

PCB DESIGN RULES FOR FABRICATION AT THE DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING, UNIVERSITY OF PERADENIYA

(Last updated on 17th of March 2021)

1. Maximum board size: 9.5"x7.5"

2. Track widths/spacing

Minimum track width and spacing¹: 0.1 mm

Although above is the minimum, we recommend to work with the 10 mil (0.25 mm) limit to keep a safe margin. This is quite satisfactory for most PCBs.

3. Vias:

Drill diameter used for vias is 0.9 mm. This results in vias with an internal diameter of 0.6 mm.

Note: Vias with internal diameters 0.4mm, 0.8mm, 1.0mm, 1.2mm, 1.5mm and 2.6mm can be fabricated if consumables and a relevant accessories to the rivet machine are provided.

4. Hole sizes:

The available drill sizes are given in the table below. However, any other hole-size can be accommodated if the required spiral drills compatible to our PCB milling machine are provided.

Tool	Size
Spiral Drill	0.32 mm
Spiral Drill	0.5mm
Spiral Drill	0.7 mm
Spiral Drill	0.9 mm
Spiral Drill	1 mm
Spiral Drill	1.5 mm
Spiral Drill	1.6 mm
Spiral Drill	2 mm
Spiral Drill	2.95 mm
Spiral Drill	3.1 mm
Spiral Drill (imperial)	1/8 inch (3.175 mm)

Table1. Available drill sizes.

5. Pad to hole diameter

This is a critical parameter when it comes to through-hole pads. Minimum pad/hole ratio should be 1.8 (2.0 is recommended) or leave at least there should be 0.5 mm difference between inner and outer radii of the pad.

¹ Here spacing refers to line-line, line-via, via-via etc.

6. Minimum border

The minimum distance between circuit features (holes, traces, vias etc.) and the board out line should be not less than 5 mm.

7. Board details:

We use 1.6 mm thick ½ oz. copper clad FR4 boards for general purpose work. For microwave work we use 30 mil thick, ½ oz. copper clad NX320 boards from Neltec. Other board types can be considered if provided.

8. Board finish

- We usually fabricate single sided and double sided PCBs. However, multi-layer boards can also be fabricated if consumables are provided.
- General purpose boards are finished with solder mask and silk screen with lead applied for copper pads. Microwave boards can be coated with gold upon request.

9. What are the files you need to submit for fabrication?

Copy all required files to a folder, compress and submit for fabrication.

Single side PCBs:

- Top copper (gerber)
- Top mask (gerber)
- Top silk (gerber)
- Board outline (gerber)
- Drill file

Double side PCBs:

- Top copper (gerber)
- Top mask (gerber)
- Top silk (gerber)
- Bottom copper (gerber)
- Bottom mask (gerber)
- Bottom silk (gerber). This is optional.
- Drill file.