USB, POWER PATHS, CHARGING AND FILTERING

J3 USB-C — USB_C
VBUS, D+, D-, CC1, CC2, SHLD, GND
USB_P, D+, D-, CC1, CC2

R9 5.1K, R11 5.1K
R12 100K
T2 CJ3139K
D4 MSK4005
C7 1uF
R10 EN 100K
U1 NCP167BMX330TBG — IN, EN, OUT, EXP, GND
C12 1uF
3.3V
VBAT

D5 MSK4005
A3 SOLDERJUMPERCLOSED — STAT, STAT_JMP
R1 3K3
D3 ORANGE
USB_P, USB
R8 10uF, D1 RED, 3K3
C10

TP4065-4.2V LIPO Charger
TP4065-4.2V-SOT25-R
VDD, STAT, VBAT, PROG, VSS
PROG, R3 3K3, C3 10uF
VBAT
GND

JSTPH X2 — SHLD2, SHLD1
VBAT, GND

Charge rate by R16 value
10K = 110mA
5.0K = 200mA
3.3K = 300mA
2.32K = 500mA

500mA is the fastest the PMIC can charge

ESP32-S3-PICO1-N8R2

ANT
AF3 0R, AF2 0R, AF1 0R
ANT_FREQ, ANT_MATCH, TBA
C4 TBA, L1 TBA
LNA_IN

3.3V, 3.3V
VDDA_1, VDDA_2, XTAL_N, XTAL_P, IO46, IO45, UORXD, UOTXD, MTMS, MTDI, VDD3P3_CPU, MTDO, MTCK, IO38

VDDA3P3_1, VDDA3P3_2, CHIP_PU
IO00–IO09
IO37, IO36, IO35, IO34, IO33
SPICLK_P, SPICLK_N
SPID, SPIQ, SPICLK, SPICS0, SPIWP, SPIHD
VDD_SPI

IO10, IO11, IO12, IO13, IO14, VDD3P3_RTC, XTAL_32K_P, XTAL_32K_N, IO17, IO18, D-, D+, IO21, SPICS1
3.3V, LED_DATA, USB_D-, USB_D+

GNDPAD

C19 0.1uF, C1 0.1uF — 3.3V
C20 0.1uF, C18 1uF, C15 1uF, C13 0.1uF — 3.3V

SENSE PINS

VBAT, USB
R2 442K, R14 3K3
IO2, IO15
R5 160K, R15 2K
GND

LIGHT SENSOR

VDD_SPI
U2 ALS-PT19
IO4
R17 100K
GND

RESET

3.3V
R4 100K
RESET
C2 1uF
GND

BUTTONS

IO00, RESET, IO13
R7 2K, D6 BLUE
GND

RGB LED MATRIX

LED_DATA — R18 330R — DATA_IN
SK1010 — DI, GND, VDD, DO
LED1 ... LED49
3V3_2
GND

C21–C34 0.1uF — 3V3_2 / GND

LDO2 & AUTO-SHUTDOWN

VBUS
U3 NCP167BMX330TBG — IN, EN, OUT, EXP, GND
C5 1uF, C14 1uF
3V3_2
VDD_SPI, MTCK
IC1B NL17SVG08XV5T2GDRL
LDO2_EN
GND

STATUS RGB LED

3V3_2
LED_RGB1 WS2812B1515
WS2812B — VDD, Vi, DO
MTDO, DI, GND, DO
C6 0.1uF
GND

HEADERS

JP3:
VBAT 1, EN 2, USB 3, IO11 4, IO10 5, IO7 6, IO3 7, IO1 8, IO38 9, IO33 10, IO9 11, IO8 12

J1:
RESET 16, 3.3V 15, IO0 14, 13, IO17 12, IO18 11, 10, IO12 9, IO5 8, IO6 7, IO36 6, IO35 5, IO37 4, UORXD 3, UOTXD 2, IO34 1
GND

HORIZONTAL STEMMA
CONNECTED TO LDO1

STEMMA1:
GND 1 — GND
VCC 2 — 3.3V
SDA 3 — IO8
SCL 4 — IO9

FeatherS3 neo