

Test board for NT1065

B1065D2-XXYY

PCB_NT1065.1_v1

TABLE OF CONTENTS

1. Assembly Options	3
2. Schematic	4
3. Bill of Materials	5
4. Placement Top	8
5. Placement Bottom (mirrored)	9
6. Layer Top Layout	10
7. Layer 2 Layout	11
8. Layer 3 Layout	12
9. Layer 4 Layout	13
10. Layer 5 Layout	14
11. Layer Bottom Layout	15
12. Impedance Controlled Traces	16
13. Impedance Traces Configuration	17
14. Board Stackup	17
15. 3D View	18

1. ASSEMBLY OPTIONS

Board name depends on assembly options, name transcription is shown in the table. Code values description is given in “BILL OF MATERIALS” section.

Board name transcription:

B1065D2 – **X** **X** **Y** **Y**

Data output type:

D	-	Digital 2-bit ADC output
U	-	Analog unbalanced output
B	-	Analog balanced output

CLK output type:

C	-	CMOS output
U	-	LVDS unbalanced output
B	-	LVDS balanced output

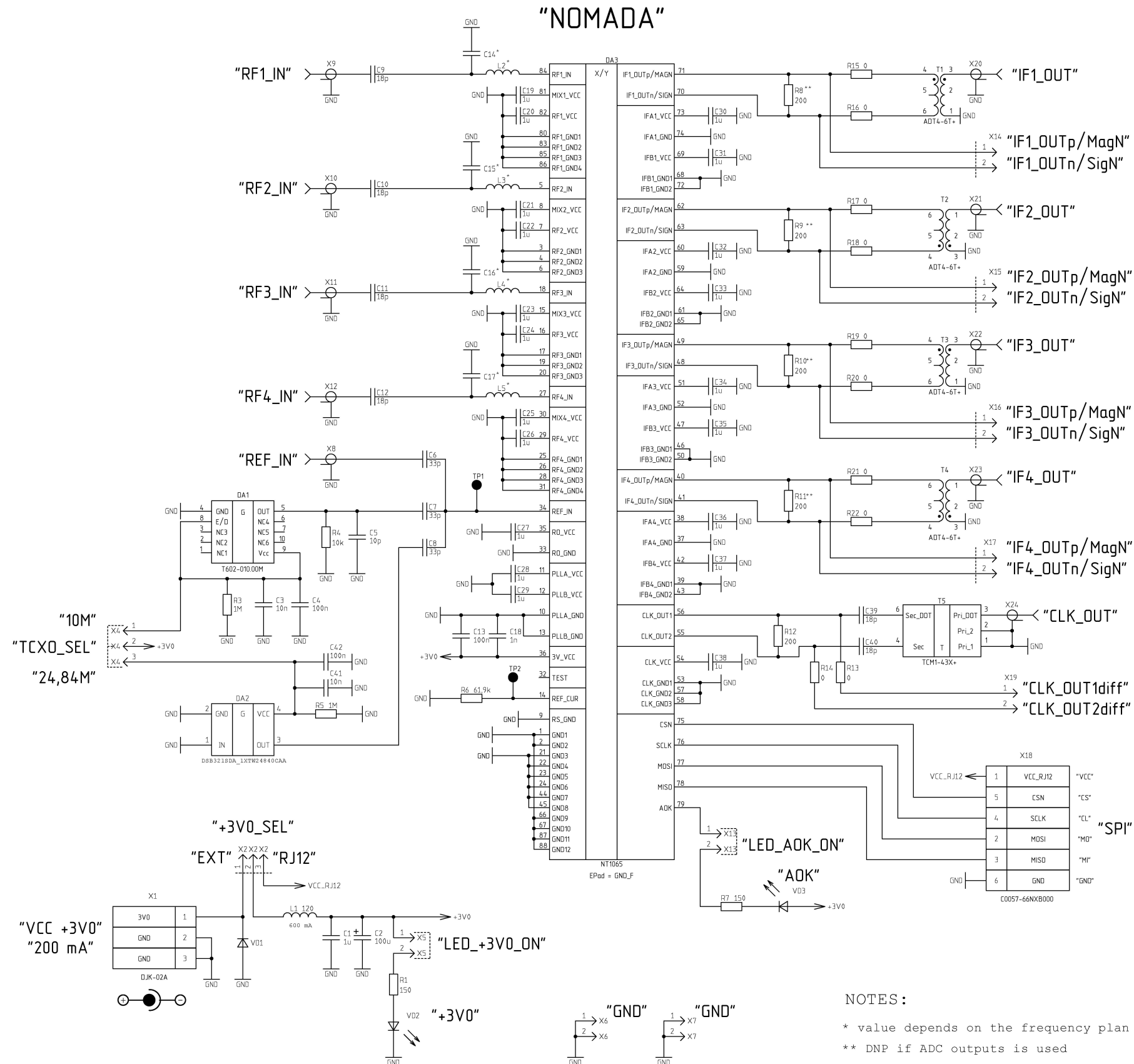
Frequency range for channel #3 and #4:

1	-	L1: 1550 – 1620 MHz
2	-	L2, L3, L5: 1150 – 1300 MHz

Frequency range for channel #1 and #2:

1	-	L1: 1550 – 1620 MHz
2	-	L2, L3, L5: 1150 – 1300 MHz

2. SCHEMATIC



3. BILL OF MATERIALS

BOM parts which are common for all options shown in the table below. For components varied due to assembly options appropriate notes with codes are given in the “Comments” column.

item	part number	description	vendor	qty	references	Comments	Lead Date
1	0402X105K100N	Cap, 1uF, 10%, 10V, 0402	Hitano	21	C1,C19-C38		
2	T491B107K006AT	Cap Tant Polar, 100uF, 6.3V, 10%, B, Tantalum	Kemet	1	C2		
3	0402B103K160N	Cap, 0.01uF, 10%, 16V, 0402, X7R	Hitano	2	C3,C41		
4	0402B104K100N	Cap, 0.1uF, 10%, 10V, 0402, X7R	Hitano	3	C4,C13,C42		
5	0402N100J500N	Cap, 10pF, 5%, 50V, 0402, COG	Hitano	1	C5		
6	0402N330J500N	Cap, 33pF, 5%, 50V, 0402, COG	Hitano	3	C6-C8		
7	0402N180J500N	Cap, 18pF, 5%, 50V, 0402, COG	Hitano	4+	C9-C12	CLK_OUT	
9	0402N1R2C500N	Cap, 1.2pF, +-0.25pF, 50V, 0402, COG	Hitano			RFx	
10	0402B102K500N	Cap, 1nF, 10%, 50V, 0402, X7R	Hitano	1	C18		
11	T602-010.00M	IC, TCXO, SMD 5x7mm, +3V3, -40/+85	ConnorWinfield	1	DA1		
12	DSB321SDA_1XTW24840CAA	IC, TCXO, SMD 3mm, 24.84MHz	Daishinku	1	DA2		
13	NT1065	IC, RF Front-End, ADC, QFN88	NTL	1	DA3		
14	BLM21BB121SN1	Ferrite Bead, 120 Ohm, 25%, 0.2A, 0805, -55/+125	Murata	1	L1		
15	LQW15AN10NJ00	Coils Chip, 10 nH, 5%, 0.5A, 0402	Murata			RFx	
16	LQW15AN8N2B00	Coils Chip, 8.2 nH, +-0.1nH, 0.7A, 0402	Murata			RFx	
17	RC0402J10K	Res, 10 kOhm, 0.063W, 5%, 0402	FaithfulLink	2	R1,R4		
18	RC0402F150R	Res, 150 Ohm, 0.063W, 1%, 0402	FaithfulLink	2	R2,R7		
19	RC0402J1M	Res, 1 MOhm, 0.063W, 5%, 0402	FaithfulLink	2	R3,R5		
20	RC0402F61K9	Res, 61.9 kOhm, 0.063W, 1%, 0402	FaithfulLink	1	R6		
21	RC0402J200R	Res, 200 Ohm, 0.063W, 5%, 0402	FaithfulLink			IFx_OUT, CLK_OUT	
22	RC0201J0R	Res, 0 Ohm, 0.05W, 5%, 0201	FaithfulLink	2	R13,R14		
23	RC0402J0R	Res, 0 Ohm, 0.063W, 5%, 0402	FaithfulLink			IFx_OUT	
24	TP	Test-Point (0.3;0.9)	PCB made	2	TP1-TP2		
25	ADT4-6T+	Transformer, RF, 50 Ohm, 0.06 to 300 MHz, CD637	Mini-Circuits	4	T1-T4		
26	TCM1-43X+	Transformer, RF, 50 Ohm, 10 to 4000 MHz, DB1627	Mini-circuit	1	T5		
27	SMBJ5V0A	Diode, Suppressor, 5V, DO-214AA	Fairchild	1	VD1		
28	L-C150GCT	Diode, Opt, Green, 1206	Paralight	1	VD2		
29	L-C150SRCT	Diode, Opt, Red, 1206	Paralight	1	VD3		
30	DJK-02A	Conn, DC, 2mm inner, male, 3 pins	Brown bear	1	X1		
31	102976-3	Conn, Header 3x1, PLS-3, 2.54 mm H=8.13 mm	AMP	2	X2,X4		
32	102976-2	Conn, Header 2x1, PLS-2, 2.54 mm H=8.13 mm	AMP	10	X3,X5-X7, X13-X17, X19		
33	901-143-6RFX	Conn, SMA, Receptacle, PCB, Right Angle	Amphenol	5	X8,X20-X23		
34	142-0761-881	Conn, SMA, Female, PCB h=0.2-0.36mm, Receptacle	Emerson	5	X9-X12,X24		
35	C0057-66NXB000	Conn, TJ 6P6C, RJ-12, 6 contacts	HSUAN MAO Technology	1	X18		

Varied data for assembly options (shown below).

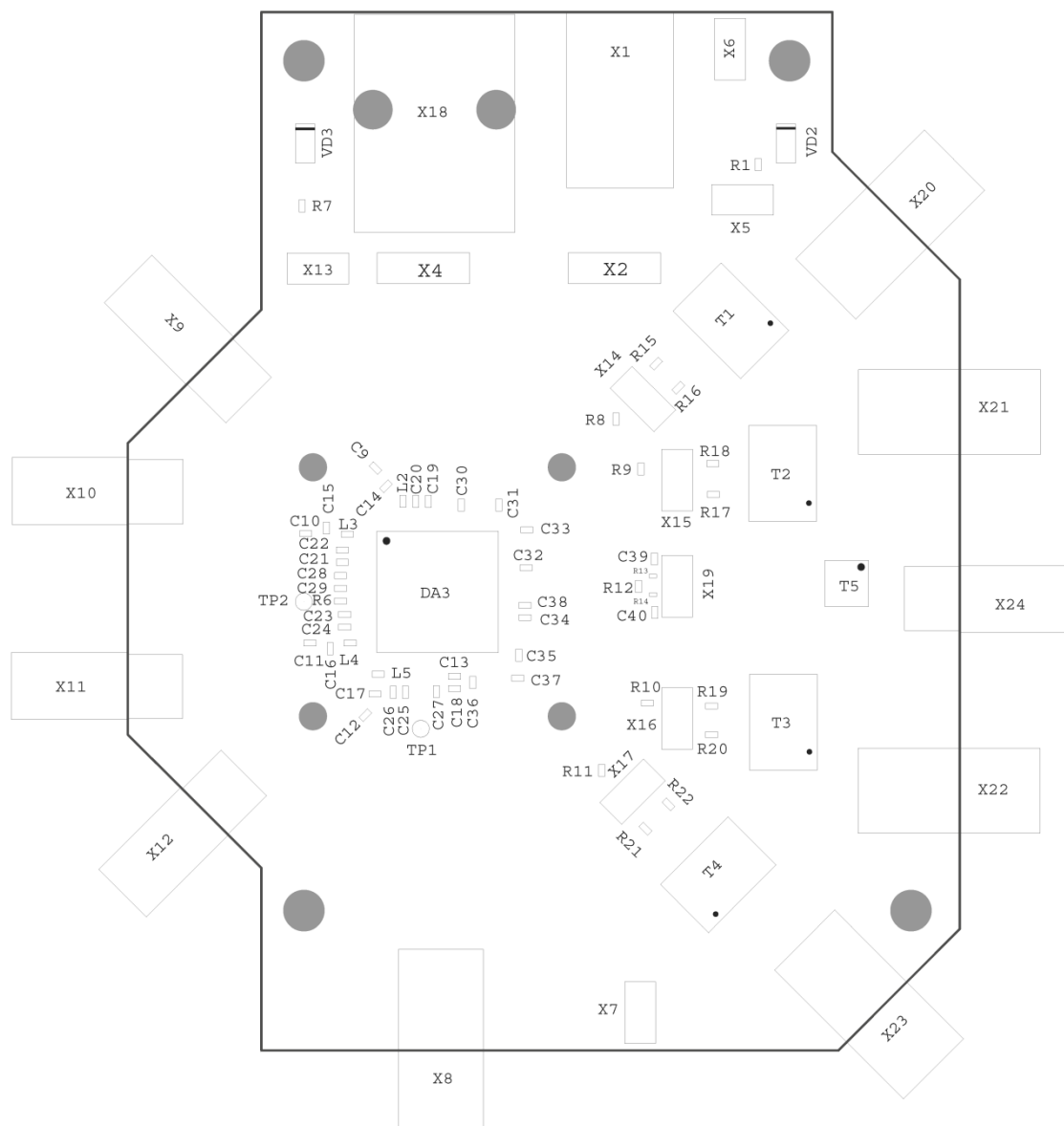
				Frequency range for channel #1 and #2:	
Ref Des	part number	description	vendor	1	2
C14, C15	0402N1R2C500N	Cap, 1.2pF, +-0.25pF, 50V, 0402, COG	Hitano	+	
L2,L3	LQW15AN6N2B00	Coils Chip, 8.2 nH, +-0.1nH, 0.7A, 0402	Murata	+	
	LQW15AN10NJ00	Coils Chip, 10 nH, 5%, 0.5A, 0402	Murata		+

				Frequency range for channel #3 and #4:	
Ref Des	part number	description	vendor	1	2
C16,C17	0402N1R5C500N	Cap, 1.5pF, +-0.25pF, 50V, 0402, COG	Hitano	+	
L5,L6	LQW15AN6N2B00	Coils Chip, 8.2 nH, +-0.1nH, 0.7A, 0402	Murata	+	
	LQW15AN10NJ00	Coils Chip, 10 nH, 5%, 0.5A, 0402	Murata		+

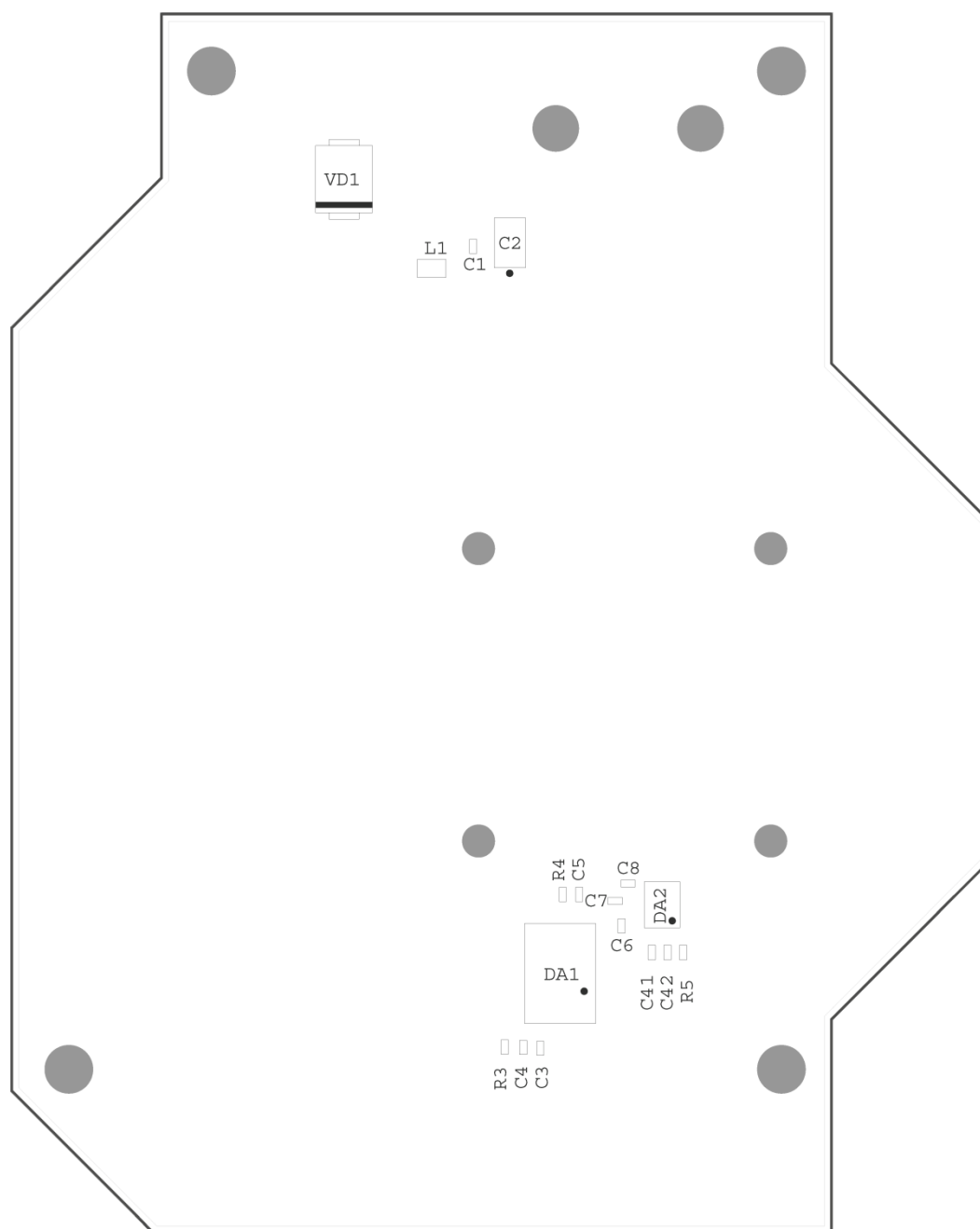
				CLK output type:		
Ref Des	part number	description	vendor	C	U	B
C39, C40	0402N180J500N	Cap, 18pF, 5%, 50V, 0402, COG	Hitano		+	
R12	RC0402J200R	Res, 200 Ohm, 0.063W, 5%, 0402	FaithfulLink			+

				Data output type:		
Ref Des	part number	description	vendor	D	U	B
R8...R11	RC0402J200R	Res, 200 Ohm, 0.063W, 5%, 0402	FaithfulLink			+
R15...R22	RC0402J0R	Res, 0 Ohm, 0.063W, 5%, 0402	FaithfulLink		+	

4. PLACEMENT TOP

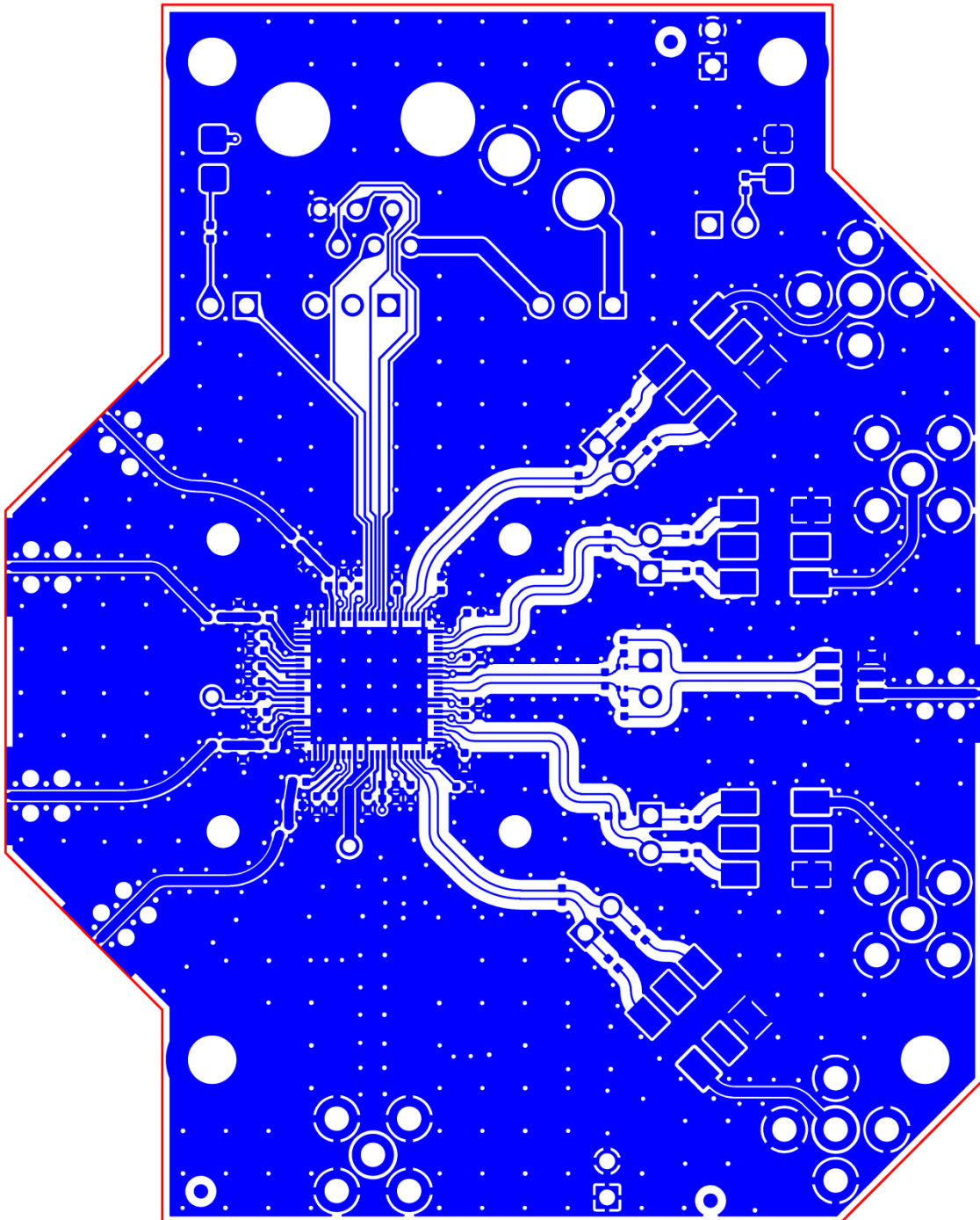


5. PLACEMENT BOTTOM (MIRRORED)

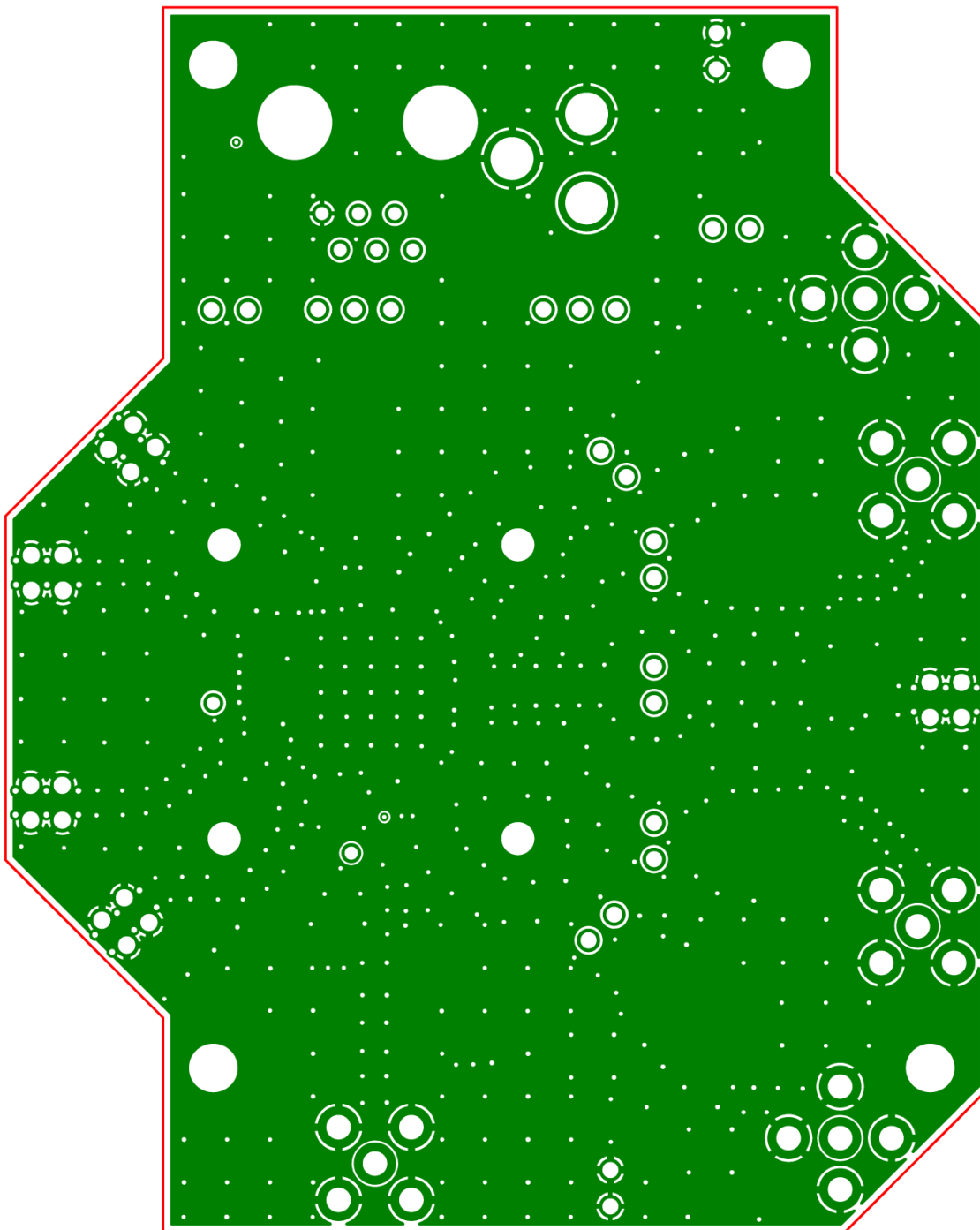


6. LAYER TOP LAYOUT

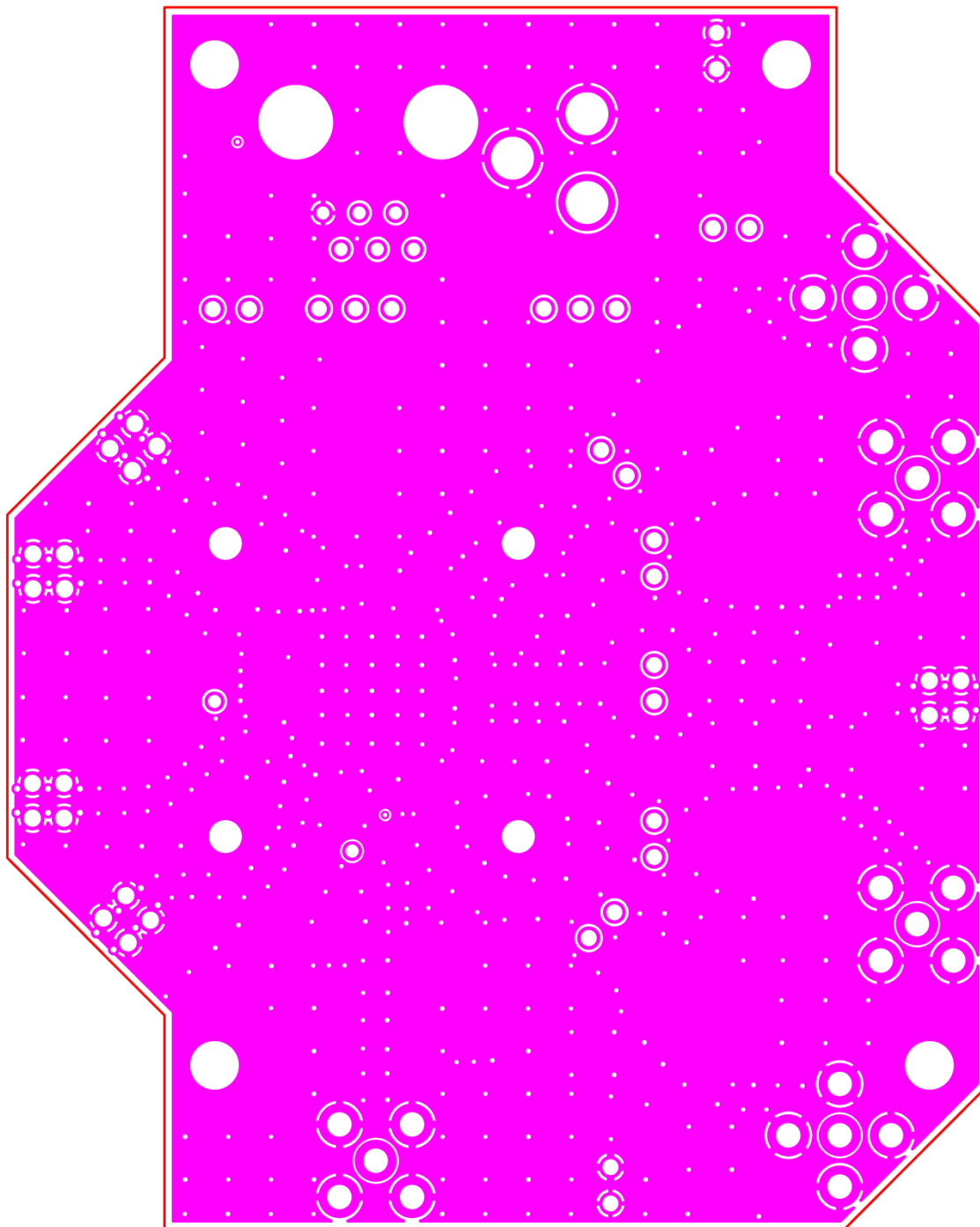
Power and ground planes are marked here and below in accordance with schematic.



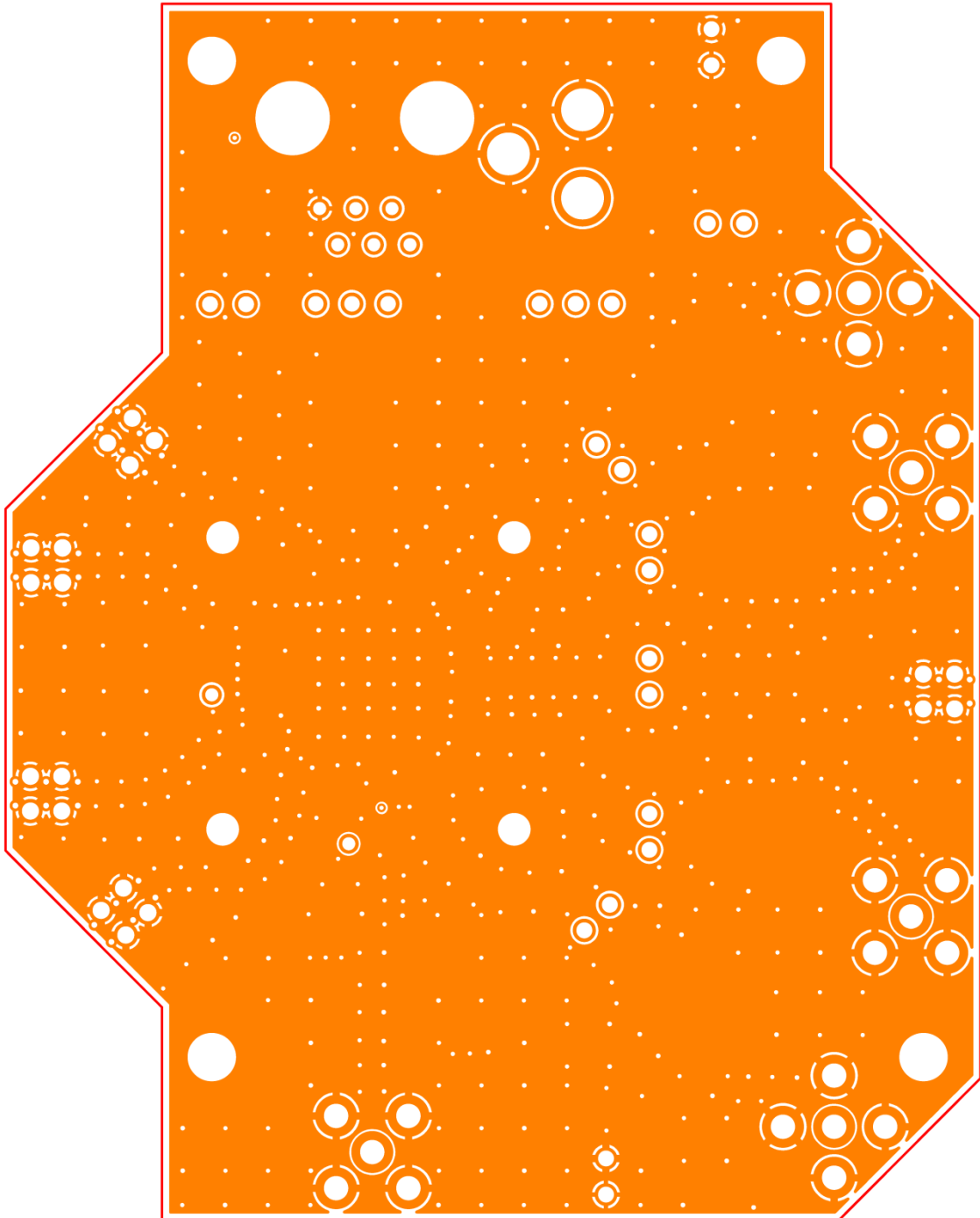
7. LAYER 2 LAYOUT



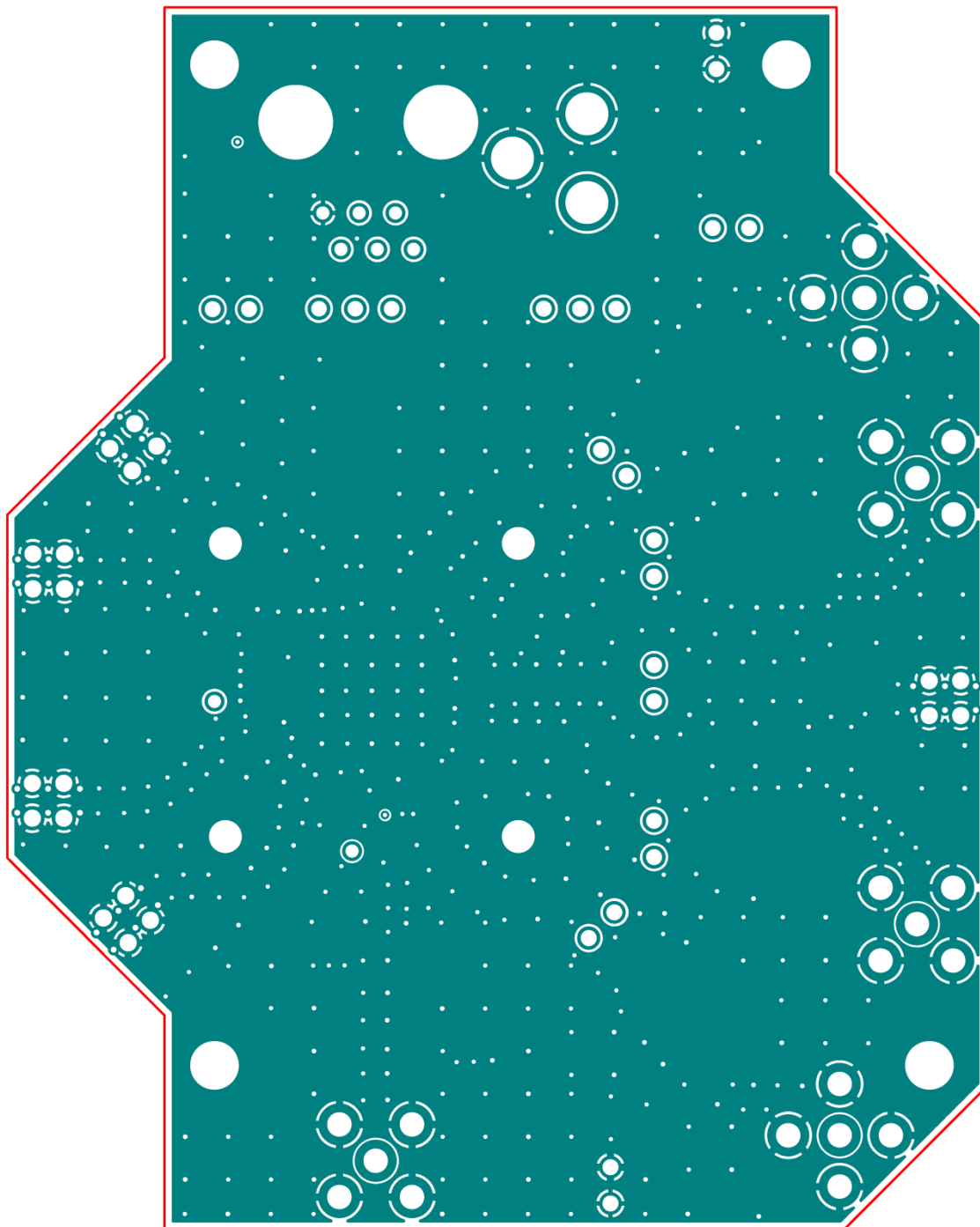
8. LAYER 3 LAYOUT



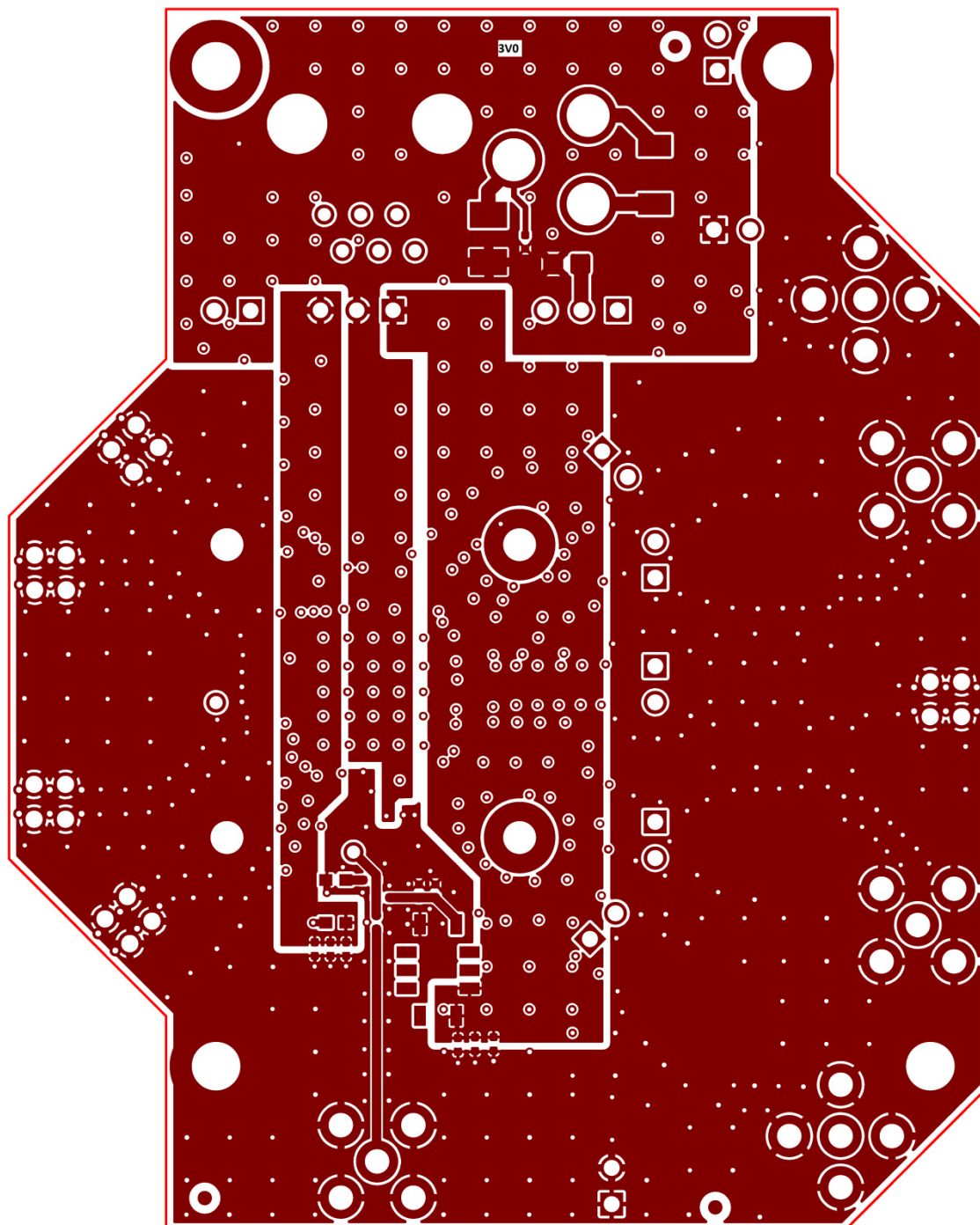
9. LAYER 4 LAYOUT



10. LAYER 5 LAYOUT



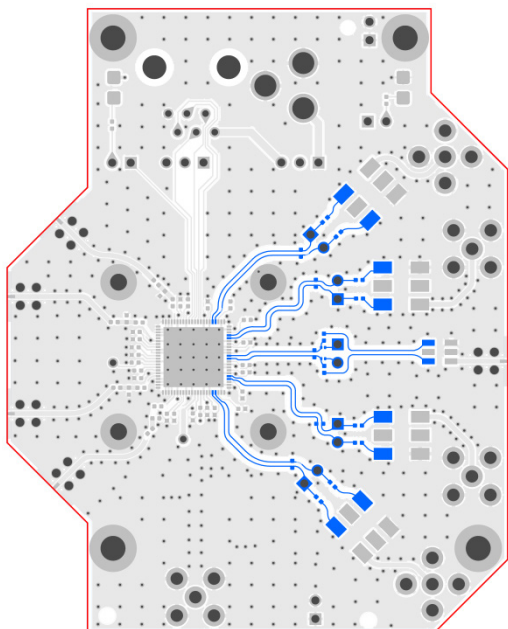
11. LAYER BOTTOM LAYOUT



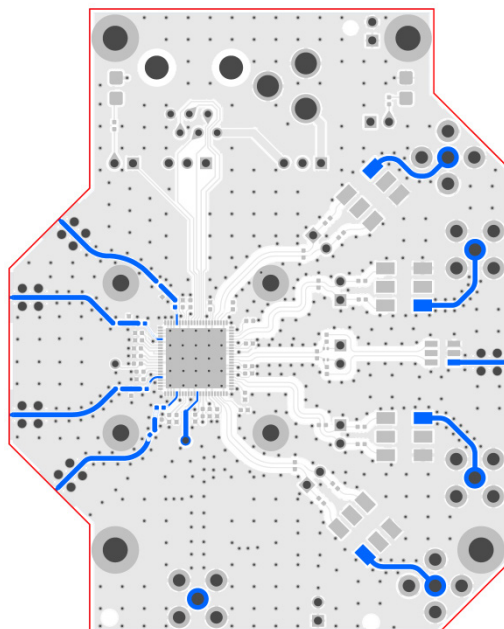
12. IMPEDANCE CONTROLLED TRACES

Traces with impedance control are shown on separate views.

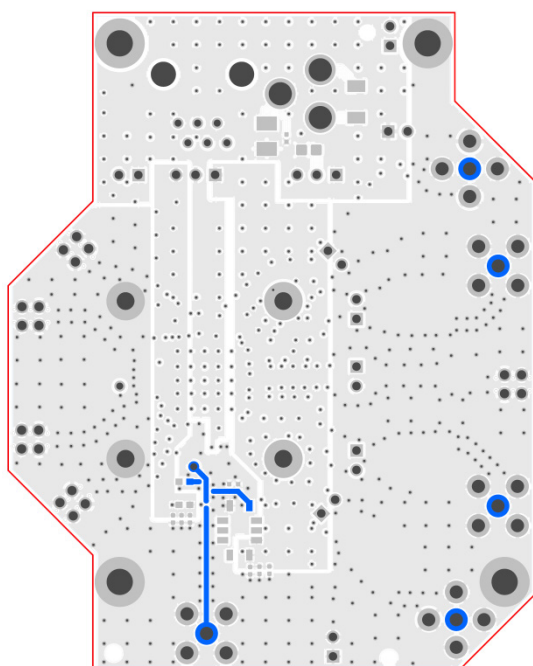
200 Ohm Differential, Top



50 Ohm single-ended, Top

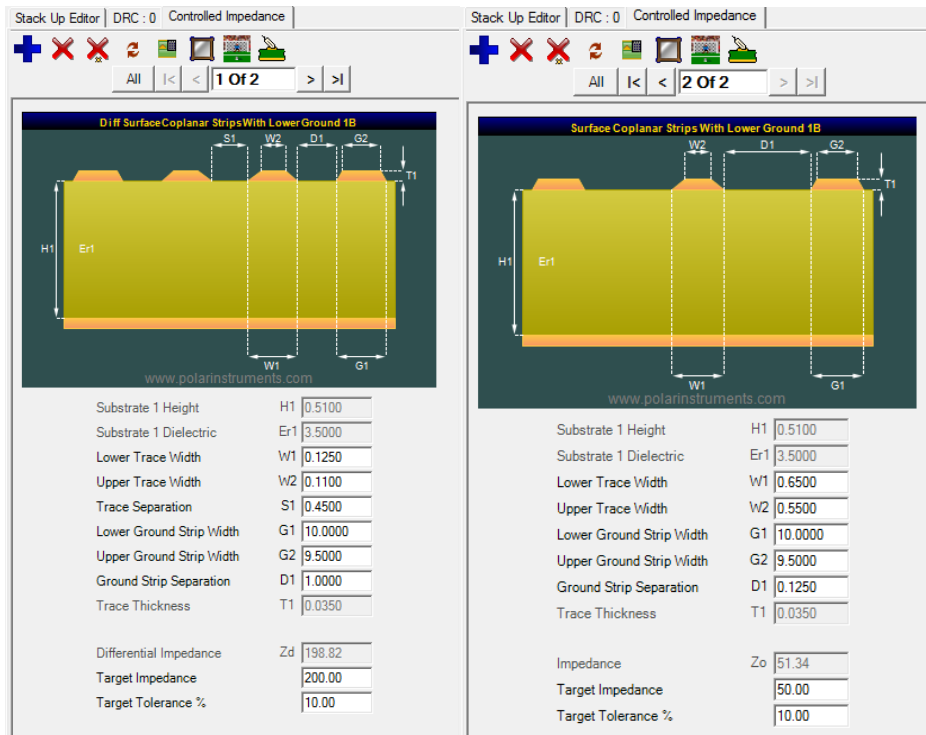


50 Ohm single-ended, Bottom



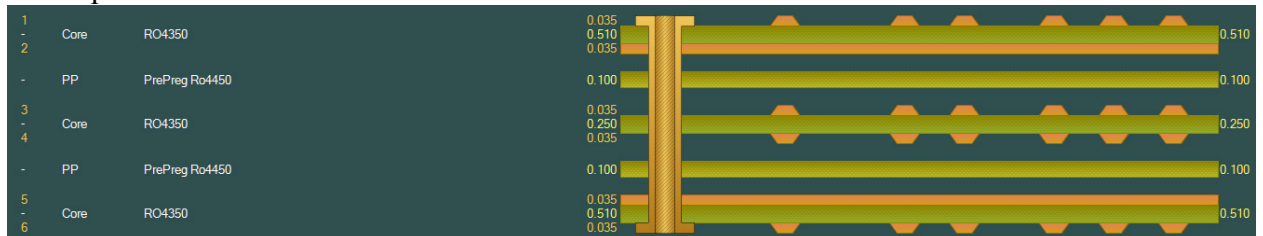
13. IMPEDANCE TRACES CONFIGURATION

Impedance calculations:



14. BOARD STACKUP

Stackup:



Layer description:

1. Top	01Top.gbr	pos	18	copper	18 foil + 25 plating (um)
			510	core	RO4350B
2. In1	02in.gbr	pos	18	copper	
			101	PP	RO4450B
3. In2	03in.gbr	pos	18	copper	
			250	core	RO4350B
4. In3	04in.gbr	pos	35	copper	
			101	PP	RO4450B
5. In4	05in.gbr	pos	18	copper	
			510	core	RO4350B
6. Bot	06Bot.gbr	pos	18	copper	18 foil + 25 plating (um)
Plated Holes	ThruHolePlated.drl				
Unplated holes	ThruHoleNonPlated.drl				
		Impedance	layer	Trace width	Diff space
					Ref. layers
		50	01Top	0,65	02in
		50	06Bot	0,65	05in
		200diff	01Top	0,125	0,45
					02in

15.3D VIEW

Enable 3D View