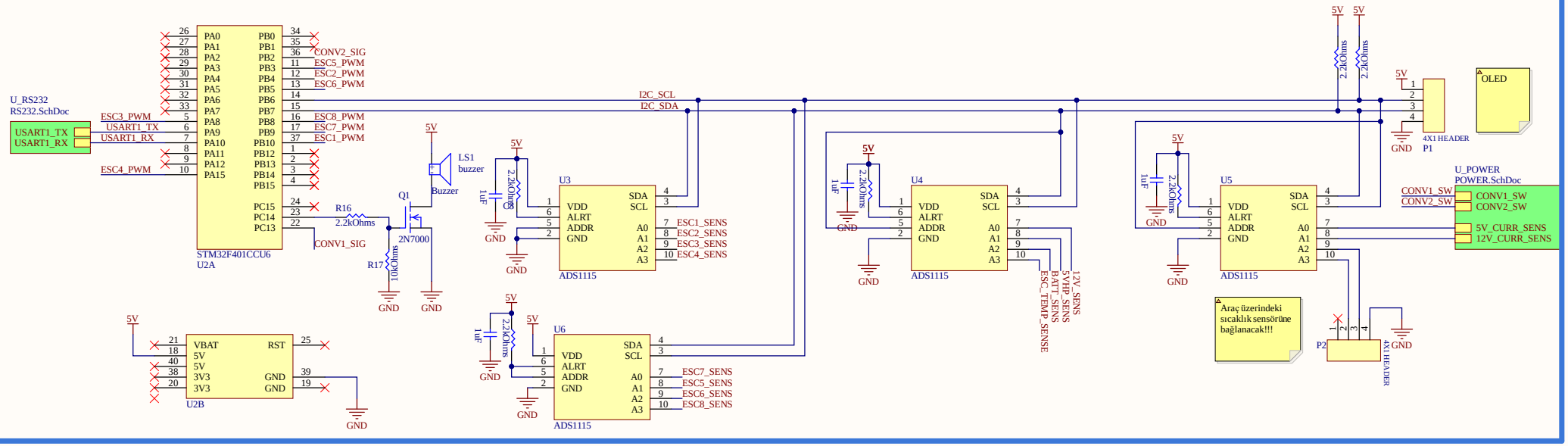
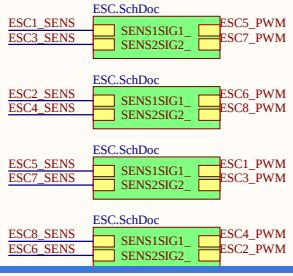
WARP

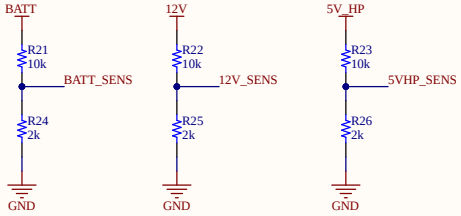
Microcontroller/ADS Connections



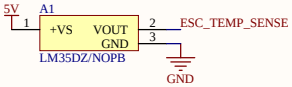
ESC Connections

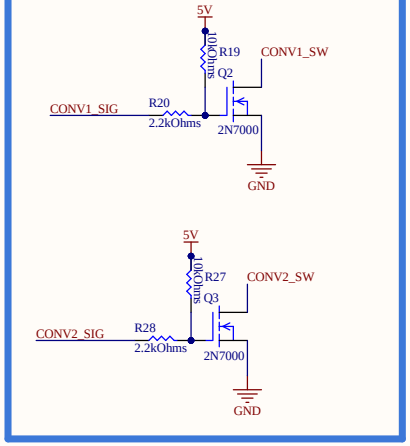


Voltage Sense (0-30V)



Tempature Sensor





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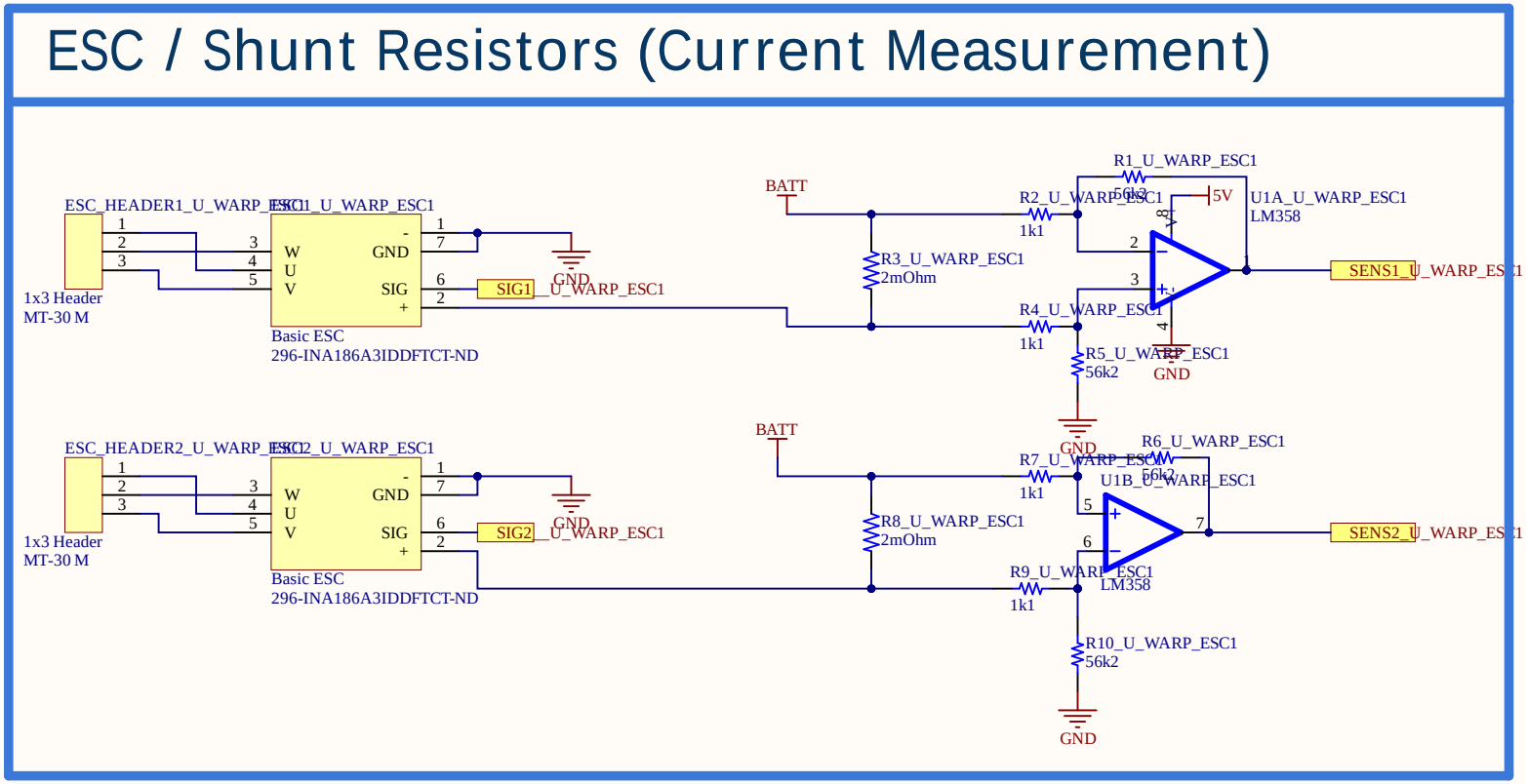
Date: 8.16.2022		Sheet of
File: C:\Users\..\MAIN.SchDoc		Drawn By:

ESC / Shunt Resistors (Current Measurement)



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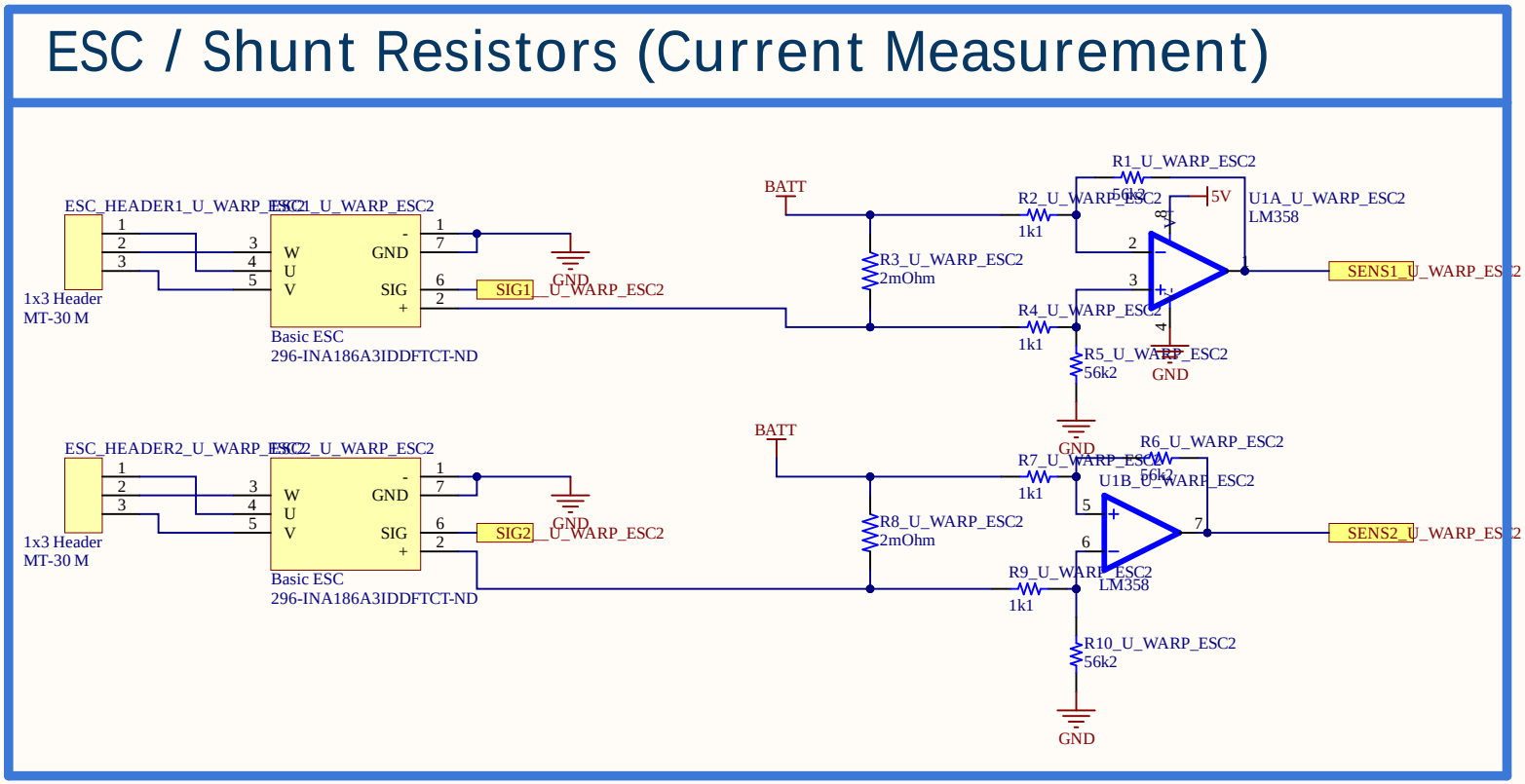
Date: 8.16.2022		Sheet of
File: C:\Users\..\ESC.SchDoc		Drawn By:

ESC / Shunt Resistors (Current Measurement)



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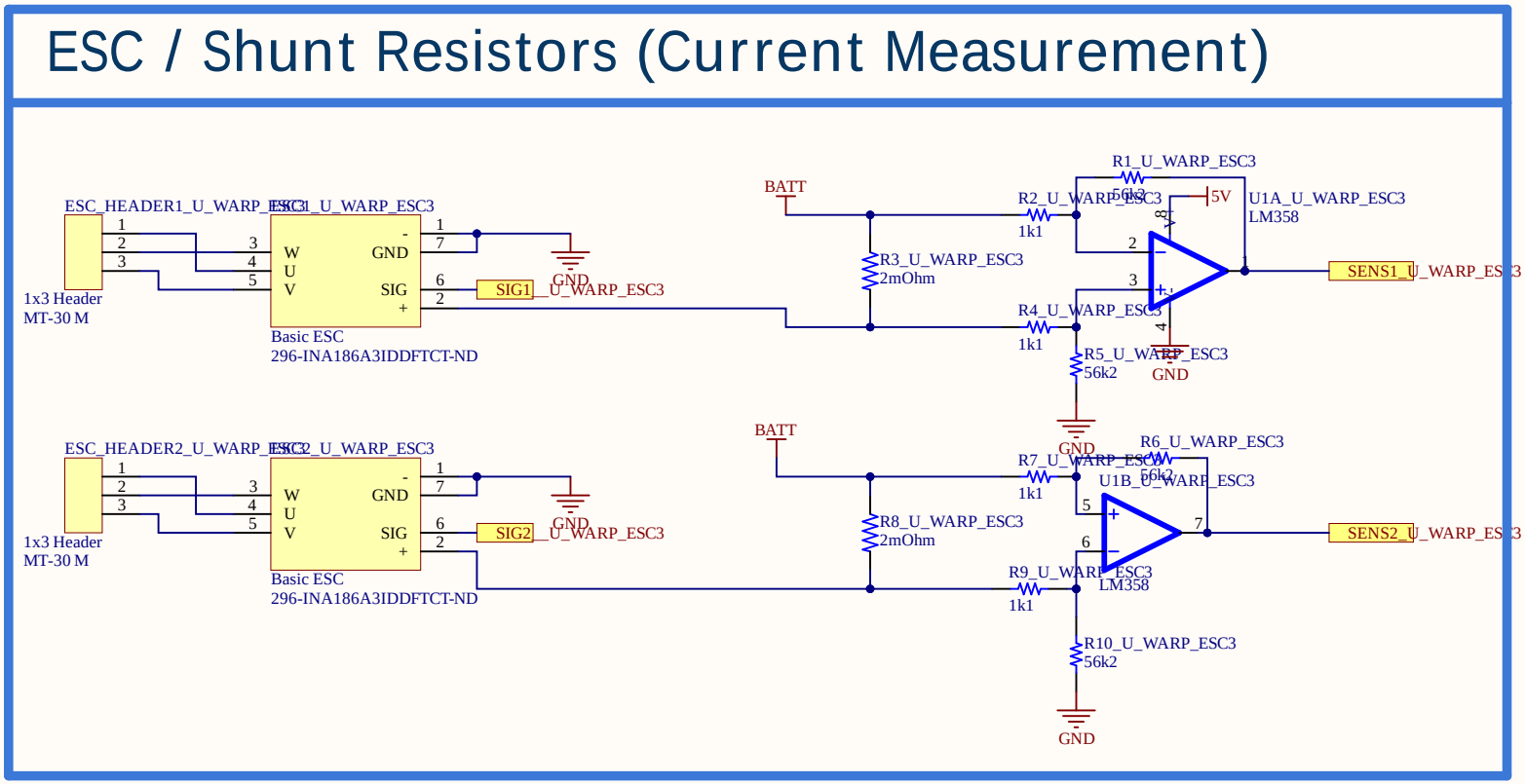
ESC / Shunt Resistors (Current Measurement)



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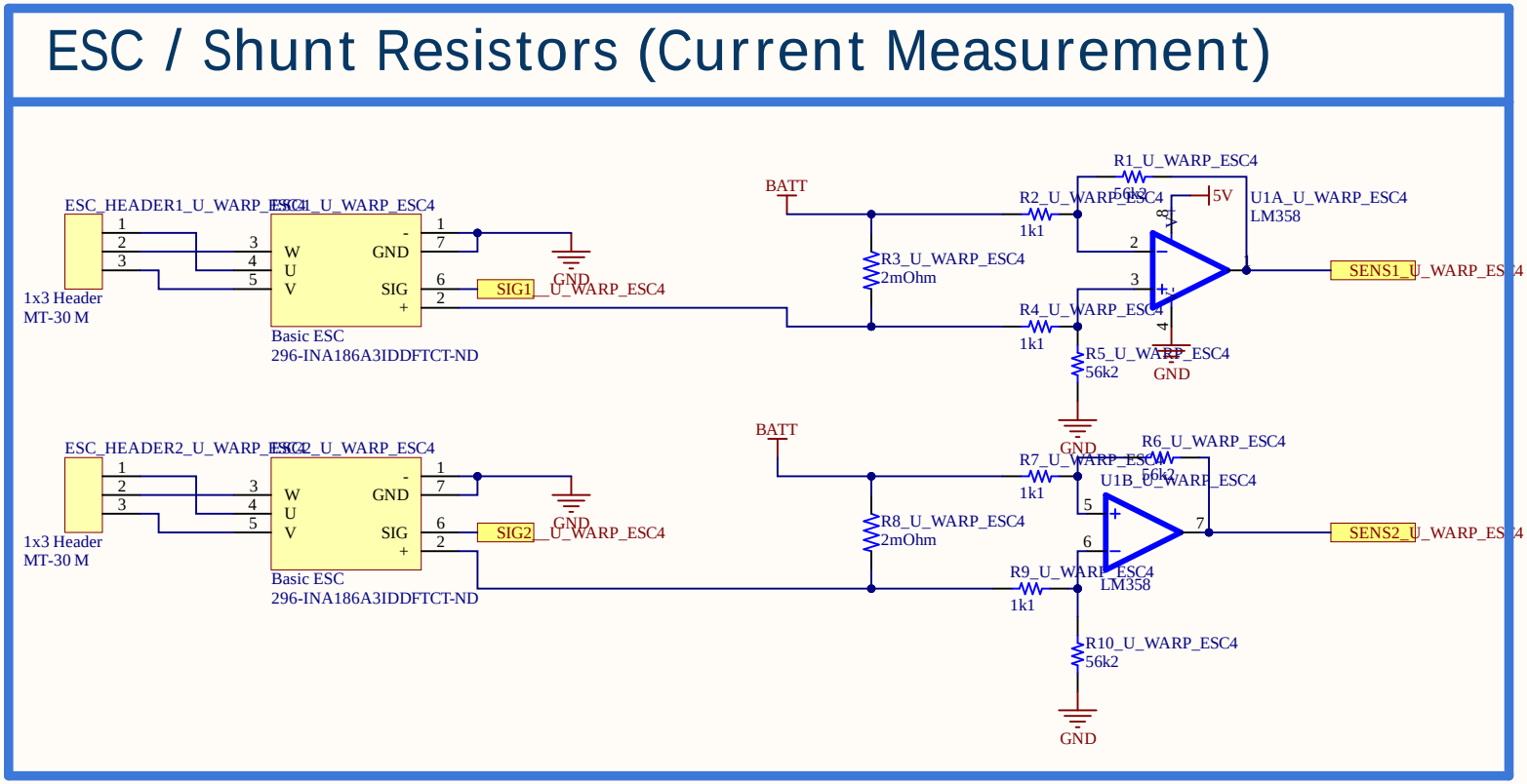
ESC / Shunt Resistors (Current Measurement)



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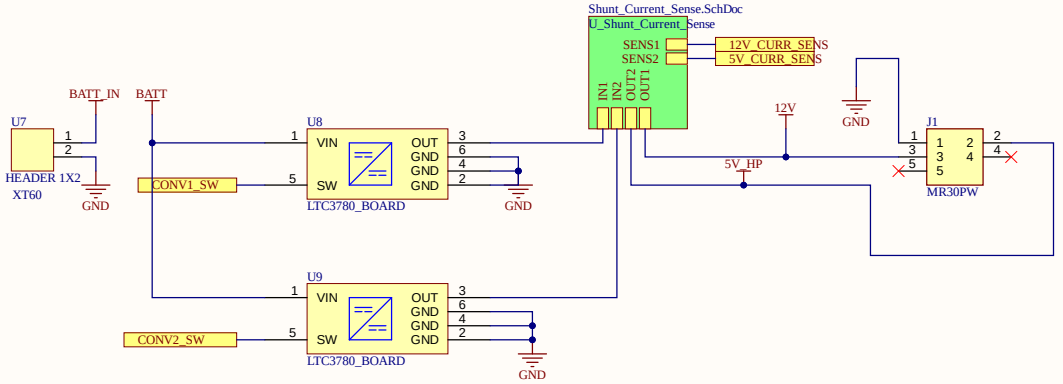
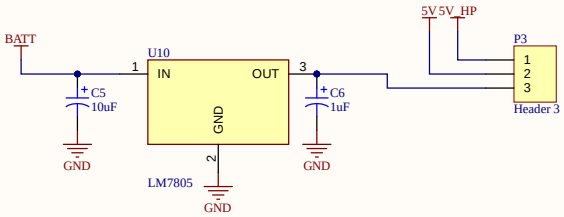
Date: 8.16.2022		Sheet of
File: C:\Users\..\ESC.SchDoc		Drawn By:

POWER

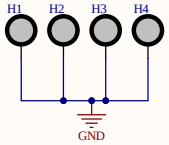
Converters



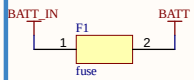
Voltage Regulator



Mounting Holes



Fuse



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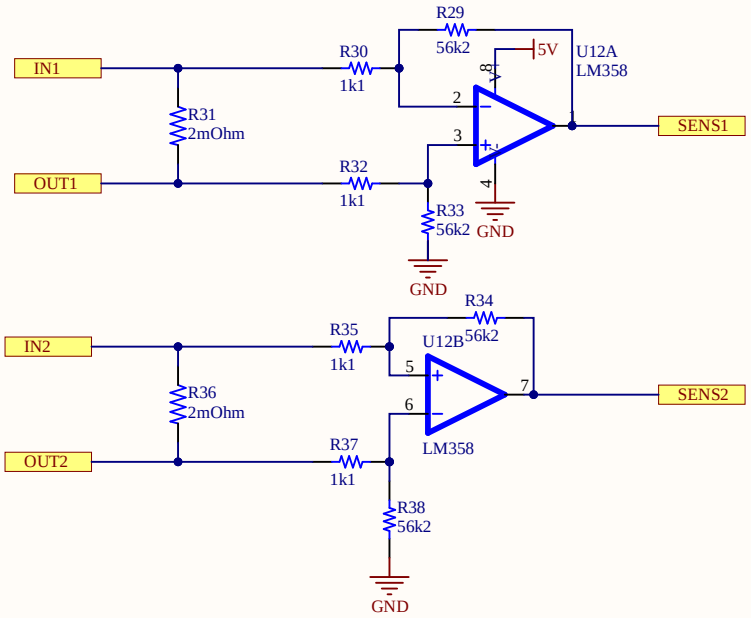
Shunt Current Sense



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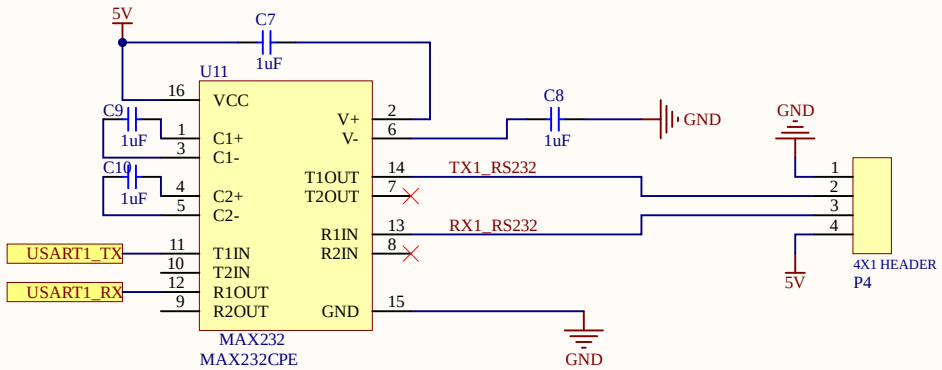
Date: 8.16.2022	Sheet of	
File: C:\Users\..\Shunt_Current_Sense.SchDoc	Drawn By:	

RS232



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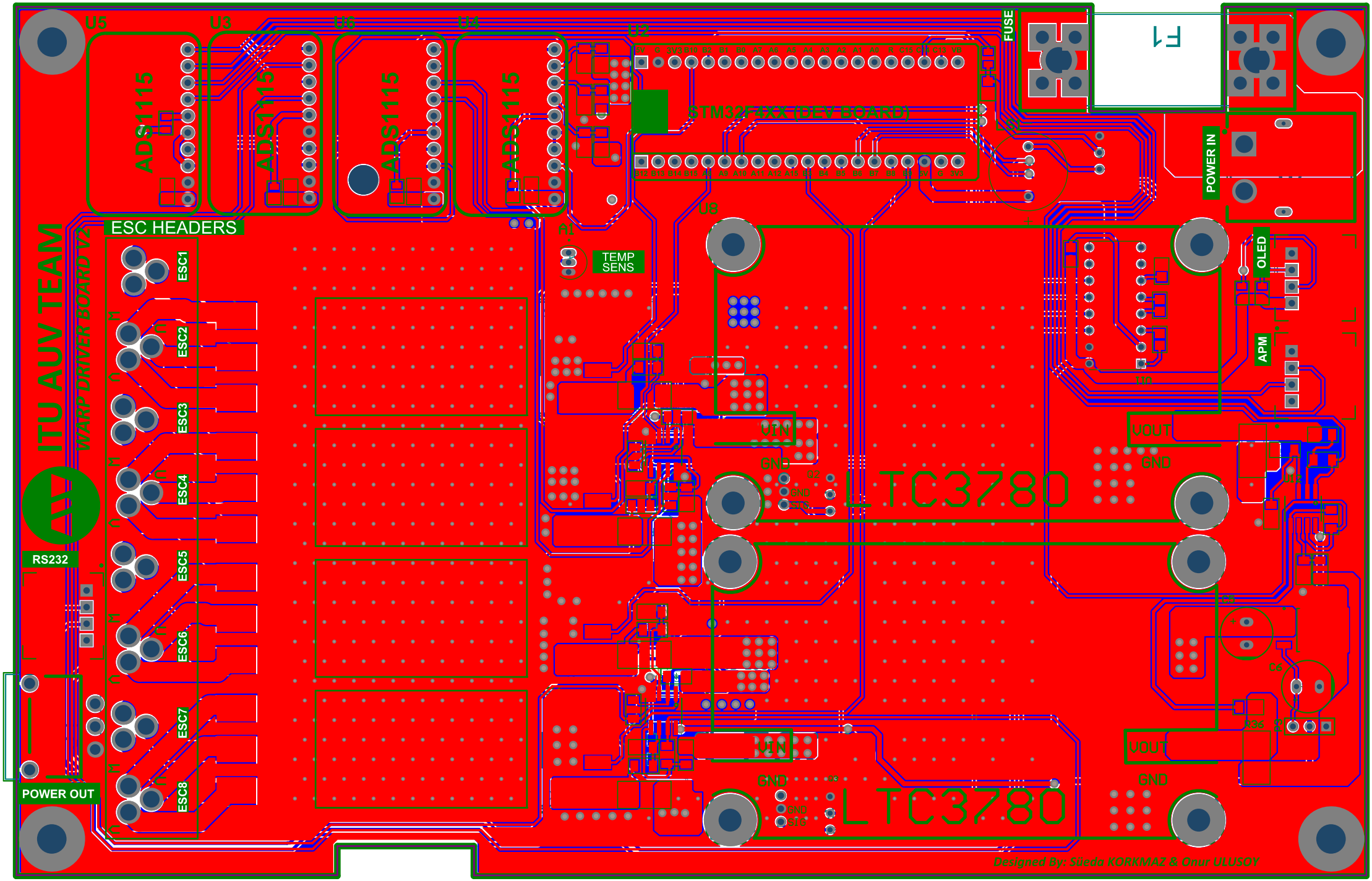
ITU AUV TEAM
WARP DRIVER BOARD V2
ESC HEADERS
ESC1
ESC2
ESC3
ESC4
ESC5
ESC6
ESC7
ESC8
RS232
POWER OUT
POWER IN
FUSE
F1
OLED
APM
TEMP SENS
ADS1115
ADS1115
ADS1115
ADS1115
STM32F4XX DEV BOARD
LTC3780
LTC3780
VIN
VOUT
GND
Designed By: Süeda KORKMAZ & Onur ULUSOY

Comment	Description	Designator	Footprint	LibRef	Quantity
LM35DZ/NOPB		A1	TO92127P521H735-3	LM35DZ/NOPB	1
CAP CER 1UF 25V X7R 0805	Cap Ceramic 1uF 25V X7R 5% SMD 0805 125C Plastic T/R	C1, C2, C3, C4, C7, C8, C9, C10	C0805C105J3RAC7800	C0805C105J3RAC7800	8
10uF	CAP ALUM 33UF 20% 35V RADIAL	C5	CAP TH ALUM ELEC D8.00mm S3.50mm H12.50mm	UVP1V330MPD	1
1uF	CAP ALUM 33UF 20% 35V RADIAL	C6	CAP TH ALUM ELEC D8.00mm S3.50mm H12.50mm	UVP1V330MPD	1
Basic ESC	40V, bi-directional, high-precision current sense amplifier w/ picoamp IB & ENABLE 8-SOT-23-THIN -40 to 125	ESC1_U_WARP_ESC1, ESC1_U_WARP_ESC2, ESC1_U_WARP_ESC3, ESC1_U_WARP_ESC4, ESC2_U_WARP_ESC1, ESC2_U_WARP_ESC2, ESC2_U_WARP_ESC3, ESC2_U_WARP_ESC4	BLUE ESC TOP	Basic ESC	8
MT-30 M		ESC_HEADER1_U_WARP_ESC1, ESC_HEADER1_U_WARP_ESC2, ESC_HEADER1_U_WARP_ESC3, ESC_HEADER1_U_WARP_ESC4, ESC_HEADER2_U_WARP_ESC1, ESC_HEADER2_U_WARP_ESC2, ESC_HEADER2_U_WARP_ESC3, ESC_HEADER2_U_WARP_ESC4	MT30-M	MT-30 M	8
fuse		F1	fuse	fuse	1
Mounting Holes		H1, H2, H3, H4	Mounting Holes	Mounting Holes	4
MR30PW	Connector	J1	MRP30PW	MR30PW	1
buzzer		LS1	BUZZER	buzzer	1
WIRE-TO BOARD HEADER, 2.5MM, 4 C	Wire-to Board Header, 2.5MM, 4 C. Battery Power Module Input.	P1, P2, P4	51125-04-0200-01	51125-04-0200-01	3
Header 3	WARP 5V Logic Selector Switch	P3	HDR1X3	Header 3	1
2N7000	MOSFET N-CH 60V 350MA TO-92	Q1, Q2, Q3	2N7000	2N7000	3
56k2	RES 0.1 OHM 1% 1/2W 1206	R1_U_WARP_ESC1, R1_U_WARP_ESC2, R1_U_WARP_ESC3, R1_U_WARP_ESC4, R5_U_WARP_ESC1, R5_U_WARP_ESC2, R5_U_WARP_ESC3, R5_U_WARP_ESC4, R6_U_WARP_ESC1, R6_U_WARP_ESC2, R6_U_WARP_ESC3, R6_U_WARP_ESC4, R10_U_WARP_ESC1, R10_U_WARP_ESC2, R10_U_WARP_ESC3, R10_U_WARP_ESC4, R29, R33, R34, R38	RES 1206_3216	RL1206FR-7W0R1L	20
1k1	RES 0.1 OHM 1% 1/2W 1206	R2_U_WARP_ESC1, R2_U_WARP_ESC2, R2_U_WARP_ESC3, R2_U_WARP_ESC4, R4_U_WARP_ESC1, R4_U_WARP_ESC2, R4_U_WARP_ESC3, R4_U_WARP_ESC4, R7_U_WARP_ESC1, R7_U_WARP_ESC2, R7_U_WARP_ESC3, R7_U_WARP_ESC4, R9_U_WARP_ESC1, R9_U_WARP_ESC2, R9_U_WARP_ESC3, R9_U_WARP_ESC4, R30, R32, R35, R37	RES 1206_3216	RL1206FR-7W0R1L	20
2mOhm	TL3A R002 1% 2K RL	R3_U_WARP_ESC1, R3_U_WARP_ESC2, R3_U_WARP_ESC3, R3_U_WARP_ESC4, R8_U_WARP_ESC1, R8_U_WARP_ESC2, R8_U_WARP_ESC3, R8_U_WARP_ESC4, R31, R36	Shunt	Shunt	10
RES 2.2K OHM 1% 1/8W 0805	2.2 kOhms ±1% 0.125W, 1/8W Chip Resistor 0805 (2012 Metric) Moisture Resistant Thick Film	R11, R12, R13, R14, R15, R16, R18, R20, R28	RC0805FR-072K2L	RC0805FR-072K2L	9
RES 10K OHM 1% 1/8W 0805	Res Thick Film 2.0 x 1.2 mm 10K Ohm 1% 0.125W(1/8W) 100ppm/ C Molded SMD Paper T/R	R17, R19, R27	RC0805FR-1310KL	RC0805FR-1310KL	3
10k	RES 0.1 OHM 1% 1/2W 1206	R21, R22, R23	RES 1206_3216	RL1206FR-7W0R1L	3
2k	RES 0.1 OHM 1% 1/2W 1206	R24, R25, R26	RES 1206_3216	RL1206FR-7W0R1L	3
LM358		U1_U_WARP_ESC1, U1_U_WARP_ESC2, U1_U_WARP_ESC3, U1_U_WARP_ESC4, U12	LM358	LM358	5
STM32F401CCU6		U2	STM32F401CCU6	STM32F401CCU6	1
ADS1115		U3, U4, U5, U6	ADS1115	ADS1115	4
HEADER 2X1		U7	XT60PW-M	XT60PW-M	1
LTC3780_BOARD		U8, U9	LTC3780_BOARD	LTC3780_BOARD	2
LM7805		U10	lm7805 smd	LM7805	1
MAX232CPE	MAX232 Series 120 kbps 5.5 V Through Hole RS-232 Transceiver - PDIP-16	U11	MAX232CPE	MAX232CPE	1