

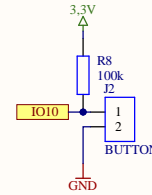
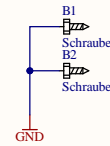
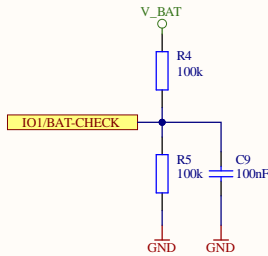
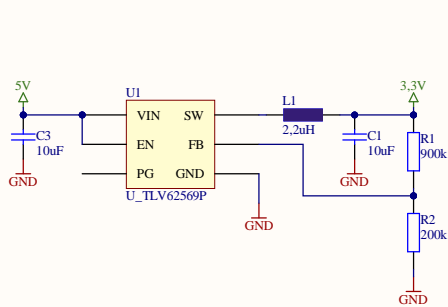
8.2.2.2 Setting the Output Voltage

An external resistor divider is used to set output voltage according to [Equation 2](#).

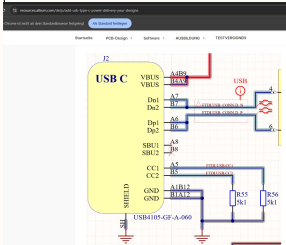
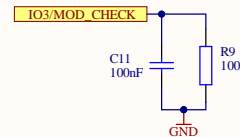
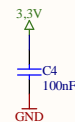
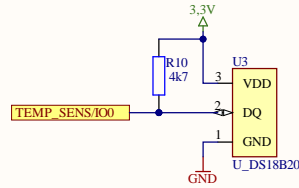
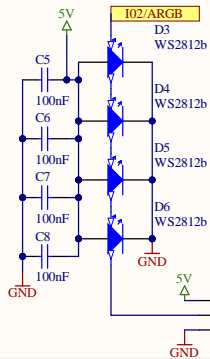
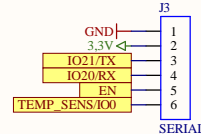
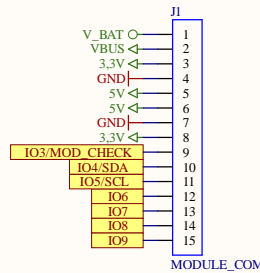
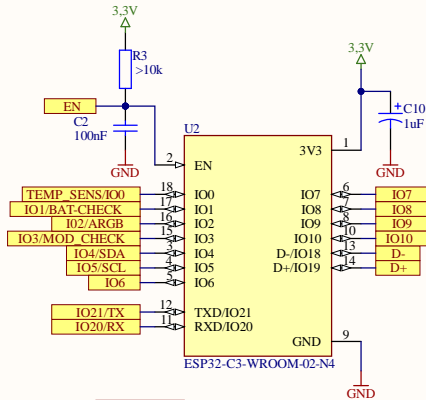
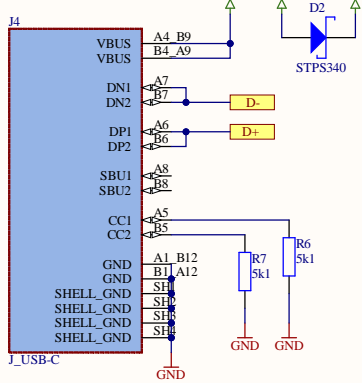
When sizing R2, in order to achieve low current consumption and acceptable noise sensitivity, use a maximum of 200 kΩ for R2. Larger currents through R2 improve noise sensitivity and output voltage accuracy but increase current consumption.

$$V_{OUT} = V_{FB} \times \left(1 + \frac{R1}{R2}\right) = 0.6V \times \left(1 + \frac{R1}{R2}\right) \quad \begin{matrix} V_{OUT} = 3.3V & R2 = 200K \\ V_{FB} = 0.6V & R1 = 900K \end{matrix} \quad (2)$$

A feed forward capacitor, C3 improves the loop bandwidth to make a fast transient response (shown in [Figure 19](#)). 6.8-pF capacitance is recommended for R2 of 100-kΩ resistance. A more detailed discussion on the optimization for stability vs. transient response can be found in [SLVA289](#).



NOTE: VBUS = +5V



04.09.2024

Title		
NODE		
Size	Number	Revision
A4		V2.2
Date:	1.15.2025	Sheet of
File:	C:\Diplomarbeit\...\Sheet1.SchDoc	Drawn By: RK

Name	Description	Designator	LibRef	Footprint	Quantity
Schraube	Schraubenloch für M3 Schrauben	B1, B2	B_Schraube	B_Schraube-M3 PAD	2
10uF	Kondensator SMD Universal, Keramik, Folie, usw.	C1, C3	C_SMD_KO	C_SMD_0805	2
100nF	Kondensator SMD Universal, Keramik, Folie, usw.	C2, C4, C5, C6, C7, C8, C9, C11	C_SMD_KO	C_SMD_0603	8
1uF	Tantalkondensator	C10	C_SMD_Tantal	C_SMD_0805	1
STPS340	Diode SMD Schottky	D2	D_SMD_Schottky	D_DO-221	1
WS2812b	Diode SMD ARGB	D3, D4, D5, D6	D_SMD_LED-ARGB	D_SMD_LED-ARGB	4
MODULE_COM	Stecker	J1	J_THT_CON15	SP-15	1
BUTTON	Stecker	J2	J_THT_CON2	SP-2	1
SERIAL	Stecker	J3	J_THT_CON6	SP-6	1
J_USB-C	USB4105-GF-	J4	J_USB-C	GCT_USB4105-GF-A	1
ARGB_OUTPUT	Stecker	J6	J_THT_CON3	Sp-3	1
2,2uH	Spule SMD	L1	L_SMD_Spule	L_SMD_ND_NR301 5T2R2M	1
900k	Widerstand SMD	R1	R_SMD_Widerstand	R_SMD_0603	1
200k	Widerstand SMD	R2	R_SMD_Widerstand	R_SMD_0603	1
>10k	Widerstand SMD	R3	R_SMD_Widerstand	R_SMD_0805	1
100k	Widerstand SMD	R4, R5, R8, R9	R_SMD_Widerstand	R_SMD_0805	4
5k1	Widerstand SMD	R6, R7	R_SMD_Widerstand	R_SMD_0805	2
4k7	Widerstand SMD	R10	R_SMD_Widerstand	R_SMD_0603	1
U_TLV62569P		U1	U_TLV62569P	SOT50P160X60-6N	1
ESP32-C3-WROOM-02-N4	WiFi Modules (802.11) (Engineering Samples) SMD module, ESP32-C3, 4MB SPI flash, PCB antenna, -40 C+85 C	U2	ESP32-C3-WROOM-02-N4	MODULE_ESP32-C3-WROOM-02-H4	1
U_DS18B20	Temperature Sensor Digital, Local -55Â°C~125Â°C 12 b 8-uMAX-EP 8-uSOP-EP	U3	U_DS18B20	TO-92_DS18B20	1