



**CREATION**  
**DIEGO DÍAZ**

# **82120D RECHARGEABLE BATTERY PACK FOR HP-41C**

**PRESENTATION**  
**SYLVAIN CÔTÉ**

**HHC 2023**



# Thanks to ...

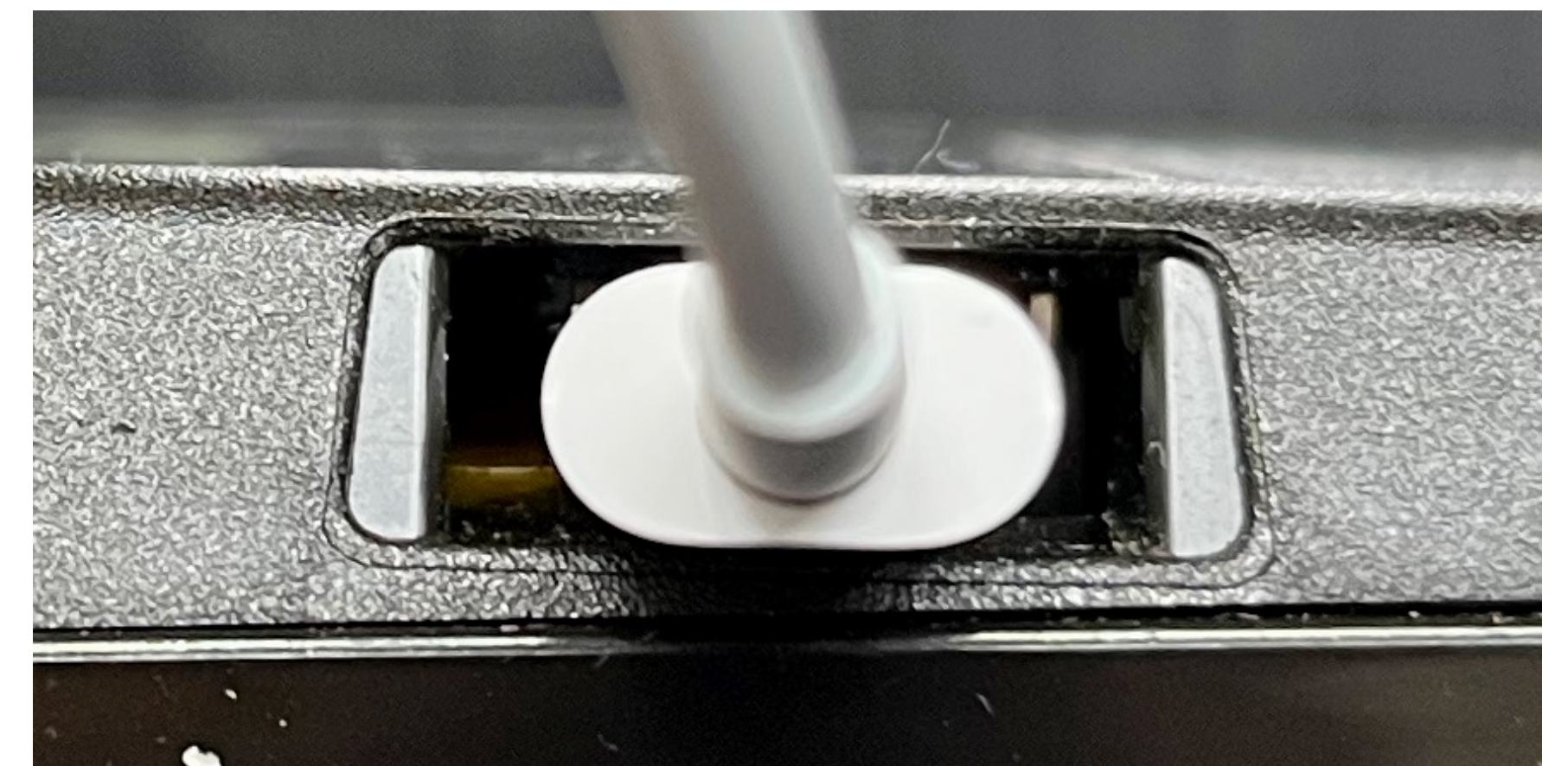
- \* Diego Díaz for ...
  - \* his great hardware creations. (Clonix, NoV, 82120D, etc.)
  - \* his support and patience.

# Summary

- \* The 82120D for HP-41 is a new Li-Po battery pack made by Diego Díaz.
- \* It replace the old 82120A Ni-Cd battery pack made by HP in the 1980's.
- \* The 82120D contains an astounding amount of energy.
- \* Built-in recharge regulation and protection.
- \* Almost any USB-C phone charger can be used.

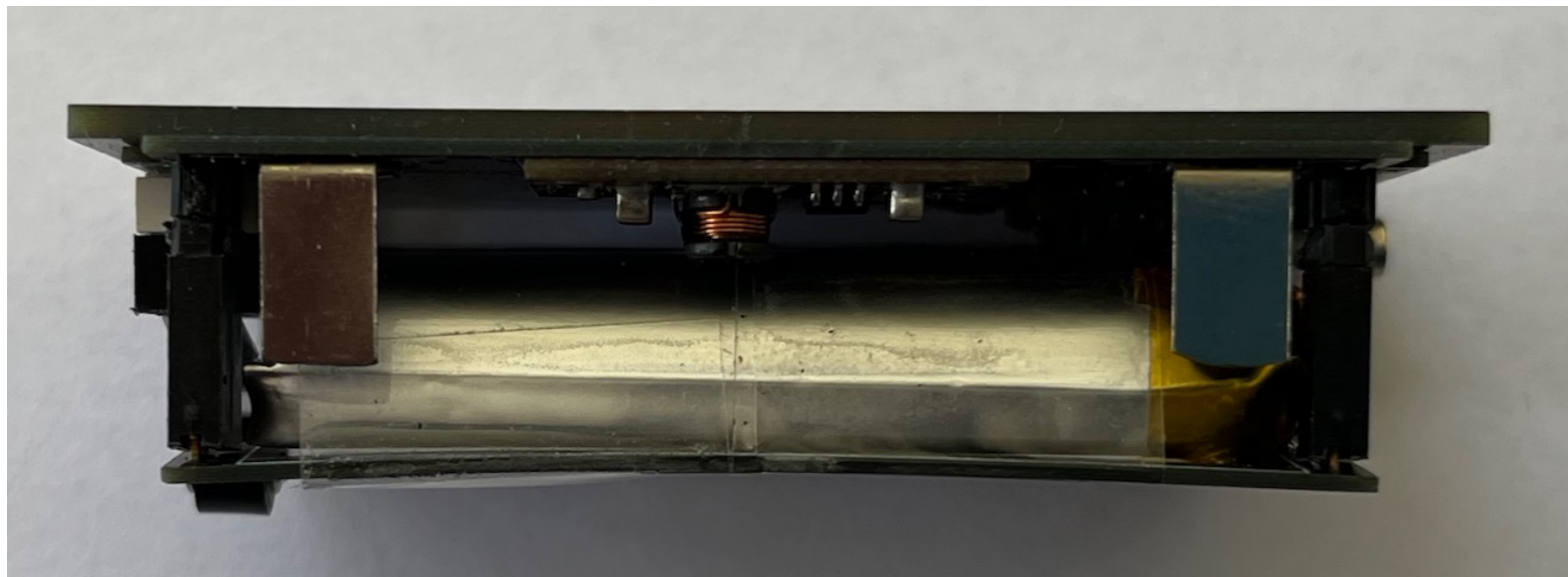
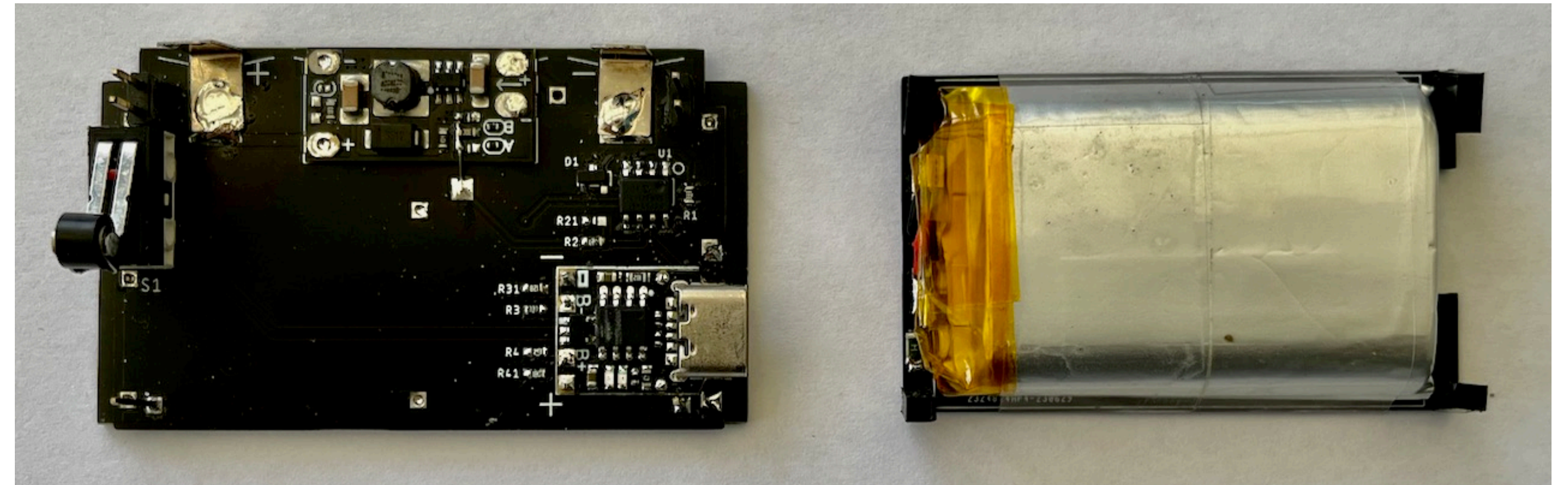


# Photos 1 (beta unit)



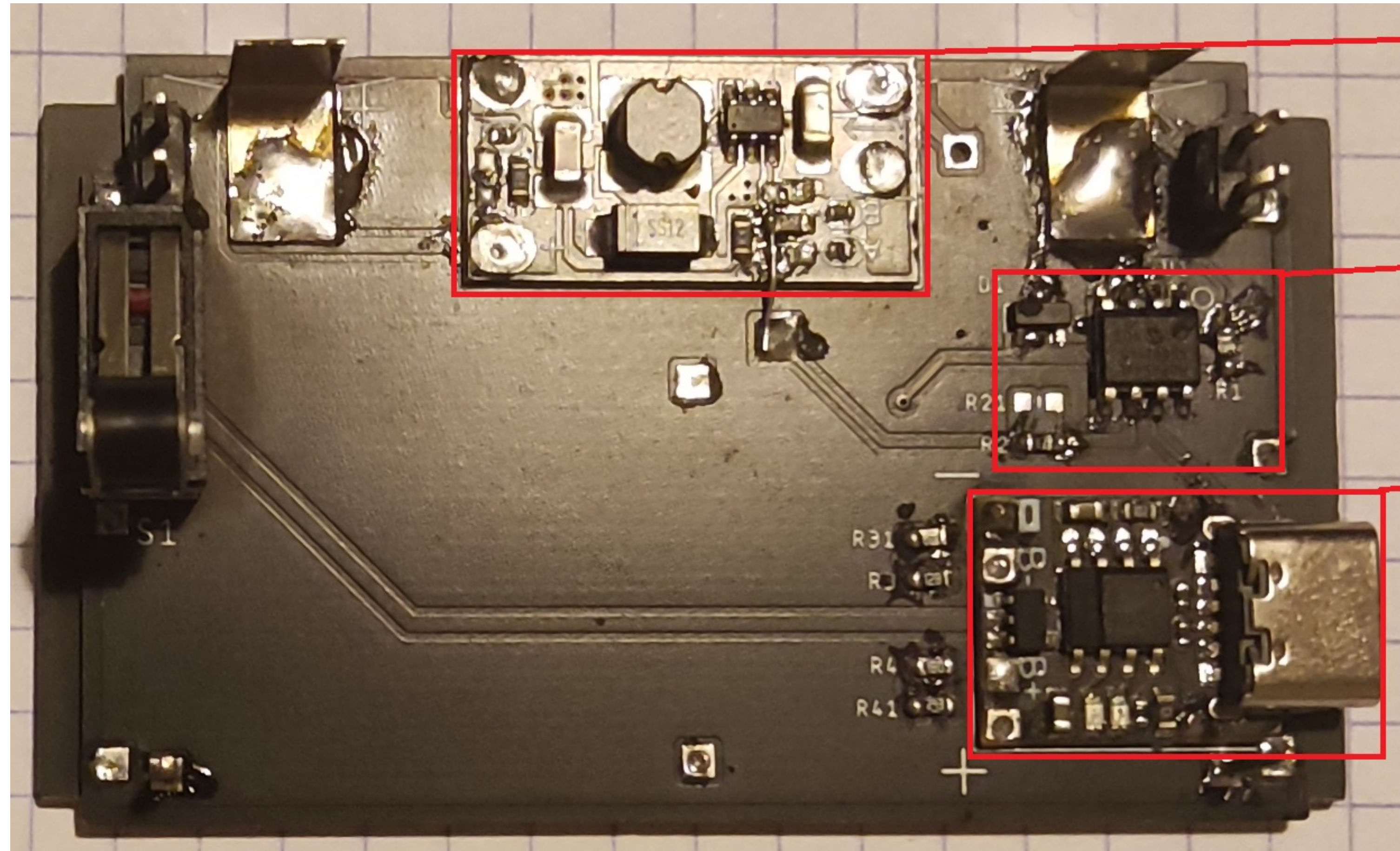


# Photos 2 (beta unit)





# Photos 3 (beta unit)



**DC/DC Step-up converter.**  
IC: FP6291, including  
Voltage, Temperature  
& Current protection.

**"BAT" annunciator  
level detection.**  
IC: MCP6546

**USB-C type charger**  
ICs: ME4057 & RY2201  
voltage, current &  
heating protection.



# Specifications (preliminary)

- \* Maximum output current
  - \* 1Amp. , fuse protected
- \* Quiescent current drain
  - \* Maximum → battery @ 4.2v : 470uA
  - \* Nominal → battery @ 3.7v : 440uA
  - \* "BAT" ON → battery @ 3.3v : 330uA
- \* Nominal output voltage
  - \* 6.3v +/- 0.1v
- \* Charging
  - \* 100% charge time from "BAT" ON : 4h 45min (*approximatively*)
  - \* 80% charge time from "BAT" ON : 3h (*approximatively*)
  - \* USB-C phone charger (*tested: 20w iPhone charger*)

# Testing ...

- \* Procedure
  - \* Fully charge the battery pack
  - \* Run the test
  - \* Stop on BAT annunciator
- \* Basic usage test
  - \* Read 315 barcode strips
  - \* Read 305 magnetic cards
  - \* Run a test program for 134h
- \* 41CL Flash update test
  - \* FLCHK?
    - \* ~50 x FLDB/CFLDB images
  - \* FLUPD
    - \* 2620 x ROM images
    - \* 725 x 64KiB Flash blocks



# Availability, Price, ...

- \* Available now!
- \* Price: 120 euros  
(shipping included)
- \* Ordering: email to  
Diego Díaz  
clonix41@gmail.com
- \* Manual
  - \* 82120D HP-41 Power Bank Owner's Guide  
[drive.google.com/file/d/1xMzSGWOOIHtZY5pK9m6y\\_gsT9h25MCpH](https://drive.google.com/file/d/1xMzSGWOOIHtZY5pK9m6y_gsT9h25MCpH)
- \* Forum Threads ...
  - \* More power (literally) for the HP-41: "BAT is back". (2023/06)  
[www.hpmuseum.org/forum/thread-20072.html](http://www.hpmuseum.org/forum/thread-20072.html)
  - \* More power (literally) for the HP-41, follow-up. (2023/06)  
[www.hpmuseum.org/forum/thread-20127.html](http://www.hpmuseum.org/forum/thread-20127.html)
  - \* Nouveau bloc de piles rechargeables bientôt disponible. (2023/08)  
[www.silicium.org/forum/viewtopic.php?t=48587](http://www.silicium.org/forum/viewtopic.php?t=48587)
  - \* HP-41 Power Bank (82120D) manual & first production run. (2023/08)  
[www.hpmuseum.org/forum/thread-20412.html](http://www.hpmuseum.org/forum/thread-20412.html)





# QUESTIONS ?



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**THANK YOU !**

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