ESP32 Pico D4

U1
ESP32-PICO-D4

+3.3V

C1 1uF 0402 10V
C2 1uF 0402 10V
C3 1uF 0402 10V
C4 0.1uF 0402 25V
C5 0.1uF 0402 25V
C6 0.1uF 0402 25V

GND

26 VDD_SDIO
37 VDD3P3_CPU
19 VDD3P3_RTC
3 VDDA3P3
4 VDDA3P3
1 VDDA
43 VDDA
46 VDDA

41 U0TXD
40 U0RXD

6 SENSOR_CAPP
7 SENSOR_CAPN
5 SENSOR_VP
8 SENSOR_VN

+3.3V
R5 10k 0402
R6 4.7k 0402

TP1 RESET

Reset

ESP_EN

9 EN

TP2 BOOT

Boot

C9 0.1uF 0402 25V
C10 1uF 0402 10V

GND

IO0

32 SD0
33 SD1
28 SD2
29 SD3
31 CLK
30 CMD
2 LNA_IN

10 IO34
11 IO35
23 IO0
22 IO2
24 IO4
34 IO5
20 IO12
17 IO13
21 IO14
27 IO15
25 IO16
35 IO17
18 IO18
19 IO19
42 IO21

39 LED_PWR
36 IO23
14 IO25
15 IO26
16 IO27
12 IO32
13 IO33

48 CAP1_NC
47 CAP2_NC
45 XTAL_P_NC
44 XTAL_N_NC

49 GND

CURR_SENS

ESP_LED_CLK 38
ESP_LED_DATA 42

GND

UART Programming Header

R1 0 UART_RX
R2 0 UART_TX

+3.3V

1 UART_RX
2 UART_TX
3 DTR
4 RTS
5
6
J1 Conn_01x06

GND

L1 LQG15HS2N7S02D 2.7nH

LNA_IN
R7 0
C7 2.7pF 0402 50V
DNP
C8 2pF 0402 50V
DNP
LNA_OUT
AE1 AMCA31-2R450G-S1F-T3

GND GND

R19 330 LED2 Red
+3.3V

LED Data Level Shifting

+3V3 +5V
R3 10k 0402
R4 10k 0402
ESP_LED_DATA
Q1 2N7002
CON_LED_DATA

+3V3 +5V
R8 10k 0402
R9 10k 0402
ESP_LED_CLK
Q2 2N7002
CON_LED_CLK

ESP AutoReset

ESP_EN

DTR
R10 10k 0402
Q3 MMBT3904

RTS
R12 10k 0402
Q5 MMBT3904

IO0

LED Connector

Q4 AO3401A

+5V
C11 22uF 0603 10V
C12 22uF 0603 10V
R11 4.7k 0402

1 CON_LED_DATA
2 CON_LED_CLK
3
4
J2 Conn_01x04

GND GND

LED_PWR
R13 4.7k 0402
Q6 2N7002

GND

Current Sense

+3.3V
C29 0.1uF 0402 25V
GND

U2B LM358DR2G
U2C LM358DR2G
GND

R14 100k 0402

U2A LM358DR2G
CURR_SENS

R17 100k 0402
GND
R21 1k 0402
R22 1k 0402

R23 0.006 2512

12V 5A Input

J3 PJ-037AH

GND

D2 PSM712-LF-T7

GND

+12V
C26 22uF 25V 1206
C27 22uF 25V 1206
C28 22uF 25V 1206
GND

12V to 5V 3A Buck

+12V
C13 22uF 25V 1206
C14 22uF 25V 1206
C15 0.1uF 0402 25V
GND

U4 TPS54331DR
1 VIN BOOT 3
2 EN   PH 8
4 SS   VSENSE 5
6 COMP GND 7

C16 0.1uF 0402 25V
L2 6.8uH
D1 SS54
+5V

C23 6.8nF 0402 50V
GND

C25 39pF 0402 50V
C24 4700pF 0402 50V
R20 49.9k 0402
GND

R16 10k 0402
R18 1.91k 0402
GND

C21 47uF 1206 16V
C22 47uF 1206 16V
GND

5V to 3.3V 1A LDO

U3 MCP1826T-3302E_DC

+5V
C17 2.2uF 0603 10V
C18 0.1uF 0402 25V

2 Vin   Vout 5
1 SHDN PWRGD 4
3 GND

+3.3V
C19 2.2uF 0603 10V
C20 2.2uF 0603 10V
R15 330 0402
LED1 Red

GND GND GND GND

+3.3V TP3 3V3
+5V TP4 5V
+12V TP5 12V
TP6
GND

M3 Mounting Holes

H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole

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