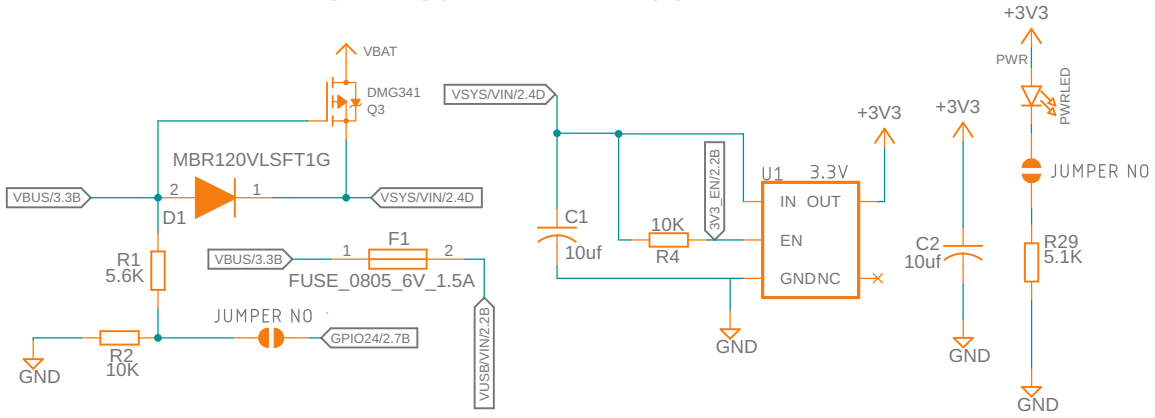
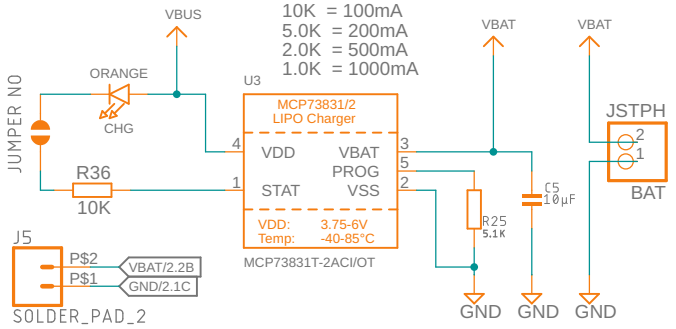
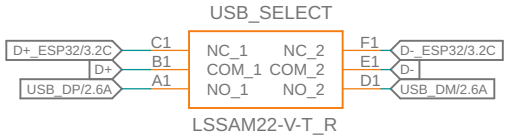
POWER SUPPLY AP2112K-3.3V



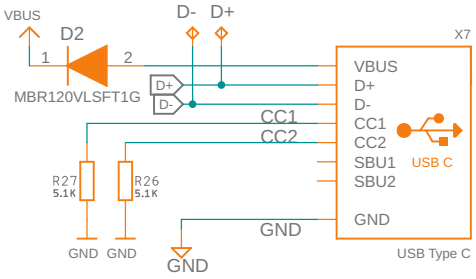
BATTERY CHARGING



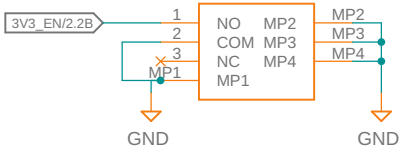
USB SELECTOR



USB TYPE C CONNECTOR



POWER SWITCH

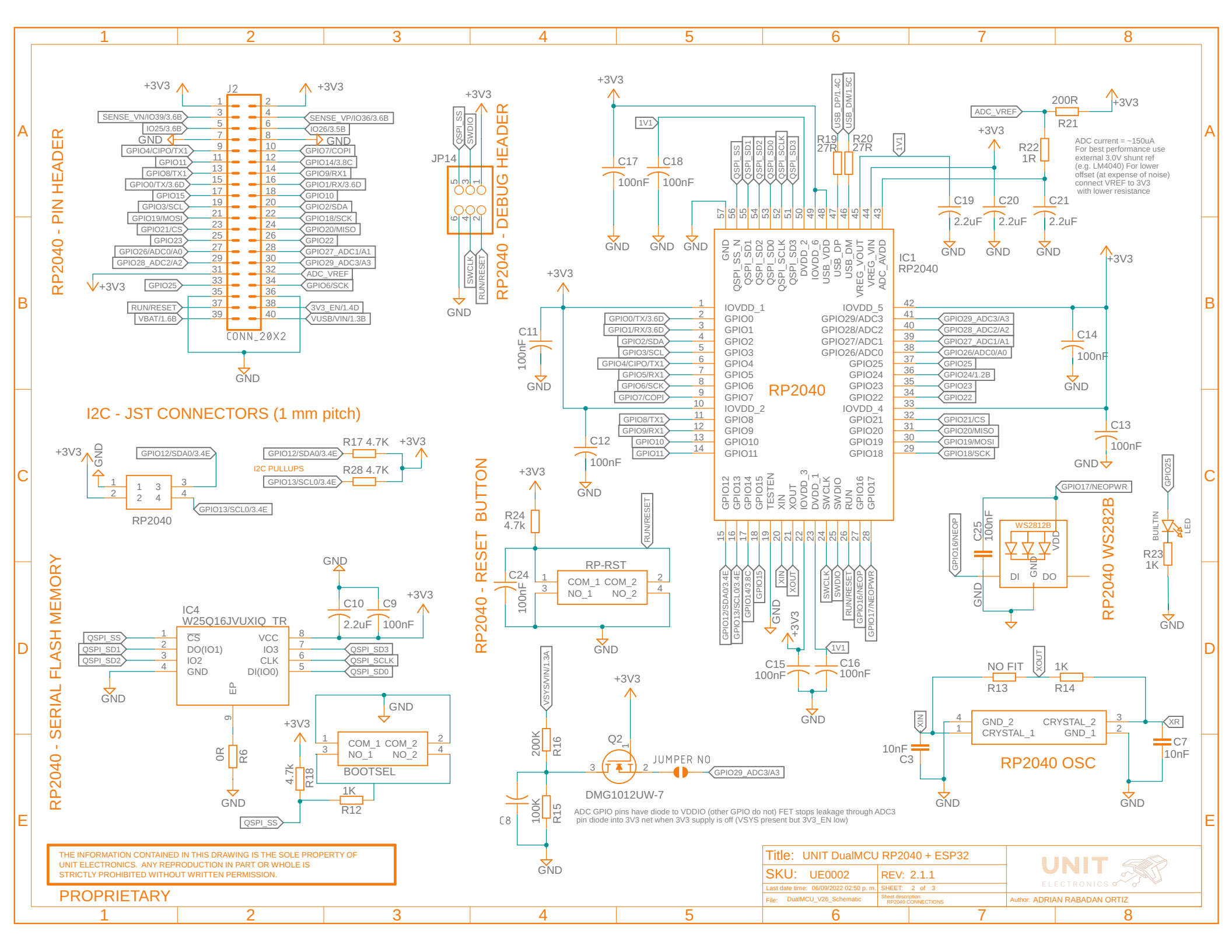


MOUNTING HOLES

- H1 MOUNT-PAD-ROUND3.0
- H2 MOUNT-PAD-ROUND3.0
- H3 MOUNT-PAD-ROUND3.0
- H4 MOUNT-PAD-ROUND3.0

Description:
Development board based on RP2040 microcontroller
Dual cortex M0+ 133 Mhz with WIFI communication
via espressif ESP32 microcontroller

Title: UNIT DualMCU RP2040 + ESP32		UNIT ELECTRONICS
SKU: UE0002	REV: 2.1.1	
Last date time: 06/09/2022 02:50 p. m.	SHEET: 1 of 3	
File: DualMCU_V26_Schematic	Sheet description: POWER SUPPLY & USB SELECTOR	Author: ADRIAN RABADAN ORTIZ


RP2040 - PIN HEADER
J2
CONN_20X2
SENSE_VN/IO39/3.6B
IO25/3.6B
GPIO4/CIPO/TX1
GPIO11
GPIO8/TX1
GPIO0/TX/3.6D
GPIO15
GPIO3/SCL
GPIO19/MOSI
GPIO21/CS
GPIO23
GPIO26/ADC0/A0
GPIO28_ADC2/A2
GPIO25
RUN/RESET
VBAT/1.6B
SENSE_VP/IO36/3.6B
IO26/3.5B
GPIO7/COPI
GPIO14/3.8C
GPIO9/RX1
GPIO1/RX/3.6D
GPIO10
GPIO2/SDA
GPIO18/SCK
GPIO20/MISO
GPIO22
GPIO27_ADC1/A1
GPIO29_ADC3/A3
ADC_VREF
GPIO6/SCK
3V3_EN/1.4D
VUSB/VIN/1.3B
RP2040 - DEBUG HEADER
JP14
QSPI_SS
SWDIO
SWCLK
RUN/RESET
I2C - JST CONNECTORS (1 mm pitch)
I2C PULLUPS
R17 4.7K
R28 4.7K
RP2040
RP2040 - SERIAL FLASH MEMORY
IC4
W25Q16JVUXIQ_TR
C10
C9
2.2uF
100nF
0R
R6
BOOTSEL
4.7k
R18
1K
R12
RP2040 - RESET BUTTON
R24
4.7k
RP-RST
C24
100nF
RUN/RESET
C8
100K
R15
200K
R16
Q2
DMG1012UW-7
JUMPER NO
ADC GPIO pins have diode to VDDIO (other GPIO do not) FET stops leakage through ADC3 pin diode into 3V3 net when 3V3 supply is off (VSYS present but 3V3_EN low)
IC1
RP2040
C17
C18
100nF
R19
R20
27R
USB_DP/1.4C
USB_DM/1.5C
C19
C20
C21
2.2uF
ADC_VREF
200R
R21
R22
1R
ADC current = ~150uA
For best performance use external 3.0V shunt ref (e.g. LM4040) For lower offset (at expense of noise) connect VREF to 3V3 with lower resistance
C11
C12
C13
C14
C15
C16
RP2040 WS282B
WS2812B
GPIO17/NEOPWR
GPIO16/NEOP
C25
BUILTIN
LED
R23
1K
RP2040 OSC
NO FIT
R13
R14
XIN
XOUT
C3
10nF
C7
10nF
GND_2
CRYSTAL_2
CRYSTAL_1
GND_1
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PROPRIETARY
Title: UNIT DualMCU RP2040 + ESP32
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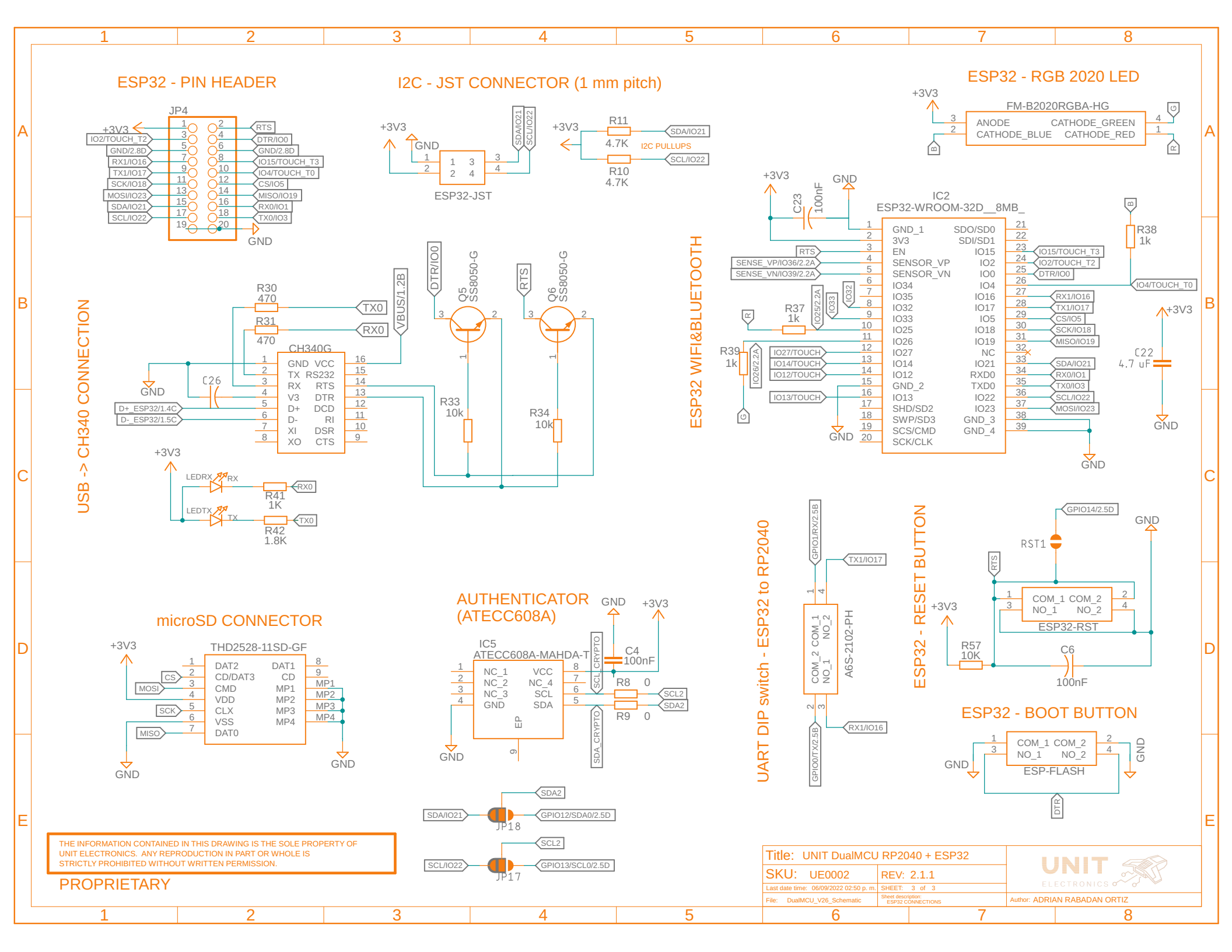
Last date time: 06/09/2022 02:50 p. m.
SHEET: 2 of 3
File: DualMCU_V26_Schematic
Sheet description: RP2040 CONNECTIONS
Author: ADRIAN RABADAN ORTIZ
UNIT ELECTRONICS


ESP32 - PIN HEADER
JP4
+3V3
IO2/TOUCH_T2
GND/2.8D
RX1/IO16
TX1/IO17
SCK/IO18
MOSI/IO23
SDA/IO21
SCL/IO22
RTS
DTR/IO0
GND/2.8D
IO15/TOUCH_T3
IO4/TOUCH_T0
CS/IO5
MISO/IO19
RX0/IO1
TX0/IO3
GND
I2C - JST CONNECTOR (1 mm pitch)
+3V3
GND
SDA/IO21
SCL/IO22
ESP32-JST
R11
4.7K
R10
4.7K
I2C PULLUPS
ESP32 - RGB 2020 LED
FM-B2020RGBA-HG
ANODE
CATHODE_GREEN
CATHODE_BLUE
CATHODE_RED
USB -> CH340 CONNECTION
R30
470
R31
470
TX0
RX0
VBUS/1.2B
CH340G
GND VCC
TX RS232
RX RTS
V3 DTR
D+ DCD
D- RI
XI DSR
XO CTS
C26
D+_ESP32/1.4C
D-_ESP32/1.5C
DTR/IO0
Q5
SS8050-G
RTS
Q6
SS8050-G
R33
10k
R34
10k
LEDRX
LEDTX
RX
TX
R41
1K
R42
1.8K
ESP32 WIFI&BLUETOOTH
IC2
ESP32-WROOM-32D__8MB_
C23
100nF
GND_1
3V3
EN
SENSE_VP/IO36/2.2A
SENSE_VN/IO39/2.2A
IO34
IO35
IO32
IO33
IO25
IO26
IO27
IO14
IO12
GND_2
IO13
SHD/SD2
SWP/SD3
SCS/CMD
SCK/CLK
SDO/SD0
SDI/SD1
IO15
IO2
IO0
IO4
IO16
IO17
IO5
IO18
IO19
NC
IO21
RXD0
TXD0
IO22
IO23
GND_3
GND_4
R37
1k
R39
1k
IO27/TOUCH
IO14/TOUCH
IO12/TOUCH
IO13/TOUCH
R38
1k
C22
4.7 uF
UART DIP switch - ESP32 to RP2040
A6S-2102-PH
GPIO1/RX/2.5B
GPIO0/TX/2.5B
TX1/IO17
RX1/IO16
ESP32 - RESET BUTTON
RST1
GPIO14/2.5D
COM_1
COM_2
NO_1
NO_2
ESP32-RST
R57
10K
C6
100nF
ESP32 - BOOT BUTTON
ESP-FLASH
DTR
microSD CONNECTOR
THD2528-11SD-GF
DAT2
CD/DAT3
CMD
VDD
CLX
VSS
DAT0
DAT1
CD
MP1
MP2
MP3
MP4
CS
MOSI
SCK
MISO
AUTHENTICATOR
(ATECC608A)
IC5
ATECC608A-MAHDA-T
NC_1
NC_2
NC_3
GND
VCC
NC_4
SCL
SDA
EP
SCL_CRYPTO
SDA_CRYPTO
C4
100nF
R8
0
R9
0
SCL2
SDA2
JP18
JP17
GPIO12/SDA0/2.5D
GPIO13/SCL0/2.5D
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