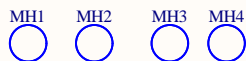


MOUNTING HOLES



Title: Microcontroller

Drawing Engineer: S. Kale

Checking Engineer: A. Chaudhary

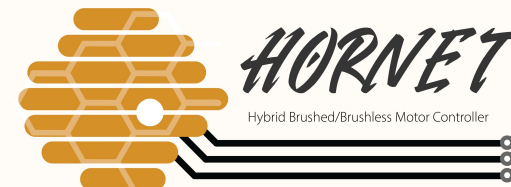
Notes:

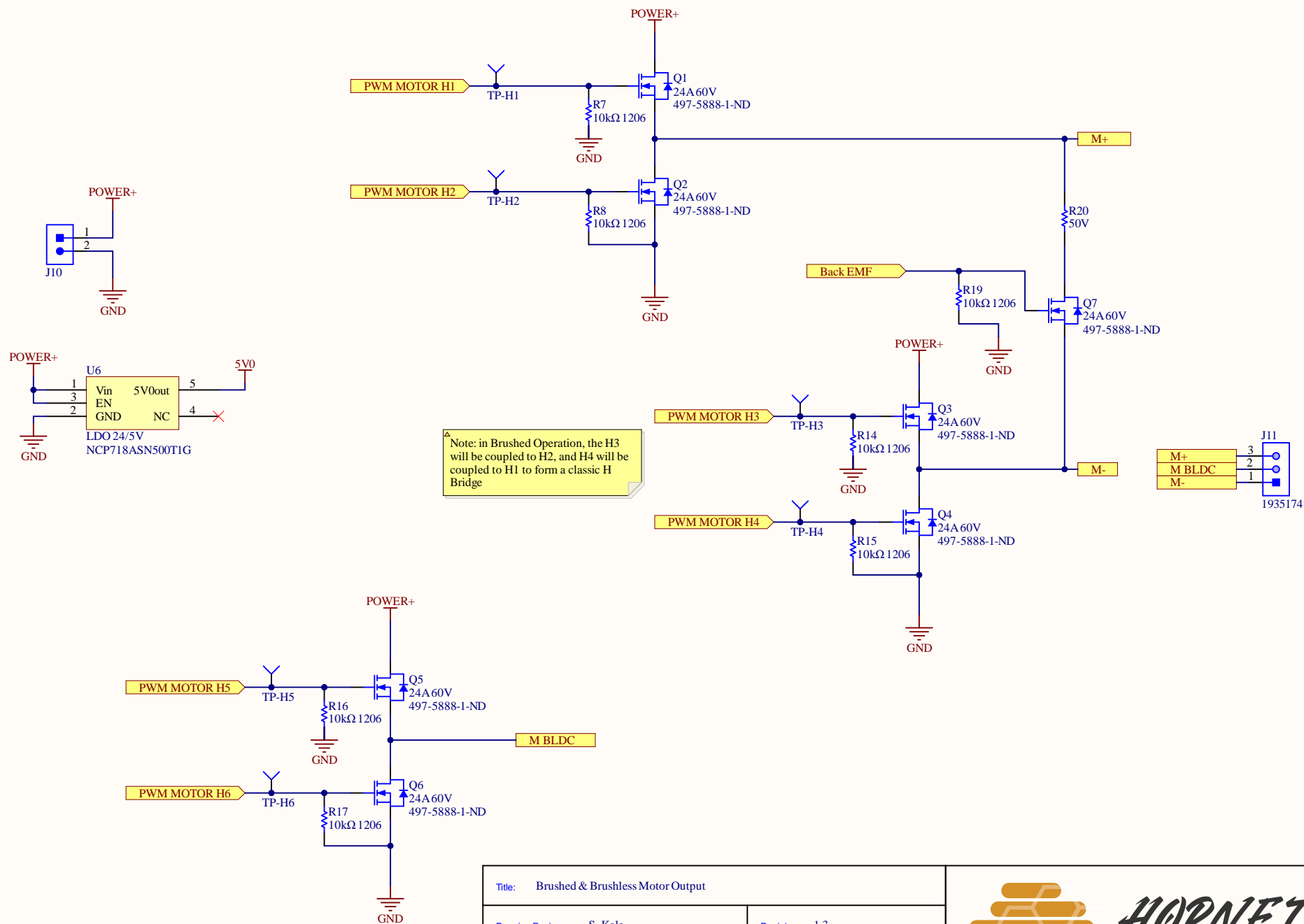
Document Name:

Revision: 1.3

Date: December 26, 2020

Sheet: 1 of 4





Title: Brushed & Brushless Motor Output

Drawing Engineer: S. Kale

Revision: 1.3

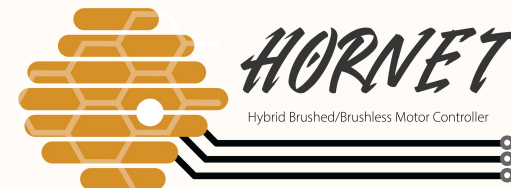
Checking Engineer: A. Chaudhary

Date: January 3, 2021

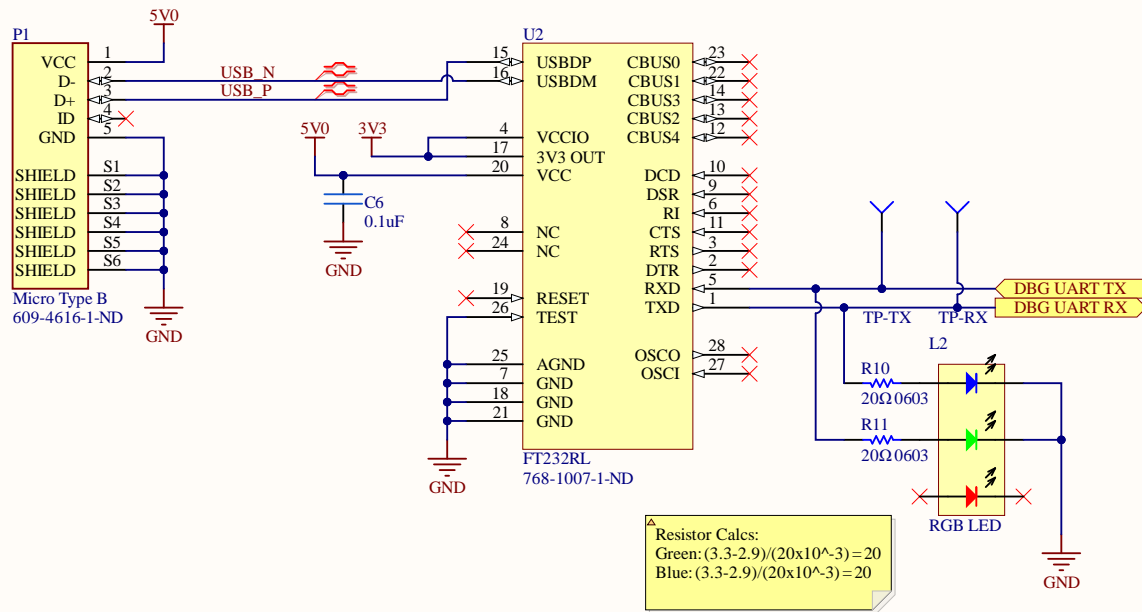
Notes: Input MAX 5A/24V

Document Name:

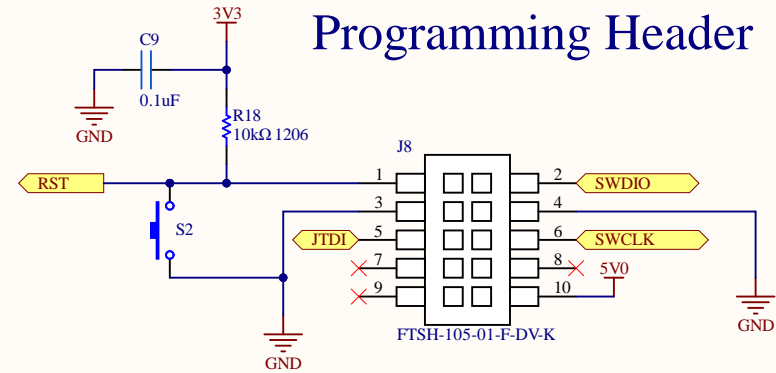
Sheet: 2 of 4



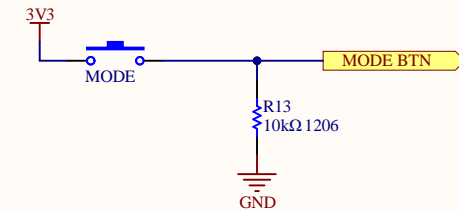
USB - UART Interface



Programming Header



BUTTON MODE PUSH



Title: Debug Communication

Drawing Engineer: S. Kale

Revision: 1.3

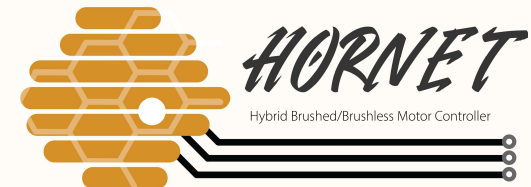
Checking Engineer: A. Chaudhary

Date: January 3, 2021

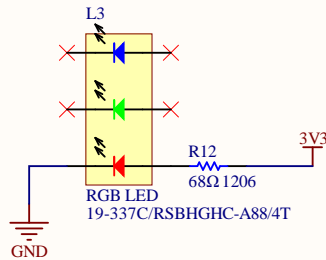
Notes:

Document Name:

Sheet: 3 of 4

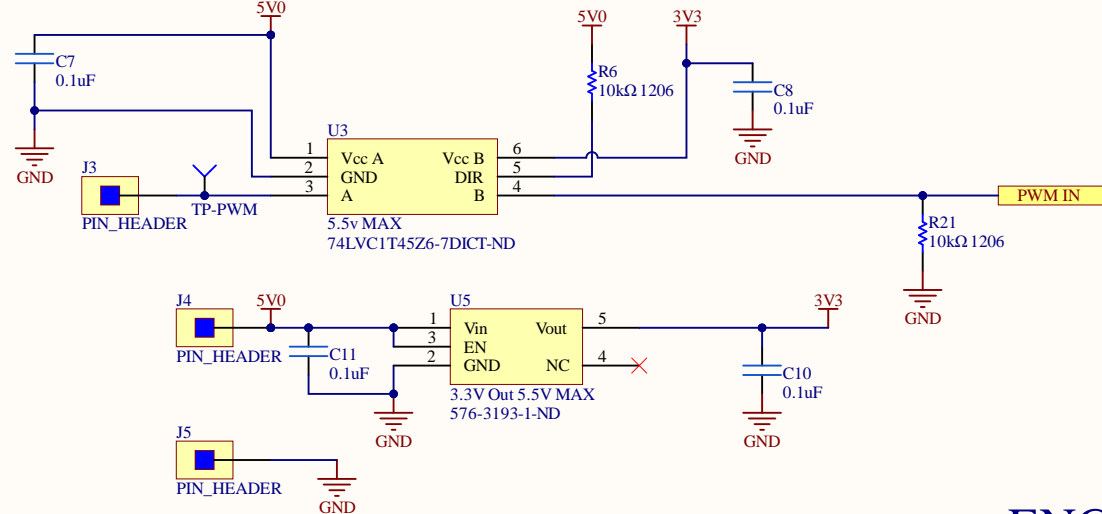


POWER IN LED

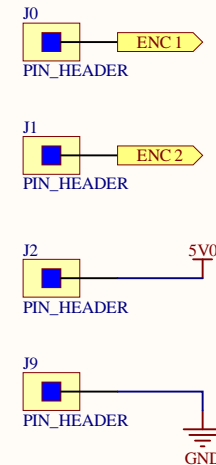


Resistor Calcs:
Red: $(3.3-2.0)/(20 \times 10^{-3}) = 65$

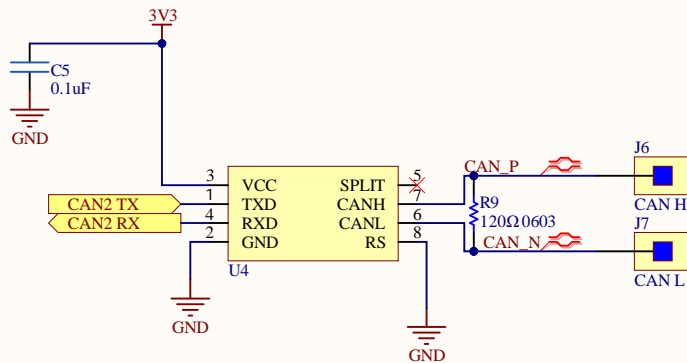
PWM IN



ENCODER



CAN BUS CONNECTORS



Title: CAN & PWM I/O

Drawing Engineer: S. Kale

Revision: 1.3

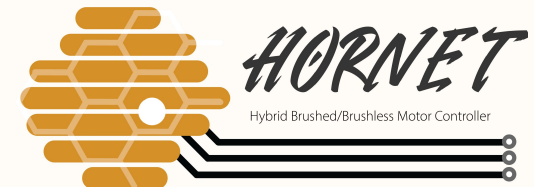
Checking Engineer: A. Chaudhary

Date: January 3, 2021

Notes:

Document Name:

Sheet: 4 of 4



Comment	Description	Designator	Footprint	LibRef	Quantity
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, C10, C11	CAP0.1uF	CAP 0.1uF	11
PIN_HEADER	Board Connector, 1 Contact(s), 1 Row(s), Male, Straight, Solder Terminal	J0, J1, J2, J3, J4, J5, J9	PIN_HEADER	PIN_HEADER	7
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
CON 2-SCREW	TERM BLK 2POS SIDE ENTRY 5MM	J10	1935161	CON 2-SCREW	1
CON 3-SCREW	TERM BLK 3POS SIDE ENTRY 5MM	J11	1935174	CON 3-SCREW	1
RGB LED	Tri Color Pcb Top View SMD Led R	L1, L2, L3	19-337C/RSBHGHC-A88/4T	LED_RGB	3
MOUNTING HOLE		MH1, MH2, MH3, MH4	MOUNTING HOLE	MOUNTING HOLE	4
SW_SPST_NO	SWITCH TACTILE SPST-NO 0.05A 12V	MODE, S2	B3U-1000P	SW_SPST_NO	2
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, Q7	STD20NF06LT4	MOSFET	7
20Ω 0603	Fixed Resistor, 0.1W, 20ohm, 50V, 5% +/- Tol, 200ppm/Cel, Surface Mount, 0603	R3, R4, R10, R11	SDR03EZPJ200	RES 20Ω	4
68Ω 1206	VISCRCW120668R0JN EAC Res Thick Film 1206	R5, R12	CRCW120668R0JNEAC	RES 68Ω	2
10kΩ 1206	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, R19, R21	13-RE1206FRE0710KLCT-ND	RES 10k Ω	11
120Ω 0603	Fixed Resistor, 0.1W, 120ohm, 50V, 5% +/- Tol, 200ppm/Cel, Surface Mount, 0603	R9	SDR03EZPJ200	RES 120	1
50V	Fixed Resistor, 0.1W, 120ohm, 50V, 5% +/- Tol, 200ppm/Cel, Surface Mount, 0603	R20	SDR03EZPJ200	RES 120	1
TESTPT		TP-CRX, TP-CTX, TP-E1, TP-E2, TP-H1, TP-H2, TP-H3, TP-H4, TP-H5, TP-H6, TP-PWM, TP-RX, TP-TX	TESTPT SQUARE	TESTPT SQUARE	13
STM32F446RET6	RISC Microcontroller, 32-Bit, FLASH, CORTEX M4F CPU, 180MHz, CMOS, PQFP64	U1	STM_LOFP64_N	STM32F446RET6	1
FT232RL	USB Bus Controller, CMOS, PDSO28	U2	FT232RL	FT232RL	1
5.5v MAX	Bus Transceiver, LVC/LCX/Z Series, 1-Func, 1-Bit, True Output, CMOS, PDSO6	U3	74LVC1T45Z6-7	Bi-Directional Logic Converter	1
IC_CAN_TRANSCEIVER	IC TXRX CAN 4MBPS 8SQ	U4	LT-S8_N	IC_CAN_TRANSCEIVER	1
3.3V Out 5.5V MAX	Microchip Technology MIC5365-3.3YC5-TR, LDO Voltage Regulator Controller, 150mA, 3.3V, ±3% 5-Pin, SC-75	U5	MIC5365-3.3YC5-TR	LDO 5.5/3.3V	1
LDO 24/5V	Fixed Positive LDO Regulator, 5V, 0.38V Dropout, PDSO5	U6	NCP718ASN500T1G	LDO 24/5V	1