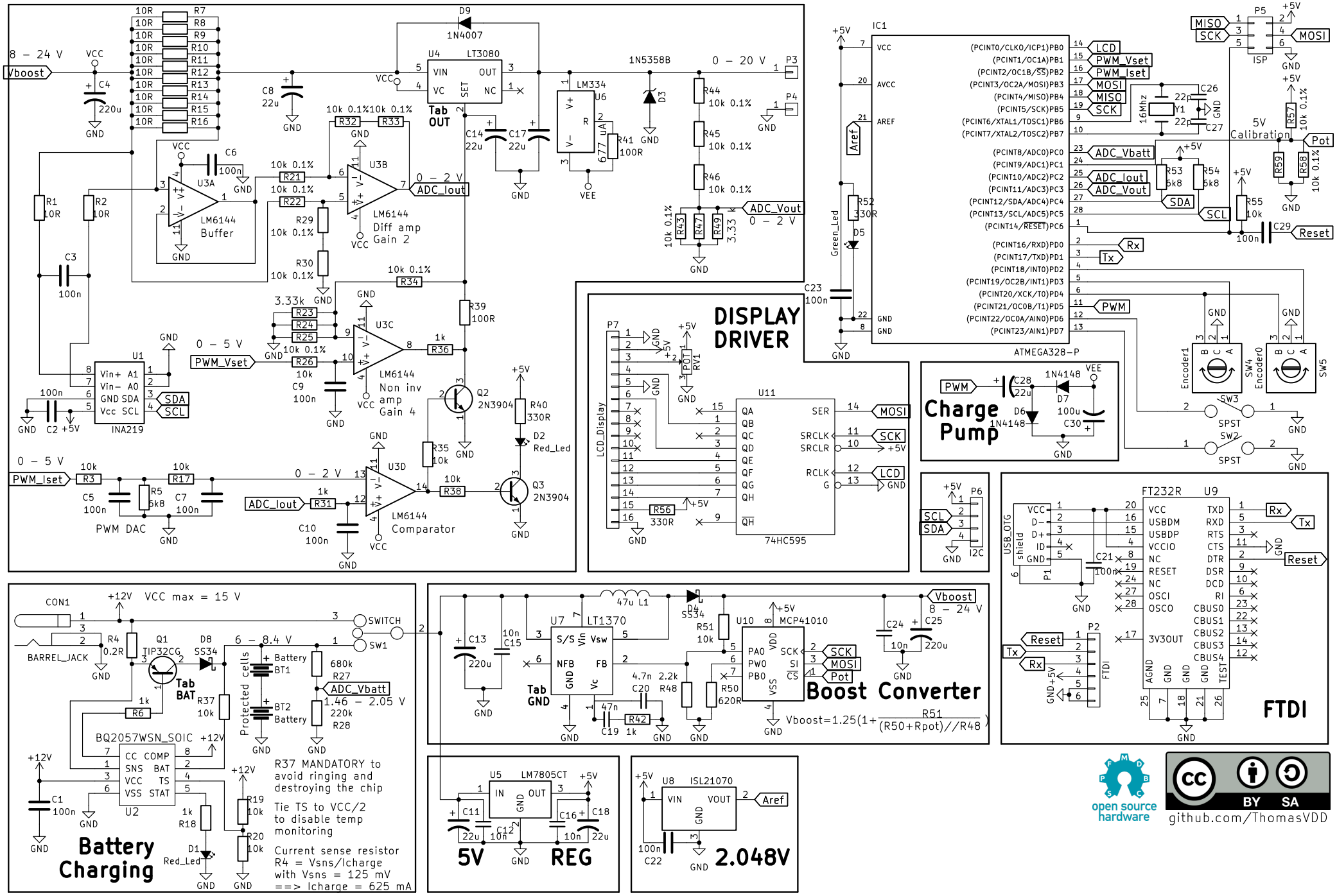

8 – 24 V
Vboost
VCC
0 – 20 V
P3
P4
1N5358B
1N4007
LT3080
LM334
LM6144
Buffer
Diff amp
Gain 2
Non inv
amp
Gain 4
Comparator
INA219
PWM DAC
0 – 5 V
PWM_Vset
PWM_Iset
0 – 2 V
ADC_Iout
ADC_Vout
Tab
OUT
Tab
BAT
Tab
GND
DISPLAY
DRIVER
74HC595
LCD_Display
ATMEGA328–P
IC1
Charge
Pump
1N4148
Calibration
ISP
MISO
MOSI
SCK
LCD
PWM_Vset
PWM_Iset
ADC_Vbatt
ADC_Iout
ADC_Vout
SDA
SCL
Rx
Tx
PWM
Reset
Pot
Encoder1
Encoder0
SPST
Green_Led
Red_Led
CON1
BARREL_JACK
SWITCH
TIP32CG
SS34
Protected cells
BQ2057WSN_SOIC
Battery
Charging
R37 MANDATORY to
avoid ringing and
destroying the chip
Tie TS to VCC/2
to disable temp
monitoring
Current sense resistor
R4 = Vsns/Icharge
with Vsns = 125 mV
==> Icharge = 625 mA
VCC max = 15 V
6 – 8.4 V
1.46 – 2.05 V
LT1370
MCP41010
Boost Converter
Vboost=1.25(1+R51/(R50+Rpot)//R48)
LM7805CT
5V
REG
ISL21070
2.048V
FT232R
FTDI
USB_OTG
I2C
open source
hardware
BY SA
github.com/ThomasVDD