# Batt 1 Isolator (starter)

U2 INA219BxDCN
H1 Cable_Connection
80A Max. 10W Max.
ADDR:1000000
100A max cont. 400A pulsed
HSBA100P03
MMBT3904 Q2
MMBT3906 Q3
510R R1
B1CM
B1VM
B1ON
COM

# Batt 2 CM (aux)

U3 INA219BxDCN
H2 Cable_Connection
80A Max. 10W Max.
ADDR:1000001
B2CM
B2VM
4mR R9, 4mR R12

# Load 1 (30A Max.)

U7 INA219BxDCN
H5 Cable_Connection
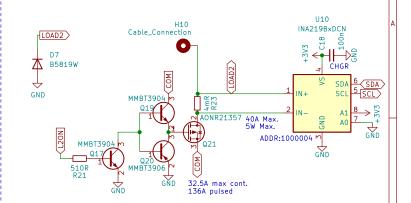LOAD1
D3 B5819W
AONR21357 Q12
40A Max. 5W Max.
ADDR:1000003
32.5A max cont. 136A pulsed
MMBT3904 Q10, Q9
MMBT3906 Q11
510R R15
4mR R16
L1ON

# Load 2 (30A Max.)

U10 INA219BxDCN
H10 Cable_Connection
LOAD2
D7 B5819W
AONR21357 Q21
40A Max. 5W Max.
ADDR:1000004
32.5A max cont. 136A pulsed
MMBT3904 Q19, Q17
MMBT3906 Q20
510R R21
4mR R23
L2ON

# Solar Charger Input

U4 INA219BxDCN
H3 Cable_Connection
40A Max. 5W Max.
ADDR:1000002
4mR R10
CHGR

# Ground

H4 Cable_Connection
GND

# Load 3 (lights– 30A Max.)

U9 INA219BxDCN
H9 Cable_Connection
LOAD3
D6 B5819W
AONR21357 Q18
40A Max. 5W Max.
ADDR:1000005
32.5A max cont. 136A pulsed
MMBT3904 Q16, Q13
MMBT3906 Q14
510R R20
4mR R22
L3ON

# ESP-32 Microcontroller

Hold boot button to enter bootloader as RST will reset the uC automatically

U1 ESP32-WROOM-32D
+3V3
C1 4.7uF, C2 100n, C3 100n
R3 11k
R6 11k
R7
R2 3.6k
D1 LED_Small
SYS_LED
BOOT
TXD0/IO1, RXD0/IO3
EN, SENSOR_VP, SENSOR_VN
IO0, IO2, IO4, IO5
IO12, IO13, IO14, IO15, IO16, IO17
IO18, IO19, IO21, IO22, IO23
SDO/SD0, SDI/SD1, SHD/SD2, SWP/SD3, SCK/CLK, SCS/CMD
IO25, IO26, IO27, IO32, IO33, IO34, IO35
RTC_GPIO10, RTC_GPIO14, RTC_GPIO16, RTC_GPIO13
L3ON, L2ON, L1ON, FANON, RPM, BZR, SDA, SYS_LED, SCL
RTC_6, RTC_7, RTC_17, RTC_9
B1ON, MODE
GND

pins with pullups: 14, 16, 17, 18, 19, 21, 22, 23

# FAN

J1 Conn_01x03_Male
1 COM
2 FANGND
3 RPM
D2 B5819W
COM, FANGND

# FAN PWM

Q8 MMBT3904
FANON
R14 11k
FANGND
GND

# UART-USB

U6 CH340N
+3V3
C12 100n
C1 100n
V3, VCC, TXD, RXD, RTS
UD+, UD-
D+, D-
TXD, RXD, RST

# USB-C

J2 USB_C_Receptacle_USB2.0
VBUS, 5V
CC1, CC2
R18 5.1k, R19 5.1k
D-, D+
SHIELD, GND
SBU1, SBU2
S1, A1

# Buttons

SW1 C620183 RST
SW2 C620183
MODE, BOOT
GND

# DC-DC Buck
# 40V>3.3V@600mA

U5 XL1509-SOP8
GND, EN, FB, SW, VIN
L1 47uH
SS34 D4
+3.3V
C9 220uF
C7 1uF, C8
D5 B5819W, 5V
100uF(220uF)
PWR_FLAG
COM
GND

# I2C

+3V3
R8 3.6k, R11 3.6k
SCL, SDA

# Buzzer

BZ1 Buzzer
+3V3
MMBT3904
BZR
Buzzer
GND

# ADC + temp

U8 ADC128D818
+3V3
C15 100n, C16 1uF
B1VD, B2VD
IN0, IN1, IN2, IN3, IN4, IN5, IN6, IN7
V+, SDA, SCL, INT
VREF, A0, A1, GND
C13 1uF, C14 100n
Don't use IN7 (temp)
2.56V full-range
B1VM, COM
R26 200k, R28 200k
R27 33k, R29 33k
B1VD, B2VD
18V max.

# Mounting Holes

H7 MountingHole
H8 MountingHole
H11 MountingHole
H12 MountingHole

Acea Quigg
Sheet: /
File: esp32_battery_isolator.kicad_sch
Title: ESP32 Battery Isolator
Size: A3
Date: 2021-12-05
Rev: 80A r1
KiCad E.D.A. kicad (6.0.0-rc1-314-g10be483430)
Id: 1/1