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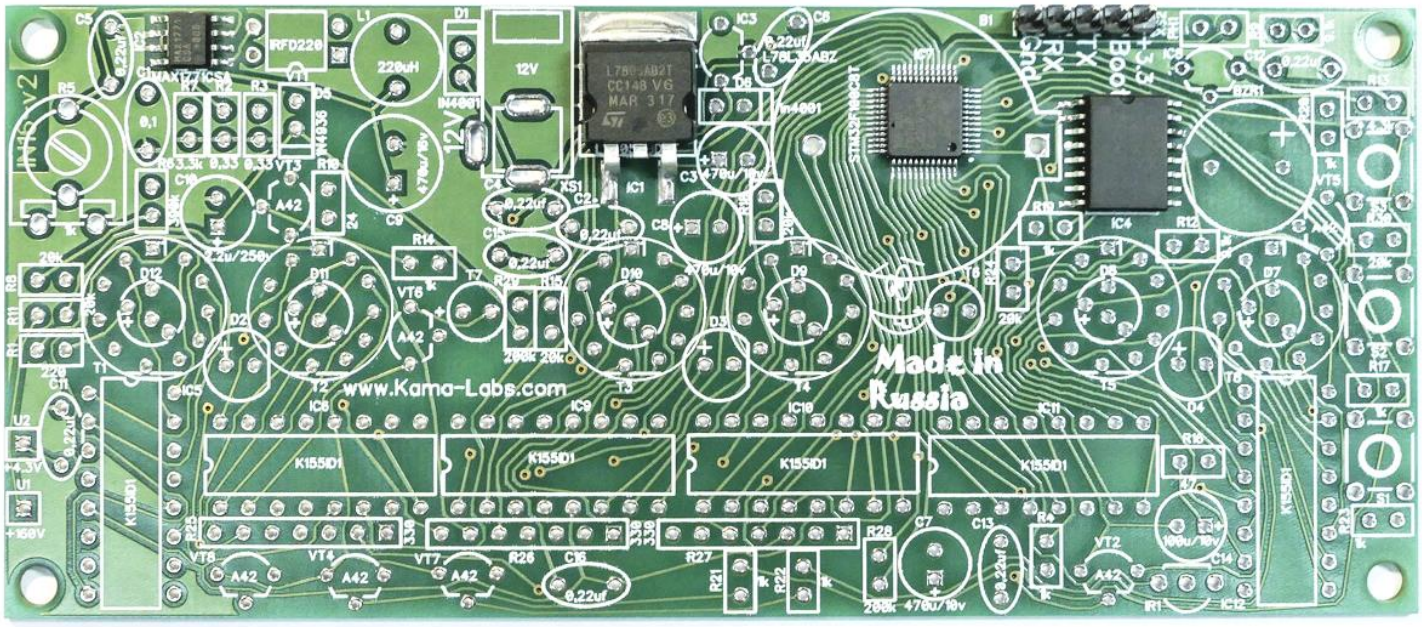
ASSEMBLY MANUAL FOR YANA v2 IN-16 NIXIE CLOCK

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

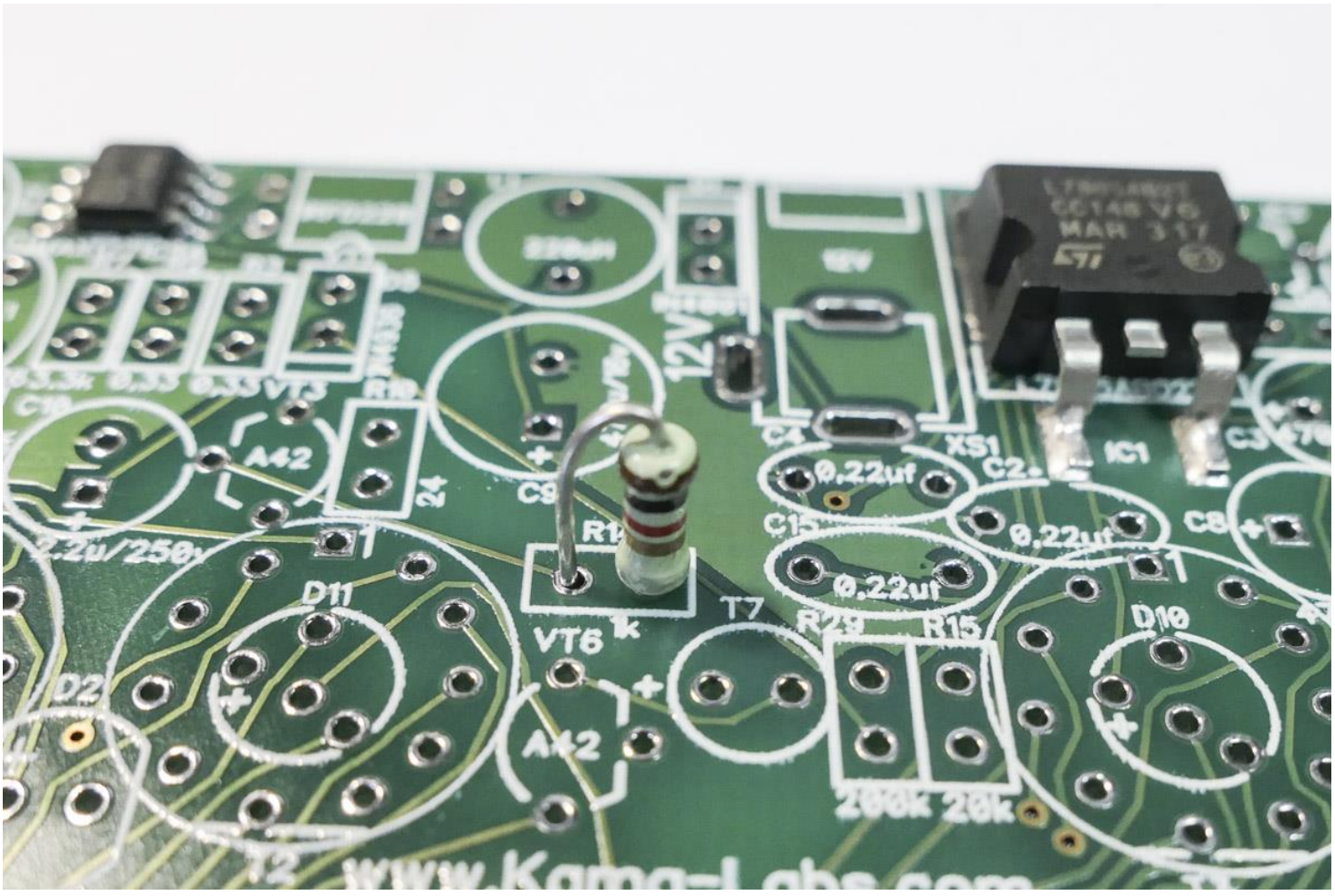
GOOD LUCK!

^_^

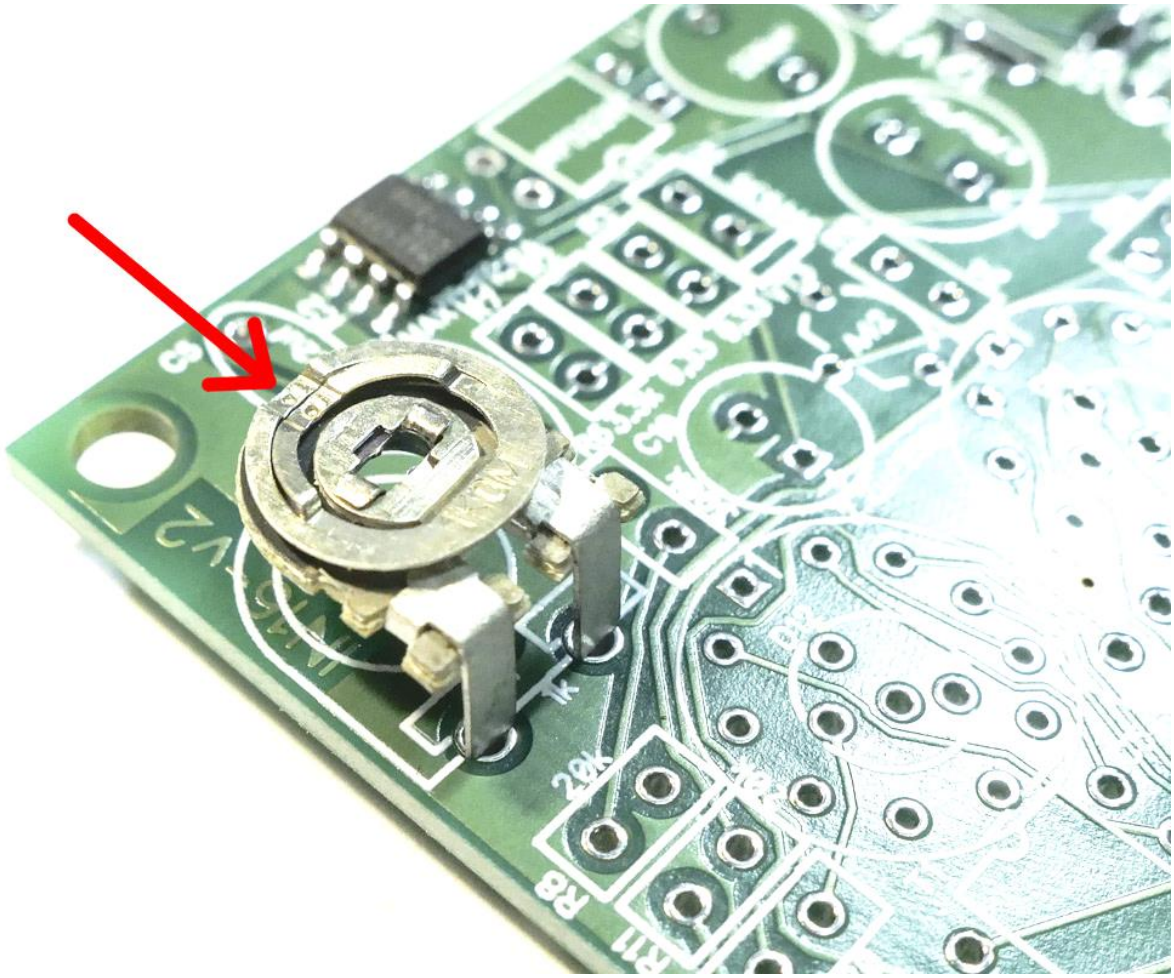
1) You have a PCB with ICs:



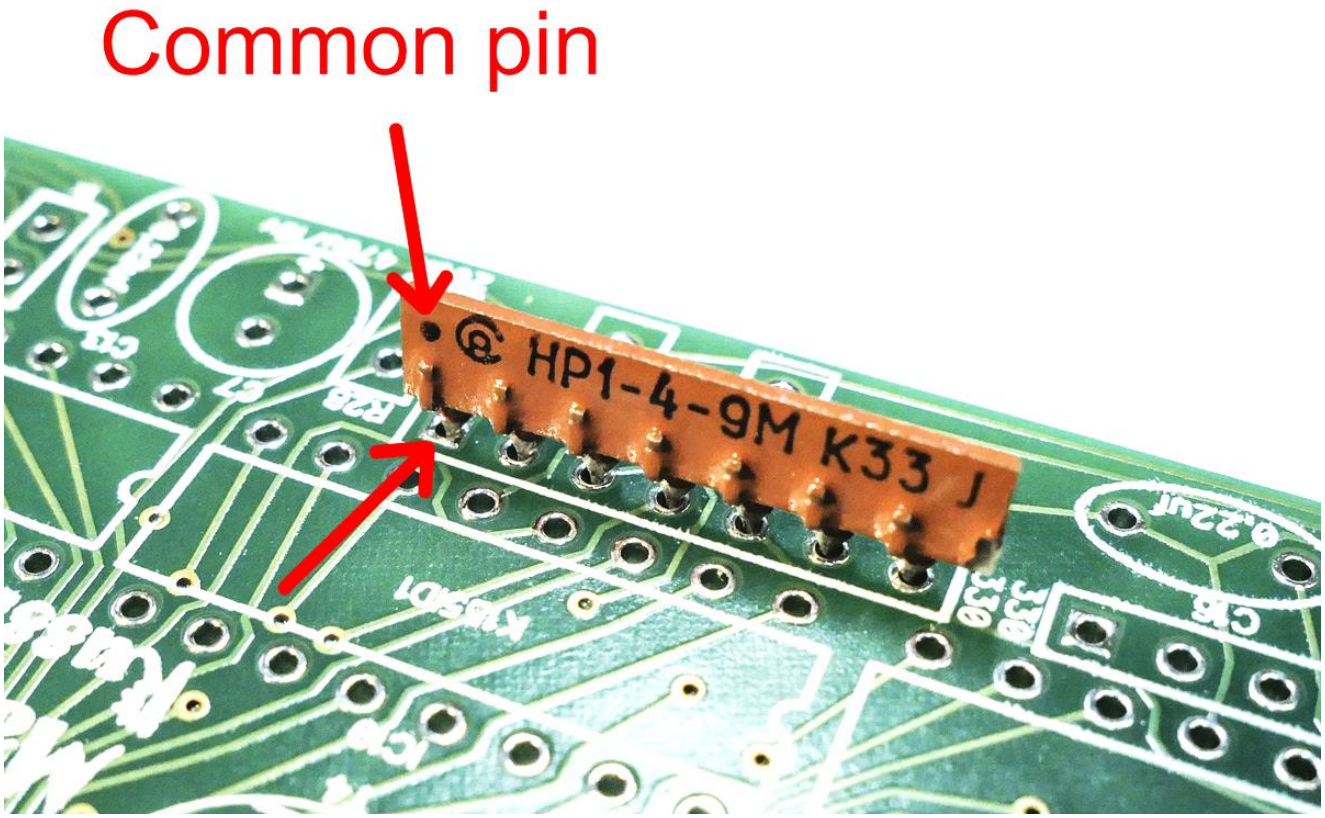
2) Place all resistors vertical:



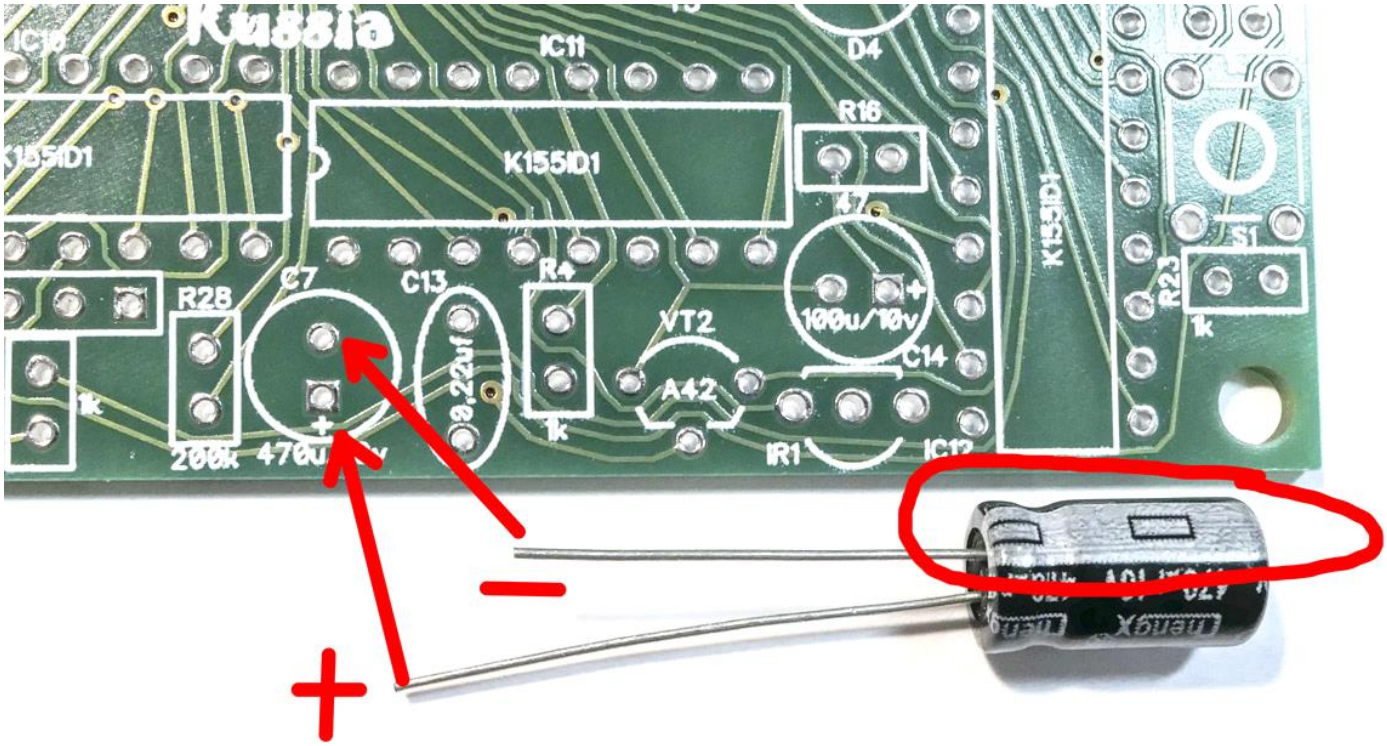
3) Install variable resistor and set it in middle position:

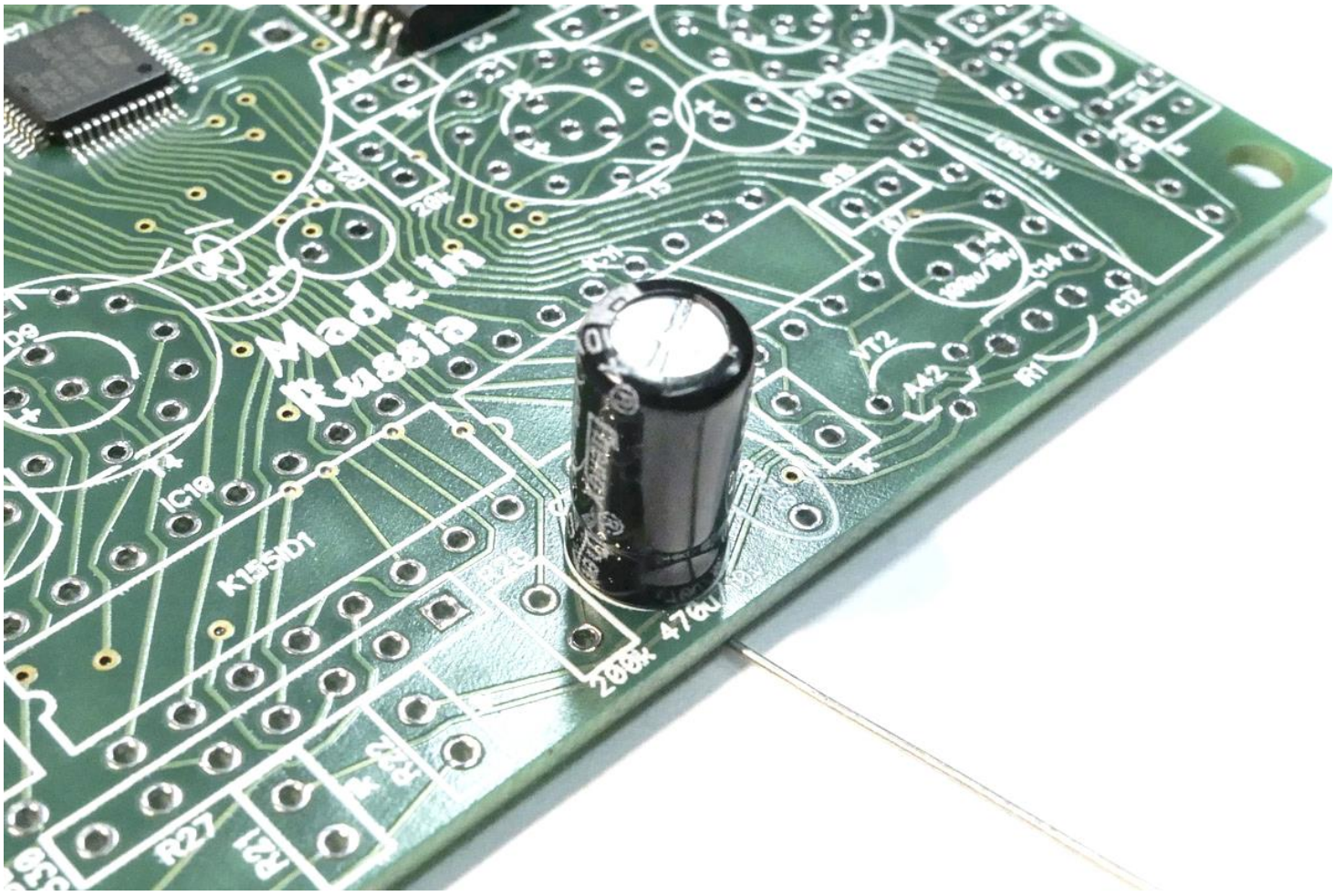


4) Place resistor arrays. Common pin to square pad.

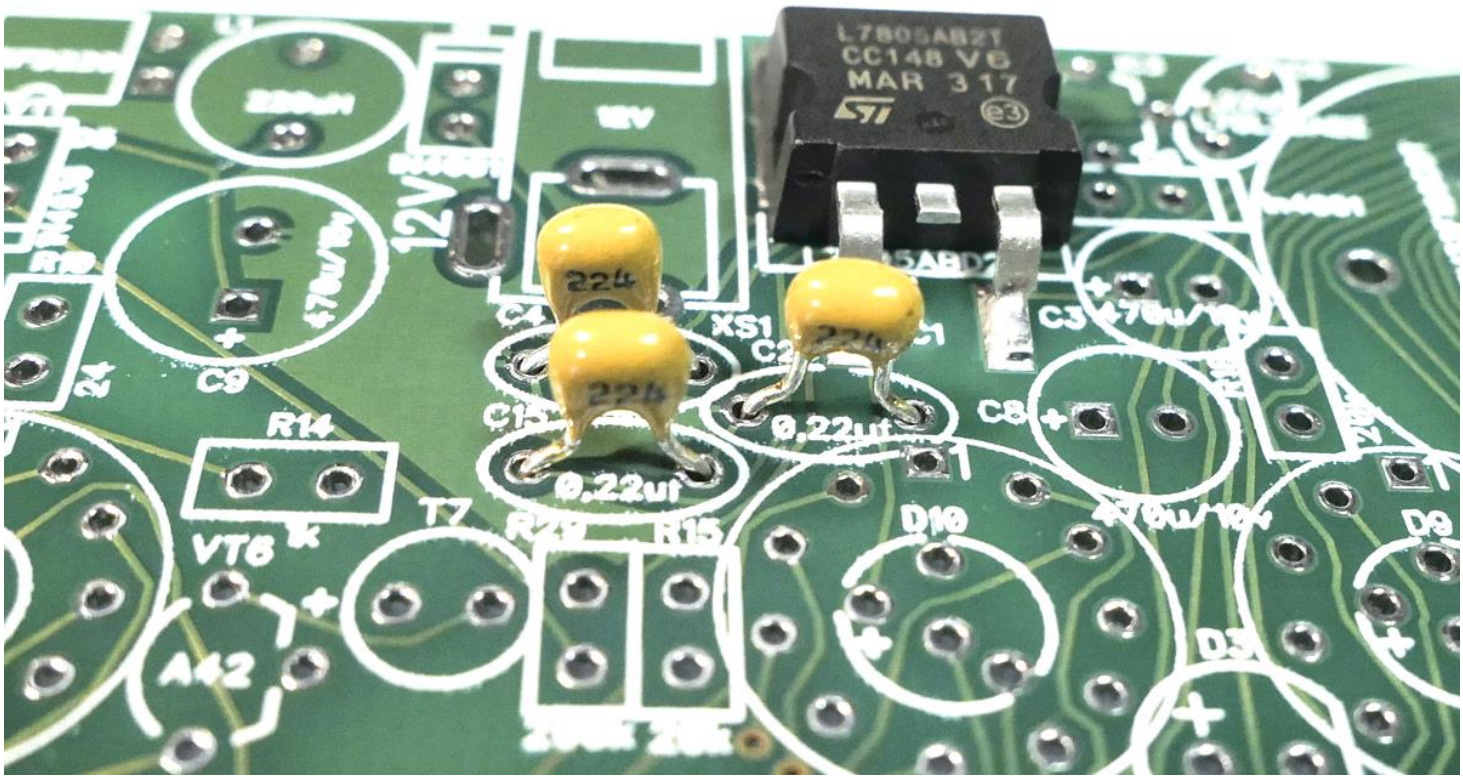


5) Place all capacitors. Be careful with polarity!

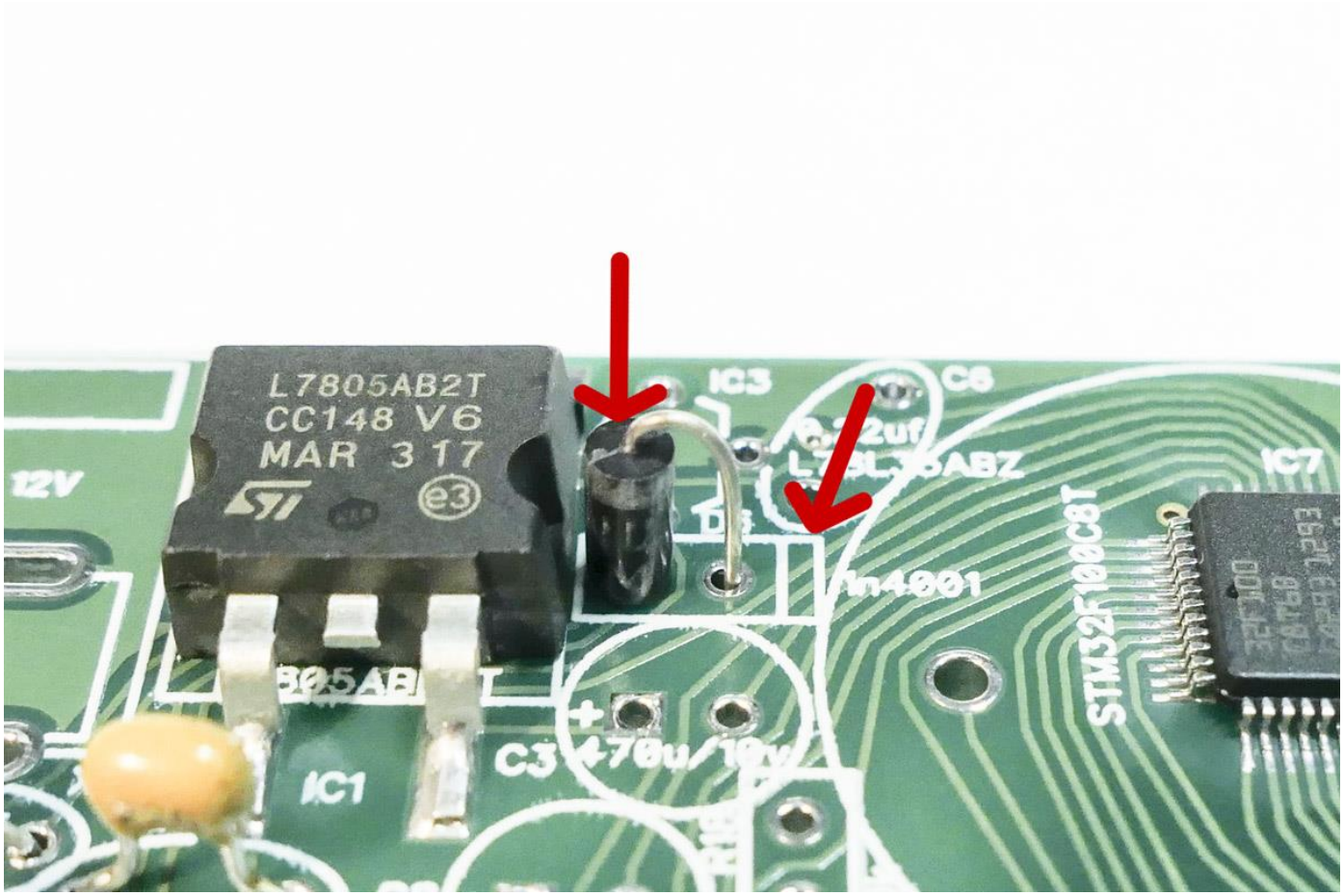


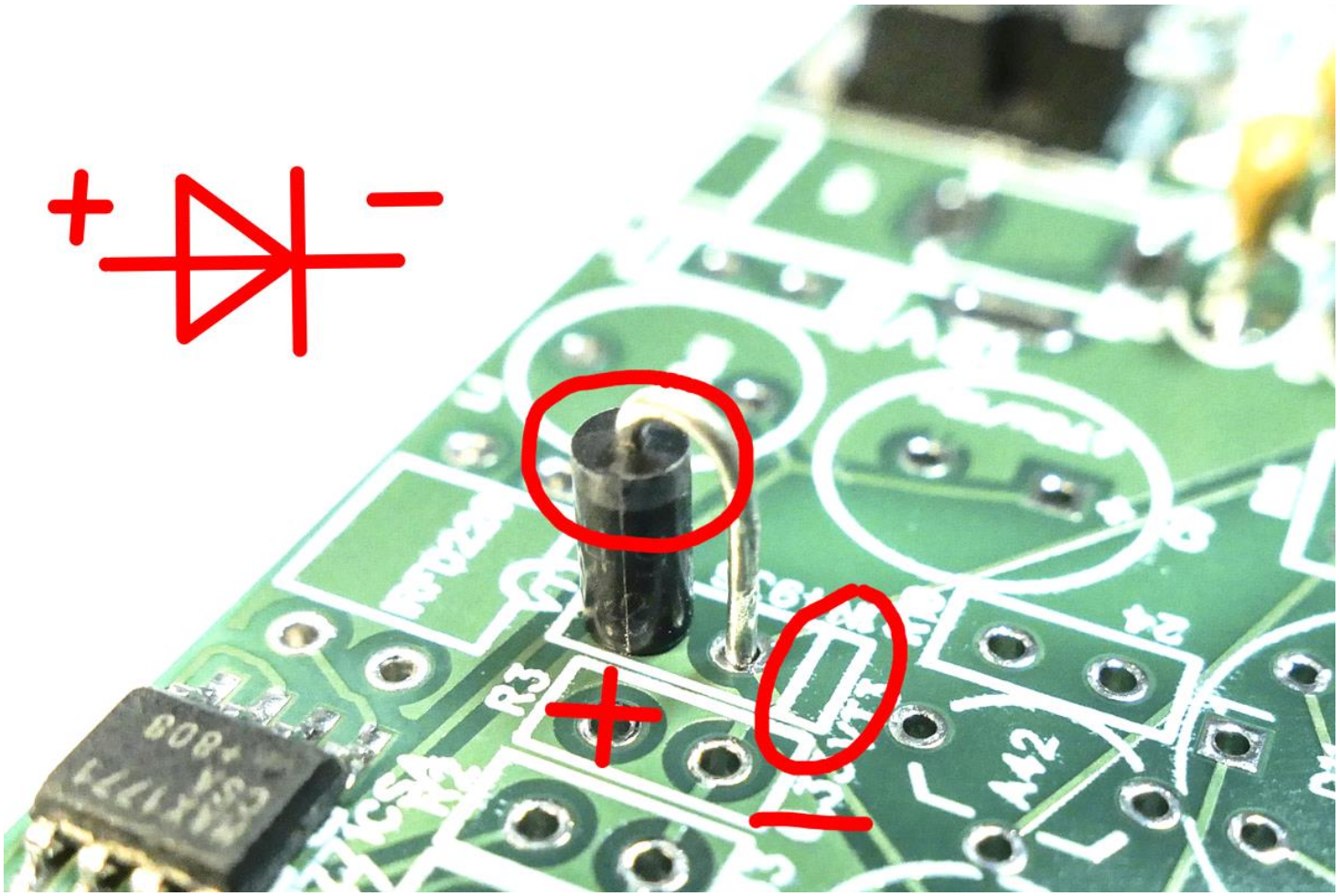


For ceramic capacitors polarity is not matter.

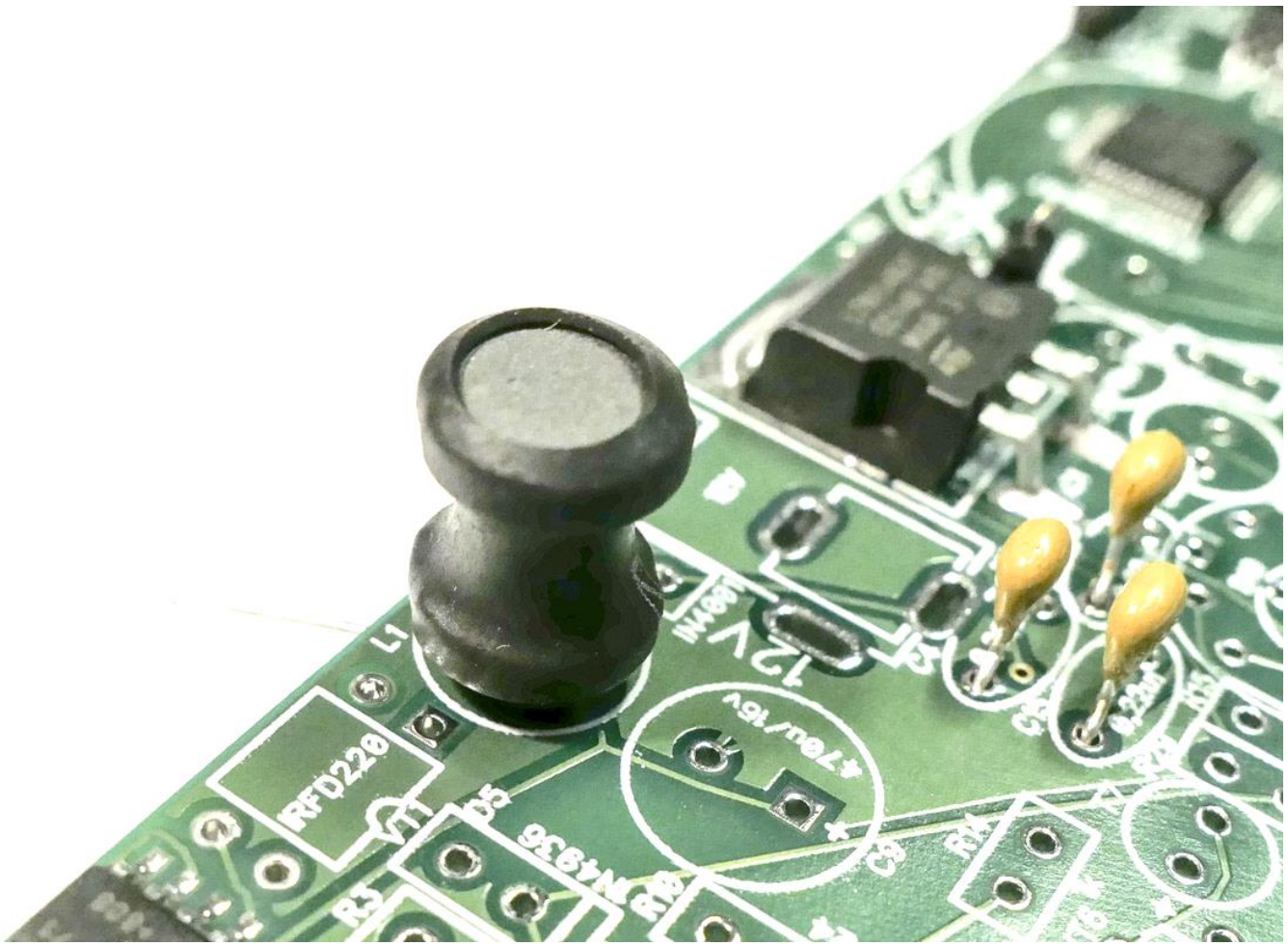


6) Place diodes and take care about polarity:

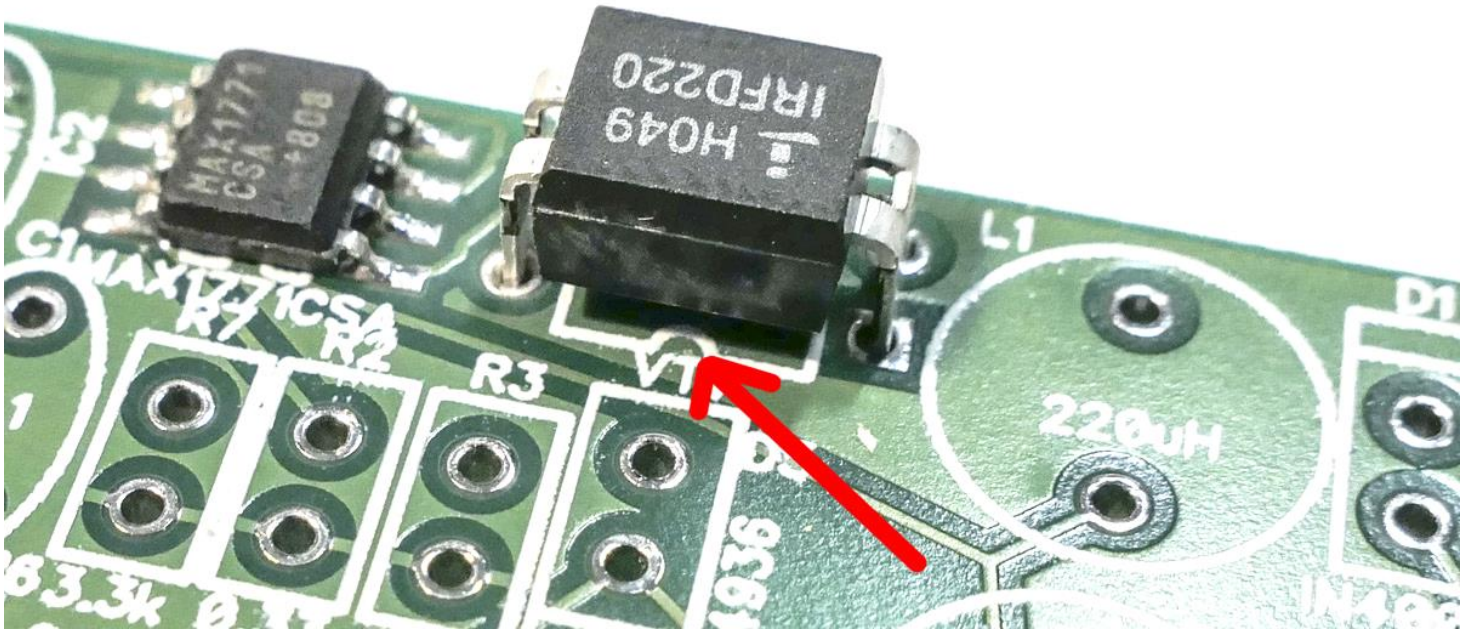




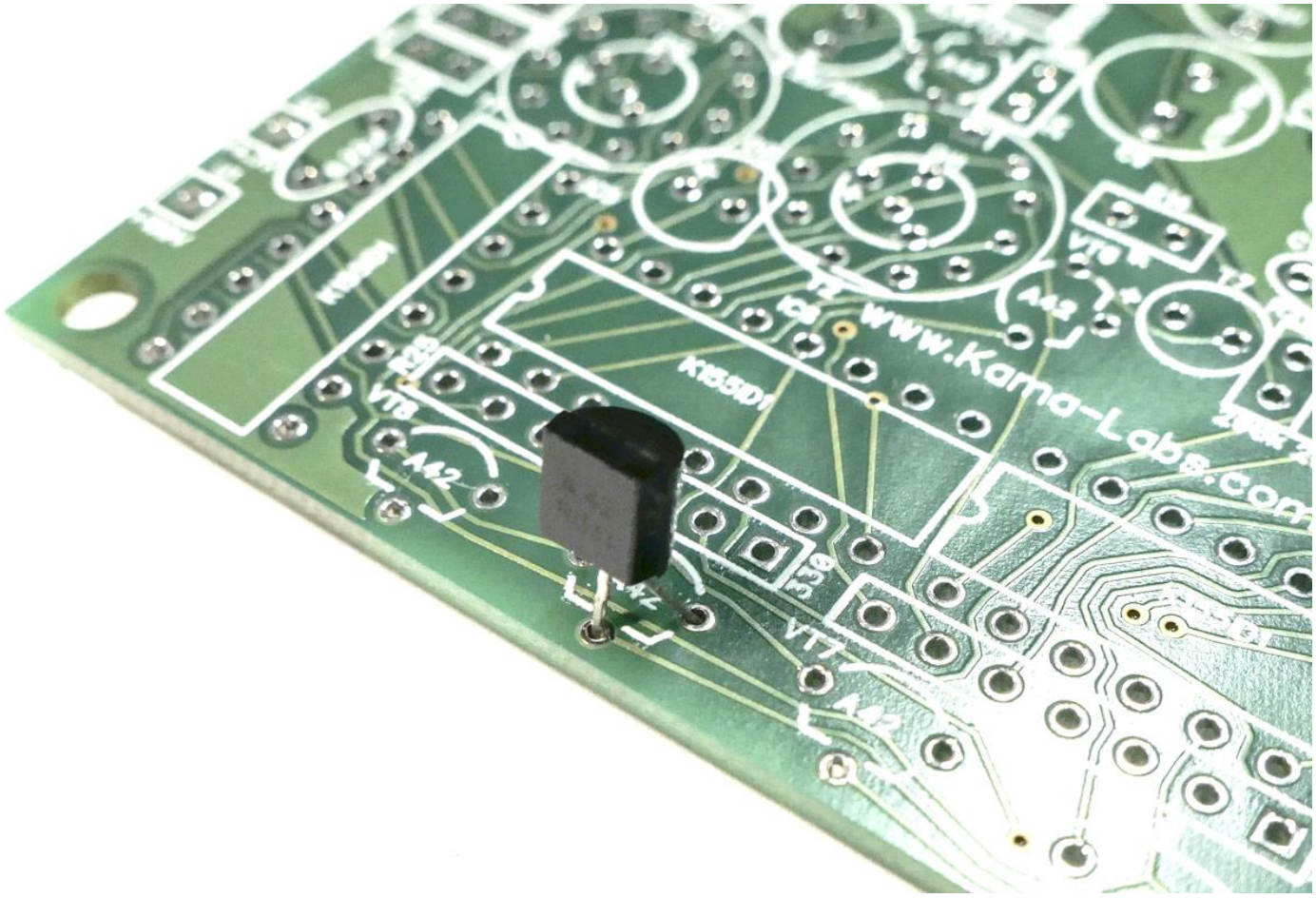
7) Install inductor. Polarity not matter:



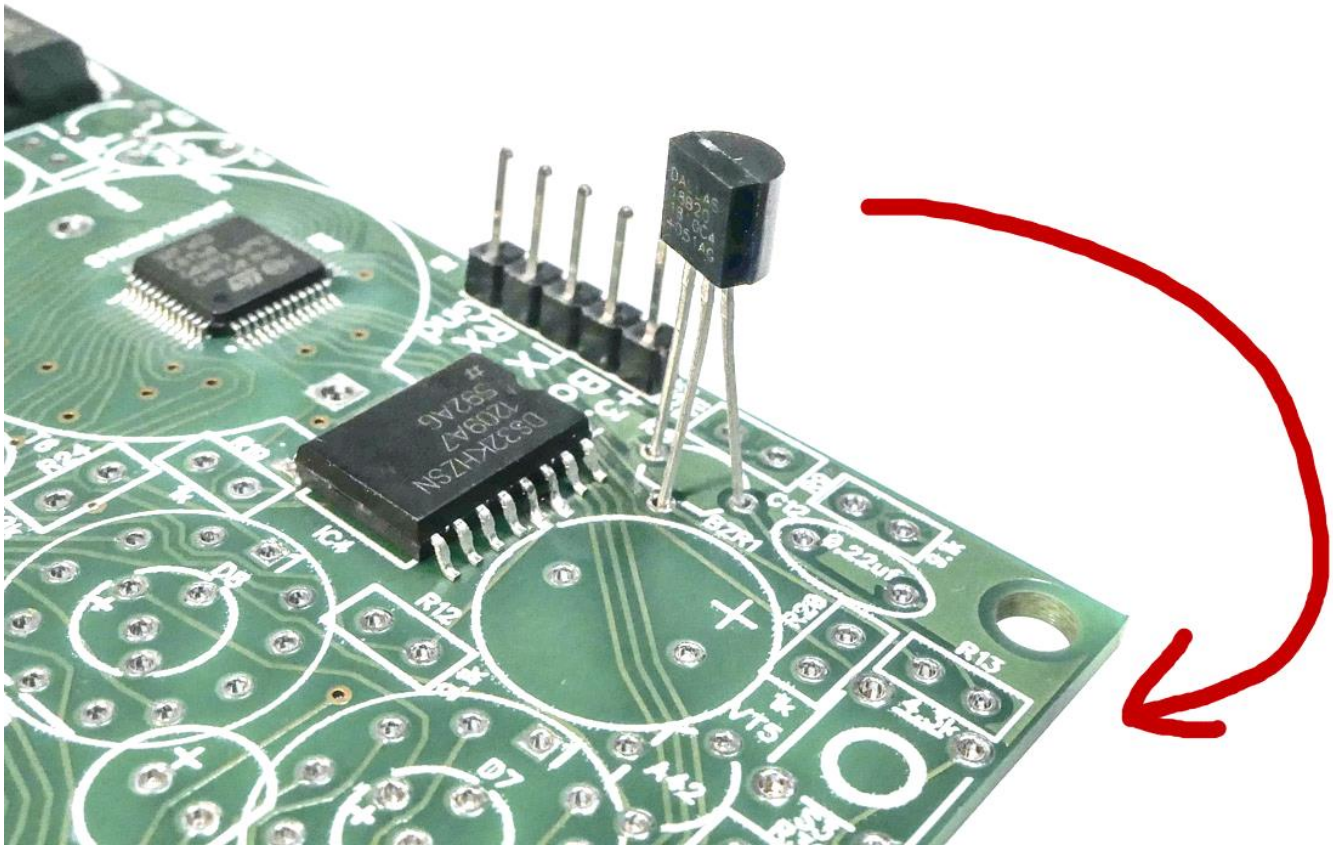
8) IRFD transistor. Install like on photo:

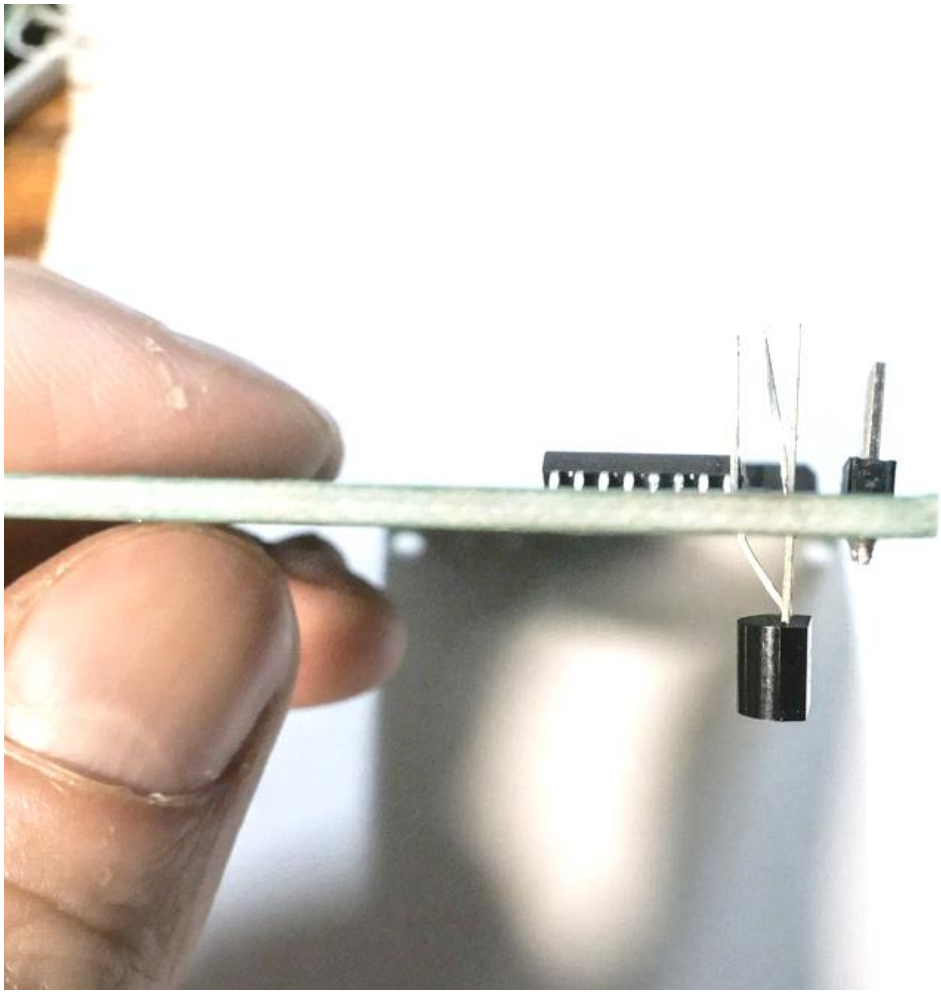


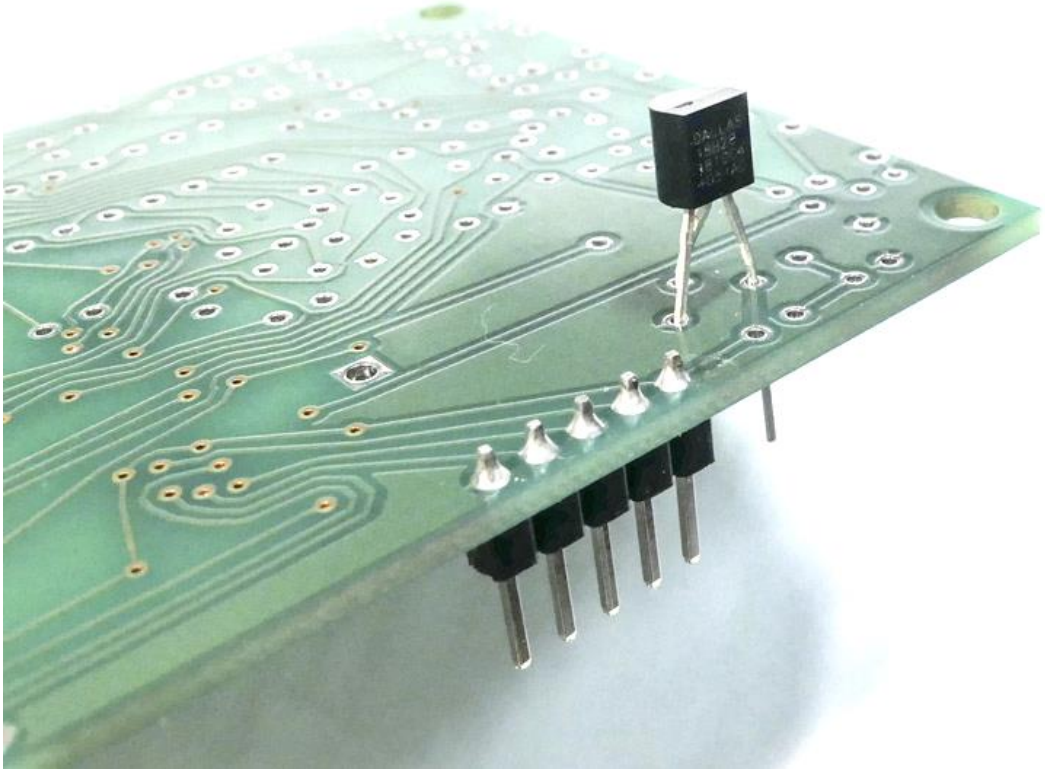
9) Place all transistors and IC3 according marking on PCB:



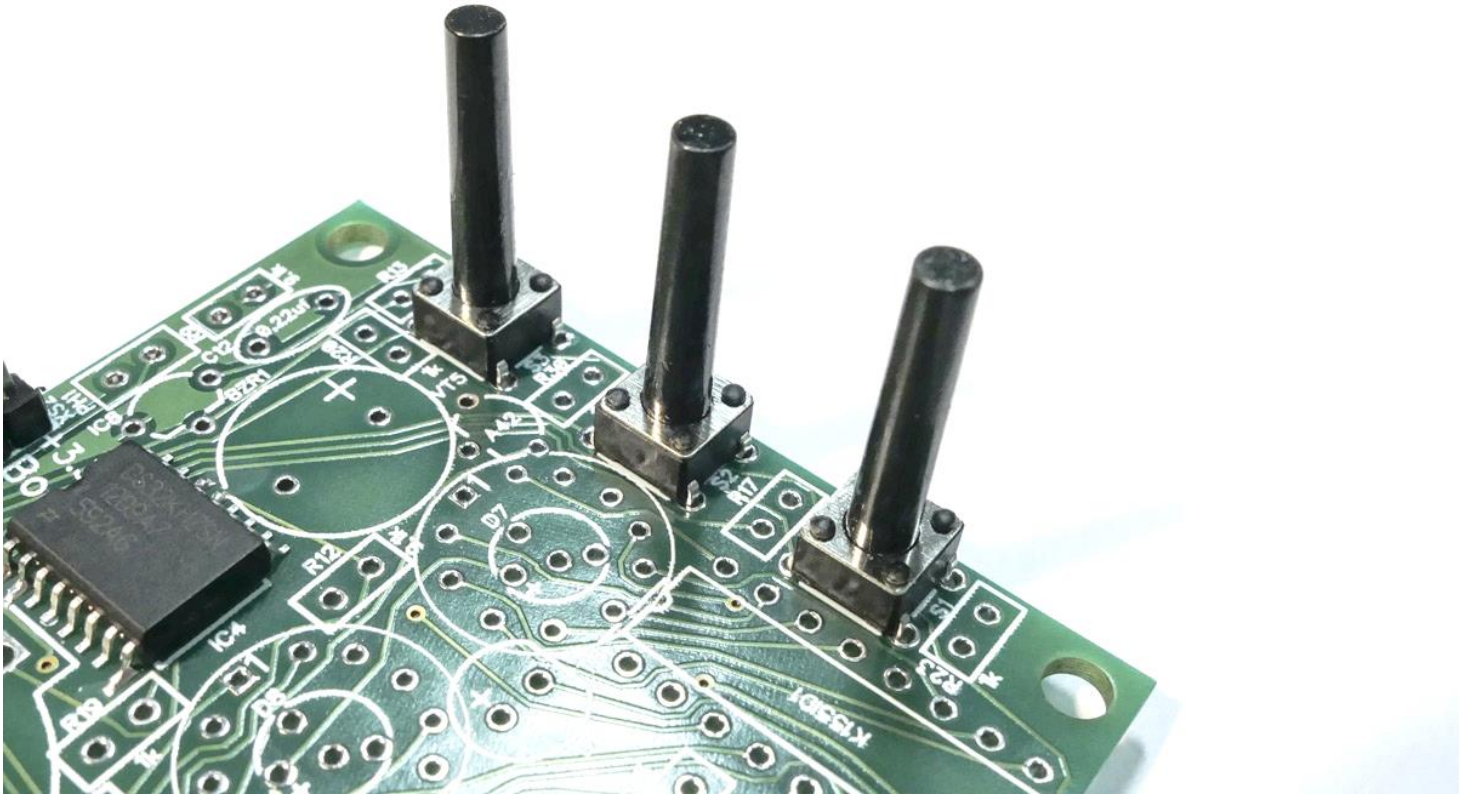
IC8 – temperature sensor should place on BOTTOM side of PCB:



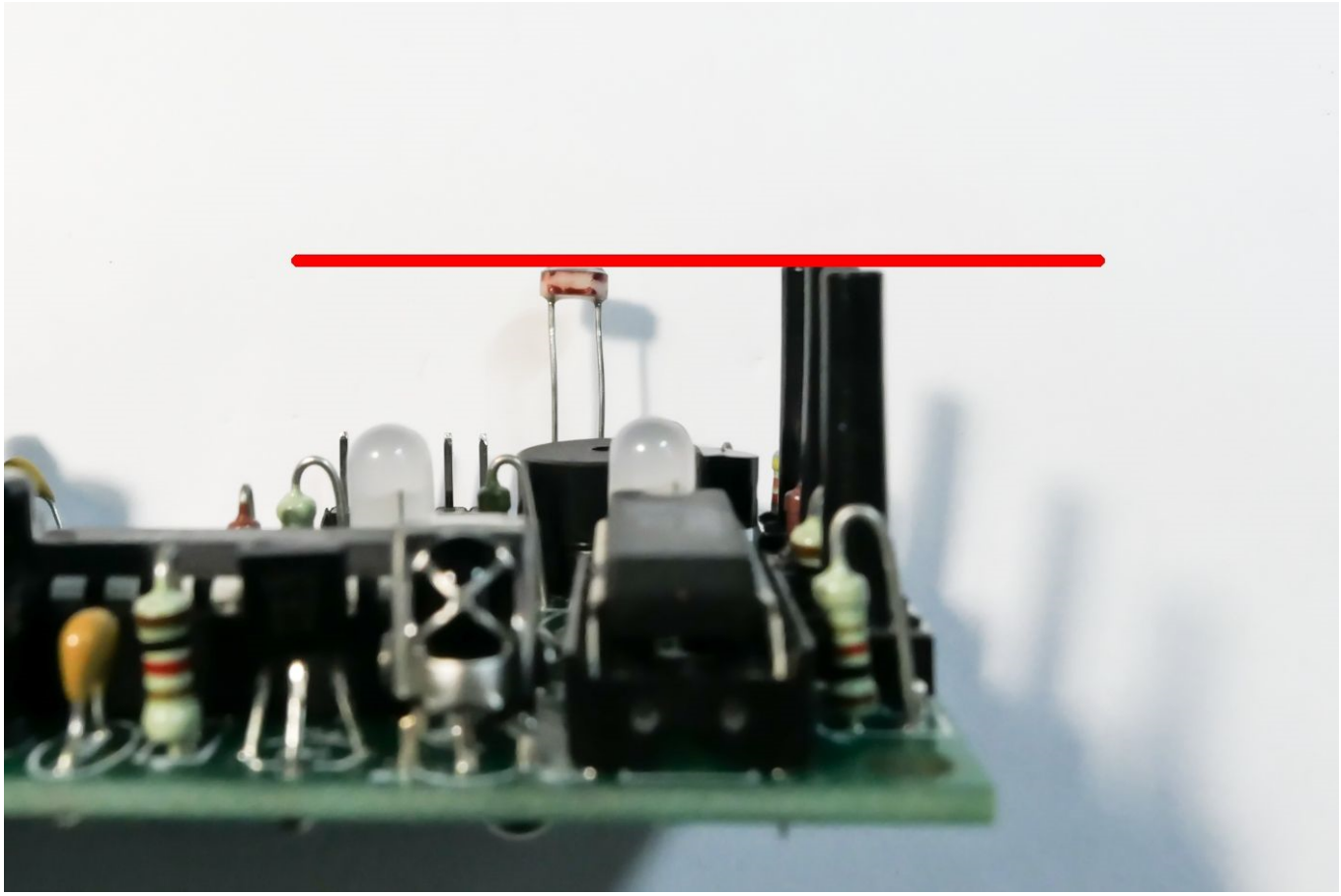




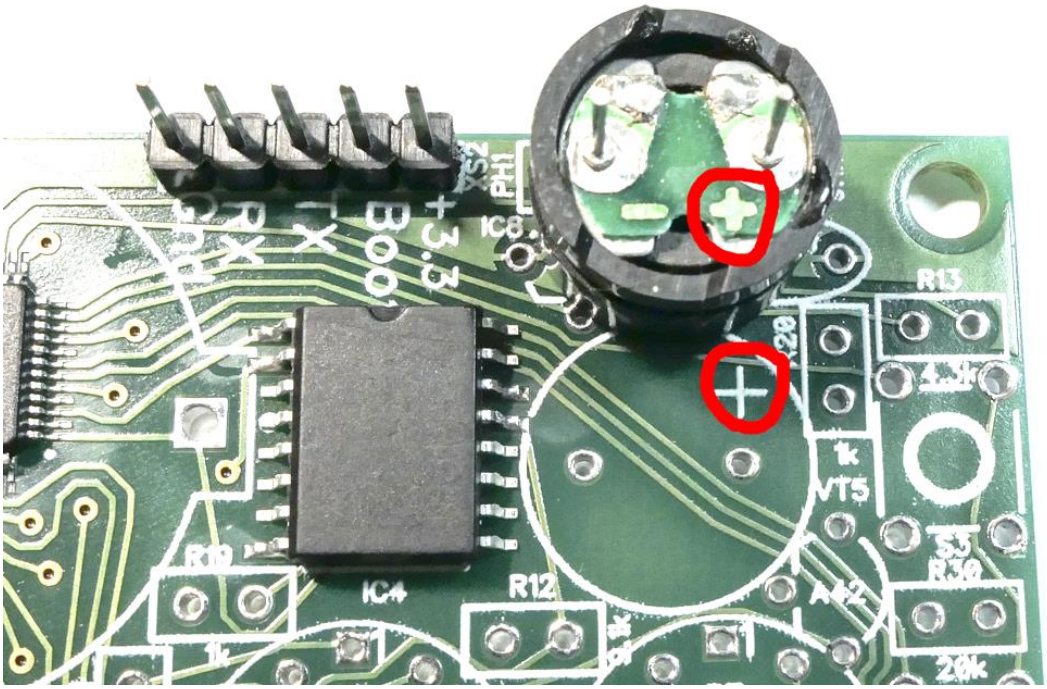
10) Buttons:



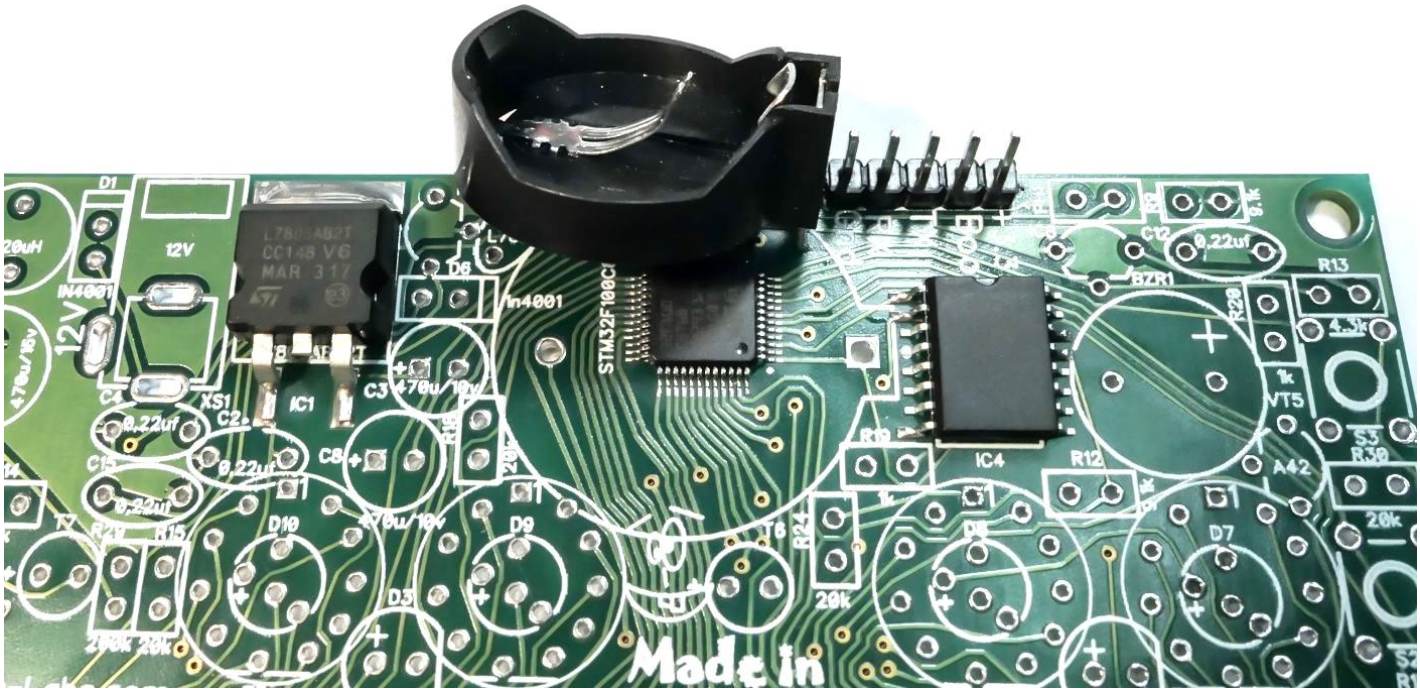
11) Place photoresistor. Make height of photoresistor equal buttons height.



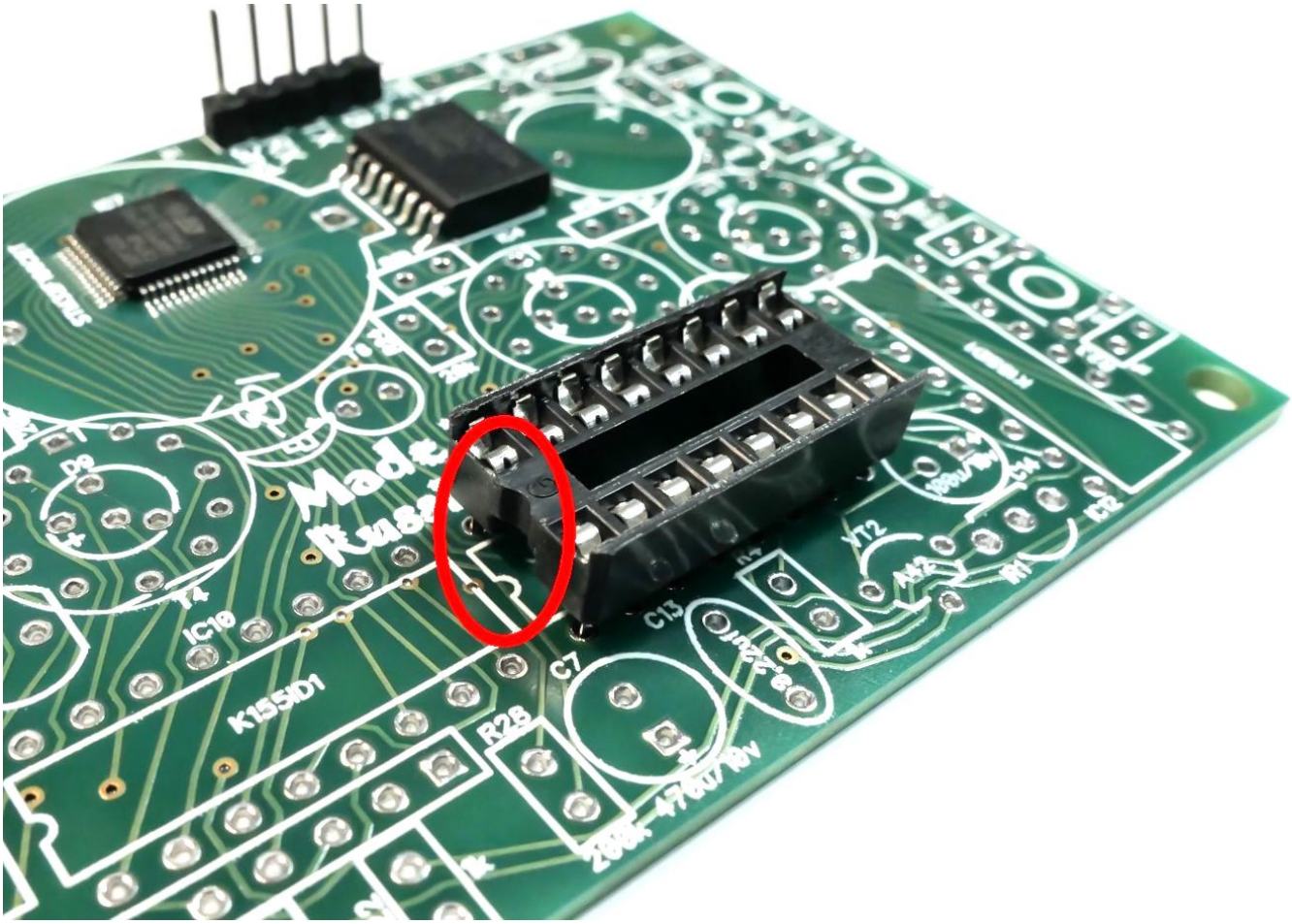
12) Install buzzer:

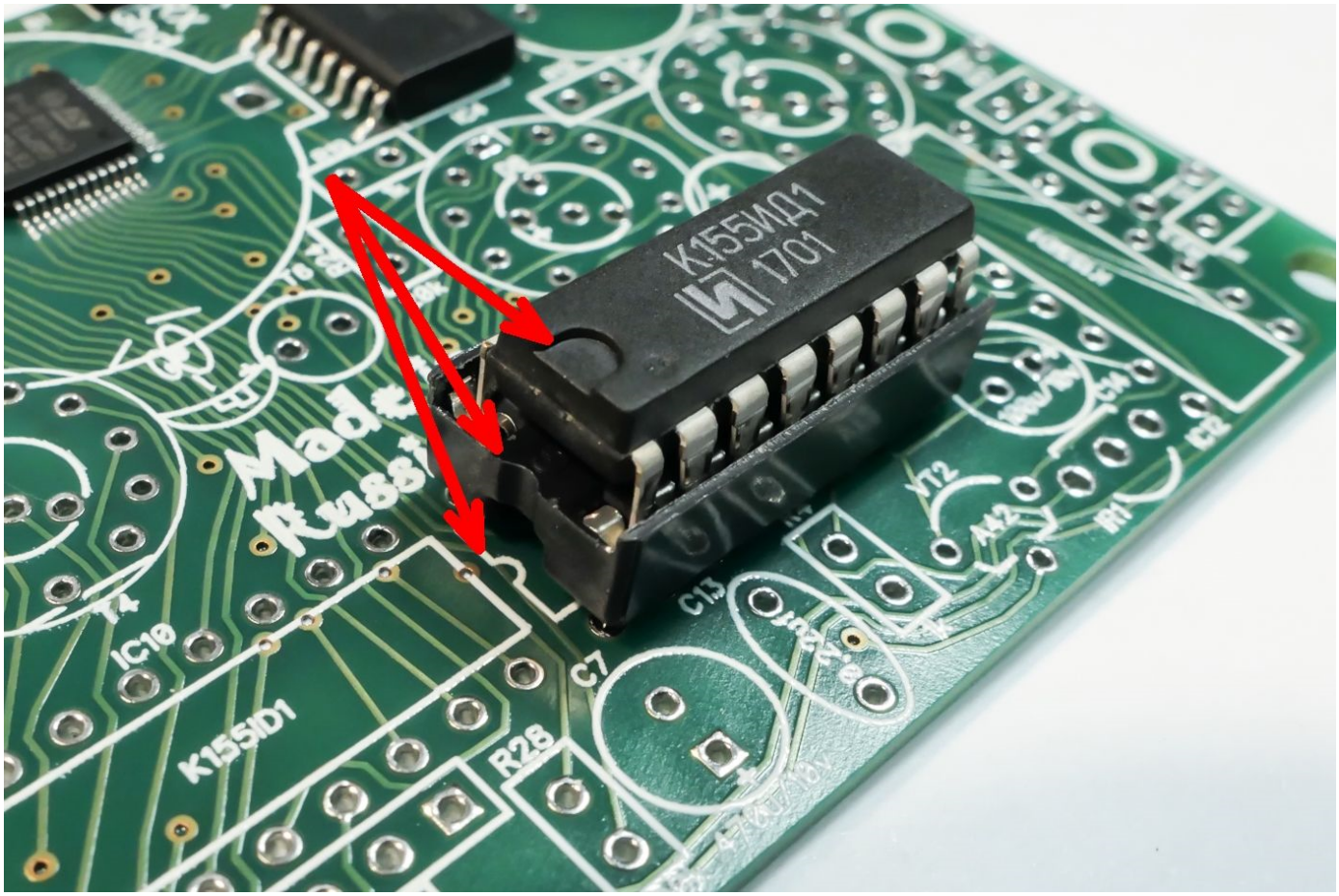


13) Place battery holder and insert battery when clock will be fully assembled:

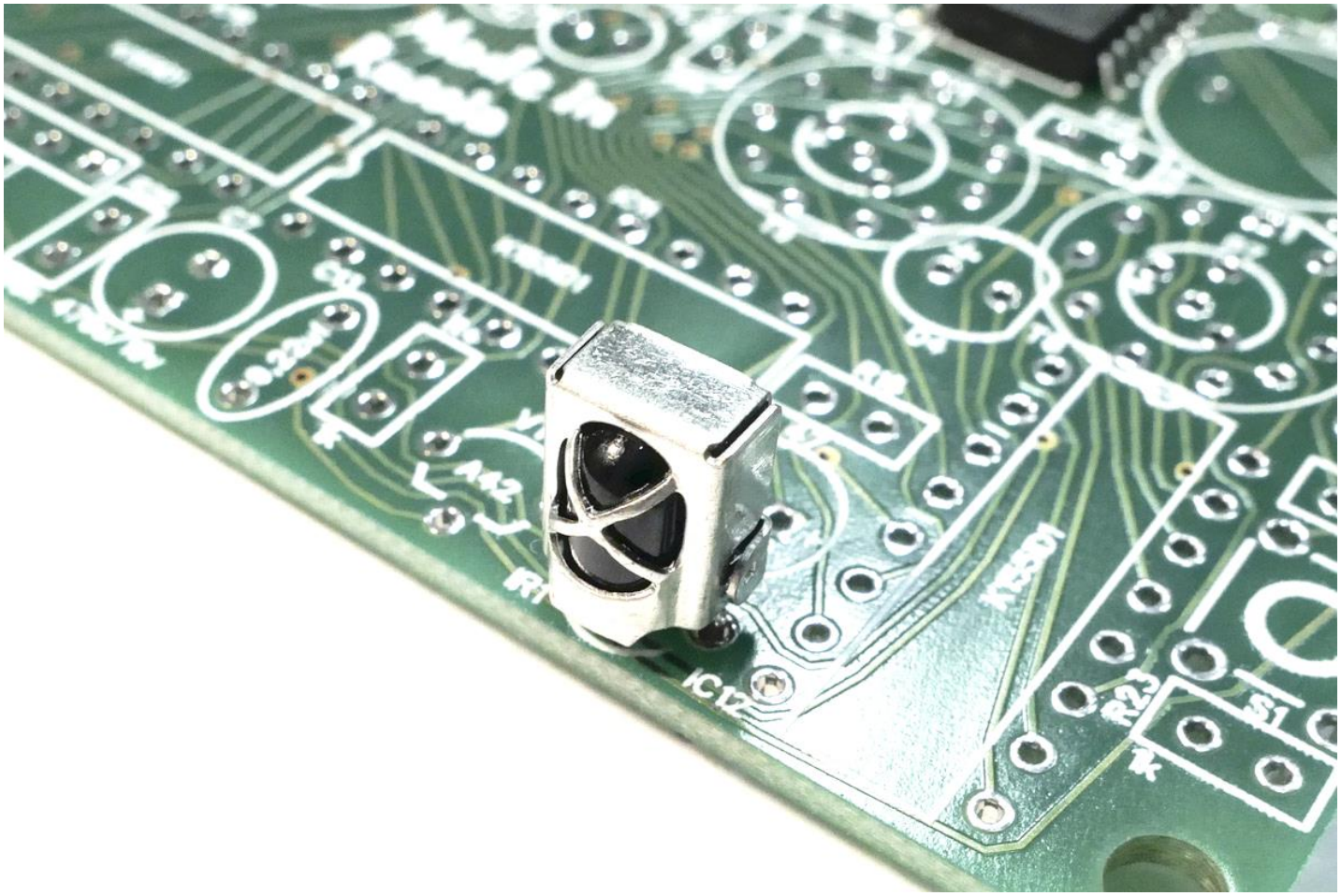


14) Place sockets for ICs. Insert KR514ID2 chips at the end of assembling process:

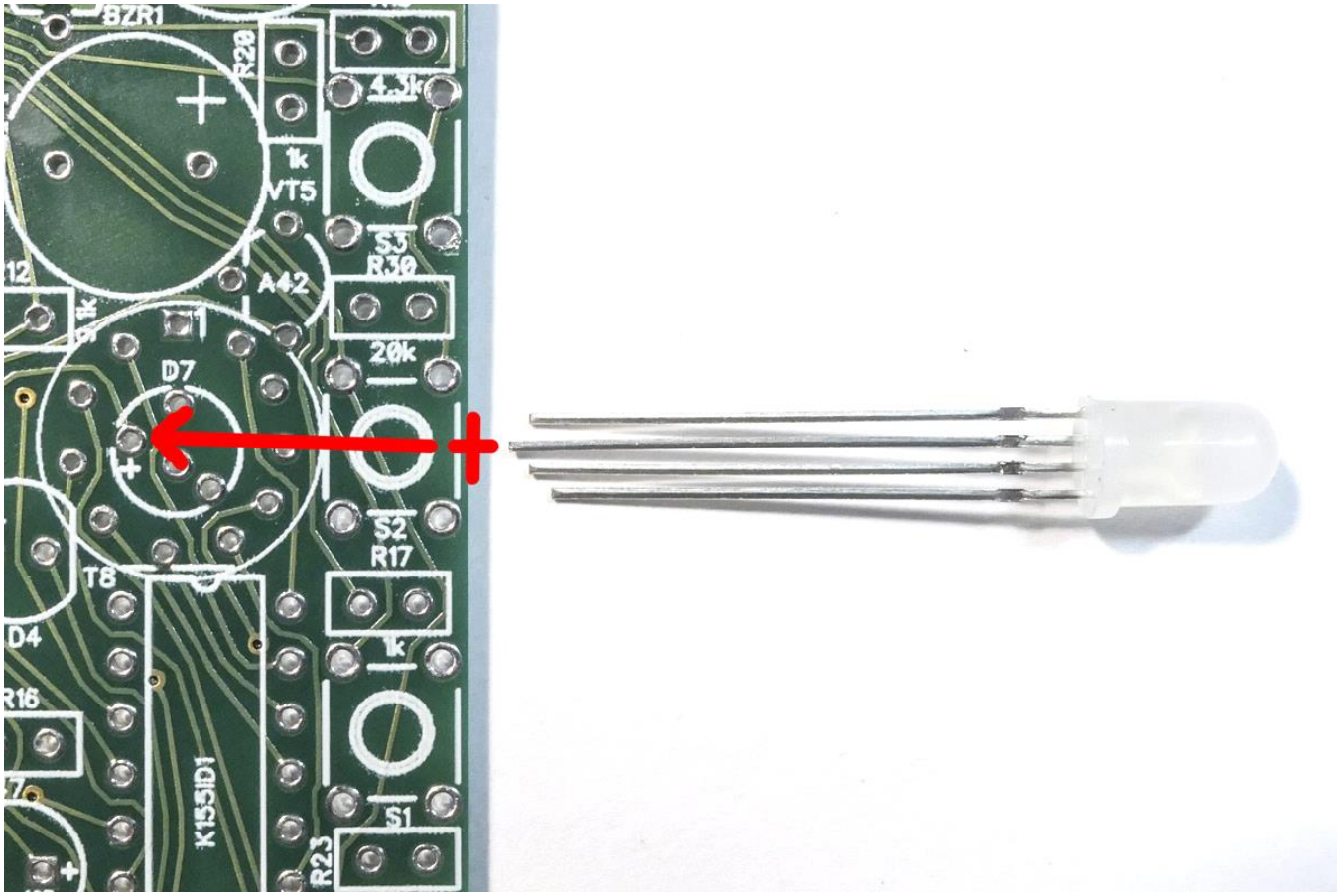


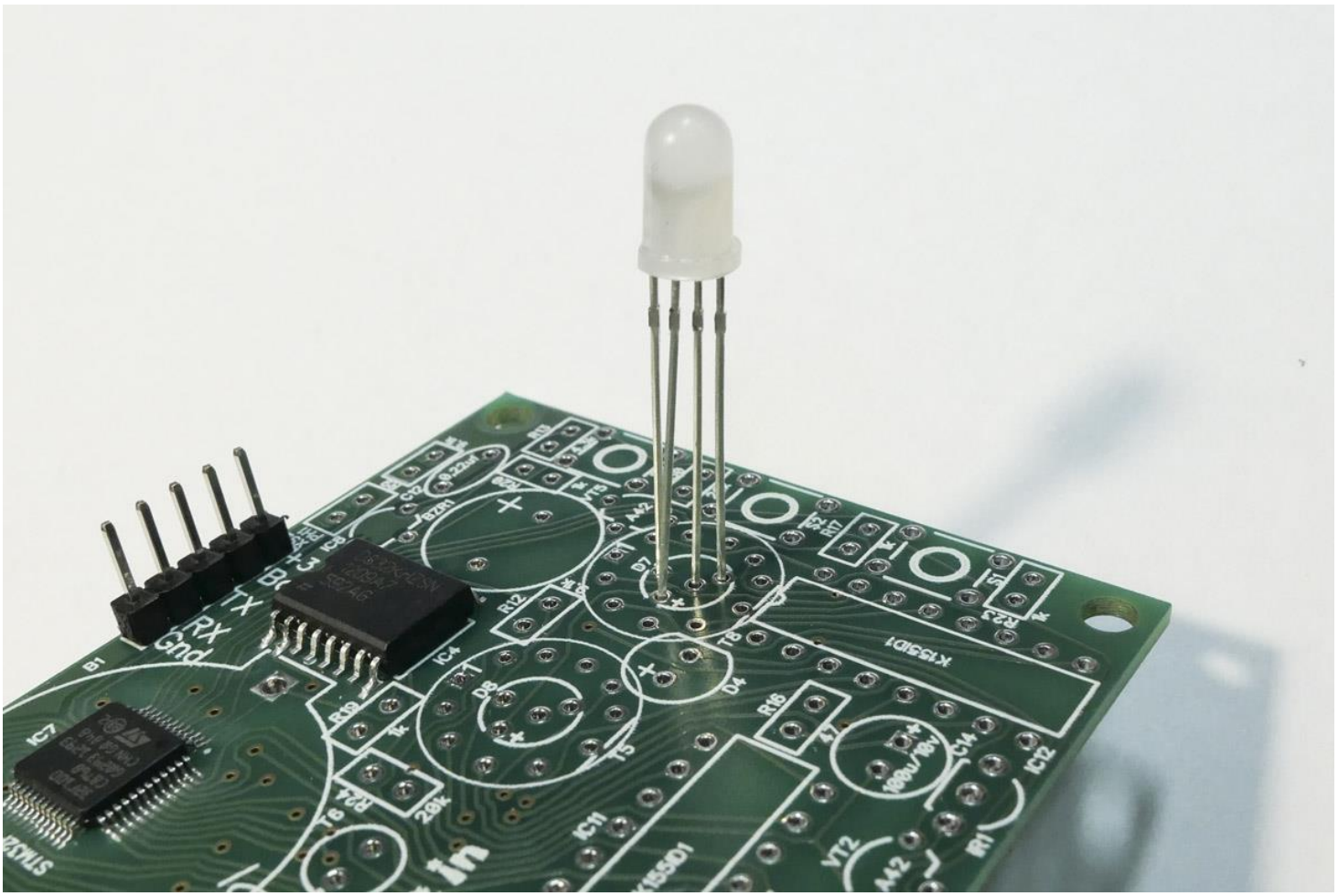


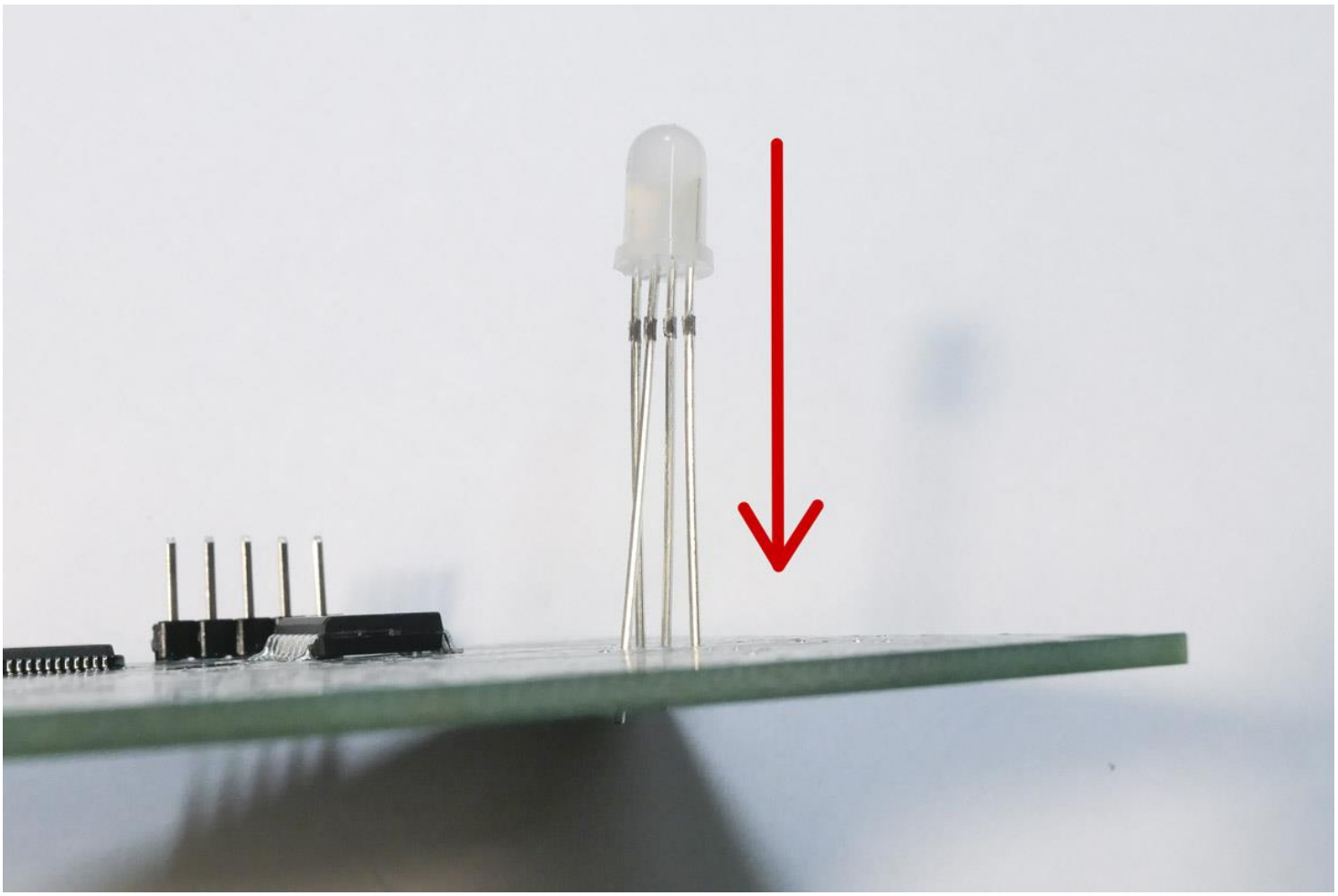
15) Install Infrared receiver:

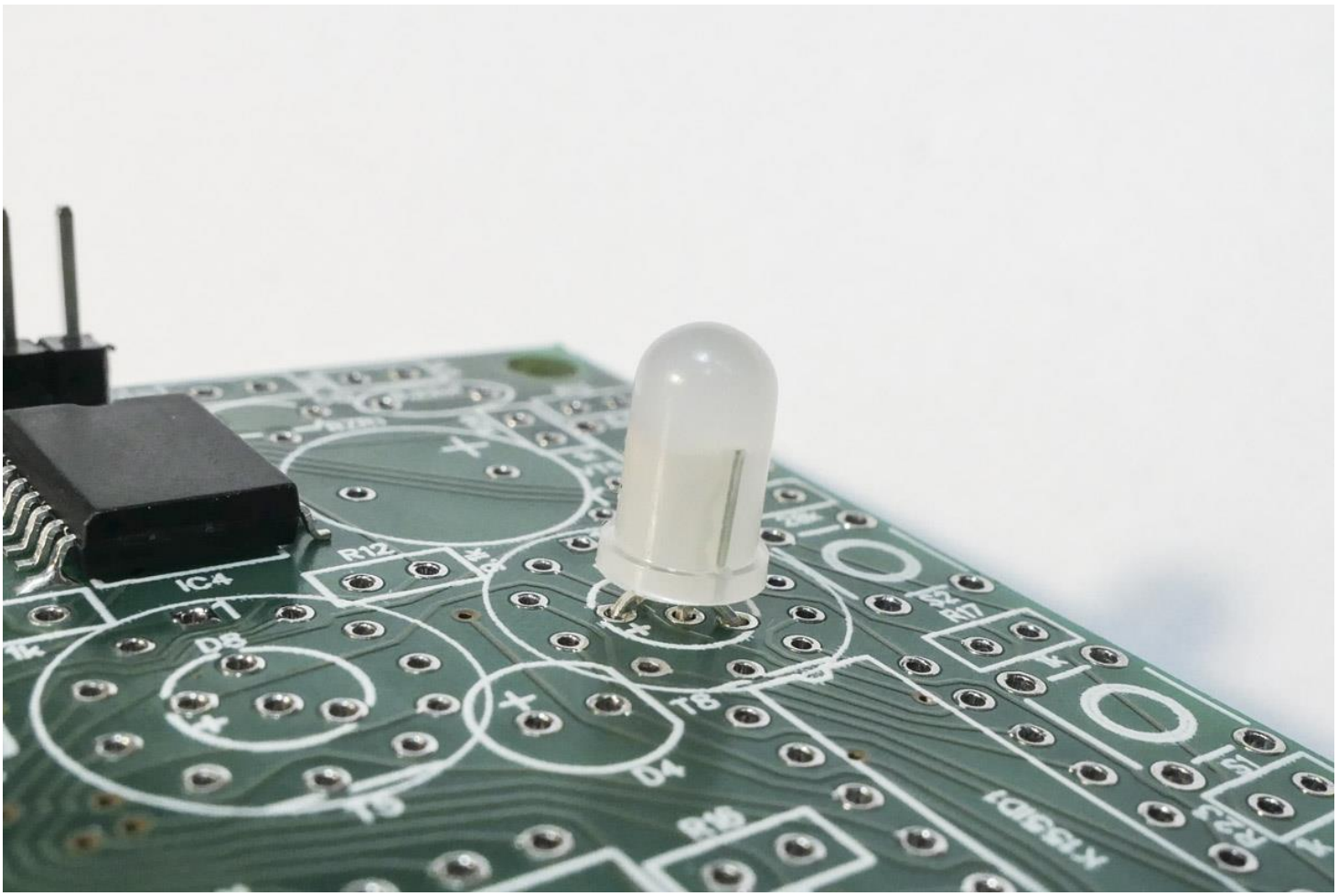


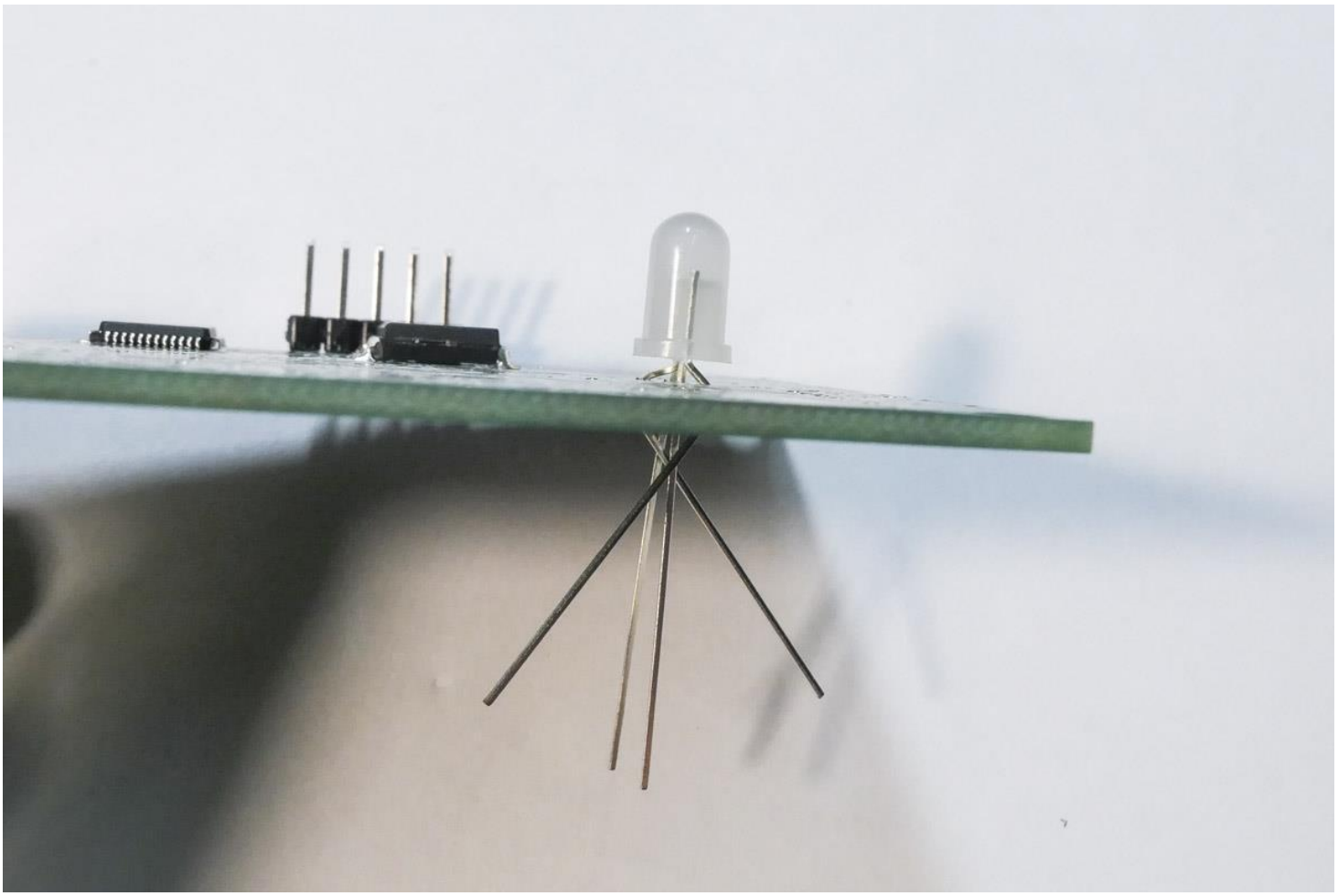
16) Insert 6 RGB LEDs



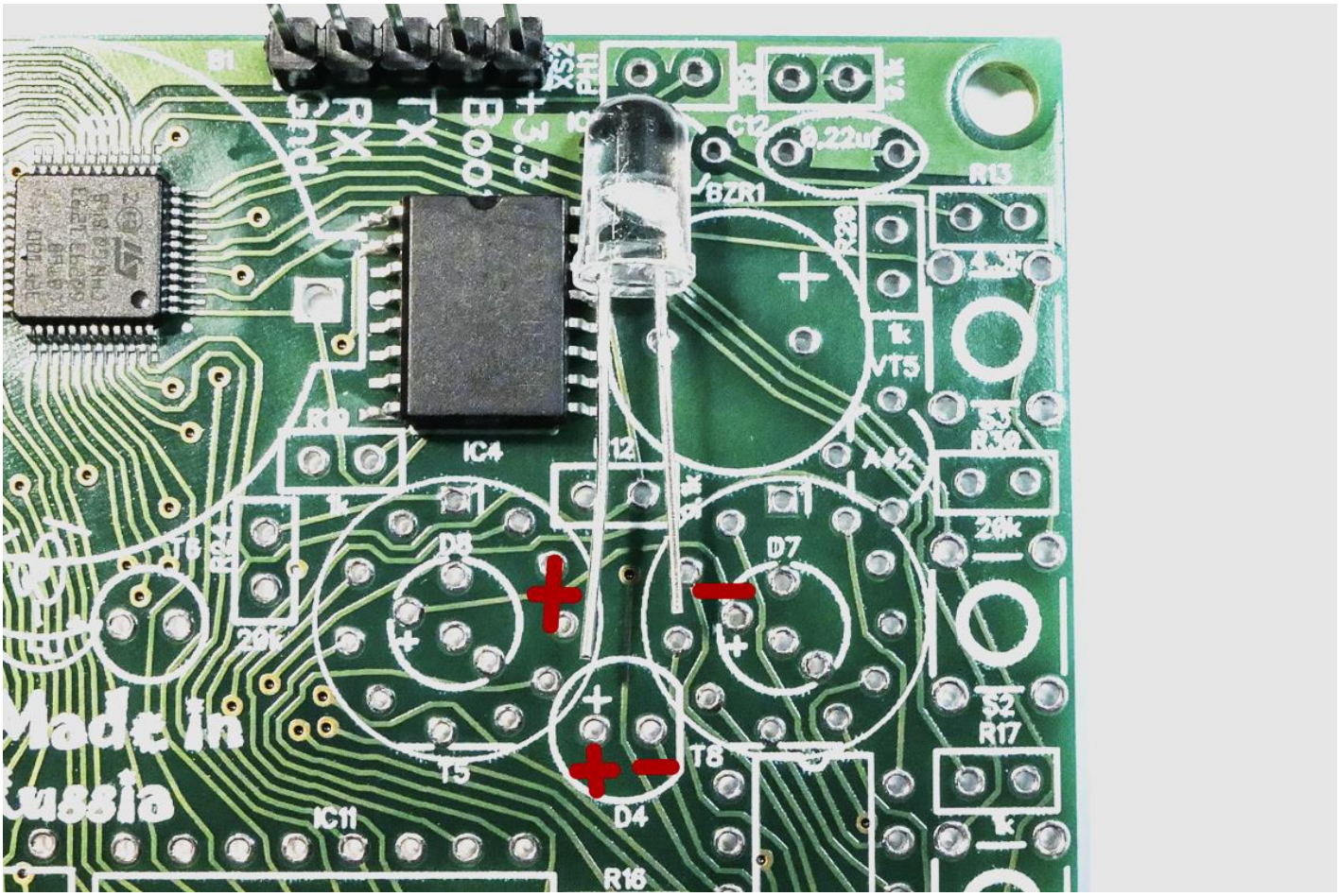

+3
Tx
Rx
Gnd
B1
IC7
IC4
R12
R9
1k
R24
28k
D8
D7
D4
T5
T6
R16
IC11
IC12
VT2
IR1
K155ID1

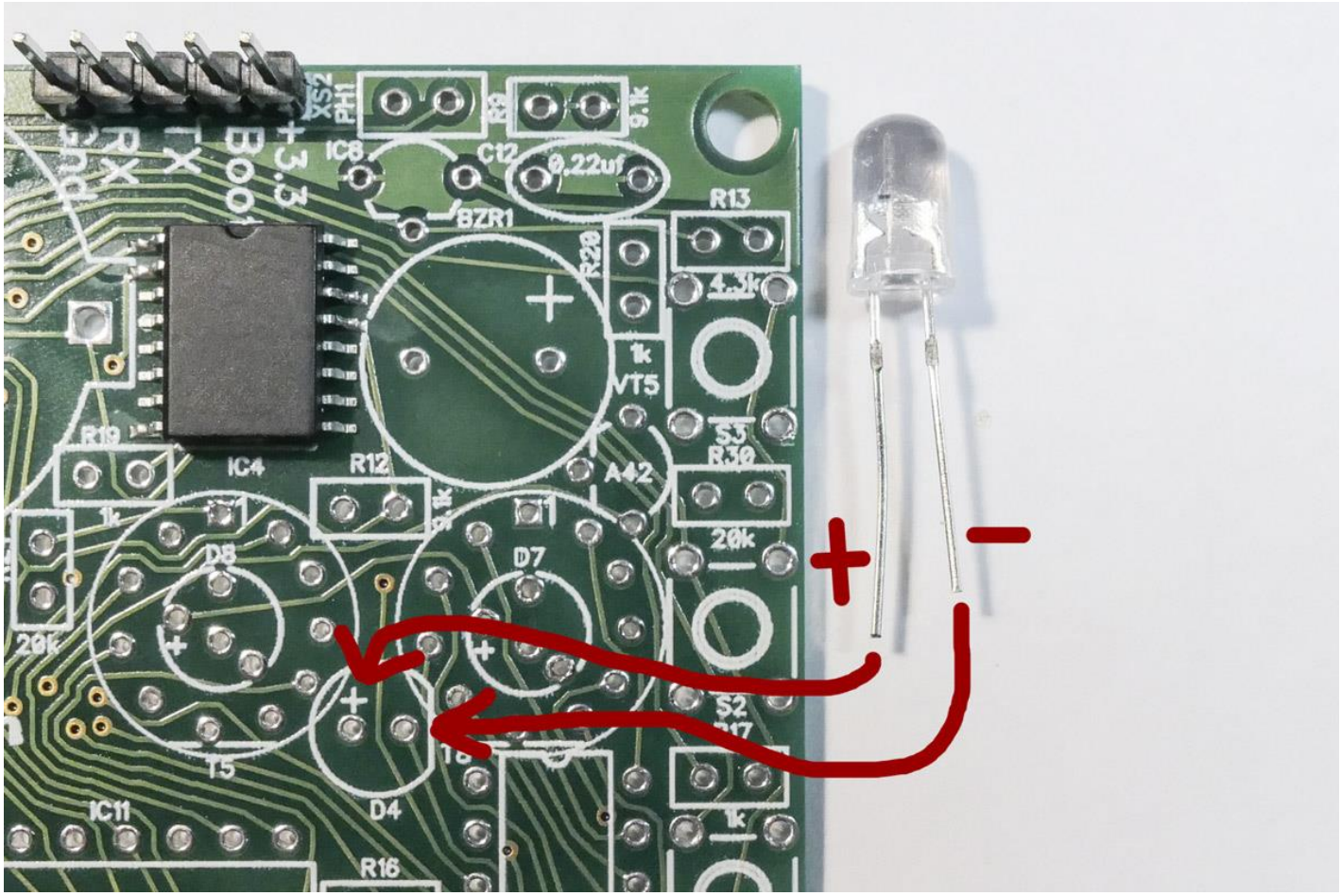


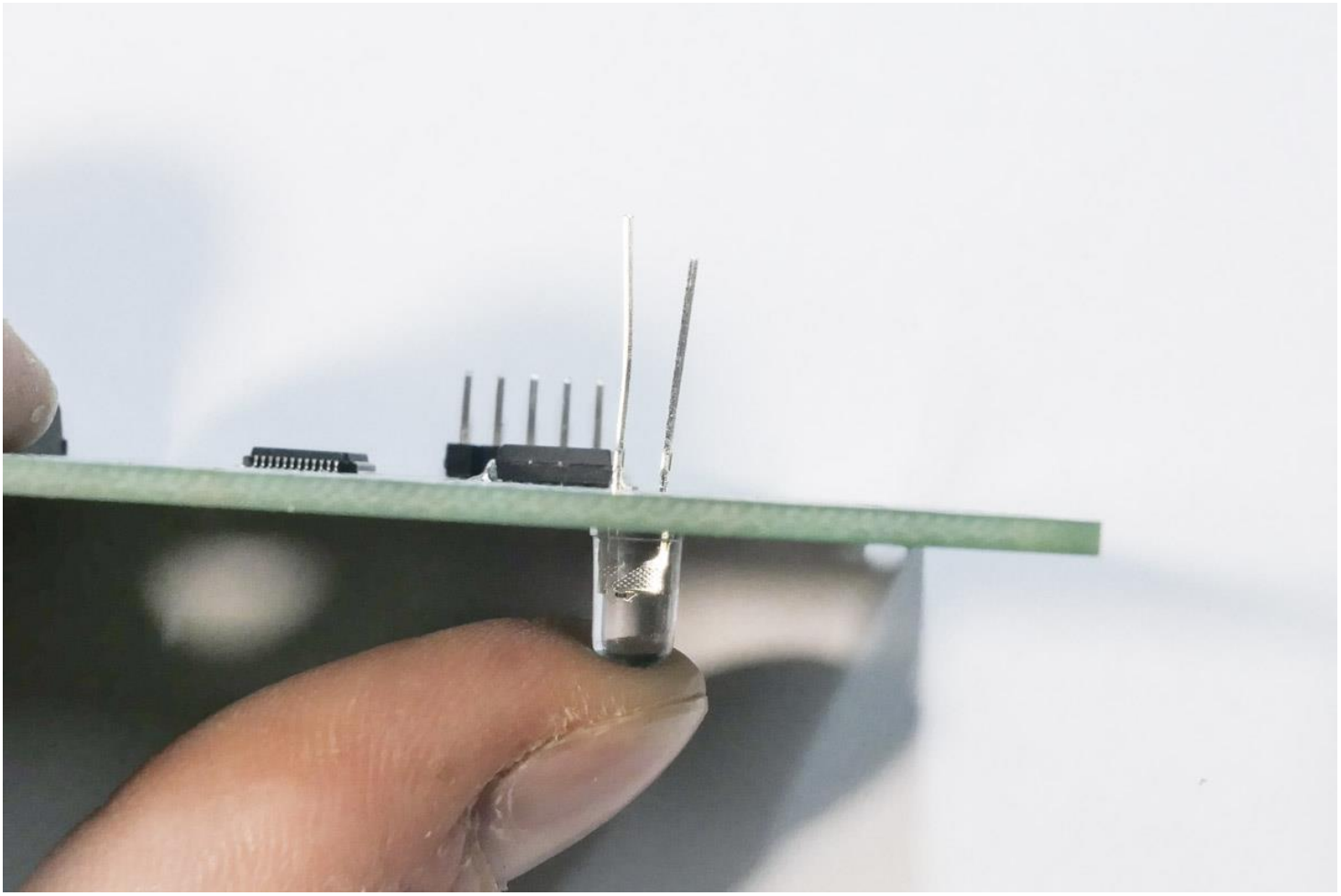

IC1
R12
D8
T8
D4
T5
R16
R23



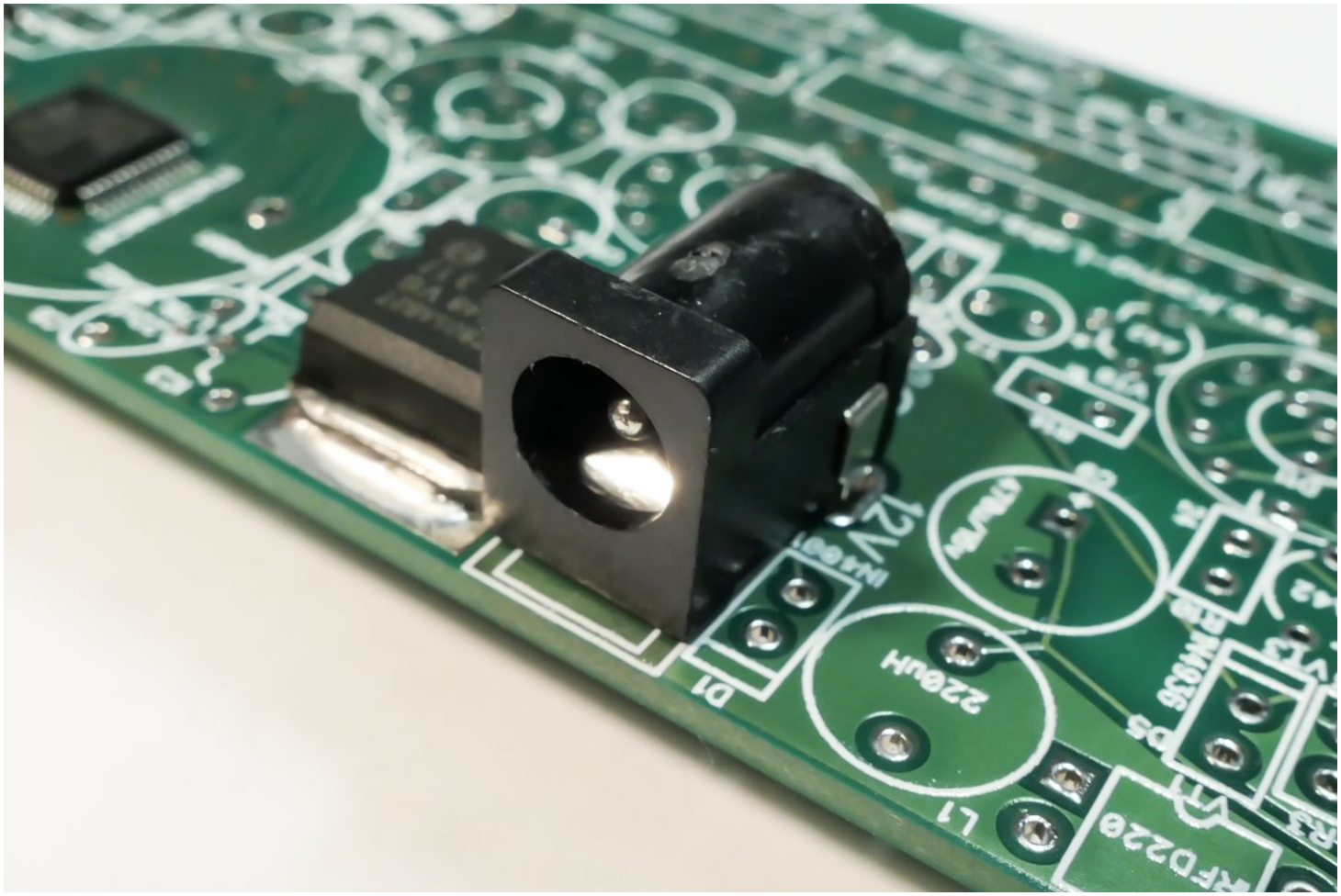
17) Prepare and install AUTO leds. This LEDs should be installed on BOTTOM side of PCB:



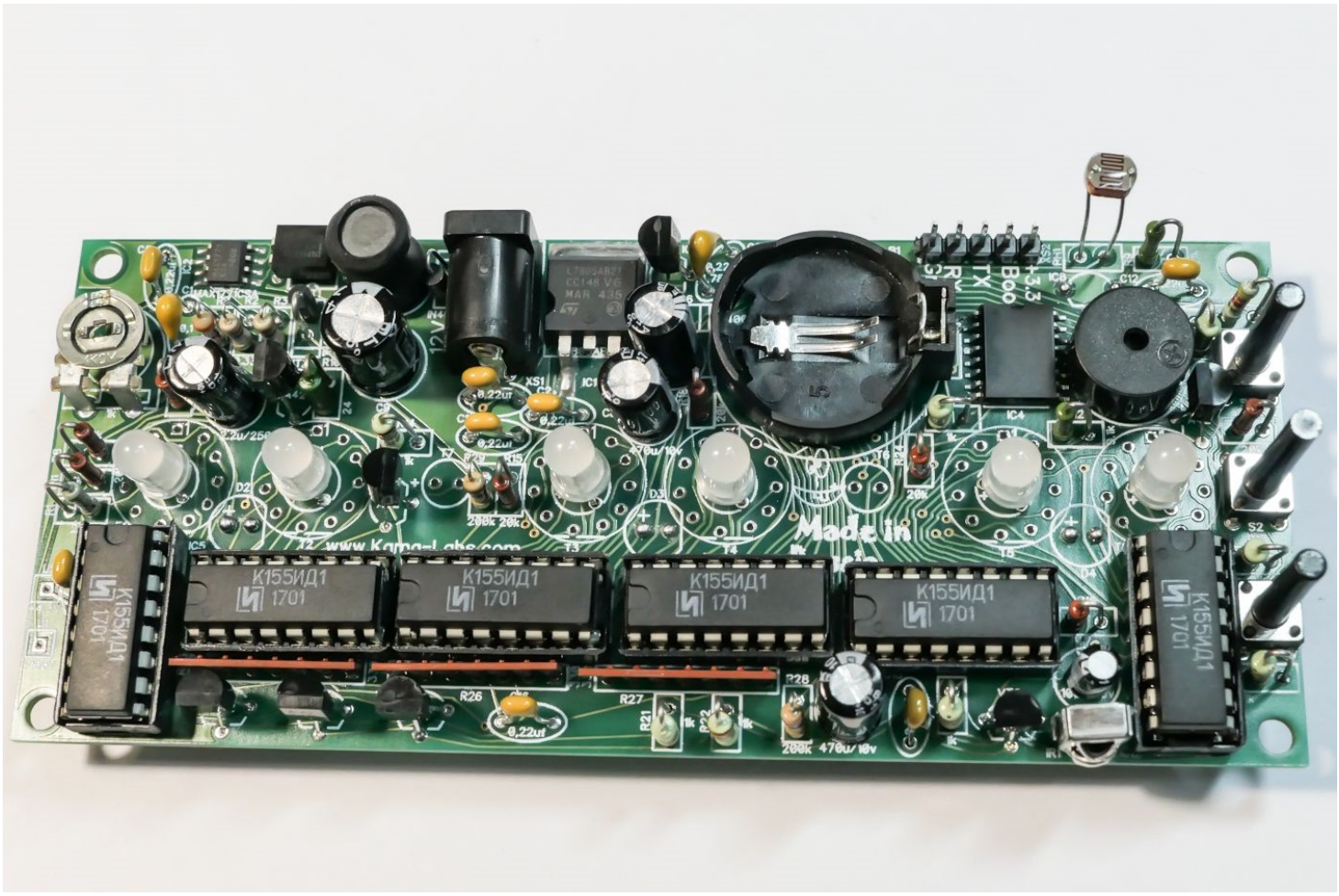


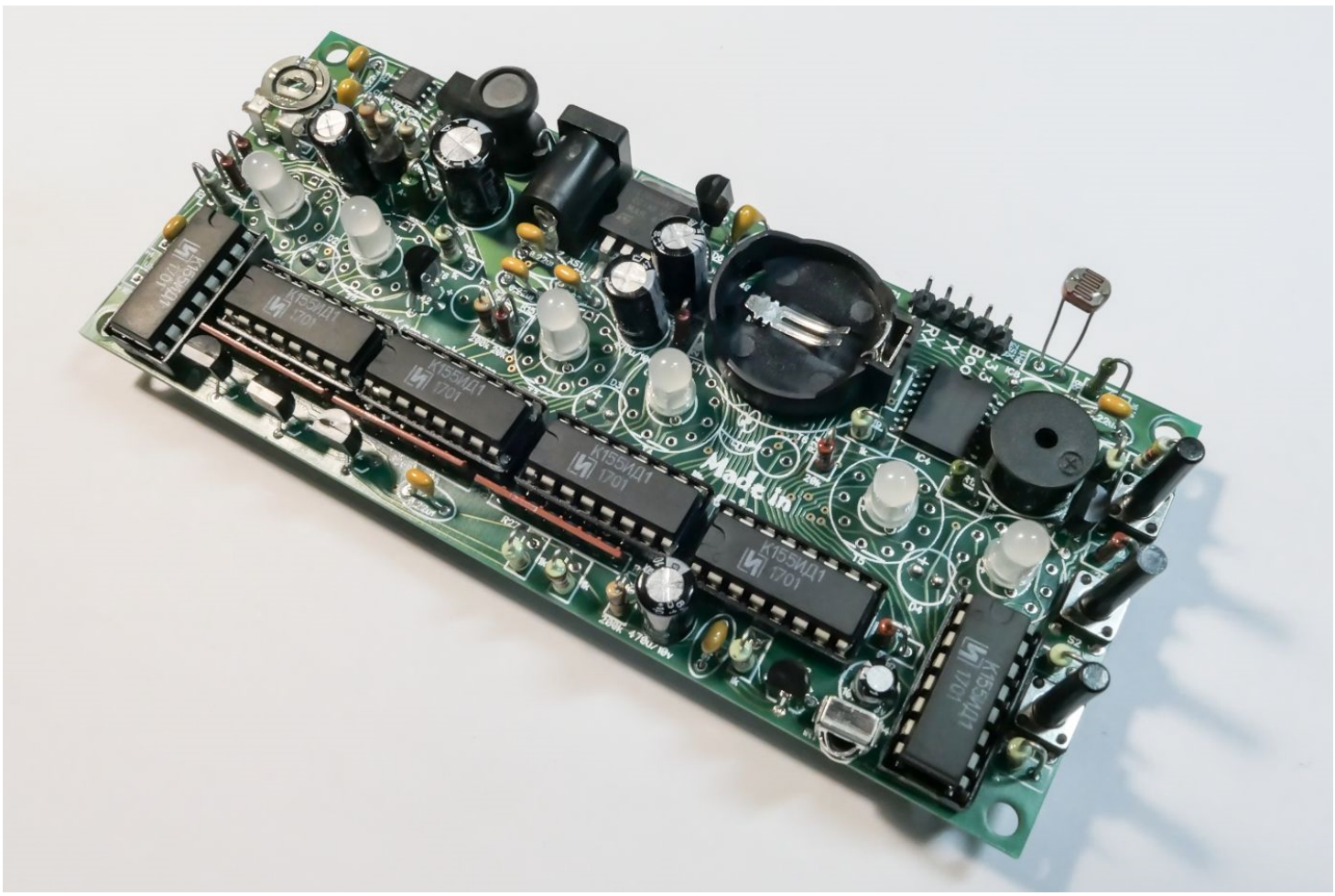


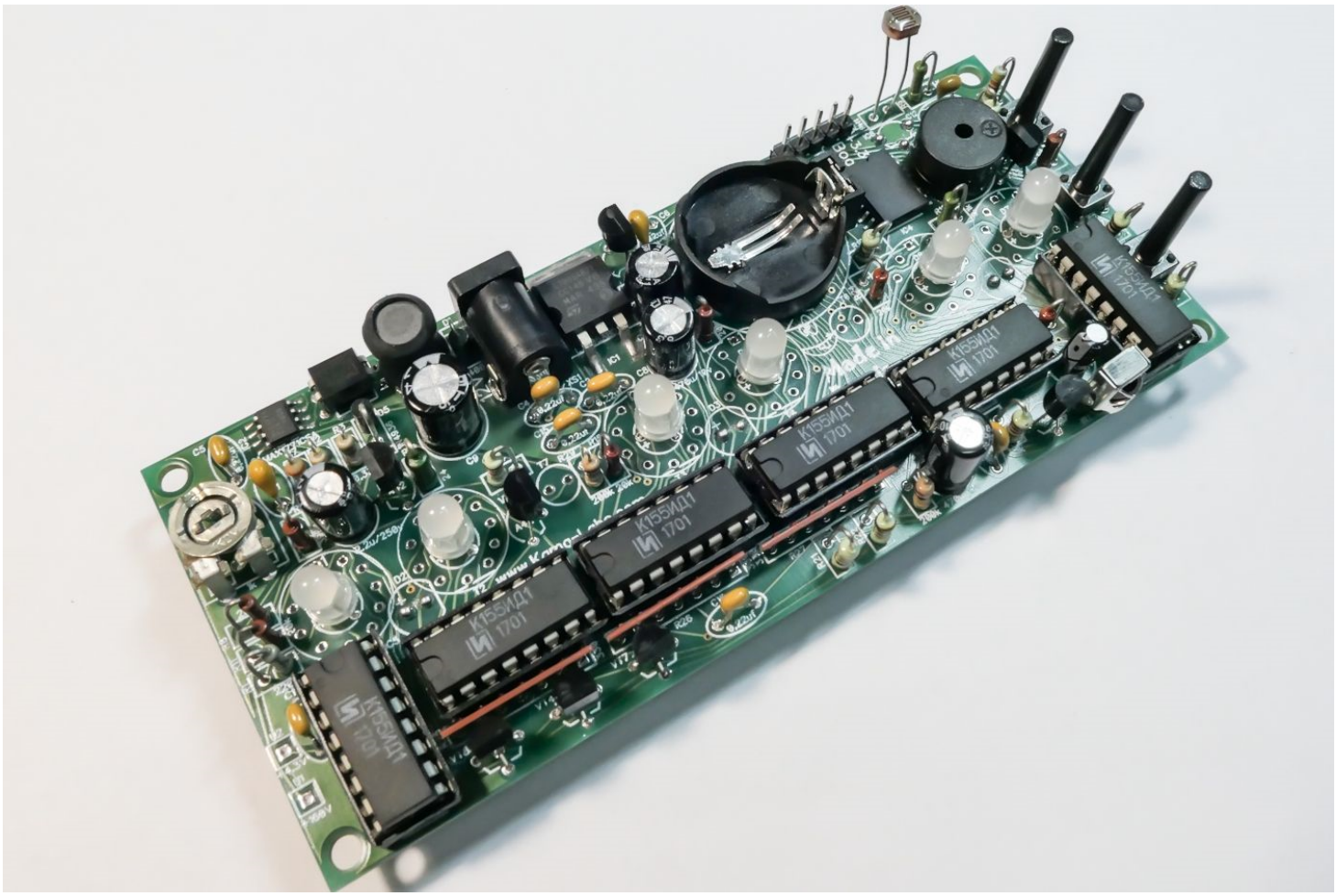
18) Install power plug:

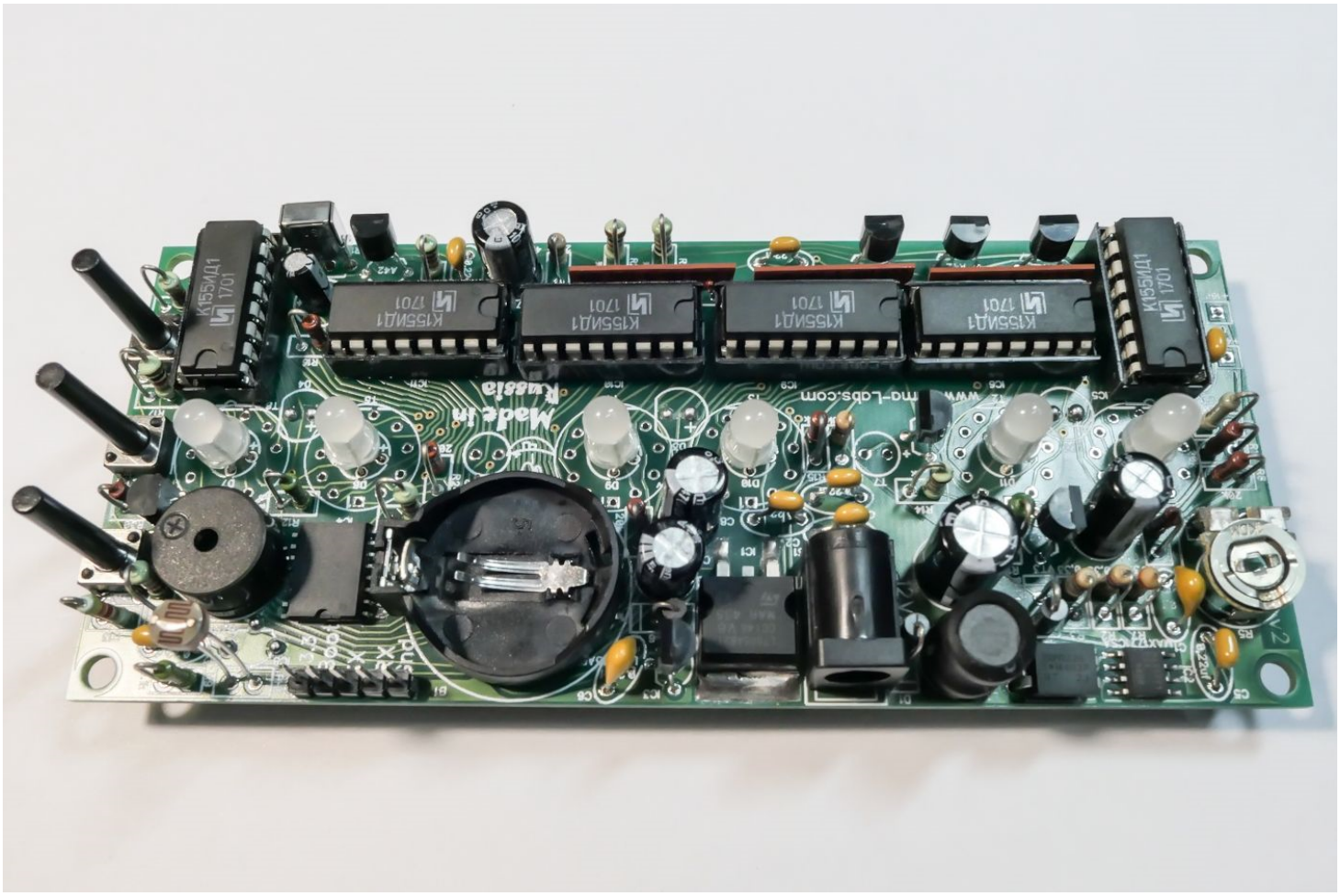


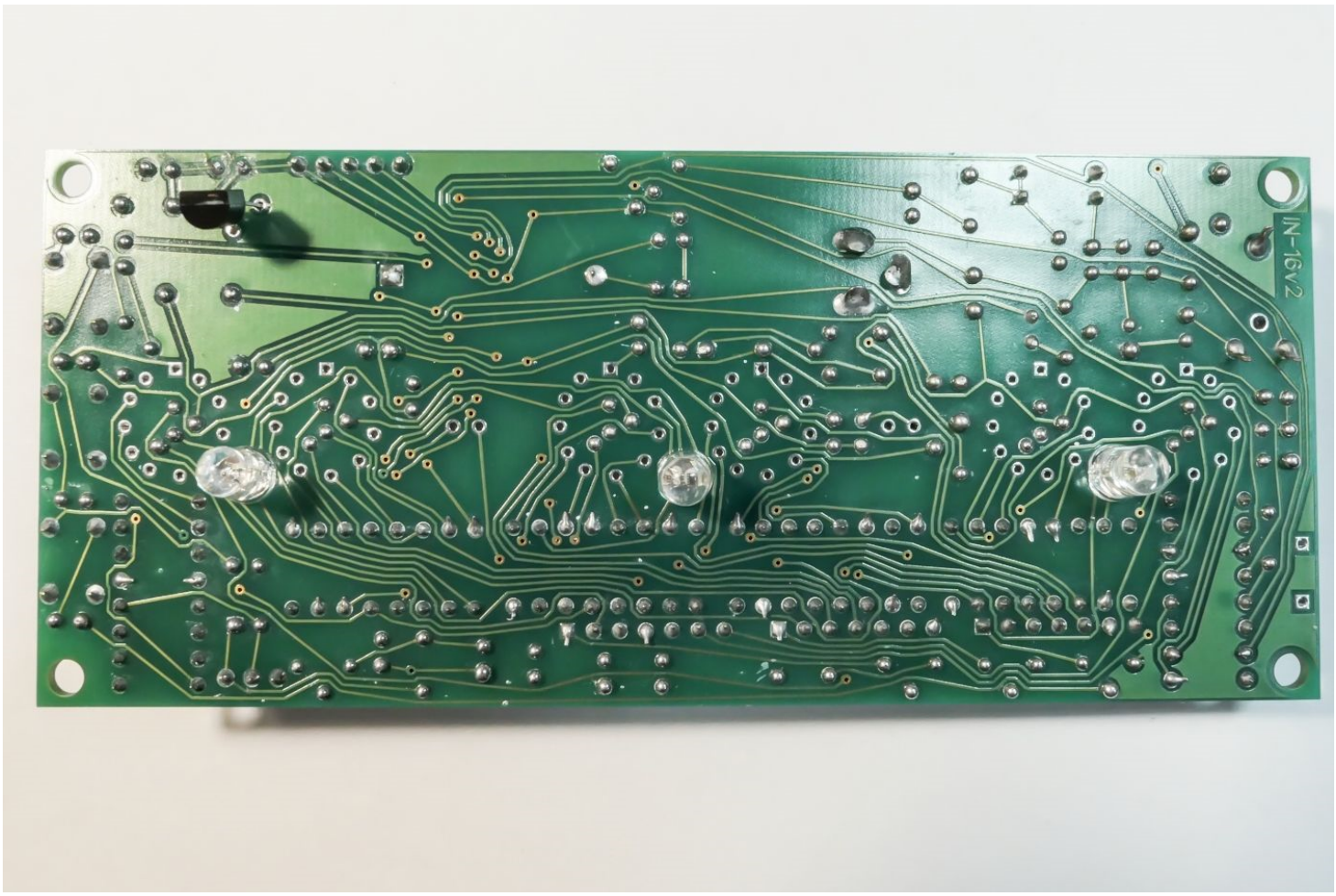
19) After all, your clock should looks like on photo:

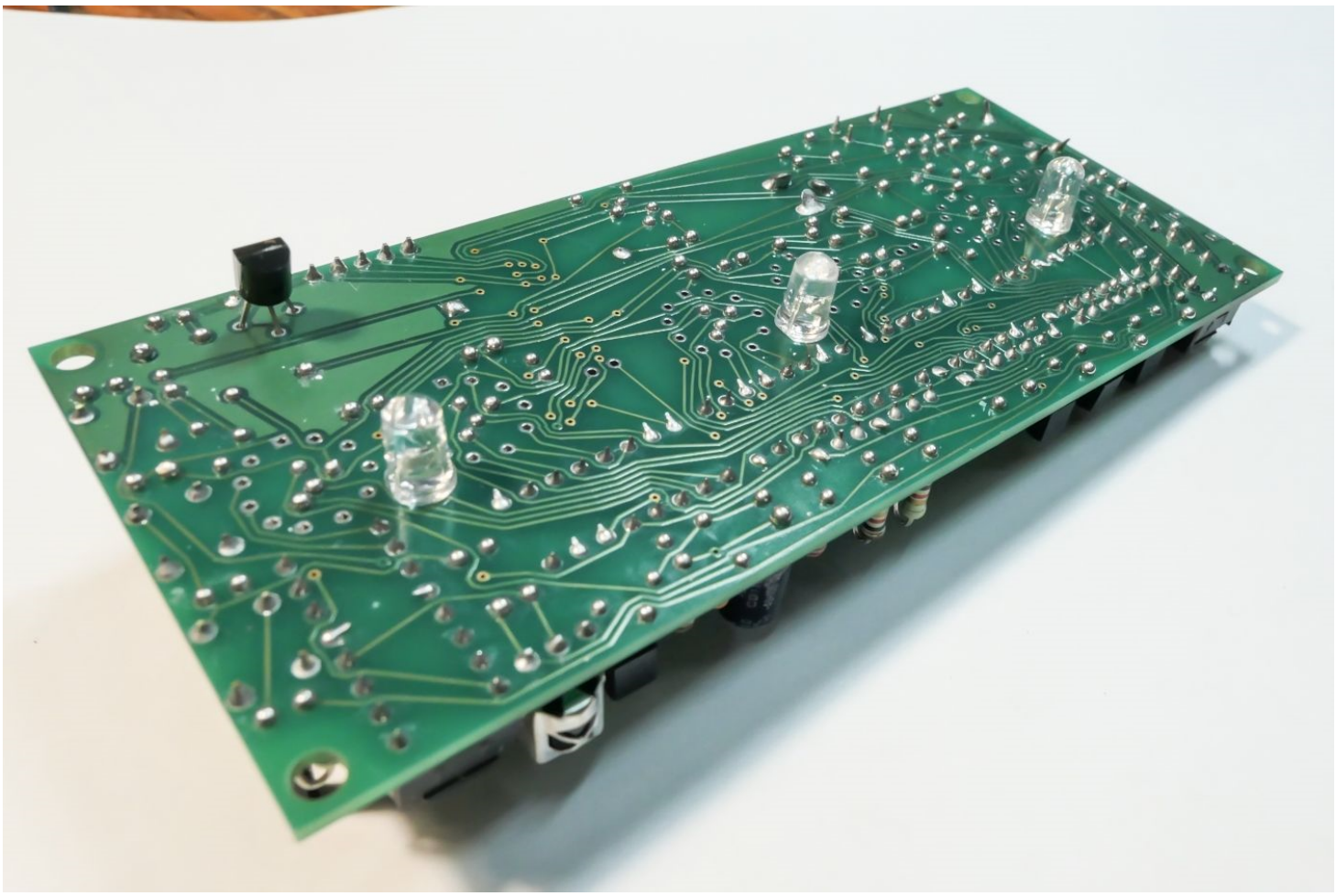




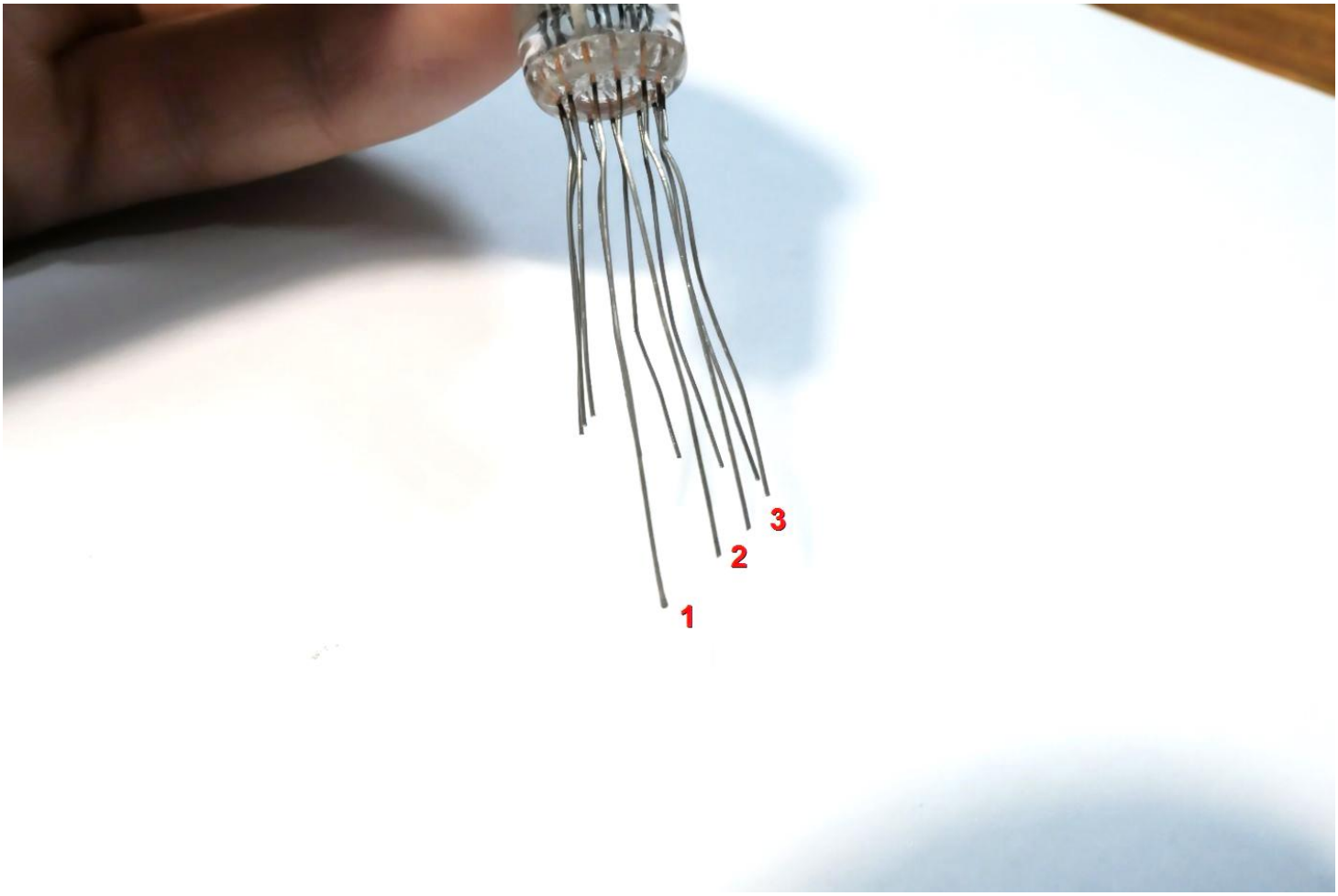


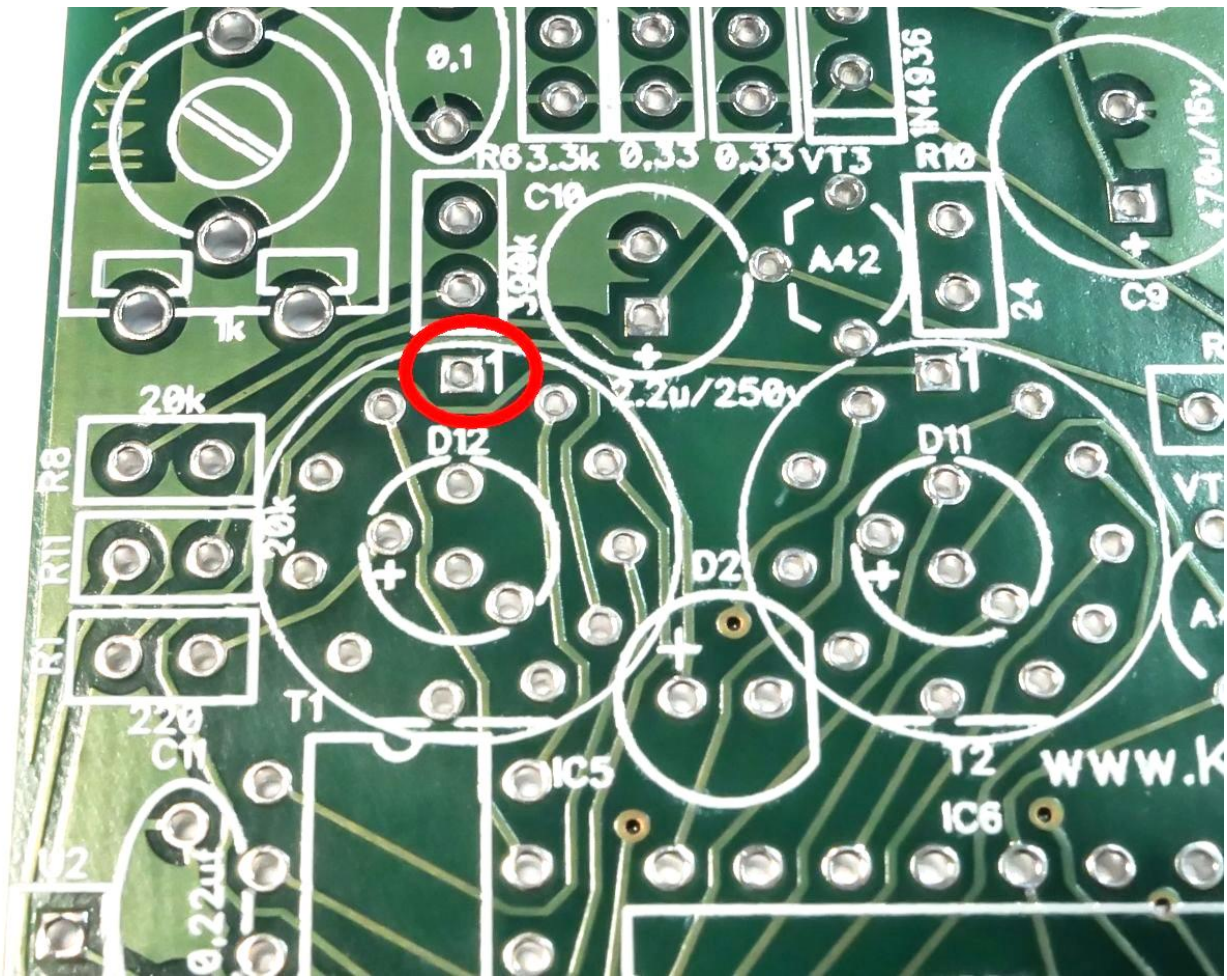


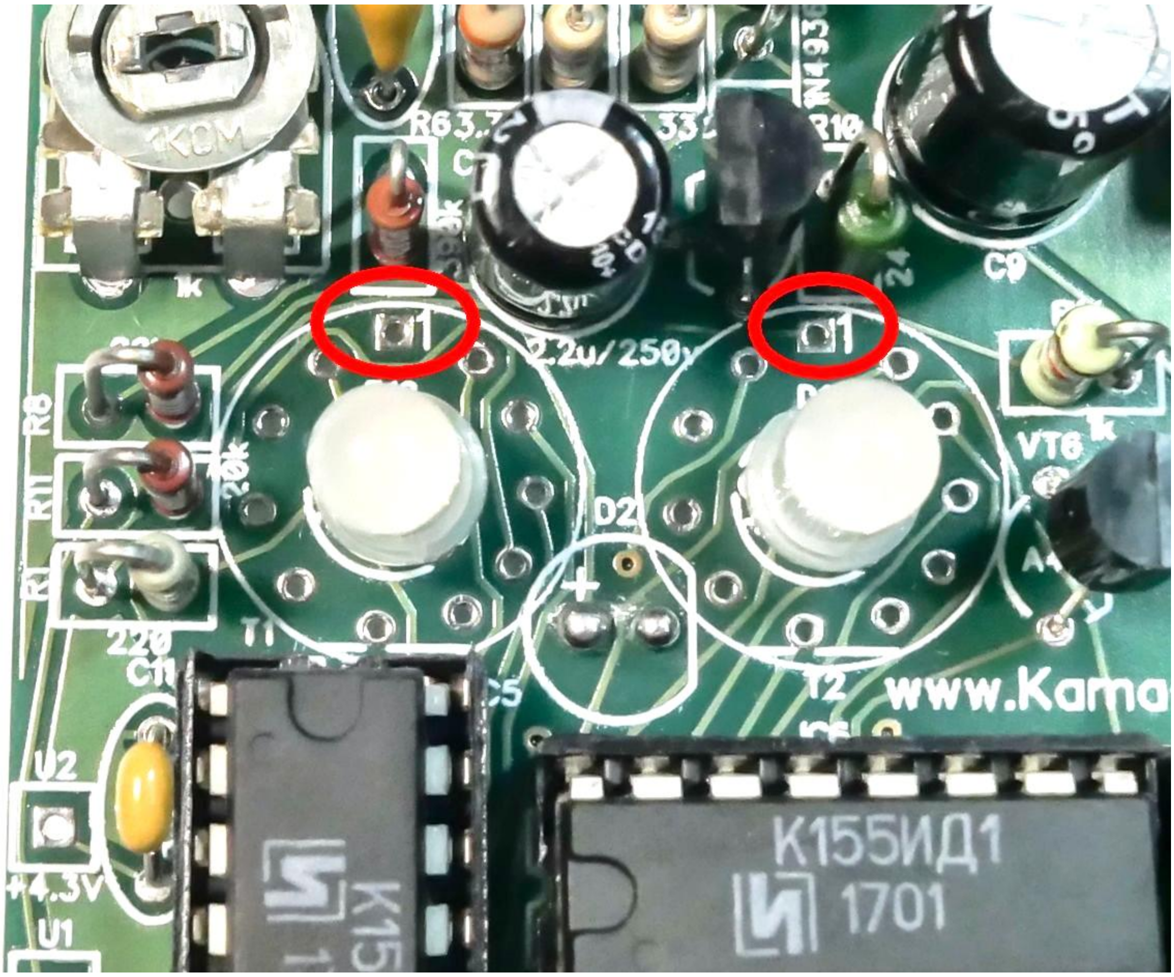

IN-16v2

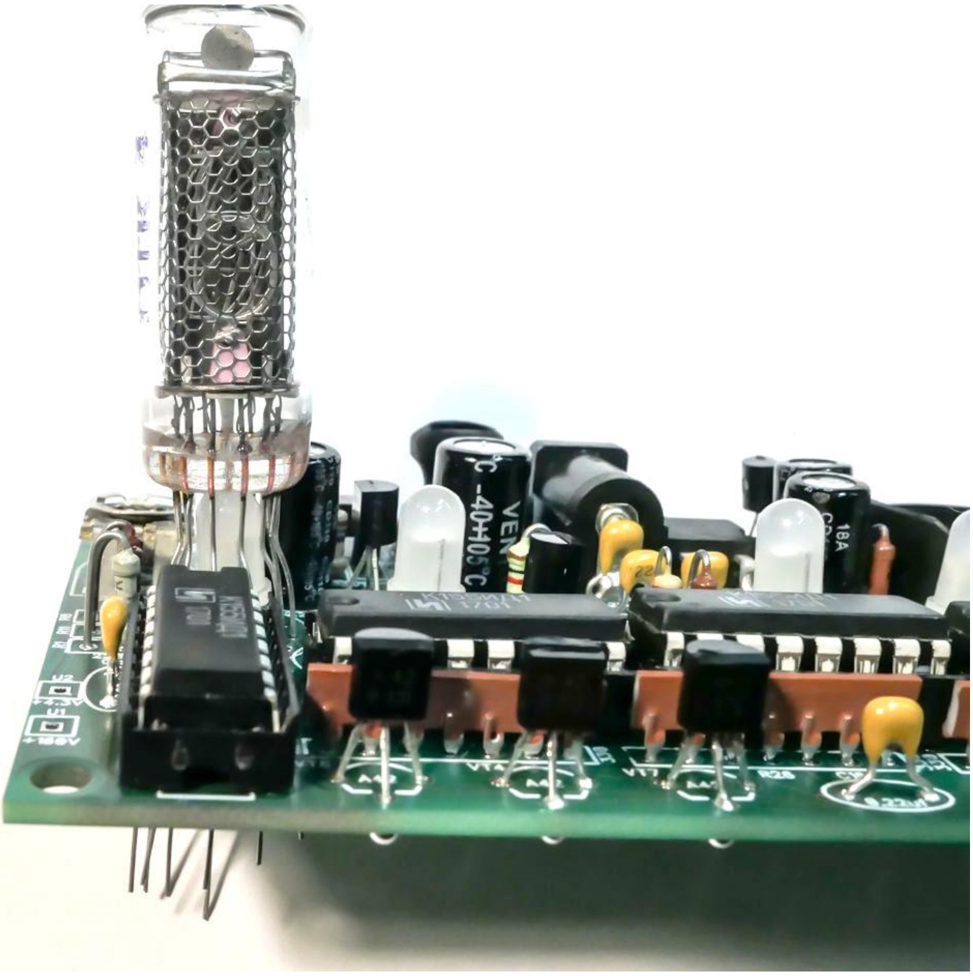


20) Prepare and install all IN-16 tubes. You can see that pins of tubes cut spiral already. The longest pin – first pin:

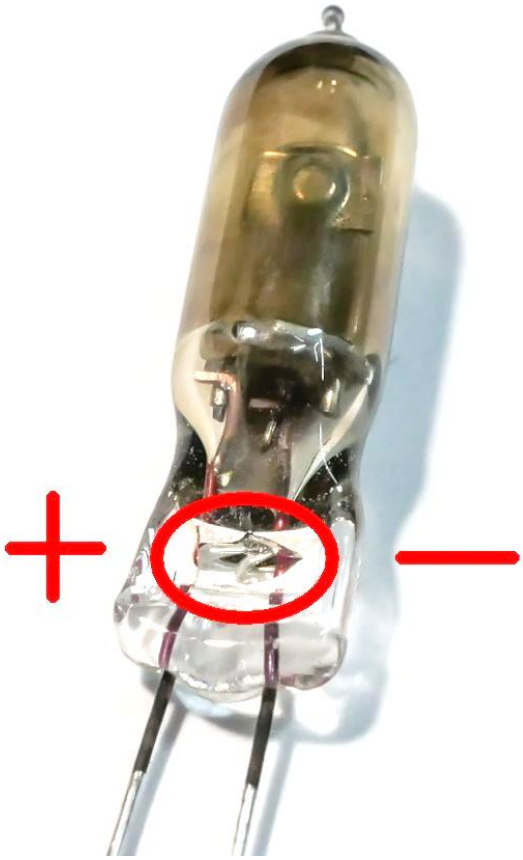


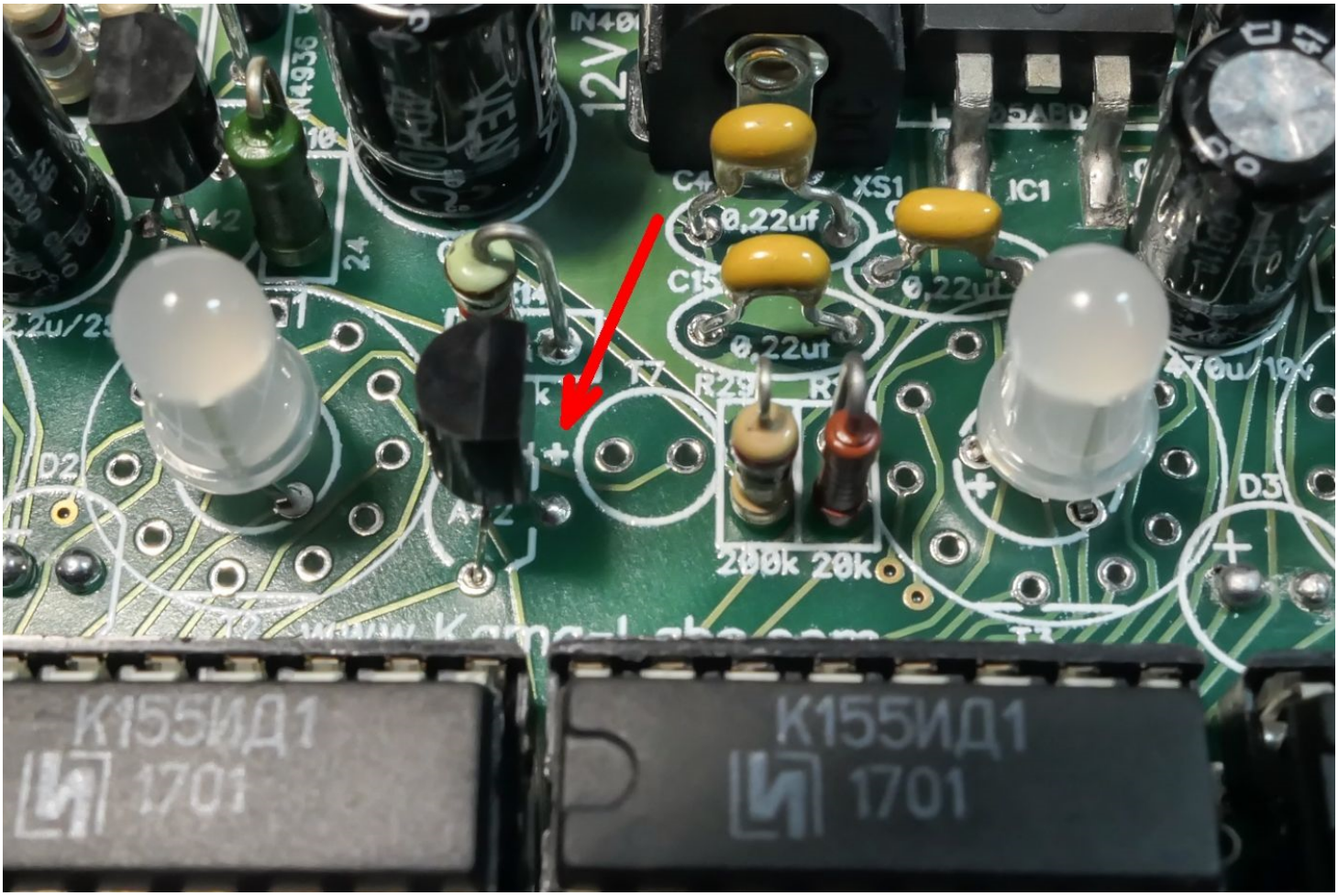


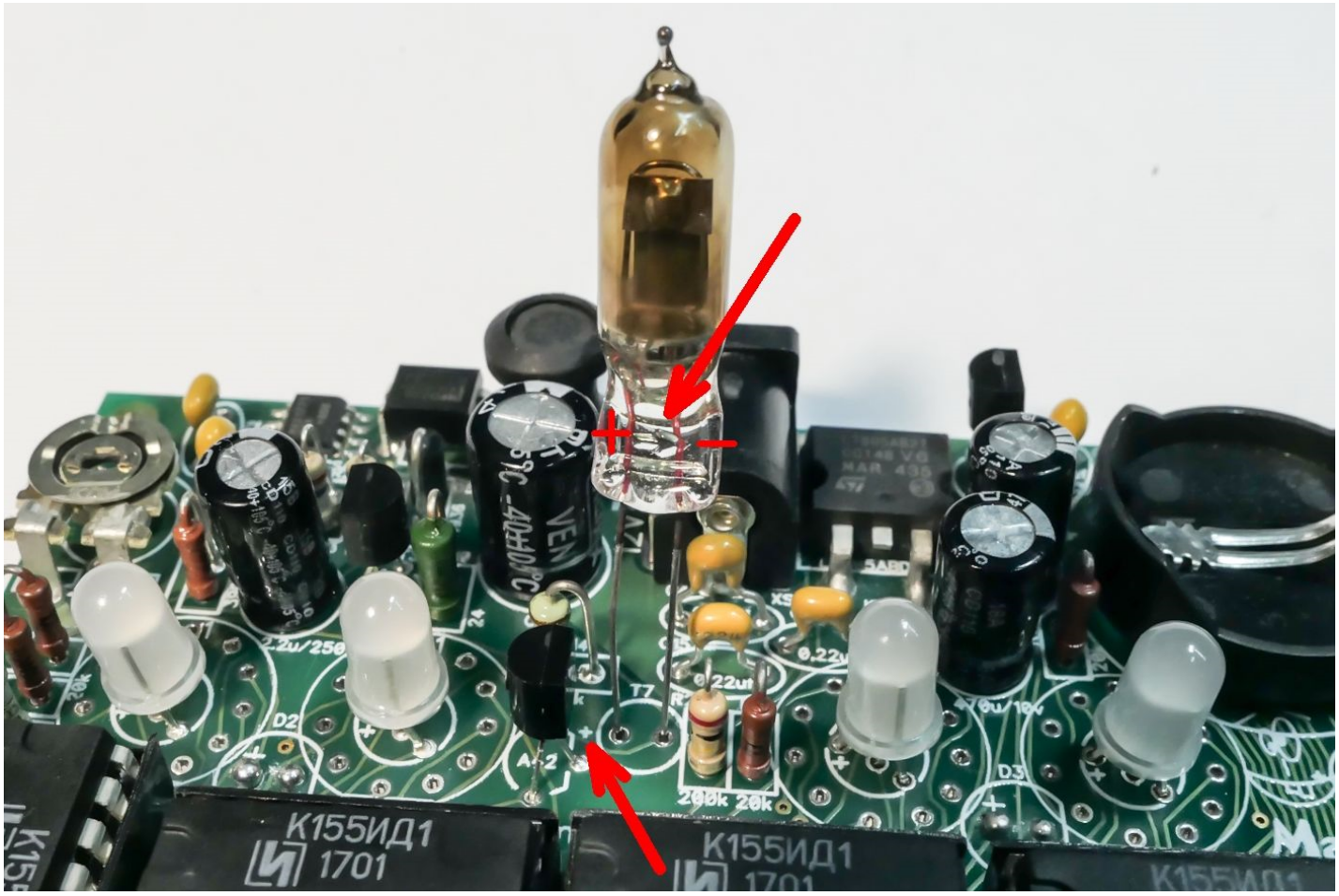

К155ИД1
1701
www.Kama
2.2u/250v
D2
T1
T2
C9
VT6
+4.3V
U2
U1



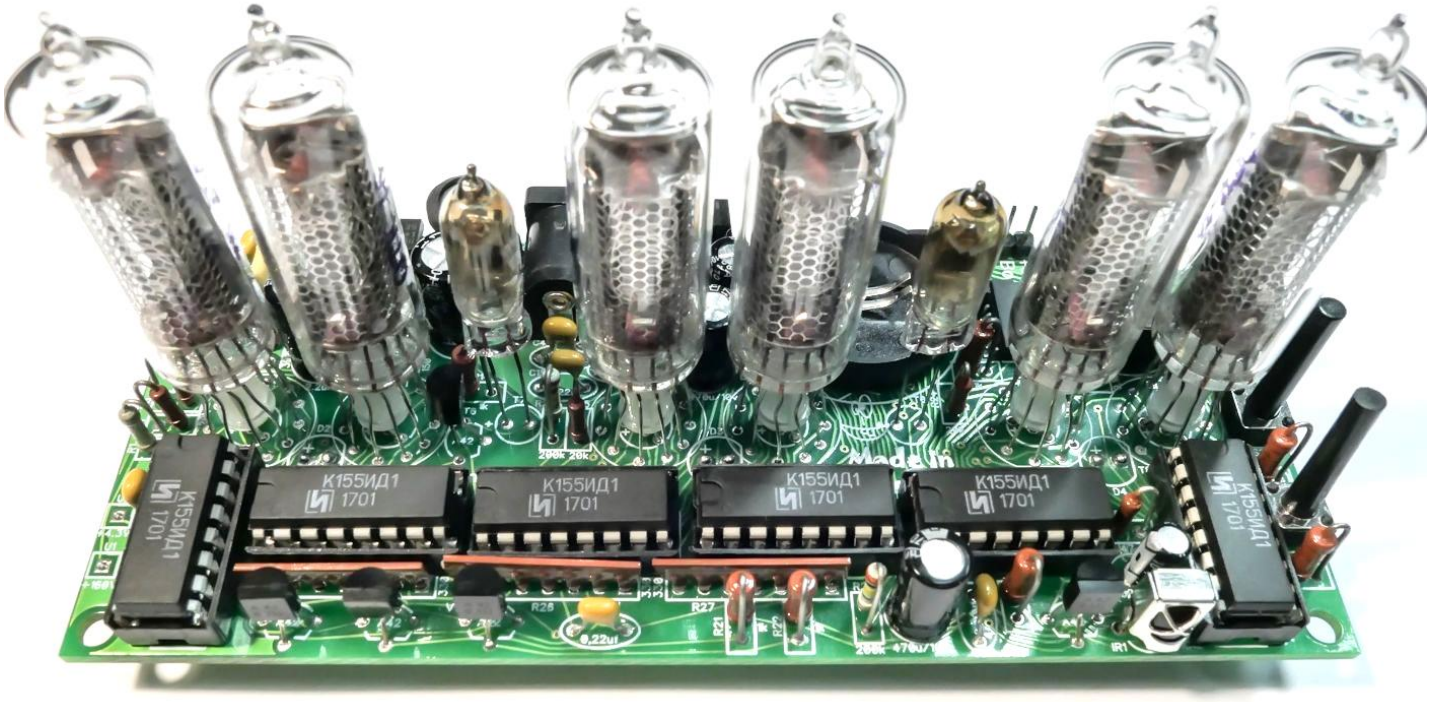
21) Place 2 separator tubes. Plus and minus:

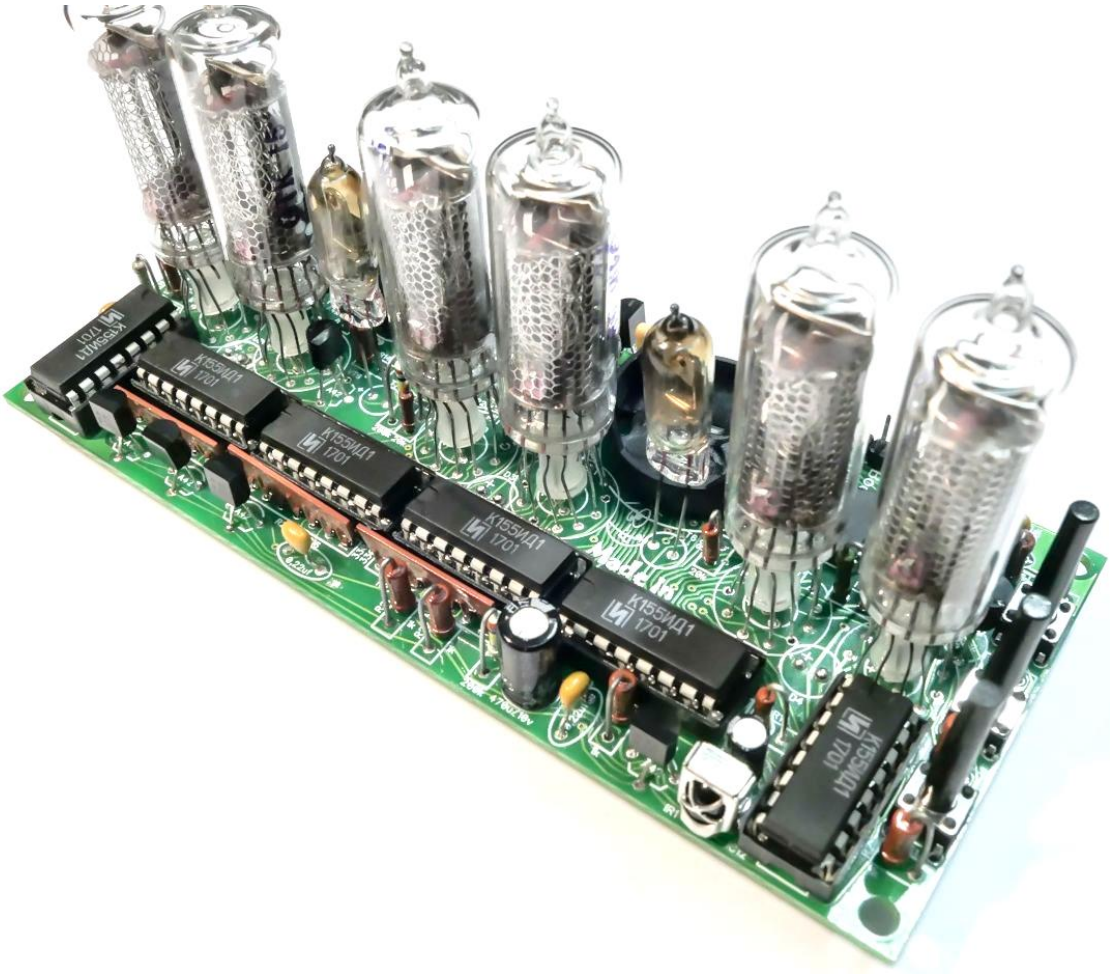


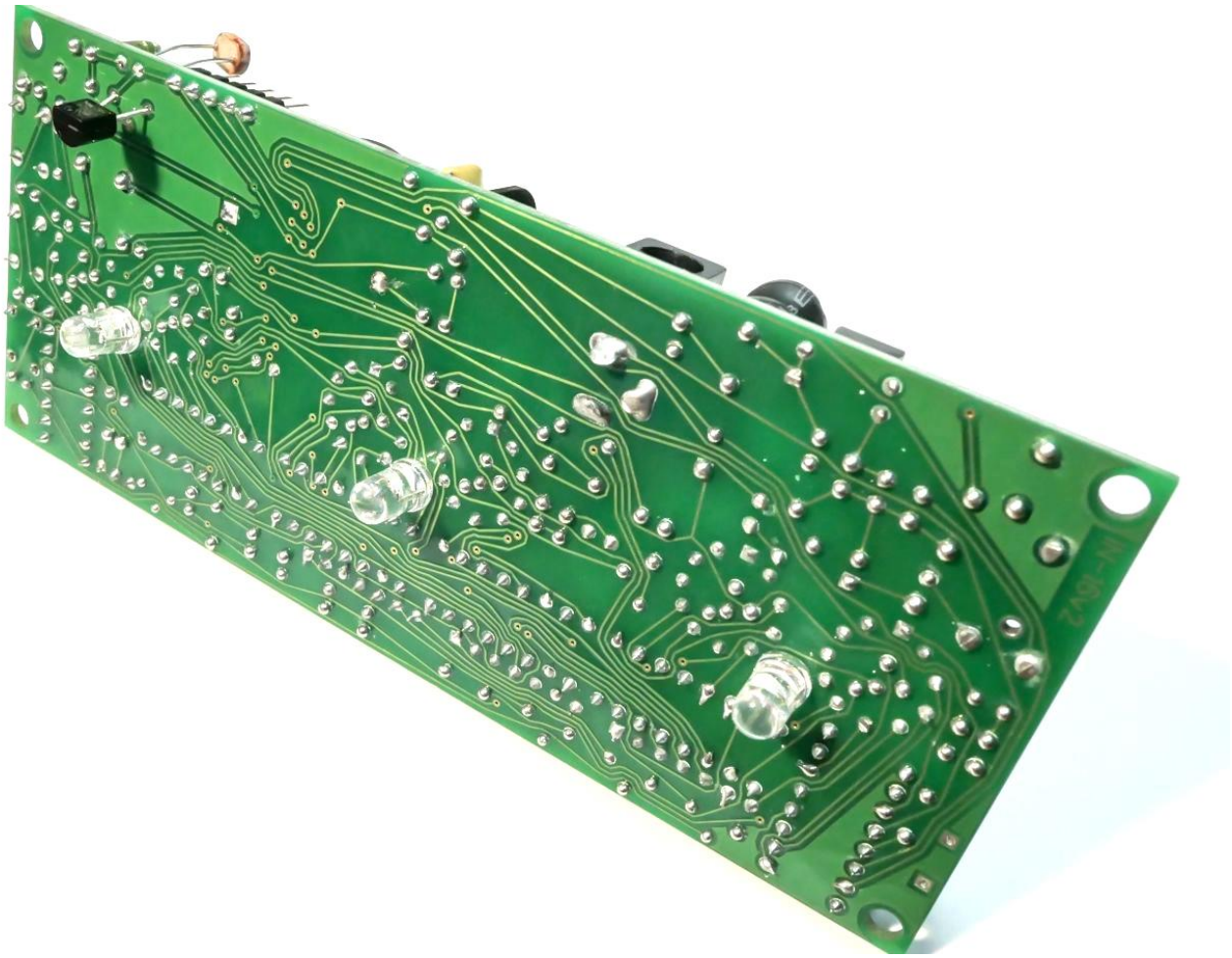




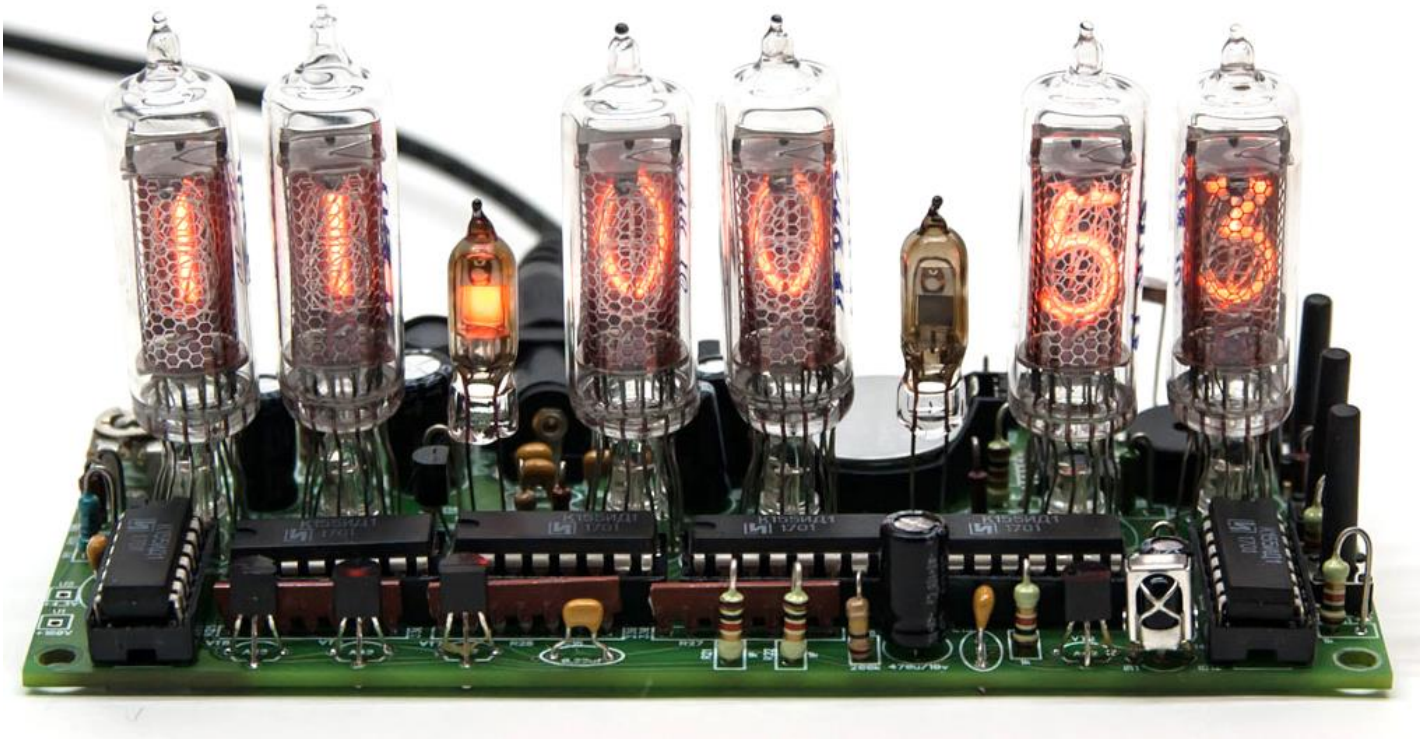
22) Install tube drivers KR555ID1. Now, your clock should looks like this:




К155ИД1
1701



23) After all clock should work.

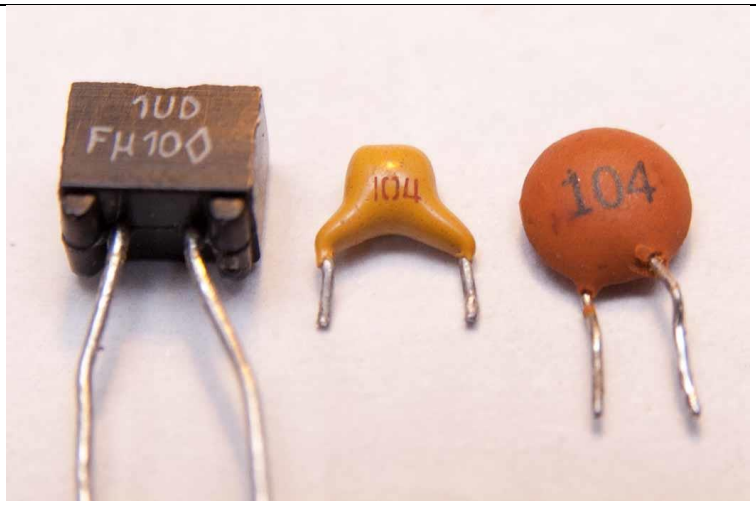


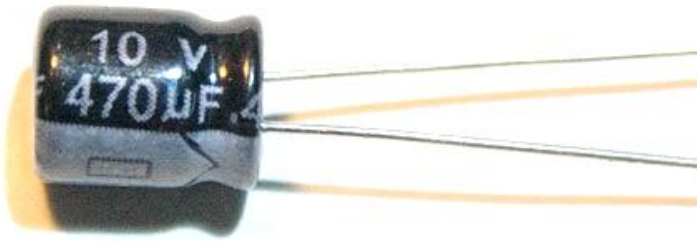
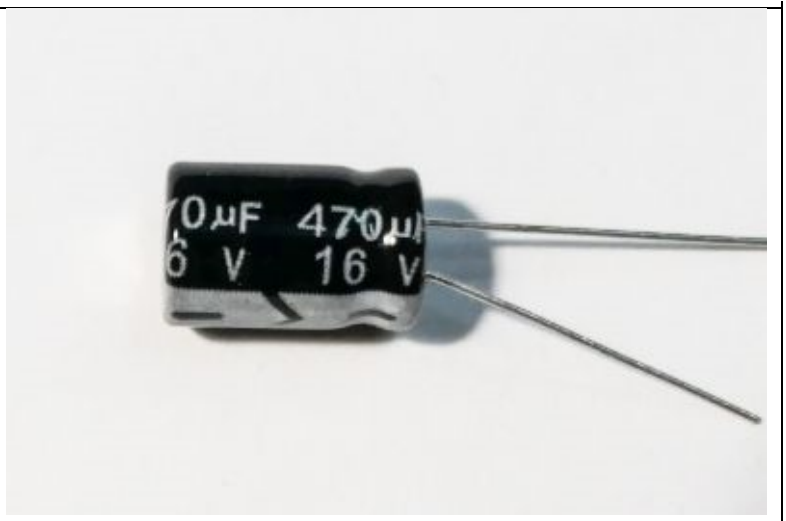
CONGRATULATIONS!

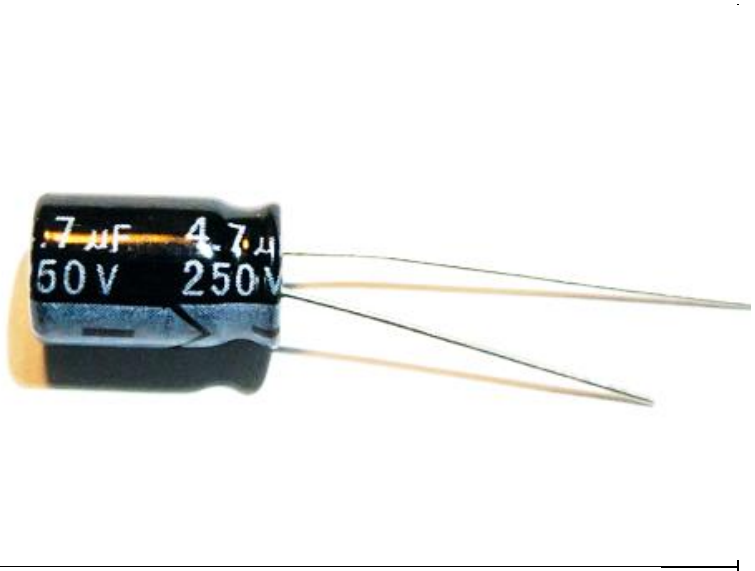
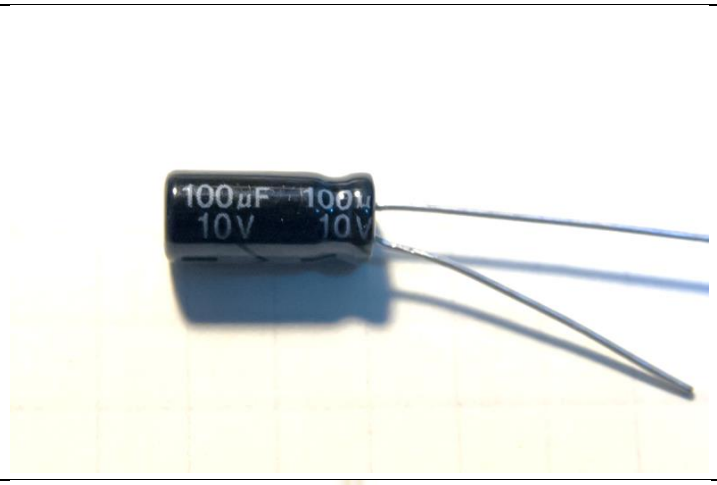
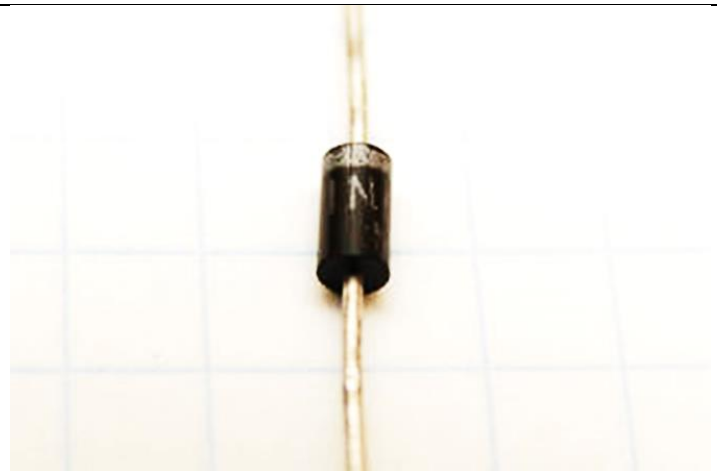
PART LIST

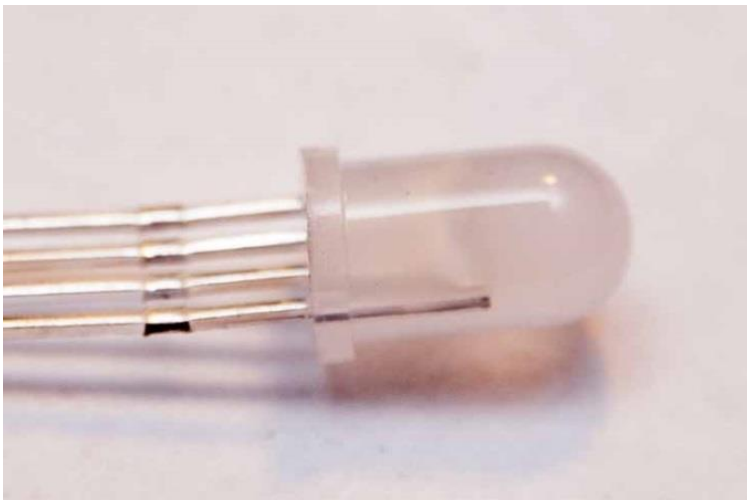
Please note, that elements in kit can be a little different. If you doubt value of element, check it with multimeter.

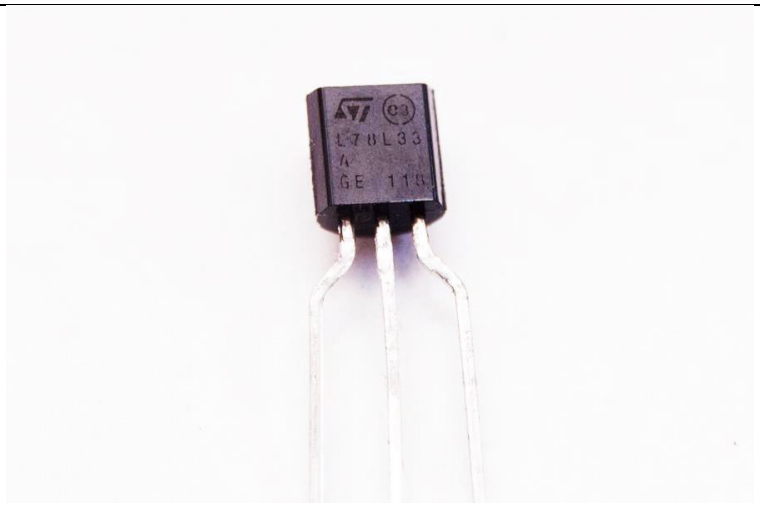
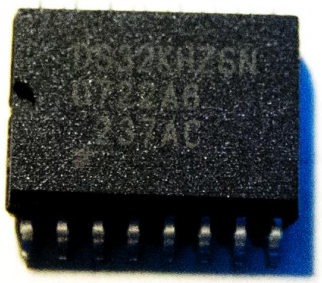
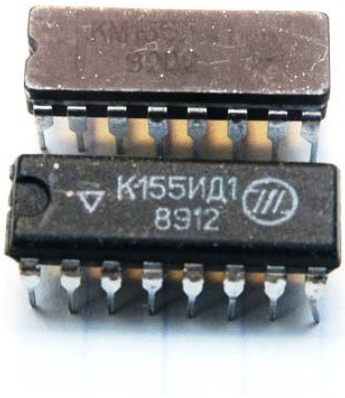
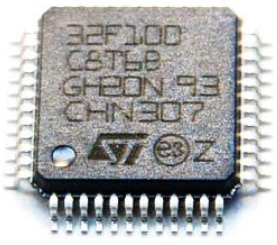
IF VALUE OF ELEMENT IN PART LIST AND ON PCB IS DEFFERENT, PLEASE USE VALUES FROM PART LIST AND SCHEMATIC.

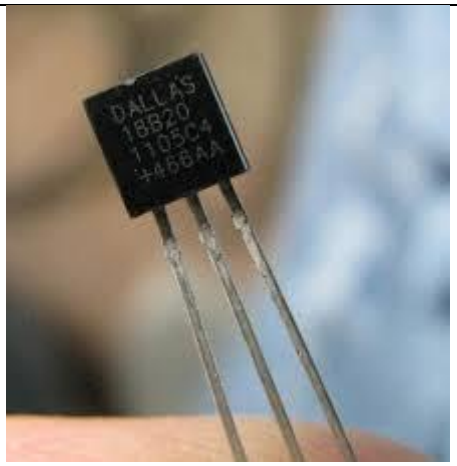
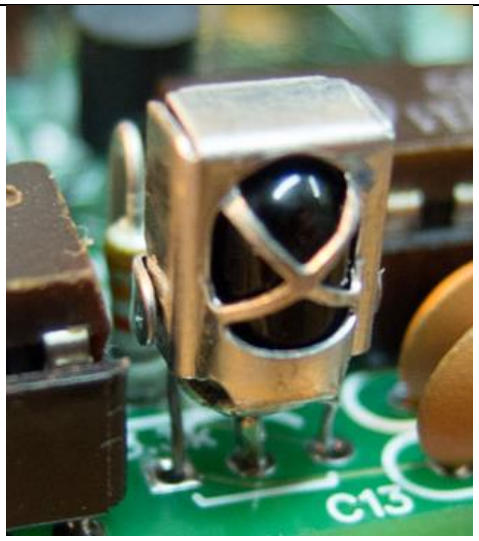
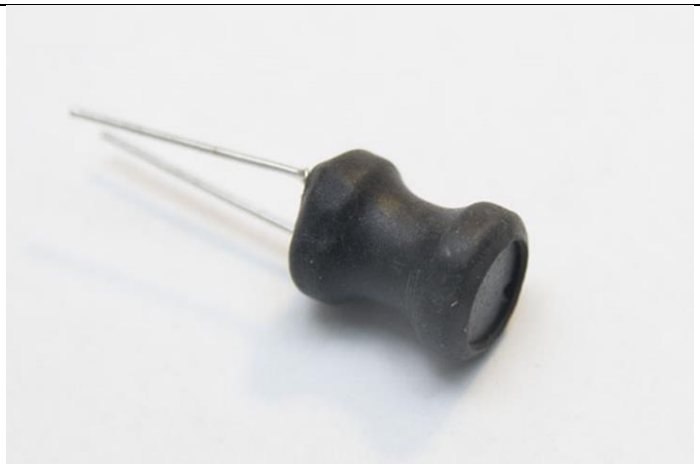
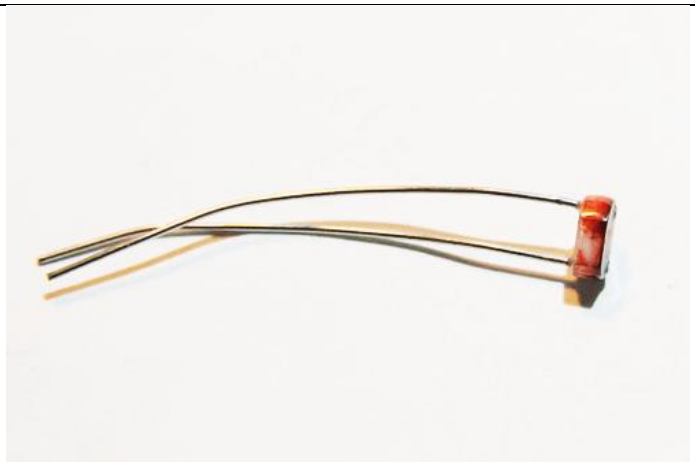
Label	Qty.	Value	Photo
B1		CR2032	
BZR1		Buzzer	
C1, C6	2	0.1uf	

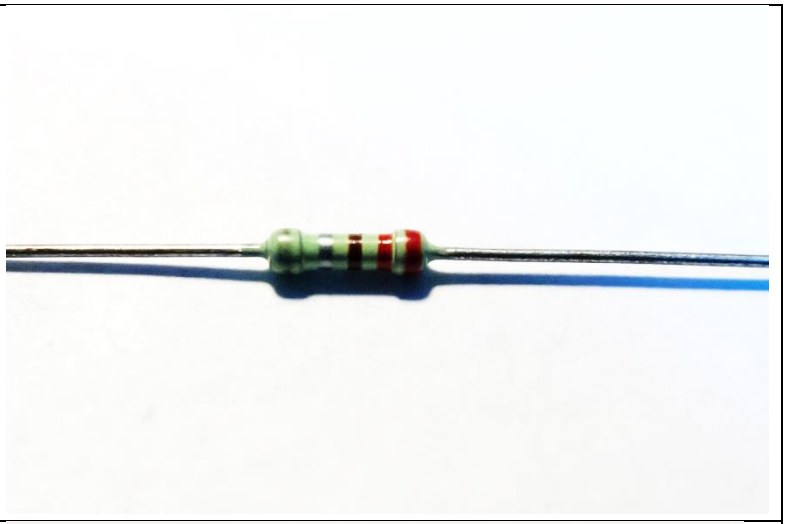
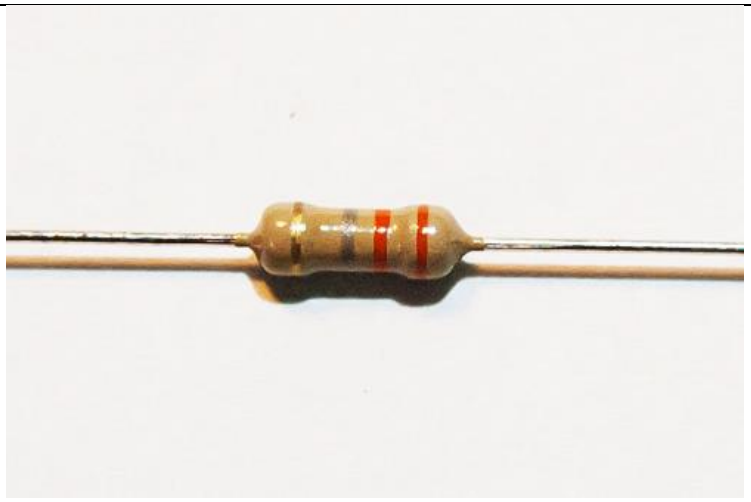
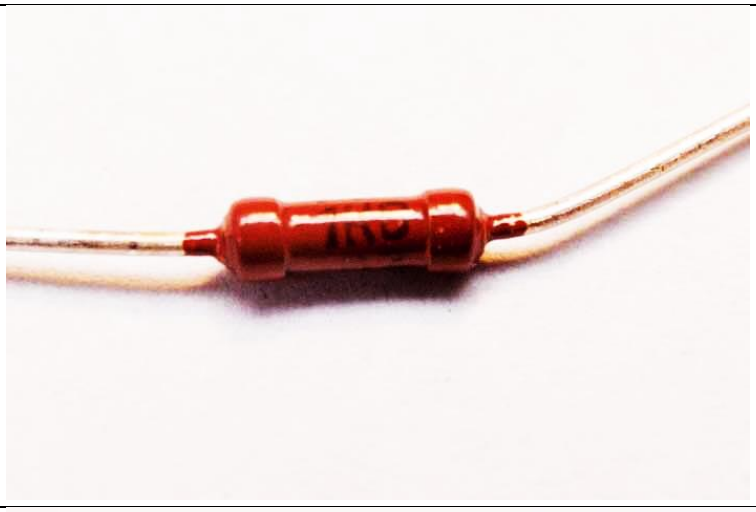
C2, C4, C5, C11, C12, C13, C15, C16	8	0.22uf	
C3, C7, C8	3	470u/10v	
C9		470u/16v	

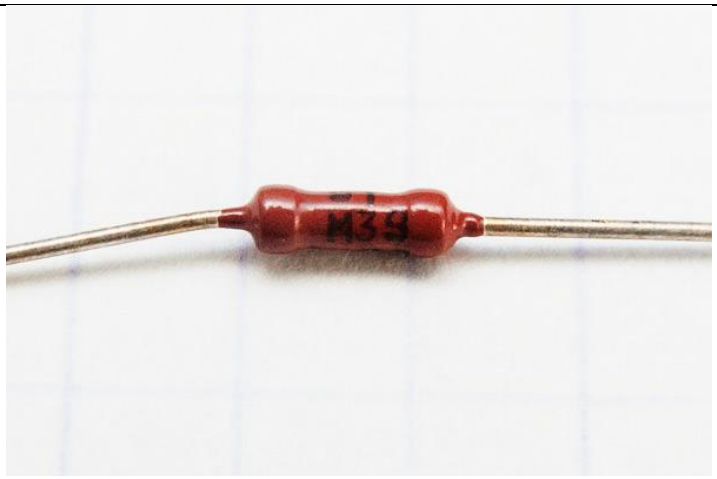
C10		2.2uf/250v 4.7uf/250v	
C14		100u/10v	
D1, D6 D5		1N4001 1N4936	
D2, D3, D4	3	Led auto	

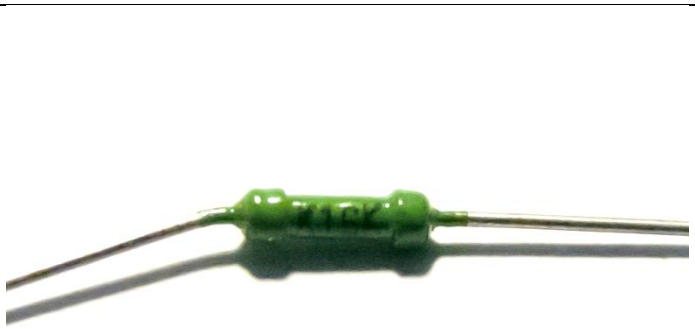
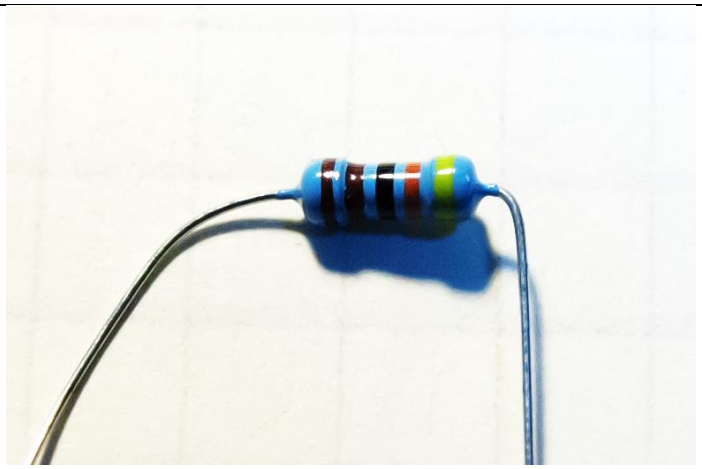
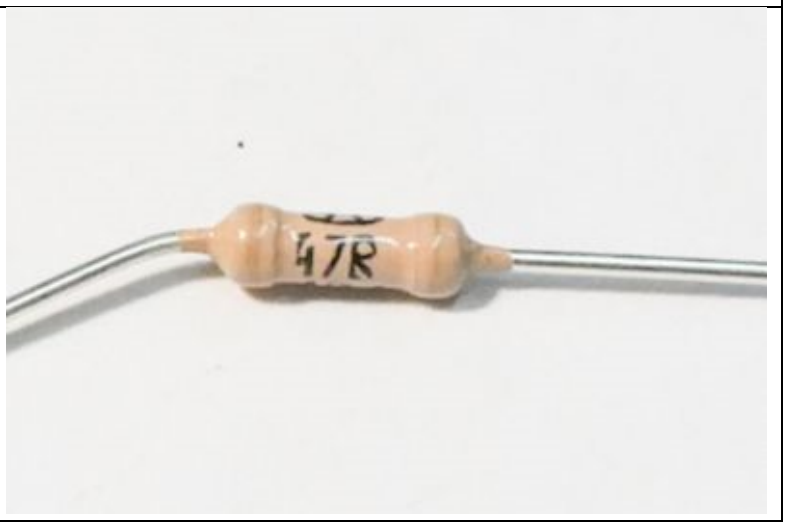
D7, D8, D9, D10, D11, D12	6	RGB Led	
IC1		L7805ABD2T	
IC2		MAX1771CSA	

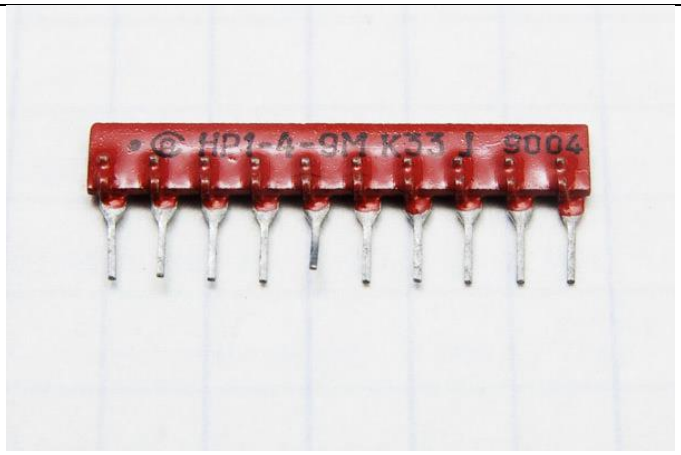
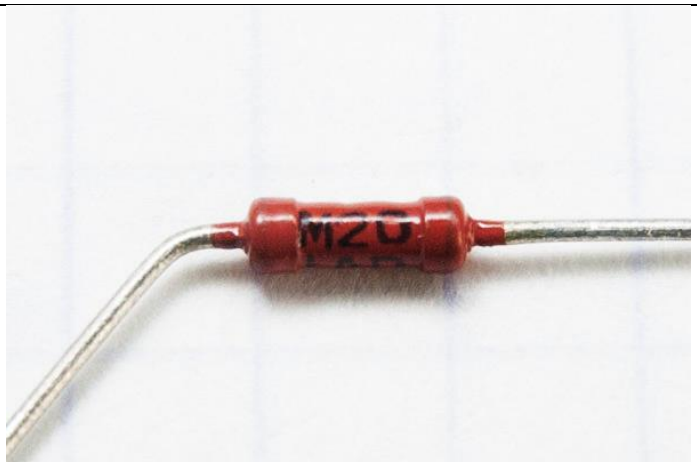
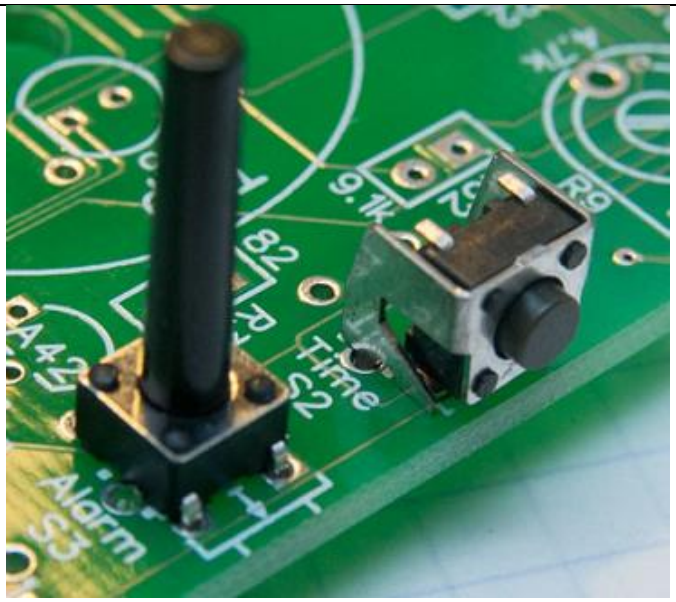
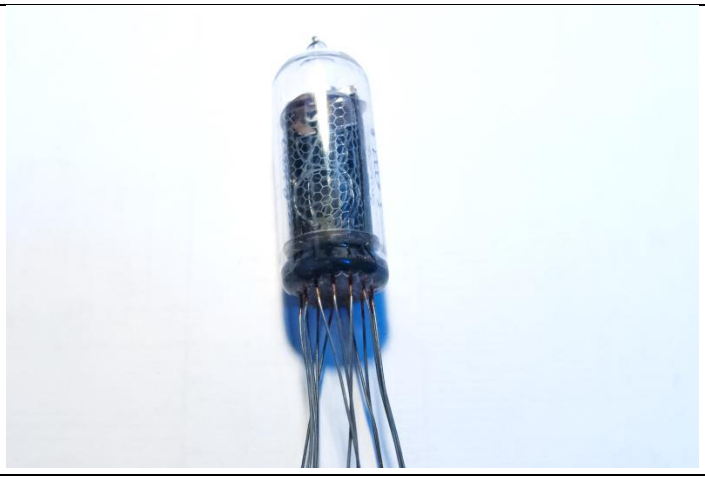
IC3		L78L33ABZ	
IC4		DS32kHz	
IC5, IC6, IC9-IC12	6	K155ID1	
IC7		STM32F100C8T	

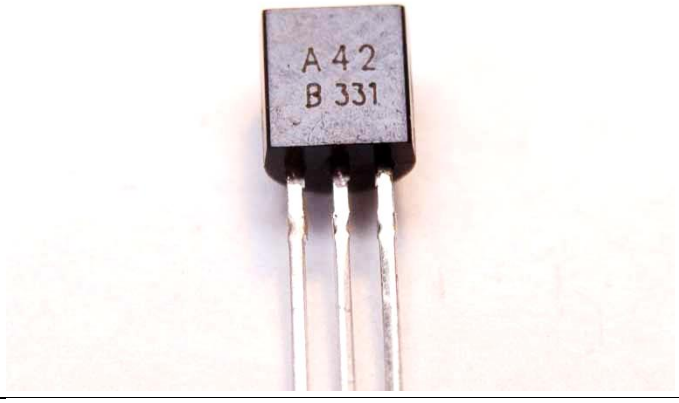
IC8		DS18B20-PAR	
IR1		IR-sensor	
L1		220uH	
PH1		SF2-1	

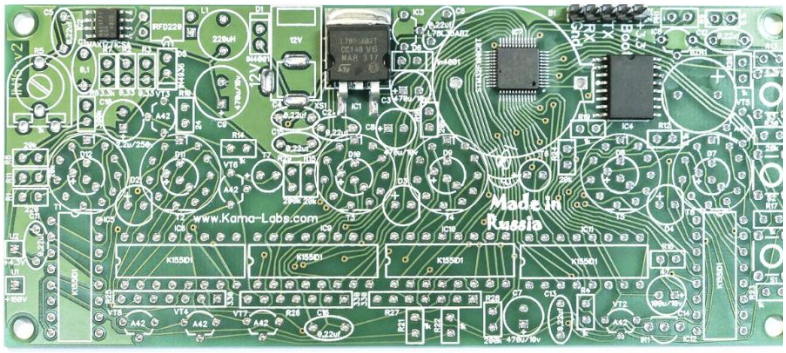
R1		220	
R2, R3	2	0,33	
R4, R14, R17, R19, R20, R21, R22, R23	8	1k	
R5 переменник		1k	

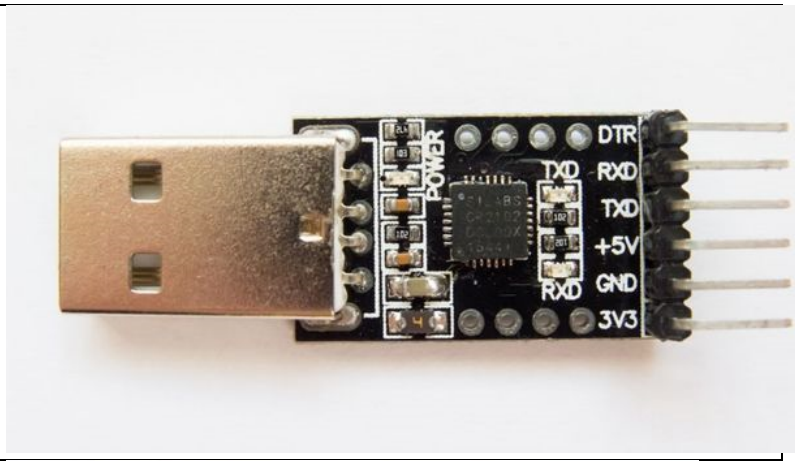
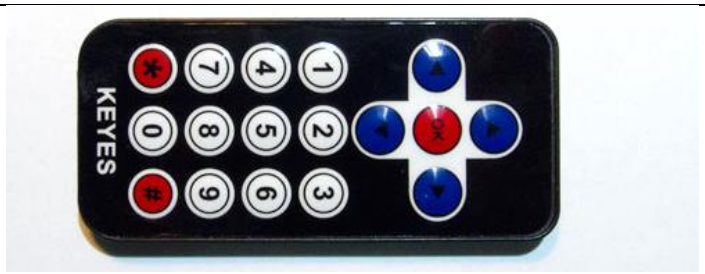
R6		390k	
R7		3.3k	
R8, R11, R15, R18, R24, R30	6	20k	
R9		300k	

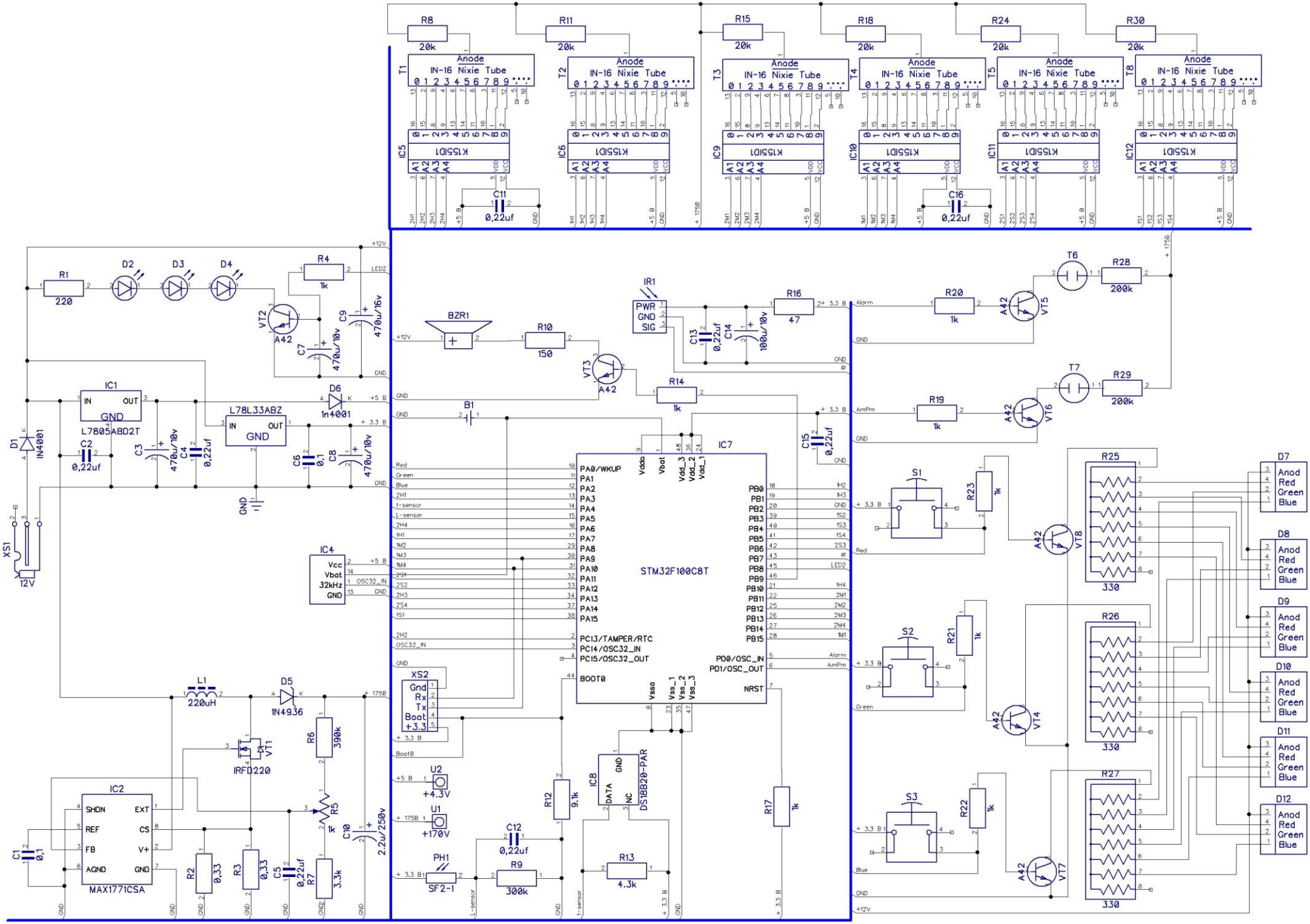
R10		150	
R12		9.1k	
R13		4.3k	
R16		47	

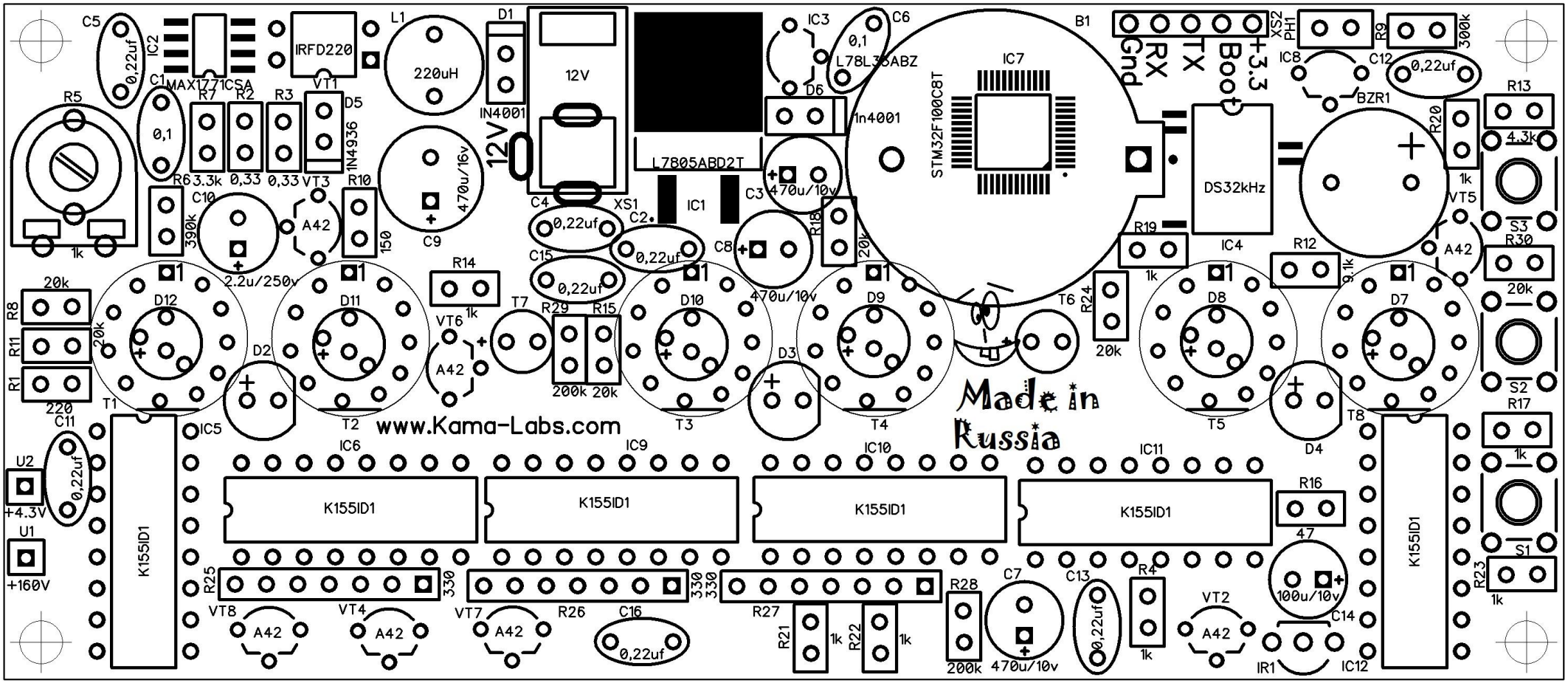
R25, R26, R27 рез.сборка	3	330	
R28, R29	2	200k	
S1-S3	3	Кнопки	
T1, T2, T3, T4, T5, T8	6	IN-16	

T6, T7	2	IN-3	
VT1		IRFD220	
VT2, VT3, VT4, VT5, VT6, VT7, VT8	7	A42	
XS1		Power plug	

Бат. Отсек CR2032			
PCB			
Case for clock			
Power source		12v / 1A	

USB-UART converter			
Remote control			


R8
20k
R11
20k
R15
20k
R18
20k
R24
20k
R30
20k
T1
T2
T3
T4
T5
T8
Anode
IN-16 Nixie Tube
0 1 2 3 4 5 6 7 8 9
IC5
IC6
IC9
IC10
IC11
IC12
K155ID1
A1 A2 A3 A4
VDD VCC
C11
0,22uf
C16
0,22uf
+5 B
GND
+ 175B
R1
220
D2
D3
D4
R4
1k
+12V
LED2
VT2
A42
C7
470u/10v
C9
470u/16v
GND
IC1
IN
OUT
GND
L7805ABD2T
L78L33ABZ
D6
1n4001
+ 3,3 B
D1
IN4001
C2
0,22uf
C3
470u/10v
C4
0,22uf
C6
0,1
C8
470u/10v
XS1
12V
IC4
Vcc
Vbat
32kHz
GND
OSC32_IN
BZR1
R10
150
VT3
A42
IR1
PWR
GND
SIG
C13
0,22uf
C14
100u/10v
R16
47
R14
1k
B1
C15
0,22uf
IC7
STM32F100C8T
Vdda
Vbat
Vdd_3
Vdd_2
Vdd_1
Vssa
Vss_1
Vss_2
Vss_3
PA0/WKUP
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PA10
PA11
PA12
PA13
PA14
PA15
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PB8
PB9
PB10
PB11
PB12
PB13
PB14
PB15
PC13/TAMPER/RTC
PC14/OSC32_IN
PC15/OSC32_OUT
PD0/OSC_IN
PD1/OSC_OUT
BOOT0
NRST
Red
Green
Blue
2H1
t-sensor
L-sensor
2H4
1H1
1M2
1M3
1M4
2S1
2S2
2H3
2S4
1S1
2H2
1H2
1H3
1S2
1S3
1S4
2S3
IR
LED2
1H4
2M1
2M2
2M3
2M4
1M1
Alarm
AmPm
XS2
Gnd
Rx
Tx
Boot
+3.3
Boot0
L1
220uH
D5
1N4936
VT1
IRFD220
R6
390k
IC2
SHDN
REF
FB
AGND
EXT
CS
V+
GND
MAX1771CSA
R5
1k
C10
2,2u/250v
C1
0,1
R2
0,33
R3
0,33
C5
0,22uf
R7
3,3k
U2
+4.3V
U1
+170V
PH1
SF2-1
C12
0,22uf
R9
300k
R12
9,1k
IC8
DATA
GND
NC
DS18B20-PAR
R13
4,3k
R17
1k
T6
R28
200k
R20
1k
T7
R29
200k
R19
1k
S1
S2
S3
R23
1k
R21
1k
R22
1k
VT5
VT6
VT8
VT4
VT7
R25
R26
R27
330
D7
D8
D9
D10
D11
D12
Anod
Red
Green
Blue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Made in Russia
STM32F100C8T
L7805ABD2T
L78L33ABZ
MAX1771CSA
IRFD220
IN4001
1N4936
12V
220uH
DS32kHz
K155ID1
RX
TX
Boot
Gnd
+3.3
+4.3V
+160V
BZR1
IR1