

Heartrate-DevKit-HW Fabrication Document

Layer Stack Legend

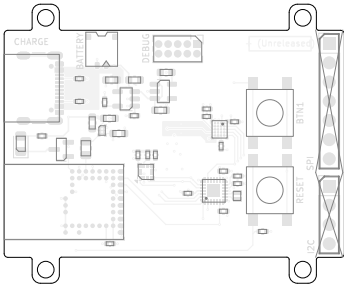
| | Material | Layer | Thickness | Dielectric | Type | Gerber |
|--|----------|--------------|---------------|------------|-------------|--------|
| | | F,Paste | | | Paste Mask | |
| | | F,Silkscreen | | | Legend | GBR |
| | | F,Mask | 0,01mm | | Solder Mask | GBR |
| | Copper | F,Cu | 0,035mm (1oz) | | Signal | GBR |
| | Core | | 0,196mm | FR4 | Dielectric | |
| | Copper | Inner1 | 0,035mm (1oz) | | Plane | GBR |
| | Prepreg | | 0,43mm | FR4 | Dielectric | |
| | Copper | Inner2 | 0,035mm (1oz) | | Plane | GBR |
| | Core | | 0,196mm | FR4 | Dielectric | |
| | Copper | B,Cu | 0,035mm (1oz) | | Signal | GBR |
| | | B,Mask | 0,01mm | | Solder Mask | GBR |
| | | B,Silkscreen | | | Legend | GBR |
| | | B,Paste | | | Paste Mask | |

Total thickness: 0,982mm
Note: external layer thicknesses are specified after plating

Impedance Table

| Transmission Line | Impedance [ohms] | Tolerance [%] | Layer | Trace Width [mm] | Gap [mm] | Ref. Layers |
|-------------------|------------------|---------------|-------|------------------|----------|-------------|
|-------------------|------------------|---------------|-------|------------------|----------|-------------|

Top Fabrication (Scale 1:1)



FABRICATION NOTES (UNLESS OTHERWISE SPECIFIED)

- FABRICATE PER IPC-6012A CLASS 2.
- OUTLINE DEFINED IN SEPARATE GERBER FILE WITH "Edge_Cuts.GBR" SUFFIX.

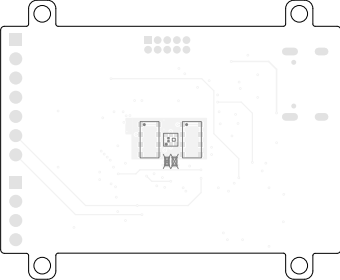
DIMENSIONS OF CIRCUMSIZED RECTANGLE SHOWN ON THIS DRAWING FOR REFERENCE ONLY.
- SEE SEPARATE DRILL FILES WITH ".DRL" SUFFIX FOR HOLE LOCATIONS.

SELECTED HOLE LOCATIONS SHOWN ON THIS DRAWING FOR REFERENCE ONLY.
- SURFACE FINISH: HAL SNPB
- SOLDERMASK ON BOTH SIDES OF THE BOARD SHALL BE LPI, COLOR GREEN.
- SILK SCREEN LEGEND TO BE APPLIED PER LAYER STACKUP USING BLACK NON-CONDUCTIVE EPOXY INK.
- ALL VIAS ARE TENTED ON BOTH SIDES UNLESS SOLDERMASK OPENED IN GERBER.
- VENDOR SHOULD FOLLOW ROHS COMPLIANT PROCESS AND Pb FREE FOR MANUFACTURING
- PCB MATERIAL REQUIREMENTS:

A. FLAMMABILITY RATING MUST MEET OR EXCEED UL94V-0 REQUIREMENTS.
B. Tg 150 C OR EQUIVALENT.
C. EQUIVALENT MATERIAL SHALL BE RoHS COMPLIANT, HALOGEN FREE AND APPROVED BY ZSWATCH.
- DESIGN GEOMETRY MINIMUM FEATURE SIZES:

BOARD SIZE 45.000 x 36.900 mm
BOARD THICKNESS 0.982 mm
TRACE WIDTH 0.150 mm
TRACE TO TRACE 0.100 mm
MIN. HOLE (PTH) 0.150 mm
MIN. HOLE (NPTH) 0.650 mm
ANNULAR RING 0.100 mm
COPPER TO HOLE 0.100 mm
COPPER TO EDGE 0.100 mm
HOLE TO HOLE 0.100 mm

| | | | | | |
|--|--|---|------------------------------------|--|------------------------------------|
| | Comments: ZSWatch | Company: ZSWatch | | Variant: CHECKED | Git Hash: 59e5f0e |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: Top Fabrication (Scale 1:1) | File Name: ZSWatch-Heartrate-DevKit.kicad_pcb | Designer: Daniel Kampert | Date: 2025-07-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: A3 | Sheet: 1 of 10 |

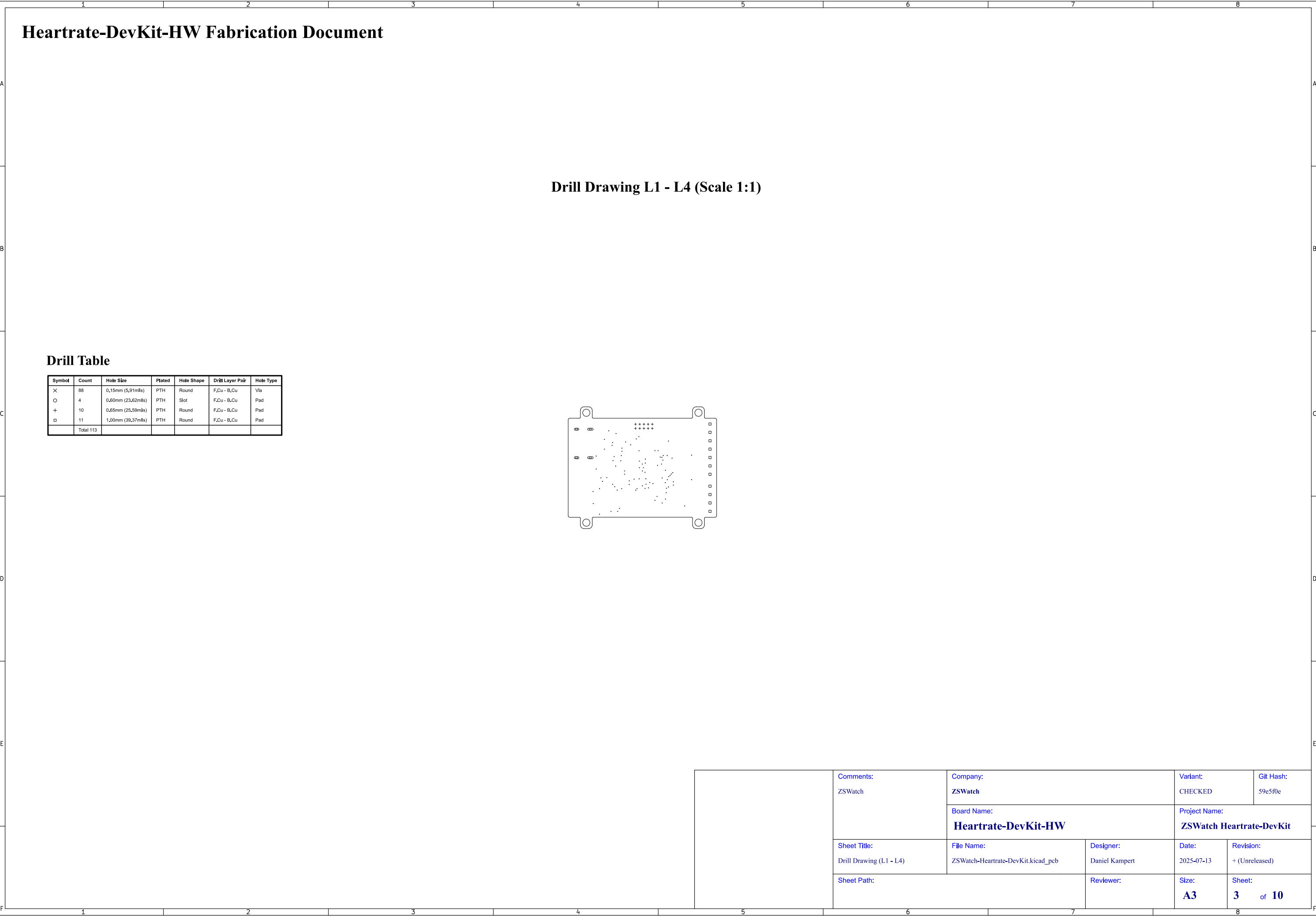
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|---|--|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| A | <div>Heartrate-DevKit-HW Fabrication Document</div> | | | | | | | | A |
| B | <div>Bottom Fabrication (Scale 1:1)</div> | | | | | | | | B |
| C |  | | | | | | | | C |
| D | | | | | | | | | D |
| E | | | | | | | | | E |
| F | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | F |

| | | | | | |
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| | Bottom Fabrication (Scale 1:1) | ZSWatch-Heartrate-DevKit.kicad_pcb | Daniel Kampert | 2025-07-13 | + (Unreleased) |
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| | | | | A3 | 2 of 10 |

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| B | Drill Drawing L1 - L4 (Scale 1:1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ○ | 4 | 0,60mm (23,62mils) | PTH | Slot | F,Cu - B,Cu | Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ○ | 4 | 0,60mm (23,62mils) | PTH | Slot | F,Cu - B,Cu | Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + | 10 | 0,85mm (25,59mils) | PTH | Round | F,Cu - B,Cu | Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| □ | 11 | 1,00mm (39,37mils) | PTH | Round | F,Cu - B,Cu | Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Total 113 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | <table> <tr> <td rowspan="4"></td><td>Comments:</td><td colspan="2">Company:</td><td>Variant:</td><td>Git Hash:</td></tr> <tr> <td>ZSWatch</td><td colspan="2">ZSWatch</td><td>CHECKED</td><td>59e5f0e</td></tr> <tr> <td></td><td colspan="2">Board Name:</td><td colspan="2">Project Name:</td></tr> <tr> <td></td><td colspan="2">Heartrate-DevKit-HW</td><td colspan="2">ZSWatch Heartrate-DevKit</td></tr> <tr> <td></td><td>Sheet Title:</td><td>File Name:</td><td>Designer:</td><td>Date:</td><td>Revision:</td></tr> <tr> <td></td><td>Drill Drawing (L1 - L4)</td><td>ZSWatch-Heartrate-DevKit.kicad_pcb</td><td>Daniel Kampert</td><td>2025-07-13</td><td>+ (Unreleased)</td></tr> <tr> <td></td><td colspan="2">Sheet Path:</td><td>Reviewer:</td><td>Size:</td><td>Sheet:</td></tr> <tr> <td></td><td colspan="2"></td><td></td><td>A3</td><td>3 of 10</td></tr> </table> | | | | | | | | | Comments: | Company: | | Variant: | Git Hash: | ZSWatch | ZSWatch | | CHECKED | 59e5f0e | | Board Name: | | Project Name: | | | Heartrate-DevKit-HW | | ZSWatch Heartrate-DevKit | | | Sheet Title: | File Name: | Designer: | Date: | Revision: | | Drill Drawing (L1 - L4) | ZSWatch-Heartrate-DevKit.kicad_pcb | Daniel Kampert | 2025-07-13 | + (Unreleased) | | Sheet Path: | | Reviewer: | Size: | Sheet: | | | | | A3 | 3 of 10 |
| | Comments: | Company: | | Variant: | Git Hash: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ZSWatch | ZSWatch | | CHECKED | 59e5f0e | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Board Name: | | Project Name: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Heartrate-DevKit-HW | | ZSWatch Heartrate-DevKit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Sheet Title: | File Name: | Designer: | Date: | Revision: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Drill Drawing (L1 - L4) | ZSWatch-Heartrate-DevKit.kicad_pcb | Daniel Kampert | 2025-07-13 | + (Unreleased) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Sheet Path: | | Reviewer: | Size: | Sheet: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | A3 | 3 of 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



[illegible]

Heartrate-DevKit-HW Fabrication Document

A

B

C

D

E

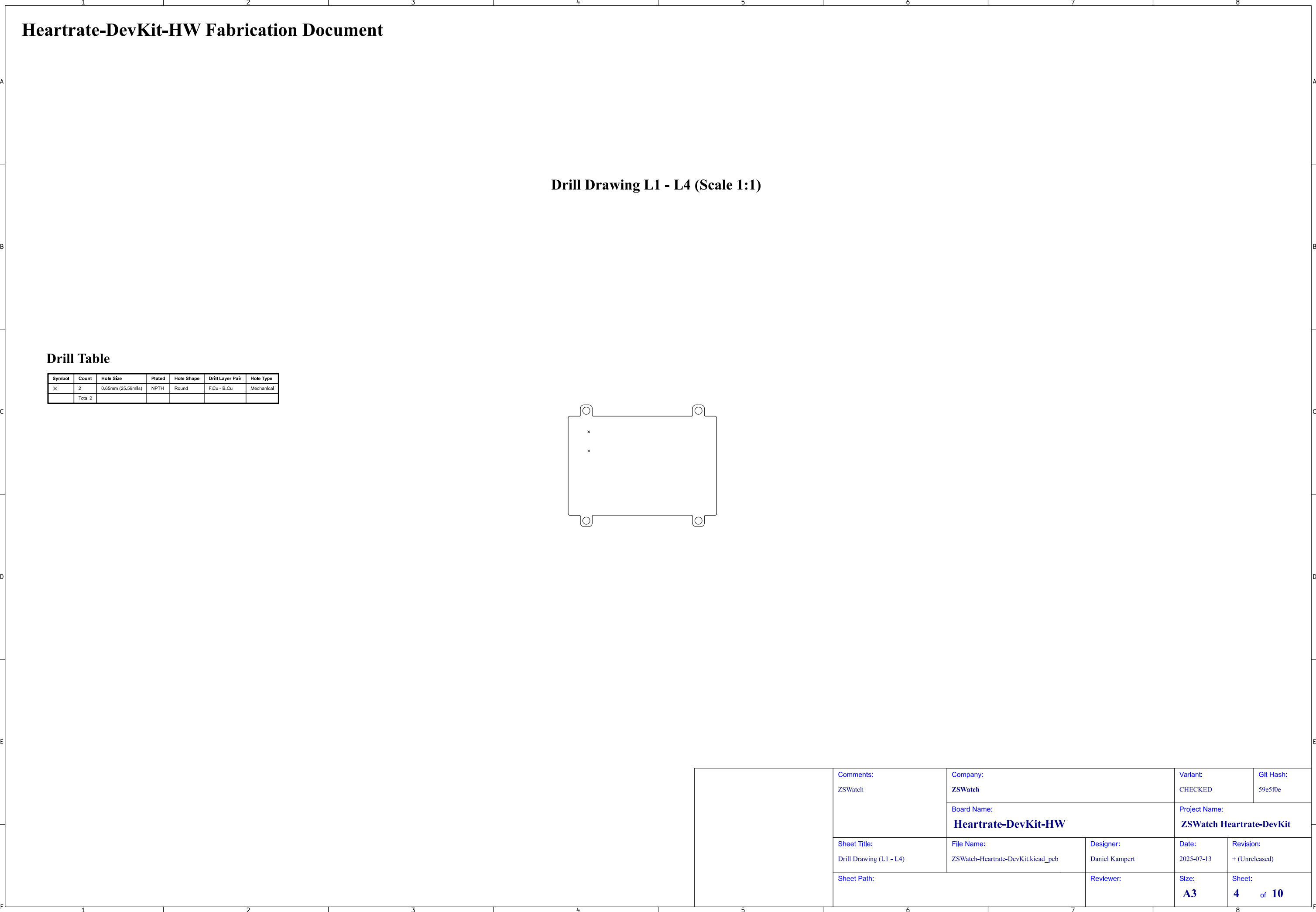
F

Drill Drawing L1 - L4 (Scale 1:1)

Drill Table

| Symbol | Count | Hole Size | Plated | Hole Shape | Drill Layer Pair | Hole Type |
|--------|---------|--------------------|--------|------------|------------------|------------|
| X | 2 | 0,65mm (25,59mils) | NPTH | Round | F,Cu - B,Cu | Mechanical |
| | Total 2 | | | | | |

| | | | | | |
|--|---|--|-----------------------------|--|--------------------------------|
| | Comments: ZSWatch | Company: ZSWatch | | Variant: CHECKED | Git Hash: 59e5f0e |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: Drill Drawing (L1 - L4) | File Name: ZSWatch-Heartrate-DevKit.kicad_pcb | Designer: Daniel Kampert | Date: 2025-07-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: A3 | Sheet: 4 of 10 |

[illegible]

A

B

C

D

E

F

Heartrate-DevKit-HW Fabrication Document

Drill Drawing L1 - L4 (Scale 1:1)

Drill Table

| Symbol | Count | Hole Size | Plated | Hole Shape | Drill Layer Pair | Hole Type |
|--------|---------|--------------------|--------|------------|------------------|------------|
| X | 2 | 0,65mm (25,59mils) | NPTH | Round | F,Cu - B,Cu | Mechanical |
| | Total 2 | | | | | |

| | | | | | |
|--|-------------------------|---|----------------|--|-------------------------|
| | Comments: | Company: | | Variant: | Git Hash: |
| | ZSWatch | ZSWatch | | CHECKED | 59e5f0c |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: | File Name: | Designer: | Date: | Revision: |
| | Drill Drawing (L1 - L4) | ZSWatch-Heartrate-DevKit.kicad_pcb | Daniel Kampert | 2025-07-13 | + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: | Sheet: |
| | | | | A3 | 4 of 10 |

Heartrate-DevKit-HW Fabrication Document

Drill Drawing L1 - L4 (Scale 1:1)

Drill Table

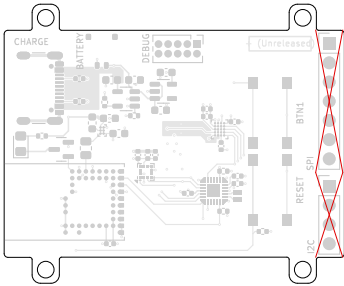
| Symbol | Count | Hole Size | Plated | Hole Shape | Drill Layer Pair | Hole Type |
|--------|---------|--------------------|--------|------------|------------------|------------|
| X | 2 | 0,65mm (25,59mils) | NPTH | Round | F,Cu - B,Cu | Mechanical |
| | Total 2 | | | | | |

The diagram shows a rectangular PCB footprint with rounded corners. At each of the four corners, there is a small circle representing a through-hole. Two small 'x' marks are placed near the top-left corner hole.

| | | | | | |
|--|-------------------------|---|----------------|--|----------------|
| | Comments: | Company: | | Variant: | Git Hash: |
| | ZSWatch | ZSWatch | | CHECKED | 59e5f0e |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: | File Name: | Designer: | Date: | Revision: |
| | Drill Drawing (L1 - L4) | ZSWatch-Heartrate-DevKit.kicad_pcb | Daniel Kampert | 2025-07-13 | + (Unreleased) |
| | Sheet Path: | Reviewer: | Size: | Sheet: | |
| | | | A3 | 4 of 10 | |

Heartrate-DevKit-HW Fabrication Document

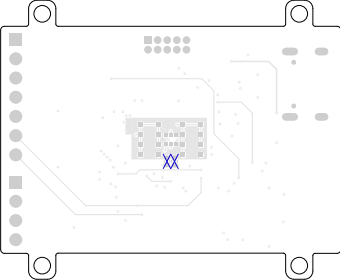
Top Test Points (Scale 1:1)



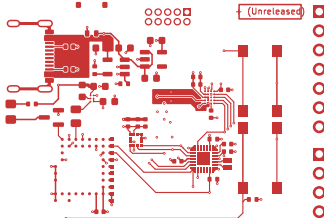
| Ref. | Net | X [mm] | Y [mm] |
|------|-----|--------|--------|
|------|-----|--------|--------|

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

| | | | | | |
|--|--|---|------------------------------------|--|------------------------------------|
| | Comments: ZSWatch | Company: ZSWatch | | Variant: CHECKED | Git Hash: 59e5f0e |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: Top Test Points (Scale 1:1) | File Name: ZSWatch-Heartrate-DevKit.kicad_pcb | Designer: Daniel Kampert | Date: 2025-07-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: A3 | Sheet: 5 of 10 |

| | | | | | | | | |
|---|--|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | <div>Heartrate-DevKit-HW Fabrication Document</div> | | | | | | | |
| B | <div>Bottom Test Points (Scale 1:1)</div> | | | | | | | |
| C |  | | | | | | | |
| D | | | | | | | | |
| E | | | | | | | | |
| F | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

| | | | | | |
|--|--------------------------------|------------------------------------|----------------|--------------------------|----------------|
| | Comments: | Company: | | Variant: | Git Hash: |
| | ZSWatch | ZSWatch | | CHECKED | 59e5f0e |
| | | Board Name: | | Project Name: | |
| | | Heartrate-DevKit-HW | | ZSWatch Heartrate-DevKit | |
| | Sheet Title: | File Name: | Designer: | Date: | Revision: |
| | Bottom Test Points (Scale 1:1) | ZSWatch-Heartrate-DevKit.kicad_pcb | Daniel Kampert | 2025-07-13 | + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: | Sheet: |
| | | | | A3 | 6 of 10 |

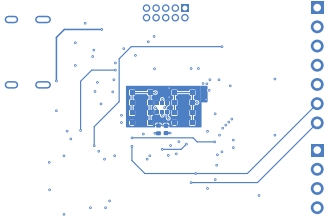
| | | | | | | | | | |
|---------|--|---|------------------|---------------------|------------------------------------|--------------------------|----------------|------------|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| A | <h1>Heartrate-DevKit-HW Fabrication Document</h1> | | | | | | | A | |
| B | <h2>F.Cu (Scale 1:1)</h2> | | | | | | | B | |
| C |  | | | | | | | C | |
| D | | | | | | | | D | |
| E | | | | | | | | E | |
| F | | | | Comments: | | Company: | | Variant: | Git Hash: |
| ZSWatch | | | | ZSWatch | | CHECKED | 59e5f0e | | |
| | | | | Board Name: | | Project Name: | | | |
| | | | | Heartrate-DevKit-HW | | ZSWatch Heartrate-DevKit | | | |
| | | | Sheet Title: | | File Name: | | Designer: | Date: | Revision: |
| | | | F.Cu (Scale 1:1) | | ZSWatch-Heartrate-DevKit.kicad_pcb | | Daniel Kampert | 2025-07-13 | + (Unreleased) |
| | | | Sheet Path: | | | | Reviewer: | Size: | Sheet: |
| | | | | | | | | A3 | 7 of 10 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |

| | | | | | | | | |
|---|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| A | <h1>Heartrate-DevKit-HW Fabrication Document</h1> | | | | | | | A |
| B | <h2>Inner1 (Scale 1:1)</h2> | | | | | | | B |
| C |  | | | | | | | C |
| D | | | | | | | | D |
| E | | | | | | | | E |
| F | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

| | | | | | |
|--|---|---|------------------------------------|--|------------------------------------|
| | Comments: ZSWatch | Company: ZSWatch | | Variant: CHECKED | Git Hash: 59e5f0e |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: Inner1 (Scale 1:1) | File Name: ZSWatch-Heartrate-DevKit.kicad_pcb | Designer: Daniel Kampert | Date: 2025-07-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: A3 | Sheet: 8 of 10 |

| | | | | | | | | |
|---|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| A | <h1>Heartrate-DevKit-HW Fabrication Document</h1> | | | | | | | A |
| B | <h2>Inner2 (Scale 1:1)</h2> | | | | | | | B |
| C |  | | | | | | | C |
| D | | | | | | | | D |
| E | | | | | | | | E |
| F | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

| | | | | | |
|--|---|---|------------------------------------|--|------------------------------------|
| | Comments: ZSWatch | Company: ZSWatch | | Variant: CHECKED | Git Hash: 59e5f0e |
| | | Board Name: Heartrate-DevKit-HW | | Project Name: ZSWatch Heartrate-DevKit | |
| | Sheet Title: Inner2 (Scale 1:1) | File Name: ZSWatch-Heartrate-DevKit.kicad_pcb | Designer: Daniel Kampert | Date: 2025-07-13 | Revision: + (Unreleased) |
| | Sheet Path: | | Reviewer: | Size: A3 | Sheet: 9 of 10 |

| | | | | | | | | |
|---|--|---|---|---|---|--|--|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | <div>Heartrate-DevKit-HW Fabrication Document</div> | | | | | | | |
| B | <div>B.Cu (Scale 1:1)</div> | | | | | | | |
| C |  | | | | | | | |
| D | | | | | | | | |
| E | | | | | | | | |
| F | | | | | | <div> <div>Comments:</div> <div>ZSWatch</div> </div> | <div> <div>Company:</div> <div>ZSWatch</div> </div> <div> <div>Board Name:</div> <div>Heartrate-DevKit-HW</div> </div> | <div> <div>Variant:</div> <div>CHECKED</div> </div> <div> <div>Git Hash:</div> <div>59e5f0e</div> </div> <div> <div>Project Name:</div> <div>ZSWatch Heartrate-DevKit</div> </div> |
| | | | | | | <div> <div>Sheet Title:</div> <div>B.Cu (Scale 1:1)</div> </div> | <div> <div>File Name:</div> <div>ZSWatch-Heartrate-DevKit.kicad_pcb</div> </div> <div> <div>Designer:</div> <div>Daniel Kampert</div> </div> | <div> <div>Date:</div> <div>2025-07-13</div> </div> <div> <div>Revision:</div> <div>+ (Unreleased)</div> </div> |
| | | | | | | <div> <div>Sheet Path:</div> </div> | <div> <div>Reviewer:</div> </div> | <div> <div>Size:</div> <div>A3</div> </div> <div> <div>Sheet:</div> <div>10 of 10</div> </div> |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |