

1

2

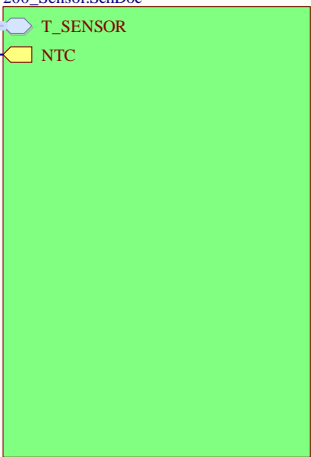
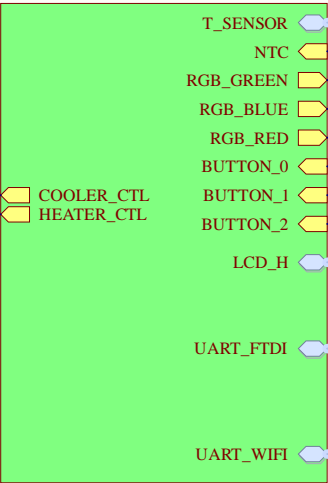
3

4

U_400_Logic
400_Logic.SchDoc

U_100_User interface
100_User interface.SchDoc

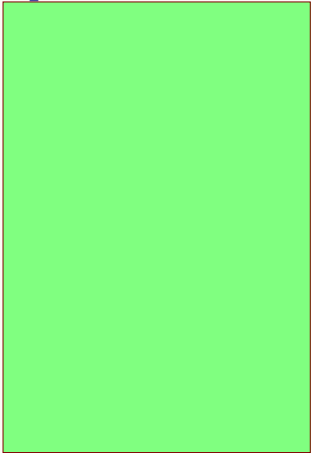
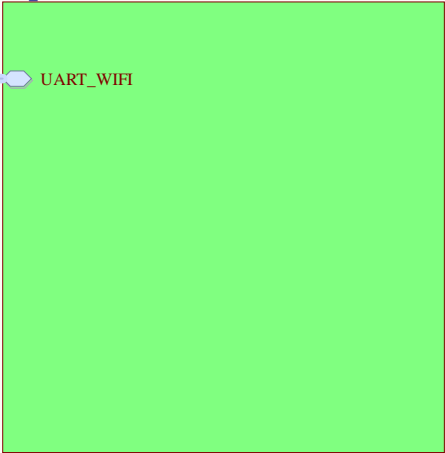
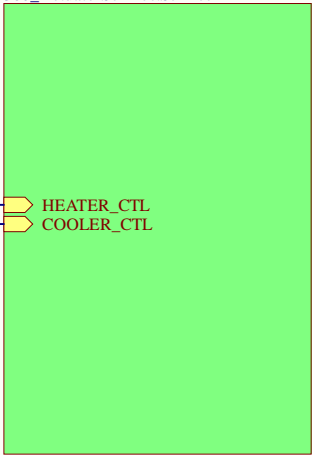
U_200_Sensor
200_Sensor.SchDoc



U_300_ActuatorSchDoc
300_ActuatorSchDoc.SchDoc

U_500_Communication
500_Communication.SchDoc

U_000_Power
000_Power.SchDoc



1

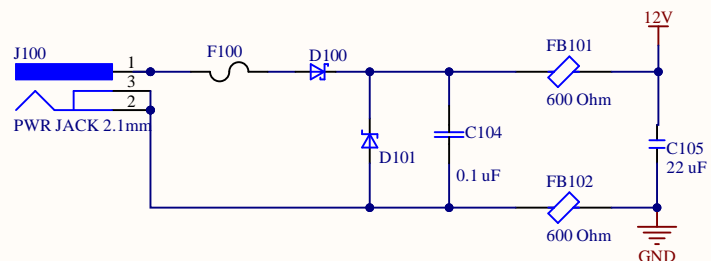
2

3

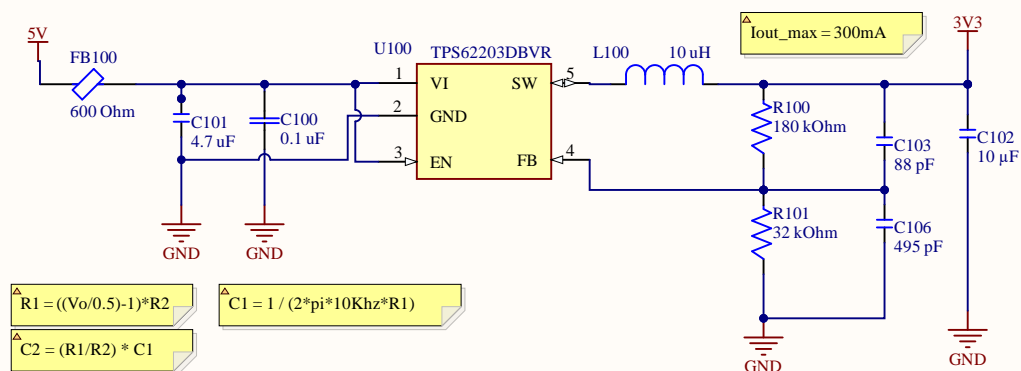
4

Title Main Circuit		
Size A4	Number	Revision V1
Date: 10/25/2024	Sheet of	
File: C:\Users\...\Main.SchDoc	Drawn By: Kamilo Yani Vam Burbano Rincon	

POWER INPUT AND FILTER

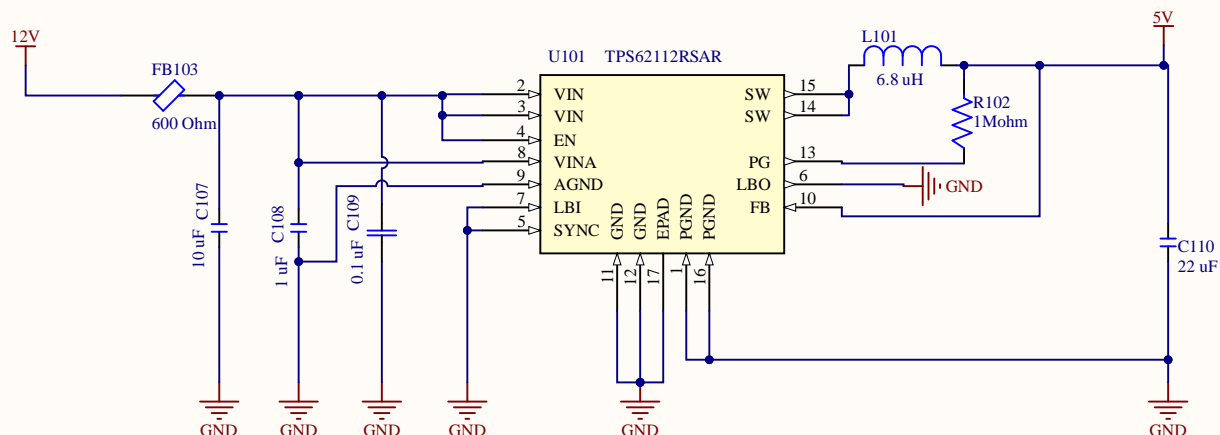


DC/DC 5V TO 3V3

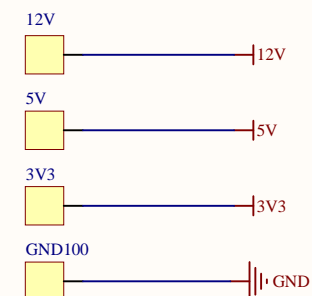


DC/DC 12V TO 5V

$I_{out_max} = 1.2\text{A}$

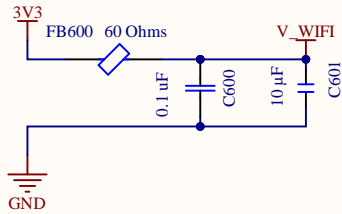


TEST POINTS



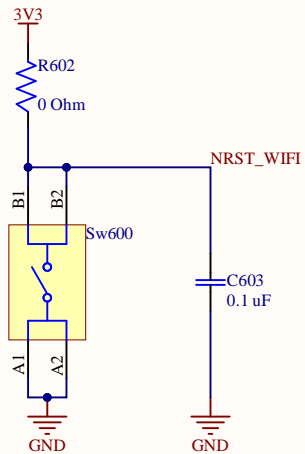
Title 000_Power		
Size A4	Number	Revision v1
Date: 10/25/2024	Sheet of	
File: C:\Users\...\000_Power.SchDoc	Drawn By: Kamilo Yani Vam Burbano Rincon	

WIFI POWER INPUT



WIFI Module peak current consumption : 170 mA

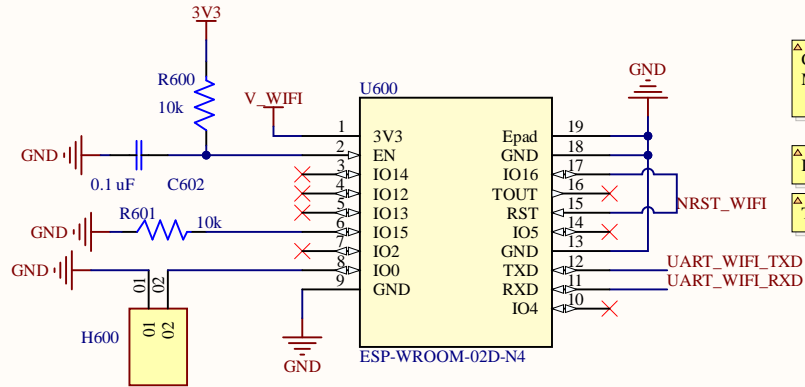
RESETBUTTON



PROGRAMMING PORT



WIFI MODULE



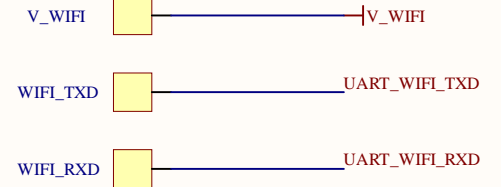
Io0: Is BOOTLOADER port, used for program loading

Current - Transmitting
Max: 170mA

IO16: used for Deep-sleep wake-up

TOUT: Is port to ADC

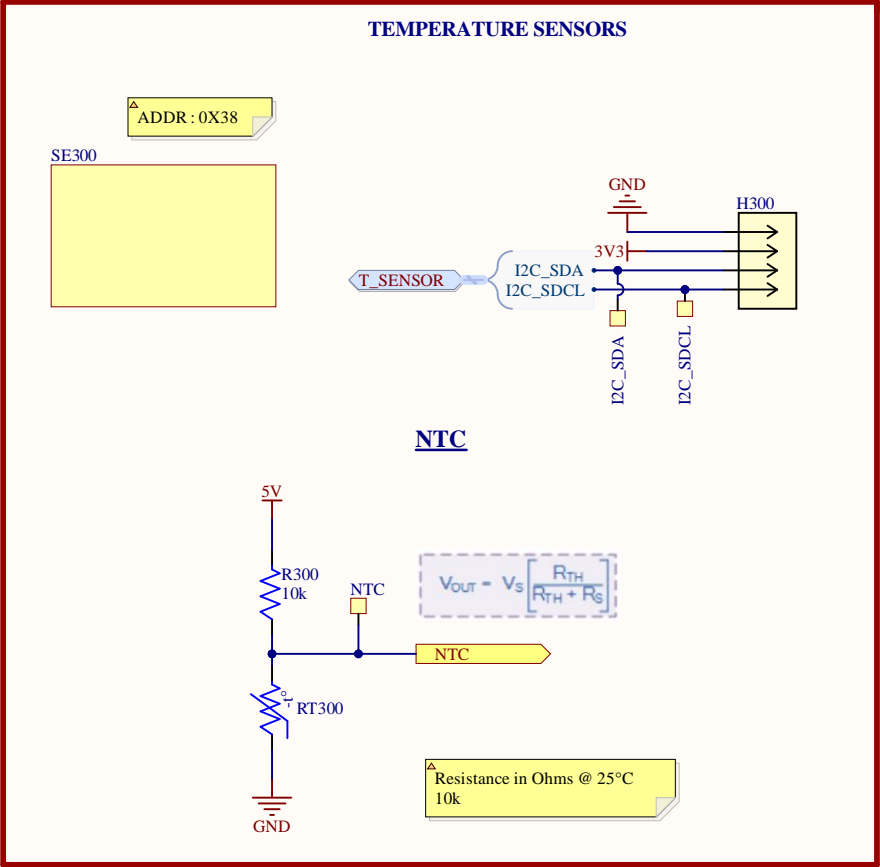
TEST POINTS



INPUT - OUTPUT SIGNALS

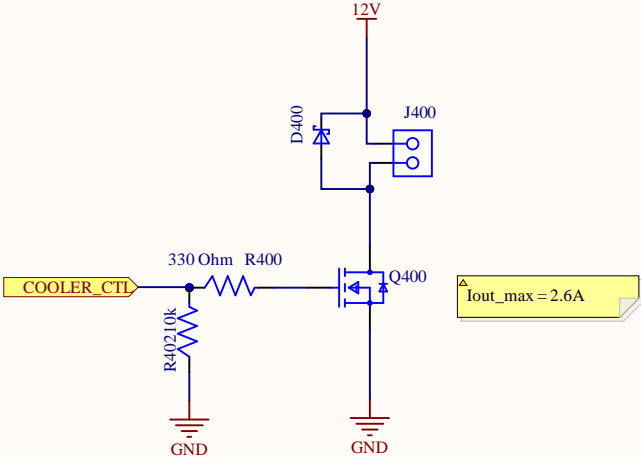


Title 500_Communication		
Size A4	Number	Revision v1
Date: 10/25/2024	Sheet of	
File: C:\Users\...\500_Communication.SchDoc	Drawn By: Kamilo Yani Vam Burbano Rincon	

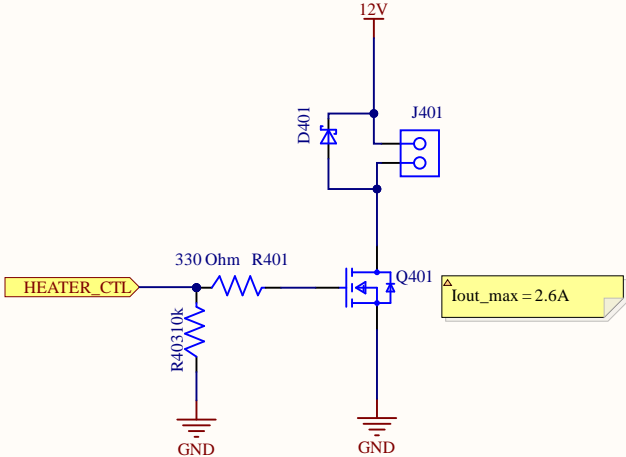


Title 200_Sensor			
Size A4	Number		Revision V1
Date:	10/25/2024	Sheet of	
File:	C:\Users\...\200_Sensor.SchDoc	Drawn By:	Kamilo Yani Vam Burbano Rincon

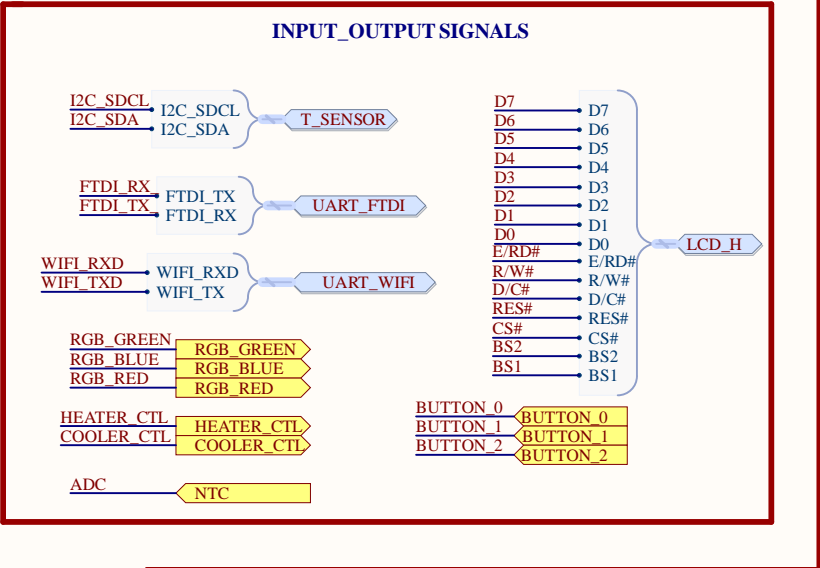
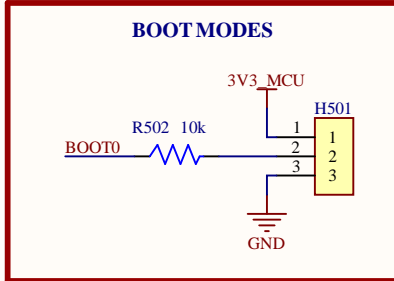
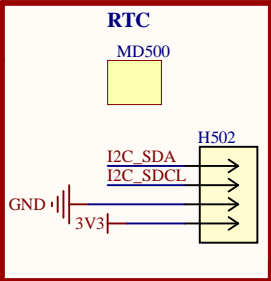
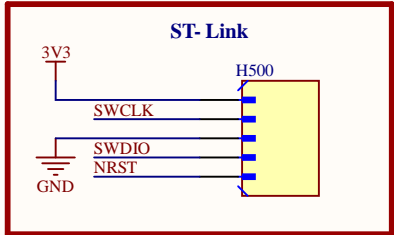
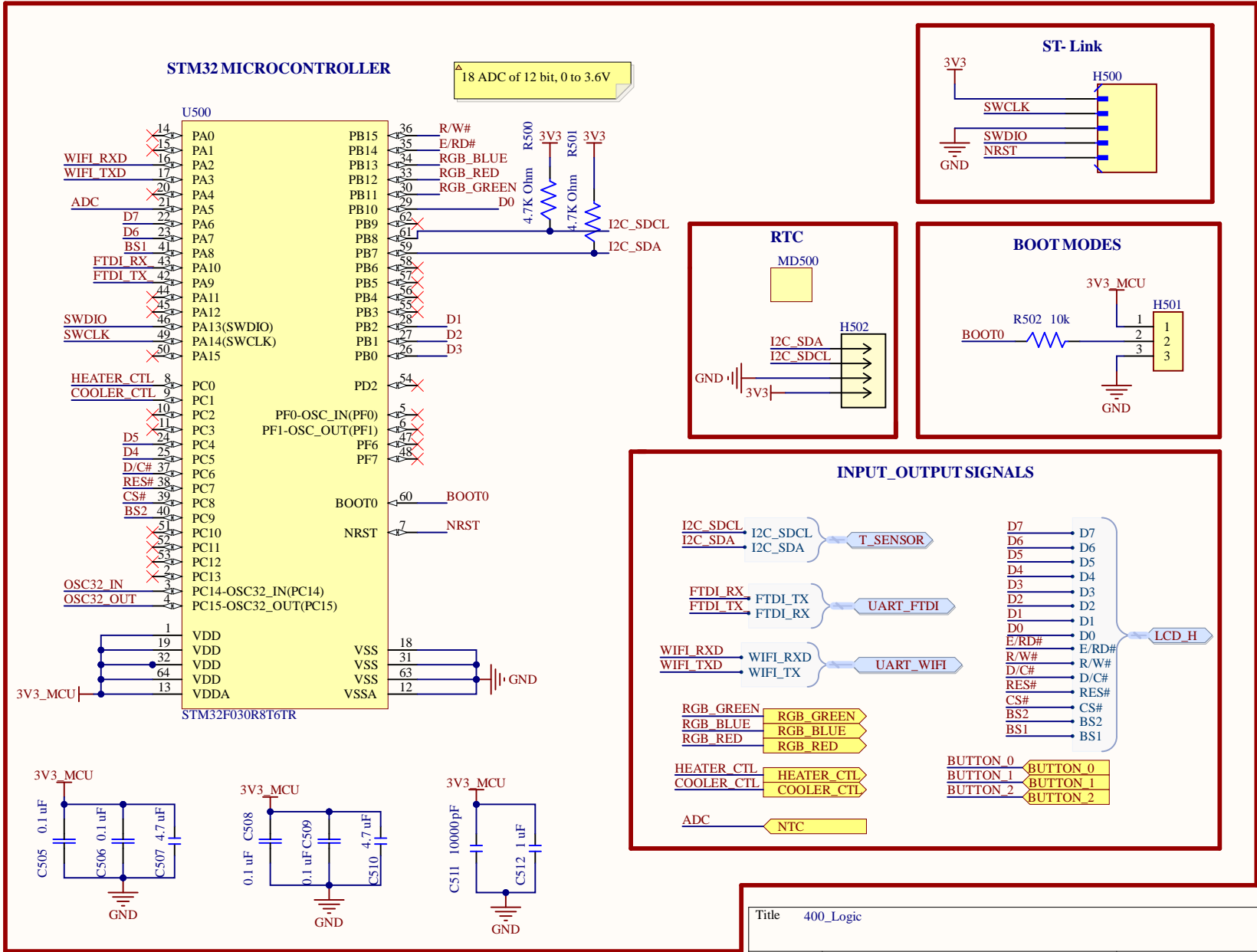
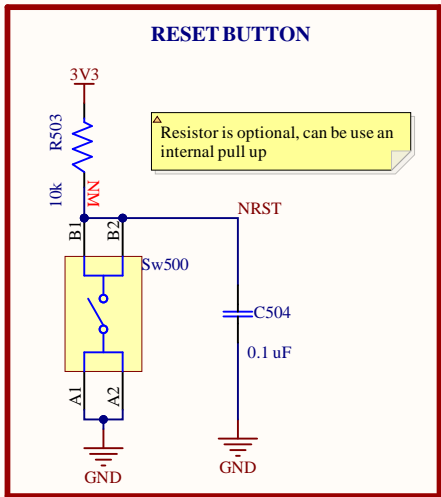
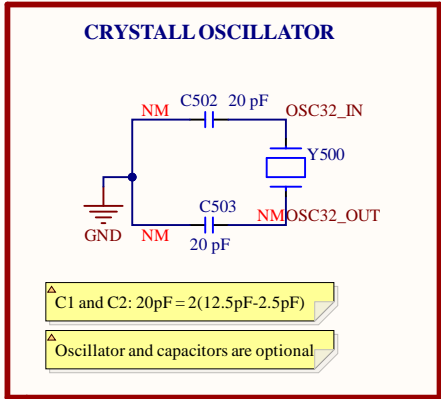
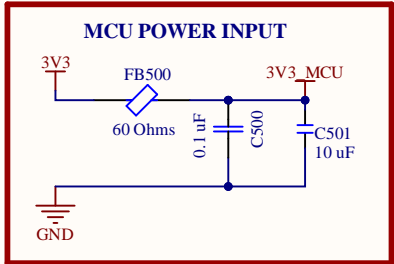
CONTROL_STAGE_COOLER



CONTROL_STAGE_HEATER

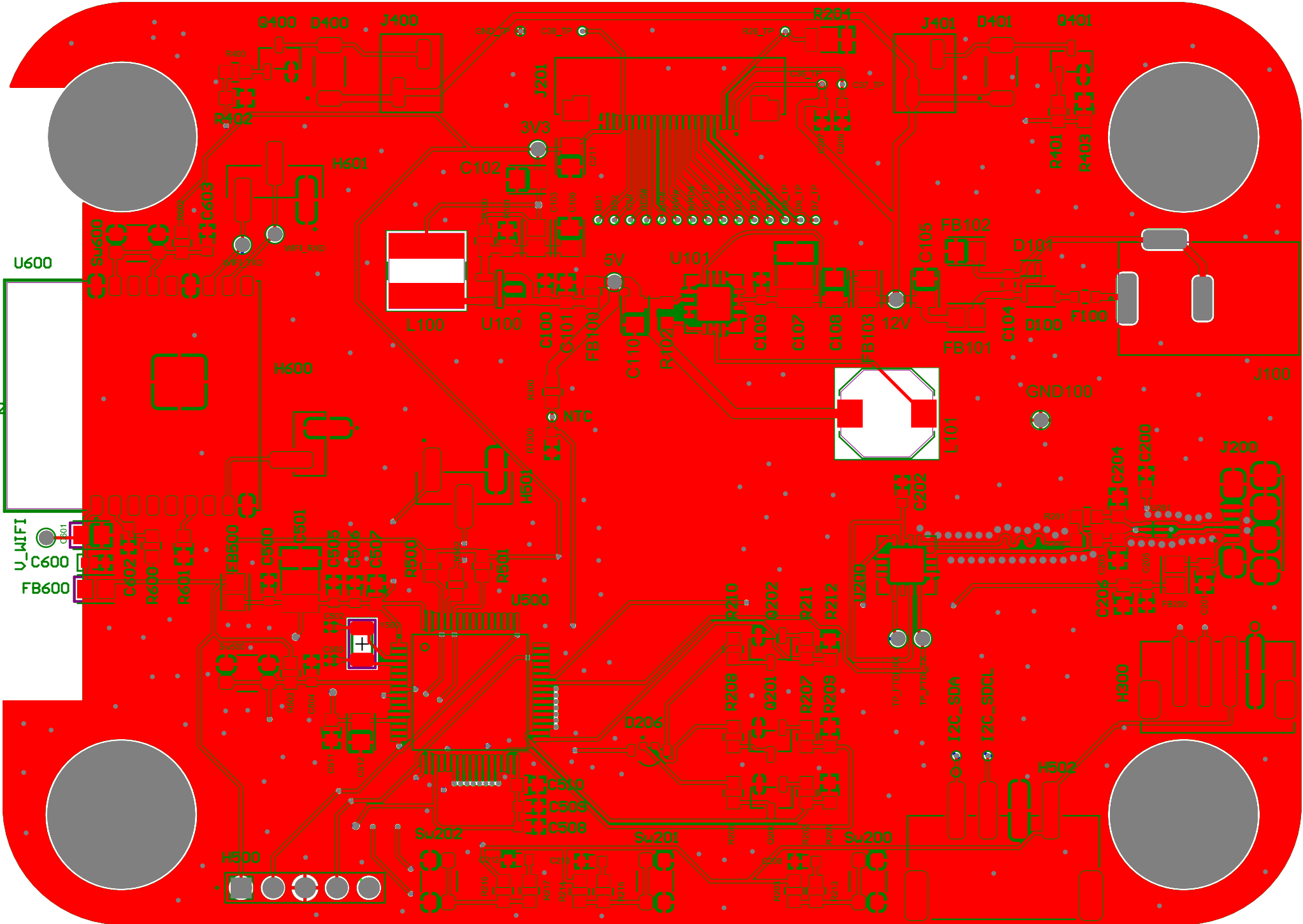


Title 300_ActuatorSchDoc		
Size A4	Number	Revision V1
Date: 10/25/2024	Sheet of	
File: C:\Users\...\300_ActuatorSchDoc.SchDoc	Drawn By: Kamilo Yani Vam Burbano Rincon	



Title 400_Logic		
Size A4	Number	Revision V1
Date: 10/25/2024	Sheet of	
File: C:\Users\...\400_Logic.SchDoc	Drawn By: Kamilo Yani Vam Burbano Rincon	

Designator82



Comment	Description	Designator	Footprint	LibRef	Quantity
TP_TH_30mil	Test point 30mil hole size	3V3, 5V, 12V, GND100, TP_FTDI_RX, TP_FTDI_TX, V_WFI, WFI_RXD, WFI_TXD	TP_TH_30mil	TP_TH_30mil	9
TP_TH_10mil	Test point 10mil hole size	B51, B52, C36, TP, C37, TP, C38, TP, C39, D0, TP, D1, TP, D2, TP, D3, TP, D4, TP, D5, TP, D6, TP, D7, TP, D1CF, E1604 GND_3P, I2C_SDA, I2C_SCL, NTC_R26, TP, R/W, RES3	TP_TH_10mil	TP_TH_10mil	23
0.1uF 10%	CAP CER 0.1uF 50V X7R 0603	C100, C104, C109, C200, C202, C205, C206, C210, C212, C500, C504, C505, C506, C508, C509, C600, C603	0603_L	Cap_0.1uF_0603_50V	18
4.7uF 10%	CAP CER 4.7uF 6.3V X5R 0603	C101, C506, C507, C510	0603	Cap_4.7uF_0603_6.3V	4
10uF 20%	CAP CER 10uF 6.3V X5R 0805	C102, C601	0805_	Cap_10uF_0805_6.3V	2
88pF 1%	CAP CER 88pF 50V NPO 0805	C103	0805_	Cap_88pF_0805_50V	1
22uF 10%	CAP CER 22uF 16V X5R 0805	C105, C110	0805_	Cap_22uF_0805_16V	2
495pF 2%	CAP CER 500pF 50V NPO 0805	C106	0805_	Cap_495pF_0805_50V	1
10uF 10%	CAP CER 10uF 25V X5R 1210	C107, C501	1210	Cap_10uF_1210_25V	2
1uF 10%	CAP CER 1uF 25V X7R 0805	C108, C211, C512	0805_	Cap_1uF_0805_25V	3
10000pF 10%	10000pF ±10% 50V Ceramic Capacitor X7R 0603 (1408 Matrix)	C201, C511	0603	Cap_10000pF_0603_50V	2
47pF 5%	CAP CER 47pF 50V 0201NPO 0603	C203, C204	0603	Cap_47pF_0603_50V	2
2.2uF 10%	CAP CER 2.2uF 25V X5R 0603	C207, C209	0603_	Cap_2.2uF_0603_25V	2
20pF 5%	CAP CER 20pF 50V 0201NPO 0201	C502, C503	0201_	Cap_20pF_0201_50V	2
RS0307V4M03TR	DIODE SCHOTTKY 30V 700MA TUM02M	D100	TUM02M	D_Schottky_30V_700ma_TUM02M	1
ESDA13P70-101M	TVS DIODE 12VWM 20VC 1610	D101	1610	TVS_12V_1610	1
RGB	LED RGB CLEAR 1206 SMD RGB	D056	LED_1206_RGB	LED_1206_RGB	1
PMEG0303EP-115	DIODE SCHOTTKY 30V 3A SMD128	D400, D401	SMD_128	D_Schottky_30V_3A_SMD_128	2
MFU603F100030P100	FILM RES 100K 0.1% 1/10W 630MA 12VDC 0603	F100	0603_	F_000MA_12V_0603_100K	1
MF8MTV1608-601-R	FERRITE BEAD 600 OHM 0603 1.1A	FB100	0603	FB_600Ohm_0603_1.2A	1
BLM21AG6015VTD	FERRITE BEAD 600 OHM 0805 1.1A	FB101, FB102, FB103	0805_	FB_600Ohm_0805_600mA	3
250856007Y0	FERRITE BEAD 60 OHM 0805 1.1A	FB200, FB500, FB600	0805_	FB_600Ohm_0805_300mA	3
B4B-PH-SM4-TB	CONN HEADER SMD 4POS 2.54MM	H300	H_Male_4x1_SMD_2.0mm_PH	H_Male_4x1_SMD_2.0mm_PH	1
77311-46202SL	CONN HEADER VERT 8POS 2.54MM	H500	H_S1_TH_2.54mm	H_S_1_TH_2.54mm	1
TSM-103-01-L-SV-TB	CONN HEADER SMD 8POS 2.54MM	H501, H601	H_S1_SMD_2.54mm	H_S1_SMD_2.54mm_Header	2
S4B-VH-SM4-TB	CONN HEADER SMD 8A 4POS 2.54MM	H502	H_Male_4x1_SMD_2.5mm_XH	H_4x1_SMD_2.5mm_Header	1
TSM-102-01-L-SV-P-TB	CONN HEADER SMD 8POS 2.54MM	H600	H_2x1_SMD_2.54mm	H_2x1_SMD_2.54mm_Header	1
PWR JACK 2.1mm	CONN PWR JACK 2x5.08MM 521030	I100	CON_TH_2.1mm_PW_B-JACK	Con_TH_2.1mm_PWR JACK	1
USB Micro B	CONN RCPT USB2.0 MICRO B SMD 8A	I202	CON_USB_MICRO_B	Con_microUSB_B	1
FFC 22 POS	CONN FC 220TMM 22POS 0.5MM 8A	I201	Con_22x1_SMD_0.5m m_FFC	Con_22x1_SMD_0.5m m_FFC	1
SMMA-102-Q2-S-S-TR	CONN RCPT 2POS 0.5MM 12VDC SMD	I401, I401	CON_1x2_SMD_2.00mm_RCPT	Con_1x1_SMD_2.00mm RCPT	2
CDRH620BP-100NC	FIXED IND 10uH 1.3A 65 MOHM SMD	I100	L_25MD, 5.70x5.70mm m_NS	L_10uH_1.3A_NS	1
SL7032T-48BMT8P-2P	FIXED IND 6.8uH 1.6A 45 MOHM SMD	I101	L_25MD, 7.00mmx7.00mm m_NS	L_6uH_1.6A_NS	1
WIC0128W4WFPJN0100	7" 128x64 COG	LCD200		LCD_128x64_PN0101S	1
DFR0449	GRAVITY I2C SD2405 RTC MODULE	ME000		Mod_RTC_SD2405	1
2K7002-TP	MOSFET N-CH 60V 110MA SOT23	Q200, Q201, Q202	SOT_23_3	Q_NFET_60V_0.34A_5GT_23_3	3
512320235-TY-E3	MOSFET N-CH 20V 2.6A SOT23-3	S400, Q401	SOT_23_3	Q_NFET_20V_2.6A_5GT_23_3	2
180K OHM 1/10W	RES 180K OHM 1% 1/10W 0603	R100	0603	Res_180KOhm_0603_1/10W	1
32kOhm 1/10W	RES 32K OHM 1% 1/10W 0603	R101	0603	Res_32kOhm_0603_1/10W	1
1M OHM 1/10W	RES 1M OHM 1% 1/10W 0603	R102	0603	Res_1MOhm_0603_1/10W	1
27 Ohm 1/10W	RES 27 OHM 1% 1/10W 0603	R200, R201	0603	Res_27Ohm_0603_1/10W	2
330 Ohm 1/10W	RES 330 OHM 1% 1/10W 0603	R202, R207, R210, R211, R400, R401	0603	Res_330Ohm_0603_1/10W	6
10k 1/16W	RES SMD 10K OHM 0.1% 1/16W 0603	R203, R208, R209, R212, R213, R214, R215, R216, R217, R300, R402, R403, R502, R503, R600, R601	0603	Res_10K_0603_1/16W	16
900kOhm 0.66W	PUL 1206 100PMIC PWR 0.05% 1/1A	R204	1206	Res_900kOhm_1206_0.66W	1
95.30hm 1/10W	RES 95.3 OHM 1% 1/10W 0603	R206, R208	0603	Res_95.30hm_0603_1/10W	2
4.7K Ohm 1/10W	RES 4.7K OHM 1% 1/10W 0603	R500, R501	0603	Res_4.7kOhm_0603_1/10W	2
0 Ohm 1/10W	RES 0 OHM JUMPER 1/10W 0603	R602	0603	Res_0Ohm_0603_1/10W	1
NTC1631X1020715	THERMISTOR NTC 10K OHM 330K 0603	RT300	0603_	RT_NTC_10K_0603	1
101990644	90CWE 4H7020C INDUSTRIAL TEMP	SE300		SE_Temperature	1
434153017805	SWITCH TACTILE SPST NO/LO 05A 12V	Sw200, Sw201, Sw202, Sw500, Sw600	Sw_PUSH_2Pos_1.7m mx3.5mmx2.9mm	Sw_PUSH_1.7mmx3.5mmx2.9mm	6
TPS6220DBVR	IC REG BUCK 1.3V 800MA SOT23-5	U100	SOT_23_5	DCDC_1.3V_800MA_5OT23-5	1
TPS61125CAR	IC REG BUCK 5V 1.5A 162FN	U101	DFN_16,3 9x3 9mm_EP	DCDC_5V_1.5A_160FN_844	1
FT232RL-R	IC USB SERIAL BASIC UART 162FN	U200	DFN_16,3 9x3 9mm_EP	C_FTDI_FT232RL-R	1
USBULC6-2M6	TVS DIODE 50VMA 17VC 610FN	U201	ULPFL_6,1 45MMx10MM	TVS_SV_20V_1u0FN_6	1
STM32F008B16TR	IC MCU 32BIT 64KB FLASH 144PFP	U500	LCFP_64_10mmx10mm	IC_MCU_MF0816M32F008B16TR	1
ESP-WROCAM-Q20-N4	RF TRXR MOD WIFI TRACE ANT SMD	W600	MOD_WIFI_ESP_WROCAM	IC_MCU_ESP-WROCAM-Q20-N4	1
ECS-327-12-5-348-TR	CRYSTAL 32.768KHZ 12.5PF SMD	Y500	SMD_2_3.2mmx1.5mm	Y6M_32.768KHz_3.2mmx1.5mm	1

