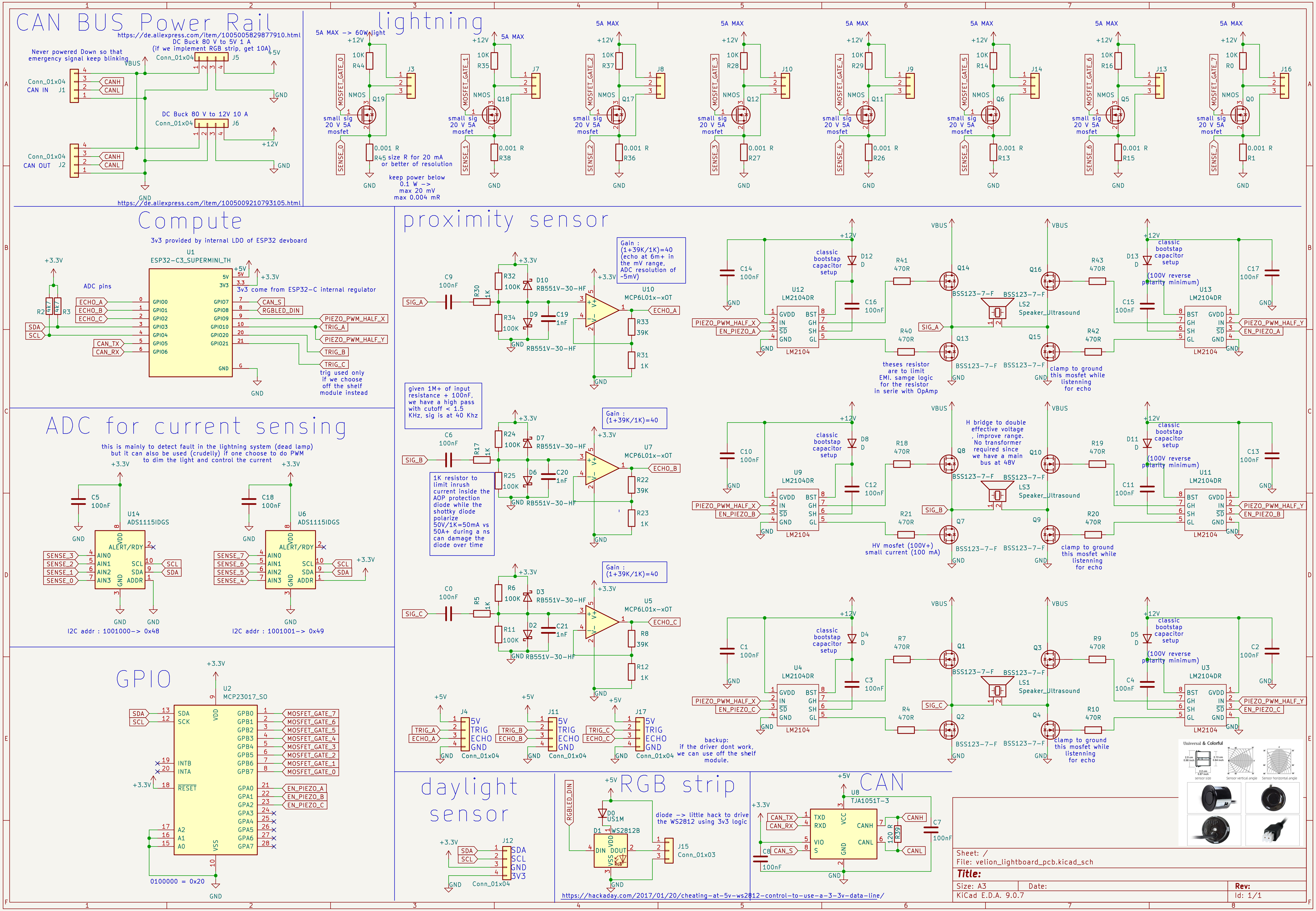

CAN BUS Power Rail
https://de.aliexpress.com/item/1005005829877910.html
DC Buck 80 V to 5V 1 A
(if we implement RGB strip, get 10A)
Never powered Down so that emergency signal keep blinking
Conn_01x04 CAN IN J1
DC Buck 80 V to 12V 10 A
Conn_01x04 CAN OUT J2
https://de.aliexpress.com/item/1005009210793105.html
lightning
5A MAX -> 60W light
5A MAX
small sig 20 V 5A mosfet
R45 size R for 20 mA or better of resolution
keep power below 0.1 W -> max 20 mV max 0.004 mR
Compute
3v3 provided by internal LDO of ESP32 devboard
ESP32-C3_SUPERMINI_TH
ADC pins
3v3 come from ESP32-C internal regulator
trig used only if we choose off the shelf module instead
ADC for current sensing
this is mainly to detect fault in the lightning system (dead lamp) but it can also be used (crudelly) if one choose to do PWM to dim the light and control the current
ADS1115IDGS
I2C addr : 1001000-> 0x48
I2C addr : 1001001-> 0x49
GPIO
MCP23017_SO
0100000 = 0x20
proximity sensor
Gain : (1+39K/1K)=40 (echo at 6m+ in the mV range, ADC resolution of -5mV)
MCP6L01x-xOT
RB551V-30-HF
given 1M+ of input resistance + 100nF, we have a high pass with cutoff < 1.5 KHz, sig is at 40 Khz
1K resistor to limit inrush current inside the AOP protection diode while the shottky diode polarize 50V/1K=50mA vs 50A+ during a ns can damage the diode over time
Gain : (1+39K/1K)=40
classic bootstrap capacitor setup
LM2104DR
BSS123-7-F
Speaker_Ultrasound
theses resistor are to limit EMI. samge logic for the resistor in serie with OpAmp
clamp to ground this mosfet while listenning for echo
(100V reverse polarity minimum)
H bridge to double effective voltage , improve range. No transformer required since we have a main bus at 48V
HV mosfet (100V+) small current (100 mA)
backup: if the driver dont work, we can use off the shelf module.
daylight sensor
RGB strip
WS2812B
diode -> little hack to drive the WS2812 using 3v3 logic
https://hackaday.com/2017/01/20/cheating-at-5v-ws2812-control-to-use-a-3-3v-data-line/
CAN
TJA1051T-3
Sheet: /
File: velion_lightboard_pcb.kicad_sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. 9.0.7
Id: 1/1