

Renesas RA4M1 - Weather Station

PROJECT FILES



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PROJECT DETAILS

Project name:

Renesas RA4M1 - Weather Station

Project description:

Renesas RA4M1 Powered Weather Station Included sensors: Temperature Absolute Pressure Humidity All the three sensors are connected over the shared I²C bus.

(C/C++) drivers and code examples available on Github:

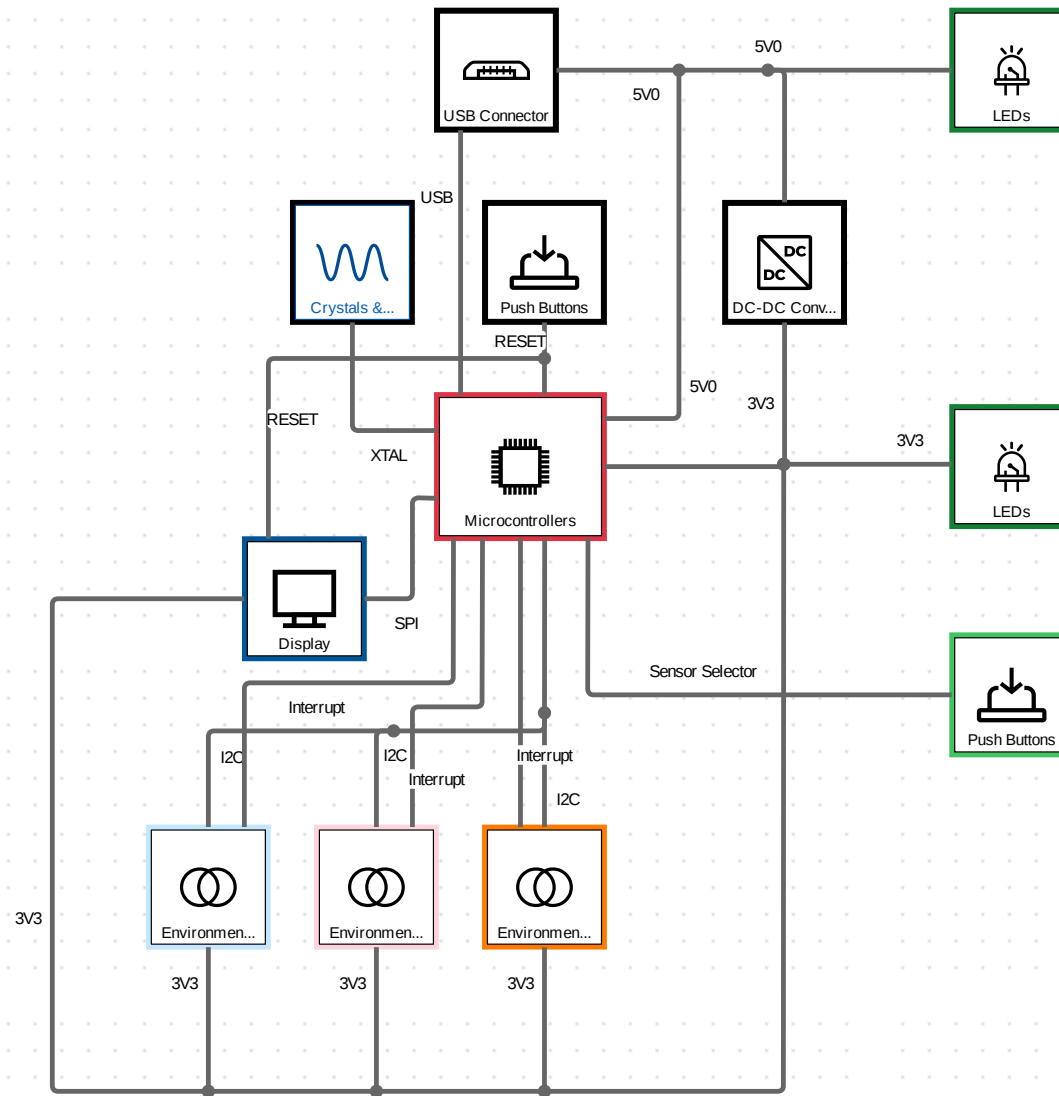
<https://github.com/WurthElektronik/FeatherWings/tree/main/SensorFeatherWing>

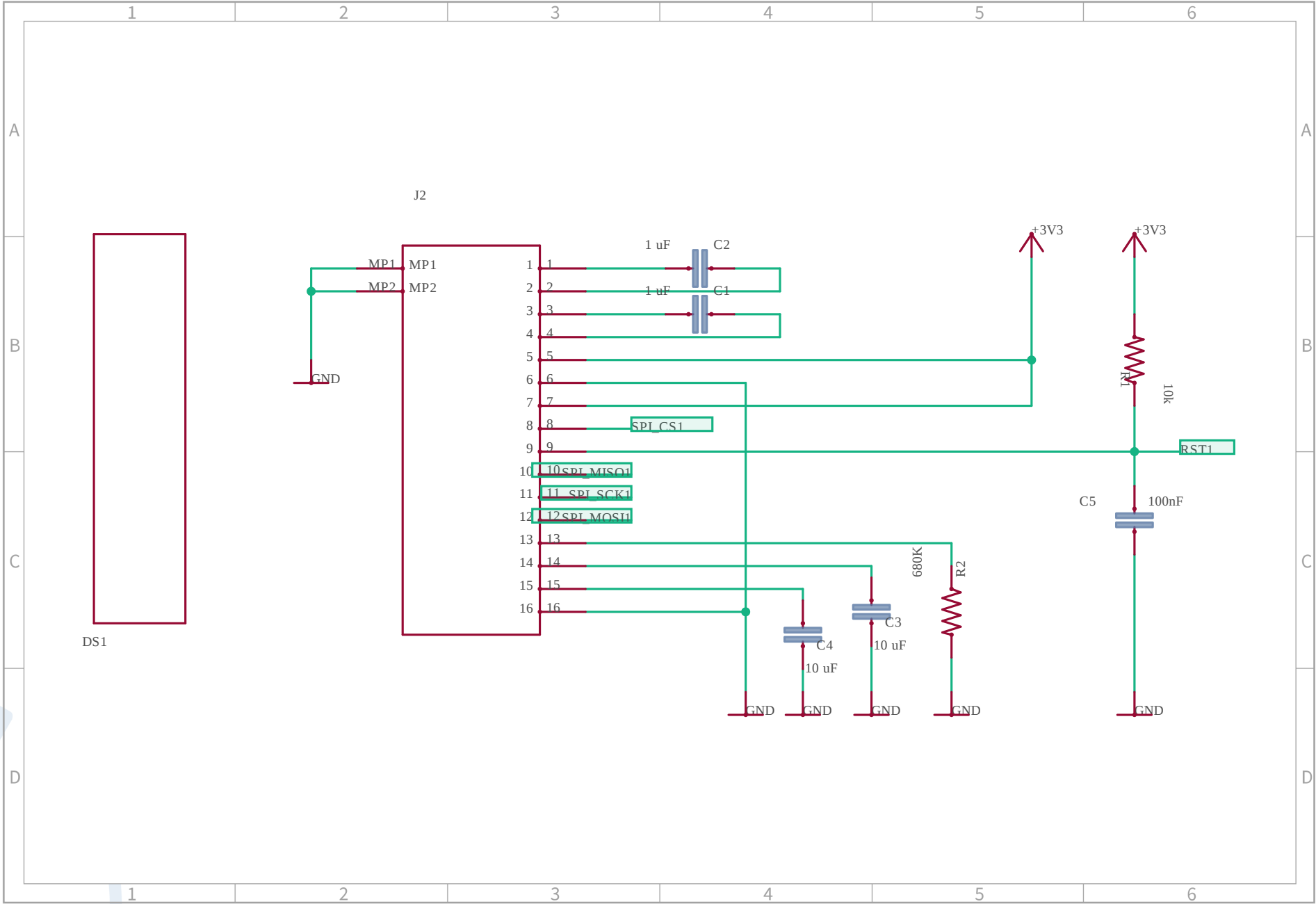
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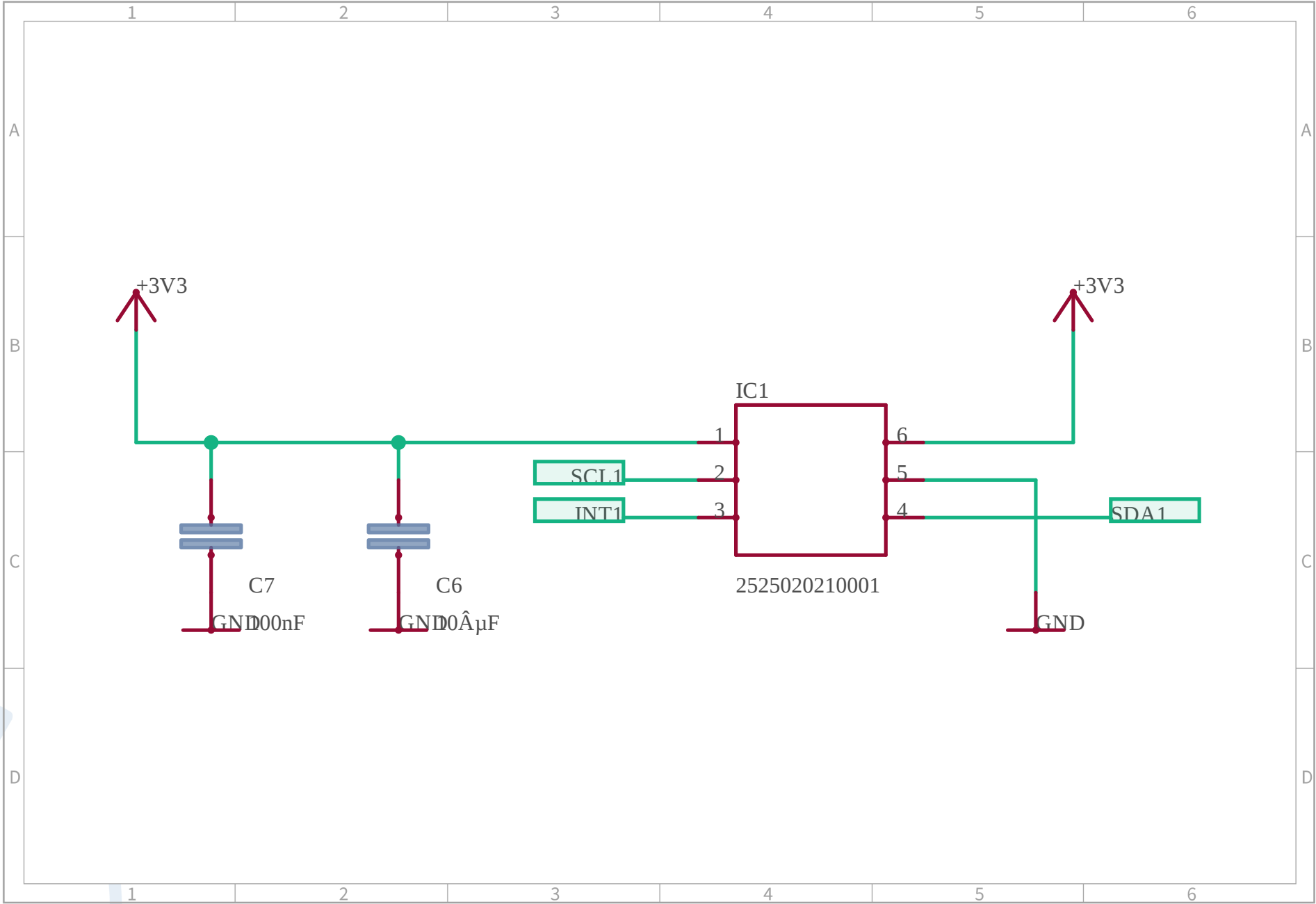
Eagle

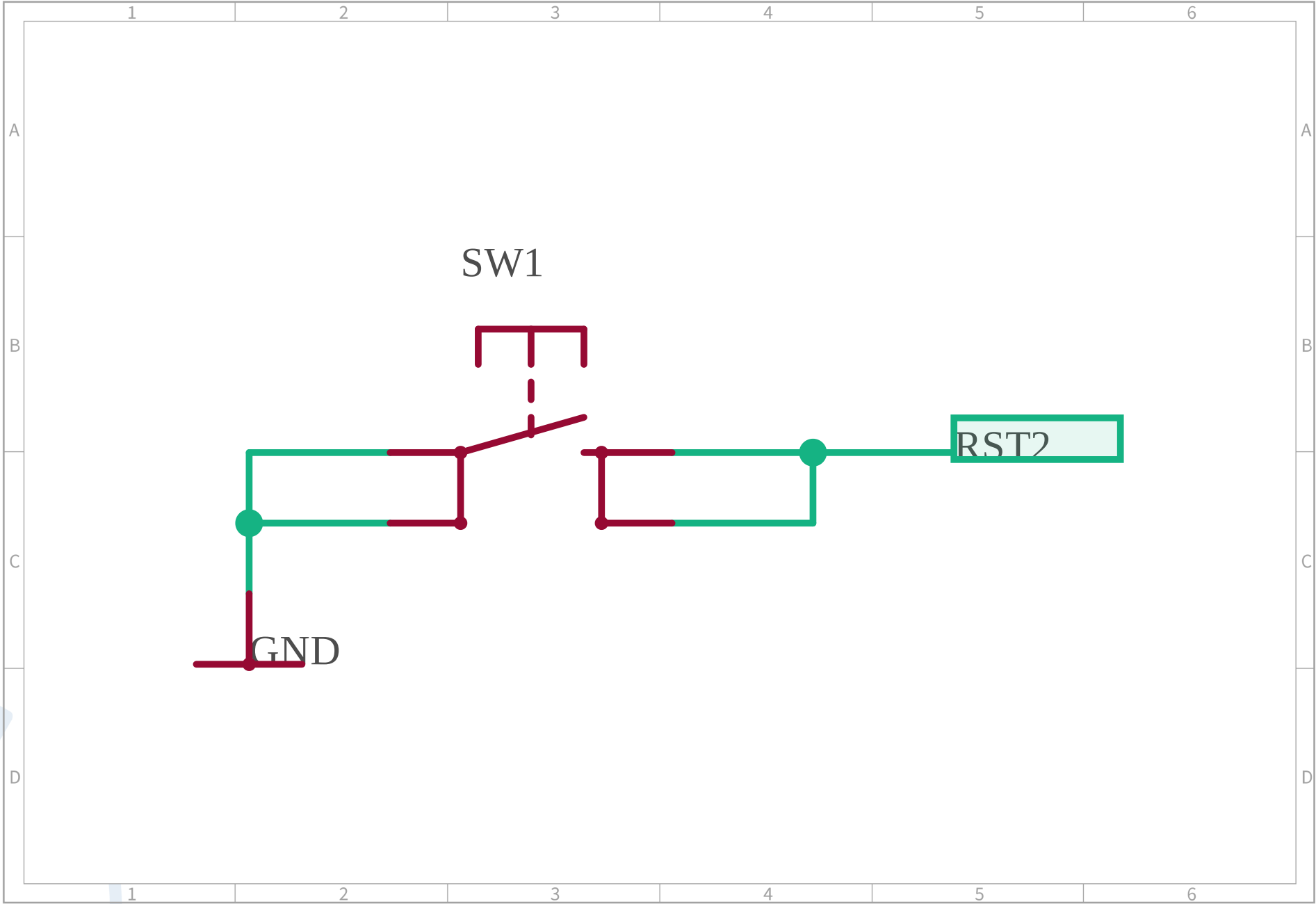
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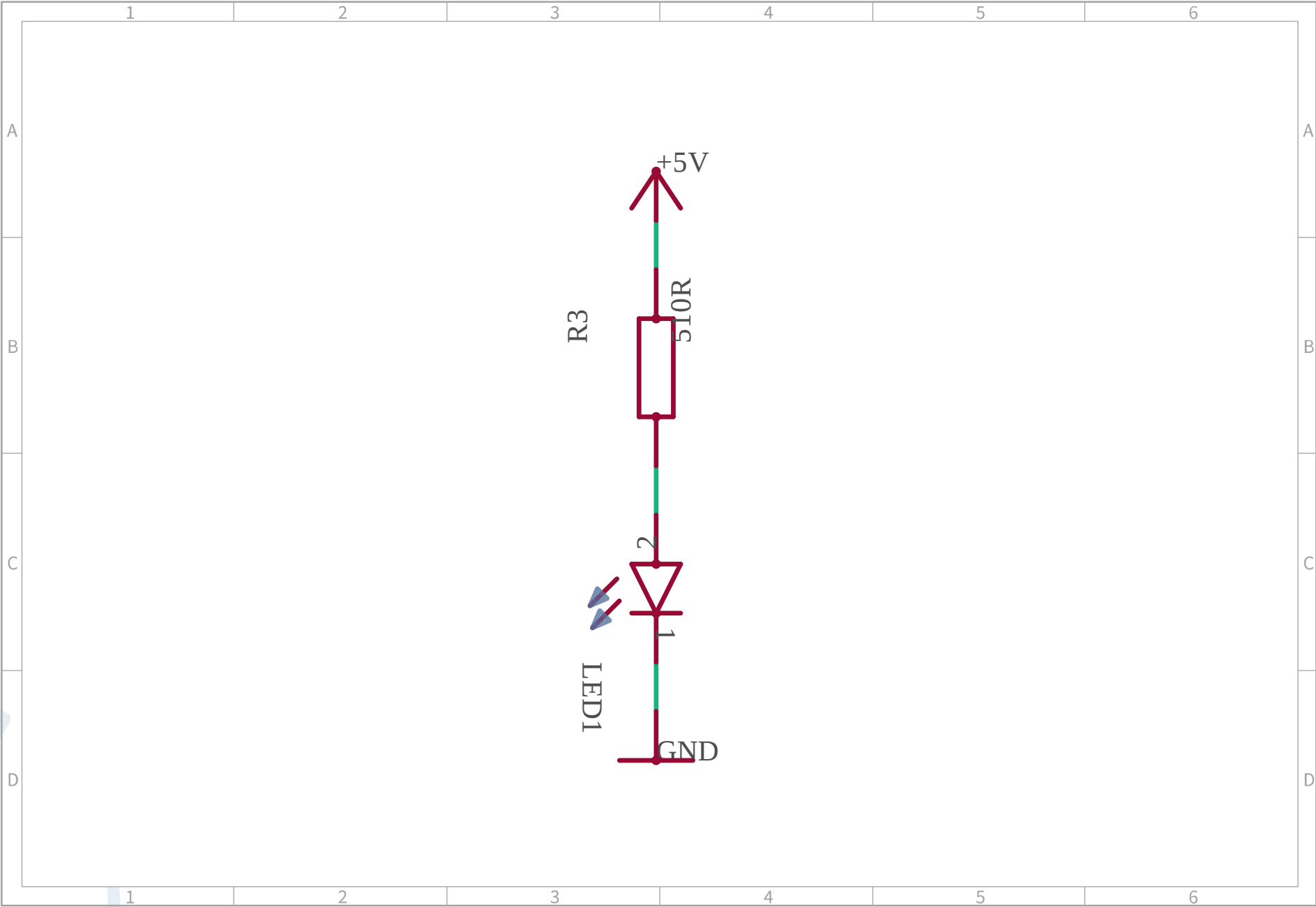
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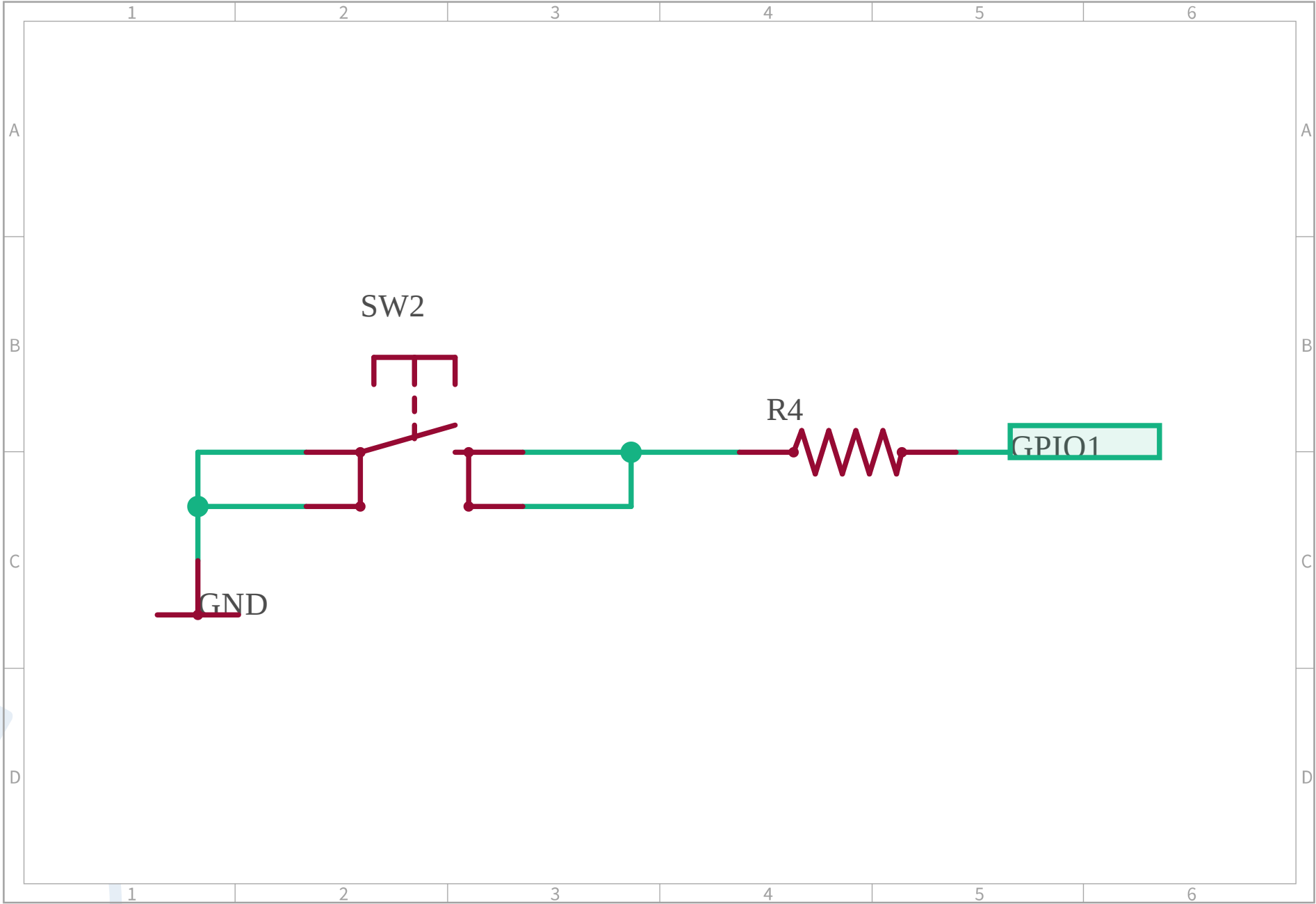


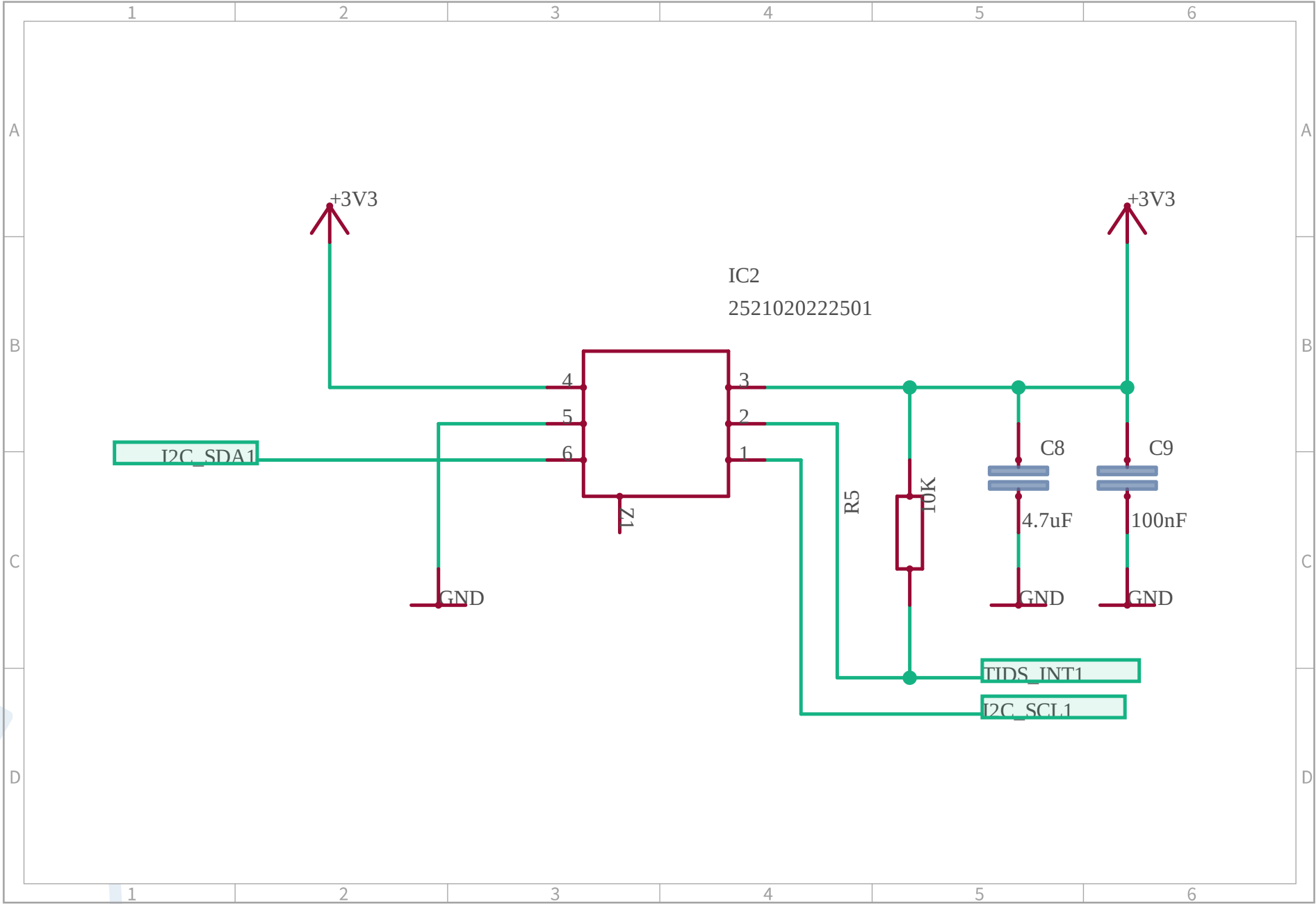


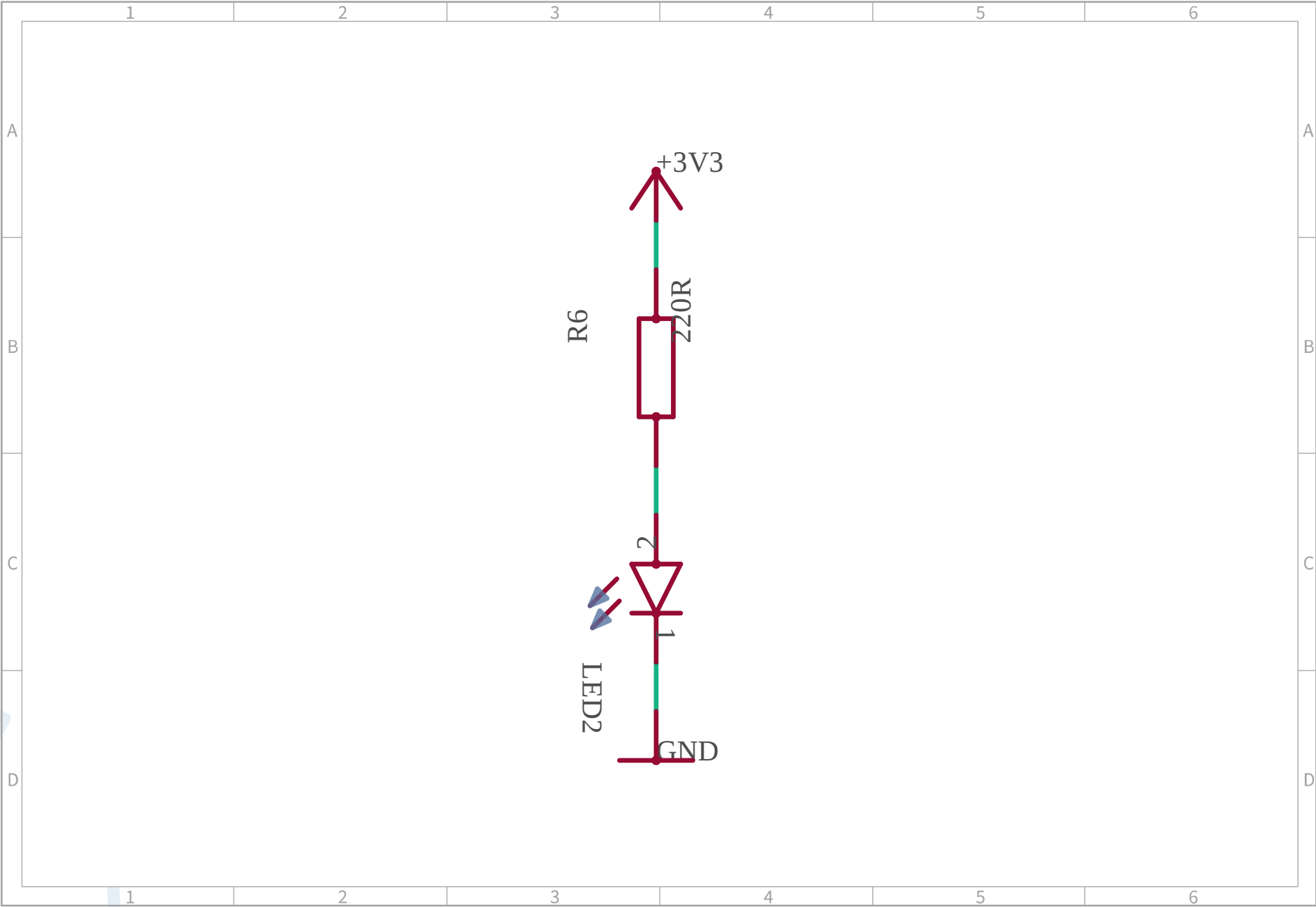


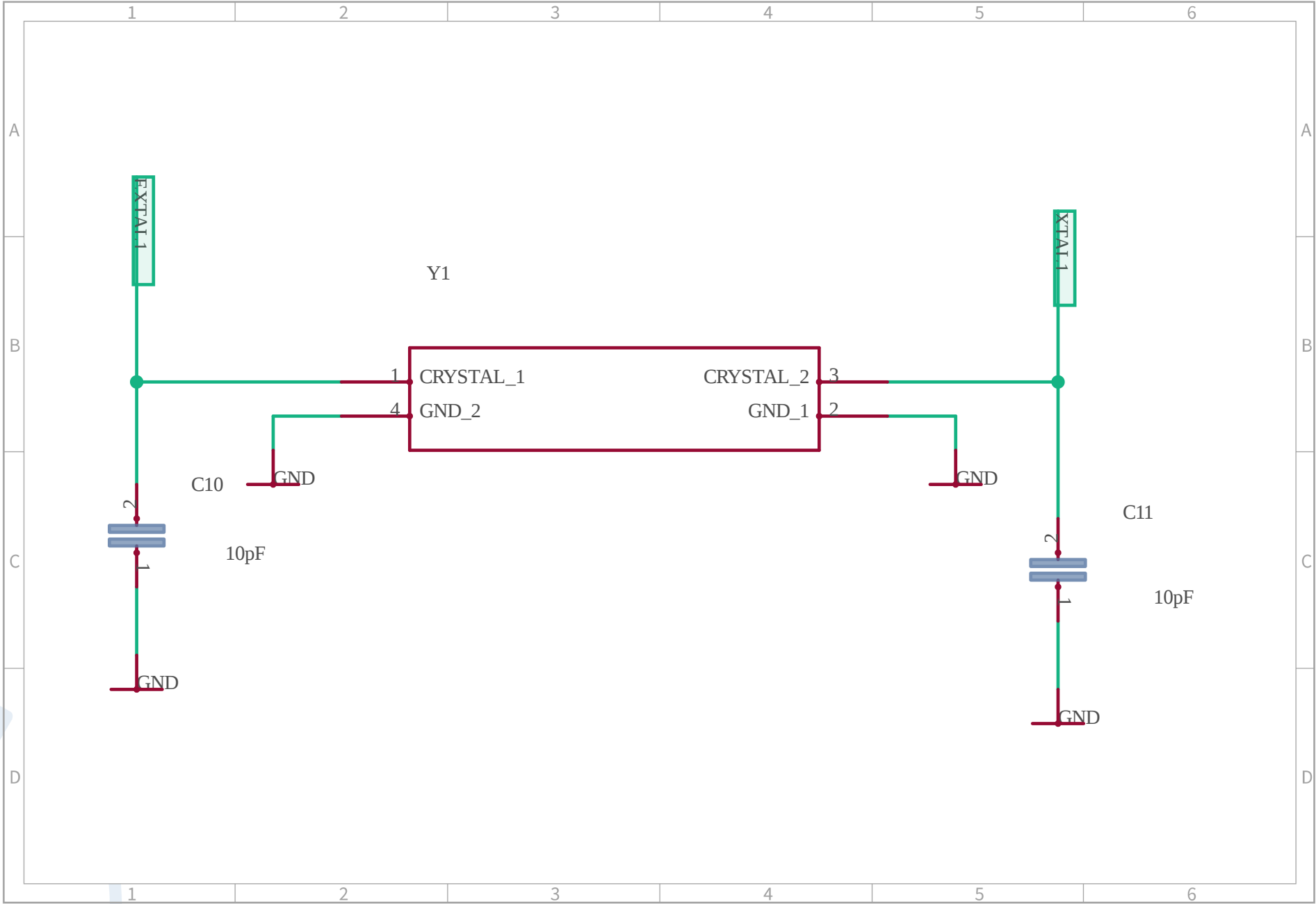


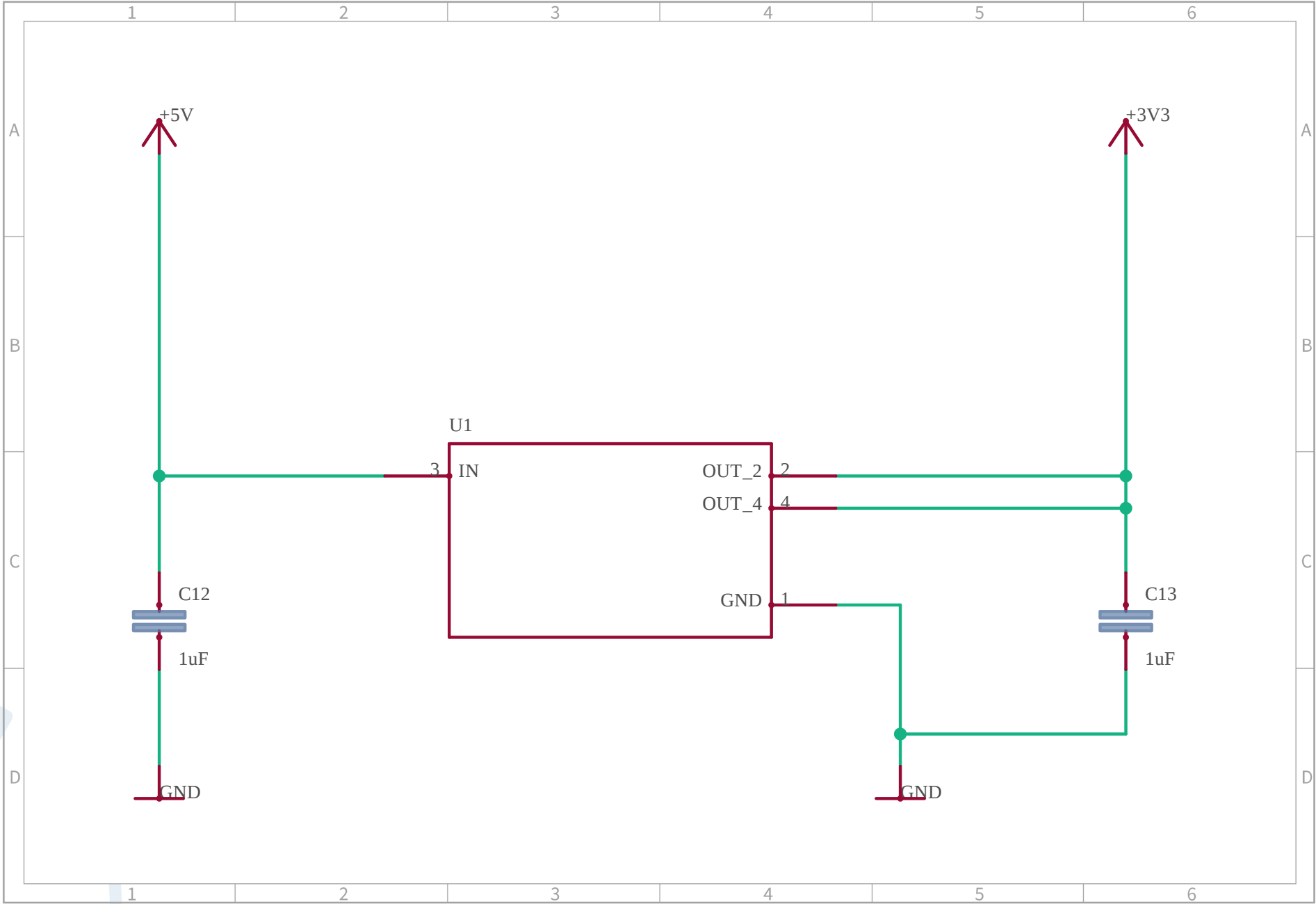


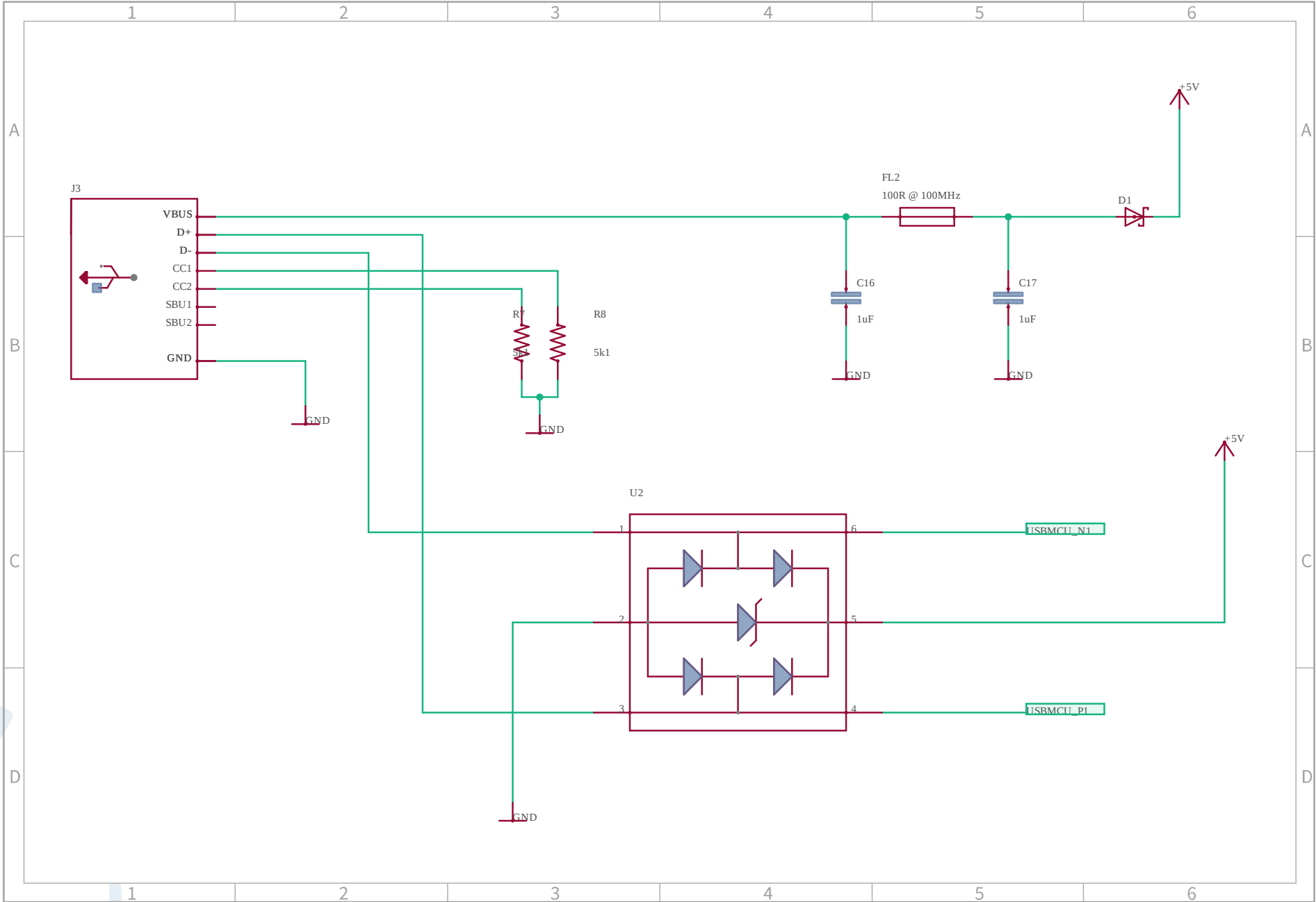


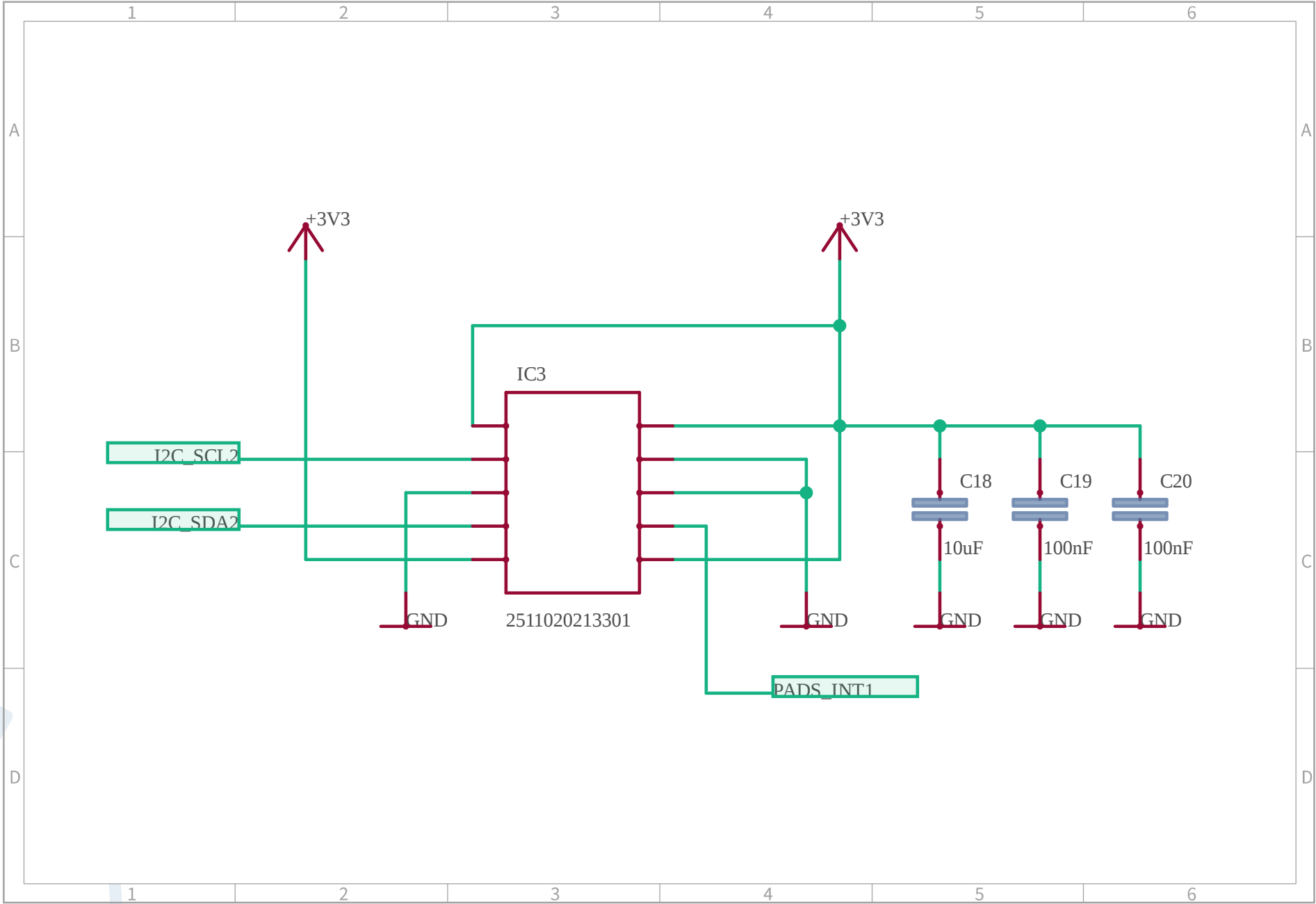


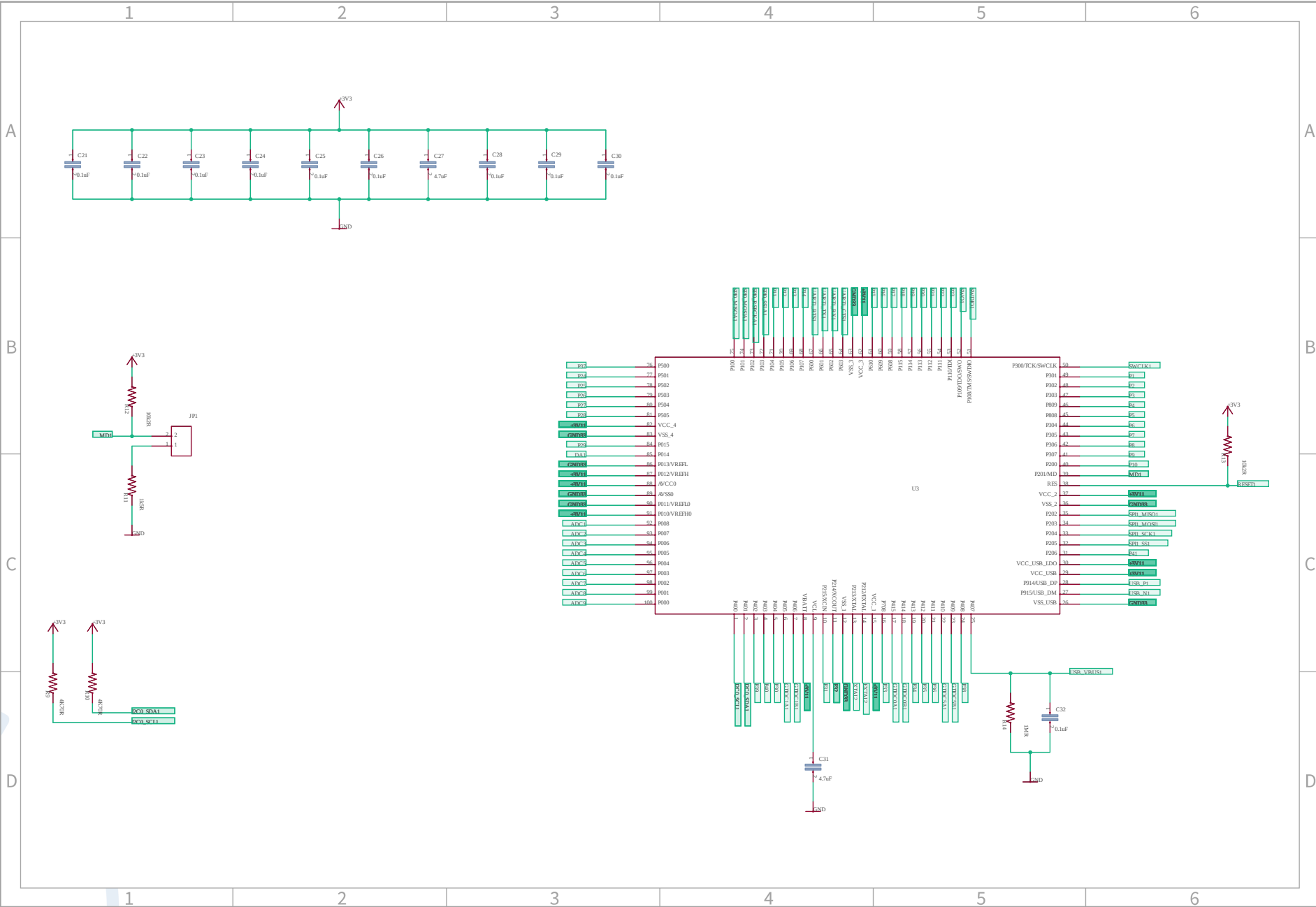


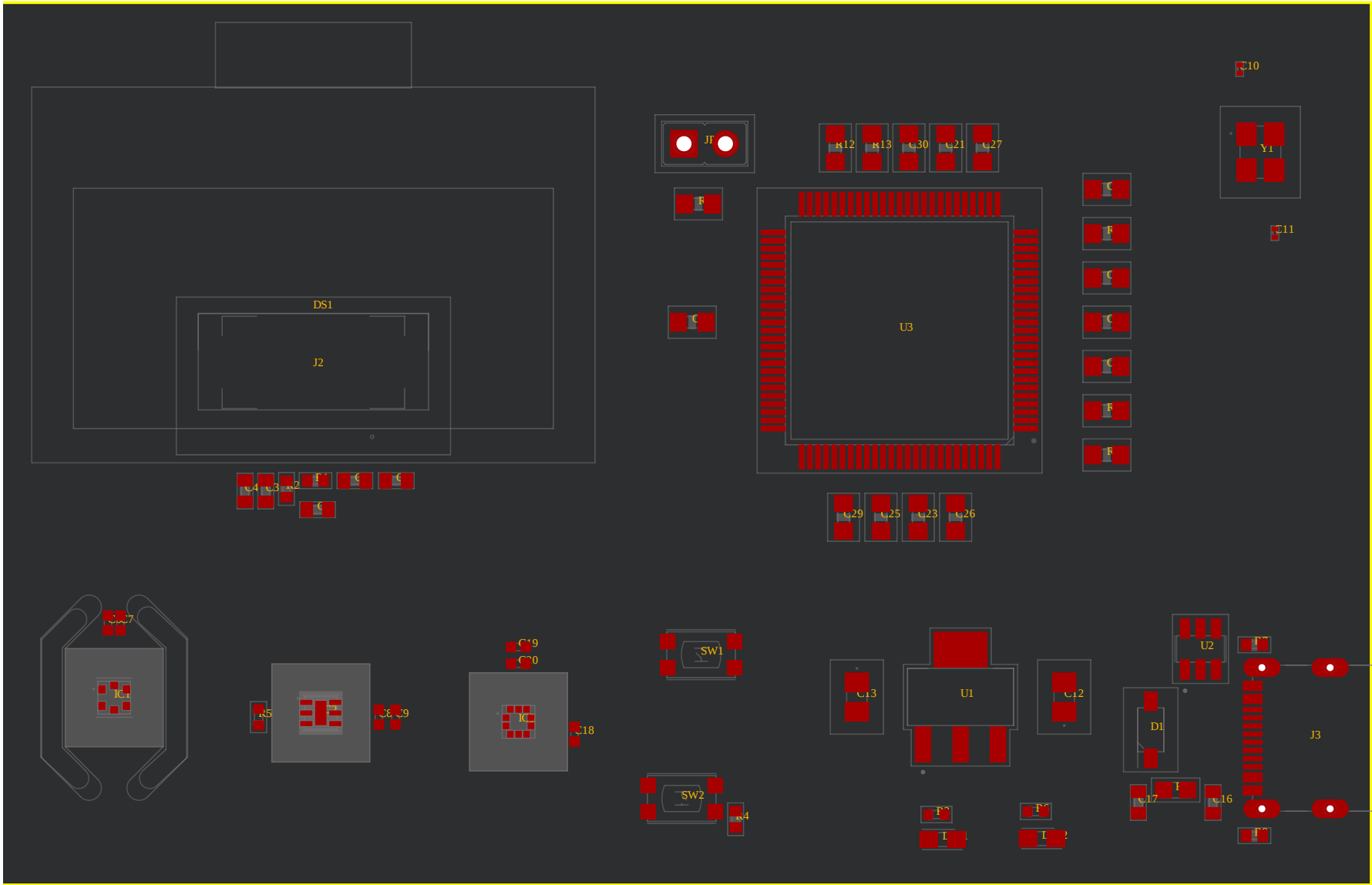


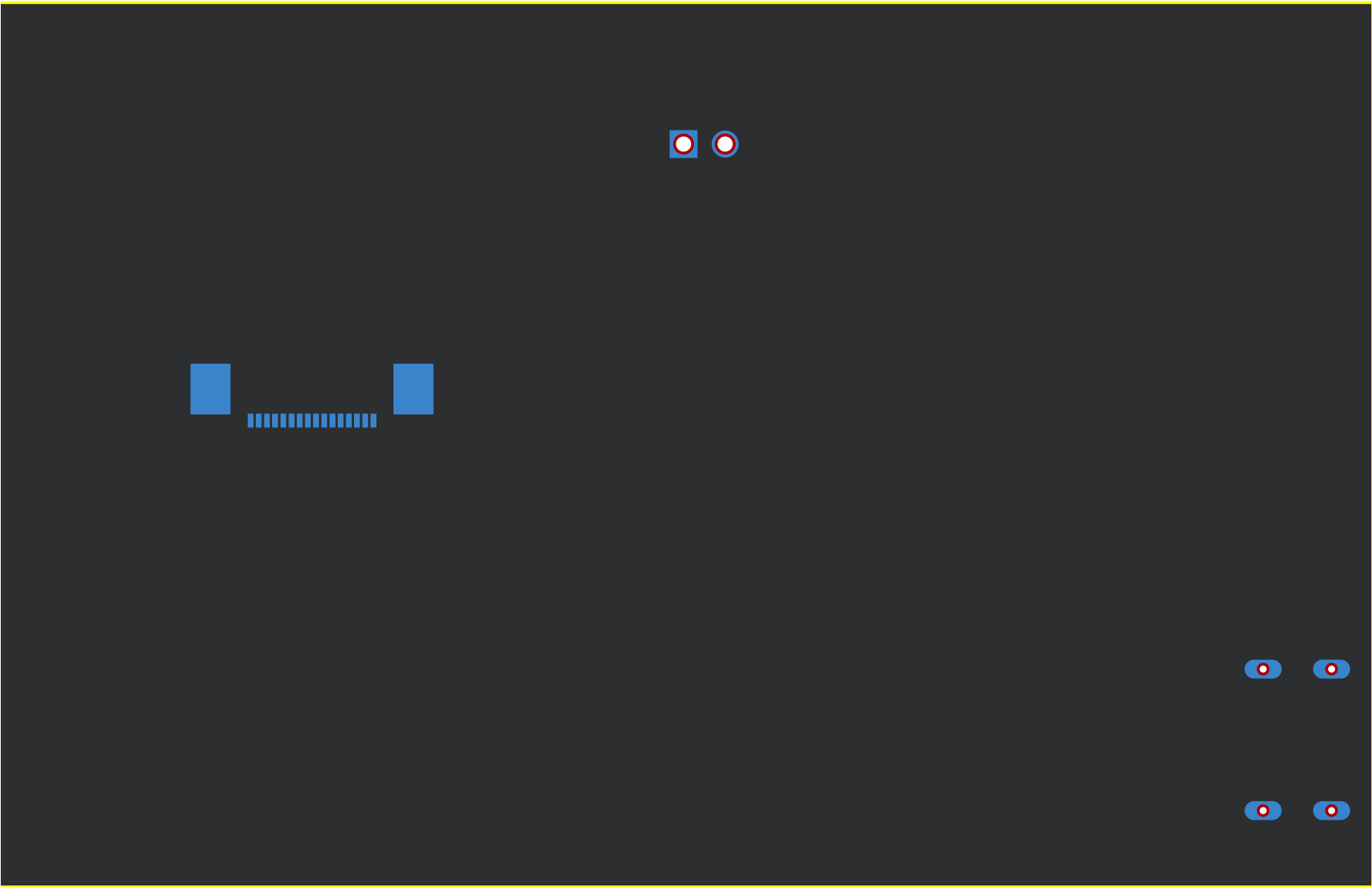












Part	Value	Package	Description	Man. P/N	Man. Name
C1	1 uF	0402	Multilayer Ceramic Capacitor, 1 uF, 6.3 V, +/- 10%, X5R, 0402	04026D105KAT2A	KYOCERA AVX
C2	1 uF	0402	Multilayer Ceramic Capacitor, 1 uF, 6.3 V, +/- 10%, X5R, 0402	04026D105KAT2A	KYOCERA AVX
C3	10 uF	0402	Multilayer Ceramic Capacitor, 10 uF, 6.3 V, +/- 20%, X5R, 0402	04026D106MAT2A	KYOCERA AVX
C4	10 uF	0402	Multilayer Ceramic Capacitor, 10 uF, 6.3 V, +/- 20%, X5R, 0402	04026D106MAT2A	KYOCERA AVX
C5	100 nF	0402	Multilayer Ceramic Capacitor 0.1 uF 10 V +/- 10% X5R	0402ZD104KAT2A	KYOCERA AVX
R1	10K	0402	Thick Film Res 0402 10K Ohm 1% 1/16W +/-100ppm/ DegC Molded SMD	RC0402FR-0710KL	Yageo
R2	680K	0402	Thick Film Res RC0402FR-07680KL 0402 680K Ohm 1% 0.063W(1/16...	RC0402FR-07680KL	Yageo
DS1	128x64		128x64 OLED Display - Passive Matrix - White Monochrome - SPI - 1...	ZJY130-2864KSWLG22	ZJY technology Inc
J1			FFC/FPC Conn; Easy-On; 0.50mm Pitch; Rt-Angle; SMT; ZIF; Bottom ...	52746-1671	Molex
C6	10uF	0402	Cap Ceramic 10uF 6.3V X5R 20% Pad SMD 0402 125C	885012105020	Wurth Elektronik
C7	100nF	0402	Cap Ceramic 0.1uF 16V X7R 10% Pad SMD 0402 125C	885012205037	Wurth Elektronik
IC1		6-LGA	Humidity/Temperature, -40 To 120 Deg C	2525020210001	Wurth Elektronik
SW1			Switch Tactile N.O. SPST Button Gull Wing 0.05A 32VDC 1VA 200000C...	KMR211GLFS	C&K Components
LED1	Green	0603	Green 520nm LED Indication - Discrete 3.2V 0603	150060GS75000	Wurth Elektronik
R3	510R	0402	Res Thick Film 0402 510 Ohm 1% 1/16W +/-100ppm/ Deg C	RC0402FR-07510RL	Yageo
SW2			Switch Tactile N.O. SPST Button Gull Wing 0.05A 32VDC 1VA 200000C...	KMR211GLFS	C&K Components
R4	1K	0402	Thick Film Res 0402 1K Ohm 1% 0.063W(1/16W) +/- 100ppm/ Deg C	RC0402FR-071KL	Yageo
C8	4.7uF	0402	Multilayer Ceramic Capacitor, Wcap-Csgp Series, 4.7 F, 20%, X5r, 6.3 ...	885012105008	Wurth Elektronik
C9	100nF	0402	Cap Ceramic 0.1uF 16V X7R 10% Pad SMD 0402 125C	885012205037	Wurth Elektronik
IC2		6-UDFN	Temp Sensor, Digital, -40 To 125Deg C	2521020222501	Wurth Elektronik
R5	10K	0402	Thick Film Res 0402 10K Ohm 1% 1/16W +/-100ppm/Deg C	RC0402FR-0710KL	Yageo
LED2	Green	0603	Green 520nm LED Indication - Discrete 3.2V 0603	150060GS75000	Wurth Elektronik
R6	220R	0402	Res Thick Film 0402 220 Ohm 1% 1/16W +/-100ppm/ Deg C	RC0402FR-07220RL	Yageo
C10	10pF	0201	Multilayer Ceramic Capacitor, 10 pF, 25 V, +/- 0.5pF, C0G (NP0), 0201	CL03C100DA3GNNC	Samsung
C11	10pF	0201	Multilayer Ceramic Capacitor, 10 pF, 25 V, +/- 0.5pF, C0G (NP0), 0201	CL03C100DA3GNNC	Samsung
Y1			Crystal 12MHz +/-30ppm (Tol) +/-30ppm (Stability) 10pF FUND 1200...	ABM8G-12.000MHZ-B-4-Y-T	Abracon
C12	1uF	0805	Multilayer Ceramic Capacitor 1 uF 16 V +/- 10% X5R	0805YD105KAT2A	KYOCERA AVX
C13	1uF	0805	Multilayer Ceramic Capacitor 1 uF 16 V +/- 10% X5R	0805YD105KAT2A	KYOCERA AVX

Part	Value	Package	Description	Man. P/N	Man. Name
U1		SOT-223-4	1-A low-dropout voltage regulator 4-SOT-223 -40 to 125	TLV1117LV33DCYR	Texas Instruments
J3			USB-C USB 2.0 Receptacle Connector 24 (16+8 Dummy) Position Sur ...	USB4105-GF-A	Global Connector Technology
R7	5k1	0402	Res SMD 5.1K Ohm 5% 1/5W 0402	CRCW04025K10JNEDHP	Vishay
R8	5k1	0402	Res SMD 5.1K Ohm 5% 1/5W 0402	CRCW04025K10JNEDHP	Vishay
C14	1uF	0402	0402 1 uF 16 V +/-10 % Tolerance X5R Surface Mount Multilayer Cera...	0402YD105KAT2A	KYOCERA AVX
C15	1uF	0402	0402 1 uF 16 V +/-10 % Tolerance X5R Surface Mount Multilayer Cera...	0402YD105KAT2A	KYOCERA AVX
D1		SOD-123	BAT54T1 Series 30 V 600 mA Surface Mount Schottky Barrier Diode - ...	BAT54T1G	onsemi
FL1	100R @100MHz	0603	Ferrite Beads Multi-Layer 100Ohm 25% 100MHz 3A 30mOhm DCR 0603	BLM18KG101TN1D	Murata
U2		SOT-23-6	USBL6 Series 2 Line 6 V Uni / Bi-Directional ESD Protection - SOT-23-6	USBL6-2SC6	STMicroelectronics
C18	10uF	0402	Cap Ceramic 10uF 6.3V X5R 20% Pad SMD 0402 125C	885012105020	Wurth Elektronik
C19	100nF	0402	Cap Ceramic 0.1uF 16V X7R 10% Pad SMD 0402 125C	885012205037	Wurth Elektronik
C20	100nF	0402	Cap Ceramic 0.1uF 16V X7R 10% Pad SMD 0402 125C	885012205037	Wurth Elektronik
IC3		10-LGA	Pressure Sensor, Absolute, -40 To 85 Deg C	2511020213301	Wurth Elektronik
C21	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C22	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C23	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C24	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C25	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C26	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C27	4.7uF	0603	Cap Ceramic 4.7uF 6.3V X5R 10%	CL10A475KQ8NNNL	Samsung
C28	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C29	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C30	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
C31	4.7uF	0603	Cap Ceramic 4.7uF 6.3V X5R 10%	CL10A475KQ8NNNL	Samsung
C32	0.1uF	0603	Cap Ceramic 0.1uF 50V X7R 10%	CL10B104KB8NNNC	Samsung
JP1			CONN HEADER VERT 2POS 2.54MM	61300211121	Wurth
R9	4K70R	0603	Res Thick Film 0603 4.7K Ohm 5% 1/10W	RC1608J472CS	Samsung
R10	4K70R	0603	Res Thick Film 0603 4.7K Ohm 5% 1/10W	RC1608J472CS	Samsung

Part	Value	Package	Description	Man. P/N	Man. Name
R11	1k5R	0603	Res Thick Film 0603 10.2K Ohm 1% 1/10W	RC1608F1022CS	Samsung
R12	10k2R	0603	Res Thick Film 0603 10.2K Ohm 1% 1/10W	RC1608F1022CS	Samsung
R13	10k2R	0603	Res Thick Film 0603 10.2K Ohm 1% 1/10W	RC1608F1022CS	Samsung
R14	1MR	0603	Res Thick Film 0603 1M Ohm 5% 1/10W	RC1608J105CS	Samsung
U3		LQFP	RENESAS - R7FA4M1AB3CFP#AA0 - ARM MCU, RA Family, RA4 S...	R7FA4M1AB3CFP#AA0	Renesas Electronics

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