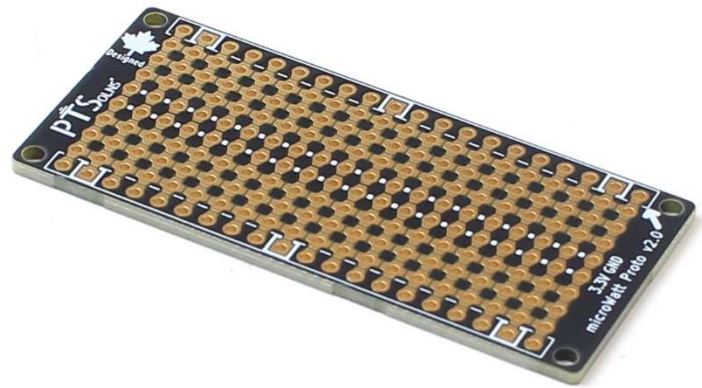


microWatt Proto

1 DESCRIPTION

The PTSolns *microWatt Proto* is a prototyping board designed specifically for the *ESP32 microWatt* as part of the *microWatt Family* product line.

It features two central power rails providing 3.3V and GND, directly connected to the stacked *ESP32 microWatt*. The 3.3V rail can be electrically isolated by cutting a jumper on the back. Different header types can be assembled onto the *microWatt Proto*, enabling stacking above or below the *ESP32 microWatt*.



Solder jumper pads span the entire board, simplifying custom connections and trace modifications. An orientation arrow is printed on one side to help ensure proper alignment.

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2 DOCUMENT REVISION HISTORY

Current document revision is Rev 0.

3 PRODUCT FEATURES

This section highlights notable features of the *microWatt Proto*.

3.1 Compatibility

The *microWatt Proto* is part of the *microWatt Family* and hence is compatible with any members within this product line. The board can be stacked either below or above the *ESP32 microWatt*, as shown in Figure 1 and Figure 2.



Figure 1: The *microWatt Proto* stacked below.

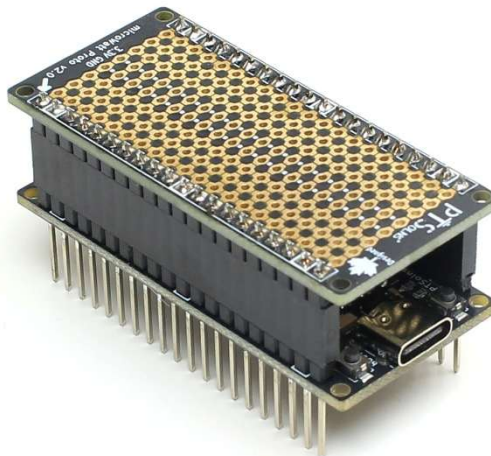


Figure 2: The *microWatt Proto* stacked above.

3.2 Central Power Rails

The *microWatt Proto* has two central power rails running the full length of the board, as shown in Figure 3. These rails, ground (GND) and 3.3V, are connected to the GND and 3.3V pins when the *ESP32 microWatt* is stacked.

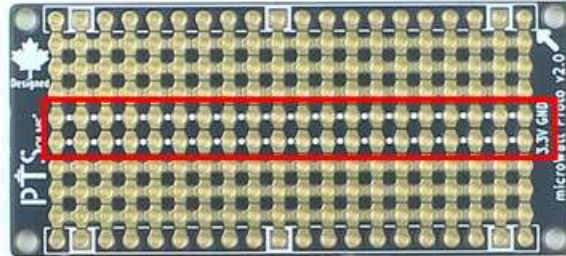


Figure 3: Central power rails.

The 3.3V rail is connected by default, however it can be isolated from the 3.3V pin on the *ESP32 microWatt* by cutting the jumper on the back of the board, as shown in Figure 4. When this 3.3V jumper is cut, the power rail is electrically isolated and hence can be used for any other voltage or signal as required.

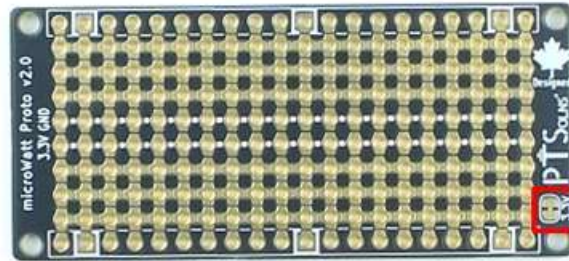


Figure 4: 3.3V jumper.

3.3 Orientation Marker

To aid the user with board orientation a white silkscreen marker (arrow) is printed on the top side of the board, pointing at one of the pins (*Vin*). This arrow can be used to ensure that the board is inserted into the stack in the correct orientation.

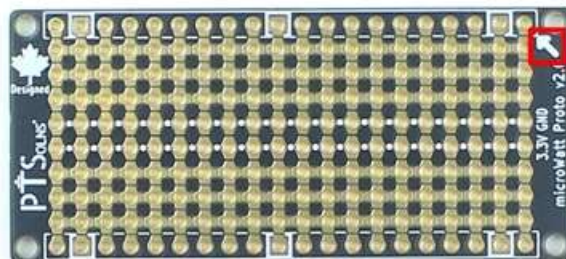


Figure 5: Orientation marker (arrow).

3.4 Header Assembly

The *microWatt Proto* headers can be assembled in two practical manners. The first construction uses standard male headers. This approach provides most space on the board (stacking headers can get in the way sometimes), but it forces the board to only be stackable on the top of the *ESP32 microWatt*. This approach is shown in Figure 6.

The second construction uses stacking female headers. This approach may cause some restrictions as the headers are large and may make soldering more challenging, but it allows the board to be stackable both on the top as well as the bottom of the *ESP32 microWatt*. This approach is shown in Figure 7.

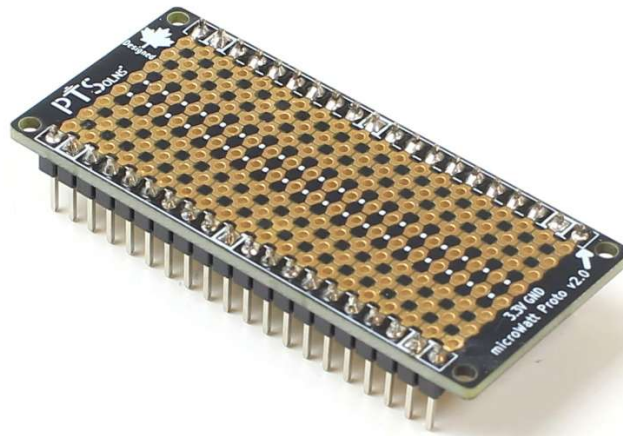


Figure 6: Using male headers.

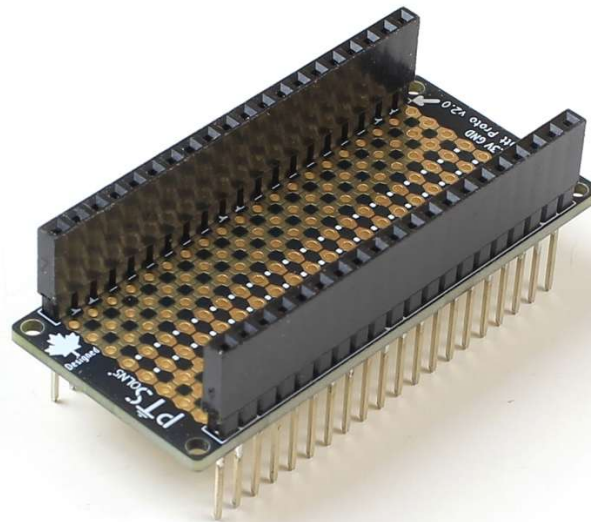


Figure 7: Using stacking female headers.

3.5 Soldering

Besides the two central power rails, no other pad or through hole on the board is electrically connected by default. Instead all pads have specially designed solder jumper pads that allow the user to easily make a connection from one through hole to another. A close-up of these solder jumper pads is shown in Figure 8.

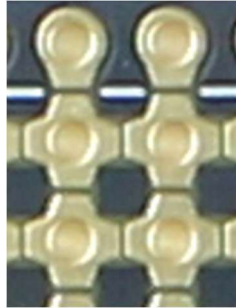


Figure 8: Solder jumper pads.

3.6 Silkscreen Printing

The board has silkscreen printing on both sides. Due to limited space, the pinouts are not labelled. The user can reference the *ESP32 microWatt* pinout diagram to see pin alignment.

The two central power rails have a dotted white silkscreen line running through their centre. This dotted line is to indicate electrical connection between pads / through holes. This can be seen in Figure 3.

3.7 Mark of Authenticity

Authentic PTSolns PCBs have a black solder mask color and are marked with the “PTSolns” logo in white silkscreen printing. The “Canadian Designed” symbol, consisting of the Canadian Maple Leaf with the word “Designed” underneath, can also be found on the PCB in white silkscreen printing. The “PTSolns” trademark and the “Canadian Designed” symbols are shown in Figure 9.

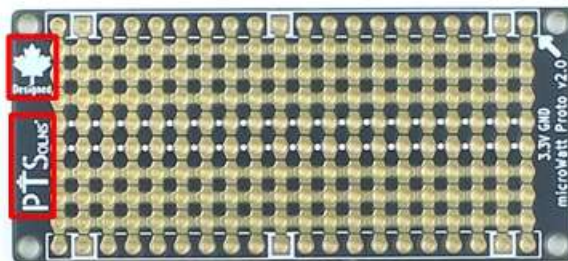


Figure 9: The “PTSolns” trademark found on authentic PTSolns PCBs.

4 PHYSICAL PROPERTIES

The physical properties of the *microWatt Proto* are outlined in Table 1.

Table 1: Physical Properties.

	Quantity	Value	Reference
PCB	Length	58.44 mm	Figure 10
	Width	26.41 mm	Figure 10
	Thickness	1.6 mm	--
	Corner radius	1.0 mm	
	Weight (without headers)	5 g	--
	Color	Black	--
	Silkscreen	White	--
	Lead free ENIG-RoHS surface finish		--
	FR-4 base		--
Mounting Holes	Hole diameter	2.10mm	Figure 10
	Center-to-center distance length	54.63mm	Figure 10
	Center-to-center distance width	22.86mm	Figure 10

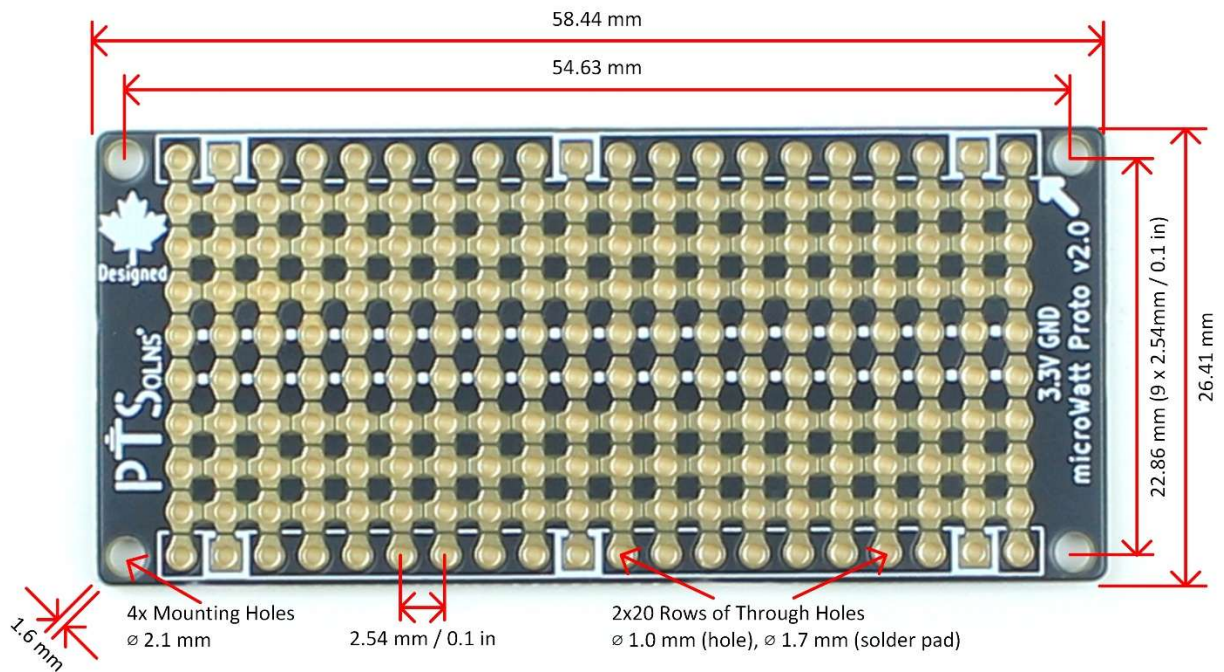


Figure 10: Dimensions of the *microWatt Proto*.

5 REFERENCES

This section lists relevant references.

- *ESP32 microWatt* Datasheet
https://docs.ptsolns.com/Products/PTS-00165_ESP32_microWatt/Datasheets/Datasheet_PTS-00165_ESP32_microWatt.pdf
- PTSolns' Documentation Repository Sub-Domain:
<https://docs.PTSolns.com>
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