

VCC_IO

GND

CSN

SCK

SDI

SDO

GND

CLK16

DRV_ENN

REFL

REFR

GND VS

B2

B1

A2

A1

GND

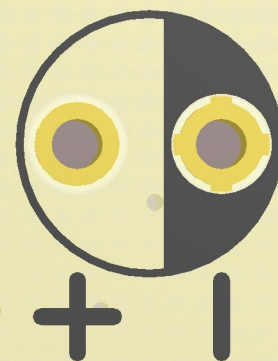
DIAGO

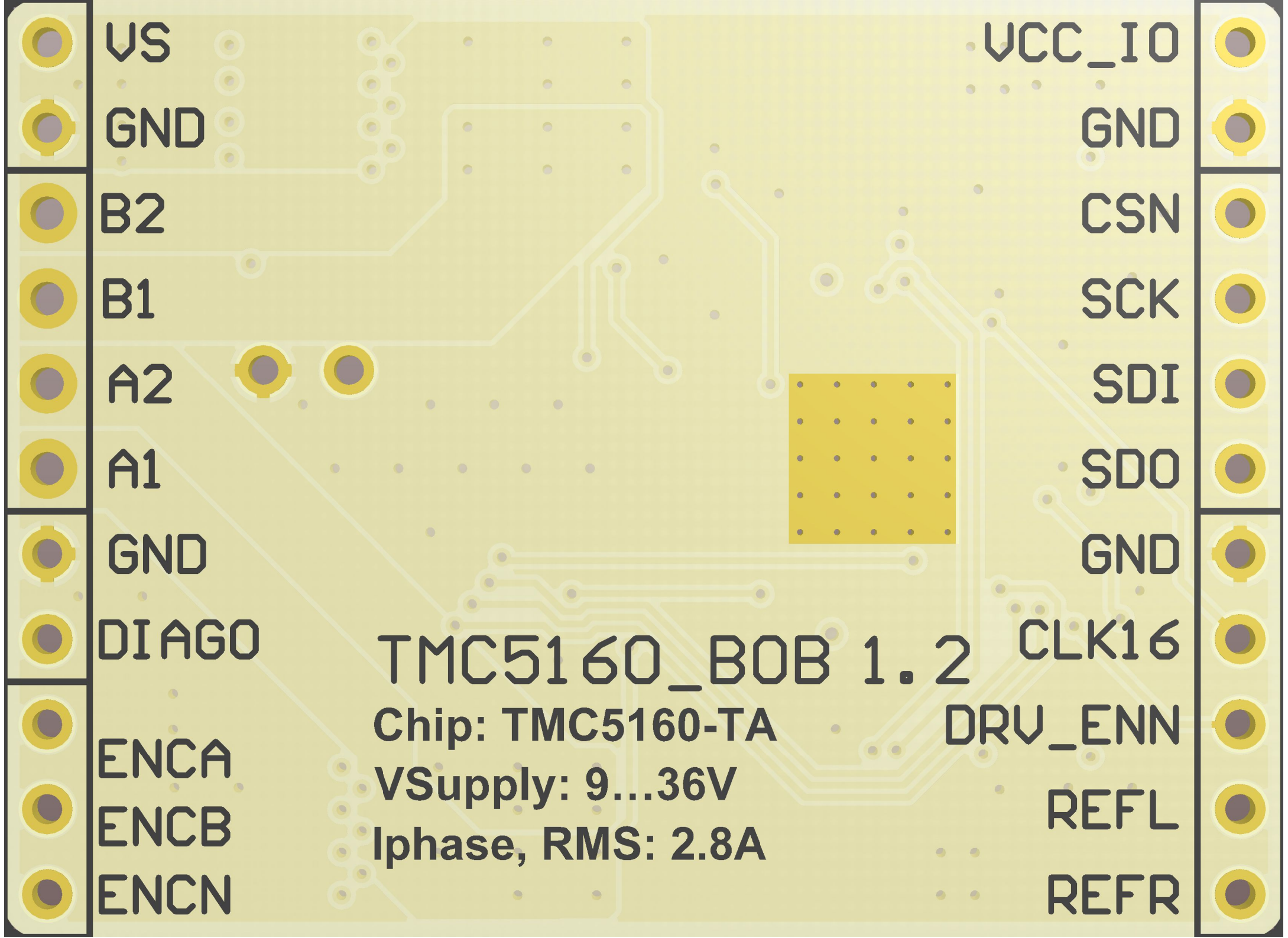
ENCA

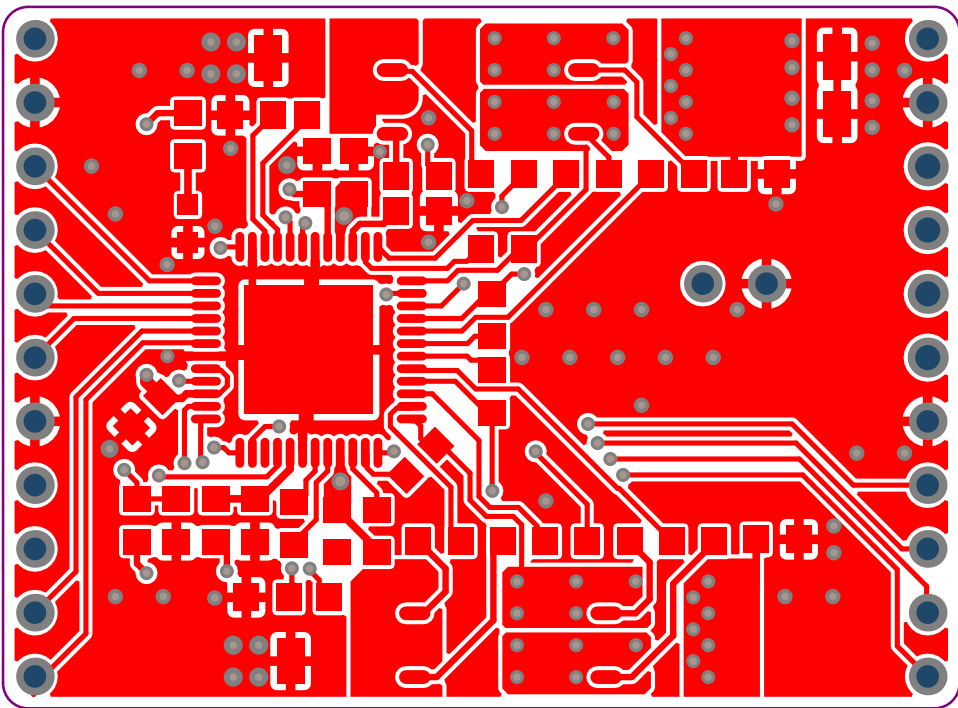
ENCB

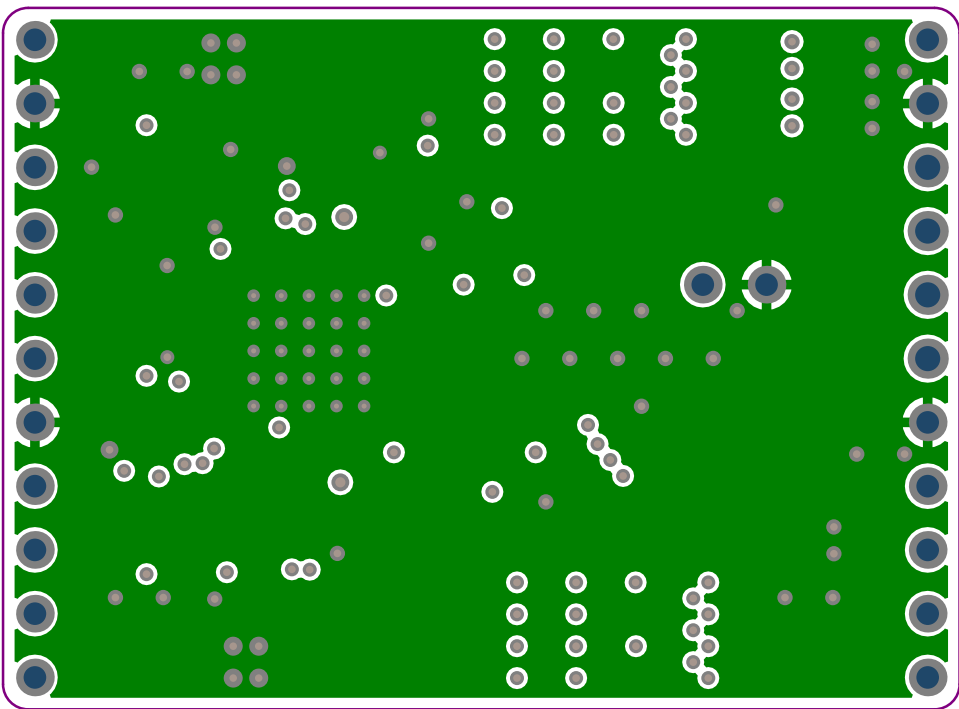
ENCN

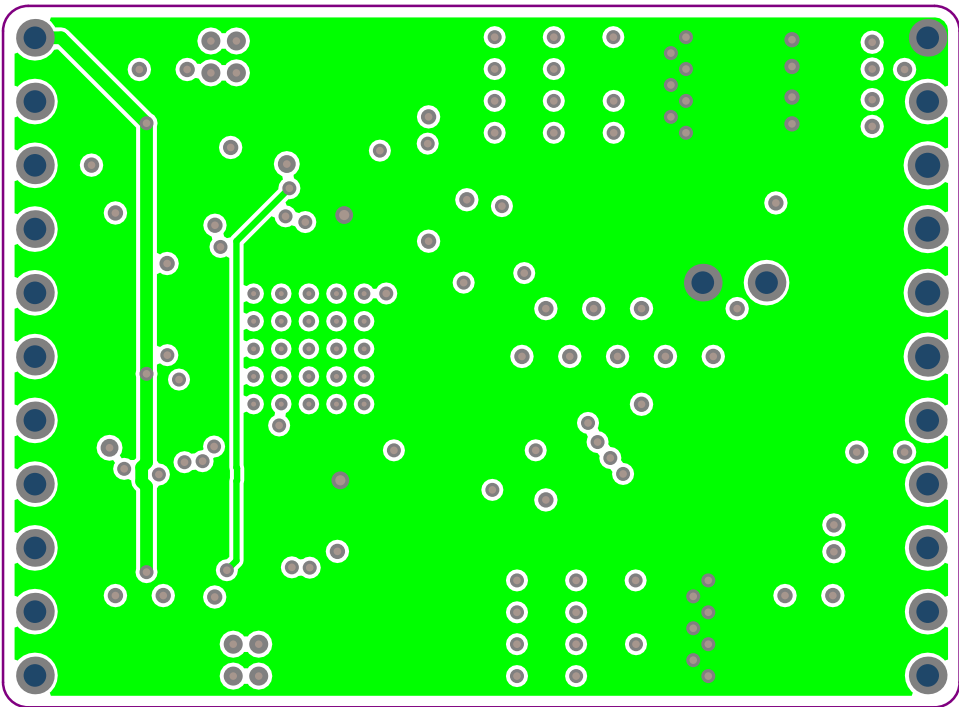
TMC5160_BOB_V1.2

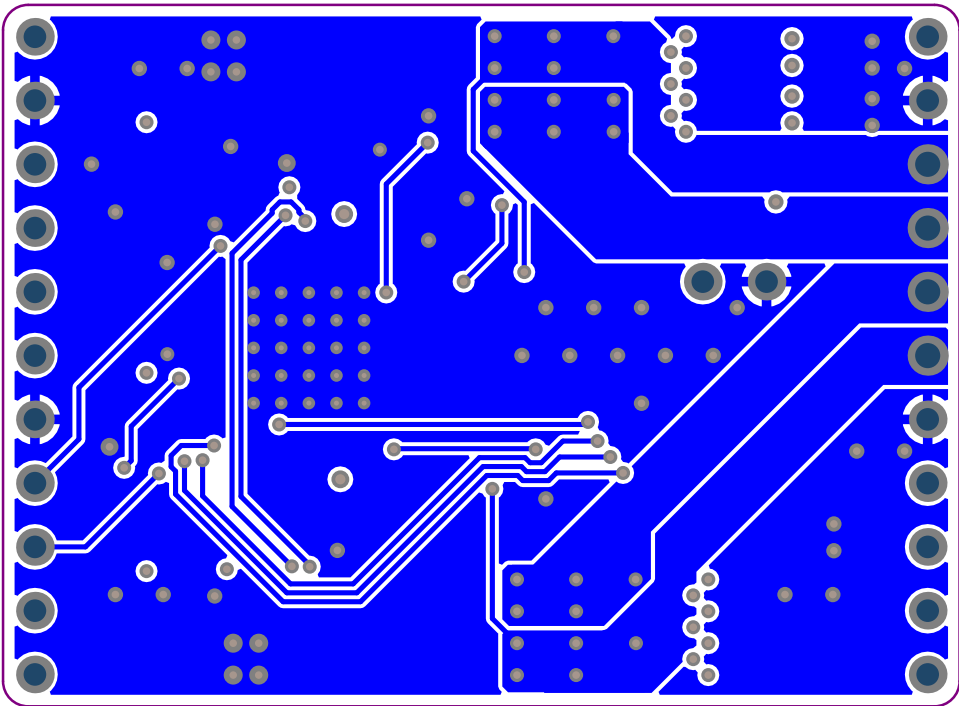












VCC_IO

GND

CSN

SCK

SDI

SDO

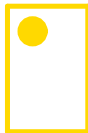
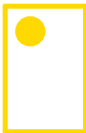
GND

CLK16

DRV_ENN

REFL

REFR



TMC5160_BOB_V1.2

GND VS

B2

B1

A2

A1

GND

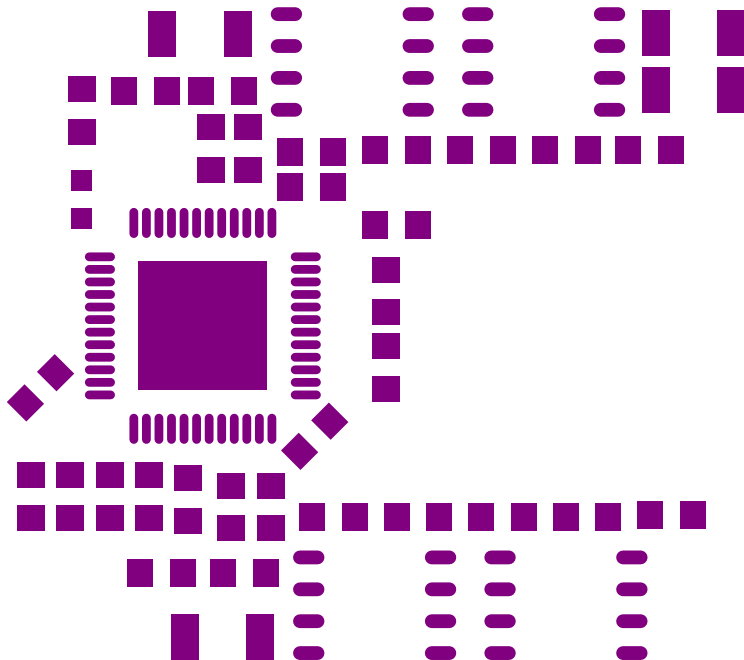
DI AGO

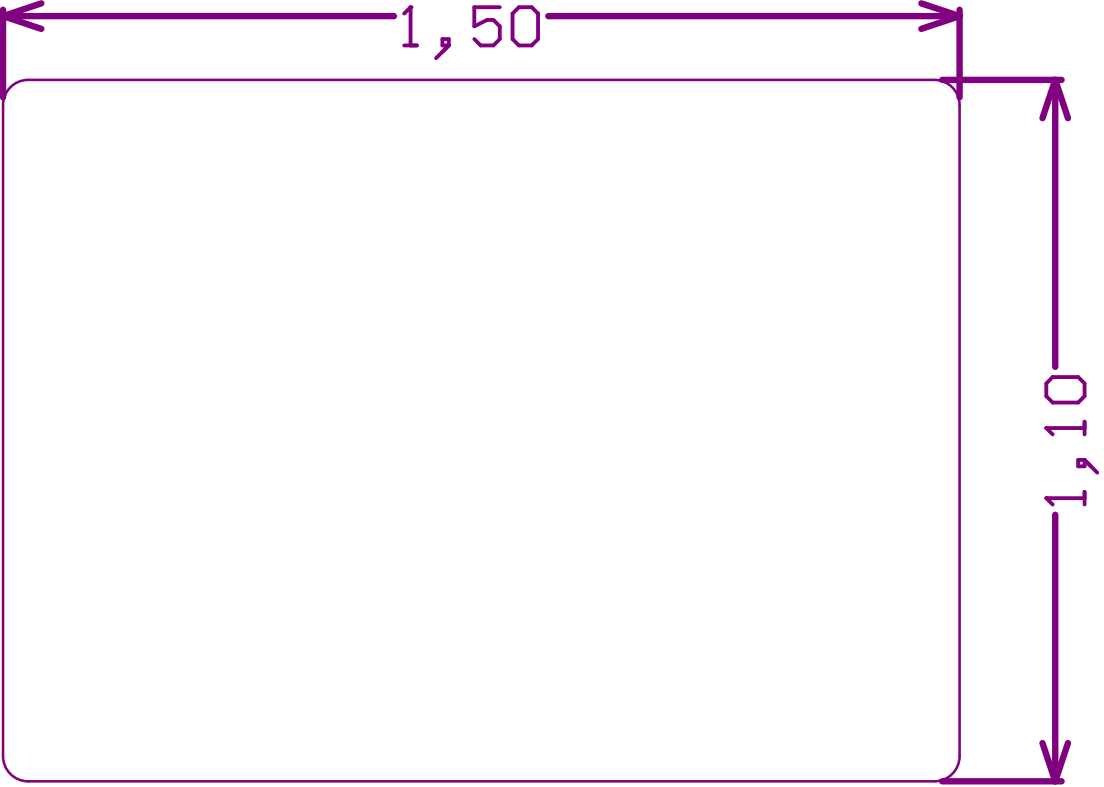
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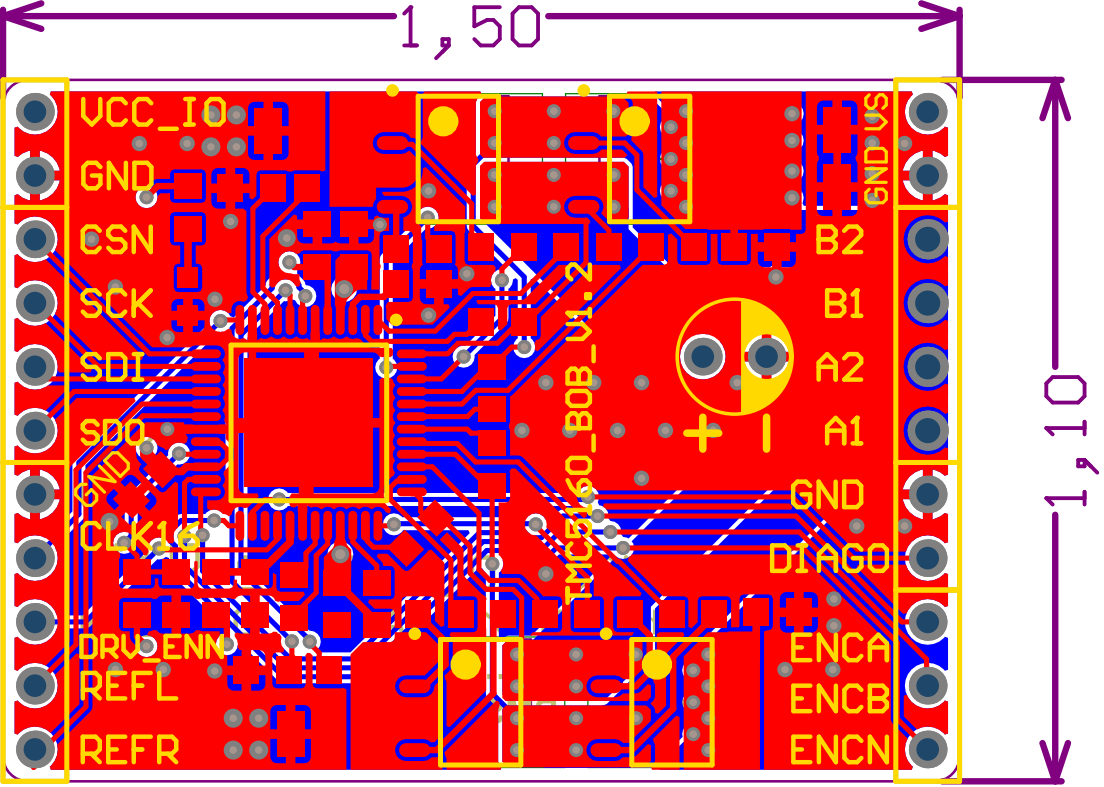
ENCB

ENCN

VS		VCC_IO
GND		GND
B2		CSN
B1		SCK
A2		SDI
A1		SDO
GND		GND
DIAGO	TMC5160_BOB 1.2	CLK16
ENCA	Chip: TMC5160-TA	DRV_ENN
ENCB	VSupply: 9...36V	REFL
ENCN	Iphase, RMS: 2.8A	REFR







ChangeLog

V1.0 - Initial design

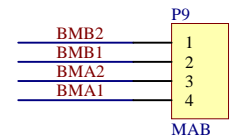
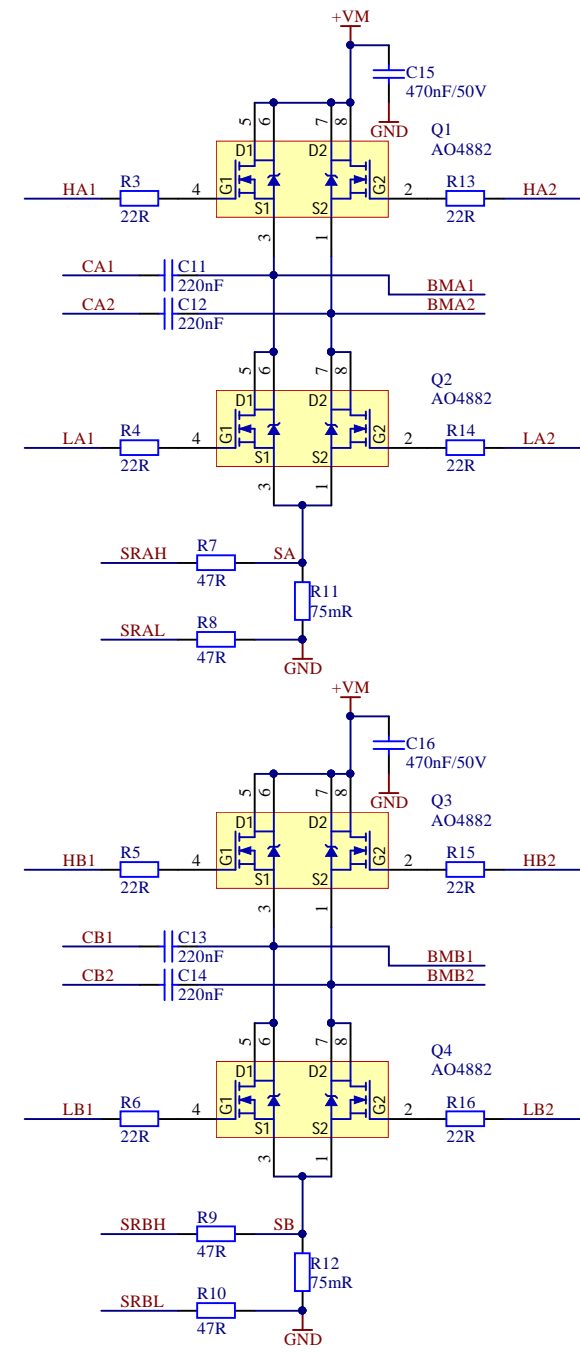
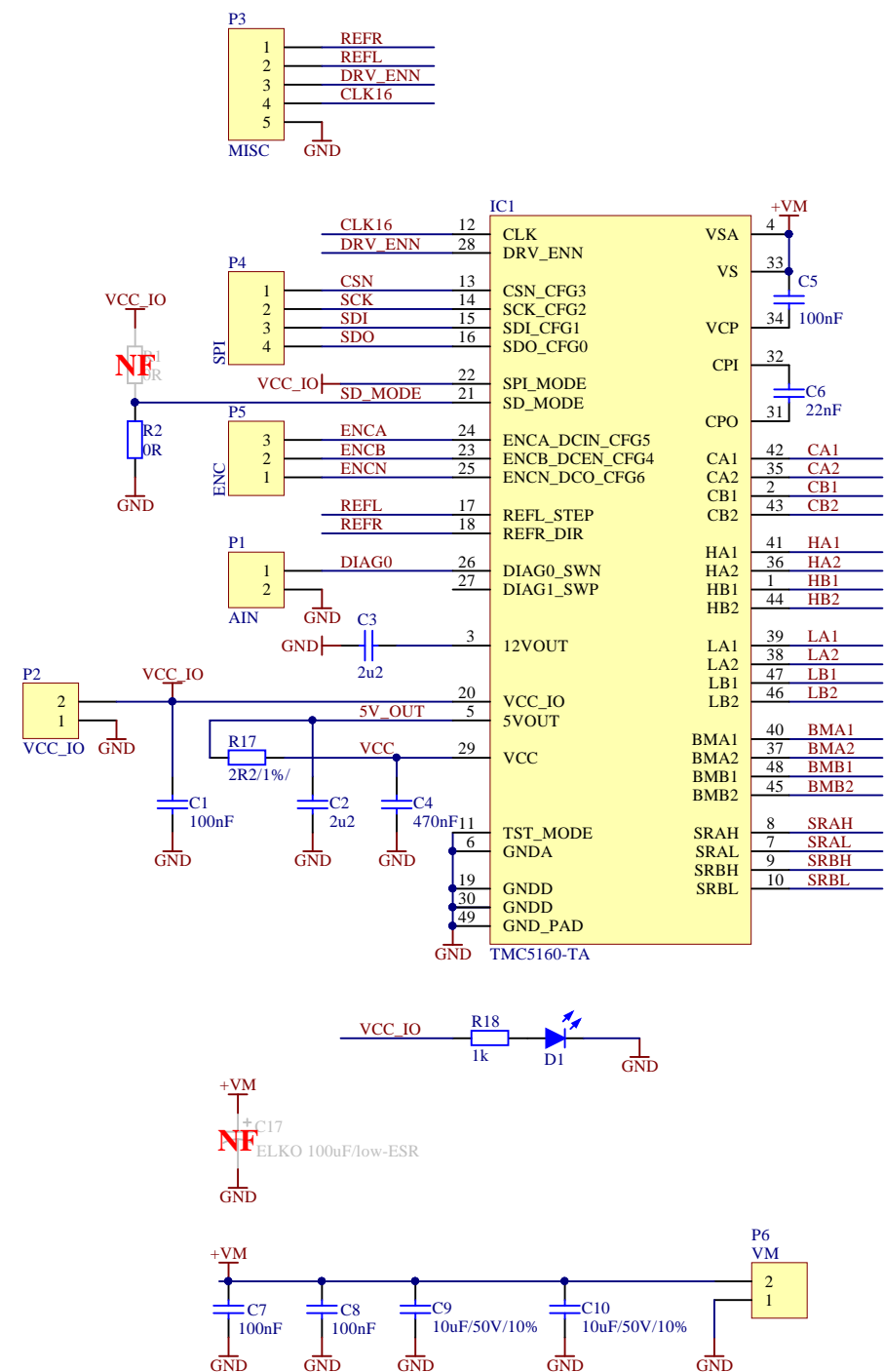
V1.1 - Cosmetics and pinheader fix

- + Changed silkscreen text width from 5mil to 7mil.
- + Changed board name text height to 35mil.
- + Changed pin hole diameters from 0.9mm to 1mm for header P9 (MAB).

V1.2 - Component value changes

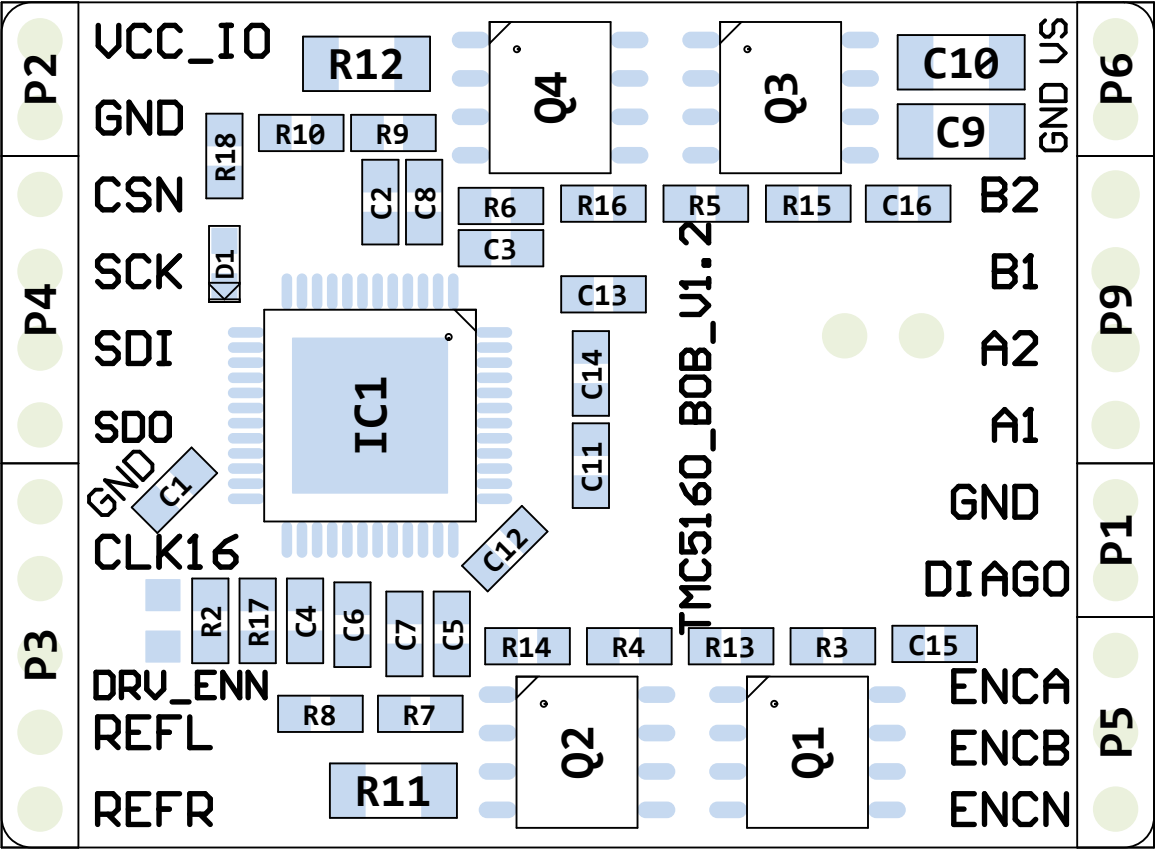
- + Changed sense resistors to 75milliOhm
- + Changed optional ELKO to 100uF/low-ESR
- + Changed bottom silk values to:
 Vsupply: 9...36V
 Iphase,RMS: 2.8A

Title			TMC5160_BOB		
Size	Number			Revision	
A4				1.2	
Date:	31.08.2017			Sheet	of
File:	C:\Users\...\ChangeLog.SchDoc			Drawn By:	

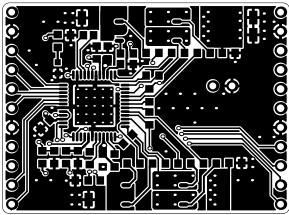


Title			TMC5160_BOB	
Size	Number	Revision		1.2
A3				
Date:	31.08.2017	Sheet of		
File:	C:\Users\...\TMC5160_BOB_V1_2.SchDoc	Drawn By:		

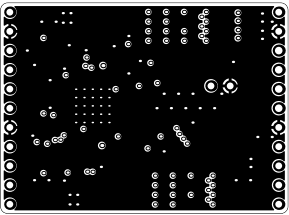
View from Top side (Scale 4:1)



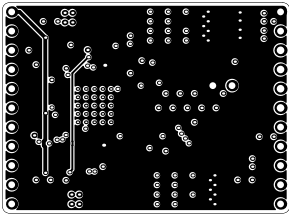
Top (Scale 1:1)



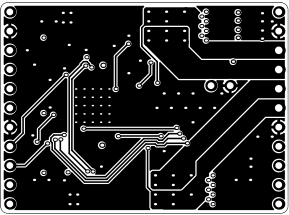
GND (Scale 1:1)



VM (Scale 1:1)



Bottom (Scale 1:1)



BOM

Project: TMC5160_BOB

Version: 1.2

Date: 31.08.2017

#	Quantity	MPN	Comment	Designator	Footprint	Description	Note	MF	
1	4	MC0603F104M500CT	100nF	C1, C5, C7, C8	C0603	Ceramic capacitor			
2	2	GRM188R61E225KA12D	2u2	C2, C3	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 2.2 µF, 25 V, ± 10%, X5R, GRM Series		MURATA	
3	1	MC0603X474K160CT	470nF	C4	C0603	Ceramic capacitor		Multicomp	
4	1	MC0603B223K500CT	22nF	C6	C0603	Ceramic capacitor		Multicomp	
5	2	GRM31CR61H106MA12L	10uF/50V/10%	C9, C10	C1206	SMD Multilayer Ceramic Capacitor, 1206 [3216 Metric], 10 µF, 50 V, ± 20%, X5R, GRM Series		MURATA	
6	4	GCM188R71H224KA64D	220nF	C11, C12, C13, C14	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 0.22 µF, 50 V, ± 10%, X7R, GCM Series		MURATA	
7	2	C1608X7R1H474K080AC	470nF/50V	C15, C16	C0603	SMD Multilayer Ceramic Capacitor, 0603 [1608 Metric], 0.47 µF, 50 V, ± 10%, X7R, C Series		TDK	
8	1	LTST-C191TBKT-5A	LED, Blue, SMD, 20mA, 2.8V, 465 nm	D1	LED_0603	LED, Blue, SMD, 20mA, 2.8V, 465 nm		Lite-On	
9	1	TMC5160-TA	TMC5160-TA	IC1	TMC5160_TSQFP50P900X900X120_HS-49L			TRINAMIC	
10	4	AO4882	AO4882	Q1, Q2, Q3, Q4	SOP127P600X170-8L	Mosfet Array 2 N-Channel (Dual) 40V 8A 2W Surface Mount 8-SOIC		Alpha & Omega Semiconductor Inc.	
11	1	MCWR06X000 PTL	0R	R2	R0603	SMD Chip Resistor, Thick Film, 0 ohm, 0603 [1608 Metric], 100 mW, MCWR Series		MULTICOMP	
12	8	MCWR06X22R0FTLV	22R / 100mW / 1%	R3, R4, R5, R6, R13, R14, R15, R16	R0603	SMD Chip Resistor, Thick Film, 22 ohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		MULTICOMP	
13	4	MCSR06X47R0FTL	47R / / 1%	R7, R8, R9, R10	R0603	SMD Chip Resistor, Ceramic, 47 ohm, 75 V, 0603 [1608 Metric], 100 mW, ± 1%, MCSR 06 Series		MULTICOMP	
14	2	ERJ-8BWF075V	75mR	R11, R12	R1206	SMD Chip Resistor, Thick Film, Current Sense Resistors - SMD 1W 0.075ohm 1%		Panasonic Electronic Components	
15	1	MC0063W060312R2	2R2/1%/	R17	R0603	Resistor		Multicomp	
16	1	MC0063W060311K	1k	R18	R0603	1 kohm, 50 V, 0603 [1608 Metric], 63 mW, ± 1%, MC Series		MULTICOMP	
Approved			Notes						46

