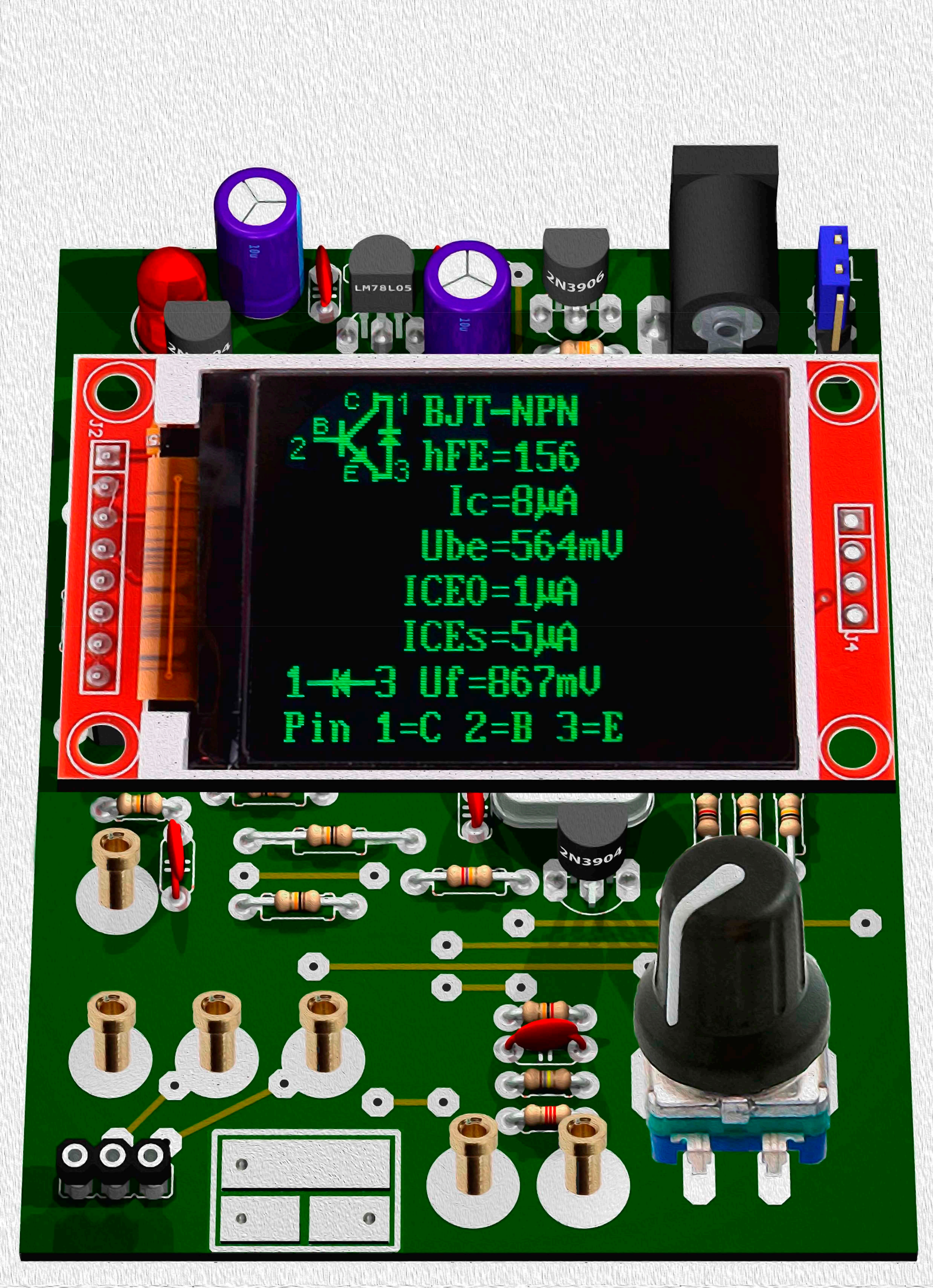
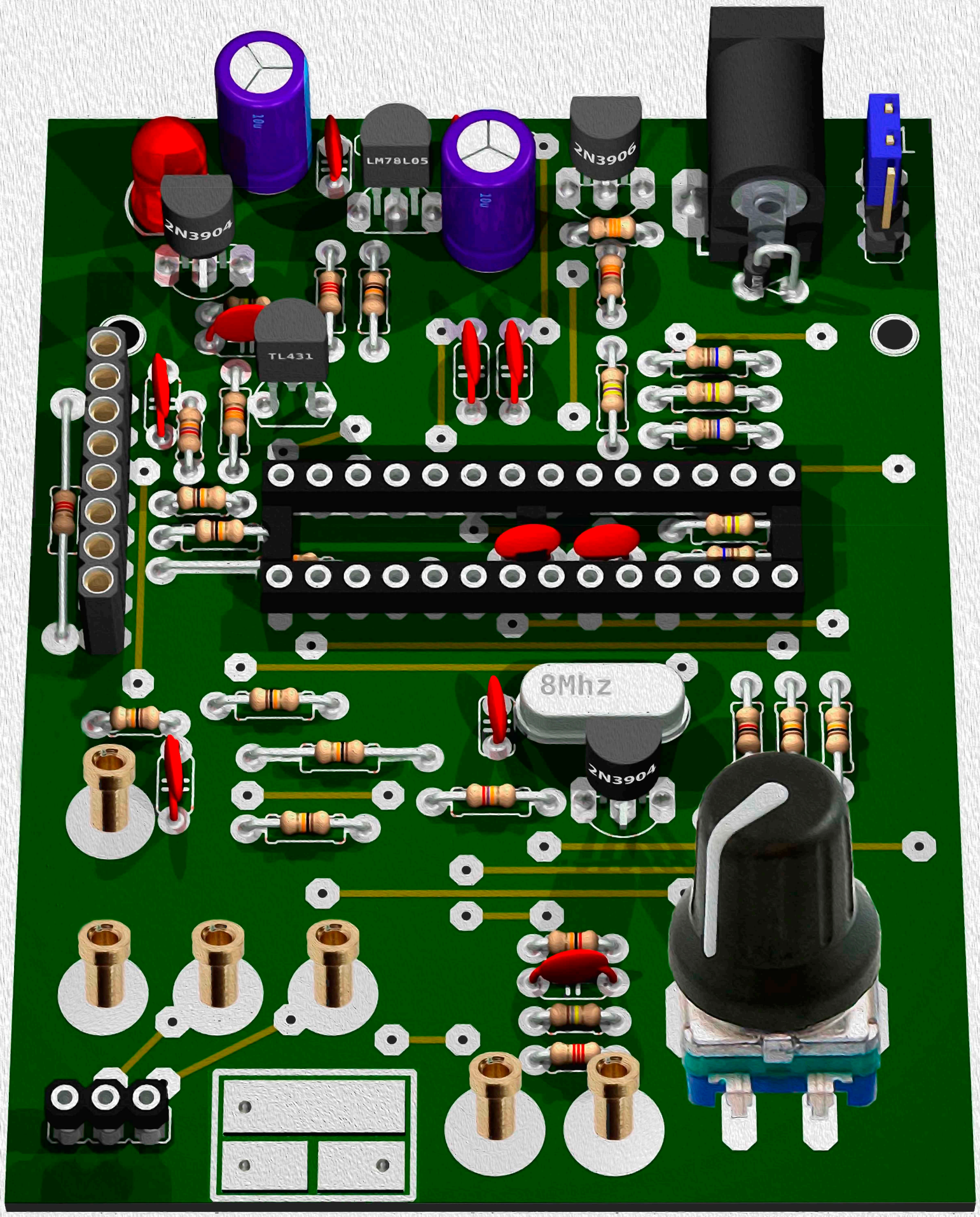
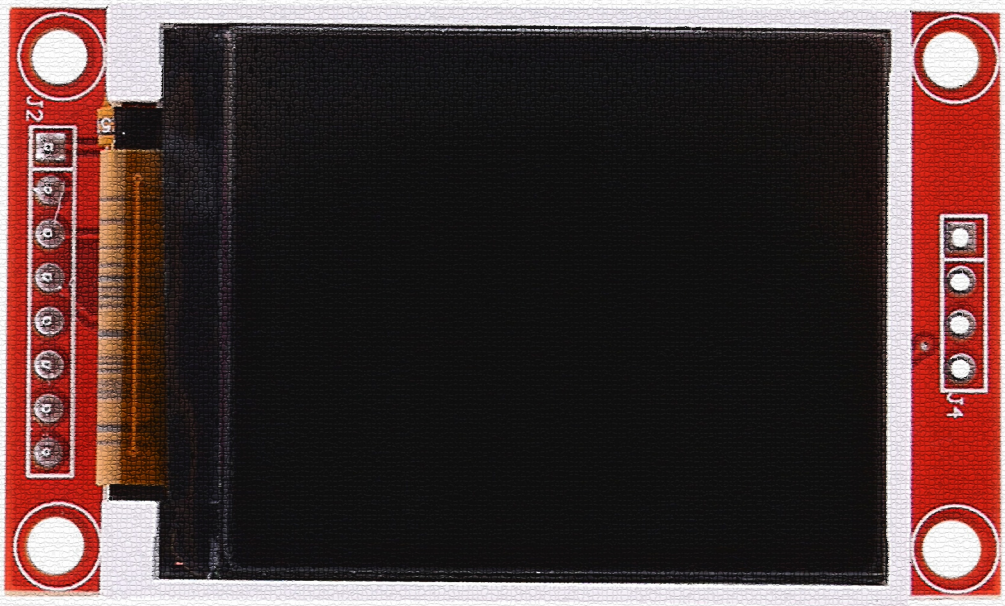
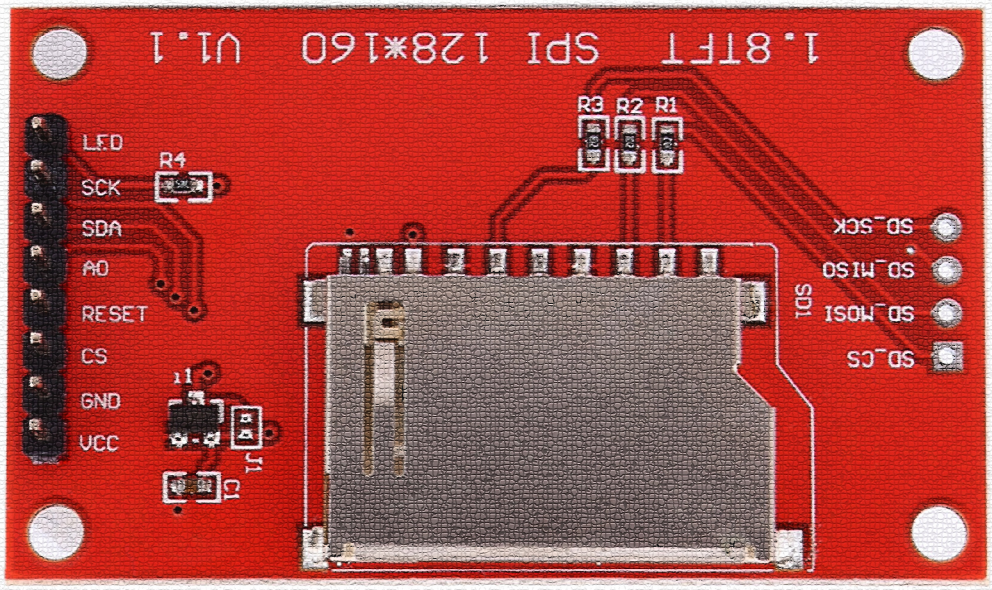

LM78L05
2N3906
2N3904
C
B
E
1
2
3
BJT-NPN
hFE=156
Ic=8µA
Ube=564mV
ICEO=1µA
ICEs=5µA
1 3 Uf=867mV
Pin 1=C 2=B 3=E


10u
LM78L05
10u
2N3906
2N3904
TL431
8Mhz
2N3904

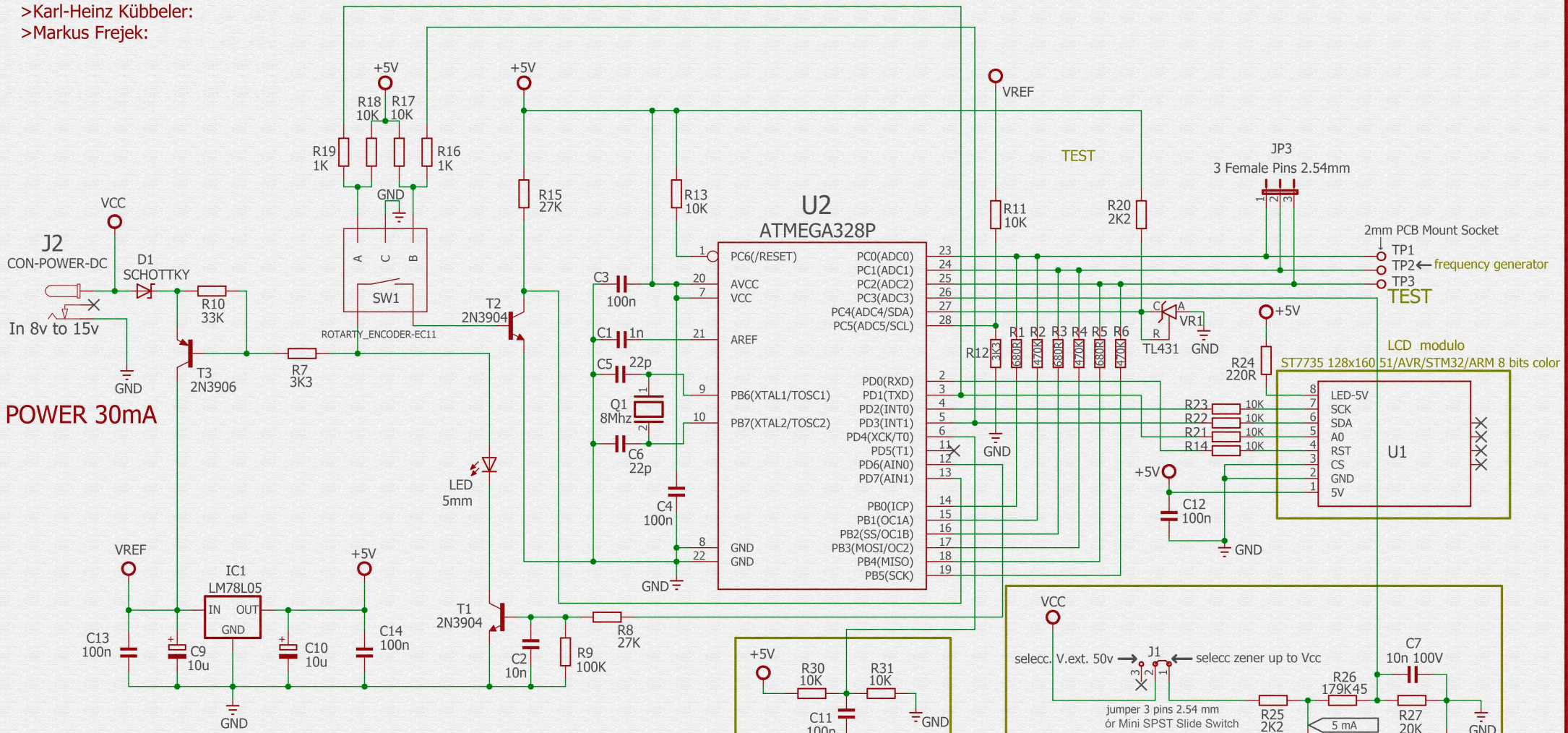
Display ST7735 128x160 51/AVR/STM32/ARM 8 bits color





Based on code fron:

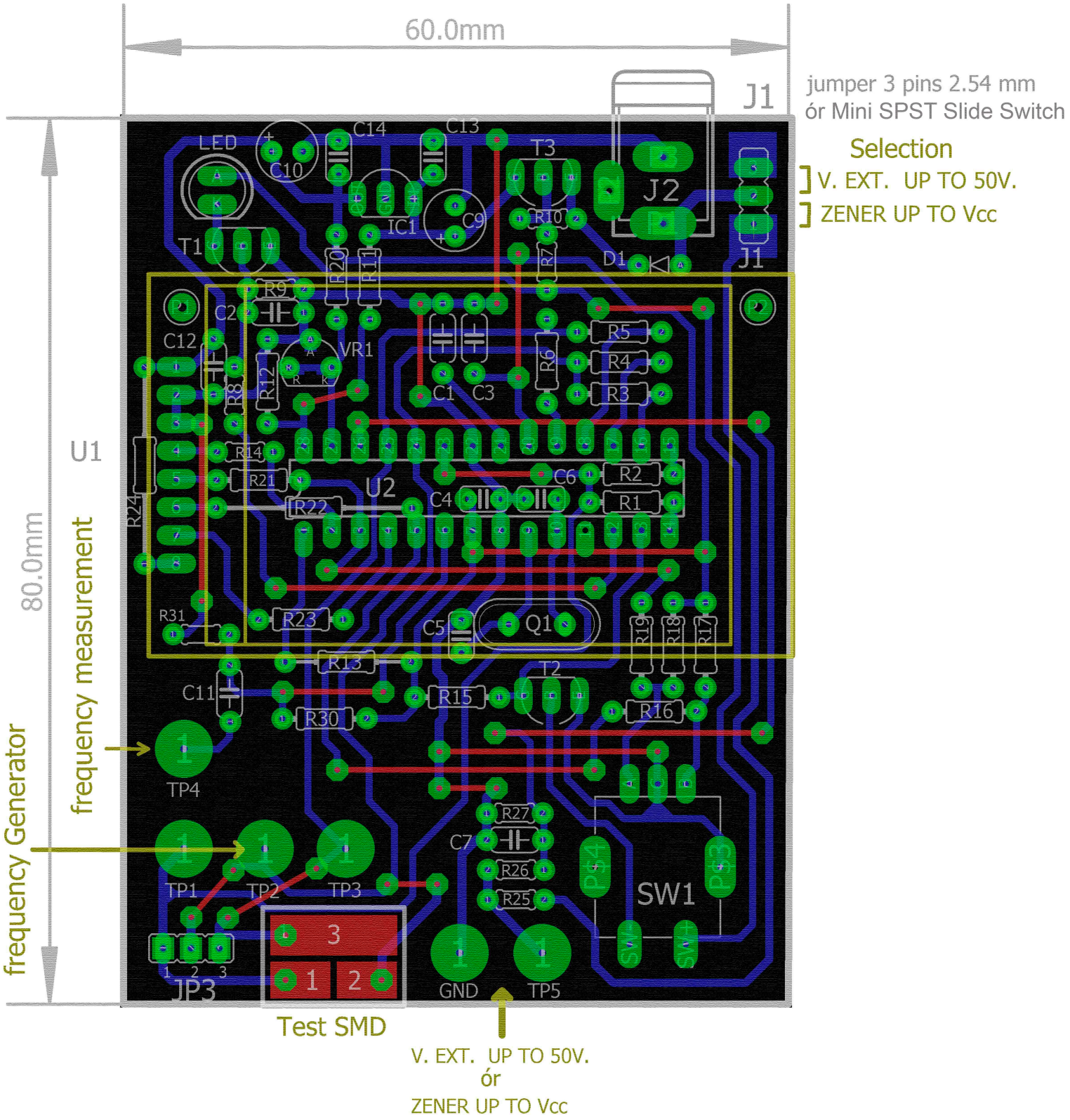
>Markus Reschke:
>Karl-Heinz Kübbeler:
>Markus Frejek:



PROYECT: AVR-TRANSISTOR TESTER	
Hardware AVR-Transistortester M328	software mega328_color_kit

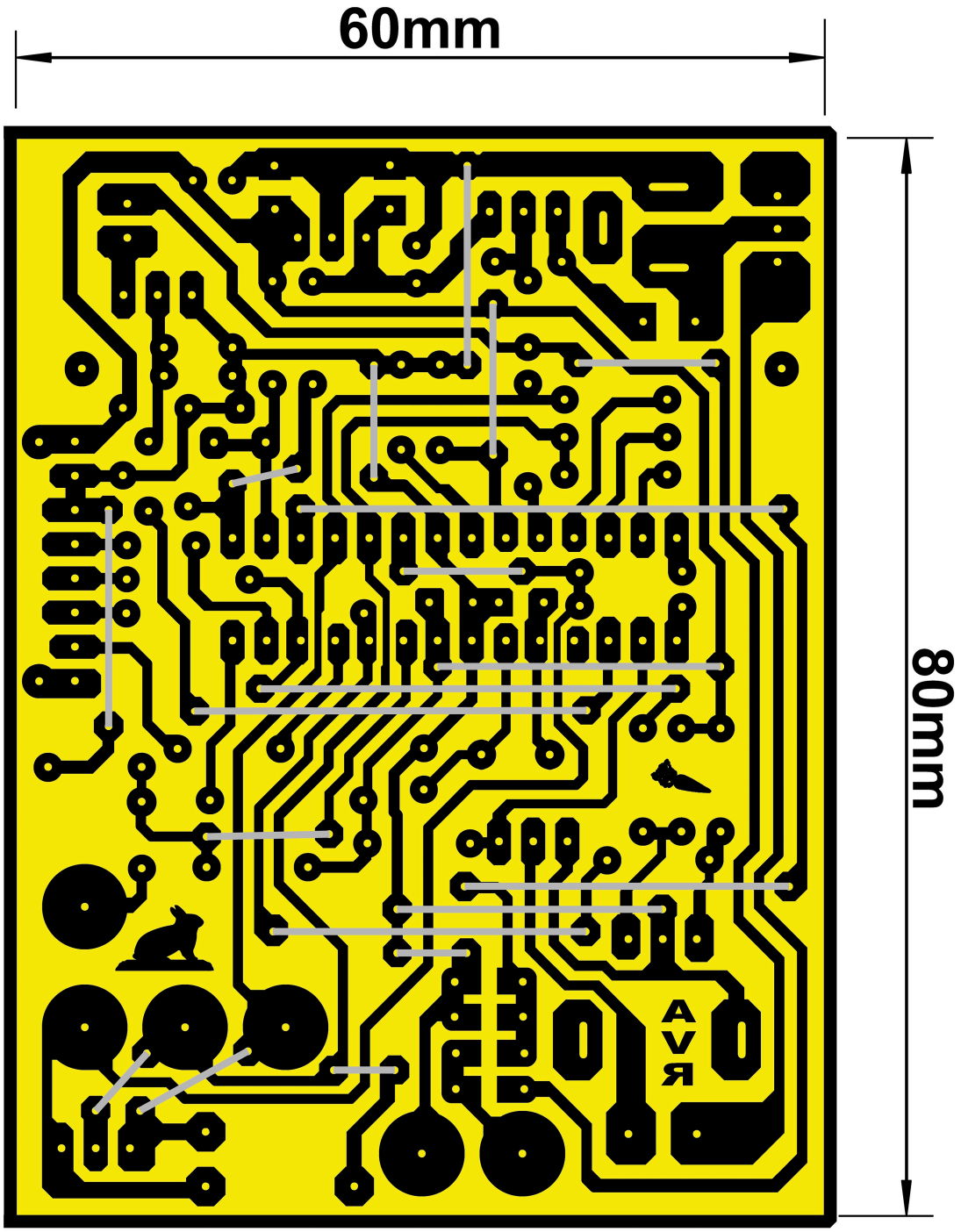
U1

Display ST7735 128x160 51/AVR/STM32/ARM 8 bits color

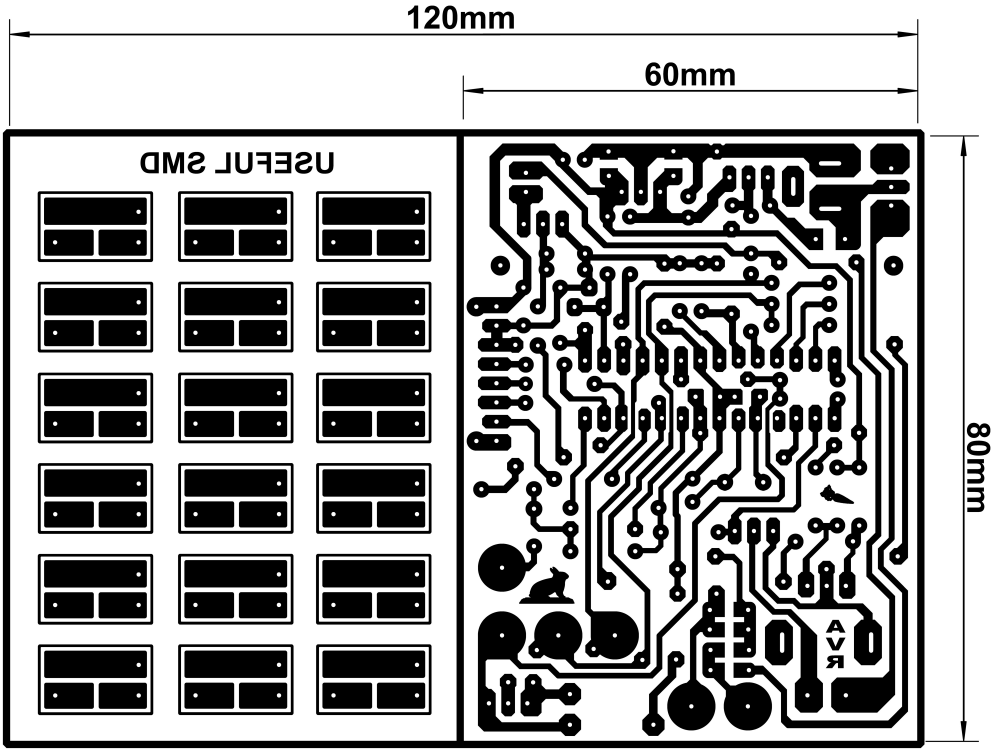


AVR - TRANSISTOR TESTER M328

Bridge layout



PCB
AVR-Transistortester



resolution 1200 ppp

LIST OF COMPONENTS "T.tester M328

designator	Component Name	Component value	№
R16, R19	resistor	1KΩ 1/4W	2
R20, R25	resistor	2.2KΩ	2
R12 ,R7	resistor	3.3KΩ	2
R11, R13, R17, R18, R21, R22, R23, R30	resistor	10KΩ	8
R27	resistor	20KΩ	1
R8, R15	resistor	27KΩ	2
R10	resistor	33KΩ	1
R9	resistor	100KΩ	1
R26	resistor	179K45	1
R24	resistor	220Ω 1/4W	1
R2, R4, R6	resistor	470KΩ 1%	3
R1,R3,R5	resistor	680Ω 1% 1/4W	3
Q1	Quartz crystal 3mm	8Mhz	1
C5 ,C6	Ceramic disc capacitors	22pF	2
C1	ceramic capacitor Multilayer	1000pF	1
C7	ceramic capacitor Multilayer	10nF 100v	2
C2	ceramic capacitor Multilayer	10nF	2
C3, C11, C12	ceramic capacitor Multilayer	100nF	3
C9,C10	Aluminum electrolytic capacitor	10uF	2
T3	bipolar junction transistor	PNP TO92	1
T1, T2	bipolar junction transistor	NPN TO92	2
IC1	Voltage Regulator	LM78L05 TO-92	1
WR1	Precision References	TL431 TO92 or SMD	1
board PCB	board PCB	60 * 80MM	1
JP3	3 Female Pins	2.54mm	1
LED	Light Emitting Diode	Φ5MM	1
TP1,TP2,TP3, TP4, TP5, TP6	2mm PCB Mount Socket	2mm	6
J2	DC jack Power	5.5 - 2.1MM	1
SW1	rotary encoder with switch EC-11	steps 20 - 24 - 30	1
J1	Jumper 3 male Pins 2.54mm or Mini SPST Slide Swinch	Lead space 2.54MM	1
U1	pin header and Female Header	8 Pins	1
LCD modulo 1.8"_TFT	ST7735 128x160 51/AVR/STM32/ARM 8 bits color		1
U2	SOCKET_DIP28		1
microcontroler	ATMEGA328P-PU		1