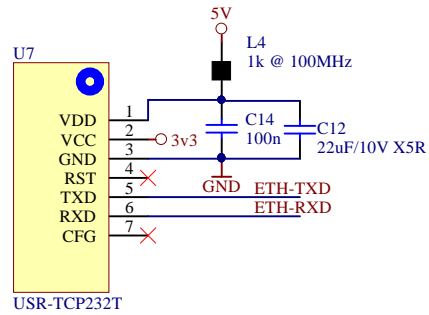
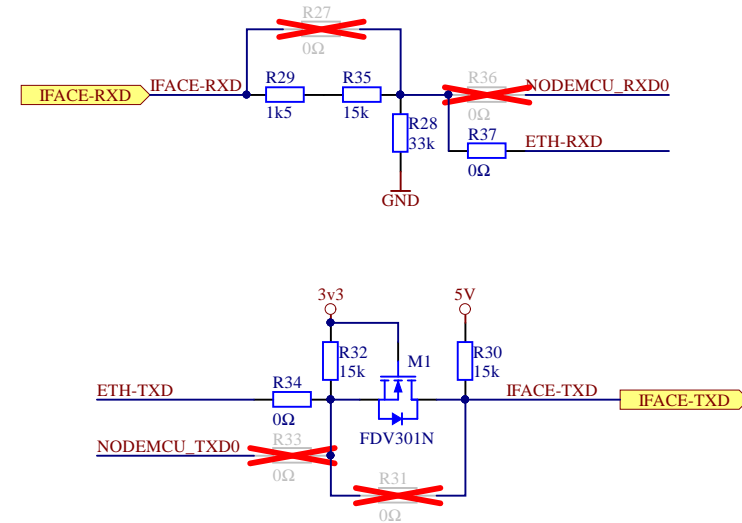


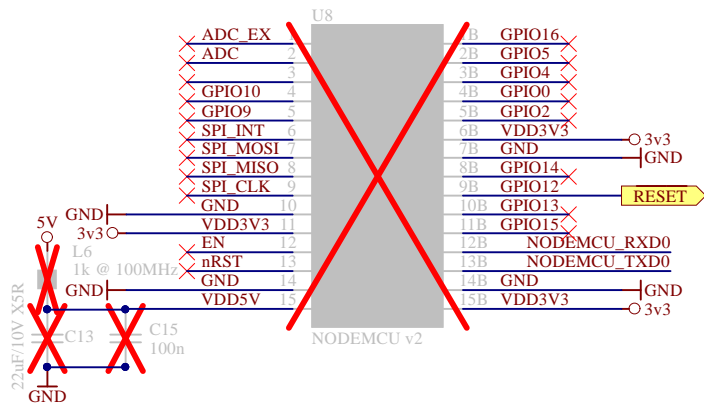
## USR-TCP232T ethernet module



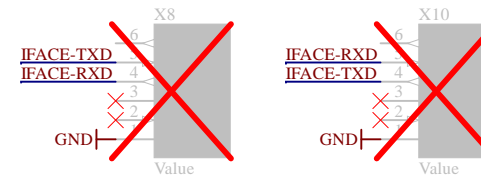
## Optional TxD/RxD 5v <-> 3v3 level translator



## NodeMCU v2 WiFi module



## FTDI cable debug headers



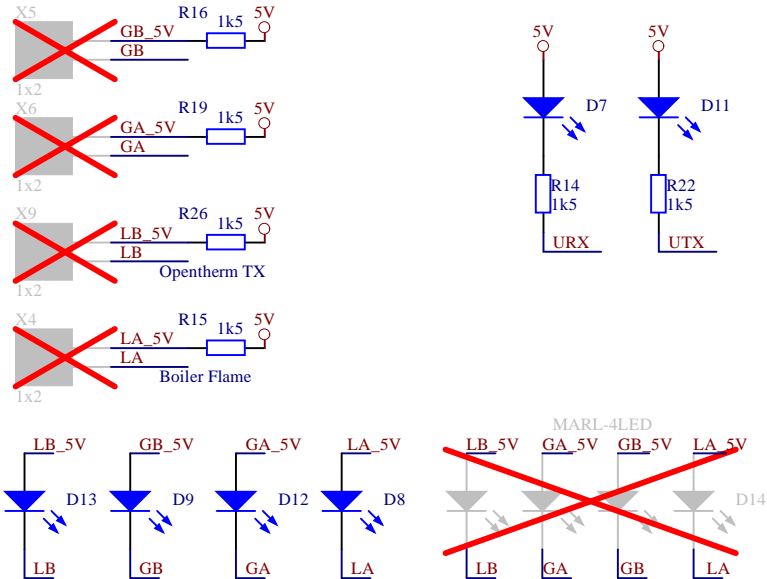
1

2

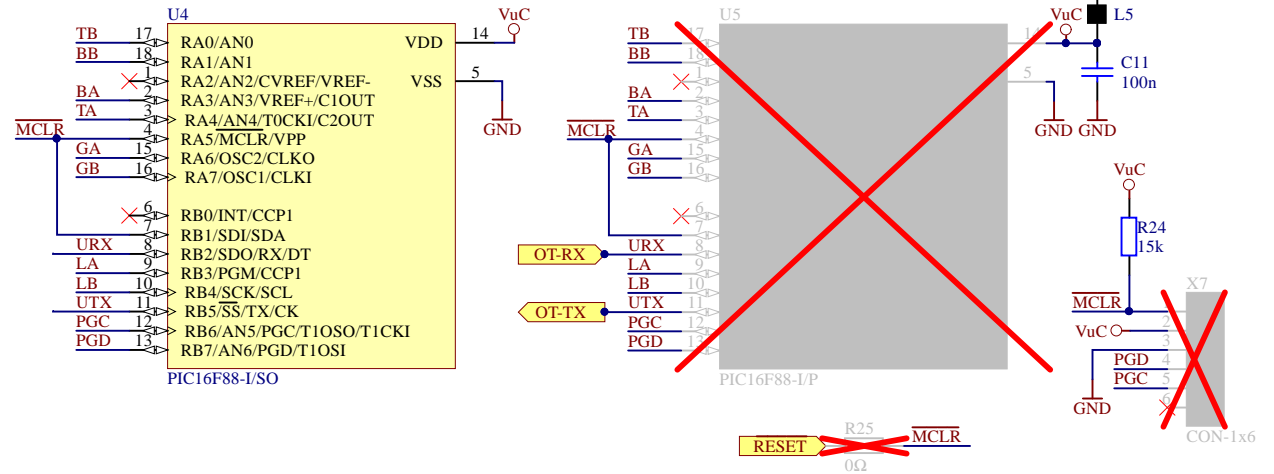
3

4

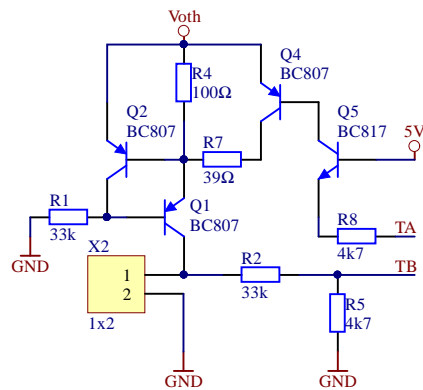
## LED's and optional IO



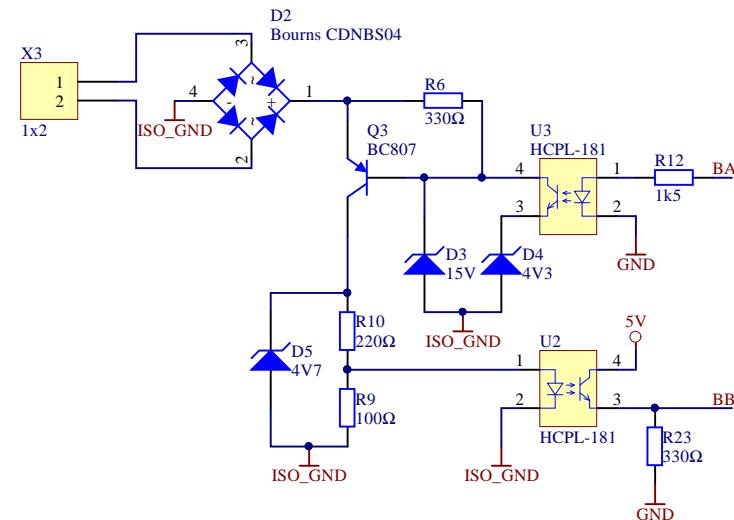
## OpenTherm microcontroller



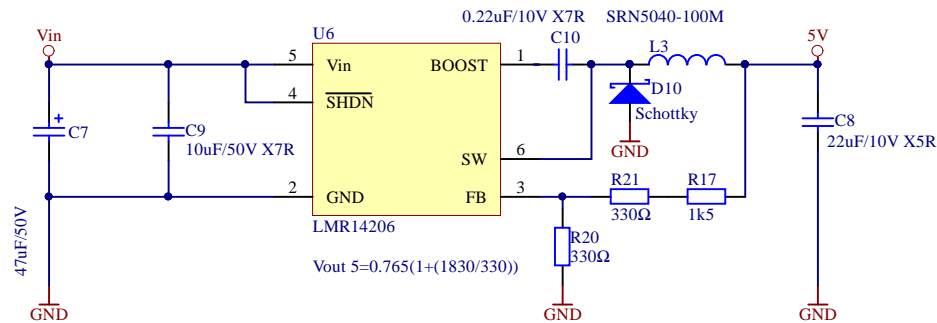
## OpenTherm Thermostat interface



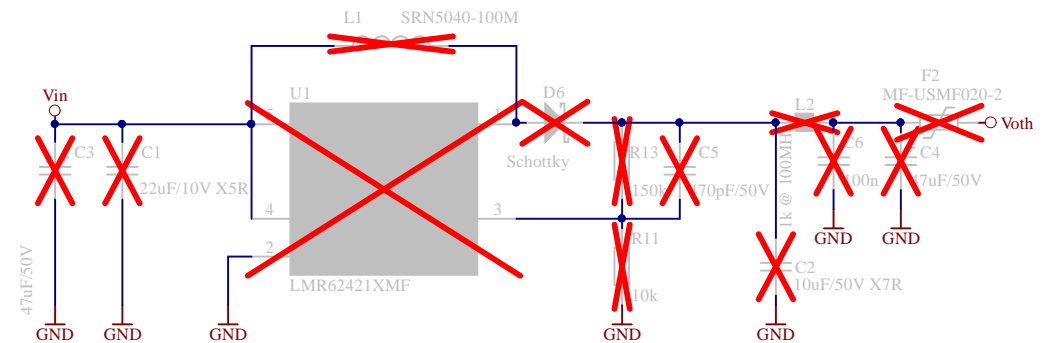
## OpenTherm Boiler interface



## 15-24V Input -> 5v buck converter



## 5-12V Input -> 20v (for OpenTherm) boost converter



## Input power options

Power options:

Option 1: 5V input on connector or NodeMCU usb connector

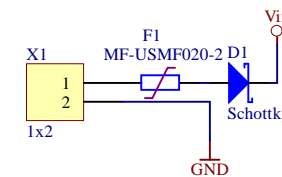
Needed: Boost converter for 20V OpenTherm voltage.

Option 2: 15-24V input on connector (for example from boiler)

Needed: Buck converter for 5V, input voltage is used for OpenTherm voltage

Option 3: 6-12V input on connector

Needed: Boost converter for 20V OpenTherm voltage  
+ Buck converter for 5V electronics voltage.



Option 1 (not nodeMCU)



Option 2

