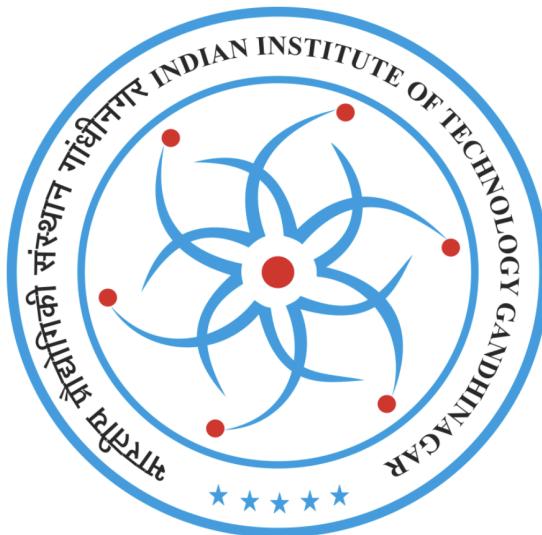


## EE 322: ANALOG & MIXED SIGNAL CIRCUITS

INDIAN INSTITUTE OF TECHNOLOGY, GANDHINAGAR



1st November, 2025

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# Project Report: PCB Design Submission

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Submitted by,

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Integrated Circuit Design and Technology

## Schematic Diagram:

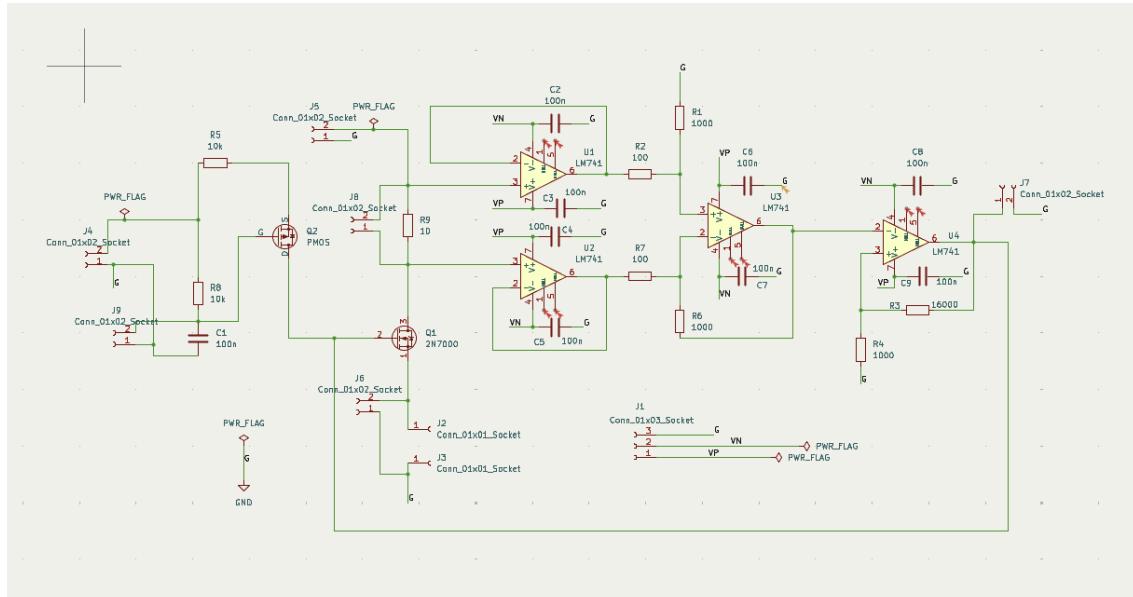


Figure 1 - Schematic Diagram of the Circuit

## Simulation:

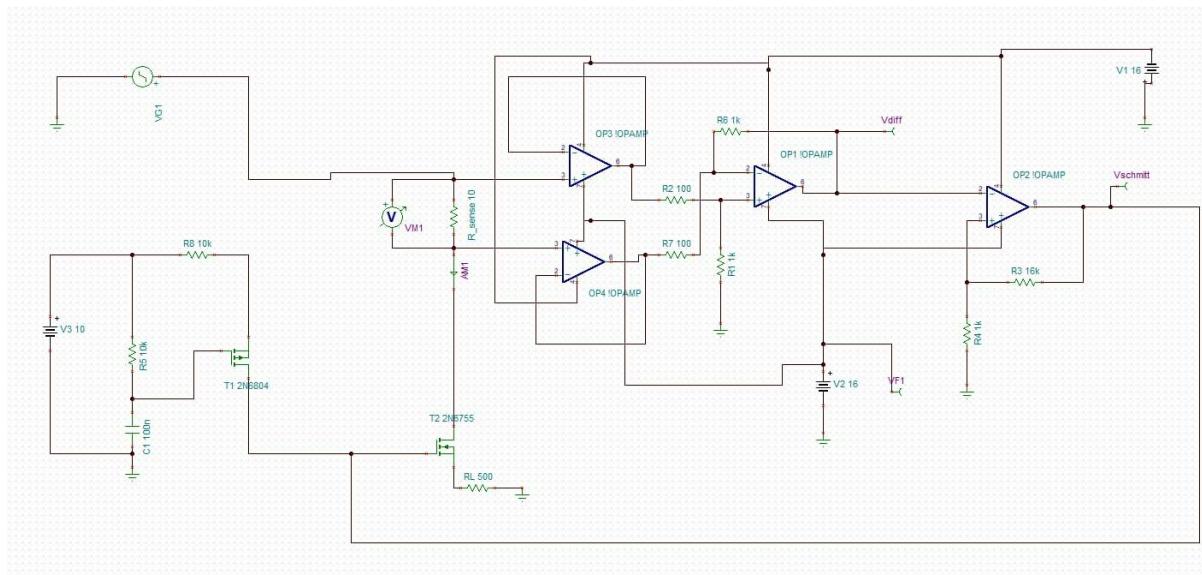


Figure 2 (a) - TINA Schematic

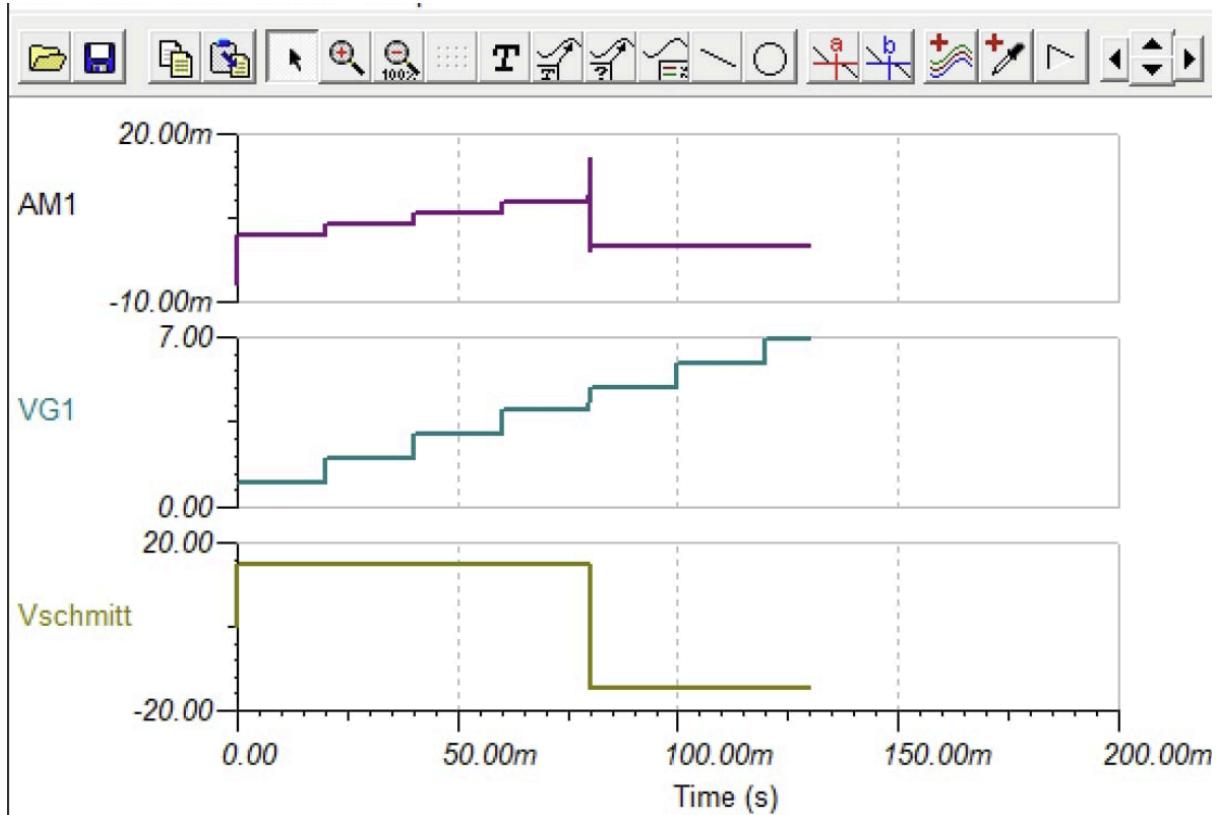
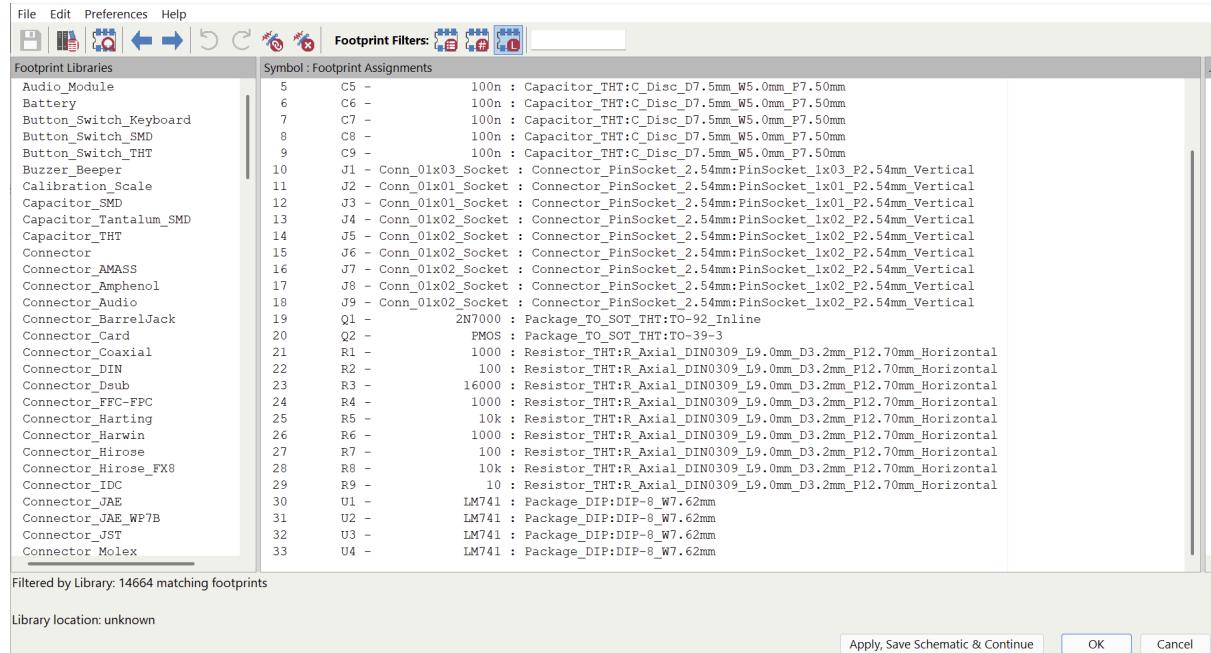


Fig 2 (b) - Simulation Results

## Footprints:

Symbol : Footprint Assignments		
1	C1 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
2	C2 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
3	C3 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
4	C4 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
5	C5 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
6	C6 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
7	C7 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
8	C8 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
9	C9 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
10	J1 - Conn_01x03_Socket	Connector_PinSocket_2.54mm:PinSocket_1x03_P2.54mm_Vertical
11	J2 - Conn_01x01_Socket	Connector_PinSocket_2.54mm:PinSocket_1x01_P2.54mm_Vertical
12	J3 - Conn_01x01_Socket	Connector_PinSocket_2.54mm:PinSocket_1x01_P2.54mm_Vertical
13	J4 - Conn_01x02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
14	J5 - Conn_01x02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
15	J6 - Conn_01x02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
16	J7 - Conn_01x02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
17	J8 - Conn_01x02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
18	J9 - Conn_01x02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
19	Q1 -	2N7000 : Package_TO_SOT_THT:TO-92_Inline
20	Q2 -	PMOS : Package_TO_SOT_THT:TO-39-3
21	R1 -	1000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
22	R2 -	100 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
23	R3 -	16000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
24	R4 -	1000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
25	R5 -	10k : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
26	R6 -	1000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
27	R7 -	100 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
28	R8 -	10k : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
29	R9 -	10 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
30	U1 -	LM741 : Package_DIP:DIP-8_W7.62mm

Figure 3 (a) - Footprint Assignment table



File Edit Preferences Help

Footprint Filters:

Symbol : Footprint Assignments

Symbol	Footprint	Description
5	C5 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
6	C6 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
7	C7 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
8	C8 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
9	C9 -	100n : Capacitor_THT:C_Disc_D7.5mm_W5.0mm_P7.50mm
10	J1 - Conn_0lx03_Socket	Connector_PinSocket_2.54mm:PinSocket_1x03_P2.54mm_Vertical
11	J2 - Conn_0lx01_Socket	Connector_PinSocket_2.54mm:PinSocket_1x01_P2.54mm_Vertical
12	J3 - Conn_0lx01_Socket	Connector_PinSocket_2.54mm:PinSocket_1x01_P2.54mm_Vertical
13	J4 - Conn_0lx02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
14	J5 - Conn_0lx02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
15	J6 - Conn_0lx02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
16	J7 - Conn_0lx02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
17	J8 - Conn_0lx02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
18	J9 - Conn_0lx02_Socket	Connector_PinSocket_2.54mm:PinSocket_1x02_P2.54mm_Vertical
19	Q1 - 2N7000	Package_TO_SOT_THT:TO-92_Inline
20	Q2 -	PMOS : Package_TO_SOT_THT:TO-39-3
21	R1 -	1000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
22	R2 -	100 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
23	R3 -	16000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
24	R4 -	1000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
25	R5 -	10k : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
26	R6 -	1000 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
27	R7 -	100 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
28	R8 -	10k : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
29	R9 -	10 : Resistor_THT:R_Axial_DIN0309_L9.0mm_D3.2mm_P12.70mm_Horizontal
30	U1 -	LM741 : Package_DIP:DIP-8_W7.62mm
31	U2 -	LM741 : Package_DIP:DIP-8_W7.62mm
32	U3 -	LM741 : Package_DIP:DIP-8_W7.62mm
33	U4 -	LM741 : Package_DIP:DIP-8_W7.62mm

Filtered by Library: 14664 matching footprints

Library location: unknown

Apply, Save Schematic & Continue    OK    Cancel

Figure 3 (b) - Footprint Assignment table

## Electrical Rules Checker:

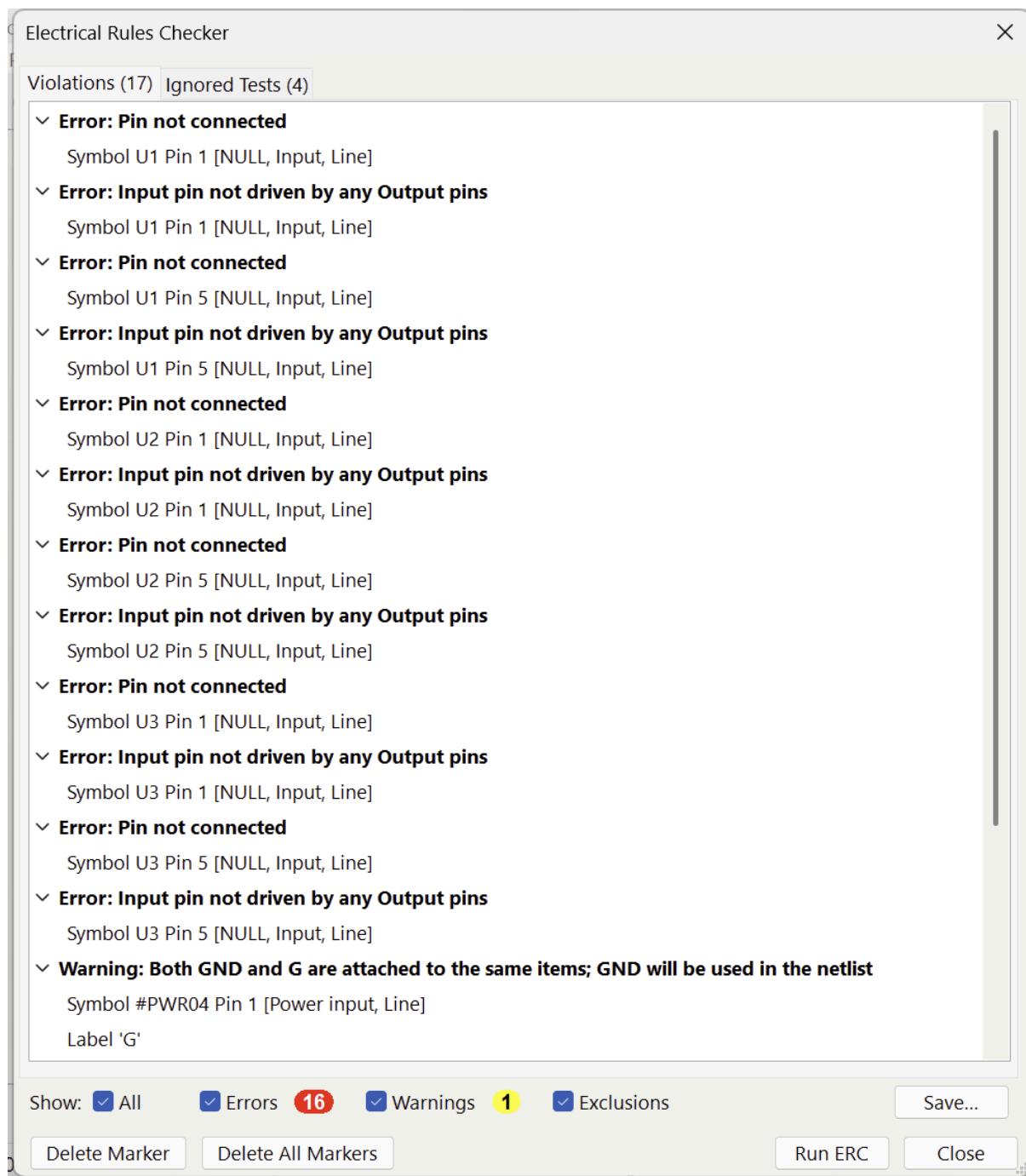


Figure 4 (a) - Electrical Rules Checker

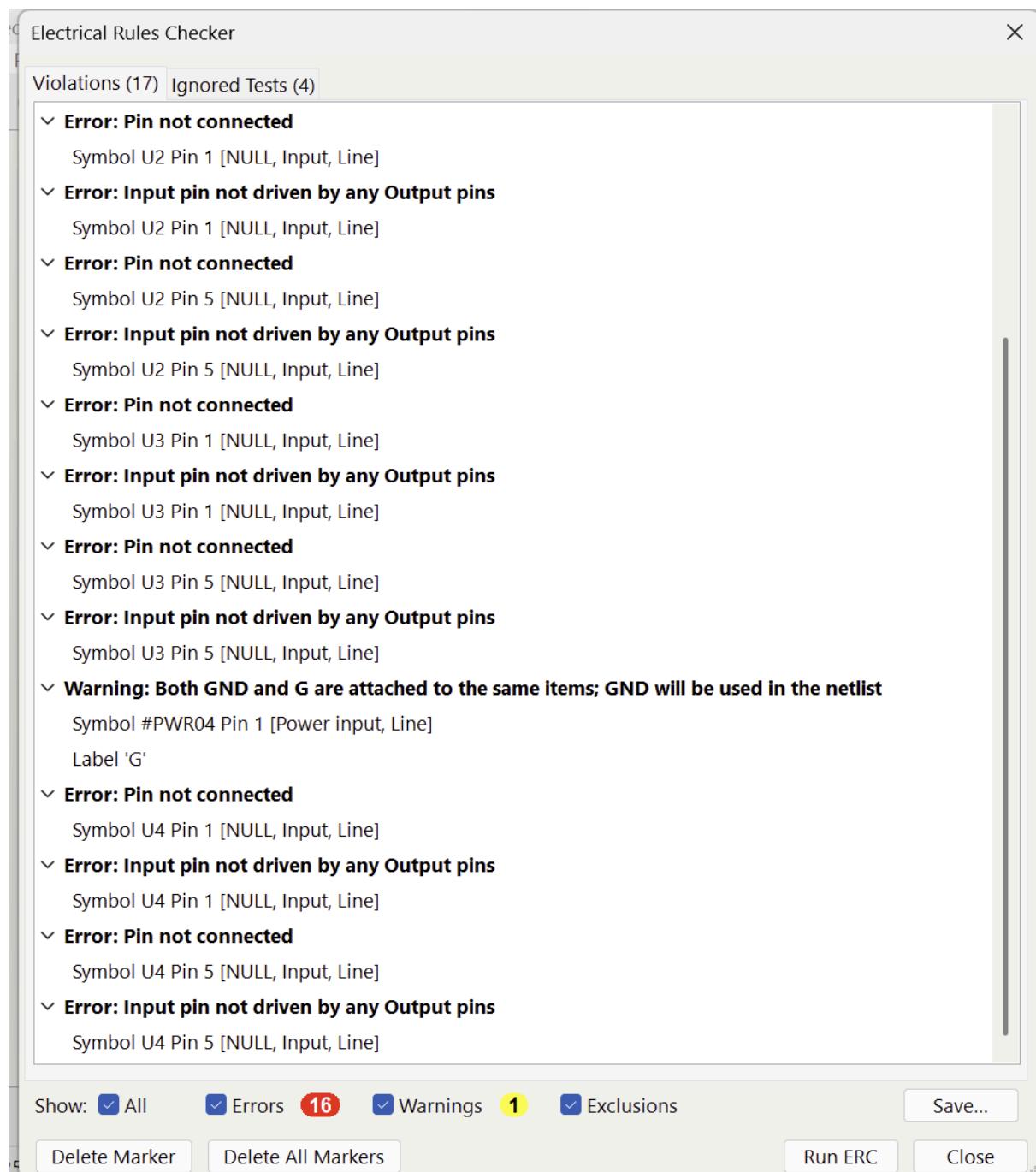


Figure 4 (b) - Electrical Rules Checker

## Layout Screenshot:

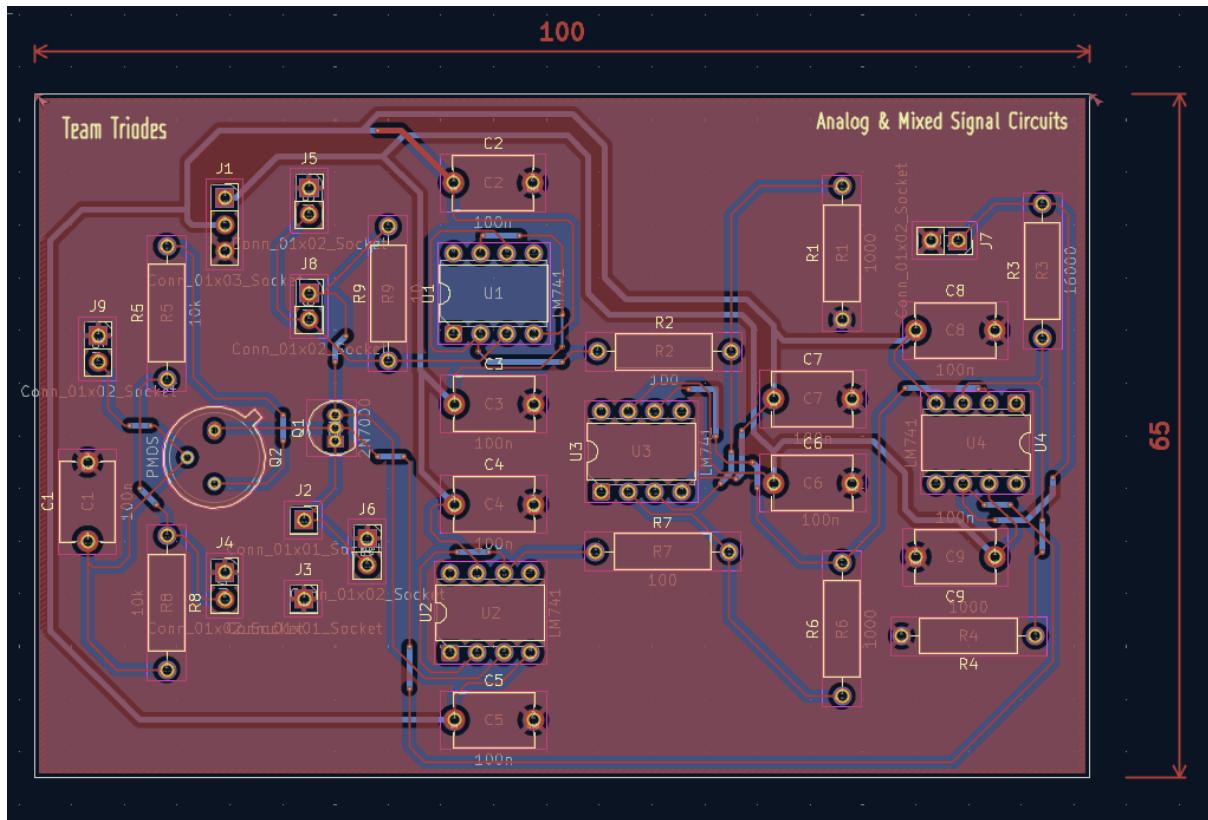


Figure 5 - PCB Layout

The size of the layout is 100 mm x 65 mm.

## Design Rules Checker:

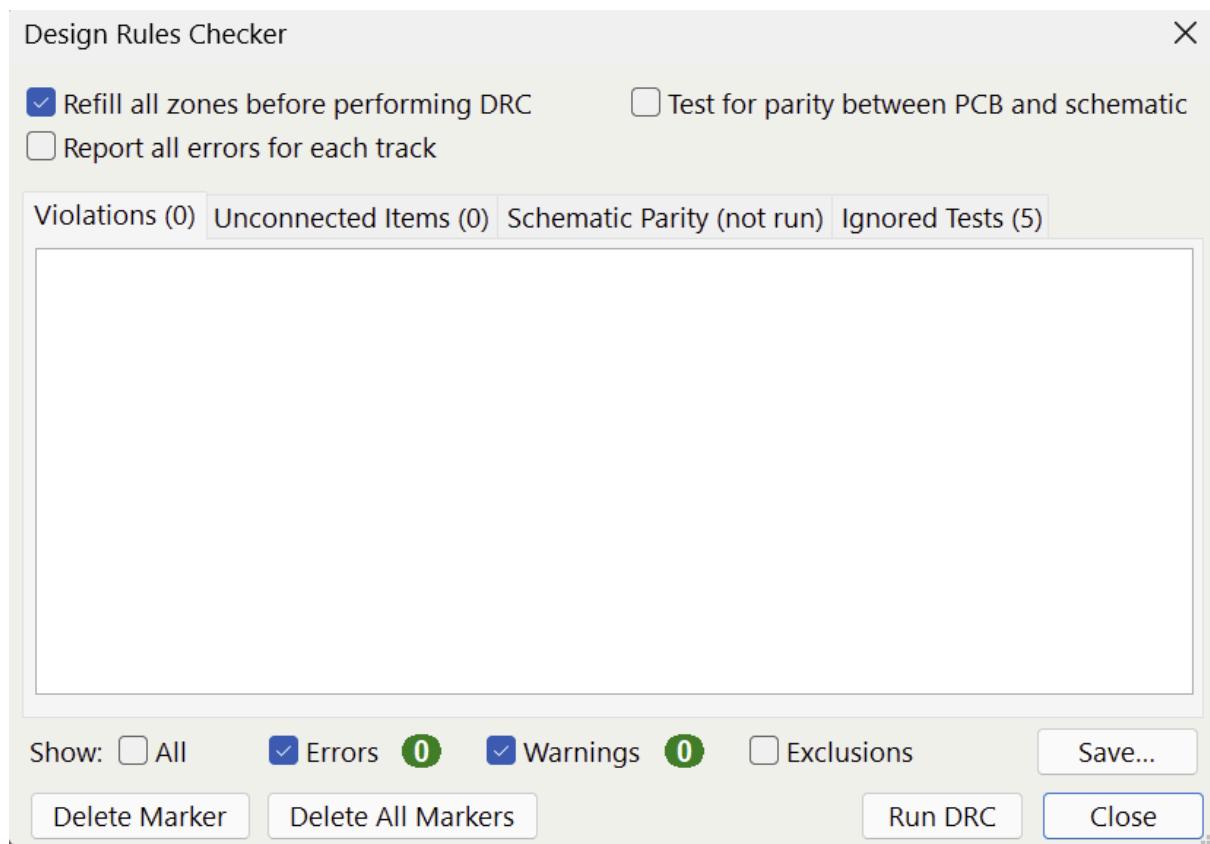


Figure 6 - Design Rules Checker

### 3D rendering:

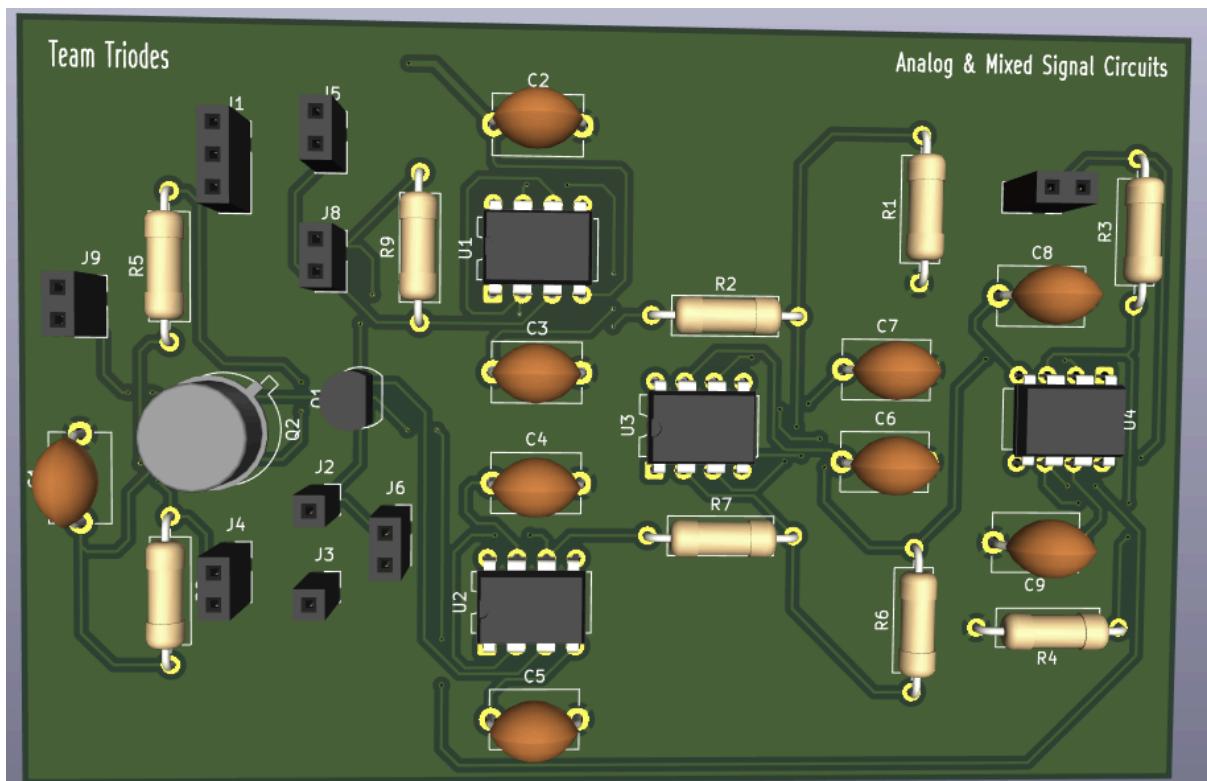


Figure 7 (a) - 3D View

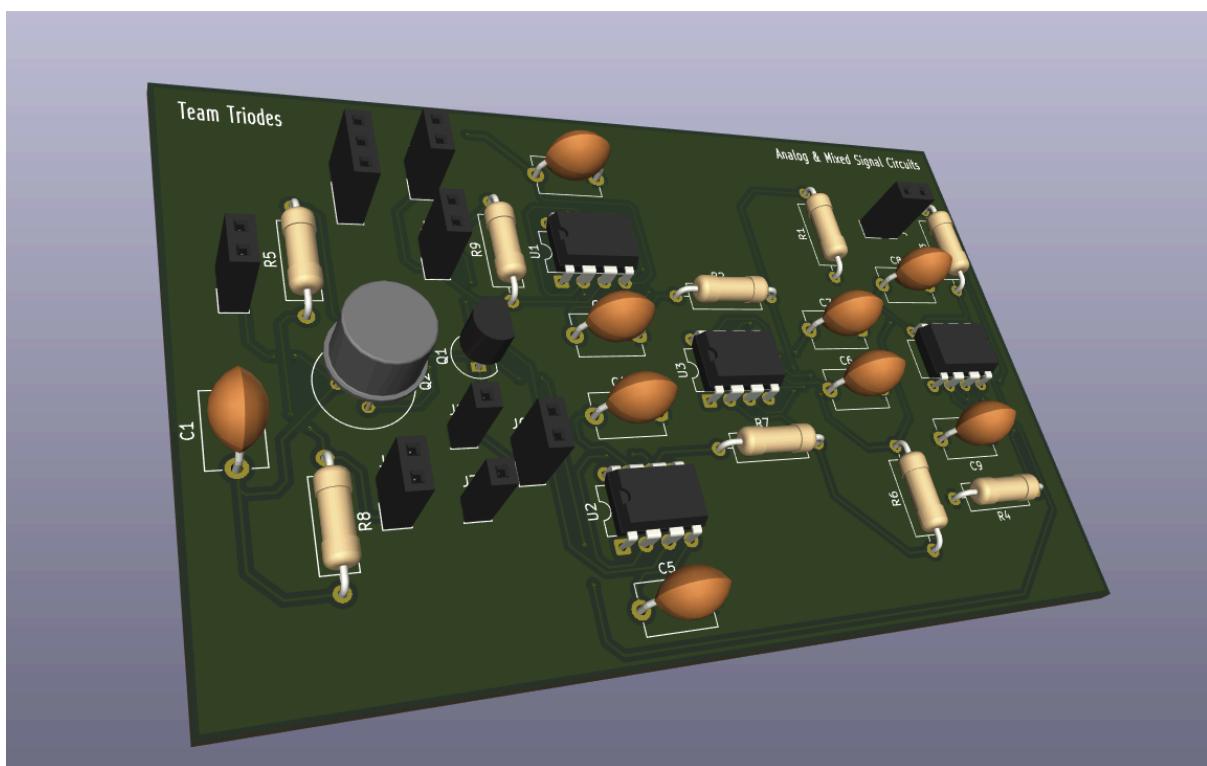


Figure 7 (b) - 3D View

## Gerber Files Screenshot

project_3-B_Mask.gbr	02-11-2025 16:16	GBR File	5 KB
project_3-B_Paste.gbr	02-11-2025 16:16	GBR File	1 KB
project_3-SilkS.gbr	02-11-2025 16:16	GBR File	1 KB
project_3-Back.gbr	02-11-2025 16:16	GBR File	192 KB
project_3-Edge_Cuts.gbr	02-11-2025 16:16	GBR File	1 KB
project_3-F_Mask.gbr	02-11-2025 16:16	GBR File	5 KB
project_3-F_Paste.gbr	02-11-2025 16:16	GBR File	1 KB
project_3-F_SilkS.gbr	02-11-2025 16:16	GBR File	68 KB
project_3-Front.gbr	02-11-2025 16:16	GBR File	186 KB
project_3-job.gbrjob	02-11-2025 16:16	GBRJOB File	3 KB
project_3-NPTH.drl	02-11-2025 16:17	DRL File	1 KB
project_3-PTH.drl	02-11-2025 16:17	DRL File	3 KB

Fig. 8 - Gerber Files Screenshot

## Zip Gerber files uploaded on the lioncircuits.com:

Your Instant Quotation Process Made Easy!

Our Streamlined Process Ensures Instant, Accurate Quotations For Your Project.

Project Name\*

Project Description

File Format : Zip  
 Size Limit : 50MB or less  
[Sample File Download](#)

Your File Is Secure And Confidential.

Base Material

Layers

Dimensions  x  mm

Quantity

Discrete Design

Delivery Format

PCB Thickness (mm)

Mask Color

PCB Finish

Copper Thickness

**Charge Details**

Make In India

**Price Estimate**

Per Unit Cost	₹250.20 × 5
NRE Cost	₹0
Sub Total	₹1251

**Build Time**

<input checked="" type="radio"/> 5-6 Days	<input type="radio"/> 4-5 Days
---	--------------------------------

**Shipping Method**

<input checked="" type="radio"/> DTDC Standard 2-3 Working Days	<input type="radio"/> DTDC Plus 1-2 Working Days
--	---

New Sub Total ₹1251

GST ₹225

Shipping Cost ₹0

Total Cost ₹1476

Figure 9 - zip Gerber file uploaded on [lioncircuits.com](https://lioncircuits.com)

Price in INR: Rs. 1476 for 5 units.