

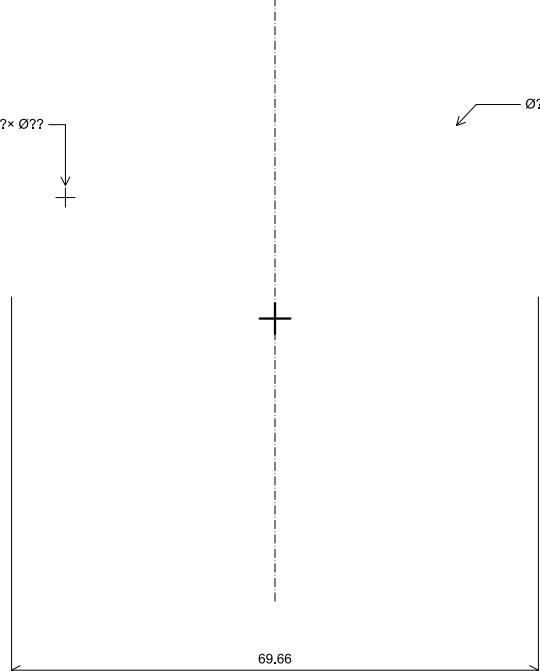
Balanced Solar Charger Fabrication Document

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

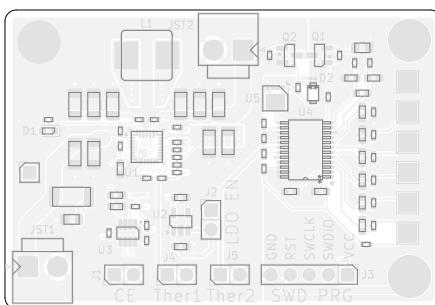
Top Fabrication (Scale 1:1)



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

All dimensions are in millimeters unless otherwise specified.



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
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:

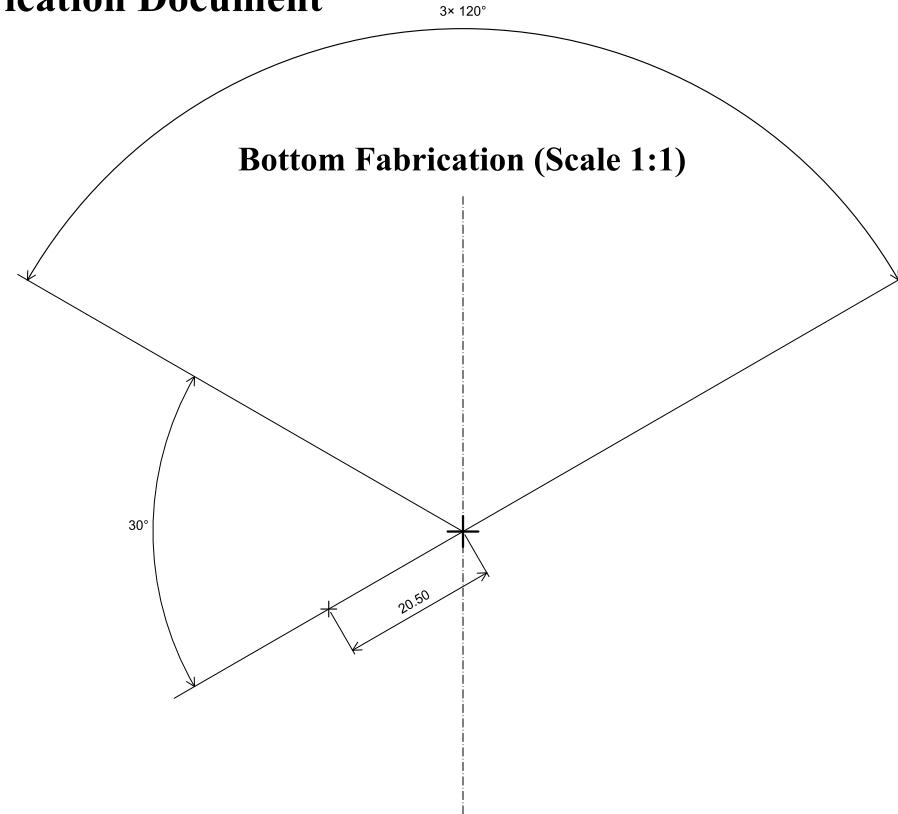
BOARD SIZE	57.750 × 39.500 mm
BOARD THICKNESS	1.660 mm
TRACE WIDTH	0.160 mm
TRACE TO TRACE	0.150 mm
MIN. HOLE (PTH)	0.300 mm
MIN. HOLE (NPTH)	N/A mm
ANNUAL RING	0.125 mm
COPPER TO HOLE	0.254 mm
COPPER TO EDGE	1.000 mm
HOLE TO HOLE	0.254 mm

11) REFER TO IMPEDANCE TABLE FOR IMPEDANCE CONTROL REQUIREMENTS.

12) CONFIRM SPACE WIDTHS AND SPACINGS.

Comments:	Company: Electronic-Handyman	Variant: CHECKED	Git Hash: f545d96
Board Name: Balanced Solar Charger			Project Name: Balanced Solar Charger
Sheet Title: Top Fabrication (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13
Sheet Path:	Reviewer:	Size: A4	Sheet: 1 of 9

Balanced Solar Charger Fabrication Document



All dimensions are in millimeters unless otherwise specified.

	Comments:	Company: Electronic-Handyman	Variant: CHECKED	Git Hash: f545d96
	Board Name: Balanced Solar Charger	Project Name: Balanced Solar Charger		
	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

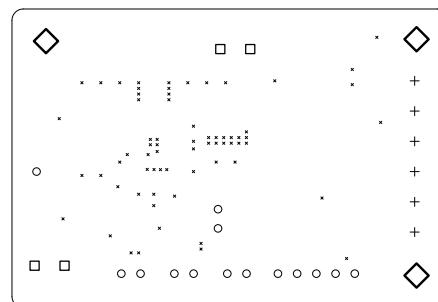
A

A

Drill Table

Symbol	Count	Hole Size	Plated	Hole Shape	Drill Layer Pair	Hole Type
X	67	0.30mm (11.81mils)	PTH	Round	L1 (Sig, PWR) - L4 (Sig, PWR)	Via
O	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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		Board Name: Balanced Solar Charger		
Sheet Title:	File Name: Drill Drawing (L1 - L4)	Designer: Nhan Duy Truong	Date: 2024-04-13	Revision: + (Unreleased)
Sheet Path:	Reviewer:	Size: A4	Sheet: 3 of 9	

Balanced Solar Charger Fabrication Document

A

A

B

B

C

C

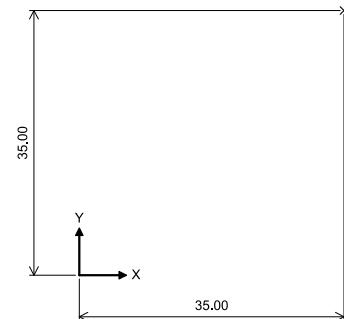
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D

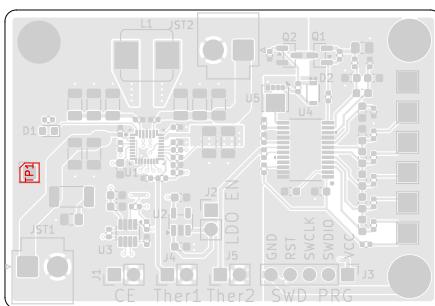
Top Test Points (Scale 1:1)

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

Ref.	Net	X [mm]	Y [mm]



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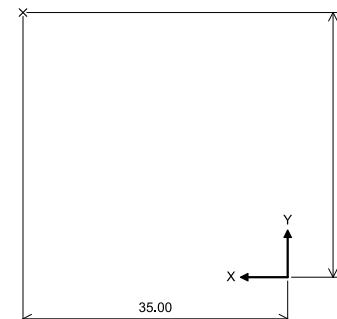


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	Sheet Title: Top Test Points (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13
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Balanced Solar Charger Fabrication Document

Bottom Test Points (Scale 1:1)

Ref.	Net	X [mm]	Y [mm]
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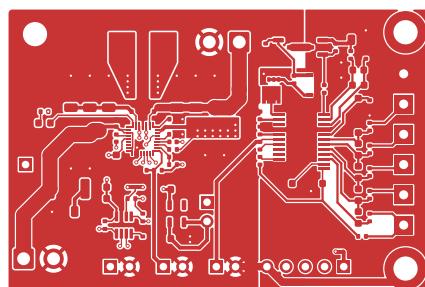
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	Board Name: Balanced Solar Charger	Project Name: Balanced Solar Charger		
	Sheet Title: Bottom Test Points (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13
	Sheet Path:		Reviewer:	Size: A4
				Sheet: 5 of 9

Balanced Solar Charger Fabrication Document

A A
B B
C C
D D

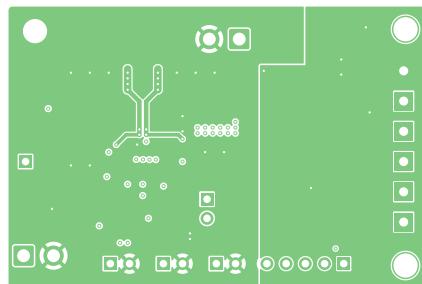
L1 (Sig, PWR) (Scale 1:1)



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	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)
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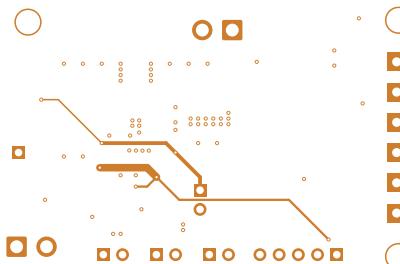
L2 (GND) (Scale 1:1)



	Comments:	Company: Electronic-Handyman	Variant: CHECKED	Git Hash: f545d96
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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)
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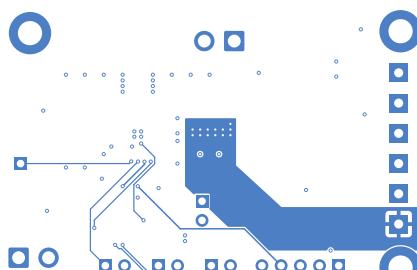
L3 (GND) (Scale 1:1)



	Comments:	Company: Electronic-Handyman	Variant: CHECKED	Git Hash: f545d96
	Board Name: Balanced Solar Charger	Project Name: Balanced Solar Charger		
	Sheet Title: L3 (GND) (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13 Revision: + (Unreleased)
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Balanced Solar Charger Fabrication Document

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



Comments:	Company: Electronic-Handyman	Variant: CHECKED	Git Hash: f545d96
Board Name: Balanced Solar Charger	Project Name: Balanced Solar Charger		
Sheet Title: L4 (Sig, PWR) (Scale 1:1)	File Name: solar_smart_station.kicad_pcb	Designer: Nhan Duy Truong	Date: 2024-04-13
Sheet Path:		Reviewer:	Size: A4
			Sheet: 9 of 9