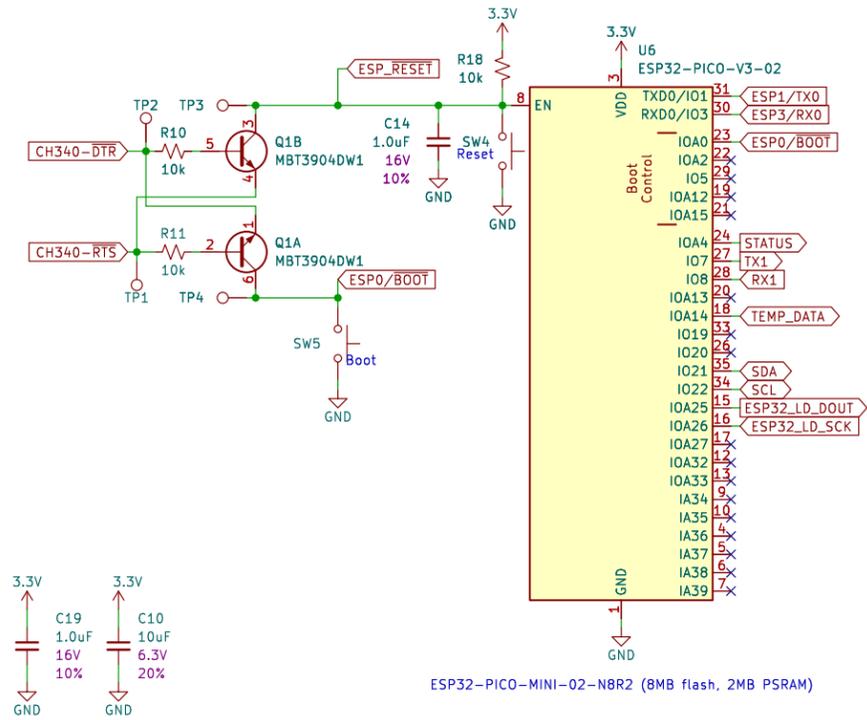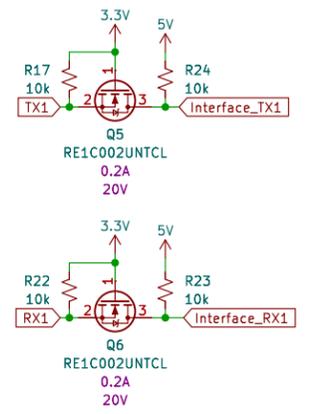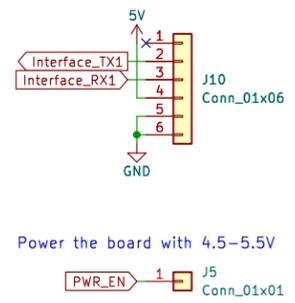# ESP32 Pico Mini

Use boot control pins with caution: 0, 2, 5, 12, 15
IO0: Avoid device connections. Can be used as a stat LED.
IO2: Avoid external pullups — will cause bootloader fail.
IO5: SDIO peripheral control. Has builtin pullup at POR.
IO12: Avoid external pullups — will cause bootloader fail.
IO15: Suppress output at POR. Has builtin pullup at POR.

U6 ESP32-PICO-V3-02

ESP32-PICO-MINI-02-N8R2 (8MB flash, 2MB PSRAM)
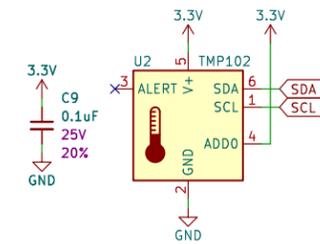
Q1B MBT3904DW1
Q1A MBT3904DW1
R18 10k
R10 10k
R11 10k
C14 1.0uF 16V 10%
SW4 Reset
SW5 Boot

CH340-DTR
CH340-RTS
ESP_RESET
ESP0/BOOT

R17 10k, R24 10k, Q5 RE1C002UNTCL 0.2A 20V, TX1, Interface_TX1
R22 10k, R23 10k, Q6 RE1C002UNTCL 0.2A 20V, RX1, Interface_RX1

C19 1.0uF 16V 10%
C10 10uF 6.3V 20%

Pins: TXD0/IO1 ESP1/TX0, RXD0/IO3 ESP3/RX0, ESP0/BOOT, STATUS, TX1, RX1, TEMP_DATA, SDA, SCL, ESP32_LD_DOUT, ESP32_LD_SCK

Optional External Serial Interface

J10 Conn_01x06
Interface_TX1
Interface_RX1

Power the board with 4.5-5.5V
PWR_EN J5 Conn_01x01

Temperature Sensor — TMP102

7-bit unshifted I²C address: 0x49

U2 TMP102
C9 0.1uF 25V 20%
ALERT, V+, SDA, SCL, ADD0
SDA, SCL

(Optional) External DS18B20

R1 4.7k
TEMP_DATA
J8 Conn_01x03
J7 3.5mm

Power — RT9080

U4 RT9080-3.3
VMax: 5.5V
600mA
C6 0.1uF 25V 20%
R14 10k
PWR_EN
C7 10uF 6.3V 20%
C8 0.1uF 25V 20%
VIN VOUT EN GND
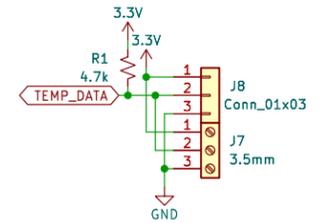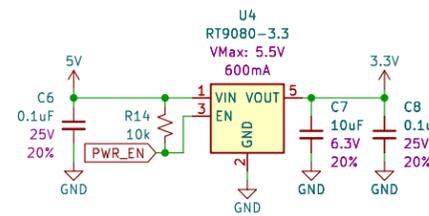
I²C

Cut I²C Jumper to remove pullup resistors from the I²C bus
JP2 I2C
R7 2.2k SDA
R13 2.2k SCL
J9 Qwiic_RA
SCL, SDA, 3V3, GND

LEDs

Cut respective jumper to disable LED.
JP4 PWR, JP1 STAT
R6 4.7k, R21 2.2k
D3 Red, D5 Blue
STATUS
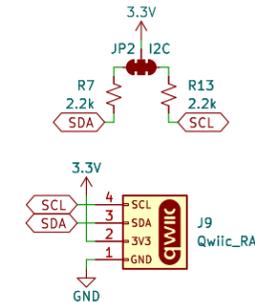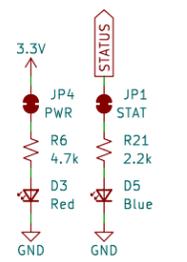
Load Cell Amplifier — HX711

AVDD = VBG(R12+R9)/R9
Default: 3.3V
Change to 5V to provide 5V to ADC

Q2 MMBT4403
VBG = 1.25V
L2 3.3uH 450mA
JP7 3.3V DVDD

J14 3.5mm
Color	Signal
Red	E+
Black	E−
White	A−
Green/Blue	A+
—	Shield

J15 3.5mm
J12 Conn_01x05

C4 10uF 6.3V 20%, C3 0.1uF 25V 20%, R12 20k, R9 8.2k, R5 100, C1 0.1uF, R8 100, C2 0.1uF 25V 20%, C5 10uF 6.3V 20%

U3 HX711
BASE, AVDD, VFB, INA+, INA−, INB+, INB−, VBG, VSUP, DVDD, DOUT, PD_SCK, XO, XI, RATE, AGND

J11 Conn_01x02
J13 3.5mm

R25 10k, R16 10k, Q4 RE1C002UNTCL 0.2A 20V, LD_DOUT, ESP32_LD_DOUT
R26 10k, R15 10k, Q3 RE1C002UNTCL 0.2A 20V, LD_SCK, ESP32_LD_SCK

R2 10k, JP5 RATE

C17 0.1uF 25V 20%, C18 10uF 10V 20%
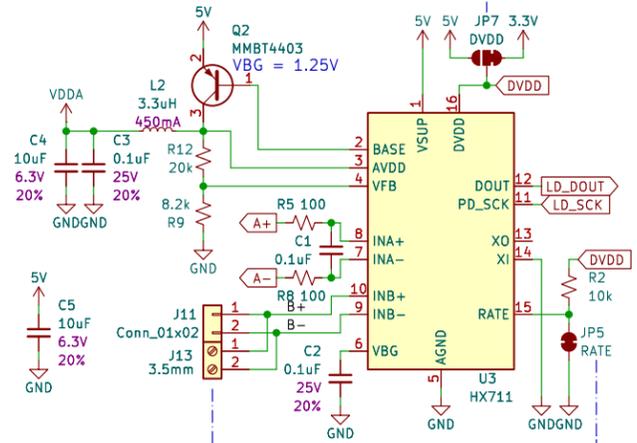
Signals B+ and B− have a fixed gain of 32
Default: Closed/Data rate 10SPS
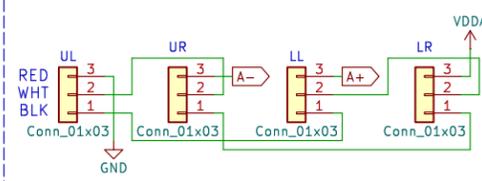Open jumper to set to 80SPS
Noise floor doubles to 90nV

USB-to-Serial — CH340C

J6 USB_C_Receptacle
VBUS, F2 6V/0.5A/1A, D+, D−, CC1, CC2, SHIELD
JP8 SHLD
R19 5.1k, R20 5.1k

JP3 TX, JP6 RX — Cut respective jumper to disable LED
R3 1k, R4 1k
D2 Yellow, D1 Green
C15 10nF 50V 10%
U5 CH340C
R232, VCC, V3, TXD, RXD, UD+, UD−, CTS, DSR, RI, DCD, DTR, RTS
ESP3/RX0, ESP1/TX0, CH340-DTR, CH340-RTS
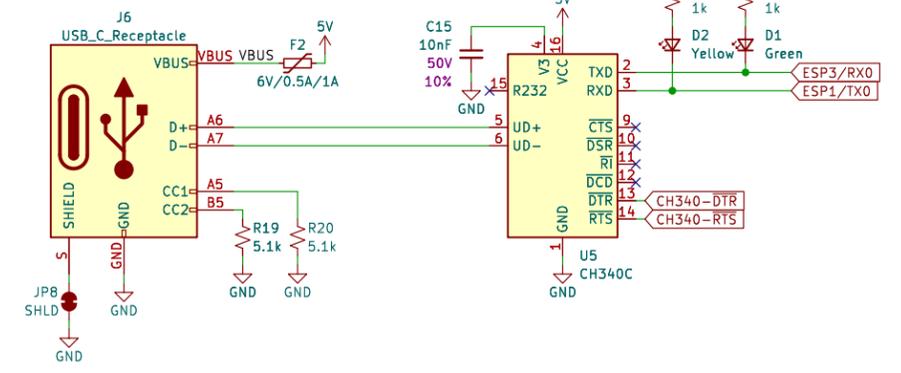
Load Sensor Combinator

Combine 4 load sensors to create 1 load cell

UL, UR, LL, LR Conn_01x03
RED, WHT, BLK
A−, A+
VDDA

qwiic sparkfun open source hardware