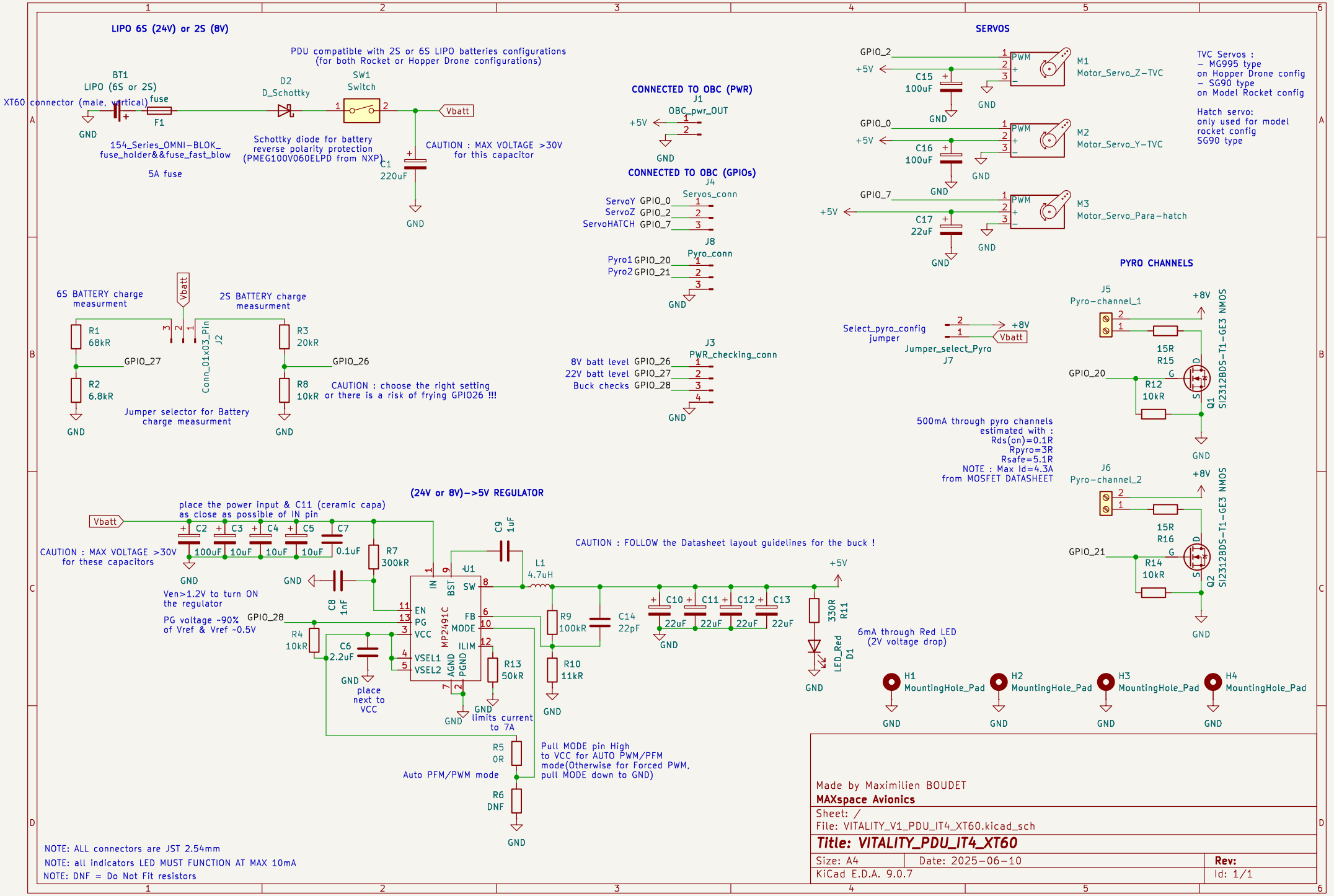

LIPO 6S (24V) or 2S (8V)
PDU compatible with 2S or 6S LIPO batteries configurations
(for both Rocket or Hopper Drone configurations)
BT1
LIPO (6S or 2S)
XT60 connector (male, vertical)
fuse
F1
5A fuse
154_Series_OMNI-BLOK_
fuse_holder&&fuse_fast_blow
D2
D_Schottky
Schottky diode for battery
reverse polarity protection
(PMEG100V060ELPD from NXP)
SW1
Switch
Vbatt
C1
220uF
CAUTION : MAX VOLTAGE >30V
for this capacitor
GND
CONNECTED TO OBC (PWR)
J1
OBC_pwr_OUT
+5V
CONNECTED TO OBC (GPIOs)
J4
Servos_conn
ServoY GPIO_0
ServoZ GPIO_2
ServoHATCH GPIO_7
J8
Pyro_conn
Pyro1 GPIO_20
Pyro2 GPIO_21
J3
PWR_checking_conn
8V batt level GPIO_26
22V batt level GPIO_27
Buck checks GPIO_28
SERVOS
GPIO_2
GPIO_0
GPIO_7
C15 100uF
C16 100uF
C17 22uF
PWM
M1 Motor_Servo_Z-TVC
M2 Motor_Servo_Y-TVC
M3 Motor_Servo_Para-hatch
TVC Servos :
- MG995 type
on Hopper Drone config
- SG90 type
on Model Rocket config
Hatch servo:
only used for model
rocket config
SG90 type
6S BATTERY charge
measurment
2S BATTERY charge
measurment
R1 68kR
R2 6.8kR
R3 20kR
R8 10kR
GPIO_27
GPIO_26
Conn_01x03_Pin
J2
Jumper selector for Battery
charge measurment
CAUTION : choose the right setting
or there is a risk of frying GPIO26 !!!
PYRO CHANNELS
J5
Pyro-channel_1
J6
Pyro-channel_2
+8V
15R
R15
R16
R12 10kR
R14 10kR
GPIO_20
GPIO_21
Q1
Q2
SI2312BDS-T1-GE3 NMOS
Select_pyro_config
jumper
Jumper_select_Pyro
J7
500mA through pyro channels
estimated with :
Rds(on)=0.1R
Rpyro=3R
Rsafe=5.1R
NOTE : Max Id=4.3A
from MOSFET DATASHEET
(24V or 8V)->5V REGULATOR
place the power input & C11 (ceramic capa)
as close as possible of IN pin
CAUTION : MAX VOLTAGE >30V
for these capacitors
C2 100uF
C3 10uF
C4 10uF
C5 10uF
C7 0.1uF
C8 1nF
C9 1uF
R7 300kR
R4 10kR
C6 2.2uF
place
next to
VCC
U1
MP2491C
IN
BST
SW
EN
PG
VCC
FB
MODE
ILIM
VSEL1
VSEL2
AGND
PGND
L1 4.7uH
R9 100kR
R10 11kR
R13 50kR
limits current
to 7A
C14 22pF
C10 22uF
C11 22uF
C12 22uF
C13 22uF
CAUTION : FOLLOW the Datasheet layout guidelines for the buck !
Ven>1.2V to turn ON
the regulator
PG voltage ~90%
of Vref & Vref ~0.5V
GPIO_28
R5 0R
Auto PFM/PWM mode
Pull MODE pin High
to VCC for AUTO PWM/PFM
mode(Otherwise for Forced PWM,
pull MODE down to GND)
R6 DNF
330R
R11
LED_Red
D1
6mA through Red LED
(2V voltage drop)
H1 MountingHole_Pad
H2 MountingHole_Pad
H3 MountingHole_Pad
H4 MountingHole_Pad
NOTE: ALL connectors are JST 2.54mm
NOTE: all indicators LED MUST FUNCTION AT MAX 10mA
NOTE: DNF = Do Not Fit resistors
Made by Maximilien BOUDET
MAXspace Avionics
Sheet: /
File: VITALITY_V1_PDU_IT4_XT60.kicad_sch
Title: VITALITY_PDU_IT4_XT60
Size: A4
Date: 2025-06-10
Rev:
KiCad E.D.A. 9.0.7
Id: 1/1