Sheet: InterfaceNucleoFee103RB

File: InterfaceNucleoF103RB.sch

Sheet: LEDDriver

File: LEDDriver.sch

Sheet: Power

File: power.sch

Sheet: UI

File: UI.sch

Uppsala University

Sheet: /
File: extension_board.sch

Title: Extension Board for the Nucleo64-F103RB

Size: A4	Date: 2017-11-16	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 1/37

32 x 2 = 64 stages. 1 stage consists out of 4 LEDs.

Sheet: 2Stages1
LED_NEG_1 LED_N_01
LED_NEG_2 LED_N_02
File: 2Stages1.sch
Sheet: 2Stages2
LED_NEG_1 LED_N_03
LED_NEG_2 LED_N_04
File: 2Stages1.sch
Sheet: 2Stages3
LED_NEG_1 LED_N_05
LED_NEG_2 LED_N_06
File: 2Stages1.sch
Sheet: 2Stages4
LED_NEG_1 LED_N_07
LED_NEG_2 LED_N_08
File: 2Stages1.sch
Sheet: 2Stages5
LED_NEG_1 LED_N_09
LED_NEG_2 LED_N_10
File: 2Stages1.sch
Sheet: 2Stages6
LED_NEG_1 LED_N_11
LED_NEG_2 LED_N_12
File: 2Stages1.sch
Sheet: 2Stages7
LED_NEG_1 LED_N_13
LED_NEG_2 LED_N_14
File: 2Stages1.sch
Sheet: 2Stages8
LED_NEG_1 LED_N_15
LED_NEG_2 LED_N_16
File: 2Stages1.sch
Sheet: 2Stages9
LED_NEG_1 LED_N_17
LED_NEG_2 LED_N_18
File: 2Stages1.sch
Sheet: 2Stages10
LED_NEG_1 LED_N_19
LED_NEG_2 LED_N_20
File: 2Stages1.sch
Sheet: 2Stages11
LED_NEG_1 LED_N_21
LED_NEG_2 LED_N_22
File: 2Stages1.sch
Sheet: 2Stages12
LED_NEG_1 LED_N_23
LED_NEG_2 LED_N_24
File: 2Stages1.sch
Sheet: 2Stages13
LED_NEG_1 LED_N_25
LED_NEG_2 LED_N_26
File: 2Stages1.sch
Sheet: 2Stages14
LED_NEG_1 LED_N_27
LED_NEG_2 LED_N_28
File: 2Stages1.sch
Sheet: 2Stages15
LED_NEG_1 LED_N_29
LED_NEG_2 LED_N_30
File: 2Stages1.sch
Sheet: 2Stages16
LED_NEG_1 LED_N_31
LED_NEG_2 LED_N_32
File: 2Stages1.sch

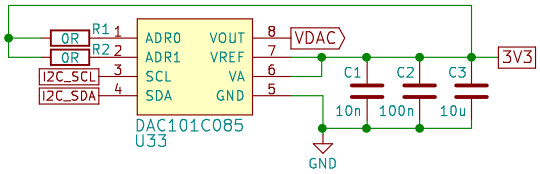
J1
LED_N_01 1 64 LED_N_64
LED_N_02 2 63 LED_N_63
LED_N_03 3 62 LED_N_62
LED_N_04 4 61 LED_N_61
LED_N_05 5 60 LED_N_60
LED_N_06 6 59 LED_N_59
LED_N_07 7 58 LED_N_58
LED_N_08 8 57 LED_N_57
LED_N_09 9 56 LED_N_56
LED_N_10 10 55 LED_N_55
LED_N_11 11 54 LED_N_54
LED_N_12 12 53 LED_N_53
LED_N_13 13 52 LED_N_52
LED_N_14 14 51 LED_N_51
LED_N_15 15 50 LED_N_50
LED_N_16 16 49 LED_N_49
LED_N_17 17 48 LED_N_48
LED_N_18 18 47 LED_N_47
LED_N_19 19 46 LED_N_46
LED_N_20 20 45 LED_N_45
LED_N_21 21 44 LED_N_44
LED_N_22 22 43 LED_N_43
LED_N_23 23 42 LED_N_42
LED_N_24 24 41 LED_N_41
LED_N_25 25 40 LED_N_40
LED_N_26 26 39 LED_N_39
LED_N_27 27 38 LED_N_38
LED_N_28 28 37 LED_N_37
LED_N_29 29 36 LED_N_36
LED_N_30 30 35 LED_N_35
LED_N_31 31 34 LED_N_34
LED_N_32 32 33 LED_N_33

TSW-132-07-G-D

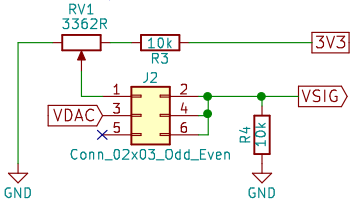
This connector connects the driver to the LEDs.

Sheet: 2Stages32
LED_N_64 LED_NEG_1
LED_N_63 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages31
LED_N_62 LED_NEG_1
LED_N_61 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages30
LED_N_60 LED_NEG_1
LED_N_59 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages29
LED_N_58 LED_NEG_1
LED_N_57 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages28
LED_N_56 LED_NEG_1
LED_N_55 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages27
LED_N_54 LED_NEG_1
LED_N_53 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages26
LED_N_52 LED_NEG_1
LED_N_51 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages25
LED_N_50 LED_NEG_1
LED_N_49 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages24
LED_N_48 LED_NEG_1
LED_N_47 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages23
LED_N_46 LED_NEG_1
LED_N_45 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages22
LED_N_44 LED_NEG_1
LED_N_43 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages21
LED_N_42 LED_NEG_1
LED_N_41 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages20
LED_N_40 LED_NEG_1
LED_N_39 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages19
LED_N_38 LED_NEG_1
LED_N_37 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages18
LED_N_36 LED_NEG_1
LED_N_35 LED_NEG_2
File: 2Stages1.sch
Sheet: 2Stages17
LED_N_34 LED_NEG_1
LED_N_33 LED_NEG_2
File: 2Stages1.sch

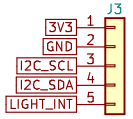
Simple DAC for I2C programming.



It shall be possible to switch between a (screw driver) poti and the DAC.



Light sensor TSL2561 for feedback.



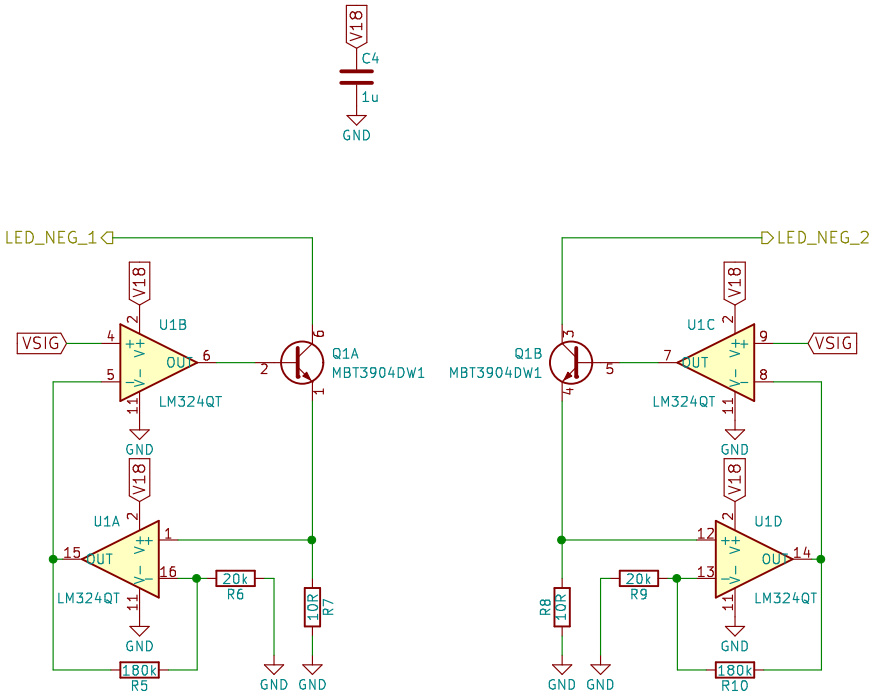
Uppsala University

Sheet: /LEDDriver/
File: LEDDriver.sch

Title: UV LED Driver with 64 Stages and DAC

Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 2/37

Place decoupling capacitors close to IC.



Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

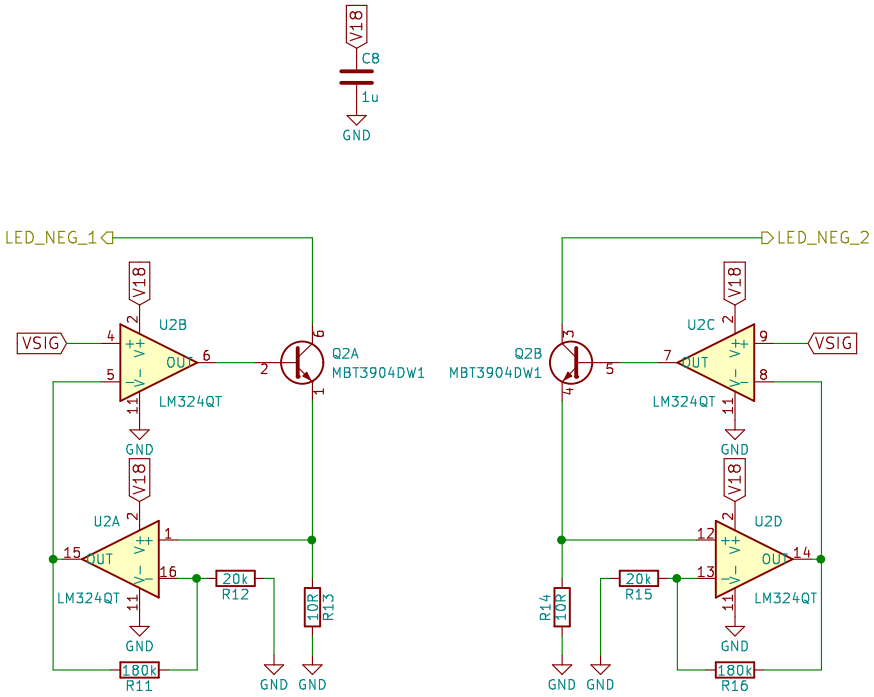
Uppsala University

Sheet: /LEDDriver/2Stages1/
File: 2Stages1.sch

Title: UV LED Driver Two Stages

Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 3/37

Place decoupling capacitors close to IC.

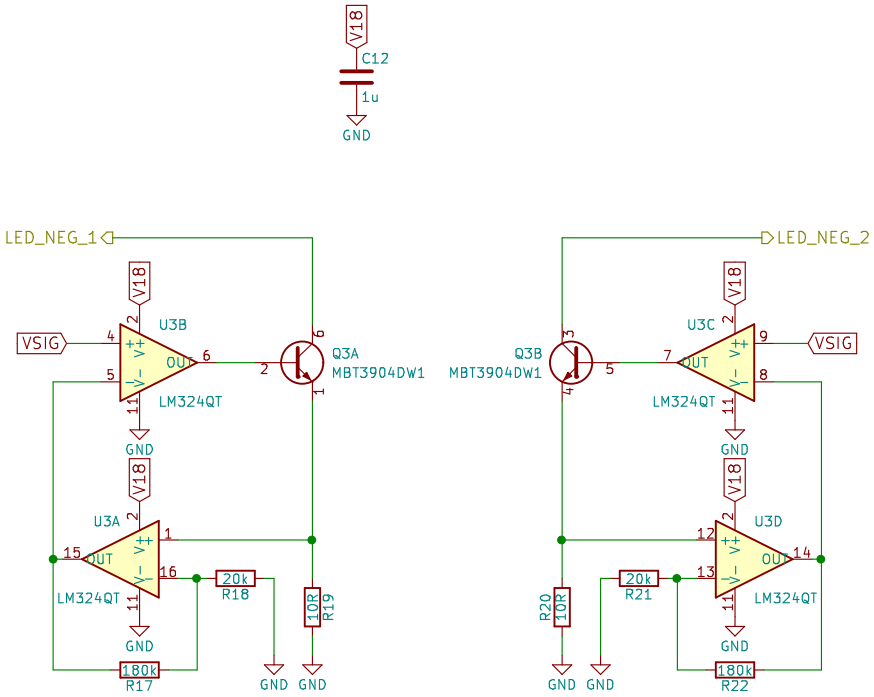


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages2/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 4/37

Place decoupling capacitors close to IC.

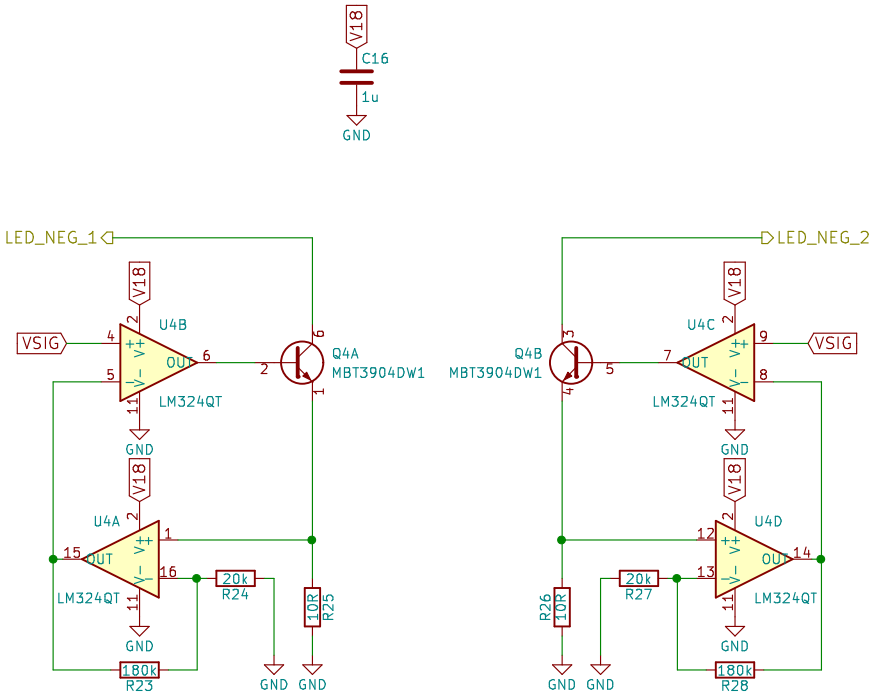


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages3/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 5/37

Place decoupling capacitors close to IC.

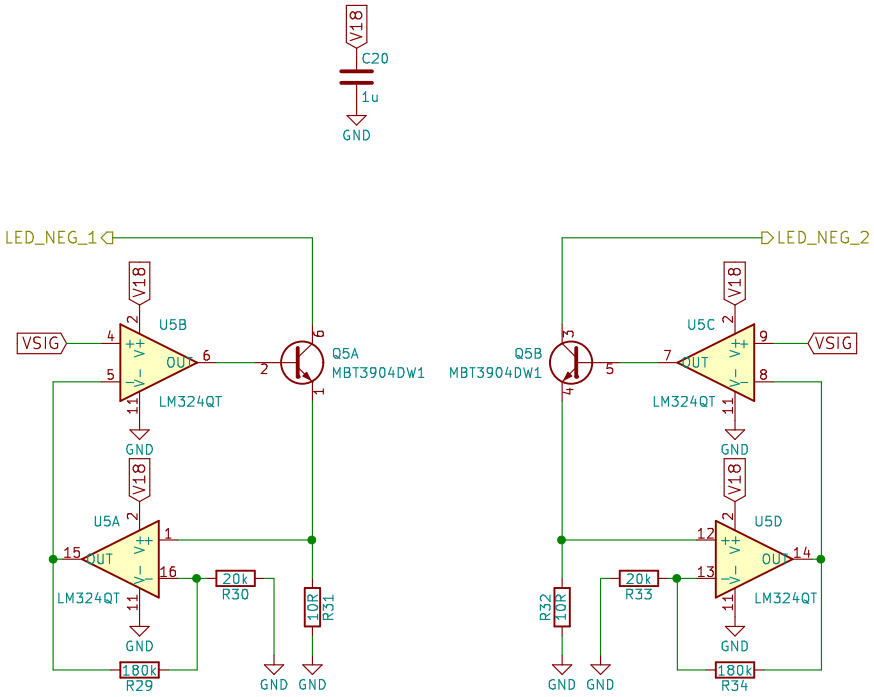


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages4/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 6/37

Place decoupling capacitors close to IC.



Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

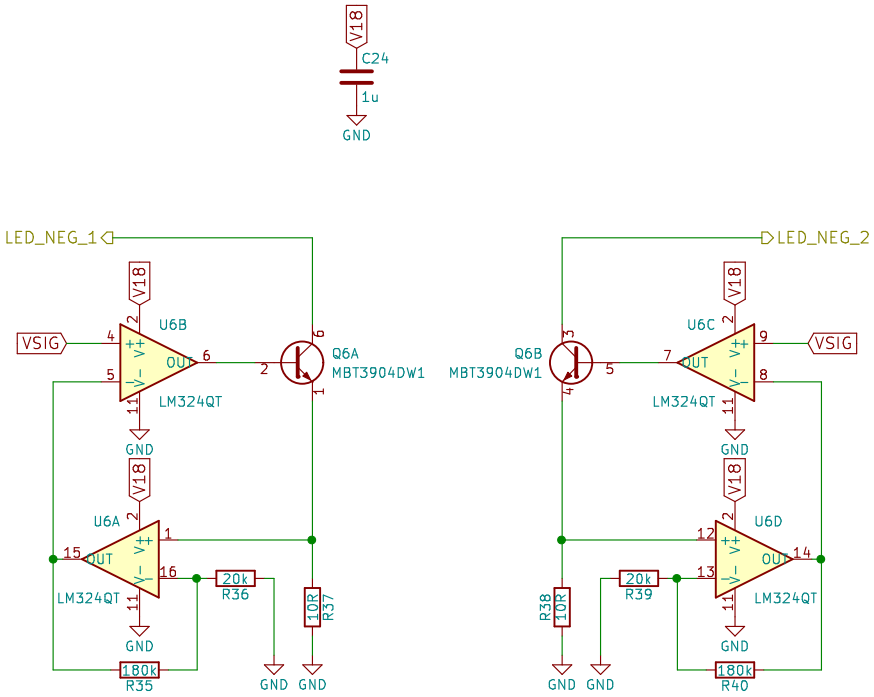
Uppsala University

Sheet: /LEDDriver/2Stages5/
File: 2Stages1.sch

Title: UV LED Driver Two Stages

Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 7/37

Place decoupling capacitors close to IC.

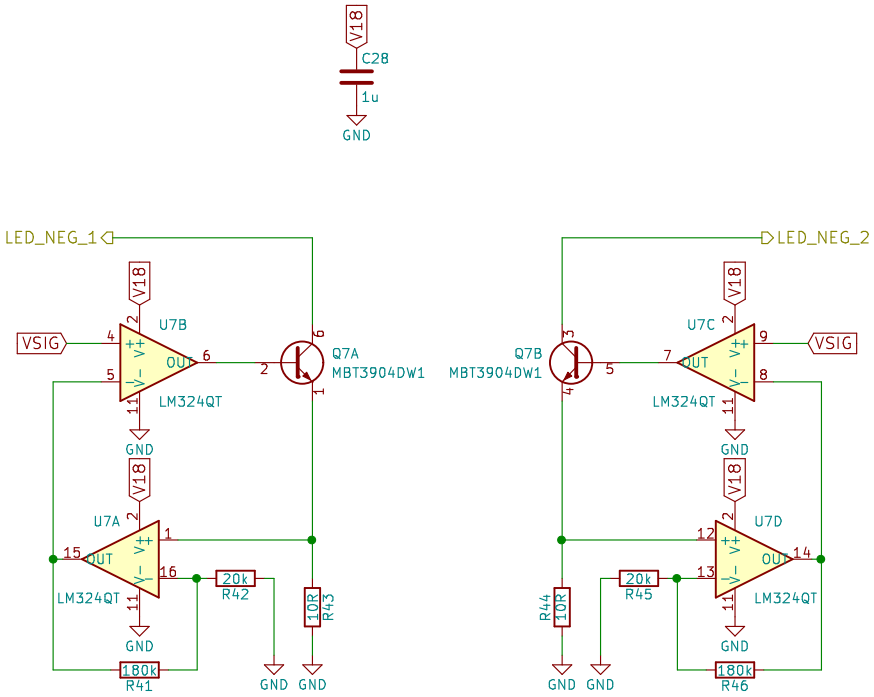


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages6/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 8/37

Place decoupling capacitors close to IC.

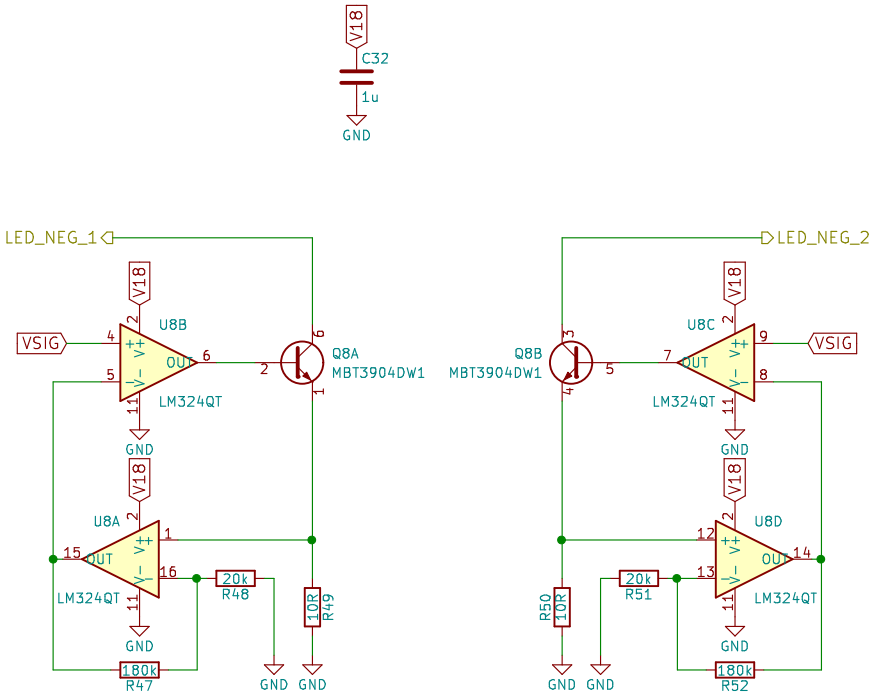


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages7/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 9/37

Place decoupling capacitors close to IC.

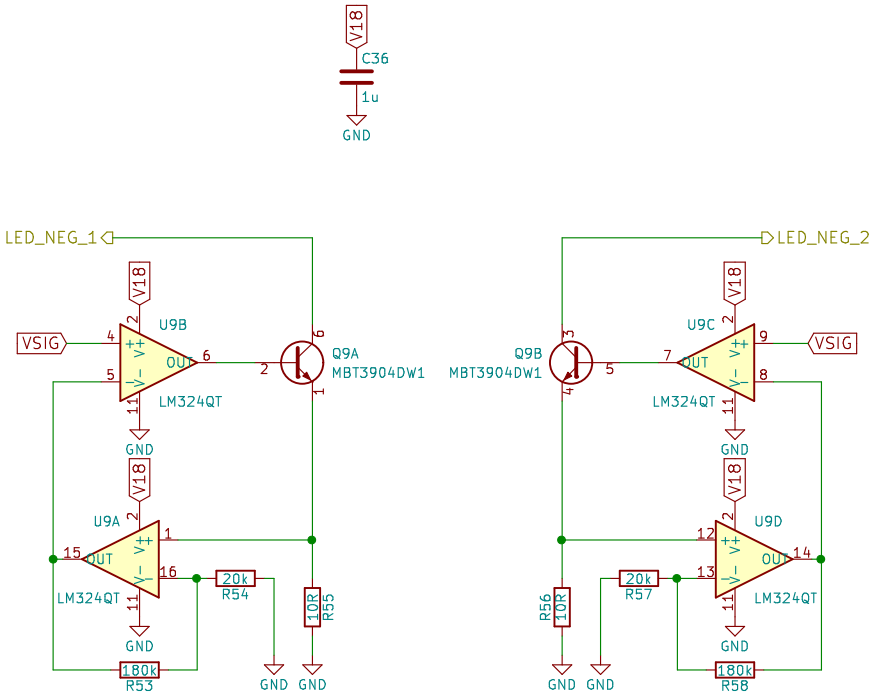


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages8/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 10/37

Place decoupling capacitors close to IC.

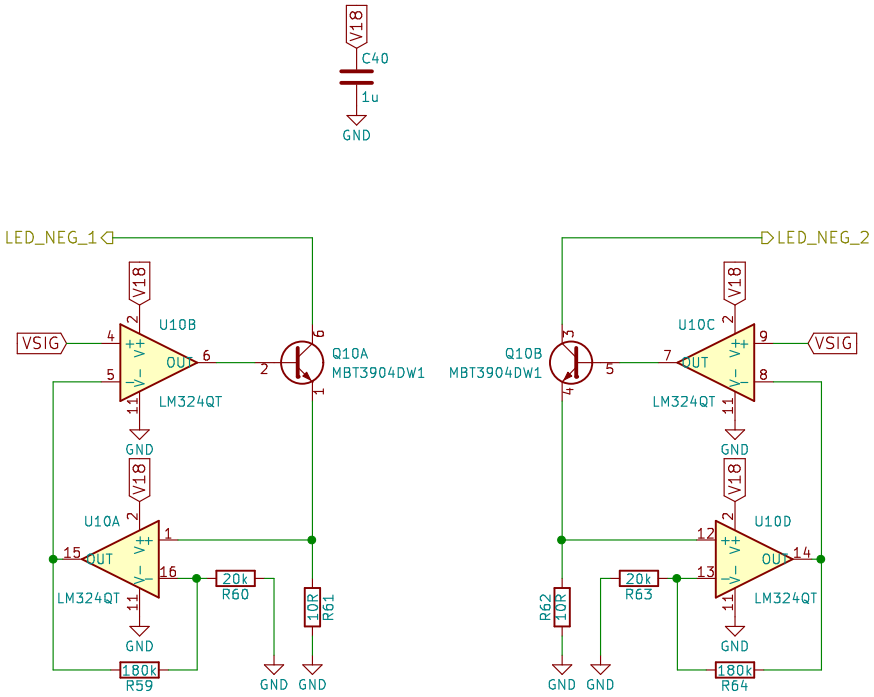


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages9/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 11/37

Place decoupling capacitors close to IC.

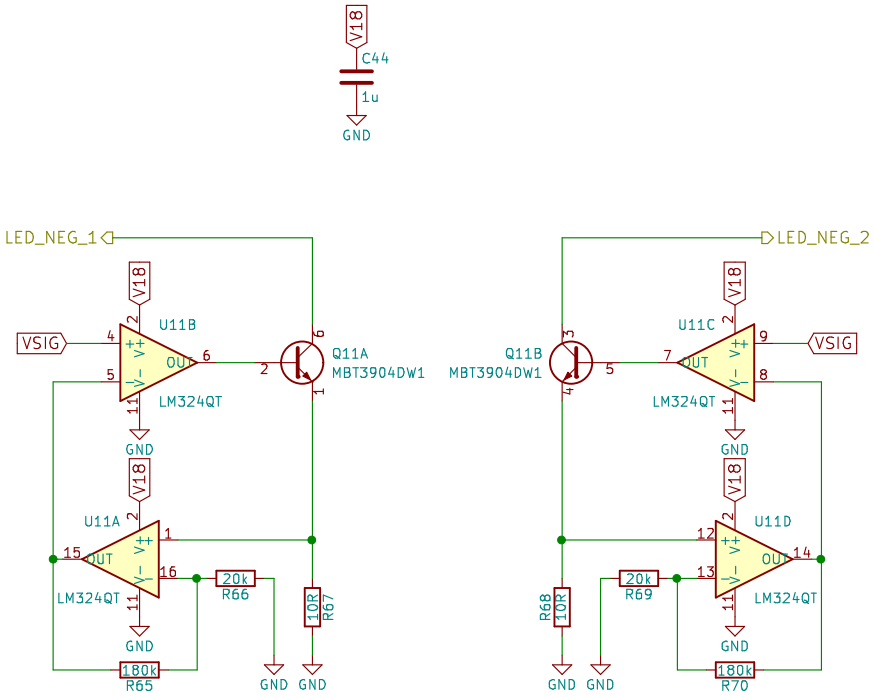


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages10/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 12/37

Place decoupling capacitors close to IC.

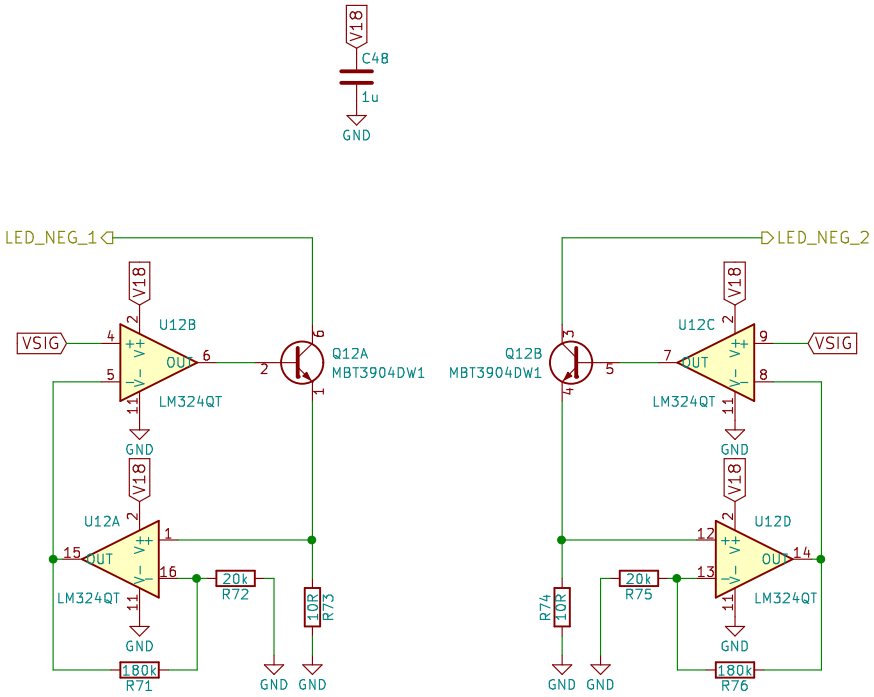


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages11/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 13/37

Place decoupling capacitors close to IC.

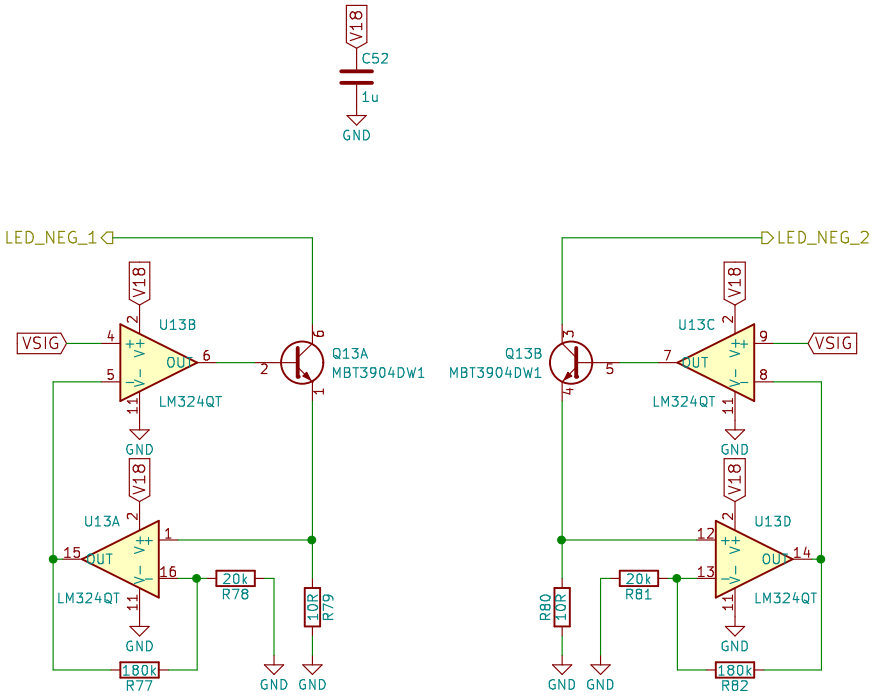


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages12/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 14/37

Place decoupling capacitors close to IC.



Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

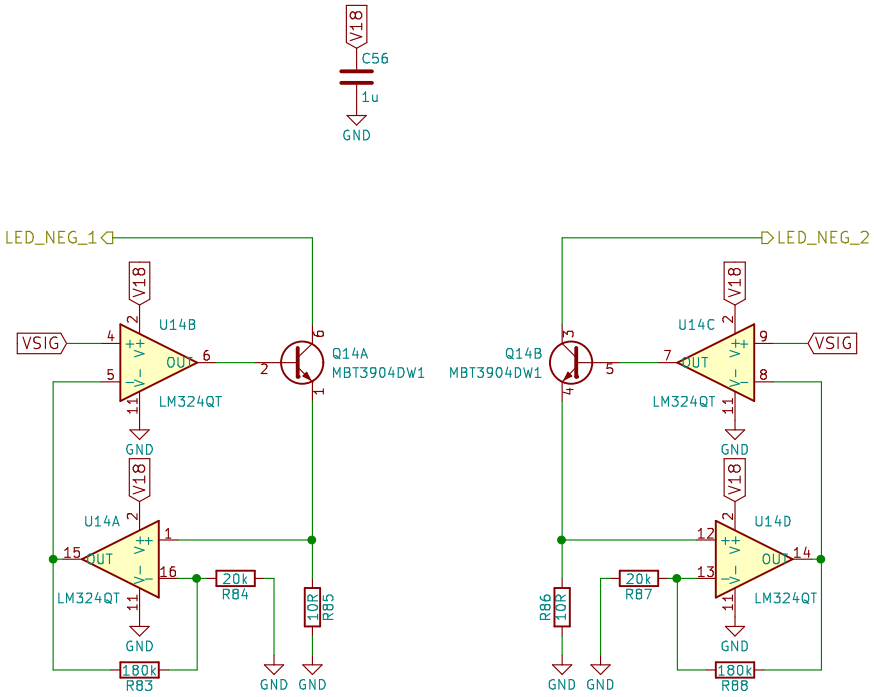
Uppsala University

Sheet: /LEDDriver/2Stages13/
File: 2Stages1.sch

Title: UV LED Driver Two Stages

Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 15/37

Place decoupling capacitors close to IC.

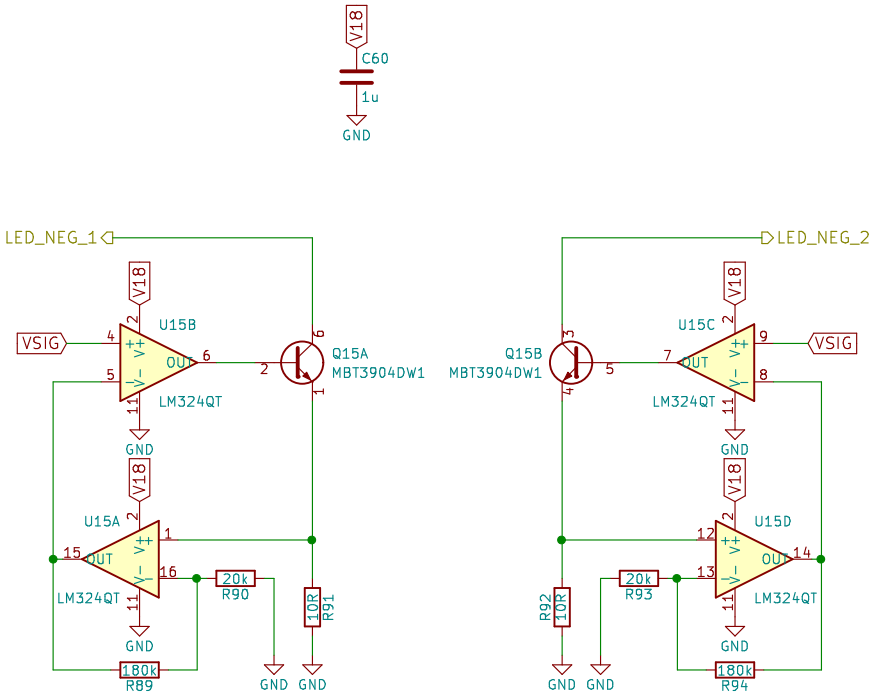


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages14/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 16/37

Place decoupling capacitors close to IC.

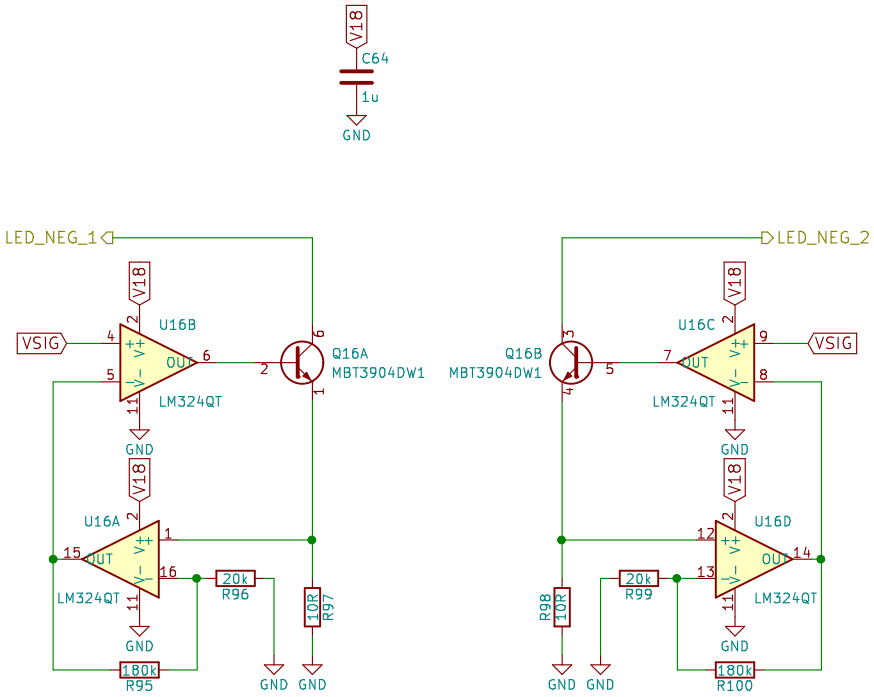


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages15/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 17/37

Place decoupling capacitors close to IC.

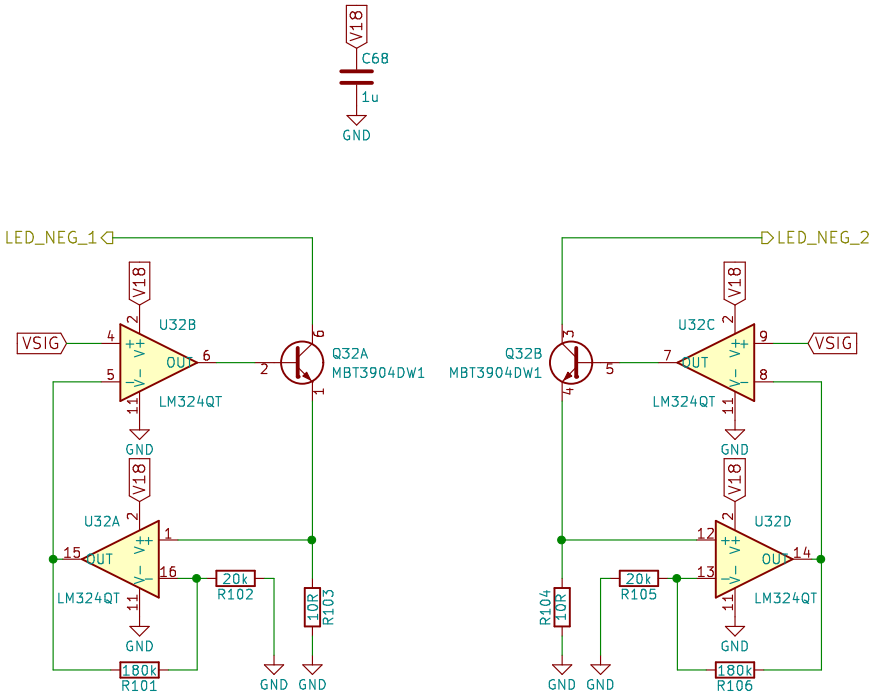


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages16/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 18/37

Place decoupling capacitors close to IC.

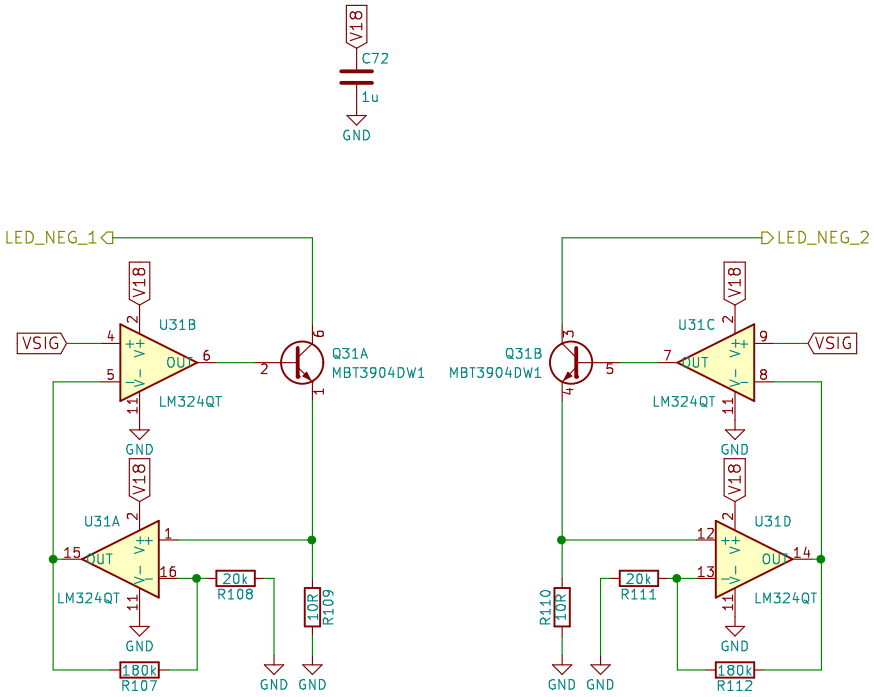


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages32/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 19/37

Place decoupling capacitors close to IC.



Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

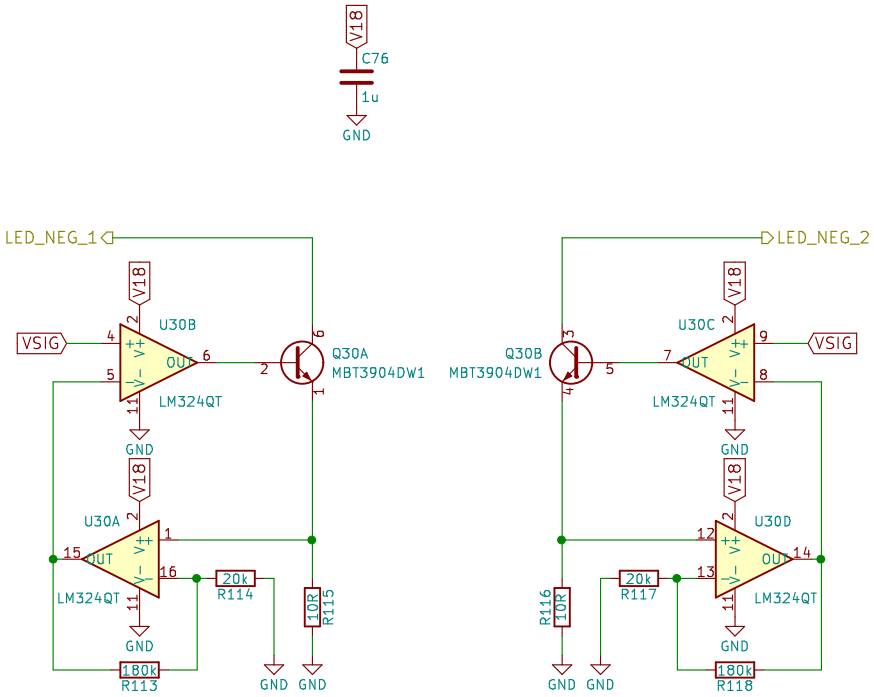
Uppsala University

Sheet: /LEDDriver/2Stages31/
File: 2Stages1.sch

Title: UV LED Driver Two Stages

Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 20/37

Place decoupling capacitors close to IC.

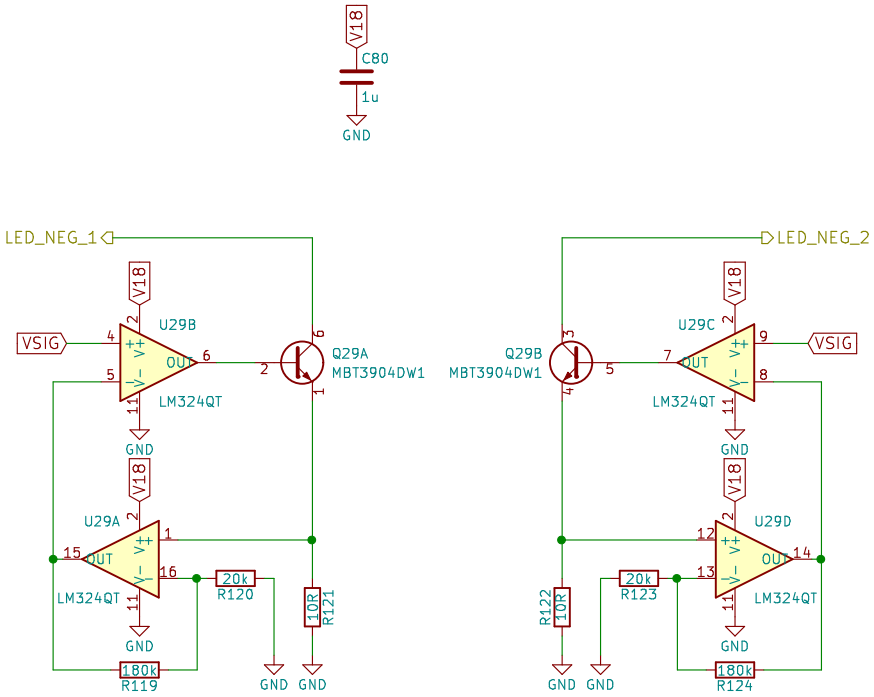


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages30/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 21/37

Place decoupling capacitors close to IC.

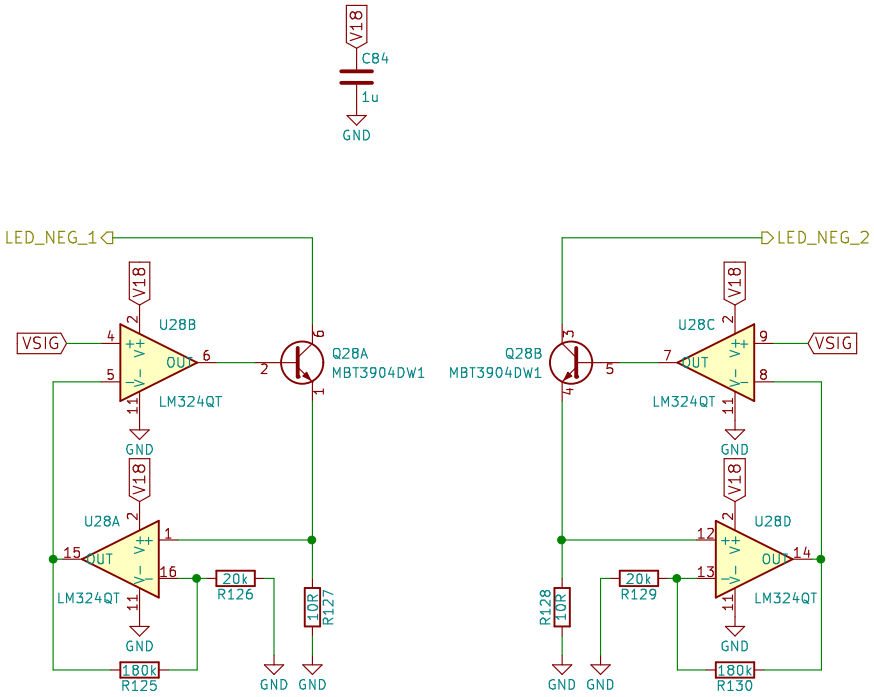


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages29/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 22/37

Place decoupling capacitors close to IC.

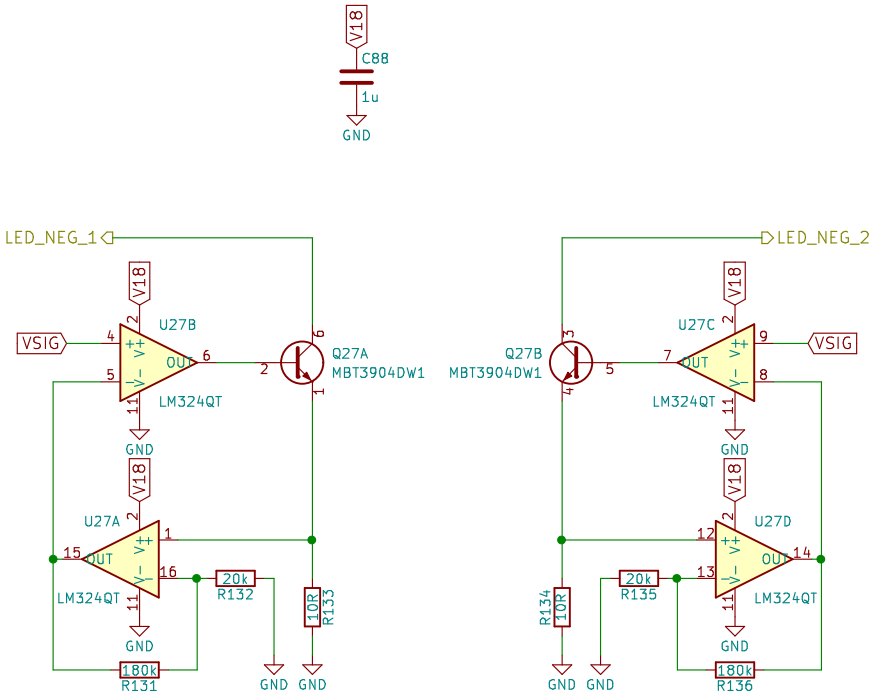


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages28/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 23/37

Place decoupling capacitors close to IC.

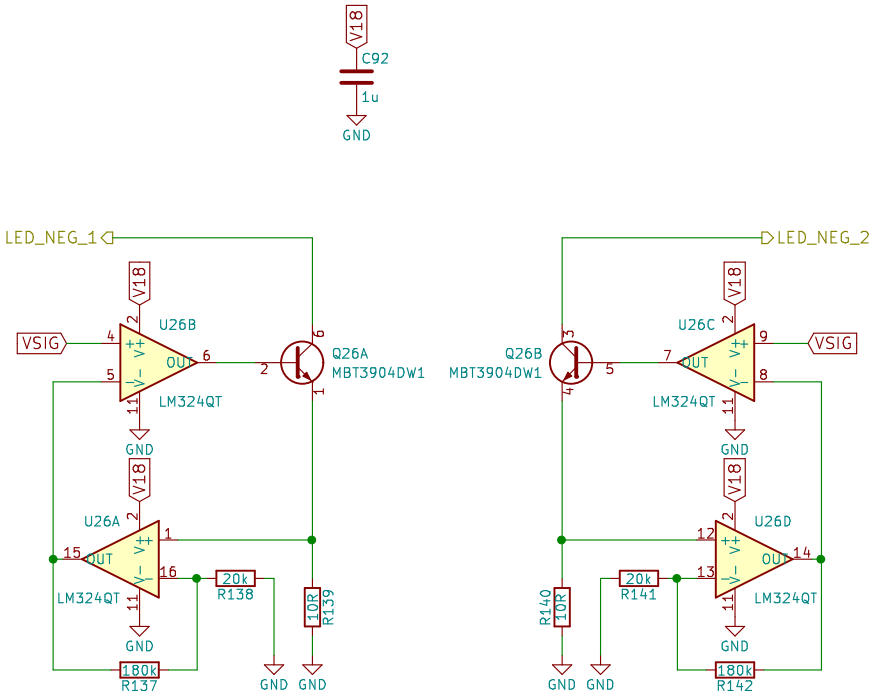


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages27/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 24/37

Place decoupling capacitors close to IC.

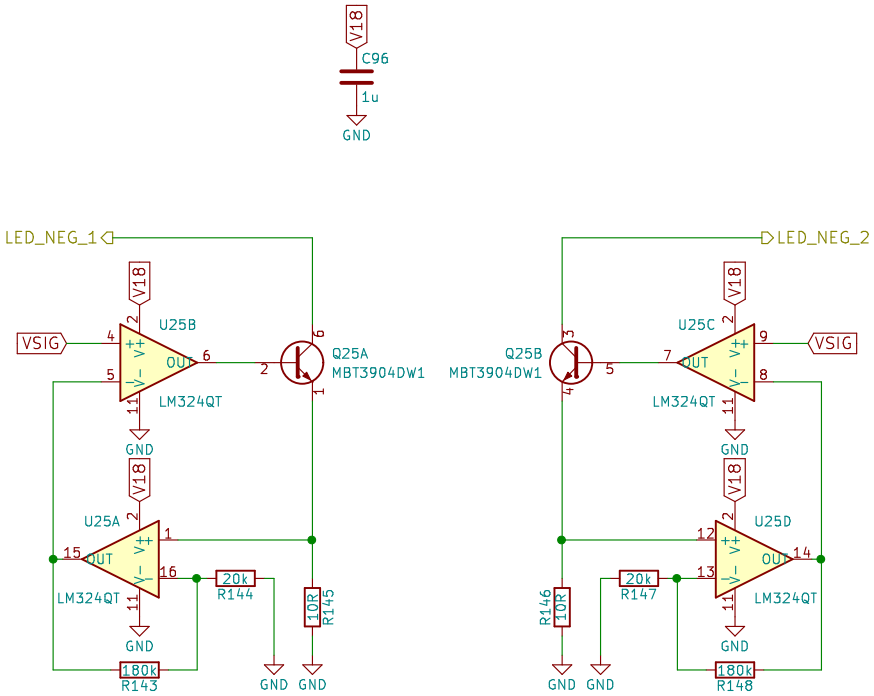


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages26/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 25/37

Place decoupling capacitors close to IC.

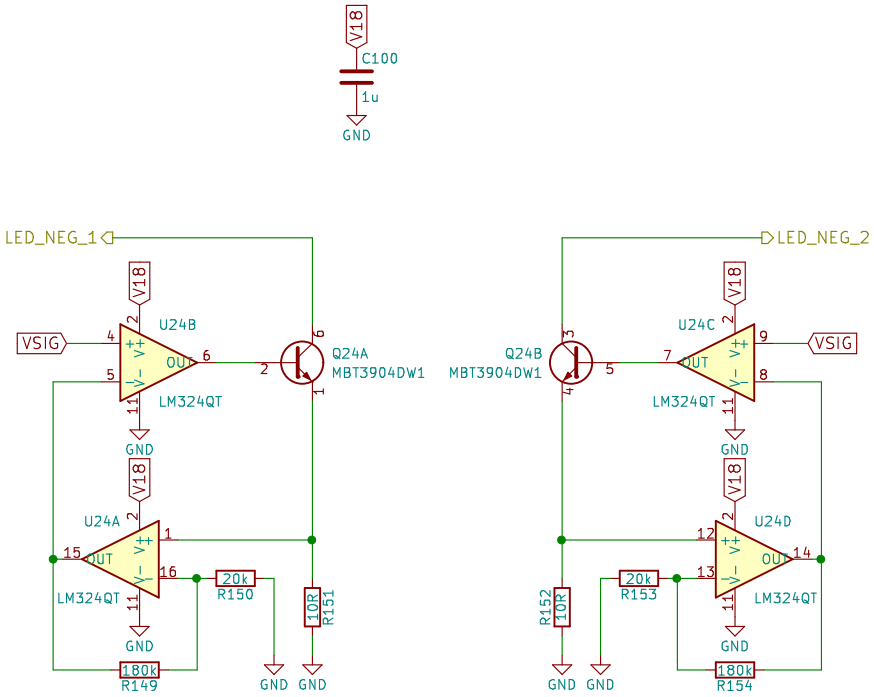


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages25/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 26/37

Place decoupling capacitors close to IC.

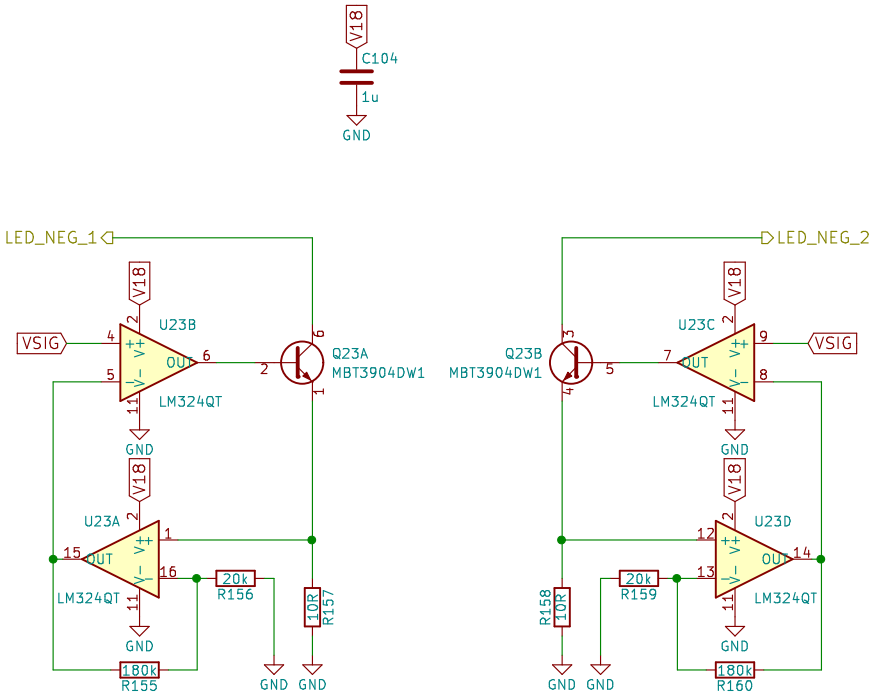


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages24/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 27/37

Place decoupling capacitors close to IC.

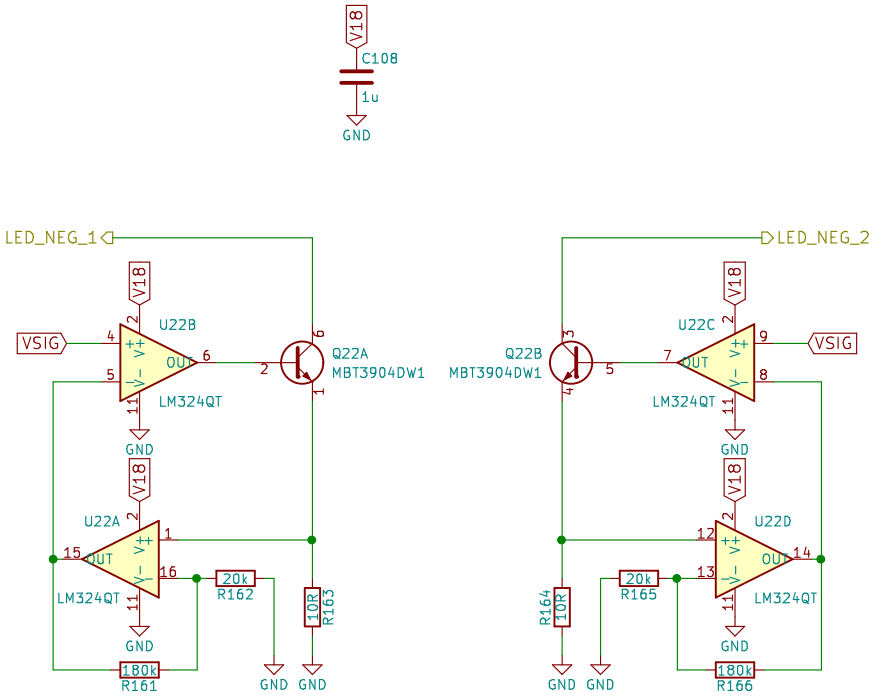


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages23/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 28/37

Place decoupling capacitors close to IC.

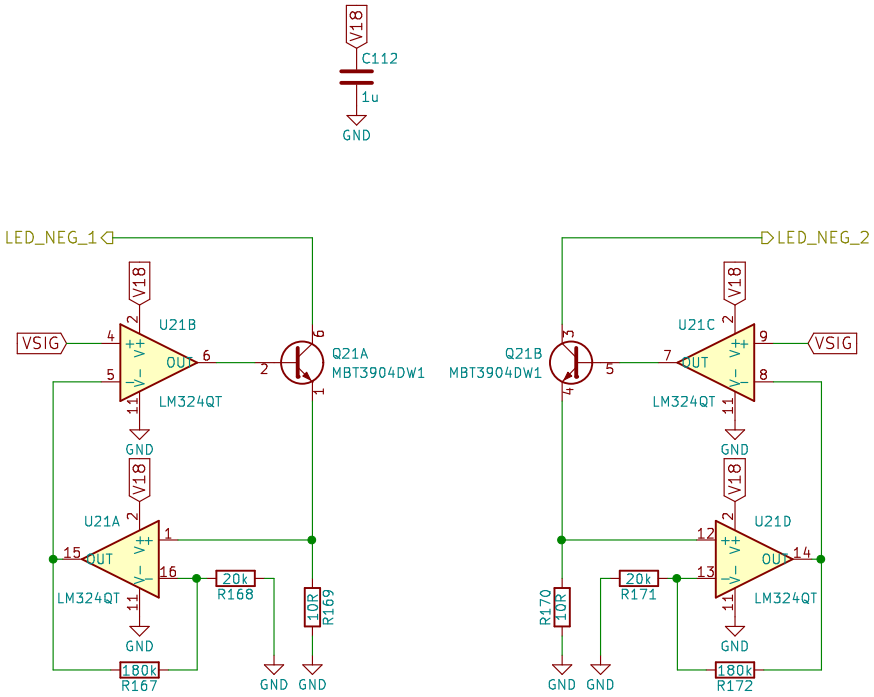


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages22/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 29/37

Place decoupling capacitors close to IC.

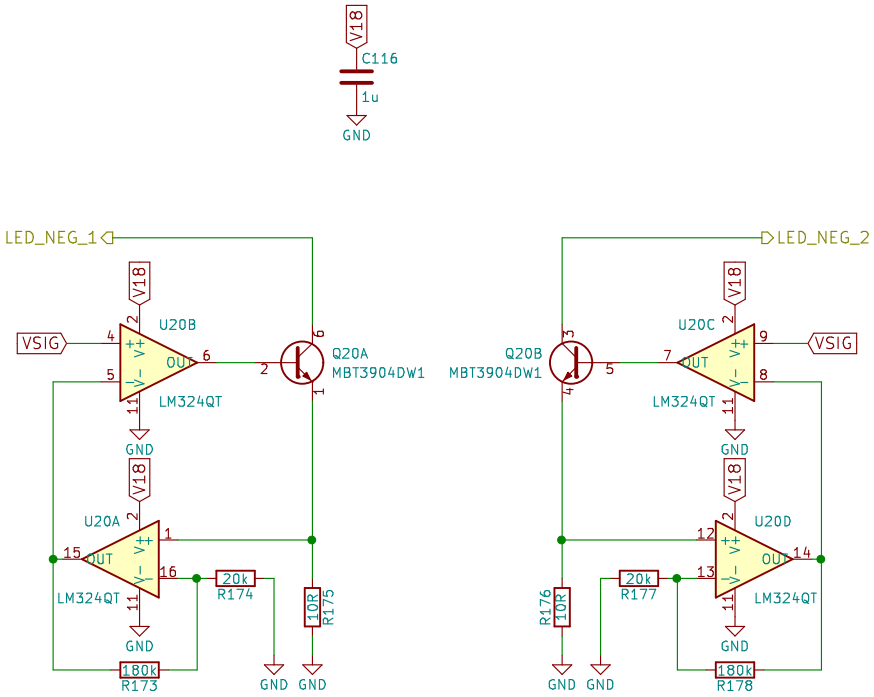


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages21/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 30/37

Place decoupling capacitors close to IC.

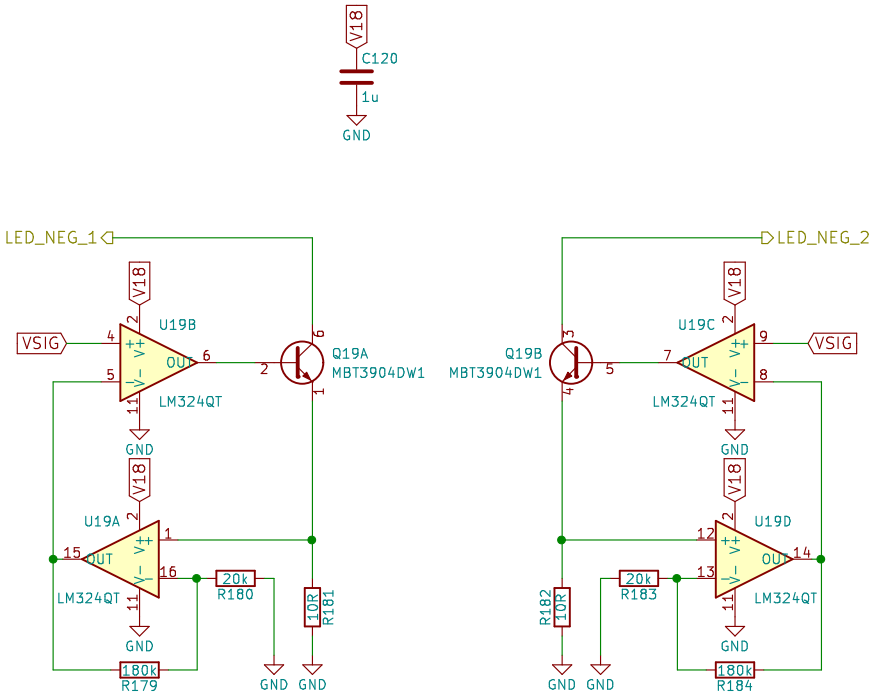


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages20/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 31/37

Place decoupling capacitors close to IC.

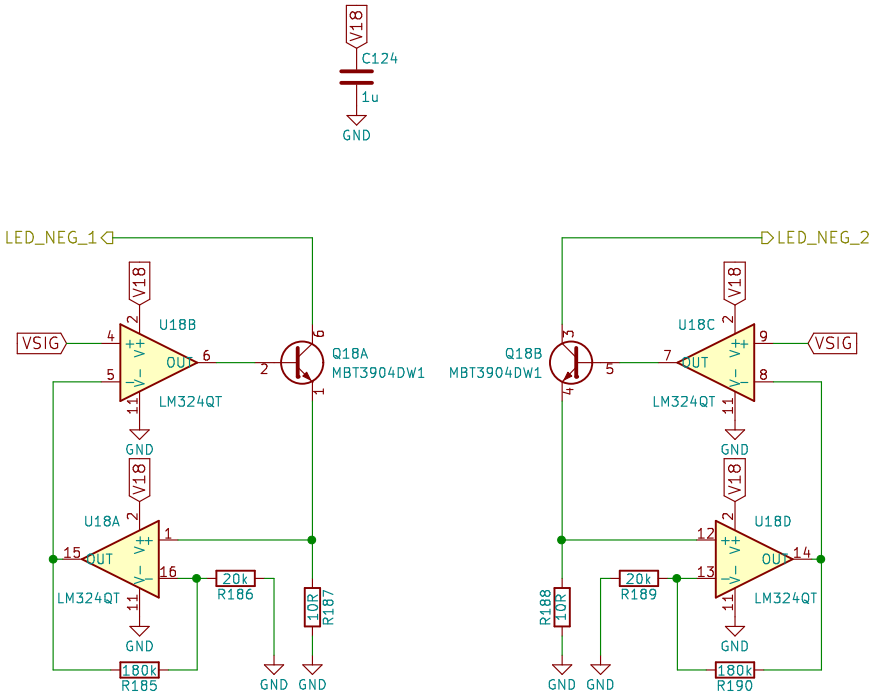


Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages19/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 32/37

Place decoupling capacitors close to IC.



Shunt Resistor Dissipation

P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

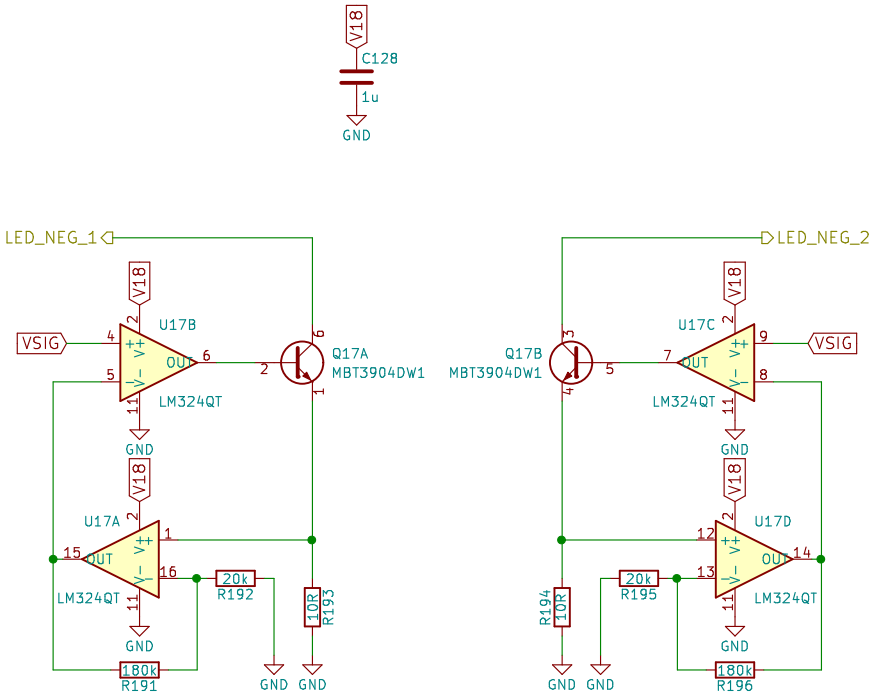
Uppsala University

Sheet: /LEDDriver/2Stages18/
File: 2Stages1.sch

Title: UV LED Driver Two Stages

Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 33/37

Place decoupling capacitors close to IC.



Shunt Resistor Dissipation

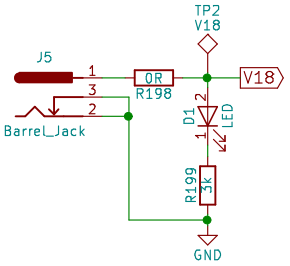
P = U^2/R = (0.33 V)^2 / 10 R = 108.9 mW
No problem!
Higher resistor means more stability (less prone to noise).
-> 696.96 W overall dissipation.

Uppsala University		
Sheet: /LEDDriver/2Stages17/		
File: 2Stages1.sch		
Title: UV LED Driver Two Stages		
Size: A4	Date: 2017-11-13	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 34/37

Current Rating (IPC 2221)

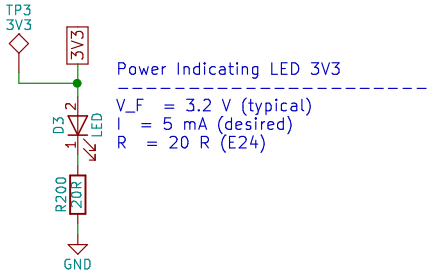
Max. Expected Current = 64 * 0.05 A = 3.2 A
Abs. Max. Current (dT = 10 K, W = 1.6 mm) = 3.36 A

1206 resistor footprint for being able to solder in a switch (housing) in a later revision.



Power Indicating LED V18

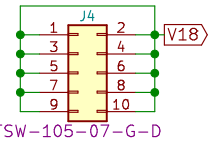
V_F = 3.2 V (typical)
I = 5 mA (desired)
R = 2.96 k (appr. 3 k, E24)



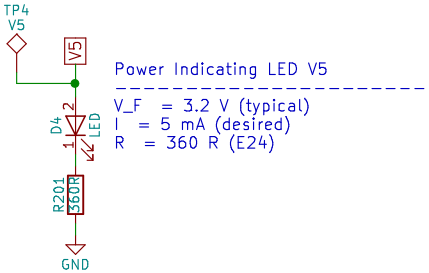
Power Indicating LED 3V3

V_F = 3.2 V (typical)
I = 5 mA (desired)
R = 20 R (E24)

Power connector for extension board (LEDs).



Tell Kicad, that these voltages are externally driven.

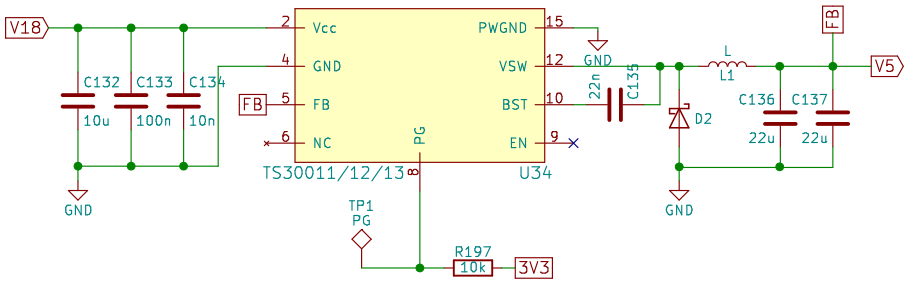


Power Indicating LED V5

V_F = 3.2 V (typical)
I = 5 mA (desired)
R = 360 R (E24)

With this step-down converter the STM board is powered.

A low ESR is required for the output capacitors.



Uppsala University		
Sheet: /Power/		
File: power.sch		
Title: Power Connection and Regulation		
Size: A4	Date: 2017-11-16	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 35/37

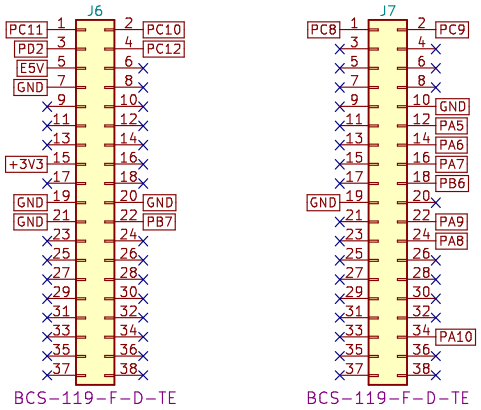
Powering the STM board with 5V.

E5V — V5

Powering the extension board with the LDO output of the Nucleo.

+3V3 — 3V3

These connectors will be on the bottom so the pin assignments are mirrored on the y axis.

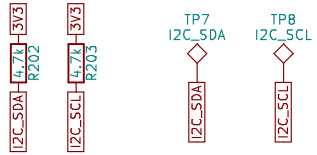


Hook up I2C module 1 of the STM32F103RB.

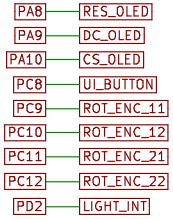
PB7 — I2C_SDA

PB6 — I2C_SCL

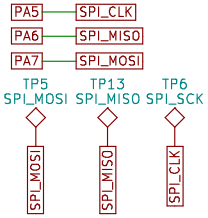
More I2C stuff.



Hook up user interface.



Hook up SPI module 1 of the STM32F103RB.



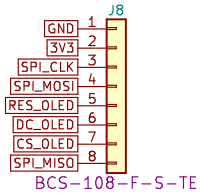
Uppsala University

Sheet: /InterfaceNucleoFee103RB/
File: InterfaceNucleoF103RB.sch

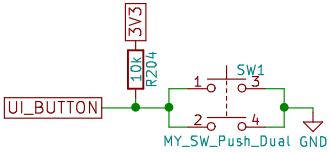
Title: Interface to the Nucleo-F103RB

Size: A4	Date: 2017-11-16	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 36/37

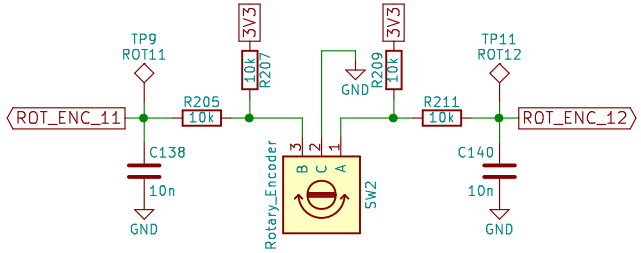
SSD1306 OLED SPI (4 wire) interface.

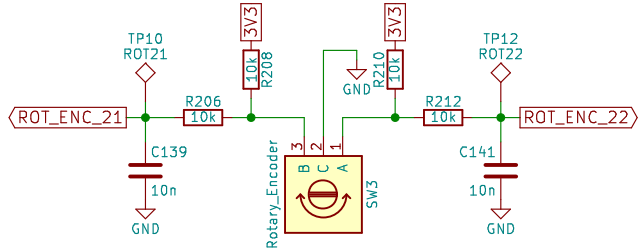


Tactile switch.



Rotary encoders with external debouncing mechanism.
Debouncing circuit stolen from:
https://hifiduino.wordpress.com/2010/10/20/rotaryencoder-hw-sw-no-debounce/





Uppsala University		
Sheet: /UI/ File: UI.sch		
Title: User Interface		
Size: A4	Date: 2017-11-16	**Rev:**
KiCad E.D.A. kicad 4.0.7-e2-637658ubuntu17.04.1		Id: 37/37