In order to making use of TPS61194 for the Backlight of Automobile. However there are some design issues about the TPS61194-Q1. Would you like to help me figure out several factors that contribute to the above questions?

Q1: Why LCD screen blink both in the state of PWM<20% and in the state of PWM>70%?

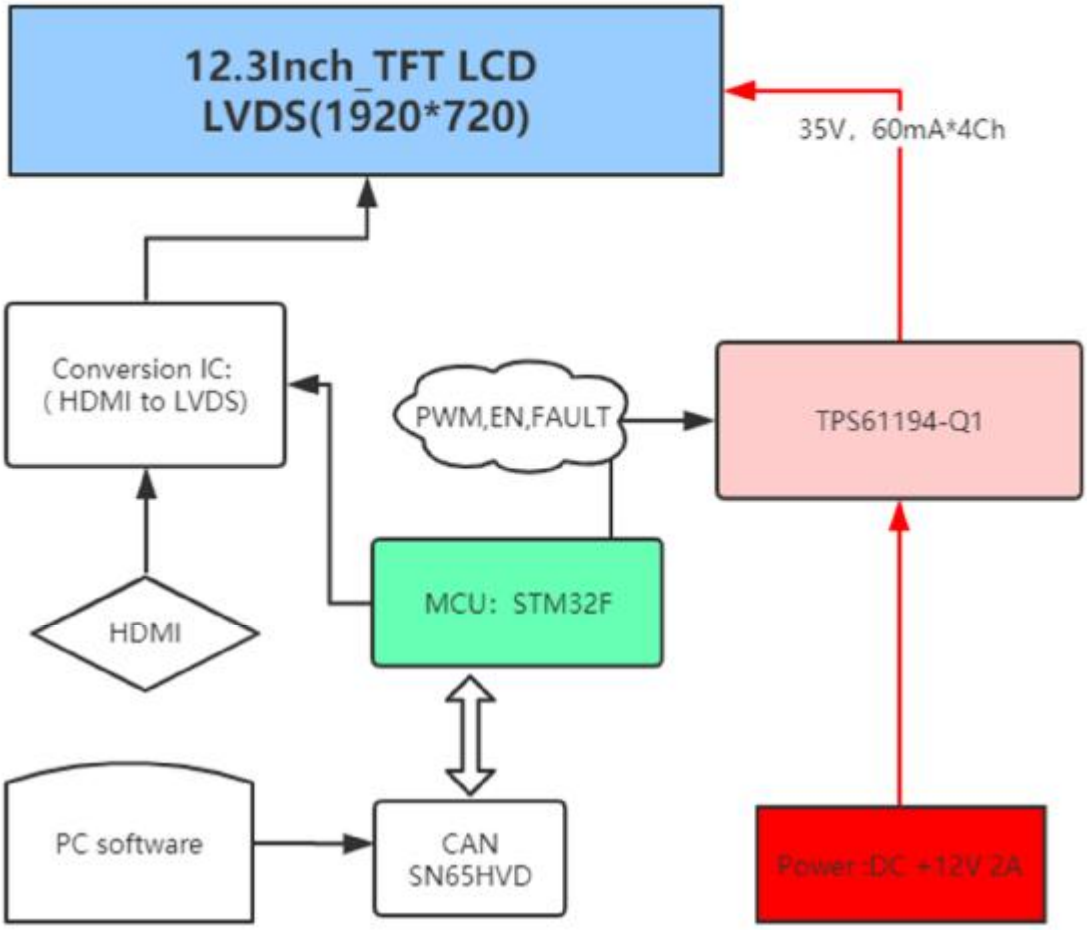
RE: ?

Q2: What's trigger the table phenomenon?

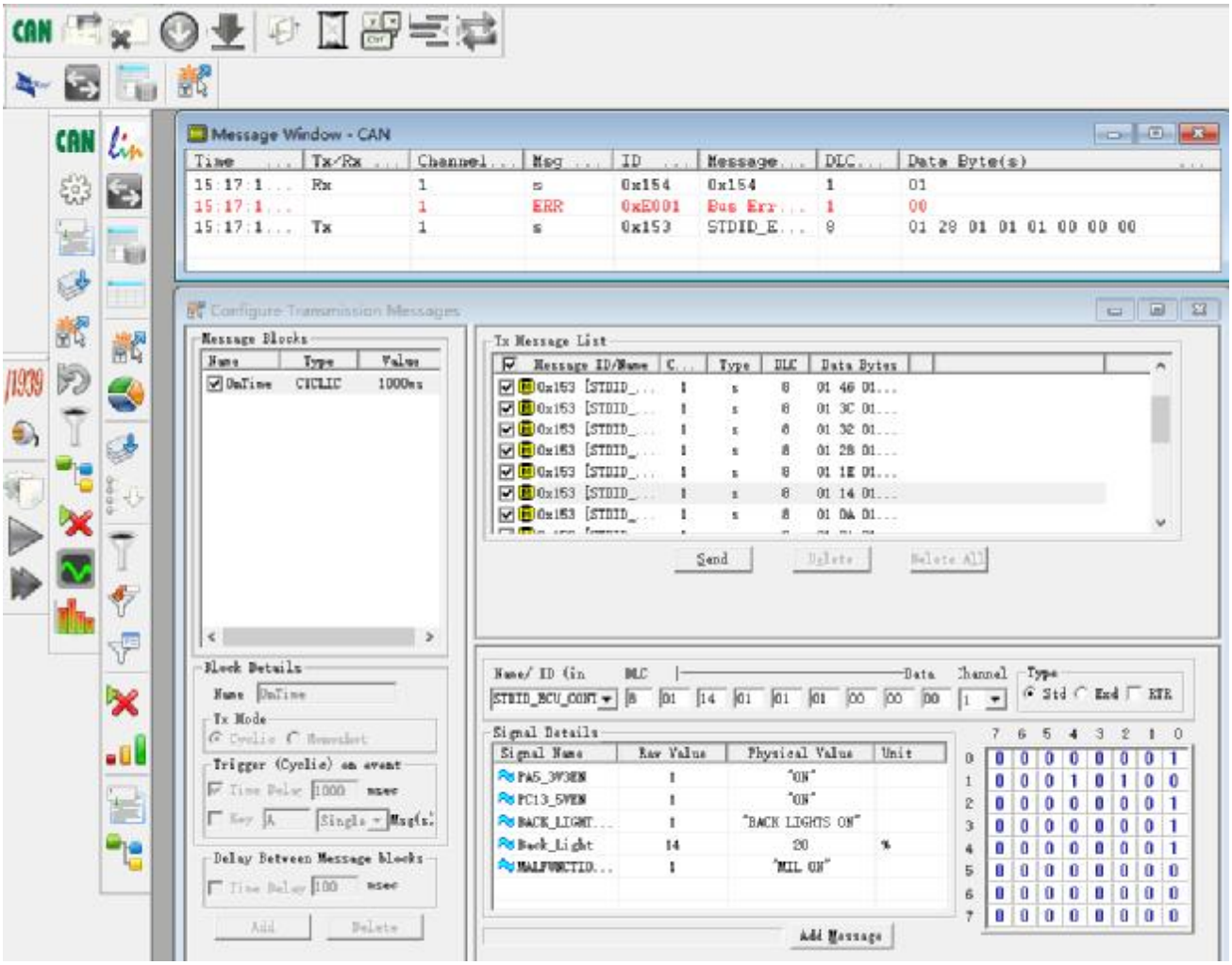
The LCD screen	PC software		
Normal state (no blinking)	Step 1、set PWM=75% from PWM=70% Step 2、set EN=0,then set EN=1（3.3V）		
Off normal state (blinking)	Step 1、set EN=0,then set EN=1（3.3V） Step 2、set PWM=75% from PWM=70%		

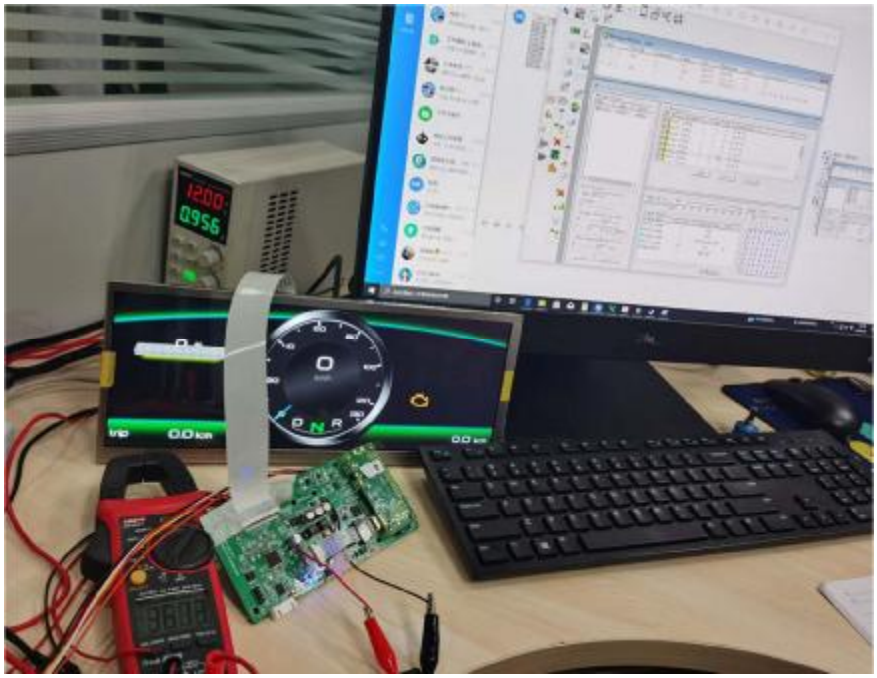
RE: ?

Framework Diagram:


12.3Inch_TFT LCD
LVDS(1920*720)
35V，60mA*4Ch
Conversion IC:
(HDMI to LVDS)
PWM,EN,FAULT
TPS61194-Q1
HDMI
MCU：STM32F
PC software
CAN
SN65HVD
Power :DC +12V 2A

PC software:





Backlight Unit: （LED：11S4P）

6.4 Backlight Unit

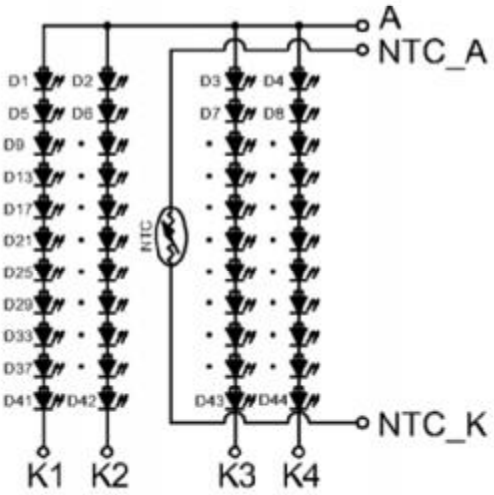
Parameter	Symbol	Min	Typ	Max	Units	Condition
LED Current	I_F	--	240	--	mA	Ta=25℃
LED Voltage	V_F	--	35.2	37.4	Volt	Ta=25℃
LED Life-Time	N/A	30,000	--	--	Hour	Ta=25℃ I_F=60mA Note (2)

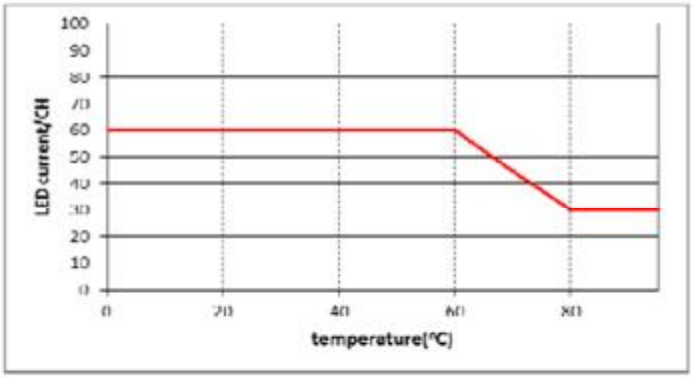
Note (1) LED life time (Hr) can be defined as the time in which it continues to operate under the condition: Ta=25±3 °C, typical IL value indicated in the above table until the brightness becomes less than 50%.

Note (2) The "LED life time" is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and IL= 240 mA. The LED lifetime could be decreased if operating IL is larger than TDB mA. The constant current driving method is suggested.

Note (3) LED Light Bar Circuit 11S4P =44pcs LED

Note (4) LED temperature current curve, The temperature at 60 degrees before the output 60mA / CH, 60 degrees to 80 degrees when the linear drop to 30mA.

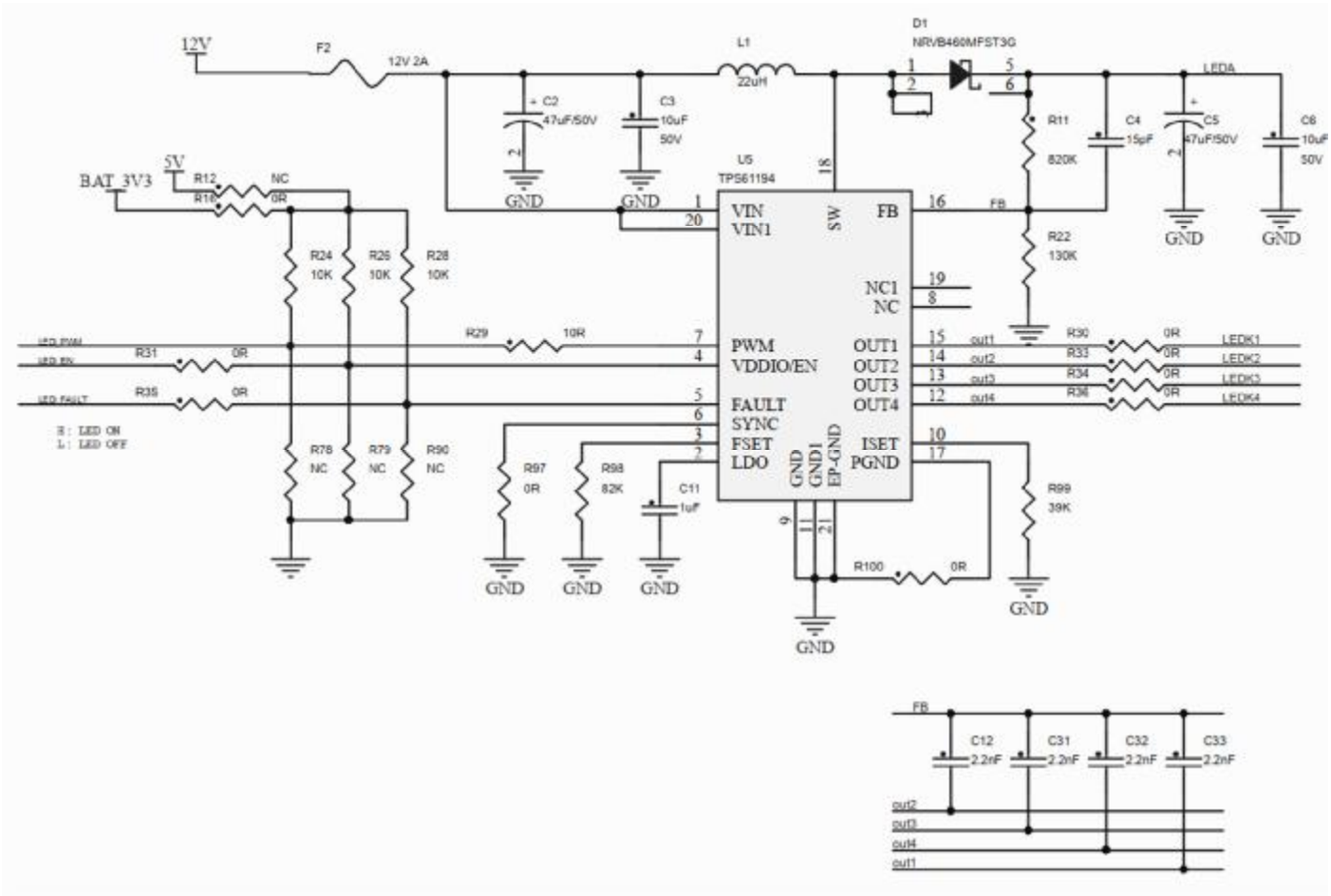




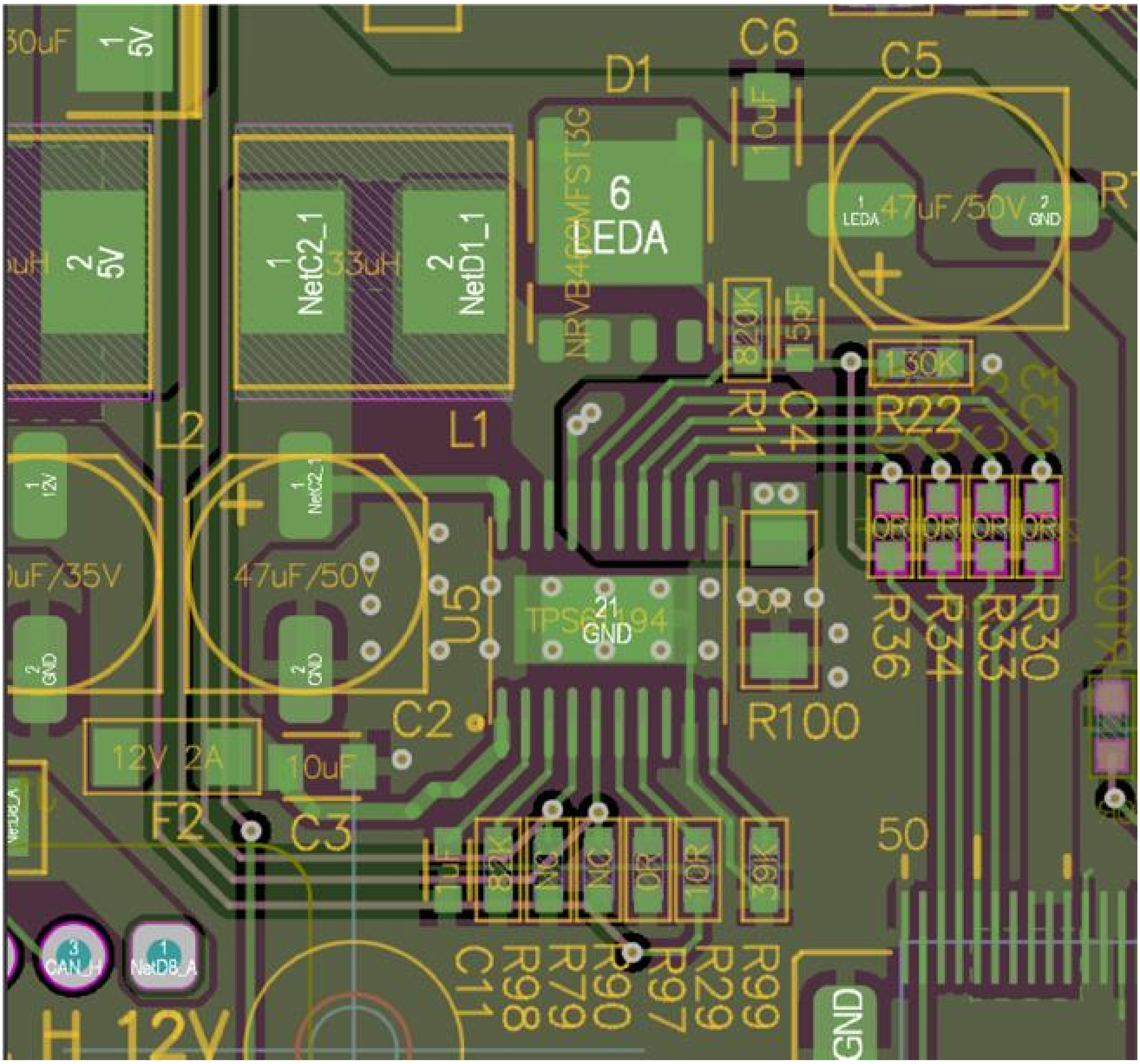
38	GND	Power Ground
39	GND	Power Ground
40	NC	No connector
41	LEDA	LED power (Anode)
42	LEDA	LED power (Anode)
43	LEDA	LED power (Anode)
44	NC	No connector
45	LEDK1	Cathode 1
46	LEDK2	Cathode 2
47	LEDK3	Cathode 3
48	LEDK4	Cathode 4
49	NTC_A	Thermistor input
50	NTC_K	Thermistor Feedback

Note: NTC Parts: Murata NCP18XH103F03RB

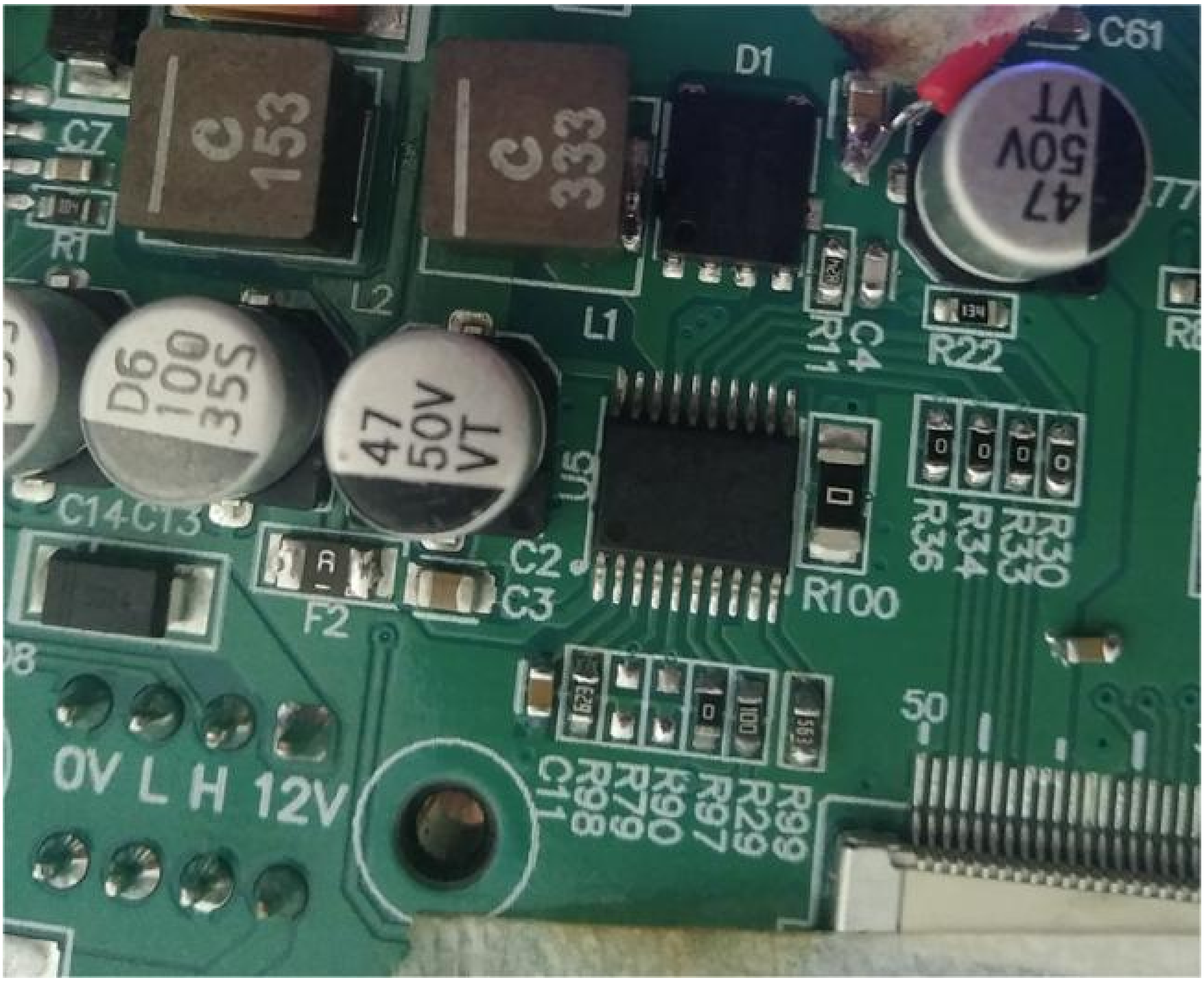
Schematic:



PCB:



C6
C5
D1
6
LEDA
47uF/50V
10uF
33uH
NetC2_1
NetD1_1
5V
L1
L2
R22
130K
C4
R11
15pF
R100
R36
R34
R33
R30
C2
C3
F2
12V 2A
U5
21
GND
C11
R98
R79
R90
R97
R29
R99
82K
39K
50
CAN_H
NetDB_A
12V



D1
C61
C7
R1
L2
L1
R11
C4
R22
C14
C13
U5
C2
C3
F2
R100
R36
R34
R33
R30
0V L H 12V
C11
R98
R79
R90
R97
R29
R99
50