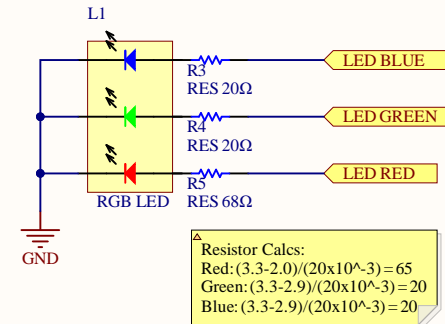
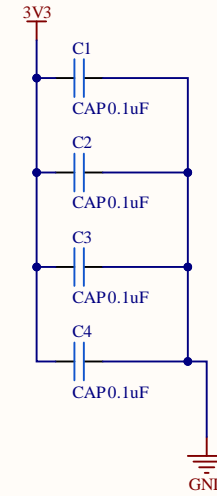
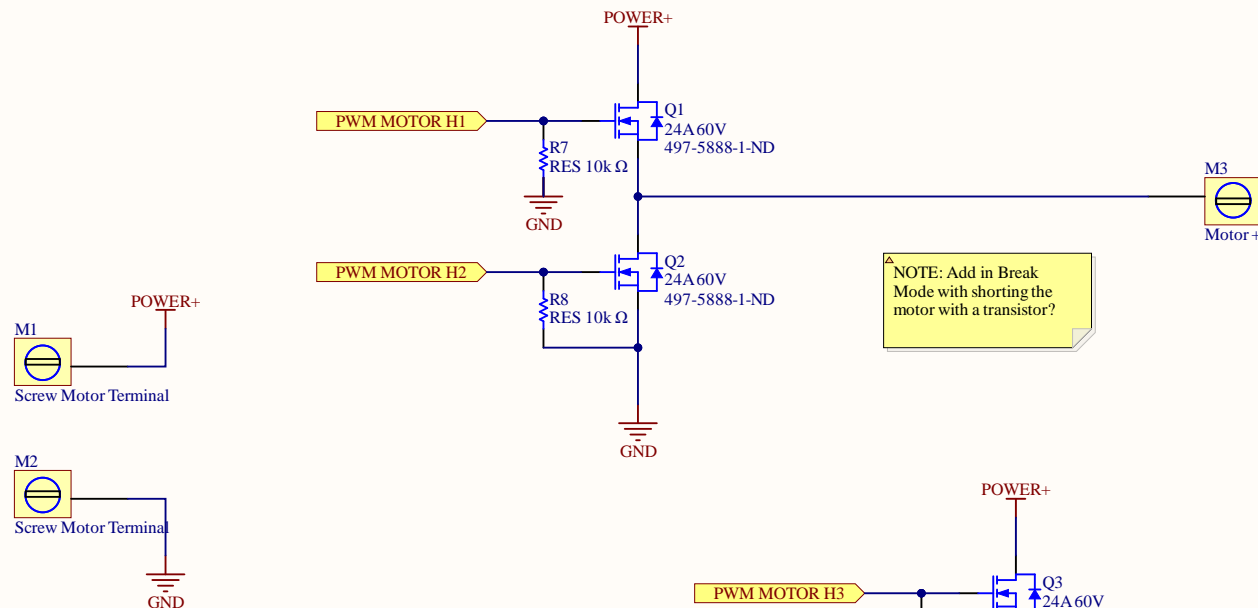


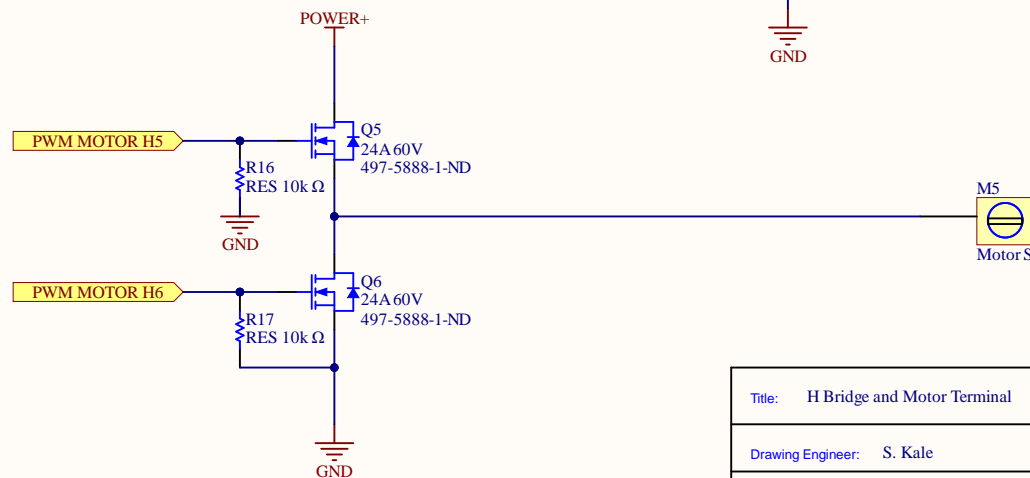
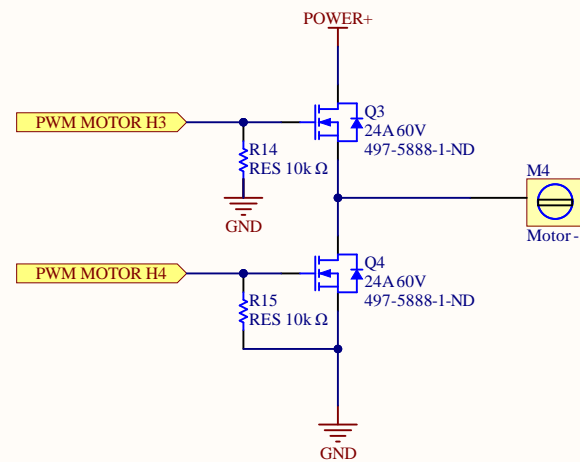
Decoupling Capacitors



Title: Microcontroller	
Drawing Engineer: S. Kale	Revision: 1.0
Checking Engineer: A. Chaudhary	Date: December 26, 2020
Notes:	
Document Name:	Sheet: 1 of 4

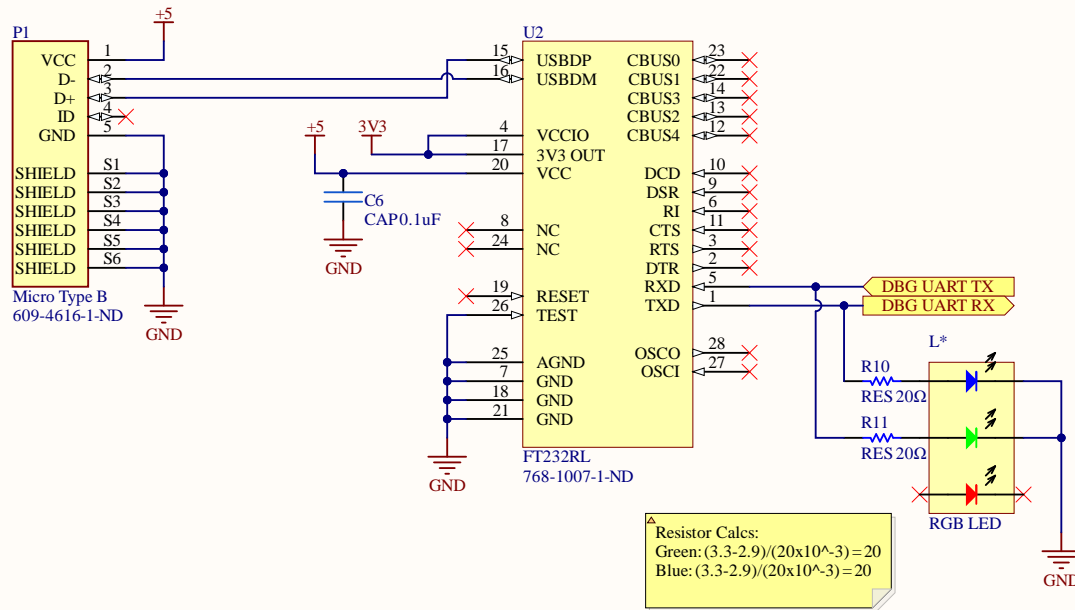


Note: in Brushed Operation, the H3 will be coupled to H2, and H4 will be coupled to H1 to form a classic H Bridge

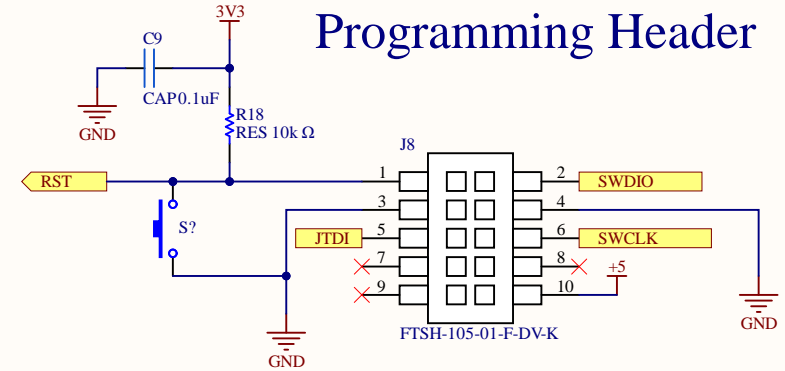


Title: H Bridge and Motor Terminal	
Drawing Engineer: S. Kale	Revision: 1.0
Checking Engineer: A. Chaudhary	Date: December 26, 2020
Notes:	
Document Name:	Sheet: 2 of 4

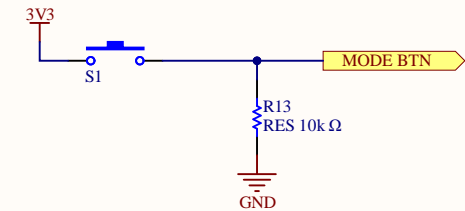
USB - UART Interface



Programming Header

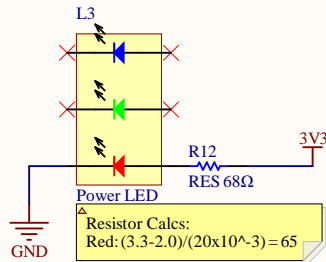


BUTTON MODE PUSH

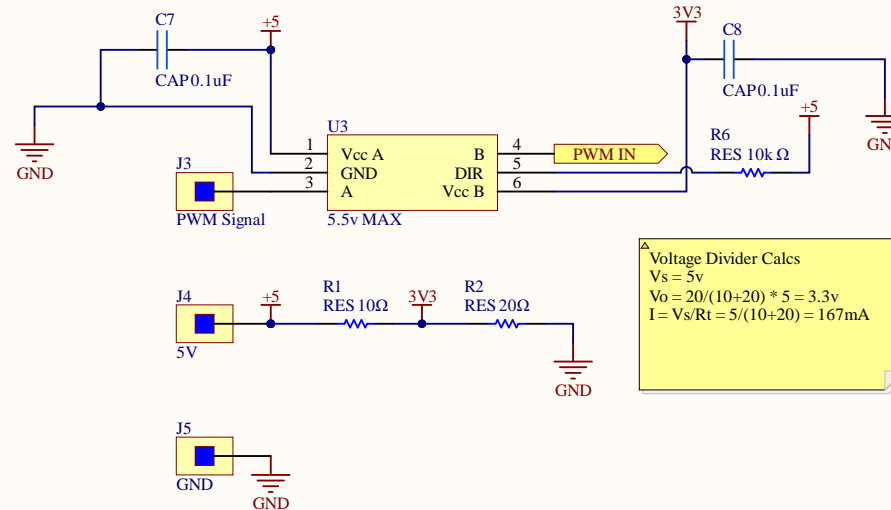


Title: Debug Communication	
Drawing Engineer: S. Kale	Revision: 1.0
Checking Engineer: A. Chaudhary	Date: December 26, 2020
Notes:	
Document Name:	
Sheet: 3 of 4	

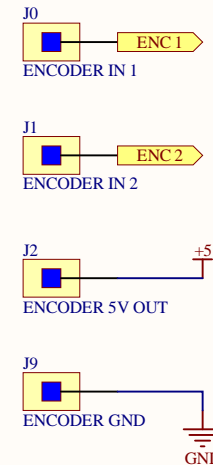
POWER IN LED



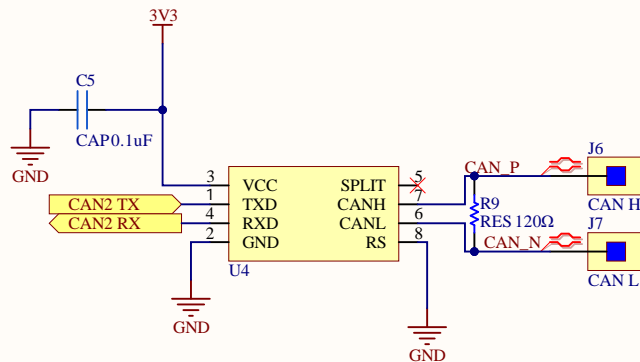
PWM IN



ENCODER



CAN BUS CONNECTORS



Title: PWM + CAN Headers	
Drawing Engineer: S. Kale	Revision: 1.0
Checking Engineer: A. Chaudhary	Date: December 26, 2020
Notes:	
Document Name:	Sheet: 4 of 4

Comment	Description	Designator	Footprint	LibRef	Quantity
CAP 0.1uF	Ceramic Capacitor, Multilayer, Ceramic, 16V, 10% +Tol, 10% - Tol, X7R, 15% TC, 0.1uF, Surface Mount, 0402	C1, C2, C3, C4, C5, C6, C7, C8, C9	CAP0.1uF	CAP 0.1uF	9
ENCODER IN 1	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J0	PIN_HEADER	PIN_HEADER	1
ENCODER IN 2	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J1	PIN_HEADER	PIN_HEADER	1
ENCODER 5V OUT	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J2	PIN_HEADER	PIN_HEADER	1
PWM Signal	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J3	PIN_HEADER	PIN_HEADER	1
5V	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J4	PIN_HEADER	PIN_HEADER	1
GND	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J5	PIN_HEADER	PIN_HEADER	1
CAN H	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J6	PIN_HEADER	PIN_HEADER	1
CAN L	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J7	PIN_HEADER	PIN_HEADER	1
CON_STM32_PROGRA MMING	CONN HEADER SMD 10POS 1.27MM	J8	FTSH-105-01-F-DV-K-P-TR	CON_STM32_PROGRA MMING	1
ENCODER GND	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J9	PIN_HEADER	PIN_HEADER	1
RGB LED	Triple Color LED	L1, L*	UHD1110-FKA-CL1A13R3Q1BBQFMF3	LED_RGB	2
Power LED	Triple Color LED	L3	UHD1110-FKA-CL1A13R3Q1BBQFMF3	LED_RGB	1
Screw Motor Terminal	PCB Terminal	M1, M2	8191	MOTOR TERMINAL	2
Motor +	PCB Terminal	M3	8191	MOTOR TERMINAL	1
Motor -	PCB Terminal	M4	8191	MOTOR TERMINAL	1
Motor S	PCB Terminal	M5	8191	MOTOR TERMINAL	1
Micro Type B	USB Connector, 5 Contact(s), Female, Right Angle, Solder Terminal, Locking, Receptacle	P1	FCI_10118193-0001LF	USB Connector	1
24A 60V	Power Field-Effect Transistor, 24A I(D), 60V, 0.05ohm, 1-Element, N-Channel, Silicon, Metal-oxide Semiconductor FET, TO-252AA	Q1, Q2, Q3, Q4, Q5, Q6	STD20NF06LT4	MOSFET	6
RES 10Ω	Fixed Resistor, Metal Glaze/thick Film, 0.1W, 10ohm, 75V, 1% +/-Tol, 50ppm/Cel, Surface Mount, 0603	R1	RE0603FRE0710RL	RES 10Ω	1
RES 20Ω	Fixed Resistor, 0.1W, 20ohm, 50V, 5% +/-Tol, 200ppm/Cel, Surface Mount, 0603	R2, R3, R4, R10, R11	SDR03EZP1200	RES 20Ω	5
RES 68Ω	VISCRCW120668R0JN EAC Res Thick Film 1206	R5, R12	CRCW120668R0JNEAC	RES 68Ω	2
RES 10k Ω	Fixed Resistor, Metal Glaze/thick Film, 0.25W, 10000ohm, 200V, 1% +/-Tol, 50ppm/Cel, Surface Mount, 1206	R6, R7, R8, R13, R14, R15, R16, R17, R18	13-RE1206FRE0710KLCT-ND	RES 10k Ω	9
RES 120Ω	Fixed Resistor, 0.1W, 120ohm, 50V, 5% +/-Tol, 200ppm/Cel, Surface Mount, 0603	R9	SDR03EZP1200	RES 120	1
SW_SPST_NO	SWITCH TACTILE SPST-NO 0.05A 12V	S1, S7	B3U-1000P	SW_SPST_NO	2
STM32F446RET6	RISC Microcontroller, 32-Bit, FLASH, CORTEX M4F CPU, 180MHz, CMOS, PQFP64	U1	STM_LQFP64_N	STM32F446RET6	1
FT232RL	USB Bus Controller, CMOS, PDSO28	U2	FT232RL	FT232RL	1
5.5v MAX	Bus Transceiver, LVCMC/LCXZ Series, 1-Func, 1-Bit, True Output, CMOS, PDSO6	U3	74LVC1T4526-7	Bi-Directional Logic Converter	1
IC_CAN_TRANSCIVER	IC TXRX CAN 4MBPS RS0	U4	LT-SB_N	IC_CAN_TRANSCIVER	1