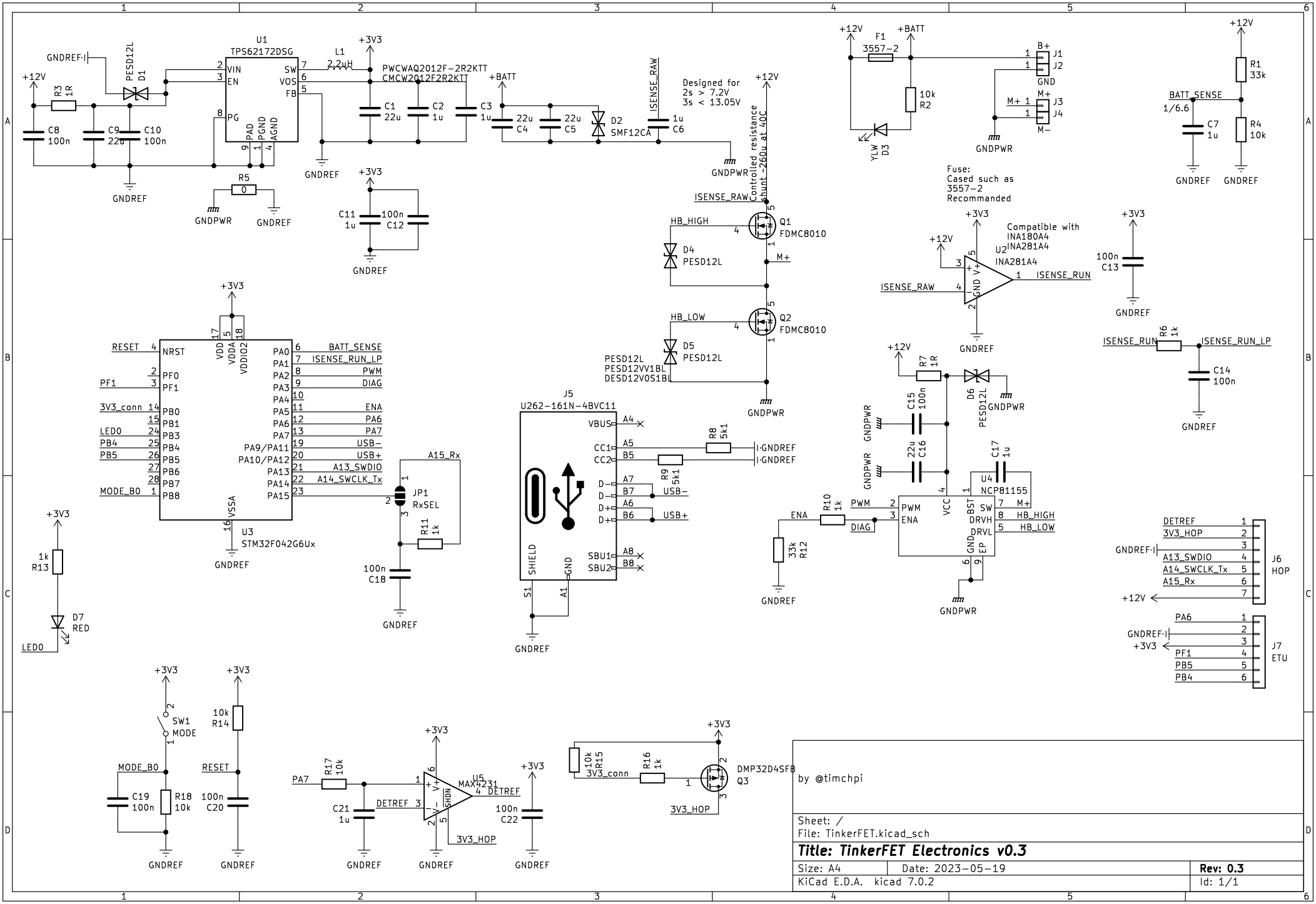
U1
TPS62172DSG
VIN
EN
PG
SW
VOS
FB
PAD
PGND
AGND
L1
2.2uH
PWCWAQ2012F-2R2KTT
CMCW2012F2R2KTT
+3V3
+12V
+BATT
GNDREF
GNDPWR
PESD12L
D1
R3
1R
C8
100n
C9
22u
C10
100n
R5
0
C11
1u
C12
100n
C1
22u
C2
1u
C3
1u
C4
22u
C5
22u
D2
SMF12CA
ISENSE_RAW
C6
1u
Designed for
2s > 7.2V
3s < 13.05V
Controlled resistance
shunt ~260u at 40C
Q1
FDMC8010
Q2
FDMC8010
HB_HIGH
HB_LOW
M+
D4
PESD12L
D5
PESD12L
PESD12L
PESD12VV1BL
DESD12VOS1BL
F1
3557-2
10k
R2
YLW
D3
J1
J2
J3
J4
B+
M+
M-
GND
Fuse:
Cased such as
3557-2
Recommanded
R1
33k
R4
10k
BATT_SENSE
1/6.6
C7
1u
U2
INA281A4
Compatible with
INA180A4
INA281A4
ISENSE_RUN
100n
C13
R6
1k
ISENSE_RUN_LP
C14
100n
U3
STM32F042G6Ux
NRST
VDD
VDDA
VDDIO2
PF0
PF1
PB0
PB1
PB3
PB4
PB5
PB6
PB7
PB8
VSSA
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA9/PA11
PA10/PA12
PA13
PA14
PA15
RESET
PF1
3V3_conn
LED0
PB4
PB5
MODE_B0
BATT_SENSE
ISENSE_RUN_LP
PWM
DIAG
ENA
USB-
USB+
A13_SWDIO
A14_SWCLK_Tx
A15_Rx
JP1
RxSEL
R11
1k
100n
C18
J5
U262-161N-4BVC11
VBUS
CC1
CC2
D-
D+
SBU1
SBU2
SHIELD
GND
R8
5k1
R9
5k1
R7
1R
D6
PESD12L
C15
100n
22u
C16
C17
1u
U4
NCP81155
PWM
ENA
DIAG
VCC
BST
SW
DRVH
DRVL
GND
EP
HB_HIGH
HB_LOW
R10
1k
33k
R12
1k
R13
D7
RED
LED0
J6
HOP
DETREF
3V3_HOP
A13_SWDIO
A14_SWCLK_Tx
A15_Rx
J7
ETU
PA6
PF1
PB5
PB4
SW1
MODE
10k
R14
C19
100n
R18
10k
100n
C20
PA7
R17
10k
C21
1u
U5
MAX4231
DETREF
SHDN
3V3_HOP
100n
C22
10k
R15
3V3_conn
R16
1k
DMP32D4SFB
Q3
3V3_HOP
by @timchpi
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Title: TinkerFET Electronics v0.3
Size: A4
Date: 2023-05-19
Rev: 0.3
KiCad E.D.A. kicad 7.0.2
Id: 1/1