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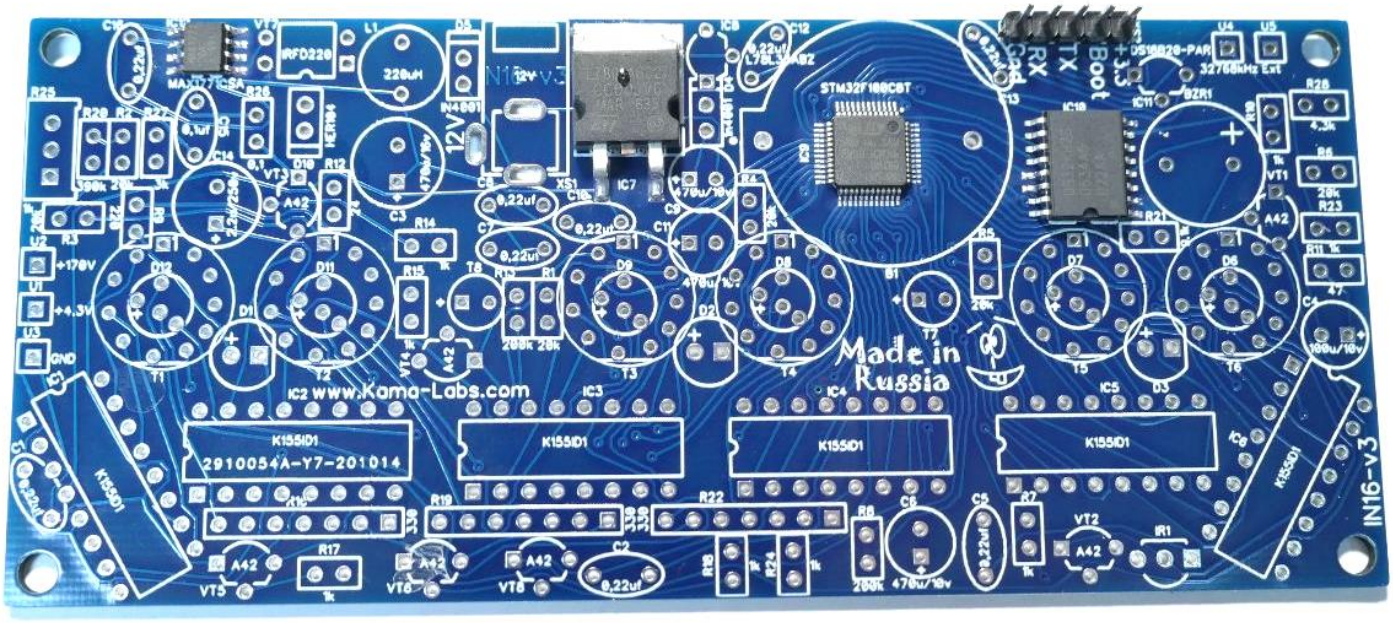
ASSEMBLY MANUAL FOR YANA v3 IN-16 NIXIE CLOCK

If you will have any questions, contact with me here:
info@kama-labs.com

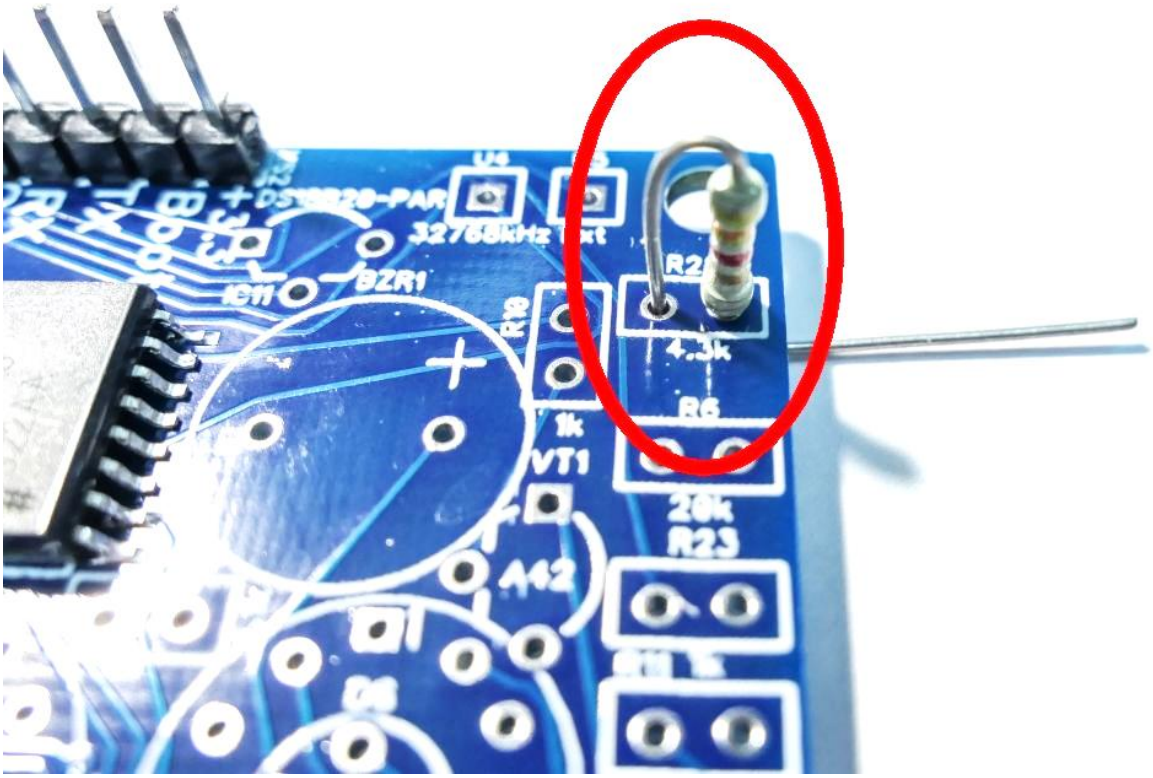
GOOD LUCK!

^_^

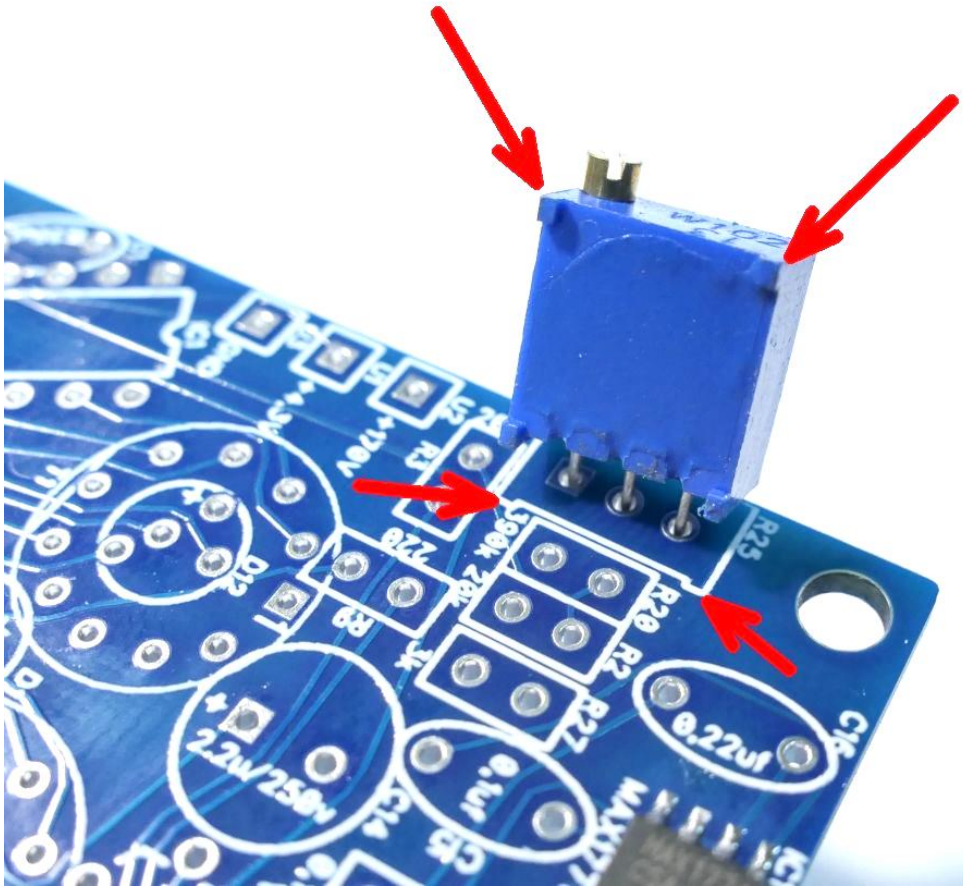
1) You have a PCB with ICs:

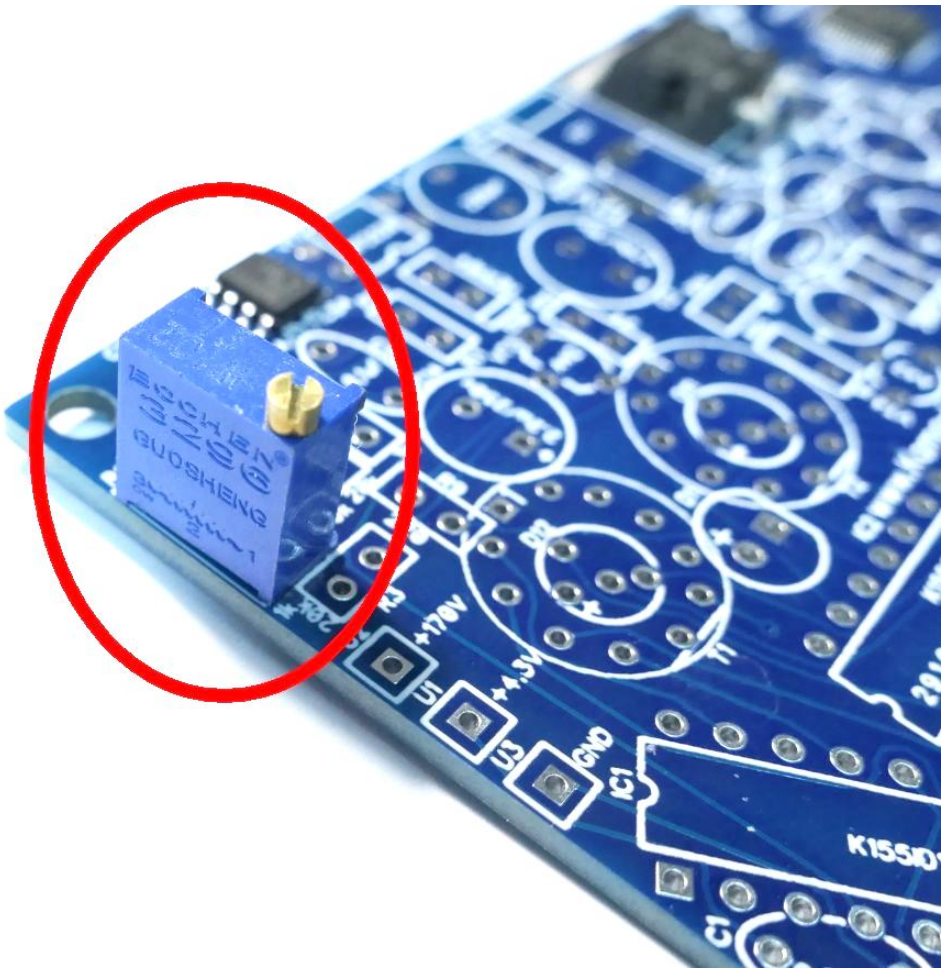


2) Place all resistors vertical:

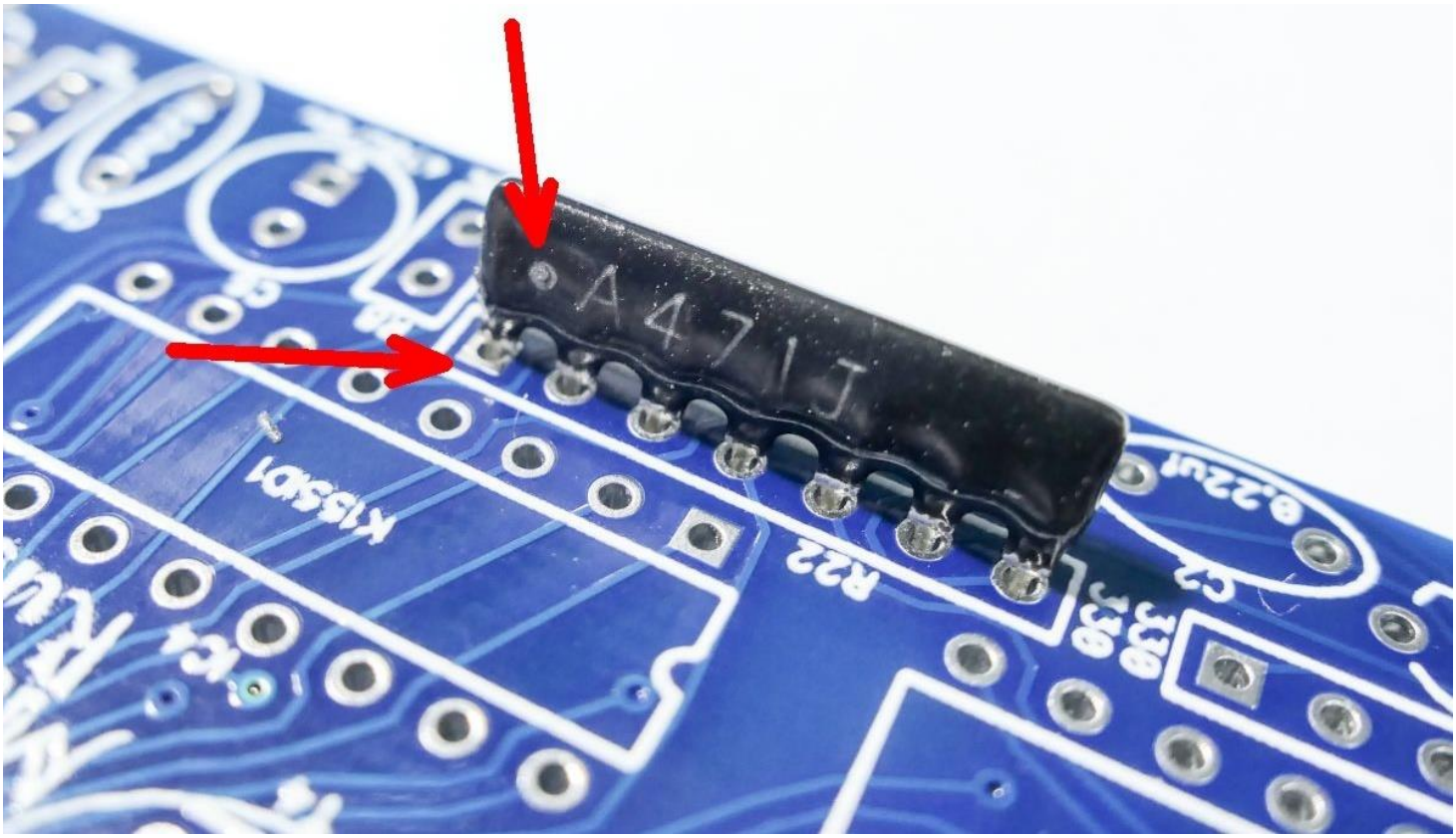


3) Install variable:

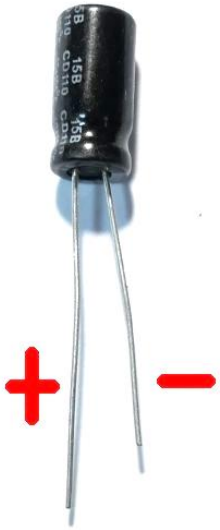


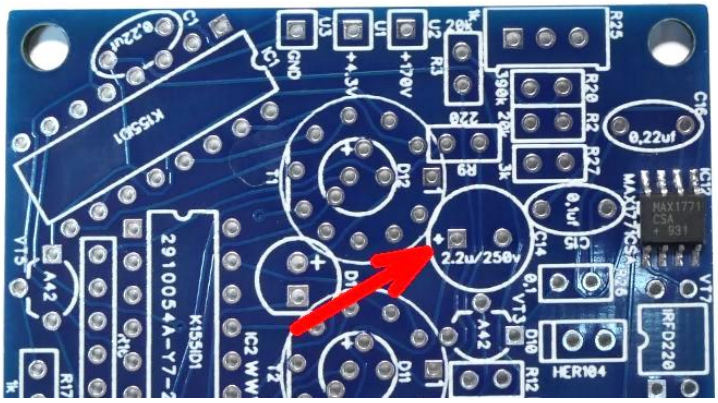


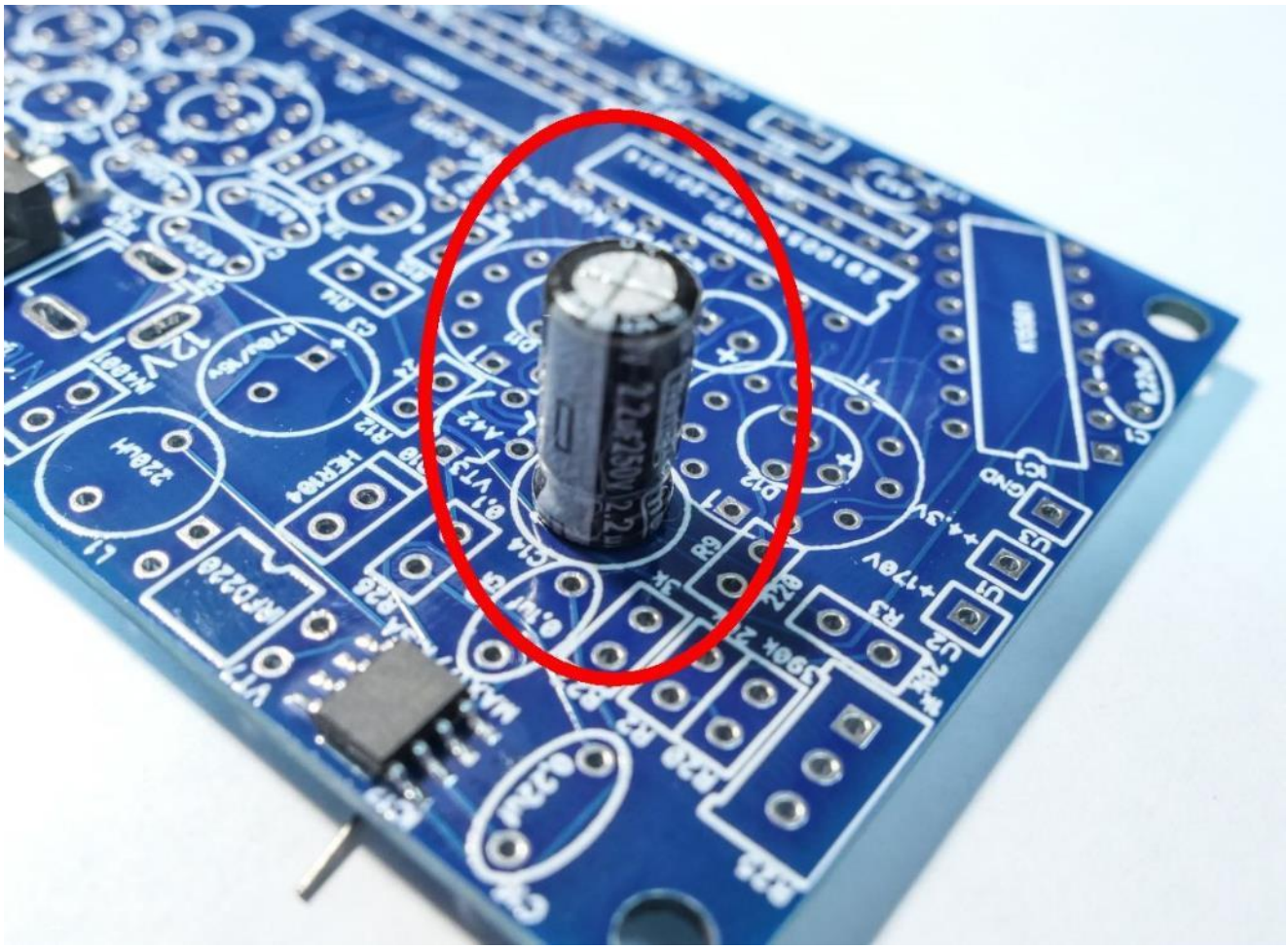
4) Place resistor arrays. Common pin to square pad.



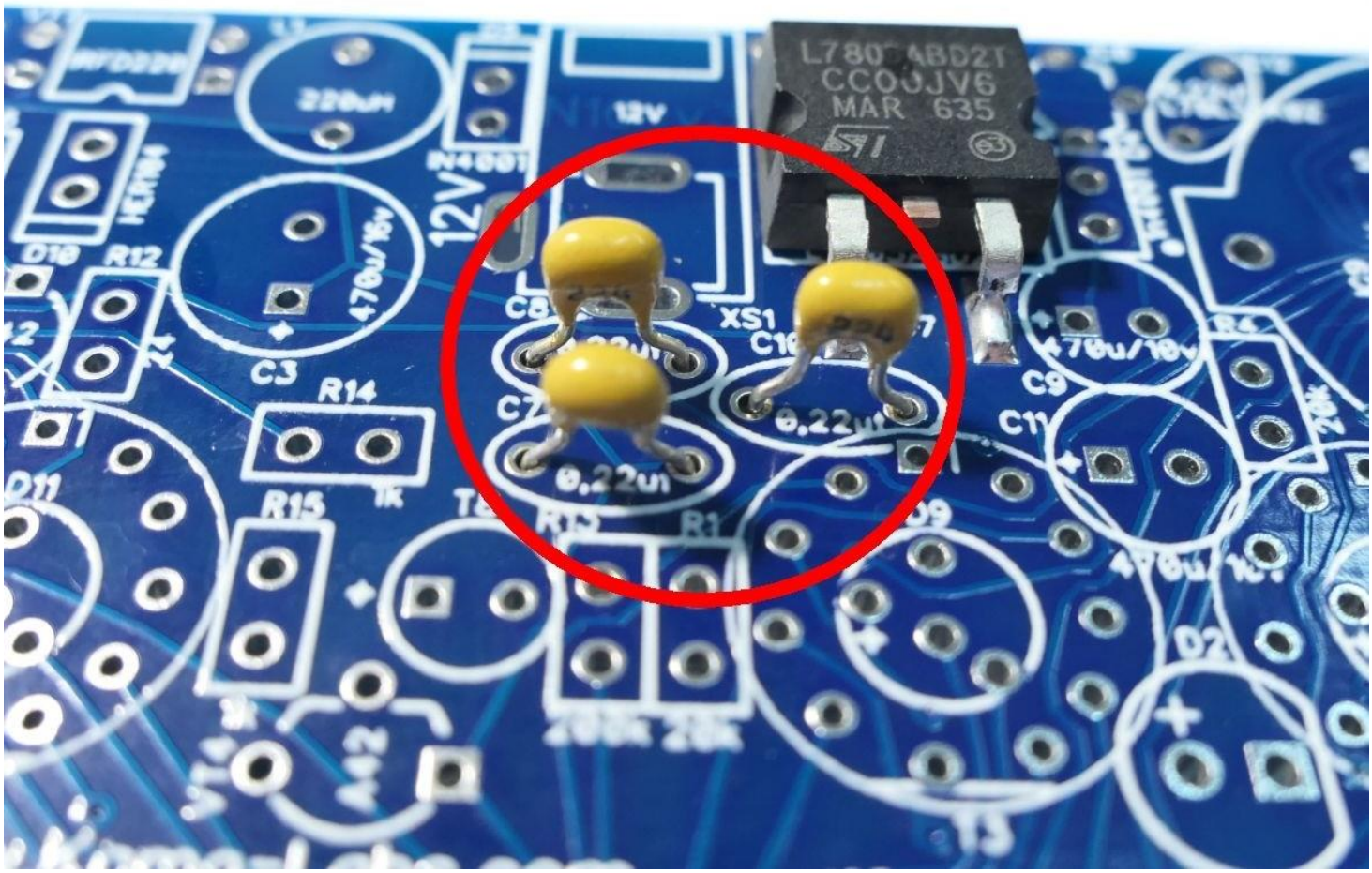
5) Place all capacitors. Be careful with polarity!



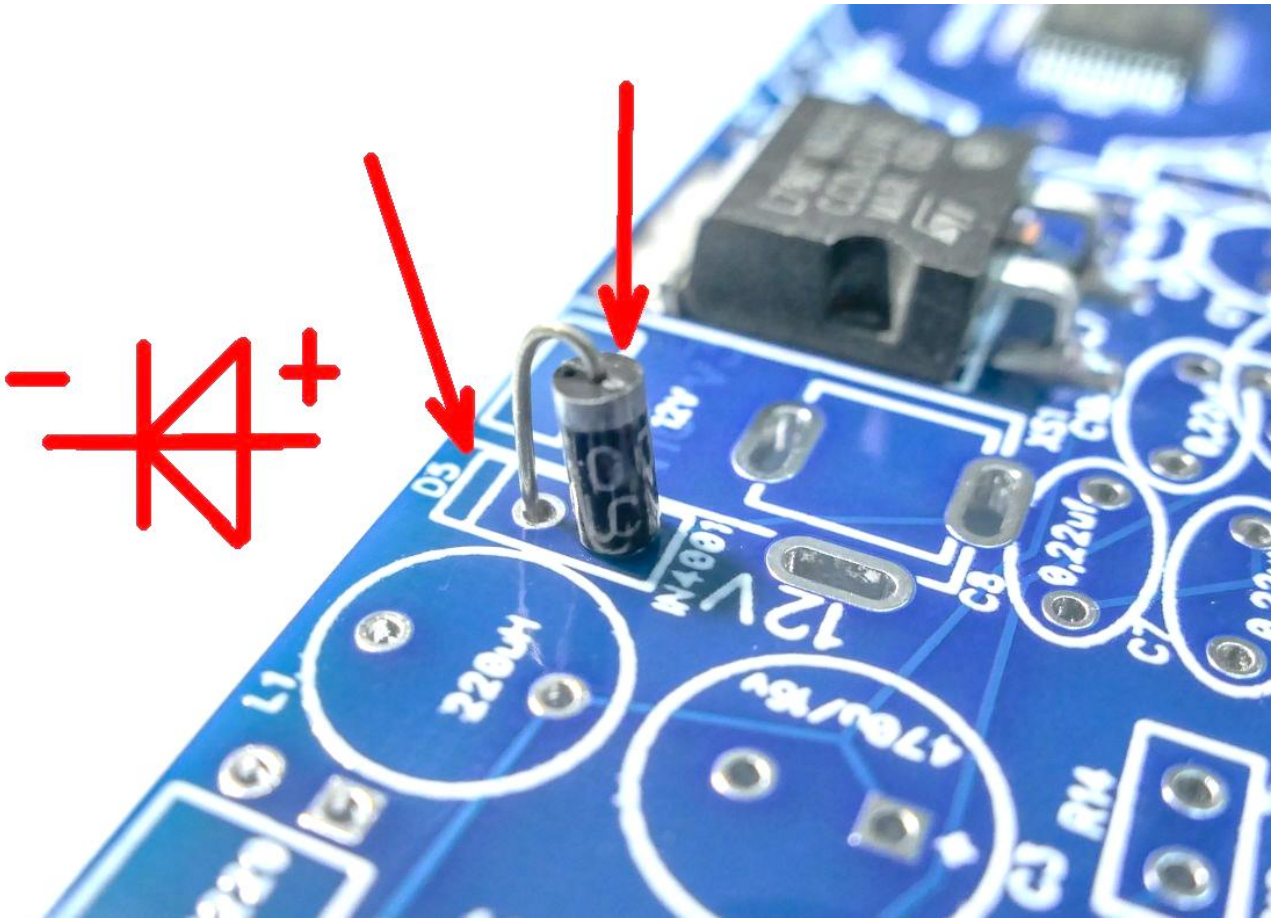




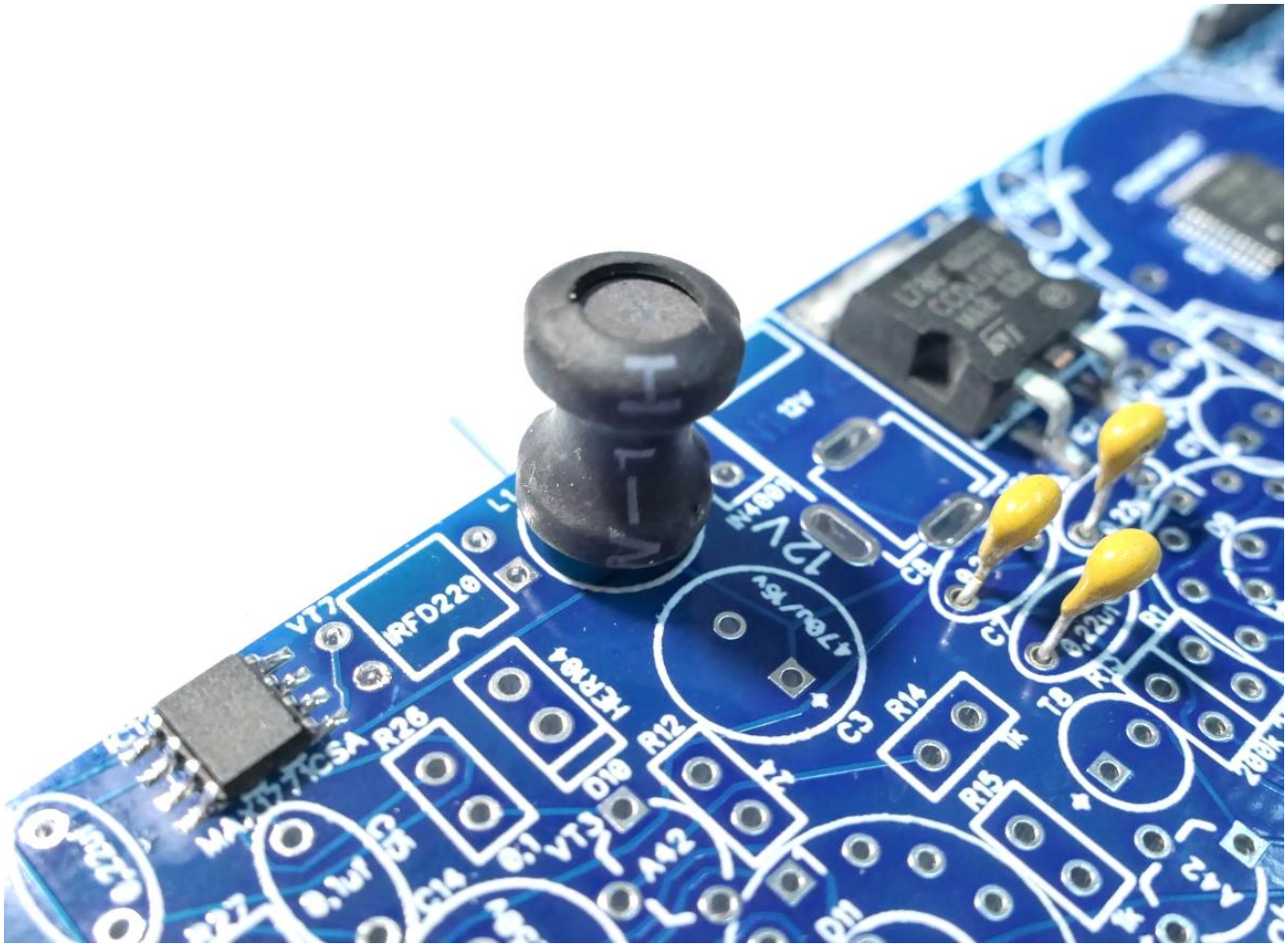
For ceramic capacitors polarity is not matter.



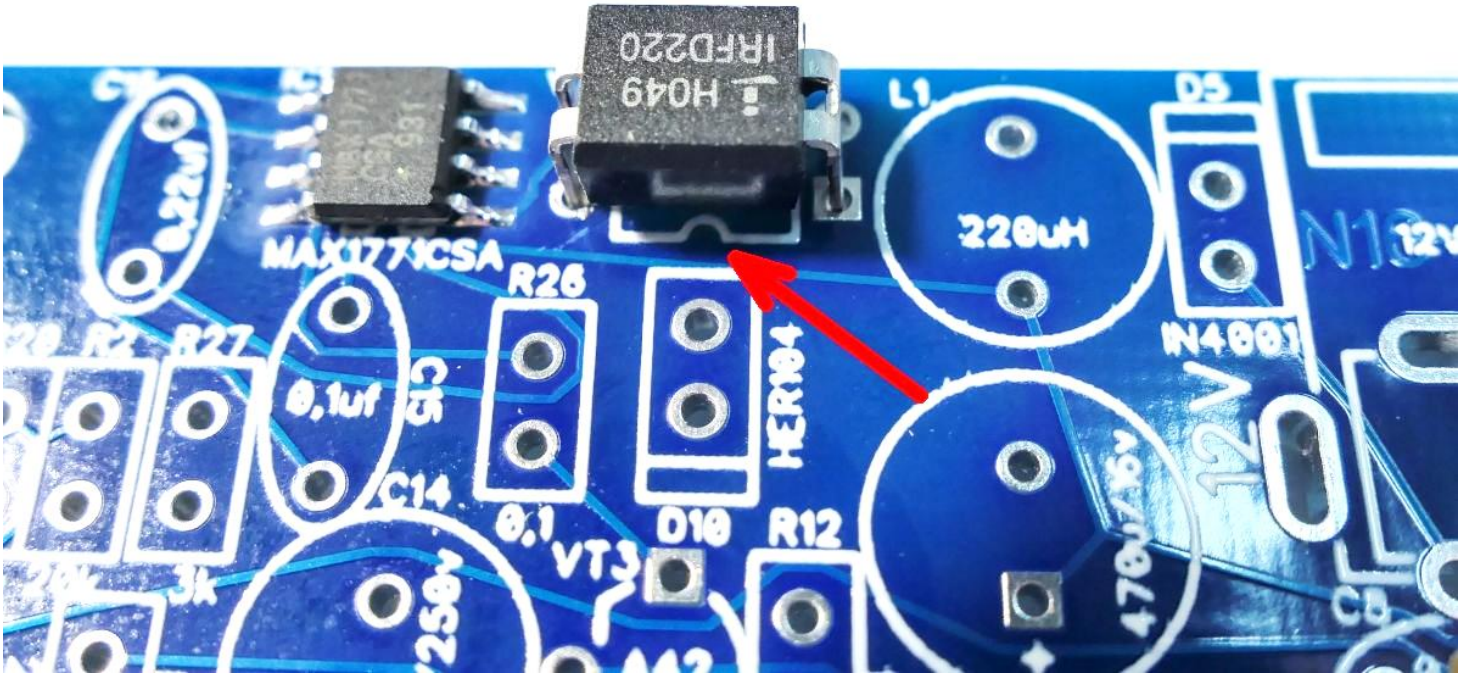
6) Place diodes and take care about polarity:



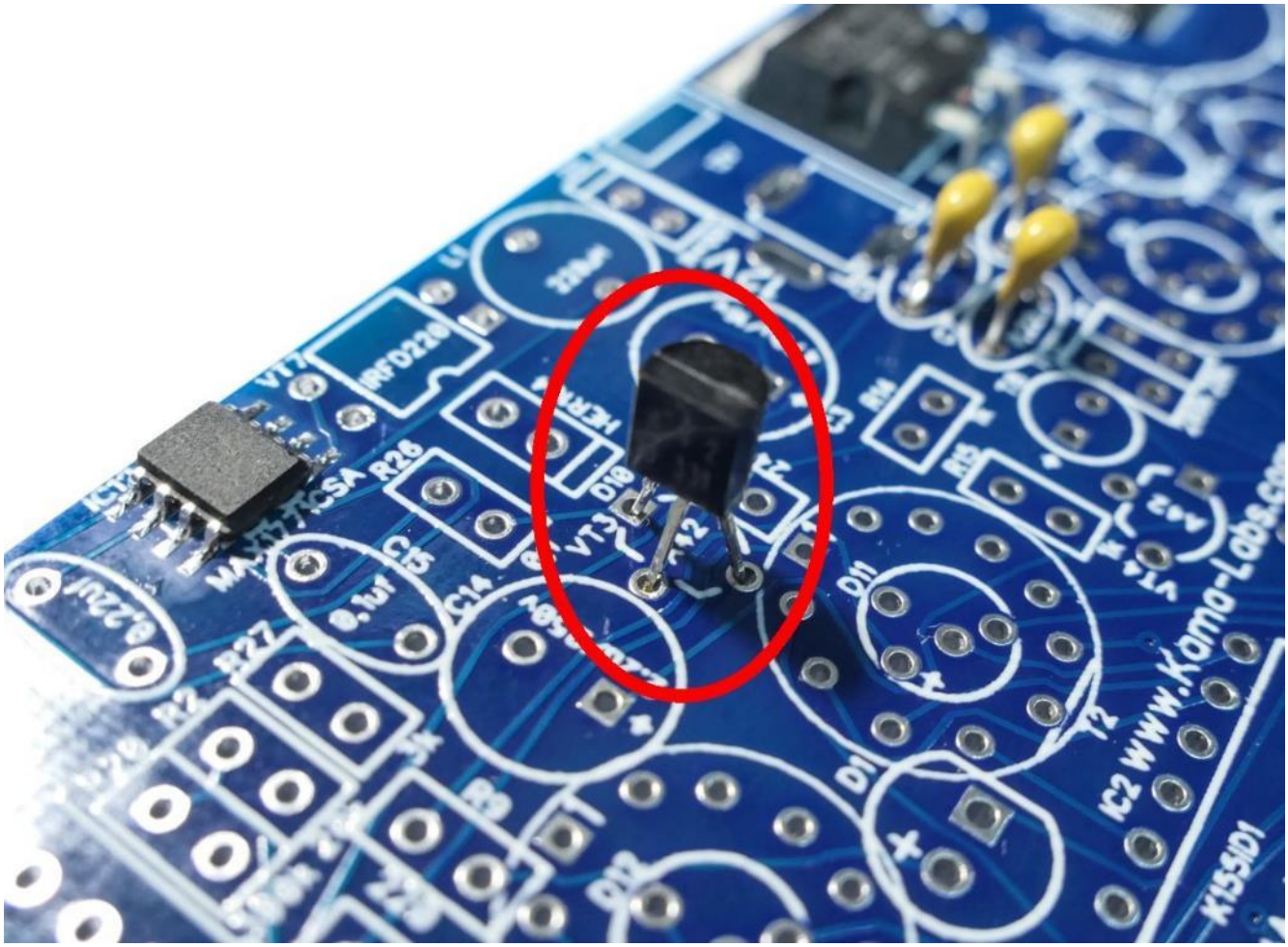
7) Install inductor. Polarity not matter:

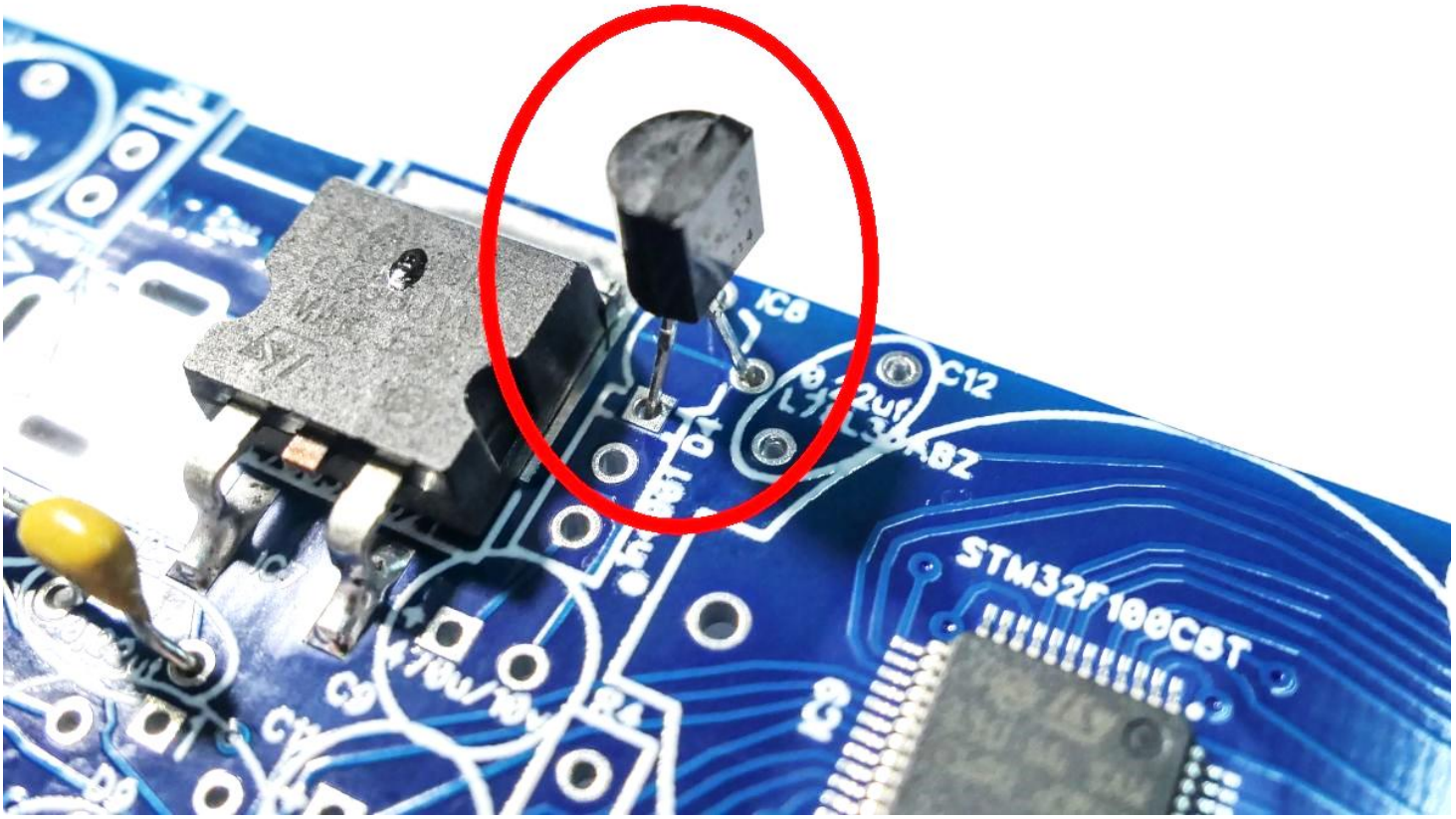


8) IRFD transistor. Install like on photo:

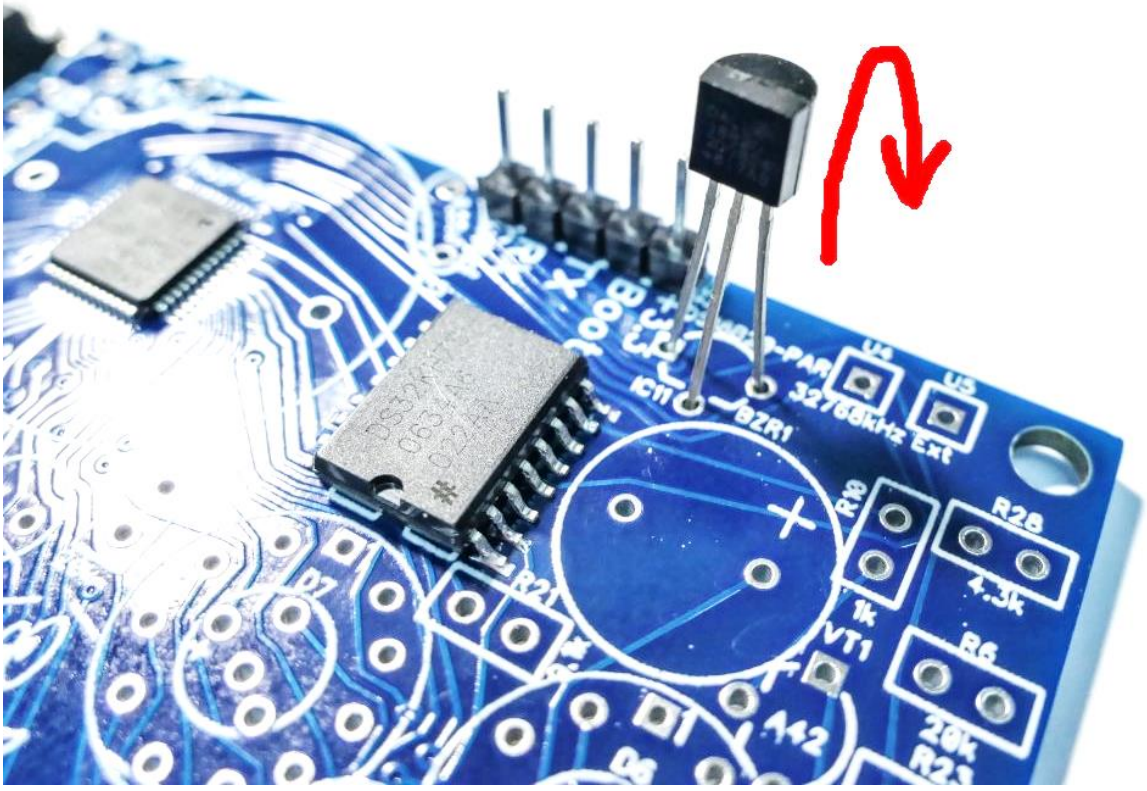


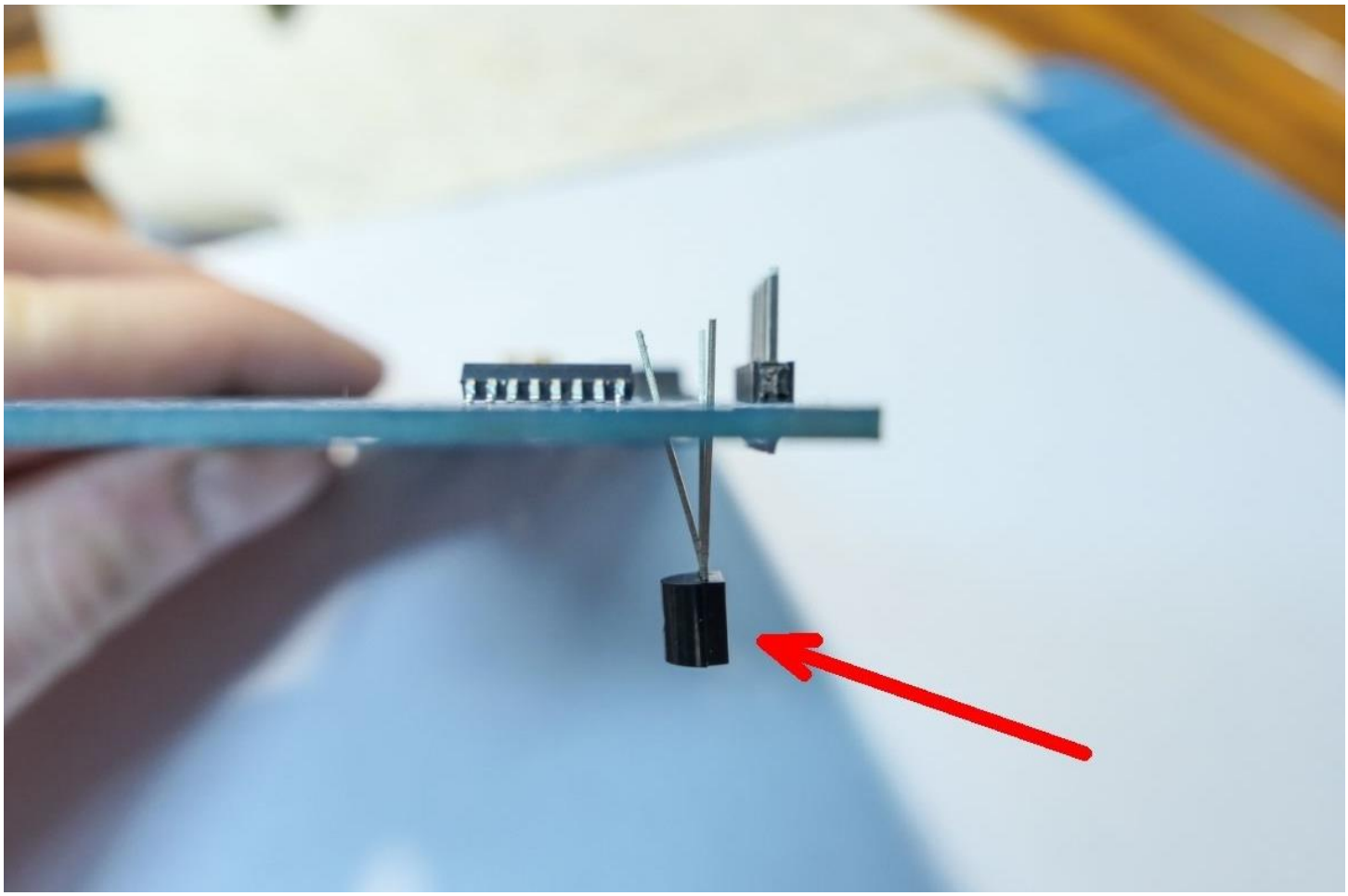
9) Place all transistors and IC8 according marking on PCB:

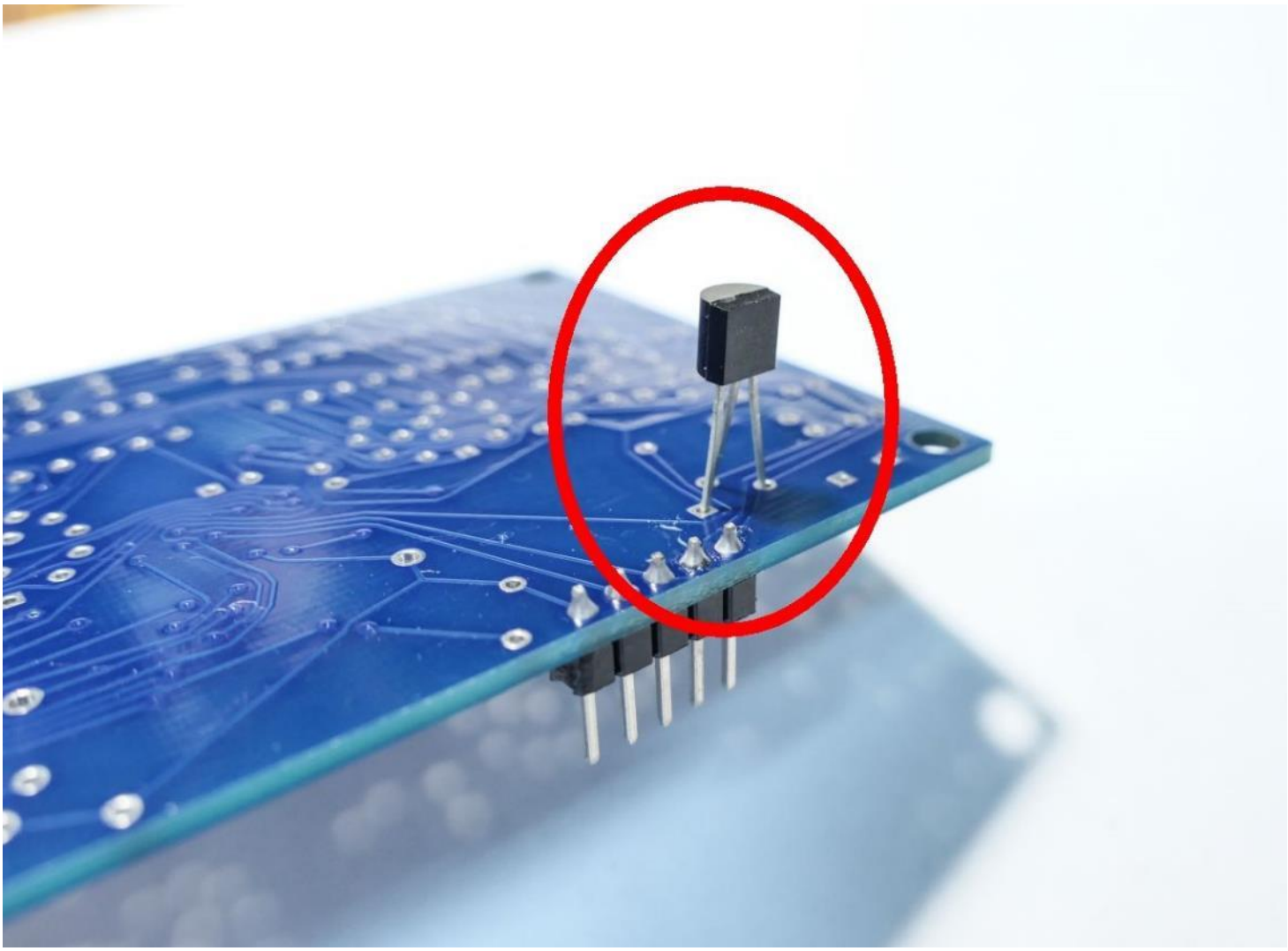




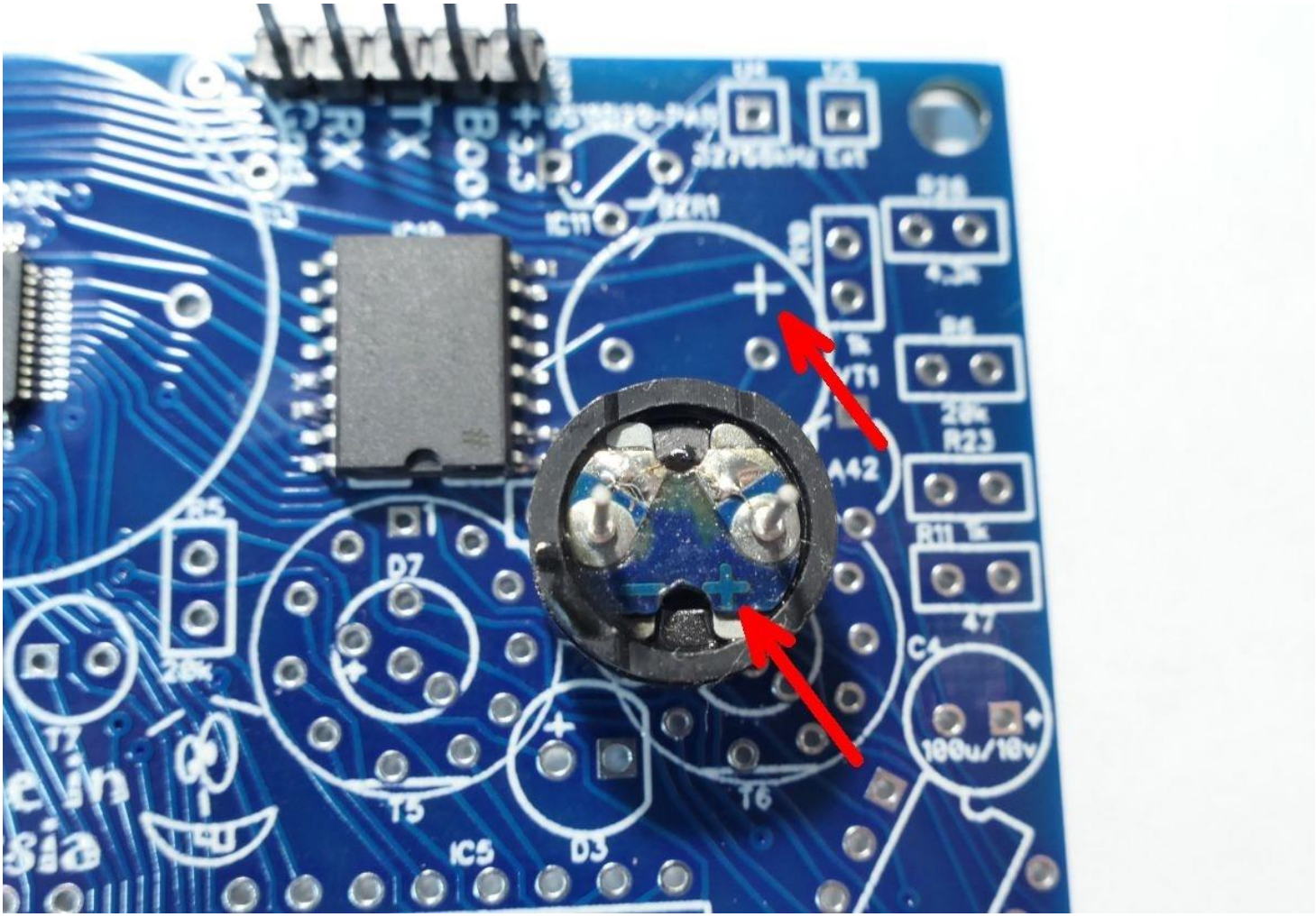
IC11– temperature sensor should place on BOTTOM side of PCB:

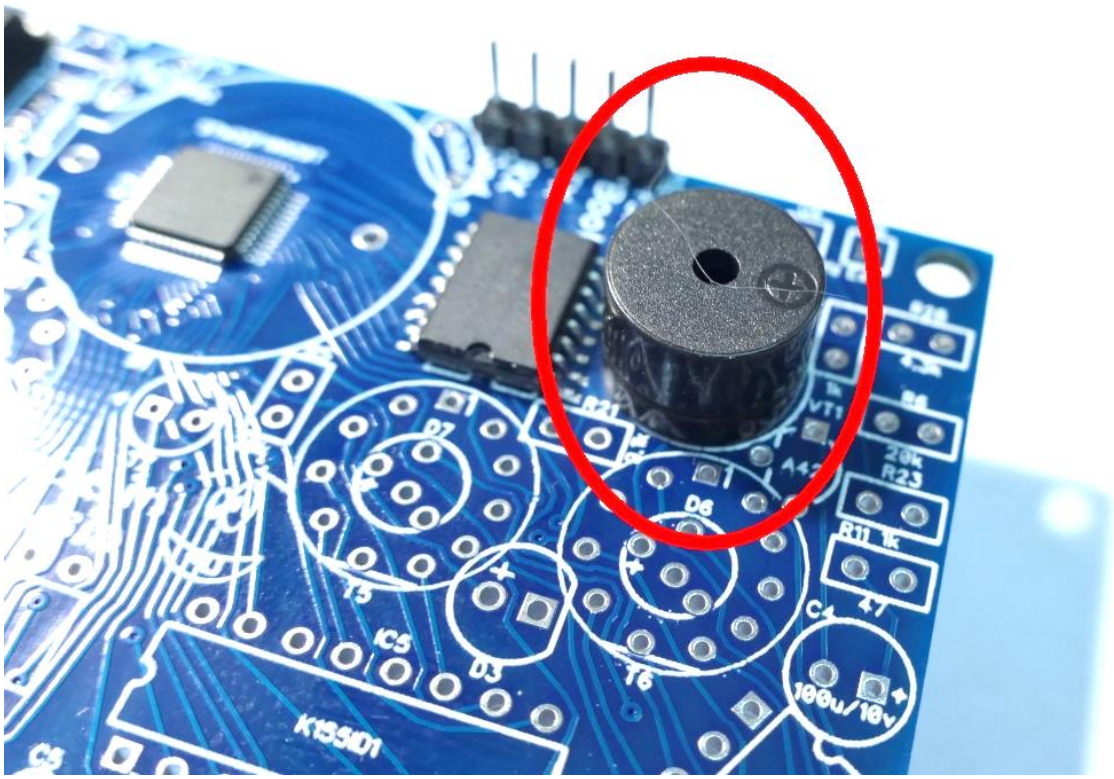




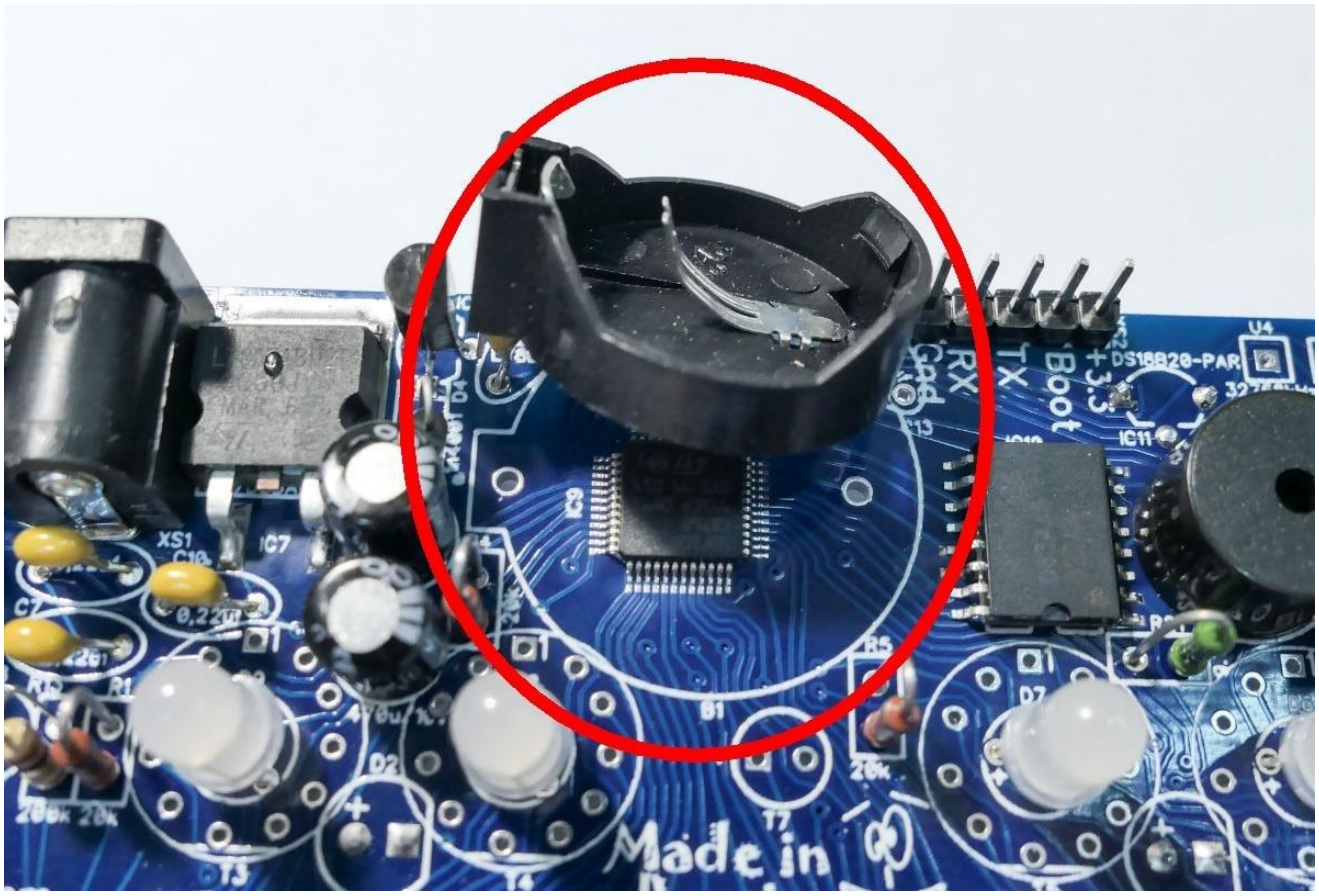


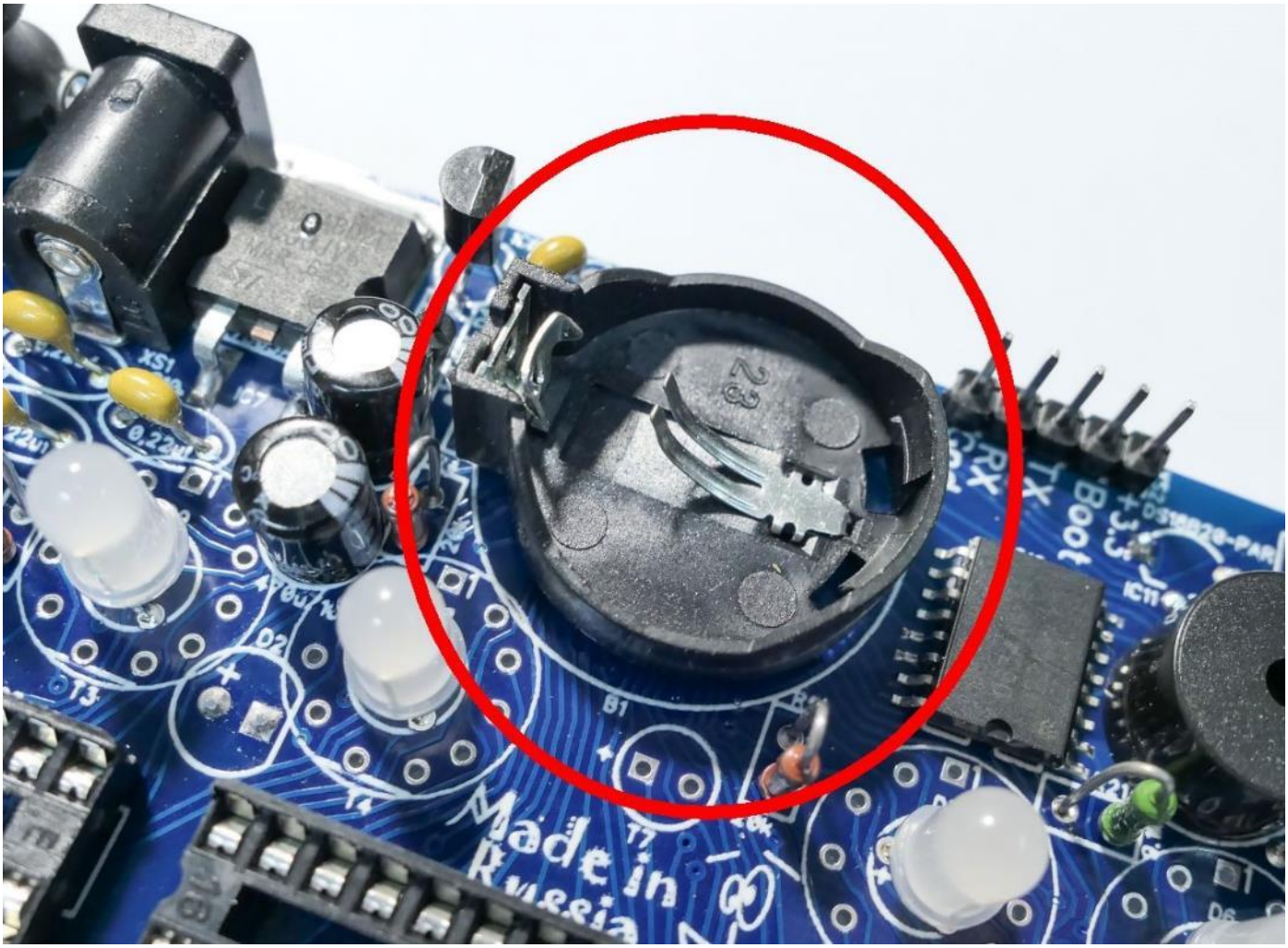
10) Install buzzer:



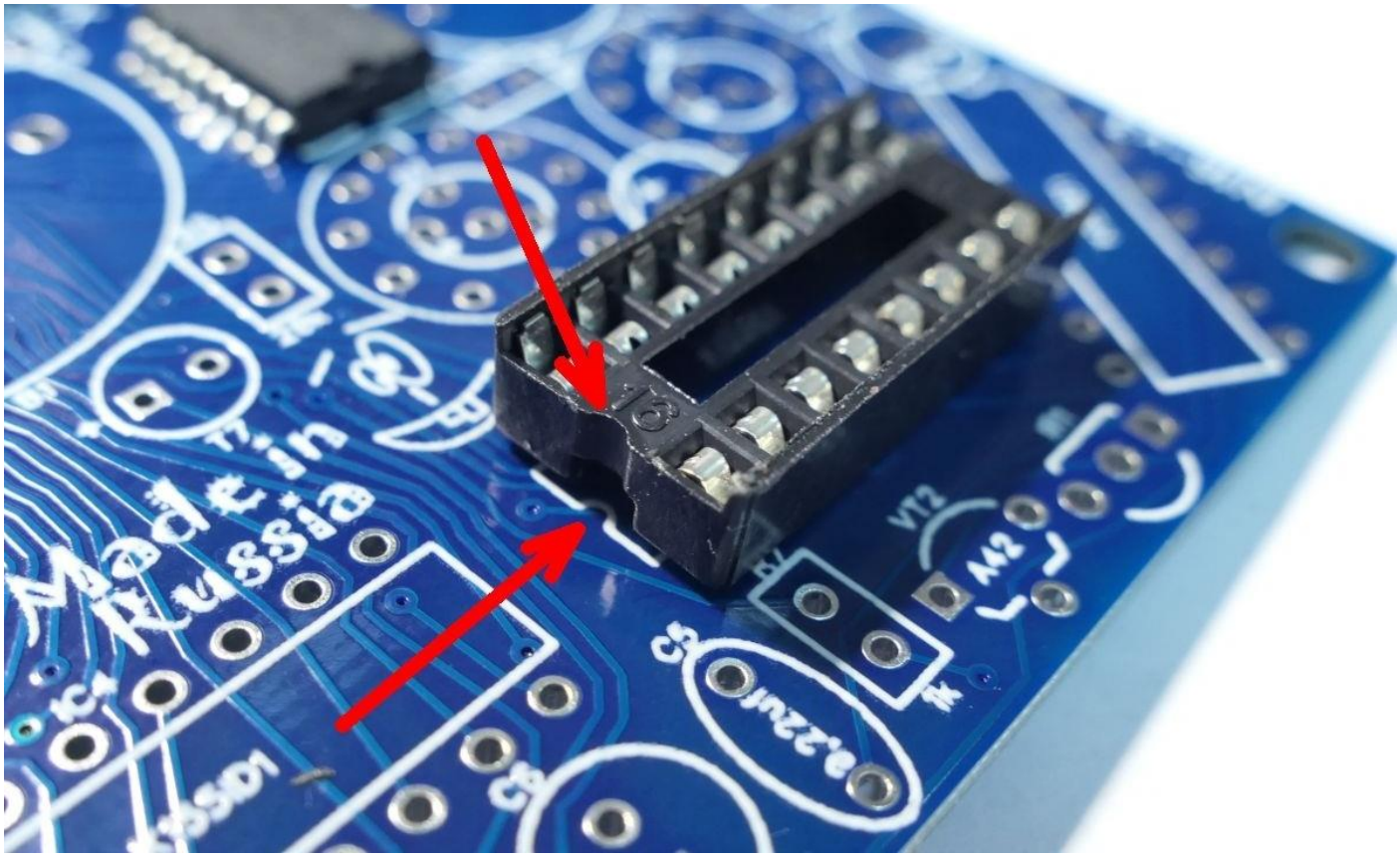


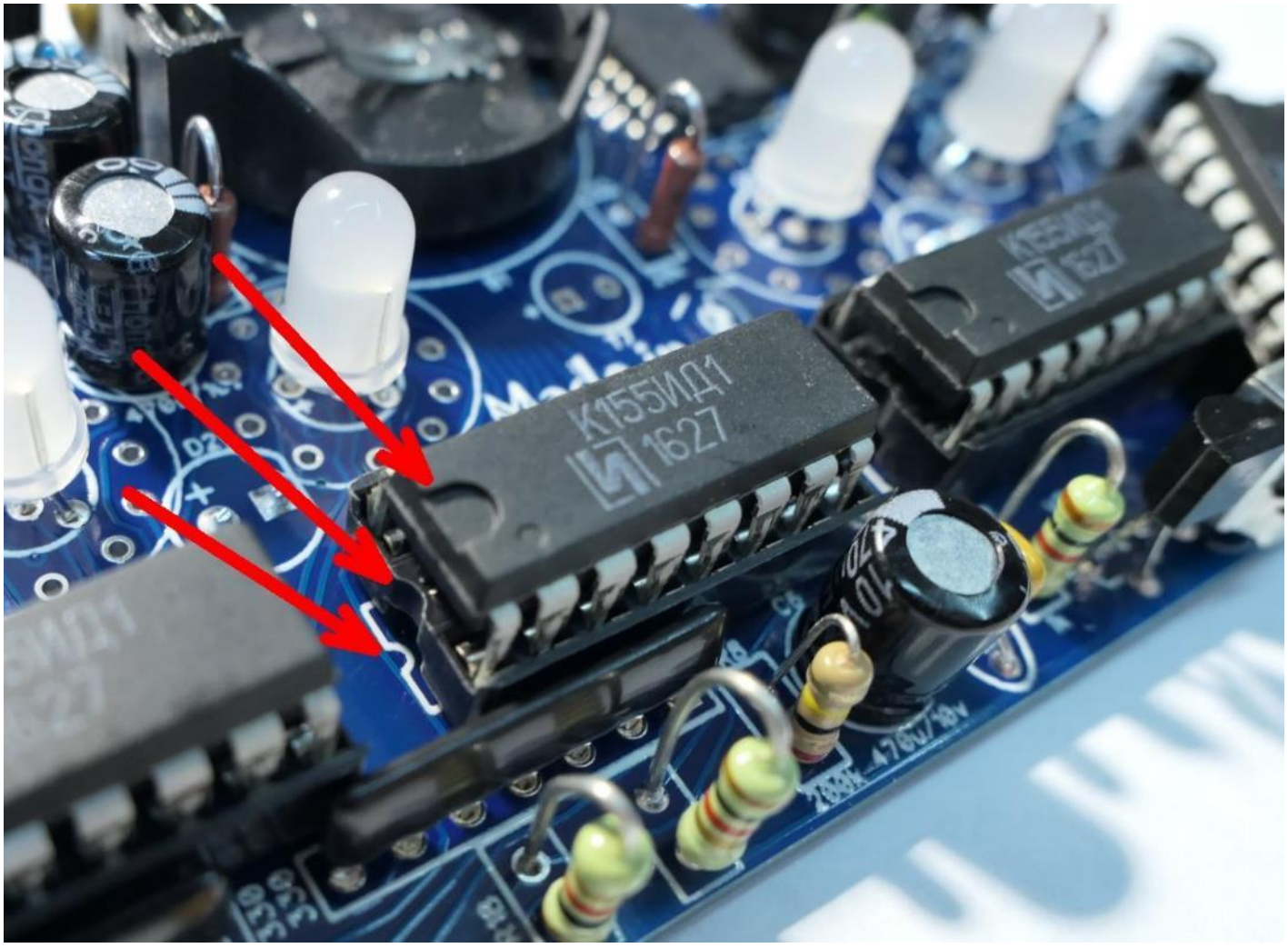
11) Place battery holder and insert battery when clock will be fully assembled:



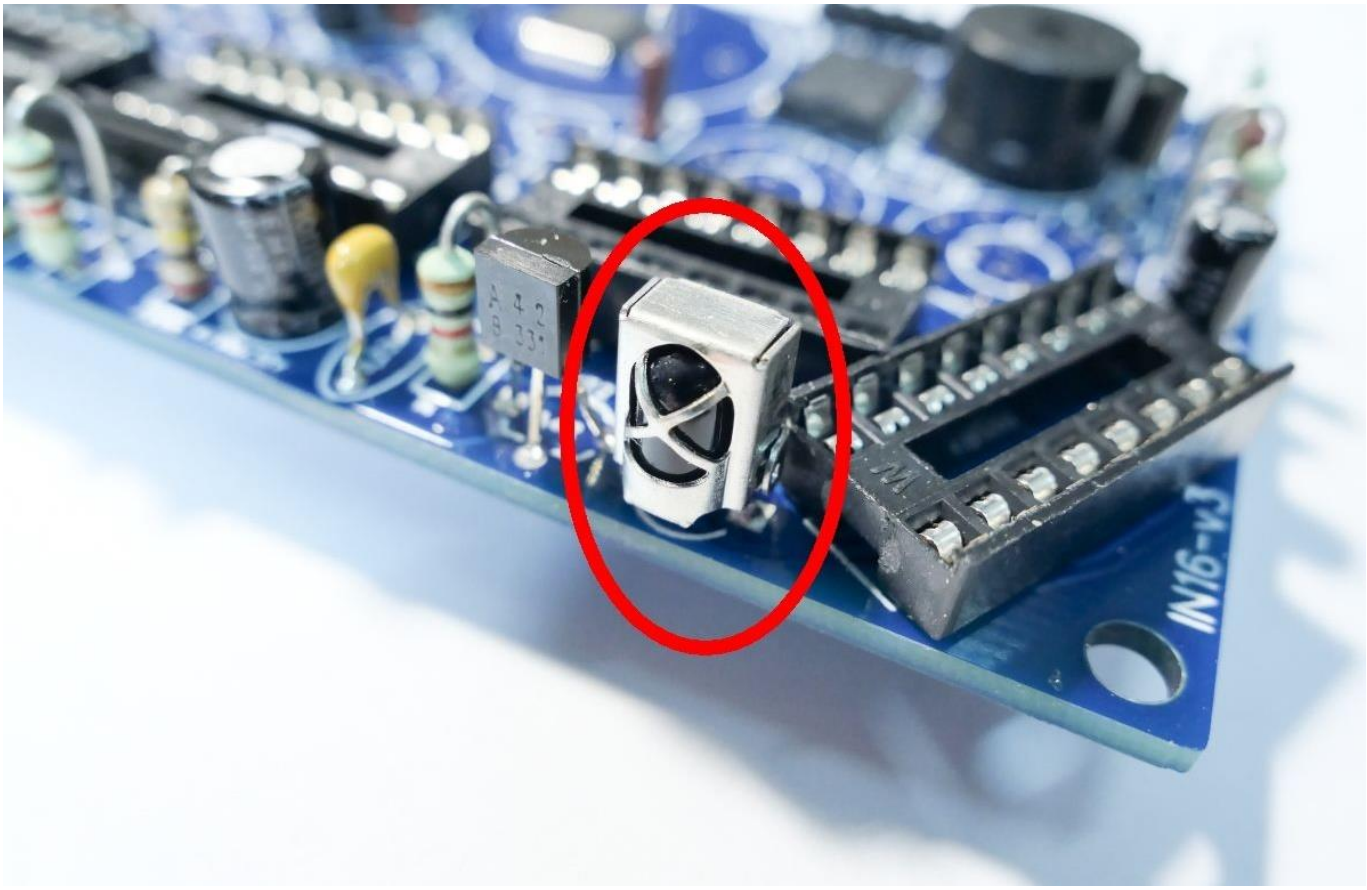


12) Place sockets for ICs. Insert KR514ID2 chips at the end of assembling process:

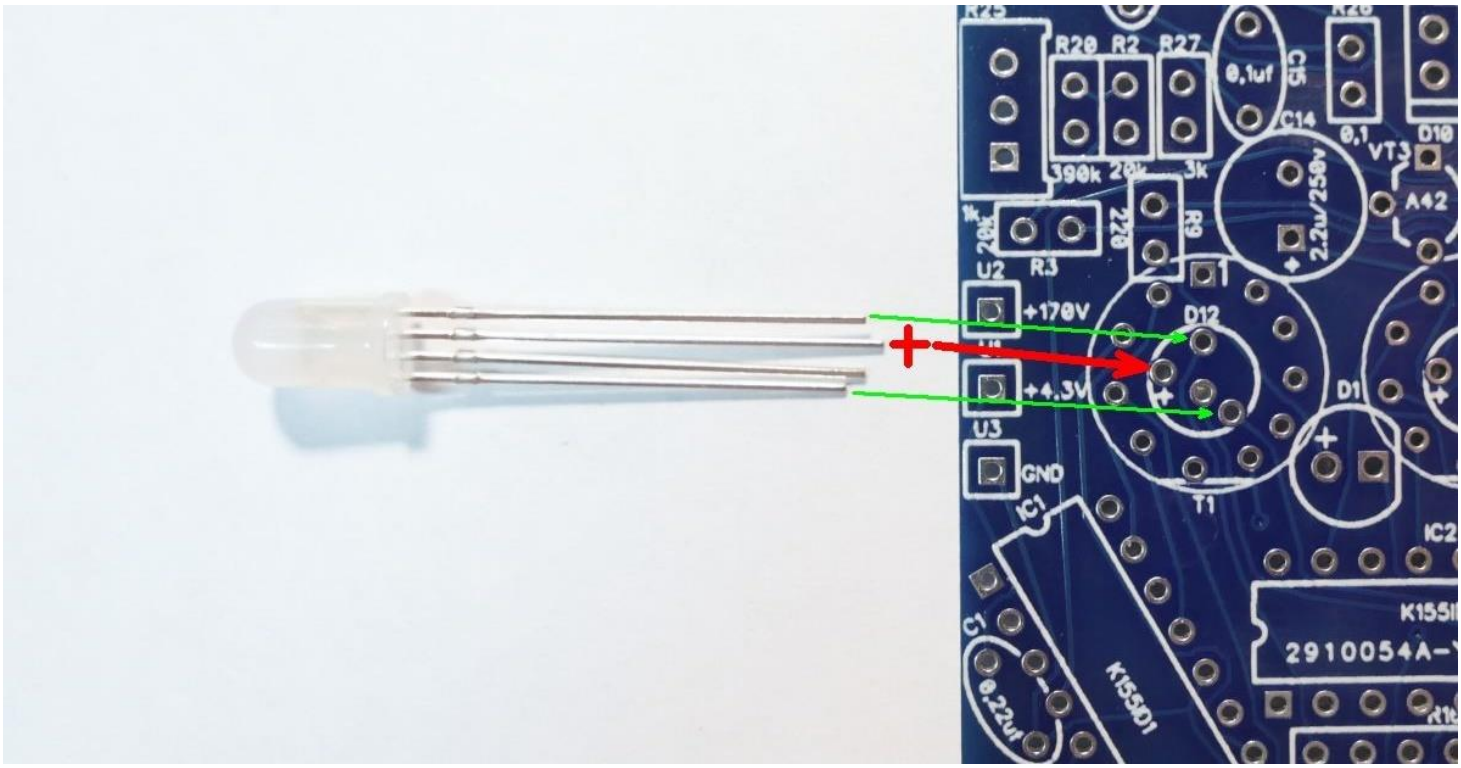


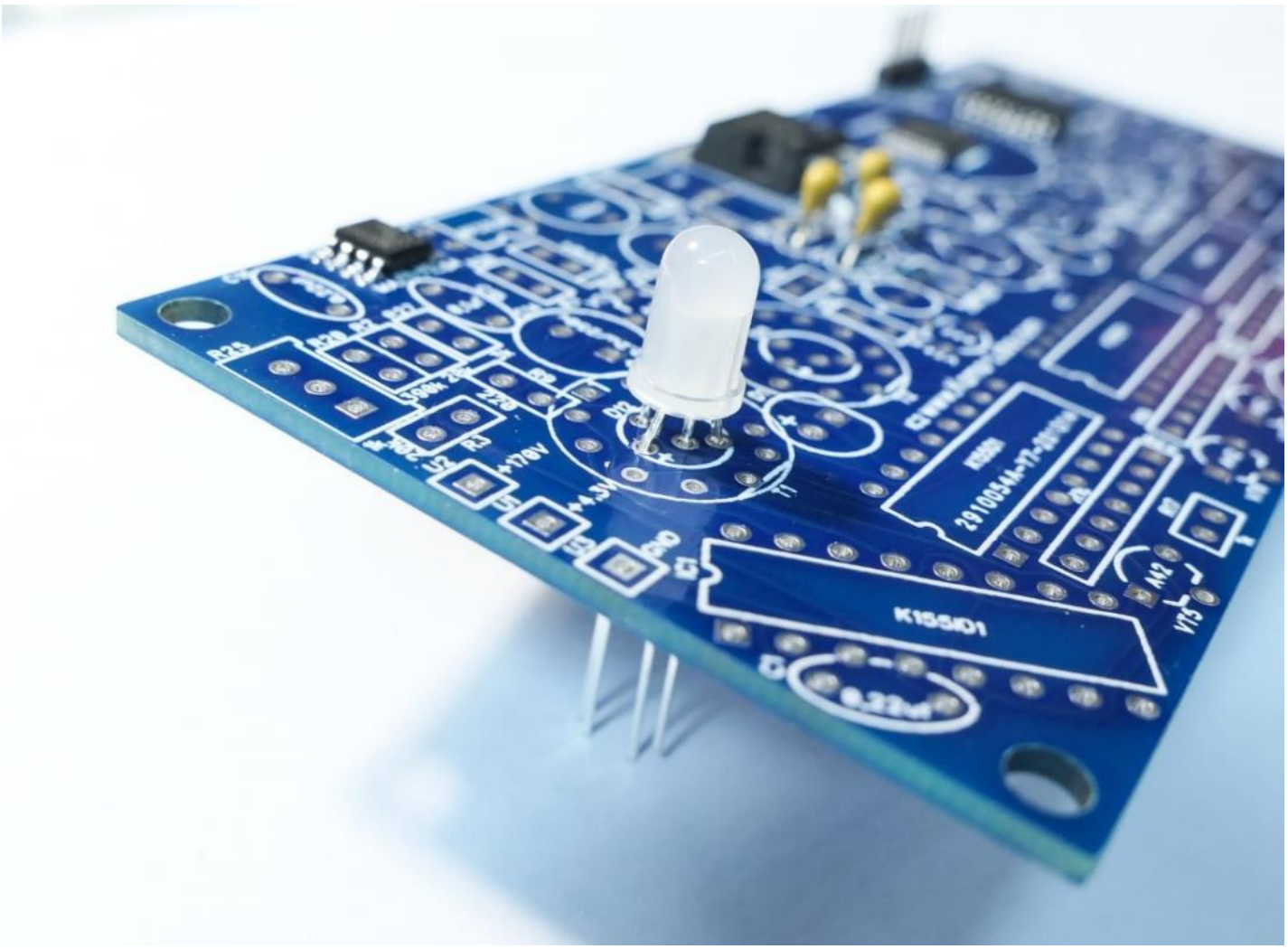


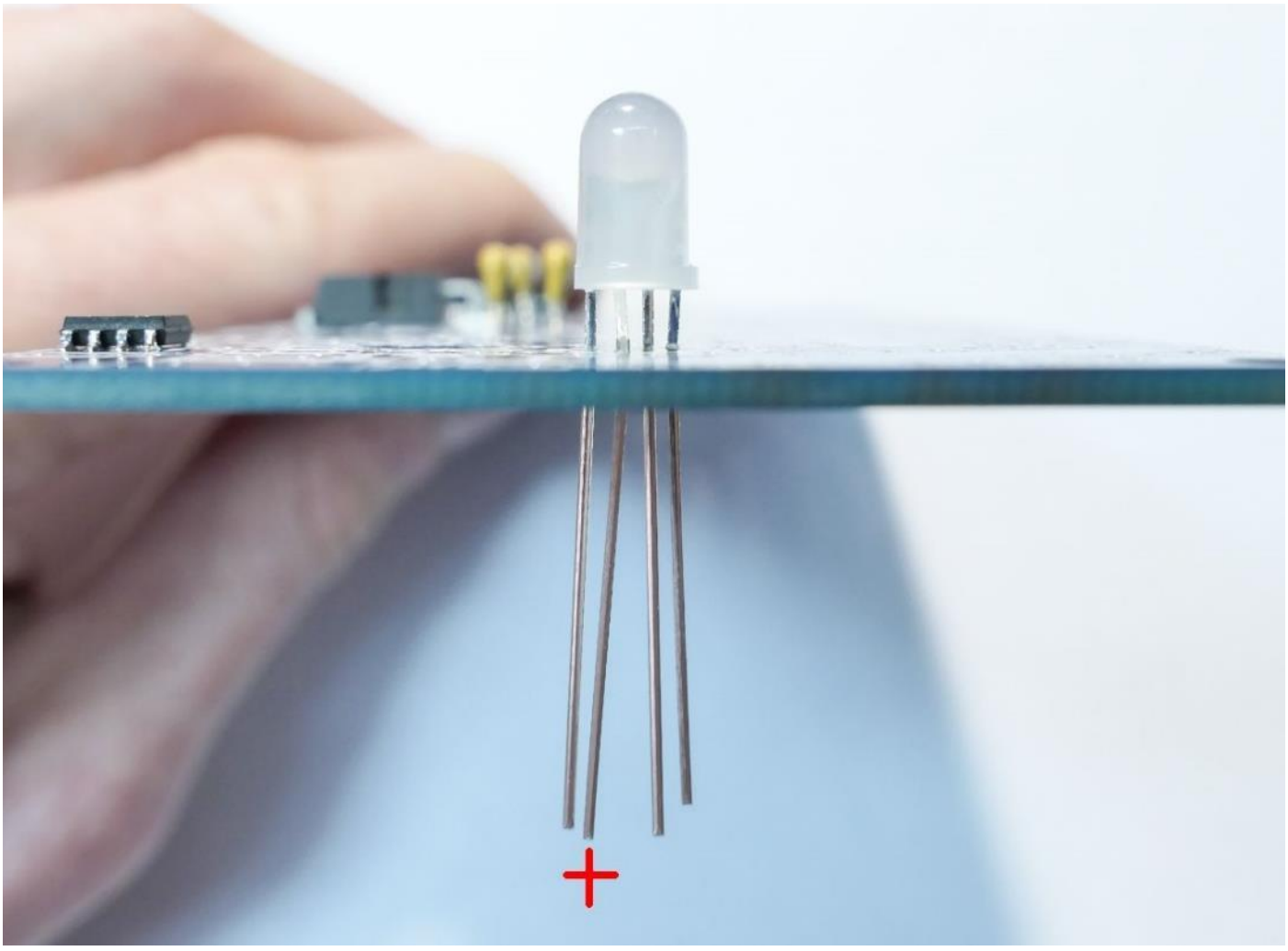
13) Install Infrared receiver:

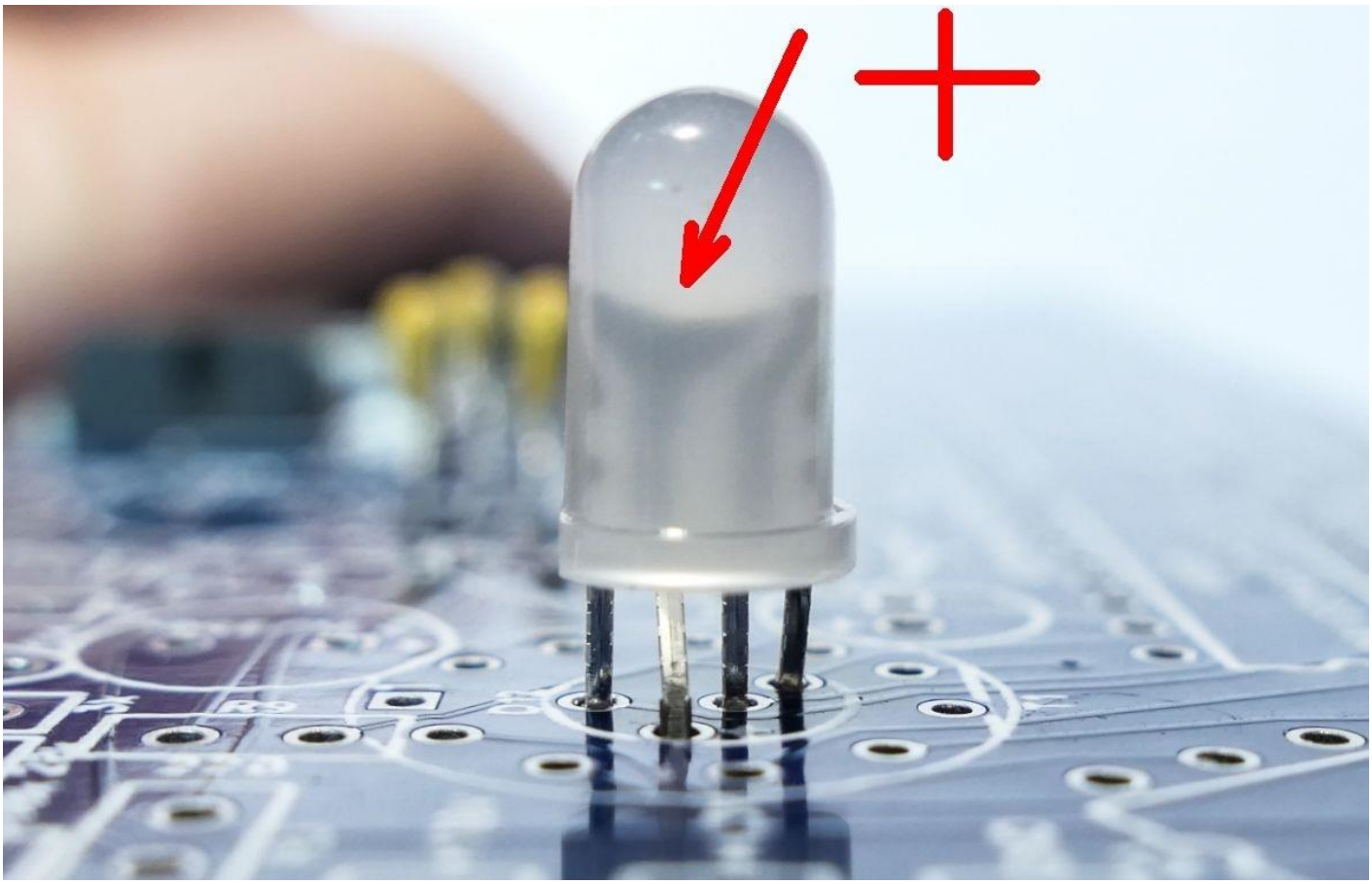


14) Insert 6 RGB LEDs

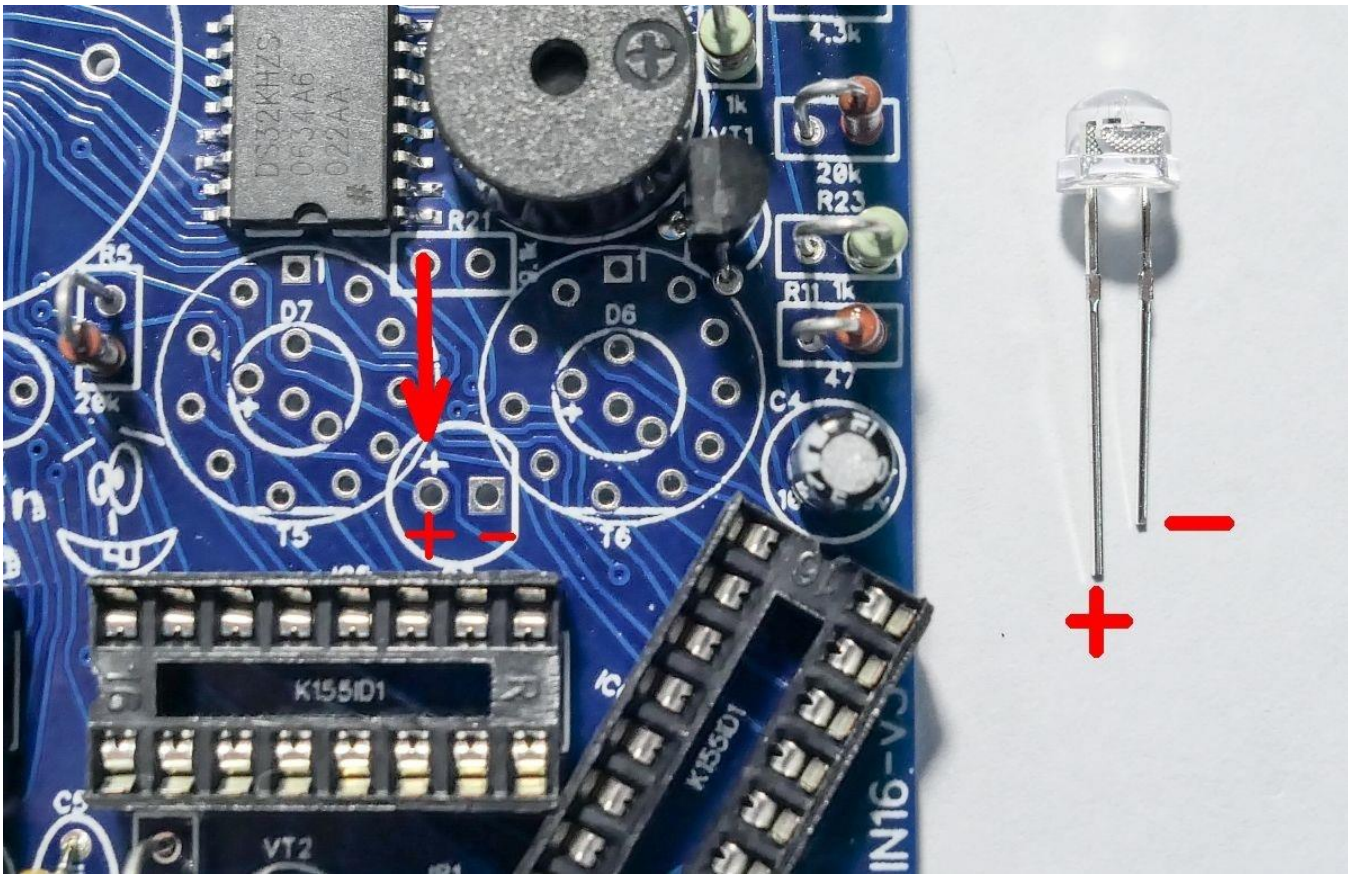


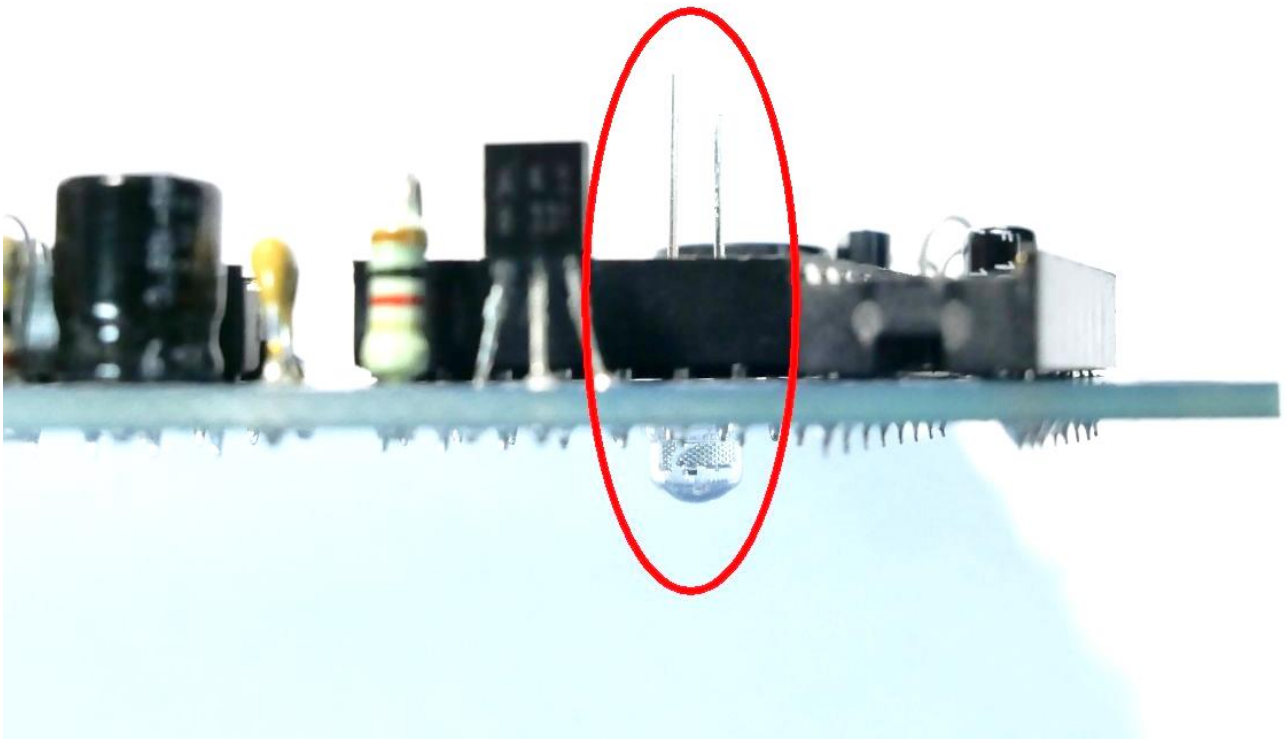

K155ID1



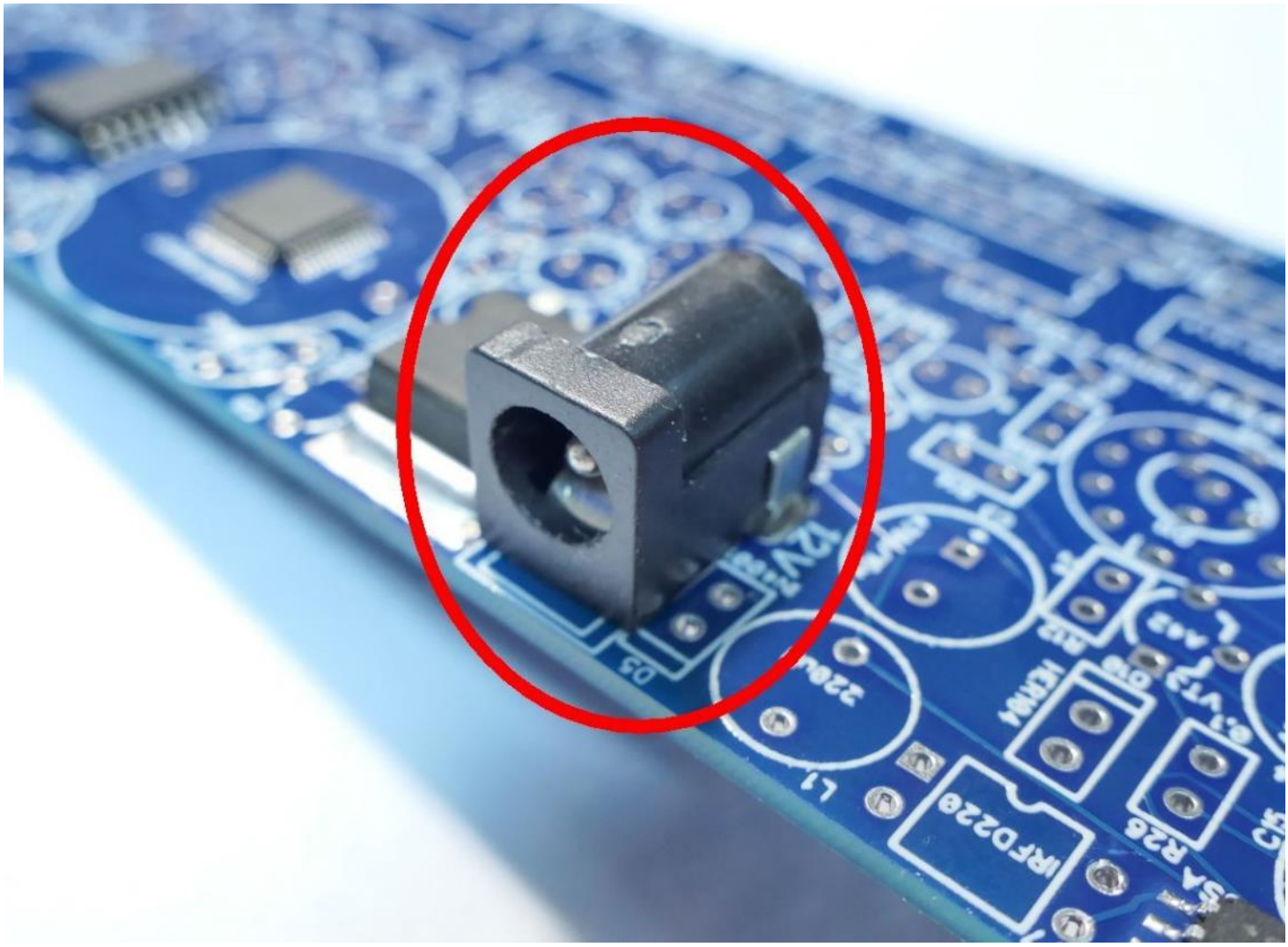


15) Prepare and install AUTO leds. This LEDs should be installed on BOTTOM side of PCB:





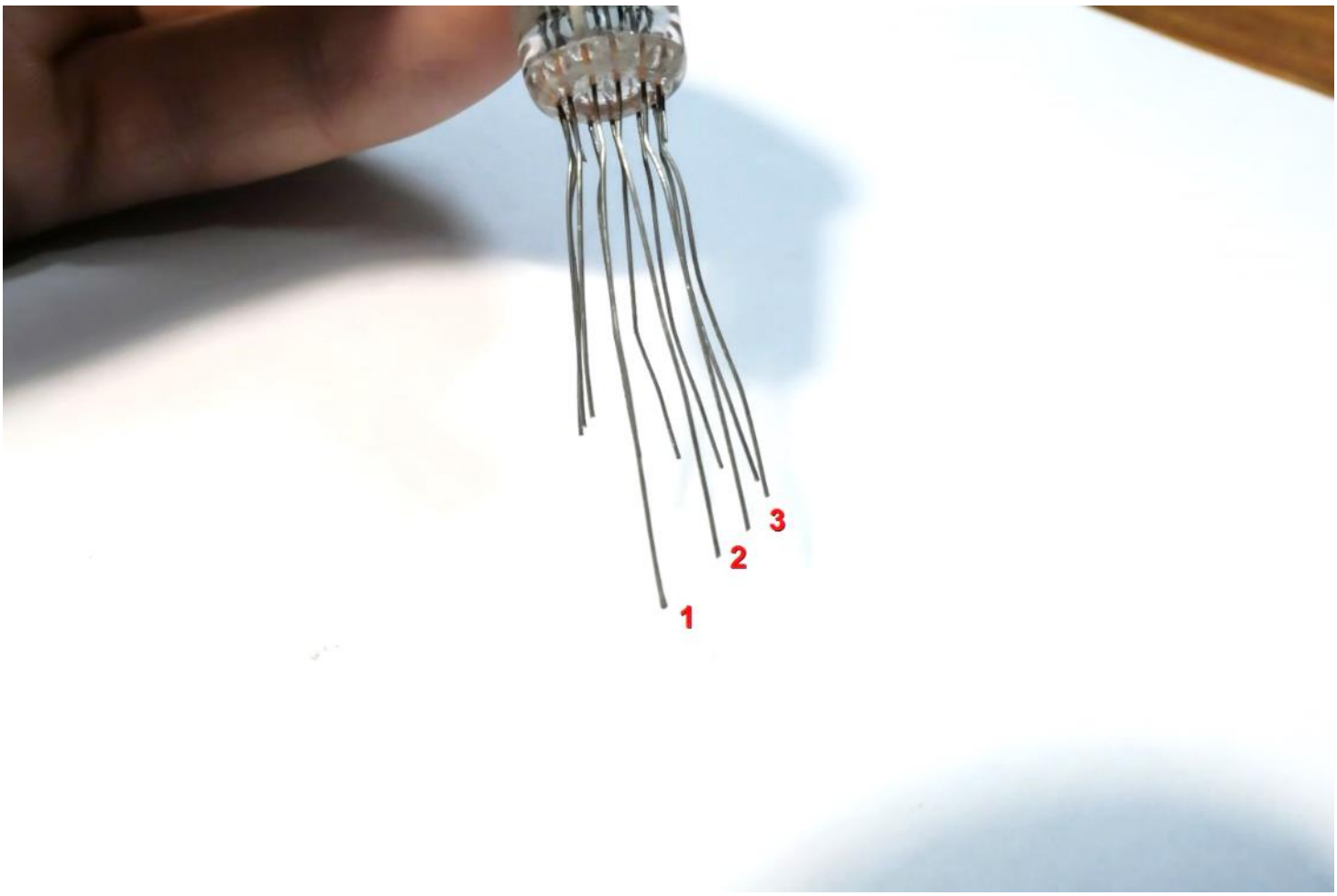
16) Install power plug:

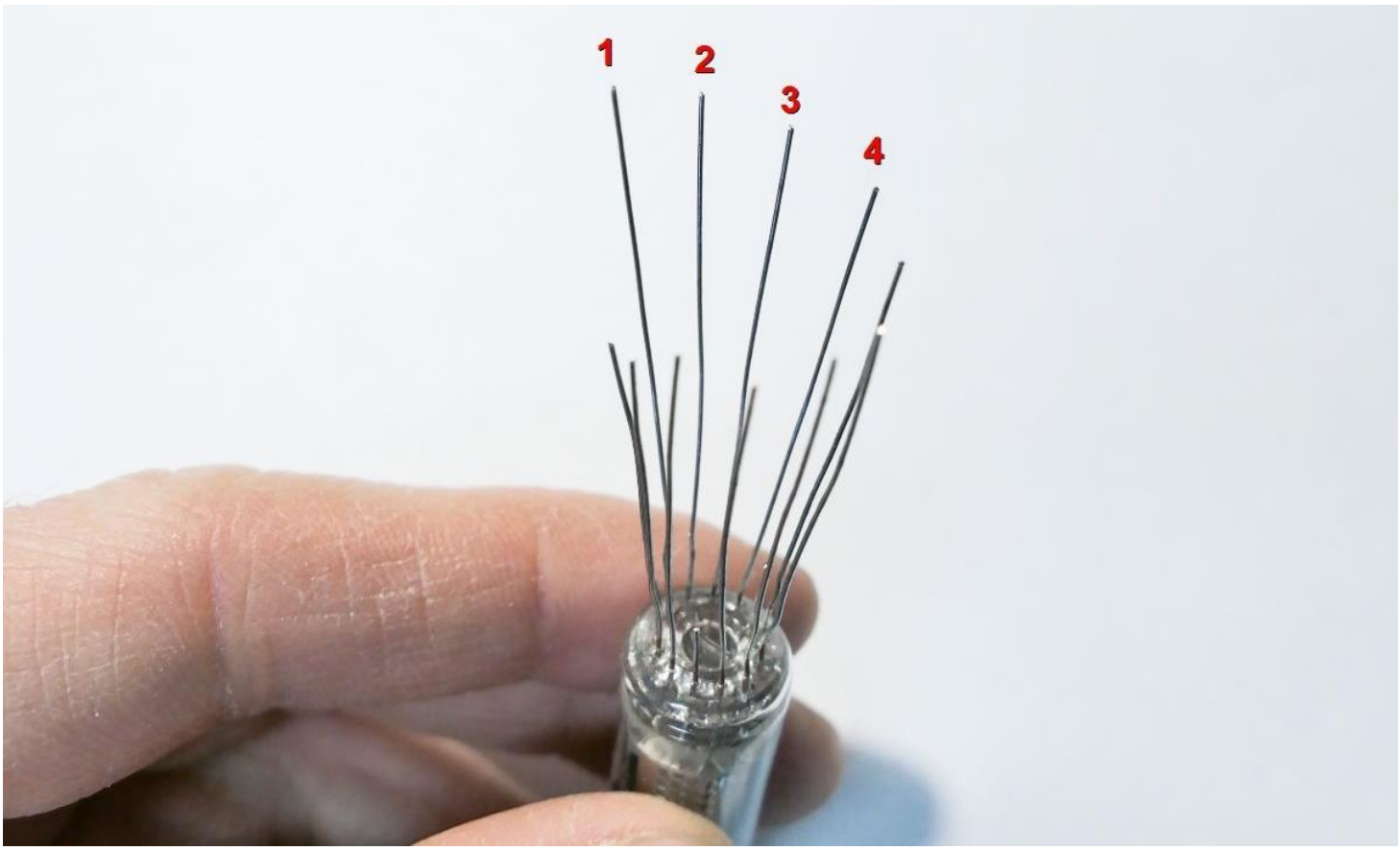


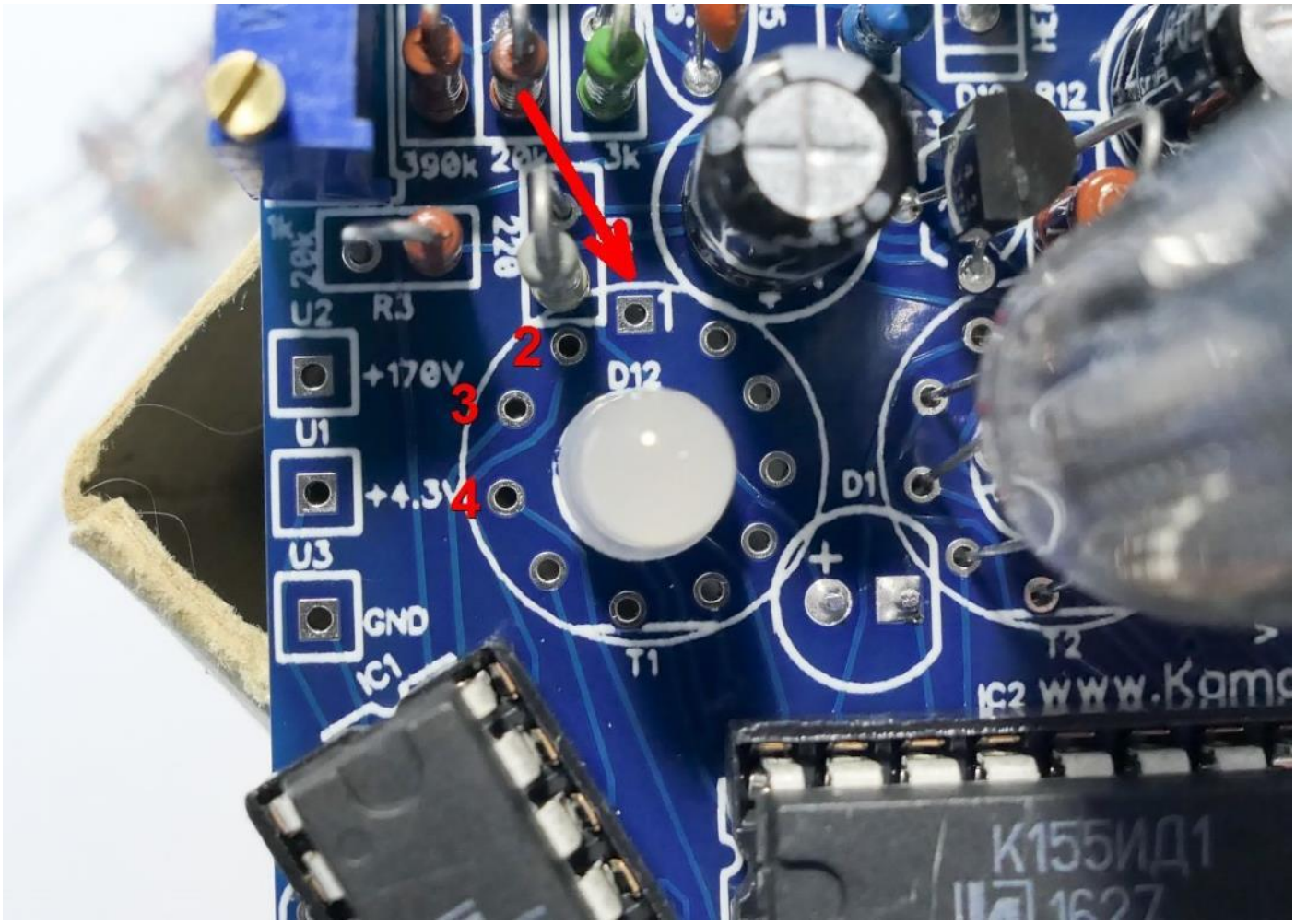
17) After all, your clock should looks like on photo:

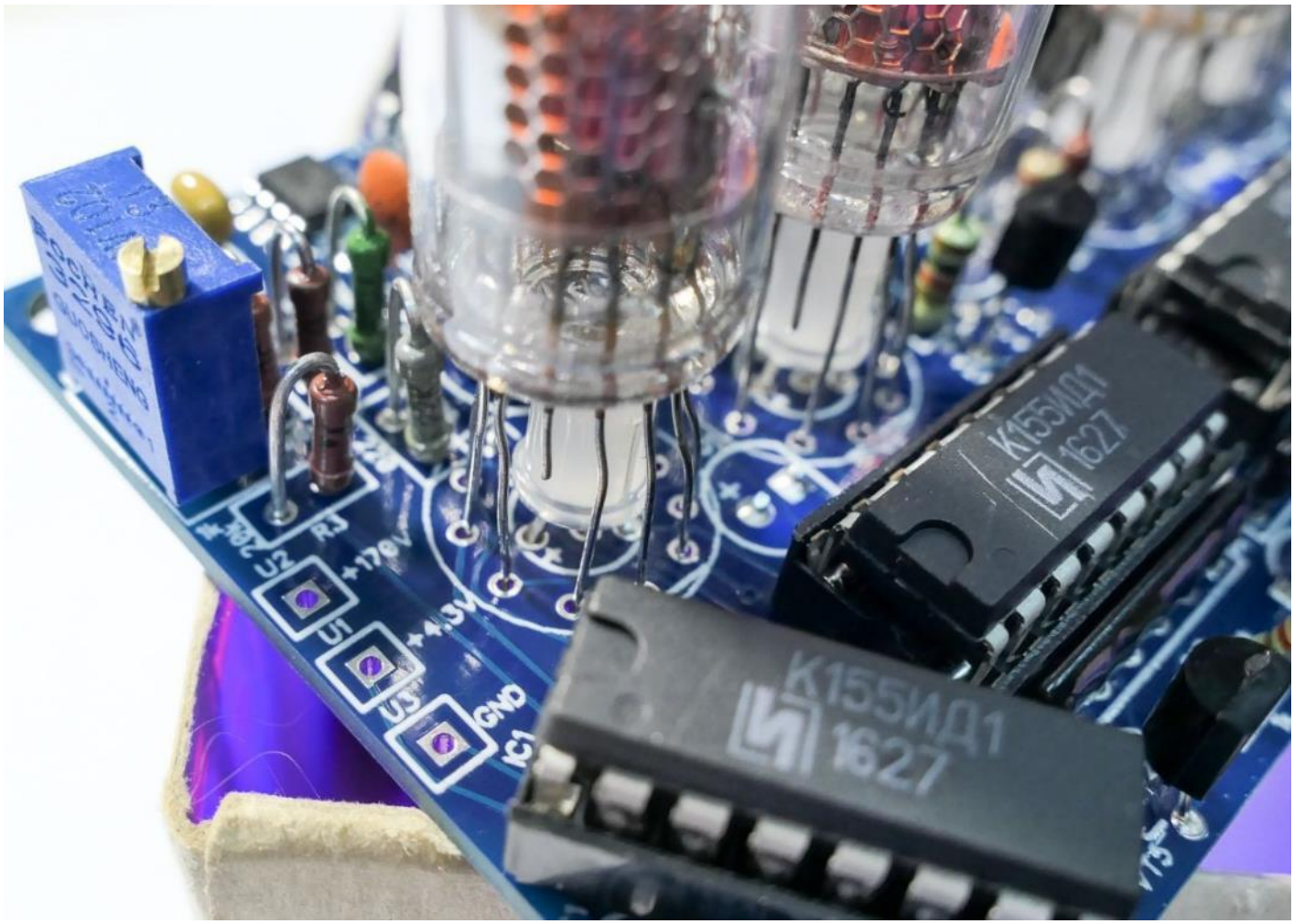
*** *надо добавить фотки* ***

18) Prepare and install all IN-16 tubes. You can see that pins of tubes cut spiral already. The longest pin – first pin:

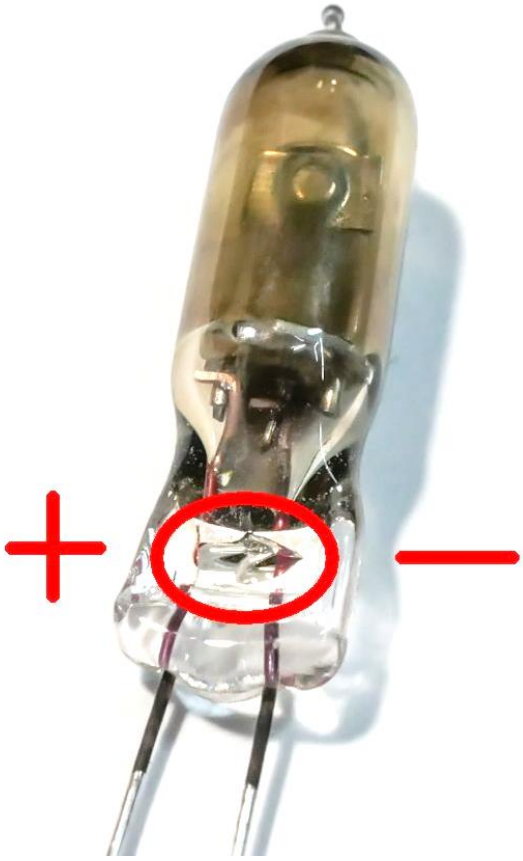


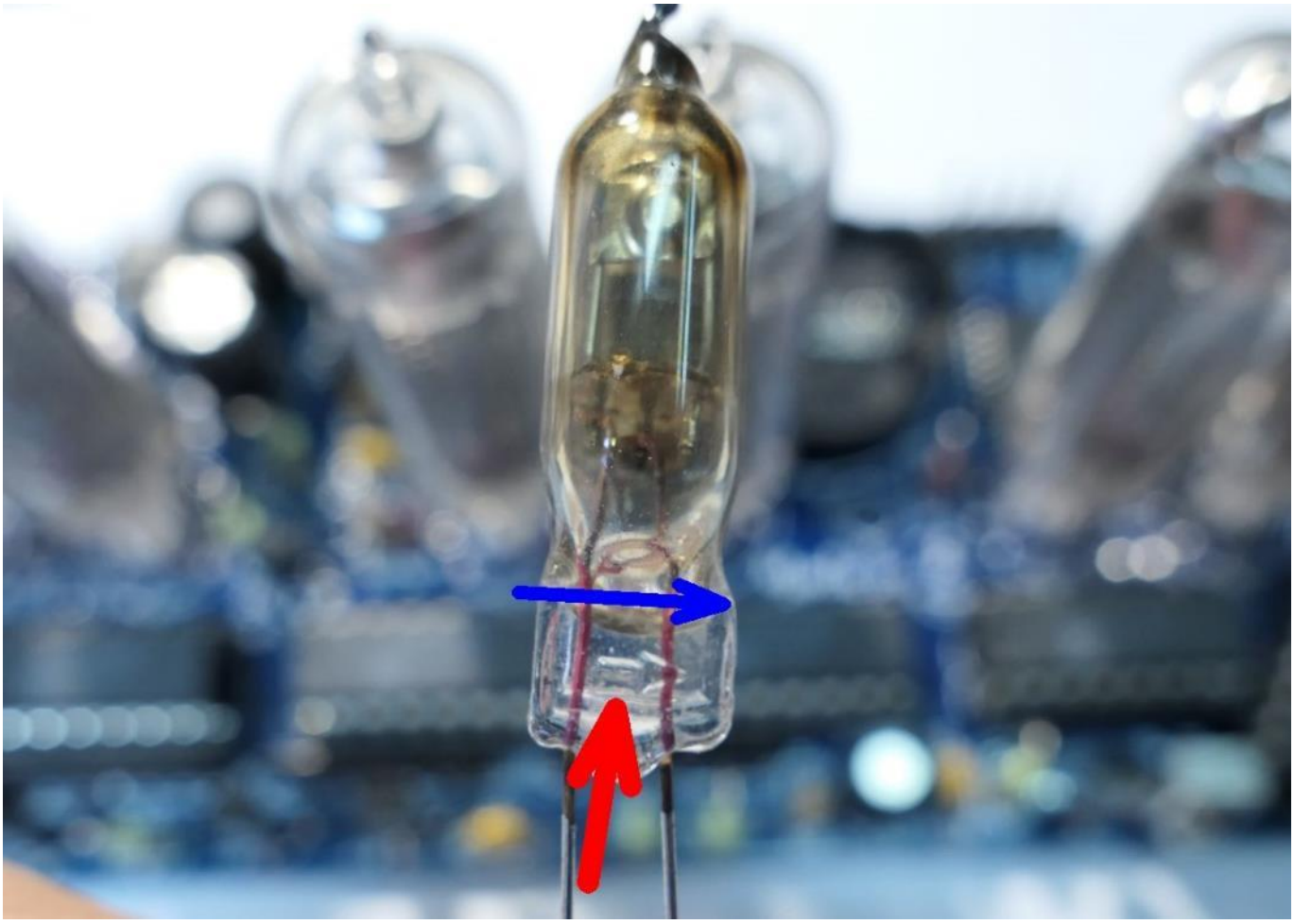

1
2
3
4

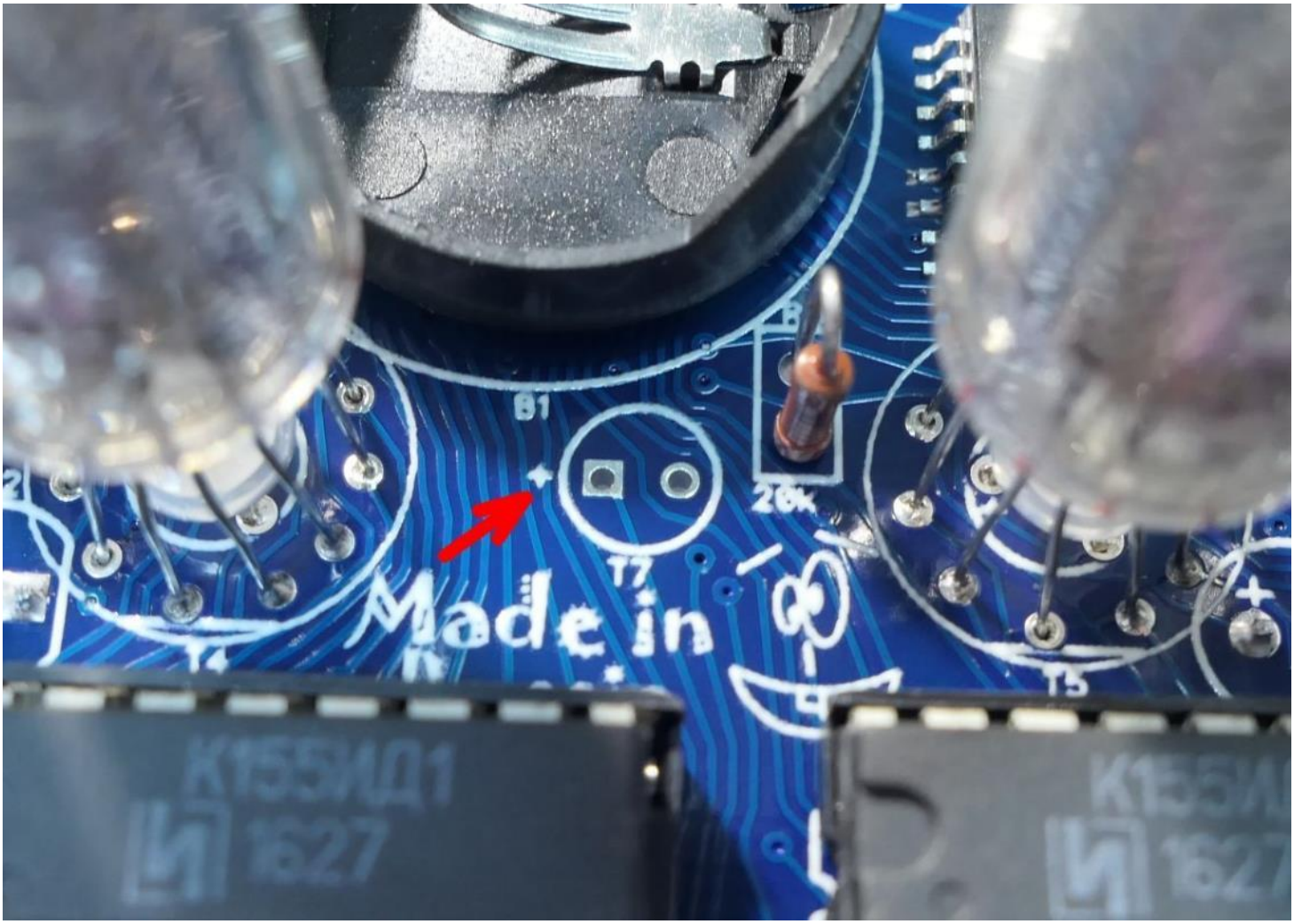

390k
3k
R3
U2
+170V
U1
+4.3V
U3
GND
IC1
2
3
4
D12
D1
T1
T2
IC2
К155ИД1



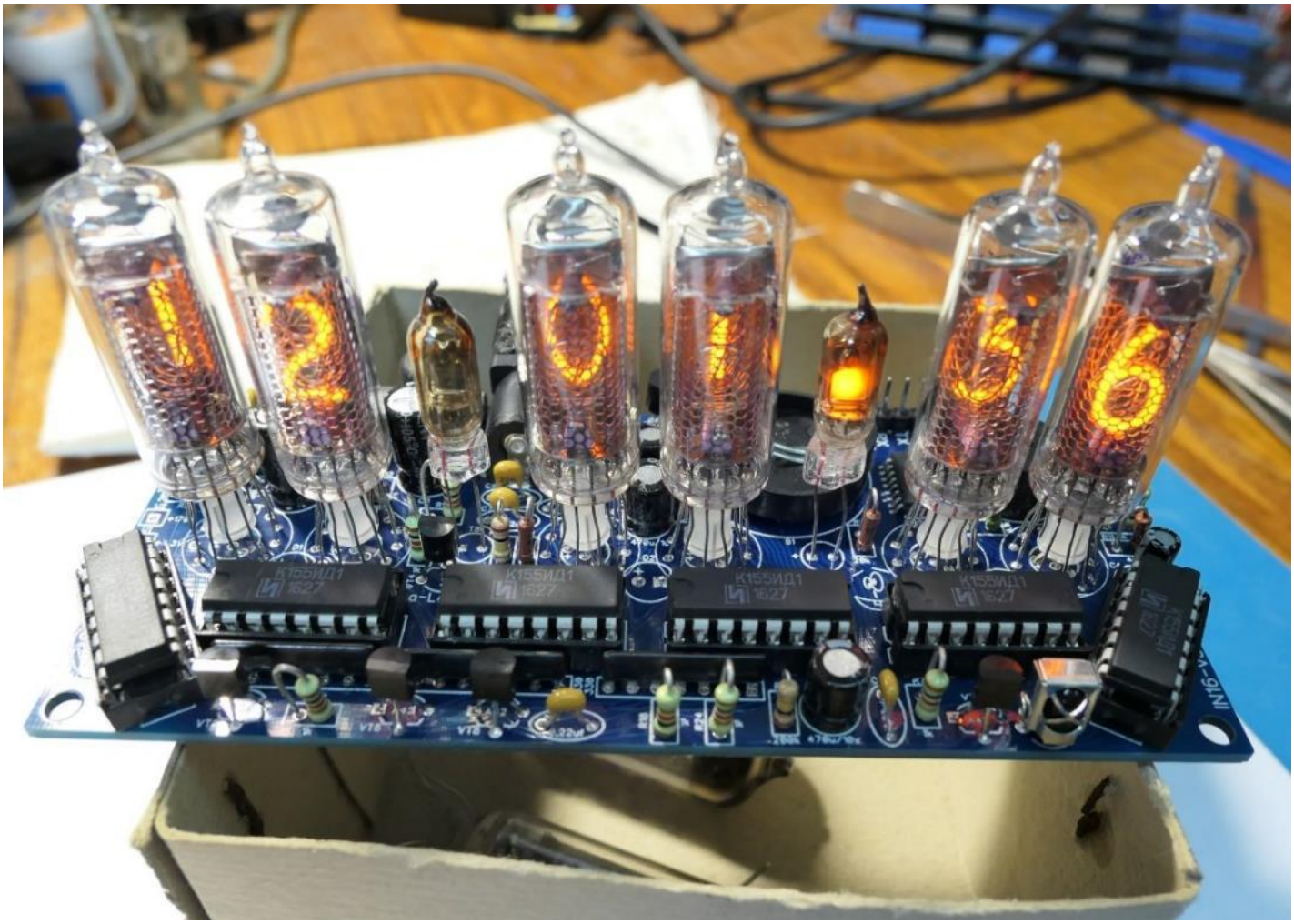
19) Place 2 separator tubes. Plus and minus:

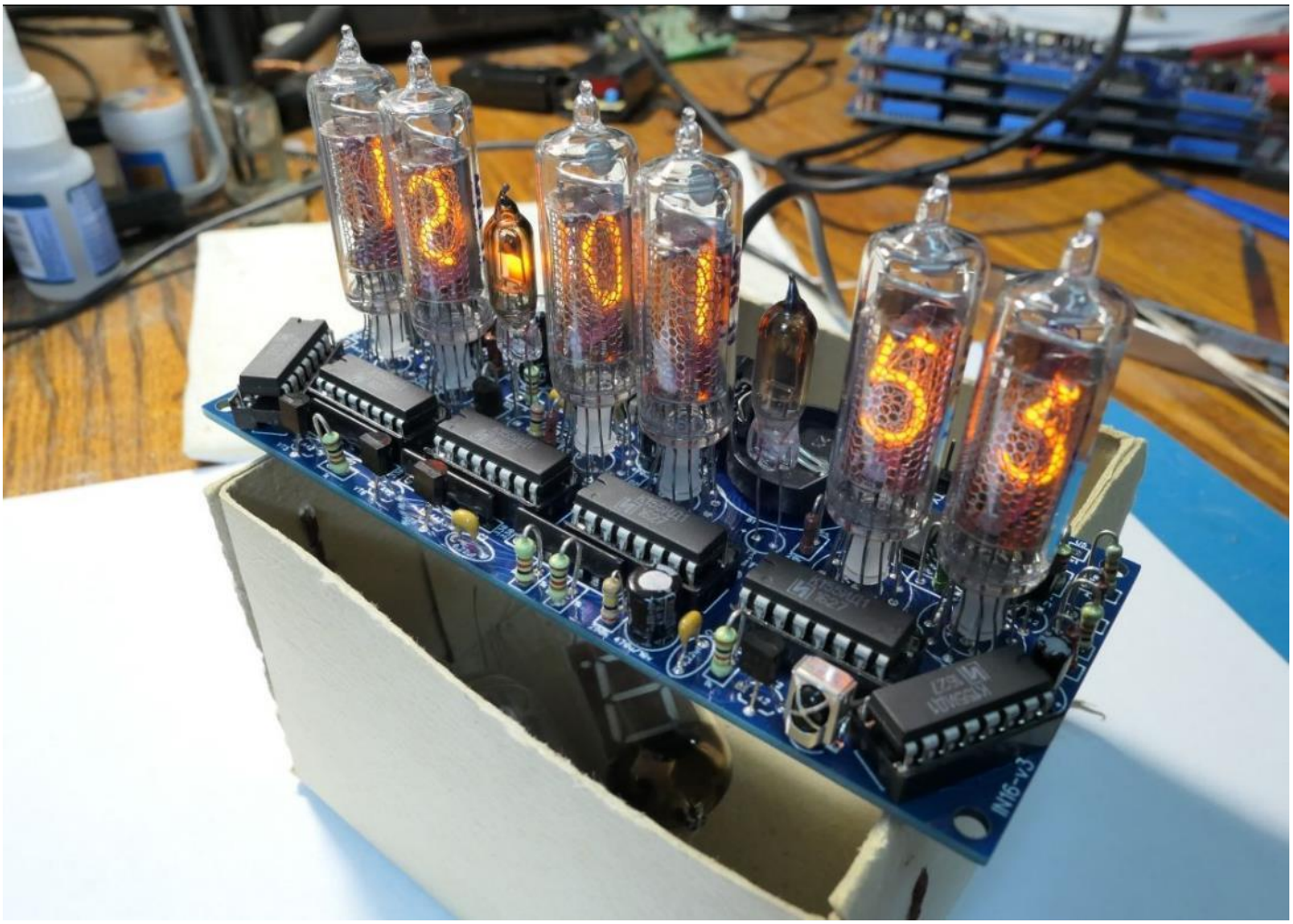




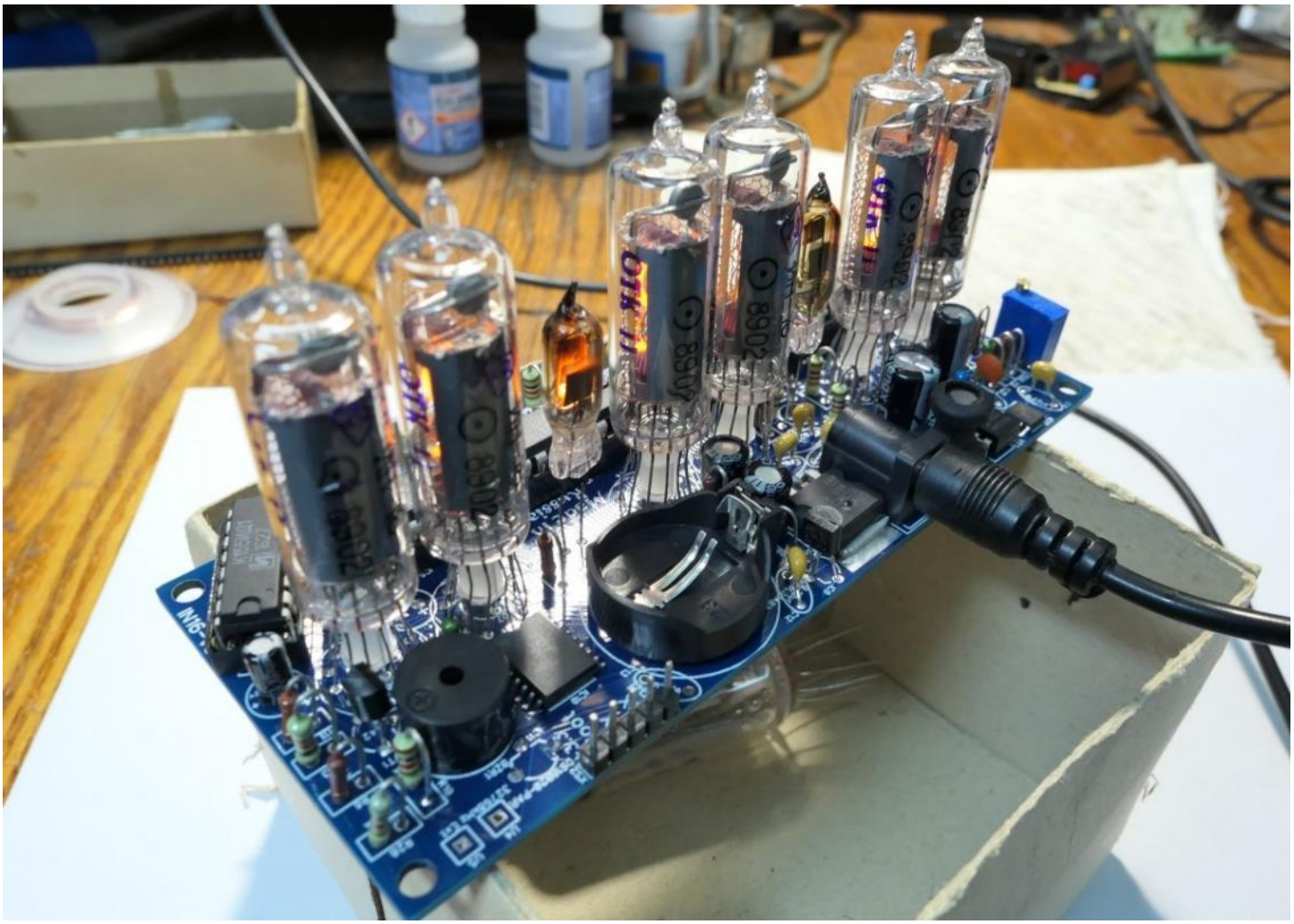

B1
T7
Made in
T4
T5

20) Install tube drivers KR555ID1. Now, your clock should looks like this:




IN6-v3


ИН-16
ИН-16
ИН-16
ИН-16
ИН-16
ИН-16



21) After all clock should work.

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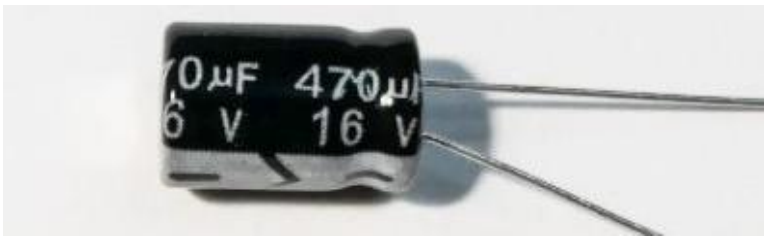
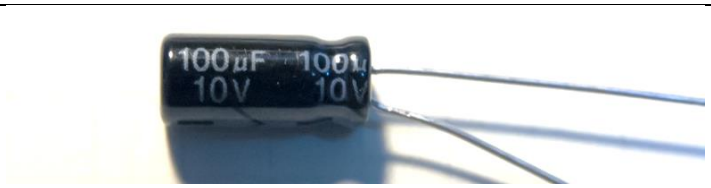
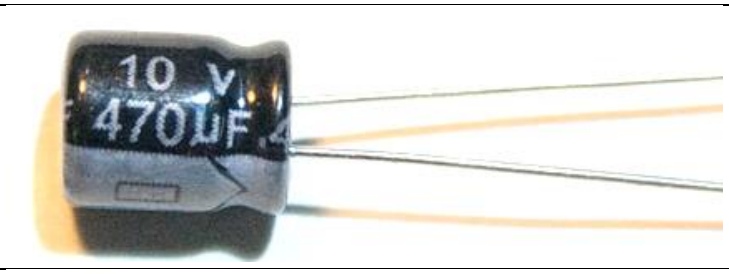
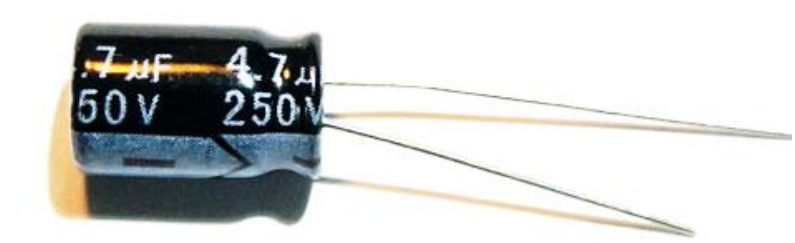
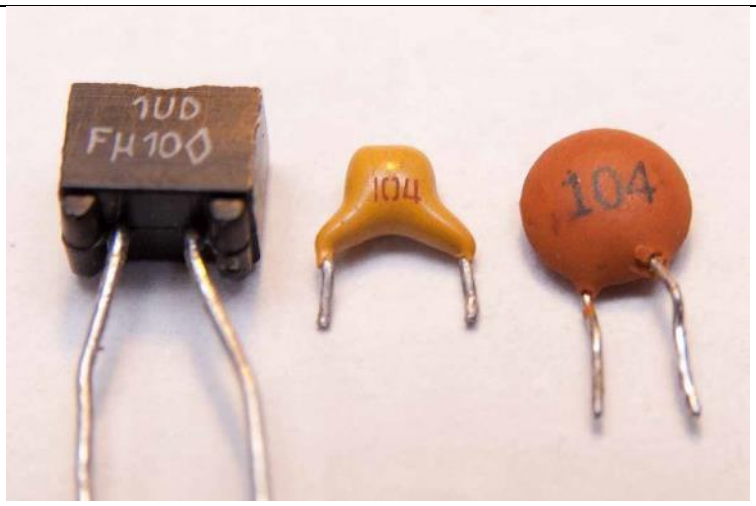
CONGRATULATIONS!

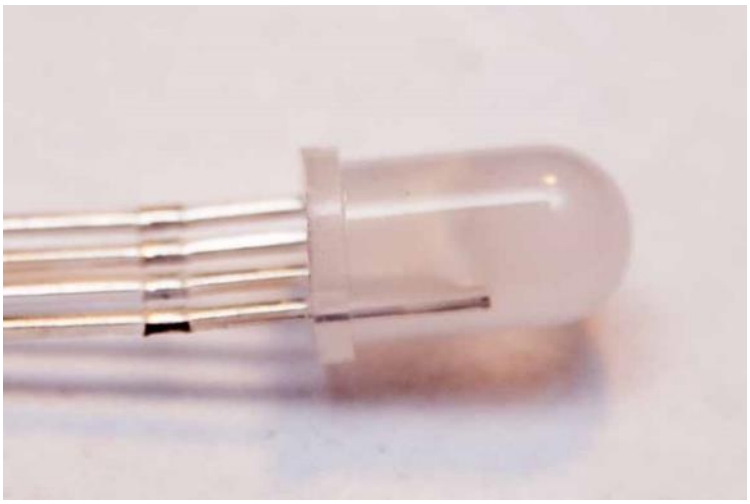
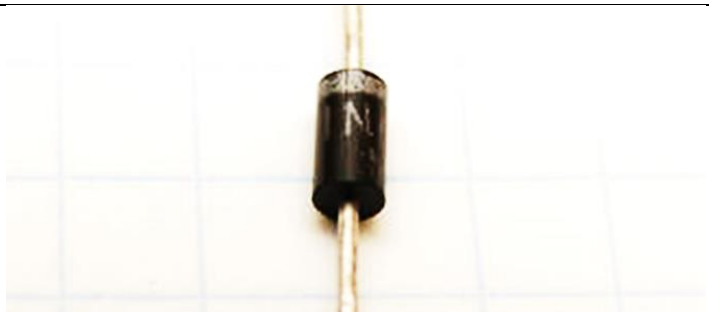
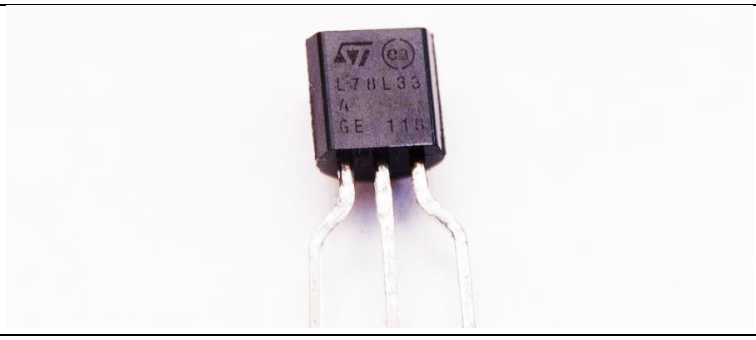
PARTS LIST

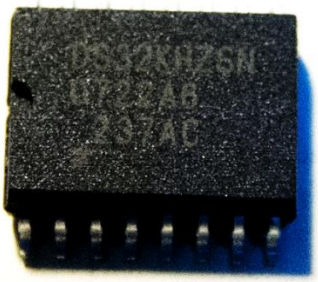
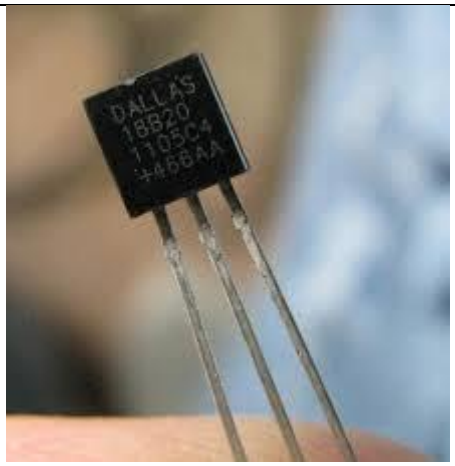
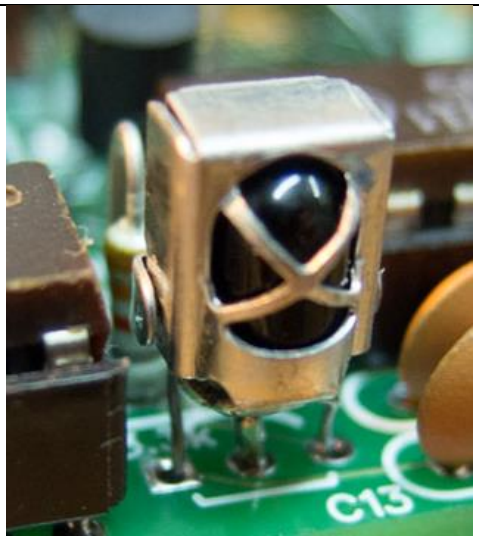
Please note, that elements in kit can be a little different. If you doubt value of element, check it with multimeter.

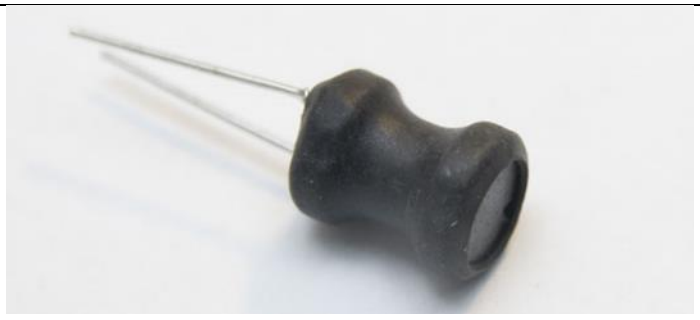
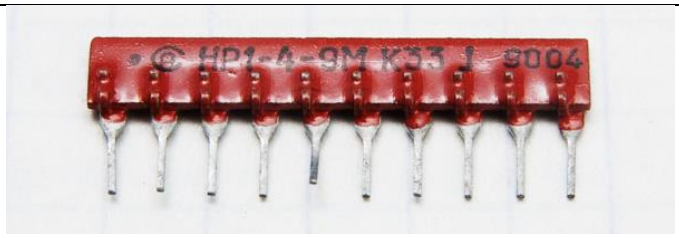
IF VALUE OF ELEMENT IN PART LIST AND ON PCB IS DEFFERENT, PLEASE USE VALUES FROM PART LIST AND SCHEMATIC.

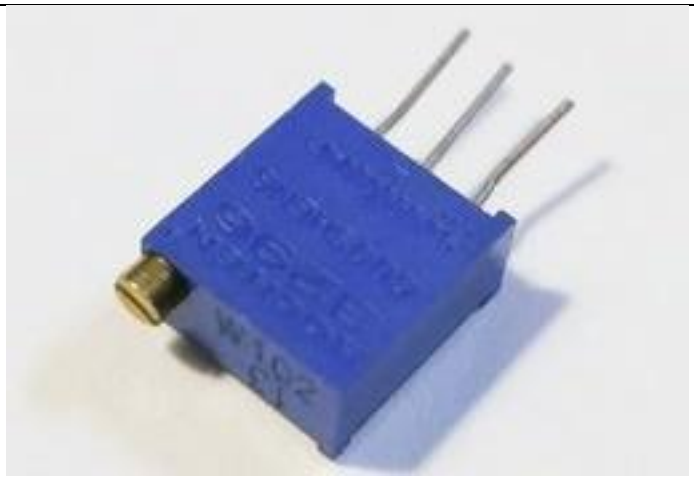
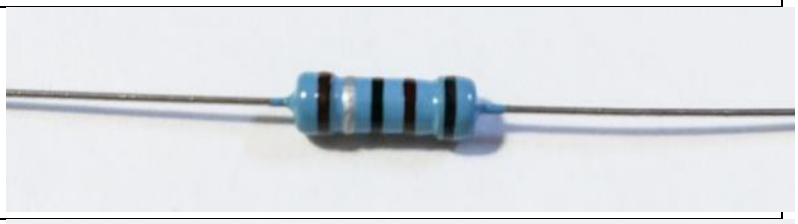
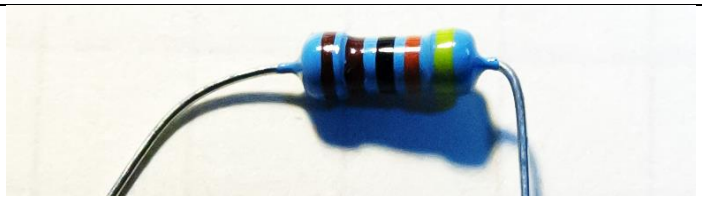
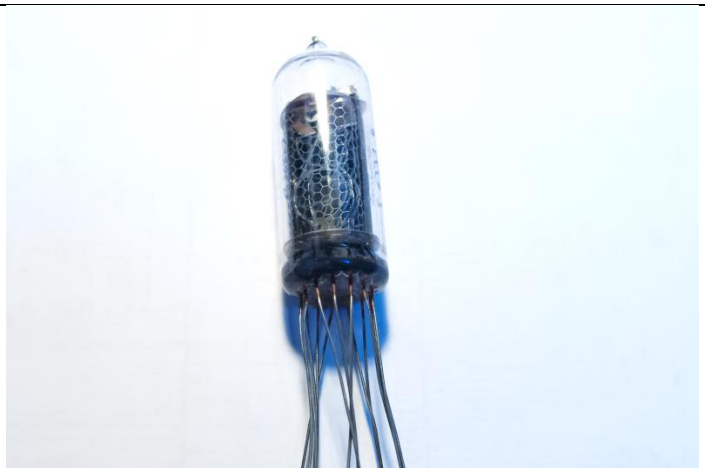
Label	Qty.	Value	Photo
B1	1	Battery CR2032	
BZR1	1	Buzzer	
C1, C2, C5, C7, C8, C10, C12, C13, C16	9	0,22uf	

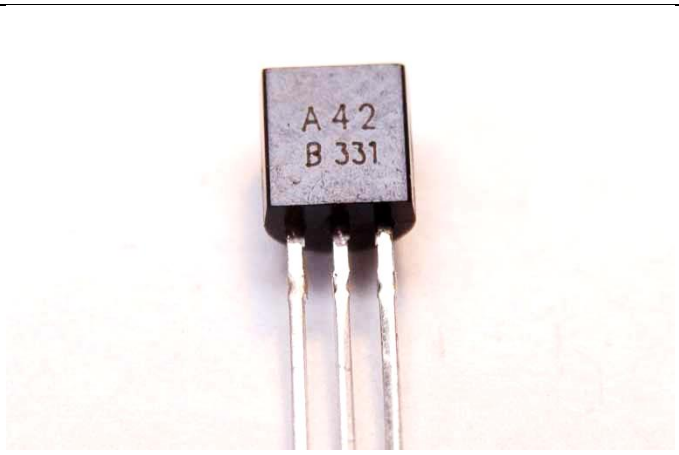
C3	1	470u/16v	
C4	1	100u/10v	
C6, C9, C11	3	470u/10v	
C14	1	2.2u/250v 4.7u/250v	
C15	1	0.1uf	
D1, D2, D3	3	Led auto	
D4, D5	2	1n4001	

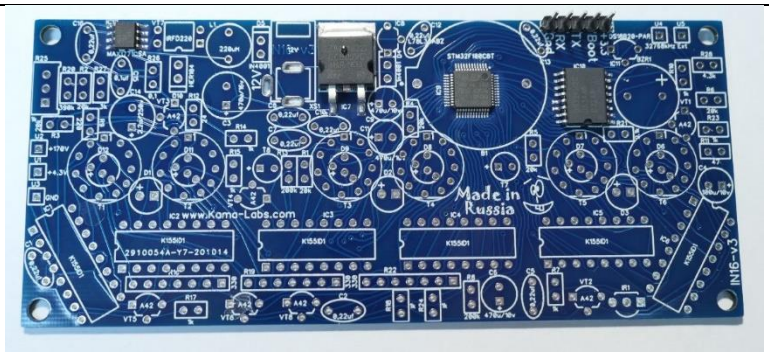
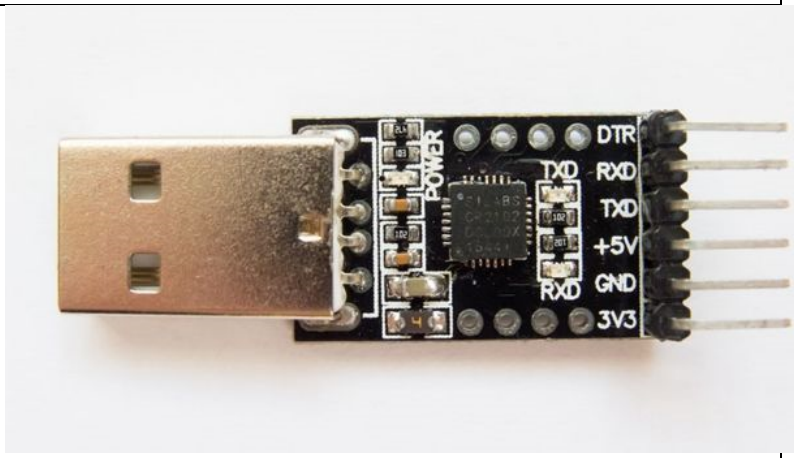
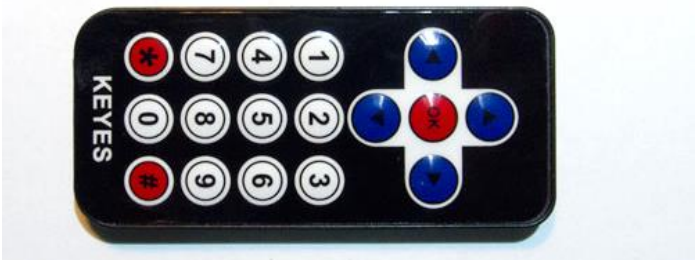
D6-D9, D11, D12	6	RGB Led	
D10	1	HER104	
IC1-IC6	6	K155ID1	
IC7	1	L7805ABD2T	
IC8	1	L78L33ABZ	

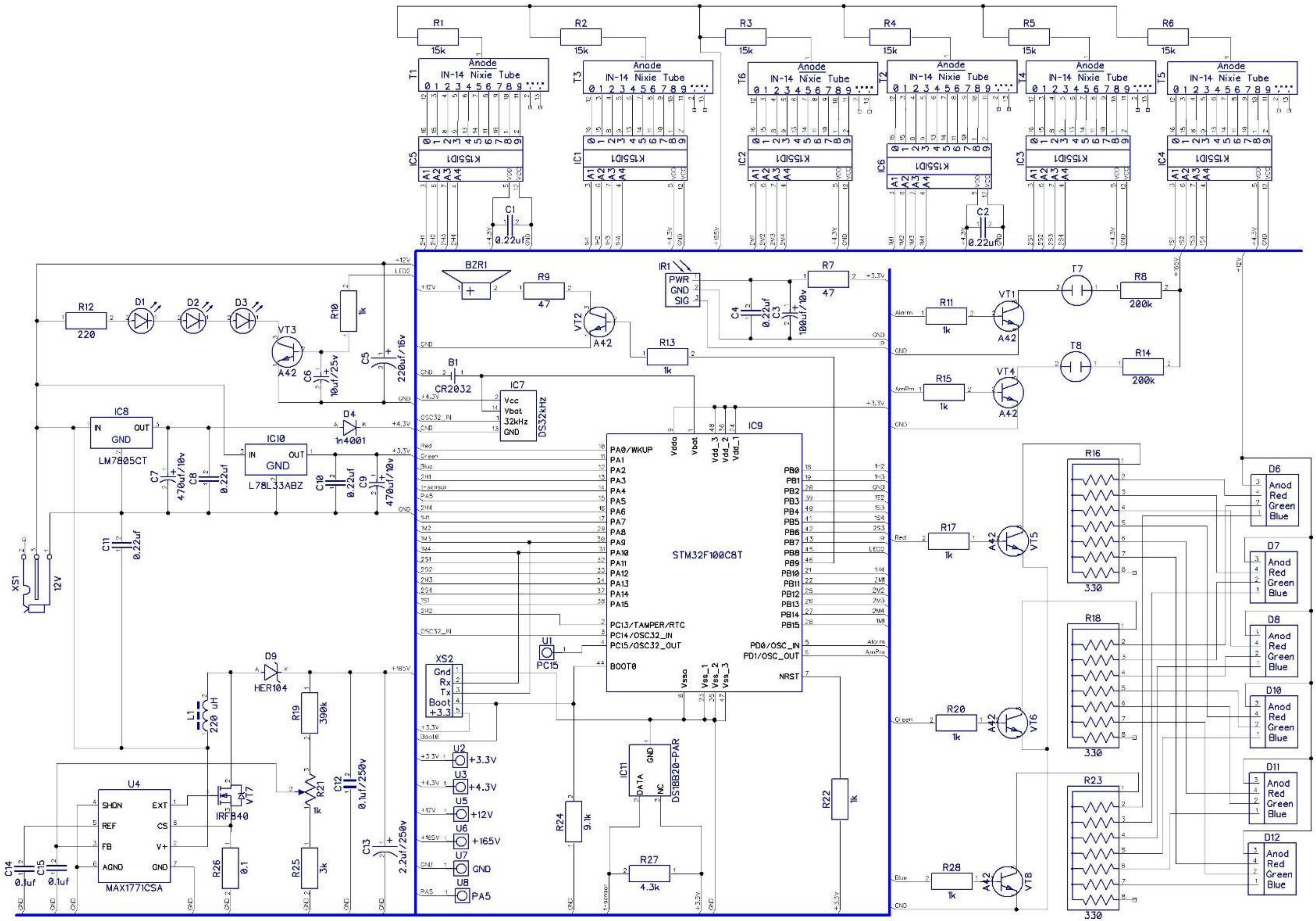
IC9	1	STM32F100C8T	
IC10	1	DS32kHz	
IC11	1	DS18B20-PAR	
IC12	1	MAX1771CSA	
IR1	1	IR-sensor	

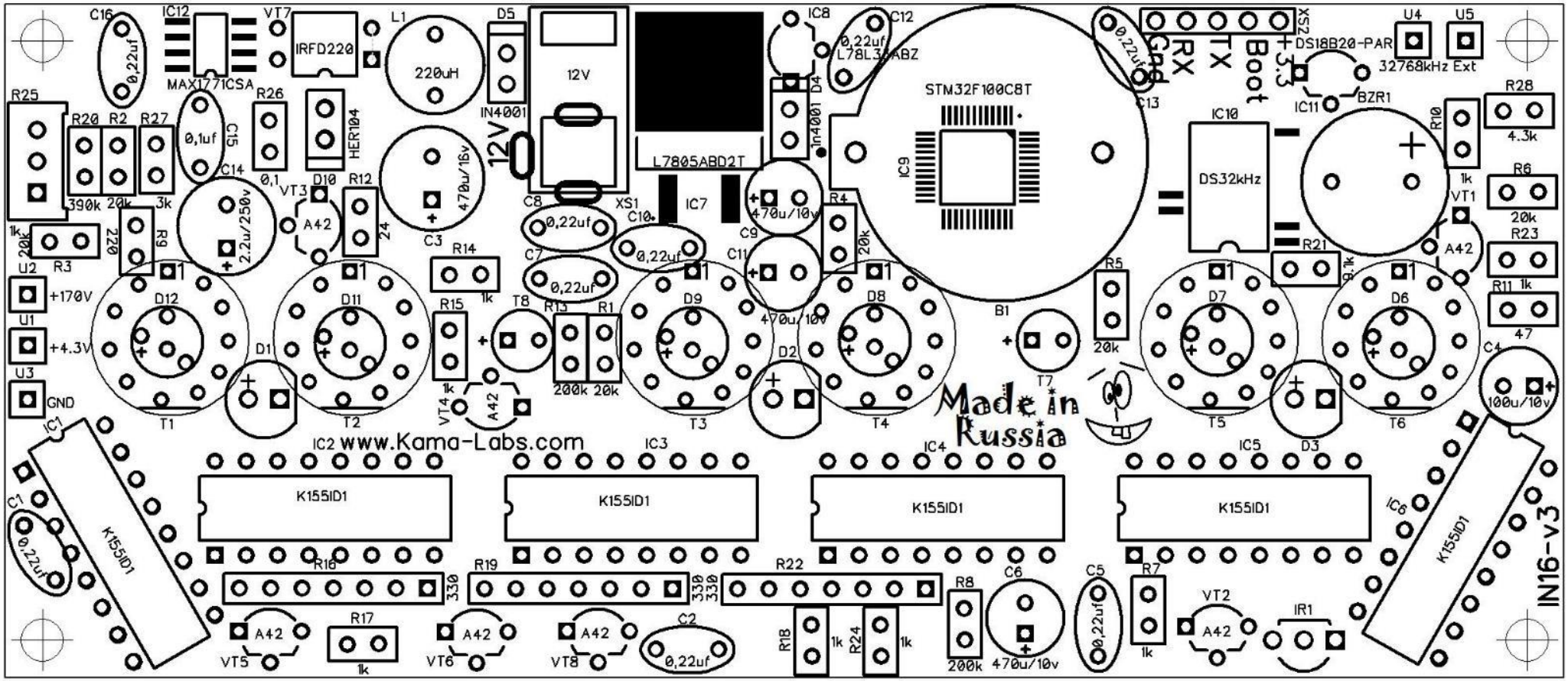
L1	1	220uH	
R1- R6	6	20k	
R7, R10, R14, R15, R17, R18, R23, R24	8	1k	
R8, R13	2	200k	
R9	1	220	
R11	1	47	
R12	1	24	
R16, R19, R22	3	330 resistor array	
R20	1	390k	

R21	1	9.1k	
R25	1	1k Potentiometer	
R26	1	0.1	
R27	1	3k	
R28	1	4.3k	
T1- T6	6	IN-16	

T7, T8	2	IN-3	
VT1-VT6, VT8	7	A42	
VT7	1	IRFD220	
XS1	1	Power socket	
Battery holder CR2032			

PCB			
Case for clock			
Power source		12v / 1A	
USB-UART converter			
Remote control			


R1 15k
R2 15k
R3 15k
R4 15k
R5 15k
R6 15k
IN-14 Nixie Tube
Anode
K155ID1
IC1
IC2
IC3
IC4
IC5
IC6
T1
T2
T3
T4
T5
T6
C1 0.22uf
C2 0.22uf
BZR1
R9 47
VT2 A42
R13 1k
B1 CR2032
IC7 DS32kHz
IR1 PWR GND SIG
C4 0.22uf
C3 100uf/10v
R7 47
R11 1k
VT1 A42
T7
R8 200k
T8
R14 200k
R15 1k
VT4 A42
R12 220
D1
D2
D3
R10 1k
VT3 A42
C6 10uf/25v
C5 220uf/16v
IC8 LM7805CT
IC10 L78L33ABZ
D4 1n4001
C7 470uf/10v
C8 0.22uf
C10 0.22uf
C9 470uf/10v
C11 0.22uf
XS1 12V
IC9 STM32F100C8T
XS2 Gnd Rx Tx Boot +3.3
U1 PC15
R16 330
R18 330
R23 330
D6 Anod Red Green Blue
D7 Anod Red Green Blue
D8 Anod Red Green Blue
D10 Anod Red Green Blue
D11 Anod Red Green Blue
D12 Anod Red Green Blue
R17 1k
VT5 A42
R20 1k
VT6 A42
R28 1k
VT8 A42
R22 1k
D9 HER104
L1 220 uH
R19 390k
R21 1k
C12 0.1uf/250v
C13 2.2uf/250v
R25 3k
R26 0.1
VT7 IRF840
U4 MAX1771CSA
C14 0.1uf
C15 0.1uf
U2 +3.3V
U3 +4.3V
U5 +12V
U6 +165V
U7 GND
U8 PA5
R24 9.1k
IC11 DS18B20-PAR
R27 4.3k


C16
0,22uf
IC12
MAX1771CSA
VT7
IRFD220
L1
220uH
D5
IN4001
12V
12V
L7805ABD2T
IC8
C12
0,22uf
L78L33ABZ
D4
in4001
STM32F100C8T
IC9
C13
0,22uf
XS2
RX
TX
Boot
Gnd
+3.3
U4
U5
DS18B20-PAR
32768kHz Ext
IC11
BZR1
IC10
DS32kHz
R28
4.3k
R6
20k
R23
9.1k
R11
1k
47
R10
1k
VT1
A42
R21
R25
R20
R2
R27
390k
20k
3k
C15
0,1uf
C14
2.2u/250v
0,1
R26
HER104
D10
VT3
A42
R12
24
C3
470u/16v
R14
1k
C8
0,22uf
C7
0,22uf
XS1
C10
0,22uf
IC7
C9
470u/10v
C11
470u/10v
R4
20k
R5
20k
B1
T7
D7
D6
T5
T6
D3
C4
100u/10v
R3
220
R9
U2
+170V
U1
+4.3V
U3
GND
D12
D11
D1
T1
T2
R15
1k
VT4
A42
T8
R13
200k
R1
20k
D9
D2
D8
T3
T4
IC1
IC2
IC3
IC4
IC5
IC6
K155ID1
K155ID1
K155ID1
K155ID1
K155ID1
C1
0,22uf
www.Kama-Labs.com
Made in Russia
R16
330
R19
330
R22
330
R17
1k
VT5
A42
VT6
A42
VT8
A42
C2
0,22uf
R18
1k
R24
1k
R8
200k
C6
470u/10v
C5
0,22uf
R7
1k
VT2
A42
IR1
IN16-v3