EdgeTinker Lite

POWER TREE

ETPCB0003 | Hardware V1 RevC

USB-C (J1)
ESP32-C6 native USB

VUSB1

FB1 + D3
Ferrite + Schottky

5V0

USB-C (J4)
USB-UART port

VUSB2

FB2 + D5
Ferrite + Schottky

5V0

Battery (J6)
JST-XH 2-pin

VBAT

D9
Reverse-polarity diode

VBAT

Power path (D6, Q3)
USB present: 5V0 via D6
No USB: VBAT via Q3
Q3 gate on 5V0,
R35 10 kΩ pull-down

VIN

TPS63900 (U9)
Buck-boost, L1 2.2 µH
3.3 V, 400 mA max

3V3_ESP

5V0

USB POWER LED (D7)
Lit when USB is present

5V0, VBAT

J2 / J3 header pins
VBAT: J2-2, J3-3
5V0: J3-5

3V3_ESP
Always-on 3.3 V rail

3.3 V

ESP32-C6 (U5)
Main controller

RAK3172 (U10)
LoRa module, via R41

CH343P (U8)
I/O; VDD from VUSB2

User LED + buttons
D4, S1 to S3

QWIIC J7, J2-4, TP1
3.3 V outputs

IO2 (COM_PWR)

Load switch (Q2)
P-MOSFET, IO2 high = on
Off by default

3V3_COM

3V3_COM: switched 3.3 V rail (off by default)

PCF85063A (U2)
RTC, main via D1
Backup VRTC via D2

LIS2DH12 (U1)
Accelerometer
Via R2 / SB1

AHT20 (U3)
Temp / humidity
Via R7 / SB2

microSD (SD1)
Via R24 (R25 not fitted)

AGS10 (U4)
VOC gas sensor
Via R8 / SB3

I2C pull-ups, J2-6
R3, R4 on SDA / SCL

CR1220 holder (B1)
3 V coin cell

VRTC

D2
RTC backup diode

VRTC backup

NOTES

No battery charger on this revision.
USB has priority: Q3 turns off when 5V0 is present, so VIN comes from 5V0 through D6.
3V3_COM stays off until IO2 (COM_PWR) is driven high.
Each sensor supply has a 0 Ω link with a solder bridge in parallel (SB1 to SB3).
CH343P VDD comes from VUSB2 (J4); its I/O supply is 3V3_ESP.
400 mA is the schematic rating for U9. No rail has been measured yet.

Legend:

Power | Connector | Controller | LoRa module | USB bridge | Sensor | RTC | Storage | Buttons / LEDs

Power rail | Switched rail | GPIO / control