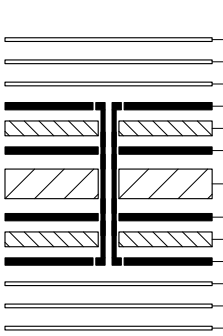
Balanced Solar Charger Fabrication Document

Layer Stack Legend



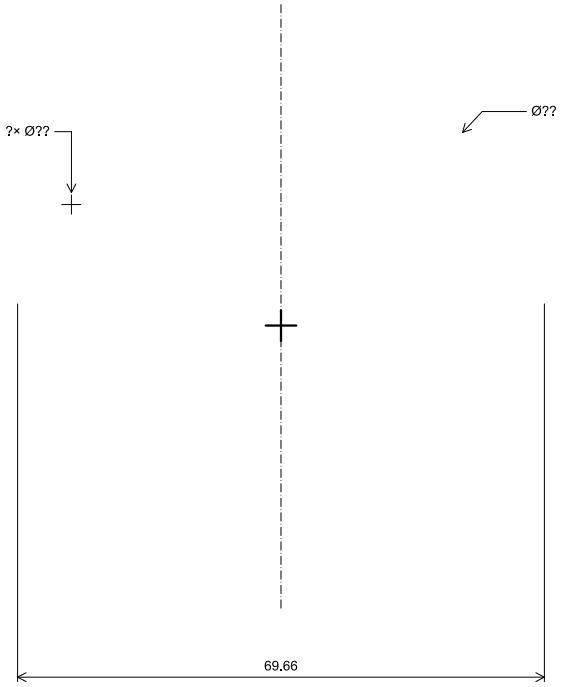
Material	Layer	Thickness	Dielectric	Type	Gerber
	F.Paste			Paste Mask	
	F.Silkscreen		Direct Printing	Legend	GBR
	F.Mask	0.02mm	Solder Resist	Solder Mask	GBR
Copper	**L1 (Sig, PWR)**	**0.07mm (2.00oz)**		**Signal**	**GBR**
Prepreg		0.1mm	FR4_7628	Dielectric	
Copper	**L2 (GND)**	**0.035mm (1.00oz)**		**Plane**	**GBR**
Core		1.21mm	FR4	Dielectric	
Copper	**L3 (GND)**	**0.035mm (1.00oz)**		**Plane**	**GBR**
Prepreg		0.1mm	FR4_7628	Dielectric	
Copper	**L4 (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

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

Top Fabrication (Scale 1:1)



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 BLACK.

6) SILK SCREEN LEGEND TO BE APPLIED PER LAYER STACKUP USING YELLOW 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:

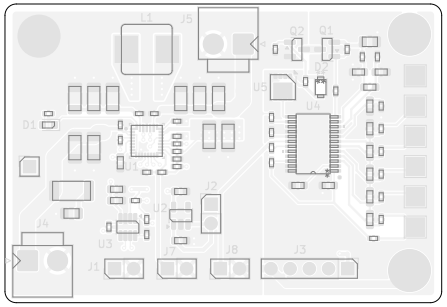
   A. FLAMMABILITY RATING MUST MEET OR EXCEED UL94V-0 REQUIREMENTS.
   B. Tg 170 C OR EQUIVALENT.
   C. EQUIVALENT MATERIAL SHALL BE RoHS COMPLIANT, HALOGEN FREE AND APPROVED BY ELECTRONIC-HANDYMAN.

10) DESIGN GEOMETRY MINIMUM FEATURE SIZES:

BOARD SIZE	57.750 × 39.500 mm
BOARD THICKNESS	1.660 mm
TRACE WIDTH	0.160 mm
TRACE TO TRACE	0.150 mm
MIN. HOLE (PTH)	0.300 mm
MIN. HOLE (NPTH)	N/A mm
ANNULAR RING	0.125 mm
COPPER TO HOLE	0.254 mm
COPPER TO EDGE	1.000 mm
HOLE TO HOLE	0.254 mm

11) REFER TO IMPEDANCE TABLE FOR IMPEDANCE CONTROL REQUIREMENTS.

12) CONFIRM SPACE WIDTHS AND SPACINGS.

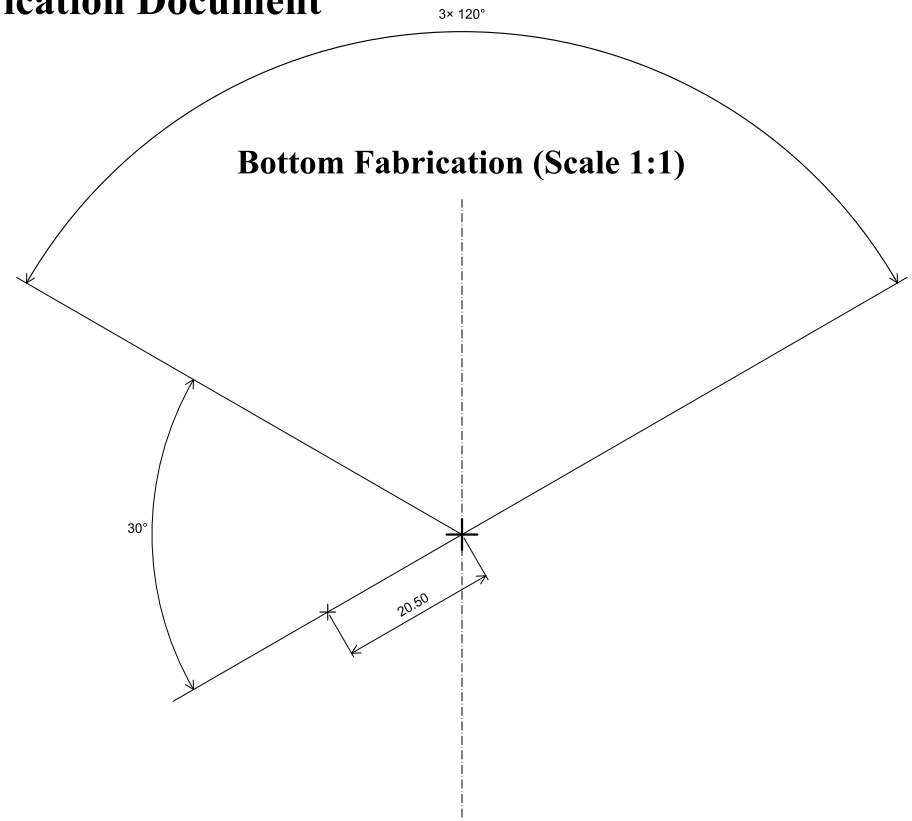


All dimensions are in millimeters unless otherwise specified.

Comments:	Company: **Electronic-Handyman**		Variant: PRELIMINARY	Git Hash: 4114864
	Board Name: **Balanced Solar Charger**		Project Name: **LiPo Battery Charger with CI/CD**	
Sheet Title: Top Fabrication (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
Sheet Path:		Reviewer:	Size: **A4**	Sheet: **1** of **9**

Balanced Solar Charger Fabrication Document

Bottom Fabrication (Scale 1:1)



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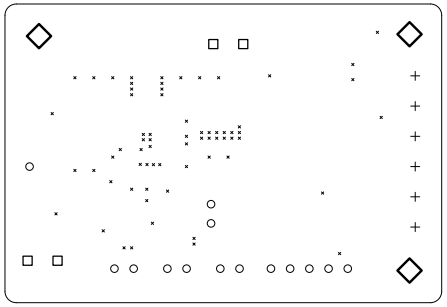
	Comments:	Company: Electronic-Handyman		Variant: PRELIMINARY	Git Hash: 4114864
		Board Name: Balanced Solar Charger		Project Name: LiPo Battery Charger with CI/CD	
	Sheet Title: Bottom Fabrication (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
	Sheet Path:		Reviewer:	Size: A4	Sheet: 2 of 9

Balanced Solar Charger Fabrication Document

Drill Table

Symbol	Count	Hole Size	Plated	Hole Shape	Drill Layer Pair	Hole Type
×	67	0.30mm (11.81mils)	PTH	Round	L1 (Sig, PWR) - L4 (Sig, PWR)	Via
○	14	1.00mm (39.37mils)	PTH	Round	L1 (Sig, PWR) - L4 (Sig, PWR)	Pad
+	6	1.20mm (47.24mils)	PTH	Round	L1 (Sig, PWR) - L4 (Sig, PWR)	Pad
□	4	1.70mm (66.93mils)	PTH	Round	L1 (Sig, PWR) - L4 (Sig, PWR)	Pad
◇	3	3.20mm (125.98mils)	PTH	Round	L1 (Sig, PWR) - L4 (Sig, PWR)	Pad
	Total 94					

Drill Drawing L1 - L4 (Scale 1:1)



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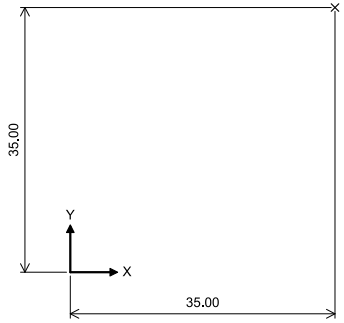
	Sheet Title: Drill Drawing (L1 - L4)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
	Sheet Path:		Reviewer:	Size: A4	Sheet: 3 of 9

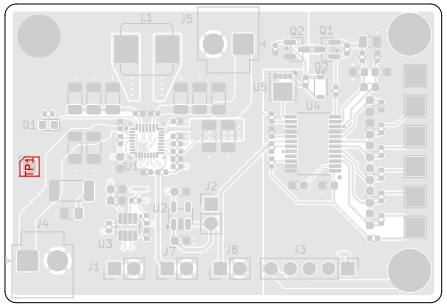
Balanced Solar Charger Fabrication Document

Top Test Points (Scale 1:1)

Ref.	Net	X [mm]	Y [mm]
TP1	QON	-31.00	-61.50

Ref.	Net	X [mm]	Y [mm]





All dimensions are in millimeters unless otherwise specified.

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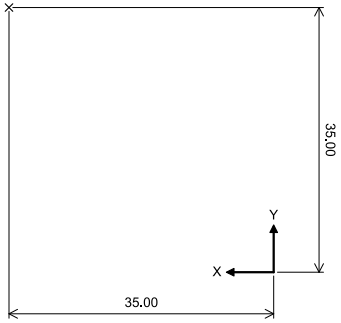
	Sheet Title: Top Test Points (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13 / Revision: + (Unreleased)
	Sheet Path:		Reviewer:	Size: A4 / Sheet: 4 of 9

Balanced Solar Charger Fabrication Document

Bottom Test Points (Scale 1:1)

Ref.	Net	X [mm]	Y [mm]



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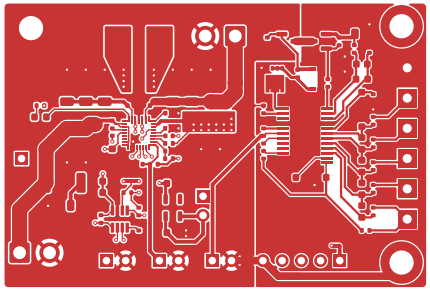
	Sheet Path:		Reviewer:	Size: A4	Sheet: 5 of 9

Balanced Solar Charger Fabrication Document

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



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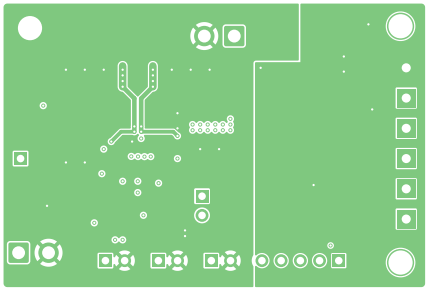
		Board Name: Balanced Solar Charger		Project Name: LiPo Battery Charger with CI/CD	
	Sheet Title: L1 (Sig, PWR) (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
	Sheet Path:		Reviewer:	Size: A4	Sheet: 6 of 9

Balanced Solar Charger Fabrication Document

L2 (GND) (Scale 1:1)



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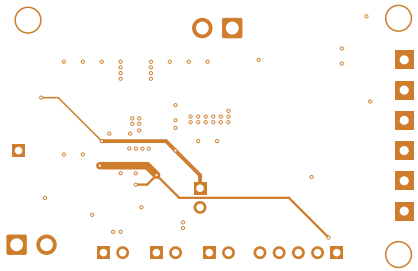
	Sheet Title: L2 (GND) (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
	Sheet Path:		Reviewer:	Size: **A4**	Sheet: **7** of **9**

Balanced Solar Charger Fabrication Document

L3 (GND) (Scale 1:1)



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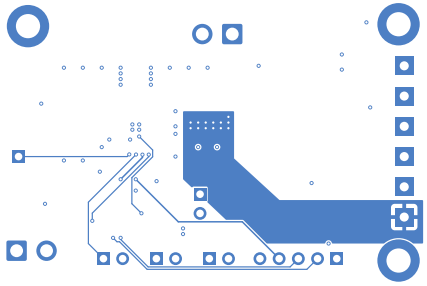
L4 (Sig, PWR) (Scale 1:1)



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		Board Name: **Balanced Solar Charger**		Project Name: **LiPo Battery Charger with CI/CD**	
	Sheet Title: L4 (Sig, PWR) (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
	Sheet Path:		Reviewer:	Size: **A4**	Sheet: **9** of **9**