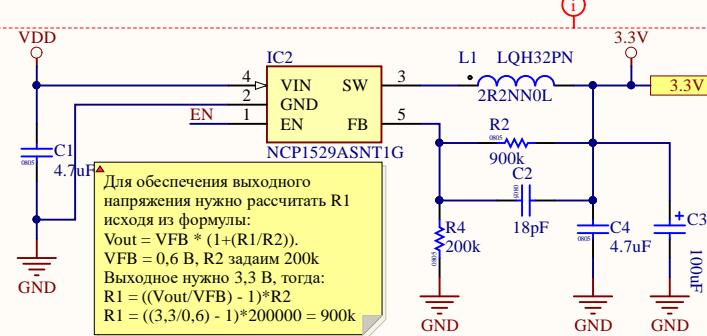
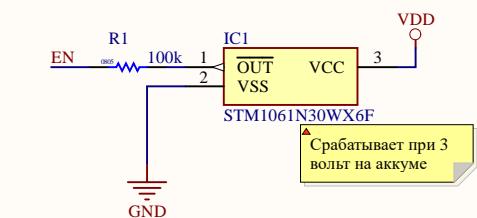
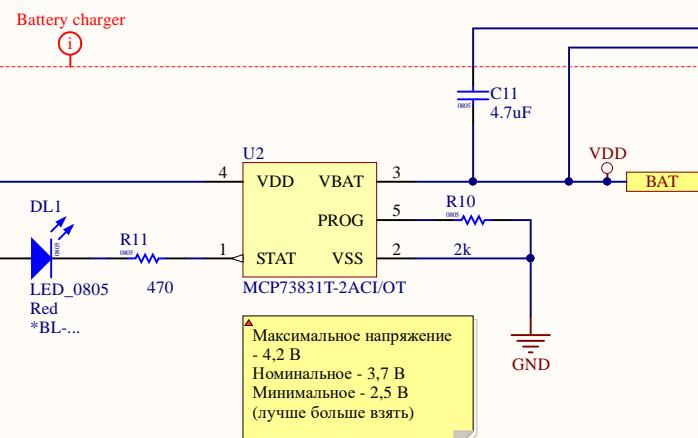
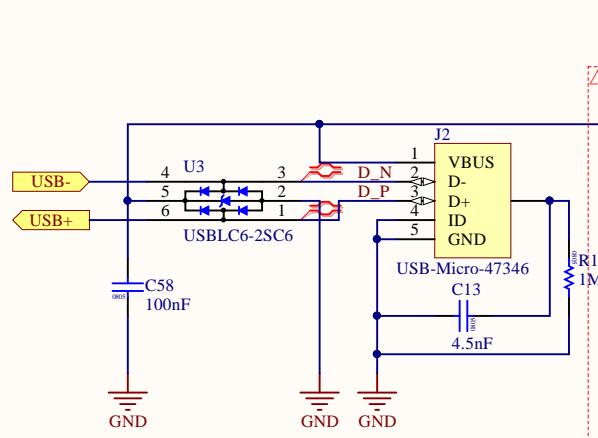
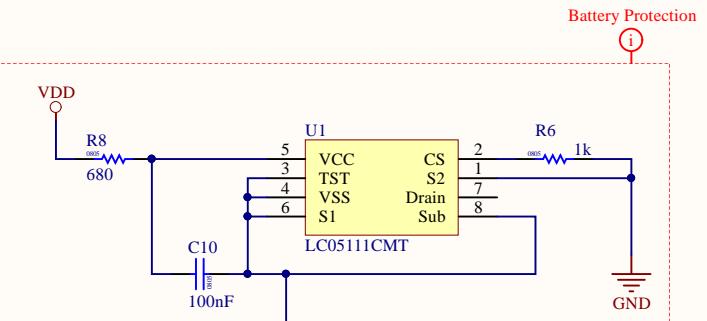
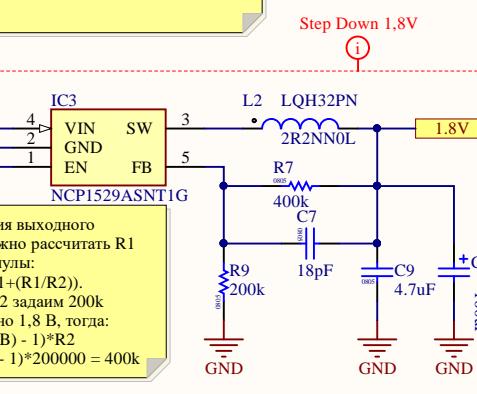
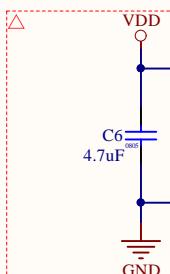


**STM1061 - 0.9μA**



Step Down 3,3V



A

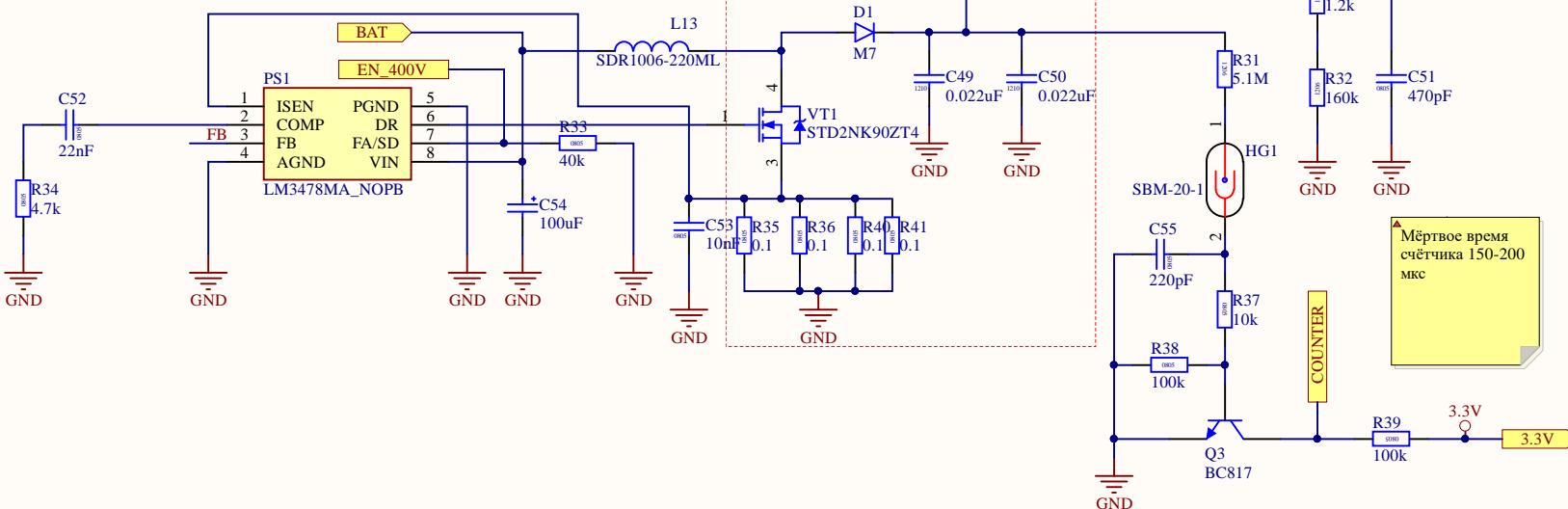
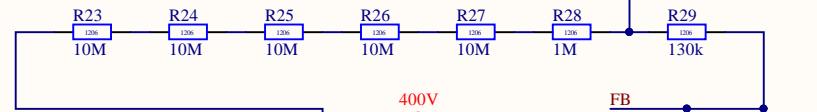
Обратная связь должна быть 1,26 В.  
 $V_{out} = 1,26 \cdot (1 + (R_2/R_1))$   
 $R_2 = 51,13\text{M}\Omega$   
 $R_1 = 161,2\text{k}\Omega$

2,271 В при 400 В на преобразователе

ADC\_400V

JMP1

JMP2.54



B

A

B

C

C

D

D

A

A

B

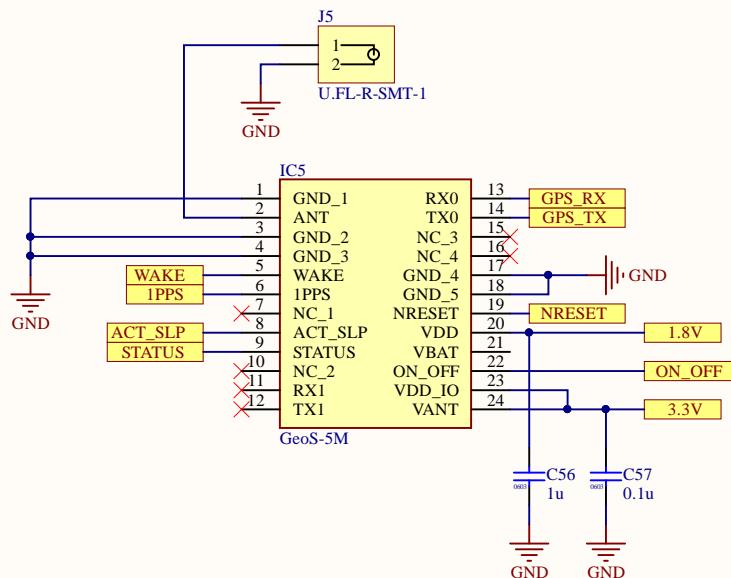
B

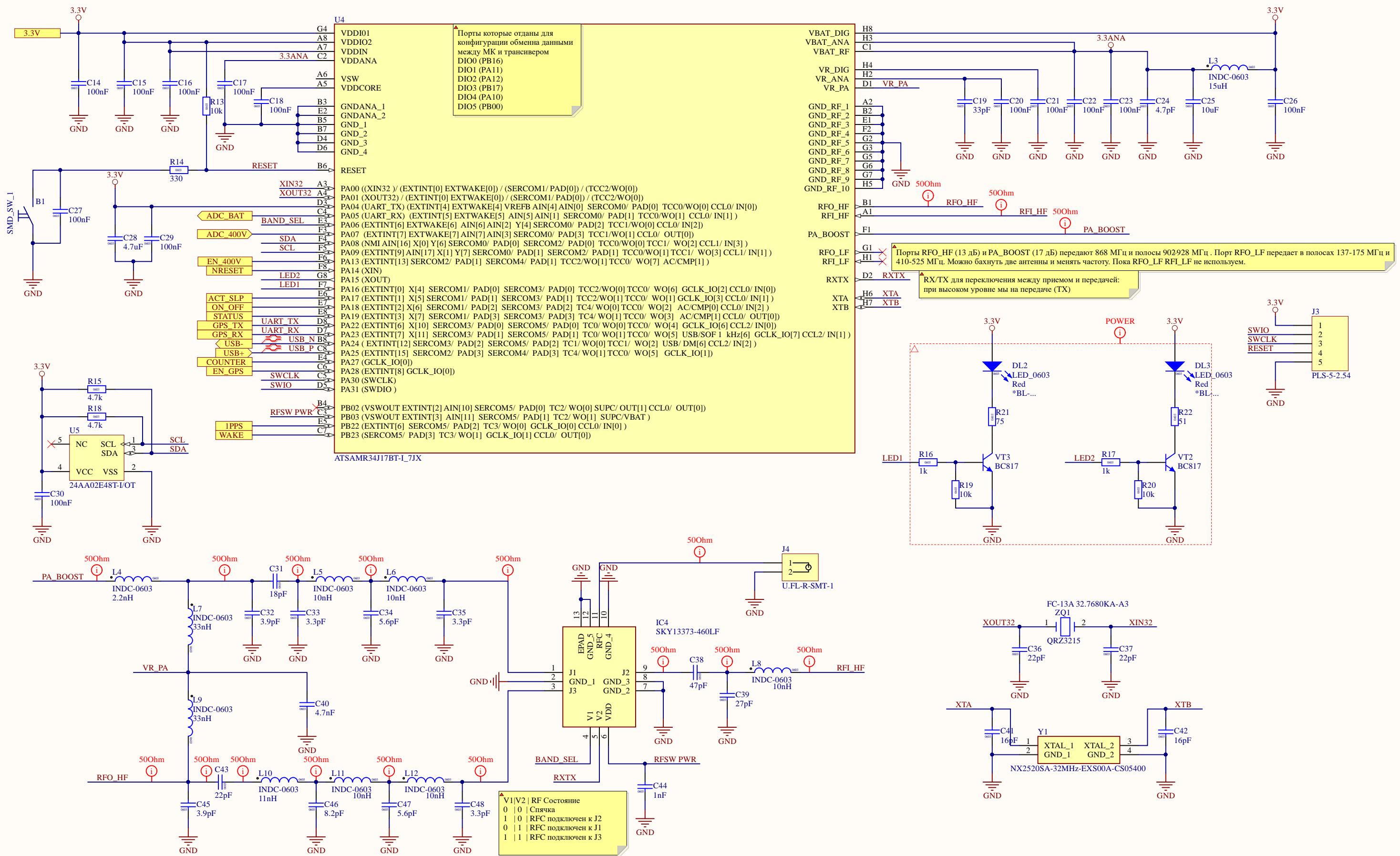
C

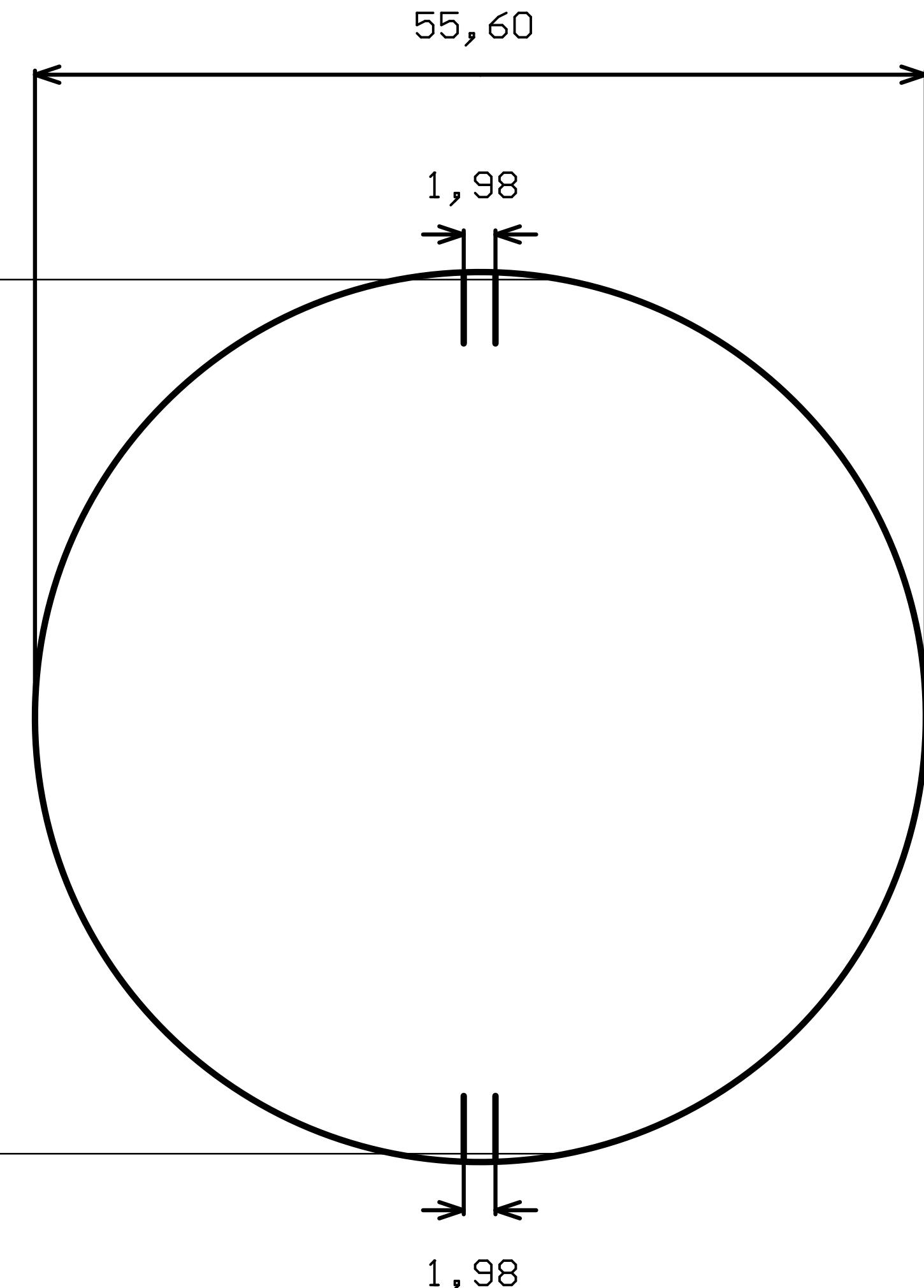
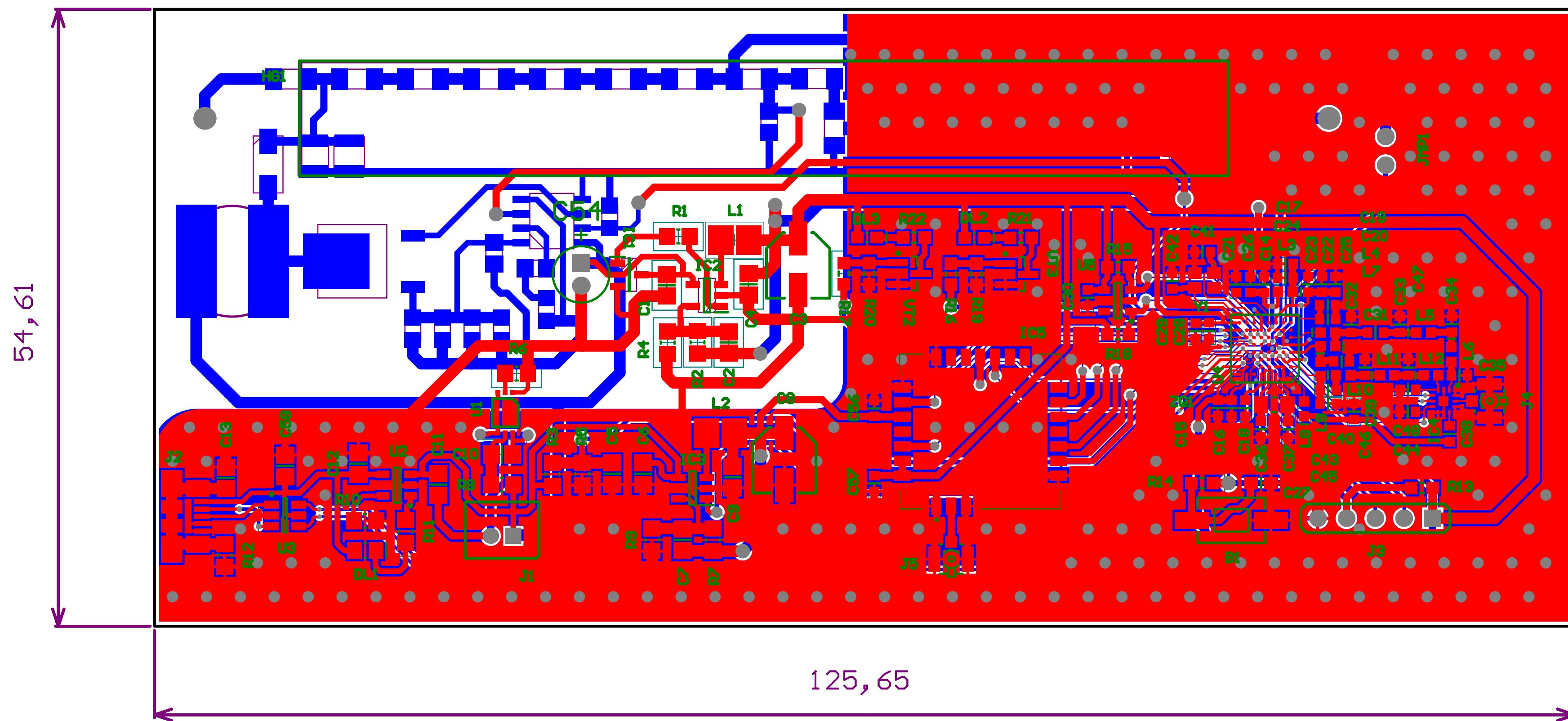
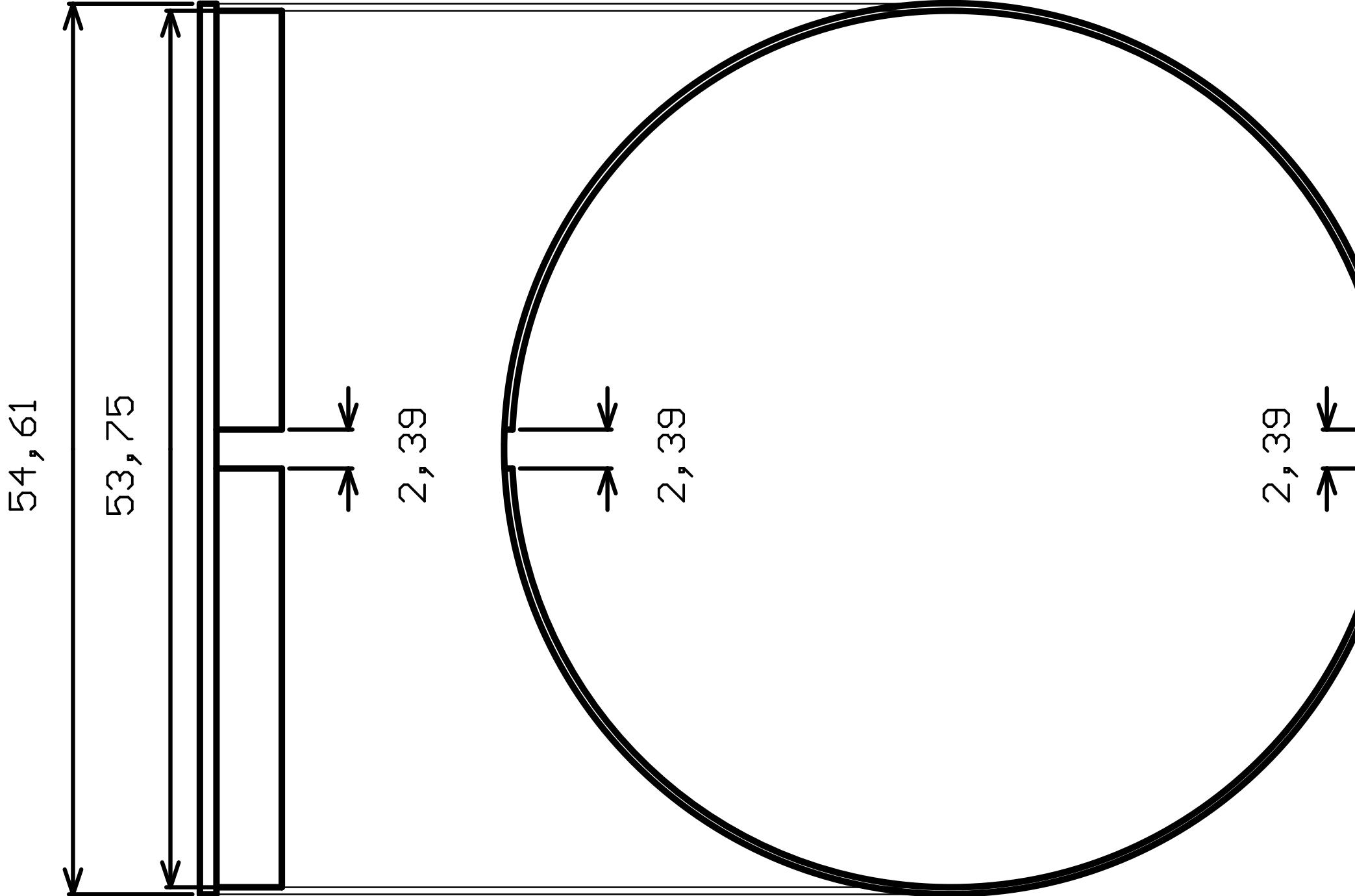
C

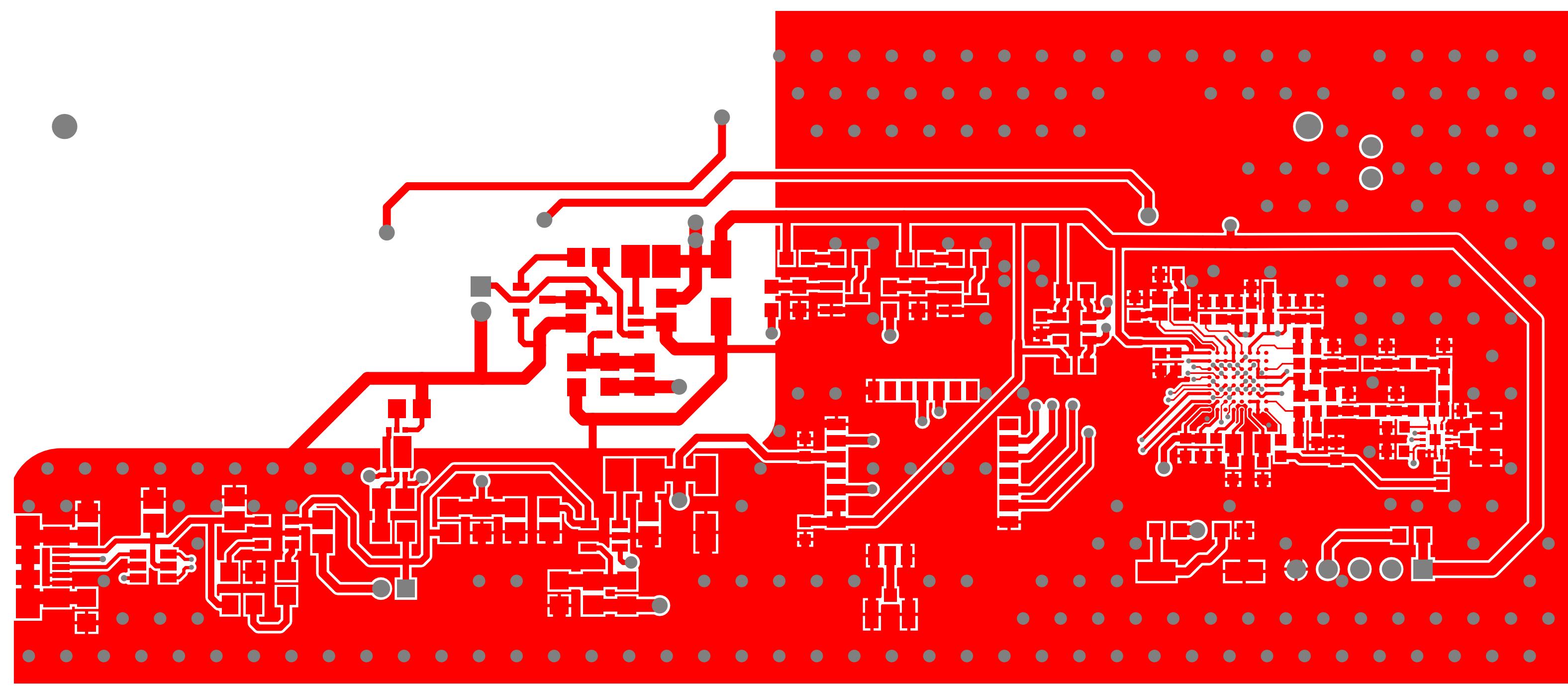
D

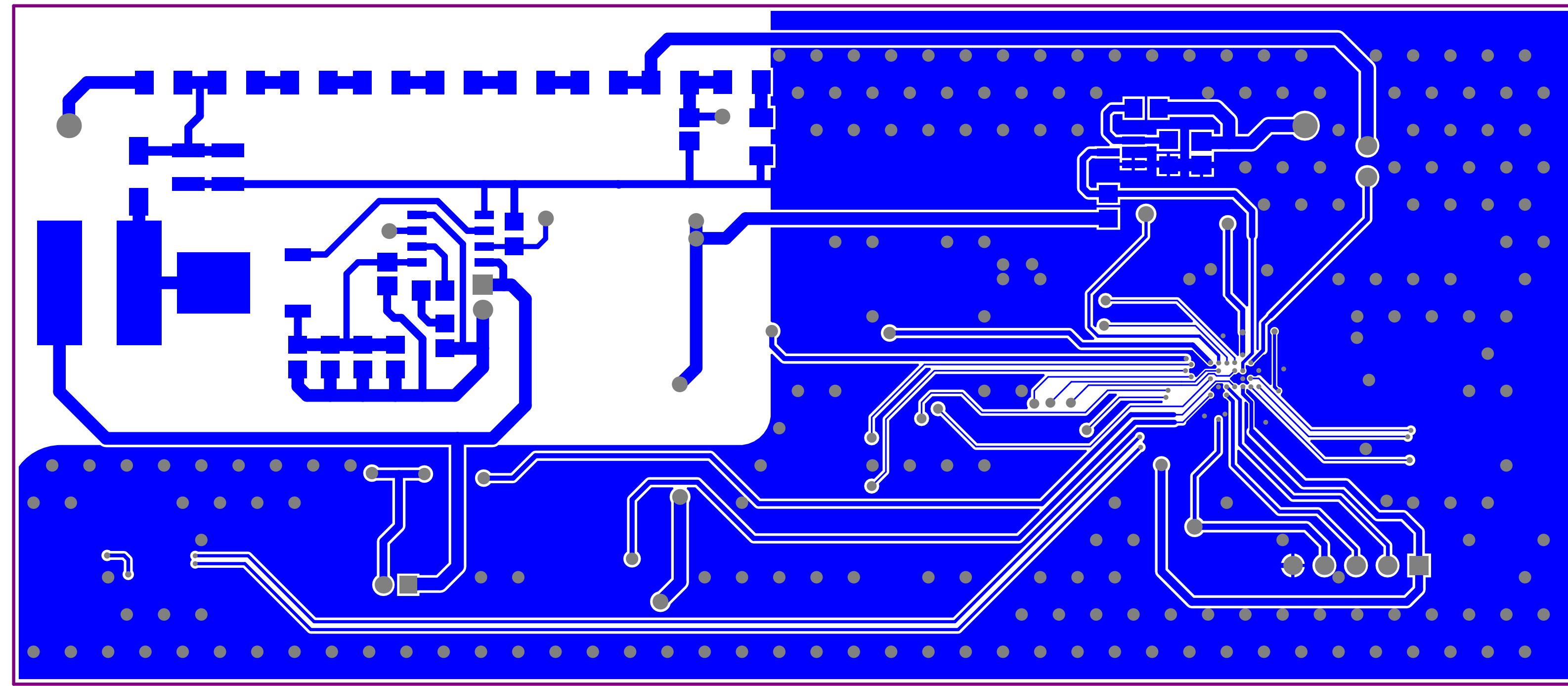
D

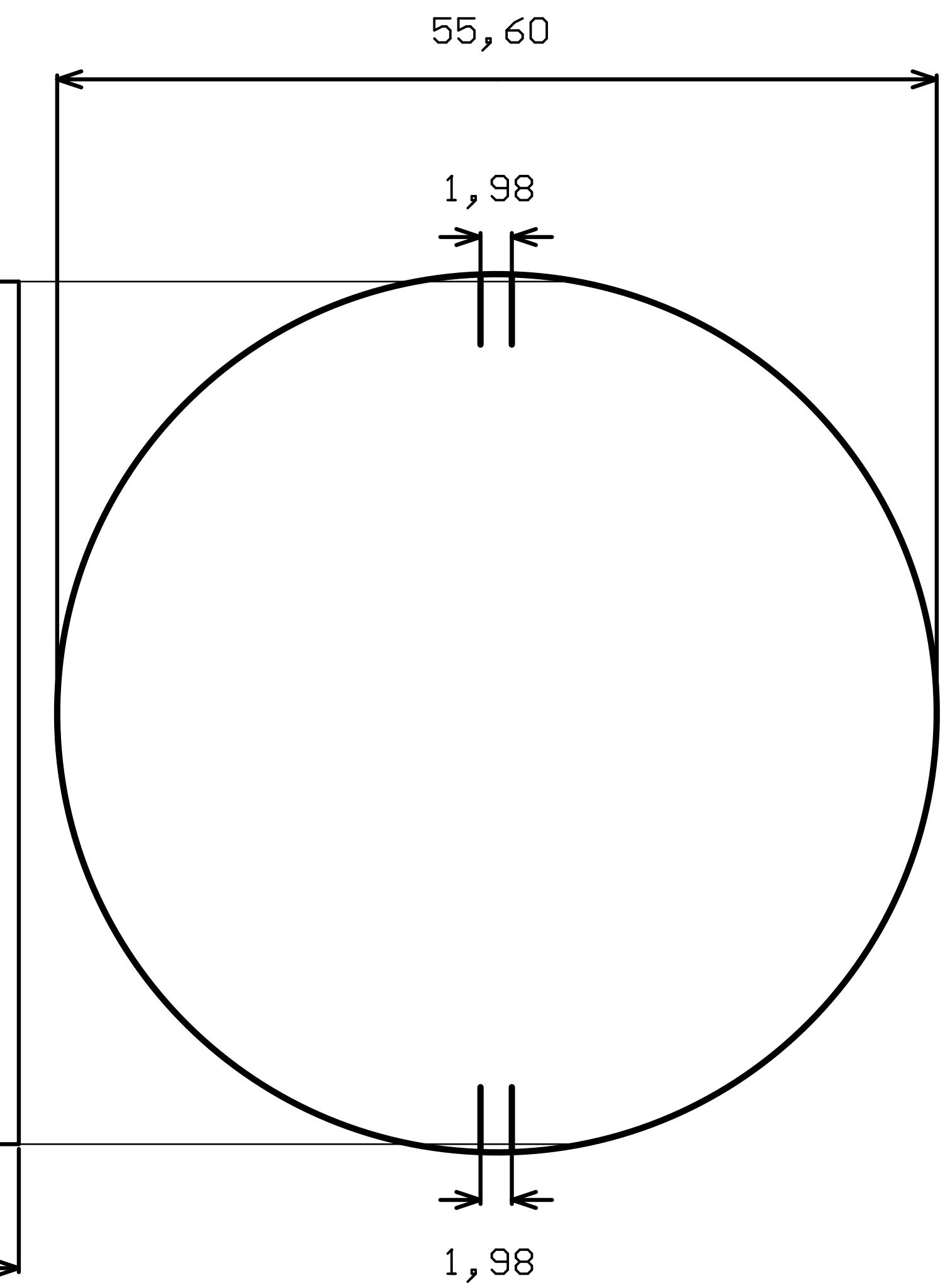
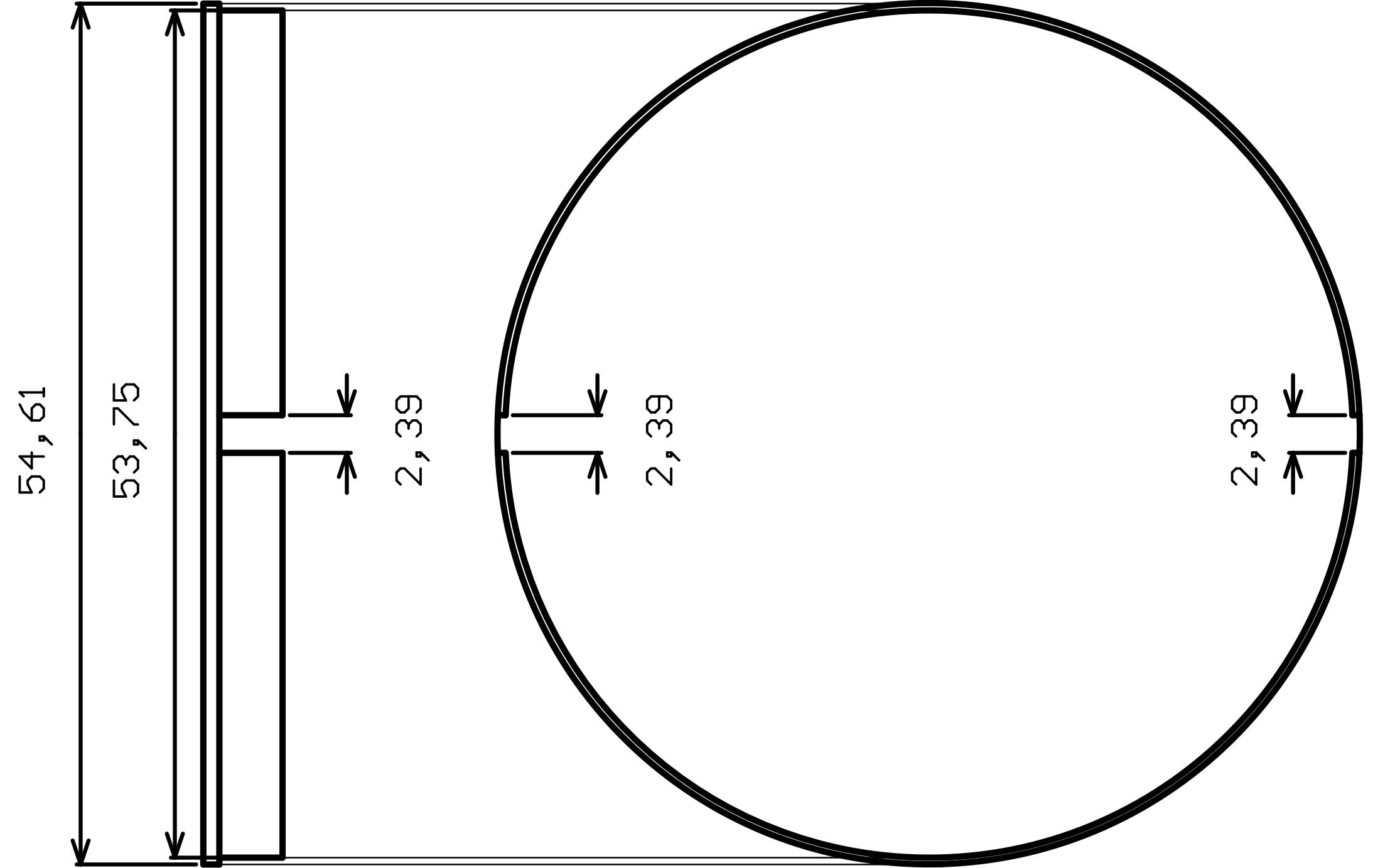


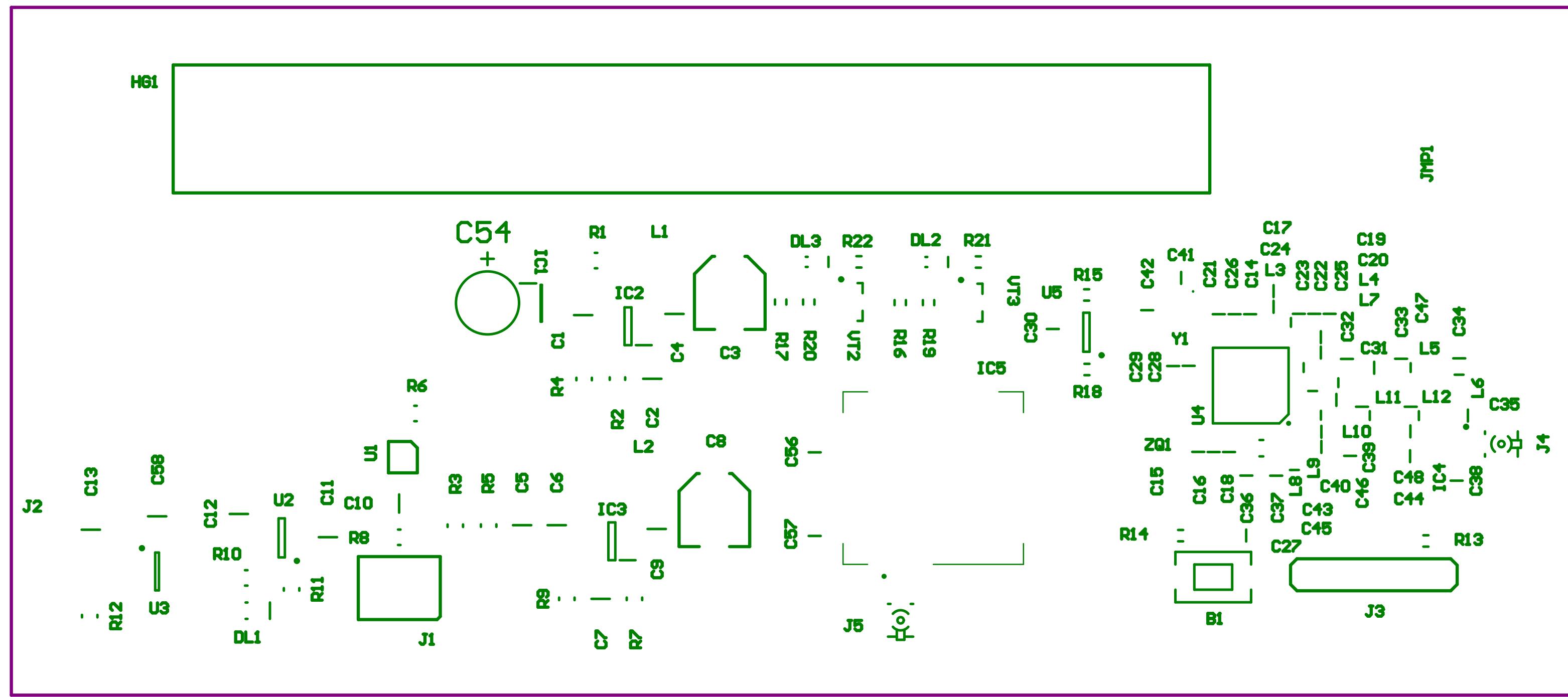


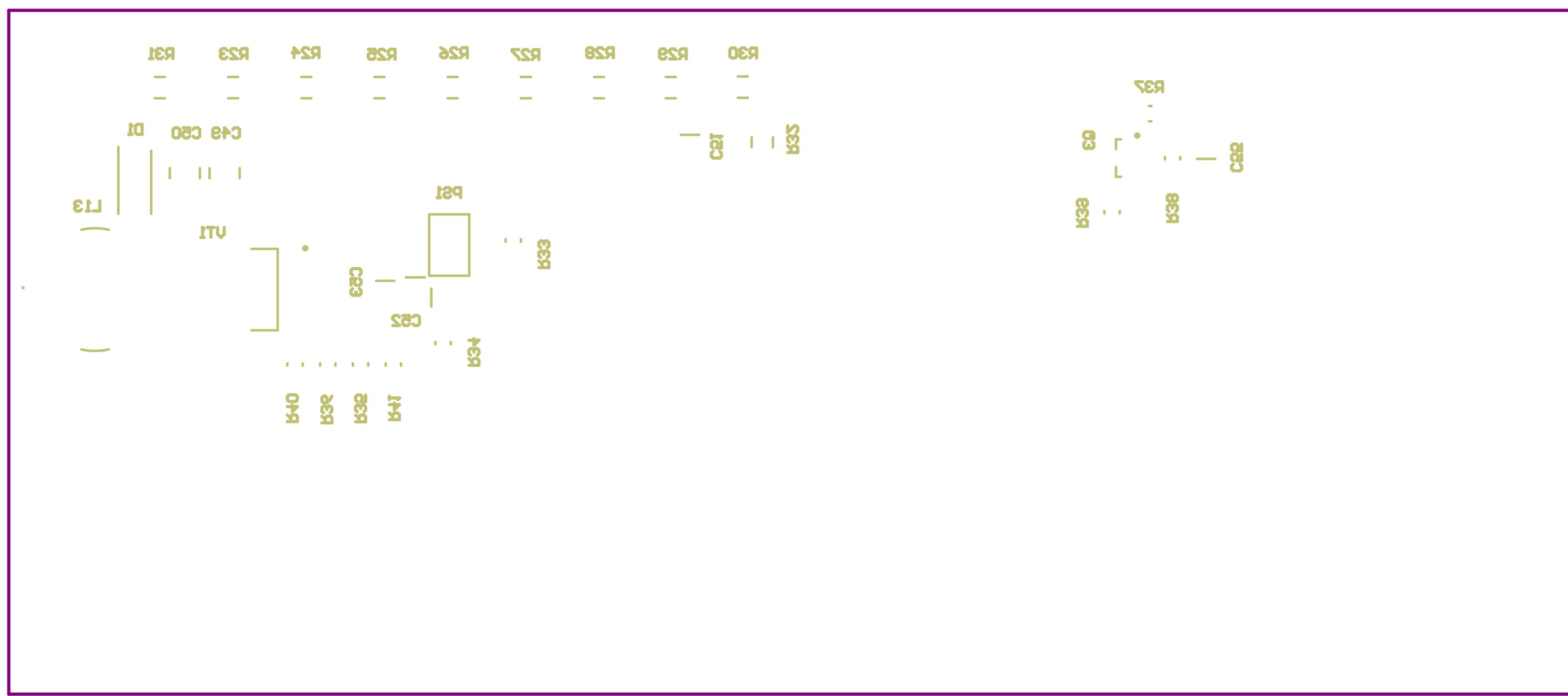


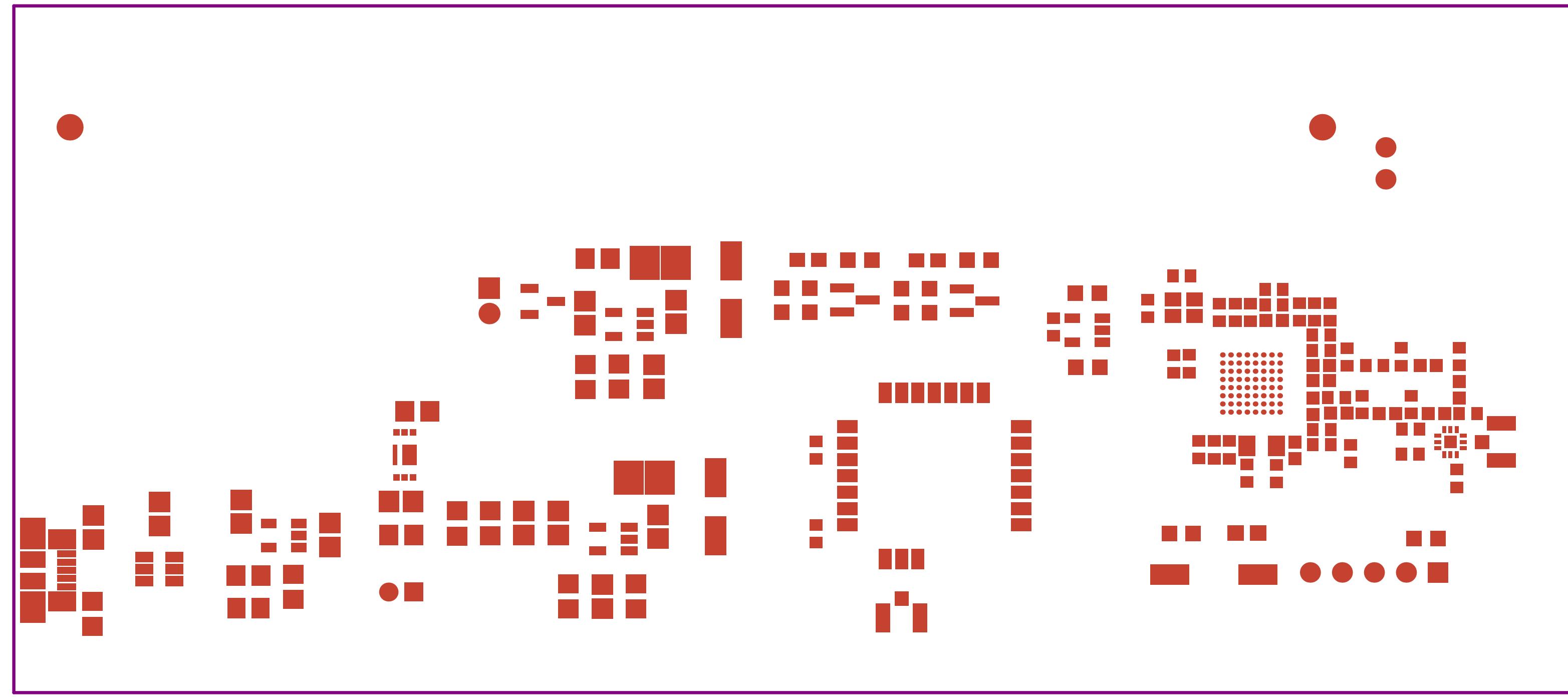


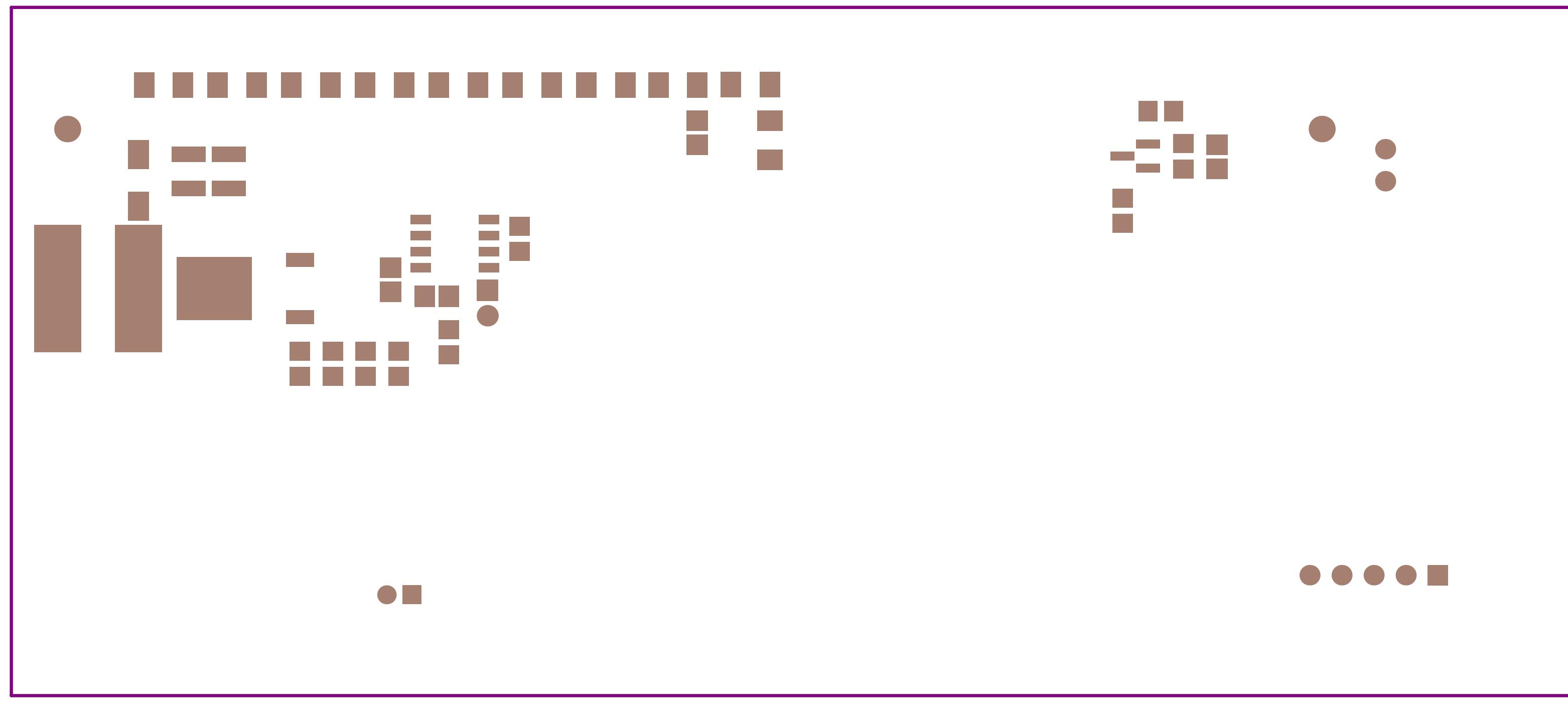


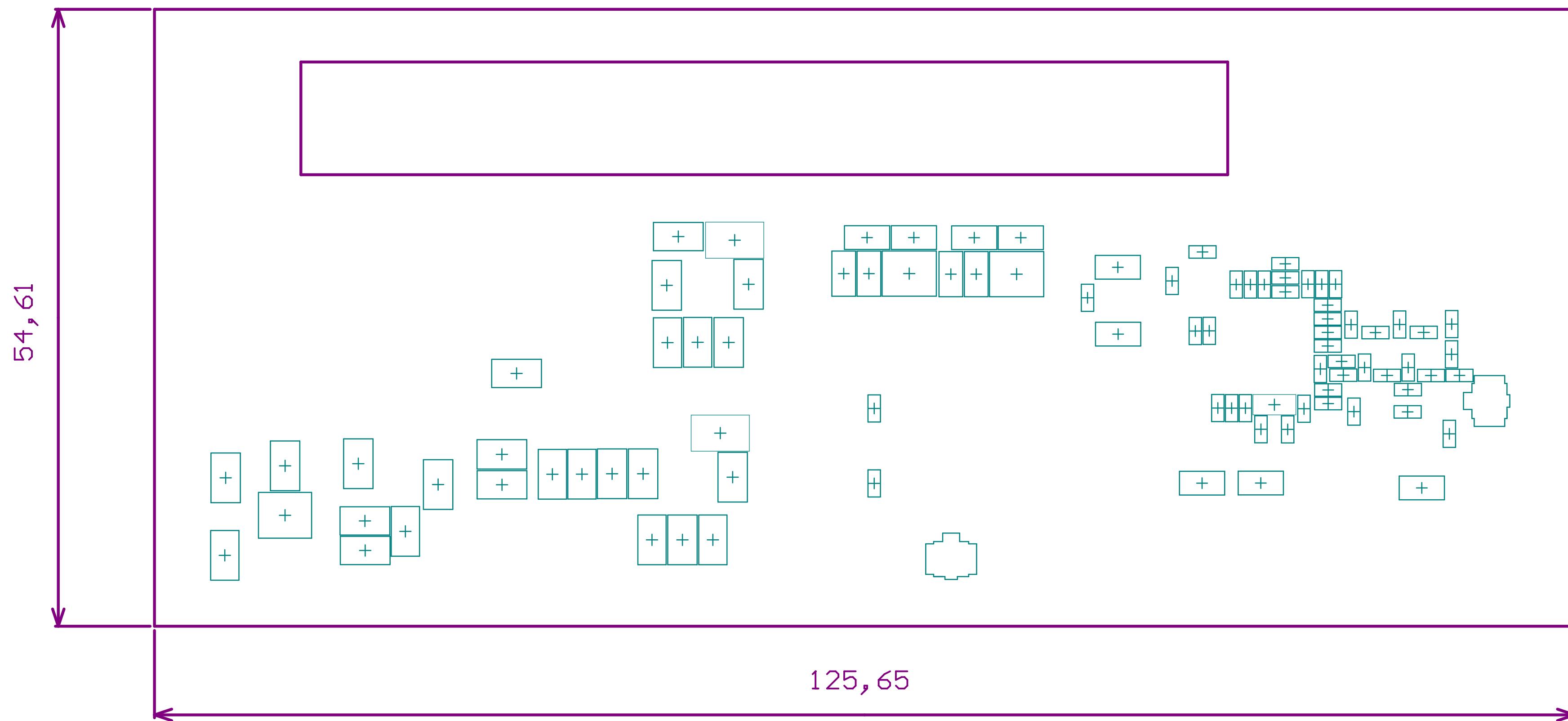


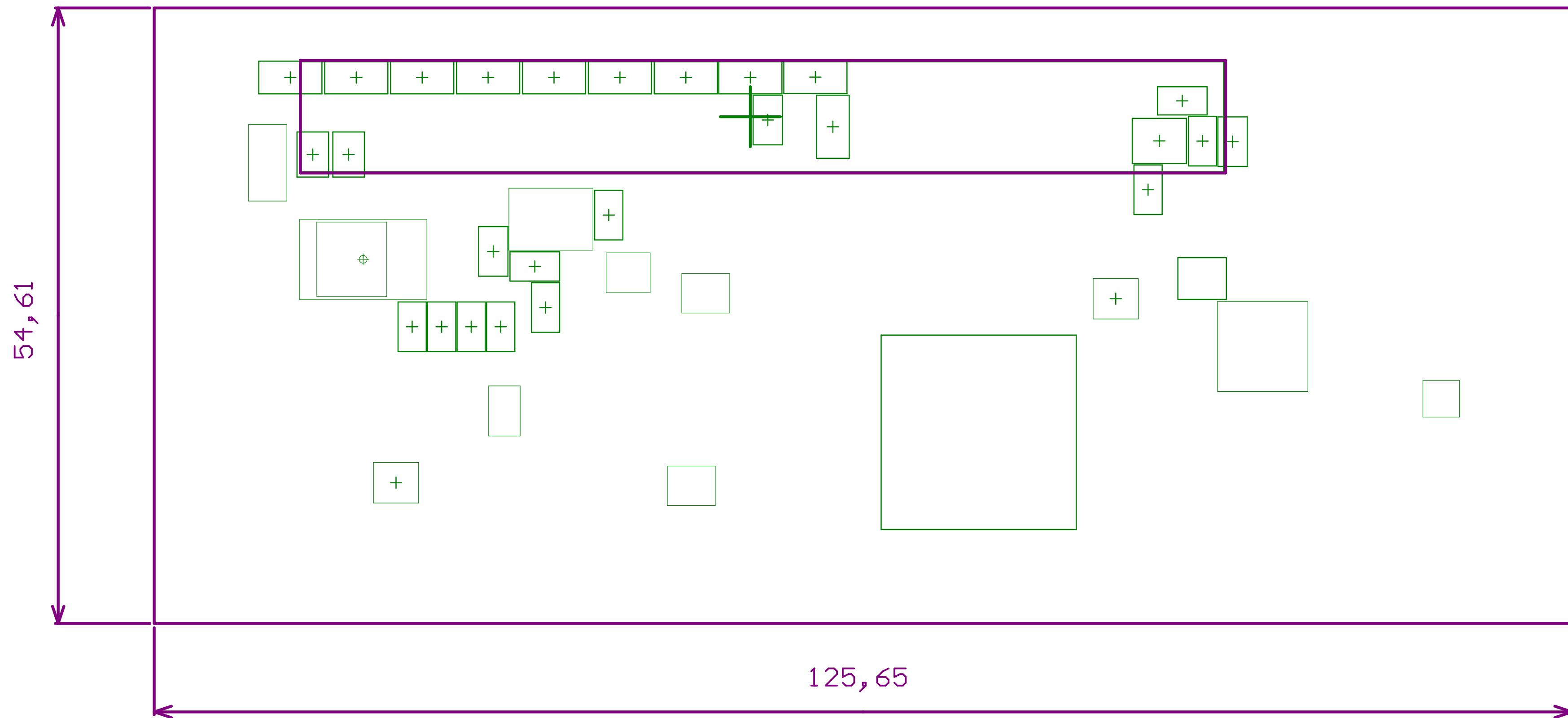


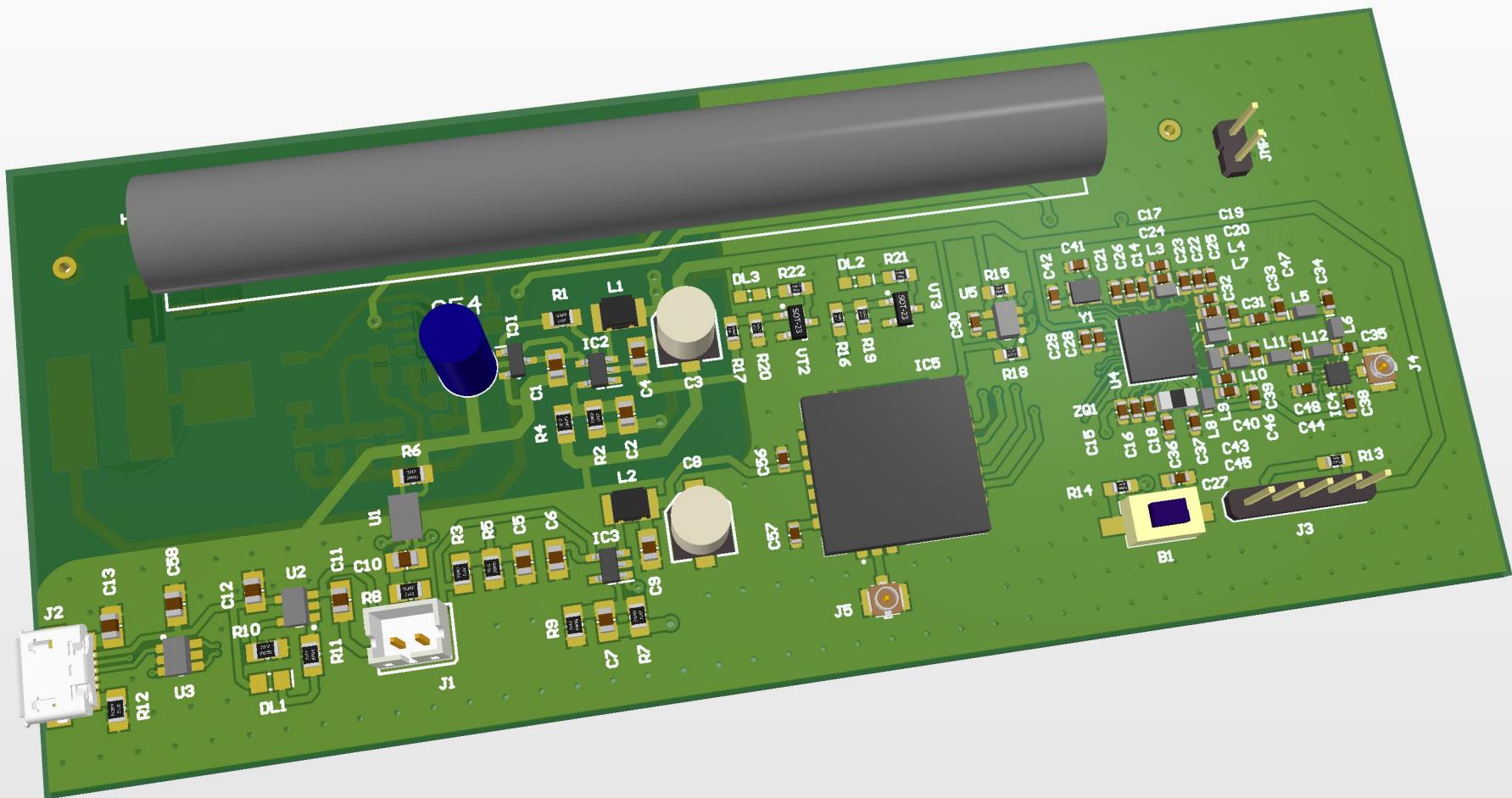


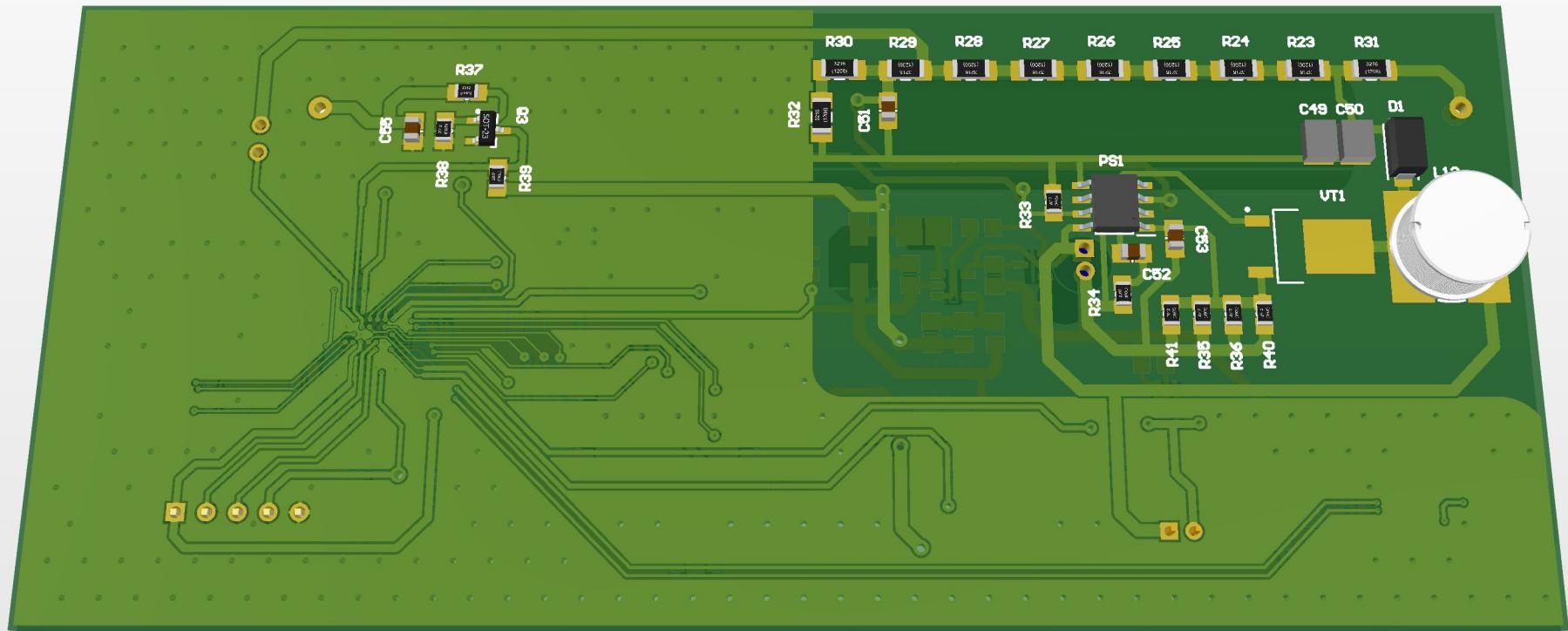














## Electrical Rules Check Report

Class	Document	Message
Warning	MCU_RF.SchDoc	3.3V contains IO Pin and Power Pin objects (Pin U5-4,Pin U4-A7,Pin U4-A8,Pin U4-D3,Pin U4-G4,Pin U4-H8)
Warning	MCU_RF.SchDoc	3.3V contains IO Pin and Unspecified Port objects (Pin U4-D3,Port 3.3V)
Warning	MCU_RF.SchDoc	3.3V contains Output Port and Unspecified Port objects (Port 3.3V,Port 3.3V,Port 3.3V,Port 3.3V)
Warning	Geiger_Pwr_LM3478.SchDoc	Floating Power Object GND at (900,380)
Warning	Geiger_Pwr_LM3478.SchDoc	Global Power-Object 3.3V at 9100mil,2600mil has been reduced to local level by presence of port at 9300mil,2600mil
Warning	Battery_Control.SchDoc	Global Power-Object 3.3V at 10700mil,6800mil has been reduced to local
Warning	MCU_RF.SchDoc	Global Power-Object 3.3V at 14200mil,6800mil has been reduced to local level by presence of port at 10800mil,6700mil
Warning	Battery_Control.SchDoc	Global Power-Object VDD at 7700mil,14200mil has been reduced to local level by presence of port at 7500mil,1800mil
Warning	Battery_Control.SchDoc	NetC7_2 contains Output Port and Unspecified Port objects (Port 1.8V,Port 1.8V)
Warning	Battery_Control.SchDoc	NetIC3_1 contains Input Port and Unspecified Port objects (Port EN_GPS,Port EN_GPS)
Warning	Geiger_Pwr_LM3478.SchDoc	NetJMP1_1 contains Input Port and Unspecified Port objects (Port ADC_400V,Port ADC_400V)
Warning	Geiger_Pwr_LM3478.SchDoc	NetJMP1_1 contains IO Pin and Power Pin objects (Pin U4-F3)
Warning	Battery_Control.SchDoc	Net NetC7_2 has no driving source (Pin C7-2,Pin C8-1,Pin C9-2,Pin C56-2,Pin IC5-20,Pin L2-2,Pin R7-2)
Warning	GPS.SchDoc	Net NetIC5_19 has no driving source (Pin IC5-19,Pin U4-F8)
Warning	MCU_RF.SchDoc	Net RESET has no driving source (Pin J3-4,Pin R13-1,Pin R14-2,Pin U4-B6)
Warning	MCU_RF.SchDoc	Net RFI_HF has no driving source (Pin L8-2,Pin U4-A1)
Warning	MCU_RF.SchDoc	NetU4_C4 contains IO Pin and Output Port objects (Port ADC_BAT)
Warning	MCU_RF.SchDoc	NetU4_C6 contains IO Pin and Unspecified Port objects (Port EN_GPS)
Warning	MCU_RF.SchDoc	NetU4_C7 contains IO Pin and Unspecified Port objects (Port WAKE)
Warning	MCU_RF.SchDoc	NetU4_E4 contains IO Pin and Unspecified Port objects (Port COUNTER)
Warning	MCU_RF.SchDoc	NetU4_E5 contains IO Pin and Unspecified Port objects (Port 1PPS)
Warning	MCU_RF.SchDoc	NetU4_E6 contains IO Pin and Unspecified Port objects (Port ACT_SLP)
Warning	MCU_RF.SchDoc	NetU4_E7 contains IO Pin and Unspecified Port objects (Port ON_OFF)
Warning	MCU_RF.SchDoc	NetU4_E8 contains IO Pin and Unspecified Port objects (Port STATUS)
Warning	MCU_RF.SchDoc	NetU4_F3 contains IO Pin and Input Port objects (Port ADC_400V)
Warning	MCU_RF.SchDoc	NetU4_F6 contains IO Pin and Unspecified Port objects (Port EN_400V)
Warning	MCU_RF.SchDoc	NetU4_F8 contains Input Pin and Unspecified Port objects (Port NRESET)
Warning	Geiger_Pwr_LM3478.SchDoc	Off grid Net Label FB at 2293.701mil,4200mil
Warning	MCU_RF.SchDoc	Off grid Port EN_400V at 2506.299mil,7500mil
Warning	Geiger_Pwr_LM3478.SchDoc	Off grid Port EN_400V at 3006.299mil,4600mil
Warning	MCU_RF.SchDoc	UART_RX contains IO Pin and Unspecified Port objects (Port GPS_RX)
Warning	MCU_RF.SchDoc	UART_TX contains IO Pin and Unspecified Port objects (Port GPS_TX)
Warning	MCU_RF.SchDoc	USB_N contains IO Pin and Output Port objects (Port USB-)
Warning	MCU_RF.SchDoc	USB_P contains IO Pin and Input Port objects (Port USB+)
Warning	Battery_Control.SchDoc	VDD contains Input Pin and Unspecified Port objects (Pin IC3-4,Pin IC2-4,Port BAT)
Warning	Geiger_Pwr_LM3478.SchDoc	VDD contains Input Port and Unspecified Port objects (Port BAT,Port BAT)

# Design Rules Verification Report

Filename : E:\My Projects\AD\ATSAMR34 v1.1\Lora\_Geiger\_PCB.PcbDoc

Warnings 0  
Rule Violations 1

Warnings	
Total	0
Rule Violations	
Clearance Constraint (Gap=0.1mm) (WithinRoom('BGA')),(All)	0
Clearance Constraint (Gap=0.25mm) (All),(IsPad and (not PadIsPlated) and OnMultiLayer)	0
Clearance Constraint (Gap=0.2mm) (All),(InPoly)	0
Clearance Constraint (Gap=0.15mm) (All),(All)	0
Clearance Constraint (Gap=2.5mm) (IsPad and OnMultiLayer and (Not PadIsPlated) and (not	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ( All) )	0
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.178mm) (Max=10.16mm) (Preferred=0.508mm)	0
Width Constraint (Min=0.1mm) (Max=10mm) (Preferred=0.254mm) (All)	0
Width Constraint (Min=0.178mm) (Max=0.254mm) (Preferred=0.254mm) (InComponent('IC4'))	0
Width Constraint (Min=0.254mm) (Max=0.508mm) (Preferred=0.381mm) (InComponent('U1'))	0
Width Constraint (Min=0.1mm) (Max=0.5mm) (Preferred=0.2mm) (TouchesRoom('BGA'))	0
Width Constraint (Min=0.1mm) (Max=0.2mm) (Preferred=0.1mm) (TouchesRoom('BGA'))	0
SMD To Corner (Distance=0.15mm) (All)	0
SMD Neck-Down Constraint (Percent=100%) (All)	0
SMD Entry (Side = Allowed) (Corner = Not Allowed) (Any Angle = Not Allowed) (Ignore Firs	0
Power Plane Connect Rule(Relief Connect )(Expansion=0.508mm) (Conductor	0
Width=0.254mm) Ring (Minimum=0.1mm) (Is Via)	0
Minimum Annular Ring (Minimum=0.2mm) (Is Via)	0
Hole Size Constraint (Min=0.2mm) (Max=10mm) (IsVia or (IsPad and OnMultiLayer and	0
Hole Size Constraint (Min=0.5mm) (Max=10mm) (IsPad and not PadIsPlated and OnMultiLayer)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.1mm) (All),(All)	0
Silk To Solder Mask (Clearance=0.05mm) (IsPad),(All)	1
Silk to Silk (Clearance=0.254mm) (All),(All)	0
Net Antennae (Tolerance=0mm) (not InAnyComponent)	0
Board Clearance Constraint (Gap=0mm) (OnCopper)	0
Room BGA (Bounding Region = (119.363mm, 92.693mm, 127.921mm, 101.251mm)	0
Height Constraint (Min=0mm) (Max=25.4mm) (Prefered=12.7mm) (All)	0
Total	1

## Silk To Solder Mask (Clearance=0.05mm) (IsPad),(All)

Silk To Solder Mask Clearance Constraint: (0.019mm < 0.05mm) Between Pad U1-7(56.818mm,91.306mm) on Top Layer