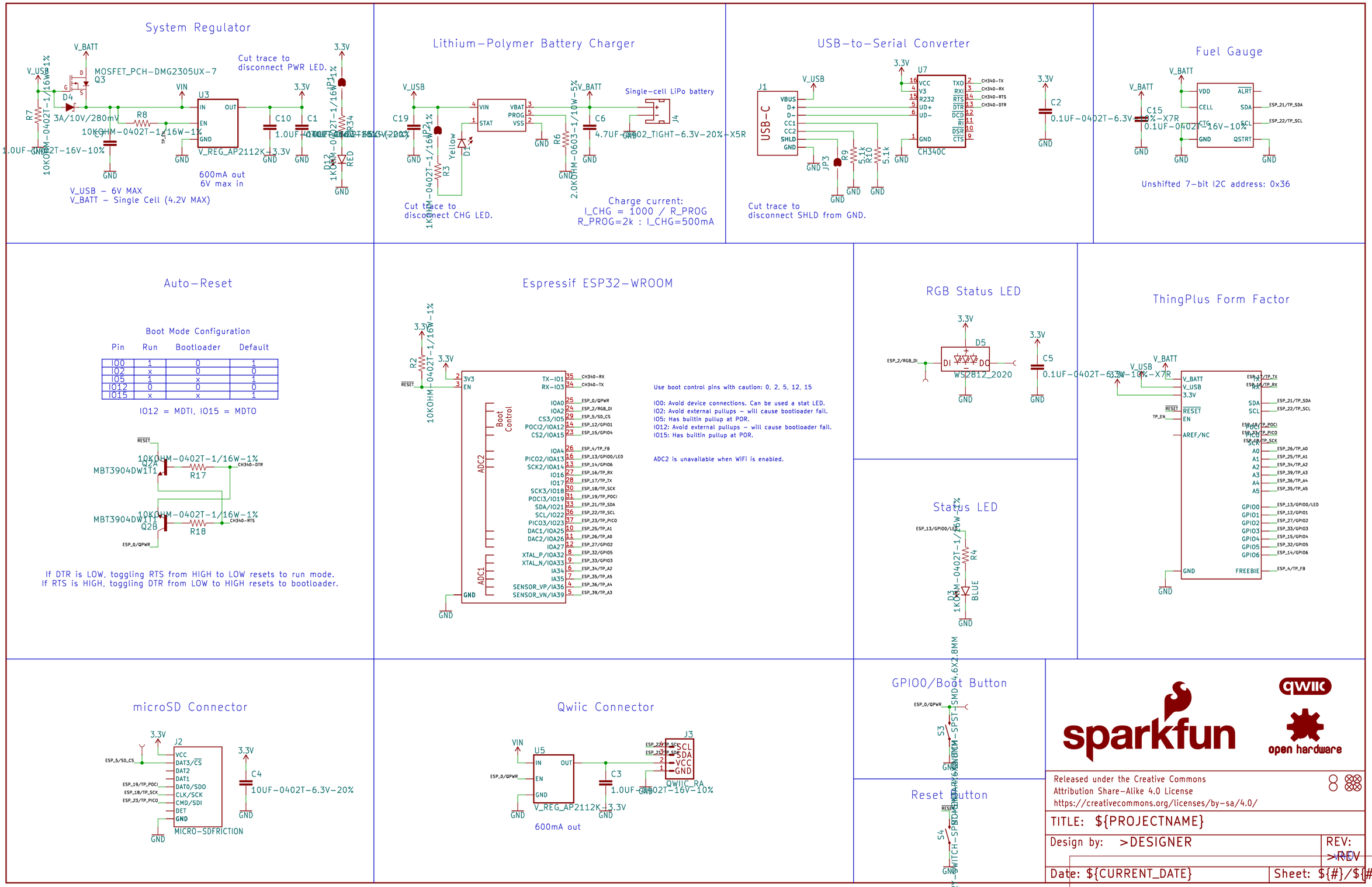
System Regulator
V_BATT
V_USB
MOSFET_PCH-DMG2305UX-7
Q3
D4
3A/10V/280mV
R7
10KOHM-0402T-1/16W-1%
R8
10KOHM-0402T-1/16W-1%
C7
1.0UF-0402T-16V-10%
GND
VIN
U3
IN
OUT
EN
GND
V_REG_AP2112K-3.3V
600mA out
6V max in
V_USB - 6V MAX
V_BATT - Single Cell (4.2V MAX)
Cut trace to disconnect PWR LED.
3.3V
C10
1.0UF-0402T-6.3V-20%
C1
R12
1KOHM-0402T-1/16W-1%
R34
1KOHM-0402T-1/16W-1%
RED
Lithium-Polymer Battery Charger
V_USB
C19
1.0UF-0402T-6.3V-20%
R3
1KOHM-0402T-1/16W-1%
Yellow
D1
VIN
STAT
VBAT
PROG
VSS
R6
2.0KOHM-0603-1/10W-5%
V_BATT
C6
4.7UF-0402T-6.3V-20%
Single-cell LiPo battery
J4
Cut trace to disconnect CHG LED.
Charge current:
I_CHG = 1000 / R_PROG
R_PROG=2k : I_CHG=500mA
USB-to-Serial Converter
J1
USB-C
VBUS
D+
D-
CC1
CC2
SHLD
GND
JP3
R9
5.1k
R10
5.1k
U7
VCC
V3
R232
UD+
UD-
GND
TXO
RXI
RTS
DTR
DCD
RI
DSR
CTS
CH340C
CH340-TX
CH340-RX
CH340-RTS
CH340-DTR
C2
0.1UF-0402T-6.3V-20%
Cut trace to disconnect SHLD from GND.
Fuel Gauge
V_BATT
C15
0.1UF-0402T-16V-10%
VDD
CELL
CTG
GND
ALRT
SDA
SCL
QSTRT
ESP_21/TP_SDA
ESP_22/TP_SCL
Unshifted 7-bit I2C address: 0x36
Auto-Reset
Boot Mode Configuration
Pin | Run | Bootloader | Default
IO0 | 1 | 0 | 1
IO2 | x | 0 | 0
IO5 | 1 | x | 1
IO12 | 0 | 0 | 0
IO15 | x | x | 1
IO12 = MDTI, IO15 = MDTO
RESET
Q2A
MBT3904DW1T1
10KOHM-0402T-1/16W-1%
R17
CH340-DTR
Q2B
R18
CH340-RTS
ESP_0/QPWR
If DTR is LOW, toggling RTS from HIGH to LOW resets to run mode.
If RTS is HIGH, toggling DTR from LOW to HIGH resets to bootloader.
Espressif ESP32-WROOM
R2
10KOHM-0402T-1/16W-1%
3V3
EN
Boot Control
ADC2
ADC1
GND
TX-IO1
RX-IO3
IOA0
IOA2
CS3/IO5
POCI2/IOA12
CS2/IOA15
IOA4
PICO2/IOA13
SCK2/IOA14
IO16
IO17
SCK3/IO18
POCI3/IO19
SDA/IO21
SCL/IO22
PICO3/IO23
DAC1/IOA25
DAC2/IOA26
IOA27
XTAL_P/IOA32
XTAL_N/IOA33
IA34
IA35
SENSOR_VP/IA36
SENSOR_VN/IA39
Use boot control pins with caution: 0, 2, 5, 12, 15
IO0: Avoid device connections. Can be used a stat LED.
IO2: Avoid external pullups - will cause bootloader fail.
IO5: Has builtin pullup at POR.
IO12: Avoid external pullups - will cause bootloader fail.
IO15: Has builtin pullup at POR.
ADC2 is unavailable when WiFi is enabled.
RGB Status LED
D5
WS2812_2020
ESP_2/RGB_DI
C5
0.1UF-0402T-6.3V-10%-X7R
Status LED
R7
1KOHM-0402T-1/16W-1%
R4
BLUE
ESP_13/GPIO0/LED
ThingPlus Form Factor
V_BATT
V_USB
3.3V
RESET
EN
AREF/NC
GND
TX
RX
SDA
SCL
POCI
PICO
SCK
A0
A1
A2
A3
A4
A5
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
FREEBIE
ESP_17/TP_TX
ESP_16/TP_RX
ESP_21/TP_SDA
ESP_22/TP_SCL
ESP_26/TP_A0
ESP_25/TP_A1
ESP_34/TP_A2
ESP_39/TP_A3
ESP_36/TP_A4
ESP_35/TP_A5
ESP_13/GPIO0/LED
ESP_12/GPIO1
ESP_27/GPIO2
ESP_33/GPIO3
ESP_15/GPIO4
ESP_32/GPIO5
ESP_14/GPIO6
ESP_4/TP_FB
microSD Connector
J2
VCC
DAT3/CS
DAT2
DAT1
DAT0/SDO
CLK/SCK
CMD/SDI
DET
GND
MICRO-SDFRICTION
ESP_5/SD_CS
ESP_19/TP_POCI
ESP_18/TP_SCK
ESP_23/TP_PICO
C4
10UF-0402T-6.3V-20%
Qwiic Connector
U5
VIN
IN
OUT
EN
GND
V_REG_AP2112K-3.3V
600mA out
C3
1.0UF-0402T-16V-10%
J3
SCL
SDA
VCC
GND
QWIIC_RA
ESP_22/TP_SCL
ESP_21/TP_SDA
GPIO0/Boot Button
S3
SPST-SMD_4.6X2.8MM
Reset Button
S4
MOMENTARY-SWITCH-SPST-SMD_4.6X2.8MM
sparkfun
qwiic
open hardware
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TITLE: ${PROJECTNAME}
Design by: >DESIGNER
REV: >REV
Date: ${CURRENT_DATE}
Sheet: ${#}/${##}
Sheet: /
File: working.kicad_sch
Title:
Size: User
Date:
Rev:
KiCad E.D.A. eeschema 7.0.2
Id: 1/1