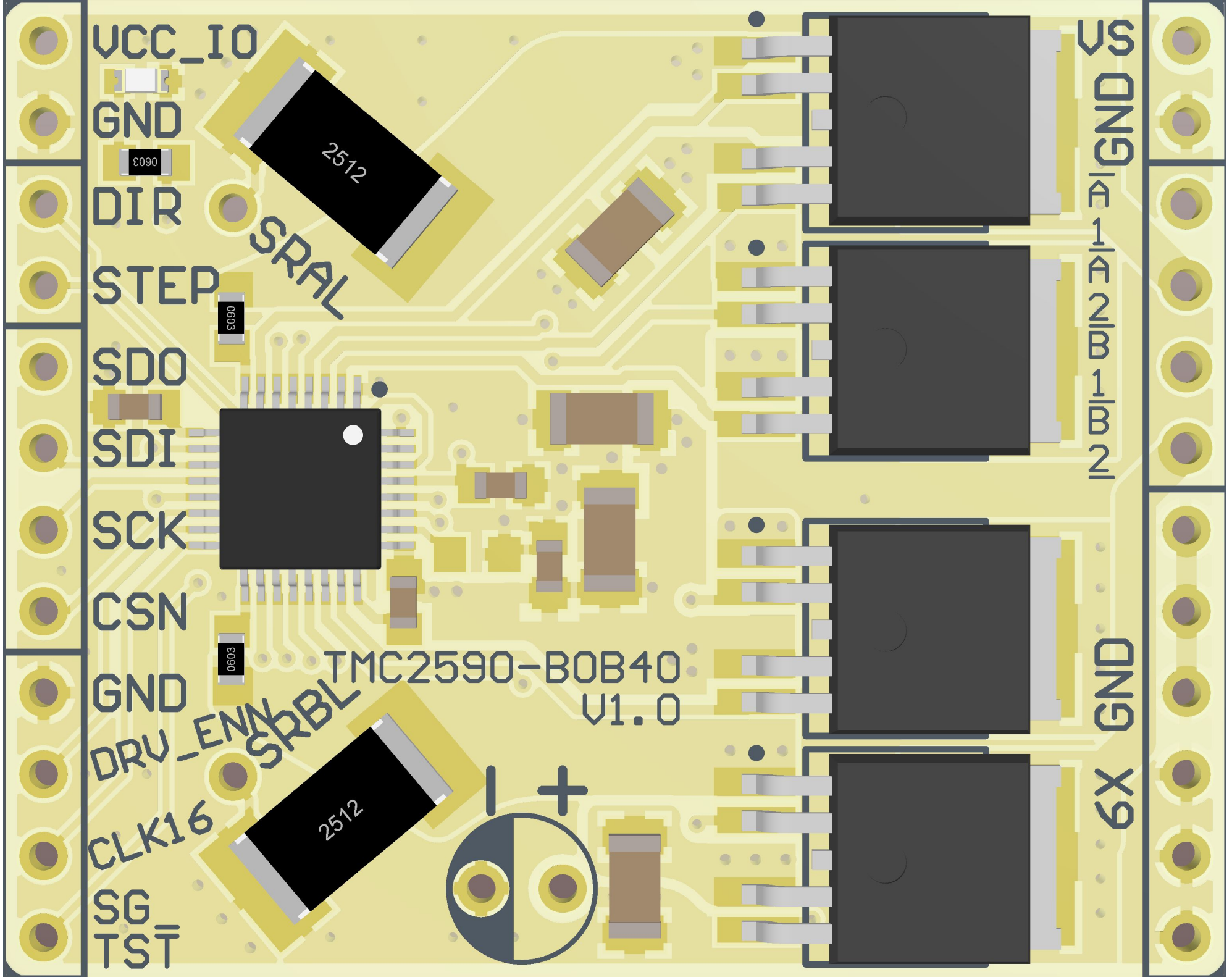
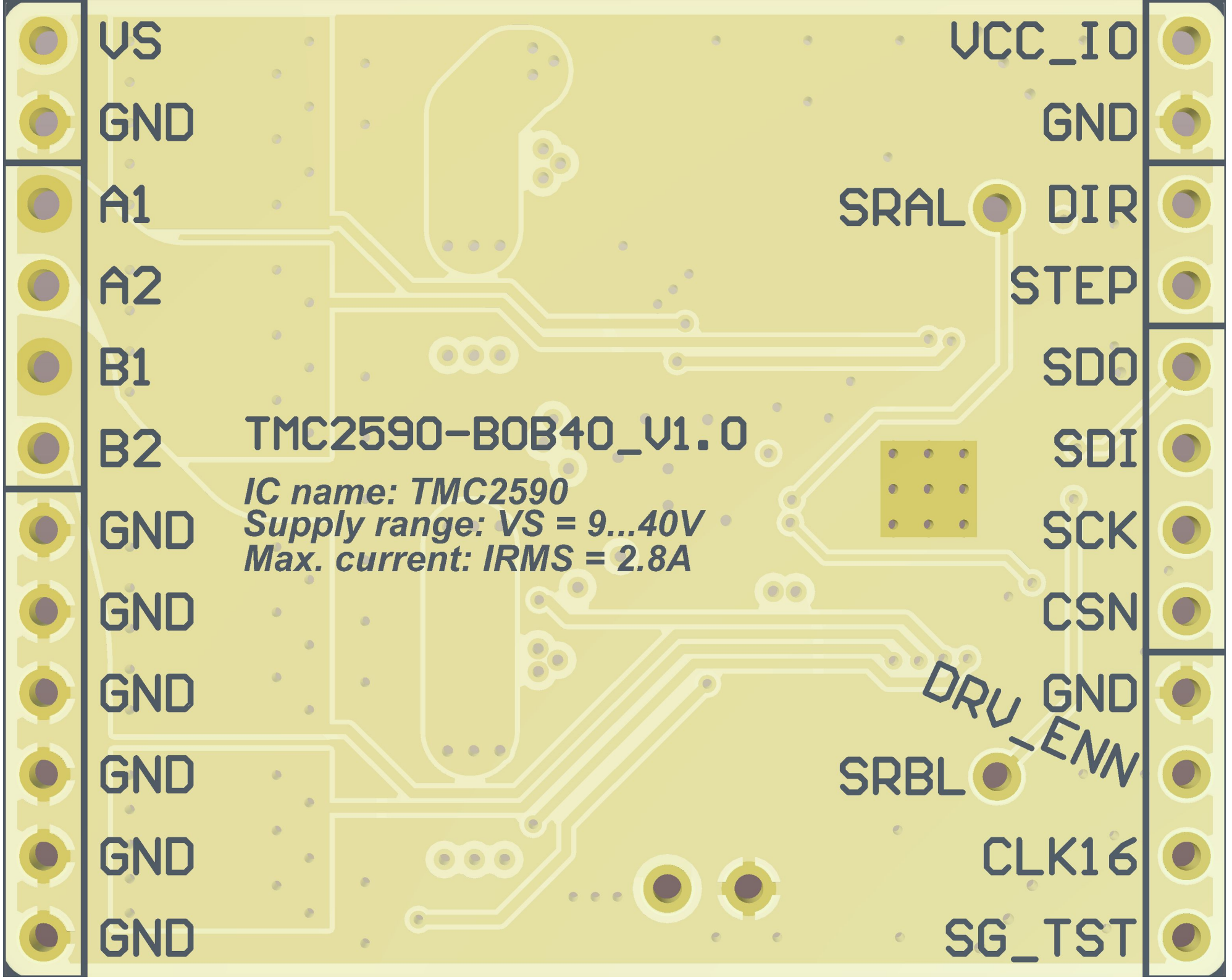
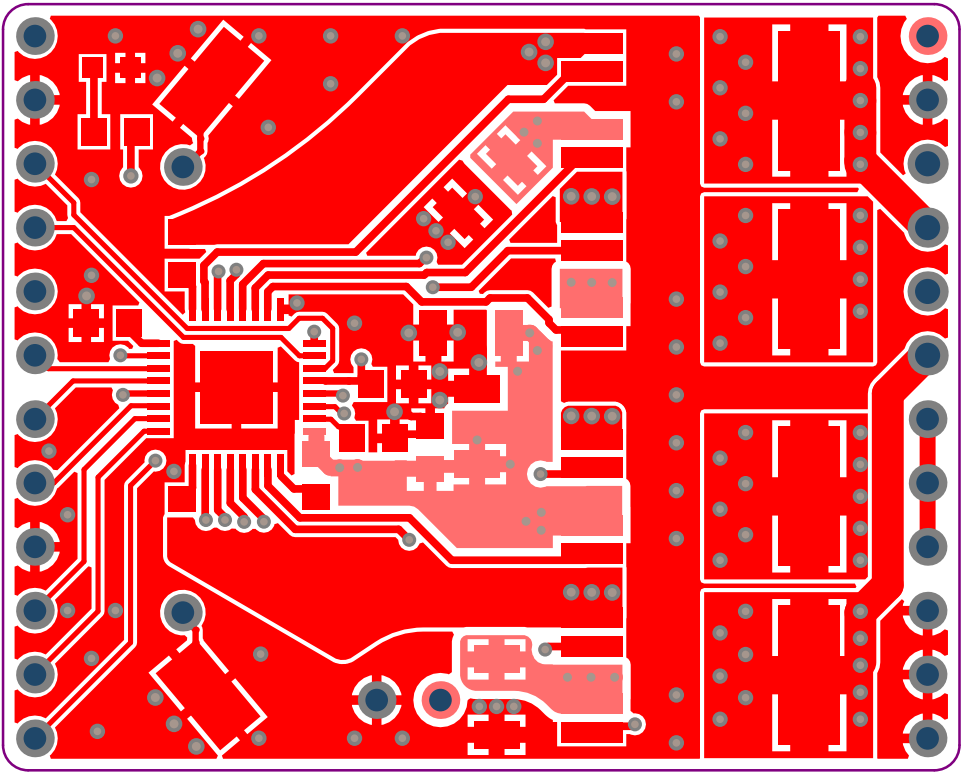
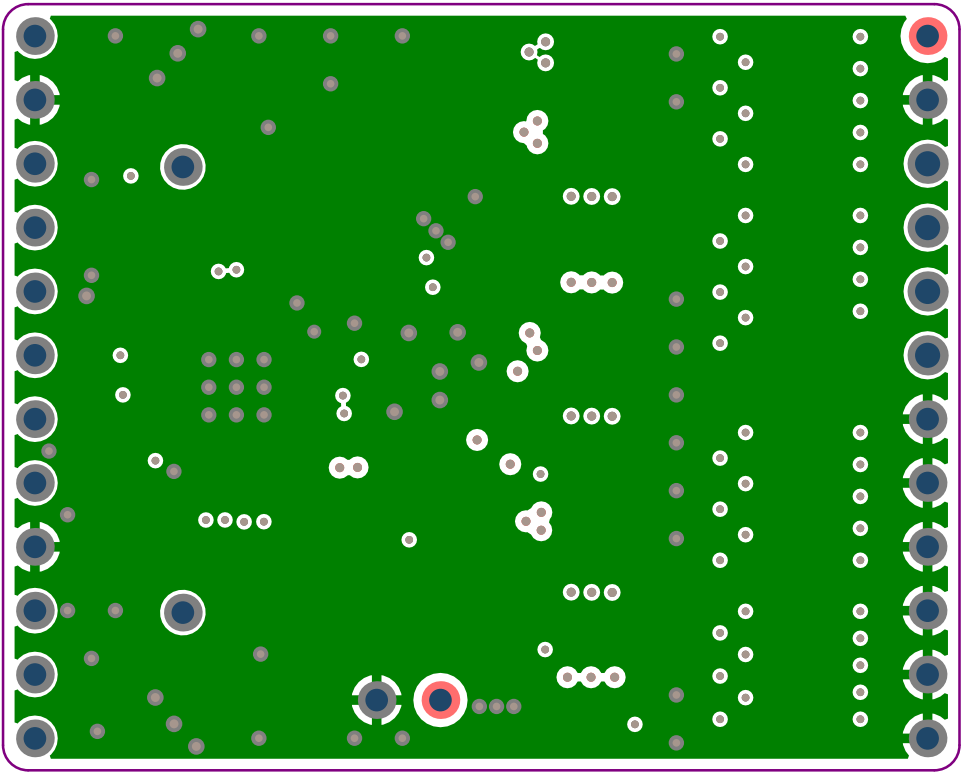
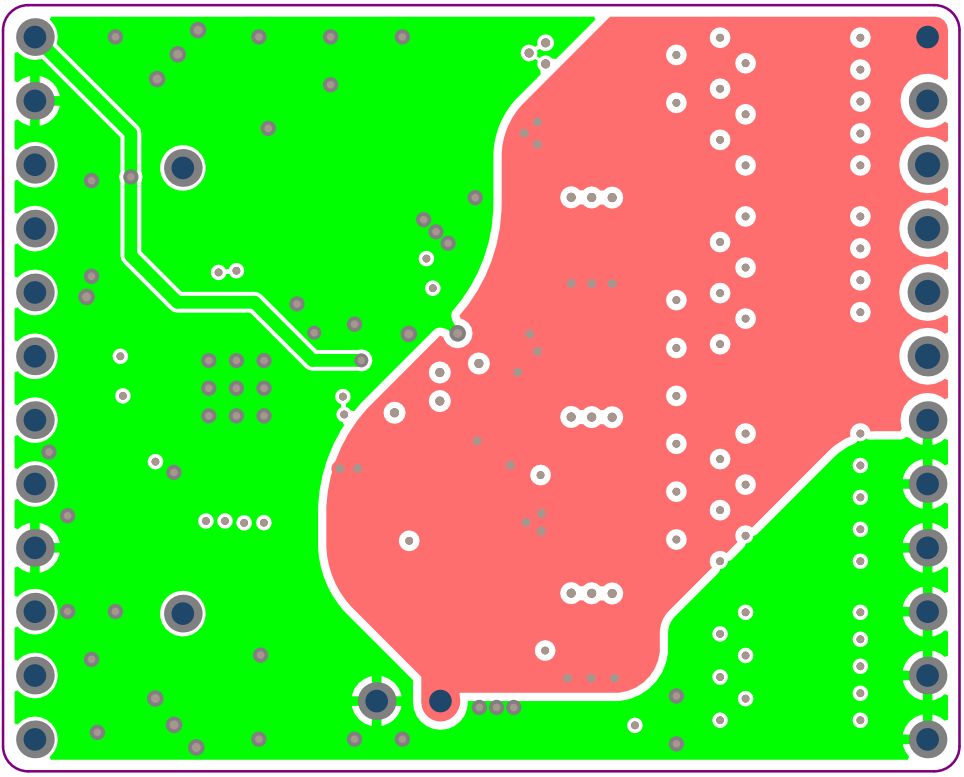
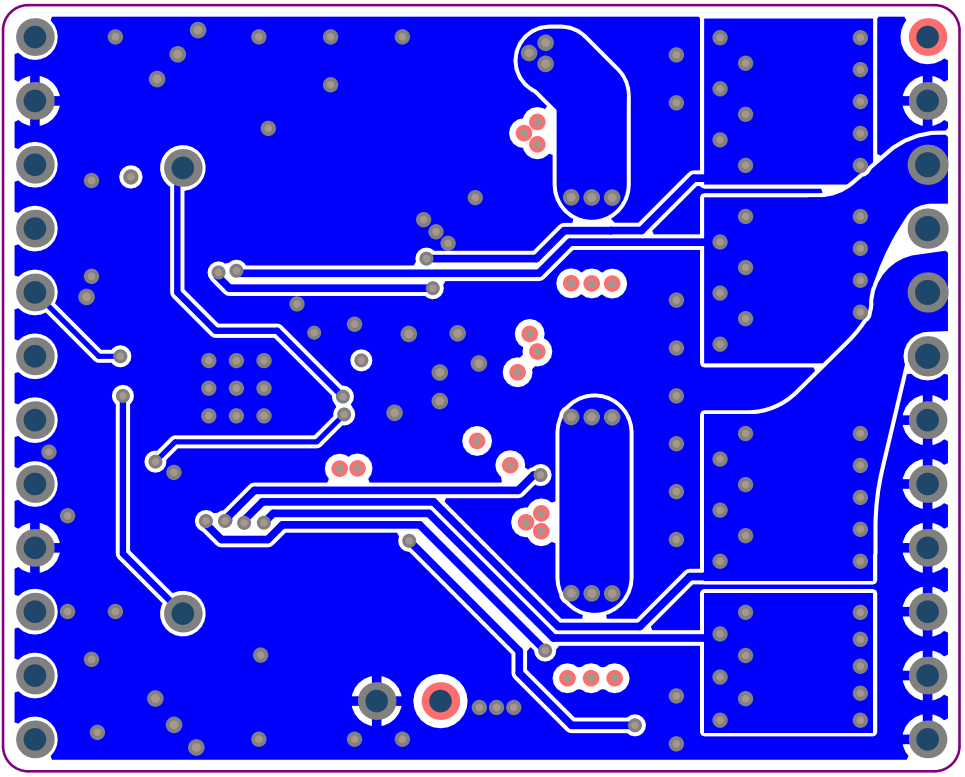

VCC_IO
GND
DIR
STEP
SDO
SDI
SCK
CSN
GND
DRV_ENN
CLK16
SG
TST
SRAL
SRBL
2512
2512
0603
0603
0603
TMC2590-BOB40
V1.0
VS
GND
1A
2A
1B
2B
GND
6X

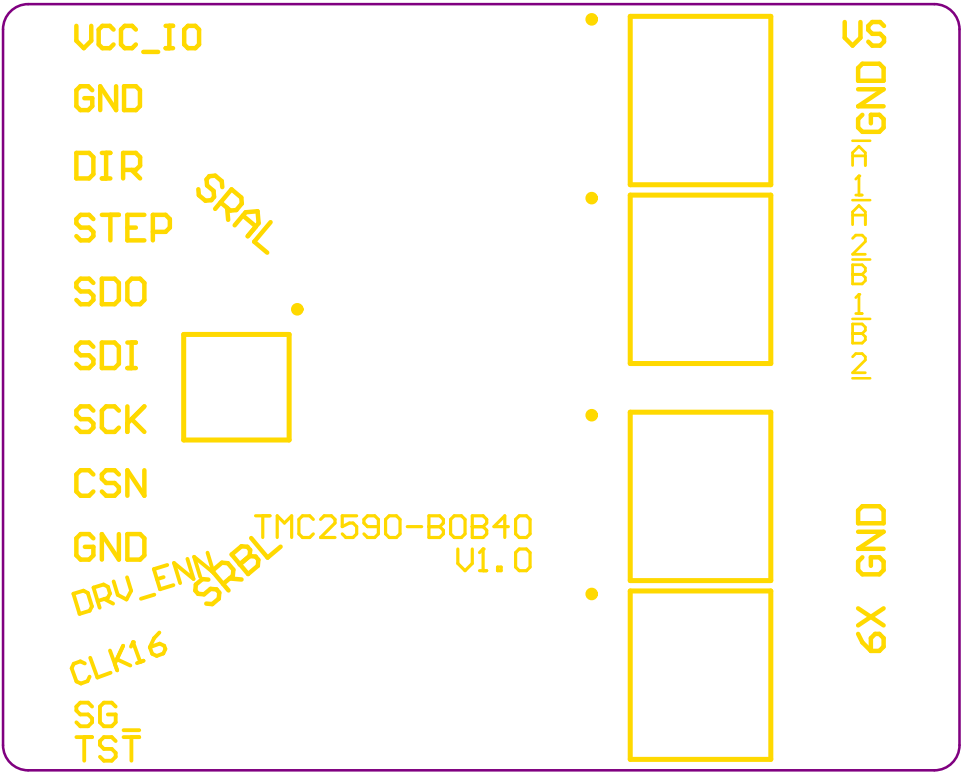

VS
GND
A1
A2
B1
B2
GND
GND
GND
GND
GND
GND
VCC_IO
GND
SRAL
DIR
STEP
SDO
SDI
SCK
CSN
GND
DRV_ENN
SRBL
CLK16
SG_TST
TMC2590-BOB40_V1.0
IC name: TMC2590
Supply range: VS = 9...40V
Max. current: IRMS = 2.8A

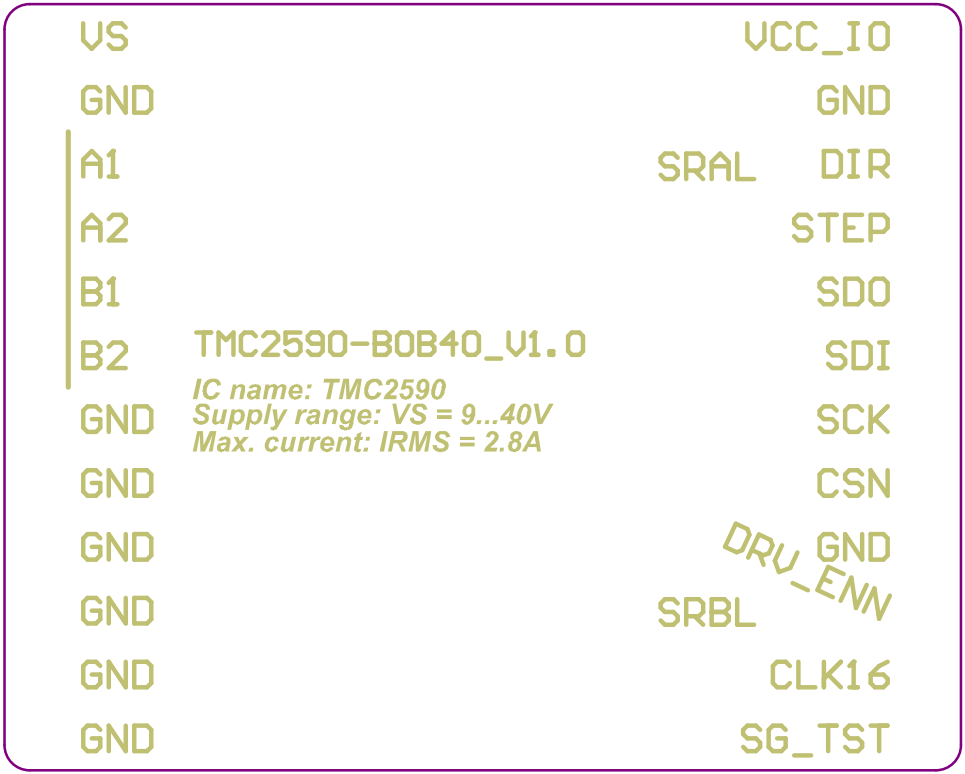


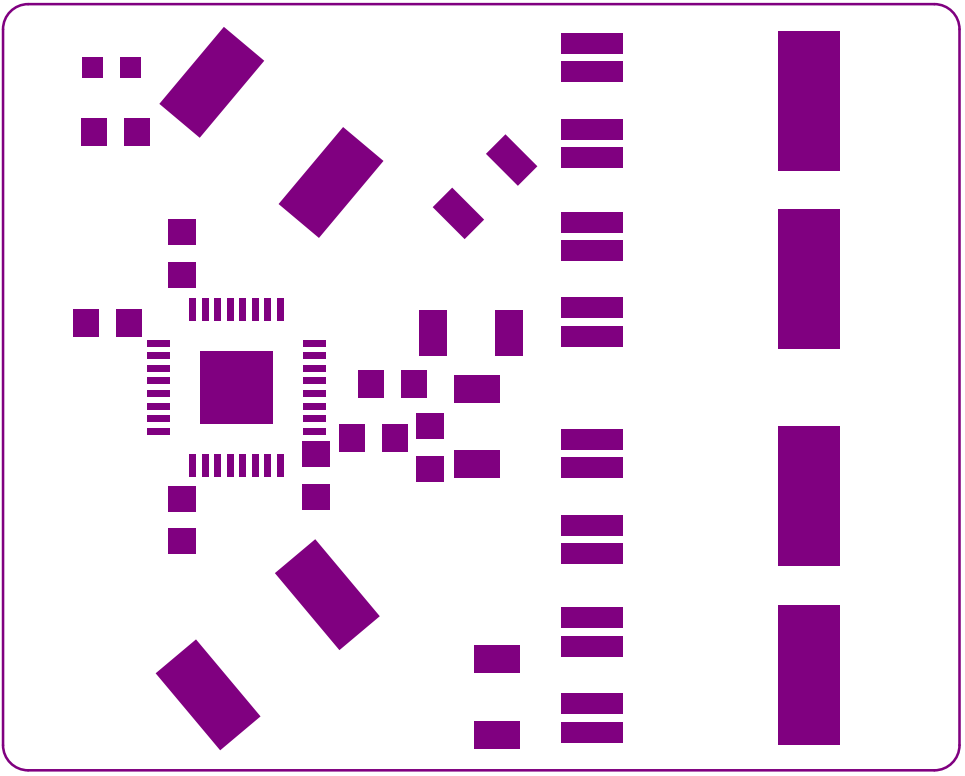


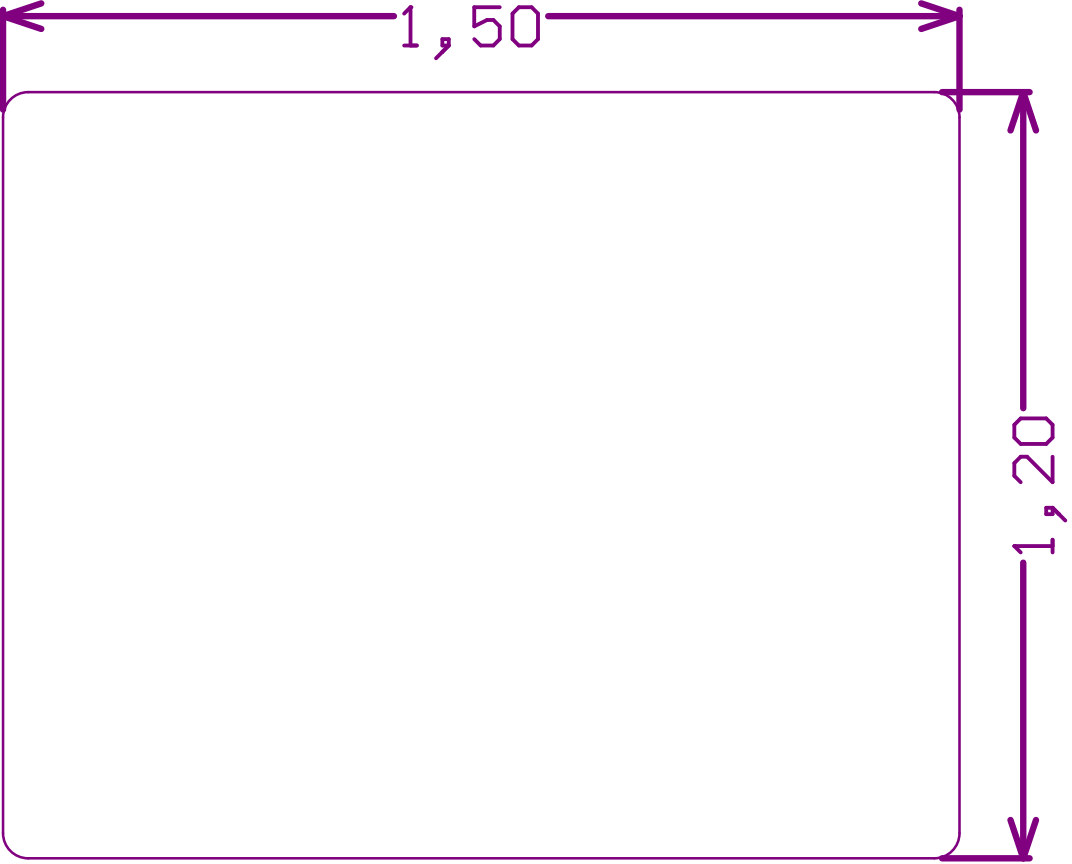


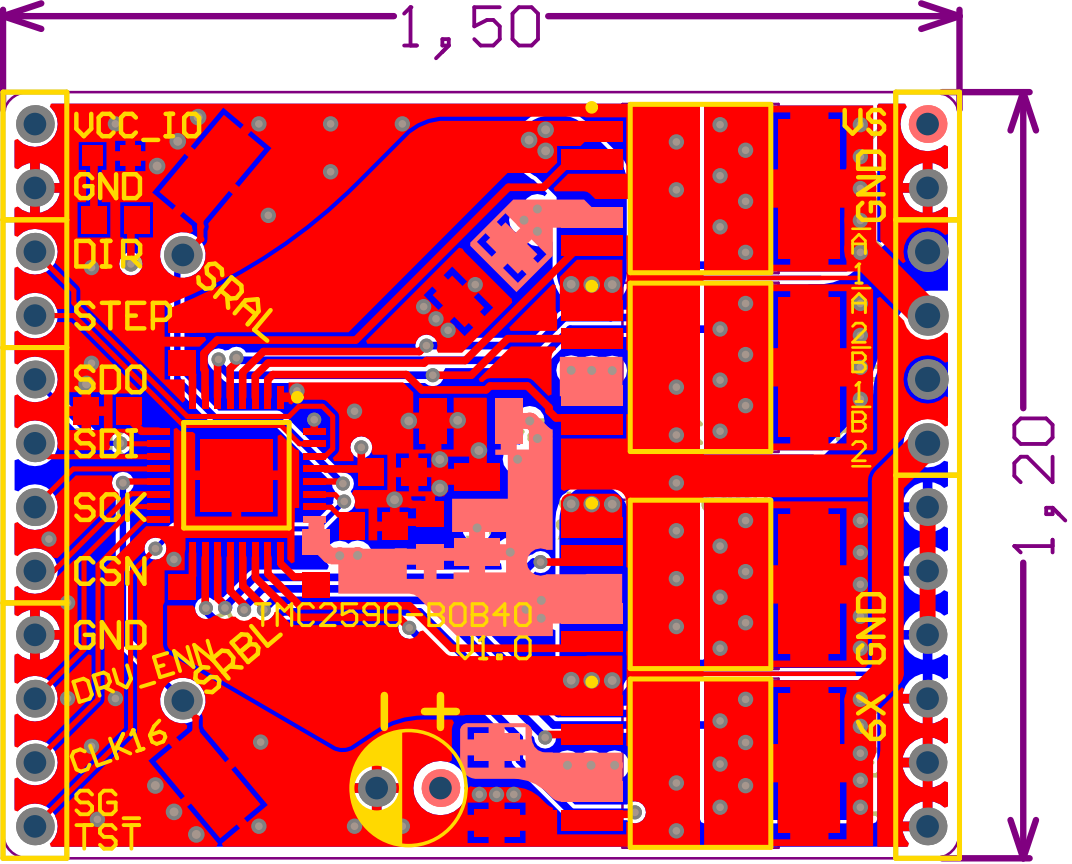


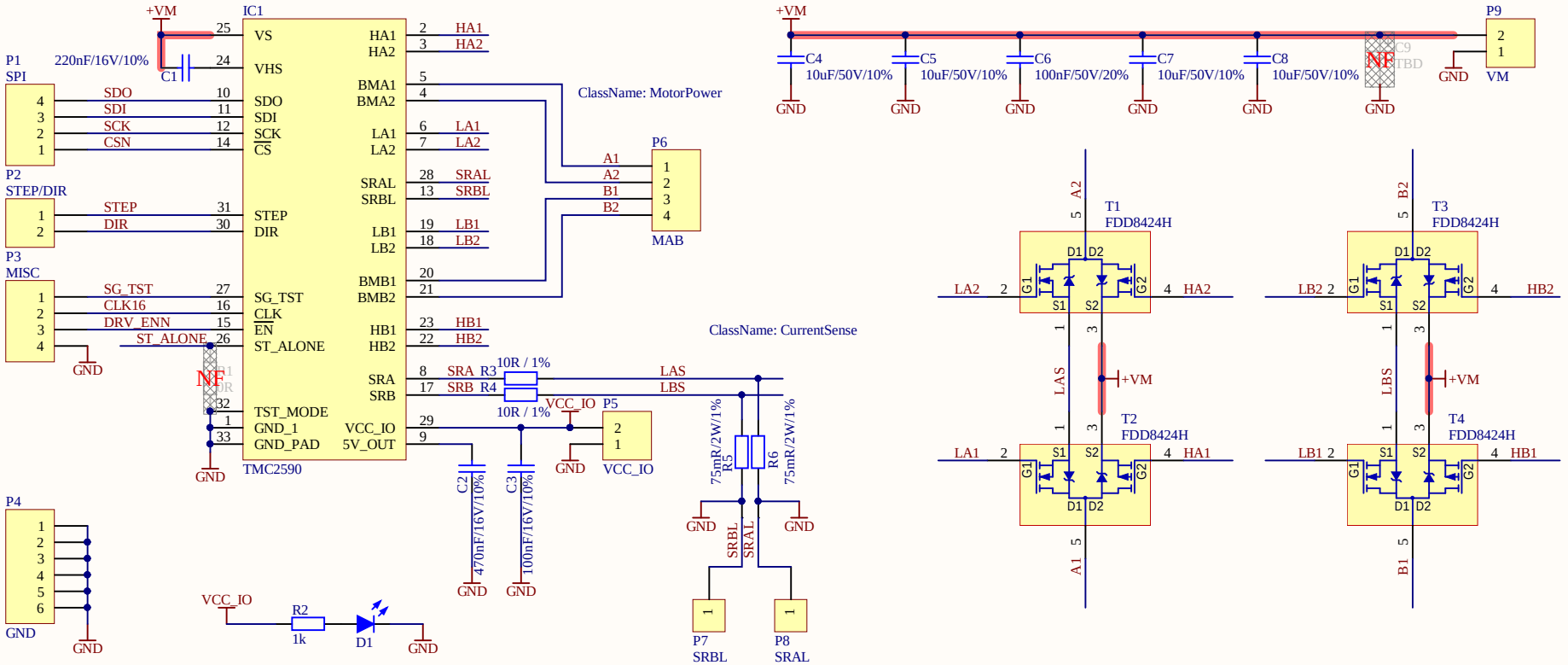

VCC_IO
GND
DIR
STEP
SDO
SDI
SCK
CSN
GND
DRV_ENN
CLK16
SG_TST
SRAL
SRBL
TMC2590-BOB40
V1.0
VS
GND
1A
2A
1B
2B
6X GND


VS
GND
A1
A2
B1
B2
GND
GND
GND
GND
GND
GND
VCC_IO
GND
SRAL
DIR
STEP
SDO
SDI
SCK
CSN
GND
DRV_ENN
SRBL
CLK16
SG_TST
TMC2590-BOB40_V1.0
IC name: TMC2590
Supply range: VS = 9...40V
Max. current: IRMS = 2.8A




1,50
1,20


1,50
1,20
VCC_IO
GND
DIR
STEP
SDO
SDI
SCK
CSN
GND
CLK16
SG
TST
SRAL
SRBL
DRV_ENN
TMC2590-BOB40
V1.0
VS
GND
2B
2A
1A
1B
GND
6X



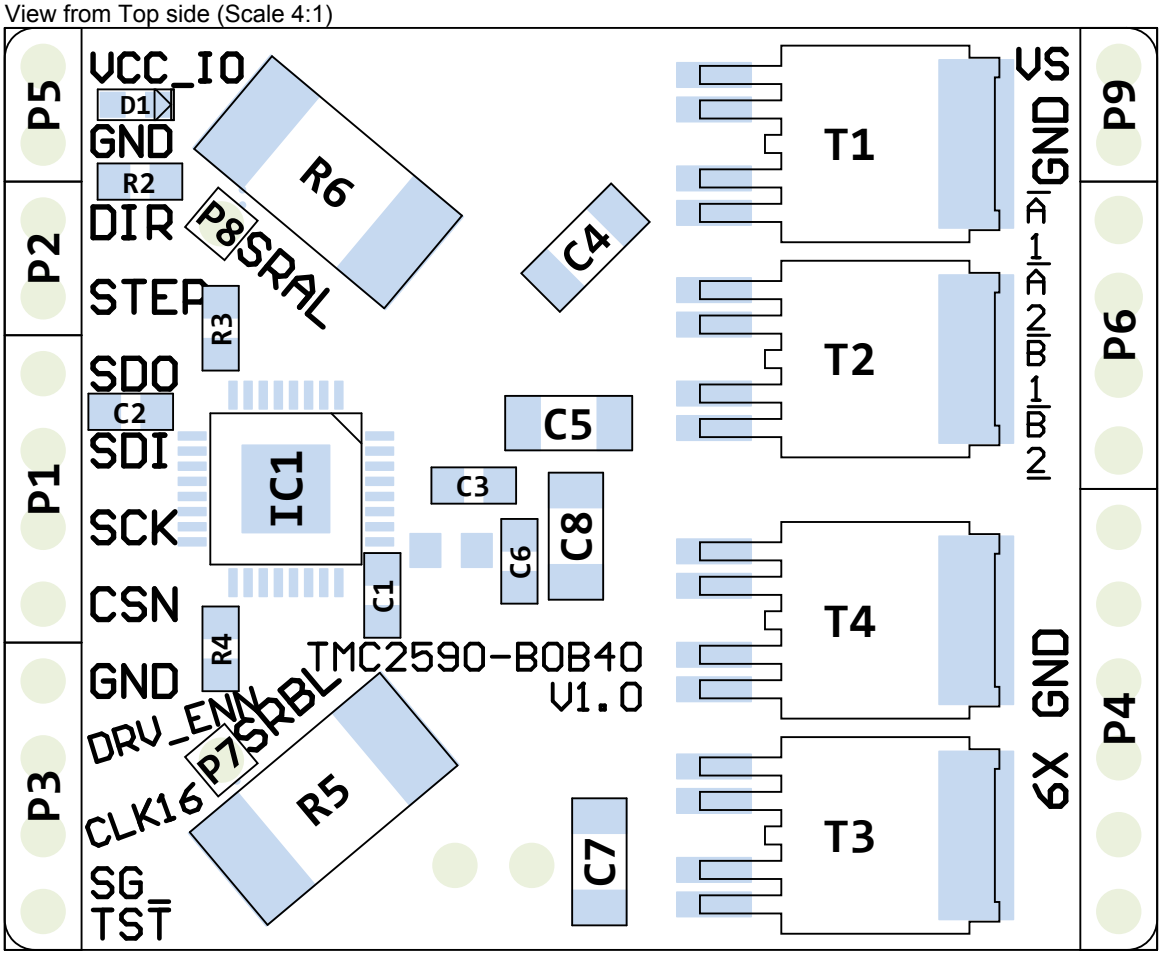
Title: *TMC2590-BOB40*		
Size: A4	Number:	Revision: *1.0*
Date: 7.09.2018		Sheet of
File: C:\Users\..\TMC2590_BOB40_V1_0.SchDoc		Drawn By:

ChangeLog

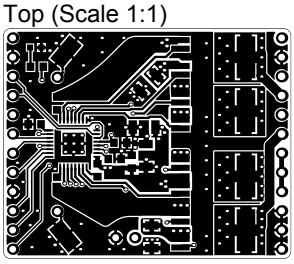
V1.0 - 20.08.2018 - Initial design
- 31.08.2018 - Changed board pinout to be same as TMC262-40-BOB
- Placed SRAL and SRBL pins at current sense resistor GND terminals

Title: *TMC2590-BOB40*		
Size: A4	Number:	Revision: *1.0*
Date: 7.09.2018		Sheet of
File: C:\Users\..\ChangeLog.SchDoc		Drawn By:

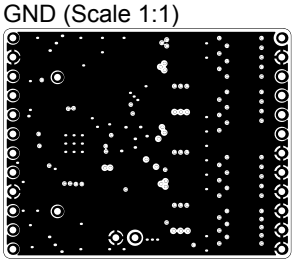
View from Top side (Scale 4:1)



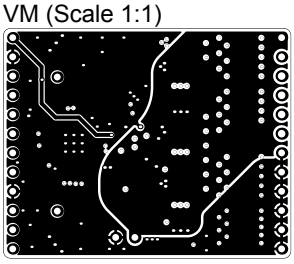
Top (Scale 1:1)



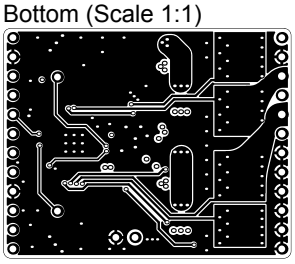
GND (Scale 1:1)



VM (Scale 1:1)



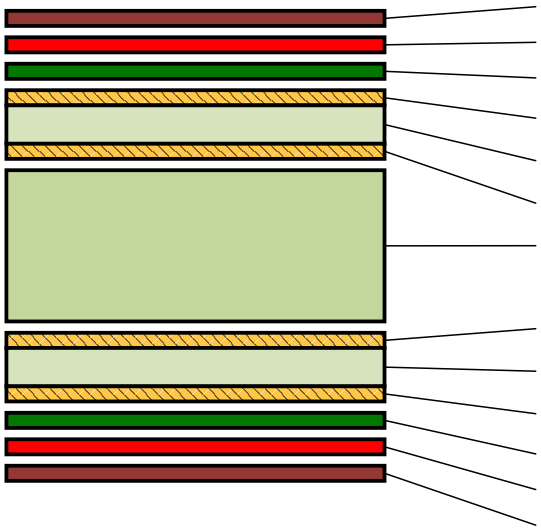
Bottom (Scale 1:1)



Title: TMC2590-BOB40	
Version: 1.0	
Date: 7.09.2018 Time: 13:16 13:16	

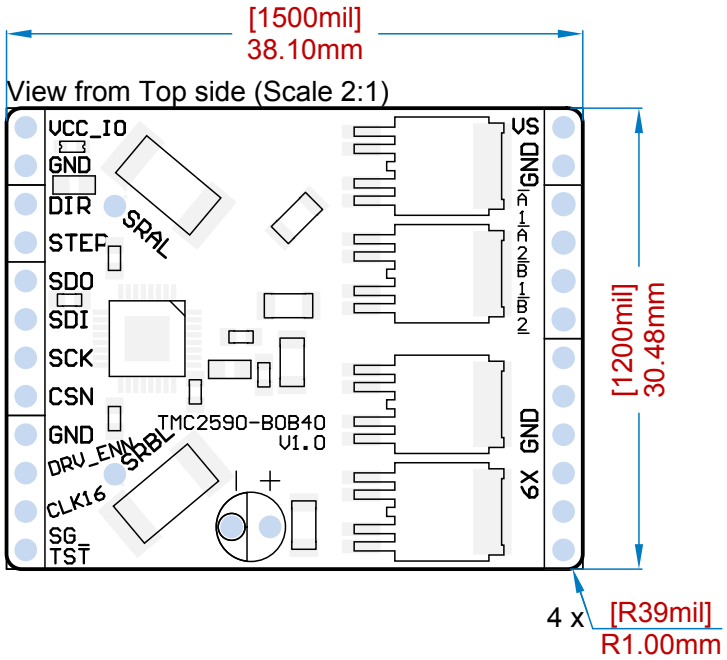
TRINAMIC MOTION CONTROL

Layer Stack Legend



Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Paste			Paste Mask	GTP
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.010mm(0.400mil)	Solder Resist	Solder Mask	GTS
Copper	Top	0.018mm(0.689mil)		Signal	GTL
Core		*0.254mm(10.000mil)*	*FR-4*	*Dielectric*	
Copper	GND	0.035mm(1.378mil)		Signal	G1
Prepreg		*1.000mm(39.370mil)*	*FR-4*	*Dielectric*	
Copper	VM	0.035mm(1.378mil)		Signal	G2
Core		*0.254mm(10.000mil)*	*FR-4*	*Dielectric*	
Copper	Bottom	0.018mm(0.689mil)		Signal	GBL
Surface Material	Bottom Solder	0.010mm(0.400mil)	Solder Resist	Solder Mask	GBS
	Bottom Overlay			Legend	GBO
	Bottom Paste			Paste Mask	GBP

Total thickness: 1.633mm(64.304mil)



Notes:

1. MATERIAL : FR-4-2 NATURAL EPOXY/FIBERGLASS
2. APPLY SOLDERMASK ON BOTH SIDES
   COLOR: WHITE
   FABRICATOR SHALL MAKE NECCESSAY MODIFICATIONS TO SOLDERMASK PHOTOPLOT FILES FOR OPTIMAL SOLDERMASK COVERAGE BETWEEN FINE PITCH COMPONENT LEADS.
3. FINISH ALL EXPOSED COPPER SURFACES WITH IMMERSION GOLD.
4. HOLE SIZES APPLY AFTER PLATING.
5. APPLY SILKSCREEN TO BOTH SIDES
   COLOR: BLACK
   FABRICATOR SHALL MAKE NECESSARY MODIFICATIONS TO LEGEND PHOTOPLOT FILES TO ENSURE NO LEGEND INK COVERS ANY COMPONENT PAD OR VIA PAD.
6. MODIFIED PHOTOPLOT FILES ARE TO BE RETURNED BEFORE ORDER DELIVERED.
7. ALL PRINTED CIRCUITBOARD NETS SHALL BE ELECTRICALLY TESTED FOR OPENS AND SHORTS.
8. FABRICATION OF PCB TO COMPLY WITH IPC-A-600 CLASS II . CURRENT REVISION.

Title: TMC2590-BOB40	TRINAMIC MOTION CONTROL
Version: 1.0	
Date: 7.09.2018 Time: 13:16 13:16	

BOM

Project: TMC2590-BOB40

Version: 1.0

Date: 7.09.2018

#	Quantity	MPN	Comment	Designator	Footprint	Description	Note	MF
1	1	MC0603B224K160CT	220nF/16V/10%	C1	C0603	Ceramic capacitor		Multicomp
2	1	MC0603X474K160CT	470nF/16V/10%	C2	C0603	Ceramic capacitor		Multicomp
3	1	MC0603B104K160CT	100nF/16V/10%	C3	C0603	Ceramic capacitor		Multicomp
4	4	GRM31CR61H106KA12L	10uF/50V/10%	C4, C5, C7, C8	C1206	SMD Multilayer Ceramic Capacitor, 1206 [3216 Metric],10 µF, 50 V, ± 10%, X5R, GRM Series		MURATA
5	1	MC0603F104M500CT	100nF/50V/20%	C6	C0603	Ceramic capacitor		Multicomp
6	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
7	1	TMC2590	TMC2590	IC1	TMC2590_QFP127P600-8N	Energy saving high resolution microstepping two phase stepper driver with Step/Dir, SPI, up to 60V, TQFP32(5x5)		TRINAMIC
8	1	MC0063W060311K	1k	R2	R0603	1 kohm, 50 V, 0603 [1608 Metric], 63 mW, ± 1%, MC Series		MULTICOMP
9	2	MCWR06X10R0FTL	10R / 1%	R3, R4	R0603	SMD Chip Resistor, Thick Film, 10 ohm, 50 V, 0603 [1608 Metric], 100 mW, ± 1%, MCWR Series		Multicomp
10	2	TLR3A20WR075FTDG	75mR/2W/1%	R5, R6	R2512	SMD Current Sense Resistor, 0.075 ohm, 2 W, 2512 [6432 Metric], ± 1%, TLR Series		TE CONNECTIVITY
11	4	FDD8424H	FDD8424H	T1, T2, T3, T4	SOT114P991X239-6N	Dual MOSFET, N and P Channel, 9 A, 40 V, 0.019 ohm, 10 V, 1.7 V		FAIRCHILD SEMICONDUCTOR

Approved	Notes	28