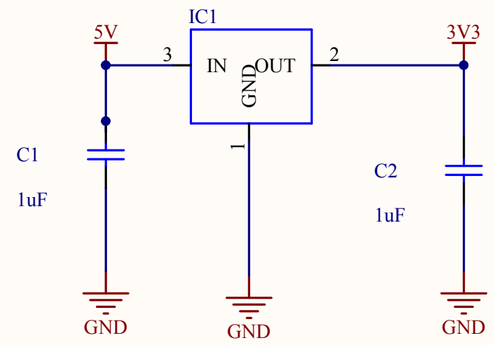
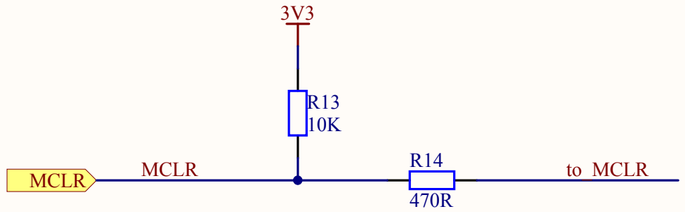
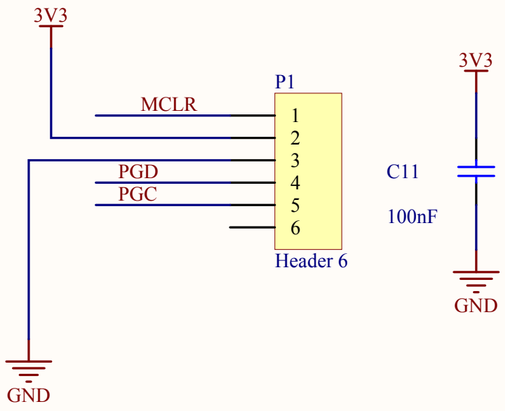
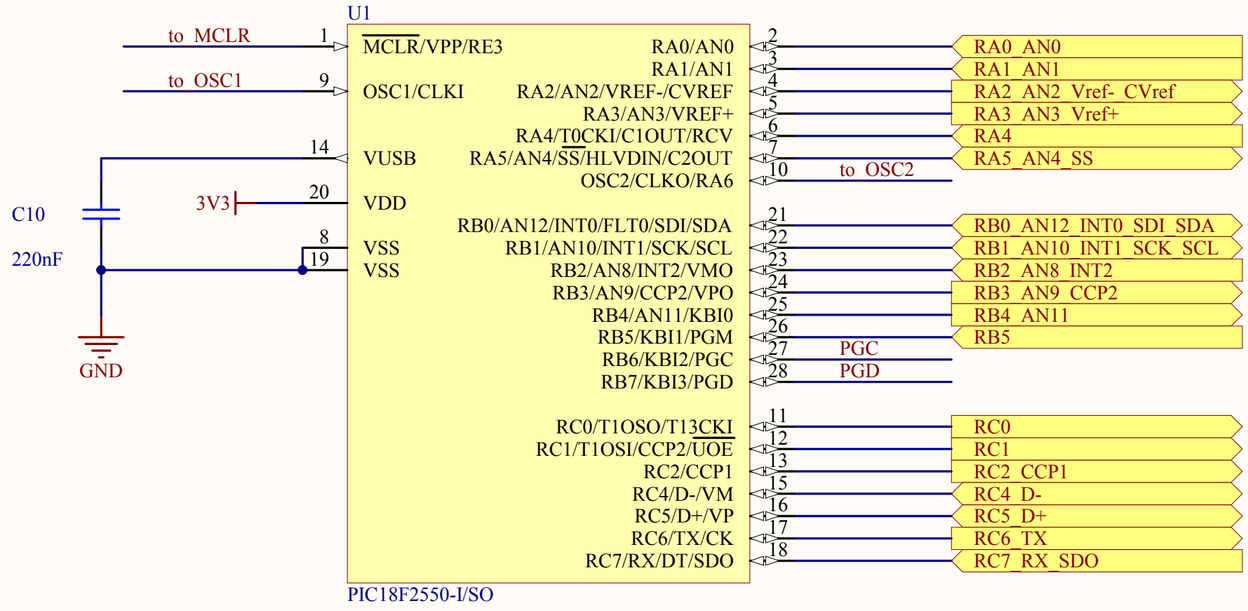
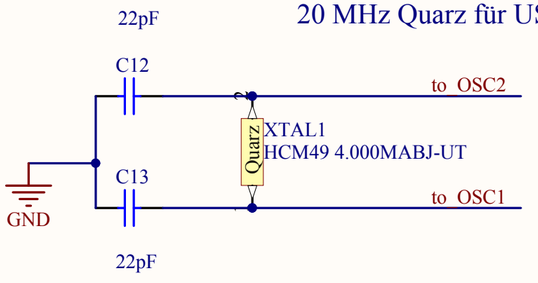
P2
Header 6
GND
5V
FTDI_TXD
FTDI_RXD
GND
R16
11V
GND
R17
11V
U_SW
SW.SchDoc
SW
U_PIC18F2550
PIC18F2550.SchDoc
MCLR
U_USB ESD EMV BUCHSE
USB ESD EMV BUCHSE.SchDoc
5V
VBUS
USB_N
USB_P
RC4_D-
RC5_D+
GND
R18
11V
GND
R19
11V
P3
Header 2
RA1_AN1
RA0_AN0
CS3
CS2
U_AC_SWITCH
AC_SWITCH.SchDoc
K2
L1
L_Last
L_Netz
Opto_Triac
RC6_TX
RC7_RX_SDO
L1
K1
S2
U_ZEROCROSS
ZEROCROSS.SchDoc
RB2_AN8_INT2
SYNC
L1
L_sicher
N
N
K3
U_UNL2003_LED
UNL2003_LED.SchDoc
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
IN1
IN2
IN3
IN4
IN5
IN6
IN7
RC2_CCP1
RB3_AN9_CCP2
RB4_AN11
RA2_AN2_Vref-_CVref
RC0
RC1
RA3_AN3_Vref+
L1
K4
L1
K6
L1
K7
U_AC_SWITCH
AC_SWITCH.SchDoc
K5
L1
L_Last
L_Netz
Opto_Triac
U_AC_SWITCH
AC_SWITCH.SchDoc
K8
L1
L_Last
L_Netz
Opto_Triac
U_MOSFET OUT
MOSFET OUT.SchDoc
IN
U_SW
SW.SchDoc
SW
RA4
U_SW
SW.SchDoc
SW
RB5
RB0_AN12_INT0_SDI_SDA
RB1_AN10_INT1_SCK_SCL
RA5_AN4_SS
FTDI_TXD
R20
33R
Repeat(U_LED,1,7)
LED.SchDoc
Repeat(OUT)
OUT
OUT[1..7]
GND
R21
11V
GND
R22
11V
GND
U_MAX6675
MAX6675.SchDoc
K9
K10
T-
T+
MAX6675_/CS
MAX6675_SCK
MAX6675_MISO
R23
33R
R24
33R
R25
33R
oder MAX31855 (pinkompatibel)
P4
U_3V3_Regler
3V3_Regler.SchDoc
CS2
R26
4K7
R27
4K7
P5
Header 4
CS3
3V3
Header 6
K11
K12
T-
T+
MAX6675_/CS
MAX6675_SCK
MAX6675_MISO
oder MAX31855 (pinkompatibel)
P6
Header 7X2A
U_MAX6675
MAX6675.SchDoc
3V3
GND


VRG_XC6206P332MR/SOT23
IC1
5V
3V3
3
IN
GND
OUT
2
1
C1
1uF
C2
1uF
GND
GND
GND

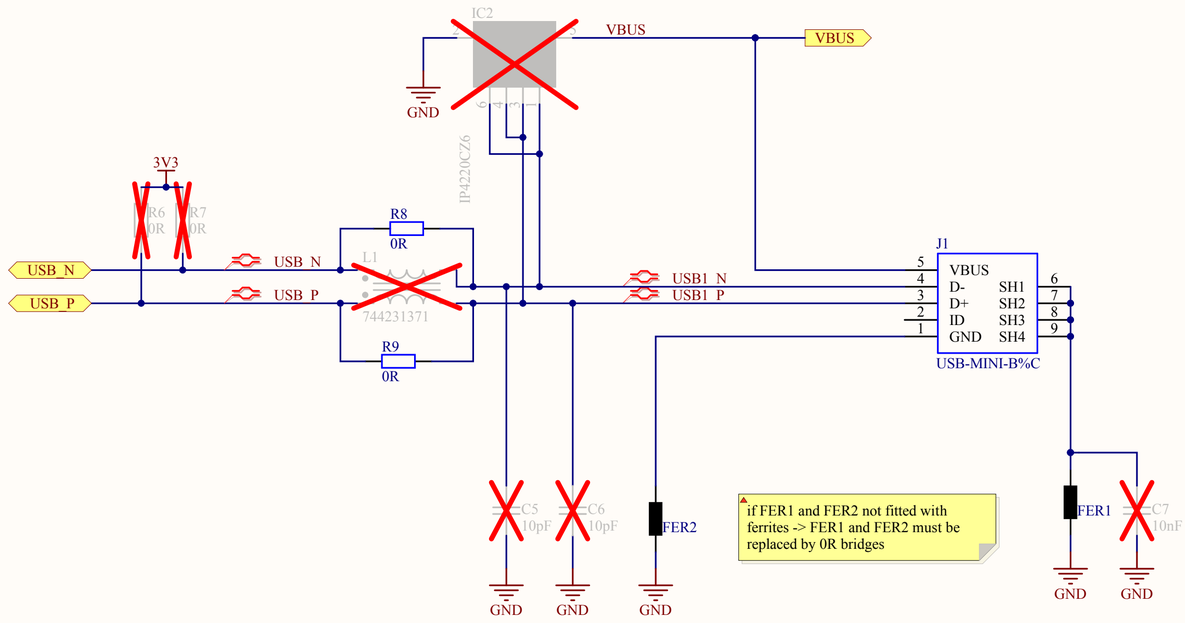


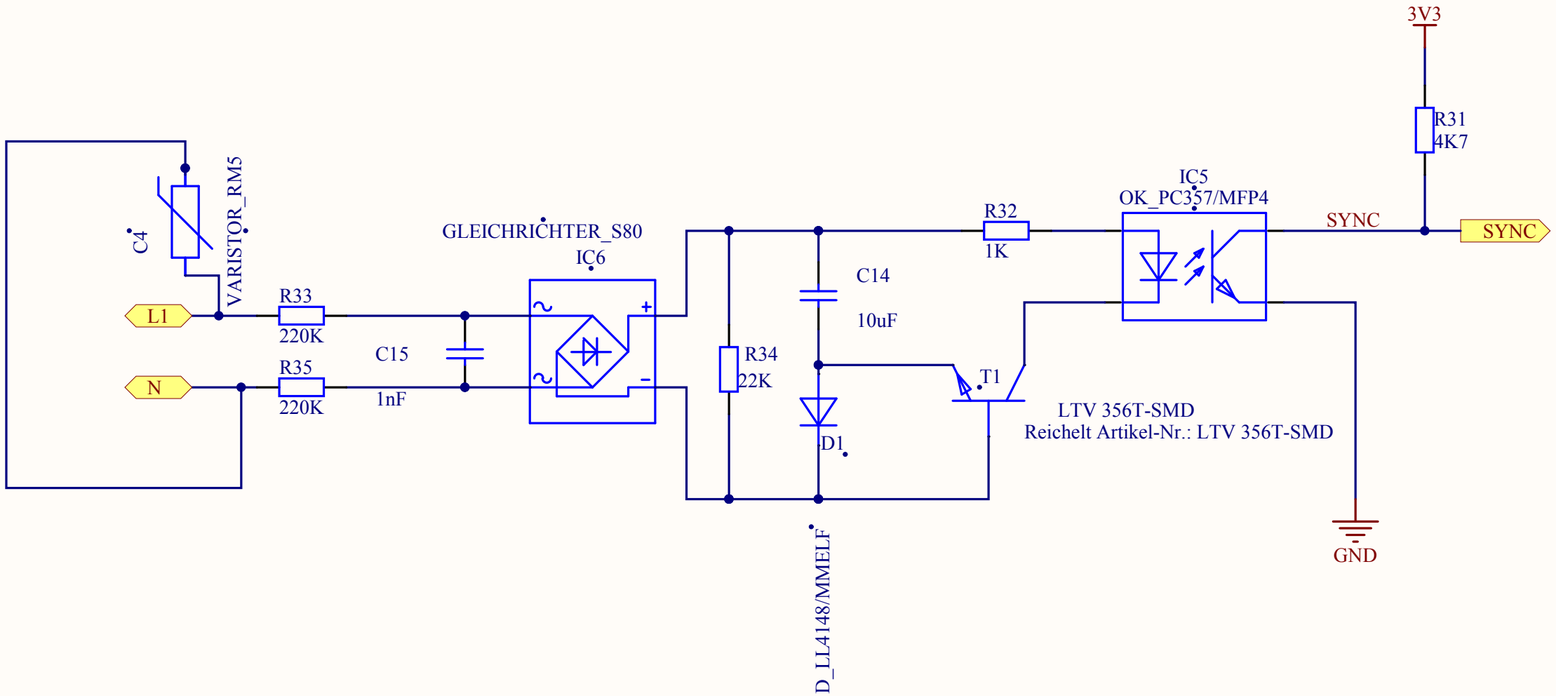


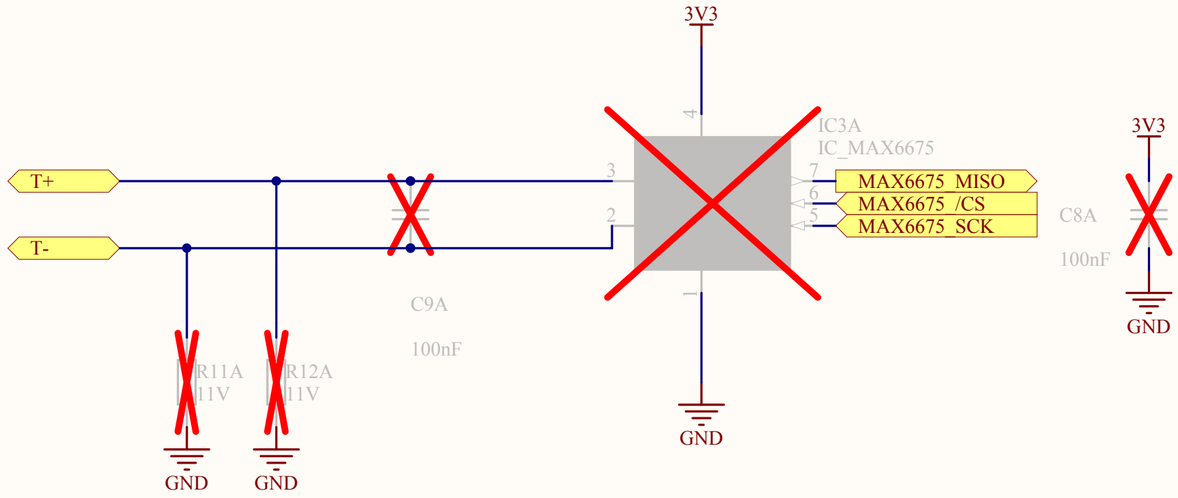


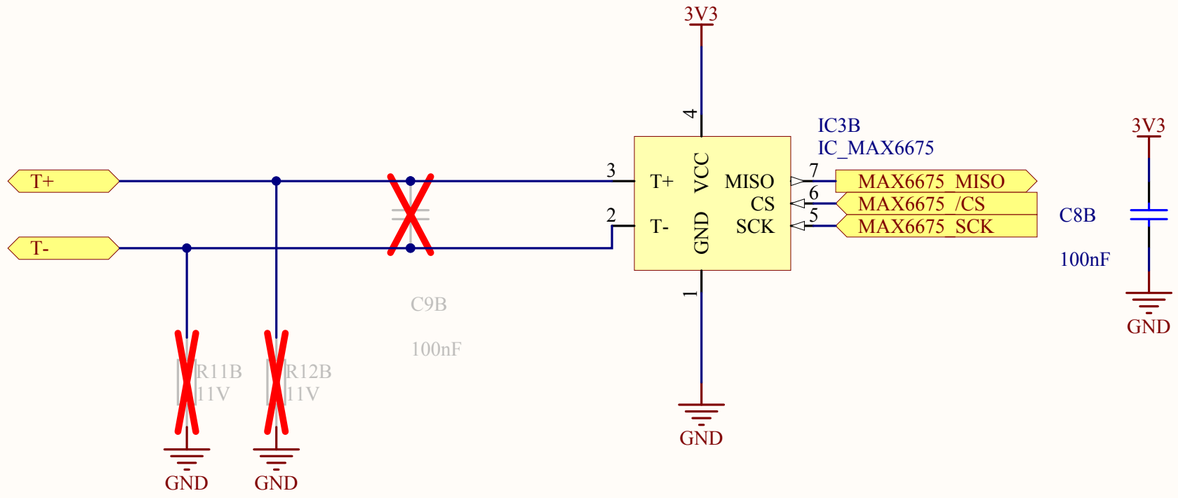


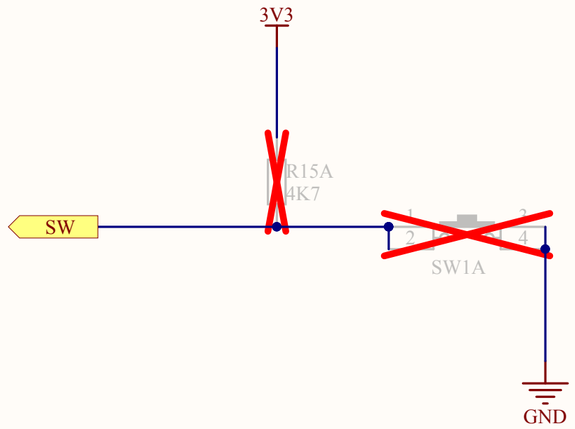
20 MHz Quarz für USB !

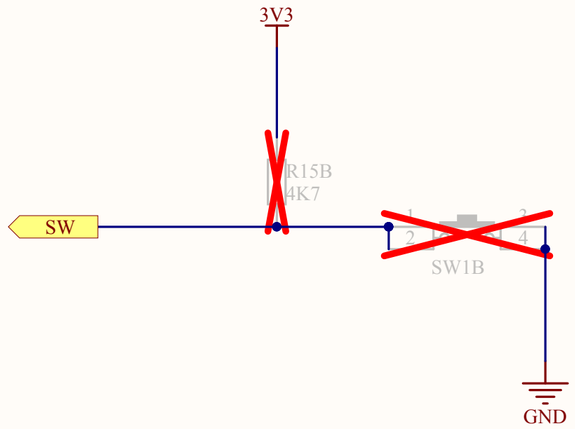

IC2
VBUS
VBUS
GND
IP4220CZ6
3V3
R6
0R
R7
0R
R8
0R
USB_N
USB_P
L1
USB_N
USB_P
7442231371
R9
0R
USB1_N
USB1_P
J1
5
4
3
2
1
VBUS
D-
D+
ID
GND
SH1
SH2
SH3
SH4
6
7
8
9
USB-MINI-B%C
C5
10pF
C6
10pF
FER2
if FER1 and FER2 not fitted with ferrites -> FER1 and FER2 must be replaced by 0R bridges
FER1
C7
10nF
GND
GND
GND
GND
GND

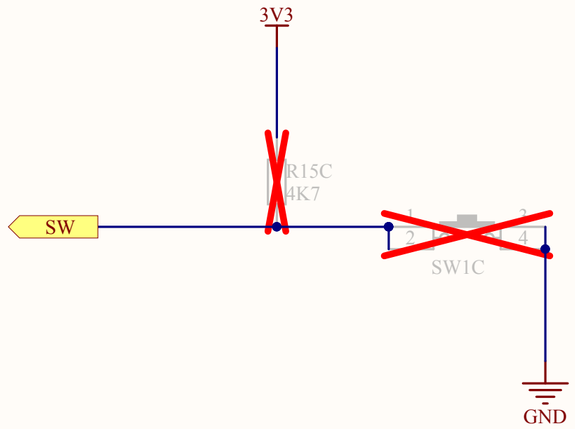

3V3
R31
4K7
IC5
OK_PC357/MFP4
SYNC
SYNC
R32
1K
C14
10uF
T1
LTV 356T-SMD
Reichelt Artikel-Nr.: LTV 356T-SMD
GLEICHRICHTER_S80
IC6
C4
VARISTOR_RM5
L1
N
R33
220K
R35
220K
C15
1nF
R34
22K
D1
D_LL4148/MMELF
GND

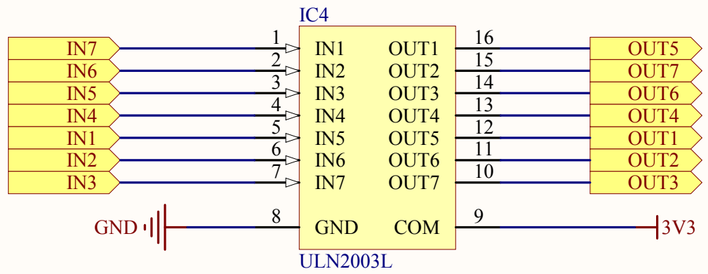

3V3
T+
T-
C9A
100nF
R11A
11V
R12A
11V
GND
GND
IC3A
IC_MAX6675
MAX6675_MISO
MAX6675_/CS
MAX6675_SCK
GND
3V3
C8A
100nF
GND


3V3
4
IC3B
IC_MAX6675
T+
T-
3
2
T+
VCC
GND
MISO
CS
SCK
7
6
5
MAX6675_MISO
MAX6675_/CS
MAX6675_SCK
C8B
100nF
3V3
GND
1
GND
C9B
100nF
R11B
11V
R12B
11V
GND
GND

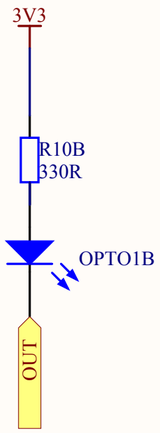

3V3
R15A
4K7
SW
SW1A
GND


3V3
R15B
4K7
SW
SW1B
GND


3V3
R15C
4K7
SW
SW1C
GND


IC4
IN7
IN6
IN5
IN4
IN1
IN2
IN3
1
2
3
4
5
6
7
IN1
IN2
IN3
IN4
IN5
IN6
IN7
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
16
15
14
13
12
11
10
OUT5
OUT7
OUT6
OUT4
OUT1
OUT2
OUT3
GND
8
GND
COM
9
3V3
ULN2003L


3V3
R10A
330R
OPTO1A
OUT


3V3
R10B
330R
OPTO1B
OUT


3V3
R10C
330R
OPTO1C
OUT


3V3
R10D
330R
OPTO1D
OUT

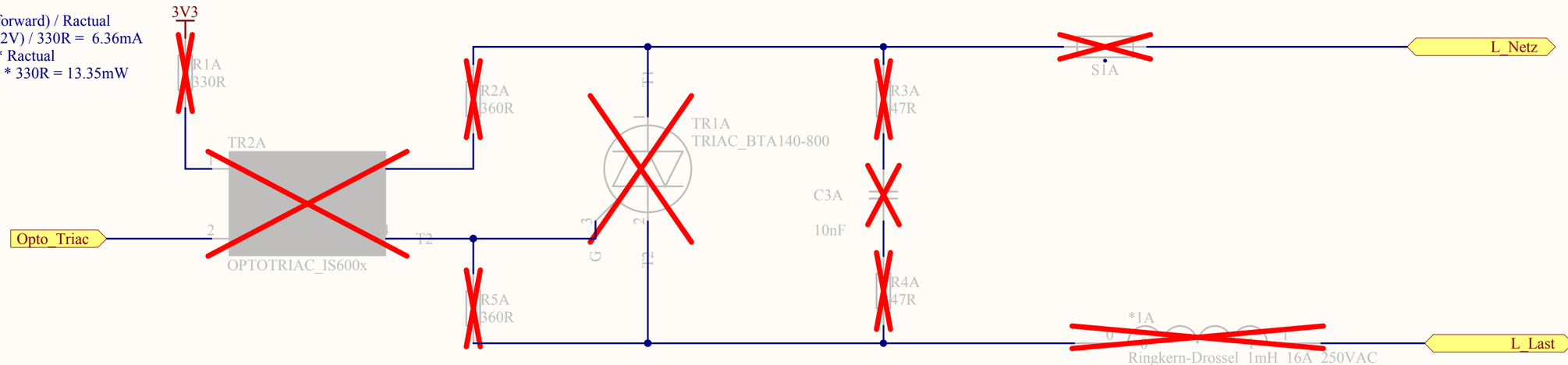

3V3
R10E
330R
OPTO1E
OUT


3V3
R10F
330R
OPTO1F
OUT


3V3
R10G
330R
OPTO1G
OUT

Vforward = 1.2 to 1.5 V
IforwardToTrigger IS6005 = 5 mA
Vdd = 3.3V
R = (Vdd - Vforward) / IforwardToTrigger
R = (3.3V - 1.2V) / 0.005 A = 420R
Ractual = 330R
Iactual = (Vdd - Vforward) / Ractual
Iactual = (3.3V - 1.2V) / 330R = 6.36mA
Pdiss = Iactual ^2 * Ractual
Pdiss = 6.36mA ^2 * 330R = 13.35mW

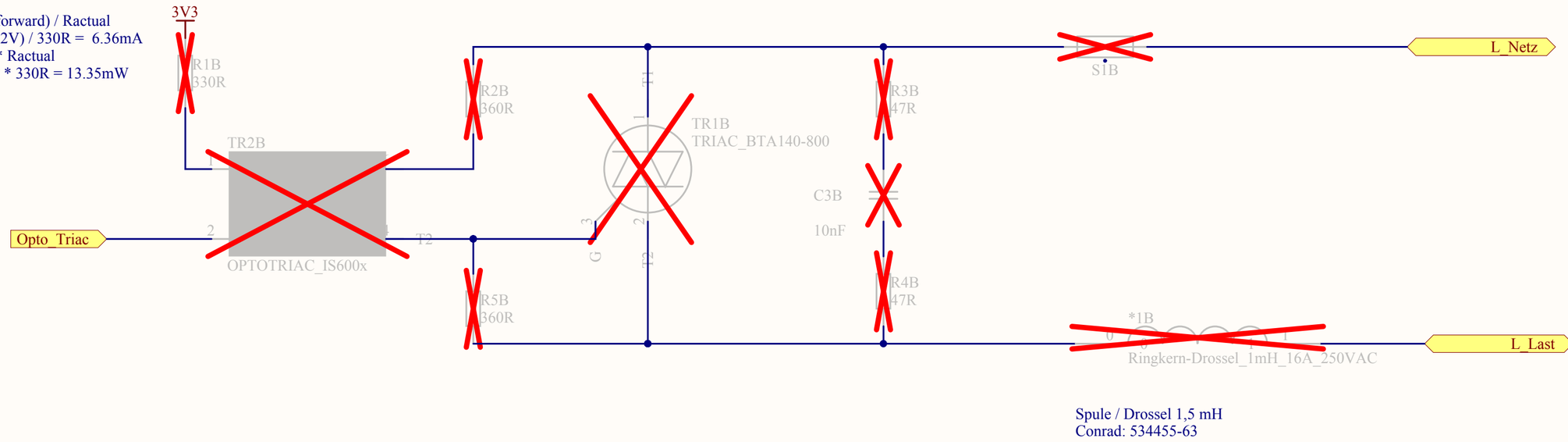
47R to 100R + 47nF to 100nF
e.g. 47R + 22nF



Spule / Drossel 1,5 mH
Conrad: 534455-63

Vforward = 1.2 to 1.5 V
IforwardToTrigger IS6005 = 5 mA
Vdd = 3.3V
R = (Vdd - Vforward) / IforwardToTrigger
R = (3.3V - 1.2V) / 0.005 A = 420R
Ractual = 330R
Iactual = (Vdd - Vforward) / Ractual
Iactual = (3.3V - 1.2V) / 330R = 6.36mA
Pdiss = Iactual ^2 * Ractual
Pdiss = 6.36mA ^2 * 330R = 13.35mW

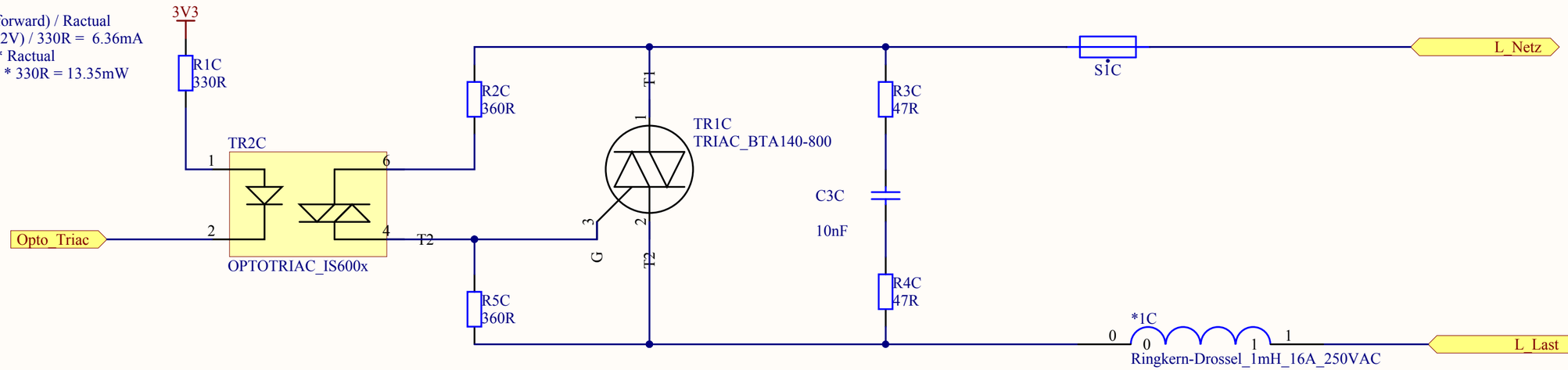
47R to 100R + 47nF to 100nF
e.g. 47R + 22nF



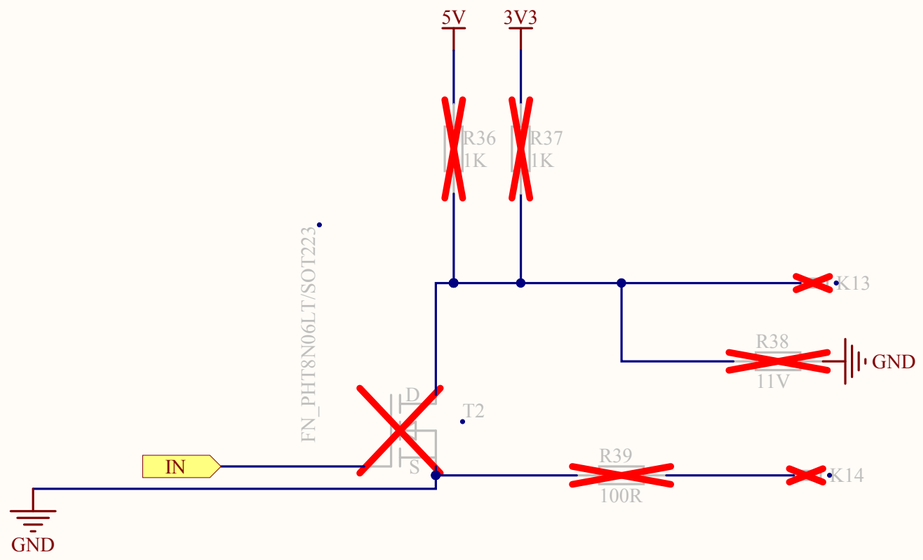
Spule / Drossel 1,5 mH
Conrad: 534455-63

Vforward = 1.2 to 1.5 V
IforwardToTrigger IS6005 = 5 mA
Vdd = 3.3V
R = (Vdd - Vforward) / IforwardToTrigger
R = (3.3V - 1.2V) / 0.005 A = 420R
Ractual = 330R
Iactual = (Vdd - Vforward) / Ractual
Iactual = (3.3V - 1.2V) / 330R = 6.36mA
Pdiss = Iactual ^2 * Ractual
Pdiss = 6.36mA ^2 * 330R = 13.35mW

47R to 100R + 47nF to 100nF
e.g. 47R + 22nF



Spule / Drossel 1,5 mH
Conrad: 534455-63


5V
3V3
R36
1K
R37
1K
K13
R38
11V
GND
FN_PHT8N06LT/SOT223
D
T2
S
IN
R39
100R
K14
GND