

5V

TMC4671-BOB_V1.1

VM

VCCIO

GND

GND

DIR/STP

CSN

RTM

SCK

MOSI

MISO

RXD

TXD

GND

ADC_IO_INN

ADC_I1_INN

GND

GND



PWM_Y2_L

PWM_Y2_H

PWM_WY1_L

PWM_WY1_H

PWM_VX2_L

PWM_VX2_H

PWM_UX1_L

PWM_UX1_H

HALL_UX

HALL_U

HALL_WY

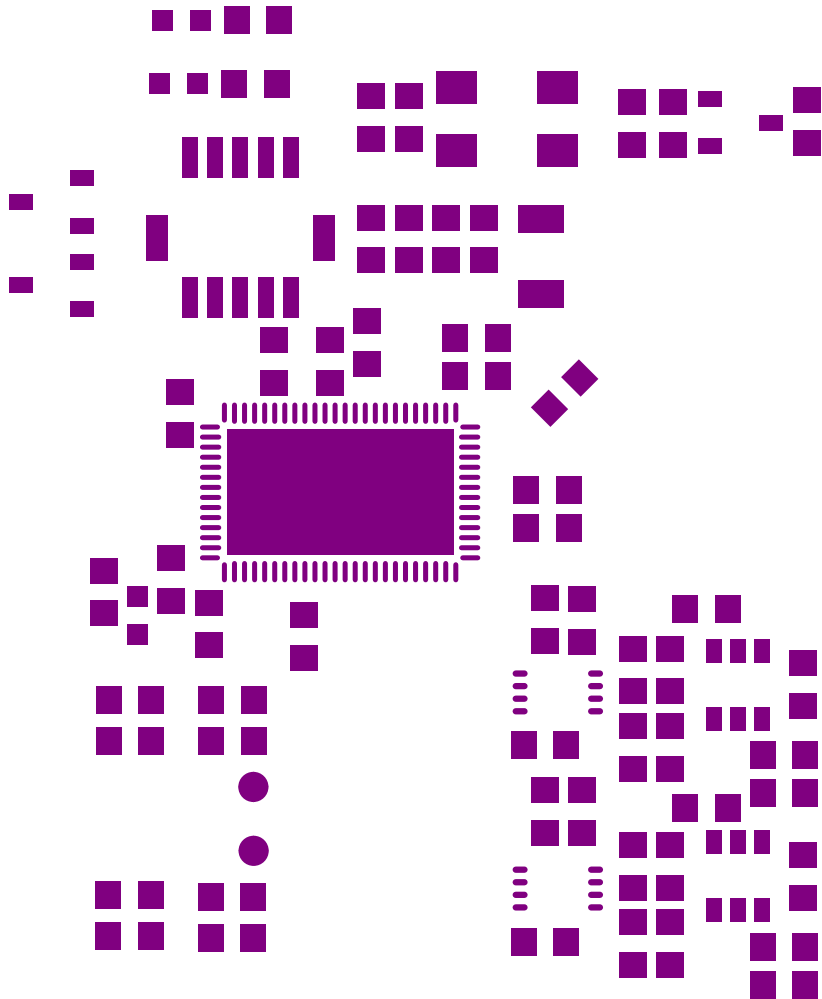
ENC1_A

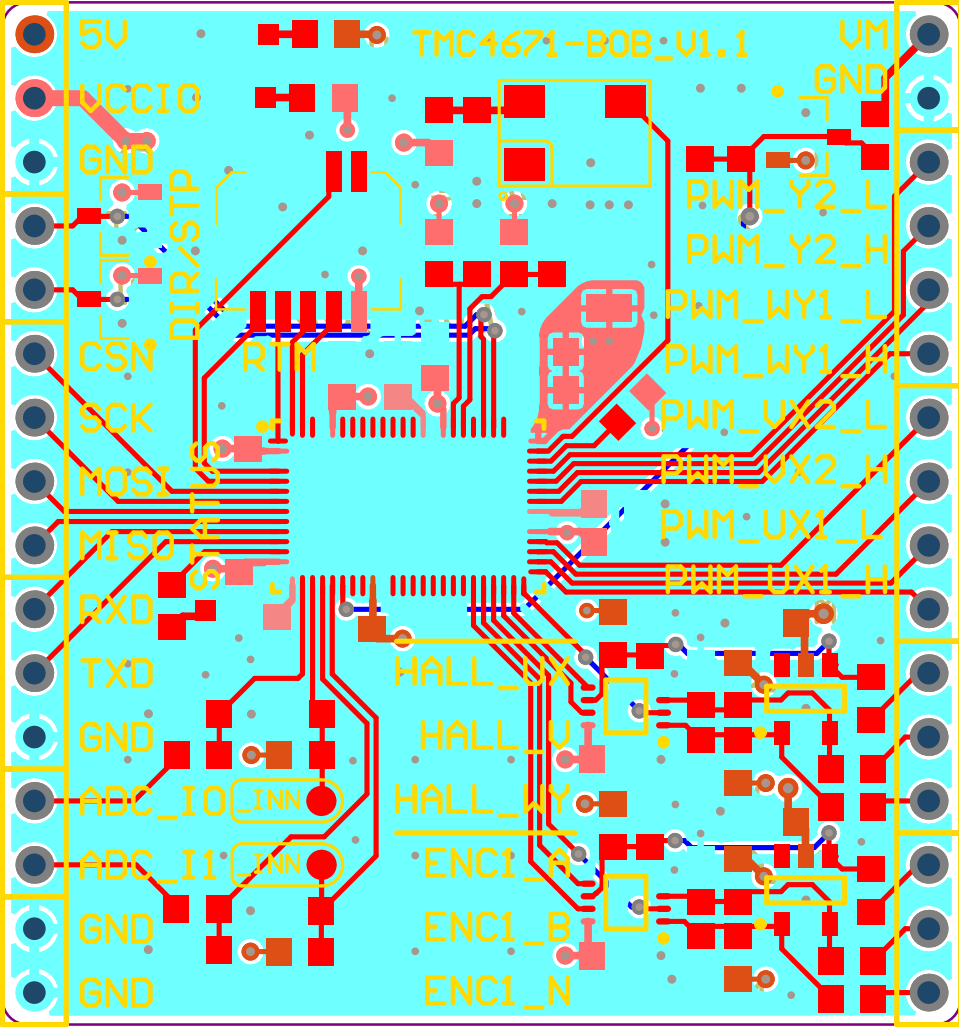
ENC1_B

ENC1_N

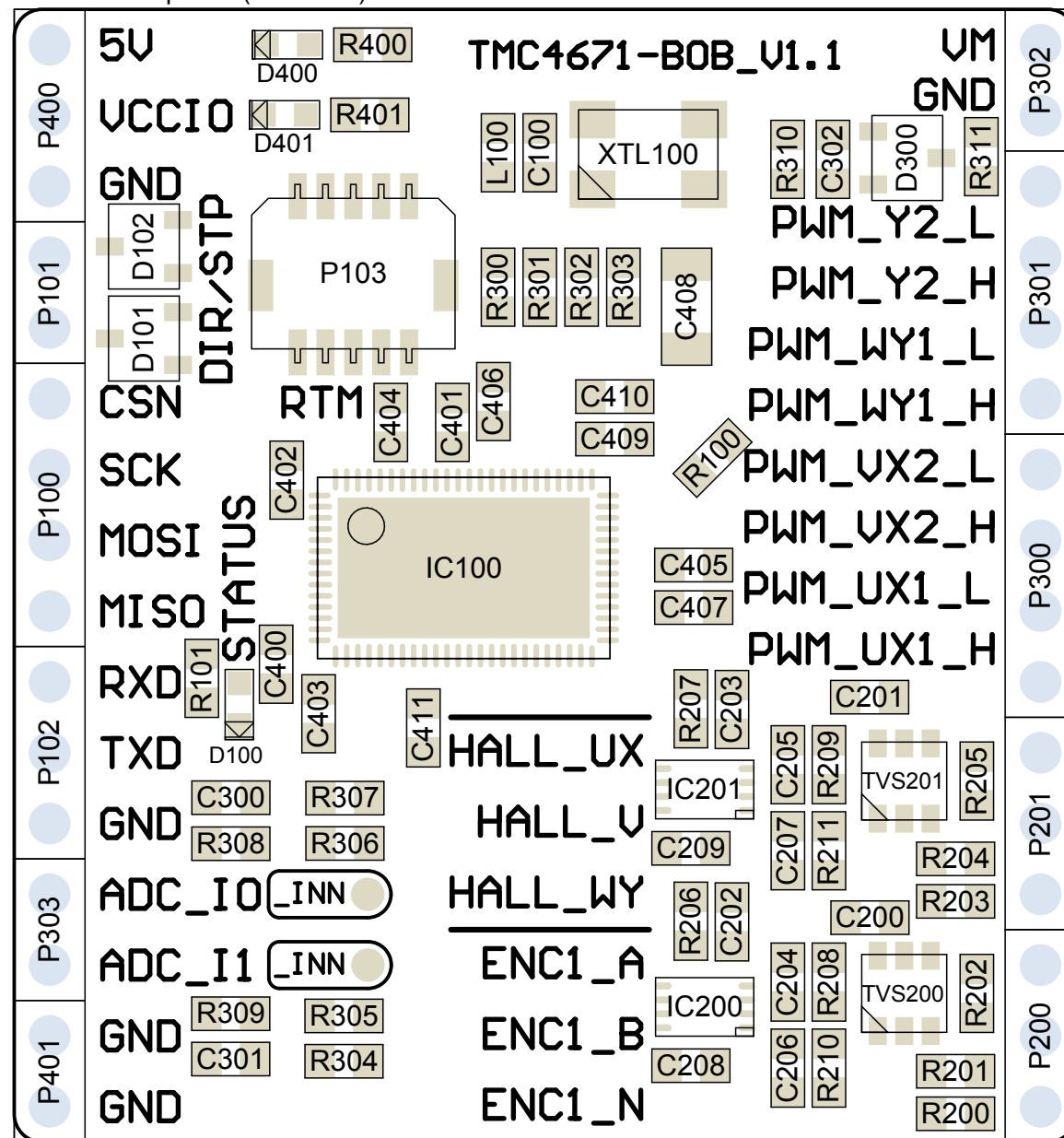


VM	TMC4671-BOB_V1.1	5V
GND		VCCIO
PWM_Y2_L	<i>IC name:</i> <i>TMC4671</i>	GND
PWM_Y2_H		STP
PWM_WY1_L	<i>Interfaces:</i> <i>SPI, UART, S/D</i>	DIR
PWM_WY1_H		CSN
PWM_VX2_L		SCK
PWM_VX2_H		MOSI
PWM_UX1_L		MISO
PWM_UX1_H		RXD
HALL_UX		TXD
HALL_V		GND
HALL_WY		ADC_IO
ENC1_A		ADC_I1
ENC1_B		GND
ENC1_N		GND

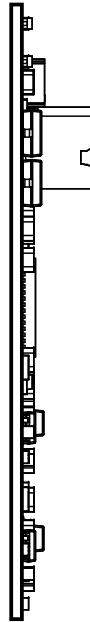




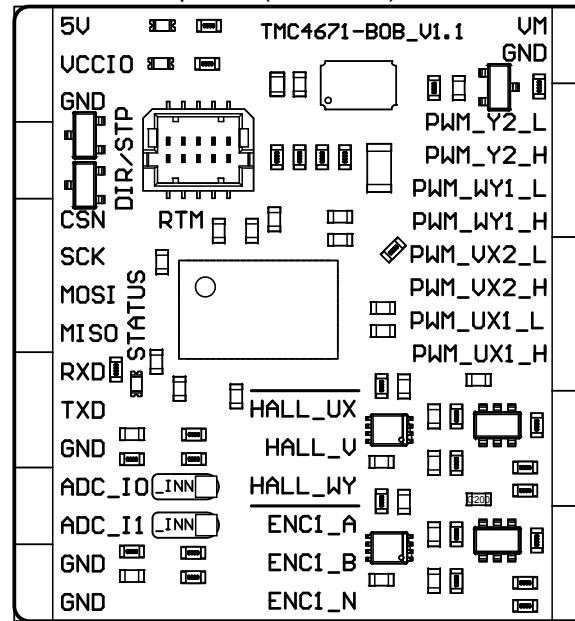
View from Top side (Scale 4:1)



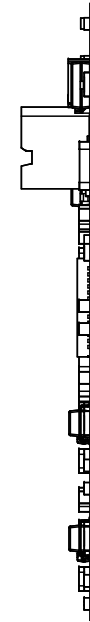
View from Left side (Scale 2:1)



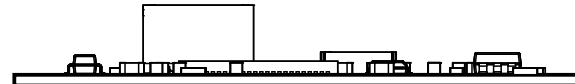
View from Top side (Scale 2:1)



View from Right side (Scale 2:1)



View from Front side (Scale 2:1)



TMC4671-BOB_V1.0

U_[1]_Communication_&_Inputs
[1]_Communication_&_Inputs.SchDoc



U_[2]_Encoder_&_Hall
[2]_Encoder_&_Hall.SchDoc



U_[3]_Sensing_&_Output
[3]_Sensing_&_Output.SchDoc



U_[4]_PSU
[4]_PSU.SchDoc

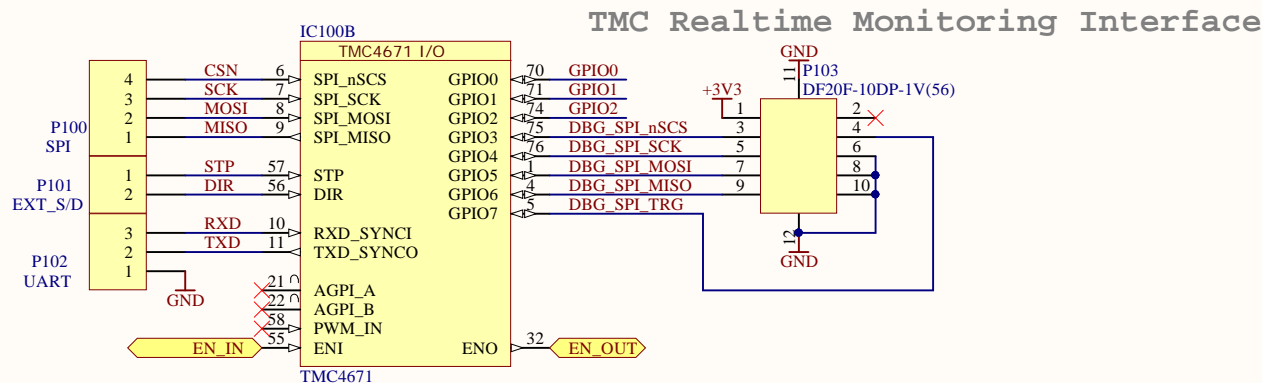


ChangeLog
ChangeLog.SchDoc

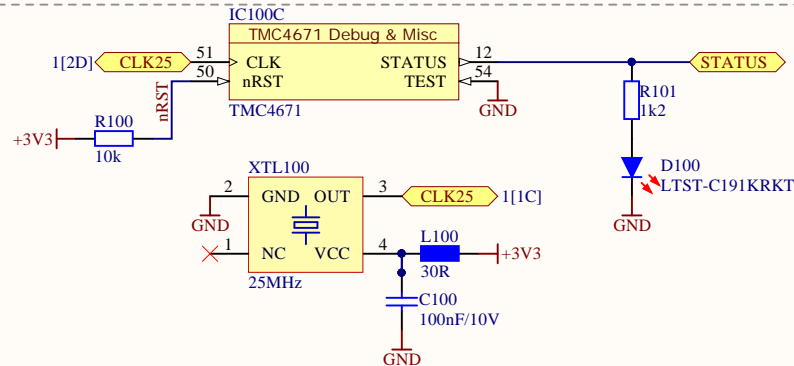


Communication & Inputs

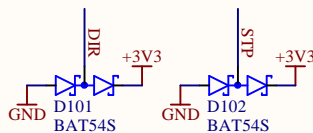
TMC4671 I/O



Clock & Misc



STEP/DIR TVS



Title: Communication & Inputs

Size: A4

Project: TMC4671-BOB

Version: 1.1

Date: 5.10.2017

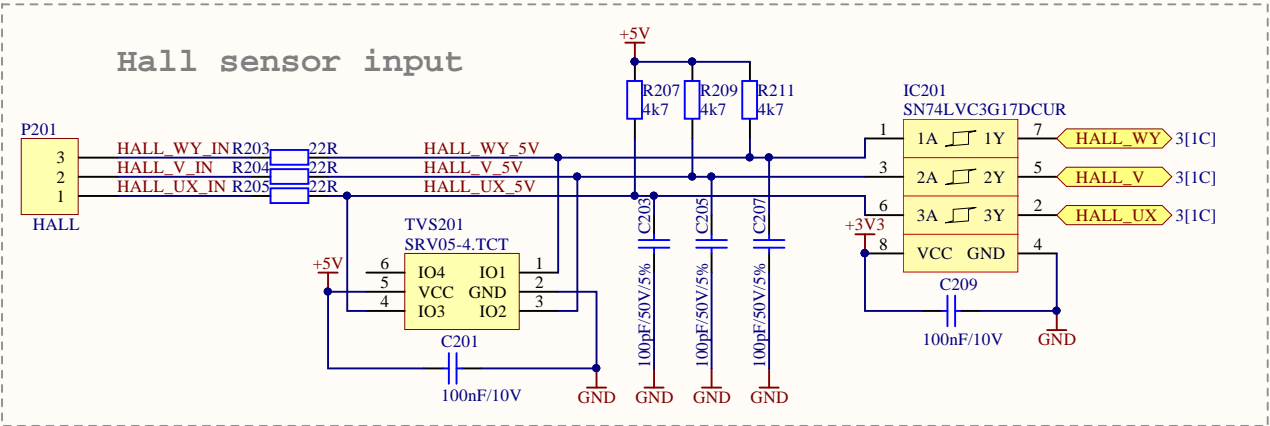
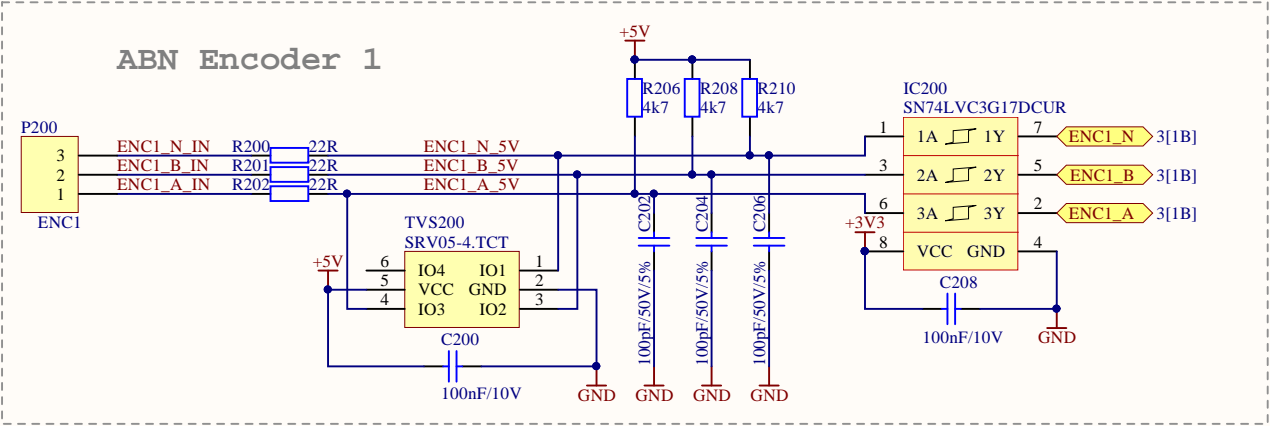
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Sheet 1 of 6

File: [1]_Communication_&_Inputs.SchDoc



Encoder & Hall sensor inputs



Title: Encoder & Hall sensor inputs

Size: A4

Project: TMC4671-BOB

Version: 1.1

Date: 5.10.2017

Time: 19:19:22

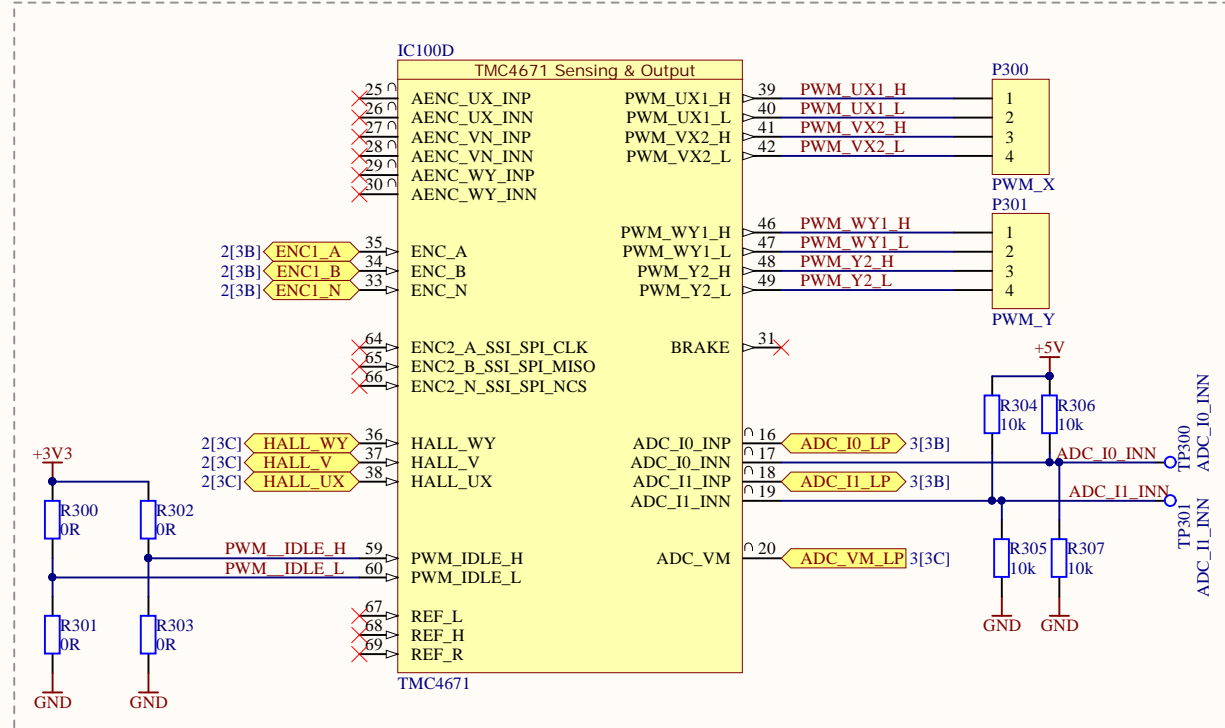
Sheet 2 of 6

File: [2]_Encoder_&_Hall.SchDoc

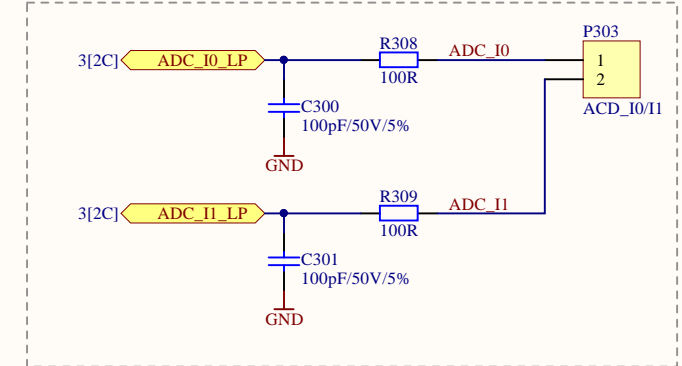


Sensing & Output

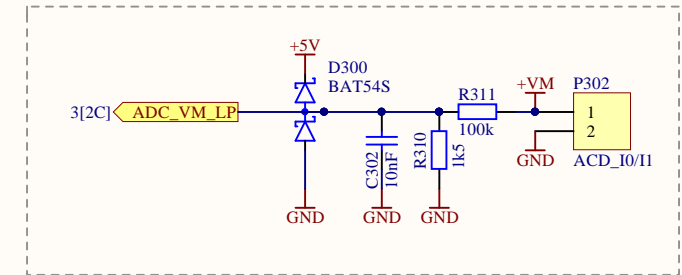
TMC4671 Sensing & Output



ADC Filter

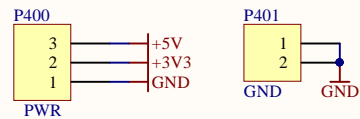


VM ADC Filter

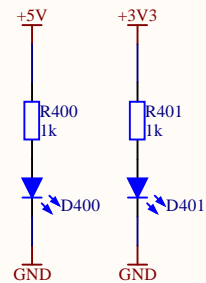


PSU

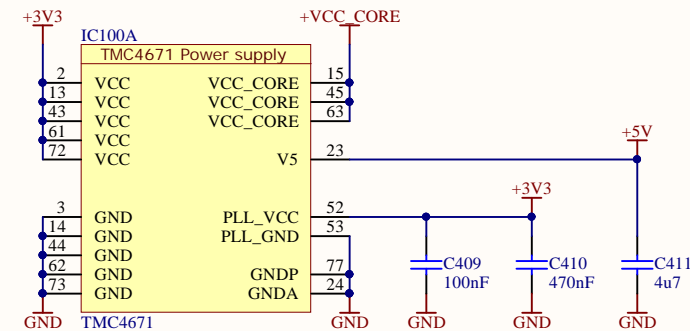
Power input



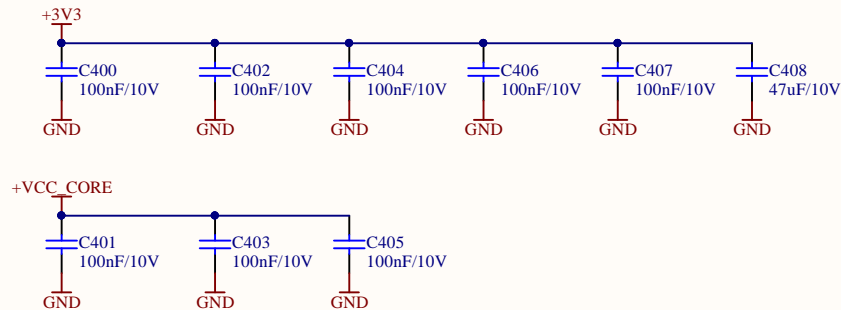
Power indicators



TMC power



Bypass capacitors



Title: PSU

Size: A4

Project: TMC4671-BOB

Version: 1.1

Date: 5.10.2017

Time: 19:19:23

Sheet 4 of 6

File: [4]_PSU.SchDoc



ChangeLog

- V1.0 - Initial design
25.09.2017 - Fixed XTL100 FOX924B pinout bug (swapped pins 3 & 4).
- V1.1 - Silkscreen and layout fixes
05.10.2017 - Improved layout for better top side silkscreen readability.

BOM

Project: TMC4671-BOB

Version: 1.1

Date: 5.10.2017

#	Quantity	MPN	Comment	Designator	Footprint	Description	Note	MF
1	13	MC0603B104K100CT	100nF/10V	C100, C200, C201, C208, C209, C400, C401, C402, C403, C404, C405, C406, C407	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 0.1 µF, 10 V, ± 10%, X7R, MC Series		Multicomp
2	8	MC0603N101J500CT	100pF/50V/5%	C202, C203, C204, C205, C206, C207, C300, C301	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 100 pF, 50 V, ± 5%, COG / NPO, MC Series		MULTICOMP
3	1	MCSH18B103K100CT	10nF	C302	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 0.01 µF, 10 V, ± 10%, X7R, MCSH Series		MULTICOMP
4	1	GRM31CR61A476ME15L	47uF/10V	C408	C1206	SMD Multilayer Ceramic Capacitor, 1206 [3216 Metric], 47 µF, 10 V, ± 20%, X5R, GRM Series		MURATA
5	1	MC0603B104K100CT	100nF	C409	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 0.1 µF, 10 V, ± 10%, X7R, MC Series		Multicomp
6	1	MC0603X474K160CT	470nF	C410	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 0.47 µF, 16 V, ± 10%, X5R, MC Series		Multicomp
7	1	MC0603X475K100CT	4u7	C411	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 4.7 µF, 10 V, ± 10%, X5R, MC Series		MULTICOMP
8	1	LTST-C191KRKT	LTST-C191KRKT	D100	LED_0603	Green 631nm LED Indication - Discrete 2V 0603 (1608 Metric)		Lite-On
9	3	BAT54S	BAT54S	D101, D102, D300	SOT95P237X130-3N	Small Signal Schottky Diode, Dual Series, 30 V, 200 mA, 1 V, 600 mA, 125 °C		TAIWAN SEMICONDUCTOR
10	2	LTST-C191TBKT-5A	LED, Blue, SMD, 20mA, 2.8V, 465 nm	D400, D401	LED_0603	LED, Blue, SMD, 20mA, 2.8V, 465 nm		Lite-On
11	1	TMC4671	TMC4671	IC100	QFN40P1050X650X90_HS-77N			TRINAMIC
12	2	SN74LVC3G17DCUR	SN74LVC3G17DCUR	IC200, IC201	TSSOP50P310X90-8L	Triple Schmitt-Trigger Buffer, 74LVC3G17, 1.65 V to 5.5 V, VSSOP-8		TEXAS INSTRUMENTS
13	1	MFB-160808-0030PQ	30R	L100	L0603	Ferrite Bead, 30 ohm, 0603 [1608 Metric], MFB Series, 3 A, 0.04 ohm, ± 25%		MEC MARCOM
14	1	DF20F-10DP-1V(56)	DF20F-10DP-1V(56)	P103	CON, TMC Debug SPI	Wire-To-Board Connector, 1 mm, 10 Contacts, Header, DF20 Series, Surface Mount, 2 Row s		Hirose Electric Co Ltd
15	5	MC0063W0603110K	10k	R100, R304, R305, R306, R307	R0603	SMD Chip Resistor, Thick Film, 10 kohm, 50 V, 0603 [1608 Metric], 63 mW, ± 1%, MC Series		MULTICOMP
16	1	MCWR06X1201FTL	1k2	R101	R0603	SMD Chip Resistor, Thick Film, 1.2 kohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		MULTICOMP
17	6	MCWR06X22R0FTL	22R	R200, R201, R202, R203, R204, R205	R0603	SMD Chip Resistor, Thick Film, 22 ohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		MULTICOMP
18	6	WR06X4701FTL	4k7	R206, R207, R208, R209, R210, R211	R0603	SMD Chip Resistor, 4.7 kohm, 75 V, 0603 [1608 Metric], 100 mW, ± 1%, WR06 Series		WALSIN
19	4	MCWR06X000 PTL	0R	R300, R301, R302, R303	R0603	SMD Chip Resistor, Thick Film, 0 ohm, 0603 [1608 Metric], 100 mW, MCWR Series		MULTICOMP
20	2	MCWR06X1000FTL	100R	R308, R309	R0603	SMD Chip Resistor, Thick Film, 100 ohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		MULTICOMP
21	1	MCWR06X1501FTL	1k5	R310	R0603	SMD Chip Resistor, Thick Film, 1.5 kohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		MULTICOMP
22	1	MCWR06X1003FTL	100k	R311	R0603	SMD Chip Resistor, Thick Film, 100 kohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		MULTICOMP
23	2	MC0063W060311K	1k	R400, R401	R0603	1 kohm, 50 V, 0603 [1608 Metric], 63 mW, ± 1%, MC Series		MULTICOMP
24	2	SRV05-4.TCT	SRV05-4.TCT	TVS200, TVS201	SOT95P280X145-6N	ESD Protection Device, TVS, 17.5 V, SOT-23, 6 Pins, 5 V, 300 W		SEMTECH
25	1	FOX924B-25.000	25MHz	XTL100	FOX924B-25.000	TCXO, 25 MHz, 2.5 ppm, SMD, 5mm x 3.2mm, HCMOS, 3.3 V, FOX924 Series		FOX ELECTRONICS

Approved **Notes** **68**

