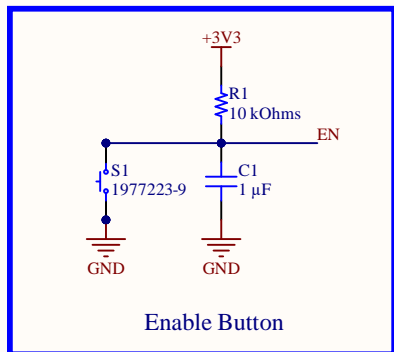
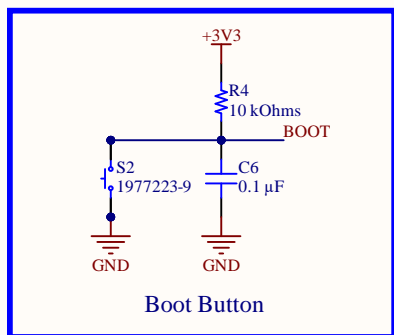


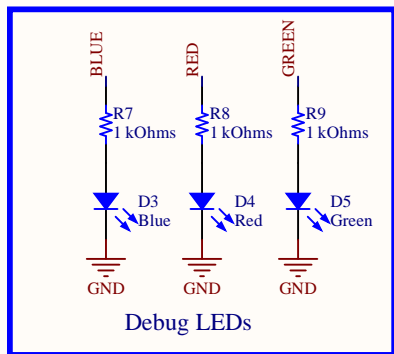
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Size	Number	Revision
A4		
Date:	5-22-2023	Sheet of
File:	C:\Gripper-Arm\Top Level.SchDoc	Drawn By:



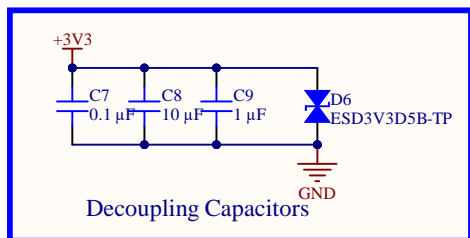
Enable Button



Boot Button

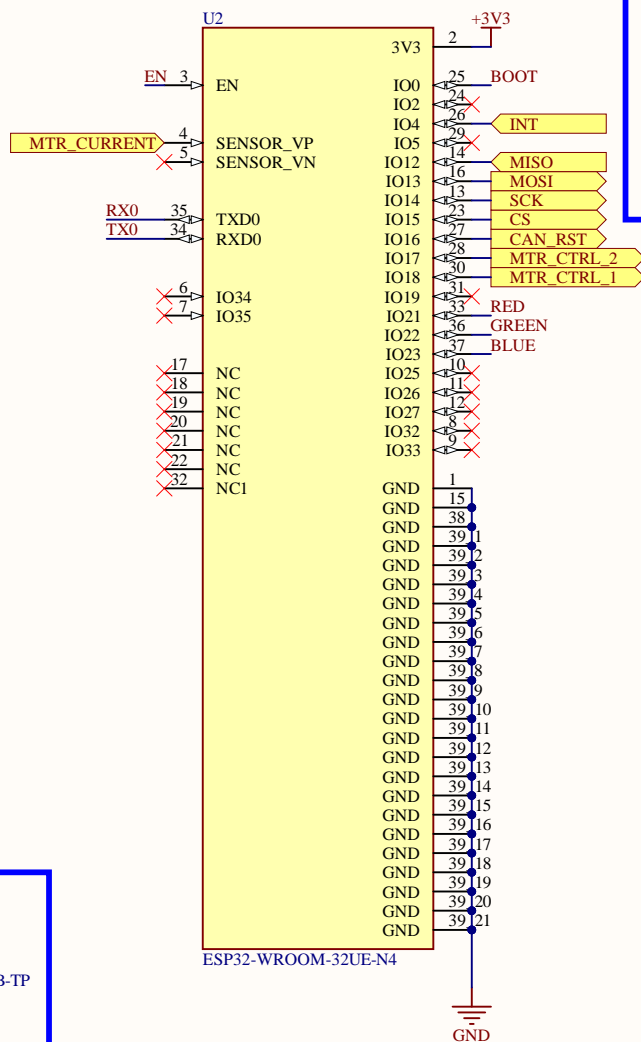


Debug LEDs

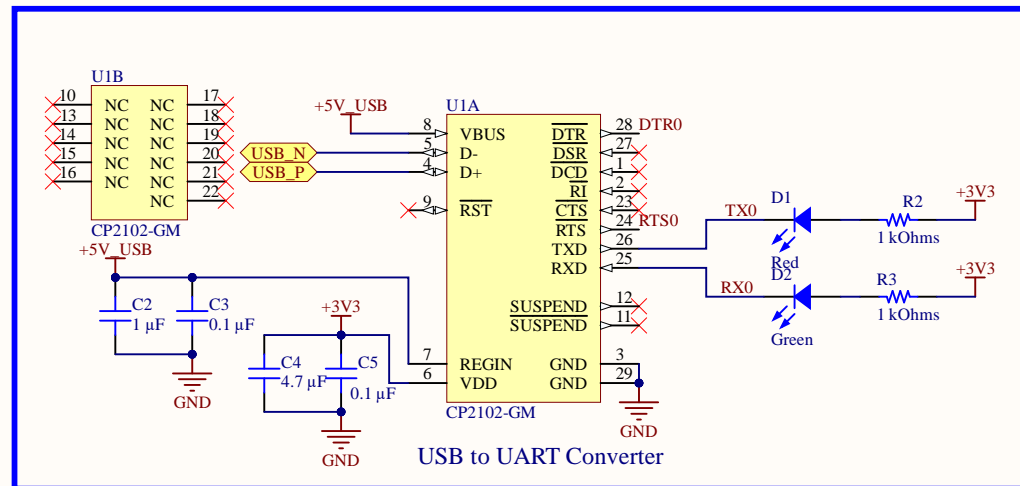


Decoupling Capacitors

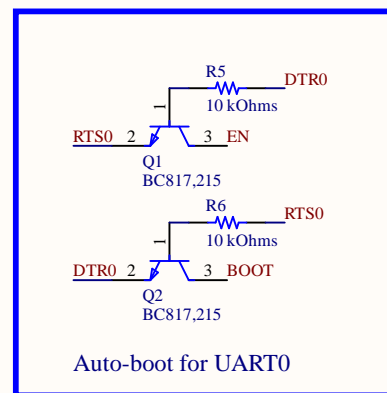
MTR CURRENT = ADC1_CH0
SPI Pins = GPIO12-15



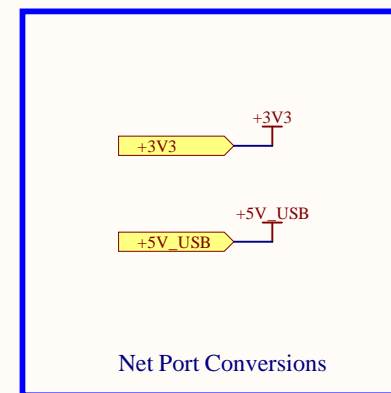
ESP32-WROOM-32UE-N4



USB to UART Converter

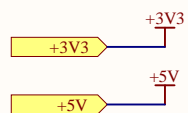


Auto-boot for UART0

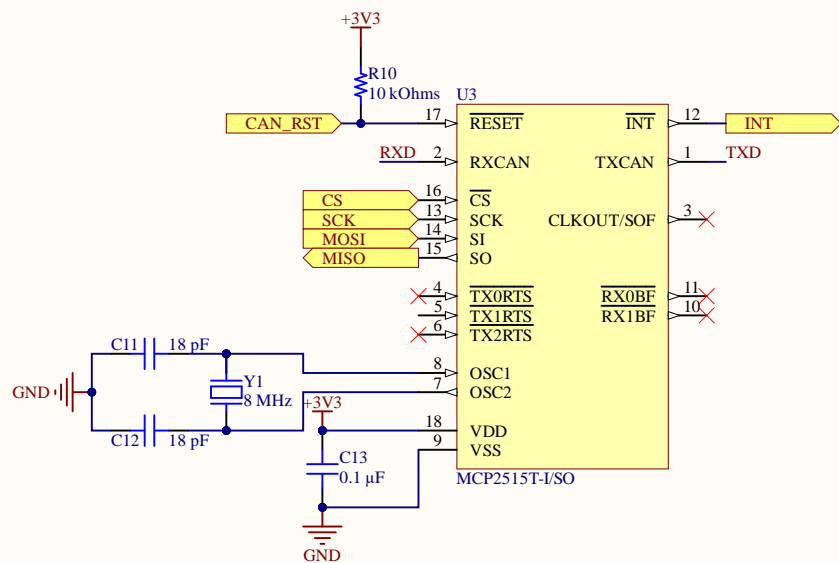


Net Port Conversions

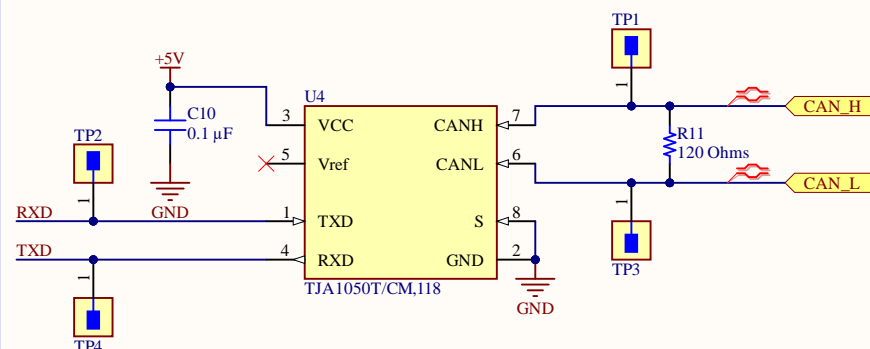
Title		
Size	Number	Revision
A4		
Date:	5-22-2023	Sheet of
File:	C:\Gripper-Arm\...\Microcontroller.SchDoc	
	Drawn By:	



Net Port Conversions



CAN Controller



CAN Transceiver

Will powering the CAN Controller with 3V3 be fine with communication to the CAN transceiver?

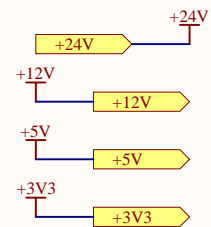
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Size	Number	Revision
A4		
Date:	5-22-2023	Sheet of
File:	C:\Gripper-Arm\...\CAN.SchDoc	Drawn By:

1

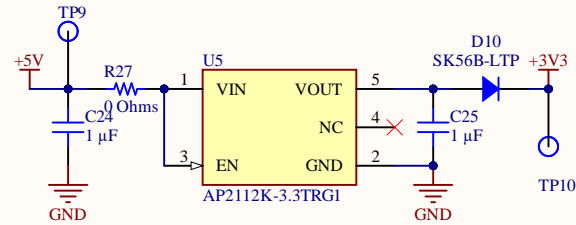
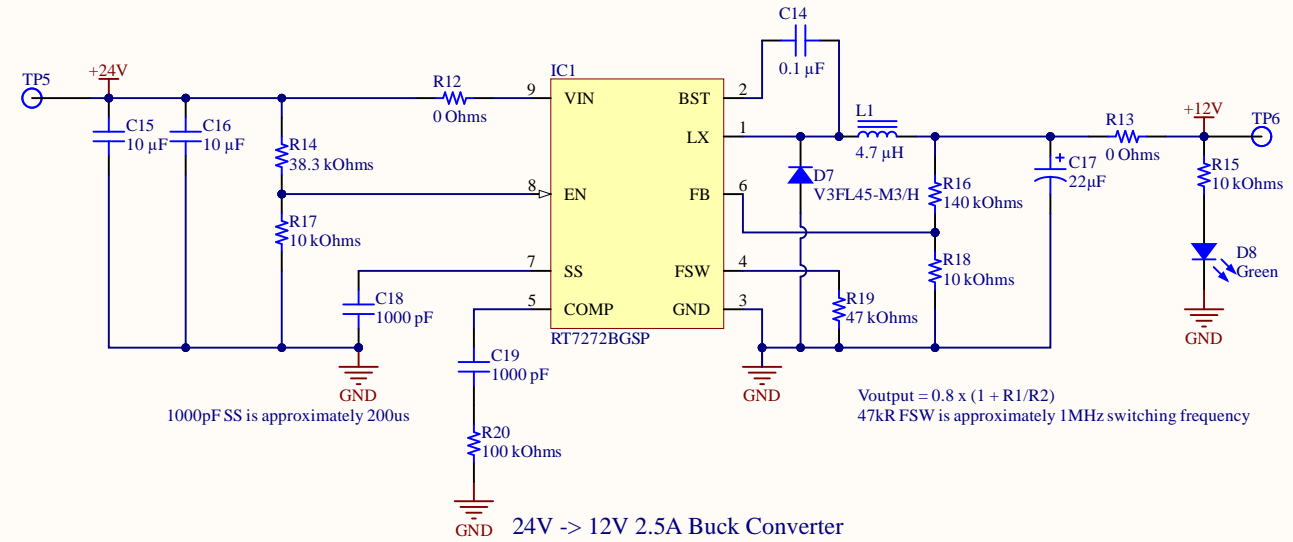
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3

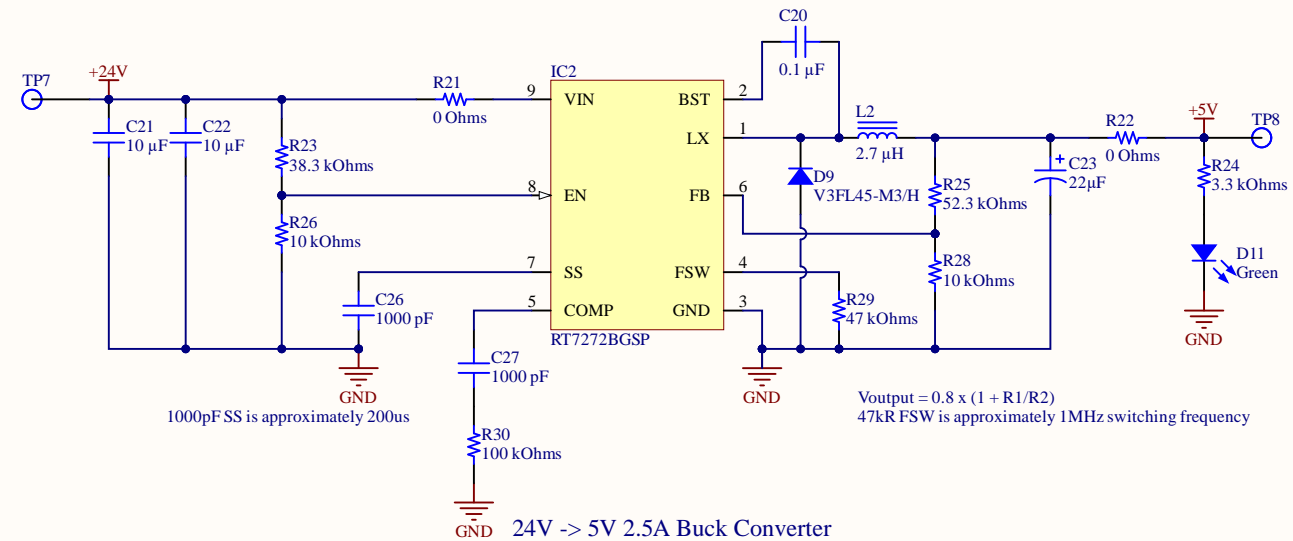
4



Net Port Conversions



5V -> 3V3 600mA LDO



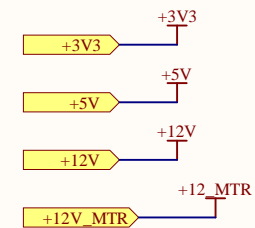
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A4		
Date:	5-22-2023	Sheet of
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1

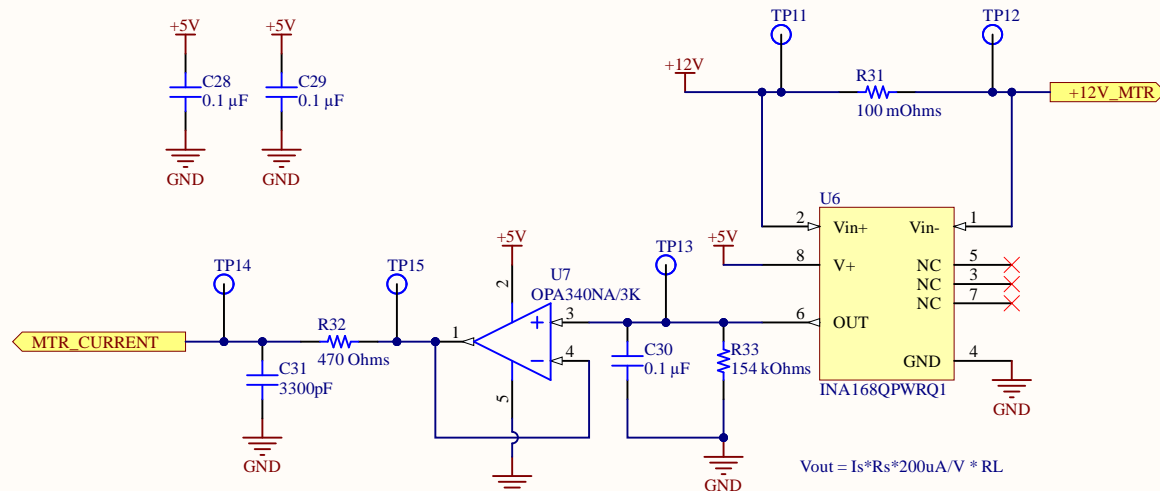
2

3

4

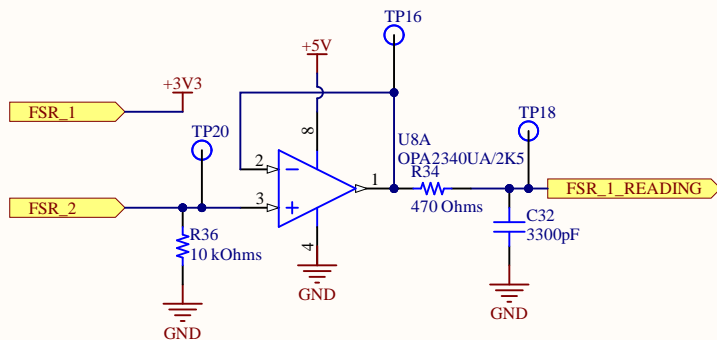


Net Port Conversions

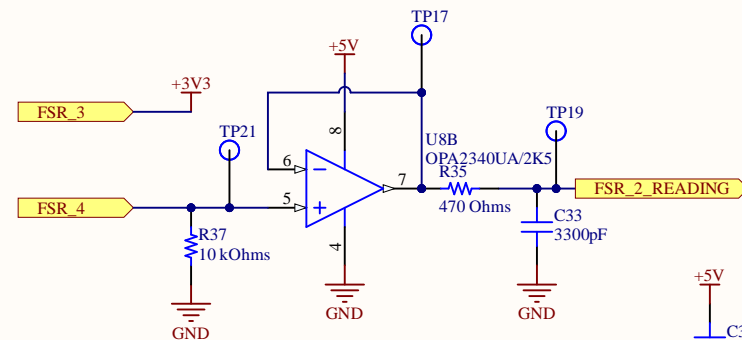


Cutoff frequency of around 102KHz (ESP32 sampling rate is 200KHz)

Current Measurement



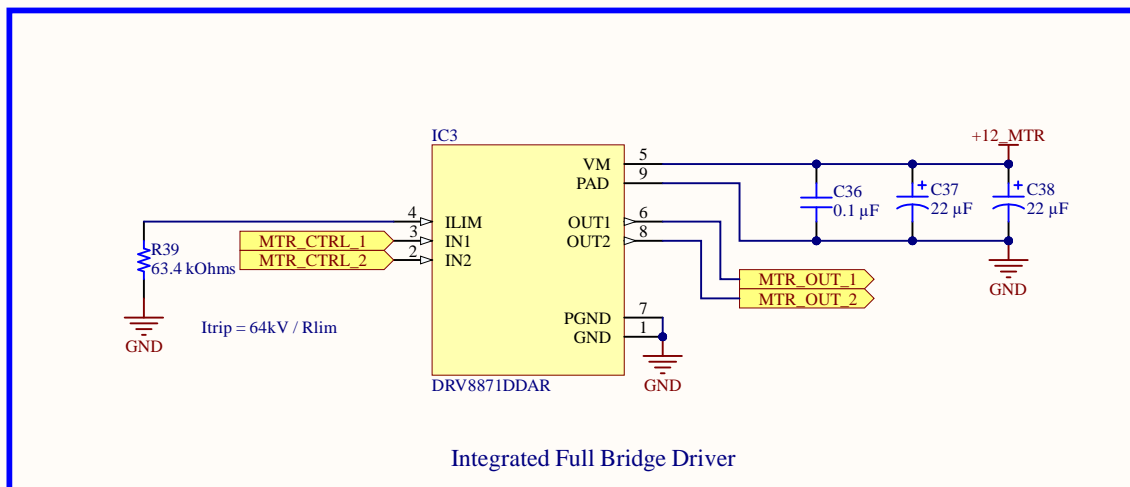
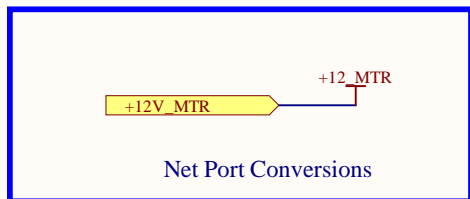
Cutoff frequency of around 102KHz (ESP32 sampling rate is 200KHz)



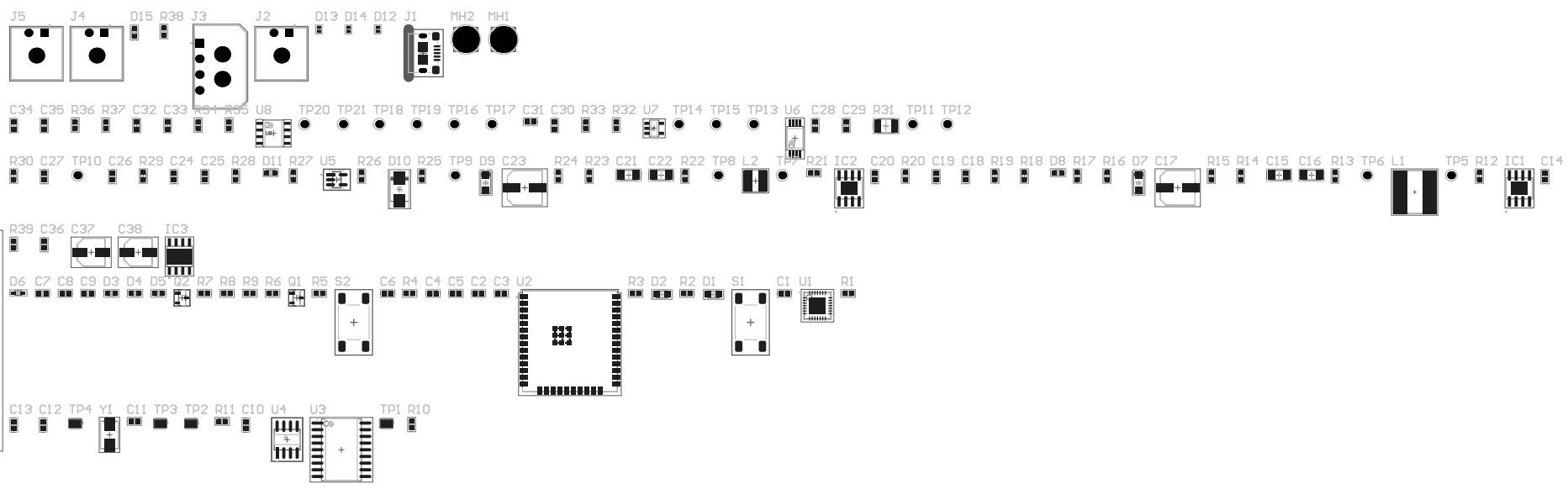
Cutoff frequency of around 102KHz (ESP32 sampling rate is 200KHz)

Force Measurement Amplification

Title		
Size	Number	Revision
A4		
Date:	5-22-2023	Sheet of
File:	C:\Gripper-Arm\...\Sensor Feedback.SchDoc	Drawn By:



Title		
Size	Number	Revision
A4		
Date:	5-22-2023	Sheet of
File:	C:\Gripper-Arm\...\Motor Driver.SchDoc	Drawn By:



Comment	Description	Designator	Footprint	Label	Quantity
	µF	CAP CER 1uF 16V 878 0603, CAP CER 1uF 35V 16V 0603, CAP CER 10V 10V 878 0603	C1, C2, C9, C24, C25	CAP 0603_1608	5
0.1 µF	CAP CER 0.1uF 25V 878 0603, CAP CER 0.1uF 50V 878 0603	C3, C5, C6, C7, C16, C17, C18, C20, C26, C27, C28, C29, C30, C34, C35, C36	CAP 0603_1608	CAP 0603_1608	14
0.1 µF	CAP CER 0.1uF 25V 878 0603	C4	CAP 0603_1608	0RT180C18-07W42-100	1
10 µF	CAP CER 10uF 16V 878 0603	C8	CAP 0603_1608	0RT180B15-07W42-100	1
10 µF	CAP CER 10uF 10V 878 0603	C11, C12	CAP 0603_1608	V0603A100VACW100	2
10 µF	CAP CER 10uF 35V 878 0603	C19, C16, C21, C22	CAP 0603_1608	CL3181060HNNNE	4
22 µF	CAP ALUM 22uF 25V 878 0603	C17, C23	CAP AL 50V 8.0MM 06.0MM	BEI-ALV220AP	2
1000 µF	CAP CER 1000uF 16V 878 0603	C38, C18, C26, C27	CAP 0603_1608	5L1801060HNNNE	4
1000 µF	CAP CER 1000uF 16V 878 0603	C31, C32, C33	CAP 0603_1608	0607C100VACW2A	3
22 µF	CAP ALUM 22uF 25V 878 0603	C37, C38	CAP AL 50V 8.0MM 06.0MM	0607C100VACW2A	2
Red	LED RED CLEAR CHIP 5050	D1	LED 0605_2012 RED	KD054WV-1	1
Green	LED GREEN CLEAR CHIP 5050	D2	LED 0605_2012 GREEN	KV054WV-1	1
Blue	LED BLUE CLEAR CHIP 5050	D3	LED 0605_1608 BLUE	TST-C193B07-5A	1
Red	LED RED CLEAR CHIP 5050	D4	LED 0605_1608 RED	TST-C193B07-5A	1
Green	LED GREEN CLEAR CHIP 5050	D5, D6, D11, D15	LED 0605_1608 GREEN	TST-C193B07-5A	4
ESD TV 3038-TP	PVS DIODE 3.3V 3W 1.7V 3038-TP	D6	SDS02F	ESD TV 3038-TP	1
V3845-M5H	DIODE SCHOTTKY 50V 1A 0.5V 3038-TP	D7, D9	DMF DO-219AB	V3845-M5H	2
SK56B-LTP	DIODE SCHOTTKY 50V 1A 0.5V 3038-TP	D10	DO214AA 5MM	SK56B-LTP	1
TP0181080AC2PMB01	PVS DIODE 3.3V 3W 1.7V 3038-TP	D12	0602	TP0181080AC2PMB01	1
ESD1210PWR	PVS DIODE 3.3V 3W 1.7V 3038-TP	D13, D14	0602	ESD1210PWR	2
RT7272BCGP	Regulator IC Positive Adjustable 1.2V 1 Output 3A 8-SOIC (0.154, 9.0mm) Exposed Pad	C1, C12	RT7272BCGP-Footprint:1	CMP-00068-1	2
DRV8871CDAR	IC BRUSHED DC MOTOR DRIVER	IC3	DRV8871CDAR-Footprint:1.1	CMP-00068-1	1
10118193-0001UF	CONN RCPT 4GB2 0.5MM 2.54MM	J1	FC1USB 10118193-0001UF	10118193-0001UF	1
43605-0200	Connector Header 2 Position 3mm Solder Right Angle Thru-Hole 2 Terminal 1 Part Micro-FIT 3.0**	J2, J4, J5	43605-0200-Footprint:1	CMP-00070-1	3
43605-0400	Connector Wire to Board Header 4 Position 3mm Solder Right Angle Thru-Hole Tray	J3	43605-0400-Footprint:1	CMP-00071-1	1
4.7 µF	FIXED RES 4.7uF 4.7A 1A 0.5V 3038-TP	L1	BOURNS SFR040	SRN040-487Y	1
2.7 µF	FIXED RES 2.7uF 4.7A 1A 0.5V 3038-TP	L2	TDK VLF402B-2	VLF402B-267N105	1
Exposed Mounting Hole M5	RES MOUNTING HOLE	M01, M02	MOUNTING HOLE M5-Footprint:1	CMP-00028-00002-1	2
80817-215	TRANS 18V 45V 0.001A 1.7V 3038-TP	C1, C2	PP-S0725-PPC-C	CMP-14406-00004-1	2
1040ohms	RES SMD 10K CHRM 1% 1/10W 0603	R1, R4, R5, R6, R10, R11, R17, R18, R24, R26, R28, R27	RES 0603_1608	RT0603CFR0700L, RT0603CFR1000L, RT0603CFR1000L	12
140ohms	RES SMD 14K CHRM 1% 1/10W 0603	R2, R3, R7, R8, R9	RES 0603_1608	RT0603CFR0700L, RT0603CFR1000L	5
1201ohms	RES SMD 120K CHRM 1% 1/10W 0603	R11	RES 0603_1608	RM0603CFR1200L	1
602ohms	RES SMD 602K CHRM 1% 1/10W 0603	R12, R13, R21, R22, R27	RES 0603_1608	TURBUTTD	5
38.3k10ohms	RES SMD 38.3K CHRM 1% 1/10W 0603	R14, R23	RES 0603_1608	SR0603-PP-38320F	2
140k10ohms	RES SMD 140K CHRM 1% 1/10W 0603	R16	RES 0603_1608	RM0603CFR140L	1
47k10ohms	RES SMD 47K CHRM 1% 1/10W 0603	R19, R29	RES 0603_1608	RT0603CFR0700L	2
100k10ohms	RES SMD 100K CHRM 1% 1/10W 0603	R20, R30	RES 0603_1608	RT0603CFR0700L	2
3.3k10ohms	RES SMD 3.3K CHRM 1% 1/10W 0603	R24	RES 0603_1608	RU-383CF070V	1
62.3k10ohms	RES SMD 62.3K CHRM 1% 1/10W 0603	R25	RES 0603_1608	RC0603FR-0752K-0	1
160m10ohms	RES SMD 160K CHRM 1% 1/10W 0603	R31	RES 1210_2225	RL79H4010F10F	1
47010ohms	RES SMD 470K CHRM 1% 1/10W 0603	R32, R34, R35	RES 0603_1608	RU-383CF070V	3
154k10ohms	RES SMD 154K CHRM 1% 1/10W 0603	R33	RES 0603_1608	CH060301540FKEA	1
22k10ohms	RES SMD 22K CHRM 1% 1/10W 0603	R38	RES 0603_1608	RC0603022K0FKEAC	1
63.4k10ohms	RES SMD 63.4K CHRM 1% 1/10W 0603	R39	RES 0603_1608	RC0603063K0FKEAC	1
7077223-9	SWITCH TACTILE SPST NO-LS 25A 20V	S1, S2	TE193A020MA	7077223-9	2
52751-468	POS Solder ST SMD 1 Pin 1.27	TP1, TP2, TP3, TP4	PP-S2751-468-MFG	CMP-00053-4	4
1.5mm Test Point	1.5mm Test Point 0.75mm hole size	TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21	1mm Test Point-Footprint:1	CMP-002-00006-1	17
CP70102-GM	Single-Chip USB-to-LAN Bridge, 10/24 Bytes EEPROM, 40 to 85 degC, 28-pin QFN, Tube	U1	SLAB-QFN-28-012501251P_N	CMP-0511-00012-1	1
ESP32-WROVER-KIT	ESP32-WROVER-KIT	U2	ESP32-WROVER-KIT	CMP-00072-1	1
MP25151-1/50	Stand-Alone CAN Controller With CAN Interface, 18-Pin SOIC, Industrial Temperature, Tape and Reel	U3	SOIC-SO18_N	CMP-0186-00139-2	1
12A18051/CM178	12A18051/CM178	U4	PP-S0716-1-PPC-A	CMP-00049-0002-2	1
MP2112K-3.3P01	MP2112K-3.3P01	U5	PP-S0725-PPC-A	CMP-12796-00026-1	1
INA148CPWR01	INA148CPWR01	U6	TSOP48V40X120-B	CMP-00020-1	1
OPA349A/3K	OPA349A/3K	U7	08V005A_N	CMP-0272-00079-3	1
OPA2349A/3K5	OPA2349A/3K5	U8	00008A_L	CMP-0272-00109-3	1
8MHz	CRYSTAL 8.000000MHz 18P SMD	Y1	NDK N43502GA	N43502GA-8M42-K500A-CG001P	1