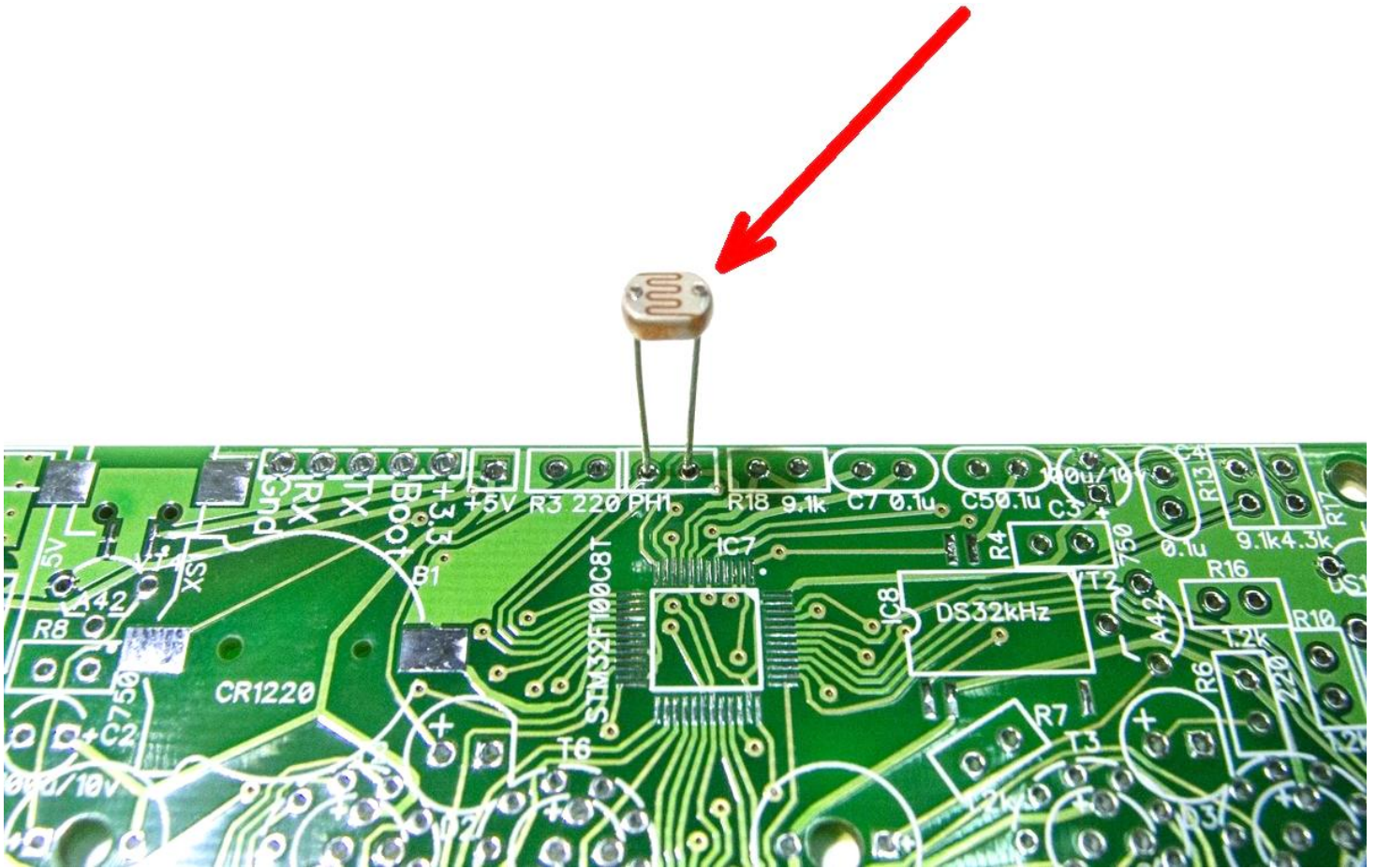
1) You have a PCB with ICs:



2) Place all resistors vertical:

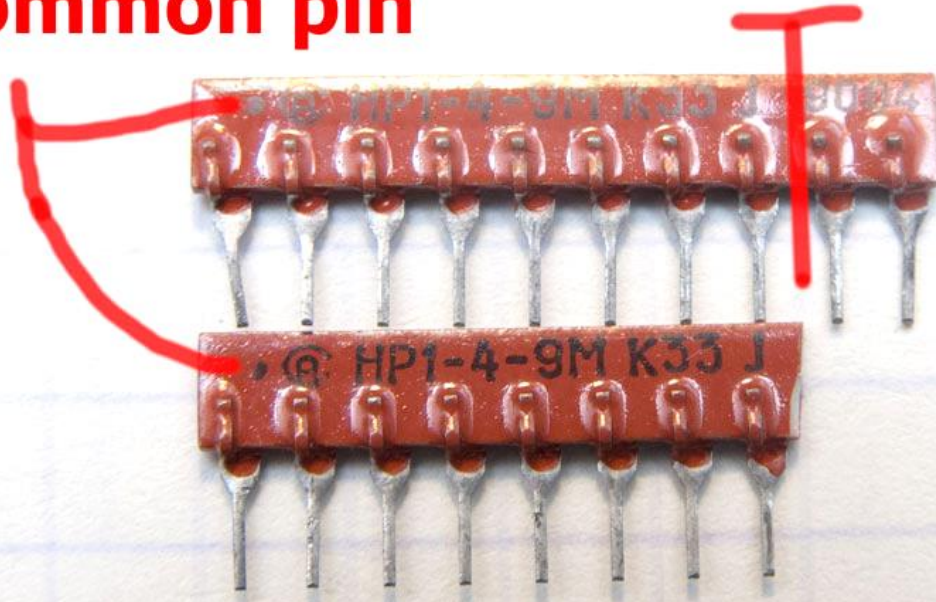


3) Place photoresistor. Make height of photoresistor equal buttons height.

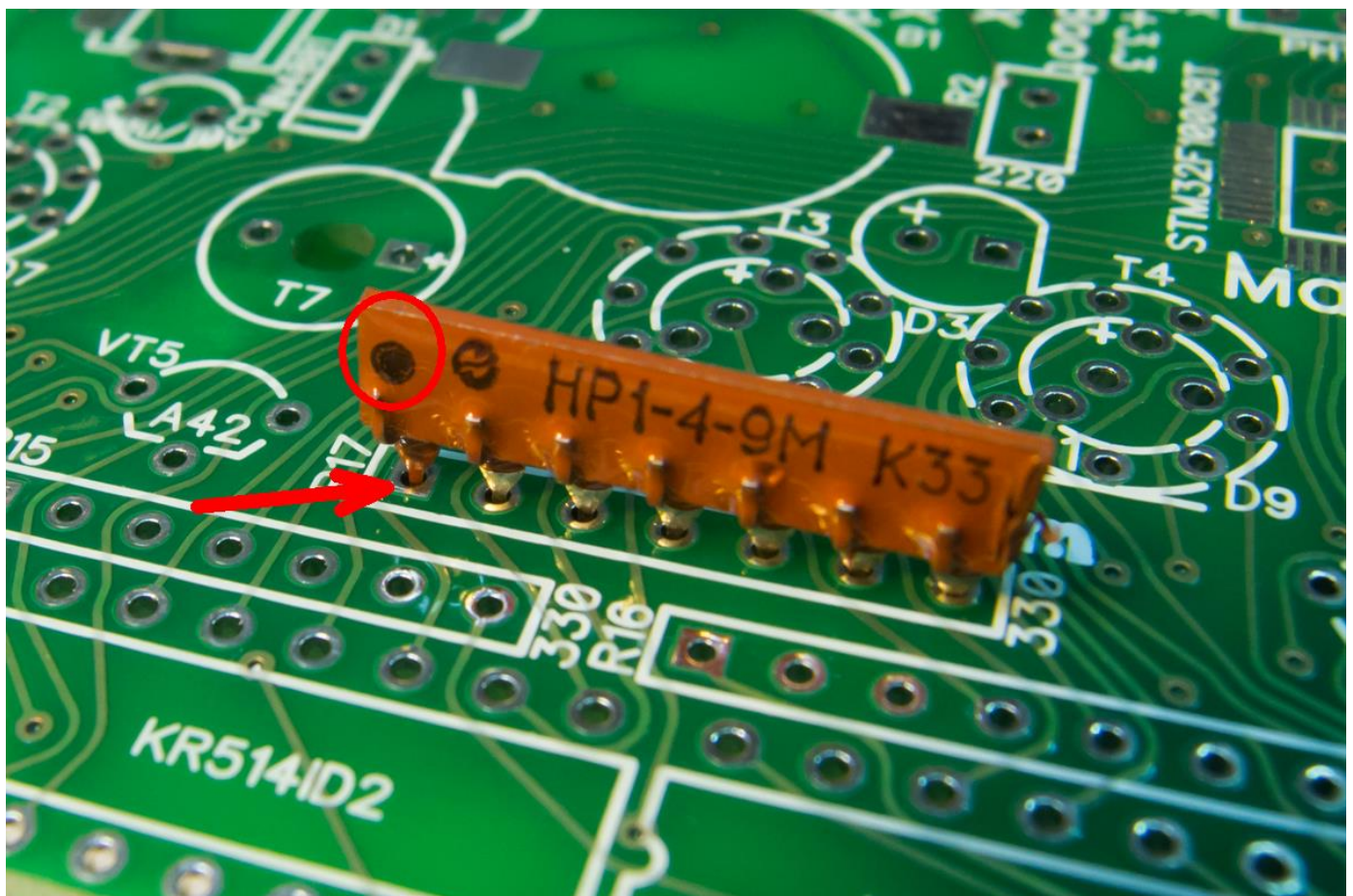


4) Place net.resistors:

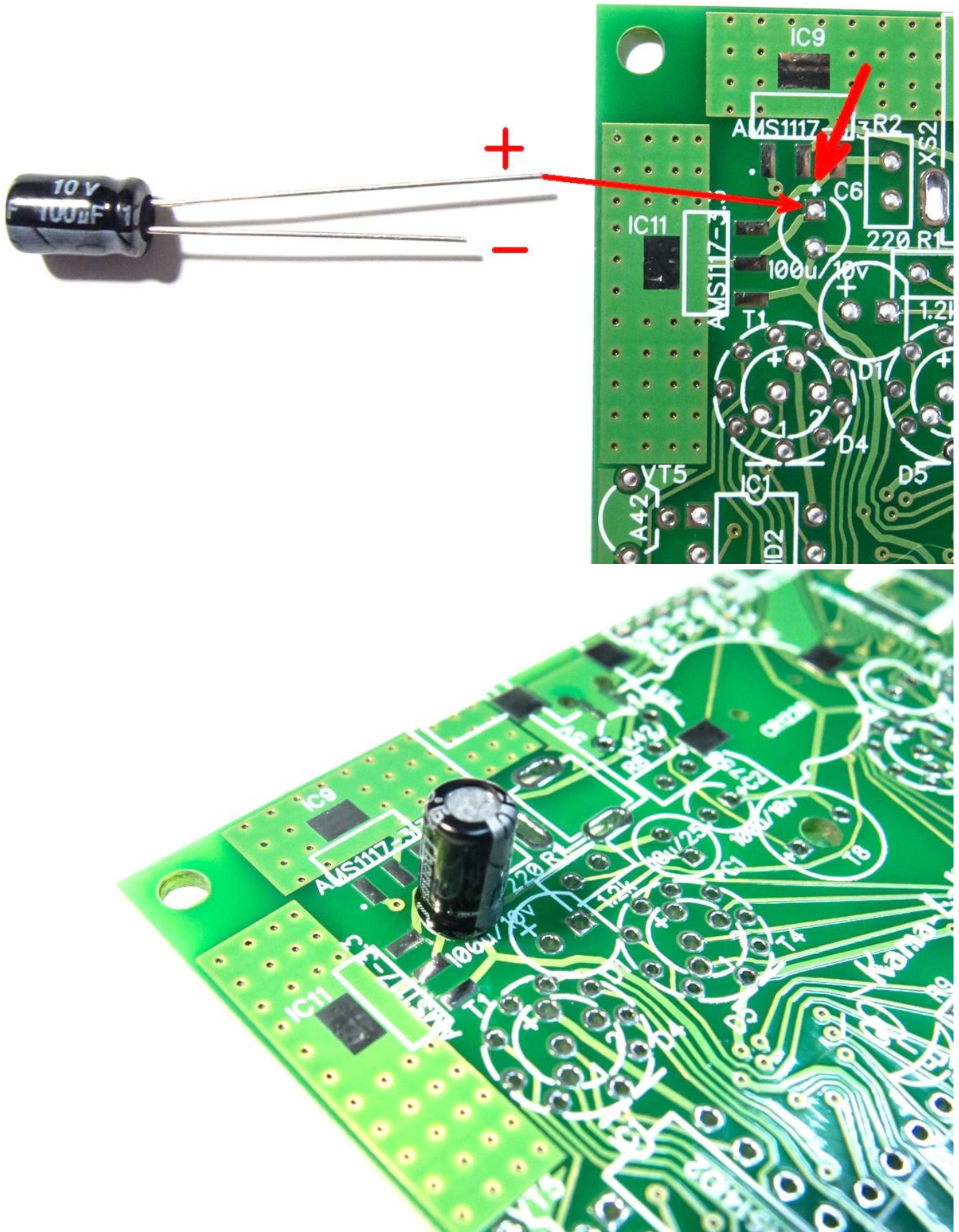
Common pin **Cut here**



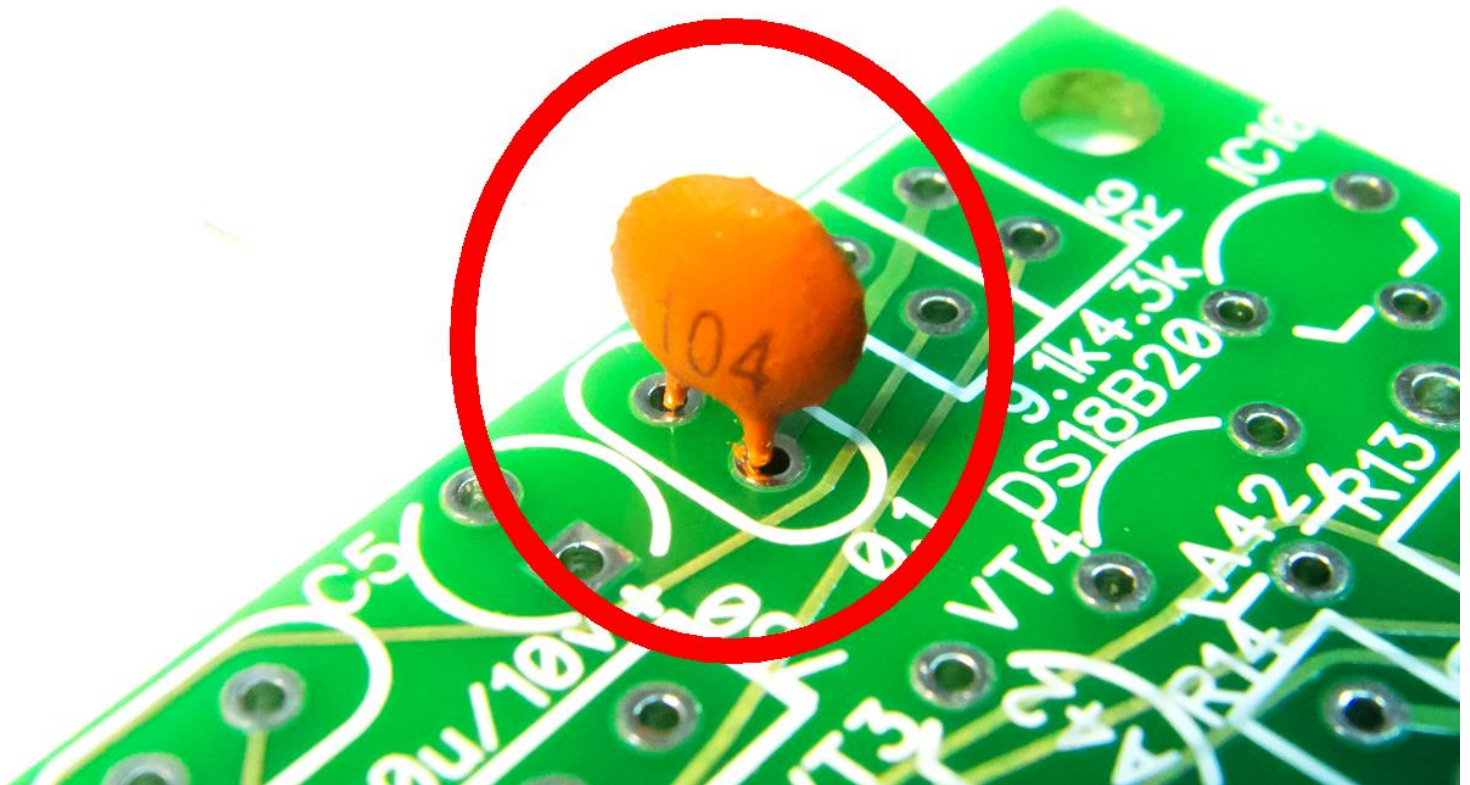
Common pin to square pad.



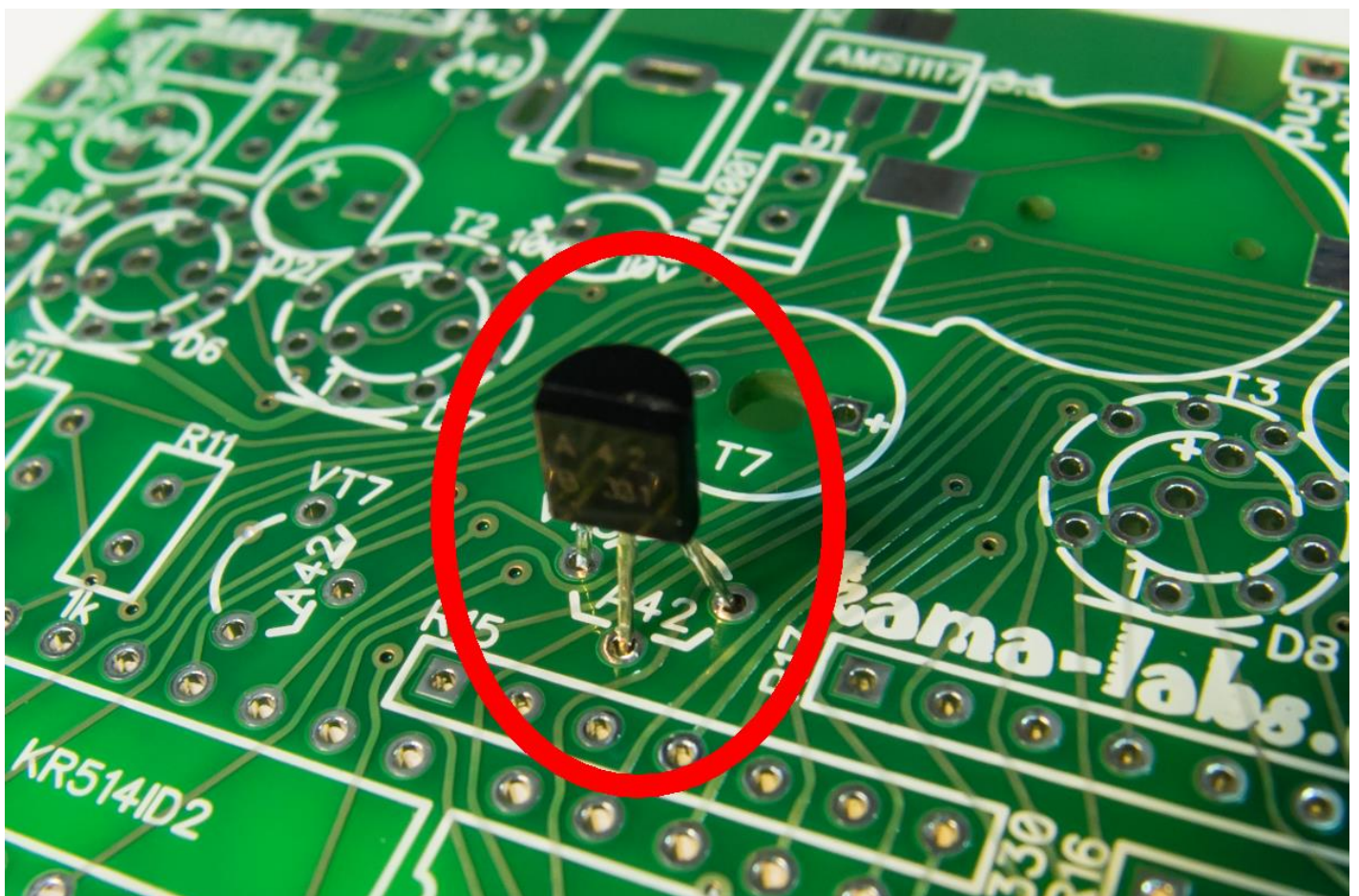
5) Place all capacitors. Be careful with polarity!



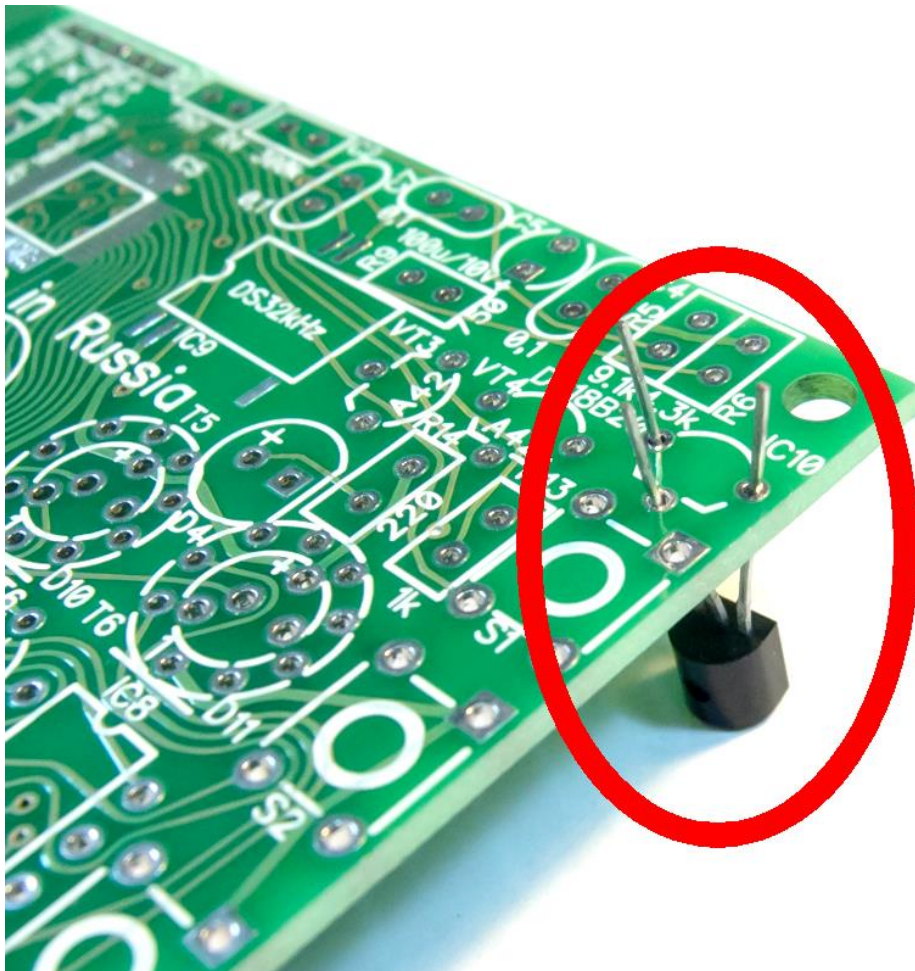
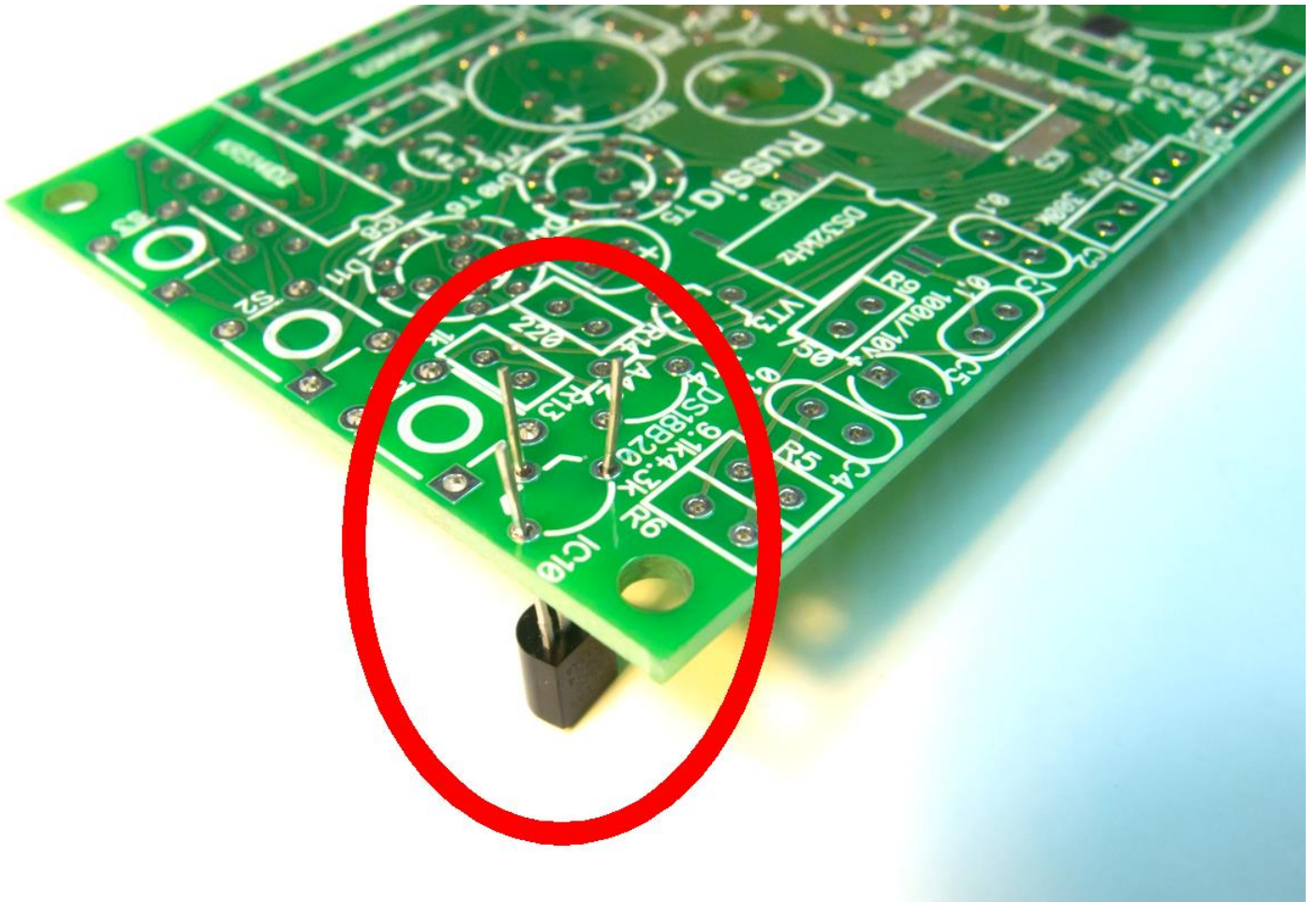
For ceramic capacitors polarity is not matter.

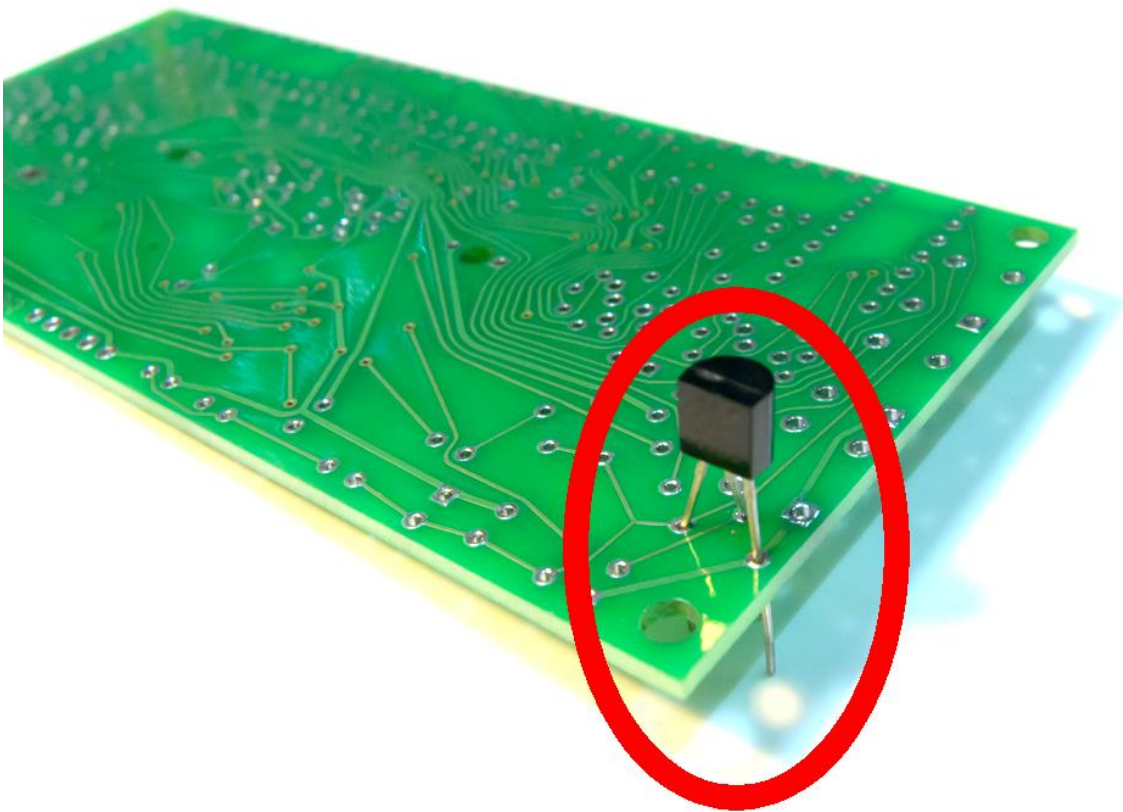
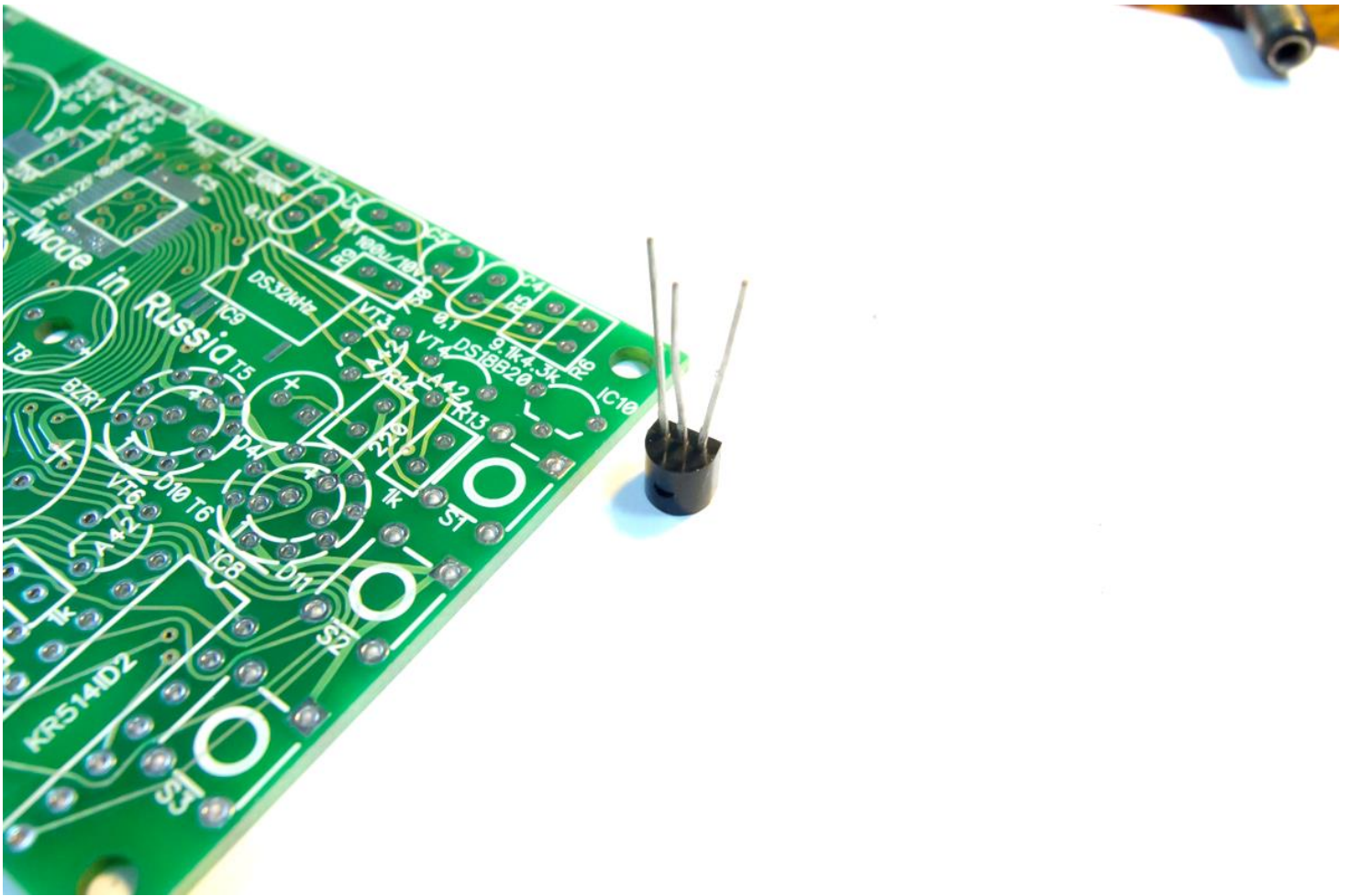


6) Place all transistors and IC10 according marking on PCB:

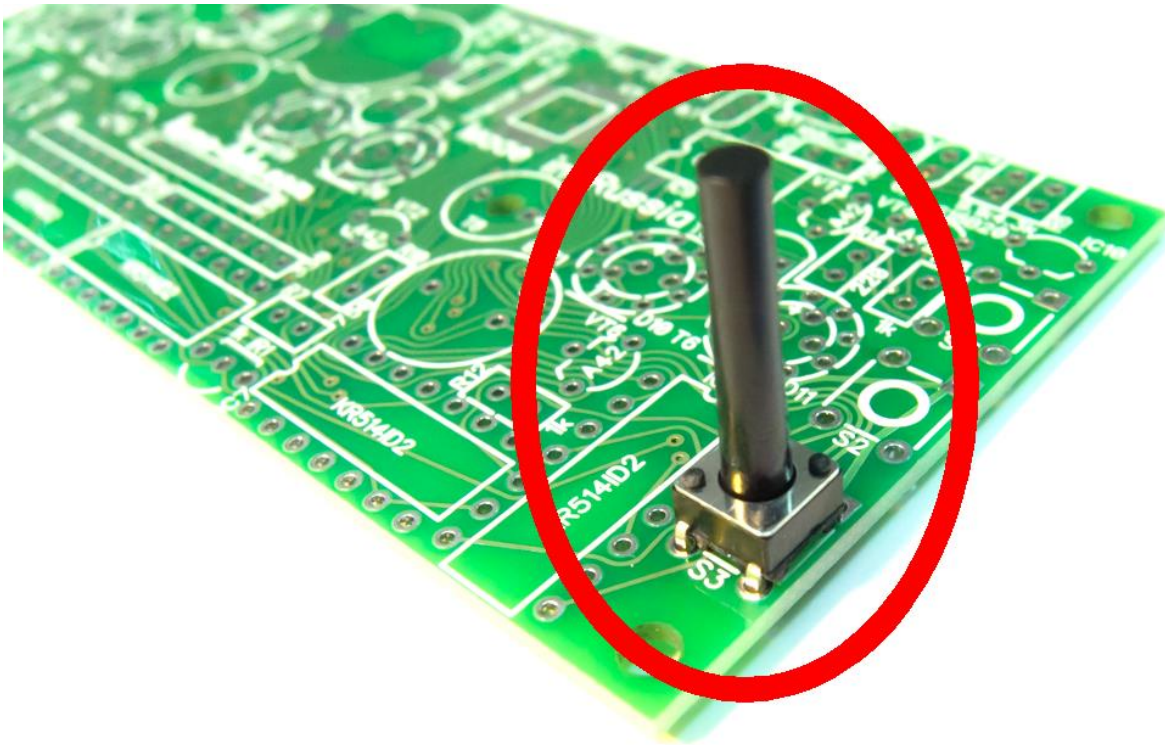


IC11 – temperature sensor and should place on BOTTOM side of PCB:

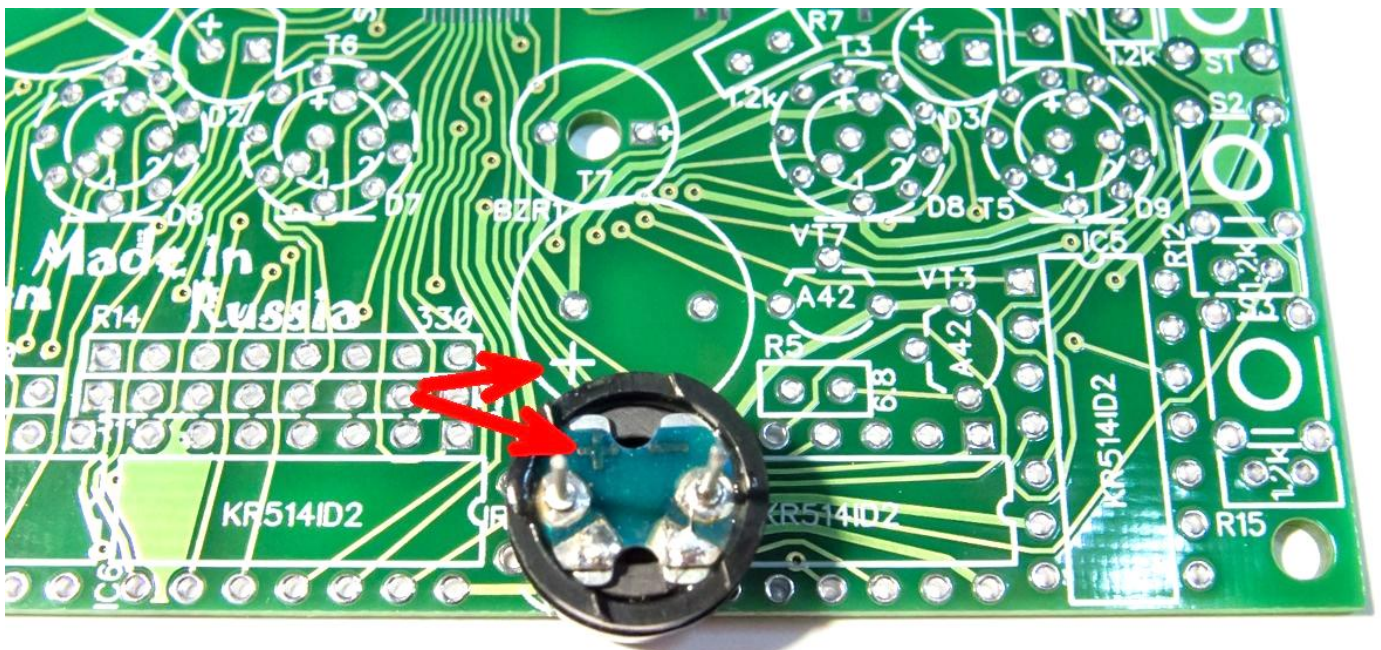


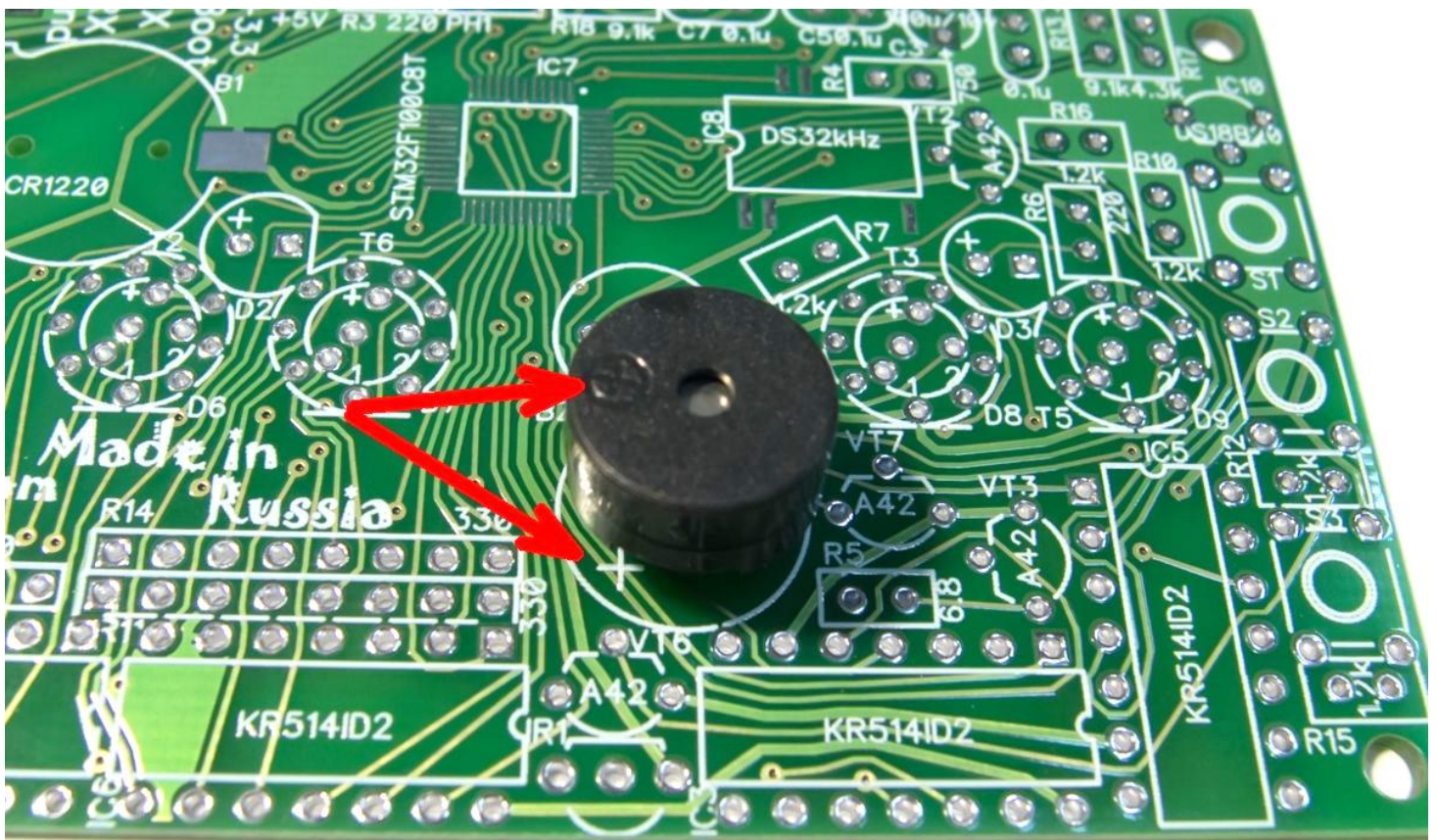


7) Buttons:

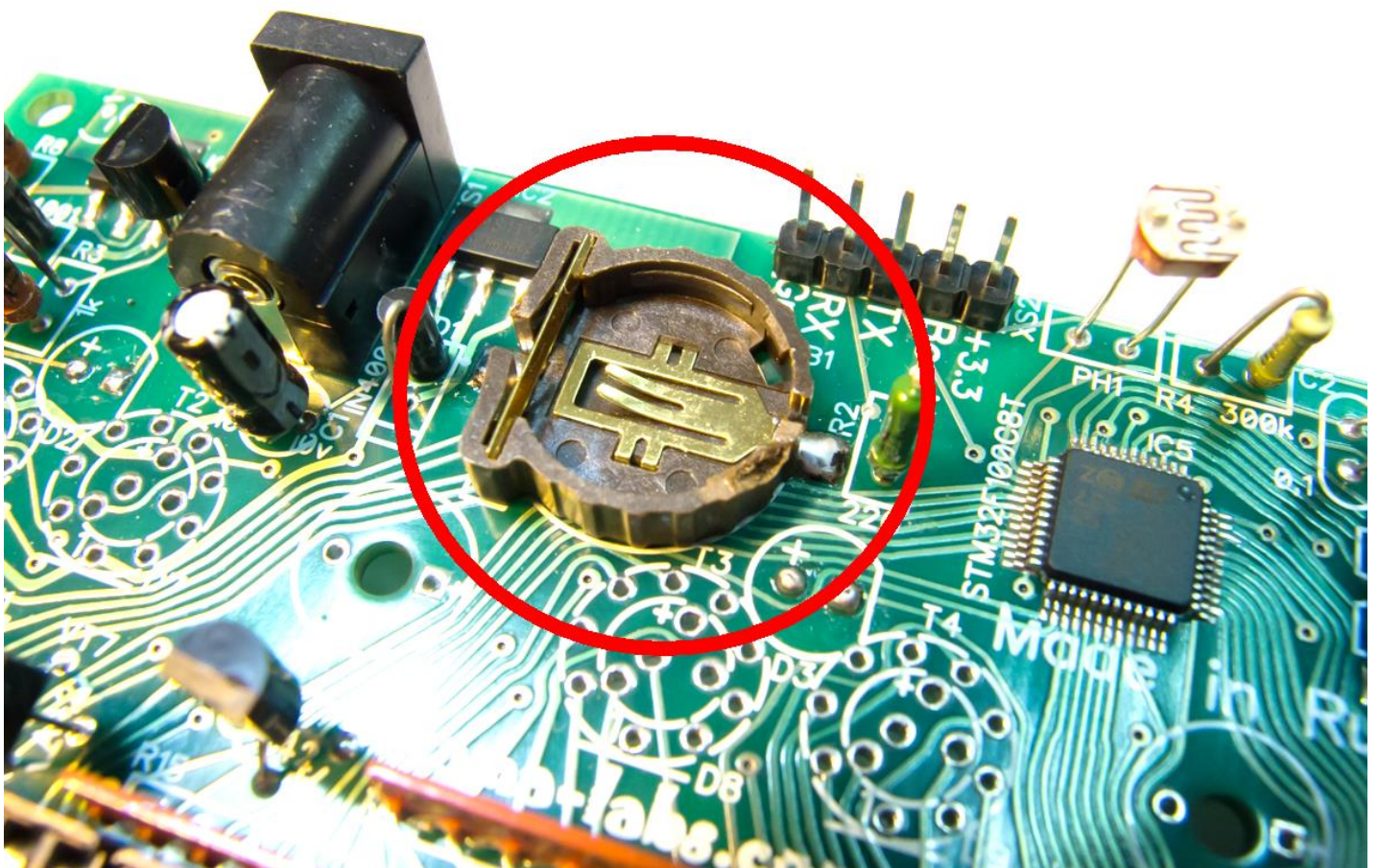


8) Install buzzer:

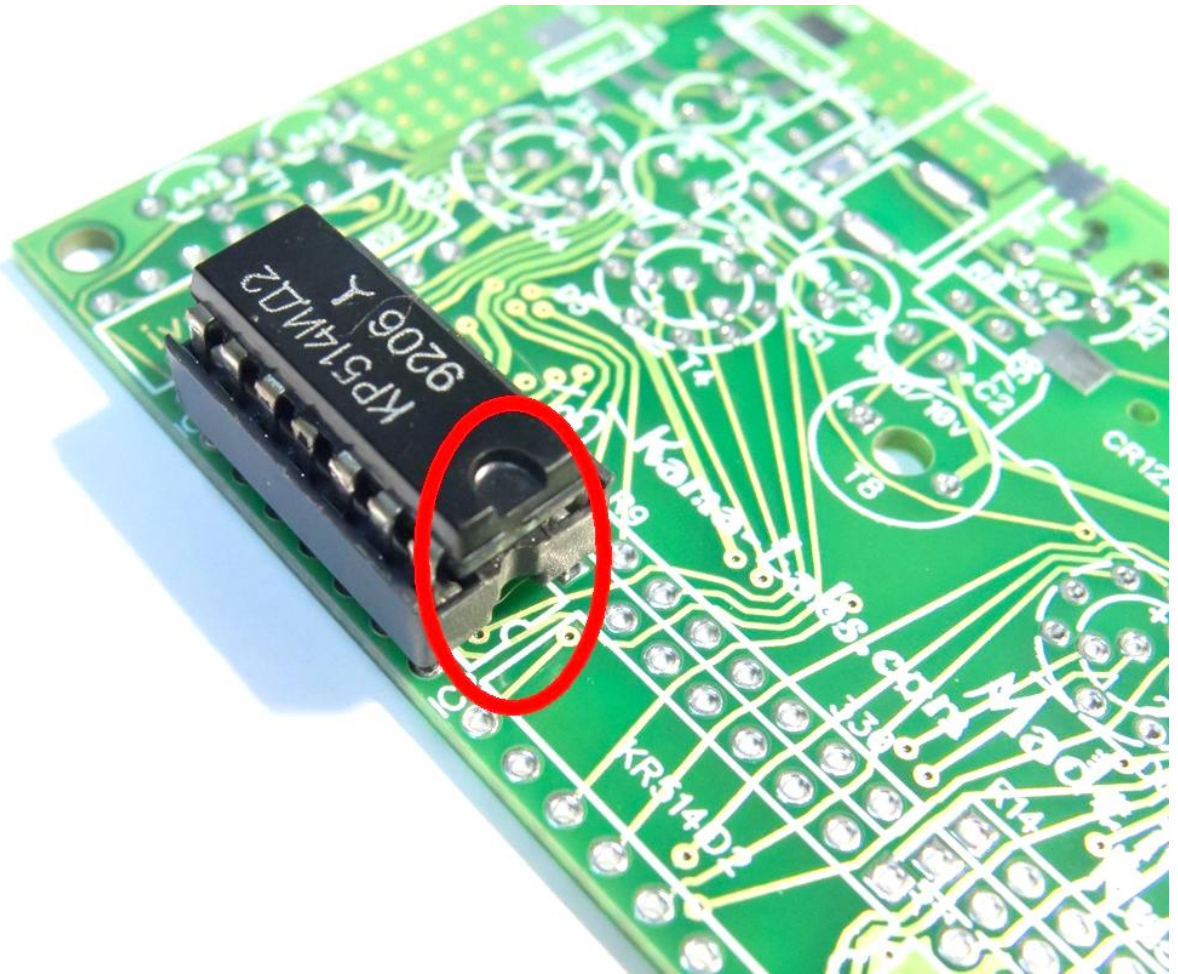




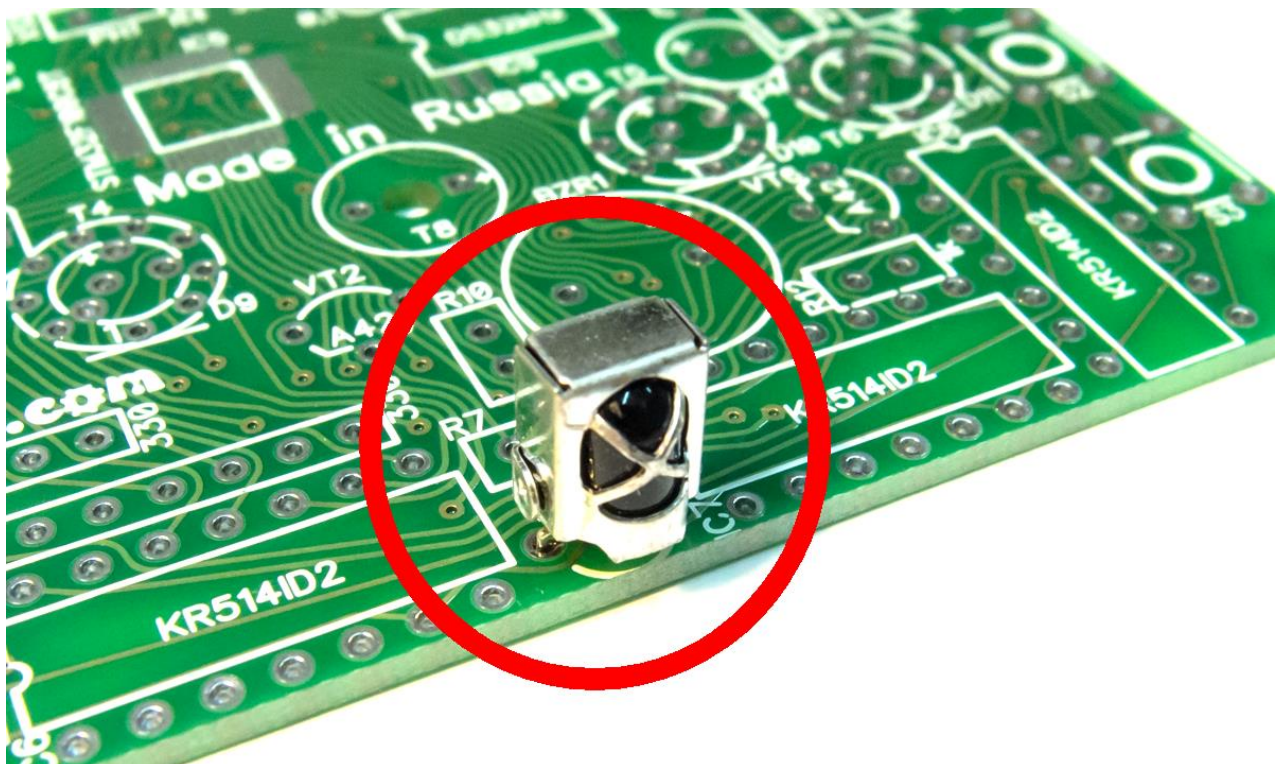
9) Place battery holder and insert battery when clock will be fully assembled:



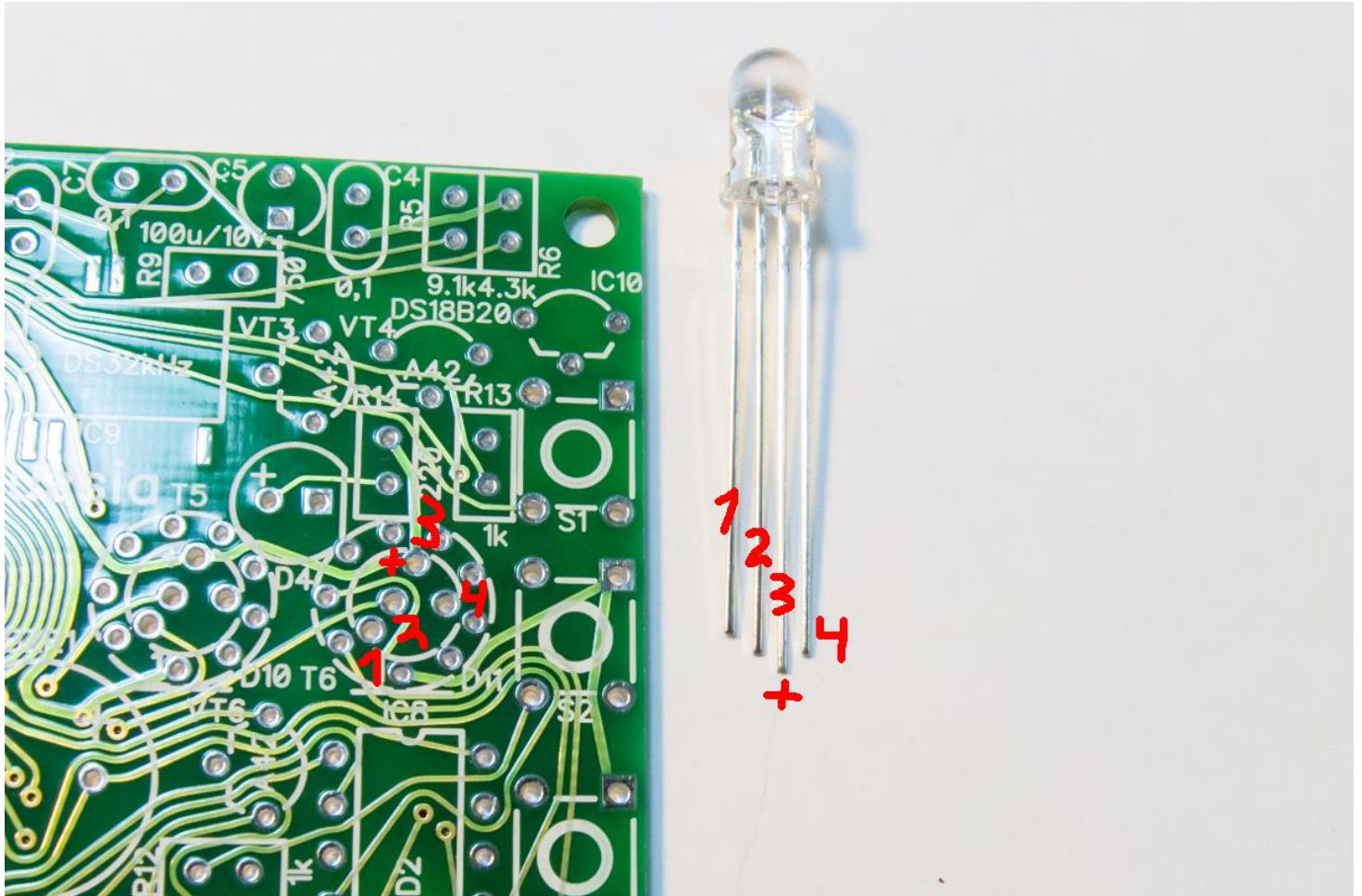
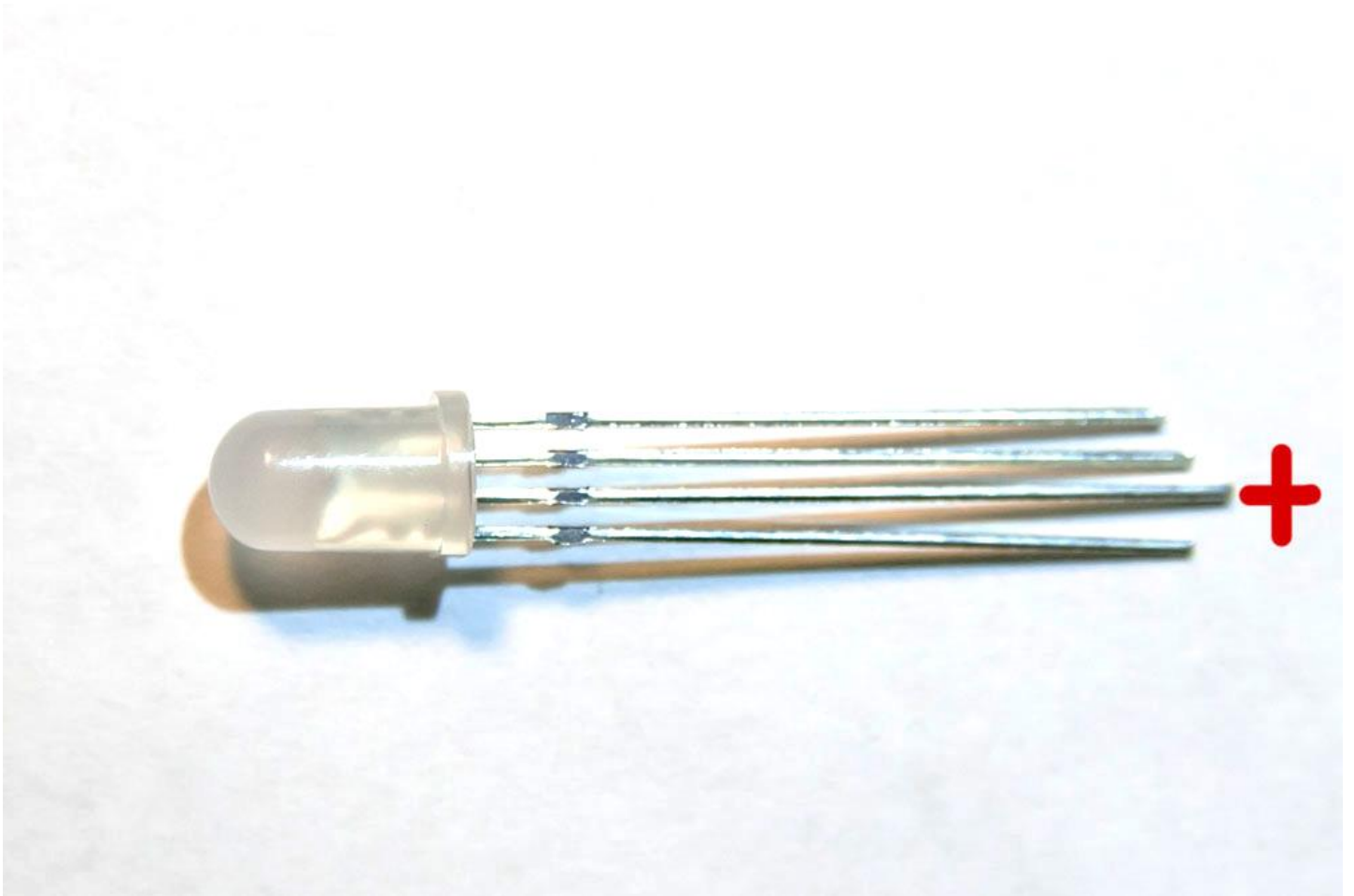
- 10) Place sockets for ICs. Insert KR514ID2 chips at the end of assembling process:

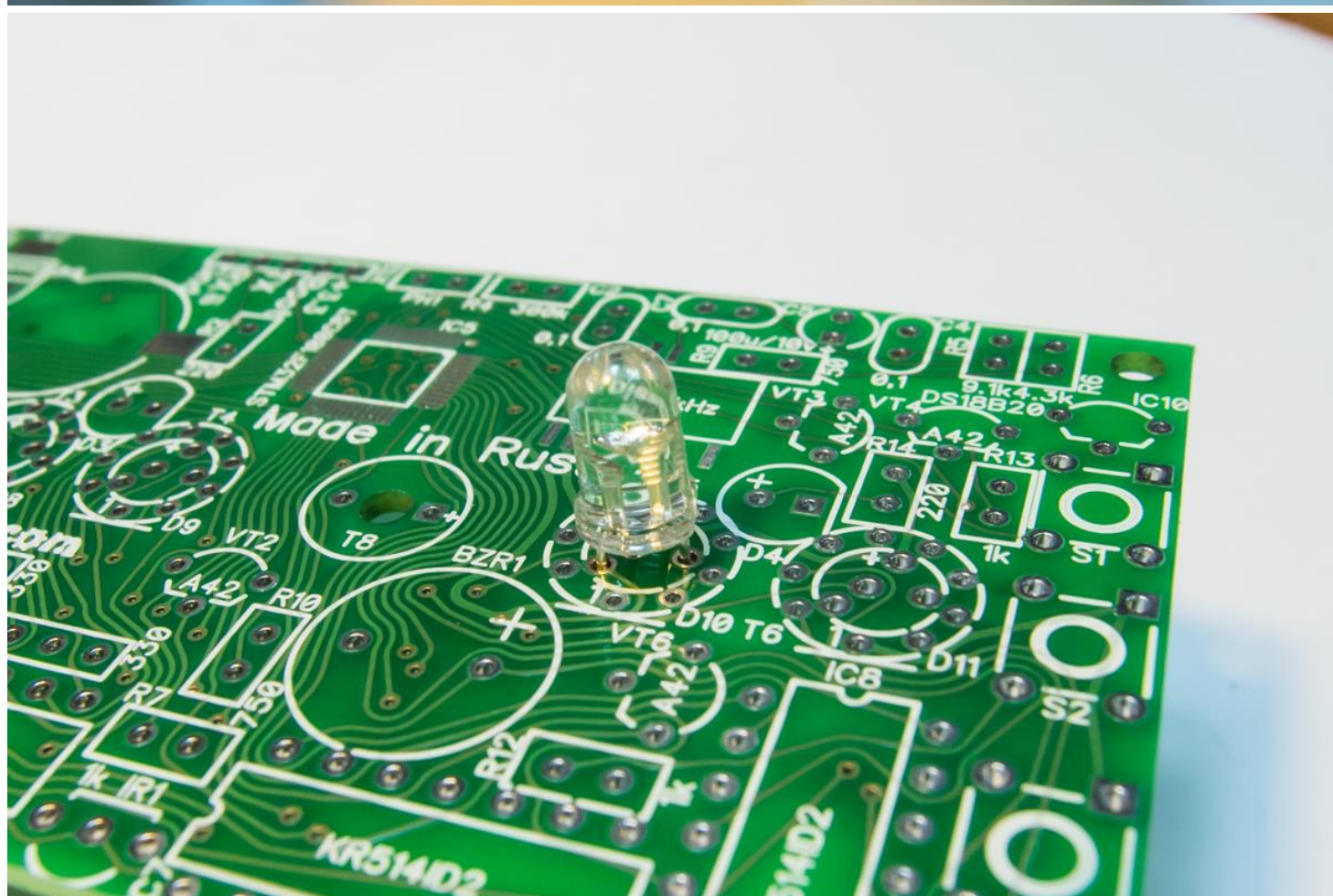
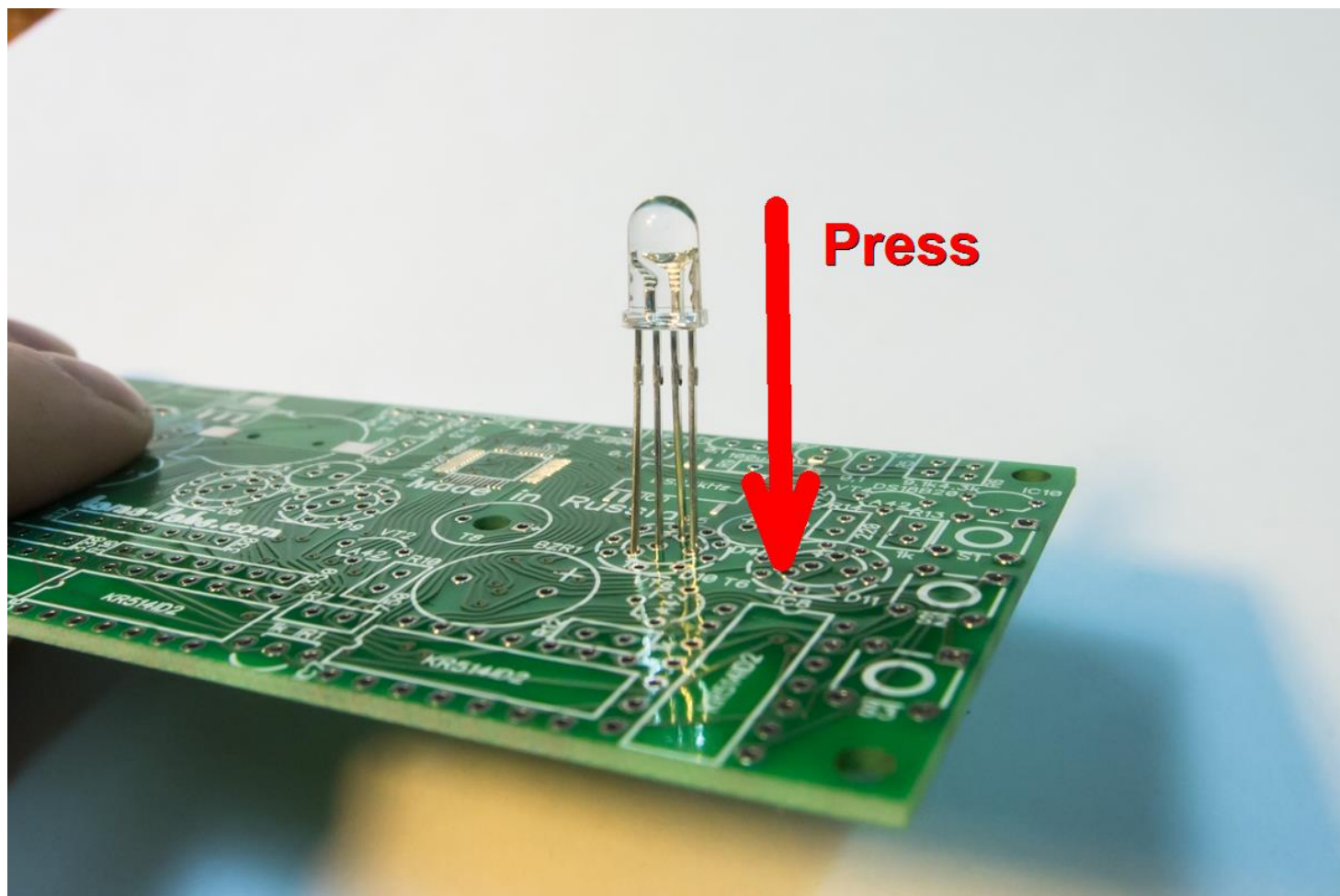


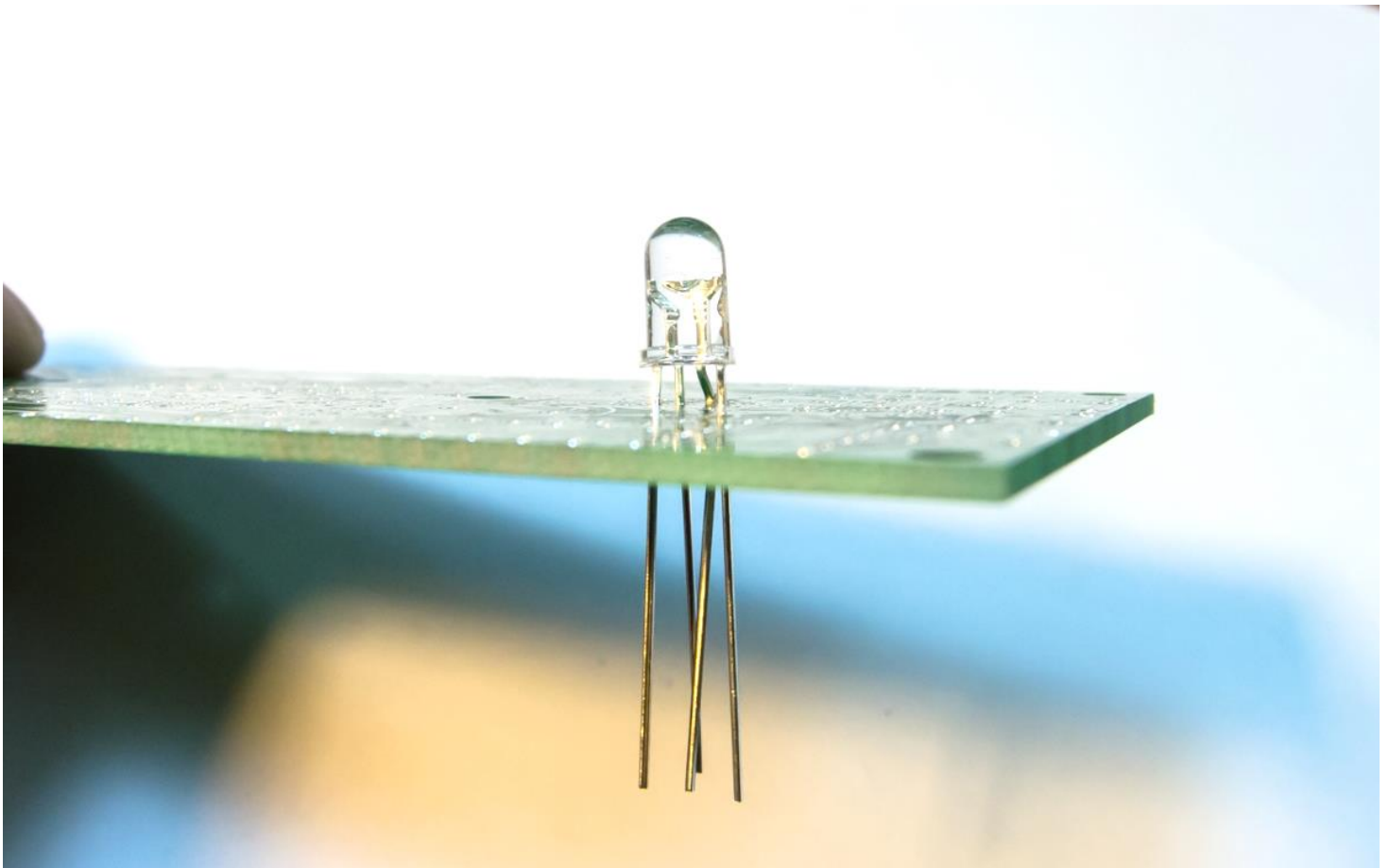
- 11) Install Infrared receiver:



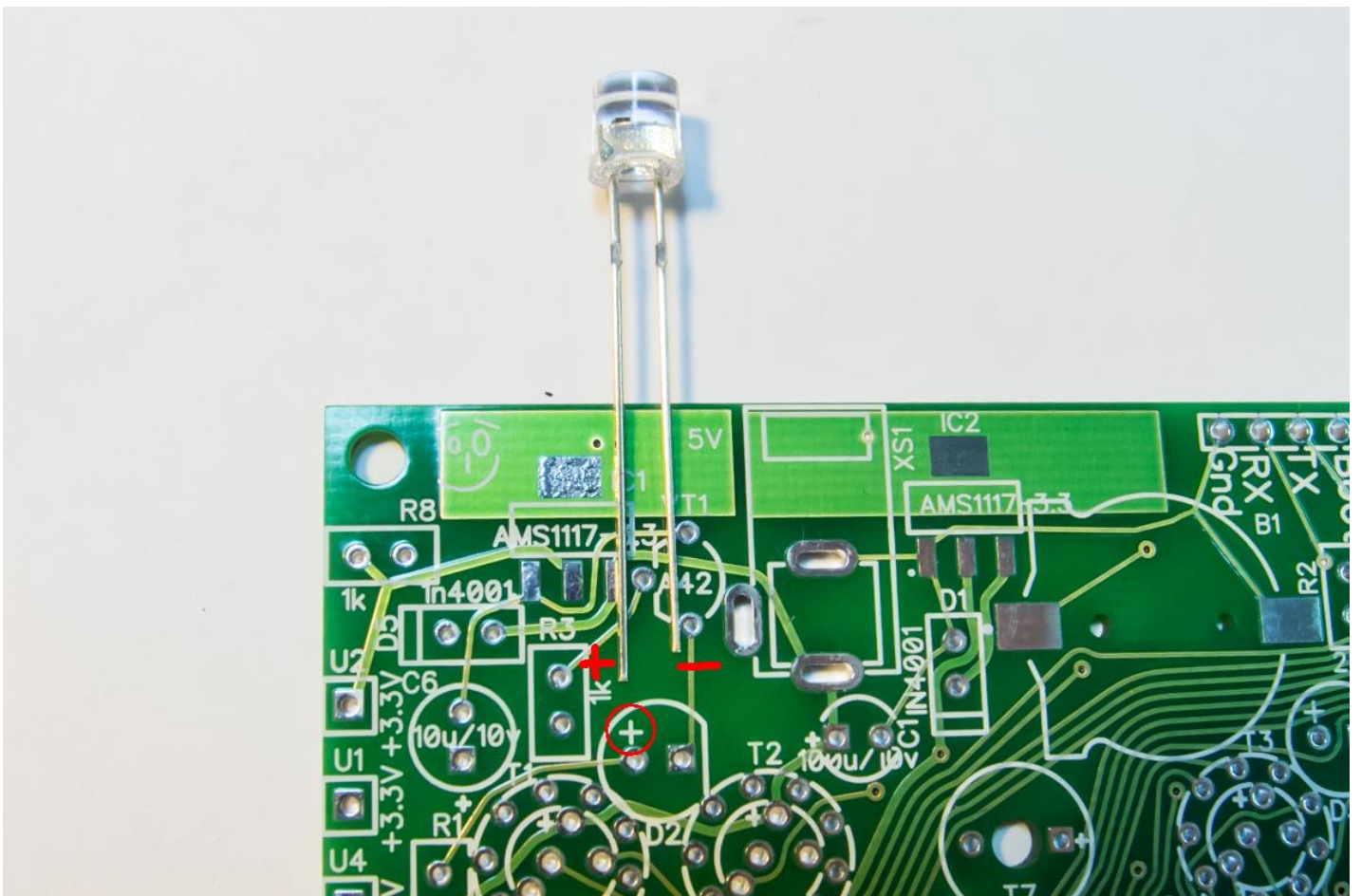
12) Insert 6 RGB LEDs

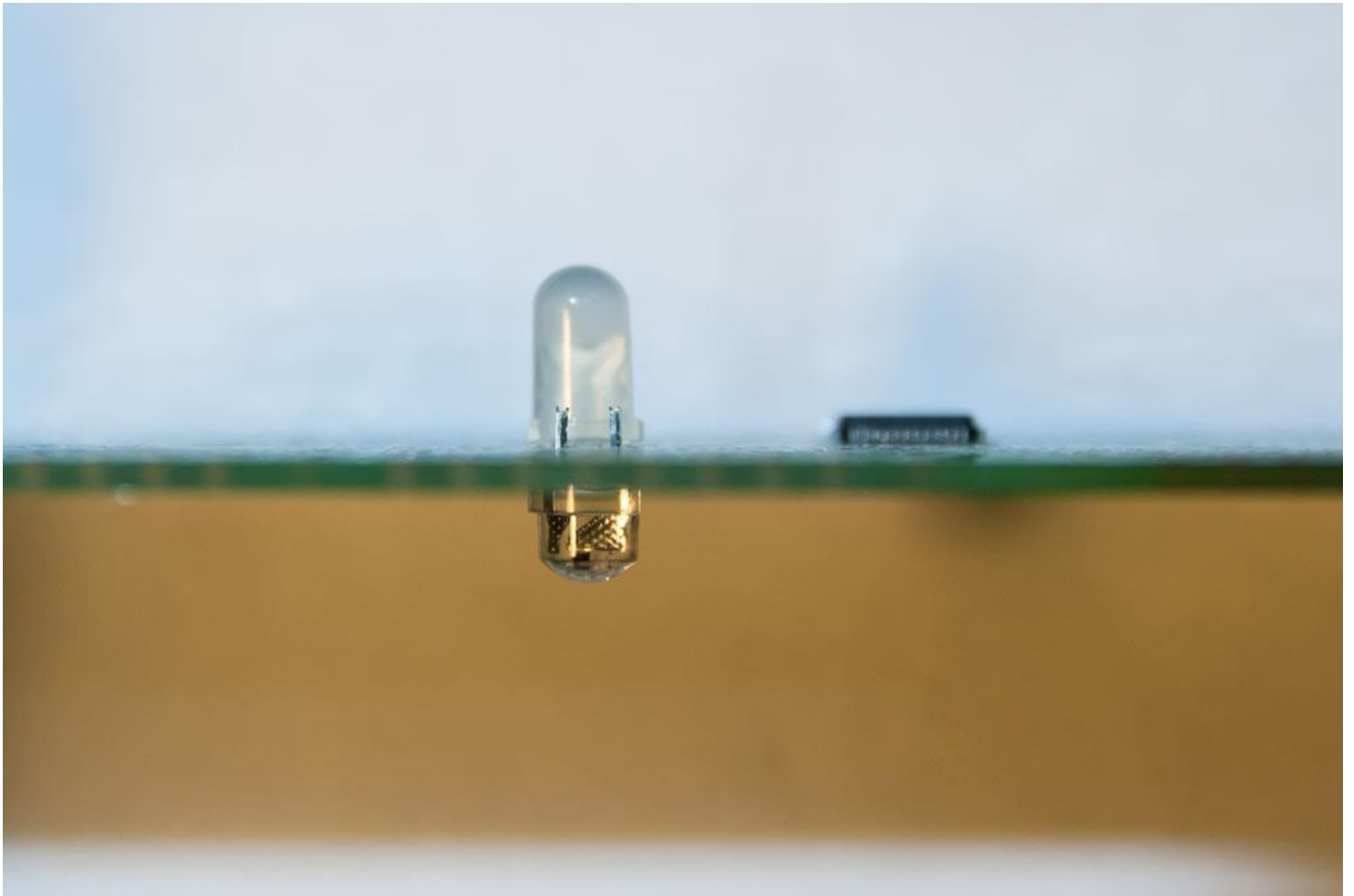
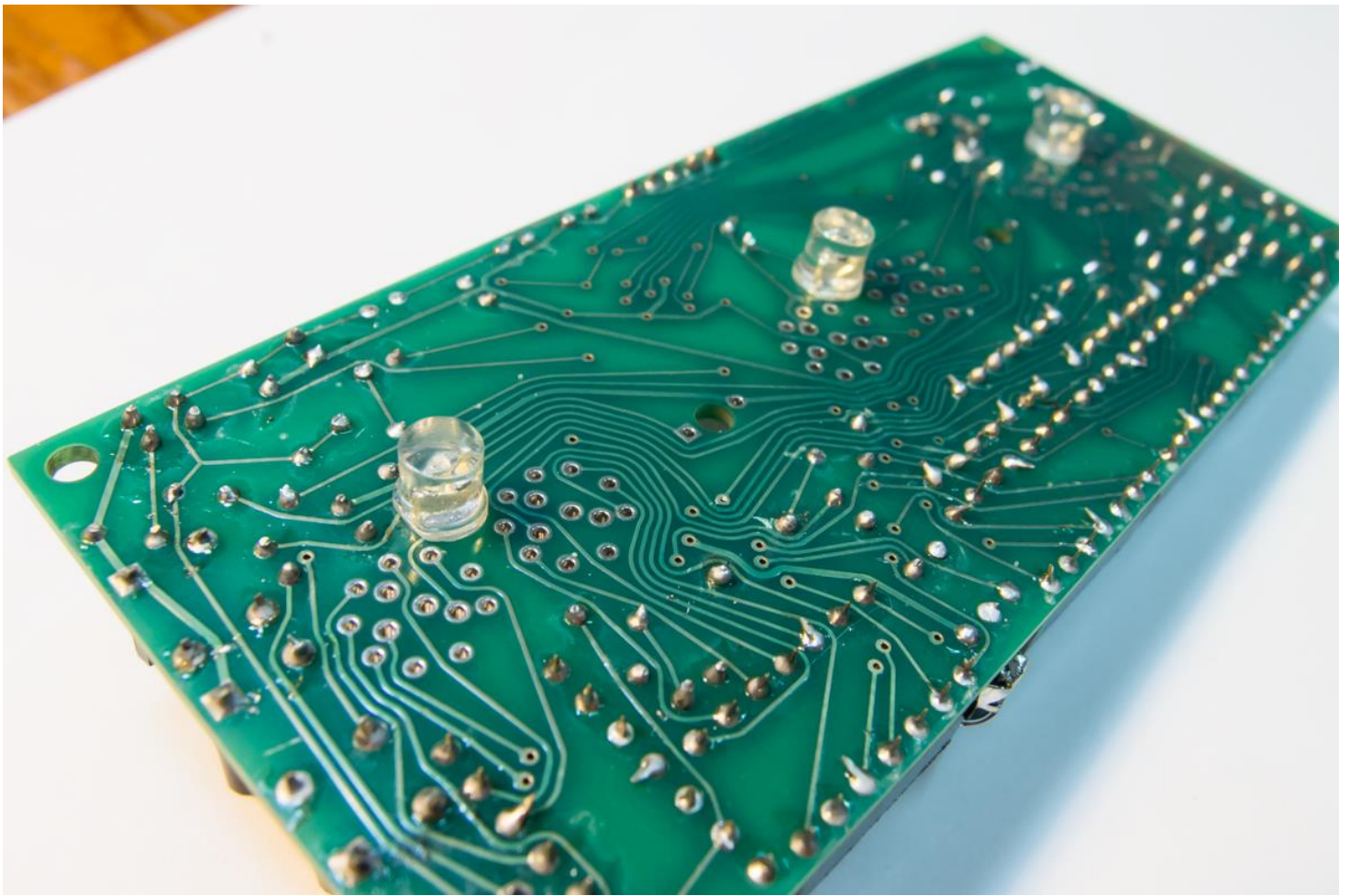




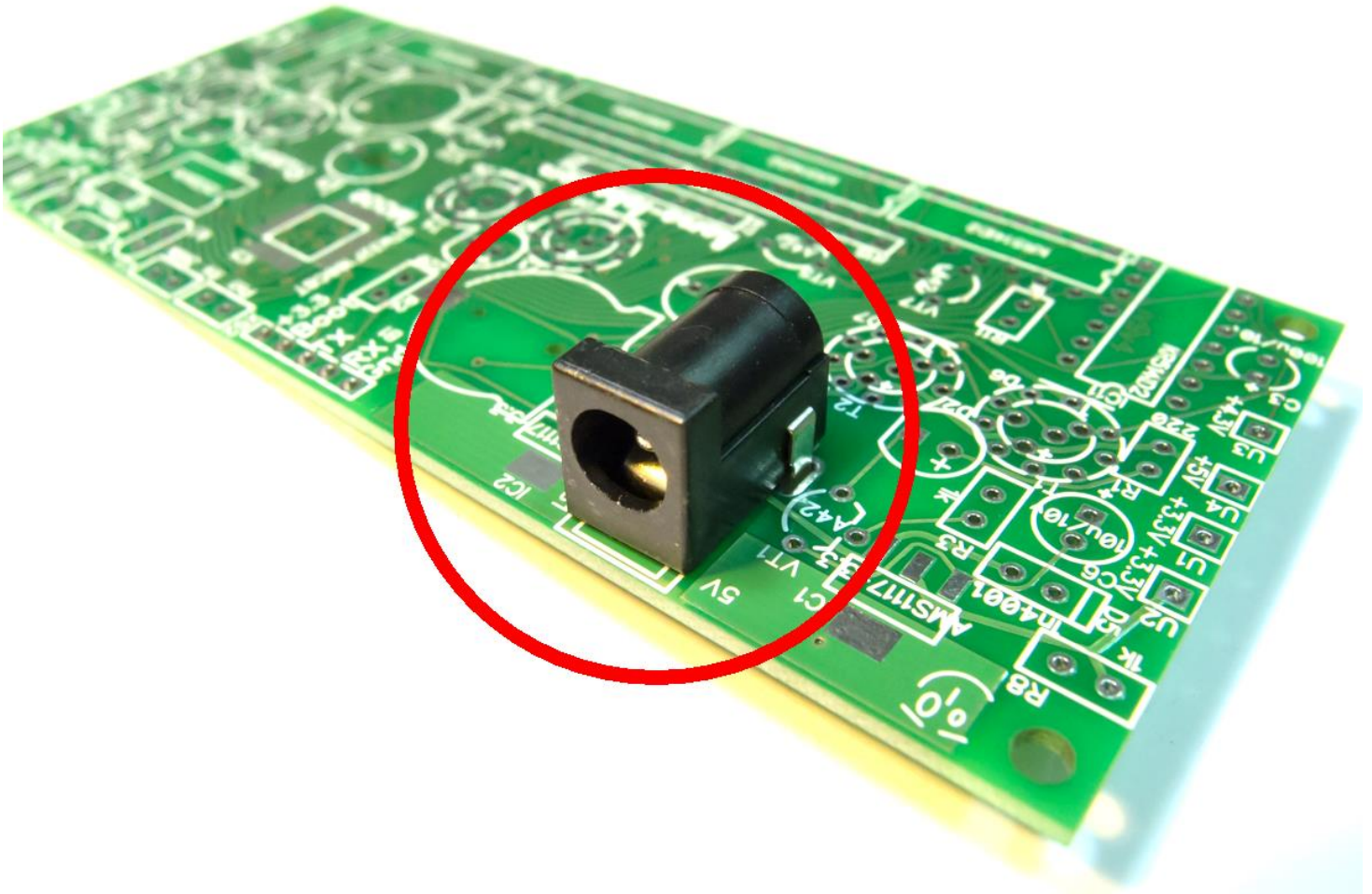


13) Prepare and install AUTO leds. This LEDs should be installed on BOTTOM side of PCB:

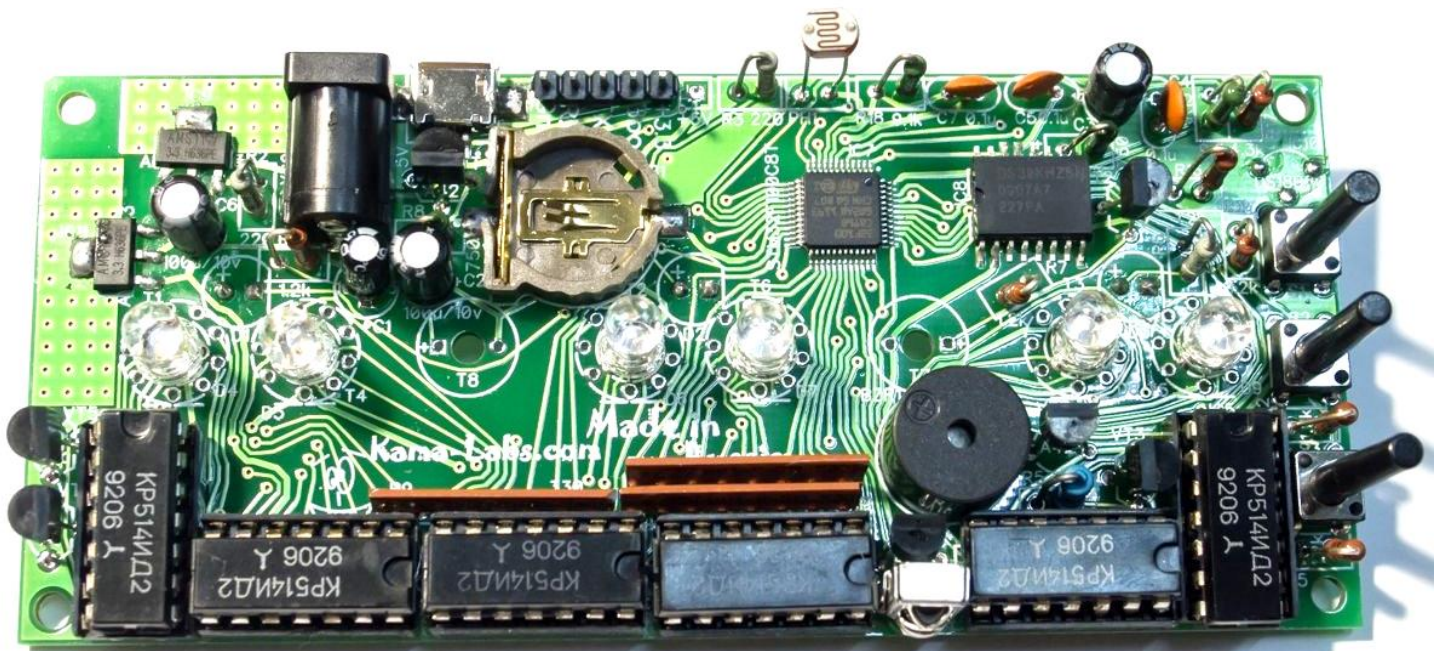


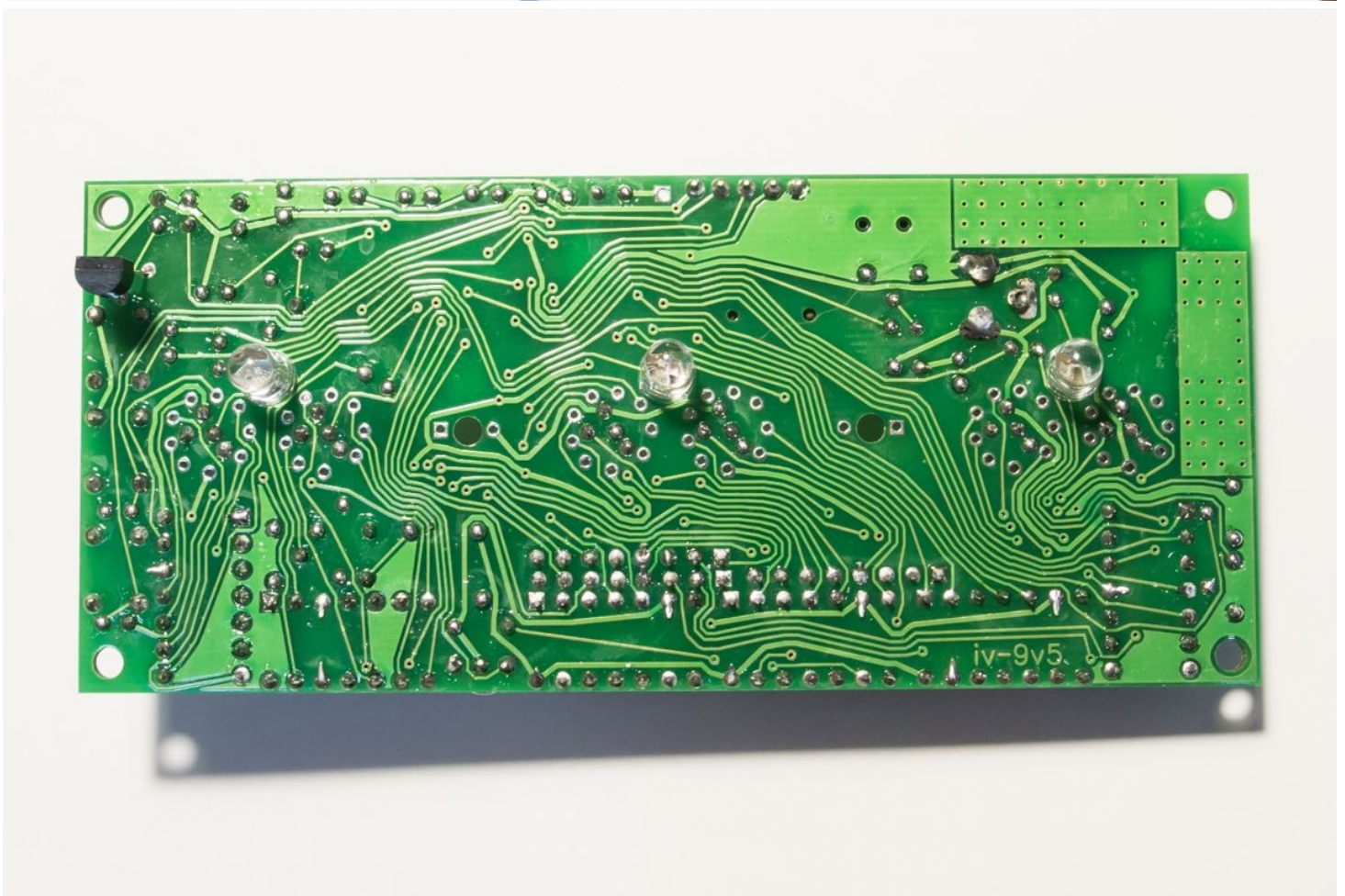


14) Install power plug:

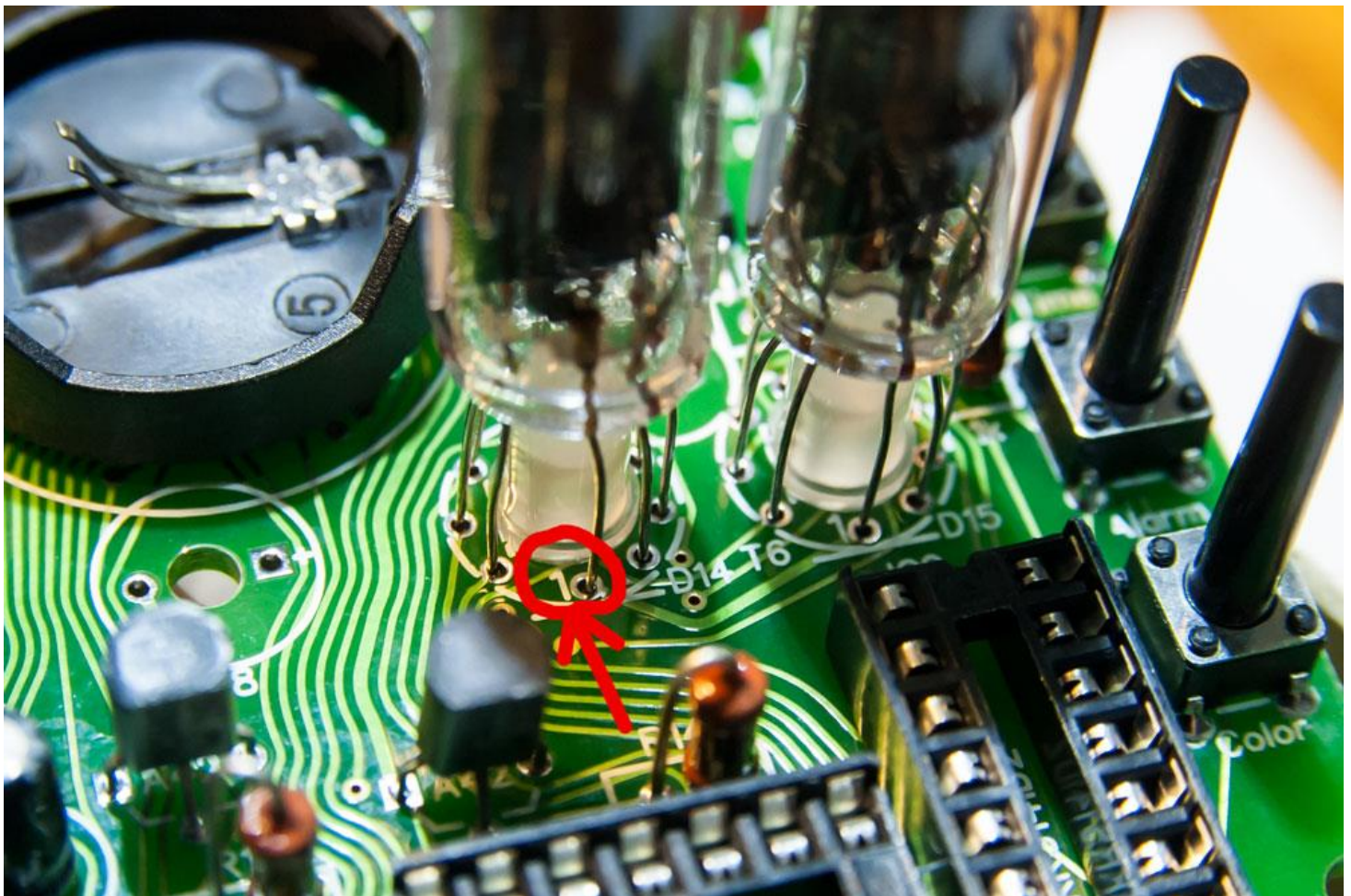
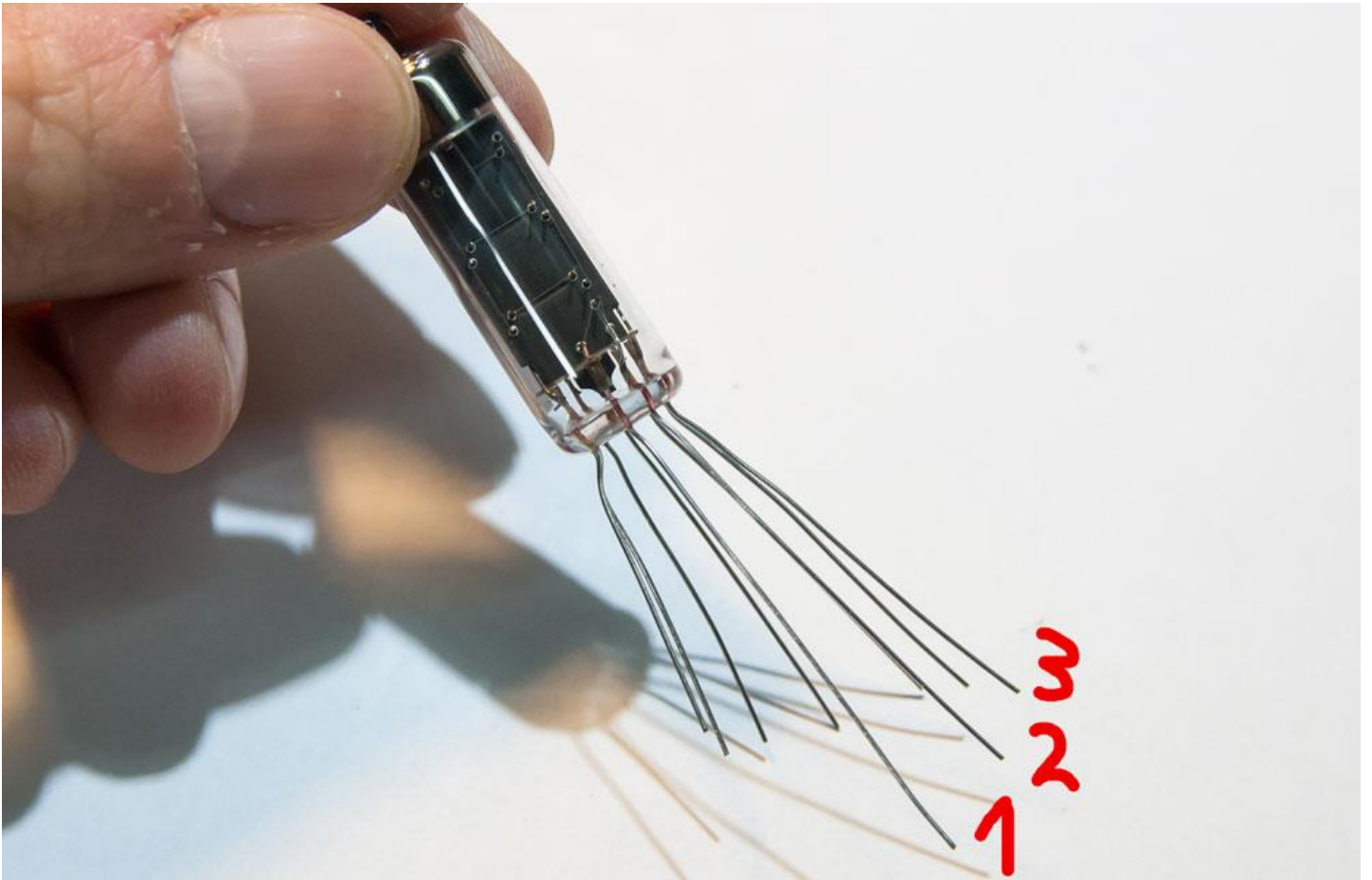


15) After all, your clock should look like on photo:

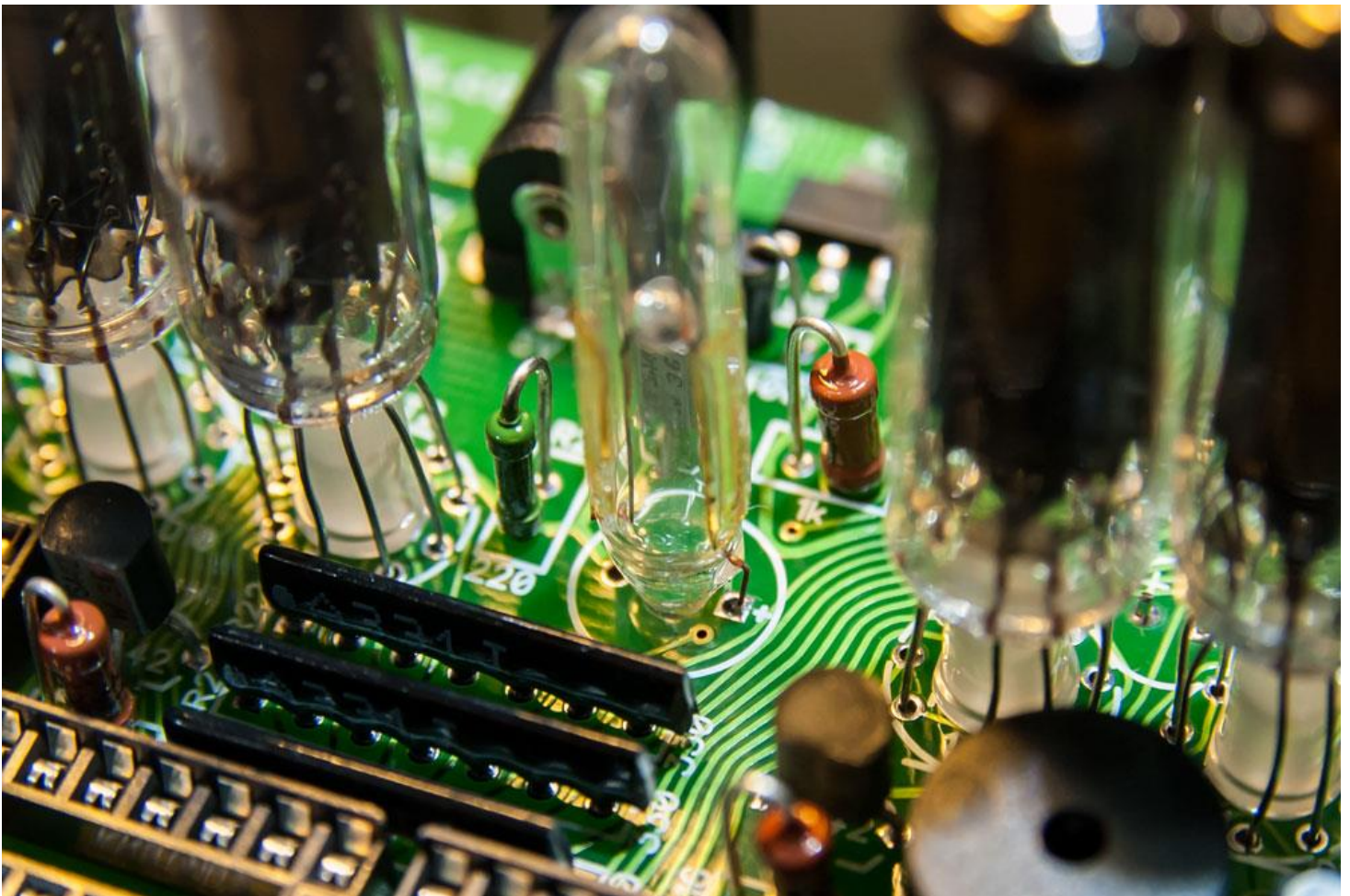
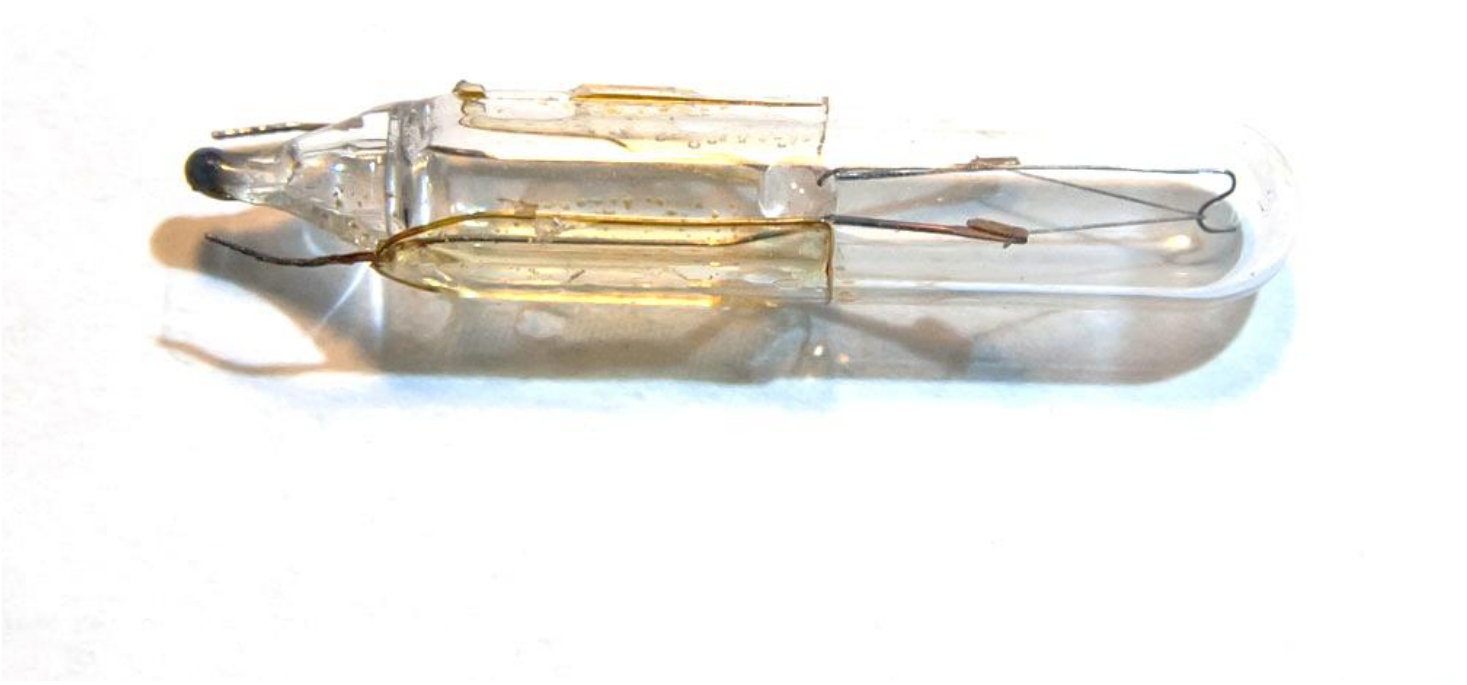




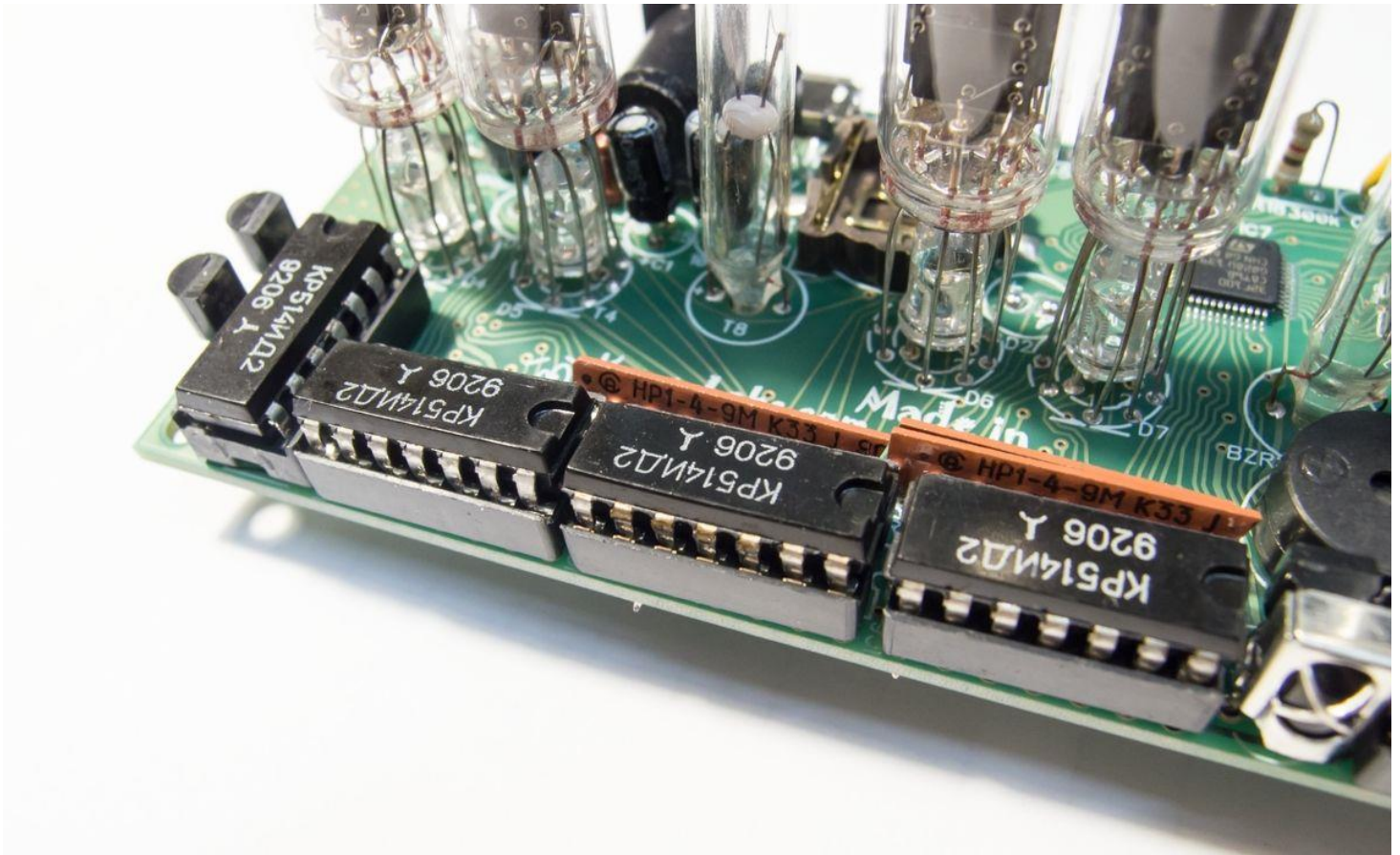
16) Prepare and install all IV-9 tubes. You can see that pins of tubes cuts spiral already. The longest pin – first pin:



17) Place 2 separator tubes. Plus and minus – no matter:

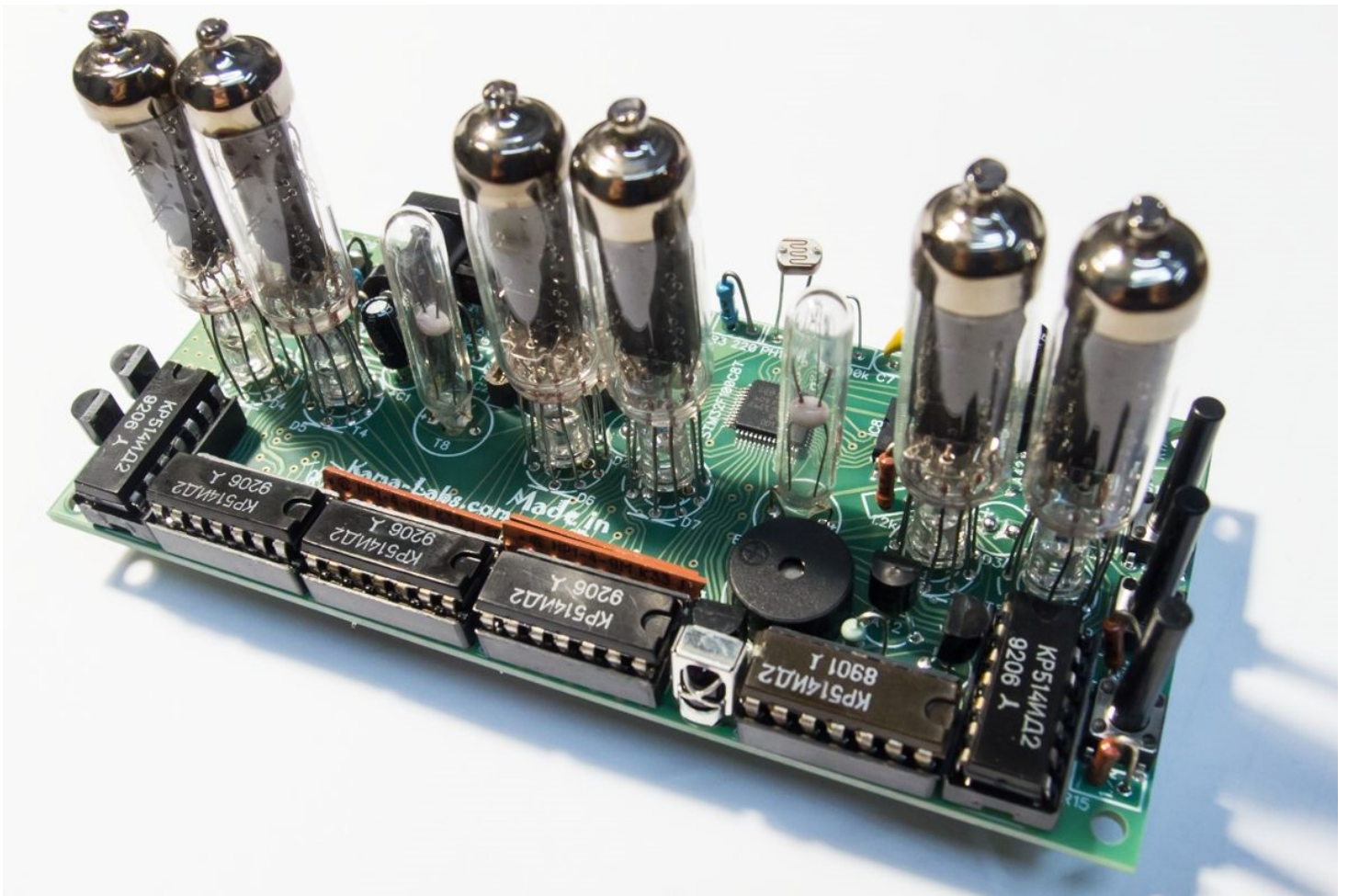


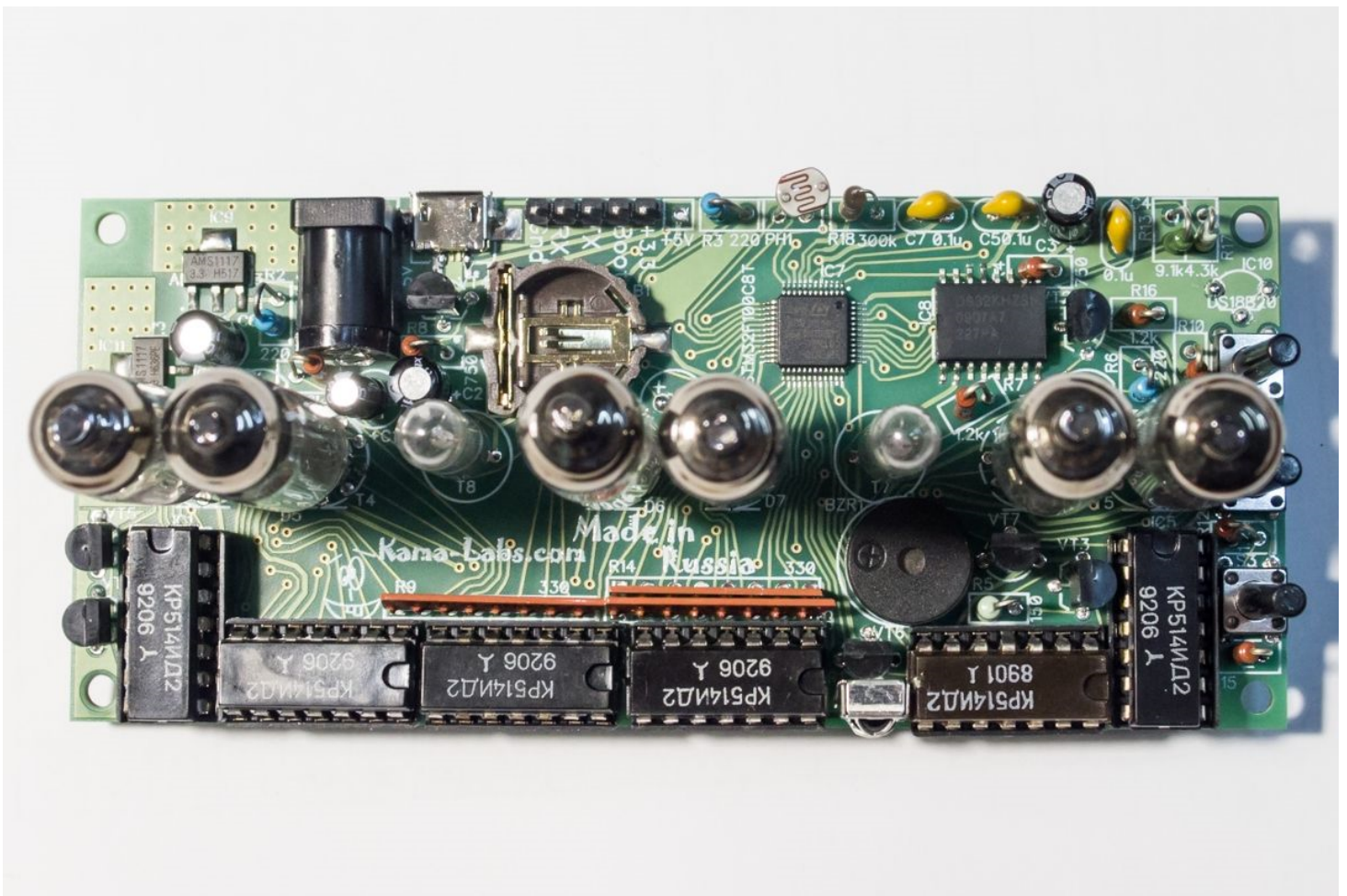
18) Install tube drivers KR514ID2:



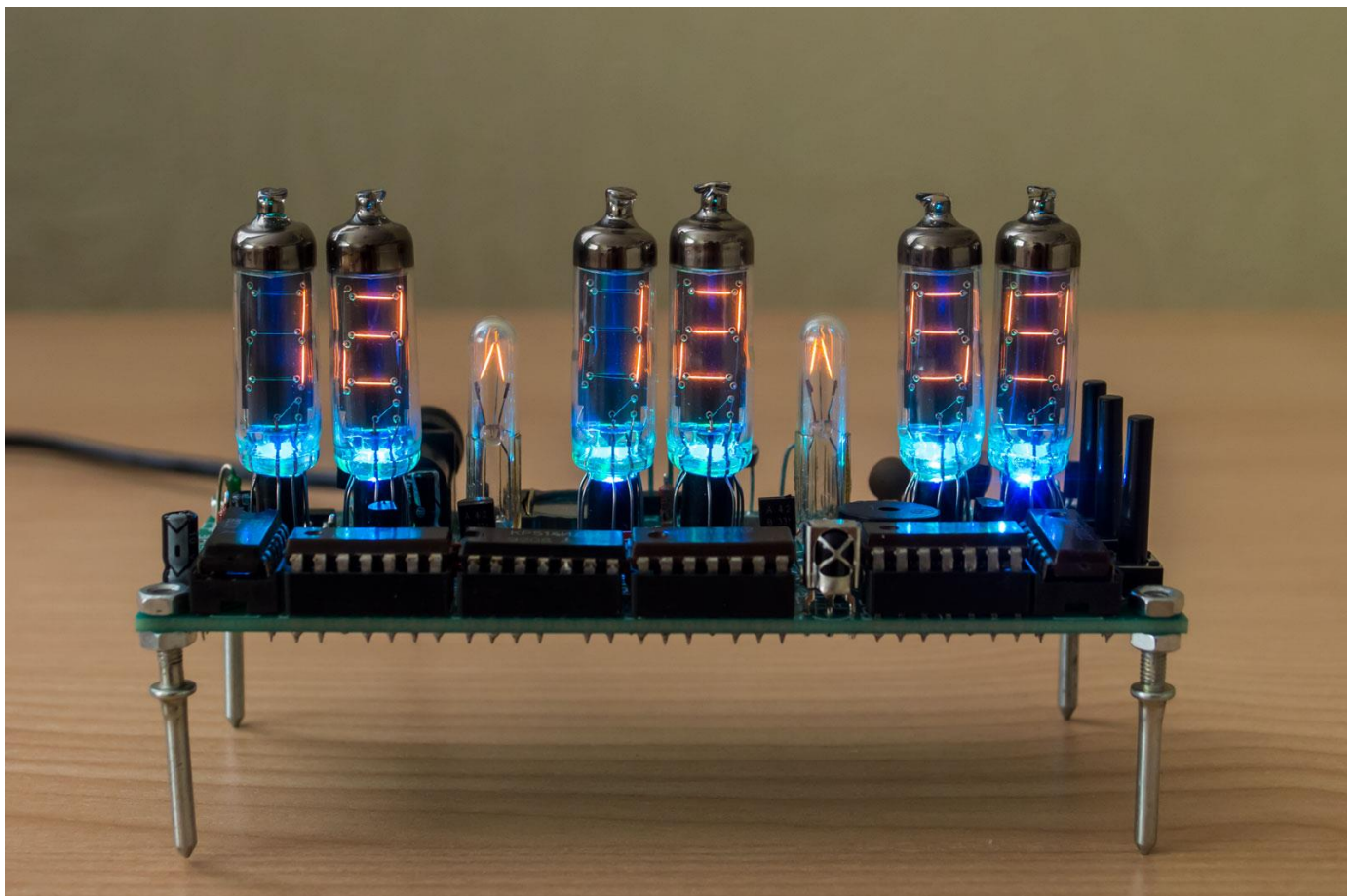
19) Now, your clock should look like this:



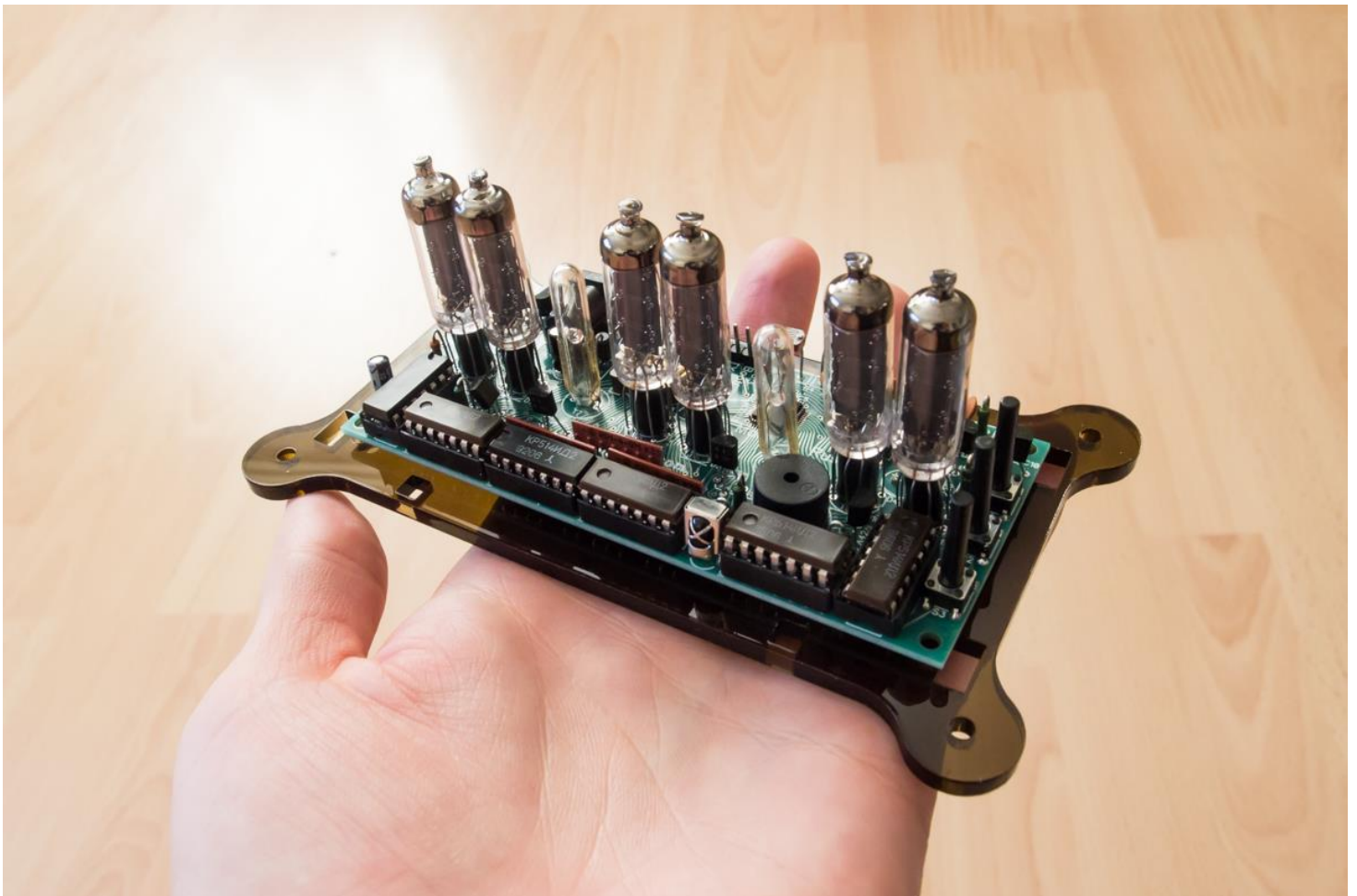
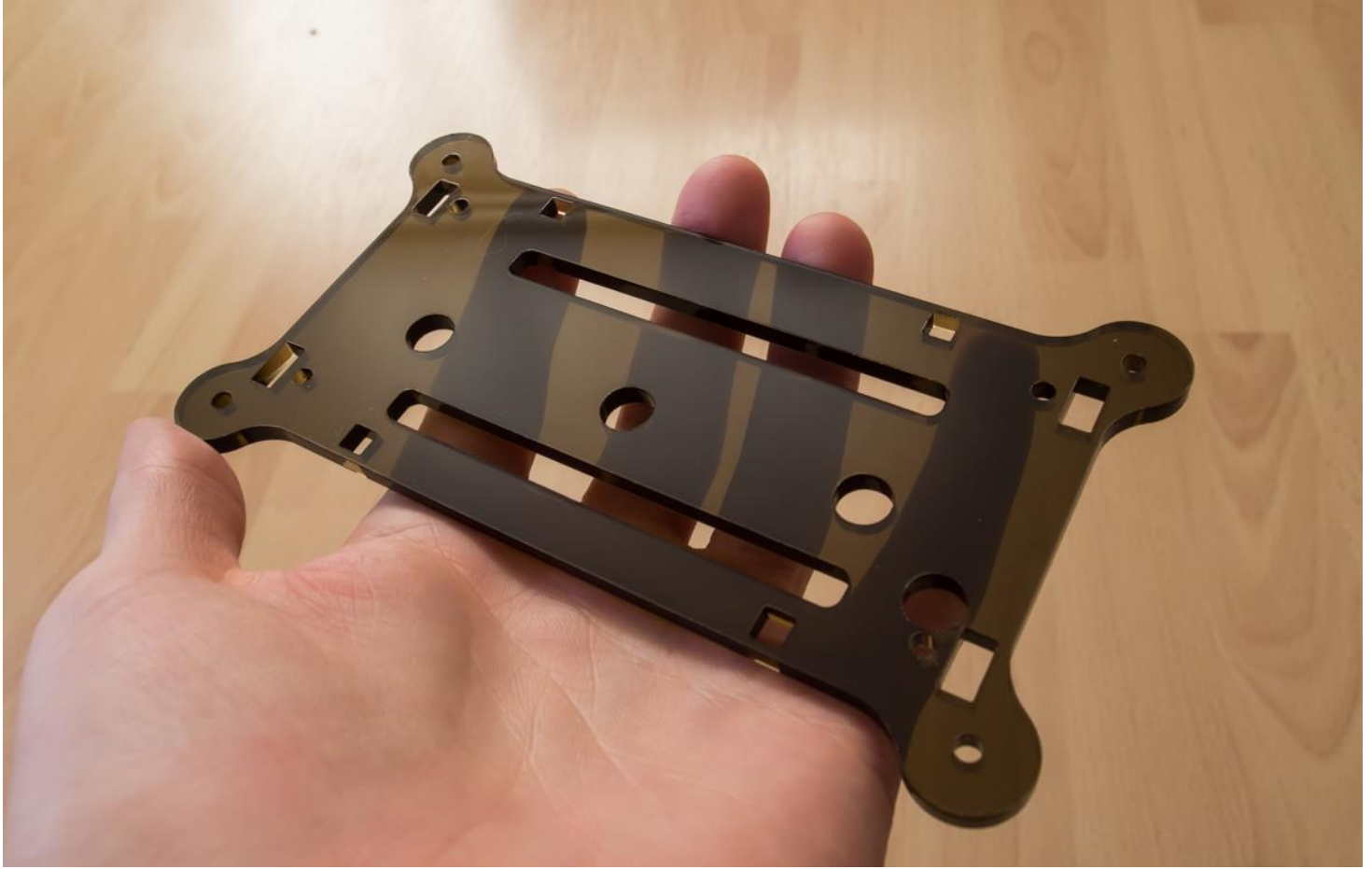




20) After all clock should work.



21) Assembling of plastic case. Firstly, take bottom panel in hand and put clock above.



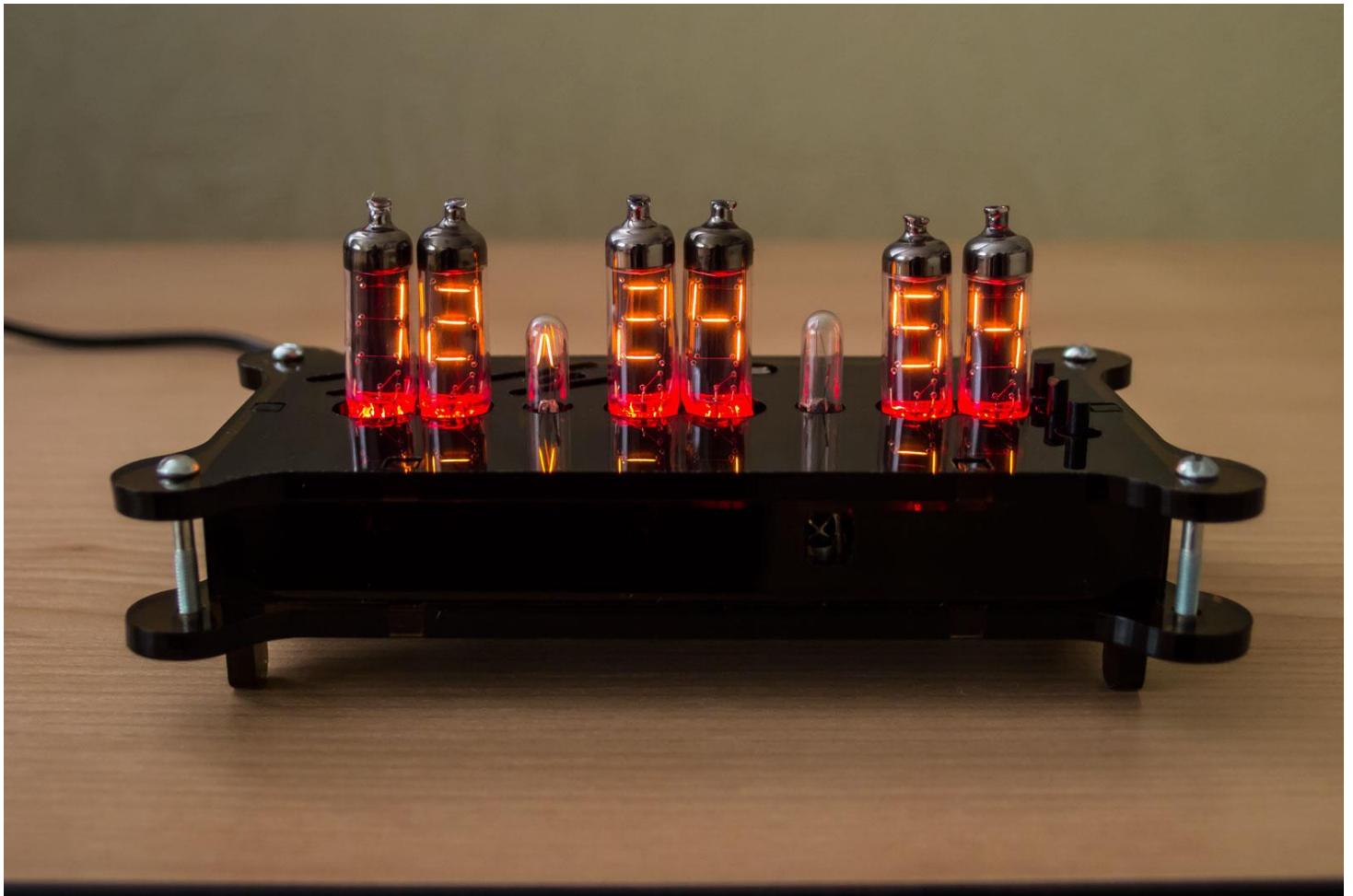
22) Then insert back, front and side panels:



23) At last, insert top panel and tighten the nuts.



CONGRATULATIONS!




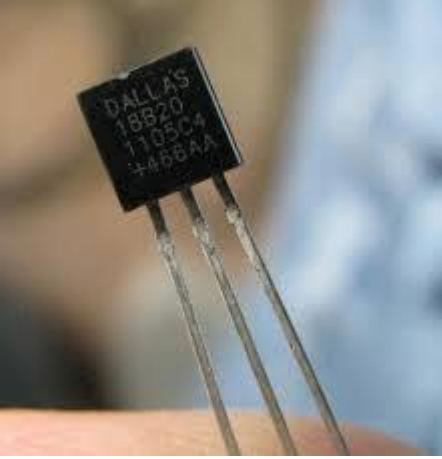
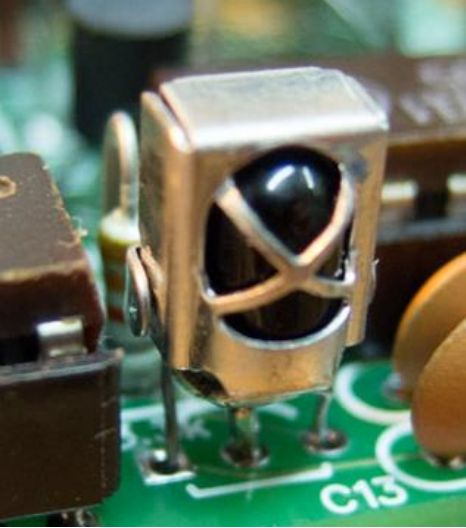




SPECIFICATION





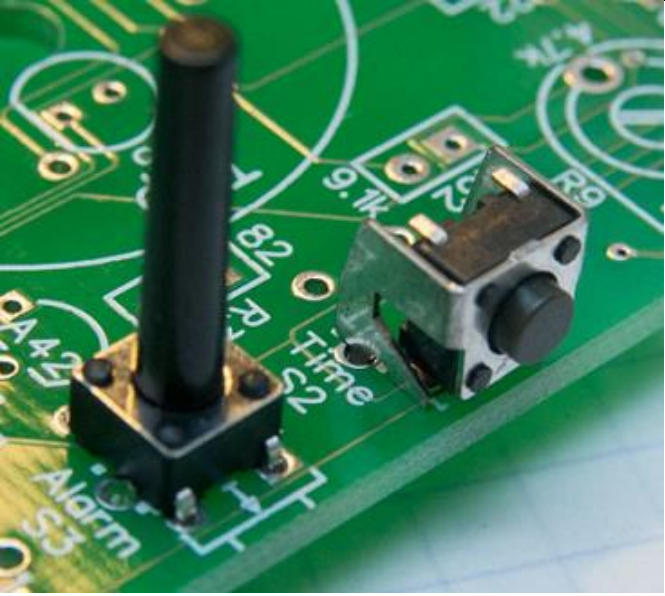
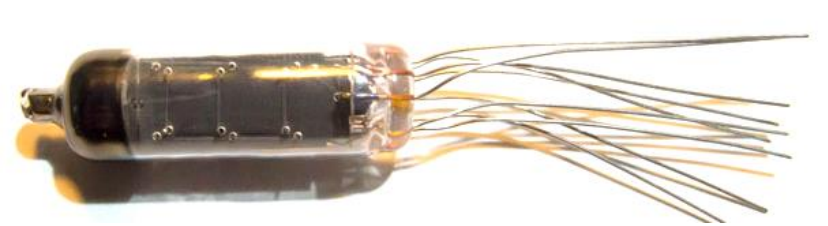

Please note, that elements in kit can be a little different. If you doubt value of element, check it with multimeter.

IF VALUE OF ELEMENT IN SPECIFICATION AND ON PCB IS DEFFERENT, PLEASE USE VALUES FROM SPECIFICATION AND SCHEMATIC.

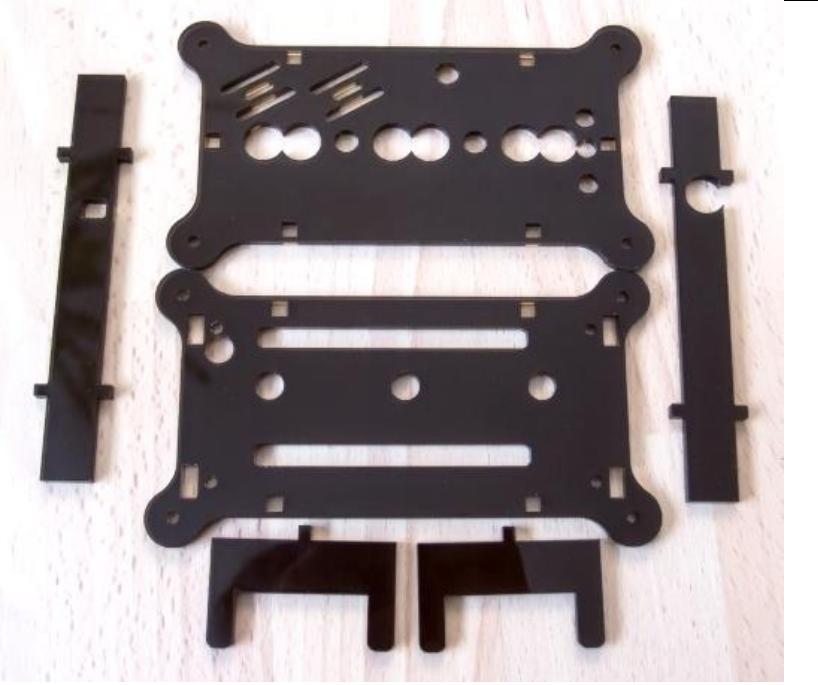

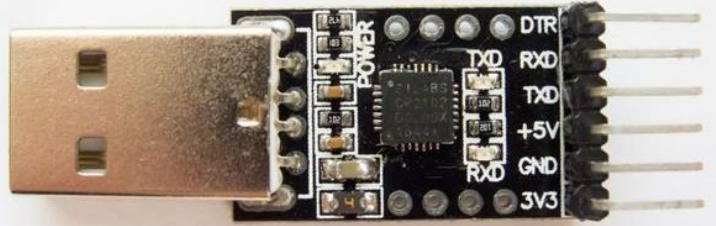
Label	Qt.	Value	Photo
B1		Battery CR1220	
BZR1		Buzzer	
C1		10u/25v	
C2, C3, C6	3	100u/10v	

C4, C5, C7	3	0.1u	
D1, D2, D3	3	LED Auto	
D4-D9	6	RGB Leds	
IC1-IC6	6	KR514ID2	
IC7		STM32F100C8T	
IC8		DS32kHz	

IC9, IC11	2	AMS1117-3.3	
IC10		DS18B20-PAR	
IR1		IR-sensor	
PH1		SF2-1	
R1, R7, R10, R12, R15, R16	6	1.2k	
R2, R3, R6	3	220	
R4, R8	2	750	

R5		6.8	
R9, R11, R14	3	330 рез. Сборка	
R13, R18	2	9.1k	
R17		4.3k	
S1,S2,S3	3	Buttons	
T1, T2, T3, T4, T5, T6	6	IV-9	
T7, T8	2	LAMP раздел.	

VT1-VT7	7	A42	
XS1		USB-micro	
XS2		Power plug	
CR1220 battery holder			
PCB			

Plastic case			
5V Power adapter			
USB-UART converter			
Sockets 14pin			