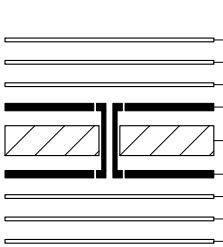
# Module Fabrication Document

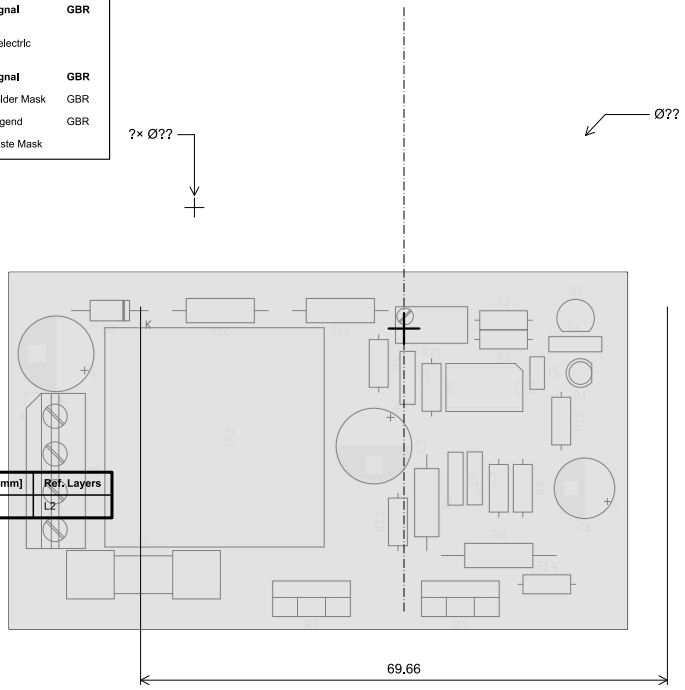
## Layer Stack Legend



| Material | Layer | Thickness | Dielectric | Type | Gerber |
|---|---|---|---|---|---|
| | F.Paste | | | Paste Mask | |
| | F.Silkscreen | | Direct Printing | Legend | GBR |
| | F.Mask | 0.02mm | Solder Resist | Solder Mask | GBR |
| **Copper** | **L1 (Sig, PWR)** | **0.07mm (2.00oz)** | | **Signal** | **GBR** |
| Core | | 1.48mm | FR4_7628 | Dielectric | |
| **Copper** | **L6 (Sig, PWR)** | **0.07mm (2.00oz)** | | **Signal** | **GBR** |
| | B.Mask | 0.02mm | Solder Resist | Solder Mask | GBR |
| | B.Silkscreen | | Direct Printing | Legend | GBR |
| | B.Paste | | | Paste Mask | |

Total thickness: 1.66mm
Note: external layer thicknesses are specified after plating

## Top Fabrication (Scale 1:1)




## Impedance Table

| Transmission Line | Impedance [ohms] | Tolerance [ohms] | Layer | Trace Width [mm] | Gap [mm] | Ref. Layers |
|---|---|---|---|---|---|---|
| Edge-Coupled Coated Microstrip | 100 | ±10 % | L1 | 0.2032 | 0.28 | L2 |

FABRICATION NOTES (UNLESS OTHERWISE SPECIFIED)

1) FABRICATE PER IPC-6012A CLASS 2.

2) OUTLINE DEFINED IN SEPARATE GERBER FILE WITH "Edge_Cuts.GBR" SUFFIX.

   DIMENSIONS OF CIRCUMSIZED RECTANGLE SHOWN ON THIS DRAWING FOR REFERENCE ONLY.

3) SEE SEPARATE DRILL FILES WITH ".DRL" SUFFIX FOR HOLE LOCATIONS.

   SELECTED HOLE LOCATIONS SHOWN ON THIS DRAWING FOR REFERENCE ONLY.

4) SURFACE FINISH: IMMERSION GOLD

5) SOLDERMASK ON BOTH SIDES OF THE BOARD SHALL BE LPI, COLOR GREEN.

6) SILK SCREEN LEGEND TO BE APPLIED PER LAYER STACKUP USING WHITE NON-CONDUCTIVE EPOXY INK.

7) ALL VIAS ARE TENTED ON BOTH SIDES UNLESS SOLDERMASK OPENED IN GERBER.

8) VENDOR SHOULD FOLLOW ROHS COMPLIANT PROCESS AND Pb FREE FOR MANUFACTURING

9) PCB MATERIAL REQUIREMENTS:

   A. FLAMMABILITY RATING MUST MEET OR EXCEED UL94V-0 REQUIREMENTS.
   B. Tg 170 C OR EQUIVALENT.
   C. EQUIVALENT MATERIAL SHALL BE RoHS COMPLIANT, HALOGEN FREE AND APPROVED BY FR.

10) DESIGN GEOMETRY MINIMUM FEATURE SIZES:

| | |
|---|---|
| BOARD SIZE | 81.800 × 47.200 mm |
| BOARD THICKNESS | 1.660 mm |
| TRACE WIDTH | 1.000 mm |
| TRACE TO TRACE | 0.200 mm |
| MIN. HOLE (PTH) | 0.800 mm |
| MIN. HOLE (NPTH) | N/A mm |
| ANNULAR RING | 0.320 mm |
| COPPER TO HOLE | 0.254 mm |
| COPPER TO EDGE | 0.250 mm |
| HOLE TO HOLE | 0.254 mm |

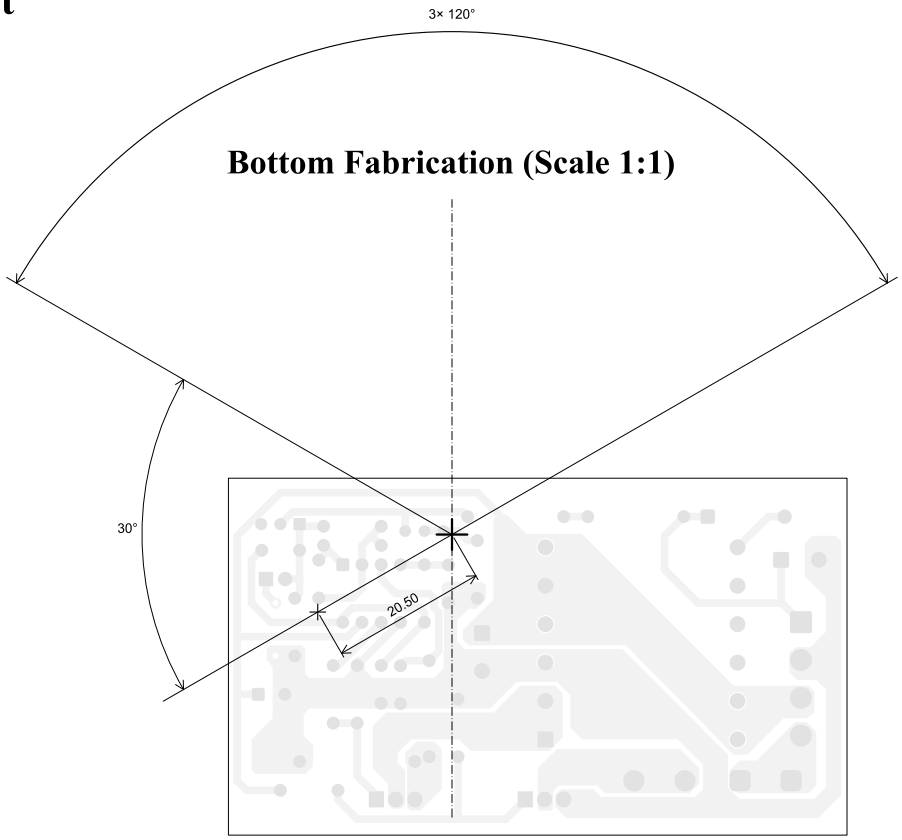
11) REFER TO IMPEDANCE TABLE FOR IMPEDANCE CONTROL REQUIREMENTS.

12) CONFIRM SPACE WIDTHS AND SPACINGS.

All dimensions are in millimeters unless otherwise specified.

| | | | | |
|---|---|---|---|---|
| Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | Board Name: **Module** | | Project Name: **Alixp Step up module 12 to 450 V** | |
| Sheet Title: Top Fabrication (Scale 1:1) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| Sheet Path: | | Reviewer: | Size: **A4** | Sheet: **1** of **7** |

# Module Fabrication Document




## Bottom Fabrication (Scale 1:1)

All dimensions are in millimeters unless otherwise specified.

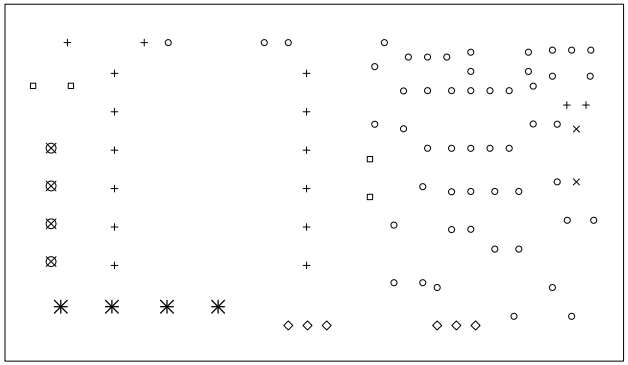
| | | | | | |
|---|---|---|---|---|---|
| | Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | | Board Name: **Module** | | Project Name: **Alixp Step up module 12 to 450 V** | |
| | Sheet Title: Bottom Fabrication (Scale 1:1) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: **A4** | Sheet: **2** of **7** |

# Module Fabrication Document

## Drill Table

| Symbol | Count | Hole Size | Plated | Hole Shape | Drill Layer Pair | Hole Type |
|---|---|---|---|---|---|---|
| × | 2 | 0.80mm (31.50mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Via |
| ○ | 52 | 0.80mm (31.50mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Pad |
| + | 16 | 0.90mm (35.43mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Pad |
| □ | 4 | 1.00mm (39.37mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Pad |
| ◇ | 6 | 1.20mm (47.24mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Pad |
| ⊠ | 4 | 1.30mm (51.18mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Pad |
| ✳ | 4 | 1.70mm (66.93mils) | PTH | Round | L1 (Sig, PWR) - L6 (Sig, PWR) | Pad |
| | Total 88 | | | | | |

## Drill Drawing L1 - L2 (Scale 1:1)



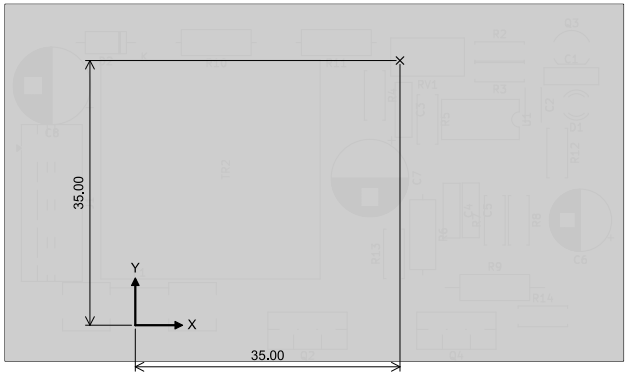
| | | | | | |
|---|---|---|---|---|---|
| | Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | | Board Name: Module | | Project Name: Alixp Step up module 12 to 450 V | |
| | Sheet Title: Drill Drawing (L1 - L2) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: A4 | Sheet: 3 of 7 |

# Module Fabrication Document

## Top Test Points (Scale 1:1)

| Ref. | Net | X [mm] | Y [mm] |
|---|---|---|---|

| Ref. | Net | X [mm] | Y [mm] |
|---|---|---|---|



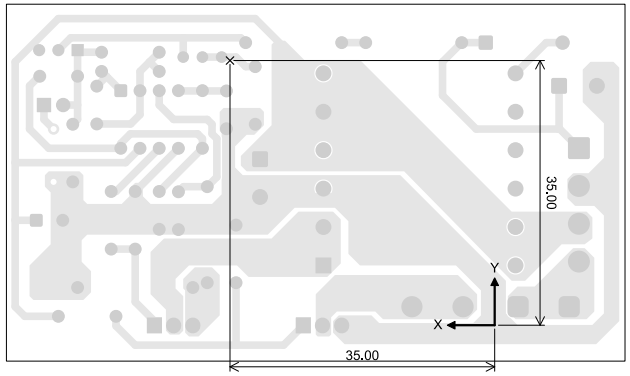

All dimensions are in millimeters unless otherwise specified.

| | | | | | |
|---|---|---|---|---|---|
| | Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | | Board Name: **Module** | | Project Name: **Alixp Step up module 12 to 450 V** | |
| | Sheet Title: Top Test Points (Scale 1:1) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: **A4** | Sheet: **4** of **7** |

# Module Fabrication Document

## Bottom Test Points (Scale 1:1)

| Ref. | Net | X [mm] | Y [mm] |
|---|---|---|---|

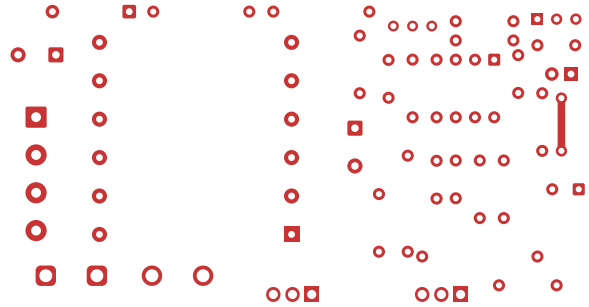



All dimensions are in millimeters unless otherwise specified.

| | | | | | |
|---|---|---|---|---|---|
| | Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | | Board Name: **Module** | | Project Name: **Alixp Step up module 12 to 450 V** | |
| | Sheet Title: Bottom Test Points (Scale 1:1) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: **A4** | Sheet: **5** of **7** |

# Module Fabrication Document

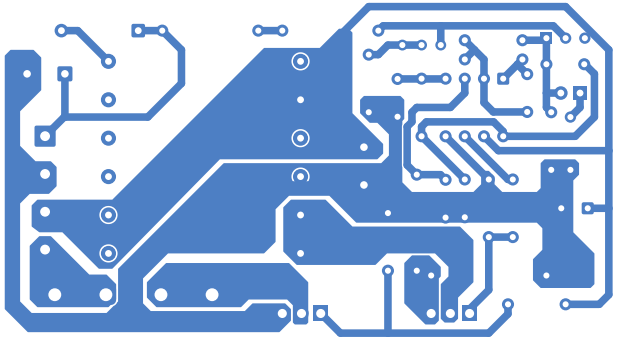
## L1 (Sig, PWR) (Scale 1:1)



| | | | | | |
|---|---|---|---|---|---|
| | Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | | Board Name: **Module** | | Project Name: **Alixp Step up module 12 to 450 V** | |
| | Sheet Title: L1 (Sig, PWR) (Scale 1:1) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: **A4** | Sheet: **6** of **7** |

# Module Fabrication Document

## L6 (Sig, PWR) (Scale 1:1)



| | | | | | |
|---|---|---|---|---|---|
| | Comments: | Company: FR | | Variant: PRELIMINARY | Git Hash: f6c51b0 |
| | | Board Name: **Module** | | Project Name: **Alixp Step up module 12 to 450 V** | |
| | Sheet Title: L6 (Sig, PWR) (Scale 1:1) | File Name: StepUp_module_12to450V.kicad_pcb | Designer: FR | Date: 2024-04-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: **A4** | Sheet: **7** of **7** |